



fill level



water level



pressure



temperature



flow



visualization



signal converter



sensoric



Catalogue 2016

Prices valid from January 01, 2016 to December 31, 2016.

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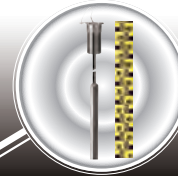
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Fill level measurement



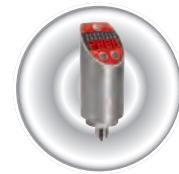
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Sensoric



Pressure measurement



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Temperature measurement



Visualization devices



Flow measurement



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ACS-Control-System is a medium-sized company with over two decades of experience in measurement techniques. This experience is the reliable basis for the development and production of filling level, pressure, temperature and flow sensors. Our products meet all kind of requirements and are suitable for use under extreme conditions.

We have quickly adapted to changing markets which allows us to offer our clients complex solutions as we develop and produce innovative measuring systems according to their individual needs and requests.

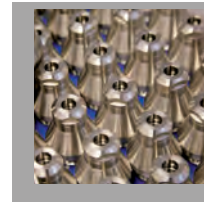
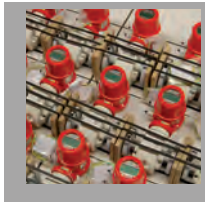
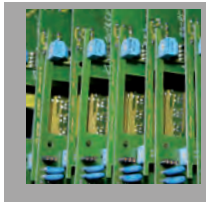
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That is of great importance for us so that we are able to guarantee our customers quick availability and highest quality.

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- Engineering
- Training
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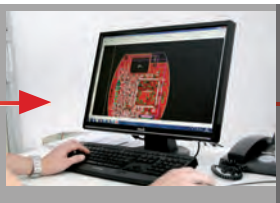


Everything from one source:

From prototyping to the final production of our products!



Prototyping



Construction



Assembly



Mechanical production



Test facility



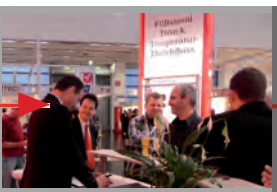
Calibration



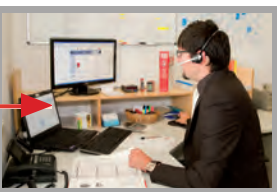
Test laboratory



Service



Sale



After-sale-management

Measuring fill level continuously
Recording limit levels in liquids
Recording limit levels in solids

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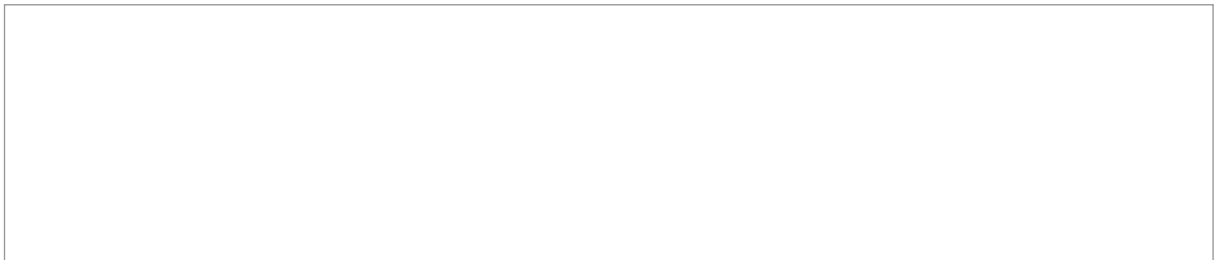
This catalog covers the offer of the ACS-CONTROL-SYSTEM GmbH.
All devices in this catalog are CE certified.

The devices listed are just a selection from the entire product range.

Other device versions such as other mechanical connections, materials, etc. are of course possible. Our Customer Service Team will be happy to help.

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Flowcont®, Precont®, Thermocont®

1a. Fill level measurement

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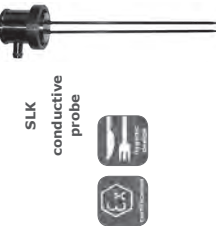

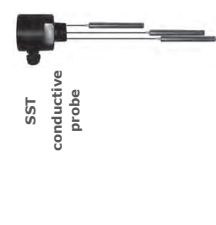

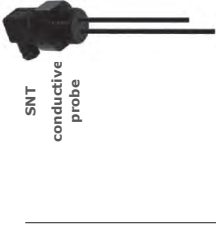
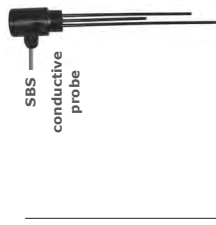
Equipment

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Type	Hydrostat® S5N0	Hydrostat® S50	Hydrostat® D50	Hydrostat® B and ExB	Hydrostat® M and ExM	Hydrostat® LK
Operating principle	Hydrostatic measurement	Hydrostatic measurement	Hydrostatic measurement	Hydrostatic measurement	Hydrostatic measurement	Hydrostatic measurement
Design	compact version, cable-, tube extension	compact version, cable-, tube extension	compact version, cable-, tube extension	slope probe	slope probe	slope probe, screw-in probe
Areas of application	liquids, standard-measurements, hygienic applications	liquids, standard-measurements, hygienic applications	liquids, climatic extreme conditions, hygienic applications	liquids	liquids	liquids
Measure ranges	-1...20 bar relative	-1...20 bar relative	0,2...10 bar relative	0,05...20 bar 1...100 mWs	0,1...20 bar 1...100 mWs	0...1 bar
Process connections	thread G 1/2", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	thread G 1/2" G1 1/2", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	thread G 1/2" G1 1/2", milk tube, Varivent; DRD, Tri-Clamp, flange, groov nut adapter	rope clamps screw plug, G1", G1 1/2", connection housing G1 1/2", screw-in thread, G 1/2", G1 1/2"	rope clamps screw plug G1", G1 1/2", connection housing G1 1/2"	rope clamps G 1/2"
Process temperature/ Operating temperature	-40...+100°C, with temperature decoupler: up to 125°C	-40...+100°C, with temperature decoupler: up to 125°C	-40...+125°C	-20...+70°C	-20...+70°C	-20...+70°C
Process pressure	-	-	-	-	-	-
Sensor voltage/ Auxiliary power	(0)4...20 mA; 9...30V DC 0...10V; 14...30V DC	10,5...45 V DC Profibus 9...32 V DC	10,5...45 V DC Profibus 9...32 V DC	11,5...45 V DC	12,5...35 V DC	12,5...35 V DC
Output	(0)4...20 mA / 0...10V, adjustable	Profibus PA, 4...20 mA 2-wire, 0...10 V 3-wire, adjustable via keypad	Profibus PA, 4...20 mA 2-wire, 0...10 V 3-wire, adjustable via keypad	PFM-signal or 4...20 mA 2-wire non-adjustable	4...20 mA 2-wire non-adjustable	4...20 mA 2-wire 0...10 V 3-wire
Switching points	0/2/4 depending on device version	0 / 2x PNP	0 / 2x PNP	-	-	-
display	color display TFT	4-digit 7-Segment- LED-display	4-digit 7-Segment- LED-display	-	-	-
Certifications	-	ATEX	ATEX	ATEX	ATEX	-
Accuracy	≤ ±0,05% / 0,1% / 0,2%	0,10% / 0,20%	0,10% / 0,20%	0,10% / 0,20%	0,10% / 0,25%	0,10% / 0,25%
Long term stability	≤ ±0,1% year	0,1% / year	0,1% / year	0,1% / year	0,15% / year	0,15% / year
Blocking distance	-	-	-	-	-	-
Medium contacting materials	1.4404 (316L), Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, FEP, gasket per choice	1.4404 (316L), marine bronze, Hastelloy, PEEK, Titan, Al2O3, PE, FEP, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice	1.4404 (316L), Al2O3, PE, PUR, gasket per choice
Measuring cell	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic	capacitive ceramic
min DK	-	-	-	-	-	-
max. viscosity	-	-	-	-	-	-
Limits of use	-	-	-	-	-	-









Type	Sonicont® USN 020 / 050 / 080 ultrasonic measurement	Sonicont® USG / USF ultrasonic measurement separated	Sonicont® USD-050 / USD-080 ultrasonic measurement	Sonicont® USD-100/USD-150 ultrasonic measurement
Operating principle				
Design	compact version	separated version	compact version	compact version
Areas of application	ultrasonic fill level sensor for solids and liquids	ultrasonic fill level sensor for solids and liquids	liquids or coarse-grained solids	liquids or coarse-grained solids
Measure ranges	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m	liquids: 2 / 5 / 8 m solids: 1 / 2 / 3,5 m	liquids: 5 m / 8 m solids: 2 m / 3,5 m	liquids: 10 m / 15 m solids: 7 m
Process connections	G1", G1½", G2"	G1", G1½", G2"	G1½" / G2", ISO 228	DN80 / DN 100 or / 4" / DN 100 flange or mounting bracket
Process temperature / Operating temperature	-40...+80°C	-40...+80°C	-40...+80°C	-40...+80°C
Process pressure	-0,3 up to +2 bar	-0,3 up to +2 bar	0,7 up to 3 bar	0,7 up to 2,5 bar
Sensor voltage / Auxiliary power	Output 0/4...20mA; 9...30 VDC Output 0...10 V; 14...30 VDC	Output 0/4...20mA; 9...30 VDC Output 0...10 V; 14...30 VDC	2-wire: optional; 14...36 V DC 4-wire: 10,5...32 V DC, 90...253 V AC	42-wire: 14...36 V DC 4-wire: 10,5...32 V DC, 90...253 V AC
Output	4...20 mA 0...10 V	4...20 mA 0...10 V	4...20 mA HART, Profibus PA Foundation Fieldbus	4...20 mA HART, Profibus PA Foundation Fieldbus
Switching points	0 / 2 / 4 depending on device version	0 / 2 / 4 depending on device version	-	-
display	color display TFT	color display TFT	LCD-display	LCD-display
Certifications	-	-	ATEX	ATEX
Accuracy	0,2%	0,2%	0,2%	0,2%
Long term stability	-	-	-	-
Blocking distance	< 0,2m / < 0,25m / < 0,35 m	< 0,2m / < 0,25m / < 0,35 m	0,25 m / 0,35 m	0,4 m / 0,6 m
Medium contacting materials	steel 1.4404 / PVDF / EPDM	steel 1.4404 / PVDF / EPDM	-	-
Measuring cell	-	-	-	-
min DK	-	-	-	-
max. viscosity	-	-	-	-
Limits of use	-	-	-	-

Type	SAT conductive probe	STK conductive probe	SLK conductive probe	SST conductive probe	SHT conductive probe	SNT conductive probe	SBS conductive probe
Operating principle			 				
Design	rod probe with plastic screw-in thread, up to 7 rods	rod probe with metal screw-in thread, up to 5 rods	rod probe with hygienic connection, up to 5 rods	rod probe with plastic screw-in nut, up to 7 probes	cable probe to slope, up to 2 probes	rod probe with plug connection, up to 4 rods	rod probe with sealed cable, up to 5 rods
Areas of application	conductive liquids standard measurements	conductive liquids standard measurements, aggressive liquids	conductive liquids hygienic applications in breweries and dairies	conductive liquids standard measurements in wells and pools	conductive liquids submersible sensor	conductive liquids standard measurements	conductive liquids standard measurements
Measure ranges	-	-	-	-	-	-	-
Process connections	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " , G2" DIN-flange DN 50	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " , with front-flush gasket, milk tube connection DIN 11851	thread G $\frac{1}{2}$ " , G1" , thread G1 $\frac{1}{2}$ " , with front-flush gasket, milk tube connection DIN 11851	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ " , G $\frac{3}{4}$ "	to slope on cable	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ "	thread G $\frac{1}{2}$ " , G1" thread G1 $\frac{1}{2}$ "
Process temperature/ Operating temperature	-15...+150°C	-15...+150°C	-40...+130°C	-10...+120°C	-20...+100°C	-20...+100°C	-20...+100°C
Process pressure	-1...10 bar	-1...20 bar	-1...20 bar	pressureless	pressureless	0...10 bar	0...10 bar
Sensor voltage/ Auxiliary power	-	-	-	-	-	-	-
Output	-	-	-	-	-	-	-
Switching points	max. 7	max. 5	max. 4	max. 7	max. 1	max. 4	max. 5
display	-	-	-	-	-	-	-
Certifications	ATEX	ATEX	ATEX	-	-	-	-
Accuracy	-	-	-	-	-	-	-
Long term stability	-	-	-	-	-	-	-
Blocking distance	-	-	-	-	-	-	-
Medium contacting materials	I.4404 (316L), I.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PP, POM, PTFE, NBR, FPM	I.4404 (316L), I.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PTFE, NBR, FPM	I.4404 (316L), I.4571 (316), Hastelloy, Titan, PA, E-CTFE (Halar), PTFE, NBR, FPM	I.4404 (316L), PTFE, POM, polypropylene, NBR	I.4404 (316L), PE, E-CTFE (Halar), polypropylene	I.4404 (316L), I.4571 (316), PA, E-CTFE (Halar), PP, POM, PTFE, Hastelloy, Titan	I.4404 (316L), I.4571 (316), PA, E-CTFE (Halar), PP, POM, PTFE, Hastelloy, Titan
Measuring cell	-	-	-	-	-	-	-
min DK	-	-	-	-	-	-	-
max. viscosity	-	-	-	-	-	-	-
Limits of use	-	-	-	-	-	-	-



Type	Operating principle	PUK | PUKK electrode probe	KAK/CLK conductive compact probe	SRA/EXRA-100-U0 electrode relay conductive	SRA-102 electrode relay conductive	SRK-600 conductive limit switch	Mycrocont MCN capacitive level controller
Design		electrode probe for floor mounting; separated or compact electronics	rod probe with compact electronics, up to 3 rods universal voltage	B/H/T 22,5x114x99 mm	B/H/T 22,5x75x99 mm	compact tube extension	compact
Areas of application	leakage detection	conductive liquids limit switch two-point controller	conductive liquids	for conductive liquids	for conductive liquids	conductive liquids standard measurement coat forming media, hygienic applications	conductive liquids standard measurement, coat forming media, hygienic applications
Measure ranges	-	0...200 kOhm	0...10 kOhm 0...1 kOhm, 0...200 kOhm	0...10 kOhm 0...1 MOhm, 0...8 MOhm	0...100 kOhm 0...1 MOhm, 0...8 MOhm	-	-
Process connections	-	thread G1/2", G1" thread G1 1/2" milk tube connection DIN 11851	thread G1/2", G1" thread G1 1/2"	-	-	thread G1/2", G1", G3/4", Hygieneadapter Varivent	standard thread G1/2" elastomerfrei PEEK Splitze
Process temperature/ Operating temperature	-20...+60°C	-40...+100°C	-40...+85°C	-	0...+60°C	-40...+100°C with temperature decoupler up to 150°C	0... +100°C
Process pressure	-	0...20 bar	-	-	-	0...25 bar	max. 10 bar
Sensor voltage/ Auxiliary power	AC voltage 24 V DC +/- 10% universal voltage 20...30 V AC, DC	AC voltage 24 V DC +/- 10% universal voltage 20...253 V AC, DC	universal voltage 20...253 V AC/DC	230 V AC, 115 V AC 24 V DC	230 V AC, 115 V AC 24 V DC	16...45V DC PNP 3-wire 20...253V AC/DC relay output	Ub = 24V +/-20% (18...32VDC)
Output	1 PNP 1 relay	1 PNP 1 relay	1 / 2 relay	1 relay	1 relay	NO or NC	aktiv; max.50mA
Switching points	1 switching point	max. 2	max. 2	1	1	1	-
display	-	-	-	-	-	LED	-
Certifications	-	-	ohne / ATEX	-	-	-	EHDEG
Accuracy	-	-	-	-	-	-	-
Long term stability	-	-	-	-	-	-	-
Blocking distance	-	-	-	-	-	-	-
Medium contacting materials	1.4404 (316L), POM, FPM, PA, NBR	1.4404 (316L), 1.4571 (316), Hastelloy, Titan, PA, E-CrTE (Halar), FPM, EPDM	-	-	-	1.4404 (316L), 1.4571 (316Ti), SRK-601, gasket FPM	-
Measuring cell	-	-	-	-	-	-	-
min DK	-	-	-	-	-	-	-
max. viscosity	-	-	-	-	-	-	-
Limits of use	-	-	isolating liquids	isolating liquids	isolating liquids	not conductive media	-

Type	Operating principle	Vibrocont SCM-300 vibration limit switch	Vibrocont SHM-300 vibration limit switch	Vibrocont VCL vibration limit switch	Silocont SIC-350 rotary paddle switch	Capcont M capacitive limit switch	Capcont L capacitive limit switch
							
Design		compact smallest dimensions	compact hygienic connections	compact	Selverlängerung compact	compact	compact tube extension
Areas of application		liquids of all sorts standard measurements	liquids of all sorts hygienic applications	liquids standard measurements	solids of all sorts	liquids and solids of all sorts	liquids and solids of all sorts
Measure ranges		-	-	-	-	-	-
Process connections		thread G½", G¾", G1"	thread G¾", G1" front-flush DIN 11851, DN25/32, Tri-Clamp	thread G¾", G1" front-flush DIN 11851, DN25/32, Tri-Clamp	thread PB7/303 NPT 1-½"; NPT 1-¼"; G 1-½"	thread M18, G½"	sliding sleeve G½" or thread G½"
Process temperature/ Operating temperature		-40...+100°C or -40...+150°C	-40...+150°C	-40...+150°C	-20...+80°C	-30...+125°C	LS -40...+100°C LL -40...+140°C
Process pressure		-1...40 bar	-1...40 bar	-1...40 bar	0,5...2,5 bar abs. / ≤ 1,5 bar Überdruck	-1...10 bar	LS -1...+1 bar LL -1...+10 bar
Sensor voltage/ Auxiliary power		20...253 V AC 2-wire; 10...30 V DC PNP 3-wire	19...253 V AC 2-wire; 10...55 V DC PNP 3-wire	20...253 V AC 2-wire; 10...30 V DC PNP 3-wire	20-28VDC; 24VAC; 115VAC; 230VAC	10...35 V DC	10...35 V DC
Output		NO or NC	NO or NC	NO or NC	micro switch with switch contact max. 6 A/250 VAC 100 mA	PNP (NO/NC)	PNP (NO/NC)
Switching points		1	1	1	1	1	1
display		LED	LED	LED	-	LED	LED
Certifications		WHG	EHDG-certificate, 3-A, WHG	WHG	ATEX II 1/3 D; CSA DIP/ II, III/1/E-G (applied tor); FM DIP/ II, III/1/E-G	-	-
Accuracy		-	-	-	-	-	-
Long term stability		-	-	-	-	-	-
Blocking distance		-	-	-	-	-	-
Medium contacting materials		1.4404 (316L)	1.4404 (316L)	1.4404 (316L)	1.4305	1.4404 (316L), 1.4571 (316TI), PTFE, gasket per choice	1.4404 (316L), 1.4571 (316TI), PTFE-TFM / PEEK LS -> gasket EPDM, FPM
Measuring cell		-	-	-	-	-	-
min DK		-	-	-	-	> 1,8	> 1,8
max. viscosity		-	-	-	-	-	-
Limits of use		very viscous media (viscosity max. 10.000 cSt)	very viscous media (viscosity max. 10.000 cSt)	very viscous media (viscosity max. 10.000 cSt)	-	-	-



Hydrocont® SN50

Hydrostatic fill level sensor, suitable for liquids in hygienic applications, with dry capacitive measurement system, with TFT-display, 4-20mA or 0-10V output and up to 4 pnp switching outputs

1a / 01.16

Technical data

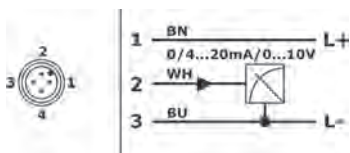


Supply voltage:	9...30V DC at output signal 0(4)...20mA 14...30V DC at output signal 0...10V	
Supply current:	≤ 130 mA; at Vs 9V Bluetooth ON; PNP-switching outputs in idle mode ≤ 50 mA; at Vs 30V Bluetooth OFF; PNP-switching outputs in idle mode	
Analog output		
Work area:	(0)4...20mA / 0...10V, adjustable	
Resolution:	≤ 1 µA	
Response time:	≤ 15 ms	
PNP-switch output number:	0/2/4 depending on device version	
function:	PNP-switching auf +Vs	
output current:	≤ 250 mA current limited, short circuit protected	
Response time:	≤ 25 ms	
Bluetooth Interface		
Version:	Bluetooth 2.1 +EDR	
Class:	2	
Range:	≤ 10m	
electrical connection model:	Plug connector M12 4/5/8polig, depending on device version	
Measuring accuracy		
Deviation in characteristics:	≤ ±0,05% / 0,1% / 0,2%	
Long term drift:	≤ ±0,1% year	not cumulative
Temperature deviation:	≤ ±0,15% FS / 10 K (Zero / Span)	
material		
Membrane (medium contact):	Ceramic Al ₂ O ₃ 96% resp. 99,9%	
process connection (medium contact):	steel 1.4404 (AISI 316L)	
connection housing (medium contact):	CrNi-Steel	
User interface:	PC/PES	
gaskets (medium contact):	FPM – Fluoroelastomer (Viton®) EPDM – Ethylene-propylene-diene monomer CR – Chloroprene rubber (Neoprene®) FFKM – Perfluoroelastomer (Kalrez®) NBR – Nitrile Butadiene Rubber	
Environmental conditions		
ambient temperature:	-20°C...+50°C Expansion Backlight LCD ≤ 80% >> -20°C...+60°C Backlight LCD ≤ 60% >> -20°C...+70°C - 40°C...+100°C resp. 125°C	
process temperature:		
process pressure ranges:	- 1 bar ...20 bar	
Turn-Down:	30:1	
protection:	IP68	EN/IEC 60529



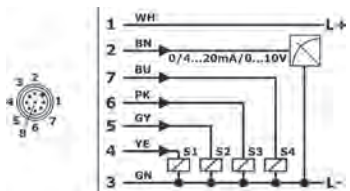
connection

signal 0/4...20 mA / 0...10 V
Conductor color standard connection cable M12:
BN = brown, WH = white, BU = blue

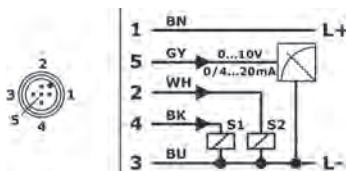


connection type A; terminal box

signal 0/4...20 mA / 0...10 V
4x PNP switch output
Conductor color standard connection cable M12:
WH = white, BN = brown, GN = green, YE = yellow,
GY = grey, PK = pink, BU = blue, RD = red



signal 0/4...20 mA / 0...10 V
2x PNP switch output
Conductor color standard connection cable M12:
BN = brown, WH = white, BU = blue,
BK = black, GY = grey



Application

The devices of the series Hydrocont® SN50 with integrated digital evaluation electronic are compact sensors for measuring and monitoring of fill levels. The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. The level measurement system Hydrocont® SN50 is built in the wall of the medium container. The medium contacts directly the ceramic membrane of the sensor without using a pressure mediator liquid and causes there a deflection of the membrane because of the hydrostatic pressure of the medium. At the maximum deflection the membrane contacts a robust ceramic carrier and because of this, the membrane come through over pressure of e.g. 80-times of nominal load at a sensor with a pressure range of 0...50 mbar without damage. The fill level proportional pressure signal of the ceramic membrane is recorded from a processor with high resolution, adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V.

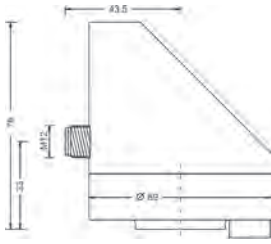
By using optical keys and an TFT-display the sensor measurement range, the display, the PNP-switching outputs and the damping can be adjusted or the behaviour in the case of failure and the release of the fast adjustment can be set. The switching state of the up to 4 PNP-switching output is signalled by the TFT-display.

Hydrocont® SN50

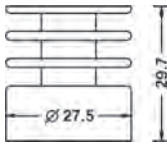
Hydrostatic fill level sensor, suitable for liquids in hygienic applications, with dry capacitive measurement system, with TFT-display, 4-20mA or 0-10V output and up to 4 pnp switching outputs

1a / 01.16

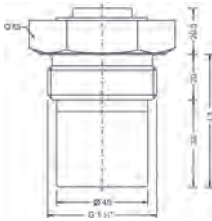
connection housing



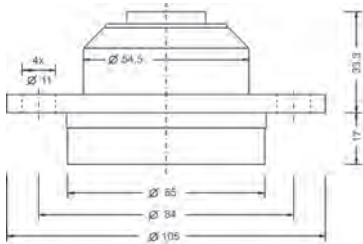
Temperature decoupler



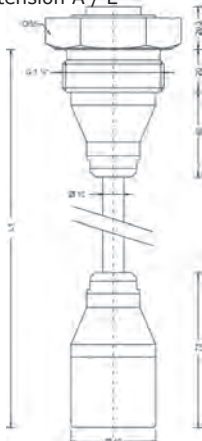
construction form S - standard / type A G 1 1/2" ISO 228-1



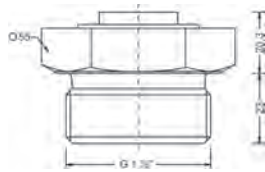
type L DRD DN50, Ø65 mm



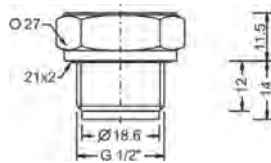
construction form T - Extension cable / type A G 1 1/2" ISO 228-1 Probe extension A / E



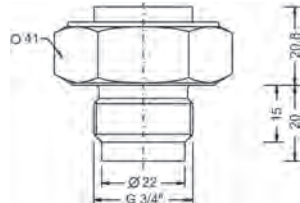
type A G 1 1/2" ISO 228-1, flush mounted



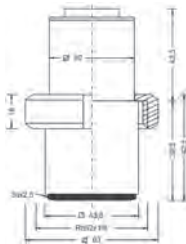
type 9 G 1/2" ISO 228-1, flush mounted



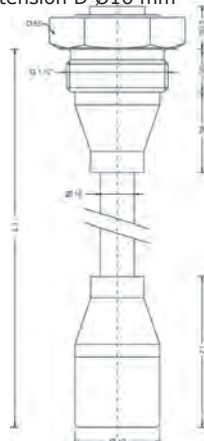
construction form K - short design / type 8 G 3/4" ISO 228-1, flush mounted



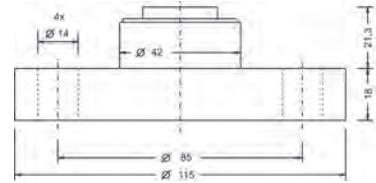
type B Coupling nut adapter Ø44 mm



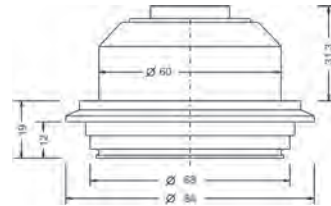
construction form R - tube extension / type A G 1 1/2" ISO 228-1 Probe extension D Ø16 mm



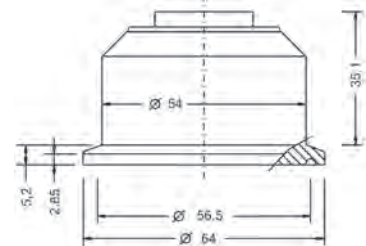
type R Flange DIN EN 1092-1, A (B - DIN 2527), DN25



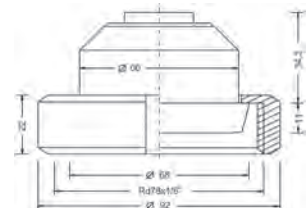
type O Varivent® N, Ø68 mm



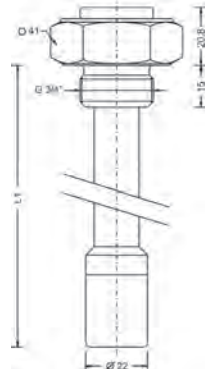
type T Clamp ISO 2852 DN51 (2") / DIN 32676 DN50



type M DN50 DIN 11851, flush mounted



type 8 G 3/4" ISO 228-1 Probe extension F Ø22 mm



Hydrocont® SN50

Hydrostatic fill level sensor, suitable for liquids in hygienic applications, with dry capacitive measurement system, with TFT-display, 4-20mA or 0-10V output and up to 4 pnp switching outputs

1a / 01.16

basic price

Equipment

Equipment like Hydrocont® D50
Catalogue page 17

Welded flanges
Catalogue page 76

type
SN50 standard

construction form

- S standard - process connection A
- K Short construction form, flush-mounted - process connection 8 / 9 / A
- T Extension cable - probe extension A / E
- R tube extension - probe extension D / F
- F Flush-mounted - process connection N / M / O / L / R / F / G / H / J / T / B
- H process diaphragm seal metallic membrane, vegetable oil FN1, steel 1.4404/316L, process temperature -10°C..+200°C
- Y Special construction form

Measuring system - accuracy

- H Ceramic 99,9%, capacitive / 0,2%
at tube extension F >> membrane ceramic 96%, at process connection 8 / 9 >> membrane ceramic 96%
- L Ceramic 99,9%, capacitive / 0,1%, linearization protocol, measuring span ≥ 0,1 bar
at tube extension F >> membrane ceramic 96%, at process connection 8 / 9 >> membrane ceramic 96%
- M Xcellence - ceramic 99,9%, capacitive / 0,05%, linearization protocol, measuring span ≥ 0,2 bar
at tube extension F >> membrane ceramic 96%, at process connection 8 >> membrane ceramic 96%, not for process connection 9

process connection

- 8 G¾" A, ISO 228-1, flush-mounted
- A G1½" B, ISO 228-1, flush-mounted
- N Milk tube DIN 11851, DN40, PN40
- M Milk tube DIN 11851, DN50, PN40
- O Varivent® N, Ø68 mm, DN40-125 (1½"-6"), PN 40
- L DRD DN50, Ø65 mm, PN25
- R Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40
- F Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
- G Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
- H Flange DIN EN 1092-1, A (B - DIN 2527), DN80, PN10-40
- T Tri-Clamp 2" (ISO 2852 DN51 / DIN32767 DN50), PN16/40
- B Coupling nut adapter Ø44mm
- Y others

Electronic - output

- M 3-wire, signal 0/4...20mA - 0...10V
- K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP
- R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP

Electronic - function

- 0 without
- 1 Bluetooth-Interface
- Y others

Measuring range

- 8 0..0,05 bar
- 9 0..0,1 bar
- 0 0..0,2 bar
- 1 0..0,4 bar
- 2 0..1 bar
- 3 0..2 bar
- 4 0..4 bar
- 5 0..10 bar
- 6 0..20 bar
- 7 -1..+1 bar
- Y Special measuring range (poss. higher deviation accuracy)

Price group A

34,00 €

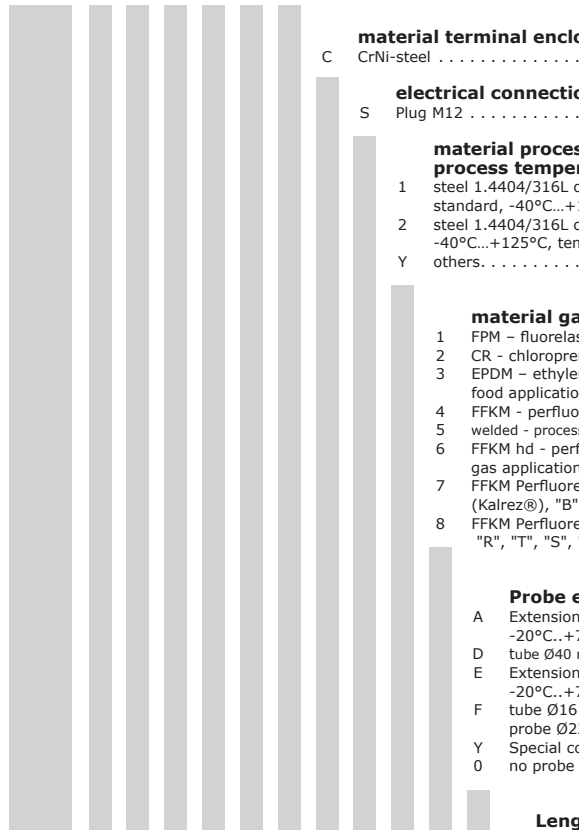
Order code

Hydrocont® SN50

Hydrocont® SN50

Hydrostatic fill level sensor, suitable for liquids in hygienic applications, with dry capacitive measurement system, with TFT-display, 4-20mA or 0-10V output and up to 4 pnp switching outputs

1a / 01.16



material terminal enclosure

C CrNi-steel

electrical connection

S Plug M12

material process connection (process wetted) / process temperature

1 steel 1.4404/316L or 1.4571/316Ti / standard, -40°C...+100°C

2 steel 1.4404/316L or 1.4571/316Ti / Extended, -40°C...+125°C, temperature decoupler

Y others

material gaskets (process wetted)

1 FPM - fluorelastomere (Viton®)

2 CR - chloroprene-rubber (Neopren®)

3 EPDM - ethylene-propylene-dienmonomere - food applications

4 FFKM - perfluorelastomere (Kalrez®)

5 welded - process diaphragm seal construction form H

6 FFKM hd - perfluorelastomere high density - gas applications

7 FFKM Perfluorelastomer type "R", "T", "S" (Kalrez®), "B"

8 FFKM Perfluorelastomer high-dense type "R", "T", "S", "B"

Probe extension

A Extension cable PE / process temperature -20°C...+70°C

D tube Ø40 mm (tube Ø16 mm / probe Ø40 mm)

E Extension cable FEP / process temperature -20°C...+70°C

F tube Ø16 mm (tube Ø16 mm / probe Ø22 mm)

Y Special construction form

0 no probe extension

Length L1 / mm (probe)

Price group A

Order code / Continuation



Equipment

Order information

LKZ0405PUR-AS

LKZ0410PUR-AS

LKZ0505PUR-AS

LKZ0510PUR-AS

LKZ0805PUR-AS

model

connection cable 5 m, 4-pole, shielded.

connection cable 10 m, 4-pole, shielded.

connection cable 5 m, 5-pole, shielded.

connection cable 10 m, 5-pole, shielded.

connection cable 5 m, 8-pole, shielded.

PG E

Hydrocont® S50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

1a / 01.16

Technical data



output variations A/B/C/D:
output variations E/F/G/H:
permitted supply voltage:

residual ripple:
Temperature deviation:
Deviation in characteristics:

Calibration deviation:
Long term drift:
Influence of supply voltage:
Resolution:

step response time output:
Setting range damping:
Switching outputs (S1 / S2):
output current:
protection
material Membrane:

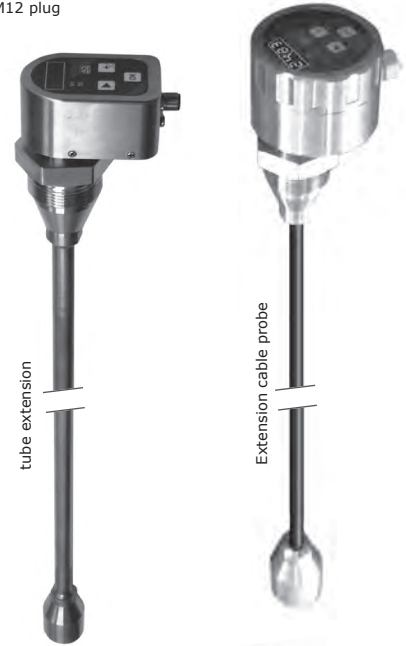
material process connection:
material Temperature separator:
material gaskets:
material connection housing:
material Extension cable:
medium temperature:

ambient / storage temperature:

4...20 mA, 2-wire
0...10 V, 3-wire
variation C/D: 10,5 V up to 45 V DC
variation A/B/E/F/G/H: 14,5 V up to 45 V DC
≤ 2 Vss
≤ 0,1% / 10 K of the nominal range
≤ 0,05% / 0,1% / 0,2% of the nominal range
(depending on the order code)
≤ 0,05% of the nominal range
≤ 0,1% / year of the nominal range
≤ 0,02% / 10 V of the nominal range
better 1 µA resp. 0,5 mV
(16 Bit = 65536 steps)
at damping 1 T90 typ. 260 ms, max. 310 ms
0,3...30 seconds / 100 steps
2x PNP switching on +VS
> 250 mA, current limited, short circuit protected
IP65 / IP67 EN/IEC 60529
standard AL₂O₃ 96%
High purity AL₂O₃ 99,9%
steel 1.4404 / others on request
steel 1.4404 / others on request
Viton® / EPDM / Neoprene® / Perfluoroelastomer
steel 1.4301 / PBT / POM
PE/FEP
-40°C...+125°C (for 1h 140°C);
with extension cable -20°C...+70°C
-40°C...+85°C; with extension cable -20°C...+70°C



M12 plug

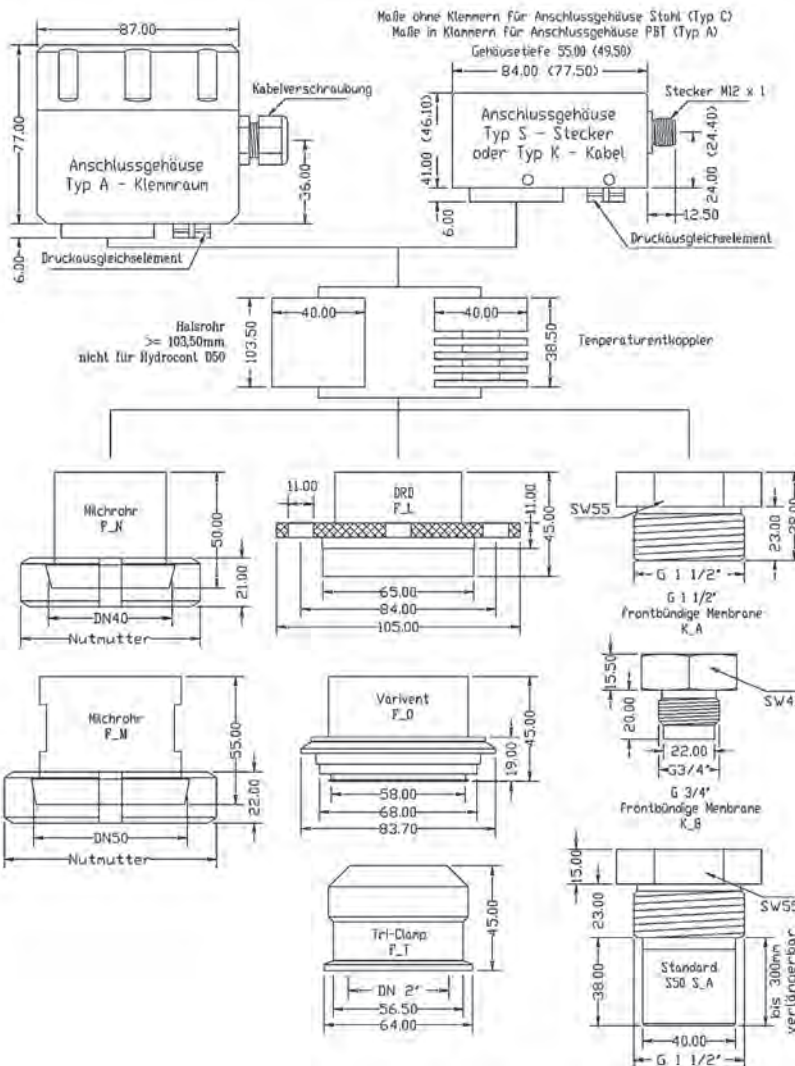


tube extension

Extension cable probe



Terminal box



Application

The devices of the series Hydrocont® S50 with integrated digital evaluation electronic are compact sensors for measuring and monitoring of fill levels. The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. The level measurement system Hydrocont® S50 is built in the wall of the medium container. The medium contacts directly the ceramic membrane of the sensor without using a pressure mediator liquid and causes there a deflection of the membrane because of the hydrostatic pressure of the medium. At the maximum deflection the membrane contacts a robust ceramic carrier and because of this, the membrane come through over pressure of e.g. 80-times of nominal load at a sensor with a pressure range of 0...50 mbar without damage. The fill level proportional pressure signal of the ceramic membrane is recorded from a processor with high resolution, adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V. By using 3 keys and an LED display the sensor measurement range, the display, the PNP-switching outputs and the damping can be adjusted or the behaviour in the case of failure and the release of the fast adjustment can be set.

Hydrocont® S50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

1a / 01.16

Equipment

Equipment like Hydrocont® D50 page 17

Welded flanges page 76

basic price

type

S50 standard

ExS50 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb (not for construction form type W – extension cable probe)

XDS50 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb

construction form

S standard – process connection type A / 6 – Probe extension type C

K Short form flush-mounted – process connection type 8 / 9 / A / 6

T Extension cable – Probe extension type A / E

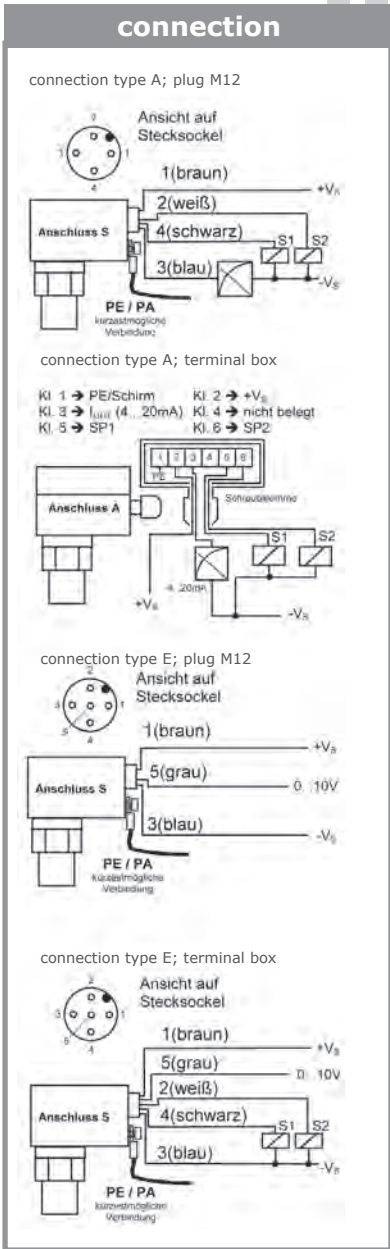
R tube extension – Probe extension type D / F

F Flush-mounted – process connection type N / M / O / L / R / F / G / H / J / T / B

H High-Temperature –10..+200°C process diaphragm seal metallic membrane

W Extension cable probe / Field enclosure

Y Special construction



Measuring membrane – material / accuracy (medium contact)

H Ceramic 99,9%, capacitive / 0,2%
(Probe extension type F >> membrane ceramic 96%)

L Ceramic 99,9%, capacitive / 0,1%, linearization protocol; Measuring span ≥ 0,1 bar
(Probe extension type F >> membrane ceramic 96%)

M Xcellence - ceramic 99,9%, capacitive / 0,05%, linearization protocol; Measuring span ≥ 0,2 bar; not for process connection type 9;
(process connection type 8 >> membrane ceramic 96%; Probe extension type F >> membrane ceramic 96%)

process connection

8 G $\frac{3}{4}$ " A, ISO228-1

9 G $\frac{1}{2}$ " A, ISO 228-1

A G $\frac{1}{2}$ " A, ISO 228-1

6 G $\frac{1}{2}$ " A, ISO 228-1, PEEK

M Milk tube DN 50, PN40 DIN 11851

N Milk tube DN 40, PN40 DIN 11851

O Varivent® N, Ø68 mm, DN40-125 (1½"-6"), PN 40

L DRD 65 mm DN 50, PN 40

T Tri-Clamp 2" (ISO 2852 DN51 / DIN32767 DN50), PN16/40

R Flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40

F Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40

G Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40

H Flange DIN EN 1092-1, A (B - DIN 2527), DN80, PN10-40

B Nut groove adapter Ø44mm

W Extension cable probe Ø40mm

Electronic - output

A 2-wire, signal 4...20mA, 2x PNP, LED display, keypad

B 2-wire, signal 4...20mA, LED display, keypad

C 2-wire, signal 4...20mA, keypad

D 2-wire, signal 4...20mA

E 3-wire, signal 0...10V, 2x PNP, LED display, keypad

F 3-wire, signal 0...10V, LED display, keypad

G 3-wire, signal 0...10V, keypad

H 3-wire, signal 0...10V

Measuring range

0	0...200 mbar	5	0...10 bar
1	0...400 mbar	6	0...20 bar
2	0...1 bar	7	-1...+1 bar
3	0...2 bar	8	0...50 mbar
4	0...4 bar	9	0...100 mbar
		Y	Special measuring range

material terminal enclosure

A PBT – polybutyleneterephthalat, not for electrical connection type A

C CrNi-steel

D POM – polyoxymethylene (Delrin®), only for electrical connection type A

W PC – polycarbonate or PS – polystyrene, only for construction form type W

electrical connection

S Plug M12

K cable, L = 2m

A Terminal box

material process connection / process temperature

1 steel 1.4404/316L / -40°C...+100°C

2 steel 1.4404/316L / -40°C...+125°C, temperature decoupler

6 PEEK / standard, -40°C...+100°C

Y others

material gaskets (process wetted)

1 FPM – fluorelastomere (Viton®)

2 CR – chloroprene-rubber (Neopren®)

3 EPDM – ethylene-propylene-dienomere – food applications

4 FFKM – perfluorelastomere (Kalrez®)

5 welded – construction form type H

6 FFKM hd – perfluorelastomere high density – gas applications

7 FFKM – perfluorelastomere (Kalrez®) – type R / T / S / B

8 FFKM hd – perfluorelastomere high density – type R / T / S / B

Probe extension

A Extension cable PE / -20°C...+70°C (not for XDS50)

C tube Ø40 mm / probe Ø40 mm

D tube Ø16 mm / probe Ø40 mm

E Extension cable FEP / -20°C...+70°C

F tube Ø16 mm / probe Ø22 mm

Y Special construction

0 no probe extension

Price group A

Order code

Hydrocont® mm

Length L1 / mm (probe)



Hydrocont® D50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

1a / 01.16

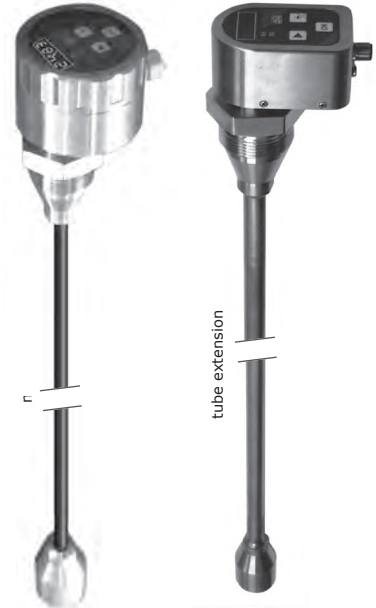
Technical data



auxiliary power output variations A/B/C/D:	4...20 mA; 2-wire	
output variations E/F/G/H:	0...10 V; 3-wire	12,5 V up to 45 V DC
permitted supply voltage:	variation C/D:	16,5 V up to 45 V DC
residual ripple:	variation A/B/E/F/G/H:	≤ 2 V _{ss}
Temperature deviation:		of the nominal range
Deviation in characteristics:		of the nominal range
Calibration deviation:		of the nominal range
Long term drift:	≤ 0,2% / 10 K	
Influence of supply voltage:	≤ 0,1% / 0,2%	
Resolution:	≤ 0,05%	
step response time output:	better 1 µA resp. 0,5 mV (16 Bit = 65536 steps)	
Setting range damping:	at damping 1 T90 typ. 260 ms, max. 310 ms	
Switching outputs (S1 / S2):	0,3...30 seconds / 100 steps	
output current:	2x PNP switching on +VS	
protection material Membrane:	> 250 mA, current limited, short circuit protected	
material process connection:	IP65 / IP67 EN/IEC 60529	
material Temperature separator:	standard AL ₂ O ₃ 96%	
material gaskets:	High purity AL ₂ O ₃ 99,9%	
material connection housing:	steel 1.4404 / others on request	
material Extension cable:	steel 1.4404 / others on request	
medium temperature:	Viton® / EPDM / Neoprene® / Perfluoroelastomer	
ambient / storage temperature:	steel 1.4301	
	PE/FEP	
	-40°C...+125°C (for 1h 140°C);	
	with extension cable -20°C...+70°C	
	-40°C...+85°C; with extension cable -20°C...+70°C	



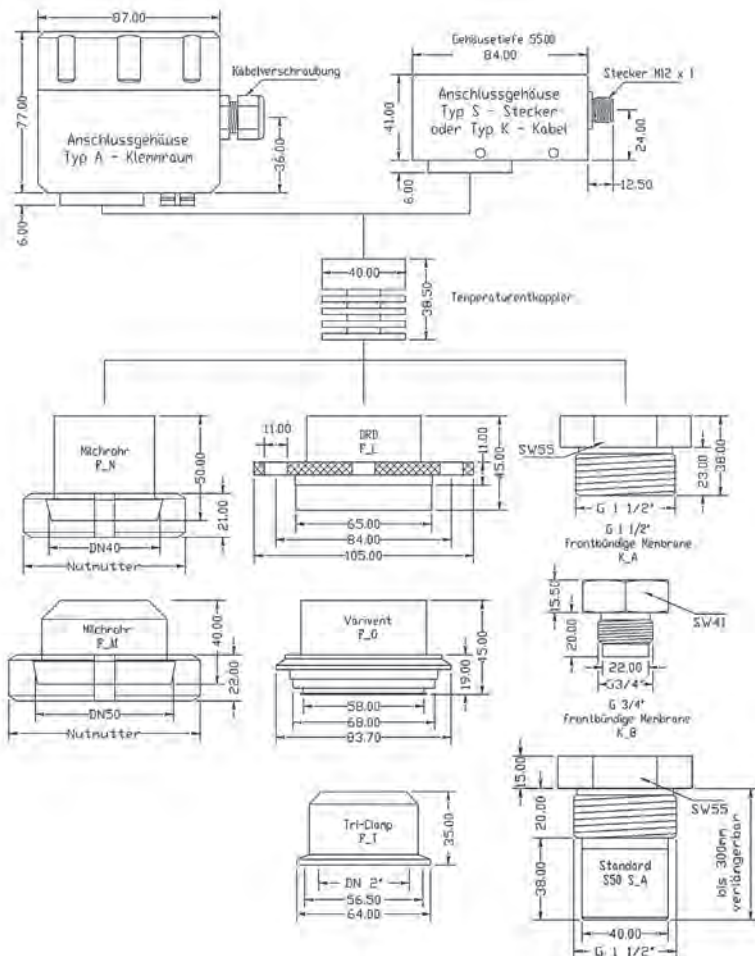
M12 plug



tube extension



Terminal box



Application

The devices of the series Hydrocont® D50 with integrated digital evaluation electronic are compact sensors for measuring and monitoring of fill levels.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. Because of the special construction of the device Hydrocont® D50, this sensor is especially suitable for the use in areas with high air humidity and condensed water formation, where conventional devices can not be used or can only be used by applying an expensive leaded pressure compensation capillary.

The level measurement system Hydrocont® D50 is built in the wall of the medium container. The medium contacts directly the ceramic membrane of the sensor without using a pressure mediator liquid and causes there a deflection of the membrane because of the hydrostatic pressure of the medium. At the maximum deflection the membrane contacts a robust ceramic carrier and because of this, the membrane come through over pressure of up to 80-times of nominal load without damage. The fill level proportional pressure signal of the ceramic membrane is recorded from a processor with high resolution, adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V.

Hydrocont® D50

Hydrostatic filling level measurement, suitable also for Ex areas, with dry capacitive measurement system, with display, 4-20mA or 0-10V output and 2 pnp switching outputs

1a / 01.16

Equipment

Welded flanges
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basic price

type	standard
ExD50	ATEX II 1/2 G Ex ia IIC T4
XDD50	ATEX II 1/2 D Ex iaD 20/21 T60°C/T102°C
Version	
S	standard for process connection A – G 1½" A
K	Short form front flush for process connection 8 – G ¾" A resp. A – G 1½" A
T	Carrying cable for version prolongation A – carrying cable PE resp. E – carrying cable FEP
R	tube prolongation for version prolongation C – tube Ø40mm resp. D – tube Ø16mm
F	Front flush membrane for process connection N, M, O, L, R, F, G, H, T
H	High temperature –10...+200°C diaphragm seal with metallic membrane, welded
Y	others on request

Accuracy measuring system * – material measuring membrane (medium contact)

H	0,2% ceramic AL ₂ O ₃ 99,9% (highly clean)
L	0,1% Linearization protocol ceramic AL ₂ O ₃ 99,9% (highly clean)

process connection

8	G ¾" A ISO228-1 front flush membrane not for variant membrane H / K 99,9%
A	G 1½" A ISO228-1
M	Milk tube DN 50, PN 40 DIN 11851
N	Milk tube DN 40, PN 40 DIN 11851
O	Varivent 68 mm DN40-80/DN1½".6", PN25 DN100/DN4", PN20 DN125/DN6", PN10
L	DRD 65 mm DN 50, PN 40
R	Flange DN 25, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
F	Flange DN 40, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
G	Flange DN 50, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
H	Flange DN 80, PN 10-40 DIN EN 1092-1 sealing surface DIN 2527-D
T	Tri-clamp® DN 2", PN 16 ISO 2852
B	Nut groove adapter

Electronic - output

A	2-wire-technology signal 4...20 mA 2x PNP switching output LED display, 3 key's
B	2-wire-technology signal 4...20 mA LED display, 3 key's
C	2-wire-technology signal 4...20 mA 3 key's
D	2-wire-technology signal 4...20 mA fix adjusted
E	3-wire-technology signal 0...10 V 2x PNP switching output LED display, 3 key's
F	3-wire-technology signal 0...10 V LED display, 3 key's
G	3-wire-technology signal 0...10 V 3 key's
H	3-wire-technology signal 0...10 V fix adjusted

Measuring range

0	0...200 mbar	3	0...2 bar
1	0...400 mbar	4	0...4 bar
2	0...1 bar	5	0...10 bar
		Y	special measuring range

material connection housing

C	CrNi-steel
---	------------

electrical connection

S	Plug M12x1
K	cable 2m (not for Profibus PA)
A	Terminal box

process temperature /material process connection

2	steel 1.4404/ -40°C...+125°C temperature decoupler
Y	others on request

gaskets (medium contact)

1	FPM fluorelastomere (Viton®)
2	CR chloroprene-rubber (Neopren®)
3	EPDM ethylene-propylene-dienmonomere for food applications
4	FFKM perfluorelastomere (Kalrez®)
	* for type "R", "T" and "S"
5	welded at high temperature version type H
6	FFKM perfluorelastomere high density for gas applications
	* for type "R", "T" and "S"
7	FFKM – perfluorelastomere (Kalrez®)
	– construction form type R / T / S / B
8	FFKM hd – perfluorelastomere high density
	– construction form type R / T / S / B

Probe prolongation (price per 100mm)

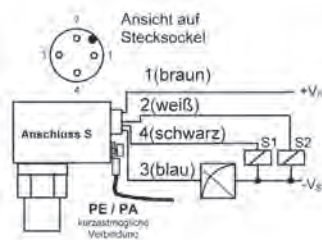
A	Carrying cable PE -20...+70°C not for type XDD50
C	tube Ø 40mm / steel 1.4404
D	tube Ø 16mm / steel 1.4404
E	Carrying cable FEP -20...+70°C not for type XDD50
Y	others on request
0	No prolongation

Probe length

incl. process connection: measure in mm

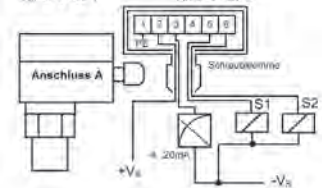
connection

connection type A; plug M12

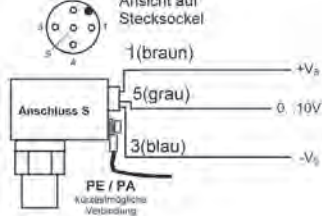


connection type A; terminal box

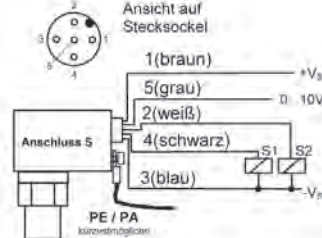
Kl. 1 → PE/Schirm Kl. 2 → +Vs
Kl. 3 → I_{OUT} (4...20mA) Kl. 4 → nicht belegt
Kl. 5 → SP1 Kl. 6 → SP2



connection type E; plug M12



connection type E; terminal box



Order code

Hydrocont® C mm

Equipment

Order information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

model

	Matching cable socket, VA-nut
	Matching cable socket, VA-nut (at 0...10 V)
	connection cable 5 m, 4-pole, shielded
	connection cable 10 m, 4-pole, shielded
	connection cable 5 m, 5-pole, shielded
	connection cable 10 m, 5-pole, shielded

Price group A

PG E

Fill level measurement



Hydrocont® B and Hydrocont® ExB

Hydrostatic filling level sensor – Ø 40mm
for continuous measurement of filling levels and temperatures in liquids, level probe

1a / 01.16

Technical data



output:
permitted supply voltage: signal 4-20 mA 2-wire
11.5 V to 45 V DC for Ex version 11.5 V to 30 V DC
Ripple: ≤ 2 Vpp (condition: within the permitted supply voltage range)
Temperature deviation: $\leq 0.1\%$ / 10 K of the nominal measurement range
Accuracy: $\leq 0.1\%$ / 0.2% of nominal measurement range (see order code)
Calibration deviation: $\leq 0.05\%$ of the nominal measurement range
Long term drift: $\leq 0.1\%$ / year of nominal measurement range
Supply voltage influence: $\leq 0.02\%$ / 10V of nominal measurement range
Resolution: infinite, because analog measurement electronics
Delay time output: T90 < 100us
Surge protection: Max signal voltage: 30V (peak value; to ground)
Nominal discharge current: 2 500A (wave 8/20µS)
Temperature-measuring resistance: Pt100 class B 3-wire connection
0 °C - Deviation + / - 0.30 K
End point error + / - (0.30 K + 0.005 K per K DT0 ° C)
(Optional built-in wall mounting case Pt100 - Transmitter type
e.g. KTM, which is adjusted according to customer specification)
Suspension sensor IP68
End Cap / Connector Housing IP67
Wall-mounted housing IP65

protection:
Membrane material: AL2O3 96%, High Purity 99.9%
material slopes sensor: steel 1.4404
Cap material: steel 1.4404
Sealing material: FPM (Viton®) / EPDM / Neoprene® / Kalrez®
material connection housing: Polyacetal POM (Delrin), screw steel 1.4404
material carrying cable: PE / PUR / FEP
Allowable product temperature: -20°C ... +70°C



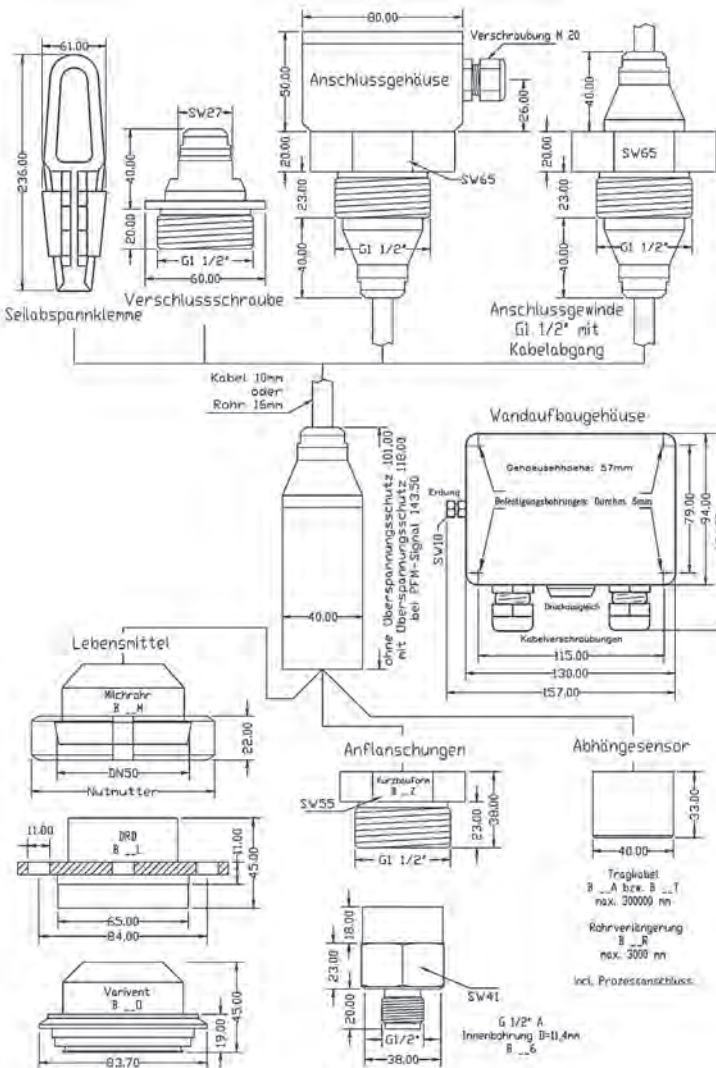
W - Wall-mounted casing



S | U - Straining clamp



V - Sealing screw G1½"



Application

The device Hydrocont® B with integrated analogue evaluation electronic is a compact sensor for continuous measurement of fill levels in liquid media. This includes e.g. the registration of levels in reservoirs, clarification basins, deep wells etc., but also the fill level measurement in closed containers. For applications, where food or drink water suitability is necessary, a corresponding put in variant can be ordered.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. In addition to the level measurement the temperature of the medium can be measured by a Pt100 resistor, that is integrated in the sensor.

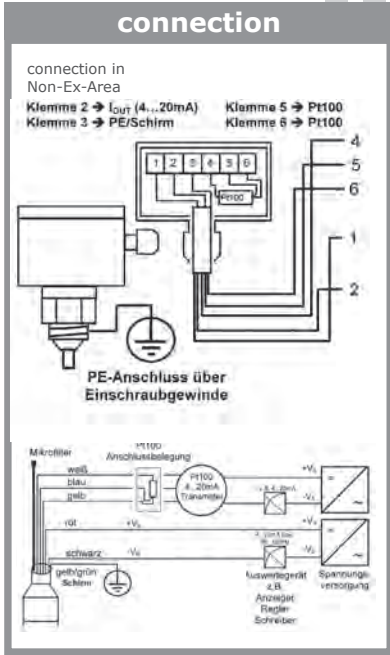
Hydrocont® B and Hydrocont® ExB

Hydrostatic filling level sensor – Ø 40mm
for continuous measurement of filling levels and temperatures in liquids, level probe

1a / 01.16

Equipment

Equipment page 76



basic price

type

B standard

Ex1B ATEX II 2 G Ex ib IIC T4

Ex0B ATEX II 1/2 G Ex ia IIC T4

Wall installation housing

W wall installation housing

0 without wall installation housing

Put-in device – process connection

0 without put-in device

S cable clamp fixing steel, hot galvanized

U cable clamp fixing CrNi-steel

V screw plug G 1½" DIN EN ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

G connection housing G 1½" DIN EN ISO228-1 material like material – probe

H connection thread G 1½" DIN EN ISO228-1 material like material – probe cable connection specify cable length

Variant sensor – process connection

A standard

T food and drink water suitability of all medium contacting materials

R tube prolongation Ø 16mm (only for type G or type H)

Z G 1½" B DIN EN ISO228-1

6 G 1½" B DIN EN ISO228-1 inside drill 11,4 mm

M milk tube DN 50, PN 40 DIN 11851

L DRD 65 mm DN 50, PN 40

O varivent 68 mm DN40-80/DN1½"..6", PN25 DN100/DN4", PN20 DN125/DN6", PN10

Electronic – output

0 2-wire-technology 4...20 mA

P 2-wire-technology PFM 90...520 Hz (not for Ex)

Measur range in bar		Measur range in m water column	
8	0...100 mbar	A	0...1 m water column
0	0...200 mbar	B	0...2 m water column
1	0...400 mbar	C	0...4 m water column
6	0...600 mbar	M	0...5 m water column
2	0...1000 mbar	D	0...6 m water column
3	0...2000 mbar	E	0...10 m water column
4	0...4000 mbar	F	0...20 m water column
7	0...6000 mbar	L	0...25 m water column
9	0...5000 mbar	G	0...40 m water column
5	0...10000 mbar	J	0...50 m water column
P	0...50 mbar	K	0...60 m water column
Z	0...20 bar	H	0...100 m water column
		Y	special measuring range

Accuracy measuring system

H 0,2% ceramic AL₂O₃ 99,9% (highly clean)

L 0,1% Linearization protocol ceramic AL₂O₃ 99,9% (highly clean)

Over voltage protection

0 without over voltage protection

P integrated over voltage protection not for variant type Ex0B

Temperature sensor

0 without temperature sensor

1 integrated temperature sensor Pt100

2 integrated temperature sensor Pt100 with an installed Pt100 transmitter in the wall installation housing specify temperature measurement range separately

material probe (medium contact)

1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

3 navy bronze CU SN 12

4 hastelloy C

6 PEEK

7 Titan

material gaskets (medium contact)

1 FPM fluorelastomere (Viton®)

2 CR chloroprene-rubber (Neopren®)

3 EPDM ethylene-propylene-dienmonomere for food applications

4 FFKM perfluorelastomere (Kalrez®)

6 FFKM perfluorelastomere high density for gas application

7 FFKM – perfluorelastomere (Kalrez®) – construction form type R / T / S

8 FFKM hd – perfluorelastomere high density – construction form type R / T / S

material probe prolongation (medium contact, price per 100mm)

A PE Polyethylene

E FEP Fluorinated Ethylene Propylene

D tube Ø 16mm steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

Order code

Hydrocont® mm

sensor length
incl. process connection:
measure in mm

Price group A

Fill level measurement

Hydrocont® M and Hydrocont® ExM

Hydrostatic filling level sensor – Ø 22mm
for continuous measurement of filling levels and temperatures in liquids,

1a / 01.16

Technical data



output signal: 4 .. 20 mA, 2-wire
permitted supply voltage: 12.5 V to 35 V DC for Ex version 12.5 V to 25.2 V DC
Ripple: ≤ 2 Vpp (condition: within the permitted supply voltage range)
Temperature drift: $\leq 0.15\%$ / 10 K of the nominal measurement range
Accuracy: $\leq 0.1\%$ / 0.25% of the nominal measurement range (see order code)
Calibration deviation: $\leq 0.05\%$ of the nominal measurement range
Long term stability: $\leq 0.15\%$ / year of nominal measurement range
Supply voltage influence: $\leq 0.02\%$ / 10V of nominal measurement range
Resolution: infinite, because analog measurement electronics
Delay time output: T90 < 100us ; Industrial environment, class A
Surge protection: Max signal voltage: 30V (peak value; to ground)
Nominal discharge current: 2 500A (wave 8/20µS)
Temperature-measuring resistance: Pt100 class B 3-wire connection
0°C - Deviation + / - 0.30 Kelvin
End point error + / - (0.30 K + 0.005 K per K DT0°C)
(Optional built-in wall mounting case Pt100 - Transmitter type e.g. KTM, which is adjusted according to customer specification)
Temperature-measuring resistance is not possible for Ex versions
IP68 sensor slopes; End Cap / Connector Housing IP67;
Wall-mounted housing IP65

protection:

Membrane material: AL203 96%
material slopes sensor: teel 1.4404
Cap material: steel 1.4404
Sealing material: FPM (Viton®) / EPDM / Neoprene®
material connection housing: Polyacetal POM (Delrin), screw steel 1.4404
material carrying cable: PE / PUR
Allowable product temperature: -20°C ... +70°C



W - Wall-mounted casing



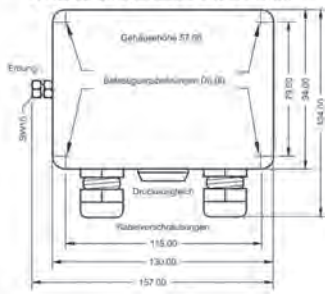
S | U - Straining clamp



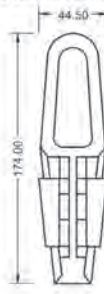
T - Sealing screw G1½"
W - Sealing screw G1"

Ø22 mm

Wandaufbauegehäuse 130 x 98mm



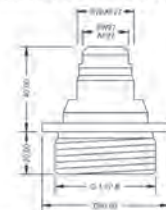
Seilspannklemme D8mm



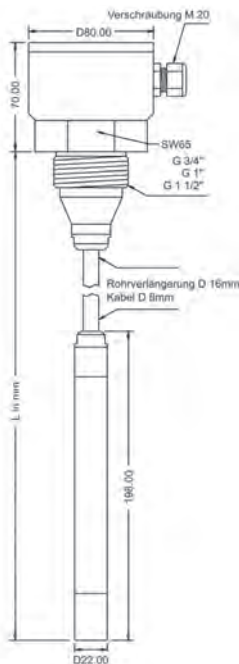
Verschlusschraube G 1"



Verschlusschraube G 1 ½"



Sensor – ohne Anschlussgehäuse



Application

The filling level sensor Hydrocont® M with integrated analogue evaluation electronic is a compact transmitter for continuous measuring of fill levels and temperatures in liquid media.

This includes e.g. the measurement of levels in reservoirs, clarification basins, deep wells etc., but also the fill level measurement in closed containers.

For applications, where food or drink water suitability is necessary, a corresponding variant can be ordered.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in various applications with liquid media like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

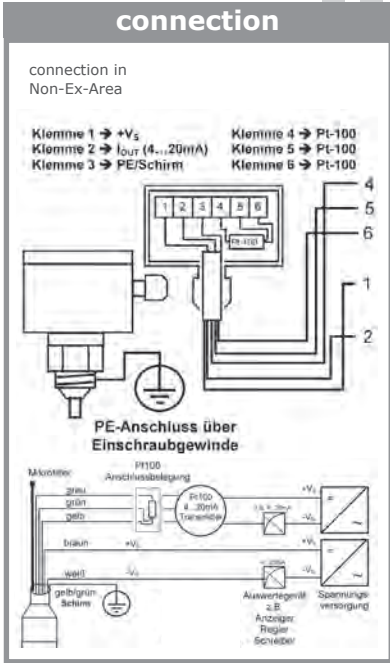
Hydrocont® M and Hydrocont® ExM

Hydrostatic filling level sensor – Ø 22mm
for continuous measurement of filling levels and temperatures in liquids,

1a / 01.16

Equipment

Equipment page 76



basic price

568,00 €

Price group A

type

M standard

Ex0M II 1/2 G Ex ia IIC T4 for Ex zone 0

Ex1M II 2 G Ex ib IIC T4 for Ex zone 1

Variant wall installation housing

W wall installation housing

0 without wall installation housing

Put-in device / process connection

0 without put-in device

S cable clamp fixing steel, hot galvanized.

U cable clamp fixing CrNi-steel

W screw plug G 1" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

T screw plug G 1½" ISO228-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

G connection housing G 1½" ISO288-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

8 connection housing G ¾" ISO288-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

9 connection housing G 1" ISO288-1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

Variant sensor

S standard

T food and drink water suitability of all medium contacting materials

R tube prolongation Ø 16mm only for connection housing – type G / 8 / 9

Transmitter electronic

0 2-wire-technology 4...20mA

B 3-wire-technology 0...10 VDC

Measure range in bar

8 0...100 mbar

0 0...200 mbar

1 0...400 mbar

6 0...600 mbar

2 0...1000 mbar

3 0...2000 mbar

4 0...4000 mbar

9 0...5000 mbar

7 0...6000 mbar

5 0...10000 mbar

Z 0...20 bar

Measure range in m water column

A 0...1 m water column

B 0...2 m water column

C 0...4 m water column

M 0...5 m water column

D 0...6 m water column

E 0...10 m water column

F 0...20 m water column

L 0...25 m water column

G 0...40 m water column

J 0...50 m water column

K 0...60 m water column

H 0...100 m water column

Y special measuring range

Accuracy measuring system

0 0,25% ceramic AL2O3 96%

K 0,1% Linearization protocol ceramic AL2O3 96%

Over voltage protection

0 without over voltage protection

P integrated over voltage protection not for Ex zone 0 – type Ex0M

Temperature sensor

0 without temperature sensor

1 integrated temperature sensor Pt100 not for Ex0M / Ex1M

2 integrated temperature sensor Pt100 not for Ex0M / Ex1M with an installed Pt100 transmitter in the wall installation housing

material probe (medium contact)

1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)

material gaskets (medium contact)

1 FPM fluorelastomere (Viton®)

2 CR chloroprene-rubber (Neopren®)

3 EPDM ethylene-propylene-dienmonomere for food applications

Materials probe prolongation

A PE polyethylene

B PUR polyurethane

D tube Ø 16mm

sensor length

measure in mm (inclusive process connection)

Order code

Hydrocont® 0 1 mm

Hydrocont® LK

Level probe as a probe or suspension suitable for outdoor installation; **Low Cost Version**

1a / 01.16

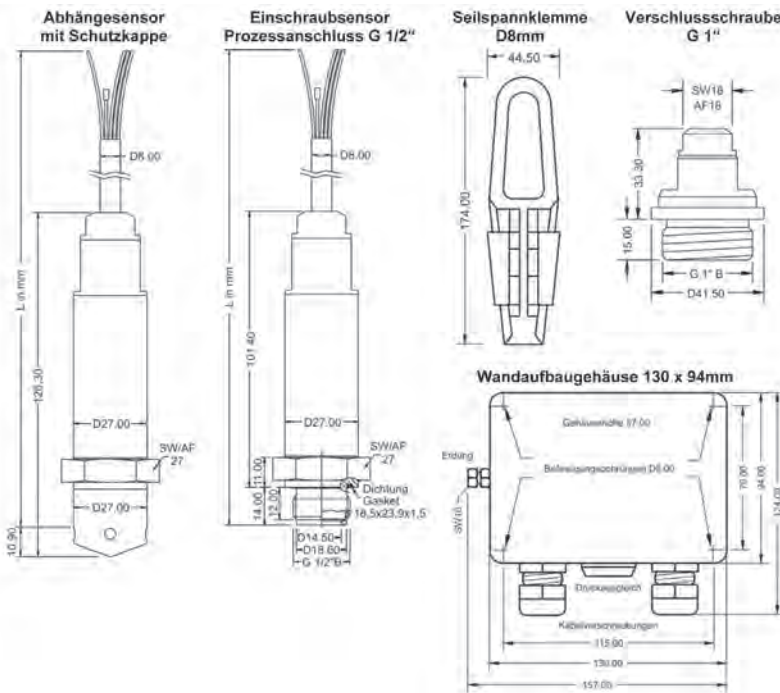
Technical data

capacitive ceramic sensor			0,1% high accuracy	fast response time	flush mounted
----------------------------------	--	--	------------------------------	---------------------------	----------------------

2-wire 4...20 mA	10...30 V DC	
3-wire 0...10 V	14...30 V DC	
Supply current:	2-wire 4...20 mA	≤ 30 mA
	3-wire 0...10 V	≤ 6 mA
Measuring accuracy		
Deviation in characteristics:	≤ ± 0,1% / 0,25% FS	
Long term drift:	≤ ± 0,15% FS / year	not cumulative
Temperature deviation :	≤ ± 0,15% FS / 10 K	
material		
Membrane:	Ceramic AL ₂ O ₃ 96% (medium contact)	
process connection:	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) (medium contact)	
Housing rope:	CrNi-steel	
gaskets:	FPM – Fluoroelastomer (Viton®)	
(medium contact)	EPDM – Ethylene-propylene-diene monomer	
	NBR – Nitrile Butadiene Rubber	
	Coated cable PE Polyethylen	
connection cable:		
Environmental conditions		
ambient temperature:	- 20°C...+70°C	
process temperature:	- 20°C...+70°C	
	outdoor installation via process connection	
	- 40°C...+100°	
process pressure ranges:	0...1 bar	
protection:	IP68	
	DIN EN 60529	



with front cap



Sealing screw



Straining clamp



Wall-mounted casing

Application

The device Hydrocont® LK with integrated analogue evaluation electronic is a compact hydrostatic transmitter for continuous measuring of filling levels in liquids at hydrostatic pressures from 0 up to 1 bar within pressure less container, at process temperatures from - 40°C to +100°C.

The use of a capacitive measuring sensor with ceramic membrane, allows the use in nearly all fields of industry.

Application fields are e.g. the measurement of levels in reservoirs, clarification basins, deep wells etc., but also the filling level measurement in closed containers at liquids, like e.g. water, waste water, solvents, oil, sludge, fat, cleaning liquids, etc.

Hydrocont® LK

Level probe as a probe or suspension suitable for outdoor installation; **Low Cost Version**

1a / 01.16

Fill level measurement

0	type	standard
LK	Measuring membrane (medium contact)	Ceramic capacitive membrane ceramic AL2O3 96%
0	process connection	G ½" B DIN EN ISO228-1 slopes probe with flush measuring cell and cap, suitable by G- "connection for outdoor installation
Y		others on request.
1	gaskets (medium contact)	FPM fluorelastomere (Viton®)
3		EPDM etylene-propylene-dienmonomere for food applications
V	material process connection (medium contact)	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
C	material connection housing	CrNi-steel
01	Measuring range	0...0,1 bar
02		0...0,2 bar
03		0...0,4 bar
04		0...0,6 bar
05		0...1 bar
YY		special measuring range separate spec. necessary
A	Electronic – output	2-wire-technology signal 4...20 mA
B		3-wire-technology signal 0...10 V
0	process temperature	standard -40°C to 100°C outside installation,
		-20°C to +70°C as slope version
R	Pressure type	Relative pressure
0	Accuracy measuring system *):	0,1 %, with Linearization protocol.
2		0,25 %
A	Probe prolongation (price per 100mm)	Carrying cable PE
	Probe length L	incl. process connection measure in mm

Price group D

Order code

Hydrocont® - LK V C 0 R A mm

Equipment

Sealing screw VSM-1000 G1"
Sealing screw VSM-1500 G1 ½"
Straining clamp hot galvanized
Wall-mounted casing with laser marking
Wall-mounted casing without laser marking

PG E



Sonicont® USG / USF

ultrasonic fill level sensor for liquids and solid materials - separate version

1a / 01.16

Technical data



Measuring range
 Liquids: USN 020: 2m; USN 050: 5m; USN 080: 8 m; USG 150: 15 m; USG 250: 25 m
 Solids: USN 020: 1m; USN 050: 2m; USN 080: 3,5 m, USG 150: 7 m; USG 250: 12 m

Deviation: ≤ ± 2 mm or ±0,2 % of set measuring range (greater)

output signal: 0/4...20 mA / 0...10V / PNP switch output

ambient temperature: -20°C...+50°C
 extension
 background lighting LCD ≤ 80% >> -20°C...+60°C
 background lighting LCD ≤ 60% >> -20°C...+70°C

protection wall mounting housing / DIN rail: IP66 (EN/IEC 60529)

protection front panel housing: front IP54 (EN / IEC 60529), rear IP20 (EN / IEC 60529)

protection sensor: IP68 [≤ 1 mWs-1h] (EN/IEC 60529)

Side materials process: connector Housing Wall mounting / DIN rail: PC / PES / stainless steel / PA / CR-NBR; connector housing front panel housing: PPE / PES / galvanized steel / stainless steel / PA / NBR EPDM; sensor (process-contact): PVDF; process connection: PCDF; sensor back (casting): epoxy, cable: PUR

process temperature: -40...+85°C

process pressure: 0,3...2 bar

Power supply transmitter: output 0/4...20 mA: 9..30 VDC, reverse polarity protected;
 output 0...10 V: 14..30 VDC, reverse polarity protected



Application

With the Sonicont USF and USG provides ACS-CONTROL-SYSTEM GmbH an ultrasonic level transmitter remote version for non-contact level measurement of fluids, pastes and coarse bulk materials before. By long life, easy installation and less maintenance, the ultrasonic measuring system is a proven and cost-effective solution.

Combined with up to 4 freely adjustable switching points and suitable for measuring ranges up to 8m in liquids and up to 3.5 m in bulk materials (on request up to 25m in liquids and up to 12m in solids), this sensor can be used for various measuring tasks for volume linear display in all container types - and with an accuracy of 0.2% and ≤ 2 mm. In addition, the analog output 0 (4) ... 20 mA and 0 .. 10V is switchable. The morn transmitter has extensive diagnostic functions for system analysis and still allows easy setup and operation by clear menu guidance.

Besides level measurements the Sonicont USG and USF is able for measurement of flow rates and currents. The mathematical formulas are already stored in the device. The sensor Sonicont USG can be installed up to 30m from the transmitter Sonicont USF and has IP68 protection. The 2 „TFT color display of the Sonicont USF provides an excellent representation of the measured values and easy readability. Intelligent data management enables the Sonicont USF to record measured values through the Bluetooth interface and a built-in data logger function.

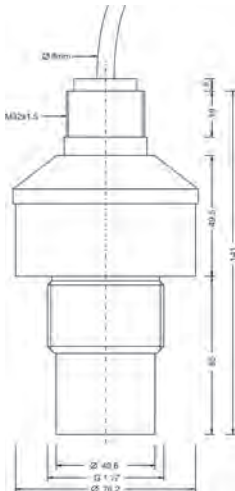
Sonicont® USG / USF

ultrasonic fill level sensor for liquids and solid materials - separate version

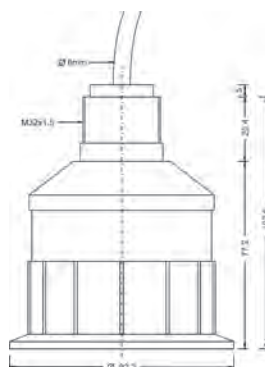
1a / 01.16

sensor Sonicont® USG

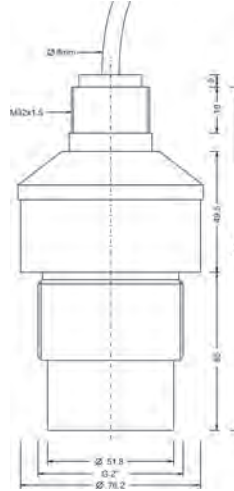
process connection
type 020 G15 - G 1 1/2" ISO 228-1
type 050 G15 - G 1 1/2" ISO 228-1



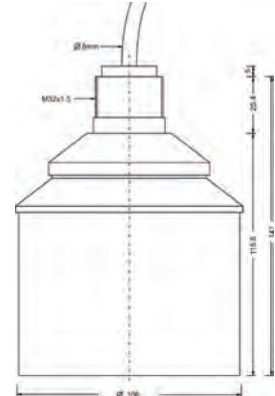
process connection
type USG 150



process connection
type 080 G20 - G 2" ISO 228-1

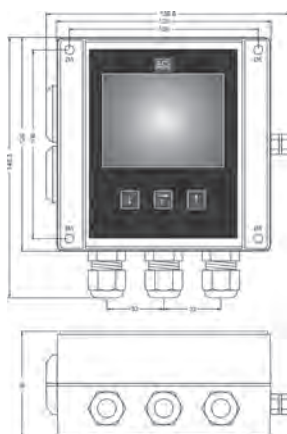


process connection
type USG 250

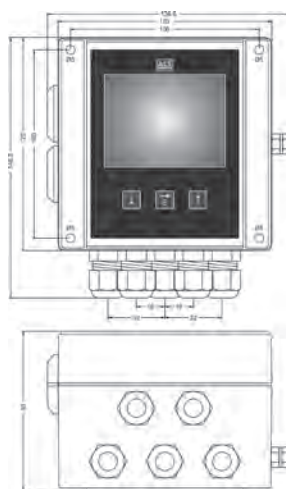


Messumformer Sonicont® USF

connection housing
model Wall-mounted casing
type F - electronic type M / K / R



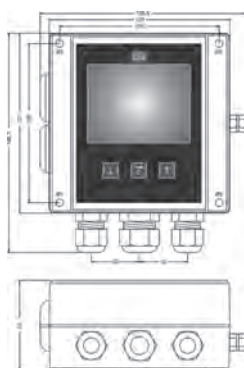
connection housing
model Wall-mounted casing
type F - electronic type S / T / U



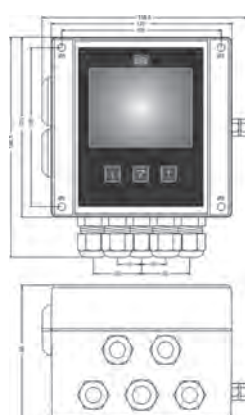
model front panel housing
type M - electronic type M / K / R



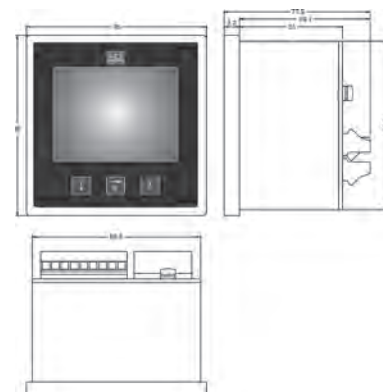
model DIN rail housing
type P - electronic type M / K / R



model DIN rail housing
type P - electronic type S / T / U



model front panel housing
type M - electronic type S / T / U



Sonicont® USG

ultrasonic fill level sensor for liquids and solid materials - separate version

1a / 01.16

Sensor



basic price

model

- 020 measuring range 2m/1m
- 050 measuring range 5m/2m
- 080 measuring range 8m/3,5m
- 150 measuring range 15m/7m
- 250 measuring range 25m/12m

licence

- 0 standard non-Ex-area
- X ATEX II 1 G / ATEX II 1 D (in preparation)

process connection

- G15 G 1½", ISO 228-1 / USG020 / USG050
- G20 G 2", ISO 228-1 / USG080
- M32 for version 150/250 without process connection with mounting thread 32x1,5 on sensor wide

0

0

material process connection (medium contact)

- P PVDF (USG250 >> PVDF / PBT Valox)

0

electrical connection

- B connection cable PUR

length L1 - connection cable

- 1 5m
- 2 10m
- 3 15m
- 4 20m
- 5 25m
- 6 30m

- 0 standard

Price group A

Order code

Sonicont® USG

0 0 P 0 B 0

For the measurement you need the sensor Sonicont® USG and the transmitter Sonicont® USF.

Sonicont® USF

ultrasonic fill level sensor for liquids and solid materials - separate version

1a / 01.16

Transmitter



basic price

model

020	measuring range 2m/1m	.....
050	measuring range 5m/2m	.....
080	measuring range 8m/3,5m	.....
150	measuring range 15m/7m	.....
250	measuring range 25m/12m	.....

licence

0	standard non-Ex-area	.....
X	ATEX II (1) G / ATEX II (1) D (in preparation)	.....

housing type

F	Wall-mounted casing	.....
M	front panel housing	.....
P	DIN rail housing	.....

electronic - type

M	9/14...32VDC, signal 0/4...20mA - 0...10V	.....
K	9/14...32VDC, signal 0/4...20mA - 0...10V, 2x PNP	.....
R	9/14...32VDC, signal 0/4...20mA - 0...10V, 4x PNP	.....
S	85...250VAC, signal 0/4...20mA - 0...10V	.....
T	85...250VAC, signal 0/4...20mA - 0...10V, 2x relay	.....
U	85...250VAC, signal 0/4...20mA - 0...10V, 4x relay	.....

electronic - function

0	without	.....
1	Bluetooth-Interface	.....
2	Data logger with time stamp, battery powered	.....
3	Bluetooth-Interface / Data logger with time stamp, battery powered	.....
Y	others	.....
0	standard	.....

Price group A

Order code

Sonicont® USF

0

For the measurement you need the sensor Sonicont® USG and the transmitter Sonicont® USF.

Sonicont® USN

Ultrasonic filling level transmitter, non-contact measurement of filling levels in liquids, pastes and coarse bulk materials, level measurement in liquids up to 2 / 5 / 8 m and in bulk materials up to 1 / 2 / 3,5 m

1a / 01.16

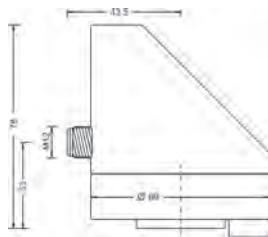
Technical data



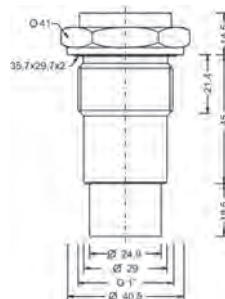
Supply voltage: 9...30 VDC, reverse polarity protected
 output 0/4...20 mA: 14...30 VDC, reverse polarity protected
 Supply current: mA max. 130 mA US = 9 V / S1/S2/S3/S4 0mA / Bluetooth On
 output 0/4...20 mA min. 70 mA US = 9 V / S1/S2/S3/S4 0mA / Bluetooth Off
 output 0...10 V: max. 80 mA US = 9 V / S1/S2/S3/S4 0mA / Bluetooth On
 output 0...10 V min. 50 mA US = 9 V / S1/S2/S3/S4 0mA / Bluetooth Off
 block distance: USN 020: < 0,2m; USN 050: < 0,25m; USN 080: < 0,35 m
 Analog output standby time: Work area: (0)4...20mA / 0...10V, adjustable
 measuring range: ≤ 1 s
 liquids: USN 020: 2m; USN 050: 5m; USN 080: 8 m
 solids: USN 020: 1m; USN 050: 2m; USN 080: 3,5
 PNP-switch output number: 0/2/4 depending on device version
 function: PNP-switching auf +L
 output current: ≤ 250 mA current limited, short circuit protected
 Response time: ≤ 250 ms
 electrical connection model: Plug connector M12 4/5/8polig, depending on device version
 Measuring accuracy
 Deviation in characteristics: ≤ ± 2 mm or ± 0,2 % of the measuring ranges (whichever is greater)
 Temperature deviation: ≤ ± 0,06% FS / 10 K (Zero / Span)
 material
 process connection: (medium contact) PVDF
 connection housing: CrNi-Steel
 User interface: PC/PES
 gaskets: (medium contact) EPDM – Ethylene-propylene-diene monomer
 Environmental conditions
 ambient temperature: -20°C...+50°C
 Expansion
 Backlight LCD ≤ 80% >> -20°C...+60°C
 Backlight LCD ≤ 60% >> -20°C...+70°C
 -40...+85°C
 process temperature: 0,3...2 bar
 process pressure ranges:
 protection: IP68 [≤ 1 mWs-1h] EN/IEC 60529



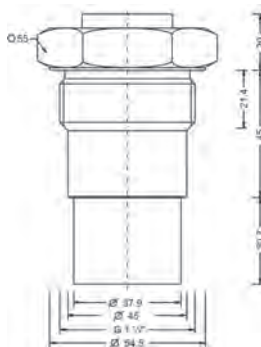
connection housing



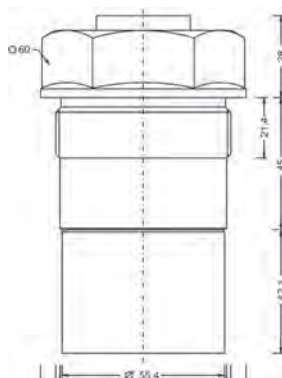
type G10
G 1" ISO 228-1



type G15
G 1/2" ISO 228-1



type G20
G 2" ISO 228-1



Application

With the Sonicont USN ACS -CONTROL -SYSTEM GmbH provides an ultrasonic sensor for continuous, non-contact level measurement of bulk solids and liquids.

The Sonicont USN can be combined with up to 4 freely adjustable switching points and is suitable for measuring ranges from 2 to 8m. This sensor is suitable for a variety of measurement tasks and can be used in all container shapes - and this with an accuracy of ≤ 0.2% resp. 2 mm.

Also the analog output 0 (4) ... 20 mA and 0 .. 10V is switchable.

The more transmitter has extensive diagnostic functions for system analysis and still allows easy setup and operation through the clear and easy navigation.

The Sonicont USN is also able to detect flow rates and currents. The mathematical formulas for this are already stored in the device.

Along with the closed, smooth user interface with optical keys the compact stainless steel case with rotatable display allows optimal usability in any position.

The viewing angle optimized 2" TFT color display ensures an excellent displaying of the measured values and easy readability.

1a / 01.16

basic price

model

020 measuring range liquid up to 2m / solid up to 1m
 050 measuring range liquid up to 5m / solid up to 2m
 080 measuring range liquid up to 8m / solid up to 3,5m

process connection

G10 G 1", ISO 228-1 (only at USN 020)
 G15 G 1½", ISO 228-1 (only at USN 050)
 G20 G 2", ISO 228-1 (only at USN 080)

electronic - output

M 3-wire, signal 0/4...20mA - 0...10V
 K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP
 R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP

electronic - function

0 without
 1 Bluetooth-Interface
 2 Data logger with time stamp, battery powered
 3 Bluetooth-Interface / Data logger with time stamp, battery powered
 Y others

material process connection (medium contact)

P PVDF / steel 1.4404/316L or 1.4571/316Ti

material connection housing

C CrNi-Steel

electrical connection

S plug M12

Price group A

Order code

Sonicont® USN P C S

Equipment

Order information

LKZ0405PUR-AS
 LKZ0410PUR-AS
 LKZ0505PUR-AS
 LKZ0510PUR-AS
 LKZ0805PUR-AS
 BKZ0412-VA
 BKZ0512-VA

model

connection cable 5 m, 4-pole, shielded.
 connection cable 10 m, 4-pole, shielded.
 connection cable 5 m, 5-pole, shielded.
 connection cable 10 m, 5-pole, shielded.
 connection cable 5 m, 8-pole, shielded.
 Matching cable socket, VA-nut
 Matching cable socket, VA-nut (at 0...10 V)

PGE

Sonicont® USD - Serie

Ultrasonic level measurement for non-contact continuous level measurement in liquids

1a / 01.16

Technical data



type:	USD-050	USD-080	USD-100	USD-150
measuring range				
liquids:	5 m	8 m	10 m	15 m
solids:	2 m	3,5 m	5 m	7 m
block distance:	0,25 m	0,35 m	0,4 m	0,6 m
Messabweichung:	± 2 mm or 0,2 % of the measuring range (whichever is greater)		± 4 mm or 0,2 % of the measuring range (whichever is greater)	
Resolution:	1 mm	1 mm	2 mm	2 mm
frequency:	ca. 70 kHz	ca. 50 kHz	42 kHz	ca. 35 kHz
pulse frequency:	dependent on the sensor version (max. 0,5 Hz at 2-wire/max 2 Hz at 4-wire)			
Min. Response time:	0,5 s at 4-wire, 2 s at 2-wire			
3dB Abstrahlwinkel:	11°	11°	11°	6°
output signal:	4...20 mA with HART-Protokoll (standard), PROFIBUS PA, FOUNDATION FIELDBUS (Option)			
load:	for HART-communication minimal 250 Ohm			
mounting position:	Perpendicular to the product surface			
ambient temperature:	-40...+80°C	-40...+80°C	-40...+80°C	-40...+80°C
protection:	IP68, at open cover IP20			
process connection:	G 1½" ISO 288	G 2" ISO 288	DN80/100 or mounting bracket	DN100 compression flange or mounting bracket
Prozesseitige material:	thread and sensor: PVDF, between thread and sensor: EPDM-gasket		sensor: PVDF, gasket between sensor and flange: VITON® or EPDM, flange: PP,	transducer housing UP, gasket, EPDM, Membran 1.4571/316Ti PVDF o. 316L
process temperature:	-40...+80°C	-40...+80°C	-40...+80°C	-40...+80°C
Prozessdruck Pabs:	0,7...3 bar	0,7...3 bar	0,7...2,5 bar	0,7...2,5 bar
Supply voltage:	two-wire: 14-36V DC, four-wire: 10,5-32V DC, 90-253 V AC 50/60 Hz			
CE-sign:	Sonicont® meets the requirements of the relevant EC Directives.			
Ex-certifications:	ATEX II ½G, 2G; EEx ia II C T6, EEx d (ia) II C T6, ATEX II ½D, 1/3D ATEX II 3G; EEx nA II T6, ATEX II ½D, 1/3D			



USD-050



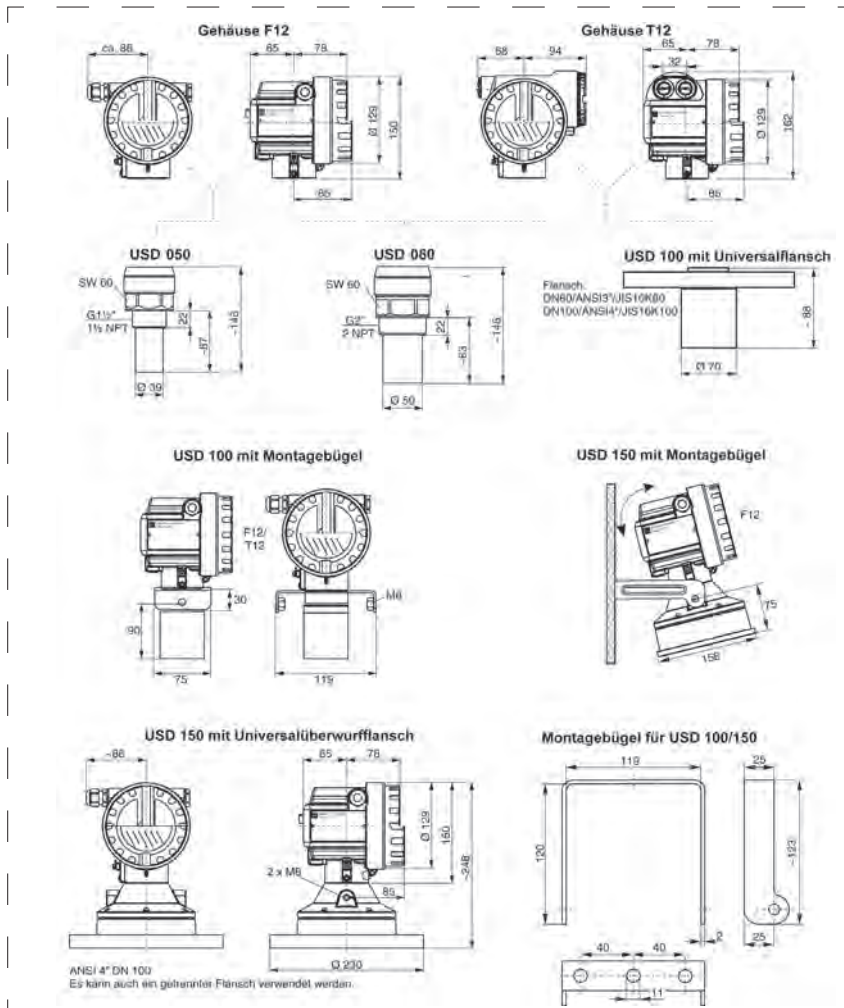
USD-080



USD-100



USD-150

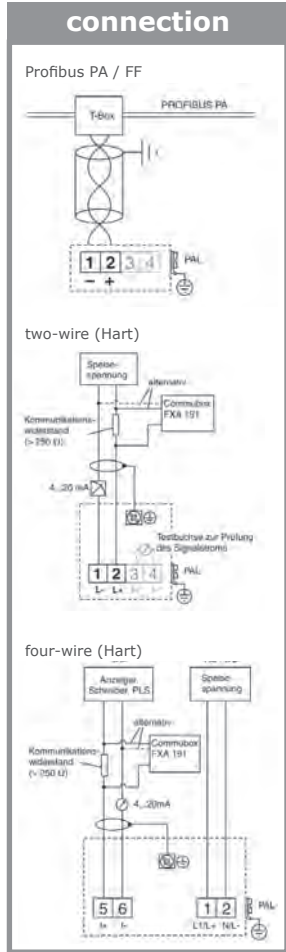


Sonicont® USD 050

Compact transmitter for non-contact level measurement of fluids (5m), pastes and coarse bulk materials (2m)

1a / 01.16

Equipment
for Sonicont®
USD 050/080/100/150
page 35



USD 050 - Sonicont® USD 050

Compact transmitter for non-contact level measurement with integrated temperature sensor for automatic correction of the temperature dependent sound velocity

Application: in liquids and bulk materials
Measure range: in liquids 5m and in bulk materials 2m
Temperature: process temperature -40...+80°C
Materials: thread and sensor: PVDF
process conn.: G1½" thread
Certificates: ATEX II 1/2 G, 2G; Ex ia IIC T6, Ex d (ia) II C T6, ATEX II 1/2 D, 1/3D

Certificates

- S Non-hazardous area
- N CSA General Purpose
- E1 ATEX II 1/2 G Ex ia II C T6
- E4 ATEX II 1/2 G Ex d (ia) IIC T6
- E2 ATEX II 1/2 D, aluminium blind cover
- E5 ATEX II 1/3 D

process connection

- G G1½" thread ISO 228, PVDF

Power supply, communication

- A 2-wire, 4...20 mA - loop/HART
- B 2-wire, PROFIBUS-PA
- C 2-wire, Foundation Fieldbus
- D 4-wire, 90...250VAC; 4...20 mA HART
- E 4-wire, 10,5...32 VDC; 4...20 mA HART

Display, operation

- 0 without display
- D with display VU331, 4-line plain text display menu-guided onsite operation
- A prepared for FHX40, remote display mounting (Equipment)

Housing

- 0 Aluminium F12-housing coated IP68
- C T12 Alu, coated IP68, NEMA6P, separate connection compartment

Screw connection, insertion

- 2 M20x1,5 screw connection
- 4 thread NPT ½
- 5 M12 PROFIBUS-PA plug

Supplementary equipment

- S standard

Price group B

Order code

USD 050

G 0 S

Sonicont® USD 080

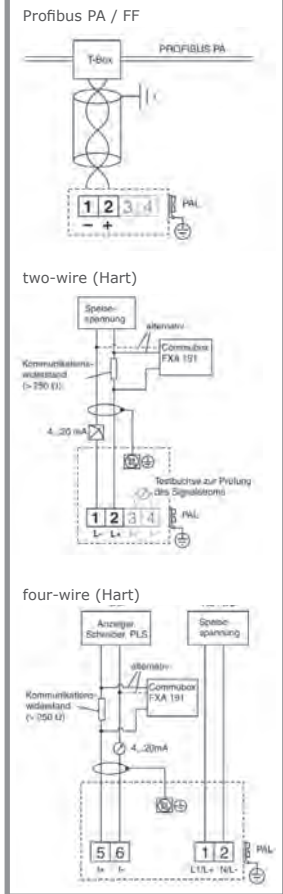
Compact transmitter for non-contact level measurement of fluids (8m), pastes and coarse bulk materials (3,5m)

1a / 01.16

Equipment

for Sonicont®
USD 050/080/100/150
page 35

connection



USD 080 - Sonicont® 080

Compact transmitter for non-contact level measurement with integrated temperature sensor for automatic correction of the temperature dependent sound velocity

- Application: in liquids and bulk materials
- Measure range: in liquids 8m and in bulk materials 3,5m
- Temperature: process temperature -40...+80°C
- Materials: thread and sensor: PVDF
- process conn.: G2" thread
- Certificates: ATEX II 1/2 G, 2 G: Ex ia IIC T6, Ex d (ia) II C T6, ATEX II 1/2 D, 1/3 D

Certificates

- S Non-hazardous area
- N CSA General Purpose
- E1 ATEX II 1/2 G Ex ia II C T6
- E4 ATEX II 1/2 G Ex d (ia) IIC T6
- E2 ATEX II 1/2 D, aluminium blind cover
- E5 ATEX II 1/3 D

process connection

- G G2" thread ISO 228, PVDF

Power supply, communication

- A 2-wire, 4...20 mA - loop/HART
- B 2-wire, PROFIBUS-PA
- C 2-wire, FOUNDATION Fieldbus
- D 4-wire, 90...250 V AC; 4...20 mA HART
- E 4-wire, 10,5...32 V DC; 4...20 mA HART

Display, operation

- 0 without display
- D with display VU331, 4-line plain text display
- A menu-guided onsite operation
- A prepared for FHX40, remote display mounting (Equipment)

Housing

- 0 Aluminium F12-housing coated IP68
- C T12 Alu, coated IP68, NEMA6P, separate connection compartment

Screw connection, insertion

- 2 M20x1,5 screw connection
- 5 M12 PROFIBUS-PA plug

Supplementary equipment

- S standard

Price group B

Order code

USD 080

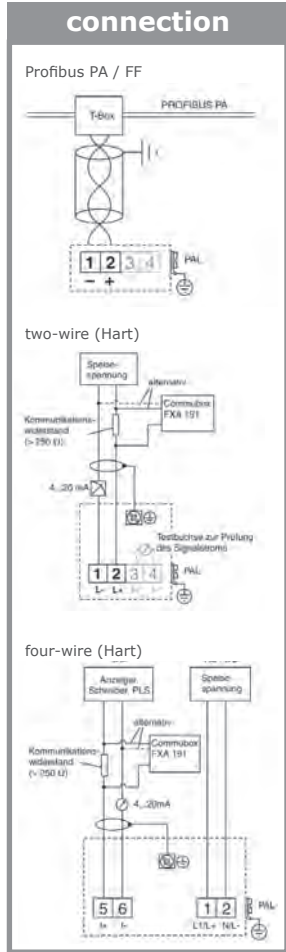
G 0 S

Sonicont® USD 100

Compact transmitter for non-contact level measurement of fluids (10m), pastes and coarse bulk materials (5m)

1a / 01.16

Equipment
for Sonicont®
USD 050/080/100/150
page 35



USD 100 - Sonicont® USD 100

Compact transmitter for non-contact level measurement with integrated temperature sensor for automatic correction of the temperature dependent sound velocity

Application: in liquids and bulk materials
Measure range: in liquids 10m and in bulk materials 5m
Temperature: process temperature -40...+80°C
Materials: sensor: PVDF, gasket between sensor and d flange: Viton® or EPDM
process conn.: DN80/100 or mounting bracket
Certificates: ATEX II 1/2 G, 2G; Ex ia IIC T6, Ex d (ia) II C T,6 ATEX II 1/2 D, 1/3 D

Certificates

S	Non-hazardous area
N	CSA General Purpose
E1	ATEX II 1/2 G Ex ia II C T6
E4	ATEX II 1/2 G Ex d (ia) IIC T6
E2	ATEX II 1/2 D, aluminium blind cover
E5	ATEX II 1/3 D

process connection

M	mounting bracket FAU20
P	DN80/ANSI 3"/JIS80A, PP universal flange max. 3 bar abs; screw-hole circle: PN16/150LBS/10K

Power supply, communication

A	2-wire, 4...20 mA - loop/HART
B	2-wire, PROFIBUS-PA
C	2-wire, Foundation Fieldbus
D	4-wire, 90...250 V AC; 4...20 mA HART
E	4-wire, 10,5...32 V DC; 4...20 mA HART

Display, operation

0	without display
D	with display VU331, 4-line plain text display menu-guided onsite operation prepared for FHX40, remote display mounting (Equipment)

Housing

0	Aluminium F12-housing coated IP68
C	T12 Alu, coated IP68, NEMA6P, separate connection compartment

Screw connection, insertion

2	M20x1,5 screw connection
4	thread NPT 1/2
5	M12 PROFIBUS-PA plug

Gasket sensor / flange

2	Viton® flat gasket
3	EPDM flat gasket

Supplementary equipment

S	standard
---	----------

Price group B

Order code

USD 100

0

S

Sonicont® USD 150

Compact transmitter for non-contact level measurement of fluids (15m), pastes and coarse bulk materials (7m)

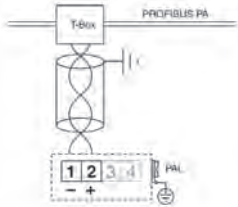
1a / 01.16

Equipment

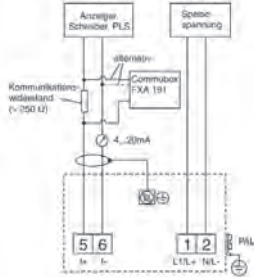
for Sonicont®
USD 050/080/100/150
page 35

connection

Profibus PA / FF



four-wire (Hart)



USD 150 - Sonicont® SD 150

Compact transmitter for non-contact level measurement with integrated temperature sensor for automatic correction of the temperature dependent sound velocity

Application: in liquids and bulk materials
Measure range: in liquids 15m and in bulk materials 7m
Temperature: process temperature -40...+80°C
Materials: thread and sensor: PVDF
process conn.: DN100 flange or mounting bracket
Certificates: ATEX II 1/2 G, 2G; Ex ia IIC T6, Ex d (ia) II C T6, ATEX II 1/2 D, 1/3D

Certificates

S	Non-hazardous area	.....
N	CSA General Purpose	.....
E2	ATEX II 1/2 D, aluminium blind cover	.....
E5	ATEX II 1/3 D	.....

process connection

K	without flange or mounting bracket	.....
	customer-supplied mounting	.....
M	with mounting bracket FAU20	.....
P	DN100 flange / ANSI 4"/JIS 16K100, PP>universal slip-on flange	.....

Power supply, communication

B	2-wire, PROFIBUS-PA	.....
C	2-wire, Foundation Fieldbus	.....
D	4-wire, 90...250 V AC; 4...20 mA HART	.....
E	4-wire, 10,5...32 V DC; 4...20 mA HART	.....

Display, operation

0	without display	.....
D	with display VU331, 4-line plain text display	.....
	menu-guided onsite operation	.....
A	prepared for FHX40, remote display mounting (Equipment)	.....

Housing

0	Aluminium F12-housing coated IP68
---	-----------------------------------	-------

Screw connection, insertion

2	M20x1,5 screw connection	.....
4	thread NPT 1/2	.....
5	M12 PROFIBUS-PA plug	.....

Supplementary equipment

S	standard
---	----------	-------

Order code

USD 150

0 S

Price group B

Equipment for Sonicont® USD 050/080/100/150

ultrasonic measurement, for contactless
continuous fill level measurement in liquids and solids

1a / 01.16



Order code

FHX 40

remote display and keypad control for Sonicont® and Radarcont
Aluminum field housing IP65, 4-line LCD display
menu-guided plaintext operation, easy adjustment,
Operator selectable language, envelope curve display on site

certifications

- A variation for non-Ex-area.
- 1 ATEX II 2 G Ex ia IIC T6
- N CSA General Purpose.

cable length

- 1 20 m cable (> HART)

additional equipment

- A standard
- B mounting bracket tube 1"/2"

Price group B



Order code

FXA 195

Commubox FXA 195

certifications

- G ATEX II (1) GD (EEx ia) IIC
- P FM, AIS, CI.I, II, III Group A-G
- S CSA, CI.I, II, III Group A-G
- V special version

power supply

- 1 Supply via USB interface
- 9 special version

Price group B

Flange FAX 50

process connection

- 12 DN50 PN16 steel Flange EN1092-1
- 14 DN80 PN16 steel Flange EN1092-1
- 15 DN100 PN16 steel Flange EN1092-1

sensoranschluss

- 3 G1½" ISO 228
- 4 G2" ISO 228

Order code

FAX 50

Price group B

Equipment

Order information

- 52013874
- 52014131
- 52014137
- 52014132
- 52014134
- 52014136
- 52014138
- 919792-0000
- 919792-0001
- 942669-0000
- 942669-0001
- 543199-0001
- 942666-0000
- 919791-0000
- 919791-0002
- 919791-0001
- 919791-0003

model

- mounting bracket FHX40 1"/2" tube
- outrigger 500 mm, ST, 1,5"-sensor
- outrigger 1000 mm, ST, 2"-sensor
- outrigger 500 mm, VA, 1,5"-sensor.
- outrigger 1000 mm, VA, 1,5"-sensor.
- outrigger 500 mm, VA, 2"-sensor
- outrigger 1000 mm, VA, 2"-sensor
- wall bracket for outrigger, ST
- wall bracket for outrigger, VA
- angle montage- 250x400x120 + G1½" A2
- angle montage- 250x400x120 + G2" A2
- protection cover for housing F12 VA
- mounting bracket FAU20
- stand 700 mm, ST
- stand 1400 mm, ST
- stand 700 mm, VA
- stand 1400 mm, VA

Price group B

Rod probe SAT

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to 7 electrode rods – plastic screwing thread; up to 6 measuring points; temperature: -40°C...+150°C; pressure: 10 bar

1a / 01.16

Technical data



certification



process temperature

150°C



up to

10

bar

pressure



no moving parts

in the tank



up to 7

measuring points



corrosion resistant

operating pressure max:
medium temperature:

-1...10 bar
-40°C...+150°C

protection:

IP65

material connection:

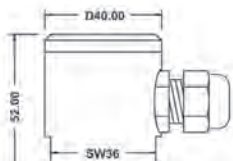
POM / Polypropylene (PP) / PTFE

material probe rod:

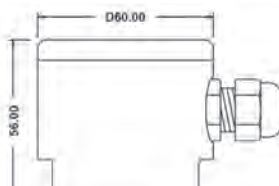
by choice

isolationprobe rod:

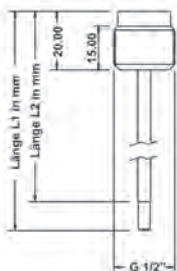
Polyamid (PA) / Halar® (E-CTFE)



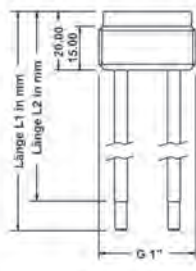
Anschlussgehäuse
∅ 40mm



Anschlussgehäuse
∅ 60mm (nur Werkstoff POM)



Prozessanschluss
G12 – G 1/2"

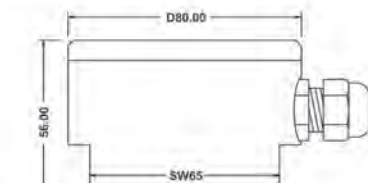


Prozessanschluss
G10 – G 1"

mit Anschlussgehäuse ∅ 40mm oder ∅ 60mm (nur Werkstoff POM)



Prozessanschluss
G15 – G 1 1/2"



Prozessanschluss
G20 – G 2"



Application

The SAT rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids. Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 7 switch points. The ground connection elfloht either directly to the container or conducting a probe rod. In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

Rod probe SAT

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to 7 electrode rods – plastic screwing thread; up to 6 measuring points; temperature: -40°C...+150°C; pressure: 10 bar

1a / 01.16

Equipment
mounting sleeves and nuts page 76
amplifiers page 54

surcharge
* each rod
over 1500 mm
21,50 € surcharge!

model	
0	standard
Ex	ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga
electrode rods	
1	1 electrode rod
2	2 electrode rods
3	3 electrode rods
4	4 electrode rods
5	5 electrode rods
7	7 electrode rods
process connection	
G12	G $\frac{1}{2}$ " only with one electrode rod possible
G10	G1" up to three electrode rods possible
G15	G $\frac{1}{2}$ " up to five electrode rods possible
G20	G2"
material probe rod <i>(price per 100mm)</i>	
A4	1.4404 steel (AISI 316L), 4 mm
A8	1.4404 steel (AISI 316L), 8 mm
D	Hastelloy® C22 only for electrode rod diameter 4 mm
Y	others
material connection housing	
D	POM – Polyoxymethylene Delrin®, Ø 40 mm for G $\frac{1}{2}$ " / G1" resp. Ø 80 mm for G $\frac{1}{2}$ " / G2"
E	POM – Polyoxymethylene Delrin®, Ø 60 mm for G $\frac{1}{2}$ " / G1"
P	PP – Polypropylene, Ø 40 mm for G $\frac{1}{2}$ " / G1"
M	PP – Polypropylene, Ø 80 mm for process connection G $\frac{1}{2}$ " / G2"
T	PTFE – Polytetrafluoroethylene Teflon®, Ø 40 mm for G $\frac{1}{2}$ " / G1"
L	PTFE – Polytetrafluoroethylene Teflon®, Ø 80 mm for G $\frac{1}{2}$ " / G2"
material probe insulation <i>(price per 100mm)</i>	
R	PA – Polyamid (standard)
H4	E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®) 4mm
H8	E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®) 8mm
circuit monitoring	
A	without circuit monitoring
B	with circuit monitoring (only at head Ø >60 mm, resp. thread >1 $\frac{1}{2}$ ")
diameter probe rod	
0	4 mm
W	8 mm
length L1 probe rod in mm - up to max. 2500 mm	
length L2 insulation mm	

Price group C

Order code

SAT mm mm

SAT probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Equipment

Order information
AH-2
AH-3
AH-4
AH-5

model
spacers for 2-rod probes

PGE

Rod probe STK

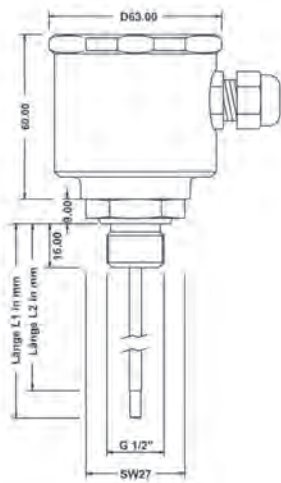
Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic process connection; temperature: -40°C...+150°C; pressure: 20 bar

1a / 01.16

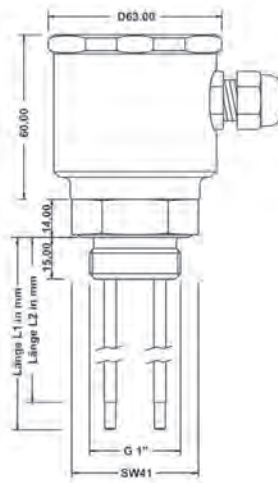
Technical data



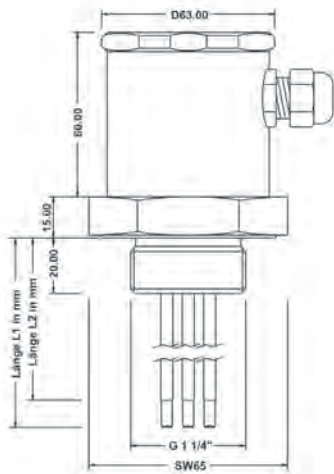
operating pressure max: -1...+20 bar
 medium temperature: -40°C...150°C
 protection: IP65
 material connection: POM / Polypropylene (PP) / PTFE / 1.4404 / 1.4571
 material process connection: steel 1.4571, 1.4404
 material probe rod: by choice
 isolationprobe rod: Polyamid (PA) / Halar® (E-CTFE)



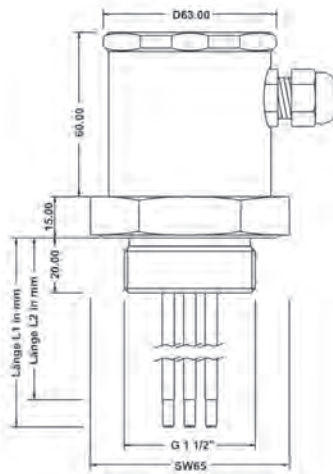
Prozessanschluss
G12 – G 1/2"



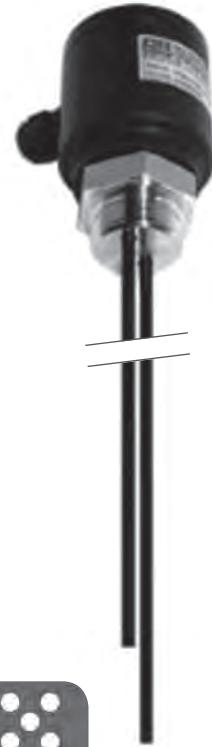
Prozessanschluss
G10 – G 1"



Prozessanschluss
G14 – G 1 1/4"



Prozessanschluss
G15 – G 1 1/2"



Application

The STK rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 5 switch points. The ground connection is made in the probe head and is transferred through the threads on the conductive container.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

By stainless steel process connection, the probe is to 20bar pressure stable and in conjunction with the E-CTFE coating, process temperatures up to +150 °C can be realized.

Rod probe STK

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic process connection; temperature: -40°C...+150°C; pressure: 20 bar

1a / 01.16

Equipment
mounting sleeves and nuts page 76
amplifiers page 54

surcharge
* each rod over 1500 mm 21,50 € surcharge!

model
0 standard
Ex ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga

electrode rods
1 1 electrode rod
2 2 electrode rods
3 3 electrode rods
4 4 electrode rods
5 5 electrode rods

process connection material steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
G12 G½" only possible with one electrode rod
G10 G1" up to three electrode rods possible
G14 G1¼" up to four electrode rods possible
G15 G1½"
G20 G2"
F50 Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
YYY others

material electrode rod
(price per 100mm)
A4 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti), 4 mm
A8 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti), 8 mm
A10 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti), 10 mm
D Hastelloy® C22 only for electrode rod diameter 4 mm
T4 Titan not for Ex-version, 4 mm
T8 Titan not for Ex-version, 8 mm
T10 Titan not for Ex-version, 10 mm
E steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) tantalum tips 20 mm
Y others

material connection housing
D POM – Polyoxymethylene Delrin®, Ø 60 mm
V CrNi-Steel, Ø 60 mm
M PP – Polypropylene, Ø 60 mm
L PTFE – Polytetrafluoroethylene Teflon®, Ø 60 mm

material probe insulation
(price per 100mm)
R PA-Polyamid (standard)
H4 E-CTFE – Ethylene-chlorotrifluoroethylene Halar®, 4 mm
H8 E-CTFE – Ethylene-chlorotrifluoroethylene Halar®, 8 mm
H10 E-CTFE – Ethylene-chlorotrifluoroethylene Halar®, 10 mm
at lengthn over 1 m

circuit monitoring
A without circuit monitoring
B with circuit monitoring

diameter probe rod
0 4 mm
W 8 mm
Z 10 mm

length L1 probe rod in mm - up to max. 2500 mm
length L2 insulation mm

Price group C

Order code
STK mm mm

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2
standard lengths in 500 mm increments. Others on request. Probe rods should be shortened by oneself!

Equipment

Order information
AH-2 spacers for 2-rod probes
AH-3 spacers for 3-rod probes
AH-4 spacers for 4-rod probes
AH-5 spacers for 5-rod probes

PG E

Rod probe SLK

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic hygienic process connection for food applications up to 4 measurement points; temperature: -40°C...+130°C; pressure: 20 bar

1a / 01.16

Technical data



certification



hygienic design



CIP/SIP capable



process temperature 130°C

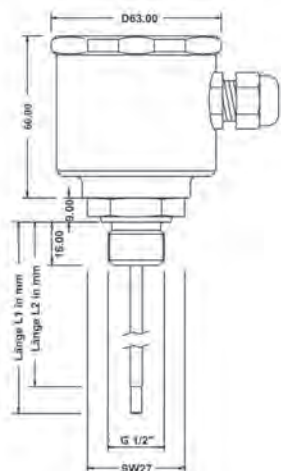


up to 20 bar pressure

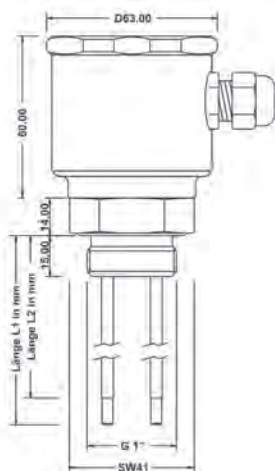


up to 4 measuring points

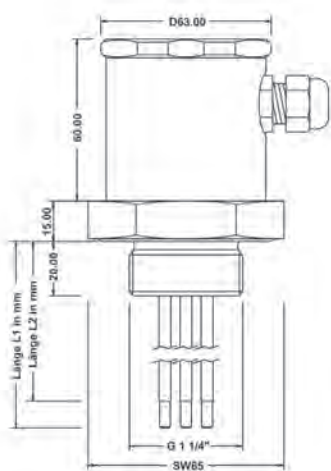
operating pressure max: -1...+20 bar
 medium temperature: -40°C...130°C
 protection: IP-65
 material connection: Delrin® / Polypropylene / 1.4404 / 1.4571 / PTFE
 material process connection : steel 1.4404 / 1.4571
 material probe rod: by choice
 isolationprobe rod: Polyamid (PA) / Halar® (E-CTFE)



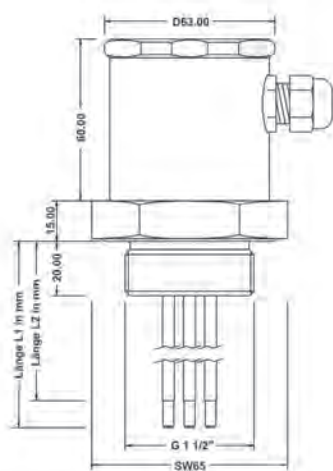
Prozessanschluss G12 - G 1/2"



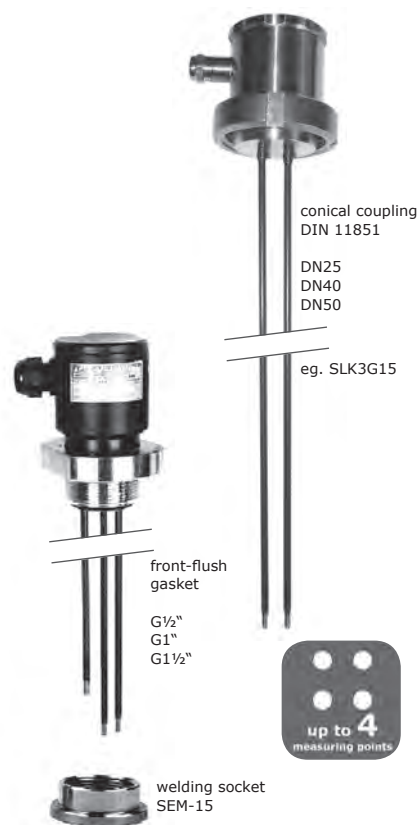
Prozessanschluss G10 - G 1"



Prozessanschluss G14 - G 1 1/4"



Prozessanschluss G15 - G 1 1/2"



Application

The SLK rod probes are used in conjunction with the evaluation units (eg. SRA-100-U0) for level detection and level control in conductive liquids, especially in food and used in the pharmaceutical sector, where high hygiene requirements. Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 4 set points. The ground connection is made in the probe head and is transferred through the threads on the conductive container. process connections, various hygienic connections are available, the seal gap, flush.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed. In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

By stainless steel process connection the probe is to 20bar pressure stable and in conjunction with the E-CTFE coating, process temperatures up to +130°C can be realized.

Rod probe SLK

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to five electrode rods – metallic hygienic process connection for food applications up to 4 measurement points; temperature: -40°C...+130°C; pressure: 20 bar

1a / 01.16

Equipment

mounting sleeves and nuts page 76

amplifiers page 54

surcharge

* each rod over 1500 mm 21,50 € surcharge!

model	0 standard	.....
Ex	ATEX II 1 G Ex ia IIB/IIC T6...T1 Ga	.....

electrode rods	1 one-rod-probe	.....
	2 two-rod-probe	.....
	3 three-rod-probe	.....
	4 four-rod-probe	.....

process connection material	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
D25	milk tube DN25 DIN 11851 only with one electrode rod possible
D40	milk tube DN40 DIN 11851 up to three electrode rods possible
D50	milk tube DN50 DIN 11851
G12	G½" O-ring flush mounted only with one electrode rod possible
G10	G1" O-ring flush mounted up to three electrode rods possible
G15	G1½" O-ring flush mounted
M12	G½" metal-seated only with electrode rod possible

material probe rod	(price per 100mm)
A4	steel 1.4404, 4 mm
A8	steel 1.4404, 8 mm
C	Hastelloy® B 4 mm
D	Hastelloy® C22 only for electrode rod diameter 4 mm
T4	Titan not for Ex-version, 4 mm
T8	Titan not for Ex-version, 8 mm
E	1.4404 steel with 50 mm tantalum tips
Y	others

material connection housing	
D	POM – Polyoxymethylene Delrin®, Ø 60 mm
V	CrNi-Steel, Ø 60 mm
M	PP-Polypropylene, Ø 60 mm
L	PTFE-Polytetrafluoroethylene Teflon®, Ø 60 mm
Y	others

material probe insulation	(price per 100mm)
H4	E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®), 4 mm
H8	E-CTFE – Ethylene-chlorotrifluoroethylene (Halar®), 8 mm
	* at lengthn over 1 m

circuit monitoring	
A	without circuit monitoring
B	with circuit monitoring

diameter probe rod	
0	4 mm
W	8 mm

length L1 probe rod in mm - up to max. 2500 mm

length L2 insulation mm

Price group C

Order code

SLK	H	mm	mm
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Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Equipment

Order information	model
AH-2	spacers for 2-rod probes
AH-3	spacers for 3-rod probes
AH-4	spacers for 4-rod probes
AH-5	spacers for 5-rod probes

PGE



Rope probes SST

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to seven electrode ropes – plastic screwing thread; up to 6 measuring points; temperature: -10°C...+120°C; pressure: at pressure zero

1a / 01.16

Technical data



up to 7 measuring points



corrosion resistant

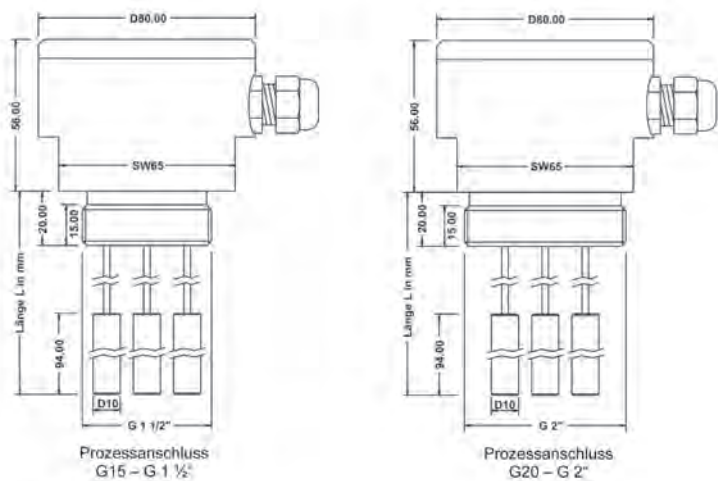
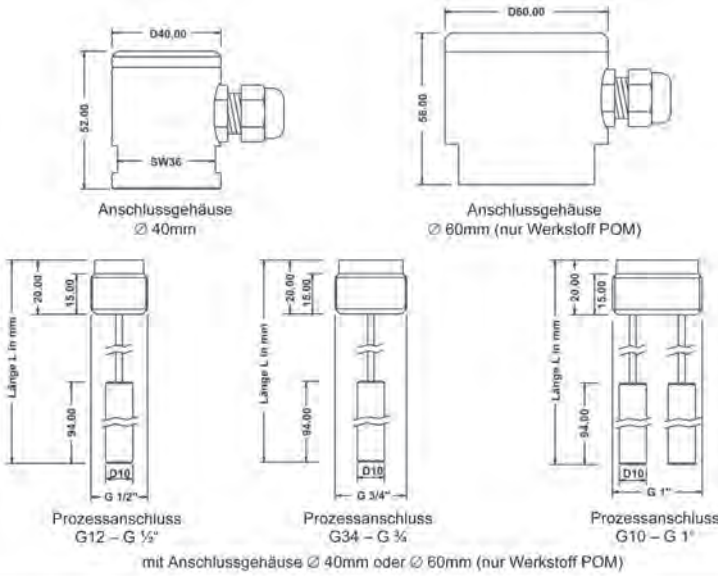


up to 15m rope length



process temperature 120°C

operating pressure max: unpressurised operation
 medium temperature: -10°C...120°C
 material connection head: POM / Polypropylene (PP) / PTFE
 material probe rope: stainless steel 1.4404 / 1.4571
 isolation probe rope: PTFE



Application

The cable SST probes are related to the evaluators (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of cables used and the evaluation units, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on the selected version, can include the container wall as a mass, to be implemented to 7 switch points. The ground connection erfolgt either directly to the conductive container or through a cable probe.

In the probe head, an additional module (diode module LBM) for permanent circuit monitoring to be installed.

In the case of a line break between the electrode probe and an appropriate evaluation, the evaluation issue an alert.

Rope probes SST

Electrode probe for conductive limit level detection in electrically conductive filling materials with up to seven electrode ropes – plastic screwing thread; up to 6 measuring points; temperature: -10°C...+120°C; pressure: at pressure zero

1a / 01.16

Equipment

mounting sleeves and nuts
page 76

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page 54

0	model	standard
	number of electrodes <i>(basic price incl. 3 m rope!)</i>	
1	1 electrode rope	
2	2 electrode ropes	
3	3 electrode ropes	
4	4 electrode ropes	
5	5 electrode ropes	
6	6 electrode ropes	
7	7 electrode ropes	
	connection	
G12	G1/2" only with one electrode rope possible.	
G34	G3/4" up to two electrode ropes possible.	
G10	G1" up to three electrode ropes possible.	
G15	G1 1/2" up to four electrode ropes possible.	
G20	G2"	
	material probe rope <i>(Preis pro angefangene 1000 mm je Seil)</i>	
A	steel 1.4404 with PTFE-coated	
Y	others	
	material connection housing	
D	POM – Polyoxymethylene Delrin®, Ø 60 mm for G1/2" / G1" / G3/4" resp. Ø 80 mm for G1 1/2" / G2"	
E	POM – Polyoxymethylene Delrin®, Ø 60 mm for G1/2" / G1"	
P	PP – Polypropylene, Ø 40 mm for G1/2" / G1"	
M	PP – Polypropylene, Ø 80 mm for process connection G1 1/2" / G2"	
T	PTFE – Polytetrafluoroethylene Teflon®, Ø 40 mm for G1/2" / G1" / G3/4"	
L	PTFE – Polytetrafluoroethylene Teflon®, Ø 80 mm for G1 1/2" / G2"	
	material probe insulation	
H	PTFE – Polytetrafluoroethylene Teflon®	
	circuit monitoring	
A	without circuit monitoring	
B	with circuit monitoring (only at head Ø >60 mm, resp. thread >1 1/2")	
	length electrode rope in mm	

Price group C

Order code

SST

0

H

mm

Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Rope probes SHT

with cable or terminal connection, 2-pole sensor for wells, 1 point level

1a / 01.16

Technical data

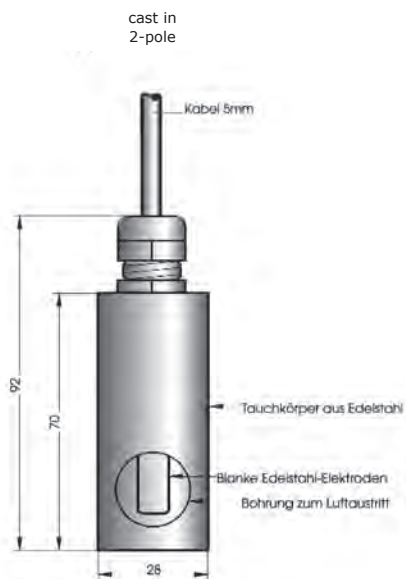


operating pressure max:
medium temperature:
material submersible heating element:
material probes:
isolationSondenkabel:

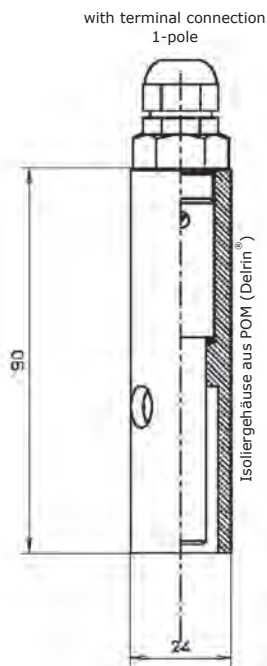
pressureless
-20°C...60°C
POM (Delrin®)/ stainless steel 1.4571
stainless steel 1.4571
PVC



SHT-2000



SHT-1



Application

The cable electrode SHT is primarily used as a submersible sensor in conjunction with appropriate evaluation devices (eg SRA-100-U0) for limit detection and level control in conductive liquids.

The switch point is given by the length of the connecting cable, thus a simple switching point adjustment possible. Due to the 2-pole version, no additional mass probe is required.

Rope probes SHT

with cable or terminal connection, 2-pole sensor for wells, 1 point level

1a / 01.16

Equipment
amplifiers
page 54

- basic price**
- A **circuit monitoring**
 - B without circuit monitoring
 - with circuit monitoring
 - length probe cable in m**
 - price per meter

PG C

Order code

SHT-2000-ADH m

- basic price**
- 0 **model**
 - standard
 - 1 **number of electrodes**
 - 1 electrode contact
 - A **material electrode contacts (medium contact)**
 - steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
 - D **material connection housing (medium contact)**
 - POM – Polyoxymethylene (Delrin®)

PG C

Order code

SHT 0 1 A D

Rod probes SNT

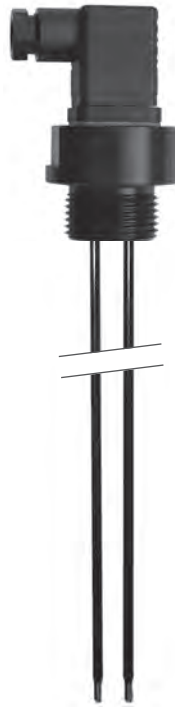
with plastic screw-in thread and plug-in connection; up to 3 measurement points, with 4 rods.
 medium temperature: -20°C...+150°C; pressure: 10 bar

1a / 01.16

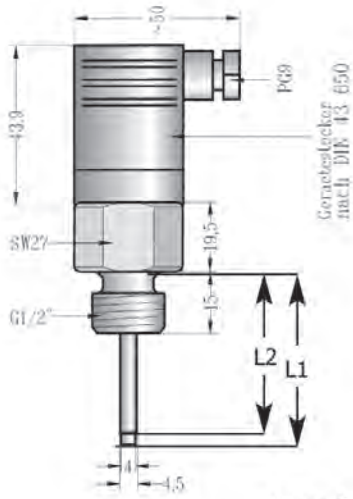
Technical data

up to 10 bar pressure	corrosion resistant	up to 4 measuring points	plug connection	process temperature 150°C
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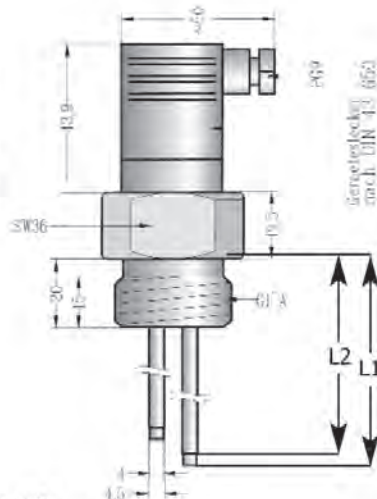
operating pressure max: 10bar
 medium temperature: -20°C...150°C
 material connection head: POM / Polypropylene (PP) / PTFE
 material probes: stainless steel 1.4571, 1.4404 / Hastelloy® C
 isolation probe rod: Polyamid / E-CTFE



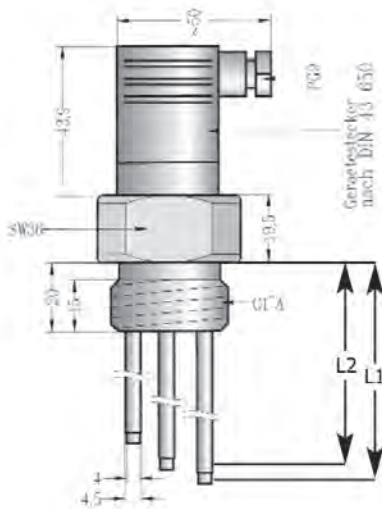
Typ: SNT 1



Typ: SNT 2



Typ: SNT 3



Application

The SNT rod probes are used in conjunction with the evaluation units (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 5 switchpoints. The ground connection goes either directly to the container or conducting a probe rod.

The electrical connection is made via a plug type SNT content, thus a rapid assembly and disassembly of the probe or a repositioning of the indicator to other probes possible.

Rod probes SNT

with plastic screw-in thread and plug-in connection; up to 3 measurement points, with 4 rods.
medium temperature: -20°C...+150°C; pressure: 10 bar

1a / 01.16

Equipment
mounting sleeves
and nuts
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amplifiers
page 54

surcharge
* each rod
over 1500 mm
21,50 € surcharge!

1	electrode rods	one-rod-probe
2	two-rod-probe	
3	three-rod-probe	
4	four-rod-probe	
connection		
G12	G1/2" plastic connection (only for 1-rod)	
G10	G1" plastic connection (up to 3-rod)	
G15	G1 1/2" plastic connection (for alle probes possible)	
material probe rod (price per 100mm)		
A	1.4404 steel 4 mm	
D	Hastelloy® C 4 mm	
Y	others	
material process connection		
D	POM – Polyoxymethylene Delrin®	
P	PP – Polypropylene	
T	PTFE – Polytetrafluoroethylene Teflon®	
material probe insulation (price per 100mm)		
R	PA-Polyamid (standard)	
H	E-CTFE – Ethylene-chlorotrifluoroethylene Halar® 4 mm at length over 1 m	
diameter probe rod		
0	4 mm	
length L1 probe rod in mm - up to max. 2500 mm		
length L2 insulation mm		
0	plug (included) type: NKW04-0	

Price group C

Order code

SNT 0 mm mm 0

SNT probes are only available in 500 mm increments!
Probe rods should be shortened by oneself!

Rod probes SBS

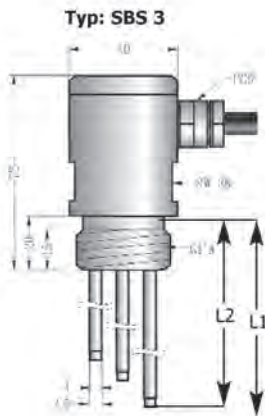
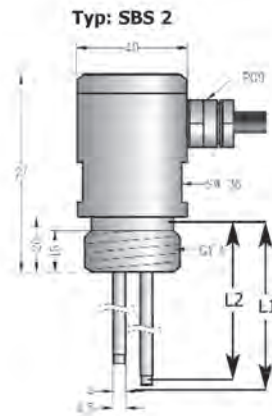
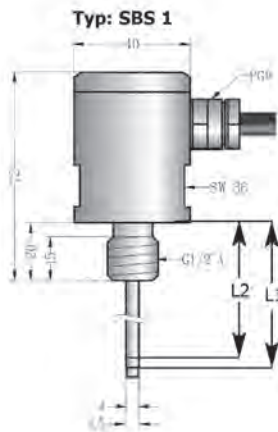
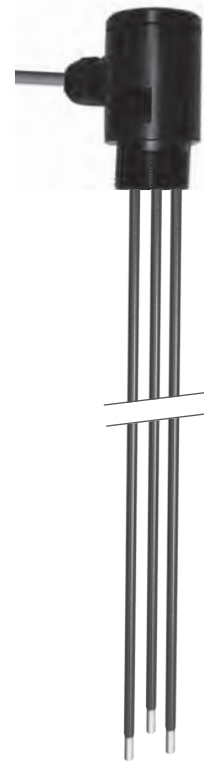
with permanently attached cable and encapsulated probe head; up to 4 measurement points, with 5 rods.
medium temperature: -20°C...+150°C; pressure: 10 bar

1a / 01.16

Technical data



operating pressure max: 10 bar
medium temperature: -20°C...150°C
material connection head: POM / Polypropylene (PP) / PTFE
material probes: stainless steel 1.4571, 1.4404 / Hastelloy® C
isolationprobe rod: Polyamid / E-CTFE



Application

The bar probe SBS is related to the evaluators (eg, SRA-100-U0) is used for level detection and level control in conductive liquids.

Depending on the number of bars and evaluation devices used, different measurement tasks such as Overflow, dry run, two-step control, moisture detection, etc. are realized.

Depending on model selected can include the container wall as a mass, to be implemented to 5 switch points. The ground connection erfolgt either directly to the container or conducting a probe rod.

Type in the SBS is the connecting cable already connected and encapsulated in the probe head. Through this encapsulation, the probe is outside of the container completely submersible.

Rod probes SBS

with permanently attached cable and encapsulated probe head; up to 4 measurement points, with 5 rods.
 medium temperature: -20°C...+150°C; pressure: 10 bar

1a / 01.16

Equipment
 mounting sleeves
 and nuts
 page 76
 amplifiers
 page 54

surcharge
 * each rod
 over 1500 mm
 21,50 € surcharge!

electrode rods	
1	one-rod-probe
2	two-rod-probe
3	three-rod-probe
4	four-rod-probe
5	five-rod-probe

connection- plastic	
G12	G½" (only for 1-rod)
G10	G1" (only up to 3-rod)
G15	G1½" (for all probes possible)

material probe rod (price per 100mm)	
A4	1.4404 Steel, 4 mm
A8	1.4404 Steel, 8 mm
C	Hastelloy® B 4 mm
D	Hastelloy® C22 only for electrode rod diameter 4 mm
T4	Titan not for Ex-version, 4 mm
T8	Titan not for Ex-version, 8 mm
E	1.4404 steel with 50 mm tantalum tips
Y	others

material connection housing sealed	
D	POM – Polyoxymethylene Delrin®,
	Ø 40 mm for G½" / G1" resp. Ø 80 mm for G1½" / G2"
E	POM – Polyoxymethylene Delrin®, Ø 60 mm for G½" / G1"
P	PP – Polypropylene, Ø 40 mm for G½" / G1"
M	PP – Polypropylene, Ø 80 mm for process connection G1½" / G2"
T	PTFE – Polytetrafluoroethylene Teflon®, Ø 40 mm for G½" / G1"
L	PTFE – Polytetrafluoroethylene Teflon®, Ø 80 mm for G1½" / G2"

material probe insulation (price per 100mm)	
R	Polyamid (standard)
H4	Halar® (PTFE), 4 mm
H8	Halar® (PTFE), 8 mm
	*at length over 1 m

circuit monitoring	
A	without circuit monitoring
B	with circuit monitoring

diameter probe rod	
0	4 mm
W	8 mm

length L1 probe rod in mm - up to max. 2500 mm

length L2 insulation mm

connection cable in m

(price per 1000 mm)

Price group C

Order code

SBS	mm	mm	m

SBS probes are only available in 500 mm increments!
 Probe rods should be shortened by oneself!

Leakage probe PUK | PUKK

for conductive leak detection of electrically conductive filling materials;
with seperated or compact electronics

1a / 01.16

Technical data



operating pressure max:
medium temperature:
material connection head:
material probes:

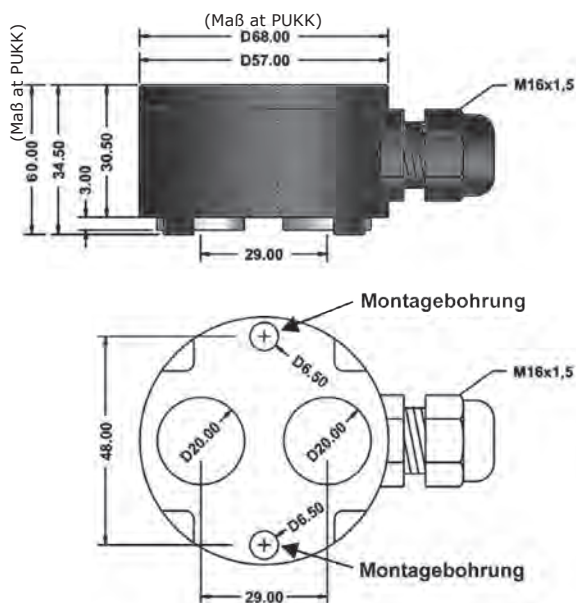
pressureless
-20°C...60°C
POM / Polypropylene (PP) / PTFE
stainless steel 1.4571, 1.4404 / Hastelloy® C



Leakage probe PUK



Leakage probe PUKK



Application

The leakage probes of the series PUK / Pukk are used in conjunction with a suitable evaluation for conductive leakage monitoring of electrically conductive products.

The leak detector is designed for a wide range of applications. The conductivity, even of aggressive contents, from 1 µS/cm are recorded at process temperatures from -20 ° C to +60 ° C.

Once the electrically conductive filling material forms a connection between the electrodes, a measurable current is flowing, which causes a reaction of the connected evaluation unit.

By the use of an AC voltage the corrosion of the electrode and the electrolytic decomposition of the contents is avoided.

An additional module (diode module LBM) for line monitoring in the housing can be installed in the device. In the event of a line break between the leak probe and a suitable evaluation the evaluation may issue an alert.

Leakage probe PUK separated version

for conductive leak detection of electrically conductive filling materials

1a / 01.16

model	0 standard
number electrodes	2 2 electrodes
material electrodes (medium contact)	A steel 1.4404 (316L) / 1.4571 (316Ti)
	D Hastelloy® C 4
	Y others
material housing (medium contact)	D POM – Polyoxymethylene (Delrin®)
	P PP – Polypropylene
	T PTFE – Polytetrafluoroethylene (Teflon®)
electrical connection	K terminal box
	V cable 5 m - silicone
	Y cable others length.
circuit monitoring	A without circuit monitoring
	B with circuit monitoring (Diodenmodul LBM)

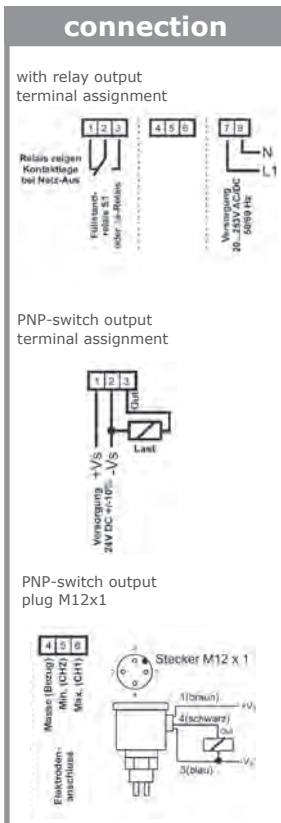
Price group C

Order code

PUK 0 2

Leakage probe PUKK compact version

for conductive leak detection of electrically conductive filling materials



electrical connection	K terminal box
	V cable 5 m - silicone
	Y cable others length.
auxiliary power	G DC voltage 24 V DC
	U AC / DC voltage 20 ... 30V AC / DC
electronic output	A 1x PNP switch output (only at electronic supply type G)
	B 1x relay output (only at electronic supply type U)

Price group C

model	2 2-electrodes 1x limit
process connection	A screw fixing
material electrodes (medium contact)	A steel 1.4404 (316L) / 1.4571 (316Ti)
	D Hastelloy® C 4
	Y others
material housing (medium contact)	D POM – Polyoxymethylene (Delrin®)
	P PP – Polypropylene
	T PTFE – Polytetrafluoroethylene (Teflon®)

Order code

PUKK 2 A



Conductive compact probes limit switch or two-position controller

KAK for standard application

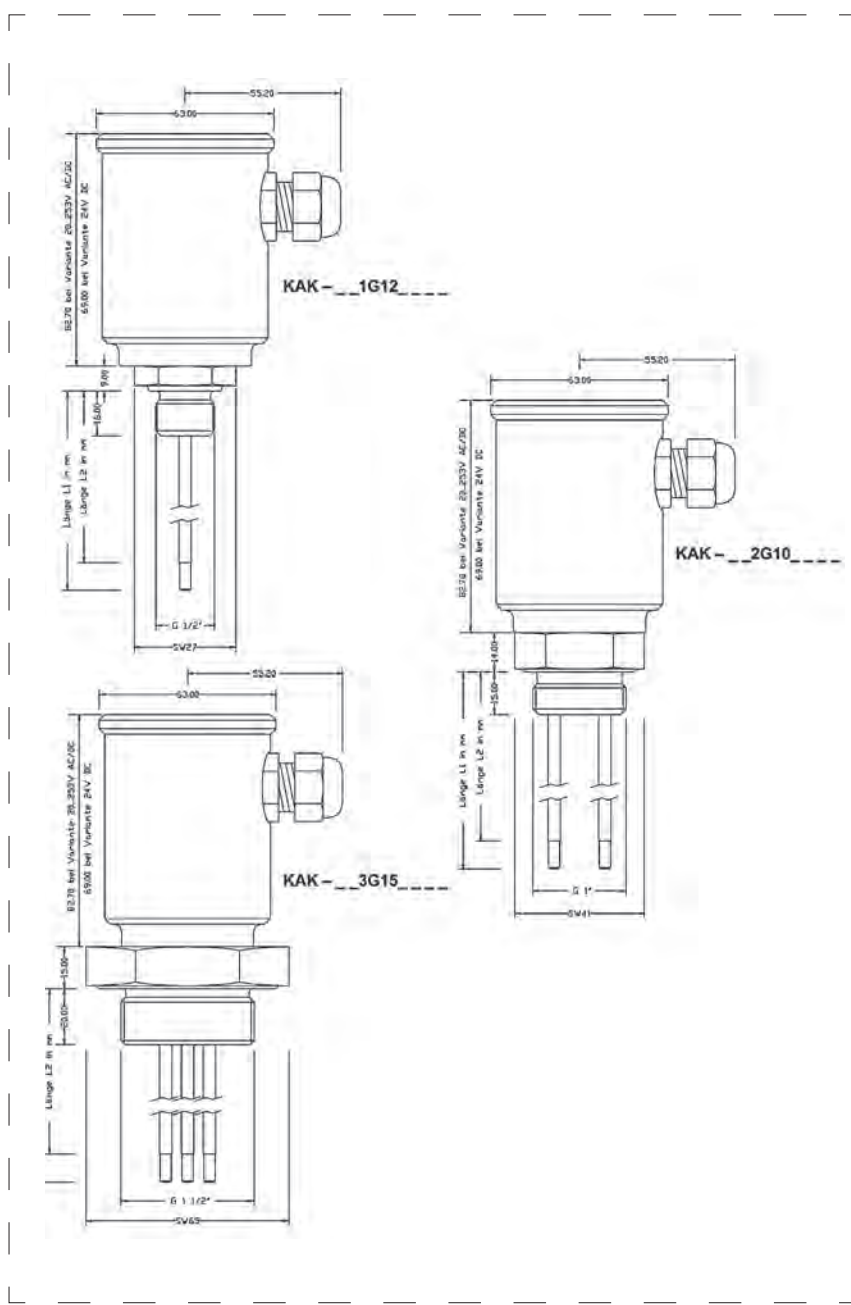
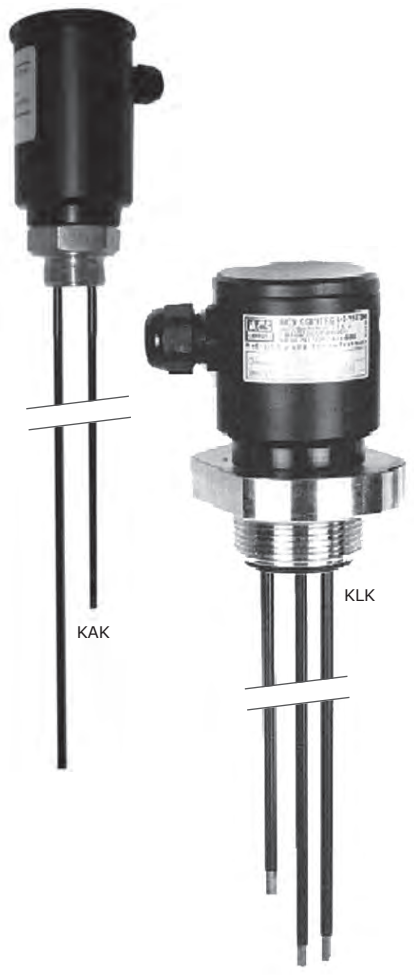
KLK for food application

1a / 01.16

Technical data

up to 10 bar pressure	AC/DC []	hygienic design	adjustable sensitivity	CIP SIP capable
---------------------------------------	--------------	--------------------	---------------------------	-------------------------------

operating pressure max: -1...+10 bar
 medium temperature: -40°C...100°C
 protection: IP65
 material connection: POM / Polypropylene (PP) / PTFE
 material process connection: steel 1.4404 / 1.4571
 material probe rod: by choice
 isolationprobe rod: Polyamid (PA) / Halar® (E-CTFE)



Application

The compact conductive fill level limit switch KAK | KLK with integrated evaluation device are reasonably priced devices for limit value detection and niveau control in electrically conductive liquids. Using this device it is possible to control pumps, contactors and signal devices directly or to send informations by the PNP switching output to the SPS control.

Conductive compact probes limit switch or two-position controller

KAK for standard application

KLK for food application

1a / 01.16

Equipment

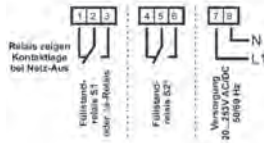
Einbaumuffen
page 76

surcharge

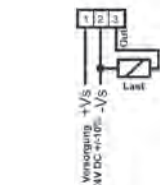
* each rod
over 1500 mm
21,50 € surcharge!

connection

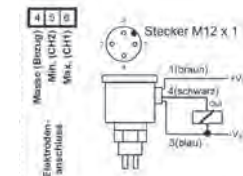
with relay output
terminal assignment



PNP-switch output
terminal assignment



PNP-switch output
plug M12x1



KAK

KLK

electrical connection

- 0 terminal box
- V plug M12 only with DC-Version

auxiliary power

- G DC voltage 24 V DC (only with output "A" - PNP)
- U universal voltage 20...253 V AC/DC (only with output "B" or "C" - relay)

output

- A 1 x PNP-switch output, only at auxiliary power DC voltage 24 V DC
- B 1 x relay output, only at auxiliary power universal voltage 20...253 V AC/DC
- C 2 x relay output, only at auxiliary power universal voltage 20...253 V AC/DC

model measurement system

- 1 1-rod, 1x limit, reference electrode over process connection
- 2 2-rod, 1x limit, reference electrode over longest rod - number 2
- 3 3-rod, 2x limit, reference electrode over longest rod - number 3
- 4 2-rod, 2x limit, reference electrode over process connection

process connection material stainless steel 1.4404 (medium contact)

- D25 milk tube connection according to DIN 11851 (only at KLK) (only for 1-rod)
- D40 milk tube connection according to DIN 11851 (only at KLK) (only for 2-rod)
- D50 milk tube connection according to DIN 11851 (only at KLK) (only for 3-rod)
- G12 G1/2" connecting thread(only for 1-rod)
- G10 G1" connecting thread(only for 2-rod)
- G15 G1 1/2" connecting thread(only for 3-rod)
- YYY others

material electrode rod

(price per 100mm)

- A4 steel 1.4404, 4 mm
- A8 steel 1.4404, 8 mm
- C Hastelloy® B
- D Hastelloy® C22 only for electrode rod diameter 4 mm
- T4 Titan not for Ex-version, 4 mm
- T8 Titan not for Ex-version, 8 mm
- E steel 1.4404 with 50 mm tantalum tips
- Y others

material housing

- D POM - Polyoxymethylene Delrin®, (standard)
- P PP - Polypropylene
- L PTFE - Polytetrafluoroethylene Teflon®
- V stainless steel 1.4404

material probe insulation

(price per 100mm)

- R PA-Polyamid (standard) (not at KLK)
- H4 E-CTFE - Ethylene-chlorotrifluoroethylene (Halar®), 4 mm
- H8 E-CTFE - Ethylene-chlorotrifluoroethylene (Halar®), 8 mm
- * at length over 1 m

diameter probe rod

- 0 4 mm
- W 8 mm

length in mm - up to max. 2500 mm

Price group C

Order code

KAK | KLK

mm


Please name every length if you order different probe lengths!
eg. rod 1: L1/L2, rod 2: L1/L2

Conductive electrode relay SRA-100-U0

evaluation unit for fill level measurement to connect on conductive probes


1a / 01.16

Technical data



Line break detection

AC/DC



multifunction

adjustable sensitivity

permitted supply voltage:	20...253 V AC / DC 48...62 Hz
power consumption:	≤ 3,5 VA / 1,3 W
isolation voltage:	4kV~ auxiliary power against relay outputs against signal inputs
contact rating:	U~ maximal 250 V AC; I~ maximal 10 A AC; P~ maximal 2500 VA
level sensor:	one resp. two level electrodes with common reference electrode
measuring range:	≤ 1kΩ resp. ≥ 1mS/cm / ≤ 10kΩ resp. ≥ 100µS/cm / ≤ 200kΩ resp. ≥ 5µS/cm
line monitoring:	only with level sensor with built-in modul LBM
housing:	modular housing, 22,5mm wide



Application

The electrode relay SRA-100-U0 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

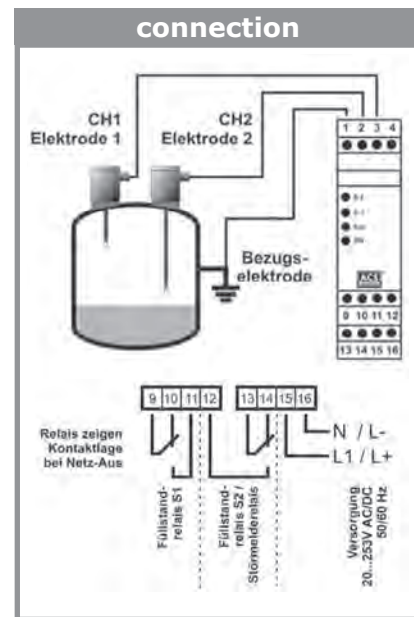
As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output. As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container. The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

The device can be used with latching relay, Min and Max switching point work, as well as a double level detectors, with two separate outputs.

As a result, the number of applications, such as overflow, dry run protection, two-point control, moisture detection, etc. can be realized.

Via a coarse and fine tuning the sensitivity can be adjusted on the conductivity of the liquid. With the adjustable trigger delay to approximately 8 seconds, possibly undulations in the container are hidden.

As further details the SRA-100-U0 offers a line break monitoring with fault relay and a wide range power supply of 20 ... 253V AC / DC.



electrode relay SRA-100-U0

SRA-100-U0/20...253 V AC/DC electrode relay, 22,5 mm **A**

surcharge - special measuring range


special measuring range 0-1 MegaOhm **A**
 special measuring range 0-8 MegaOhm

Conductive electrode relay ExSRA-100-U0

amplifiers to connect on conductive probes for Ex-area


1a / 01.16

Technical data




Zulassung

AC/DC



einstellbare
Empfindlichkeit



Leitungsbruch-
überwachung

Multifunktion

permitted supply voltage:	20...253 V AC / DC 48...62 Hz
power consumption:	≤ 3,5 VA / 1,3 W
isolation voltage:	4kV~ auxiliary power against relay outputs against signal inputs
contact rating:	U~ maximal 250 V AC; I~ maximal 10 A AC; P~ maximal 2500 VA
level sensor:	one resp. two level electrodes with common reference electrode
measuring range:	≤ 1kΩ resp. ≥ 1mS/cm / ≤ 10kΩ resp. ≥ 100µS/cm / ≤ 200kΩ resp. ≥ 5µS/cm
line monitoring:	only with level sensor with built-in modul LBM
housing:	modular housing, 22,5mm wide



Application

The electrode relay ExSRA-100-U0 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

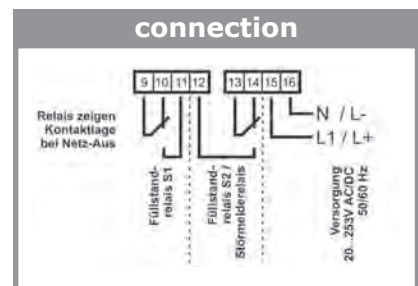
As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output. As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container. The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

The device can be used with latching relay, Min and Max switching point work, as well as a double level detectors, with two separate outputs.

As a result, the number of applications, such as overflow, dry run protection, two-point control, moisture detection, etc. can be realized.

Via a coarse and fine tuning the sensitivity can be adjusted on the conductivity of the liquid. With the adjustable trigger delay to approximately 8 seconds, possibly undulations in the container are hidden.

As further details the SRA-100-U0 offers a line break monitoring with fault relay and a wide range power supply of 20 ... 253V AC / DC.



electrode relay ExSRA-100-U0 with Ex-licence ATEX

ExSRA-100-U0/20...253 V AC/DC electrode relay, 22,5 mm, 2 Wechsler,
 ATEX II (1) G [Ex ia Ga] IIB/IIC resp.
 ATEX II (1) D [Ex ia Da] IIIB/IIIC



surcharge - special measuring range

special measuring range 0-1 MegaOhm
 special measuring range 0-8 MegaOhm



Electrode relay SRA-102

amplifiers with two separated time delays and different measuring ranges, or connect on conductive probes

1a / 01.16

Technical data

4
measuring
ranges for
electrical
conductivity

**Min/
Max**

adjustable
setting time

compact
design

auxiliary power: 230V AC; 115V AC; 42V AC; 24V AC; 24V DC (20-30V)
 probe connection: one resp. two electrodes with common mass connection
 probe voltage: max. ca 10V AC, 100 Hz
 output: 1 potential-free changeover gold plated
 wide/height/depth: 22,5/75/99 mm
 fastening: DIN rail mounting according to EN 50022-35x7,5



Application

The electrode relay SRA-102 works in conjunction with conductive probes as a level limit switch or a control in conductive liquids such as water, alkalis and acids. While a low voltage according to VDE 0100 Section 410 stands at the electrodes of about 9V, thereby touching the probes is completely safe.

As soon as the electrically conductive filling builds a connection between mass and eg the maximum electrode, a small alternating current flows which is implemented in the evaluation in a relay output.

As mass with metal vessel the wall of the vessel can be used, or an electrode with non-metallic container.

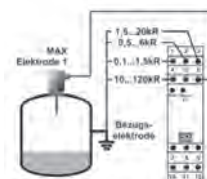
The use of AC avoids the corrosion of the probe rods and electrolytic destruction of the product.

The SRA-102 has four inputs with different ranges of sensitivity to adapt the measurement to the different conductivities.

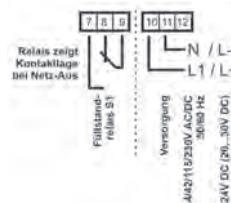
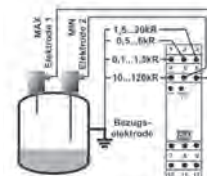
Through a separately adjustable switch-on and switch-off delay, in the range of 0.1-20 seconds, can be realized with the simple device timings.

connection

single channel



two channel



electrode relay SRA-102

SRA-102 / 230 V AC	electrode relay, 22,5 mm	.....
SRA-102 / 115 V AC / 42 V / 24 V AC	electrode relay, 22,5 mm	.....
SRA-102 / 24 V DC	electrode relay, 22,5 mm	.....



1a / 01.16



Vibrocont SCM-300

Vibration level limit switch for liquids;
Miniaturized small vibration fork
Screw-in thread G $\frac{1}{2}$ " und G $\frac{3}{4}$ "

1a / 01.16

Technical data

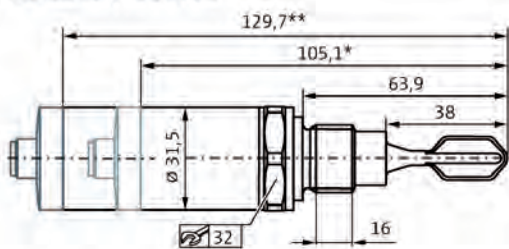
WHG licence	up to 40 bar pressure	corrosion resistant	compact design
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Measuring Principle: Vibration Liquids
 Characteristic / Application: Level switch for liquids and is used in tanks, vessels and pipes.
 Supply / Communication: 20 ... 253V AC/DC, 2-wire; 10 ... 35V DC-PNP 3-wire
 ambient temperature: 40 °C ... 70 °C (-40 °F ... 158 °F)
 Process temperature: - 40 °C ... 150 °C (-40 °F ... 302 °F)
 Process pressure absolute / max. overpressure limit: Vacuum ... 40 bar (Vacuum ... 580 psi)
 Min. density of medium: >0,7g/cm³ (>0,5g/cm³ optional)
 Main wetted parts: 316L
 Process connection Threads: G1/2, G3/4, G1, MNPT1/2, MNPT3/4, MNPT1, R1/2, R3/4, R1
 output: AC/DC, DC-PNP
 Certificates / Approvals: WHG; EN10204-3.1 material; Final Inspection Report
 Options: Adjustment switching delay; Cleaned from oil+grease, PWIS free



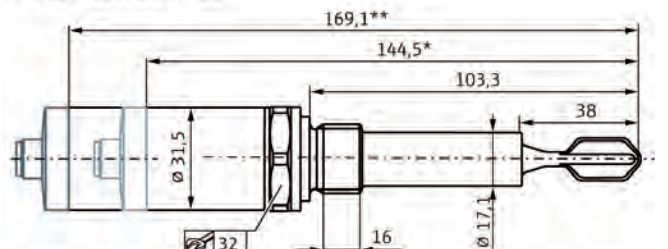
Kompaktversion

Gewinde ISO 228 G $\frac{1}{2}$ " ; G $\frac{3}{4}$ "

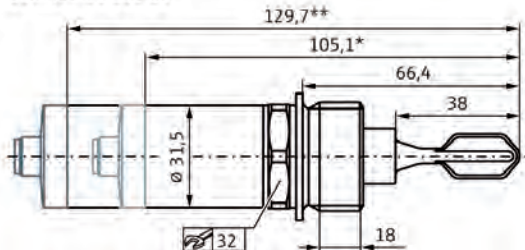


Kurzrohrversion

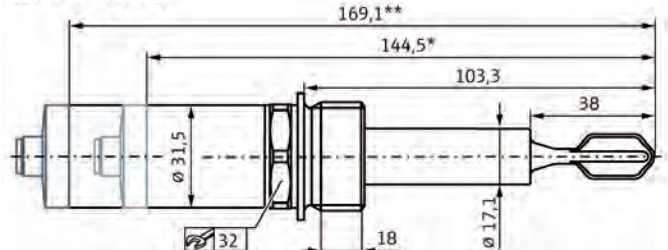
Gewinde ISO 228 G $\frac{1}{2}$ " ; G $\frac{3}{4}$ "



Gewinde ISO 228 G1"



Gewinde ISO 228 G1"



* Abmessung für Prozesstemperatur max. 100 °C
 ** Abmessung für Prozesstemperatur max. 150 °C

Einbau gemäß Betriebsanleitung

Vibrocont SCM-300

Vibration level limit switch for liquids;
Miniaturized small vibration fork
Screw-in thread G½" und G¾"

1a / 01.16

300	standard admission 100°C	.....
300	overflow protection WHG+leakage 100°C	.....
350	standard admission 150°C	.....
300	overflow protection WHG+leakage 150°C	.....

construction form

K	compact version	.....
R	probe extension: tube	.....
Y	special version	.....

process connection

2	screw-in piece G½"	.....
1	screw-in piece G¾"	.....
6	screw-in piece G1"	.....
Y	special version	.....

electronics

WA	electronic: 20...253V AC/DC	.....
GA	electronic: 10...30V DC	.....
Y	special version	.....

electrical connection

02	model: valve plug	.....
01	model: plug M12 (not for AC-Version)	.....
Y	special version	.....

S	standard
---	----------	-------

Application

Vibrocont SCM-300 is a point level switch for liquids. The Vibrocont SCM-300 is designed for industrial applications in all industries, mainly the machinery industry. The Vibrocont SCM-300 is used for overflow prevention or pump dry-run protection in cleaning and filter systems as well as in cooling and lubrication vessels.

Compact:

- Smallest vibronic sensor

Safe:

- Continuous self-monitoring
- Reliable switching independent of media properties

Easy:

- No calibration or adjustment
- Plug & play

1	-	3	pieces	.....
4	-	10	pieces	.....
11	-	35	pieces	.....

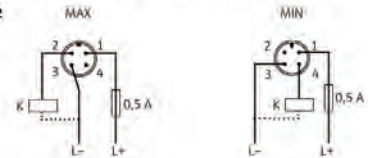
Price group D

PG D

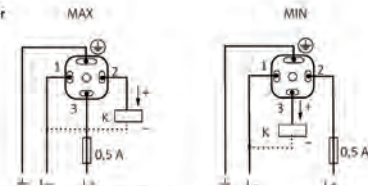
connection

Elektronikvariante 3-Leiter DC-PNP

Stecker M12

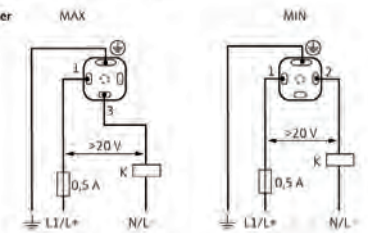


Ventilstecker



Elektronikvariante 2-Leiter AC/DC

Ventilstecker



Order code

SCM-300

Equipment

Order information
BEF-SCM34

LKW 0405 PUR
LKW P405 PUR
BKZ0412 VA

model

welding socket G¾"	.....
connection cable 5 m	.....
connection cable LED 5 m	.....
cable socket	.....

E B



Vibrocont SHM-300

Vibration level limit switch for liquids in hygienic applications

1a / 01.16

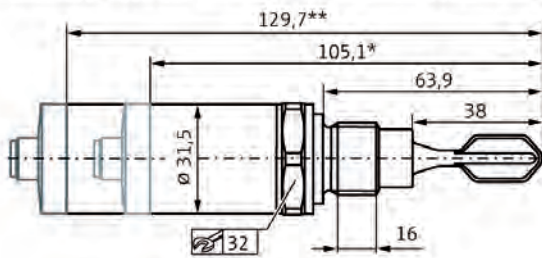
Technical data



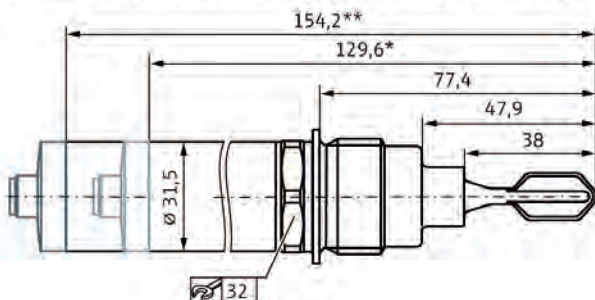
Measuring Principle:	Vibration Liquids
Characteristic / Application:	Point level switch for liquids in the food sector
Supply / Communication:	20 ... 253V AC/DC, 2-wire; 10 ... 35V DC-PNP, 3-wire
ambient temperature:	40 °C ... 70 °C (-40 °F ... 158 °F)
Process temperature:	-40 °C ... 150 °C (-40 °F ... 302 °F)
Process pressure absolute / max. overpressure limit:	Vacuum ... 40 bar (Vacuum ... 580 psi)
Min. density of medium:	>0,7g/cm ³ (>0,5g/cm ³ optional)
Main wetted parts:	316L
Process connection: Threads:	G1/2, G3/4, G1, MNPT1/2, MNPT3/4, MNPT1, R1/2, R3/4, R1
Process connection hygienic:	Flush mount by use of weld in adapter; DIN11851; Tri-Clamp
output:	AC/DC, DC-PNP
Certificates / Approvals:	WHG; EN10204-3.1 material; EHEDG, 3A; Final inspection report
Options:	Switching delay; Cleaned from oil+grease, Surface finish measurement



Gewinde ISO 228 G¾" für frontbündigen Einbau in Einschweißadapter

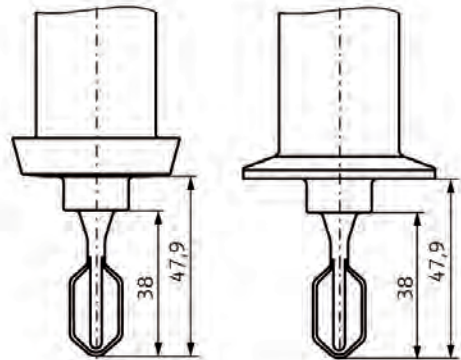


Gewinde ISO 228 G1" für frontbündigen Einbau in Einschweißadapter



DIN11851 DN25; DN32; DN40

Tri-Clamp ISO2852 DN25-38; DN40-51



* Abmessung für Prozesstemperatur max. 100 °C
 ** Abmessung für Prozesstemperatur max. 150 °C

Einbau gemäß Betriebsanleitung

Vibrocont SHM-300

Vibration level limit switch for liquids in hygienic applications

1a / 01.16

Price group H

300	standard admission 100°C	.....
300	overflow protection WHG+leakage 100°C	.....
350	standard admission 150°C	.....
300	overflow protection WHG+leakage 150°C	.....
Y	special version	.....

process connection

GD	screw-in piece G¾" flush mounted	.....
GE	screw-in piece G1" flush mounted	.....
T1	TriClamp ISO2852 DN25...38 (1")	.....
TD	TriClamp ISO2852 DN40...51 (2")	.....
MN	DIN 11851 DN25 milk tube	.....
MP	DIN 11851 DN32 milk tube	.....
M4	DIN 11851 DN40 milk tube	.....
Y	special version	.....

electronics

WA	electronic: 20...253V AC/DC	.....
GA	electronic: 10...30V DC	.....
Y	special version	.....

electrical connection

02	model: valve plug	.....
01	model: plug M12 (not for AC-Version)	.....
Y	special version	.....

surface roughness

S	surface roughness <1,5µm	.....
H	surface roughness <0,76µm	.....
Y	special version	.....
S	standard	.....

Application

Vibrocont SHM-300 is a point level switch for liquids. The Vibrocont SHM-300 is especially designed for food & beverage applications where hygienic requirements are requested. The Vibrocont SHM-300 is used for overflow prevention or pump dry-run protection preferably in storage tanks, mixing vessels and pipes.

Compact:

- Smallest vibronic sensor

Safe:

- Continuous self-monitoring
- Reliable switching independent of media properties

Easy:

- No calibration or adjustment
- Plug & play

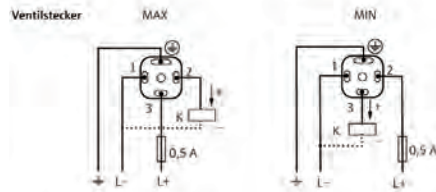
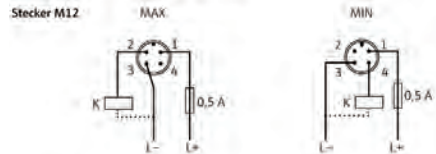
***scale prices - basic price**

1	-	3	pieces	.....
4	-	10	pieces	.....
11	-	35	pieces	.....

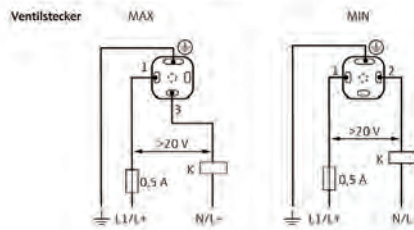
PG H

connection

Elektronikvariante 3-Leiter DC-PNP



Elektronikvariante 2-Leiter AC/DC



Order code

SHM-300

S

Equipment

Order information

BEF-SCM34
BEFASCM10
BEFBSCM10

LKW-0405 PUR
LKW P405 PUR
BKZ0412 VA

model

welding socket G¾" for process connection GD
welding socket G1" for process connection GE
welding socket G1", ausrichtbar

connection cable 5 m
connection cable LED 5 m
cable socket

B
E



Vibrocont VCL

Vibration level limit switch for liquids;
medium temperature: -40...+150°C; pressure: -1...40 bar

1a / 01.16

Technical data



Alternating current mode
Supply voltage:
Current consumption:
Connectable load:

19... 253 V, 50/60 Hz
max. 4 mA when blocked and not operating
of short duration (40 ms): max. 1,5, max. z.B. 375 VA at
250 V or max. 36 VA at 24 V (not short-circuit proof)
permanently: max. 87 VA at 250V, max 8,4 VA at 24V,
min. 2,5 VA at 250 V (10 mA), min. 0,5 VA at 24V (20mA)
over VCL max. 12V
max. 4 mA with locked output

Voltage drop:
Residual current:
Direct current mode
Supply voltage:
Connectable load:

10... 35 V DC
250 mA
valve plug or M12x1

Plug:
ASI-Bus
Supply voltage:
Connectable load:
Plug:
output
Switching time:
Hysteresis:
Mounting position:
ambient temperature:
Medium temperatures: -
Operating pressure:
Storage temperature:
Climate category:
protection (EN 60529):

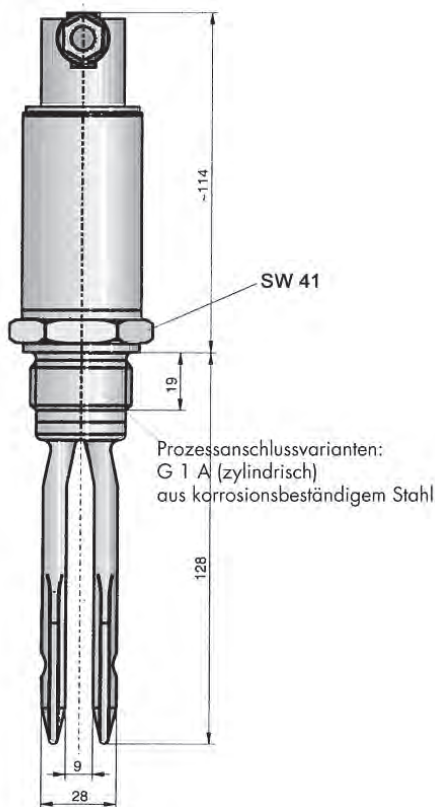
26... 32 V
EN 50295
M12x1
covered: appr. 0,5 s; disposed: appr. 1 s
ca. 2 mm vertical installation
in any order
-40... +70 °C, ASI-Bus -25... +70 °C
40... +150 °C
-1... +40 bar
-40... +85 °C
IEC 68, part 2-38
IP 67; with M12x1 plug: IP 67, emitted interference
according EN 61326; resources of classB; noise immunity
according to EN 61326; Annex A (industry sectors) and
NAMUR recommendation according to NE 21

Product density:
Viscosity:
Licences:

min. 0,7 g/cm3
up to 10.000 mm2/s (cSt)
WHG § 19



welding socket
BEFV-10



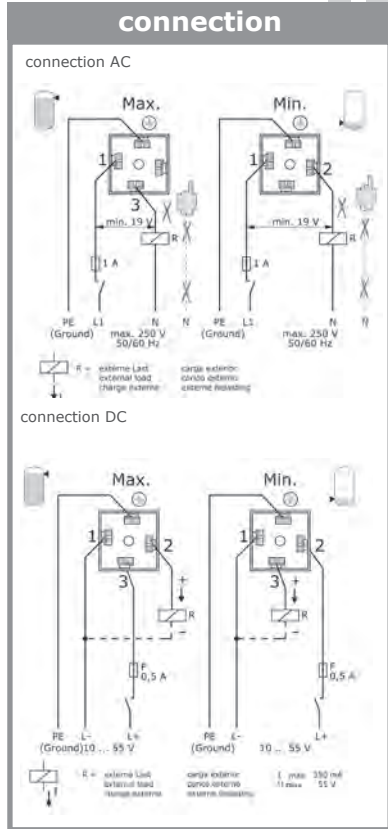
Application

The Vibrocont VCL is a level limit switch for the use in stock tanks, stir engine containers and pipelines with liquids. The device is used where float switches are used till now and also where float switches can not be used, e.g. because of build-ups, turbulences, flows, air bubbles.

Vibrocont VCL

Vibration level limit switch for liquids;
medium temperature: -40...+150°C; pressure: -1...40 bar

1a / 01.16



200	standard (not certified)	.....
202	with WHG-licence	.....
0	standard	.....
WA	19...253 V AC 2-wire	.....
GA	10...55 V DC PNP 3-wire	.....
00	plug IP67 (DIN 43650/4400)	.....
05	5 m cable IP68	.....
S	standard	.....

1	-	3	pieces	.....
4	-	10	pieces	.....
11	-	35	pieces	.....

Price group D

PG D

Order code

VCL 0 S

Equipment

Order information
BEFV-10

SW41
test magnet

model
welding socket G1"
socket wrench
.....

H B



SRK 600 standard

SRK 601 with tube extension

fill level limit switch – compensated for fill level control in conductive liquids, sludge's and pastes
 medium temperature: -40...+150°C; pressure: -1...25 bar

1a / 01.16

Technical data



type GA – supply 16...45V DC
 permitted supply voltage:
 residual ripple:

power consumption:
 overvoltage category:
 protection:
 isolation voltage:

type WB – supply 20...253V AC/DC
 permitted supply voltage:

power consumption:
 overvoltage category:
 protection:
 isolation voltage:

type GA – PNP-switch output
 function:
 output voltage:
 output current:
 reverse current:
 rise time:
 switching cycles:
 type WB – relay output
 function:
 contact data:

switching cycles:
 electrode circuit – measuring circuit
 output voltage:
 output data:
 measuring range:
 step response time:

16 V up to 45 V DC reverse polarity protected
 $\leq 2 V_{SS}$ Condition: within the permitted supply voltage range
 $\leq 1 W$ switch output in idle mode
 II according to DIN EN 61010-1
 II double or reinforced insulation
 2kV~ auxiliary power / switch output against electrode circuit

20 V up to 253 V AC/DC 48...62 Hz
 reverse polarity protected
 $\leq 1 VA / 1 W$
 II according to DIN EN 61010-1
 II double or reinforced insulation
 2kV~ auxiliary power / relay output against electrode circuit

PNP transistor output, contact + L
 $V_{OUT} \geq V_{+L} - 2 V$
 $\leq 500 mA$ current limited, short circuit protected
 $\leq 100 \mu A$ current limited, short circuit protected
 $< 30 \mu s R_L < 3 k\Omega$ resp. $I_L > 4,5 mA$
 $\geq 100.000.000$

changeover, contact L / L +
 $\leq 2 A - 62,5 VA / 60 W$ (at resistive load)
 $\geq 100 \mu V$
 ≥ 100.000 at maximum contact load

potential free AC-voltage
 $1 V_{SS} \pm 0,2 V / \leq 5 kHz \pm 200 Hz / \leq 5 mA$
 $\geq 7,5 \mu S/cm$
 $1s \pm 0,4s$



BEFV-34 (Viton®)
 BEFE-34 (EPDM)



bündiger Einbau with welding socket BEFV-34

BEFV-10 (Viton®)

Anschlussgehäuse



Temperaturkoppler für erweiterten Temperaturbereich -25/40°C...+150°C (optional)



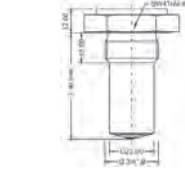
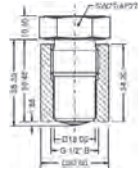
SRK – 600 Typ S 8
 G 3/4" frontbündig

SRK – 600 Typ S 6
 G 1/2" metallisch dichtend Einschweißmuffe SEM-22

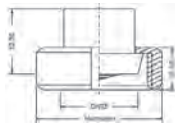
SRK – 601 Typ S 8
 G 3/4" Rohrverlängerung



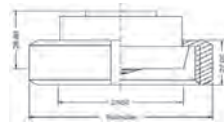
SRK – 600 Typ S R
 Milchrohr DN25



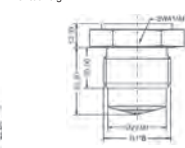
SRK – 600 Typ S S
 G 1" frontbündig



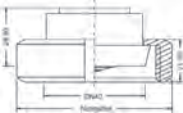
SRK – 600 Typ S M
 Milchrohr DN50



SRK – 600 Typ S N
 Milchrohr DN40



SRK – 600 Typ S O
 Variant 68mm



Application

Der kompakte Grenzstandscharakter funktioniert in allen elektrisch conductive liquids, welche keinen isolierenden Ansatz bilden. Ein Abgleich ist not nötig.

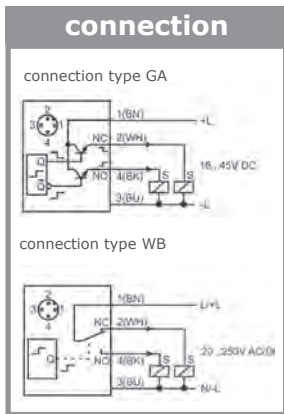
Eine Kompensationselektrode beseitigt automatisch Einflüsse von Ansatzbildungen auf die Schaltung. Der SRK bietet eine sichere unkomplizierte Problemlösung zur Überwachung von Füllständen und als Trockenlaufschutz für Pumpen.

Als Prozessanschlüsse stehen neben Gewindeanschlüssen auch verschiedene Hygieneadaptionen zur Verfügung, die spaltfrei, flush mounted abdichten.

Mit dem SRK können höchste Hygieneanforderungen erfüllt werden, da in den Behälter or die tubeleitung keine mechanischen Teile wie eg. electrode rods or Schwinggabeln, hineinragen. Der SRK-601 with tube extension ist for den Einsatz in Behältern gedacht, at denen only von oben eingebaut werden kann, allerdings der Schaltpunkt weiter unten liegen soll.

fill level limit switch – compensated for fill level control in
conductive liquids, sludge's and pastes
medium temperature: -40...+150°C; pressure: -1...25 bar

1a / 01.16



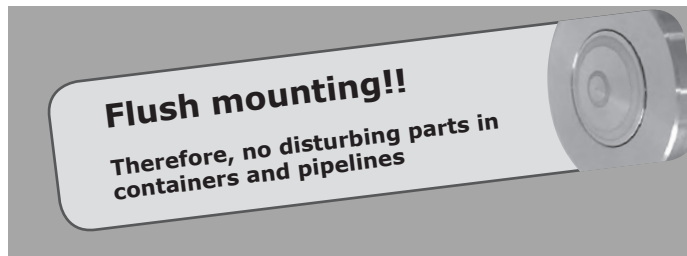
Order code

SRK-600 S S

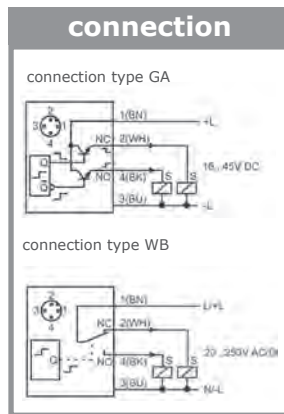
basic price SRK 600

model	S	standard
process connection	8	G 3/4" B; DIN EN ISO228-1, flush mounting in welding socket BEFV-34 / BEFE-34
	6	G 1/2" B; DIN EN ISO228-1 metal seated mounting in welding socket SEM-22 / SEM-42
	5	G 1" B; DIN EN ISO228-1, flush mounting in welding socket BEFV-10
	O	Varivent® 68 mm DN40-80/DN1 1/2".6", PN25 DN100/DN4", PN20 DN125/DN6", PN10
	R	milk tube DN 25 DIN 11851
	N	milk tube DN 40 DIN 11851
	M	milk tube DN 50 DIN 11851
	Y	other process connection
process temperature	0	standard -40°C up to +100°C
	1	advanced -40°C up to +150°C, with temperature decoupler
electronic - output	GA	DC voltage 16...45 V DC; PNP-switch output; 3-wire technology
	WB	universal voltage 20...253 V AC/DC; relay output; 3-wire technology
electrical connection	S	plug M12x1

Price group A



basic price SRK 601



Order code

SRK-601 S S mm

model	S	standard
process connection	8	G 3/4" B; DIN EN ISO228-1
	Y	other process connection
process temperature	0	standard -25°C up to +100°C
	1	advanced -25°C up to +150°C with temperature decoupler
electronic - output	GA	DC voltage; 16...45 V DC; PNP-switch output; 3-wire technology
	WB	universal voltage; 20...253 V AC/DC; relay output; 3-wire technology
electrical connection	S	plug M12x1
length L in mm		(price per 100mm)

Price group A

Equipment

Order information

- BEFV-34
- BEFE-34
- BEFV-10

- LKZ0405 PUR-AS
- BKZ0412 VA

model

- welding socket G 3/4" Viton®
- welding socket G 3/4" EPDM
- welding socket G 1", ausrichtbar
- connection cable 5 m, 4-pole, shielded
- cable socket

Price group B



Silocont SIC-350

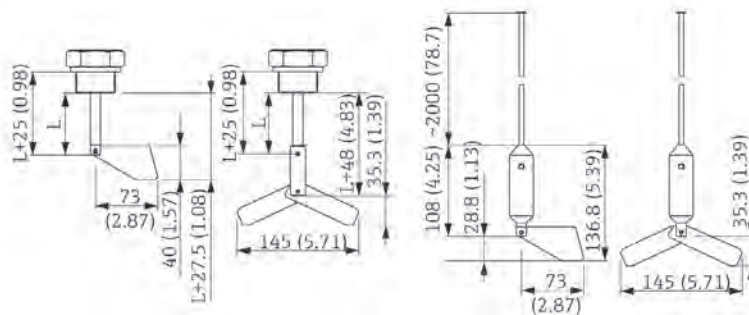
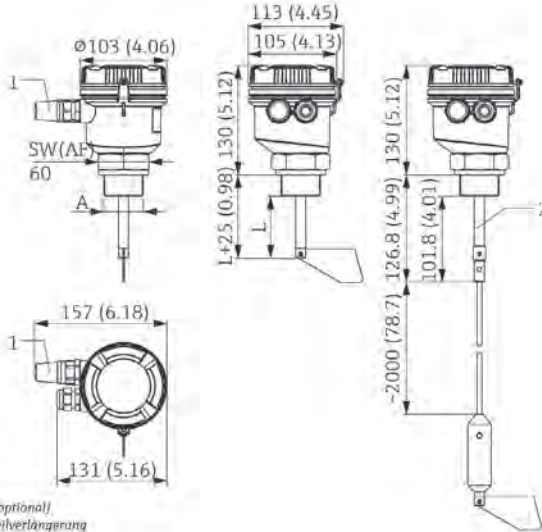
rotary paddle switch for solids;
 simple mechanism, extremely robust and cost-effective;
 medium temperature: -20...+80°C; pressure: 0,5...2,5 bar abs.

1a / 01.16

Technical data



Measuring Principle: Paddle
Characteristic / Application: universally applicable as a full, empty and demand alarm on silos containing solids
Supply / Communication: 230 VAC 50/60 Hz; 115 VAC 50/60 Hz; 24 VAC 50/60 Hz; 20 bis 28 VDC
ambient temperature: -20 °C ... 60 °C (-4 °F ... 140 °F)
Process temperature: -20 °C ... 80 °C (-4 °F ... 170 °F)
Process pressure absolute / max. overpressure limit: 0.5 bar to 1.8 bar (7 psi ... 25 psi)
Min. density of medium: >= 80 g/l
Main wetted parts: 1.4305
Max. tensile strength: Rope version >1500N
Process connection: NPT 1 1/2", PBT; NPT 1 1/4", PBT; G 1 1/2", PBT; NPT 1 1/2", 1.4305; NPT 1 1/4", 1.4305; G 1 1/2", 1.4305
Sensor length: 75 mm (3"); 100 mm (4"); 120 mm (4 3/4"); 200 mm (8"); 300 mm (12"); Rope length of approx 2000 mm (80"), can be shortened
Output: Micro switch with changeover contact max. 10 A/250 VAC
Certificates / Approvals: ATEX II 1/3 D; CSA DIP/ II, III/1/E-G (requested!); FM DIP/ II, III/1/E-G
Options: Rotation Monitoring System; Signal Lamp; Fold-away paddle; Weather protection cover
Specialities: Rotation Monitoring System; Fold-away paddle
Components: HAW569 Surge arrester



Abmessungen je nach Variante

A	Prozessanschluss	NPT 1 1/4", NPT 1 1/2", G 1 1/2"
L	Länge der Welle	75...300 mm (2,95...11,81 in)

Application

The economical Silocont SIC-350 is a paddle switch for point level detection in bulk materials. Its robust polymer housing and compact design makes it an ideal sensor for full, empty and demand alarm in applications with bulk solids. The optimized polymers make the unit outstandingly robust and therefore suitable for use in dust explosive areas according to the latest standards.

Advantages

- Safety comes first - Overfill prevention with an automatic rotation monitoring system
- Optical rotation control for a fast and easy check either for installation or for trouble shooting
- Extremely robust polymer housing with the latest dust Ex certification for ATEX, FM and CSA
- Cost savings over the whole life cycle: quick installation; fast trouble shooting concept without the need of demounting; best price performance ratio in the market
- Adjustment to weight of solids without the need for tools
- Housing can be rotated 360° to enable optimal alignment following installation.

Silocont SIC-350

rotary paddle switch for solids;
simple mechanism, extremely robust and cost-effective;
medium temperature: -20...+80°C; pressure: 0,5...2,5 bar abs.

1a / 01.16

Price group D

licence

AA	Non-Ex-area	.....
BI	ATEX II 1/2D Ex ta/tb IIIC Da/Db (signal lamp not possible with Ex)	.....
CC	CSA DIP/ II, III/1/E-G	.....
FC	FM DIP/ II, III/1/E-G	.....

process connection; material

11	thread NPT 1-1/2", PBT	.....
12	thread NPT 1-1/4", PBT	.....
13	thread G 1-1/2", PBT	.....
14	thread NPT 1-1/2", 303	.....
15	thread NPT 1-1/4", 303	.....
16	thread G 1-1/2", 303	.....
99	special version	.....

model; length

AA	spindle, 75mm	.....
AB	spindle, 100mm	.....
AC	spindle, 120mm	.....
AD	spindle, 200mm	.....
AE	spindle, 300mm	.....
AF	rope, 2000mm, can be shortened	.....
AY	special version	.....

power supply

1	20-28VDC	.....
2	24VAC	.....
3	115VAC	.....
4	230VAC	.....
9	special version	.....

measuring blade; material

1	standard; 304	.....
2	foldable; 304	.....
3	special version	.....

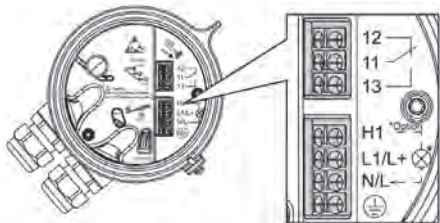
NN

CA	inklusive rotation monitoring (increased safety)	.....
CO	without rotation monitoring	.....

equipment mounted

NA	signal lamp (NOT WITH EX)	.....
N9	special version	.....
00	without equipment	.....

connection



⊕	protective conductor
N (AC), L- (DC)	auxiliary power
L1 (AC), L+ (DC)	auxiliary power
H1 N/L-	connection for signaling the empty / full message (optional)
11	changeover
12	break contact
13	work contact

Order code

SIC-350

NN

Capcont M

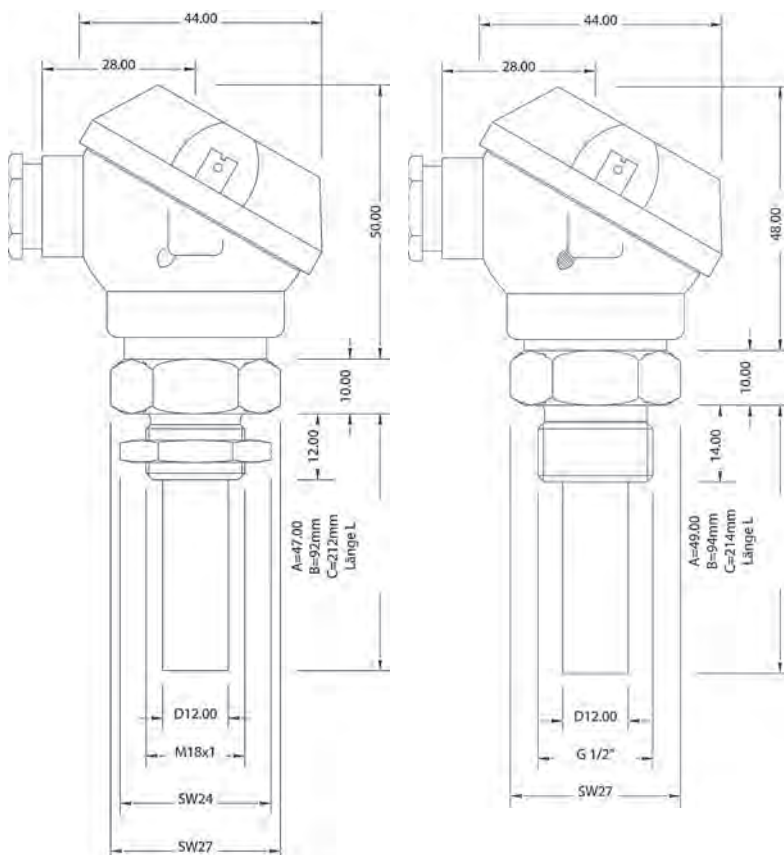
for capacitive fill level supervision in liquids and solid materials
 medium temperature: -30...+125°C; pressure: -1...10 bar

1a / 01.16

Technical data



Power supply	10 V bis 35 V DC protected against polarity reversal
Supply voltage:	≤ 2 VSS only within the permissible voltage limits
Residual ripple :	≤ 10mA switching outputs in idle mode
Current consumption:	75VDC
Isolation voltage:	
Switching output	
Function:	PNP-switching on +Vs, principle (NO/NC) invertible via jumper
Output voltage:	VS1 ≥ +Vs - 2 V
Output current:	≤ 250 mA current-limited, shortcircuit proof
Rise time:	≤ 30 μs RL ≤ 3 000 Ω resp. IL ≥ 4,5 mA
Delay time:	≤ 200 ms / ≥ 5 Hz
Switching cycles:	≥ 100.000.000
Switching hysteresis:	depends on the media
Sensitivity adjustment:	multi-start trimmer
Materials	
Rod isolation:	PTFE - polytetrafluoroethylene (Teflon®)
(medium contact)	
Process connection:	Steel 1.4404 (AISI 316L) resp. 1.4571 (AISI 316Ti)
(medium contact)	
Connection housing:	die-cast aluminium housing in powder-coated finish
Cable screw connection:	brass nickel-plated screw, sealing CR / NBR
Sealing:	medium-contact FPM - Fluorelastomer (Viton®) EPDM - Etylen-P



Application

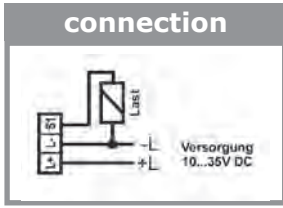
The devices of the series Capcont M with integrated evaluation electronic are compact fill level limit switches for supervision of fill levels in liquids and solid materials in containers or pipelines at process temperatures from -30°C to +125°C and process pressures from -1 up to 10 bar.

The device is suitable for limit value detection or also as dry run protection in liquids and viscous substances but also in powdery and fine-grained materials, like e.g. grain, flour, powdered milk, mixing food, cement, chalk or gypsum. It can be used in electrically conductive as well as non-conductive materials.

Capcont M

for capacitive fill level supervision in liquids and solid materials
 medium temperature: -30...+125°C; pressure: -1...10 bar

1a / 01.16



basic price

model
 M standard

material electrode rod isolation / length L (medium contact)

- A PTFE Polytetrafluoroethylene (Teflon®) L=49 mm (-2 mm at process connection 0 - M18x1)
- B PTFE Polytetrafluoroethylene (Teflon®) L=94 mm (-2 mm at process connection 0 - M18x1)
- C PTFE Polytetrafluoroethylene (Teflon®) L=214 mm (-2 mm at process connection 0 - M18x1)
- Y other isolation material / others length separate disclosure required.

process connection

- 0 M18 x 1 DIN ISO 724
- 1 G½" B DIN EN ISO 228-1
- Y others

gaskets (medium contact)

- 1 FPM Fluoroelastomer (Viton®)
- 2 CR Chloroprene rubber (Neoprene®)
- 3 EPDM Ethylen-Propylen-Dinmonomer for food applications
- 4 FFKM Perfluoroelastomer (Kalrez®)

material process connection (medium contact)

- V steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)

construction form / material connection housing

- 3 Form F according to DIN 43729 Aluminium

electronic - output

- A 1x PNP-switch output

process temperature

- 0 -30°C up to +125°C

electrical connection

- K terminal box

length L in mm

Price group A

Order code

Capcont M V 3 A 0 K mm

Capcont LS and LL

for capacitive filling level supervision in liquids and solids

1a / 01.16

Technical data



Power supply
Supply voltage: 10 V bis 35 V DC protected against polarity reversal
Current consumption: $\leq 10\text{mA}$ switching outputs in idle mode

Switching output
Function: PNP-transistor output, on contact +L
Output current: $\leq 250\text{ mA}$ current-limited, shortcircuit proof
Sperrstrom: $\leq 100\text{ }\mu\text{A}$ current-limited, shortcircuit proof
Rise time: $\leq 30\text{ }\mu\text{s}$ RL $\leq 3\text{ }000\text{ }\Omega$ resp. IL $\geq 4,5\text{ mA}$
Delay time: $\leq 200\text{ ms}$ / $\geq 5\text{ Hz}$
Switching hysteresis: depends on the media
Sensitivity adjustment: multi-start trimmer

Materials
Rod isolation: Capcont LS PTFE – polytetrafluoroethylene (Teflon®)
Capcont LL PEEK

Process connection: 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
Plug M12x1: frame CrNi-Stahl, insert PUR, contact gold-coated
Sealing: medium-contact (LS) FPM – Fluorelastomer (Viton®)
EPDM – Etylen-Propylen-Dienmonomer
other FPM – Fluorelastomer (Viton®)

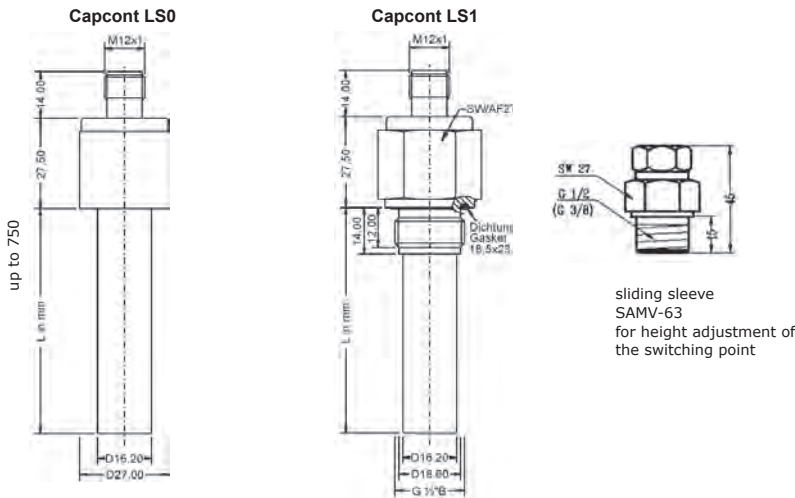


Capcont LS

Sliding sleeve for point adjustment

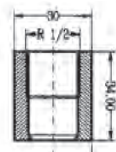
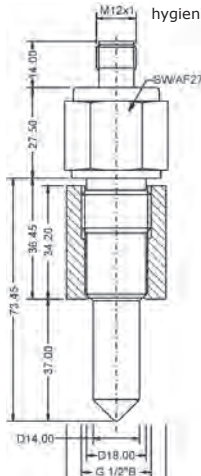


Capcont LL
hygienic version

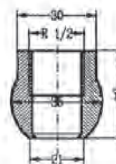


sliding sleeve
SAMV-63
for height adjustment
of the switching point

Capcont LL2
hygienic version



SEM-22



welding socket
SEM-42

Application

The device is suitable for limit value detection of also as dry run protection in liquids and viscous substances and also in powdery and fine granular substances, like e.g. grain, flour, powdered milk, mixing food, cement, chalk or gypsum.

It can be used in electrically conductive as well as in non-conductive materials.

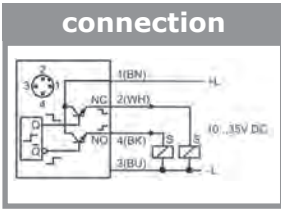
The device is certificated for the use as overflow protection acc. to WHG.

Capcont L with integrated evaluation electronic is a compact filling level limit switch for supervision of filling levels in liquids and solids within container or pipes, also in explosive hazardous areas, at process temperatures from -40°C to $+140^{\circ}\text{C}$ and process pressures from -1 up to 10 bar. Capcont LL with metallic gasket and rod isolation in PEEK is especially suitable for the use in hygienic applications

Capcont LS

for capacitive filling level supervision in liquids and solids

1a / 03.16



Order code

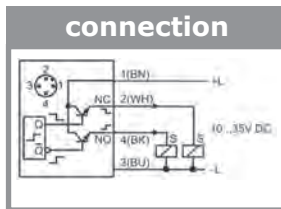
Capcont- V C A 0 S

- model**
 L standard (only for electronic „A“)
 X2L ATEX II 3G Ex ic IIC T6 ...T1 Gc / ATEX II 3D Ex ic IIIC T98°C Dc (only for electronic „A“)
- material electrode rod isolation (medium contact)**
 S PTFE Polytetrafluoroethylene (Teflon®)
- process connection**
 0 without – mounting with sliding sleeve SAMV-63 / SAME-63
 1 G½" B; DIN EN ISO228-1; DIN 3852-11-E
 Y others
- material gaskets (medium contact)**
 1 FPM Fluoroelastomer (Viton®)
 3 EPDM Etylen-Propylen-Dinmonomer - for food applications
- material process connection (medium contact)**
 V steel 1.4404/316L or 1.4571/316Ti
- material connection housing**
 C CrNi-Steel
- electronic - output**
 A DC voltage 24V_{DC} 1x PNP switch output
- process temperature**
 0 standard, -40°C ... +100°C
- electrical connection**
 S plug M12x1
- length L**
 A length L = 150 mm
 B length L = 300 mm
 C length L = 500 mm
 D length L = 750 mm

Price group A

Capcont LL2

for capacitive filling level supervision in liquids and solids in hygienic applications



Order code

Capcont- L 2 0 V C A 1 S 0

- model**
 L standard (only for electronic „A“)
 X2L ATEX II 3G Ex ic IIC T6 ...T1 Gc / ATEX II 3D Ex ic IIIC T98°C Dc (only for electronic „A“)
- material electrode rod isolation (medium contact)**
 L PEEK
- process connection**
 2 G½" B, DIN EN ISO228-1 – mounting with welding socket SEM-22 / SEM-42
- material gaskets**
 0 without
- material process connection (medium contact)**
 V steel 1.4404/316L or 1.4571/316Ti
- material connection housing**
 C CrNi-Steel
- electronic - output**
 A DC voltage 24V_{DC} 1x PNP switch output
- process temperature**
 1 advanced, -40°C ... +140°C
- electrical connection**
 S plug M12x1
 0
- Order information**
 LKZ0405PUR-AS
 LKZ0410PUR-AS
 BKZ0412-VA
 SAMV-63
- model**
 connection cable 5 m, 4-pole, shielded
 connection cable 10 m, 4-pole, shielded
 Matching cable socket, VA-nut
 sliding sleeve G½" DIN EN ISO228-1 / ø 16 mm, for Capcont LS-steel 1.4404 / 1.4571 / gasket PTFE

Price group A

Equipment

PG E



Mycrocont MCN

Level Switch for level monitoring
with plug-in connection M12 or terminal connection
Option: Softwaretool

1a / 01.16

Technical data



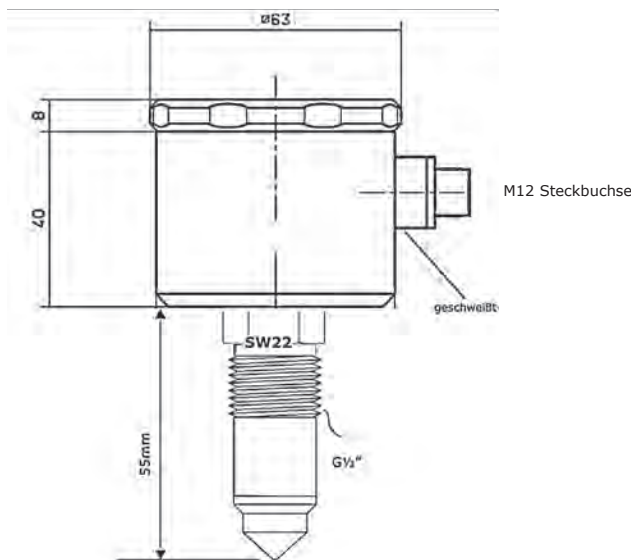
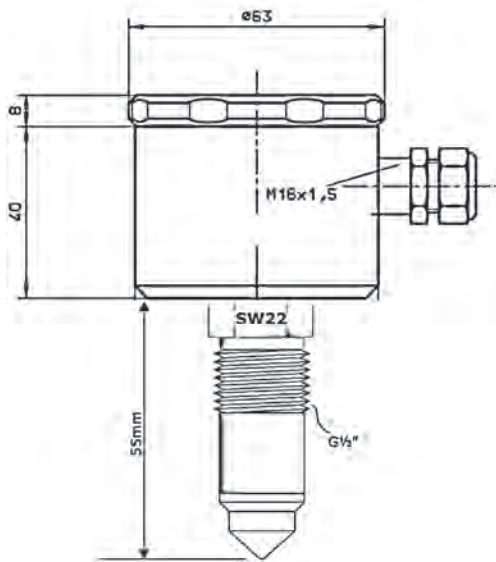
supply voltage:	Ub = 24V +/-20% (18...32VDC)
power requirement:	<20mA
output signal:	active; max.50mA
permitted load:	0Ü@ 24VDC, 50mA
switch-on delay:	<0,3s
response time:	<0,2s
ambient temperature:	-10... +70°C
storage temperature:	-20... +70°C
protection:	IP 68
operating pressure:	Max. 10bar
process temperature:	0... +100°C
CIP-/SIP cleaning:	0... +150°C (30min)



Mycrocont MCN without sleeve



Mycrocont MCN with sleeve BEFH-20



BEFH-30



BEFH-20

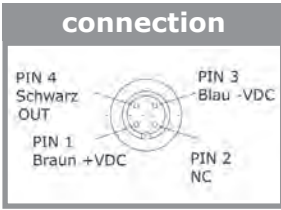
Application

The level monitor Mycrocont MCN is used for easy and safe level monitoring of liquids or solids. In addition to aqueous media, eg, oils, honey, chocolate, emulsions, and various fine grain products such as cereals, sugar, milk powder, etc., can be detected. Through the elastomeric seal between probe tip and sleeve the Mycrocont MCN can also be used for hygienic applications. The medium can be balanced via DIP switches or via an optional software. The operating software media differences can be detected and the switching characteristics are adjusted for exactly this situation.

Mycrocont MCN

Level Switch for level monitoring
with plug-in connection M12 or terminal connection
Option: Softwaretool

1a / 01.16



type	200 standard
process connection	22 standard G1/2" (hygienic mounting with sleeve BEFH; 55mm)
	25 extended PEEK end (hygienic mounting; 65mm)
	YY special version
electronic	GA 24 V DC ±20% (18...32 V DC)
connection	00 cable screw connection IP68 (standard)
	01 plug M12
option	S standard
	Y special version

Price group B

Order code

MCN-200 GA

Equipment

Order information

BEFH-20	standard welding socket for hygienic installation (elastomer free) Ø 29 mm / L=36 mm
BEFH-20L	welding socket for hygienic installation (elastomer free) with leakage hole Ø 29 mm / L=36 mm
BEFH-30	ball-welding socket for hygienic installation (elastomer free) Ø 35 mm
BVFH-20	thread adapter 1/2" for BEFH-20
Software MCN-Soft	.....
USB-programming adapter	.....
connection cable MCN	.....
HEM-10	Liquiphant adapter G 1 for Mycrocont

others adapter, sleeves ect. on request!

PG E

KLF-200

Conductivity sensor for phase - and product monitoring (temperature compensated)

1a / 01.16

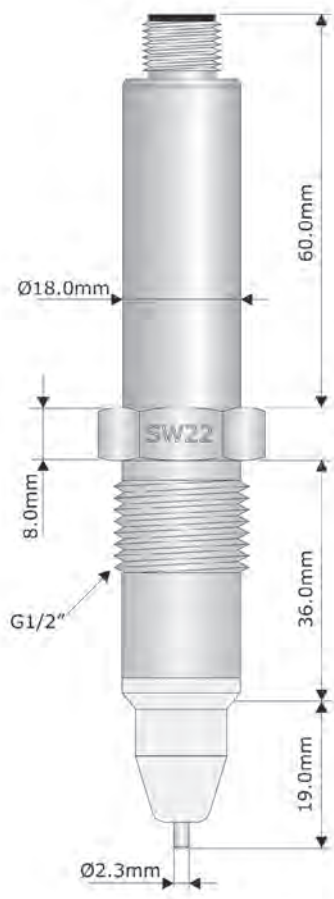
Technical data



supply voltage:	Ub = 24V +/-20% (18...32VDC)
measuring range:	0-15mS/cm (0-15000µS/cm)
output signal:	PNP; 18-32V
permitted load:	0Ω@24V; 35mA analogue 4-20mA; load <=680Ω
response time:	<0,5s
deviation:	ca. +/- 5% of the displayed measuring range
ambient temperature:	-10... +60°C
storage temperature:	-20... +70°C
protection:	IP 68
operating pressure:	Max. 10bar
process temperature:	0... +100°C
CIP-/SIP cleaning:	0... +150°C (30min); if necessary neck tube
material	
measurement end:	316L/1.4404/1.4571 (AISI/W-NR.)
housing parts:	PEEK (FDA)
isolator:	1.4305/1.4301 (AISI/W-NR.)
Stutzen G1/2" SW22:	1.4305/1.4301 (AISI/W-NR.)



KLF-200



ST-12-Y-AD
Y-connection cable
for KLF-200



USB-programming adapter

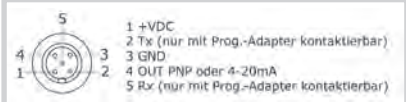


BEFH-20

Application

The conductive conductivity sensor KLF-200 is designed for the process monitoring in the food and pharmaceutical industries. A typical scenario is a cost-effective phase separation from medium to medium or medium to cleaning process. The compact construction form of the sensor and the hygienic G 1/2 "process connection makes it possible to watch over themselves in DN25 products so that processing costs can be minimized. The parameters of the sensor takes place over the free software MCN-Soft.

connection



KLF-200

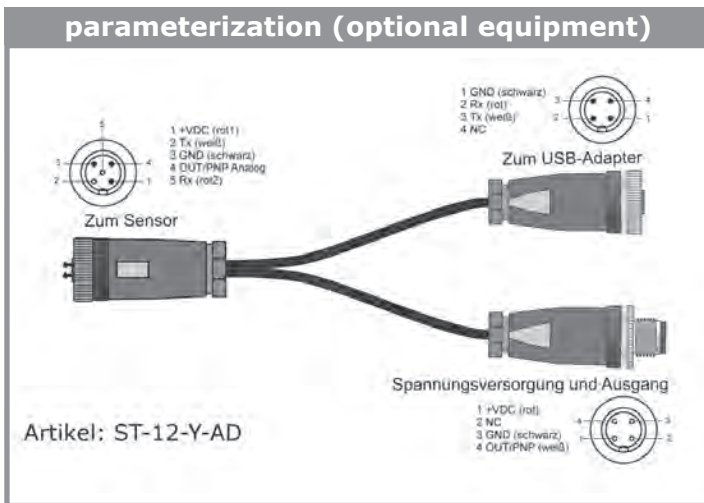
Conductivity sensor for phase - and product monitoring
(temperature compensated)

1a / 01.16

<p>type</p> <p>200 0-15mS/cm (measuring range 0-10000µS up to 0-15000µS)</p> <p>process connection</p> <p>22 standard G ½" (hygienic mounting with sleeve BEFH)</p> <p>electronic</p> <p>GA 24 VDC ± 20% (18-32 VDC) Analog 4-20 mA or PNP</p> <p>connection</p> <p>01 plug M12</p> <p>Option</p> <p>S standard (<i>standard type</i>)</p> <p>H neck tube</p> <p>Y special version</p>	<p>Price group B</p>
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Order code

KLF-200 22 GA 01



Equipment

<p><i>Order information</i></p> <p>ST-12-Y-AD USB-programming adapter BEFH-20</p> <p>BEFH-20L</p> <p>BEFH-30</p> <p>BVFH-20 Software MCN-Soft HEM-10 BKZ0412-VA LKZ0405PUR-AS</p>	<p><i>model</i></p> <p>Y-connection cable for KLF-200.</p> <p>standard welding socket for hygienic installation (elastomer free) Ø 29 mm / L=36 mm</p> <p>welding socket for hygienic installation (elastomer free) with leakage hole Ø 29 mm / L=36 mm.</p> <p>ball-welding socket for hygienic installation (elastomer free) Ø 35 mm</p> <p>thread adapter ½" for BEFH-20</p> <p>Liquiphant adapter G 1 for Mycrocont / KLF</p> <p>Matching cable socket, VA-nut</p> <p>connection cable 5 m, 4-pole, shielded</p>
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others adapter, sleeves ect. on request!

PG E

Equipment for Hydrocont®

Equipment for probes

Equipment for electrode relays

1a / 01.16

Welded flanges for container for installation of Hydrocont® and Precont®

<i>Order information</i>	<i>model/material 1.4571 (gasket Viton®, others gaskets on request)</i>
BEFV-10	welding socket G1", adjustable.
BEFV-34	welding socket G¾", gasket FMP-Viton®
BEFE-34	welding socket G¾", gasket EPDM
BEFK12	welding socket G½", sealing attachment in the back.
BEFK60	welding socket G1½" EG, sealing attachment in the back
BEFV-60	welding flange Ø 65 mm with Viton® seal.
BEFE-60	welding flange Ø 65 mm with EPDM seal
BEF-61	welding flange for DRD-connection 65 mm.
BEFA-62	welding flange milk tube connection DN50 n. DIN 11851 aus 1.4301
BEFB-62	welding flange milk tube connection DN40 n. DIN 11851 aus 1.4301
BEFC-62	welding flange milk tube connection DN25 n. DIN 11851 aus 1.4301
BEF-63	welding flange Varivent® Ø 68 mm PN40
BEF-66	welding flange for Coupling nut adapter.

DIN-Flansche with 1,5"-borehole

<i>Order information</i>	<i>model/material 1.4571</i>
FL-4001	DN 40 / PN 16
FL-5001	DN 50 / PN 16
FL-8001	DN 80 / PN 16
FL-1001	DN 100 / PN 16
FL-2201	ANSI 2" / PSI 150.
FL-3201	ANSI 3" / PSI 150.
FL-4201	ANSI 4" / PSI 150.

Reduzierungen

<i>Order information</i>	<i>model/material 1.4571</i>
RD-20Z15	reduction G2" A auf G1½" I
RD-20Z10	reduction G2" A auf G1" I
RD-15Z10	reduction G1½" A auf G1" I
RD-15Z12	reduction G1½" A auf G½" I

tube nuts

<i>Order information</i>	<i>model/material 1.4571</i>
RM-15GV	tube nut DIN 431, G1½"
RM-10GV	tube nut DIN 431, G1"
RM-20GV	tube nut DIN 431, G2"
RM-38GV	tube nut DIN G¾".
RM-12GV	tube nut DIN G½".

Welding sleeves for conductive probes in food applications

<i>Order information</i>	<i>model/material 1.4571</i>
BEFA-62	welding flange milk tube connection DN50 acc. to DIN 11851 from 1.4301
BEFB-62	welding flange milk tube connection DN40 acc. to DIN 11851 from 1.4301
BEFC-62	welding flange milk tube connection DN25 acc. to DIN 11851 from 1.4301
SEM-12	food application welding sleeve for probe SLK/KLK with G½"
SEM-10	food application welding sleeve for probe SLK/KLK with G1"
SEM-15	food application welding sleeve for probe SLK/KLK with G1½"
SEM-22	welding socket metal-seated G½"
SEM-42	ball welding sleeve metal-seated G½"

spacers for conductive probes

<i>Order information</i>	<i>model</i>
AH-2	spacers for 2-rod probes
AH-3	spacers for 3-rod probes
AH-4	spacers for 4-rod probes
AH-5	spacers for 5-rod probes

Line break module for installation in the probe head

<i>Order information</i>	<i>model</i>
LBM	for installation in STK, SLK, ELT, SST.
ExLBM	for installation in Ex-probes of type STK, SLK.

Female connectors according to DIN 41612

<i>Order information</i>	<i>model</i>
FL-2FL	female connector with solder 2-row
FL-3FL	female connector with solder 3-row

Sealing screw for Hydrocont®-xtension cable montage

<i>Order information</i>	<i>model</i>
VSM-1000	G1", cable strength 7,5 mm (for Hydrocont® M + LK).
VS-1500	G1½", cable strength 10 mm (for Hydrocont® B)
VSM-1500	G1½", cable strength 7,5 mm (for Hydrocont® M + LK)

Straining clamps

<i>Order information</i>	<i>model</i>
Straining clamp	galvanized, for Extension cable 7,5 - 10,5 mm
Straining clamp	CrNi-Steel, for Extension cable 7,5 - 10,5 mm

Wall-mounted casing with pressure equalization

<i>Order information</i>	<i>model</i>
Wall-mounted casing	for Hydrocont® B, M + LK with inscription
Wall-mounted casing	for Hydrocont® B, M + LK without inscription
Wall-mounted casing	for Hydrocont® B-Ex, Ex-M with inscription

sliding sleeve for Capcont LS

<i>Order information</i>	<i>model</i>
SAMV-63	sliding sleeve G½" DIN EN ISO228-1 / ø 16 mm, for Capcont LS-steel 1.4404 / 1.4571 / gasket PTFE

Marking measuring point

AS-50	hang tag of VA with laser inscription
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Price group B

Price group E

PG B

Price group E

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Levelflex FMP56 Geführte Radar-Füllstandmessung in Schüttgütern	ab 134

Typ	FTL-50 Vibration	FTL-50 H Vibration	FTL-51 Vibration	FTL-51 H Vibration	FTL-51 C Vibration	FTM-50 Vibration	FTM-51 Vibration
Funktionsprinzip							
Seite	86	88	90	94	94	101	102
Bauform	kompakt oder mit Schaltgerät: FTL 375F, FTL 375N für 19"	kompakt oder mit Schaltgerät: FTL 375F, FTL 375N für 19"	kompakt oder mit Schaltgerät: FTL 375F, FTL 375N für 19"	kompakt oder mit Schaltgerät: FTL 325F, FTL 325N	kompakt oder mit Schaltgerät: FTL 325F, FTL 325N	kompakt oder mit Schaltgerät: FTL 375F, FTL 375N	kompakt oder mit Schaltgerät: FTL 375F, FTL 375N
Einsatzbereiche	Flüssigkeiten	Flüssigkeiten Hygienebereich	Flüssigkeiten	Flüssigkeiten Hygienebereich	hohe chemische Beständigkeit	feinkörnige oder staubförmige Schüttgüter	feinkörnige oder staubförmige Schüttgüter
Messbereiche	ab 55 mm	ab 55 mm	148 bis 6.000 mm	148 bis 6.000 mm	148 bis 6.000 mm	145 bis 200 mm	300 bis 4.000 mm
Prozessanschlüsse	G-A, G1A Flansche ab DN 25	alle gängigen Hygieneflansche	G-A, G1A Flansche ab DN 25	alle gängigen Hygieneflansche	Flansche ab DN25	R1/2", NPT1 1/2" Flansche ab DN25, ANSI JIS, ISO-Clamp	R1/2", NPT1 1/2" Flansche ab DN25, ANSI JIS, ISO-Clamp
Prozesstemperatur	-50 bis +150°C	-50 bis +150°C	-50 bis +150°C	-50 bis +150°C	-40 bis 120/200/230°C	-50 bis +150°C	-50 bis +150°C
Prozessdruck	0 bis 64 bar	0 bis 64 bar	0 bis 64 bar	0 bis 64 bar	0 bis 40/25 bar	-1 bis 25 bar	-1 bis 25 bar
Elektronik							
Ausgang	PNP, AC-Halbleiterrelais, Relais, Zweidräh, NAMUR, PFM	PNP, AC-Halbleiterrelais, Relais, Zweidräh, NAMUR, PFM	PNP, AC-Halbleiterrelais, Relais, Zweidräh, NAMUR, PFM	PNP, AC-Halbleiterrelais, Relais, Zweidräh, NAMUR, PFM	PNP, AC-Halbleiterrelais, Relais, Zweidräh, NAMUR, PFM	DC PNP, NA, Mur, PFM, AC/DC-Relaisausgang	DC PNP, NA, Mur, PFM, AC/DC-Relaisausgang
Kommunikation	Profibus PA	Profibus PA	Profibus PA	Profibus PA	Profibus PA		
Anzeige							
Zertifikate	WHG US, SIL, ATEX, CSA, FM	WHG US, SIL, ATEX, CSA, FM	WHG US, SIL, ATEX, CSA, FM	WHG US, SIL, ATEX, CSA, FM	WHG US, SIL, ATEX, CSA, FM	ATEX 1 DG, ATEX 1/2 DG, ATEX 1/3 DG, ATEX 3 DG	ATEX 1 DG, ATEX 1/2 DG, ATEX 1/3 DG, ATEX 3 DG
Genauigkeit							
Messstoffdichte	0,7 g/m ³	0,7 g/m ³	0,7 g/m ³	0,7 g/m ³	0,5 g/m ³		
Blockdistanz							
Mediumsberührende Werkstoffe	316L oder Alloy-C4	316L oder Alloy-C4	316L oder Alloy-C4	316L oder Alloy-C4	ECTFE, PFA, Einmale	316L	316L
Messzelle							
min DK							
max. Viskosität	10.000 cSt	10.000 cSt	10.000 cSt	10.000 cSt	10.000 cSt		
Einsatzgrenzen	sehr zähflüssige Medien Brückenbildung d. Ansatz	sehr zähflüssige Medien Brückenbildung d. Ansatz	sehr zähflüssige Medien Brückenbildung d. Ansatz	sehr zähflüssige Medien Brückenbildung d. Ansatz	sehr zähflüssige Medien Brückenbildung d. Ansatz	Kompakte des Messstoffs	10 mm
Schüttgewicht						10 g/l	10 g/l

Typ	FTM-52 Vibration	FTM 20 Kompaktversion	FTM21 Rohrvorlängerung	FTC-068/Z kapazität	FTC-260 kapazität	FTC-262 kapazität
Funktionsprinzip						
Seite	104	108	109	110	115	115
Bauform	kompakt oder mit Schalgerät: FTL 325, FTL 325N	Einsatzsensor	Einsatzsensor	kompakt Zubehör: Protector	kompakt Zubehör: Adapter	kompakt oder 1/2"
Einsatzbereiche	feinkörnige oder staubförmige Schüttgüter	feinkörnige oder staubförmige Schüttgüter	feinkörnige oder staubförmige Schüttgüter	Schüttgüter mit geringer Ansatzbildung	Schüttgüter mit geringer Ansatzbildung	Schüttgüter mit geringer Ansatzbildung
Messbereiche	1.000 bis 20.000 mm	abhängig vom Einbauort und der gewählten Rohrvorlängerung	abhängig vom Einbauort und der gewählten Rohrvorlängerung	Grenzanderfassung	Grenzanderfassung	Grenzanderfassung
Prozessanschlüsse	R 1/2", NPT 1/2" Flansche ab DN25, ANSI JIS, ISO-Clamp	Gewinde R1", R1 1/2", NPT 1 1/4", NPT 1 1/2"	Gewinde R1", R1 1/2", NPT 1 1/4", NPT 1 1/2"	R 1" mit Protector: R 1 1/2"	R 1"	R 1"
Prozesstemperatur	-50 bis +80°C	-50 bis +80°C	-50 bis +80°C	-20 bis +80°C (Z: 75°C)	-40 bis +120°C (80°C bei Ex)	-40 bis +80°C (Z: 75°C)
Prozessdruck	2 bar (6 bar auf Anfrage)	Vakuum...25 bar	Vakuum...25 bar	-1 bis 6 bar, abh. von Temperatur	-1 bis 25 bar	-1 bis 6 bar
Elektronik	-	-	-	-	-	-
Ausgang	DC PNP, NA Min, PFM, AC/DC-Relaisausgang	DTDT Relais, DC PNP max 350 mA	DTDT Relais, DC PNP max 350 mA	DC PNP AC 2-Draht	DC PNP AC/DC-Relaisausgang	DC PNP AC/DC-Relaisausgang
Kommunikation	-	10 - 45 VDC, 19 - 253 VAC Relais, DC PNP 10 - 45 V	10 - 45 VDC, 19 - 253 VAC Relais, DC PNP 10 - 45 V	-	-	-
Anzeige	-	Leuchtdiode	Leuchtdiode	-	-	-
Zertifikate	ATEX I DG, ATEX 1/2 DG, ATEX 1/3 DG, ATEX 3 DG	AAATEX, FM, CSA	ATEX, FM, CSA	ATEX II 1/3 D	ATEX II 1/3 D Ex Ia II C T6, WHG	ATEX II 1/3 D Ex Ia II C T6, WHG
Genauigkeit	-	-	-	-	-	-
Messstofdichte	-	-	-	-	-	-
Bio-ctdistanz	-	-	-	-	-	-
Mediumberührende Werkstoffe	316L	316L	316L	Kunststoff PC, ECTFE, Messing	PPS	PPS
Messzelle	-	-	-	-	-	-
min DK	-	-	-	-	-	-
max. Viskosität	-	-	-	-	-	-
Einsatzgrenzen	10 mm	10 mm	10 mm	10 mm	30 mm	30 mm
Schüttgewicht	> 10 g/l	< 200 g/l	< 200 g/l	min. DK: 1,6 DK-wert bei 250g/l erreicht	min. DK: 1,6 DK-wert bei 250g/l erreicht	min. DK: 1,6 DK-wert bei 250g/l erreicht

Typ	FTL325P / FTL325N	FTL375P | FTL375N	Funktionsprinzip Radar für Flüssigkeiten	FMR50	FMR51	FMR56
Seite	97	97		120	122	124
Bauform	19"-Karte | P:PFM; N: NAMUR Hutschiene | P:PFM; N: NAMUR	19"-Karte | P:PFM; N: NAMUR Hutschiene | P:PFM; N: NAMUR		PVDF gekapselte oder PP plattierte Horn-Antenne	Horn-Antenne 40...100 mm	Horn DN80/3", PP plattiert Horn DN100/4", PP plattiert
Versorgungsspannung	85...253 VAC, 50/60 Hz 20...30 VDC, 20...60 VDC max. 60 mA	20...30 VDC, max. 10 mA zulässige Reivelligkeit: innerhalb der Toleranz: U ₀ =max. 2V		Standard: 30 m / erhöhte Dynamik: 40 m	Standard: 40 m / erhöhte Dynamik: 70 m	30 m
Umgebungstemperatur	Einzelmontage: -20...+60°C Reihenmontage: -20...+50°C	-20...+70°C (reihen- und Einzelmontage)		2-Draht (HART / PROFIBUS PA / FOUNDATION Fieldbus) 4...20mA (HART)	2-Draht (HART / PROFIBUS PA / FOUNDATION Fieldbus) 4...20mA (HART)	2-Draht (HART / PROFIBUS PA / FOUNDATION Fieldbus) 4...20mA (HART)
Zertifikate	ATEX II (1) GD | Ex: Iaj IIC WHG			10,4...48 VDC / 90...253 VAC	10,4...48 VDC / 90...253 VAC	10,4...48 VDC / 90...253 VAC
Relaisausgang	pro Kanal ein potenzialfreier Um Schaltkontakt für den Füllstandarm			+/- 2 mm	+/- 2 mm	+/- 3 mm
Anschließbare Messaufnehmer	Vibrationsgrenzschalter Liquidphant; beliebige Signalgeber nach EN 50227 (DIN 19234; NAMUR) Kontaktschalter mit entsprechender Widerstandsschaltung			Freifeld / Schwallrohr	Freifeld / Schwallrohr	Freifeld / Schwallrohr
Prozessdruck	Vakuum...3 bar			-40...130°C	-196...450°C	-40...80°C
Dielektrizität	für Flüssigkeiten: ε _r ≥ 1,9 in Freifeld-Anwendung / ε _r ≥ 1,4 im Schwallrohr für Schüttgüter: ε _r ≥ 1,6			Vakuum...3 bar	Vakuum...1,60 bar	Vakuum...3 bar
Prozesseiellige Werkstoffe	PVDF, PTFE, Viton, PP, PBT			316L, Alloy, PTFE, Keramik		PP, UP
Zertifikate	ATEX, IECEx, Überfüllsicherung WHG, SIL			ATEX, IECEx, Überfüllsicherung WHG, SIL, EN 10204-3.1, NACE	ATEX, IECEx, Überfüllsicherung WHG, SIL, EN 10204-3.1	ATEX, FM, CSA, IECEx, NEPSI, SIL, EN 10204-3.1

Typ Funktionsprinzip Radar für Flüssigkeiten	 FMP50	 FMP51	 FMP56
Seite	129	131	134
Antennentyp	Stab / Seil	Stab / Seil / Koax	Seil
Messbereich	Stab: 4 m Min DK > 1,6 Seil: 12 m Min DK > 1,6	Stab: 4 m Min DK > 1,4 Seil: 10 m Min DK > 1,4 Koax: 6 m Min DK > 1,4	Seil: 12 m Min DK > 1,4
Ausgangssignal	4...20mA HART / PROFIBUS PA / FOUNDATION Fieldbus	4...20mA HART / PROFIBUS PA / FOUNDATION Fieldbus	2-Draht (HART / PROFIBUS PA / FOUNDATION Fieldbus), 4...20mA HART
Hilfsenergie	10,4...48 VDC / 90...253 VAC	10,4...48 VDC / 90...253 VAC	10,4...48 VDC / 90...253 VAC
Messabweichung	Stabsonde: +/- 2 mm Seilsonde: +/- 2 mm	Stabsonde: +/- 2 mm Seilsonde: +/- 2 mm Koaxsonde: +/- 5 mm	Seilsonde: +/- 2 mm
Montage	Freifeld / Schwallrohr	Freifeld / Schwallrohr	Freifeld / Schwallrohr
Prozesstemperaturbereich	-20...80°C	-50...200°C	-40...120°C
Prozessdruck	Vakuum...6 bar	Vakuum...40 bar	Vakuum...16 bar
Dielektrizität	Stab- und Seilsonde: DK (ε) ≥ 1,6	Stab- und Seilsonde: DK (ε) ≥ 1,4 in Rohre DN ≤ 150 mm (6 in): DK (ε) ≥ 1,4 Koaxsonde: DK (ε) ≥ 1,4	Stab- und Seilsonde: DK (ε) ≥ 1,6
Prozesssichere Werkstoffe	Stabsonde: 316L, PPS, Viton Seilsonde: 316, PPS, Viton	Stabsonde: 304, 316L, PTFE, PFA Seilsonde: 304, 316L, PTFE, PFA Koaxsonde: 304, 316L, PTFE, PFA	Seilsonde: 304, 316, 316Ti, 316L, PEEK, PPS, PA
Zertifikate	ATEX FM, CSA, CSA C/US, IECEx, NEPSI, KC, INMETRO, Überfüllsicherung WHG, SIL, EN 10204-3.1	ATEX FM, CSA, CSA C/US, IECEx, NEPSI, KC, INMETRO, Überfüllsicherung WHG, SIL, EN 10204-3.1, NACE, Marine	ATEX FM, CSA, CSA C/US, IECEx, NEPSI, KC, INMETRO, SIL

Liquiphant M FTL 50, 51, 50H, 51H, 51C

Füllstandgrenzschalter Flüssigkeiten, Vibrationsprinzip

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E+H Füllstandmesstechnik



Einsatzbereiche

Der Liquiphant M ist ein Grenzschalter zum Einsatz in allen Flüssigkeiten

- für Prozesstemperaturen von -50 °C bis 150 °C
- für Drücke bis 100 bar
- für Viskositäten bis 10000 mm²/s
- für Dichten ≥ 0,5 g/cm³ oder ≥ 0,7 g/cm³, andere Einstellungen auf Anfrage
- Schaumdetektion auf Anfrage

Die zuverlässige Funktion wird nicht beeinflusst durch Strömungen, Turbulenzen, Luftblasen, Schaum, Vibration, Feststoffanteile oder Ansatz, daher ist der Liquiphant ein idealer Ersatz für Schwimmerschalter.

FTL50:

Kompakte Bauform, günstig auch zum Einbau in Rohrleitungen und beengten Einbauverhältnissen

FTL51:

Mit Verlängerungsrohr bis 3 m (6 m auf Anfrage)

FTL50H, FTL51H:

Mit polierter Schwinggabel und leicht zu reinigenden Prozessanschlüssen und Gehäusen für Lebensmittel- und Pharmabereich

Zum Einsatz in sehr aggressiven Flüssigkeiten steht der hochkorrosionsbeständige Werkstoff: AlloyC22 (2.4602) für die Schwinggabel und den Prozessanschluss zur Verfügung.

Die Einsatzfähigkeit in explosionsgefährdeten Bereichen wird durch internationale Zulassungen bescheinigt.

Vorteile auf einen Blick

- Einsatz in Sicherheitssystemen mit Anforderungen an die funktionale Sicherheit bis SIL2/SIL3 gemäß IEC 61508/IEC 61511-1
- Ausführung gemäß ASME B31.3
- Geeignet für den Einsatz in sterilen Anwendungen der Life Science Industrie (Bauart entsprechend der ASME BPE-2007)
- PROFIBUS PA-Protokoll: zur Inbetriebnahme und Wartung
- Kein Abgleich: rasche und kostengünstige Inbetriebnahme
- Keine mechanisch bewegten Teile: wartungsfrei, kein Verschleiß, lange Lebensdauer
- Überwachung der Schwinggabel auf Beschädigung: funktionssicher
- FDA konformes Material (PFA Edlon)
- Kompaktes Edelstahlgehäuse (optional): Die Schutzart IP69K garantiert eine dauerhafte Dichtigkeit. Auch bei stundenlanger Überflutung oder intensiver Reinigung.

Liquiphant M FTL50



Liquiphant M FTL50H



Liquiphant M FTL51



	Liquiphant M FTL50	Liquiphant M FTL50H	Liquiphant M FTL51
Messprinzip	Vibration Flüssig	Vibration Flüssig	Vibration Flüssig
Merkmal / Anwendung	Modulares Gehäusekonzept umfangliches Prozessanschlussangebot Analoge und busfähige Elektroniken breite Zertifikatspalette (z.B. Ex, WHG) Kompakt, z.B. Rohrleitungseinbau	Modulares und komplett verschweisstes Gehäusekonzept Fokus Lebensmittel und Pharma Oberfläche bis 0,38µm elektropoliert umfangliches Prozessanschlussangebot Analoge und busfähige Elektroniken Zertifikatspalette (z.B. EHEDG, 3A) Kompakt, z.B. Rohrleitungseinbau	Modulares Gehäusekonzept umfangliches Prozessanschlussangebot Analoge und busfähige Elektroniken breite Zertifikatspalette (z.B. Ex, WHG) Rohrverlängerung bis 3m (6m option)

Liquiphant M FTL 50, 51, 50H, 51H, 51C

Füllstandgrenzschalter Flüssigkeiten, Vibrationsprinzip

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	Liquiphant M FTL50	Liquiphant M FTL50H	Liquiphant M FTL51
Versorgung / Kommunikation	PROFIBUS PA 19...253V AC 10...55V DC-PNP 19...253V AC bzw. 10...55V DC 8/16mA, 11...36V DC NAMUR PFM	PROFIBUS PA 19...253V AC 10...55V DC-PNP 19...253V AC bzw. 10...55V DC 8/16mA, 11...36V DC NAMUR PFM	PROFIBUS PA 19 ... 253V AC 10 ... 55V DC-PNP 19...253V AC bzw. 10...55V DC 8/16mA, 11...36V DC NAMUR PFM
Umgebungstemperatur	-50 °C...+70 °C	-50 °C...+70 °C	-50 °C...+70 °C
Prozesstemperatur	-50 °C...+150 °C	-50 °C...+150 °C	-50 °C...+150 °C
Prozessdruck absolut / max. Überlastdruck	Vakuum...64 bar	Vakuum...64 bar	Vakuum...100 bar
Min. Mediumsdichte	0,5g/cm ³ (0,4g/cm ³ optional)	0,5g/cm ³ (0,4g/cm ³ optional)	0,5g/cm ³ (0,4g/cm ³ optional)
Prozessseitige Hauptmaterialien	316L, Alloy	316L	316L / Alloy
Prozessanschluss	Gewinde: G3/4A, G1A, R3/4", R1, NPT3/4, NPT1 Flansch: DN25...DN100, ASME 1"...4", JIS 25A...100A	Gewinde: G3/4A, G1A, R3/4", R1, NPT3/4, NPT1 Flansch: DN25...DN100, ASME 1"...4", JIS 25A...100A	Gewinde: G3/4A, G1A, R3/4", R1, NPT3/4, NPT1 Flansch: DN25...DN100, ASME 1"...4", JIS 25A...100A
Prozessanschluss Hygienisch	Tri-Clamp ISO2852	Tri-Clamp ISO2852 Milchrohranschluss Aseptisch DRD SMS Varivent	Tri-Clamp ISO2852
Sensurlänge			Länge 130mm (Liquiphant II) 148mm...6000mm
Ausgang	PROFIBUS PA 19...253V AC 10...55V DC-PNP 19...253V AC bzw. 10...55V DC 8/16mA, 11...36V DC NAMUR PFM	PROFIBUS PA 19 ...253V AC 10 ... 55V DC-PNP 19...253V AC bzw. 10...55V DC 8/16mA, 11...36V DC NAMUR PFM	PROFIBUS PA 19 ... 253V AC 10 ... 55V DC-PNP 19...253V AC bzw. 10...55V DC 8/16mA, 11...36V DC NAMUR PFM
Zertifikate / Abnahmen	ATEX, FM, CSA, TIIS Überfüllsicherung WHG SIL EN10204-3.1 NACE Schiffbau GL/ABS AD2000 ASME B31.3	ATEX, FM, CSA, TIIS Überfüllsicherung WHG SIL EN10204-3.1 Schiffbau GL/ABS EHEDG, 3A FDA USP class VI ASME-BPE AD2000	ATEX, FM, CSA, TIIS Überfüllsicherung WHG SIL EN10204-3.1 NACE ASME B31.3
Optionen	Edelstahlgussgehäuse vorzugsweise für die Öl und Gas Branche		Edelstahlgussgehäuse vorzugsweise für die Öl und Gas Branche
Spezialitäten	Schaumdetection Dichteänderung detektieren Second line of defense	Schaumdetection Dichteänderung detektieren	Schaumdetection Dichteänderung detektieren second line of defense
Komponenten	FTL325P/FTL375P Auswertekarten PFM FTL325N/FTL375N Auswertekarten NAMUR	FTL325P/FTL375P Auswertekarten PFM FTL325N/FTL375N Auswertekarten NAMUR	FTL325P/FTL375P Auswertekarten PFM FTL325N/FTL375N Auswertekarten NAMUR

Liquiphant M FTL 50, 51, 50H, 51H, 51C

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip

1b / 01.16

E+H Füllstand
messtechnik

Liquiphant M FTL51C



Liquiphant M FTL51H



	Liquiphant M FTL51C	Liquiphant M FTL51H
Messprinzip	Vibration Flüssig	Vibration Flüssig
Merkmal / Anwendung	Modulares Gehäusekonzept umfängliches Prozessanschlussangebot Hohe Beständigkeit durch Beschichtungen Analoge und busfähige Elektroniken breite Zertifikatspalette (z.B. Ex, WHG) Rohrverlängerung bis 3m (6m option)	Modulares und komplett verschweisstes Gehäusekonzept Fokus Lebensmittel und Pharma Oberfläche bis 0,38µm elektropoliert umfängliches Prozessanschlussangebot Analoge und busfähige Elektroniken Zertifikatspalette (z.B. EHEDG, 3A) Kompakt, z.B. Rohrleitungseinbau variable Sensorlänge bis 3m (6m option)
Versorgung / Kommunikation	PROFIBUS PA 19...253V AC, 2-Draht 10...55V DC-PNP, 3-Draht pot. freier Wechsler DPDT, 19...253V AC bzw 10...55V DC 8/16mA, 11...36V DC NAMUR PFM, 2-draht NAMUR mit Prüftaster	PROFIBUS PA 19...253V AC 10...55V DC-PNP 19...253V AC bzw 10...55V DC 8/16mA, 11...36V DC NAMUR PFM
Umgebungstemperatur	-50 °C...+70 °C	-50 °C...+70 °C
Prozesstemperatur	-50 °C...+150 °C (bis 230 °C auf Anfrage)	-50 °C...+150 °C
Prozessdruck absolut / max. Überlastdruck	Vakuum...40 bar	Vakuum...64 bar
Min. Mediumsdichte	0,5g/cm ³ (0,4g/cm ³ optional)	0,5g/cm ³ (0,4g/cm ³ optional)
Prozessseitige Hauptmaterialien	ECTFE PFA (Edlon) PFA (Rubyred) PFA (leitfähig) Email	316L
Prozessanschluss	Flansch: DN25...DN100, ANSI 1" ...3", JIS RF10 K 50	Gewinde: G3/4A, G1A, R3/4", R1, NPT3/4, NPT1 Flansch: DN25...DN100, ASME 1" ...4", JIS 25A...100A
Prozessanschluss Hygienisch	FDA konform mit PFA (Edlon)	Tri-Clamp ISO2852 Milchrohranschluss Aseptisch DRD SMSVarivent

Liquiphant M FTL 50, 51, 50H, 51H, 51C

Füllstandgrenzschalter Flüssigkeiten, Vibrationsprinzip

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	Liquiphant M FTL51C	Liquiphant M FTL51H
Sensoriänge	ECTFE, PFA 130mm, 148mm...3000mm Email 130mm, 148mm...1200mm	Länge 130mm (Liquiphant II) 148mm...6000mm
Ausgang	PROFIBUS PA 19...253V AC 10...55V DC-PNP 19...253V AC bzw 10...55V DC 8/16mA, 11...36V DC NAMUR PFM	PROFIBUS PA 19...253V AC 10...55V DC-PNP 19...253V AC bzw 10...55V DC 8/16mA, 11...36V DC NAMUR PFM
Zertifikate / Abnahmen	ATEX, FM, CSA, TIIS Überfüllsicherung WHG SIL EN10204-3.1 Schiffbau GL/ABS FDA gelistet	ATEX, FM, CSA, TIIS Überfüllsicherung WHG SIL EN10204-3.1 Schiffbau GL/ABS EHEDG, 3A FDA USP class VI ASME-BPE AD2000
Optionen	Edelstahlgussgehäuse vorzugsweise für die Öl und Gas Branche	
Spezialitäten	Schaumdetection Dichteänderung detektieren second line of defense	Schaumdetection Dichteänderung detektieren
Komponenten	FTL325P/FTL375P Auswertekarten PFM FTL325N/FTL375N Auswertekarten NAMUR	FTL325P/FTL375P Auswertekarten PFM FTL325N/FTL375N Auswertekarten NAMUR

E-H-Füllstand
messtechnik

Zubehör für Liquiphant FTL 50/51, 50 H/51 H, 51 C

Vibrationsgrenzschalter Liquiphant II für alle Flüssigkeiten

52001052	Einschweissadapter G3/4, d=55, 316L Frontbündige Montage Prozessanschluss. Verwendung: FTL50/50H_020_G02, FTL80_100_WSJ, TMR35_030_AB Werkstoff: 316L; Dichtung: Silikon O-Ring.
52001051	Einschweissadapter G1, d=60, 316L Frontbündige Montage Prozessanschluss. Verwendung: FTL260_020_0, FTL20_020_7, FTL20H_020_GEJ, FTL330H/330L_020_G, FTL31_110_WSJ, FTL33_110_WSJ, FTL5x/5xH_020_GW2, FTL80/81_100_WSJ, FTW33_110_WSJ, FMI51/52_050_GWJ, FTI51/52_050_GWJ, PMP135_020_N, PTP35_070_BB, TR44/45_010_EA, TMR35_030_AD Werkstoff: 316L, EHEDG, 3A konform; Dichtung: Silikon O-Ring
52001221	Einschweissadapter G1, ausrb., 316L Frontbündige Montage Prozessanschluss. Verwendung: FTL260_020_0, FTL20_020_7, FTL20H_020_GEJ, FTL330H/330L_020_G, FTL31_110_WSJ, FTL33_110_WSJ, FTL5x/5xH_020_GW2, FTL80/81_100_WSJ Liquiphant ist ausrichtbar Werkstoff: 316L, EHEDG, 3A konform; Dichtung: Silikon Formdichtung
52001047	Einschweissadapter Rd52 Frontbündige Montage Prozessanschluss Verwendung: FTL5xH_020_EE2, FTL20H_020_UPJ, FTL330H/330L_020_F, FTL33_110_SZJ Werkstoff: 316L, EHEDG, 3A konform
52002041	Einschweissflansch DRD DN50, 316L Frontbündige Montage Prozessanschluss Verwendung: FTL5xH_020_PE2, PMC71_070_TK, PMP75_070_TK, FMB70_070_TK, FMD78_080_TK, FMB50_110_TIJ, PMC51_110_TIJ, PMP51_110_TIJ, PMP55_110_TIJ Werkstoff: 316L; Dichtung: PTFE Flachdichtung
918144-0000	Flansch ANSI RF2/150psi G1, 316Ti Verwendung: Prozessanschluss G1 Werkstoff: 316Ti
918158-0000	Flansch Block, 92x92 G1, 304 Verwendung: Prozessanschluss G1 Werkstoff: 304

Preisgruppe B

Liquiphant M FTL 50

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip

1b / 01.16

E+H Füllstandmesstechnik

Liquiphant M FTL50

Zulassung:

A	Ex-freier Bereich
B	ATEX II 3G Ex nC IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nC IIC T6
C	ATEX II 3G Ex nA IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nA IIC T6
D	Ex-freier Bereich, WHG
E	ATEX II 1/2G Ex de IIC T6, WHG
F	ATEX II 1/2GD Ex ia IIC T6, WHG/IECEx Zone 0/1
G	ATEX II 1/2GD Ex ia IIC T6/IECEx Zone0/1
H	ATEX II 1G Ex ia IIC T6
I	ATEX II 1/2G Ex de IIC T6/IECEx Zone0/1
J	ATEX II 1G Ex ia IIC T6, WHG
K	ATEX II 1/2G Ex d IIC T6/IECEx Zone0/1
L	ATEX II 1/2G Ex d IIC T6, WHG
M	NEPSI Ex ia IIC T6
N	NEPSI Ex d IIC T3-T6 Ga/Gb
P	FM IS Cl.I,II,III Div.1 Gr.A-G, Zone 0,1,2
Q	FM XP Cl.I,II,III Div.1 Gr.A-G, Zone 1,2
R	FM NI Cl.1 Div.2 Gr.A-D, Zone 2
S	CSA C/US IS Cl I,II,III Div.1 Gr.A-G
T	CSA C/US XP Cl I,II,III Div.1 Gr.A-G
U	CSA C/US General Purpose
V	TIIS Ex ia IIC T3
W	TIIS Ex d IIB T3
Y	Sonderausführung, TSP-Nr. zu spez.
1	INMETRO Ex ia IIC T6 Ga/Gb
2	INMETRO Ex d IIC T6 Ga/Gb
3	INMETRO Ex de IIC T6 Ga/Gb
7	TIIS Ex d IIC T3
8	TIIS Ex d IIC T6

Prozessanschluss:

AA2	NPS 1-1/4" Cl.150 RF, 316/316L Flansch ASME B16.5
AC2	NPS 1-1/2" Cl.150 RF, 316/316L Flansch ASME B16.5
AE2	NPS 2" Cl.150 RF, 316/316L Flansch ASME B16.5
AE6	NPS 2" Cl.150 RF, AlloyC22 >316/316L Flansch ASME B16.5
AF2	NPS 2" Cl.300 RF, 316/316L Flansch ASME B16.5
AL2	NPS 3" Cl.150 RF, 316/316L Flansch ASME B16.5
AM6	NPS 3" Cl.300 RF, AlloyC22 >316/316L Flansch ASME B16.5
AP2	NPS 4" Cl.150 RF, 316/316L Flansch ASME B16.5
AQ6	NPS 4" Cl.300 RF, AlloyC22 >316/316L Flansch ASME B16.5
A82	NPS 1" Cl.150 RF, 316/316L Flansch ASME B16.5
BA2	DN32 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BB2	DN32 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BC2	DN40 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BD2	DN40 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BE2	DN50 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BG2	DN50 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BH2	DN65 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BK2	DN65 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BM2	DN80 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BN2	DN80 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BO2	DN100 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BR2	DN100 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
B82	DN25 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
CA2	DN32 PN6 B1, 316L Flansch EN1092-1 (DIN2527 C)
CA6	DN32 PN6 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CE2	DN50 PN6 B1, 316L Flansch EN1092-1 (DIN2527 C)
CE6	DN50 PN6 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CG2	DN50 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CG6	DN50 PN25/40 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CN2	DN80 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CN6	DN80 PN25/40 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CO2	DN100 PN10/16 B1, 316L Flansch EN1092-1 (DIN2527 C)
CO6	DN100 PN10/16 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
C82	DN25 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
C86	DN25 PN25/40 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
DG2	DN50 PN40 B1, 316L Flansch EN1092-1 (DIN2526 D)
DN2	DN80 PN40 B1, 316L Flansch EN1092-1 (DIN2526 D)
D82	DN25 PN40 B1, 316L Flansch EN1092-1 (DIN2526 D)
EG2	DN50 PN25/40 E, 316L Flansch EN1092-1
FG2	DN50 PN40 C, 316L Flansch EN1092-1 (DIN2512 F)
GE2	Gewinde EN10226 R3/4, 316L
GE6	Gewinde EN10226 R3/4, AlloyC22
GF2	Gewinde EN10226 R1, 316L
GF6	Gewinde EN10226 R1, AlloyC22
GM2	Gewinde ANSI NPT3/4, 316L
GM6	Gewinde ANSI NPT3/4, AlloyC22
GN2	Gewinde ANSI NPT1, 316L
GN6	Gewinde ANSI NPT1, AlloyC22
GO2	Gewinde ISO228 G3/4, 316L, Einbau > Zubehör Einschweissadapter
GO6	Gewinde ISO228 G3/4, AlloyC22
GR2	Gewinde ISO228 G1, 316L
GR6	Gewinde ISO228 G1, AlloyC22
GW2	Gewinde ISO228 G1, 316L, Einbau > Zubehör Einschweissadapter
KA2	10K 25A RF, 316L Flansch JIS B2220

Preisgruppe B

Bestellschlüssel

FTL 50-

Fortsetzung nächste Seite

Liquiphant M FTL 50

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip

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KC2	10K 40A RF, 316L Flansch JIS B2220
KE2	10K 50A RF, 316L Flansch JIS B2220
KE6	10K 50A RF, AlloyC22 >316L Flansch JIS B2220
KL2	10K 80A RF, 316L Flansch JIS B2220
KP2	10K 100A RF, 316L Flansch JIS B2220
NG2	DN50 PN40 D, 316L Flansch EN1092-1 (DIN2512 N)
TC2	Tri-Clamp ISO2852 DN25-38 (1...1-1/2"), 316L
TE2	Tri-Clamp ISO2852 DN40-51 (2"), 316L
YY9	Sonderausführung, TSP-Nr. zu spez.

Sondenlänge; Typ:

AA	Kompakt; Ra<3.2um/126uin
IA	Kompakt; Temp. Distanzstück
QA	Kompakt; druckdichte Durchf.

Elektronik; Ausgang:

A	FEL50A; PROFIBUS PA
D	FEL50D; Dichte/Konzentration, Dichte Elektronik ohne WHG Zulassung
1	FEL51; SIL 2-Leiter 19-253VAC
2	FEL52; SIL 3-Leiter PNP 10-55VDC
4	FEL54; SIL Relais DPDT 19-253VAC/19-55VDC
5	FEL55; SIL 8/16mA, 11-36VDC
6	FEL56; SIL NAMUR (L-H Signal)
7	FEL57; SIL 2-Leiter PFM
8	FEL58; SIL NAMUR+Prüftaster (H-L Signal)
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung:

C3	Kompakt IP66/68 316L Hygiene; 5m Kabel
D3	Kompakt IP65 316L Hygiene; Pg1 Stecker ISO4400
E1	F27 NEMA Type 4X/6P Encl. 316L; NPT3/4 Gewinde
E3	Kompakt NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Stecker ISO4400
E4	F16 NEMA Type 4X Encl. Polyester; NPT1/2 Gewinde
E5	F13 NEMA Type 4X/6P Encl. / F17 NEMA Type 4X Encl. Alu; NPT3/4 Gewinde
E6	F15 NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Gewinde
E7	T13 NEMA Type 4X/6P Encl. Alu, besch.; NPT3/4 Gewinde, getrennter Anschlussraum
F1	F27 IP66/68 316L; G1/2 Gewinde
F4	F16 IP66/67 Polyester; G1/2 Gewinde
F5	F13 IP66/68 / F17 IP66/67 Alu; G1/2 Gewinde
F6	F15 IP66/67 316L Hygiene; G1/2 Gewinde
F7	T13 IP66/68 Alu, besch.; G1/2 Gewinde, getrennter Anschlussraum
G1	F27 IP66/68 316L; M20 Verschr. (EEx d > M20 Gewinde)
G4	F16 IP66/67 Polyester; M20 Verschr.
G5	F13 IP66/68 / F17 IP66/67 Alu; M20 Verschr. (EEx d > M20 Gewinde)
G6	F15 IP66/67 316L Hygiene; M20 Verschr.
G7	T13 IP66/68 Alu, besch.; M20 Verschr., getrennter Anschlussraum (EEx d > M20 Gewinde)
N3	Kompakt IP66/68 316L Hygiene; M12 Stecker
N4	F16 IP66/67 Polyester; M12 Stecker
N5	F13 IP66/68 / F17 IP66/67 Alu; M12 Stecker
N6	F15 IP66/67 316L Hygiene; M12 Stecker
Y9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung:

A	Grundausführung
B	LABS frei, LABS = lackbenetzungsstörende Substanzen
C	EN10204-3.1 Material (mediumberührt) Abnahmeprüfzeugnis
D	EN10204-3.1 AD2000 Material mediumberührt, ausgenommen Gussteile Abnahmeprüfzeugnis
K	Sonderabgleich Dichte H2O
L	Sonderabgleich Dichte H2O, EN10204-3.1 Material (mediumberührt) Abnahmeprüfzeugnis
N	EN10204-3.1 Material, NACE MR0175/MR0103 (mediumberührt) Abnahmeprüfzeugnis
S	GL/ABS Schiffbauzulassung
Y	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

E-H Füllstand
messtechnik

Bestellschlüssel

FTL 50-

Liquiphant M FTL 50H

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip, Hygieneausführung

1b / 01.16

E+H Füllstand
messtechnik

Liquiphant M FTL50H

Zulassung:

A	Ex-freier Bereich
B	ATEX II 3G Ex nC IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nC IIC T6
C	ATEX II 3G Ex nA IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nA IIC T6
D	Ex-freier Bereich, WHG
E	ATEX II 1/2G Ex de IIC T6, WHG
F	ATEX II 1/2GD Ex ia IIC T6, WHG/IECEx Zone 0/1
G	ATEX II 1/2GD Ex ia IIC T6/IECEx Zone0/1
H	ATEX II 1G Ex ia IIC T6
I	ATEX II 1/2G Ex de IIC T6/IECEx Zone0/1
J	ATEX II 1G Ex ia IIC T6, WHG
K	ATEX II 1/2G Ex d IIC T6/IECEx Zone0/1
L	ATEX II 1/2G Ex d IIC T6, WHG
M	NEPSI Ex ia IIC T6
N	NEPSI Ex d IIC T3-T6 Ga/Gb
P	FM IS Cl.I,II,III Div.1 Gr.A-G, Zone 0,1,2
Q	FM XP Cl.I,II,III Div.1 Gr.A-G, Zone 1,2
R	FM NI Cl.1 Div.2 Gr.A-D, Zone 2
S	CSA C/US IS Cl I,II,III Div.1 Gr.A-G, Zone 0,1,2
T	CSA C/US XP Cl I,II,III Div.1 Gr.A-G, Zone 1,2
U	CSA C/US General Purpose
V	TIIS Ex ia IIC T3
W	TIIS Ex d IIB T3
Y	Sonderausführung, TSP-Nr. zu spez.
1	INMETRO Ex ia IIC T6 Ga/Gb
2	INMETRO Ex d IIC T6 Ga/Gb
3	INMETRO Ex de IIC T6 Ga/Gb
7	TIIS Ex d IIC T3
8	TIIS Ex d IIC T6

Prozessanschluss:

AA2	NPS 1-1/4" Cl.150 RF, 316/316L Flansch ASME B16.5
AC2	NPS 1-1/2" Cl.150 RF, 316/316L Flansch ASME B16.5
AE2	NPS 2" Cl.150 RF, 316/316L Flansch ASME B16.5
AF2	NPS 2" Cl.300 RF, 316/316L Flansch ASME B16.5
AL2	NPS 3" Cl.150 RF, 316/316L Flansch ASME B16.5
AP2	NPS 4" Cl.150 RF, 316/316L Flansch ASME B16.5
A82	NPS 1" Cl.150 RF, 316/316L Flansch ASME B16.5
BA2	DN32 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BB2	DN32 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BC2	DN40 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BD2	DN40 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BE2	DN50 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BG2	DN50 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BH2	DN65 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BK2	DN65 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BM2	DN80 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BN2	DN80 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BO2	DN100 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BR2	DN100 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
B82	DN25 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
CG2	DN50 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CN2	DN80 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CO2	DN100 PN10/16 B1, 316L Flansch EN1092-1 (DIN2527 C)
EE2	frontbündig, 316L, Einbau > Zubehör Einschweisadapter
GO2	Gewinde ISO228 G3/4, 316L, Einbau > Zubehör Einschweisadapter
GW2	Gewinde ISO228 G1, 316L, Einbau > Zubehör Einschweisadapter
HE2	DIN11864-1 A DN50 Rohr DIN11850, Nutmutter, 316L
KA2	10K 25A RF, 316L Flansch JIS B2220
KC2	10K 40A RF, 316L Flansch JIS B2220
KE2	10K 50A RF, 316L Flansch JIS B2220
KL2	10K 80A RF, 316L Flansch JIS B2220
KP2	10K 100A RF, 316L Flansch JIS B2220
MA2	DIN11851 DN32 PN25 Nutmutter, 316L
MC2	DIN11851 DN40 PN25 Nutmutter, 316L
ME2	DIN11851 DN50 PN25 Nutmutter, 316L
PE2	DRD 65mm, 316L
TC2	Tri-Clamp ISO2852 DN25-38 (1...1-1/2"), 316L
TE2	Tri-Clamp ISO2852 DN40-51 (2"), 316L
TT2	Ingoldstutzen 25x46mm, 316L
UE2	SMS 2" PN25, 316L
WE2	Variavent N Rohr DN65-162 PN10, 316L
YY9	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

Bestellschlüssel

FTL 50H

Fortsetzung nächste Seite

Liquiphant M FTL 50H

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip, Hygieneausführung

16 / 01.16

Sondenlänge; Typ:

AC	Kompakt; Ra<1.5um/59uin
AD	Kompakt; Ra<0.3um/12uin
IC	Kompakt; Ra<1.5um/59uin + TS= Temp. Distanzstück
ID	Kompakt; Ra<0.3um/12uin + TS= Temp. Distanzstück
OC	Kompakt; Ra<1.5um/59uin + PF= druckdichte Durchf.
OD	Kompakt; Ra<0.3um/12uin + PF= druckdichte Durchf.
YY	Sonderausführung, TSP-Nr. zu spez.

Elektronik; Ausgang:

A	FEL50A; PROFIBUS PA
D	FEL50D; Dichte/Konzentration, Dichte Elektronik ohne WHG Zulassung
1	FEL51; SIL 2-Leiter 19-253VAC
2	FEL52; SIL 3-Leiter PNP 10-55VDC
4	FEL54; SIL Relais DPDT 19-253VAC/19-55VDC
5	FEL55; SIL 8/16mA, 11-36VDC
6	FEL56; SIL NAMUR (L-H Signal)
7	FEL57; SIL 2-Leiter PFM
8	FEL58; SIL NAMUR+Prüftaster (H-L Signal)
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung:

C3	Kompakt IP66/68 316L Hygiene; 5m Kabel
D3	Kompakt IP65 316L Hygiene; Pg1 Stecker ISO4400
E3	Kompakt NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Stecker ISO4400
E4	F16 NEMA Type 4X Encl. Polyester; NPT1/2 Gewinde
E5	F13 NEMA Type 4X/6P Encl. / F17 NEMA Type 4X Encl. Alu; NPT3/4 Gewinde
E6	F15 NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Gewinde
E7	T13 NEMA Type 4X/6P Encl. Alu, besch.; NPT3/4 Gewinde, getrennter Anschlussraum
F4	F16 IP66/67 Polyester; G1/2 Gewinde
F5	F13 IP66/68 / F17 IP66/67 Alu; G1/2 Gewinde
F6	F15 IP66/67 316L Hygiene; G1/2 Gewinde
F7	T13 IP66/68 Alu, besch.; G1/2 Gewinde, getrennter Anschlussraum
G4	F16 IP66/67 Polyester; M20 Verschr.
G5	F13 IP66/68 / F17 IP66/67 Alu; M20 Verschr. (EEx d > M20 Gewinde)
G6	F15 IP66/67 316L Hygiene; M20 Verschr.
G7	T13 IP66/68 Alu, besch.; M20 Verschr., getrennter Anschlussraum (EEx d > M20 Gewinde)
N3	Kompakt IP66/68 316L Hygiene; M12 Stecker
N4	F16 IP66/67 Polyester; M12 Stecker
N5	F13 IP66/68 / F17 IP66/67 Alu; M12 Stecker
N6	F15 IP66/67 316L Hygiene; M12 Stecker
Y9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung:

A	Grundaussführung
B	CoC-ASME BPE, EN10204-3.1 Material (316L mediumberührt), Abnahmeprüfzeugnis
C	EN10204-3.1 Material (316L mediumberührt), Abnahmeprüfzeugnis
D	EN10204-3.1 AD2000 Material mediumberührt, ausgenommen Gussteile Abnahmeprüfzeugnis
K	Sonderabgleich Dichte H2O
L	Sonderabgleich Dichte H2O, EN10204-3.1 Material (316L mediumberührt), Abnahmeprüfzeugnis
S	GL/ABS Schiffbauzulassung
Y	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

E-H Füllstand
messtechnik

Bestellschlüssel

FTL 50H

Liquiphant M FTL 51

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip, Hygieneausführung

1b / 01.16

E+H Füllstandmesstechnik

Liquiphant M FTL51

Zulassung

A	Ex-freier Bereich
B	ATEX II 3G Ex nC IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nC IIC T6
C	ATEX II 3G Ex nA IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nA IIC T6
D	Ex-freier Bereich, WHG
E	ATEX II 1/2G Ex de IIC T6, WHG
F	ATEX II 1/2GD Ex ia IIC T6, WHG/IECEx Zone 0/1
G	ATEX II 1/2GD Ex ia IIC T6/IECEx Zone0/1
H	ATEX II 1G Ex ia IIC T6
I	ATEX II 1/2G Ex de IIC T6/IECEx Zone0/1
J	ATEX II 1G Ex ia IIC T6, WHG
K	ATEX II 1/2G Ex d IIC T6/IECEx Zone0/1
L	ATEX II 1/2G Ex d IIC T6, WHG
M	NEPSI Ex ia IIC T6
N	NEPSI Ex d IIC T3-T6 Ga/Gb
P	FM IS C.I.II,III Div.1 Gr.A-G, Zone 0,1,2
Q	FM XP C.I.II,III Div.1 Gr.B-G, Gr.A-G wenn E5 Gehäuse ausgewählt, Zone 1,2
R	FM NI C.I Div.2 Gr.A-D, Zone 2
S	CSA C/US IS C.I,II,III Div.1 Gr.A-G, Zone 0,1,2
T	CSA C/US XP C.I,II,III Div.1 Gr.A-G, Zone 1,2
U	CSA C/US General Purpose
V	TIIS Ex ia IIC T3
W	TIIS Ex d IIB T3
Y	Sonderausführung, TSP-Nr. zu spez.
1	INMETRO Ex ia IIC T6 Ga/Gb
2	INMETRO Ex d IIC T6 Ga/Gb
3	INMETRO Ex de IIC T6 Ga/Gb
7	TIIS Ex d IIC T3
8	TIIS Ex d IIC T6

Prozessanschluss

AA2	NPS 1-1/4" Cl.150 RF, 316/316L Flansch ASME B16.5
AB2	NPS 1-1/4" Cl.300 RF, 316/316L Flansch ASME B16.5
AC2	NPS 1-1/2" Cl.150 RF, 316/316L Flansch ASME B16.5
AD2	NPS 1-1/2" Cl.300 RF, 316/316L Flansch ASME B16.5
AE2	NPS 2" Cl.150 RF, 316/316L Flansch ASME B16.5
AE6	NPS 2" Cl.150 RF, AlloyC22 >316/316L Flansch ASME B16.5
AF2	NPS 2" Cl.300 RF, 316/316L Flansch ASME B16.5
AG2	NPS 2" Cl.600 RF, 316/316L Flansch ASME B16.5
AJ2	NPS 2-1/2" Cl.300 RF, 316/316L Flansch ASME B16.5
AL2	NPS 3" Cl.150 RF, 316/316L Flansch ASME B16.5
AM2	NPS 3" Cl.300 RF, 316/316L Flansch ASME B16.5
AM6	NPS 3" Cl.300 RF, AlloyC22 >316/316L Flansch ASME B16.5
AN2	NPS 3" Cl.600 RF, 316/316L Flansch ASME B16.5
AP2	NPS 4" Cl.150 RF, 316/316L Flansch ASME B16.5
AQ2	NPS 4" Cl.300 RF, 316/316L Flansch ASME B16.5
AO6	NPS 4" Cl.300 RF, AlloyC22 >316/316L Flansch ASME B16.5
AR2	NPS 4" Cl.600 RF, 316/316L Flansch ASME B16.5
A82	NPS 1" Cl.150 RF, 316/316L Flansch ASME B16.5
BA2	DN32 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BB2	DN32 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BC2	DN40 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BD2	DN40 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BE2	DN50 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BG2	DN50 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BH2	DN65 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BJ2	DN50 PN100 A, 316L Flansch EN1092-1 (DIN2527 B)
BK2	DN65 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BM2	DN80 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BN2	DN80 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BO2	DN100 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BR2	DN100 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
B12	DN80 PN100 A, 316L Flansch EN1092-1 (DIN2527 B)
B82	DN25 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
CA2	DN32 PN6 B1, 316L Flansch EN1092-1 (DIN2527 C)
CA6	DN32 PN6 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CE2	DN50 PN6 B1, 316L Flansch EN1092-1 (DIN2527 C)
CE6	DN50 PN6 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CG2	DN50 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CG6	DN50 PN25/40 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CJ2	DN50 PN100 B2, 316L Flansch EN1092-1 (DIN2527)
CN2	DN80 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CN6	DN80 PN25/40 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
CO2	DN100 PN10/16 B1, 316L Flansch EN1092-1 (DIN2527 C)
CO6	DN100 PN10/16 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
C12	DN80 PN100 B2, 316L Flansch EN1092-1 (DIN2527)
C82	DN25 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
C86	DN25 PN25/40 B1, AlloyC22 >316L Flansch EN1092-1 (DIN2527)
DG2	DN50 PN40 B1, 316L Flansch EN1092-1 (DIN2526 D)
DN2	DN80 PN40 B1, 316L Flansch EN1092-1 (DIN2526 D)
D82	DN25 PN40 B1, 316L Flansch EN1092-1 (DIN2526 D)
EG2	DN50 PN25/40 E, 316L Flansch EN1092-1
FG2	DN50 PN40 C, 316L Flansch EN1092-1 (DIN2512 F)
GE2	Gewinde EN10226 R3/4, 316L
GE6	Gewinde EN10226 R3/4, AlloyC22
GF2	Gewinde EN10226 R1, 316L
GF6	Gewinde EN10226 R1, AlloyC22
GM2	Gewinde ANSI NPT3/4, 316L
GM6	Gewinde ANSI NPT3/4, AlloyC22
GN2	Gewinde ANSI NPT1, 316L
GN6	Gewinde ANSI NPT1, AlloyC22
GO2	Gewinde ISO228 G3/4, 316L
GO6	Gewinde ISO228 G3/4, AlloyC22
GR2	Gewinde ISO228 G1, 316L
GR6	Gewinde ISO228 G1, AlloyC22

Bestellschlüssel

FTL 51

Fortsetzung nächste Seite

Preisgruppe B

Liquiphant M FTL 51

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip, Hygieneausführung

1b / 01.16

GW2	Gewinde ISO228 G1, 316L, Einbau > Zubehör Einschweißadapter
KA2	10K 25A RF, 316L Flansch JIS B2220
KC2	10K 40A RF, 316L Flansch JIS B2220
KE2	10K 50A RF, 316L Flansch JIS B2220
KE6	10K 50A RF, AlloyC22 >316L Flansch JIS B2220
KL2	10K 80A RF, 316L Flansch JIS B2220
KP2	10K 100A RF, 316L Flansch JIS B2220
NG2	DN50 PN40 D, 316L Flansch EN1092-1 (DIN2512 N)
TC2	Tri-Clamp ISO2852 DN25-38 (1...1-1/2"), 316L
TE2	Tri-Clamp ISO2852 DN40-51 (2"), 316L
YY9	Sonderausführung, TSP-Nr. zu spez.

Sondenlänge; Typ

BB	..... mm; 316L, Ra<3.2um/126uin
BE	..... mm; Alloy, Ra<3.2um/126uin
CB	..... inch; 316L, Ra<3.2um/126uin
CE	..... inch; Alloy, Ra<3.2um/126uin
DB	L=Typ II; 316L, Ra<3.2um/126uin, Schaltpunkt = Liquiphant II kompakt
DE	L=Typ II; Alloy, Ra<3.2um/126uin, Schaltpunkt = Liquiphant II kompakt
JB	..... mm; 316L + Temp. Distanzstück
JE	..... mm; Alloy + Temp. Distanzstück
KB	..... inch; 316L + Temp. Distanzstück
KE	..... inch; Alloy+ Temp. Distanzstück
LB	L=Typ II; 316L + Temp. Distanzstück, Schaltpunkt = Liquiphant II kompakt
LE	L=Typ II; Alloy + Temp. Distanzstück Schaltpunkt = Liquiphant II kompakt
RB	..... mm; 316L+ druckdichte Durchf.
RE	..... mm; Alloy + druckdichte Durchf.
SB	..... inch; 316L + druckdichte Durchf.
SE	..... inch; Alloy + druckdichte Durchf.
TB	L=Typ II; 316L + druckdichte Durchf., Schaltpunkt = Liquiphant II kompakt
TE	L=Typ II; Alloy + druckdichte Durchf., Schaltpunkt = Liquiphant II kompakt
YY	Sonderausführung, TSP-Nr. zu spez.

Elektronik; Ausgang

A	FEL50A; PROFIBUS PA
D	FEL50D; Dichte/Konzentration, Dichte Elektronik ohne WHG Zulassung
1	FEL51; SIL 2-Leiter 19-253VAC
2	FEL52; SIL 3-Leiter PNP 10-55VDC
4	FEL54;SIL Relais DPDT 19-253VAC/19-55VDC
5	FEL55; SIL 8/16mA, 11-36VDC
6	FEL56; SIL NAMUR (L-H Signal)
7	FEL57; SIL 2-Leiter PFM
8	FEL58;SIL NAMUR+Prüfaster (H-L Signal)
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung

C3	Kompakt IP66/68 316L Hygiene; 5m Kabel
D3	Kompakt IP65 316L Hygiene; Pg11 Stecker ISO4400
E1	F27 NEMA Type 4X/6P Encl. 316L; NPT3/4 Gewinde
E3	Kompakt NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Stecker ISO4400
E4	F16 NEMA Type 4X Encl. Polyester; NPT1/2 Gewinde
E5	F13 NEMA Type 4X/6P Encl. / F17 NEMA Type 4X Encl. Alu; NPT3/4 Gewinde
E6	F15 NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Gewinde
E7	T13 NEMA Type 4X/6P Encl. Alu, besch.; NPT3/4 Gewinde, getrennter Anschlussraum
F1	F27 IP66/68 316L; G1/2 Gewinde
F4	F16 IP66/67 Polyester; G1/2 Gewinde
F5	F13 IP66/68 / F17 IP66/67 Alu; G1/2 Gewinde
F6	F15 IP66/67 316L Hygiene; G1/2 Gewinde
F7	T13 IP66/68 Alu, besch.; G1/2 Gewinde, getrennter Anschlussraum
G1	F27 IP66/68 316L; M20 Verschr. (EEx d > M20 Gewinde)
G4	F16 IP66/67 Polyester; M20 Verschr.
G5	F13 IP66/68 / F17 IP66/67 Alu; M20 Verschr. (EEx d > M20 Gewinde)
G6	F15 IP66/67 316L Hygiene; M20 Verschr.
G7	T13 IP66/68 Alu, besch.; M20 Verschr., getrennter Anschlussraum (EEx d > M20 Gewinde)
N3	Kompakt IP66/68 316L Hygiene;M12 Stecker
N4	F16 IP66/67 Polyester; M12 Stecker
N5	F13 IP66/68 / F17 IP66/67 Alu; M12 Stecker
N6	F15 IP66/67 316L Hygiene; M12 Stecker
Y9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung

A	Grundausführung
B	LABS frei, LABS = lackbenetzungsstörende Substanzen
C	EN10204-3.1 Material (mediumberührt), Abnahmeprüfzeugnis
D	EN10204-3.1 AD2000 Material mediumberührt, ausgenommen Gussteile Abnahmeprüfzeugnis
K	Sonderabgleich Dichte H2O
L	Sonderabgleich Dichte H2O, EN10204-3.1 Material (mediumberührt), Abnahmeprüfzeugnis
N	EN10204-3.1 Material, NACE MR0175/MR0103 (mediumberührt), Abnahmeprüfzeugnis
P	100bar Prozessdruck
R	100bar Prozessdruck, EN10204-3.1 Material, NACE MR0175/MR0103 (mediumberührt), Abnahmeprüfzeugnis
S	GL/ABS Schiffbauzulassung, max 1600mm
Y	Sonderausführung, TSP-Nr. zu spez.

Sondenlänge in mm

Bestellschlüssel

FTL 51

Preisgruppe B

E-H Füllstand messtechnik



Liquiphant M FTL 51H

Füllstandgrenzschalter Flüssigkeiten, Vibrationsprinzip, Hygieneausführung

16 / 01.16

E+H Füllstandmesstechnik

Liquiphant M FTL51H

Zulassung

A	Ex-freier Bereich
B	ATEX II 3G Ex nC IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nC IIC T6
C	ATEX II 3G Ex nA IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nA IIC T6
D	Ex-freier Bereich, WHG
E	ATEX II 1/2G Ex de IIC T6, WHG
F	ATEX II 1/2GD Ex ia IIC T6, WHG/IECEx Zone 0/1
G	ATEX II 1/2GD Ex ia IIC T6/IECEx Zone0/1
H	ATEX II 1G Ex ia IIC T6
I	ATEX II 1/2G Ex de IIC T6/IECEx Zone0/1
J	ATEX II 1G Ex ia IIC T6, WHG
K	ATEX II 1/2G Ex d IIC T6/IECEx Zone0/1
L	ATEX II 1/2G Ex d IIC T6, WHG
M	NEPSI Ex ia IIC T6
N	NEPSI Ex d IIC T3-T6 Ga/Gb
P	FM IS Cl.I,II,III Div.1 Gr.A-G, Zone 0,1,2
Q	FM XP Cl.I,II,III Div.1 Gr.B-G, Gr.A-G wenn E5 Gehäuse ausgewählt, Zone 1,2
R	FM NI Cl.1 Div.2 Gr.A-D, Zone 2
S	CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, Zone 0,1,2
T	CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, Zone 1,2
U	CSA C/US General Purpose
V	TIIS Ex ia IIC T3
W	TIIS Ex d IIB T3
Y	Sonderausführung, TSP-Nr. zu spez.
1	INMETRO Ex ia IIC T6 Ga/Gb
2	INMETRO Ex d IIC T6 Ga/Gb
3	INMETRO Ex de IIC T6 Ga/Gb
7	TIIS Ex d IIC T3
8	TIIS Ex d IIC T6

Prozessanschluss

AA2	NPS 1-1/4" Cl.150 RF, 316/316L Flansch ASME B16.5
AC2	NPS 1-1/2" Cl.150 RF, 316/316L Flansch ASME B16.5
AE2	NPS 2" Cl.150 RF, 316/316L Flansch ASME B16.5
AF2	NPS 2" Cl.300 RF, 316/316L Flansch ASME B16.5
AJ2	NPS 2-1/2" Cl.300 RF, 316/316L Flansch ASME B16.5
AL2	NPS 3" Cl.150 RF, 316/316L Flansch ASME B16.5
AM2	NPS 3" Cl.300 RF, 316/316L Flansch ASME B16.5
AP2	NPS 4" Cl.150 RF, 316/316L Flansch ASME B16.5
AQ2	NPS 4" Cl.300 RF, 316/316L Flansch ASME B16.5
A82	NPS 1" Cl.150 RF, 316/316L Flansch ASME B16.5
BA2	DN32 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BB2	DN32 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BC2	DN40 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BD2	DN40 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BE2	DN50 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BG2	DN50 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BH2	DN65 PN6 A, 316L Flansch EN1092-1 (DIN2527 B)
BK2	DN65 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BM2	DN80 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BN2	DN80 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
BO2	DN100 PN10/16 A, 316L Flansch EN1092-1 (DIN2527 B)
BR2	DN100 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
B82	DN25 PN25/40 A, 316L Flansch EN1092-1 (DIN2527 B)
CG2	DN50 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CN2	DN80 PN25/40 B1, 316L Flansch EN1092-1 (DIN2527 C)
CO2	DN100 PN10/16 B1, 316L Flansch EN1092-1 (DIN2527 C)
EE2	frontbündig, 316L, Einbau > Zubehör Einschweissadapter
GW2	Gewinde ISO228 G1, 316L, Einbau > Zubehör Einschweissadapter
HE2	DIN11864-1 A DN50 Rohr DIN11850, Nutmutter, 316L
KA2	10K 25A RF, 316L Flansch JIS B2220
KC2	10K 40A RF, 316L Flansch JIS B2220
KE2	10K 50A RF, 316L Flansch JIS B2220
KL2	10K 80A RF, 316L Flansch JIS B2220
KP2	10K 100A RF, 316L Flansch JIS B2220
MA2	DIN11851 DN32 PN25 Nutmutter, 316L
MC2	DIN11851 DN40 PN25 Nutmutter, 316L
ME2	DIN11851 DN50 PN25 Nutmutter, 316L
PE2	DRD 65mm, 316L
TC2	Tri-Clamp ISO2852 DN25-38 (1...1-1/2"), 316L
TE2	Tri-Clamp ISO2852 DN40-51 (2"), 316L
TT2	Ingoldstützen 25x46mm, 316L
UE2	SMS 2" PN25, 316L
WE2	Varivent N Rohr DN65-162 PN10, 316L
YY9	Sonderausführung, TSP-Nr. zu spez.

Sondenlänge; Typ

BC	..... mm; Ra<1.5um/59uin	..... 100 MM
BD	..... mm; Ra<0.3um/12uin	..... 100 MM
BF	..... *mm; Ra<0.70um/30uin	..... 1 ZL
CC	..... inch; Ra<1.5um/59uin	..... 1 ZL
CD	..... inch; Ra<0.3um/12uin	..... 1 ZL
CF	..... *inch; Ra<0.70um/30uin	..... 1 ZL
DC	L=Typ II; Ra<1.5um/59uin, Schaltpunkt = Liquiphant II kompakt	
DD	L=Typ II; Ra<0.3um/12uin, Schaltpunkt = Liquiphant II kompakt	
JC	..... mm; Ra<1.5um/59uin + TS= Temp. Distanzstück	..... 100 MM

Bestellschlüssel

FTL 51H

Fortsetzung nächste Seite

Preisgruppe B

Liquiphant M FTL 51 H

Füllstandgrenzscharter Flüssigkeiten, Vibrationsprinzip, Hygieneausführung

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JD mm; Ra<0.3um/12uin + TS= Temp. Distanzstück	100 MM
KC inch; Ra<1.5um/59uin + TS= Temp. Distanzstück	1 ZL
KD	..... inch; Ra<0.3um/12uin + TS= Temp. Distanzstück	.....	1 ZL
LC	L=Typ II; Ra<1.5um/59uin + TS= Temp. Distanzstück Schaltpunkt = Liquiphant II kompakt	.....	1 ZL
LD	L=Typ II; Ra<0.3um/12uin + TS= Temp. Distanzstück Schaltpunkt = Liquiphant II kompakt	.....	1 ZL
RC	..... mm; Ra<1.5um/59uin + PF= druckdichte Durchf.	.....	100 MM
RD	..... mm; Ra<0.3um/12uin + PF= druckdichte Durchf.	.....	100 MM
SC	..... inch; Ra<1.5um/59uin + PF= druckdichte Durchf.	.....	1 ZL
SD	..... inch; Ra<0.3um/12uin + PF= druckdichte Durchf.	.....	1 ZL
TC	L=Typ II; Ra<1.5um/59uin + PF= druckdichte Durchf., Schaltpunkt = Liquiphant II kompakt	.....	1 ZL
TD	L=Typ II; Ra<0.3um/12uin + PF= druckdichte Durchf., Schaltpunkt = Liquiphant II kompakt	.....	1 ZL
YY	Sonderausführung, TSP-Nr. zu spez.	.....

Elektronik; Ausgang

A	FEL50A; PROFIBUS PA	.....
D	FEL50D; Dichte/Konzentration, Dichte Elektronik ohne WHG Zulassung	.....
1	FEL51; SIL 2-Leiter 19-253VAC	.....
2	FEL52; SIL 3-Leiter PNP 10-55VDC	.....
4	FEL54; SIL Relais DPDT 19-253VAC/19-55VDC	.....
5	FEL55; SIL 8/16mA, 11-36VDC	.....
6	FEL56; SIL NAMUR (L-H Signal)	.....
7	FEL57; SIL 2-Leiter PFM	.....
8	FEL58; SIL NAMUR+Prüftaster (H-L Signal)	.....
9	Sonderausführung, TSP-Nr. zu spez.	.....

Gehäuse; Kabeleinführung

C3	Kompakt IP66/68 316L Hygiene; 5m Kabel	.....
D3	Kompakt IP65 316L Hygiene; Pg11 Stecker ISO4400	.....
E3	Kompakt NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Stecker ISO4400	.....
E4	F16 NEMA Type 4X Encl. Polyester; NPT1/2 Gewinde	.....
E5	F13 NEMA Type 4X/6P Encl. / F17 NEMA Type 4X Encl. Alu; NPT3/4 Gewinde	.....
E6	F15 NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Gewinde	.....
E7	T13 NEMA Type 4X/6P Encl. Alu, besch.; NPT3/4 Gewinde, getrennter Anschlussraum	.....
F4	F16 IP66/67 Polyester; G1/2 Gewinde	.....
F5	F13 IP66/68 / F17 IP66/67 Alu; G1/2 Gewinde	.....
F6	F15 IP66/67 316L Hygiene; G1/2 Gewinde	.....
F7	T13 IP66/68 Alu, besch.; G1/2 Gewinde, getrennter Anschlussraum	.....
G4	F16 IP66/67 Polyester; M20 Verschr.	.....
G5	F13 IP66/68 / F17 IP66/67 Alu; M20 Verschr. (EEx d > M20 Gewinde)	.....
G6	F15 IP66/67 316L Hygiene; M20 Verschr.	.....
G7	T13 IP66/68 Alu, besch.; M20 Verschr., getrennter Anschlussraum (EEx d > M20 Gewinde)	.....
N3	Kompakt IP66/68 316L Hygiene; M12 Stecker	.....
N4	F16 IP66/67 Polyester; M12 Stecker	.....
N5	F13 IP66/68 / F17 IP66/67 Alu; M12 Stecker	.....
N6	F15 IP66/67 316L Hygiene; M12 Stecker	.....
Y9	Sonderausführung, TSP-Nr. zu spez.	.....

Zusatzausstattung

A	Grundauführung	.....
B	CoC-ASME BPE, EN10204-3.1 Material (316L mediumberührt) Abnahmeprüfzeugnis	.....
C	EN10204-3.1 Material (316L mediumberührt) Abnahmeprüfzeugnis	.....
D	EN10204-3.1 AD2000 Material mediumberührt, ausgenommen Gussteile Abnahmeprüfzeugnis	.....
K	Sonderabgleich Dichte H2O	.....
L	Sonderabgleich Dichte H2O, EN10204-3.1 Material (316L mediumberührt) Abnahmeprüfzeugnis	.....
S	GL/ABS Schiffbauzulassung, max 1600mm
Y	Sonderausführung, TSP-Nr. zu spez.

Sondenlänge in mm

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Preisgruppe B

E-H Füllstand
messtechnik

Bestellschlüssel

FTL 51H

Liquiphant M FTL 51 C

Füllstandgrenzscharter Flüssigkeiten,
mit hoch korrosionsbeständiger Beschichtung und kleine Abmessungen der Schwinggabel

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E+H Füllstand
messtechnik

Liquiphant M FTL51C

Zulassung

A	Ex-freier Bereich
B	ATEX II 3G Ex nC IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nC IIC T6	.....
C	ATEX II 3G Ex nA IIC T6, WHG, ATEX II 3D Ex tc IIIC T85oC, NEPSI II 3G Ex nA IIC T6	.....
D	Ex-freier Bereich, WHG	.....
E	ATEX II 1/2G Ex de IIC T6, WHG/IECEx Zone 0/1	.....
F	ATEX II 1/2GD Ex ia IIC T6, WHG/IECEx Zone 0/1	.....
G	INMETRO Ex ia IIC/IIB T6 Ga/Gb	.....
H	INMETRO Ex d IIC/IIB T6 Ga/Gb	.....
I	INMETRO Ex de IIC/IIB T6 Ga/Gb	.....
L	ATEX II 1/2G Ex d IIC T6, WHG/IECEx Zone 0/1	.....
M	NEPSI Ex ia IIB/IIC T6	.....
N	NEPSI Ex d IIB/IIC T3-T6 Ga/Gb	.....
P	FM IS Cl.I,II,III Div.1 Gr.A-G, Zone 0,1,2	.....
Q	FM XP Cl.I,II,III Div.1 Gr.B-G, Gr.A-G wenn E5 Gehäuse ausgewählt, Zone 1,2	.....
R	FM NI Cl.I Div.2 Gr.A-D, Zone 2	.....
S	CSA C/US IS Cl I,II,III Div.1 Gr.A-G, Zone 0,1,2	.....
T	CSA C/US XP Cl I,II,III Div.1 Gr.A-G, Zone 1,2	.....
U	CSA C/US General Purpose	.....
V	TIIS Ex ia IIC T3	.....
W	TIIS Ex d IIB T3	.....
Y	Sonderausführung, TSP-Nr. zu spez.	.....
1	ATEX II 1/2G Ex ia IIB T6, WHG	.....
2	ATEX II 1/2G Ex d IIB T6, WHG/IECEx Zone 0/1	.....
3	ATEX II 1/2G Ex de IIB T6, WHG/IECEx Zone 0/1	.....
4	ATEX II 1/2G Ex ia IIC T6, WHG, XA Sicherheitshinweise beachten (XA) (elektrostatische Aufladung)!	.....
5	ATEX II 1/2G Ex d IIC T6, WHG, IEC, XA IECEx Zone 0/1 Sicherheitshinweise beachten (XA) (elektrostatische Aufladung)!	.....
6	ATEX II 1/2G Ex de IIC T6, WHG, IEC, XA IECEx Zone 0/1 Sicherheitshinweise beachten (XA) (elektrostatische Aufladung)!	.....

Prozessanschluss

ACK	NPS 1-1/2" Cl.150, ECTFE >316/316L Flansch ASME B16.5	.....
ACL	NPS 1-1/2" Cl.150, PFA(Edlon) >316/316L Flansch ASME B16.5	.....
ACM	NPS 1-1/2" Cl.150, PFA(RubyRed) >316/316L Flansch ASME B16.5	.....
ACN	NPS 1-1/2" Cl.150, PFA (leitfähig) >316/316L Flansch ASME B16.5	.....
AEK	NPS 2" Cl.150, ECTFE >316/316L Flansch ASME B16.5	.....
AEL	NPS 2" Cl.150, PFA(Edlon) >316/316L Flansch ASME B16.5	.....
AEM	NPS 2" Cl.150, PFA(RubyRed) >316/316L Flansch ASME B16.5	.....
AEN	NPS 2" Cl.150, PFA(leitfähig) >316/316L Flansch ASME B16.5	.....
AES	NPS 2" Cl.150, Email >1.0487 ASTM A516 Grade 60 Flansch ASME B16.5	.....
AFK	NPS 2" Cl.300, ECTFE >316/316L Flansch ASME B16.5	.....
AFL	NPS 2" Cl.300, PFA(Edlon) >316/316L Flansch ASME B16.5	.....
AFM	NPS 2" Cl.300, PFA(RubyRed) >316/316L Flansch ASME B16.5	.....
AFN	NPS 2" Cl.300, PFA(leitfähig) >316/316L Flansch ASME B16.5	.....
AFS	NPS 2" Cl.300, Email >1.0487 ASTM A516 Grade 60 Flansch ASME B16.5	.....
ALK	NPS 3" Cl.150, ECTFE >316/316L Flansch ASME B16.5	.....
ALL	NPS 3" Cl.150, PFA(Edlon) >316/316L Flansch ASME B16.5	.....
ALM	NPS 3" Cl.150, PFA(RubyRed) >316/316L Flansch ASME B16.5	.....
ALN	NPS 3" Cl.150, PFA(leitfähig) >316/316L Flansch ASME B16.5	.....
APK	NPS 4" Cl.150, ECTFE >316/316L Flansch ASME B16.5	.....
APL	NPS 4" Cl.150, PFA(Edlon) >316/316L Flansch ASME B16.5	.....
APM	NPS 4" Cl.150, PFA(RubyRed) >316/316L Flansch ASME B16.5	.....
APN	NPS 4" Cl.150, PFA(leitfähig) >316/316L Flansch ASME B16.5	.....
A8K	NPS 1" Cl.150, ECTFE >316/316L Flansch ASME B16.5	.....
A8L	NPS 1" Cl.150, PFA(Edlon) >316/316L Flansch ASME B16.5	.....
A8M	NPS 1" Cl.150, PFA(RubyRed) >316/316L Flansch ASME B16.5	.....
A8N	NPS 1" Cl.150, PFA(leitfähig) >316/316L Flansch ASME B16.5	.....
BBK	DN32 PN25/40, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....
BBL	DN32 PN25/40, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	.....
BBM	DN32 PN25/40, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	.....
BBN	DN32 PN25/40, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	.....
BDK	DN40 PN25/40, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....
BDL	DN40 PN25/40, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	.....
BDM	DN40 PN25/40, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	.....
BDN	DN40 PN25/40, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	.....
BEK	DN50 PN6, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....
BEL	DN50 PN6, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	.....
BEM	DN50 PN6, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	.....
BEN	DN50 PN6, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	.....
BGK	DN50 PN25/40, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....
BGL	DN50 PN25/40, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	.....
BGM	DN50 PN25/40, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	.....
BGN	DN50 PN25/40, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	.....
BNK	DN80 PN25/40, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....
BNL	DN80 PN25/40, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	.....
BNM	DN80 PN25/40, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	.....
BNN	DN80 PN25/40, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	.....
BOK	DN100 PN10/16, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....
BOL	DN100 PN10/16, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	.....
BOM	DN100 PN10/16, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	.....
BON	DN100 PN10/16, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	.....
B8K	DN25 PN25/40, ECTFE >316L Flansch EN1092-1 (DIN2527)	.....

Preisgruppe B

Bestellschlüssel

FTL 51C

Fortsetzung nächste Seite

Liquiphant M FTL 51 C

Füllstandgrenzschalter Flüssigkeiten,
mit hoch korrosionsbeständiger Beschichtung und kleine Abmessungen der Schwinggabel

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B8L	DN25 PN25/40, PFA(Edlon) >316L Flansch EN1092-1 (DIN2527)	
B8M	DN25 PN25/40, PFA(RubyRed) >316L Flansch EN1092-1 (DIN2527)	
B8N	DN25 PN25/40, PFA(leitfähig) >316L Flansch EN1092-1 (DIN2527)	
CGS	DN50 PN25/40, Email >1.0487 Flansch EN1092-1 (DIN2527)	
CNS	DN80 PN25/40, Email >1.0487 Flansch EN1092-1 (DIN2527)	
KEK	10K 50A, ECTFE >316L Flansch JIS B2220	
KEL	10K 50A, PFA(Edlon) >316L Flansch JIS B2220	
KEM	10K 50A, PFA(RubyRed) >316L Flansch JIS B2220	
KEN	10K 50A, PFA(leitfähig) >316L Flansch JIS B2220	
YY9	Sonderausführung, TSP-Nr. zu spez.	

Sondenlänge; Typ

BK	..... mm; ECTFE	100 MM
BL	..... mm; PFA (Edlon)	100 MM
BM	..... mm; PFA (RubyRed)	100 MM
BN	..... mm; PFA (leitfähig)	100 MM
BS	..... mm; Email	100 MM
CK	..... inch; ECTFE	1 ZL
CL	..... inch; PFA (Edlon)	1 ZL
CM	..... inch; PFA (RubyRed)	1 ZL
CN	..... inch; PFA (leitfähig)	1 ZL
CS	..... inch; Email	1 ZL
DK	L=Typ II; ECTFE, Schaltpunkt = Liquiphant II kompakt	
DL	L=Typ II; PFA (Edlon), Schaltpunkt = Liquiphant II kompakt	
DM	L=Typ II; PFA (RubyRed), Schaltpunkt = Liquiphant II kompakt	
DN	L=Typ II; PFA (leitfähig), Schaltpunkt = Liquiphant II kompakt	
DS	L=Typ II; Email, Schaltpunkt = Liquiphant II kompakt	
ES	200mm; Email	
FS	300mm; Email	
GS	400mm; Email	
HS	500mm; Email	
KS	600mm; Email	
YY	Sonderausführung, TSP-Nr. zu spez.	

Elektronik; Ausgang

A	FEL50A; PROFIBUS PA	
D	FEL50D; Dichte/Konzentration, Dichte Elektronik ohne WHG Zulassung	
1	FEL51; SIL 2-Leiter 19-253VAC	
2	FEL52; SIL 3-Leiter PNP 10-55VDC	
4	FEL54;SIL Relais DPDT 19-253VAC/19-55VDC	
5	FEL55; SIL 8/16mA, 11-36VDC	
6	FEL56; SIL NAMUR (L-H Signal)	
7	FEL57; SIL 2-Leiter PFM	
8	FEL58;SIL NAMUR+Prüftaster (H-L Signal)	
9	Sonderausführung, TSP-Nr. zu spez.	

Gehäuse; Kabeleinführung

E1	F27 NEMA Type 4X/6P Encl. 316L; NPT3/4 Gewinde	
E4	F16 NEMA Type 4X Encl. Polyester; NPT1/2 Gewinde	
E5	F13 NEMA Type 4X/6P Encl. / F17 NEMA Type 4X Encl. Alu; NPT3/4 Gewinde	
E6	F15 NEMA Type 4X Encl. 316L Hygiene; NPT1/2 Gewinde	
E7	T13 IP66/68 Alu, besch.; NPT3/4 Gewinde, getrennter Anschlussraum	
F1	F27 IP66/68 316L; G1/2 Gewinde	
F4	F16 IP66/67 Polyester; G1/2 Gewinde	
F5	F13 IP66/68 / F17 IP66/67 Alu; G1/2 Gewinde	
F6	F15 IP66/67 316L Hygiene; G1/2 Gewinde	
F7	T13 IP66/68 Alu, besch.; G1/2 Gewinde, getrennter Anschlussraum	
G1	F27 IP66/68 316L; M20 Verschr. (EEx d > M20 Gewinde)	
G4	F16 IP66/67 Polyester; M20 Verschr.	
G5	F13 IP66/68 / F17 IP66/67 Alu; M20 Verschr. (EEx d > M20 Gewinde)	
G6	F15 IP66/67 316L Hygiene; M20 Verschr.	
G7	T13 IP66/68 Alu, besch.; M20 Verschr., getrennter Anschlussraum (EEx d > M20 Gewinde)	
N4	F16 IP66/67 Polyester; M12 Stecker	
N5	F13 IP66/68 / F17 IP66/67 Alu; M12 Stecker	
N6	F15 IP66/67 316L Hygiene; M12 Stecker	
Y9	Sonderausführung, TSP-Nr. zu spez.	

Zusatzausstattung 1

A	Nicht gewählt.	
C	EN10204-3.1 Material (316L drucktragend) Abnahmeprüfzeugnis	
K	Sonderabgleich Dichte H2O	
S	GL/ABS Schiffbauzulassung, max 1600mm	
Y	Sonderausführung, TSP-Nr. zu spez.	

Zusatzausstattung 2

A	Nicht gewählt.	
B	Temp. Distanzstück	
C	2nd line of defence > (druckdichte Durchf.)	
Y	Sonderausführung, TSP-Nr. zu spez.	

Sondenlänge in mm

Bestellschlüssel

FTL 51C

Preisgruppe B

E-H Füllstand
messtechnik

NIVOTESTER Auswertegerät FTL 325P und FTL 375P

mit eigensicheren Signalstromkreisen

1b / 01.16

FTL 325P



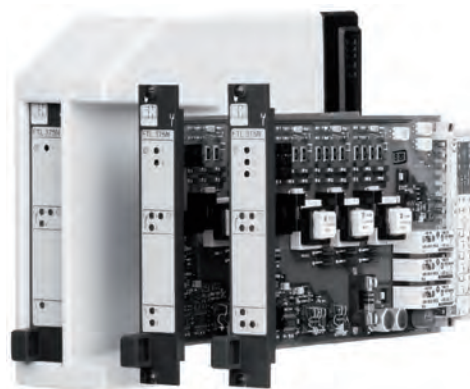
Anwendungsbereiche

- Grenzstanddetektion in Flüssigkeitstanks und Schüttgutsilos, auch im explosionsgefährdeten Bereich
- Für Messaufnehmer in Zone 0 oder Zone 20
- Flüssigkeitsdetektion in Rohren zum Trockenlaufschutz von Pumpen
- Überfüllsicherung von Tanks mit brennbaren oder nicht brennbaren wassergefährdenden Flüssigkeiten
- Zweipunktregelung und Grenzstanddetektion mit einem Schaltgerät
- Einsatz in Sicherheitssystemen mit Anforderungen an die funktionale Sicherheit bis SIL3 gemäß IEC 61508 bei Verwendung des Liquiphant M/S mit Elektronikeinsatz FEL 57

Vorteile auf einen Blick

- Eigensichere Signalstromkreise [EEx ia] für den Einsatz von Messaufnehmer im explosionsgefährdeten Bereich
- Funktionale Sicherheit SIL (siehe auch Safety Manual SD 111F) durch:
 - störungssichere PFM-Technologie
 - Leitungsüberwachung bis zum Sensor
 - Überwachung auf Korrosion an der Schwinggabel des Messaufnehmers Liquiphant M
- Kompaktes Gehäuse für einfache Reihenmontage auf Normschiene im Schaltschrank
- Leichte Verdrahtung durch steckbare Klemmenblöcke
- Vereinfachte wiederkehrende Prüfung nach WHG bei Anschluss eines Liquiphant M und S (Hochtemperatur): Tastendruck genügt
- Hohe Prüftiefe: vom Trennschaltverstärker bis zum Messaufnehmer

FTL 375P



Anwendungsbereiche

- Grenzstanddetektion in Flüssigkeitstanks und Schüttgutsilos, auch im explosionsgefährdeten Bereich
- Für Messaufnehmer der Zone 0 oder Zone 20
- Flüssigkeitsdetektion in Rohren zum Trockenlaufschutz von Pumpen
- Überfüllsicherung von Tanks mit brennbaren oder nicht brennbaren wassergefährdenden Flüssigkeiten
- Zweipunktregelung und Grenzstanddetektion mit einem Schaltgerät
- Einsatz in Sicherheitssystemen mit Anforderungen an die funktionale Sicherheit bis SIL3 gemäß IEC 61508 bei Verwendung von Liquiphant M/S mit Elektronikeinsatz FEL 57

Ihre Vorteile

- Nivotester FTL 375 P zum Anschluss von einem, zwei oder drei Messaufnehmern (1-Kanal-, 2-Kanal- oder 3-Kanalgeräte).
- Eigensichere Signalstromkreise [EEx ia] für den Einsatz der Messaufnehmer in explosionsgefährdeten Bereichen
- Funktionale Sicherheit SIL (siehe auch Handbuch zur funktionalen Sicherheit SD 113F) durch:
 - störungssichere PFM-Technologie
 - Leitungsüberwachung bis zum Sensor
 - Überwachung auf Korrosion an der Schwinggabel des Messaufnehmers Liquiphant M und Liquiphant S (HT)
 - Vereinfachte wiederkehrende Prüfung nach WHG bei Anschluss eines Liquiphant M und Liquiphant S (HT): Tastendruck genügt
- Racksyst-Steckkarte im Europakartenformat nach DIN 41494, 4 TE breit, 3 HE hoch
- Gleiches Gerät für den wahlweisen Einbau in 19"-Baugruppenträger oder Monorack-Einzelgehäuse für 1- und 2-Kanalgeräte
- Hohe Prüftiefe: vom Trennschaltverstärker bis zum Messaufnehmer
- Eingänge sind untereinander, vom Netz und den Ausgängen galvanisch getrennt
- kompatibel zu Nivotester FTL 370/372
- zusätzliche Binärausgänge

NIVOTESTER Auswertegerät FTL 325P

mit eigensicheren Signalstromkreisen

16 / 01.16



Bestellschlüssel

FTL 325P

FTL 325P -NIVOTESTER FTL 325P.....

Nivotester FTL325P zum Anschluss von ein, zwei oder drei Messzellen (1-, 2- oder 3-Kanal Geräte)
Eigensichere Signalstromkreise EEx ia für problemlosen Einsatz der Messaufnehmer im explosionsgefährdeten Bereich
Funktionale Sicherheit bis SIL2 durch Leitungsüberwachung. Vereinfachte wiederkehrende Prüfung nach WHG, Tastendruck genügt
Hutschienen-Gehäuse für einfache Reihenmontage auf Normschiene im Schaltschrank
Leichte Verdrahtung durch steckbare Klemmenblöcke
Eingänge sind untereinander, vom Netz und den Ausgängen galvanisch getrennt

Zulassung

FF	ATEX II (1)GD [EEx ia] IIC, WHG, IECEx [Ex ia] IIC.....
G	ATEX II 3(1)G Ex nC/ A [ia] IIC T4, WHG, SIL, IECEx Zone 2.....
H	ATEX II (1)GD [EEx ia] IIC,WHG,SIL,IECEx [Ex ia] IIC (Liquiphant M/Liquiphant S).....
M	NEPSI [Ex ia] IIC.....
N	NEPSI [Ex ia] IIC, SIL (Liquiphant M/Liquiphant S).....
O	FM IS Cl.I,II,III Div.1 Gr.A-G.....
P	FM IS Cl.I,II,III Div.1 Gr.A-G, SIL (Liquiphant M/Liquiphant S).....
S	CSA IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.I Div.2.....
T	CSA IS Cl.I,II,III Div.1 Gr.A-G, SIL (Liquiphant M/Liquiphant S).....
V	TIIS Ex ia IIC, Labeling in Japan.....
1	INMETRO [Ex ia Ga] IIC.....
2	INMETRO [Ex ia Ga] IIC, SIL (Liquiphant M/Liquiphant S).....

Gehäuse

1	Schienen Montage, 22.5mm, 1-Kanal.....
3	Schienen Montage, 45mm, 3-Kanal.....
9	Sonderausführung, TSP-Nr. zu spez.....

Hilfsenergie

A	85-253VAC.....
E	20-30VAC/20-60VDC.....
Y	Sonderausführung, TSP-Nr. zu spez.....

Schaltausgang

1	1x SPDT Füllstand + 1x SPST Alarm.....
3	3x SPDT Füllstand + 1x SPST Alarm.....
9	Sonderausführung, TSP-Nr. zu spez.....

Preisgruppe B

E-H Füllstand
messtechnik

NIVOTESTER Auswertegerät FTL 375P

mit eigensicheren Signalstromkreisen



Bestellschlüssel

FTL 375P

FTL 375P -NIVOTESTER FTL 375P.....

Nivotester FTL375P zum Anschluss von ein, zwei oder drei Messzellen (1-, 2- oder 3-Kanal Geräte)
Eigensichere Signalstromkreise EEx ia für problemlosen Einsatz der Messaufnehmer im explosionsgefährdeten Bereich
Funktionale Sicherheit bis SIL2 durch Leitungsüberwachung. Vereinfachte wiederkehrende Prüfung nach WHG, Tastendruck genügt
Racksyst-Steckkarte im Europakartenformat nach DIN 41494, 4 TE breit, 3 HE hoch
Eingänge sind untereinander, vom Netz und den Ausgängen galvanisch getrennt

Zulassung

F	ATEX II (1)GD [EEx ia] IIC, WHG.....
H	ATEX II (1)GD [EEx ia] IIC, WHG, SIL (Liquiphant M/Liquiphant S).....
V	TIIS Ex ia IIC, Labeling in Japan.....

Gehäuse

1	Racksyst 4HP.....
9	Sonderausführung, TSP-Nr. zu spez.....

Hilfsenergie

E	20-30VDC.....
Y	Sonderausführung, TSP-Nr. zu spez.....

Schaltausgang

1	1x SPDT Füllstand + 1x SPST Alarm.....
2	2x SPDT Füllstand + 1x SPST Alarm.....
3	3x SPDT Füllstand.....
9	Sonderausführung, TSP-Nr. zu spez.....

Preisgruppe B

Soliphant M FTM 50, 51, 52

robuster universeller Vibrationsgrenzschalter, Kompaktvariante

16 / 01.16

E+H Füllstand
messtechnik



Universeller Grenzschalter für feinkörnige Schüttgüter

Anwendungsbereiche

Der Soliphant M ist ein robuster Grenzschalter für Silos mit feinkörnigen oder staubförmigen Schüttgütern, selbst mit geringem Schüttgewicht.

Die unterschiedlichen Bauformen ermöglichen einen vielfältigen Einsatz. Für den Einsatz in staub- oder gas-explosionsgefährdeten Bereichen sind eine Vielzahl von Zertifikaten vorhanden.

FTM50:

Kompakte Bauform für Einbau in beliebiger Lage. Breites Einsatzgebiet durch verschiedene Varianten z.B.:

- Polierte Kurzgabel mit Edelstahlgehäuse (F15) und Tri-Clamp
- Beschichtete Standardgabel mit Aluminiumgehäuse (F17) und Flansch
- Standardgabel mit 280 °C (536 °F) -Auslegung und Aluminiumgehäuse (F13)

FTM51:

Mit Verlängerungsrohr bis 4 m (13 ft) für Einbau in beliebiger Lage

FTM52:

Mit Seil bis 20 m (66 ft) für Einbau von oben

Typische Anwendungsbeispiele:

Getreide, Mehl, Kakao, Zucker, Futtermittel, Waschmittel, Farbpulver, Kreide, Gips, Zement, Kunststoffgranulat, Flugasche

Vorteile auf einen Blick

- Marktführer im Bereich der Füllstanddetektion von Schüttgütern
- Funktionale Sicherheit bis SIL2 gemäß IEC 61508
- Keine mechanisch bewegten Teile: kein Verschleiß, lange Lebensdauer
- Unempfindlich gegen externe Vibration und Ansatzbildung
- Verschiedene Elektronikansätze: z.B. NAMUR-, Relais-, Thyristor-, PFM- Signal-Ausgang zur optimalen Anpassung an die Anlagensteuerung
- Dichteeinstellung (Schüttgewichteeinstellung) und Schaltverzögerung einstellbar
- Prozesstemperatur bis 280 °C (536 °F)
- Sensor beschichtet oder poliert wählbar
- Diagnosefunktion: Warnung bei bevorstehendem Geräteausfall durch Ansatzbildung oder Abrasion

Soliphant M FTM50



Soliphant M FTM51



Soliphant M FTM52



	Soliphant M FTM50	Soliphant M FTM51	Soliphant M FTM52
Messprinzip	Vibration Schüttgüter	Vibration Schüttgüter	Vibration Schüttgüter
Merkmal / Anwendung	Grenzschalter für feinkörnige und staubige Schüttgüter	Grenzschalter für feinkörnige und staubige Schüttgüter	Grenzschalter für feinkörnige und staubige Schüttgüter
	Sensorgabel	Sensorgabel	Sensorgabel
	Universell	Universell	Universell
	kein Abgleich nötig	kein Abgleich nötig	kein Abgleich nötig
	unempfindlich gegen Ansatz oder externen Vibration	unempfindlich gegen Absatz oder externer Vibration	unempfindlich gegen Absatz oder externer Vibration
	robust	robust	robust
	Schaltzustand von Außen erkennbar	Schaltzustand von Außen erkennbar	Schaltzustand von Außen erkennbar
	kompakt	kompakt	kompakt

Soliphant M FTM 50, 51, 52

robuster universeller Vibrationsgrenzschalter, Kompaktvariante

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	Soliphant M FTM50	Soliphant M FTM51	Soliphant M FTM52
Versorgung / Kommunikation	DC PNP 3-Draht AC 2-Draht 19...253V AC / 19V...55V DC 2 Relais 8/16mA NAMUR PFM	DC PNP 3-Draht AC 2-Draht 19...253V AC / 19V...55V DC 2 Relais 8/16mA NAMUR PFM	DC PNP 3-Draht AC 2-Draht 19...253V AC / 19V...55V DC 2 Relais 8/16mA NAMUR PFM
Umgebungstemperatur	-50°C ... 70°C	-50°C ... 70°C	-50°C ... 70°C
Prozesstemperatur	-50°C ... 280°C	-50°C ... 280°C	-40°C ... 80°C
Prozessdruck absolut / max. Überlastdruck	Vakuum ... 25 bar	Vakuum ... 25 bar	Vakuum ... 2 bar max. 6 bar for EExd/EExde
Min. Mediumsdichte	10 g/l (8 g/l auf Anfrage)	10 g/l (8 g/l auf Anfrage)	10 g/l (8g/l on request)
Prozessseitige Hauptmaterialien	Auswählbar: 316L 3,2µm 316L 0,8µm 316L PTFE beschichtet (um Ablagerung zu vermeiden) 316L ETFE beschichtet (um Korrosion zu vermeiden)	wählbar: 316L 3,2 µm 316L 0,8 µm 316L PTFE beschichtet (um Ansatzbildung zu vermeiden) 316L ETFE beschichtet (um Korrosion zu vermeiden)	wählbar: 316L 3,2µm 316L 0,8µm 316L PTFE beschichtet (um Ansatzbildung zu vermeiden) Seil: PUR, Silicon
Max. Zugfestigkeit			3000 N
Prozessanschluss	Gewinde R 1 1/2" 1 1/4" NPT 1 1/2" NPT EN Flansch DN50...DN100 ASME Flansch 2"...4" JIS Flansch 50A...100A	Gewinde R 1 1/2" 1 1/4" NPT 1 1/2" NPT EN Flansch DN50...DN100 ASME Flansch 2"...4" JIS Flansch 50A...100A	Gewinde R 1 1/2" 1 1/4" NPT 1 1/2" NPT EN Flansch DN50...DN100 ASME Flansch 2"...4" JIS Flansch 50A...100A
Prozessanschluss Hygienisch	Tri-Clamp ISO2852	Tri-Clamp ISO2852	Tri-Clamp ISO2852
Sensordlänge	Standard (200mm) kurz (145mm)	300 ... 4000mm (6000mm auf Anfrage)	750...20000mm
Ausgang	DC PNP 2-Draht AC Thyristor DPDT Relais 8/16mA NAMUR PFM	DC PNP 2-Draht AC Thyristor DPDT Relais 8/16mA NAMUR PFM	DC PNP 2-Draht AC Thyristor DPDT Relais 8/16mA NAMUR PFM
Zertifikate / Abnahmen	ATEX, FM, CSA, IECEx, TIIS, NEPSI, INMETRO SIL	ATEX, FM, CSA, IECEx, TIIS, NEPSI, INMETRO SIL	ATEX, FM, CSA, IECEx, TIIS, NEPSI, INMETRO SIL
Optionen	Glassichtdeckel Temperaturdistanzstück EN10204-3.1	Glassichtdeckel Temperaturdistanzstück EN10204-3.1	Glassichtdeckel Temperaturdistanzstück EN10204-3.1B
Spezialitäten	Ansatz- und Korrosionsüberwachung Seperatversion 3 Temperaturversionen erhältlich SIL 2	Ansatz- und Korrosionsüberwachung Seperatversion 3 Temperaturversionen erhältlich SIL 2	Ansatz- und Korrosionsüberwachung Seperatversion 3 Temperaturversionen erhältlich SIL 2
Applikationsgrenzen	Korngröße > 10mm	Korngröße > 10mm	Korngröße > 10mm
Komponenten	PFM: FTL325P, FTL375P NAMUR: FTL325N, FTL375N	PFM: FTL325P, FTL375P NAMUR: FTL325N, FTL375N	PFM: FTL325P, FTL375P NAMUR: FTL325N, FTL375N

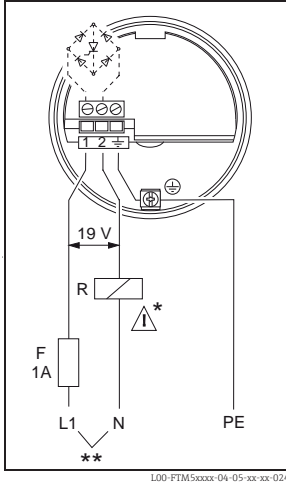
Solphant M FTM 50, 51, 52

robuster universeller Vibrationsgrenzschalter, Kompaktvariante

1b / 01.16

Elektrischer Anschluss (Auszug)

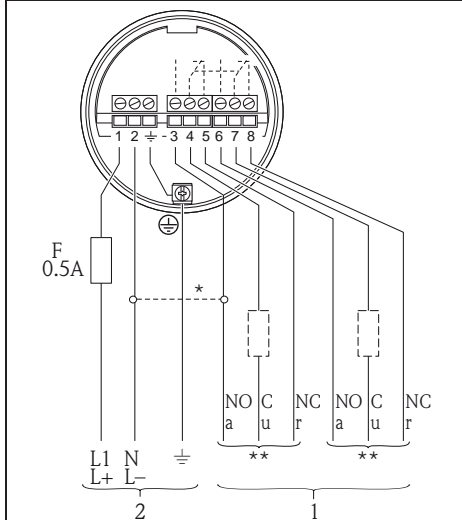
Elektronikeinsatz FEM51 (AC 2-Draht)



L00-FTM5xxxx-04-05-xx-xx-024

* Externe Last 'R' muss angeschlossen werden
** AC: U-max. 253 V, 50/60 Hz

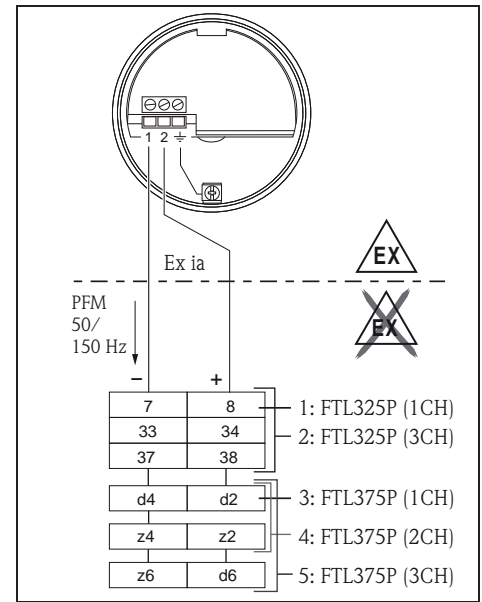
Elektronikeinsatz FEM54 (AC/DC mit Relaisausgang)



L00-FTM5xxxx-04-05-xx-xx-003

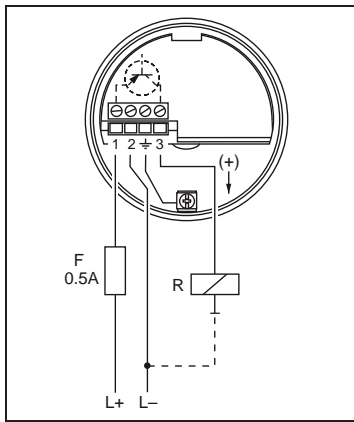
1 Relaisausgänge: Normally Open/Closed (NO, NC)
2 AC: U-19...253 V, DC: U-19...55 V

Elektronikeinsatz FEM57 (PFM)



L00-FTM5xxxx-04-05-xx-xx-006

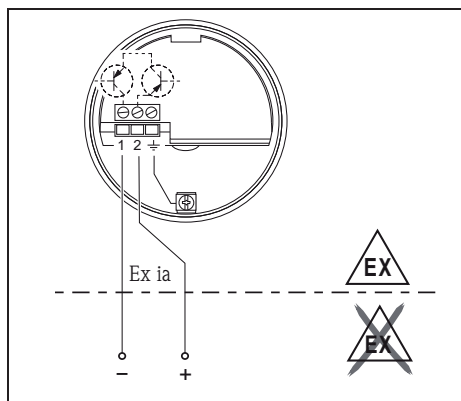
Elektronikeinsatz FEM52 (DC PNP)



L00-FTM5xxxx-04-05-xx-xx-027

DC: U= 10 V...55 V

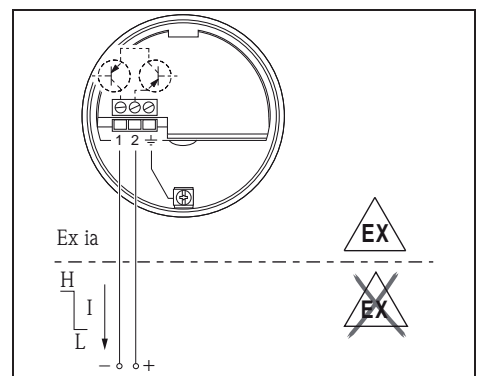
Elektronikeinsatz FEM55 (8/16 mA)



L00-FTM5xxxx-04-05-xx-xx-000

U= 11...36 z.B. SPS

Elektronikeinsatz FEM58 (NAMUR H-L Flanke)



L00-FTM5xxxx-04-05-xx-xx-005

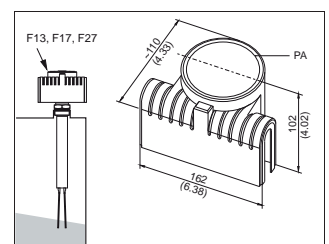
Trennverstärker nach IEC 60947-5-6 (NAMUR)

Zubehör für Solphant M FTM 50, 51, 52

robuster universeller Vibrationsgrenzschalter, Kompaktvariante

- 52024632 Seilkürzungs-Satz FTM52
- 52024631 Schiebemuße G2 VA, FTM51, druckb.
Zur flexiblen Schaltungseinstellung.
Werkstoff: 316L; Druckbeaufschlagt; Verwendung: Solphant M
- 71040497 Wetterschutzhaube F13/F17/F18/F27

Verwendung: FTM20/21, FTM50/51/52, FTL50/50H/51/51H/51C, FTL70/71, FTL80/81/85, FTC52/53, FTI55/56, FTI77, FMI51/52, FTI51/52



L00-FTM5xxxx-01-01-xx-xx-009

Solphant M FTM 50

robuster universeller Vibrationsgrenzschalter, Kompaktvariante - für feinkörnige und staubförmige Schüttgüter ab 10g/l; Sicherheitssysteme bis SIL 2 gemäß DIN EN IEC 61508; Messbereich 145 oder 200mm; Zertifikate: ATEX 1DG, ATEX 1/2DG, ATEX 1/3DG, ATEX 3DG, FM, CSA

1b / 01.16

Solphant M FTM50

Zulassung

A	Ex-freier Bereich
C	CSA General Purpose, CSA C/US
D	FM DIP-AIS CL.II,III Div.1 Gr.E-G+CSA DIP CL.II,III Div.1+2 Gr.E-G, Zone 2,21,22
E	IEC Ex iaD A20, IEC Ex ia IIC T6
F	FM IS CL.II,III Div.1 Gr.A-G+NI+CSA IS CL.II,III Div.1+2 Gr.A-G, FM: Zone 0,1,2,20,21,22/CSA: Zone 0,1,2
G	IEC Ex td A20/A21
H	FM XP-AIS CL.I Div.1 Gr.A-D+CSA XP CL.I Div.1+2 Gr.A-D, FM: Zone 1,2,21,22/CSA: Zone 1,2
K	IEC Ex d IIC T6 Ga/Gb IEC Ex ta/tb IIIC Da/Db
L	IEC Ex de IIC T6 Ga/Gb IEC Ex ta/tb IIIC Da/Db
M	INMETRO Ex tb IIIC Da/Db
S	TIIS Ex d IIC T3
T	TIIS Ex ia IIC T3
X	NEPSI Ex ia IIC T2-T6, Ex iaD
Y	Sonderausführung, TSP-Nr. zu spez.
Z	NEPSI Ex d IIC T2-T6, Ex td 20/21
1	ATEX II 1D, 1/2GD, Ex ia IIC T6
2	ATEX II 1/2D Ex td
3	ATEX II 3D, ATEX II 3G EEx nA/nL/nC
4	ATEX II 1/3D Ex td
5	ATEX II 1D,ATEX II 1/2G Ex de|a|IIC T6
6	ATEX II 1D,ATEX II 1/2G Ex d|a| IIC T6
7	ATEX II 1G/D Ex ia IIC T6, XA Sicherheitshinweise beachten (XA)
8	NEPSI Ex td A20/A21, A20/22

Prozessanschluss

AF	NPS 2" CL150 RF Flansch ASME B16.5
AG	NPS 3" CL150 RF Flansch ASME B16.5
AH	NPS 4" CL150 RF Flansch ASME B16.5
AR	NPS 2" CL300 RF Flansch ASME B16.5
BS	DN80 PN10/16 A Flansch EN1092-1 (DIN2527 B)
BT	DN100 PN10/16 A Flansch EN1092-1 (DIN2527 B)
B3	DN50 PN25/40 A Flansch EN1092-1 (DIN2527 B)
GG	Gewinde EN10226 R1-1/2
GJ	Gewinde ANSI NPT1-1/2, d=1.67" Sensor
GK	Gewinde ANSI NPT1-1/4, d=1.38" Sensor
GX	Gewinde ANSI NPT1-1/2, d=1.38" Sensor passend zu ISA Stutzen
KF	10K 50A RF Flansch JIS B2220
KG	10K 80A RF Flansch JIS B2220
KH	10K 100A RF Flansch JIS B2220
TD	Tri-Clamp ISO2852 DN40-51 (2")
YY	Sonderausführung, TSP-Nr. zu spez.

Werkstoff; Oberflächenveredelung

A	PTFE>-316L; Gabel beschichtet, ansatzmindernd, kein Korrosionsschutz
B	PTFE>-316L; komplett beschichtet, ansatzmindernd, kein Korrosionsschutz
C	ETFE>-316L; komplett beschichtet
2	316L; Ra<=3.2um/126uin, ohne
5	316L; Ra<=0.76um/30uin, Gabel elektropoliert
7	316L;Ra<=0.76um/30uin, Gabel + Rohr elektropoliert
9	Sonderausführung, TSP-Nr. zu spez.

Gabel; Schüttgewicht

A	155mm/6inch; min 10g/l Standardgabel
K	100mm/4inch; min 50g/l Kurzgabel
Y	Sonderausführung, TSP-Nr. zu spez.

Elektronik; Ausgang

1	FEM51; 2-Leiter 19-253VAC
2	FEM52; 3-Leiter PNP 10-55VDC
4	FEM54; Relais DPDT, 19-253VAC/55VDC
5	FEM55; 8/16mA, 11-36VDC
7	FEM57; 2-Leiter PFM
8	FEM58; NAMUR + Prüftaster (H-L Signal)
9	Sonderausführung, TSP-Nr. zu spez.

Sondenbauart

A	Kompakt
D	6m Kabel > Separatgehäuse
E	20ft Kabel > Separatgehäuse
G	6m Kabel, verstärkt > Separatgehäuse
H	20ft Kabel, verstärkt > Separatgehäuse
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

H	T13 Alu IP66/68 NEMA Type 4X Encl., getrennter Anschlussraum
Y	Sonderausführung, TSP-Nr. zu spez.
1	F16 Polyester IP66/67 NEMA Type 4X Encl. + Klarsichtdeckel
3	F17 Alu IP66/67 NEMA Type 4X Encl.
5	F13 Alu IP66/68 NEMA Type 4X Encl.
6	F27 316L IP67/68, NEMA Type 4X/6P Encl.
7	F15 316L Hygiene IP66/67 NEMA Type 4X Encl.

Kabeleinführung

2	Versch. M20 (Ex d > Gewinde M20)
3	Gewinde NPT1/2
4	Gewinde G1/2
7	Gewinde NPT3/4
9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung 1

A	Nicht gewählt
G	Glasdeckel
R	Glasdeckel, SIL Konformitätserklärung
S	SIL Konformitätserklärung
Y	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung 2

A	Nicht gewählt
C	EN10204-3.1 Material (mediumberührt) Abnahmeprüfzeugnis
D	Temp. Distanzstück <=150oC/300oF
E	Temp. Distanzstück <=150oC, EN10204 3.1 Material (mediumberührt) Abnahmeprüfzeugnis
F	Hochtemperatur <=280oC/540oF
H	Hochtemperatur <=280oC, EN10204 3.1 Material (mediumberührt) Abnahmeprüfzeugnis
J	Hochtemperatur <=230oC/450oF
K	Hochtemperatur <=230oC, EN10204 3.1 Material (mediumberührt) Abnahmeprüfzeugnis
Y	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

E-H Füllstand messtechnik

Bestellschlüssel

FTM 50



Solphant M FTM 51

robuster universeller Vibrationsgrenzschalter, Rohrverlängerung

1b / 01.16

E+H Füllstandmesstechnik

Solphant M FTM51

Zulassung

A	Ex-freier Bereich
C	CSA General Purpose, CSA C/US
D	FM DIP AIS CL.II,III Div1 Gr.E-G+CSA DIP CL.II,III Div.1+2 Gr.E-G, FM: Zone 21,22
E	IEC Ex iaD A20, IEC Ex ia IIC T6
F	FM IS CL.I,II,III Div.1 Gr.A-G+NI+CSA IS CL.I,II,III Div.1+2 Gr.A-G, FM: Zone 0,1,2,20,21,22/CSA: Zone 0,1,2
G	IEC Ex tD A20/A21
H	FM XP AIS CL.I Div.1 Gr.A-D+CSA XP CL.I Div.1+2 Gr.A-D, FM: Zone 1,2,21,22/CSA: Zone 1,2
K	IEC Ex d IIC T6 Ga/Gb IEC Ex ta/tb IIIC Da/Db
L	IEC Ex de IIC T6 Ga/Gb IEC Ex ta/tb IIIC Da/Db
M	INMETRO Ex tb IIIC Da/Db
P	INMETRO Ex d IIC T6-T2 Ga/Gb, Ex ta/tb IIIC Da/Db
Q	INMETRO Ex de IIC T6-T2 Ga/Gb, Ex ta/tb IIIC Da/Db
S	TIIS Ex d[ia] IIC T4
T	TIIS Ex ia IIC T3
X	NEPSI Ex ia IIC T2-T6, Ex iaD
Y	Sonderausführung, TSP-Nr. zu spez.
Z	NEPSI Ex d IIC T2-T6, Ex tD 20/21
1	ATEX II 1D, 1/2GD, Ex ia IIC T6
2	ATEX II 1/2D Ex tD
3	ATEX II 3D, ATEX II 3G EEx nA/nL/nC
4	ATEX II 1/3D Ex tD
5	ATEX II 1D,ATEX II 1/2G Ex de[ia]IIC T6
6	ATEX II 1D,ATEX II 1/2G Ex d[ia] IIC T6
7	ATEX II 1G/D Ex ia IIC T6, XA Sicherheitshinweise beachten (XA)
8	NEPSI Ex tD A20/A21, A20/22

Prozessanschluss

AF	NPS 2" Cl.150 RF Flansch ASME B16.5
AG	NPS 3" Cl.150 RF Flansch ASME B16.5
AH	NPS 4" Cl.150 RF Flansch ASME B16.5
AR	NPS 2" Cl.300 RF Flansch ASME B16.5
BS	DN80 PN10/16 A Flansch EN1092-1 (DIN2527 B)
BT	DN100 PN10/16 A Flansch EN1092-1 (DIN2527 B)
B3	DN50 PN25/40 A Flansch EN1092-1 (DIN2527 B)
GG	Gewinde EN10226 R1-1/2, d=43mm/1.69" Sensor, kombinierbar mit Schiebemuffe
GJ	Gewinde ANSI NPT1-1/2, d=43mm/1.69" Sensor, kombinierbar mit Schiebemuffe
GK	Gewinde ANSI NPT1-1/4, d=36mm/1.42" Sensor
GX	Gewinde ANSI NPT1-1/2, d=36mm/1.42" Sensor
KF	10K 50A RF Flansch JIS B2220
KG	10K 80A RF Flansch JIS B2220
KH	10K 100A RF Flansch JIS B2220
TD	Tri-Clamp ISO2852 DN40-51 (2")
YY	Sonderausführung, TSP-Nr. zu spez.

Werkstoff; Oberflächenveredelung

A	PTFE>316L; Gabel beschichtet, ansatzmindernd, kein Korrosionsschutz
B	PTFE>316L; komplett beschichtet, ansatzmindernd, kein Korrosionsschutz
C	ETFE>316L; komplett beschichtet
2	316L; Ra<=3.2um/126uin, ohne
5	316L; Gabel elektropoliert, Gabel mit Ra<=0.7um/30uin Rohr mit Ra<=3.2um/126uin
7	316L; Gabel + Rohr elektropoliert Gabel + Rohr mit Ra<=0.7um/30uin
9	Sonderausführung, TSP-Nr. zu spez.

Baulänge; Schüttgewicht

L	..... mm; min 10g/1 Standardgabel	..... 100 MM
M	..... mm; min 50g/1 Kurzgabel	..... 100 MM
P	..... in; min 10g/1 Standardgabel	..... 1 ZL
Q	..... in; min 50g/1 Kurzgabel	..... 1 ZL
S	..... mm; min 10g/1, Oberflächenvered. Standardgabel	..... 100 MM
T	..... mm; min 50g/1, Oberflächenvered. Kurzgabel	..... 100 MM
U	..... in; min 10g/1, Oberflächenvered. Standardgabel	..... 1 ZL
V	..... in; min 50g/1, Oberflächenvered. Kurzgabel	..... 1 ZL
Y	Sonderausführung, TSP-Nr. zu spez.	

Elektronik; Ausgang

1	FEM51; 2-Leiter 19-253VAC
2	FEM52; 3-Leiter PNP 10-55VDC
4	FEM54; Relais DPDT, 19-253VAC/55VDC
5	FEM55; 8/16mA, 11-36VDC
7	FEM57; 2-Leiter PFM
8	FEM58; NAMUR + Prüftaster (H-L Signal)
9	Sonderausführung, TSP-Nr. zu spez.

Sondenbauart

A	Kompakt
D	6m Kabel > Separatgehäuse
E	20ft Kabel > Separatgehäuse
G	6m Kabel, verstärkt > Separatgehäuse
H	20ft Kabel, verstärkt > Separatgehäuse
Y	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

Bestellschlüssel

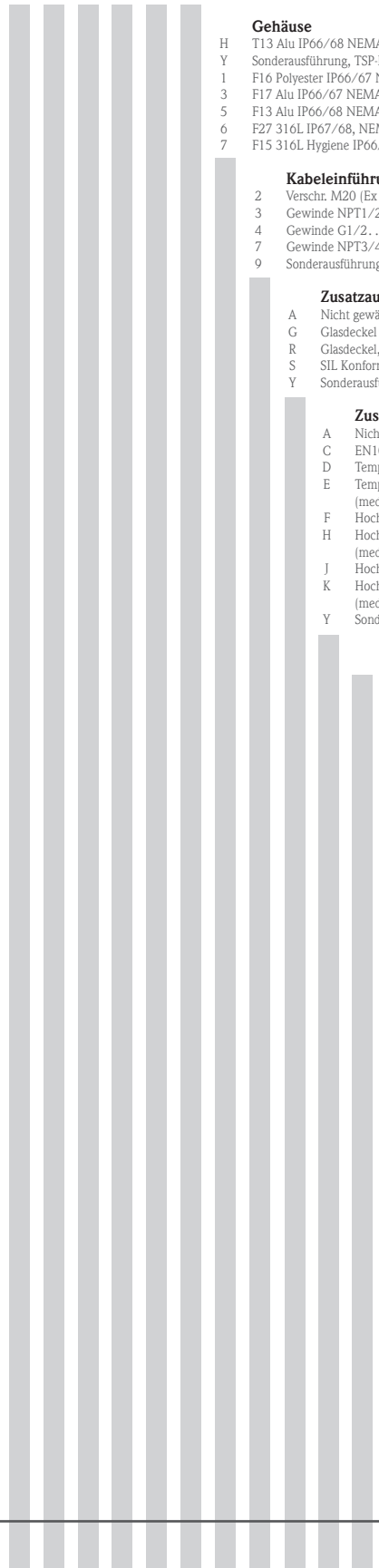
FTM 51

Fortsetzung nächste Seite

Soliphant M FTM 51

robuster universeller Vibrationsgrenzschalter, Rohrverlängerung

1b / 01.16



Gehäuse

H	T13 Alu IP66/68 NEMA Type 4X Encl., getrennter Anschlussraum	.....
Y	Sonderausführung, TSP-Nr. zu spez.	.....
1	F16 Polyester IP66/67 NEMA Type 4X Encl. + Klarsichtdeckel	.....
3	F17 Alu IP66/67 NEMA Type 4X Encl.	.....
5	F13 Alu IP66/68 NEMA Type 4X Encl.	.....
6	F27 316L IP67/68, NEMA Type 4X/6P Encl.	.....
7	F15 316L Hygiene IP66/67 NEMA Type 4X Encl.	.....

Kabeleinführung

2	Versch. M20 (Ex d > Gewinde M20)	.....
3	Gewinde NPT1/2	.....
4	Gewinde G1/2	.....
7	Gewinde NPT3/4	.....
9	Sonderausführung, TSP-Nr. zu spez.	.....

Zusatzausstattung 1

A	Nicht gewählt	.....
G	Glasdeckel	.....
R	Glasdeckel, SIL Konformitätserklärung	.....
S	SIL Konformitätserklärung	.....
Y	Sonderausführung, TSP-Nr. zu spez.	.....

Zusatzausstattung 2

A	Nicht gewählt	.....
C	EN10204-3.1 Material (mediumberührt), Abnahmeprüfzeugnis	.....
D	Temp. Distanzstück <=150oC/300oF	.....
E	Temp. Distanzstück <=150oC, EN10204- 3.1 Material (mediumberührt), Abnahmeprüfzeugnis	.....
F	Hochtemperatur <=280oC/540oF	.....
H	Hochtemperatur <=280oC, EN10204- 3.1 Material (mediumberührt), Abnahmeprüfzeugnis	.....
J	Hochtemperatur <=230oC/450oF	.....
K	Hochtemperatur <=230oC, EN10204- 3.1 Material (mediumberührt), Abnahmeprüfzeugnis	.....
Y	Sonderausführung, TSP-Nr. zu spez.	.....

Sondenzlänge in mm

Preisgruppe B

E-H Füllstand messtechnik

Bestellschlüssel

FTM 51

Solphant M FTM 52

robuster universeller Vibrationsgrenzschanter, Seilvariante

1b / 01.16

E+H Füllstandmesstechnik

Solphant M FTM52

Zulassung

A	Ex-freier Bereich
C	CSA General Purpose, CSA C/US
D	FM DIP AIS CL.II,III Div1 Gr.E-G+CSA DIP CL.II,III Div.1+2 Gr.E-G, FM: Zone 21,22
E	IEC Ex iaD A20, IEC Ex ia IIC T6
F	FM IS CL.I,II,III Div.1 Gr.A-G+NI+CSA IS CL.I,II,III Div.1+2 Gr.A-G, FM: Zone 0,1,2,20,21,22/CSA: Zone 0,1,2
G	IEC Ex tD A20/A21
H	FM XP AIS CL.I Div.1 Gr.A-D+CSA XP CL.I Div.1+2 Gr.A-D, FM: Zone 1,2,21,22/CSA: Zone 1,2
K	IEC Ex d[ia Ga] IIC T6 Ga/Gb IEC Ex ta/tb IIIC [ia Da] Da/Db
L	IEC Ex de[ia Ga] IIC T6 Ga/Gb IEC Ex ta/tb IIIC [ia Da] Da/Db
M	INMETRO Ex tb [ia Da] IIIC Da/Db
P	INMETRO Ex d IIC T6-T2 Ga/Gb, Ex ta/tb IIIC Da/Db
Q	INMETRO Ex de IIC T6-T2 Ga/Gb, Ex ta/tb IIIC Da/Db
S	TIIS Ex d[ia] IIC T6
X	NEPSI Ex ia IIC T2-T6, Ex iaD
Y	Sonderausführung, TSP-Nr. zu spez.
Z	NEPSI Ex d IIC T2-T6, Ex tD 20/21
1	ATEX II 1D, 1/2GD, Ex ia IIC T6
2	ATEX II 1/2D Ex tD [iaD]
3	ATEX II 3D, ATEX II 3G EEx nA/nL/nC
4	ATEX II 1/3D Ex tD [iaD]
5	ATEX II 1D, ATEX II 1/2G Ex de[ia] IIC T6
6	ATEX II 1D, ATEX II 1/2G Ex d[ia] IIC T6
7	ATEX II 1G/D Ex ia IIC T6, XA Sicherheitshinweise beachten (XA)
8	NEPSI Ex tD A20/A21, A20/22

Prozessanschluss

AF	NPS 2" Cl.150 RF Flansch ASME B16.5
AG	NPS 3" Cl.150 RF Flansch ASME B16.5
AH	NPS 4" Cl.150 RF Flansch ASME B16.5
AR	NPS 2" Cl.300 RF Flansch ASME B16.5
BS	DN80 PN10/16 A Flansch EN1092-1 (DIN2527 B)
BT	DN100 PN10/16 A Flansch EN1092-1 (DIN2527 B)
B3	DN50 PN25/40 A Flansch EN1092-1 (DIN2527 B)
GG	Gewinde EN10226 R1-1/2
GJ	Gewinde ANSI NPT1-1/2, d=1.67" Sensor
GK	Gewinde ANSI NPT1-1/4, d=1.38" Sensor
GX	Gewinde ANSI NPT1-1/2, d=1.38" Sensor passend zu ISA Stutzen
KF	10K 50A RF Flansch JIS B2220
KG	10K 80A RF Flansch JIS B2220
KH	10K 100A RF Flansch JIS B2220
TD	Tri-Clamp ISO2852 DN40-51 (2")
YY	Sonderausführung, TSP-Nr. zu spez.

Werkstoff; Oberflächenveredelung

A	PTFE->316L; Gabel beschichtet, ansatzmindernd, kein Korrosionsschutz
2	316L; Ra<=3.2um/120uin, ohne
5	316L; Ra<=0.7um/30uin, Gabel elektropoliert
9	Sonderausführung, TSP-Nr. zu spez.

Baulänge; Schüttgewicht

B	..... mm; min 10g/1 Standardgabel	1000 MM
C	..... mm; min 50g/1 Kurzgabel	1000 MM
F	..... inch; min 10g/1 Standardgabel	1 ZL
G	..... inch; min 50g/1 Kurzgabel	1 ZL
Y	Sonderausführung, TSP-Nr. zu spez.	

Elektronik; Ausgang

1	FEM51; 2-Leiter 19-253VAC
2	FEM52; 3-Leiter PNP 10-55VDC
4	FEM54; Relais DPDT, 19-253VAC/55VDC
5	FEM55; 8/16mA, 11-36VDC
7	FEM57; 2-Leiter PFM
8	FEM58; NAMUR + Prüftaster (H-L Signal)
9	Sonderausführung, TSP-Nr. zu spez.

Sondenbauart

A	Kompakt
D	6m Kabel > Separatgehäuse
E	20ft Kabel > Separatgehäuse
G	6m Kabel, verstärkt > Separatgehäuse
H	20ft Kabel, verstärkt > Separatgehäuse
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

H	T13 Alu IP66/68 NEMA Type 4X Encl., getrennter Anschlussraum
Y	Sonderausführung, TSP-Nr. zu spez.
1	F16 Polyester IP66/67 NEMA Type 4X Encl. + Klarsichtdeckel
3	F17 Alu IP66/67 NEMA Type 4X Encl.
5	F13 Alu IP66/68 NEMA Type 4X Encl.
6	F27 316L IP67/68, NEMA Type 4X/6P Encl.
7	F15 316L Hygiene IP66/67 NEMA Type 4X Encl.

Preisgruppe B

Bestellschlüssel

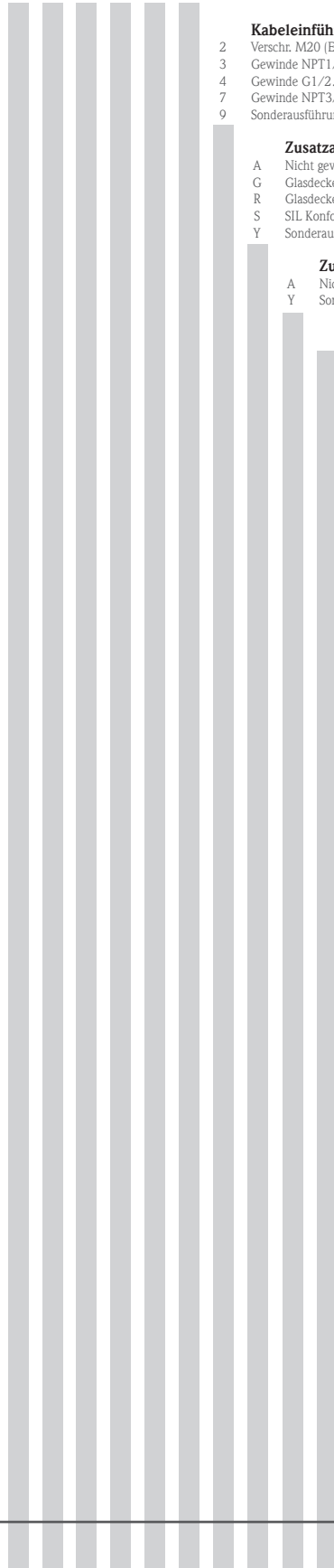
FTM 52

Fortsetzung nächste Seite

Soliphant M FTM 52

robuster universeller Vibrationsgrenzschalter, Seilvariante

1b / 01.16



Kabeleinführung

- 2 Verschr. M20 (Ex d > Gewinde M20)
- 3 Gewinde NPT1/2
- 4 Gewinde G1/2
- 7 Gewinde NPT3/4
- 9 Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung 1

- A Nicht gewählt
- G Glasdeckel
- R Glasdeckel, SIL Konformitätserklärung
- S SIL Konformitätserklärung
- Y Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung 2

- A Nicht gewählt
- Y Sonderausführung, TSP-Nr. zu spez.

Sondenlänge in mm

Preisgruppe B

Bestellschlüssel

FTM 52

E+H Füllstand
messtechnik



Soliphant T FTM 20, 21

Robuster Vibrationsgrenzschalter für Schüttgüter, auch für staubexplosionsgefährdete Bereiche

1b / 01.16

Füllstandgrenzschalter Robuster Vibrationsgrenzschalter für Schüttgüter, auch für staubexplosionsgefährdete Bereiche



Anwendungsbereiche

Der Soliphant T ist ein robuster Füllstandgrenzschalter für Silos mit fein- oder grobkörnigen, nicht fluidisierten Schüttgütern.

Die unterschiedlichen Bauformen ermöglichen einen vielfältigen Einsatz. Auch für den Einsatz in staubexplosionsgefährdeten Bereichen sind Zertifikate vorhanden.

FTM20 kompakte Bauform (250 mm) als Schwingstab für Einbau in beliebiger Richtung

FTM21 Schwingstab mit Verlängerungsrohr (500 mm/1000 mm/1500 mm/20 in/40 in/60 in) für den Einbau in beliebiger Richtung

Typische Anwendungsbeispiele: Getreide, Kaffeebohnen, Zucker, Futtermittel, Reis, Waschmittel, Farbpulver, Kreide, Gips, Zement, Sand, Kunststoffgranulat

Ihre Vorteile

- Kein Abgleich: einfache Inbetriebnahme (Plug and Play)
- Unempfindlich gegen Ansatzbildung: wartungsfreier Betrieb
- Keine mechanisch bewegten Teile: kein Verschleiß, lange Lebensdauer
- Sensormaterial 316L: kaum Abrasion auch bei Baustoffen
- Kunststoffgehäuse F16 mit Klarsichtdeckel: Schaltzustand von außen zu erkennen
- Aluminiumgehäuse F18 erhältlich
- Unempfindlich gegen externe Vibration und Fließgeräusche
- Auch in Zündschutzart ATEX II 1/3 D, FM oder CSA Zulassung

Elektrischer Anschluss Elektronikeinsatz FEM22 (DC PNP) (Auszug)

Hilfsenergie

Gleichspannung 10 V...45 V

Welligkeit max. 5 V, 0...400 Hz

Stromaufnahme max. 18 mA

Leistungsaufnahme max. 0,81 W

Verpolungsschutz

Trennspannung: 2,2 kV

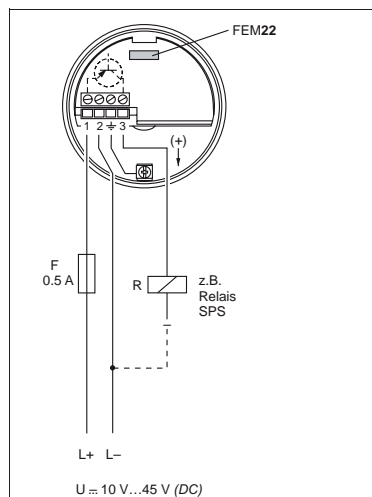
Überspannungsschutz FEM22: Überspannungskategorie III

Elektrischer Anschluss

Dreileiter-Gleichstromanschluss

Bevorzugt in Verbindung mit speicherprogrammierbaren Steuerungen (SPS), DI-Module nach EN 61131-2.

Positives Signal am Schaltausgang der Elektronik (PNP);
Ausgang bei Grenzstand gesperrt.



Soliphant T FTM 20, 21

Robuster Vibrationsgrenzschalter für Schüttgüter, auch für staubexplosionsgefährdete Bereiche

1b / 01.16

Soliphant T FTM20



Soliphant T FTM21



Messprinzip	Vibration Schüttgüter	Vibration Schüttgüter	
Merkmal / Anwendung	Grenzschalter für feinkörnige Schüttgüter	Grenzschalter für feinkörnige Schüttgüter	
	Einstabsensor	Einstabsensor	
	Universell	universell	
	kein Abgleich nötig	kein Abgleich nötig	
	unempfindlich gegen Absatz oder externer Vibration	unempfindlich gegen Ansatz oder externe Vibration	
	robust	robust	
	Schaltzustand von Außen erkennbar	Schaltzustand von Außen sichtbar	
	kompakt	Rohrverlängert	
	Versorgung / Kommunikation	10 - 45 VDC 19 - 253 VAC Relais DC PNP 10 - 45 V	10 - 45 VDC 19 - 253 VAC Relais DC PNP 10 - 45 V
	Umgebungstemperatur	-40°C ... 70°C	-40°C ... +70 °C
Prozesstemperatur	-40°C ... 150°C	-40°C ... 150°C	
Prozessdruck absolut / max. Überlastdruck	Vacuum ... 25 bar	Vacuum ... 25 bar	
Min. Mediumsdichte	200 g/l	200 g/l	
Prozessseitige Hauptmaterialien	316L	316L	
Prozessanschluss	Gewinde	Gewinde	
	R 1"	R 1"	
	R 1 1/2"	R 1 1/2"	
	1 1/4" NPT	1 1/4" NPT	
	1 1/2" NPT	1 1/2" NPT	
Sensorlänge	225 mm	500 mm 1000 mm 1500 mm	
	Ausgang	DPDT Relais DC PNP max 350mA	DPDT Relais DC PNP max 350 mA
	Zertifikate / Abnahmen	ATEX FM CSA	ATEX FM CSA
Optionen		Schiebemuffel erhältlich	
Applikationsgrenzen	Dichte: < 200 g/l Korngröße: > 20 mm nicht für Flüssigkeiten	Dichte: < 200g/l Korngröße: > 25mm nicht für Flüssigkeiten	

E-H Füllstand messtechnik

Elektrischer Anschluss Elektronikeinsatz FEM24 (AC/DC mit Relaisausgang) (Auszug)

Hilfsenergie

Wechselspannung 19 V...253 V, 50/60 Hz c

oder Gleichspannung 19 V...55 V

Leistungsaufnahme max. 1,3 W

Verpolungsschutz

Trennspannung: 2,2 kV

Überspannungsschutz FEM24: Überspannungskategorie III

Elektrischer Anschluss

Allstromanschluss mit Relaisausgang

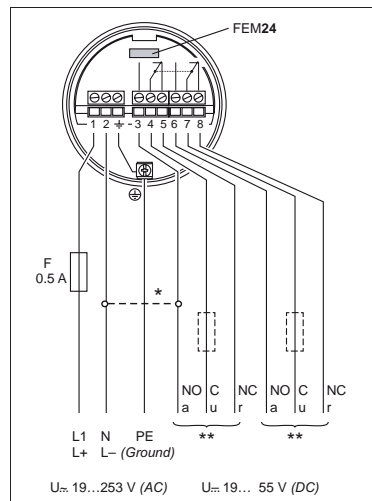
Hilfsenergie:

Beachten Sie die unterschiedlichen Spannungsbereiche für Gleich- und Wechselstrom.

Ausgang:

Sehen Sie bei Anschluss eines Gerätes mit hoher Induktivität eine Funkenlöschung zum Schutz des Relaiskontakts vor.

Eine Feinsicherung (abhängig von der angeschlossenen Last) schützt den Relaiskontakt bei Kurzschluss.



Die beiden Relaiskontakte schalten simultan. DPDT (Double Pole Double Throw)

* Im gebrückten Zustand arbeitet der Relaisausgang in Form einer NPN-Logik.

** Siehe unten "Anschließbare Last (Bürde)"

Hinweis!
Beachten Sie die unterschiedlichen Spannungsbereiche für Gleich- und Wechselstrom.

Solphant T FTM 20

Robuster Vibrationsgrenzscharter für Schüttgüter, auch für staubexplosionsgefährdete Bereiche

1b / 01.16

E+H Füllstand
messtechnik

Solphant T FTM20

Zulassung

A	Ex-freier Bereich
C	CSA General Purpose, CSA C/US
D	FM DIP+CSA DIP CLII,III Div.1+2 Gr.E-G, Zone 21,22
G	IECEx t IIIC T 170oC Da/Dc
N	NEPSI DIP A20/A22 Ta170oC IP66
Y	Sonderausführung, TSP-Nr. zu spez.
4	ATEX II 1/3D Ex t IIIC T 170oC Da/Dc

Prozessanschluss

A	Gewinde EN10226 R1, 316L
G	Gewinde EN10226 R1-1/2, 316L
M	Gewinde ANSI NPT1-1/4, 316L
N	Gewinde ANSI NPT1-1/2, 316L
Y	Sonderausführung, TSP-Nr. zu spez.

Elektronik; Ausgang

2	FEM22; 3-Leiter PNP 10-45VDC
4	FEM24; Relais DPDT, 19-253VAC/55VDC
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung

2	F16 Polyester IP66/67 NEMA4X; M20 Verschr.
3	F16 Polyester IP66/67 NEMA4X; NPT1/2 Gewinde
4	F16 Polyester IP66/67 NEMA4X; G1/2 Gewinde
5	F18 Alu IP66/67 NEMA4X; M20 Verschr.
6	F18 Alu IP66/67 NEMA4X; NPT3/4 Gewinde
7	F18 Alu IP66/67 NEMA4X; G1/2 Gewinde
9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung

A	Grundausführung
Y	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

Bestellschlüssel

FTM 20

Solphant T FTM 21

Robuster Vibrationsgrenzschalter für Schüttgüter, auch für staubexplosionsgefährdete Bereiche

1b / 01.16

Solphant T FTM21

Zulassung

A	Ex-freier Bereich
C	CSA General Purpose, CSA C/US
D	FM DIP+CSA DIP CLII,III Div.1+2 Gr.E.G, Zone 21,22
G	IECEx t IIIIC T 170oC Da/Dc
N	NEPSI DIP A20/A22 Ta170oC IP66
Y	Sonderausführung, TSP-Nr. zu spez.
4	ATEX II 1/3D Ex t IIIIC T 170oC Da/Dc

Prozessanschluss

A	Gewinde EN10226 R1, 316L
G	Gewinde EN10226 R1-1/2, 316L
M	Gewinde ANSI NPT1-1/4, 316L
N	Gewinde ANSI NPT1-1/2, 316L
Y	Sonderausführung, TSP-Nr. zu spez.

Sensorenlänge

2	500mm
3	1000mm
4	1500mm
6	20inch
7	40inch
8	60inch
9	Sonderausführung, TSP-Nr. zu spez.

Elektronik; Ausgang

2	FEM22; 3-Leiter PNP 10-45VDC
4	FEM24; Relais DPDT, 19-253VAC/55VDC
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung

2	F16 Polyester IP66/67 NEMA4X; M20 Verschr.
3	F16 Polyester IP66/67 NEMA4X; NPT1/2 Gewinde
4	F16 Polyester IP66/67 NEMA4X; G1/2 Gewinde
5	F18 Alu IP66/67 NEMA4X; M20 Verschr.
6	F18 Alu IP66/67 NEMA4X; NPT3/4 Gewinde
7	F18 Alu IP66/67 NEMA4X; G1/2 Gewinde
9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung

A	Grundauführung
Y	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

E-H Füllstand
messtechnik

Bestellschlüssel

FTM 21

Füllstandgrenzschalter NIVECTOR FTC 968 / 968 Z

Kompaktgerät zur Grenzstanderrfassung in pulverigen und feinkörnigen Schüttgütern aller Art

1b / 01.16

E+H Füllstand
messtechnik



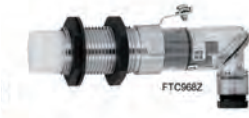
Nivector FTC968 AC

Grenzschalter, Kapazitiv.
Anwendung: pulverige, feinkörnige Schüttgüter.
Einbaugewinde: G1.
Einbautiefe: 20-71 mm.
Ausgang: 2-Draht, 21-253VAC.
Werkstoff Isolation/Gehäuse: PC, IP65.
:: Abgleich nicht erforderlich.
:: Keine bewegten Teile.



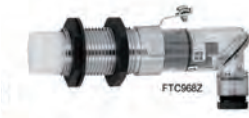
Nivector FTC968 DC PNP

Grenzschalter, Kapazitiv.
Anwendung: pulverige, feinkörnige Schüttgüter.
Einbaugewinde: G1.
Einbautiefe: 20-71 mm.
Ausgang: 3-Draht PNP, 10-55VDC.
Werkstoff Isolation/Gehäuse: PC, IP65.
:: Abgleich nicht erforderlich.
:: Keine bewegten Teile.



Nivector FTC968Z AC

Grenzschalter, Kapazitiv.
Anwendung: pulverige, feinkörnige Schüttgüter.
Zulassung: ATEX II 1/3D.
Einbaugewinde: G1, Messing vernickelt.
Einbautiefe: 20-71 mm.
Ausgang: 2-Draht, 21-253VAC.
Werkstoff Gehäuse: Halar (ECTFE), IP65.
:: Abgleich nicht erforderlich.
:: Keine bewegten Teile.



Nivector FTC968Z DC PNP

Grenzschalter, Kapazitiv.
Anwendung: pulverige, feinkörnige Schüttgüter.
Zulassung: ATEX II 1/3D.
Einbaugewinde: G1, Messing vernickelt.
Einbautiefe: 20-71 mm.
Ausgang: 3-Draht PNP, 10-55VDC.
Werkstoff Gehäuse: Halar (ECTFE), IP65.
:: Abgleich nicht erforderlich.
:: Keine bewegten Teile.



Zubehör:

Protector für Nivector FTC968/FTC968Z

Einbaudapter, Gewinde G1-1/2.
Werkstoff: PBT/GF, FDA gelistet.
Temp.: -20...+80°C, Einbautiefe: 81 mm.
:: Abrasionschutz.
:: Auslaufschutz bei Nivector-Tausch.

zum mechanischen
Schutz des
Grenzschalters

Anwendungsbereich

Der Nivector ist ein Füllstandgrenzschalter mit sehr kleinen Abmessungen zur Minimum- oder Maximum-Detektion in Silos mit rieselfähigen pulverigen oder feinkörnigen Schüttgütern (Korngröße bis 10 mm). Durch seine Bauform und der verwendeten Werkstoffe eignet sich der Nivector besonders für den Einbau in beengten Einbauverhältnissen und zum Einsatz in Lebensmitteln.

Der Nivector FTC968Z kann in staubexplosionsgefährdeten Bereichen der Zone 20 eingesetzt werden.

Typische Anwendungsbeispiele:
Kunststoffgranulat, Waschmittel, Getreide, Zucker, Gewürze, Grieß, Futtermittel

Ihre Vorteile

- Kein Abgleich: rasche und billige Inbetriebnahme
- Keine mechanisch bewegten Teile: kein Verschleiß, lange Lebensdauer
- Hohe Störfestigkeit gegen elektromagnetische Felder und Spannungsspitzen: sichere Funktion
- Schaltzustandsanzeige von außen zu erkennen: einfache Kontrolle
- Schutz des Grenzschalters durch "Protector": Funktionsprüfung auch bei befülltem Silo möglich

Preisgruppe C

Füllstandgrenzschalter NIVECTOR FTC 968 / 968 Z

Kompaktgerät zur Grenzstanderfassung in pulverigen und feinkörnigen Schüttgütern aller Art

1b / 01.16

Nivector FTC968

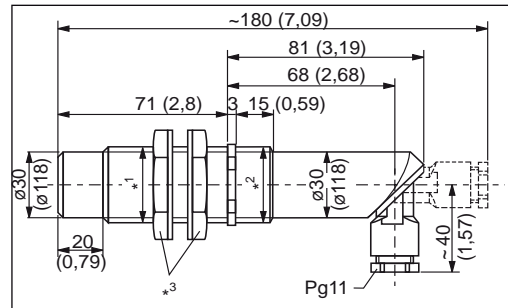


Messprinzip	Kapazitiv Feststoff
Merkmal / Anwendung	Kompakt für pulverige und feinkörnige Schüttgüter aller Art
Versorgung / Kommunikation	2-Draht AC: 24V ... 253V 3-Draht DC: 10V ... 55V
Umgebungstemperatur	-20 °C ... 60 °C
Prozesstemperatur	-40 °C ... 80 °C
Prozessdruck absolut / max. Überlastdruck	Vakuum ... 6 bar
Prozesseitige Hauptmaterialien	PC, PA "Protector": FDA gelistetes Material PBT-GF (gemäß 21 CFR Part 177.1860)
Prozessanschluss	G1, G1 1/2
Ausgang	2-Draht AC 3-Draht DC
Optionen	Protector
Spezialitäten	Active build-up compensation
Applikationsgrenzen	DK min 1,6 Druck und Temperaturderating beachten

Abmessungen (Auszug)

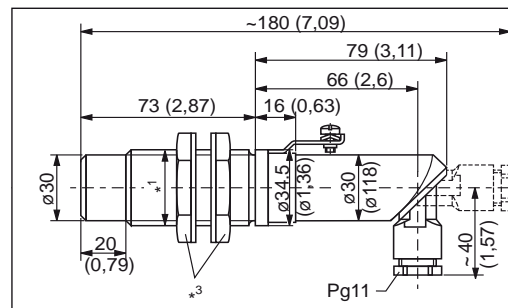
FTC968

(Gewinde aus Kunststoff)



FTC968Z *

(Gewinde aus Metall, Erdungsanschluss)



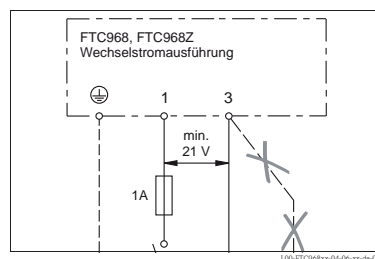
Elektrischer Anschluss (Auszug)

Elektrischer Anschluss

Schraubklemmen für max. 1,5 mm² (16 AWG) Litze in Aderendhülse A 1,5 - 7 nach DIN 46228; Kabelverschraubung Pg11, für Kabeldurchmesser 6...8 mm (0,24...0,31 in)

Zweileiter-Wechselspannungsanschluss

Immer in Reihe mit einer Last anschließen!
Berücksichtigen Sie den Spannungsabfall über der Elektronik im durchgeschalteten Zustand (bis 12 V), den Reststrom im gesperrten Zustand (bis 4 mA) und bei niedriger Anschlussspannung auch den Spannungsabfall über der Last, damit die minimale Klemmspannung am Nivector (21 V) nicht unterschritten wird.



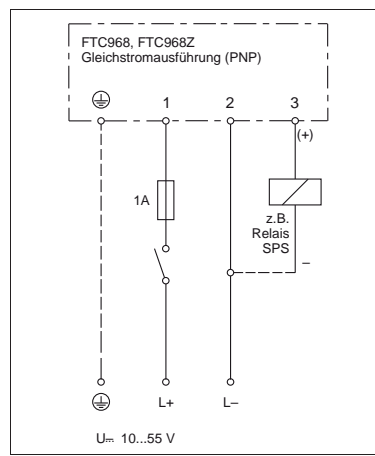
Dreileiter-Gleichspannungsanschluss

Bevorzugt in Verbindung mit speicherprogrammierbaren Steuerungen (SPS).

Positives Signal am Schaltausgang der Elektronik (PNP).

Ein Erdungsanschluss ist nur am FTC968Z angebracht.

Der Nivector FTC968 hat doppelte Isolation □.



Füllstandgrenzschalter Minicap FTC 260 / 262

Kapazitive Grenzstanddetektion in pulvrigen und feinkörnigen Schüttgütern

16 / 01.16

Grenzschalter mit Ansatzkompensation Inbetriebnahme ohne Abgleich



Anwendungsbereich

Der Minicap eignet sich zur Grenzstanddetektion in leichten Schüttgütern mit einer Korngröße bis max. 30 mm (1,18 in) und einer Dielektrizitätszahl $\epsilon_r \geq 1,6$ wie z.B. Getreide, Mehl, Milchpulver, Mischfutter, Zement, Kreide oder Gips.

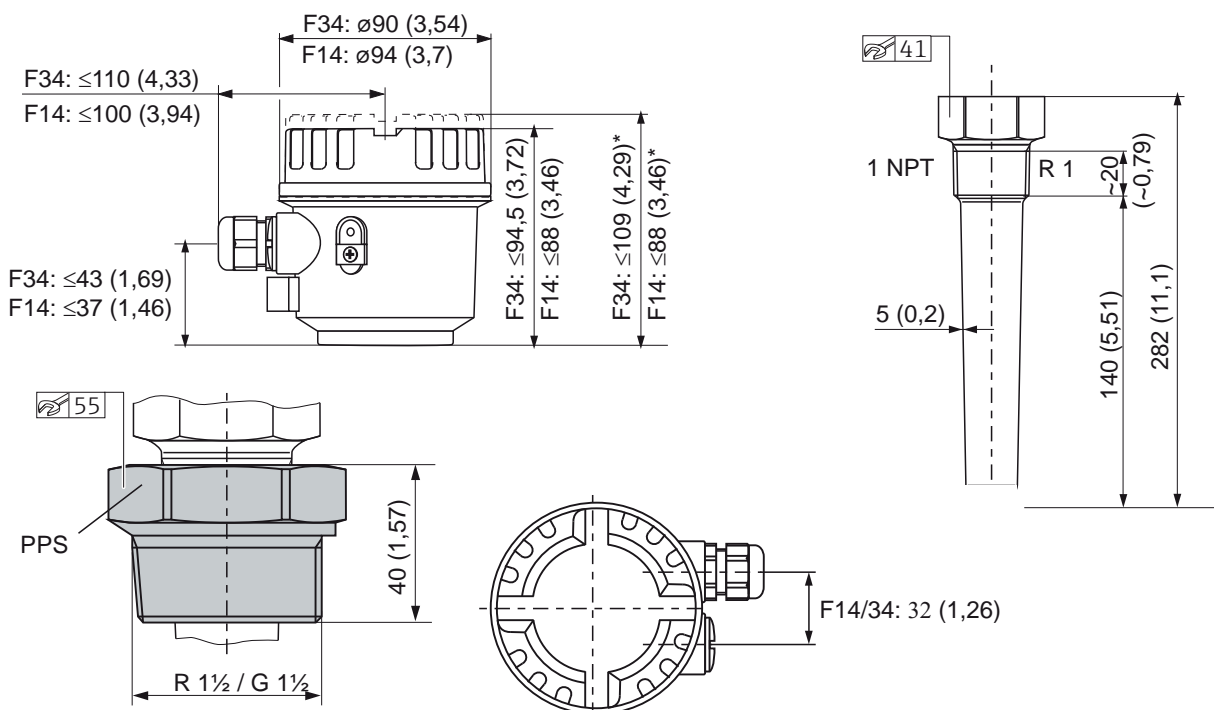
Ausführungen:

- Minicap FTC260: mit Stabsonde für Schüttgüter und Flüssigkeiten
- Minicap FTC262: mit Seilsonde bis 6 m (20 ft); für Schüttgüter
- Relaisausgang (potentialfreier Umschaltkontakt) mit Wechsel- oder Gleichstromanschluss
- PNP-Ausgang mit Dreidraht-Gleichstromanschluss

Ihre Vorteile

- Komplette Einheit aus Sonde und Elektronikeinsatz
 - einfache Installation
 - Inbetriebnahme ohne Abgleich
- Integrierte aktive Ansatzkompensation
 - genauer Schalterpunkt
 - große Betriebssicherheit
- Mechanische Robustheit
 - kein Verschleiß
 - lange Lebensdauer
 - wartungsfrei
- Seilsonde des Minicap FTC262 kürzbar
 - optimale Anpassung an die Messstelle
 - einfache Lagerhaltung

Abmessungen (Auszug)



Füllstandgrenzscher Minicap FTC 260 / 262

Kapazitive Grenzstanddetektion in pulvrigen und feinkörnigen Schüttgütern

16 / 01.16

Minicap FTC260

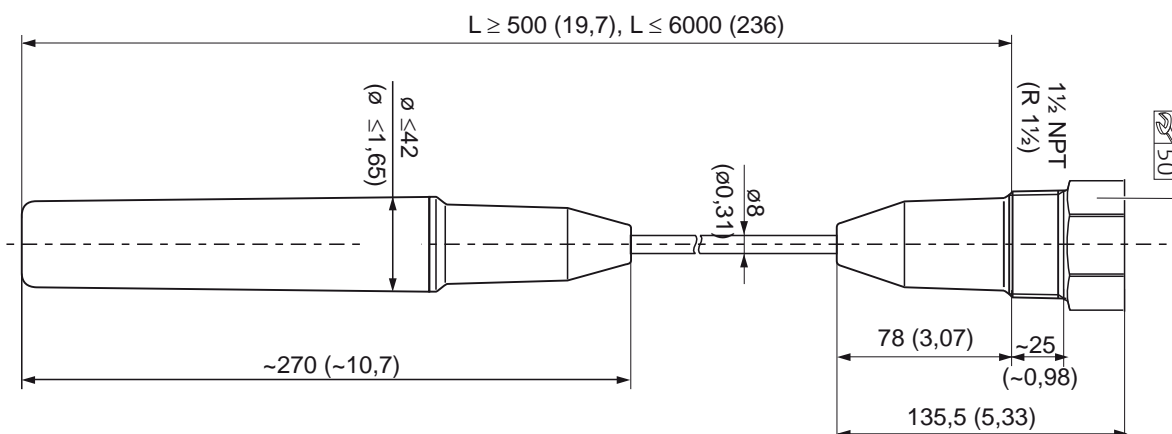


Minicap FTC262



Messprinzip	Kapazitiv Feststoff	Kapazitiv Feststoff
Merkmal / Anwendung	Kompakte Stabsonde mit integrierter aktiver Ansatzkompensation Inbetriebnahme ohne Abgleich Mechanisch Robust	Kompakte Seilsonde mit integrierter aktiver Ansatzkompensation Inbetriebnahme ohne Abgleich Mechanisch robust
Versorgung / Kommunikation	DC PNP: 10,8 ... 45V DC Relais SPDT: 20 ... 253V AC, oder 20 ... 55V DC	DC PNP: 10,8 ... 45V DC Relais SPDT: 20 ... 253V AC, oder 20 ... 55V DC
Umgebungstemperatur	-40 °C ... + 80 °C	-40 °C ... + 80 °C
Prozesstemperatur	-40 °C ... + 130 °C	-40 °C ... + 80 °C
Prozessdruck absolut / max. Überlastdruck	Vakuum ... 25 bar	Vakuum ... 6 bar
Prozessseitige Hauptmaterialien	PPS	PPS
Max. Zugfestigkeit		3000 N
Prozessanschluss	R1" NPT1"	R 1 1/2 NPT 1 1/2
Sensorenlänge	140 mm	min. 500 mm, max 6000 mm
Ausgang	Relais SPDT DC PNP	Relais SPDT DC PNP
Zertifikate / Abnahmen	ATEX , FM, CSA, NEPSI WHG	ATEX , FM, CSA, NEPSI WHG
Optionen	Aluminium Gehäuse	Aluminium Housing
Spezialitäten	FDA-gelistetes Material	Kundenseitiger Seilkürzungssatz
Applikationsgrenzen	Korngröße max. 30 mm DK min 1,6 Temperaturderaiting beachten	Korngröße max. 30 mm DK min 1,5 Temperaturderaiting beachten

Abmessungen (Auszug)



F14 = Gehäuse aus Polyester PBT-FR, IP66

F34 = Gehäuse aus Aluminium, IP66

* Deckel mit Schauglas für F34 Gehäuse, Klarsichtdeckel für F14 Gehäuse

Füllstandgrenzschalter Minicap FTC 260 / 262

Kapazitive Grenzstanddetektion in pulvrigen und feinkörnigen Schüttgütern

1b / 01.16

Elektrischer Anschluss (Auszug)

Elektrischer Anschluss

Damit der Minicap sicher und störungsfrei arbeiten kann, muss er an das geerdete Silo mit Metall- oder Stahlbetonwand angeschlossen werden.

Bei Silos aus nichtleitendem Material den äußeren Masseanschluss des Minicap mit leitenden und geerdeten Teilen in der Nähe des Silos verbinden. Der Schutzleiter des Netzanschlusses kann am inneren Masseanschluss des Minicap angeschlossen werden.

Für die Anschlüsse kann ein handelsübliches Installationskabel verwendet werden.

Allgemeine Hinweise zur EMV (Prüfverfahren, Installationsempfehlungen) siehe TI00241F/00/DE.

Beim Einsatz im staubexplosionsgefährdeten Bereich Potentialausgleich (PAL) anschließen.

Nationale Normen und Vorschriften beachten!

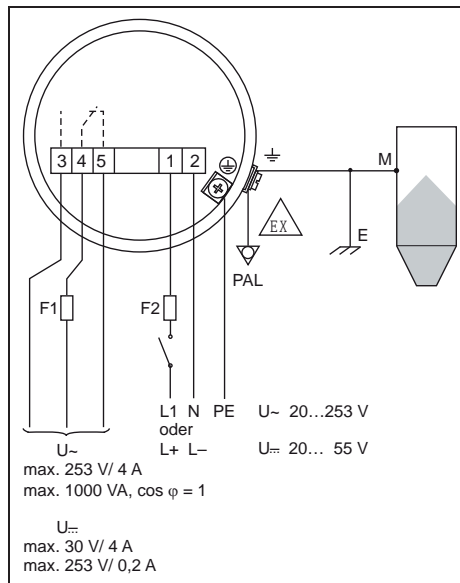
Minicap mit Wechsel- oder Gleichstromanschluss und Relaisausgang

F1: Feinsicherung zum Schutz des Relaiskontakts, abhängig von der angeschlossenen Last

F2: Feinsicherung, 500 mA

M: Masseanschluss an Silo oder Metallteilen am Silo

E: Erdung



L00-FTC26xxx-04-06-xx-xx-001

Minicap FTC260 mit Gehäuse F14: PE-Anschluss und PAL-Anschluss nicht erforderlich.

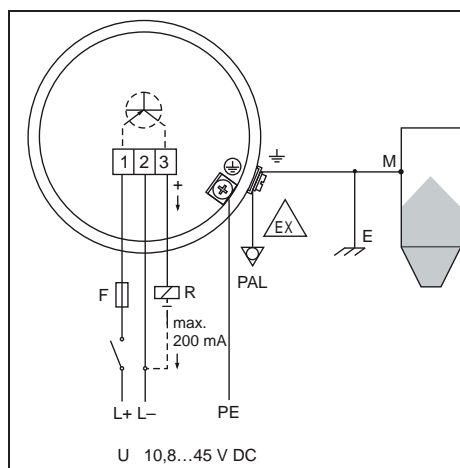
Minicap mit Dreileiter-Gleichstromanschluss; Transistorausgang PNP

F: Feinsicherung, 500 mA

R: angeschlossene Last, z.B. SPS, PLS, Relais

M: Masseanschluss an Silo oder Metallteilen am Silo

E: Erdung



L00-FTC26xxx-04-06-xx-xx-001

Der Minicap ist gegen Verpolung geschützt. Bei vertauschten Anschlüssen leuchtet die grüne Leuchtdiode für Betriebsbereitschaft nicht.

Minicap FTC260 mit Gehäuse F14: PE-Anschluss und PAL-Anschluss nicht erforderlich.

Füllstandgrenzschalter Minicap FTC 260 / 262

Kapazitive Grenzstanddetektion in pulverigen und feinkörnigen Schüttgütern

16 / 01.16

Grundpreis Minicap FTC260 (*Staffelpreise)

Zulassung

A	Ex-freier Bereich
B	ATEX II 1/3D
J	FM Cl II,III, Div 1, Gr:E-G
S	CSA DIP Cl.II Gr:E-G Cl.III
U	CSA General Purpose
Y	Sonderausführung, TSP-Nr. zu spez.
2	NEPSI Ex tD A20/A22 IP66 T1050C

Prozessanschluss

A	Gewinde EN10226 R1, PPS
B	Gewinde ANSI NPT1, PPS
Y	Sonderausführung, TSP-Nr. zu spez.

Schaltausgang

2	3-Leiter PNP 10.8-45VDC
4	Relais 20-253VAC/20-55VDC
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung

B	F14 Polyester IP66; Gewinde NPT1/2
C	F14 Polyester IP66; Gewinde G1/2
D	F14 Polyester IP66; Verschr. M20
H	F34 Alu IP66; Gewinde NPT1/2 NEMA Type 4 Encl.
I	F34 Alu IP66; Gewinde G1/2 NEMA Type 4 Encl.
J	F34 Alu IP66; Verschr. M20 NEMA Type 4 Encl.
Y	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung

1	Grundausrüstung
2	Klarsichtdeckel, Polyester
3	Glas Sichtfenster, Aluminium
9	Sonderausführung, TSP-Nr. zu spez.

*Staffelpreise - Grundpreis

FTC 260	
1 - 3	Stück
4 - 10	Stück
11 - 35	Stück

Bestellschlüssel

FTC 260

Preisgruppe H

E-H Füllstand
messtechnik

Grundpreis FTC 262 (*Staffelpreise)

Zulassung

A	Ex-freier Bereich
B	ATEX II 1/3D
J	FM Cl II,III, Div 1, Gr:E-G
S	CSA DIP Cl.II,III Gr:G + coal dust Cl.III
U	CSA General Purpose
Y	Sonderausführung, TSP-Nr. zu spez.
2	NEPSI Ex tD IaD A20/A22 IP66 T1080C

Prozessanschluss

A	Gewinde EN10226 R1-1/2, PPS
B	Gewinde ANSI NPT1-1/2, PPS
Y	Sonderausführung, TSP-Nr. zu spez.

Sondenlänge

1	..... mm L, Stahl HD-PE isoliert	100 MM
2	..... inch L, Stahl HD-PE isoliert	1 ZL
3	1500mm/59in L, Stahl HD-PE isoliert	
4	2500mm/98in L, Stahl HD-PE isoliert	
5	4000mm/157in L, Stahl HD-PE isoliert	
6	6000mm/236in L, Stahl HD-PE isoliert	
9	Sonderausführung, TSP-Nr. zu spez.	

Schaltausgang

2	3-Leiter PNP 10.8-45VDC
4	Relais 20-253VAC/20-55VDC
9	Sonderausführung, TSP-Nr. zu spez.

Gehäuse; Kabeleinführung

B	F14 Polyester IP66; Gewinde NPT1/2
C	F14 Polyester IP66; Gewinde G1/2
D	F14 Polyester IP66; Verschr. M20
H	F34 Alu IP66; Gewinde NPT1/2 NEMA Type 4 Encl.
I	F34 Alu IP66; Gewinde G1/2 NEMA Type 4 Encl.
J	F34 Alu IP66; Verschr. M20 NEMA Type 4 Encl.
Y	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung

1	Grundausrüstung
2	Klarsichtdeckel, Polyester
3	Glas Sichtfenster, Aluminium
9	Sonderausführung, TSP-Nr. zu spez.

*Staffelpreise - Grundpreis

FTC 262	
1 - 3	Stück
4 - 10	Stück
11 - 35	Stück

Bestellschlüssel

FTC 262

Preisgruppe H

Micropilot FMR50,51,56

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

16 / 01.16

E+H Füllstandmesstechnik



Füllstandmessung in Flüssigkeiten und Schüttgütern

Anwendungsbereich

- Kontinuierliche, berührungslose Füllstandmessung von Flüssigkeiten, Pasten und Schlämmen
- Gekapselte PVDF oder PP-plattierte Hornantenne (FMR50); Hornantenne (FMR51); PP-plattierte Hornantenne (FMR56)
- Maximaler Messbereich: FMR50: 40 m (131 ft); FMR51/56: 70 m (230 ft)
- Temperatur: FMR50: -40...+130 °C (-40...+266 °F); FMR51: -196...+450 °C (-321...+842 °F); FMR56: -40...+400 °C (-40...752 °F)
- Druck: FMR50: -1...+3 bar (-14,5...+43,5 psi); FMR51: -1...+160 bar (-14,5...+2 320 psi); FMR56: -1...+16 bar (-14,5...+232 psi)
- Genauigkeit: FMR50/51: ±2 mm
- Internationale Explosionsschutzzertifikate; WHG; Schiffbauzulassungen
- Linearitätsprotokoll (3-Punkt, 5-Punkt)

Ihre Vorteile

- Sichere Messung auch bei wechselnden Produkt- und Prozessbedingungen
- HistoROM-Konfigurationsspeicher vereinfacht Inbetriebnahme, Wartung und Diagnose
- Höchste Zuverlässigkeit durch Multi-Echo-Tracking
- SIL2 nach IEC 61508, SIL3 bei homogener oder diversitärer Redundanz
- Nahtlose Integration in Prozessleit- und Asset-Management-Systeme
- Intuitive Bedienoberfläche in Landessprache
- Einfache Wiederholungsprüfung für SIL und WHG (WHG nicht bei FMR56)

Micropilot FMR50

Micropilot FMR51

Micropilot FMR56



Messprinzip	Füllstand Radar	Füllstand Radar	Messprinzip	Radar
Merkmal / Anwendung	Für einfache Füllstandmessungen in Flüssigkeiten, Pasten und Schlämmen; nicht beeinflusst durch wechselnde Medien, Temperaturunterschiede, Gasblasen oder Dampf; PVDF gekapselte oder PP plattierte Horn Antenne	Premium Gerät für kontinuierliche, berührungslose Füllstandmessung von Flüssigkeiten, Pasten und Schlämmen auch bei extremen Prozessbedingungen; Hornantenne: 40...100 mm	Merkmal / Anwendung	Für einfache Anwendungen: Verlässliche, berührungslose Messung von Füllständen in Silos oder Lagertanks für Schüttgüter
Versorgung / Kommunikation	2-Draht (HART / PROFIBUS PA/ FOUNDATION Fieldbus) 4-Draht (HART)	2-Draht (HART / PROFIBUS PA/ FOUNDATION Fieldbus) 4-Draht (HART)	Versorgung / Kommunikation	2-Draht (HART/ PROFIBUS PA/ FOUNDATION Fieldbus) 4-Draht (HART)
Frequenz	K-Band (~26 GHz)	K-Band (~26 GHz)	Frequenz	K-Band (~26 GHz)
Genauigkeit	+/- 2 mm	+/- 2 mm	Antenne	Horn DN80/3", PP plattiert Horn DN100/4", PP plattiert
Umgebungstemperatur	-40...+80 °C	-40...+80 °C	Genauigkeit	+/- 3 mm
Prozesstemperatur	-40...+130 °C	-196...+450 °C	Umgebungstemperatur	-40 °C...+80 °C
Prozessdruck absolut / max. Überlastdruck	Vakuum...3 bar	Vakuum...160 bar	Prozessstemperatur	-40 °C...+80 °C
Prozesseitige Hauptmaterialien	PVDF, PTFE, Viton, PP, PBT	316L, Alloy C, PTFE, Keramik	Prozessdruck absolut / max. Überlastdruck	Vacuum...3 bar
			Prozesseitige Hauptmaterialien	PP, UP

Micropilot FMR50,51,56

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

1b / 01.16

Micropilot FMR50



Micropilot FMR51



Micropilot FMR56



Prozessanschluss	Gewinde: G1 1/2, MNPT1 1/2 Flansch: UNI DN80...DN150	Gewinde: MNPT 1 1/2, R 1 1/2 Flansch: DN50...DN150, ASME 2"...6", JIS 10K, 63K Tri-Clamp ISO2852																																			
Prozessanschluss Hygienisch																																					
Max. Messdistanz	Standard: 30 m Mit "erhöhter Dynamik": 40 m	Standard: 40 m Mit "erhöhter Dynamik": 70 m																																			
	<table border="1"> <thead> <tr> <th>40 mm (1 1/2")</th> <th>50 mm (2")</th> <th>100 mm (4")</th> </tr> </thead> <tbody> <tr> <td>2 m</td> <td>8 m</td> <td>10 m</td> </tr> <tr> <td>5 m</td> <td>15 m</td> <td>25 m</td> </tr> <tr> <td>10 m</td> <td>30 m</td> <td>30 m</td> </tr> <tr> <td>15 m</td> <td>30 m</td> <td>30 m</td> </tr> </tbody> </table>	40 mm (1 1/2")	50 mm (2")	100 mm (4")	2 m	8 m	10 m	5 m	15 m	25 m	10 m	30 m	30 m	15 m	30 m	30 m	<table border="1"> <thead> <tr> <th>40 mm (1 1/2")</th> <th>50 mm (2")</th> <th>50 mm (3")</th> <th>100 mm (4")</th> </tr> </thead> <tbody> <tr> <td>2 m</td> <td>4 m</td> <td>8 m</td> <td>10 m</td> </tr> <tr> <td>5 m</td> <td>8 m</td> <td>15 m</td> <td>25 m</td> </tr> <tr> <td>10 m</td> <td>15 m</td> <td>30 m</td> <td>40 m</td> </tr> <tr> <td>15 m</td> <td>25 m</td> <td>40 m</td> <td>40 m</td> </tr> </tbody> </table>	40 mm (1 1/2")	50 mm (2")	50 mm (3")	100 mm (4")	2 m	4 m	8 m	10 m	5 m	8 m	15 m	25 m	10 m	15 m	30 m	40 m	15 m	25 m	40 m	40 m
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10 m	15 m	30 m	40 m																																		
15 m	25 m	40 m	40 m																																		
Ausgang	4...20 mA HART PROFIBUS PA FOUNDATION Fieldbus	4...20 mA HART PROFIBUS PA FOUNDATION Fieldbus																																			
Zertifikate / Abnahmen	ATEX, IECEx, Überfüllsicherung WHG SIL	ATEX, IECEx, Überfüllsicherung WHG SIL EN 10204-3.1 NACE																																			
Optionen	Display Kundenspezifische Parametrierung LABS frei	Display, Kundenspezifische Parametrierung Gasdichte Durchführung																																			
Spezialitäten	SIL 2 gemäß IEC 61508, Sicherheit und Zuverlässigkeit durch Multi-Echo Tracking, HistoROM	SIL 2 gemäß IEC 61508, Sicherheit und Zuverlässigkeit durch Multi-Echo Tracking, HistoROM																																			
Applikationsgrenzen	Maximaler Messbereich ist abhängig von der Tankform bzw. Applikation Ammoniakhaltiger Gasraum: » FMR54 im Schwallrohr Starke Ansatzbildung: » FMR54 ggf. mit Spülluft Kleine DK: » FMR51 Nur PTFE beständig: » FMR52 Eichfähige Messung: » FMR5xx	Maximaler Messbereich ist abhängig von der Tankform bzw. Applikation Ammoniakhaltiger Gasraum: » FMR54 im Schwallrohr Starke Ansatzbildung: » FMR54 ggf. mit Spülluft 316L oder Alloy C unbeständig: » FMR50, FMR52, FMR53 Hygieneanforderungen: » FMR52, FMR53 Eichfähige Messung: » FMR5xx																																			

Prozessanschluss	Flange: UNI DN80...DN150 Montagebügel
Max. Messdistanz	30 m
Ausgang	4...20 mA HART PROFIBUS PA FOUNDATION Fieldbus
Zertifikate / Abnahmen	ATEX, FM, CSA, IECEx, NEPSI, INMETRO, KC SIL
Optionen	Display, Kundenspezifische Parametrierung
Spezialitäten	Sicherheit und Zuverlässigkeit durch Multi-Echo Tracking HistoROM
Applikationsgrenzen	DK < 1,6 Reduktion des max. möglichen Messbereiches durch: Medien mit schlechten Reflexionseigenschaften Schüttkegel extrem lockere Oberfläche von Schüttgütern, z.B. Schüttgut mit niedrigem Schüttgewicht bei pneumatischer Befüllung Ansatzbildung, vor allem von feuchten Produkten

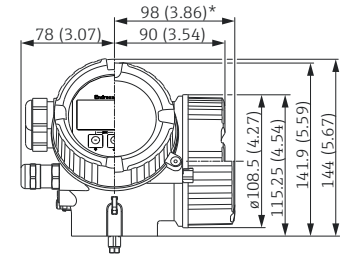
Micropilot FMR50,51,56

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

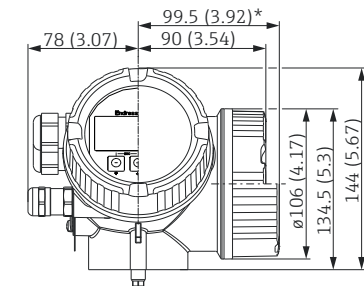
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Abmessungen (Auszug)

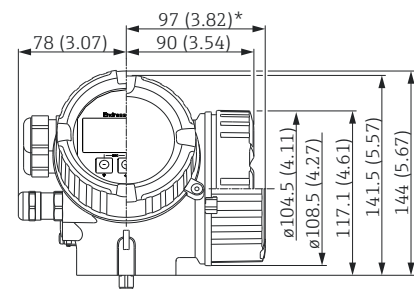
Abmessungen Elektronikgehäuse



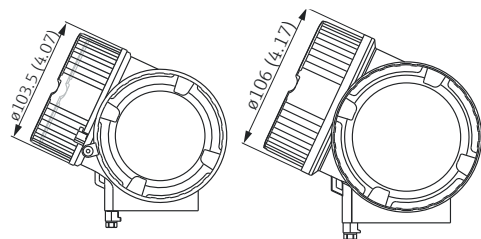
Gehäuse GT18 (316L)



Gehäuse GT19 (Kunststoff PBT)



Gehäuse GT20 (Alu beschichtet)

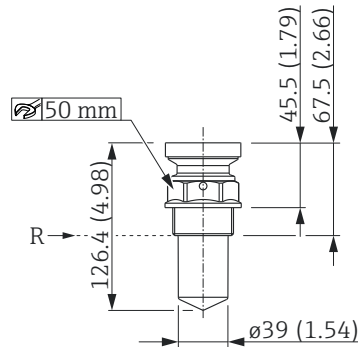


Gehäuse GT18 (316L)/
Gehäuse GT20 (Alu beschichtet)

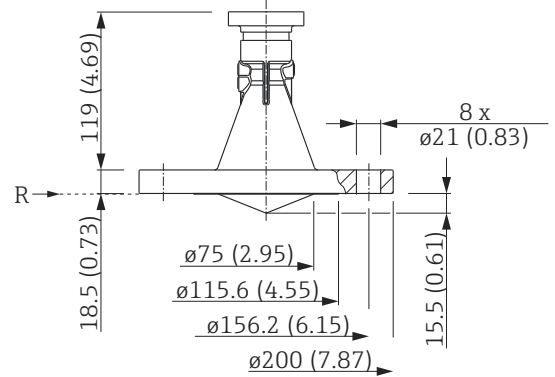
Gehäuse GT19
(Kunststoff PBT)

*für Geräte mit integriertem Überspannungsschutz.

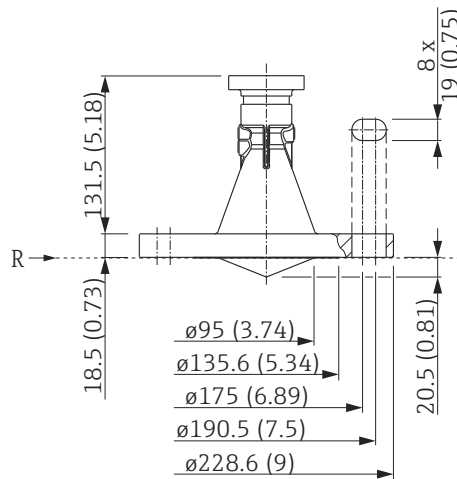
FMR50 mit Gewinde



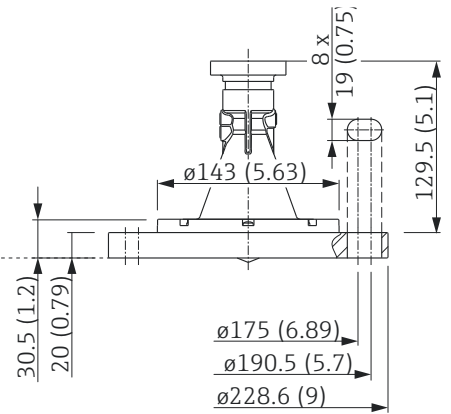
FMR50 mit Überwurfflansch 3"/DN80



FMR56 mit Überwurfflansch 4"/DN100

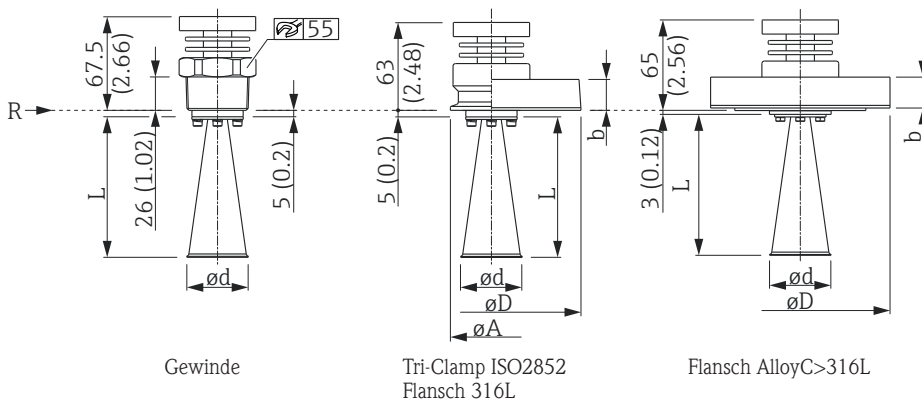


Hornantenne 100mm/4"
(ohne Adapterring)

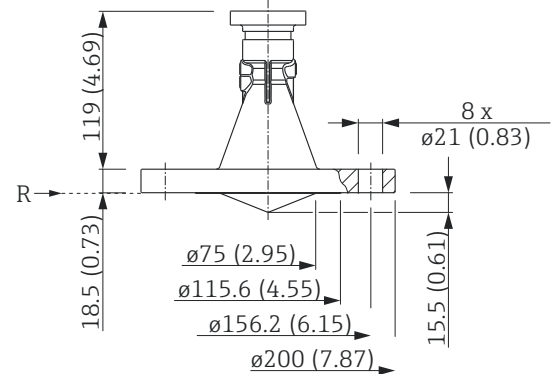


Hornantenne 80mm/3"
(mit Adapterring)

FMR51: Ausführung T < 150 °C (302 °F); ohne Antennenverlängerung



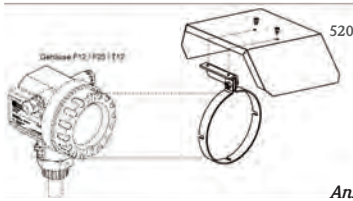
FMR56 mit Überwurfflansch 3"/DN80



Zubehör für Micropilot FMR50,51,56

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

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543199-0001	Schutzhaube Gehäuse F12/T12, VA Verwendung: Micropilot M, Micropilot S, Prosonic M, Levelflex M Werkstoff: 316Ti
52013874	Montagebügel FHX40 1" / 2" Rohr. Verwendung: FHX40

PG B

Anzeige FHX40

Abgesetzte Anzeige + Vorortbedienung.
Verwendung: Micropilot M
Aluminium Feldgehäuse IP65/IP67 NEMA4X.
4-zeiliges LC-Display.
:: Menügeführte Klartextbedienung.
:: Einfacher Abgleich.
:: Bediensprache wählbar.
:: Hüllkurvendarstellung vor Ort.

Zulassung

A	Ex-freier Bereich
C	NEPSI Ex ia IIC T6/T5 Gb
G	IECEx Zone1 Ex ia IIC T6/T5
K	TIIS Ex ia IIC T6
N	CSA General Purpose
S	FM IS CL.I Div.1 Gr.A-D, Zone 0
U	CSA IS CL.I Div.1 Gr.A-D, Zone 0
Y	Sonderausführung, TSP-Nr. zu spez.
2	ATEX II 2G Ex ia IIC T6
3	ATEX II 2D Ex ia IIIC T80oC

Kabel

1	20m (> HART)
5	20m (> PROFIBUS PA/FOUNDATION Fieldbus)
9	Sonderausführung, TSP-Nr. zu spez.

Zusatzausstattung

A	Grundausführung
B	Montagebügel, Rohr 1"/2"
Y	Sonderausführung, TSP-Nr. zu spez.



Bestellschlüssel

Anzeige FHX40

Preisgruppe B

Antennen-Verlängerung FAR10

Verwendung: FMR230/FMR54.
Zum Absetzen der Hornantenne vom Geräteflansch.
:: Entkopplung bei Kondensatbildung.
:: Montagehilfe hoher Behälterstutzen.

Werkstoff

4	AlloyB2
5	AlloyC4
6	316L
7	316L+ EN10204-3.1 Material, NACE MR0175 (316L mediumberührt) Abnahmeprüfzeugnis
9	Sonderausführung, TSP-Nr. zu spez.

Verlängerung

A	100 mm / 4"	100 MM
B	200 mm / 8"	100 MM
C	300 mm / 12"	100 MM
D	400 mm / 16"	100 MM
Y	Sonderausführung, TSP-Nr. zu spez.	100 MM

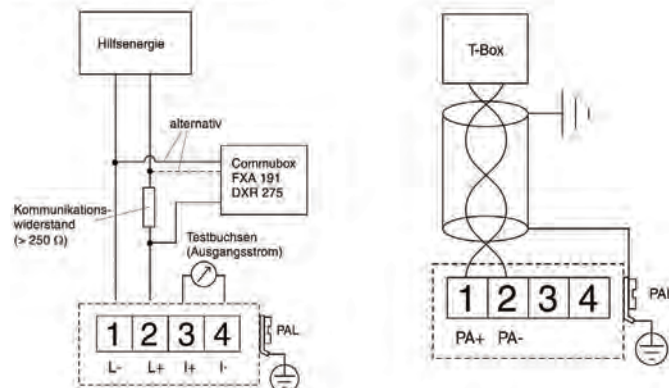


Bestellschlüssel

FAR 10

Preisgruppe B

Elektrischer Anschluss – Auszug



Micropilot FMR50

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

1b / 01.16

E+H Füllstandmesstechnik

Micropilot FMR50

Zulassung

AA	Ex-freier Bereich
BA	ATEX II 1G Ex ia IIC T6 Ga
BB	ATEX II 1/2G Ex ia IIC T6 Ga/Gb
BC	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb
BG	ATEX II 3G Ex nA IIC T6 Gc
BH	ATEX II 3G Ex ic IIC T6 Gc
B2	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, 1/2D Ex ia IIIC Da/Db
B3	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb, 1/2D Ex t IIIC Da/Db
B4	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, Ex d[ia] IIC T6 Ga/Gb
CA	CSA C/US General Purpose
CB	CSA C/US IS Cl.I Div.1 Gr.A-D
CC	CSA C/US XP Cl.I Div.1 Gr.A-D
C2	CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C3	CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
FA	FM IS Cl.I Div.1 Gr.A-D
FB	FM IS Cl.I,II,III Div.1 Gr.A-G, AEx ia, NI Cl.1 Div.2
FC	FM XP Cl.I Div.1 Gr.A-D
FD	FM XP Cl.I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
IA	IEC Ex ia IIC T6 Ga
IB	IEC Ex ia IIC T6 Ga/Gb
IC	IEC Ex d[ia] IIC T6 Ga/Gb
IG	IEC Ex nA IIC T6 Gc
IH	IEC Ex ic IIC T6 Gc
I2	IEC Ex ia IIC T6 Ga/Gb, Ex ia IIIC Da/Db
I3	IEC Ex d[ia] IIC T6 Ga/Gb, Ex t IIIC Da/Db
I4	IEC Ex ia IIC T6 Ga/Gb, Ex d[ia] IIC T6 Ga/Gb
KA	KC Ex ia IIC T6 Ga
KB	KC Ex ia IIC T6 Ga/Gb
KC	KC Ex d[ia] IIC T6
MA	INMETRO Ex ia IIC T6 Ga
MC	INMETRO Ex d[ia] IIC T6 Ga/Gb
MH	INMETRO Ex ic IIC T6 Gc
NA	NEPSI Ex ia IIC T6 Ga
NB	NEPSI Ex ia IIC T6 Ga/Gb
NC	NEPSI Ex d[ia] IIC T6 Ga/Gb
NG	NEPSI Ex nA II T6 Gc
NH	NEPSI Ex ic IIC T6 Gc
N2	NEPSI Ex ia IIC T6 Ga/Gb, Ex iaD 20/21 T85...90oC
N3	NEPSI Ex d[ia] IIC T6 Ga/Gb, DIP A20/21 T85...90oC IP66
8A	FM/CSA IS+XP Cl.I,II,III Div.1 Gr.A-G

Hilfsenergie; Ausgang

A	2-Draht; 4-20mA HART
B	2-Draht; 4-20mA HART, Schaltausgang
C	2-Draht; 4-20mA HART + 4-20mA analog
E	2-Draht; FOUNDATION Fieldbus, Schaltausgang
G	2-Draht; PROFIBUS PA, Schaltausgang
K	4-Draht 90-253VAC; 4-20mA HART
L	4-Draht 10,4-48VDC; 4-20mA HART
Y	Sonderausführung, TSP-Nr. zu spez.

Anzeige, Bedienung

A	Ohne, via Kommunikation
C	SD02 4-zeilig, Drucktasten + Datensicherungsfunktion
E	SD03 4-zeilig, beleuchtet, Touch Control+ Datensicherungsfunktion
L	Vorbereitet für Anzeige FHX50 + M12 Anschluss
M	Vorbereitet für Anzeige FHX50 + kundenseitiger Anschluss
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

A	GT19 Zweikammer, Kunststoff PBT
C	GT20 Zweikammer, Alu, beschichtet
Y	Sonderausführung, TSP-Nr. zu spez.

Elektrischer Anschluss

A	Versch. M20, IP66/68 NEMA4X/6P
B	Gewinde M20, IP66/68 NEMA4X/6P
C	Gewinde G1/2, IP66/68 NEMA4X/6P
D	Gewinde NPT1/2, IP66/68 NEMA4X/6P
I	Stecker M12, IP66/68 NEMA4X/6P
M	Stecker 7/8", IP66/68 NEMA4X/6P
Y	Sonderausführung, TSP-Nr. zu spez.

Antenne

BM	Horn 40mm/1-1/2", PVDF gekapselt, -40...130oC/-40...260oF
BN	Horn 80mm/3", PP plattiert, -40...80oC/-40...176oF
BR	Horn 100mm/4", PP plattiert, -40...80oC/-40...176oF
YY	Sonderausführung, TSP-Nr. zu spez.

Preisgruppe B

Bestellschlüssel

FMR50

Fortsetzung nächste Seite

Micropilot FMR50

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

1b / 01.16

Preisgruppe B

E-H Füllstand
messtechnik

Prozessanschluss

GGF	Gewinde ISO228 G1-1/2, PVDF
RGF	Gewinde ANSI MNPT1-1/2, PVDF
UAE	Montagebügel, 304
XRO	Kundenseitige Montagevorrichtung, ohne Flansch/Montagebügel
XWG	UNI Überwurflansch 3"/DN80/80, PP max 4bar abs/58psia, passend zu NPS 3" Cl.150/DN80 PN16/10K 80
XZG	UNI Überwurflansch 4"/DN100/100, PP max 4bar abs/58psia, passend zu NPS 4" Cl.150/DN100 PN16/10K 100
XOG	UNI Überwurflansch 6"/DN150/150, PP max 4bar abs/58psia, passend zu NPS 6" Cl.150/DN150 PN16/10K 150
YYY	Sonderausführung, TSP-Nr. zu spez.

Weitere Bediensprache:

AA	Englisch
AB	Deutsch
AC	Französisch
AD	Spanisch
AE	Italienisch
AF	Niederländisch
AG	Portugiesisch
AH	Polnisch
AI	Russisch
AJ	Türkisch
0	andere

Anwendungspaket

EM	Erhöhte Dynamik, max MB=40m
E9	Sonderausführung, TSP-Nr. zu spez.

Kalibration

F3	3-Punkt Linearitätsprotokoll
F4	5-Punkt Linearitätsprotokoll
F9	Sonderausführung, TSP-Nr. zu spez.

Dienstleistung

HC	LABS frei, LABS = lackbenetzungstörende Substanzen
IJ	Kundenspezifische Parametrierung HART
IK	Kundenspezifische Parametrierung PA
IL	Kundenspezifische Parametrierung FF
IW	Ohne Tooling DVD (FieldCare setup)
I9	Sonderausführung, TSP-Nr. zu spez.

Weitere Zulassung

LA	SIL
LC	WHG Überfüllsicherung
L9	Sonderausführung, TSP-Nr. zu spez.

Zubehör montiert

NA	Überspannungsschutz
O9	Sonderausführung, TSP-Nr. zu spez.

Zubehör beigelegt

PB	Wetterschutzhaube
R9	Sonderausführung, TSP-Nr. zu spez.

Firmware-Version

73	01.01.zz, FF, DevRev02
74	01.01.zz, PROFIBUS PA, Profil 3.02, DevRev02
75	01.01.zz, HART 6, DevRev02
76	01.00.zz, FF, DevRev01
77	01.00.zz, PROFIBUS PA, Profil 3.02, DevRev01
78	01.00.zz, HART 6, DevRev01

Bestellschlüssel

FMR50

Micropilot FMR51

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

16 / 01.16

E+H Füllstand
messtechnik

Micropilot FMR51

Zulassung

AA	Ex-freier Bereich
BA	ATEX II 1G Ex ia IIC T6 Ga
BB	ATEX II 1/2G Ex ia IIC T6 Ga/Gb
BC	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb
BD	ATEX II 1/2/3G Ex ic[ia] Ga IIC T6 Ga/Gb/Gc
BG	ATEX II 3G Ex nA IIC T6 Gc
BH	ATEX II 3G Ex ic IIC T6 Gc
BL	ATEX II 1/2/3G Ex nA[ia] Ga IIC T6 Ga/Gb/Gc
B2	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, 1/2D Ex ia IIIC Da/Db
B3	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb, 1/2D Ex t IIIC Da/Db
B4	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, Ex d[ia] IIC T6 Ga/Gb
CA	CSA C/US General Purpose
CD	CSA C/US DIP Cl.I,II,III Div.1 Gr.E-G
C2	CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C3	CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
FB	FM IS Cl.I,II,III Div.1 Gr.A-G, AEx ia, NI Cl.1 Div.2
FD	FM XP Cl.I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
FE	FM DIP Cl.I,II,III Div.1 Gr.E-G
IA	IEC Ex ia IIC T6 Ga
IB	IEC Ex ia IIC T6 Ga/Gb
IC	IEC Ex d[ia] IIC T6 Ga/Gb
ID	IEC Ex ic[ia] Ga IIC T6 Ga/Gb/Gc
IG	IEC Ex nA IIC T6 Gc
IH	IEC Ex ic IIC T6 Gc
IL	IEC Ex nA[ia] Ga IIC T6 Ga/Gb/Gc
I2	IEC Ex ia IIC T6 Ga/Gb, Ex ia IIIC Da/Db
I3	IEC Ex d[ia] IIC T6 Ga/Gb, Ex t IIIC Da/Db
I4	IEC Ex ia IIC T6 Ga/Gb, Ex d[ia] IIC T6 Ga/Gb
KA	KC Ex ia IIC T6 Ga
KB	KC Ex ia IIC T6 Ga/Gb
KC	KC Ex d[ia] IIC T6
MA	INMETRO Ex ia IIC T6 Ga
MC	INMETRO Ex d[ia] IIC T6 Ga/Gb
MH	INMETRO Ex ic IIC T6 Gc
NA	NEPSI Ex ia IIC T6 Ga
NB	NEPSI Ex ia IIC T6 Ga/Gb
NC	NEPSI Ex d[ia] IIC T6 Ga/Gb
NG	NEPSI Ex nA II T6 Gc
NH	NEPSI Ex ic IIC T6 Gc
N2	NEPSI Ex ia IIC T6 Ga/Gb, Ex iaD 20/21 T85...90oC
N3	NEPSI Ex d[ia] IIC T6 Ga/Gb, DIP A20/21 T85...90oC IP66
8A	FM/CSA IS+XP Cl.I,II,III Div.1 Gr.A-G
99	Sonderausführung, TSP-Nr. zu spez.

Hilfsenergie; Ausgang

A	2-Draht; 4-20mA HART
B	2-Draht; 4-20mA HART, Schaltausgang
C	2-Draht; 4-20mA HART + 4-20mA analog
E	2-Draht; FOUNDATION Fieldbus, Schaltausgang
G	2-Draht; PROFIBUS PA, Schaltausgang
K	4-Draht 90-253VAC; 4-20mA HART
L	4-Draht 10,4-48VDC; 4-20mA HART
Y	Sonderausführung, TSP-Nr. zu spez.

Anzeige, Bedienung

A	Ohne, via Kommunikation
C	SD02 4-zeilig, Drucktasten + Datensicherungsfunktion
E	SD03 4-zeilig, beleuchtet, Touch Control+ Datensicherungsfunktion
L	Vorbereitet für Anzeige FHX50 + M12 Anschluss
M	Vorbereitet für Anzeige FHX50 + kundenseitiger Anschluss
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

A	GT19 Zweikammer, Kunststoff PBT
B	GT18 Zweikammer, 316L
C	GT20 Zweikammer, Alu, beschichtet
Y	Sonderausführung, TSP-Nr. zu spez.

Elektrischer Anschluss

A	Versch. M20, IP66/68 NEMA4X/6P
B	Gewinde M20, IP66/68 NEMA4X/6P
C	Gewinde G1/2, IP66/68 NEMA4X/6P
D	Gewinde NPT1/2, IP66/68 NEMA4X/6P
I	Stecker M12, IP66/68 NEMA4X/6P
M	Stecker 7/8", IP66/68 NEMA4X/6P
Y	Sonderausführung, TSP-Nr. zu spez.

Antenne

BA	Horn 40mm/1-1/2"
BB	Horn 50mm/2"
BC	Horn 80mm/3"
BD	Horn 100mm/4"
YY	Sonderausführung, TSP-Nr. zu spez.

Dichtung

A5	Viton GLT, -40...150oC/-40...302oF
C1	Kalrez, -20...150oC/-4...302oF
D2	Graphit, -196...450oC/-321...842oF (HT)
D3	Graphit, -40...250oC/-40...482oF
Y9	Sonderausführung, TSP-Nr. zu spez.

Prozessanschluss

AFJ	NPS 2" Cl.150 RF, 316/316L Flansch ASME B16.5
AFM	NPS 2" Cl.150, AlloyC >316/316L Flansch ASME B16.5
AGJ	NPS 3" Cl.150 RF, 316/316L Flansch ASME B16.5
AGM	NPS 3" Cl.150, AlloyC >316/316L Flansch ASME B16.5
AHJ	NPS 4" Cl.150 RF, 316/316L Flansch ASME B16.5
AHM	NPS 4" Cl.150, AlloyC >316/316L Flansch ASME B16.5
AJJ	NPS 6" Cl.150 RF, 316/316L Flansch ASME B16.5
AJM	NPS 6" Cl.150, AlloyC >316/316L Flansch ASME B16.5
ARJ	NPS 2" Cl.300 RF, 316/316L Flansch ASME B16.5
ARM	NPS 2" Cl.300, AlloyC >316/316L Flansch ASME B16.5
ARJ	NPS 3" Cl.300 RF, 316/316L Flansch ASME B16.5
ASM	NPS 3" Cl.300, AlloyC >316/316L Flansch ASME B16.5
ATI	NPS 4" Cl.300 RF, 316/316L Flansch ASME B16.5

Bestellschlüssel

Fortsetzung nächste Seite

FMR51

Preisgruppe B

Micropilot FMR51

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

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Preisgruppe B

E-H-Füllstand
messtechnik

ATM	NPS 4" Cl.300, AlloyC >316/316L Flansch ASME B16.5
CFJ	DN50 PN10/16 B1, 316L Flansch EN1092-1
CFM	DN50 PN10/16, AlloyC>316L Flansch EN1092-1
CGJ	DN80 PN10/16 B1, 316L Flansch EN1092-1
CGM	DN80 PN10/16, AlloyC>316L Flansch EN1092-1
CHJ	DN100 PN10/16 B1, 316L Flansch EN1092-1
CHM	DN100 PN10/16, AlloyC>316L Flansch EN1092-1
CJJ	DN150 PN10/16 B1, 316L Flansch EN1092-1
CJM	DN150 PN10/16, AlloyC>316L Flansch EN1092-1
CRJ	DN50 PN25/40 B1, 316L Flansch EN1092-1
CRM	DN50 PN25/40, AlloyC>316L Flansch EN1092-1
CSJ	DN80 PN25/40 B1, 316L Flansch EN1092-1
CSM	DN80 PN25/40, AlloyC>316L Flansch EN1092-1
CTJ	DN100 PN25/40 B1, 316L Flansch EN1092-1
CTM	DN100 PN25/40, AlloyC>316L Flansch EN1092-1
KFJ	10K 50A RF, 316L Flansch JIS B2220
KGJ	10K 80A RF, 316L Flansch JIS B2220
KHJ	10K 100A RF, 316L Flansch JIS B2220
KJJ	10K 150A RF, 316L Flansch JIS B2220
KSJ	63K 100A RF, 316L Flansch JIS B2220
PFJ	DN100 PN63 B2, 316L Flansch EN1092-1
POJ	DN100 PN100 B2, 316L Flansch EN1092-1
RGJ	Gewinde ANSI MNPT1-1/2, 316L
RVJ	Gewinde EN10226 R1-1/2, 316L
TDJ	Tri-Clamp ISO2852 DN40-51 (2"), 316L
TFJ	Tri-Clamp ISO2852 DN70-76.1 (3"), 316L
YYY	Sonderausführung, TSP-Nr. zu spez.

Weitere Bediensprache

AA	Englisch
AB	Deutsch
AC	Französisch
AD	Spanisch
AE	Italienisch
AF	Niederländisch
AG	Portugiesisch
AH	Polnisch
AI	Russisch
AJ	Türkisch
O	andere

Anwendungspaket

EM	Erhöhte Dynamik, max MB=70m
E9	Sonderausführung, TSP-Nr. zu spez.

Kalibration

F3	3-Punkt Linearitätsprotokoll
F4	5-Punkt Linearitätsprotokoll
F9	Sonderausführung, TSP-Nr. zu spez.

Dienstleistung

HC	LABS frei, LABS = Jackbenetzungstörende Substanzen
IJ	Kundenspezifische Parametrierung HART
IK	Kundenspezifische Parametrierung PA
IL	Kundenspezifische Parametrierung FF
IW	Ohne Tooling DVD (FieldCare setup)
I9	Sonderausführung, TSP-Nr. zu spez.

Test, Zeugnis

JA	3.1 Materialnachweis, mediumberührte metallische Teile, EN10204-3.1 Abnahmeprüfzeugnis
JB	Konformitätserklärung NACE MR0175, mediumberührte metallische Teile
JE	Konformitätserklärung NACE MR0103, mediumberührte metallische Teile
JF	Konformitätserklärung AD2000, mediumberührte metallische Teile
KD	Heliumlecktest, internes Verfahren, Abnahmeprüfzeugnis
KE	Druckprüfung, internes Verfahren, Abnahmeprüfzeugnis
KG	PMI-Test (XRF), internes Verfahren, mediumberührte metallische Teile, Abnahmeprüfzeugnis
KP	Farbeindringprüfung AD2000-HP5-3(PT), mediumberührte/ drucktragende metallische Teile, Abnahmeprüfzeugnis
KQ	Farbeindringprüfung ISO23277-1 (PT), mediumberührte/ drucktragende metallische Teile, Abnahmeprüfzeugnis
KR	Farbeindringprüfung ASME VIII-1 (PT), mediumberührte/ drucktragende metallische Teile, Abnahmeprüfzeugnis
KS	Schweißdokumentation, mediumberührende/ drucktragende Nähte
KV	Konformitätserklärung ASME B31.3
K9	Sonderausführung, TSP-Nr. zu spez.

Weitere Zulassung

LA	SIL
LC	WHG Überfüllsicherung
LE	GL Schiffbauzulassung
LF	ABS Schiffbauzulassung
LG	LR Schiffbauzulassung
LH	BV Schiffbauzulassung
LI	DNV Schiffbauzulassung
L9	Sonderausführung, TSP-Nr. zu spez.

Zubehör montiert:

NA	Überspannungsschutz
NC	Gasdichte Durchführung
OM	100mm Antennenverlängerung, 316L
OU	..... mm Antennenverlängerung, 316L ... 1 MM
OV	.... inch Antennenverlängerung, 316L ... 1 ZL
OW	Hornschutz, PTFE, Keine Spülluft möglich
O9	Sonderausführung, TSP-Nr. zu spez.

Zubehör beigelegt

PB	Wetterschutzhaube
R9	Sonderausführung, TSP-Nr. zu spez.

Firmware-Version

76	01.00.zz, FF, DevRev01
77	01.00.zz, PROFIBUS PA, DevRev01
78	01.00.zz, HART, DevRev01

Bestellschlüssel

FMR51



Micropilot FMR56

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

16 / 01.16

E+H Füllstandmesstechnik

Micropilot FMR56

Zulassung

AA	Ex-freier Bereich
BA	ATEX II 1G Ex ia IIC T6 Ga
BB	ATEX II 1/2G Ex ia IIC T6 Ga/Cb
BC	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Cb
BE	ATEX II 1D Ex t IIIC Da
BF	ATEX II 1/2D Ex t IIIC Da/Db
BG	ATEX II 3G Ex nA IIC T6 Gc
BH	ATEX II 3G Ex ic IIC T6 Gc
B2	ATEX II 1/2G Ex ia IIC T6 Ga/Cb, 1/2D Ex ia IIIC Da/Db
B3	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Cb, 1/2D Ex t IIIC Da/Db
CA	CSA C/US General Purpose
CD	CSA C/US DIP Cl.I,II,III Div.1 Gr.E-G
C2	CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C3	CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
FA	FM IS Cl.I Div.1 Gr.A-D
FB	FM IS Cl.I,II,III Div.1 Gr.A-G, AEx ia, NI Cl.1 Div.2
FC	FM XP Cl.I Div.1 Gr.A-D
FD	FM XP Cl.I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
FE	FM DIP Cl.I,II,III Div.1 Gr.E-G
IA	IEC Ex ia IIC T6 Ga
IB	IEC Ex ia IIC T6 Ga/Cb
IC	IEC Ex d[ia] IIC T6 Ga/Cb
IE	IEC Ex t IIIC Da
IF	IEC Ex t IIIC Da/Db
IG	IEC Ex nA IIC T6 Gc
IH	IEC Ex ic IIC T6 Gc
I2	IEC Ex ia IIC T6 Ga/Cb, Ex ia IIIC Da/Db
I3	IEC Ex d[ia] IIC T6 Ga/Cb, Ex t IIIC Da/Db
KA	KC Ex ia IIC T6 Ga
KB	KC Ex ia IIC T6 Ga/Cb
KC	KC Ex d[ia] IIC T6
MA	INMETRO Ex ia IIC T6 Ga
ME	INMETRO Ex t IIIC Da
MH	INMETRO Ex ic IIC T6 Gc
NA	NEPSI Ex ia IIC T6 Ga
NB	NEPSI Ex ia IIC T6 Ga/Cb
NC	NEPSI Ex d[ia] IIC T6 Ga/Cb
NF	NEPSI DIP A20/21 T85...90oC IP66
NG	NEPSI Ex nA II T6 Gc
NH	NEPSI Ex ic IIC T6 Gc
N2	NEPSI Ex ia IIC T6 Ga/Cb, Ex iaD 20/21 T85...90oC
N3	NEPSI Ex d[ia] IIC T6 Ga/Cb, DIP A20/21 T85...90oC IP66
8A	FM/CSA IS+XP Cl.I,II,III Div.1 Gr.A-G
99	Sonderausführung, TSP-Nr. zu spez.

Hilfsenergie; Ausgang

A	2-Draht; 4-20mA HART
B	2-Draht; 4-20mA HART, Schaltausgang
C	2-Draht; 4-20mA HART + 4-20mA analog
E	2-Draht; FOUNDATION Fieldbus, Schaltausgang
G	2-Draht; PROFIBUS PA, Schaltausgang
K	4-Draht 90-253VAC; 4-20mA HART
L	4-Draht 10,4-48VDC; 4-20mA HART
Y	Sonderausführung, TSP-Nr. zu spez.

Anzeige, Bedienung

A	Ohne, via Kommunikation
C	SD02 4-zeilig, Drucktasten + Datensicherungsfunktion
E	SD03 4-zeilig, beleuchtet, Touch Control+ Datensicherungsfunktion
L	Vorbereitet für Anzeige FHX50 + M12 Anschluss
M	Vorbereitet für Anzeige FHX50 + kundenseitiger Anschluss
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

A	GT19 Zweikammer, Kunststoff PBT
C	GT20 Zweikammer, Alu, beschichtet
Y	Sonderausführung, TSP-Nr. zu spez.

Elektrischer Anschluss

A	Versch. M20, IP66/68 NEMA4X/6P
B	Gewinde M20, IP66/68 NEMA4X/6P
C	Gewinde G1/2, IP66/68 NEMA4X/6P
D	Gewinde NPT1/2, IP66/68 NEMA4X/6P
I	Stecker M12, IP66/68 NEMA4X/6P
M	Stecker 7/8", IP66/68 NEMA4X/6P
Y	Sonderausführung, TSP-Nr. zu spez.

Antenne

BN	Horn 80mm/3", PP plattiert, -40...80oC/-40...17oF
BR	Horn 100mm/4", PP plattiert, -40...80oC/-40...17oF
YY	Sonderausführung, TSP-Nr. zu spez.

Bestellschlüssel

FMR56

Fortsetzung nächste Seite

Preisgruppe B

Micropilot FMR56

Freiabstrahlende Radar-Füllstandmessung in Flüssigkeiten

1b / 01.16

Prozessanschluss:	
UAE	Montagebügel, 304.
XRO	Kundenseitige Montagevorrichtung, ohne Flansch/Montagebügel.
XWG	UNI Überwurfflansch 3"/DN80/80, PP max 4bar abs/58psia, passend zu NPS 3" Cl.150/DN80 PN16/10K 80.
XZG	UNI Überwurfflansch 4"/DN100/100, PP max 4bar abs/58psia, passend zu NPS 4" Cl.150/DN100 PN16/10K 100.
X0G	UNI Überwurfflansch 6"/DN150/150, PP max 4bar abs/58psia, passend zu NPS 6" Cl.150/DN150 PN16/10K 150.
YYY	Sonderausführung, TSP-Nr. zu spez.

Weitere Bediensprache

AA	Englisch.
AB	Deutsch.
AC	Französisch.
AD	Spanisch.
AE	Italienisch.
AF	Niederländisch.
AG	Portugiesisch.
AH	Polnisch.
AI	Russisch.
AJ	Türkisch.
O	andere.

Anwendungspaket

E9	Sonderausführung, TSP-Nr. zu spez.
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Kalibration

F3	3-Punkt Linearitätsprotokoll.
F4	5-Punkt Linearitätsprotokoll.
F9	Sonderausführung, TSP-Nr. zu spez.

Dienstleistung

IJ	Kundenspezifische Parametrierung HART.
IK	Kundenspezifische Parametrierung PA.
IL	Kundenspezifische Parametrierung FF.
IW	Ohne Tooling DVD (FieldCare setup).
I9	Sonderausführung, TSP-Nr. zu spez.

Weitere Zulassung

LA	SIL.
L9	Sonderausführung, TSP-Nr. zu spez.

Zubehör montiert

NA	Überspannungsschutz.
O9	Sonderausführung, TSP-Nr. zu spez.

Zubehör beigelegt

PB	Wetterschutzhaube.
PL	Dichtung verstellbar, DN80 PN10-40, EPDM.
PM	Dichtung verstellbar, DN100 PN10-16, EPDM.
PN	Dichtung verstellbar, DN150 PN10-16, EPDM.
PO	Dichtung, verstellbar, ASME 3" 150lbs, JIS 80A 10K, EPDM.
PQ	Dichtung, verstellbar, ASME 4" 150lbs, EPDM.
PR	Dichtung, verstellbar, ASME 6" 150lbs, JIS 150A 10K, EPDM.
R9	Sonderausführung, TSP-Nr. zu spez.

Firmware-Version

73	01.01.zz, FF, DevRev02.
74	01.01.zz, PROFIBUS PA, Profil 3.02, DevRev02.
75	01.01.zz, HART 6, DevRev02.
76	01.00.zz, FE, DevRev01.
77	01.00.zz, PROFIBUS PA, Profil 3.02, DevRev01.
78	01.00.zz, HART 6, DevRev01.

Preisgruppe B

E-H-Füllstand
messtechnik

Bestellschlüssel

FMR56



Levelflex FMP50,51,56

Geführte Radar-Füllstandmessung in Flüssigkeiten

16 / 01.16

E+H Füllstandmesstechnik



Füllstand- und Trennschichtmessung / Füllstandmessung in Flüssigkeiten und Schüttgütern

Anwendungsbereich

- Stab-, Seil- oder Koaxsonde
- Prozessanschluss:
 - FMP50: Gewinde 3/4" oder Adapterflansch
 - FMP51: Gewinde ab 3/4", Flansch oder Prozessanschluss für Hygieneanforderungen (Tri-Clamp, 11851)
 - FMP56: Gewinde ab 3/4" oder Flansch
- Temperatur:
 - FMP50: -20...+80 °C (-4...+176 °F)
 - FMP51: -196...+450 °C (-320...+842 °F)
 - FMP56: -40...+185 °C (-40...+365 °F)
- Druck:
 - FMP50: -1...+6 bar (-14,5...+87 psi)
 - FMP51: -1...+400 bar (-14,5...+5 800 psi)
 - FMP56: -1...+16 bar (-14,5...+232 psi)
- Maximaler Messbereich:
 - FMP50: Stab 4 m (13 ft); Seil 12 m (39 ft)
 - FMP51: Stab 10 m (33 ft); Seil 45 m (148 ft); Koax 6 m (20 ft)
 - FMP56: Stab 4 m (13 ft); Seil 45 m (148 ft)
- Genauigkeit: ±2 mm (±0,08 in)
- Zertifikate:
 - FMP50: Internationale Explosionsschutz-Zertifikate; WHG; EN10204-3.1
 - FMP51: Internationale Explosionsschutz-Zertifikate; WHG; Schiffbauzulassung; Dampfkesselzulassung; EN10204-3.1
 - FMP56: Internationale Explosionsschutz-Zertifikate; EN10204-3.1
- Linearitätsprotokoll (3-Punkt, 5-Punkt)

Ihre Vorteile

- Sichere Messung auch bei wechselnden Produkt- und Prozessbedingungen
- HistoROM-Konfigurationsspeicher vereinfacht Inbetriebnahme, Wartung und Diagnose
- Höchste Zuverlässigkeit durch Multi-Echo-Tracking
- Hardware und Software entwickelt nach IEC 61508 (bis SIL3)
- Nahtlose Integration in Prozessleit- und Asset-Management-Systeme
- Intuitive Bedienoberfläche in Landessprache
- Einfache Wiederholungsprüfung für SIL und WHG (WHG nicht bei FMP56)

	Levelflex FMP50	Levelflex FMP51	Levelflex FMP56
Messprinzip	Geführtes Radar	Geführtes Radar	Geführtes Radar
Merkmal / Anwendung	Basisgerät Stabsonde, Seilsonde Integrierter Datenspeicher, Werksabgleich auf Sondenlänge, Betriebssichere Messung: bei wechselnden Produkteigenschaften.	Premiumgerät Stabsonde, Seilsonde, Koaxsonde Integrierter Datenspeicher, Werksabgleich auf Sondenlänge, Betriebssichere Messung: bei unruhiger Oberfläche + Schaum, bei wechselnden Produkteigenschaften.	Basisgerät für Zugkräfte bis 12KN Seilsonde Integrierter Datenspeicher, Werksabgleich auf Sondenlänge, Betriebssichere Messung: bei Staubentwicklung, in hohen schmalen Silos, bei Streben + Einbauten
Trennschichtmessung		Klare Trennschicht flüssig/ flüssig Gleichzeitige Messung der Trennschicht und des Gesamtfüllstandes	
Versorgung / Kommunikation	2-Draht (HART / PROFIBUS PA/ FOUNDATION Fieldbus) 4-Draht (HART)	2-Draht (HART/ PROFIBUS PA/ FOUNDATION Fieldbus) 4-Draht (HART)	2-Draht (HART / PROFIBUS PA/ FOUNDATION Fieldbus) 4-Draht (HART)
Genauigkeit	Stabsonde: +/- 2 mm Seilsonde: +/- 2 mm	Stabsonde: +/- 2 mm Seilsonde <= 15 m: +/- 2 mm Seilsonde > 15 m: +/- 10 mm Koaxsonde: +/- 2 mm	Seilsonde: +/- 2 mm

Levelflex FMP50,51,56

Geführte Radar-Füllstandmessung in Flüssigkeiten

16 / 01.16

Levelflex FMP50



Levelflex FMP51



Levelflex FMP56



Langzeitstabilität			
Umgebungstemperatur	-40...+80 °C	-40...+80 °C	-40...+80 °C
Prozesstemperatur	-20...+80 °C	-40...+200 °C	-40...+120 °C
Prozessdruck absolut / max. Überlastdruck	Vakuum...6 bar	Vakuum...40 bar	Vakuum...16 bar
Druck Messbereich			
Prozessseitige Hauptmaterialien	Stabsonde: 316L, PPS, Viton Seilsonde: 316, PPS, Viton	Stabsonde: 316L, Alloy C, Keramik Seilsonde: 316, 316L, Alloy C, Keramik Koaxsonde: 316L, Alloy C, Keramik, PFA	Seilsonde: 304, 316, 316Ti, 316L, PEEK, PPS, PA
Prozessanschluss	Gewinde: G 3/4, MNPT 3/4 Flansch UNI Flansch	Gewinde: G3/4...G1 1/2; MNPT 3/4...MNPT1 1/2 Flansch: ASME 1 1/2"...8", DN50...DN 200, JIS 10K	Gewinde: G 3/4, MNPT 3/4
Prozessanschluss Hygienisch			
Sensorklänge	Stabsonde: 4 m Seilsonde: 12 m	Stabsonde: 10 m Seilsonde: 45 m Koaxsonde: 6 m	Seilsonde: 12 m
Max. Messdistanz	Stab: 4 m Min DK>1.6 Seil: 12 m Min DK>1.6	Stab: 10 m Min DK>1.6 Seil: 25...30 m Min DK>1.6; 30...45 m Min DK>1,9 Koaxsonde: 6 m Min DK>1,4	Seil: 12 m Min DK>1.4
Ausgang	4...20 mA HART PROFIBUS PA FOUNDATION Fieldbus	4...20 mA HART PROFIBUS PA FOUNDATION Fieldbus	4...20 mA HART PROFIBUS PA FOUNDATION Fieldbus
Zertifikate / Abnahmen	ATEX, FM, CSA, CSA C/US, IECEX, NEPSI, KC, INMETRO Überfüllsicherung WHG SIL EN10204-3.1	ATEX, FM, CSA, CSA C/US, IECEX, NEPSI, KC, INMETRO Überfüllsicherung WHG SIL EN10204-3.1 Marine	ATEX, FM, CSA, CSA C/US, IECEX, NEPSI, KC, INMETRO SIL
Optionen	Sensor abgesetzt mit 3 m Kabel	Sensor abgesetzt mit 3 m Kabel Gasdichte Durchführung	Sensor abgesetzt mit 3 m Kabel
Spezialitäten			
Applikationsgrenzen	Lagerbehälter zyl. liegend: » Koax-Sonde verwenden. Korrosive Flüssigkeiten: » FMP52 Hochdruck-/temperatur > 80 °C; 6 bar: » FMP51, FMP54 Trennschichtmessung: » FMP51, FMP55	Lagerbehälter zyl. liegend: » Koax-Sonde verwenden. Korrosive Flüssigkeiten: » FMP52, Trennschichtmessung: Bevorzugt koaxiales System verwenden (Koax-Sonde, Bypass, Schwallrohr) Trennschichtmessung mit Emulsion: » FMP55	

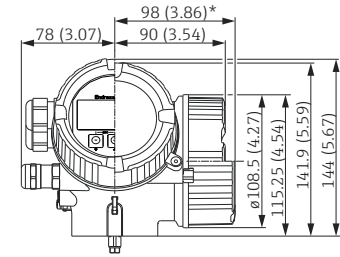
Levelflex FMP50,51,56

Geführte Radar-Füllstandmessung in Flüssigkeiten

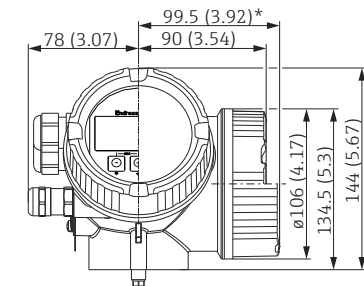
1b / 01.16

Abmessungen (Auszug)

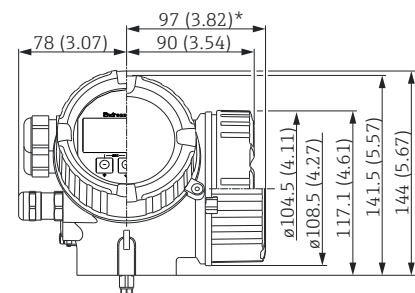
Abmessungen Elektronikgehäuse



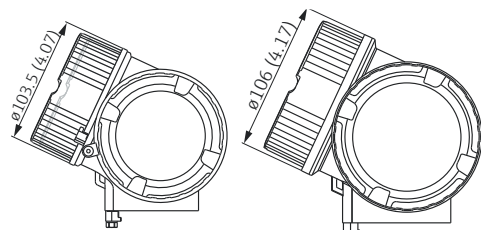
Gehäuse GT18 (316L)



Gehäuse GT19 (Kunststoff PBT)



Gehäuse GT20 (Alu beschichtet)

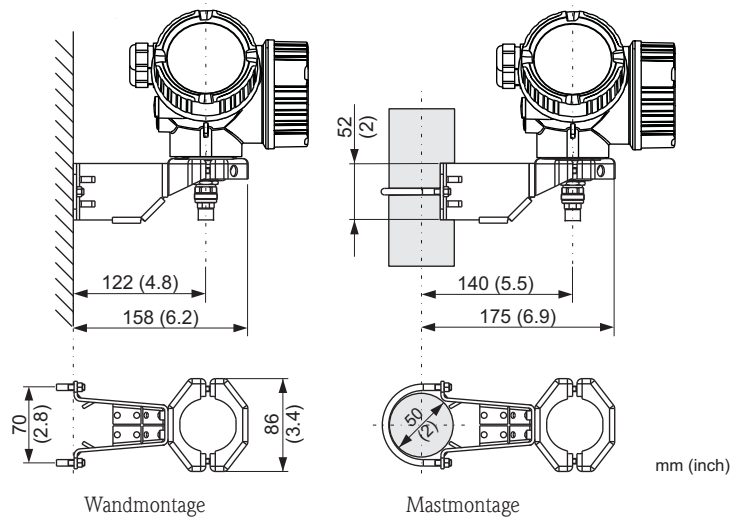


Gehäuse GT18 (316L)/
Gehäuse GT20 (Alu beschichtet)

Gehäuse GT19
(Kunststoff PBT)

*für Geräte mit integriertem Überspannungsschutz.

Abmessungen Montagehalter

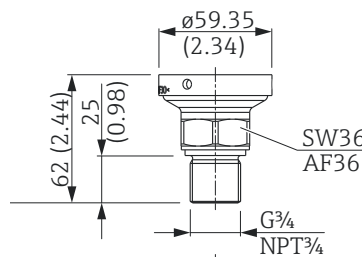


Wandmontage

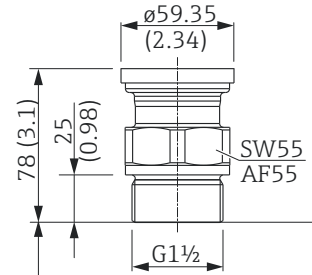
Mastmontage

mm (inch)

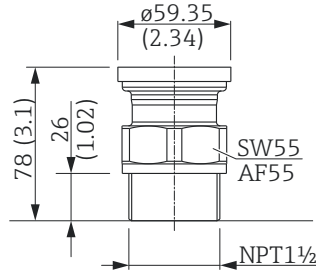
FMP50 Gewinde ISO228 G3/4
oder ANSI MNPT3/4 (Merkmal 100)



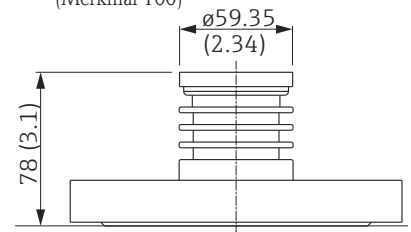
FMP51 Gewinde ISO228 G1-1/2
(Merkmal 100)



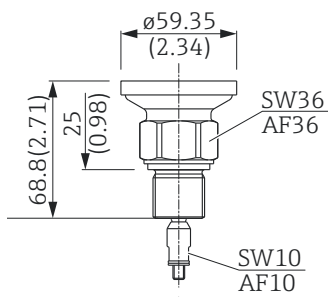
FMP51 Gewinde ANSI
MNPT1-1/2 (Merkmal 100)



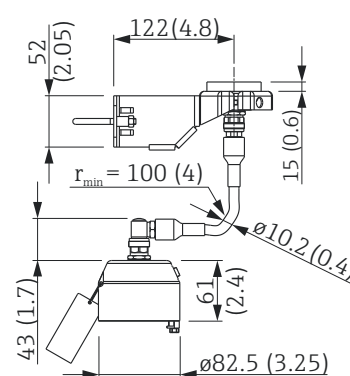
FMP51 Flansch ANSI B16.5,
EN1092-1, JIS B2220
(Merkmal 100)



FMP56 Gewinde ISO228 G3/4 oder
ANSI MNPT3/4 (Merkmal 100)



Montagebügel für Sondendesign
„Sensor abgesetzt“ (Merkmal 600)



Levelflex FMP50

Zulassung

AA	Ex-freier Bereich
BA	ATEX II 1G Ex ia IIC T6 Ga
BB	ATEX II 1/2G Ex ia IIC T6 Ga/Gb
BC	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb
BG	ATEX II 3G Ex nA IIC T6 Gc
BH	ATEX II 3G Ex ic IIC T6 Gc
B2	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, 1/2D Ex ia IIIC Da/Db
B3	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb, 1/2D Ex t IIIC Da/Db
B4	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, Ex d[ia] IIC T6 Ga/Gb
CA	CSA C/US General Purpose
CB	CSA C/US IS Cl.I Div.1 Gr.A-D
CC	CSA C/US XP Cl.I Div.1 Gr.A-D
C2	CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C3	CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
FA	FM IS Cl.I Div.1 Gr.A-D
FC	FM XP Cl.I Div.1 Gr.A-D
IA	IEC Ex ia IIC T6 Ga
IB	IEC Ex ia IIC T6 Ga/Gb
IC	IEC Ex d[ia] IIC T6 Ga/Gb
IG	IEC Ex nA IIC T6 Gc
IH	IEC Ex ic IIC T6 Gc
I2	IEC Ex ia IIC T6 Ga/Gb, Ex ia IIIC Da/Db
I3	IEC Ex d[ia] IIC T6 Ga/Gb, Ex t IIIC Da/Db
I4	IEC Ex ia IIC T6 Ga/Gb, Ex d[ia] IIC T6 Ga/Gb
KA	KC Ex ia IIC T6 Ga
KB	KC Ex ia IIC T6 Ga/Gb
KC	KC Ex d[ia] IIC T6 Ga
MA	INMETRO Ex ia IIC T6 Ga
MC	INMETRO Ex d[ia] IIC T6 Ga/Gb
MH	INMETRO Ex ic IIC T6 Gc
NA	NEPSI Ex ia IIC T6 Ga
NB	NEPSI Ex ia IIC T6 Ga/Gb
NC	NEPSI Ex d[ia] IIC T6 Ga/Gb
NG	NEPSI Ex nA II T6 Gc
NH	NEPSI Ex ic IIC T6 Gc
N2	NEPSI Ex ia IIC T6 Ga/Gb, Ex ia D 20/21
N3	NEPSI Ex d[ia] IIC T6 Ga/Gb, DIP A20/21 IP66
8A	FM/CSA IS+XP Cl.I,II,III Div.1 Gr.A-G
99	Sonderausführung, TSP-Nr. zu spez.

Hilfsenergie; Ausgang

A	2-Draht; 4-20mA HART
B	2-Draht; 4-20mA HART, Schaltausgang
C	2-Draht; 4-20mA HART + 4-20mA analog
E	2-Draht; FOUNDATION Fieldbus, Schaltausgang
G	2-Draht; PROFIBUS PA, Schaltausgang
K	4-Draht 90-253VAC; 4-20mA HART
L	4-Draht 10,4-48VDC; 4-20mA HART
Y	Sonderausführung, TSP-Nr. zu spez.

Anzeige, Bedienung

A	Ohne, via Kommunikation
C	SD02 4-zeilig, Drucktasten + Datensicherungsfunktion
E	SD03 4-zeilig, beleuchtet, Touch Control+ Datensicherungsfunktion
L	Vorbereitet für Anzeige FHX50 + M12 Anschluss
M	Vorbereitet für Anzeige FHX50 + kundenseitiger Anschluss
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

A	GT19 Zweikammer, Kunststoff PBT
C	GT20 Zweikammer, Alu, beschichtet
Y	Sonderausführung, TSP-Nr. zu spez.

Elektrischer Anschluss

A	Versch. M20, IP66/68 NEMA4X/6P
B	Gewinde M20, IP66/68 NEMA4X/6P
C	Gewinde G1/2, IP66/68 NEMA4X/6P
D	Gewinde NPT1/2, IP66/68 NEMA4X/6P
I	Stecker M12, IP66/68 NEMA4X/6P
M	Stecker 7/8", IP66/68 NEMA4X/6P
Y	Sonderausführung, TSP-Nr. zu spez.

Sonde

AA	..... mm, Stab 8mm 316L	..... 100 MM
AB	..... inch, Stab 1/3" 316L	..... 1 ZL
LA mm, Seil 4mm, 316 1000 MM
LB inch, Seil 1/6" 316 1 ZL

Dichtung

A1	Viton, -20...80oC/-4...176oF
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Prozessanschluss

GDJ	Gewinde ISO228 G3/4, 316L
RDJ	Gewinde ANSI MNPT3/4, 316L

Weitere Bediensprache

AA	Englisch
AB	Deutsch
AC	Französisch
AD	Spanisch
AE	Italienisch
AF	Niederländisch
AG	Portugiesisch
AH	Polnisch
AI	Russisch

Preisgruppe B

E-H-Füllstand messtechnik

Bestellschlüssel

FMP50

Fortsetzung nächste Seite

Levelflex FMP50

Geführte Radar-Füllstandmessung in Flüssigkeiten

1b / 01.16

E+H Füllstand
messtechnik

Preisgruppe B

AJ 0	Türkisch
	andere
Anwendungspaket	
E9	Sonderausführung, TSP-Nr. zu spez.
Kalibration	
F3	3-Punkt Linearitätsprotokoll Minimale Sondenlänge beachten, Stab >=1000mm, Seil >=1250mm
F4	5-Punkt Linearitätsprotokoll
F9	Sonderausführung, TSP-Nr. zu spez.
Dienstleistung	
IJ	Kundenspezifische Parametrierung HART
IK	Kundenspezifische Parametrierung PA
IL	Kundenspezifische Parametrierung FF
IW	Ohne Tooling DVD (FieldCare setup)
I9	Sonderausführung, TSP-Nr. zu spez.
Test, Zeugnis	
JA	3.1 Materialnachweis, mediumberührte metallische Teile, EN10204-3.1 Abnahmeprüfzeugnis
K9	Sonderausführung, TSP-Nr. zu spez.
Weitere Zulassung	
LA	SIL
LC	WHG Überfüllsicherung
L9	Sonderausführung, TSP-Nr. zu spez.
Sondendesign	
MB	Sensor abgesetzt, 3m Kabel, abnehmbar+ Montagebügel
MC	Sensor abgesetzt, 6m Kabel, abnehmbar+ Montagebügel
MD	Sensor abgesetzt, 9m Kabel, abnehmbar+ Montagebügel
M9	Sonderausführung, TSP-Nr. zu spez.
Zubehör montiert	
NA	Überspannungsschutz
O9	Sonderausführung, TSP-Nr. zu spez.
Zubehör beigelegt	
PB	Wetterschutzhaube
PG	Montagekit, isoliert, Seil
RC	UNI Flansch 2"/DN50/50, 316L max 3bar abs/44psia, passend zu NPS 2" Cl.150/ DN50 PN16/10K 50
RF	UNI Flansch 3"/DN80/80, 316L max 3bar abs/44psia, passend zu NPS 3" Cl.150/ DN80 PN16/10K 80
RI	UNI Flansch 4"/DN100/100, 316L max 3bar abs/44psia, passend zu NPS 4" Cl.150/ DN100 PN16/10K 100
R9	Sonderausführung, TSP-Nr. zu spez.
Firmware- -Version	
74	01.02.zz, HART, DevRev03
75	01.01.zz, HART, DevRev02
76	01.00.zz, FF, DevRev01
77	01.00.zz, PROFIBUS PA, DevRev01
78	01.00.zz, HART, DevRev01

Bestellschlüssel

FMP50



Levelflex FMP51

Zulassung

AAA	Ex-freier Bereich
BA	ATEX II 1G Ex ia IIC T6 Ga
BB	ATEX II 1/2G Ex ia IIC T6 Ga/Gb
BC	ATEX II 1/2G Ex djIa IIC T6 Ga/Gb
BD	ATEX II 1/3G Ex icIja IIC T6 Ga/Gc
BG	ATEX II 3G Ex nA IIC T6 Gc
BH	ATEX II 3G Ex ic IIC T6 Gc
BL	ATEX II 1/3G Ex nAlja IIC T6 Ga/Gc
B2	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, 1/2D Ex ia IIIC Da/Db
B3	ATEX II 1/2G Ex djIa IIC T6 Ga/Gb, 1/2D Ex t IIIC Da/Db
B4	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, Ex djIa IIC T6 Ga/Gb
CA	CSA C/US General Purpose
C2	CSA C/US IS CL,I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C3	CSA C/US XP CL,I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
FB	FM IS CL,I,II,III Div.1 Gr.A-G, AEx ia, NI Cl.1 Div.2
FD	FM XP CL,I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
IA	IEC Ex ia IIC T6 Ga
IB	IEC Ex ia IIC T6 Ga/Gb
IC	IEC Ex djIa IIC T6 Ga/Gb
ID	IEC Ex icIja IIC T6 Ga/Gc
IG	IEC Ex nA IIC T6 Gc
IH	IEC Ex ic IIC T6 Gc
IL	IEC Ex nAlja IIC T6 Ga/Gc
I2	IEC Ex ia IIC T6 Ga/Gb, Ex ia IIIC Da/Db
I3	IEC Ex djIa IIC T6 Ga/Gb, Ex t IIIC Da/Db
I4	IEC Ex ia IIC T6 Ga/Gb, Ex djIa IIC T6 Ga/Gb
KA	KC Ex ia IIC T6 Ga
KB	KC Ex ia IIC T6 Ga/Gb
KC	KC Ex djIa IIC T6
MA	INMETRO Ex ia IIC T6 Ga
MC	INMETRO Ex djIa IIC T6 Ga/Gb
MH	INMETRO Ex ic IIC T6 Gc
NA	NEPSI Ex ia IIC T6 Ga
NB	NEPSI Ex ia IIC T6 Ga/Gb
NC	NEPSI Ex djIa IIC T6 Ga/Gb
NG	NEPSI Ex nA II T6 Gc
NH	NEPSI Ex ic IIC T6 Gc
N2	NEPSI Ex ia IIC T6 Ga/Gb, Ex iaD 20/21
N3	NEPSI Ex djIa IIC T6 Ga/Gb, DIP A20/21 IP66
8A	FM/CSA IS+XP CL,I,II,III Div.1 Gr.A-G
99	Sonderausführung, TSP-Nr. zu spez.

Hilfsenergie; Ausgang

A	2-Draht; 4-20mA HART
B	2-Draht; 4-20mA HART, Schaltausgang
C	2-Draht; 4-20mA HART + 4-20mA analog
E	2-Draht; FOUNDATION Fieldbus, Schaltausgang
G	2-Draht; PROFIBUS PA, Schaltausgang
K	4-Draht 90-253VAC; 4-20mA HART
L	4-Draht 10,4-48VDC; 4-20mA HART
Y	Sonderausführung, TSP-Nr. zu spez.

Anzeige, Bedienung

A	Ohne, via Kommunikation
C	SD02 4-zeilig, Drucktasten + Datensicherungsfunktion
E	SD03 4-zeilig, beleuchtet, Touch Control+ Datensicherungsfunktion
L	Vorbereitet für Anzeige FHX50 + M12 Anschluss
M	Vorbereitet für Anzeige FHX50 + kundenseitiger Anschluss
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

A	GT19 Zweikammer, Kunststoff PBT
B	GT18 Zweikammer, 316L
C	GT20 Zweikammer, Alu, beschichtet
Y	Sonderausführung, TSP-Nr. zu spez.

Elektrischer Anschluss

A	Versch. M20, IP66/68 NEMA4X/6P
B	Gewinde M20, IP66/68 NEMA4X/6P
C	Gewinde G1/2, IP66/68 NEMA4X/6P
D	Gewinde NPT1/2, IP66/68 NEMA4X/6P
I	Stecker M12, IP66/68 NEMA4X/6P
M	Stecker 7/8", IP66/68 NEMA4X/6P
Y	Sonderausführung, TSP-Nr. zu spez.

Sonde

AA	..... mm, Stab 8mm 316L	..... 100 MM
AB	..... inch, Stab 1/3" 316L	..... 1 ZL
AC	..... mm, Stab 12mm 316L	..... 100 MM
AD	..... inch, Stab 1/2" 316L	..... 1 ZL
AL	..... mm, Stab 12mm AlloyC	..... 100 MM
AM	..... inch, Stab 1/2" AlloyC	..... 1 ZL
BA	..... mm, Stab 16mm 316L, 500mm teilbar	..... 100 MM
BB	..... inch, Stab 0.63in 316L, 20inch teilbar	..... 1 ZL
BC	..... mm, Stab 16mm 316L, 1000mm teilbar	..... 100 MM
BD	..... inch, Stab 0.63in 316L, 40inch teilbar	..... 1 ZL
LA	..... mm, Seil 4mm, 316, max 150mm Stutzenhöhe, Zentrierstab	..... 1000 MM
LB	..... inch, Seil 1/6" 316, max 6in Stutzenhöhe, Zentrierstab	..... 1 ZL
MB	..... mm, Seil 4mm 316, max 300mm Stutzenhöhe, Zentrierstab	..... 1000 MM
MD	..... inch, Seil 1/6" 316, max 12in Stutzenhöhe, Zentrierstab	..... 1 ZL
UA	..... mm, Koax 316L	..... 100 MM
UB	..... inch, Koax 316L	..... 1 ZL
UC	..... mm, Koax AlloyC	..... 100 MM
UD	..... inch, Koax AlloyC	..... 1 ZL
YY	Sonderausführung, TSP-Nr. zu spez.	.....

Bestellschlüssel

FMP51

Fortsetzung nächste Seite

Preisgruppe B

E-H Füllstand
messtechnik

Dichtung	
AB	Viton, -30...120oC/22...248oF
B3	EPDM, -40...120oC/40...248oF
C3	Kalrez, 20...200oC/4...392oF, Sattedampf max 150oC/302oF
Y9	Sonderausführung, TSP-Nr. zu spez.

Prozessanschluss	
A EJ	NPS 1-1/2" CI.150 RF, 316/316L Flansch ASME B16.5
A EM	NPS 1-1/2" CI.150, AlloyC>316/316L Flansch ASME B16.5
A FJ	NPS 2" CI.150 RF, 316/316L Flansch ASME B16.5
A FM	NPS 2" CI.150, AlloyC>316/316L Flansch ASME B16.5
A GJ	NPS 3" CI.150 RF, 316/316L Flansch ASME B16.5
A GM	NPS 3" CI.150, AlloyC>316/316L Flansch ASME B16.5
A HJ	NPS 4" CI.150 RF, 316/316L Flansch ASME B16.5
A JJ	NPS 6" CI.150 RF, 316/316L Flansch ASME B16.5
A KJ	NPS 8" CI.150 RF, 316/316L Flansch ASME B16.5
A QJ	NPS 1-1/2" CI.300 RF, 316/316L Flansch ASME B16.5
A QM	NPS 1-1/2" CI.300, AlloyC>316/316L Flansch ASME B16.5
A RJ	NPS 2" CI.300 RF, 316/316L Flansch ASME B16.5
A RM	NPS 2" CI.300, AlloyC>316/316L Flansch ASME B16.5
A SJ	NPS 3" CI.300 RF, 316/316L Flansch ASME B16.5
A SM	NPS 3" CI.300, AlloyC>316/316L Flansch ASME B16.5
A TJ	NPS 4" CI.300 RF, 316/316L Flansch ASME B16.5
A FJ	DN50 PN10/16 B1, 316L Flansch EN1092-1
A CFM	DN50 PN10/16, AlloyC>316L Flansch EN1092-1
A CGJ	DN80 PN10/16 B1, 316L Flansch EN1092-1
A CGM	DN80 PN10/16, AlloyC>316L Flansch EN1092-1
A CHJ	DN100 PN10/16 B1, 316L Flansch EN1092-1
A CHM	DN100 PN10/16, AlloyC>316L Flansch EN1092-1
A CJJ	DN150 PN10/16 B1, 316L Flansch EN1092-1
A CKJ	DN200 PN16 B1, 316L Flansch EN1092-1
A CQJ	DN40 PN10 40 B1, 316L Flansch EN1092-1
A CQM	DN40 PN10 40, AlloyC>316L Flansch EN1092-1
A CRJ	DN50 PN25/40 B1, 316L Flansch EN1092-1
A CRM	DN50 PN25/40, AlloyC>316L Flansch EN1092-1
A CSJ	DN80 PN25/40 B1, 316L Flansch EN1092-1
A CSM	DN80 PN25/40, AlloyC>316L Flansch EN1092-1
A CTJ	DN100 PN25/40 B1, 316L Flansch EN1092-1
A CTM	DN100 PN25/40, AlloyC>316L Flansch EN1092-1
A GDJ	Gewinde ISO228 G3/4, 316L
A GGJ	Gewinde ISO228 G1-1/2, 316L
A KEJ	10K 40A RF, 316L Flansch JIS B2220
A KFJ	10K 50A RF, 316L Flansch JIS B2220
A KGJ	10K 80A RF, 316L Flansch JIS B2220
A KHJ	10K 100A RF, 316L Flansch JIS B2220
A RDJ	Gewinde ANSI MNPT3/4, 316L
A RGJ	Gewinde ANSI MNPT1-1/2, 316L
A WQJ	DN50 PN25/40 E, 316L Flansch EN1092-1
A WRJ	DN80 PN25/40 E, 316L Flansch EN1092-1
A WSJ	DN100 PN25/40 E, 316L Flansch EN1092-1
A YYJ	Sonderausführung, TSP-Nr. zu spez.

Weitere Bediensprache	
AA	Englisch
AB	Deutsch
AC	Französisch
AD	Spanisch
AE	Italienisch
AF	Niederländisch
AG	Portugiesisch
AH	Polnisch
AI	Russisch
AJ	Türkisch
O	andere

Anwendungspaket	
EB	Trennschicht Messung
E9	Sonderausführung, TSP-Nr. zu spez.

Kalibration	
F3	3-Punkt Linearitätsprotokoll Minimale Sondenlänge beachten, Stab >=1000mm, Seil >=1250mm
F4	5-Punkt Linearitätsprotokoll
F9	Sonderausführung, TSP-Nr. zu spez.

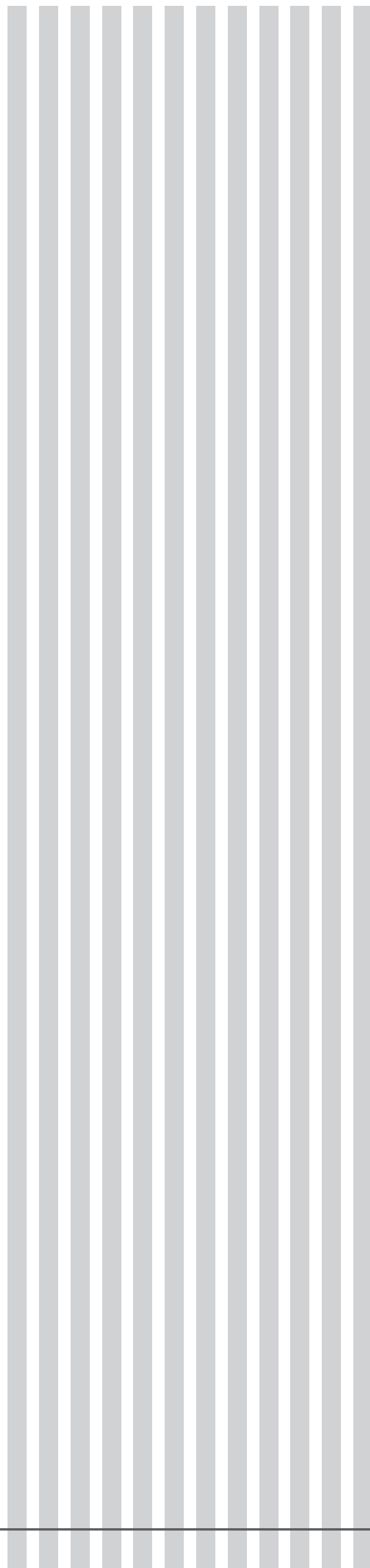
Dienstleistung	
HC	LABS frei, LABS = lackbenetzungstörende Substanzen
IJ	Kundenspezifische Parametrierung HART
IK	Kundenspezifische Parametrierung PA
IL	Kundenspezifische Parametrierung FF
IW	Ohne Tooling DVD (FieldCare setup)
I9	Sonderausführung, TSP-Nr. zu spez.

Test, Zeugnis	
JA	3.1 Materialnachweis, mediumberührte metallische Teile, EN10204-3.1 Abnahmeprüfzeugnis
JB	Konformitätserklärung NACE MR0175, mediumberührte metallische Teile
JE	Konformitätserklärung NACE MR0103, mediumberührte metallische Teile
JF	Konformitätserklärung AD2000, mediumberührte metallische Teile
KD	Heliumlecktest, internes Verfahren, Abnahmeprüfzeugnis
KE	Druckprüfung, internes Verfahren, Abnahmeprüfzeugnis
KG	PMI-Test (XRF), internes Verfahren, mediumberührte

Bestellschlüssel

FMP51

Fortsetzung nächste Seite



- KP metallische Teile, Abnahmeprüfzeugnis
Farbeindringprüfung AD2000-HP5-3(PT),
mediumberührte/drucktragende metallische Teile,
Abnahmeprüfzeugnis.
- KQ Farbeindringprüfung ISO23277-1 (PT),
mediumberührte/drucktragende metallische Teile,
Abnahmeprüfzeugnis.
- KR Farbeindringprüfung ASME VIII-1 (PT),
mediumberührte/drucktragende metallische Teile,
Abnahmeprüfzeugnis.
- KS Schweissdokumentation, mediumberührende/
drucktragende Nähte.
- KV Konformitätserklärung ASME B31.1, ASME B31.3.
- K9 Sonderausführung, TSP-Nr. zu spez.

Weitere Zulassung

- LA SIL
- LC WHG Überfüllsicherung
- LE GL Schiffbauzulassung.
- LF ABS Schiffbauzulassung.
- LG LR Schiffbauzulassung.
- LH BV Schiffbauzulassung.
- LI DNV Schiffbauzulassung
- L9 Sonderausführung, TSP-Nr. zu spez.

Sondendesign

- MB Sensor abgesetzt, 3m Kabel,
abnehmbar+ Montagebügel.
- MC Sensor abgesetzt, 6m Kabel,
abnehmbar+ Montagebügel.
- MD Sensor abgesetzt, 9m Kabel,
abnehmbar+ Montagebügel.
- M9 Sonderausführung, TSP-Nr. zu spez.

Zubehör montiert

- NA Überspannungsschutz
- NC Gasdichte Durchführung
- OA Stab Zentrierscheibe d=75mm,
316L Rohrdurchmesser
DN80/3" + DN100/4"
- OB Stab Zentrierscheibe d=45mm,
316L Rohrdurchmesser
DN50/2" + DN65/2-1/2"
- OC Seil Zentrierscheibe d=75mm,
316L Rohrdurchmesser
DN80/3" + DN100/4"
- OD Stab Zentrierstern d=48-95mm,
PEEK, Trennschicht Messung,
Rohrdurchmesser
DN50/2" + DN100/4"
- OE Stab Zentrierstern d=37mm,
PFA, Trennschicht Messung,
Rohrdurchmesser DN40/1-1/2"
+ DN50/2"
- O9 Sonderausführung,
TSP-Nr. zu spez.

Zubehör beigelegt

- PB Wetterschutzhaube
- PG Montagekit, isoliert, Seil
- R9 Sonderausführung,
TSP-Nr. zu spez.

**Firmware-
-Version**

- 74 01.02.zz, HART,
DevRev03
- 75 01.01.zz, HART,
DevRev02
- 76 01.00.zz, FF,
DevRev01
- 77 01.00.zz, PROFIBUS
PA, DevRev01
- 78 01.00.zz, HART,
DevRev01

Preisgruppe B

Bestellschlüssel

FMP51

Levelflex FMP56

Zulassung

AA	Ex-freier Bereich
BA	ATEX II 1G Ex ia IIC T6 Ga
BB	ATEX II 1/2G Ex ia IIC T6 Ga/Gb
BE	ATEX II 1D Ex t IIIC Da
BF	ATEX II 1/2D Ex t IIIC Da/Db
BG	ATEX II 3G Ex nA IIC T6 Gc
BH	ATEX II 3G Ex ic IIC T6 Gc
B2	ATEX II 1/2G Ex ia IIC T6 Ga/Gb, 1/2D Ex ia IIIC Da/Db
B3	ATEX II 1/2G Ex d[ia] IIC T6 Ga/Gb, 1/2D Ex t IIIC Da/Db
CA	CSA C/US General Purpose
CD	CSA C/US DIP Cl.I,II,III Div.1 Gr.E-G
C2	CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C3	CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
FB	FM IS Cl.I,II,III Div.1 Gr.A-G, AEx ia, NI Cl.1 Div.2
FD	FM XP Cl.I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
FE	FM DIP Cl.I,II,III Div.1 Gr.E-G
IA	IEC Ex ia IIC T6 Ga
IB	IEC Ex ia IIC T6 Ga/Gb
IE	IEC Ex t IIIC Da
IF	IEC Ex t IIIC Da/Db
IG	IEC Ex nA IIC T6 Gc
IH	IEC Ex ic IIC T6 Gc
I2	IEC Ex ia IIC T6 Ga/Gb, Ex ia IIIC Da/Db
I3	IEC Ex d [ia] IIC T6 Ga/Gb, Ex t IIIC Da/Db
KA	KC Ex ia IIC T6 Ga
KB	KC Ex ia IIC T6 Ga/Gb
MA	INMETRO Ex ia IIC T6 Ga
ME	INMETRO Ex t IIIC Da
MH	INMETRO Ex ic IIC T6 Gc
NA	NEPSI Ex ia IIC T6 Ga
NB	NEPSI Ex ia IIC T6 Ga/Gb
NG	NEPSI Ex nA II T6 Gc
NH	NEPSI Ex ic IIC T6 Gc
N2	NEPSI Ex ia IIC T6 Ga/Gb, Ex iaD 20/21
N3	NEPSI Ex d[ia] IIC T6 Ga/Gb, DIP A20/21 IP66
TC	TIIS Ex d[ia] IIC T4
8A	FM/CSA IS+XP Cl.I,II,III Div.1 Gr.A-G
99	Sonderausführung, TSP-Nr. zu spez.

Hilfsenergie; Ausgang

A	2-Draht; 4-20mA HART
B	2-Draht; 4-20mA HART, Schaltausgang
C	2-Draht; 4-20mA HART + 4-20mA analog
E	2-Draht; FOUNDATION Fieldbus, Schaltausgang
G	2-Draht; PROFIBUS PA, Schaltausgang
K	4-Draht 90-253VAC; 4-20mA HART
L	4-Draht 10,4-48VDC; 4-20mA HART
Y	Sonderausführung, TSP-Nr. zu spez.

Anzeige, Bedienung

A	Ohne, via Kommunikation
C	SD02 4-zeilig, Drucktasten + Datensicherungsfunktion
E	SD03 4-zeilig, beleuchtet, Touch Control+ Datensicherungsfunktion
L	Vorbereitet für Anzeige FHX50 + M12 Anschluss
M	Vorbereitet für Anzeige FHX50 + kundenseitiger Anschluss
Y	Sonderausführung, TSP-Nr. zu spez.

Gehäuse

A	GT19 Zweikammer, Kunststoff PBT
B	GT18 Zweikammer, 316L
C	GT20 Zweikammer, Alu beschichtet
Y	Sonderausführung, TSP-Nr. zu spez.

Elektrischer Anschluss

A	Versch. M20, IP66/68 NEMA4X/6P
B	Gewinde M20, IP66/68 NEMA4X/6P
C	Gewinde G1/2, IP66/68 NEMA4X/6P
D	Gewinde NPT1/2, IP66/68 NEMA4X/6P
I	Stecker M12, IP66/68 NEMA4X/6P
M	Stecker 7/8", IP66/68 NEMA4X/6P
Y	Sonderausführung, TSP-Nr. zu spez.

Sonde

LA	..... mm, Seil 4mm, 316	1000 MM
LB	..... inch, Seil 1/6" 316	1 ZL
NB	..... mm, Seil 6mm PA>Stahl	1000 MM
NE	..... inch, Seil 1/4" PA>Stahl	1 ZL
YY	Sonderausführung, TSP-Nr. zu spez.	

Dichtung

AB	Viton, -30...120oC/-22...248oF
B3	EPDM, -40...120oC/40...248oF
Y9	Sonderausführung, TSP-Nr. zu spez.

Prozessanschluss

GDE	Gewinde ISO228 G3/4, 304
RDE	Gewinde ANSI MNPT3/4, 304
YYY	Sonderausführung, TSP-Nr. zu spez.

Weitere Bediensprache

AA	Englisch
AB	Deutsch
AC	Französisch
AD	Spanisch
AE	Italienisch

Bestellschlüssel

FMP56

Fortsetzung nächste Seite

Preisgruppe B

Levelflex FMP56

Geführte Radar-Füllstandmessung in Flüssigkeiten

1b / 01.16

AF	Niederländisch
AG	Portugiesisch
AH	Polnisch
AI	Russisch
AJ	Türkisch
0	andere
Anwendungspaket	
E9	Sonderausführung, TSP-Nr. zu spez.
Kalibration	
F3	3-Punkt Linearitätsprotokoll Minimale Sondenlänge beachten, Stab >=1000mm, Seil >=1250mm
F4	5-Punkt Linearitätsprotokoll
F9	Sonderausführung, TSP-Nr. zu spez.
Dienstleistung	
IJ	Kundenspezifische Parametrierung HART
IK	Kundenspezifische Parametrierung PA
IL	Kundenspezifische Parametrierung FF
IW	Ohne Tooling DVD (FieldCare setup)
I9	Sonderausführung, TSP-Nr. zu spez.
Weitere Zulassung	
LA	SIL
L9	Sonderausführung, TSP-Nr. zu spez.
Sondendesign	
MB	Sensor abgesetzt, 3m Kabel, abnehmbar+ Montagebügel
MC	Sensor abgesetzt, 6m Kabel, abnehmbar+ Montagebügel
MD	Sensor abgesetzt, 9m Kabel, abnehmbar+ Montagebügel
M9	Sonderausführung, TSP-Nr. zu spez.
Zubehör montiert	
NA	Überspannungsschutz
O9	Sonderausführung, TSP-Nr. zu spez.
Zubehör beigelegt	
PB	Wetterschutzhaube
PG	Montagekit, isoliert, Seil
R9	Sonderausführung, TSP-Nr. zu spez.
Firmware-Version	
74	01.02.zz, HART, DevRev03
75	01.01.zz, HART, DevRev02
76	01.00.zz, FF, DevRev01
77	01.00.zz, PROFIBUS PA, DevRev01
78	01.00.zz, HART, DevRev01

Preisgruppe B

E-H-Füllstand
messtechnik

Bestellschlüssel

FMP56



2. Water level measurement, data transmission, battery powered

Contents

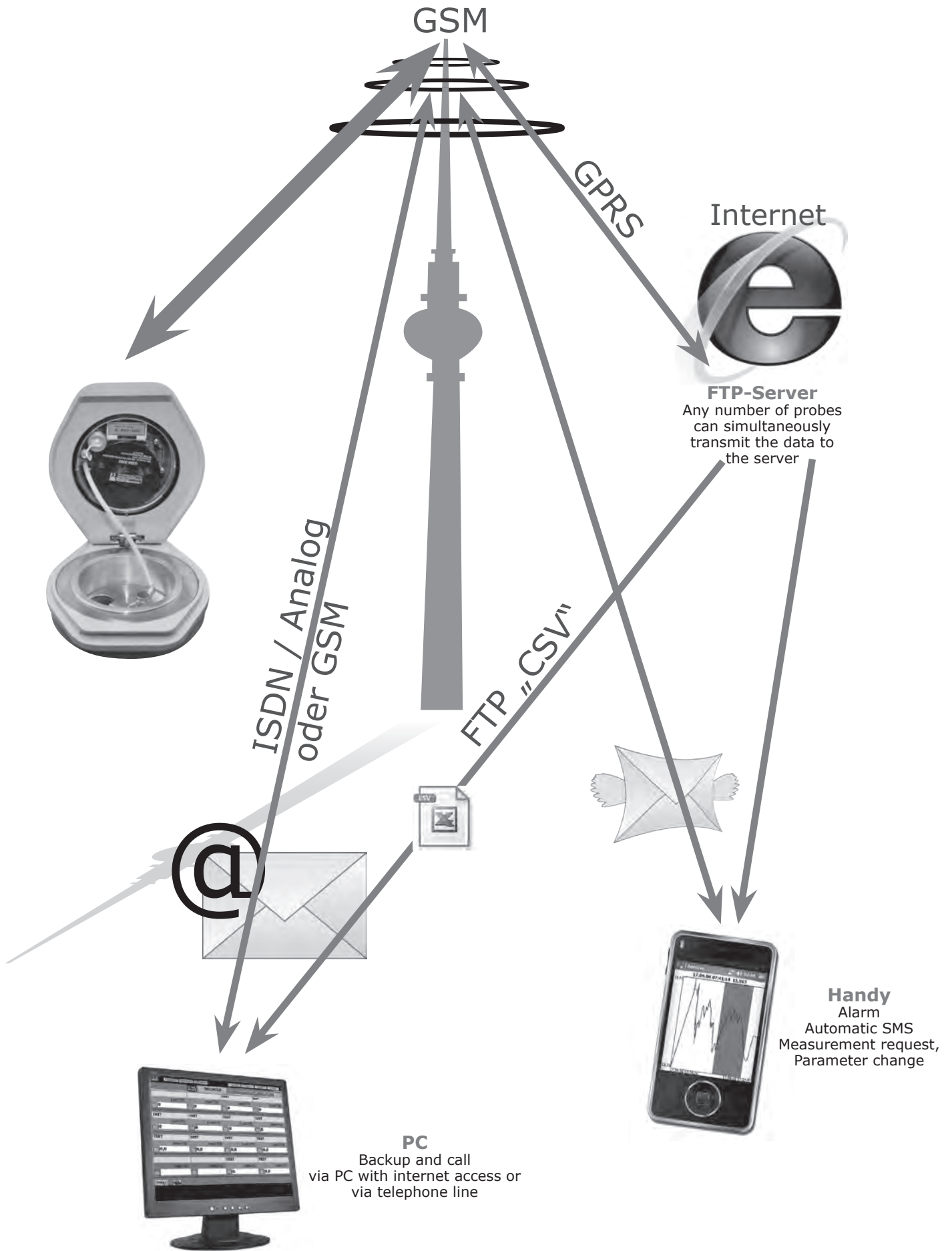
Data logger for water level measurement (hydrostatic)

Hydrolog®-3000	Cost-optimized, digital, battery-powered water level sensor	141
	Up to 216,000 records	
	Accuracy up to 0.1%	
	Alarm management with 8 limits	
	Integrated measurement interval	
	Expandable with GSM / GPRS module for remote data transmission	
Hydrolog®-1000	Cost-optimized, digital, battery-powered water level sensor	143
	Up to 216,000 records	
	Accuracy up to 0.1%	
	Alarm management with 8 limits	
	Integrated measurement interval	
	Expandable with GSM / GPRS module for remote data transmission	
	replaceable lithium battery	
GSM-3000 Module	GSM/GPRS-Moduel for Hydrolog® 3000	145
Nautiz X8	Rugged PDA for programming and data collection for Hydrolog®	145
GM-600 / GM-620	Operation and evaluation software for Hydrolog® and GSM-3000	146
GM-600 RÜB	for monitoring and logging of rain overflow basins	146
Equipment	for water level measurement	146



Water level measurement - transmission

Water level measurement



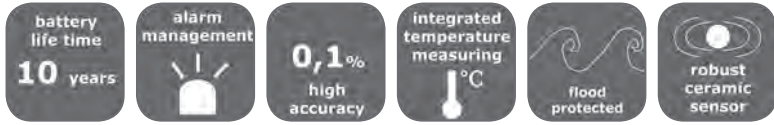
Hydrolog® 3000

Groundwater - data collector with integrated temperature sensor, alarm management, operation and control interval value logging

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Water level measurement

Technical data



Power supply
power supply: integrated lithium battery
battery life: $\geq 2.000.000$ measurement resp.
 ≥ 10 years with a measuring interval of 1x per 3 minutes

Accuracy
level range: 1 m water column up to 100 m water column
units: mWs / cmWs / bar / mbar / mNN / mlowering
Deviation: $\leq 0,1\%$ bzw. $0,25\%$ FS
Measuring range temperature: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$
accuracy: $\leq 0,3$ Kelvin

Data storage
memory capacity: 128 kB: 21.600 ... 216.000 records (water level)
16.200 ... 162.000 records (water level / temperature)

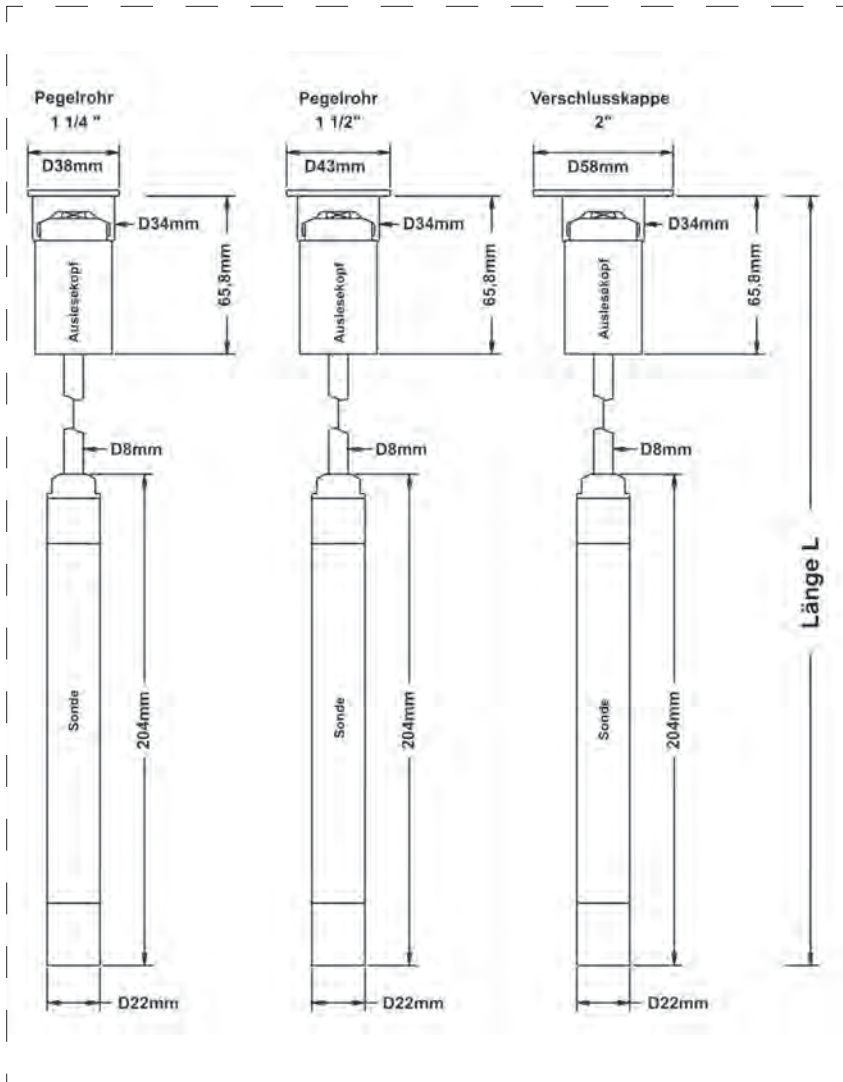
measurement range: one measurement per 1 second to one measurement per 100 days

Materials
membrane: ceramic AL2O3 96% (medium contact)
probe: steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) (medium contact)
read-out unit: CrNi-Steel
Extension cable: PE Polyethylen (medium contact)
seals: FPM - Fluorelastomer (Viton®), EPDM - Etylen-ethylene- propylene - diene monomer (medium contact)

Environmental conditions
ambient temperature: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$, ice-free
medium temperatures: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$, ice-free
measurement range: 0...1 mWs up to 0...100 mWs



3 years warranty



Application

The water level sensor with data memory Hydrolog® 3000 is a battery powered system for autonomous measurement of water levels from 1 up to 100m water column and temperatures in liquids, at environmental temperatures from -25°C to $+70^{\circ}\text{C}$.

The preferential application fields are water supply and distribution e.g. for measurement tubes, control levels, wells, containers and outstanding waters like lakes and rivers.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability as well as low influence of temperature makes it possible to use the sensor in various fields with liquids like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc., where levels and temperatures combined with date and time should be surveillanced without having any auxiliary power at the place of installation.

For applications, where food or drink water suitability is necessary, a corresponding variant can be ordered where only suitable materials are used.

Because of many possibilities of adjustment a highest flexibility in the application for control level and especially for pumping test or long term surveillance is given

Hydrolog® 3000

Groundwater - data collector with integrated temperature sensor, alarm management, operation and control interval value logging

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Equipment

Equipment page 143

High accuracy and long term stable water level measurement • Ceramic highly overload resp. pressure blow resistive membrane • Food- and drinking water suitable materials • Integrated temperature measurement
 Integrated battery for minimum 2 million measurements resp. 10 years operation at a measuring interval of 3 minutes • Measuring rates from 1x per second up to 1x per 100 days • Data memory for up to 216 000 measurement values • Interface head up to 3m water column flood protected • Installation in water level tubes of 1 ¼", at wider level tubes, e.g. 2", a control plumbing by cable light plumblines is possible without deinstallation • Data retrieval directly via PC resp. handheld-PC or wireless remote data transmission per GSM/GPRS

Type

- 0 Standard
- T Certificate for food and drink water suitability of all liquid contacting materials

Process connection

- 14 Mounting into 1 ¼" water level tube, control measurement without removal not possible
- 12 Mounting into 1 ½" water level tube, control measurement without removal not possible
- 20 Mounting into 2" water level tube, control measurement without removal possible

Measuring signals

- S Water level
- T Water level and temperature

Accuracy meas. System – material meas. Membrane (medium contact)

- 0 ceramic 96%, 0,25%
- K ceramic 96%, linearization protocol 0,1%

Measuring range (in mwc)

- A 0...1 m water column
- B 0...2 m water column
- C 0...4 m water column
- M 0...5 m water column
- D 0...6 m water column
- E 0...10 m water column
- F 0...20 m water column
- G 0...40 m water column
- J 0...50 m water column
- H 0...100 m water column
- Y special measuring range

Memory capacity

- 1 128 kB max. 216 000 data records, water level
- max. 162 000 data records, water level and temperature

1

Material sensor (medium contact)

- 1 steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)

Material gaskets (medium contact)

- 1 FPM, fluorelastomere (Viton®)
- 3 EPDM, etylene-propylene-dienmonomere

Material carrying cable

(price per started 100 mm)

- A PE polyethylene

Probe length in mm

Price group B

Water level measurement

Order code

Hydrolog® 3000

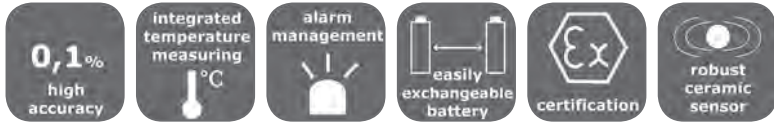
1 1 A mm

Hydrolog® 1000

Digital, battery-powered water level sensor

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Technical data



Power supply
power supply: integrated lithium battery, changeable
battery life: $\geq 2.000.000$ measurement resp.
 ≥ 10 years with a measuring interval of 1x per 3 minutes

Accuracy
level range: 1 m water column up to 100 m water column
units: mWs / cmWs / bar / mbar / mNN / mlowering
Deviation: $\leq 0,1\%$ bzw. $0,25\%$ FS
Measuring range temperature: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$
accuracy: $\leq 0,3$ Kelvin

Data storage
memory capacity: 128 kB: 21.600 ... 216.000 records (water level)
16.200 ... 162.000 records (water level / temperature)
one measurement per 1 second to one measurement per 100 days

measurement range:
Materials
membrane: ceramic AL2O3 96% (medium contact)
probe: steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti) (medium contact)
read-out unit: CrNi-Steel
Extension cable: PE Polyethylen (medium contact)
seals: FPM – Fluorelastomer (Viton®), EPDM – Etylen-ethylene- propylene - diene monomer (medium contact)

Environmental conditions
ambient temperature: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$, ice-free
medium temperatures: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$, ice-free
measurement range: $0 \dots 1$ mWs up to $0 \dots 100$ mWs



3 years warranty

Application

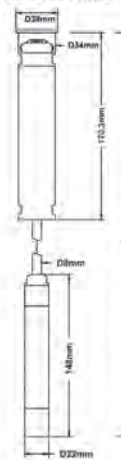
The water level sensor with data memory Hydrolog® 1000 is a battery powered system for autonomous measurement of water level and temperatures in liquid media. The preferential application fields are water supply and distribution e.g. for measurement tubes, control water levels, wells, containers and outstanding waters like lakes and rivers. Artesian measurements are also possible.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor also in various fields with liquid media like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc. where water levels and media temperatures with date and time should be supervise without having any auxiliary power at the place of installation.

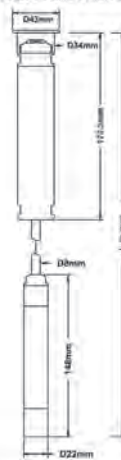
For applications, where food or drink water suitability is necessary, a corresponding variant can be ordered where only suitable materials are used.

Because of many possibilities of adjustment a highest flexibility in the application for control water level and especially for pumping test or long term supervise is given

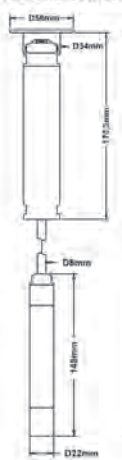
für Pegelrohr 1½" / Prozessanschluss 14



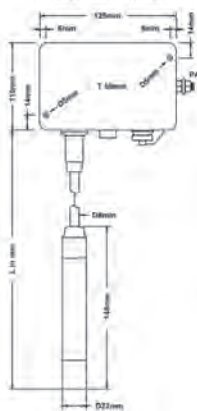
für Pegelrohr 1½" / Prozessanschluss 12



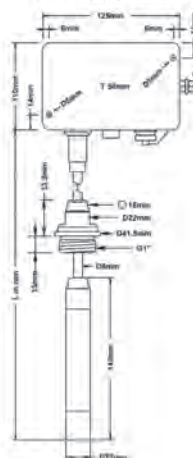
für Pegelrohr 2" / Prozessanschluss 20



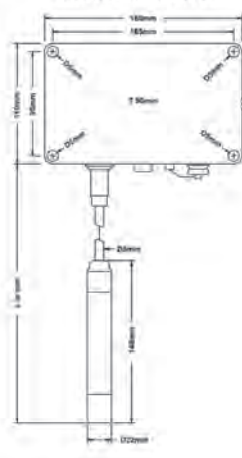
für Wandmontage / Prozessanschluss A0



für Artesenbrunnen / Prozessanschluss A2



PC/PS-Gehäuse / Prozessanschluss A4



Water level measurement

Hydrolog® 1000

Digital, battery-powered water level sensor

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Equipment

Equipment
page 143

Up to 40 times overload resistance • pressure shock resistant, long-term stability, high accuracy by kap. Ceramic cell • flood-proof and moisture-resistant - no drying cartridge required • Lithium battery for min. 2 million measurements or 10 years of operation • Measurement rates from 1 second • Data memory for up to 216,000 rows of data • Built-in surge protection • Alarm management with 8 limits to change the measuring cycles for pumping tests, etc. • control plumbing without removing possible from 2 „• Data call possible via laptop , display module or remote access through GSM modules • Integrated temperature measurement, optional • Logbook function • battery change by the operator possible • Robust construction - completely made of stainless steel 1.4404 • loop mode storage possible • with compact GSM - module easily expandable • High data security through the use of a non-volatile memory and intelligent user management • probe diameter 22 mm • battery monitoring and status display • Measurement results in mwc, cmWS, m asl, mbar, bar etc. • Intelligent memory management (eg event-controlled recording) • through extensive range of options suitable for all kinds of tasks

Basic price

Type

0	Standard
T	Certificate for food and drink water suitability of all liquid contacting materials
3	ATEX II 3 G Ex ic IIC T4 (only for process connection A4)

Process connection

20	Mounting into 2" water level tube, control measurement without removal possible
14	Mounting into 1¼" water level tube, control measurement without removal not possible
12	Mounting into 1½" water level tube, control measurement without removal not possible
A1	Interface head screw thread 1" DIN EN ISO228-1 (formerly DIN 2999) – artesian wells.
A2	Separated variant, sensor cable with G1" sealing screw and plug connection to the read-out device for artesian wells (floodable up to 3 m)
A0	Separated variant in aluminum housing for wall fixing (sensor fixing necessary)
A4	Separated variant, PC/PS housing (sensor fixing necessary), only for ATEX

Measuring signals

S	Water level
T	Water level and temperature

Accuracy meas. System – material meas. Membrane (medium contact)

0	ceramic 96%, 0,25%
K	ceramic 96%, linearization protocol 0,1%

Measuring range (in mwc)

A	0...1 m water column	E	0...10 m water column
B	0...2 m water column	F	0...20 m water column
C	0...4 m water column	G	0...40 m water column
M	0...5 m water column	J	0...50 m water column
D	0...6 m water column	H	0...100 m water column
		Y	Sondermessbereich

Memory capacity

1	128 kB max. 216 000 data records, water level max. 162 000 data records, water level and temperature
---	--

Battery / interface

1	welded, for long-time-measurement
2	exchangeable, for fast measurement (up to 1x per second)

Material sensor (medium contact)

1	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
---	---

Material gaskets (medium contact)

1	FPM, fluorelastomere (Viton®)
2	CR chloroprene-rubber (Neopren®)
3	EPDM, etylene-propylene-dienmonomere

Material carrying cable

A	PE polyethylene (price per started 100 mm)
---	--

Probe length in mm

Price group A

Water level measurement

Order code

Hydrolog® 1000

1 A mm

GSM-Module Type GSM-3000

Remote data transmission module for measurement data transmission and remote alarm of level sensors Hydrolog® with data storage and local display

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Technical data

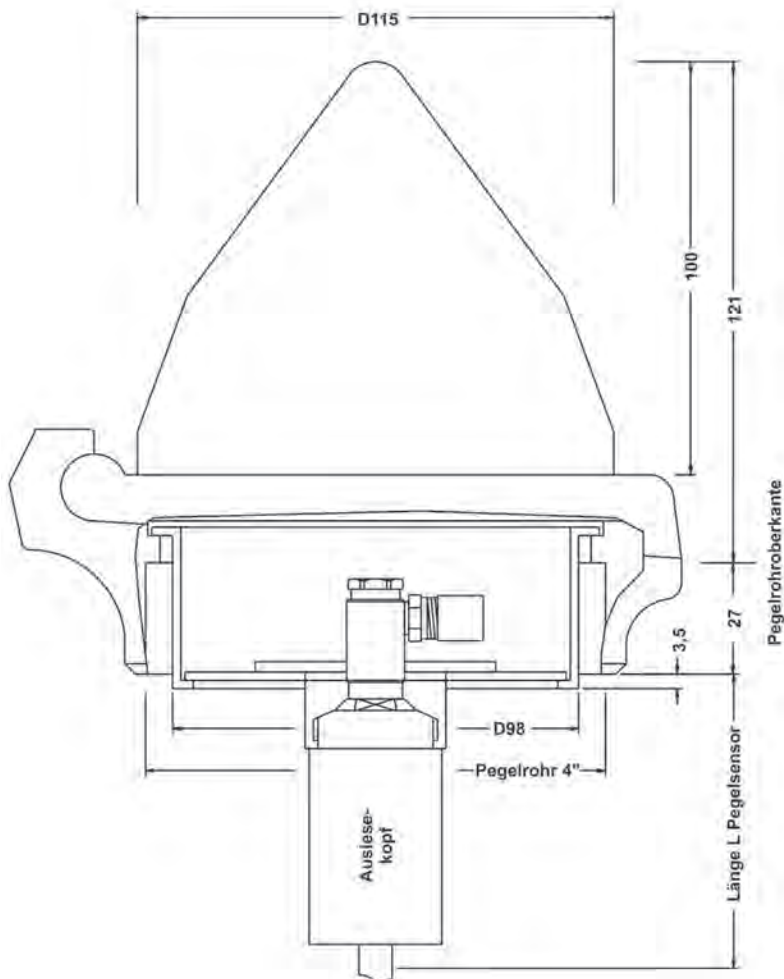


Auxiliary power supply
 Power supply: lithium battery / 3.6V / 19Ah type D
 Battery life: 3000 SMS / 400 data transfers / 400 hours standby, communication GSM / GPRS
 Transmission frequency: Quad-band 900/1800 MHz or 950/1900 MHz, EGSM / GPRS
 Transmission Power: Class 4 (2 W) at 900/950 MHz / Class 1 (1W) for 1800/1900 MHz
 SIM Card: Support 1.8V or 3V - SIM cards activated for data transfer
 Type: Real-time clock (synchronized via Internet)
 Mounting: mounting on level pipe from 4 „to 6“ with integrated antenna
 Materials
 Module housing: POM - polyoxymethylene (Delrin ®) / PC - polycarbonate (Makrolon ®) / aluminum
 Cap: aluminum powder coated
 Environmental conditions
 Ambient temperature: - 20 ° C. .. +60 ° C
 Degree of protection: IP68 to 3 mWs DIN EN 60529

Water level measurement



GSM-3000



Application

The module GSM - 3000 is used for remote data transmission (RDT), remote alarming and for configuration of a connected autonomous water level sensor with data memory series Hydrolog® by using the wireless GSM communications network. A GPRS remote data transmission to a FTP server is also possible.

It can be used e.g. for the automation of the data transmission resp. for alarming at river water levels that are difficultly obtainable or that must be supervised fast and regular in the case of high water to eliminate or to reduce possible risks.

Another case of use can be the realizing of closed-control loops that are installed far away from each other, e.g. to vary automatically the drain of a reservoir due to the water levels of the feeding rivers.

A further application case is the realizing of a worldwide stockpiling management, where various stock levels, also from worldwide spread production plants, are continuously transmitted per GPRS to a FTP server. The head office will then arrange automatically a repeat order.

GSM-Module Type GSM-3000

Remote data transmission module for measurement data transmission and remote alarm of level sensors Hydrolog® with data storage and local display

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Equipment

Equipment page 142

Type	Closure cap
0	Standard
400	Closure cap for installation on water level tube G 4" – ISO 228-1 / DIN 259
412	Closure cap for installation on water level tube G 4 1/2" – ISO 228-1 / DIN 259
500	Closure cap for installation on water level tube G 5" – ISO 228-1 / DIN 259
600	Closure cap for installation on water level tube G 6" – ISO 228-1 / DIN 259
6	6-socket-closure
5	5-socket-security-closure

Order code

GSM 3000

Price group B

Water level measurement

Nautiz X8

Rugged PDA for programming and data abstraction of water level sensors Hydrolog® and data transmission modules

Technical data



Dimensions: 190.9 mm x 79.7 mm x 34.6 mm
 Weight: 490 g (incl. Battery pack and wrist strap)
 Environmental conditions
 Operating temperature: - 30 ° C to + 60 ° C,
 MIL-STD 810G, Method 501.5 / 502.5,
 Procedures I, II and III

Storage temperature: - 40 ° C to + 70 ° C, MIL-STD-810G, Method
 Processor / memory
 Processor: Texas Instruments 4470 Dual-Core @ 1.5GHz
 Memory: 1 GB RAM / 4GB iNAND Flash
 Operating System: Windows Embedded Handheld 6.5.3
 Android 4.2.2
 Display: 4.7 „FWVGA (854x480); IPS; 600 Nit, capacitive multi-touch Asahi Dragon Trail chemically strengthened glass
 Keyboard: Numeric keypad with programmable function keys
 Battery Pack: Rechargeable Li-ion 3.7V 5200mAh (19.2 Wh) exchangeable
 Connectors: USB A Host
 Micro USB (PC synchronization and charging port)
 DB9 RS-232 serial
 Communication
 Audio: Built-in speaker and microphone
 Bluetooth: Class 2 (10m), on Android OS V3.0 and V2.0 on Windows Mobile OS
 WWAN: voice and data, 3.8G GSM HSPA + / HSUPA or CDMA EVDO Rev. A
 Wi-Fi: 802.11 b / g / n
 Camera: 8 megapixel camera with autofocus and LED flash on the back



Application

A front-runner in the new generation of handheld computers, the ergonomic Nautiz X8 delivers the largest, most brilliant capacitive touchscreen in its class, along with an unprecedented combination of processing power, connectivity and field ruggedness.

The Nautiz X8 won't just keep up with you — it'll lead the way. This dynamic handheld features a high-speed Texas Instruments 4470 dual-core 1.5 GHz processor, 1 GB of RAM, 4 GB of iNAND Flash and a 5200 mAh Li-ion battery that lasts up to 12 hours on a single charge. A choice of operating systems — Android 4.2.2 or Windows Embedded Handheld 6.5.3 — allows you to choose the most suitable platform for your needs.

Each detail of the Nautiz X8 is meticulously designed for field use, without sacrificing style or ergonomics. Its 4.7-inch high-brightness screen is the largest you'll find on any comparable computer, and you can operate the state-of-the-art capacitive touchscreen using light touch and multi-finger gestures — the same way you use your personal smart devices. The Nautiz X8's ruggedness is unparalleled. It's IP67-rated and meets stringent MIL-STD-810G U.S. military standards, which means it's impervious to both dust and water and can survive repeated drops, strong vibrations and operating temperatures ranging from -30 C to 60 C (-22 F to 140 F) — all in a sleek, attractive 490 gram (17.3 ounces) package.

The Nautiz X8 offers an exceptional combination of connectivity options and standard features, including a dedicated u-blox GPS receiver, BT 2.0 and 802.11b/g/n WLAN functionality. A built-in 8-megapixel camera with autofocus and an LED flash lets you capture visual data quickly and easily, and connectivity through GSM/UMTS or CDMA phone data transmission keeps you connected wherever you go. Measure acceleration and orientation with the built-in G-sensor/accelerometer and gyroscope, or navigate with the integrated compass and altimeter. This handheld also features an open architecture and an extension cap system that lets you connect additional hardware such as sensors, radios and other add-ons.

The feature-rich Nautiz X8 comes ready for your team with application possibilities in forestry, public safety, field service and GIS/surveying, and it's adaptable to your work environment and performance requirements.

Carry it, wear it in a holster, toss it in your bag or mount it on your vehicle — but whatever you do, keep the rugged, reliable Nautiz X8 close at hand. You'll wonder what you ever did without it.

Nautiz X8

Rugged PDA Nautiz X8 • IP67 dustproof and waterproof • Windows Mobile OS • Texas Instruments 4470 @ 1.5GHz dual-core • 1 GB RAM / 4GB iNAND flash • 4.7 „FWVGA (854x480) color display • Wi-Fi, GPS and Camera • Battery Pack hand wrist strap, use pin, AC power adapter and USB cable included • in conjunction with the device manager GM-620, cpl. parameter setting, data collection and data analysis of the level probes Hydrolog® and GSM / GPRS modules GSM 3000 possible

PG H




Equipment water level measurement GM-600 GM-620 / device manager

Operation and evaluation software for water level sensors Hydrolog® and data transmission module GSM-3000


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Technical data


easy-to-use




Windows
mobile 6.0

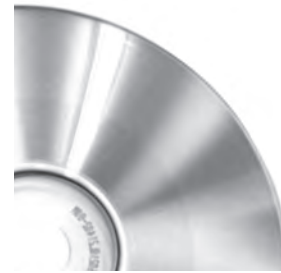


data
storage



export
function





GM-600/620 device manager, operation and evaluation software

easy to install • Intelligent user management to prevent manipulation • simple software design • Operating system: Windows 98/98SE, NT, 2000, XP • Data archiving, analysis and presentation • for Hydrolog® 1000/3000 and GSM-3000 • Level hydrographs for comparison superposable • Export data to Excel, ASCII, Wiski • Hydras 3 and customer-specific Intelligent alarm management for alarms 8 + hysteresis • Password-protected data storage, free multi-user installation



Application

The device manager family GM-600 and GM-620 are used for parameterization and data retrieval, the level probe type Hydrolog® and data transmission modul GSM -3000. Data management, measurement graphics, export and archiving of measured values are also possible.

GM-600 is a version primarily for use on PC and laptops (Windows 2000) to run with the Windows operating system.

The GM-620 is specifically designed for use in Pocket PCs, but also mobile phones, with the NETFramework eg Windows Mobile (5.0 +) to work. By automatic functions the retrieval of the measuring points

and the way to export the data independently are possible. When you export the data, the measured values are in Excel, txt, but also cross-vendor formats such as WISKI / SODA (KISTERS).

GM-600 RÜB/ device manager

Device manager for configuration of level measurement systems and data processing specifically for monitoring and logging of rain overflow basins

Technical data

rain overflow
basins



easy-to-use



Windows
mobile 6.0

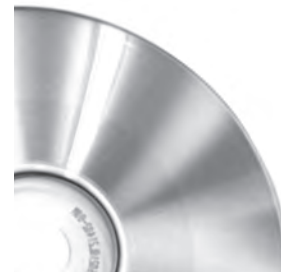


data
storage



export
function





GM-600 RÜB device manager, operation and evaluation software

Configuration of level sensor, remote data module and hand reader cable resp. GSM communication link • Calculates the values for overflow basins in accordance with § 5 of the self-monitoring regulation (EÜV) • The record contains the values for basin level, basin relief and the minimum or maximum values • Convenient graphical data analysis Export function for several popular file formats • User management with password control rights allocation



Application

see GM-600/620 with additional configuration of level measurement systems and data processing specifically for monitoring and logging of rain overflow basins

GM-600 RÜB

Calculates the values for overflow basins in accordance with § 5 of the self-monitoring regulation (EÜV). The record contains the values for basin level, basin relief and the sliding Min and Max values.



Equipment water level measurement

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Interface cable

STK-RSU-232	Interface transfer cable to connect Hydrolog®/GSM-Module with COM-Port (RS232) on PC
STK-RSU-USB	Interface transfer cable to connect Hydrolog®/GSM-Module with USB-Port on PC

Hydrolog® 1000 Hydrolog® 3000

ACS aluminium closure caps for level tubes with Whitworth-threads (pipe thread)

200	thread 2" - ISO 228-1 / DIN 259
300	thread 3" - ISO 228-1 / DIN 259
400	thread 4" - ISO 228-1 / DIN 259
412	thread 4 1/2" - ISO 228-1 / DIN 259
500	thread 5" - ISO 228-1 / DIN 259
600	thread 6" - ISO 228-1 / DIN 259

0	Standard 6-socket-closure
S	5-socket-security-closure



SCHVK-6	wrench for Standard 6-socket-closure
SCHVK-5	wrench for 5-socket-security-closure

Intermediate rings for the mounting of the level sensor in larger caps

ZR-2-3	intermediate ring 2" on 3"
ZR-2-4	intermediate ring 2" on 4"
ZR-2-412	intermediate ring 2" on 4 1/2"
ZR-2-5	intermediate ring 2" on 5"
ZR-2-6	intermediate ring 2" on 6"

Replacement batteries Hydrolog®-1000/3000

SPB-1000	Service-Pack for battery change on Hydrolog® with battery and replacement seals for clipping
SPB-1001	Service-Pack for battery change on Hydrolog® with battery and replacement seals for soldering

GSM-3000

Replacement batteries GSM-3000

BATGSM	replacement battery for GSM-Module
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Data transmission on PC

GSM1306B	GSM-Modem external zto connect on PC via COM-Port; Type: FXT009R743IP; own SIM card is required
USB-US 232	USB adapter for connecting M1306B GSM modem from PC to USB port
AEXTM-2,5m	magnetic Antenna with cable 2.5 m for GSM Modem M1306B.
NETZ-1306B	power supply for GSM-Modem M1306B

Additional order information

Marking measuring point

AS-50	Hang tag (VA) with laser inscription.
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Price group E

Water level measurement







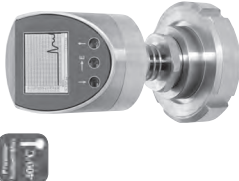

3. Pressure measurement

Contents

Relative pressure (R), absolute (A), difference (D)

Precont® TN10	digital pressure switch and pressure transmitter with ceramic membrane(R, A)	157
Precont® TN20	digital pressure sensor with metal membrane up to 1000 bar.	159
Precont® TN30	digital pressure switch and pressure transmitter for hygienic applications(R, A)	161
Precont® TN40	digital pressure sensor - front-flush capacitive ceramics cell.	164
Precont® TN70	digital pressure sensor - for temperature ranges -90...+400°C	167
Precont® MAC	Fully electronic contact manometer- analog- and switching output	169
Precont® S10	digital pressure sensor, internal capacitive ceramics measuring cell.	171
Precont® S20	digital pressure sensor, polysilicon measuring cell.	173
Precont® S30	digital pressure sensor, metal membrane for hygienic applications	175
Precont® S40	digital pressure sensor, front-flush capacitive ceramics measuring cell.	177
Precont® D40	digital pressure sensor, capacitive ceramics measuring cell, moisture resistant(R)	179
Precont® S70	digital pressure sensor, special diaphragm seal for all areas	181
Precont® TM	analog, ceramic capacitive membrane	183
Precont® LTM	analog, ceramic capacitive membrane	185
Precont® MT	analog, metallic DMS-membrane	187
Precont® KT	analog, ceramic DMS-membrane	189
Precont® CT	analog, ceramic capacitive membrane	191
Precont® ML	pressure transmitter with metallic membrane for hygienic applications	193
Prelog PDL	battery-powered pressure transmitter with data logger	195
Precont® KS	for industrial applications with analog- or switching output	197
Precont® PSK	for industrial applications, with analog- or switching output	199
Precont® PSC	pressure switch with capacitive ceramics membrane	202
Precont® PSM	for industrial applications, with analog- or switching output	205
Precont® PL	for hygienic applications, with analog- or switching output.	207
Precont® DDN10	differential pressure transmitter with analog or Profibus output	211
Precont® DD109A	cost-effective differential pressure transmitter with two-wire technology(D)	213
Precont® DD110A	differential pressure transmitter with two-wire technology 4...20mA	215
Precont® DD121G	differential pressure transmitter, (0)/4...20mA, 0...10V output.	217
Precont® ECO	cost-effective version	218
Equipment for pressure sensors		220



<p>Type Operating principle</p>	<p>Precont® TN10 digital pressure transmitter with internal ceramic membrane</p> 	<p>Precont® TN20 digital pressure transmitter with metal membrane up to 1000 bar</p> 	<p>Precont® TN30 digital pressure transmitter for hygienic applications</p> 	<p>Precont® TN40 digital pressure sensor with front-flush capacitive ceramic cell</p> 	<p>Precont® TN70 digital pressure sensor for high temperature ranges</p> 	<p>Precont® MAC capacitive pressure measurement o. polysilicon cell</p> 
<p>Design</p>	compact	compact	compact	compact	compact with diaphragm seal	compact with diaphragm seal
<p>Areas of application</p>	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement	hygienic applications, CIP, SIP, food technology	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement, hygienic areas	liquids, steams, gases, standard measurement
<p>Measure ranges</p>	-1 up to 60 bar absolute/relative	-1 up to 1000 bar absolute/relative	-1 up to 25 bar absolute/relative	-1 up to 60 bar absolute/relative	-1 up to 400 bar absolute/relative	-1 up to 60 bar absolute/relative
<p>Measure cell</p>	capacitive ceramics	metall thin-film - resp. piezoresistive DMS	metall, front-flush piezoresistive DMS	capacitive ceramics	capacitive ceramics, thin-film-DMS	capacitive ceramics
<p>Process connections</p>	thread G ¹ / ₄ " , G ¹ / ₂ "	thread G ¹ / ₄ " , G ¹ / ₂ " , G ¹ "	thread 1" milk tube Varivent DRD	thread G ¹ / ₂ " , G ³ / ₄ " , G ¹ / ₂ "	thread G ¹ / ₂ " , G ³ / ₄ " , G ¹ " , G ¹ / ₂ " , G ² "	thread G ¹ / ₂ "
<p>Process temperature</p>	-40 up to +125°C	-40 up to +100°C	-20 up to +150°C	-40 up to +100°C	-90 up to +400°C	-40 up to +125°C
<p>Electronics</p>	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V
<p>Output calibratable:</p>	via keyboard	via keyboard	via keyboard	via keyboard	via keyboard	via keyboard
<p>Switching points display</p>	4x PNP	4x PNP	4x PNP	4x PNP	4x PNP	1x PNP
<p>Certifications</p>	2" TFT-display	2" TFT-display	2" TFT-display	2" TFT-display	2" TFT-display	4-digit LED
<p>Accuracy</p>	0,05% / 0,10% / 0,20%	0,15% / 0,50%	0,15% / 0,50%	0,05% / 0,10% / 0,20%	0,20% / 0,50%	0,20%
<p>Long term stability</p>	0,1% in the year	0,2% in the year	0,2% in the year	0,1% in the year	0,2% in the year	0,15% in the year



Type	Precont® S10 digital pressure transmitter with internal ceramic membrane	Precont® S30 digital pressure transmitter for hygienic applications	Precont® S40 digital pressure sensor with front-flush capacitive ceramics cell	Precont® D40 digital pressure sensor for climatic extreme conditions	Precont® S70 digital pressure sensor for high temperature ranges	Precont® S20 digital pressure transmitter with metal membrane up to 1000 bar
Operating principle						
Design	compact	compact	compact	compact	compact with diaphragm seal	compact
Areas of application	liquids, steams, gases, standard measurement	hygienic applications, CIP, SIP, food technology	liquids, gases, steams, standard measurement, hygienic areas, viscose media	liquids, gases, steams, climatic extreme conditions	liquids, steams, gases, standard measurement, hygienic applications	liquids, gases, steams, hydraulic oil, standard measurement
Measure ranges	-1 up to 60 bar absolute/relative	-1...+25 bar, relative/absolute	-1 up to 60 bar absolute/relative	0,2 up to 16 bar relative	-1 up to 400 bar absolute/relative	4 up to 400 bar absolute/relative
Measure cell	capacitive ceramics	metall, front-flush piezoresistive DMS	capacitive ceramics	capacitive ceramics	metall capacitive keramik thin-film - DMS	metall thin-film - resp. piezoresistive DMS
Process connections	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ "	thread 1" milk tube Varivent DRD	thread G $\frac{3}{4}$ " , G1 $\frac{1}{2}$ " , milk tube, Varivent, DRD, Tri-Clamp, flange	thread G $\frac{3}{4}$ " , G1 $\frac{1}{2}$ " , milk tube, Varivent, DRD, Tri-Clamp, flange	thread G $\frac{1}{2}$ " , G $\frac{3}{4}$ " , G2" DIN-flanges Rohrdruckmitter	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ "
Process temperature	-40 up to +125°C	-20...+150°C	-40 up to +125°C	-40 up to +125°C	-90 up to +400°C	-40 up to +125°C
Electronics	2-wire: 4...20 mA 3-wire: 0...10 V Profibus PA	2-wire: 4...20 mA 3-wire: 0...10 V Profibus PA	2-wire: 4...20 mA 3-wire: 0...10 V Profibus PA	2-wire: 4...20 mA 3-wire: 0...10 V Profibus PA	2-wire: 4...20 mA 3-wire: 0...10 V Profibus PA	2-wire: 4...20 mA 3-wire: 0...10 V Profibus PA
Output calibratable:	via keyboard	via keyboard	via keyboard	via keyboard	via keyboard	via keyboard
Switching points	2x PNP	2 x PNP	2x PNP	2x PNP	2x PNP	2x PNP
display	4-digit LED	4-digit LED	4-digit LED	4-digit LED	4-digit LED	4-digit LED
Certifications	ATEX	ATEX	ATEX	ATEX	ATEX	ATEX
Accuracy	0,05% / 0,10% / 0,20%	0,15% / 0,5%	0,05% / 0,10% / 0,20%	0,10% / 0,20%	0,20% / 0,50%	0,15% / 0,50%
Long term stability	0,1% in the year	>0,2%/year	0,1% in the year	0,1% in the year	0,2% in the year	0,2% in the year

Type	Precont® TM	Precont® LTM	Precont® MT	Precont® KT	Precont® CT	Precont® ML
Operating principle	pressure sensor with capacitive ceramic cell	pressure transmitter for measurement of relative pressure	pressure sensor with metal membrane	pressure sensor with ceramic membrane	pressure sensor with front-flush capacitive ceramic cell	pressure sensor for hygienic applications
						
Design	compact	compact	compact	compact	compact	compact
Areas of application	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement	hygienic applications, CIP, SIP, food technology
Measure ranges	-1 up to 60 bar absolute/relative	0 up to 1000 bar/ -1 up to +1 bar	-1...+1000 bar relative/absolute	0...+600 bar relative/absolute	-1...+16 bar relative/absolute	-1...+25 bar relative/absolute
Measure cell	capacitive ceramics	metall, DMS-thin-film	metall thin-film - resp. piezoresistive DMS	ceramic piezoresistive DMS	capacitive ceramics	metall piezoresistive DMS
Process connections	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ " G $\frac{3}{8}$ " , G1 $\frac{1}{2}$ " milk tube also front-flush	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ "	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ "	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ " also front-flush	thread G $\frac{1}{2}$ " front-flush	thread G $\frac{1}{4}$ " , G $\frac{1}{2}$ "
Process temperature	-40 up to +125°C	-40 up to +125°C, -40 up to +200°C	-40...+125°C	-40...+125°C	-40...+125°C	-20...+150°C
Electronics	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA Namur	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V
Output calibratable:	-	-	-	-	-	-
Switching points	-	-	-	-	-	-
display	-	-	-	-	-	-
Certifications	ATEX	ATEX	ATEX	ATEX	ATEX	ATEX
Accuracy	0,10% / 0,20%	0,5%	0,50%	0,50%	0,10% / 0,25%	0,50%
Long term stability	0,1% in the year	0,1% in the year	0,2%/year	0,15%/year	0,15%/year	0,2%/year



Type	Prelog PDL battery-powered pressure transmitter with data logger	Precont® KS pressure sensor with metal membrane	Precont® PSK digital pressure switch with ceramic membrane	Precont® PSC digital pressure switch with capacitive ceramics cell	Precont® PSM digital pressure switch with metal membrane	Precont® PLM digital pressure switch for hygienic applications
Operating principle						
Design	compact	compact	compact	compact	compact	compact
Areas of application	liquids, steams, gases, standard measurement	liquids, steams, gases, standard measurement	liquids, gases, steams, standard measurement, pressure switch, oils	liquids, gases, steams, standard measurement, pressure switch, oils	liquids, gases, steams, standard measurement, pressure switch, oils	hygienic applications, CIP, SIP, food technology
Measure ranges	-1...+20 bar absolute/relative	0.1...60 bar absolute/relative	0...600 bar relative/absolute	-1...60 bar relative/absolute	-1...1000 bar relative/absolute	-1...+25 bar, relative/absolute
Measure cell	capacitive ceramics	polysilicon measuring cell	ceramic, thick-film - DMS	capacitive ceramics	metal DMS	metal, front-flush piezoresistive DMS
Process connections	thread G1/2"	thread G1/4", G1/2"	thread G1/4", G1/2", G1", G1 1/2", also front-flush	thread G1/4", G1/2", G3/4", G1", G1 1/2", also front-flush	thread G1/4", G1/2", G1", also front-flush	thread 1" milk tube Varivent DRD
Process temperature	-25...+70°C	-40 up to +70°C	-40...+125°C	-40...+125°C	-40...+125°C	-20...+150°C
Electronics	data storage 64 / 128 kB	2-wire: 4...20 mA 3-wire: 0...10 V	3-wire: 4...20 mA	3-wire: 4...20 mA	3-wire: 4...20 mA	3-wire: 4...20 mA
Output calibratable:	-	-	via keyboard	via keyboard	via keyboard	via keyboard
Switching points	-	-	2 x PNP	2 x PNP	2 x PNP	2 x PNP
display	-	-	4-digit LED	4-digit LED	4-digit LED	4-digit LED
Zertifizierung	-	ATEX	-	-	-	-
Accuracy	≤ 0,1% resp. 0,25%	0,10%	< 0,5%	< 0,2%	< 0,5%	< 0,5%
Long term stability	0,15% / year	0,1% in the year	0,2%/year	0,1%/year	0,2%/year	0,2%/year

Type	Precont® DDN10 differential pressure sensor	Precont® DD109A differential pressure transmitter	Precont® DD110A differential pressure transmitter	Precont® DD121G differential pressure transmitter	Precont® ECO pressure sensor with ceramic membrane
Operating principle					
Design	compact	compact	compact	compact	compact
Areas of application	liquids, gases, steams, oils	air as well as dry, not aggressive gases	air as well as dry, not aggressive gases	air as well as dry, not aggressive gases	liquids, gases, steams, oils
Measure ranges	ab 0,5 mbar up to 10 mbar up to 1...100 bar	0...100 bar	0 ... 1000 bar	0...500 bar	1...400 bar
Measure cell	metall	semiconductor sensor	semiconductor sensor	semiconductor sensor	ceramic
Process connections	1/4"-18 NPT-f dir. (7/16" UNF)	quick coupling for 6 mm outer diameter	hose connection 4 and 6 mm	tube connection G 1/4" hose connection 4 and 6 mm	thread G 1/2"
Process temperature	-20...+120°C	-20...+55°C	-10...+50°C	-10...+50°C	0...+85°C
Electronics	2-wire: 4...20 mA Hart	2-wire: 4...20 mA	2-wire: 4...20 mA	2-wire: 4...20 mA 0...1.0 V	2-wire: 4...20 mA 3-wire: 0...20 mA/0...1.0 V
Output calibratable:	via keyboard	via keyboard	via keyboard	via keyboard	-
Switching points	-	-	-	-	-
display	LCD	LCD	LCD	LCD	-
Certifications	ATEX	ATEX	ATEX	ATEX	-
Accuracy	< 0,04%	± 1 % from terminal value	± 1 % from terminal value	± 1 % from terminal value	< 1 %
Long term stability	-	-	-	-	-





Precont® TN10

digital pressure switch and pressure transmitter with ceramic membrane - newest generation with great display, analog- and 4 switching outputs

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Technical data



power supply:	9...30V DC at output signal 0(4)...20mA 14...30V DC at output signal 0...10V
supply current:	≤ 130 mA; at Vs 9V Bluetooth ON; PNP-switching outputs in neutral ≤ 50 mA; at Vs 30V Bluetooth OFF; PNP-switching outputs in neutral
analog output work space:	(0)4...20mA / 0...10V, adjustable
resolution:	≤ 1 μA
reaction time:	≤ 15 ms
PNP-switching output amount:	0/2/4 depending on device version
function:	PNP-switching on +Vs
output current:	≤ 250 mA current limited, short circuit protected
reaction time:	≤ 25 ms
measurement accuracy model:	≤ ±0,05% / 0,1% / 0,2%
long term drift:	≤ ±0,1% FS not cumulative
temperature deviation:	≤ ±0,15% FS / 10 K (Zero / Span) (Zero / Span)
membrane:	ceramics AL ₂ O ₃ 99,9%
(medium contact) process connection:	steel 1.4404/316L resp. 1.4571/316Ti
(medium contact) connection housing:	CrNi-steel
user interface:	PC/PES
gaskets:	FPM – fluoroelastomer (Viton®)
(medium contact) (medium contact):	EPDM – Ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®)
environmental conditions ambient temperature:	-20°C...+50°C
extension:	backlight LCD ≤ 80% >> -20°C...+60°C backlight LCD ≤ 60% >> -20°C...+70°C
process temperatures:	- 40°C...+125°C
process pressure ranges:	- 1 bar ...60 bar
turn down:	30:1
protection:	IP68 EN/IEC 60529

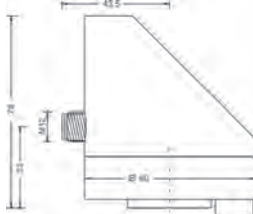


Application

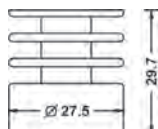
The devices of the series Precont® TN with integrated digital evaluation electronic are compact sensors for measuring and monitoring of pressure levels.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

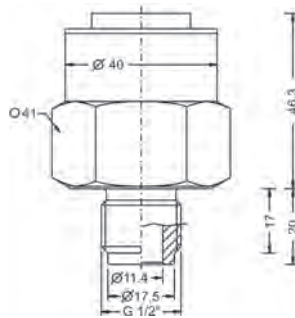
connection housing



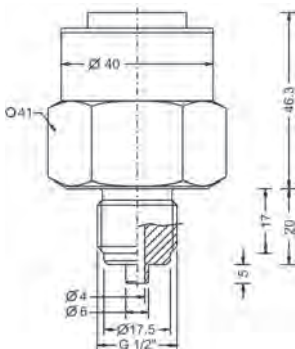
temperature decoupler for extended temperature range - 40 °C up to +125 °C



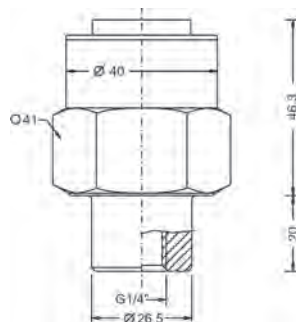
type 6
G 1/2" ISO 228-1 inner bore 11,4mm



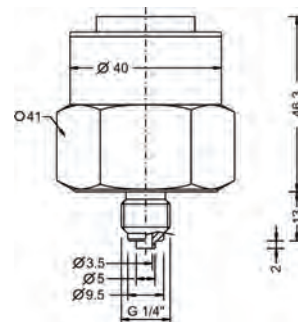
type 0
G 1/2" ISO 228-1 DIN 837-3



type 4
G 1/4" ISO 228-1 internal thread



type 1
G 1/4" ISO 228-1 DIN 837-3



Precont® TN10

digital pressure switch and pressure transmitter with ceramic membrane - newest generation with great display, analog- and 4 switching output

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Price group B

Pressure measurement

model

TN10 standard.

process connection

- 0 G½" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
- 6 G½" A, ISO 228-1, inner bore 11,4 mm
- 1 G¼" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
- 4 G¼" B, ISO 228-1, internal thread.

electronics - output

- M 3-wire, signal 0/4...20mA - 0...10V, LCD-display, keyboard.
- K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP, LCD-display, keyboard
- R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP, LCD-display, keyboard

electronics - function

- 0 without
- 1 Bluetooth-Interface
- Y others

material process connection (process wetted)

- V steel 1.4404/316L or 1.4571/316Ti

material connection housing

- C CrNi-steel

measuring range

- 01 0...100 mbar
- 02 0...200 mbar
- 03 0...400 mbar
- 04 0...600 mbar
- 05 0...1 bar
- 06 0...1,6 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...20 bar
- 13 0...40 bar
- 14 0...60 bar
- 15 -100...0 mbar
- 16 -1...0 bar
- 17 -1...+1 bar
- 18 -100...+100 mbar
- YY special measuring range (poss. higher deviation accuracy)

material gaskets (process wetted)

- 1 FPM - fluoroelastomer (Viton®)
- 2 CR - chloroprene rubber (Neopren®)
- 3 EPDM - Ethylene-propylene-diene monomer - food applications
- 4 FFKM - perfluorelastomere (Kalrez®)
- 6 FFKM hd - perfluorelastomere high density - gas applications

process temperature

- 0 standard, -40°C up to +100°C
- 1 advanced, -40°C up to +125°C, temperature decoupler

pressure type

- R gauge pressure
- A absolute pressure

measuring system - accuracy

- 1 ceramics 99,9% high purity, capacitive / 0,2%
- 3 ceramics 99,9% high purity, capacitive / 0,1%, linearization protocol
- 6 Xcellence - ceramics 99,9% high purity, capacitive / 0,05%, linearization protocol

electrical connection

- S plug M12

Order code

Precont® TN10 V C S

Equipment

Ordering information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS

Model
 connection cable 5 m, 4-pole, shielded.
 connection cable 10 m, 4-pole, shielded.
 connection cable 5 m, 5-pole, shielded.
 connection cable 10 m, 5-pole, shielded.
 connection cable 5 m, 8-pole, shielded.

PG E

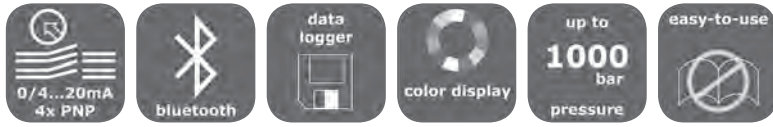


Precont® TN20

digital pressure sensor with metal membrane up to 1000 bar - newest generation with great display, analog- and 4 switching outputs

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Technical data



power supply:	9...30V DC at output signal 0(4)...20mA 14...30V DC at output signal 0...10V
supply current:	≤ 130 mA; at Vs 9V Bluetooth ON; PNP-switching outputs in neutral ≤ 50 mA; at Vs 30V Bluetooth OFF; PNP-switching outputs in neutral
analog output work space:	(0)4...20mA / 0...10V, adjustable
resolution:	≤ 1 µA
reaction time:	≤ 15 ms
PNP-switching output amount:	0/2/4 depending on device version
function:	PNP-switching on +Vs
output current:	≤ 250 mA current limited, short circuit protected
reaction time:	≤ 25 ms
measurement accuracy characteristics deviation:	≤ ±0,15%/ 0,5% FS
long term drift:	≤ ±0,2% Jahr not cumulative
temperature deviation:	≤ ±0,2% FS / 10 K (Zero / Span) (Zero / Span)
membrane:	≥ 40 bar steel 1.4571/316Ti
(medium contact) process connection:	< 40 bar steel 1.4542 (AISI 630) / 1.4534
(medium contact) connection housing:	CrNi-steel
user interface:	PC/PES
gaskets:	FPM – fluoroelastomer (Viton®)
(medium contact) gaskets:	EPDM – Ethylene-propylene-diene monomer NBR – nitrile-butadiene rubber
environmental conditions ambient temperature:	-20°C...+50°C
extension backlight LCD ≤ 80% >>	-20°C...+60°C
backlight LCD ≤ 60% >>	-20°C...+70°C
process temperatures:	- 40°C...+100°C resp. 125°C
process pressure ranges:	- 1 bar ...1000 bar
turn down:	30:1
protection:	IP68 EN/IEC 60529

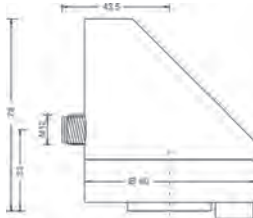


Application

The devices of the series Precont® TN with integrated digital evaluation electronic are compact sensors for measuring and monitoring of pressure levels.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

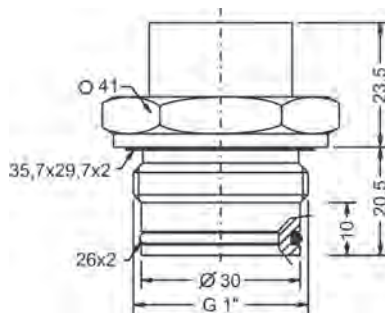
connection housing



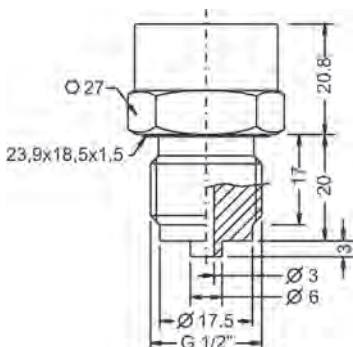
temperature decoupler for extended temperature range - 40 °C up to +125 °C



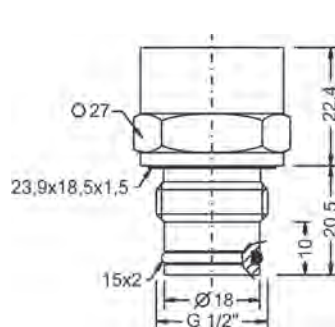
type 5
G 1" ISO 228-1 front-flush



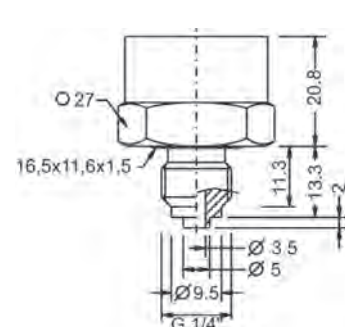
type 0
G ½" ISO 228-1 DIN 837-3



type 2
G ½" ISO 228-1 front-flush



type 6
G ¼" ISO 228-1 DIN 837-3



Precont® TN20

digital pressure sensor with metal membrane up to 1000 bar -
newest generation with great display, analog- and 4 switching outputs

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Price group B

Pressure measurement

model

TN20 standard.

process connection

- 0 G½" B, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
- 2 G½" B, ISO 228-1, front-flush, radial O-ring,
not for following ranges 0...400 mbar, 0..1 bar, -1..0 bar, 0..1000 bar
- 5 G1" B, ISO 228-1, front-flush, radial O-ring, for ranges 0...400 mbar, 0..1 bar, -1..0 bar
- 6 G¼" B, ISO 228-1, DIN EN 837-3 (DIN16288) manometer

electronics - output

- M 3-wire, signal 0/4...20mA - 0...10V, LCD-display, keyboard.
- K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP, LCD-display, keyboard
- R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP, LCD-display, keyboard

electronics function

- 0 without
- 1 Bluetooth-Interface
- Y others

material process connection (process wetted)

- V steel 1.4571/316Ti - 1.4542/630 - 1.4534/S13800

material gaskets (process wetted)

- 0 NBR - nitrile-butadiene rubber
- 1 FPM - fluoroelastomer (Viton®)
- 3 EPDM - Ethylene-propylene-diene monomer - food applications

measuring range

- 03 0...400 mbar
- 05 0...1 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...25 bar
- 13 0...40 bar
- 14 0...60 bar
- 19 0...100 bar
- 20 0...160 bar
- 21 0...250 bar
- 22 0...320 bar
- 23 0...400 bar
- 24 0...600 bar
- 25 0...1000 bar
- 16 -1...0 bar
- YY special measuring range (poss. higher deviation accuracy)

material connection housing

- C CrNi-steel

process temperature

- 0 standard, -40°C up to +100°C
- 1 advanced, -40°C up to +125°C, temperature decoupler

pressure type

- R gauge pressure
- A absolute pressure
≥ 40bar only with accuracy measuring system type 4 - 0,5%

measuring system - accuracy

- 4 metall, DMS-thin-film/piezoresistive / 0,5%
- 8 Xcellence - metall, DMS-thin-film/piezoresistive /
0,15%, linearization protocol

electrical connection

- S plug M12

Order code

Precont® TN20 V C S

Equipment

Ordering information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS

Model
connection cable 5 m, 4-pole, shielded.
connection cable 10 m, 4-pole, shielded.
connection cable 5 m, 5-pole, shielded.
connection cable 10 m, 5-pole, shielded.
connection cable 5 m, 8-pole, shielded.

PG E



Precont® TN30

digital pressure switch and pressure transmitter for hygienic applications - newest generation with great display, analog- and 4 switching outputs

3 / 01.16

Technical data



power supply:	9...30V DC at output signal 0(4)...20mA 14...30V DC at output signal 0...10V
supply current:	≤ 130 mA; at Vs 9V Bluetooth ON; PNP-switching outputs in neutral ≤ 50 mA; at Vs 30V Bluetooth OFF; PNP-switching outputs in neutral
analog output work space:	(0)4...20mA / 0...10V, adjustable
resolution:	≤ 1 µA
reaction time:	≤ 15 ms
PNP-switching output amount:	0/2/4 depending on device version
function:	PNP-switching on +Vs
output current:	≤ 250 mA current limited, short circuit protected
reaction time:	≤ 25 ms
measurement accuracy characteristics deviation:	≤ ±0,15%/ 0,5% FS;
long term drift:	≤ ±0,2% Jahr not cumulative
temperature deviation:	≤ ±0,2% FS / 10 K (Zero / Span) (zero / Span)
membrane:	steel 1.4435 (316L)
(medium contact) process connection:	steel 1.4435 (316L)
(medium contact) connection housing:	CrNi-steel
user interface:	PC/PES
gaskets:	FPM – fluoroelastomer (Viton®)
(medium contact) gaskets:	EPDM – Ethylene-propylene-diene monomer silicone
environmental conditions ambient temperature:	-20°C...+50°C
extension backlight LCD ≤ 80% >>	-20°C...+60°C
backlight LCD ≤ 60% >>	-20°C...+70°C
process temperatures:	- 20°C...+150°C
process pressure ranges:	- 1 bar ...25 bar
turn down:	30:1
protection:	IP68 EN/IEC 60529

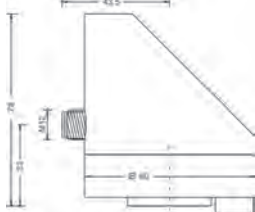


Application

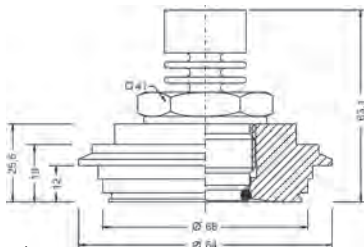
The devices of the series Precont® TN with integrated digital evaluation electronic are compact sensors for measuring and monitoring of pressure levels.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

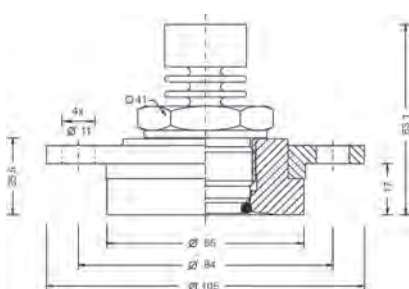
connection housing



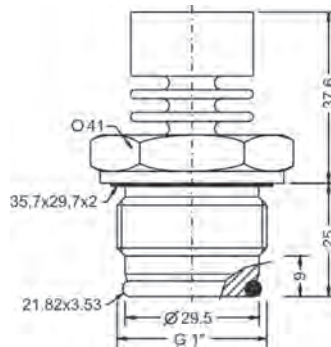
type P
Varivent® N Ø68 mm



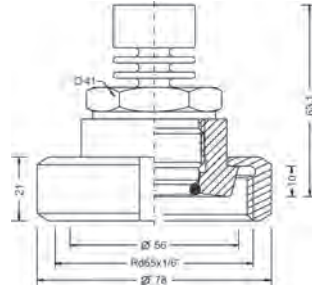
type L
DRD DN50 Ø65 mm



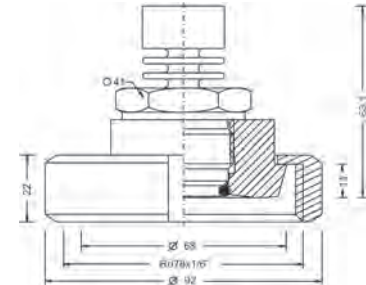
type 5
G 1" ISO 228-1 front-flush



type N
DN40 DIN 11851 front-flush



type M
DN50 DIN 11851 front-flush



Precont® TN30

digital pressure switch and pressure transmitter for hygienic applications - newest generation with great display, analog- and 4 switching outputs

3 / 01.16

Price group B

Pressure measurement

model

TN30 standard.

process connection

- 5 G1" B, ISO 228-1, front-flush, radial O-ring, EHEDG conform
- N milk tube DIN 11851, DN40
- M milk tube DIN 11851, DN50
- P Varivent® N, Ø68 mm, DN40-125 (1½"-6")
- L DRD DN50, Ø65 mm

electronics - output

- M 3-wire, signal 0/4...20mA - 0...10V, LCD-display, keyboard.
- K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP, LCD-display, keyboard.
- R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP, LCD-display, keyboard.

electronics - function

- 0 without
- 1 Bluetooth-Interface
- Y others

material process connection (process wetted)

- V steel 1.4435/316L

0

measuring range

- 01 0...100 mbar
- 02 0...200 mbar
- 03 0...250 mbar
- 04 0...600 mbar
- 05 0...1 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...25 bar
- 16 -1...0 bar
- 17 -1...+1 bar
- YY special measuring range (poss. higher deviation accuracy)

material connection housing

- C CrNi-steel

process temperature

- 1 standard, -20°C up to +150°C

pressure type

- R gauge pressure
- A absolute pressure

measuring system - accuracy

- 4 metall, DMS-thin-film/piezoresistive / 0,5%
- 8 Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol

electrical connection

- S plug M12

Order code

Precont®

TN30

V

0

C

1

S

Equipment

Ordering information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS

Model
 connection cable 5 m, 4-pole, shielded.
 connection cable 10 m, 4-pole, shielded.
 connection cable 5 m, 5-pole, shielded.
 connection cable 10 m, 5-pole, shielded.
 connection cable 5 m, 8-pole, shielded.

PGE



Precont® TN40

digital pressure sensor - front-flush capacitive ceramic cell, TFT-display and 4 switching outputs

3 / 01.16

Technical data



power supply: 9...30V DC at output signal 0(4)...20mA
14...30V DC at output signal 0...10V

supply current: ≤ 130 mA; at Vs 9V Bluetooth ON; PNP-switching outputs in neutral
≤ 50 mA; at Vs 30V Bluetooth OFF; PNP-switching outputs in neutral

analog output work space: (0)4...20mA / 0...10V, adjustable

resolution: ≤ 1 µA

reaction time: ≤ 15 ms

PNP-switching output amount: 0/2/4 depending on device version

function: PNP-switching on +Vs

output current: ≤ 250 mA current limited, short circuit protected

reaction time: ≤ 25 ms

measurement accuracy characteristics deviation: ≤ ±0,05% / 0,1% / 0,2% FS

long term drift: ≤ ±0,1% FS / year not cumulative

temperature deviation: ≤ ±0,15% FS / 10 K (Zero / Span)

membrane: ceramics AL₂O₃ 96% resp. 99,9%

(medium contact) process connection: steel 1.4404/316L

(medium contact) connection housing: CrNi-steel

user interface: PC/PES

gaskets: FPM – fluoroelastomer (Viton®)
EPDM – Ethylene-propylene-diene monomer
CR – chloroprene rubber (Neopren®)
FFKM – perfluorelastomere (Kalrez®)
NBR – nitrile-butadiene rubber

environmental conditions ambient temperature: -20°C...+50°C

extension backlight LCD ≤ 80% >> -20°C...+60°C
backlight LCD ≤ 60% >> -20°C...+70°C

process temperatures: -40°C...+100°C resp. 125°C

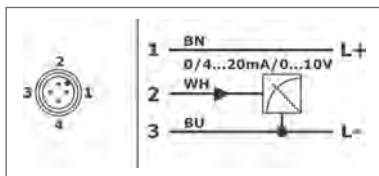
process pressure ranges: -1 bar ...60 bar

turn down: 30:1

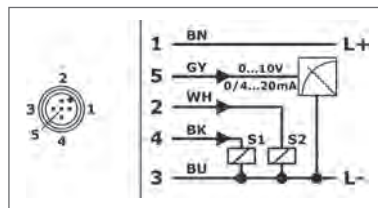
protection: IP68 EN/IEC 60529



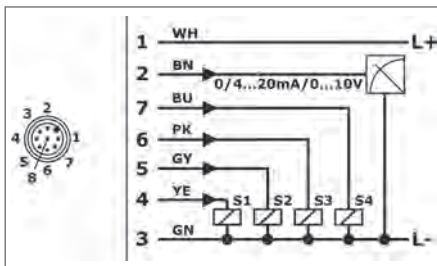
Pressure measurement



signal 0/4...20 mA / 0...10 V
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue



signal 0/4...20 mA / 0...10 V
2x PNP switching output
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue,
BK = black, GY = grey



signal 0/4...20 mA / 0...10 V
4x PNP switching output
wire colors standard connection cable M12:
WH = white, BN = brown, GN = green, YE = yellow,
GY = grey, PK = pink, BU = blue, RD = red

Application

The devices of the series Precont® TN with integrated digital evaluation electronic are compact sensors for measuring and monitoring of pressure levels.

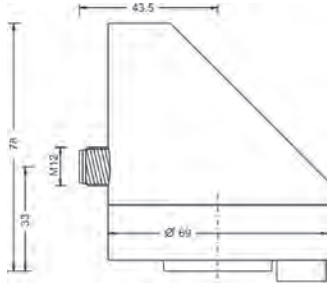
The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

Precont® TN40

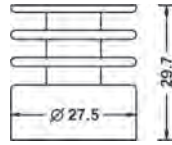
digital pressure sensor - front-flush capacitive ceramic cell, TFT-display and 4 switching outputs

3 / 01.16

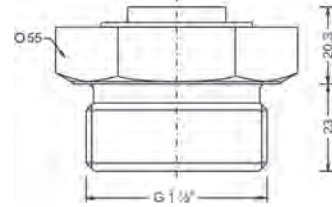
connection housing



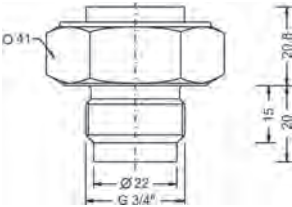
temperature decoupler



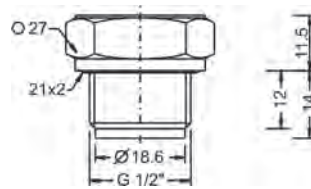
type 7
G 1 1/2" ISO 228-1
front-flush



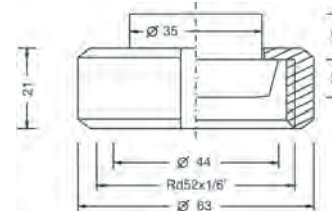
type 8
G 3/4" ISO 228-1
front-flush



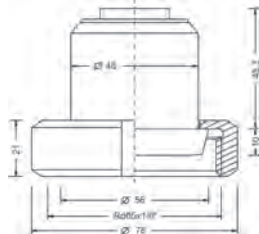
type 9
G 1/2" ISO 228-1
front-flush



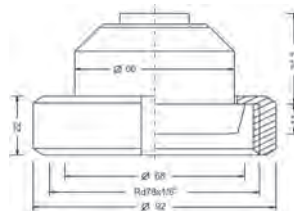
type R
DN25 DIN 11851
front-flush



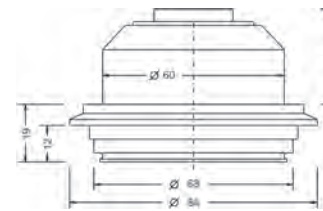
type N
milk tube DIN 11851
DN40, PN40



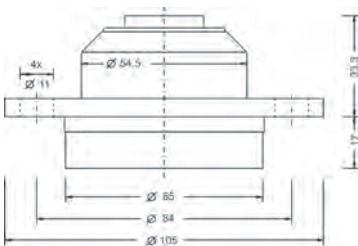
type M
milk tube DIN 11851
DN50, PN40



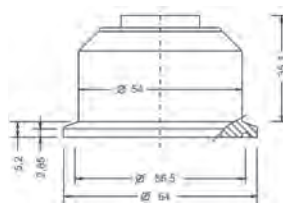
type P
Varivent® N, Ø68 mm
DN40-125 (1 1/2"-6"), PN 40



type L
DRD DN50, Ø65 mm
PN25



type T
Tri-Clamp 2"
PN16/40



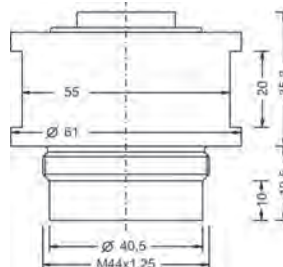
type F
flange DIN EN 1092-1
A (B - DIN 2527), DN40, PN10-40



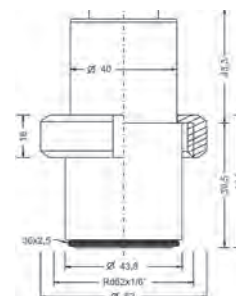
type G
flange DIN EN 1092-1
A (B - DIN 2527), DN50, PN10-40



type Z
M44x1,25 DIN 13 M - paper industry



type B
groove nut adapter Ø44mm



Pressure measurement

Precont® TN40

digital pressure sensor - front-flush capacitive ceramic cell, TFT-display and 4 switching outputs

3 / 01.16

Pressure measurement

Price group B

model

TN40 standard

process connection

- 7 G1½" B, ISO 228-1, front-flush
- 8 G¾" A, ISO 228-1, front-flush, ≤ 20 bar
- 9 G½" B, ISO 228-1, front-flush, ≤ 20 bar
- R milk tube DIN 11851, DN25, PN40, ≤ 20 bar
- N milk tube DIN 11851, DN40, PN40
- M milk tube DIN 11851, DN50, PN40
- P Varivent® N, Ø68 mm, DN40-125 (1½"-6"), PN 40
- L DRD DN50, Ø65 mm, PN25
- T Tri-Clamp 2" (ISO 2852 DN51 / DIN32767 DN50), PN16/40
- G flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
- F flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
- Z M44x1,25 DIN 13 M - paper industry
- B groove nut adapter Ø44mm

electronics - output

- M 3-wire, signal 0/4...20mA - 0...10V, LCD-display, keyboard
- K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP, LCD-display, keyboard
- R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP, LCD-display, keyboard

electronics - function

- 0 without
- 1 Bluetooth-Interface
- Y others

material process connection (process wetted)

- V steel 1.4404/316L or 1.4571/316Ti

material connection housing

- C CrNi-steel

measuring range

- 01 0...100 mbar
- 02 0...200 mbar
- 03 0...400 mbar
- 04 0...600 mbar
- 05 0...1 bar
- 06 0...1,6 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...20 bar
- 13 0...40 bar
- 14 0...60 bar
- 15 -100...0 mbar
- 16 -1...0 bar
- 17 -1...+1 bar
- 18 -100...+100 mbar
- YY special measuring range (poss. higher deviation accuracy)

material gaskets (process wetted)

- 1 FPM - fluoroelastomer (Viton®)
- 2 CR - chloroprene rubber (Neopren®)
- 3 EPDM - Ethylene-propylene-diene monomer - food applications
- 4 FFKM - perfluoroelastomere (Kalrez®)
- 6 FFKM hd - perfluoroelastomere high density - gas applications

process temperature

- 0 standard, -40°C...+100°C
- 1 advanced, -40°C...+125°C, temperature decoupler

pressure type

- R gauge pressure
- A absolute pressure

measuring system - accuracy

- 1 ceramics 99,9%, capacitive / 0,2%
with process connection 8 / 9 / R >>
membrane ceramics 96%
- 3 ceramics 99,9%, capacitive / 0,1%,
linearization protocol
with process connection 8 / 9 / R >>
membrane ceramics 96%
- 6 Xcellence - ceramics 99,9%, capacitive / 0,05%,
linearization protocol
measuring span ≥ 0,2 bar
with process connection 8 / R >>
membrane ceramics 96%
not for process connection 9

electrical connection

- S plug M12

Order code

Precont® TN40 V C S S

Equipment

Ordering information
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS

Model
 connection cable 5 m, 4-pole, shielded
 connection cable 10 m, 4-pole, shielded
 connection cable 5 m, 5-pole, shielded
 connection cable 10 m, 5-pole, shielded
 connection cable 5 m, 8-pole, shielded

PG E



Precont® TN70

digital pressure sensor – with diaphragm seal for temperature ranges -90...+400°C, TFT-display and 4 switching outputs

3 / 01.16

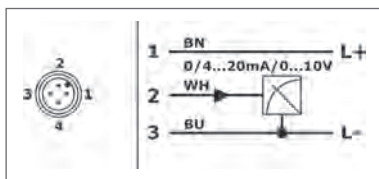
Technical data



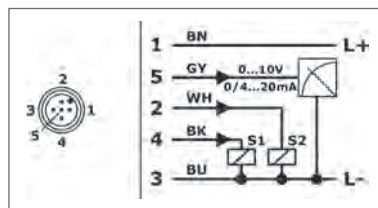
power supply:	9...30V DC , max. 32V DC at output signal 0(4)...20mA 14...30V DC, max. 32V DC at output signal 0...10V
supply current:	≤ 130 mA; at Vs 9V Bluetooth ON; PNP-switching outputs in neutral ≤ 50 mA; at Vs 30V Bluetooth OFF; PNP-switching outputs in neutral
analog output work space:	(0)4...20mA / 0...10V, adjustable
resolution:	≤ 1 µA
reaction time:	≤ 15 ms
PNP-switching output amount:	0/2/4 depending on device version
function:	PNP-switching on +Vs
output current:	≤ 250 mA current limited, short circuit protected
reaction time:	≤ 25 ms
measurement accuracy characteristics deviation:	≤ ±0,2%/ 0,5% FS, depending on sensor element
long term drift:	≤ ±0,2% Jahr not cumulative
temperature deviation:	depending on membrane diameter, sensor element, fill fluid and diaphragm seal
membrane: (medium contact)	steel 1.4432 (316L) optional z.B. steel 1.4571/316Ti; Hastelloy; Titan; coating gold/rhodium etc. depending on used diaphragm seal
process connection: (medium contact)	steel 1.4432 (316L) optional z.B. steel 1.4571/316Ti; Hastelloy; Titan; depending on used diaphragm seal
connection housing:	CrNi-steel
user interface:	PC/PES
environmental conditions ambient temperature:	-20°C...+50°C extension backlight LCD ≤ 80% >> -20°C...+60°C backlight LCD ≤ 60% >> -20°C...+70°C
process temperatures:	- 90°C...+400°C; depending on diaphragm seal
process pressure ranges:	- 1 bar ...400 bar
turn down:	30:1
protection:	IP68 EN/IEC 60529



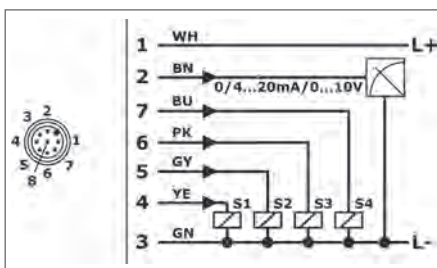
Pressure measurement



signal 0/4...20 mA / 0...10 V
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue



signal 0/4...20 mA / 0...10 V
2x PNP switching output
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue,
BK = black, GY = grey



signal 0/4...20 mA / 0...10 V
4x PNP switching output
wire colors standard connection cable M12:
WH = white, BN = brown, GN = green, YE = yellow,
GY = grey, PK = pink, BU = blue, RD = red

Application

The devices of the series Precont® TN with integrated digital evaluation electronic are compact sensors for measuring and monitoring of pressure levels.

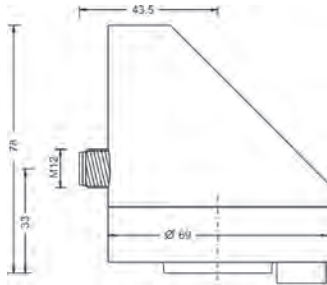
The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability and also low influence of temperature makes it possible to use the sensor in all pressureless containers for liquid medium like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc.

Precont® TN70

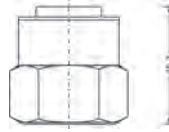
digital pressure sensor – with diaphragm seal for temperature ranges -90...+400°C, TFT-display and 4 switching outputs

3 / 01.16

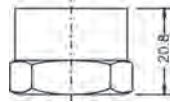
connection housing



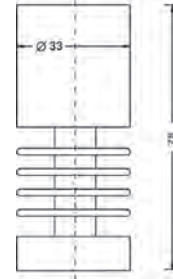
adapter ≤ 60 bar



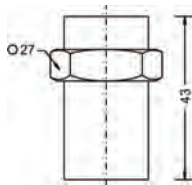
adapter ≥ 100 bar



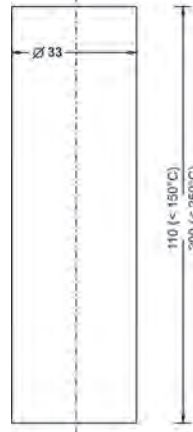
temperature decoupler
temperature decoupler cooling fins up to 150°C



temperature decoupler
adapter up to 100°C for process
connections Dx, Mx and Tx



temperature decoupler
temperature decoupler standard up to
150°C/250°C



temperature decoupler
long-distance line

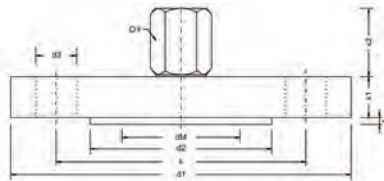


type Gx
thread ISO 228-1



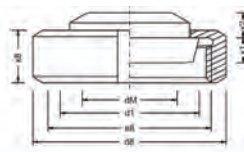
	G	PN	d1	d2	dM	x1	d3	x2	s
G1	G 1/2" B	600	-	18	16	20	-	35	27
G2	G 3/4" B	600	32	22	20	20	-	36	32
G3	G 1" B	600	39	29	28	21	-	34	41
G4	G 1 1/2" B	600	55	44	38	30	58	35	50
G5	G 2" B	600	68	56	46	30	78	40	65

type Fx
flange DIN EN 1092-1, B1



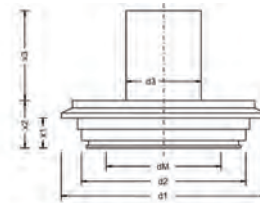
	DN	PN	d1	d2	dM	x1	f	k	d3	s	x2 ±2
F1	25	40	115	68	28	15	3	85	4xØ14	27	34,5
F3	50	40	165	102	52	17	3	125	4xØ18	27	34,5
F5	80	40	200	138	80	20,5	3,5	160	8xØ18	27	34
F6	100	16	220	158	80	16	4	180	8xØ18	27	33,5

type Mx
DIN 11851



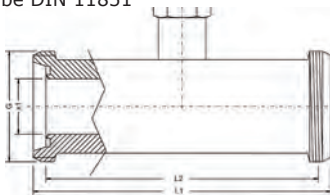
	DN	PN	d1	dM	x1	x2	d8	x8	e8
M2	25	40	44	26	10	10	63	21	Rd52x1/6"
M4	40	40	56	38	10	10	78	21	Rd65x1/6"
M5	50	25	68	48	11	9	92	22	Rd78x1/6"

type Vx
Varivent®



	DN	PN	d1	d2	dM	x1	x2	d3	x3	
V1	N	68	16	84	68	46	12	19	30	36
V2	F	50	25	66	50	30	12	19	30	36

type Rx
tube DIN 11851



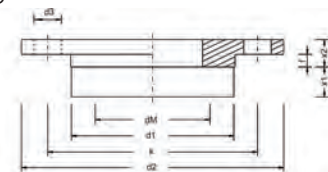
	DN	PN	L1	L2	x1	G
R1	25	40	140	126	26,2	Rd52x1/6"
R3	40	40	140	126	38	Rd65x1/6"
R4	50	25	114	100	50,7	Rd78x1/6"
R5	65	25	116	100	65,7	Rd95x1/6"
R6	80	25	116	100	79,7	Rd110x1/4"
R7	100	25	120	100	99,7	Rd130x1/4"

type Tx
Tri-Clamp



	NPS	DN	PN	d1	d2	dM	x1	x2	d3	x3
T1	1"	25	16/40	64	50,5	21	2,85	5,2	25,6	14,8
T2	1 1/2"	38	16/40	64	50,5	30	2,85	5,2	38,6	14,8
T3	2"	51	16/40	64	56,5	38	2,85	5,2	51,6	14,8

type Dx
DRD



	DN	PN	d1	d2	dM	x1	x2	f	k	d3
D1	50	40	65	105	46	12	11	5	84	4xØ10,5

Precont® TN70

digital pressure sensor – with diaphragm seal for temperature ranges -90...+400°C, TFT-display and 4 switching outputs

3 / 01.16

Price group B

Pressure measurement

model
TN70

standard.

process connection

- G1 G½" B, ISO 228-1, DIN 3852-A.
- G2 G¾" B, ISO 228-1, DIN 3852-A.
- G3 G1" B, ISO 228-1, DIN 3852-A.
- G4 G1½" B, ISO 228-1, DIN 3852-A.
- G5 G2" B, ISO 228-1, DIN 3852-A.
- F1 flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN25, PN10-40.
- F3 flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN50, PN10-40.
- F5 flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN80, PN10-40.
- F6 flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN100, PN16.
- M2 milk tube DIN 11851, DN25, PN40.
- M4 milk tube DIN 11851, DN40, PN40.
- M5 milk tube DIN 11851, DN50, PN25.
- V1 Varivent® N, DN68, PN16.
- V2 Varivent® F, DN50, PN25.
- D1 DRD DN50, Ø65 mm, PN40.
- T1 Tri-Clamp 1" (ISO 2852 DN25 / DIN32767 DN25 DN32 DN40), PN16/40.
- T2 Tri-Clamp 1 ½" (ISO 2852 DN38 / DIN32767 DN32 DN40), PN16/40.
- T3 Tri-Clamp 2" (ISO 2852 DN51 / DIN32767 DN50), PN16/40.
- R1 pipe diaphragm seal milk tube DIN 11851, DN25, PN40.
- R3 pipe diaphragm seal milk tube DIN 11851, DN40, PN40.
- R4 pipe diaphragm seal milk tube DIN 11851, DN50, PN25.
- R5 pipe diaphragm seal milk tube DIN 11851, DN65, PN25.
- R6 pipe diaphragm seal milk tube DIN 11851, DN80, PN25.
- R7 pipe diaphragm seal milk tube DIN 11851, DN100, PN25.
- YY others.

process temperature

- A standard, -20°C...+100°C, silicone oil FA1.
- B advanced, -10°C...+150°C, temperature decoupler, white oil (paraffin oil) FN2 {FDA} free of silicone.
- C advanced, -40°C...+250°C, temperature decoupler, silicone oil FA5.
- D advanced, 0°C...+400°C, long-distance line, silicone oil FA5.
- Y others (temperature range, reference temperatur, fill fluid).

electronics - output

- M 3-wire, signal 0/4...20mA - 0...10V, LCD-display, keyboard.
- K 3-wire, signal 0/4...20mA - 0...10V, 2x PNP, LCD-display, keyboard.
- R 3-wire, signal 0/4...20mA - 0...10V, 4x PNP, LCD-display, keyboard.

electronics - function

- 0 without.
- 1 Bluetooth-Interface.
- Y others.

material process connection/membrane (process wetted)

- V steel 1.4435/316L.
- Y others.

material connection housing

- C CrNi-steel.

measuring range

- 01 0...100 mbar.
- 02 0...200 mbar.
- 03 0...400 mbar.
- 04 0...600 mbar.
- 05 0...1 bar.
- 06 0...1,6 bar.
- 07 0...2,5 bar.
- 08 0...4 bar.
- 09 0...6 bar.
- 10 0...10 bar.
- 11 0...16 bar.
- 12 0...20 bar.
- 13 0...40 bar.
- 14 0...60 bar.
- 15 -100...0 mbar.
- 16 -1...0 bar.
- 17 -1...+1 bar.
- 18 -100...+100 mbar.
- 19 0...100 bar.
- 20 0...160 bar.
- 21 0...250 bar.
- 22 0...320 bar.
- 23 0...400 bar.
- YY special measuring range (poss. higher deviation accuracy).

pressure type

- R gauge pressure.
- A absolute pressure, < 100 bar.

measuring system - accuracy

- 2 ceramics, capacitive / 0,2% ≤ 60 bar.
- 4 metall, DMS-thin-film / 0,5% ≥ 100 bar.

electrical connection

- S plug M12.

Order code

Precont® TN70 C S



Precont® MAC

fully electronic contact manometer –
with ceramic membrane, TFT-display, analog- and switching output

3 / 01.16

Technical data



power supply:	output 4...20 mA 9...30 VDC, reverse polarity protected output 0...10 V 14...30 VDC, reverse polarity protected
supply current:	≤ 110 mA output 4...20 mA (US = 9 V / S1 = 0mA) ≤ 70 mA output 4...20 mA (US = 30 V / S1 = 0mA) ≤ 65 mA output 0...10 V (US = 14 V / S1 = 0mA) ≤ 50 mA output 0...10 V (US = 30 V / S1 = 0mA)
analog output	
work space:	4...20mA / 0...10V, adjustable
reaction time:	≤ 15 ms
PNP-switching output	
function:	PNP-switching on +L
output current:	≤ 250 mA current limited, short circuit protected
reaction time:	≤ 25 ms
measurement accuracy	
characteristics deviation:	≤ ±0,2%
long term drift:	≤ ±0,1% FS not cumulative
temperature deviation:	≤ ±0,15% FS / 10 K, max. ±0,75 % (-20°C...+80°C)
materials	
membrane:	
(medium contact)	ceramics AL ₂ O ₃ 99,9%
process connection:	
(medium contact)	steel 1.4404/316L / 1.4571/316Ti
connection housing:	
user interface:	PC/PES



Application

The completely fully electronic contact pressure device Precont® MAC combines the advantages of a mechanical pressure gauge with the accuracy and longevity of a fully electronic pressure sensor. Therefore, on the large color TFT display of the Precont MAC a pressure gauge in the classical form is modeled to provide a quick and easy reading of the pressure.

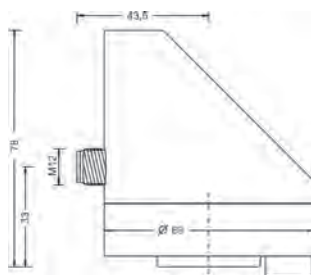
The measuring element itself consists of a high-purity ceramic capacitive cell, which guarantees the highest accuracy, robustness and long-term stability.

The device has a switching output, in which both the switch and the reset point, and NC or NO contact function can be set. The set switching thresholds also appears in the display. The 4 -20mA analog output can be configured freely at zero and end points and provides the possibility to pass the measured value eg as with classical pressure sensors to the control.

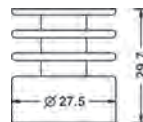
The Operation is simple using visual keys that work safely even at pollution of the control surface.

The great advantage of Precont MAC is that in this contact manometer mechanical moving parts such as bourdon tubes or stepper motors has been omitted. Because of that the system is much more durable and less susceptible to vibration and temperature fluctuations.

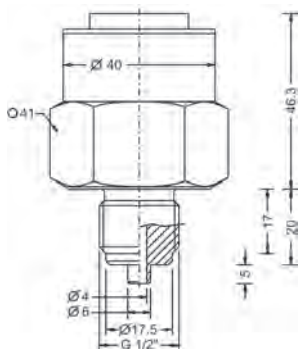
connection housing



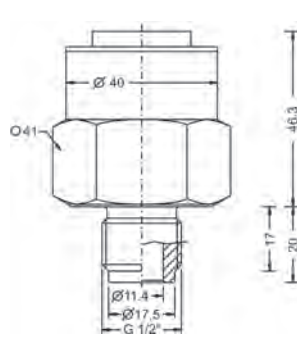
temperature decoupler for extended temperature range - 40 °C up to +125 °C



type 0
G 1/2" ISO 228-1
DIN 837-3



type 6
G 1/2" ISO 228-1
inner bore 11,4mm



Precont® MAC

fully electronic contact manometer –
with ceramic membrane, TFT-display, analog- and switching output

3 / 01.16

Price group B

Pressure measurement

model	
MAC standard	.....
process connection	
0	G½" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
6	G½" A, ISO 228-1, inner bore 11,4 mm
electronics - output	
L	0/4...20mA/0...10V (3-wire) , 1x PNP
material process connection (process wetted)	
0	steel 1.4404/316L or 1.4571/316Ti
V	.....
material connection housing	
C	CrNi-steel
measuring range	
01	0...100 mbar
02	0...200 mbar
03	0...400 mbar
04	0...600 mbar
05	0...1 bar
06	0...1,6 bar
07	0...2,5 bar
08	0...4 bar
09	0...6 bar
10	0...10 bar
11	0...16 bar
12	0...20 bar
13	0...40 bar
14	0...60 bar
15	-100...0 mbar
16	-1... bar
17	-1...+1 bar
18	-100...+100 mbar
YY	special measuring range (poss. higher deviation accuracy)
material gaskets (process wetted)	
1	FPM - fluoroelastomer (Viton®)
3	EPDM - Ethylene-propylene-diene monomer - food applications
process temperature	
0	standard, -40°C up to +100°C
1	advanced, -40°C up to +125°C , temperature decoupler
pressure type	
R	gauge pressure
A	absolute pressure
measuring system - accuracy	
1	ceramics 99,9% high purity, capacitive / 0,2%
electrical connection	
S	plug M12

Precont® MAC	
1 - 5 pieces	.....
6 - 10 pieces -5%	.....
11 - 35 pieces -10%	.....

Order code

Precont® MAC L O V C 1 S

Equipment

Ordering information
LKZ0405PUR-AS
LKZ0410PUR-AS
BKZ0412-VA

Model
connection cable 5 m, 4-pole, shielded

PG E



Precont® S10

digital pressure sensor with internal, dry, capacitive ceramic measuring cell up to 60 bar, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire electronics selectable

3 / 01.16

Equipment

welding flanges
page 220

basic price

model

S10	standard	.....
ExS10	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	.....
XDS10	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db	.....

process connection

0	G½" A DIN EN 837-3, DIN EN ISO228-1	.....
6	G½" A with inner bore 11 mm, DIN EN ISO228-1	.....
1	G¼" A, DIN EN 837-3, DIN EN ISO228-1	.....
4	G¼" ISO 228-1 - internal thread	.....

transmitter electronics

A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	.....
B	4...20 mA, 2-wire-electronics, with display	.....
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	.....
D	4...20 mA, 2-wire-electronics, preset, without display	.....
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	.....
F	0...10 V 3-wire-electronics, with display	.....
G	0...10 V 3-wire-electronics, without display, adjustment via keys	.....
H	0...10 V 3-wire-electronics, preset, without display

material connection

V	stainless steel 1.4404
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material connection housing (for type XD only material steel possible)

A	PBT (polybutylene terephthalate) (not with terminal compartment)
C	CrNi-steel	.....
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing	.....

measuring range

01	0...100 mbar	10	0...10 bar	.....
02	0...200 mbar	11	0...16 bar	.....
03	0...400 mbar	12	0...20 bar	.....
04	0...600 mbar	13	0...40 bar	.....
05	0...1 bar	14	0...60 bar	.....
06	0...1,6 bar	15	-100...0 mbar	.....
07	0...2,5 bar	16	-1...0 bar	.....
08	0...4 bar	17	-1...1 bar	.....
09	0...6 bar	18	-100...+100 mbar	.....
		YY	special measuring range	.....

material gaskets (process wetted)

1	FPM - fluoroelastomer (Viton®)	.....
2	CR - chloroprene rubber (Neopren®)	.....
3	EPDM - Ethylene-propylene-diene monomer - food applications	.....
4	FFKM - perfluorelastomere (Kalrez®)	.....
6	FFKM hd - high density perfluorelastomere - gas applications	.....

process temperature

0	standard -40°C up to +100°C	.....
1	with temperature decoupler -40°C up to +125°C	.....

pressure type

R	gauge pressure	.....
A	absolute pressure	.....

measuring system - accuracy

1	ceramics 99,9% high purity, capacitive / 0,2%	.....
3	ceramics 99,9%, capacitive / 0,1%, linearization protocol	.....
6	Xcellence - ceramics 99,9% high purity, capacitive / 0,05%, linearization protocol	.....

electrical connection

S	plug M12x1	.....
K	cable 2 m	.....
A	terminal compartment housing	.....

Price group A

Pressure measurement

Order code

Precont® V

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model
 matching cable socket, VA-nut
 matching cable socket, VA-nut (at 0...10 V)
 connection cable 5 m, 4-pole, shielded.
 connection cable 10 m, 4-pole, shielded.
 connection cable 5 m, 5-pole, shielded.
 connection cable 10 m, 5-pole, shielded.

PG E



Precont® S20

digital pressure sensor with metal membrane, up to 1000 bar, 4-digit LED-display, 2 switching outputs, analog output

3 / 01.16

Technical data



power supply:	14,5...45V DC at output signal	4...20mA / with display / Ex 14,5...30V DC
	10,5...45V DC at output signal	4...20mA / without display / Ex 10,5...30V DC
supply current:	14,5...45V DC at output signal	0...10V / Ex 14,5...30V DC
	≤ 22 mA; at 2-wire 4...20mA	PNP-switching outputs in neutral
	≤ 10 mA; at 3-wire 0...10V	PNP-switching outputs in neutral
PNP-switching output function:	PNP-switching on +Vs	
output current:	≤ 250 mA	current limited, short circuit protected
measurement accuracy characteristics deviation:	≤ ±0,15 / 0,5% FS	
long term drift:	≤ ±0,2% FS / year	not cumulative
temperature deviation:	≤ ±0,20% FS / 10 K (Zero / Span)	
materials membrane:		
(medium contact)	≥ 40 bar	steel 1.4571/316Ti
	< 40 bar	steel 1.4542/630 resp. 1.4534
process connection:		
(medium contact)		steel 1.4571/316Ti
connection housing:		CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)
gaskets:		
(medium contact)		FPM - fluoroelastomer (Viton®) EPDM - Ethylene-propylene-diene monomer NBR - nitrile-butadiene rubber
environmental conditions ambient temperature:		- 40°C...+85°C
process temperatures:		- 40°C...+100°C resp. +125°C
process pressure ranges:		- 1 bar ...1000 bar
turn down:		30:1
protection:		IP65 / IP67 EN/IEC 60529

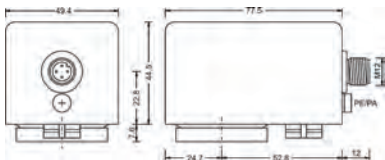


plug M12

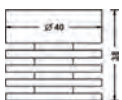


terminal compartment housing

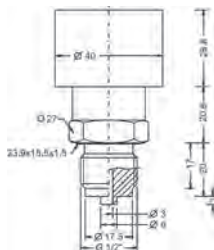
connection housing
electrical connection type S - plug M12
material connection housing type A - PBT



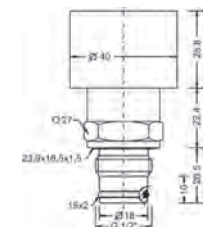
temperature decoupler



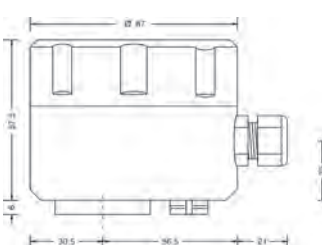
type 0
G 1/2" ISO 228-1 - DIN 837-3



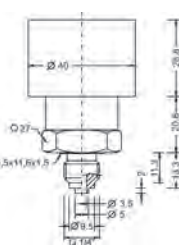
type 2
G 1/2" ISO 228-1 - front-flush



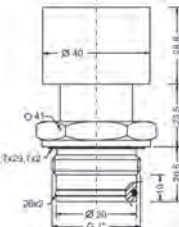
connection housing
electrical connection type A - terminal compartment
material connection housing type C
CrNi-steel / type D - POM



type 6
G 1/4" ISO 228-1 - DIN 837-3



type 5
G 1" ISO 228-1 - front-flush



Application

The Precont® S20 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

The polysilicone resp. thin-film measurement sensor guarantees highest pressure ranges, good reproducibility and hysteresis, an up to 4 times overload resistance and a good long term stability.

Precont® S20

digital pressure sensor with metal membrane, up to 1000 bar,
4-digit LED-display, 2 switching outputs, analog output

3 / 01.16

Equipment

welding flanges
page 220

basic price

model

S20	standard	.....
EXS20	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	.....
XDS20	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db	.....

process connection

0	G½" B, DIN EN ISO228-1 DIN EN 837-3, manometer connection	.....
2	G½" B, DIN EN ISO228-1 front-flush, with radial O-ring not for following ranges 0...400 mbar, 0..1 bar and -1...0 bar	.....
5	G1" B, DIN EN ISO228-1 front-flush, with radial O-ring for ranges 0...400 mbar, 0...1 bar and -1...0 bar	.....
6	G¼" B, DIN EN ISO228-1 DIN EN 837-3, manometer connection	.....

electronics - output

A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	.....
B	4...20 mA, 2-wire-electronics, with display	.....
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	.....
D	4...20 mA, 2-wire-electronics, preset, without display	.....
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	.....
F	0...10 V 3-wire-electronics, with display	.....
G	0...10 V 3-wire-electronics, without display, adjustment via keys	.....
H	0...10 V 3-wire-electronics, preset, without display	.....

material process connection (medium contact)

V	stainless steel 1.4571/316Ti / 1.4542 (AISI 630) / 1.4534
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gaskets (medium contact)

0	NBR - nitrile-butadiene rubber
1	FPM - fluoroelastomer (Viton®)
3	EPDM - Ethylene-propylene-diene monomer, for food applications	.....

measuring range

03	0...400 mbar	19	0...100 bar	.....
05	0..1 bar	20	0...160 bar	.....
08	0..4 bar	21	0...250 bar	.....
09	0..6 bar	22	0...320 bar	.....
10	0..10 bar	23	0...400 bar	.....
11	0..16 bar	24	0...600 bar	.....
12	0..25 bar	25	0...1000 bar (not for G½" B according to DIN EN837-3)	.....
13	0..40 bar	16	-1...0 bar	.....
14	0...60 bar	17	-1...+1 bar	.....
		YY	special measuring range	.....

material connection housing

(for type XD only material steel - C - possible)

A	PBT polybutylene terephthalate only with housing with plug M12x1 or cable	.....
C	CrNi-steel	.....
D	POM Polyacetal (Delrin®) - only with housing with terminal compartment	.....

process temperature

0	standard -40...+100°C	.....
1	advanced, -40...+125°C, temperature decoupler	.....

pressure type

R	gauge pressure	.....
A	absolute pressure ≥ 40bar only with accuracy measuring system type 4 - 0,5%	.....

measuring system - accuracy

4	metall, DMS-thin-film/piezoresistive / 0,5%	.....
8	Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol	.....

electrical connection

S	plug M12x1	.....
K	cable 2 m	.....
A	terminal compartment housing	.....

Price group A

Pressure
measurement

Order code

Precont®

V

4

Equipment

Ordering information

BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model

matching cable socket, VA-nut
matching cable socket, VA-nut (at 0...10 V)
connection cable 5 m, 4-pole, shielded.
connection cable 10 m, 4-pole, shielded.
connection cable 5 m, 5-pole, shielded.
connection cable 10 m, 5-pole, shielded.

PG E



Precont® S30

digital pressure sensor with metal membrane from -1 up to 25 bar
for hygienic applications, 4-digit LED-display, 2 switching outputs, analog output

3 / 01.16

Technical data



power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC
supply current:	14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC ≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output function:	PNP-switching on +Vs
output current:	≤ 250 mA current limited, short circuit protected
measurement accuracy characteristics deviation:	≤ ±0,15 / 0,5% FS
long term drift:	≤ ±0,2% FS / year not cumulative
temperature deviation:	≤ ±0,20% FS / 10 K (Zero / Span)
materials membrane:	steel 1.4435/316L
process connection: (medium contact)	steel 1.4435/316L
connection housing:	CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)
gaskets: (medium contact)	FPM - fluoroelastomer (Viton®) EPDM - Ethylene-propylene-diene monomer silicone
environmental conditions ambient temperature:	- 40°C...+85°C
process temperatures:	- 20°C...+150°C
process pressure ranges:	- 1 bar ...25 bar
turn down:	30:1
protection:	IP65 / IP67 EN/IEC 60529

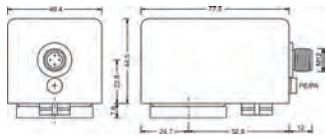


plug M12

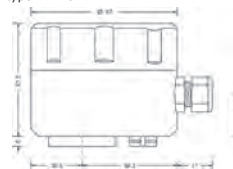


terminal compartment housing

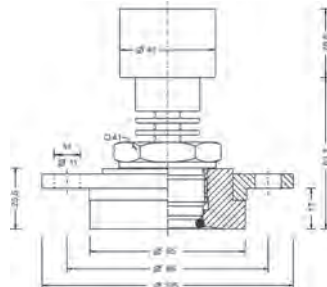
connection housing electrical connection type S - plug M12 material connection housing type A - PBT



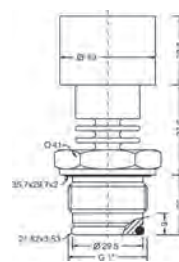
connection housing electrical connection type A - terminal compartment material connection housing type C CrNi-steel / type D - POM



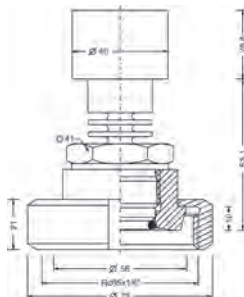
type L DRD DN50, Ø65 mm



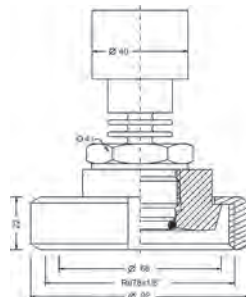
type S G 1" ISO 228-1 - front-flush



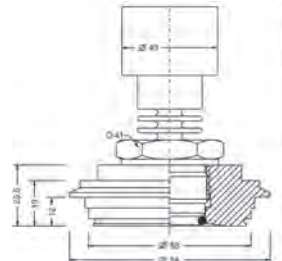
type N DN40 DIN 11851 - front-flush



type M DN50 DIN 11851 - front-flush



type P Varivent® N, Ø68 mm



Application

The Precont® S30 with EHEDG conform process connection for hygienic applications are used for supervision, control and also for continuous measurement of pressures from -1 up to +25 bar in gases, steams, liquids and dusts within closed containers or pipelines at process temperatures from -40°C to +150°C.

The pressure sensor Precont® S30 is especially designed for the requirements in the food and semi-luxury item industry, as well as the pharmaceutical industry and biotechnology. This is especially relevant for the extreme conditions like chemical resistance against cleaning agents as well as insensitiveness against increases temperatures in the case of CIP/SIP cleaning processes.

Due to the availability of adapters for the common process connections like varivent or connections acc. to DIN11851 with cone flange with nut groove for pipes acc. to DIN 11850, as well as a suitable weld-in sleeve the pressure transmitter can be installed in nearly hygienic application.

Precont® S30

digital pressure sensor with metal membrane from -1 up to 25 bar
for hygienic applications, 4-digit LED-display, 2 switching outputs, analog output

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Equipment
welding flanges
page 220

basic price

model
S30	standard
ExS30	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
XDS30	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db

process connection

S	G1" B, DIN EN ISO228-1 front-flush, with radial O-ring, EHEDG conform
N	milk tube DN 40 DIN 11851
M	milk tube DN 50 DIN 11851
P	Varivent® Ø 68 mm
L	DRD-connection Ø 65 mm

electronics - output

A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
B	4...20 mA, 2-wire-electronics, with display
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys
D	4...20 mA, 2-wire-electronics, preset, without display
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
F	0...10 V 3-wire-electronics, with display
G	0...10 V 3-wire-electronics, without display, adjustment via keys
H	0...10 V 3-wire-electronics, preset, without display

material process connection (medium contact)

V	stainless steel 1.4571/316Ti / 1.4542/630 resp. 1.4534
---	--

measuring range

01	0...100 mbar
02	0...250 mbar
03	0...400 mbar
04	0...600 mbar
05	0...1 bar
07	0...2,5 bar
08	0...4 bar
09	0...6 bar
10	0...10 bar
11	0...16 bar
12	0...25 bar
16	-1...0 bar
17	-1...+1 bar
YY	special measuring range

material connection housing

(for type XD only material steel-C possible)

A	PBT polybutylene terephthalate only with housing with plug M12x1 or cable
C	CrNi-steel
D	POM Polyacetal (Delrin®) - only with housing with terminal compartment

process temperature

1	standard, -20 up to +150°C
---	----------------------------------

pressure type

R	gauge pressure
A	absolute pressure

measuring system - accuracy

4	metall, DMS-thin-film/piezoresistive / 0,5%
8	Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol

electrical connection

S	plug M12x1
K	cable 2 m
A	terminal compartment housing

Price group A

Pressure measurement

Order code

Precont® V 0 1 4

Equipment

Ordering information

- BKZ0412-VA
- BKZ0512-VA
- LKZ0405PUR-AS
- LKZ0410PUR-AS
- LKZ0505PUR-AS
- LKZ0510PUR-AS

Model

- matching cable socket, VA-nut
- matching cable socket, VA-nut (at 0...10 V)
- connection cable 5 m, 4-pole, shielded
- connection cable 10 m, 4-pole, shielded
- connection cable 5 m, 5-pole, shielded
- connection cable 10 m, 5-pole, shielded

PG E



Precont® S40

digital pressure sensor with front-flush, dry, capacitive ceramic measuring cell up to 60 bar, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

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Equipment

welding flanges
page 220

Application

The Precont® S40 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

basic price

model

S40 standard
ExS40 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
XDS40 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db

process connection

7 G1½" B, ISO 228-1, front-flush
8 G¾" A, ISO 228-1, front-flush, ≤ 20 bar
9 G½" B, ISO 228-1, front-flush, ≤ 20 bar
R milk tube DIN 11851, DN25, PN40, ≤ 20 bar
N milk tube DIN 11851, DN40, PN40
M milk tube DIN 11851, DN50, PN40
P Varivent® N, DN68, PN16
L DRD DN65, Ø 65 mm, PN25
T TriClamp 2"/DN51, PN16/40
G flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
F flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
Z M44x 1,25 DIN 13 M - paper industry
B groove nut adapter Ø 44 mm

transmitter electronics

A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
B 4...20 mA, 2-wire-electronics, with display
C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
D 4...20 mA, 2-wire-electronics, preset, without display
E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
F 0...10 V 3-wire-electronics, with display
G 0...10 V 3-wire-electronics, without display, adjustment via keys
H 0...10 V 3-wire-electronics, preset, without display

material connection

V stainless steel 1.4404/316L resp. 1.4571/316Ti

material connection housing (for type XD only material steel possible)

A PBT (polybutylene terephthalate) (not with terminal compartment)
C CrNi-steel
D POM (Polyacetal - Delrin®) - only with terminal compartment housing

measuring range

01 0...100 mbar	10 0...10 bar
02 0...200 mbar	11 0...16 bar
03 0...400 mbar	12 0...20 bar
04 0...600 mbar	13 0...40 bar
05 0...1 bar	14 0...60 bar
06 0...1,6 bar	15 -100...0 mbar
07 0...2,5 bar	16 -1...0 bar
08 0...4 bar	17 -1...1 bar
09 0...6 bar	18 -100...+100 mbar
	YY special measuring range

material gaskets (process wetted)

1 FPM - fluoroelastomer (Viton®)
2 CR - chloroprene rubber (Neopren®)
3 EPDM - Ethylene-propylene-diene monomer - food applications
4 FFKM - perfluorelastomere (Kalrez®)
6 FFKM - perfluorelastomere high density - gas applications

process temperature

0 standard -40°C up to +100°C
1 advanced -40°C up to +125°C, temperature decoupler

pressure type

R gauge pressure
A absolute pressure

measuring system - accuracy

1 ceramics 99,9%, capacitive / 0,2%
with process connection 8/9/R >> membrane
ceramics 96%
3 ceramics 99,9%, capacitive / 0,1%,
linearization protocol
with process connection 8/9/R >> membrane
ceramics 96%
6 Xcellence - ceramics 99,9%, capacitive / 0,05%,
linearization protocol
measuring span 0,2 bar
with process connection 8/R >> membrane
ceramics 96%
not for process connection 9

electrical connection

S plug M12x1
K cable 2 m
A terminal compartment housing

Order code

Precont®

V

Equipment

Ordering information

BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model

matching cable socket, VA-nut
matching cable socket, VA-nut (at 0...10 V)
connection cable 5 m, 4-pole, shielded
connection cable 10 m, 4-pole, shielded
connection cable 5 m, 5-pole, shielded
connection cable 10 m, 5-pole, shielded

Price group A

Pressure
measurement

PG E

Precont® D40

digital pressure sensor for climatic extreme conditions,
4-digit LED-display, 2 switching outputs, analog output

3 / 01.16

Technical data



power supply:	16,5...45V DC at output signal 4...20mA / with display / Ex 16,5...30V DC 12,5...45V DC at output signal 4...20mA / without display / Ex 12,5...30V DC
supply current:	16,5...45V DC at output signal 0...10V / Ex 16,5...30V DC ≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output function:	PNP-switching on +Vs
output current:	≤ 250 mA current limited, short circuit protected
measurement accuracy	
characteristics deviation:	≤ ±0,1% / 0,2% FS
long term drift:	≤ ±0,1% FS / year not cumulative
temperature deviation:	≤ ±0,30% FS / 10 K (Zero / Span)
materials	
membrane:	
(medium contact)	ceramics AL ₂ O ₃ 99,9%
process connection:	
(medium contact)	steel 1.4404/316L resp. 1.4571/316Ti
connection housing:	CrNi-steel
gaskets:	
(medium contact)	FPM – fluoroelastomer (Viton®) EPDM – Ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluoroelastomere (Kalrez®) NBR – nitrile-butadiene rubber
environmental conditions	
ambient temperature:	- 40°C...+85°C
process temperatures:	- 40°C...+125°C
process pressure ranges:	- 1 bar ...16 bar
turn down:	4:1
protection:	IP65 / IP67 EN/IEC 60529



plug M12

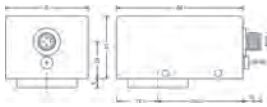


plug M12

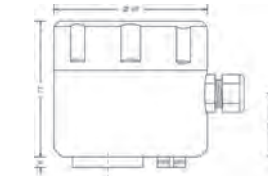


terminal compartment housing

connection housing electrical connection type S - plug M12



connection housing electrical connection type A - terminal compartment



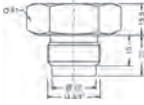
temperature decoupler



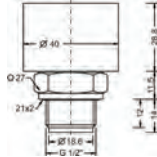
type 7
G 1½" ISO 228-1 - front-flush



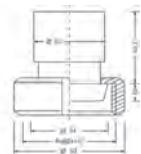
type 8
G ¾" ISO 228-1 - front-flush



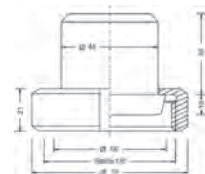
type 9
G ½" ISO 228-1 - front-flush



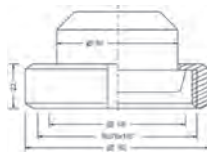
type R
DN25 DIN 11851 - front-flush



type N
DN40 DIN 11851 - front-flush



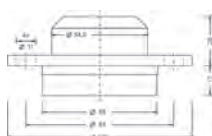
type M
DN50 DIN 11851 - front-flush



type P
Varivent® N, Ø68 mm



type L
DRD DN50, Ø65 mm



Application

The Precont® D40 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

By the special construction the device is especially suitable for the use in areas with high air humidity and at condensed water formation where conventional devices can not or can only be used with an expensive placed air compensation capillary.

Precont® D40

digital pressure sensor for climatic extreme conditions,
4-digit LED-display, 2 switching outputs, analog output

3 / 01.16

Equipment
welding flanges
page 220

basic price

model	
D40	standard
ExD40	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
XDD40	TEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db
process connection	
7	G1½" B, ISO 228-1, front-flush
8	G¾" A, ISO 228-1, front-flush
9	G½" B, ISO 228-1, front-flush
R	milk tube DIN 11851, DN25, PN40
N	milk tube DIN 11851, DN40, PN40
M	milk tube DIN 11851, DN50, PN40
P	Varivent® N, DN68, PN16
L	DRD DN50, Ø65 mm, PN25
transmitter electronics	
A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
B	4...20 mA, 2-wire-electronics, with display
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys
D	4...20 mA, 2-wire-electronics, preset, without display
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
F	0...10 V 3-wire-electronics, with display
G	0...10 V 3-wire-electronics, without display, adjustment via keys
H	0...10 V 3-wire-electronics, preset, without display
material connection	
V	stainless steel 1.4404/316L resp. 1.4571/316Ti
material connection housing	
C	CrNi-steel
measuring range	
02	0...200 mbar
03	0...400 mbar
04	0...600 mbar
05	0...1 bar
06	0...1,6 bar
07	0...2,5 bar
08	0...4 bar
09	0...6 bar
10	0...10 bar
11	0...16 bar
16	-1...0 bar
YY	special measuring range
gaskets	
1	FPM - fluoroelastomer (Viton®)
2	CR - chloroprene rubber (Neopren®)
3	EPDM - Ethylene-propylene-diene monomer - food applications
4	FFKM - perfluorelastomere (Kalrez®)
6	FFKM hd - perfluorelastomere high density - gas applications
process temperature	
1	standard, -40°C...+125°C, temperature decoupler
pressure type	
R	gauge pressure
measuring system - accuracy	
1	ceramics 99,9%, capacitive / 0,2% with process connection 8 / 9 / R >> membrane ceramics 96%
3	ceramics 99,9%, capacitive / 0,1%, linearization protocol with process connection 8 / 9 / R >> membrane ceramics 96%
electrical connection	
S	plug M12x1
K	cable 2 m
A	terminal compartment housing

Price group A

Pressure measurement

Order code

Precont® V C 1 R

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model
matching cable socket, VA-nut
matching cable socket, VA-nut (at 0...10 V)
connection cable 5 m, 4-pole, shielded
connection cable 10 m, 4-pole, shielded
connection cable 5 m, 5-pole, shielded
connection cable 10 m, 5-pole, shielded

PG E



Precont® S70

digital pressure sensor with special diaphragm seal for all areas of process engineering for temperature applications from -90°C up to +400°C

3 / 01.16

Technical data



power supply: 14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC
10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC

supply current: 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral
≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral

PNP-switching output function: PNP-switching on +Vs

output current: ≤ 250 mA current limited, short circuit protected

measurement accuracy characteristics deviation: ≤ ±0,2%/ 0,5% FS, depending on sensor element

long term drift: ≤ ±0,2% Jahr not cumulative

temperature deviation: depending on membrane diameter, sensor element, fill fluid and diaphragm seal

materials membrane: steel 1.4432 (316L)
optional z.B. steel 1.4571/316Ti; Hastelloy; Titan; coating gold/rhodium etc. depending on used diaphragm seal

process connection: (medium contact) steel 1.4432 (316L)
optional z.B. steel 1.4571/316Ti; Hastelloy; Titan; depending on used diaphragm seal

connection housing: CrNi-steel / PBT polybutylene terephthalate / POM - polyoxymethylene (Delrin®)

environmental conditions ambient temperature: - 40°C...+85°C

process temperatures: - 90°C...+400°C

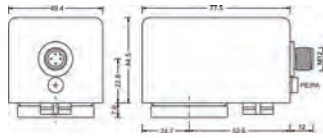
process pressure ranges: - 1 bar ...400 bar

turn down: 30:1

protection: IP65 / IP67 EN/IEC 60529



connection housing electrical connection type S - plug M12 material connection housing type A - PBT



temperature decoupler cooling fins up to 150°C

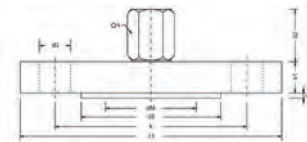


type Gx thread ISO 228-1



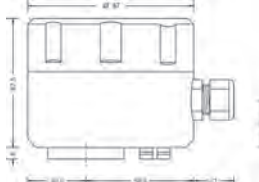
G	PN	d1	d2	dM	x1	d3	x2	k
G1 G 1/8"	800	-	18	16	20	-	35	27
G2 G 1/4"	800	32	22	20	20	-	36	32
G3 G 1/2"	800	39	29	28	21	-	34	41
G4 G 1 1/2"	800	55	44	38	30	58	35	50
G6 G 2"	800	68	56	46	30	78	40	65

type Fx flange DIN EN 1092-1, B1



DN	PN	d1	d2	dM	x1	f	k	s	k2 s2
F1 25	40	115	68	28	15	3	85	4xØ14	27 34,5
F3 50	40	165	102	52	17	3	125	4xØ18	27 34,5
F5 80	40	200	136	80	20,5	3,5	160	8xØ18	27 34
F6 100	16	220	158	80	16	4	180	8xØ18	27 33,5

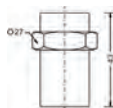
connection housing electrical connection type A - terminal compartment; material connection housing type C CrNi-steel / type D - POM



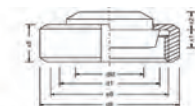
temperature decoupler standard up to 150°C/250°C



temperature decoupler adapter up to 100°C for process connections Dx, Mx and Tx

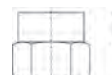


type Mx DIN 11851



DN	PN	d1	dM	x1	x2	d6	x8	e6
M2 25	40	44	26	10	10	63	21	Rø52x1/8"
M4 40	40	56	38	10	10	78	21	Rø65x1/8"
M5 50	25	68	48	11	9	92	22	Rø78x1/8"

adapter ≤ 60 bar



adapter ≥ 100 bar



temperature decoupler long-distance line

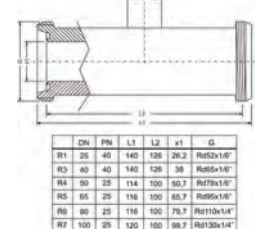


type Vx Varivent®



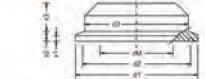
DN	PN	d1	d2	dM	x1	x2	d3	d3
V1 N	68	16	84	68	46	12	19	30 38
V2 F	50	25	68	50	30	12	19	30 38

type Rx tube DIN 11851



DN	PN	L1	L2	x1	G
R1 25	40	148	128	28,2	Rø52x1/8"
R3 40	40	142	128	38	Rø65x1/8"
R4 50	25	114	100	60,7	Rø78x1/8"
R5 65	25	118	100	65,7	Rø95x1/8"
R6 80	25	116	100	78,7	Rø110x1/4"
R7 100	25	120	100	98,7	Rø136x1/4"

type Tx Tri-Clamp



NPS	DN	PN	d1	d2	dM	x1	d2	d3	x3
T1 1"	25	16/40	64	50,5	21	2,85	5,2	25,6	14,8
T2 1 1/4"	38	16/40	64	50,5	30	2,85	5,2	36,6	14,8
T3 2"	51	16/40	64	56,5	38	2,85	5,2	51,6	14,8

type Dx DRD



DN	PN	d1	d2	dM	x1	x2	f	k	d3
D1 50	40	65	105	46	12	11	5	84	4xØ10,5

Precont® S70

digital pressure sensor with special diaphragm seal for all areas of process engineering for temperature applications from -90°C up to +400°C

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Equipment

welding flanges
page 220

Application

The Precont® S70 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

The process pressure is applied to the metallic membrane of the diaphragm seal and is transferred by vegetable oil to the behind placed ceramic or metallic membrane of the respective measurement sensor. By this an essential extension of the permitted process temperature range up to -40...+370°C is achieved. Strömungsrichtung auf.

basic price

model

S70	standard	.....
ExS70	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb	.....
XDS70	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db	.....

process connection

G1	G½" B, ISO 228-1, DIN 3852-A	.....
G2	G¾" B, ISO 228-1, DIN 3852-A	.....
G3	G1" B, ISO 228-1, DIN 3852-A	.....
G4	G1½" B, ISO 228-1, DIN 3852-A	.....
G5	G2" B, ISO 228-1, DIN 3852-A	.....
F1	flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN25, PN10-40	.....
F3	flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN50, PN10-40	.....
F5	flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN80, PN10-40	.....
F6	flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN100, PN16	.....
M2	milk tube DIN 11851, DN25, PN40	.....
M4	milk tube DIN 11851, DN40, PN40	.....
M5	milk tube DIN 11851, DN50, PN25	.....
V1	Varivent® N, DN68, PN16	.....
V2	Varivent® F, DN50, PN25	.....
D1	DRD DN50, Ø65 mm, PN40	.....
T1	Tri-Clamp 1"/DN25, PN16/40	.....
T2	Tri-Clamp 1 ½"/DN38, PN16/40	.....
T3	Tri-Clamp 2"/DN51, PN16/40	.....
R1	pipe diaphragm seal milk tube DIN 11851, DN25, PN40	.....
R3	pipe diaphragm seal milk tube DIN 11851, DN40, PN40	.....
R4	pipe diaphragm seal milk tube DIN 11851, DN50, PN25	.....
R5	pipe diaphragm seal milk tube DIN 11851, DN65, PN25	.....
R6	pipe diaphragm seal milk tube DIN 11851, DN80, PN25	.....
R7	pipe diaphragm seal milk tube DIN 11851, DN100, PN25	.....
YY	others	.....

process temperature

A	standard, -20°C...+100°C silicone oil	.....
B	advanced, -10°C...+150°C, temperature decoupler, white oil (paraffin oil) {FDA} free of silicone	.....
C	advanced, -40°C...+250°C, temperature decoupler, silicone oil 005	.....
D	advanced, 0°C...+400°C, capillary line, silicone oil FA5	.....
Y	others (temperature range, reference temperatur, fill fluid)	.....

transmitter electronics

A	4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs	.....
B	4...20 mA, 2-wire-electronics, with display	.....
C	4...20 mA, 2-wire-electronics, without display, adjustment via keys	.....
E	0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs	.....
F	0...10 V 3-wire-electronics, with display	.....
G	0...10 V 3-wire-electronics, without display, adjustment via keys	.....

material connection

V	steel 1.4404/316L	.....
Y	others	.....

material connection housing

(for type XD only material steel possible)

A	PBT (polybutylene terephthalate) (not with terminal compartment)	.....
C	CrNi-steel	.....
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing	.....

measuring range

01	0...100 mbar	13	0...40 bar	.....
02	0...200 mbar	14	0...60 bar	.....
03	0...400 mbar	15	-100...0 mbar	.....
04	0...600 mbar	16	-1...0 bar	.....
05	0...1 bar	17	-1...1 bar	.....
06	0...1,6 bar	18	-100...+100 mbar	.....
07	0...2,5 bar	19	0...100 bar	.....
08	0...4 bar	20	0...160 bar	.....
09	0...6 bar	21	0...250 bar	.....
10	0...10 bar	22	0...320 bar	.....
11	0...16 bar	23	0...400 bar	.....
12	0...20 bar	YY	special measuring range	.....

pressure type

R	gauge pressure	.....
A	absolute pressure	.....

measuring system - accuracy

2	ceramics 96%, capacitive / 0,2% ≤ 60 bar	.....
4	metall, DMS-thin-film / 0,5% ≥ 100 bar	.....

electrical connection

S	plug M12x1	.....
K	cable 2 m	.....
A	terminal compartment housing	.....

Order code

Precont®

V

Pressure
measurement

Precont® TM

pressure sensor with dry capacitive ceramic measuring cell for tough industrial applications, 2-wire electronics 4...20 mA, overvoltage protection

3 / 01.16

Technical data



power supply:	11,5...45 V DC	with EX-version 11,5...30 V DC
analog output 4...20mA		
min. delay time:	≤ ± 2 ms	
overvoltage protection:		
overvoltage protection:	not for Ex-version Ex0TM	
category:	coarse protection / fine protection	
signal voltage:	max. 30 V peak value, against PE-connection	
nominal discharge current:	10 000 A - wave 8/20μs	
measurement accuracy		
characteristics deviation:	≤ ± 0,1% FS / 0,2% FS	
long term drift:	≤ ± 0,1% FS / year not cumulative	
temperature deviation:	≤ ± 0,10% FS / 10 K (Zero / Span)	
materials		
membrane: (medium contact)	ceramics AL2O3 99,9%	
process connection: (medium contact)	steel 1.4404/316L resp. 1.4571/316Ti	
housing pipe:	CrNi-steel	
gaskets:		
(medium contact)	FPM - fluoroelastomer (Viton®)	
	EPDM - Ethylene-propylene-diene monomer	
	CR - chloroprene rubber (Neopren®)	
	FFKM - perfluorelastomere (Kalrez®)	
	NBR - nitrile-butadiene rubber	
device plug:	DIN EN 175-301-803-A	
	housing PA polyamide, contacts tinned, gasket NBR	
	M12x1	
	socket CrNi-steel, inserted part PUR, contacts gold-plated	
environmental conditions		
ambient temperature:	- 40°C...+85°C	
process temperatures:	- 40°C...+100°C resp. +125°C	
process pressure ranges:	- 1 bar ...60 bar	
protection:	plug version according to DIN 175-301-803	
	IP65 DIN EN 60529	
	plug version M12x1 and version with direct cable outlet	
	IP68 / 1mH2O for 1h	DIN EN 60529

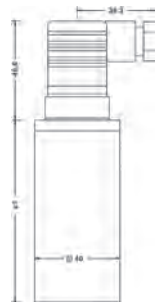


Pressure measurement

connection housing electrical connection type V - plug M12



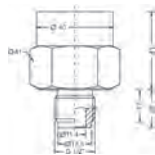
connection housing electrical connection type S plug EN 175-301-803-A



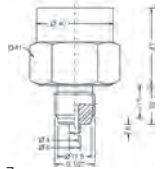
temperature decoupler



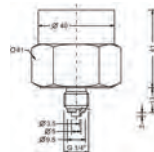
type 6 G 1/2" ISO 228-1 - inner bore 11,4mm



type 0 G 1/2" ISO 228-1 - DIN 837-3



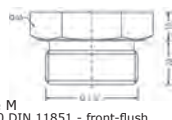
type 1 G 1/4" ISO 228-1 - DIN 837-3



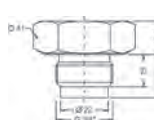
type R DN25 DIN 11851 - front-flush



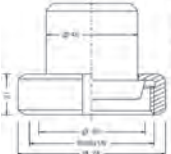
type 7 G 1/2" ISO 228-1 - front-flush



type 8 G 3/4" ISO 228-1 - front-flush



type N DN40 DIN 11851 - front-flush



type M DN50 DIN 11851 - front-flush



Application

The Precont® TM is a very rugged overload resistant pressure transmitter for gases, steams, liquids and dusts in hard industrial applications. By use of a dry capacitive ceramic measurement sensor in combination with high-grade steel 1.4571 (V4A), this pressure transmitter can be also used in very aggressive substances. The ceramic membrane has also an extreme overload resistance, highest measurement precision, long life time and no need for maintenance.

Equipment
welding flanges
page 220

basic price

model	
TM	standard
Ex0TM	ATEX II 1/2 G Ex ia IIC T4
Ex1TM	ATEX II 2 G Ex ib IIC T4

process connection	
0	G½" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
1	G¼" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
6	G½" A, ISO 228-1, inner bore 11,4 mm
7	G1½" B, ISO 228-1, front-flush
8	G¾" A, ISO 228-1, front-flush, ≤ 20 bar
9	G½" B, ISO 228-1, front-flush, ≤ 20 bar
R	milk tube DIN 11851, DN25, PN40, ≤ 20 bar
N	milk tube DIN 11851, DN40, PN40
M	milk tube DIN 11851, DN50, PN40

transmitter electronics	
A	2-wire-electronics 4...20 mA

material connection	
V	stainless steel 1.4404/316L resp. 1.4571/316Ti

over voltage protection	
B	with integrated overvoltage protection (not for Ex0TM)
0	without overvoltage protection

measurement ranges			
01	0...100 mbar	10	0...10 bar
02	0...200 mbar	11	0...16 bar
03	0...400 mbar	12	0...25 bar
04	0...600 mbar	13	0...40 bar
05	0...1 bar	14	0...60 bar
06	0...1,6 bar	15	-100...0 mbar
07	0...2,5 bar	16	-1...0 bar
08	0...4 bar	17	-1...1 bar
09	0...6 bar	18	-100...+100 mbar
		19	-1...+9 bar
		YY	special measuring range

material gasket	
1	FPM - fluoroelastomer (Viton®)
2	CR - chloroprene rubber (Neopren®)
3	EPDM - Ethylene-propylene-diene monomer - food applications
4	FFKM - perfluorelastomere (Kalrez®)
6	FFKM hd - perfluorelastomere high density - gas applications

process temperature	
0	standard -20°C...+100°C
H	high temperature -40°C...+125° C

pressure type	
R	gauge pressure
A	absolute pressure

measuring system - accuracy	
1	ceramics 99,9%, capacitive / 0,2% with process connection 8 / 9 / R >> membrane ceramics 96%
3	ceramics 99,9%, capacitive / 0,1%, linearization protocol with process connection 8 / 9 / R >> membrane ceramics 96%

connection	
S	plug according to DIN EN 175-301-803-A (DIN 43650-A) ..
V	M12 plug
K	direct cable outlet 2m
	surcharge per meter (at cable), PE

Price group A

Pressure measurement

Order code

Precont® A V

Precont® LTM

pressure transmitter for measurement of gauge pressure
in gases, steams, liquids and dusts

3 / 01.16

Technical data

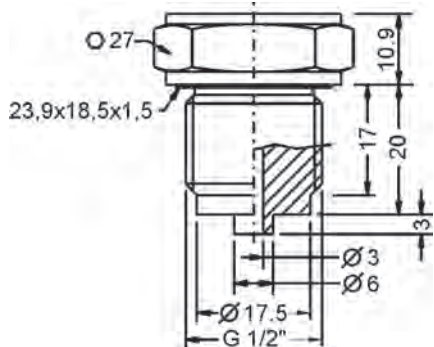


power supply:	9VDC...36VDC, reverse polarity protected
analog output 4...20mA	
work space IOut:	3,9mA...21mA, 3,8mA, 22 mA
signal resolution	≤ 1µA
Zulässige working resistance RL:	≤ ((US - 9V) / 0,022A) Ω
step response time T90:	≤ 25ms
measurement accuracy	
characteristics deviation:	≤ ±0,5% FS
long term drift:	≤ ±0,1% FS ²⁾ / year (125°C, 1000h)
temperature deviation:	compensated temperature range +25...+85°C Tk ⁴⁾ zero point + span ≤ ±0,02% FS ²⁾ / K (≥ 0°C) Tk ⁴⁾ zero point + span ≤ ±0,04% FS ²⁾ / K (-40°C...<0°C)
	²⁾ related to nominal measuring range resp. Full Scale (FS)
	⁴⁾ Tk = temperature coefficient
materials	
membrane: (medium contact)	steel 1.4548/630
process connection: (medium contact)	steel 1.4571/316Ti
gaskets: (medium contact) profile seal ring DIN 3869	
	NBR – nitrile-butadiene rubber
	FPM – fluoroelastomer
	EPDM – Ethylen-Propylen-Dienmonomer
	CrNi-steel
connection housing:	device plug PA
electrical connection part:	PTFE
pressure compensation element	
environmental conditions	
ambient temperature:	-40°C...+125°C limitation ATEX – see technical manual
process temperatures:	-40°C...+125°C extension temperature decoupler -> -40°C...+200°C limitation profile seal ring DIN 3869 – NBR -> -25°C...+120°C profile seal ring DIN 3869 – FPM -> -25°C...+200°C profile seal ring DIN 3869 – EPDM -> -40°C...+140°C ATEX – see technical manual
process pressure ranges:	- 1 bar ...1000 bar
protection:	IP67/IP69K (EN/IEC 60529)

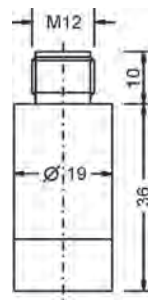


Precont® LTM
size comparison

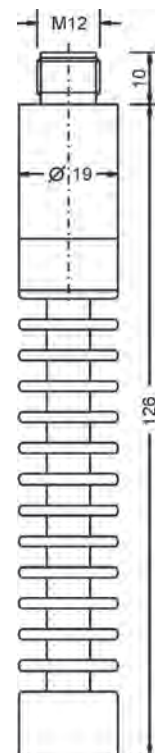
process connection
type 1 - G ½" ISO 228-1, DIN 837-3



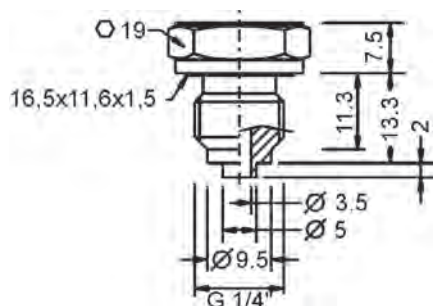
connection housing
process temperature type 0 - -40...+125°C



connection housing
process temperature type 2 - -40...+200°C



process connection
type 6 - G ¼" ISO 228-1, DIN 837-3



Precont® LTM

pressure transmitter zur measurement from gauge pressure
in gases, steams, liquids and dusts

3 / 03.16

Application

The device is an electronic pressure transmitter for continuous measuring of relative pressures in gases, vapors, liquids and dusts within closed container or pipes.

The use of a dry/oil-free thin-film measuring sensor on metallic membrane offers excellent characteristics like high pressure and pressure blow strength, vacuum resistance, high accuracy, good long term stability and a low temperature influence allows the use in nearly all fields of industry.

The certification ATEX II 1G (zone 1) resp. ATEX II 1D (zone 20) in ignition protection type intrinsic safety allows the use in applications with combustible gases or dusts. For Applications with high process temperatures up to +125°C resp. +200°C appropriate versions are available.

The device is mounted in the wall of the pressure container or of the pipe.

The system pressure is applied to the metallic membrane and causes there a variation of the resistance of the strain gage at the back side of the membrane.

The pressure signal, that is transmitted by the membrane to the sensor is converted into an electrical signal and converted by the integrated evaluation electronic into a current signal 4...20 mA.

basic price

model

0 standard
Ex ATEX II 1G Ex ia IIC T6...T1 Ga / ATEX II 1D Ex ia IIIC Da

measuring membrane - material - material (process wetted)
LTM metall, DMS-thin-film - steel 1.4248/630

process connection
1 G½" B, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer.
6 G¼" B, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer.
Y others

material gaskets (process wetted)
0 NBR - nitrile-butadiene rubber
1 FPM - fluoroelastomer (Viton®)
3 EPDM - Ethylen-Propylen-Dienmonomer - food applications

material process connection (process wetted)
V steel 1.4571/316Ti

material connection housing
C CrNi-steel

measuring range
05 0..1 bar
06 0..1,6 bar
07 0..2,5 bar
08 0..4 bar
09 0..6 bar
10 0..10 bar
11 0..16 bar
12 0..25 bar
13 0..40 bar
14 0..60 bar
19 0..100 bar
20 0..160 bar
21 0..250 bar
22 0..320 bar
23 0..400 bar
24 0..600 bar
25 0..1000 bar
16 -1..0 bar
17 -1..+1 bar
YY special measuring range (poss. reduced measurement accuracy)

electronics - output
A 2-wire, signal 4...20mA

process temperature
1 standard, -40°C...+125°C
2 advanced, -40°C...+200°C, temperature decoupler

pressure type
R gauge pressure

measuring system - accuracy
4 0,5%

electrical connection
V plug M12

Order code

Precont®

L T M V C A R 4 V

Price group A

Pressure measurement

Precont® MT

analog pressure transmitter with metallic DMS-membrane up to 1000 bar
analog output 4...20 mA or 0...10 V

3 / 01.16

Technical data

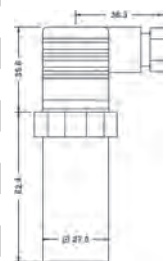


power supply:	10...30 V DC at 2-wire 4...20mA 14...30 V DC at 3-wire 0...10V
supply current:	≤ 30 mA; at 2-wire 4...20mA ≤ 6 mA; at 3-wire 0...10V
measurement accuracy	
characteristics deviation:	≤ ±0,5% FS
long term drift:	≤ ±0,2% FS / year not cumulative
temperature deviation:	≤ ±0,20 % FS / 10 K (Zero / Span)
materials	
membrane:	
(medium contact)	≥ 40 bar steel 1.4571/316Ti < 40 bar steel 1.4542/630 resp. 1.4534
process connection:	
(medium contact)	steel 1.4571/316Ti
connection housing:	CrNi-steel
gaskets:	
(medium contact)	FPM – fluoroelastomer (Viton®) EPDM – Ethylene-propylene-diene monomer NBR – nitrile-butadiene rubber
device plug:	EN 175-301-803-A/-C (formerly DIN 43650-A/-C): housing PA polyamide, contacts tinned, gasket NBR M12x1 socket CrNi-steel, inserted part PUR, contacts gold-plated connection cable: cable sheath PE polyethylene
direct cable outlet:	
environmental conditions	
ambient temperature:	- 40°C...+85°C
process temperatures:	- 40°C...+100°C resp. 125°C
process pressure ranges:	- 1 bar ...1000 bar
protection:	plug version according to EN 175-301-803 (formerly DIN 43650) IP65 EN/IEC 60529 plug version M12x1 and version with direct cable outlet IP68 EN/IEC 60529 up to 1 mWs

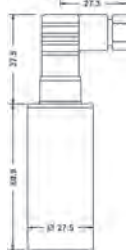


Pressure measurement

connection housing electrical connection type T plug EN 175-301-803-A



connection housing electrical connection type S plug EN 175-301-803-C



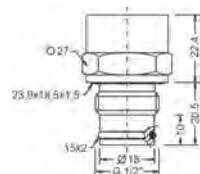
connection housing electrical connection type V plug M12



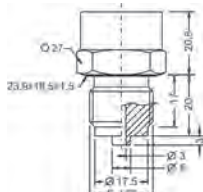
temperature decoupler



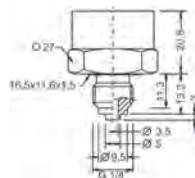
type 0 G 1/2" ISO 228-1 - front-flush



type 1 G 1/2" ISO 228-1 - DIN 837-3



type 6 G 1/4" ISO 228-1 - DIN 837-3



Application

The device Precont® MT with integrated analogue evaluation electronic is a compact pressure transmitter for continuous measuring of pressures from -1 up to 1000 bar in gases, vapors, liquids and dusts within closed container or pipes, also in explosive hazardous areas, at process temperatures from - 40°C to +100°C.

The use of a strain gauge with metallic membrane and the corresponding excellent characteristics, allows the use in nearly all fields of industry.

Precont® MT

analog pressure transmitter with metallic DMS-membrane up to 1000 bar
analog output 4...20 mA or 0...10 V

3 / 01.16

Equipment

welding flanges
page 220

basic price

model

0 standard
Ex ATEX II 1 G Ex ia IIC T6

measuring membrane - material (medium contact)

MT metallic DMS-membrane, steel V4A

process connection

0 G½" B, ISO 228-1, front-flush, radial O-ring
>> not for range 0...1000 bar
1 G½" B, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
6 G¼" B, ISO 228-1, DIN EN 837-3 (DIN16288) manometer
Y others

gaskets (medium contact)

0 NBR - nitrile-butadiene rubber
1 FPM - fluoroelastomer (Viton®)
3 EPDM - Ethylene-propylene-diene monomer, for food applications.

material process connection (medium contact)

V steel 1.4571/316Ti

material connection housing

C CrNi-steel

measuring range

05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...25 bar
13 0...40 bar
14 0...60 bar
19 0...100 bar
20 0...160 bar
21 0...250 bar
22 0...320 bar
23 0...400 bar
24 0...600 bar
25 0...1000 bar (not for process connection type 0 - G½" B front-flush)
17 -1...+1 bar
YY special measuring range (poss. higher deviation accuracy)

electronics - output

A 2-wire technology, signal 4...20 mA
B 3-wire technology, signal 0...10 V

process temperature

0 standard, -40°C up to +100°C
1 advanced, -40°C up to +125°C
(with temperature decoupler, not for Ex-version)

pressure type

R gauge pressure
A absolute pressure

measuring system - accuracy

4 0,5 %

electrical connection

S plug according to DIN EN 175-301-803-C
(DIN 43650-C)
(mating connector included)
T plug according to DIN EN 175-301-803-A
(DIN 43650-A)
(mating connector included)
V plug M12x1 (cable and mating connector
not included)
K direct cable outlet 2m
surcharge per meter (cable), PE

Order code

Precont®

MT

V

C

0

4

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
matching cable socket, VA-nut
connection cable 5 m, 4-pole, shielded.
connection cable 10 m, 4-pole, shielded.

Price group A

Pressure
measurement

PG E

Precont® KT

analog pressure transmitter with ceramic DMS-membrane up to 600 bar
analog output 4...20 mA or 0...10 V

3 / 01.16

Technical data

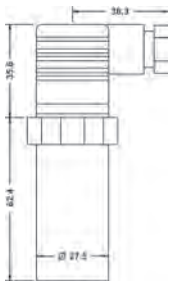


power supply:	10...30 V DC at 2-wire 4...20mA 14...30 V DC at 3-wire 0...10V
supply current:	≤ 30 mA; at 2-wire 4...20mA ≤ 6 mA; at 3-wire 0...10V
measurement accuracy	≤ ±0,5% FS
characteristics deviation:	≤ ±0,15% FS / year not cumulative
long term drift:	≤ ±0,5% FS / 10 K (Zero / Span)
temperature deviation:	measuring range 0...0,25 bar up to 0...2,5 bar ≤ ±0,5% FS / 10 K (Zero / Span) measuring range 0...4 bar up to 0...600 bar ≤ ±0,4% FS / 10 K (Zero / Span)
materials	
membrane:	ceramics AL ₂ O ₃ 96%
(medium contact)	
process connection:	steel 1.4404/316L resp. 1.4571/316Ti
(medium contact)	
connection housing:	CrNi-steel
gaskets:	
(medium contact)	FPM – fluoroelastomer (Viton®) EPDM – Ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®) NBR – nitrile-butadiene rubber
device plug:	EN 175-301-803-A/-C (formerly DIN 43650-A/-C): housing PA polyamide, contacts tinned, gasket NBR M12x1 socket CrNi-steel, inserted part PUR, contacts gold-plated
direct cable outlet:	connection cable: cable sheath PE polyethylene
environmental conditions	
ambient temperature:	– 40°C...+85°C
process temperatures:	– 40°C...+100°C resp. 125°C
process pressure ranges:	0 bar ...600 bar
protection:	plug version according to EN 175-301-803 (formerly DIN 43650) IP65 EN/IEC 60529 plug version M12x1 and version with direct cable outlet IP68 EN/IEC 60529 up to 1 mWs

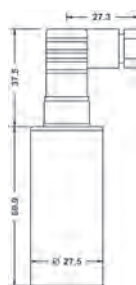


Pressure measurement

connection housing electrical connection type T plug EN 175-301-803-A



connection housing electrical connection type S plug EN 175-301-803-C



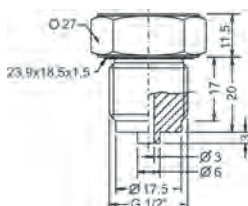
connection housing electrical connection type V plug M12



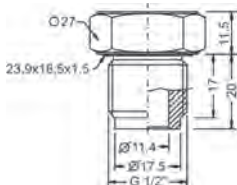
temperature decoupler



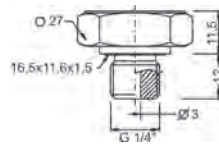
type 1 G 1/2" ISO 228-1 - DIN 837-3



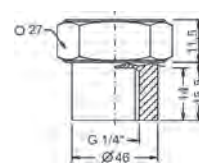
type 2 ISO 228-1 - inner bore 11,4mm



type 3 G 1/4" ISO 228-1



type 4 G 1/4" ISO 228-1 - internal thread



Application

The device Precont® with integrated analogue evaluation electronic is a compact pressure transmitter for continuous measuring of pressures from 0 up to 600 bar in gases, vapors, liquids and dusts within closed container or pipes, also in explosive hazardous areas, at process temperatures from – 40°C to +100°C.

The use of a strain gauge with ceramic membrane and the corresponding excellent characteristics, allows the use in nearly all fields of industry.

Precont® KT

analog pressure transmitter with ceramic DMS-membrane up to 600 bar
analog output 4...20 mA or 0...10 V

3 / 03.16

Equipment

welding flanges
page 220

basic price

model	0 standard	Ex ATEX II 1 G Ex ia IIC T6
measuring membrane - material (medium contact)	KT ceramic DMS-membrane, 96%	
process connection	1 G½" B DIN EN ISO228-1 DIN EN 837-3 manometer connection	
	2 G½" B DIN EN ISO228-1 with inner bore 11,4 mm	
	3 G¼" B DIN EN ISO228-1 DIN 3852-11-E	
	4 G¼" DIN EN ISO228-1 internal thread	
	Y others	
gaskets (medium contact)	1 FPM - fluoroelastomer (Viton®)	
	3 EPDM - Ethylene-propylene-diene monomer, for food applications	
material process connection (medium contact)	V steel 1.4404/316L resp. 1.4571/316Ti	
material connection housing	C CrNi-steel	
measuring range	02 0...250 mbar	
	03 0...400 mbar	
	04 0...600 mbar	
	05 0...1 bar	
	06 0...1,6 bar	
	07 0...2,5 bar	
	08 0...4 bar	
	09 0...6 bar	
	10 0...10 bar	
	11 0...16 bar	
	12 0...25 bar	
	13 0...40 bar	
	14 0...60 bar	
	19 0...100 bar	
	20 0...160 bar	
	21 0...250 bar	
	22 0...320 bar	
	23 0...400 bar	
	24 0...600 bar	
	YY special measuring range	
electronics - output	A 2-wire technology, signal 4...20 mA	
	B 3-wire technology, signal 0...10 V	
process temperature	0 standard, -40°C up to +100°C	
	1 advanced, -40°C up to +125°C (with temperature decoupler, not for Ex-version)	
pressure type	R gauge pressure	
	A absolute pressure	
measuring system - accuracy	4 0,5 %	
electrical connection	S plug according to DIN EN 175-301-803-C (DIN 43650-C) (mating connector included)	
	T plug according to DIN EN 175-301-803-A (DIN 43650-A) (mating connector included)	
	V plug M12x1 (cable and mating connector not included)	
	K direct cable outlet 2m surcharge per meter (at cable), PE	

Order code

Precont®

KT V C 0 4

Price group A

Pressure measurement

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
matching cable socket, VA-nut
connection cable 5 m, 4-pole, shielded
connection cable 10 m, 4-pole, shielded

PG E



Precont® CT

analog pressure transmitter with **front-flush** ceramic capacitive membrane up to 16 bar
analog output 4...20 mA or 0...10 V

3 / 01.16

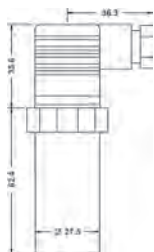
Technical data



power supply:	10...30 V DC at 2-wire 4...20mA 14...30 V DC at 3-wire 0...10V
supply current:	≤ 30 mA; at 2-wire 4...20mA ≤ 6 mA; at 3-wire 0...10V
measurement accuracy	
characteristics deviation:	≤ ±0,1 / 0,25 % FS
long term drift:	≤ ±0,15% FS / year not cumulative
temperature deviation:	≤ ±0,15% FS / 10 K (Zero / Span)
materials	
membrane:	
(medium contact)	ceramics AL ₂ O ₃ 96%
process connection:	
(medium contact)	steel 1.4404/316L resp. 1.4571/316Ti
connection housing:	CrNi-steel
gaskets:	
(medium contact)	FPM – fluoroelastomer (Viton®) EPDM – Ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®) NBR – nitrile-butadiene rubber
device plug:	EN 175-301-803-A/-C (formerly DIN 43650-A/-C): housing PA polyamide, contacts tinned, gasket NBR M12x1 socket CrNi-steel, inserted part PUR, contacts gold-plated
direct cable outlet:	connection cable: cable sheath PE polyethylene
environmental conditions	
ambient temperature:	- 40°C...+85°C
process temperatures:	- 40°C...+100°C resp. 125°C
process pressure ranges:	- 1 bar ...16 bar
protection:	plug version according to EN 175-301-803 (formerly DIN 43650) IP65 EN/IEC 60529 plug version M12x1 and version with direct cable outlet IP68 EN/IEC 60529 up to 1 mWs



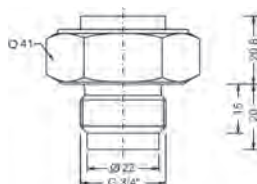
connection housing
electrical connection type T
plug EN 175-301-803-A



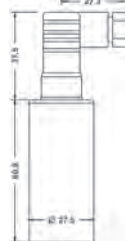
type K
cable outlet



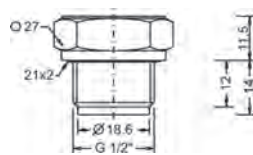
type 8
G 3/4" ISO 228-1 – front-flush



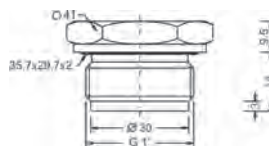
connection housing
electrical connection type S
plug EN 175-301-803-C



type 0
G 1/2" ISO 228-1 – front-flush



type 5
G 1" ISO 228-1 – front-flush



connection housing
electrical connection type V
plug M12



temperature decoupler



Application

The Precont® CT with integrated analogue evaluation electronic is a compact pressure transmitter for continuous measuring of pressures from -1 up to 16 bar in gases, vapors, liquids and dusts within closed container or pipes, also in explosive hazardous areas, at process temperatures from - 40°C to +100°C.

The use of a capacitive measuring sensor with ceramic membrane and the corresponding excellent characteristics, allows the use in nearly all fields of industry.

Precont® CT

analog pressure transmitter with **front-flush** ceramic capacitive membrane up to 16 bar
analog output 4...20 mA or 0...10 V

3 / 01.16

Equipment

welding flanges
page 220

basic price

model
0 standard
Ex ATEX II 1 G Ex ia IIC T6

measuring membrane - material (*medium contact*)
CT ceramic capacitive membrane, 96%

process connection
0 G½" B, ISO 228-1, front-flush
5 G1" A, ISO 228-1, DIN 3852-11-E, front-flush
8 G¾" A, ISO 228-1, front-flush
Y others

gaskets (*medium contact*)
1 FPM - fluoroelastomer (*Viton®*)
2 CR - chloroprene rubber (*Neopren®*)
3 EPDM - Ethylene-propylene-diene monomer, for food applications
4 FFKM - perfluoroelastomere (*Kalrez®*)
6 FFKM hd - perfluoroelastomere high density - gas applications

material process connection (*medium contact*)
V steel 1.4404/316L / 1.4571/316Ti

material connection housing
C CrNi-steel

measuring range
01 0...100 mbar
02 0...200 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
17 -100...+100 mbar
18 -1...+1 bar
YY special measuring range (poss. higher deviation accuracy)

electronics - output
A 2-wire technology, signal 4...20 mA
B 3-wire technology, signal 0...10 V

process temperature
0 standard, -40°C up to +100°C
1 advanced, -40°C up to +125°C
(with temperature decoupler, not for Ex-version)

pressure type
R gauge pressure
A absolute pressure

measuring system - accuracy
0 0,1 %, with linearization protocol
2 0,25 %

electrical connection
S plug according to DIN EN 175-301-803-C
(DIN 43650-C)
(*mating connector included*)
T plug according to DIN EN 175-301-803-A
(DIN 43650-A)
(*mating connector included*)
V plug M12x1 (cable and mating connector
not included)
K direct cable outlet 2m
surcharge per meter (*at cable*), PE

Price group A

Pressure measurement

Order code

Precont®

CT V C 0

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
matching cable socket, VA-nut
connection cable 5 m, 4-pole, shielded.
connection cable 10 m, 4-pole, shielded.

PGE



Precont® ML

pressure transmitter with metallic membrane
for hygienic applications

3 / 01.16

Technical data



4...20mA
2-wire



CIP
SIP
capable



process
temperature
150°C



EHEDG
conform



fast
response time

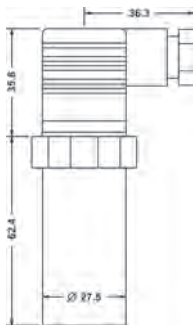


hygienic
design

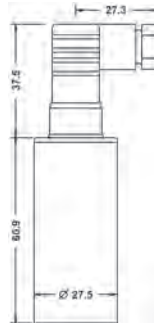
power supply:	2-wire 4...20 mA	10..30 VDC, reverse polarity protected
	3-wire 0...10 V	14..30 VDC, reverse polarity protected
supply current:	2-wire 4...20 mA	≤ 30 mA
	3-wire 0...10 V	≤ 6 mA
measurement accuracy		
characteristics deviation:	≤ ±0,5% FS	
long term drift:	≤ ±0,2% FS / year	not cumulative
temperature deviation:	≤ ±0,2% FS / 10 K (Zero / Span)	
materials		
membrane:	steel 1.4535/316L	
process connection:	steel 1.4535/316L	
(medium contact)	CrNi-steel	
connection housing:		
gaskets:		
(medium contact)	FPM – fluoroelastomer (Viton®)	
	EPDM – Ethylene-propylene-diene monomer	
	silicone	
device plug:	EN 175-301-803-A/-C (formerly DIN 43650-A/-C):	
	housing PA polyamide, contacts tinned, gasket NBR	
	M12x1	
	socket CrNi-steel, inserted part PUR, contacts gold-plated	
direct cable outlet:	connection cable: cable sheath PE polyethylene	
environmental conditions		
ambient temperature:	– 40°C...+85°C	
process temperatures:	– 20°C...+150°C	
process pressure ranges:	– 1 bar ...25 bar	
protection:	electrical connection – plug EN 175-301-803	
	IP65 (EN/IEC 60529)	
	electrical connection – plug M12 / cable outlet	
	IP68 [≤ 1 mWs-1h] (EN/IEC 60529)	



electrical connection type T
plug EN 175-301-803-A



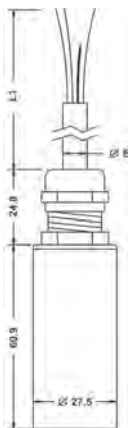
electrical connection type S
plug EN 175-301-803-C



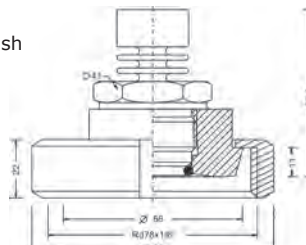
electrical connection type V
plug M12



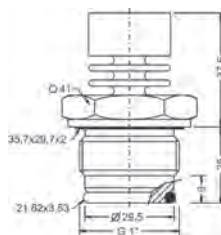
Elektrischer Anschluss type K
cable outlet



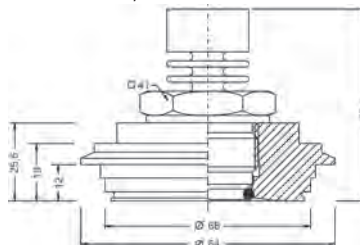
type M
DN50 DIN 11851 - front-flush



type 5
G 1" ISO 228-1 - front-flush



type P
Varivent® N, Ø68 mm

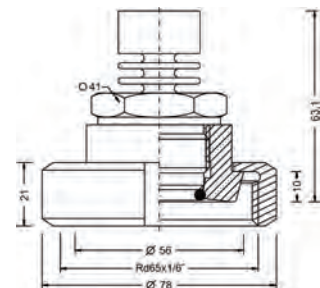


Application

The hygienic pressure sensor Precont® ML is an electronic pressure transmitter for continuous measuring of relative or gauge pressures in gases, vapors, liquids and dusts within closed container or pipes.

The use of a piezoresistive measuring sensor with EHEDG conformal metallic membrane and the corresponding excellent characteristics, allows the use especially in hygienic applications.

type N
DN40 DIN 11851 - front-flush



Precont® ML

pressure transmitter with metallic membrane
for hygienic applications

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Equipment

welding flanges
page 220

basic price

0	model	standard
ML	measuring membrane - material (medium contact)	metall, piezoresistive
5	process connection	G1" B, ISO 228-1, front-flush, radial O-ring, EHEDG conform
N		milk tube DIN 11851, DN40.
M		milk tube DIN 11851, DN50.
P		Varivent® N, DN68, PN16
1	gaskets (medium contact)	FPM - fluoroelastomer (Viton®)
3		EPDM - Ethylene-propylene-diene monomer, for food applications.
V	material process connection (medium contact)	steel 1.4435/316L
C	material connection housing	CrNi-steel
01	measuring range	0...100 mbar
02		0...250 mbar
03		0...400 mbar
04		0...600 mbar
05		0...1 bar
06		0...1,6 bar
07		0...2,5 bar
08		0...4 bar
09		0...6 bar
10		0...10 bar
11		0...16 bar
12		0...25 bar
16		-1...0 bar
17		-1...+1 bar
YY		special measuring range (poss. higher deviation accuracy)
A	electronics - output	2-wire, signal 4...20mA
B		3-wire, signal 0...10V
0	process temperature	standard, -20°C...+150°C
R	pressure type	gauge pressure
A		absolute pressure
4	measuring system - accuracy	0,5 %
S	electrical connection	plug according to DIN EN 175-301-803-C (DIN 43650-C) (mating connector included)
T		plug according to DIN EN 175-301-803-A (DIN 43650-A) (mating connector included)
V		plug M12x1 (cable and mating connector not included)
K		direct cable outlet 2m surcharge per meter (at cable), PE

Order code

Precont®

0
ML
V
C
0

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
 matching cable socket, VA-nut

connection cable 5 m, 4-pole, shielded.

connection cable 10 m, 4-pole, shielded.

PGE

Pressure measurement



Prelog PDL

battery-powered pressure transmitter with data logger

3 / 01.16

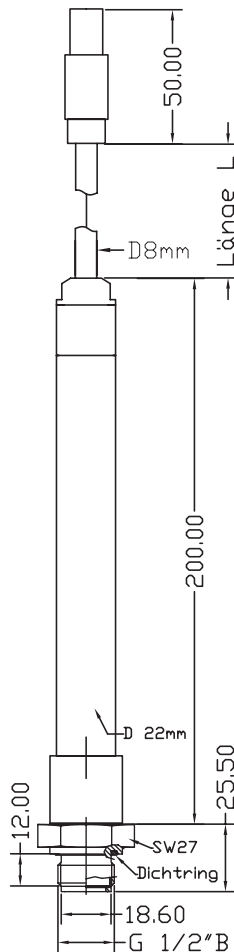
Technical data



power supply:	built-in lithium battery
battery life:	≥ 2.000.000 measurements resp. ≥ 10 years at measurement interval from 1x per 3 minutes
measurement accuracy	≤ 0,1% resp. 0,25% FS
characteristics deviation:	mWs / cmWs / bar / mbar / mNN / mredution
units of measurement:	-1...16bar
measuring range:	
materials	
membrane:	ceramics AL ₂ O ₃ 96%
(medium contact)	
process connection:	steel 1.4404/316L resp. 1.4571/316Ti
(medium contact)	
probe housing:	steel 1.4404/316L resp. 1.4571/316Ti
(medium contact)	
gaskets:	
(medium contact)	FPM – fluoroelastomer (Viton®) EPDM - Ethylene-propylene-diene monomer PE polyethylene
cable:	
environmental conditions	
ambient temperature:	- 25°C...+70°C, ice-free
medium temperatures:	- 25°C...+70°C, ice-free



Pressure measurement



Application

The pressure transmitter with data logger Prelog PDL is a battery powered system for autonomous measurement and registration of pressure in pipelines and containers.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability as well as low influence of temperature makes it possible to use the sensor in various fields with liquids like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc., where levels and temperatures combined with date and time should be surveillanced without having any auxiliary power at the place of installation.

Because of an intelligent store management the internal data memory with a size of 64kB resp. 128kB allows a recording of minimum 21 600 up to maximum 216 000 measurement data sets at exclusive storage of the pressure measurement.

A highly efficient lithium battery that is integrated in the probe ensures the power supply of the device.

The battery life time is conceived for minimum 2.000.000 measurements. This equals a run time of minimum 10 years at a measurement rate of 1x per 3 minutes.

Because of many possibilities of adjustment a highest flexibility in the application for control level and especially for pumping test or long term surveillance is given.

Prelog PDL

battery-powered pressure transmitter with data logger

3 / 01.16

Price group B

Pressure measurement

	model	
0	standard	
T	certificate for food- and drink water suitability of all medium contacting materials	
	process connection	
0	G½" B DIN EN ISO228-1, front-flush	
8	G¾" A DIN EN ISO228-1, front-flush	
5	G1" B, DIN EN ISO228-1 DIN 3852-11-E, front-flush	
	gaskets (medium contact)	
1	FPM - fluoroelastomer (Viton®)	
3	EPDM - Ethylene-propylene-diene monomer, for food applications	
	material process connection (medium contact)	
V	steel 1.4404/316L / 1.4571/316Ti	
	material connection housing	
C	CrNi-steel	
	measuring range	
01	0...100 mbar	
02	0...200 mbar	
03	0...400 mbar	
04	0...600 mbar	
05	0...1 bar	
06	0...1,6 bar	
07	0...2,5 bar	
08	0...4 bar	
09	0...6 bar	
10	0...10 bar	
11	0...16 bar	
17	-100...+100 mbar	
YY	special measuring range	
	storage capacity	
1	128 kB max. 216 000 records measured value max. 162 000 records measured value and temperature	
	process temperature	
0	standard, -20°C up to +70°C	
	pressure type	
R	gauge pressure	
A	absolute pressure (from 2,5 bar)	
	measuring system - accuracy	
0	0,1 %, with linearization protocol	
2	0,25 %	
	material connection cable (Price per section of 100 mm)	
A	PE polyethylene	
	cable length dimension in mm	

Order code

Prelog PDL V C 1 0 A mm



Precont® KS

analog pressure transmitter with metal membrane from 0...400 bar, accuracy up to 0,15%; 2-wire 4...20 mA or 3-wire 0...10 V technology

3 / 01.16

Technical data



power supply: 12...30 V DC at 2-wire 4...20mA
15...30 V DC at 3-wire 0...10V

supply current: ≤ 6 mA three wire technology (working resistance 5 KΩ)

measurement accuracy characteristics deviation: ≤ ±0,5% FS

temperature deviation: typical 0,2% / 10 K, max. 0,5% / 10 K of span;
at measuring spans ≤ 6 bar the values are 0,1% / 10 K higher

materials
membrane: 1.4435 (X2 CrNiMo 1812)

process connection: (medium contact) steel 1.4301

connection housing: CrNi-steel

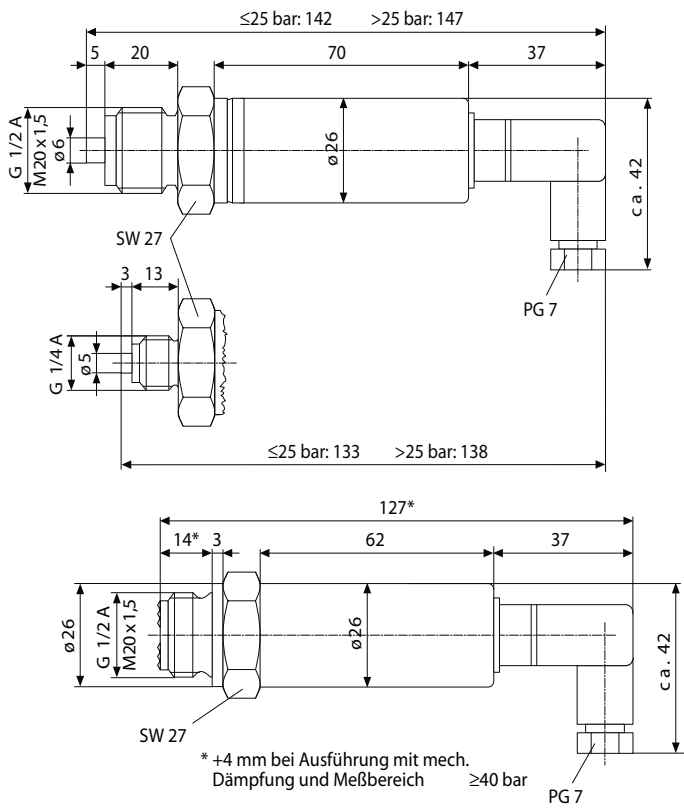
gaskets: (medium contact) FPM – fluoroelastomer (Viton®)

device plug: EN 175-301-803-A/-C (formerly DIN 43650-A/-C):
housing PA polyamide, contacts tinned, gasket NBR

environmental conditions
ambient temperature: – 25°C...+70°C

process temperatures: – 25°C...+70°C

process pressure ranges: 0 bar ...400 bar
plug version according to EN 175-301-803 (formerly DIN 43650)
IP65 EN/IEC 60529
plug version M12x1 and version with direct cable outlet
IP68 EN/IEC 60529 up to 1 mWs



Application

The pressure transmitter Precont® KS measures pressures from 0...1 bar up to 0...400 bar and converts it into a signal 4...20 mA resp. 0...10V or into a PNP switching signal (pnp - closer).

A thin-film strain gauge is used as pressure sensor. The small dimensions of the measurement sensor ensures a good behaviour against pulsating measuring media and vibrating installations as well as a very good reproducibility and hysteresis and an overload resistance of up to 4-times the measurement range. Due to the high natural frequency of the metallic membrane also fast pressure changings could be measured. The versions Precont® KS0 + KS1 has a process connection with an inside places separation membrane in high-grade steel in G1/2A or M20 x 1,5 acc. to DIN 16 288. This process connection is available in two version, with and without damping system.

Precont® KS

analog pressure transmitter with metal membrane from 0...400 bar, accuracy up to 0,15%; 2-wire 4...20 mA or 3-wire 0...10 V technology

3 / 01.16

Equipment

welding flanges
page 220

basic price

model
KS standard

process connection

- 0 G½" A according to DIN 16288
- 1 M20x1,5 A according to DIN 16288
- 2 G½" A with metal gasket and front-flush membrane (at Ex 0) (ab 1 bar)
- 3 M20x1,5 A with metal gasket and front-flush membrane (ab 1 bar)
- 4 G½" A with FPM-gasket and front-flush membrane (ab 1 bar)
- 5 M20x1,5 A with FPM-gasket and front-flush membrane (ab 1 bar)
- 6 G¾" A
- 8 G¾" NPT

transmitter electronics

- A output 4...20 mA - two-wire-technology
- B output 0...10 V - three-wire-technology
- E PNP switching output
- X output 4...20 mA - two-wire-technology, Ex-protection II 2 G EEx ib IIC T6, ATEX
- Y output 4...20 mA - two-wire-technology, Ex-protection zone 0 with damping (only G ½" A possible, KS2); II ½ G EEx ib IIC T6, ATEX

material connection

- V stainless steel 1.4301 / membrane 1.4435

damping

- 0 without damping
- D built-in damping available from 6 bar

measurement ranges

- 02 0...250 mbar (0,3% Gen.)
- 03 0...400 mbar (0,3% Gen.)
- 05 0...1 bar
- 06 0...1,6 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...25 bar
- 13 0...40 bar
- 14 0...60 bar
- 15 0...100 bar
- 16 0...160 bar
- 17 0...250 bar
- 18 0...320 bar
- 19 0...400 bar

pressure type

- R gauge pressure
- A absolute pressure

measuring system - accuracy

- 0 0,5 % accuracy (not for 250 mbar and 400 mbar) and for Ex-version
- 1 0,3 % accuracy

connection

- S plug according to DIN 43650/C
- T plug according to DIN 43650/A
- K with pressure switch PNP-Version + Ex-version cable 1,5 m IP68
- surcharge per meter

Price group B

Pressure measurement

Order code

Precont® KS V 0 0

Precont® PSK

digital pressure switch and pressure transmitter with ceramic membrane for exact measurement of absolute and excess pressure

3 / 01.16

Technical data



power supply:	11,2 V up to 35 V DC	
supply current:	≤ 50mA	incl. analog output with max. 22,5 mA switching outputs in neutral
2xPNP-switching output function:	PNP-switching on +Vs	
output current:	≤ 250 mA	current limited, short circuit protected
analog output 4...20mA		
work space:	4...20mA	
resolution:	≤ 1 µA	
reaction time:	≤ 3 ms	
measurement accuracy		
characteristics deviation:	≤ ± 0,5% FS	not cumulative
long term drift:	≤ ± 0,2% FS / year	
temperature deviation:	≥ 4 bar	≤ ± 0,4% FS / 10 K (Zero / Span)
	≤ 2,5 bar	≤ ± 0,3% FS / 10 K (Zero / Span)
materials		
membrane: (medium contact)	ceramics AL ₂ O ₃ 96%	
process connection: (medium contact)	steel 1.4404/316L resp. 1.4571/316Ti	
connection housing:	CrNi-steel / PC polycarbonate	
gaskets:		
(medium contact)	FPM – fluoroelastomer (Viton®)	
	EPDM – Ethylene-propylene-diene monomer	
	CR – chloroprene rubber (Neopren®)	
	FFKM – perfluoroelastomere (Kalrez®)	
	NBR – nitrile-butadiene rubber	
environmental conditions		
ambient temperature:	- 40°C...+85°C	
process temperatures:	- 40°C...+100°C resp. +125°C	
process pressure ranges:	0 bar ...600 bar	
protection:	IP68 / 1mH ₂ O for 1h DIN EN 60529	

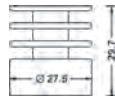


connection housing

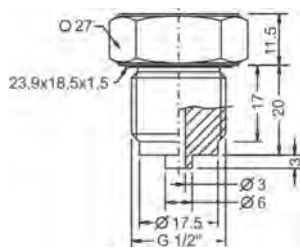


type 1
G 1/2" ISO 228-1 - DIN 837-3

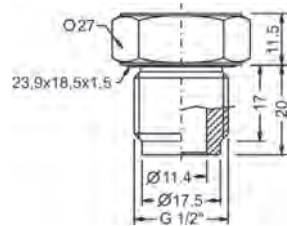
temperature decoupler



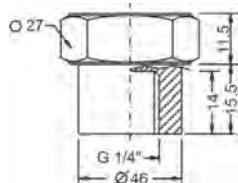
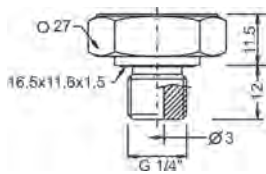
type 2
G 1/2" ISO 228-1 - inner bore 11,4mm



type 3
G 1/2" ISO 228-1



type 4
G 1/4" ISO 228-1 - internal thread



Application

The devices of the series Precont® PS with integrated digital evaluation electronic are compact pressure switches for supervision, control and continuous measurement of pressures up to 1000 bar. By this the replacement of mechanical contact manometer is possible. Besides a bright luminous 4-digit LED display there are up to 2 free configurable PNP switching outputs incl. 4...20mA output available. The use is possible in gases, steams, liquids, oils and dusts inside closed containers or pipelines at process temperatures from - 40°C up to +125°C. The extremely short reaction time of 3ms allows also the use in hydraulic units and in pneumatic applications.

Precont® PSK

digital pressure switch and pressure transmitter with ceramic membrane for exact measurement of absolute and excess pressure

3 / 01.16

Equipment

welding flanges
page 220

model	PS standard
measuring system - accuracy (medium contact)	K ceramic DMS-membrane, 96%, 0,5% accuracy
process connection	1 G½" B, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer.
	2 G½" B, ISO 228-1, inner bore 11,4 mm
	3 G¼" B, ISO 228-1
	4 G¼", ISO 228-1, internal thread
	Y others
gaskets (medium contact)	1 FPM - fluoroelastomer (Viton®)
	2 CR - chloroprene rubber (Neopren®)
	3 EPDM - Ethylen-Propylen-Dienmonomer - food applications
	4 FFKM - perfluorelastomere (Kalrez®)
	6 FFKM hd - perfluorelastomere high density - gas applications
material process connection (medium contact)	V steel 1.4404/316L or 1.4571/316Ti
material connection housing	C CrNi-steel
measuring range	02 0...250 mbar
	03 0...400 mbar
	04 0...600 mbar
	05 0...1 bar
	06 0...1,6 bar
	07 0...2,5 bar
	08 0...4 bar
	09 0...6 bar
	10 0...10 bar
	11 0...16 bar
	12 0...25 bar
	13 0...40 bar
	14 0...60 bar
	19 0...100 bar
	20 0...160 bar
	21 0...250 bar
	23 0...320 bar
	23 0...400 bar
	24 0...600 bar
	YY special measuring range
electronics - output	A 3-wire, 2x PNP
	B 1x PNP-switching output, analog output, 4...20 mA
	C 2x PNP-switching output, analog output, 4...20 mA
	D 3-wire, signal 4...20mA, 1x PNP, Desina.
process temperature	0 standard, -40°C up to +100°C
	1 advanced, -40°C up to +125°C, temperature decoupler
pressure type	R gauge pressure
	A absolute pressure
electrical connection	S plug M12x1

Price group D

Pressure measurement

Order code

Precont® PS

K

V

C

S

Precont® PSK

1 - 5	pieces
6 - 10	pieces
11 - 30	pieces

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model
matching cable socket, VA-nut

PG E



Precont® PSC

pressure switch for supervision of absolute and relative pressures in gases, vapors, liquids and dust

3 / 01.16

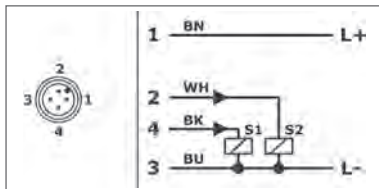
Technical data



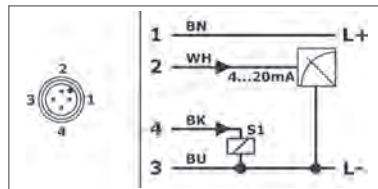
power supply:	11,2 V up to 35 V DC	
supply current:	≤ 50mA	incl. analog output with max. 22,5 mA switching outputs in neutral
2xPNP-switching output function:	PNP-switching on +L	current limited, short circuit protected
output current:	≤ 250 mA	
analog output 4...20mA	3,9 mA ... 21 mA, min. 3,8mA, max. 22 mA	
work space:		
reaction time:	≤ 3 ms	
measurement accuracy		
characteristics deviation:	≤ ± 0,2% FS	
long term drift:	≤ ± 0,1% FS / year	not cumulative
temperature deviation:	≤ ± 0,15% FS / 10 K	
materials		
membrane:	ceramics AL ₂ O ₃ 99%	
(medium contact)	process connection G½" fb / G¾" / G1" / DN25 (DIN 11851)	
	ceramics AL2O3 96%	
process connection:	steel 1.4404/316L / 1.4571/316Ti	
(medium contact)		
connection housing:	CrNi-steel	
gaskets:	FPM – fluoroelastomer (Viton®)	
(medium contact)	EPDM – Ethylene-propylene-diene monomer	
	CR – chloroprene rubber (Neopren®)	
	FFKM – perfluorelastomere (Kalrez®)	
	FFKM hd – perfluorelastomere high density	
environmental conditions		
ambient temperature:	- 40°C...+85°C	
process temperatures:	- 40°C...+100°C resp. +125°C	
process pressure ranges:	- 1 bar ...60 bar	
protection:	IP68 [≤ 1 mWs-1h] DIN EN/IEC 60529	



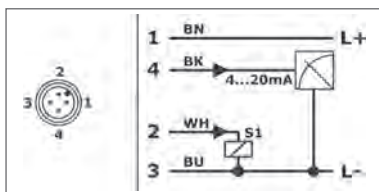
Pressure measurement



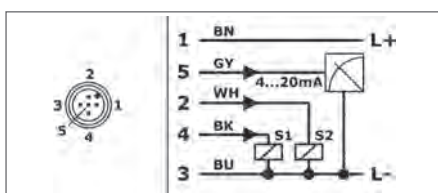
signal 2x PNP
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black



signal 4...20 mA / 1x PNP
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black



signal 4...20 mA / 1x PNP / Desina
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black



signal 4...20 mA / 2x PNP
wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

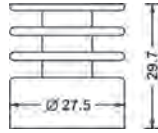
Application

The devices of the series Precont® PS with integrated digital evaluation electronic are compact pressure switches for supervision, control and continuous measurement of pressures up to 1000 bar. By this the replacement of mechanical contact manometer is possible. Besides a bright luminous 4-digit LED display there are up to 2 free configurable PNP switching outputs incl. 4...20mA output available. The use is possible in gases, steams, liquids, oils and dusts inside closed containers or pipelines at process temperatures from - 40°C up to +125°C. The extremely short reaction time of 3ms allows also the use in hydraulic units and in pneumatic applications.

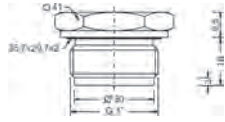
connection housing



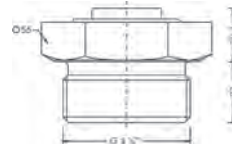
temperature decoupler



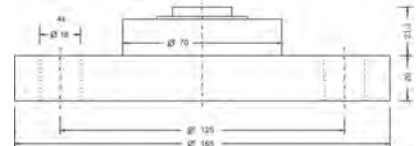
type 5
G 1" ISO 228-1 - front-flush



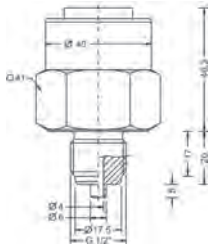
type 7
G 1½" ISO 228-1 - front-flush



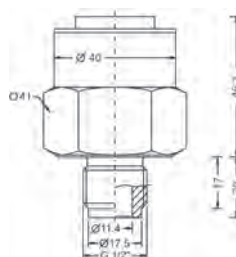
type G
flange DIN EN 1092-1, A
(B - DIN 2527), DN50



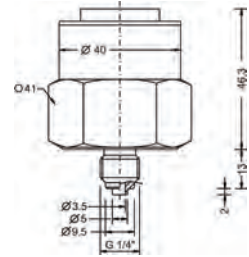
type 1
G ½" ISO 228-1 - DIN 837-3



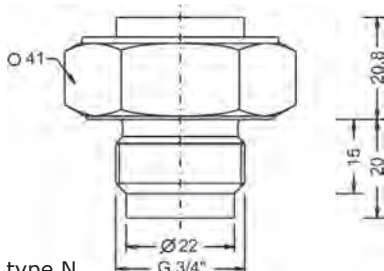
type 2
G ½" ISO 228-1 - inner bore 11,4mm



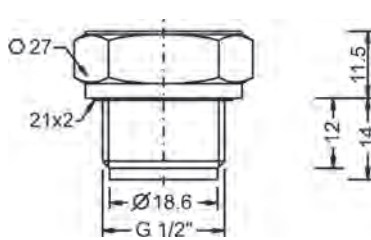
type 6
G ¼" ISO 228-1 - DIN 837-3



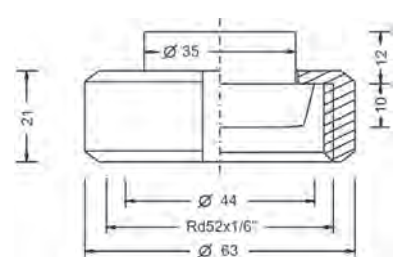
type 8
G ¾" ISO 228-1 - front-flush



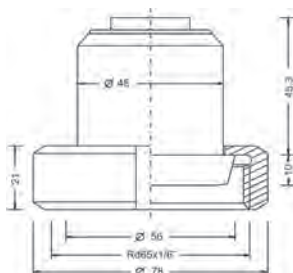
type 9
G ½" ISO 228-1 - front-flush



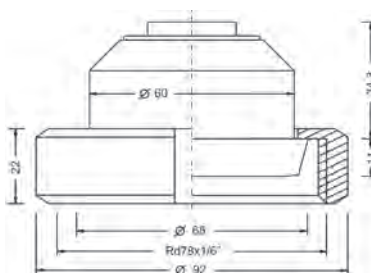
type R
DN25 DIN 11851 - front-flush



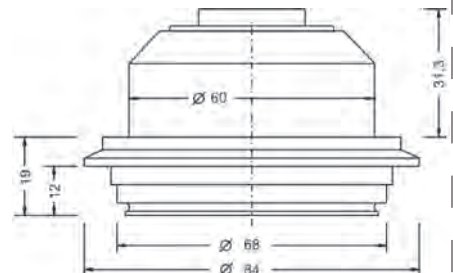
type N
DN40 DIN 11851 - front-flush



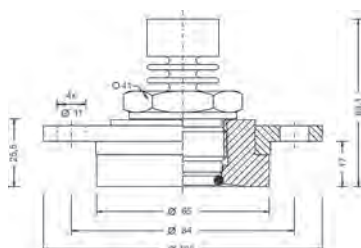
type M
DN50 DIN 11851 - front-flush



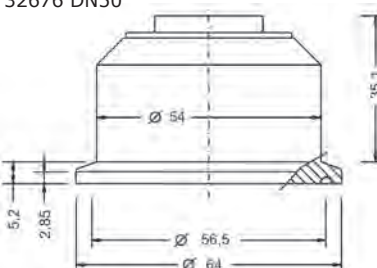
type P
Varivent® N, Ø68 mm



type L
DRD DN50, Ø65 mm



type T
Clamp ISO 2852 DN51 (2") / DIN
32676 DN50



type F
flange DIN EN 1092-1, A (B - DIN
2527), DN40



Precont® PSC

pressure switch for supervision of absolute and relative pressures in gases, vapors, liquids and dust

3 / 01.16

Pressure measurement

Price group B

PS

model

standard.....

C

measuring system - accuracy (process wetted)

ceramics 99,9%, capacitive / 0,2%
>> with process connection 5 / 8 / 9 / R >> membrane ceramics 96%

process connection

- 1 G½" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
- 6 G¼" A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
- 5 G1" A, ISO 228-1, DIN 3852-11-E, front-flush, ≤ 20 bar
- 2 G½" A, ISO 228-1, inner bore 11,4 mm
- 7 G1½" B, ISO 228-1, front-flush
- 8 G¾" A, ISO 228-1, front-flush, ≤ 20 bar
- 9 G½" B, ISO 228-1, front-flush, ≤ 20 bar
- R milk tube DIN 11851, DN25, PN40, ≤ 20 bar
- N milk tube DIN 11851, DN40, PN40
- M milk tube DIN 11851, DN50, PN40
- P Varivent® N, Ø68 mm, DN40-125 (1½"-6"), PN 40
- L DRD DN50, Ø65 mm, PN25
- T Tri-Clamp 2"/DN51, PN16/40
- F flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
- G flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
- Y others

material gaskets (process wetted)

- 1 FPM - fluoroelastomer (Viton®)
- 2 CR - chloroprene rubber (Neopren®)
- 3 EPDM - Ethylen-Propylen-Dienmonomer - food applications
- 4 FFKM - perfluorelastomere (Kalrez®)
- 6 FFKM hd - perfluorelastomere high density - gas applications

material process connection (process wetted)

- V steel 1.4404/316L or 1.4571/316Ti

material connection housing

- C CrNi-steel

measuring range

- 01 0...100 mbar
- 02 0...200 mbar
- 03 0...400 mbar
- 04 0...600 mbar
- 05 0...1 bar
- 06 0...1,6 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...20 bar
- 13 0...40 bar
- 14 0...60 bar
- 15 -100...0 mbar
- 16 -1...0 bar
- 17 -1...+1 bar
- 18 -100...+100 mbar
- YY special measuring range (poss. higher deviation accuracy)

electronics - output (others on request)

- A 3-wire, 2x PNP
- B 3-wire, signal 4...20mA, 1x PNP
- C 3-wire, signal 4...20mA, 2x PNP
- D 3-wire, signal 4...20mA, 1x PNP, Desina

process temperature

- 0 standard, -40°C...+100°C
- 1 advanced, -40°C...+125°C, temperature decoupler

pressure type

- R gauge pressure
- A absolute pressure

electrical connection

- S plug M12

Order code

Precont®	PS	C	V	C	S
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Equipment

Ordering information

- BKZ0412-VA
- BKZ0512-VA
- LKZ0405PUR-AS
- LKZ0410PUR-AS
- LKZ0505PUR-AS
- LKZ0510PUR-AS

Model

- matching cable socket, VA-nut
- matching cable socket, VA-nut (with electronics „C“ 4-20mA, 2xPNP)
- connection cable 5 m, 4-pole, shielded
- connection cable 10 m, 4-pole, shielded
- connection cable 5 m, 5-pole, shielded
- connection cable 10 m, 5-pole, shielded

PG E



Precont® PSM

digital pressure switch with metal membrane up to 1000 bar, 4-digit LED-display, 2 switching outputs, analog output 4...20 mA, **also front-flush membrane!**

3 / 01.16

Technical data



power supply:	11,2 V up to 35 V DC	
supply current:	≤ 50mA	incl. analog output with max. 22,5 mA
2xPNP-switching output function:	PNP-switching on +Vs	switching outputs in neutral
output current:	≤ 250 mA	current limited, short circuit protected
analog output 4...20mA		
work space:	4...20mA	
resolution:	≤ 1 μA	
reaction time:	≤ 3 ms	
measurement accuracy		
characteristics deviation:	≤ ± 0,5% FS	
long term drift:	≤ ± 0,2% FS / year	not cumulative
temperature deviation:	≤ ± 0,2% FS / 10 K	(Zero / Span)
materials		
membrane:	≥ 40 bar	steel 1.4571/316Ti
(medium contact)	< 40 bar	steel 1.4542/630 resp. 1.4534
process connection:		
(medium contact)	steel 1.4571/316Ti	
connection housing:	CrNi-steel / PC polycarbonate	
gaskets:		
(medium contact)	FPM – fluoroelastomer (Viton®)	
	EPDM – Ethylene-propylene-diene monomer	
	NBR – nitrile-butadiene rubber	
environmental conditions		
ambient temperature:	- 40°C...+85°C	
process temperatures:	- 40°C...+100°C resp. +125°C	
process pressure ranges:	- 1 bar ...1000 bar	
protection:	IP68 / 1mH ₂ O for 1h	DIN EN 60529

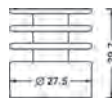


Pressure measurement

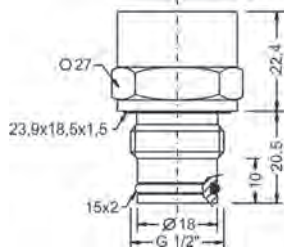
connection housing



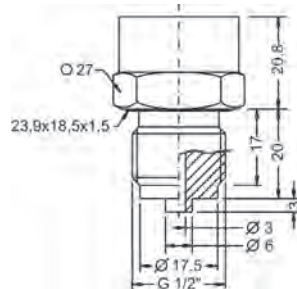
temperature decoupler



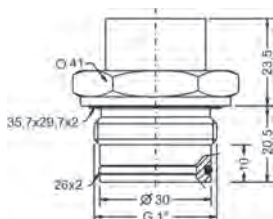
type 0
G 1/2" ISO 228-1 - front-flush



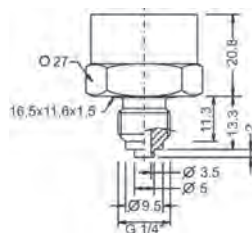
type 1
G 1/2" ISO 228-1 - DIN 837-3



type 5
G 1" ISO 228-1 - front-flush



type 6
G 1/4" ISO 228-1 - DIN 837-3



Application

The devices of the series Precont® PS with integrated digital evaluation electronic are compact pressure switches for supervision, control and continuous measurement of pressures up to 1000 bar. By this the replacement of mechanical contact manometer is possible. Besides a bright luminous 4-digit LED display there are up to 2 free configurable PNP switching outputs incl. 4...20mA output available. The use is possible in gases, steams, liquids, oils and dusts inside closed containers or pipelines at process temperatures from - 40°C up to +125°C. The extremely short reaction time of 3ms allows also the use in hydraulic units and in pneumatic applications.

Precont® PSM

digital pressure switch with metal membrane up to 1000 bar, 4-digit LED-display, 2 switching outputs, analog output 4...20 mA, **also front-flush membrane!**

3 / 01.16

Equipment

welding flanges
page 220

PS	model standard
M	measuring system - accuracy (<i>medium contact</i>) metall, DMS-thin-film/piezoresistive / 0,5%
0	process connection G½" B, ISO 228-1, front-flush, radial O-ring, not for following ranges 0...400 mbar, 0..1 bar, -1..0 bar, 0...1000 bar.
1	G½" B, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer.
5	G1" B, ISO 228-1, front-flush, radial O-ring, for ranges 0...400 mbar, 0..1 bar, -1..0 bar
6	G¼" B, ISO 228-1, DIN EN 837-3 (DIN16288) manometer
Y	others
0	gaskets (<i>medium contact</i>) NBR, nitrile-butadiene rubber
1	FPM - fluoroelastomer (Viton®)
3	EPDM - Ethylen-Propylen-Dienmonomer - food applications
V	material process connection (<i>medium contact</i>) steel 1.4571/316Ti - 1.4542/630 - 1.4534/S13800
C	material connection housing CrNi-steel
03	measuring range 0...400 mbar
05	0...1 bar
08	0...4 bar
10	0...10 bar
13	0...40 bar
19	0...100 bar
23	0...400 bar
24	0...600 bar
25	0...1000 bar, <i>only for G½" B, G¼" B according to DIN EN 837-3 (manometer)</i>
16	-1...0 bar
17	-1...+1 bar
YY	special measuring range (poss. higher deviation accuracy)
A	electronics - output 3-wire, 2x PNP
B	1x PNP-switching output, analog output, 4...20 mA
C	2x PNP-switching output, analog output, 4...20 mA
D	3-wire, signal 4...20mA, 1x PNP, Desina.
0	process temperature standard, -40°C up to +100°C
1	advanced, -40°C up to +125°C, temperature decoupler
R	pressure type gauge pressure
A	absolute pressure
S	electrical connection plug M 12x1

Price group D

Pressure measurement

Precont® PSM

1 - 5 pieces
6 - 10 pieces
11 - 30 pieces

Order code

Precont® PS

M V C S

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

REMO12
REMO10
BEFK12

Model
matching cable socket, VA-nut

matching cable socket, VA-nut (with electronics „C“ 4-20mA, 2xPNP)

connection cable 5 m, 4-pole, shielded.

connection cable 10 m, 4-pole, shielded.

connection cable 5 m, 5-pole, shielded.

connection cable 10 m, 5-pole, shielded.

weld-in socket, for connection 0

weld-in socket, for connection 5

weld-in socket, for connection 1

PG B | PGE



Precont® PL

digital process pressure sensor for hygienic applications in food or pharma industry,
2 switch contacts + analog output

3 / 01.16

Technical data



power supply: 11,2 V up to 35 V DC
supply current: ≤ 50 mA

2xPNP-switching output function: PNP-switching on +Vs
output current: ≤ 250 mA
analog output 4...20mA
work space: 4...20mA
resolution: $\leq 1 \mu\text{A}$
reaction time: ≤ 3 ms
measurement accuracy characteristics deviation: $\leq \pm 0,5\%$ FS
long term drift: $\leq \pm 0,2\%$ FS / year not cumulative
temperature deviation: $\leq \pm 0,2\%$ FS / 10 K (Zero / Span)

materials
membrane: (medium contact) steel 1.4535/316L
process connection: (medium contact) steel 1.4571/316Ti
connection housing: CrNi-steel / PC polycarbonate
gaskets: (medium contact) FPM – fluoroelastomer (Viton®)
EPDM – Ethylene-propylene-diene monomer
silicone

environmental conditions
ambient temperature: $-40^\circ\text{C} \dots +85^\circ\text{C}$
process temperatures: $-40^\circ\text{C} \dots +150^\circ\text{C}$
process pressure ranges: -1 bar ...25 bar
protection: IP68 / 1mH₂O for 1h DIN EN 60529

incl. analog output with max. 22,5 mA switching outputs in neutral
current limited, short circuit protected



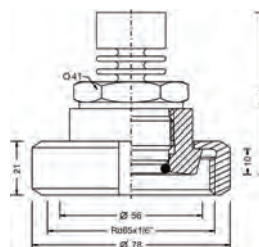
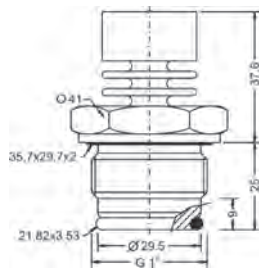
process connection 5

connection housing



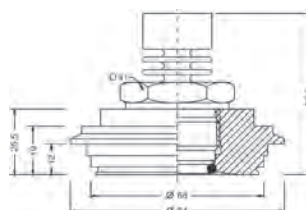
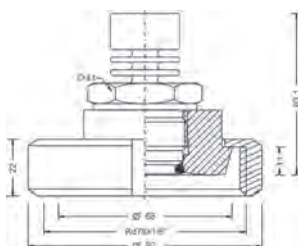
type 5
G 1" ISO 228-1 - front-flush

type N
DN40 DIN 11851 - front-flush



type M
DN50 DIN 11851 - front-flush

type P
Varivent® N, Ø68 mm



Application

The devices of the series Precont® PL with integrated digital evaluation electronic are compact pressure switches with an EHEDG conform process connection for hygienic applications for monitoring, regulation and continuous measuring of pressures from -1 up to 25 bar in gases, steams, liquids and dusts inside closed containers or pipes at process temperatures from -20°C up to $+150^\circ\text{C}$.

The pressure switch Precont® PL is especially designed for the requirements of the food and semi-luxury items industry and also für the pharmaceutical industry and biotechnology. This is especially valid for the conditions that occurs in CIP/SIP cleaning processes, like chemical resistance against cleaning solvents and insensitiveness against increased temperatures.

Because of the availability of adapters for the common process connections like varivent or connections according to DIN11851 with cone flange with groove nut for tubes according to DIN 11850, and also a fitting weld-in sleeve, the pressure switch can be used in nearly every hygienic application.

The use of a strain gauge with a metallic membrane and the corresponding excellent characteristics like high pressure and pressure blow strength, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interferences, high accuracy and long term stability and also low temperature sensitiveness allows the use in nearly all ranges of industrial environment.

Precont® PL

digital process pressure sensor for hygienic applications in food or pharma industry,
2 switch contacts + analog output

3 / 01.16

Equipment
welding flanges
page 220

basic price

PL	model standard
M	measuring system - accuracy (medium contact) metall, DMS-piezoresistive / 0,5%
S	process connection G1" B, DIN EN ISO228-1 front-flush, with radial O-ring, EHEDG conform
N	milk tube DIN 11851, DN40
M	milk tube DIN 11851, DN50
P	Varivent® N, DN68, PN16
	gaskets (medium contact) 1 FPM - fluoroelastomer (Viton®)
3	EPDM - Ethylen-Propylen-Dienmonomer - food applications
V	material process connection (medium contact) steel 1.4435/316L
C	material connection housing CrNi-steel
01	measuring range 0...100 mbar
02	0...250 mbar
03	0...400 mbar
04	0...600 mbar
05	0...1 bar
07	0...2,5 bar
08	0...4 bar
09	0...6 bar
10	0...10 bar
11	0...16 bar
12	0...25 bar
16	-1...0 bar
17	-1...+1 bar
YY	special measuring range (poss. higher deviation accuracy)
A	electronics - output 3-wire, 2x PNP
B	1x PNP-switching output + analog output 4...20 mA
C	2x PNP-switching output + analog output 4...20 mA
D	3-wire, signal 4...20mA, 1x PNP, Desina
1	process temperature standard, -20°C...+150°C
R	pressure type gauge pressure
A	absolute pressure
S	electrical connection plug M12x1

Price group A

Pressure measurement

Order code

Precont® PL M V C 1 S

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model
matching cable socket, VA-nut

matching cable socket, VA-nut (with electronics „C“ 4-20mA, 2xPNP)

connection cable 5 m, 4-pole, shielded.

connection cable 10 m, 4-pole, shielded.

connection cable 5 m, 5-pole, shielded.

connection cable 10 m, 5-pole, shielded.

PGE



Precont® DDN10

differential pressure transmitter

3 / 01.16

Technical data



power supply: 4...20mA / 2-wire
 FOUNDATION Fieldbus 10,5...42 V DC EX 10,5...30 V DC
 Profibus PA 9...32 V DC Ex 9...24V DC (17,5V FISCO)
 current consumption 9...32 V DC Ex 9...24V DC (17,5V FISCO)
 measurement accuracy in operation (standby current): 15 mA
 characteristics deviation: ± 0,025% / 0,06 % / 0,075% / 0,10% / 0,04% FS
 temperature deviation: ± 0,03% / 0,04% / 0,055% / 0,09% FS / 10 K
 materials
 separating membrane: (medium contact) stainless steel 1.4435 (AISI 316 L); Monel 400™; Tantal;
 stainless steel 1.4435 (AISI 316 L) gold plated;
 Hastelloy C-276™; Hastelloy C-276™ on AISI 316L ss gasket seat.
 process flanges, adapter: stainless steel 1.4404 / 1.4408 (AISI 316 L);
 Hastelloy C-276™; Monel 400™; Kynar (flange of stainless steel AISI 316L with PVDF-Einsatz)
 gaskets: (medium contact) Viton® (FPM); PTFE
 environmental conditions
 ambient temperature: - 10°C / -25°C / -40°C...+85°C
 process temperatures: - 10°C / -25°C / -40°C...+121°C
 measure ranges: 0,5 mbar...160 bar
 protection: The differential pressure transmitter is protected against sand, dust and immersion according to EN 60529 (1989) with IP 67 (IP 68 on request) resp. to NEMA 4X resp. to JIS C0920. IP 65 with Harting Han-plu-connection.

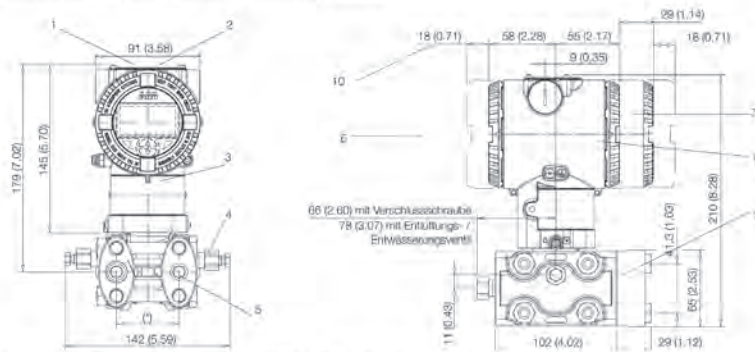


Barrel-housing



DIN-housing

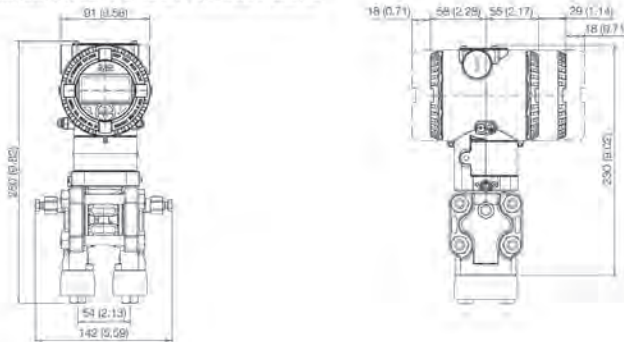
Messumformer mit Barrel-Gehäuse - Horizontale Flansche



1 Einstellungen | 2 Typenschild | 3 Zertifizierungsschild | 4 Entlüftungs-/ Entwässerungsventil | 5 Prozessanschluss | 6 Anschlussseite | 7 LCD-Display-Gehäusedeckel | 8 Elektronikseite | 9 Prozessflanschadapter | 10 Raum zum Abnehmen des Deckels
 *) 54 (2,13) mm (H) über 3 - 18 NPT Prozessflansche
 51 (2,01), 54 (2,13) oder 57 (2,24) mm (H) über 1/2 - 14 NPT-Adapterflansche

WICHTIG: Prozessanschluss und Dichtungsekit entsprechen IEC 61518. Die Schraubgewinde zur Befestigung der Adapterflansche oder anderer Komponenten (z.B. Ventilblock usw.) am Prozessflansch sind 7/16 - 20 UNF.

Messumformer mit Barrel-Gehäuse - Vertikale Flansche



Application

- measuring accuracy: ±0,04%
- measuring range: 0,5 bis +160 bar
- widespread range of sensors
- optimized performance and 10 years stability
- flexible local configuration possibilities und local configuration via cursor keys on LCD display
- new TTG (Through-The-Glass) cursor-Key-technology offers fast and easy local configuration without opening the cove, even for use in areas with an explosive atmosphere
- the attention of the pressure vessel guideline, PED-category III
- IEC 61508-certification for SIL2- (1oo1) and SIL3- (1oo2)
- latest sensor technology combined with cutting edge technology
- high turndown ratio up to 100:1
- absolute vacuum resistance
- detection of blocked differential pressure pipe

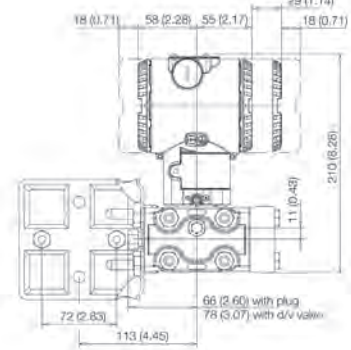
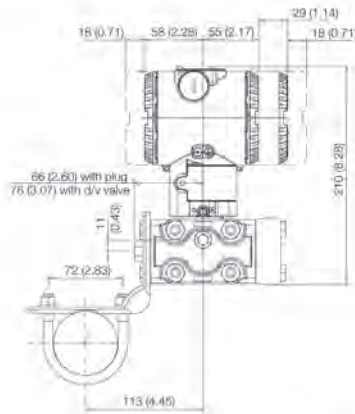
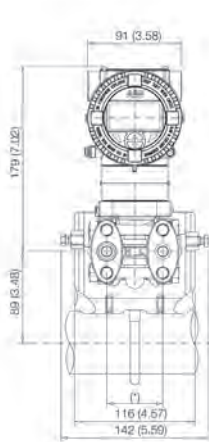
Pressure measurement

Precont® DDN10

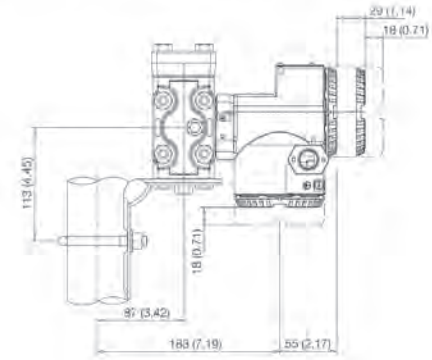
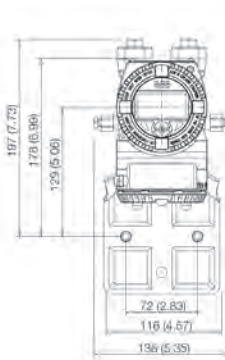
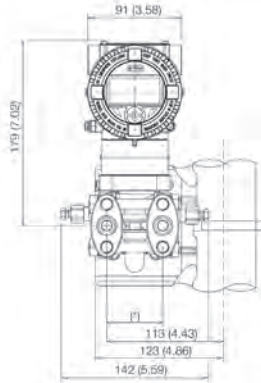
differential pressure transmitter

3 / 01.16

Messumformer mit Befestigungshalterung zur vertikalen oder horizontalen Montage an 60 mm (2 in.) Rohr

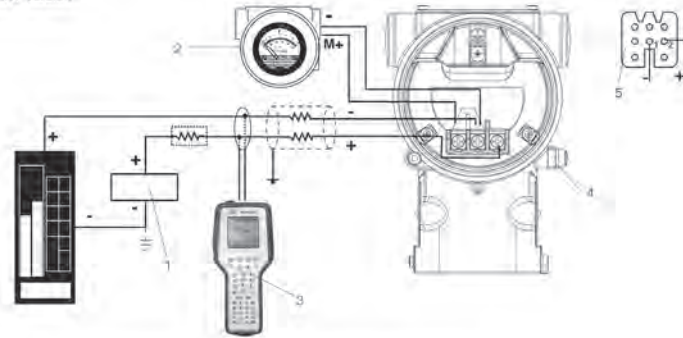


Messumformer mit DIN-Aluminiumgehäuse - horizontale Flansche mit Befestigungshalterung zur vertikalen oder horizontalen Montage an 60 mm (2 in.) Rohr



Elektrische Anschlüsse

HART Version



1 Spannungsversorgung | 2 Fernanzeige | 3 Hand-Kommunikator | 4 Externer Erdungsanschluss | 5 Harting Han 8D (8U)-Buchsenensatz des mitgelieferten Gegensteckers (Sicht auf Buchsen)

Der HART Hand-Kommunikator kann an jedem beliebigen Verdrahtungsanschlusspunkt in der Schleife angeschlossen werden, sofern ein Mindestwiderstand von 250 Ω zwischen Kommunikator und Messumformer-Versorgung vorhanden ist. Beträgt dieser weniger als 250 Ω, sind zusätzliche Widerstände einzubauen, um eine Kommunikation zu ermöglichen.

Feldbus-Versionen



Abb. 8: Steckverbinder - Feldbus-Versionen

PINBELEGUNG (Stecker)		
	FOUNDATION Fieldbus	PROFIBUS PA
1	DATEN -	DATEN +
2	DATEN +	ERDE
3	SCHIRM	DATEN -
4	ERDE	SCHIRM

Lieferumfang: lose beigelegter Steckverbinder ohne Gegenstecker (Buchse)

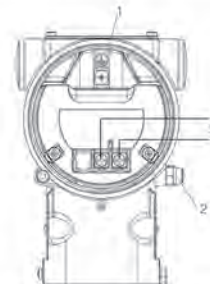


Abb. 9: Standard-Klemmleiste
1 interne Erdungsklemme | 2 Externe Erdungsklemme | 3 Feldbus-Leitung (unabhängig von der Polarität)

Pressure measurement

basic price

explosion protection

- S standard
- E1 ATEX intrinsic safety II 1 G and II 1/2 G Ex ia IIC T6; II 1 D Ex iaD 20 T 95 °C and II 1/2D Ex iaD 21 T95 °C
- E2 ATEX pressure-resistant encapsulation Group II Category 1/2 G Ex d IIC T6 and Group II Category 1/2 D Ex td A21 IP67 T85 °C (Note 18)
- E3 ATEX energy limited Group II Category 3 G Ex nL IIC T6 and Group II Category 3 D Ex td A22 IP67 T85 °C

option

0

output

- H HART-digital communication and 4 ... 20 mA (no further options) (Notes 10, 11)
- 1 HART-digital communication and 4 ... 20 mA (product selection with additional order code) (Note 10)
- P PROFIBUS PA (no further options) (Notes 10, 11)
- 2 PROF IBUS PA (product selection with additional order code) (Note 11)
- F FOUNDATION Fieldbus (no further options) (Notes 10, 11)
- 3 FOUNDATION Fieldbus (product selection with additional order code) (Note 11)
- T HART-digital communication and 4 ... 20 mA, certificated according to IEC 61508 (no further options) (Notes 10, 11)
- 8 HART-digital communication and 4 ... 20 mA, certificated according to IEC 61508 (product selection with additional order code) (Note 10)

material process flange and adapter / connections (medium contact)

- A stainless steel AISI 316 L ss (horizontal) 1/4 - 18 NPT-f direct NACE
- B stainless steel AISI 316 L ss (horizontal) 1/2 - 14 NPT-f via adapter NACE
- D Hastelloy C-276™ (horizontal) 1/4 - 18 NPT-f direct (Note 3) NACE
- E Hastelloy C-276™ (horizontal) 1/2 - 14 NPT-f via adapter (Note 3) NACE
- G Monel 400™ (horizontal) 1/4 - 18 NPT-f direct (Notes 3, 4) NACE
- H Monel 400™ (horizontal) 1/2 - 14 NPT-f via adapter (Notes 3, 4) NACE
- Q stainless steel AISI 316 L ss (Vertical) 1/4 - 18 NPT-f direct NACE
- T stainless steel AISI 316 L ss (Vertical) 1/2 - 14 NPT-f via adapter NACE
- M Hastelloy C-276™ (Vertical) 1/4 - 18 NPT-f direct (Note 3) NACE
- S Hastelloy C-276™ (Vertical) 1/2 - 14 NPT-f via adapter (Note 3) NACE
- U Monel 400™ (Vertical) 1/4 - 18 NPT-f direct (Notes 3, 4) NACE
- V Monel 400™ (Vertical) 1/2 - 14 NPT-f via adapter (Notes 3, 4) NACE
- P Kynar (stainless steel with inserting part of PVDF)
1/4 - 18 NPT-f direct (lateral axial) (Notes 5, 6)
- Z Kynar (stainless steel with inserting part of PVDF)
1/2 - 14 NPT-f direct (lateral axial) (Notes 5, 6)

housing material / electrical connection

- 5 aluminium alloy (Barrel-type) 1/2 - 14 NPT
- B aluminium alloy (Barrel-type) M20 x 1.5 (CM 20)
- A aluminium alloy (Barrel-type) Harting Han-plug connector
(for standard applications) (Note 9)
- F aluminium alloy (Barrel-type) Fieldbus-plug connector
(for standard applications) (Note 9)
- S stainless steel (Barrel-type) 1/2 - 14 NPT
- T stainless steel (Barrel-type) M20 x 1.5 (CM20)
- Z stainless steel (Barrel-type) Feldbus-plug connector
(for standard applications) (Note 9)
- J aluminium alloy (DIN-type) M20 x 1.5 (CM20)
- K aluminium alloy (DIN-type) Harting Han-plug connector
(for standard applications) (Note 9)
- W aluminium alloy (DIN-type) Feldbus-plug connector
(for standard applications) (Note 9)

sensor measuring range limits

- A 0,05 and 1 kPa; 0,5 and 10 mbar; 0,2 and 4 inH₂O
- B 0,2 and 4 kPa; 2 and 40 mbar; 0,8 and 16 inH₂O
- E 0,54 and 16 kPa; 5,4 and 160 mbar; 2,16 and 64 inH₂O
- F 0,4 and 40 kPa; 4 and 400 mbar; 1,6 and 160 inH₂O
- G 0,65 and 65 kPa; 6,5 and 650 mbar; 2,6 and 260 inH₂O
- H 1,6 and 160 kPa; 16 and 1600 mbar; 6,4 and 642 inH₂O
- M 6 and 600 kPa; 0,06 and 6 bar; 0,87 and 87 psi
- P 24 and 2400 kPa; 0,24 and 24 bar; 3,5 and 348 psi
- Q 80 and 8000 kPa; 0,8 and 80 bar; 11,6 and 1160 psi
- S 160 and 16000 kPa; 1,6 and 160 bar; 23,2 and 2320 psi

calibration

- 1 unit: mbar / bar
- 2 unit: mbar / bar customized pressure

membrane liquid + material (medium contact)

- S stainless steel 1.4435 - silicone oil
- K Hastelloy® C276 - silicone oil
- T Tantal - silicone oil
- U stainless steel 1.4435 - fluorocarbon
- W Hastelloy® C276 - fluorocarbon
- X Tantal - fluorocarbon

additional equipment

- 0 without overvoltage protection
- S with overvoltage protection

certificates 1

- Z with calibration protocol
- 0 standard

Price group A

Order code

Precont® DDN10 0

Precont® DDN10

differential pressure transmitter

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certifications

H acceptance test certificate 3.1.B of the pressure-bearing and medium contacting parts EN10204
0 standard.

screws / gaskets

(medium contact)

1 stainless steel Viton®, NACE.
2 stainless steel PTFE max. PN250, NACE.
3 stainless steel EPDM, NACE.
6 stainless steel Buna.

venting valve- resp. drain valve material / position

(medium contact)

1 stainless steel *AISI 316L (1.4404)* on process axe (Notes 7, 12) NACE.
2 stainless steel *AISI 316L (1.4404)* upper side of the flange (Notes 7, 13) NACE.
3 stainless steel *AISI 316L (1.4404)* lower side of the flange (Notes 7, 13) NACE.
4 Hastelloy C-276™ on process axe (Notes 7, 14) NACE.
5 Hastelloy C-276™ upper side of the flange (Notes 7, 15) NACE.
6 Hastelloy C-276™ lower side of the flange (Notes 7, 15) NACE.
7 Monel 400™ on process axe (Notes 7, 16) NACE.
8 Monel 400™ upper side of the flange (Notes 7, 17) NACE.
9 Monel 400™ lower side of the flange (Notes 7, 17) NACE.

connection

A terminal compartment
M Fieldbus M12x1.

mounting accessories

00 without
B2 pipe mounting
B4 wall mounting.

integrated digital display (LCD)

L1 standard with integrated LCD-display up to 85°C.
L5 with integrated Touch Screen LCD-display (TTG) up to 65°C.

operating instructions

(max. 2 selectable variations)

M1 german
M2 italian
M3 spanish
M4 french
M5 english.

Price group A

Pressure
measurement

Order code / continuation

Precont® DDN10



Precont® DD109A

cost-effective differential pressure transmitter with hose connection for wall mounting, in two-wire technology

3 / 01.16

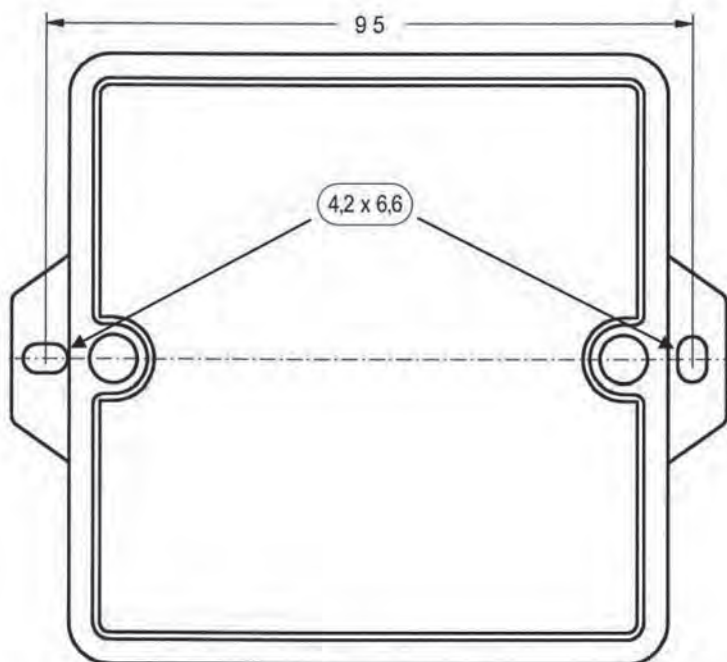
Technical data



power supply: $U_0 = 10...36$ V DC
 measuring range: 0...25 mbar | 0...50 mbar | 0...100 mbar
 measurement system: semiconductor sensor
 basic accuracy: $\pm 1\%$ from terminal value
 medium: air, as well as dry, not aggressive gases
 analog output: 4...20 mA two-wire technology
 max. permissible working resistance: $R_s = (U_0 - 9 \text{ V}) / 0,02 \text{ A}$
 pressure connection quick coupling: 2mm for 6mm outer diameter
 ambient temperature: $-20^\circ\text{C}...55^\circ\text{C}$

plastic housing: 88x88x53 mm
 electrical connection: spring clamps 0,2...1,5mm²

licence
 declaration of conformity: CE
 ATEX: ATEX II 3D T135 °C IP65



Technische Änderungen vorbehalten !

Application

The differential pressure transmitter is a transmitter Precont® DD109A for small and medium pressures.

Due to the layout with different pressure sensors measuring ranges between 0 and 25 can mbar, 0 to 50 mbar and performed 0 to 100 mbar.

Precont® DD109A

cost-effective differential pressure transmitter with hose connection for wall mounting, in two-wire technology

3 / 01.16

W	mounting	.....
	wall mounting.....	.....
	measuring range (difference)	.....
D	0...25 mbar.....	.....
G	0...50 mbar.....	.....
I	0...100 mbar.....	.....
Y	special measuring range.....	.....
	hose connection	.....
6	push-in bulkhead connector for 6mm outer diameter.....	.....
	power supply	.....
0	10...36 V DC.....	.....
	output	.....
0	4...20mA two-wire-technology.....	.....
	licence	.....
Ex	ATEX II 3D T135°C IP 65 zone 22.....	.....

Price group B

Pressure measurement

Order code

Precont® DD109A S

Precont® DD110A

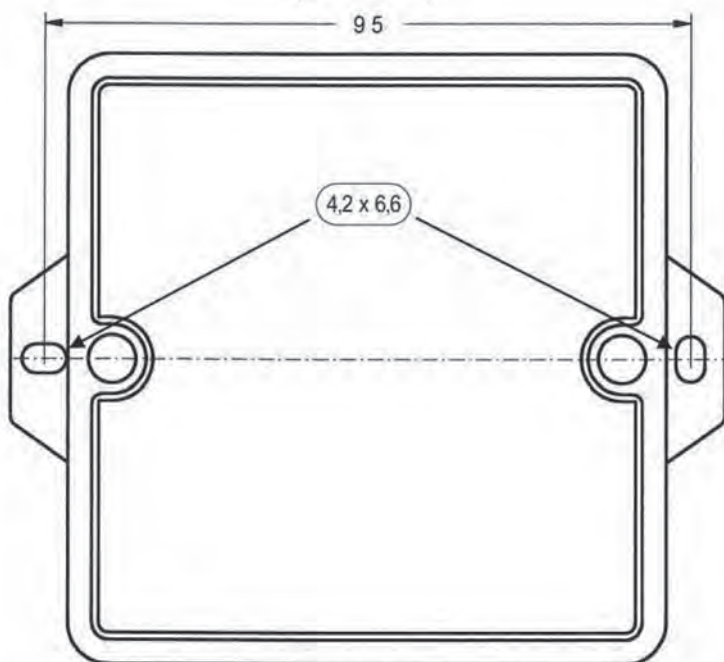
differential pressure transmitter with hose connection for wall or standard rail mounting, with two-wire technology 4...20mA

3 / 01.16

Technical data



power supply:	0...36 V DC
operating temperature:	-20°C...+55°C
measuring range:	0...2,5 mbar | 0...5 mbar | 0...10 mbar | 0...25 mbar | 0...50 mbar | 0...100 mbar | 0...250 mbar | 0...500 mbar | 0...1000 mbar
measurement system:	semiconductor sensor
medium:	air, as well as dry, not aggressive gases
analog output:	4...20 mA two-wire technology
pressure connection	
hose stem:	for hose with 4mm or 6mm inner diameter
accuracy	
basic accuracy:	± 1% from terminal value
temperature drift:	± 0,05% from terminal value
hysteresis:	± 0,5% from terminal value
electrical connection:	spring clamps for wires 0,2...1,5 mm ²
housing	
plastic housing:	88x88x53 mm (BxHxT)
licence	
declaration of conformity:	CE
ATEX:	ATEX II 3D T135°C IP65 zone 22 (only wall housing)



Technische Änderungen vorbehalten !

Application

The differential pressure transmitter Precont® DD110A is a universal transmitter for small and medium pressures. By fitting with different pressure sensors measuring between 2.5 and 100 mbar realized.

Two connecting cables are used for power supply. The supply current is the measurement signal of 4 .. 20 mA. The state is indicated by an LED.

Precont® DD110A

differential pressure transmitter with hose connection for wall or standard rail mounting, with two-wire technology 4...20mA

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Price group B

Pressure measurement

mounting	
W wall housing (Dust-Ex zone 22)	
N DIN rail housing (Ex)	
measuring range (difference)	
A 0...2,5 mbar	
B 0...5,0 mbar	
C 0...10 mbar	
D 0...25 mbar	
G 0...50 mbar	
I 0...100 mbar	
K 0...250 mbar	
L 0...500 mbar	
N 0...1 bar	
Y special measuring range	
hose connection	
4 4 mm diameter (only with wall housing)	
6 6 mm diameter	
power supply	
0 10...36 V DC	
output	
0 4...20mA two-wire-technology	
licence	
Ex ATEX II 3D T135°C IP 65 zone 22 (only with wall housing)	
00 without licence (only with DIN rail)	

Order code

Precont® DD110A S

Precont® DD121G

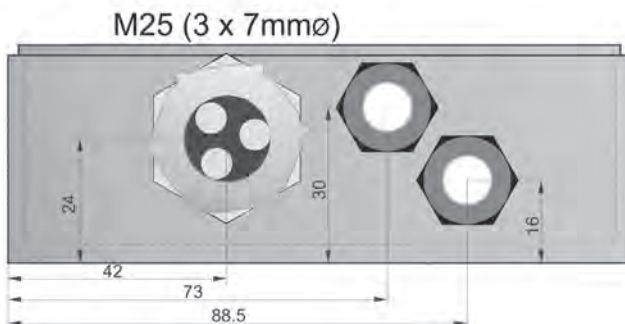
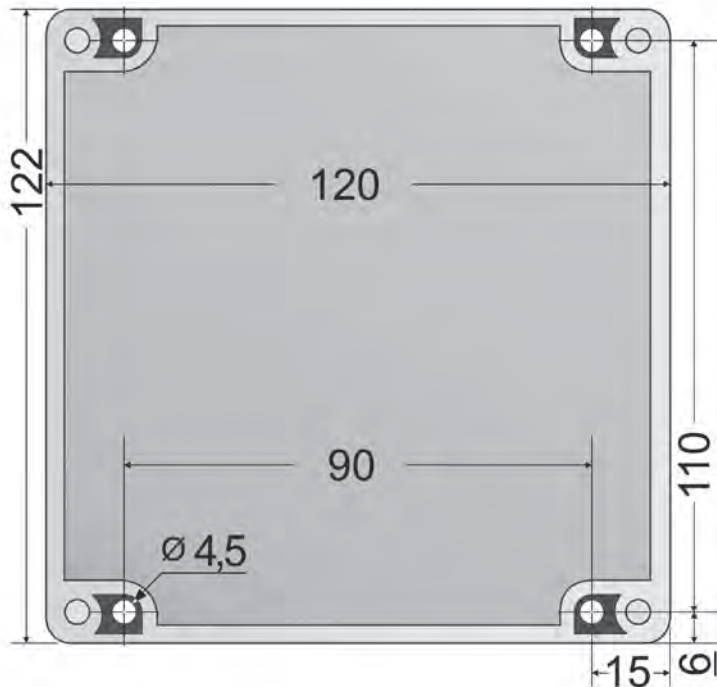
differential pressure transmitter with 3½-digit LED display and 2 switching threshold for monitoring and control tasks, and (0)/4...20mA, 0...10V output

3 / 01.16

Technical data



measuring system:	semiconductor sensor
ΔP-Sensor:	measuring range: 0 - 25 / 30 / 40 / 50 / 70 / 100 / 500 mbar
max. static pressure:	1 bar
basic accuracy:	± 1%
temperature drift / end value:	± 0,05 % / K
medium:	air, as well as dry, not aggressive gases
relay outputs:	1 changeover for eg. pre-alarm etc. 1 changeover for ΔP-alarm contact load 250 V AC / 5 A, 120 V DC / 1 A
analog-output:	0(4) ... 20 mA or 0 ... 10 V
power supply:	230 V AC, 50-60 Hz, ±10% 115 V AC, 50-60 Hz, ±10%, option 24 V AC, -25%/+10%; 24 V DC, -16%/+50%; option
power consumption:	≤ 3 VA
electrical connection:	spring clamps for 1,0 mm² fine stranded 1,5 mm² single-wire
pressure connection:	tube connection G¼" internal thread
hose stem optional:	4 mm, 6 mm
ambient temperature:	Betrieb: -10 ... +50 °C
explosion protection:	II 3D T60°C IP65 zone 22
model:	dust-proof makrolon housing (IP65), with 1 screw connection (M25), multiple sealing inserts (3 x 7mm) 122 x 120 x 55 mm (H x B x T)



Application

The Precont® DD121G is a universal transmitter for small differential pressures (<100 mbar). The current differential is 3 ½-digit digital display. The device has two thresholds for monitoring and control purposes, eg for Ap-dependent cleaning in industrial dust extraction. An additional alarm threshold is used for monitoring a maximum differential pressure. The status of the relay is indicated by LEDs. The device is dust-proof and approved for use in Ex-zone 22.

Precont® DD121G

differential pressure transmitter with 3½-digit LED display and 2 switching threshold for monitoring and control tasks, and (0)/4...20mA, 0...10V output

3 / 01.16

Price group B

Pressure measurement

W	mounting	wall housing
	measuring range (difference)	
A		0...2,5 mbar
B		0...5,0 mbar
C		0...10 mbar
D		0...25 mbar
E		0...30 mbar
F		0...40 mbar
G		0...50 mbar
H		0...70 mbar
I		0...100 mbar
L		0...500 mbar
Y		special measuring range
	pressure connection	
1		tube connection G¼" internal thread
4		4 mm hose connection (option)
6		6 mm hose connection (option)
	power supply	
0		230 V AC
1		24 V DC
	output	
1		2 limit values and 4...20 mA
2		2 limit values and 0...20 mA
3		2 limit values and 0...10 V
	licence	
Ex		ATEX II 3D T60°C IP 65 zone 22

Order code

Precont® DD121G S



Precont® ECO

pressure sensor with ceramic measuring cell, 4-20 mA / 0-10 V output, Low-Cost-version

3 / 01.16

Technical data



power supply:	6...30 V DC at 2-wire 4...20mA 15...30 V DC/AC at 3-wire 0...10V
measurement accuracy	
characteristics deviation:	≤ ±1% FS, hysteresis < 0,5% FS
temperature deviation:	≤ ±0,5% FS / 10 K
materials	
membrane:	ceramics AL ₂ O ₃ 96%
(medium contact)	
process connection:	steel 1.4305
(medium contact)	
gaskets:	FPM - fluoroelastomer (Viton®)
(medium contact)	EN 175-301-803-A (formerly DIN 43650-A);
device plug:	housing PA polyamide, contacts tinned, gasket NBR
environmental conditions	
ambient temperature:	0°C...+60°C
process temperatures:	0°C...+85°C
process pressure ranges:	-1 bar...60 bar
protection:	plug version according to EN 175-301-803 (formerly DIN 43650) IP65 EN/IEC 60529



Pressure measurement

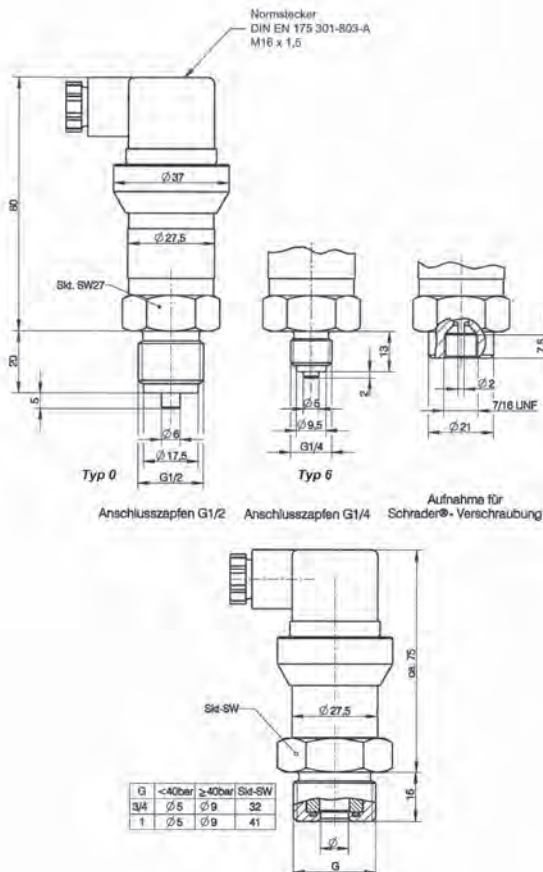
Application

The pressure transmitter series Precont® ECO are capable of measuring absolute pressure and over-pressure and vacuum in gases, steams, liquids and dusts.

Through the ceramic membrane in conjunction with the process connection in stainless steel, good resistance to aggressive media is guaranteed.

As outputs 4-20mA 2-wire with variants, 0-20mA and 0-10V 3-wire are available.

The electrical connection occurs via a connector according to DIN 43650 design A.



Precont® ECO

pressure sensor with ceramic measuring cell, 4-20 mA / 0-10 V output,
Low-Cost-version

3 / 01.16

measuring range

01	0...600 mbar		
02	0...1 bar	11	60 bar
03	0...1,6 bar	31	-1...0 bar
04	2,5 bar	32	-1...0,6 bar
05	4,0 bar	33	-1...2,5 bar
06	6 bar	34	-1...3 bar
07	10 bar		
08	16 bar		
09	25 bar		
10	40 bar		

electronics-output

A	4...20 mA	
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process connection

12	1/2" external thread DIN EN ISO228-1
14	1/4" external thread DIN EN ISO228-1
21	internal thread 7/16 UNF, inclusion for Schrader-screw connection

Price group D

Precont® ECO

1	- 5 pieces
6	- 20 pieces
21	- 50 pieces

Pressure measurement

Order code

Precont® ECO



siphon for temperature decoupling

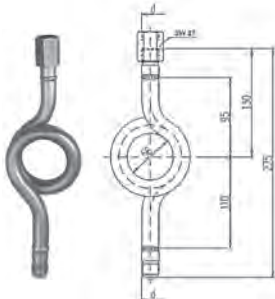
Ordering information

Model

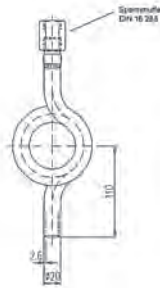
WSR-20 SAV
WSR-20 SBV

siphon, horizontal pressure-taking, steel 1.4571
siphon, vertical pressure-taking, steel 1.4571

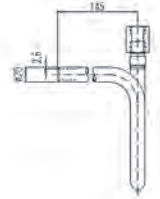
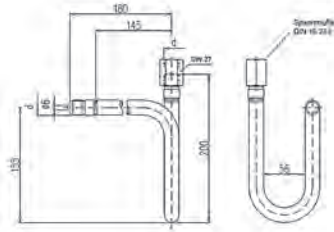
option: acceptance test certificate EN10204-3.1



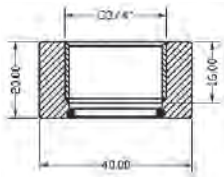
WSR-20 SBV
vertical pressure-taking



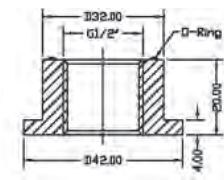
WSR-20 SAV
horizontal pressure-taking



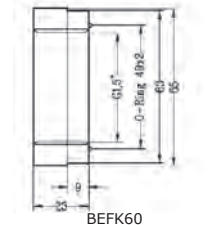
Pressure measurement



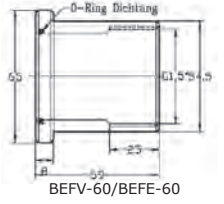
BEFV-34



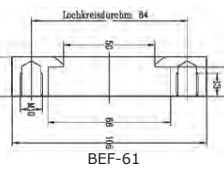
BEFK12



BEFK60



BEFV-60/BEFE-60



BEF-61

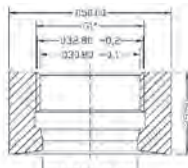
welding flanges for container for installation of Precont®

Ordering information

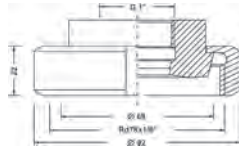
Model/material 1.4571 (gasket Viton®, others gaskets on request)

BEFV-34
BEFK12
BEFK60
BEFV-60
BEFE-60
BEF-61
BEFVE10
BEFA-62
BEFB-62
BEFC-62
BEF-63
REMO12
REMO10
TEM-11

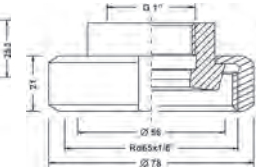
weld-in socket G $\frac{3}{4}$ " Viton® seal
weld-in socket G $\frac{1}{2}$ " EG, sealing attachment at the back
weld-in socket G $1\frac{1}{2}$ " EG, sealing attachment at the back
welding flange Ø 65 mm with Viton® seal
welding flange Ø 65 mm with EPDM seal
welding flange for DRD-connection Ø 65 mm
welding flange for Precont® PL, ML, and S30 process connection 5
welding flange milk tube connection DN50 according to DIN11851/1.4301
welding flange milk tube connection DN40 according to DIN11851/1.4301
welding flange milk tube connection DN25 according to DIN11851/1.4301
welding flange Varivent® Ø 68 mm PN40
weld-in socket G $\frac{1}{2}$ " for Precont® MT
weld-in socket G1" for Precont® MT
weld-in socket $\frac{1}{2}$ " for Precont® CT



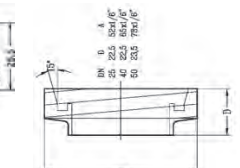
BEFVE10



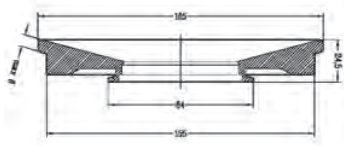
BEFA-62



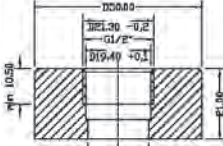
BEFB-62



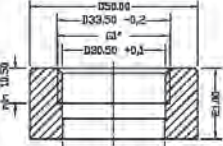
BEFC-62



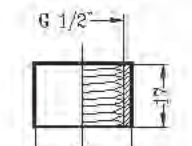
BEF-63



REMO12



REMO10



TEM-11

DIN-flanges with 1,5"-bore hole / reductions / tube nuts

Ordering information

Model/material 1.4571

FL-4001
FL-5001
FL-8001
FL-1001
FL-2201
FL-3201
FL-4201
RD-20Z15
RD-20Z10
RD-15Z10
RD-15Z12
RM-15GV
RM-10GV
RM-20GV
RM-38GV
RM-12GV

DN 40 / PN 16
DN 50 / PN 16
DN 80 / PN 16
DN 100 / PN 16
ANSI 2" / PSI 150
ANSI 3" / PSI 150
ANSI 4" / PSI 150
reduction G2" A auf G $1\frac{1}{2}$ " I
reduction G2" A auf G1" I
reduction G $1\frac{1}{2}$ " A auf G1" I
reduction G $1\frac{1}{2}$ " A auf G $\frac{1}{2}$ " I
tube nut DIN 431, 1 $\frac{1}{2}$ "
tube nut DIN 431, 1"
tube nut DIN 431, 2"
tube nut DIN 3 / 8"
tube nut DIN 1 / 2"



marking measurement point

AS-50

trailer plate made of VA with laser marking



4. Temperature measurement

Contents

Resistance thermometer with display

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Resistance thermometer

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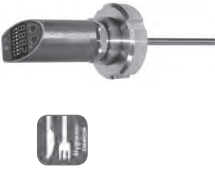
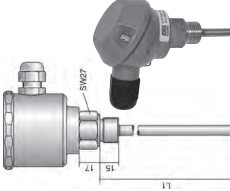
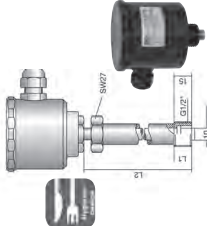

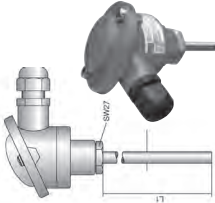
Equipment

Equipment PTV	LTN -500 and pipe clamp on for PTV	251
Equipment	for Pt100 sliding and welding sleeves	256
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GWN	equipment thread nipple	257
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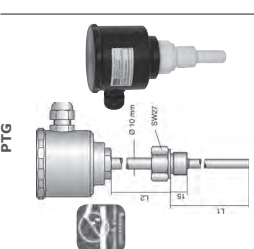
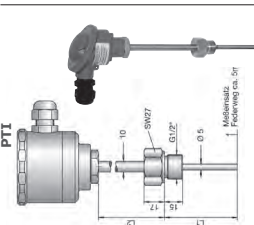
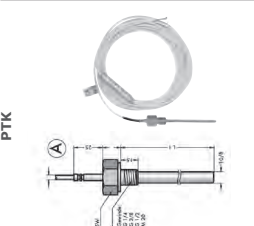
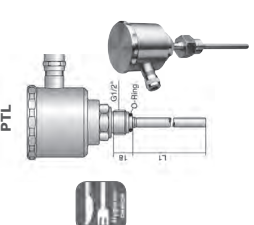
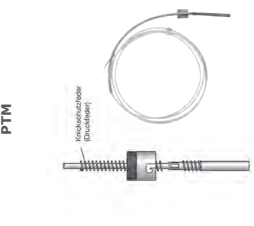
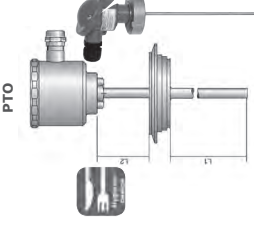
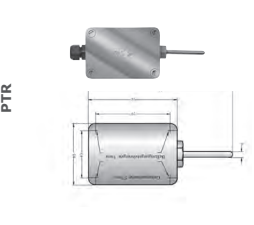
Infrared temperature-measuring devices

Thermohunter	contactless infrared built-in temperature sensor	259
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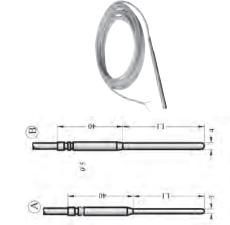
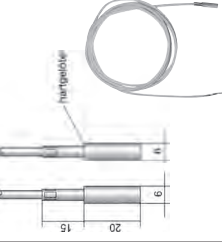
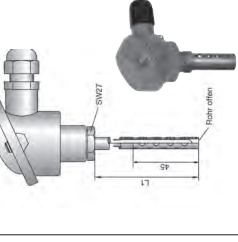
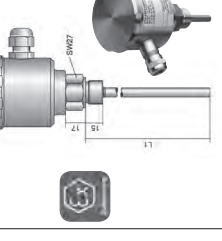
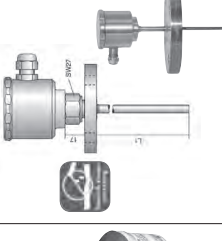




Type	Thermocont® ST	Thermocont® TS	Thermocont® TL	PTA	PTB	PTE	PTF
Operating principle							
Design	digital temperature sensor with display and switching points	digital temperature sensor with display and switching points	digital temperature sensor with display and switching points	standard - screw-in resistance thermometer measuring insert exchangeable	clamp-on sensor for front-flush welding sleeve measuring insert exchangeable	resistance thermometer zum grooving and immersion	standard- thermometer for sliding sleeve measuring insert exchangeable
Measure ranges	-99,9 up to +500°C	-99,9 up to +500°C	-99,9 up to +500°C	up to 300°C (600°C)	up to 200°C	up to 160°C	up to 300°C (600°C)
Areas of application:							
standard applications	X	X	X	X	X	X	X
Food applications / pharma industry	X	-	X	-	X	X	-
Heating, ventilation and air conditioning	X	X	X	X	X	X	X
Acid / bases	-	-	-	-	-	X	-
Ex-area	X	-	-	-	-	-	-
Process connections	thread G $\frac{1}{2}$ ", G $\frac{3}{8}$ ", G $\frac{1}{4}$ ", milk tube, Varivent, DRD, Tri-Clamp, DIN-flange	thread G $\frac{1}{2}$ ", G $\frac{3}{8}$ "	milk tube, Varivent, Tri-Clamp, for welding sleeve SEM-22, SEM-42	thread G $\frac{1}{2}$ ", G $\frac{3}{8}$ ", G $\frac{1}{4}$ ", DIN flange DN25, DN50	for welding sleeve TEM-10 TEM-11	grooving or immersion sensor	for sliding sleeve SEM and SEMT
Output/electronics	4...20 mA, 2-wire 0...10 V, 3-wire 2 PNP switching outputs	1 (2) PNP switching outputs 4...20 mA 3-wire	1 (2) PNP switching outputs 4...20 mA 3-wire	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA
Output adjustable	X	X	X	-	-	-	-
multi-function output	-	-	-	-	-	-	-
output passive/active	-	-	-	-	-	-	-
Multi-function input	-	-	-	-	-	-	-
Operating voltage/ universal mains supply circuit	-	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-	-
Certifications	ATEX	-	-	-	-	-	-
Limit values	-	-	-	-	-	-	-
Other information	-	self-monitoring function	self-monitoring function	-	-	-	-



Type	PTG	PTI	PTK	PTL	PTM	PTO	PTR
Operating principle							
Design	screw-in-thermometer acid and alkali resistant measuring insert exchangeable	thermowell thermometer with spring-loaded measuring insert measuring insert exchangeable	screw-in thermometer with cable outlet	resistance thermometer for hygienic applications measuring insert exchangeable	resistance thermometer with bayonet joint	resistance thermometer for hygienic applications measuring insert exchangeable	room sensor with connection box
Measure ranges	up to 180°C	up to 300°C (600°C)	up to 200°C (300°C)	up to 300°C	up to 200°C (300°C)	up to 300°C	-35 up to +80°C
Areas of application:							
standard applications	-	X	X	-	X	-	-
Food applications / pharma industry	-	-	X	X	-	X	-
Heating, ventilation and air conditioning	-	X	X	-	X	-	X
Acid / bases	X	-	-	-	-	-	-
Ex-area	-	-	-	-	-	-	-
Process connections	thread G $\frac{1}{2}$ " , G $\frac{3}{4}$ " , M20	thread G $\frac{1}{2}$ " , G1"	thread G $\frac{1}{4}$ " , G $\frac{3}{8}$ " , G $\frac{1}{2}$ " , M6, M8, M10, M20	for welding sockets SEM-12, SEM-32, SEM-42	bayonet 12,2 or 14,5	milk tube, Varivent flange, Tri-Clamp	wall mounting housing for drying room, humidifier, refrigeration room
Output/electronics	terminal socket, Pt100 head transmitter: 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter: 4...20 mA, 0...10 V, Profibus PA	cable outlet; Pt100	terminal socket; Pt100 head transmitter: 4...20 mA, 0...10 V, Profibus PA	cable outlet, Pt100	terminal socket, Pt100 head transmitter: 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter: 4...20 mA, 0...10 V, Profibus PA
Output adjustable	-	-	-	-	-	-	-
multi-function output	-	-	-	-	-	-	-
output passive/active	-	-	-	-	-	-	-
Multi-function input	-	-	-	-	-	-	-
Operating voltage/ universal mains supply circuit	-	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-	-
Certifications	-	-	-	-	-	-	-
Limit values	-	-	-	-	-	-	-
Other information	PTFE coated or PTFE full material	-	-	-	-	-	-

Temperature measurement

Type	PTS	PTU	PTW	PTX	PTZ	Thermocont® TK	PTV
Operating principle							
Design	immersion thermometer with cable outlet	surface temperature sensor with cable outlet	air duct resistance thermometer measuring insert exchangeable	screw-in thermometer for Ex-area measuring insert exchangeable	flange-thermometer acid and alkali resistant measuring insert exchangeable	compact thermometer	clamp-on sensor for pipelines
Measure ranges	up to 200°C (300°C)	up to 200°C (300°C)	up to 180°C	-50 up to +400°C	up to 180°C	-50...+150°C	up to 200°C
Areas of application:							
standard applications	X	X	-	X	-	X	-
Food applications / pharma industry	-	-	-	-	-	X	X
Heating, ventilation and air conditioning	X	X	X	X	-	-	X
Acid / bases	-	-	-	-	X	-	-
Ex-area	-	-	-	X	-	-	-
Process connections	immersion sensor	clamp-on sensor	thread G½", G1", G¾"	thread G½", G1" DIN flanges DN25, DN40, DN50	DIN flanges, DN25, DN 50	thread G½"; milk tube; Varivent; DRD; Tri-Clamp; DIN-flanges	-
Output/electronics	cable outlet, Pt100	cable outlet, Pt100	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	terminal socket, Pt100 head transmitter, 4...20 mA, 0...10 V, Profibus PA	4...20 mA 2-wire, Pt100	cable outlet, Pt100 4...20 mA with IITN-500
Output adjustable	-	-	-	-	-	-	-
multi-function output	-	-	-	-	-	-	-
output passive/active	-	-	-	-	-	-	-
Multi-function input	-	-	-	-	-	-	-
Operating voltage/ universal mains supply circuit	-	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-	-
Certifications	-	-	-	ATEX	-	-	-
Limit values	-	-	-	-	-	-	-
Other information	-	-	-	-	PTFE coated	-	-





Thermocont® ST

digital temperature sensor with resistance thermometer Pt100, 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

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Technical data



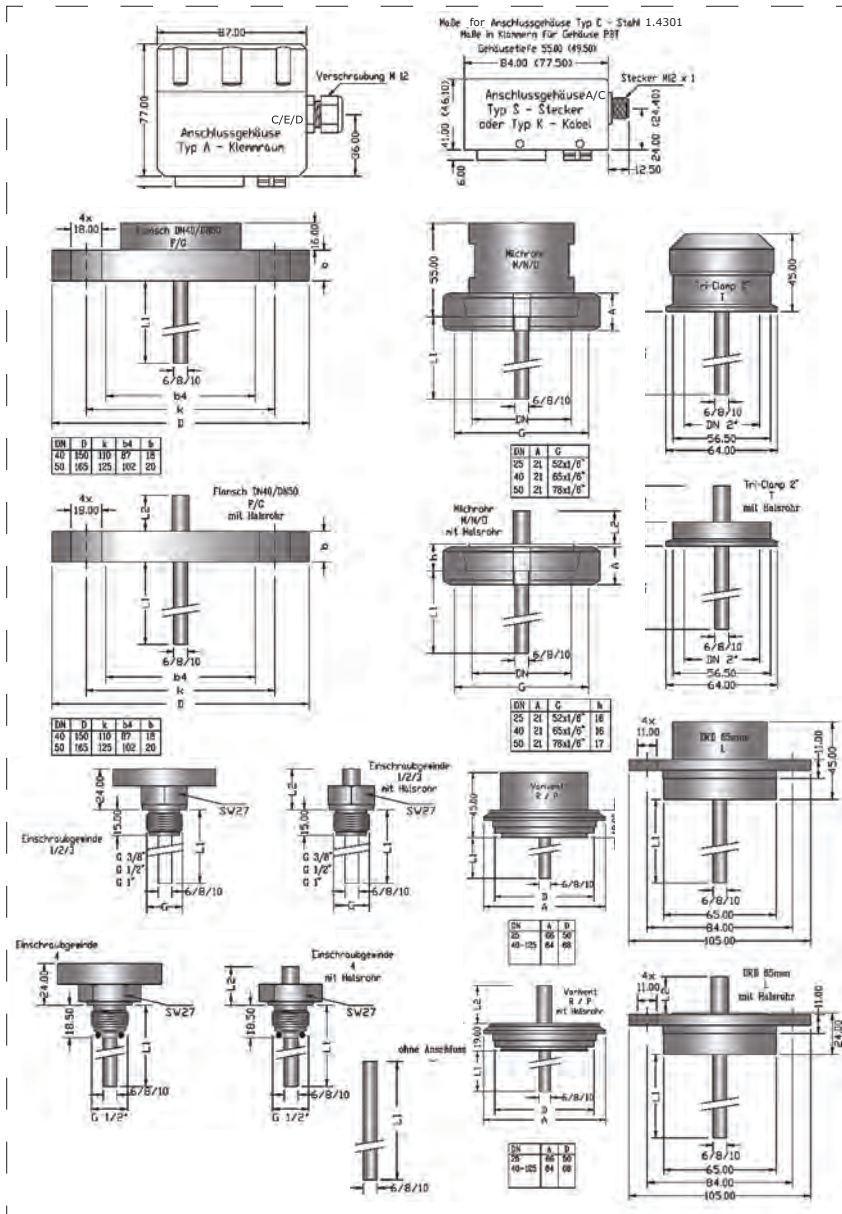
output variations A/B:
output variations E/F:
permissible supply voltage:
residual ripple:
deviation Pt100:

characteristics deviation:
resolution:
adjustment range damping:
switching outputs (S1 / S2):
output current:
protection
material sensor tube:
material process connection:
material connection housing:
material connection cable:
process temperature:
ambient-, storage temperature:

4...20mA, 2-wire
0...10 V, 3-wire
variation A/B/E/F: 14,5 V up to 45 V DC
≤ 2 V_{SS}
class A: 0°C; ± 0,15K
class B: 0°C; ± 0,30K
class AA: 0°C; ± 0,10K
≤ ± 0,2K
≤ 1 μA resp. 0,5 mV
0,3...30 seconds / 100 steps
2xPNP-switching on +VS
> 250 mA, current limited, short circuit protected
IP65 / IP67 EN/IEC 60529
steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
CrNi-steel / PBT / POM
PE - polyethylene
-100°C...+200°C/500°C
-40°C...+85°C



Temperature measurement



Application

The device Thermocont® ST with integrated digital evaluation electronic is a compact sensor for measuring and monitoring of temperatures in the range from -100°C up to +500°C. Because of the integrated four digit digital display and two implemented PNP-switching outputs, separate evaluation and display devices are not necessary in most cases.

Through the resistor Pt100, that is implemented in the sensor, flows a constant current. This current leads to a voltage drop, that becomes higher or lower, dependent on the measured medium temperature. The resistance proportional signal that is produced at the Pt100 is recorded from a processor with high resolution, linearized and adjusted according to the settings and converted into a high resolution output signal of 4...20mA or 0...10V.

By using 3 keys and an LED display the sensor measurement range, a zero correction in the range of -25,0 K to +25,0 K (e.g. for extraction of dissipation's in the measurement signal that is produced through the container wall), the PNP-switching outputs and the damping can be adjusted or the behaviour in the case of failure and the release of the fast adjustment can be set. The switching state of the two PNP-switching output is signalled by one LED for every output.

Thermocont® ST

digital temperature sensor with resistance thermometer Pt100 4-digit LED-display, 2 PNP-switching outputs, 2- or 3-wire-electronics selectable

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Equipment

welding flanges
page 220

immersion pocket and
weld-in sockets
on page 256

sensor type	
ST	standard
ExST	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
XDST	ATEX II 1/2 D Ex ia IIIC T85°C/T102°C Da/Db

temperature range	
2	range -99,9°C up to +200,0°C freely programmable
3	range -99,9°C up to +500,0°C freely programmable
Y	preset according to customer requirements

class	
B	class B
A	class A
C	class AA (formerly class 1/5B)
Y	calibration

process connection	
1	screw-in thread G½"
2	screw-in thread G1"
3	screw-in thread G¾"
4	G½" with O-ring-gasket Viton® for sleeve SEM-12 or SEM-32
5	G½" with O-ring-gasket EPDM for sleeve SEM-12 or SEM-32
6	G½" metal-seated for sleeve SEM-22 or SEM-42
M	milk tube connection DN50 DIN 11851
N	milk tube connection DN40 DIN 11851
O	milk tube connection DN25 DIN 11851
R	Varivent flange Ø 50 mm for tube DN 25
P	Varivent flange Ø 68 mm for tubes DN 32 - 125
L	DRD-connection Ø 65 mm
F	flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
G	flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
T	Tri-Clamp® 2" ISO 2852
Y	others
0	without connection (for sliding sleeves)

material, sensor diameter, process side	
K	1.4571 / 6 mm
N	1.4571 / 8 mm
L	1.4571 / 10 mm
M	1.4571 / 8 mm, reduced tip 5 mm; 40 mm long
O	1.4571 / 10 mm, reduced tip 6 mm; 40 mm long
R	1.4571 / 8 mm, reduced tip 3 mm, 40 mm long
Y	others

neck tube	
A	without neck tube
B	with neck tube (standard L2 = 100 mm)
Y	with neck tube by choice in mm

material connection housing	
(for type XD only material steel possible)	
A	PBT (polybutylene terephthalate) (not with terminal compartment)
C	CrNi-steel
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing

electrical connection	
S	plug M12x1
K	cable 2 m
A	terminal compartment housing

transmitter electronics	
A	4...20 mA 2-wire-electronics with display, 2 PNP-switching output
B	4...20 mA 2-wire-electronics with display
E	0...10 V 3-wire-electronics with display, 2 PNP-switching output
F	0...10 V 3-wire-electronics with display

length L1 sensor in mm
(price per commenced 100 mm)

length L2 neck tube in mm
(price per commenced 100 mm)

Price group B

see below
see below

Temperature measurement

Order code

Thermocont®

mm mm

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0505PUR-AS

Model
matching cable socket, VA-nut
matching cable socket, VA-nut (at 0...10 V)
connection cable 5 m, 4-pole, shielded.
connection cable 5 m, 5-pole, shielded.

PG E



Thermocont® TS

temperature switch and temperature transmitter Pt100 with self-monitoring function, integrated digital evaluation electronic and LED-display

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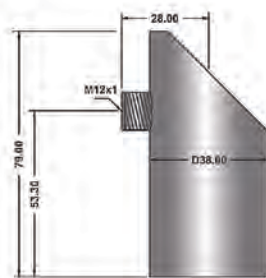
Technical data



output:	2x PNP o. 1x PNP and 4...20 mA (option Desina conform) o. 2x PNP and 4...20 mA
permissible supply voltage:	11,2 V up to 35 VDC
residual ripple:	≤ 2 Vss
supply current:	≤ 50 mA (switching outputs in neutral)
switching current:	≤ 250 mA
reaction time:	≤ 3 ms
outputs:	
measurement accuracy TSS:	≤ ± 0,4 K; display PNP ≤ ± 0,4 K; +0,1% FS; analog output
measurement accuracy TSD:	≤ ± 0,2 K; display PNP ≤ ± 0,4 K; analog output
response time (t90)	≤ 10 s / 14 s / 17 s / at sensor tube Ø 6 / 8 / 10 mm
material sensor tube:	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
material process connection:	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
material connection housing:	CrNi-steel / PC polycarbonate
material gaskets:	FPM / EPDM
medium temperature:	TSS: -99,9°C ...+200°C/+500°C TSD: -50°C...+175°C
process pressure:	≤ 60 bar



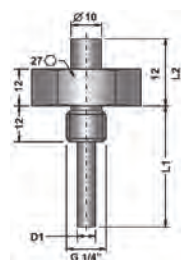
Anschlussgehäuse



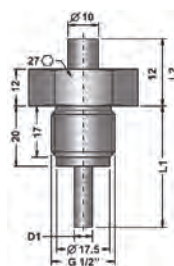
without process connection - type 0



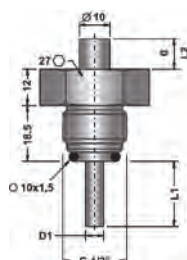
G $\frac{1}{4}$ - type 3



G $\frac{1}{2}$ " - 1



G $\frac{1}{2}$ " front-flush O-ring gasket - type 4/5



Application

The devices of the series Thermocont® TS with integrated digital evaluation electronic are compact temperature switches for monitoring, regulation and continuous measuring process temperatures from -99,9°C to +500°C in gases, steams, liquids and dusts in all industrial application fields at process pressures of up to 60 bar.

At the single channel temperature switch Thermocont TSS the recording of the process temperature is made by a resistive temperature sensor element Pt100 of class A. This allows a precise and long term stable temperature measurement.

At the dual channel temperature switch Thermocont® TSD the recording of the process temperature is made in parallel by a resistive temperature sensor element Pt100 of class A and also by a semiconductor temperature sensor KTY.

Because of the parallel measurement with two different thermal coupled sensor elements (Pt100 and KTY) the temperature switch detects drifts of one sensor and errors at the temperature measurement automatically with high safety.

At the failure of one of the two sensor elements the temperature measurement can be also continued with the second element, what realizes a redundancy function.

The recorded temperature of the respective temperature sensor is transformed into an electrical signal that is recorded and processed in high resolution by a processor.

The PNP switching output resp. outputs are driven according to the respective settings.

When using the analogue signal current output the recorded temperature signal is adjusted according to the settings and transformed into a high resolution output signal of 4...20mA.

By 3 sensor keys and the four digit LED display all settings for the pnp output resp. outputs, the display and also the analogue output can be set resp. adjusted.

Thermocont® TS

temperature switch and temperature transmitter Pt100 with self-monitoring function, integrated digital evaluation electronic and LED-display

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Equipment

immersion pocket and weld-in sockets on page 256

<p>TS</p> <p>S</p> <p>D</p> <p>0</p> <p>1</p> <p>3</p> <p>4</p> <p>5</p> <p>Y</p> <p>K</p> <p>N</p> <p>L</p> <p>M</p> <p>O</p> <p>R</p> <p>Y</p> <p>0</p> <p>1</p> <p>Y</p> <p>C</p> <p>2</p> <p>3</p> <p>4</p> <p>Y</p> <p>A</p> <p>B</p> <p>C</p> <p>D</p> <p>0</p> <p>S</p> <p>length L1</p> <p>length L2</p> <p>Thermocont® TS</p> <p>1</p> <p>6</p> <p>11</p>	<p>model</p> <p>standard</p> <p>measuring system</p> <p>resistance sensor Pt100 class A</p> <p>resistance sensor Pt100 class A+ semiconductor sensor KTY; for drift monitoring and redundancy function</p> <p>process connection</p> <p>without process connection; for weld-in socket or clamp screw connection</p> <p>G½" B; DIN EN ISO228-1;</p> <p>G¼" B; DIN EN ISO228-1;</p> <p>G½" with O-ring-gasket Viton® for sleeve SEM-12 or SEM-32</p> <p>G½" with O-ring-gasket EPDM for sleeve SEM-12 or SEM-32</p> <p>other process connection; separate spec. necessary</p> <p>material, sensor diameter, process side</p> <p>steel 1.4571 (AISI 316 Ti) / 6 mm</p> <p>steel 1.4571 (AISI 316 Ti) / 8 mm</p> <p>steel 1.4571 (AISI 316 Ti) / 10 mm</p> <p>steel 1.4571 (AISI 316 Ti) / 8 mm, reduced tip 5 mm; 40 mm long; only TSS</p> <p>steel 1.4571 (AISI 316 Ti) / 10 mm, reduced tip 6 mm; 40 mm long</p> <p>steel 1.4571 (AISI 316 Ti) / 8 mm, reduced tip 3 mm, 40 mm long; only TSS</p> <p>others</p> <p>neck tube</p> <p>without neck tube</p> <p>with neck tube (standard L2=100 mm)</p> <p>with neck tube, others length, separate spec. necessary</p> <p>material connection housing</p> <p>CrNi-steel</p> <p>measuring range</p> <p>-99,9°C up to +200°C only TSS</p> <p>-99,9°C up to +500°C only TSS</p> <p>-50°C up to +175°C only TSD</p> <p>customer-specific alignment; separate spec. necessary</p> <p>electronics - output</p> <p>2x PNP switching output</p> <p>1x PNP switching output + analog output 4...20 mA</p> <p>2x PNP switching output + analog output 4...20 mA</p> <p>1x PNP switching output + analog output 4...20 mA; Desina conform</p> <p>electrical connection</p> <p>plug M 12x1</p> <p>length L1 sensor in mm (price per commenced 100 mm)</p> <p>length L2 neck tube in mm (price per commenced 100 mm)</p> <p>Thermocont® TS</p> <p>1 - 5 pieces</p> <p>6 - 10 pieces</p> <p>11 - 30 pieces</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Price group D</p> <p>see below see below</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Temperature measurement</p>
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Order code

Thermocont® TS

C 0 S mm mm

Equipment

Ordering information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0505PUR-AS

Model
 matching cable socket, VA-nut

matching cable socket, VA-nut (at 0...10 V)

connection cable 5 m, 4-pole, shielded.

connection cable 5 m, 5-pole, shielded.

PGE



Thermocont® TL

temperature switch and temperature transmitter Pt100 with self-monitoring function, for hygienic applications with integrated digital evaluation electronic and LED-display

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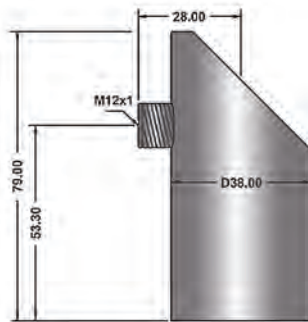
Technical data



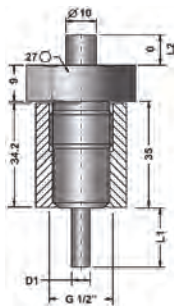
output:	2x PNP o. 1x PNP and 4...20 mA (option Desina conform) o. 2x PNP and 4...20 mA
permissible supply voltage:	11,2 V up to 35 VDC
residual ripple:	≤ 2 Vss
supply current:	≤ 50 mA (switching outputs in neutral)
switching current:	≤ 250 mA
reaction time:	≤ 3 ms
outputs:	
measurement accuracy TLS:	≤ ± 0,4 K; display PNP ≤ ± 0,4 K; +0,1% FS; analog output
measurement accuracy TLD:	≤ ± 0,2 K; display PNP ≤ ± 0,4 K; analog output
response time	≤ 10 s / 14 s / 17 s / at sensor tube Ø 6 / 8 / 10 mm
material sensor tube:	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
material process connection:	steel 1.4404 (AISI 316L) / 1.4571 (AISI 316 Ti)
material connection housing:	CrNi-steel / PC polycarbonate
material gaskets:	FPM
medium temperature:	TLS: -99,9°C ... +200°C/+500°C TLD: -50°C...+175°C
process pressure:	≤ 40 bar



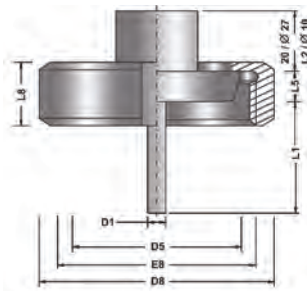
Temperature measurement



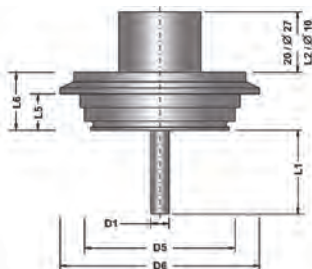
G $\frac{1}{2}$ " - type 6



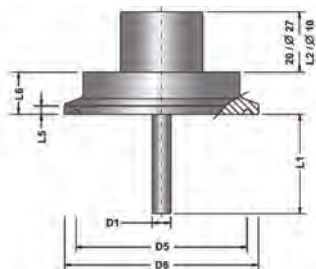
milk tube DIN 11851 type M | N | O



Varivent - type P | R



Triclamp type T



Application

The devices of series Thermocont® TL with integrated digital evaluation electronic are compact temperature switches for monitoring, control as well as continuous measurement of process temperatures from -99,9°C to +500°C in gases, vapors, liquids and dusts in hygienic application fields at process pressures of up to 40 bar.

The device is mounted into the wall of the container or of the pipeline. By using a neck tube of an adequate length between the respective process connection and the connection housing at high medium temperatures it can be achieved that the temperature in the area of the connection housing does not exceed the permitted environmental temperatures. The sensor tube is the junction point with the applied medium and is in direct contact with it. It contains the temperature sensor that is used for recording the temperature and converting it into an electrical signal. At the device Thermocont® TLS the recording of the process temperature is made by a resistive temperature sensor element Pt100 of class A. This allows a precise and long term stable temperature measurement. At device Thermocont® TLD the recording of the process temperature is made in parallel at first by a resistive temperature sensor element Pt100 of class A and second by a semiconductor temperature sensor. Because of the parallel measurement with two different thermal coupled sensor elements, the temperature switch detects impermissible drifts of a sensor and errors at the temperature measurement automatically. At the failure of one of the two sensor elements the temperature measurement can be also continued with the second element, what realizes a redundancy function.

Thermocont® TL

temperature switch and temperature transmitter Pt100 with self-monitoring function, integrated digital evaluation electronic and LED-display

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Equipment

immersion pocket and weld-in sockets on page 256

model
TL standard

measuring system
S resistance sensor Pt100 class A

process connection
6 G½" metal-seated for sleeve SEM-22 or SEM-42

material, sensor diameter, process side
K steel 1.4571 (AISI 316 Ti) / 6 mm

neck tube
0 without neck tube

material connection housing
C CrNi-steel

measuring range
2 -99,9°C up to +200°C only TLS

electronics - output
A 2x PNP switching output

0

electrical connection
S plug M 12x1

length L1 sensor in mm
(price per commenced 100 mm)

length L2 neck tube in mm
(price per commenced 100 mm)

Thermocont® TL
1 - 5 pieces

Price group D

see below
see below

Temperature measurement

Order code

Thermocont® TL C 0 S mm mm

Resistance thermometer Pt100

universal temperature sensor for virtually all process conditions

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Technical data



measuring element: platinum resistance element Pt100/ Pt1000, others on request
 temperature ranges: at the measuring tip: -70°C...+300°C
 +500°C/ +600°C and low-temperature version on request
 tolerance class: AA, A, B - according to IEC 60751
 signal type: - 1x Pt100: in 2-, 3-, 4-wire connection
 - 2x Pt100: in 2x 2-wire or 2x 3-wire connection
 - 3x Pt100: in 3x 2-wire connection
 - free skinner for self-installation of a head transmitter
 - head transmitter, 4...20 mA/ 0...10 V output, standard, Ex, Profibus; others on request
 connection type: - terminal compartment in Alu-, plastic- or stainless steel housing
 - fix connection cable - PTFE shielded, silicone, PVC, glass silk with steel mesh, others on request
 - Lemo-plug system, M12 plug system
 materials (process side): - protective tubes made of seamless stainless steel: 1.4571(AISI 316Ti)
 - flanges, process connections: 1.4571 (AISI 316 Ti)
 - special materials on request
 materials (connection side): - housing: aluminium, CrNi-steel, PP-Polypropylen, POM-polyoxymethylene
 - cable material see „connection type“

Application

Fundamentals of ACS Universal resistance thermometer are standardized, high-quality platinum RTDs of a nominal resistance of 100 ohms at 0 ° C, tolerance classes A, B, 1/3B (AA) - in accordance with DIN EN / IEC 60751st.

ACS Pt100 probes have a high accuracy and reproducibility are extremely reliable.

The sensing elements are embedded in the protective tube with magnesium oxide powder and are sealed hermetically.

Thus, a good heat transfer and vibration protection is achieved.

Standard measuring temperatures are -70 ° C .. +300 ° C; High temperature versions +500 ° C / +600 ° C, low-temperature versions, special materials, special process connections and OEM versions are also available.

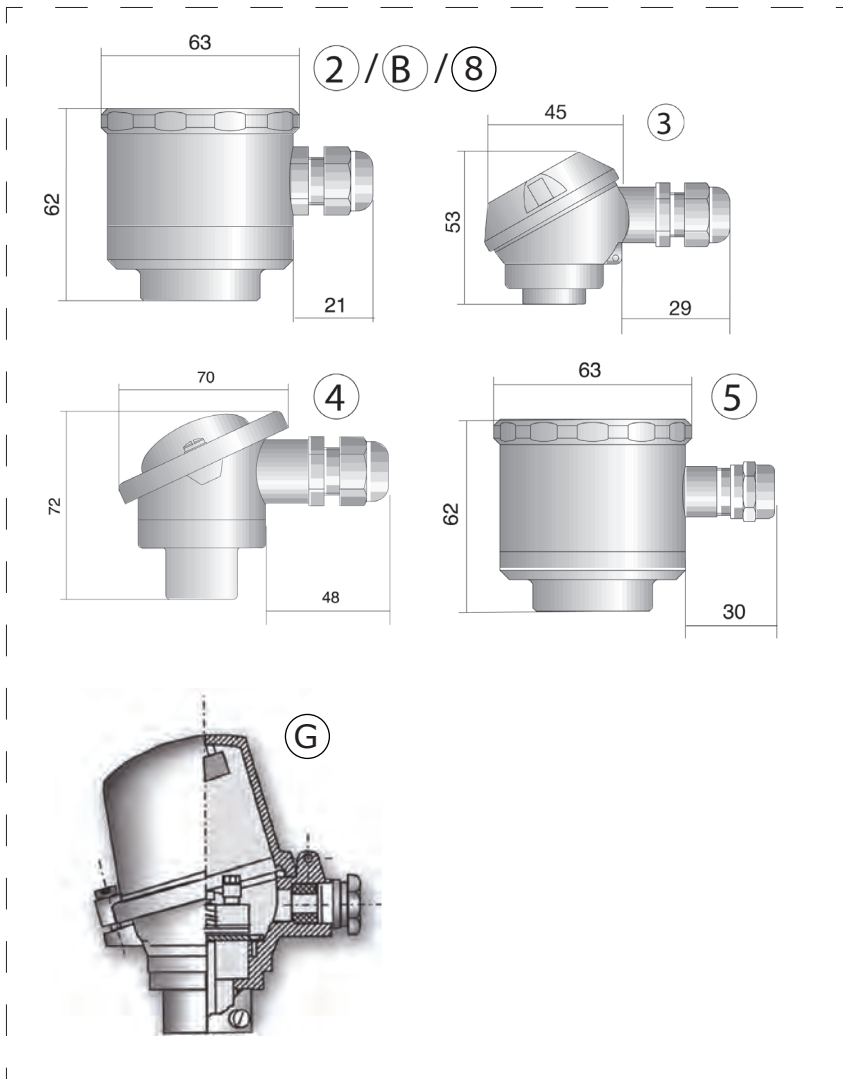
The given measuring temperature refers to an average temperature at the probe tip.

With cable versions, for example PTS / PTK and Pt100 sensors with connection head, possibly with integrated head transmitter, the respective maximum temperature of the cable, heads, etc. with on-site isolation, use of Pt100 must be considered.

The measurement speed of the individual Pt100 sensor is highly dependent on operating conditions, the measured medium and the physical dimensions.

The immersion depth should not be less than 50 mm. Please clarify always shorter probe lengths with the ACS staff.

Temperature measurement

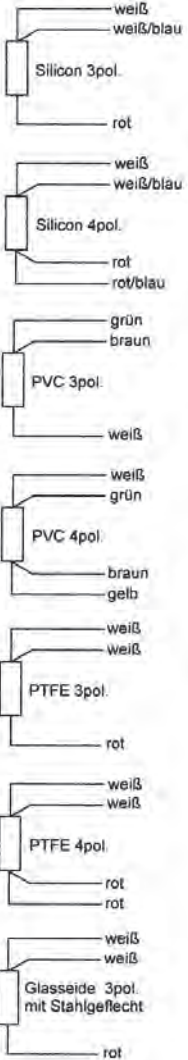


Resistance thermometer Pt100

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Connection

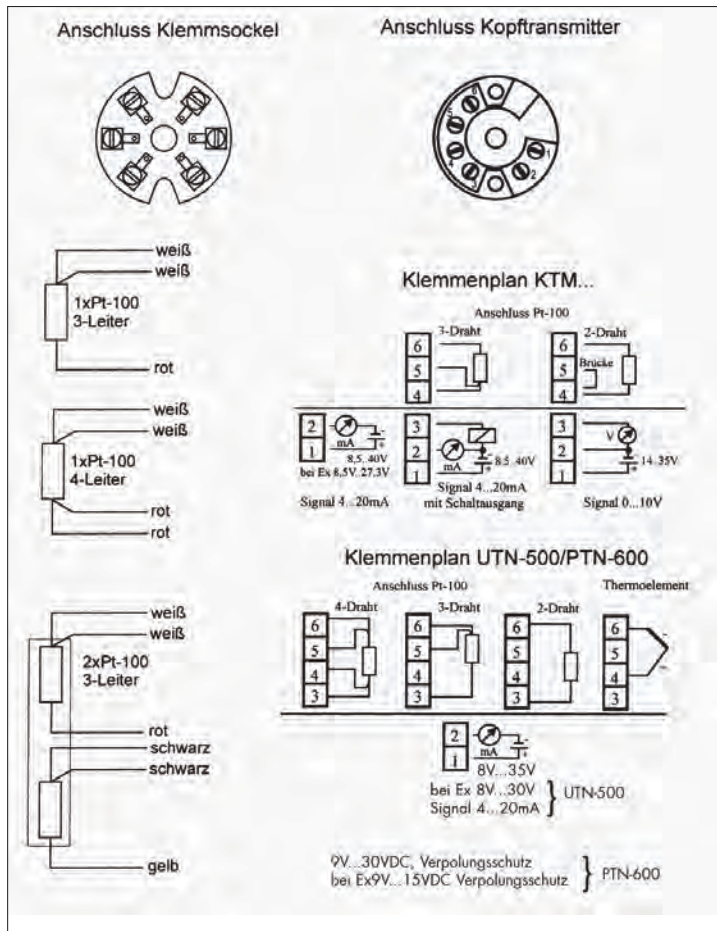
Pt-100 Kabelbelegung



error limits of the Pt-measurement resistors

°C	Klasse A		Klasse B	
	Ohm	entspr. °C	Ohm	entspr. °C
-200	±0.24	±0.55	±0.56	±1.3
-100	±0.14	±0.35	±0.32	±0.8
-60	-	-	-	-
0	±0.06	±0.15	±0.12	±0.3
100	±0.13	±0.35	±0.30	±0.8
180	-	-	-	-
200	±0.20	±0.55	±0.48	±1.3
300	±0.27	±0.75	±0.64	±1.8
400	±0.33	±0.95	±0.79	±2.3
500	±0.38	±1.15	±0.93	±2.8
600	±0.43	±1.35	±1.06	±3.3
650	±0.46	±1.45	±1.13	±3.6
700	-	-	±1.17	±3.8
800	-	-	±1.28	±4.3
850	-	-	±1.34	±4.6

1/3 DIN B (AA) $\hat{=}$ $\pm 0,10^{\circ}\text{C}$ at 0°C = 1/3 from class B



Temperature measurement

PTA-

standard-screw-in resistance thermometer Pt100 with and without neck tube

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Equipment

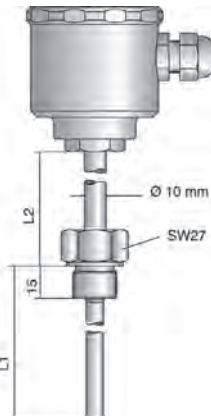
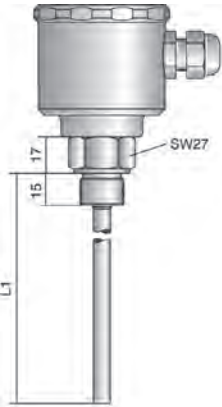
(1) please order head transmitter separately on page 318

immersion pocket and weld-in sockets on page 256

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C
Please use neck tubes at higher process temperatures!



Order code

PTA

mm mm

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 6 1x Pt1000, 3-wire
- 7 3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B **class B, up to +300°C** (preferred type)
- A class A, up to +300°C
- C class AA (formerly class 1/3B), up to +300°C
- Y special version eg. high temperature etc.
- P class AA (formerly class 1/3B), paired version, for eg. heat quantity measurement

process connection

- 1 **screw-in thread G1/2"** (preferred type)
- 2 screw-in thread G1"
- 3 screw-in thread G3/8"
- 5 union nut G3/4"
- F flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
- E flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40
- Y others process connections

material, sensor diameter, process side

- T 1.4571 / 3 mm
- U 1.4571 / 5 mm
- K 1.4571 / 6 mm
- N **1.4571/ 8 mm** (preferred type)
- L 1.4571 / 10 mm
- W 1.4571 / 12 mm
- P 1.4571 / 6 mm, reduced tip 4 mm; 40 mm long
- M 1.4571 / 8 mm, reduced tip 5 mm; 40 mm long
- O 1.4571 / 10 mm, reduced tip 6 mm; 40 mm long
- R 1.4571 / 8 mm, reduced tip 3 mm; 40 mm long
- Y others

neck tube

- A **without neck tube** (preferred type)
- B **with neck tube** (standard L2 = 100 mm) (preferred type)
- Y with neck tube by choice in mm.

connector head

- A PP-head small
- B PP-head big
- 1 plastic head made of Delrin® small
- 2 **plastic head made of Delrin® big** (preferred type)
- 3 aluminum head small (not with sensor type-variation 5 and 7)
- 4 aluminum head big
- 5 stainless steel head big
- 7 PTFE-head small
- 8 PTFE-head big
- G aluminum head double size
- Y other designs

measuring insert

- F **rigidly mounted** (preferred type)
- W exchangeable

connection type

- K **connection with terminal socket** (preferred type)
- M **connection for head transm. (1) 4-20mA/0-10V fixed value**
- X connection head transmitter (1) UTN-500 software programmable.
- D connection with skinner for self-installation of head transmitter*
- V 5-pole M12-plug.
- G connection for 2x head transmitter.
- L connection with 2x terminal socket.
- Y special version

length L1 sensor in mm

(price per commenced 100 mm)
(price from 1000 mm length)
(preferred lengths: 50 | 100 | 150 mm)

length L2 neck tube in mm

(price per commenced 100 mm)
(price from 1000 mm length)
(preferred length 100 mm)

Price group B

see below
see below

Temperature measurement

PTB-

resistance thermometer-clamp-on sensor Pt100 for front-flush weld-in socket

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Equipment

⁽¹⁾ please order head transmitter separately on page 318

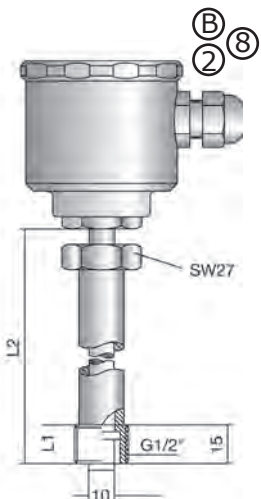
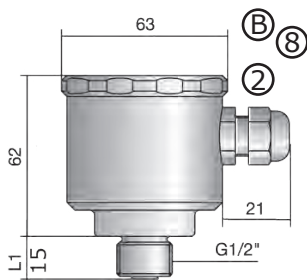
immersion pocket and weld-in sockets on page 256

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



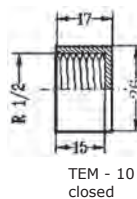
Order code

PTB

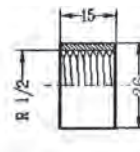
G mm mm

sensor type	
1	1x Pt100, 2-wire
2	1x Pt100, 3-wire (preferred type)
3	1x Pt100, 4-wire
accuracy class (with double Pt100 price x 2)	
B	class B
A	class A (preferred type)
process connection G1/2" (weld-in sockets see page 256)	
A	for weld-in socket TEM-10 or TEM-11 (see drawing A) (preferred type)
Y	(weld-in socket not included)
material measuring surface	
N	1.4571 (preferred type)
Y	others
neck tube	
A	without neck tube up to +85°C (preferred type)
B	with neck tube made of VA (standard L2 = 100 mm) up to +200°C adjustable
Y	with neck tube by choice in mm
construction type	
B	PP-head big (preferred type)
2	plastic head made of Delrin® big (preferred type)
4	for valve plug DIN 43650
8	PTFE-head big
Y	other designs
measuring insert	
G	rigidly mounted (version with neck tube made of VA or valve plug, exchangeable at Version without neck tube Version 2.0 (preferred type)
connection type	
K	connection with terminal socket (preferred type)
M	connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable
D	connection with skinner for self-installation from head transmitter
U	with connection cable 1 m
Z	valve plug DIN 43650
Y	special version
length L1 sensor in mm (clamp-on sensor)	
	length 0015 mm
length L2 neck tube in mm	
	neck tube made of VA, adjustable 110mm
	other lengths on request

signal converter only with connector head "big" possible



TEM - 10 closed



TEM - 11 open

Price group B

see below see below

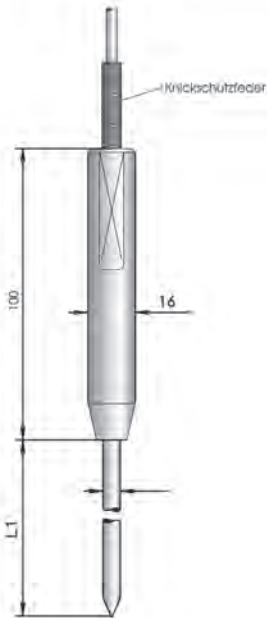
Temperature measurement

PTE-

resistance thermometer Pt100 with handle for insertion and immersion

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Temperature measurement



Order code

PTE A mm

sensor type	
1	1x Pt100, 2-wire
2	1x Pt100, 3-wire (preferred type)
3	1x Pt100, 4-wire
4	2x Pt100, 2-wire
5	2x Pt100, 3-wire

accuracy class (with double Pt100 price x 2)	
B class B	. . . . . (preferred type)
A class A	
C class AA (formerly class 1/2B)	

mechanical design	
A see drawing A	. . . . . (preferred type)

material, sensor diameter, process side	
K	1.4571 / 6 mm
L	1.4571 / 5 mm (preferred type)
M	1.4571 / 4 mm
N	1.4571 / 3 mm
Y	others

handle for insertion and immersion, handle piece	
A PVC black, 100 mm length up to +90°C	. . . . . (preferred type)
C PTFE white, 100 mm length up to +160°C	
Y special version	

cable	
A PVC	
B PTFE (6pol.) (preferred type)	
C silicone (4pol.)	
D glass silk with steel mesh 300°C (only 3-wire)	
Y special version	

cable length	
1 1000 mm silicone-PVC (preferred type)	
A 1000 mm PTFE / glass silk	
2 2000 mm silicone-PVC	
B 2000 mm PTFE / glass silk	
Y special length	

strain relief	
0 squeezed (conditionally waterproof)	
break protection spring (preferred type)	
2 tightly rolled, IP 67, only with PTFE-cable sealing at handle for insertion and immersion via cable screw	

length L1 sensor in mm (preferred lengths: 200 mm)	
(price per commenced 100 mm)	

Price group B

see below
see below
see below

PTF-

standard-immersion-resistance thermometer Pt100 for sliding sleeve

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Equipment

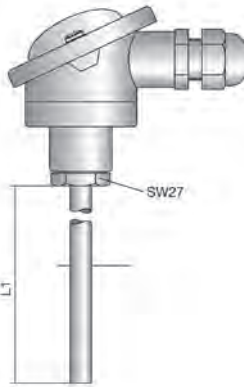
⁽¹⁾ please order head transmitter separately on page 318

immersion pocket and weld-in sockets on page 256

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C



Order code

PTF

0 mm

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 6 1x Pt1000, 3-wire
- 7 3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B **class B, up to +300°C** (preferred type)
- A class A, up to +300°C
- C class AA (formerly class 1/3B), up to +300°C
- Y special version eg. high temperature etc.
- P class AA (formerly class 1/3B), paired version, for eg. heat quantity measurement

process connection, sensor diameter

(please order sliding sleeve separately see page 256)

- 1 **8 mm tube diameter** (preferred type)
- 2 10 mm tube diameter
- 3 6 mm tube diameter
- 4 8 mm, reduced tip 5 mm, 40 mm length
- 6 10 mm, reduced tip 6 mm, 40 mm length
- 7 15 mm x 2 mm
- Y others

material process side

- N **1.4571** (preferred type)
- O heat-resistant steel 1.4841 up to 1100°C
- Y others

0

connector head

- A PP-head small
- B PP-head big
- 1 plastic head made of Delrin® small
- 2 plastic head made of Delrin® big
- 3 aluminum head small (not with sensor type-variation 5 and 7)
- 4 **aluminum head big** (preferred type)
- 5 stainless steel head big
- 7 PTFE-head small
- 8 PTFE-head big
- G aluminum head double size
- Y other designs

measuring insert

- F **rigidly mounted** (preferred type)
- W exchangeable

connection type

- K **connection with terminal socket** (preferred type)
- M **connection for head transm.⁽¹⁾ 4-20mA/0-10V fixed value**
- X connection head transmitter⁽¹⁾ UTN-500 software programmable
- D connection with skinner for self-installation from head transmitter
- G connection for 2x head transmitter
- L connection with 2x terminal socket
- Y special version

length L1 sensor in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)
- (preferred lengths: 100 | 150 | 200 mm)

Price group B

Temperature measurement

PTG-

resistance thermometer Pt100, acid and alkali resistant

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Equipment

(1) please order head transmitter separately on page 318

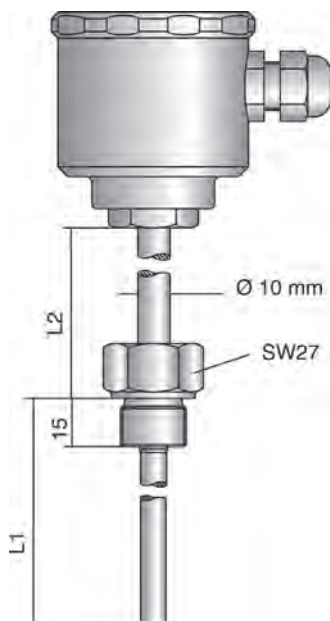
immersion pocket and weld-in sockets on page 256

Connector heads

Attention!

temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTG

mm mm

sensor type	
1 1x Pt100, 2-wire	.....
2 1x Pt100, 3-wire	..... (preferred type)
3 1x Pt100, 4-wire	.....
4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	.....
5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	.....
accuracy class (with double Pt100 price x 2)	
B class B	..... (preferred type)
A class A	.....
C class AA (formerly class 1/5B)	.....
process connection	
1 screw-in thread G½"	..... (preferred type)
2 screw-in thread G¾"	.....
3 screw-in thread M 20	.....
Y special version	.....
material, sensor diameter, process side	
L PTFE 12 mm (max. 150 mm = L1)	..... (preferred type)
H 1.4571 8 mm with Halar® (PTFE)-coating up to 1000 mm L1	.....
P PTFE 12 mm made of one piece up to 150 mm L1	.....
Y special version eg. special coating	.....
neck tube	
A without neck tube	.....
B with neck tube (standard L2 = 100 mm)	.....
Y with neck tube by choice in mm	.....
connector head, design	
1 PTFE-head small	.....
2 plastic head made of Delrin® big diameter 63 mm	..... (preferred type)
3 PTFE-head big	.....
Y special version	.....
measuring insert	
F rigidly mounted	.....
W exchangeable	.....
connection type	
K connection with terminal socket	.....
M connection for head transmitter(4) 4-20 mA with festem Wert	.....
X connection head transmitter(4) UTN-500 software programmable	.....
D connection with skinner for self-installation from head transmitter	.....
Y special version	.....
length L1 sensor in mm	
(price per commenced 100 mm)	.....
(price from 1000 mm length)	.....
length L2 neck tube in mm	
(price per commenced 100 mm)	.....
(price from 1000 mm length)	.....

see below
see below

Price group B

Type of medium, temperature, concentration, etc. important!

PTI-

immersion pocket - resistance thermometer Pt100 with spring-loaded measuring insert

4 / 01.16

Equipment

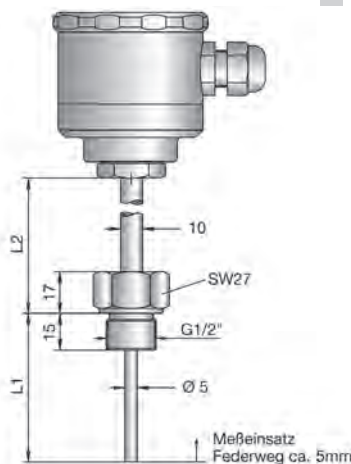
(1) please order head transmitter separately on page 318

Special matching immersion pocket STH-X06 page 257

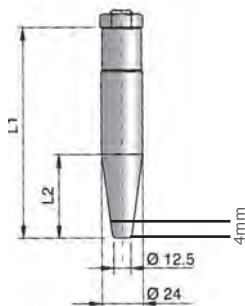
Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Pressure-tight only in connection with adapted immersion pocket!



Order code

PTI

W mm mm

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 6 1x Pt1000, 3-wire
- 7 3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B **class B, up to +300°C** (preferred type)
- A class A, up to +300°C
- C class AA (formerly class 1/3B), up to +300°C
- P class AA (formerly class 1/3B), paired version, for eg. heat quantity measurement
- Y special version eg. high temperature version etc.

process connection

- 1 **screw-in thread G1/2"** (for immersion pocket STHA/STHB/STHX) (preferred type)
- 2 screw-in thread G1"
- Y special version

material, measuring insert diameter, process side

- U **1.4571 / 5 mm** (for STH with 6 mm inner diameter) (preferred type)
- Y others

neck tube

- A **without neck tube** (preferred type)
- B **with neck tube** (standard L2 = 100 mm) (preferred type)
- Y with neck tube by choice in mm.

connector head

- B PP-head big
- 2 **plastic head made of Delrin® big** (preferred type)
- 4 aluminum head big
- 5 stainless steel head big
- G aluminum head double size
- Y other designs

measuring insert

- W **exchangeable** (preferred type)

connection type

- K **connection with terminal socket** (preferred type)
- M **connection for head transm. (1) 4-20mA/0-10V fixed value**
- X connection head transmitter (1) UTN-500 software programmable.
- D connection with skinner for self-installation from head transmitter
- V 5-pole M12-plug
- G connection for 2x head transmitter
- L connection with 2x terminal socket
- Y special version

length L1 sensor in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)
- (preferred lengths: 50 | 100 | 150 mm)

length L2 neck tube in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)
- (preferred length 100 mm)

Price group B

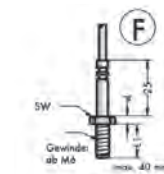
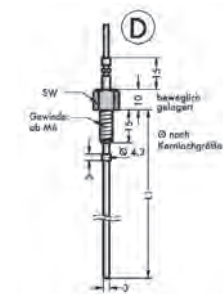
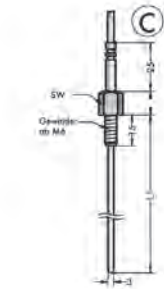
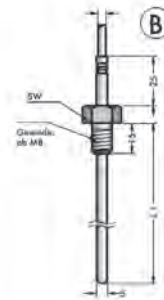
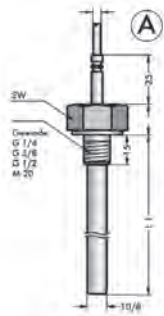
see below
see below

Temperature measurement

PTK-

screw-in resistance thermometer Pt100
with permanently attached cable or socket

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Order code

PTK mm

sensor type	
1	1x Pt100, 2-wire
2	1x Pt100, 3-wire (preferred type)
3	1x Pt100, 4-wire
4	2x Pt100, 2-wire (double Pt100 only from ø 5 mm)
5	2x Pt100, 3-wire (double Pt100 only from ø 5 mm)

accuracy class (with double Pt100 price x 2)	
B class B, up to +200°C (preferred type)	
A	class A, up to +200°C
C	class AA (formerly class 1/2B), up to +200°C
Y	special version eg. high temperature etc.

design	
A	see drawing A (thread G 1/4"; G 3/8"; G 1/2" or M20)
B	see drawing B (thread from M8)
C	see drawing C (thread from M6)
D	see drawing D (thread from M6)
F	see drawing F

thread	
A	screw-in thread M6
H	screw-in thread M10 x 1
D	screw-in thread M8
N	screw-in thread G 3/8"
F	screw-in thread M8 x 1
O	screw-in thread G 1/2"
G	screw-in thread M10
P	screw-in thread G 1/4"
T	screw-in thread M20
Y	other connections

material, sensor diameter, process side	
T	1.4571/ 3 mm (design C + D)
U	1.4571/ 5 mm (design B)
V	1.4571/ 10 mm (design A)
Z	1.4571/ 8 mm (design A)
O	1.4571/ sensor diameter correspond to thread (design F)

cable	
A	PVC
B	PTFE (6pol.) (preferred type)
C	silicone (4pol.)
D	glass silk with steel mesh up to +300°C (only 3-wire)
L	socket LEMO SA 4-pole size 1 up to +80°C
Y	special version

cable length	
1	1000 mm silicone / PVC
A	1000 mm PTFE / glass silk
2	2000 mm silicone / PVC
B	2000 mm PTFE / glass silk
5	5000 mm silicone / PVC
C	5000 mm PTFE / glass silk
Y	special length
0	without cable (plug version)

strain relief	
0	squeezed (conditionally waterproof) (preferred type)
2	tightly rolled, IP 67, only with PTFE-cable
Y	special version

length L1 sensor in mm (preferred lengths: 50 | 100 | 150 mm)
(price per commenced 100 mm)

Price group B

see below
see below
see below

Temperature measurement



PTL-

screw-in resistance thermometer Pt100 for food industry with front-flush hygienic gasket or metal-seated

4 / 01.16

Equipment

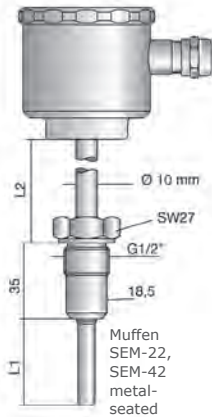
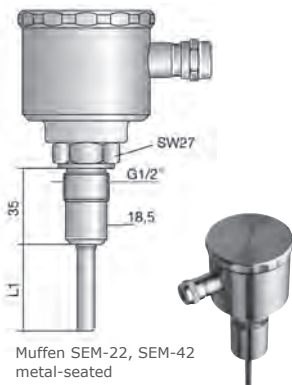
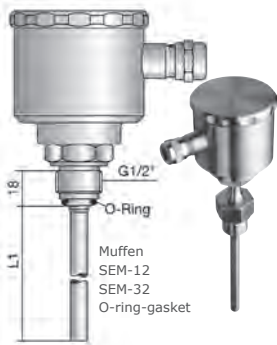
⁽¹⁾ please order head transmitter separately on page 318

immersion pocket and weld-in sockets on page 256

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTL

mm mm

sensor type	
1	1x Pt100, 2-wire
2	1x Pt100, 3-wire (preferred type)
3	1x Pt100, 4-wire
4	2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
5	2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)

accuracy class (with double Pt100 price x 2)	
B	class B, up to +300°C
A	class A, up to +300°C (preferred type)
C	class AA (formerly class 1/3B), up to +300°C
Y	special version eg. high temperature etc.

process connection for weld-in sockets	
(please order weld-in socket separately see page 256)	
4	G½" with O-ring-gasket Viton® for sleeve SEM-12 or SEM-32
5	G½" with O-ring-gasket EPDM for sleeve SEM-12 or SEM-32 (preferred type)
X	G½" with other O-ring-gasket for sleeve SEM-12 or SEM-32
6	G½" metal-seated for sleeve SEM-22 or SEM-42 (preferred type)
Y	special version

material, sensor diameter, process side	
K	1.4571/ 6 mm
N	1.4571/8 mm (with exchangeable measuring insert) (preferred type)
L	1.4571/ 10 mm
P	1.4571/ 6 mm, reduced tip 4 mm; 40 mm long
M	1.4571/ 8 mm, reduced tip 5 mm; 40 mm long
O	1.4571/ 10 mm, reduced tip 6 mm; 40 mm long
R	1.4571/ 8 mm, reduced tip 3 mm; 40 mm long
Y	others

neck tube	
A	without neck tube (preferred type)
B	with neck tube (standard L2 =100 mm) (preferred type)
Y	with neck tube by choice in mm.

connector head	
A	PP-head small
B	PP-head big
1	plastic head made of Delrin® small
2	plastic head made of Delrin® big
3	aluminum head small (not with sensor type-variation 5)
4	aluminum head big
5	stainless steel head big (preferred type)
7	PTFE-head small
8	PTFE-head big
Y	other designs

measuring insert	
F	rigidly mounted
W	exchangeable (preferred type)

connection type	
K	connection with terminal socket (preferred type)
M	connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable.
D	connection with skinner for self-installation of head trans.
Y	special version

length L1 sensor in mm	
	(price per commenced 100 mm)
	(price from 1000 mm length)
	(preferred lengths: 50 | 100 | 150 mm)

length L2 neck tube in mm	
	(price per commenced 100 mm)
	(price from 1000 mm length)
	(preferred length 100 mm)

Price group B

see below

Temperature measurement

PTM-

resistance thermometer Pt100 with bayonet joint

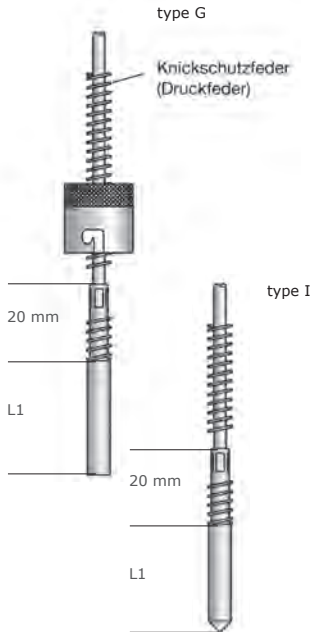
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Equipment

please order thread nipple separately
Seite 257



Temperature measurement



Order code

PTM

N 0 mm

sensor type	
1	1x Pt100, 2-wire.....
2	1x Pt100, 3-wire (preferred type)
3	1x Pt100, 4-wire.....
4	2x Pt100, 2-wire.....
5	2x Pt100, 3-wire.....
accuracy class (with double Pt100 price x 2)	
B	class B, up to +200°C (preferred type)
A	class A, up to +200°C.....
C	class AA (formerly class 1/3B), up to +200°C.....
Y	special version eg. high temperature etc.....
design, diameter	
G	see drawing G 6 mm measuring surface plan.....
I	see drawing I 6 mm measuring surface 120°.....
Y	special version.....
bayonet	
A	bayonet 12,2 mm (preferred type)
B	bayonet 14,5 mm.....
0	without bayonet.....
material sensor	
N	1.4571 (preferred type)
cable	
B	PTFE (6pol.) (preferred type)
D	glass silk with steel mesh 300°C (only 3-wire).....
Y	special version.....
cable length (PTFE / glass silk)	
1	1000 mm.....
2	2000 mm.....
5	5000 mm.....
Y	special length.....
strain relief	
0	squeezed (conditionally waterproof)
	with break protection spring 250 mm (preferred type).....
2	tightly rolled, IP 67, only with PTFE-cable.....
Y	special version.....
length L1 sensor in mm (preferred length 30 mm) (price per commenced 100 mm).....	

see below
see below

Price group B

PTO-

resistance thermometer Pt100 for food applications- and pharma industry with hygienic process connections

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Equipment

⁽¹⁾ please order head transmitter separately on page 318

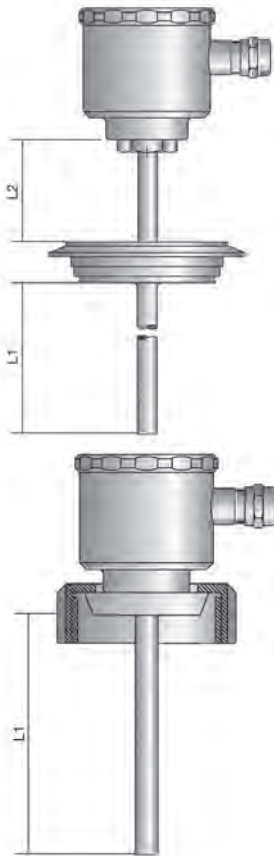
immersion pocket and weld-in sockets on page 256

Connector heads

Attention!

temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTO

mm mm

sensor type

- 1 1 x Pt100, 2-wire
- 2 **1 x Pt100, 3-wire** (preferred type)
- 3 1 x Pt100, 4-wire
- 4 2 x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2 x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B class B, up to +300°C
- A class A, up to +300°C** (preferred type)
- C class AA (formerly class 1/3B), up to +300°C
- Y special version eg. high temperature etc.

process connection for weld-in sockets

- F DN 25 DIN 11864-1-A aseptic
- G DN 40 DIN 11864-1-A aseptic
- M milk tube DN 50 DIN 11851** (preferred type)
- N milk tube DN 40 DIN 11851** (preferred type)
- O milk tube DN 25 DIN 11851
- P Varivent flange 68 mm diameter for tubes DN 32 - 125** (preferred type)
- R Varivent flange 50 mm diameter for tube DN 25
- T Tri-Clamp® G2" ISO 2852
- Y special version

material, sensor diameter, process side

- K 1.4571/ 6 mm
- N 1.4571/ 8 mm** (with exchangeable measuring insert) (preferred type)
- L 1.4571/ 10 mm
- P 1.4571/ 6 mm, reduced tip 4 mm; 40 mm long
- M 1.4571/ 8 mm, reduced tip 5 mm; 40 mm long
- O 1.4571/ 10 mm, reduced tip 6 mm; 40 mm long
- R 1.4571/ 8 mm, reduced tip 3 mm; 40 mm long
- Y others

neck tube

- A without neck tube** (preferred type)
- B with neck tube (standard L2 = 100 mm)** (preferred type)
- Y with neck tube by choice in mm.

connector head

- B PP-head big
- 2 plastic head made of Delrin® big
- 3 aluminum head small (not with sensor type-variation 5)
- 4 aluminum head big
- 5 stainless steel head big** (preferred type)
- 8 PTFE-head big
- Y other designs

measuring insert

- F rigidly mounted
- W exchangeable** (preferred type)

connection type

- connection with terminal socket** (preferred type)
- signal converter only M**
- connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value**
- connection head transmitter⁽¹⁾ UTN-500 software programmable.
- connection with skinner for self-installation of head transm.
- "big" possible D**
- Y special version

length L1 sensor in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)
- (preferred lengths: 50 | 100 | 150 mm)

length L2 neck tube in mm

- (price per commenced 100 mm)
- (price from 1000 mm length)
- (preferred length: 100 mm)

Price group B

see below
see below

Temperature measurement

PTR-

room and outdoor temperature sensor Pt100 with connection box

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Equipment

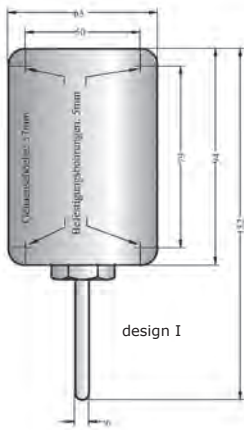
(1) please order head transmitter separately on page 318

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!

outdoor sensor



room sensor



Order code

PTR

0 mm

sensor type	
1	1 x Pt100, 2-wire
2	1 x Pt100, 3-wire
3	1 x Pt100, 4-wire
4	2 x Pt100, 2-wire
5	2 x Pt100, 3-wire
accuracy class (with double Pt100 price x 2)	
B	class B
A	class A
C	class AA (formerly class 1/2B)
wall housing	
1	wall housing design I
2	wall housing design II
material sensor	
N	1.4571 (only at design I)
T	sensor in housing (design II)
Y	others
material housing	
K	plastic
Y	others
0	.....
measuring insert	
F	sensor for humid room -20° up to +80°C (design I)
T	sensor for drying room 0° up to +80°C (perforated protection tube design I)
G	sensor for refrigeration room -35° C (design I)
H	sensor for interior 0 up to +60°C (design II)
connection type	
K	connection with terminal socket
M	connection for head transmitter(1) 4-20mA/0-10V fixed value
X	connection head transmitter(1) UTN-500 software programmable.
D	connection with skinner for self-installation of head transm.
Y	special version
length L1 sensor in mm (preferred length 50 mm at design I) no length information is necessary at design II! (price per commenced 100 mm)	

Price group B

Temperature measurement

PTS-

immersion resistance thermometer Pt100
with permanently attached cable or socket

4 / 01.16

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 only from \varnothing 5 mm)
- 5 2x Pt100, 3-wire (double Pt100 only from \varnothing 5 mm)
- 6 1x Pt1000, 3-wire
- 7 2x Pt100, 4-wire (double Pt100 only from \varnothing 5 mm)

accuracy class (with double Pt100 price x 2)

- B **class B, up to +200°C** (preferred type)
- A class A, up to +200°C
- C class AA (formerly class 1/3B), up to +200°C
- Y special version eg. high temperature etc.

design

- A see drawing A 3 x 0,3 mm
- B see drawing B 4 x 0,3 mm
- C see drawing C 5 x 0,5 mm
- D see drawing D 6 x 0,5 mm
- E see drawing E 8 x 1 mm
- F see drawing F 10 x 1 mm

material sensor

- N **1.4571** (preferred type)
- T 1.4571 with PTFE-coating
- Y special version

cable

- A PVC up to +80°C
- B **PTFE up to +200°C (6pol.)** (preferred type)
- C silicone up to +180°C (4pol.)
- D glass silk with steel mesh 300°C (only 3-wire)
- L socket LEMO type PCA 4-pole size 1 up to +80°C
- Y special version

cable length

- 1 1000 mm, silicone / PVC
- A 1000 mm, PTFE / glass silk
- 2 2000 mm, silicone / PVC
- B 2000 mm, PTFE / glass silk
- 5 5000 mm, silicone / PVC
- C 5000 mm, PTFE / glass silk
- Y special length
- 0 without cable at plug version

strain relief

- 0 **squeezed (conditionally waterproof)** (preferred type)
- 1 angled exit (only at \varnothing 8mm)
- 2 tightly rolled, IP 67, only with PTFE-cable
- 3 tightly rolled and shrink tubing, IP 67, only with PTFE-cable
- 4 tightly rolled, IP 67, with break protection spring

length L1 sensor in mm (preferred lengths: 50 | 100 | 150 mm)
(price per commenced 100 mm).



Order code

PTS mm

Price group B

see below
see below
see below

Temperature measurement

Equipment

Ordering information
LEM04
LEM08

Model
LEM0 SA-socket 4-pole size 1
LEM0 SA-socket 8-pole size 2



PTU-

surface temperature sensor

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sensor type

- 1 1 x Pt100, 2-wire
- 2 **1 x Pt100, 3-wire** (preferred type)
- 3 1 x Pt100, 4-wire

class

- B **class B, up to +200°C** (preferred type)
- A class A, up to +200°C
- Y special version eg. high temperature etc.

design

- A **6 x 6 x 20 mm** (preferred type)
- B **5 x 5 x 16 mm (only made of copper/PVC possible) up to +80°C** (preferred type)
- C 6 x 10 x 20 mm
- E 6 x 10 x 20 mm with bore hole
- F 10 x 12 x 30 mm with custom radius, specify radius!

material sensor

- N **1.4571** (preferred type)
- C **copper** (preferred type)
- M brass

cable

- A PVC up to +80°C
- B **PTFE up to +200°C** (preferred type)
- C silicone up to +150°C
- D glass silk with steel mesh 300°C (only 3-wire)
- Y special version

cable length

- 1 1000 mm silicone / PVC
- A 1000 mm PTFE / glass silk
- 2 2000 mm silicone / PVC
- B 2000 mm PTFE / glass silk
- 5 5000 mm silicone / PVC
- C 5000 mm PTFE / glass silk
- Y special length

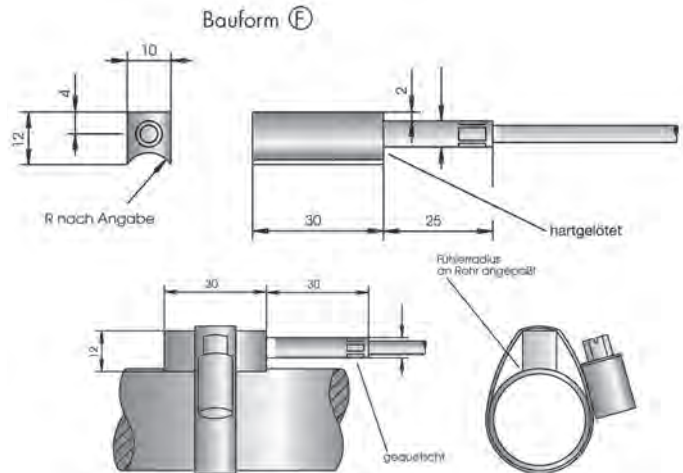
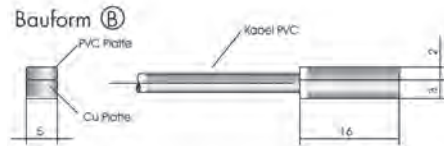
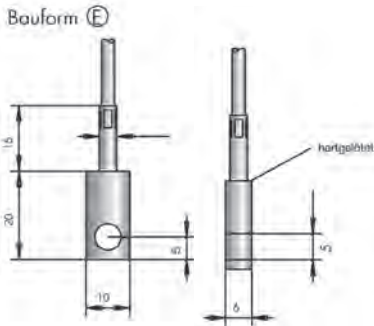
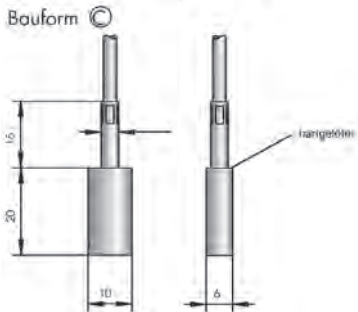
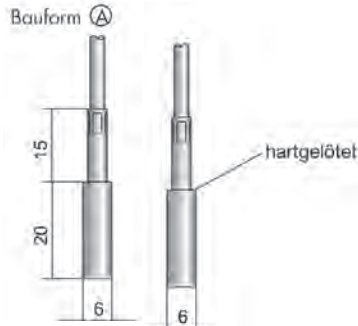
strain relief

- 0 **squeezed (conditionally waterproof)** (preferred type)

Price group B

see below
see below
see below

Temperature measurement



Order code

PTU

Equipment

Ordering information
tubular tapes

on request



PTW-

air duct - resistance thermometer Pt100

4 / 01.16

Equipment

⁽¹⁾ please order head transmitter separately on page 318

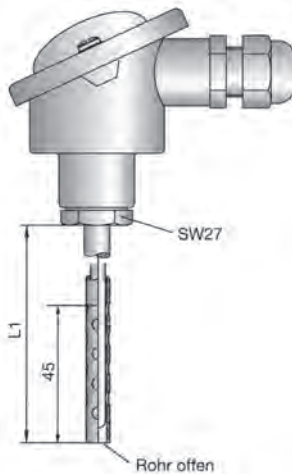
immersion pocket and weld-in sockets on page 256

Connector heads

Attention!

Temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTW

W mm mm

sensor type

- 1 1x Pt100, 2-wire
- 2 **1x Pt100, 3-wire** (preferred type)
- 3 1x Pt100, 4-wire
- 4 2x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 5 2x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)
- 6 1x Pt1000, 3-wire
- 7 3x Pt100, 2-wire (3x Pt100 with exchangeable measuring insert, only from ø 8 mm)

accuracy class (with double Pt100 price x 2)

- B **class B, up to +180°C** (preferred type)
- A class A, up to +180°C
- C class AA (formerly class 1/3B), up to +180°C
- Y special version eg. high temperature version etc.

process connection

- 1 **screw-in thread G1/2"** (design A) (preferred type)
- 2 screw-in thread G1" (design A)
- 3 screw-in thread G3/8" (design A)
- 0 without thread for sliding sleeves (design B)
- Y special version

material, sensor diameter, process side

- L **1.4571 / 10 mm** (preferred type)
- Y others

neck tube

- A **without neck tube** (preferred type)
- B **with neck tube (standard L2 = 100 mm) only with design A** (preferred type)
- Y with neck tube by choice in mm only at design A

connector head

- B PP-head big
- 2 **plastic head made of Delrin® big** (preferred type)
- 3 aluminum head small (not with sensor type-variation 5 and 7)
- 4 **aluminum head big** (preferred type)
- 5 stainless steel head big
- G aluminum head double size
- Y other designs

measuring insert

- W **exchangeable** (preferred type)

connection type

- K **connection with terminal socket** (preferred type)
- M **connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value**
- X connection head transmitter⁽¹⁾ UTN-500 software programmable.
- D connection with skinner for self-installation of head transm.
- "big" possible
- V 5-pole M12-plug
- G connection for 2x head transmitter
- L connection with 2x terminal socket
- Y special version

length L1 sensor in mm

(price per commenced 100 mm)
(price from 1000 mm length)
(preferred lengths 100 | 150 | 200 mm)

length L2 neck tube in mm (only design A)

(preferred length 100 mm)
(price per commenced 100 mm)
(price from 1000 mm length)

Price group B

see below
see below

Temperature measurement

PTZ-

resistance thermometer Pt100
acid and alkali resistant

4 / 01.16

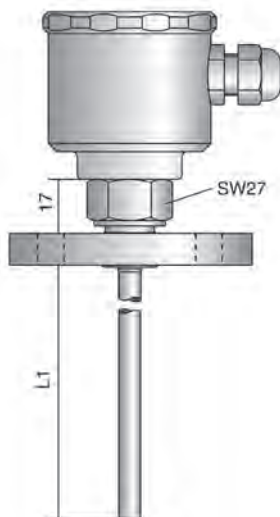
Equipment

(1) please order head transmitter separately on page 318

Connector heads

Attention!
temperature ranges of the connector heads: with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!



Order code

PTZ

mm mm

sensor type

1	1 x Pt100, 2-wire	.....
2	1 x Pt100, 3-wire	..... (preferred type)
3	1 x Pt100, 4-wire	.....
4	2 x Pt100, 2-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	.....
5	2 x Pt100, 3-wire (double Pt100 with exchangeable measuring insert only from ø 8 mm)	.....
6	1 x Pt1000, 3-wire	.....
7	3 x Pt100, 2-wire	.....

accuracy class (with double Pt100 price x 2)

B	class B, up to +180°C	..... (preferred type)
A	class A, up to +180°C	.....
C	class AA (formerly class 1/3B), up to +180°C	.....
Y	special version eg. high temperature etc.	.....

process connection

E	flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40 with PTFE- (Halar®) coating	.....
F	flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40 with PTFE- (Halar®) coating	.....
G	flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40 with PTFE- (Halar®) coating	.....
Y	special version eg. special coating	.....

material, sensor diameter, process side

K	1.4571	6 mm	.....
N	1.4571	8 mm	..... (preferred type)
L	1.4571	10 mm	..... (preferred type)
W	1.4571	12 mm	.....
P	1.4571	6 mm, reduced tip 4 mm; 40 mm long	.....
M	1.4571	8 mm, reduced tip 5 mm; 40 mm long	.....
O	1.4571	10 mm, reduced tip 6 mm; 40 mm long	.....
R	1.4571	8 mm, reduced tip 3 mm; 40 mm long	.....
Y		others	.....

neck tube

A	without neck tube	.....
B	with neck tube (standard L2 = 100 mm)	.....
Y	with neck tube by choice in mm	..... (preferred type)

connector head

B	PP-head big	.....
2	plastic head made of Delrin® big	.....
3	aluminum head small (not with sensor type-variation 5 and 7)	.....
4	aluminum head big	.....
5	stainless steel head big	.....
8	PTFE-head big	.....
G	aluminum head double size	.....
Y	other designs	.....

measuring insert

F	rigidly mounted	..... (preferred type)
W	exchangeable	.....

connection type

K	connection with terminal socket	..... (preferred type)
M	connection for head transmitter⁽¹⁾ 4-20mA/0-10V fixed value	.....
X	connection head transmitter ⁽¹⁾ UTN-500 software programmable	.....
D	connection with skinner for self-installation of head transm.	.....
V	5-pole M12-plug	.....
G	connection for 2x head transmitter	.....
L	connection with 2x terminal socket	.....
Y	special version	.....

length L1 sensor in mm

(price per commenced 100 mm)

(price from 1000 mm length)

length L2 neck tube in mm

(price per commenced 100 mm)

(price from 1000 mm length)

see below
see below

Price group B

Temperature measurement

PTV-

clamp-on sensor, temperature measurement of media in pipelines

4 / 01.16

Technical data



measuring element:	platinum resistance element Pt100
measuring temperature:	up to 140°C
tolerance class:	class A, according to IEC 60751
signal type:	1x Pt100 in 4-wire-connection 4...20 mA / 20...4 mA with line transmitter LTN-500
mounting:	clamp-on sensor with special clamp
connection type:	silicone/PTFE cable with shielding others on request
materials:	measuring surface: silver Ag sensor housing: aluminium, anodized
protection:	clamp: POM; others on request IP68



sensor



pipe clamp on*



tubular tape*

*not included

Application

- no dead room - 100% hygienic
- free of dubious heat sink compounds
- fast response
- smallest dimensions
- fast installation
- easy validation
- calibrateable
- measuring transducer 4...20mA optional

The sensor with integrated strain relief is produced with a contact plane of a silver basis (Ag) and is adapted to the radius of the respective pipeline. Besides the style adapted measuring plane an adjustable spring mechanism ensures best measuring results

without the need for heat sink compounds. The technology of this miniaturized 4-wire Pt100 sensor with a shielded silicone/PTFE cable is the core of our new development and meets the quality requirements that are demanded especially in the sterile technology in the fields food and pharmacy. Pipeline covering plastic clamps (POM) for the installation of the temperature sensor at the pipe outside diameter are deliverable at present from DN8 to DN100. For replacing the sensor element the clamp must be opened only partially with a screw. The clamp remains meanwhile at the tube. By this an easy validation is ensured, where the „PTV“ can be dipped directly into the testing liquid by the cable. For further pipeline diam-

eters there can be delivered also tube band in high-grade steel. Furthermore a miniaturized measuring transducer that can be integrated into the measuring pipeline is available.

The mini-clamp-on temperature sensors „PTV“ allows the measurement of the process temperature in the pipeline with only minor (unavoidable) temperature deviation.

For guarantee the long-term operational safety of our pipeline sensors every sensor is tested in a extensive test program before delivery.

sensor type	3
4-wire Pt100	.....
class	A
class A	.....
material sensor	K
aluminium with silver contact surface (Ag)	.....
cable	C
silicone/PTFE-cable with shielding	.....
electrical connection	OT
0,30m, cable with cast-on M8 plug (4 pol.)	.....
YY	.....
special version	.....
protection	3
water proof IP68	.....
diameter	3
mm diameter in mm	.....

Order code

PTV 3 A K C 3 mm

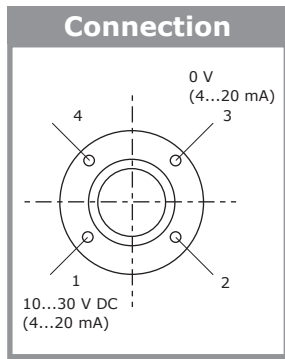
Price group E



Equipment PTV

LTN-500 signal converter Pt100 on 4...20 mA for connecting in between in the sensor line

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certifications

A variation for Ex-free range

connection type

Y Input (Pt100) M8-female; Output (4...20 mA) M12-female

sensor type

A Pt100 4-wire / 4...20 mA

configuration

A standard factory setting Pt100 / 0...100°C

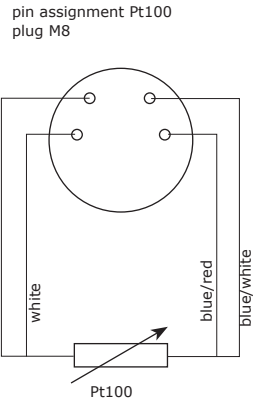
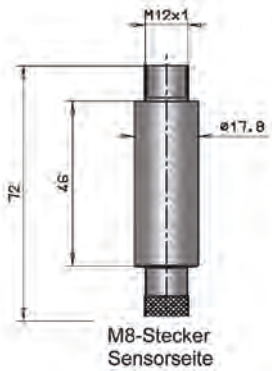
B customer specific setting (please specify measuring range!)

Price group E

Order code

LTN-500

A A S



Temperature measurement

Equipment PTV/LTN



Ordering information

RH-MM-? ? ? mm

RH-MM-? ? ?

SB-MM-? ? ?

LKZO410PUR-AS

FKZO420SIL

Model

pipe clamp on aus POM up to 49

please specify outer tube diameter! pipe clamp on made of POM from 50 mm...80 mm

please specify outer tube diameter! tubular tape made of Inox with sensor holder

for tube diameter 8 up to 150 mm please specify diameter in „mm“!

10 m PUR-cable, 4-pole, shielded, M12 plug, for connection an LTN-500

20 m silicone-cable, 4-pole, M8 coupling, for direct connection on PTV

Price group E



PTX-

standard-screw-in resistance thermometer Pt100 with and without neck tube

4 / 01.16

Technical data



ATEX classes
ATEX II 1 D Ex ia IIIC Tx°C Da
measurement accuracy IEC 60751
accuracy class B - type B
accuracy class A - type A

accuracy class AA - type C

type S - accuracy class B
type S - accuracy class A
type S - accuracy class AA

materials
protection tube: (medium contact)
process connection: (medium contact)
neck tube:
connection housing:
POM - polyoxymethylene (Delrin®)
environmental conditions
ambient temperature:

process temperatures:

process pressure ranges:
protection:

ATEX II 1 G Ex ia IIC T6...T1 Ga

$T = -50...400^{\circ}\text{C} \leq \pm(0,3\text{K} + 0,005 * |T|)$
 $T = -50...250^{\circ}\text{C} \leq \pm(0,15\text{K} + 0,002 * |T|)$
 $T = 250...400^{\circ}\text{C} \leq \pm(0,3\text{K} + 0,005 * |T|)$
 $T = 0...100^{\circ}\text{C} \leq \pm(0,1\text{K} + 0,0017 * |T|)$
 $T = -50...0^{\circ}\text{C} / 100...250^{\circ}\text{C} \leq \pm(0,15\text{K} + 0,002 * |T|)$
 $T = 250...400^{\circ}\text{C} \leq \pm(0,3\text{K} + 0,005 * |T|)$
 $T = -200...600^{\circ}\text{C} \leq \pm(0,3\text{K} + 0,005 * |T|)$
 $T = -200...600^{\circ}\text{C} \leq \pm(0,15\text{K} + 0,002 * |T|)$
 $T = -50...250^{\circ}\text{C} \leq \pm(0,1\text{K} + 0,0017 * |T|)$
 $T = -50...0^{\circ}\text{C} / 250...600^{\circ}\text{C} \leq \pm(0,15\text{K} + 0,002 * |T|)$

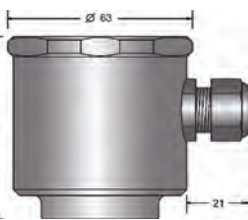
steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
steel 1.4404 (AISI 316L) / 1.4571 (AISI 316Ti)
CrNi-steel
CrNi-steel / aluminium lackiert / PP - Polypropylen /

- 40°C...+130°C (limitation through material
see technical manual)
limitation through category / temperature class /
electrical power; see EG type examination certificate
max. - 50°C...+400°C / high temperature version -
200°C...+600°C
depending on process connection version, max. -1 bar ...60 bar
IP67 (EN/IEC 60529)

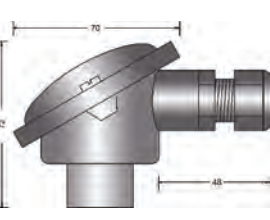


Temperature measurement

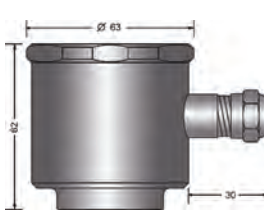
connection housing type 2 / B



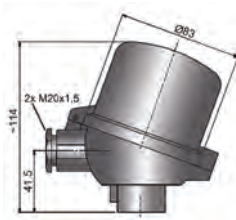
connection housing type 4



connection housing type 5



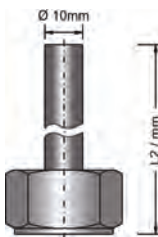
connection housing type G



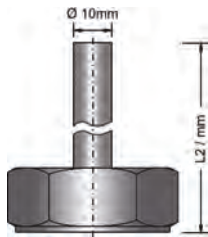
neck tube
process connection
type E / F



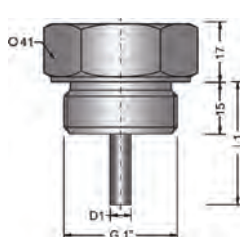
neck tube
process connection
type 1



neck tube
process connection
type 2



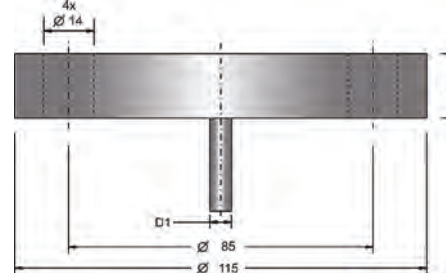
process connection
type 2 - G 1" ISO 228-1



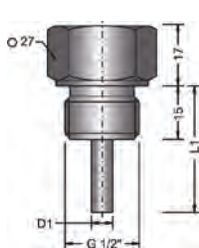
process connection
type 0 - without
(for sliding sleeve)



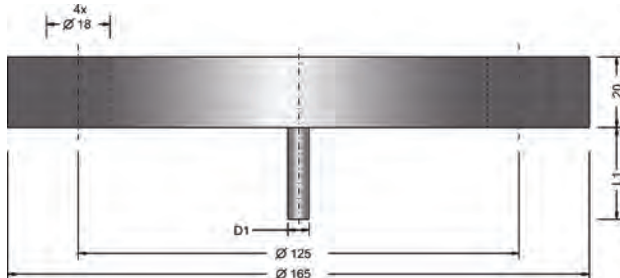
type E - flange DIN EN 1092-1, A
(B - DIN 2527), DN25



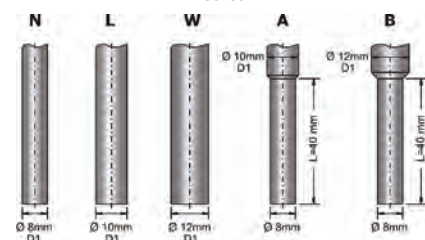
process connection
type 1 -
G 1/2" ISO 228-1



type F - flange DIN EN 1092-1, A
(B - DIN 2527), DN50



sensor



PTX-

standard-screw-in resistance thermometer Pt100 with and without neck tube

4 / 01.16

Equipment

⁽¹⁾ please order head transmitter separately on page 318

immersion pocket and weld-in sockets on page 256

Connector heads

Attention!
temperature ranges of the connector heads:
with aluminum head: 130°C
plastic head: 100°C
head transmitter: -10°C up to 70°C

Please use neck tubes at higher process temperatures!

Application

Basis of the ACS ex-RTD Series PTX form standardized, high-grade platinum measuring resistors with a nominal resistance of 100 ohms at 0 °C, the tolerance classes AA, A, B according to IEC 60751st ACS ex-Pt100 probes are characterized by high accuracy, repeatability and reliability. PTX-resistance thermometers are approved for gas and dust explosion requirements, and are generally delivered with exchangeable measuring insert Pt100. Thus, the actual sensor may be removed from the probe tube and possibly replaced without draining the pipe or the container. This saves costs and avoids loss of production.

Order code

PTX

W mm mm

certificate

- 1 ATEX II 1 G Ex ia IIC T6...T1 Ga
 - 2 ATEX II 1 G Ex ia IIC T6...T1 Ga / ATEX II 1 D Ex ia IIIC Tx°C Da
- (only with connection type K / M and only with material connection housing type 4 / 5, not with coating)

sensor type

- 1 1 x Pt100, 2-wire
- 2 **1 x Pt100, 3-wire** (preferred type)
- 3 1 x Pt100, 4-wire
- 4 2 x Pt100, 2-wire

accuracy class/process temperature (with double Pt100 price x 2)

- B class B - IEC 60751 / -50°C...+400°C** (preferred type)
- A class A - IEC 60751 / -50°C...+400°C** (not with sensor type 4)
- C class AA - IEC 60751 / -50°C...+400°C** (not with sensor type 4)
- Y others** (eg. high temperature version -200...+600°C, not with sensor type 4 / coating E-CTFE o.a.)

process connection

- 0 without thread for sliding sleeves (design B)
- 1 **G½" B, ISO 228-1** (design A) (preferred type)
- 2 G1" B, ISO 228-1 (design A)
- E flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40
- F flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
- Y special version

material process connection/sensor (process wetted) - sensor diameter D1

- N steel 1.4571/316TI - Ø8 mm** (preferred type)
- L steel 1.4571/316TI - Ø10 mm**
- W steel 1.4571/316TI - Ø12 mm**
- A steel 1.4571/316TI - Ø10 mm - reduced tip Ø8 mm/L=40 mm**
- B steel 1.4571/316TI - Ø12 mm - reduced tip Ø8 mm/L=40 mm**
- Y others**

neck tube

- A without neck tube** (preferred type)
- B with neck tube** (standard L2 =100 mm) (only at design A) (preferred type)
- Y with neck tube by choice in mm** (only at design A)

material connection housing

- B PP - Polypropylen** (not for ATEX II 1 D Ex)
- 2 POM - polyoxymethylene** (Delrin®; not for ATEX II 1 D Ex; preferred type)
- 4 aluminium Form B** according to EN 50446
- 5 CrNi-steel** (preferred type)
- G aluminium double size**
- Y other designs**

measuring insert

- W exchangeable measuring insert** (preferred type)

connection type

- K terminal socket**
- M head transmitter ExKTM-_A0** (4...20mA/preset) integrated
- X head transmitter UTN500-B** (4...20mA/programmable) integrated
- D free skinner**
- G 1x terminal socket / 1x head transmitter type M/X/T/others** (connection housing type G)
- L 2x terminal socket** (connection housing type G)
- Y special version**

sensor length L1 sensor in mm

(price per commenced 100 mm ; preferred lengths: 50 | 100 | 150 mm)

neck tube length L2 neck tube in mm

(price per commenced 100 mm ; preferred length 100 mm)

Price group B

see below
see below

Temperature measurement

Thermocont® TK

compact thermometer class A according to IEC 60751 with 4...20 mA output or Pt100 direct, with standard- and hygienic process connections for food applications

4 / 01.16

Technical data



sensor element:
output:
power supply:
accuracy (signal converter):
long term drift:
operating temperature:
ambient temperature:
EMV compatibility:

Pt100 class A according to IEC 60751
analog 4...20mA
10...35V DC, reverse polarity protected
0,1K or 0,08%
≤ ±0,1K or 0,05% FS / year - not cumulative
-50...+150°C
-40...+85°C
operating material class B / industrial sector (EN/IEC 61326)

transmitter electronics type A



transmitter electronics type B / C



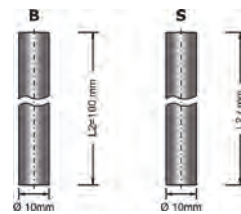
connection housing electronics output type A / E - 2-wire, signal 4...20mA



connection housing electronics output type B / C - Pt100, 4-wire



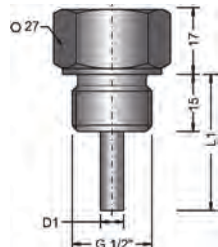
neck tube



type 2 - without (for sliding sleeve)



type 1 - G 1/2" ISO 228-1

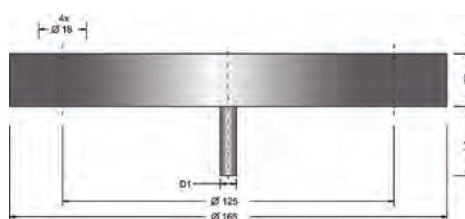


type M / N / O - DIN 11851

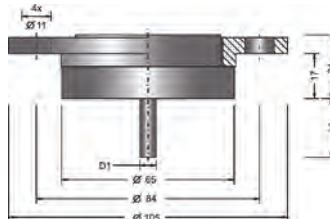


	DN	PN	d5	x1	x2	d8	x8	e8
O	25	40	44	10	4	63	21	Rd52x1/8"
N	40	40	56	10	4	78	21	Rd65x1/8"
M	50	40	68	11	3	92	22	Rd78x1/8"

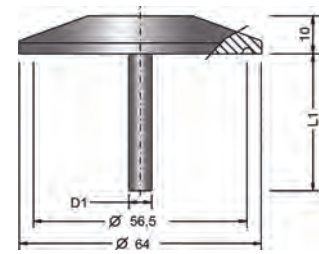
type G - flange DIN EN 1092-1, A (B - DIN 2527), DN50



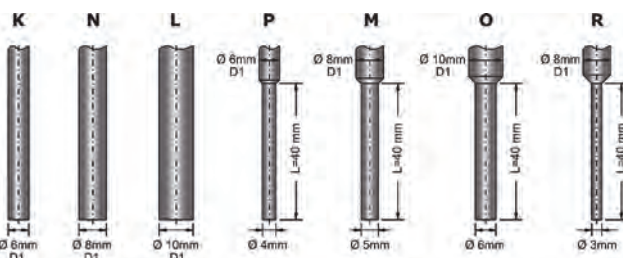
type L - DRD DN50, Ø65 mm



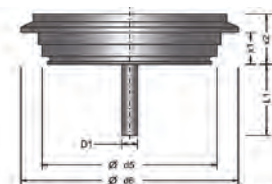
type T - Clamp ISO 2852 DN51 (2") / DIN 32676 DN50



sensor



type R / P - Varivent®



	DN	PN	d5	d8	x1	x2
R	25-32	40	F 50	66	12	19
P	40-125	40	N 68	84	12	19

Temperature measurement



Thermocont® TK

compact thermometer class A according to IEC 60751
with 4...20 mA output or Pt100 direct, with standard- and
hygienic process connections for food applications

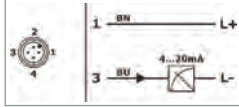
4 / 01.16

Equipment

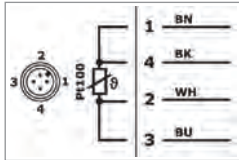
weld-in sockets
on Seite 256

Connection

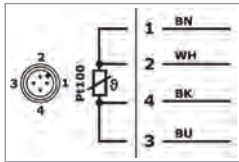
2-wire / 4...20 mA / type A/E
wire colors
standard connection cable M12:
BN = brown, BU = blue



4-wire / Pt100 / type B
wire colors
standard connection cable M12:
BN = brown, WH = white,
BU = blue, BK = Schwarz



4-wire / Pt100 / type C
wire colors
standard connection cable M12:
BN = brown, WH = white,
BU = blue, BK = Schwarz



model

TK standard

design

K compact - cylindric

sensor / class

A Pt100 class A - IEC 60751

process connection

- 1 G½" B, ISO 228-1
- 2 without
- M milk tube DIN 11851, DN50, PN40
- N milk tube DIN 11851, DN40, PN40
- O milk tube DIN 11851, DN25, PN40
- R Varivent® F, Ø50 mm, DN25-32, PN 40
- P Varivent® N, Ø68 mm, DN40-125, PN 40
- L DRD DN50, Ø65 mm, PN25
- G flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
- T Tri-Clamp 2"/DN51, PN16/40
- Y others

material process connection/sensor

(process wetted) - sensor diameter D1

- K steel 1.4571/316TI - Ø6 mm
- N steel 1.4571/316TI - Ø8 mm
- L steel 1.4571/316TI - Ø10 mm
- P steel 1.4571/316TI - Ø6 mm - reduced tip Ø4 mm/L=40 mm
- M steel 1.4571/316TI - Ø8 mm - reduced tip Ø5 mm/L=40 mm
- O steel 1.4571/316TI - Ø10 mm - reduced tip Ø6 mm/L=40 mm
- R steel 1.4571/316TI - Ø8 mm - reduced tip Ø3 mm/L=40 mm
- Y others

neck tube

- A without
- B neck tube L2=100mm
- Y neck tube L2/mm by choice

material connection housing

- C CrNi-steel

electrical connection

- S plug M12

electronics - output

- A 2-wire, signal 4...20mA
- B Pt100, 4-wire, connection B
- C Pt100, 4-wire, connection C
- E 2-wire, signal 4...20mA, programmable

measuring range

- BA -50...+100°C
- CA -40...+60°C
- DA -30...+60°C
- DB -30...+150°C
- DC -30...+70°C
- EA -20...+20°C
- EB -20...+60°C
- EN -10...+40°C
- FC 0...+50°C
- FE 0...+100°C
- FG 0...+150°C
- 00 Pt100, 4-wire
- XX special measuring range (poss. higher deviation accuracy)

sensor length L1 / mm

- B 50 mm
- C 100 mm
- D 150 mm
- E 200 mm
- Y others

length L2 neck tube in mm

(price per commenced 100 mm)

Price group D

see below
see below

Temperature
measurement

Order code

Thermocont® TK K A C S

Equipment for Pt100

sliding- and weld-in sockets

4 / 01.16

sliding sleeves for Pt100, press-ring made of 1.4571 / 1.4404 (pressure-resistant up to 20 bar), material 1.4571 / 1.4404

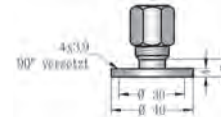
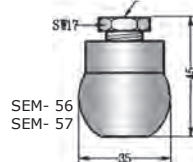
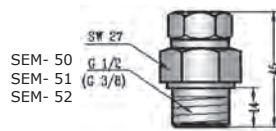
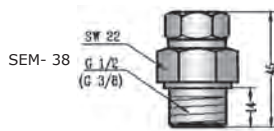
Ordering information

SEM - 38
SEM - 50
SEM - 51
SEM - 52
SEM - 56
SEM - 57
SEM - 58
SAM - 62
SAM - 60
SAM - 61

Model

G $\frac{3}{8}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 10 mm sensor diameter
G $\frac{1}{2}$ " 6 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 8 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 10 mm sensor diameter
ball-weld-in socket \varnothing 25,5 mm 6 mm sensor diameter
screw-in-socket 6 mm sensor diameter
screw-in-socket 8 mm sensor diameter
screw-in-socket 10 mm sensor diameter

PG B



SAM- 60
SAM- 61
SAM- 62

sliding sleeves for Pt100, with press-ring made of PTFE (Teflon®) movable (pressureless application), material 1.4571 / 1.4404

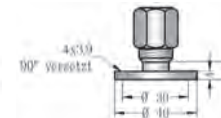
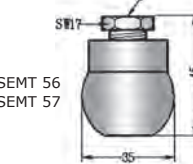
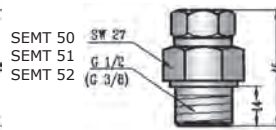
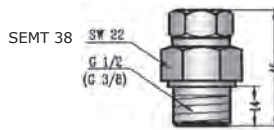
Ordering information

SEMT 38
SEMT 50
SEMT 51
SEMT 52
SEMT 59
SEMT 56
SEMT 57
SEMT 58
SAMT 62
SAMT 60
SAMT 61

Model

G $\frac{3}{8}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 8 mm sensor diameter
G $\frac{1}{2}$ " 10 mm sensor diameter
G $\frac{1}{2}$ " 6 mm sensor diameter
G $\frac{1}{2}$ " 4 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 8 mm sensor diameter
ball-weld-in socket \varnothing 35 mm 10 mm sensor diameter
ball-weld-in socket \varnothing 25,5 mm 6 mm sensor diameter
screw-in-socket 6 mm sensor diameter
screw-in-socket 8 mm sensor diameter
screw-in-socket 10 mm sensor diameter

PG B



SAMT 60
SAMT 61
SAMT 62

weld-in sockets (front-flush) for Pt100, material 1.4571 / 1.4404, for food applications and hygienic applications

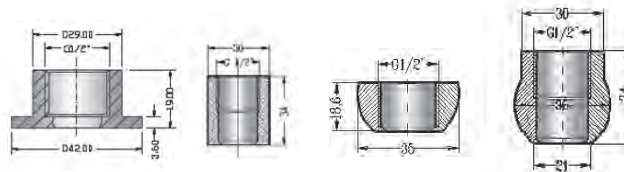
Ordering information

SEM-12
SEM-22
SEM-32
SEM-42

Model

G $\frac{1}{2}$ " for PTL with O-ring gasket
G $\frac{1}{2}$ " metal-seated
G $\frac{1}{2}$ " ball-weld-in socket for PTL with O-ring gasket
G $\frac{1}{2}$ " metal-seated, ball-weld-in socket

PG B



SEM-12

SEM-22

SEM-32

SEM-42

weld-in sockets for Pt100, material 1.4571 / 1.4404

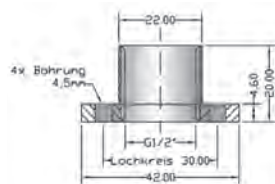
Ordering information

SAM-12
TEM - 10
TEM - 11
BEFK12

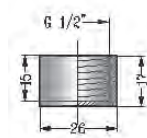
Model

screw-in-socket for air ducts
frontally closed
frontally open
weld-in socket G $\frac{1}{2}$ ", sealing attachment at the back

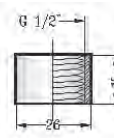
PG B



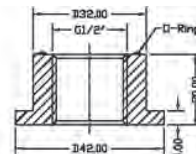
SAM-12



TEM - 10
closed



TEM - 11
open



BEFK12

marking measurement point

Ordering information

AS-50

Model

hang tag made of VA with laser inscription

PG B

Equipment for Pt100

immersion pocket and thread nipple for bayonet connector

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STH - immersion pocket for Pt100, material 1.4571 / 1.4404

immersion pocket sensor

- 0 design A, B with internal thread and design C, D, E
with press-ring made of steel 1.4571
- T -press-ring made of PTFE (only with design C, D, E possible)

design

- A design see drawing A for Pt100 with G1/2" thread resp. type PTI
- B design see drawing B for Pt100 with G1/2" thread resp. type PTI
- C design see drawing C for Pt100 - sensor PTF, PTS
- D design see drawing D for Pt100 - sensor PTF, PTS
- E design see drawing E for Pt100 - sensor PTF, PTS
- X design see drawing X for Pt100 with G1/2" thread resp. type PTI
- Y special design

inner tube diameter

- 04 inner tube diameter 4 mm (for ø 3 mm sensor)
- 06 inner tube diameter 6 mm (for Pt100 sensor type PTI) (for ø 5 mm sensor)
- 07 inner tube diameter 7 mm (for ø 6 mm sensor)
- 09 inner tube diameter 9 mm (with design E not possible) (for ø 8 mm sensor)
- 11 inner tube diameter 11 mm (with design E not possible) (for ø 10 mm sensor)

pressure stage

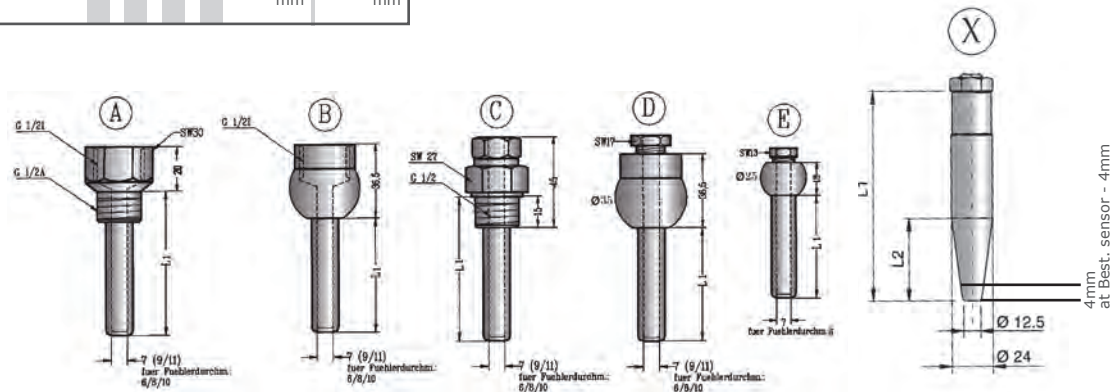
- 0 100 bar
- D 500 bar

length L1 incl. process connection (price per commenced 100 mm)

length L2 at STH-X (price per commenced 100 mm)

Order code

STH-		mm	mm
-------------	--	----	----



Temperature measurement

GWN - thread nipple for bayonet joint (continuous or closed) matching for PTM 1.4571 / 1.4404

type

- A for 12,2 mm bayonet (only for PTM with 6 mm diameter)

design

- S design S (open)
- T design T (closed)

connection

- 1 M10x1
- Y special version

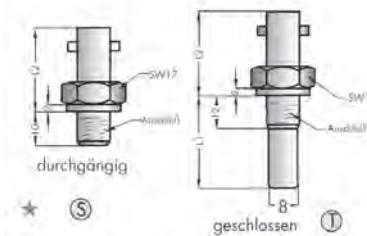
length L2 in mm

- 20 mm

length L1 in mm (only at design T) (price per commenced 100 mm)

Order code

GWN-	A	mm	mm
-------------	---	----	----



Price group B

Equipment for Pt100

immersion flanges

4 / 01.16

STF- immersion sensor flanges for Pt100

Price group B

design/process connection

E	flange DIN EN 1092-1, A (B - DIN 2527), DN25, PN10-40, 316L	.....
F	flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40, 316L	.....
J	flange DIN EN 1092-1, A (B - DIN 2527), DN100, PN10-40, 316L	.....
S	flange 1 Zoll ANSI, 150 RF	316L
T	flange 1 1/2 Zoll ANSI, 150 RF	316L

inner tube diameter/outer diameter

04	inner tube diameter	4 mm (for ϕ 3 mm sensor)	.....
06	inner tube diameter	6 mm (for Pt100 sensor type PTI) (for ϕ 5 mm sensor)	.....
07	inner tube diameter	7 mm (for ϕ 6 mm sensor)	.....
09	inner tube diameter	9 mm (at design E not possible) (for ϕ 8 mm sensor)	.....
11	inner tube diameter	11 mm (at design E not possible) (for ϕ 10 mm sensor)	.....

neck tube

A	without neck tube	.....
B	with neck tube (standard L2 = 100 mm)	.....
Y	with neck tube by choice in mm	.....

sensor mounting

A	1/2 Zoll thread	.....
C	clamp screw connection	.....

pressure stage

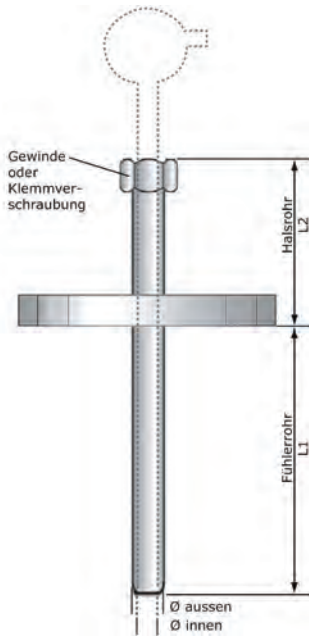
0	100 bar	.....
D	500 bar	.....

length L1 Sensor

(price per commenced 100 mm)

length L2 neck tube

(price per commenced 100 mm)



Temperature measurement

Order code

STF-	mm	mm
-------------	----	----



Thermohunter BA

contactless infrared temperature measurement device

4 / 01.16



Thermohunter *contactless infrared temperature measurement device*

BA-06 TA-S, 0-500°C 6 mm visual field / 200 mm; 4...20 mA output
 BA-30 TA-S, 0-500°C 30 mm visual field / 1000 mm; 4...20 mA output

PG B

Technical data

temperature range	0 - 500 °C (display -20 °C / +520 °C)
min. measuring surface	Ø 6 / 200 mm
optics	silicone lens
sensor / wavelength	thermopile / 8 - 14 µm
response time	500 ms / 90%
accuracy	± 1% of the measured value or ± 2 °C ± 1-Digit (the higher value) (E = 1.0)
repetition time	± 1 °C of the measured value
resolution	1 °C
analog output	BA-06TA: 1 mV / °C BA-06TA: 4-20 mA
output resolution	0,2 °C
center	coaxial laser positioning
emission factor	0.10 - 1.20
delay	nominal 1 - 200 (0,05 - 10 seconds) variable
supply	12 - 24 VDC ± 10% / max. 150 mA
ambient temperature	0 - 50 °C
ambient moisture	35 - 85 % r.F. (not condensing)
storage temperature	-10 / 60 °C
vibrations	30G (20 - 50 Hz)
waterproof	IP65
weight	350 g

Temperature measurement

Equipment for temperature sensors

limit switches, signal converter, signal duplicators, head transmitter and supply isolators



GWAP-250-UO

temperature limit switch for Pt100 input, 2 limit switch, universal mains supply circuit, snap-on-housing 22,5 mm

Transcont WTA-100-GO and ExWTA-100-GO

Pt100 converter passive, with 2- or 3-wire connection preset, analog output 4...20 mA
 2-wire technology or analog output 0...10 V 3-wire technology, 2 PNP-switching outputs, snap-on-housing 22,5 mm

Transcont WTAU-100-UO

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire- Pt100, free adjustable, 1 input / 1 output, 20...253 V AC / DC long range supply (universal mains supply circuit), snap-on-housing 22,5 mm

Transcont WTAU-200-UO Pt100- signal duplicators

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire Pt100, free adjustable, 1 input / 2 outputs, 20...253 V AC / DC long range supply (universal mains supply circuit), snap-on-housing 22,5 mm

Transcont WTAU-120-UO Pt100-signal converter, preset

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset, 1 output, 20...253 V AC / DC long range supply, universal mains supply circuit, snap-on-housing 22,5 mm, 1 input

Transcont WTAU-220-UO Pt100- signal duplicators, preset

Pt100-signal converter active, galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset, 1 input / 2 outputs, 20...253 V AC / DC long range supply (universal mains supply circuit), snap-on-housing 22,5 mm

Transcont UTN-500 temperature head transmitter, universal head transmitter, adjustable via PC

Transcont KTM and Transcont ExKTM

temperature head transmitter with 2- or 3-wire connection, preset, analog output 4...20 mA
 2-wire technology or analog output 0...10 V, 3-wire technology, 1 PNP switching output

EXTVA-500-UC supply isolators Ex-version

Ex safety barriers, separating barriers

prices on page 311

5. Flow measurement

Contents

Flow switch - compact

Fluxicont FP calorimetric flow switch, hygienic design 265

Magnetic inductive flow meter

Flowcont® FN flange version, precise flow measurement 266

Flowcont® LN hygienic version, precise flow measurement. 268

Measurement range depending on nominal width. 271

Flowcont® TGF for partially filled tubes, separate version magnetic inductive flow meter 272

Surcharge for earthing rings 278


Equipment for flow measurement devices 279

Ultrasonic flow meter


Flowcont® UN ultrasonic flow meter - contactlessly flow measuring 285


Vortex and swirl flowmeters

 Flowwirl WF flange version. 274

 Flowdrall DF flange version. 276


Consumption sensor for compressed air and gases

 Flowgas TMS 300 consumption sensor for compressed air and gases incl. measurement section 281




 Flowgas TMS 500 consumption sensor for compressed air and gases for big tube diameters . . . 283



Flow measurement

Measurement principle Type	Areas of application	calorimetric flow switch Fluxicont FP	magnetic-inductive Flowcont® FN	magnetic-inductive Flowcont® LN	magnetic-inductive Flowcont® TGF	vortex meter Flowwirl W430/450	swirl meter Flowdrill D430/450
		liquids	aggressive media, acid, alkaline solutions, drinking water, waste water	food applications, pharma	partially filled tubes	steam, gases, liquids non-conductive	steam, gases, liquids non-conductive
							
		CIP SIP	HART	HART	HART	4-20mA	4-20mA
		0	5µS/cm	5µS/cm	50µS/cm	0	0
		DN 40-125	DN 3-200	DN 3-200	DN 150-2000	Flange DN15...DN300 Intermediate flange DN25...DN150	DN 15-400
		thread G1/4", G1/2", milk tube, Vanvent®	DIN-flanges, ANSI-flanges	DIN-flanges, ANSI-flanges	DIN-flanges, ANSI-flanges	DIN-flanges, intermediate flange	DIN-flanges, intermediate flange
		-40...+85°C	up to 180°C	up to 180°C	at PFA or PTFE: -25...130°C at hard /soft rubber: -25...90°C high temperature on request	-55...+280°C	-55...+280°C
		1.4404 /316L	PFA/PTFE, hard /soft rubber	PFA/PTFE, hard /soft rubber	PTFE, hard /soft rubber	1.4571	1.4571
		-	steel 1.4571	steel 1.4571	steel 1.4571	-	-
		-	1.4571, Hastelloy C4/B2, Titan, Tantal	1.4571, Hastelloy C4/B2, Titan, Tantal	1.4571, Hastelloy C4/B2, Titan, Tantal	-	-
		X	X	X	-	X	X
		separated with signal converter	MUF-B100, field housing	MUF-B100, field housing	MUT-T100, field housing MUU-U100, 19"-Einschub	X	X
		LCD-Display	graphic display, adjustable	graphic Display, adjustable	4-line display	4-line display	4-line display
		DC voltage 16...45VDC / universal voltage 20...253VAC/DC	100...230V AC/ 24V AC/DC	100...230V AC/ 24V AC/DC	115/230V AC ± 10%, 24V AC ± 10%, 24V AC/DC	2-wire-technology	2-wire-technology
		relay output / PNP switching output	4...20mA, impulse output, switch output, frequency output	4...20mA, impulse output, switch output, frequency output	4...20mA impulse output, switch output	4...20mA / HART	4...20mA / HART
		-	HART protocol	HART protocol	RS 485	Profibus PA / Foundation	Profibus PA / Foundation
		-	ATEX	ATEX	ATEX	ATEX	ATEX



Measurement principle Type Areas of application	cost-effective consumption sensor for compressed air and gases Flowgas TMS 200 	consumption sensor for compressed air and gases with big outer tube diameter Flowgas TMS 400 	contactless ultrasonic flow meter Flowcont® UN 
Minimum conductivity	-	-	-
Nominal width	DN 15-50	universal	DN 10-25
Process connection	connection thread G1/2" up to G 2" connection flange	connection thread G1/2"	external pipe thread external thread NPT collar clamp adapter
Process temperature	-30...+80°C	-30...+110°C sensor tube; -30...+80°C housing	0...+80°C
Lining material	1.4301 / 1.4404 stainless steel	1.4301 stainless steel	IPSU polysulfone (Ultrason S)
Flange material	-	-	-
Electrode material	-	-	-
Electronics compact or separated with signal converter	X	X	X
Display	LCD-Display	LCD-Display	LCD-Display
Power supply	24 VDC smoothed ± 15%	24 VDC	18 V DC ... 30 V DC
Outputs	digital output analog output impulse output	digital output analog output impulse output	analog output / PNP-transistor output
Communication	Modbus	Modbus	-
Certifications	-	-	-

Fluxicont FP

calorimetric flow switch, hygienic design, exact monitoring of liquid media

5 / 01.16

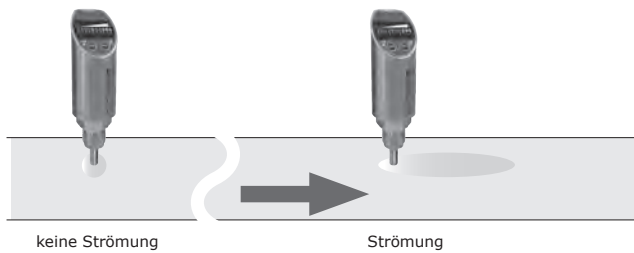
Technical data



power supply:	type GA 16..45 VDC, reverse polarity protected type WB 20..253 VAC/DC, 48...62 Hz, reverse polarity protected
power consumption PIn:	type GA ≤ 1 W switch output in neutral type WN ≤ 1 VA / 1 W
output	
relay output type WB	
function:	switch contact, switching on L/+L
contact data:	≥ 2 A - 62,5 VA / 60 W (at ohmic load) ≥ 100 µV
input	
measuring range:	3...300 cm/s
maximum sensitivity:	3...100 cm/s
factory setting	5...100 cm/s
PNP switching output type GA	
function:	PNP-switching on +L
output current:	0... ≤ 500 mA current limited, short circuit protected
rise time:	< 30 µs (RL < 3 kR / IOut > 4,5 mA)
measurement accuracy	
long term drift:	≤ ±2% FS / year (Referring to nominal measuring span resp. full scale (FS); for water, 5...100 cm/s, 25°C) ≤ 60 s
heating time:	≤ 60 s
temperature deviation:	≤ ±1 cm/s / K (for water, 5...100 cm/s, 10...70°C)
electrical connection	
model:	plug connector M12 4-pole
materials	
process connection:	
(medium contact)	steel 1.4404/316L resp. 1.4571/316Ti
sensor:	
(medium contact)	steel 1.4404/316L resp. 1.4571/316Ti
connection housing:	CrNi-steel
user interface:	PC/PES
gaskets:	
(medium contact)	EPDM - Ethylene-propylene-diene monomer
environmental conditions	
ambient temperature:	- 40°C...+85°C
process temperatures:	compensated work space -20°C...+85°C
process temperaturegrenzen:	-40°C...+140°C
process pressure ranges:	≤ 100 bar limitation depending on process connection
protection:	IP68 [≤ 1 mWs-1h] EN/IEC 60529



Fluxicont FP installation

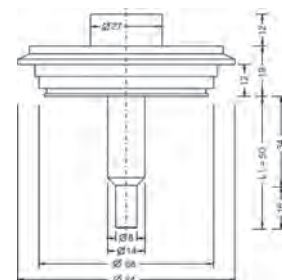


connection housing



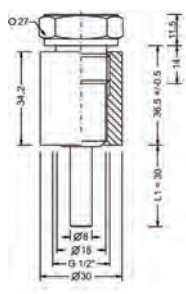
type P

Varivent® N, Ø68 mm



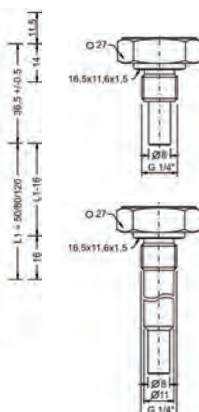
type 2

G ½" ISO 228-1 - metal-seated



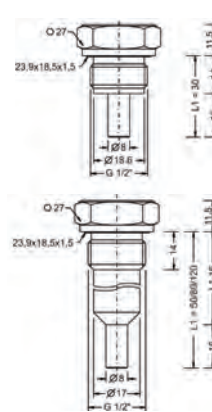
type 3

G ¼" ISO 228-1



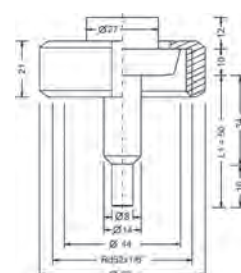
type 0

G ½" ISO 228-1



type R

DN25 DIN 11851



more dimension drawings see data sheet or Homepage www.acs-controlssystem.de

Fluxicont FP

calorimetric flow switch, hygienic design,
exact monitoring of liquid media

5 / 01.16

Price group C

model

FP standard

process connection

- 0 G½" B, ISO 228-1
- 2 G½" B, ISO 228-1, metal-seated
- 3 G¼" B, ISO 228-1
- R milk tube DIN 11851, DN25, PN40
- P Varivent® N, DN68, PN16
- Y others

material process connection/sensor (process wetted)

- V steel 1.4404/316L or 1.4571/316Ti

sensor length L1 / mm

- 0 process connection type 0/2 - G½" >> 30 mm
- process connection type 3 - G¼" >> 28 mm
- process connection type R/P >> not possible
- 1 50 mm
- 2 80 mm
- 3 process connection type R/P >> not possible
- 120 mm
- process connection type R/P >> not possible
- Y others

process temperature

- 0 standard, -20°C...+85°C

material connection housing

- C CrNi-steel

electronics - output

- GA DC voltage 16...45VDC, PNP switching output
- WB universal voltage 20...253VAC/DC, relay output

electrical connection

- S plug M12

Application

ACS-CONTROL-SYSTEM presents the Fluxicont FP, a robust and hygienic optimized calorimetric flow switch for liquids.

This compact device both the sensor and the housing is made of stainless steel and it has no moving parts installed - along with the closed, smooth user interface the Fluxicont FP is insensitive to dirt and is therefore approved for use in hygienic applications. The influence on the medium to be measured can be kept low and also in the installation situation more flexibility is possible due to the design with only one sensor tip.

Suitable for measurement ranges in liquids from 0.03 to 3 m / s, this sensor can be used for a variety of measurement tasks. The device is also equipped with either optional universal current adapter with relay output or optional DC version with PNP switching output.

The modern evaluation electronics lead to a simple switching point adjustment and easy setup and operation.

The new sensor technology also enables faster response times. The stainless steel casing and the user interface with a bright 10-digit bar display can be rotated and thus ensure optimum operation in any mounting position.

Order code

Fluxicont

FP V 0 C S

Equipment

Ordering information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
matching cable socket, VA-nut
connection cable 5 m, 4-pole, shielded
connection cable 10 m, 4-pole, shielded

PG E

Flow measurement



Flowcont® FN - flange version

compact or seperated magnetic inductive flow measurement device
 application: water industry, waste water industry, chemical industry, plant engineering



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Equipment

Equipment see
 page 279

prices nominal width
 page 271



compact version



wall mounting
 housing



seperated version

FN - flange version process connection / nominal width

003	DN3	100	DN100 resp. 4"
004	DN4	125	DN125
006	DN6	150	DN150 resp. 6"
008	DN8	200	DN200 resp. 8"
010	DN10	250	DN250 resp. 10"
015	DN15 resp. 1/2"	300	DN300 resp. 12"
020	DN20	350	DN350 resp. 14"
025	DN25 resp. 1"	400	DN400 resp. 16"
032	DN32	500	DN500 resp. 20"
040	DN40 resp. 1 1/2"	600	DN600 resp. 24"
050	DN50 resp. 2"	700	DN700
065	DN65	800	DN800
080	DN80 resp. 3"	900	DN900
		1000	DN1000

lining

H	hard rubber, medium temperature < 90°C
W	soft rubber, medium temperature < 90°C
P	PTFE, medium temperature < 110°C, cleaning 150°C
E	PFA, medium temperature < 180°C
F	thick - PTFE < 180°C
G	ETFE

pressure stage

1	PN 40 - DN 3 - 80 tube
2	PN 16 - DN 100 - 400 tube
3	PN 10 - DN 200 - 1000 tube
4	ASME CL 150, ISO installation length
Y	other pressure stages

process connection-, flange material

Z	steel ST 37.2
X	CrNi steel 1.4571 (up to nominal width 015 standard)

electrode equipment (only measurement electrodes)

1	1.4539 fully loaded
2	1.4571 fully loaded
3	Hastelloy B3 up to DN200 DN250 up to DN500 DN600 up to DN1000
4	Hastelloy C4
5	Tantal only at PTFE + PFA up to DN100 up to DN200 up to DN1000
6	Titan only at PTFE + PFA up to DN200 up to DN1000
8	Platin-Iridium DN3 up to DN8 DN10 up to DN32 DN40 up to DN100 DN125 up to DN200

measurement electrodes with earth electrodes

E	CrNi-steel 1.4571	from DN3 up to DN400
N	Hastelloy B3	up to DN200 from DN250 - 500 from DN600 - 1000
0	Hastelloy C4	from DN3 up to DN200 from DN250 - 500 from DN600 - 1000
I	Titan (only hard / soft rubber) only at PTFE + PFA only at PTFE + PFA	from DN15 - DN100 from DN3 - 200 from DN250 - 300
Q	Tantal only at PTFE + PFA only at PTFE + PFA	from DN3 - 100 from DN125 - 200 from DN250 - 300
R	CrNi-steel 1.4539 only at PTFE + PFA	
S	1.4539 (904)	from DN3 up to DN40
Y	platinum-Iridium	

explosion protection

A	without
L	ATEX / IEC zone 1 (price up to DN150, from DN200 on request)
M	ATEX / IEC zone 2 / 21 (price up to DN150, from DN200 on request)
P	usFMc Div 2 zone 2 (price up to DN150, from DN200 on request)
R	usFMc Div 1 (price up to DN150, from DN200 on request)

Price group G
 prices see
 page 271

prices see
 page 271

prices see
 page 271

auf Anfrage

prices see
 page 271

Order code

Flowcont® FN



Flowcont® FN - flange version

compact or separated magnetic inductive flow measurement device
 Application: water industry, waste water industry, chemical industry, plant engineering



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certifications

0	measuring tube with DGRL-licence (pressure equipment directive)
2	acceptance test certificate 3.1 according to EN 10204
3	pressure test according to AD-2000
4	material confirmation with acceptance test certificate 3.1 according to EN 10204 u. pressure test according to AD-2000
7	material confirmation with acceptance test certificate 3.2 according to EN 10204
9	others

model

A	compact version
K	separate version 19" (FET-301)
G	separate version with field housing (FET-321)
H	separate version with field housing (FET-325), only with Ex-version „L“
X	compact version with remote electronics; 10m cable (Ex-version)
O	separate version without transmitter

calibration

2	2-point 0,4 %
3	3-point 0,2 %
	up to DN80
	DN100 - 300
	DN350 - 600
	DN700 - 800
5	5-point, DAkkS calibration
	DN50-DN80
	DN100-DN150
	DN200-DN600
	DN800
8	5-point, 0,4% standard accuracy - certified calibration
	DN3-80
	DN100

display / input / output

0	HART + 20 mA passive + impulse + contact inputs/outputs
2	HART + 20 mA active + impulse + contact inputs/outputs (standard)
3	HART + 20 mA active + impulse + contact output (only with Ex-version)
S	Profibus PA + contact output
6	Foundation Fieldbus contact output

voltage

1	100...230 V AC, 50 Hz.
2	24 V AC/DC, 50 Hz
3	100...230 V AC, 60 Hz.
4	24 V AC/DC, 60 Hz + contact output.

protection

A	protection IP-67
B	protection IP-68 (only at separate Version)
C	protection IP-68, cable attached and sealed

signal cable length at separate version

0	without cable (compact)
1	5 m standard cable (separate design)
2	10 m standard cable (separate design)
3	20 m standard cable (separate design)
4	30 m standard cable (separate design)
5	50 m standard cable (separate design)
6	80 m standard cable (separate design)
7	100 m standard cable (separate design)
8	150 m standard cable (separate design)
9	others

language of the documentaries

M1	german
M5	english
MW	language pack Western Europe / Scandinavia
ME	language pack Eastern Europe
MZ	others

amount test points

	(according to „calibration“ see above)
P2	2 points
P3	3 points
P5	5 points

temperature range sensor/ ambient temperature range

1	standard sensor design -20...60°C
	max. fluid temp. at standard sensor design: 130°C at PTFE, PFA, ETFE, thick PTFE 90°C at hard rubber; 60°C at soft rubber
3	high temperature sensor design -20...60°C
	max. Fluidtemp. at high temp. sensor design: 180°C at PFA, thick PTFE; 130°C at ETFE, PTFE (high temperature sensor design only up to DN 300 available and only as separate version)

electrode version

1	standard
5	pointed head
S	standard version

Price group G

Flow measurement

Order code / continuation



option

Model compatible with paints silicone-free
¹⁾ option: please order the casting compound separately TYPE: VGM-D141B038U08

PG E



Flowcont® LN - hygienic version

compact magnetic inductive flow measurement device
 application: food industry, pharma industry
 diverse process connections



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Equipment

Equipment see
 page 279

prices nominal width
 page 271



compact version
 with intermediate
 flange



compact version
 with welding end



wall mounting
 housing



seperated version
 with welding end



seperated version
 with intermediate
 flange

LN - version for food applications process connection

A	external thread ISO 228 / DIN 2999 (only up to nominal width DN25)	
M	milk tube connection acc. to DIN 11851 DN3 - 32	
	DN40 - 100	
R	welding ends acc. to DIN 11850	DN3 - 32
	DN40 - 100	
P	welding ends according to 2037	DN25 - 32
	DN40 - 100	
Q	welding ends acc. to DIN 2463	DN3 - 32
	DN40 - 100	
S	welding ends nach OD Tubing	DN3 - 32
	DN40 - 100	
F	fixed flange according to DIN 2501	DN3 - 8 .. (PN40)
	DN10 - 15	(PN40)
	DN20	(PN40)
	DN25	(PN40)
	DN32	(PN40)
	DN40	(PN40)
	DN50	(PN40)
	DN65	(PN40, PN16)
	DN80	(PN40)
	DN100	(PN40, PN16)
T	Tri-Clamp DIN 32676	DN3 - 32
	DN40 - 100	
Z	intermediate flange	
0	other flanges	

nominal width

003	DN003	1.747,00 €	025	DN25 1"
004	DN004	1.747,00 €	032	DN32
006	DN006	1.747,00 €	040	DN40 resp. 1½"
008	DN008	1.747,00 €	050	DN50 resp. 2"
010	DN010	1.747,00 €	065	DN65
015	DN15 resp. ½"	1.747,00 €	080	DN80 resp. 3"
020	DN20	1.845,00 €	100	DN100 resp. 4"

lining

E	PFA-lining / material gasket EPDM (at intermediate flange without material gasket)
Y	others

pressure stage

1	PN 40 intermediate flange (DN 3...50), screwed pipe joint/ welding ends (DN 3...40), fixed flange (DN 3...80)
2	PN 16 intermediate flange/Tri-Clamp (DN 3...50), screwed pipe joint welding ends (DN50, 80), fixed flange (DN 100)
3	PN 10 Tri-Clamp (DN 65...100), external thread/screwed pipe joint/ welding ends (DN 65, 100)
0	other pressure stages

process connection-, flange material

U	steel 1.4571 (only with fixed flange-version)
W	steel 1.4404 (316L with EPDM-gasket)
G	steel 1.4404 (316L with silicone-gasket)
Z	without process connection (only with intermediate flange)

electrode equipment/version (only measurement electrodes)

2	1.4571 fully loaded
3	Hastelloy B3
4	Hastelloy C4
5	Tantal
6	Titan
7	CrNi-steel (food application) 1.4539
8	platinum-Iridium

measurement electrodes with earth electrodes

E	CrNi-steel 1.4571
N	Hastelloy B3
0	Hastelloy C4 standard
I	Titan
Q	Tantal
R	CrNi-steel 1.4539 (food application)

explosion protection

A	without
L	ATEX / IEC zone 1
M	ATEX / IEC zone 2 / 21
P	usFMc Div 2 zone 2
R	usFMc Div 1

Price group G

Order code

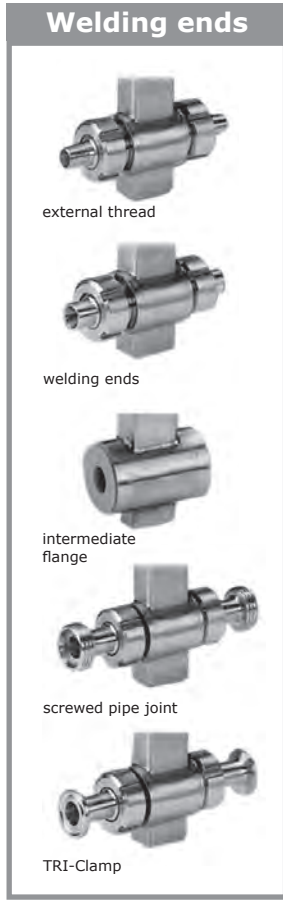
Flowcont® LN

Flowcont® LN - hygienic version

compact magnetic inductive flow measurement device
 application: food industry, pharma industry
 diverse process connections



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certifications

- 0 measuring tube with DGRL-licence.
- 2 acceptance test certificate 3.1 according to EN 10204
- 3 pressure test according to AD-2000
- 4 material confirmation with acceptance test certificate 3.1 according to EN 10204 u. pressure test according to AD-2000
- 7 material confirmation with acceptance test certificate 3.2 according to EN 10204
- 9 others

model

- A compact version
- K separate version 19" for panel mounting (FET-301)
- G separate version with field housing (FET-321)
- H separate version with field housing (FET-325) Ex-version
- X compact version with remote electronics; 10m cable (Ex-version)
- O separate version without transmitter

calibration

- 2 2-point 0,4 %
- 3 3-point 0,2 %
- 5 5-point, DKD calibration
 - DN50-DN80
 - DN100-DN150
 - DN200-DN600
 - DN800
- 8 5-point, 0,4% standard accuracy - certified calibration
 - DN3-80
 - DN100

display / input / output

- 0 HART + 20 mA passive + impulse + contact inputs/outputs
- 2 HART + 20 mA active + impulse + contact inputs/outputs (standard)
- 3 HART + 20 mA active + impulse + contact output (only with Ex-version)
- S Profibus PA + contact output
- 6 Foundation Fieldbus contact output

voltage

- 1 100...230 V AC, 50 Hz.
- 2 24 V AC/DC, 50 Hz
- 3 100...230 V AC, 60 Hz.
- 4 24 V AC/DC, 60 Hz

protection

- A protection IP-67
- B protection IP-68 (with separate Version)
- C cable attached and sealed

signal cable length at separate version

- 0 without cable (compact)
- 1 5 m standard cable (separate design)
- 2 10 m standard cable (separate design)
- 3 20 m standard cable (separate design)
- 4 30 m standard cable (separate design)
- 5 50 m standard cable (separate design)
- 6 80 m standard cable (separate design)
- 7 100 m standard cable (separate design)
- 8 150 m standard cable (separate design)
- 9 others

language of the documentaries

- M1 german
- M5 english
- MW language pack Western Europe / Scandinavia
- ME language pack Eastern Europe
- MZ others

amount test points

- (according to „calibration“ see above)
- P2 2 points
 - P3 3 points
 - P5 5 points

temperature range sensor/ ambient temperature range

- 1 standard sensor design -20...60°C
 - max. Fluidtemp. at standard sensor design:
 - 130°C at PTFE, PFA, ETFE, thick PTFE
 - 90°C at hard rubber; 60°C at soft rubber
- 3 high temperature sensor design -20...60°C
 - max. fluid temp. at high temp. sensor design:
 - 180°C at PFA, thick PTFE; 130°C at ETFE, PTFE
 - (high temperature sensor design only up to DN 300 available)

electrode version

- 1 standard
- 5 pointed head
- S standard version

Order code / continuation



option

Model compatible with paints silicone-free
 1) option: please order the casting compound separately TYPE: VGM-D141B038U08

Flow measurement

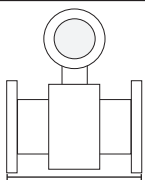
PGE



Measuring range depending on nominal width

Flowcont® FN and LN

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nominal width		standard pressure stage PN (amount of the holes)	dimensions flange version ^{1), 2)} L in mm	min. full-scale range ³⁾ 0,02 x Q _{max} DN (≈ 0,2 m/s)	Q _{max} DN 0... ≈ 10 m/s
DN	inches				
3	1/10	40 (4 hole)	130	0,08 l/min	4 l/min
4	5/32	40 (4 hole)	130	0,16 l/min	8 l/min
6	¼	40 (4 hole)	130	0,4 l/min	20 l/min
8	5/16	40 (4 hole)	130	0,6 l/min	30 l/min
10	3/8	40 (4 hole)	200	0,9 l/min	45 l/min
15	½	40 (4 hole)	200	2 l/min	100 l/min
20	¾	40 (4 hole)	200	3 l/min	150 l/min
25	1	40 (4 hole)	200	4 l/min	200 l/min
32	1 ¼	40 (4 hole)	200	8 l/min	400 l/min
40	1 ½	40 (4 hole)	200	12 l/min	600 l/min
50	2	40 (4 hole)	200	1,2 m³/h	60 m³/h
65	2 ½	10-16 (4 hole) / 25-40 (8 hole)	200	2,4 m³/h	120 m³/h
80	3	40 (8 hole)	200	3,6 m³/h	180 m³/h
100	4	16 (8 hole)	250	4,8 m³/h	240 m³/h
125	5	16 (8 hole)	250	8,4 m³/h	420 m³/h
150	6	16 (8 hole)	300	12 m³/h	600 m³/h
200	8	10 (8 hole) / 16 (12 hole)	350	21,6 m³/h	1.080 m³/h
250	10	10 (12 hole) / 16 (12 hole)	450	36 m³/h	1.800 m³/h
300	12	10 (12 hole) / 16 (12 hole)	500	48 m³/h	2.400 m³/h
350	14	10 (16 hole) / 16 (16 hole)	550	66 m³/h	3.300 m³/h
400	16	10 (16 hole) / 16 (16 hole)	600	90 m³/h	4.500 m³/h
500	20	10 (20 hole)	650	132 m³/h	6.600 m³/h
600	24	10 (20 hole)	780	192 m³/h	9.600 m³/h
700	28	10 (24 hole)	910	264 m³/h	13.200 m³/h
800	32	10 (24 hole)	1040	360 m³/h	18.000 m³/h
900	36	10 (28 hole)	1170	480 m³/h	24.000 m³/h
1000	40	10 (28 hole)	1300	540 m³/h	27.000 m³/h
1050	42			616 m³/h	30.800 m³/h
1100	44			660 m³/h	33.000 m³/h
1200	48			840 m³/h	42.000 m³/h
1400	54			1.080 m³/h	54.000 m³/h
1500	60			1.260 m³/h	63.000 m³/h
1600	66			1.440 m³/h	72.000 m³/h
1800	72			1.800 m³/h	90.000 m³/h
2000	80			2.280 m³/h	114.000 m³/h

- ¹⁾ If a grounding plate (one-sidedly mounted at the flange) is installed, the L dimension increases by: DN3-DN100: 3mm; DN125-400: 5mm.
²⁾ If protection plates (one-sidedly mounted at the flange) are installed, the L dimension increases by: DN3-DN100: 6mm; DN125-400: 10mm.
³⁾ The measuring range is adjustable between 0,02 x Q_{max}DN and 2 x Q_{max}DN.

Flowcont® FN - nominal width

basic price / lining



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DN	PTFE	ETFE	thick-PTFE	hard rubber	PFA	soft rubber
3	-	-	-	-	-	-
4	-	-	-	-	-	-
6	-	-	-	-	-	-
8	-	-	-	-	-	-
10	-	-	-	-	-	-
15	-	-	-	-	-	-
20	-	-	-	-	-	-
25	-	-	-	-	-	-
32	-	-	-	-	-	-
40	-	-	-	-	-	-
50	-	-	-	-	-	-
65	-	-	-	-	-	-
80	-	-	-	-	-	-
100	-	-	-	-	-	-
125	-	-	-	-	-	-
150	-	-	-	-	-	-
200	-	-	-	-	-	-
250	-	-	-	-	-	-
300	-	-	-	-	-	-
350	-	-	-	-	-	-
400	-	-	-	-	-	-
450	-	-	-	-	-	-
500	-	-	-	-	-	-
600	-	-	-	-	-	-
700	-	-	-	-	-	-
800	-	-	-	-	-	-
900	-	-	-	-	-	-
1000	-	-	-	-	-	-
1200	-	-	-	on request	-	on request
1400	-	-	-	on request	-	on request
1600	-	-	-	on request	-	on request
1800	-	-	-	on request	-	on request
2000	-	-	-	on request	-	on request

Price group G

Flowcont® FN - pressure stage, process connection surcharge for material



DN	PN10 ST37.2	PN10 1.4571	PN16 ST37.2	PN16 1.4571	PN40 ST37.2	PN40 1.4571	ASME-CL150 1.4571
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-
500	-	-	-	-	-	-	-
600	-	-	-	-	-	-	-
700	-	-	-	-	-	-	-
800	-	-	-	-	-	-	-
900	-	-	-	-	-	-	-
1000	-	on request	on request	on request	-	-	-
1200	-	on request	on request	on request	-	-	-
1400	-	on request	on request	on request	-	-	-
1600	-	on request	on request	on request	-	-	-
1800	-	on request	on request	on request	-	-	-
2000	-	on request	on request	on request	-	-	-

Price group G

Flow measurement



Flowcont® TGF - for partially filled tubes - seperated version



magnetic inductive flow measurement device for fully- and partially filled pipelines (non-pressure systems)

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Equipment

Equipment see page 279

TGF - for partially filled tubes

150 = DN150 resp. 6"	400 = DN400 resp. 16"	900 = DN900	2000 = DN2000
200 = DN200 resp. 8"	500 = DN500 resp. 20"	1000 = DN1000	1800 = DN1800
250 = DN250 resp. 10"	600 = DN600 resp. 24"	1200 = DN1200	
300 = DN300 resp. 12"	700 = DN700	1400 = DN1400	
350 = DN350	800 = DN800	1600 = DN1600	

lining

H	hard rubber	.....
W	soft rubber	.....
P	PTFE	.....

pressure stage

2	PN 16 - DN 150 - 1000 tube 1.4571	.....
3	PN 10 - DN 150 - 1000 tube 1.4571	.....
4	PN 6 - DN 1200 - 2000 tube 1.4571	.....
Y	others	.....

process connection, flange material

Z	steel ST 37.2	.....
X	CrNi steel 1.4571	.....

electrode equipment (only measurement electrodes) In hard and soft rubber lining there are earth electrodes installed in the sensor. For PTFE are earth electrodes or one grounding plate at the plastic line necessary.

2	1.4571 fully loaded (standard)	.....
3	Hastelloy B3 DN150 - 200	.....
	DN250 - 500	.....
	DN600 - 1000	.....
4	Hastelloy C4 DN150 - 200	.....
	DN250 - 500	.....
	DN600 - 1000	.....
Y	others	.....
5	Tantal up to DN200	.....
6	Titan up to DN200	.....

certificates

0	standard calibration certificate	.....
X	EEx em (ib) IIC T3 - T6 (TUV 97 ATEX 1173 X), calibration certificate	.....
D	test certificate according to EN 10204 3.1B, calibration certificate

licences

A	standard
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model

T	separate version with field housing rectangular *(MUT-T100)
U	separate version 19" slot *(MUU-U100)
0	separate version without signal converter

calibration

1	standard
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display, input /output

B	current-/impulse output active, switching in-/output (reprogrammable to passive)
R	current-/impulse output active, switching in-/output, RS 485	.....

voltage

1	230 V AC 50/60 Hz	.....
4	24 V AC 50/60 Hz	.....

protection

A	protection IP-67	.....
B	protection IP-68	.....

excitation frequency

1	6 ¼" 50/60 Hz (standard)	.....
3	7 ½" 50/60 Hz	.....

signal- and excitation cable

00	0 m (eg. only signal converter)	.....
05	5 m	.....
10	10 m	.....
15	15 m	.....
20	20 m	.....
25	25 m	.....
30	30 m	.....
35	35 m	.....
40	40 m	.....
45	45 m	.....
50	50 m	.....

S standard version



wall mounting housing

Order code

Flowcont® TGF

1

S

Price group B



Flow measurement

Flowcont® TGF - nominal width

basic pricee / lining

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DN	H=Hard rubber	PN	W=Soft rubber	PN	P=PTFE	PN
150		10 / - / 25 / 40	3.903,00 €	16 / 25 / 40	4.387,00 €	10 / - / 25 / 40
200		10 / - / 25 / 40	4.475,00 €	16 / 25 / 40	5.533,00 €	10 / - / 25 / 40
250		10 / - / 25 / 40	5.429,00 €	16 / 25 / 40	7.355,00 €	10 / - / 25 / 40
300		10 / - / 25 / 40*	9.059,00 €	16 / 25 / 40*	10.885,00 €	10 / - / 25 / 40*
350		10 / 16 / 25 / 40*	11.842,00 €	16 / 25 / 40*	13.432,00 €	10 / - / 25 / 40*
400		10 / 16 / 25 / 40*	13.285,00 €	16 / 25 / 40*	15.683,00 €	10 / - / 25 / 40*
500		10 / 16 / 25 / 40*	15.498,00 €	16 / 25 / 40*	20.909,00 €	10* / 16 / 25 / 40*
600		10 / 16 / 25 / 40*	20.038,00 €	16 / 25 / 40*	24.093,00 €	10* / 16 / 25 / 40*
700		10 / 16 / 25 / -	22.502,00 €	16 / 25 / 40*	-	- / - / - / -
800		- / 16 / 25* / 40*	25.537,00 €	16 / 25* / 40*	-	- / 16 / 25* / 40*
900		- / 16 / 25* / 40*	29.502,00 €	16 / 25* / 40*	-	- / 16 / 25* / 40*
1000		- / 16 / 25* / 40*	33.879,00 €	16 / 25* / 40*	-	- / 16 / 25* / 40*
1200	on request		on request		-	
1400	on request		on request		-	
1600	on request		on request		-	
1800	on request		on request		-	
2000	on request		on request		-	

*on request

Price group G

Flowcont® TGF - pressure stage, process connection surcharge for material

NW	PN6		PN10		PN16		PN40	
	ST37.2		ST37.2	1.4571	ST37.2	1.4571	ST37.2	1.4571
150						on request		
200						on request		
250						on request		
300						on request		
350						on request		
400						on request	-	-
500						on request	-	-
600						on request	-	-
700						on request	-	-
800						on request	-	-
900						on request	-	-
1000						on request	-	-
1200						on request	-	-
1400						on request	-	-
1600						on request	-	-
1800						on request	-	-
2000						on request	-	-

Price group G

Flow measurement

Flowwirl W430/450 - vortex flow meter

Reliable, maintenance-free flow measurement of liquid, gas and steam, regardless of the material properties



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W - Vortex flowmeter

Basic model

430	Flowwirl W430 flowmeter
450	Flowwirl W450 intelligent flowmeter

Explosion protection

Y0	without	.....
B1	ATEX Ex nA / Ex tc (zone 2 and 22)	.....
A4	ATEX Ex ia / Ex ia (zone 0 and 20)	.....
A9	ATEX Ex d ia / Ex tb (zone 0/1 and 21)	.....
N1	IECEx Ex nA / Ex tc (zone 2 and 22)	.....
N2	IECEx Ex ia / Ex ia (zone 0 and 20)	.....
N3	IECEx Ex d ia / Ex tb (zone 0/1 and 21)	.....
F1	cFMus XP CI I,II,III Div 1 / zone 1	.....
F4	cFMus IS CI I,II,III Div 1 / zone 0	.....
F3	cFMus NI CI I Div 2, CI II,III Div 1,2 / zone 2	.....

Device type

C1	compact device, single-transducer	.....
R1	separate measuring transducer, single-transducer (5 m cable included)	.....
C2	compact device, double-transducer	.....
R2	separate measuring transducer, double-transducer (2 x 5 m cable included)	.....

Process connection / pipe size / Nominal connection diameter

W025R0	intermediate flange / DN 25 (1 in.) / DN 25 (1 in.)	.....
W040R0	intermediate flange / DN 40 (1-1/2 in.) / DN 40 (1-1/2 in.)	.....
W050R0	intermediate flange / DN 50 (2 in.) / DN 50 (2 in.)	.....
W080R0	intermediate flange / DN 80 (3 in.) / DN 80 (3 in.)	.....
W100R0	intermediate flange / DN 100 (4 in.) / DN 100 (4 in.)	.....
W150R0	intermediate flange / DN 150 (6 in.) / DN 150 (6 in.)	.....
F015R0	flange / DN 15 (1/2 in.) / DN 15 (1/2 in.)	.....
F025R0	flange / DN 25 (1 in.) / DN 25 (1 in.)	.....
F040R0	flange / DN 40 (1-1/2 in.) / DN 40 (1-1/2 in.)	.....
F050R0	flange / DN 50 (2 in.) / DN 50 (2 in.)	.....
F080R0	flange / DN 80 (3 in.) / DN 80 (3 in.)	.....
F100R0	flange / DN 100 (4 in.) / DN 100 (4 in.)	.....
F150R0	flange / DN 150 (6 in.) / DN 150 (6 in.)	.....
F200R0	flange / DN 200 (8 in.) / DN 200 (8 in.)	.....
F250R0	flange / DN 250 (10 in.) / DN 250 (10 in.)	.....
F300R0	flange / DN 300 (12 in.) / DN 300 (12 in.)	.....

Nominal pressure

D1	PN 10	.....
D2	PN 16	.....
D3	PN 25	.....
D4	PN 40	.....
D5	PN 63	.....
D6	PN 100	.....
D7	PN 160	.....
A1	ASME CL 150	.....
A3	ASME CL 300	.....
A6	ASME CL 600	.....
A7	ASME CL 900	.....
J0	JIS 7.5K	.....
J1	JIS 10K	.....
J2	JIS 5K	.....
J3	JIS 20K	.....
J4	JIS 30K	.....
Z9	others	.....

Temperature range

A1	standard -55 ... 280 °C (-67 ... 536 °F)	.....
B1	Advanced -55 ... 400 °C (-67 ... 752 °F) ¹⁾

Housing material / Cable connection

A1	aluminium / 2 x M20 x 1,5 cable glands, mounted	.....
B1	aluminium / 2 x 1/2 in. NPT thread, no cable glands mounted	.....
S1	CrNi-Stahl / 2 x M20 x 1,5 cable glands, mounted	.....
T1	CrNi-Stahl / 2 x 1/2 in. NPT thread, no cable glands mounted	.....

Output signal

H1	HART-digital communication and 4 ... 20 mA ³⁾
H5	HART-digital communication and 4 ... 20 mA and contact output	.....

Integrated digital display (LCD)

L2	with integrated touch screen LCD display (TTG) ¹⁾
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sensor seal

SP0	PTFE (-20 ... 260 °C / -4 ... 500 °F) ²⁾
SP1	Kalrez 6375 (-20 ... 275 °C / -4 ... 527 °F) ³⁾
SP2	Graphite (-55 ... 400 °C / -67 ... 752 °F) ⁴⁾

Order code

Flowwirl W

L2

Price group B

Flow measurement

Flowwirl W430/450 - vortex flow meter

Reliable, maintenance-free flow measurement of liquid, gas and steam, regardless of the material properties



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Equipment

Equipment see page 279

Price group B

TA4	Ambient temperature range	advanced -40 ... 85 °C (-40 ... 185 °F)
B1	Mounting accessories / material	2 in. pipe mounting / steel ⁵⁾
	Signal cable length	
SC2		10 m (ca. 32 ft) ⁵⁾
SC4		20 m (ca. 64 ft) ⁵⁾
SC6		30 m (ca. 96 ft) ⁵⁾
SCZ		others ⁵⁾
	Calibration	
R5		5-point-calibration
RR		3-point-calibration with application-specific k-factor for Reynolds number optimization ⁹⁾
	Overvoltage protection	
S1		with Overvoltage protection (Transient Protector) ¹⁾
	Sensor material	
SM1		piezo sensor Hastelloy C-276
SM2		mounting parts Hastelloy C-276
SM3		wetted parts Hastelloy C-276
	Certificates	
C2		Material confirmation with inspection certificate 3.1 acc. to EN 10204
CN		Material confirmation NACE MR 01-75 with inspection certificate 3.1 according to EN 10204
C4		factory confirmation 2.1 acc. to EN 10204 of order conformity
C6		inspection certificate 3.1 according to EN 10204 (visual, dimensional, and functional check)
C5		inspection certificate 3.1 according to EN 10204 of Positive Material Identification (PMI) incl. material analysis
CA		inspection certificate 3.1 according to EN 10204 of Positive Material Identification (PMI)
CB		pressure test according to manufacturer's instructions
CT		test packet (pressure testing, nondestructive testing, welder, welding procedure qualification)
	Device nameplate	
TC1		stainless steel plate with TAG No.
TCC		foil plate with TAG No.
TCS		stainless steel plate to hang
TCZ		others
	Language documentation	
M1		german
M5		english
M6		chinese
MB		russian
MW		language package western europe / scandinavia
ME		language package eastern europe
	Special applications	
P1		oil and grease-free for oxygen applications ¹⁾
	Additional device equipment	
G		with integrated temperature sensor ¹⁾
	Operating mode	
N1		steam energy flow ⁶⁾
N2		water energy flow ⁶⁾
N3		natural gas flow AGA / SGERG ⁶⁾

Flow measurement

Order code / continuation

TA4 B1 S1 P1 G



Flowdrall D430/450 - swirl flow meter

Reliable and versatile - robust and versatile flow measurement for the reliable measurement of liquids, gases and steam in volume, mass or energy units



5 / 01.16

D - Swirl flowmeter

Basic model

430	Flowdrall D430 flowmeter	.....
450	Flowdrall D450 intelligent flowmeter	.....

Explosion protection

Y0	without	.....
B1	ATEX Ex nA / Ex tc (zone 2 and 22)	.....
A4	ATEX Ex ia / Ex ia (zone 0 and 20)	.....
A9	ATEX Ex d ia / Ex tb (zone 0/1 and 21)	.....
N1	IECEx Ex nA / Ex tc (zone 2 and 22)	.....
N2	IECEx Ex ia / Ex ia (zone 0 and 20)	.....
N3	IECEx Ex d ia / Ex tb (zone 0/1 and 21)	.....
F1	cFMus XP CI I,II,III Div 1 / zone 1	.....
F4	cFMus IS CI I,II,III Div 1 / zone 0	.....
F3	cFMus NI CI I Div 2, CI II,III Div 1,2 / zone 2	.....

Device type

C1	compact device, single-transducer	.....
R1	separate measuring transducer, single-transducer (5 m cable included)	.....
C2	compact device, double-transducer	.....
R2	separate measuring transducer, double-transducer (2 x 5 m cable included)	.....

Process connection / pipe size / Nominal connection diameter

F015R0	flange / DN 15 (1/2 in.) / DN 15 (1/2 in.)	.....
F025R0	flange / DN 25 (1 in.) / DN 25 (1 in.)	.....
F040R0	flange / DN 40 (1-1/2 in.) / DN 40 (1-1/2 in.)	.....
F050R0	flange / DN 50 (2 in.) / DN 50 (2 in.)	.....
F080R0	flange / DN 80 (3 in.) / DN 80 (3 in.)	.....
F100R0	flange / DN 100 (4 in.) / DN 100 (4 in.)	.....
F150R0	flange / DN 150 (6 in.) / DN 150 (6 in.)	.....
F200R0	flange / DN 200 (8 in.) / DN 200 (8 in.)	.....
F250R0	flange / DN 250 (10 in.) / DN 250 (10 in.)	.....
F300R0	flange / DN 300 (12 in.) / DN 300 (12 in.)	.....
F400R0	flange / DN 400 (16 in.) / DN 400 (16 in.)	.....

Nominal pressure

D1	PN 10	.....
D2	PN 16	.....
D3	PN 25	.....
D4	PN 40	.....
D5	PN 63	.....
D6	PN 100	.....
D7	PN 160	.....
A1	ASME CL 150	.....
A3	ASME CL 300	.....
A6	ASME CL 600
A7	ASME CL 900

Temperature range

A1	standard -55 ... 280 °C (-67 ... 536 °F)
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Housing material / Cable connection

A1	aluminium / 2 x M20 x 1,5 cable glands, mounted
B1	aluminium / 2 x 1/2 in. NPT thread, no cable glands mounted	.....
S1	CrNi-Stahl / 2 x M20 x 1,5 cable glands, mounted	.....
T1	CrNi-Stahl / 2 x 1/2 in. NPT thread, no cable glands mounted	.....

Output signal

H1	HART-digital communication and 4 ... 20 mA ¹⁾
H5	HART-digital communication and 4 ... 20 mA and contact output	.....

Integrated digital display (LCD)

L2	with integrated touch screen LCD display (TTG) ¹⁾
----	--	-------

sensor seal

SP0	PTFE (-20 ... 260 °C / -4 ... 500 °F) ²⁾
SP1	Kalrez 6375 (-20 ... 275 °C / -4 ... 527 °F) ³⁾
SP2	Graphite (-55 ... 400 °C / -67 ... 752 °F) ⁴⁾

Price group B



Order code

Flowdrall D

L2

Flowdrall D430/450 - swirl flow meter

Reliable and versatile - robust and versatile flow measurement for the reliable measurement of liquids, gases and steam in volume, mass or energy units



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Equipment

Equipment see page 279

Price group B

Ambient temperature range	TA4 advanced -40 ... 85 °C (-40 ... 185 °F)
Signal cable length	SC2 10 m (ca. 32 ft) ⁵⁾
	SC4 20 m (ca. 64 ft) ⁵⁾
	SC6 30 m (ca. 96 ft) ⁵⁾
	SCZ others ⁵⁾
Calibration	R5 5-point-calibration
	RR 3-point-calibration with application-specific k-factor for Reynolds number optimization ⁶⁾
Overvoltage protection	S1 with Overvoltage protection (Transient Protector) ¹⁾
Sensor material	SM1 piezo sensor Hastelloy C-276
	SM2 mounting parts Hastelloy C-276
	SM3 wetted parts Hastelloy C-276
Certificates	C2 Material confirmation with inspection certificate 3.1 acc. to EN 10204
	CN Material confirmation NACE MR 01-75 with inspection certificate 3.1 according to EN 10204
	C4 factory confirmation 2.1 acc. to EN 10204 of order conformity
	C6 inspection certificate 3.1 according to EN 10204 (visual, dimensional, and functional check)
	C5 inspection certificate 3.1 according to EN 10204 of Positive Material Identification (PMI) incl. material analysis
	CA inspection certificate 3.1 according to EN 10204 of Positive Material Identification (PMI)
	CB pressure test according to manufacturer's instructions
	CT test packet (pressure testing, nondestructive testing, welder, welding procedure qualification)
Device nameplate	TC1 stainless steel plate with TAG No.
	TCC foil plate with TAG No.
	TCS stainless steel plate to hang
	TCZ others
Language documentation	M1 german
	M5 english
	M6 chinese
	MB russian
	MW language package western europe / scandinavia
	ME language package eastern europe
Special applications	P1 oil and grease-free for oxygen applications ¹⁾
Additional device equipment	G with integrated temperature sensor ¹⁾
Operating mode	N1 steam energy flow ⁶⁾
	N2 water energy flow ⁶⁾
	N3 natural gas flow AGA / SGERG ⁶⁾

Flow measurement

Order code / continuation

TA4 B1 S1 P1 G

Surcharge for grounding plates

without mounting option at the flange

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grounding plate material: 1.4571

DN 3...DN 8	PN 10...PN 40	D374A165U21
DN 10	PN 10...PN 40	D374A165U22
DN 15	PN 10...PN 40	D374A165U23
DN 20	PN 10...PN 40	D374A165U24
DN 25	PN 10...PN 40	D374A165U25
DN 32	PN 10...PN 40	D374A165U26
DN 40	PN 10...PN 40	D374A165U27
DN 50	PN 10...PN 40	D374A165U28
DN 65	PN 10...PN 40	D374A165U29
DN 80	PN 10...PN 40	D374A165U30
DN 100	PN 10...PN 16	D374A165U31
DN 125	PN 10...PN 16	D374A165U32
DN 150	PN 10...PN 16	D374A165U33
DN 200	PN 10...PN 16	D374A165U34
DN 250	PN 10...PN 16	D374A165U35
DN 300	PN 10	D374A165U39
	PN 16	D374A165U44
DN 350	PN 10	D374A165U40
	PN 16	D374A165U45
DN 400	PN 10	D374A165U41
	PN 16	D374A165U46
DN 500	PN 10	D374A165U42
	PN 16	D374A165U47
DN 600	PN 10	D374A165U43
	PN 16	D374A165U48
> DN 600		

Price group A

grounding plate material: Hastelloy C-4

DN 3...DN 8	PN 10...PN 40	D374A166U21
DN 10	PN 10...PN 40	D374A166U22
DN 15	PN 10...PN 40	D374A166U23
DN 20	PN 10...PN 40	D374A166U24
DN 25	PN 10...PN 40	D374A166U25
DN 32	PN 10...PN 40	D374A166U26
DN 40	PN 10...PN 40	D374A166U27
DN 50	PN 10...PN 40	D374A166U28
DN 65	PN 10...PN 40	D374A166U29
DN 80	PN 10...PN 40	D374A166U30
DN 100	PN 10...PN 16	D374A166U31
DN 125	PN 10...PN 16	D374A166U32
DN 150	PN 10...PN 16	D374A166U33
DN 200	PN 10...PN 16	D374A166U34
DN 250	PN 10...PN 16	D374A166U35
DN 300	PN 10	D374A166U39
DN 350	PN 10	D374A166U40
	PN 16	D374A166U45
DN 400	PN 10	D374A166U41
	PN 16	D374A166U46
DN 500	PN 10	D374A166U42
	PN 16	D374A166U47
DN 600	PN 10	D374A166U43

Price group A

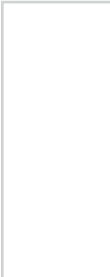
grounding plate aus conductive PTFE

DN10 / PN40	D377B106U01
DN15 / PN40	D377B106U02
DN20 / PN40	D377B106U03
DN25 / PN40	D377B106U04
DN32 / PN40	D377B106U05
DN40 / PN40	D377B106U06
DN50 / PN40	D377B106U07
DN65 / PN40	D377B106U09
DN80 / PN40	D377B106U10
D100 / PN16	D377B106U11


PG A

Flow measurement


flange equipment material 1.4571

nominal width.....	protection plates	earthing rings
DN003 - 032	117,00 €	
DN040 - 050	156,00 €	
DN065 - 080	203,00 €	
DN100	218,00 €	
DN125	274,00 €	
DN150	342,00 €	
DN200	461,00 €	
DN250	508,00 €	
DN300 - 350	1.089,00 €	
DN400	1.156,00 €	
DN500	2.223,00 €	
DN600	2.669,00 €	


sealing ring for aseptic screwed pipe joint

DN004 - 010	D110A020U06	
DN015	D110A004U08	
DN020	D110A005U06	
DN025	D110A006U07	
DN032	D110A007U06	
DN040	D110A008U08	
DN050	D110A003U06	
DN065	D110A009U06	
DN080	D110A011U06	
DN100	D110A012U06	

weld-in fitting


DN3 - 10	D413C470U01	
DN15	D413C471U01	
DN20	D413C472U01	
DN25	D413C473U01	
DN32	D413C474U01	
DN40	D413C475U01	
DN50	D413C488U03	
DN65	D413C461U09	
DN80	D413C496U03	
DN100	D413C498U03	

marking measurement point

<i>Ordering information</i> <i>Model</i>		
AS-50hang tag made of VA with laser inscription		

intermediate flange equipment for vortex flow

material CrNi-steel (bolts, nuts, spring washers) centering elements, gaskets are not included in equipment

DN 15 / DN 25 /, PN 10-40	D614L384U01	
DN 15, PN 64-100	D614L384U15	
DN 25, PN 64 -100	D614L384U11	
DN 40, PN 10-40	D614L384U02	
DN 40, PN 64	D614L384U14	
DN 50, PN 10-40	D614L384U03	
DN 50, PN 64	D614L384U13	
DN 80, PN 10-40	D614L384U04	
DN 80, PN 64	D614L384U12	
DN 100, PN 10-16	D614L384U05	
DN 100, PN 25-40	D614L384U06	
DN 100, PN 64	D614L384U16	
DN 150, PN 10-16	D614L384U07	
DN 150, PN 25-40	D614L384U08	
DN 150, PN 64	D614L384U17	

Flowgas TMS 300

cost-effective consumption sensor for compressed air and gases including measurement section

5 / 01.16

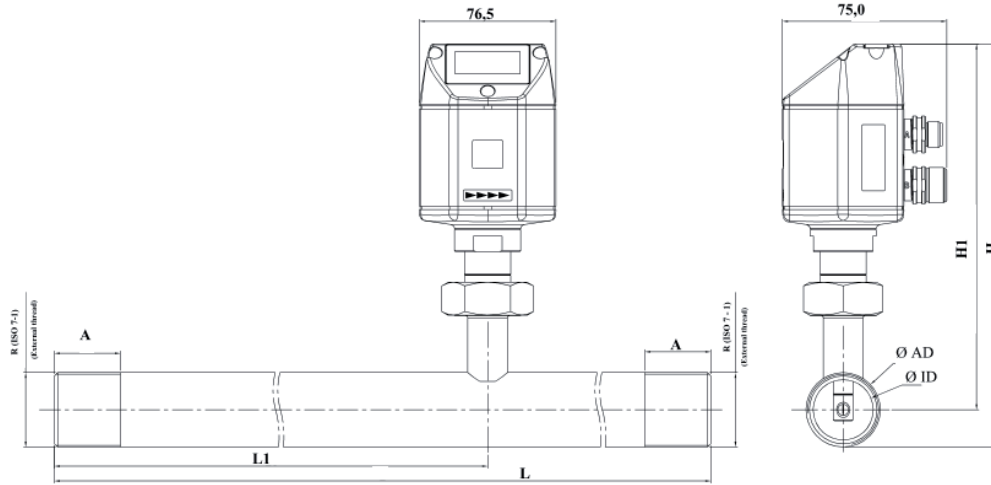
Technical data



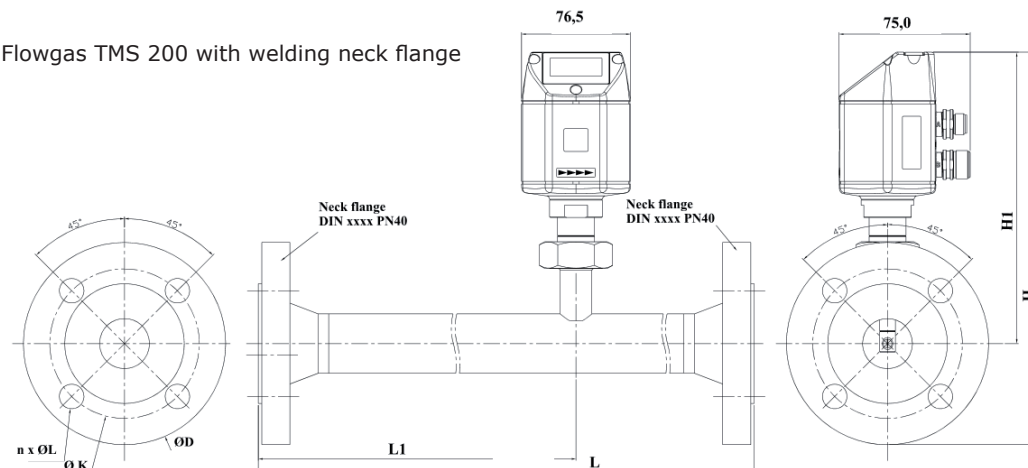
measurement types: m³/h, l/min (1000 mbar, 20°C) for compressed air resp. Nm³/h, NI/min (1013 mbar, 0°C) for gases
 measurement principle: calorimetric measurement
 sensor: thermal mass flow sensor
 measured medium: air, gases
 operating temperature: -30 ... 80°C
 operating pressure: up to 16 bar, special version PN 40 (40 bar)
 power supply: 24 VDC smoothed ± 15%
 supply current: max. 80 mA at 24 VDC
 load: < 500 Ohm
 digital output: RS485, Modbus RTU
 analog output: 4...20 mA, for m³/h bzw. l/min
 impulse output: 1 impulse per m³ resp. per l, pulse output galvanically isolated; pulse value on display adjustable
 accuracy: ± 1,5 % v.M., ± 0,3 % v. E.
 mounting threads: R 1/4", R 1/2", R 3/4", R 1", R 1 1/4" R 1 1/2", R 2" DIN EN 10226 (ISO 7-1)
 material: Housing: polycarbonate
 Measuring range: stainless steel 1.4301 / 1.4404;
 Version with flange DIN EN 1092-1: stainless steel 1.4404



Flowgas TMS 200 without flange with connection thread



Flowgas TMS 200 with welding neck flange



Flow measurement

Flowgas TMS 300

cost-effective consumption sensor for compressed air and gases including measurement section

5 / 01.16

Application

The affordable consumption counter TMS 300 works according to the proven calorimetric measuring principle. An additional pressure and temperature compensation is not necessary. The newly developed evaluation electronic detects, unlike the bridge circuits commonly used, all readings digitally. Thus very precise and fast measurements are possible.

Due to the new evaluation electronic all TMS 300 come with a Modbus output. Thus all measured variables can be transmitted via Modbus.

Due to its compact design it is possible the new cheap consumption meters TMS 300 are usable for all pressure air pipe lines, from production to consumption smallest unit („1/4 to 2 inches). For larger pipe diameters from DN 50 to DN 300 the consumption sensors TMS 500 are available.

In addition to pressure air, other gases can e.g. Nitrogen, oxygen, CO2 be measured, too.

The installation of the meter TMS 300 is simple and fast. A particular advantage is the removable measuring unit. This allows the unit of measurement for calibration or cleaning purposes be removed quickly and easily without removing the complete measuring section.

model

300 standard

process connection

0 connection thread 1/4"
 1 connection thread 1/2"
 2 connection thread 3/4"
 3 connection thread 1"
 5 connection thread 1 1/2"
 6 connection thread 2"
 4 connection thread 1 1/4"
 A connection flange DN15
 B connection flange DN20
 C connection flange DN25
 D connection flange DN32
 E connection flange DN40
 F connection flange DN50
 Y special version

material (medium contact)

V2 1.4301 stainless steel
 V4 1.4404 stainless steel
 Y special version

pressure stage

16 PN16
 40 PN40
 Y special version

gas type standard measuring range

LUFT air - measuring range according to DIN 1945/ ISO 1217 please specify
 11AR argon measuring range according to DIN 1343 please specify
 1CO2 carbon dioxide CO2 measuring range according to DIN 1343 please specify
 11O2 oxygen incl. cleaning oil and fat free measuring range according to DIN 1343 please specify
 111N nitrogen measuring range according to DIN 1343 please specify
 111Y special medium

accuracy calibration

A +/- 1,5% from measured value (standard)
 B +/- 1,0% from measured value
 Y special calibration via 5-point ISO-certificate

output

AP analog output: 4 .. 20 mA for m³/h resp. l/min
 impulse output: 1 impulse pro m³ resp. per liter galvanically isolated
 5-pol. cable socket M12 included
 Y special version

supply

2 24 VDC smoothed +/- 15%
 5-pol. cable socket M12 included
 Y special version

Price group B

Flow measurement

Order code

Flowgas TMS 300



Flowgas TMS 500

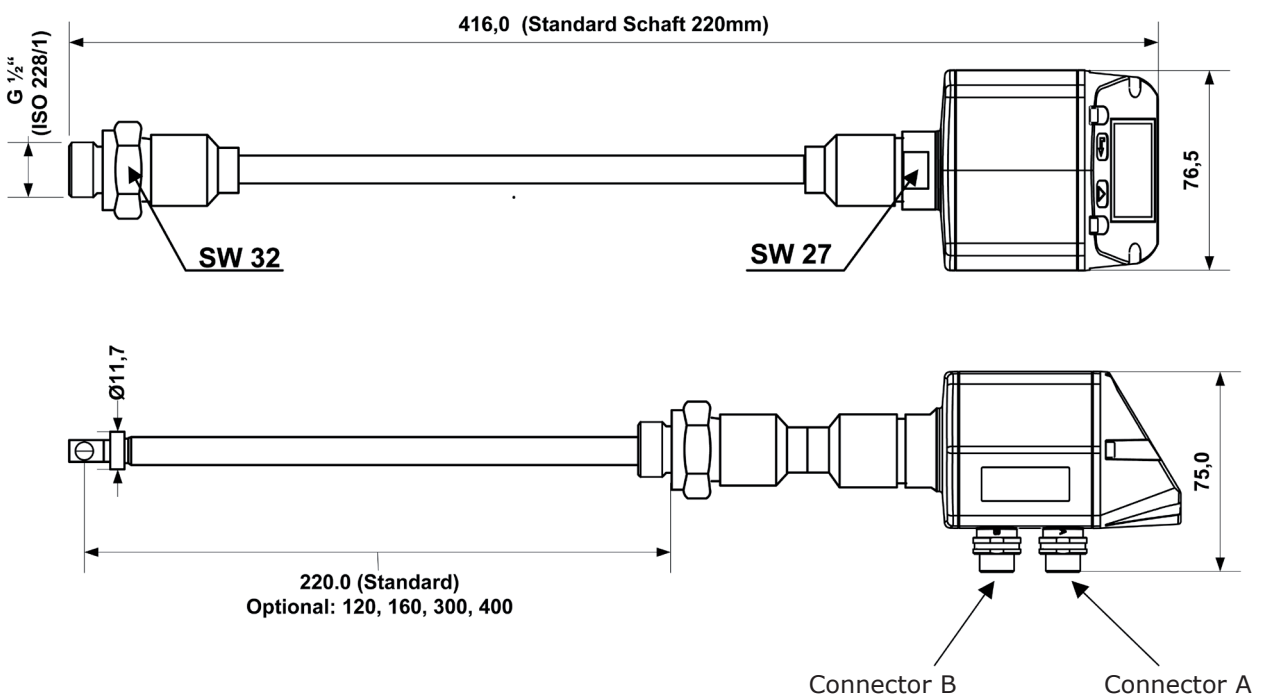
consumption sensor for compressed air and gases

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Technical data



measurement types: m³/h, l/min (1000 mbar, 20°C) for compressed air resp. Nm³/h, NI/min (1013 mbar, 0°C) for gases
measurement principle: calorimetric measurement
sensor: thermal mass flow sensor
measured medium: air, gases
operating temperature: -30 ... 80°C housing
 -30 ... 110 °C probe tube
operating pressure: up to 50 bar
power supply: 24 VDC smoothed ± 15%
supply current: max. 80 mA at 24 VDC
load: < 500 Ohm
digital output: RS485, Modbus RTU
analog output: 4 ... 20 mA for m³ / h or l / min
 on request: scaling for cfm, m³ / min, l / s, ft / min, m / s
impulse output: 1 impulse per m³ resp. per l, pulse output galvanically isolated;
 pulse value on display adjustable
accuracy: ± 1,5 % v.M., ± 0,3 % v. E.
mounting threads: G1/2"
material: Housing: polycarbonate
 Sensor tube: stainless steel 1.4301 / 1.4301; length 220 mm,
 diameter 10 mm



Flowgas TMS 500

consumption sensor for compressed air and gases

5 / 01.16

Application

The affordable consumption counter TMS 500 works according to the proven calorimetric measuring principle. A heated sensor is cooled by the gas flowing around him. The flow-dependent cooling is utilized as a measuring scale while the degree of cooling is directly dependent on the passing air or gas mass. An additional pressure and temperature compensation is therefore not necessary.

For larger pipe diameters from DN 50 to DN 300 the consumption sensors TMS 500 are available. In addition to pressure air, other gases can be measured e.g. Nitrogen, oxygen, CO2.

The installation of the TMS 500 via a standard G 1/2 „ball valve under pressure. The retaining ring prevents the probe is thrown out uncontrollably during installation and removal by the operating pressure. For installation in different pipe diameters the TMS 500 can be associated with different probe lengths. The exact positioning of the sensor in the center of the pipe is possible via an engraved depth scale.

model	500 standard
connection thread	1 1/2" Y special version
material (medium contact)	V2 1.4301 stainless steel Y special version
probe length pipe	A 220 mm B 120 mm C 160 mm D 300 mm E 400 mm F 500 mm G 600 mm H 700 mm Y special version
gas type standard measuring range	LUFT air - measuring range according to DIN 1945/ ISO 1217 please specify 11AR argon measuring range according to DIN 1343 please specify 1CO2 carbon dioxide CO2 measuring range according to DIN 1343 please specify 11O2 oxygen incl. cleaning oil and fat free measuring range according to DIN 1343 please specify 111N nitrogen measuring range according to DIN 1343 please specify 111Y special medium
accuracy calibration	A +/- 4% v.M. Y on request: special calibration via 5-point ISO-certificate
output	AP analog output: 4 .. 20 mA for m³/h resp. l/min impulse output: 1 impulse pro m³ resp. per liter galvanically isolated 5-pol. cable socket M12 included Y special version
supply	2 24 VDC smoothed +/- 15% 5-pol. cable socket M12 included Y special version
measuring range	S standard measuring range up to 92,7m/s. M max version measuring range up to 185m/s. H high speed version measuring range up to 224m/s Y special version
display	S without display D LCD-Display Y special version

Price group B

Flow measurement

Order code

Flowgas TMS 400



Flowcont® UN

ultrasonic flow meter Flowcont® UN
contactlessly flow measuring

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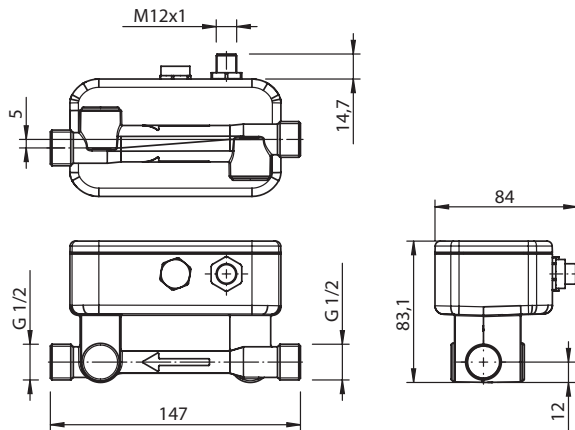
Technical data



power supply:	18 V DC ... 30 V DC protected against polarity reversal, short circuit and over load protected
supply current:	≤ 180 mA
measurement accuracy	≤ 2 % (vom end value)
materials	
medium contact materials:	PSU polysulfone (Ultrason S)
housing:	PSU polysulfone (Ultrason S)
environmental conditions	
ambient temperature:	operating: 0°C...+60°C storage: - 20°C...+70°C
process temperatures:	0°C...+80°C
process pressure ranges:	DN 10 / DN 15: max. 10 bar; DN 20 / DN 25: max. 6 bar
protection:	IP67
residual ripple	≤ 5 V _{ss}
initialization time	≤ 5 s
protection	III
connection type	M12x1, 5-pol. / M12x1, 8-pol. (depending on the type)
impulse/frequency output	0 kHz ... 10 kHz; pulse width ≤ 1 s
signal voltage	HIGH UV - 2 V; LoW ≤ 2 V
output current	< 100 mA
load	inductive: 1 H; capacitive: 100 nF
response time	filter off 100 ms, filter low 300 ms, filter middle 1 s, filter strong 4,2 s
output load	< 500 ohm
signal level lower signal level:	3,8 mA ... 4 mA; upper signal level 20 mA ... 20,5 mA

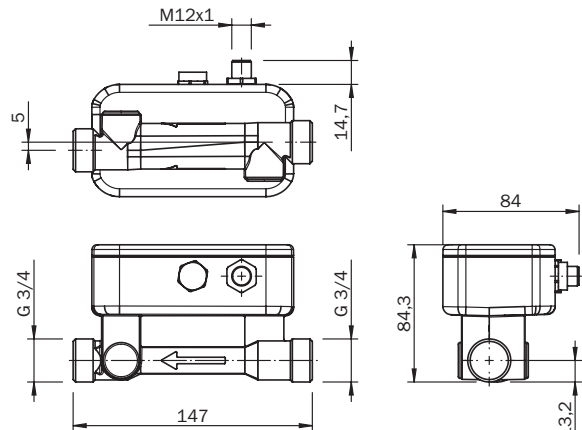


DN 10, Prozessanschluss G 1/2



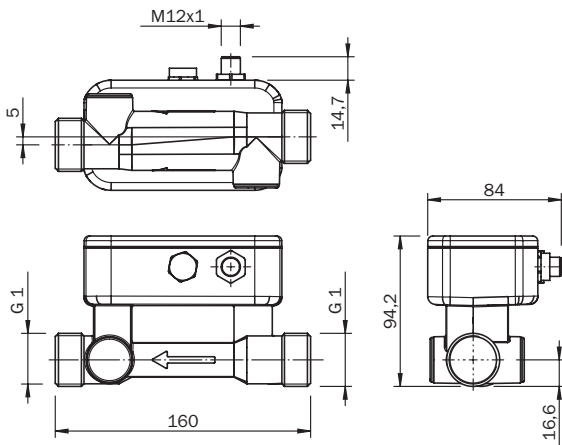
Alle Maße in mm

DN 15, Prozessanschluss G 3/4



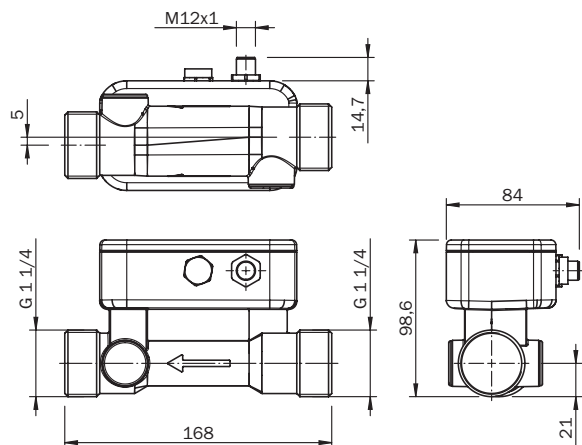
Alle Maße in mm

DN 20, Prozessanschluss G 1



Alle Maße in mm

DN 25, Prozessanschluss G 1 1/4



Alle Maße in mm

more dimension drawings see data sheet or Homepage www.acs-controlssystem.de

Flowcont® UN

ultrasonic flow meter Flowcont® UN
contactlessly flow measuring

5 / 01.16

Price group C

model	UN	standard ultrasonic flow measurement for non-conductive liquids
measuring pipe nominal width		
10	DN 10	flow min. 0,3 l/min...max. 21 l/min
15	DN 15	flow min. 0,9 l/min...max. 36 l/min
20	DN 20	flow min. 3,5 l/min...max. 60 l/min
25	DN 25	flow min. 5 l/min...max. 240 l/min
sensor material		
1	PSU	polysulfone (Ultrason S)
process connection		
G1		external pipe thread G according to 228 (standard)
N1		external thread NPT.
C1		collar clamp adapter (DIN11864-3) BKS, Form A
electronics		
I0		current output, 1 transistor output, M12x1, 5-pol. (standard) electronics: 1 analog output: 4 mA ... 20 mA, 0 mA ... 20 mA for latest flow, 1 impulse/status output: PNP-transistor output for quantity counter, empty tube monitoring , flow limit value
SR		current output, 2 transistor output, 1 signal input M12x1, 5-pol. electronics: 1 analog output: 4 mA ... 20 mA, 0 mA ... 20 mA for latest flow, 2 impulse/status outputs: PNP-transistor output for quantity counter, empty tube monitoring , flow limit value, 1 digital input

Application

The non-contact, ultrasonic flow sensor Flowcont UN detects the flow volumes of conductive and non-conductive liquids.

Swimming against the current requires more strength than with the current - this is the simple fact on which ultrasonic flow measurement according to the phase difference process is based.

The device has a compact design, and its wide range of possible applications means it can also be used in restricted spaces.

The seal-free sensor design, with high-quality polysulfone (Ultrason S) combined with enclosure rating IP 67, not only makes it possible to use the device in harsh ambient conditions, but also guarantees high process reliability. The large text display also helps ensure simple, fast and problem-free commissioning.

Order code

Flowcont® UN 1

Equipment

Ordering information
LKZ0505PUR-AS
LKZ0510PUR-AS
LKZ0805PUR-AS
BKZ0512-VA
BKW0512-VA

Model
connection cable 5 m, 5-pole, shielded.
connection cable 10 m, 5-pole, shielded.
connection cable 5 m, 8-pole, shielded.
cable socket M12 - Spol -straight with VA-nut.
cable socket M12 - Spol -angled with VA-nut

PG E

Flow measurement



6. Visualization

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Industrial controllers / text displays

Industrial controllers. Order code	304
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Rev counter, frequency meter	305
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Type	RCE-300	RCD-300	DPA	DAL-401	DAL-101
Model	paperless recorder	paperless recorder			
Application	in all industries for displaying and registration of production processes	displaying, analyzing, monitoring and saving, industry and multi product systems			
Design	front panel installation 144x144mm tabletop model field housing IP65	front panel installation 144x144mm tabletop model field housing IP65	front panel installation 96x96mm wall mounting housing, top-hat rail mounting	front panel installation 48x96mm horizontal format	front panel installation 96 x 48 x 41 mm horizontal format short design
Analog inputs	4 / 8 / 12	4 / 8 / 12 / 16 / 20			
multifunction analog outputs	X	X			
Impulse inputs	6x digital	up to 14			
Measurement display	LC-color display	LC-color display			
Switching outputs	6x relay	12x relay			
Analog outputs	-	2x analog output			
Mathematical software	X	X			
Internal memory	128MB	256 MB			
Exchangable memory	SD memory card 1GB	SD memory card 256 MB / 512 MB			
Operating voltage	115...230V AC, 24V UC	115...230V AC, 24V UC			
Transmitter power supply	X	X			
Certifications	-	-			
Remotely controllable	-	-			
Interfaces optional	Ethernet, RS232 / RS485, USB, OPC-Server, WEB-Server, Profibus, Modbus	-	Bluetooth-Interface data logger 500000 measured values	O2 input	
Type					
Design					
Digital-display			5-digit	5-digit	4-digit
Bar graph display			1 bar-graph		
input U / I			1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA
Input Pt-100					
Input Thermoelmente				2-, 3-, and 4-wire	2- and 3-wire
Input sonstige				TC input	type L, J, U, B, S, N, E, T, R
Multi-function input				mV, potentiometer, Pt-100 multi-function input	R, Poti, frequency, U/I-AC
Operating voltage			85...253V AC / 24 V DC	230V AC or 24V UC	230V AC; 24V DC
Output analog			1x 0...10V; 0(4)...20mA	1x 0...10V; 0(4)...20mA	2-wire current loop supply
Switch output			4x relay	2x relay NO	2 PhotoMos-outputs bei current loop version
Control output				2-point and constantly	
Transmitter power supply			1x transmitter power supply 24V	transmitter power supply	
Programming interface			Bluetooth	programming interface	
Process interface					
Certifications			ATEX	UL	
Other information					



Type	DAK-111	DAL-311	DAP-101	DAP-311	DAM-311	DAK-101	DAK-111
Design							
Digital-display	front panel installation 96 x 48 x 89 mm horizontal format	front panel installation 96 x 48 x 139 mm horizontal format	front panel installation 296 x 24 x 74 mm horizontal format	front panel installation 96 x 24 x 139 mm horizontal format	front panel installation 96 x 24 mm vertical and horizontal format	front panel installation 48 x 24 x 54 mm horizontal format	front panel installation 48 x 24 x 101 mm horizontal format
Bar graph display	-	-	-	-	30-points-bar graph (Tricolor) + Digital-display red	-	-
input U / I	5-digit - 1x 0...10V; 0(4)...20mA	5-digit - 1x 0...10V; 0(4)...20mA	4-digit - 1x 0...10V; 0(4)...20mA	5-digit - 1x 0...10V; 0(4)...20mA	0/4-20mA, 0-10V DC	4-digit - 1x 0...10V; 0(4)...20mA	5-digit - 1x 0...10V; 0(4)...20mA
Input Pt-100	2-, 3- and 4-wire type L, J, U, B, S, N, E, T, R	3- and 4-wire type L, J, U, B, S, N, E, T, R	2- and 3-wire type L, J, U, B, S, N, E, T, R	3- and 4-wire type L, J, U, B, S, N, E, T, R	-	2- and 3-wire type L, J, U, B, S, N, E, T, R	2- and 3-wire type L, J, U, B, S, N, E, T, R
Input Thermoelements	Poti, resistor, mV	R, Poti, frequency, U/T-AC	Poti, resistor, mV	R, Poti, frequency, U/T-AC	-	Poti, resistor, mV	Poti, resistor, mV
Multi-function input	-	-	-	-	-	-	-
Operating voltage	230V AC; 10...30 V DC	230V AC; 10...30 V DC	230V AC; 24V DC or current loop supply	115/230V AC; 24V DC	85-265VAC/10-30 VDC/230V AC with sensor supply 24V DC/50 mA	24V DC / 4...20mA, 2-wire	24V DC, 4...20mA, 2-wire
Output analog	1x 0...10V or 0/4...20 mA	1x 0...10V or 0/4...20mA	1x 0...10V or 0/4...20mA	1x 0...10V or 4...20mA	0/4-20mA, 0-10V	-	-
Switch output	2x SPDT relay	2x SPDT relay 4x relay outputs	2 PhotoMos-outputs at current loop version	2x SPDT relay	2 relay outputs possible	-	-
Control output	-	-	-	-	-	-	-
Transmitter power supply	transmitter power supply	transmitter power supply	-	transmitter power supply	-	-	-
Programming interface	-	-	-	-	-	-	-
Process interface	-	-	-	-	-	-	-
Certifications	-	-	-	-	-	-	-
Other information	-	-	-	-	-	-	-

Type	 MIR-221	 MIR-200	 MIR-401/411/421	 MIR-491/492
Design	front panel installation 48 x 48 mm	front panel installation 48 x 48 mm	front panel installation 48 x 96 mm front panel installation 96 x 96mm standing, lying	front panel installation 48 x 96 mm standing
Digital-display Bar graph display	3 1/2-digit	2x 3 1/2-digit	2x 4-digit	2x 4-digit
input U / I	-	-	1x 0...10V; 0(4)...20mA 1x 0...50mA AC heating current	1x 0...10V; 0(4)...20mA 1x 0...50mA AC heating current
Input Pt-100 Input Thermoelemente Input sonstige Multi-function input	2- and 3-wire type S, R, T, E, J, L	2- and 3-wire type S, R, T, E, J, L	2- and 3-wire TC input KTY, Pt-100 multi-function input	2- and 3-wire TC input KTY, Pt-100, mV, Poti multi-function input
Operating voltage	230V AC or 24V UC	230V AC or 24V UC	230V AC or 24V UC	230V AC or 24V UC
Output analog	-	-	1x 0...10V; 0(4)...20mA	2x 0...10V; 0(4)...20mA
Switch output	2x relay 1x Transistor + 1x relay	2x relay 1x Transistor + 1x relay	2x relay NO + 1x SPDT relay 1x logic	4x SPDT relay 2x logic
Control output	ON/OFF or PID	ON/OFF or PID	2-point, 3-point, constantly motor step	2-point, 3-point, constantly motor step + Yp
Transmitter power supply	-	-	transmitter power supply	transmitter power supply
Programming interface	-	-	programming interface	programming interface
Process interface	-	-	Modbus RTU	Modbus RTU, Profibus
Certifications	-	-	DIN 3440, UL, GL	DIN 3440, UL
Other information	display for target and actual value, switchable	-	-	O2 input, DAC-function



Regicont RCE-300

paperless paperless recorder for displaying, register and remotely transmitting
6 x digital input, 6x relay output, front panel installation 144 x 144 mm

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signal input

- A without
- B 4x universal
- C 8x universal
- D 12x universal

power supply

- 1 100-230VAC (+/-10%)
- 2 24V (+/-10%; +15%) AC/DC

communication

- A Ethernet RJ45 + USB
- B RS232/485 + Ethernet RJ45 + USB
- C Modbus TCP Slave + Ethernet RJ45 + USB
- D Modbus RTU/TCP Slave + RS232/485 + Ethernet RJ45 + USB

0

operating language display

- AA english
- AB german
- AC french
- AD spanish
- AE italian
- AF dutch
- AG portuguese
- AH polish
- AI russian
- AK chinese abbreviations
- AL japanese
- AR czech
- AS chinese traditional characters
- AT swedish

storage media

- 0 without
- C1 SD card industry standard, 1 GB

application package

- 0 without
- E1 mathematics

housing

- 0 without
- G1 field housing
- G2 table top stand, cable with shock-proof plug
- G3 table top stand, cable with US plug
- G3 table top stand, cable with swiss plug

Price group D

Order code

RCE-300

0

Equipment

Model

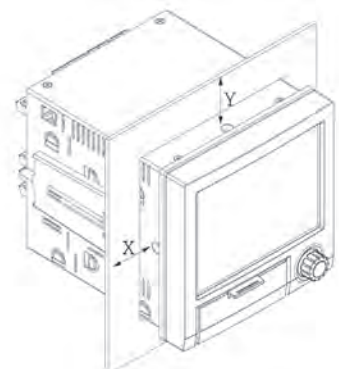
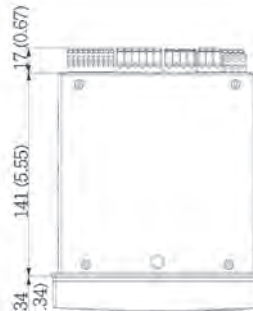
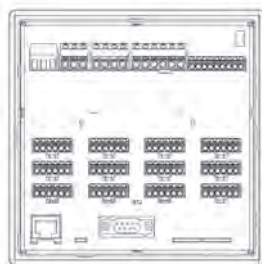
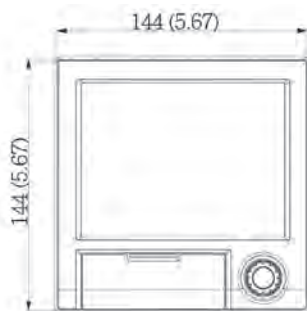
software FDM-Essential for data retrieval, saving in data base, visualization, pressure (included)

software FDM-Professional with 1/5/10 licences: saving and visualization historical data, read out via online interface or from mass memory, data export and data import, PDF file generation, creating reports and templates.

PG E

Application

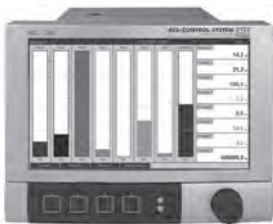
The Regicont RCE-300 graphic display recorder records and visualizes relevant process values via analog or digital input signals. The measured values are securely saved and limit values are monitored. Furthermore the Regicont RCE-300 offers intuitive operation and simple system integration. Remote configuration and visualization of the current and recorded data is easy thanks to the integrated web server - no additional software needs to be installed. In addition the Essential Version of the Field Data Manager software is also supplied with the product as standard. This software can be used to export the recorded data, save the data to an SQL database in a way that the data cannot be manipulated, and visualize the data externally.



Regicont RCD-300

paperless paperless recorder for recording, visualization and analyzing of up to 20 channels

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Application

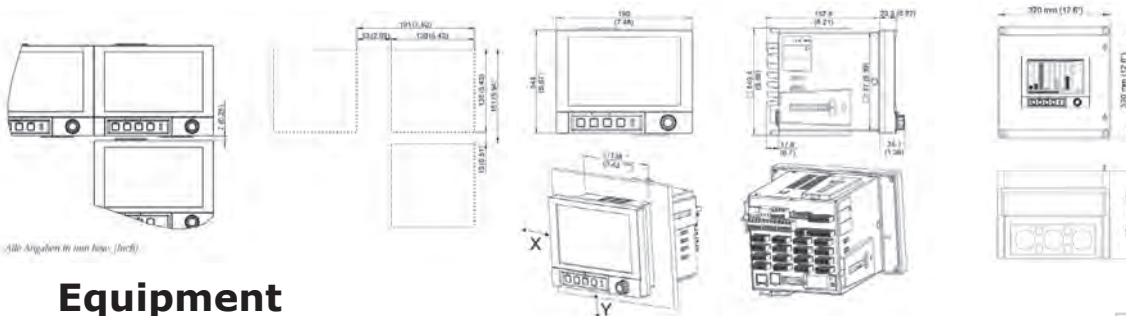
Applications arise in many sectors and industries. The RCD-300 is used to display and recording of critical parameters used in production processes, such as the quality and quantity monitoring in the Water and Wastewater, to monitor the processes in power plants, food and dairy industry processes, to Tank and level monitoring, Temperature monitoring in metal processing or for cold storage and transportation monitoring.

Order code

RCD-300

A	model	standard
	licence	1 Ex-free range 2 milk heater (only with housing 6 and with software 2 or 4)
	signal input	A not selected B 4x multifunction U, I, TC, RTD, impulse-/frequency input 10 kHz C 8x multifunction U, I, TC, RTD, impulse-/frequency input 10 kHz D 12x multifunction U, I, TC, RTD, impulse-/frequency input 10 kHz E 16x multifunction U, I, TC, RTD, impulse-/frequency input 10 kHz F 20x multifunction U, I, TC, RTD, impulse-/frequency input 10 kHz
	digital input; output	1 6x digital, 25Hz; 6x relay; 1x SPDT + 5x SPST 2 14x digital, 25Hz; 12x relay, 11xSPST, 2x analog output
	auxiliary power	1 115/230V ACb 50/60Hz 2 24V AC/DC
	communication	1 not selected 2 Profibus DP Slave, max. 40x analog, 14x digital 3 Modbus RTU, max. 40x analog, 14x digital 4 Modbus TCP, max. 40x analog, 14x digital
	interface	B 1x USB function (Front), 1x USB Host (Front), Ethernet, RS 232/485, 2x USB Host (back side)
	factory calibration certificate	1 not necessary 2 necessary
	storage medium	A without SD card D SD card, 1 GB.
	housing	1 control panel 144x190mm, IP65, NEMA 4 2 table top stand, plug Schuko 3 table top stand, plug US 4 table top stand, plug Switzerland 5 field housing, IP65, NEMA 4x 6 control panel 149x195mm + terminal cover IP65, NEMA 4
	operating language	A Middle-/Western Europe (de, en, fr, es, it, nl) B Eastern Europe (de, en, pl, ru, cz) C America (de, en, fr, es, pt) D Asia (de, en, zh, ja, kr)
	software	1 basic version (not with licence 2). 2 mathematics 4 charge package + mathematics. 5 waste water + RÜB + telealarm + math.
	model	S standard

A 1 B S



Equipment

Ordering information

- CA Profibus DP-Slave Modul (for extension slot back side)
- CB Modbus RTU Modul (for extension slot back side)
- CC Modbus TCP Modul (for extension slot back side)
- HI field housing IP65
- S6 adapter set RS232/RS485 Hutsch. 230VAC, galv. isolation + interface cable for PC/Modem.
- S7 adapter set RS232/RS485 Hutsch. 115VAC, galv. isolation + interface cable for PC/Modem.

software GM500

Ethernet-Interface, Profibus DP-Slavel Module etc. on request

Price group B

PG E

Visualization

Digital Process display, transmitter and control device DPA

1x input U/I, 1x output U/I, 4 relay-switching outputs, transmitter supply, data logger, Bluetooth-Interface
 Easy and clear display and analysis, for display, processing, implementation and galvanic separation of electric standard signals - even from hazardous areas

6 / 01.16

Technical data



auxiliary power	
power supply	18..36V DC, reverse polarity protected
type A/B/D:	186..253V _{AC}
type S/T/U:	
power consumption	
type A/B/D:	≤ 5 W
type S/T/U:	≤ 15 VA
galvanic isolation	
type A/B/D:	supply to relay input / output 2KV DC / 4KV AC
type S/T/U:	supply input to output ≥ 500 V DC
	supply to relay input/output 3KV AC
	supply input to output ≥ 500 V DC
input	
transmitter supply	0/4...20 mA max 50 mA
output signal U/I	0...10 V max 30 V
work space:	24 V DC / ≤30 mA, overload and short circuit protected
resolution:	(0)4...20mA / 0...10V, adjustable
reaction time:	≤ 1 µA / ≤ 1mV
switch output	
amount:	≤ 15 ms
function:	0/2/4 depending on device version
switching capacity:	potential-free switch contact
reaction time:	max 253V AC / 220 V DC - 6A - 1500 VA / 180W
measurement accuracy	
characteristics deviation:	≤ 25 ms
temperature deviation:	≤ 0,1% FS
Bluetooth Interface	
version:	≤ 0,1% FS / 10K
class:	Bluetooth 2.1 +EDR
range:	2
environmental conditions	
ambient temperature:	≤ 10m
protection	-20°C...+70°C
top-hat rail mounting:	IP66 EN/IEC 60529
wall mounting housing:	IP66 EN/IEC 60529
front panel housing:	front side IP54 EN/IEC 60529
	back side IP20 EN/IEC 60529
materials	
top-hat rail mounting :	PC / PES / CrNi-steel / PA / CR-NBR
wall mounting housing:	PC / PES / PA / CR-NBR
front panel housing:	PPE / PES / steel verzinkt / PA / NBR-EPDM
certifications	ATEX II (1) G [Ex ia Ga] IIC resp. ATEX II (1) D [Ex ia Da] IIIC



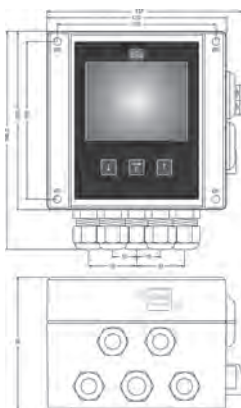
Application

The digital display unit DPA is designed for front panel mounting or on-site assembly or for mounting on a standard DIN rail. The electrical standard signal in the range of 0-10V or 0 to 20 mA is detected by the evaluation, adjusted in accordance with the programmed settings and is transmitted and electrically isolated on the output signal 0 .. 10V or 0/4...20mA. Due to the possible entry of 40 breakpoints also non-linear input signals, eg of horizontal cylindrical tanks can be linearized for further processing. Up to 4 programmable relay switching points can be assigned to the input signal.

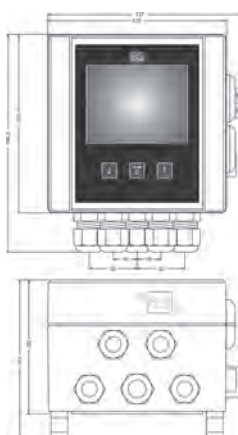
The modern transmitter has extensive diagnostic functions for system analysis and still allows easy setup and operation through the clear navigation. The digital process meter DPA is also suitable for the detection and measurement of flow rates and currents. The mathematical formulas for this are already stored in the device.

The TFT color display provides an excellent representation of the measured values and easy readability. Intelligent Data management is made possible with the digital display unit DPA by the Bluetooth interface and a built-in data logger function with a time stamp to record up to 500,000 readings.

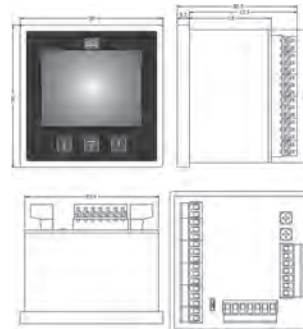
version top-hat rail mounting
type P



connection housing
version wall mounting housing
type F - electronics type S / T / U



version front panel housing
type M



Digital Process display, transmitter and control device DPA

1x input U/I, 1x output U/I, 4 relay-switching outputs, transmitter supply, data logger, Bluetooth-Interface
 Easy and clear display and analysis, for display, processing, implementation and galvanic
 separation of electric standard signals - even from hazardous areas

6 / 01.16

basic price

Electronic – input
 1 1x 0/4...20mA - 0...10V, transmitter power supply

Approval
 0 Standard

Enclosure type
 F Field enclosure

Electronic – supply / output
 A 18...36V DC / 1x 0/4...20mA - 0...10V

Electronic - function
 0 USB-Interface

Electronic - extras
 0 Standard

S Standard

Price group A

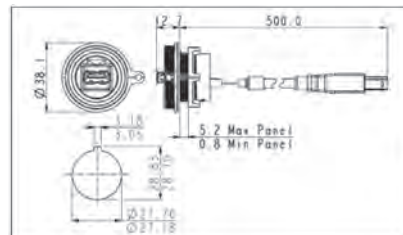
Order code

DPA 1 0 S

Equipment

Ordering information
611000312

Model
 USB socket for front panel installation, for installation of USB-socket in the
 switchboard door, incl. covering cap IP68



911000482 USB 2.0 adapter socket A on plug Micro-B

Price group H

Visualization



DAL-401

universal panel meter 96x48mm 5-digit

6 / 01.16



device version

- 0 90...250V AC without outputs.
- 2 90...250V AC, 2 relay NO + mA/V/logic.
- 4 90...250V AC, 2 relay-changeover.
- 1 24V AC / 18...30V DC without outputs.
- 3 24V AC / 18...30V DC, 2 relay NO + mA/V/logic.
- 5 24V AC / 18...30V DC, 2 relay-changeover.

options

- 0 no options
- 1 RS422/485 + transmitter power supply + di2,di3

software settings

- 0 standard configuration
- 1 display with 2 limit values (turnkey or changeover)
- 2 display with 2 limit values (turnkey) + analog output
- 9 configuration as specified

operating instructions

- 0 no operating instructions
- D operating instructions german
- E operating instructions english

Price group B

Order code

DAL-401

S

Equipment

Ordering information

- STW-407-50001**
- STK-600-00003**
- 9407-998-00061**
- BAL-401-62718**
- BAL-401-62711**
- BCB-400-00002**
- BCD-400-00003**

Model

- heating current transformer 50A AC
- PC-adapter USB/TTL for MIR-4xx, MIR-5xx.
- DIN rail adapter
- operating instructions german.
- operating instructions english
- BlueControl Basic
- BlueControl Expert.

PG H

DAL-101

digital panel meter **96x48x41 mm** incl. plug-in terminal (short design), display colour red, 4-digit, without sensor supply, optional current loop supply

6 / 01.16



field mount housing

DAL-101

basic price

- power supply**
- 0 230V AC
 - 2 24V DC galvanic separated
 - 6 4...20 mA, 2-wire current loop display

- function input**
- 0 0/4-20mA, 0-10VDC
 - 1 0...50V DC, 0...100V DC (please specify)
 - 2 Pt100 input, 2 + 3-wire up to 850 °C
 - 3 Shunt 60/150 mV
 - 4 potentiometer measurement > 1 kOhm up to < 1000 kOhm
 - 5 resistance measurement 1K / 10K / 100K / 1MOhm
 - 6 4...20mA 2-wire current loop display
 - 8 thermal element type L, J, K, B, S, N, E, T, R
 - Y other inputs

- function output**
- 0 display (230V AC + 24 V DC version)
 - B display (current loop)
 - C current loop with 2 PhotoMos outputs
- 0 standard configuration
 - 9 dimension strips and configuration as specified
- S standard, protection IP65
 - V field mount housing (plastic)

Price group A

DAL-111

digital panel meter **96x48x89 mm** incl. plug-in terminal, display colour red, 5-digit, optional with analog output or sensor supply, 2 limit contacts and digital input

Anmerkung

¹⁾ sensor supply only with 0/4...20 mA, 0...10V DC input and without analog output possible!



field mount housing

DAL-111

basic price

- power supply**
- 0 230V AC
 - 2 10...30V DC galvanic separated
 - 3 230V AC with sensor supply 24V DC/50 mA and digital input (no analog output possible)¹⁾
 - 4 10...30V DC galvanic separated with sensor supply 24V DC/ 50 mA and digital input (no analog output possible) ¹⁾

- function input**
- 0 0...10V, 0/4...20mA
 - 2 Pt100 input, 2-, 3-, 4-wire, 850°C
 - 3 600V / 300V / 100V / 1A DC
 - 8 thermal element type L, J, K, B, S, N, E, T, R
 - 9 weighing technology
 - F frequency; 0,01 Hz up to 999,99 kHz
 - Y other inputs

- function output**
- 0 display
 - A display + 2 relay outputs (changeover)
 - B display with analog output 0/4...20 mA, 0...10V DC ¹⁾
 - C display with 2 relay and analog output ¹⁾
- 0 standard configuration
 - 9 dimension strips and configuration as specified
- S standard, protection IP65
 - V field mount housing (metal housing)

Price group A

visualization

Visualization

DAL-311

digital panel meter **96x48x139 mm** incl. plug-in terminal, display colour red, 5-digit, optional with analog output and sensor supply and digital input, 2 or 4 limit contacts

6 / 01.16

Note

¹⁾ sensor supply only at 0/4...20 mA, 0...10V DC input



basic price

power supply

0	100-240V AC	.....
2	10...40V DC galvanic separated	.....
3	100-240V AC with sensor supply 24V DC/50mA and digital input ¹⁾
4	10...40V DC galvanic separated with sensor supply 24V DC/50mA and digital input ¹⁾
Y	other voltages	.....

function input

0	0/4...20 mA, 0...10V DC	.....
1	50/300/600V DC, 1A DC	.....
2	Pt100 input, 3 + 4-wire up to 850°C	.....
3	60 / 150 / 300 / 1000 mV	.....
4	10V / 50V AC / 1A / 5A AC	.....
5	300/600V AC, 1A, 5A AC	.....
6	potentiometer measurement > 1 kOhm up to < 1000kOhm	.....
7	resistance measurement 1k, 10k, 100 kOhm	.....
8	thermal element type L, J, K, B, S, N, E, T, R	.....
9	weighing technology	.....
F	frequenzy 0,01Hz-999,99kHz	.....
Y	other inputs	.....

function output

A	display + 2 relay outputs (changeover)	.....
B	display + 4 relay outputs	.....
C	display with analog output 0-10V/4-20mA, switchable	.....
D	display + 2 relay with analog output 0-10V/4-20mA, switchable	.....
E	display + 4 relay with analog output 0-10V/4-20mA, switchable	.....
Y	others outputs	.....

0	standard configuration	.....
9	dimension strips and configuration as specified	.....

S	standard, protection IP65	.....
V	field mount housing	.....

DAL-311

Price group A

DAP-101

digital panel meter **96x24x74 mm**, incl. plug-in terminal, 4-digit, optional with current loop supply



basic price

power supply

0	230V AC	.....
2	24V DC galvanic separated	.....
6	4...20 MA, 2-wire current loop display	.....

function input

0	0/4...20mA, 0...10V DC	.....
2	Pt100 input, 2 + 3-wire up to 850°C	.....
3	Shunt 60 / 150 mV	.....
4	potentiometer measurement >1 kOhm up to < 1000kOhm	.....
5	resistance measurement 1K / 10K / 100K / 1 MOhm	.....
6	4...20mA, 2-wire current loop display	.....
8	thermal element type L, J, K, B, S, N, E, T, R	.....
Y	other inputs	.....

function output

0	display (230V AC + 24V DC Version)	.....
B	display (current loop)	.....
C	display current loop with 2 PhotoMos outputs	.....

0	standard configuration	.....
9	dimension strips and configuration as specified	.....

S	standard, protection IP65
---	---------------------------	-------

DAP-101

Price group A

Visualization

visualization



DAP-311

digital universal panel meter **96x24x145mm**, incl. plug-in terminal, 2 relay outputs, 5-digit, processor controlled, optional with analog output and sensor supply and digital input

6 / 01.16

Anmerkung

¹⁾ sensor supply only at 0/4...20 mA, 0...10V DC input



basic price

power supply

0	85-265VAC	.....
2	10...40V DC galvanic separated	.....
3	85-265VAC with sensor supply 24VDC/50mA and digital input	.....
4	10-40VDC with sensor supply 24VDC/50mA and digital input	.....
Y	others	.....

function input

0	0/4...20 mA, 0...10V DC	.....
1	600VDC, 1ADC (only at AC-Version)	.....
2	Pt100 input, 3 + 4-wire up to 850°C	.....
3	60 / 150 / 300 / 1000 mV	.....
4	10V / 50V AC / 1A / 5A AC	.....
6	potentiometer measurement > 1 kOhm up to < 1000kOhm	.....
7	resistance measurement 1k, 10k, 100 kOhm	.....
8	thermal element type L, J, K, B, S, N, E, T, R	.....
F	frequenzy 0,01Hz-999,99kHz	.....
Y	other inputs	.....

function output

0	no output	.....
A	display with 2 relay outputs (changeover)	.....
C	display with analog output 0/4-20mA, 0-10V, switchable	.....
D	display + 1 relay with analog output 0/4-20mA, 0-10V, switchable	.....
Y	others	.....

0	standard configuration	.....
9	dimension strips and configuration as specified	.....

S	standard, protection IP65
---	---------------------------	-------

Price group A

DAP-311

S

DAM-311

digital panel meter **96x24x144mm**, incl. plug-in terminal, 2 relay outputs, 30-points-bargraph (Tricolor) + digital-display red, vertikal or horizontal



basic price

power supply

0	100-240VAC	.....
2	10-40 VDC galvanic separated	.....
3	100-240 VAC with sensor supply 24V DC/40 mA and digital input (no analog output possible) ¹⁾
4	10...40V DC galvanic separated with sensor supply 24V DC/ 40 mA and digital input (no analog output possible) ¹⁾

function input

0	0/4-20mA, 0-10V DC
---	--------------------	-------

function output

0	no output	.....
A	display with 2 relay outputs (changeover)	.....
C	display with analog output 0/4-20mA, 0-10V, switchable	.....
D	display + 1 relay with analog output 0/4-20mA, 0-10V, switchable	.....

0	standard configuration	.....
9	dimension strips and configuration as specified	.....

model

0	vertical Model	.....
1	horizontal Model	.....

S	standard, protection IP65
---	---------------------------	-------

Price group A

Visualization

DAM-311

0

S



DAK-101

display device **48x24x54 mm**, incl. plug-in terminal, 4-digit, processor controlled, optional current loop supply

6 / 01.16



basic price

power supply

- 2 24V DC galvanic separated.
- 6 4-20mA 2-wire, current loop display.

function input

- 0 0/4-20mA, 0-10V DC.
- 2 Pt100 input, 2 + 3-wire up to 850°C.
- 3 Shunt 60 / 150 mV.
- 4 potentiometer measurement > 1 kOhm up to < 1000 kOhm.
- 5 resistance measurement 1K / 10K / 100K / 1 MOhm (please specify measuring range!).
- 6 4...20 mA 2-wire (current loop display).
- 8 thermal element type L, J, K, B, S, N, E, T, R.
- Y other inputs.

function output

- 0 display.
- 0 standard configuration.
- 9 dimension strips and configuration as specified.
- S standard, protection IP65.

Price group A

DAK-101

0 S

DAK-111

display device **48x24x101 mm**, incl. plug-in terminal, 5-digit, processor controlled, with 2 PhotoMos outputs, optional analog output or sensor supply

Anmerkung

¹⁾ sensor supply only at 0/4...20 mA, 0...10V DC input and without analog output possible!



basic price

power supply

- 2 24V DC galvanic separated.
- 4 24V DC galvanic separated with sensor supply ¹⁾.

function input

- 0 0/4-20mA, 0-10V DC.
- 2 Pt100 input, 2 + 3-wire up to 850°C.
- 3 Shunt 60 / 150 mV.
- 5 resistance measurement 1K / 10K / 100K / 1 MOhm (please specify measuring range!).
- 6 Poti > 1kOhm up to < 1000 kOhm.
- 8 thermal element type L, J, K, B, S, N, E, T, R.
- Y other inputs.

function output

- B display with 2 PhotoMos outputs.
- C display with 2 PhotoMos outputs and analog output 0/4...20 mA, 0-10V ¹⁾.
- 0 standard configuration.
- 9 dimension strips and configuration as specified.
- S standard, protection IP65.

Price group A

DAK-111

2 S

Visualization

MIR-200 industrial controller

microprocessor-controlled temperature controller **48x48mm**
with dual display

6 / 01.16



basic price

operating voltage

- 0 12...24V DC/AC
- 1 80...240V AC

main output

- 0 relay
- 1 transistor

PG A

MIR-200

D

MIR-221 industrial controller

microprocessor-controlled temperature controller **48x48mm**
with standard display



basic price

operating voltage

- 0 12...24V DC/AC
- 1 80...240V AC

main output

- 0 relay
- 1 transistor

PG A

MIR-221

S

Visualization



MIR-401 universal industrial controller 48x96mm
MIR-411 universal industrial controller 96x48mm
(horizontal format)

6 / 01.16



MIR-401



MIR-411



MIR-421

MIR-401-
MIR-411-
MIR-421-

- 0 connection via flat-pin terminal
- 1 connection via screw terminals
- 0 90...250V AC, 3 relay
- 1 24V AC / 18...30V DC, 3 relay
- 2 90...250V AC, 2 relay + mA / V / logic
- 3 24V AC / 18...30V DC, 2 relay + mA / V / logic
- 0 no option
- 1 Modbus RTU + transmitter supply + di2, di3
- 00
- 0 standard configuration.
- 9 configuration as specified.
- 0 no operating instructions
- D operating instructions german.
- E operating instructions english
- F operating instructions french.
- 0 standard
- U UL-certificated
- D certificated according to EN 14597 (formerly DIN 3440)
- G GL-certificated

Price group B

Order code

MIR-4_1- 00 S

Equipment

Ordering information
STW-407-50001
STK-600-00003
9407-998-00061
BAL-401-62718
BAL-401-62711
BCB-400-00002
BCD-400-00003

Model
heating current transformer 50A AC
PC-adapter USB/TTL for MIR-4xx, MIR-5xx.
DIN rail adapter
operating instructions german.
operating instructions english
BlueControl Basic
BlueControl Expert.

PG H



Visualization



MIR-491



MIR-492

MIR-491-

MIR-492-

0	connection via flat-pin terminal	0	90...250V AC, 4 relay
1	connection via screw terminals	1	24V AC / 18...30V DC, 4 relay
0		2	90...250V AC, 3 relay + mA / V / logic
1		3	24V AC / 18...30V DC, 3 relay + mA / V / logic
2		4	90...250V AC, 2 relay + 2 x mA / V / logic
3		5	24V AC / 18...30V DC, 2 relay + 2 x mA / V / logic
0	no bus interface	0	no operating instructions
1	RS422/RS485 + transmitter supply + di2, di3 + OUT5, OUT6	D	operating instructions german
2	PROFIBUS-DP + UT + di2/di3 + OUT5/OUT6	E	operating instructions english
0	INP1 and INP2	F	operating instructions french
1	INP1, INP2 and INP3	0	standard
0	controller	U	UL-certificated
1	program controller with 8 programs * 1)	D	certificated according to EN 14597 (ersetzt DIN 3440)
2	program controller with 16 programs * 1)		
0	standard configuration		
9	configuration as specified		

* 1) Attention!!! please use other operation instructions!
 „program controller“ instead of standard!
 Please see additional equipment below.

Price group B

Order code

MIR-49_-

S

Equipment

Ordering information

- STK-600-00003**
- BAL-491-62718**
- BAL-491-62711**
- BAL-491P-63818**
- BAL-491P-63811**
- BCB-400-00002**
- BCD-400-00003**

Model

- PC-adapter USB/TTL for MIR-4xx, MIR-5xx
- operating instructions german
- operating instructions english
- operating instructions german for „program controller“
- operating instructions english for „program controller“
- BlueControl Basic
- BlueControl Expert.

PGH

Visualization

Order code

6 / 01.16



design
 L design 48x96 mm horizontal
 N design 72x72 mm
 G design 48x48 mm
 V design 96x96 mm

function
 C pulse counter
 P pulse counter with forward/reverse flow detector
 B bidirectional pulse counter
 F rev counter and frequency meter
 T time counter with diverse functions
 H impulse-pause counter

software status
 M standard software
 Y special software
 R forward/reverse flow detector

output
 0 relay output (standard)
 S transistor output (on request)

number of digits
 4 4-digit display
 5 5-digit display
 6 6-digit display
 8 8-digit display

contact output
 0 display
 1 display with 1 limit value
 2 display with 2 limit values

0

power supply

G power supply 110V AC/24V DC; only design L, N, and G with plug-in terminals
 A power supply 230/115/24V AC; only design V and LBM
 E power supply 230V AC + 24V DC;
 standard for design L and N, and G with plug-in terminals (not for LBM)
 B power supply 24V DC; for design G with 11-pol. plug-in socket, for LBM plug-in terminals
 F power supply 230V AC; for design G with 11-pol. plug-in socket
 D power supply 24VDC/AC; for design L, N and G with plug-in terminals

sensor supply

E sensor supply 12V DC
 0 sensor supply 24V DC (standard)

special

E pluggable terminals (standard)
 Z 11-pol. plug-in socket (only for design G)

Order code

0

Please complete your order after selection of the device version on page 305 with order code above.

Visualization



6 / 01.16

Digital pulse counter



Ordering info	function	number of digits	limit values	contacts
LCM-60	digital pulse counter	.6	-	-
LCM-61	digital pulse counter	.6	1	.1WE
LCM-62	digital pulse counter	.6	2	.2WE
LBM-62	digital pulse counter	.6	2	.2WE
LBM-62 S	digital pulse counter	.6	2	.2WE
NCM-50	digital pulse counter	.5	-	-
NCM-51	digital pulse counter	.5	1	.1WE
NCM-52	digital pulse counter	.5	2	.2WE
GCM-50 1)	digital pulse counter	.5	-	-
GCM-51 1)	digital pulse counter	.5	1	.1WE

Price group A

Rev counter, frequency meter



Ordering info	function	number of digits	limit values	contacts
LFM-40	rev counter and frequency meter	.4	-	-
LFM-41	rev counter and frequency meter	.4	1	.1WE
LFM-42	rev counter and frequency meter	.4	2	.2WE
LFM-50	rev counter and frequency meter	.5	-	-
LFM-40-AN	rev counter and frequency meter	.4	-	- analog output
NFM-40	rev counter and frequency meter	.4	-	-
NFM-41	rev counter and frequency meter	.4	1	.1WE
NFM-42	rev counter and frequency meter	.4	2	.2WE
NFM-50	rev counter and frequency meter	.5	-	-
GFM-41 1)	rev counter and frequency meter	.4	1	.1WE
GFM-40 1)	rev counter and frequency meter	.4	-	-

Price group A

Difference-, Drehzahl-, frequency meter



Ordering info	function	number of digits	limit values	contacts
VFM-240 AN	difference-, rev counter and frequency meter	.4 + 3	-	- analog output

A

Digital time counter



Ordering info	function	number of digits	limit values	contacts
LTM-60	digital time counter	.6	-	-
LTM-61	digital time counter	.6	1	.1WE
LTM-62	digital time counter	.6	1	.2WE
NTM-50	digital time counter	.5	-	-
NTM-51	digital time counter	.5	1	.1WE
NTM-52	digital time counter	.5	1	.2WE
NTMP-52	digital time counter	.5	1	.2WE switched in parallel.
GTM-50 1)	digital time counter	.5	-	-
GTM-51 1)	digital time counter	.5	1	.1WE

PG A

Impulse-pause-time-relay



Ordering info	function	number of digits	limit values	contacts
LHM-61	impulse-pause-time-relay	.6	2	.1WE
LHM-62	impulse-pause-time-relay	.6	2	.2WE
NHM-51	impulse-pause-time-relay	.5	2	.1WE
NHM-52	impulse-pause-time-relay	.5	2	.2WE
GHM-51 1)	impulse-pause-time-relay	.5	2	.1WE

260,00 €
279,00 €

260,00 €
279,00 €

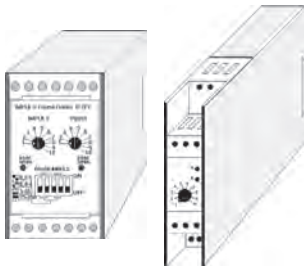
232,00 €

PG A

Visualization

6 / 01.16

Electronic time relay and monitoring devices



Ordering info	function	contacts	housing
MZAN	multi-function-time-relay	2WE	22,5 mm.....
IPZPF	impulse-pause-relay	2WE	45 mm.....
SWP	stand still monitoring	1WE	45 mm.....

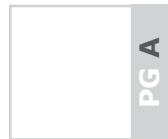


FP 30

Power supply - in-phase controlled power supplies



Ordering information	function/voltage
NSQ-230-5-1A	5V DC 1A
NSQ-230-12-1A	12V DC 1A
NSQ-230-24-0,8A	24V DC 0,8A
NSP-2000	3 x 24V DC altogether 200mA
NSP-2001	2 x 24V DC altogether 200mA 2 relay outputs



7. Signal converter, head transmitter, isolation amplifier, limit switch

Contents

Signal converter

Transcont CR-	temperature signal converter with BluePort®-interface	313
Transcont WTA-100-G0	Pt100 converter passive	311
Transcont ExWTA-100-G0	Pt100 converter passive	312
Transcont WTAU-100-U0	20...253V AC/DC signal converter active, free adjustable	312
Transcont WTAU-200-U0	20...253V AC/DC signal duplicators active, free adjustable	312
Transcont WTAU-120-U0	20...253V AC/DC signal converter active, non-adjustable	312
Transcont WTAU-220-U0	20...253V AC/DC signal duplicators active, non-adjustable	313

Isolation amplifier / supply isolators

Transcont TVA-120-U0	isolation amplifier with transmitter power supply	313
Transcont TVA-180-U0	isolation amplifier	314
Transcont TVA-220-U0	isolation amplifier, dual with transmitter power supply	314
Transcont TVA-080-U0	isolation amplifier	315
Transcont TVA-100-U0	isolation amplifier	315
Transcont TVA-200-U0	isolation amplifier, dual with transmitter power supply	316

Supply isolators with ATEX-licence

ExtVA-500-UC	supply isolators	316
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Surge protection devices		317
Separating barriers		317

Limit switches

GWA -250-U0	limit switch for standard signals	316
GWAP-250-U0	limit switch for Pt100 input	316

Head transmitter

Transcont KTM	temperature head transmitter	318
Transcont ExKTM	temperature head transmitter	318
Transcont UTN-500	temperature head transmitter universal	319

Type	Transcont-CR	Type	WTA-100-G0 EXWTA-100-G0	WTAU 100-U0	WTAU 120-U0	WTAU 200-U0	WTAU 220-U0
Design	top hat rail device 22,5mm width	Design	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm
Digital-display Bar graph display	4-digit	Input	Pt100	Pt100	Pt100	Pt100	Pt100
Input U / I	1x 0...10V; 0(4)...20mA	Multi-function input	-	-	-	-	-
Input Pt100	2-, 3-, and 4-wire	Operating voltage	8,5...40V DC / 4...20 mA 14...35 V DC / 0...10V	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC
Input TC	TC input	Universal mains supply circuit	-	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit
Input sonstige	mV, potentiometer, Pt100	Output	4...20mA, 0...10V Option passive	0...10V/ 0(4)...20mA active	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA 2x separated; active	0...10V/ 0(4)...20mA 2x separated; active
Multi-function input	multi-function input	Output adjustable	output adjustable	output adjustable	output adjustable	output adjustable	output adjustable
Operating voltage	230V AC or 24V UC	Multi-function output	-	multi-function input	-	multi-function input	-
Output analog	1x 0...10V; 0(4)...20mA	Transmitter power supply	ATEX	-	-	-	-
Switch output	2x relay NO 1x logic	Certifications	ATEX	-	-	-	-
Control output	-	Limit values	2x PNP Out	-	-	-	-
Transmitter power supply	transmitter power supply	Other options	-	1 output, non-adjustable	2 separate multi-function outputs	2 separate outputs, non-adjustable	2 separate outputs, non-adjustable
Programming interface	programming interface						
Process interface	-						
Certifications	-						
Other information	-						

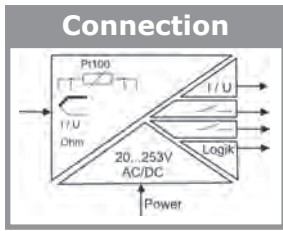
Type							
Design	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x98x112mm
Digital-display	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	2x 0...10V/ 0(4)...20mA	4...20mA
Bar graph display	PPM input, 90...520Hz	-5...+5V/ 0...1V	-5...+5V/ 0...1V	-5...+5V/ 0...1V	-5...+5V/ 0...1V	-5...+5V/ 0...1V	
Input U / I	-	-	-	multi-function input	multi-function input	multi-function input	-
Input Pt100	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	24V / 4...20mA
Input TC	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	-
Input sonstige	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	0...10V/ 0(4)...20mA	4...20mA
Multi-function input	active	active	2x separated, active	active	active	2x separated, active	active
Operating voltage	-	-	output adjustable	output adjustable	output adjustable	output adjustable	-
Output analog	-	-	-	multi-function output	multi-function output	multi-function output	-
Switch output	-	-	transmitter power supply	-	transmitter power supply	transmitter power supply	-
Control output	-	-	-	-	-	-	-
Transmitter power supply	-	-	-	-	-	-	-
Programming interface	1 output non-adjustable	1 output non-adjustable	2 separate in- and outputs non-adjustable	-	-	2 separate in- and outputs adjustable	without auxiliary power transmission 1:1
Process interface							
Certifications							
Other information							

Type	EXTVA-500-UC	GWA-250-U0	GWAP-250-U0	UTN-500	KTM
Design	top hat rail 22,5x96x112mm	top hat rail 22,5x114,5x99mm	top hat rail 22,5x114,5x99mm	head transmitter 44x26,8 mm	head transmitter 44x26,8 mm
Input	4...20mA	0...10V/ 0(4)...20mA	Pt100	Pt100, TC	Pt100
Multi-function input	-	-	-	multi-fun-tion input	-
Operating voltage	20...253V AC/DC	20...253V AC/DC	20...253V AC/DC	24V	8,5...40 V DC / 4...20 mA 14,5...35 V DC / 0...10 V
Universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	universal mains supply circuit	-	-
Output	4...20mA active	2x relay	2x relay	4...20 mA passive	4...20mA, 0...10V Option passive
Output adjustable	-	output adjustable	output adjustable	-	-
Multi-function output	-	-	-	-	-
Transmitter power supply	transmitter power supply	transmitter power supply	-	-	-
Certifications	ATEX	-	-	ATEX	ATEX
Limit values	-	2x SPDT relay	2x SPDT relay	-	1x PNP-Out
Other options	transmission 1:1	-	-	programmable via software	-

Universal-signal converter

Transcont CR- flexible universal temperature signal converter, 1 universal input, contact input with display and BluePort®-interface

7 / 01.16



Order code

Transcont-CR

1	90...260 V AC, mA/V/logic + 1 relay
2	24 V AC / 18...31 V DC, mA/V/logic + 1 relay
3	90...260 V AC, mA/V/logic + 2 relay
4	24 V AC / 18...31 V DC, mA/V/logic + 2 relay
5	no option
0	RS 485 / MODBUS - protocol
1	no option
0	option package 1 *
1	option package 2 **
2	standard configuration
9	configuration as specified
S	standard (CE-certification)
U	UL/cUL-certification

* option package 1: additional universal input INP2, additional: O2-measurement, counter input, functions Tara, sample and hold amplifier, integrator
 ** option package 2: additional to option package 1: digital input as optocoupler, frequency output

Price group B

Equipment

Ordering information
STK-600-00003
USB-998-00081
BCBR-400-00002
BCDR-400-00002
BAL-040-71718
BAL-040-71711
BAL-040-72018
BAL-040-72011

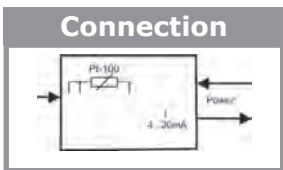
Model
 PC-adapter for BluePort-interface
 USB Serial adapter
 BlueControl Basic - rail line
 BlueControl Expert - rail line
 operating instructions Transcont CR german
 operating instructions Transcont CR english
 interface description MODBUS rail line german
 interface description MODBUS rail line english

PG E

Temperature transmitter

Transcont WTA-100-G0 / Transcont ExWTA-100-G0

Pt100 converter passive for 2- or 3-wire Pt100 preset, analog output 4 - 20 mA 2-wire technology or analog output 0...10 V 3-wire technology, 2 PNP-switching outputs, snap-on-housing 22,5 mm



Order code

(Ex)WTA-100

WTA-100	standard
ExWTA-100	ATEX II (1) G Ex ia IIC
certifications	
temperature range	
A	0°C...+50°C
B	0°C...+100°C
C	0°C...+150°C
E	0°C...+200°C
F	0°C...+250°C
G	0°C...+300°C
H	0°C...+400°C
J	0°C...+500°C
L	0°C...+600°C
Q	-40°C...+60°C
O	-50°C...+100°C
N	-100°C...+50°C
Y	custom specified measuring range
transmitter electronics	
A0	4...20 mA, 2-wire-electronics
AS	4...20 mA, 2-wire-electronics with two PNP-switching outputs
B0	0...10 V, 3-wire-electronics
BS	0...10 V, 3-wire-electronics with two PNP-switching outputs

1 - 3	pieces
4 - 10	pieces
11 - 35	pieces

Price group D

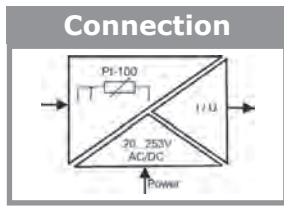
Signal converter



Transcont WTAU-100-U0

Pt100-signal converter active galvanic isolation and conversion of a 2-wire or 3-wire Pt100, free adjustable, 1 input / 1 output (0...10 V / 0...20mA / 4...20 mA); long range supply 20...253 V AC/ DC (universal mains supply circuit), snap-on-housing 22,5 mm

7 / 01.16



Order code

WTAU-100-U0

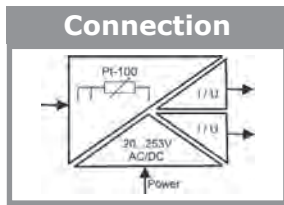
U0=universal current

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



Transcont WTAU-200-U0

Pt100- signal duplicators (2 output channels) active galvanic isolation and conversion of a 2-wire or 3-wire- Pt100, free adjustable, 1 input / 2 outputs; long range supply 20...253 V AC / DC (universal mains supply circuit), snap-on-housing 22,5 mm



Order code

WTAU-200-U0

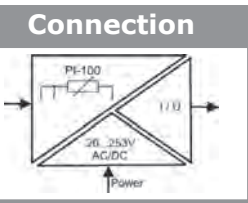
U0=universal current

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



Transcont WTAU-120-U0

Pt100-signal converter active galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset, 1 input / 1 output; long range supply 20...253 V AC / DC (universal mains supply circuit), snap-on-housing 22,5 mm



Order code

WTAU-120

temperature range

- | | | | |
|---|--------------|---|----------------------|
| A | 0°C...+50°C | H | 0°C...+400°C |
| B | 0°C...+100°C | J | 0°C...+500°C |
| C | 0°C...+150°C | L | 0°C...+600°C |
| E | 0°C...+200°C | Q | -40°C...+60°C |
| F | 0°C...+250°C | O | -50°C...+100°C |
| G | 0°C...+300°C | N | -100°C...+50°C |
| | | Y | special range |

signal output

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA
- Y special range

U0=universal current

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



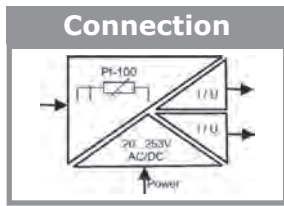
Signal converter



Transcont WTAU-220-U0

Pt100- signal duplicators (2 output channels) **active** galvanic isolation and conversion of a 2-wire or 3-wire Pt100, preset, 1 input / 2 outputs; long range supply 20...253 V AC / DC (universal mains supply circuit), snap-on-housing 22,5 mm

7 / 01.16



Order code

WTAU-220-

temperature range

A	0°C...+50°C	H	0°C...+400°C
B	0°C...+100°C	J	0°C...+500°C
C	0°C...+150°C	L	0°C...+600°C
E	0°C...+200°C	Q	-40°C...+60°C
F	0°C...+250°C	O	-50°C...+100°C
G	0°C...+300°C	N	-100°C...+50°C
		Y	special range

signal output 1

1	0...10 V
2	0...20 mA
3	4...20 mA
Y	special range

signal output 2

1	0...10 V
2	0...20 mA
3	4...20 mA
Y	special range

U0=universal	1 - 3 pieces
current	4 - 10 pieces
	11 - 35 pieces

U0

Price group D

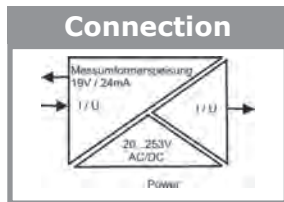
PG D

Isolation amplifier, signal converter

Transcont TVA-120-U0

isolation amplifier

active, 1-channel, universal mains supply circuit, non-adjustable, transmitter power supply



Order code

TVA-120

signal input

1	0...10 V
2	0...20 mA
3	4...20 mA
P	PFM input frequency 90-520 Hz
Y	special range

signal output

1	0...10 V
2	0...20 mA
3	4...20 mA
Y	special range

U0=universal	1 - 3 pieces
current	4 - 10 pieces
	11 - 35 pieces

U0

Price group D

PG D

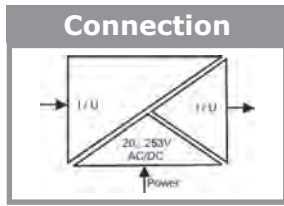
Signal converter

Transcont TVA-180-U0

universal-isolation amplifier

active, 1-channel, universal mains supply circuit, 22,5 mm

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TVA-180-U0 im ACS-Online-Shop



Order code

TVA-180

signal input

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA
- P PFM input frequency 90-520 Hz
- Y special range

signal output

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces

U0=universal current

U0

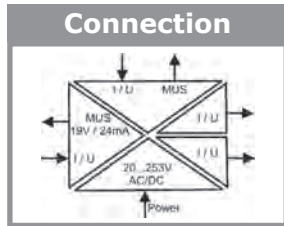
Price group D

PG D

Transcont TVA-220-U0

universal-isolation amplifier

active, 2-channel, universal mains supply circuit, 22,5 mm, transmitter power supply



Order code

TVA-220

signal input 1

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA
- Y special range

signal input 2

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA
- Y special range

signal output 1

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA
- Y special range

signal output 2

- 1 0...10 V
- 2 0...20 mA
- 3 4...20 mA
- Y special range

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces

U0=universal current

U0

Price group D

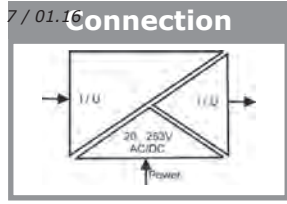
PG D

Signal converter

Transcont TVA-080-U0

universal-isolation amplifier
active, universal mains supply circuit, 22,5 mm

design: top hat rail, 22,5x 114,5x 99 mm
input: 0...10 V/ 0(4)...20 mA, -5...+5 V/ 0...1 V
operating voltage: 20...253 V AC/DC universal mains supply circuit
output: 0...10 V/ 0(4)...20 mA
 active, adjustable
multi-function output, multi-function input



order code

TVA-080-U0

U0=universal current

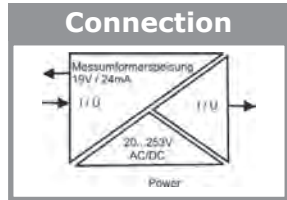
- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



Transcont TVA-100-U0

universal-isolation amplifier
active, universal mains supply circuit, 22,5 mm
 transmitter power supply

design: top hat rail, 22,5x 114,5x 99 mm
input: 0...10 V/ 0(4)...20 mA, -5...+5 V/ 0...1 V
operating voltage: 20...253 V AC/DC universal mains supply circuit
output: 0...10 V/ 0(4)...20 mA
 active, adjustable
multi-function output, multi-function input, transmitter power supply



Order code

TVA-100-U0

U0=universal current

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces

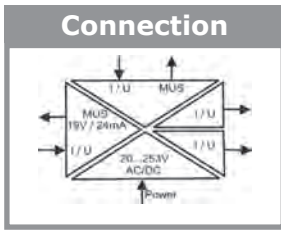


Transcont TVA-200-U0

universal-isolation amplifier
active, 2-channel, universal mains supply circuit,
 22,5mm, transmitter power supply

design: top hat rail, 22,5x 114,5x 99 mm
input: 2x 0...10 V/ 0(4)...20 mA, -5...+5 V/ 0...1 V
operating voltage: 20...253 V AC/DC universal mains supply circuit
output: 0...10 V/ 0(4)...20 mA, 2x separated, active, adjustable
multi-function input, multi-function output, transmitter power supply

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Order code

TVA-200-U0

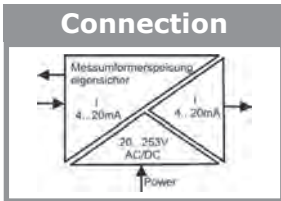
- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



ExTVA-500-UC

supply isolators in Ex-version
active, 1-channel, universal mains supply circuit,
 22,5mm, intrinsically safe transmitter power supply

design: mounting rail 35mm, housing 22,5mm
input: 4...20 mA eigensicher
operating voltage: 20...250 V AC/DC; Hart-compatible
output: 4...20 mA, active
certification: ATEX II (1) GD [Ex ia] IIC
Eigensichere transmitter power supply



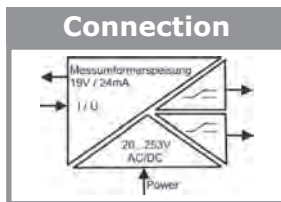
Order code

ExTVA-500-UC

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



Double-limit switch for standard signals / for Pt100 input

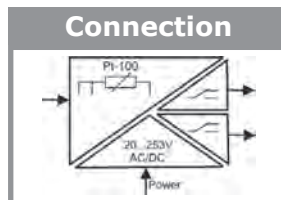


Order code

GWA-250-U0

double limit switch for standard signal; 2 limit values, universal mains supply circuit, 22,5 mm

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



Order code

GWAP-250-U0

double limit switch for Pt100 input; 2 limit values, universal mains supply circuit, 22,5 mm

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces



Signal converter

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Separating barriers

- 9002/13-252-121-04 Ex-seperating barrier for 4...20 mA signals.
- 9002/77-220-146-00 Ex-seperating barrier for conductive probes.
- 9002/22-032-300-11 Ex-seperating barrier for Pt100.
- 9001/02-016-150-11 Ex-seperating barrier for Pt100.

Attention: for one Pt100 in 3-wire connection both types are necessary !!!

PG B



Overvoltage protection devices



- USS-AM2S (F) protection on power supply side 275 V, 50/60 Hz, 15 KA (8/20µS) 2-pole.
- UKA-BM2S (F) protection+signal line 0/4...20 mA, 24 V, 10 KA (8/20 µS), 2-pole.
- USS-BZ2E protection+signal line 0/4...20 mA, Profibus PA + PFM-signal, 30 V DC
fto screw inM20x1,5 cable gland.
- UKA-CM2S (F) protection+intrinsically safe signal line 4...20 mA, EEx ia IIC T6, 2-pole.
- UKA-DM2S (F) protection+Profibus and RS 485 interface.
- (F) = field housing.

Price group D

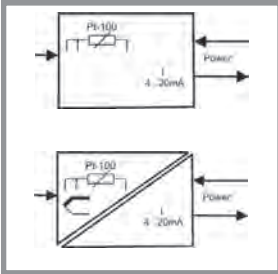
Transcont KTM / Transcont ExKTM



temperature head transmitter for 2- or 3-wire Pt100 preset, analog output 4...20 mA in 2-wire technology or analog output 0 - 10 V in 3-wire technology, 1 PNP switching output

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Connection



Order code

Transcont KTM

certifications

KTM- without certificate
 ExKTM- ATEX II 1 G Ex ia IIC T4

temperature range

A	0°C...+50°C	H	0°C...+400°C
B	0°C...+100°C	J	0°C...+500°C
C	0°C...+150°C	L	0°C...+600°C
E	0°C...+200°C	Q	-40°C...+60°C
F	0°C...+250°C	O	-50°C...+100°C
G	0°C...+300°C	N	-100°C...+50°C
		Y	custom specified measuring range

transmitter electronics

A0 4...20 mA, 2-wire-electronics
 AS 4...20 mA, 2-wire-electronics with one PNP switching output (not for Ex-version)
 AG 2-wire current, signal 4...20mA, galvanic separated (not for Ex-version)
 B0 0...10 V, 3-wire-electronics (not for Ex-version)

1 - 3 pieces
 4 - 10 pieces
 11 - 35 pieces

Price group D

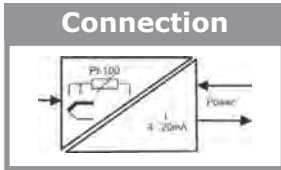
PG D

Transcont UTN-500

temperature head transmitter
universal head transmitter, adjustable via PC



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certifications

- A variation for Ex-free range
- B ATEX II 1 G EEx ia IIC T4/T5/T6
- C FM IS, Class I, Div. 1+2, Group A,B,C,D
- D CSA IS, Class I, Div. 1+2, Group A,B,C,D
- E ATEX II 3 G EEx nA IIC T4/T5/T6

connection type

- A standard factory setting 3-wire
- 2 configuration connection type RTD 2-wire
- 3 configuration connection type RTD 3-wire
- 4 configuration connection type RTD 4-wire
- 1 configuration connection type thermal element TC

configuration temperature sensor

- A standard factory setting Pt100
- 1 Pt100 (-200°C... 850°C, min.SP 10K) according to IEC 60751 (a=0,00385)
- 2 Ni100 (-60°C... 180°C, min.SP 10K)
- 3 Pt500 (-200°C...250°C, min.SP 10K)
- 4 Ni500 (-60°C...150°C, min.SP 10K)
- 5 Pt1000 (-200°C...250°C, min.SP 10K)
- 6 Ni1000 (-60°C...150°C, min.SP 10K)
- 7 resistiv sensor 10...400 ohm, min. span 10 ohm
- 8 resistiv sensor 10...2000 ohm, min. span 100 ohm
- B type B (0°C...1820°C, min.SP 500K)
- C type C (0°C...2320°C, min.SP 500K)
- D type D (0°C...2495°C, min.SP 500K)
- E type E (-200°C... 1000°C, min.SP 50K)
- J type J (-200°C...1200°C, min.SP 50K)
- K type K (-200°C...1372°C, min.SP 50K)
- L type L (-200°C...900°C, min.Sp 50K)
- N type N (-270°C...1300°C, min.Sp 50K)
- R type R (-50°C...1768°C, min.Sp 500K)
- S type S (-50°C...1768°C, min.Sp 500K)
- T type T (-200°C... 400°C, min.Sp 50K)
- U type U (-200°C... 600°C, min.Sp 50K)
- V configuration voltage transducer -10...100mV, min. span 5mV

configuration

- A standard-factory setting Pt100/3-wire/0-100°C
- B custom specified configuration measuring range
- C custom specified erweiterte configuration TC
- D custom specified erweiterte configuration RTD

Order code

UTN-500- S

- 1 - 3 pieces
- 4 - 10 pieces
- 11 - 35 pieces

Equipment

Ordering information

- KKN 500
- GM 500
- TTL/RS 232 C
- KKN 501

Model

- configuration kit (incl. GM 500) + RS232-interface cable
- setup-programm
- PC-interface cable
- configuration kit (incl. GM500 and USB-connection)

Price group D

PG E

Signal converter



8. Sensoric

Contents

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Optoelectronic universal sensors - application pictures

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	EINWEGLICHTSCHRANKE Kontrolle an Förderbändern	EINWEGLICHTSCHRANKE Niveauekontrolle	EINWEGLICHTSCHRANKE Füllstandskontrolle
	REFLEXLICHTSCHRANKE Palettenkontrolle	REFLEXLICHTSCHRANKE Objekterkennung auf Förderbändern	REFLEXLICHTSCHRANKE Folienerkennung
	REFLEXLICHTSCHRANKE POLARISIERT Erkennung von reflektierenden Objekten aus Glas	REFLEXLICHTSCHRANKE POLARISIERT Erkennung von folienendickwärtigen Zebroschriften	REFLEXLICHTSCHRANKE POLARISIERT Erkennung von Metallfolien
	REFLEXLICHTSCHRANKE FÜR TRANSPARENTE OBJEKTE Erkennung von Glas von PET-Flaschen	REFLEXLICHTSCHRANKE FÜR TRANSPARENTE OBJEKTE Erkennung von transparenten Schläuchen	REFLEXLICHTSCHRANKE FÜR TRANSPARENTE OBJEKTE Kontainerkontrolle
	NÄHERUNGSSENSOR Kontrolle auf Anwesenheit von Flüssigkeiten	NÄHERUNGSSENSOR Endanschlagkontrolle	NÄHERUNGSSENSOR Längenprüfung
	NÄHERUNGSSENSOR FOKUSSIERT Kontrolle auf Anwesenheit von Münzen	NÄHERUNGSSENSOR FOKUSSIERT Erkennung von kugelförmigen Verschleißteilen	NÄHERUNGSSENSOR FOKUSSIERT Erkennung von HMI-Keilnuten
	NÄHERUNGSSENSOR HINTERGRUNDAUSBLENDUNG Erkennung von Gegenständen auf Bändern	NÄHERUNGSSENSOR HINTERGRUNDAUSBLENDUNG Kontrolle auf Füllstand und Verschluss von Flaschen	NÄHERUNGSSENSOR HINTERGRUNDAUSBLENDUNG Fahrerlose Transportwagen (AGV)
	LICHTLEITERSENSOREN Erkennung von körnigen Objekten	LICHTLEITERSENSOREN Ausrichtungsprüfung bei Tischern	LICHTLEITERSENSOREN Kontrolle von schwer zugänglichen Teilen
	LASERSENSOREN Lagererkennung bei kleinen Bohrungen	LASERSENSOREN Kontrolle auf Werkzeugebruch	LASERSENSOREN Long Distance Detection

Optoelectronic universal sensors - cylindrical M18 sensors

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S5

plastic housing
multi voltage, parametrisable, connection in 3-wire-technology, 15-264 VAC, TRIAC-output connection in 4-wire-technology, 10-30 VDC, PNP/NPN, switching type ligh/dark



Article no.	Group	ABC	Designation	Addition
G5110210	5035	A	S5-1-A2-10	RRX/dark/cable/15-264VAC.
G5110215	5205	C	S5-1-A2-15	RRX/dark/cable/90°/15-264VAC
G5110220	5205	A	S5-1-A2-20	RRX/ligth/cable/15-264VAC.
G5110225	5205	C	S5-1-A2-25	RRX/ligth/cable/90°/15-264VAC.
G5110610	5205	C	S5-1-C30-10	switch/dark/cable/15-264VAC
G5110615	5205	C	S5-1-C30-15	switch/dark/cable/90°/15-264VAC
G5110620	5205	A	S5-1-C30-20	switch/ligth/cable/15-264VAC
G5110625	5205	C	S5-1-C30-25	switch/ligth/cable/90°/15-264VAC
G5110510	5205	C	S5-1-C8-10	switch/dark/cable/15-264VAC
G5110515	5205	C	S5-1-C8-15	switch/dark/cable/90°/15-264VAC
G5110520	5205	A	S5-1-C8-20	switch/ligth/cable/15-264VAC
G5110525	5205	C	S5-1-C8-25	switch/ligth/cable/90°/15-264VAC
G5110410	5205	C	S5-1-D15-10	switch/Fixfoc/dark/cable/15-264VAC
G5110420	5205	C	S5-1-D15-20	switch/Fixfoc/ligth/cable/15-264VAC
G5110110	5205	C	S5-1-F8-10	receiver/dark/cable/15-264VAC
G5110115	5205	C	S5-1-F8-15	receiver/dark/cable/90°/15-264VAC.
G5110120	5205	C	S5-1-F8-20	receiver/ligth/cable/15-264VAC
G5110125	5205	C	S5-1-F8-25	receiver/ligth/cable/90°/15-264VAC
G5110000	5205	C	S5-1-G8-00	sender/cable/15-264VAC.
G5110005	5205	C	S5-1-G8-05	sender/cable/90°/15-264VAC
G5214532	5205		S5-5-C8-32, F302	switch/4-wire/M12/10-30VDC/TW >400mm
G5213537	5205		S5-5-C8-37, F302	switch/4-wire/M12/90°/10-30VDC/TW >400mm
G5210430	5205	A	S5-5-D15-30	switch/Fixfoc/4-wire/cable/10-30VDC
G5210432	5205	A	S5-5-D15-32	switch/Fixfoc/4-wire/M12/10-30VDC
G5210435	5205	C	S5-5-D15-35	switch/Fixfoc/4-wire/cable/90°/10-30VDC.
G5210830	5205	A	S5-5-E1-30	fiber optic-LS/4-wire/cable/10-30VDC.
G5210832	5205	C	S5-5-E1-32	fiber optic-LS/4-wire/M12/10-30VDC
G5210130	5205	A	S5-5-F12-30	(exF8)receiver/4-wire/cable/10-30VDC.
G5210132	5205	A	S5-5-F12-32	(exF8)receiver/4-wire/M12/10-30VDC
G5210135	5205	C	S5-5-F8-35	receiver/4-wire/cable/90°/10-30VDC
G5210137	5205	C	S5-5-F8-37	receiver/4-wire/M12/90°/10-30VDC
952051340	5205	B	S5-5-F8-90-ST2	safety-receiver/KAT2/ligth/cable/PNP/10-30VDC
952051420	5205	B	S5-5-F8-90-ST4	safety-receiver/KAT4/ligth/cable/PNP/10-30VDC
952051350	5205	B	S5-5-F8-92-ST2	safety-receiver/KAT2/ligth/M12/PNP/10-30VDC
952051430	5205	B	S5-5-F8-92-ST4	safety-receiver/KAT4/ligth/cable/PNP/10-30VDC
G5210000	5205	A	S5-5-G12-00	(exG8)sender/cable/10-30VDC
G5210002	5205	A	S5-5-G12-02	(exG8)sender/M12/10-30VDC
952051300	5205	B	S5-5-G8-60-ST2	safety-sender/KAT2/cable/10-30VDC
952051380	5205	B	S5-5-G8-60-ST4	safety-sender/KAT4/cable/10-30VDC
952051310	5205	B	S5-5-G8-62-ST2	safety-sender/KAT2/M12/10-30VDC
952051390	5205	B	S5-5-G8-62-ST4	safety-sender/KAT4/M12/10-30VDC
G5210972	5205	C	S5-5-L2-72	switch/LimFoc/ligth/M12/NPN/10-30VDC.
G5210992	5205	C	S5-5-L2-92	switch/LimFoc/ligth/M12/PNP/10-30VDC.

Price group A

Optoelectronic universal sensors - cylindrical M18 sensors

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S50

The complete series

plastic or metal housing, for all versions identical, great selection of optical functions, EASYtouch™ Teach-In-setting, connection in 4-wire-technology, NO/NC, 10-30 VDC, Version **ATEX EX-II-3-D**



Article no.	Group	ABC	Designation	Addition
95ACC5300	5ACC	A	S50 EASY-IN	S50 easy-in adjustable fixing support
952022090	5202	C	S50-MA-2-A00-NN	RRX/Met/NO-NC/cable/NPN/10-30VDC
952022080	5202	B	S50-MA-2-A00-PP	RRX/Met/NO-NC/cable/PNP/10-30VDC
952021500	5202	C	S50-MA-2-B01-NN	RRX-Pol/Met/NO-NC/cable/NPN/10-30VDC
952021000	5202	B	S50-MA-2-C01-NN	RRX-Pol/Met/NO-NC/cable/PNP/10-30VDC
952021510	5202	C	S50-MA-2-C01-NN	switch-LoDi/Met/NO-NC/cable/NPN/10-30VDC
952021010	5202	B	S50-MA-2-C01-PP	switch-LoDi/Met/NO-NC/cable/PNP/10-30VDC
952021520	5202	C	S50-MA-2-C10-NN	switch-ShoDi/Met/NO-NC/cable/NPN/10-30VDC
952021020	5202	B	S50-MA-2-C10-PP	switch-ShoDi/Met/NO-NC/cable/PNP/10-30VDC
952022130	5202	B	S50-MA-2-C21-NN	switch-MeDi/Met/NO-NC/cable/NPN/10-30VDC
952022120	5202	B	S50-MA-2-C21-PP	switch-MeDi/Met/NO-NC/cable/PNP/10-30VDC
952021530	5202	C	S50-MA-2-D00-NN	switch/Fixfoc/Met/NO-NC/cable/NPN/10-30VDC
952021030	5202	C	S50-MA-2-D00-PP	switch/Fixfoc/Met/NO-NC/cable/PNP/10-30VDC
952021880	5202	C	S50-MA-2-E01-NN	fiber optic-LS/Met/NO-NC/cable/NPN/10-30VDC
952021040	5202	C	S50-MA-2-E01-PP	fiber optic-LS/Met/NO-NC/cable/PNP/10-30VDC
952021540	5202	C	S50-MA-2-F01-NN	receiver/Met/NO-NC/cable/NPN/10-30VDC
952021050	5202	B	S50-MA-2-F01-PP	receiver/Met/NO-NC/cable/PNP/10-30VDC
952021060	5202	B	S50-MA-2-G00-XG	sender/Met/cable/10-30VDC
952021550	5202	C	S50-MA-2-M03-NN	switch/HGA/Met/NO-NC/cable/NPN/10-30VDC
952021070	5202	C	S50-MA-2-M03-PP	switch/HGA/Met/NO-NC/cable/PNP/10-30VDC
952021560	5202	C	S50-MA-2-N03-NN	switch/V-HGA/Met/NO-NC/cable/NPN/10-30VDC
952021080	5202	C	S50-MA-2-N03-PP	switch/V-HGA/Met/NO-NC/cable/PNP/10-30VDC
952021570	5202	C	S50-MA-2-T01-NN	RRX/TransObj/Met/NO-NC/cable/NPN/10-30VDC
952021090	5202	C	S50-MA-2-T01-PP	RRX/TransObj/Met/NO-NC/cable/PNP/10-30VDC
952021580	5202	C	S50-MA-2-U03-NN	luminescence/Met/NO-NC/cable/NPN/10-30VDC
952021100	5202	C	S50-MA-2-U03-PP	luminescence/Met/NO-NC/cable/PNP/10-30VDC
952021120	5202	C	S50-MA-2-Y00-VK	distance/Met/cable/0-10V/18-30VDC
952022110	5202	C	S50-MA-5-A00-NN	RRX/Met/NO-NC/M12/NPN/10-30VDC
952022100	5202	B	S50-MA-5-A00-PP	RRX/Met/NO-NC/M12/PP/10-30VDC
952021660	5202	C	S50-MA-5-B01-NN	RRX-Pol/Met/NO-NC/M12/NPN/10-30VDC
952021200	5202	A	S50-MA-5-B01-PP	RRX-Pol/Met/NO-NC/M12/PP/10-30VDC
952021670	5202	C	S50-MA-5-C01-NN	switch-LoDi/Met/NO-NC/M12/NPN/10-30VDC
952021210	5202	A	S50-MA-5-C01-PP	switch-LoDi/Met/NO-NC/M12/PP/10-30VDC
952021680	5202	C	S50-MA-5-C10-NN	switch-ShoDi/Met/NO-NC/M12/NPN/10-30VDC
952021220	5202	B	S50-MA-5-C10-PP	switch-ShoDi/Met/NO-NC/M12/PP/10-30VDC
952022150	5202	C	S50-MA-5-C21-NN	switch-MeDi/Met/NO-NC/M12/NPN/10-30VDC
952022140	5202	A	S50-MA-5-C21-PP	switch-MeDi/Met/NO-NC/M12/PP/10-30VDC
952021690	5202	C	S50-MA-5-D00-NN	switch/Fixfoc/Met/NO-NC/M12/NPN/10-30VDC
952021230	5202	B	S50-MA-5-D00-PP	switch/Fixfoc/Met/NO-NC/M12/PP/10-30VDC
952021890	5202	C	S50-MA-5-E01-NN	fiber optic-LS/Met/NO-NC/M12/NPN/10-30VDC
952021240	5202	C	S50-MA-5-E01-PP	fiber optic-LS/Met/NO-NC/M12/PP/10-30VDC
952021700	5202	C	S50-MA-5-F01-NN	receiver/Met/NO-NC/M12/NPN/10-30VDC
952021250	5202	B	S50-MA-5-F01-PP	receiver/Met/NO-NC/M12/PP/10-30VDC
952021260	5202	B	S50-MA-5-G00-XG	sender/Met/M12/10-30VDC
952021710	5202	C	S50-MA-5-M03-NN	switch/HGA/Met/NO-NC/M12/NPN/10-30VDC
952021270	5202	B	S50-MA-5-M03-PP	switch/HGA/Met/NO-NC/M12/PP/10-30VDC
952021720	5202	C	S50-MA-5-N03-NN	switch/V-HGA/Met/NO-NC/M12/NPN/10-30VDC
952021280	5202	C	S50-MA-5-N03-PP	switch/V-HGA/Met/NO-NC/M12/PP/10-30VDC
952021730	5202	C	S50-MA-5-T01-NN	RRX/TransObj/Met/NO-NC/M12/NPN/10-30VDC
952021290	5202	B	S50-MA-5-T01-PP	RRX/TransObj/Met/NO-NC/M12/PP/10-30VDC
952021740	5202	C	S50-MA-5-U03-NN	luminescence/Met/NO-NC/M12/NPN/10-30VDC
952021300	5202	C	S50-MA-5-U03-PP	luminescence/Met/NO-NC/M12/PP/10-30VDC
952021320	5202	C	S50-MA-5-Y00-VK	distance/Met/M12/0-10V/10-30VDC
952021950	5202	C	S50-MH-2-B01-NN	laser/RRX-Pol/Met/NO-NC/cable/90°/NPN/10-30V
952021940	5202	C	S50-MH-2-B01-PP	laser/RRX-Pol/Met/NO-NC/cable/90°/PNP/10-30V
952021990	5202	C	S50-MH-2-C01-NN	laser/switch/Met/NO-NC/cable/90°/NPN/10-30DC
952021980	5202	C	S50-MH-2-C01-PP	laser/switch/Met/NO-NC/cable/90°/PNP/10-30DC
952022030	5202	C	S50-MH-2-F01-NN	laser/receiver/Met/NO-NC/cable/90°/NPN/10-3
952022020	5202	C	S50-MH-2-F01-PP	laser/receiver/Met/NO-NC/cable/90°/PNP/10-3
952022060	5202	C	S50-MH-2-G00-XG	laser/sender/Met/cable/90°/10-30VDC
952021970	5202	C	S50-MH-5-B01-NN	laser/RRX-Pol/Met/NO-NC/M12/90°/NPN/10-30V
952021960	5202	C	S50-MH-5-B01-PP	laser/RRX-Pol/Met/NO-NC/M12/90°/PNP/10-30V
952022010	5202	C	S50-MH-5-C01-NN	laser/switch/Met/NO-NC/M12/90°/NPN/10-30DC
952022000	5202	C	S50-MH-5-C01-PP	laser/switch/Met/NO-NC/M12/90°/PNP/10-30DC
952022050	5202	C	S50-MH-5-F01-NN	laser/receiver/Met/NO-NC/M12/90°/NPN/10-3
952022040	5202	C	S50-MH-5-F01-PP	laser/receiver/Met/NO-NC/M12/90°/PNP/10-3
952022070	5202	C	S50-MH-5-G00-XG	laser/sender/Met/M12/90°/10-30VDC
952021820	5202	C	S50-ML-2-B01-NN	laser/RRX-Pol/Met/NO-NC/cable/NPN/10-30VDC
952021400	5202	C	S50-ML-2-B01-PP	laser/RRX-Pol/Met/NO-NC/cable/PNP/10-30VDC
952021830	5202	C	S50-ML-2-C01-NN	laser/switch/Met/NO-NC/cable/NPN/10-30VDC
952021410	5202	C	S50-ML-2-C01-PP	laser/switch/Met/NO-NC/cable/PNP/10-30VDC
952021840	5202	C	S50-ML-2-F01-NN	laser/receiver/Met/NO-NC/cable/NPN/10-30VDC
952021420	5202	C	S50-ML-2-F01-PP	laser/receiver/Met/NO-NC/cable/PNP/10-30VDC
952021430	5202	C	S50-ML-2-G00-XG	laser/sender/Met/cable/10-30VDC
952021850	5202	C	S50-ML-5-B01-NN	laser/RRX-Pol/Met/NO-NC/M12/NPN/10-30VDC
952021440	5202	A	S50-ML-5-B01-PP	laser/RRX-Pol/Met/NO-NC/M12/PP/10-30VDC
952021860	5202	C	S50-ML-5-C01-NN	laser/switch/Met/NO-NC/M12/NPN/10-30VDC
952021450	5202	A	S50-ML-5-C01-PP	laser/switch/Met/NO-NC/M12/PP/10-30VDC
952021870	5202	C	S50-ML-5-F01-NN	laser/receiver/Met/NO-NC/M12/NPN/10-30VDC
952021460	5202	C	S50-ML-5-F01-PP	laser/receiver/Met/NO-NC/M12/PP/10-30VDC
952021470	5202	B	S50-ML-5-G00-XG	laser/sender/Met/M12/10-30VDC
952021600	5202	C	S50-MR-2-B01-NN	RRX-Pol/Met/NO-NC/cable/90°/NPN/10-30VDC
952021140	5202	C	S50-MR-2-B01-PP	RRX-Pol/Met/NO-NC/cable/90°/PNP/10-30VDC
952021610	5202	C	S50-MR-2-C01-NN	switch-LoDi/Met/NO-NC/cable/90°/NPN/10-30V
952021150	5202	C	S50-MR-2-C01-PP	switch-LoDi/Met/NO-NC/cable/90°/PNP/10-30V
952021620	5202	C	S50-MR-2-C10-NN	switch-ShoDi/Met/NO-NC/cable/90°/NPN/10-30
952021490	5202	C	S50-MR-2-C10-PP	switch-ShoDi/Met/NO-NC/cable/90°/PNP/10-30
952021630	5202	C	S50-MR-2-D00-NN	switch/Fixfoc/Met/NO-NC/cable/90°/NPN/10-3
952021160	5202	C	S50-MR-2-D00-PP	switch/Fixfoc/Met/NO-NC/cable/90°/PNP/10-3
952021640	5202	C	S50-MR-2-F01-NN	receiver/Met/NO-NC/cable/90°/NPN/10-30VDC
952021170	5202	C	S50-MR-2-F01-PP	receiver/Met/NO-NC/cable/90°/PNP/10-30VDC
952021180	5202	C	S50-MR-2-G00-XG	sender/Met/cable/90°/10-30VDC
952021650	5202	C	S50-MR-2-T01-NN	RRX/TransObj/Met/NO-NC/cable/90°/NPN/10-3

Price group A

Optoelectronic universal sensors - cylindrical M18 sensors

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S50

The complete series

plastic- or metal housing, for all versions identical, great selection of optical functions, EASYtouch™ Teach-In-setting, connection in 4-wire-technology, NO/NC, 10-30 VDC, Version

ATEX EX-II-3-D



Article no.	Group	ABC	Designation	Addition
952021190	5202	C	S50-MR-2-T01-PP	RRX/TransObj/Met/NO-NC/cable/90°/PNP/10-3
952021760	5202	C	S50-MR-5-B01-NN	RRX-Pol/Met/NO-NC/M12/90°/NPN/10-30VDC
952021340	5202	B	S50-MR-5-B01-PP	RRX-Pol/Met/NO-NC/M12/90°/PNP/10-30VDC
952021770	5202	C	S50-MR-5-C01-NN	switch-LoDi/Met/NO-NC/M12/90°/NPN/10-30V
952021350	5202	B	S50-MR-5-C01-PP	switch-LoDi/Met/NO-NC/M12/90°/PNP/10-30V
952021780	5202	C	S50-MR-5-C10-NN	switch-ShoDi/Met/NO-NC/M12/90°/NPN/10-30
952021480	5202	C	S50-MR-5-C10-PP	switch-ShoDi/Met/NO-NC/M12/90°/PNP/10-30
952021790	5202	C	S50-MR-5-D00-NN	switch/Fixfoc/Met/NO-NC/M12/90°/NPN/10-3
952021360	5202	C	S50-MR-5-D00-PP	switch/Fixfoc/Met/NO-NC/M12/90°/PNP/10-3
952021800	5202	C	S50-MR-5-F01-NN	receiver/Met/NO-NC/M12/90°/NPN/10-30VDC
952021370	5202	C	S50-MR-5-F01-PP	receiver/Met/NO-NC/M12/90°/PNP/10-30VDC
952021380	5202	C	S50-MR-5-G00-XG	sender/Met/M12/90°/10-30VDC
952021810	5202	C	S50-MR-5-T01-NN	RRX/TransObj/Met/NO-NC/M12/90°/NPN/10-3
952021390	5202	C	S50-MR-5-T01-PP	RRX/TransObj/Met/NO-NC/M12/90°/PNP/10-3
952021900	5202	C	S50-MS-2-M03-NN	switch/HGA/Met/NO-NC/cable/NPN/90°/10-30DC
952021910	5202	C	S50-MS-2-M03-PP	switch/HGA/Met/NO-NC/cable/PP/90°/10-30DC
952021920	5202	C	S50-MS-5-M03-NN	switch/HGA/Met/NO-NC/M12/NPN/90°/10-30DC
952021930	5202	C	S50-MS-5-M03-PP	switch/HGA/Met/NO-NC/M12/PP/90°/10-30DC
952002090	5200	B	S50-PA-2-A00-NN	RRX/NO-NC/cable/NPN/10-30VDC
952002080	5200	A	S50-PA-2-A00-PP	RRX/NO-NC/cable/PP/10-30VDC
952001610	5200	A	S50-PA-2-B01-NN	RRX-Pol/NO-NC/cable/NPN/10-30VDC
952001010	5200	A	S50-PA-2-B01-PP	RRX-Pol/NO-NC/cable/PP/10-30VDC
952001620	5200	B	S50-PA-2-C01-NN	switch-LoDi/NO-NC/cable/NPN/10-30VDC
952001050	5200	A	S50-PA-2-C01-PP	switch-LoDi/NO-NC/cable/PP/10-30VDC
952001630	5200	C	S50-PA-2-C10-NN	switch-ShoDi/NO-NC/cable/NPN/10-30VDC
952001240	5200	A	S50-PA-2-C10-PP	switch-ShoDi/NO-NC/cable/PP/10-30VDC
952002170	5200	A	S50-PA-2-C21-NN	switch-MeDi/NO-NC/cable/NPN/10-30VDC
952002160	5200	B	S50-PA-2-C21-PP	switch-MeDi/NO-NC/cable/PP/10-30VDC
952001640	5200	C	S50-PA-2-D00-NN	switch/Fixfoc/NO-NC/cable/NPN/10-30VDC
952001090	5200	C	S50-PA-2-D00-PP	switch/Fixfoc/NO-NC/cable/PP/10-30VDC
952001650	5200	A	S50-PA-2-E01-NN	fiber optic-LS/NO-NC/cable/NPN/10-30VDC
952001130	5200	A	S50-PA-2-E01-PP	fiber optic-LS/NO-NC/cable/PP/10-30VDC
952001660	5200	B	S50-PA-2-F01-NN	receiver/NO-NC/cable/NPN/10-30VDC
952001150	5200	A	S50-PA-2-F01-PP	receiver/NO-NC/cable/PP/10-30VDC
952001190	5200	A	S50-PA-2-G00-XG	sender/cable/10-30VDC
952001670	5200	C	S50-PA-2-M03-NN	switch/HGA/NO-NC/cable/NPN/10-30VDC
952001230	5200	A	S50-PA-2-M03-PP	switch/HGA/NO-NC/cable/PP/10-30VDC
952001680	5200	C	S50-PA-2-N03-NN	switch/V-HGA/NO-NC/cable/NPN/10-30VDC
952001440	5200	C	S50-PA-2-N03-PP	switch/V-HGA/NO-NC/cable/PP/10-30VDC
952001690	5200	C	S50-PA-2-T01-NN	RRX/TransObj/NO-NC/cable/NPN/10-30VDC
952001260	5200	B	S50-PA-2-T01-PP	RRX/TransObj/NO-NC/cable/PP/10-30VDC
952001700	5200	C	S50-PA-2-U03-NN	luminescence/NO-NC/cable/NPN/10-30VDC
952001300	5200	C	S50-PA-2-U03-PP	luminescence/NO-NC/cable/PP/10-30VDC
952001340	5200	C	S50-PA-2-Y00-VK	distance/cable/0-10V/10-30VDC
952002110	5200	C	S50-PA-5-A00-NN	RRX/NO-NC/M12/NPN/10-30VDC
952002100	5200	A	S50-PA-5-A00-PP	RRX/NO-NC/M12/PP/10-30VDC
952001500	5200	B	S50-PA-5-B01-NN	RRX-Pol/NO-NC/M12/NPN/10-30VDC
952001020	5200	A	S50-PA-5-B01-PP	RRX-Pol/NO-NC/M12/PP/10-30VDC
952001510	5200	C	S50-PA-5-C01-NN	switch-LoDi/NO-NC/M12/NPN/10-30VDC
952001060	5200	A	S50-PA-5-C01-PP	switch-LoDi/NO-NC/M12/PP/10-30VDC
952001520	5200	B	S50-PA-5-C10-NN	switch-ShoDi/NO-NC/M12/NPN/10-30VDC
952001250	5200	A	S50-PA-5-C10-PP	switch-ShoDi/NO-NC/M12/PP/10-30VDC
952002190	5200	B	S50-PA-5-C21-NN	switch-MeDi/NO-NC/M12/NPN/10-30VDC
952002180	5200	A	S50-PA-5-C21-PP	switch-MeDi/NO-NC/M12/PP/10-30VDC
952001530	5200	C	S50-PA-5-D00-NN	switch/Fixfoc/NO-NC/M12/NPN/10-30VDC
952001100	5200	A	S50-PA-5-D00-PP	switch/Fixfoc/NO-NC/M12/PP/10-30VDC
952001540	5200	C	S50-PA-5-E01-NN	fiber optic-LS/NO-NC/M12/NPN/10-30VDC
952001140	5200	A	S50-PA-5-E01-PP	fiber optic-LS/NO-NC/M12/PP/10-30VDC
952001550	5200	C	S50-PA-5-F01-NN	receiver/NO-NC/M12/NPN/10-30VDC
952001160	5200	A	S50-PA-5-F01-PP	receiver/NO-NC/M12/PP/10-30VDC
952001200	5200	A	S50-PA-5-G00-XG	sender/M12/10-30VDC
952001560	5200	C	S50-PA-5-M03-NN	switch/HGA/NO-NC/M12/NPN/10-30VDC
952001000	5200	A	S50-PA-5-M03-PP	switch/HGA/NO-NC/M12/PP/10-30VDC
952001570	5200	C	S50-PA-5-N03-NN	switch/V-HGA/NO-NC/cable/NPN/10-30VDC
952001450	5200	C	S50-PA-5-N03-PP	switch/V-HGA/NO-NC/cable/PP/10-30VDC
952001580	5200	B	S50-PA-5-T01-NN	RRX/TransObj/NO-NC/M12/NPN/10-30VDC
952001270	5200	A	S50-PA-5-T01-PP	RRX/TransObj/NO-NC/M12/PP/10-30VDC
952001590	5200	C	S50-PA-5-U03-NN	luminescence/NO-NC/M12/NPN/10-30VDC
952001310	5200	C	S50-PA-5-U03-PP	luminescence/NO-NC/M12/PP/10-30VDC
952001350	5200	C	S50-PA-5-Y00-VK	distance/M12/0-10V/18-30VDC
952001950	5200	C	S50-PH-2-B01-NN	laser/RRX-Pol/NO-NC/cable/90°/NPN/10-30VDC
952001940	5200	C	S50-PH-2-B01-PP	laser/RRX-Pol/NO-NC/cable/90°/PP/10-30VDC
952001990	5200	C	S50-PH-2-C01-NN	laser/switch/NO-NC/cable/90°/NPN/10-30VDC
952001980	5200	C	S50-PH-2-C01-PP	laser/switch/NO-NC/cable/90°/PP/10-30VDC
952002030	5200	C	S50-PH-2-F01-NN	laser/receiver/NO-NC/cable/90°/NPN/10-30VDC
952002020	5200	C	S50-PH-2-F01-PP	laser/receiver/NO-NC/cable/90°/PP/10-30VDC
952002060	5200	C	S50-PH-2-G00-XG	laser/sender/cable/90°/10-30VDC
952001970	5200	C	S50-PH-5-B01-NN	laser/RRX-Pol/NO-NC/M12/90°/NPN/10-30VDC
952001960	5200	A	S50-PH-5-B01-PP	laser/RRX-Pol/NO-NC/M12/90°/PP/10-30VDC
952002010	5200	C	S50-PH-5-C01-NN	laser/switch/NO-NC/M12/90°/NPN/10-30VDC
952002000	5200	C	S50-PH-5-C01-PP	laser/switch/NO-NC/M12/90°/PP/10-30VDC
952002050	5200	C	S50-PH-5-F01-NN	laser/receiver/NO-NC/M12/90°/NPN/10-30VDC
952002040	5200	A	S50-PH-5-F01-PP	laser/receiver/NO-NC/M12/90°/PP/10-30VDC
952002070	5200	A	S50-PH-5-G00-XG	laser/sender/M12/90°/10-30VDC
952001870	5200	C	S50-PL-2-B01-NN	laser/RRX-Pol/NO-NC/cable/NPN/10-30VDC
952001360	5200	C	S50-PL-2-B01-PP	laser/RRX-Pol/NO-NC/cable/PP/10-30VDC
952001880	5200	C	S50-PL-2-C01-NN	laser/switch/NO-NC/cable/NPN/10-30VDC
952001380	5200	C	S50-PL-2-C01-PP	laser/switch/NO-NC/cable/PP/10-30VDC
952001890	5200	C	S50-PL-2-F01-NN	laser/receiver/NO-NC/cable/NPN/10-30VDC
952001400	5200	C	S50-PL-2-F01-PP	laser/receiver/NO-NC/cable/PP/10-30VDC
952001420	5200	B	S50-PL-2-G00-XG	laser/sender/cable/10-30VDC
952001840	5200	B	S50-PL-5-B01-NN	laser/RRX-Pol/NO-NC/M12/NPN/10-30VDC
952001370	5200	A	S50-PL-5-B01-PP	laser/RRX-Pol/NO-NC/M12/PP/10-30VDC

Price group A

Sensoric

Optoelectronic universal sensors - cylindrical M18 sensors

8 / 01.16

S50

The complete series

plastic- or metal housing, for all versions identical, great selection of optical functions, EASYtouch™ Teach-In-setting, connection in 4-wire-technology, NO/NC, 10-30 VDC, Version **ATEX EX-II-3-D**



Article no.	Group	ABC	Designation	Addition
952001850	5200	C	S50-PL-5-C01-NN	laser/switch/NO-NC/M12/NPN/10-30VDC
952001390	5200	A	S50-PL-5-C01-PP	laser/switch/NO-NC/M12/PNP/10-30VDC
952001860	5200	C	S50-PL-5-F01-NN	laser/receiver/NO-NC/M12/NPN/10-30VDC
952001410	5200	A	S50-PL-5-F01-PP	laser/receiver/NO-NC/M12/PNP/10-30VDC
952001430	5200	A	S50-PL-5-G00-XG	laser/sender/M12/10-30VDC
952001780	5200	A	S50-PR-2-B01-NN	RRX-Pol/NO-NC/cable/90°/NPN/10-30VDC
952001030	5200	A	S50-PR-2-B01-PP	RRX-Pol/NO-NC/cable/90°/PNP/10-30VDC
952001790	5200	C	S50-PR-2-C01-NN	switch-LoDi/NO-NC/cable/90°/NPN/10-30VDC
952001070	5200	B	S50-PR-2-C01-PP	switch-LoDi/NO-NC/cable/90°/PNP/10-30VDC
952001800	5200	C	S50-PR-2-C10-NN	switch-ShoDi/NO-NC/cable/90°/NPN/10-30VDC
952001490	5200	C	S50-PR-2-C10-PP	switch-ShoDi/NO-NC/cable/90°/PNP/10-30VDC
952001810	5200	C	S50-PR-2-D00-NN	switch/Fixfoc/NO-NC/cable/90°/NPN/10-30VDC
952001110	5200	C	S50-PR-2-D00-PP	switch/Fixfoc/NO-NC/cable/90°/PNP/10-30VDC
952001820	5200	B	S50-PR-2-F01-NN	receiver/NO-NC/cable/90°/NPN/10-30VDC
952001170	5200	C	S50-PR-2-F01-PP	receiver/NO-NC/cable/90°/PNP/10-30VDC
952001210	5200	A	S50-PR-2-G00-XG	sender/cable/90°/10-30VDC
952001830	5200	B	S50-PR-2-T01-NN	RRX/TransObj/NO-NC/cable/90°/NPN/10-30VDC
952001280	5200	C	S50-PR-2-T01-PP	RRX/TransObj/NO-NC/cable/90°/PNP/10-30VDC
952001720	5200	C	S50-PR-5-B01-NN	RRX-Pol/NO-NC/M12/90°/NPN/10-30VDC
952001040	5200	A	S50-PR-5-B01-PP	RRX-Pol/NO-NC/M12/90°/PNP/10-30VDC
952001730	5200	C	S50-PR-5-C01-NN	switch-LoDi/NO-NC/M12/90°/NPN/10-30VDC
952001080	5200	A	S50-PR-5-C01-PP	switch-LoDi/NO-NC/M12/90°/PNP/10-30VDC
952001740	5200	C	S50-PR-5-C10-NN	switch-ShoDi/NO-NC/M12/90°/NPN/10-30VDC
952001480	5200	A	S50-PR-5-C10-PP	switch-ShoDi/NO-NC/M12/90°/PNP/10-30VDC
952001750	5200	B	S50-PR-5-D00-NN	switch/Fixfoc/NO-NC/M12/90°/NPN/10-30VDC
952001120	5200	C	S50-PR-5-D00-PP	switch/Fixfoc/NO-NC/M12/90°/PNP/10-30VDC
952001760	5200	C	S50-PR-5-F01-NN	receiver/NO-NC/M12/90°/NPN/10-30VDC
952001180	5200	A	S50-PR-5-F01-PP	receiver/NO-NC/M12/PNP/90°/10-30VDC
952001220	5200	A	S50-PR-5-G00-XG	sender/M12/90°/10-30VDC
952001770	5200	C	S50-PR-5-T01-NN	RRX/TransObj/NO-NC/M12/90°/NPN/10-30VDC
952001290	5200	B	S50-PR-5-T01-PP	RRX/TransObj/NO-NC/M12/90°/PNP/10-30VDC
952001900	5200	C	S50-PS-2-M03-NN	switch/HGA/NO-NC/cable/NPN/90°/10-30VDC
952001910	5200	C	S50-PS-2-M03-PP	switch/HGA/NO-NC/cable/PNP/90°/10-30VDC
952001920	5200	C	S50-PS-5-M03-NN	switch/HGA/NO-NC/M12/NPN/90°/10-30VDC
952001930	5200	B	S50-PS-5-M03-PP	switch/HGA/NO-NC/M12/PNP/90°/10-30VDC

Price group A

S51

The cost-effective series

plastic- or metal housing, connection in 3-wire-technology with selection light/dark via 4-wire, Version **ATEX EX-II-3-D**



Article no.	Group	ABC	Designation	Addition
952701601	5270	C	S51-MA-2-A00-NK	rx npn-no cable
952701541	5270	C	S51-MA-2-A00-PK	rx pnp-no cable
952701611	5270	C	S51-MA-2-B01-NK	rx-pol npn-no cable
952701551	5270	C	S51-MA-2-B01-PK	rx-pol pnp-no cable
952701621	5270	C	S51-MA-2-C01-NK	dif-prox npn-no cable
952701561	5270	C	S51-MA-2-C01-PK	dif-prox pnp-no cable
952701631	5270	C	S51-MA-2-C10-NK	dif-prox npn-no cable
952701571	5270	C	S51-MA-2-C10-PK	dif-prox pnp-no cable
952701641	5270	C	S51-MA-2-F00-NK	receiver npn-no cable
952701581	5270	C	S51-MA-2-F00-PK	receiver pnp-no cable
952701591	5270	C	S51-MA-2-G00-XG	emitter cable
952701801	5270	C	S51-MA-5-A00-NK	rx npn-no M12
952701531	5270	B	S51-MA-5-A00-PK	rx pnp-no M12
952701811	5270	C	S51-MA-5-B01-NK	rx-pol npn-no M12
952701761	5270	B	S51-MA-5-B01-PK	rx-pol pnp-no M12
952701821	5270	C	S51-MA-5-C01-NK	dif-prox npn-no M12
952701771	5270	B	S51-MA-5-C01-PK	dif-prox pnp-no M12
952701831	5270	C	S51-MA-5-C10-NK	dif-prox npn-no M12
952701521	5270	B	S51-MA-5-C10-PK	dif-prox pnp-no M12
952701961	5270	B	S51-MA-5-C20-PK	narr. beam dif-prox pnp-no M12
952701841	5270	C	S51-MA-5-F00-NK	receiver npn-no M12
952701781	5270	B	S51-MA-5-F00-PK	receiver pnp-no M12
952701791	5270	B	S51-MA-5-G00-XG	emitter M12
952701711	5270	C	S51-MR-2-A00-NK	rx npn-no cable
952701651	5270	C	S51-MR-2-A00-PK	rx pnp-no cable
952701721	5270	C	S51-MR-2-B01-NK	rx-pol npn-no cable
952701661	5270	C	S51-MR-2-B01-PK	rx-pol pnp-no cable
952701731	5270	C	S51-MR-2-C01-NK	dif-prox npn-no cable
952701671	5270	C	S51-MR-2-C01-PK	dif-prox pnp-no cable
952701741	5270	C	S51-MR-2-C10-NK	dif-prox npn-no cable
952701681	5270	C	S51-MR-2-C10-PK	dif-prox pnp-no cable
952701751	5270	C	S51-MR-2-F00-NK	receiver npn-no cable
952701691	5270	C	S51-MR-2-F00-PK	receiver pnp-no cable
952701701	5270	C	S51-MR-2-G00-XG	emitter cable
952701911	5270	C	S51-MR-5-A00-NK	rx npn-no M12
952701851	5270	C	S51-MR-5-A00-PK	rx pnp-no M12
952701921	5270	C	S51-MR-5-B01-NK	rx-pol npn-no M12
952701861	5270	C	S51-MR-5-B01-PK	rx-pol pnp-no M12
952701931	5270	C	S51-MR-5-C01-NK	dif-prox npn-no M12
952701871	5270	C	S51-MR-5-C01-PK	dif-prox pnp-no M12
952701941	5270	C	S51-MR-5-C10-NK	dif-prox npn-no M12
952701881	5270	C	S51-MR-5-C10-PK	dif-prox pnp-no M12
952701951	5270	C	S51-MR-5-F00-NK	receiver npn-no M12
952701891	5270	C	S51-MR-5-F00-PK	receiver pnp-no M12
952701901	5270	C	S51-MR-5-G00-XG	emitter M12
952701071	5270	A	S51-PA-2-A00-NK	rx npn-no cable
952701001	5270	A	S51-PA-2-A00-PK	rx pnp-no cable
952701081	5270	A	S51-PA-2-B01-NK	rx-pol npn-no cable
952701011	5270	A	S51-PA-2-B01-PK	rx-pol pnp-no cable
952701091	5270	A	S51-PA-2-C01-NK	dif-prox npn-no cable
952701021	5270	A	S51-PA-2-C01-PK	dif-prox pnp-no cable
952701101	5270	A	S51-PA-2-C10-NK	dif-prox npn-no cable

Price group A

Optoelectronic universal sensors - cylindrical M18 sensors

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S51

The cost-effective series
plastic- or metal housing ,
connection in 3-wire-tech-
nology with selection ligh/
dark via 4-wire , Version
ATEX EX-II-3-D



Article no.	Group	ABC	Designation	Addition
952701031	5270	A	S51-PA-2-C10-PK	dif-prox npn-no cable
952701121	5270	A	S51-PA-2-F00-NK	receiver npn-no cable
952701051	5270	A	S51-PA-2-F00-PK	receiver npn-no cable
952701061	5270	A	S51-PA-2-G00-XG	emitter cable
952701331	5270	A	S51-PA-5-A00-NK	rrx npn-no M12
952701261	5270	A	S51-PA-5-A00-PK	rrx npn-no M12
952701341	5270	A	S51-PA-5-B01-NK	rrx-pol npn-no M12
952701271	5270	A	S51-PA-5-B01-PK	rrx-pol npn-no M12
952701351	5270	A	S51-PA-5-C01-NK	dif-prox npn-no M12
952701281	5270	A	S51-PA-5-C01-PK	dif-prox npn-no M12
952701361	5270	A	S51-PA-5-C10-NK	dif-prox npn-no M12
952701291	5270	A	S51-PA-5-C10-PK	dif-prox npn-no M12
952701381	5270	A	S51-PA-5-F00-NK	receiver npn-no M12
952701311	5270	A	S51-PA-5-F00-PK	receiver npn-no M12
952701321	5270	A	S51-PA-5-G00-XG	emitter M12
952701201	5270	A	S51-PR-2-A00-NK	rrx npn-no cable
952701131	5270	A	S51-PR-2-A00-PK	rrx npn-no cable
952701211	5270	A	S51-PR-2-B01-NK	rrx-pol npn-no cable
952701141	5270	A	S51-PR-2-B01-PK	rrx-pol npn-no cable
952701221	5270	A	S51-PR-2-C01-NK	dif-prox npn-no cable
952701151	5270	A	S51-PR-2-C01-PK	dif-prox npn-no cable
952701231	5270	A	S51-PR-2-C10-NK	dif-prox npn-no cable
952701161	5270	A	S51-PR-2-C10-PK	dif-prox npn-no cable
952701251	5270	A	S51-PR-2-F00-NK	receiver npn-no cable
952701181	5270	A	S51-PR-2-F00-PK	receiver npn-no cable
952701191	5270	A	S51-PR-2-G00-XG	emitter cable
952701461	5270	A	S51-PR-5-A00-NK	rrx npn-no M12
952701391	5270	A	S51-PR-5-A00-PK	rrx npn-no M12
952701471	5270	A	S51-PR-5-B01-NK	rrx-pol npn-no M12
952701401	5270	A	S51-PR-5-B01-PK	rrx-pol npn-no M12
952701481	5270	A	S51-PR-5-C01-NK	dif-prox npn-no M12
952701411	5270	A	S51-PR-5-C01-PK	dif-prox npn-no M12
952701491	5270	A	S51-PR-5-C10-NK	dif-prox npn-no M12
952701421	5270	A	S51-PR-5-C10-PK	dif-prox npn-no M12
952701511	5270	A	S51-PR-5-F00-NK	receiver npn-no M12
952701441	5270	A	S51-PR-5-F00-PK	receiver npn-no M12
952701451	5270	A	S51-PR-5-G00-XG	emitter M12

Price group A

Optoelectronic universal sensors - miniature sensors, lightwave sensors

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S40

European standard High-Tech, optical laser- and standard-functions, EASY-touch™ Teach-In-setting



Article no.	Group	ABC	Designation	Addition
950401240	5040	C	S40-PH-5-B03-NH	laser/RRX-Pol/M8/NPN/10-30VDC
950401250	5040	A	S40-PH-5-B03-PH	laser/RRX-Pol/M8/PNP/10-30VDC
950401260	5040	C	S40-PH-5-C03-NH	laser/switch/M8/NPN/10-30VDC
950401270	5040	A	S40-PH-5-C03-PH	laser/switch/M8/PNP/10-30VDC
950401280	5040	C	S40-PH-5-M03-NH	laser/switch/HGA/M8/NPN/10-30VDC
950401290	5040	A	S40-PH-5-M03-PH	laser/switch/HGA/M8/PNP/10-30VDC
950401390	5040	C	S40-PR-2-A03-NH	RRX/cable/NPN/10-30VDC
950401330	5040	C	S40-PR-2-A03-PH	RRX/cable/PNP/10-30VDC
950401360	5040	C	S40-PR-2-B03-NH	RRX-Pol/cable/NPN/10-30VDC
950401300	5040	C	S40-PR-2-B03-PH	RRX-Pol/cable/PNP/10-30VDC
950401370	5040	C	S40-PR-2-C03-NH	switch/cable/NPN/10-30VDC
950401310	5040	A	S40-PR-2-C03-PH	switch/cable/PNP/10-30VDC
950401400	5040	C	S40-PR-2-FG3-NH	sender-receiver/cable/NPN/10-30VDC
950401340	5040	C	S40-PR-2-FG3-PH	sender-receiver/cable/PNP/10-30VDC
950401380	5040	C	S40-PR-2-M03-NH	switch/HGA/cable/NPN/10-30VDC
950401320	5040	A	S40-PR-2-M03-PH	switch/HGA/cable/PNP/10-30VDC
950401410	5040	C	S40-PR-2-T03-NH	RRX/TransObj/cable/NPN/10-30VDC
950401350	5040	C	S40-PR-2-T03-PH	RRX/TransObj/cable/PNP/10-30VDC
950401510	5040	C	S40-PR-5-A03-NH	RRX/M8/NPN/10-30VDC
950401450	5040	C	S40-PR-5-A03-PH	RRX/M8/PNP/10-30VDC
950401480	5040	C	S40-PR-5-B03-NH	RRX-Pol/M8/NPN/10-30VDC
950401420	5040	A	S40-PR-5-B03-PH	RRX-Pol/M8/PNP/10-30VDC
950401490	5040	C	S40-PR-5-C03-NH	switch/M8/NPN/10-30VDC
950401430	5040	A	S40-PR-5-C03-PH	switch/M8/PNP/10-30VDC
950401520	5040	C	S40-PR-5-FG3-NH	sender-receiver/M8/NPN/10-30VDC
950401460	5040	A	S40-PR-5-FG3-PH	sender-receiver/M8/PNP/10-30VDC
950401500	5040	C	S40-PR-5-M03-NH	switch/HGA/M8/NPN/10-30VDC
950401440	5040	A	S40-PR-5-M03-PH	switch/HGA/M8/PNP/10-30VDC
950401530	5040	C	S40-PR-5-T03-NH	RRX/TransObj/M8/NPN/10-30VDC
950401470	5040	A	S40-PR-5-T03-PH	RRX/TransObj/M8/PNP/10-30VDC

Price group A

S41

European standard Basic optical standard-functions, fixed setting or potentiometer setting Version ATEX EX-II-3-D



Article no.	Group	ABC	Designation	Addition
950701150	5070	A	S41-2-B-N	RRX-Pol/cable/NPN/10-30VDC
950701000	5070	A	S41-2-B-P	RRX-Pol/cable/PNP/10-30VDC
950701160	5070	A	S41-2-C-N	switch/cable/NPN/10-30VDC
950701010	5070	A	S41-2-C-P	switch/cable/PNP/10-30VDC
950701170	5070	A	S41-2-D-N	switch/Fixfoc/cable/NPN/10-30VDC
950701020	5070	A	S41-2-D-P	switch/Fixfoc/cable/PNP/10-30VDC
950701180	5070	A	S41-2-F-N	receiver/cable/NPN/10-30VDC
950701030	5070	A	S41-2-F-P	receiver/cable/PNP/10-30VDC
950701040	5070	A	S41-2-G	sender/cable/10-30VDC
950701045	5070	A	S41-2-H	sender/enger Lichtstrahl/cable/10-30VDC
950701190	5070	A	S41-2-P-N	RRX-Pol/cable/NPN/10-30VDC
950701100	5070	A	S41-2-P-P	RRX-Pol/cable/PNP/10-30VDC
950701200	5070	A	S41-2-T-N	RRX/TransObj/cable/NPN/10-30VDC
950701130	5070	A	S41-2-T-P	RRX/TransObj/cable/PNP/10-30VDC
950701210	5070	A	S41-5-B-N	RRX-Pol/M8/NPN/10-30VDC
950701050	5070	A	S41-5-B-P	RRX-Pol/M8/PNP/10-30VDC
950701120	5070	A	S41-5-C-N	switch/M8/NPN/10-30VDC
950701060	5070	A	S41-5-C-P	switch/M8/PNP/10-30VDC
950701230	5070	A	S41-5-D-N	switch/Fixfoc/M8/NPN/10-30VDC
950701070	5070	A	S41-5-D-P	switch/Fixfoc/M8/PNP/10-30VDC
950701240	5070	A	S41-5-F-N	receiver/M8/NPN/10-30VDC
950701080	5070	A	S41-5-F-P	receiver/M8/PNP/10-30VDC
950701090	5070	A	S41-5-G	sender/M8/10-30VDC
950701095	5070	A	S41-5-H	sender/enger Lichtstrahl/M8/10-30VDC
950701250	5070	A	S41-5-P-N	RRX-Pol/M8/NPN/10-30VDC
950701110	5070	A	S41-5-P-P	RRX-Pol/M8/PNP/10-30VDC
950701260	5070	A	S41-5-T-N	RRX/TransObj/M8/NPN/10-30VDC
950701140	5070	A	S41-5-T-P	RRX/TransObj/M8/PNP/10-30VDC

Price group A

Optoelectronic universal sensors - miniature sensors, lightwave sensors

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S3Z

Japanese standard Basic
optical standard-functions,
potentiometer setting



Article no.	Group	ABC	Designation	Addition
95B010260	5B01	A	S3Z-PR-2-B01-ND	polarized retroreflex, NPN dark, cable
95B010240	5B01	A	S3Z-PR-2-B01-NL	polarized retroreflex, NPN light, cable
95B010100	5B01	A	S3Z-PR-2-B01-PD	polarized retroreflex, PNP dark, cable
95B010080	5B01	A	S3Z-PR-2-B01-PL	polarized retroreflex, PNP light, cable
95B010220	5B01	C	S3Z-PR-2-C01-ND	narrow beam proximity, NPN dark, cable
95B010200	5B01	A	S3Z-PR-2-C01-NL	narrow beam proximity, NPN light, cable
95B010060	5B01	C	S3Z-PR-2-C01-PD	narrow beam proximity, PNP dark, cable
95B010040	5B01	A	S3Z-PR-2-C01-PL	narrow beam proximity, PNP light, cable
95B010180	5B01	C	S3Z-PR-2-C11-ND	diffuse proximity, NPN dark, cable
95B010160	5B01	A	S3Z-PR-2-C11-NL	diffuse proximity, NPN light, cable
95B010020	5B01	C	S3Z-PR-2-C11-PD	diffuse proximity, PNP dark, cable
95B010000	5B01	A	S3Z-PR-2-C11-PL	diffuse proximity, PNP light, cable
95B010300	5B01	A	S3Z-PR-2-FG01-ND	through-beam, NPN dark, cable
95B010280	5B01	C	S3Z-PR-2-FG01-NL	through-beam, NPN light, cable
95B010140	5B01	A	S3Z-PR-2-FG01-PD	through-beam, PNP dark, cable
95B010120	5B01	C	S3Z-PR-2-FG01-PL	through-beam, PNP light, cable
95B010270	5B01	A	S3Z-PR-5-B01-ND	polarized retroreflex, NPN dark, M8 conn.
95B010250	5B01	C	S3Z-PR-5-B01-NL	polarized retroreflex, NPN light, M8 con.
95B010110	5B01	A	S3Z-PR-5-B01-PD	polarized retroreflex, PNP dark, M8 conn
95B010090	5B01	A	S3Z-PR-5-B01-PL	polarized retroreflex, PNP light, M8 con
95B010230	5B01	C	S3Z-PR-5-C01-ND	narrow beam proximity, NPN dark, M8 conn.
95B010210	5B01	A	S3Z-PR-5-C01-NL	narrow beam proximity, NPN light, M8 con.
95B010070	5B01	C	S3Z-PR-5-C01-PD	narrow beam proximity, PNP dark, M8 conn
95B010050	5B01	A	S3Z-PR-5-C01-PL	narrow beam proximity, PNP light, M8 con
95B010190	5B01	C	S3Z-PR-5-C11-ND	diffuse proximity, NPN dark, M8 connecto
95B010170	5B01	C	S3Z-PR-5-C11-NL	diffuse proximity, NPN light, M8 connect
95B010030	5B01	C	S3Z-PR-5-C11-PD	diffuse proximity, PNP dark, M8 connecto.
95B010010	5B01	A	S3Z-PR-5-C11-PL	diffuse proximity, PNP light, M8 connect
95B010310	5B01	C	S3Z-PR-5-FG01-ND	through-beam, NPN dark, M8 connector
95B010290	5B01	C	S3Z-PR-5-FG01-NL	through-beam, NPN light, M8 connector
95B010150	5B01	A	S3Z-PR-5-FG01-PD	through-beam, PNP dark, M8 connector.
95B010130	5B01	C	S3Z-PR-5-FG01-PL	through-beam, PNP light, M8 connector.
95ACC2470	5ACC		S3Z-SLIT1	0,5mm slit for through beam (2 pcs.)
95ACC2480	5ACC		S3Z-SLIT2	1mm slit for through beam (2 pcs.)
95ACC2490	5ACC		S3Z-SLIT3	2mm slit for through beam (2 pcs.)
95ACC2500	5ACC		S3Z-SLIT4	0,5x18mm slit for through beam (2 pcs.)
95ACC2510	5ACC		S3Z-SLIT5	1x18mm slit for through beam (2 pcs.)
95ACC2520	5ACC		S3Z-SLIT6	2x18mm slit for through beam (2 pcs.)

Price group A

S7

fiber sensors

with or without DisplayEASytouch™ Teach-In-setting, Version **ATEX EX-II-3-D**, great selection of universal fiber sensors (OF) or (OFA)



Article no.	Group	ABC	Designation	Addition
950551080	5055	C	S7-1-E-N	µP/with display/cable/NPN/10KHZ/12-24VDC.
950551090	5055	C	S7-1-E-P	µP/with display/cable/PNP/10KHZ/12-24VDC.
950551000	5055	B	S7-2-E-N	µP/with display/cable/NPN/5KHZ/12-24VDC.
950551010	5055	B	S7-2-E-P	µP/with display/cable/PNP/5KHZ/12-24VDC.
950551040	5055	B	S7-3-E-N	µP/orDispl/cable/NPN/1KHZ/12-24VDC
950551050	5055	A	S7-3-E-P	µP/orDispl/cable/PNP/1KHZ/12-24VDC
950551100	5055	C	S7-4-E-N	µP/with display/M8/NPN/10KHZ/12-24VDC
950551110	5055	C	S7-4-E-P	µP/with display/M8/PNP/10KHZ/12-24VDC
950551020	5055	B	S7-5-E-N	µP/with display/M8/NPN/5KHZ/12-24VDC
950551030	5055	A	S7-5-E-P	µP/with display/M8/PNP/5KHZ/12-24VDC
950551060	5055	C	S7-6-E-N	µP/orDispl/M8/NPN/1KHZ/12-24VDC.
950551070	5055	A	S7-6-E-P	µP/orDispl/M8/PNP/1KHZ/12-24VDC.

Price group A

Optoelectronic universal sensors - compact sensors

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S6

multi voltage 50x50x18 mm, plastic housing relay output 15-264 VAC/VDC



Article no.	Group	ABC	Designation	Addition
S937330090	5610	A	S6-1-A6	(exA4)RRX/cable/15-264VAC/DC
S937420090	5610	A	S6-1-B5	(exB3)RRX/POL/15-264VAC/DC
950151140	5610	A	S6-1-C200	switch-LoDi/cable/15-264VAC/DC
S937530090	5610	A	S6-1-C90	switch/cable/15-264VAC/DC
S937200090	5610	A	S6-1-F20	(exF5)receiver/cable/15-264VAC/DC
S937130090	5610	A	S6-1-G20	(exG5)sender/cable/15-264VAC/DC
950201030	5610	C	S6-1-T1	RRX/TransObj/cable/15-264VAC/DC
S937330000	5610	A	S6-5-A6	(exA4)RRX/cable/10-30VDC
S937420000	5610	A	S6-5-B5	(exB3)RRX-Pol/cable/10-30VDC
950201150	5610	A	S6-5-C200	switch-LoDi/cable/10-30VDC
S937530000	5610	A	S6-5-C90	switch-Sho-Di/cable/10-30VDC
S937200010	5610	C	S6-5-F20	(exF5)receiver/cable/10-30VDC
S937130000	5610	C	S6-5-G20	(exG5)sender/cable/10-30VDC
S937830000	5610	A	S6-5-M25	switch/HGA/10-30VDC
950201020	5610	C	S6-5-T1	RRX/TransObj/10-30VDC

Price group A

S90

standard 50x50x15 mm; metal housing, great selection of optical functions, EASYtouch™ Teach-In setting, connection in 4-wire-technology NO/NC, 10-30 VDC



Article no.	Group	ABC	Designation	Addition
956301160	5630	A	S90-MA-5-B01-NN	RRX-Pol/Met/NO-NC/M12/NPN/10-30VDC
956301000	5630	A	S90-MA-5-B01-PP	RRX-Pol/Met/NO-NC/M12/PNP/10-30VDC
956301170	5630	C	S90-MA-5-B51-NN	Koax-Pol/Met/NO-NC/M12/NPN/10-30VDC
956301030	5630	A	S90-MA-5-B51-PP	Koax-Pol/Met/NO-NC/M12/PNP/10-30VDC
956305020	5630	C	S90-MA-5-B51-PP	Koax-Pol/Met/NO-NC/M12/PNP/10-30VDC
956301190	5630	A	S90-MA-5-C01-NN	switch-ShoDi/Met/NO-NC/M12/NPN/10-30VDC
956301010	5630	A	S90-MA-5-C01-PP	switch-ShoDi/Met/NO-NC/M12/PNP/10-30VDC
956301200	5630	A	S90-MA-5-C11-NN	switch-LoDi/Met/NO-NC/M12/NPN/10-30VDC
956301020	5630	A	S90-MA-5-C11-PP	switch-LoDi/Met/NO-NC/M12/PNP/10-30VDC
956301210	5630	A	S90-MA-5-F01-NN	receiver/Met/NO-NC/M12/NPN/10-30VDC
956301050	5630	A	S90-MA-5-F01-PP	receiver/Met/NO-NC/M12/PNP/10-30VDC
956301060	5630	A	S90-MA-5-G00-XG	sender/Met/M12/10-30VDC
956301220	5630	A	S90-MA-5-M08-NH	switch/HGA/Met/NO-NC/M12/NPN/10-30VDC
956301070	5630	A	S90-MA-5-M08-PH	switch/HGA/Met/NO-NC/M12/PNP/10-30VDC
956301230	5630	C	S90-MA-5-N03-NH	switch/V-HGA/Met/NO-NC/M12/NPN/10-30VDC
956301080	5630	A	S90-MA-5-N03-PH	switch/V-HGA/Met/NO-NC/M12/PNP/10-30VDC
956301180	5630	C	S90-MA-5-T51-NN	Koax-TransObj/Met/NO-NC/M12/NPN/10-30VDC
956301040	5630	A	S90-MA-5-T51-PP	Koax-TransObj/Met/NO-NC/M12/PNP/10-30VDC
956301240	5630	C	S90-MA-5-U08-NH	luminescence/Met/NO-NC/M12/NPN/10-30VDC
956301140	5630	A	S90-MA-5-U08-PH	luminescence/Met/NO-NC/M12/PNP/10-30VDC
956301260	5630	C	S90-ML-5-B01-NN	laser/RRX-Pol/Met/NO-NC/M12/NPN/10-30VDC
956301090	5630	A	S90-ML-5-B01-PP	laser/RRX-Pol/Met/NO-NC/M12/PNP/10-30VDC
956301270	5630	C	S90-ML-5-C01-NN	laser/switch/Met/NO-NC/cable/NPN/10-30VDC
956301100	5630	A	S90-ML-5-C01-PP	laser/switch/Met/NO-NC/cable/PNP/10-30VDC
956301280	5630	C	S90-ML-5-F01-NN	laser/receiver/Met/NO-NC/M12/NPN/10-30VDC
956301110	5630	A	S90-ML-5-F01-PP	laser/receiver/Met/NO-NC/M12/PNP/10-30VDC
956301120	5630	A	S90-ML-5-G00-XG	laser/sender/Met/M12/10-30VDC
956301290	5630	C	S90-ML-5-M08-NH	laser/switch/Met/HGA/NO/cable/NPN/10-30VDC
956301130	5630	A	S90-ML-5-M08-PH	laser/switch/Met/HGA/NO/cable/PNP/10-30VDC

Price group A

S60

standard 50x50x15 mm plastic housing, great selection of optical functions, EASYtouch™ Teach-In-setting, connection in 4-wire-technology NO/NC, 10-30 VDC



Article no.	Group	ABC	Designation	Addition
956201460	5620	C	S60-PA-2-B01-NN	RRX-Pol/NO-NC/cable/NPN/10-30VDC
956201300	5620	B	S60-PA-2-B01-PP	RRX-Pol/NO-NC/cable/PNP/10-30VDC
956201610	5620	C	S60-PA-2-B51-NN	Koax-Pol/RRX-Pol/NO-NC/cable/NPN/10-30VDC
956201600	5620	C	S60-PA-2-B51-PP	Koax-Pol/RRX-Pol/NO-NC/cable/PNP/10-30VDC
956201470	5620	C	S60-PA-2-C01-NN	switch-ShoDi/NO-NC/cable/NPN/10-30VDC
956201310	5620	B	S60-PA-2-C01-PP	switch-ShoDi/NO-NC/cable/PNP/10-30VDC
956201480	5620	C	S60-PA-2-C11-NN	switch-LoDi/NO-NC/cable/NPN/10-30VDC
956201320	5620	B	S60-PA-2-C11-PP	switch-LoDi/NO-NC/cable/PNP/10-30VDC
956201490	5620	C	S60-PA-2-F01-NN	receiver/NO-NC/cable/NPN/10-30VDC
956201330	5620	B	S60-PA-2-F01-PP	receiver/NO-NC/cable/PNP/10-30VDC
956201340	5620	B	S60-PA-2-G00-XG	sender/cable/10-30VDC
956201500	5620	C	S60-PA-2-M08-NH	switch/HGA/NO/cable/NPN/10-30VDC
956201350	5620	B	S60-PA-2-M08-PH	switch/HGA/NO/cable/PNP/10-30VDC
956201520	5620	C	S60-PA-2-N03-NH	switch/V-HGA/NO/cable/NPN/10-30VDC
956201370	5620	C	S60-PA-2-N03-PH	switch/V-HGA/NO/cable/PNP/10-30VDC
956201530	5620	C	S60-PA-2-T51-NN	Koax-TransObj/NO/cable/NPN/10-30VDC
956201380	5620	B	S60-PA-2-T51-PP	Koax-TransObj/NO/cable/PNP/10-30VDC
956201540	5620	C	S60-PA-2-U08-NH	luminescence/NO/cable/NPN/10-30VDC
956201390	5620	B	S60-PA-2-U08-PH	luminescence/NO/cable/PNP/10-30VDC
956201550	5620	C	S60-PA-2-W08-NH	contrast/NO/cable/NPN/10-30VDC
956201400	5620	B	S60-PA-2-W08-PH	contrast/NO/cable/PNP/10-30VDC
956201680	5620	C	S60-PA-2-Y03-NV	distance/NO/cable/0-10V/NPN/10-30VDC
956201690	5620	C	S60-PA-2-Y03-PV	distance/NO/cable/0-10V/PNP/10-30VDC
956201180	5620	C	S60-PA-5-B01-NN	RRX-Pol/NO-NC/M12/NPN/10-30VDC
956201040	5620	A	S60-PA-5-B01-PP	RRX-Pol/NO-NC/M12/PNP/10-30VDC
956201630	5620	C	S60-PA-5-B51-NN	Koax-Pol/NO-NC/M12/NPN/10-30VDC
956201620	5620	C	S60-PA-5-B51-PP	Koax-Pol/NO-NC/M12/PNP/10-30VDC
956201190	5620	C	S60-PA-5-C01-NN	switch-ShoDi/NO-NC/M12/NPN/10-30VDC
956201050	5620	B	S60-PA-5-C01-PP	switch-ShoDi/NO-NC/M12/PNP/10-30VDC
956201200	5620	C	S60-PA-5-C11-NN	switch-LoDi/NO-NC/M12/NPN/10-30VDC
956201110	5620	A	S60-PA-5-C11-PP	switch-LoDi/NO-NC/M12/PNP/10-30VDC
956201210	5620	C	S60-PA-5-F01-NN	receiver/NO-NC/M12/NPN/10-30VDC
956201060	5620	B	S60-PA-5-F01-PP	receiver/NO-NC/M12/PNP/10-30VDC
956201070	5620	B	S60-PA-5-G00-XG	sender/M12/10-30VDC
956201220	5620	C	S60-PA-5-M08-NH	switch/HGA/NO/M12/NPN/10-30VDC
956201080	5620	B	S60-PA-5-M08-PH	switch/HGA/NO/M12/PNP/10-30VDC
956201240	5620	C	S60-PA-5-N03-NH	switch/V-HGA/NO/M12/NPN/10-30VDC
956201090	5620	C	S60-PA-5-N03-PH	switch/V-HGA/NO/M12/PNP/10-30VDC
956201250	5620	C	S60-PA-5-T51-NN	Koax-TransObj/NO/M12/NPN/10-30VDC
956201100	5620	A	S60-PA-5-T51-PP	Koax-TransObj/NO/M12/PNP/10-30VDC
956201010	5620	C	S60-PA-5-U08-NH	luminescence/NO/M12/NPN/10-30VDC
956201000	5620	B	S60-PA-5-U08-PH	luminescence/NO/M12/PNP/10-30VDC
956201030	5620	C	S60-PA-5-W08-NH	contrast/NO/M12/NPN/10-30VDC
956201020	5620	B	S60-PA-5-W08-PH	contrast/NO/M12/PNP/10-30VDC
956201700	5620	C	S60-PA-5-Y03-NV	distance/NO/M12/0-10V/NPN/10-30VDC
956201710	5620	C	S60-PA-5-Y03-PV	distance/NO/M12/0-10V/PNP/10-30VDC
956201560	5620	C	S60-PL-2-B01-NN	laser/RRX-Pol/NO/cable/NPN/10-30VDC
956201410	5620	B	S60-PL-2-B01-PP	laser/RRX-Pol/NO/cable/PNP/10-30VDC
956201640	5620	C	S60-PL-2-C01-NN	laser/switch/NO/cable/NPN/10-30VDC
956201650	5620	C	S60-PL-2-C01-PP	laser/switch/NO/cable/PNP/10-30VDC
956201570	5620	C	S60-PL-2-F01-NN	laser/receiver/NO/cable/NPN/10-30VDC
956201420	5620	B	S60-PL-2-F01-PP	laser/receiver/NO/cable/PNP/10-30VDC
956201430	5620	C	S60-PL-2-G00-XG	laser/sender/cable/10-30VDC
956201580	5620	C	S60-PL-2-M08-NH	laser/switch/HGA/NO/cable/NPN/10-30VDC
956201440	5620	C	S60-PL-2-M08-PH	laser/switch/HGA/NO/cable/PNP/10-30VDC
956201260	5620	C	S60-PL-5-B01-NN	laser/RRX-Pol/NO/M12/NPN/10-30VDC
956201120	5620	B	S60-PL-5-B01-PP	laser/RRX-Pol/NO/M12/PNP/10-30VDC
956205687	5620	B	S60-PL-5-B01-PP	laser/RRX-Pol/NO/M12/PNP/10-30VDC
956201660	5620	C	S60-PL-5-C01-NN	laser/switch/NO/M12/NPN/10-30VDC
956201670	5620	C	S60-PL-5-C01-PP	laser/switch/NO/M12/PNP/10-30VDC
956201270	5620	C	S60-PL-5-F01-NN	laser/receiver/NO/M12/NPN/10-30VDC
956201140	5620	B	S60-PL-5-F01-PP	laser/receiver/NO/M12/PNP/10-30VDC
956201150	5620	C	S60-PL-5-G00-XG	laser/sender/M12/10-30VDC
956201280	5620	C	S60-PL-5-M08-NH	laser/switch/HGA/NO/M12/NPN/10-30VDC
956201160	5620	C	S60-PL-5-M08-PH	laser/switch/HGA/NO/M12/PNP/10-30VDC

Price group A

S2

multi voltage horizontal-format horizontal housing 26x58x85 mm, 15-264 VAC/VDC - relay output - terminal connection, timer functions



Article no.	Group	ABC	Designation	Addition
J950330390	5110	A	S2-1-A5	RRX/KKR/15-264VAC
J950335390	5110	A	S2-1-A5T	RRX/Timer/KKR/15-264VAC
J950320390	5110	A	S2-1-B3	RRX-Pol/KKR/15-264VAC
J950325390	5110	A	S2-1-B3T	RRX-Pol/Timer/KKR/15-264VAC
J950530393	5110	A	S2-1-C200	switch-LoDi/KKR/15-264VAC
J950535393	5110	A	S2-1-C200T	switch-LoDi/Timer/KKR/15-264VAC
J950530390	5110	A	S2-1-C90	switch-ShoDi/KKR/15-264VAC
J950535390	5110	A	S2-1-C90T	switch-ShoDi/Timer/KKR/15-264VAC
J950200390	5110	A	S2-1-F10	receiver/KKR/15-264VAC
J950205390	5110	A	S2-1-F10T	receiver/Timer/KKR/15-264VAC
J950200394	5110	C	S2-1-F50	receiver/KKR/15-264VAC
J950205394	5110	C	S2-1-F50T	receiver/Timer/KKR/15-264VAC
J950139990	5110	A	S2-1-G10	sender/KKR/15-264VAC
J950139995	5110	C	S2-1-G50	sender/KKR/15-264VAC
J950330000	5110	A	S2-5-A5	RRX/KKR/10-30VDC
J950335000	5110	C	S2-5-A5T	RRX/Timer/KKR/10-30VDC
J950320000	5110	A	S2-5-B3	RRX-Pol/KKR/10-30VDC
J950325000	5110	C	S2-5-B3T	RRX-Pol/Timer/KKR/10-30VDC
J950530003	5110	C	S2-5-C200	switch-LoDi/KKR/10-30VDC
J950535003	5110	C	S2-5-C200T	switch-LoDi/Timer/KKR/10-30VDC
J950530000	5110	A	S2-5-C90	switch-ShoDi/KKR/10-30VDC
J950535000	5110	C	S2-5-C90T	switch-ShoDi/Timer/KKR/10-30VDC
J950200000	5110	C	S2-5-F10	receiver/KKR/10-30VDC
J950205000	5110	C	S2-5-F10T	receiver/Timer/KKR/10-30VDC
J950200004	5110	C	S2-5-F50	receiver/KKR/10-30VDC
J950205004	5110	A	S2-5-F50T	receiver/Timer/KKR/10-30VDC
J950139900	5110	C	S2-5-G10	sender/KKR/10-30VDC
J950139905	5110	A	S2-5-G50	sender/KKR/10-30VDC

Price group A

S20

Basic vertical housing 20x65x55 mm standard selection 10-30 VDC



Article no.	Group	ABC	Designation	Addition
951351000	5135	C	S20-2-B-P	RRX-Pol/4-wire/cable/PNP/10-30VDC
951351060	5135	C	S20-2-C-N	switch-LoDi/4-wire/cable/NPN/10-30VDC
951351010	5135	C	S20-2-C-P	switch-Lo-Di/4-wire/cable/PNP/10-30VDC
951351030	5135	C	S20-2-F-P	receiver/4-wire/cable/PNP/10-30VDC
951351040	5135	C	S20-2-G	sender/4-wire/cable/10-30VDC
951351020	5135	C	S20-2-M-P	switch/HGA/cable/PNP/10-30VDC
951351150	5135	C	S20-5-B-N	RRX-Pol/4-wire/M12/NPN/10-30VDC
951351100	5135	A	S20-5-B-P	RRX-Pol/4-wire/M12/PNP/10-30VDC
951351160	5135	C	S20-5-C-N	switch/4-wire/M12/NPN/10-30VDC
951351110	5135	C	S20-5-C-P	switch/4-wire/M12/PNP/10-30VDC
951351180	5135	A	S20-5-F-N	receiver/4-wire/M12/NPN/10-30VDC
951351130	5135	C	S20-5-F-P	receiver/4-wire/M12/PNP/10-30VDC
951351140	5135	A	S20-5-G	sender/4-wire/M12/10-30VDC
951351170	5135	C	S20-5-M-N	switch/HGA/4-wire/M12/NPN/10-30VDC
951351120	5135	A	S20-5-M-P	switch/HGA/4-wire/M12/PNP/10-30VDC

Price group A

S30

multi voltage vertical housing 32x85x73 mm 17-264 VAC/VDC or 10-30 VDC - relay output - terminal connection timer functions



Article no.	Group	ABC	Designation	Addition
G3110700	5140	A	S30-1-B8-1	RRX-Pol/KKR/15-264VAC
G3110710	5140	A	S30-1-B8T-1	RRX-Pol/Timer/KKR/15-264VAC
960201170	5140	C	S30-1-B8T-1-M	RRX-Pol/Timer/KKR/ORH/15-264VAC
G3110500	5140	A	S30-1-C200-1	switch-LoDi/KKR/15-264VAC
G3110510	5140	A	S30-1-C200T-1	switch-LoDi/Timer/KKR/15-264VAC
960201130	5140	C	S30-1-C200T-1-M	switch-LoDi/Timer/KKR/ORH/15-264VAC
G3110100	5140	A	S30-1-F50-1	receiver/KKR/15-264VAC
G3110110	5140	C	S30-1-F50T-1	receiver/Timer/KKR/15-264VAC
960201090	5140	C	S30-1-F50T-1-M	receiver/Timer/KKR/ORH/15-264VAC
G3110000	5140	A	S30-1-G50-1	sender/KKR/15-264VAC
G311000001	5140	C	S30-1-G50-1-M	sender/KKR/ORH/15-264VAC
960211100	5140	A	S30-1-M110-1	switch/HGA/KKR/15-264VAC
960211130	5140	A	S30-1-M110T-1	switch/HGA/Timer/KKR/15-264VAC
960211290	5140	C	S30-1-M110T-1-M	switch/HGA/Timer/KKR/ORH/15-264VAC
G3210700	5140	A	S30-5-B8-1	RRX-Pol/KKR/10-30VDC
G3210703	5140	C	S30-5-B8-2P	RRX-Pol/M12/10-30VDC
G3210710	5140	C	S30-5-B8T-1	RRX-Pol/Timer/KKR/10-30VDC
G3210713	5140	C	S30-5-B8T-2P	RRX-Pol/Timer/M12/10-30VDC
G3210500	5140	A	S30-5-C200-1	switch-LoDi/KKR/10-30VDC
G3210503	5140	C	S30-5-C200-2P	switch-LoDi/M12/10-30VDC
G3210510	5140	C	S30-5-C200T-1	switch-LoDi/Timer/KKR/10-30VDC
G3210513	5140	C	S30-5-C200T-2P	switch-LoDi/Timer/M12/10-30VDC
G3210100	5140	C	S30-5-F50-1	receiver/KKR/10-30VDC
960211370	5140	C	S30-5-F50-1-ST2	safety-receiver/KAT2/KKR/10-30VDC
960211410	5140	A	S30-5-F50-1-ST4	safety-receiver/KAT4/KKR/10-30VDC
G3210103	5140	C	S30-5-F50-2P	receiver/M12/10-30VDC
960211380	5140	C	S30-5-F50-2P-ST2	safety-receiver/KAT2/M12/10-30VDC
960211420	5140	C	S30-5-F50-2P-ST4	safety-receiver/KAT4/M12/10-30VDC
G3210110	5140	C	S30-5-F50T-1	receiver/Timer/KKR/10-30VDC
G3210113	5140	C	S30-5-F50T-2P	receiver/Timer/M12/10-30VDC
G3210000	5140	C	S30-5-G50-1	sender/KKR/10-30VDC
960211350	5140	C	S30-5-G50-1-ST2	safety-sender/KAT2/KKR/10-30VDC
960211390	5140	A	S30-5-G50-1-ST4	safety-sender/KAT4/KKR/10-30VDC
G3210002	5140	C	S30-5-G50-2	sender/M12/10-30VDC
960211360	5140	C	S30-5-G50-2-ST2	safety-sender/KAT2/M12/10-30VDC
960211400	5140	C	S30-5-G50-2-ST4	safety-sender/KAT4/M12/10-30VDC
960211000	5140	A	S30-5-M110-1	switch/HGA/KKR/10-30VDC
960211010	5140	A	S30-5-M110-2P	switch/HGA/M12/10-30VDC
960211050	5140	A	S30-5-M110T-1	switch/HGA/Timer/KKR/10-30VDC
960211060	5140	C	S30-5-M110T-2P	switch/HGA/Timer/M12/10-30VDC

Price group A

Application referring optoelectronic sensors - application pictures - contrast sensors

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S50-W

The entry-level model
M18 plastic housing white light, EASYtouch™ Teach-In-setting range 10 mm and switch frequency 5 KHz



Article no.	Group	ABC	Designation	Addition
952021590	5202	C	S50-MA-2-W03-NN	contrast/Met/NO-NC/cable/NPN/10-30VDC
952021110	5202	C	S50-MA-2-W03-PP	contrast/Met/NO-NC/cable/PNP/10-30VDC
952021750	5202	B	S50-MA-5-W03-NN	contrast/Met/NO-NC/M12/NPN/10-30VDC
952021310	5202	C	S50-MA-5-W03-PP	contrast/Met/NO-NC/M12/PNP/10-30VDC
952001710	5200	A	S50-PA-2-W03-NN	contrast/NO-NC/cable/NPN/10-30VDC
952001320	5200	C	S50-PA-2-W03-PP	contrast/NO-NC/cable/PNP/10-30VDC
952001600	5200	C	S50-PA-5-W03-NN	contrast/NO-NC/M12/NPN/10-30VDC
952001330	5200	A	S50-PA-5-W03-PP	contrast/NO-NC/M12/PNP/10-30VDC

PG A

S60-W

The perfect compromise
plastic housing 50x50mm, white light, EASYtouch™ Teach-In-setting, range 20 mm and switch frequency 5 KHz



Article no.	Group	ABC	Designation	Addition
956201550	5620	C	S60-PA-2-W08-NH	contrast/NO/cable/NPN/10-30VDC
956201400	5620	B	S60-PA-2-W08-PH	contrast/NO/cable/PNP/10-30VDC
956201030	5620	C	S60-PA-5-W08-NH	contrast/NO/M12/NPN/10-30VDC
956201020	5620	B	S60-PA-5-W08-PH	contrast/NO/M12/PNP/10-30VDC

PG A

Application referring optoelectronic sensors - Contrast sensors

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S90-W

compact metal housing
metal housing 15x50x41 mm,
white light, setting per EASY-
touch™ Teach-In or potenti-
ometer, range 0-40 mm and
switch frequency 5 KHz

Article no.	Group	ABC	Designation	Addition
956301250	5630	A	S90-MA-5-W08-NH	contrast/Met/NO-NC/M12/NPN/10-30VDC
956301150	5630	A	S90-MA-5-W08-PH	contrast/Met/NO-NC/M12/PNP/10-30VDC



TLμ

market standard

metal housing 58x81x31
mm, white light, version
ATEX EX-II-3-D range big-
ger as 60 mm and switch
frequency 20 KHz

Article no.	Group	ABC	Designation	Addition
964401000	5415	A	TLu-011	9mm/cable/VeSpo/red-green/NPN/10-30VDC . . .
964401010	5415	B	TLu-011L	9mm/cable/HoSpo/red-green/NPN/10-30VDC . . .
964401020	5415	A	TLu-015	9mm/M12/VeSpo/red-green/NPN/10-30VDC
964401030	5415	B	TLu-015L	9mm/M12/HoSpo/red-green/NPN/10-30VDC
964401040	5415	B	TLu-061	18mm/cable/VeSpo/red-green/NPN/10-30VDC. . .
964401060	5415	B	TLu-065	18mm/M12/VeSpo/red-green/NPN/10-30VDC
964401080	5415	A	TLu-111	9mm/cable/VeSpo/red-green/PNP/10-30VDC. . . .
964401090	5415	B	TLu-111L	9mm/cable/HoSpo/red-green/PNP/10-30VDC
964401100	5415	A	TLu-115	9mm/M12/VeSpo/red-green/PNP/10-30VDC
964401110	5415	B	TLu-115L	9mm/M12/HoSpo/red-green/PNP/10-30VDC
964401120	5415	B	TLu-161	18mm/cable/VeSpo/red-green/PNP/10-30VDC. . . .
964401130	5415	C	TLu-161L	18mm/cable/HoSpo/red-green/PNP/10-30VDC. . . .
964401140	5415	B	TLu-165	18mm/M12/VeSpo/red-green/PNP/10-30VDC
964401150	5415	C	TLu-165L	18mm/M12/HoSpo/red-green/PNP/10-30VDC
954151410	5415	B	TLu-411C	9mm/cable/RuSpo/white/NPN/10-30VDC.
954151330	5415	A	TLu-415C	9mm/M12/RuSpo/white/NPN/10-30VDC
954151340	5415	C	TLu-417C	9mm/M12/RuSpo/white/NPN/Auto-Set/10-30VDC
954151350	5415	B	TLu-445	F.O./M12/white/NPN/10-30VDC
954151420	5415	B	TLu-511C	9mm/cable/RuSpo/white/PNP/10-30VDC.
954151360	5415	A	TLu-515C	9mm/M12/RuSpo/white/PNP/10-30VDC
954151370	5415	C	TLu-517C	9mm/M12/RuSpo/white/PNP/Auto-Set/10-30VDC.
954151440	5415	C	TLu-541	F.O./cable/white/PNP/10-30VDC.
954151380	5415	B	TLu-545	F.O./M12/white/PNP/10-30VDC



S65-W

The choice of innovati-
on housing ABS 50x50x25
mm, white light, range 20
mm, switch frequency 30
KHz, 4-digits display and
RS485

Article no.	Group	ABC	Designation	Addition
954201000	5420	B	S65-PA-5-W09-NH	contrast sensor/NPN/M12
954201010	5420	B	S65-PA-5-W09-NHZ	contrast sensor/NPN/M12/RS485
954201020	5420	B	S65-PA-5-W09-PH	contrast sensor/PNP/M12
954201030	5420	B	S65-PA-5-W09-PHZ	contrast sensor/PNP/M12/RS485



S65-V

colour sensor housing
ABS 50x50x25 mm, 3 in-
dependable outputs NPN or
PNP, 10-30 VDC and 4-di-
gits display

Article no.	Group	ABC	Designation	Addition
956251030	5625	B	S65-PA-5-V09-NNN	colour sensor/NPN/M12
956251010	5625	C	S65-PA-5-V09-NNNZ	colour sensor/NPN/M12/RS485.
956251020	5625	B	S65-PA-5-V09-PPP	colour sensor/PNP/M12
956251000	5625	C	S65-PA-5-V09-PPPZ	colour sensor/PNP/M12/RS485
956251110	5625	C	S65-PA-5-V19-NNN	colour sensor/NPN/M12
956251090	5625	C	S65-PA-5-V19-NNNZ	colour sensor/NPN/M12/RS485.
956251100	5625	B	S65-PA-5-V19-PPP	colour sensor/PNP/M12
956251080	5625	B	S65-PA-5-V19-PPPZ	colour sensor/PNP/M12/RS485



Sensoric



LD μ

luminescence sensors
standard-metal housing
58x81x31 mm fiber optic-
Equipment High-Resolu-
tion-optics, Version ATEX
EX-II-3-D

Article no.	Group	ABC	Designation	Addition
955151000	5515	C	LDu-011	luminescence/9-18mm/UV-380nm/cable/10-30VDC . . .
955151010	5515	C	LDu-015	luminescence/9-18mm/UV-380nm/M12/10-30VDC . . .
955151030	5515	C	LDu-065	luminescence/15-35mm/UV-380nm/M12/10-30DC . . .
955151120	5515	B	LDu-415	luminescence/9-18mm/HP-UV-370nm/M12/10-30 . . .
955151110	5515	B	LDu-425	luminescence/40-75mm/HP-UV-370nm/M12/10-3 . . .
955151100	5515	A	LDu-455	luminescence/20-40mm/HP-UV-370nm/M12/10-3 . . .



SR21

hybrid light barrier for
labels Teach-In-setting 2
mm fork spacing and 7,5
- 15 KHZ switch frequency

Article no.	Group	ABC	Designation	Addition
963261010	5315	A	SR21-AH	2mm/red-green/M8/7,5KHZ/10-30VDC
963261000	5315	A	SR21-AR	2mm/infrared/M8/7,5KHZ/10-30VDC
953151060	5315	A	SR21-AS	2mm/infrared/M8/15KHZ/10-30VDC
953151040	5315	C	SR21-AV	2mm/infrared/M8/7,5KHZ/10-30VDC



SRF










standard hybrid light barrier robust metal
housing, M8-plug, 30, 50,
80 and 120 mm fork spa-
cing, 30, setting via poten-
tiometer, switch frequency
1,5 KHZ

Article no.	Group	ABC	Designation	Addition
95B020120	5B02	C	SRF-120-5-N	Slot sens. 120mm, M8 3-pol, NPN.
95B020080	5B02	A	SRF-120-5-P	Slot sens. 120mm, M8 3-pol, PNP.
95B020090	5B02	C	SRF-30-5-N	Slot sens. 30mm, M8 3-pol, NPN
95B020050	5B02	A	SRF-30-5-P	Slot sens. 30mm, M8 3-pol, PNP.
95B020100	5B02	C	SRF-50-5-N	Slot sens. 50mm, M8 3-pol, NPN
95B020060	5B02	A	SRF-50-5-P	Slot sens. 50mm, M8 3-pol, PNP.
95B020110	5B02	C	SRF-80-5-N	Slot sens. 80mm, M8 3-pol, NPN
95B020070	5B02	A	SRF-80-5-P	Slot sens. 80mm, M8 3-pol, PNP.



Equipment for measurement and inspection - application pictures

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ZEILENSENSOREN  Kontrolle der Mittenlage	ZEILENSENSOREN  Erkennung von Löchern	ZEILENSENSOREN  Breitenmessung
LICHTGITTER FÜR ERKENNUNG & MESSUNG  Erkennung von Objekten durch Kunststofffolien hindurch	LICHTGITTER FÜR ERKENNUNG & MESSUNG  Erkennung und Messung von Objekten auf Förderbändern	LICHTGITTER FÜR ERKENNUNG & MESSUNG  Erkennung von kleineren Gegenständen
DISTANZSENSOREN  Füllstandsmessung bei Behältern	DISTANZSENSOREN  Abstandsmessung	INTelligentE VISION-SENSOREN  Erkennung und Qualitätskontrolle

S65-Z

line sensors housing ABS 50x50 mm, scanning range 20 cm - measuring field 15 cm, smallest scannable object 0,9 mm

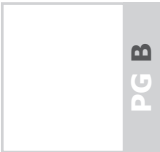
Article no.	Group	ABC	Designation	Addition
956251050	5626	C	S65-PA-5-Z03-NNI	line sensor/NPN/4-20 mA/M12
956251070	5626	C	S65-PA-5-Z03-NNIZ	line sensor/NPN/4-20 mA/M12/RS485
956251040	5626	B	S65-PA-5-Z03-PPI	line sensor/PNP/4-20 mA/M12
956251060	5626	C	S65-PA-5-Z03-PPIZ	line sensor/PNP/4-20 mA/M12/RS485



US18

Ultraschallsensoren for distance measurement or -detection, housing in axial- or radial version, analog outputs (4-20 mA or 0-10 V) or digital outputs scanning range 30 up to 300 mm with temperature compensation

Article no.	Group	ABC	Designation	Addition
95B040020	5B04	A	US18-PA-5-N03-IH	M18 ultrasonic sensor 4-20mA
95B040000	5B04	A	US18-PA-5-N03-OH	M18 ultrasonic sensor NPN & PNP
95B040040	5B04	A	US18-PA-5-N03-VH	M18 ultrasonic sensor 0-10V
95B040030	5B04	A	US18-PR-5-N03-IH	M18 ultrasonic sensor 4-20 mA
95B040010	5B04	A	US18-PR-5-N03-OH	M18 ultrasonic sensor NPN & PNP
95B040050	5B04	A	US18-PR-5-N03-VH	M18 ultrasonic sensor 0-10V



Sensoric

DS1

compact and cost-effective measurement heights from 100, 150 and 300 mm - range 1 or 2 m, resolution 4 or 7 mm - easy to configure, ultra-flat housing, Version ATEX EX-II-3-D

Article no.	Group	ABC	Designation	Addition
957701060	5770	B	DS1-LD-HR-010-JV	Areascan/big RW/high RES/h=100mm
957701080	5770	B	DS1-LD-HR-015-JV	Areascan/big RW/high RES/h=150mm
957701050	5770	B	DS1-LD-SR-010-JV	Areascan/big RW/Std RES/h=100mm
957701070	5770	B	DS1-LD-SR-015-JV	Areascan/big RW/Std RES/h=150mm
957701090	5770	B	DS1-LD-SR-030-JV	Areascan/big RW/Std RES/h=300mm
957701000	5770	B	DS1-SD-HR-010-JV	Areascan/short RW/high RES/h=100mm
957701020	5770	B	DS1-SD-HR-015-JV	Areascan/short RW/high RES/h=150mm
957701010	5770	B	DS1-SD-SR-010-JV	Areascan/short RW/Std RES/h=100mm
957701030	5770	B	DS1-SD-SR-015-JV	Areascan/short RW/Std RES/h=150mm
957701040	5770	B	DS1-SD-SR-030-JV	Areascan/short RW/Std RES/h=300mm



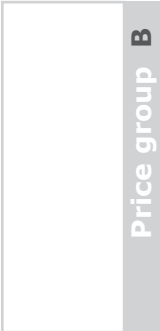
PG B



DS2

High Performance for logistics field, measurement heights from 600, 900, 1200 and 1650 mm - range 5 m, min. resolution 7 mm - easy to configure, serial RS485-interface, Version ATEX EX-II-3-D

Article no.	Group	ABC	Designation	Addition
957501040	5750	B	DS2-05-07-015-JV	6 mm RES H = 150 mm
957501050	5750	B	DS2-05-07-030-JV	6 mm RES H = 300 mm
957501060	5750	B	DS2-05-07-045-JV	6 mm RES H = 450 mm
957501000	5750	B	DS2-05-07-060-JV	6 mm RES H = 600 mm
957501070	5750	B	DS2-05-07-075-JV	6 mm RES H = 750 mm
957501010	5750	B	DS2-05-07-090-JV	6 mm RES H = 900 mm
957501080	5750	B	DS2-05-07-105-JV	6 mm RES H = 1050 mm
957501020	5750	B	DS2-05-07-120-JV	6 mm RES H = 1200 mm
957501090	5750	B	DS2-05-07-135-JV	6 mm RES H = 1350 mm
957501100	5750	B	DS2-05-07-150-JV	6 mm RES H = 1500 mm
957501030	5750	B	DS2-05-07-165-JV	6 mm RES H = 1650 mm
957505030	5750	B	DS2-05-07-225-JV	6 mm RES H = 2250 mm
957501110	5750	B	DS2-05-25-045-JV	25 mm RES H = 450 mm
957501140	5750	B	DS2-05-25-060-JV	25 mm RES H = 600 mm
957501120	5750	B	DS2-05-25-075-JV	25 mm RES H = 750 mm
957501130	5750	B	DS2-05-25-090-JV	25 mm RES H = 900 mm



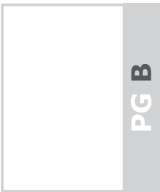
Price group B



DS3

High Resolution & detection from objects, measurement heights from 150, 300, 450 and 600 mm - range 1,5 m resolution 6 mm (parallel rays) or 0,5 mm (crossed rays) Version ATEX EX-II-3-D

Article no.	Group	ABC	Designation	Addition
957600120	5760	B	DS3-LD-015	Areascan/GROSSE range/h=150mm
957600140	5760	B	DS3-LD-030	Areascan/GROSSE range/h=300mm
957600160	5760	B	DS3-LD-045	Areascan/GROSSE range/h=450mm
957600180	5760	B	DS3-LD-060	Areascan/GROSSE range/h=600mm
957600100	5760	B	DS3-SD-015	Areascan/short range/h=150mm
957600110	5760	B	DS3-SD-030	Areascan/short range/h=300mm
957600150	5760	B	DS3-SD-045	Areascan/short range/h=450mm
957600170	5760	B	DS3-SD-060	Areascan/short range/h=600mm



PG B



Distance sensors Intelligent vision sensors

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S80-Y0

Proximity-Modus, laser-time-of-flight measuring, measuring range 0,3 up to 4 m - accuracy ± 1 cm, two switching thresholds - Version **ATEX EX-II-3-D**



Article no.	Group	ABC	Designation	Addition
951501010	5150	B	S80-MH-5-Y09-NNIZ, distance sensor, M12, 2xNPN, 4-20mA, RS485	
951501000	5150	B	S80-MH-5-Y09-PPIZ, distance sensor, M12, 2xPNP, 4-20mA, RS485	



S80-Y01/2

Reflexmodus laser-time-of-flight measuring, measuring range 0,3 up to 20,3 m resp. 100,3 m with reflektor accuracy (5-15cm), two switching thresholds - Version **ATEX EX-II-3-D**

Article no.	Group	ABC	Designation	Addition
951501030	5150	B	S80-MH-5-Y19-NNIZ, distance sensor, M12, 2xNPN, 4-20mA, RS485	
951501020	5150	B	S80-MH-5-Y19-PPIZ, distance sensor, M12, 2xPNP, 4-20mA, RS485	
951501050	5150	B	S80-MH-5-Y29-NNIZ, distance sensor, M12, 2xNPN, 4-20mA, RS485	
951501040	5150	B	S80-MH-5-Y29-PPIZ, distance sensor, M12, 2xPNP, 4-20mA, RS485	

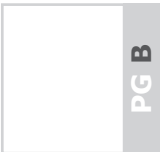


SCS1

vision sensors for detection and quality control, resolution VGA 640x480 objective interchangeable, intern or extern lighting, Interface RS485 or Ethernet - Version **ATEX EX-II-3-D**, setting per Teach-In or per PC via graphic user interface



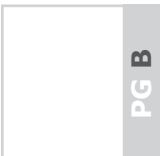
Article no.	Group	ABC	Designation	Addition
959901020	5990	C	SCS1-12-PPHH-ILR 12 mm PNP 2 inputs with illuminator	
959901050	5990	C	SCS1-12-PPHH-NIL 12 mm PNP 2 inputs without illuminator	
959901000	5990	C	SCS1-12-PPZ2-ILR 12 mm PNP RS232 with illuminator	
959901030	5990	C	SCS1-12-PPZ2-NIL 12 mm PNP RS232 without illuminator	
959901010	5990	C	SCS1-12-PPZ4-ILR 12 mm PNP RS485 with illuminator	
959901040	5990	C	SCS1-12-PPZ4-NIL 12 mm PNP RS485 without illuminator	



frame light barriers

with innovative microcontroller technology are the optimal solution for detection of metal and not metal parts. Typical applications are counting of smallest parts, length measuring of parts with constant feed rate and for tool protection in pressing and stamping technology.

Type	Active Zone mm	Operating voltage	Output
IH0DS-GUPTT	25x33	10-35 V DC	PNP NO/NC
IH1DS-GUPTT	40x49	18-35 V DC	PNP NO/NC
IH2DS-GUPTT	70x62	18-35 V DC	PNP NO/NC
IH3DS-GUPTT	100x92	18-35 V DC	PNP NO/NC
IH4DS-GUPTT	150x142	18-35 V DC	PNP NO/NC
IH5DS-GUPTT	250x242	20-26 V DC	PNP NO/NC
IH6DS-GUPTT	397,5x300	22-26 V DC	PNP NO/NC



Sensoric





Amplifier for dirt-resistant light barriers

Type	Connection	Operating volt.	Time delay	Output
SVAO-WPBTS	11-pole plug-in socket relay-changer+NPN	230 V AC	0-10s	ein/aus.
SVAO-LPBTS	11-pole plug-in socket relay-changer+NPN	24 V AC	0-10s	ein/aus.
SVAO-MPBTS	11-pole plug-in socket relay-changer+NPN	24 V DC	0-10s	ein/aus.
SVAO-MPUTS	11-pole plug-in socket NPN	24 V DC	0-10s	ein/aus. PNP/
SVBO-WPWOS	11-pole plug-in socket relay-changer+NPN	230 V AC		
SVBO-LPWOS	11-pole plug-in socket relay-changer+NPN	24 V AC		
SVBO-MPWOS	11-pole plug-in socket relay-changer+NPN	24 V DC		
SVBO-MPUOS	11-pole plug-in socket NPN	24 V DC		PNP/

Price group B

Equipment

Equipment
Seite 349



Dirt-insensitive Oneway light barriers

Type	switching distance	Operating voltage	Output
IEFT-VKOOK	0-5 m	via amplifier	with 5 m connection cable.
IEGT-VKOOK	0-25 m	via amplifier	with 5 m connection cable.
IEFR-VKOOK	0-5 m	via amplifier	depending on, with 5 m cable
IEGR-VKOOK	0-25 m	via amplifier	amplifier, with 5 m connection cable.
IELT-VKOOK	0-25 m	via amplifier	with 5 m connection cable.
IELT-VK00K/15m	0-25 m	via amplifier	with 15 m connection cable.
IELT-VK00B	0-15 m	via amplifier	M12 plug.
IELR-VKOOK	0-25 m	via amplifier	depending on, with 5 m cable
IELR-VK00K/15m	0-25 m	via amplifier	with 15 m connection cable.
IELR-VK00B	0-15 m	via amplifier	amplifier, M12 plug.
IESR-GKOOK	0-2 m/0-6 m	10-40 V DC	with 5 m connection cable.
IESR-GK00B	0-2 m/0-6 m	10-40 V DC	M12 plug.
IESR-GPPOK	0-2 m/0-6 m	10-40 V DC	PNP-turnkey/opener, with 5 m cable.
IESR-GPPOB	0-2 m/0-6 m	10-40 V DC	PNP-turnkey/opener, M12 plug
IESR-GPMOK	0-2 m/0-6 m	10-40 V DC	PNP-turnkey/opener, with 5 m cable.
IESR-GPMOB	0-2 m/0-6 m	10-40 V DC	PNP-turnkey/opener, M12 plug

Price group B

Fiber optic cable amplifier

Equipment

matching fiber optic
cable
see 342



Type	Connection	Operating volt.	Time delay	Output
ILVS-GAPOA	term. comp.	12-35 V DC	Equipment	PNP NO/NC
ILVS-GAPOB	M12-plug	12-35 V DC	Equipment	PNP NO/NC
ILVS-GACOB	M12-plug	21-28 V DC	Equipment	0-18V / 4...20mA.
ILVS-GAPUB	M12-plug	10-35 V DC	Equipment	PNP NO/NC

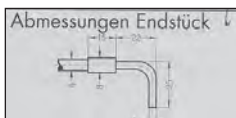
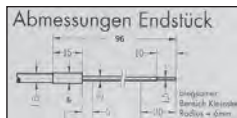
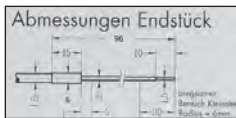
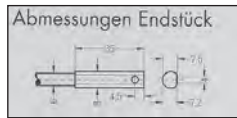
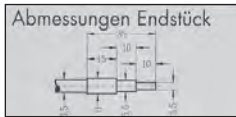
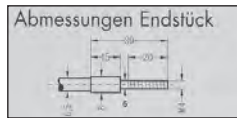
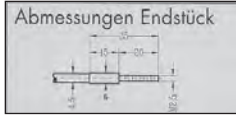
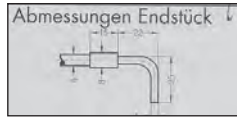
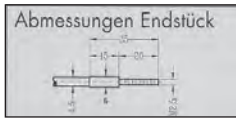
PG A

175,00 €
175,00 €
227,00 €
227,00 €

Fiber optic cable for amplifier ILVS

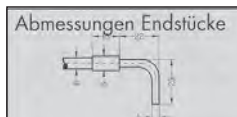
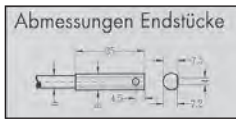
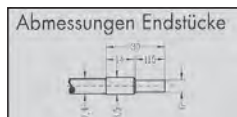
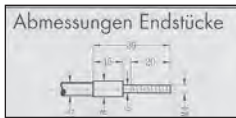
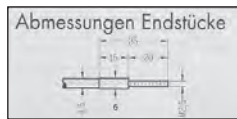
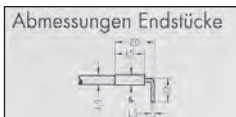


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Fiber lighth-trans.	Length mm	Task width.	active ø mm
WRB 110 S-1,5-1,0	300	15	1
WRB 120 S-1,5-1,0	600	10	1
WRB 130 S-1,5-1,0	1000	5	1
WRB 110 S-90°-1,5-1,0	300	10	1
WRB 120 S-90°-1,5-1,0	600	5	1
WRB 130 S-90°-1,5-1,0	1000	2	1
WRB 110 S-M2,5	300	30	1,5
WRB 120 S-M2,5	600	20	1,5
WRB 130 S-M2,5	1000	10	1,5
WRB 110 S-M4	300	80	2,3
WRB 120 S-M4	600	60	2,3
WRB 130 S-M4	1000	40	2,3
WRB 140 S-M4	1500	20	2,3
WRB 110 S	300	80	2,3
WRB 120 S	600	60	2,3
WRB 130 S	1000	40	2,3
WRB 140 S	1500	20	2,3
WRB 110 S-1,5	300	60	1,5
WRB 120 S-1,5	600	40	1,5
WRB 110 SR	300	80	2,3
WRB 120 SR	600	60	2,3
WRB 130 SR	1000	40	2,3
WRB 140 SR	1500	20	2,3
WRB 110 SR-1,5	300	50	1,5
WRB 120 SR-1,5	600	40	1,5
WRB 110 SB-2,0-1,0	300	15	1
WRB 120 SB-2,0-1,0	600	10	1
WRB 110 SB-3,0-1,5	300	30	1
WRB 120 SB-3,0-1,5	600	20	1
WRB 130 SB-3,0-1,5	1000	10	1
WRB 110 S-90°	300	100	2,3
WRB 120 S-90°	600	80	2,3
WRB 130 S-90°	1000	60	2,3
WRB 140 S-90°	1500	50	2,3
WRB 110 S-90°-1,5-1,0	300	40	1,5
WRB 120 S-90°-1,5-1,0	600	40	1,5

Fiber light barriers



WRB 210 S-1,5-1,0	300	250	1
WRB 220 S-1,5-1,0	600	200	1
WRB 230 S-1,5-1,0	1000	150	1
WRB 240 S-1,5-1,0	1500	100	1
WRB 210 S-90°-1,5-1,0	300	100	1
WRB 220 S-90°-1,5-1,0	600	100	1
WRB 230 S-90°-1,5-1,0	1000	80	1
WRB 240 S-90°-1,5-1,0	1500	50	1
WRB 210 S-M2,5	300	300	1,5
WRB 220 S-M2,5	600	800	1,5
WRB 230 S-M2,5	1000	700	1,5
WRB 240 S-M2,5	1500	600	1,5
WRB 210 S-M4	300	300	2,3
WRB 220 S-M4	600	800	2,3
WRB 230 S-M4	1000	700	2,3
WRB 240 S-M4	1500	600	2,3
WRB 210 S	300	300	2,3
WRB 220 S	600	800	2,3
WRB 230 S	1000	1000	2,3
WRB 240 S	1500	800	2,3
WRB 210 S-1,5	300	300	1,5
WRB 220 S-1,5	600	600	1,5
WRB 210 SR	300	300	2,3
WRB 220 SR	600	500	2,3
WRB 230 SR	1000	400	2,3
WRB 240 SR	1500	300	2,3
WRB 210 SR-1,5	300	300	1,5
WRB 220 SR-1,5	600	400	1,5
WRB 210 S-90°	300	300	2,3
WRB 220 S-90°	600	800	2,3
WRB 230 S-90°	1000	1000	2,3
WRB 240 S-90°	1500	800	2,3
WRB 210 S-90°-1,5	300	300	1,5
WRB 220 S-90°-1,5	600	600	1,5

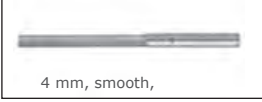
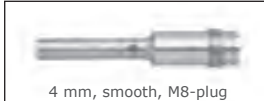
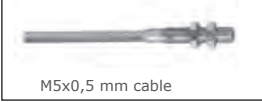

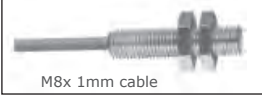
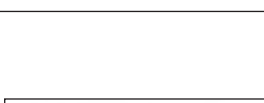

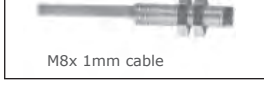
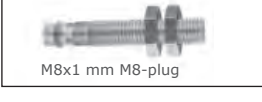


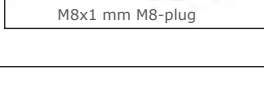
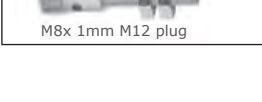



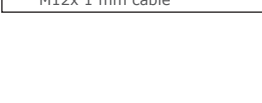



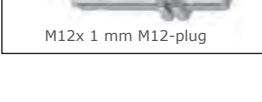


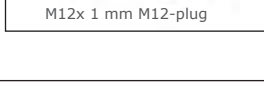
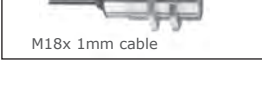




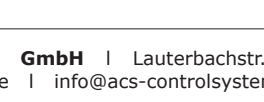
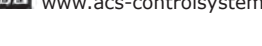

Price group B

Inductive standard sensors

order code see 350

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Ordering info function/voltage Switching distance in mm
b=flush / nb=not flush

 4 mm, smooth,	 4 mm, smooth, M8-plug	SIA-0,8NGSPKSB SIA-0,8NGOPKSB	DC PNP-turnkey0,8 b DC PNP-opener0,8 b
 M5x0,5 mm cable	 M5x0,5 mm, M8 plug	SIAT0,8NGSPKSB SIAT0,8NGOPKSB	DC PNP-turnkey0,8 b DC PNP-opener0,8 b
 M8x 1mm cable	 M8x 1mm cable	SIB-0,8NGSPKSB SIB-0,8NGOPKSB	DC PNP-turnkey0,8 b DC PNP-opener0,8 b
 M8x 1mm M8-plug	 M8x 1mm M8-plug	SIBT0,8NGSPKSB SIBT0,8NGOPKSB	DC PNP-turnkey0,8 b DC PNP-opener0,8 b
 M8x 1mm M12 plug	 M8x 1mm M12 plug	SID-02MGSPKSB SID-02MGOPKSB SID-02MGSMKSB SID-02MGOMKSB SID-02MN---KB	DC PNP-turnkey2 b DC PNP-opener2 b DC NPN-turnkey2 b DC NPN-opener2 b Namur2 b
 M8x 1mm M12 plug	 M8x 1mm M12 plug	SID-04MGSPKSNB SID-04MGOPKSNB SID-04MGSMKSNB SID-04MGOMKSNB SID-04MN---KNB	DC PNP-turnkey4 nb DC PNP-opener4 nb DC NPN-turnkey4 nb DC NPN-opener4 nb Namur4 nb
 M8x 1mm M12 plug	 M8x 1mm M12 plug	SIDT02MGSPKSB SIDT02MGOPKSB SIDT02MGSMKSB SIDT02MGOMKSB SIDT02MN---KB	DC PNP-turnkey2 b DC PNP-opener2 b DC NPN-turnkey2 b DC NPN-opener2 b Namur2 b
 M8x 1mm M12 plug	 M8x 1mm M12 plug	SIDT04MGSPKSNB SIDT04MGOPKSNB SIDT04MGSMKSNB SIDT04MGOMKSNB SIDT04MN---KNB	DC PNP-turnkey4 nb DC PNP-opener4 nb DC NPN-turnkey4 nb DC NPN-opener4 nb Namur4 nb
 M12x 1 mm cable	 M12x 1 mm cable	SIDV02MGSPKSB SIDV02MGOPKSB SIDV02MGSMKSB SIDV02MGOMKSB SIDV02MN---KB	DC PNP-turnkey2 b DC PNP-opener2 b DC NPN-turnkey2 b DC NPN-opener2 b Namur2 b
 M12x 1 mm M12-plug	 M12x 1 mm M12-plug	SIDV04MGSPKSNB SIDV04MGOPKSNB SIDV04MGSMKSNB SIDV04MGOMKSNBDC SIDV04MN---KNB	DC PNP-turnkey4 nb DC PNP-opener4 nb DC NPN-turnkey4 nb DC NPN-opener4 nb Namur4 nb
 M12x 1 mm cable	 M12x 1 mm cable	SIF-02MGSPKSB SIF-02MGOPKSB SIF-02MGSMKSB SIF-02MGOMKSB SIF-02MN---KB SIF-02MWS--SB SIF-02MWO--SB	DC PNP-turnkey2 b DC PNP-opener2 b DC NPN-turnkey2 b DC NPN-opener2 b Namur2 b AC-turnkey2 b AC-opener2 b
 M12x 1 mm M12-plug	 M12x 1 mm M12-plug	SIF-04MGSPKSNB SIF-04MGOPKSNB SIF-04MGSMKSNB SIF-04MGOMKSNB SIF-04MN---KNB SIF-04MWS--SNB SIF-04MWO--SNB	DC PNP-turnkey4 nb DC PNP-opener4 nb DC NPN-turnkey4 nb DC NPN-opener4 nb Namur4 nb AC-turnkey4 nb AC-opener4 nb
 M18x 1mm cable	 M18x 1mm cable	SIFV02MGSPKSB SIFV02MGOPKSB SIFV02MGSMKSB SIFV02MGOMKSB SIFV02MN---KB	DC PNP-turnkey2 b DC PNP-opener2 b DC NPN-turnkey2 b DC NPN-opener2 b Namur2 b
 M18x 1mm cable	 M18x 1mm cable	SIFV04MGSPKSNB SIFV04MGOPKSNB SIFV04MGSMKSNB SIFV04MGOMKSNB SIFV04MN---KNB	DC PNP-turnkey4 nb DC PNP-opener4 nb DC NPN-turnkey4 nb DC NPN-opener4 nb Namur4 nb
 M18x 1mm cable	 M18x 1mm cable	SIG-05MGSPKSB SIG-05MGOPKSB SIG-05MGSMKSB SIG-05MGOMKSB SIG-05MN---KB SIG-05MWS--SB SIG-05MGO--SB	DC PNP-turnkey5 b DC PNP-opener5 b DC NPN-turnkey5 b DC NPN-opener5 b Namur5 b AC-turnkey5 b AC-opener5 b
 M18x 1mm cable	 M18x 1mm cable	SIG-08MGSPKSNB SIG-08MGOPKSNB SIG-08MGSMKSNB SIG-08MGOMKSNB SIG-08MN---KNB SIG-08MWS--SNB SIG-08MWO--SNB	DC PNP-turnkey8 nb DC PNP-opener8 nb DC NPN-turnkey8 nb DC NPN-opener8 nb Namur8 nb AC-turnkey8 nb AC-opener8 nb

Price group B

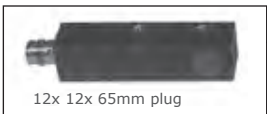
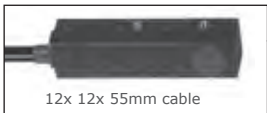
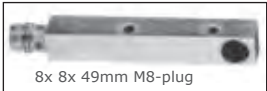
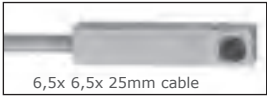
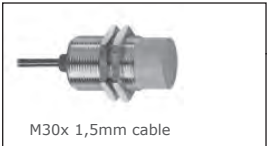
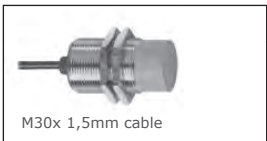
Sensoric

Inductive standard sensors

order code see 350

8 / 01.16

Ordering info Function/voltage Switching distance in mm
b=flush / nb=not flush



SIGV05MGSPKSB	DC PNP-turnkey5 b
SIGV05MGOPKSB	DC PNP-opener5 b
SIGV05MGSMKSB	DC NPN-turnkey5 b
SIGV05MGOMKSB	DC NPN-opener5 b
SIGV05MN---KB	Namur5 b
SIGV08MGSPKSNB	DC PNP-turnkey8 nb
SIGV08MGOPKSNB	DC PNP-opener8 nb
SIGV08MGSMKSNB	DC NPN-turnkey8 nb
SIGV08MGOMKSNBDC	NPN-opener8 nb
SIGV08MN---KNB	Namur8 nb
SIH-10MGSPKSB	DC PNP-turnkey10 b
SIH-10MGOPKSB	DC PNP-opener10 b
SIH-10MGSMKSB	DC NPN-turnkey10 b
SIH-10MGOMKSB	DC NPN-opener10 b
SIH-10MN---KB	Namur10 b
SIH-10MWS--SB	AC-turnkey10 b
SIH-10MWO--SB	AC-opener10 b
SIH-15MGSPKSNB	DC PNP-turnkey15 nb
SIH-15MGOPKSNB	DC PNP-opener15 nb
SIH-15MGAPKSNB	DC PNP-antivalent15 nb
SIH-15MGSMKSNB	DC NPN-turnkey15 nb
SIH-15MGOMKSNB	DC NPN-opener15 nb
SIH-15MN---KNB	Namur15 nb
SIH-15MWS--SNB	AC-turnkey15 nb
SIH-15MWO--SNB	AC-opener15 nb
SIHV10MGSPKSB	DC PNP-turnkey10 b
SIHV10MGOPKSB	DC PNP-opener10 b
SIHV10MGSMKSB	DC NPN-turnkey10 b
SIHV10MGOMKSB	DC NPN-opener10 b
SIHV10MN---KB	Namur10 b
SIHV15MGSPKSNB	DC PNP-turnkey15 nb
SIHV15MGOPKSNB	DC PNP-opener15 nb
SIHV15MGSMKSNB	DC NPN-turnkey15 nb
SIHV15MGOMKSNBDC	NPN-opener15 nb
SIHV15MN---KNB	Namur15 nb
SIL-0,8MGSPKSB	DC PNP-turnkey0,8 b
SIL-0,8MGOPKSB	DC PNP-opener0,8 b
SIM-02MGSPKSB	DC PNP-turnkey2 b
SIM-02MGOPKSB	DC PNP-opener2 b
SIMT02MGSPKSB	DC PNP-turnkey2 b
SIMT02MGOPKSB	DC PNP-opener2 b
SIO-02AGSPKSB	DC PNP-turnkey2 b
SIO-02AGOPKSB	DC PNP-opener2 b
SIO-02AGSMKSB	DC NPN-turnkey2 b
SIO-02AGOMKSB	DC NPN-opener2 b
SIO-04AGSPKSNB	DC PNP-turnkey4 nb
SIO-04AGOPKSNB	DC PNP-opener4 nb
SIOT02AGSPKSB	DC PNP-turnkey2 b
SIOT02AGOPKSB	DC PNP-opener2 b
SIOT02AGSMKSB	DC NPN-turnkey2 b
SIOT02AGOMKSB	DC NPN-opener2 b
SIOT04AGSPKSNB	DC PNP-turnkey4 nb
SIOT04AGOPKSNB	DC PNP-opener4 nb

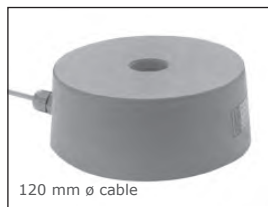
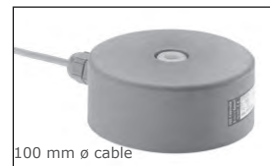
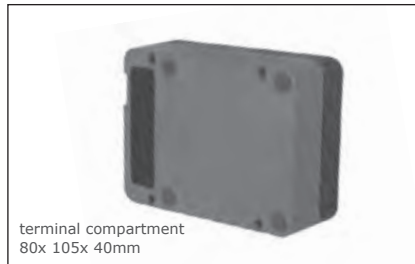
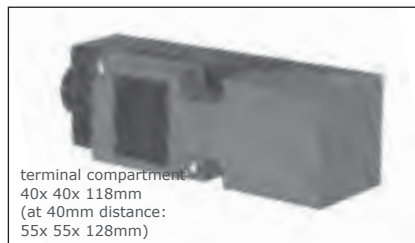
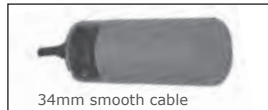
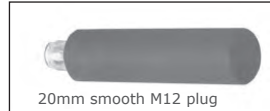
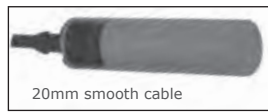
Price group B

Inductive standard sensors

order code see 350

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Ordering info function/voltage Switching distance in mm
b=flush / nb=not flush



SIP-10KGSPKSNB DC PNP-turnkey10 nb
 SIP-10KGOPKSNB DC PNP-opener10 nb
 SIP-10KGSMSKSNB DC NPN-turnkey10 nb
 SIP-10KGOMKSNB DC NPN-opener10 nb
 SIP-10KWS--SNB AC-turnkey10 nb
 SIP-10KWO--SNB AC-opener10 nb

SIPB10KGSPKSNB DC PNP-turnkey10 nb
 SIPB10KGOPKSNB DC PNP-opener10 nb
 SIPB10KGSMSKSNB DC NPN-turnkey10 nb
 SIPB10KGOMKSNB DC NPN-opener10 nb

SIR-20KGSPKSNB DC PNP-turnkey20 nb
 SIR-20KGOPKSNB DC PNP-opener20 nb
 SIR-20KGSMSKSNB DC NPN-turnkey20 nb
 SIR-20KGOMKSNB DC NPN-opener20 nb
 SIR-20KWS--SNB AC-turnkey20 nb
 SIR-20KWO--SNB AC-opener20 nb

SIRB20KGSPKSNB DC PNP-turnkey20 nb
 SIRB20KGOPKSNB DC PNP-opener20 nb
 SIRB20KGSMSKSNB DC NPN-turnkey20 nb
 SIRB20KGOMKSNB DC NPN-opener20 nb

SISK15KGSPKSB DC PNP-turnkey15 b
 SISK15KGAPKSB DC PNP-antivalent15 b
 SISK15KN---SB Namur15 b
 SISK15KWP--SB AC programable15 b

SISK20KGSPKSNB DC PNP-turnkey20 nb
 SISK20KGAPKSNB DC PNP-antivalent20 nb

SISK20KN---SNB Namur20 nb
 SISK20KWP--SNB AC programable20 nb

SISK30KGSPKSNB DC PNP-turnkey30 nb
 SISK30KGAPKSNB DC PNP-antivalent30 nb
 SISK30KN---SNB Namur30 nb
 SISK30KWP--SNB AC programable30 nb

SISK40KGSPKSNB DC PNP-turnkey40 nb
 SISK40KGAPKSNB DC PNP-antivalent40 nb
 SISK40KN---SNB Namur40 nb
 SISK40KWP--SNB AC programable40 nb

SIWK60KGPPKSNB DC PNP-Progr.60 nb
 SIWK60KWP--SNB AC programable60 nb

SIT-55KGSP-SNB DC PNP-turnkey55 nb
 SIT-55KGOP-SNB DC PNP-opener55 nb
 SIT-55KGSM-SNB DC NPN-turnkey55 nb
 SIT-55KGOM-SNB DC NPN-opener55 nb
 SIT-55KWP--SNB AC-programable55 nb

SIU-70KGSP-SNB DC PNP-turnkey70 nb
 SIU-70KGOP-SNB DC PNP-opener70 nb
 SIU-70KGSM-SNB DC NPN-turnkey70 nb
 SIU-70KGOM-SNB DC NPN-opener70 nb
 SIU-70KWP--SNB AC-programable70 nb

SIV-120KGSP-SNB DC PNP-turnkey120 nb
 SIV-120KGOP-SNB DC PNP-opener120 nb
 SIV-120KGSM-SNB DC NPN-turnkey120 nb
 SIV-120KGOM-SNB DC NPN-opener120 nb

Price group B

Price group D

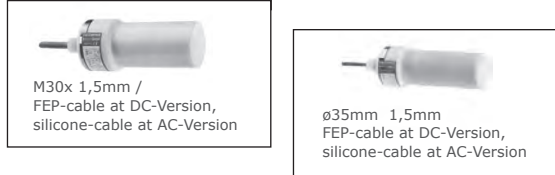
Price group B

Inductive and capacitive sensors

order code see 350

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Inductive sensors in PTFE-version, IP-68 + IP-69K, 110°C



Ordering info Function/voltage Switching distance in mm
b=flush / nb=not flush

SIV-120KWP--SNB	AC-programable	120 nb
SIHW10KGSP-SB	DC PNP-turnkey	10 b
SIHW10KWS--SB	AC-turnkey	10 b
SIHW14KGSP-SNB	DC PNP-turnkey	14 nb
SIHW14KWS--SB	AC-turnkey	14 b
SIRW20KGSP-SNB	DC PNP-turnkey	20 nb
SIRW20KWS--SNB	AC-turnkey	20 nb

Price group B

Inductive sensors for food applications

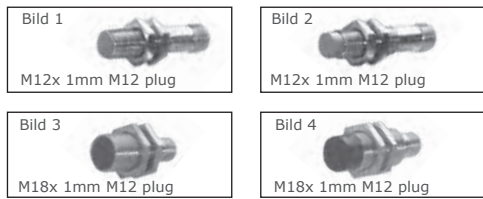
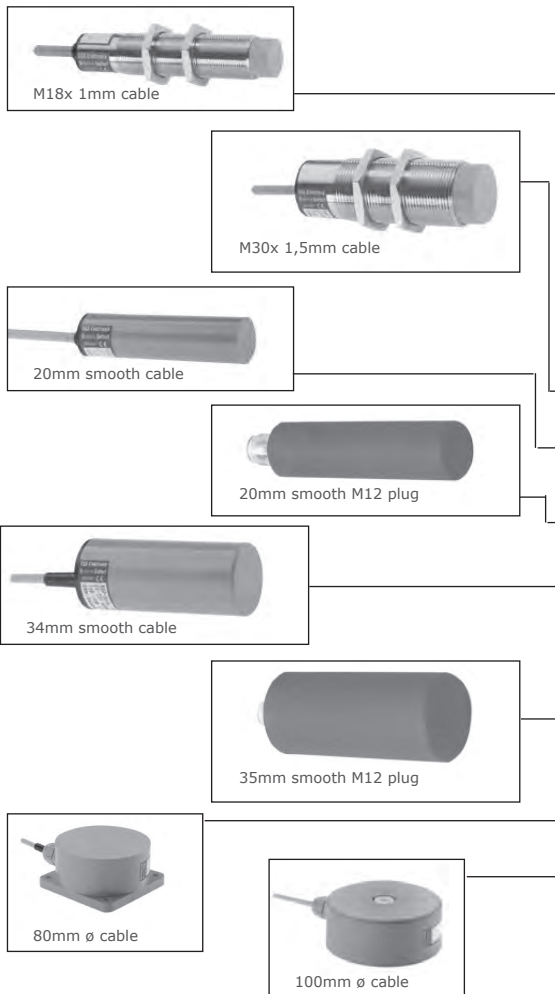


Bild 1 SIFV02NGSPKSLB
 Bild 2 SIFV04NGSPKSLNB
 Bild 3 SIGV05NGSPKSLB
 Bild 4 SIGV08NGSPKSLNB

DC PNP-turnkey	2 b
DC PNP-turnkey	4 nb
DC PNP-turnkey	5 b
DC PNP-turnkey	8 nb

PG A

Capacitive standard sensors



SKG-05MGSP-SNB	DC PNP-turnkey	5 b
SKG-05MGOP-SNB	DC PNP-opener	5 b
SKG-05MGSM-SB	DC NPN-turnkey	5 b
SKG-05MGOM-SB	DC NPN-opener	5 b
SKG-05MWS--SB	AC-turnkey	5 b
SKG-05MWO--SB	AC-opener	5 b
SKG-08MGAP-SNB	DC PNP-turnkey/opener	8 nb
SKG-08MGSM-SNB	DC NPN-turnkey	8 nb
SKG-08MGOM-SNB	DC NPN-opener	8 nb
SKG-08MWS--SNB	AC-turnkey	8 nb
SKG-08MWO--SNB	AC-opener	8 nb
SKH-15MGSP-SB	DC PNP-turnkey	15 b
SKH-15MGOP-SB	DC PNP-opener	15 b
SKH-15MGSM-SB	DC NPN-turnkey	15 b
SKH-15MGOM-SB	DC NPN-opener	15 b
SKH-15MN--SB	Namur	15 b
SKH-15MWS--SB	AC-turnkey	15 b
SKH-15MWO--SB	AC-opener	15 b
SKH-20MGSP-SNB	DC PNP-turnkey	20 nb
SKH-20MGOP-SNB	DC PNP-opener	20 nb
SKH-20MGSM-SNB	DC NPN-turnkey	20 nb
SKH-20MGOM-SNB	DC NPN-opener	20 nb
SKH-20MN--SNB	Namur	20 nb
SKH-20MWS--SNB	AC-turnkey	20 nb
SKH-20MWO--SNB	AC-opener	20 nb
SKP-10KG30PSNB	turnkey	10 nb
SKP-10KGOP-SNB	DC PNP-opener	10 nb
SKP-10KWS--SNB	AC-turnkey	10 nb
SKP-10KWO--SNB	AC-opener	10 nb
SKPB10KGSPKSNB	DC PNP-turnkey	10 nb
SKPB10KGOPKSNB	DC PNP-opener	10 nb
SKR-20KGSP-SNB	DC PNP-turnkey	20 nb
SKR-20KGOP-SNB	DC PNP-opener	20 nb
SKR-20KGSM-SNB	DC NPN-turnkey	20 nb
SKR-20KGOM-SNB	DC NPN-opener	20 nb
SKR-20KWS--SNB	AC-turnkey	20 nb
SKR-20KWO--SNB	AC-opener	20 nb
SKRB20KGSPKSNB	DC PNP-turnkey	20 nb
SKRB20KGOPKSNB	DC PNP-opener	20 nb
SKT-50KGSP-SNB	DC PNP-turnkey	50 nb
SKT-50KGOP-SNB	DC PNP-opener	50 nb
SKT-50KWS--SNB	AC-turnkey	50 nb
SKT-50KWO--SNB	AC-opener	50 nb
SKU-70KGSP-SNB	DC PNP-turnkey	70 nb

Price group A

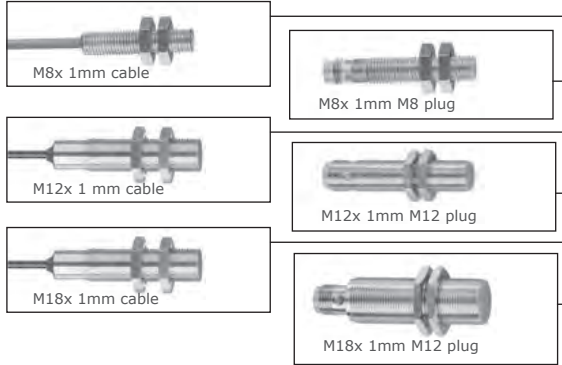
Sensoric

Magnetic sensors

order code see 350

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Magnetic sensors



Ordering info **Function/voltage** **Switching distance in mm**
b=flush / nb=not flush

SKU-70KGOP-SNB	DC PNP-opener . . . . .	.70 nb
SKU-70KWS--SNB	AC-turnkey . . . . .	.70 nb
SKU-70KWO--SNB	AC-opener . . . . .	.70 nb
SMD-60MGSPKSNB	DC PNP-turnkey . . . . .	.60 nb
SMD-60MGSMKSNB	DC NPN-turnkey . . . . .	.60 nb
SMDT60MGSPKSNB	DC PNP-turnkey . . . . .	.60 nb
SMDT60MGSMKSNB	DC NPN-turnkey . . . . .	.60 nb
SMF-60MGSPKSNB	DC PNP-turnkey . . . . .	.60 nb
SMF-60MGSMKSNB	DC NPN-turnkey . . . . .	.60 nb
SMFV60MGSPKSNB	DC PNP-turnkey . . . . .	.70 nb
SMFV60MGSMKSNB	DC NPN-turnkey . . . . .	.70 nb
SMG-70MGSPKSNB	DC PNP-turnkey . . . . .	.70 nb
SMG-70MGSMKSNB	DC NPN-turnkey . . . . .	.70 nb
SMGV70MGSPKSNB	DC PNP-turnkey . . . . .	.70 nb
SMGV70MGSMKSNB	DC NPN-turnkey . . . . .	.70 nb

Price group B

Equipment

Ordering info **Function/voltage**

BF 06,5	mounting clip
BF 08,0	mounting clip
BF 12,0	mounting clip
BF 18,0	mounting clip
BF 30,0	mounting clip
KB 04,0	clamp block
KB 05,0	clamp block
KB 08,0-KG-1	clamp block
M1.0	magnet
M2.0	magnet
M3.0	magnet
M4.0	magnet
M5.0	magnet
M5.1	magnet
MU-M5x0,5	nut M5 made of stainless steel 2 pcs
MU-M5x0,5	nut M5 made of stainless steel 2 pcs
MU-M12x1	nut M12 made of stainless steel 2 pcs
MU-M18x1	nut M18 made of stainless steel 2 pcs
MU-M30x1,5	nut M30 made of stainless steel 2 pcs
KU-M12x1	nut M12 made of plastic 2 pcs
KU-M18x1	nut M18 made of plastic 2 pcs
KU-M30x1,5	nut M30 made of plastic 2 pcs
MHV-40	mounting aid
GT-30	nut M30 in PTFE f. sensor SIHW
BFT 35	mounting clip in PTFE f. sensor SIRW

Price group E

Isolation amplifier for Ex-areas



Ordering info **Function/voltage**

EGE-90-Ex-1-230	amplifier 230V AC
EGE-90-Ex-1-115	amplifier 115V AC
EGE-90-Ex-1-24	amplifier 24V DC
EGE-90-Ex-WG-1-230	amplifier 230V AC
EGE-90-Ex-WG-1-115	amplifier 115V AC
EGE-90-Ex-WG-1-24	amplifier 24V DC

PG B

Power supply - initiator relay



Ordering info **Function/voltage**

NSP-2001	2 x 24V DC altogether 200mA 2 relay outputs
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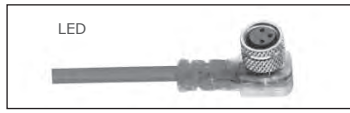
A

Connection cable and cable boxes

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FKZO-02PUR	3-pole M8-plug	2m
FKZO-05PUR	3-pole M8-plug	5m
FKZO-10PUR	3-pole M8-plug	10m
FKZO-02PVC	3-pole M8-plug	2m
FKZO-05PVC	3-pole M8-plug	5m
FKZO-10PVC	3-pole M8-plug	10m
FKWO-02PUR	3-pole M8-plug	2m
FKWO-05PUR	3-pole M8-plug	5m
FKWO-10PUR	3-pole M8-plug	10m
FKWO-02PVC	3-pole M8-plug	2m
FKWO-05PVC	3-pole M8-plug	5m
FKWO-10PVC	3-pole M8-plug	10m



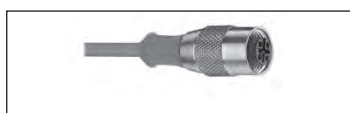
FKWP-02PUR	3-pole M8-plug	2m
FKWP-05PUR	3-pole M8-plug	5m
FKWP-10PUR	3-pole M8-plug	10m
FKWP-02PVC	3-pole M8-plug	2m
FKWP-05PVC	3-pole M8-plug	5m
FKWP-10PVC	3-pole M8-plug	10m



FKZO402PUR	4-pole M8-plug	2m
FKZO405PUR	4-pole M8-plug	5m
FKZO410PUR	4-pole M8-plug	10m
FKZO402PVC	4-pole M8-plug	2m
FKZO405PVC	4-pole M8-plug	5m
FKZO410PVC	4-pole M8-plug	10m



FKWO402PUR	4-pole M8-plug	2m
FKWO405PUR	4-pole M8-plug	5m
FKWO410PUR	4-pole M8-plug	10m
FKWO402PVC	4-pole M8-plug	2m
FKWO405PVC	4-pole M8-plug	5m
FKWO410PVC	4-pole M8-plug	10m



LKZO-02PUR	3-pole M12-plug	2m
LKZO-05PUR	3-pole M12-plug	5m
LKZO-10PUR	3-pole M12-plug	10m
LKZO-02PVC	3-pole M12-plug	2m
LKZO-05PVC	3-pole M12-plug	5m
LKZO-10PVC	3-pole M12-plug	10m



LKWO-02PUR	3-pole M12-plug	2m
LKWO-05PUR	3-pole M12-plug	5m
LKWO-10PUR	3-pole M12-plug	10m
LKWO-02PVC	3-pole M12-plug	2m
LKWO-05PVC	3-pole M12-plug	5m
LKWO-10PVC	3-pole M12-plug	10m



LKWP-02PUR	3-pole M12-plug	2m
LKWP-05PUR	3-pole M12-plug	5m
LKWP-10PUR	3-pole M12-plug	10m
LKWP-02PVC	3-pole M12-plug	2m
LKWP-05PVC	3-pole M12-plug	5m
LKWP-10PVC	3-pole M12-plug	10m



LKWPP02PVC	3-pole M12-plug	2m
LKWPP05PVC	3-pole M12-plug	5m
LKWPP10PVC	3-pole M12-plug	10m
LKWPP15PVC	3-pole M12-plug	15m
LKWPP25PVC	3-pole M12-plug	25m



LKZO402PUR	4-pole M12-plug	2m
LKZO405PUR	4-pole M12-plug	5m
LKZO405PUR-AS	4-pole M12-plug	5m
LKZO410PUR	4-pole M12-plug	10m
LKZO410PUR-AS	4-pole M12-plug	10m
LKZO402PVC	4-pole M12-plug	2m
LKZO405PVC	4-pole M12-plug	5m
LKZO410PVC	4-pole M12-plug	10m
LKZO805PUR-AS	8-pole M12-plug	5m



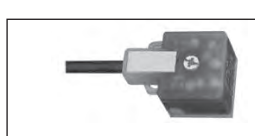
LKWO402PUR	4-pole M12-plug	2m
LKWO405PUR	4-pole M12-plug	5m
LKWO410PUR	4-pole M12-plug	10m
LKWO402PVC	4-pole M12-plug	2m
LKWO405PVC	4-pole M12-plug	5m
LKWO410PVC	4-pole M12-plug	10m



LKWP402PUR	4-pole M12-plug	2m
LKWP405PUR	4-pole M12-plug	5m
LKWP410PUR	4-pole M12-plug	10m
LKWP402PVC	4-pole M12-plug	2m
LKWP405PVC	4-pole M12-plug	5m
LKWP410PVC	4-pole M12-plug	10m



DKZ0408	4-pole M8-plug	clampable
DKW0408	4-pole M8-plug	clampable
BKZ0412	4-pole M12-plug	clampable



BKZ0412-VA	VA-nut	
BKZ0512-VA	VA-nut (at 0 - 10V)	
BKW0412	4-pole M12-plug	clampable
BKW0512	VA-nut (at 0-10 V)	
NKW04-0	4-pole valve plug	clampable
NKW0410	4-pole valve plug (matching for Vibrocont)	clampable
	4-pole valve plug (matching for Precont KS)	clampable

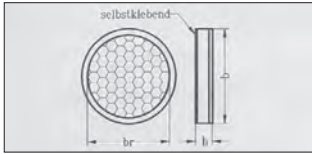
Price group E

Sensoric

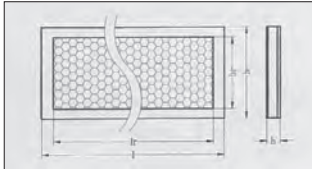


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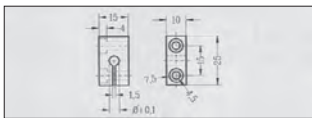
Reflectors - round



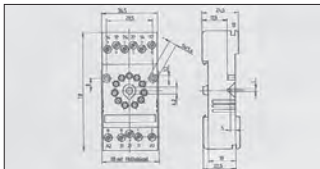
Reflectors - angular



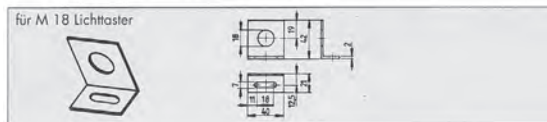
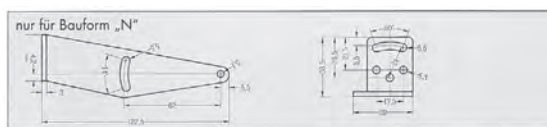
Clamp block



Plug-in socket



Mounting bracket



Reflecting foil



Reflectors

R-5, round Ø75mm, Nr. 611000298.....
R-5, angular (100x96), Nr. 40480085

Clamp block for fiber ligth trans.

KB 3,5
KB 5,0
KB 5,6
KB 6,5
KB 8,0
KB 8,5

Plug-in socket

PFR-11

Mounting bracket

BW-30
BW-18

Equipment for dirt-resistant oneway ligth barriers

SO-06 steel weld-in tubus.....
SO-06 VA steel weld-in tubus

Reflecting foil

NT-25 25mm, broadband 1m
NT-50 50mm, broadband 1m

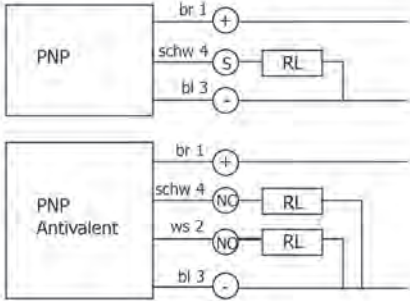
Price group E

Connection diagrams and order code

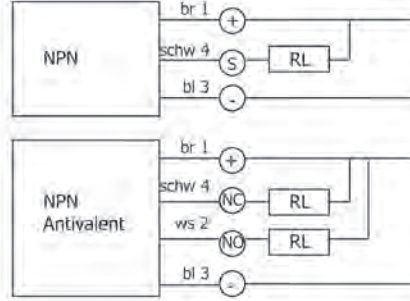
for initiators

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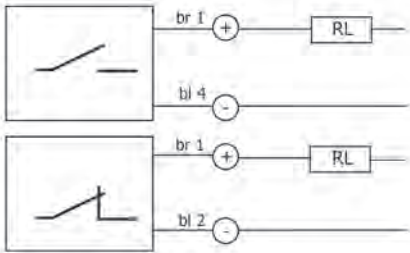
Gleichspannung DC 3-Draht



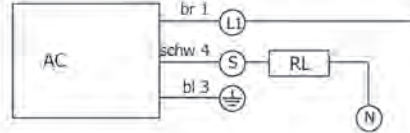
Gleichspannung DC 3-Draht



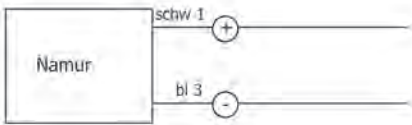
Gleichspannung DC 2-Draht



Wechselspannung AC 2-Draht



Namur nach DIN 19234



operating voltage U_b	5...25V DC
nominal voltage U_n	8,2V DC
residual ripple U_{ss}	$\leq 5\%$ from U_b
supply current damped	$\leq 1,0\text{mA}$
supply current undamped	$\geq 2,5\text{mA}$
self-capacitance	$\leq 20...110\text{nF}$
self-inductance	$\leq 20...7\mu\text{H}$
line resistance	$\leq 50 \Omega$
hysteresis H	1%-10%
shortcircuit proof	ja
protected against reverse polarity	ja
protection according to DIN 40050	IP67
ambient temperature	-25...+70°C
EMV according to prEN 60 947-5-2	

SIC design/type

- K terminal connection
 - T miniature plug connection M8 + LED
 - B M12-plug connection + LED
 - V M12-plug connection metal
 - X M18-plug connection + LED
 - 0 cable 2,5m
 - 5 cable 5 m
- 02 switching distance in mm bezogen auf St 37
- material housing**
- N stainless steel
 - M brass nickel-plated
 - A aluminium
 - K plastic
- G DC voltage
 - W AC voltage
 - A universal current
 - N Namur
- S turnkey
 - O opener
 - P turnkey/opener programmable
 - A antivalent
- P PNP-output
 - M NPN-output
 - 2 2-wire DC voltage
- K short-circuit protection
 - O without short-circuit protection
- S standard
 - K short design
 - L for food applications
 - T temperature
- B flush
 - NB not flush

example

SIC 0 02 N G S P K S B

- proprietary calibration of all ACS-devices and of third-party products
- traceable on established national standards
- documentation of the proprietary calibration according to ISO-9001
- safe measures values due to regular controlling

Pressure measurement devices, resp. hydrostatic fill level sensors

Calibration certificate (linearity protocol) of new devices ACS

version: linearity protocol for ACS-devices of the Hydrocont® and Precont® series.
Only possible in conjunction with an order of a new device.

measurement range: -1...700 bar
relative pressure, absolute pressure and vacuum

measuring points: standard linearity protocol with 11 measuring points

delivery contents: calibration certificate
device labelling via inspection tag

Factory test (re-examination)

version: recalibration of ACS pressure and hydrostatic measurement devices and of third-party products

measurement range: -1...700 bar
relative pressure, absolute pressure and vacuum

measuring points: standard linearity protocol with 11 measuring points

delivery contents: calibration certificate
device labelling via inspection tag

The costs may vary for third-party- products,
special process connections or for other output signals.

Temperature sensors

Calibration certificate at ACS-new devices

version: proprietary calibration for ACS Pt100 sensors or compact temperature sensors with integrated electronics, like eg. Thermocont® TK, ST, TS or sensors with head transmitter.
Only possible in conjunction with an order of a new device.

measurement range: -30...+155°C

measuring points: standard calibration certificate with three measuring points to customer agreement

delivery contents: calibration certificate
device labelling via inspection tag

The costs may vary for special sensors
(eg. big clamp-on sensors).

Factory test (re-examination)

version: proprietary calibration for ACS-Pt100 sensors or compact temperature sensors with integrated electronics, like eg. Thermocont® TK, ST, TS or sensors with head transmitter.

measurement range: -30...+155°C

measuring points: three measuring points and position of the measuring points to customer agreement

delivery contents: calibration certificate
device labelling via inspection tag

costs may vary with special sensors
(eg. big clamp-on sensor)

Temperature signal converter

Proprietary calibration

version: calibration certificate for head transmitter and temperature signal converter, for which a separate certificate is necessary (without Pt100 Fühler), also third-party products

measurement range: -200...+850°C (temperature is ohmically simulated)

measuring points: standard linearity protocol with 5 measuring points, in the adjusted measurement range

delivery contents: calibration certificate
device labelling via inspection tag

Isolation amplifier, signal converter, display devices, recorder

Proprietary calibration

version: calibration certificate for isolation amplifier, signal converter, display devices, etc.

measurement range: standard signal inputs, eg. 0...10 V, 0(4)...20 mA

measuring points: standard linearity protocol with 5 measuring points, in custom specified signal range

delivery contents: calibration certificate
device labelling via inspection tag

Test certificates according to EN 10204 2.1 factory certification according to EN 10204 2.1

What is to certify:

This is to certify that the products supplied comply with the order agreements. Test results are not documented.

version: One certificate for the whole order.

ordering process: Can also be issued retrospectively for an order.

Factory certification according to EN 10204 2.2

What is to certify:

This is to certify that the products supplied comply with the order agreements. In addition, it is confirmed that in the manufacture of those products, the internal ACS-tests were performed.

Test results are not documented. However, certain product characteristics, eg. the material used, probe length, etc. are confirmed.

version: Normally one certificate for the whole order.

ordering process: Can also be issued retrospectively for an order.

Acceptance test certificate according to EN 10204 3.1 material test certificate according to EN 10204 3.1

What is to certify:

It is confirmed that in the manufacture of those products the required material tests were performed. In addition, a list of medium-contacting materials is created.

version: One certificate per order number with identical devices.

ordering process: Must be ordered with order.

Acceptance test certificate according to EN 10204 3.1

What is to certify:

It is confirmed that in the manufacture of those products the required material tests and / or the additionally customer specified quality tests were performed and the necessary approvals have been granted.

The tests will be certified with expression of test results.

version: One certificate per order number with identical devices

ordering process: Must be ordered with order.

Test certificates according to EN 10204 Acceptance test certificate according to EN 10204 3.2

What is to certify:

It is confirmed that the ACS expert and commissioned expert (by the client or those mentioned in the official rules locations, eg. TÜV), certify that at the production of those products the prescribed and any additional agreed quality tests were performed and the necessary approvals have been created.

The tests will be certified with expression of test results.

version: One certificate per order number with identical devices

ordering process: Must be ordered with order.

EG - Declaration of conformity CE - certification

What is to certify:

It is confirmed, according to which standards and regulations the delivered product was manufactured and that it matches with these.

version: One certificate per order number with identical devices

ordering process: Can also be issued retrospectively for an order.

EG - Examination certificate according to ATEX directive

What is to certify:

The notified body (eg. TÜV) certifies conformity of the device according to the ATEX Directive with the relevant standards.

version: One certificate for jedes Gerät

ordering process: Automatically attached at all Ex-devices.

General technical approval by WHG §19h

What is to certify:

The Deutsche Institut für Bautechnik DIBt confirms the approval of the respective devices as overflow protection according to WHG §19h.

version: One certificate for jedes Gerät

ordering process: Automatically attached at all WHG-devices.

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Your ACS-CONTROL-SYSTEM GmbH - Team

If you have questions please do not hesitate to contact us.



Marianne Stümpfl
General management



Joachim Stümpfl
General management



Your ACS-CONTROL-SYSTEM - Team

We not only offer extensive know-how in the development and construction of measuring systems, we have also long experience in the realisation of specific customer requests and the conception of solutions for industrial automation.

We constantly work on optimizing those products used in measurement and control engineering. ACS-Control-Systems GmbH Germany guarantees fast supply and highest quality products.

Due to our experience we feel confident that we will satisfy your individual requirements. We are happy to provide you with our knowledge to ensure your economic success.



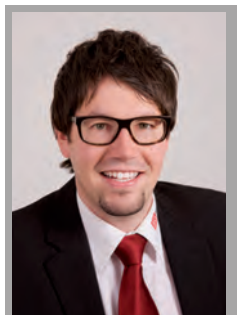
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fill level



water level



pressure



temperature



flow



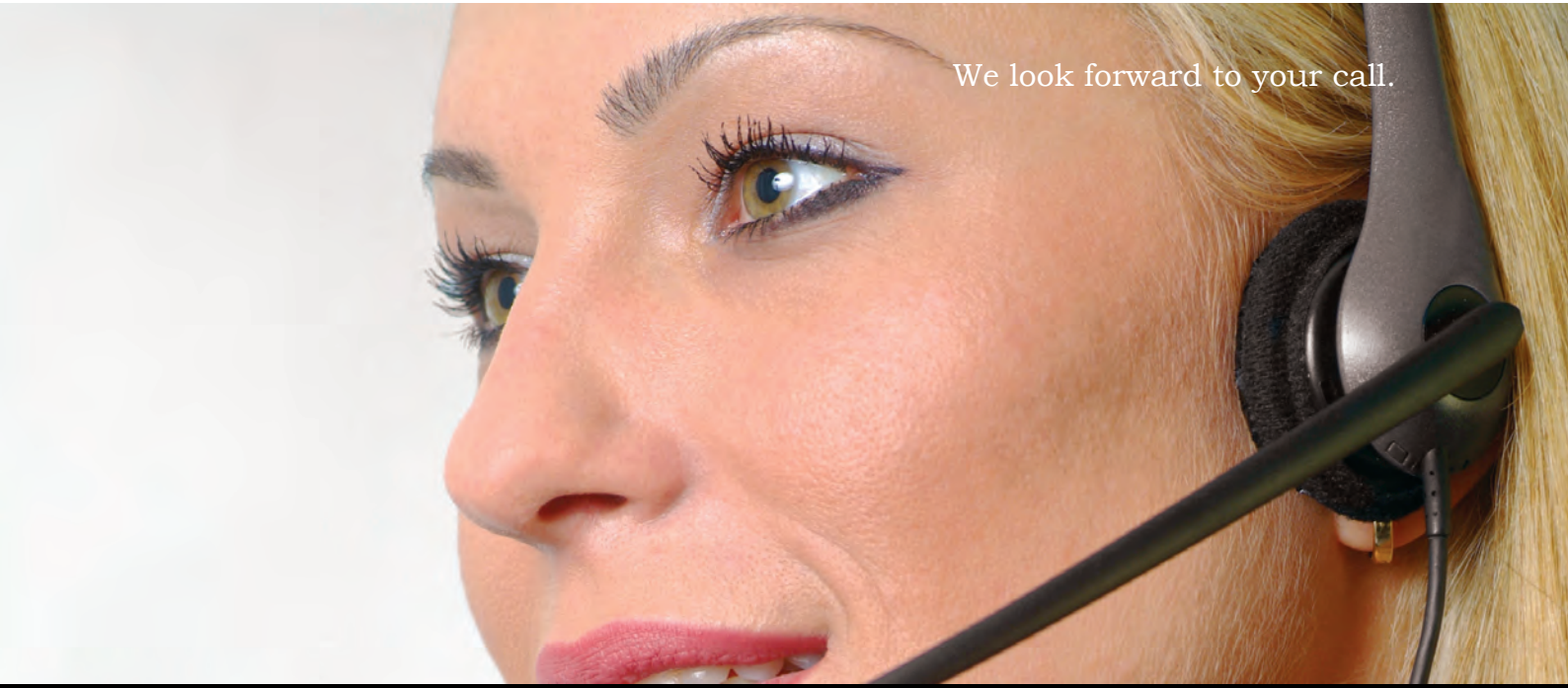
visualization



signal converter



sensoric



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