



INDUSTRIAL CLIMATE CONTROL



CABLE TECHNOLOGY



ASSEMBLY OF COMPONENTS

Product catalogue

- **Industrial climate control**
- **Cable technology**
- Assembly of components

Made in Germany



FOREWORD



Dipl.-Ing. (FH) Manfred Sedlmair

Dear customer

Today, I would like to present our new catalogue and want to make one detail clear right from the start: The perfect climate control technology is not available as a ready-made product. This also applies to the areas of cable technology and component assembly.

In order to give you the best possible support we offer you a wide range of components for heating, cooling, controlling and ventilation applications. However, we will also contribute our experience of more than 50 years in the complex areas of component assembly and cable processing. With our many available options such as our in-house Engineering, your personal contact partner, our machine outfit with special automatic machines and our wide range of services in the area of cable technology, we want to make sure that we can meet your technical requirements.

Our complete catalogue will give you detailed insights into the entire Lm-therm product portfolio. For this reason, you will find in addition to a product overview detailed information on individual solutions, general information on climate control used in switch cabinets as well as Q&A.

See for yourself what our core competence is all about. We ensure you that you will receive „Made in Germany“ products precisely tailored to your requirements - whether it is in small quantities or made-to-stock. You will also benefit from very short delivery times of in-stock products.

We gladly help you with words and deeds and we are look forward to our common projects.

Your

Manfred Sedlmair

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CORE COMPETENCES

INDUSTRIAL CLIMATISATION

Heating:

Condensed water or frost are only two of the dangers that can impair or endanger the functionality of control cabinets. Lm-therm always has the right solution to this problem. Lm-therm control cabinet heaters prevent these dangers and support a stable ambient temperature for the technology installed. We offer various heating systems which are precisely adapted to your application, such as heaters with a built-in thermostat, PTC heaters, fan heaters or Ex-protected heaters.

Cooling:

Lm-therm cooling devices can discharge the exhaust heat of the installed components, which is known as power dissipation without air exchange. We can offer and adapt different versions for your specific application or problem.

Controlling:

A separate controller is generally not required for Lm-therm heaters. The size of the control cabinet, the number of installed devices and other external influences may however make it necessary for a separate controller to be installed for functional reasons. We'll be very pleased to offer you advice on this subject.

Ventilation:

Heat pockets or temperature variations in the control cabinet may cause problems. Our Lm-therm fans can help with this by circulating the air perfectly. Filter fans, circulation fans or fan modules – we will find the best solution for you.

CABLE TECHNOLOGY:

We are pleased to be able to offer cable configuration and manufacture of cable harnesses and stranded wires with a specialised machine by the company Metzner. Our machinery is oriented towards short set-up times and flexible production. This strategy enables us to achieve a wide range of different products and production processes. But we are glad to also offer the production of small batches and individual pieces. Put our experience of more than 20 years in this area to the test!

ASSEMBLY OF COMPONENTS:

We assemble and test electronic or electromechanical components, and we'll gladly manufacture complete devices for you in a small batch. We also support you in the development and construction of your specific products, even with special variants. We also partially or completely assemble your product. Due to our logistics, we can assemble your products from the warehouse and then send it to your end customers. We are looking forward to your enquiry.

Our know-how allows us to produce Lm-therm products according to your wishes or project requirements, even in small batches. Benefit from our experience of over 50 years! Test us! We'll be glad to assist you.

THE DEVELOPMENT OF THE „LM-THERM“ BRAND:

LM-THERM GMBH

- 1961 Leo Möskes founds a one-man company for the production of waste water treatment plants in Röthenbach b. Nbg.
- 1972 First utility model of a control cabinet heater
- 1979 A company building is built in Altdorf b. Nbg.
- 1996 The company moves into the newly acquired company building in Arnstorf.

ACHTER ELEKTRONIK AG

- 1993 Founding of the individual enterprise: Franz Achter Elektrohandel & Systemtechnik
- 1996 Business premises of approx. 400m² are now available to the company.
- 1999 A production hall is built; approx. 1200 m² are now available to the company.
- 2001 The company is converted into a joint-stock company.

LM-THERM ELEKTROTECHNIK AG

- 2002 Achter Elektronik AG acquires the partnership shares of Lm-therm GmbH.
- 2004 The Lm-therm product range is revised and significantly expanded.
- 2005 Lm-therm GmbH moves into the new company building on the premises of Achter AG.
- 2011 Lm-therm GmbH celebrates its 50-year anniversary
- 2013 Achter Elektronik AG celebrates its 20-year anniversary
- 2014 Achter Elektronik AG and Lm-therm GmbH merge into Lm-therm Elektrotechnik AG



CERTIFICATES



The AEO certificate (AEO - Authorised Economic Operator) is an integral part of the safety concept in the European Union. The holder is considered to be particularly reliable and trustworthy and is therefore entitled to special privileges in customs clearance. Lm-therm Elektrotechnik AG has been AEO certified for several years.



For use in the North American territories, Lm-therm Elektrotechnik AG produces devices which have been certified as permitted components according to the North American standards and has these standards checked regularly.



Lm-therm Elektrotechnik AG is also certified for the manufacture of products which have to meet the requirements of the Canadian standards. Compliance with these standards is checked regularly.

WHY IS HEATING/COOLING NECESSARY?

Efficient control cabinet climatisation

Lm-therm's heating and cooling devices ensure a suitable climate in the control cabinet and thus increase the reliability of control systems and ensure that they function properly. Fans and cooling devices prevent individual components or entire control systems from overheating, for example.

Influences like temperature variations, temperatures below dew point, or the difference between inside and outside temperatures may result in condensed water. Moisture and dust formation may lead to corrosion and cause leakage current, which may lead to a complete failure of the controllers and control system installed in the control cabinet.

Furthermore, control cabinets are often used in environments that do not correspond to the device specifications, such as ambient temperatures far below the freezing point, for example. A heating system which is precisely designed to fit the requirements can ensure smooth operation.

Your advantages at a glance:

- Protection from condensed water
- Frost protection
- Balancing temperature fluctuation
- Stable ambient temperature
- Protecting the components from condensation
- Preventing heat pockets through steady convection
- Preventing built-in components from falling below or rising above operating temperature



Selection criteria for the installation of heating and cooling devices and controllers:

- Ambient temperature at the installation site (indoor/outdoor installation)
- Housing (open or closed)
- Temperature – extreme differences between day and night temperatures
- Power dissipation through the heat which is produced by the built-in devices
- Humidity
- Free convection of the heater

Describe your application to us. We will gladly offer you the appropriate device for your application, and of course we will also make a project-based recommendation.

INDUSTRIAL CLIMATE CONTROL

FREQUENTLY ASKED QUESTIONS

1. What is the ideal place for installation in the control cabinet?

Natural convection is the best way to achieve optimum heat distribution. It is therefore recommended to install the heater in the lower third of the housing. This way air flows through the heating fins and therefore heats up faster.

For cooling devices, on the other hand, an installation in the upper part is recommended so that cold air can escape.

2. What has to be considered with regard to convection?

The goal is not to affect the natural convection of the heater negatively by packing the installed devices extremely densely. Installing heaters with fans or blowers or using circulation fans can lead to forced convection. This gives the heating system a higher degree of efficiency and therefore achieves better heat distribution. This results in an increase in the efficiency of the whole concept. In principle, attention particularly needs to be paid to the release of the heat output to the air.

Cooling devices are generally equipped with fans.

3. What do you need to know about the surface temperatures on PTC heaters?

Due to the lower surface temperature, Lm-therm heaters with built-in thermostats are a safe alternative to PTC heaters. PTC heaters do not have a temperature-triggered shut-off function. Their surface temperature is therefore generally high. For this reason it is important to ensure a touch guard is in place and the distance from sensitive components and cables is big enough.

4. Which devices are suitable for big control cabinets?

To achieve better heat distribution it is recommended to install several heating devices, circulation fans or fan heating systems with separate temperature control.

5. Which temperature settings can be preset in Lm-therm heaters?

- Standard: <25°C switch on / 60°C switch off
- Tropical setting: <35°C switch on / 70°C switch off
- Highly tropical setting: <50°C switch on / 80°C switch off
- Frost protection: <10°C switch on / 60°C switch off

However, attention needs to be paid to the heater's intrinsic temperature if heaters with built-in thermostats and with a high performance level are used in tropical or cold regions!

6. When does the installation position achieve the maximum degree of efficiency?

Please take note of the specific device information in this regard. Generally, however, the natural convection mentioned in point 1 of the FAQ applies.

7. Is it necessary to install separate controllers?

Heaters with built-in thermostats do not require separate controllers. However, factors like the size of the control cabinet, the number of built-in devices, and other external influences may make the installation of a separate controller necessary. For PTC heaters it is generally recommended to insert a controller.

8. Are Lm-therm heaters electrically fused?

Heaters with a built-in thermostat are linear (ohmic). It is therefore possible to fuse them equal to the load current ($I=P/U$). PTC heaters, on the other hand, are to be protected by a slow-blow fuse with five times the load current ($I=P/U \times 5$) because of the high inrush current (PTC effect).

9. How are heating devices fastened?

Heating devices can be snapped onto a 35 mm DIN rail or screwed in directly (take note of the device specifications). The electrical connection can be implemented via a connection line or a connection terminal on the device.

DETERMINATION OF HEATING/COOLING POWER REQUIRED

1. Surface of cabinet / enclosure according to VDE 0660, part 500

Type of placement	Calculation formula (m ²)
Single cabinet, free standing	$A = 1,8 \times H \times (B + T) + 1,4 \times B \times T$
Single cabinet, at wall	$A = 1,4 \times B \times (H + T) + 1,8 \times T \times H$
Cabinet wall, left / right end free-standing	$A = 1,4 \times T \times (H + B) + 1,8 \times B \times H$
Cabinet wall, left / right end at wall	$A = 1,4 \times H \times (B + T) + 1,4 \times B \times T$
Cabinet wall, middle part, free-standing	$A = 1,8 \times B \times H + 1,4 \times B \times T + T \times H$
Cabinet wall, middle part, at wall	$A = 1,4 \times B \times (H + T) + T \times H$
Cabinet wall, middle part, at wall + top covered	$A = 1,4 \times B \times H + 0,7 \times B \times T + T \times H$

Fill in to calculate

Length L = _____ m)

Width W = _____ m) Area A = _____ m²

Height H = _____ m)

2. k-value of cabinet material

Steel sheet enclosure, painted: $k = 5,5 \text{ W / m}^2 / \text{°C}$
 Polyester enclosure: $k = 3,5 \text{ W / m}^2 / \text{°C}$
 Aluminium enclosure: $k = 12 \text{ W / m}^2 / \text{°C}$
 Stainless steel enclosure: $k = 3,7 \text{ W / m}^2 / \text{°C}$

$k =$ _____ $\text{W / m}^2 / \text{°C}$

3. Environs facts

Timax Maximum inside temperature permissible
 Timin Minimal inside temperature permissible

Timax = _____ °C
 Timin = _____ °C

r. h. Relative humidity
 Tdew Dew point temperature see table 3

r.h. = _____ %
 Tdew = _____ °C

Tamin Minimal ambient temperature
 Tamax Maximal ambient temperature
 Ploss Power loss of the implemented components

Tamin = _____ °C
 Ploss = _____ W

4. Calculation

Heating Power $P = A \times k \times (T_{\text{min}} - T_{\text{amin}}) - P_{\text{loss}}$
 Calculated Power $P = P_{\text{loss}} - k \times A \times (T_{\text{max}} - T_{\text{amax}})$

Calculated Power – P = _____
 Calculated Power – P = _____

DUE POINT TEMPERATURES (VALUES BASED ON EXPERIENCE)

		Ambient temperature (Ta °C)							
		20	25	30	35	40	45	50	55
Relative humidity r.H. in %	40	6	11	15	19	24	28	33	37
	50	9	14	19	23	28	32	37	41
	60	12	17	21	26	31	36	40	45
	70	14	19	24	29	34	38	43	48
	80	16	21	26	31	36	41	46	51
	90	18	23	26	33	38	43	48	53
	100	20	25	30	35	40	45	50	55

Dew point temperature (T_{dp} °C)

SPECIAL SOLUTIONS AND CUSTOM PRODUCTS



A leading edge thanks to customised products

Contact us if you need a special solution specifically tailored to your requirements. We will provide you with custom-fit components tailored to your requirements. Discuss the details in a personal conversation with your in-house Engineering Department contact partner.

Use the core competence of Lm-therm in the areas of Heating, Ventilation, Cooling and Controlling for your customised product. This also includes the manufacture of cables - irrespective of whether it involves single pieces or small batches.

Of course, we will continue to assist you as a competent contact partner after the order has been completed and delivered.



YOUR BENEFITS AT A GLANCE:

- Competent advice
- In-house Engineering Department
- Customised solutions
- Fair cost-performance ratio
- Single pieces or high volume

Made in Germany

SUMMARY HEATING SYSTEMS

HEATING



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Heaters with integrated thermostat:

Lm-therm heaters with integrated thermostat are equipped with durable ceramic heatable window panes and are embedded in an aluminium cabinet, which accords to the thermotechnical guidelines.

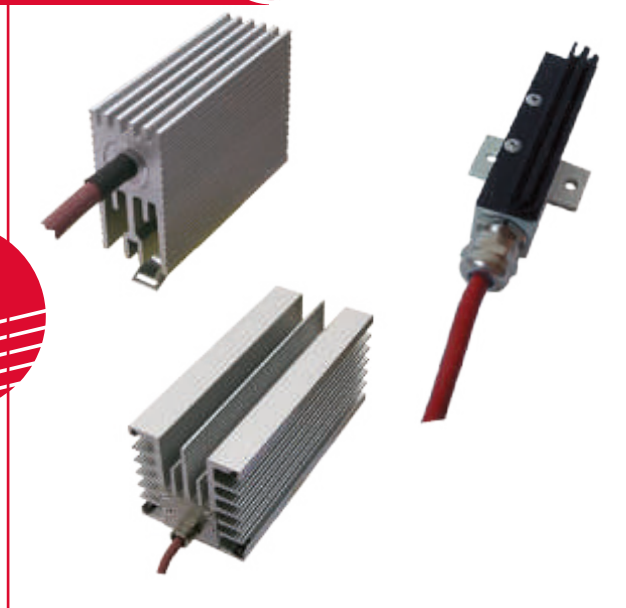
Configuration characteristics:

- power zones: 10W – 1000W
- voltage zones: 12V – 750V
- industrial safety through the integrated thermostat
- different temperature settings
- low surface temperature
- possibility of variation regarding heating power, voltage, assembly, connection and dimensions
- high degree of protection
- energy-saving
- possibility of UL-certification
- customer-specific applications are possible

HEATING



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PTC-heaters:

The PTC-heaters of Lm-therm are equipped with special drafted aluminium frames and the PTC-elements are equipped with a sophisticated system of cooling fins.

Configuration characteristics:

- power zones: 10W -500W
- for applications in high voltage zones (110V-265V)
- electrical grounding is not necessary because of protection class II
- dynamical heating
- self-regulating
- customer-specific applications are possible

SUMMARY HEATING SYSTEMS

HEATING



Fan- and blower heaters:

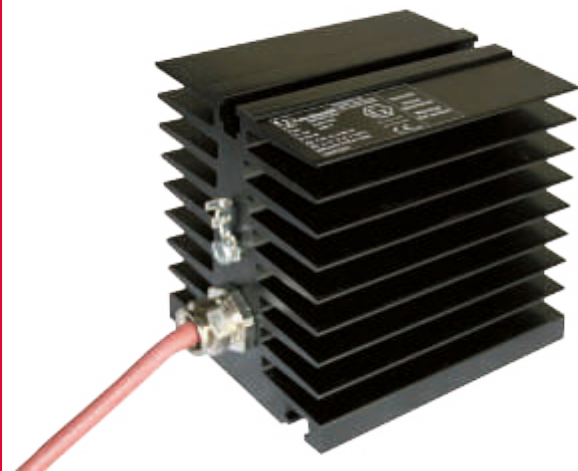
Lm-therm fan- and blower heaters are suited for power-intensive sectors and for applications with a difficult convection.

Configuration characteristics:

- power zones: 100W -8000W
- mechanical sturdy metal case without plastics
- vibration-safe
- adequate for high heat output
- power-coated surface
- temperature limiter in case of heat accumulation
- dynamic heat power
- guaranteed living period
- constant heat dissipation
- shock – and shake test according to the norms EN60068-2-6 and EN60068-2-27
- customer-specific applications are possible

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HEATING



Ex-heaters / Ex-thermostats:

Ex-heaters of Lm-therm are drafted for the application in explosion-periled sectors, for example in biogas establishments, chemistry laboratory or gas stations. As explosion-protected equipment the heaters accord to the requirements of the norms II 2G Ex d IIC TX Gb and II 2D Ex tb IIIC TX °C Db.

Configuration characteristics:

- zone 1/21 and zone 2/22
- different temperature classes: T3-T5
- voltage 115V or 230V
- special screw connection
- degree of protection: IP66/67
- high performance cartridge

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SUMMARY CONTROLLING AND VENTILATING SYSTEMS

CONTROLLING



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Control technology:

The portfolio of Lm-therm includes electronic and electromechanical controller. The high quality thermostats and hygros-tats ensure the industrial safety of the heaters in the electric cabinet.

Configuration:

- thermostats with opener-, closer- or changer-contact
- electronic or electromechanical
- hygrosstats

VENTILATING



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Ventilation engineering:

The creation of heat pockets and heat accumulation in electric cabinets can be prohibited by the circulation of the fans of Lm-therm. The deducted heat over the cabinet surface achieves cooling effects, which increase the effectiveness of the embedded heater.

Configuration characteristics:

- filter fans with degree of protection IP54
- circulation fans
- different air power
- different voltage zones

SUMMARY COOLING SYSTEMS

COOLING



Cooling technology:

The Peltier cooling devices and the compressor cooling devices of Lm-therm are tailored for multifaceted requirements and different power zones.

Configuration characteristics of the Peltier devices:

- suitable for the cooling of smaller cabinets
- work in the medium range of power (50-380W)
- compact design
- position-independent assembly
- no refrigerant fluid
- degree of protection up to IP67

Configuration characteristics of the compressor cooling devices:

- high cooling power zone: 380W-4000W
- FCKW-free refrigerant fluid
- suitable for door-, wall- and roof-assembly

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MORE INFORMATION TO THE PELTIER TECHNOLOGY

The principle of a Peltier cooling is that of an electrical heat pump. The Peltier elements transfer the heat energy from the cold exchanger inside the switch cabinet to the heat exchanger on the outside of the cabinet. A fan blows the warm air inside the cabinet onto the cold exchanger cooling it in the process. The heat exchanger on the outside of the switch cabinet is then cooled by the ambient air.



YOUR ADVANTAGES WITH LM-THERM:

- You benefit from our in-house engineering
- You have a personal contact for consultation available (on request also on location)
- On request, we will also manufacture special models for you
- Robust metal housing
- Flexible delivery times

ADVANTAGES OF PELTIER COOLING UNITS:

- Reliability
- Environmentally friendly (no coolants)
- No risk of leaks
- Use on moving or accelerating systems
- No air exchange between interior of switch cabinet and ambient air
- Fast and easy assembly

OVERVIEW - ELECTRIC CABINET HEATERS*

Type	Power	Voltage	Temperature setting	Mounting	Connection	Dimensions	CE	UL	CSA	Page
HEATERS WITH INTEGRATED THERMOSTAT										
Lm-therm S										
23035XSALO	35W	230V AC	Ein <25°C / 60°C Aus	snap mounting	Kabel 0,50m	120x57,2x36,6mm	x			21
23060XSALO	60W	230V AC	Ein <25°C / 60°C Aus	snap mounting	Kabel 0,50m	120x57,2x36,6mm	x			21
23100XSALO	100W	230V AC	Ein <25°C / 60°C Aus	snap mounting	Kabel 0,50m	120x57,2x36,6mm	x			21
Lm-therm M										
230100XMALO	100W	230V AC	Ein <25°C / 60°C Aus	snap mounting	Kabel 0,50m	100x71,5x77,7mm	x			22
230150XMALO	150W	230V AC	Ein <25°C / 60°C Aus	snap mounting	Kabel 0,50m	100x71,5x77,7mm	x			22
230180XMALO	180W	230V AC	Ein <25°C / 60°C Aus	snap mounting	Kabel 0,50m	100x71,5x77,7mm	x			22
Lm-therm L										
230250XLALO	250W	230V AC	Ein <30°C / 75°C Aus	snap mounting	Kabel 0,50m	150x71,5x75,7mm	x			23
230500XLALO	500W	230V AC	Ein <30°C / 75°C Aus	snap mounting	Kabel 0,50m	150x71,5x75,7mm	x			23
Lm-therm										
23033ALO	33W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	142x72x49mm	x	x		24
23055ALO	55W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	142x72x49mm	x	x		24
23090ALO	90W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	142x72x49mm	x	x		24
LH1502										
23033LALO	33W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x72x59mm	x	x		25
23055LALO	55W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x72x59mm	x	x		25
23090LALO	90W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x72x59mm	x	x		25
230125LALO	125W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x72x59mm	x	x		25
Maxi										
230130ALO	130W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x88x76mm	x	x		26
230150ALO	150W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x88x76mm	x	x		26
230180ALO	180W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	150x88x76mm	x	x		26
LH3002										
230130LALO	130W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,80m 3x0,75mm ²	300x70x59mm	x	x		27
230220LALO	220W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,80m 3x0,75mm ²	300x70x59mm	x	x		27
230300LALO	300W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,80m 3x0,75mm ²	300x70x59mm	x	x		27

* This overview shows only the standard versions – special versions on request.

Type	Power	Voltage	Temperature setting	Mounting	Connection	Dimensions	CE	UL	CSA	Page
230400LALO	400W	230V AC	On <35°C / 70°C Aus	snap mounting	cable 0,80m 3x0,75mm ²	300x70x59mm	x	x		27
230500LALO	500W	230V AC	On <35°C / 70°C Aus	snap mounting	cable 0,80m 3x0,75mm ²	300x70x59mm	x	x		27
Doppel-LH										
230500LTKO	500W	230V AC	On <35°C / 70°C Off	screw mounting	clip	800x70x53mm	x			28
2301000LTKO	1000W	230V AC	On <35°C / 70°C Off	screw mounting	cable 0,50m 3x0,75mm ²	198x93x141mm	x			28
super-maxi										
230250AL0	250W	230V AC	On <35°C / 70°C Off	screw mounting	cable 0,50m 3x0,75mm ²	198x93x141mm	x			29
230500AL0	500W	230V AC	On <35°C / 70°C Off	screw mounting	cable 0,50m 3x0,75mm ²	198x93x141mm	x			29
Wadi-IP65										
230180WDALO	180W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	175x88x80mm	x			30
230250WDALO	250W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	175x88x80mm	x			30
230500WDALO	500W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,50m 3x0,75mm ²	175x88x80mm	x			30
Wadi-LH-IP65										
230250WLALO	250W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,50m 3x0,75mm ²	250x80x80,5mm	x			31
230380WLALO	380W	230V AC	On <35°C / 70°C Off	snap mounting	cable 0,50m 3x0,75mm ²	250x80x80,5mm	x			31
super-mini										
23010AL0	10W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,25m 3x0,75mm ²	75x50x43mm	x			32
23020AL0	20W	230V AC	On <25°C / 60°C Off	snap mounting	cable 0,25m 3x0,75mm ²	75x50x43mm	x			32
super-super-mini										
26510AL0	10W	110-265V AC	On <38°C / 54°C Off	screw mounting	cable 0,25m 3x0,75mm ²	51x58x22mm	x	x		33
26520AL0	20W	110-265V AC	On <38°C / 54°C Off	screw mounting	cable 0,25m 3x0,75mm ²	51x58x22mm	x	x		33
26530AL0	30W	110-265V AC	On <38°C / 54°C Off	screw mounting	cable 0,25m 3x0,75mm ²	71x58x22mm	x	x		33
26550AL0	50W	110-265V AC	On <38°C / 54°C Off	screw mounting	cable 0,25m 3x0,75mm ²	71x58x22mm	x	x		33
SRK-mini										
265100ULALO	100W	115-230V AC	On <50°C / 80°C Off	screw mounting	cable 0,60m 3x0,50mm ²	125x58x27mm	x	x		34
PTC-HEATERS										
P-ssm										
P26520AL20	20W	110-265V AC/DC	-	screw mounting	cable 0,25m 2x0,75mm ² Silicone	75x40x34mm	x			38
P26530AL20	30W	110-265V AC/DC	-	screw mounting	cable 0,25m 2x0,75mm ² Silicone	75x40x34mm	x			38
P-25										
P2651025AL2	10W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	70x25x51mm	x			39

Type	Power	Voltage	Temperature setting	Mounting	Connection	Dimensions	CE	UL	CSA	Page
P2652025AL2	20W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	70x25x51mm	x			39
P2653025AL2	30W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	100x25x51mm	x			39
P2655025AL2	50W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	120x25x51mm	x			39
P-65										
P26520AL2	20W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	60x51,5x54,5mm	x			40
P26530AL2	30W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	100x51,5x54,5mm	x			40
P26550AL2	50W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	120x51,5x54,5mm	x			40
P-80										
P2657080AL2	70W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	120x80x80mm	x			41
P26510080AL2	100W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	120x80x80mm	x			41
P26515080AL2	150W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	150x80x80mm	x			41
P26520080AL2	200W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	150x80x80mm	x			41
P26525080AL2	250W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	180x80x80mm	x			41
P26530080AL2	300W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	180x80x80mm	x			41
P26550080AL2	500W	110-265V AC/DC	-	snap mounting	cable 0,40m 2x0,75mm ² Silicone	300x80x80mm	x			41
FAN- AND BLOWER HEATERS										
Ventstar S										
24100XVSALO	100W	24V DC	-	snap mounting	cable 0,50m	135x66,6x69,8mm	x			44
24150XVSALO	150W	24V DC	-	snap mounting	cable 0,50m	135x66,6x69,8mm	x			44
24200XVSALO	500W	24V DC	-	snap mounting	cable 0,50m	135x66,6x69,8mm	x			44
Ventstar M										
230180XVSALO	180W	230V AC	-	snap mounting	cable 0,50m	135x82,6x88,6mm	x			45
230250XVSALO	250W	230V AC	-	snap mounting	cable 0,50m	135x82,6x88,6mm	x			45
230400XVSALO	400W	230V AC	-	snap mounting	cable 0,50m	135x82,6x88,6mm	x			45
230500XVSALO	500W	230V AC	-	snap mounting	cable 0,50m	135x82,6x88,6mm	x			45
Ventstar 1										
230250VSALO	250W	230V AC	-	snap mounting	cable 0,50m 3x0,75mm ²	138x83,6x82mm	x			46
230400VSALO	400 W	230V AC	-	snap mounting	cable 0,50m 3x0,75mm ²	205x83,6x82mm	x			46
230500VSALO	500W	230V AC	-	snap mounting	cable 0,50m 3x0,75mm ²	205x83,6x82mm	x			46
230800VSALO	800W	230V AC	-	snap mounting	cable 0,50m 3x0,75mm ²	205x83,6x82mm	x			46

Type	Power	Voltage	Temperature setting	Mounting	Connection	Dimensions	CE	UL	CSA	Page
Coreg										
230500CRALO	500W	230V AC	Air circu. therm. 5-35°C	snap mounting	cable 0,50m 3x0,75mm ² oil flex	152x124x70mm	x			47
2301000CRALO	1000W	230V AC	Air circu. therm. 5-35°C	snap mounting	cable 0,50m 3x0,75mm ² oil flex	152x124x70mm	x			47
Cireg										
230500CIDK0	500W	230V AC	-	snap mounting	plug-in terminal 0,08-2,5mm ²	152x124x58,4mm	x			48
230800CIDK0	800W	230V AC	-	snap mounting	plug-in terminal 0,08-2,5mm ²	152x124x58,4mm	x			48
2301000CIDK0	1000W	230V AC	-	snap mounting	plug-in terminal 0,08-2,5mm ²	152x124x58,4mm	x			48
Vaero										
230500VRALO	500W	230V AC	Air circu. therm. 0-35°C	snap mounting	cable 0,50m 3x0,75mm ²	167x152x60mm	x			49
GH2000/GH4000										
2302000G2ALO	2000W	230V AC	-	screw mounting	cable 2,00m 3x1,5mm ²	350x267x129,5mm	x			50
2304000G4ALO	4000W	230V AC	-	screw mounting	cable 2,00m 3x1,5mm ²	350x471x129,5mm	x			50
Revent										
2304000RVALO	4000W	230V AC	-	screw mounting	cable 2,00m 3x1,5mm ²	411x355x245mm	x			51
2308000RVALO	8000W	230V AC	-	screw mounting	cable 2,00m 3x1,5mm ²	411x355x245mm	x			51
EX-HEATERS										
Zone 1/21										
23025E1ALO	25W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	65x100x129mm	x		x	54
23070E1ALO	70W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	120x100x129mm	x		x	54
230100E1ALO	100W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	150x100x129mm	x		x	54
230200E1ALO	200W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	250x100x129mm	x		x	54
230300E1ALO	315W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	250x100x129mm	x		x	54
230400E1ALO	400W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	250x100x129mm	x		x	54
Zone 2/22										
23025E2ALO	25W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	65x100x129mm	x		x	55
23070E2ALO	70W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	120x100x129mm	x		x	55
230100E2ALO	100W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	150x100x129mm	x		x	55
230200E2ALO	200W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	250x100x129mm	x		x	55
230300E2ALO	315W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	250x100x129mm	x		x	55
230400E2ALO	400W	230V AC	-	snap mounting	cable 1,00m 3x1,5mm ²	250x100x129mm	x		x	55



HEATERS WITH INTEGRATED THERMOSTAT

CUSTOMISED ALL-ROUNDERS

Lm-therm heaters with integrated thermostat ensure a climate that is optimally adapted to operational processes. The devices make optimum use of the waste heat from running processes and prevent condensate from forming. This has a positive impact on the service life of switch cabinets and will also actively reduce the energy requirement.

A **2-point bi-metal temperature controller** will reliably prevent high surface temperatures. Depending on the application, it is also possible to adjust the temperature controller in the factory to various switch-on and switch-off temperatures.

It also includes a high-quality aluminium housing designed according to thermotechnical specifications. In addition to the high-class casing of the heater, the ceramic heating elements are of high quality. The **Lm-therm heaters** with integrated thermostat do also not need an additional control unit.

Your price advantage!



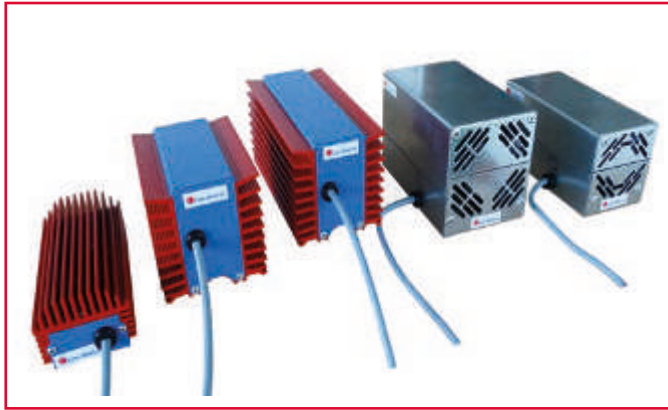
In case of special installation conditions, a separate temperature controller is suggested. Use our **modular system** for an installation customised for your application.

Contact us – we will be happy to advise you.



YOUR BENEFITS AT A GLANCE:

- Ceramic heating element
- Plug`n`Play
- Low surface temperature
- No external controller required
- Easy assembly
- Tamper-proofed



OUR INNOVATIONS

3 NEW HEATERS WITH INTEGRATED THERMOSTAT
AND 2 NEW FAN HEATERS

YOUR ADVANTAGES WITH LM-THERM:

- solutions for every branch
- according to your application
- slight to large quantities
- flexible delivery times
- over 50 years experience
- fair price-performance ratio
- 100 % „Made in Germany“

CHARACTERISTICS:

- optimized heated release
- new space-saving design
- improved MTBF
- robust and long-lived technology
- quick and easy mounting

SPECIAL SOLUTIONS ARE OUR SPECIALTY

- in-house engineering
- qualified staff (also on-site)
- customer-specific connections and mounting
- customer-specific constructions according to your application

Heaters with integrated thermostat



Lm-therm S

Power range: 35W-100W
Voltage range: 12V-400V



Lm-therm M

Power range: 100W-180W
Voltage range: 12V-440V



Lm-therm L

Power range: 250W-500W
Voltage range: 115V-440V

Fan heaters



Ventstar S

Power range: 100W-200W
Voltage range: 24V DC



Ventstar M

Power range: 180W-500W
Voltage range: 24V-230V





ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- low surface temperature
- plug`n`play
- no need of an external controller

Type: Lm-therm S

Power range: 35W – 100W
Voltage range: 12V – 400V

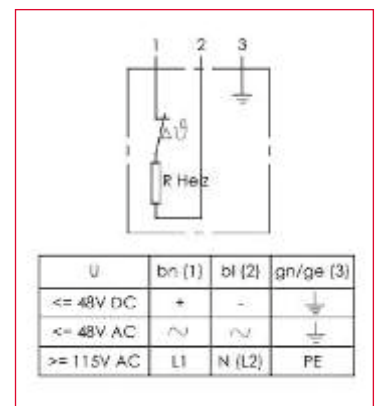


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK	-
Protection class	SK I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	S
Connection	wiring cable 3x0,75 mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Temperature settings (intrinsic temperature)	Standard: < 25°C On / 60°C Off	-
	Tropic: < 35°C On / 70°C Off	T
	High tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
Mounting position	vertical	-
Special voltages	12V AC or DC, 24V AC or DC, 48V AC or DC, 115V, 400V	concrete info

* variable length is possible

Wiring diagram



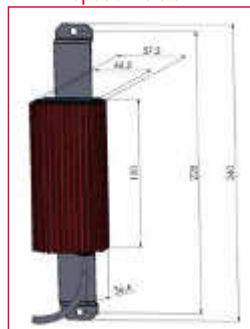
Dimensions

Standard



Wiring cable and snap fitting

Special version



Wiring cable and screw mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA. CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
23035XSALO	230V / 50/60Hz	35W	0,15 A	0,15 A	390 g	120x57,2x36,6mm	cable 0,50m	snap	<25°C On / 60°C Off
23060XSALO	230V / 50/60Hz	60W	0,26 A	0,26 A	390 g	120x57,2x36,6mm	cable 0,50m	snap	<25°C On / 60°C Off
230100XSALO	230V / 50/60Hz	100W	0,43 A	0,43 A	390 g	120x57,2x36,6mm	cable 0,50m	snap	<25°C On / 60°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT



- ceramic heating elements
- low surface temperature
- plug`n`play
- no need of an external controller

Type: Lm-therm M

Power range: 100W – 180W
Voltage range: 12V – 440V

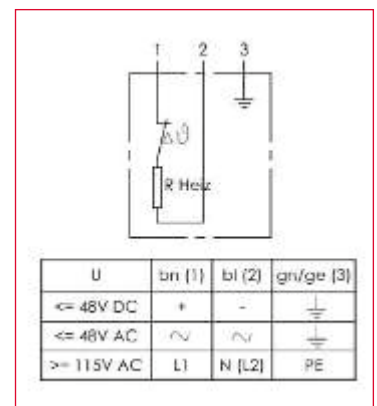


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK	-
Protection class	SK I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	S
Connection	wiring cable 3x0,75 mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Temperature settings (intrinsic temperature)	Standard: < 25°C On / 60°C Off	-
	Tropic: < 35°C On / 70°C Off	T
	High tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
Mounting position	vertical	-
Special voltages	12V AC or DC, 24V AC or DC, 48V AC or DC, 115V, 400V, 440V	concrete info

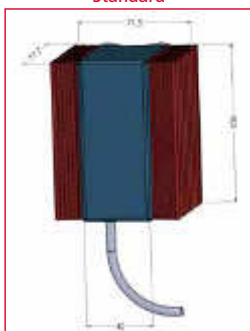
* variable length is possible

Wiring diagram



Dimensions

Standard



Wiring cable and snap fitting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230100XMAL0	230V / 50/60Hz	100W	0,43 A	0,43 A	850 g	100x71,5x77,7mm	cable 0,50m	snap	<25°C On / 60°C Off
230150XMAL0	230V / 50/60Hz	150W	0,65 A	0,65 A	850 g	100x71,5x77,7mm	cable 0,50m	snap	<25°C On / 60°C Off
230180XMAL0	230V / 50/60Hz	180W	0,70 A	0,70 A	850 g	100x71,5x77,7mm	cable 0,50m	snap	<25°C On / 60°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- low surface temperature
- plug`n`play
- no need of an external controller

Type: Lm-therm L

Power range: 250W – 500W
Voltage range: 115V – 440V

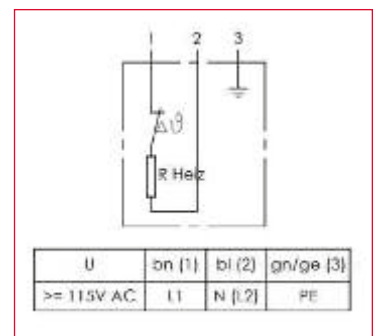


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK	-
Protection class	SK I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	S
Connection	wiring cable 3x0,75 mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Temperature settings (intrinsic temperature)	tropic: < 35°C On / 70°C Off	-
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
	normal setting: < 25°C On / 60°C Off	concrete info
Mounting position	vertical	-
Special voltages	115V, 400V, 440V	concrete info

* variable length is possible

Wiring diagram



Dimensions

Standard



Wiring cable and snap fitting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230250XLAL0	230V / 50/60Hz	250W	1,09 A	1,09 A	1150 g	150x71,5x75,7mm	cable 0,50m	snap	<35°C On / 70°C Off
230500XLAL0	230V / 50/60Hz	500W	2,17 A	2,17 A	1150 g	150x71,5x75,7mm	cable 0,50m	snap	<35°C On / 70°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- low surface temperature
- plug`n`play
- no need of an external controller

Type: Lm-therm

Power range: 30W – 90W
Voltage range: 12V – 400V

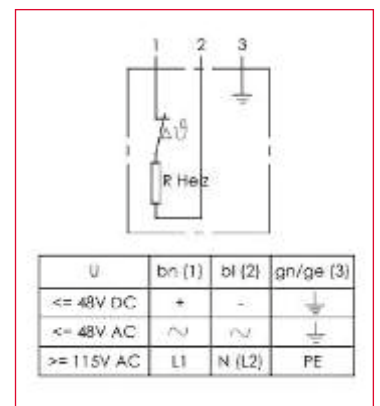


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail screw mounting (horizontal or vertical)	- Sw or Ss
Connection	wiring cable 3x0,75 mm ² plug-in terminal 0,08 - 2,5mm ²	AL DK
Temperature settings (intrinsic temperature)	standard: < 25°C On / 60°C Off tropic: < 35°C On / 70°C Off high tropic: < 50°C On / 80°C Off anti-freeze: < 10°C On / 60°C Off	- T HT F
Mounting position	vertical	-
Special voltages	12V AC or DC, 24V AC or DC, 48V AC or DC, 115V, 400V	concrete info
UL-license	UL-File: E-317613	UL

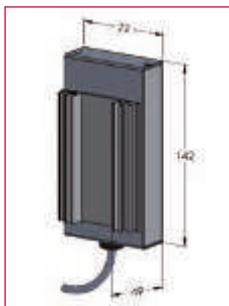
* variable length is possible

Wiring diagram



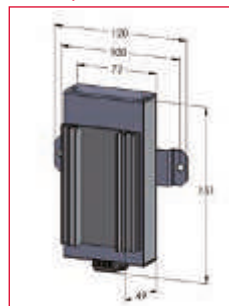
Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



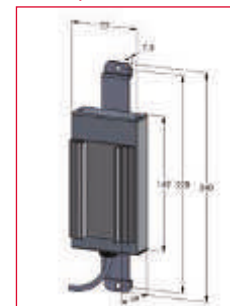
wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Special version



wiring cable and screw-mounting vertical

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
23033AL0	230V / 50/60Hz	30W	0,13A	0,13A	350g	142x72x49mm	cable 0,50m	snap	<25°C On / 60°C Off
23055AL0	230V / 50/60Hz	55W	0,24A	0,24A	350g	142x72x49mm	cable 0,50m	snap	<25°C On / 60°C Off
23090AL0	230V / 50/60Hz	90W	0,39A	0,39A	350g	142x72x49mm	cable 0,50m	snap	<25°C On / 60°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- low surface temperature
- plug`n`play
- no need of an external controller

Type: LH-1502

Power range: 33W – 125W
Voltage range: 12V – 400V

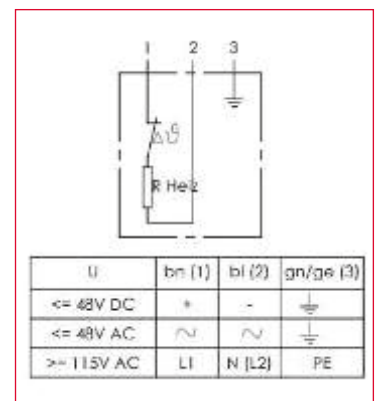


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	S
Connection	wiring cable 3x0,75 mm ²	AL
	Temperature settings (intrinsic temperature)	tropic: < 35°C On / 70°C Off
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
	normal setting: < 25°C On / 60°C Off	concrete info
Mounting position	horizontal	-
Special voltages	12V AC or DC, 24V AC or DC, 48V AC or DC, 115V, 400V	concrete info
UL-license	UL-File: E-317613	UL

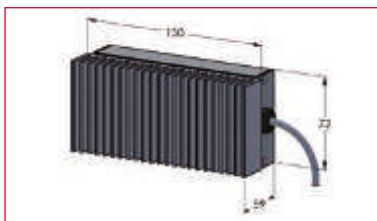
* variable length is possible

Wiring diagram



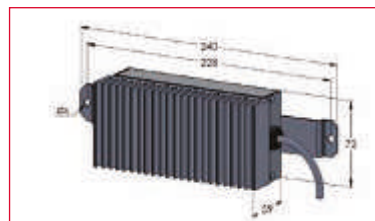
Dimensions

Standard



Wiring cable and snap fitting

Special version



Wiring cable and screw mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
23033LAL0	230V / 50/60Hz	33W	0,14A	0,14A	600g	150x72x59mm	cable 0,50m	snap	<35°C On / 70°C Off
23055LAL0	230V / 50/60Hz	55W	0,24A	0,24A	600g	150x72x59mm	cable 0,50m	snap	<35°C On / 70°C Off
23090LAL0	230V / 50/60Hz	90W	0,39A	0,39A	600g	150x72x59mm	cable 0,50m	snap	<35°C On / 70°C Off
230125LAL0	230V / 50/60Hz	125W	0,54A	0,54A	600g	150x72x59mm	cable 0,50m	snap	<35°C On / 70°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- low surface temperature
- plug'n`play
- no need of an external controller

Type: MAXI

Power range: 130W – 180W
Voltage range: 12V – 440V

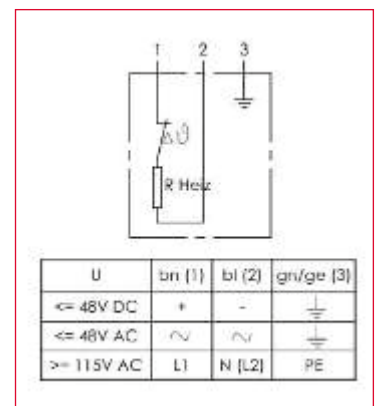


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK / special version IP 54	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting (horizontal or vertical)	Sw or Ss
Connection	wiring cable 3x0,75 mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Temperature settings (intrinsic temperature)	standard: < 25°C On / 60°C Off	-
	tropic: < 35°C On / 70°C Off	T
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
Mounting position	vertical	-
Special voltages	12V AC or DC, 24V AC or DC, 48V AC or DC, 115V, 400V, 440V	concrete info
UL-license	UL-File: E-317613	UL

* variable length is possible

Wiring diagram



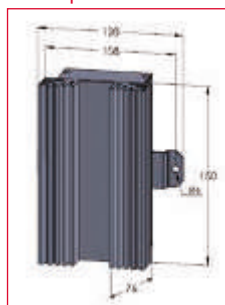
Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230130AL0	230V / 50/60Hz	130W	0,56A	0,56A	800g	150x88x76mm	cabl 0,50m	snap	<25°C On / 60°C Off
230150AL0	230V / 50/60Hz	150W	0,65A	0,65A	800g	150x88x76mm	cabl 0,50m	snap	<25°C On / 60°C Off
230180AL0	230V / 50/60Hz	180W	0,78A	0,78A	800g	150x88x76mm	cabl 0,50m	snap	<25°C On / 60°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- low surface temperature
- plug`n`play
- no need of an external controller

Type: LH-3002

Power range: 130W – 500W
Voltage range: 115V – 440V

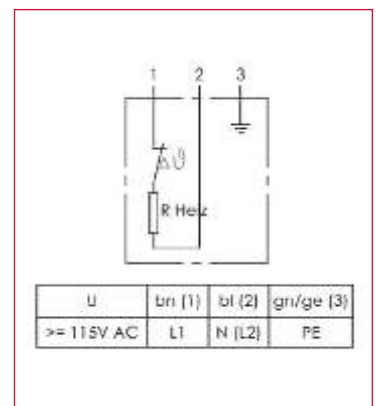


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	-
Connection	wiring cable 3x0,75 mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Temperature settings (intrinsic temperature)	tropic: < 35°C On / 70°C Off	-
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
	normal setting: < 25°C On / 60°C Off	concrete info
Mounting position	horizontal	-
Special voltages	115V, 400V, 440V	concrete info
UL-license	UL-File: E-317613	UL

* variable length is possible

Wiring diagram



Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230130LAL0	230 V / 50/60Hz	130W	0,57A	0,57A	1400g	300x70x59mm	cable 0,80m	snap	<35°C On / 70°C Off
230220LAL0	230V / 50/60Hz	220W	0,96A	0,96A	1400g	300x70x59mm	cable 0,80m	snap	<35°C On / 70°C Off
230300LAL0	230 V / 50/60Hz	300W	1,30A	1,30A	1400g	300x70x59mm	cable 0,80m	snap	<35°C On / 70°C Off
230400LAL0	230 V / 50/60Hz	400W	1,74A	1,74A	1400g	300x70x59mm	cable 0,80m	snap	<35°C On / 70°C Off
230500LAL0	230 V / 50/60Hz	500W	2,17A	2,17A	1400g	300x70x59mm	cable 0,80m	snap	<35°C On / 70°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- plug`n`play
- low surface temperature
- no need of an external controller

Type: Doppel-LH

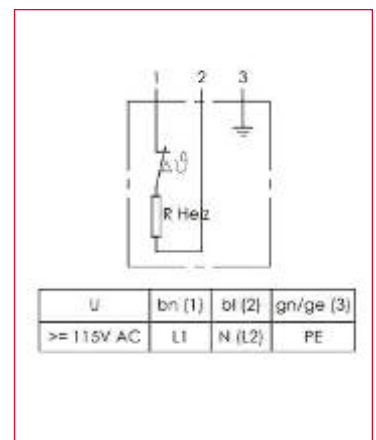
Power range: 500W – 1000W
Voltage range: 115V – 440V



Technical data

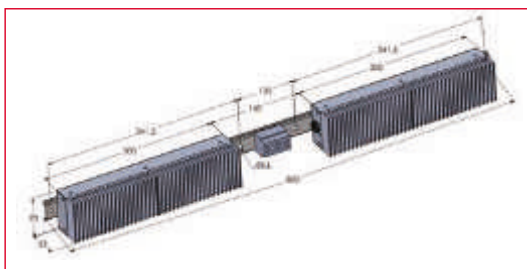
	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Heating element	ceramic heating element	-
Mounting	screw-mounting	-
Connection	WAGO-plug-in terminal	-
Temperature settings (intrinsic temperature)	tropic: < 35°C On / 70°C Off	-
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
	normal setting: < 25°C On / 60°C Off	concrete info
Mounting position	horizontal	-
Special voltages	115V, 400V, 440V	concrete info

Wiring diagram



Dimensions

Standard



plug-in terminal and screw mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230500LTK0	230V / 50/60Hz	500W	2,17A	2,17A	ca. 3,0kg	800x70x53mm	plug-in terminal	screw	<35°C On / 70°C Off
2301000LTK0	230V / 50/60Hz	1000W	4,38A	4,38A	ca. 3,0kg	800x70x53mm	plug-in terminal	screw	<35°C On / 70°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- plug`n`play
- low surface temperature
- no need of an external controller

Type: super-maxi

Power range: 250W – 500W
Voltage range: 115V – 440V

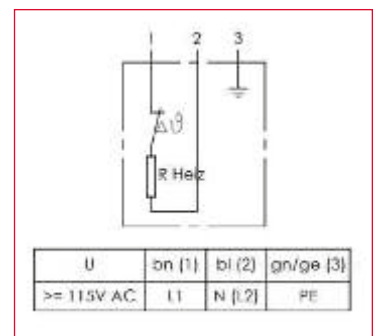


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP 20 with DK	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	screw mounting	-
Connection	wiring cable 3x0,75 mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Temperature settings (intrinsic temperature)	tropic: < 35°C On / 70°C Off	-
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
	normal setting: < 25°C On / 60°C Off	concrete info
Mounting position	vertical	-
Special voltages	115V, 400V, 440V	concrete info

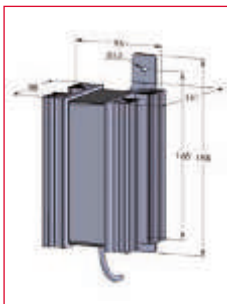
* variable length is possible

Wiring diagram



Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



wiring cable and screw-mounting

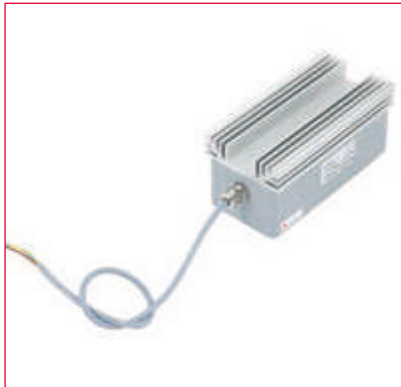
Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230250AL0	230V / 50/60Hz	250W	1,09A	1,09A	1400g	198x93x141mm	cable 0,50m	screw	<35°C On / 70°C Off
230500AL0	230V / 50/60Hz	500W	2,17A	2,17A	1400g	198x93x141mm	cable 0,50m	screw	<35°C On / 70°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- IP65
- low surface temperature
- no need of an external controller

Type: Wadi-IP 65

Power range: 180W – 500W
Voltage range: 115V – 440V

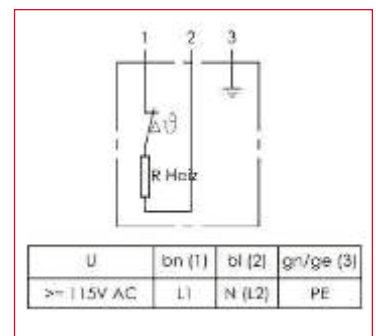


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 65	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting (horizontal or vertical)	Sw or Ss
Connection	wiring cable 3x0,75 mm ²	AL
Temperature settings (intrinsic temperature)	standard: < 25°C On / 60°C Off	-
	tropic: < 35°C On / 70°C Off	T
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
Mounting position	vertical	-
Special voltages	115V, 400V, 440V	concrete info

* variable length is possible

Wiring diagram



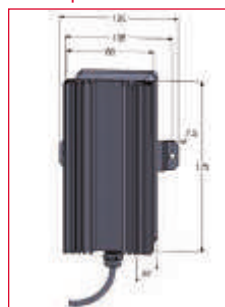
Dimensions

Standard



wiring cable and snap-mounting

Special version



wiring cable and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230180WDAL0	230V / 50/60Hz	180W	0,78A	0,78A	1400g	175x88x80mm	cable 0,50m	snap	<25°C On / 60°C Off
230250WDAL0	230V / 50/60Hz	250W	1,09A	1,09A	1400g	175x88x80mm	cable 0,50m	snap	<25°C On / 60°C Off
230500WDAL0	230V / 50/60Hz	500W	2,17A	2,17A	1400g	175x88x80mm	cable 0,50m	snap	<25°C On / 60°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- ceramic heating elements
- IP65
- low surface temperature
- no need of an external controller

Type: Wadi-LH IP 65

Power range: 250W – 380W
Voltage range: 115V – 500V

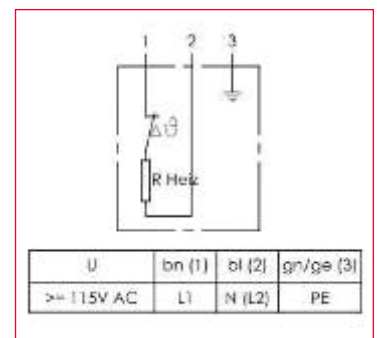


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 65	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting (horizontal or vertical)	Sw or Ss
Connection	wiring cable 3x0,75 mm ²	AL
Temperature settings (intrinsic temperature)	tropic < 35°C On / 70°C Off	-
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
	normal setting: <25°C On / 60°C Off	N
Mounting position	horizontal	-
Special voltages	115V, 400V, 500V	concrete info

* variable length is possible

Wiring diagram



Dimensions

Standard



wiring cable and snap-mounting

Special version



wiring cable and screw-mounting

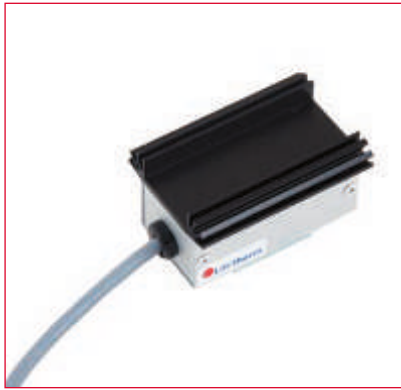
Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
230250WLAL0	230V / 50/60Hz	250W	1,09A	1,09A	1600g	245x80x80,50mm	cable 0,50m	snap	<35°C On / 70°C Off
230380WLAL0	230V / 50/60Hz	380W	1,65A	1,65A	1600g	245x80x80,50mm	cable 0,50m	snap	<35°C On / 70°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- wire wound resistor
- low surface temperature
- plug`n`play
- no need of an external controller

Type: super-mini

Power range: 10W – 20W
Voltage range: 12V – 400V

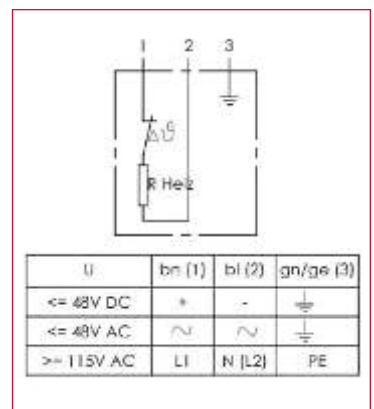


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70°C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temperature)	-
Wiring cable	0,25m 3x0,75mm ² *	desired length
Heating element	wire wound resistor	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	S
Connection	wiring cable 3x0,75mm ²	AL
Temperature settings (intrinsic temperature)	standard: < 25°C On / 60°C Off	-
	tropic: < 35°C On / 70°C Off	T
	high tropic: < 50°C On / 80°C Off	HT
	anti-freeze: < 10°C On / 60°C Off	F
Mounting position	vertical	-
Special voltages	12V AC or DC, 24V AC or DC, 48V AC or DC, 115V, 400V	concrete info

* variable length is possible

Wiring diagram



Dimensions

Standard



wiring cable and snap-mounting

Special version



wiring cable and screw mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
23010AL0	230V / 50/60Hz	10W	0,04A	0,04A	200g	75x50x43mm	cable 0,25m	snap	<25°C On / 60°C Off
23020AL0	230V / 50/60Hz	20W	0,09A	0,09A	200g	75x50x43mm	cable 0,25m	snap	<25°C On / 60°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- PTC-cartridge
- low surface temperature
- plug`n`play
- no need of an external controller

Type: super-super-mini

Power range: 10W – 50W
Voltage range: 24V, 110V – 265V

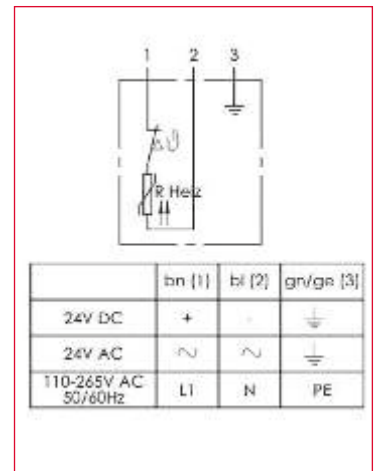


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 51 / special version IP 54	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	according to temperature setting (see switch-off temper.)	-
Wiring cable	0,25m 3x0,75mm ² *	desired length
Heating element	PTC-cartridge	-
Mounting	screw mounting	-
	snap mounting for 35mm DIN-rail	concrete info
Connection	wiring cable 3x0,75mm ² (PVC 105°C)	AL
Temperature settings (intrinsic temperature)	standard: < 38°C On / 54°C Off	-
	anti-freeze: < 05°C On / 30°C Off	F
Mounting position	vertical	-
Special voltages	24V AC, 24V DC (only possible with 20W)	concrete info
UL-license	UL-File: E-317613	UL

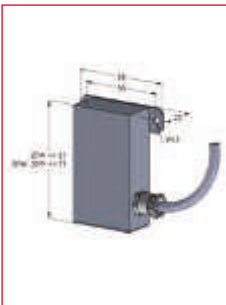
* variable length is possible

Wiring diagram



Dimensions

Standard



wiring cable and screw mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
26510AL0	110-265V	10W	0,10A	1,20A	140g	51x58x22mm	cable 0,25m	screw	<38°C On / 54°C Off
26520AL0	110-265V	20W	0,10A	1,20A	140g	51x58x22mm	cable 0,25m	screw	<38°C On / 54°C Off
26530AL0	110-265V	30W	0,15A	1,30A	140g	71x58x22mm	cable 0,25m	screw	<38°C On / 54°C Off
26550AL0	110-265V	50W	0,25A	1,50A	170g	71x58x22mm	cable 0,25m	screw	<38°C On / 54°C Off

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Stand: 11/2015



ELECTRIC CABINET HEATER WITH INTEGRATED THERMOSTAT

- for extremely cold regions
- thermostat is thermally uncoupled
- energy-efficient
- integrated thermostat

Type: SRK-mini

Power range: 50W – 150W
Voltage range: 115V – 230V

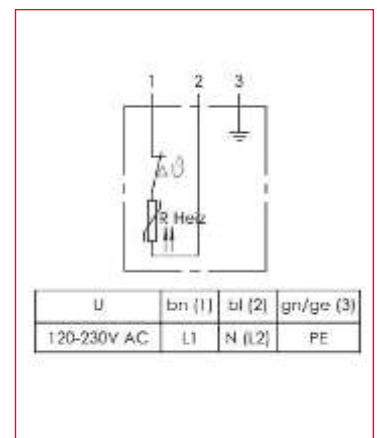


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	0,60m 3x0,5mm ² *	desired length
Heating element	PTC-cartridge	-
Mounting	screw mounting	-
Connection	wiring cable 3x0,5mm ²	-
Temperature settings (intrinsic temperature)	high tropic :	<50°C On / 80°C Off
	tropic:	< 35°C On / 70°C Off
	anti-freeze:	< 10°C On / 60°C Off
	normal setting:	< 25°C On / 60°C Off
Mounting position	vertical	-
UL-license	UL-File: E317613	UL

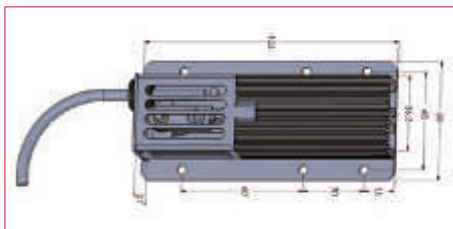
* variable length is possible

Wiring diagram



Dimensions

Standard



wiring cable and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	TEMPERATURE SETTING
265100ULAL0	115 - 230V AC	100W	0,45A	3,50A	220g	125x58x27mm	cable 0,60m	screw	<50°C On / 80°C Off

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Stand: 11/2015



SILICONE HEATING MATS WITH INTERATED TEMPERATURE CONTROLLER

- fast heating-up time
- moisture-proof
- easy installation
- directed and uniform heat dissipation

Type: Silicone heater*

Power range: 150W – 500W

Voltage range: 230V

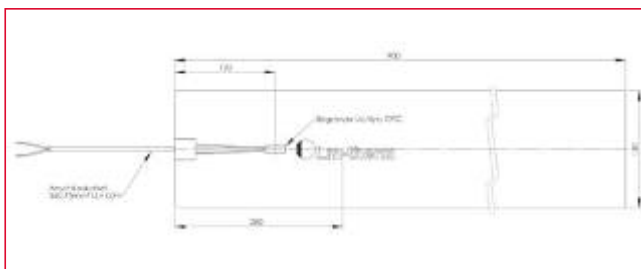
* optional on an aluminium platter



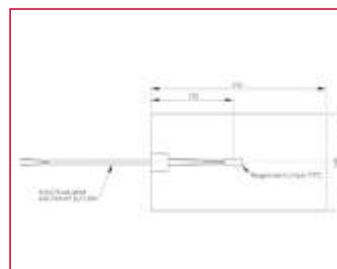
Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 54	-
Protection class	PC II	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	1,00m 2x0,75mm ²	-
Heating element	heating resistor	-
Mounting	screw mounting	-
Connection	wiring cable 2x0,75mm ²	AL
Switching temperature	70°C	-
Heating behavior	dynamically heating, self-regulating depending on the surrounding temperature	-
Mounting position	optional	-
Self-adhesive film	yes	-
Temperature controller	Uchiya U12 (normally close)	-
Special voltage	115V	concrete info

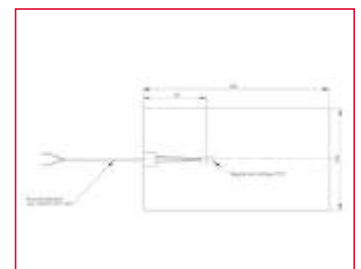
Dimensions



150 W - version



300 W - version



500 W - version

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
230150SHALO	230V	150W	0,65A	0,65A	500g	900x140x1,50mm	cable 1,00m	screw
230300SHALO	230V	300W	1,30A	1,30A	500g	255x140x1,50mm	cable 1,00m	screw
230500SHALO	230V	500W	2,17A	2,17A	500g	350x190x1,50mm	cable 1,00m	screw

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Stand: 11/2015



PTC HEATERS

CUSTOM-MADE AND SELF-REGULATING

The self-regulating **Lm-therm PTC heaters** are made up of specially designed aluminium bodies and custom-fit integrated PTC elements. The PTC heaters are characterised by high quality. A very sophisticated system of aluminium cooling fins supports the technology which is suitable for a wide operating voltage range.

Since a pre-defined shutdown of PTC heaters is not possible, we recommend the installation of a separate controller. We will gladly help you with the selection of a suitable **Lm-therm controller**.



YOUR BENEFITS AT A GLANCE:

- Self-regulating
- Dynamically heating
- High voltage range (110-265 V)
- Sophisticated system of cooling fins
- Variable connecting line/lead-through terminal



PTC - HEATER

- self-regulating
- dynamically heating
- high voltage zone
- elaborated system with cooling fins

Type: P-ssm

Power range: 20W – 30W**
Voltage range: 24V, 110V – 265V

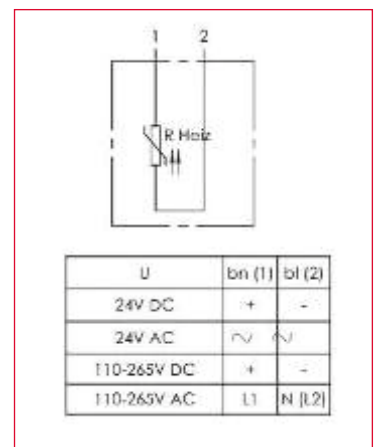


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 54	-
Protection class	PC II	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	20W: 80-90°C; 30W: 120-155°C	-
Wiring cable	0,25m 2x0,75mm ² silicone*	desired length
Heating element	PTC-cartridge	-
Mounting	screw mounting	-
Connection	wiring cable 2x0,75mm ² silicone	AL
Mounting position	vertical	-
Special voltages	24V AC/DC	concrete info

* variable length is possible
* * at 0° C ice water

Wiring diagram



Dimensions

Standard



wiring cable and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
P26520AL20	110-265V AC/DC	20W	0,10A	1,20A	125g	75x40x34mm	cable 0,25m	screw
P26530AL20	110-265V AC/DC	30W	0,15A	1,30A	125g	75x40x34mm	cable 0,25m	screw

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Stand: 11/2015



PTC - HEATER

- self-regulating
- dynamically heating
- high voltage zone
- elaborated system with cooling fins

Type: P-25

Power range: 10W – 50W**
Voltage range: 110V – 265V

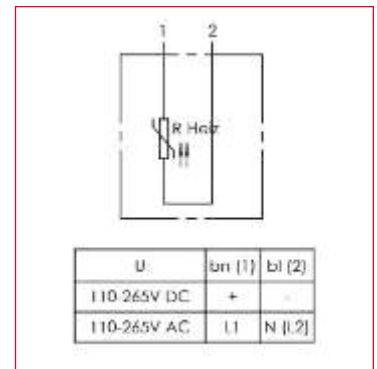


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 30 / IP20 with DK	-
Protection class	PC II	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	10W/20W: 80-105°C; 30W: 90-110°C; 50W: 100-120°C	-
Wiring cable	0,40m 2x0,75mm ² silicone *	desired length
Heating element	PTC-cartridge	-
Mounting	snap-mounting for 35mm DIN-rail screw-mounting	-
Connection	wiring cable 2x0,75mm ² silicone plug-in terminal	AL DK
Mounting position	vertical	-

* variable length is possible
** * at 0° C ice water

Wiring diagram



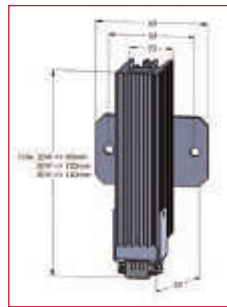
Dimensions (the dimensions are valid for wiring cable and plug-in terminal)

Standard



wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
P2651025AL2	110-265V AC/DC	10W	0,10A	1,20A	300g	70x25x51mm	cable 0,40m	snap
P2652025AL2	110-265V AC/DC	20W	0,10A	1,20A	300g	70x25x51mm	cable 0,40m	snap
P2653025AL2	110-265V AC/DC	30W	0,15A	1,30A	330g	100x25x51mm	cable 0,40m	snap
P2655025AL2	110-265V AC/DC	50W	0,25A	1,50A	350g	120x25x51mm	cable 0,40m	snap

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Stand: 11/2015



PTC - HEATER

- self-regulating
- dynamically heating
- high voltage zone
- elaborated system with cooling fins

Type: P-65

Power range: 20W – 50W**
Voltage range: 24V – 48V, 110V – 265V

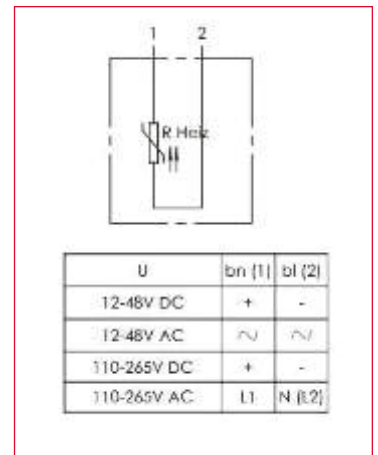


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 65	-
Protection class	PC II	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	20W: 80-90°C; 30W: 85-95°C; 50W: 90-105°C	-
Wiring cable	0,40m 2x0,75mm ² silicone *	desired length
Heating element	PTC-cartridge	-
Mounting	snap-mounting for 35mm DIN-rail	-
Connection	wiring cable 2x0,75mm ² silicone	AL
Mounting position	vertical	-
Special voltages	12V - 48V (only possible with 20W)	concrete info

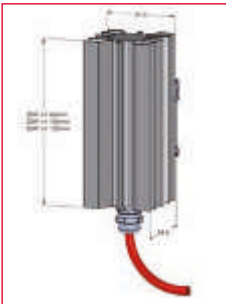
* variable length is possible
** * at 0° C ice water

Wiring diagram



Dimensions

Standard



Wiring cable and snap-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
P26520AL2	110-265V AC/DC	20W	0,10A	1,20A	250g	60x51,50x54,50mm	cable 0,40m	snap
P26530AL2	110-265V AC/DC	30W	0,15A	1,30A	350g	100x51,50x54,50mm	cable 0,40m	snap
P26555AL2	110-265V AC/DC	50W	0,25A	1,50A	440g	120x51,50x54,50mm	cable 0,40m	snap

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Stand: 11/2015



PTC - HEATER

- self-regulating
- dynamically heating
- high voltage zone
- elaborated system with cooling fins

Type: P-80

Power range: 70W – 500W**
Voltage range: 110V – 265V



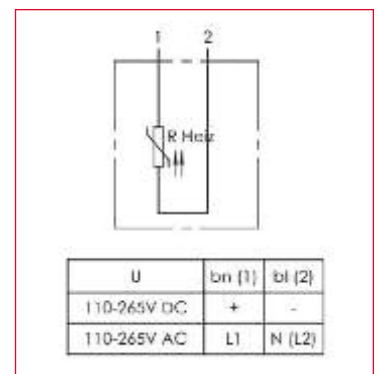
Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 50 / IP 20 with DK	-
Protection class	PC II	-
Operation- / storage temperature	-40 – +70 °C	-
Surface temperature (at 20°C surrounding temperature)	100W: 75-95°C; 150W: 70-90°C; 250W: 100-105°C	-
Wiring cable	0,50m 2x0,75mm ² silicone *	desired length
Heating element	PTC-cartridge	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting	S
Connection	wiring cable 2x0,75mm ² silicone	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Mounting position	vertical	-

* variable length is possible

** at 0° C ice water

Wiring diagram



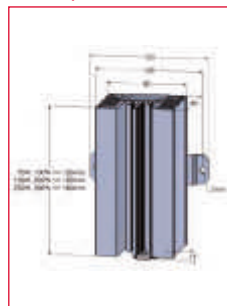
Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
P2657080AL2	110-265V AC/DC	70W	0,35A	2,50A	1000g	120x80x80mm	cable 0,50m	snap
P26510080AL2	110-265V AC/DC	100W	0,45A	3,50A	1000g	120x80x80mm	cable 0,50m	snap
P26515080AL2	110-265V AC/DC	150W	0,65A	5,00A	1200g	150x80x80mm	cable 0,50m	snap
P26520080AL2	110-265V AC/DC	200W	0,75A	5,50A	1200g	150x80x80mm	cable 0,50m	snap
P26525080AL2	110-265V AC/DC	250W	1,10A	6,50A	1500g	180x80x80mm	cable 0,50m	snap
P26530080AL2	110-265V AC/DC	300W	1,25A	7,50A	1500g	180x80x80mm	cable 0,50m	snap
P26550080AL2	110-265V AC/DC	500W	1,50A	10,00A	2500g	300x80x80mm	cable 0,50m	snap

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Stand: 11/2015



CIRCULATION FANS AND FAN HEATERS FOR HIGH HEATING REQUIREMENTS VARIABLE AND CUSTOM-FIT

The **Lm-therm circulation fans and fan heaters** can be perfectly equipped to meet the requirements of the place of installation and are also suitable for modular constructions. Available are circulation fans and fan heaters with different voltage, power and fastening options.

With up to 8,000 W, the **Lm-therm circulation fans and fan heaters** ensure a maximum heat output - even in regions with temperatures as low as $-40\text{ }^{\circ}\text{C}$. An integrated temperature limiter prevents a dangerous heat built-up. The devices can also withstand high blow-out temperatures.

The **Lm-therm circulation fans and fan heaters** meet our high quality requirements. Stable metals such as aluminium or stainless steel ensure the mechanical robustness of the housings. With a guaranteed operating time of at least 50,000 h, the built-in vibration-proof quality fans boast a very high service life. The devices will also be subject to a shock test and shaking test according to the standards EN 60068-2-6 and EN 60068-2-27.



YOUR BENEFITS AT A GLANCE:

- High range of performance
- Active convection
- Protection against excess temperatures
- High heat efficiency
- Service life of the fan at least 50,000 h
- Vibration resistance
- Shock test and shaking test according to the standards EN 60068-2-6 and EN 60068-2-27.
- Robust metal housing
- Low housing temperature



FAN HEATER

- high quality fans
- robust metal case
- Shock-and shake test according to the norms EN60068-2-6 and EN60068-2-27
- vibration-secured
- temperature limiter

Type: Ventstar S

Power range: 100W – 200W
Voltage range: 24V

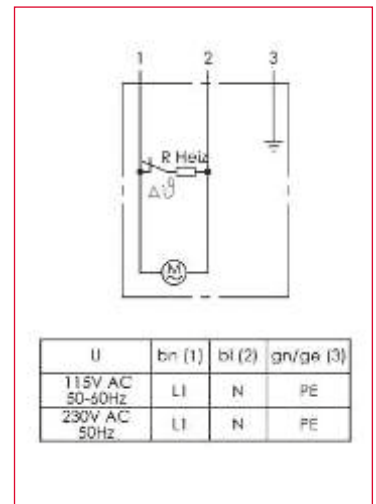


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	SK I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw-mounting (horizontal or vertical)	S
Connection	wiring cable 3x0,75mm ²	AL
Temperature limiter	71°C +/- 7,5 K differential gap	-
Fan	fan durability: 50.000h	-
	air power: 54m ³ / h (free-blowing)	-
	blowing-out temperature: 40°C	-
	optional in selectable form with a separate wiring cable	SL
Mounting position	vertical	-

* variable length is possible

Wiring diagram



Dimensions

Standard



Wiring cable and snap fitting

Special version



Wiring cable and screw mounting horizontal

Special version



Wiring cable and screw mounting vertical

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
24100XVSAL0	24V DC	100W	4,17 A	4,17 A	640 g	135x66,6x69,8mm	cable 0,50m	snap
24150XVSAL0	24V DC	150W	6,25 A	6,25 A	640 g	135x66,6x69,8mm	cable 0,50m	snap
24200XVSAL0	24V DC	200W	8,33 A	8,33 A	640 g	135x66,6x69,8mm	cable 0,50m	snap

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Stand: 11/2015



FAN HEATER

- high quality fans
- robust metal case
- Shock-and shake test according to the norms EN60068-2-6 and EN60068-2-27
- vibration-secured
- temperature limiter

Type: Ventstar M

Power range: 180W – 500W
Voltage range: 24V – 230V

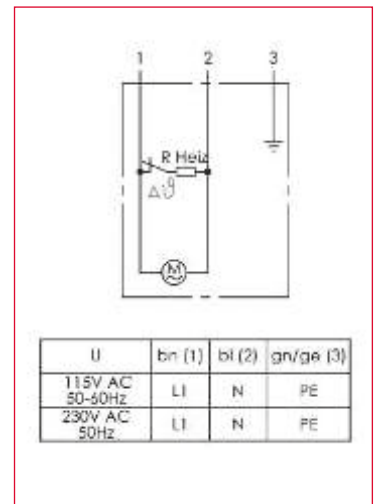


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	SK I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw-mounting (horizontal or vertical)	S
Connection	wiring cable 3x0,75mm ²	AL
Temperature limiter	71°C +/- 7,5 K differential gap	-
Fan	fan durability: 50.000h	-
	air power: 45m ³ / h (freiblasend)	-
	blowing-out temperature: 40°C (250W); 110°C (500W)	-
	optional in selectable form with a separate wiring cable	SL
Mounting position	vertical	-
Special voltage	24V DC, 115V AC	concrete info

* variable length is possible

Wiring diagram



Maßzeichnungen

Standard



Wiring cable and snap fitting

Special version



Wiring cable and screw mounting horizontal

Special version



Wiring cable and screw mounting vertical

Standard-Ausführungen

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
230180XVSALO	230V AC 50/60 Hz	180W	0,78 A	0,78 A	920 g	135x82,6x88,6mm	cable 0,50m	snap
230250XVSALO	230V AC 50/60 Hz	250W	1,09 A	1,09 A	920 g	135x82,6x88,6mm	cable 0,50m	snap
230400XVSALO	230V AC 50/60 Hz	400W	1,74 A	1,74 A	920 g	135x82,6x88,6mm	cable 0,50m	snap
230500XVSALO	230V AC 50/60 Hz	500W	2,17 A	2,17 A	920 g	135x82,6x88,6mm	cable 0,50m	snap

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Stand: 11/2015



FAN HEATER

- high quality fans
- robust metal case
- Shock-and shake test according to the norms EN60068-2-6 and EN60068-2-27
- vibration-secured
- temperature limiter

Type: Ventstar I

Power range: 250W – 800W
Voltage range: 24V – 230V

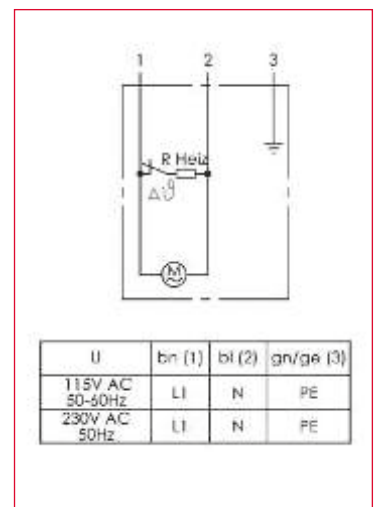


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	ceramic heating elements	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw-mounting (horizontal or vertical)	Sw or Ss
Connection	wiring cable 3x0,75mm ²	AL
Temperature limiter	71°C +/- 7,5 K differential gap	-
Fan	fan durability: 50.000h	-
	air power: 45m ³ / h (free-blowing)	-
	blowing-out temperature: 40°C (250W); 110°C (500W,	-
	optional in selectable form with a separate wiring cable	SL
Mounting position	vertical	-
Special voltages	24V DC, 115V AC	concrete info

* variable length is possible

Wiring diagram



Dimensions

Standard



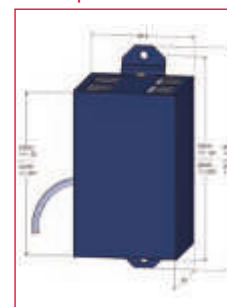
wiring cable and snap-mounting

Special version



wiring cable and screw-mounting

Special version



wiring cable and screw-mounting vertical

Standard versions**

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
230250VSAL0	230V AC 50/60 Hz	250W	1,09A	1,09A	1250g	135x83,60x82mm	cabl 0,50m	snap
230400VSAL0	230V AC 50/60 Hz	400W	1,73A	1,73A	2000g	205x83,60x82mm	cabl 0,50m	snap
230500VSAL0	230V AC 50/60 Hz	500W	2,17A	2,17A	2000g	205x83,60x82mm	cabl 0,50m	snap
230800VSAL0	230V AC 50/60 Hz	800W	3,48A	3,48A	2000g	205x83,60x82mm	cabl 0,50m	snap

** further versions on request

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Stand: 11/2015



FAN HEATER

- high quality fans
- robust metal case
- vibration-secured
- high thermal efficiency

Type: Coreg

Power range: 500W – 1000W
Voltage range: 115V – 230V

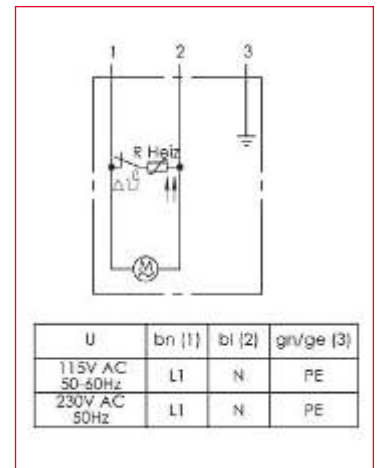


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	0,50m 3x0,75mm ² oilflex*	desired length
Heating element	PTC-heating register	-
Thermostat	circulation thermostat 5 - 35°C	-
	capillar thermostat	KT
	hygostat	HY
Mounting	snap-mounting for 35mm DIN-rail	-
	screw-mounting stainless steel	S
	air deflector stainless steel	LB
Connection	wiring cable 3x0,75mm ² oilflex	-
	plug-in terminal	DK
Fan (permanent on voltage)	fan durability 50.000h	-
	air power: 108m ³ / h (free-blowing)	-
	blowing-out temperature: ap. 84°C	-
Mounting position	vertical (air outlet above or lateral)	-
Special voltages	115V AC	concrete info

* variable length is possible

Wiring diagram



Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA. CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	THERMOSTAT
230500CRAL0	230V AC 50/60 Hz	500W	2,20A	6,00A	1200g	152x124x70mm	cable 0,50m	snap	circulation 5-35°C
2301000CRAL0	230V AC 50/60 Hz	1000W	4,30A	8,00A	1200g	152x124x70mm	cable 0,50m	snap	circulation 5-35°C

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Stand: 11/2015



FAN HEATER

- high quality fans
- robust metal case
- vibration-secured
- high thermal efficiency

Type: Cireg

Power range: 500W – 1000W
Voltage range: 115V – 230V

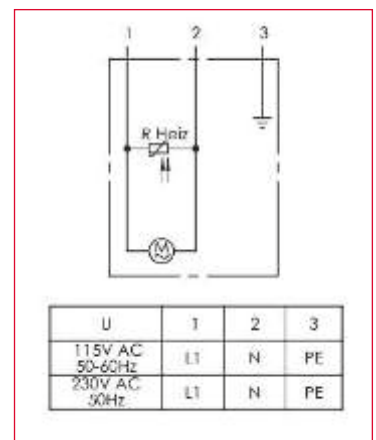


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	-	-
Heating element	PTC-heating register	-
Mounting	snap-mounting for 35mm DIN-rail	-
	air deflector stainless steel	LB
Connection	plug-in terminal 0,08 - 2,5mm ²	-
Fan	fan durability: 50.000h	-
	air power: 108m ³ / h (free-blowing)	-
	blowing-out temperature: ap. 74°C	-
Mounting position	vertical (air outlet above or lateral)	-
Special voltages	115V AC	concrete info

* variable Länge möglich

Wiring diagram



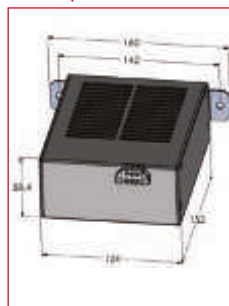
Dimensions

Standard



plug-in terminal and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
230500CIDK0	230V AC 50/60 Hz	500W	2,20A	6,00A	1100g	152x124x58,40mm	plug-in terminal	snap
230800CIDK0	230V AC 50/90 Hz	800W	3,50A	7,00A	1100g	152x124x58,40mm	plug-in terminal	snap
2301000CIDK0	230V AC 50/90 Hz	1000W	4,30A	8,00A	1100g	152x124x58,40mm	plug-in terminal	snap

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Stand: 11/2015



FAN HEATER

- high quality fans
- vibration-secured
- robust metal case
- high thermal efficiency

Type: Vaero

Power range: 500W
Voltage range: 115V – 230V

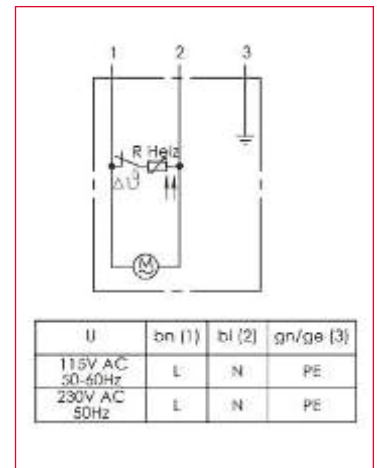


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	0,50m 3x0,75mm ² *	desired length
Heating element	PTC-heating register	-
Thermostat	circulation thermostat 5 - 35°C	-
	capillar thermostat	KT
	hygostat	HY
Mounting	snap-mounting for 35mm DIN-rail	-
	screw-mounting stainless steel	S
Connection	wiring cable 3x0,75mm ²	AL
	plug-in terminal 0,08 - 2,5mm ²	DK
Fan (permanent on voltage)	fan durability: 50.000h	-
	air power: 108m ³ / h (free-blowing)	-
	blowing-out temperature: ap. 82°C	-
Mounting position	vertical (air outlet above or lateral)	-
Special voltages	115V AC	concrete info

* variable length is possible

Wiring diagram



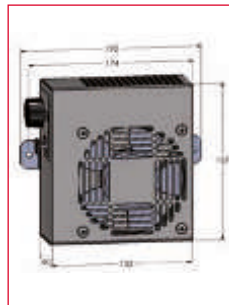
Dimensions (the dimensions are valid for wiring cable and for plug-in terminal)

Standard



wiring cable and snap-mounting

Special version



plug-in terminal and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING	THERMOSTAT
230500VRA10	230V AC 50/60 Hz	500W	2,20A	6,00A	1250g	167x152x60mm	cable 0,50m	snap	circulation 0-35°C

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Stand: 11/2015



BLOWER HEATER

- high quality fans
- vibration-secured
- robust metal case
- temperature limiter

Type: GH2000/GH4000

Power range: 2000W – 4000W
Voltage range: 115V – 400V

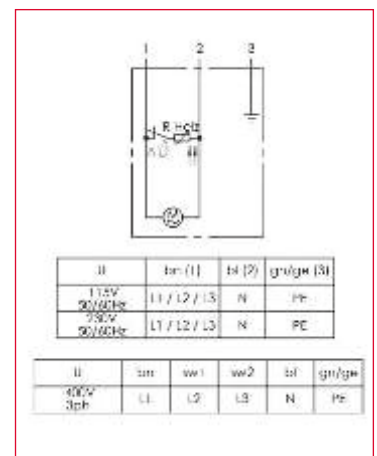


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	2,00m 3x1,5mm ² *	desired length
Heating element	PTC-heating register or high performance cartridge	on agreement
Mounting	screw-mounting	-
Connection	wiring cable 2,00m 3x1,5mm ²	-
Temperature limiter	71°C +/- 7,5 K differential gap	-
Fan	fan durability: 50.000h air power: 570m ³ / h (free-blowing) blowing-out temper.: ap. 43°C (GH2000); ap. 53°C (GH4000)	-
Mounting position	vertical (air outlet above or lateral)	-
Special versions	temperature controller step switcher ON/OFF-switch	on request on request on request
Special voltages	115V, 400V 3ph	concrete info

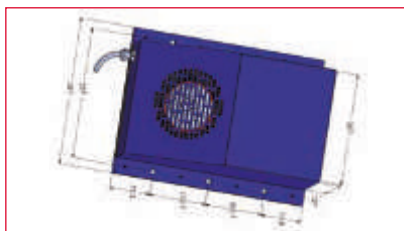
* variable length is possible

Wiring diagram



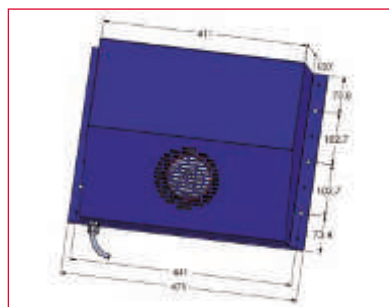
Maßzeichnungen

Standard



GH2000

Standard



GH4000

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT**	DIMENSIONS	CONNECTION	MOUNTING
2302000G2AL0	230V	2000W	8,70A	16A	ca. 10,00kg	350x267x129,50mm	cable 2,00m	snap
2304000G4AL0	230V	4000W	17,40A	32A	ca. 15,00kg	471x350x129,50mm	cable 2,00m	snap

** with high performance cartridges

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Stand: 11/2015



FAN HEATER

- high quality fans
- vibration-secured
- robust metal case
- high thermal efficiency

Type: Revent

Power range: 4000W – 8000W
Voltage range: 230V – 400V

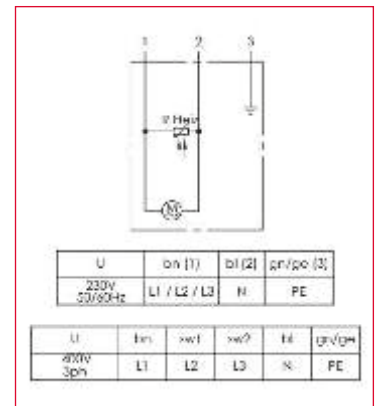


Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 20	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	2,00m 5x1,5mm ² *	desired length
Heating element	PTC-heating register	-
Mounting	screw-mounting	-
Connection	wiring cable 5x1,5mm ² (according to type)	-
Fan	fan durability: 60.000h	-
	air power: 815m ³ / h (free-blowing)	-
	blowing-out temperature: ap. 93°C	-
Mounting position	optional	-
Special voltages	400V 3ph	concrete info

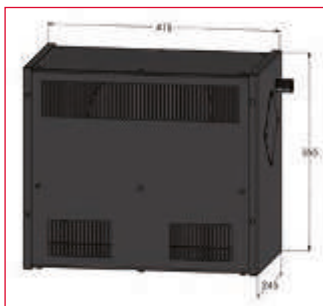
* variable length is possible

Wiring diagram



Dimensions

Standard



wiring cable and screw-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
2304000RVAL0	230V	4000W	17,4A	32A	19kg	411x245x355mm	cable 2,00m	snap
2308000RVAL0	230V	8000W	34,8A	64A	19kg	411x245x355mm	cable 2,00m	snap

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Stand: 11/2015



EX HEATERS AND EX CONTROLLERS

HIGH PRECISION FOR SPECIAL REQUIREMENTS

The Ex protection zones 1/21 and 2/22 assume that special structural requirements are met. The Ex heaters from Lm-therm Elektrotechnik AG with a voltage of 115 V as well as 230 V are suitable for use in explosive areas such as gas stations, biogas plants, chemical labs etc. The **Lm-therm Ex heaters** meet the protection class IP66/67 and the requirements of the II 2G Ex d IIC TX Gb standard.

The devices equipped with explosion-proof thermostats control and monitor thermal processes. The Ex heaters operate on the principle of liquid or gas expansion whereby a microswitch protected against explosion is used as an electrical switch element. Of course, the Ex thermostats meet the requirements of the II 2D Ex tb IIIC TX °C Db standard.



YOUR BENEFITS AT A GLANCE:

- Suitable for the Ex protection zones 1/21 and 2/22
- Approved for the temperature classes
 - T3 200°C
 - T4 135°C
 - T5 100°C
- High protection class (IP67)



EX-HEATERS

II 2G Ex d IIC TX Gb
II 2D Ex tb IIIC TX °C Db

- zone 1/21 and 2/22
- different temperature classes
- high kind of protection
- use in explosion-endangered areas

Type: Ex-heaters zone 1/21

Power range: 25W - 400W
Voltage range: 115V, 230V

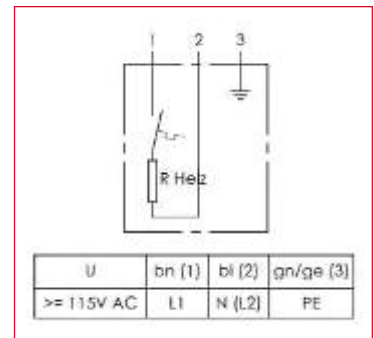


Technical data

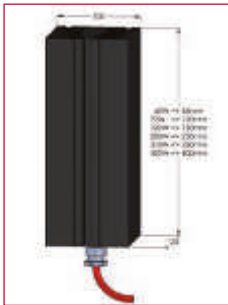
	DESCRIPTION	ORDER INDEX
Kind of protection	IP 66	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +60 °C	-
Heater	aluminium profile black anodized	-
Wiring cable	1,00m 3x1,50mm² *	desired length
Heating element	high performance cartridge	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting with stainless steel bracket	S
Connection	wiring cable 3x1,50 mm²	AL
Temperature class (according to power)	T3 - 200°C (200W; 315W; 400W)	-
	T4 - 135°C (70W; 100W)	-
	T5 - 100°C (25W)	-
Mounting position	vertical	-
CSA-certificate	12.2494381	-
Special voltages	115V	concrete info

* variable length is possible

Wiring diagram



Dimensions



wiring cable and snap-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
23025E1AL0	230V	25W	0,11A	0,11A	1200g	65x129x100mm	cable 1,00m	snap
23070E1AL0	230V	70W	0,30A	0,30A	2000g	120x129x100mm	cable 1,00m	snap
230100E1AL0	230V	100W	0,43A	0,43A	2500g	150x129x100mm	cable 1,00m	snap
230200E1AL0	230V	200W	0,87A	0,87A	3500g	250x129x100mm	cable 1,00m	snap
230315E1AL0	230V	315W	1,37A	1,37A	5000g	250x129x100mm	cable 1,00m	snap
230400E1AL0	230V	400W	1,74A	1,74A	5000g	250x129x100mm	cable 1,00m	snap

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Stand: 11/2015



EX-HEATERS

II 3G Ex d IIC TX Gb
II 3D Ex tb IIIC TX °C Db

- zone 1/21 and 2/22
- different temperature classes
- high kind of protection
- use in explosion-endangered areas

Type: Ex-heaters zone 2/22

Power range: 25W - 400W
Voltage range: 115V, 230V

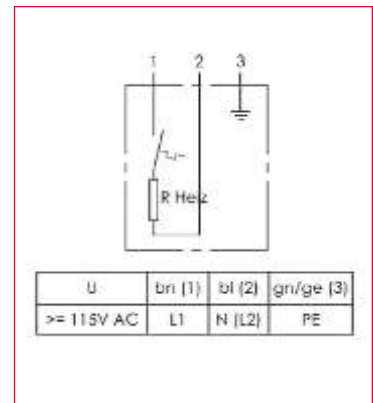


Technical data

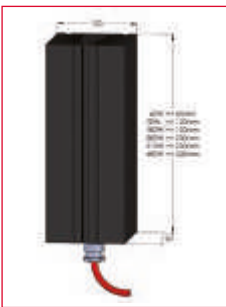
	DESCRIPTION	ORDER INDEX
Kind of protection	IP 66	-
Protection class	PC I	-
Operation- / storage temperature	-40 – +60 °C	-
Heater	aluminium profile black anodized	-
Wiring cable	1,00m 3x1,50mm² *	desired length
Heating element	high performance cartridge	-
Mounting	snap-mounting for 35mm DIN-rail	-
	screw mounting with stainless steel bracket	S
Connection	wiring cable 3x1,50 mm²	AL
Temperature class (according to power)	T3 - 200°C (200W; 315W; 400W)	-
	T4 - 135°C (70W; 100W)	-
	T5 - 100°C (25W)	-
Mounting position	vertical	-
CSA-certificate	12.2494381	-
Special voltages	115V	concrete info

* variable length is possible

Wiring diagram



Dimensions



wiring cable and snap-mounting

Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
23025E2AL0	230V	25W	0,11A	0,11A	1200g	65x129x100mm	cable 1,00m	snap
23070E2AL0	230V	70W	0,30A	0,30A	2000g	120x129x100mm	cable 1,00m	snap
230100E2AL0	230V	100W	0,43A	0,43A	2500g	150x129x100mm	cable 1,00m	snap
230200E2AL0	230V	200W	0,87A	0,87A	3500g	250x129x100mm	cable 1,00m	snap
230315E2AL0	230V	315W	1,37A	1,37A	5000g	250x129x100mm	cable 1,00m	snap
230400E2AL0	230V	400W	1,74A	1,74A	5000g	250x129x100mm	cable 1,00m	snap

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Stand: 11/2015



EX-HEATER FTH

II 3G Ex d IIC TX Gb
II 3D Ex tb IIIC TX °C Db

- high heated release
- easy installation
- zone 2/22
- directed and uniform heat dissipation

Type: FTH zone 2/22

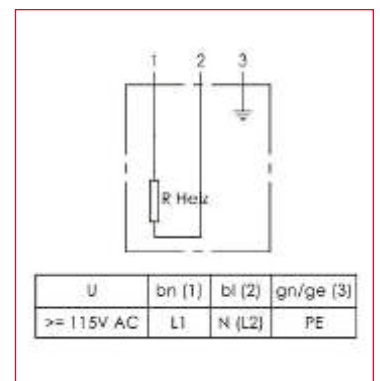
Power range: 50W – 200W
Voltage range: 230V



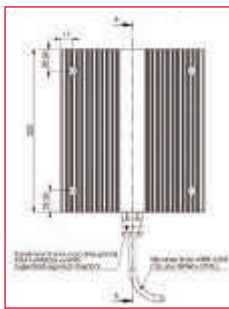
Technical data

	DESCRIPTION	ORDER INDEX
Kind of protection	IP 66/67	-
Protection class	PC II	-
Operation- / storage temperature	-40 – +70 °C	-
Wiring cable	1,00m 3xAWG18 *	-
Heating element	high performance cartridge	-
Mounting	screw mounting	-
Connection	wiring cable 3xAWG18	AL
Mounting position	optional	-

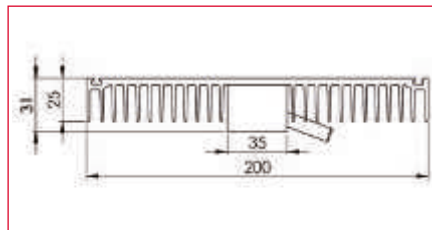
Wiring diagram



Dimensions



wiring cable



Standard versions

ORDER-NO.	VOLTAGE	POWER	OPERA.CURRENT	INRUSH CURRENT	WEIGHT	DIMENSIONS	CONNECTION	MOUNTING
3000004	115-265V	50W	0,25A	1,50A	ap. 5,0kg	225x200x31mm	cable 1,00m	screw
3000003	115-265V	80W	0,45A	3,00A	ap. 5,0kg	225x200x31mm	cable 1,00m	screw
3000002	115-265V	200W	1,10A	5,50A	ap. 5,0kg	225x200x31mm	cable 1,00m	screw

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Stand: 11/2015



EX-CONTROLLER

II 2G Ex d IIC T6 Gb
II 2D Ex tb IIIC T85 °C Db

- zone 1/21
- different versions
- temperature zone 5-60°C
- contact versions normally close or normally open

Type: Ex-R-1/21

fixed adjusted

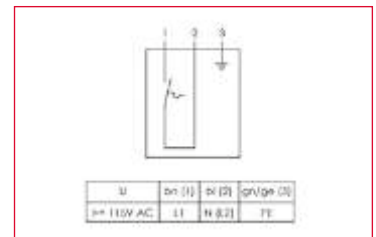


Technical data

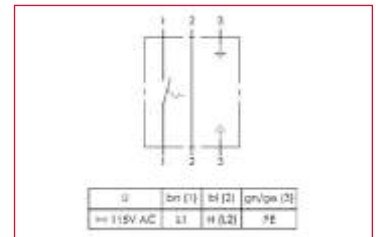
	DESCRIPTION	ORDER INDEX
Kind of protection	IP66/67	-
Protection class	PC I	-
Operation- / storage temperature	-40°C ... +60°C	-
Wiring cable	0,50m 3x1,50mm ² *	desired length
Connection	wiring cable 3x1,50 mm ²	AL
Mounting position	optional	-
Operating voltage / switching current	230V AC / 10A - 115V AC / 15A	-

* variable length is possible

Wiring diagrams

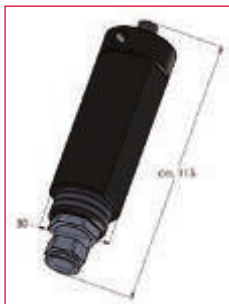


cable thermostat



switch thermostat

Dimensions



cable thermostat without stain-relief



switch thermostat without stain-relief



cable thermostat with stain-relief



switch thermostat with stain-relief

Standard versions

ORDER-NO.	CASE TYPE	CONTACT**	SWITCH-ON TEMPERATURE***	DIMENSIONS	CONNECTION
ExR-1/21-KTOx-10°C	KTx / cable thermostat	normally close	10°C	115x30mm	cable 0,50m
ExR-1/21-KKTSx-40°C	KKTx / switch thermostat	normally open	40°C	130x30mm	cable 0,50m
ExR-1/21-KTO-20°C	KT / cable thermostat with stain-relief	normally close	20°C	158x30mm	cable 0,50m
ExR-1/21-KKTO-10°C	KKT / switch thermostat with stain-relief	normally close	10°C	216x30mm	cable 0,50m

** all versions available as normally close or normally open contact

*** all versions available for the temperature zone 5-60°C

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Stand: 11/2015





CONTROL SYSTEMS

MAXIMUM OPERATIONAL RELIABILITY

The product portfolio of the Lm-therm Elektrotechnik AG includes both electronic and electro-mechanical controllers. Efficient thermostats and high-quality hygrostats ensure the maximum operational reliability in switch cabinet heaters.

Depending on the requirements, **Lm-therm thermostats** are equipped with a contact breaker, contact maker or changeover contact. Customised to meet your exact requirements, the components ensure the operational reliability of your components. It is possible to equip the modules according to your requirements, for example, as an additional controller combined with a switch cabinet heater equipped with a thermostat. This allows you to combine a low surface temperature with a precise control. A further option is to combine large switch cabinets with a powerful heater.

Lm-therm hygrostats eliminate the often underestimated risks due to moisture. Hygrostats are therefore an important component in ensuring the functional reliability of your switch cabinet.



YOUR BENEFITS AT A GLANCE:

- Many versions (maker, breaker, changeover)
- Easy assembly
- Different mounting options such as cap rail or screw connection

ELECTROMECHANICAL THERMOSTATS



- easy installation
- different versions
- different mountings



Technical data

ORDER NUMBER	SETTING RANGE	DIFFERENTIAL GAP	KIND OF SENSOR	OPERATING VOLTAGE	SWITCH. CURRENT - OHMIC (INDUCTIVE)	CONTACT	INSTALLATION	KIND OF PROTECTION	UL-LICENSE
THWe 2-SG	0 - 60°C	+/- ca. 3K	capillary 1,5m	24V - 250V AC	10(2)A / 5(2)A	changer	DIN-rail	IP20	yes
THÖ 1-SG	0 - 60°C	+/- ca. 3K	bimetal	250V AC	10(2)A	normally close	DIN-rail	IP20	yes
THS 1-SG	5 - 60°C	+/- ca. 3K	bimetal	250V AC	10(2)A	normally open	DIN-rail	IP20	yes
THWe 1-SG	0 - 60°C	+/- ca. 3K	bimetal	250V AC	10(2)A / 5(2)A	changer	DIN-rail	IP20	yes
THWe-SG*	10 - 60°C	+/- ca. 1K	bimetal	250V AC	10(4)A / 5(2)A	changer	DIN-rail	IP20	no
TM 101	0 - 40°C	+/- ca. 0,75K	capillary	24V - 250V	10(4)A AC	changer	wall	IP54	no
THWe-W	5 - 60°C	+/- ca. 1K	bimetal	250V AC	10(4)A	changer	wall	IP30	no
146218	-35 - +30°C	2 - 20K (adjustable)	capillary 1,8m	24 - 250V	10(4)A	changer	wall	IP65	no

* also available with snap-mounting (THWe-SG-P)

Pictures

THWe2-SG



THÖ1-SG



THS1-SG



THWe1-SG



146218



THWe-W



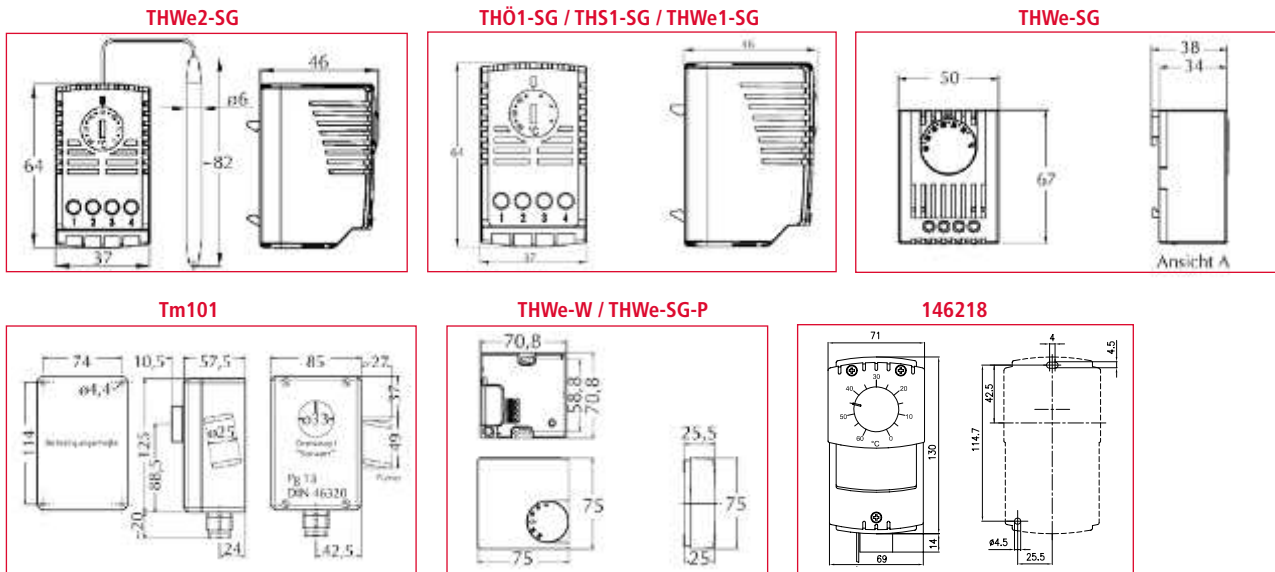
THWe-SG



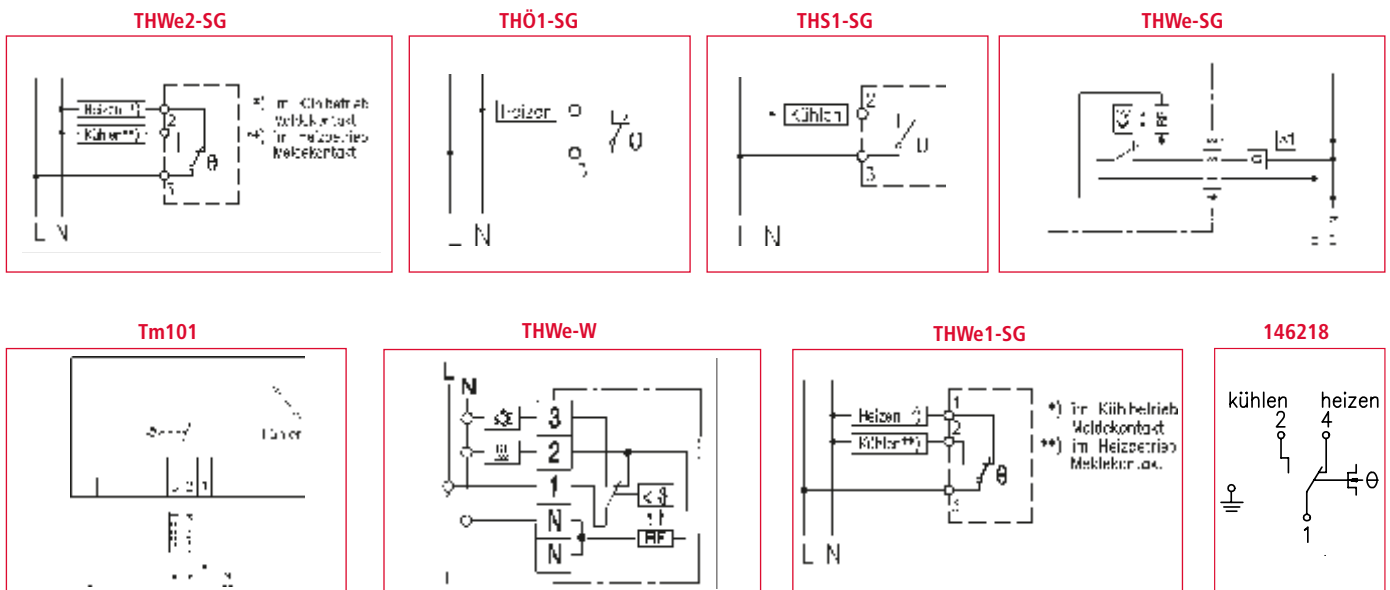
TM101



Dimensions



Wiring diagrams



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Stand: 11/2015



ELECTRONICAL THERMOSTATS



- easy installation
- different versions
- different mountings



Technical data

ORDER NUMBER	SETTING RANGE	DIFFERENTIAL GAP	KIND OF SENSOR	OPERATING VOLTAGE	SWITCH. CURRENT - OHMIC (INDUCTIVE)	CONTACT	INSTALLATION	KIND OF PROTECTION	UL-LICENSE
Te120-F	0 - 60°C	0,25 - 2,5K adjustable	electronic, KTY	24V DC	8(2)A	changer	DIN-rail	IP20	no
Te125-F	0 - 60°C	0,25 - 2,5K adjustable	electronic, KTY	230V AC	8(2)A	changer	DIN-rail	IP20	no
Ted 122-F	0 - 60°C	0,2 K	electronic, KTY	230V AC	8(2)A	2x normally open	DIN-rail	IP20	no
Te24VDC	0 - 60°C	2-3K	electronic internal	24V DC	16A	changer	DIN-rail	IP20	yes
Te104	0 - 50°C	+/-0,1 - +/-2,5K adjustable	remote sensor	250V AC	10(4)A	changer	wall	IP20	no
Ted 108	0 - 50°C	+/-0,1 - +/-2,5K adjustable	remote sensor	250V AC	10(4)A	changer	wall	IP54	no
Te103-F	0 - 50°C	+/-0,1 - +/-2,5K adjustable	remote sensor	250V AC	10(4)A	changer	wall	IP20	no
Ted 105-F	0 - 50°C	+/-0,1 - +/-2,5K adjustable	remote sensor	250V AC	10(4)A	changer	wall	IP20	no

Pictures

Te120-F



Te125-F



Te24VDC



Te24VDC



Te103-F



Ted 105-F



Ted 122-F



Te 104



HUMIDITY CONTROLLER - HYGROSTATS



- easy installation
- different versions
- different mountings



Technical data

ORDER NUMBER	SETTING RANGE	DIFFERENTIAL GAP	KIND OF SENSOR	OPERATING VOLTAGE	SWITCH. CURRENT - OHMIC (INDUCTIVE)	CONTACT	INSTALLATION	KIND OF PROTECTION	UL-LICENSE
HymTm 22	30 - 90% rF 0 - 60°C	ap. 5% / ca. 2K	electronic	230V AC	5/3A	changer	DIN-rail	IP 20	no
HYWe-W	35 - 100% rF	ca. 4%	plastic fiber	24 - 250V AC	5 (0,2)A	changer	wall	IP 30	no
3000345	30 - 100% rF 10 - 35°C	ap. 4% / ca. 1K	plastic fiber / bimetal	24 - 250V AC	5 (0,2) / 3 (0,2) 10 (4) / 5 (2)A / 1 (1)A	changer	wall	IP 30	no
HYWe-SG	35 - 100% rF	ca. 4%	plastic fiber	24 - 250V AC	5 (0,2)A	changer	DIN-rail	IP 20	no
HYWe1-SG	40 - 90% rF	ca. 4%	plastic fiber	24 - 250V AC	5 (2)A	changer	DIN-rail	IP 20	no

Pictures

HymTm22



HyWe-W



3000345



HYWe-SG

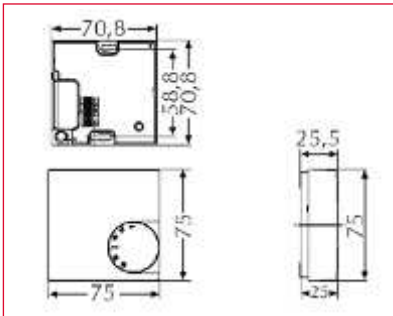


HYWe1-SG

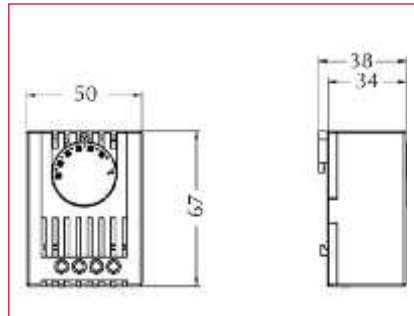


Dimensions

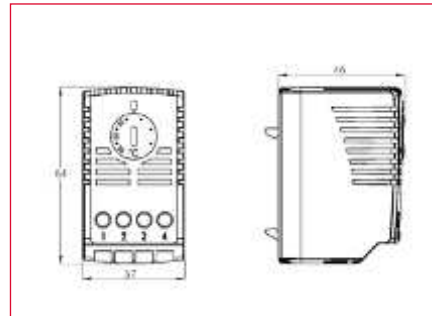
HyWe-W



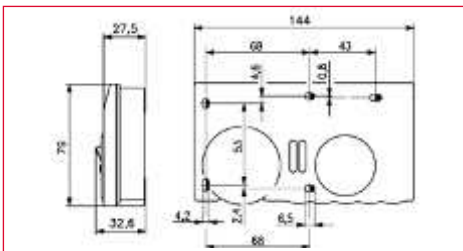
HyWe-SG



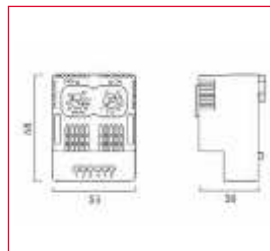
HyWe1-SG



3000345

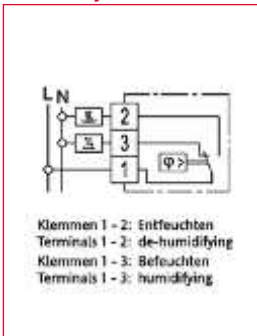


HymTm22

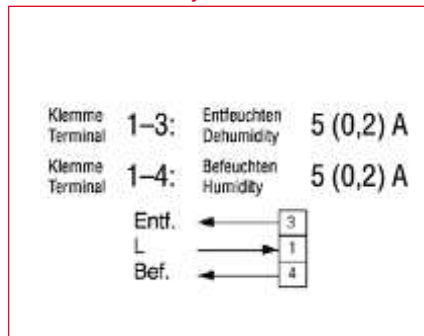


Wiring diagrams

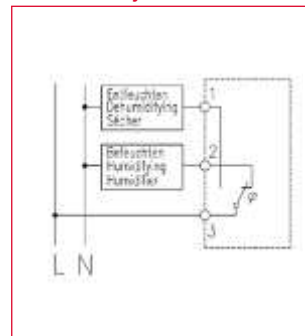
HyWe-W



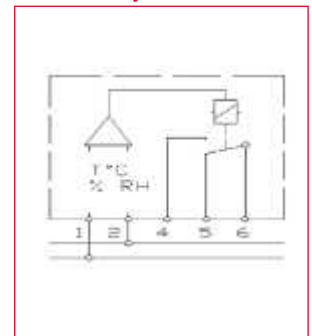
HyWe-SG



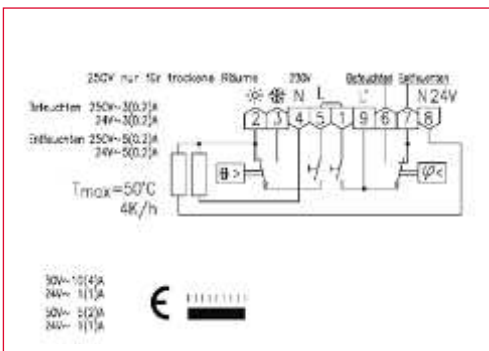
HyWe1-SG



HymTm22



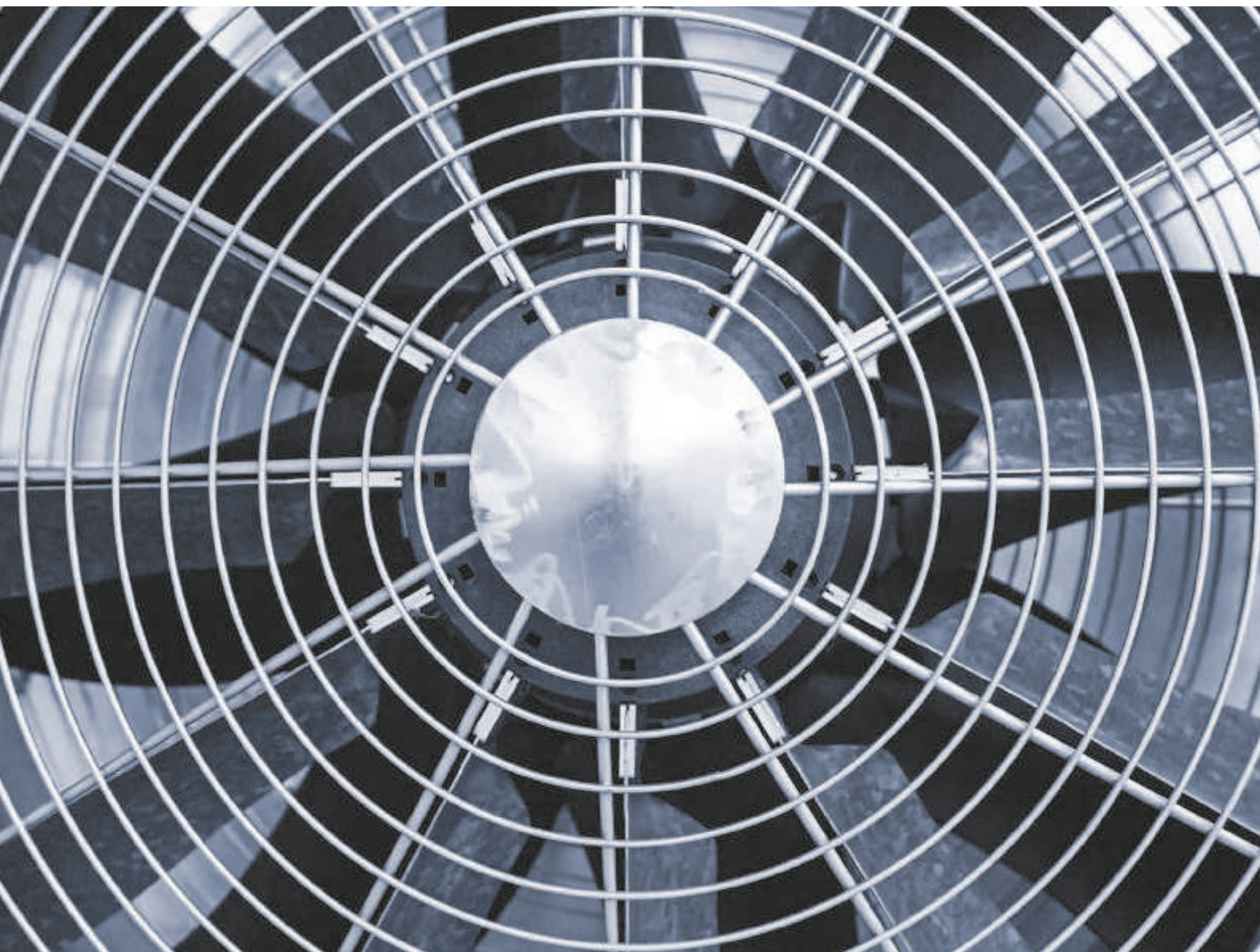
3000345



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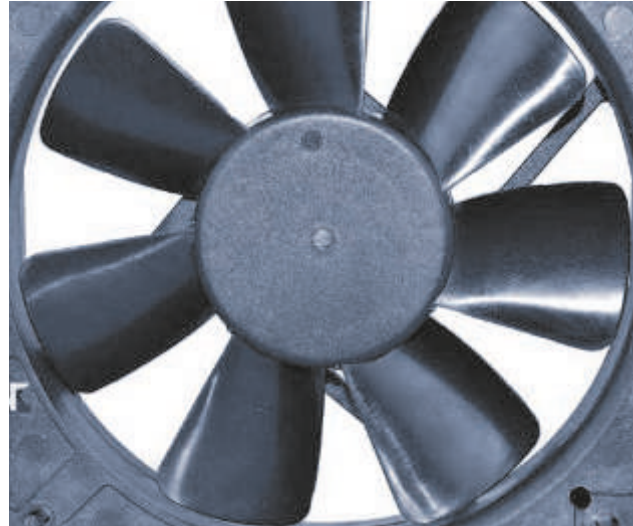
VENTILATION TECHNOLOGY

PERFORMING CIRCUITS THANKS TO AN OPTIMISED CIRCULATION

Switch cabinets have increasingly less room for electronics which is why the ventilation technology is an important component when damaging heat pockets are to be avoided.

Thanks to the **Lm-therm ventilation technology**, heat is distributed evenly and also dissipated via the surface of the housing. The controller and fans are therefore important components inside a switch cabinet. The modules do not only increase the reliability within the production processes but will also optimise the energy balance.

Equip your switch cabinet with Lm-therm ventilation and benefit from a long-lasting operational reliability with an optimised use of resources at the same time.



YOUR BENEFITS AT A GLANCE:

- Different fans adapted to requirements
- Special solutions
- For an optimum convection

FILTERFANS AND OUTLET FILTERS

- different fans, according to requirements
- realization of special versions
- orientation to the optimal convection

Technical data for all variants

- degree of utilization: 100%
- operating temperature: -10°C - +70°C
- kind of protection/ class: IP54 / PC I
- fan direction: blowing in
(optional blowing out - index: S)
- 12V/24V/48V - versions on request
- fan durability: 50.000h
- material: ABS UL94V-0
- colour: RAL7035
- wall thickness: 1,2mm to 2,4mm
- installation: selfsnapping without screws
- UL-license on request



Versions

ORDER-NO.	VOLTAGE (V/Hz)	POWER (W)	CURRENT (A)	DIMENSIONS (MM)	CUTTING (MM)	AIR POWER (M ³ /H) FREE BLOWING	AIR POWER (M ³ /H) WITH FILTER	NOISE LEVEL DB (A)	WEIGHT INCL. PACKAGE (G)	PICTURE-NO.
FL-A500BPB	230 / 50-60	13	0,1	114x114x57	92x92	28	24	30	380	1
FL-A510BPB	115 / 50-60	13	0,14	114x114x57	92x92	28	24	30	380	1
FL-1600BPB	230 / 50-60	22	0,14	150x150x77	125x125	55	55	43	780	2
FL-1610BPB	115 / 50-60	22	0,26	150x150x77	125x125	55	55	43	780	2
FL-B500BPB	230 / 50-60	24	0,15	204x204x97	177x177	110	80	43	950	3
FL-B510BPB	115 / 50-60	24	0,3	204x204x97	177x177	110	80	43	950	3
FL-2300BPB	230 / 50-60	22	0,14	250x250x111	225x225	120	105	43	1200	4
FL-2310BPB	115 / 50-60	22	0,26	250x250x111	225x225	120	105	43	1200	4
FL-2500BPB	230 / 50-60	40	0,17	250x250x119	225x225	260	230	53	1600	5
FL-2510BPB	115 / 50-60	40	0,34	250x250x119	225x225	260	230	53	1600	5
FL-2600BPB	230 / 50-60	70	0,4	250x250x110	225x225	400	370	65	2500	5
FL-2610BPB	115 / 50-60	70	0,8	250x250x110	225x225	400	370	65	2500	5
FL-2640BPB	400 / 50-60	60	0,18	250x250x110	225x225	400	370	65	2500	5
FL-3500BPB	230 / 50-60	70	0,4	325x325x151	291x291	570	500	65	3000	6
FL-3510BPB	115 / 50-60	70	0,8	325x325x151	291x291	570	500	65	3000	6
FL-3540BPB	400/ 50-60	60	0,18	325x325x151	291x291	570	500	65	3000	6
FL-3600BPB	230 / 50-60	130	0,55	325x325x151	291x291	700	630	72	3650	6
FL-3610BPB	115 / 50-60	130	1,1	325x325x151	291x291	700	630	72	3650	6

Technical data outlet filters

ORDER-NO.	DIMENSIONS (MM)	CUTTING (MM)	WEIGHT (G)	FILTER MAT (RE-PLACEMENT)
AF-A000BPB	114x114x17	92x92	60	FM-A0
AF-1000BPB	150x150x28	125x125	160	FM-10
AF-B000BPB	204x204x30	177x177	260	FM-B0
AF-2000BPB	250x250x30	225x225	420	FM-20
AF-3000BPB	325x325x30	291x291	640	FM-30

Pictures and dimensions

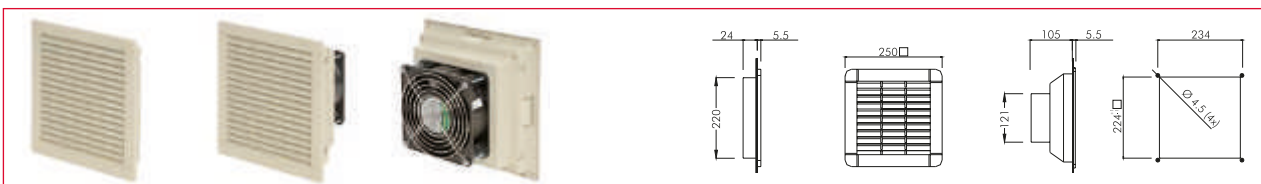
Picture no. 1



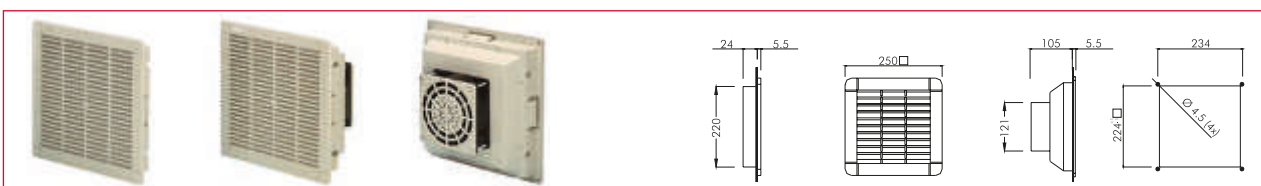
Picture no. 2



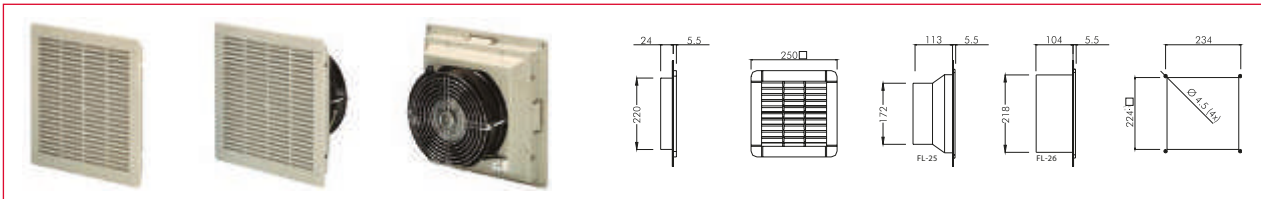
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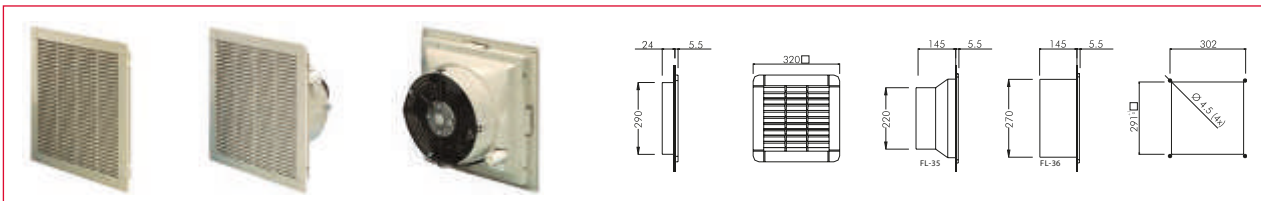
Picture no. 4



Picture no. 5



Picture no. 6



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CIRCULATION FANS



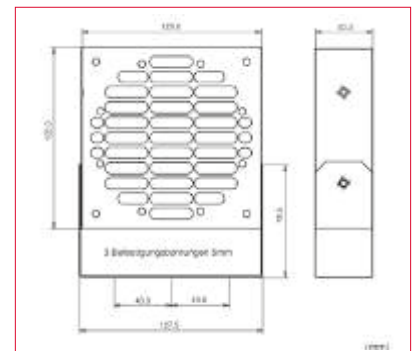
- UL-license on request
- realization of special versions
- flexible delivery times



Technical data circulation fans

ORDER-NO.	VOLTAGE	AIR POWER FREE BLOWING (M ³ /H)	SPEED (T/MIN)	NOISE LEVEL (DB (A))	WEIGHT (G)	CONNECTION	KIND OF PROTECTION / CLASS
12UL120	12V DC	180	5600	42,3	790	cable 0,5m 3x0,75mm ²	IP20 / PC I
24UL120	24V DC	180	5600	42,3	790	cable 0,5m 3x0,75mm ²	IP20 / PC I
115UL120	115V AC	160	3200	30	910	cable 0,5m 3x0,75mm ²	IP20 / PC I
230UL120	230V AC	160	2700	30	910	cable 0,5m 3x0,75mm ²	IP20 / PC I

Dimensions



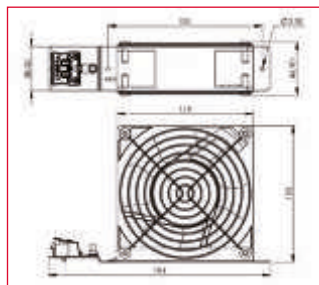
Technical data circulator fans „Wafan“ und „Sefan“

ORDER-NO.	VOLTAGE	AIR POWER FREE BLOWING (M ³ /H)	SPEED (T/MIN)	NOISE LEVEL (DB (A))	WEIGHT (G)	CONNECTION	KIND OF PROTECTION / CLASS
3000356	230V AC	173 (horizontal)	2900	28	ap. 900	3-pin terminal	IP20 / PC I
3000357	230V AC	173 (vertical)	2900	28	ap. 900	3-pin terminal	IP20 / PC I

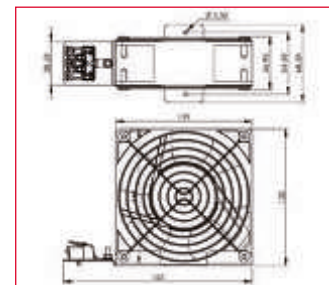
Dimensions circulations fan „Wafan“ and „Sefan“



circulation fan „Wafan“



circulation fan „Sefan“

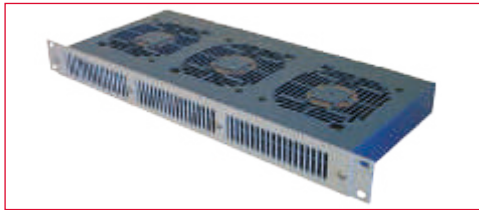


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Stand: 11/2015

19" FAN INSERTIONS*



- steel panel, stainless steel grid
- realization of special projects
- flexible delivery times



Technical data

ORDER-NO.	NUMBER OF FANS	ELECTRICAL CONNECTION	POWER INPUT (W)	AIR VOLUME CURRENT (M ³ /H)	PRESSURE RISE (PA)	EXCESS PRES-SURE (DB (A))	WIDTH (MM)	HEIGHT (MM)	DEPTH (MM)	WEIGHT (KG)
LE3-230VAC	3	207...253VAC /50/60Hz	45	495	74	45,2	440	43,6	230	3
LE3-115VAC	3	103,5...126 VAC/50/60Hz	44	576	88	47,3	440	43,6	230	3
LE6-230VAC	6	207...253VAC /50/60Hz	90	990	74	48,8	440	43,6	390	6
LE6-115VAC	6	103,5...126 VAC/50/60Hz	88	1152	88	50,8	440	43,6	390	6

*further versions on request

More information

- fan for the vertically ventilation of components in 19"-racks
- for the mounting installation rails are recommended
- steel panel, stainless steel grid
- the housing is galvanized
- front panel is powder-coated in RAL7035

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COOLING TECHNOLOGY

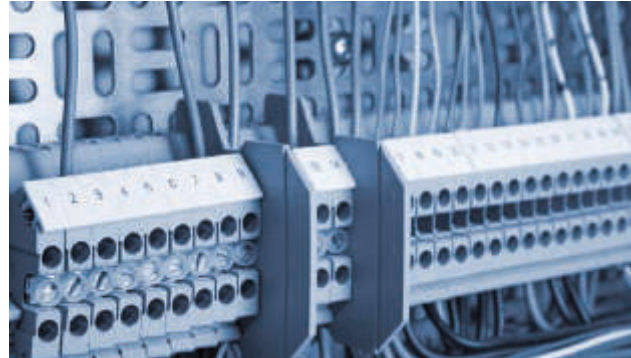
SYSTEMS FOR AN IDEAL CLIMATE

Peltier cooling devices

Lm-therm Peltier cooling devices ensure a reliable and environmentally friendly climate control of switch cabinets. The Peltier cooling devices equipped with high-quality and robust metal housings operate on the same principle as electrical heat pumps. A fan integrated in the switch cabinet blows warm air onto cold exchanger. A Peltier element transports heat energy to a heat exchanger mounted on the exterior and the air cools down.

The fail-safe **Peltier technology** offers many advantages. As no coolant is required it effectively protects the environment. Furthermore, no exchange of gases or liquids takes place between the inside of the switch cabinet and the ambient air.

Should you require to have any models customised especially for your application, our in-house Engineering Department will gladly develop an optimally designed system together with you.



High-quality electronic systems integrated into switch cabinets, different locations indoors and outdoors as well as rapid changes in climate increasingly requires the use of cooling devices.

The **Lm-therm compressor-based cooling devices** for application between 380 W and 4,000 W using a CFC-free coolant are also suitable for applications with high power losses. Available are compressor-based cooling devices for the door or wall installation and roof installation of switch cabinets.



YOUR BENEFITS AT A GLANCE:

- Protection class (outdoor)
IP 67 possible
- No use of coolants
- No exchange of gases and liquids

YOUR BENEFITS AT A GLANCE:

- Devices for small and large housings
- Suitable for door, wall or roof installation

PELTIER COOLING UNITS



- no use of refrigerants
- electric cabinet- and surface cooler
- IP67 is possible
- special versions available



Technical data electric cabinet cooler

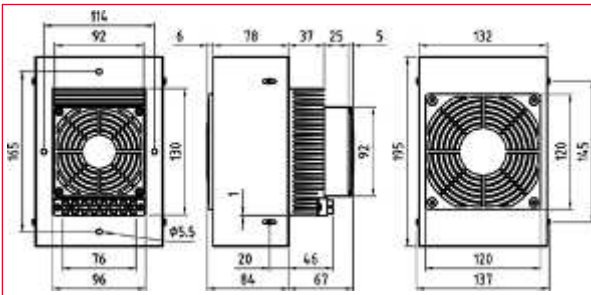
ORDER-NO.	POWER (W)	SUPPLY VOLTAGE (V)	OPERATION TEMPERATURE	WEIGHT (KG)	KIND OF PROTECTION OUTSIDE	FAULT SIGNAL CONTACT	SIZE
FL-104	50	24V DC	-40 - +70°C	ca. 2,5	IP67	NO-contact max. 30 V DC 5A	1
FN-104	70	24V DC	-40 - +70°C	ca. 2,5	IP67	NO-contact max. 30 V DC 5A	1
FR-104	100	24V DC	-40 - +70°C	ca. 2,5	IP67	NO-contact max. 30 V DC 5A	1
FL-208	100	24V DC	-40 - +70°C	ca. 5,0	IP67	NO-contact max. 30 V DC 5A	2
FN-208	140	24V DC	-40 - +70°C	ca. 5,0	IP67	NO-contact max. 30 V DC 5A	2
FR-208	200	24V DC	-40 - +70°C	ca. 5,0	IP67	NO-contact max. 30 V DC 5A	2
FL-316	200	24V DC	-40 - +70°C	ca. 10,0	IP67	NO-contact max. 30 V DC 5A	3
FN-316	280	24V DC	-40 - +70°C	ca. 10,0	IP67	NO-contact max. 30 V DC 5A	3
FR-316	400	24V DC	-40 - +70°C	ca. 10,0	IP67	NO-contact max. 30 V DC 5A	3

Technical data surface cooler

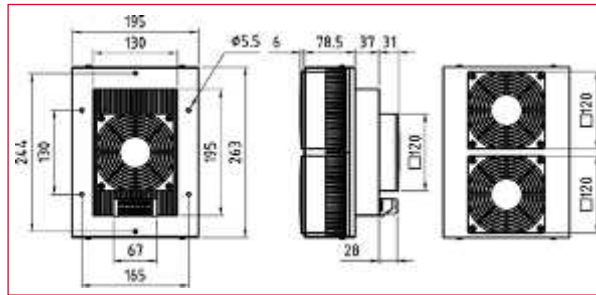
ORDER-NO.	POWER (W)	SUPPLY VOLTAGE (V)	OPERATION TEMPERATURE	WEIGHT (KG)	KIND OF PROTECTION OUTSIDE	FAULT SIGNAL CONTACT	SIZE
GL-104	50	24V DC	-40 - +70°C	ca. 2,5	IP67	NO-contact max. 30 V DC 5A	1
GN-104	70	24V DC	-40 - +70°C	ca. 2,5	IP67	NO-contact max. 30 V DC 5A	1
GR-104	100	24V DC	-40 - +70°C	ca. 2,5	IP67	NO-contact max. 30 V DC 5A	1
GL-208	100	24V DC	-40 - +70°C	ca. 5,0	IP67	NO-contact max. 30 V DC 5A	2
GN-208	140	24V DC	-40 - +70°C	ca. 5,0	IP67	NO-contact max. 30 V DC 5A	2
GR-208	200	24V DC	-40 - +70°C	ca. 5,0	IP67	NO-contact max. 30 V DC 5A	2
GL-316	200	24V DC	-40 - +70°C	ca. 10,0	IP67	NO-contact max. 30 V DC 5A	3
GN-316	280	24V DC	-40 - +70°C	ca. 10,0	IP67	NO-contact max. 30 V DC 5A	3
GR-316	400	24V DC	-40 - +70°C	ca. 10,0	IP67	NO-contact max. 30 V DC 5A	3

Dimensions electric cabinet cooler

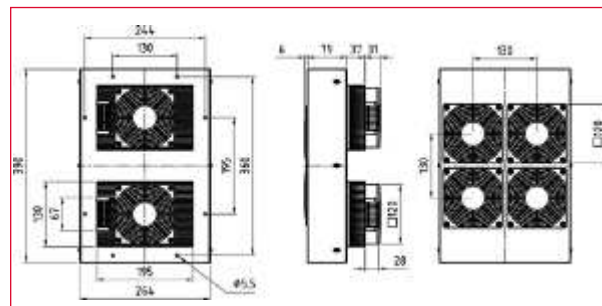
Size 1



Size 2

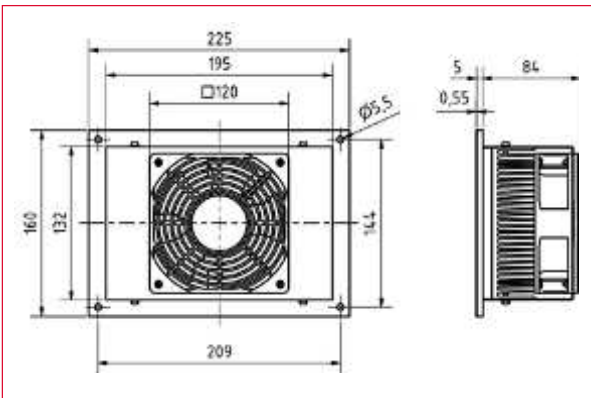


Size 3

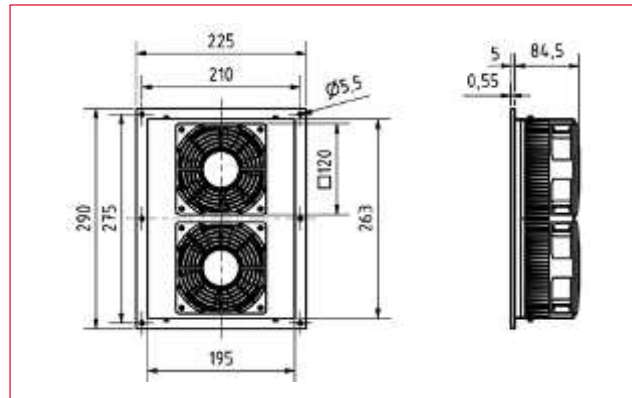


Dimensions surface cooler

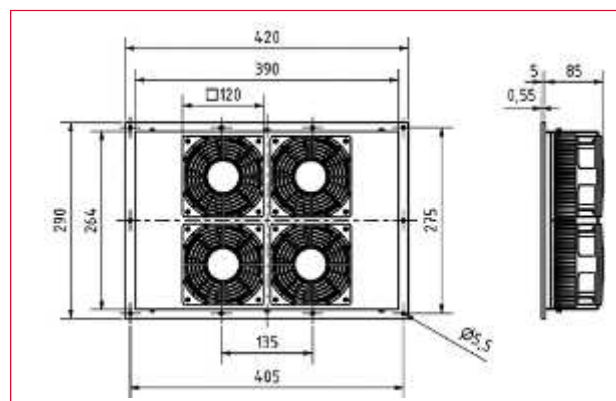
Size 1



Size 2



Size 3



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COMPRESSOR COOLING UNITS

- solutions for small and large cabinets
- high quality electronic
- FCKW-free refrigerant
- door-, wall-, roof-mounting



Technical data series EGO

ORDER-NO.	SUPPLY VOLTAGE (V/Hz)	COOLING POWER EN814-A35A35 (W)	COOLING POWER EN814-A35A50 (W)	DIMENSIONS (MM)	MAX. CURRENT (A)	STARTING CURRENT (A)	FUSE T (A)	RATED POWER EN814-A35A35 (W)	RATED POWER EN814-A35A50 (W)	REFRIGERANT R134A (KG)	MAX. EXCESS PRESSURE (BAR)	AIR CAPACITY OUT/INSIDE CIRCULATION (M ³ /H)	NOISE LEVEL (DB (A))	WEIGHT (KG)
EGO04BT1B	230 / 50-60	380	240	285x460x180	1,6	6	4	280	330	0,11	26	280/280	60	17
EGO06BT1B	230 / 50-60	640	470	316x606x212	2,1	8,1	6	400	470	0,2	25	570/330	65	21
EGO08BT1B	230 / 50-60	820	680	348x783x215	2,6	10,8	6	440	490	0,21	25	570/330	65	27
EGO10BT1B	230 / 50-60	1000	790	348x783x215	3	10,5	6	570	650	0,23	25	570/330	65	28
EGO12BT1B	230 / 50-60	1250	910	405x999x237	3,8	11	6	650	760	0,38	25	860/570	65	38
EGO30BT1B	230 / 50-60	2900	2250	500x1270x336	8,2	37,4	16	1340	1560	0,84	25	1450/860	70	80
EGO40BT1B	230 / 50-60	3850	2870	500x1270x336	9,5	35,2	16	1710	1990	1,14	25	1450/1450	70	82

Technical data series SKY

ORDER-NO.	SUPPLY VOLTAGE (V/Hz)	COOLING POWER EN814-A35A35 (W)	COOLING POWER EN814-A35A50 (W)	DIMENSIONS (MM)	MAX. CURRENT (A)	STARTING CURRENT (A)	FUSE T (A)	RATED POWER EN814-A35A35 (W)	RATED POWER EN814-A35A50 (W)	REFRIGERANT R134A (KG)	MAX. EXCESS PRESSURE (BAR)	AIR CAPACITY OUT/INSIDE CIRCULATION (M ³ /H)	NOISE LEVEL (DB (A))	WEIGHT (KG)
SKY10BT0B	230 / 50-60	1050	860	400x950x233	3,1	10,5	6	570	650	0,3	25	860/570	65	37
SKY15BT0B	230 / 50-60	1550	1200	400x950x233	5,3	18	10	880	980	0,44	25	1050/570	65	38
SKY20BT0B	230 / 50-60	2050	1560	400x1265x236	6,5	24	10	1080	1290	0,75	25	1050/860	65	60

Technical data series DEK

ORDER-NO.	SUPPLY VOLTAGE (V/Hz)	COOLING POWER EN814-A35A35 (W)	COOLING POWER EN814-A35A50 (W)	DIMENSIONS (MM)	MAX. CURRENT (A)	STARTING CURRENT (A)	FUSE T (A)	RATED POWER EN814-A35A35 (W)	RATED POWER EN814-A35A50 (W)	REFRIGERANT R134A (KG)	MAX. EXCESS PRESSURE (BAR)	AIR CAPACITY OUT/INSIDE CIRCULATION (M ³ /H)	NOISE LEVEL (DB (A))	WEIGHT (KG)
DEK04BT0B	230 / 50-60	410	240	259x264x486	1,5	4	4	270	315	0,17	26	330/235	60	18
DEK08BT0B	230 / 50-60	820	680	340x340x600	2,9	12	6	510	560	0,31	25	860/570	62	23
DEK12BT0B	230 / 50-60	1150	900	401x415x567	3,2	11	6	550	660	0,63	25	1010/570	65	40
DEK15BT0B	230 / 50-60	1550	1200	401x415x567	4,5	18	8	810	930	0,8	25	1820/860	65	44
DEK20BT0B	230 / 50-60	2050	1560	401x415x567	6	24	10	1190	1300	1,05	25	1820/1050	65	50
DEK30BT0B	230 / 50-60	2900	2250	492x496x797	8,2	38,4	16	1350	1610	1,26	25	3410/860	75	80
DEK40BT0B	230 / 50-60	3850	2870	492x496x797	9	38,2	18	1690	1950	1,8	25	3410/1450	75	83

Pictures

Series EGO



Series SKY



Series DEK

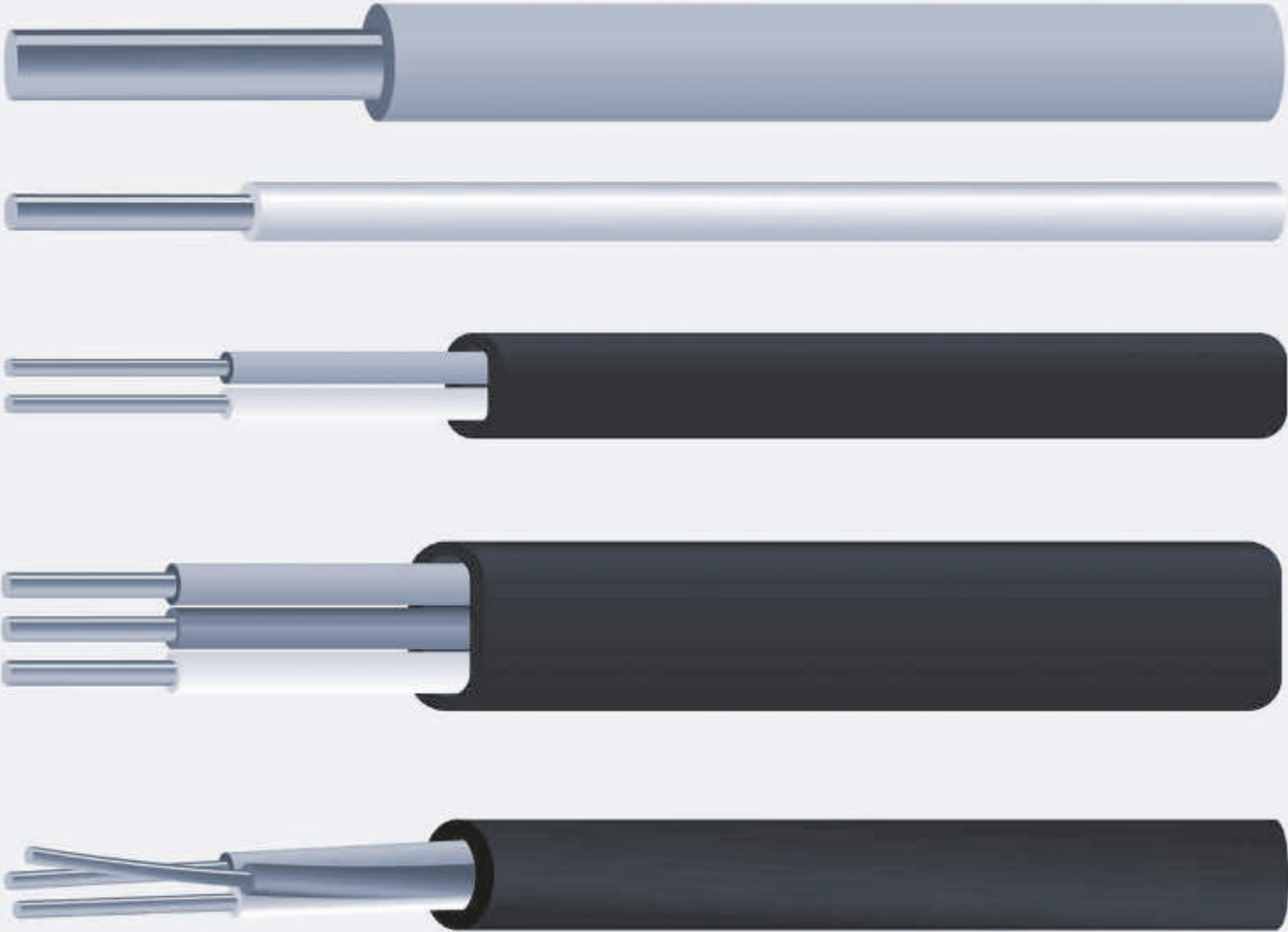


The information described on this data sheet contains descriptions or characteristics, which could not apply in the described way in the concrete case. The information of the products can also change in the course of development. The desired characteristics are only binding in the case that they have been explicitly agreed with a contract conclusion. Delivery possibilities and technical changes reserved.

The mentioned technical data have been determined under labor conditions by universal test instructions. Only insofar characteristics are ensured. The test for the suitability for the intended use scheduled by the purchaser is incumbent on the purchaser; we do not take warranty for that. Errors reserved.

Stand: 11/2015





CABLE TECHNOLOGY

Exact cable technology from Lm-therm!

We manufacture cables, we produce cable harnesses and we do automated manufacture of conductors - according to your requirements!

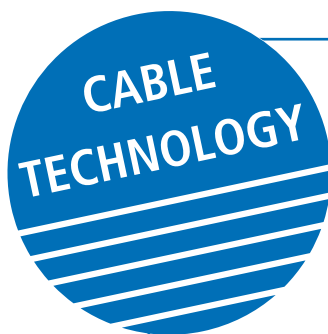
The service features of Lm-therm in the sector of converting different cable types of considerable manufacturers are also tailored for customer-specific applications and production plans. The own machinery enables the production to manufacture single units and mass production to the same degree.

Does not matter if a flexible manual production with half or fully automatic machines is needed- Lm-therm plans, configures, bundles and tapes your special cable harness.

Lm-therm uses for the manufacture of conductors the special fully automated cable machines. It is possible to manufacture



different cable cross sections in nearly every length.



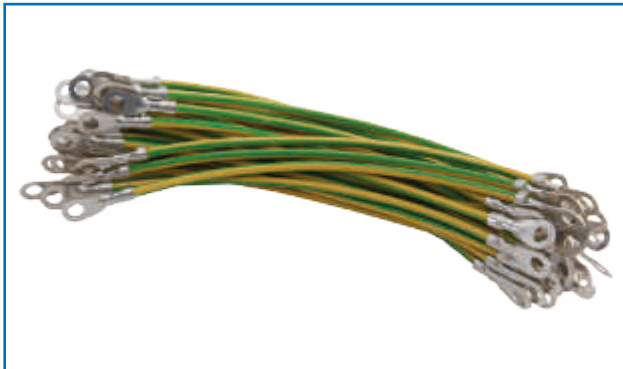
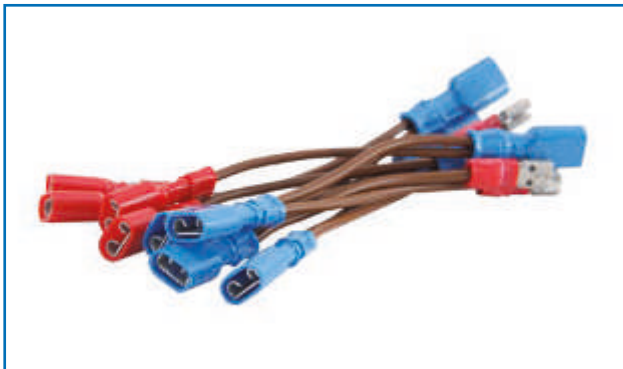
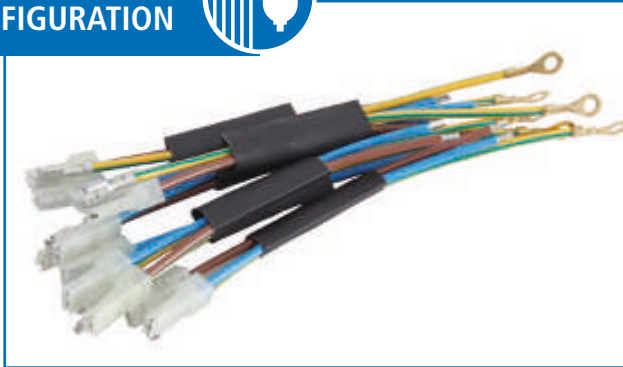
YOUR BENEFITS AT A GLANCE:

- Small to large quantities
- Individual production
- Flexible delivery times
- Sound know-how
- Custom-made products
- Fair cost-performance ratio



CABLE TECHNOLOGY OVERVIEW

CABLE CONFIGURATION



Extensive service portfolio

Lm-therm's product portfolio includes the processing of different types of cable from leading manufacturers according to customer-specific requirements and production programs. Our in-house machine outfit with special automatic units allows us to manufacture single pieces as well as a high volume.

Service portfolio manufacture of single conductors

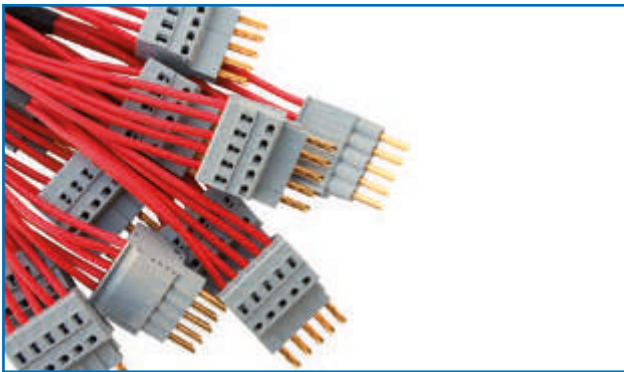
- Conductor cross-sections from 0.14 mm² to 195 mm² or AWG26 to AWG000000
- Conductor structure stranded or solid
- Harmonised and UL compliant wires in various styles and other standards
- Temperature range from -50°C to 200°C
- Insulation material made of PVC, silicone, Teflon, PE and PU, depending on the thermal, mechanical, chemical and environmental requirements
- Multi-layered insulation structure possible
- Automatic printing with industrial ink-jet printer possible
- Contacting possible with all conventional contact and housing systems
- Tinning of single strands
- Twisting of single strands

Service portfolio manufacture of multi-conductors

- Conductor cross-sections from 0.14 mm² to 6 mm² or AWG26 to AWG10
- Conductor structure stranded or solid
- Harmonised and UL compliant cables in various styles and other standards
- Temperature range from -50°C to 200°C
- Insulation material made of PVC, silicone, Teflon, PE and PU, depending on the thermal, mechanical, chemical and environmental requirements
- Multi-layered insulation structure possible
- Screened, unshielded and coaxial conductor structure
- Automatic printing with industrial ink-jet printer possible
- Contacting possible with all conventional contact and housing systems

CABLE TECHNOLOGY OVERVIEW

CABLE CONFIGURATION



Service portfolio ribbon cables

- Conductor cross-sections from 0.14 mm² to 1 mm² or AWG26 to AWG10
- Conductor structure stranded or solid
- Contact spacing from 1.27 mm² to 2.54 mm²
- Harmonised and UL compliant cables in various styles and other standards
- Temperature range from -50°C to 200°C
- Insulation material made of PVC, silicone, Teflon, PE and PU, depending on the thermal, mechanical, chemical and environmental requirements
- Multi-layered insulation structure possible
- Screened, unscreened and flat conductor structure
- Automatic printing with industrial ink-jet printer possible
- Contacting possible with all conventional contact systems such as insulation displacement contacts, solder and crimp contacts
- Housing systems such as SUB-D, pin header connectors with and without strain relief bar, board connector and standard housing

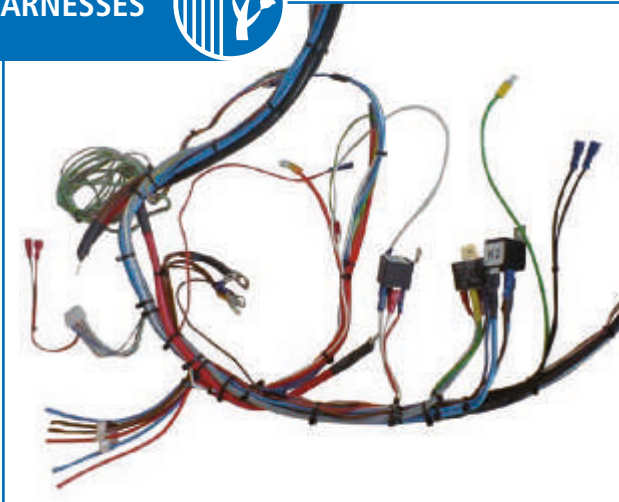
Service portfolio cable sets

- Conductor cross-sections from 0.14 mm² to 195 mm² or AWG26 to AWG000000
- Conductor structure stranded or solid
- Harmonised and UL compliant wires in various styles and other standards
- Temperature range from -50°C to 200°C
- Insulation material made of PVC, silicone, Teflon, PE and PU, depending on the thermal, mechanical, chemical and environmental requirements
- Multi-layered insulation structure possible
- Automatic printing of individual cables with industrial ink-jet printer possible
- Contacting possible with all conventional contact and housing systems
- Twisting of single strands possible



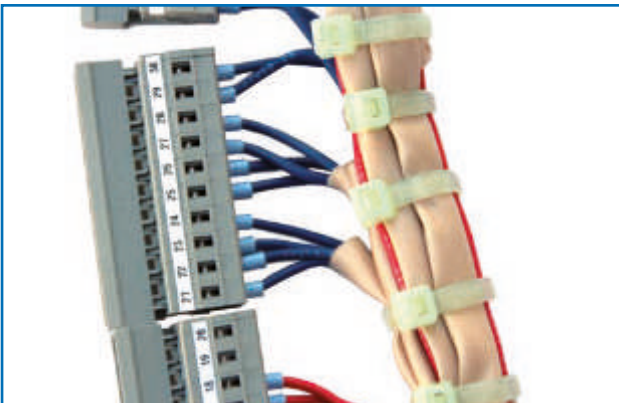
CABLE HARNESSSES

CABLE HARNESSSES



Service portfolio cable harnesses

- Prototypes and series production for the areas of medicine, tool building and plant construction and mechanical engineering
- Different types of enclosures possible such as cable ties, corrugated tubes, insulating hoses, wrapping tapes
- Open ends and different contact systems with housing
- Conductive material same as used for cable configuration
- Quality assurance through dimensional accuracy, electrical continuity and, if required, insulation measurement
- Labelling with serial / batch numbers
- Coordination of packaging and lot sizes

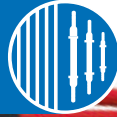


Service portfolio power cables

- Various international standards for connectors and conductive material
- From lot size 1 to series production
- Screw-fastened or moulded
- Encapsulated version as a seal possible
- Customised extension cable possible

AUTOMATED MANUFACTURE OF STRANDED WIRES

AUTOMATED MANUFACTURE OF STANDARD WIRES



Flexible technology – a wide range of options

One of the machines Lm-therm Elektrotechnik AG uses to manufacture stranded wires is a fully automatic „Metzner“ machine. The cable processing machine allows for the processing of a wide variety of cable cross-sections, of nearly any cable length and also the fully automatic manufacture of stranded wires.

Use the extensive options available. Contact us and enjoy the added benefit of very short delivery times for goods in stock.

The range of services at a glance:

- Cable cross-sections from 0.50 mm² to 2.5 mm²
- Lengths available from 200 mm
- With insulated end sleeves on both sides
- Printing on cable in black/white possible
- Partial removal of insulation possible
- Small to large quantities



YOUR BENEFITS AT A GLANCE:

- Small to large quantities
- Flexible delivery times
- Sound know-how
- Fair cost-performance ratio



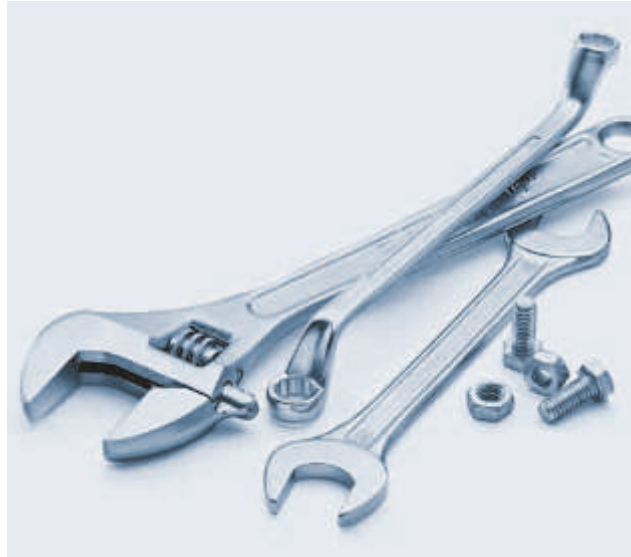


ASSEMBLY OF COMPONENTS

Your service partner - competent and reliable

Lm-therm Elektrotechnik AG is your competent contact partner in the complex area of component assembly. We will realise for you the challenging requirements of your customers. It is our top priority to satisfy both you and your customers.

To this end, we assemble and test electronic and electro-mechanical components, manufacture your complete devices in small batches and assemble provided components. Our portfolio also includes the development and construction, the manufacture of complete devices in small batches and specific products and special solutions. We also handle the complete logistics including the shipment of goods.



YOUR EXTENDED WORK BENCH

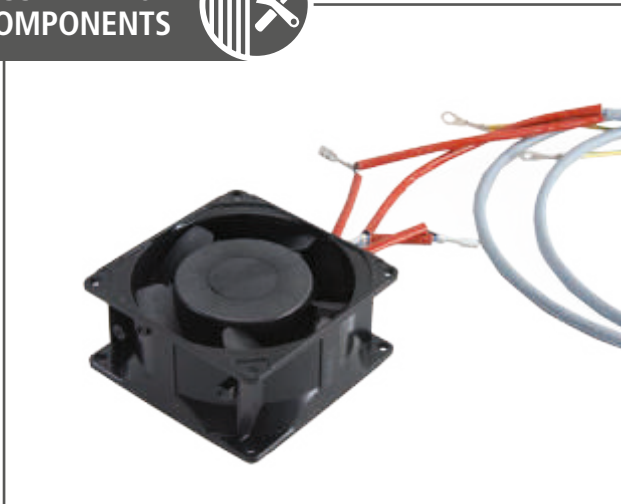
YOUR BENEFITS AT A GLANCE:

- Solutions specifically adapted to your needs
- Support from our in-house engineering
- Handling of the logistics from start to finish



ASSEMBLY OF COMPONENTS

ASSEMBLY OF COMPONENTS



Overview of the assembly of components:

- Cable configuration
- Mechanical processing and assembly
- Electrical assembly and wiring
- Completion of provided parts, purchased parts and own products
- Purchasing and storage
- Testing according to the customer's specification

Quality assurance in detail:

- Testing of dimensions based on drawings
- Testing of surface quality according to specifications
- Testing of mechanical properties
- Testing of function and insulation
- Testing of the protective conductor function

Optimum warehouse and delivery logistics:

- We will gladly store manufactured goods for you and also take on the punctual delivery of the end product to your customers with your shipping documents!

CERTIFICATE ACCORDING TO ISO 9001:2008

ZERTIFIKAT



ISO 9001:2008

DEKRA Certification GmbH bescheinigt hiermit, dass das Unternehmen

Lm-therm Elektrotechnik AG

Zertifizierter Bereich:
Herstellung und Vertrieb von elektrischen und elektronischen Geräten und Kabelsystemen sowie Systeme für Elektromobilität und erneuerbare Energie. Produktion und Vertrieb von Schaltschrankheizgeräten.

Zertifizierter Standort:
D-94591 Aldersbach OT Freundorf, Sulzbachstraße 15

ein Qualitätsmanagementsystem entsprechend der oben genannten Norm eingeführt hat und aufrechterhält. Der Nachweis wurde mit Auditbericht-Nr. A14021407 erbracht.

Dieses Zertifikat ist gültig vom 02.09.2014 bis 19.08.2017 Zertifikats-Registrier-Nr.: 50703720/5
Duplikat

 
DEKRA Certification GmbH
Stuttgart, 02.09.2014

 
Deutsche
Akkreditierungsstelle
D-201-16029-01-01

Der Halter ist gegen die im Zertifikatsverzeichnis genannten Bedingungen zur Pflicht des Zertifikats vorzulegen sowie gültig zu halten.

DEKRA Certification GmbH • Handwerkstraße 15 • D-70566 Stuttgart • www.dekra-certification.de
Seite 1 von 1



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Version 1.1

Ihr Ansprechpartner: