STEGO

SIMPLY INNOVATIVE. BETTER FOR SURE.

INNOVATION

FOR PERFECT THERMAL MANAGEMENT WORLDWIDE

CATALOGUE 2016

STEGO Catalogue 2016

Global presence in Thermal Management

This catalogue contains the full range of STEGO products for protection of electronic components. You will discover why STEGO products are perfectly suitable for the needs of professional users and how easy it is to obtain them worldwide – wherever you are out to succeed.


STEGO
STEGO

COMPANY

INNOVATION MADE IN GERMANY

We have been developing and producing innovative products for perfect thermal management for over 30 years in Schwäbisch Hall, Germany.

STEGO:
SAFETY IS WHAT DRIVES US

STEGO products are used in all places where sensitive electronic components must be protected from humidity and other climatic influences. Heating elements, regulators, fans and STEGO accessories help you to optimise operating conditions and to reach maximum protection for your installations. So that you can be sure of lasting success!

PERFECT THERMAL MANAGEMENT

Since it was founded in 1980, STEGO Elektrotechnik in Schwäbisch Hall, Germany, has been developing, producing and selling an ever-growing range of products for the protection of electric and electronic components. All STEGO products are aimed at reaching optimum climatic conditions in the most varied environments, ensuring that all sensitive components work reliably at all times.

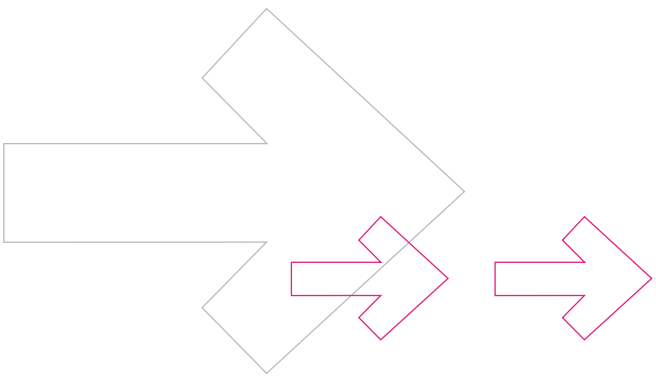
Tried and tested temperature and humidity control systems ensure these optimised climatic conditions. If temperature and/or humidity are too low or too high, the necessary countermeasure is immediately initiated, for example a heater is turned on or a filter fan circulates cool air. A diversity of conditions such as the change from day to night, or particularly warm or cold regions, make climatisation an ever-increasing and challenging task. To meet this challenge, STEGO offers everything that is needed to protect sensitive components from corrosion and malfunction.

WORLDWIDE SERVICE SUPPORTING QUALITY WORLDWIDE

STEGO's thermal management solutions are exported internationally and find use in the most diverse areas of application and climatic conditions. STEGO maintains an on-going exchange with partners and customers from many branches of industry in order to develop innovative products meeting the demands of the market. This close contact enables STEGO to incorporate market requirements from experts directly into our product design. As part of this global cooperation valuable know-how is permanently exchanged, thus strengthening the competence of our designers beyond local market knowledge. The continuous flow of information not only increases the quality of STEGO products, but also the final products our customers bring onto the market. STEGO believes in sustainability, acts in an environmentally-friendly manner and is quality-oriented. The company is DIN EN ISO 9001:2008 and 14001:2004 certified and has introduced the Six Sigma method to improve quality management. Furthermore STEGO meets the requirements of OHSAS 18001 health and safety management. STEGO is now represented at 12 locations and by more than 200 sales partners worldwide.

kiwa certified ISO 9001 ISO 14001

kiwa certified OHSAS 18001



CONTENT

DISCOVER OUR PORTFOLIO OF TRIED AND TESTED PRODUCTS USED FOR THE PROTECTION OF ELECTRICAL AND ELECTRONIC INSTALLATIONS ON ALL CONTINENTS.

We offer calculation modules on our website helping you to determine the required heating or cooling performance for an application. You will also find there latest news, as well as further information about STEGO.

HEATING

PROTECTION AGAINST FROST AND CONDENSATION

Optimised temperatures are of utmost importance in switch cabinets: STEGO heaters and fan heaters prevent dangerously low temperatures and ensure equal distribution of warm air.

SMALL SEMICONDUCTOR HEATER

RCE 016 | 5W, 9W

> Wide voltage range
> Dynamic heating up
> Energy saving
> Compact

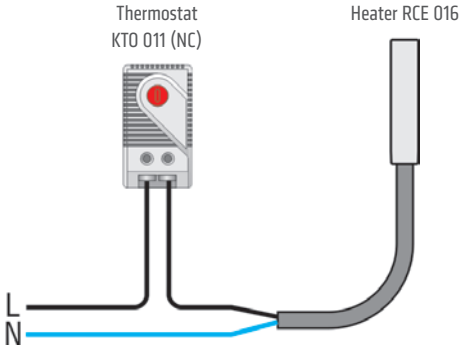
Small heaters designed to prevent condensation and to ensure a minimum operating temperature in small enclosures. The heaters are designed for permanent operation.

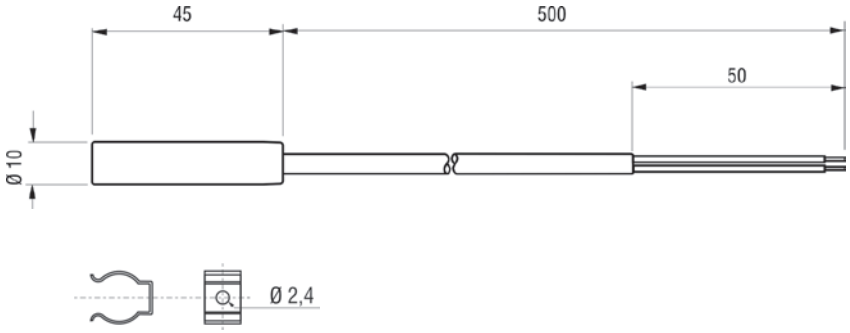
TECHNICAL DATA

Operating voltage	120-240V AC/DC[1] (min. 110V, max. 265V)
Heating element	PTC resistor, temperature limiting
Heater body	aluminium
Mounting	see Accessories
Fitting position	variable
Dimensions	length 45mm, Ø 10mm
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / II (double insulated)
Approvals	VDE, UL File No. E150057 (according to UL 508A, NITW File on request), EAC
Accessories	mounting clips (see illustration), Art. No. 09008.0-01
Note	other voltages on request

[1] Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

Example of connection





Mounting clips, Art. No. 09008.0-01 (1 packing unit = 2 pieces)

Art. No.	Heating capacity[2]	Inrush current max.	Recommended pre-fuse T (time-delay)	Surface temperature (approx.)	Connection	Weight (approx.)
01622.0-00	5W	2.0A	2.0A	+165°C	2 x AWG 22 cable (silicone)	20g
01623.0-00	9W	2.5A	4.0A	+175°C	2 x AWG 22 cable (silicone)	20g

[2] at +20°C (+68°F) ambient temperature

SMALL SEMICONDUCTOR HEATER

RC 016 | 8W, 10W, 13W

> Wide voltage range
> Dynamic heating up
> Energy saving
> Compact

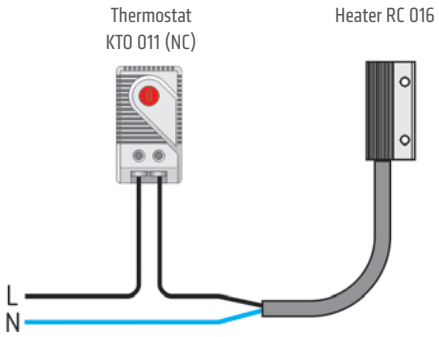
These small heaters are designed to prevent condensation and to ensure a minimum operating temperature in small enclosures. The heaters are designed for permanent operation.

TECHNICAL DATA

Operating voltage	120-240V AC/DC[1] (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	aluminium, anodised
Mounting	screw fixing
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / II (double insulated)
Approvals	VDE, UL File No. E150057 (according to UL 508A, NITW File on request), EAC
Note	other voltages on request

[1] Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

Example of connection



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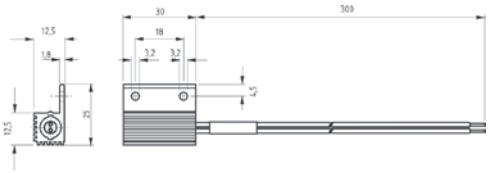
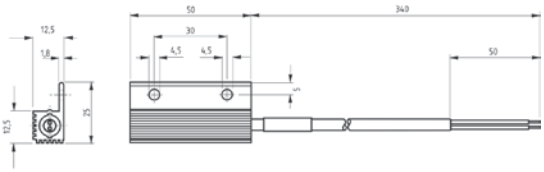


Art. No. 01609.0-00



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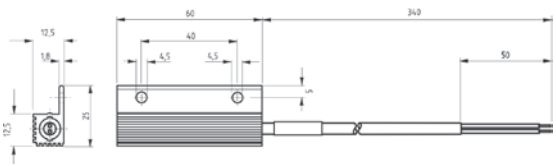


Art. No.	Heating capacity[2]	Inrush current max.	Recommended pre-fuse T (time-delay)	Surface temperature (approx.)	Connection	Weight (approx.)
01602.0-00	8W	2.0A	2.0A	+150°C	2 x AWG 18 stranded wire	20g
01609.0-00	10W	2.5A	4.0A	+155°C	2 x AWG 22 cable (silicone)	30g
01610.0-00	13W	3.0A	4.0A	+170°C	2 x AWG 22 cable (silicone)	40g

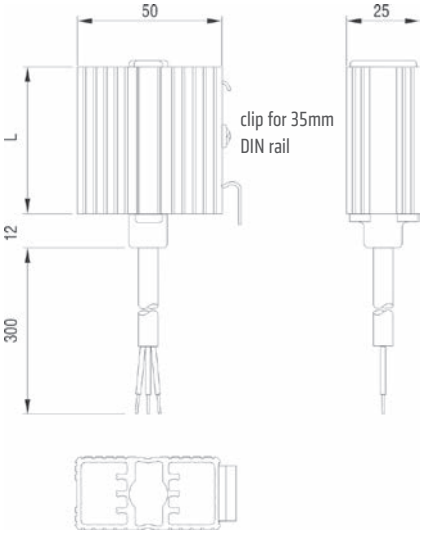
[2] at +20°C (+68°F) ambient temperature

SMALL SEMICONDUCTOR HEATER

HGK 047 | 10W to 30W

> Dynamic heating up
> Energy saving
> Wide voltage range
> Clip fixing

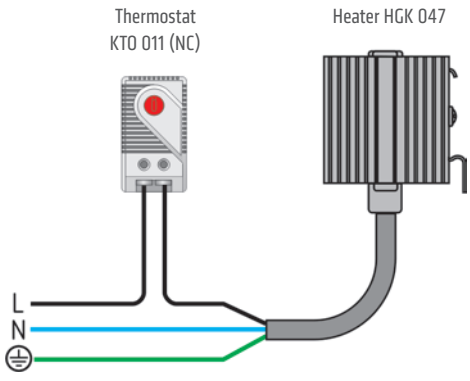
The heaters are used in enclosures where condensation is to be prevented or the temperature may not fall below a minimum value. In this way corrosion is avoided and an even temperature is ensured. The heaters are designed for permanent operation.



TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP44 / I (earthed)
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

Example of connection



Art. No.	Operating voltage	Heating capacity[1]	Inrush current max.	Recommended pre-fuse T (time-delay)	Length (L)	Weight (approx.)	Connection	Approvals	
04700.0-00	120-240V AC/DC[2]	10W	1.0A	2.0A	52mm	0.1kg	3 x 0,5mm² x 300mm cable (silicone)	VDE	EAC
04701.0-00	120-240V AC/DC[2]	20W	2.5A	4.0A	60mm	0.2kg	3 x 0,5mm² x 300mm cable (silicone)	VDE	EAC
04702.0-00	120-240V AC/DC[2]	30W	3.0A	4.0A	70mm	0.2kg	3 x 0,5mm² x 300mm cable (silicone)	VDE	EAC
04700.9-00	110-120V AC/DC	10W	1.0A	2.0A	52mm	0.1kg	3 x AWG 20 x 300mm cable	UL File No. E150057	EAC
04701.9-00	110-120V AC/DC	20W	1.5A	2.0A	70mm	0.2kg	3 x AWG 20 x 300mm cable	UL File No. E150057	EAC
04702.9-00	110-120V AC/DC	30W	1.5A	2.0A	100mm	0.2kg	3 x AWG 20 x 300mm cable	UL File No. E150057	EAC

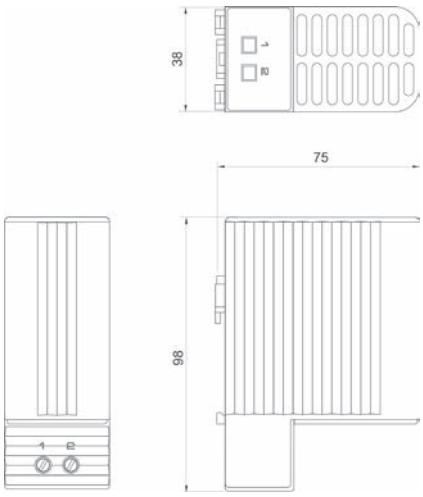
[1] at +20°C (+68°F) ambient temperature, [2] (min. 110V, max 265V) Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

TOUCH-SAFE SMALL HEATER (SEMICONDUCTOR)

CSK 060 | 10W, 20W

> Low surface temperature
> Double insulated (plastic housing)
> Wide voltage range
> Dynamic heating up
> Clip fixing

The heaters are used in enclosures where condensation is to be prevented or the temperature may not fall below a minimum value. In this way corrosion is avoided and an even temperature is ensured. The heaters are designed for permanent operation.

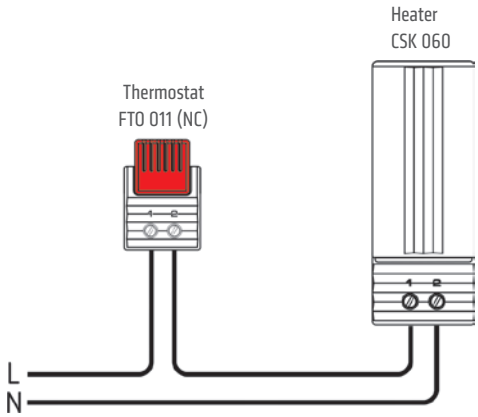


TECHNICAL DATA

Operating voltage	120-240V AC/DC[1] (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +85°C (+185°F) (according to VDE 0100), except upper protective grille
Connection	2-pole terminal 2.5mm², torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Dimensions	98 x 38 x 75mm
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45°C to +70°C (-49°F to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E150057, EAC
Note	other voltages on request

[1] Operating with voltages below 140V AC/DC reduces heating performance by approx 10%.

Example of connection



Art. No.	Heating capacity[2]	Inrush current max.	Recommended pre-fuse T (time-delay)	Weight (approx.)
06040.0-00	10W	1.0A	2.0A	0.2kg
06030.0-00	20W	2.5A	4.0A	0.3kg

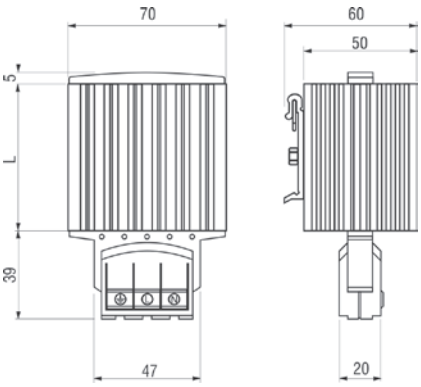
[2] at +20°C (+68°F) ambient temperature

SEMICONDUCTOR HEATER

HG 140 | 15W to 150W

- > Pressure clamp connectors
- > Dynamic heating up
- > Wide voltage range
- > Energy saving
- > Clip fixing
- > Quick installation

These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature may not fall below a minimum value. The aluminium profile heater body design has a chimney effect and distributes the heat evenly. The heaters are designed for permanent operation. Pressure clamb connectors save time and simplify installation.



TECHNICAL DATA

Operating voltage	120-240V AC/DC[1] (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminium profile, anodised
Connection	3 pressure clamps for stranded wire 0.5-1.5mm² (with wire end ferrule) and rigid wire 0.5- 2.5mm²
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Approvals	VDE, UL File No. E150057, EAC
Accessoires	screw fixing, Art. No. 09024.0-00 (1 packing unit = 2 pieces)
Note	other voltages on request

[1] Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

Art. No.	Heating capacity[2]	Inrush current max.	Recommended pre-fuse T (time-delay)	Length (L)	Weight (approx.)
14000.0-00	15W	1.5A	2.0A	65mm	0.3kg
14001.0-00	30W	3.0A	4.0A	65mm	0.3kg
14003.0-00	45W	3.5A	4.0A	65mm	0.3kg
14005.0-00	60W	2.5A	4.0A	140mm	0.4kg
14006.0-00	75W	4.0A	6.3A	140mm	0.5kg
14007.0-00	100W	4.5A	8.0A	140mm	0.5kg
14008.0-00	150W	9.0A	10.0A	220 mm	0.7kg

[2] at +20°C (+68°F) ambient temperature

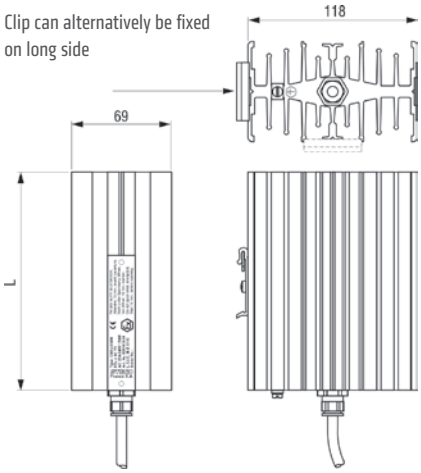
HAZARDOUS AREA HEATER

CREx 020 | 50W, 100W

> Large convection surface
> Clip fixing
> Ready for use
> Maintenance free

Compact convection heater for use in areas with explosion hazard for prevention of formation of condensation, temperature fluctuations and for protection against frost in transmitter housings, switch cabinets and measuring equipment.

Clip can alternatively be fixed on long side



TECHNICAL DATA

Heating element	high performance cartridge
Heater body	aluminium profile, silver anodised
Connection	Si HF-JZ 3 x 0.75mm² cable, length 1m
Connection PE	4mm²
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (connection on bottom)
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP6X / I (earthed)
Approvals	LCIE 01 ATEX 6073 X IECEx LCI 07.0020 X INMETRO DNV 14.0138X EAC

Hazardous area Thermostat REx 011 see page 67

Art. No.	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)	Ambient temperature[1]	Ex Protection type Ex II 2 GD Gases	Dusts	Surface temperature	Lenght (L)	Weight (appox.)
02010.0-00	230-240VAC	50W	0.5A	-40 to +50°C (-40 to +122°F) -40 to +85°C (-40 to +185°F)	Ex d IIC T5 Gb Ex d IIC T4 Gb	Ex tb IIIC T100°C Db IP6X Ex tb IIIC T135°C Db IP6X	T5 = +100°C (+212°F) T4 = +135°C (+275°F)	150mm	1.3kg
02010.0-01	110-120VAC	50W	1.0A	-40 to +50°C (-40 to +122°F) -40 to +85°C (-40 to +185°F)	Ex d IIC T5 Gb Ex d IIC T4 Gb	Ex tb IIIC T100°C Db IP6X Ex tb IIIC T135°C Db IP6X	T5 = +100°C (+212°F) T4 = +135°C (+275°F)	150mm	1.3kg
02011.0-00	230-240VAC	100W	1.0A	-40 to +50°C (-40 to +122°F) -40 to +85°C (-40 to +185°F)	Ex d IIC T4 Gb Ex d IIC T3 Gb	Ex tb IIIC T135°C Db IP6X Ex tb IIIC T200°C Db IP6X	T4 = +135°C (+275°F) T3 = +200°C (+392°F)	180mm	1.5kg
02011.0-01	110-120VAC	100W	2.0A	-40 to +50°C (-40 to +122°F) -40 to +85°C (-40 to +185°F)	Ex d IIC T4 Gb Ex d IIC T3 Gb	Ex tb IIIC T135°C Db IP6X Ex tb IIIC T200°C Db IP6X	T4 = +135°C (+275°F) T3 = +200°C (+392°F)	180mm	1.5kg

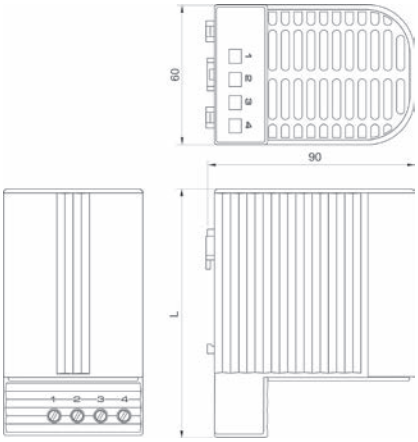
[1] Ambient temperature inside of the cabinet/enclosure

TOUCH-SAFE HEATER (SEMICONDUCTOR)

CS 060 | 50W to 150W

- > Low surface temperature
- > Quick mounting due to clip fixing
- > Double insulated (plastic)
- > Wide voltage range
- > Small size

Touch-safe heater for the use in enclosures with electrical/electronical components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. Our complete range of thermostats and hygrostats can directly be connected to the heater CS 060. This heater is also available in a version with plug-in thermostat requiring no additional wiring (CSF 060). The heaters are designed for permanent operation.

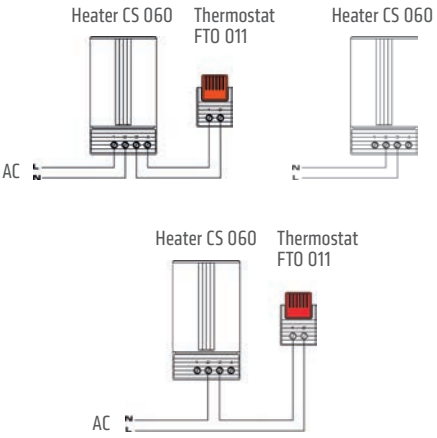


TECHNICAL DATA

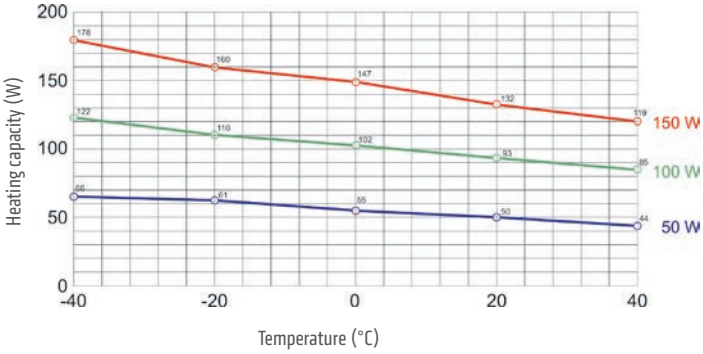
Operating voltage	120 - 240V AC/DC[1] (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	4-pole terminal 2.5mm², torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E150057, EAC
Note	other voltages on request

[1] Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.

Examples of connection



Heating capacity / Ambient temperature diagram CS 060



Art. No.	Heating capacity[2]	Inrush current (max.)	Recommended pre-fuse T (time-delay)	Air outlet temperature[3]	Dimensions	Weight (approx.)
06000.0-00	50W	2.5A	4.0A	+86°C (+186.8°F)	110 x 60 x 90mm	0.3kg
06010.0-00	100W	4.5A	8.0A	+120°C (+248°F)	110 x 60 x 90mm	0.3kg
06020.0-00	150W	8.0A	10.0A	+145°C (+293°F)	150 x 60 x 90mm	0.5kg

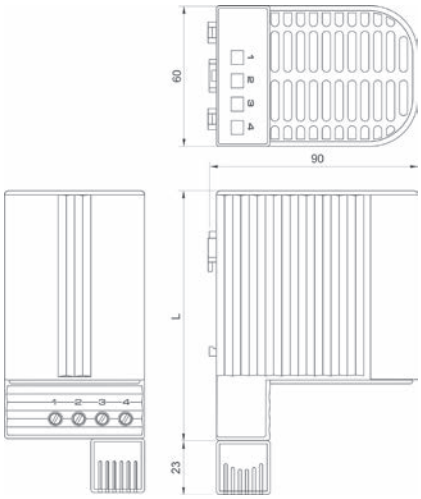
[2] ambient temperature - see Heating capacity / Ambient temperature diagram; [3] measured 50mm above protective grille

TOUCH-SAFE HEATER (SEMICONDUCTOR)

CSF 060 | 50W to 150W

> Low surface temperature
> Integrated thermostat
> Quick mounting due to clip fixing
> Double insulated (plastic)
> Wide voltage range
> Small size

Touch-safe heater for the use in enclosures with electrical/electronical components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater design. This model with plug-in thermostat does not require additional wiring. The heaters are designed for permanent operation. This heater is also available in a version without thermostat (CS 060).

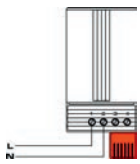


TECHNICAL DATA

Operating voltage	120 - 240VAC[1] (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	2-pole terminal 2.5mm², torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-40 to +70°C (-40 to +158°F) / -45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E150057, EAC

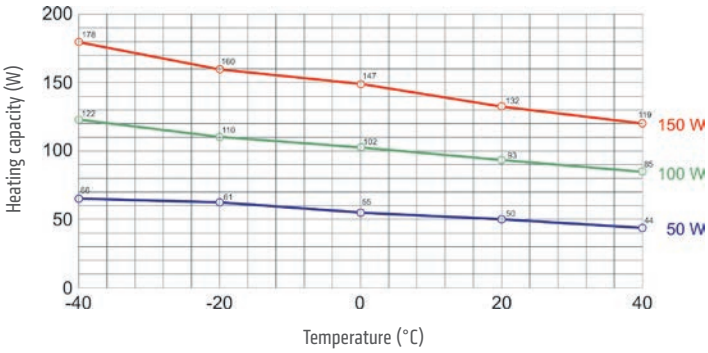
[1] Operating with voltages below 140VAC reduces heating performance by approx. 10%.

Heater CSF 060



Example of connection

Heating capacity / Ambient temperature diagram CSF 060



Art. No.	Heating capacity[2]	Inrush current (max.)	Recommended pre-fuse T (time-delay)	Air outlet temperature[3]	Switch-off temperature[4]	Switch-on temperature[4]	Dimensions	Weight (approx.)
06001.0-00	50W	2.5A	4.0A	+86°C (+186.8°F)	+15°C (+59°F)	+5°C (+41°F)	110 x 60 x 90mm	0.3kg
06002.0-00	50W	2.5A	4.0A	+86°C (+186.8°F)	+25°C (+77°F)	+15°C (+59°F)	110 x 60 x 90mm	0.3kg
06011.0-00	100W	4.5A	8.0A	+120°C (+248°F)	+15°C (+59°F)	+5°C (+41°F)	110 x 60 x 90mm	0.3kg
06012.0-00	100W	4.5A	8.0A	+120°C (+248°F)	+25°C (+77°F)	+15°C (+59°F)	110 x 60 x 90mm	0.3kg
06021.0-00	150W	8.0A	10.0A	+145°C (+293°F)	+15°C (+59°F)	+5°C (+41°F)	150 x 60 x 90mm	0.5kg
06022.0-00	150W	8.0A	10.0A	+145°C (+293°F)	+25°C (+77°F)	+15°C (+59°F)	150 x 60 x 90mm	0.5kg

[2] ambient temperature – see Heating capacity / Ambient temperature diagram; [3] measured 50mm above protective grille; [4] tolerance of ±5K
Note: Other switch-off and switch-on temperatures on request.

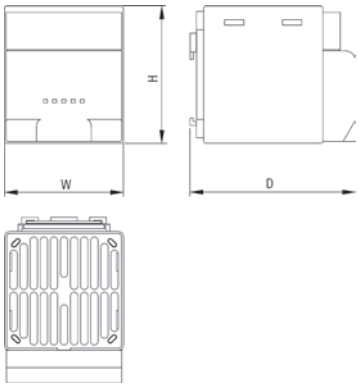
COMPACT SEMICONDUCTOR FAN HEATER

CS 028 / CSL 028 | 150W to 400W

Photo: Fan Heater CSL 028

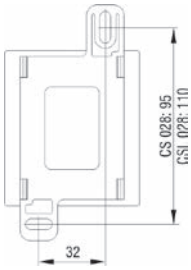
> Small, compact design
> Quiet in operation
> Dynamic heating up
> Clip or screw fixing

Fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater is connected using the internal terminal connectors. The small size of the CS / CSL 028 makes it ideal for use in enclosures where space is at a premium.

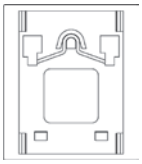


View: back side

Screw fixing



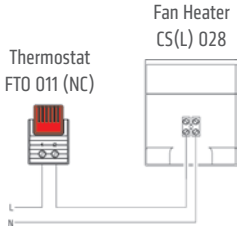
Clip fixing



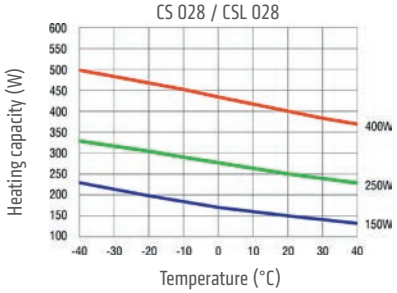
TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Surface temperature	150W/250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Axial fan, ball bearing	air flow, free flow CS 028: 13.8m³/h CSL 028: 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole clamp max. 2.5mm² (CSL 028 with strain relief), clamping screw torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or screw fixing (Ø 5.3mm)
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	UL File No. E150057 (according to UL 5084, NITW File on request), EAC, VDE only: 230 V
Note	other voltages on request

Example of connection



Heating capacity / Ambient temperature diagram
CS 028 / CSL 028



Art. No. clip fixing	Art. No. screw fixing	Series	Operating voltage	Heating capacity[1]	Inrush current max.	Recommended pre-fuse T (time-delay)	Dimensions (H x W x D)	Weight (approx.)
02800.0-00	02800.0-01	CS 028	230VAC, 50/60Hz	150W	12.0A	10.0A	75 x 65 x 90mm	0.3kg
02811.0-00	02811.0-01	CSL 028	230VAC, 50/60Hz	250W	9.0A	10.0A	90 x 85 x 111mm	0.5kg
02810.0-00	02810.0-01	CSL 028	230VAC, 50/60Hz	400W	15.0A	16.0A	90 x 85 x 111mm	0.5kg
02800.9-00	02800.9-01	CS 028	120VAC, 50/60Hz	150W	6.0A	10.0A	75 x 65 x 90mm	0.3kg
02811.9-00	02811.9-01	CSL 028	120VAC, 50/60Hz	250W	6.0A	10.0A	90 x 85 x 111mm	0.5kg
02810.9-00	02810.9-01	CSL 028	120VAC, 50/60Hz	400W	9.0A	10.0A	90 x 85 x 111mm	0.5kg

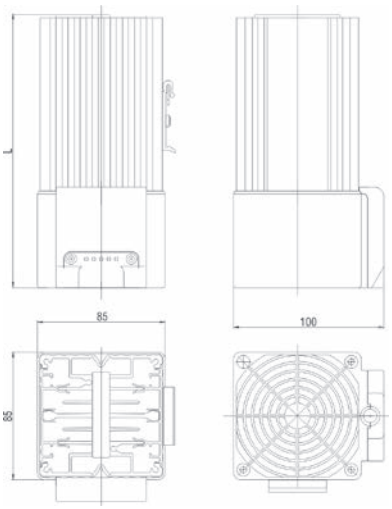
[1] at +20°C (+68°F) ambient temperature

COMPACT FAN HEATER

HGL 046 | 250W, 400W

> Compact Design
> Clip fixing
> Long service life
> Temperature safety cut-out

Compact fan heater prevents formation of condensation and frost. The integrated high-performance axial fan provides an evenly distributed interior air temperature in enclosures with electric/electronic components.



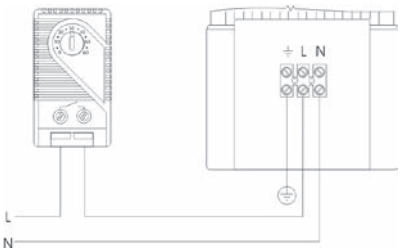
View from below

TECHNICAL DATA

Heating element	resistance heater
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	anodised extruded aluminium profile
Surface temperature	max. +75°C (400W)
Axial fan, ball bearing	Airflow, free flow 45m³/h (50Hz) or 54m³/h (60Hz) service life 50,000h at +25°C (+77°F)
Connection	internal connection terminal 1.5mm² with strain relief, clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Note	other voltages on request

Example of connection

Control contact
e.g. thermostat
KTO 011



Heater
Fan heater HGL 046 (AC 230V and 120V) with temperature safety cut-out

Art. No.	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)	Length (L)	Weight (approx.)	Approvals		
04640.0-00	230VAC, 50/60Hz	250W	2.0A	182mm	1.1kg	VDE	UL File No. E150057[1]	EAC
04641.0-00	230VAC, 50/60Hz	400W	4.0A	222mm	1.4kg	VDE	UL File No. E150057[1]	EAC
04640.9-00	120VAC, 50/60Hz	250W	4.0A	182mm	1.1kg	VDE	UL File No. E150057[1]	EAC
04641.9-00	120VAC, 50/60Hz	400W	6.3A	222mm	1.4kg	VDE	UL File No. E150057[1]	EAC

[1] according to UL 508A, NITW File on request

COMPACT SEMICONDUCTOR FAN HEATER

CSF 028 | 250 W, 400 W

CSF 028 with clip fixing

CSF 028 with screw flange fixing

- > Small, compact design
- > Integrated pre-set thermostat
- > Dynamic heating up
- > Touch-safe
- > Quick connection
- > Clip or screw flange fixing

The compact fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The touch-safe plastic housing and the small dimensions makes it ideal for use in enclosures with high packing density. The CSF 028 is equipped with a preset thermostat. It is connected via external clamps. The fan heater is available with two different mounting systems - either mounting by screw flange or by clip. The robust screw flange fixing is particularly suitable for applications with high vibration.

TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Surface temperature	250W: max. +50°C (+122°F), 400W: max. +65°C (+149°F) each except upper protective grille at +20°C (+68°F) ambient temperature
Temperature safety cut-out	to protect against overheatingin case of fan failure, automatic reset
Axial fan, ball bearing	air flow, free flow CSF 028: 45m³/h (230VAC), 54m³/h (120VAC) service life 40,000h at +40°C (+104°F)
Connection	2-pole dual pressure clamp for rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5 mm²
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (Ø 5.5mm), lamping torque 2Nm max., washers have to be used
Fitting position	vertical airflow (air outlet up), horizontal airflow
Dimensions	models with clip fixing: 105 x 85 x 118mm, models with screw flange fixing: 105 x 115 x 108mm
Weight	0.5kg
Operating/Storage temperature	-40 to +70°C (-40 to +158°F)/-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E150057, EAC

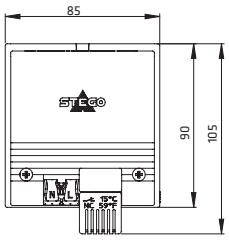
Art. No. clip fixing	Art. No. screw flange fixing	Operating voltage	Heating capacity[1]	Inrush current max.	Recommended pre-fuse T (time-delay)	Switch-off temperature[2]	Switch-on temperature[2]
02821.0-06	02821.0-08	230VAC, 50/60Hz	250W	9.0A	10.0A	+15°C (+59°F)	+5°C (+41°F)
02821.0-09	02821.0-11	230VAC, 50/60Hz	250W	9.0A	10.0A	+25°C (+77°F)	+15°C (+59°F)
02820.0-06	02820.0-08	230VAC, 50/60Hz	400W	15.0A	16.0A	+15°C (+59°F)	+5°C (+41°F)
02820.0-09	02820.0-11	230VAC, 50/60Hz	400W	15.0A	16.0A	+25°C (+77°F)	+15°C (+59°F)
02821.9-06	02821.9-08	120VAC, 50/60Hz	250W	6.0A	10.0A	+15°C (+59°F)	+5°C (+41°F)
02821.9-09	02821.9-11	120VAC, 50/60Hz	250W	6.0A	10.0A	+25°C (+77°F)	+15°C (+59°F)
02820.9-06	02820.9-08	120VAC, 50/60Hz	400W	9.0A	10.0A	+15°C (+59°F)	+5°C (+41°F)
02820.9-09	02820.9-11	120VAC, 50/60Hz	400W	9.0A	10.0A	+25°C (+77°F)	+15°C (+59°F)

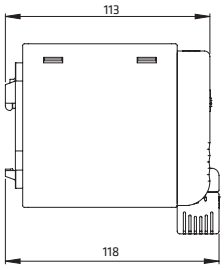
[1] at +20°C (+68°F) ambient temperature; [2] tolerance of ±5K

Note: Other switch-off and switch-on temperatures on request.

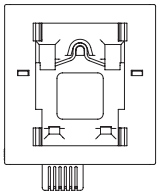
TECHNICAL DRAWINGS

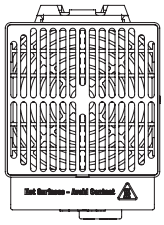
CLIP FIXING



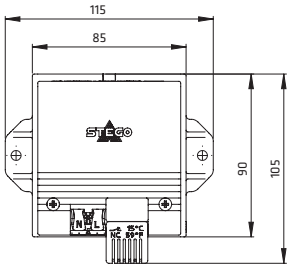


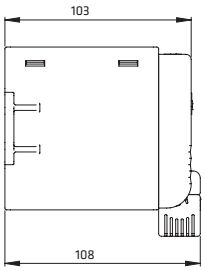
View: back side



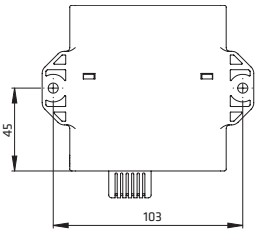


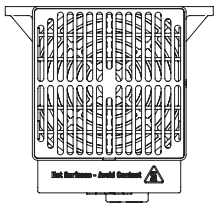
SCREW FLANGE FIXING



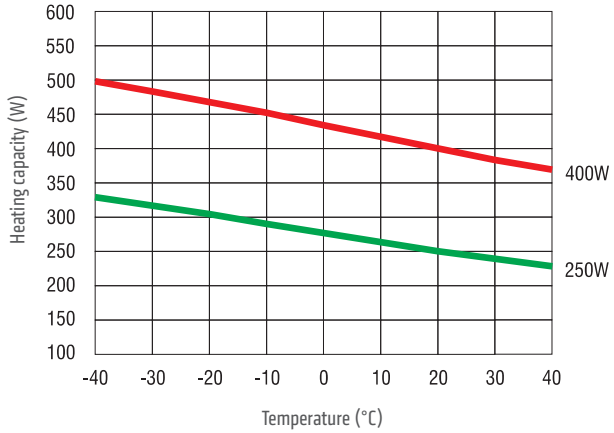


View: back side

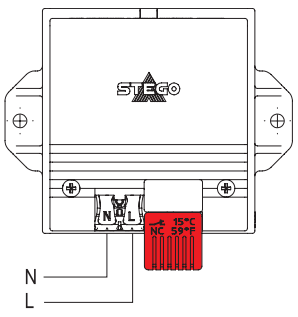




Heating capacity / Ambient temperature diagram CSF 028



Example of connection
Fan heater CSF 028

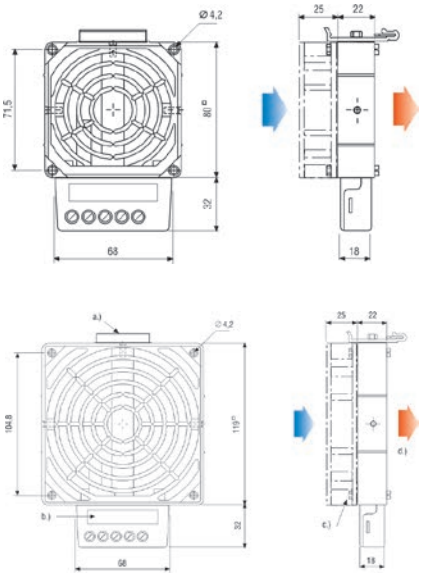


SPACE-SAVING FAN HEATER

HV 031 / HVL 031 | 100W to 400W

- > Compact
- > Flat design
- > High air through-flow
- > Temperature safety cut-out
- > Clip fixing

Compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. This fan heater may only be operated together with a fan but is also available without fan for self-assembly (HV 031) and with pre-configured fan (HVL 031).



a.) Clip
b.) Type plate
c.) Axial fan
d.) Air direction

TECHNICAL DATA

HV 031	Heater without fan (fan mounting kit included)
HVL 031	Heater with fan
Heating element	high performance cartridge
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Heater body	die-cast aluminium (glass bead blasted)
Connection	3-pole screw connector 2.5mm², clamping torque 0.8Nm max.
Connection casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)
Approvals	UL File No. E187294, EAC VDE only: 230V
HVL 031 only:	
Axial fan, ball bearing	airflow see table service life 50,000h at +25°C (+77°F)
Connection (axial fan)	2-pole screw connector 2.5mm² (L2/N2)

Important note: Heater may only be operated together with fan.
Danger of overheating!

Art. No. HV 031 230VAC, 50/60 Hz	Art. No. HV 031 120VAC, 50/60 Hz	Heating capacity	Recommended pre-fuse T (time-delay) 230VAC	120VAC	Dimensions	Weight (approx.)
03100.0-00	03100.9-00	100W	1.0A	2.0A	80 x 112 x 22mm	0.4kg
03101.0-00	03101.9-00	150W	1.25A	2.5A	80 x 112 x 22mm	0.4kg
03110.0-00	03110.9-00	200W	2.0A	3.0A	119 x 151 x 22mm	0.5kg
03111.0-00	03111.9-00	300W	2.0A	4.0A	119 x 151 x 22mm	0.5kg
03112.0-00	03112.9-00	400W	4.0A	6.3A	119 x 151 x 22mm	0.5kg

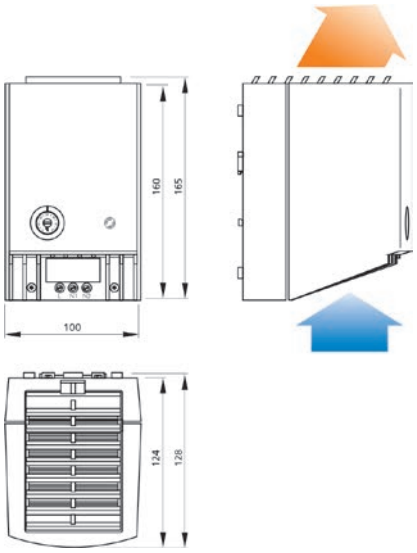
Art. No. HVL 031 230VAC, 50/60 Hz	Art. No. HVL 031 120VAC, 50/60 Hz	Heating capacity	Recommended pre-fuse T (time-delay) 230VAC	120VAC	Airflow min., free flow	Dimensions	Weight (approx.)
03102.0-00	03102.9-00	100W	1.0A	2.0A	35m³/h	80 x 112 x 47mm	0,6 kg
03103.0-00	03103.9-00	150W	1.25A	2.5A	35m³/h	80 x 112 x 47mm	0,6 kg
03113.0-00	03113.9-00	200W	2.0A	3.0A	108m³/h	119 x 151 x 47mm	0,9 kg
03114.0-00	03114.9-00	300W	2.0A	4.0A	108m³/h	119 x 151 x 47mm	0,9 kg
03115.0-00	03115.9-00	400W	4.0A	6.3A	108m³/h	119 x 151 x 47mm	0,9 kg

SEMICONDUCTOR FAN HEATER

CR 027 | up to 650W

> Compact heater
> Integrated thermostat
> Clip fixing
> Optical indicator
> Temperature safety cut-out

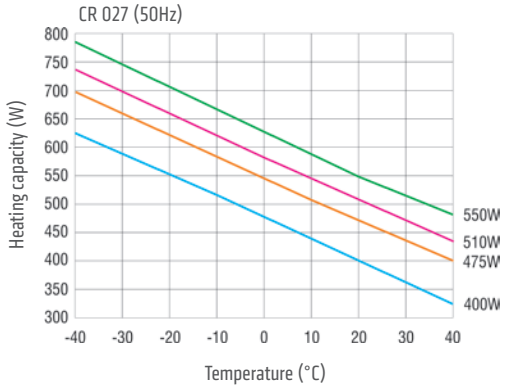
Semiconductor fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The integrated thermostat is used to set the desired temperature.



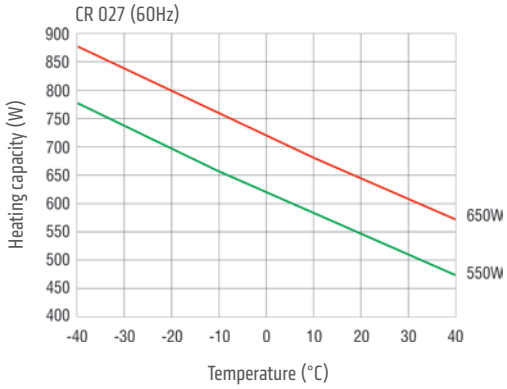
TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure,
	automatic reset
Axial fan, ball bearing	airflow see table
	service life 50,000h at +25°C (+77°F)
Connection	2-pole clamp 2.5mm², clamping torque 0.8Nm max
Casing	plastic according to UL94 V-0, light grey
Optical indicator	thermostat control lamp
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	100 x 128 x 165mm
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E204590, EAC

Heating capacity / Ambient temperature diagram
CR 027 (50Hz)



Heating capacity / Ambient temperature diagram
CR 027 (60Hz)



Art. No.	Operating voltage	Heating capacity[1] (50 Hz)	Heatig capacity[1] (60 Hz)	Inrush current max.	Recommended pre-fuse T (time-delay)	Airflow, free flow	Setting range thermostat[2]	Weight (approx.)
02700.0-00	220-240VAC, 50/60Hz	475W	550W	11.0A	10.0A	35m³/h	0 to +60°C	0.9kg
02701.0-00	220-240VAC, 50/60Hz	550W	650W	13.0A	10.0A	45m³/h	0 to +60°C	1.1kg
02700.9-00	100-120VAC, 50/60Hz	400W	550W	14.0A	10.0A	35m³/h	+32 to +140°F	0.9kg
02701.9-00	100-120VAC, 50/60Hz	510W	650W	15.0A	10.0A	45m³/h	+32 to +140°F	1.1kg

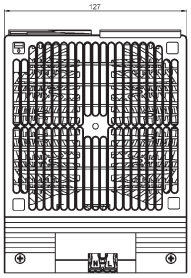
[1] at +20°C (+68°F) ambient temperature; [2] Switch temperature difference 7K (±4K tolerance)

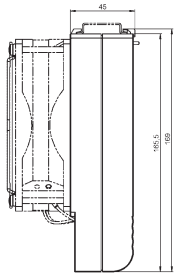
SPACE-SAVING FAN HEATER

HVI 030 | 500W to 700W

> Compact
> Flat design
> Temperature safety cut-out
> Twist clip or screw fixing

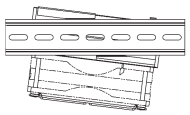
The compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater may only be operated together with fan, but is also available without axial fan (for self-installation). The fan heaters are available with two different mounting systems – either mounting by screw fixing or with a new and unique twist clip mounting system. These options allow for a quick and easy installation of the fan heater.



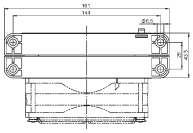


View: back side

Twist clip fixing



Screw fixing



TECHNICAL DATA

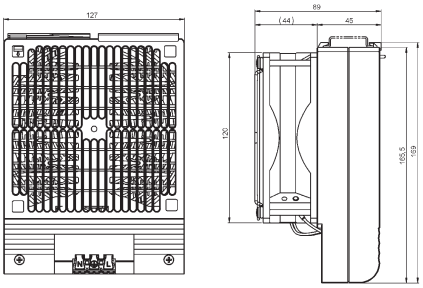
Heating element	high performance cartridge
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Axial fan	not included in delivery, for self-assembly
Connection	2-pole dual pressure clamp for rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Casing	plastic according to UL94 V-0, black
Mounting	twist clip for 35mm DIN rail, EN 60715 or screw fixing (M6), torque 2Nm max., washers have to be used
Fitting position	vertical airflow (air outlet up)
Dimensions	169 x 127 x 45mm
Weight	approx. 0.7kg
Operating temperature	VDE: -10 to +50°C (+14 to +122°F) UL: -10 to +40°C (+14 to +104°F)
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E234324, EAC
Note	other heating capacities and voltages available on request

Important note: Heater may only be operated together with fan (min. 150m³/h). Danger of overheating!

Art. No. twist clip fixing	Art. No. screw fixing	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)
03074.0-00	03074.0-01	230VAC, 50/60Hz	500W	4.0A
03073.0-00	03073.0-01	230VAC, 50/60Hz	600W	4.0A
03072.0-00	03072.0-01	230VAC, 50/60Hz	700W	6.3A
03074.9-00	03074.9-01	120VAC, 50/60Hz	500W	8.0A
03073.9-00	03073.9-01	120VAC, 50/60Hz	600W	8.0A
03072.9-00	03072.9-01	120VAC, 50/60Hz	700W	10.0A

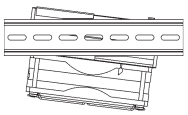
SPACE-SAVING FAN HEATER WITH FAN

HVI 030 | 500W to 700W

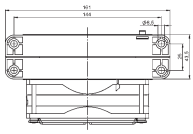


View: back side

Twist clip fixing



Screw fixing



- > Compact
- > Flat design
- > High air through-flow
- > Temperature safety cut-out
- > Twist clip or screw fixing

The compact high-performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The heater may only be operated together with fan, but is also available without axial fan (for self-installation). The fan heaters are available with two different mounting systems – either mounting by screw fixing or with a new and unique twist clip mounting system. These options allow for a quick and easy installation of the fan heater.

TECHNICAL DATA

Heating element	high performance cartridge
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Axial fan, ball bearing	airflow 150m³/h, free flow service life 50,000h at +25°C (+77°F)
Connection	3-pole dual pressure clamp for rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Casing	plastic according to UL94 V-0, black
Mounting	twist clip for 35mm DIN rail, EN 60715 or screw fixing (M6), torque 2Nm max., washers have to be used
Fitting position	vertical airflow (air outlet up)
Dimensions	169 x 127 x 89mm
Weight	approx. 1.3kg
Operating temperature	VDE: -10 to +50°C (+14 to +122°F) UL: -10 to +40°C (+14 to +104°F)
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / heater: II (double insulated); fan: I (earthed)
Approvals	VDE, UL File No. E234324, EAC
Note	other heating capacities and voltages available on request

Important note: Heater may only be operated together with fan (min. 150m³/h).
Danger of overheating!

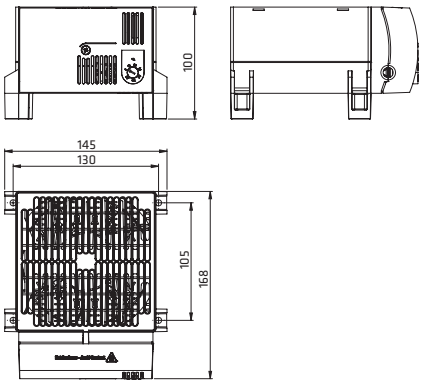
Art. No. twist clip fixing	Art. No. screw fixing	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)
03084.0-00	03084.0-01	230VAC, 50/60Hz	500W	4.0A
03083.0-00	03083.0-01	230VAC, 50/60Hz	600W	4.0A
03082.0-00	03082.0-01	230VAC, 50/60Hz	700W	6.3A
03084.9-00	03084.9-01	120VAC, 50/60Hz	500W	8.0A
03083.9-00	03083.9-01	120VAC, 50/60Hz	600W	8.0A
03082.9-00	03082.9-01	120VAC, 50/60Hz	700W	10.0A

COMPACT HIGH-PERFORMANCE FAN HEATER

CR 030 | 950W

> Compact design
> Double insulated
> Integrated thermostat or hygrostat

The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. The fan heater is available with integrated thermostat or pre-set hygrostat for temperature or humidity control. The CR 030 was designed as a stationary unit for the bottom of the enclosure. For wall fixing the fan heater CR 130 is recommended.

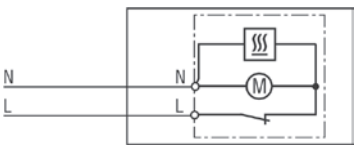


TECHNICAL DATA

Heating element	high performance cartridge
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Heater body	extruded aluminium profile
Axial fan, ball bearing	airflow 160m³/h, free flow service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	screw fixing (M5)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	168 x 145 x 100mm
Weight	approx. 1.4kg
Operating[1]/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other heating capacities from 200W up available on request

[1] Operating temperature of heater with integrated hygrostat: 0 to +60°C (+32 to +140°F).

Connection diagram



Art. No.	Model	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)	Setting range[2]	Approvals		
03051.0-00	Fan Heater with thermostat	230VAC, 50/60Hz	950W	6.3A	0 to +60°C	VDE	UL File No. E234324	EAC
03051.0-02	Fan Heater with hygrostat	230VAC, 50/60Hz	950W	6.3A	65% RH, factory-set	VDE	UL File No. E234324	EAC
03059.9-00	Fan Heater with thermostat	120VAC, 50/60Hz	950W	10.0A	+32 to +140°F	-	UL File No. E234324	EAC

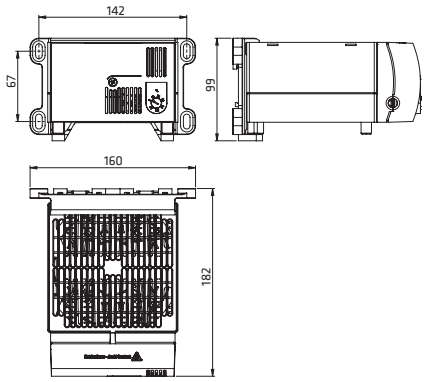
[2] Switch temperature difference 7K (±4K tolerance)

COMPACT HIGH-PERFORMANCE FAN HEATER

CR 130 | 950W

> Compact design
> Double insulated
> Integrated thermostat or hygrostat
> Optional clip or screw fixing

The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. The fan heater is available with integrated thermostat or pre-set hygrostat for temperature or humidity control. The CR 130 was designed as a stationary unit for wall fixing. For fixing on the bottom of the enclosure the fan heater CR 030 is recommended.

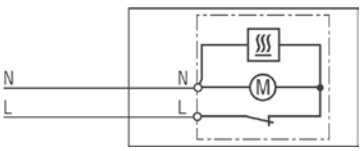


TECHNICAL DATA

Heating element	high performance cartridge
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Heater body	extruded aluminium profile
Axial fan, ball bearing	airflow 160m³/h, free flow, service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M6)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	182 x 160 x 99mm
Weight	approx. 1.5kg
Operating[1]/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other heating capacities from 200W up available on request

[1] Operating temperature of heater with integrated hygrostat: 0 to +60°C (+32 to +140°F)

Connection diagram



Art. No.	Model	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)	Setting range[2]	Approvals		
13051.0-00	Fan Heater with thermostat	230VAC, 50/60Hz	950W	6.3A	0 to +60°C	VDE	UL File No. E234324	EAC
13051.0-02	Fan Heater with hygrostat	230VAC, 50/60Hz	950W	6.3A	65% RH, factory-set	VDE	UL File No. E234324	EAC
13059.9-00	Fan Heater with thermostat	120VAC, 50/60Hz	950W	10.0A	+32 to +140°F	-	UL File No. E234324	EAC

[2] Switch temperature difference 7K (±4K tolerance)

HIGH-PERFORMANCE FAN HEATER (SEMICONDUCTOR)

CS 032 / CSF 032 | 1,000W

Fan heater CS 032

Fan heater CSF 032

> Compact and slim design
> High heating performance
> Double insulated
> With or without thermostat
> Quick connection

The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. Two screw connectors at the front of CS 032 allow comfortable wiring of an external thermostat. The CSF 032 is equipped with a pre-set thermostat. Both models were designed for wall fixing. A fan heater for fixing on the bottom of the enclosure is available on request.

TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Surface temperature	max. +80°C (+176°F), except upper protective grille at +20°C (+68°F) ambient temperature
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	air flow 63m³/h, free flow service life 70,000h at 25°C (77°F)
Connection	male power insert connector according to IEC320 C18
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M5), tightening torque 2Nm max.
Fitting position	airflow direction up
Dimensions	152.5 x 88 x 66mm
Weight	approx. 0.5kg
Operation/Storage temperature	-40 to +60°C (-40 to +140°F) / -40 to +70°C (-40 to +158°F)
Operation/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E234324, EAC

Important note: Connectors and cables for electrical connection are not included in the delivery. Connection cables can be ordered separately, see Accessories.

FAN HEATER CS 032 (WITHOUT THERMOSTAT)

Art. No. Clip fixing	Art. No. Screw fixing	Operating voltage	Heating capacity[1]	Inrush current max.
03209.0-00	03209.0-01	220-240VAC, 50/60Hz	1,000W	12.0A
03209.9-00	03209.9-01	100-120VAC, 50/60Hz	1,000W	18.0A

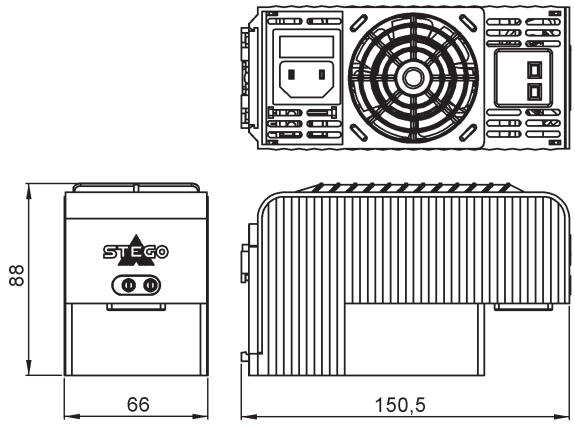
FAN HEATER CSF 032 (WITH THERMOSTAT)

Art. No. Clip fixing	Art. No. Screw fixing	Operating voltage	Heating capacity[1]	Inrush current max.	Switch-off temperature[2]	Switch-on temperature[2]
03201.0-00	03201.0-01	220-240VAC, 50/60Hz	1,000W	12.0A	+25°C (+77°F)	+15°C (+59°F)
03202.0-00	03202.0-01	220-240VAC, 50/60Hz	1,000W	12.0A	+15°C (+59°F)	+5°C (+41°F)
03201.9-00	03201.9-01	100-120VAC, 50/60Hz	1,000W	18.0A	+25°C (+77°F)	+15°C (+59°F)
03202.9-00	03202.9-01	100-120VAC, 50/60Hz	1,000W	18.0A	+15°C (+59°F)	+5°C (+41°F)

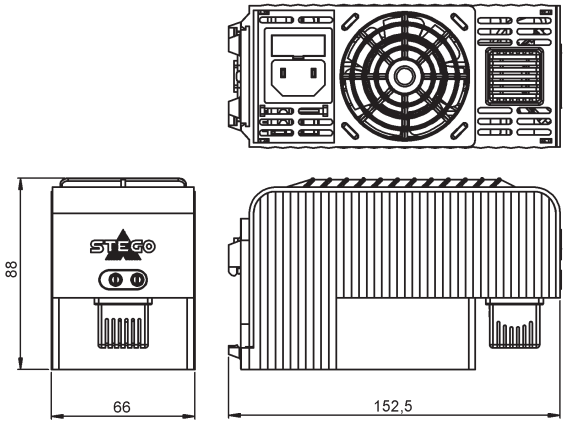
[1] at +25°C (+77°F) ambient temperature; [2] tolerance ±5K

Note: Other switch-off and switch-on temperatures on request.

TECHNICAL DRAWING

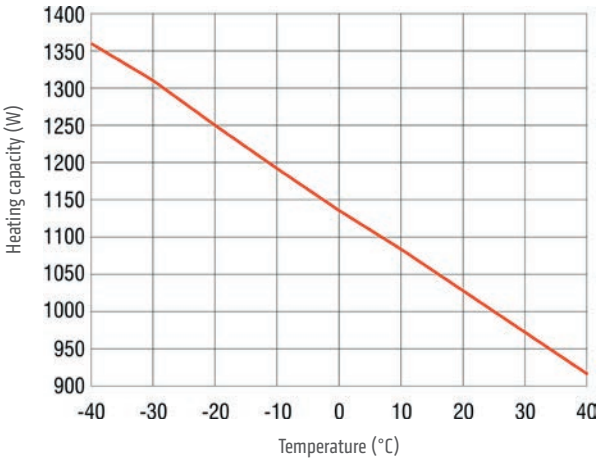


CS 032 Fan Heater



CSF 032 Fan Heater with Integrated Thermostat

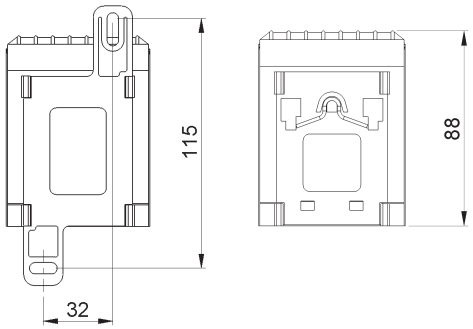
Heating capacity / Ambient temperature diagram



View: back side

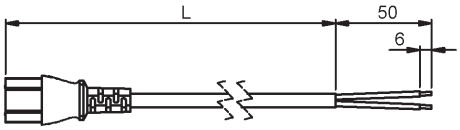
Screw fixing

Clip fixing



ACCESSORIES

Connection cable with female power insert connector according IEC320 C17



Art. No.	Length (L)
244379	1.0m
244380	2.0m

Retaining Clip

Photo: Retaining Clip art. no. 237009 in built-in state

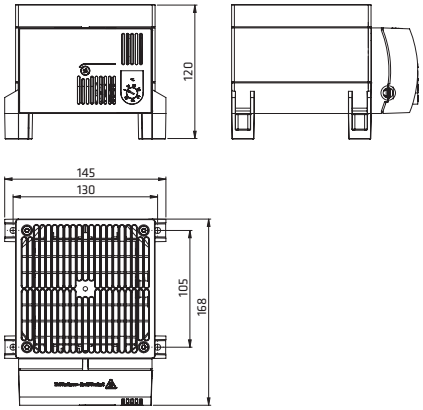
Art. No.	Note
237009	Suitable for female power insert connector on connection cable 244379 and 244380

COMPACT HIGH-PERFORMANCE FAN HEATER (SEMICONDUCTOR)

CS 030 | 1,200W

> Compact design
> High heating performance
> Double insulated
> Integrated thermostat (optional)

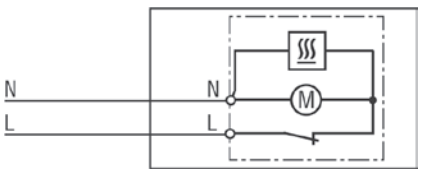
The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. The fan heater is available with optional integrated thermostat for temperature control. The CS 030 was designed as a stationary unit for the bottom of the enclosure. For wall fixing the fan heater CS 130 is recommended.



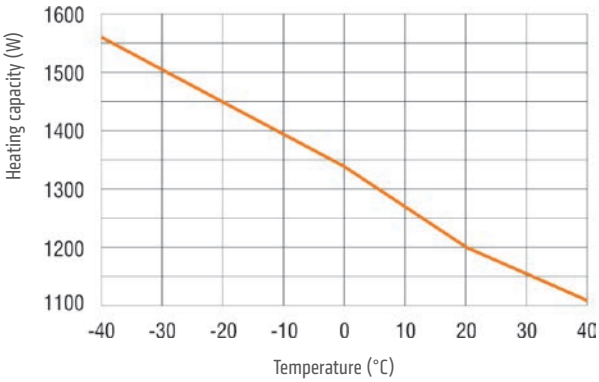
TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow 160m³/h, free flow service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	screw fixing (M5)
Fitting position	vertical airflow (air outet up) – other fitting positions possible
Dimensions	168 x 145 x 120mm
Weight	approx. 1.2kg
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

Connection diagram



Heating capacity / Ambient temperature diagram CS 030



Art. No.	Model	Operating voltage	Heating capacity[1]	Inrush current max.	Recommended pre-fuse T (time-delay)	Setting range[2]	Approvals		
03060.0-00	Fan Heater with thermostat	230VAC, 50/60Hz	1,200W	13.0A	10.0A	0 to +60°C	VDE	UL File No. E150057[3]	EAC
03060.0-01	Fan Heater without thermostat	230VAC, 50/60Hz	1,200W	13.0A	10.0A	-	VDE	UL File No. E150057[3]	EAC
03060.9-00	Fan Heater with thermostat	120VAC, 50/60Hz	1,200W	16.0A	16.0A	+32 to +140°F	-	UL File No. E150057[3]	EAC
03060.9-01	Fan Heater without thermostat	120VAC, 50/60Hz	1,200W	16.0A	16.0A	-	-	UL File No. E150057[3]	EAC

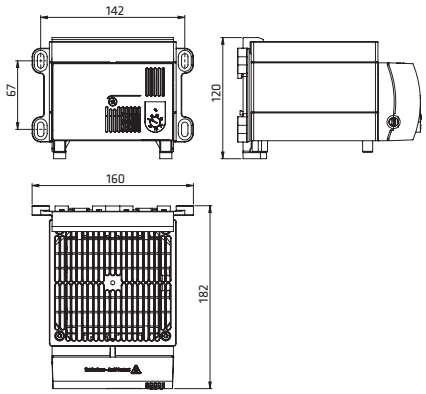
[1] at +20°C (+68°F) ambient temperature; [2] Switch temperature difference 7K (±4K tolerance); [3] according to UL 508A, NITW File on request

COMPACT HIGH-PERFORMANCE FAN HEATER (SEMICONDUCTOR)

CS 130 | 1,200W

> Compact design
> High heating performance
> Double insulated
> Integrated thermostat (optional)
> Optional clip or screw fixing

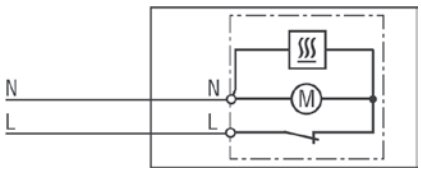
The compact high performance fan heater prevents formation of condensation and frost and provides an evenly distributed interior air temperature in enclosures with electric/electronic components. The plastic housing provides double insulation and acts as protection against contact. The fan heater is available with optional integrated thermostat for temperature control. The CS 130 was designed as a stationary unit for wall fixing. For fixing on the bottom of the enclosure the fan heater CS 030 is recommended.



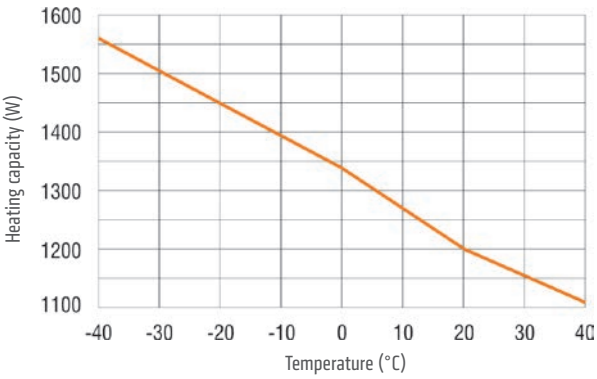
TECHNICAL DATA

Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow 160m³/h, free flow service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M6)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	182 x 160 x 120mm
Weight	approx. 1.3kg
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

Connection diagram



Heating capacity / Ambient temperature diagram CS 130



Art. No.	Model	Operating voltage	Heating capacity[1]	Inrush current max.	Recommended pre-fuse T (time-delay)	Setting range[2]	Approvals		
13060.0-00	Fan Heater with thermostat	230VAC, 50/60Hz	1,200W	13.0A	10.0A	0 to +60°C	VDE	UL File No. E150057[3]	EAC
13060.0-01	Fan Heater without thermostat	230VAC, 50/60Hz	1,200W	13.0A	10.0A	-	VDE	UL File No. E150057[3]	EAC
13060.9-00	Fan Heater with thermostat	120VAC, 50/60Hz	1,200W	16.0A	16.0A	+32 to +140°F	-	UL File No. E150057[3]	EAC
13060.9-01	Fan Heater without thermostat	120VAC, 50/60Hz	1,200W	16.0A	16.0A	-	-	UL File No. E150057[3]	EAC

[1] at +20°C (+68°F) ambient temperature; [2] Switch temperature difference 7K (±4K tolerance); [3] according to UL 508A, NITW File on request

COOLING

PROTECTION AGAINST OVERHEATING

To protect installations from excessively high temperatures STEGO filter fans ensure efficient cooling by circulating air.

FILTER FAN PLUS

FPI/FPO 018 | up to 24m³/h (92 x 92mm)

- > New air-flap outlet technology for high airflow
- > Easy mounting
- > Protection type test/Environmental rating by independent testing institutes (VDE and UL)
- > Two systems for optimal airflow (FPI/FPO)
- > Standard enclosure cut-out sizes (5 sizes)
- > One filter mat

Filter fans are used to provide an optimum climate in enclosures and cabinets with electrical/electronic components. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting airflow prevents formation of localised hot pockets in installations and protects electronic components from overheating.

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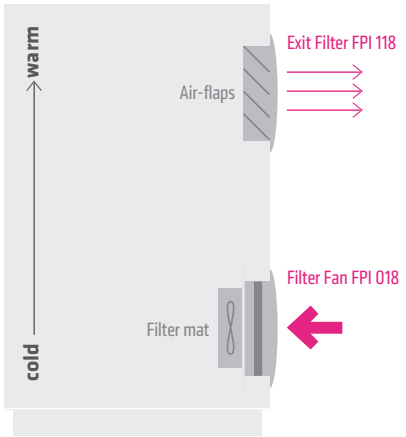
SYSTEM FPI



TECHNICAL DATA

Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 50,000h fan body aluminium, rotor metal
Connection	2 stranded wires, 300mm
Casing, hood, flaps	plastic according to UL94 V-0, light grey; UV light resistant according to UL746C (f1)
Enclosure cut-out	92 x 92^{+1}mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1 – 4mm). Additional use of screws possible if needed[1].
Filter mat	G3 acc. to DIN EN 779, average arrestance A_a 84%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable
Operating/Storage temperature	-40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Environmental rating UL/NEMA	UL TYPE 12 / NEMA 12
Approvals	VDE, UL File No. E234324, EAC
Note	other voltages on request

[1] Drilling marks for screw mounting are indicated on mounting frame.

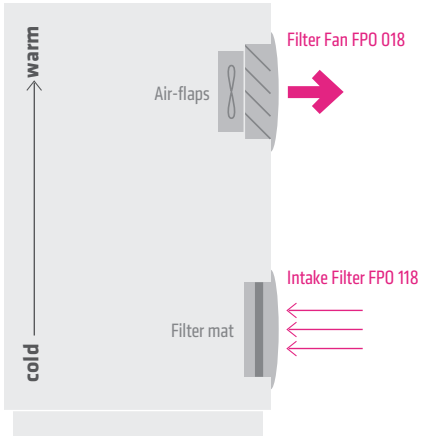
AIRFLOW DIRECTION "IN": FILTER FAN FPI 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Current consumption (50/60 Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Filter mat
01870.0-30	AC 230V, 50/60Hz	19m³/h	13m³/h	70mA	12W	39dB	66mm	0.6kg	G3
01870.9-30	AC 115V, 50/60Hz	23m³/h	16m³/h	115mA	11W	43dB	66mm	0.6kg	G3

AIRFLOW DIRECTION "IN": EXIT FILTER FPI 118

Art. No.	Depth in enclosure	Weight (approx.)	Air outlet
11870.0-00	29mm	0.2kg	air-flap outlet technology

SYSTEM FPO



AIRFLOW DIRECTION "OUT": FILTER FAN FPO 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with intake filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Air outlet
01880.0-00	AC 230V, 50/60Hz	24m³/h	15m³/h	70mA	12W	38dB	72mm	0.6kg	air-flaps
01880.9-00	AC 115 V, 50/60 Hz	32 m³/h	19 m³/h	115 mA	12 W	41 dB	72 mm	0.6 kg	air-flaps

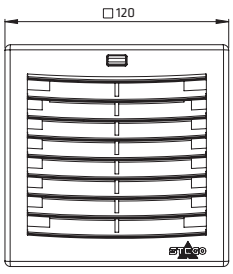
AIRFLOW DIRECTION "OUT": INTAKE FILTER FPO 118

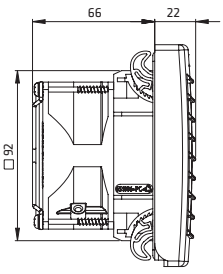
Art. No.	Depth in enclosure	Weight (approx.)	Filter mat
11880.0-30	22mm	0.2kg	G3 acc. to DIN EN 779, average arrestance A_a 84%

FILTER MAT FM 086

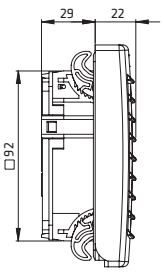
Filter class	84 x 84mm	Average arrestance A_a	1 packing unit
G3 acc. to DIN EN 779	Art. No. 08633.0-00	84%	5 pieces

TECHNICAL DRAWINGS

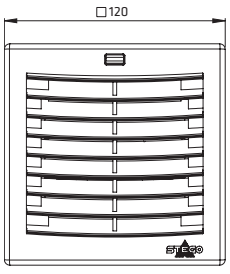


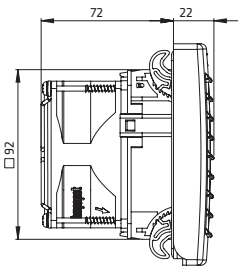


FPI 018

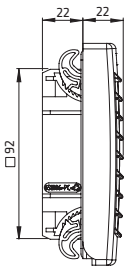


FPI 118

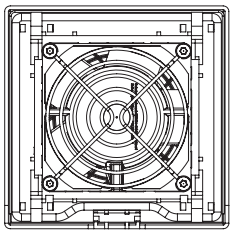


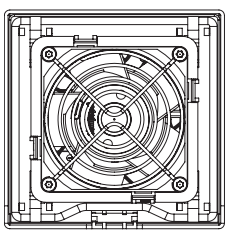


FPO 018



FPO 118





FILTER FAN PLUS

FPI/FPO 018 | up to 97m³/h (124 x 124mm)

- > New air-flap outlet technology for high airflow
- > Easy mounting
- > Protection type test/Environmental rating by independent testing institutes (VDE and UL)
- > Two systems for optimal airflow (FPI/FPO)
- > Standard enclosure cut-out sizes (5 sizes)
- > One filter mat

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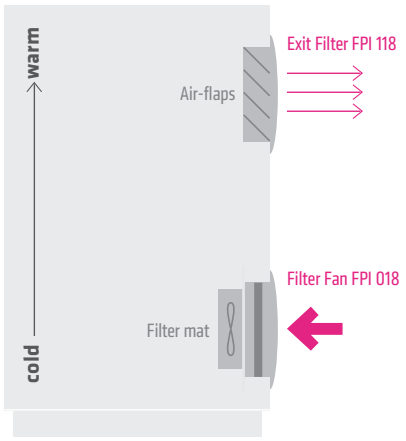
TECHNICAL DATA

Axial fan, ball bearing	service life L10 at +40 °C (+104 °F): min. 37,000 h fan body aluminium, rotor metal
Connection	2 stranded wires, 160mm
Casing, hood, flaps	plastic according to UL94 V-0, light grey; UV light resistant according to UL746C (f1)
Enclosure cut-out	124 x 124^{+1} mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1 – 4mm). Additional use of screws possible if needed[1].
Filter mat	G3 acc. to DIN EN 779, average arrestance A_a 84%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable
Operating/Storage temperature	-40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Environmental rating UL/NEMA	UL TYPE 12 / NEMA 12
Approvals	VDE, UL File No. E234324, EAC
Note	other voltages on request

[1] Drilling marks for screw mounting are indicated on mounting frame.

SYSTEM FPI



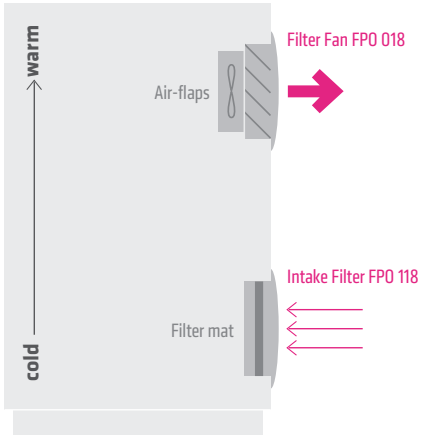
AIRFLOW DIRECTION "IN": FILTER FAN FPI 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Filter mat
01871.0-30	AC 230V, 50/60Hz	52m³/h	42m³/h	120mA	19W	49dB	66mm	0.8kg	G3
01871.9-30	AC 115V, 50/60Hz	62m³/h	51m³/h	230mA	18W	53dB	66mm	0.8kg	G3

AIRFLOW DIRECTION "IN": EXIT FILTER FPI 118

Art. No.	Depth in enclosure	Weight (approx.)	Air outlet
11871.0-00	35mm	0.3kg	air-flap outlet technology

SYSTEM FPO



AIRFLOW DIRECTION "OUT": FILTER FAN FPO 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with intake filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Air outlet
01881.0-00	AC 230V, 50/60Hz	97m³/h	47m³/h	120mA	19W	49dB	79mm	0.9kg	air-flaps
01881.9-00	AC 115V, 50/60Hz	117m³/h	58m³/h	230mA	18W	52dB	79mm	0.9kg	air-flaps

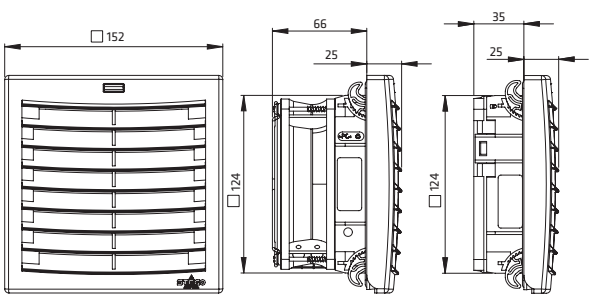
AIRFLOW DIRECTION "OUT": INTAKE FILTER FPO 118

Art. No.	Depth in enclosure	Weight (approx.)	Filter mat
11881.0-30	22mm	0.2kg	G3 acc. to DIN EN 779, average arrestance A_a 84%

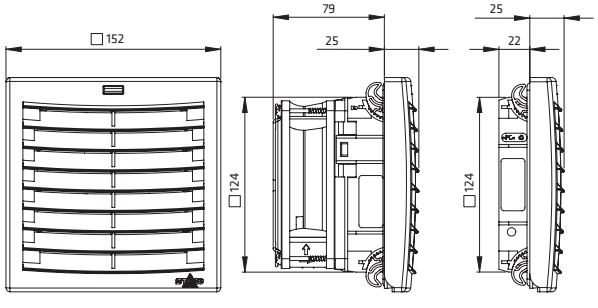
FILTER MAT FM 086

Filter class	118 x 118mm	Average arrestance A_a	1 packing unit
G3 acc. to DIN EN 779	Art. No. 08634.0-00	84%	5 pieces

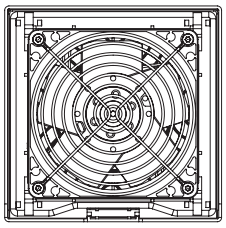
TECHNICAL DRAWINGS

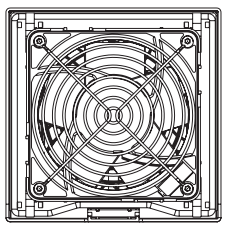


FPI 018 FPI 118



FPO 018 FPO 118





FILTER FAN PLUS

FPI/FPO 018 | up to 263 m³/h (176 x 176mm)

- > New air-flap outlet technology for high airflow
- > Easy mounting
- > Protection type test/Environmental rating by independent testing institutes (VDE and UL)
- > Two systems for optimal airflow (FPI/FPO)
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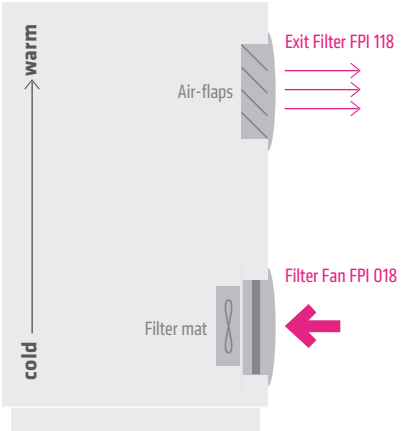
TECHNICAL DATA

Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 65,000h fan body aluminium, rotor metal
Connection	3-pole clamp for 2.5mm², clamping torque 0.8Nm max.
Casing, hood, flaps	plastic according to UL94 V-0, light grey; UV light resistant according to UL746C (f1)
Enclosure cut-out	176 x 176 $^{+1}$ mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1 – 4mm). Additional use of screws possible if needed[1].
Filter mat	G3 acc. to DIN EN 779, average arrestance A_g 84 %
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable
Operating temperature	50 Hz: -25 to +50°C (-13 to +122°F) 60 Hz: -25 to +70°C (-13 to +158°F)
Storage temperature	-40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Environmental rating UL/NEMA	UL TYPE 12 / NEMA 12
Approvals	VDE, UL File No. E234324, EAC
Note	other voltages on request

[1] Drilling marks for screw mounting are indicated on mounting frame.

SYSTEM FPI



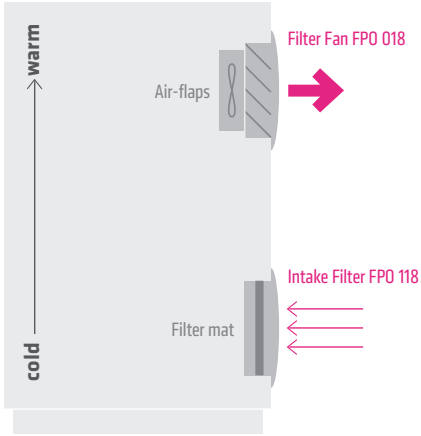
AIRFLOW DIRECTION "IN": FILTER FAN FPI 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Filter mat
01872.0-30	AC 230V, 50/60Hz	170m³/h	139m³/h	310/250mA	45W	55dB	117mm	1.6kg	G3
01872.9-30	AC 115V, 50/60Hz	204m³/h	187m³/h	560/470mA	38W	58dB	117mm	1.6kg	G3

AIRFLOW DIRECTION "IN": EXIT FILTER FPI 118

Art. No.	Depth in enclosure	Weight (approx.)	Air outlet
11872.0-00	43mm	0.4kg	air-flap outlet technology

SYSTEM FPO



AIRFLOW DIRECTION "OUT": FILTER FAN FPO 018

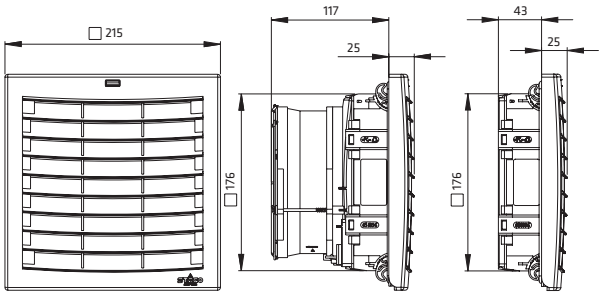
Art. No.	Operating voltage	Air volume, free flow	Air volume with intake filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Air outlet
01882.0-00	AC 230V, 50/60Hz	263m³/h	137m³/h	310/250mA	45W	56dB	117mm	1.6kg	air-flaps
01882.9-00	AC 115V, 50/60Hz	313m³/h	166m³/h	560/470mA	38W	60dB	117mm	1.6kg	air-flaps

AIRFLOW DIRECTION "OUT": INTAKE FILTER FPO 118

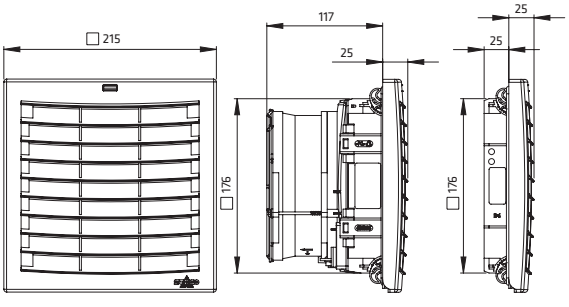
Art. No.	Depth in enclosure	Weight (approx.)	Filter mat
11882.0-30	25mm	0.4kg	G3 acc. to DIN EN 779, average arrestance A_a 84%

FILTER MAT FM 086

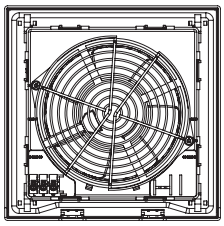
Filter class	168 x 168mm	Average arrestance A_a	1 packing unit
G3 acc. to DIN EN 779	Art. No. 08635.0-00	84%	5 pieces

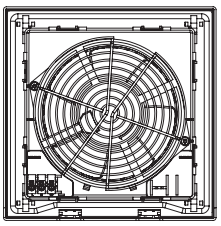


FPI 018 FPI 118



FPO 018 FPO 118





FILTER FAN PLUS

FPI/FPO 018 | up to 536m³/h (223 x 223mm)

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- > Easy mounting
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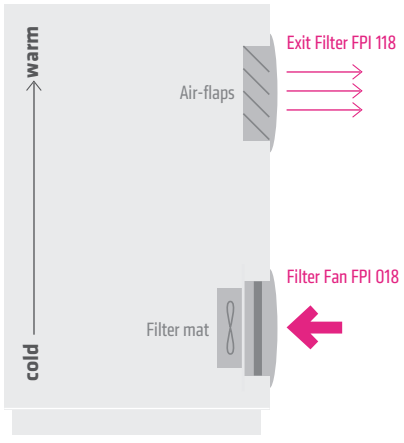
SYSTEM FPI



TECHNICAL DATA

Axial fan, ball bearing	service life L10 at +40 °C (+104°F): min. 56,000h rotor metal
Connection	3-pole clamp for 2.5mm², clamping torque 0.8Nm max.
Casing, hood, flaps	plastic according to UL94 V-0, light grey; UV light resistant according to UL746C (f1)
Enclosure cut-out	223 x 223[+1] mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1 – 4mm). Additional use of screws possible if needed[1].
Filter mat	G3 acc. to DIN EN 779, average arrestance A_a 84%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable
Operating temperature	-25 to +65°C (-13 to +149°F)
Storage temperature	-40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Environmental rating UL/NEMA	UL TYPE 12 / NEMA 12
Approvals	VDE, UL File No. E234324, EAC
Note	other voltages on request

[1] Drilling marks for screw mounting are indicated on mounting frame.

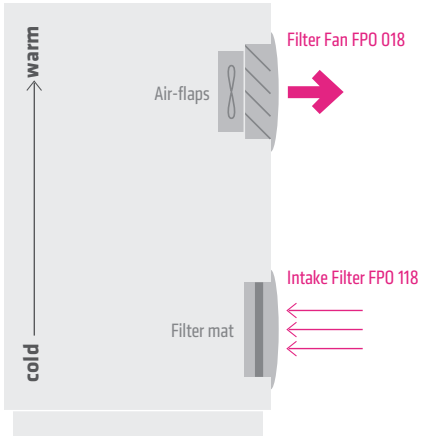
AIRFLOW DIRECTION "IN": FILTER FAN FPI 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Filter mat
01873.0-30	AC 230V, 50/60Hz	305m³/h	271m³/h	300/340mA	64W	64dB	147mm	2.4kg	G3
01873.9-30	AC 115V, 50/60Hz	332m³/h	293m³/h	600/700mA	81W	67dB	147mm	2.4kg	G3

AIRFLOW DIRECTION "IN": EXIT FILTER FPI 118

Art. No.	Depth in enclosure	Weight (approx.)	Air outlet
11873.0-00	46mm	0.6kg	air-flap outlet technology

SYSTEM FPO



AIRFLOW DIRECTION "OUT": FILTER FAN FPO 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with intake filter	Current consumption (50/60 Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Air outlet
01883.0-00	AC 230V, 50/60Hz	536m³/h	281m³/h	300/340mA	64W	65dB	147mm	2.4kg	air-flaps
01883.9-00	AC 115V, 50/60Hz	581m³/h	310m³/h	600/700mA	81W	68dB	147mm	2.4kg	air-flaps

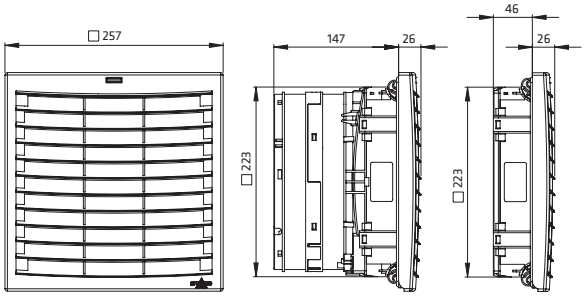
AIRFLOW DIRECTION "OUT": INTAKE FILTER FPO 118

Art. No.	Depth in enclosure	Weight (approx.)	Filter mat
11883.0-30	25mm	0.5kg	G3 acc. to DIN EN 779, average arrestance A_a 84%

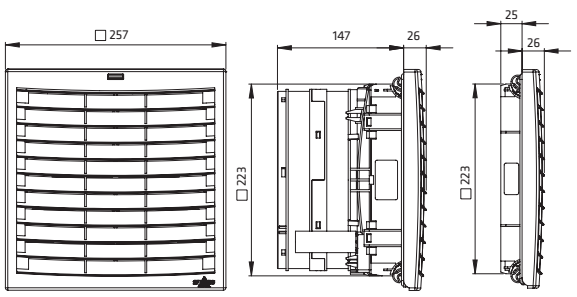
FILTER MAT FM 086

Filter class	215 x 215mm	Average arrestance A_a	1 packing unit
G3 acc. to DIN EN 779	Art. No. 08636.0-00	84%	5 pieces

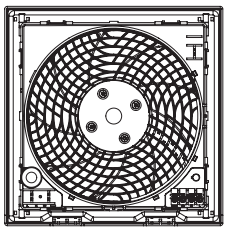
TECHNICAL DRAWINGS

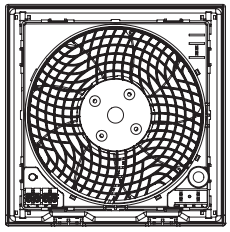


FPI 018 FPI 118



FPO 018 FPO 118





FILTER FAN PLUS

FPI/FPO 018 | up to 727m³/h (291 x 291mm)

- > New air-flap outlet technology for high airflow
- > Easy mounting
- > Protection type test/Environmental rating by independent testing institutes (VDE and UL)
- > Two systems for optimal airflow (FPI/FPO)
- > Standard enclosure cut-out sizes (5 sizes)
- > One filter mat

Filter fans are used to provide an optimum climate in enclosures and cabinets with electrical/electronic components. The interior temperature of an enclosure can be reduced by channelling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting airflow prevents formation of localised hot pockets in installations and protects electronic components from overheating.

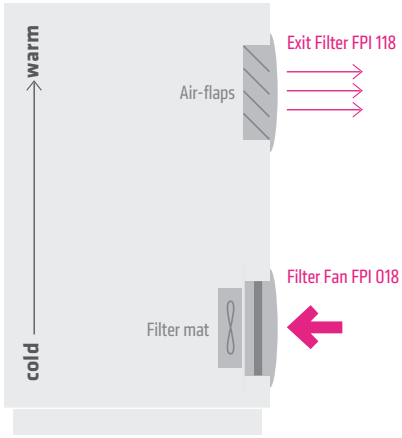
The Filter Fan Plus series uses a new air-flap outlet technology for the air outlet and thus reaches a high degree of airflow. A ratchet mechanism is used for mounting and provides high stability and tightness. Depending on the application there are two systems that are available – the FPI or FPO system. The FPI system is a standard installation with a filter fan in the lower part of the enclosure which ensures that fresh air is fed into the enclosure (airflow direction "In"). This system consists of a filter fan and exit filter. Whereas in the FPO system, the filter fan is located in the upper area of the enclosure to avoid heat buildups (airflow direction "Out"). The FPO system is composed of an intake filter and exit filter fan. The Filter Fan Plus series has been designed for indoor use.

TECHNICAL DATA

Axial fan, ball bearing	service life L10 at +40°C (+104°F): min. 76,000h rotor metal
Connection	3-pole clamp for 2.5mm², clamping torque 0.8Nm max.
Casing, hood, flaps	plastic according to UL94 V-0, light grey; UV light resistant according to UL746C (f1)
Enclosure cut-out	291 x 291[+1] mm
Mounting frame	4 built-in ratchet braces for mounting (6 notches for wall thickness 1 – 4mm). Additional use of screws possible if needed[1].
Filter mat	G3 acc. to DIN EN 779, average arrestance A_a 84%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable
Operating temperature	50 Hz: -25 to +55°C (-13 to +131°F) 60 Hz: -25 to +35°C (-13 to +95°F)
Storage temperature	-40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 75% RH (non-condensing)
Protection type/Protection class	IP54 / I (earthed)
Environmental rating UL/NEMA	UL TYPE 12 / NEMA 12
Approvals	VDE, UL File No. E234324, EAC
Note	other voltages on request

[1] Drilling marks for screw mounting are indicated on mounting frame.

SYSTEM FPI



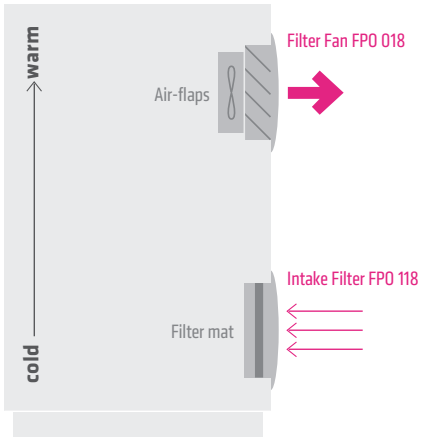
AIRFLOW DIRECTION "IN": FILTER FAN FPI 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with exit filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Filter mat
01874.0-30	AC 230V, 50/60Hz	433m³/h	373m³/h	400/480mA	95W	62dB	160mm	3.1kg	G3
01874.9-30	AC 115V, 50/60Hz	394m³/h	339m³/h	660/800mA	90W	61dB	160mm	3.1kg	G3

AIRFLOW DIRECTION "IN": EXIT FILTER FPI 118

Art. No.	Depth in enclosure	Weight (approx.)	Air outlet
11874.0-00	50mm	1.0kg	air-flap outlet technology

SYSTEM FPO



AIRFLOW DIRECTION "OUT": FILTER FAN FPO 018

Art. No.	Operating voltage	Air volume, free flow	Air volume with intake filter	Current consumption (50/60Hz)	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Weight (approx.)	Air outlet
01884.0-00	AC 230V, 50/60Hz	727m³/h	413m³/h	400/480mA	95W	63dB	160mm	3.2kg	air-flaps
01884.9-00	AC 115V, 50/60Hz	703m³/h	391m³/h	660/800mA	90W	62dB	160mm	3.2kg	air-flaps

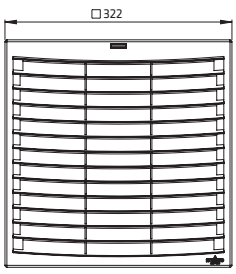
AIRFLOW DIRECTION "OUT": INTAKE FILTER FPO 118

Art. No.	Depth in enclosure	Weight (approx.)	Filter mat
11884.0-30	25 mm	0.8 kg	G3 acc. to DIN EN 779, average arrestance A_a 84 %

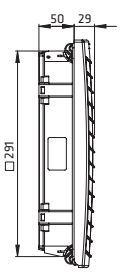
FILTER MAT FM 086

Filter class	283 x 283mm	Average arrestance A_a	1 packing unit
G3 acc. to DIN EN 779	Art. No. 08637.0-00	84%	5 pieces

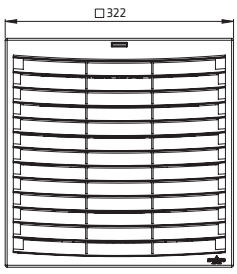
TECHNICAL DRAWINGS



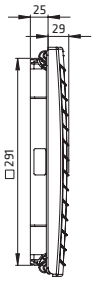
FPI 018



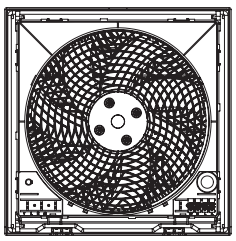
FPI 118

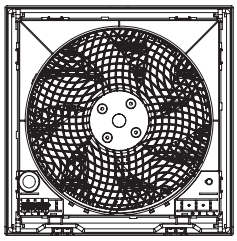


FPO 018



FPO 118





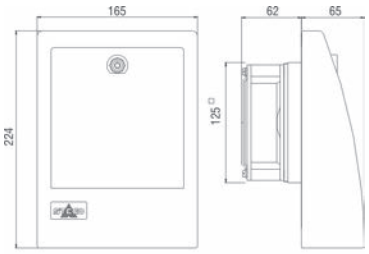
OUTDOOR FILTER FAN

FF 018

Outdoor Filter Fan

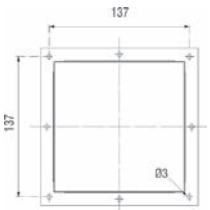
> Filter changeable from outside
> Safe, lockable
> Impact resistant
> Weather proof and UV resistant

The outdoor filter fan can be used in outdoor enclosures where warm air has to be dissipated on account of increased thermic development. The plastic casing is weather proof and resistant to UV light. To clean and exchange the filter mat, it is only necessary to open the lockable door of the outdoor hood.



View from rear

Outdoor Exit filter



Drilling template for mounting frame

TECHNICAL DATA

Axial fan, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH fan body aluminium, rotor plastic
Connection	2 wires with pressure clamps 2.5mm², length 100mm
Casing (filter fan and exit filter)	plastic according to UL94 V-0, light grey
Hood (filter fan and exit filter)	plastic according to UL94 V-0, light grey; weather proof and UV light resistant according to UL746C (f1)
Mounting frame	with double-sided industrial adhesive band for fixing to the outside of enclosure; certain operating circumstances can make the additional use of screws necessary (see drilling template); a template for the enclosure cut-out is included in the delivery of the filter fans
Filter mat	M5 acc. to DIN EN 779, filtering degree 98%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH
Operating/Storage temperature	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP55 / I (earthed)

Note: The hood is fixed permanently to the enclosure from the inside using screws. Filter mats can be easily changed from outside the enclosure through the lockable door in the hood.

OUTDOOR FILTER FAN FF 018

Art. No.	Operating voltage	Air volume, free flow	Current consumption	Power consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Approvals		
01821.0-00	230VAC, 50Hz	20m³/h	100mA	15W	40dB (A)	62mm	125 x 125mm + 0.4	1.2kg	VDE	UL File No. E234324	EAC
01821.0-02	120VAC, 60Hz	23m³/h	180mA	15W	40dB (A)	62mm	125 x 125mm + 0.4	1.2kg	-	UL File No. E234324	EAC

EXIT FILTER EF 118

Art. No.	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type
11821.0-00	16mm	125 x 125mm + 0.4	0.6kg	M5 acc. to DIN EN 779, filtering degree 98%	IP55

FILTER MAT FFM 086

Filter mat	122 x 122mm
M5 (1 packing unit = 3 pcs.)	Art. No. 08607.0-00

ROOF FILTER FAN

RFP 018 | 300m³/h, 500m³/h

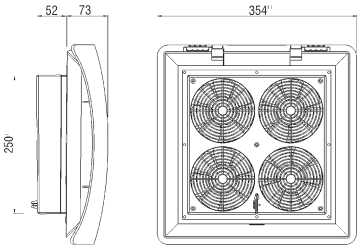
Photo: Art. No. 01860.0-00

Photo: Art. No. 01861.0-00

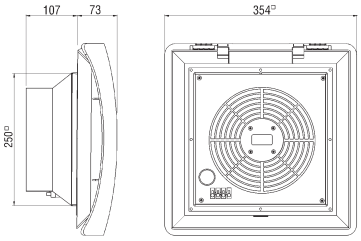
- > Very low noise
- > Minimal depth in enclosure
- > High through-flow air volume
- > High reliability
- > Time-saving installation and mat exchange

Roof filter fans find use in enclosures and housings, from which warm air has to be diverted to lower the internal temperature. These low-noise roof filter fans are used to expel warm air from within the enclosure which has been generated by the stray power of the components and so protects the internal devices from overheating. To exchange the filter mat the hood can be easily opened without tools. The roof exit filter provides passive ventilation.

Roof Filter Fan (01860.0-XX)



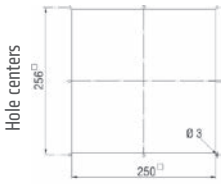
Roof Filter Fan (01861.0-XX)



TECHNICAL DATA

Axial fans, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH fan body aluminium, rotor plastic
Connection	3-pole clamp for 2.5mm², clamping torque 0.8Nm max.
Casing	plastic according to UL94 V-0, light grey; weather proof and UV light resistant according UL746C (f1)
Filter mat	G3 acc. to DIN EN 779, filtering degree 85%
Filter material	synthetic fibre with progressive construction, temperature resistant to +100°C, self-extinguishing class F1, moisture resistant to 100% RH, reusable - cleaning by washing or vacuuming
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP32 / I (earthed)
Approvals	EAC, VDE (230VAC only), UL intended

Important note: For reasons of pressure compensation the roof filter fan must always be operated in combination with a passive intake filter (e.g. Art. No. 11803.0-00) or another filter fan (e.g. Art. No. 01803.0-00).



Enclosure cut-out

ROOF FILTER FAN RFP 018

Art. No.	Operating voltage	Air volume, free flow	Current consumption	Average noise level (DIN EN ISO 4871)	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Operating / Storage temperature
01860.0-00	230VAC, 50Hz	300m³/h	68W	55dB (A)	52mm	250 x 250mm + 0.4	3.3kg	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
01861.0-00	230VAC, 50Hz	500m³/h	64W	67dB (A)	107mm	250 x 250mm + 0.4	2.6kg	-25 to +70°C (-13 to +158°F)
01860.0-02	120VAC, 60Hz	345m³/h	60W	55dB (A)	52mm	250 x 250mm + 0.4	3.3kg	-10 to +70°C (+14 to +158°F) / -40 to +70°C (-40 to +158°F)
01861.0-02	120VAC, 60Hz	575m³/h	85W	67dB (A)	107mm	250 x 250mm + 0.4	2.6kg	-25 to +70°C (-13 to +158°F)

ROOF EXIT FILTER REP 118

Art. No.	Depth in enclosure	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type
11860.0-00	11mm	250 x 250mm + 0.4	1.0kg	G3 acc. to DIN EN 779, filtering degree 85%	IP32

FILTER MAT FM 086

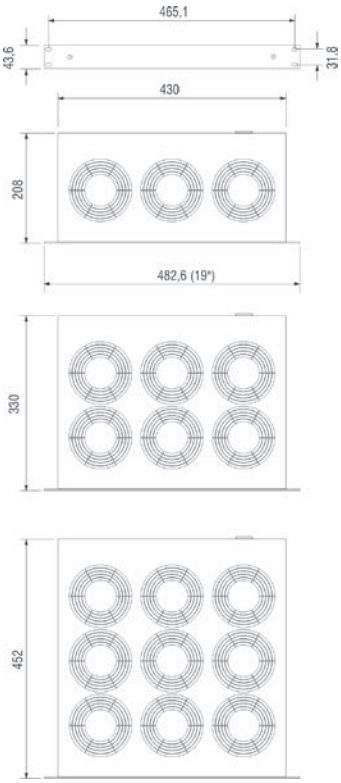
Filter mat	282 x 282mm
G3 (1 packing unit = 3 pcs.)	Art. No. 08613.0-01

HIGH-PERFORMANCE 19" FAN TRAY

LE 019

> High air output
> Long service life
> Ball bearing fans
> Ready for connection
> Optical function indicator

Compact high performance fan tray for enforced circulation of air in switch and server enclosures and for concerted cooling of 19" component groups. Natural convection is improved and the formation of localised hot pockets is avoided. Also available with integrated thermostat (see photo).



TECHNICAL DATA

Axial fans, ball bearing	service life 50,000h at +25°C (+77°F), 65% RH
Material	front panel aluminium, bright anodised casing steel sheet, electrogalvanized
Optical indicator	integrated in front panel
Connection	appliance power inlet on rear of casing, plug included
Fitting position	vertical airflow (air outlet up)
Operating/Storage temperature	-10 to +60°C (+14 to +140°F) / -40 to +70°C (-40 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)

Use in 19" enclosures: We recommend using the fan tray without integrated thermostat in combination with our dual thermostat (ZR 011 Art. No. 01176.0-00) for regulating temperature in electronic enclosures and for protection against over-heating due to possible fan failure.

The dual thermostat regulates the operation of the fan tray and – when connected to a signal device – also triggers an early warning if the enclosure interior temperature rises above a set limit. When using a fan tray with integrated thermostat, the use of an additional thermostat (KTS 011 Art. No. 01147.9-00) provides the extra safety of activating a signal device.

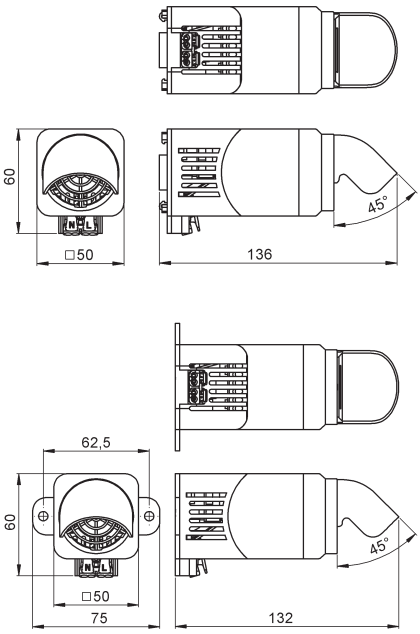
Art. No.	Thermostat	No. of fans	Operating voltage	Air volume, free flow	Power consumption	Average noise level (DIN EN ISO 4871)	Speed (rpm)	Weight (approx.)	Approvals	
01930.0-00	without	3	230VAC, 50Hz	486m³/h	45W	55db (A)	2600 rpm (50Hz)	3.0kg	UL File No. E234324	EAC
01930.1-00	0 to +60°C	3	230VAC, 50Hz	486m³/h	45W	55db (A)	2600 rpm (50Hz)	3.4kg	UL File No. E234324	EAC
01940.0-00	without	6	230VAC, 50Hz	972m³/h	90W	57db (A)	2600 rpm (50Hz)	5.3kg	UL File No. E234324	EAC
01940.1-00	0 to +60°C	6	230VAC, 50Hz	972m³/h	90W	57db (A)	2600 rpm (50Hz)	5.7kg	UL File No. E234324	EAC
01950.0-00	without	9	230VAC, 50Hz	1458m³/h	135W	58db (A)	2600 rpm (50Hz)	7.8kg	UL File No. E234324	EAC
01950.1-00	0 to +60°C	9	230VAC, 50Hz	1458m³/h	135W	58db (A)	2600 rpm (50Hz)	7.9kg	-	EAC
01931.0-00	without	3	120VAC, 60Hz	576m³/h	45W	55db (A)	2900 rpm (60Hz)	3.0kg	UL File No. E234324	EAC
01931.1-00	0 to +60°C	3	120VAC, 60Hz	576m³/h	45W	55db (A)	2900 rpm (60Hz)	3.4kg	UL File No. E234324	EAC
01941.0-00	without	6	120VAC, 60Hz	1152m³/h	90W	57db (A)	2900 rpm (60Hz)	5.3kg	UL File No. E234324	EAC
01941.1-00	0 to +60°C	6	120VAC, 60Hz	1152m³/h	90W	57db (A)	2900 rpm (60Hz)	5.7kg	-	EAC
01951.0-00	without	9	120VAC, 60Hz	1728m³/h	135W	58db (A)	2900 rpm (60Hz)	7.8kg	UL File No. E234324	EAC
01951.1-00	0 to +60°C	9	120VAC, 60Hz	1728m³/h	135W	58db (A)	2900 rpm (60Hz)	7.9kg	-	EAC

STEGOJET

SJ 019

> Prevents heat pockets
> Wide voltage range
> Compact design
> Quick connection
> Clip or screw fixing

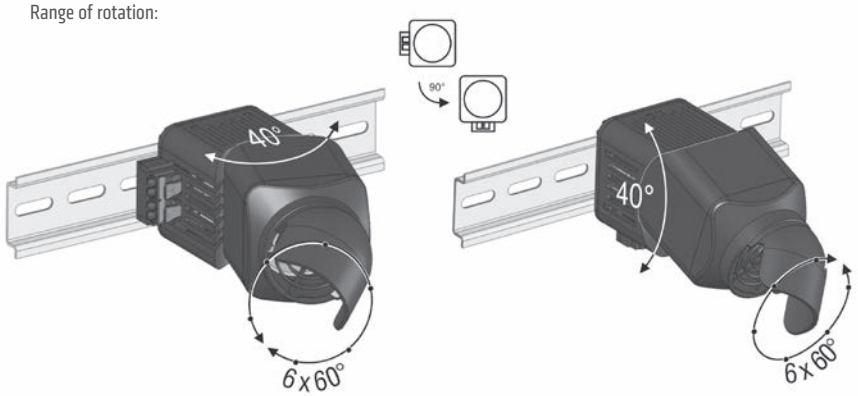
The STEGOJET is a compact, powerful built-in-fan. It allows precise cooling of heat sources and the air flow prevents formation of heat pockets. Its design offers a maximum rotation range with an air output in almost any direction. On one hand the dual clip system (two clips in a 90° angle) allows four different positions on a DIN rail, while on the other hand the hinge in the housing can be moved in a 40° angle. The airflow at the air outlet can also be directed in a 45° angle and the air duct can be rotated in steps of 60°.



TECHNICAL DATA

Axial fan, ball bearing	air flow 27.6m³/h, free flow service life 40,000h at +60°C (+140°F), 90% RH
Power consumption	4W
Connection	2-pole dual pressure clamp for rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Casing	plastic according UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M5), torque 2Nm max., washers have to be used
Fitting position	variable
Dimensions	132 x 75 x 60mm
Weight	approx. 0.2kg
Operating/Storage temperature	-10 to +60°C (+14 to +140°F)/-30 to +70°C (-22 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

Range of rotation:



Art. No.	Model	Operating voltage	Protection class	Approvals		
01925.0-00	Clip fixing	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	II (double insulated)	VDE	UL File No. E234324	EAC
01925.0-01	Screw fixing	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	II (double insulated)	VDE	UL File No. E234324	EAC
01925.1-00	Clip fixing	24VDC (min. 12VDC, max. 26.4VDC)	III (double insulated)	VDE	–	EAC
01925.1-01	Screw fixing	24VDC (min. 12VDC, max. 26.4VDC)	III (double insulated)	VDE	–	EAC

REGULATING

OPTIMISING CLIMATISATION

STEGO's temperature and humidity control systems perfect operating conditions for electric and electronic installations and therefore safeguard their performance.

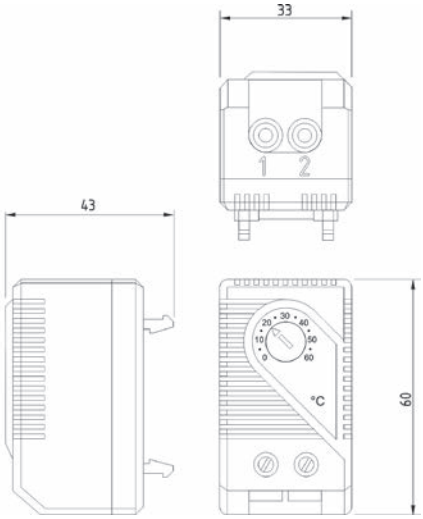
SMALL COMPACT THERMOSTAT

KTO 011 / KTS 011

> Large setting range
> Small size
> Simple to mount
> High switching performance

KTO 011: Thermostat (normally closed); contact breaker for regulating heaters. The contact opens when temperature is rising.

KTS 011: Thermostat (normally open); contact maker for regulating of filter fans and heat exchangers or for switching signal devises when temperature limit has been exceeded. The contact closes when temperature is rising.



TECHNICAL DATA

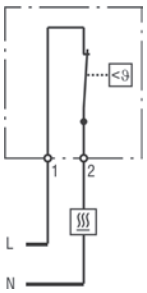
Switch temperature difference	7K (±4K tolerance)
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm² (AWG 14) stranded wire[1] 1.5mm² (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	60 x 33 x 43mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

[1] When connecting with wires, wire end ferrules must be used.

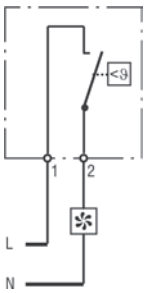
Important note: The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

Connection diagrams

Thermostat KTO 011 (NC)



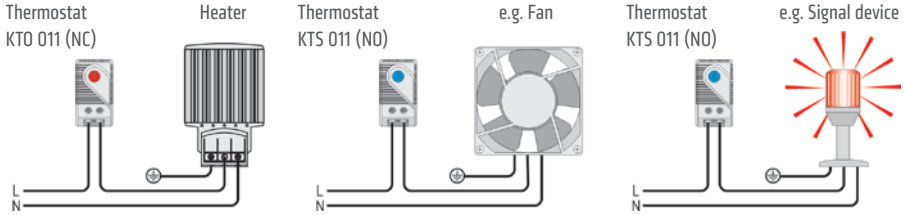
Thermostat KTS 011 (NO)



Heater

Filter fan, Cooling equipment, Signal device

Examples of connection



Setting range	Art. No. Contact breaker (NC)	Art. No. Contact maker (NO)	Approvals			
0 to +60°C	01140.0-00	01141.0-00	VDE	-	-	EAC
-10 to +50°C	01142.0-00	01143.0-00	VDE	UL File No. E164102	-	EAC
+20 to +80°C	01159.0-00	01158.0-00	VDE	UL File No. E164102	CSA	EAC
+32 to +140°F	01140.9-00	01141.9-00	VDE	UL File No. E164102	CSA	EAC
+14 to +122°F	01142.9-00	01143.9-00	VDE	UL File No. E164102	CSA	EAC
0 to +60°C	01146.9-00	01147.9-00	VDE	UL File No. E164102	CSA	EAC

SMALL COMPACT THERMOSTAT

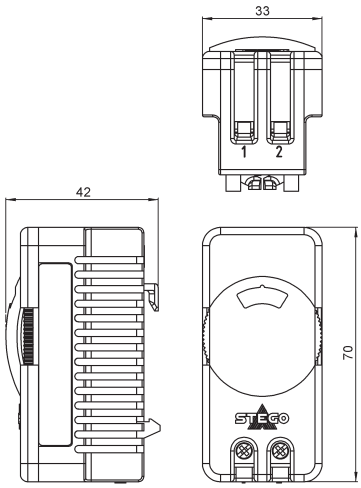
STO 011 / STS 011

- > Thumbwheel setting dial
- > Small hysteresis
- > High switching capacity
- > Anti frost assurance
- > Optimized housing for better air flow

The mechanical thermostat is a two state regulator with small hysteresis. The setting wheel has an anti frost assurance. The housing ensures an optimized air circulation around the bimetal.

STO 011: Thermostat (NC); contact breaker for regulating heaters. The contact opens when temperature is rising.

STS 011: Thermostat (NO); contact maker for regulating of filter fans and heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.



The anti frost assurance is a symbol on the setting scale of the NC thermostat (STO 011) at +11°C. This setting assures closing of the switching contact before 0°C.

TECHNICAL DATA

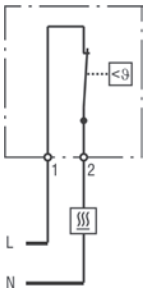
Switch temperature difference	4K (±3K tolerance)
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 10 (2) A / 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 1Nm max.: rigid/stranded[1] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94V-0, light grey
Dimensions	70 x 33 x 42mm
Weight	approx. 50g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, UL File No. E164102, EAC

[1] When connecting with stranded wires, wire end ferrules must be used.

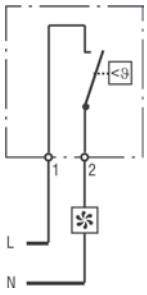
Important note: The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

Connection diagrams

Thermostat STO 011 (NC)



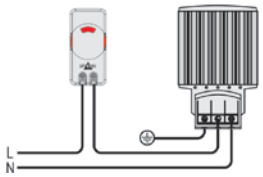
Thermostat STS 011 (NO)



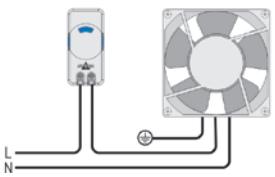
Heater

Filter fan, Cooling equipment, Signal device

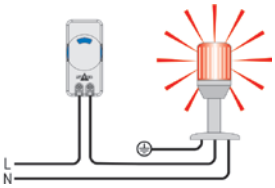
Thermostat STO 011 (NC) Heater



Thermostat STS 011 (NO) e.g. Fan



Thermostat STS 011 (NO) Signal device min: 24V; 20mA



Examples of connection

Setting range	Art. No. Contact breaker (NC)	Art. No. Contact maker (NO)
0 to +60°C	01115.0-00	01116.0-00
+32 to +140°F	01115.9-00	01116.9-00

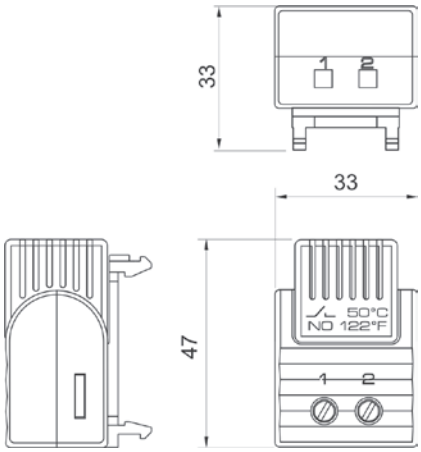
TAMPER-PROOF THERMOSTAT (PRE-SET)

FTO 011 / FTS 011

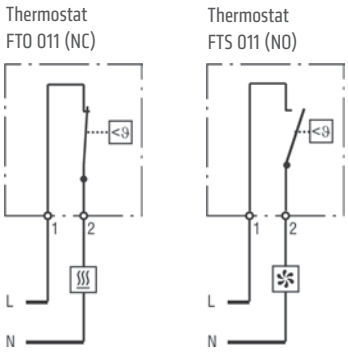
> Small size
> Default temperature settings
> Easy to install
> High switching accuracy

Tamper-proof (Pre-set) Thermostat FTO 011: Contact breaker/NC (red casing) for regulating heaters or for switching signal devices when temperature has fallen below the minimum value. The contact opens when temperature is rising.

Tamper-proof (Pre-set) Thermostat FTS 011: Contact maker/NO (blue casing) for regulating filter fans, heat exchangers, cooling devices or for switching signal devices when temperature limit has been exceeded. The contact closes when temperaure is rising.



Connection diagrams



Heater

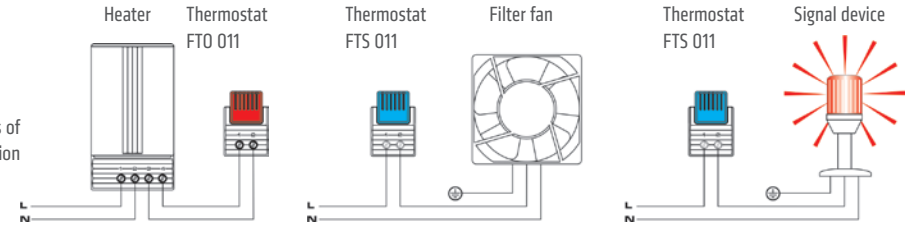
Filter fan, Cooling equipment, Signal device

TECHNICAL DATA

Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 5 (1.6) A / 120VAC, 10 (2) A DC 30W
Max. inrush current	AC 16A for 10 sec.
Connection	2-pole terminal, clamping torque 0.8Nm max.: rigid/stranded[1] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	47 x 33 x 33mm
Weight	approx. 30g
Fitting position	variable
Operating/Storage temperature	-40 to +80°C (-40 to +176°F) / -45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, UL File No. E164102, EAC

[1] When connecting with stranded wires, wire end ferrules must be used.

Examples of connection



Art. No.	Contact	Switch-off temperature	Switch-on temperature
01160.0-00	Contact breaker (NC)	+15°C / +59°F (±5K tolerance)	+5°C / +41°F (±5K tolerance)
01160.0-01	Contact breaker (NC)	+25°C / +77°F (±5K tolerance)	+15°C / +59°F (±5K tolerance)
01160.0-05	Contact breaker (NC)	+10°C / +50°F (±5K tolerance)	0°C / +32°F (±5K tolerance)

Art. No.	Contact	Switch-on temperature	Switch-off temperature
01161.0-00	Contact maker (NO)	+50°C / +122°F (±6K tolerance)	+40°C / +104°F (±7K tolerance)
01161.0-01	Contact maker (NO)	+60°C / +140°F (±6K tolerance)	+50°C / +122°F (±7K tolerance)
01161.0-02	Contact maker (NO)	+35°C / +95°F (±6K tolerance)	+25°C / +77°F (±7K tolerance)

Note: Other switch-off and switch-on temperatures on request.

DUAL THERMOSTAT

ZR 011

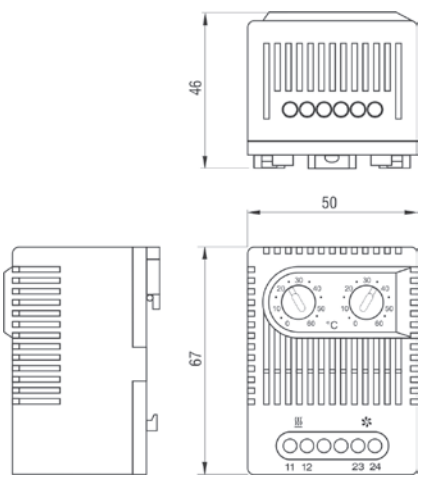
> NO and NC in one casing
> Separate adjustable temperatures
> High switching capacity
> Terminals easily accessible
> Clip fixing

Two thermostats in one casing:

Thermostat (contact breaker, normally closed) for regulating heaters. The contact opens when temperature is rising.

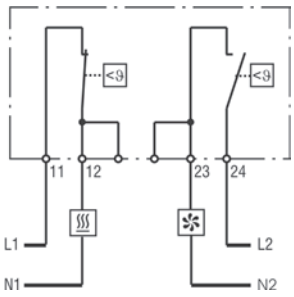
Thermostat (contact maker, normally open) for regulating filter fans and heat exchangers or switching signal devices when temperature limit has been exceeded. The contact closes when temperature is rising.

Heaters and cooling equipment can be switched independently from each other with a temperature offset as opposed to the usual change-over contacts.



Connection diagram

Thermostat ZR 011 (NC/NO)



Heater

Filter fan, Cooling equipment, Signal device

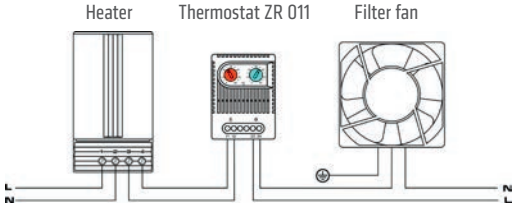
TECHNICAL DATA

Switch temperature difference	7K (±4K tolerance)
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 10 (2) A 120VAC, 15 (2) A DC 30W at 24VDC to 72VDC
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm² (AWG 14) stranded wire[1] 1.5mm² (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0. light grey
Dimensions	67 x 50 x 46mm
Weight	approx. 90g
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, UL File No. E164102, CSA, EAC

[1] When connecting with wires, wire end ferrules must be used.

Important note: The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

Example of connection



Art. No.	Setting range		Setting range	
01172.0-00	Contact breaker (NC)	0 to +60°C	Contact maker (NO)	0 to +60°C
01172.0-01	Contact breaker (NC)	+32 to +140°F	Contact maker (NO)	+32 to +140°F
01175.0-00	Contact breaker (NC)	-10 to +50°C	Contact maker (NO)	+20 to +80°C
01175.0-01	Contact breaker (NC)	+14 to +122°F	Contact maker (NO)	+68 to +176°F
01176.0-00[2]	Contact maker (NO)	0 to +60°C	Contact maker (NO)	0 to +60°C
01176.0-01[2]	Contact maker (NO)	+32 to +140°F	Contact maker (NO)	+32 to +140°F

[2] For regulating heat exchangers and fans (e. g. LE 019) and as an alarm contact for monitoring the interior temperature of electronic enclosures.

TAMPER-PROOF DUAL THERMOSTAT (PRE-SET)

FTD 011

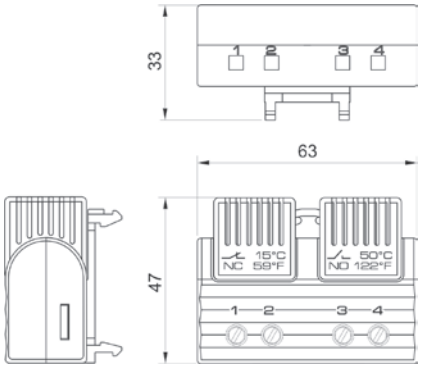
> NO and NC in one casing
> Default temperature settings
> High switching accuracy
> Clip fixing

Two thermostats in one casing:

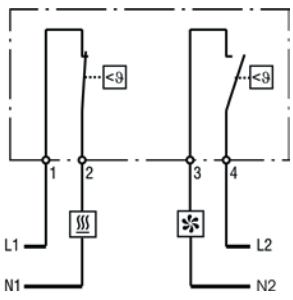
Tamper-proof (Pre-set) Thermostat/Contact breaker (NC) for regulating heaters or for switching signal devices when temperature has fallen below the minimum value. The contact opens when temperature is rising.

Tamper-proof (Pre-set) Thermostat/Contact maker (NO) for regulating filter fans, heat exchangers or for switching signal devices when temperature limit has been exceeded. The contact closes when temperaure is rising.

Heaters and cooling equipment can be switched independently from each other with a temperature offset as opposed to the usual change-over contacts.



Thermostat FTD 011
(NC/NO)



Connection diagram

Heater

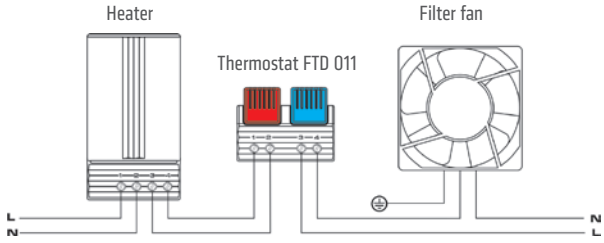
Filter fan, Cooling equipment, Signal device

TECHNICAL DATA

Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	250VAC, 5 (1.6) A / 120VAC, 10 (2) A DC 30W
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.8Nm max.: rigid wire 2.5mm² (AWG 14) stranded wire[1] 1.5mm² (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	47 x 63 x 33mm
Weight	approx. 40g
Fitting position	variable
Operating/Storage temperaure	-40 to + 80°C (-40 to +176°F) / -45 to + 80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, UL File No. E164102, EAC

[1] When connecting with stranded wires, wire end ferrules must be used.

Example of connection



Art. No.	Contact breaker (NC)		Contact maker (NO)	
	Switch-off temperature	Switch-on temperature	Switch-on temperature	Switch-off temperature
01163.0-00	+15°C / +59°F (±5K tolerance)	+5°C / +41°F (±5K tolerance)	+50°C / +122°F (±6K tolerance)	+40°C / +104°F (±7K tolerance)
01163.0-01	+25°C / +77°F (±5K tolerance)	+15°C / +59°F (±5K tolerance)	+60°C / +140°F (±6K tolerance)	+50°C / +122°F (±7K tolerance)
01163.0-02	+15°C / +59°F (±5K tolerance)	+5°C / +41°F (±5K tolerance)	+35°C / +95°F (±6K tolerance)	+25°C / +77°F (±7K tolerance)
01163.0-03	+25°C / +77°F (±5K tolerance)	+15°C / +59°F (±5K tolerance)	+50°C / +122°F (±6K tolerance)	+40°C / +104°F (±7K tolerance)

Art. No.	Contact maker (NO)		Contact maker (NO)	
	Switch-on temperature	Switch-off temperature	Switch-on temperature	Switch-off temperature
01164.0-00	+50°C / +122°F (±6K tolerance)	+40°C / +104°F (±7K tolerance)	+60°C / +140°F (±6K tolerance)	+50°C / +122°F (±7K tolerance)

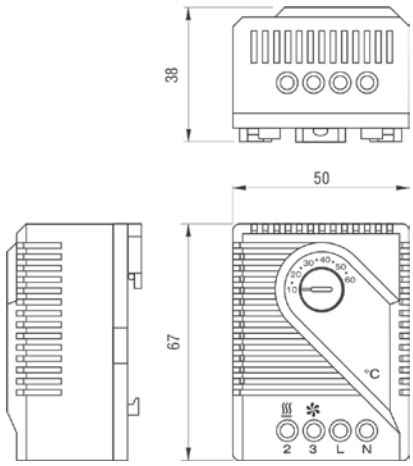
Note: Other switch-off and switch-on temperatures on request.

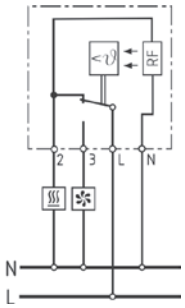
MECHANICAL THERMOSTAT

FZK 011

> Adjustable temperature
> High switching capacity
> Small hysteresis
> Change-over contact
> Clip fixing

The mechanical thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact. Functionality: The temperature setting on the scale equals to the upper switch point, which means that the NC contact opens. The temperature setting minus switch temperature difference (and tolerances) equals to the lower switch point, which means that the NC contact closes.





Connection diagram

Heater
Filter fan,
Cooling equipment,
Signal device

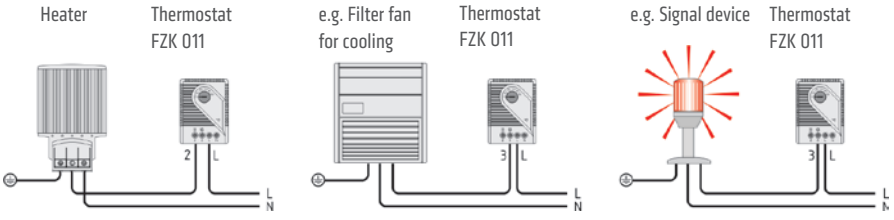
TECHNICAL DATA

Switch temperature difference	5K (-3/+2K tolerance)[1]
Sensor element	thermostatic bimetal
Contact type	change-over snap-action contact
Service life	> 100,000 cycles
Min. switching capacity	10mA
Max. switching capacity, NC	250VAC / 120VAC, 10 (4) A DC 30W
Max. switching capacity, NO	250VAC / 120VAC, 5 (2) A DC 30W
Max. inrush current	AC 16A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5Nm max.: rigid/stranded[2] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67 x 50 x 38mm
Weight	approx. 0.1kg
Fitting position	variable
Operating/Storage temperature	-45 to +65°C (-49 to +149°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	UL File No. E164104, EAC

[1] If the Normally Closed contact is used, the switch temperature difference could be reduced by connecting terminal "N" (RF heating resistor). It causes the thermal feedback which is subject to surrounding conditions and thus has to be determined for each individual application.
[2] When connecting with wires, wire end ferrules must be used.

Important note: The contact system of the regulator is subjected to environmental influences, thus the contact resistance may change. This can lead to a voltage drop and/or self-heating of the contacts.

Art. No.	Operating voltage	Setting range
01170.0-00	230VAC	+5 to +60°C
01170.0-01	230VAC	+40 to +140°F
01170.0-02	230VAC	-20 to +35°C
01170.9-00	120VAC	+40 to +140°F
01170.9-01	120VAC	+5 to +60°C



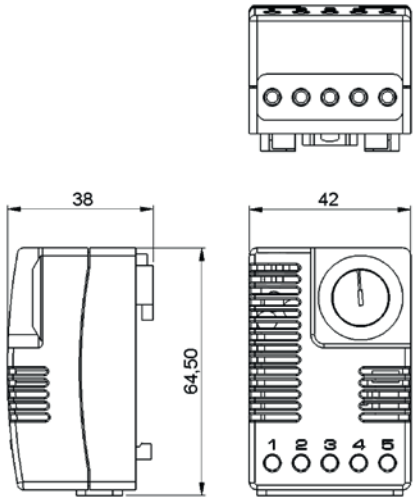
Examples of connection

ELECTRONIC THERMOSTAT

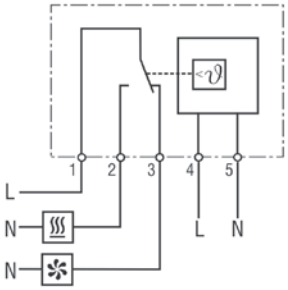
ETR 011

> Large setting range
> Small hysteresis
> Status indicator (LED)
> Change-over contact
> Clip fixing

The electronic thermostat is used for controlling heating and cooling equipment, filter fans or signal devices. The thermostat registers the surrounding air and can switch both and inductive and resistive loads via relay with change-over contact. The LED integrated in the adjustment knob is lit when the NC is closed. (e.g. when a connected heater is operating).



Connection diagram

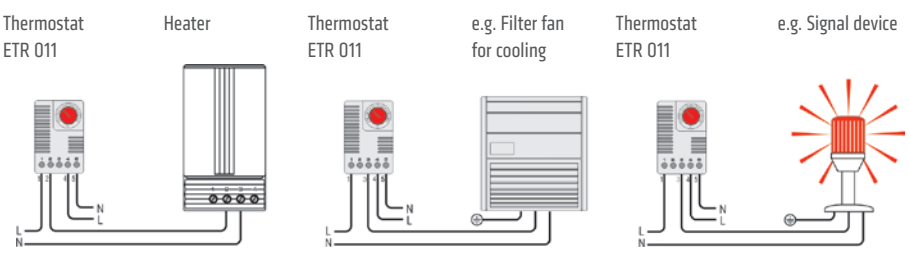


Heater
Filter fan, Cooling equipment, Signal device

TECHNICAL DATA

Switch temperature difference	4K (± 1K tolerance) at +20°C (+68°F)
Sensor element	NTC
Reaction time	approx. 5 sec.
Contact type	change-over contact (relay)
Service life	> 50,000 cycles
Max. switching capacity (relay output)	240VAC / 120VAC, 8 (1.6) A DC 100W at 24VDC
Max. inrush current	AC 16A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded[1] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL 94V-0, light grey
Dimensions	64.5 x 42 x 38mm
Weight	approx. 70g
Fitting position	vertical
Operating/Storage temperature	-40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

[1] When connecting with stranded wires, wire end ferrules must be used.



Examples of connection

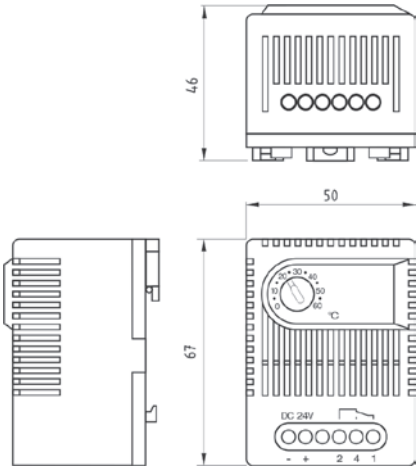
Art. No.	Operating voltage	Setting range	Approvals		
01131.0-00	230VAC, 50/60Hz	-20 to +60°C	VDE	UL File No. E164102	EAC
01131.9-00	120VAC, 50/60Hz	-4 to +140°F	–	UL File No. E164102	EAC

ELECTRONIC THERMOSTAT

ET 011 | 24VDC

> High DC breaking capacity
> Low hysteresis
> Adjustable temperature
> Change-over contact
> Clip fixing

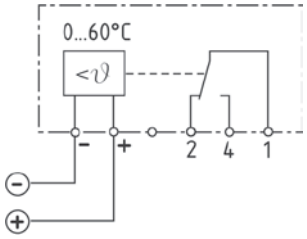
Electronic thermostat for regulating high performance 24VDC equipment. Heating or cooling appliances as well as signal devices can be switched via the potential free change-over contact. In comparison to mechanical thermostats, the ET 011 has a low hysteresis making the switching point and setting accuracy more precise.



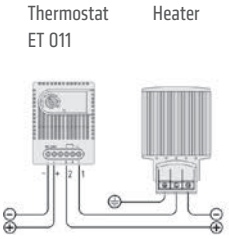
TECHNICAL DATA

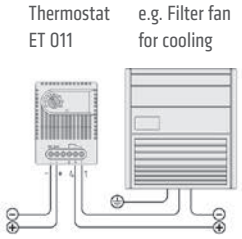
Switch temperature difference	approx. 3K
Sensor element	PTC
Contact type	change-over
Service life	> 100,000 cycles
Max. switching capacity	28VDC, 16A
Max. inrush current	DC 16A
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm² (AWG 14) stranded wire[1] 1.5mm² (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67 x 50 x 46mm
Weight	approx. 80g
Fitting position	vertical
Operating/Storage temperature	-10 to +60°C (+14 to +140°F) / -45 to +80°C (-49 to +176°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	EAC

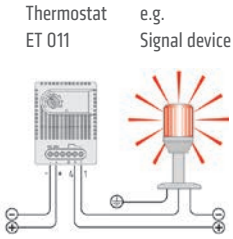
[1] When connecting with stranded wires, wire end ferrules must be used.



Connection diagram







Examples of connection

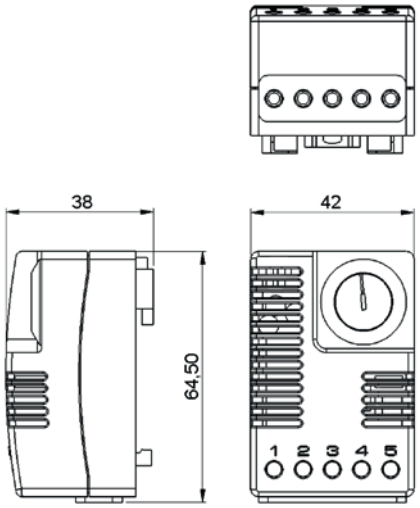
Art. No.	Operating voltage	Setting range
01190.0-00	24VDC (20-28VDC)	0 to +60°C

ELECTRONIC THERMOSTAT

ETL 011 | 12 to 48VDC

> Large setting range
> Small hysteresis
> Optical operating display (LED)
> Change-over contact
> Signal application

The electronic thermostat registers the surrounding air temperature and can switch a signal current via its internal relay with a potential-free change-over contact. Signal-processing devices can be controlled directly with the ETL 011. In order to control heating and cooling equipment, filter fans and signal devices the switch module SM 010 or a similar device is needed. The LED integrated in the adjustment knob shows the closed status of the contact 1-2. When temperature is rising contact 1-2 opens and the LED turns off. In currentless state (no supply voltage) contact 1-2 opens.

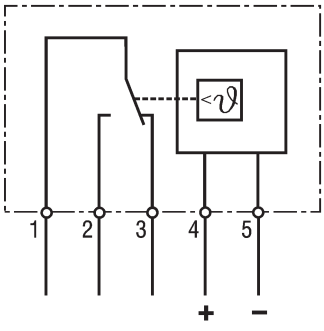


TECHNICAL DATA

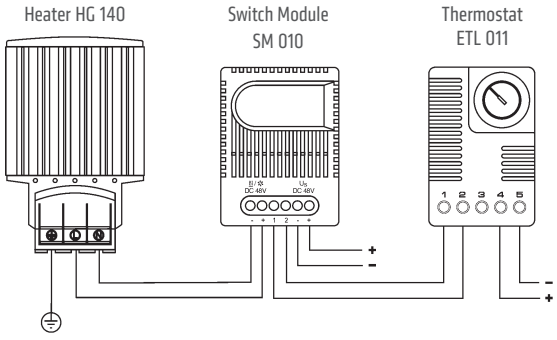
Switch temperature difference	4K (± 1K tolerance) at +20°C (+68°F)
Sensor element	NTC
Reaction time	approx. 5 sec.
Contact type	change-over contact (relay)
Service life	>100.000 cycles (at 10mW)
Max. switching current (relay output)	DC 0.5A at 48VDC
Min. switching capacity	DC 10mW (at 0.1V, 100mA or 1mA, 10V)
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid wire/stranded wire[1] 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.5 x 42 x 38mm
Weight	approx. 70g
Fitting position	vertical
Operating/Storage temperature	-40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

[1] When connecting with wires, wire end ferrules must be used.

Connection diagram



Example of connection



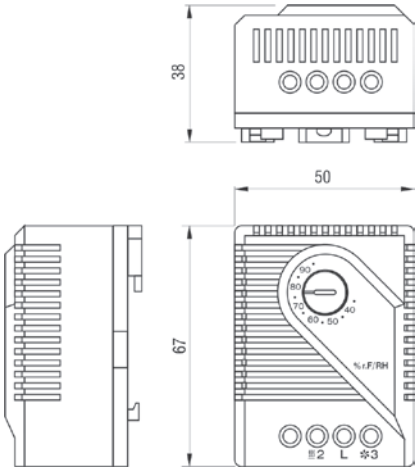
Art. No.	Operating voltage	Setting range	Approvals		
01131.2-00	12-48VDC (min. 10VDC, max. 60VDC)	-20 to +60°C	UL File No. E164102	EAC	VDE submitted
01131.2-01	12-48VDC (min. 10VDC, max. 60VDC)	-4 to +140°F	UL File No. E164102	EAC	VDE submitted

MECHANICAL HYGROSTAT

MFR 012

> Adjustable relative humidity
> Change-over contact
> High switching capacity
> Easily accessible terminals
> Clip fixing

The electromechanical hygrostat is designed to control enclosure heaters so that the dew point is raised when a critical relative humidity of 65% is exceeded. In this way condensation and corrosion in enclosures with electric/ electronic components is effectively prevented.

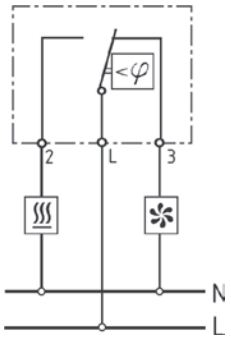


TECHNICAL DATA

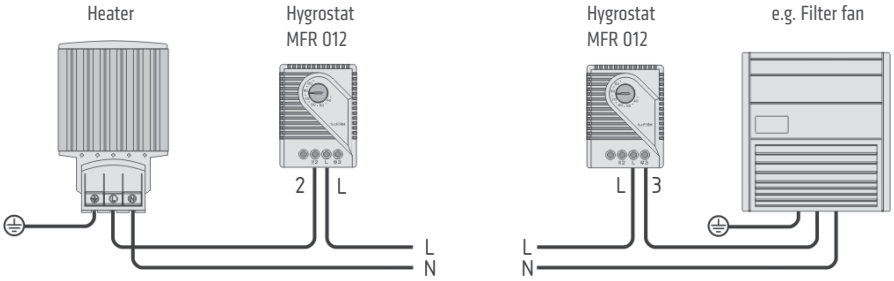
Switch difference[1]	4% RH (±3% tolerance)
Permissible air velocity	15m/sec.
Contact type	change-over contact
Service life	> 50,000 cycles
Min. switching capacity	20VAC/DC 100mA
Max. switching capacity	250VAC, 5A DC 20W
Connection	3-pole terminal for 2.5mm², clamping torque 0.5Nm max.: rigid wire 2.5mm² (AWG 14) stranded wire[2] 1.5mm² (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67 x 50 x 38mm
Weight	approx. 60g
Fitting position	variable
Operating/Storage temperature	0 to +60°C (+32 to +140°F) / -40 to +60°C (-40 to +140°F)
Operating/Storage humidity	max. 95% RH (non-condensing)
Protection type	IP20
Approvals	UL File No. E164102, EAC

[1] at 50% RH
[2] When connecting with stranded wires, wire end ferrules must be used.

Connection diagram



Heater
Filter fan, Cooling equipment, Signal device



Examples of connection

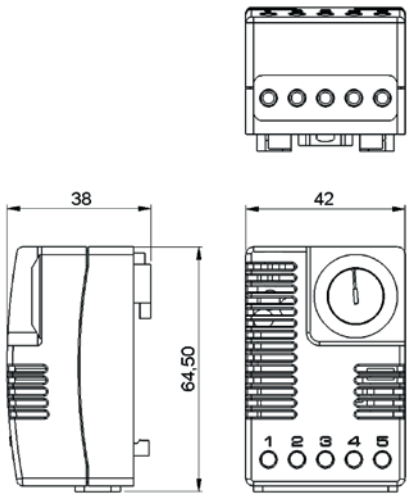
Art. No.	Setting range
01220.0-00	35 to 95% RH

ELECTRONIC HYGROSTAT

EFR 012

> Adjustable and pre-set relative humidity
> Status indicator (LED)
> High switching capacity
> Clip fixing
> Temperature-compensated

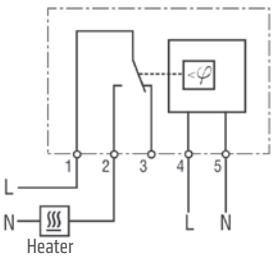
The electronic hygrostat senses the relative humidity in an enclosure with electric/electronic components and turns on a heater at the set point, helping prevent the formation of condensation in the enclosure. The LED integrated in the adjustment knob is lit when the connected heater is in operation.



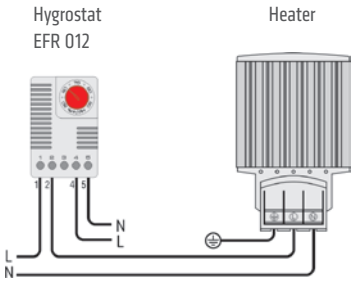
TECHNICAL DATA

Switch difference	5% RH (±3% RH tolerance) at +25°C (+77°F), 50% RH
Reaction time	5 sec.
Contact type	change-over contact (relay)
Service life	> 50,000 cycles
Max. switching capacity (relay output)	240VAC / 120VAC 8 (1.6) A DC 100W at 24VDC
Max. inrush current	AC 16A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded[1] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.5 x 42 x 38mm
Weight	approx. 70g
Fitting position	vertical
Operating/Storage temperature	0 to +60°C (+32 to +140°F) / -20 to +70°C (-4 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

[1] When connecting with stranded wires, wire end ferrules must be used.



Connection diagram



Example of connection

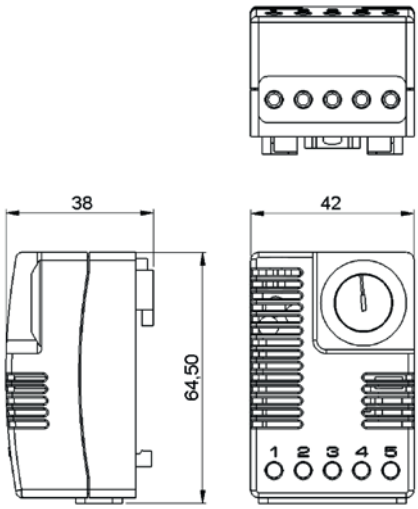
Art. No.	Operating voltage	Setting range	Approvals		
01245.0-00	230VAC, 50/60Hz	40 to 90% RH	VDE	UL File No. E164102	EAC
01246.0-00	230VAC, 50/60Hz	65% RH pre-set	VDE	UL File No. E164102	EAC
01246.0-01	230VAC, 50/60Hz	50% RH pre-set	VDE	UL File No. E164102	EAC
01245.9-00	120VAC, 50/60Hz	40 to 90% RH	-	UL File No. E164102	EAC
01246.9-00	120VAC, 50/60Hz	65% RH pre-set	-	UL File No. E164102	EAC

ELECTRONIC HYGROSTAT

EFL 012 | 12 to 48VDC

> Large setting range
> Small hysteresis
> Optical operating display (LED)
> Change-over contact
> Signal application

The electronic hygrostat registers the surrounding relative humidity and can switch a signal current via its internal relay with a potential-free change-over contact. Signal-processing devices can be controlled directly with the EFL 012. In order to control heating and cooling equipment, filter fans and signal devices the switch module SM 010 or a similar device is needed. The LED integrated in the adjustment knob shows the closed status of the contact 1-2. When relative humidity drops contact 1-2 opens and the LED turns off. In currentless state (no supply voltage) contact 1-2 opens.

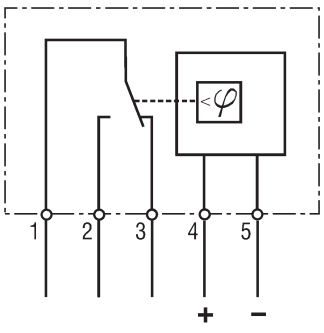


TECHNICAL DATA

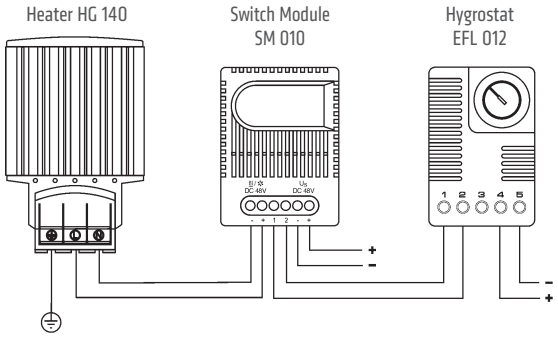
Switch difference	5% RH (±3% RH tolerance) at +25°C (+77°F), 50% RH
Reaction time	approx. 5 sec.
Contact type	change-over contact (relay)
Service life	>100.000 cycles (at 10mW)
Max. switching current (relay output)	DC 0.5A at 48VDC
Min. switching capacity	DC 10mW (at 0.1V, 100mA or 1mA, 10V)
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid wire/stranded wire[1] 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	64.5 x 42 x 38mm
Weight	approx. 70g
Fitting position	vertical
Operating/Storage temperature	0 to +60°C (+32 to +140°F) / -20 to +70°C (-4 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

[1] When connecting with wires, wire end ferrules must be used.

Connection diagram



Example of connection



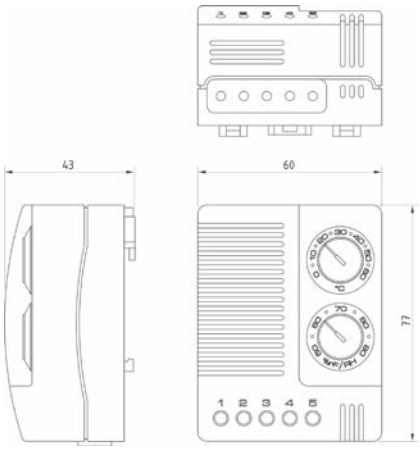
Art. No.	Operating voltage	Setting range	Approvals		
01245.2-00	12-48VDC (min. 10VDC, max. 60VDC)	40 to 90% RH	UL File No. E164102	EAC	VDE submitted

ELECTRONIC HYGROTHERM

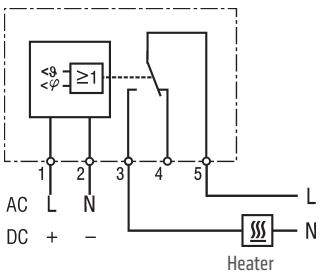
ETF 012

> Temperature and humidity adjustable
> Wide voltage range
> Operating temperature down to -40°C
> High switching capacity
> Status indicator (LED)

The electronic hygrotherm senses the ambient temperature and relative humidity in an enclosure with electric/electronic components and turns on a heater (or alternatively a fan) at either set point, helping prevent the formation of condensation in the enclosure. Due to its wide voltage range the hygrotherm can be utilised anywhere in the world. The LED integrated in the adjustment knob on the active controller is lit when the connected device is in operation.



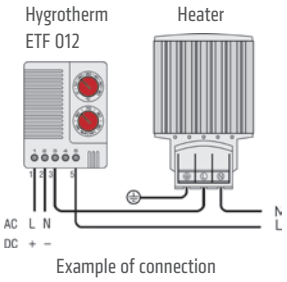
Connection diagram



TECHNICAL DATA

Switch difference (temperature)	2K (±1K tolerance) at +25°C (+77°F), 50% RH
Switch difference (humidity)	4% RH (±1% tolerance) at +25°C (+77°F), 50% RH
Reaction time (humidity)	approx. 5 sec.
Contact type	change-over contact (relay)
Service life	VDE: NO/NC > 15,000 cycles UL: NO/NC > 30,000 cycles
Max. switching capacity (relay output)	240VAC, 10 (1.6) A 60VDC, 0.6A[1]
Max. inrush current	AC 30A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded[2] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	77 x 60 x 43mm
Weight	approx. 0.2kg
Fitting position	vertical
Operating/Storage temperature	-40 to +60°C (-40 to +140°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, UL File No. E164102, EAC

[1] not UL confirmed
[2] When connecting with stranded wires, wire end ferrules must be used.



Example of connection

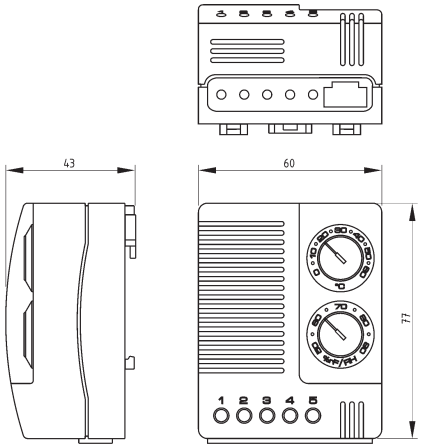
Art. No.	Operating voltage	Setting range temperature	Setting range humidity
01230.0-00	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	0 to +60°C	50 to 90% RH
01230.9-00	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	+32 to +140°F	50 to 90% RH
01230.1-00	24-48VDC (min. 20VDC, max. 60VDC)	0 to +60°C	50 to 90% RH

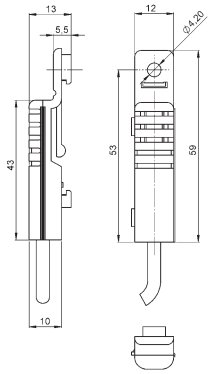
ELECTRONIC HYGROTHERM WITH EXTERNAL SENSOR

ETF 012

> Temperature and humidity adjustable
> Wide voltage range
> Operating temperature down to -40°C
> High switching capacity
> With external sensor

The electronic hygrotherm senses the ambient temperature and relative humidity in an enclosure with electric/electronic components and turns on a heater (or alternatively a fan) at either set point, helping prevent the formation of condensation in the enclosure. Due to its wide voltage range the hygrotherm can be utilised anywhere in the world. The external sensor can be positioned freely anywhere in the enclosure for precise measurements.



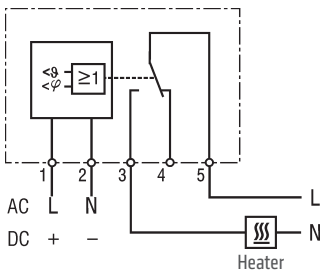


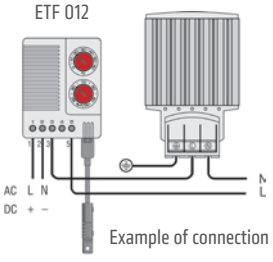
TECHNICAL DATA

Switch difference (temperature)	2K (±1K tolerance) at +25°C (+77°F), 50% RH
Switch difference (humidity)	4% RH (±1% tolerance) at +25°C (+77°F), 50% RH
Reaction time (humidity)	approx. 5 sec.
Contact type	change-over contact (relay)
Service life	VDE: NO/NC > 15,000 cycles UL: NO/NC > 30,000 cycles
Max. switching capacity (relay output)	240VAC, 10 (1.6) A 60VDC, 0.6A[1]
Max. inrush current	AC 30A for 10 sec.
Optical indicator	LED
Connection	5-pole terminal, clamping torque 0.5Nm max.: rigid/stranded[2] wire 2.5mm² (AWG 14)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	77 x 60 x 43mm
Weight	approx. 0.2kg
Fitting position	vertical
Operating/Storage temperature	-40 to +60°C (-40 to +140°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, UL File No. E164102, EAC

[1] not UL confirmed
[2] When connecting with stranded wires, wire end ferrules must be used.

Connection diagram





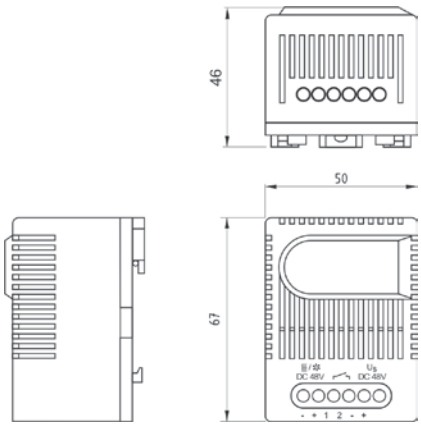
Art. No. Cable 1m	Art. no. Cable 2m	Operating voltage	Setting range temperature	Setting range humidity
01231.0-00	01231.0-01	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	0 to +60°C	50 to 90% RH
01231.9-00	01231.9-01	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	+32 to +140°F	50 to 90% RH
01231.1-00	01231.1-01	24-48VDC (min. 20VDC, max. 60VDC)	0 to +60°C	50 to 90% RH

SWITCH MODULE

SM 010 | 24VDC and 48VDC

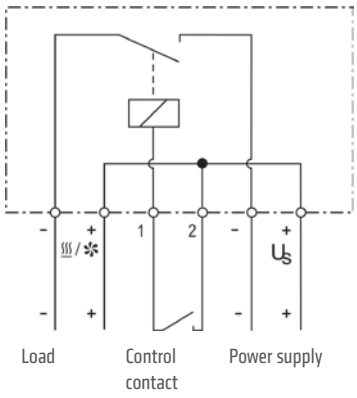
- > High DC switching capacity
- > Variety of applications
- > Compact design
- > Simple connection
- > Clip fixing

The Switch Module is designed for switching DC equipment with high currents. It is controlled via an external, potential-free contact (thermostat or hygrostat) connected between terminals 1 and 2. For switching the Module, the internally generated signal current has to be used. It must ne ensured that the external contact can safely switch this signal current. The SM 010 is available in 24VDC and 48VDC versions.

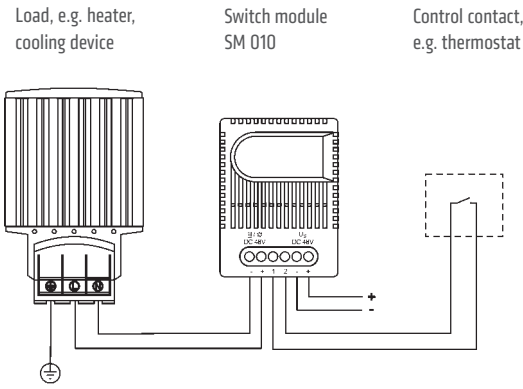


TECHNICAL DATA

Contact type	contact maker normally open (Relay/MOSFET)
Service life	> 100,000 cycles
Max. inrush current	DC 16A
Connection	6-pole terminal, clamping torque 0.5Nm max.: rigid wire 2.5mm² (AWG 14) stranded wire[1] 1.5mm² (AWG 16)
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	67 x 50 x 46mm
Weight	approx. 90g
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, EAC



Connection diagram



Example of connection

Art. No.	Operating voltage	Max. switching capacity	Signal current
01001.0-00	24VDC (20-28VDC)	28VDC, 16A	13mA at 20VDC / 22mA at 28VDC
01000.0-00	48VDC (38-56VDC)	56VDC, 16A	10mA at 38VDC / 18mA at 56VDC

HAZARDOUS AREA THERMOSTAT

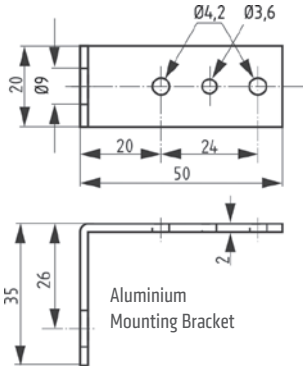
REx 011 | 15°C, 25°C

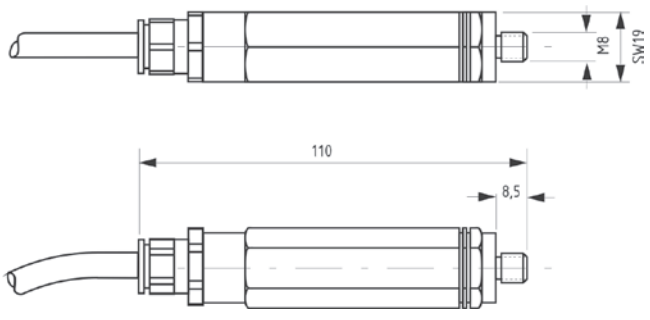
> Compact design
> Set temperature
> High switching capacity

Compact small mechanical thermostat for temperature regulation and monitoring of heaters, for example in transmitter cabinets, control panels and measuring equipment which are deployed in areas with explosion hazard. The special switch construction enables high response accuracy, small switch temperature difference and a very long service life. High switching performance allows direct control of the heaters.

TECHNICAL DATA

Sensor element	thermostatic bimetal
Contact type (1-pole)	opens with rising temperature
Service life	> 100 000 cycles
Max. switching capacity	250VAC, 1.3 (0.65) A
Max. inrush current	AC 4A for 12 sec.
Connection	Si HF - JZ 3 x 0.75mm², length 1m
Mounting	mounting bracket with nut M8 (see illustration)
Casing	aluminium, black anodised
Dimensions	length 110mm
Weight	approx. 0.2kg
Fitting position	variable
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP6X / I (earthed)
Approvals	LCIE 01 ATEX 6074 IECEx LCI 07.0021 INMETRO DNV 14.0139X EAC





Art. No.	Ambient temperature[1]	Ex protection type II 2 GD		Switch-off temperature	Switch temperature difference
		Gases	Dusts		
01180.0-00	-40 to +60°C (-40 to +140°F)	Ex d IIC T6 Gb	Ex tb IIIC T85°C Db IP6X	+15°C (±4K tolerance)	4K (±1K tolerance)
01181.0-00	-40 to +60°C (-40 to +140°F)	Ex d IIC T6 Gb	Ex tb IIIC T85°C Db IP6X	+25°C (±4K tolerance)	4K (±1K tolerance)

[1] Ambient temperature inside of the cabinet/enclosure

LIGHTING

ELECTRONICS DO NOT SLEEP

Our lighting solutions ensure that maintenance on electronic installations can be carried out night and day.

LAMP

LED 025

LED 025 with on/off switch and magnet fixing

LED 025 with on/off switch and clip fixing

LED 025 with movement sensor and screw fixing

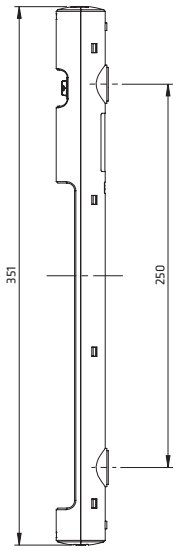
- > Wide voltage range
- > Integrated power unit
- > Long-lived and maintenance-free by LED technology
- > Daisy chain
- > On/off switch or movement sensor
- > Magnet, screw or clip fixing

The lamp series LED 025 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The power output allows up to 10 lamps to be connected to each other (12VDC versions up to 5 lamps). Both the power input and output connectors snap lock into their sockets. With the integrated power unit and the plugs the lamp can quickly be connected.

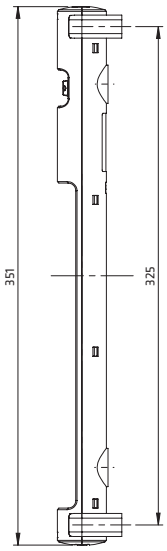
TECHNICAL DATA

Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole connector with snap lock AC: max. 2.5A / 240VAC, color: white DC: max. 2.5A / 60VDC, color: blue
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidty	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated), 12VDC: IP20 / III (extra-low voltage)

LED 025 with magnet or screw fixing



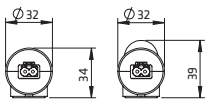
LED 025 with clip fixing



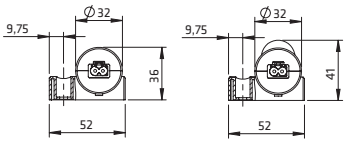
Mounting options: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025 can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.

Note: The lamp must not be used for household lighting.

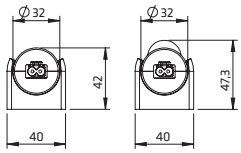
Side view magnet fixing



Side view screw fixing



Side view clip fixing



Art. No. Magnet fixing	Art. No. Screw fixing	Art. No. Clip fixing	Operating voltage	Switch	Appovals		
02540.0-00	02540.0-01	02540.0-03	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	on/off light switch	VDE	UL File No. E234324	EAC
02540.1-00	02540.1-01	02540.1-03	24-48VDC (min. 20VDC, max. 60VDC)	on/off light switch	VDE	UL File No. E234324	EAC
02540.2-00	02540.2-01	02540.2-03	12VDC (min. 10VDC, max. 16VDC)	on/off light switch	–	UL File No. E234324	EAC
02541.0-00	02541.0-01	02541.0-03	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	PIR movement sensor[1]	VDE	UL File No. E234324	EAC
02541.1-00	02541.1-01	02541.1-03	24-48VDC (min. 20VDC, max. 60VDC)	PIR movement sensor[1]	VDE	UL File No. E234324	EAC

[1] approx. 5 min. fixed switch-on duration

ACCESSORIES

Connectors and cables for electrical connection are not included in the delivery of the LED 025. These parts can be ordered separately. Sets, consisting of lamp and accessories, are available on request.

CONNECTION CABLE WITH FEMALE CONNECTOR AND OPEN END

1 

Photo: Connection cable, Art. No. 244356

Art. No.	Model	Length	Voltage type	Color	Use for	Approvals[2]
244356	connection cable 2 x 1.5mm² with female connector	2.0m	AC	connector: white; cable: white	power input	VDE
244357	connection cable 2 x AWG 15 with female connector	2.0m	AC	connector: white; cable: white	power input	VDE + UL
244360	connection cable 2 x 1.5mm² with female connector	2.0m	24-48VDC	connector: blue; cable: white	power input	VDE
244361	connection cable 2 x AWG 15 with female connector	2.0m	24-48VDC	connector: blue; cable: white	power input	VDE + UL
244389	connection cable 2 x 1.5mm² with female connector	2.0m	12VDC	connector: blue; cable: white	power input	VDE
244390	connection cable 2 x AWG 15 with female connector	2.0m	12VDC	connector: blue; cable: white	power input	VDE + UL

[2] applies only to the individual components (cable and connectors)

EXTENSION CABLE WITH 2 CONNECTORS FOR DAISY CHAIN CONNECTION

2 

Photo: Extension cable, Art. No. 244358

Art. No.	Model	Length	Voltage type	Color	Use for	Approvals[2]
244358	extension cable 2 x 1.5mm² with 2 connectors	1.0m	AC	connectors: white; cable: white	daisy chain	VDE
244359	extension cable 2 x AWG 15 with 2 connectors	1.0m	AC	connectors: white; cable: white	daisy chain	VDE + UL
244362	extension cable 2 x 1.5mm² with 2 connectors	1.0m	24-48VDC	connectors: blue; cable: white	daisy chain	VDE
244363	extension cable 2 x AWG 15 with 2 connectors	1.0m	24-48VDC	connectors: blue; cable: white	daisy chain	VDE + UL
244391	extension cable 2 x 1.5mm² with 2 connectors	1.0m	12VDC	connectors: blue; cable: white	daisy chain	VDE
244392	extension cable 2 x AWG 15 with 2 connectors	1.0m	12VDC	connectors: blue; cable: white	daisy chain	VDE + UL

[2] applies only to the individual components (cable and connectors)

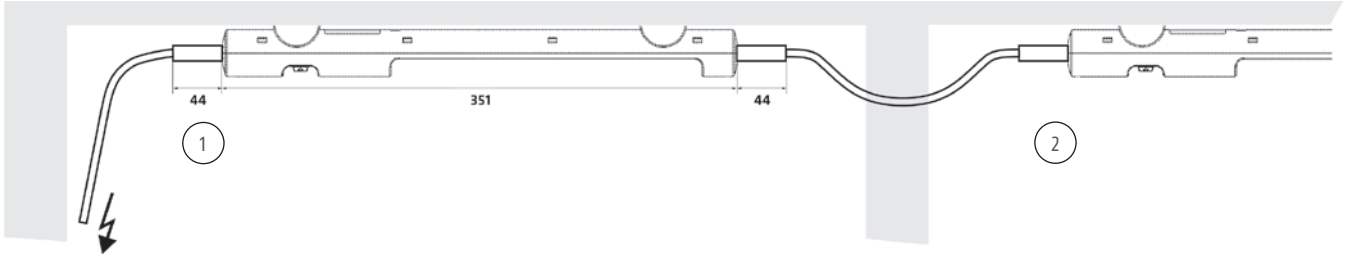
FEMALE / MALE CONNECTORS

Photo: Female connector, Art. No. 264057

Photo: Male connector, Art. No. 264058

Art. No.	Model	Voltage type	Color	Use for	Approvals
264057	female connector	AC	white	power input	VDE + UL
264058	male connector	AC	white	power output	VDE + UL
264059	female connector	24-48VDC	blue	power input	VDE + UL
264060	male connector	24-48VDC	blue	power output	VDE + UL
264065	female connector	12VDC	blue	power input	VDE + UL
264066	male connector	12VDC	blue	power output	VDE + UL

CONNECTION EXAMPLE



This illustration shows the LED 025 lamp in a daisy chain application. The lamps are conveniently connected via quick connection plugs – up to 10 (5) lamps max. can be daisy-chained this way. The snap lock connectors ensure a stable electrical connection even if subjected to heavy vibration. The connection example shows a 230VAC application, using the following cables: connection cable with female connector, Art. No. 244356 (1); daisy chain extension cable with 2 connectors, Art. No. 244358 (2).

Female/male connectors are also available to assemble cables in non-standard lengths.

ECOLINE LAMP

LED 025

Lamp with clip fixing

Lamp with on/off switch and magnet fixing

Lamp with movement sensor and screw fixing

- > Wide voltage range
- > Integrated power unit
- > Dual pressure connection clamp
- > Daisy chain
- > Magnet, screw or clip fixing
- > Long-lived and maintenance-free by LED technology

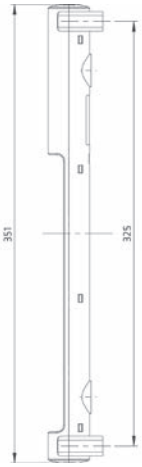
The lamp series LED 025 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamps have a very long service life thanks to the use of LED technology. Three different fixing options provide more flexibility for installation. The Ecoline series is a simplified version of the standard LED 025 lamp and has a dual pressure clamp for connection instead of connectors. Nonetheless it is suitable for daisy-chaining and allows for up to 10 lamps to be connected to each other.

TECHNICAL DATA

Power consumption	max. 5W
Luminosity	400Lm at 120° (1,200Lm at 360° or equivalent 95W light bulb)
Lamp type	LED, angle of radiation 120° light color: daylight, color temperature: 6,000K to 7,000K
Service life	60,000h at +20°C (+68°F)
Connection	2-pole dual pressure clamp for rigid wire 2.5mm², stranded wire (with wire end ferrule) 1.5mm²
Mounting	magnet fixing or screw fixing (M5), clip fixing (M6), torque 2Nm max.
Casing	plastic, transparent
Dimensions	see drawings
Weight	0.2kg
Operating/Storage temperature	-30 to +60°C (-22 to +140°F) / -40 to +85°C (-40 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)

LED 025 with magnet or screw fixing

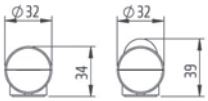
LED 025 with clip fixing



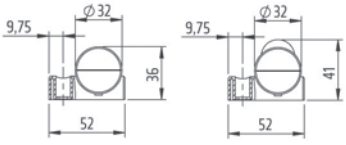
Ecoline Lamp LED 025 top view

Mounting options: The lamps are available with magnet fixing for easy positioning in any steel cabinet or enclosure. A classic is the LED 025 with screw fixing. The clip holders exclusively designed for clip fixing of the LED 025 can be positioned anywhere in the cabinet by simply screwing the holders to the cabinet wall. The lamp is snapped into the clip holders and can be turned in both directions. With a total rotation angle of 180° it provides perfect illumination within the cabinet or enclosure.
Note: The lamp must not be used for household lighting.

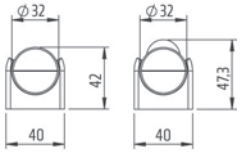
Side view magnet fixing



Side view screw fixing



Side view clip fixing



Art. No. Magnet fixing	Art. No. Screw fixing	Art. No. Clip fixing	Operating voltage	Switch	Approvals		
02540.0-10	02540.0-11	02540.0-13	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC)	on/off light switch	VDE (REG.-Nr. E788)[1]	UL File No. E234324	EAC
02540.3-10	02540.3-11	02540.3-13	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC) 90-110VDC (min. 80VDC, max. 125VDC)	on/off light switch	-	UL File No. E234324	EAC
02541.3-10	02541.3-11	02541.3-13	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC) 90-110VDC (min. 80VDC, max. 125VDC)	PIR movement sensor[2]	VDE (REG.-Nr. E788)[1]	UL File No. E234324	EAC
02542.3-10	02542.3-11	02542.3-13	100-240VAC, 50/60Hz (min. 90VAC, max. 265VAC) 90-110VDC (min. 80VDC, max. 125VDC)	N/A	VDE (REG.-Nr. E788)[1]	UL File No. E234324	EAC

[1] VDE Certificate of Conformity (REG.-Nr. E788); [2] approx. 5 min. fixed switch-on duration

COMPACT LAMP

KL 025

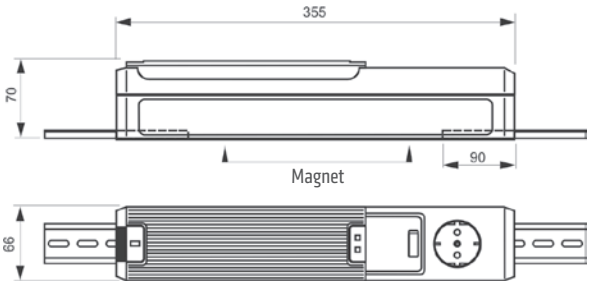
Lamp shown with protective plastic cover (see Accessories)

> Magnetic or optional DIN rail mounting
> Energy-saving lamp
> Lamp without/with electrical socket (choice of sockets)
> On/Off switch

The compact lamp KL 025 was especially designed for use in enclosures with electric/electronic components. A powerful magnet enables the lamp to be mounted freely in any desired position in metal enclosures saving time and installation problems. The integrated electrical socket allows the use of additional appliances.

TECHNICAL DATA

Luminosity	900Lm (equals light bulb 75W/230VAC, 60W/120VAC)
Lamp type	compact fluorescent lamp with integral starter
Service life	5,000h
Switch	on/off light switch
Connection	3-pole terminal 2.5mm² with cable clamp, torque 0.8Nm max.
Mounting	magnet fixing
Casing	plastic, light grey
Dimensions	355 x 65 x 70mm
Weight	approx. 1kg
Fitting position	variable
Operating/Storage temperature	-20 to +50°C (-4 to +122°F) / -45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Accessories	lamp cover, Art. No. 09520.0-00 (see photo)



In plastic, aluminium or stainless steel cabinets the lamp can be fixed using screws together with inserted 35mm DIN rail sections.

Art. No.	Operating voltage	Socket	Power consumption	Nominal current	Protection type	Approvals	
02500.0-00	230VAC, 50Hz	Germany/Russia (1)	11W	16A	I (earthed)	VDE	EAC
02500.0-07	230VAC, 50Hz	none	11W	-	II (double insulated)	-	EAC
02501.0-00	230VAC, 50Hz	F/PL/CZ/SK (2)	11W	16A	I (earthed)	-	EAC
02502.0-00	230VAC, 50Hz	Switzerland (3)	11W	10A	I (earthed)	-	EAC
02510.0-00	230VAC, 50Hz	UK/Ireland (4)	11W	13A	I (earthed)	-	EAC
02512.0-00	230VAC, 50Hz	Italy (6)	11W	16A	I (earthed)	-	EAC
02505.9-00	120VAC, 60Hz	USA/Canada (5)	9W	15A	I (earthed)	-	EAC
02505.9-01	120VAC, 60Hz	none	9W	-	II (double insulated)	-	EAC

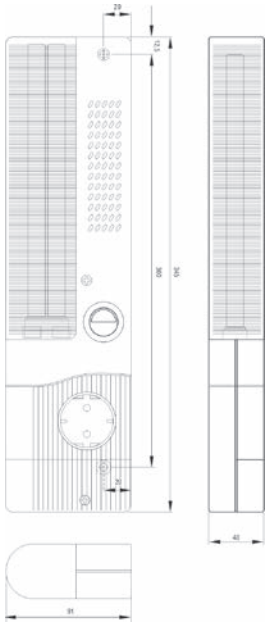
SLIMLINE LAMP WITH ON/OFF SWITCH

SL 025

Photo: Slimline lamp with on/off switch, with integrated electric socket (Germany), Art. No. 02520.0-00

- > Slim casing
- > Electronic ballast
- > Lamp without/with electrical socket (choice of sockets)
- > Magnet fixing (option)
- > Energy saving lamp
- > On/Off switch

The flat slimline lamp SL 025 is suitable for all types of panels and enclosures, especially where space is at a premium. The lamp can be mounted on its narrow or broad surface using screws. It is also available with a magnet which allows it to be fitted quickly in any position in a steel enclosure. Both versions are available with an integrated electrical socket enabling the use of additional appliances.



TECHNICAL DATA

Power consumption	11W
Luminosity	900Lm (equals 75W light bulb)
Lamp type	energy saving lamp, 2G7 socket
Service life	10,000h
Switch	on/off light switch
Connection	terminal 2.5mm² with cable clamp, torque 0.8Nm max.
Mounting	screw fixing, M5, 300mm centers magnet fixing (optional)
Casing	plastic according to UL94 V-0, light grey
Dimensions	345 x 91 x 40mm
Fitting position	narrow surface/broad surface
Operating/Storage temperature	-20 to +50°C (-4 to +122°F) / -45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

Art. No.	Model	Operating voltage	Socket	Nominal current	Weight (approx.)	Protection class	Approvals		
02520.0-00	without magnet	230VAC, 50/60Hz	Germany/Russia (1)	16.0A	0.4kg	I (earthed)	VDE	-	EAC
02520.1-01	with magnet	230VAC, 50/60Hz	Germany/Russia (1)	16.0A	0.5kg	I (earthed)	VDE	-	EAC
02521.0-00	without magnet	230VAC, 50/60Hz	F/PL/CZ/SK (2)	16.0A	0.4kg	I (earthed)	VDE	-	EAC
02521.1-04	with magnet	230VAC, 50/60Hz	F/PL/CZ/SK (2)	16.0A	0.5kg	I (earthed)	VDE	-	EAC
02522.0-00	without magnet	230VAC, 50/60Hz	Switzerland (3)	10.0A	0.4kg	I (earthed)	VDE	-	EAC
02522.1-01	with magnet	230VAC, 50/60Hz	Switzerland (3)	10.0A	0.5kg	I (earthed)	VDE	-	EAC
02523.0-00	without magnet	230VAC, 50/60Hz	UK/Ireland (4)	13.0A	0.4kg	I (earthed)	VDE	-	EAC
02523.1-05	with magnet	230VAC, 50/60Hz	UK/Ireland (4)	13.0A	0.5kg	I (earthed)	VDE	-	EAC
02524.0-01	without magnet	120VAC, 50/60Hz	USA/Canada (5)	15.0A	0.4kg	I (earthed)	-	UL File No. E234324	EAC
02524.1-05	with magnet	120VAC, 50/60Hz	USA/Canada (5)	15.0A	0.5kg	I (earthed)	-	UL File No. E234324	EAC
02527.0-00	without magnet	230VAC, 50/60Hz	none	-	0.4kg	II (double insulated)	VDE	UL File No. E234324	EAC
02527.1-14	with magnet	230VAC, 50/60Hz	none	-	0.5kg	II (double insulated)	VDE	-	EAC
02527.0-10	without magnet	120VAC, 50/60Hz	none	-	0.4kg	II (double insulated)	-	UL File No. E234324	EAC
02527.1-11	with magnet	120VAC, 50/60Hz	none	-	0.5kg	II (double insulated)	-	UL File No. E234324	EAC
02525.0-00	without magnet	24-48VDC	none	-	0.4kg	II (double insulated)	VDE	UL File No. E234324	EAC
02525.1-01	with magnet	24-48VDC	none	-	0.5kg	II (double insulated)	VDE	UL File No. E234324	EAC

Note: The slimline lamp SL 025 is also available with a 19" front panel.

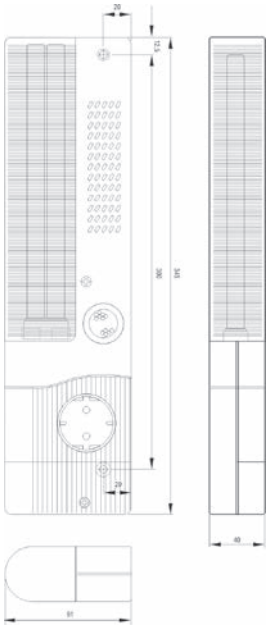
SLIMLINE LAMP WITH MOVEMENT SENSOR

SL 025

Photo: Slimline lamp with movement sensor and with integrated electric socket (Germany), Art. No. 02520.0-03

- > Slim casing
- > Electronic ballast
- > Lamp without/with electrical socket (choice of sockets)
- > Magnet fixing (option)
- > Energy saving lamp
- > Automatic switching

The flat slimline lamp SL 025 with movement sensor is suitable for all types of panels and enclosures, especially where space is at a premium. The lamp can be mounted on its narrow or broad surface using screws. It is also available with a magnet which allows it to be fitted quickly in any position in a steel enclosure. Both versions are available with an integrated electrical socket enabling the use of additional appliances. The movement sensor substitutes a door contact switch.



TECHNICAL DATA

Power consumption	11W
Luminosity	900Lm (equals 75W light bulb)
Lamp type	energy saving lamp, 2G7 socket
Service life	10,000h
Switch	PIR movement sensor, approx. 6 min. fixed switch-on duration
Connection	terminal 2.5mm² with cable clamp, torque 0.8Nm max.
Mounting	screw fixing, M5, 300mm centers, magnet fixing (optional)
Casing	plastic according to UL94 V-0, light grey
Dimensions	345 x 91 x 40mm
Fitting position	narrow surface/broad surface
Operating/Storage temperature	-20 to +50°C (-4 to +122°F) / -45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20

The PIR movement sensor switches the lighting on when the enclosure door is opened. The switch-on time is reset with every further registered movement. The movement sensor does not react to movement on the other side of glass and so can be used in enclosures with glass doors.

Art. No.	Model	Operating voltage	Socket	Nominal current	Weight (approx.)	Protection class	Approvals		
02520.0-03	without magnet	230VAC, 50/60Hz	Germany/Russia (1)	16A	0.4kg	I (earthed)	VDE	-	EAC
02520.1-04	with magnet	230VAC, 50/60Hz	Germany/Russia (1)	16A	0.5kg	I (earthed)	VDE	-	EAC
02521.0-03	without magnet	230VAC, 50/60Hz	F/PL/CZ/SK (2)	16A	0.4kg	I (earthed)	VDE	-	EAC
02521.1-05	with magnet	230VAC, 50/60Hz	F/PL/CZ/SK (2)	16A	0.5kg	I (earthed)	VDE	-	EAC
02522.0-03	without magnet	230VAC, 50/60Hz	Switzerland (3)	10A	0.4kg	I (earthed)	VDE	-	EAC
02522.1-04	with magnet	230VAC, 50/60Hz	Switzerland (3)	10A	0.5kg	I (earthed)	VDE	-	EAC
02523.0-03	without magnet	230VAC, 50/60Hz	UK/Ireland (4)	13A	0.4kg	I (earthed)	VDE	-	EAC
02523.1-04	with magnet	230VAC, 50/60Hz	UK/Ireland (4)	13A	0.5kg	I (earthed)	VDE	-	EAC
02524.0-04	without magnet	120VAC, 50/60Hz	USA/Canada (5)	15A	0.4kg	I (earthed)	-	UL File No. E234324	EAC
02524.1-06	with magnet	120VAC, 50/60Hz	USA/Canada (5)	15A	0.5kg	I (earthed)	-	UL File No. E234324	EAC
02527.0-04	without magnet	230VAC, 50/60Hz	none	-	0.4kg	II (double insulated)	VDE	UL File No. E234324	EAC
02527.1-15	with magnet	230VAC, 50/60Hz	none	-	0.5kg	II (double insulated)	VDE	-	EAC
02527.0-12	without magnet	120VAC, 50/60Hz	none	-	0.4kg	II (double insulated)	-	UL File No. E234324	EAC
02527.1-17	with magnet	120VAC, 50/60Hz	none	-	0.5kg	II (double insulated)	-	UL File No. E234324	EAC
02525.0-03	without magnet	24-48VDC	none	-	0.4kg	II (double insulated)	VDE	UL File No. E234324	EAC
02525.1-04	with magnet	24-48VDC	none	-	0.5kg	II (double insulated)	VDE	UL File No. E234324	EAC

Note: The slimline lamp SL 025 is also available with a 19" front panel.

ACCESSORIES

HARMONY AND DIVERSITY

Accessory products from STEGO complement the climatisation portfolio appropriately and offer more specific solutions for individual needs.

ELECTRICAL SOCKET

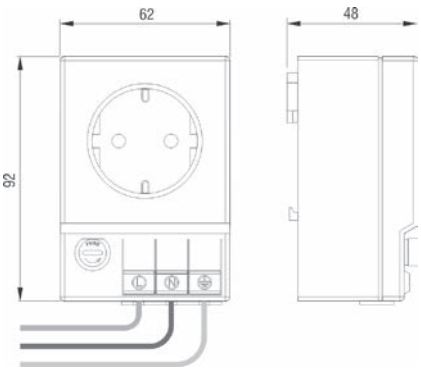
SD 035

> Quickly connected
> Available with or without fuse
> Clip fixing

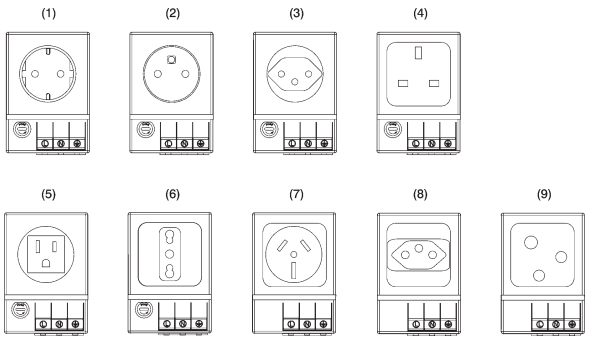
The DIN rail mounted electrical socket can be quickly fitted and connected in enclosures allowing the use of auxiliary products such as hand lamps, measuring devices, soldering irons etc. The unit is available with and without fuse and in many world socket standards.

TECHNICAL DATA

Connection	3 x pressure clamps for stranded and rigid wire 0.5 - 2.5mm²
Mounting	clip for 35mm DIN rail, EN 60715
Casing	plastic according to UL94 V-0, light grey
Dimensions	92 x 62 x 48mm
Weight	approx. 0.2kg
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / I (earthed)



Connections from mains



Art. No.	Operating voltage max.	Socket	Model	Nominal current	Approvals
03500.0-00	250VAC	Germany/Russia (1)	with fuse[1]	6.3A	EAC
03500.0-01	250VAC	Germany/Russia (1)	without fuse	16.0A	EAC
03501.0-00	250VAC	F/PL/CZ/SK (2)	with fuse[1]	6.3A	-
03501.0-01	250VAC	F/PL/CZ/SK (2)	without fuse	16.0A	-
03502.0-00	250VAC	Switzerland (3)	with fuse[1]	6.3A	-
03502.0-01	250VAC	Switzerland (3)	without fuse	10.0A	-
03503.0-00	250VAC	UK/Irland (4)	with fuse[1]	6.3A	-
03503.0-01	250VAC	UK/Irland (4)	without fuse	13.0A	-
03504.0-00	125VAC	USA/Canada (5)	with fuse[1]	6.3A	UL File No. E222026
03504.0-01	125VAC	USA/Canada (5)	without fuse	15.0A	UL File No. E222026
03505.0-00	250VAC	Italy (6)	with fuse[1]	6.3A	-
03505.0-01	250VAC	Italy (6)	without fuse	16.0A	-
03507.0-01	240VAC	Australia (7)	without fuse	10.0A	-
03508.0-01	250VAC	Brazil (8)	without fuse	10.0A	-
03509.0-01	250VAC	Old British - BS 546 (9)	without fuse	5.0A	-

[1] fuse Ø 5 x 20mm

PRESSURE COMPENSATION DEVICE

DA 084 | IP55

Photo: Inside view

> High degree of protection
> Easy to install

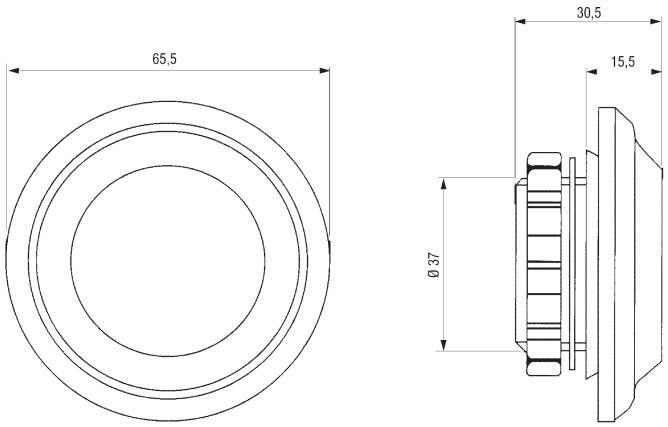
It has become more and more important to provide a protected enclosure environment for valuable and crucial electrical and electronic components. In a tightly closed enclosure, pressure differentials can occur during extreme temperature variations. The specially designed pressure compensation device DA 084 permits a controlled change in pressure and avoids the enterring of dust and water. The pressure compensation device is suitable for the use in enclosures and housings in accordance with DIN EN 62208.

TECHNICAL DATA

Mounting	PG 29 thread with union nut
Torque	5Nm (max. 10Nm)
Material	plastic according to UL94 V-0, light grey weather proof and UV light resistant according to UL746C (f1)
Sealing	sealing gasket NBR
Air interface	approx. 1.5cm²
Dimensions	Ø 65.5 x 30.5mm
Fitting position	vertical[1]
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Approvals	EAC

[1] Protection type is restricted to IP54 if fitting position of DA 084 is not vertical.

Installation: Make cut-out Ø 37^{+1}mm in enclosure wall and mount pressure compensation device with nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure. For optimal pressure compensation we recommend to use two devices on opposite sides towards the top of the enclosure.



Art. No.	Protection type	1 packing unit	Weight (approx.)
08400.0-03	IP55	2 pieces	62g (31g/piece)

PRESSURE COMPENSATION DEVICE

DA 284 | IP66 / IP68

Photo: DA 284, M40

Photo: DA 284, M12

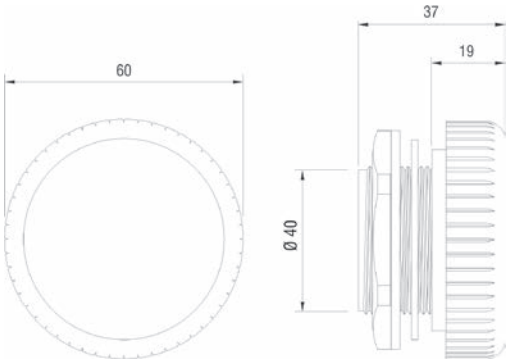
> High degree of protection
> Waterproof membrane
> Easy to install

Pressure differentials in enclosures with a high degree of protection are a result of internal and external temperature changes. In the case of negative pressure or partical vacuum, dust and humidity can enter the enclosure through the door seal. When the air inside the enclosure cools down, condensation may occur because the humidity cannot escape the enclosure. The easy-to-install pressure compensation device DA 284 provides compensation of pressure at a protection degree of IP66 (M12: IP68). Even with a slight overpressure, a waterproof membrane inside the plug allows the humidity to escape whilst blocking water and dirt from entering the enclosure.

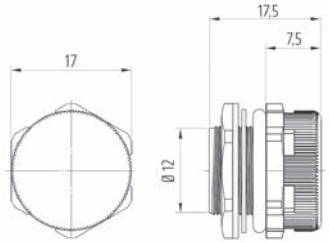
TECHNICAL DATA

Mounting	thread M40 x 1.5 or M12 x 1.5 with nut
Torque	M40: 5Nm (max. 10Nm), M12: 0.5Nm (max. 1Nm)
Depth in enclosure	M40: approx. 16mm, M12: approx. 8mm
Sealing	sealing gasket NBR
Filter	waterproof membrane
Dimensions	M40: Ø 60 x 37mm, M12: Ø 17 x 17.5mm
Fitting position	variable

Installation: Make cut-out Ø $40.5^{+0.5}$mm in enclosure wall for size M40 or Ø $12^{+0.2}$mm for size M12, and mount pressure compensation device with nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure. For optimal pressure compensation we recommend to use two devices on opposite sides towards the top of the enclosure.



DA 284, M40



DA 284, M12 (drawing is not proportional to M40)

Art. No.	Thread	Material	Protection type	Air permeability[1]	Operating/Storage temperature	1 packing unit	Weight (approx.)	Approvals	
28400.0-00	M40 x 1.5	plastic, light grey	IP66 (EN 60529) / IPX9K (EN 40050-9)	1200 l/h	-35 to +70°C (-31 to +158°F)	2 pieces	90g (45g/piece)	-	EAC
28400.0-01	M40 x 1.5	plastic, light grey	IP66 (EN 60529) / IPX9K (EN 40050-9)	1200 l/h	-35 to +70°C (-31 to +158°F)	1 piece	45g	-	EAC
28405.0-00	M40 x 1.5	plastic according to UL94 V-0, light grey; weather proof and UV light resistant according to UL746C (f1)	IP66 (EN 60529) / IPX9K (EN 40050-9)	1200 l/h	-45 to +70°C (-49 to +158°F)	2 pieces	120g (60g/piece)	UL File No. E234324	EAC
28406.0-00	M12 x 1.5	plastic according to UL94 V-0, light grey; weather proof and UV light resistant according to UL746C (f1)	IP68 (EN 60529)	120 l/h	-40 to +70°C (-40 to +158°F)	2 pieces	4g (2g/piece)	UL File No. E234324	EAC

[1] at a pressure difference of min. 70 mbar

PRESSURE COMPENSATION DEVICE (STAINLESS STEEL)

DA 284 | IP66

Photo: Inside view

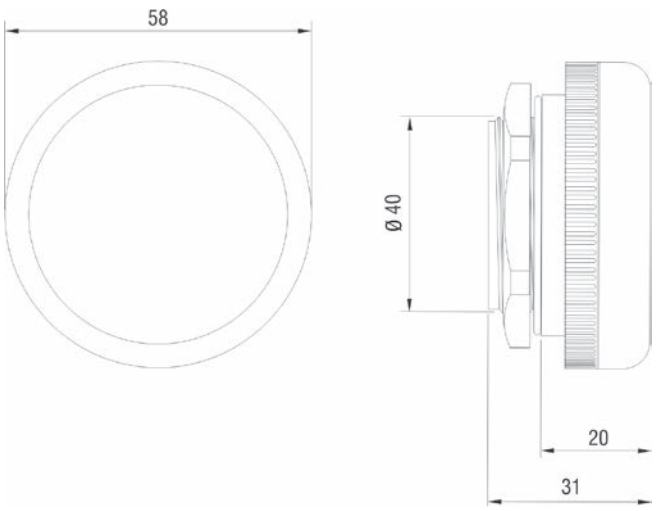
> High degree of protection
> Waterproof membrane
> Corrosion resistant
> Food safe

Pressure differentials in enclosures with a high degree of protection are a result of internal and external temperature changes. In the case of negative pressure or partical vacuum, dust and humidity can enter the enclosure through the door seal. When the air inside the enclosure cools down, condensation may occur because the humidity cannot escape the enclosure. The easy-to-install pressure compensation device DA 284 provides compensation of pressure at a protection degree of IP66. Even with a slight overpressure, a waterproof membrane inside the plug allows the humidity to escape whilst blocking water and dirt from entering the enclosure.

TECHNICAL DATA

Mounting	thread M40 x 1.5 with nut
Torque	5Nm (max. 10Nm)
Depth in enclosure	approx. 9mm
Sealing	sealing gasket NBR
Filter	waterproof membrane
Air permeability	1200l/h at a pressure difference of min. 70mbar
Dimensions	Ø 58 x 31mm
Fitting position	variable
Operating/Storage temperature	-45 to +80°C (-49 to +176°F)
Approvals	EAC

Installation: Make cut-out Ø $40.5^{+0.5}$mm in enclosure wall and mount pressure compensation device with nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure. For optimal pressure compensation we recommend to use two devices on opposite sides towards the top of the enclosure.



Art. No.	Stainless steel	Protection type	1 packaging unit	Weight (approx.)
28401.0-00	V2A (DIN 1.4301 / AISI 304)[1]	IP66 (EN 60529) / IPX9K (EN 40050-9)	1 piece	0.2kg
28401.0-02	V4A (DIN 1.4404 / AISI 316L)	IP66 (EN 60529) / IPX9K (EN 40050-9)	1 piece	0.2kg

[1] V2A is not sea waterproof

VENTILATION CABLE GLAND

DAK 284 | IP66 / IP67

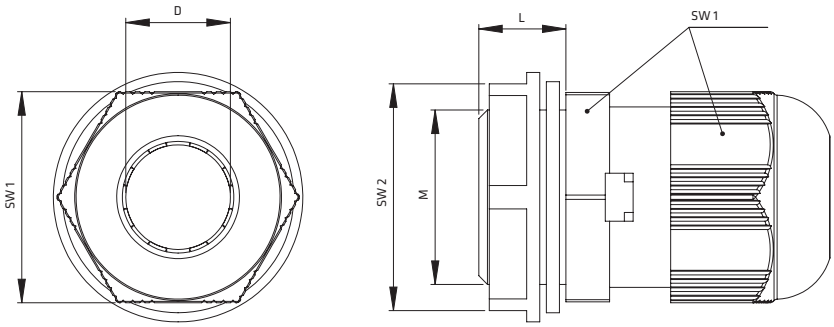
> Cable gland with integrated ventilation
> High degree of protection
> Easy to install
> Integrated strain relief
> Waterproof filter
> Large clamping range

Pressure differentials in enclosures with a high degree of protection are a result of internal and external temperature changes. In the case of negative pressure or partial vacuum, dust and humidity can enter the enclosure through the door seal. When the air inside the enclosure cools down, condensation may occur because the humidity cannot escape the enclosure. The innovative and easy-to-install ventilation cable gland DAK 284 enables secure cable entry into an enclosure with simultaneous pressure compensation (protection type IP66 / IP67). Even with a slight overpressure, a waterproof filter inside the gland allows the humidity to escape whilst blocking water and dirt from entering the enclosure.

TECHNICAL DATA

Mounting	thread M12 x 1.5 / M16 x 1.5 / M20 x 1.5
Enclosure wall thickness	0.5 - 3mm with lock nut
Material	plastic, light grey
Protection type	IP66 / IP67 (EN 60529)
Sealing	sealing gasket NBR
Filter	PTFE
Fitting position	variable
Operating/Storage temperature	-20 to +80 °C (-4 to +176 °F)
Approvals	VDE, UL File No. E471430, EAC

Installation: Make cut-out in enclosure wall and mount ventilation cable gland with lock nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure and the hole is free of burrs.



Art. No.	Thread		Diameter	Clamping range D	Spanner sizes [mm]		Torque		Air permeability[1]	Weight
	Size M [mm]	Length L			SW 1	SW 2	Lock nut	Cap nut		
28410.0-00	M12 x 1.5	8mm	12.3mm	4 – 8mm	19	18	2Nm	2Nm	25l/h	7g
28411.0-00	M16 x 1.5	10mm	16.3mm	4 – 8mm	19	22	2Nm	2Nm	25l/h	8g
28412.0-00	M20 x 1.5	10mm	20.3mm	6 – 12mm	24	26	5Nm	5Nm	40l/h	13g

[1] at a pressure differential of 70mbar

DRAINAGE DEVICE

DD 084 | IP66 / IP67 / IP69K

Photo: Inside view

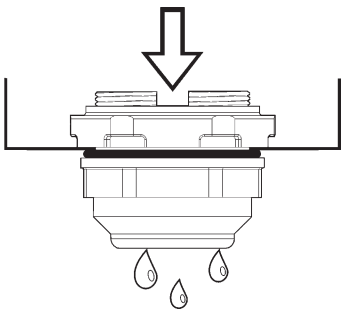
> High degree of protection
> Good drainage performance
> Easy to install
> Robust, weather and UV-light protected housing

Condensate occurs in enclosures and housings with high protection type by variations in temperature. The use of a drainage device allows the conveying of the condensate without loosing the maximum protection type of IP66. The water permeable membrane makes sure the drainage of the enclosure by the capillary attraction. The construction prevents the infiltration of splash water into the enclosure.

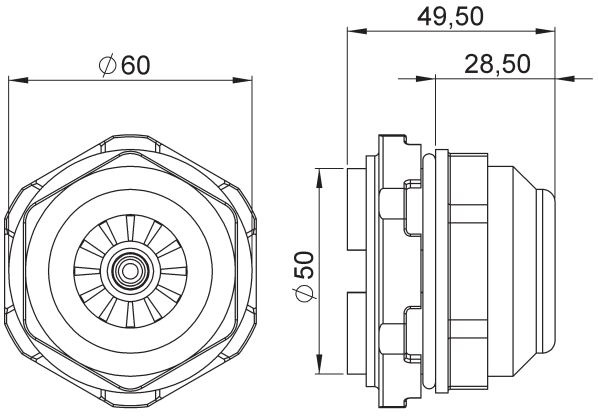
TECHNICAL DATA

Mounting	thread M50 x 1.5 with nut (wrench size 60mm, housing 50mm)
Torque	6Nm max.
Depth in enclosure	max. 17.5mm
Material	plastic according to UL94 V-0, umbra grey, weather proof and UV light resistant according UL746C (f1)
Water entry height	0mm (at 0.5mm wall thickness)
Sealing	sealing gasket NBR
Water flow-through	approx. 200 ml/h at a water column of 5mm
Dimensions	Ø 60 x 49.5 mm
Fitting position	vertical, lowest point
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Approvals	EAC

Installation: Make cut-out Ø $50.5^{+0.5}$mm in enclosure bottom and mount drainage device with nut. Please make sure that the sealing gasket is put in place on the outer side panel of the enclosure and the hole is free of burrs.



Fitting position



Art. No.	Protection type	Enclosure wall thickness	1 package unit	Weight (approx.)
08410.0-00	IP66 / IP67 (EN 60529) / IP69K (EN 40050-9)	0.5 - 5.5mm	1 piece	60g

DOOR SWITCH

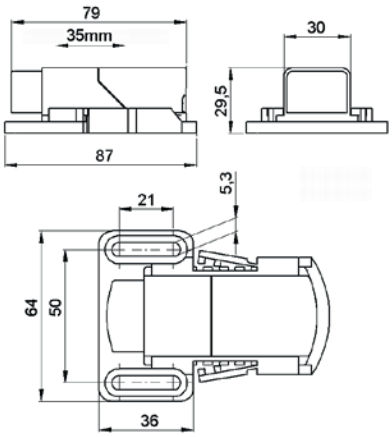
DS 013

> Adjustable positioning without tools
> High switching capacity
> Double strain relief
> Different cladding diameters
> Suitable for lamp LED 025

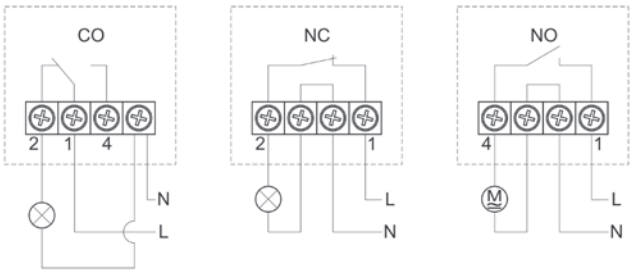
The door switch monitors the position of cabinet doors and is available in three versions. For example, it can be used for switching a light when opening a door (NC), or to activate a fan when closing a door (NO). The version with change-over contact (CO) can be used as a normally closed and/or normally open contact. The wide mechanical adjustment range of the door switch DS 013 offers versatile application areas: the housing is adjustable within a 35mm range, while the screw flange with a slotted hole offers an additional 21 mm. The switching travel of the switch itself is another 8mm.

TECHNICAL DATA

Max. switching capacity	250VAC, 8 (1.5) A
Service life	VDE: > 10,000 cycles
	UL: > 6,000 cycles
Connection	4-pole clamp with strain relief, clamping torque 0.5Nm max.
Mounting	screw fixing (M5)
Casing	plastic according to UL94 V-0, grey/black
Dimensions	87 x 64 x 30mm
Weight	approx. 50g
Fitting position	variable
Operating/Storage temperature	-20 to +85°C (-4 to +185°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type	IP20
Approvals	VDE, EAC; UL intended



Connection diagrams



Art. No.	Model	Suitable wire
01350.0-00	change-over (CO)	Cable round, stranded wire (with wire end ferrule) 0.75mm² to 1mm²
01351.0-00	normally closed (NC)	Cable round, stranded wire (with wire end ferrule) 0.75mm² to 1.5mm²
01352.0-00	normally open (NO)	Cable round, stranded wire (with wire end ferrule) 0.75mm² to 1.5mm²

SELF-ADHESIVE APPLIANCE HOLDER STEGOFIX

SF 095

> Direct fixing of small appliances and 35mm DIN rails
> Simple to mount
> Self-adhesive

With STEGOFIX small appliances can be mounted in enclosures significantly quicker, easier and more economically than before, without drilling holes. Mounting DIN rails is a simple matter with STEGOFIX. Longer rails are mounted on several STEGOFIX units and joining two rails is also not a problem. Subsequent changes and the mounting of additional appliances can be carried out with ease – even in confined spaces. STEGOFIX is a self-adhesive plastic unit with an adhesion power which will bear a continuous load of 500g. The high-performance industrial adhesive band is also non-ageing and designed with safety tolerances.

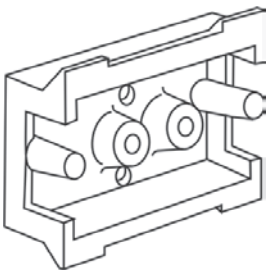
TECHNICAL DATA

Load	500g after a 24h waiting period[1]
Mounting	self-adhesive (non-ageing, high-performance adhesive band)
Material	plastic according to UL94 V-0
Dimensions	43 x 38 x 14mm
Screw pitch	12.8mm, Ø 3.6mm; for perforated 35mm DIN rails
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Approvals	EAC

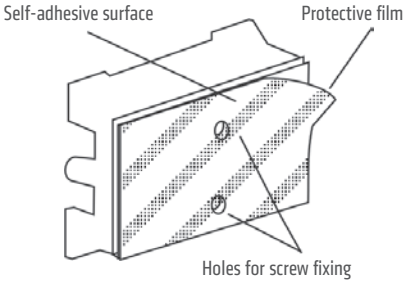
[1] depending on the conditions of use (e.g. surface condition, size of the device to be mounted, etc.) higher loads were achieved.

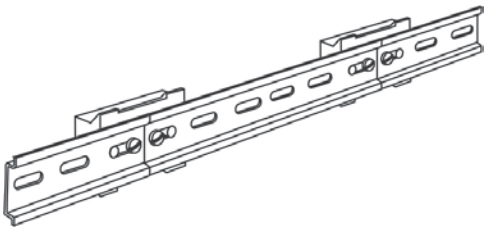
Installation: STEGOFIX can only be mounted on smooth surfaces, e.g. metals, lacquered surfaces and plastics (except polyethylene, polypropylene and rubber). The surfaces must be dry, free from dust, oil, separating agents and other contamination.

Application examples



STEGOFIX SF 095





Note: When using the STEGOFIX as a DIN rail holder, only DIN rails (EN 60715) with perforation 18 x 6.2mm or 18 x 5.2mm can be used.

Art. No.	1 packing unit	Weight (approx.)
09510.0-01	5 pieces	60g (12g/pc.)

LOCATIONS

THE FAST TRACK TO STEGO

STEGO is represented globally and proud to offer its customers maximum availability, personal visits and consultations. With 12 locations and more than 200 sales partners worldwide, customer service is our top priority. Whenever you need support in matters of enclosure climatisation and thermal management – your STEGO contact is not far away.

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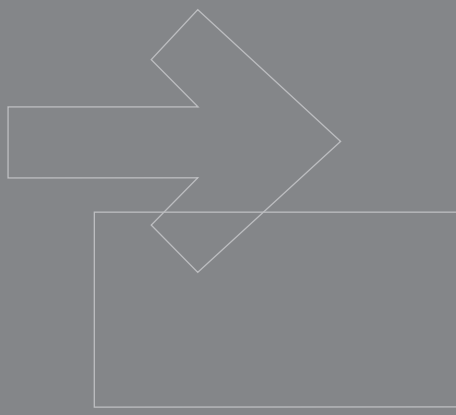

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