



Thermal Management Products & Accessories for Enclosures



Photo: STEGO International Headquarters in Germany

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STEGO develops innovative products that heat, cool, ventilate, illuminate, and control temperature and humidity for enclosed electronic control systems. STEGO products are reliable, simple, high quality and cost effective.

We strive to solve electronic control packaging problems for our customers. From our manufacturing plants in Brazil, France, Germany and the United States, and sales offices in the Czech Republic, Italy, the Netherlands, Poland, Spain, Sweden and the UK, we successfully serve customers in over 52 countries around the world.

STEGO offers a wide range of products in various sizes and specifications to meet almost any need, and the majority conform to UL and CE standards.

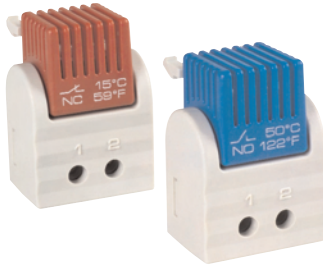
PRODUCTS:

- **PTC based enclosure heaters**
- **Fan heaters with PTC and resistance heating elements**
- **Temperature and humidity controls**
- **Explosion-proof heaters and thermostats for hazardous areas**
- **Filter fans and exhaust filters**
- **Enclosure lights and other accessories**

With this broad range of products offered, STEGO is assisting customers in a variety of industries with their applications.

INDUSTRIES:

- **Electrical and electronic control systems**
- **Telecommunications systems**
- **Traffic control systems**
- **Parking control systems**
- **Ticket dispensing machines**
- **Automatic Teller Machines (ATMs)**
- **Power generation including Wind and Solar**



Compact design

Fixed set points

Color coded modules

DIN rail mountable

Tamperproof (Pre-set) Thermostat FTO 011

NC / opens on temperature rise (**red** module housing) - for regulating heaters or for switching signal devices when temperature has fallen below the minimum value.

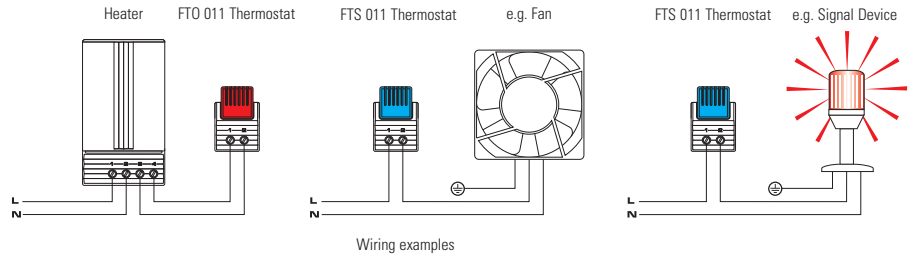
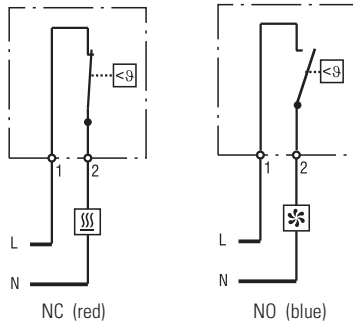
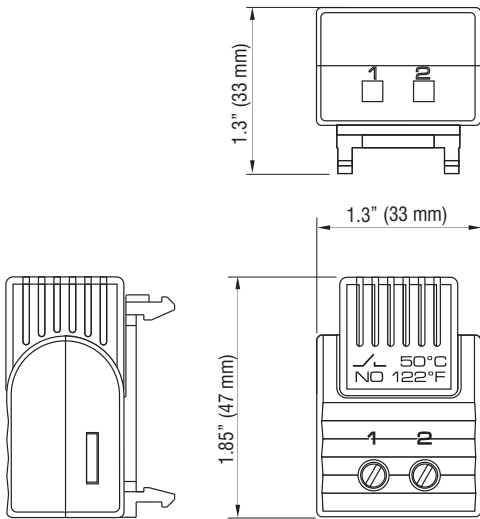
Tamperproof (Pre-set) Thermostat FTS 011

NO / closes on temperature rise (**blue** module housing) - for regulating filter fans, heat exchangers, cooling devices or for switching signal devices when temperature limit has been exceeded.



Technical Data

Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	10 A resistive / 2 A inductive @ AC 120 V 5 A resistive / 1.6 A inductive @ AC 250 V DC 30 W
Max. inrush current	AC 16 A for 10 sec.
Connection	2-pole term. for AWG 14 max. (2.5 mm ²), torque 0.8 Nm max.
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating temperature	-40 to +176 °F (-40 to +80 °C)
Storage temperature	-49 to +176 °F (-45 to +80 °C)
Dimensions	1.85 x 1.3 x 1.3" (47 x 33 x 33 mm)
Weight	approx. 0.8 oz. (23 g)
Protection type	IP20
Approvals	UL File No. E164102, VDE



Part No.	Contact	Switch-off temperature	Switch-on temperature
01160.0-00	NC - open on rise	59 °F / 15 °C (± 9 °F / 5 K tolerance)	41 °F / 5 °C (± 9 °F / 5 K tolerance)
01160.0-01	NC - open on rise	77 °F / 25 °C (± 9 °F / 5 K tolerance)	59 °F / 15 °C (± 9 °F / 5 K tolerance)
		Switch-on temperature	Switch-off temperature
01161.0-00	NO - close on rise	122 °F / 50 °C (± 11 °F / 6 K tolerance)	104 °F / 40 °C (± 12.6 °F / 7 K tolerance)
01161.0-01	NO - close on rise	140 °F / 60 °C (± 11 °F / 6 K tolerance)	122 °F / 50 °C (± 12.6 °F / 7 K tolerance)
01161.0-02	NO - close on rise	95 °F / 35 °C (± 11 °F / 6 K tolerance)	77 °F / 25 °C (± 12.6 °F / 7 K tolerance)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact design**
- Wide adjustment range**
- Color coded temperature dials**
- DIN rail mountable**

Thermostat NC (normally closed)

Thermostat opens on temperature rise - for regulating heaters or for switching signal devices. Comes with **red** temperature dial.

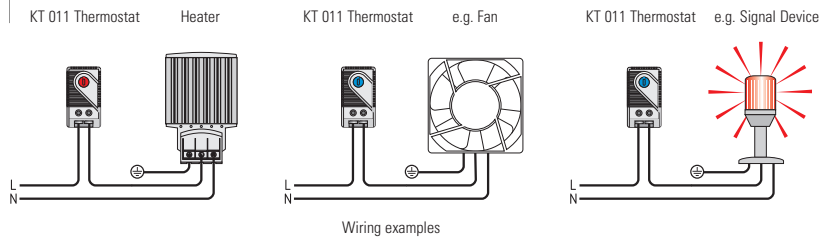
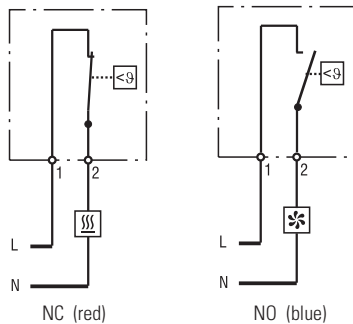
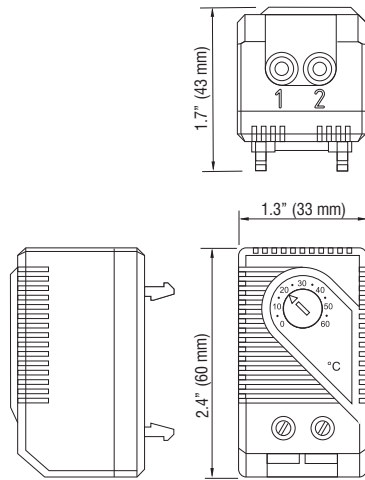
Thermostat NO (normally open)

Thermostat closes on temperature rise - for regulating filter fans and heat exchangers or for switching signal devices. Comes with **blue** temperature dial.



Technical Data

Switching difference	12.6 °F ± 7 °F tolerance (7 K ± 4 K)
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	15 A resistive / 2 A inductive @ AC 120 V 10 A resistive / 2 A inductive @ AC 250 V
Max. inrush current	DC 30 W AC 16 A for 10 sec.
Connection	2-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (with wire end ferrule) - AWG 16 (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715 (or for Exhaust Filter EF 118 Series)
Mounting position	vertical
Operating / Storage temperature	-49 to +176 °F (-45 to +80 °C)
Dimensions	2.4 x 1.3 x 1.7" (60 x 33 x 43 mm)
Weight	approx. 1.4 oz. (40 g)
Protection type	IP20

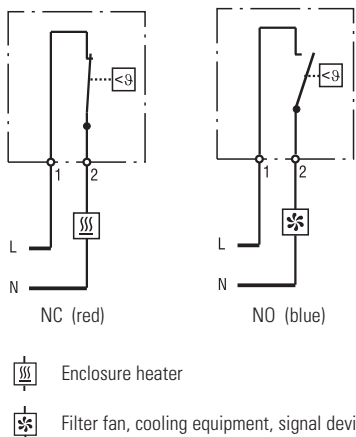
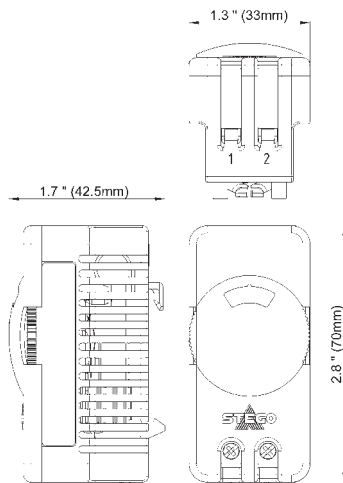


Setting range	Part No. (NC)	Part No. (NO)	Approvals
+32 to +140 °F	01140.9-00	01141.9-00	UL File No. E164102, CSA, VDE
0 to +60 °C	01146.9-00	01147.9-00	UL File No. E164102, CSA, VDE
-10 to +50 °C	01142.0-00	N/A	UL File No. E164102, CSA, VDE
+10 to +70 °C	N/A	01149.9-00	UL File No. E164102, CSA, VDE
-15 to +45 °C	01157.0-00	01156.0-00	UL File No. E164102, CSA, VDE
+20 to +80 °C	01159.0-00	01158.0-00	UL File No. E164102, CSA, VDE

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Convenient minimum set-point symbol on the NC thermostat to assure enclosure temperature remains above freezing



- Adjustable thumbwheel setting**
- Compact design**
- Small hysteresis**
- High switching capacity**
- DIN rail mountable**

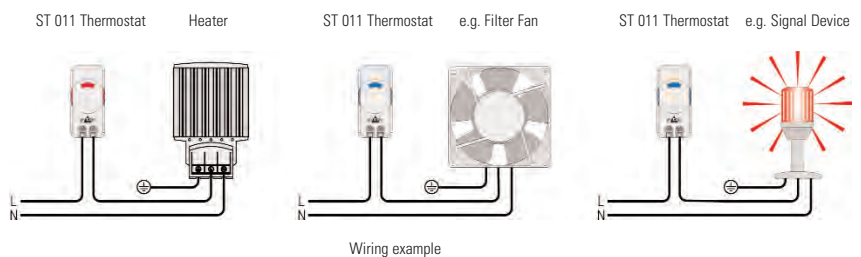
The ST 011 thermostat is an SPST regulator with a small hysteresis. The housing design ensures optimized air circulation around the sensor element.

STO 011: NC / opens on temperature rise (**red** thumbwheel) - for regulating heaters or for switching signal devices when temperature has fallen below the minimum value.

STS 011: NO / closes on temperature rise (**blue** thumbwheel) - for regulating filter fans, heat exchangers, cooling devices or for switching signal devices when temperature limit has been exceeded.



Technical Data	
Switching difference	7 °F (4 K) ± 5.4 °F (3 K) tolerance
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	15 A resistive / 2 A inductive @ AC 120 V 10 A resistive / 2 A inductive @ AC 250 V DC 30 W (DC 24-72 V)
Max. inrush current	AC 16 A for 10 sec.
Connection	2-pole terminal for AWG 14 max. (2.5 mm ²), torque 1 Nm max.
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +176 °F (-45 to +80 °C)
Max. storage humidity	90 %RH (non-condensing)
Dimensions	2.76 x 1.3 x 1.65" (70 x 33 x 42 mm)
Weight	approx. 1.8 oz. (50 g)
Protection type	IP20



Part No. (NC)	Part No. (NO)	Setting range	Approvals
01115.9-00	01116.9-00	32 to 140 °F	UL File No. E164102, VDE
01115.0-00	01116.0-00	0 to 60 °C	UL File No. E164102, VDE

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NC / NO or NO / NO in one unit

Fixed set points

Color coded modules

DIN rail mountable

Two thermostats in one housing:

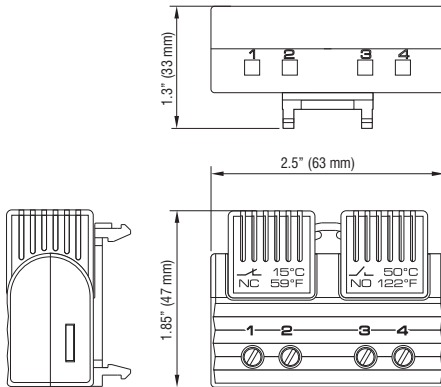
Tamperproof (Pre-set) Thermostat - NC

Opens on temperature rise (red module housing) - for regulating heaters or for switching signal devices when temperature has fallen below the minimum value.

Tamperproof (Pre-set) Thermostat - NO

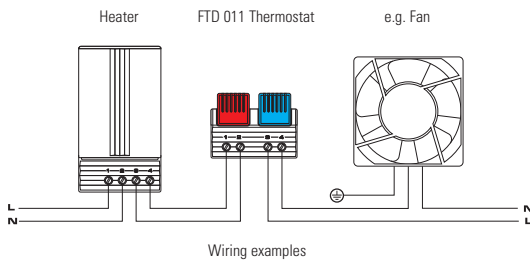
Closes on temperature rise (blue module housing) - for regulating filter fans, heat exchangers, cooling devices or for switching signal devices when temperature limit has been exceeded.

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



Technical Data

Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	10 A resistive / 2 A inductive @ AC 120 V 5 A resistive / 1.6 A inductive @ AC 250 V DC 30 W
Max. inrush current	AC 16 A for 10 sec.
Connection	4-pole term. for AWG 14 max. (2.5 mm ²), torque 0.8 Nm max.
Housing	plastic according to UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating temperature	-40 to +176 °F (-40 to +80 °C)
Storage temperature	-49 to +176 °F (-45 to +80 °C)
Dimensions	1.85 x 2.5 x 1.3" (47 x 63 x 33 mm)
Weight	approx. 1.41 oz. (40 g)
Protection type	IP20
Approvals	UL File No. E164102, VDE



Part No.	NC - open on rise		NO - close on rise	
	Switch-off temperature	Switch-on temperature	Switch-on temperature	Switch-off temperature
01163.0-00	59 °F / 15 °C (± 9 °F / 5 K tolerance)	41 °F / 5 °C (± 9 °F / 5 K tolerance)	122 °F / 50 °C (± 11 °F / 6 K tolerance)	104 °F / 40 °C (± 12.6 °F / 7 K tolerance)
01163.0-01	77 °F / 25 °C (± 9 °F / 5 K tolerance)	59 °F / 15 °C (± 9 °F / 5 K tolerance)	140 °F / 60 °C (± 11 °F / 6 K tolerance)	122 °F / 50 °C (± 12.6 °F / 7 K tolerance)
01163.0-02	59 °F / 15 °C (± 9 °F / 5 K tolerance)	41 °F / 5 °C (± 9 °F / 5 K tolerance)	95 °F / 35 °C (± 11 °F / 6 K tolerance)	77 °F / 25 °C (± 12.6 °F / 7 K tolerance)
01163.0-03	77 °F / 25 °C (± 9 °F / 5 K tolerance)	59 °F / 15 °C (± 9 °F / 5 K tolerance)	122 °F / 50 °C (± 11 °F / 6 K tolerance)	104 °F / 40 °C (± 12.6 °F / 7 K tolerance)
Part No.	NO - close on rise		NO - close on rise	
	Switch-on temperature	Switch-off temperature	Switch-on temperature	Switch-off temperature
01164.0-00	122 °F / 50 °C (± 11 °F / 6 K tolerance)	104 °F / 40 °C (± 12.6 °F / 7 K tolerance)	140 °F / 60 °C (± 11 °F / 6 K tolerance)	122 °F / 50 °C (± 12.6 °F / 7 K tolerance)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- NC / NO or NO / NO in one unit**
- Separate adjustable temperatures**
- Color coded temperature dials**
- DIN rail mountable**

The ZR 011 houses two separate thermostats, allowing the independent control of heating and cooling or other equipment.

Thermostat NC (normally closed):

Thermostat opens at temperature rise - for regulating heaters or for switching signal devices. Comes with **red** temperature dial.

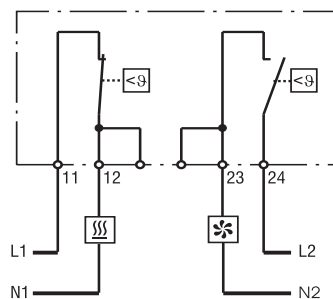
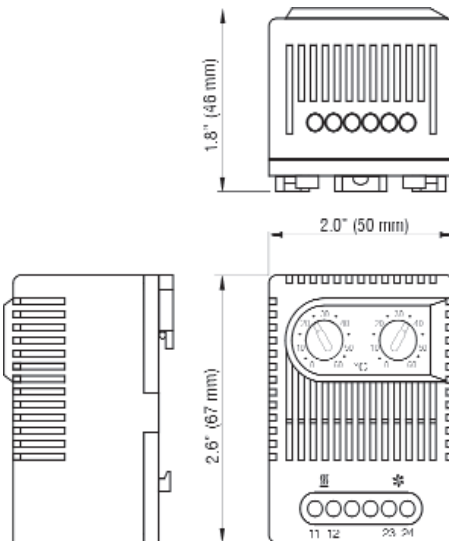
Thermostat NO (normally open):

Thermostat closes at temperature rise - for regulating filter fans and heat exchangers or for switching signal devices. Comes with **blue** temperature dial.



Technical Data

Switching difference	12.6 °F ± 7 °F tolerance (7 K ± 4 K)
Sensor element	thermostatic bimetal
Contact type	snap-action contact
Service life	> 100,000 cycles
Max. switching capacity	NC: 10 A resistive / 2 A inductive at AC 250 V NO: 5 A resistive / 2 A inductive @ AC 250 V 15 A resistive / 2 A inductive @ AC 120 V DC 30 W
Max. inrush current	AC 16 A for 10 sec.
Connection	4-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +176 °F (-45 to +80 °C)
Dimensions	2.6 x 2.0 x 1.8" (67 x 50 x 46 mm)
Weight	approx. 3.2 oz. (90 g)
Protection type	IP20
Approvals	UL File No. E164102, CSA, VDE



Enclosure heater
 Filter fan, cooling equipment, signal device

Part No.	Setting Range		Setting Range	
01172.0-00	NC - open on rise	0 to +60 °C	NO - close on rise	0 to +60 °C
01172.0-01	NC - open on rise	+32 to +140 °F	NO - close on rise	+32 to +140 °F
01175.0-00	NC - open on rise	-10 to +50 °C	NO - close on rise	+20 to +80 °C
01175.0-01	NC - open on rise	14 to +122 °F	NO - close on rise	+68 to +176 °F
01176.0-00	NO - close on rise	0 to +60 °C	NO - close on rise	0 to +60 °C
01176.0-01	NO - close on rise	+32 to +140 °F	NO - close on rise	+32 to +140 °F

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- Wide adjustment range**
- High switching capacity**
- SPDT (change-over) contact**
- Very low hysteresis option**
- DIN rail mountable**

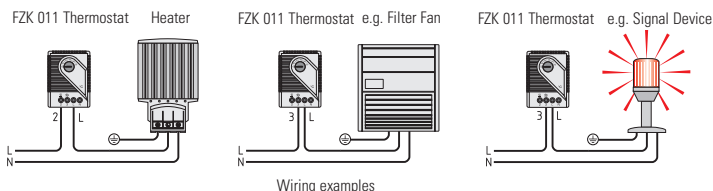
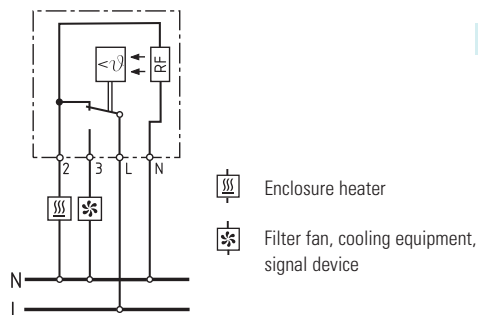
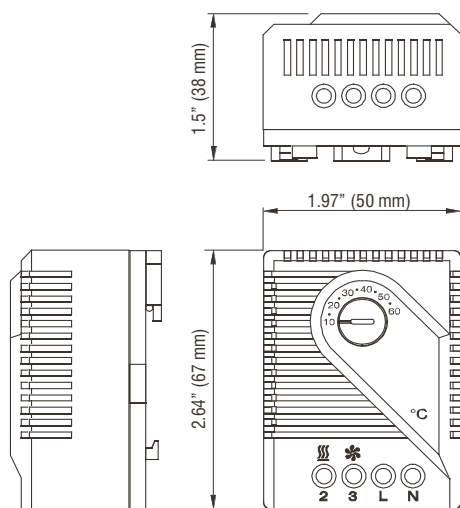
The FZK 011 mechanical thermostat is used for controlling heating and cooling equipment, filter fans or signal devices where a higher degree of sensing accuracy is required. An integrated resistor (RF) can be connected to improve the switch temperature difference (see Option note).

The thermostat registers the surrounding air and can switch both inductive and resistive loads via snap-action contact.



Technical Data

Switching difference	approx. 9 °F (5 K), tolerance -5.4/+3.6 °F (-3/+2 K)
Option note:	connecting terminal "N" (RF heating resistor) enables thermal feedback, reducing the hysteresis - amount is subject to surrounding conditions TBD for each individual application
Sensor element	thermostatic bimetal
Contact type	SPDT / change-over contact
Service life	> 100,000 cycles
Max. switching capacity, NC	10 A resistive / 4 A inductive @ AC 120 V 10 A resistive / 4 A inductive @ AC 250 V DC 30 W
Max. switching capacity, NO	5 A resistive / 2 A inductive @ AC 120 V 5 A resistive / 2 A inductive @ AC 250 V DC 30 W
Connection	4-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / storage temperature	-49 to +149 °F (-45 to +65 °C)
Dimensions	2.64 x 1.97 x 1.5" (67 x 50 x 38 mm)
Weight	approx. 3.5 oz. (100g)
Protection type	IP20



Part No.	Operating voltage ¹⁾	Setting range	Approvals
01170.0-00	AC 230 V	5 to 60 °C	UL File No. E164102
01170.0-01	AC 230 V	40 to 140 °F	UL File No. E164102
01170.9-00	AC 120 V	40 to 140 °F	UL File No. E164102
01170.9-01	AC 120 V	5 to 60 °C	UL File No. E164102

¹⁾ Voltage only needs to be specified if the optional use of the RF resistor is desired.

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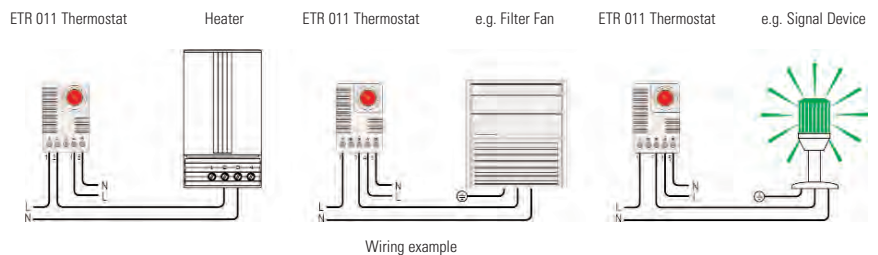
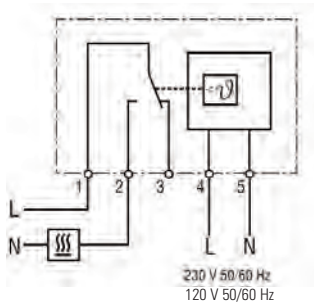
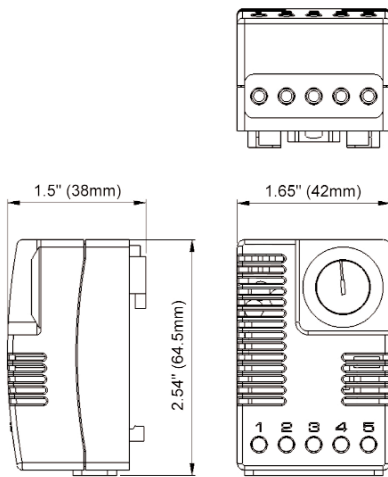
- Large setting range**
- Compact design**
- Small hysteresis**
- Optical function display (LED)**
- DIN rail mountable**

The ETR 011 electronic thermostat is used for controlling heating and cooling equipment, filter fans, or signal devices. The thermostat senses the surrounding air temperature and can switch both resistive and inductive loads via an SPDT contact. The integrated LED is lit when the NC contact is closed (i.e. connected heater is operating).



Technical Data

Switching difference	7 °F (4 K) ± 1.8 °F (1 K) tolerance - at 68 °F (20 °C)
Sensor element	NTC
Reaction time	approx. 5 seconds
Contact type	SPDT / change-over contact (relay)
Service life	> 50,000 cycles
Max. switching capacity (relay output)	8 A resistive / 1.6 A inductive @ AC 120 V 8 A resistive / 1.6 A inductive @ AC 240 V 4 A @ DC 24 V
Max. inrush current	AC 16 A for 10 sec.
Connection	5-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-40 to +185 °F (-40 to +85 °C)
Dimensions	2.54 x 1.65 x 1.5" (64.5 x 42 x 38 mm)
Weight	approx. 2.5 oz. (70 g)
Protection type	IP20



Part No.	Operating voltage	Setting range	Approvals
01131.0-00	AC 230 V, 50/60 Hz	-20 to 60 °C	CSA-US*, VDE
01131.9-00	AC 120 V, 50/60 Hz	-4 to 140 °F	CSA-US*

*Tested according to UL Standard No. 873

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16 Amp DC switching capacity

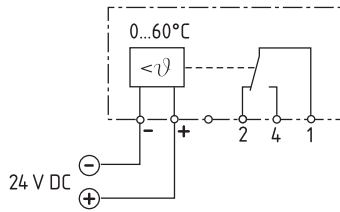
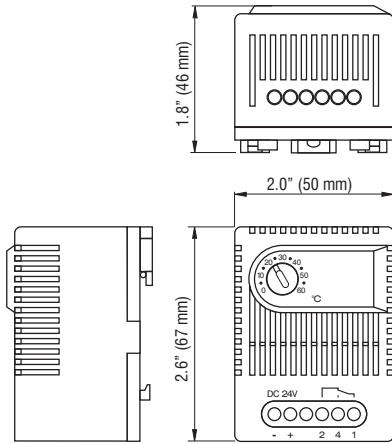
Low hysteresis

Wide adjustment range

DIN rail mountable

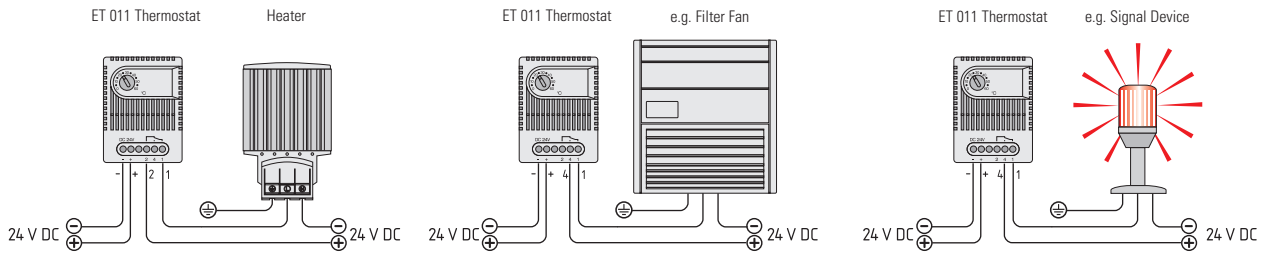
The ET 011 is an electronic thermostat for regulating high performance DC 24 V equipment. Heating or cooling equipment, as well as signal devices, can be switched via the SPDT (change-over) contact.

A relatively small hysteresis sets the ET 011 Thermostat apart from less accurate mechanical thermostats.



Technical Data

Switching difference	approx. 5.4 °F ± 1.8 °F tolerance (3 K ± 1 K)
Sensor element	PTC
Contact type	SPDT / change-over contact
Service life	> 100,000 cycles
Max. switching capacity	16 A @ DC 28 V
Connection	5-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating temperature	+32 to +140 °F (0 to +60 °C)
Storage temperature	-49 to +176 °F (-45 to +80 °C)
Dimensions	2.6 x 2.0 x 1.8" (67 x 50 x 46 mm)
Weight	approx. 2.8 oz. (80 g)
Protection type	IP20



Wiring examples

Part No.	Operating voltage	Setting range
01190.0-00	DC 24 V (DC 20-28 V)	0 to 60 °C
01190.0-01	DC 24 V (DC 20-28 V)	32 to 140 °F

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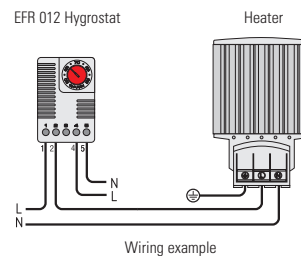
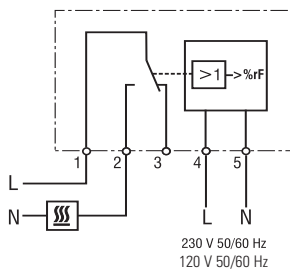
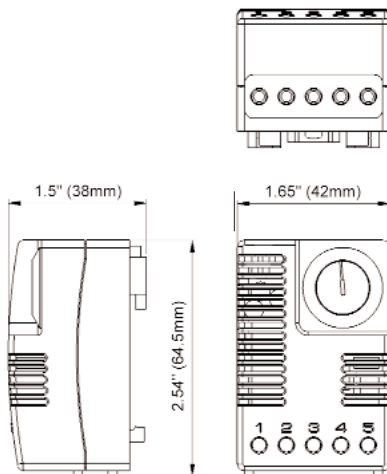
- Adjustable & pre-set relative humidity setpoints**
- Compact design**
- High switching capacity**
- Optical function display (LED)**
- DIN rail mountable**

The EFR 012 electronic hygrostat senses the relative humidity in an enclosure and turns on a heater at the set point, helping prevent the formation of condensation in the enclosure. The integrated LED is lit when the connected device is in operation.



Technical Data

Switching difference	5 %RH (± 1 % tolerance) - at 77 °F (25 °C) and 50 %RH
Reaction time	approx. 5 seconds
Contact type	SPDT / change-over contact (relay)
Service life	> 50,000 cycles
Max. switching capacity (relay output)	8 A resistive / 1.6 A inductive @ AC 120 V 8 A resistive / 1.6 A inductive @ AC 240 V 4 A @ DC 24 V
Max. inrush current	AC 16 A for 10 sec.
Connection	5-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating temperature	+32 to +140 °F (0 to +60 °C)
Storage temperature	-4 to +176 °F (-20 to +80 °C)
Max. storage humidity	90 %RH (non-condensing)
Dimensions	2.54 x 1.65 x 1.5" (64.5 x 42 x 38 mm)
Weight	approx. 2.3 oz. (65 g)
Protection type	IP20



Part No.	Operating voltage	Setting range	Approvals
01245.0-00	AC 230 V, 50/60 Hz	40 to 90 %RH	CSA-US*, VDE
01245.9-00	AC 120 V, 50/60 Hz	40 to 90 %RH	CSA-US*
01246.0-00	AC 230 V, 50/60 Hz	65 %RH pre-set	CSA-US*, VDE
01246.9-00	AC 120 V, 50/60 Hz	65 %RH pre-set	CSA-US*

*Tested according to UL Standard No. 873

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Efficient condensation control**
- Adjustable relative humidity range**
- High switching capacity**
- DIN rail mountable**

The MFR 012 electromechanical hygrostat is designed to control the relative humidity inside enclosures. When connected to an enclosure heater (dehumidifier), it will energize the heater at the humidity set point in order to raise the dew point. This helps prevent damage and malfunction of electronic components caused by condensation and corrosion.¹⁾

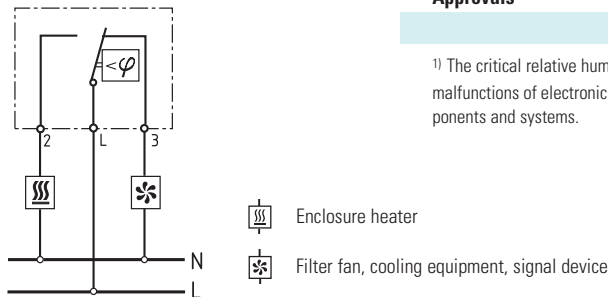
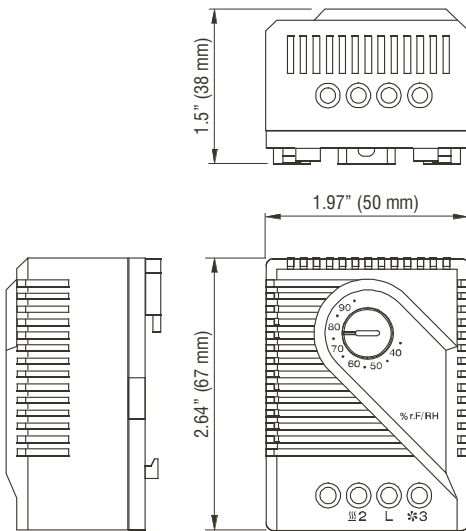
The MFR 012 can also be used to control cooling fans, warning lights or other devices.



Technical Data

Switching difference	4 %RH (± 3 % tolerance) - at 50 %RH
Permissible air velocity	50 ft/sec (15 m/s)
Contact type	SPDT / change-over contact
Service life	> 100,000 cycles
Min. Switching capacity	100 mA @ AC/DC 20 V
Max. Switching capacity	5 A resistive @ AC 250 V
	DC 20 W
Max. inrush current	AC 5 A
Connection	3-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating temperature	+32 to +140 °F (0 to +60 °C)
Storage temperature	-4 to +176 °F (-20 to +80 °C)
Dimensions	2.64 x 1.97 x 1.5" (67 x 50 x 38 mm)
Weight	approx. 2 oz. (60 g)
Protection type	IP20
Approvals	UL File No. E164102

¹⁾ The critical relative humidity level for most components is 65 %. Above 65 %RH, condensation can form and cause malfunctions of electronic equipment. Long term, this can lead to corrosion and permanent damage of electronic components and systems.



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

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Efficient temperature & humidity control

Wide adjustment ranges

High switching capacity

Optical function displays (LED)

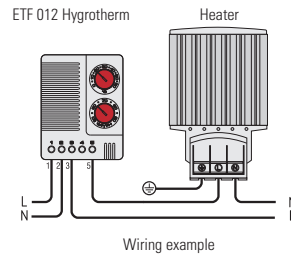
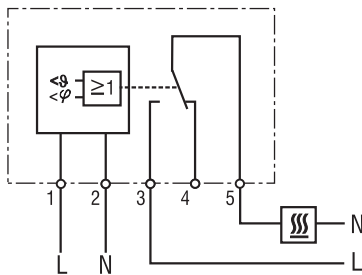
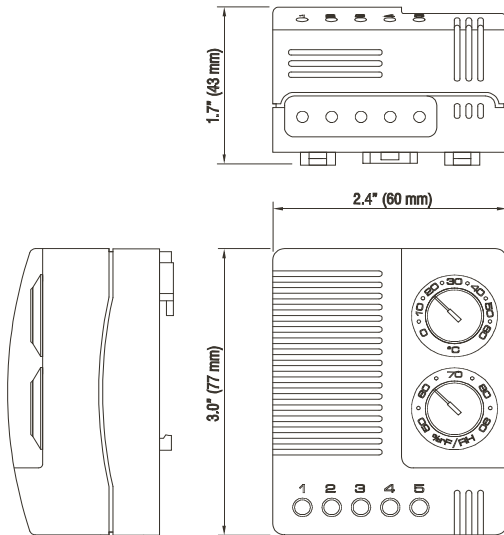
DIN rail mountable

The ETF 012 senses the ambient temperature and relative air humidity. Depending on which contact combination is chosen, it then turns on or off a connected device if either the temperature is below or the humidity is above the set point. The integrated LED in each adjustment knob is lit when indicating the active function.



Technical Data

Switching difference - temperature	3.6 °F (2 K) ± 1 K tolerance - at 77 °F (25 °C) and 50 %RH
Switching difference - humidity	4 %RH ± 1 % tolerance - at 77 °F (25 °C) and 50 %RH
Response time - humidity	approx. 5 sec.
Contact type	SPDT / change-over contact (relay)
Service life	NC: > 50,000 cycles NO: > 100,000 cycles
Max. switching capacity	NC: 6 A resistive / 1 A inductive @ AC 120 V NO: 8 A resistive / 1.6 A inductive @ AC 120 V NC: 6 A resistive / 1 A inductive @ AC 240 V NO: 8 A resistive / 1.6 A inductive @ AC 240 V 4 A @ DC 24 V
Max. inrush current	AC 16 A for 10 sec.
Connection	5-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating temperature	+32 to +140 °F (0 to +60 °C)
Storage temperature	-4 to +176 °F (-20 to +80 °C)
Dimensions	3.0 x 2.4 x 1.7" (77 x 60 x 43 mm)
Weight	approx. 7 oz. (200 g)
Protection type	IP20



Part No.	Operating voltage	Setting range - temperature	Setting range - humidity	Approvals
01230.0-00	AC 230 V, 50/60 Hz	0 to 60 °C	50 to 90 %RH	UL File No. E164102, VDE
01230.0-01	AC 230 V, 50/60 Hz	32 to 140 °F	50 to 90 %RH	UL File No. E164102, VDE
01230.9-00	AC 120 V, 50/60 Hz	32 to 140 °F	50 to 90 %RH	UL File No. E164102
01230.9-01	AC 120 V, 50/60 Hz	0 to 60 °C	50 to 90 %RH	UL File No. E164102

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



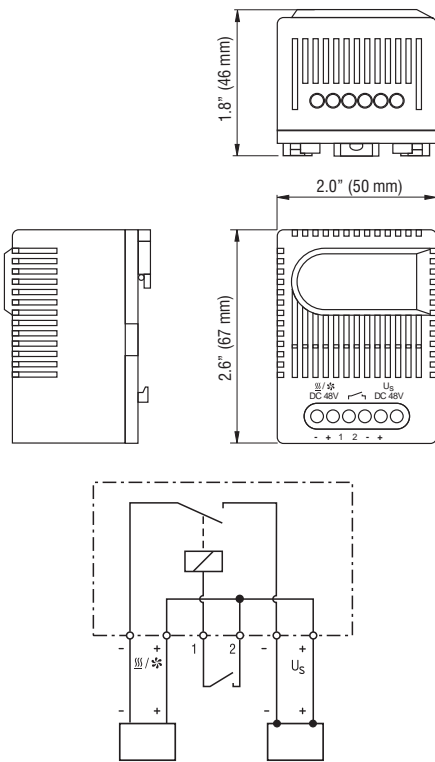
16 Amp DC switching capacity

Variety of applications

Compact design

DIN rail mountable

The SM 010 Electronic Relay is used for switching high powered DC operated equipment, such as heaters, up to 16 amps. A separate conventional switch contact is used as controller (e.g. thermostat, hygrostat). The electronic relay is available in DC 24 V and DC 48 V versions.



Technical Data

Contact type	NO - normally open (Relay/MOSFET)
Service life	> 100,000 cycles
Max. inrush current	DC 16 A
Connection	6-pole terminal, clamping torque 0.5 Nm max.: solid wire - AWG 14 max. (2.5 mm ²) stranded wire (w/ wire end ferrule) - AWG 16 max. (1.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	2.6 x 2.0 x 1.8" (67 x 50 x 46 mm)
Weight	approx. 3.0 oz. (85 g)
Protection type	IP20
Approvals	VDE, UL File No. E342261

Load, e.g. heater, cooling device with temperature limiter

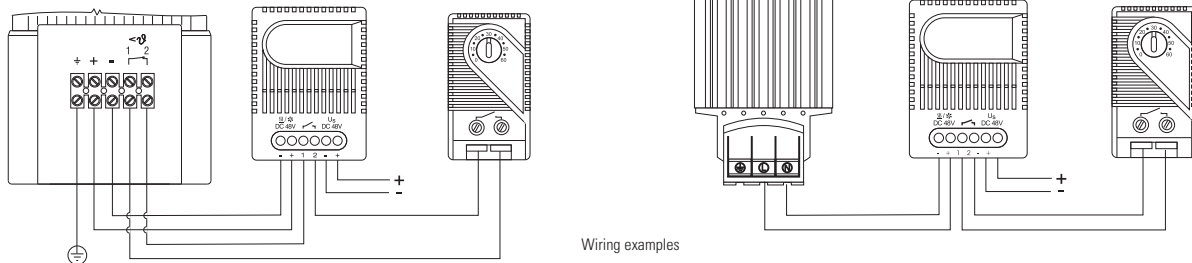
SM 010 Electronic relay

Control contact, e.g. thermostat, hygrostat, or pressure regulator

Load, e.g. heater, cooling device without temperature limiter

SM 010 Electronic relay

Control contact, e.g. thermostat, hygrostat, or pressure regulator



Wiring examples

Part No.	Operating voltage	Max. Switching capacity	Signal current
01000.0-01	DC 48 V (DC 38-56 V)	16 A @ DC 56 V	10 mA @ DC 38 V / 18 mA @ DC 56 V
01001.0-01	DC 24 V (DC 20-28 V)	16 A @ DC 28 V	13 mA @ DC 20 V / 22 mA @ DC 28 V

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact design**
- Fixed temperature setpoints**
- High switching capacity**
- DIN rail mountable**

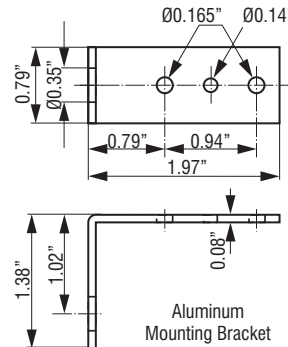
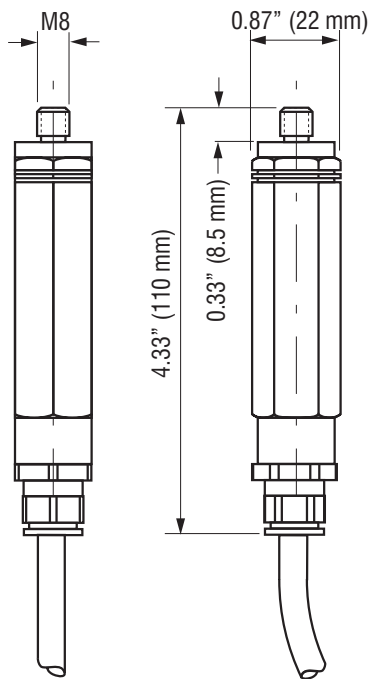
The design of the REx 011 thermostat ensures high accuracy, small switching difference (hysteresis) and a long service life.

Because of the high switching capacity of the thermostat, heaters can usually be directly connected and switched without the need for additional relays.



Technical Data

Explosion proof according to EN	LCIE (Laboratoire Central des Industries Electriques)
Conformity certificate	01 ATEX 6074/02, LCIE N°06 ATEX Q8011, IECEx LCI 07. 0021
Sensor element	thermostatic bimetal
Contact type	NC - normally closed (opens on temperature rise)
Service life	> 100,000 cycles
Max. switching capacity	4 A resistive / 1 A inductive @ AC 250 V
Connection	Si HF - JZ 3 x AWG 18 (0.75 mm ²), length 3.3 ft (1 m)
Housing	aluminum, black anodized
Mounting	mounting bracket with M8 nut and clip for 35 mm DIN rail
Mounting position	variable
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Weight	approx. 7 oz. (200 g)
Protection class	I (grounded)
Protection type	IP65



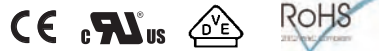
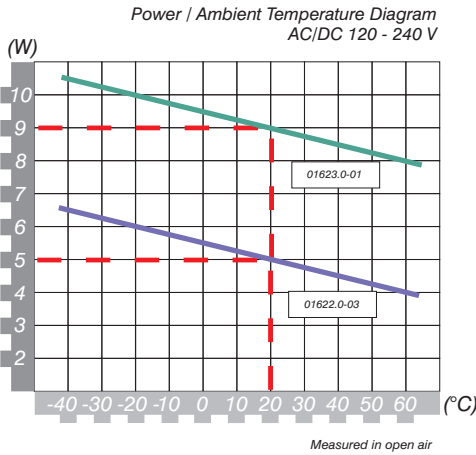
Part No.	Ex protection type	Switch-off temperature	Switching difference
01180.0-00	Ex d IIC T6 - Ex tD A21 IP6X T85°C	59 °F ± 7 °F tolerance (15 °C ± 4 K tolerance)	7 °F ± 2 °F tolerance (4 K ± 1 K tolerance)
01181.0-00	Ex d IIC T6 - Ex tD A21 IP6X T85°C	77 °F ± 7 °F tolerance (25 °C ± 4 K tolerance)	7 °F ± 2 °F tolerance (4 K ± 1 K tolerance)

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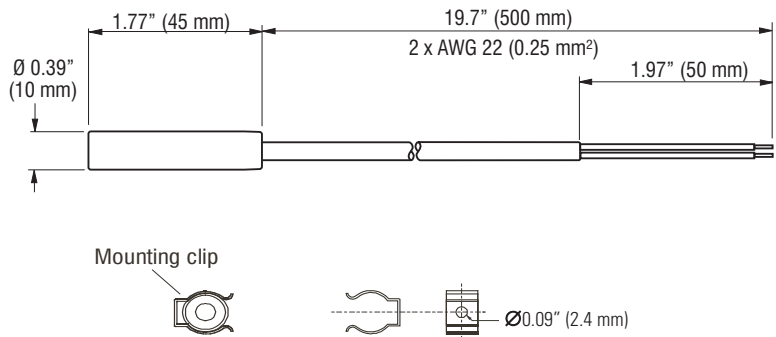
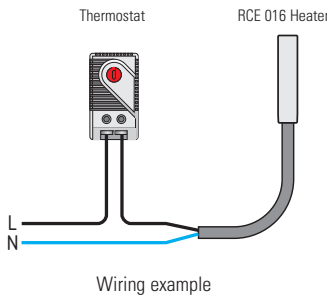
- Compact size**
- Wide voltage range**
- Heating power adjusts to ambient temperature**
- Energy saving**

The RCE 016 small heaters have been designed to prevent condensation and to ensure a minimum operating temperature in small enclosures.



Technical Data

Operating voltage	see table below
Heating element	PTC resistor - temperature limiting
Heater body	aluminum, anodized
Insulation	PTFE / Kapton
Mounting	2 pressure clips included (mounting screws not included)
Mounting position	variable
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP54



Part No.	Heating capacity ¹⁾	Operating voltage ²⁾	Max. current (inrush)	Surface temperature (approx.) ¹⁾	Weight (approx.)	Approvals
01622.0-03	5 W	AC/DC 120-240 V	2.0 A	329 °F (165 °C)	0.7 oz. (20 g)	UL File No. E234324, VDE
01623.0-01	9 W	AC/DC 120-240 V	2.5 A	347 °F (175 °C)	0.7 oz. (20 g)	UL File No. E234324, VDE
01624.0-03	5 W	AC/DC 12-30 V	5.8 A	284 °F (140 °C)	0.7 oz. (20 g)	UL File No. E234324
01625.0-02	9 W	AC/DC 12-30 V	2.4 A	360 °F (182 °C)	0.7 oz. (20 g)	UL File No. E234324

¹⁾ at 68 °F (20 °C) ambient temperature

²⁾ operating high voltage heaters below AC/DC 140 V reduces heating performance by approx. 10% (min. 110 V, max 265 V).

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact size**
- Wide voltage range**
- Heating power adjusts to ambient temperature**
- Energy saving**

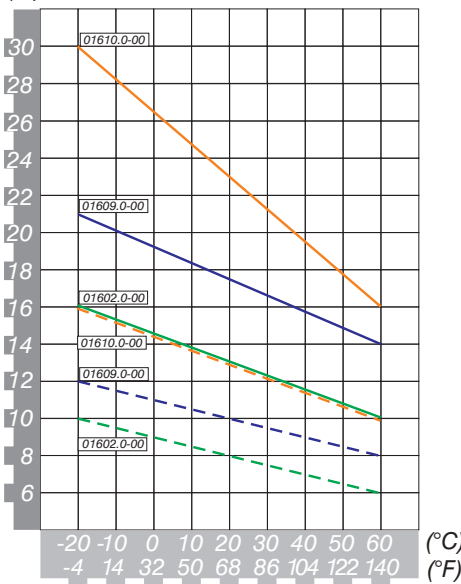
The RC 016 small heaters are designed to prevent condensation and to ensure a minimum operating temperature in small enclosures.



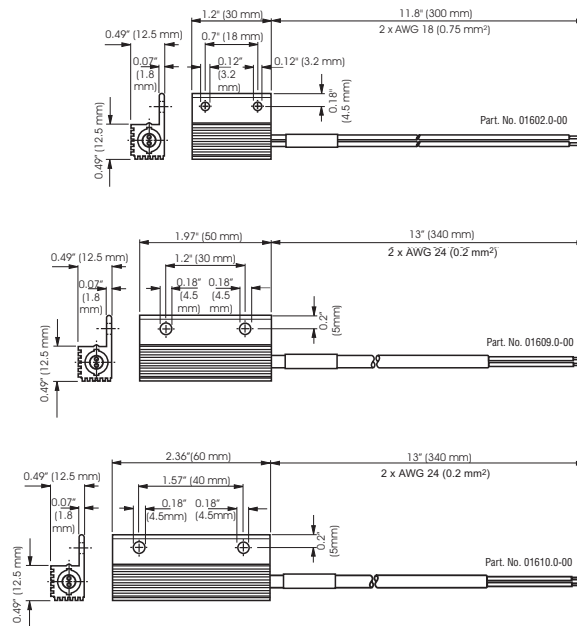
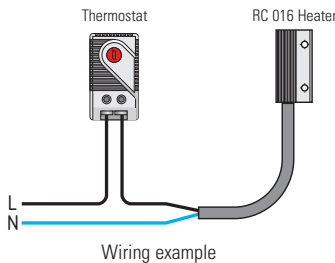
Technical Data

Operating voltage	see table below
Heating element	PTC resistor - temperature limiting
Heater body	aluminum, anodized
Insulation	PTFE / Kapton
Mounting	screw (mounting screws not included)
Mounting position	variable
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP54

Heating Power in Relation to Ambient Temperature
AC/DC 120 - 240 V



--- : measured in open air
 — : measured with heater mounted on 100 x 100 x 2 mm
 (4 x 4 x 0.08") aluminum plate



Part No.	Heating capacity ¹⁾	Operating voltage ²⁾	Max. current (inrush)	Surface temperature (approx.) ¹⁾	Weight (approx.)	Approvals
01602.0-00	8 W	AC/DC 120-240 V	2.0 A	302 °F (150 °C)	0.7 oz. (20 g)	UL File No. E234324, VDE
01602.0-03	8 W	AC/DC 12-30 V	3.7 A	273 °F (134 °C)	0.7 oz. (20 g)	UL File No. E234324
01609.0-00	10 W	AC/DC 120-240 V	2.5 A	311 °F (155 °C)	1.0 oz. (28 g)	UL File No. E234324, VDE
01609.0-01	10 W	AC/DC 12-30 V	5.7 A	270 °F (132 °C)	1.0 oz. (28 g)	UL File No. E234324
01610.0-00	13 W	AC/DC 120-240 V	3.0 A	338 °F (170 °C)	1.2 oz. (34 g)	UL File No. E234324, VDE
01610.0-01	13 W	AC/DC 12-30 V	10.0 A	298 °F (148 °C)	1.2 oz. (34 g)	UL File No. E234324

¹⁾ at 68°F (20°C) ambient temperature

²⁾ operating high voltage heaters below AC/DC 140V reduces heating performance by approx. 10% (min. 110V, max 265V).

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Low surface temperature

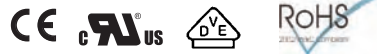
Compact size

Wide voltage range

Double insulated protection

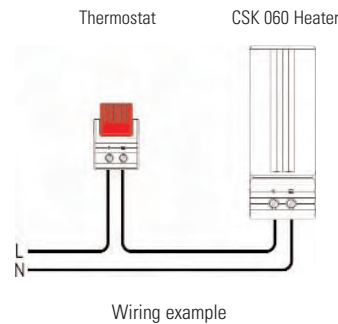
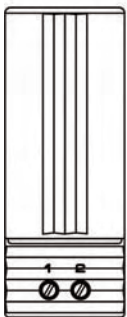
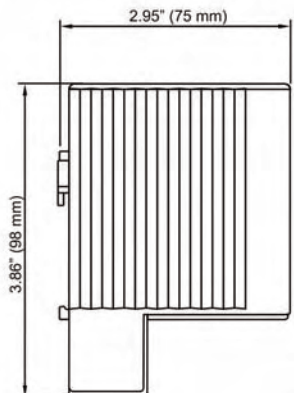
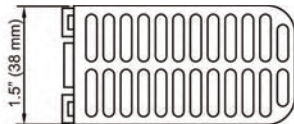
DIN rail mountable

The CSK 060 is a touch-safe heater for use in enclosures. The design of the heater utilizes natural convection which results in a circulating current of warm air. The surface temperatures on the accessible side surfaces of the housing are minimized as a result of the heater design.



Technical Data

Heating capacity	see table
Heating element	PTC resistor - temperature limiting
Surface temperature	< 185 °F (85 °C), except upper protective grill
Connection	2-pole terminal AWG 14 max (2.5 mm ²), torque 0.8 Nm max.
Mounting	clip for 35 mm DIN rail, EN 60715
Housing	plastic, UL 94V-0, black
Mounting position	vertical
Operating / storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP20
Approvals	UL File No. E234324, VDE
Note	other voltages available upon request



Part No.	Heating capacity ¹⁾	Operating voltage ²⁾	Max. current (inrush)	Dimensions	Weight (approx.)
06030.0-00	20 W	AC/DC 120-240 V	2.5 A	3.86 x 2.95 x 1.5" (98 x 75 x 38 mm)	6.1 oz. (170 g)
06040.0-00	10 W	AC/DC 120-240 V	1.0 A	3.86 x 2.95 x 1.5" (98 x 75 x 38 mm)	5.0 oz. (140 g)
06040.1-00	10 W	AC/DC 12-30 V	8 A	3.86 x 2.95 x 1.5" (98 x 75 x 38 mm)	5.0 oz. (140 g)

¹⁾ at 68 °F (20 °C) ambient temperature

²⁾ operating high voltage heaters below AC/DC 140 V reduces heating performance by approx. 10% (min. 110 V, max 265 V).

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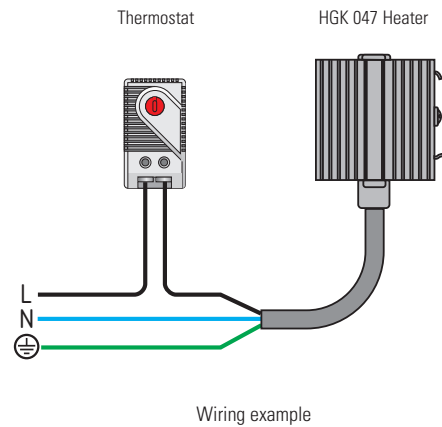
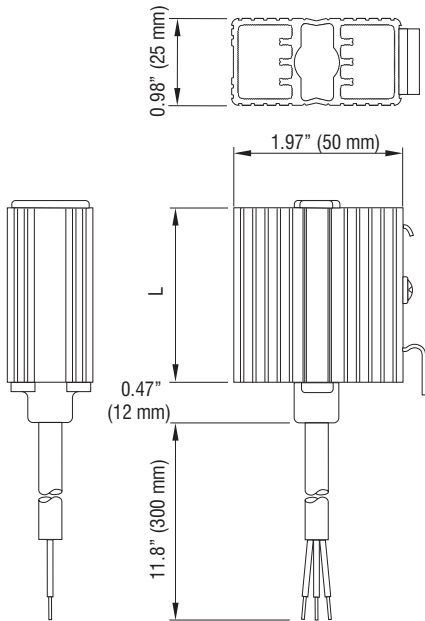
- Compact size**
- Wide voltage range**
- Heating power adjusts to ambient temperature**
- DIN rail mountable**

The HGK 047 heaters are used in enclosures to maintain minimum operating temperatures and to help prevent failure of electronic components caused by condensation and corrosion.



Technical Data

Operating voltage	see table below
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminum profile, anodized
Connection	3 x AWG 20 (0.5 mm ²), 12" (300 mm) length
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	I (grounded)
Protection type	IP44



Part No.	Heating capacity ¹⁾	Operating voltage ²⁾	Max. current (inrush)	Length (L)	Weight (approx.)	Approvals
04700.0-00	10 W	AC/DC 140-240 V	1.0 A	2.05" (52 mm)	3.0 oz. (85 g)	VDE
04701.0-00	20 W	AC/DC 140-240 V	2.5 A	2.36" (60 mm)	3.6 oz. (100 g)	VDE
04702.0-00	30 W	AC/DC 140-240 V	3.0 A	2.76" (70 mm)	4.0 oz. (110 g)	VDE
04700.9-00	10 W	AC/DC 110-120 V	1.0 A	2.05" (52 mm)	3.0 oz. (85 g)	UL File No. E234324
04701.9-00	20 W	AC/DC 110-120 V	1.5 A	2.76" (70 mm)	4.0 oz. (110 g)	UL File No. E234324
04702.9-00	30 W	AC/DC 110-120 V	1.5 A	3.94" (100 mm)	5.2 oz. (150 g)	UL File No. E234324

¹⁾ at 68 °F (20 °C) ambient temperature

²⁾ operating with voltages below AC/DC 140 V reduces heating performance by approx. 10% (min. 110 V, max 265 V).

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Low surface temperature

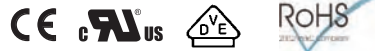
Compact size

Wide voltage range

Double insulated protection

DIN rail mountable

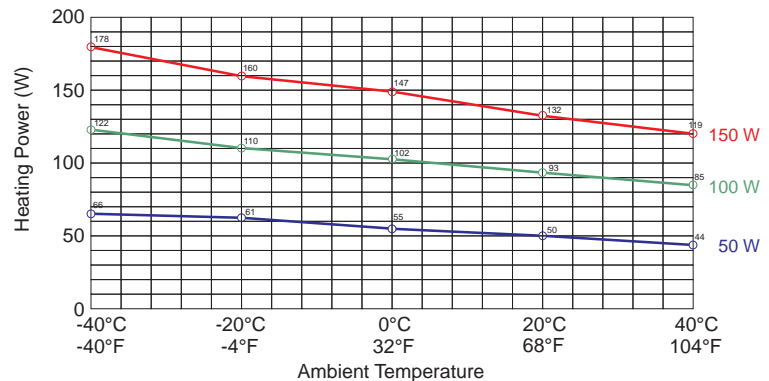
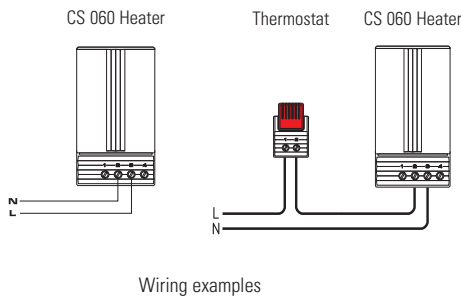
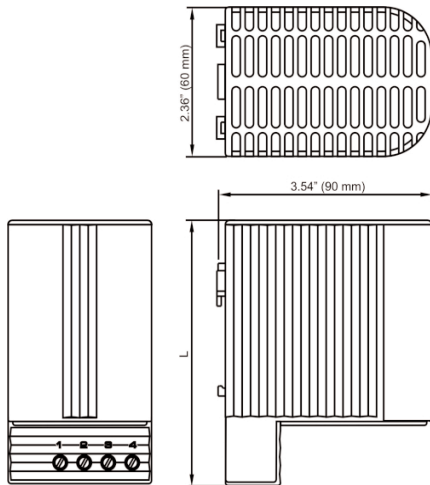
The CS 060 is a touch-safe heater for use in enclosures. The design of the heater utilizes natural convection which results in a circulating current of warm air. The surface temperatures on the accessible side surfaces of the housing are minimized as a result of the heater design. The CS 060 is also available in a version with a plug-in thermostat requiring no additional wiring (CSF 060).



Technical Data

Operating voltage*	AC/DC 120-240 V (min. 110 V, max. 265 V)
Heating capacity	see table
Heating element	PTC resistor - temperature limiting
Surface temperature	< 176 °F (80 °C), except upper protective grill
Connection	4-pole terminal AWG 14 max (2.5 mm ²), torque 0.8 Nm max.
Housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP20
Approvals	UL File No. E234324, VDE
Note	other voltages available upon request

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



Part No.	Heating capacity ¹⁾	Max. current (inrush)	Air outlet temperature ²⁾	Dimensions	Weight (approx.)
06000.0-00	50 W	2.5 A	187 °F (86 °C)	4.3 x 2.36 x 3.54" (110 x 60 x 90 mm)	10.4 oz. (295 g)
06010.0-00	100 W	4.5 A	248 °F (120 °C)	4.3 x 2.36 x 3.54" (110 x 60 x 90 mm)	10.6 oz. (300 g)
06020.0-00	150 W	8 A	293 °F (145 °C)	5.9 x 2.36 x 3.54" (150 x 60 x 90 mm)	15.5 oz. (440 g)

¹⁾ see Heating capacity / Ambient temperature diagram

²⁾ measured 2" (50 mm) above protective grill

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Low surface temperature

Integrated thermostat

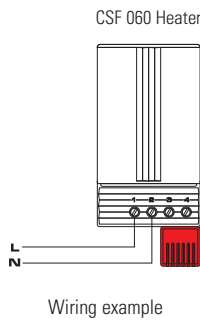
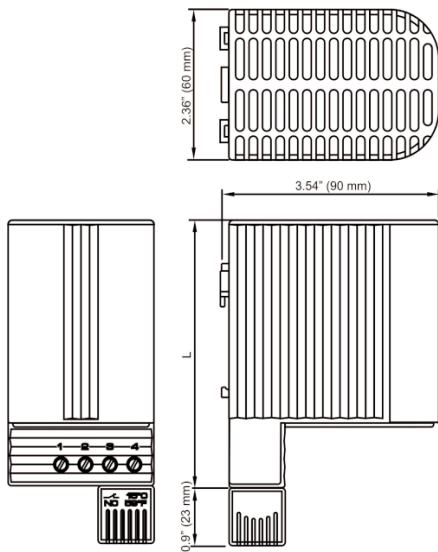
Compact size

Wide voltage range

Double insulated protection

DIN rail mountable

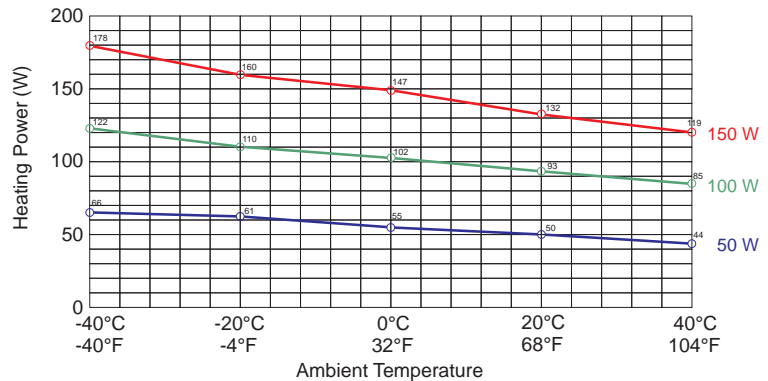
The CSF 060 is a touch-safe heater for use in enclosures. The design of the heater utilizes natural convection which results in a circulating current of warm air. The surface temperatures on the accessible side surfaces of the housing are minimized as a result of the heater design. This model with plug-in thermostat does not require additional wiring. The CSF 060 is also available in a version without thermostat (CS 060).



Technical Data

Operating voltage*	AC/DC 120-240 V (min. 110 V, max. 265 V)
Heating capacity	see table
Heating element	PTC resistor - temperature limiting
Surface temperature	< 176 °F (80 °C), except upper protective grill
Connection	4-pole terminal AWG 14 max (2.5 mm ²), torque 0.8 Nm max.
Housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-40 to +158 °F (-40 to +70 °C) / -49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP20
Approvals	VDE

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



Part No.	Heating capacity ¹⁾	Max. current (inrush)	Air outlet temperature ²⁾	Switch-off temperature ³⁾	Switch-on temperature ³⁾	Dimensions	Weight (approx.)
06001.0-00	50 W	2.5 A	187 °F (86 °C)	59 °F (15 °C)	41 °F (5 °C)	5.24 x 2.36 x 3.54" (133 x 60 x 90 mm)	10.8 oz. (305 g)
06002.0-00	50 W	2.5 A	187 °F (86 °C)	77 °F (25 °C)	59 °F (15 °C)	5.24 x 2.36 x 3.54" (133 x 60 x 90 mm)	10.8 oz. (305 g)
06011.0-00	100 W	4.5 A	248 °F (120 °C)	59 °F (15 °C)	41 °F (5 °C)	5.24 x 2.36 x 3.54" (133 x 60 x 90 mm)	11.2 oz. (320 g)
06012.0-00	100 W	4.5 A	248 °F (120 °C)	77 °F (25 °C)	59 °F (15 °C)	5.24 x 2.36 x 3.54" (133 x 60 x 90 mm)	11.2 oz. (320 g)
06021.0-00	150 W	8.0 A	293 °F (145 °C)	59 °F (15 °C)	41 °F (5 °C)	6.8 x 2.36 x 3.54" (173 x 60 x 90 mm)	15.9 oz. (450 g)
06022.0-00	150 W	8.0 A	293 °F (145 °C)	77 °F (25 °C)	59 °F (15 °C)	6.8 x 2.36 x 3.54" (173 x 60 x 90 mm)	15.9 oz. (450 g)

¹⁾ see Heating capacity / Ambient temperature diagram

²⁾ measured 2" (50 mm) above protective grill

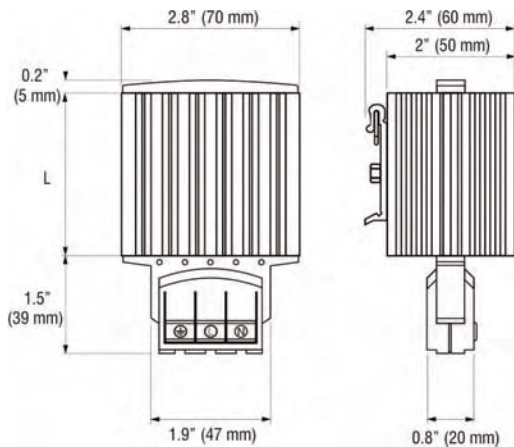
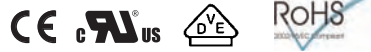
³⁾ tolerance of ± 5K

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact size**
- Wide voltage range**
- Heating power adjusts to ambient temperature**
- Cage clamp connectors for quick & easy wiring**
- DIN rail mountable**

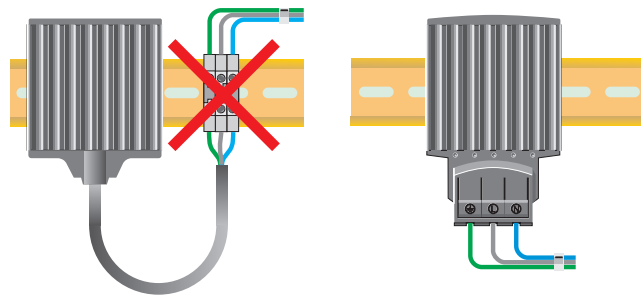
These heaters are used in enclosures where damage from condensation must be prevented, or where the temperature must be maintained above a minimum value. The aluminum profile heater body design has a chimney effect to distribute heat evenly. The cage clamp connectors save time and simplify installation.



Technical Data

Operating voltage*	AC/DC 120-240 V (min. 110 V, max. 265 V)
Heating element	PTC resistor - temperature limiting
Heater body	extruded aluminum profile, anodized
Connection	3 cage clamps for solid wire AWG 20-14 (0.5-2.5 mm ²), and stranded wire AWG 20-16 (0.5-1.5 mm ²) with wire end ferrule
Connection casing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	I (grounded)
Protection type	IP20
Approvals	UL File No. E234324, VDE
Note	other voltages available upon request

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



Part No.	Heating capacity ¹⁾	Max. current (inrush)	Length (L on dim. dwg.)	Weight (approx.)
14000.0-00	15 W	1.5 A	2.56" (65 mm)	7.6 oz. (215 g)
14001.0-00	30 W	3.0 A	2.56" (65 mm)	7.6 oz. (215 g)
14003.0-00	45 W	3.5 A	2.56" (65 mm)	7.6 oz. (215 g)
14005.0-00	60 W	2.5 A	5.5" (140 mm)	14.1 oz. (400 g)
14006.0-00	75 W	4.0 A	5.5" (140 mm)	14.3 oz. (405 g)
14007.0-00	100 W	4.5 A	5.5" (140 mm)	14.3 oz. (405 g)
14008.0-00	150 W	9.0 A	8.66" (220 mm)	21.3 oz. (600 g)

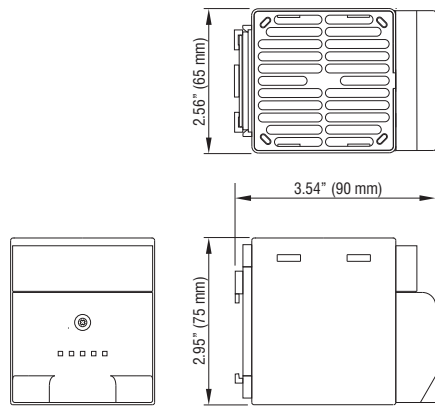
¹⁾ at 68 °F (20 °C) ambient temperature

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.

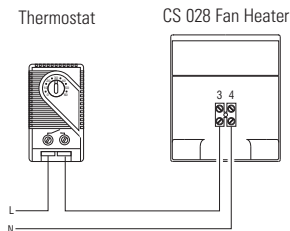
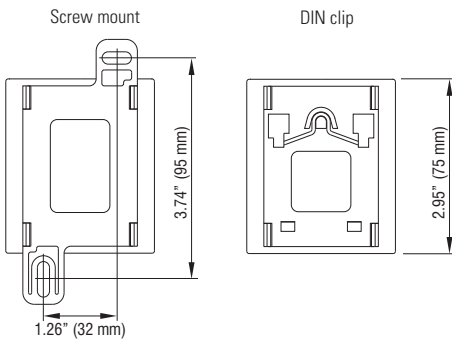


- Compact size**
- Quiet operation**
- Heating power adjusts to ambient temperature**
- DIN rail or screw mount available**

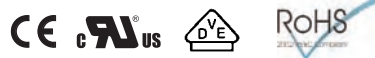
The CS 028 fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. The heater is connected using the internal terminal connectors. The surface temperatures on the accessible side surfaces of the housing are minimized as a result of the heater design. The CS 028's small size make it ideal for use in enclosures where space is at a premium.



View: back side

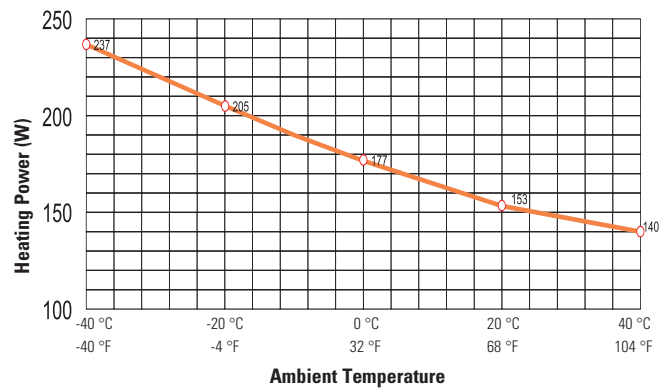


Wiring example



Technical Data

Heating element	PTC resistor - temperature limiting
Max. current (inrush)	6 A @ AC 120 V, 12 A @ AC 230 V
Surface temperature	max. 122 °F (50 °C) at housing, 212 °F (100 °C) at top grill; measured at 68 °F (20 °C) ambient temperature
Axial fan, ball bearing	service life 40,000 h at 104 °F (40 °C)
Air flow, free blowing	approx. 8 cfm (13.8 m³/h)
Connection	2-pole terminal AWG 14 max. (2.5 mm²), torque 0.8 Nm max.
Mounting	screw mount or clip for 35 mm DIN rail, EN 60715
Housing	plastic, UL 94V-0, black
Weight	approx. 10.6 oz. (300 g)
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP20
Note	other voltages available upon request



Part No.	Heating capacity ¹⁾	Operating voltage	Dimensions	Mounting	Approvals
02800.0-00	150 W	AC 230 V, 50/60 Hz	2.95 x 2.56 x 3.54" (75 x 65 x 90 mm)	DIN clip	UL File No. E234324, VDE
02800.0-01	150 W	AC 230 V, 50/60 Hz	4.49 x 2.56 x 3.54" (114 x 65 x 90 mm)	Screw mount	UL File No. E234324, VDE
02800.9-00	150 W	AC 120 V, 50/60 Hz	2.95 x 2.56 x 3.54" (75 x 65 x 90 mm)	DIN clip	UL File No. E234324
02800.9-01	150 W	AC 120 V, 50/60 Hz	4.49 x 2.56 x 3.54" (114 x 65 x 90 mm)	Screw mount	UL File No. E234324

¹⁾ at 68 °F (20 °C) ambient temperature

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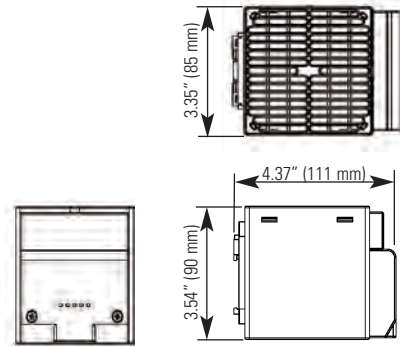
- Compact size**
- Quiet operation**
- Heating power adjusts to ambient temperature**
- DIN rail or screw mount available**

The CSL 028 fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. The heater is connected using the internal terminal connectors. The surface temperatures on the accessible side surfaces of the housing are minimized as a result of the heater design. The CSL 028's small size make it ideal for use in enclosures where space is at a premium.

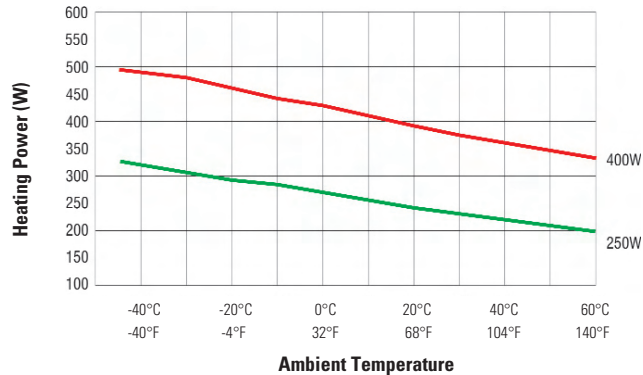
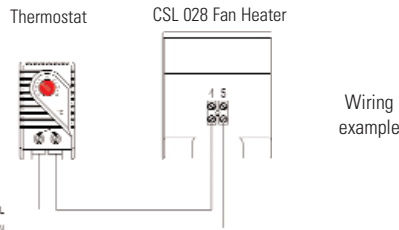
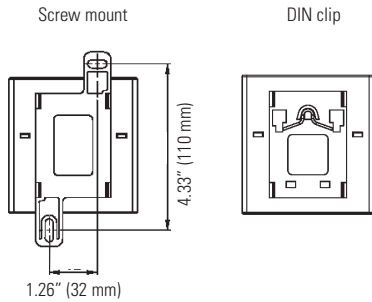


Technical Data

Heating element	PTC resistor - temperature limiting
Surface temperature	250 W: max. 122 °F (50 °C) except upper protective grill, 400 W: max. 149 °F (65 °C) except upper protective grill; measured at 68 °F (20 °C) ambient temperature
Axial fan, ball bearing	service life 40,000 h at 104 °F (40 °C)
Air flow, free blowing	32 cfm (54 m³/h) at AC 120 V; 26 cfm (45 m³/h) at AC 230 V
Connection	2-pole terminal AWG 14 max. (2.5 mm²) with strain relief, screw torque 0.8 Nm max.
Mounting	screw mount or clip for 35 mm DIN rail, EN 60715
Housing	plastic, UL 94V-0, black
Weight	approx. 17.6 oz. (500 g)
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	II (double insulated)
Protection type	IP20



View: back side



Part No.	Heating capacity ¹⁾	Operating voltage	Max. current (inrush)	Dimensions	Mounting	Approvals
02810.0-00	400 W	AC 230 V, 50/60 Hz	15 A	3.54 x 3.35 x 4.37" (90 x 85 x 111 mm)	DIN clip	UL File No. E234324, VDE
02810.0-01	400 W	AC 230 V, 50/60 Hz	15 A	5.08 x 3.35 x 4.37" (129 x 85 x 111 mm)	Screw mount	UL File No. E234324, VDE
02810.9-00	400 W	AC 120 V, 50/60 Hz	9 A	3.54 x 3.35 x 4.37" (90 x 85 x 111 mm)	DIN clip	UL File No. E234324
02810.9-01	400 W	AC 120 V, 50/60 Hz	9 A	5.08 x 3.35 x 4.37" (129 x 85 x 111 mm)	Screw mount	UL File No. E234324
02811.0-00	250 W	AC 230 V, 50/60 Hz	9 A	3.54 x 3.35 x 4.37" (90 x 85 x 111 mm)	DIN clip	UL File No. E234324, VDE
02811.0-01	250 W	AC 230 V, 50/60 Hz	9 A	5.08 x 3.35 x 4.37" (129 x 85 x 111 mm)	Screw mount	UL File No. E234324, VDE
02811.9-00	250 W	AC 120 V, 50/60 Hz	6 A	3.54 x 3.35 x 4.37" (90 x 85 x 111 mm)	DIN clip	UL File No. E234324
02811.9-01	250 W	AC 120 V, 50/60 Hz	6 A	5.08 x 3.35 x 4.37" (129 x 85 x 111 mm)	Screw mount	UL File No. E234324

¹⁾ at 68°F (20°C) ambient temperature

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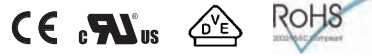
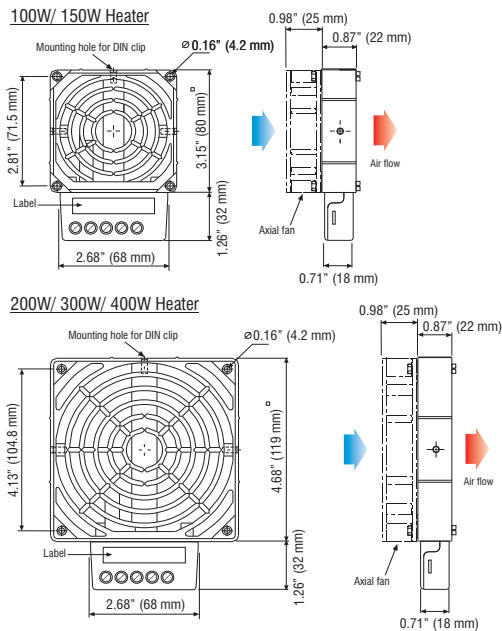
Shown: 100W - HVL 031 Fan Heater

- Compact size**
- Flat design**
- Built-in overheat protection**
- 3-side DIN rail mountable**

The compact HVL 031 high-performance fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. For large OEM use, this fan heater can also be provided without the fan, in which case the OEM/customer must provide a fan which meets the minimum airflow requirements.

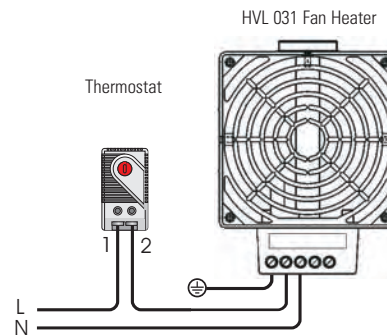


Important! Heater must be operated together with a fan. Operating without a fan creates the danger of overheating.



Technical Data

Heating element	high performance cartridge
Overheat protection	built-in temperature limiter
Heater body	die-cast aluminum, glass bead finish
Connection	3-pole terminal AWG 14 max. (2.5 mm ²), torque 0.8 Nm max..
Connection housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	horizontal
Operation / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class / Protection type	I (grounded) / IP20
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	see table below
Axial fan connection	2-pole terminal AWG 14 max. (2.5 mm ²), terminals L2/N2
Approvals	UL File No. E187294 (all), VDE (230VAC only)



Part No. - AC 120 V	Part No. - AC 230 V	Heating capacity	Min. airflow (free blowing)	Dimensions (as mounted)	Weight (approx.)
03102.9-00	03102.0-00	100 W	20 cfm (35 m ³ /h)	1.85 x 3.15 x 4.41" (47 x 80 x 112 mm)	1.3 lbs. (600 g)
03103.9-00	03103.0-00	150 W	20 cfm (35 m ³ /h)	1.85 x 3.15 x 4.41" (47 x 80 x 112 mm)	1.3 lbs. (600 g)
03113.9-00	03113.0-00	200 W	63 cfm (108 m ³ /h)	1.85 x 4.68 x 5.94" (47 x 119 x 151 mm)	2.0 lbs. (900 g)
03114.9-00	03114.0-00	300 W	63 cfm (108 m ³ /h)	1.85 x 4.68 x 5.94" (47 x 119 x 151 mm)	2.0 lbs. (900 g)
03115.9-00	03115.0-00	400 W	63 cfm (108 m ³ /h)	1.85 x 4.68 x 5.94" (47 x 119 x 151 mm)	2.0 lbs. (900 g)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact size**
- Built-in overheat protection**
- Long service life**
- DIN rail mountable**

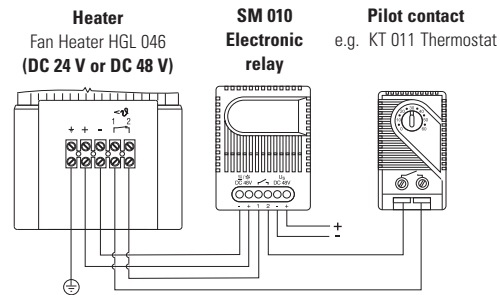
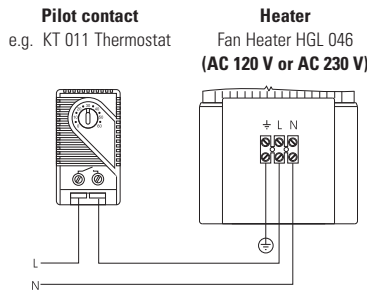
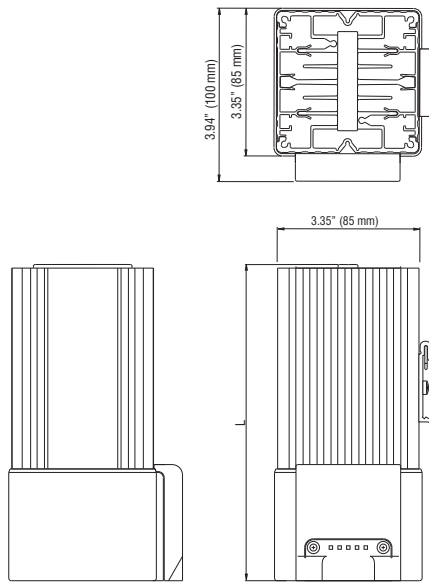
The compact HGL 046 fan heater prevents formation of condensation. The integrated high performance axial fan provides forced air circulation and so guarantees an even temperature in enclosures. The heater is wired using the internal terminal connectors.



Technical Data

Heating element	resistance - micanite
Overheat protection	built-in temperature limiter
Heater body	extruded aluminum, anodized
Surface temperature	400 W heater - max. 167 °F (75 °C)
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	AC: 26 cfm (45 m³/h) - 50 Hz; 32 cfm (54 m³/h) - 60 Hz DC: 32 cfm (54 m³/h)
Connection	3-pole terminal AWG 16 max. (1.5 mm²) with strain relief, clamping torque 0.8 Nm max.
Connection housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	I (grounded)
Protection type	IP20

Note: In the case of **DC 24 V** and **DC 48 V**, the fan heater must be switched via a relay. For this application, the SM 010 Electronic Relay (Part No. 01000.0-00 or 01001.0-00) is recommended.



Part No.	Heating capacity	Operating voltage	Length (L)	Weight (approx.)	Approvals
04640.0-00	250 W	AC 230 V, 50/60 Hz	7.2" (182 mm)	2.4 lbs. (1.1 kg)	UL File No. E234324, VDE
04641.0-00	400 W	AC 230 V, 50/60 Hz	8.7" (222 mm)	3.1 lbs. (1.4 kg)	UL File No. E234324, VDE
04640.9-00	250 W	AC 120 V, 50/60 Hz	7.2" (182 mm)	2.4 lbs. (1.1 kg)	UL File No. E234324, VDE
04641.9-00	400 W	AC 120 V, 50/60 Hz	8.7" (222 mm)	3.1 lbs. (1.4 kg)	UL File No. E234324, VDE
04640.1-00	250 W	DC 24 V	7.2" (182 mm)	2.4 lbs. (1.1 kg)	UL File No. E234324
04640.2-00	250 W	DC 48 V	7.2" (182 mm)	2.4 lbs. (1.1 kg)	UL File No. E234324
04641.2-00	400 W	DC 48 V	8.7" (222 mm)	3.1 lbs. (1.4 kg)	UL File No. E234324

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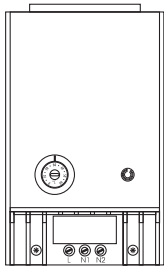
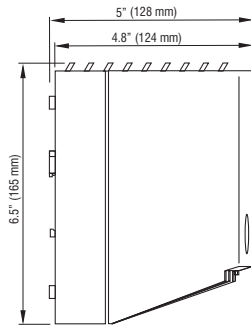
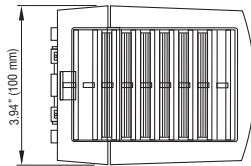
- Compact fan heater**
- Heating power adjusts to ambient temperature**
- Integrated adjustable thermostat**
- Built-in overheat protection**
- DIN rail mountable**

The semiconductor CR 027 fan heater prevents the formation of condensation and ensures an even temperature in enclosures. The integrated thermostat is used to set the desired temperature while the high performance axial fan provides forced air circulation. The CR 027 is also available with a continuously running fan (when powered).

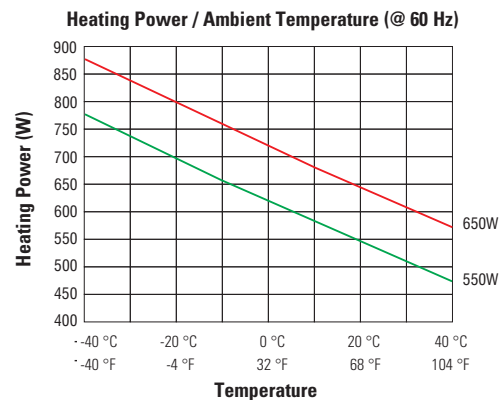
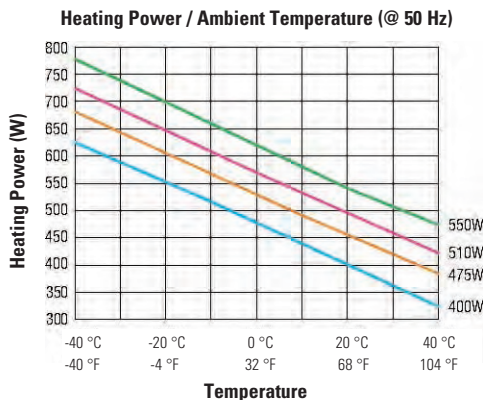


Technical Data

Heating element	PTC resistor - temperature limiting
Overheat protection	built-in temperature limiter
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	see table below
Connection	2-pole terminal AWG 14 max. (2.5 mm ²), torque 0.8 Nm max..
Housing	plastic, UL 94V-0, light grey
Optical indicator	thermostat control light
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	6.5 x 3.94 x 5.0" (165 x 100 x 128 mm)
Protection class	II (double insulated)
Protection type	IP20
Approvals	UL File No. E204590



Wiring note: Only connect the L and N1 terminals - N2 is not used and Grounding is not required



Part No.	Heating capacity ¹⁾ (@ 50 Hz)	Heating capacity ¹⁾ (@ 60 Hz)	Operating voltage	Max. current (inrush)	Air flow, free blowing	Thermostat setting range	Weight (approx.)
02700.0-00	475 W	550 W	AC 220-240 V	11.0 A	20 cfm (35 m ³ /h)	0 to 60 °C	2.0 lbs. (0.9 kg)
02701.0-00	550 W	650 W	AC 220-240 V	13.0 A	26 cfm (45 m ³ /h)	0 to 60 °C	2.4 lbs (1.1 kg)
02700.9-00	400 W	550 W	AC 100-120 V	14.0 A	20 cfm (35 m ³ /h)	32 to 140 °F	2.0 lbs. (0.9 kg)
02701.9-00	510 W	650 W	AC 100-120 V	15.0 A	26 cfm (45 m ³ /h)	32 to 140 °F	2.4 lbs (1.1 kg)

¹⁾ at 68 °F (20 °C) ambient temperature

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



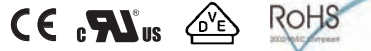
Compact design

Built-in overheat protection

Integrated adjustable thermostat or fixed hygrostat

Double insulated plastic housing

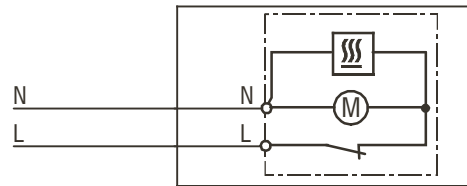
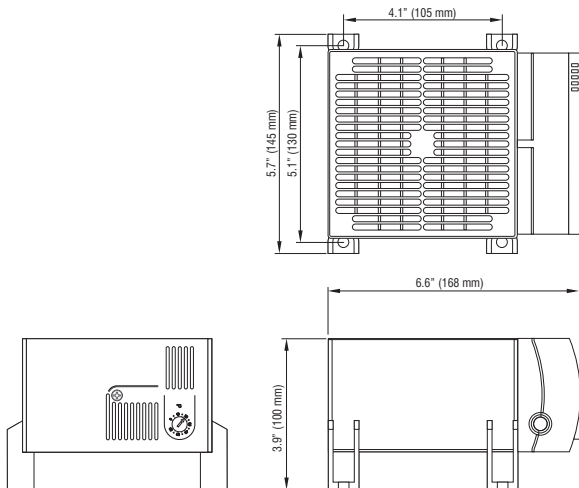
The compact CR 030 high performance fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. This fan heater is available with an integrated thermostat for temperature control or a pre-set hygrostat for humidity control. The CR 030 was designed as a stationary unit for the bottom of the enclosure. For panel or DIN rail mount, the CR 130 fan heater is recommended.



Technical Data

Heating element	high performance cartridge
Overheat protection	built-in temperature limiter
Heater body	extruded aluminum
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	94 cfm (160 m³/h)
Connection	2-pole terminal AWG 14 max. (2.5 mm²) with strain relief, clamping torque 0.8 Nm max.
Housing	plastic, UL 94V-0, black
Mounting	M5 screws (not included)
Mounting position	horizontal
Operating* / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	3.9 x 5.7 x 6.6" (100 x 145 x 168 mm)
Weight	approx. 3.1 lbs. (1.4 kg)
Protection class	II (double insulated)
Protection type	IP20

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



Wiring diagram

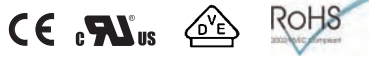
Part No.	Heating capacity	Operating voltage	Setting range	Approvals
03051.0-00	950 W	AC 230 V, 50/60 Hz	0 to 60 °C	UL File No. E234324, VDE
03051.0-02	950 W	AC 230 V, 50/60 Hz	65 %RH, factory-set	UL File No. E234324, VDE
03051.0-07	950 W	AC 230 V, 50/60 Hz	none (no integrated controls)	UL File No. E234324, VDE
03059.9-00	950 W	AC 120 V, 50/60 Hz	32 to 140 °F	UL File No. E234324
03059.9-02	950 W	AC 120 V, 50/60 Hz	none (no integrated controls)	UL File No. E234324

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact design**
- Built-in overheat protection**
- Integrated adjustable thermostat or fixed hygrostat**
- Double insulated plastic housing**
- Panel or DIN rail mounting**

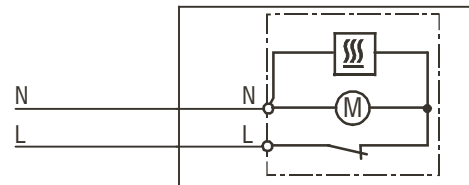
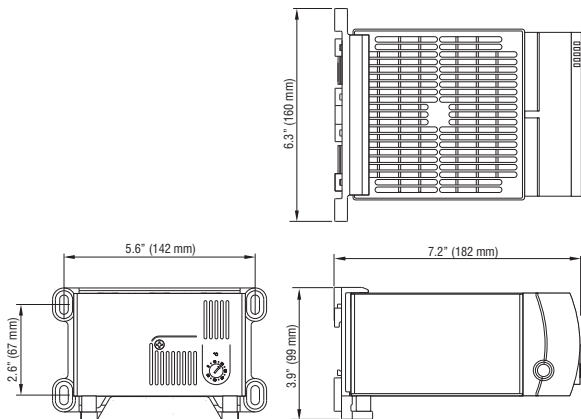
The compact CR 130 high performance fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. This fan heater is available with an integrated thermostat for temperature control or a pre-set hygrostat for humidity control. The CR 130 was designed as a stationary unit for panel or DIN rail mounting. For foot mounting on the bottom of an enclosure, the CR 030 fan heater is recommended.



Technical Data

Heating element	high performance cartridge
Overheat protection	built-in temperature limiter
Heater body	extruded aluminum
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	94 cfm (160 m³/h)
Connection	2-pole terminal AWG 14 max. (2.5 mm²) with strain relief, clamping torque 0.8 Nm max.
Housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or M6 screws (not included)
Mounting position	horizontal
Operating* / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	3.9 x 6.3 x 7.2" (99 x 160 x 182 mm)
Weight	approx. 3.1 lbs. (1.4 kg)
Protection class	II (double insulated)
Protection type	IP20

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



Wiring diagram

Part No.	Heating capacity	Operating voltage	Setting range	Approvals
13051.0-00	950 W	AC 230 V, 50/60 Hz	0 to 60 °C	UL File No. E234324, VDE
13051.0-02	950 W	AC 230 V, 50/60 Hz	65 %RH, factory-set	UL File No. E234324, VDE
13051.0-03	950 W	AC 230 V, 50/60 Hz	none (no integrated controls)	UL File No. E234324, VDE
13059.9-00	950 W	AC 120 V, 50/60 Hz	32 to 140 °F	UL File No. E234324
13059.9-02	950 W	AC 120 V, 50/60 Hz	none (no integrated controls)	UL File No. E234324

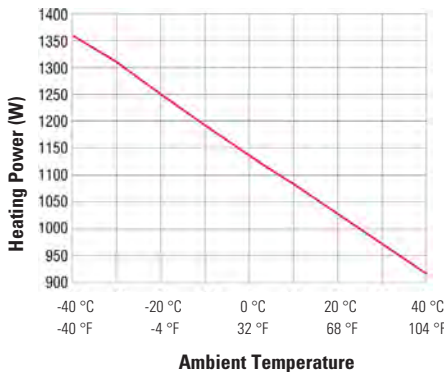
Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



CS 032 Fan Heater



CSF 032 Fan Heater with Integrated Thermostat



- Compact design**
- High heating performance**
- Double insulated plastic housing**
- DIN or screw mount**
- Optional integrated fixed thermostat**

The compact CS 032 high performance fan heater prevents the formation of condensation and provides an evenly distributed interior air temperature in enclosures. The plastic housing provides protection against contact with current-carrying components via double insulation (protection class II). The fan heater is also available with an optional fixed-point thermostat as the CSF 032. These series were designed to accommodate DIN rail or screw mounting.



Technical Data

Heating element	PTC resistor - temperature limiting
Overheat protection	built-in temperature limiter
Surface temperature	max. 176 °F (80 °C), except upper protective grill at 68 °F (20 °C) ambient temperature
Air outlet temperature	max. 257 °F (125 °C), 2" (50 mm) above grill
Axial fan, ball bearing	service life 70,000 h at 77 °F (25 °C)
Air flow, free blowing	37 cfm (63 m³/h)
Connection	male power insert connector according to IEC320 C18
Fuse	10 A time lag (T) integrated
Housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715, or screw mount (M5, not included), tightening torque 2 Nm max.
Mounting position	air flow directed up
Operating temperature	-40 to +140 °F (-40 to +60 °C)
Storage temperature	-40 to +158 °F (-40 to +70 °C)
Dimensions	5.9 x 3.5 x 2.6" (150.5 x 88 x 66 mm)
Weight	approx. 16.5 oz. (650 g)
Protection class	II (double insulated)
Protection type	IP20
Approvals	UL File No. 234324, VDE

Important note: Connectors and cables for electrical connection are not included with the heater. Connection cables are available as accessories (see next page).

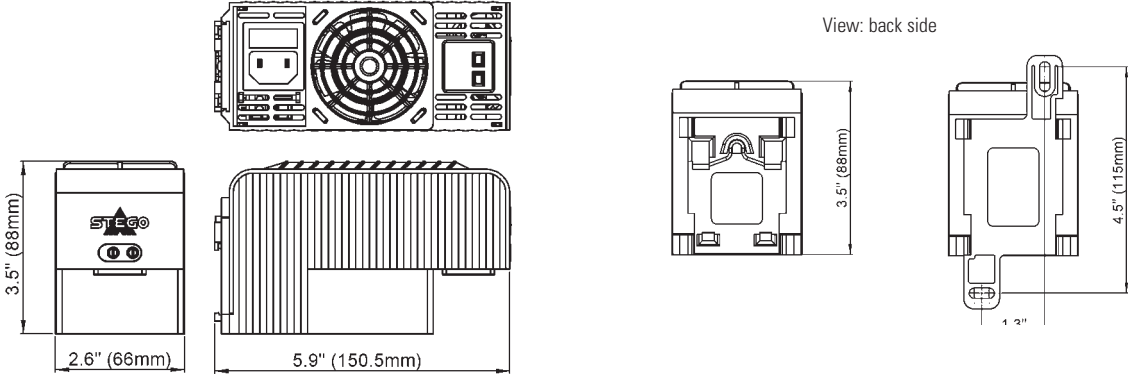
Part No. DIN rail mount	Part No. Screw mount	Series	Operating voltage	Heating capacity ¹⁾	Max. current (inrush)	Switch-off temperature ²⁾	Switch-on temperature ²⁾
03200.0-00	03200.0-01	CS 032, no thermostat	AC 220-240 V, 50/60 Hz	1000 W	12 A	-	-
03200.9-00	03200.9-01	CS 032, no thermostat	AC 100-120 V, 50/60 Hz	1000 W	18 A	-	-
03201.0-00	03201.0-01	CSF 032, with thermostat	AC 220-240 V, 50/60 Hz	1000 W	12 A	59 °F (15 °C)	41 °F (5 °C)
03201.9-00	03201.9-01	CSF 032, with thermostat	AC 100-120 V, 50/60 Hz	1000 W	18 A	77 °F (25 °C)	59 °F (15 °C)
03202.0-00	03202.0-01	CSF 032, with thermostat	AC 220-240 V, 50/60 Hz	1000 W	12 A	59 °F (15 °C)	41 °F (5 °C)
03202.9-00	03202.9-01	CSF 032, with thermostat	AC 100-120 V, 50/60 Hz	1000 W	18 A	77 °F (25 °C)	59 °F (15 °C)

¹⁾ at 77 °F (25 °C) ambient temperature

²⁾ tolerance of ± 5 K

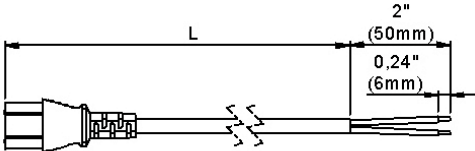
Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.

Dimensional drawing



Accessories

Connection cable with female power insert connector according to IEC320 C17



Part No.	Length
244379	1.0 m
244380	2.0 m

Retaining Clip

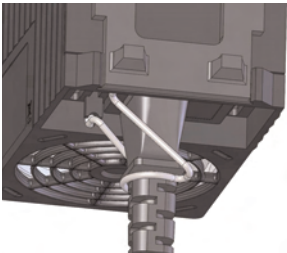


Photo: Retaining clip, Part No. 237009

Part No.	Note
237009	Suitable for female power insert connection cable 244379 and 244380

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



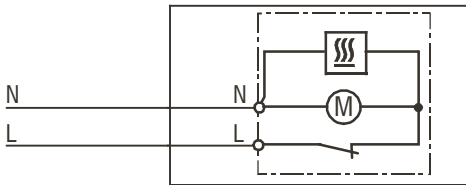
- Compact design**
- Built-in overheat protection**
- Integrated adjustable thermostat (optional)**
- Double insulated plastic housing**

The compact CS 030 high performance fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. This fan heater is available with an optional integrated thermostat for temperature control. The CS 030 was designed as a stationary unit for the bottom of the enclosure. For panel or DIN rail mount, the CS 130 fan heater is recommended.

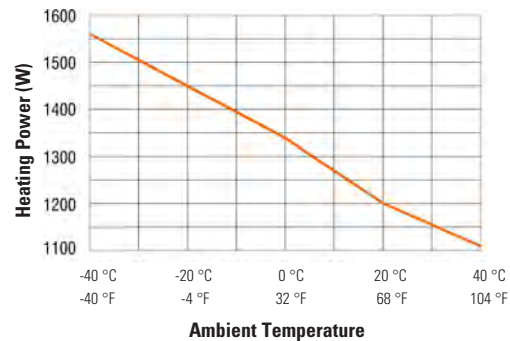
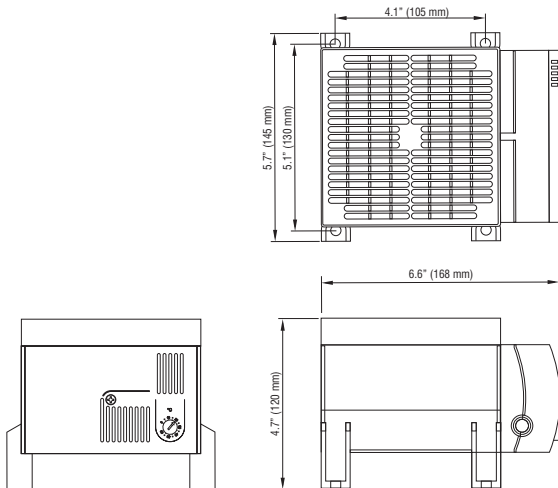


Technical Data

Heating element	PTC resistor - temperature limiting
Overheat protection	built-in temperature limiter
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	94 cfm (160 m ³ /h)
Connection	2-pole terminal AWG 14 max. (2.5 mm ²) with strain relief, clamping torque 0.8 Nm max.
Housing	plastic, UL 94V-0, black
Mounting	M5 screws (not included)
Mounting position	horizontal
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	4.7 x 5.7 x 6.6" (120 x 145 x 168 mm)
Weight	approx. 2.6 lbs. (1.2 kg)
Protection class	II (double insulated)
Protection type	IP20



Wiring diagram



Part No.	Heating capacity ¹⁾	Operating voltage	Max. current (inrush)	Setting range	Approvals
03060.0-00	1200 W	AC 230 V, 50/60 Hz	13.0 A	0 to 60 °C	UL File No. E234324, VDE
03060.0-01	1200 W	AC 230 V, 50/60 Hz	13.0 A	none (no integrated controls)	UL File No. E234324, VDE
03060.9-00	1200 W	AC 120 V, 50/60 Hz	16.0 A	32 to 140 °F	UL File No. E234324
03060.9-01	1200 W	AC 120 V, 50/60 Hz	16.0 A	none (no integrated controls)	UL File No. E234324

¹⁾ at 68 °F (20 °C) ambient temperature

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



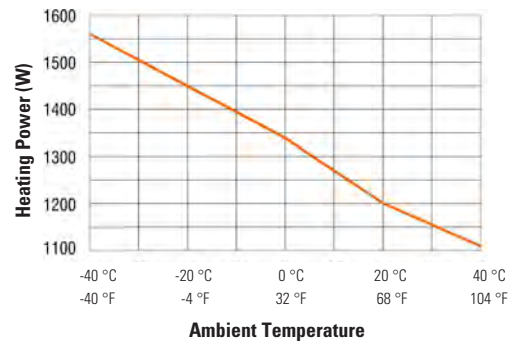
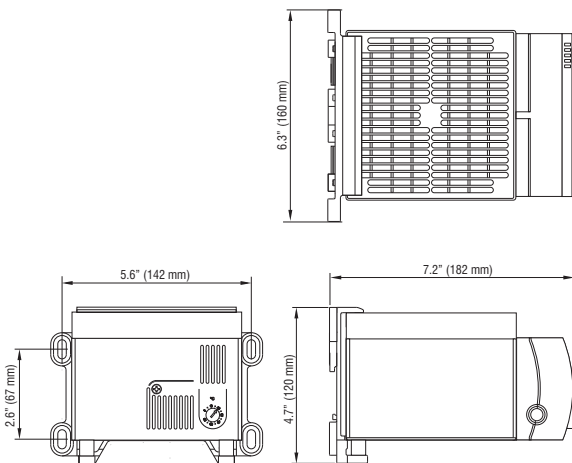
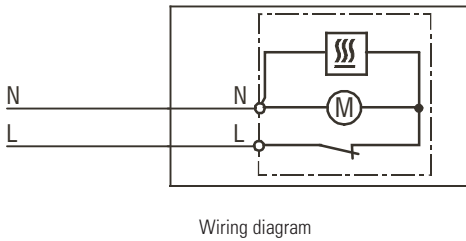
- Compact design**
- Built-in overheat protection**
- Integrated adjustable thermostat (optional)**
- Double insulated plastic housing**
- Panel or DIN rail mounting**

The compact CS 130 high performance fan heater prevents formation of condensation and provides an evenly distributed interior air temperature in enclosures. This fan heater is available with an optional integrated thermostat for temperature control. The CS 130 was designed as a stationary unit for panel or DIN rail mounting. For foot mounting on the bottom of an enclosure, the CS 030 fan heater is recommended.



Technical Data

Heating element	PTC resistor - temperature limiting
Overheat protection	built-in temperature limiter
Axial fan, ball bearing	service life 50,000 h at 77 °F (25 °C)
Air flow, free blowing	94 cfm (160 m³/h)
Connection	2-pole terminal AWG 14 max. (2.5 mm²) with strain relief, clamping torque 0.8 Nm max.
Housing	plastic, UL 94V-0, black
Mounting	clip for 35 mm DIN rail, EN 60715 or M6 screws (not included)
Mounting position	horizontal
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	4.7 x 6.3 x 7.2" (120 x 160 x 182 mm)
Weight	approx. 2.6 lbs. (1.2 kg)
Protection class	II (double insulated)
Protection type	IP20



Part No.	Heating capacity ¹⁾	Operating voltage	Max. current (inrush)	Setting range	Approvals
13060.0-00	1200 W	AC 230 V, 50/60 Hz	13.0 A	0 to 60 °C	UL File No. E234324, VDE
13060.0-01	1200 W	AC 230 V, 50/60 Hz	13.0 A	none (no integrated controls)	UL File No. E234324, VDE
13060.9-00	1200 W	AC 120 V, 50/60 Hz	16.0 A	32 to 140 °F	UL File No. E234324
13060.9-01	1200 W	AC 120 V, 50/60 Hz	16.0 A	none (no integrated controls)	UL File No. E234324

¹⁾ at 68 °F (20 °C) ambient temperature

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Large convection surface

Maintenance free

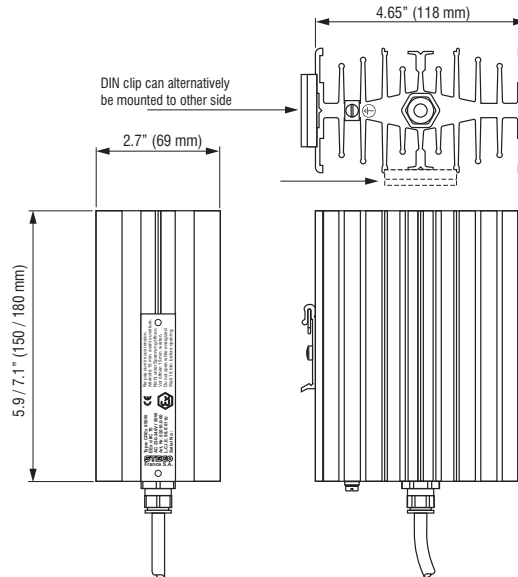
DIN rail mountable

The CREx 020 convection heaters are used in areas with explosion hazard to maintain minimum operating temperatures to help prevent failure of electronic components caused by condensation and corrosion.



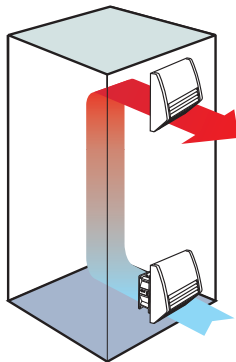
Technical Data

Explosion protection according to EN	LCIE (Laboratoire Central des Industries Electriques)
Conformity certificate	01 ATEX 6073/03, LCIE N°06 ATEX Q8011, IECEx LCI 07. 0021
Heating element	high performance cartridge
Heater body	aluminum profile, black anodized
Connection	Si HF - JZ 3 x AWG 18 (0.75 mm ²), length 3.3 ft (1 m)
Connection PE	4 mm ²
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Protection class	I (grounded)
Protection type	IP65



Part No.	Operating voltage	Heating capacity	Ex protection type	Surface temperature	Length (L)	Weight (approx.)
02010.0-00	AC 230-240 V	50 W	Ex d IIC T5 - Ex tD A21 IP6x T100°C	212 °F (100 °C)	5.9" (150 mm)	2.9 lbs. (1.3 kg)
02010.0-01	AC 110-120 V	50 W	Ex d IIC T5 - Ex tD A21 IP6x T100°C	212 °F (100 °C)	5.9" (150 mm)	2.9 lbs. (1.3 kg)
02011.0-00	AC 230-240 V	100 W	Ex d IIC T4 - Ex tD A21 IP6x T100°C	275 °F (135 °C)	7.1" (180 mm)	3.3 lbs. (1.5 kg)
02011.0-01	AC 110-120 V	100 W	Ex d IIC T4 - Ex tD A21 IP6x T100°C	275 °F (135 °C)	7.1" (180 mm)	3.3 lbs. (1.5 kg)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Enclosure ventilation using a filter fan and exhaust filter

- Very low noise**
- Minimal mounting depth**
- Functional design**
- Time-saving installation**
- Weather and UV resistant**

Filter fans are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channeling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects the electronic components from overheating. The plastic used for the hood of this filter fan series is highly weather resistant, as well as impact and UV light resistant.



Technical Data	
Axial fan, ball bearing	service life min. 50,000 h at 77 °F (25 °C) and 65 %RH aluminum fan body, plastic rotor
Connection	2 wires w/cage clamps, AWG 14 (2.5 mm ²), length 4" (100 mm)
Housing (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey
Hood (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey; weather and UV light resistant according to UL 746C (f1)
Mounting frame	with double-sided industrial adhesive for mounting to the outside of enclosure; certain operating circumstances may make the additional use of screws necessary; cut-out template included
Filter media rating	G4 acc. to DIN EN 779, filtering degree 94 %
Filter material	synthetic fiber with progressive construction, temperature resistant to 212 °F, self-extinguishing class F1; moisture resistant to 100 %RH, reusable - can be cleaned by washing or vacuuming
Operating / Storage temperature	+14 to +158 °F (-10 to +70 °C) / -40 to +158 °F (-40 to 70 °C)
Protection class	I (grounded)
Protection type	IP55 (according to VDE), UL Type 1
Note: Using fine filter mat F5 increases the protection to UL Type 12 but reduces the air flow	

Special features

- The **self-adhesive seal** of the mounting frame prevents dust and water from entering the cabinet.
- **Functional design** of the intake and exhaust fan hoods very effectively prevents direct infiltration of falling water and dust. The advantage is that the filter mat does not rapidly become contaminated with dirt and therefore does not need to be exchanged as often.
- The **air channeling** makes the filter fan particularly quiet in operation.
- All filter fan models are also available with **integrated airflow monitor**.
- The **direction of air flow can easily be switched** by reversing the axial fan.
- EMC versions and other voltages are available upon request.

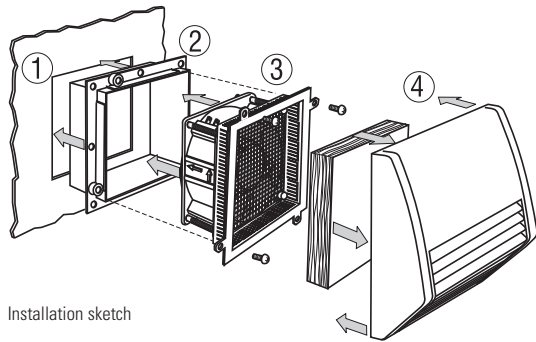
Part No.	Operating voltage	Air volume, free blowing	Air volume with exhaust filter	Power consumption	Average noise level (DIN EN ISO 4871)	Mounting depth	Enclosure cut-out	Weight (approx.)	Approvals
01800.0-00	AC 230 V, 50 Hz ¹⁾	12 cfm (21 m ³ /h)	9 cfm (16 m ³ /h)	13 W	31 dB (A)	1.8" (45 mm)	3.8 x 3.8"	1.3 lbs. (0.6 kg)	UL File No. E234324, VDE
01800.0-01	AC 120 V, 60 Hz	14 cfm (24 m ³ /h)	11 cfm (18 m ³ /h)	13 W	31 dB (A)	1.8" (45 mm)	3.8 x 3.8"	1.3 lbs. (0.6 kg)	UL File No. E234324
01801.0-00	AC 230 V, 50 Hz ¹⁾	32 cfm (55 m ³ /h)	25 cfm (42 m ³ /h)	15 W	40 dB (A)	2.3" (58 mm)	4.9 x 4.9"	2.2 lbs. (1.0 kg)	UL File No. E234324, VDE
01801.0-01	AC 120 V, 60 Hz	37 cfm (63 m ³ /h)	28 cfm (48 m ³ /h)	15 W	40 dB (A)	2.3" (58 mm)	4.9 x 4.9"	2.2 lbs. (1.0 kg)	UL File No. E234324
01802.0-00	AC 230 V, 50 Hz ¹⁾	60 cfm (102 m ³ /h)	40 cfm (68 m ³ /h)	15 W	39 dB (A)	3.4" (86 mm)	6.9 x 6.9"	2.9 lbs. (1.3 kg)	UL File No. E234324, VDE
01802.0-01	AC 120 V, 60 Hz	69 cfm (117 m ³ /h)	46 cfm (78 m ³ /h)	15 W	39 dB (A)	3.4" (86 mm)	6.9 x 6.9"	2.9 lbs. (1.3 kg)	UL File No. E234324

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.

Time-saving assembly and maintenance

STEGO's filter fans are easily installed by one person **from outside** the cabinet.

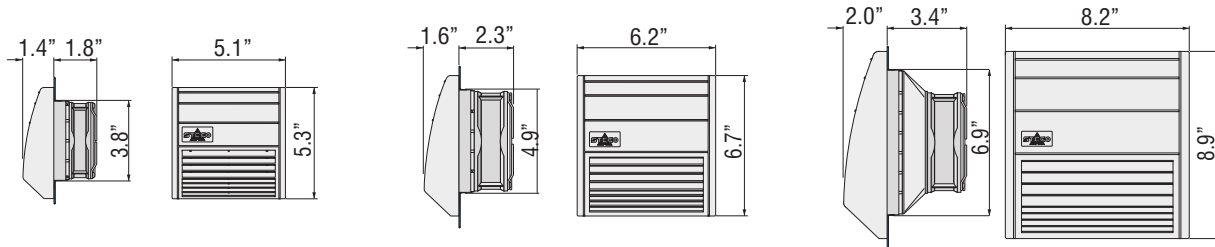


Installation sketch

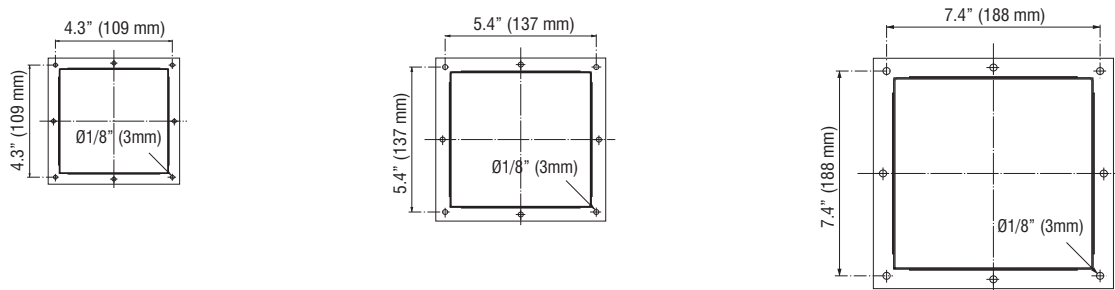
- 1.) Make cut-out in the cabinet wall. The cut edge of the cabinet opening should be free of dirt, filings and grease. A template for the enclosure cut-out is included with the filter fan.
- 2.) Remove protective film from the sealing strips on the mounting frame. Press mounting frame into the cabinet opening. The frame stays permanently in the cabinet.
- 3.) Electrically connect the axial fan using the cage clamp connectors. Push the unit into the mounting frame. Affix using screws if necessary.
- 4.) Insert the filter mat in the hood. Clip on. Finished.

To change the filter mat, simply remove the filter hood, insert the new mat and snap the hood back again. No tools are required. Maintenance of the fan can easily be performed without removing the mounting frame (2).

Dimensional Drawing



Drilling template for mounting frame



EF 118 Exhaust Filter

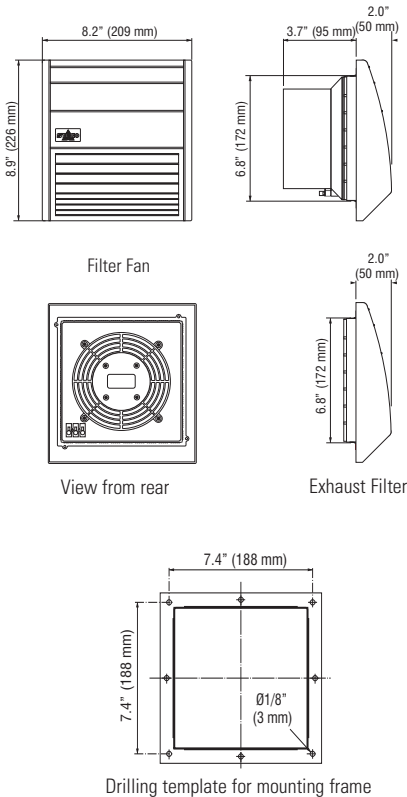
Part No.	Mounting depth	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type	Approvals
11800.0-00	0.6" (16 mm)	3.8 x 3.8"	0.6 lbs. (0.3 kg)	G4 acc. to DIN EN 779, filtering degree 94 %	IP55*	UL File No. E234324
11801.0-00	0.6" (16 mm)	4.9 x 4.9"	0.8 lbs. (0.4 kg)	G4 acc. to DIN EN 779, filtering degree 94 %	IP55*	UL File No. E234324
11802.0-00	0.6" (16 mm)	6.9 x 6.9"	1.3 lbs. (0.6 kg)	G4 acc. to DIN EN 779, filtering degree 94 %	IP55*	UL File No. E234324

*according to VDE

FM 086 Filter Mats

Filter mat	3.5 x 3.5" (89 x 89 mm)	4.6 x 4.6" (118 x 118 mm)	6.6 x 6.6" (168 x 168 mm)
G4 (1 packing unit = 3 pcs.)	Part No. 08600.0-00	Part No. 08601.0-00	Part No. 08602.0-00
F5 (1 packing unit = 3 pcs.)	Part No. 08603.0-00	Part No. 08604.0-00	Part No. 08605.0-00

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- High air volume**
- Functional design**
- Time-saving installation**
- Weather and UV resistant**

Filter fans are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channeling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects the electronic components from overheating. The plastic used for the hood of this filter fan series is highly weather resistant, as well as impact and UV light resistant.



Technical Data

Axial fan, ball bearing	service life min. 50,000 h at 77 °F (25 °C) and 65 %RH aluminum fan body, metal rotor
Connection	3-pole term., AWG 14 (2.5 mm ²), clamping torque 0.8 Nm max.
Housing (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey
Hood (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey;
Mounting frame	weather and UV light resistant according to UL 746C (f1) with double-sided industrial adhesive for mounting to the outside of enclosure; certain operating circumstances may make the additional use of screws necessary; cut-out template included
Filter media rating	G4 acc. to DIN EN 779, filtering degree 94 %
Filter material	synthetic fiber with progressive construction, temperature resistant to 212 °F, self-extinguishing class F1; moisture resistant to 100 %RH, reusable - can be cleaned by washing or vacuuming
Operating / Storage temperature	-13 to +140 °F (-25 to +60 °C)
Protection class	I (grounded)
Protection type	IP55 (according to VDE), UL Type 1
Note: Using fine filter mat F5 increases the protection to UL Type 12 but reduces the air flow	

FF 018 Filter Fan

Part No.	Operating voltage	Air volume, free blowing	Air volume with exhaust filter	Power consumption	Average noise level (DIN EN ISO 4871)	Mounting depth	Enclosure cut-out	Weight (approx.)	Approvals
01804.0-00	AC 230 V, 50 Hz ¹⁾	118 cfm (200 m ³ /h)	74 cfm (125 m ³ /h)	45 W	52 dB (A)	3.7" (95 mm)	6.9 x 6.9"	3.7 lbs. (1.7 kg)	UL File No. E234324
01804.0-01	AC 120 V, 60 Hz	136 cfm (230 m ³ /h)	84 cfm (143 m ³ /h)	39 W	52 dB (A)	3.7" (95 mm)	6.9 x 6.9"	3.7 lbs. (1.7 kg)	UL File No. E234324

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

EF 118 Exhaust Filter

Part No.	Mounting depth	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type	Approvals
11802.0-00	0.6" (16 mm)	6.9 x 6.9"	1.3 lbs. (0.6 kg)	G4 acc. to DIN EN 779, filtering degree 94 %	IP55*	UL File No. E234324

*according to VDE

FM 086 Filter Mats

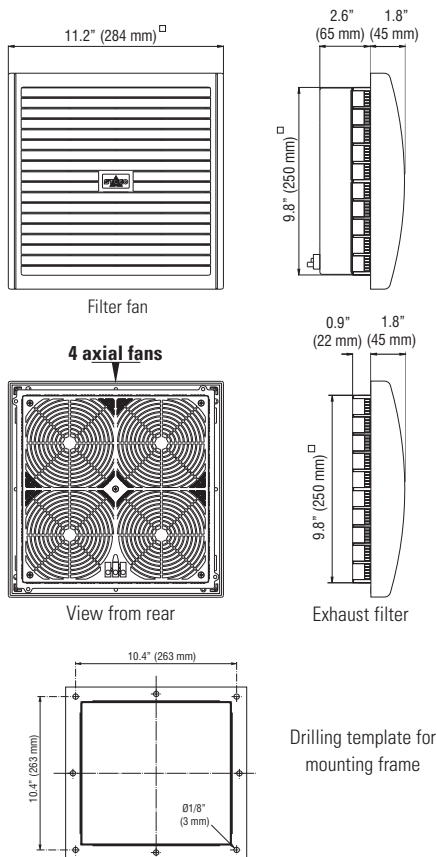
Filter mat	6.6 x 6.6" (168 x 168 mm)
G4 (1 packing unit = 3 pcs.)	Part No. 08602.0-00
F5 (1 packing unit = 3 pcs.)	Part No. 08605.0-00

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Minimal mounting depth**
- High air volume**
- Functional design**
- Time-saving installation**
- Weather and UV resistant**

Filter fans are used to provide an optimum climate in enclosures. The interior temperature of an enclosure can be reduced by channeling cooler filtered outside air into the enclosure thus expelling heated internal air. The resulting air flow prevents formation of localized heat pockets and protects the electronic components from overheating. **Four integrated axial fans** provide a particularly high and uniform air circulation which contributes to higher reliability. The plastic used for the hood of this filter fan series is highly weather and UV light resistant.



Technical Data

Axial fan, ball bearing	service life min. 50,000 h at 77 °F (25 °C) and 65 %RH aluminum fan body, plastic rotor
Connection	3-pole term., AWG 14 (2.5 mm ²), clamping torque 0.8 Nm max.
Housing (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey
Hood (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey; weather and UV light resistant according to UL 746C (f1)
Mounting frame	with double-sided industrial adhesive for mounting to the outside of enclosure; certain operating circumstances may make the additional use of screws necessary; cut-out template included
Filter media rating	G4 acc. to DIN EN 779, filtering degree 94 %
Filter material	synthetic fiber with progressive construction, temperature resistant to 212 °F, self-extinguishing class F1; moisture resistant to 100 %RH, reusable - can be cleaned by washing or vacuuming
Operating / Storage temperature	+14 to +158 °F (-10 to +70 °C) / -40 to +158 °F (-40 to +70 °C)
Protection class	I (grounded)
Protection type	IP55 (according to VDE), UL Type 1
Note: Using fine filter mat F5 increases the protection to UL Type 12 but reduces the air flow	

FF 018 Filter Fan

Part No.	Operating voltage	Air volume, free blowing	Air volume with exhaust filter	Power consumption	Average noise level (DIN EN ISO 4871)	Mounting depth	Enclosure cut-out	Weight (approx.)	Approvals
01803.0-00	AC 230 V, 50 Hz ¹⁾	177 cfm (300 m ³ /h)	135 cfm (230 m ³ /h)	60 W	53 dB (A)	2.6" (65 mm)	9.8 x 9.8"	7.3 lbs. (3.3 kg)	UL File No. E234324
01803.0-01	AC 120 V, 60 Hz	202 cfm (345 m ³ /h)	155 cfm (264 m ³ /h)	60 W	53 dB (A)	2.6" (65 mm)	9.8 x 9.8"	7.3 lbs. (3.3 kg)	UL File No. E234324

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

EF 118 Exhaust Filter

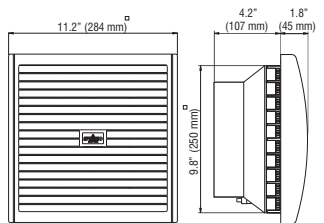
Part No.	Mounting depth	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type
11803.0-00	0.9" (22 mm)	9.8 x 9.8"	2.2 lbs. (1.0 kg)	G4 acc. to DIN EN 779, filtering degree 94 %	IP55*

*according to VDE

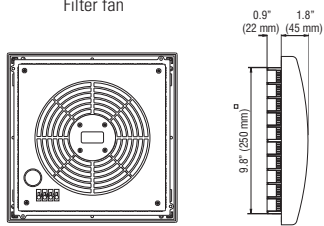
FM 086 Filter Mats

Filter mat	9.7 x 9.7" (247 x 247 mm)
G4 (1 packing unit = 3 pcs.)	Part No. 08608.0-00
F5 (1 packing unit = 3 pcs.)	Part No. 08609.0-00

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.

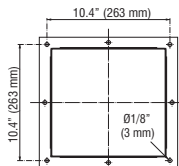


Filter fan



View from rear

Exhaust filter



Drilling template for mounting frame

- High air volume**
- Functional design**
- Time-saving installation**
- Weather and UV resistant**



Technical Data

Axial fan, ball bearing	service life min. 50,000 h at 77 °F (25 °C) and 65 %RH aluminum fan body, metal rotor
Connection	3-pole term., AWG 14 (2.5 mm ²), clamping torque 0.8 Nm max.
Housing (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey
Hood (filter fan and exhaust filter)	Plastic, UL 94V-0, light grey;
Mounting frame	weather and UV light resistant according to UL 746C (f1) with double-sided industrial adhesive for mounting to the outside of enclosure; certain operating circumstances may make the additional use of screws necessary; cut-out template included
Filter media rating	G4 acc. to DIN EN 779, filtering degree 94 %
Filter material	synthetic fiber with progressive construction, temperature resistant to 212 °F, self-extinguishing class F1; moisture resistant to 100 %RH, reusable - can be cleaned by washing or vacuuming
Operating / Storage temperature	-13 to +158 °F (-25 to +70 °C)
Protection class	I (grounded)
Protection type	IP55 (according to VDE), UL Type 1
Note: Using fine filter mat F5 increases the protection to UL Type 12 but reduces the air flow	

FF 018 Filter Fan

Part No.	Operating voltage	Air volume, free blowing	Air volume with exhaust filter	Power consumption	Average noise level (DIN EN ISO 4871)	Mounting depth	Enclosure cut-out	Weight (approx.)	Approvals
01805.0-00	AC 230 V, 50 Hz ¹⁾	324 cfm (550 m ³ /h)	177 cfm (300 m ³ /h)	64 W	52 dB (A)	4.2" (107 mm)	9.8 x 9.8"	5.9 lbs. (2.7 kg)	UL File No. E234324
01805.0-01	AC 120 V, 60 Hz	373 cfm (633 m ³ /h)	203 cfm (345 m ³ /h)	85 W	52 dB (A)	4.2" (107 mm)	9.8 x 9.8"	5.9 lbs. (2.7 kg)	UL File No. E234324

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

EF 118 Exhaust Filter

Part No.	Mounting depth	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type
11803.0-00	0.9" (22 mm)	9.8 x 9.8"	2.2 lbs. (1.0 kg)	G4 acc. to DIN EN 779, filtering degree 94 %	IP55*

*according to VDE

FM 086 Filter Mats

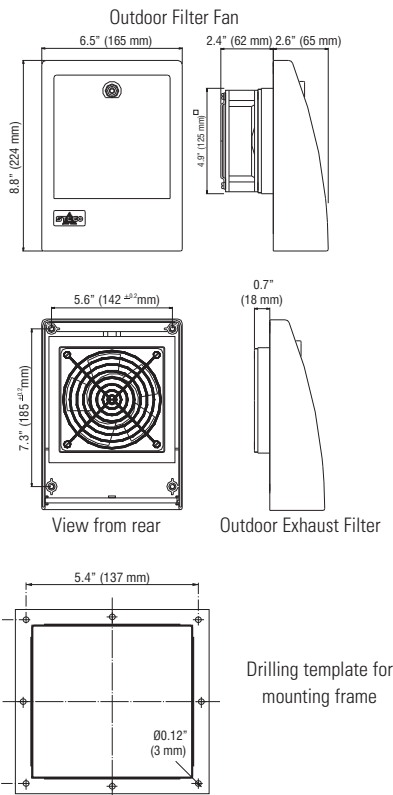
Filter mat	9.7 x 9.7" (247 x 247 mm)
G4 (1 packing unit = 3 pcs.)	Part No. 08608.0-00
F5 (1 packing unit = 3 pcs.)	Part No. 08609.0-00

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Quick and easy filter change**
- Lockable outer door**
- Impact resistant**
- Weather and UV resistant**

This filter fan can be used in outdoor enclosures where warm air has to be dissipated. To clean and exchange the filter mat, it is only necessary to open the lockable door of the outdoor hood eliminating the need to allow interior access to the enclosure. A protection type of IP55 is achieved due to the special design of the hood and the use of fine filter mats. The plastic used for the hood of this filter fan is highly weather and UV light resistant.



Technical Data

Axial fan, ball bearing	service life min. 50,000 h at 77 °F (25 °C) and 65 %RH aluminum fan body, plastic rotor
Connection	2 wires w/cage clamps, AWG 14 (2.5 mm ²), length 4" (100 mm)
Filter fan and exhaust filter housing	high impact ASA plastic, light grey burning behavior according to UL 94H-B; high resistance to weather and UV light
Mounting frame	with double-sided industrial adhesive for mounting to the outside of enclosure; certain operating circumstances may make the additional use of screws necessary; cut-out template included
Filter media rating	F5 acc. to DIN EN 779, filtering degree 98 %
Filter material	synthetic fiber with progressive construction, temperature resistant to 212 °F, self-extinguishing class F1; moisture resistant to 100 %RH
Operating / Storage temperature	+14 to +158 °F (-10 to +70 °C) / -40 to +158 °F (-40 to +70 °C)
Protection class	I (grounded)
Protection type	IP55

Note: EMC version and other voltages are available upon request

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

FF 01821 Outdoor Filter Fan

Part No.	Operating voltage	Air volume, free blowing	Power consumption	Average noise level (DIN EN ISO 4871)	Mounting depth	Enclosure cut-out	Weight (approx.)	Approvals
01821.0-00	AC 230 V, 50 Hz ¹⁾	12 cfm (20 m ³ /h)	15 W	40 dB (A)	2.4" (62 mm)	4.9 x 4.9"	2.6 lbs. (1.2 kg)	UL File No. E234324
01821.0-02	AC 120 V, 60 Hz	14 cfm (23 m ³ /h)	15 W	40 dB (A)	2.4" (62 mm)	4.9 x 4.9"	2.6 lbs. (1.2 kg)	UL File No. E234324

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

EF 11821 Exhaust Filter

Part No.	Mounting depth	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type
11821.0-00	0.6" (16 mm)	4.9 x 4.9"	1.6 lbs. (0.6 kg)	F5 acc. to DIN EN 779, filtering degree 98 %	IP55

FFM 086 Filter Mats

Filter mat	4.6 x 4.6" (118 x 118 mm)
F5 (1 packing unit = 3 pcs.)	Part No. 08604.0-00

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Very low noise**
- Minimal mounting depth**
- High air volume**
- High reliability**
- Time-saving installation**

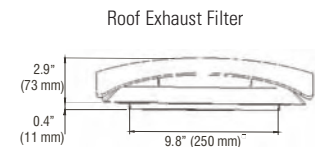
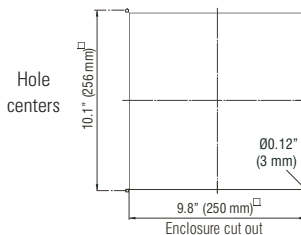
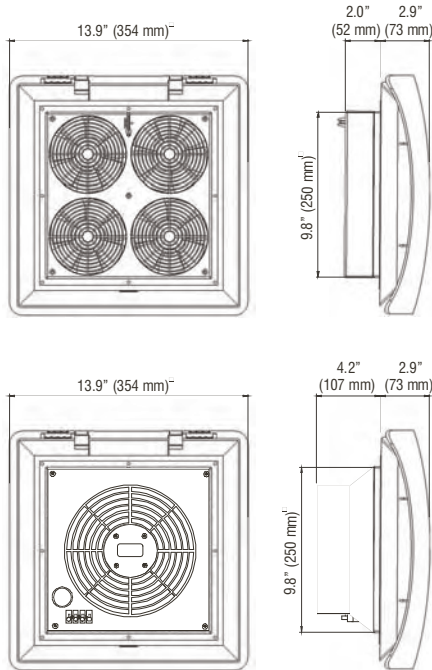
Roof filter fans and roof exhaust filters are used in enclosures from which warm air must be diverted due to increased heat development. The ready-to-connect and low-noise roof filter fan is used to expel warm air from within the enclosure. Alternatively, the roof exhaust filter provides passive ventilation. The RFP 018 series comes in two versions: one utilizes **four small axial fans**, improving reliability and maintaining continuous operations even if one of the fans should fail; the second uses a larger single high capacity fan.



Technical Data

Axial fans, ball bearing	service life min. 50,000 h at 77 °F (25 °C) and 65 %RH aluminum fan body, plastic rotor
Connection	3-pole term., AWG 14 (2.5 mm ²), clamping torque 0.8 Nm max.
Housing	Plastic, UL 94V-0, light grey; weather and UV light resistant according to UL 746C (f1)
Filter mat	G3 acc. to DIN EN 779, filtering degree 85 %
Filter material	synthetic fiber with progressive construction, temperature resistant to 212 °F, self-extinguishing class F1; moisture resistant to 100 %RH, reusable - can be cleaned by washing or vacuuming
Operating / Storage temperature	dependent on fan type
Protection class	I (grounded)
Protection type	IP32
Approvals	VDE (230V only)

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



Use included template for precise cut-out dimensions

RFP 018 Roof Filter Fan

Part No.	Operating voltage	Air volume, free blowing (w/ G3 filter mat)	Power consumption	Average noise level (DIN EN ISO 4871)	Mounting depth	Enclosure cut-out	Weight (approx.)
01860.0-00	AC 230 V, 50 Hz ¹⁾	177 cfm (300 m ³ /h) - 4 fans	68 W	55 db (A)	2.0" (52 mm)	9.8 x 9.8"	7.3 lbs. (3.3 kg)
01860.0-02	AC 120 V, 60 Hz	203 cfm (345 m ³ /h) - 1 fan	60 W	55 db (A)	2.0" (52 mm)	9.8 x 9.8"	5.7 lbs. (2.6 kg)
01861.0-00	AC 230 V, 50 Hz ¹⁾	294 cfm (500 m ³ /h) - 4 fans	64 W	67 db (A)	4.2" (107 mm)	9.8 x 9.8"	7.3 lbs. (3.3 kg)
01861.0-02	AC 120 V, 60 Hz	338 cfm (575 m ³ /h) - 1 fan	85 W	67 db (A)	4.2" (107 mm)	9.8 x 9.8"	5.7 lbs. (2.6 kg)

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

REP 118 Roof Exhaust Filter

Part No.	Mounting depth	Enclosure cut-out	Weight (approx.)	Filter mat	Protection type
11860.0-00	0.43" (11 mm)	9.8 x 9.8"	2.2 lbs. (1.0 kg)	G3 acc. to DIN EN 779, filtering degree 85 %	IP32

FM 086 Filter Mats

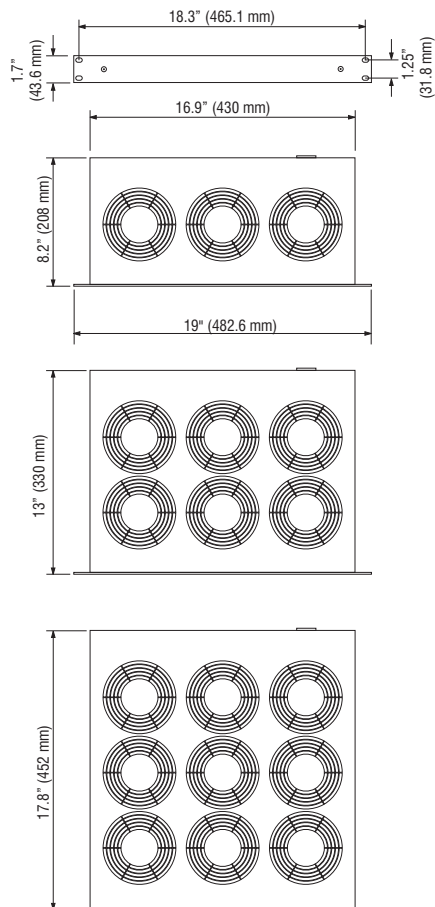
Filter mat	11.1 x 11.1" (282 x 282 mm)
G3 (1 packing unit = 3 pcs.)	Part No. 08613.0-01

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- High air volume**
- Long service life**
- Easy installation and connection**
- Function control light**
- Optional integrated thermostat**

The LE 019 is a compact high performance fan tray for forced circulation of air in enclosures and for cooling of 19" rack mount applications. Natural convection is improved and the formation of hot zones is prevented. Also available with integrated thermostat (see photo).



Technical Data

Axial fans, ball bearing	service life 50,000 h at 77 °F (25 °C) and 65 %RH fan body aluminium, rotor plastic
Material	front panel aluminium, bright anodised casing steel sheet, electrogalvanized
Optical indicator	integrated in front panel
Connection	power inlet on rear of casing, plug included (no cable)
Mounting position	horizontal (direction of air upward)
Operating / Storage temperature	-4 to +158 °F (-20 to +70 °C)
Protection type	IP20
Protection class	I (grounded)
Approvals	UL File No. E234324

Note

The use of a thermostat, whether integrated or external, is recommended.

When using a fan tray with integrated thermostat, an additional thermostat (e.g. KT 011 Part No. 01141.9-00) may be used if it is desired to switch a signal device should the enclosure interior temperature rise above a set limit (e.g. in case of fan failure).

For models without integrated thermostat, the use of a dual thermostat (e.g. ZR 011 Part No. 01176.0-00) provides the same overheat protection, i.e. one thermostat to control the fan tray operation, one thermostat for a signal device.

Part No.	Model	No. of fans	Operating voltage	Air flow, free blowing	Power consumption	Average noise level (DIN EN ISO 4871)	Speed (rpm ⁻¹)	Static pressure	Weight (approx.)
01930.0-00	w/out thermostat	3	AC 230 V, 50 Hz ¹⁾	286 cfm (486 m ³ /h)	45 W	55 db (A)	2600 min ⁻¹ (50 Hz)	74 Pa	6.6 lbs. (3.0 kg)
01930.1-00	w/ thermostat (0 to 60°C)	3	AC 230 V, 50 Hz ¹⁾	286 cfm (486 m ³ /h)	45 W	55 db (A)	2600 min ⁻¹ (50 Hz)	74 Pa	7.5 lbs. (3.4 kg)
01931.0-00	w/out thermostat	3	AC 120 V, 60 Hz	339 cfm (576 m ³ /h)	45 W	55 db (A)	2900 min ⁻¹ (60 Hz)	88 Pa	6.6 lbs. (3.0 kg)
01931.1-00	w/ thermostat (0 to 60°C)	3	AC 120 V, 60 Hz	339 cfm (576 m ³ /h)	45 W	55 db (A)	2900 min ⁻¹ (60 Hz)	88 Pa	7.5 lbs. (3.4 kg)
01940.0-00	w/out thermostat	6	AC 230 V, 50 Hz ¹⁾	572 cfm (972 m ³ /h)	90 W	57 db (A)	2600 min ⁻¹ (50 Hz)	74 Pa	11.7 lbs. (5.3 kg)
01940.1-00	w/ thermostat (0 to 60°C)	6	AC 230 V, 50 Hz ¹⁾	572 cfm (972 m ³ /h)	90 W	57 db (A)	2600 min ⁻¹ (50 Hz)	74 Pa	12.5 lbs. (5.7 kg)
01941.0-00	w/out thermostat	6	AC 120 V, 60 Hz	678 cfm (1152 m ³ /h)	90 W	57 db (A)	2900 min ⁻¹ (60 Hz)	88 Pa	11.7 lbs. (5.3 kg)
01941.1-00	w/ thermostat (0 to 60°C)	6	AC 120 V, 60 Hz	678 cfm (1152 m ³ /h)	90 W	57 db (A)	2900 min ⁻¹ (60 Hz)	88 Pa	12.5 lbs. (5.7 kg)
01950.0-00	w/out thermostat	9	AC 230 V, 50 Hz ¹⁾	858 cfm (1458 m ³ /h)	135 W	58 db (A)	2600 min ⁻¹ (50 Hz)	74 Pa	17.2 lbs. (7.8 kg)
01950.1-00	w/ thermostat (0 to 60°C)	9	AC 230 V, 50 Hz ¹⁾	858 cfm (1458 m ³ /h)	135 W	58 db (A)	2600 min ⁻¹ (50 Hz)	74 Pa	17.4 lbs. (7.9 kg)
01951.0-00	w/out thermostat	9	AC 120 V, 60 Hz	1017 cfm (1728 m ³ /h)	135 W	58 db (A)	2900 min ⁻¹ (60 Hz)	88 Pa	17.2 lbs. (7.8 kg)
01951.1-00	w/ thermostat (0 to 60°C)	9	AC 120 V, 60 Hz	1017 cfm (1728 m ³ /h)	135 W	58 db (A)	2900 min ⁻¹ (60 Hz)	88 Pa	17.4 lbs. (7.9 kg)

¹⁾ air volume increases by 15% when operating AC 230 V filter fans at 60 Hz

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Photo: DA 284, M40



Photo: DA 284, M12

UL Type 1, 4, 4X & IP66 protection

Waterproof membrane

Easy to install

Two sizes - M40 & M12

Pressure differentials in a hermetically sealed enclosure are a result of the heat generated by electrical and electronic components in the enclosure, as well as the fluctuation of the outside temperature. In the case of negative pressure or vacuum, for example, dust and humidity can enter the enclosure through the door seal.

The DA 284 Vent Plug provides a protected enclosure environment for valuable and crucial components with a **UL 4X** rated degree of protection. A waterproof membrane inside the device allows air and humidity to leave the enclosure. Conversely, it only allows dry air into the enclosure while not allowing humidity and dust from the outside to enter.

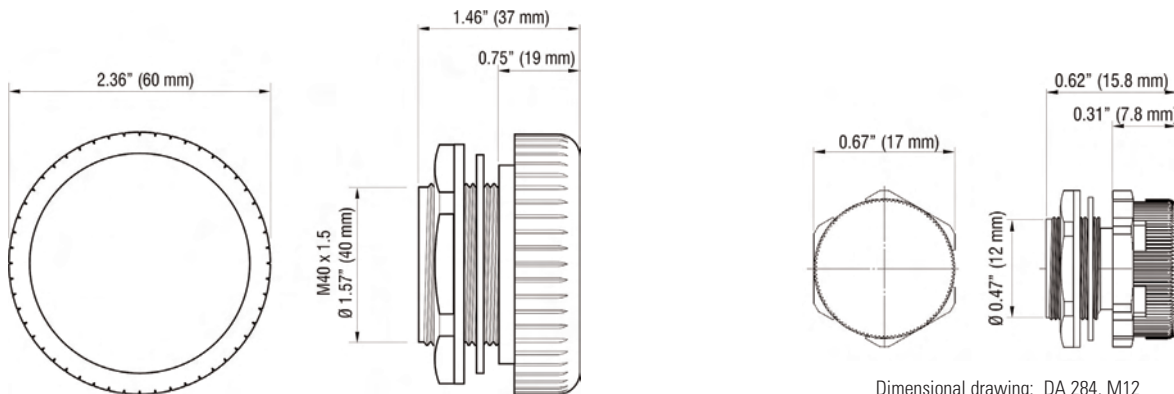


Technical Data

Mounting	thread with nut (see below), torque 10 Nm max.
Material	plastic, PA66, light grey
Sealing	NBR gasket
Filter	waterproof membrane
Operating / Storage temperature	-49 to +158 °F (-45 to 70 °C)
Protection type	see below
Agency approvals	UL File No. E234324
Environmental rating	Type 1, 4 and 4X

Installation

Make cut-out in enclosure wall of 1.58" (40 - 40.2 mm) for size M40 or 0.48" (12 - 12.2 mm) for size M12, and mount vent plug with nut. Make sure that the sealing gasket is placed on the outer side of the enclosure. For optimal pressure compensation, it is recommended to use two devices on opposite sides towards the top of the enclosure.



Dimensional drawing: DA 284, M40

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

Part No.	Model	Thread length (depth in enclosure)	Protection type	Air permeability ¹⁾	1 packing unit	Weight (approx.)
28405.0-00	M40 x 1.5	approx. 16 mm	IP66 (EN 60529) / IPX9K (EN 40050-9)	1200 liters/hr	2 pieces	3.2 oz. (90 g) total
28406.0-00	M12 x 1.5	approx. 10 mm	IP66 (EN 60529)	120 liters/hr	2 pieces	0.14 oz. (4 g) total

¹⁾ at a pressure difference of min. 70 mbar

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Photos: DA 284S, M40



High degree of protection (IP66)

Semipermeable membrane

Corrosion resistant

Easy to install

Two sizes - M40 & M12

Pressure differentials in a hermetically sealed enclosure are a result of the heat generated by electrical and electronic components in the enclosure, as well as the fluctuation of the outside temperature. In the case of negative pressure or vacuum, for example, dust and humidity can enter the enclosure through the door seal.

The DA 284S **Stainless Steel** Vent Plug provides a protected enclosure environment for valuable and crucial components with an **IP66** rated degree of protection. A waterproof membrane inside the device allows air and humidity to leave the enclosure. Conversely, it only allows dry air into the enclosure while not allowing humidity and dust from the outside to enter.

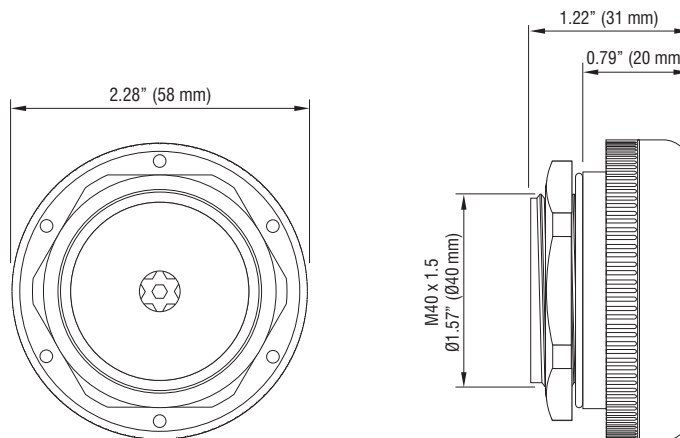


Technical Data

Mounting	thread with nut, torque 10 Nm max.
Material	stainless steel V2A (DIN 1.4305 / AISI 303)
Sealing	NBR gasket
Filter	waterproof membrane
Operating / Storage temperature	-31 to +158 °F (-35 to 70 °C)
Protection type	see below

Installation

A hole with a diameter of 1.58" (40 - 40.2 mm) is required for installation. Make sure that the sealing gasket is placed on the outer side of the enclosure. For optimal pressure compensation, it is recommended to use two devices on opposite sides towards the top of the enclosure.



Dimensional drawing: DA 284S, M40

Part No.	Model	Thread length (depth in enclosure)	Protection type	Air permeability ¹⁾	1 packing unit	Weight (approx.)
28401.0-00	M40 x 1.5	approx. 9 mm	IP66 (EN 60529) / IPX9K (EN 40050-9)	1200 liters/hr	1 piece	5.6 oz. (160 g)
28402.0-01	M12 x 1.5	approx. 4 mm	IP66 (EN 60529)	120 liters/hr	1 piece	0.6 oz. (17 g)

¹⁾ at a pressure difference of min. 70 mbar

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



High degree of protection (IP55)

Easy to install

It has become increasingly 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, such as day/night operation. When this occurs, the risk of dust and humidity ingress into the control panel increases dramatically. The specially designed DA 084 vent plug permits a controlled change in pressure and can easily be installed in any enclosure. The vent plug is suitable for the use in enclosures and electrical cabinets in accordance with DIN EN 62208.



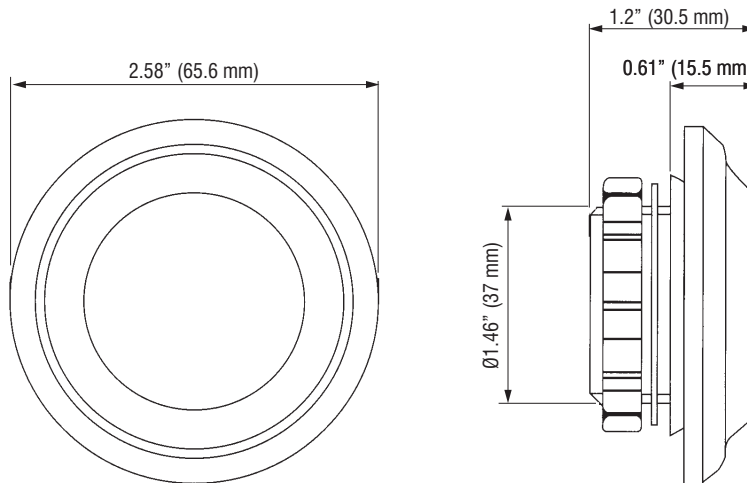
Technical Data

Mounting	PG 29 thread with union nut, torque 10 Nm max.
Mounting position	vertical*
Material	plastic, UL 94V-0
Sealing	NBR gasket
Air Interface	Approx. 2.8 in ² (7 cm ²)
Operating / Storage temperature	-49 to +158 °F (-45 to 70 °C)
Dimensions	Ø 2.58" x 1.2" (Ø 65.5 x 30.5 mm)

* Protection type is restricted to IP54 if mounting position is not vertical

Installation

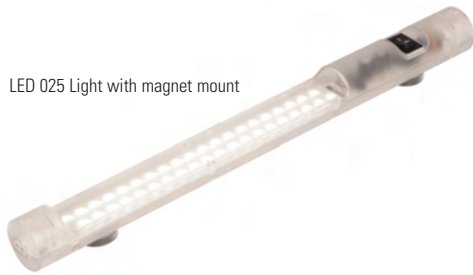
A hole with a diameter of 1.46" (37 mm) is required for mounting. Make sure that the sealing gasket is placed on the outer side panel of the enclosure. For optimal pressure compensation, it is recommended to use two devices on opposite sides towards the top of the enclosures.



Part No.	Protection type	1 packing unit	Weight (approx.)
08400.9-01	IP55	1 piece	1.1 oz. (31 g)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.

LED 025 Light with magnet mount



LED 025 Light with screw mount



Energy saving LED technology

Wide voltage range

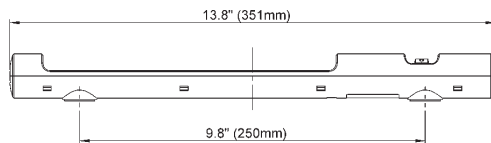
Integrated power unit

Magnet or screw mount

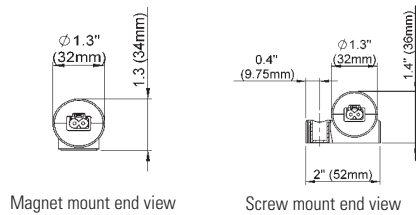
Wide variety of connections

On/off switch or motion sensor

The LED 025 light series is suitable for all types of panels and enclosures, especially where space is at a premium. These lights have a very long service life due to the use of LED technology. They are available with powerful non-slip rubberized magnets allowing them to be easily positioned in any steel enclosure. Screw mounting is also available as an option. The power output allows up to 10 lights to be connected to each other (daisy chain) with both the input and output plugs snap-locking into place.

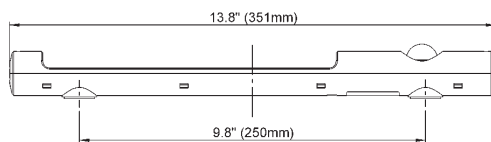


On/off switch light w/magnet mount

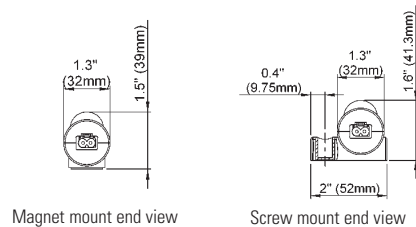


Magnet mount end view

Screw mount end view



Motion sensor light w/magnet mount



Magnet mount end view

Screw mount end view



Technical Data

Power consumption	max. 5 W (~ 75 W incandescent bulb)
Luminosity	290 Lm
Lamp type	LED, 120° angle of radiation light color - daylight, color temperature - 6,500 K
Service life	60,000 hrs. at 68 °F (20 °C)
Connection	2-pole plug with snap lock AC: max. 2.5 A / AC 240 V, white cable DC: max. 2.5 A / DC 60 V, blue cable
Housing	plastic, transparent
Mounting	magnet or M5 screws (not included), 9.8" (250 mm) centers; screw torque 2 Nm max.
Operating temperature	-22 to +140 °F (-30 to +60 °C)
Storage temperature	-40 to +185 °F (-40 to +85 °C)
Dimensions	magnet mount - 13.8 x 1.3 x 1.3" (351 x 34 x 32 mm) screw mount - 13.8 x 1.4 x 1.3" (351 x 36 x 32 mm)
Protection class	II (double insulated)
Protection type	IP20
Accessories	input and output plug, cable for supply or connection
Approvals	UL File No. E234324, VDE
Note	available with a 19" front panel

Part No. - magnet mount	Part No. - screw mount	Operating voltage	Switch type	Weight
02540.0-00	02540.0-01	AC 100-240 V, 50/60 Hz (min. AC 90 V, max. AC 265 V)	on/off switch	4.8 oz. (135 g)
02540.1-00	02540.1-01	DC 24-48 V (min. DC 20 V, max. DC 60 V)	on/off switch	4.8 oz. (135 g)
02541.0-00	02541.0-01	AC 100-240 V, 50/60 Hz (min. AC 90 V, max. AC 265 V)	PIR motion sensor ¹⁾	5.0 oz. (140 g)
02541.1-00	02541.1-01	DC 24-48 V (min. DC 20 V, max. DC 60 V)	PIR motion sensor ¹⁾	5.0 oz. (140 g)

¹⁾Passive Infrared (PIR) motion sensor is factory pre-set to turn the light off 6 minutes after all motion ceases

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.

Connection cable with input connector and wire leads

1



Photo: Connection cable, Part No. 244357

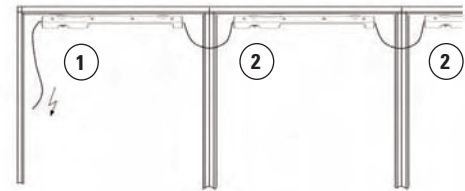
Part No.	Model	Length	Voltage	Color	Approvals
244357	connection cable 2 x AWG 16 with input connector	2.0 m	AC	connector: white - cable: white	UL, VDE
244361	connection cable 2 x AWG 16 with input connector	2.0 m	DC	connector: blue - cable: white	UL, VDE

Extension cable with 2 connectors for daisy chain (input & output) connection

2



Photo: Connection cable, Part No. 244359



Connection example

Part No.	Model	Length	Voltage	Color	Approvals
244359	extension cable 2 x AWG 16 with 2 connectors	1.0 m	AC	connectors: white - cable: white	UL, VDE
244363	extension cable 2 x AWG 16 with 2 connectors	1.0 m	DC	connectors: blue - cable: white	UL, VDE

The lights are easily connected via quick connection plugs or extension cables -- up to 10 lights can be daisy-chained this way. The snap-lock connectors ensure a stable electrical connection even when subjected to vibration.

Input / output connectors



Photo: Input connector, Part No. 264057



Photo: Output connector, Part No. 264058

Part No.	Model	Voltage	Color	Approvals
264057	input connector	AC	white	UL, VDE
264058	output connector	AC	white	UL, VDE
264059	input connector	DC	blue	UL, VDE
264060	output connector	DC	blue	UL, VDE

Light kit with input connector included

Part No. - magnet mount	Part No. - screw mount	Operating voltage	Switch type	Weight
02540.0-00-0003	02540.0-01-0003	AC 100-240 V, 50/60 Hz (min. AC 90 V, max. AC 265 V)	on/off switch	4.8 oz. (135 g)
02540.1-00-0003	02540.1-01-0003	DC 24-48 V (min. DC 20 V, max. DC 60 V)	on/off switch	4.8 oz. (135 g)
02541.0-00-0003	02541.0-01-0003	AC 100-240 V, 50/60 Hz (min. AC 90 V, max. AC 265 V)	PIR motion sensor ¹⁾	5.0 oz. (140 g)
02541.1-00-0003	02541.1-01-0003	DC 24-48 V (min. DC 20 V, max. DC 60 V)	PIR motion sensor ¹⁾	5.0 oz. (140 g)

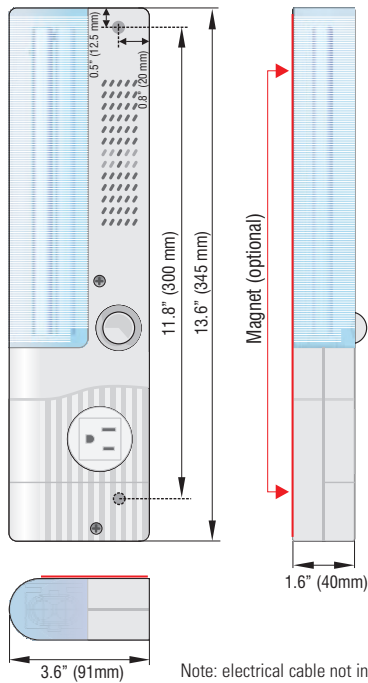
¹⁾Passive Infrared (PIR) motion sensor is factory pre-set to turn the light off 6 minutes after all motion ceases

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact design**
- Electronic ballast**
- Optional integrated receptacle**
- Screw or magnet mount**
- Long-life energy saving lamp**
- On/off switch or motion sensor**

The SL 025 light was designed to fit in tight spaces in enclosures. It features an optional integrated receptacle so that electrical devices (e.g. power tools) can be easily plugged in when needed. The standard light can be screw mounted in a variety of positions, or the light can be fitted with an available magnet mount. The motion sensor version was designed to eliminate the need for a door switch.



Technical Data	
Power consumption	11 W (~ 75 W incandescent bulb)
Luminosity	900 Lm
Lamp type	compact fluorescent, 2G7 base, electronic ballast
Service life	10,000 hrs.
Switch (for light only)	on/off switch or PIR motion sensor ¹⁾
Connection	3-pole terminal AWG 16 max. (1.5 mm ²) with strain relief only (cable not included), clamping torque 0.8Nm max.
Housing	plastic, UL 94V-0, light grey
Mounting	M5 screws (not included), 11.8" (300 mm) hole distance or optional attached magnet (see part nos. below)
Operating temperature	-4 to +122 °F (-20 to +50 °C)
Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	13.6 x 3.6 x 1.6" (345 x 91 x 40 mm)
Weight	approx. 0.9 lbs. (400 g), 1.3 lbs (600 g) with magnet
Protection type	IP20
Note	DC 24-48 V available upon request

¹⁾ The Passive Infrared (PIR) motion sensor detects the motion of the enclosure door being opened and automatically turns on the light. The sensor is factory pre-set to turn the light off 6 minutes after all motion ceases. The motion sensor does not detect movement through glass, allowing for installation in enclosures with glass doors.

Part No. with On/Off Switch	Part No. with Motion Sensor	Model	Operating voltage	Receptacle	Rec. max. current	Protection class	Approvals
02520.0-00	02520.0-03	without magnet	AC 230 V, 50/60 Hz		16 A	I (grounded)	VDE
02520.1-00	02520.1-03	with magnet	AC 230 V, 50/60 Hz		16 A	I (grounded)	VDE
02521.0-00	02521.0-03	without magnet	AC 230 V, 50/60 Hz		16 A	I (grounded)	VDE
02521.1-00	02521.1-03	with magnet	AC 230 V, 50/60 Hz		16 A	I (grounded)	VDE
02522.0-00	02522.0-03	without magnet	AC 230 V, 50/60 Hz		10 A	I (grounded)	VDE
02522.1-00	02522.1-03	with magnet	AC 230 V, 50/60 Hz		10 A	I (grounded)	VDE
02523.0-00	02523.0-03	without magnet	AC 230 V, 50/60 Hz		13 A	I (grounded)	VDE
02523.1-00	02523.1-03	with magnet	AC 230 V, 50/60 Hz		13 A	I (grounded)	VDE
02524.0-01	02524.0-04	without magnet	AC 120 V, 50/60 Hz		15 A	I (grounded)	UL File No. E234324
02524.1-01	02524.1-04	with magnet	AC 120 V, 50/60 Hz		15 A	I (grounded)	UL File No. E234324
02527.0-00	02527.0-04	without magnet	AC 230 V, 50/60 Hz		-	II (double insulated)	UL File No. E234324, VDE
02527.1-00	02527.1-04	with magnet	AC 230 V, 50/60 Hz		-	II (double insulated)	UL File No. E234324, VDE
02527.0-10	02527.0-12	without magnet	AC 120 V, 50/60 Hz		-	II (double insulated)	UL File No. E234324
02527.1-10	02527.1-12	with magnet	AC 120 V, 50/60 Hz		-	II (double insulated)	UL File No. E234324

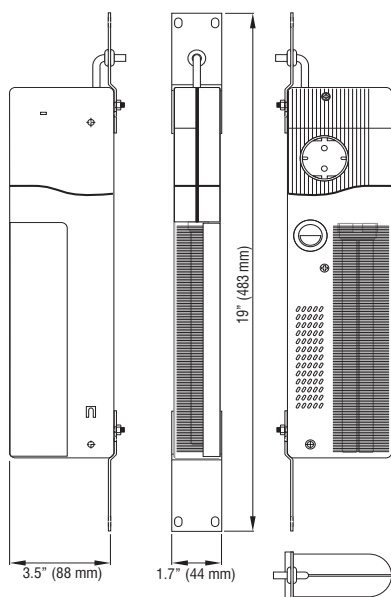
Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



- Compact design**
- Electronic ballast**
- Optional integrated receptacle**
- Long-life energy saving lamp**
- On/off switch**

This SL 025 light is suitable for 19" rack mounting, e.g. for keyboards. Because of the flat design of the light, only one rack unit in height ("1U") is needed. Additionally, it is fitted with a reflector which serves as a glare shield, thereby illuminating the area below the light only.

The light also features an optional integrated receptacle, allowing for the use of additional electrical devices, such as power tools.



Note: electrical cable not included

Technical Data	
Power consumption	11 W (~ 75 W incandescent bulb)
Luminosity	900 Lm
Lamp type	compact fluorescent, 2G7 base, electronic ballast
Service life	10,000 hrs.
Switch (for light only)	on/off switch (PIR motion sensor also available)
Connection	3-pole terminal AWG 16 max. (1.5 mm ²) with strain relief only (cable not included), clamping torque 0.8 Nm max.
Housing	plastic, UL 94V-0, light grey
Mounting	max. M6 screws (not included)
Mounting bracket	aluminum, with cable bushing
Operating temperature	-4 to +122 °F (-20 to +50 °C)
Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	lamp - 13.6 x 3.6 x 1.6" (345 x 91 x 40 mm), total length - 19"
Weight	approx. 1.1 lbs. (500 g)
Protection type	IP20
Note	DC 24-48 V available upon request

Part No.	Operating voltage	Receptacle	Receptacle max. current	Protection class	Approvals
02520.0-02	AC 230 V, 50/60 Hz	Germany/Russia	16.0 A	I (grounded)	VDE
02521.0-02	AC 230 V, 50/60 Hz	France/Poland	16.0 A	I (grounded)	VDE
02522.0-02	AC 230 V, 50/60 Hz	Switzerland	10.0 A	I (grounded)	VDE
02523.0-02	AC 230 V, 50/60 Hz	UK/Ireland	13.0 A	I (grounded)	VDE
02524.0-05	AC 120 V, 50/60 Hz	USA/Canada	15.0 A	I (grounded)	UL File No. E234324
02527.0-02	AC 230 V, 50/60 Hz	none	-	II (double insulated)	UL File No. E234324, VDE
02527.0-11	AC 120 V, 50/60 Hz	none	-	II (double insulated)	UL File No. E234324

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Magnet or DIN rail mounting

Energy-saving lamp

Integrated receptacle

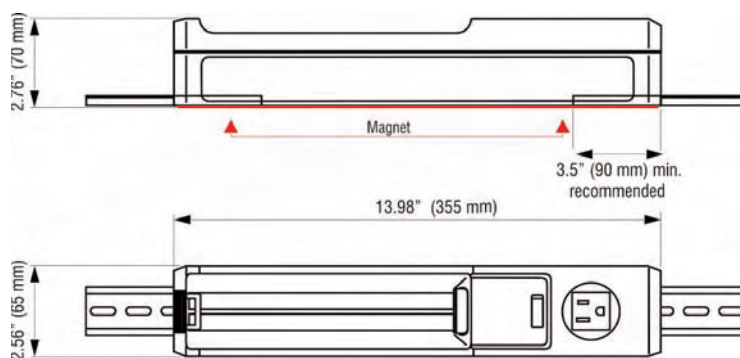
On/off switch

The compact KL 025 light was designed for use in industrial enclosures and control cabinets. A strong magnet allows simple and quick installation and flexibility for various mounting positions. The light also features an optional integrated receptacle so that electrical devices can easily be plugged in when needed.



Technical Data

Power consumption	see table below
Luminosity	900 Lm
Lamp type	compact fluorescent, G23 base, inductive ballast
Service life	5,000 hrs.
Switch	on/off switch (for light only)
Connection	3-pole terminal AWG 14 max. (2.5 mm ²) with strain relief only (cable not included), clamping torque 0.8 Nm max.
Housing	plastic, light grey
Mounting	magnet mounting or on 35 mm DIN rail, EN 60715
Operating temperature	-4 to +122 °F (-20 to +50 °C)
Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	13.98 x 2.56 x 2.76" (355 x 65 x 70 mm)
Weight	approx. 2.2 lbs (1.0 kg)
Protection type	IP20



Drawing shows mounting on two 7 inch long pieces of 35mm DIN rail.

Part No.	Operating voltage	Receptacle	Power consumption	Receptacle Max. Current	Protection class	Approvals
02500.0-14	AC 230 V, 60 Hz	Germany	11 W (~ 75 W incandescent bulb)	16 A	I (grounded)	VDE
02500.0-21	AC 120 V, 60 Hz	none	9 W (~ 60 W incandescent bulb)	-	II (double insulated)	-
02505.9-02	AC 120 V, 60 Hz	USA/Canada	9 W (~ 60 W incandescent bulb)	15 A	I (grounded)	-

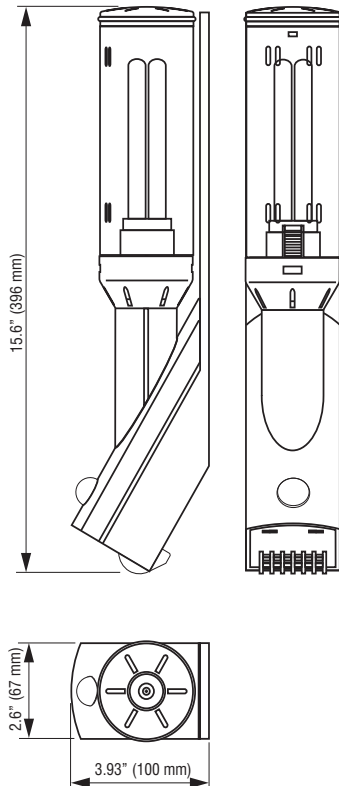
Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Light with on/off switch

Light with motion sensor

Note: electrical cable not included



Versatile – base lamp or hand lamp

Long-life energy saving lamp

On/off switch or motion sensor

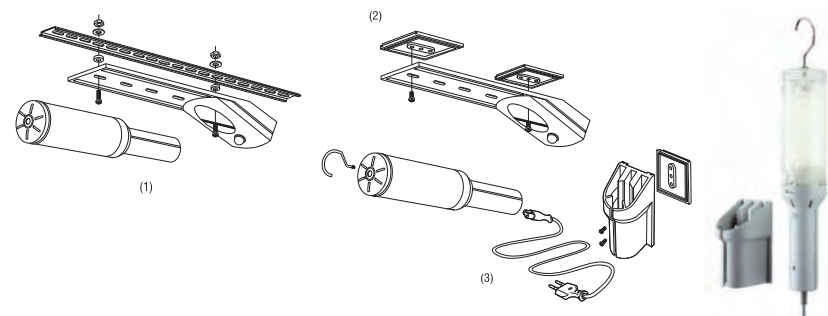
The DL 026 dual light is available with on/off switch or motion sensor (the motion sensor version was designed to eliminate the need for a door switch). The lamp is removable from its base and, with the use of an optional additional power cord, can be used as a hand lamp. This versatile light was also designed to include a variety of mounting options.



Technical Data

Power consumption	20 W (~ 100 W incandescent bulb)
Luminosity	1000 Lm
Lamp type	compact fluorescent, E27 base, electronic ballast
Service life	10,000 hrs.
Switch	on/off push switch or PIR motion sensor ¹⁾
Connection	6-pole terminal, AWG 14 max (2.5 mm ²) - torque 0.5 Nm max. for hard wiring of 1 light or 2 lights in parallel
Housing	plastic, UL 94V-0, light grey
Standard mounting (included)	screw mounting on 35 mm DIN rail or sheet metal
Optional mounting	with self-adhesive or magnet mounting plates (see below)
Mounting position	variable
Operating temperature	-4 to +122 °F (-20 to +50 °C)
Storage temperature	-49 to +158 °F (-45 to +70 °C)
Weight	approx. 1.3 lbs. (600 g)
Protection class	II (double insulated)
Protection type	IP20
Accessories	see below

¹⁾ The Passive Infrared (PIR) motion sensor detects the motion of the enclosure door being opened and automatically turns on the light. The sensor is factory pre-set to turn the light off 3 minutes after all motion ceases. The motion sensor does not detect movement through glass, allowing for installation in enclosures with glass doors.



(1) Standard screw mounting to DIN rail

(2) 2 self-adhesive (Part No. 09515.0-00) or magnet (Part No. 09516.0-00) mounting plates

(3) Self-adhesive light holder with hook and 6 ft. power cord (AC 230 V - Part No. 03410.0-00, AC 120 V - Part No. 03411.0-00). By using the holder/power cord kit, the light can be used as a hand lamp.

Part No.	Operating voltage	Switch type
02600.0-00	AC 230 V, 50/60 Hz	on/off
02600.9-00	AC 120 V, 50/60 Hz	on/off
02601.0-00	AC 230 V, 50/60 Hz	motion sensor
02601.9-00	AC 120 V, 50/60 Hz	motion sensor

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



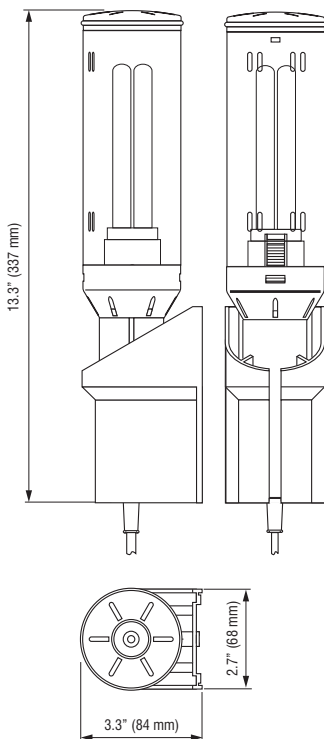
Long-life energy saving lamp

Wall-mount lamp holder



Technical Data

Power consumption	20 W (~ 100 W incandescent bulb)
Luminosity	1000 Lm
Lamp type	compact fluorescent, E27 base, electronic ballast
Service life	10,000 hrs.
Connection	integrated power cable (6 ft.) with US or Euro plug
Housing	plastic, UL 94V-0, light grey
Mounting	screws or self-adhesive mounting plate (included)
Mounting position	variable
Operating temperature	-4 to +122 °F (-20 to +50 °C)
Storage temperature	-49 to +158 °F (-45 to +70 °C)
Weight	approx. 1.3 lbs. (600 g)
Protection class	II (double insulated)
Protection type	IP20



Part No.	Operating voltage	Plug type
02610.0-00	AC 230 V, 50/60 Hz	Euro
02610.9-00	AC 120 V, 50/60 Hz	US

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Quick connections

Available with or without fuse

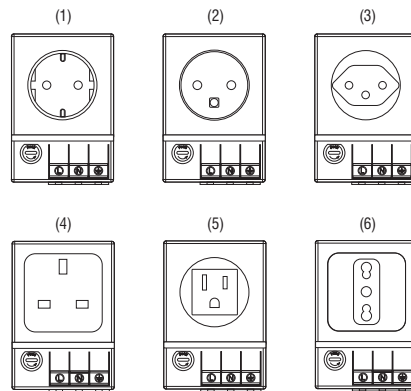
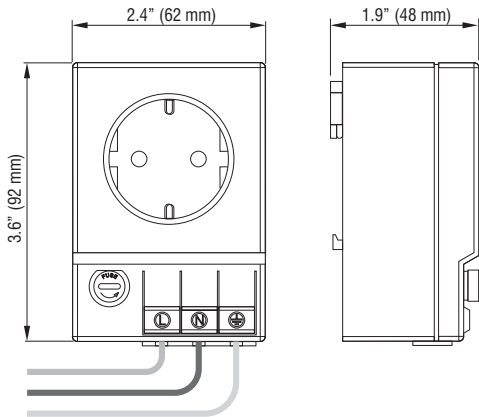
DIN rail mountable

The DIN rail mounted electrical receptacle can be quickly fitted and connected in enclosures allowing the use of auxiliary products such as hand lamps and power tools. The unit is available with and without fuse, and in many world outlet standards.



Technical Data

Connection	3 cage clamps for solid and stranded wire AWG 20-14 (0.5-2.5 mm ²)
Housing	plastic, UL 94V-0, light grey
Mounting	clip for 35 mm DIN rail, EN 60715
Mounting position	vertical
Operating / Storage temperature	-49 to +158 °F (-45 to 70 °C)
Dimensions	3.6 x 2.4 x 1.9" (92 x 62 x 48 mm)
Weight	approx. 7.1 oz. (200 g)
Protection class	I (grounded)
Protection type	IP20



Part No.	Operating Voltage max.	Socket	Model	Nominal Current	Approvals
03500.0-00	AC 250 V	Germany/Russia (1)	with fuse*	6.3 A	-
03500.0-01	AC 250 V	Germany/Russia (1)	without fuse	16.0 A	-
03501.0-00	AC 250 V	France/Poland (2)	with fuse*	6.3 A	-
03501.0-01	AC 250 V	France/Poland (2)	without fuse	16.0 A	-
03502.0-00	AC 250 V	Switzerland (3)	with fuse*	6.3 A	-
03502.0-01	AC 250 V	Switzerland (3)	without fuse	10.0 A	-
03503.0-00	AC 250 V	UK/Ireland (4)	with fuse*	6.3 A	-
03503.0-01	AC 250 V	UK/Ireland (4)	without fuse	13.0 A	-
03504.0-00	AC 125 V	USA/Canada (5)	with fuse*	6.3 A	UL File No. E222026
03504.0-01	AC 125 V	USA/Canada (5)	without fuse	15.0 A	UL File No. E222026
03505.0-00	AC 250 V	Italy (6)	with fuse*	6.3 A	-
03505.0-01	AC 250 V	Italy (6)	without fuse	16.0 A	-

* fuse Ø 5 x 20 mm

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



Variety of uses

Locking door

High impact resistance

Weather and UV resistant

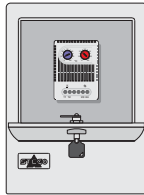
The access door on the multi-purpose protective cover is equipped with a lock enabling easy access while providing security from unauthorized persons. The cover utilizes a labyrinth seal for protection against dirt and moisture, and the unit is permanently attached to the enclosure from the inside.



Application examples



Protection for ventilation openings (i.e. pressure compensation)



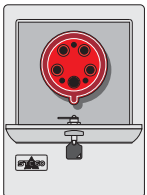
As a cover for thermostats and regulators



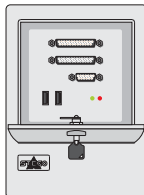
As a tamper-proof cover for electronic input devices



Protection for electronic locks and security system keypads



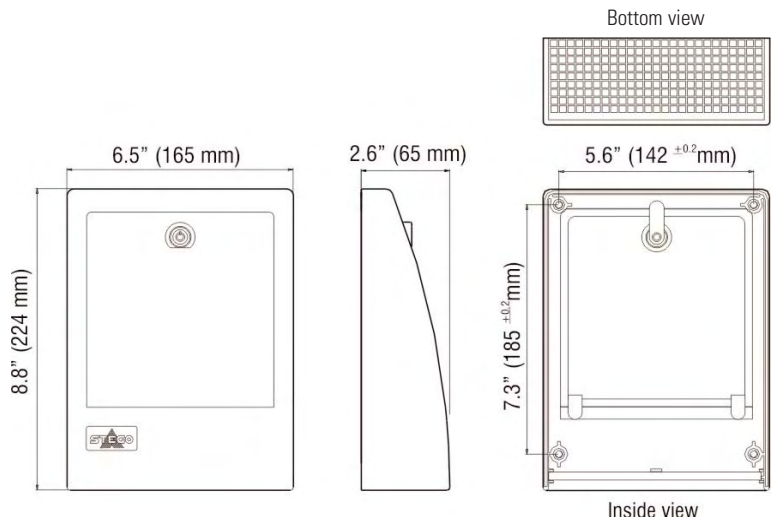
Protection for power outlets



Cover and protection for data interfaces

Technical Data

Housing	High impact ASA plastic, light grey burning behavior according to UL 94H-B; high resistance to weather and UV light
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)
Dimensions	8.8 x 6.5 x 2.6" (224 x 165 x 65 mm)
Protection type	IP20



Part No.	Weight
08611.0-00	approx. 0.9 lbs. (0.4 kg)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



STEGOFIX is a small aid specially designed to make mounting of smaller DIN rail mountable components easier. It can be used whenever the installation of a DIN rail is impractical, or when there is not enough space left in an enclosure.

Because of its industrial grade self-adhesive it can be installed much easier and quicker than a conventional DIN rail, without the effort of hole drilling and screw mounting. This is especially practical for subsequent changes or additions in an already equipped enclosure.

STEGOFIX can hold components up to 1.1 lbs in weight. Some of the many applications include the mounting of timing relays, series terminals, thermostats, cable channels and even small heaters. In addition, DIN rails can be mounted simply by using several STEGOFIX units.

If the weight of attached components exceeds the load limit, or if a more secure mounting is desired, (e.g. on rough surfaces), it can also be screw-mounted. All that is necessary to install STEGOFIX is a smooth and clean surface. The initial adhesive power is 40%, and after 24 hours, it has its full holding power of 1.1 lbs.



Technical Data

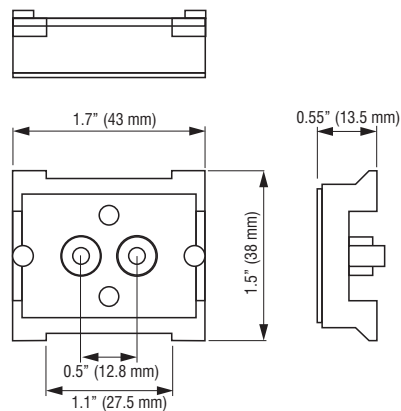
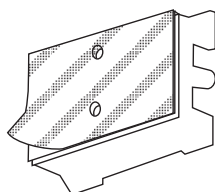
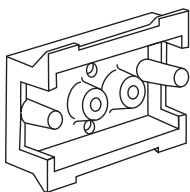
Load	1.1 lbs. (500 g) after a 24 hour waiting period*
Mounting	self-adhesive (non-aging, high-performance adhesive strip)
Material	plastic UL 94V-0, black
Hole pattern	0.5" distance, Ø 0.14" (12.8 mm; Ø 3.6 mm)
Operating / Storage temperature	-49 to +158 °F (-45 to 70 °C)
Dimensions	1.7 x 1.5 x 0.55" (43 x 38 x 14 mm)

*depending on the conditions of use (e.g. surface condition, size of the device to be mounted, etc.) higher loads can be 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 and free from dust, oil, separating agents and other contamination.

Application examples



Part No.	1 packing unit	Weight (approx.)
09510.0-01	5 pieces	2.1 oz. (60 g) total / 0.42 oz. (12 g) per piece

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



IP66 / IP67 / IP69K protection

Good drainage performance

Easy to install

Weather and UV resistant

Condensation can occur in enclosures with high protection types by variations in temperature. The use of the DD 084 drainage device allows the removal of the condensate without losing the maximum IP66 protection type.

The specific characteristic of the water permeable membrane ensures the drainage of the condensate via capillary action. The unique construction also prohibits the ingress of splash water into the enclosure. Additionally, the drainage device effectively provides pressure compensation with variations in temperature.

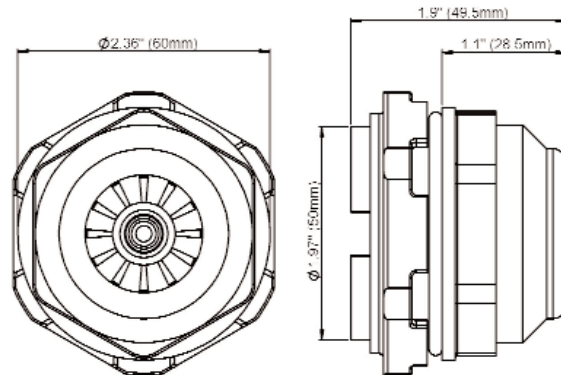
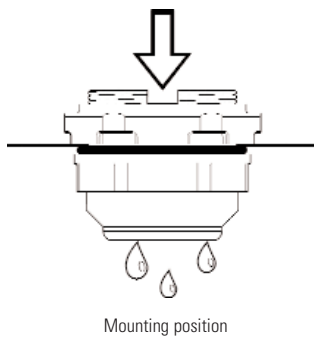


Technical Data

Mounting	thread M50 x 1.5 with nut (wrench size 60 mm) torque 6 Nm max.
Mounting position	vertical, lowest point
Depth in enclosure	approx. 0.7" (17.5 mm)
Material	plastic, UL 94V-0, RAL 7022, weather and UV light resistant according to UL 746C (f1)
Water entry height	0 mm (at 0.5 mm wall thickness)
Sealing	NBR gasket
Water flow-through	approx. 200 ml/h at 5 mm water column
Dimensions	Ø 2.36 x 1.9" (60 x 49.5 mm)
Operating / Storage temperature	-49 to +158 °F (-45 to +70 °C)

Installation

Make cut-out in enclosure bottom of Ø 2.0 inches (50.5^{+0.5} mm) and mount the drainage device with nut. Make sure that the sealing gasket is placed on the outer side of the enclosure.



Part No.	Protection type	Enclosure wall thickness	1 packing unit	Weight
08410.0-00	IP66 / IP67 (EN 60529) / IP69K (EN 40050-9)	0.02 - 0.22" (0.5 - 5.5 mm)	1 piece	approx. 2 oz. (60 g)

Specifications are subject to change without notice. Suitability of this product for its intended use and any associated risks must be determined by the end customer/ buyer in its final application.



HEATER CALCULATION SHEET

Project: _____

Project No.: _____

Follow Steps 1-5 to determine the heating requirement of an enclosure (US units - left column, metric - right)

STEP 1: Determine the Surface Area (A) of your enclosure which is exposed to open air

Enclosure Dimensions: height = _____ feet _____ meters
width = _____ feet _____ meters
depth = _____ feet _____ meters

Choose Mounting Option from next page, and calculate the surface area as indicated

A = _____ ft² or **_____ m²**

STEP 2: Choose the Heat Transmission Coefficient (k) for your enclosure's material of construction

 painted steel = 0.511 W/(ft²•K) 5.5 W/(m²•K)
 stainless steel = 0.344 W/(ft²•K) 3.7 W/(m²•K)
 aluminum = 1.115 W/(ft²•K) 12 W/(m²•K)
 plastic (or insulated stainless) = 0.325 W/(ft²•K) 3.5 W/(m²•K)

k = _____ W/(ft²•K) or **_____ W/(m²•K)**

STEP 3: Determine the Temperature Differential (ΔT)

A. Desired enclosure interior temp. = _____ °F _____ °C
B. Lowest ambient (outside) temp. = _____ °F _____ °C
Subtract B from A = Temp. differential (ΔT) = _____ °F _____ °C

ΔT (°C) = ΔT (K)

For these calculations, ΔT must be in degrees Kelvin (K).

Enter ΔT (°C) below

Therefore, divide ΔT (°F) by 1.8 **ΔT = _____ K** or **_____ K**

STEP 4: Determine Heating Power (P_V), if any (generated from existing components, i.e. transformer)

P_V = _____ W or **_____ W**

STEP 5: Calculate the Required Heating Power (P_H) for your enclosure based on the above values

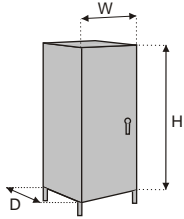
If enclosure is located inside: **P_H = (A x k x ΔT) - P_V = _____ W**

If enclosure is located outside: **P_H = 2 x (A x k x ΔT) - P_V = _____ W**

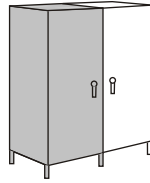


ENCLOSURE MOUNTING OPTIONS and SURFACE AREA CALCULATIONS

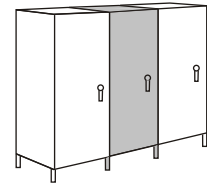
1. Free-Standing



$$\text{Area (A)} = 1.8(H \times W) + 1.8(H \times D) + 1.8(W \times D)$$

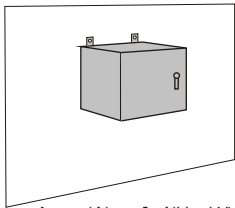


$$\text{Area (A)} = 1.8(H \times W) + 1.4(H \times D) + 1.8(W \times D)$$

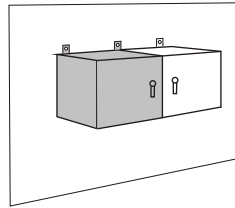


$$\text{Area (A)} = 1.8(H \times W) + (H \times D) + 1.8(W \times D)$$

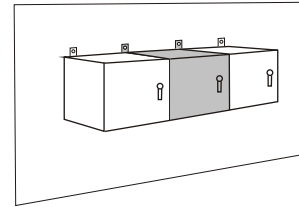
2. Wall-Mounted



$$\text{Area (A)} = 1.4(H \times W) + 1.8(H \times D) + 1.8(W \times D)$$

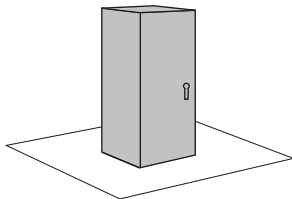


$$\text{Area (A)} = 1.4(H \times W) + 1.4(H \times D) + 1.8(W \times D)$$

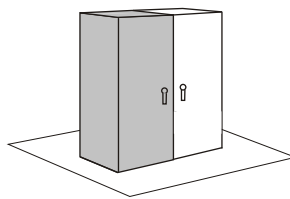


$$\text{Area (A)} = 1.4(H \times W) + (H \times D) + 1.8(W \times D)$$

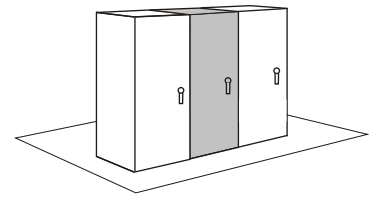
3. Ground



$$\text{Area (A)} = 1.8(H \times W) + 1.8(H \times D) + 1.4(W \times D)$$

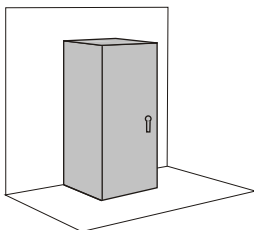


$$\text{Area (A)} = 1.8(H \times W) + 1.4(H \times D) + 1.4(W \times D)$$

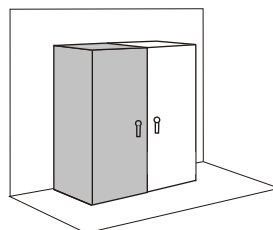


$$\text{Area (A)} = 1.8(H \times W) + (H \times D) + 1.4(W \times D)$$

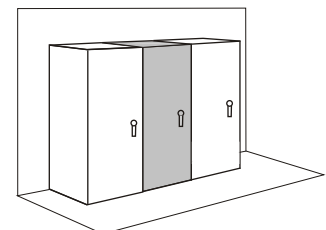
4. Ground & Wall



$$\text{Area (A)} = 1.4(H \times W) + 1.8(H \times D) + 1.4(W \times D)$$



$$\text{Area (A)} = 1.4(H \times W) + 1.4(H \times D) + 1.4(W \times D)$$



$$\text{Area (A)} = 1.4(H \times W) + (H \times D) + 1.4(W \times D)$$



FILTER FAN SIZING SHEET

Project: _____

Project No.: _____

To determine the Filter Fan size for a given enclosure, use the following calculation:

$$\text{Required air volume (V)} = \frac{\text{Internal heat load (Pv)}}{\text{Temperature difference } (\Delta T)} \times \text{Air constant (f)}$$

US

Metric

STEP 1: Determine the Internal Heat Load of the enclosure (Pv)

Internal heat load, Pv (Watts)

= _____ W

= _____ W

[Note: 1 Watt = 3.413 BTU/hr.]

STEP 2: Determine the Temperature Differential (ΔT)

Temperature difference (ΔT)

= _____ °F

= _____ °C = K

[Max. temperature outside enclosure minus max. allowable temperature inside enclosure]

STEP 3: Choose the Air Constant (f)

Air constant (f)

= _____ ft³•°F/W min

= _____ m³•K/W hr

[Based on elevation, see below]

0 - 100 m	⇒	3.3 ft ³ •°F/W min	or	3.1 m ³ •K/W hr
100 - 250 m	⇒	3.4 ft ³ •°F/W min	or	3.2 m ³ •K/W hr
250 - 500 m	⇒	3.5 ft ³ •°F/W min	or	3.3 m ³ •K/W hr
500 - 750 m	⇒	3.6 ft ³ •°F/W min	or	3.4 m ³ •K/W hr
750 - 1000 m	⇒	3.7 ft ³ •°F/W min	or	3.5 m ³ •K/W hr

Example: 600 W internal heat load, ΔT = 15 K, at 75 m elevation

$$V = \frac{600 \text{ W}}{15 \text{ K}} \times 3.3 \text{ m}^3 \cdot \text{K/W hr}$$

$$V = 132 \text{ m}^3/\text{hr}$$