

SMALL SEMICONDUCTOR HEATER

RCE 016 | 5W, 9W



- > Wide voltage range
- > Dynamic heating up

- > Energy saving
- > Compact

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

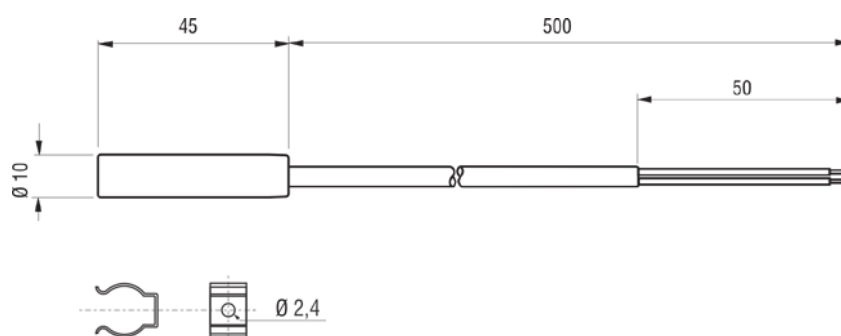
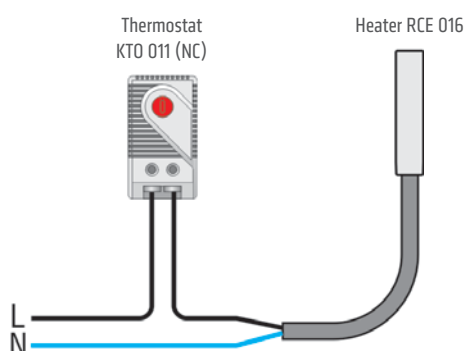


TECHNICAL DATA

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

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

Example of connection



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

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

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

SMALL SEMICONDUCTOR HEATER

RC 016 | 8W, 10W, 13W



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

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

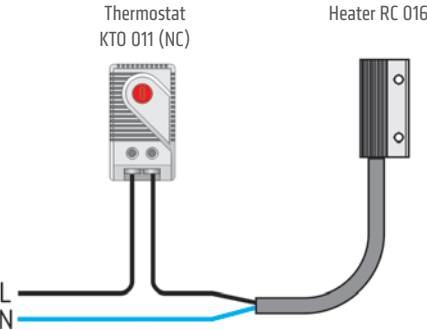


TECHNICAL DATA

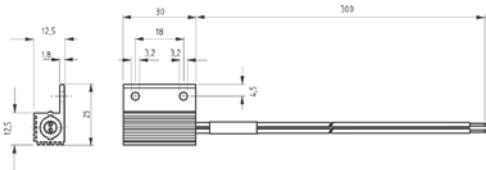
Operating voltage	120-240V AC/DC ¹ (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Heater body	aluminium, anodised
Mounting	screw fixing
Fitting position	variable
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)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

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

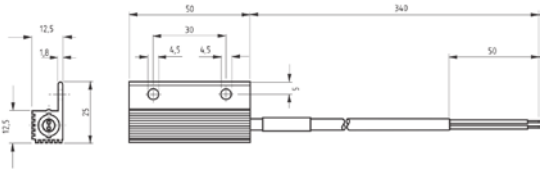
Example of connection



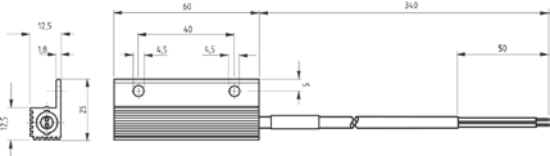
Art. No. 01602.0-00



Art. No. 01609.0-00



Art. No. 01610.0-00



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

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

SMALL SEMICONDUCTOR HEATER

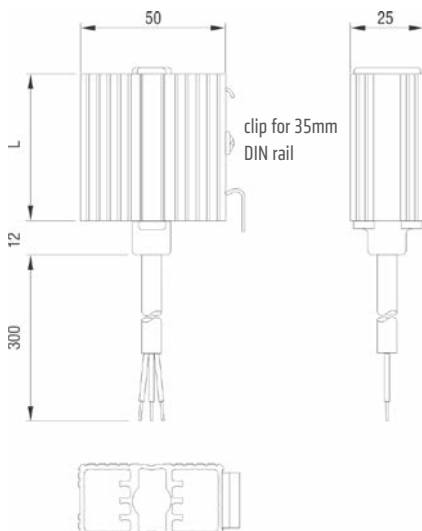
HGK 047 | 10W to 30W



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

- > Clip fixing

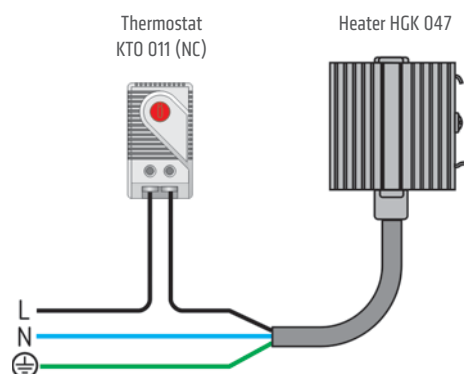
The heaters are used in enclosures where condensation is to be prevented or the temperature may not fall below a minimum value. In this way corrosion is avoided and an even temperature is ensured. The heaters are designed for permanent operation.



TECHNICAL DATA

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

Example of connection



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

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

TOUCH-SAFE SMALL HEATER (SEMICONDUCTOR)

CSK 060 | 10W, 20W



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

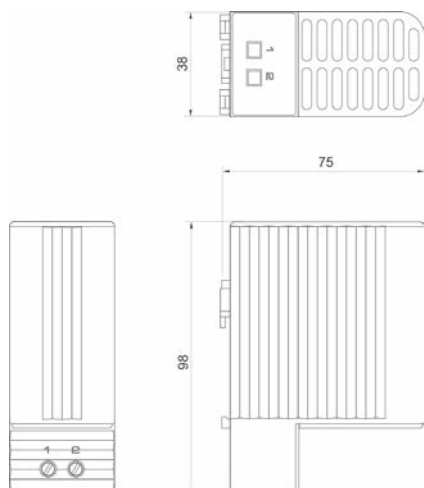
The heaters are used in enclosures where condensation is to be prevented or the temperature may not fall below a minimum value. In this way corrosion is avoided and an even temperature is ensured. The heaters are designed for permanent operation.



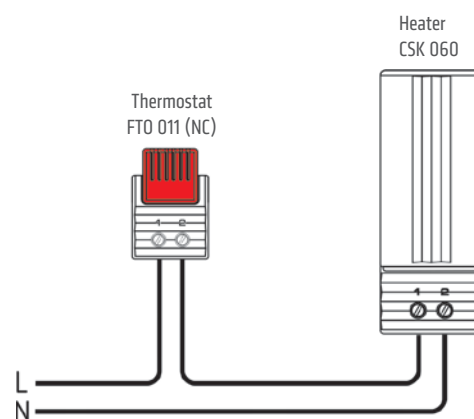
TECHNICAL DATA

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

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



Example of connection



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

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

SEMICONDUCTOR HEATER

HG 140 | 15W to 150W



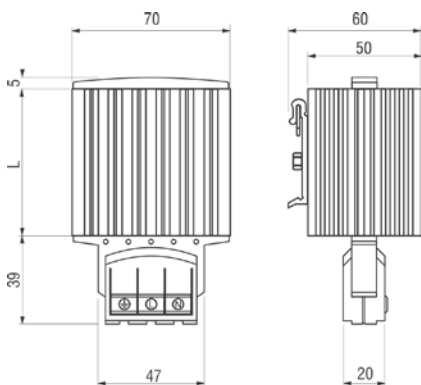
- > Pressure clamp connectors
- > Dynamic heating up
- > Wide voltage range

- > Energy saving
- > Clip fixing
- > Quick installation

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



TECHNICAL DATA



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

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

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

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

HAZARDOUS AREA HEATER

CREx 020 | 50W, 100W



- > Large convection surface
- > Clip fixing
- > Ready for use

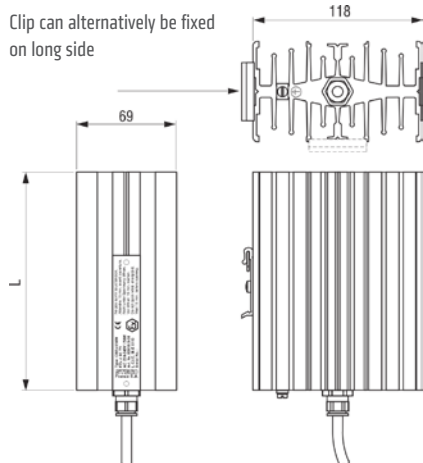
- > Maintenance free

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



TECHNICAL DATA

Heating element	high performance cartridge
Heater body	aluminium profile, silver anodised
Connection	Si HF-JZ 3 x 0.75mm ² cable, length 1m
Connection PE	4mm ²
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (connection on bottom)
Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP6X / I (earthed)
Approvals	LCIE 01 ATEX 6073 X IECEx LCI 07.0020 X INMETRO DNV 14.0138X EAC



Clip can alternatively be fixed on long side



Hazardous area Thermostat REx 011 see page 67

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

¹ Ambient temperature inside of the cabinet/enclosure

TOUCH-SAFE HEATER (SEMICONDUCTOR)

CS 060 | 50W to 150W



- > Low surface temperature
- > Quick mounting due to clip fixing
- > Double insulated (plastic)

- > Wide voltage range
- > Small size

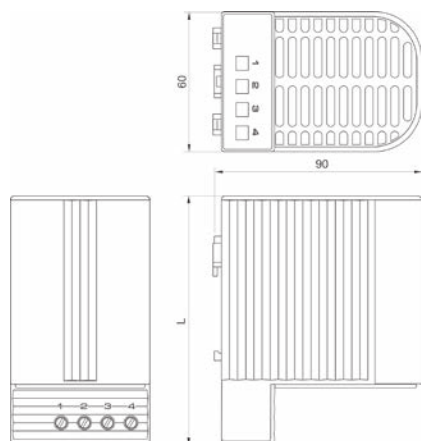
Touch-safe heater for the use in enclosures with electrical/electronic components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater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



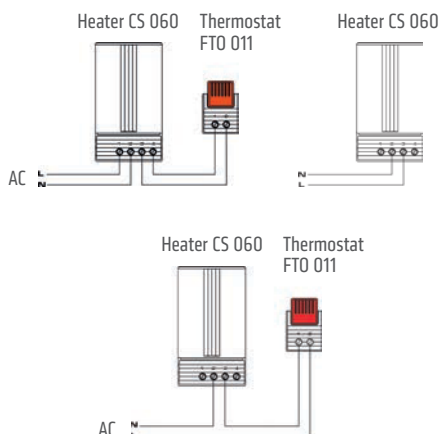
TECHNICAL DATA

Operating voltage	120 - 240V AC/DC ¹ (min. 110V, max. 265V)
Heating element	PTC resistor - temperature limiting
Surface temperature	< +80°C (+176°F), except upper protective grille
Connection	4-pole terminal 2.5mm ² , torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715
Fitting position	vertical airflow (air outlet up, connection on bottom)
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Approvals	VDE, UL File No. E150057, EAC
Note	other voltages on request

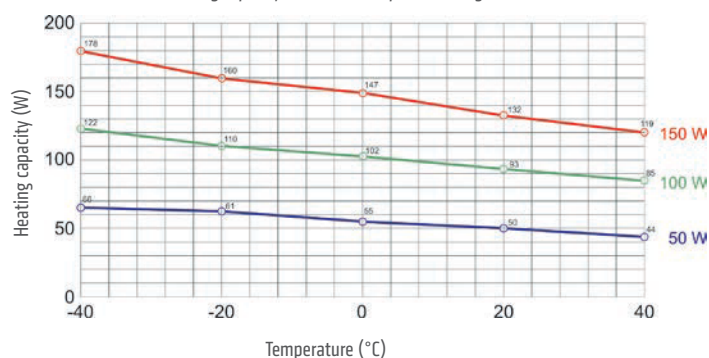
¹ Operating with voltages below 140V AC/DC reduces heating performance by approx. 10%.



Examples of connection



Heating capacity / Ambient temperature diagram CS 060



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

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

TOUCH-SAFE HEATER (SEMICONDUCTOR)

CSF 060 | 50W to 150W



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

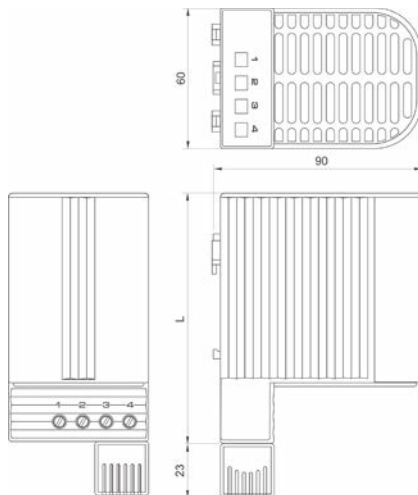
Touch-safe heater for the use in enclosures with electrical/electronic components. The design of the heater supports the natural convection which results in a high air-current of warm air. The surface temperatures on the accessible side surfaces of the housing are kept down as a result of the heater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



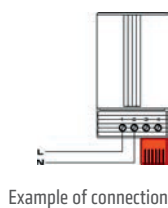
TECHNICAL DATA

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

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

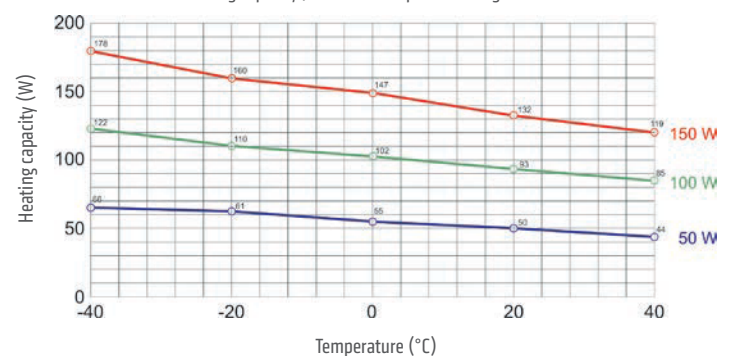


Heater CSF 060



Example of connection

Heating capacity / Ambient temperature diagram CSF 060



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

² ambient temperature – see Heating capacity / Ambient temperature diagram; ³ measured 50mm above protective grille; ⁴ tolerance of ±5K

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

COMPACT SEMICONDUCTOR FAN HEATER

CS 028 / CSL 028 | 150W to 400W

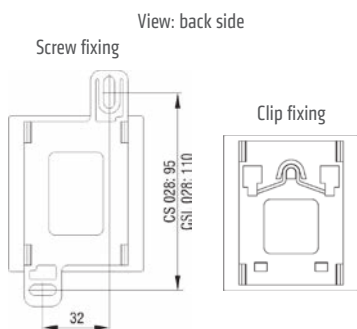
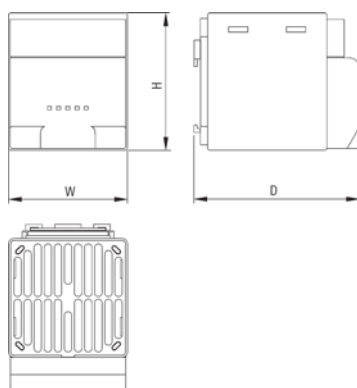


Photo: Fan Heater CSL 028

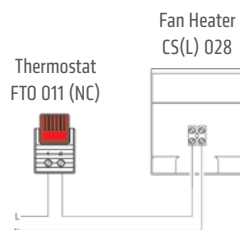
- > Small, compact design
- > Quiet in operation

- > Dynamic heating up
- > Clip or screw fixing

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



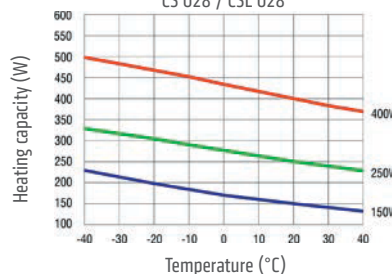
Example of connection



TECHNICAL DATA

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

Heating capacity / Ambient temperature diagram
CS 028 / CSL 028



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

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

COMPACT FAN HEATER

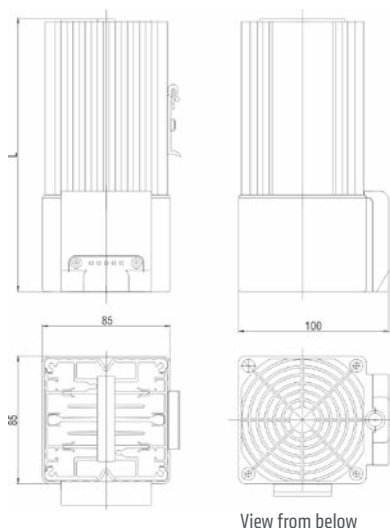
HGL 046 | 250W, 400W



- > Compact Design
- > Clip fixing

- > Long service life
- > Temperature safety cut-out

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



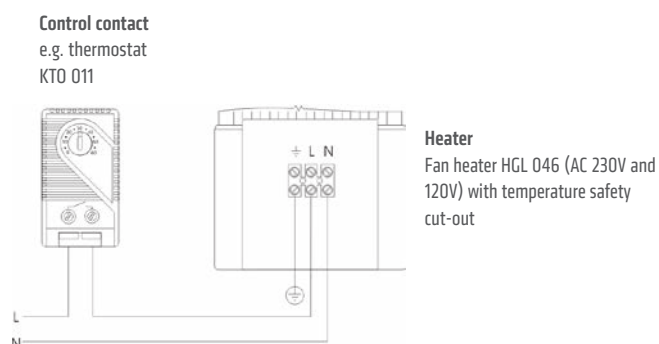
View from below



TECHNICAL DATA

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

Example of connection



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

¹ according to UL 508A, NITW File on request

COMPACT SEMICONDUCTOR FAN HEATER

CSF 028 | 250 W, 400 W



CSF 028 with clip fixing



CSF 028 with screw flange fixing

- > Small, compact design
- > Integrated pre-set thermostat
- > Dynamic heating up

- > Touch-safe
- > Quick connection
- > Clip or screw flange fixing

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



TECHNICAL DATA

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

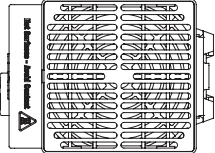
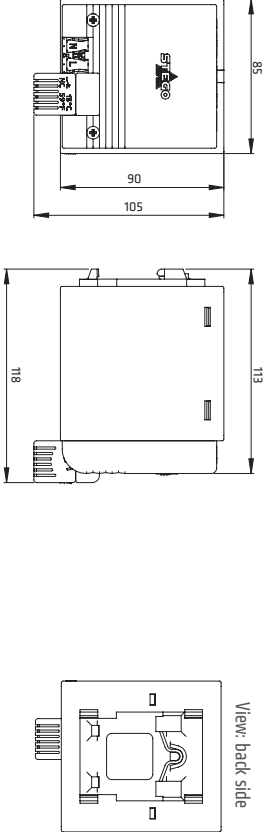
Art. No. clip fixing	Art. No. screw flange fixing	Operating voltage	Heating capacity ¹	Inrush current max.	Recommended pre-fuse T (time-delay)	Switch-off temperature ²	Switch-on temperature ²
02821.0-06	02821.0-08	230VAC, 50/60Hz	250W	9.0A	10.0A	+15°C (+59°F)	+5°C (+41°F)
02821.0-09	02821.0-11	230VAC,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

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

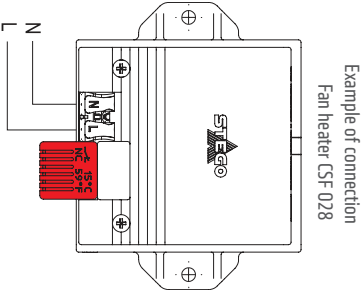
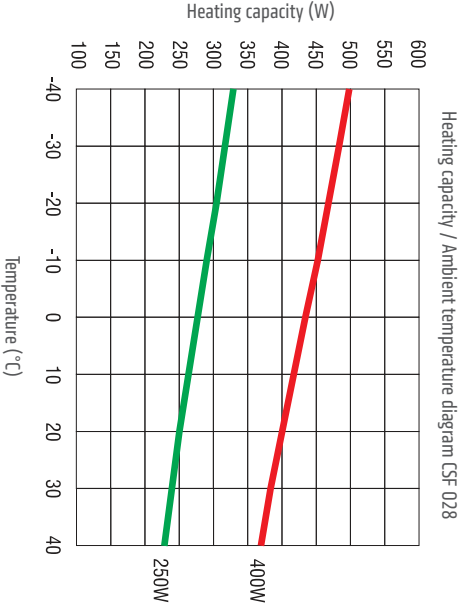
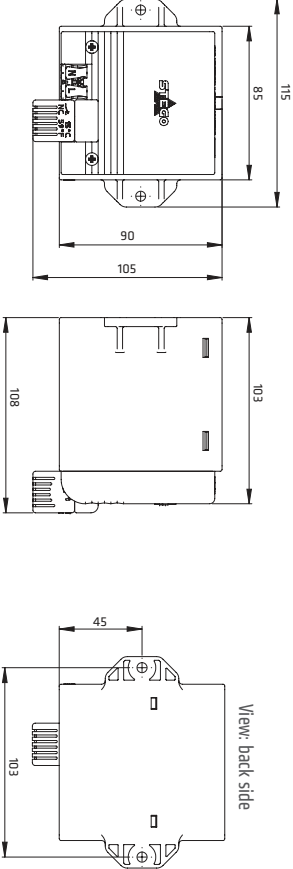
Note: Other switch-off and switch-on temperatures on request.

TECHNICAL DRAWINGS

CLIP FIXING



SCREW FLANGE FIXING



SEMICONDUCTOR FAN HEATER

CR 027 | up to 650W



- > Compact heater
- > Integrated thermostat
- > Clip fixing

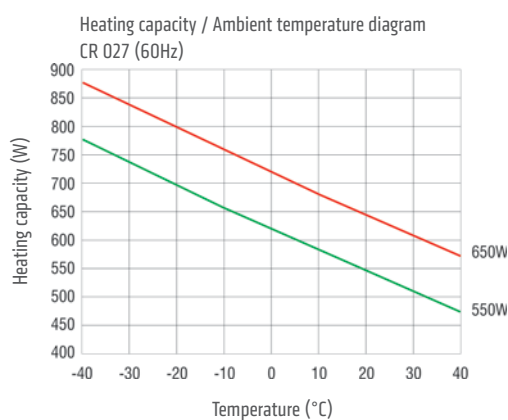
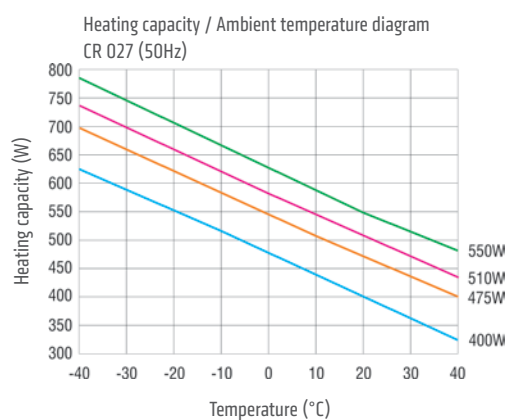
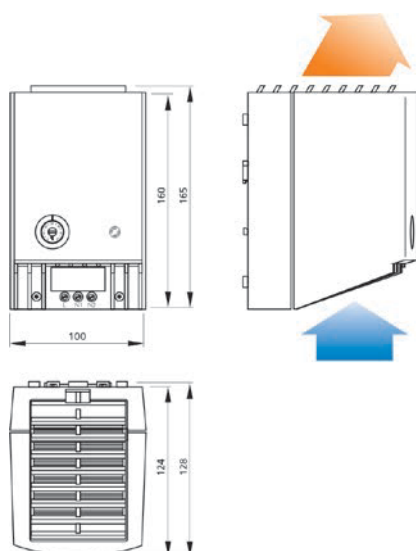
- > Optical indicator
- > Temperature safety cut-out

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



TECHNICAL DATA

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

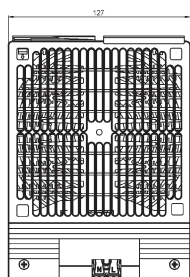


Art. No.	Operating voltage	Heating capacity ¹ (50 Hz)	Heating capacity ¹ (60 Hz)	Inrush current max.	Recommended pre- fuse T (time-delay)	Airflow, free flow	Setting range thermostat ²	Weight (approx.)
02700.0-00	220-240VAC, 50/60Hz	475W	550W	11.0A	10.0A	35m ³ /h	0 to +60°C	0.9kg
02701.0-00	220-240VAC, 50/60Hz	550W	650W	13.0A	10.0A	45m ³ /h	0 to +60°C	1.1kg
02700.9-00	100-120VAC, 50/60Hz	400W	550W	14.0A	10.0A	35m ³ /h	+32 to +140°F	0.9kg
02701.9-00	100-120VAC, 50/60Hz	510W	650W	15.0A	10.0A	45m ³ /h	+32 to +140°F	1.1kg

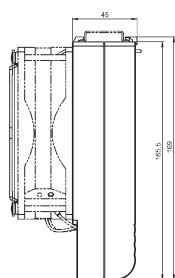
¹ at +20°C (+68°F) ambient temperature; ² Switch temperature difference 7K (±4K tolerance)

SPACE-SAVING FAN HEATER

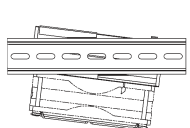
HVI 030 | 500W to 700W



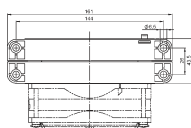
View: back side



Twist clip fixing



Screw fixing



- > Compact
- > Flat design
- > Temperature safety cut-out

- > Twist clip or screw fixing

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



TECHNICAL DATA

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

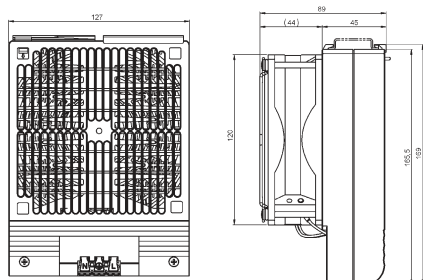


Important note: Heater may only be operated together with fan (min. 150m³/h). Danger of overheating!

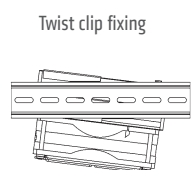
Art. No. twist clip fixing	Art. No. screw fixing	Operating voltage	Heating capacity	Recommended pre-fuse T (time-delay)
03074.0-00	03074.0-01	230VAC, 50/60Hz	500W	4.0A
03073.0-00	03073.0-01	230VAC, 50/60Hz	600W	4.0A
03072.0-00	03072.0-01	230VAC, 50/60Hz	700W	6.3A
03074.9-00	03074.9-01	120VAC, 50/60Hz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

SPACE-SAVING FAN HEATER WITH FAN

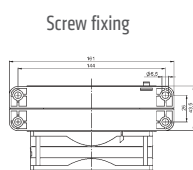
HVI 030 | 500W to 700W



View: back side



Twist clip fixing



Screw fixing

- > Compact
- > Flat design
- > High air through-flow

- > Temperature safety cut-out
- > Twist clip or screw fixing

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



TECHNICAL DATA

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



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

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

COMPACT HIGH-PERFORMANCE FAN HEATER

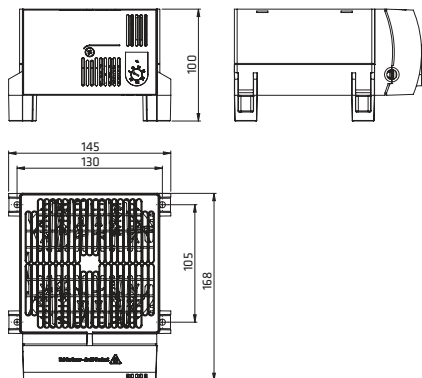
CR 030 | 950W



- > Compact design
- > Double insulated

- > Integrated thermostat or hygrostat

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

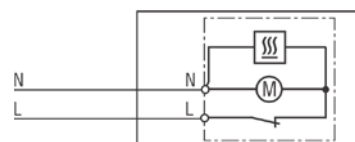


TECHNICAL DATA

Heating element	high performance cartridge
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Heater body	extruded aluminium profile
Axial fan, ball bearing	airflow 160m ³ /h, free flow service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm ² , clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	screw fixing (M5)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	168 x 145 x 100mm
Weight	approx. 1.4kg
Operating ¹ /Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other heating capacities from 200W up available on request

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

Connection diagram



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

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

COMPACT HIGH-PERFORMANCE FAN HEATER

CR 130 | 950W



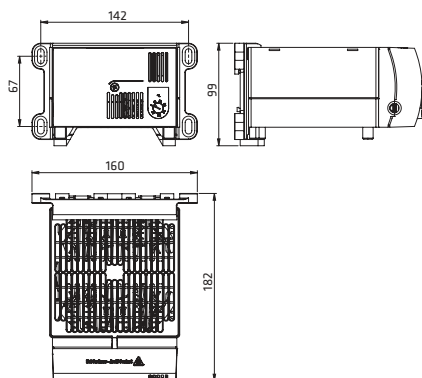
- > Compact design
- > Double insulated

- > Integrated thermostat or hygrostat
- > Optional clip or screw fixing

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

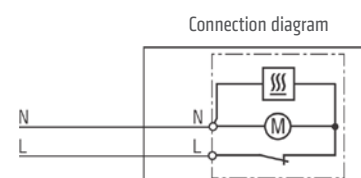


TECHNICAL DATA



Heating element	high performance cartridge
Temperature safety cut-out	with automatic reset and second-tier one shot fuse to protect against overheating in case of fan failure
Heater body	extruded aluminium profile
Axial fan, ball bearing	airflow 160m ³ /h, free flow, service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm ² , clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M6)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	182 x 160 x 99mm
Weight	approx. 1.5kg
Operating ¹ /Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)
Note	other heating capacities from 200W up available on request

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



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

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

HIGH-PERFORMANCE FAN HEATER (SEMICONDUCTOR)

CS 032 / CSF 032 | 1,000W



Fan heater CS 032



Fan heater CSF 032

- > Compact and slim design
- > High heating performance
- > Double insulated

- > With or without thermostat
- > Quick connection

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



TECHNICAL DATA

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

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

FAN HEATER CS 032 (WITHOUT THERMOSTAT)

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

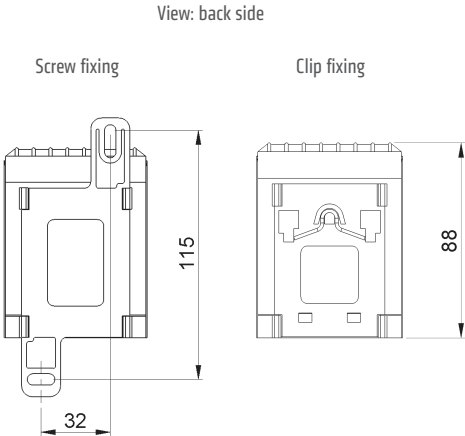
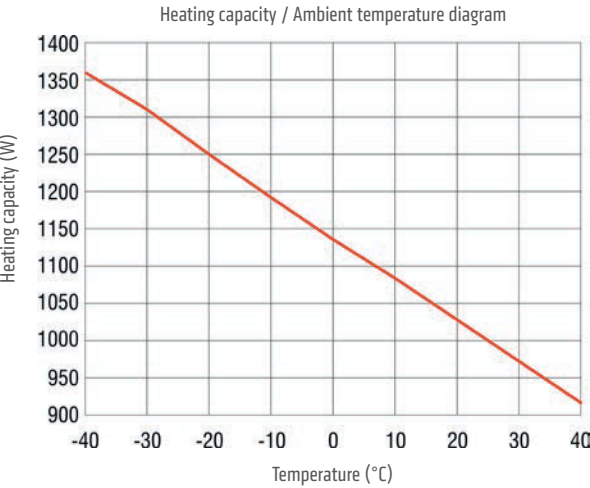
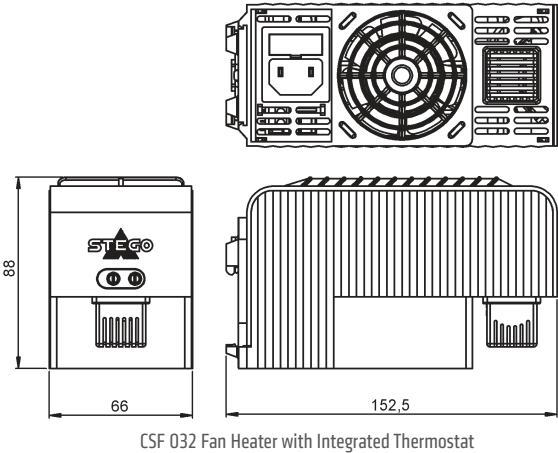
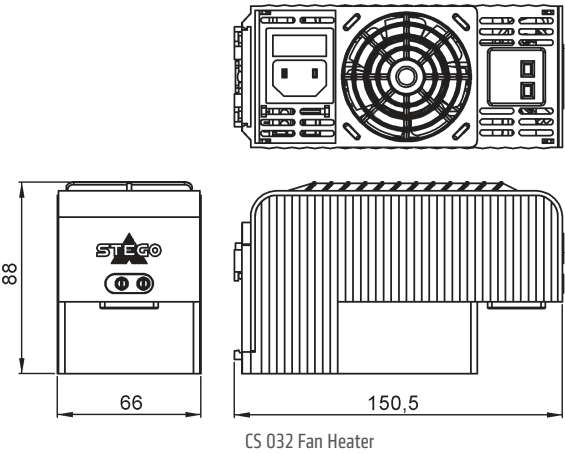
FAN HEATER CSF 032 (WITH THERMOSTAT)

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

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

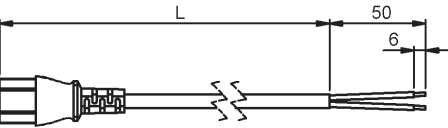
Note: Other switch-off and switch-on temperatures on request.

TECHNICAL DRAWING



ACCESSORIES

Connection cable with female power insert connector according IEC320 C17



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

Retaining Clip



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

COMPACT HIGH-PERFORMANCE FAN HEATER (SEMICONDUCTOR)

CS 030 | 1,200W



- > Compact design
- > High heating performance
- > Double insulated

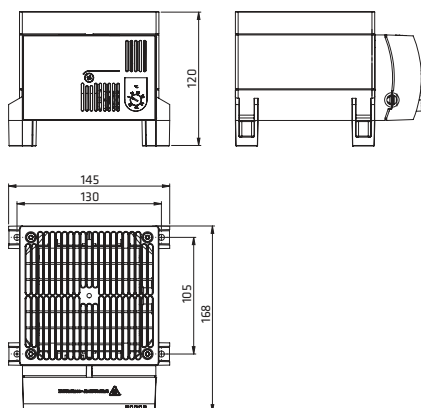
> Integrated thermostat (optional)

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

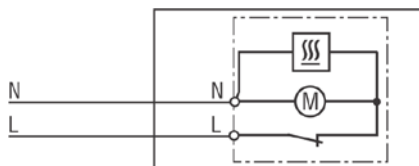


TECHNICAL DATA

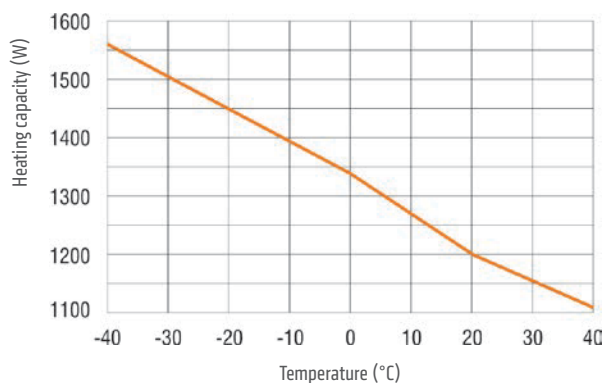
Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow 160m³/h, free flow service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm², clamping screw with strain relief,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



Connection diagram



Heating capacity / Ambient temperature diagram CS 030



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

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

COMPACT HIGH-PERFORMANCE FAN HEATER (SEMICONDUCTOR)

CS 130 | 1,200W



- > Compact design
- > High heating performance
- > Double insulated

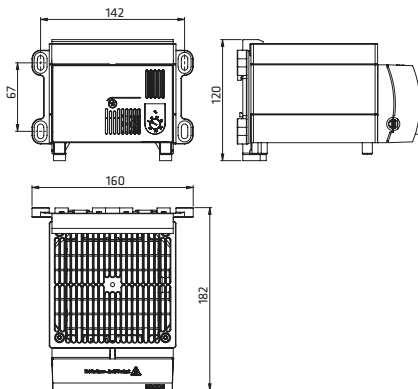
- > Integrated thermostat (optional)
- > Optional clip or screw fixing

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

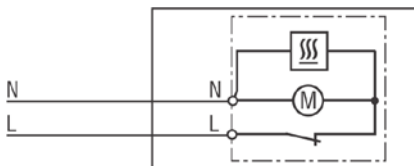


TECHNICAL DATA

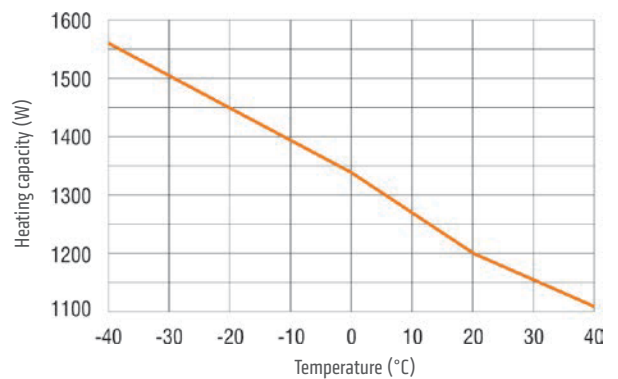
Heating element	PTC resistor - temperature limiting
Temperature safety cut-out	to protect against overheating in case of fan failure, automatic reset
Axial fan, ball bearing	airflow 160m ³ /h, free flow service life 50,000h at +25°C (+77°F)
Connection	2-pole max. 2.5mm ² , clamping screw with strain relief, torque 0.8Nm max.
Casing	plastic according to UL94 V-0, black
Mounting	clip for 35mm DIN rail, EN 60715 or screw fixing (M6)
Fitting position	vertical airflow (air outlet up) – other fitting positions possible
Dimensions	182 x 160 x 120mm
Weight	approx. 1.3kg
Operating/Storage temperature	-45 to +70°C (-49 to +158°F)
Operating/Storage humidity	max. 90% RH (non-condensing)
Protection type/Protection class	IP20 / II (double insulated)



Connection diagram



Heating capacity / Ambient temperature diagram CS 130



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

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