

ANTI-CONDENSATION HEATER

Anti-condensation heaters for dehumidification of enclosed switchboards and relay cabinets.

Small, modern and compact components have low heat loss, which can nevertheless cause problems with moisture and condensation. Anti-condensation heaters are designed to address this problem.

The maximum temperature (approx. 65°C) is integrated into the design, and the small dimensions enable installation in most enclosures and switchboards.

The element is made of anodised aluminium, which provides optimal heat conduction and heat dissipation.

Anti-condensation heaters are equipped with temperature limitation or have a self-limiting design, where a PTC element heats the profiles in relation to the ambient temperature

HEATING ELEMENT IN EXTRUDED STAR SHAPE

The profile is made of anodised aluminium and designed for direct assembly in the enclosure. The heating element can be mounted on a DIN rail using special suspension brackets (ordered separately). The small dimensions provide very high heat output thanks to the star shape. The cable length is 0.5 m.



ATEX DESIGN



HEATING ELEMENT IN EXTRUDED DOUBLE PROFILE

The profile is made of anodised aluminium. The double profile ensures a low and uniform surface temperature and can be supplied in two profile lengths. The cable length is 0.5 m.



INSTALLATION

The anti-condensation heater must always be mounted vertically. Optimal circulation is achieved by placing the heating element in the lower part of the enclosure.

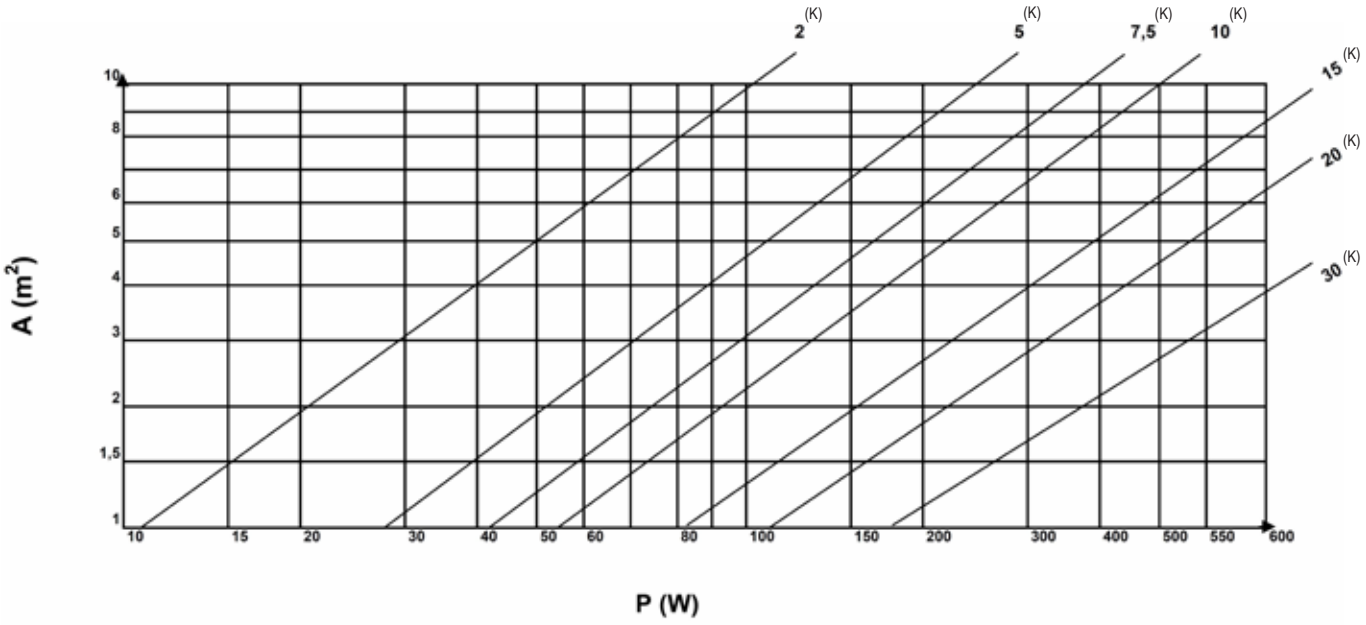
Due to the heating element's low surface temperature, its location relative to other components in the enclosure is not critical. However, for reasons of air circulation, a 5 cm clearance at the sides and a 3 cm clearance at the bottom are recommended.

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POWER CALCULATION



When placed in still air:

Heat loss factor: k=5.5W/m² x ΔT

When placed in circulating air:

Power requirement (PB) is multiplied by a factor of 2 - 3

HEAT DISSIPATION

An enclosure dissipates a certain amount of heat through the surface to the surroundings. The following factors are important when calculating this amount up to a temperature difference of ΔT = 50°C:

1. Effective enclosure surface area (A).
2. The heat loss factor depends on the construction material of the enclosure.
3. Air cooling factor (K) around the enclosure (at the installation site).
4. Power-dissipating components in the enclosure (PW).

Only these factors determine the effective surface area. Points 3 and 4 can only be estimated.

For painted indoor enclosures in still air, the average heat loss factor is estimated to be 5.5 W/m² x ΔT.

CALCULATION

The necessary output can be found by calculating:

$P_B = P_S - P_V$

$P_S = K \times A \times \Delta T$

P_B = Required power

P_V = All installed self-heating elements in the enclosure

P_S = Heat loss through the enclosure surface

K = Heat loss factor (W/m² x ΔT)

A = Effective enclosure surface area

ΔT = Recommended temperature in the enclosure relative to the ambient temperature

Example:

P_V = OW (power when the system is off)

K = 5.5 W/m² (in still air)

A = 1.7m²

ΔT = 10°C

P_S = 5.5 W/m² x 1.7 m² x 10°C = 93.5W

P_B = 93.5W - OW = 93.5W

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STANDARD PROGRAM

Item no.	Type	Voltage	Power	Size LxWxHmm	Ingress protection (IP)	Profile
60000220	PTC	120-240V	8W	30x25x12.5	IP32	
60505005	PTC	12-48V	15W	75x72x57	IP55	Star-shape
60505013	PTC	110-240V	15W	75x72x57	IP55	Star-shape
60505021	OHM	230V	75W	145x72x57	IP55	Star-shape
60900020	Ex T4	230V	100W	100x54x54	IP66	Star-shape
60505039	PTC	12-48V	20W	100x116x33	IP55	Double
60505047	PTC	110-240V	20W	100x116x33	IP55	Double
60505054	PTC	220-440V	20W	100x116x33	IP55	Double
60505062	PTC	12-48V	40W	250x116x33	IP55	Double
60505070	PTC	110-240V	40W	250x116x33	IP55	Double
60505088	PTC	220-440V	40W	250x116x33	IP55	Double
60505096	OHM	230V	100W	250x116x33	IP55	Double
60505104	OHM	230V	160W	250x116x33	IP55	Double

Item no.	Type	Length
09600227	Bracket for anti-condensation heater	115 mm
09600252	Bracket for Ex anti-condensation heater	90 mm
09600244	Bracket for anti-condensation heater	72 mm
09600610	Bracket for anti-condensation heater (long version)	72 mm

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