

**SEMICONDUCTOR CONTROL
PANEL HEATER**

Features

- Designed to protect electronic, pneumatic, hydraulic and mechanical equipment requiring protection from low temperatures, condensation and corrosion. The PTC heater unit will maintain a stable temperature environment within enclosures, allowing critical components to perform with consistent reliability for longer periods.

Installation

- Mount unit at or near the bottom of the cabinet. Improved heat dissipation will be achieved by using two or more smaller heaters wired in parallel. If a technical requirement exists for a specific temperature, regardless of the external ambient temperature, a temperature regulator can be installed. It is recommended 2-3" spacing.

Caution

- Do not mount on wooden structures.
- Avoid placement near heat-sensitive components.

HP45

Technical Data

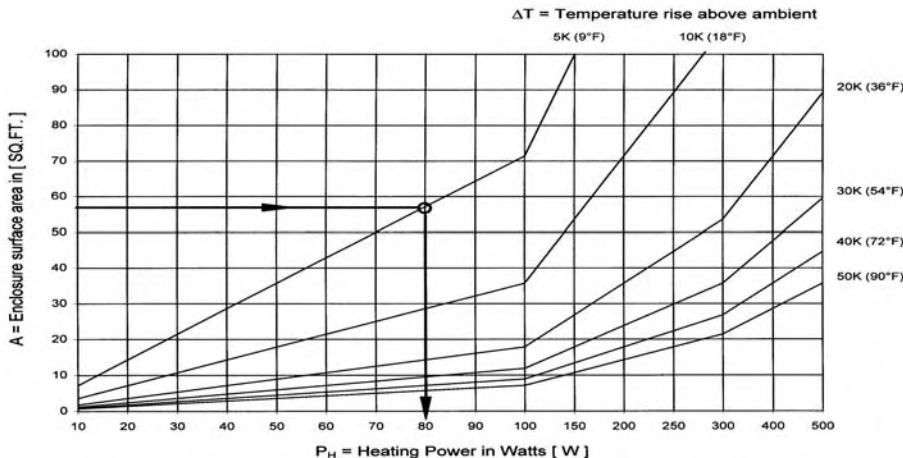
Voltage: AC 110-120 V
 Heating Power: see below
 Heating Element: PTC (Positive Temperature Coefficient self regulating and temperature limiting)
 Heating Body: Anodized extruded aluminum
 Connection: SJT 3 x 18 AWG Length 20"
 Mounting: clip mounting for 1.375" rails
 Protection Class: I (test voltage: 1250 V)
 Protection: IP 54
 Approval: UL recognized



Article No.	Heating Power at 68°F	Surface Temp. (approx.)	Starting Current (approx.)	Dimensions (H x W x D)	Weight lbs.
HP45-15	15W	149°F	0.6A	2.6 x 2.8 x 2"	0.66
HP45-30	30W	167°F	1.2A	2.6 x 2.8 x 2"	0.66
HP45-50	50W	194°F	1.5A	5.5 x 2.8 x 2"	1.10
HP45-80	80W	203°F	2.0A	8.7 x 2.8 x 2"	1.76
HP45-100	100W	212°F	3.0A	8.7 x 2.8 x 2"	1.76

The diagram represents a painted, non-insulated fiberglass enclosure mounted in a calm air, building interior. The lowest temperature differential between room

temperature and cabinet interior must be 5 K + to prevent humidity and condensation. For outdoor applications, double the heating power requirement.



- P_H = Power required installed (W)
- P_V = Existing power from components (W)
- ΔT = Temperature differential (Kelvin) ambient to cabinet interior
- A = Free-standing switch cabinet area (SQ. FT.)
- k = Heat transmission coefficient (W/SQ. FT. K) convection in quiet air:
 Plastic approx. 0.28W/SQ.FT.K
 Printed steel approx. 0.51W/SQ.FT.K
 Aluminum approx. 1.85W/SQ.FT.K

Example: $P_H = \Delta T \times k \times A$
 $P_H = 5K \times 0.28W/SQ. FT. \times 50 SQ. FT. = 70W$

Formula with Solution: P_V = Existing power from components (W)
 $P_H = \Delta T \times k \times A - P_V$

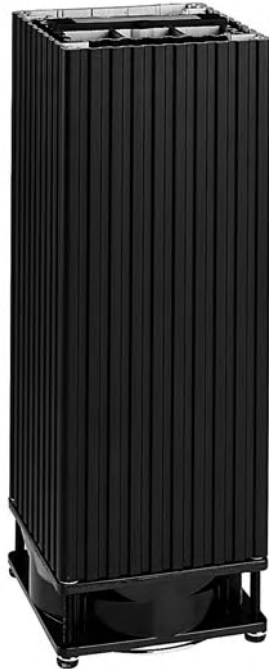
HEATER FAN

Features

- Heater-blower with axial fan for ideally forced air circulation
- Compact design
- Quick-clip mounting
- Long service life
- Maintenance free
- Compact heating fan, prevents accumulation of condensation and ensures an even temperature in switch cabinets.

Applications

Control panels
Free-standing cabinets
Telecommunication base stations
Cabins
ATMs
Parking control systems



HF250
HF400

Technical Data

Voltage:	AC 110-120 V, 50-60 Hz
Heating Power:	see table
Circulation Power:	1,236 ft ³ /h (35 m ³ /h) free blowing
Axial Fan:	Ball bearing Life expectancy: 30,000 hrs. at 68° F (20°C) ambient temperature
Heating Element:	Micanite with fail-safe thermostat
Heating Body:	Anodized, extruded aluminum in black color
Connection:	3-pole terminal for AWG 12
Mounting:	Clip mounting for 1.375" rails (35 mm DIN)
Protection Class:	I
Protection:	IP 20
Approvals:	UL and C-UL (recognized)

Heating Power

	HF250	HF400
Heating Power	250W	400W
Surface Temp. (max.)	167°F (75°C)	167°F (75°C)
Current (approx.)	2.2 A	3.5 A
Dimensions (inches)	3.15 x 3.15 x 7	3.15 x 3.15 x 9.76
Weight (lb.)	2.1	2.9

HEATING ATTACHMENT

Features

- Flat heater surface combined with an axial fan produces optimum forced convection of hot air.
- The heating attachment in combination with the axial fan ensures an optimum heat distribution. In case of fan breakdown, overheating will be prevented by a failsafe thermostat.
- Temperature-limiting
- Compact design

Applications

Control panels
Free-standing cabinets
ATMs
Telecommunication base stations
Cabins
Parking control systems



HA200-115

Technical Data

Voltage:	AC 115 V, 50-60 Hz
Heating Power:	200 W
Current:	1.75 A
Heating Body:	Anodized extruded aluminum
Dimensions:	6.3 x 4.7 x 1"
Connection:	3-pole terminal for AWG 15 (1.5 mm ²)
Weight:	1.1 lb.
Protection:	IP 54
Approvals:	UL (recognized)

HA200-230

Technical Data

Voltage:	AC 230 V, 50-60 Hz
Heating Power:	200 W
Current:	0.9 A
Heating Body:	Anodized extruded aluminum
Dimensions:	6.3 x 4.7 x 1"
Connection:	3-pole terminal for AWG 15 (1.5 mm ²)
Weight:	1.1 lb.
Protection:	IP 54
Approvals:	UL (recognized)

Note: Other power ranges available upon request
Designed for axial fan sizes 4.69 x 4.69"

SMALL THERMOSTAT

Features

- Easy installation
- Wide adjustment range
- Small dimensions
- Thermostat NC for the control of heaters/Thermostat NO for the control of filter ventilators, or for switching signal transmitters in the case of overheating.

Applications

- Air temperature control and monitoring in switch-gear cabinets
- Heaters, filter ventilators, heat exchangers, signal transmitters



VESNC
VESNO

Technical Data

Sensor element: thermostatic bi-metal
 Adjustment range: 30 - 140° F, switching difference approx. 4 K
 Contact type: NC (normally closed), quick-acting contact
 NO (normally open), quick-acting contact
 Switching capacity: NC: 15 A (1) AC 120 V
 NO: 15 A (1) AC 120 V
 "N" (acc. to VDE 0875)
 Noise suppression: "N" (acc. to VDE 0875)
 Dimensions: 2.4 x 1.3 x 1.4"
 Connections: 2-pole terminal for AWG 14 (0.04 in²)
 Mounting: clip mounting for 1.375" rails (35 mm DIN)
 Housing: plastic UL 94 VO
 Protection: IP 30
 Weight: 1.27 oz.
 Approval: UL and C-UL (recognized)

HUMIDITY CONTROL

Features

- Designed for the control of heaters to increase the dew point at critical humidities of 65% RH or higher. This will retard condensation; thus preventing corrosion and greatly extending the life expectancy of components.

Applications:

- Control panels and enclosures
- ATM machines
- Tool cabinets
- Control systems
- Indicator panels



MFR-012

Technical data:

Adjustment range: 35 - 100% RH
 Tolerance: + 3% RH
 Hysteresis: approx. 4% RH (at 50% RH)
 Permittable temperature: 32 - 140° F (0-60° C)
 Type of contact: change-over
 Maximum switching capacity: AC 230 V/5 A (resistive load)
 AC 230 V/0.2 A (inductive load)
 DC 50 V/1A (inductive load)
 AC/DC 20 V . 100 mA
 Minimum load:
 Service life/Life expectancy: 50,000 cycles (at AC 230 V / 5 A)
 Sensing element: synthetic fibers
 Protection: IP 20
 Noise suppression: "N" (acc. to VDE 0875)
 Connections: 4-pole terminal, 2.5 mm²
 Mounting: clip mounting for 1.375" rails (35 mm DIN Rails) (EN50022)
 Dimensions: 2.64" x 1.97" x 1.5"
 Housing: plastic UL 94 VO
 Weight: 0.22 lb. (0.1 kg)
 Approval: UL recognized

PRESSURE COMPENSATION PLUG

Features

- In tightly closed control panels, no pressure compensation can take place at temperature variations (e.g. day/night operation). This involves the risk, that, due to the depression, dust and humidity is absorbed into the control panel.
- Easy installation
- High efficiency
- Especially designed to permit a controlled pressure compensation. High protection type of the pressure compensation plug (IP 45), does not affect the protection type of the control panels.



PCP

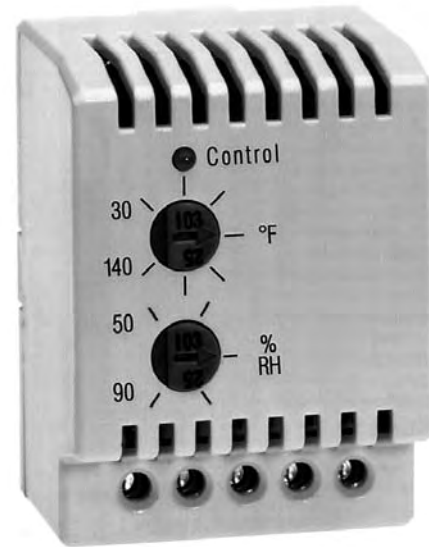
Technical Data

Dimensions:	2.6" diameter x 1.2"
Mounting:	PG 29 thread with union nut
Material:	polycarbonate/ABS
Housing color:	grey
Air intake housing:	approx. 2.8 in ²
Protection:	IP 45

ELECTRONIC HUMIDITY AND TEMPERATURE CONTROLLER

Features

- Electronic temperature controller and humidity controller for the independent detection of relative humidity and temperature.
- Temperature and humidity are independently adjustable
- High-switching capacity
- Optical indication of function
- The electronic temperature controller and hygrostat detects the set temperature and humidity of the ambient air, switching resistive and inductive loads (e.g. heating or cooling appliances).



ETHC-115 ETHC-230

Technical Data

Temperature range:	32 - 140° F (0-60° C)
Hysteresis:	approximately 2K
Humidity range:	50-90% relative humidity, adjustable
Response time:	approximately 160 seconds
Connected voltage:	115 V/50-60 Hz
Relay output:	change-over contact AC 8 A (4) 115 V DC 0,5 A/100 V DC 8 A/12 V DC 5 A/35 V
Service life:	10 ⁵ cycles
Optical indication of function:	LED
Mounting:	clip mounting for 35 mm DIN and EN50022 rails plastic UL 94V0
Housing:	plastic UL 94V0
Dimensions:	2 x 2.65 x 1.7"
Weight:	0.3 lb.
Protection:	IP 30
Approvals:	UL (pending)