



Instruction Sheet for Pfannenber FLH-TF Fan Heater w/ T-Stat



1.0 INSTALLATION

1.1 The PH enclosure heater is a fan forced air heater designed to maintain a suitable temperature inside a metal enclosure or control panel.

1.2 The proper selection of a heater for an enclosure or space is determined by a consideration of the surface area, insulation properties, temperature difference between the ambient and the enclosure, and the enclosure location. To ensure proper heater selection, refer to "Heater Selection" guidelines.

1.3 The intended use of this heater is to protect against the effects of low temperature such as corrosion, freezing or condensation from damaging critical components inside a control enclosure.

1.4 This heater is not designed for use as a space or comfort heater and should not be installed in a wet, dusty, corrosive or hazardous location.

1.5 Operating surface temperatures of this heater is sufficient to cause burns upon contact with bare skin.

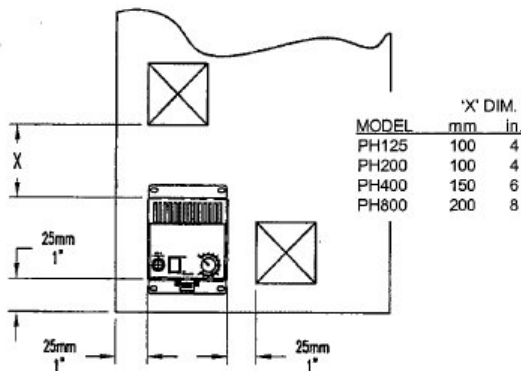
1.6 Before servicing, disconnect heater from the supply and allow approximately 10 minutes for the heater to cool.

2.0 MOUNTING

2.1 The heater is to be mounted on a metal surface only inside a metal enclosure and should be installed in the centre of the enclosure and as low as practical for the best possible heat distribution.

2.2 The heater should be mounted in a vertical position with the terminal block at the bottom, so that the air discharge vents are at the top.

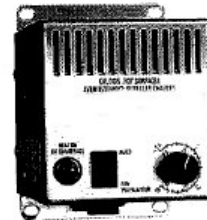
2.3 To ensure unrestricted air flow through the heater and avoid high temperatures on adjacent surfaces, heat sensitive components should be spaced away from the air discharge vents as shown below.



2.4 Mount the heater to the enclosure using four #10 metal screws. An optional DIN rail mounting adaptor is available.

CAUTION

- DO NOT INSTALL IN WET, DUSTY, CORROSIVE OR HAZARDOUS LOCATIONS.
- MOUNT ONLY ON A METAL SURFACE IN A METAL ENCLOSURE.
- HEATER SURFACE TEMPERATURES ARE SUFFICIENT TO CAUSE BURNS.
- KEEP AWAY FROM COMBUSTIBLE SURFACES AND HEAT SENSITIVE COMPONENTS.



3.0 WIRING

- 3.1 Disconnect power before installation or servicing.
- 3.2 Heaters must be wired by qualified personnel to local electrical code requirements.
- 3.3 Check the supply voltage requirements with the heater nameplate voltage rating. Use wires suitable for 90°C.
- 3.4 Note that the heater thermostat does not have an OFF position.

4.0 OPERATION AND MAINTENANCE

- 4.1 Apply power to the circuit. Set the thermostat to the desired space temperature.
- 4.2 Allow suitable time for the thermostat to cycle and the space temperature to stabilize.
- 4.3 Due to system variances, you may need to readjust the thermostat to achieve desired temperature.
- 4.4 To ensure proper air flow through the heater, periodically check and clean the air ventilation openings from any dust or debris.
- 4.5 Standard heaters have a built-in pilot light to indicate heat on, and have a built-in fan switch which will allow the fan to run continuously for more uniform temperature distribution.
- 4.6 In "Fan" mode the heater will still provide heat when the temperature drops below set point. In the "Auto" mode the fan will turn on only when the heating element is energized.
- 4.7 The fan motor has permanently lubricated ball bearings and should not require maintenance.

5.0 OVERHEAT PROTECTION

In the event of fan failure, or an overheat condition, an automatic reset temperature limit switch will open, breaking the power to the heating element.

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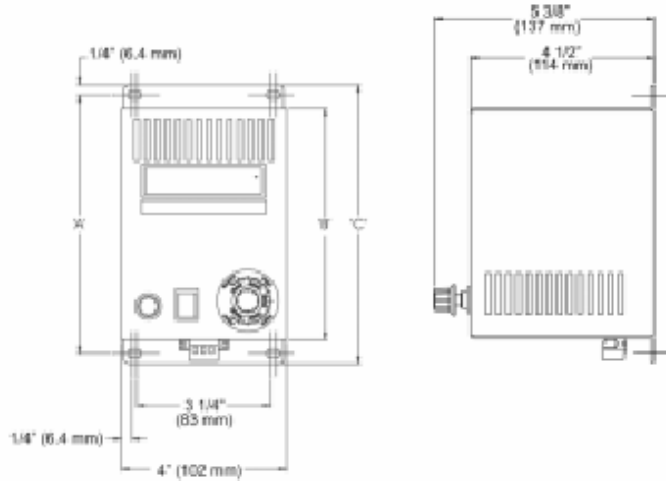
Subsidiary of the Pfannenber Group

68 Ward Road --- Lancaster, NY 14086 --- Phone: 716-685-6866 --- Fax: 716-681-1521

Internet: <http://www.pfannenberusa.com>



Dimensional Information:



Model Number	“A”	“B”	“C”
FLH-TF 125	5” (127mm)	4 3/16” (106mm)	5 1/2” (140mm)
FLH-TF 200	5” (127mm)	4 3/16” (106mm)	5 1/2” (140mm)
FLH-TF 400	7” (178mm)	6 3/16” (157mm)	7 1/2” (191mm)
FLH-TF 800	7” (178mm)	6 3/16” (157mm)	7 1/2” (191mm)

Heater Selection

The wattage requirement is determined from a consideration of the surface area, insulation properties of the enclosure or space and the temperature difference between the ambient and the enclosure. For small enclosures (less than 100 ft² surface area) conservative values for heat losses are as shown in Table 1.

Example: To find wattage requirements in an uninsulated enclosure 2' x 3' x 1', which must be held at 40°F in a 10°F outdoor ambient, with internal electrical components that generate 80 watts.

$$\text{Surface Area} = 2[(2' \times 3') + (2' \times 1') + (3' \times 1')] = 22 \text{ ft}^2$$

From Table 1, an uninsulated outdoor enclosure requires 7 watts per square foot for each 10°F temperature difference.

$$\text{Temperature Difference} = 40^\circ\text{F} - 10^\circ\text{F} = 30^\circ\text{F}$$

$$\text{Wattage Required} = (30^\circ\text{F} \div 10^\circ\text{F}) \times 7 \text{ W/ft}^2 \times 22 \text{ ft}^2 = 462 \text{ watts}$$

$$\text{Heater Wattage} = \text{Wattage required} - \text{component wattage} = 462 - 80 = 382 \text{ watts}$$

Use one FLH-TF 400 rated at 400 watts. For enclosures requiring more than 800 watts, two or more PH heaters may be used.

TABLE 1 - WATTS/FT ² PER 10°F TEMPERATURE DIFFERENCE		
	INDOORS	OUTDOORS
UNINSULATED	5	7
INSULATED (MIN. 1")	1	1.2

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