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## Pipe Heat Trace Control Options

There are two types of temperature control, ambient (air sensing) and line sensing.

### Ambient Air Control

This is the preferred method for freeze protection applications.

Ambient control means the heater is turned "on" and "off" depending on the temperature of the surrounding air. This method uses an ambient air sensing thermostat that may control a single heater circuit or multiple heater circuits by serving pilot duty on contactors.

Advantages of ambient control include simplified control wiring and lower initial control costs and maintenance costs.

Disadvantages include loss of precise temperature control and excessive energy consumption since heaters may be on when the actual pipe temperature may not require it.

### Line Sensing Control

Line sensing control means a thermostat is used to sense each pipe or vessel's actual temperature. The heater is only energized when that line's temperature drops below the thermostat's switching point.

Advantages of this method include close temperature control for critical process piping and minimum energy usage.

Disadvantages are higher initial control costs and maintenance costs that will rise in proportion to the number of controllers used.

Ground fault circuit protection is required for heat tracing. This can be accomplished with GFEPD panel breakers or the use of a heat tracing control that includes GF circuit protection.

Please note that controls that provide GF circuit protection cannot be used with contactors.

**Electronic controls.** These provide GF circuit protection and can be used for ambient or line sensing control methods:

**FPT-130:** single circuit, 30-50°F adjustable set points, alarm relay, sensor included, 120-277volts, rated for 30amp load.

**GPT-130:** single circuit, -99 - 999°F adjustable set points and alarms, alarm relay, sensor included, 120-277volts, rated for 30amp load.

**GPT-230:** two circuits, -99 - 999°F adjustable set points and alarms, alarm relay, sensors included, 120-277volts, rated for 30amp load.

**AXPC100CMGP:** single circuit, pipe mounted, adjustable set points, alarm contacts, RTD sensor not included, 120-277volts, rated for a 30 amp load NEMA 4X enclosure.

**CMGP:** single circuit, adjustable set points, alarm contacts, RTD sensor not included, 120-277volts, rated for a 30 amp load NEMA 4X enclosure.

**CM2201:** single circuit, programable set points and alarms, RTD sensor not included, 120-277volts, rated for 30amp load, C1D2 hazardous location.

**CM2202:** two circuits, programable set points and alarms, RTD sensor not included, 120-277volts, rated for 30amp load, C1D2 hazardous location.

**Mechanical T-stats.** These do not provide GF circuit protection.

Ambient T-stats:

**TF4X40:** 40°F non-adjustable set point, 120-480v, rated for a 22amp load, NEMA 4X enclosure.

**TA4X140:** 15-140°F adjustable set point, 120-480v, rated for a 22amp load, NEMA 4X enclosure.

**TA7140:** 15-140°F adj. set point, 120-480v, rated for a 22amp load, C1D2 hazardous location, NEMA 7 enclosure.

Line Sensing T-stats:

**TH4X325:** 25-325°F adjustable set point, 120-480v, rated for a 22amp load, NEMA 4X enclosure

**TH7325:** 15-325°F adj. set point, 120-480v, rated for a 22amp load, C1D2 hazardous location, NEMA 7 enclosure.