THERMAL PROTECTORS

Thermal Protectors are provided as a Thermal Cut-off (TCO), Bimetallic Thermostat or Thermocouple. The protector is placed inside a thermowell that is positioned in contact with the heater sheath. If the liquid level drops and the surface of the heater reaches the set point temperature, the thermal protector in combination with the control system will cut power to the heater.

⚠ CAUTION

The heaters are to be used with a separate low-liquid-level cutoff control device that de-energizes the heater upon a low-liquid-level condition. These devices are intended to be connected to installer provided and installed and rated in accordance with National Electrical Code (NEC), ANSI/NFPA 70 for the US and Canadian Electrical Code (CEC), CSA C22.1 for Canada.

Protector A-Series (TCO)

The Protector A-Series features a eutectic switch with an organic pellet that undergoes a phase change, activating spring contacts to permanently open the circuit. The TCO helps operators identify and address overheating causes during replacement. For economical setups, the TCO can be directly wired to the heater if within electrical ratings. Three-phase systems or heaters exceeding voltage or amperage limits require a power contactor for indirect heating load connection.

Protector A-Series (TCO)						
Style	Part #	Wire Color	Wire Length	Process Temperature Range	Max Volts	Max Amps
T1	59071-72-R	Blue	72"	Up to 190°F (Up to 88°C)	240	15
T4	59072-72-R	White/Blue	72"	190°F to 230°F (88°C to 110°C)	240	15
T5	59073-72-R	White	72”	230°F to 300°F (110°C to 150°C)	240	15
Note: Refer to protector tag on lead wires for specific ratings and details.						

Protector B-Series (Bimetallic Thermostat)

The Protector B-Series has a pre-specified switching temperature that opens a circuit when the temperature exceeds its rating. It’s recommended that the device be connected to a controller with a power contactor (for an indirect heating load connection) and manual reset control circuitry. A manual push button reset feature allows the heater to be returned to operation if an over temperature or low liquid level event occurs. The heater must be inspected, and the cause of circuit interruption must be corrected before resetting the control circuitry.

Protector B-Series (Bimetallic)						
Style	Part #	Wire Color	Wire Length	Process Temperature Range	Max Volts	Max Amps
T2	59069-T2-72-R	Red/Blue	72"	Up to 190°F (Up to 88°C)	120	2.6
T6	59070-T6-72-R	Red/White	72"	190°F to 230°F (88°C to 110°C)	120	2.6
T7	59053-T7-72-R	Red	72”	230°F to 300°F (110°C to 150°C)	120 / 240	6.0 / 4.0
T15	59032-T15-60-R	Red/Blue	60”	Up to 190°F (Up to 88°C)	120 / 240	6.0 / 4.0
T17	59034-T17-60-R	Red/White	60”	180°F to 230°F (82°C to 110°C)	120 / 240	6.0 / 4.0
Note: Additional temperature rated devices available upon request. Refer to protector tag on lead wires for specific ratings and details.						

Protector C-Series (Thermocouple)

The Protector C-Series are a thermocouple sensor that can be connected to external control circuitry. They are used for process temperature ranges up to 250°F (121°C).

Protector C-Series (Thermocouple)					
Style	Type	Part #	Cable Color	Cable Length	Process Temperature Range
T8	J	59078-T8-72-R	Brown	72"	Up to 250°F (Up to 121°C)
T9	K	59079-T9-72-R	Brown	72"	Up to 250°F (Up to 121°C)

DO NOT wire C-series protectors directly to power the heater. A short circuit will result and cause irreparable damage to the heater.

Refer to product installation instructions for additional details and wiring diagrams.