



PRODUCT SPECIFICATIONS

TC 1818a

CONTROL AND MONITORING MODULE

APPLICATION

The TC 1818a is a multi circuit microprocessor-based temperature control and monitoring module developed specifically for heat tracing. The unit provides control and monitoring capabilities via digital information display for a maximum of 18 heat tracing circuits. The module can be configured for either process sensing control (with an RTD for each circuit) or ambient sensing control (with a user's choice of one or two RTD inputs).

As a modular unit, the TC 1818a is typically located within an enclosure suitable for the application. For maximum versatility, multiple modules can be installed in a common enclosure. Individual six-point sensor modules handle input to and output from the TC 1818a via ribbon cable connectors. Up to three input and three output modules can be connected to each TC 1818a.

RATINGS

- Control and monitoring capacity ... 18 heat tracing circuits (up to 30 amps each)
- Module supply voltages 110-120 or 208-240 Vac
- Controlled output voltages 110-480 Vac
- Power consumption 40 watts
- Module operating ambient -40°F to 140°F (-40°C to 60°C)
- Maximum storage ambient 158°F (70°C)
- Data retention nonvolatile EEPROM
- Power clamp function . programmable from 20% to 100%
- Temperature input..up to 18 3-wire platinum 100 Ω RTDs
- Temperature control range -40°F to 932°F or -40°C to 500°C
- Control band programmable in increments of 1 degree
- Module dimensions (HxWxD) 4.5" x 19" x 7.5" (114 x 482 x 190 mm)
- High operating current alarm 1.0 to 30.0 amps
- Low operating current alarm 0.0 to 30.0 amps
- Ground leakage alarm/trip 30 to 150 mA (in 1 mA increments)
- Alarm relay AC only, rated @ 1-amp resistive (110-120 or 208-240 Vac)
- Self-test frequency..... programmable from 2 to 99 hours
- Communication..... Modbus ASCII via RS 485 port



TA 1818a (modules shown mounted in stainless steel enclosure)

PRODUCT FEATURES

Real time data for:

- Temperature
- Heater current
- Ground leakage current

Stored data for:

- Highest temperature encountered
- Lowest temperature encountered

Alarm information for:

- Low temperature
- High temperature
- Low heater current
- High heater current
- Ground leakage current
- Damaged RTD sensor

CERTIFICATIONS/APPROVALS

When housed in a NEMA 4 or 4X enclosure.



FM Approvals
Ordinary Locations
Hazardous (Classified) Locations
Class I, Division 2, Groups B, C and D



Underwriters Laboratories Inc.
Ordinary Locations



Canadian Standards Association
Ordinary Locations
Hazardous (Classified) Locations
Class I, Division 2, Groups B, C and D



CE¹ Low Voltage Directive 93/68/EC
EMC Directive 92/31/EEC and 93/68/EEC

Note

1. Order catalog number TC 1818-CE for this option.

THERMON The Heat Tracing Specialists®



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CONTROL METHODS

Heat tracing circuits are controlled with the TC 1818a via sensor input modules and power output modules.

Sensor Input Modules: Each module is designed to accept up to six RTD temperature inputs. The module is connected to the TC 1818a via ribbon cable connections.



Sensor Input Module

Power Output Modules:

Power output modules, connected to the TC 1818a via ribbon cable, are designed to control up to six heating circuits each. These zero crossing solid-state relays will allow four different modes of operation:



Power Output Module
(polycarbonate cover not shown)

- **On-off control**—User input for maintain temperature and control band provides the on-off limits for the controlled heater.
- **On-off control with Soft Start**—Adds a three-minute 0% to 100% ramp-up feature to the on-off control function to minimize the effects of start-up power.
- **Proportional**—Adjusts the amount of heat generated through time sequencing of the heater. Reduces energy consumption for ambient-controlled systems and provides uniform maintain temperatures when line sensing control is used.
- **Self-adjust**—The user inputs the setpoint and the control band (maximum on temperature); the controller adjusts the heat generated to stay within the limits imposed.

OPTIONAL CONTROL METHOD

When controlling and monitoring heat tracing circuits (where higher voltages or higher current switching capacities are required), the TC 1818a may be configured to control one of two relay interface modules. The RM-1 and RM-2 were both developed specifically for use with the TC 1818a to handle a variety of mechanical and solid-state relay output devices. Refer to Form TEP0028 for specific information.

ENCLOSURES

The TC 1818a control and monitoring module must be located in an enclosure suitable for the application. Thermon offers enclosures to meet a variety of environments as part of a HeatChek® control and monitoring unit. These HeatChek control and monitoring units may be configured with or without power distribution. An array of optional accessories and configurations are available to meet specific project requirements.

- **Enclosure Types:** Standard enclosures include NEMA 4x/IP54 Stainless Steel or NEMA4/IP54 Painted Steel. Additional panel types are available; contact factory.
- **Pre-Assembled Options:** The TC1818a controller can be enclosed in a stand-alone panel (with internal or external power distribution), or as part of a unit on a skid. Thermon controller skids include transformer, distribution panel, electrical heat tracing controller panel, and termination accessories all on one convenient skid.
- **Operator Access:** Typical designs include external door with window for ease of operator access to facilitate safe and easy access to controllers, while maintaining the sealed integrity of the panel.
- **Control & Monitoring Capacity:** Controllers can be positioned alone with up to 18 heat trace circuits, or in parallel with multiple controllers (up to 4) for a total of 72 heat trace circuits per panel.