



PRODUCT SPECIFICATIONS

TC 202a

CONTROL AND MONITORING MODULE

APPLICATION

The TC 202a is a microprocessor-based temperature control and monitoring module developed specifically for heat tracing. The unit provides control and monitoring capabilities via digital information display for two heat tracing circuits with input from two RTDs.

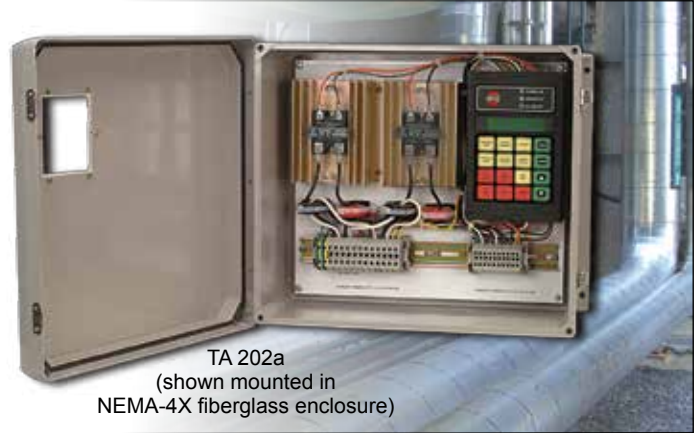
RATINGS

Control and monitoring capacity2 heat tracing circuits
 Module supply voltages110-120 or 208-240 Vac
 Controlled output voltages110-480 Vac
 Power consumption6 watts
 Operating ambient ¹-40°F to 140°F
 (-40°C to 60°C)
 Maximum storage ambient158°F (70°C)
 Data retentionnonvolatile EEPROM
 Power clamp function . programmable from 20% to 100%
 Temperature inputtwo 3-wire platinum 100 Ω RTDs
 Temperature control range-40°F to 932°F
 (-40°C to 500°C)
 Control band programmable in increments of 1 degree
 High operating current alarm1.0 to 30.0 amps
 Low operating current alarm0.0 to 30.0 amps
 Ground leakage alarm/trip30 to 150 mA
 (in 1 mA increments)
 Alarm relayAC 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

Notes

1. LCD display heater is recommended for ambients below -4°F (-20°C).

Refer to **HOW TO SPECIFY** on reverse to specify module type.



TA 202a
(shown mounted in
NEMA-4X fiberglass enclosure)

PRODUCT FEATURES

Real time data for:

- Temperature
- Heater current
- Ground leakage current

Stored data for:

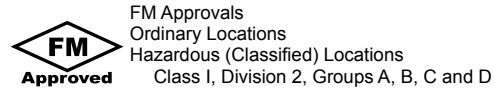
- Highest temperature encountered
- Lowest temperature encountered

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 4X enclosure and equipped with solid-state relays, the TC 202a is approved for use in ordinary (non-classified) and hazardous (classified) areas.



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



Underwriters Laboratories Inc.
Ordinary Locations



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

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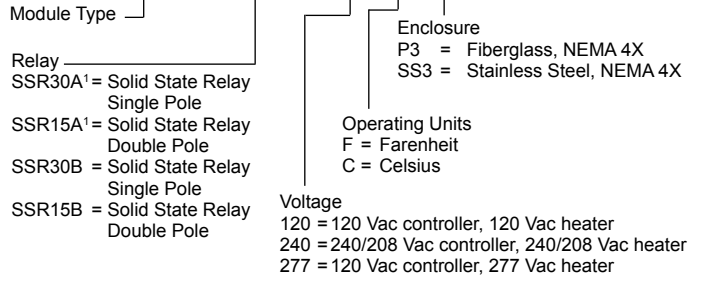
TC 202a

CONTROL AND MONITORING MODULE



HOW TO SPECIFY

TC 202A - SSR30B - 120 - F - P3



Relay	Configuration	Operating Ambient	Heat Sink Style	Amperage Ratings
SSR30A ¹	Internal Heat Sink (single pole relay)	40°F (4°C) 104°F (40°C)	A	2 @ 30 amps 2 @ 12 amps
SSR15A	Internal Heat Sink (double pole relay)	40°F (4°C) 104°F (40°C)	A	2 @ 19 amps 2 @ 6 amps
SSR30B ¹	External Heat Sink (single pole relay)	40°F (4°C) 104°F (40°C)	B	2 @ 30 amps 2 @ 30 amps
SSR15B	External Heat Sink (double pole relay)	40°F (4°C) 104°F (40°C)	B	2 @ 24 amps 2 @ 15 amps

CONTROL METHODS

Heat tracing circuits are controlled with the TC 202a via zero crossing solid-state relays which will allow four different modes of operation:

- **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 precise control of 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.

The ambient conditions and heat sink style determine the amperage rating of a solid-state relay. The chart indicates the amperage ratings (at the temperatures indicated) using the standard enclosures and heat sinks. The 40°F (4°C) ratings should be used with freeze protection applications as the controlled circuit would not be energized above this temperature.

Note

1. When phase-to-phase heaters are controlled and qualified personnel are not maintaining the system, 2-pole relays or a 2-pole EPD circuit breaker is recommended.

ENCLOSURES

Thermon offers both metallic and nonmetallic enclosures to meet a variety of application environments. Each enclosure includes a 3" x 3" (76 x 76 mm) clear polycarbonate viewing window.

Metallic: NEMA 4X stainless steel with a hinged cover held in place by screw closures. A quick release latch option is available.

Nonmetallic: NEMA 4X fiberglass reinforced polyester with a hinged cover held in place with quick release latches.

