

DIVISION OF A.J. ANTUNES & CO.

TEMPERATURE CONTROLLERS

MODEL-TTO

INSTALLATION INFORMATION

THESE TEMPERATURE CONTROLLERS ARE COMPACT AND EASILY INSTALLED. THE UNIT PLUGS INTO A STANDARD EIGHT PIN SOCKET. PLEASE READ THIS FOLDER CAREFULLY TO ASSURE CORRECT INSTALLATION. THIS EQUIPMENT MUST BE INSTALLED BY A LICENSED ELECTRICIAN. PRIOR TO BEING PUT INTO OPERATION, CHECK ALL WIRING AND FUNCTION OF UNIT.

SPECIFICATIONS

SENSOR: Thermocouple (Type J or K)

ACCURACY: 1% Full Scale

AMBIENT OPERATING

TEMPERATURE: -30°F to 140°F

(-35°C to 60°C)

OUTPUT: 10 A Relay (Resistive Load)

CONTROL: On/Off, High Limit - Manual Reset

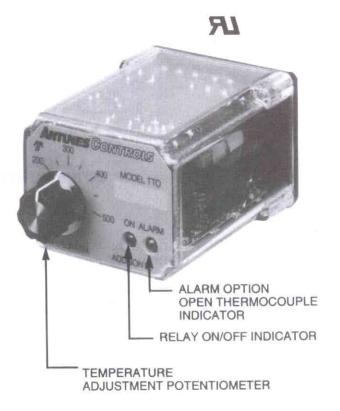
AVAILABLE VOLTAGE: 24 Vac, 115 Vac, 230 Vac

CONNECTIONS: 8 Pin Octal Socket Plug-In

HYSTERESIS: Typically 1-2° unless ordered otherwise

TEMPERATURE RANGE: 40° - 1000°F

0° - 538°C



POWER WIRING

SERIES TTO TEMPERATURE CONTROLLERS ARE DESIGNED FOR INPUT VOLTAGES OF $24 \text{Vac} \pm 10\%$, $115 \text{Vac} \pm 10\%$ OR $240 \text{Vac} \pm 10\%$, 50 OR 60 Hz. POWER INPUT PINS OF THE OCTAL SOCKET ARE PINS 1 & 2.

INPUT WIRING

POWER AND THERMOCOUPLE WIRING SHOULD NOT BE PLACED IN THE SAME CONDUIT OR WIRING TROUGH. HOWEVER, WIRES FROM SEVERAL THERMOCOUPLES MAY BE IN THE SAME CONDUIT OR WIRING TROUGH.

IF SHIELDED THERMOCOUPLES ARE USED, THE SHIELDS SHOULD BE INSULATED ELECTRICALLY FROM THE THERMOCOUPLE WIRES AND TERMINATED TO EARTH GROUND OF THE OCTAL SOCKET (PIN 6).

THE THERMOCOUPLE USED SHOULD BE THAT

TYPE SPECIFIED (J, K, ETC.) WHEN THE TTO UNIT WAS ORDERED. THE THERMOCOUPLE SHOULD ALSO BE CONNECTED TO THE TEMPERATURE CONTROLLER WITH THE PROPER THERMOCOUPLE EXTENSION WIRE. THE USE OF EXTRA WIRE CONNECTED BETWEEN THE THERMOCOUPLE AND THE TTO UNIT IS NOT RECOMMENDED AND MAY RESULT IN THE UNIT NOT MEETING MANUFACTURER'S SPECIFICATIONS.

OBSERVE PROPER THERMOCOUPLE AND THERMOCOUPLE EXTENSION WIRE POLARITY. THE RED WIRE IS USUALLY NEGATIVE.

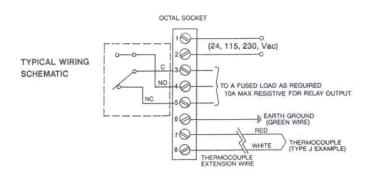




FIGURE 2

INTERNAL RELAY OUTPUT STATES

OPERATION

High Limit Mode Operation - When the temperature being sensed by the thermocouple is below the temperature setting of the TTO unit, the LED is "OFF" and the internal relay of the unit is energized. If the temperature sensed by the thermocouple is above the temperature setting of the TTO unit, the LED will be "ON" and the internal relay will de-energize. The relay will remain de-energized until the reset button is depressed, or power is removed from the TTO unit.

On-Off Mode Operation - When the temperature being sensed by the thermocouple is "OVER" the temperature setting of the unit the LED is "OFF" and the internal relay is de-energized. When the temperature being sensed by the thermocouple is below the temperature setting of the unit, the internal relay is energized and the LED is "ON".

Make relay connections accordingly observing the relay contact power ratings.

The Alarm option indicates an "OPEN" thermocouple. When the thermocouple is "OPEN" the internal relay is in the de-energized state.

OPTIONAL SOCKET

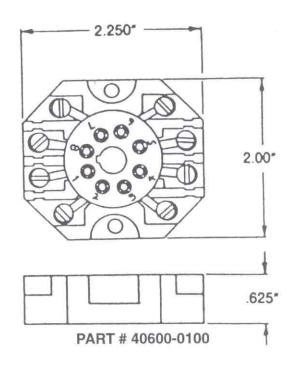
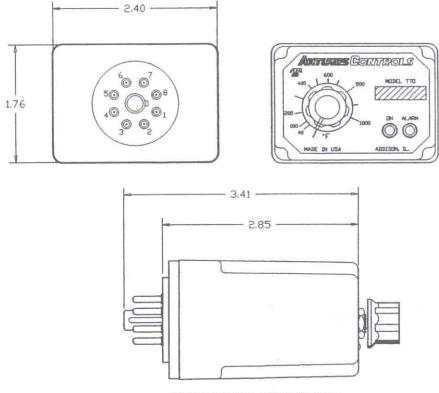


FIGURE 3

DIMENSIONS



SHIPPING WT. APPROX. 2 lbs.

FIGURE 4

WARRANTY

- Antunes Controls products are guaranteed to be free from mechanical and electrical defects for a period of one year from date of shipment under normal use and service provided. Installation is made in accordance with manufacturers recommendations.
- Parts deemed defective shall be repaired or replaced at manufacturers option and at manufacturers expense but shall not include foreign or federal excise taxes, state or municipal sale or use taxes, all such taxes not limited to the foregoing being responsibility of the purchaser.
- 3. No charge for travel and/or mileage will be allowed to purchaser.
- 4. Antunes Controls reserves the right to make changes in design or make any improvements on any products. The right is always reserved to modify our equipment because of new technology, underwriter's requirements and/or government regulations.
- 5. The following are not covered under warranty:
 - a. Failure from neglect, abuse, careless handling and mis-application of unit.
 - b. Failure to observe guidelines for installation or improper voltage hook-up.
 - c. Failure caused by improper maintenance.
 - d. Unless specifically allowed by Antunes Controls, no other chargs may be included under warranty.

LIMITATION OF LIABILITY. It is understood and agreed that seller's liability whether in contract, in tort, under any warranty, in negligence or otherwise shall not exceed the return of the amount of the purchase price paid by purchaser and under no circumstances shall seller be liable for special, indirect or consequential damages. The price stated for the equipment is a consideration in limiting seller's liability. No action, regardless of form, arising out of the transactions may be brought by purchaser more than one year after the cause of action has accrued.



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