General Description

The TC-110 series panel mount temperature controllers provide temperature display, relay control, and feature programmable setpoints, upper and lower setpoint limits, differentials and calibration.

Applications

Applications include heating, cooling, refrigeration, HVAC, food service, medical and industrial equipment.

Temperature Controllers
TC–110
TC–110H
TC–110RTD

Features

• Membrane touch-pad programming
• 0.56" high red LED display
• Programmable setpoint(s) and differential(s)
• Panel mount enclosure

• Temperature setpoint display
• LED relay status indicator(s)
• Tamper resistant programmable setpoint limits
• Available with single or dual stages

Specifications

Power requirements: Available in 12 or 24 volt models - Specify AC (2VA) or DC (100 mA) voltage supply
Accuracy: $\pm1°$F, $\pm1°$C
Relay status indicator: Lighted while relay is activated
Relay(s) contact rating: SPDT relay, 4 Amp (24 VAC resistive).

**Ambient temperature range:** 20° to 158°F, – 6° to 70°C
Humidity: 90% non-condensing
Agency approvals: U.L. and C.U.L. recognized, NSF listed depending on model (consult factory)
Weight: 3.6 oz. (1.64kg)

Series	Temperature Range °F / °C	Accuracy	Sensor Type
110/111	–67° to 302°F / –55° to 150°C	$\pm1°$F/1°C	PTC, 0.25"OD x 1.75" nickel plated copper cap, 36" two conductor 24 AWG wire (included)
110H/111H	32° to 572°F / 0° to 300°C	$\pm 2°$F/1°C	PTC, 0.188"OD x 4" stainless steel cap, 36" two conductor 24 AWG wire (included)
110RTD/111RTD	–99° to 999°F / –72° to 538°C	$\pm 2°$F/1°C (over 300° span)	100 ohm platinum RTD (not included)

Dimensions & Wiring
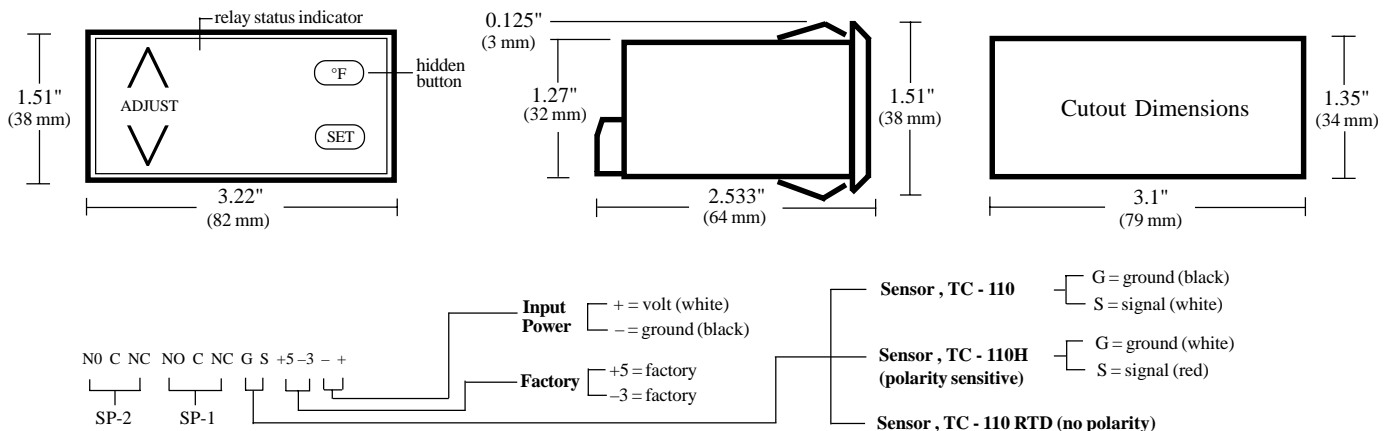
Programming Instructions

A. SETPOINT(S)   1. To start the programming sequence, press the SET button once. Unit displays "SP1" (setpoint 1).
   2. Press the SET button again to display SP1 value.
   3. To program an increase or decrease in SP1, press the appropriate ADJUST arrow.
   4. Repeat steps 1 thru 3 for SP2 (setpoint 2, dual stage model only).
   5. To complete the programming sequence, press the SET button until the screen
      goes blank. After five seconds, the unit will automatically display sensor temperature.
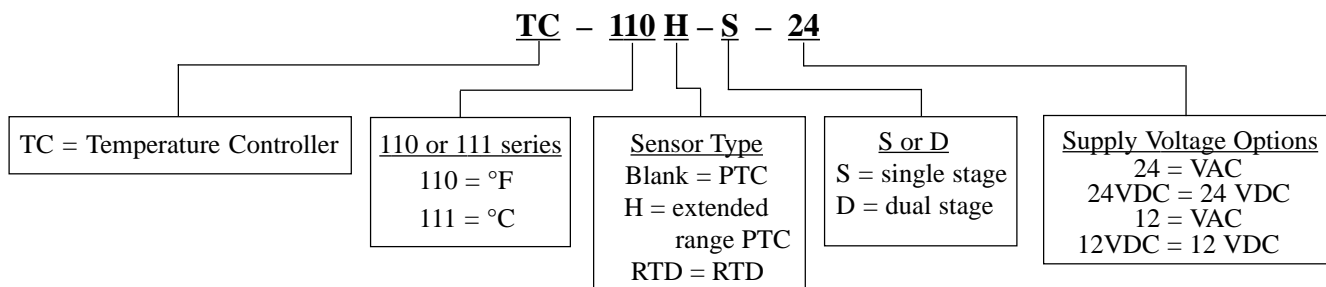
IMPORTANT: If the programming sequence is interrupted for more than 15 seconds or not completed to the blank screen stage, the unit will automatically revert to the temperature display mode WITHOUT acknowledging any new values (tamper resistant feature).

B. DIFFERENTIAL(S), HIGH/LOW SETPOINT LIMITS AND CALIBRATION – To program these parameters, press the "hidden" button located behind the "°F" or "°C" symbol (instead of the SET button), and repeat the programming procedure described in step A.

1. Differential "dIF" – setting a positive differential value will close the NO (normally open) relay(s) on temperature fall (heating applications) and open the relay(s) on temperature rise. A negative differential setting will close the NO relay(s) on temperature rise (cooling applications) and open the relay(s) on temperature fall. Differential is programmable from –30° to +30°. DO NOT SET DIFFERENTIAL AT "0".

2. High and Low Setpoint Limits "HI" and "LO" – allow you to limit the range in which the setpoints can be programmed. Also, by programming the high and low setpoint limit values to the same number, a tamper-resistant fixed setpoint is established.

3. Calibration "CAL" – Controller calibration can be programmed ±30 degrees. Unit is factory calibrated to a certified standard.

Ordering Information

Please use the following example when ordering:

TC – 110 H – S – 24

| TC = Temperature Controller | 110 or 111 series
110 = °F
111 = °C | Sensor Type
Blank = PTC
H = extended
   range PTC
RTD = RTD | S or D
S = single stage
D = dual stage | Supply Voltage Options
24 = VAC
24VDC = 24 VDC
12 = VAC
12VDC = 12 VDC |

Custom Design & Modifications

In addition to standard models, Control Products specializes in complete custom design of electronic controls. Modifications of our standard controls are also available. Please consult factory for more information.

Warranty

Control Products, Inc. warrants its products to be free from defects in material and workmanship under normal use for one year and is not responsible for consequential damages or installation costs of any nature. Exposure to contaminants and extreme environmental conditions such as moisture, temperature, chemicals, etc. may cause the unit to degrade or fail. Control Products accepts no liability for product applications or customer application testing.