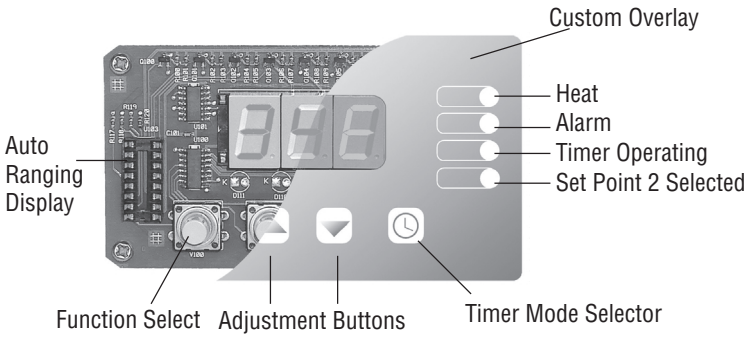
CCT1

Custom Controller/Timer

- **Auto-Tuning PID Controller**
- **Process Timer, 1-999 Minutes**
- **Independent Over-Temperature Option (KTC)**
- **Alarm with Relay or Built in Buzzer Option**
- **Field Selectable Inputs: RTD, J or K Thermocouple**
- **"Soft Start" Power Limit on Start up**
- **Configuration Port for Saving and Downloading Set-up Parameters**
- **SSR Drive and Relay Outputs**
- **UL Pending**



Pending

Applications

- Laboratory Ovens
- Commercial Cooking
- Sterilizers
- Ultrasonic Cleaners
- Pharmaceutical Ovens

Description

The CCT1 is a custom control without the custom control prices or lead times. With its dual PCB, the CCT1 assembly can easily fit inside compact equipment (less than 2"). It's the solution for compact heating and cooling applications:

- Laboratory Equipment
- Commercial Food Service
- Packaging Machinery
- Drying Machinery
- Sterilizers

Controller Function

The CCT1 uses "SMART" auto-tuning PID algorithm resulting in accurate control for heat or heat/cool applications. The smart algorithm automatically calculates the PID parameters suited for the specific process.

Timing Function

Reduce components in your product by combining time and temperature in one device. An integral timer function is available on the CCT1 that provides timed control of a heating or cooling cycle. An audible alarm option is available to indicate the end of timer cycle. During a timed heating or cooling cycle the display indicates time remaining. Configurable timer options include, Guaranteed Soak, Ramp Rate Control and Temperature Hold or Reset at End of timer cycle.

The timing function is excellent for cooking, curing, sterilizers or other applications where time is a factor.

Overtemperature Option

The overtemperature option includes an independent "K" thermocouple input and an independent relay output for the overtemp circuit. This integrated overtemp provides an inexpensive independent circuit and eliminates the additional space and mounting of a separate overtemp component.

Flexible Design

The two PCB board design allows the CCT1 to be mounted in tight spaces with its shallow depth of less than 2". The two PC boards can be mounted side by side for 1" depth applications.

The unit is supplied without an overlay. The overlay may be provided by the customer or Chromalox, and can cover just the CCT1 or the customer's entire control display. Custom OEM branded overlays make the control unique to your product.

Customization

To better meet the needs of OEM's, the CCT1 is designed for simple software and hardware modifications. If the OEM requires different button functions, timing functions, etc., Chromalox will work with the OEM to define the product required.

Simplicity

Functions are easily accessed without complex navigation.

2-Point System Calibration Option

Many pharmaceutical ovens and food processing ovens require the actual product temperature be displayed. Because of thermal gradients between the heating and cooling sources, the temperature that the sensor sees is not always the temperature that needs to be displayed. Other meters may be displaying the desired process temperature. The 2 Point Calibration Offset Option allows the user to add offset at two points in the temperature range, so that the CCT1 displays the desired temperature at the two end points and all values in between. For example, if the offset is at 100˚F needs to be 10˚F and the offset at 300˚F needs to be 20˚F, this option will display these offset temperatures and at 200˚F will have an offset of 15˚F.

CCT1

Custom Controller/Timer

(cont'd.)

General Specifications

Connection Terminals: 9 screw terminals (screw M3, for cable from 0.25 to 2.5 mm2 or from AWG 22 to AWG 14)

Dimensions: 3.94(100) H x 5.9(150) W x 2.1(53) D in. (mm.)

Weight: .44 lbs. (200g)

Supply: 85V to 265V AC 50/60 Hz 7 VA max

Sample/Display update: 500 ms.

Accuracy: + 0.3% f.s.v. + 1 digit @ 25˚C ambient and nominal power supply.

EMC/ Safety: Conforms to council directives 89/336/EEC (reference harmonized standard EN-50081-2 and EN-50082-2) and 73/23/EEC and 93/68/EEC (reference harmonized standard EN 61010-1).

Operating Temperature Range: From 32 to 122˚F (0 to 50˚C)

Storage Temperature Range: From -22˚ to 158˚F (-30˚ to +70˚C)

Operating Humidity Range: From 20% to 85% RH, non condensing.

Control Action

Control Action Type: PID + PI + SMART + ON/OFF (heat/cool/heat+cool).

Proportional Band: From 1.0% to 100 % of the input span.

Output Cycle Time: 1 to 200 seconds

Timer: 1 to 999 minutes

Measuring Input

THERMOCOUPLE

Burn Out Detection: Open TC detection (wire or sensor) with overrange indication.

Cold Junction: Automatic compensation from 0 to 50˚C ambient temperature.

Cold Junction Compensation Error: 0.1˚C/˚C.

Standard Range Table

C Type	˚C	˚F
L	-99 / 900	-99 / 999
J	-99 / 999	-99 / 999
K	-99 / 999	-99 / 999
N	-99 / 999	-99 / 999

RTD

Type: Pt 100 - 3 wire connection.

Line Resistance: Automatic compensation up to 20Ω/wire

Sensor Break: Open circuit detection (wire or sensor). Short circuit indication when the sensor resistance is lower than 15Ω

Standard Range Table

RTD Type	˚C	˚F
PT 100	-199/800	199/999
3 wire	-19.9/99.9	

Outputs

OUT 1 Function: Control output SSR Drive, 8Vdc@12mA

OUT 2 Function: Control output or alarm Relay (Form A) 10A @ 250 Vac on resistive load

OUT 3 - Buzzer Function: Alarm or timer status Buzzer piezoelectric, 3 kHz, 75 dB (at 30 cm)

OUT 3 - Relay Function: Alarm or timer status Relay (Form A), 10A @ 250 Vac on resistive load

Alarms

Programmable Settings: Direct or reverse acting; process, band or deviation alarm, automatic or manual reset, enable inhibit

Independent Overtemperature Option

Input: K, N Thermocouple

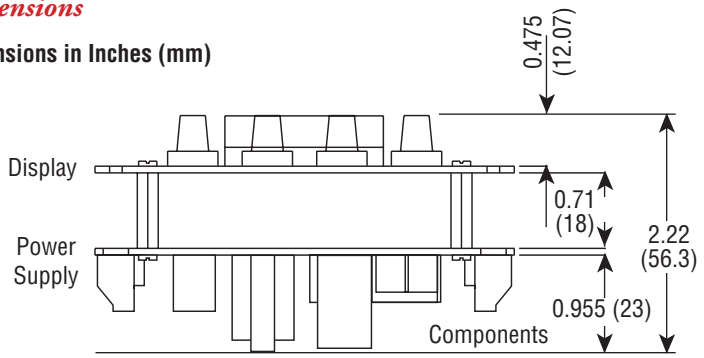
Output: Relay 10A @ 250V resistive (form A) NO contact

CCT1

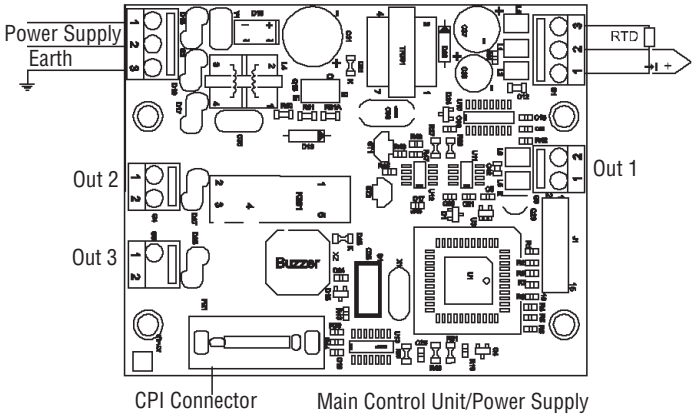
Custom Controller/Timer *(cont'd.)*

Dimensions

Dimensions in Inches (mm)



Assembly Side Profile



Ordering Information

CCT 1 Custom Controller/Timer with SSR Drive Out and Relay Out with RTD, J, K, L, N or Thermocouple Input

Code	Options
0	None
1	Two Point Calibration
2	Overtemp circuit with K or N thermocouple input
3	Overtemp Circuit + 2 point Calibration

Code	Output 3
0	None
3	Buzzer + Timer
4	Relay + Timer

Code	Power Supply
3	100 to 240 Vac

Code	Add to complete Part number
0	None

CCT1-	**0**	**0**	**3**	**0**	**Typical Part Number**