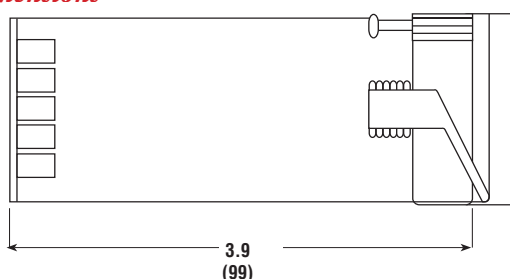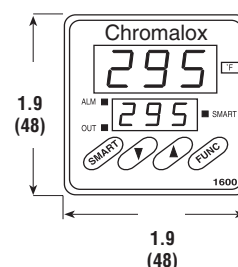# 1603
1/16 DIN
Temperature Controller

- **Dual 3-Digit Display of Process and Setpoint**

- **Heat or Cool, or Heat/Cool PID Control Capability**

- **SMART Self-Tuning with Fuzzy Logic**

- **NEMA 4X Faceplate**

- **Soft Start Power Limiting on Power-Up**

- **Universal Inputs TC, RTD**

- **Switching Power Supply from 100-240 Vac, 50/60 Hz or 24 Vac/Vdc**

Dimensions

Side View

Front View

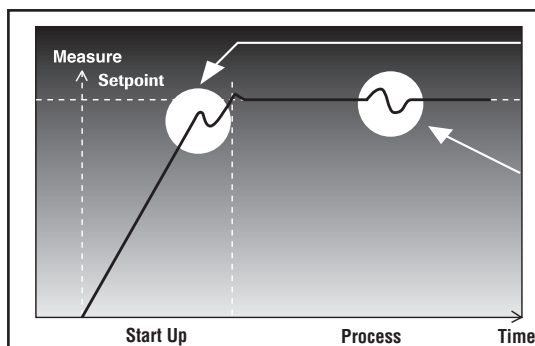**All Dimensions in Inches (mm)**

Description

The **1603** Controller is an economical dual display 1/16 DIN with the control features of a sophisticated Auto-tuning PID controller. All controllers come with a flexible second output that can be used for cooling in a heat/cool application or as a fully programmable Alarm output.

Features of the 1603:

- **Soft Start** limits the output on startup to minimize overshoot and distribute heat more evenly in the product.

- Smart Tuning during start up and in process

- Plug-in design

- PID Heat/Cool Control

Applications

- Rubber production, polymerization and synthetic fiber plants

- Packaging and packing equipment

- Fermentation equipment, reactors for chemical and pharmaceutical industries

- Food industries

- Environmental chambers and refrigeration

- Extrusion lines, co-extrusion lines, plastic films and injection presses

During Start-Up

the SMART self-tuning function calculates the control parameters to optimize the rise to setpoint.

During Process

SMART updates the control parameters as needed to respond to setpoint changes or a load change.

Chromalox®

1603
1/16 DIN Temperature Controller *(cont'd.)*

Specifications

Control Modes	Field Selectable	On/Off
		PID
		SMART (Autotune)

| **Heat/Cool** | Relative Gain | 0.20-1, select air, oil or water |

Outputs

Output #1 — One (1) Heat or Cool Output
- Relay — NO. SPDT contact, 3 Amps at 250 Vac (resistive)
- SSR Drive — Transistor output of 24 Vdc max at 1mA, 14 Vdc ± 20% at 20mA

Output #2 — One Alarm Output or Cool Output
- Relay — swNO. SPST contact, 2 Amps at 250 Vac (resistive)

Alarm Features — Field Selectable
- Functions — Process, Deviation, Band
- Types — Normally Energized/Normally De-energized
  Inhibit on Power-Up and Setpoint Changes
  Latching/Non-latching (Manual/Automatic Reset)

Input Specifications

Sensor Type		Range °F	°C
Thermocouple	J	0-999	0-800
	K	0-999	0-999
	L	0-999	0-999
	N	0-999	0-999
	T	0-752	0-400
RTD		-199 to +999	-199 to +500
			-19.9 to +99.9

| **Instrument Power** | 100-240 Vac, +10%, -15%, 50-60 Hz, 24 Vac or Vdc |
| **Operating Environment** | 30-120°F (0-50°C) ambient with less than 85% relative humidity |

Ordering Information

Complete the Model Number using the Matrix provided.

In Stock:

Model	PCN
1603-11030	306253
1603-61030	306261
1603-11050	306448
1603-61050	306456

Model — **1/16 DIN Temperature Controller**

1603 — SMART Self-Tuning, 2 Outputs (Heat/Cool or Control/Alarm), Dual 3-Digit Display of Process and Setpoint, Field Selectable Universal Thermocouple or RTD Inputs, Programmable Alarms, IEC 801-4 Noise Immunity, NEMA 4X Splashproof Faceplate.

Code	Output 1–Heat or Cool
1	Relay 3 Amps at 250 Vac (Resistive)
6	SSR Drive, 14Vdc at 20mA

Code	Output 2 – Cool or Alarm
1	Relay, 1 Amp at 250 Vac (Resistive Load)

Code	
0	Add to complete model number

Code	Power Supply
3	100-240 Vac
5	24 Vac/Vdc

Code	
0	Add to complete model number

1603	-	6	1	0	3	0	**Typical Model Number**

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