

## 1604

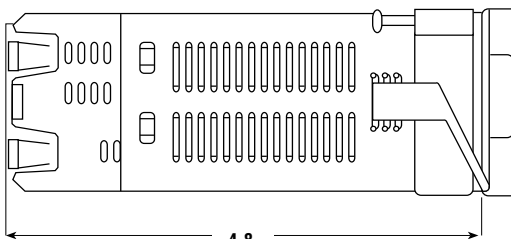
1/16 DIN

### Temperature Controller

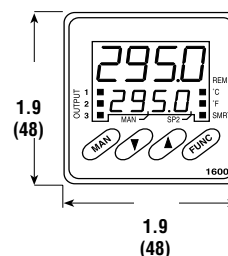


- Dual 4-Digit Display of Process and Setpoint
- Heat, Cool or Heat/Cool PID Control
- Three Outputs
- Heater Breakdown Current Monitoring Alarm
- Universal Inputs: TC, RTD, Voltage and Current
- SMART Self-Tuning with Fuzzy Logic
- Soft-Start Power Limiting on Power-Up
- NEMA 4X Faceplate
- Two Independent Setpoints (Run Idle) Switched by Dry Contact Input
- RS-485 Digital Communications with ChromaSoft® SpecView™ Software Capability

#### Dimensions



Side View



Front View

All Dimensions in Inches (mm)

#### Description

The 1604 controller has all of the advanced control features of the 1601 and 1603 controllers, plus more. The dual display provides process and setpoint indication with 0.1 degree resolution. The optional third

output may be used as a heater break down indication alarm. RS-485 Digital Communications and ChromaSoft® SpecView™ compatibility expand the applications and networking possibilities.

#### Features

- Heat/Cool Control Features Selection of Cooling Medium and Overlap
- Auto/Manual Control
- Independent Programmable Ramp on Setpoint Change
- Heater Breakdown Alarm/Current Monitoring  
Alarm is activated when load current reaches excessively low or high values, indicating an open load, disconnected wire or welded contact.
- Prevents damage to sensitive processes and equipment
- Displays load current without separate ammeter

<b>Control Modes</b>	Field Selectable	On/Off PID SMART (Autotune)
	Manual	Bumpless, Balanceless transfer with Proportional Control
<b>Heat/Cool</b>	Relative Gain	0.20-1, select air, oil or water
<b>Outputs</b>	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 Vdc Cool Output Relay NO. SPST contact, 2 Amps at 250 Vac (resistive)
	Output #3	Alarm Output One (1) SPST relay, 2 Amps at 250 Vac (resistive load)
<b>Alarm Features</b>	Field Selectable	Process, Deviation, Band or Heater Breakdown Alarm
Functions		Normally Energized/Normally De-energized
Types		Inhibit on Power-Up and Setpoint Changes Latching/Non-latching (Manual/Automatic Reset)

## 1604

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

#### Input Specifications

Sensor Type		Range* °F	°C	
Thermocouple	J	-150 to +1830	-100 to +1000	
			-100.0 to +400.0	
	K	-150 to +2500	-100 to +1370	
			-100.0 to +400.0	
	L	0-1650	0-900	
			-100.0 to +400.0	
	N	-150 to +2550	-100 to +1400	
	R	0-3200	0-1760	
	S	0-3200	0-1760	
	T *	-330 to +750	-199.9 to +400.0	
RTD		-330 to +1470	-200 to +800	
		-199.9 to +400.0	-199.9 to +400.0	
Current		0-20 mA or 4-20mA dc		Range and decimal points programmable, -1999 to 4000
Voltage		0-5, 1-5, 0-10, or 2-10 Vdc.		
		0-60 or 12-60 mVdc		

\*1604 with Digital Communications does not have negative sensor range or T Thermocouple input.

**Digital Communications** RS-485 multi-drop, Isolated, CPIO, ASCII Line Mode, Modbus and J-BUS protocol selection

**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
1604-11030	306270
1604-61030	306288
1604-11050	328970
1604-61050	328989
1604-11130	306296
1604-61130	306309
1604-11230	306317
1604-61230	306325
1604-11330	306499
1604-61330	306501
1604-11430	306333
1604-61430	306341

#### Model 1/16 DIN Temperature Controller

**1604** SMART Self-Tuning, 2 Outputs (Heat/Cool or Control/Alarm), Dual 4-Digit Display of Process and Setpoint, Field Selectable Universal Thermocouple, RTD, Voltage or Current Inputs, Auto-Manual Control, Programmable Alarms, 0.1 Degree Display Resolution, IEC 801-4 Noise Immunity, Optional Heater Break Alarm/Current Transformer Input, NEMA 4X Splashproof Faceplate, Optional RS-485 Digital Communications, Compatible with ChromaSoft® Remote Operator Interface Software

#### Code Output 1 - Heat or Cool

**1** Relay, 3 Amps at 240 Vac  
**6** SSR Drive, 14 Vdc at 20mA

#### Code Output 2 - Cool or Alarm

**1** Relay, 2 Amps at 240 Vac

#### Code Options

**0** None  
**1** Output #3, 2 Amps at 250 Vac (Resistive Load)  
**2\*** Heater Break Down Input and Output #3  
**3** RS-485 Digital Communications and Output #3  
**4\*** RS-485 Digital Communications, Heater Break Down Input and Output #3

#### Code Power Supply

**3** 100/240 Vac  
**5** 24 Vac/Vdc

#### Code

**0** Add to complete model number

**1604 - 1 1 0 3 0** Typical Model Number

#### Accessories

\*Controllers with the Heater Break Down option, model 1604-xx2xx and 1604-xx4xx require a Current Transformer to monitor the load current controlled by the 1604 controller. Specify one of the four Current Transformers listed below when ordering a controller with the Heater Break Down option.

	Part No.	PCN
Current Transformer, for 0.0-10.0 Amp Load Current	0149-01340	306480
Current Transformer, for 0-25 Amp Load Current	0149-01341	306350
Current Transformer, for 0-50 Amp Load Current	0149-01342	306368
Current Transformer, for 0-100 Amp Load Current	0149-01343	306376