PID Controllers
Temperature Controls
T2000

T2000

- **1/16 DIN and 1/32 DIN**
- **NEMA 4X protection**
- **Autotune automatically sets PID parameters**
- **Single ramp/soak program**
- **Heat-cool operation**
- **AC or DC power supply**
- **Inputs: Thermocouple, RTD, 0-50mV**
- **Two outputs: SSR voltage pulse/relay**
- **Five alarm modes**
- **RS232 or RS485 (retrofittable)**
- **MODBUS RTU protocol**
- **Three year warranty**

Product Description

Microprocessor based controller for temperature measurements in °C or °F. Easy to view single or dual 4 digit display readout. Constructed in a rugged NEMA4X waterproof housing in the popular 1/32 or 1/16 DIN size. 100-240VAC or 12-24VDC supply voltage. Universal inputs and various combinations of output types are also standard features.

Ordering Key

T20 16 1 SR 2 A

- **Model**
- **Size**
- **Display**
- **Outputs**
- **Communication**
- **Power Supply**

Type Selection

Model	Size	Display	Outputs	Communication	Power Supply
T20	**16:** 1/16 DIN **32:** 1/32 DIN	**1:** Single Display **2:** Dual Display (1/16 DIN only)	**SR:** 5VDC Pulse and 1A Relay Outputs **RR:** 2A and 1A Relay Output **SS:** Two 5VDC Pulse Outputs	**X:** None **2:** RS232 **4:** RS485	**A:** 100-240VAC **B:** 12-24VAC/DC (Only single display units with SR and SS outputs)

General Specifications

Power supply	100-240VAC +/- 10%, 50-60Hz 12-24VAC/DC +/- 20%, 50-60Hz
Display	
Upper display reading	4 digit high brightness green LED 10mm high
Lower display (T20162)	4 digit high brightness red LED 9mm high
Output indicators	LED output indicators – flashing SP1 square green LED output indicators – SP2 round red
Keypad	3 full travel elastomeric pushbuttons
Approvals	UL, CE

Input Specifications

Thermocouple	
B	32 to 3275°F (0 to 1800°C)
E	32 to 1112°F (0 to 600°C)
J	32 to 1472°F (0 to 800°C)
K	-58 to 2192°F (-50 to 1200°C)
L	32 to 1472°F (0 to 800°C)
N	-58 to 2192°F (-50 to 1200°C)
R	32 to 2912°F (0 to 1600°C)

Input Specifications (cont'd)

Thermocouple (cont'd)	
S	32 to 2912°F (0 to 1600°C)
T	-273 to 482°F (-200 to 250°C)
Standards	IPTS/68/DIN 43710
CJC rejection	20:1 (0.05%°C) typical
External resistance	100W maximum
(RTD)	
Pt100/RTD-2 (2 wire)	-273 to 752°F (-200 to 400°C)
Standards	DIN 43760 (100W 0°C/138.5W 100°C Pt)
Bulb current	0.2 mA maximum
Linear process input	
mV	0 to 50 mV (0 to 20 mV, 4 to 20 mV)
Specifications for Both Thermocouples and RTDs	
Calibration accuracy	+/- 0.25% maximum +/- 1°C
Sampling frequency	Input 10Hz, CJC 2 sec.
Common mode rejection	Negligible effect up to 140db, 240V, 50-60Hz
Series mode rejection	60db, 50-60Hz
Temperature coefficient	150ppm/(C maximum)
Reference conditions	22C +/- 2°C, rated voltage after 15 minutes settling time

Output Devices (maximum of two outputs)

SSd (solid state relay driver)	5 VDC +/- 15%, 15ma, non-isolated
Relay	Form A SPST, 2A/250VAC resistive load
Second Relay	Form A SPST, 1A/250VAC resistive load

Housing Specifications

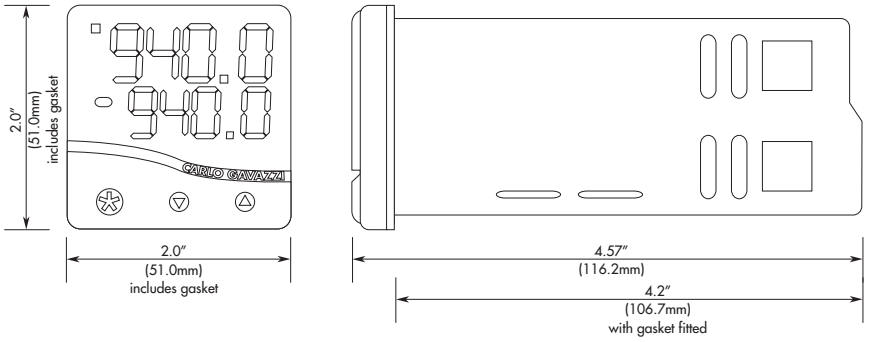
Environmental	
Safety	UL873, EN61010, CSA 22.2 No. 1010.1-92
Humidity	Maximum 80%
Altitude	Up to 2000m
Installations	Categories II and III
Pollution	Degree II
Protection	NEMA 4X (IP66)
EMC emission	EN50081-1, FCC Rules 15 subpart J Class A
EMC immunity	EN50082-2
Ambient	32 to 122°F (0 to 50°C)
Moldings	Flame retardant polycarbonate

Housing Specifications (cont'd)

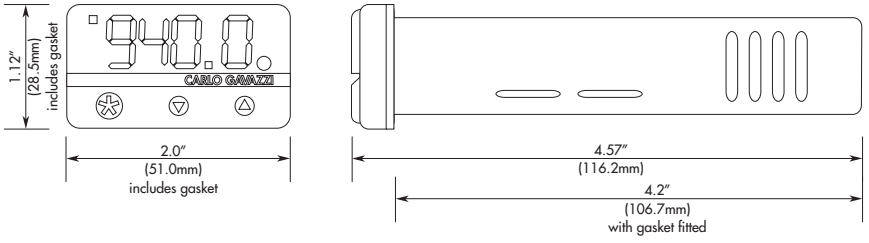
Instrument body	
Model T2016	1.76 x 1.76" (44.8 x 44.8mm)
Model T2032	1.76 x 0.87" (44.8 x 22.0mm)
Overall length	4.57" (116mm)
Weight	
T20161	4.2 ounces
T20162	4.6 ounces
T2032	3.9 ounces
Dimensions (front fascia)	
Model T2016	2.0 x 2.0" (51 x 51mm) includes gasket
Model T2032	2.0 x 1.12" (51 x 28.5mm) includes gasket
Sleeve length	4.2" (106.7mm) includes gasket

Dimensions

T2016 Series (T20162 shown)

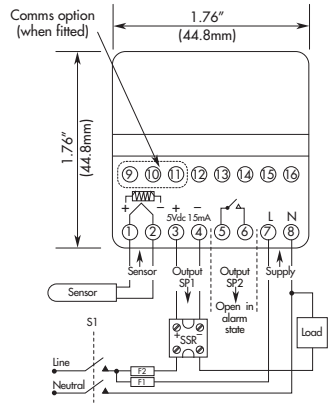


T2032 Series



Wiring Diagram

T2016 Series



T2032 Series