

# TC-3400 Temperature Controller

PID Temperature Control

## OVERVIEW

The TC-3400 temperature controller series simplifies your temperature control requirements.

The controller options reduce system complexity and the cost of control loop ownership. The TC-3400 is a high performance PID temperature controller in space-saving, panel-mount 1/32 DIN size EIA 485 communications and standard NEMA-4X IP66 sealing make the TC-3400 versatile and suitable for wide range of environments.

## FEATURES

### Advanced PID Control Algorithm

- Offers TRU-Tune™ + adaptive control to provide tighter control for demanding applications
- Provides auto-tune for fast, efficient start up

### Configuration

- Systems come preconfigured for PID cooling application
- "Canned" configuration for different applications available

### Parameter Save and Restore Memory

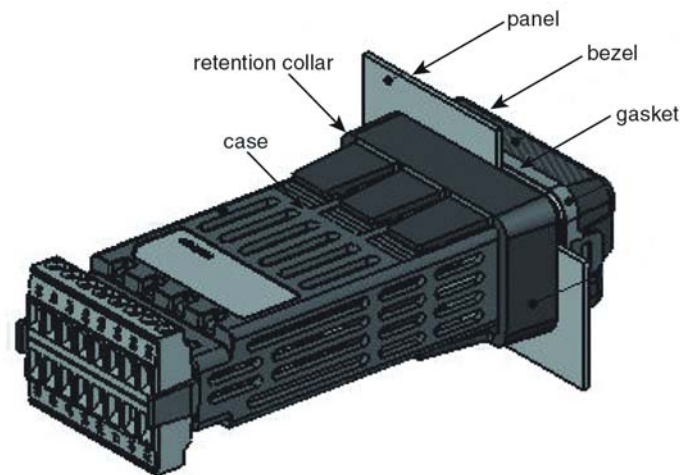
- Reduce service requirement and down time

### Heat-Cool Operation

- Provides application flexibility with accurate temperature and process control

### P3T Armor Sealing System

- NEMA-4X and IP66 offers water and dust resistance that can be cleaned and washed down
- Backed up by UL 50 independent certification to NEMA-4X specification



## SPECIFICATIONS

### Line Voltage/Power:

- 85 to 264V~(ac), 47 to 63Hz
- 12 to 40Vdc OR 20 to 28V~(ac), +10/-15 percent; 50/60Hz, ±5 percent
- 10VA maximum power consumption
- Data retention upon power failure via nonvolatile memory
- Compliant with SEMI F47-0200, Figure R1-1 voltage sag requirements @ 24V~(ac) or higher

### Environment:

- -18 to 65°C (0-149°F) operating temperature
- -40 to 85°C (-40-185°F) storage temperature
- 0 to 90 percent RH, non-condensing

### Accuracy:

- Calibration accuracy and sensor conformity ±0.1 percent of span, ±1°C @ the calibrated ambient temperature and rated line voltage
- Types R, S B; 0.2 percent

- Type T below -50°C; 0.2 percent
- Calibration ambient temperature @ 25°C ±3°C (77°F±5°F)
- Accuracy span 540°C (1000°F) minimum
- Temperature stability ±0.1°C/°C (±0.1°F/°F) rise in ambient maximum

### Agency Approvals:

- UL®/EN 61010 Listed
- UL® 1604 Class 1 div. 2
- UL® 50, NEMA 4X, EN 60529 IP66
- CSA 610110 CE
- RoHS, W.E.E.E.

### Controller:

- Auto-tune with TRU-TUNE™ + adaptive control algorithm
- Control sampling rates: input 10Hz, outputs 10Hz

### Wiring Termination:

- Input, power and controller output terminals are touch safe removable 12 to 22 AWG

### Universal Input:

- Thermocouple, grounded or ungrounded sensors  
>20MΩ input impedance  
3μA open sensor detection  
Maximum of 200Ω source resistance
- RTD 2- or 3-wire, platinum, 100Ω and 1000Ω @ 0°C calibration to DIN curve (0.00385Ω /Ω/°C)

### Serial Communications:

- Isolated communications  
EIA 485, Modbus® RTU

PART NUMBER AND ORDERING

34	-	X	X	X	-	X	X	-	X	X	X
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**Input voltage**

0: Universal AC - 85 to 264Vac, 47 to 63 Hz  
 4: 12/24Vdc - 12 to 40Vdc, 20 to 28Vac

**Functions**

2: Heat/Cool -No relay  
 3: Cooling with relay (package defined below)  
 4: Heating/Cooling with relays (package defined below)

**Switching Volts & Amps**

A: None, drive signal only - no relays  
 B: Cool only, VAC switching, 120/240Vac, 10 Amps  
 C: Cool Only, VDC switching, 0-100 VDC, 12 Amps  
 D: Cool Only, VDC switching, 0-100 VDC, 20 Amps  
 E: Cool Only, VDC switching, 0-100 VDC, 40 Amps  
 F: Heat/Cool, VDC switching, 0-100 VDC, 12 Amps  
 G: Heat/Cool, VDC switching, 0-100 VDC, 20 Amps  
 H: Heat/Cool, VDC switching, 0-100 VDC, 40 Amps  
 I: Heat/Cool, Heat: 120/240 VAC, 10 amps Cool: VDC switching, 0-100 VDC, 12 Amps  
 J: Heat/Cool, Heat: 120/240 VAC, 10 amps Cool: VDC switching, 0-100 VDC, 20 Amps  
 K: Heat/Cool, Heat: 120/240 VAC, 10 amps Cool: VDC switching, 0-100 VDC, 40 Amps  
 L: Heat/Cool, Heat: 0-100 VDC, 12 Amps Cool: VAC switching, 120/240 VAC, 10 amps  
 M: Heat/Cool, Heat: 0-100 VDC, 20 Amps Cool: VAC switching, 120/240 VAC, 10 amps  
 N: Heat/Cool, Heat: 0-100 VDC, 40 Amps Cool: VAC switching, 120/240 VAC, 10 amps  
 O: Heat/Cool, Reverse Polarity, 0-100 VDC, 12 Amps  
 P: Heat/Cool, Reverse Polarity, 0-100 VDC, 20 Amps  
 Q: Heat/Cool, Reverse Polarity, 0-100 VDC, 40 Amps  
 R: Heat/Cool, VAC switching, 120/240 VAC, 10 amps

**Sensor**

0: None  
 1: 3- Wire RTD - RTD-Probe  
 2: T type thermocouple (ring mount) - RTD-Ring

**Communications**

0: Basic communications used with standard **EZ Zone Configurator** allows the user to configure all the set up parameters including the ability to change set point, monitor the process temperature and initiate an Auto Tune  
 1: RS-232 complete communication for use with standard EZ Zone Configurator and optional **SpecView** or third party software, includes RS-232/RS-485 adapter  
 2: RS-485 complete communication for use with standard EZ Zone Configurator and optional **SpecView** or third party software

**Options**

DIMENSIONS AND CUTOUT

