TC-3400 Temperature Controller

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 a 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

Serial Communications:
• Isolated communications EIA 485
• Industry standard RS-485 Modbus® RTU
• RS-232 via RS-485/232 converter
## TC-3400 PID Temperature Controller

### Part Number and Ordering

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Ordering Info</th>
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<tbody>
<tr>
<td>34 - x x x - x x - x x x</td>
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### Input Voltage
- 0: Universal AC - 85 to 264Vac, 47 to 63 Hz
- 4: 12/24Vac - 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

<table>
<thead>
<tr>
<th>Switching Volts &amp; Amps</th>
<th>Description</th>
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<tbody>
<tr>
<td>A: None, drive signal only - no relays</td>
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<tr>
<td>B: Cool only VAC switching, 120/240Vac, 10 Amps</td>
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<tr>
<td>C: Cool Only, VDC switching, 0-100 VDC, 12 Amps</td>
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<tr>
<td>D: Cool only, VDC switching, 0-100 VDC, 20 Amps</td>
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</tr>
<tr>
<td>E: Cool Only, VDC switching, 0-100 VDC, 40 Amps</td>
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</tr>
<tr>
<td>F: Heat/Cool, VDC switching, 0-100 VDC, 12 Amps</td>
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<tr>
<td>G: Heat/Cool, VDC switching, 0-100 VDC, 20 Amps</td>
<td></td>
</tr>
<tr>
<td>H: Heat/Cool, VDC switching, 0-100 VDC, 40 Amps</td>
<td></td>
</tr>
<tr>
<td>I: Heat/Cool, Heat: 120/240 VAC, 10 amps Cool: VDC switching, 0-100 VDC, 12 Amps</td>
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<tr>
<td>J: Heat/Cool, Heat: 120/240 VAC, 10 amps Cool: VDC switching, 0-100 VDC, 20 Amps</td>
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<tr>
<td>K: Heat/Cool, Heat: 120/240 VAC, 10 amps Cool: VDC switching, 0-100 VDC, 40 Amps</td>
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<tr>
<td>L: Heat/Cool, Heat: 0-100 VDC, 12 Amps Cool: VAC switching, 120/240 VAC, 10 amps</td>
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</tr>
<tr>
<td>M: Heat/Cool, Heat: 0-100 VDC, 20 Amps Cool: VAC switching, 120/240 VAC, 10 amps</td>
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<tr>
<td>N: Heat/Cool, Heat: 0-100 VDC, 40 Amps Cool: VAC switching, 120/240 VAC, 10 amps</td>
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</tr>
<tr>
<td>O: Heat/Cool, Reverse Polarity, 0-100 VDC, 12 Amps</td>
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<tr>
<td>P: Heat/Cool, Reverse Polarity, 0-100 VDC, 20 Amps</td>
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</tr>
<tr>
<td>Q: Heat/Cool, Reverse Polarity, 0-100 VDC, 40 Amps</td>
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<tr>
<td>R: Heat/Cool, VAC switching, 120/240 VAC, 10 amps</td>
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</tbody>
</table>

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

### Communications

<table>
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<tbody>
<tr>
<td>0: Basic communications used with standard EZ Zone Configurator</td>
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<tr>
<td>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</td>
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<tr>
<td>2: RS-485 complete communication for use with standard EZ Zone Configurator and optional SpecView or third party software</td>
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### Options

### Dimensions and Cutout

![Dimensions and Cutout Diagram]

- Recommended panel spacing: 45.2 mm (1.77 in)
- Panel thickness: 1.53 to 9.52 mm (0.060 to 0.375)
- Panel thickness: 21.6 mm (0.85 in)