



# Universal Benchtop 1/32 DIN Controller

## PLATINUM™ Series

CS32PT



CS32PT, shown smaller than actual size.

- ✓ High Performance, Extremely Versatile
- ✓ Easy and Intuitive to Use
- ✓ Supported by DASyLab and LabVIEW
- ✓ Bright 3-Color (GREEN, AMBER, and RED) 9 Segment LED Display with Wide Viewing Angle
- ✓ High Accuracy Inputs and Outputs
- ✓ Full Autotune PID with Fuzzy Logic Adaptive Control
- ✓ Up to 99 Programs with 16 Ramps and Soaks Including Ramp/Soak Events
- ✓ Ramp and Soak Program Chaining for Virtually Unlimited Program Flexibility
- ✓ Universal Inputs for Thermocouples, RTDs, Thermistors, and Process Voltage/ Current
- ✓ Automated Configuration Recognition, “Smart” Menu Flow
- ✓ Up to 20 Samples per Second with 24-Bit ADC
- ✓ Standard USB, Optional RS232/RS485 with Modbus® Serial Communications

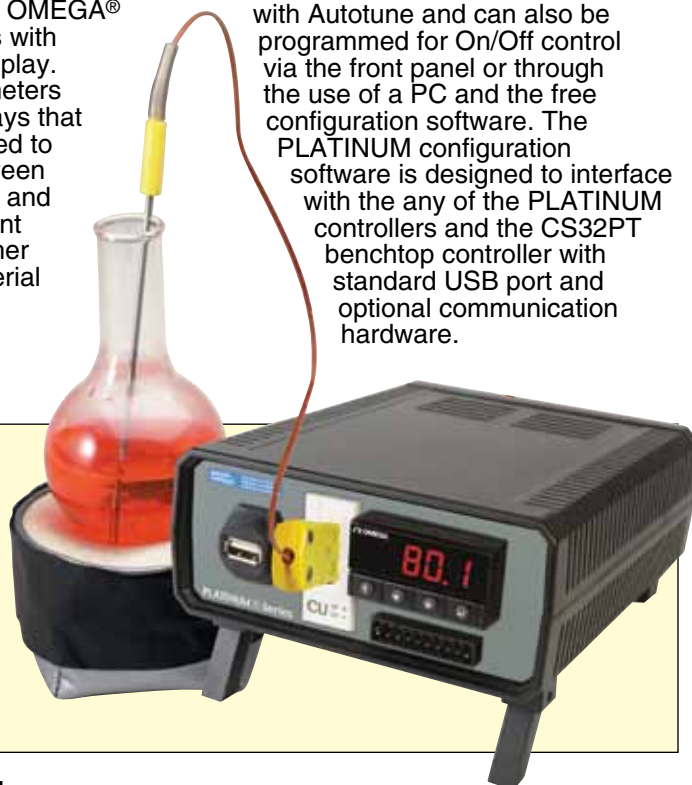
- ✓ Built-In Excitation Firmware Selectable at 5V, 10V, 12V, and 24V
- ✓ Full Scale Positive and Negative Readings

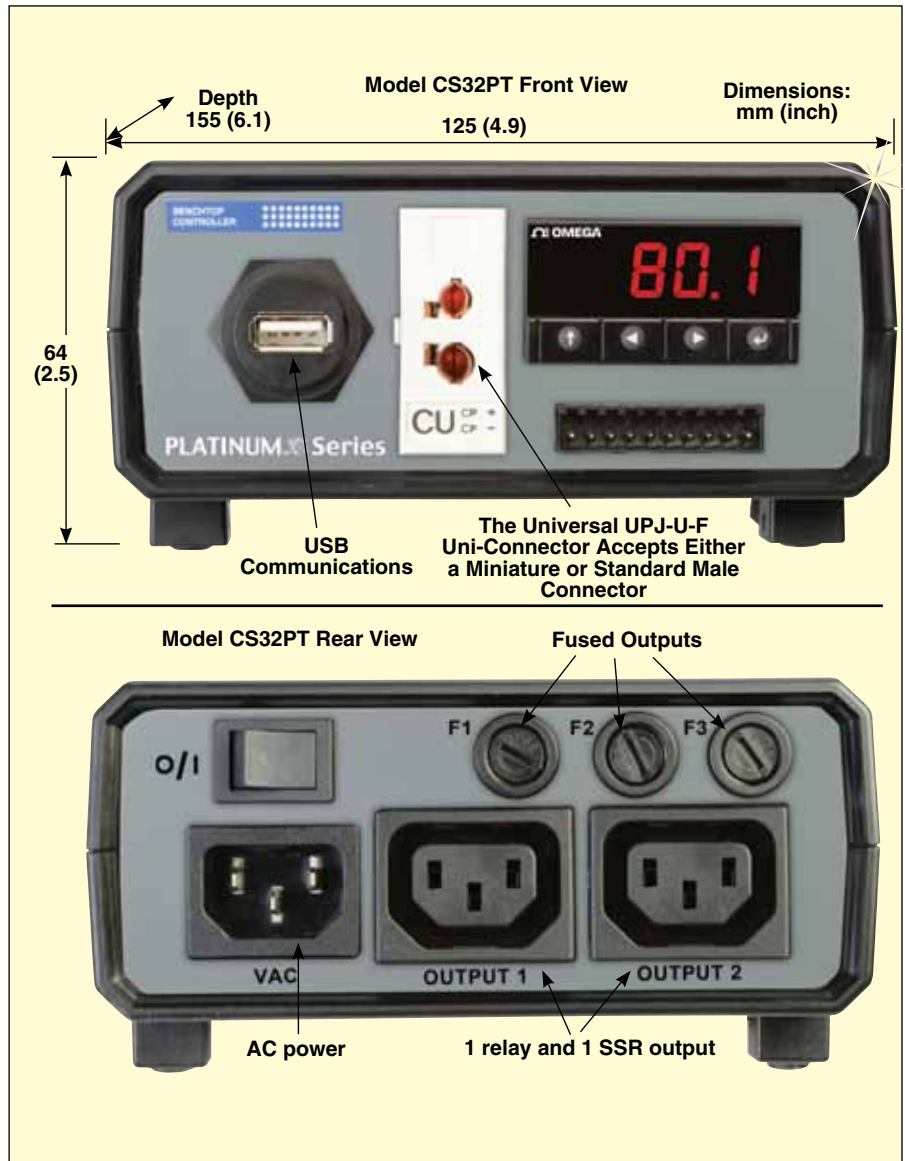
The CS32PT is the latest benchtop controller from OMEGA providing universal support for any of your temperature and process needs. It features a 1/32 DIN digital panel controller in a rugged plastic enclosure. The controller used is the award winning OMEGA® PLATINUM Series with color-changing display. The PLATINUM meters feature LED displays that can be programmed to change color between GREEN, AMBER, and RED at any setpoint or alarm point. Other options include, serial communications.

The CS32PT is ideal for laboratory use and applications requiring portable temperature and process control. Pre-wired output receptacles in the rear of the case enable quick and easy connections to power, output and digital communications.

The CS32PT is a full PID controller with Autotune and can also be programmed for On/Off control via the front panel or through the use of a PC and the free configuration software. The PLATINUM configuration software is designed to interface with the any of the PLATINUM controllers and the CS32PT benchtop controller with standard USB port and optional communication hardware.

CS32PT Benchtop Controller shown with LHM Series Heating Mantle (flask not included), and KMTXL-125G-12 thermocouple probe. Sold separately.





## Specifications

### INPUTS

**Input Types:** Thermocouple, RTD thermistor, analog voltage, analog current

**Current Input:** 4 to 20 mA, 0 to 24 mA scalable

**Voltage Input:** -100 to 100 mV, -1 to 1 V, -10 to 10 Vdc scalable

**RTD Input (ITS 90):** 100/500/1000  $\Omega$  Pt sensor, 2-, 3- or 4-wire; 0.00385, 0.00392 (100  $\Omega$  only), or 0.003916 (100  $\Omega$  only) curves

**Thermistor Input:** 2252  $\Omega$ , 5K  $\Omega$ , 10K  $\Omega$

**Configuration:** Differential

**Polarity:** Bipolar

**Resolution:** 0.1° temperature; 10  $\mu$ V process

### Input Impedances:

**Process Voltage:** 10M  $\Omega$  for  $\pm$ 100 mV, 1M  $\Omega$  for other voltage ranges

**Process Current:** 5  $\Omega$

**Thermocouple:** 10K  $\Omega$  max

**Auxiliary Input (Remote Setpoint):** 3.5K  $\Omega$  for 0 to 10V, 50K  $\Omega$  for 0 to 1V, 50  $\Omega$  for current

### Temperature Stability:

**RTD:** 0.04°C/°C

**Thermocouple @ 25°C (77°F):** 0.05°C/°C

**Process:** 50 ppm/°C

**A/D Conversion:** 24-bit sigma delta

**Reading Rate:** 20 samples per second

**Digital Filter:** Programmable from 0.05 seconds (filter = 1) to 6.4 seconds (filter = 128)

**CMRR:** 120 dB

**Excitation:** Firmware selectable

5, 10, 12, and 24 Vdc @ 25 mA

**Setpoint Adjustment:** -9999 to +9999 counts

**Warm-Up to Rated Accuracy:** 30 mins

### GENERAL

**Power:** 90 to 240 Vac, 50 to 60 Hz

**Note:** Power cords are available from accessory list.

### CONTROL MODES

**Action:** Reverse (heat), direct (cool), or heat/cool

**Auto-Tune:** Operator initiated from front panel

**Adaptive Tune:** User selectable; fuzzy logic continuous PID tuning optimization

**Control Modes:** ON/OFF or the following time/amplitude proportional control modes; selectable manual or auto PID, proportional, proportional with integral, proportional with derivative

**Cycle Time:** 0.1 to 199 seconds

**Ramp and Soak:** Up to 99 saved ramp and soak programs, up to 8 ramp and 8 soak segments with individually selectable events per program, chainable

### Ramp and Soak Segment Times:

00.00 to 99.59 (HH:MM) or 00.00 to 99.59 (MM:SS)

**Output 1 Relay:** 90 to 240 Vac, 3 A max, dry contact

**Output 2 SSR:** 90 to 240 Vac, 3.5 A max

### COMMUNICATIONS

(USB STANDARD, OPTIONAL SERIAL)

#### Connection:

**USB:** Female micro-USB

**Serial:** Screw terminals

**USB:** USB 2.0 host or device

**Serial:** Software selectable RS232 or RS485; programmable 1200 to 115.2 K baud

**Protocols:** OMEGA ASCII, MODBUS® ASCII/RTU

**Approvals:** UL (pending), cUL (pending), CE, RoHS



### Ranges and Accuracies for Supported Inputs

Thermocouple Input Type	Description	Range	Accuracy
<b>Process</b>	Process Voltage	±100 mV, ±1, ±10 Vdc	0.03% FS
<b>Process</b>	Process Current	Scalable within 0 to 24 mA	0.03% FS
<b>J</b>	Iron-Constantan	-210 to 1200°C (-346 to 2192°F)	0.4°C (0.7°F)
<b>K</b>	CHROMEGA®-ALOMEGA®	-270 to -160°C (-454 to -256°F) -160 to 1372°C (-256 to 2502°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
<b>T</b>	Copper-Constantan	-270 to -190°C (-454 to -310°F) -190 to 400°C (-310 to 752°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
<b>E</b>	CHROMEGA®-Constantan	-270 to -220°C (-454 to -364°F) -220 to 1000°C (-364 to 1832°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
<b>R</b>	Pt/13%Rh-Pt	-50 to 40°C (-58 to 104°F) 40 to 1788°C (104 to 3250°F)	1.0°C (1.8°F) 0.5°C (0.9°F)
<b>S</b>	Pt/10%Rh-Pt	-50 to 100°C (-58 to 212°F) 100 to 1768°C (212 to 3214°F)	1.0°C (1.8°F) 0.5°C (0.9°F)
<b>B</b>	30%Rh-Pt/6%Rh-Pt	100 to 640°C (212 to 1184°F) 640 to 1820°C (1184 to 3308°F)	1.0°C (1.8°F) 0.5°C (0.9°F)
<b>C</b>	5%Re-W/26%Re-W	0 to 2320°C (32 to 4208°F)	0.4°C (0.7°F)
<b>N</b>	Nicrosil-Nisil	-250 to -100°C (-418 to -148°F) -100 to 1300°C (-148 to 2372°F)	1.0°C (1.8°F) 0.4°C (0.7°F)
<b>RTD</b>	Pt, 0.00385, 100 Ω, 500 Ω, 1000 Ω	-200 to 850°C (-328 to 1562°F)	0.3°C (0.7°F)
<b>RTD</b>	Pt, 0.003916, 100 Ω	-200 to 660°C (-328 to 1220°F)	0.3°C (0.7°F)
<b>RTD</b>	Pt, 0.00392, 100 Ω	-200 to 660°C (-328 to 1220°F)	0.3°C (0.7°F)

### To Order

Model No.	Description
<b>CS32PT</b>	Universal benchtop controller, 1/32 DIN

Comes complete with 2 output cords, 1 main power cord, and quick start manual.

### Option

Suffix	Description
<b>-C24</b>	Isolated RS232 and RS485/422

**Ordering Example:** CS32PT-C24, benchtop controller, RS232/485 communications option.

Models with communications option(s) include a standard **RS232** cable for connection to a PC and **RS232** to USB converter cable.