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Find the *OMEGA CN8501TC-DC1-C2* at our website: *Click HERE*

1/16 DIN Temperature/Process Controllers

CN8500 Series

MADE IN USA | 5 YEAR WARRANTY | UL



- NEMA 4X (IP65) Front Panel
- User Selectable Ramp to Setpoint
- Bumpless Auto/ Manual Operation
- Optional RS232 or RS485 Communications
- Autotuning Heat or Cool
- Thermocouple, RTD, Voltage, or Current Input
- Dual Output and Dual Alarm Capability
- Optional Remote Setpoint, Transducer Power Supply and Recorder Output
- Optional Power, 24 Vdc/Vac

The CN8500 temperature controller is extremely versatile and user-friendly. The operator needs to review only those parameters relevant to the particular application during setup. A dual digital display offers optimum process information at a glance. The dedicated upper display shows the process temperature, while the lower display displays setpoint and setup parameters. Individual LED's identify the status of outputs, alarms, digital communications and special options. The CN8500 features a NEMA 4X (IP65) front panel and a universal power supply that accepts 103 to 253 Vac and 103 to 330 Vdc.

Control algorithms available are P, PI, PD, PID, or on/off. The autotune feature automatically sets proportional band, rate and reset before the process reaches setpoint. These parameters provide quick stabilization of both the heating and cooling process without overshoot, hunting or cycling. The standard dual control outputs can be configured in a variety of control and alarm applications such as heat, heat/cool, heat/alarm, cool, or cool/alarm. The ramp to setpoint feature allows the user to define the rate of rise to reach the setpoint, thus minimizing thermal shock to the load during start-up.

Specifications

Performance

Accuracy: ±0.2% of full scale, ± digit
Setpoint Resolution: 1 count/0.1 count
Repeatability: ±1.0 count
Temperature Stability: 5 µV/°C maximum; 3 µV/°C typical
Thermocouple Cold Junction Tracking: 0.05°C/°C ambient
Common Mode Rejection: >100 dB
Series Mode Rejection: >70 dB
Process Sampling: 10 Hz (100 ms)

Inputs

Thermocouple Lead Resistance: 100Ω max for rated accuracy
Response Time: 0.1, 1.0, or 10 s
Decimal Position: Selectable

Outputs

Output #1: Reverse acting (heating)
Output #2: Direct acting (cooling)
Mechanical Relay: Rated 5A @ 120 Vac, 3A @ 240 Vac
Current: 4 to 20 mA, 500 Ω maximum
Voltage: 20 Vdc pulse, 1 kΩ minimum load
Triac: SSR, 120/240 Vac, zero voltage switched rated 1A continuous, 10 A surge @ 25°C
Alarms: Optically isolated triac rated 1A, 120/240 Vac @ 25°C

Control Characteristics

Setpoint Limits: Limited to configured range for thermocouple and RTD; limited to scaled range
Alarms: Adjustable for high/low, process or deviation
Rate: 0 to 900 seconds
Reset: 0 to 3600 seconds
Cycle Time: 0.2 to 120 seconds
Gain: 0 to 400
Gain Ratio: 0 to 2.0 (in 0.1 increments)
On/Off Deadband: 1 to 100 counts
Spread (Output 2): 0 to 100 counts (above setpoint)
Damping: Adjustable (low, normal or high)
Ramp to Setpoint: 1 to 100 minutes
Autotune: Operator initiated from front panel
Manual Control: Operator initiated from front panel

General

Power: 115 to 230 Vac ±10%, 50/60 Hz; 115 to 300 Vdc ±10% (auto-polarity), optional 24 Vdc/Vac

Display: Dual LED, 4-digit, orange process display, green menu/ parameter display; 9.2 mm (0.37")

Power Consumption: Less than 6 VA (instrument) @ 120 Vac

Weight: 0.25 kg (8 oz)

Panel Cutout: 45 mm (1.772") square

Dimensions: 53 H x 53 W x 18.3 mm bezel (2.1 x 2.1 x 0.72")

Depth Behind Panel: 100 mm (3.937")

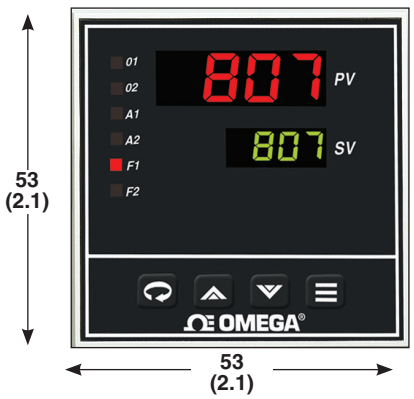
Front Panel Rating: NEMA 4X (IP65)

Operating Ambient Range: 0 to 55°C (32 to 131°F); 90% RH maximum, non-condensing

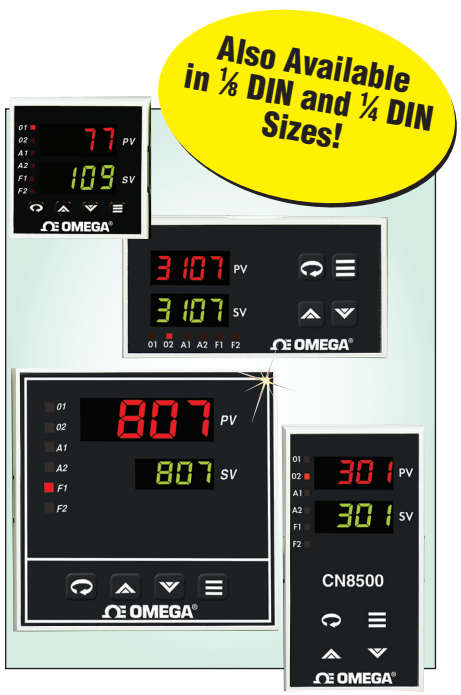
Memory Protection: Solid state non-volatile memory

Connections: Rear barrier strip with locking terminals

Bezel Dimensions



Dimensions: mm (inch)



Input Types and Ranges

Input Code	Type	Range	Resolution
TC (°F)	J Iron-Constantan	-18 to 760°C (0 to 1400°F)	1°C (1°F)
	K CHROMEGA® -ALOMEGA®	-18 to 1349°C (0 to 2460°F)	1°C (1°F)
	T Copper-Constantan	-129 to 316°C (-200 to 600°F)	1°C (1°F)
	N OMEGALLOY®	-18 to 1299°C (0 to 2370°F)	1°C
(°F)	R S Pt/13%Rh-Pt	-18 to 1760°C (0 to 3200°F)	1°C
	Pt/10%Rh-Pt	-18 to 1760°C (0 to 3200°F)	1°C (1°F)
RTD	3-wire, 100Ω Pt	-200 to 850°C (-328 to 1562°F)	1°C (1°F)
	3-wire, 100Ω Pt	-128.8 to 232.2°C (-199.0 to 450.0°F)	0.1°C (0.1°F)
V5	0 to 5V, 1 to 5V	Scalable (-1999 to 9999)	Selectable
V10	0 to 10V, 2 to 10V	Scalable (-1999 to 9999)	Selectable

To Order

Model Number	Description
CN8501(*)-(**)	Single output
CN8502(*)-(**)-(***)	Dual output

Comes complete with operator's manual.

** Specify input code: ***"TC"*** (thermocouple), ***"RTD"***, ***"MV"*** (voltage to 50 mV), ***"V5"*** (voltage to 5V), ***"V10"*** (voltage to 10V) or ***"MA"*** (current to 20 mA). See input type table above for details.

*** Specify output code(s) from output options table below. Single output units can be ordered for either heat (reverse) or cool (direct) action.

For power option add suffix ***"-24"*** to model number for 24 Vdc/Vac power, for an additional cost.

Output Options (No Additional Cost)

Output Type	First Output Heat Only (Reverse) Order Suffix	Second Output Cool Only (Direct)† Order Suffix
5 A Relay	-R1	-R2
1 A SSR	-T1	-T2
4 to 20 mA	-F1	-F2
20 Vdc Pulse	-DC1	-DC2

† Single output controllers can be ordered for either heat (reverse) or cool (direct) acting.

Ordering Example: CN8501TC-R2, 1/16 DIN controller, thermocouple input, 5 A relay output configured for cooling operation.

Options (1/16 DIN—Only 1 Option Available Per Unit)

Order Suffix	Description
-A	Dual alarms
-C2	RS232 communications
-C4	RS485 communications
-PV1†	4 to 20 mA recorder output
-PV2†	0 to 5 Vdc recorder output
-RSP1†	Remote switch closed with 1 alarm
-RSP2†	Remote switch open with 1 alarm
-RSP3†	0 or 5 Vdc remote setpoint with 1 alarm
-XP1	Transducer power supply, 15 Vdc

† Not available for voltage or current input models with input codes ***"MV"***, ***"V5"***, ***"V10"*** or ***"MA"***.

Ordering Example: CN8502V5-F1-F2-C2, 0 to 5 Vdc input, dual 4 to 20 mA outputs, RS232 communications.

Accessories

Model No.	Description
CNQUENCHARC	Noise suppression RC snubber (2 leads), 110 to 230 Vac
CN8-SW††	Remote monitoring and control software

†† Free CN8-SW software download available

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