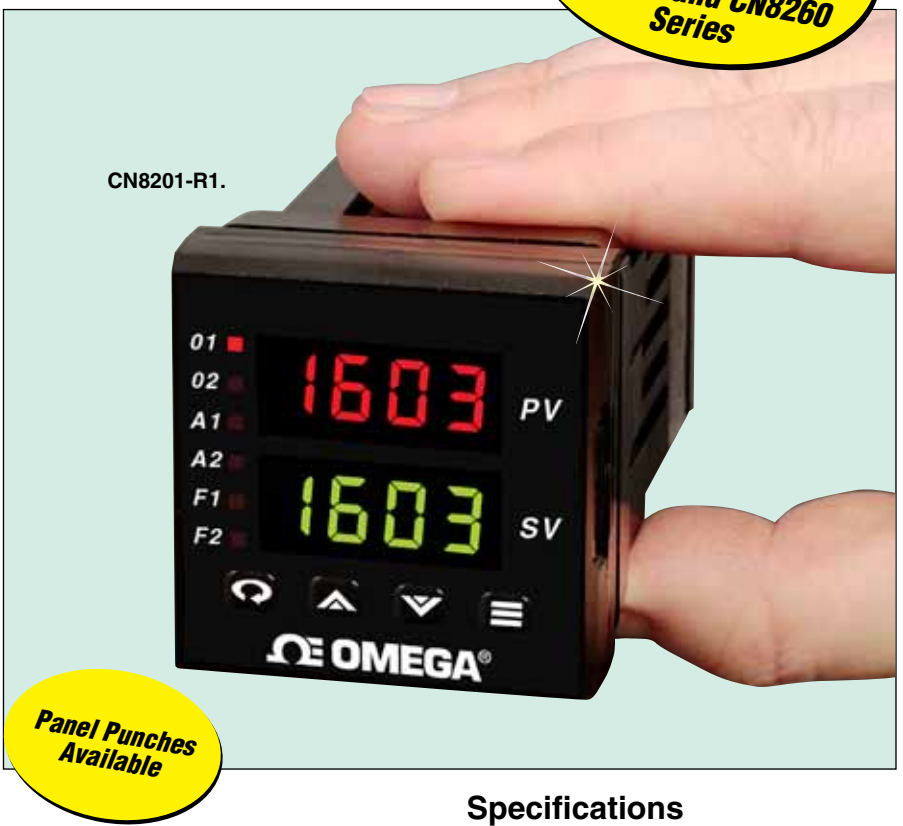
1/16 DIN Universal Temperature and Process Controllers

with 8-Segment Ramp/Soak

1/8 DIN and 1/4 DIN Versions Are Also Available! See the CN8240 and CN8260 Series

CN8200 Series

2 YEAR WARRANTY



Panel Punches Available

Standard Features

- Field-Configurable Universal Inputs
- Autotuning, Direct- or Reverse-Acting for Both Outputs
- User-Selectable Ramp to Setpoint
- 8 Ramp and 8 Soak Segments
- Decimal Display in 0.1° for Measured Temperatures Under 1000°F or °C
- NEMA 4X (IP65) Front Panel

Optional Features

- RS232/485 Digital Communications, Contact/Digital Remote Input, Transducer Excitation, and PV or SV Retransmission
- 24 Vac/Vdc Power Supply

The CN8200 temperature/process controller is extremely versatile and user-friendly. During setup, the user needs to review only those parameters relevant to the particular application. A dual digital display offers optimal process information at a glance. Individual LEDs identify the status of outputs, alarms, digital communications, and special options. The CN8200 features a NEMA 4X front panel and a universal power supply that accepts 100 to 250 Vac and 120 to 250 Vdc. A 24 Vac/24 Vdc power supply option is also available. Available control algorithms are P, PI, PD, PID, or on/off. The autotune feature automatically sets proportional band, derivative, and integral before the process reaches setpoint. These parameters provide quick stabilization of processes with minimum overshoot, hunting, or cycling. Eight-level ramp/soak control is standard and includes a decimal display on thermocouple ranges, digital display and signal filtering, and a percentage of power limit setting.

The dual control outputs can be configured for a variety of control and alarm applications, and 2 dedicated alarm outputs are also available.

The CN8200 offers a wide range of options, including RS232 and RS485 digital communications, 3 contact/digital input modes, 4 transducer excitation voltages, and 4 auxiliary output ranges.

Specifications

Performance

Accuracy: ±0.2% FS, ±1 digit
Setpoint Resolution:1 count/0.1 count
Repeatability: ±1 count
Temperature Stability: 5 µV/°C maximum
T/C 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

Input Type: See input table on next page
Digital Input: For remote setpoint, remote standby or ramp/soak run and hold
Thermocouple Lead Resistance: 100 Ω maximum for rated accuracy
Decimal Position: Selectable

Outputs

Output #1: Reverse- or direct-acting, configured from menu
Output #2: Reverse- or direct-acting, configured from menu
Mechanical Relay: Rated 5 A @120 Vac, 3 A @ 240 Vac, normally open (NO), normally closed (NC) (output 1); rated 5 A @120 Vac, 3 A @ 240 Vac, NO (output 2)

Current: 4 to 20 mA, 500 Ω maximum (suffix F1, F2); 4 to 20 mA, 1000 Ω maximum (suffix FH1, FH2)
Voltage: 20 Vdc pulse
Solid State Relay: SSR, 120/240 Vac, zero voltage switched, rated 1 A continuous, 10 A surge @ 25°C (77°F)
Alarms: Mechanical relay rated 5 A @ 120 Vac, 3 A @ 240 Vac, NO; optically isolated SSR rated 1 A, 120/240 Vac @ 25°C (77°C); DC alarms, 24 Vdc
Transducer Power Supply: 5, 10, 12, 15 Vdc ±10%

Control Characteristics

Setpoint Limits: Limited to configured range for thermocouple and RTD; limited to scaled range
Alarms: Adjustable for high/low; selectable process or deviation
Rate (Derivative): 0 to 2400 seconds
Reset (Integral): 0 to 9600 seconds
Cycle Time: 0.2 to 120 seconds
Proportional Band: 1 to span of sensor
Deadband: Negative span to positive span of sensor
Hysteresis: 1 to span of sensor
Autotune Damping: Adjustable (low, normal, or high)
Ramp to Setpoint: 1 to 9999 minutes
Autotune: Operator-initiated from front panel
Manual Control: Operator-initiated from front panel

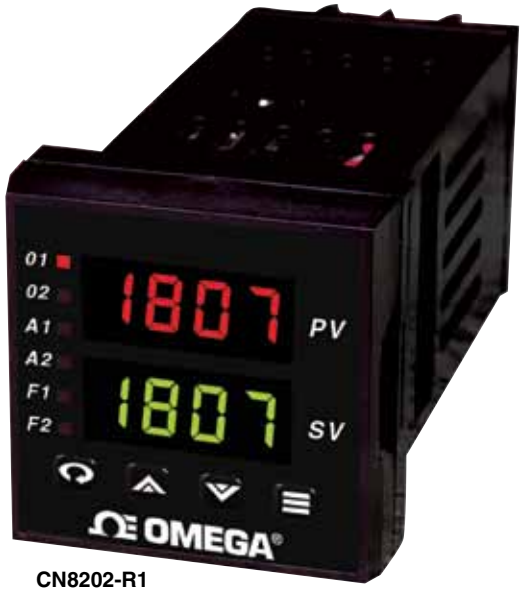
General

Power: 100 to 250V, 50/60 Hz (single-phase); 120 to 250 Vdc, 24 Vac/24 Vdc (optional)
Display: Dual LED—4-digit, orange: process display; green: menu/parameter display; 9.2 mm (0.36")
Power Consumption: Less than 6 VA (instrument) @ 120 Vac
Weight: 226 g (8 oz)
Panel Cutout: 45 mm (1.771") square
Dimensions: 53.3 H x 53.3 W x 8.21 mm D (2.1 x 2.1 x 0.72") bezel
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: Screw terminals
Contacts: Twin bifurcated
Ramp/Soak Programming
Intervals: 8
Loops: 0 to 99
Ramp Time: 0 to 9999 minutes
Soak Time: 0 to 9999 minutes

Events/Alarms: 1 to 8
Ramp Setpoint: 1 to 9999 minutes
CN8-SW (Optional Software):
Minimum Hardware and Software Requirements: IBM PC or 100% compatible, Windows 95/98/NT; RS485 interface or RS232 to RS485 converter
Software Compatibility: CN8200 Series controllers
Software Capability: Supports up to 254 CN8200 Series controllers

OMEGACARE℠ Extended Warranty Program

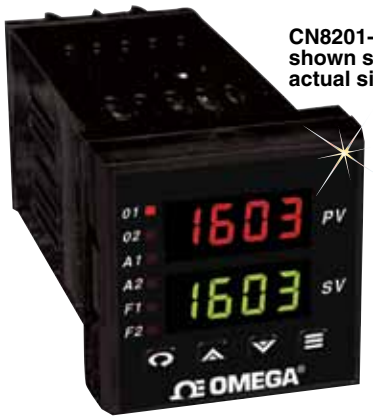
OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.



CN8202-R1
shown actual size.

Input and Range Table for Universal Input Controller

Input Type	Range
J Iron-Constantan	-200 to 760°C (-328 to 1400°F)
K CHROMEGA®-ALOMEGA®	-270 to 1354°C (-454 to 2469°F)
T Copper-Constantan	-270 to 400°C (-454 to 752°F)
N OMEGALLOY®	-268 to 1300°C (-450 to 2372°F)
R Pt/13%Rh-Pt	-50 to 1768°C (-58 to 3214°F)
S Pt/10%Rh-Pt	-50 to 1768°C (-58 to 3214°F)
B Pt/30%Rh-Pt/6%Rh	0 to 1820°C (32 to 3308°F)
C W/5%Re-W/26%Re	0 to 2315°C (32 to 4199°F)
E CHROMEGA®-Constantan	-150 to 1000°C (-238 to 1832°F)
NNM 18% molybdenum vs nickel -06% cobalt	0 to 1410°C (32 to 2570°F)
Platinel II	-100 to 1232°C (-148 to 2250°F)
RTD (3-wire) 100 Ω Pt	-200 to 850°C (-328 to 1562°F)
RTD (3-wire) 100 Ω Pt	-199.9 to 375.0°C (-199.9 to 707.0°F)
0 to 1V	Scalable (-1999 to 9999) selectable
1 to 5V	Scalable (-1999 to 9999) selectable
0 to 5V	Scalable (-1999 to 9999) selectable
0 to 10V	Scalable (-1999 to 9999) selectable
10 to 50 mV	Scalable (-1999 to 9999) selectable
0 to 50 mV	Scalable (-1999 to 9999) selectable
0 to 10 mV	Scalable (-1999 to 9999) selectable
0 to 100 mV	Scalable (-1999 to 9999) selectable
4 to 20 mA	Scalable (-1999 to 9999) selectable
0 to 20 mA	Scalable (-1999 to 9999) selectable



CN8201-DC1 shown smaller than actual size.

To Order

Model Number	Description
CN8201-(*)	Single-output ramp/soak controller
CN8202-(*)-(*)	Dual-output ramp/soak controller

Comes complete with operator's manual.

***** Specify output type from output options table. The controller can have the "**-LV**" low voltage power and 1 additional option.*

Ordering Example: CN8202-R1-R2-LV-AL3, *⅛ DIN dual mechanical relay outputs, ramp/soak process controller, low voltage power, with DC pulse alarms.*

OCW-3 *OMEGACARE℠ extends standard 2-year warranty to a total of 5 years.*

Output Options (No Additional Cost)

Option Type	First Output—Heat or Cool (Reverse or Direct) Order Suffix	Second Output—Heat or Cool (Reverse or Direct) Order Suffix
Relay	**-R1**	**-R2**
DC Pulse	**-DC1**	**-DC2**
1 A SSR	**-T1**	**-T2**
4 to 20 mA (500 Ω maximum)	**-F1**	**-F2**
4 to 20 mA (800 Ω maximum)	**-FH1**	**-FH2**

Low-Voltage Power Supply (Optional)

Ordering Suffix	Description
-LV	24 Vac/24 Vdc

Additional Options (Only 1 Additional Option is Available Per Controller)

Ordering Suffix	Description
-AL1	Single-alarm mechanical relay
-AL2	Dual alarms, AC SSR
-AL3	Dual alarms, DC level (24 Vdc)
-C2	RS232 communications
-C4	RS485 communications
-C4-DIC	RS485 with digital input, switch closed
-C4-DIO	RS485 with digital input, switch open
-C4-DIV	RS485 with digital input, 0 or 5V
-C4-MOD	RS485 with MODBUS® protocol
-C4-MOD-DIC	RS485 with MODBUS protocol with digital input switch closed
-C4-MOD-DIO	RS485 with MODBUS protocol with digital input switch open
-C4-MOD-DIV	RS485 with MODBUS protocol with digital input 0 or 5V
-PVSV1	Process output, 4 to 20 mA
-PVSV2	Process output, PV or SV, 0 to 5 Vdc
-RSP1	Remote setpoint switch closed with 1 alarm
-RSP2	Remote setpoint switch open with 1 alarm
-RSP3	0 or 5 Vdc remote setpoint with 1 alarm
-XP1	Transducer power supply, 15 Vdc
-XP2	Transducer power supply, 12 Vdc
-XP3	Transducer power supply, 10 Vdc
-XP4	Transducer power supply, 5 Vdc

Optional Communications Software and Accessory

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

Includes 2 folders: 1 for standard and 1 for MODBUS® protocol. Free CN8-SW software download available at ***omega.com/cn8201***