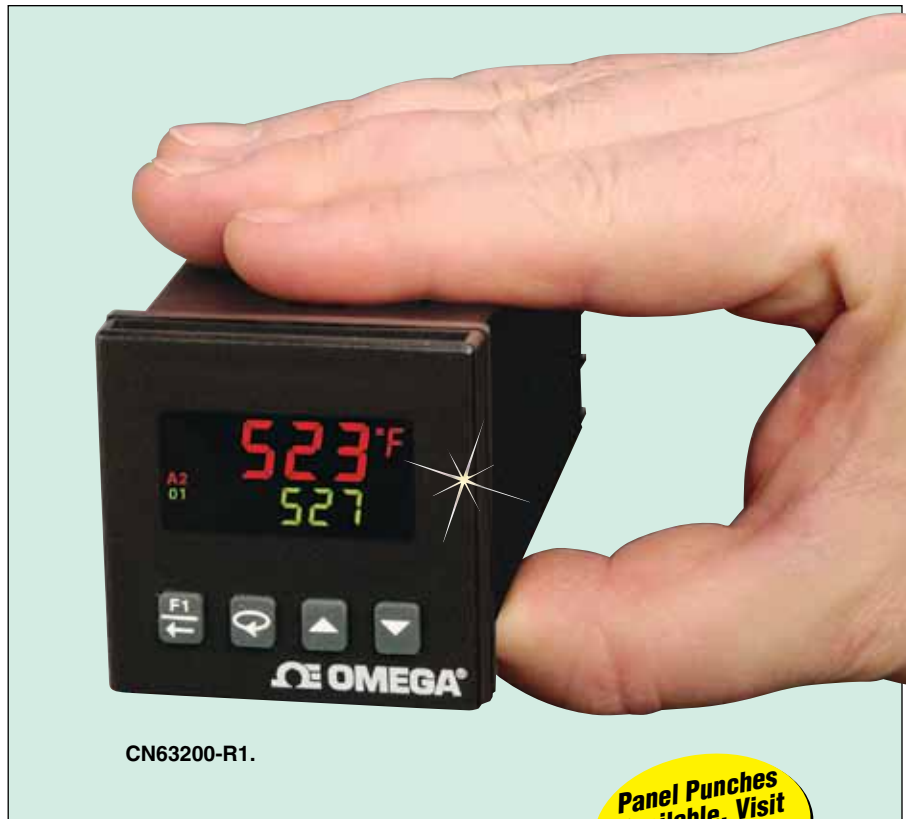


1/16 DIN Autotune Temperature and Process Controllers

CN63200 and
CN63400 Series



- ✓ PID Control With Reduced Overshoot
- ✓ CN63200 Accepts Thermocouples and RTDs
- ✓ CN63400 Accepts 0 to 10 Vdc and 0/4 to 20 mA Signals
- ✓ On-Demand Auto-Tuning of PID Settings
- ✓ DC Analog Output (Optional)
- ✓ User Programmable Function Button
- ✓ Front Panel Programming



CN63200-R1.

Panel Punches Available, Visit omega.com/panelpunches

The CN63200 controllers accepts signals from a variety of temperature sensors (thermocouple or RTD), while the CN63400 controllers accepts either a 0 to 10 Vdc or 0/4 to 20 mAdc input signal. Both controllers can provide an accurate output control signal (time proportional or DC analog output) to maintain a process at a setpoint value. Dual 4-digit displays allow viewing of the process/temperature and setpoint simultaneously. Front panel indicators inform the operator of the controller and output status. The comprehensive programming allows these controllers to meet a wide variety of application requirements.

Specifications

Display: 2-line by 4-digit, LCD negative image transmissive with backlighting
Top (Process) Display: 7.6 mm H (0.3") digits with red backlighting
Bottom (Parameter) Display: 5.1 mm H (0.2") digits with green backlighting

Power:

Line Voltage Models: 85 to 250 Vac, 50/60 Hz, 8 VA

Low Voltage Models:

DC Power: 18 to 36 Vdc, 4 W

AC Power: 24 Vac, ±10%, 50/60 Hz, 7 VA

Controls: 3 rubber push buttons for modification and setup of controller parameters, 1 additional button (F1) for user programmable function, 1 external user input (models with alarms) for parameter lockout or other user programmable functions
Memory: Non-volatile E²PROM retains all programmable parameters
Isolation Level: AC power with respect to all other I/O; 250V working (2300V for 1 minute)

Sensor Input to Analog Output: 50V working (500V for 1 minute)

Relay Contacts to All Other I/O: 300V working (2300V for 1 minute)

DC Power with Respect to Sensor Input and Analog Output: 50V working (500V for 1 minute)

Environmental Conditions:

Operating Temperature Range: 0 to 50°C (32 to 122°F)

Storage Temperature Range: -40 to 80°C (-40 to 176°F)

Operating and Storage Humidity:

85% max relative humidity (non-condensing) from 0 to 50°C (32 to 122°F)

Altitude: Up to 2000 meters

Connection: Wire-clamping screw terminals

Construction: Black plastic alloy case and collar style panel latch; panel latch can be installed for vertical or horizontal instrument stacking; black plastic textured bezel with transparent display window; controller meets NEMA 4X (IP65) requirements for indoor use when properly installed; Installation Category II, Pollution Degree 2
Weight: 179 g (6.3 oz)



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



Input Specifications

Sensor Input:

Sample Period: 100 ms (10 Hz rate)

Step Response Time: 300 ms typical, 400 msec max to within 99% of final value with step input

Failed Sensor Response:

Main Control Output(s): Programmable preset output

Display: "OPEN"

Alarms: Upscale drive

Analog Output: Upscale drive when assigned to retransmitted input

Normal Mode Rejection: >40 dB @ 50/60 Hz

Common Mode Rejection: >120 dB, DC to 60 Hz

Overvoltage Protection: 120 Vac @ 15 s maximum

RTD Inputs (CN63200 Only)

Type: 2- or 3-wire

Excitation: 150 μ A typical

Lead Resistance: 15 Ω max per input lead

Resolution: 1 or 0.1° for all typesable, enable or disable

Hysteresis: Programmable

Type	Input Type	Range	Standard
385	100 Ω platinum, Alpha = 0.00385	-200 to 600°C (-328 to 1112°F)	IEC 751
392	100 Ω platinum, Alpha = 0.00385	-200 to 600°C (-328 to 1112°F)	No official standard
672	120 Ω nickel, Alpha = 0.00672	-80 to 215°C -112 to 419°F	No official standard
Ω	Linear resistance	0.0 to 320.0 Ω	N/A

Temperature Indication Accuracy (CN63200 Only):

\pm (0.3% of span, +1°C) at 23°C (73°F) ambient after 20 minute warm up; includes NIST conformity, cold junction effect, A/D conversion errors and linearization conformity

Span Drift (Maximum): 130 PPM/°C

User Input (Only Controllers with Alarms Have a User

Input Terminal): Internally pulled up to 7 Vdc (100 K Ω)

V_{IN} Max: 35V

V_{IL}: 0.6V max

V_{IH}: 1.5V min

I_{OFF}: 40 μ A max

Response Time: 120 ms max

Functions: Programmable

Output Specifications

Control and Alarm Outputs:

Relay Output:

Type: Form "A"

Contact Rating: 3 A @ 250 Vac or 30 Vdc;

$\frac{1}{10}$ HP @ 120 Vac (inductive load)

Life Expectancy: 100,000 cycles at max load rating (decreasing load and/or increasing cycle time, increases life expectancy)

Logic/SSR Output (Main Control Output Only):

Rating: 45 mA max @ 4V min, 7V nominal

Main Control:

Control: PID or on/off

Output: Time proportioning or DC analog

Cycle Time: Programmable

Auto-Tune: When selected, sets proportional band, integral time, derivative time, and output dampening time; also sets input filter and (if applicable) cooling gain

Probe Break Action: Programmable

Alarms (Optional): 2 relay alarm outputs

Reset Action: Programmable; automatic or latched

Standby Mode: Programmable; enable or disable

Hysteresis: Programmable

Sensor Fail Response: Upscale

Thermocouple Inputs (CN63200 Only)

Types: T, E, J, K, R, S, B, N, C, and linear mV

Input Impedance: 20 M Ω for all types

Lead Resistance Effect: 0.25 μ V/ Ω

Cold Junction Compensation:

< \pm 1°C typical (1.5°C max) error over ambient temperature range

Resolution: 1° for types R, S, B and 1 or 0.1° for all other types

TC Type	Display Range	Wire Color		Standard
		ANSI	BS1843	
T	-200 to 400°C -328 to 752°F	(+) Blue (-) Red	(+) White (-) Blue	ITS-90
E	-200 to 750°C -328 to 1382°F	(+) Violet (-) Red	(+) Brown (-) Blue	ITS-90
J	-200 to 760°C -328 to 1400°F	(+) White (-) Red	(+) Yellow (-) Blue	ITS-90
K	-200 to 1250°C -328 to +2282°F	(+) Yellow (-) Red	(+) Brown (-) Blue	ITS-90
R	0 to 1768°C 32 to 3214°F	No standard	(+) White (-) Blue	ITS-90
S	0 to 1768°C 32 to 3214°F	No standard	(+) White (-) Blue	ITS-90
B	149 to 1820°C 300 to 3308°F	No standard	No standard	ITS-90
N	-200 to 1300°C -328 to 2372°F	(+) Orange (-) Red	(+) Orange (-) Blue	ITS-90
C (W5/W6)	0 to 2315°C 32 to 4199°F	No standard	No standard	ASTM E988-96
mV	-5.00 mV to 56.00 mV	N/A	N/A	N/A

Signal Input (CN63400 Only)

Input Range	Accuracy*	Impedance	Max Continuous Overload	Res
10 Vdc (-1 to 11)	0.30 % of rdg + 0.03V	1 M Ω	50V	10 mV
20 mAdc (-2 to 22)	0.30 % of rdg + 0.04 mA	10 Ω	100 mA	10 μ A

* Accuracies are expressed as percentages over 0 to 50°C (32 to 122°F) ambient range after 20 minute warm-up.

Annunciator: "A1" and "A2" programmable for normal or reverse acting

Cooling: Software selectable (overrides alarm 2)

Control: PID or on/off

Output: Time proportioning

Cycle Time: Programmable

Proportional Gain Adjust: Programmable

Heat/Cool Deadband Overlap: Programmable

Analog DC Output (Optional):

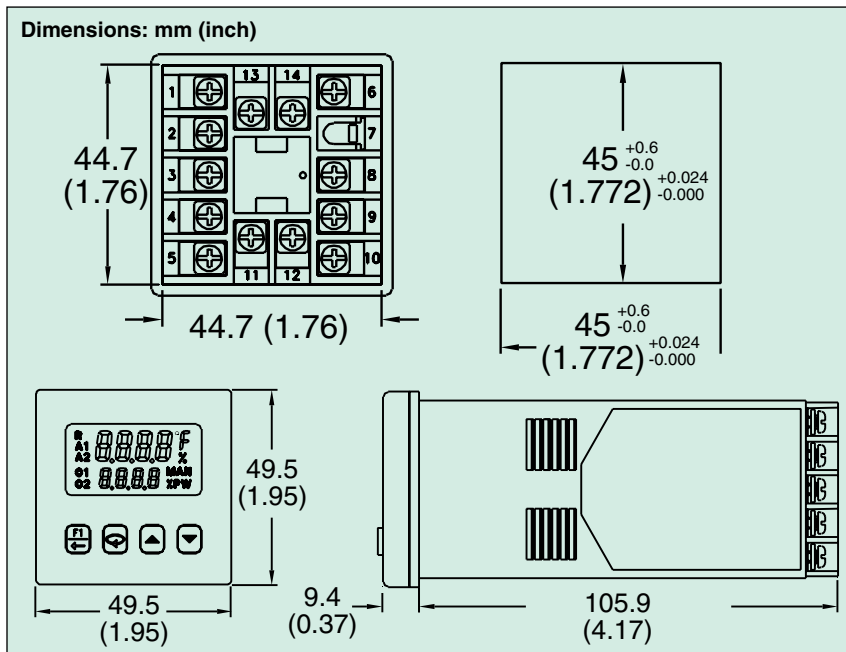
Action: Control or retransmission

Update Rate: 0.1 to 250 s

Output Range**	Accuracy*	Compliance	Resolution
0 to 10V	0.3% of FS + $\frac{1}{2}$ LSD	10 k Ω min	$\frac{1}{8000}$
0 to 20 mA	0.3% of FS + $\frac{1}{2}$ LSD	500 Ω max	$\frac{1}{8000}$
4 to 20 mA	0.3% of FS + $\frac{1}{2}$ LSD	500 Ω max	$\frac{1}{6400}$

* Accuracies are expressed as percentages over 0 to 50°C (32 to 122°F) ambient range after 20 minute warm-up.

** Outputs are independently jumper selectable for either 10V or 20 mA. The output range may be field calibrated to yield approximately 5% overrange and a small underrange (negative) signal.



CN63200-R1 shown actual size.

To Order Visit omega.com/cn63200 for Pricing and Details

Model No.	Description
Temperature Inputs: Standard Power Models (85 to 250 Vac, 50 to 60 Hz, 8 VA max)	
CN63200-R1	Single output, relay
CN63200-R1-AL	Single output, relay, 2 alarms
CN63200-DC1	Single output, DC pulse
CN63200-DC1-AL	Single output, DC pulse, 2 alarms
CN63200-F1-AL	Single output, analog control or re-transmission, 2 alarms
Temperature Inputs: Low Voltage Models(18 to 36 Vdc; 7 W)	
CN63200-R1-LV	Single output, relay
CN63200-R1-AL-LV	Single output, relay, 2 alarms
CN63200-DC1-LV	Single output, DC pulse
CN63200-DC1-AL-LV	Single output, DC pulse, 2 alarms
CN63200-F1-AL-LV	Single output, analog control or re-transmission, 2 alarms
Process Inputs: Standard Power Models (85 to 250 Vac, 50 to 60 Hz, 8 VA max)	
CN63400-R1	Single output, relay
CN63400-R1-AL	Single output, relay, 2 alarms
CN63400-DC1	Single output, DC pulse
CN63400-DC1-AL	Single output, DC pulse, 2 alarms
CN63400-F1-AL	Single output, analog control or re-transmission, 2 alarms
Process Inputs: Low-Voltage Models (18 to 36 Vdc; 7 W)	
CN63400-R1-LV	Single output, relay
CN63400-R1-AL-LV	Single output, relay, 2 alarms
CN63400-DC1-LV	Single output, DC pulse
CN63400-DC1-AL-LV	Single output, DC pulse, 2 alarms
CN63400-F1-AL-LV	Single output, analog control or re-transmission, 2 alarms

Comes complete with operator's manual.

* Analog out may be used for retransmitted signals. When using analog output for retransmitted signals, AL1 becomes main control O1, if selected for heating in the analog out models.

Ordering Examples: CN63400-DC1-AL, 18 to 36 Vdc power, process inputs, single DC pulse output with 2 alarms.
 CN63200-R1-AL, 85 to 250 Vac power, temperature inputs, single relay output with 2 alarms.

Accessories (Field-Installable)

Model No.	Description
CNQUENCHARC	Noise suppression RC snubber (2 leads), 110 to 230 Vac