

Autotune Temperature/ Process Controllers

CN9000 Series
Starts at
\$178



CN9300, CN9400, CN9500 and CN9600 Series

- ✓ Display Engineering Units °C, °F, BAR, PSI, pH, rH, SET (Universal Unit)
- ✓ 4-Digit Display
- ✓ NEMA 4 (IP66) Faceplate

CN9600 Series Unique Features

- ✓ Multi Ramp and Soak: 31 Programs, 126 Segments
- ✓ 3 Outputs Standard

CN9300 Series 1/6 DIN, starts at \$189.

All shown actual size.



CN9400/CN9600 Series 1/6 DIN, starts at \$209.



CN9500 Series 1/2 DIN, starts at \$178.



Specifications

Power: 100 to 240 Vac, ±10%, 50 to 60 Hz, 4 VA; optional 12 or 24 Vac/dc, ±20%, 50 to 60 Hz, 4 VA

Display: 4-digit LED, 10 mm (0.4"), high brightness green display

CN9400/CN9600 Dual Display: Lower display: 9 mm (0.35") Orange

Display Range: -199 to 9999 counts (hi-res mode -199.9 to 999.9)

Range: Sensor limited 2000°C/3500°F; -99.9 to 999.9° in 0.1° resolution

Thermocouple Cold Junction Compensation Rejection: 20:1 (0.05°/°C) typical

Thermocouple External Resistance: 100 Ω max

Calibration Accuracy: ±0.25% FS ±1°C

Sampling Frequency: Input 10 Hz, CJC 2 sec

Common Mode Rejection: Negligible effect up to 140 dB, 240 V, 50 to 60 Hz

Temperature Coefficient: 150 ppm/°C sensor max

Input Ranges

Thermocouple Type		Linearized Range (Units Are °C/°F Switchable)		Linearity °C
B	Pt-30%Rh/Pt-6%Rh	0 to 1800 °C	32 to 3272°F	2.0
E	CHROMEPA®-Constantan	0 to 600 °C	32 to 1112°F	0.5
J	Iron-Constantan	0 to 800 °C	32 to 1472°F	0.5
K	CHROMEPA®-ALOMEGA®	-50 to 1200 °C	-58 to 2192°F	0.25
L (J DIN)	Iron-Constantan	0 to 800 °C	32 to 1472°F	0.5
N	OMEGA-P®-OMEGA-N®	-50 to 1200 °C	-58 to 2192°F	0.25
S	Pt-13%Rh/Pt	0 to 1600 °C	32 to 2912°F	2.0
R	Pt-10%Rh/Pt	0 to 1600 °C	32 to 2912°F	2.0
T	Copper-Constantan	-200 to 250 °C	-273 to 482°F	0.25

Notes: Type B: 5° (70-500°C), Types K and N: 1° >350°C; exceptions: Types R and S: 5° <300°C, Type T: 1°, -25° or >150°C RTD/Pt100: 0.5<-100°C

Sensor Type	Sensor and Input Type	Linearized Range (Units are °C/°F Switchable)		Linearity* °C
RTD	2-Wire, 100 ΩPt	200 to 400°C	-273 to 752°F	0.25
CN9600 ONLY	2-, 3-wire RTD input	200 to 400°C	-273 to 752°F	0.25

Linear Process Inputs (Input mV range: 0 to 50 mV) (1 Ω shunt resistor is supplied for mA inputs)			
Input Type	Signal Span	Maximum Scale Settings	Accuracy
Linear Process	0 to 20 mV	-250 to 3000	±0.5%
CN9600 ONLY	0 to 50mV	-199 to 9999	±0.1%

Output Device Options:
Relay: Form A/SPST contacts
 2 A/250 Vac, resistive
DC Pulse Driver: 5 Vdc
 (0/-15%) 15 mA non-isolated
 6 Vdc @ 20 mA (CN9600 only)
Analog (CN9600 Only):
 Accuracy 0 to 1% FS typical,
 4 to 20 mA (500 Ω max);
 0 to 5 Vdc 10 mA (500 Ω min)
 0 to 10 Vdc 10 mA (1 kΩ min)

Operating Ambient Range:
 0 to 50°C (32 to 122°F)
Case Material:
 Flame-retardant polycarbonate
Weight:
CN9300: 120 g (4.3 oz)
CN9400: 120 g (4.3 oz)
CN9500: 110 g (3.9 oz)
CN9600: 180 g (6.4 oz)

½ DIN Panel Cutout Size:
 45 x 22.2 mm (1.77 x 0.87")
 9.5 mm (0.374") max panel thickness
⅙ DIN Panel Cutout Size:
 45 mm square (1.772")
 9.5 mm (0.374") maximum
 panel thickness

 **MOST POPULAR MODELS HIGHLIGHTED!**

To Order (Specify Model Number)			(Both Outputs can be Either Reverse or Direct Acting)		
Model No.	Price	Description	Output 1	Output 2	Output 3
CN9511	\$184	⅓ ₂ DIN single display controller	Relay	Relay	-
CN9512	178	⅓ ₂ DIN single display controller	DC pulse	Relay	-
CN9522	184	⅓ ₂ DIN single display controller	DC pulse	DC pulse	-
CN9311	195	⅙ ₁₆ DIN single display controller	Relay	Relay	-
CN9312	189	⅙ ₁₆ DIN single display controller	DC pulse	Relay	-
CN9322	195	⅙ ₁₆ DIN single display controller	DC pulse	DC pulse	-
CN9411	215	⅙ ₁₆ DIN dual display controller	Relay	Relay	-
CN9412	209	⅙ ₁₆ DIN dual display controller	DC pulse	Relay	-
CN9422	215	⅙ ₁₆ DIN dual display controller	DC pulse	DC pulse	-
CN96111(*)	247	⅙ ₁₆ DIN multi ramp and soak controller	Relay	Relay	Relay
CN96211(*)	236	⅙ ₁₆ DIN multi ramp and soak controller	DC pulse	Relay	Relay
CN96221(*)	231	⅙ ₁₆ DIN multi ramp and soak controller	DC pulse	DC pulse	Relay
CN96411(*)	299	⅙ ₁₆ DIN multi ramp and soak controller	4 to 20 mA	Relay	Relay
CN96421(*)	289	⅙ ₁₆ DIN multi ramp and soak controller	4 to 20 mA	DC pulse	Relay
CN96511(*)	299	⅙ ₁₆ DIN multi ramp and soak controller	5 Vdc	Relay	Relay
CN96521(*)	289	⅙ ₁₆ DIN multi ramp and soak controller	5 Vdc	DC pulse	Relay
CN96611(*)	299	⅙ ₁₆ DIN multi ramp and soak controller	10 Vdc	Relay	Relay
CN96621(*)	289	⅙ ₁₆ DIN multi ramp and soak controller	10 Vdc	DC pulse	Relay

Comes complete with operator's manual.

* Specify input type. Insert "TR" for standard thermocouple/RTD, or for a dedicated process input add "MA", "5V", or "10V".

Ordering Examples: CN9512, ⅓₂ DIN single display, dual output ramp/soak, thermocouple/RTD input controller, DC pulse and a mechanical relay output, \$178.

OCW-2, OMEGACARESM extends standard 3-year warranty to a total of 5 years (\$32), \$178 + 32 = \$210.

Additional Options

Suffix	Price	Description
-C2	\$50	RS232 communications
-C4	50	RS485 communications
-LV*	N/C	12 to 24 Vac/Vdc low-voltage power

Note: 1 communications option can be ordered per unit.

Field installable communication boards can be installed in the field.

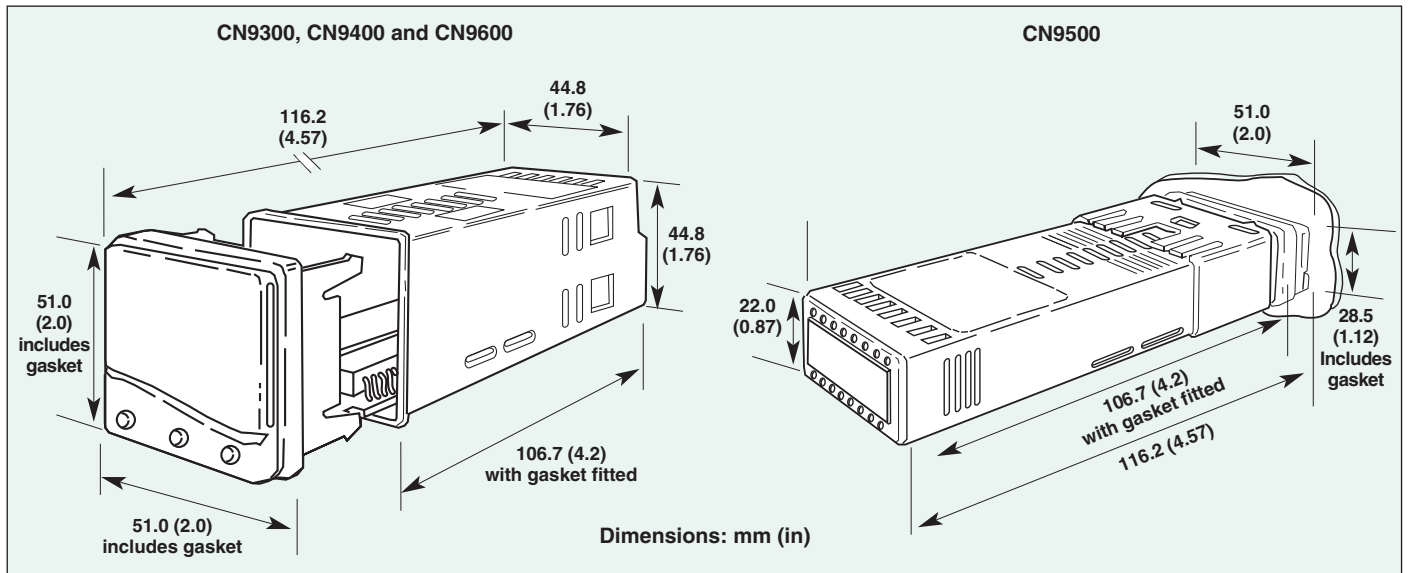
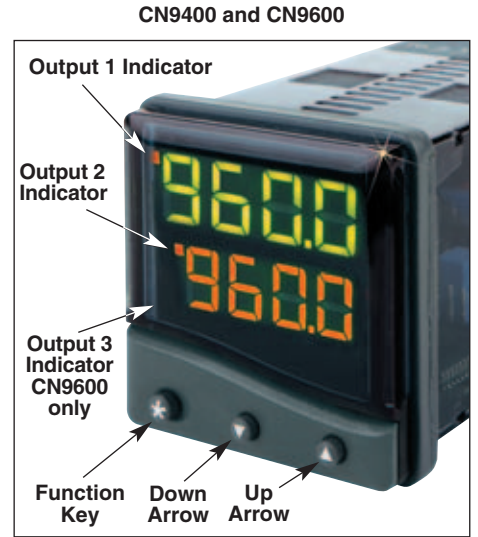
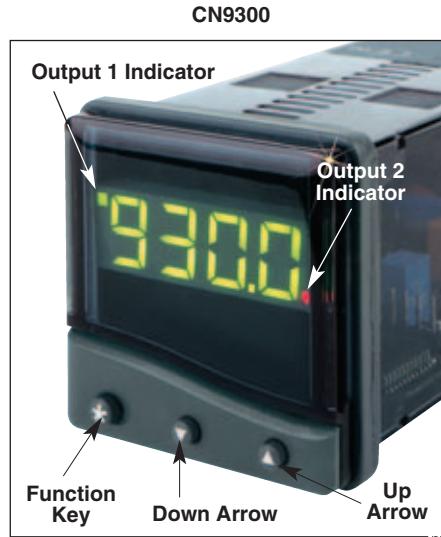
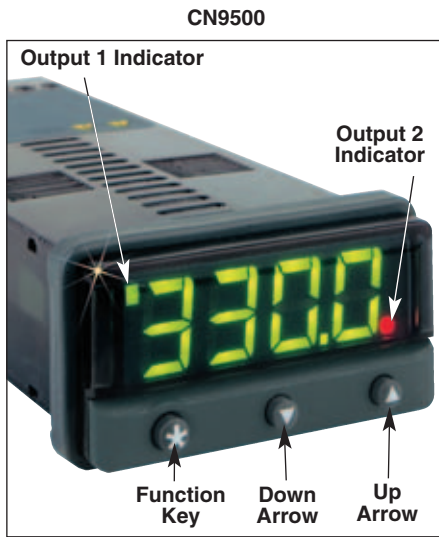
* Low-voltage power option is not field installable and available only on the following models: CN9312, CN9322, CN9512 and CN9522.



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.

Field Installable Boards and Accessories

Model Number	Price	Description
BD9-C2	\$50	RS232 communications board
BD9-C4	50	RS485 communications board
CN9-SW	159	Software for CN9300, 9400 and 9500
CN9-SW-GRAFIX	299	Software for CN9300, 9400, 9500 and 9600
CN9-C2-CABLE-10	16	RS232 cable with female DB-9, 3 m (10')
CN9-C2-CABLE-25	16	RS232 cable with female DB-9, 8 m (25')
CN9-16-MB	20	⅙ ₁₆ DIN mounting bracket for DIN rail or surface mount
CN9-32-MB	20	⅓ ₂ DIN mounting bracket for DIN rail or surface mount



Input Ranges

Thermocouple Type		Linearized Range (Units Are °C/°F Switchable)		Linearity °C
B	Pt-30%Rh/Pt-6%Rh	0 to 1800°C	32 to 3272°F	2.0
E	CHROMEGA®-Constantan	0 to 600°C	32 to 1112°F	0.5
J	Iron-Constantan	0 to 800°C	32 to 1472°F	0.5
K	CHROMEGA®-ALOMEGA®	-50 to 1200°C	-58 to 2192°F	0.25
L (J DIN)	Iron-Constantan	0 to 800°C	32 to 1472°F	0.5
N	OMEGA-P®-OMEGA-N®	-50 to 1200°C	-58 to 2192°F	0.25
S	Pt-13%Rh/Pt	0 to 1600°C	32 to 2912°F	2.0
R	Pt-10%Rh/Pt	0 to 1600°C	32 to 2912°F	2.0
T	Copper-Constantan	-200 to 250°C	-273 to 482°F	0.25

Notes: Type B: 5° (70-500°C), Types K and N: 1° >350°C Exceptions: Types R and S: 5° <300°C, Type T: 1°, -25° or >150°C RTD/Pt100: 0.5<-100°C

Sensor Type	Sensor and Input Type	Linearized Range (Units are °C/°F Switchable)		Linearity °C
RTD	2-Wire, 100 ΩPt	200 to 400°C	-273 to 752°F	0.25
CN9600 ONLY	2 + 3 wire RTD input	200 to 400°C	-273 to 752°F	0.25

Linear Process Inputs (Input mV range: 0 to 50 mV) (1 Ω shunt resistor is supplied for mA inputs)			
Input Type	Signal Span	Maximum Scale Settings	Accuracy
Linear Process	0 to 20 mV	-250 to 3000	±0.5%
CN9600 ONLY	0 to 50mV	-199 to 9999	±0.1%

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)			(Both Outputs can be Either Reverse or Direct Acting)		
Model No.	Price	Description	Output 1	Output 2	Output 3
CN9511	\$184	1/32 DIN single display controller	Relay	Relay	-
CN9512	178	1/32 DIN single display controller	Relay	DC pulse	-
CN9522	184	1/32 DIN single display controller	DC pulse	DC pulse	-
CN9311	195	1/16 DIN single display controller	Relay	Relay	-
CN9312	189	1/16 DIN single display controller	Relay	DC pulse	-
CN9322	195	1/16 DIN single display controller	DC pulse	DC pulse	-
CN9411	215	1/16 DIN dual display controller	Relay	Relay	-
CN9412	209	1/16 DIN dual display controller	Relay	DC Pulse	-
CN9422	215	1/16 DIN dual display controller	DC pulse	DC pulse	-
CN96111(*)	247	1/16 DIN dual display controller	Relay	Relay	Relay
CN96211(*)	236	1/16 DIN dual display controller	DC pulse	Relay	Relay
CN96221(*)	231	1/16 DIN dual display controller	DC pulse	DC pulse	Relay
CN96411(*)	299	1/16 DIN dual display controller	4 to 20 mA	Relay	Relay
CN96421(*)	289	1/16 DIN dual display controller	4 to 20 mA	DC pulse	Relay
CN96511(*)	299	1/16 DIN dual display controller	5 Vdc	Relay	Relay
CN96521(*)	289	1/16 DIN dual display controller	5 Vdc	DC pulse	Relay
CN96611(*)	299	1/16 DIN dual display controller	10 Vdc	Relay	Relay
CN96621(*)	289	1/16 DIN dual display controller	10 Vdc	DC pulse	Relay

Comes complete with operator's manual.

* To specify input type insert "TR" for standard thermocouple/RTD, or for a dedicated process input add "MA," "5V," or "10V."

Ordering Examples: CN9662110V, 1/16 DIN triple output ramp/soak, process 10V input controller, 10 Vdc output, DC pulse and a mechanical relay output, \$289.

CN9311-C4, controller with relay output, and RS485 communications, \$195 + 50 = \$245.

OCW-2 OMEGACARESM extends standard 3-year warranty to a total of 5 years \$44, \$245 + 44 = \$289.

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.

For Additional Controllers and Indicators, See Section M

Additional Options

Suffix	Price	Description
-C2	\$50	RS232 Communications
-C4	50	RS485 Communications

Note: One communications option can be ordered per unit. Field installable communications boards can be installed in the field.



Field Installable Boards and Accessories

Model No.	Price	Description
BD9-C2	\$50	RS232 communications board
BD9-C4	50	RS485 communications board
BD9-PROTOCOL†	N/C	MODBUS® protocol manual is not required when using the CN9-SW software
CN9-SW	159	Software for either RS232 or RS485 communications (refer to specifications); compatible with Windows 95, 98, NT or XP
TP4	19	Trim plate adaptor, 1/16 to 1/4 DIN panel cutout
TP6	19	Trim plate adaptor, 1/16 to 1/8 DIN panel cutout
CNQUENCHARC	8	120/240 Vac snubber used for inductive loads
CN9-C2-CABLE-10	16	RS232 cable with female DB-9, 3 m (10')
CN9-C2-CABLE-25	16	RS232 cable with female DB-9, 8 m (25')
DPP-1	400	1/32 DIN panel punch
DPP-4	475	1/16 DIN panel punch

† This protocol manual provides the address information necessary to communicate with the CN9300/CN9400/CN9500 series controllers, with communications options installed, when interacting with custom or other commercially available software.





UNITED STATES

www.omega.com
1-800-TC-OMEGA
Stamford, CT.

CANADA

www.omega.ca
Laval(Quebec)
1-800-TC-OMEGA

GERMANY

www.omega.de
Deckenpfronn, Germany
0800-8266342

UNITED KINGDOM

www.omega.co.uk
Manchester, England
0800-488-488

FRANCE

www.omega.fr
Guyancourt, France
088-466-342

CZECH REPUBLIC

www.omegaeng.cz
Karviná, Czech Republic
596-311-899

BENELUX

www.omega.nl
Amstelveen, NL
0800-099-33-44



More than 100,000 Products Available!

• Temperature

Calibrators, Connectors, General Test and Measurement Instruments, Glass Bulb Thermometers, Handheld Instruments for Temperature Measurement, Ice Point References, Indicating Labels, Crayons, Cements and Lacquers, Infrared Temperature Measurement Instruments, Recorders Relative Humidity Measurement Instruments, RTD Probes, Elements and Assemblies, Temperature & Process Meters, Timers and Counters, Temperature and Process Controllers and Power Switching Devices, Thermistor Elements, Probes and Assemblies, Thermocouples Thermowells and Head and Well Assemblies, Transmitters, Wire

• Flow and Level

Air Velocity Indicators, Doppler Flowmeters, Level Measurement, Magnetic Flowmeters, Mass Flowmeters, Pitot Tubes, Pumps, Rotameters, Turbine and Paddle Wheel Flowmeters, Ultrasonic Flowmeters, Valves, Variable Area Flowmeters, Vortex Shedding Flowmeters

• pH and Conductivity

Conductivity Instrumentation, Dissolved Oxygen Instrumentation, Environmental Instrumentation, pH Electrodes and Instruments, Water and Soil Analysis Instrumentation

• Data Acquisition

Auto-Dialers and Alarm Monitoring Systems, Communication Products and Converters, Data Acquisition and Analysis Software, Data Loggers Plug-in Cards, Signal Conditioners, USB, RS232, RS485 and Parallel Port Data Acquisition Systems, Wireless Transmitters and Receivers

• Pressure, Strain and Force

Displacement Transducers, Dynamic Measurement Force Sensors, Instrumentation for Pressure and Strain Measurements, Load Cells, Pressure Gauges, Pressure Reference Section, Pressure Switches, Pressure Transducers, Proximity Transducers, Regulators, Strain Gages, Torque Transducers, Valves

• Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters