

1/16 and 1/32 DIN Autotune Temperature/Process Controllers



Panel punches available, visit omega.com/panelpunches

CN9300, CN9400, CN9500 and CN9600 Series

- ✓ Display Engineering Units °C, °F, BAR, PSI, pH, rH, SET (Universal Unit)
- ✓ 4-Digit Display
- ✓ 5 Alarm Configurations
- ✓ Single Ramp and Soak
- ✓ PID Heat-Cool Control
- ✓ NEMA 4 (IP66) Faceplate
- ✓ Sleeve Mounting
- ✓ Security Lockouts
- ✓ Easy to Use

CN9600 Series Unique Features

- ✓ Multi Ramp and Soak: 31 Programs, 126 Segments
- ✓ Assured Soak
- ✓ mA or V Linear Inputs
- ✓ mA or V Linear Outputs
- ✓ Three Outputs Standard
- ✓ Analog Retransmission
- ✓ High Accuracy ±0.1% Display of Linear Input

Optional

- ✓ Factory or Field Installable RS232 or RS485 (MODBUS® Protocol) Communications
- ✓ CN9-SW Charting and Remote Control Software
- ✓ Low Voltage Power (CN9300 and CN9500 Only)

The new 1/32 DIN CN9500, 1/16 DIN CN9300 Single Display, 1/16 DIN CN9400 and CN9600 Dual Display controllers follow the OMEGA tradition of innovative design. The new CN9600 offers powerful Process Control and Programmer capabilities. Building on the success of the CN132 and CN9000A series, the new models include several new features, the most important being the option of a low cost serial communicating system with easy to use Windows®-based software.



1/16 DIN



1/16 DIN



1/16 DIN

CN9400 Series Starts at **\$209**



1/32 DIN

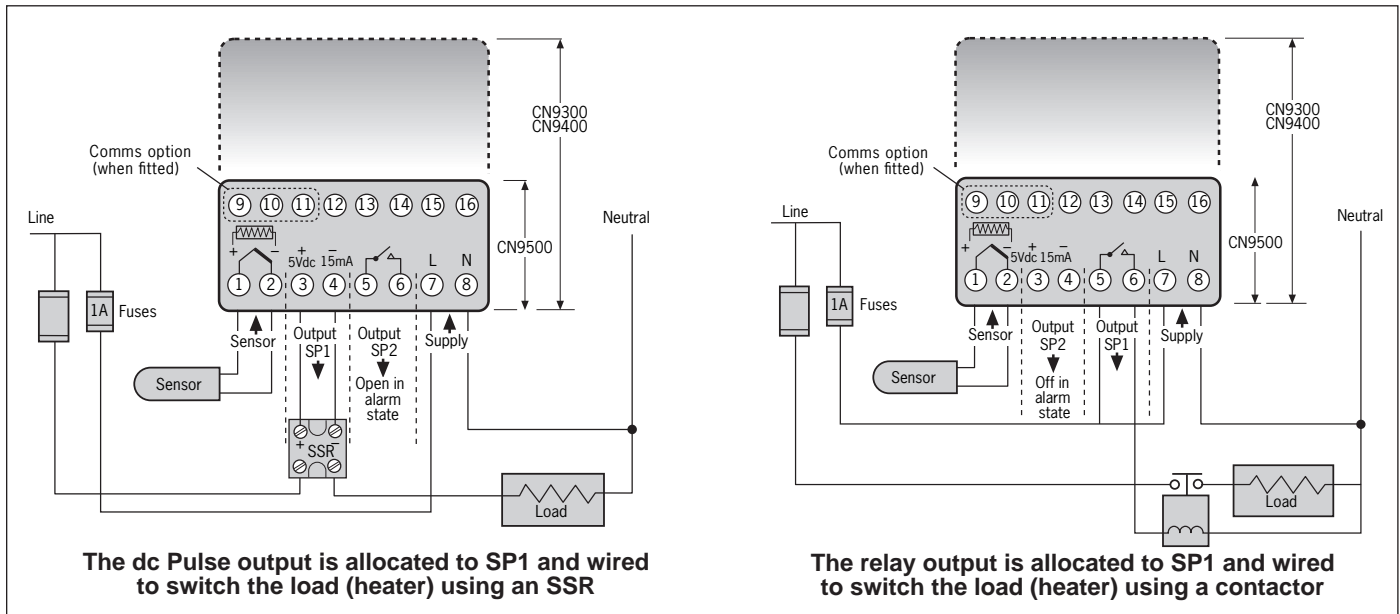
CN9500 Series Starts at **\$178**

CN9600 Series Starts at **\$231**



The CN9-SW series software bridges the gap between the "stand alone" system and full SCADA or Fieldbus control networks by providing a facility for remote supervision of up to 128 instruments using MODBUS protocol. It requires only a modest investment and can be operated by anyone with a medium specification PC or laptop that can be run with Windows 95, 98, NT or XP.

CN9300, CN9400, CN9500 and CN9600 Specifications



Specifications

Power: 100 to 240 Vac, $\pm 10\%$,
50 to 60 Hz, 4 VA; Optional
12 or 24 Vac/dc, $\pm 20\%$, 50 to 60 Hz,
4 VA Polarity is not required.

The controllers are fitted with an
internal 250 mA time lag fuse.

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

CN9400/CN9600 Dual Display:

Lower display: 9 mm (0.35") orange
LED output indicators-flashing

SP1: Square green

SP2: Round red

SP3: 2nd round red (CN9600 only)

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

Thermocouple: 9 types

Standards: IPTS/68/DIN43710

RTD Input: Pt100 2-wire (0.00385)

CN9600 Only: 3-wire RTD input

Linear Process Inputs:

CN9300, CN9400, CN9500:

mV Range: 0 to 50 mV

(1 Ω shunt resistor supplied
for mA inputs)

CN9600:

mV Range: 0 to 50 mV $\pm 0.1\%$

Calibration Accuracy:

$\pm 0.25\%$ of Full Scale $\pm 1^\circ\text{C}$

Sampling Frequency:

Input 10 Hz, CJC 2 sec

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

Temperature Coefficient:

150 ppm/°C sensor max

Output Device Options:

Relay: Form A/SPST contacts
2 A/250 Vac, resistive

SSd (DC Pulse Driver):

To switch a remote SSR 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 k Ω 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)

1/32 DIN Panel Cutout Size:

45 x 22.2 mm (1.77 x 0.87"),
9.5 mm (0.374") maximum panel
thickness

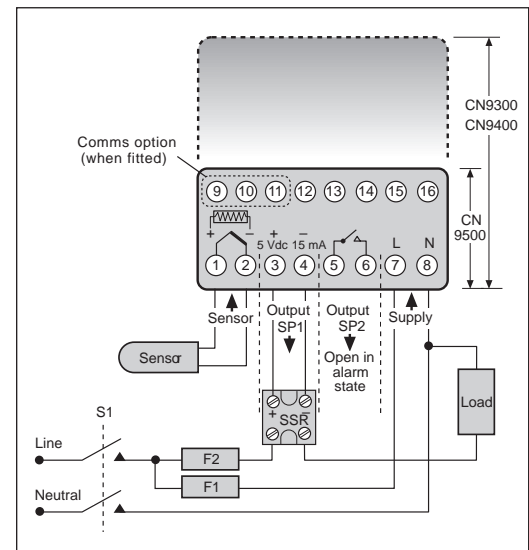
1/16 DIN Panel Cutout Size:

45 mm square (1.772"), 9.5 mm
(0.374") maximum panel thickness

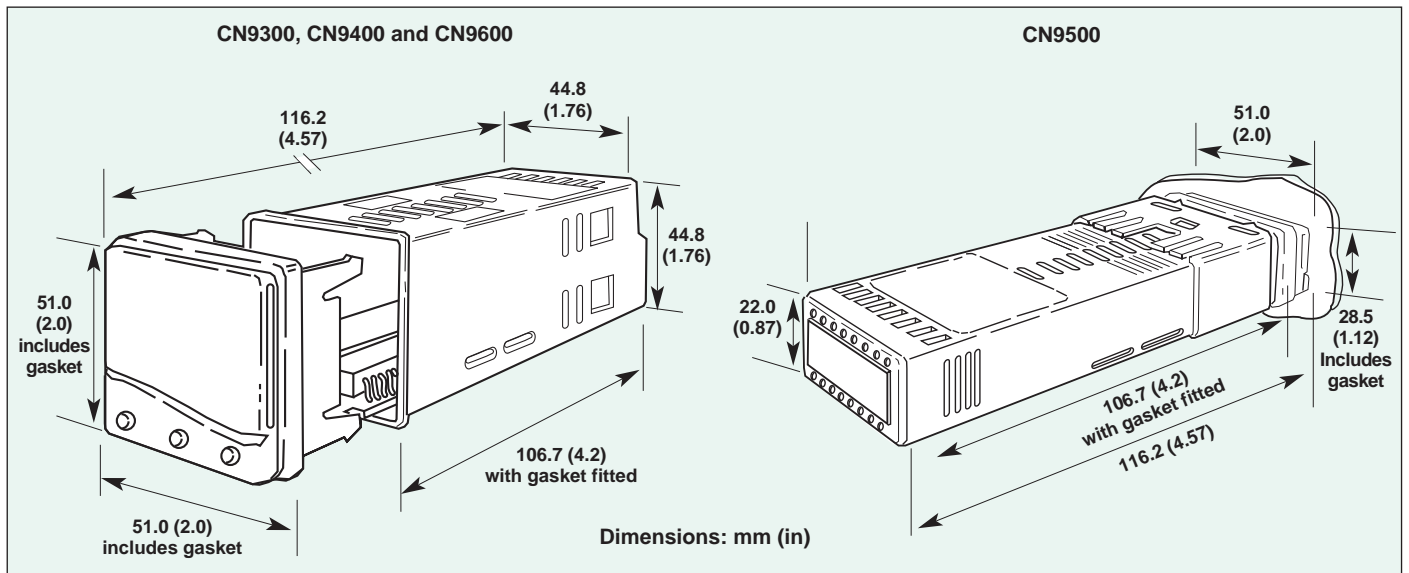
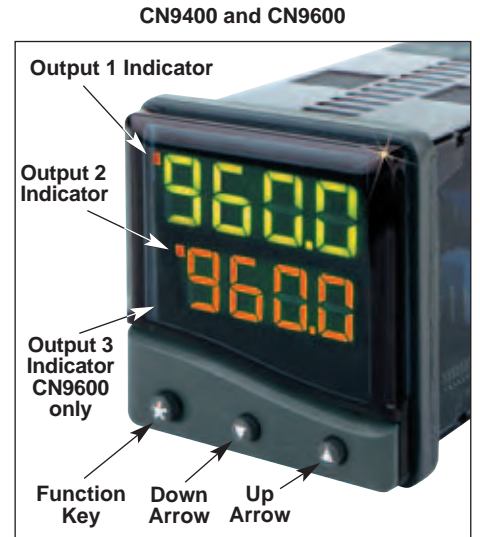
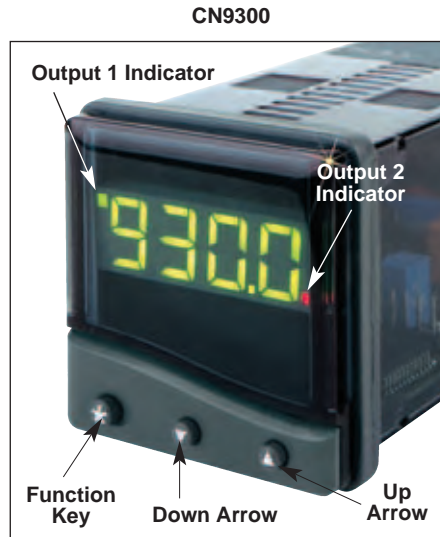
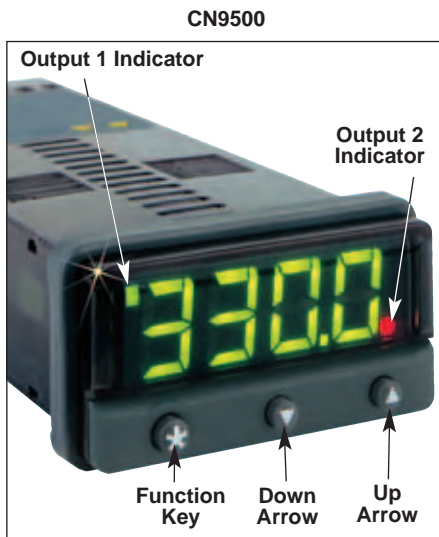
Maximum Recommended

Wire Size: 18 AWG

Inductive Loads: To prolong relay
contact life and suppress
interference, it is a recommended
engineering practice to use a
snubber circuit, such as OMEGA's
CNQUENCHARC



**For Additional Controllers and
Indicators, See Section M**



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%

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
-LV**	N/C	12 to 24 Vac/Vdc Low Voltage Power

Note: One communications option can be ordered per unit. Field installable communications 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.



CN9400
1/16 DIN

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.

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