¹⁄₁₆ DIN Temperature/ Process Controllers

with Fuzzy Logic

OE OMEGA™

CN78000 Series

1 YEAR WARRANTY **UL**

CN78030

Panel punches available

CN78020

- ✔ **Dual Display**
- ✔ **Autotune**
- ✔ **Universal Input**
- ✔ **Alarm Functions**
- ✔ **Fuzzy Logic**
- ✔ **Loop Break Protection**
- ✔ **Peak/Valley Indication**
- ✔ **Percent Output Indication**
- ✔ **Illuminated Keypad**
- ✔ **4 Password Protected Security Levels**
- ✔ **Optional Isolated PV or SV Retransmission Outputs**
- ✔ **Optional RS232/RS485 Communications**
- ✔ **Optional Low-Voltage Power**
- ✔ **Free Software**

The CN78000 Series controllers are fully programmable compact units with a variety of features that include: universal input, self-tune PID, fuzzy logic and dual 4-digit LED displays for process and set point values. User can select from thermocouple, RTD, current or voltage inputs AC SSR, relay, DC pulse, and proportional current outputs. A programmable alarm (optional) can be reset automatically or manually. The front panel is waterproof and corrosion-resistant (UL Type 4-X), making it ideal for sanitary applications. Electronics can be replaced without wiring changes through a removable front panel. Self-diagnostics, nonvolatile memory and selectable control modes are all also available and greatly increase productivity. Four security levels are password protected. For optimal PID control, the on/off, P, PI or PID manual-tune control functions can be selected, or the controller will autotune automatically.

The CN78000 offers an excellent array of standard features as well as peak/valley indication, percent output indication, digital input filter, among others.

Specifications

Selectable Inputs: Thermocouple, RTD, DC voltage or current

Display: Two 4-digit LED displays, 7.62 mm (0.3") H

Display Resolution: 1° or 0.1° (sensor dependent) or 1 count

Accuracy: ±0.25% of span ±1 least significant digit

Supply Voltage: 100 to 240 Vac nominal, 10 to 15%, 50 to 400 Hz single phase; 132 to 240 Vdc, 10 to 20%

Operating Temperature Range: -10 to 55°C (14 to 131°F)

Power Consumption: 5 Va minimum

Control Output Ratings:

AC SSR: 2.0 A at 240 Vac resistive at 25°C (77°F), de-rates to 1.0 A at 55°C (130°F); minimum load of 100 mA

Relay: SPST, 3 A at 240 Vac resistive, 1.5 A @ 240 Vac inductive

Pilot Duty Rating: 250 VA, 2 A @ 120 Vac, 1 A @ 240 Vac

Alarm Relay: SPST, 3 A @ 240 Vac resistive,1.5 A @ 240 Vac inductive

Pilot Duty Rating: 240 Va, 2 A @ 120 Vac or 1 A @ 240 Vac

DC Pulse: 15 Vdc at 20 mA

Proportional Current: 0 to 20 mAdc, scalable, into 600 Ω maximum

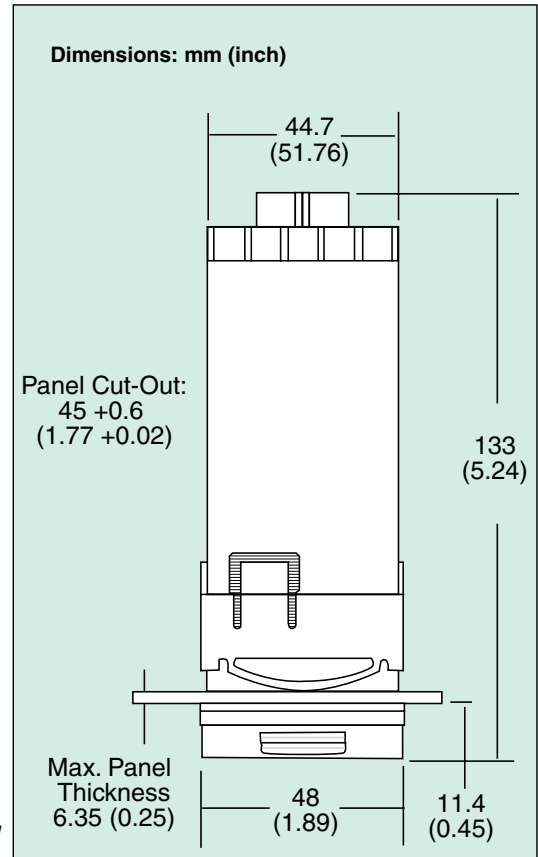**Weight:** 227 g (8 oz)

Front Panel Rating: Type 4X (IP66)

Serial Communications (Optional): RS232 or RS485

Inputs

Input Types	Range
K	-129 to 1371°C (-200 to 2500°F)
J	-73 to 871°C (-100 to 1600°F)
T	-212 to 398°C (-350 to 750°F)
E	-73 to 982°C (-100 to 1800°F)
N	-73 to 1300°C (-100 to 2372°F)
R	-17 to 1760°C (0 to 3200°F)
S	-17 to 1760°C (0 to 3200°F)
B	24 to 1820°C (75 to 3308°F)
L (J DIN)	-73 to 871°C (-100 to 1600°F)
C	-17 to 2320°C (0 to 4208°F)
Pt100 RTD (0.00385)	-200 to 875°C (-328 to 1607°F)
Pt100 RTD (0.00392)	-200 to 875°C (-328 to 1607°F)
RTD, 120 Ω Nickel (0.00628)	-80 to 320°C (-112 to 608°F)
RTD, Pt1000 (0.00385)	-200 to 875°C (-328 to 1607°F)
0 to 20 mA*, 4 to 20 mA*	-1999 to 9999
0 to 10 Vdc*, -10 to 10 Vdc*, -10 to 10 mVdc*	-1999 to 9999

Note: *All thermocouple and RTD inputs can be set for 0.1° display. If temperature goes above 999.9° or below -199.9°, the display will return to whole-degree resolution.*
* Process Input Types: *The 0 to 20 mAdc, 4 to 20 mAdc, 0 to 10 Vdc, 2 to 10 Vdc, and -10 to 10 mVdc inputs are fully scalable from a minimum of 100 counts span placed anywhere within the range of -1999 to 9999. Decimal point position is adjustable from the zero place (9999), tenths (999.9), hundredths (99.99) or thousandths (9.999).*

Dimensions: mm (inch)

44.7 (51.76)

Panel Cut-Out: 45 +0.6 (1.77 +0.02)

133 (5.24)

Max. Panel Thickness 6.35 (0.25)

48 (1.89)

11.4 (0.45)

To Order

Model Number	Description
CN78030	Single output, relay
CN78130	Single output, relay and alarm
CN78133	Dual output, relay/relay and alarm
CN78020	Single output, DC pulse
CN78110	Single output, AC SSR and alarm
CN78111	Dual output, AC SSR/AC SSR and alarm
CN78050	Single output, 4 to 20 mA

Options

Ordering Suffix	Description
-C4*	RS485 communications**
-C2*	RS232 communications**
-PV1*	0 to 20 mA isolated retransmission output
-PV2*	0 to 10 Vdc isolated retransmission output
-LV	12 to 24 Vdc/Vac power

* Only 1 option can be ordered. ** Free CN7-A software download available from OMEGA.

Accessories (Field Installable)

Model No.	Description
CNQUENCHARC	Noise suppression RC snubber (2 leads), 110 to 230 Vac
CN7-485-USB-1	RS485 to USB mini-node converter

Comes complete with operator's manual.
***Ordering Examples: CN78133-PV1,** dual output controller, relay/relay and alarm, 0 to 20 mA isolated retransmission output.*
***CN78030,** single output controller, relay.*