



1/16 DIN Temperature/Process Controllers with Fuzzy Logic

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CN78000 Series Starts at \$238



- ✓ Dual Display
- ✓ Autotune
- ✓ Universal Input
- ✓ Alarm Functions
- ✓ Fuzzy Logic
- ✓ Loop Break Protection
- ✓ Peak/Valley Indication
- ✓ Percent Output Indication
- ✓ Illuminated Keypad
- ✓ Auto/Manual Station Function
- ✓ 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



CN78030, \$238, shown larger than actual size.

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

DC SSR: 1.75 A at 32 Vdc maximum

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)

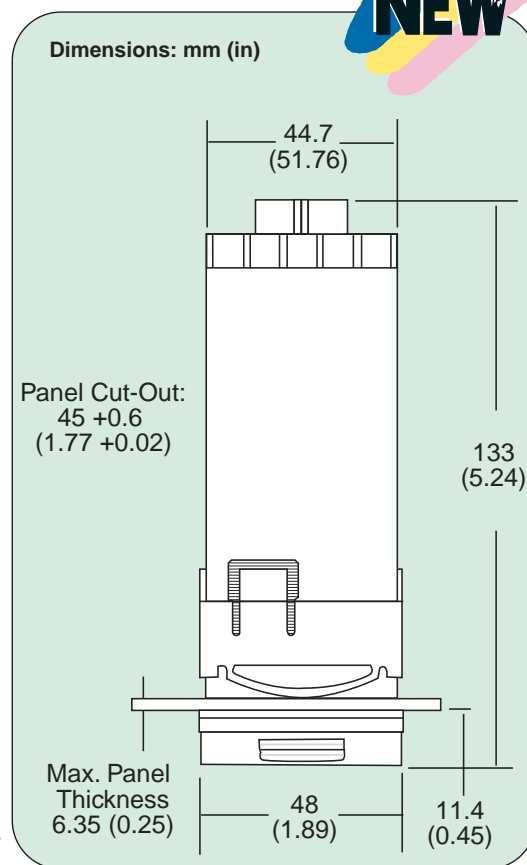
Serial Communications (Optional): RS232 or RS485

Inputs



Input Types	Range
K Thermocouple	-129 to 1371°C (-200 to 2500°F)
J Thermocouple	-73 to 871°C (-100 to 1600°F)
T Thermocouple	-212 to 398°C (-350 to 750°F)
E Thermocouple	-73 to 982°C (-100 to 1800°F)
N Thermocouple	-73 to 1300°C (-100 to 2372°F)
R Thermocouple	-17 to 1760°C (0 to 3200°F)
S Thermocouple	-17 to 1760°C (0 to 3200°F)
B Thermocouple	24 to 1820°C (75 to 3308°F)
L (J DIN) Thermocouple	-73 to 871°C (-100 to 1600°F)
C Thermocouple	-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).



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To Order (Specify Model Number)

Model Number	Price	Description
CN78030	\$238	Single output, relay
CN78130	258	Single output, relay and alarm
CN78133	278	Dual output, relay/relay and alarm
CN78020	238	Single output, DC pulse
CN78110	258	Single output, AC SSR and alarm
CN78111	278	Dual output, AC SSR/AC SSR and alarm
CN78050	273	Single output, 4 to 20 mA

Options

Ordering Suffix	Additional Price	Description
-C4*	\$66	RS485 communications**
-C2*	66	RS232 communications**
-PV1*	63	0 to 20 mA isolated retransmission output
-PV2*	63	0 to 10 Vdc isolated retransmission output
-LV	40	12 to 24 Vdc/Vac power

* Only 1 option can be ordered. ** Free CN7-A software download available on omega.com/cn78000

Accessories (Field Installable)

Model No.	Price	Description
CNQUENCHARC	\$8	Noise suppression kit, 110 to 230 Vac
DPP-4	475	1/16 DIN panel punch
CN7-485-USB-1	82	RS485 to USB mini-node converter
GE-2117	23	Reference Book: Controller Tuning, PID

Comes complete with operator's manual.

Ordering Examples: CN78133-PV1, dual output controller, relay/relay and alarm, 0 to 20 mA isolated retransmission output, \$278 + 63 = **\$341**.
 CN78030-C4, single output controller, relay, RS485 communications, \$238 + 66 = **\$304**.

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