

1/16 DIN Temperature/ Process Controllers with Fuzzy Logic



CN78000 Series



Panel punches
available

- ✓ 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



CN78030



CN78020

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)

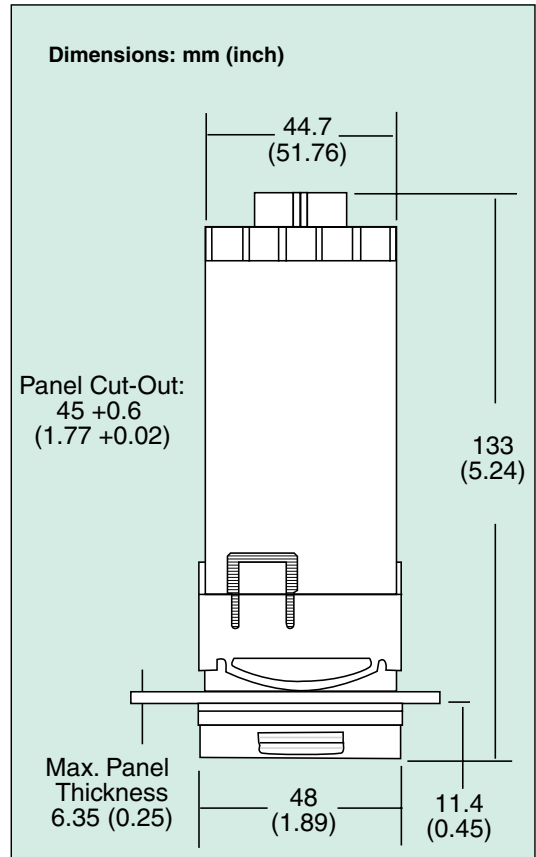
Serial Communications (Optional): RS232 or RS485

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).



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.