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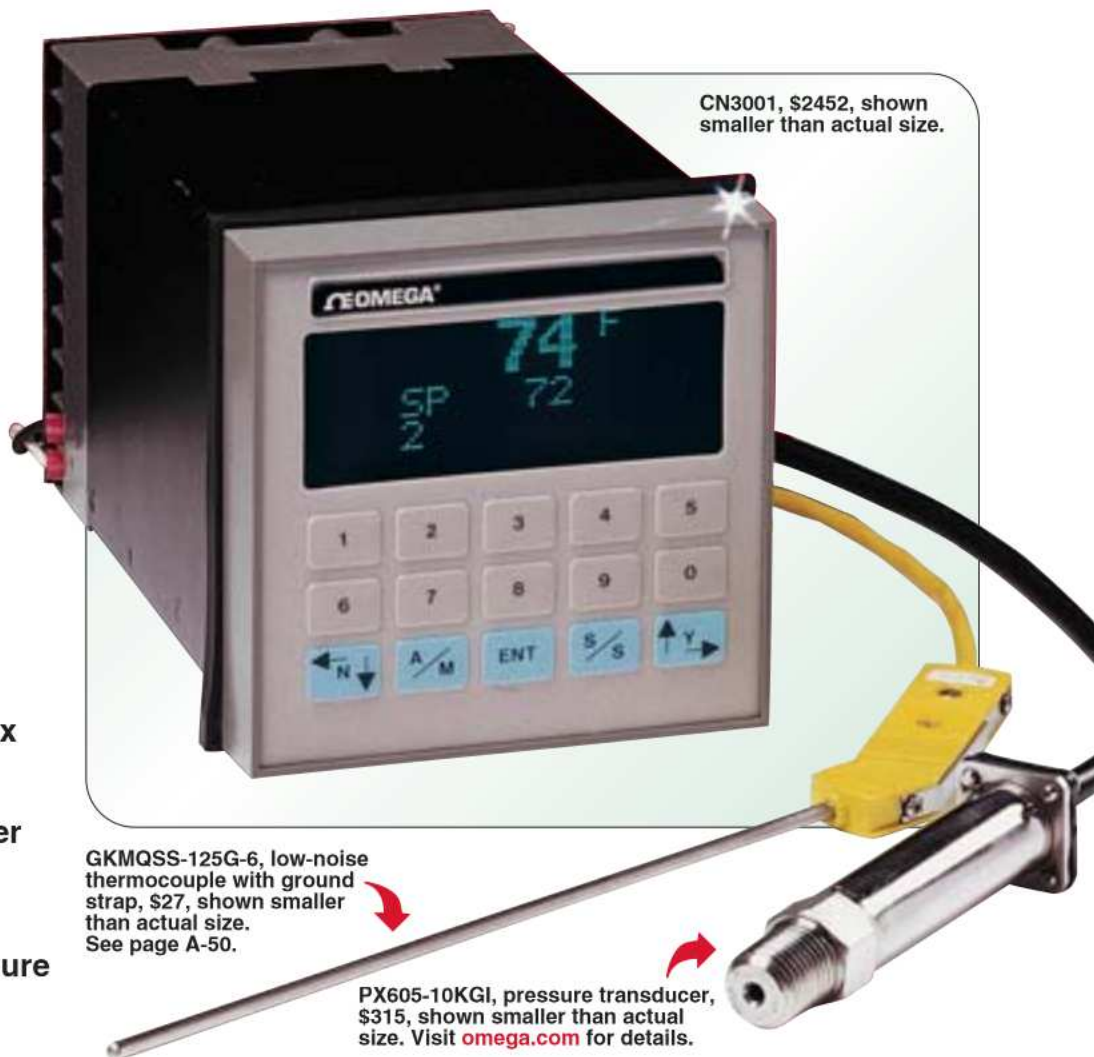
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# Dual-Input Programmable Process Controllers

CN3000 Series  
**\$2452**  
 All Models



- ✓ Up to 4 Independent Outputs Available as Plug-In Modules
- ✓ Dual Loop Control
- ✓ Heat Autotuning
- ✓ Multiple PID Sets
- ✓ 4-Line Vacuum Fluorescent Dot Matrix Display Shows Data and Graphics
- ✓ Universal Inputs—User Programmable for Thermocouple, RTD, Voltage, and Current
- ✓ NEMA 4 (IP65) Enclosure Available Option
- ✓ Transducer Power



CN3001, \$2452, shown smaller than actual size.

GKMQSS-125G-6, low-noise thermocouple with ground strap, \$27, shown smaller than actual size. See page A-50.

PX605-10KGI, pressure transducer, \$315, shown smaller than actual size. Visit [omega.com](http://omega.com) for details.

The CN3000 Series microprocessor-based ¼ DIN PID controllers provide accurate and reliable control of temperature, pressure, and other variables in both process and machine control applications. This menu-driven controller can be configured from either the front keypad or a remote PC. The front keypad offers direct digital data entry, direct access to desired displays, and soft-key macros. The CN3000 features universal inputs, an extensive selection of control programs, 4 selectable control outputs, and unparalleled application configuration and programming. The blue dot matrix display can show 4 lines of alphanumeric data plus graphics and is mounted with the keypad in a NEMA 4 (IP65) bezel.

## Specifications

**Accuracy:** ±0.2% of range  
**Temperature Stability:** 3 μV/°C  
**Operating Ambient:** 5 to 55°C (41 to 131°F)  
**Storage Ambient:** -40 to 75°C (-40 to 167°F)  
**Common-Mode Rejection:** 140 dB typical; 120 dB minimum @ 60 Hz  
**Normal-Mode Rejection:** 65 dB typical; 60 dB minimum @ 60 Hz  
**Resolution:** 1° for thermocouple, 1° or 0.1° for RTD  
**Power:** 117/240 Vac, 50/60 ±2 Hz; 4 W typical, 13.5 W max consumption  
**Inputs:** 2 standard, user configurable; additional input available for remote setpoint or other function  
**Input Impedance:** 10 MΩ minimum (T/C input)  
**Input Update:** 12 updates per second

## Input Filtering:

Selectable 1 to 256 samples  
**RTD Input:** 100 Ω, α = 0.00385 or 0.00392 curve; platinum with 3-wire connection  
**Current Input:** 0 to 20 or 4 to 20 mA; fully scalable to ±19,999 counts  
**Voltage Input:** 0 to 10 mV up to 100 mVdc; fully scalable to ±19,999 counts  
**User Programmable:** 128-segment linearizer for custom analog input  
**Sensor Break Protection:** Display indicates "-----" if thermocouple or RTD input opens, outputs go off or to a preselected percent output, and alarm triggers go on  
**Display:** Vacuum fluorescent dot matrix, 4 lines of alphanumeric data with 10 characters per line plus dot access for graphic displays  
**Keypad:** 15 pushbutton keys on sealed NEMA 4 (IP65) front panel

**Outputs:** Up to 4, independent

**Current Output:**

4 to 20 mA into 750 Ω max

**Voltage Output:**

0 to 5 Vdc into 1 KΩ min

**Solid State Relay:**

Optically isolated form "A" contacts,

50 mA @ 240 Vac resistive

**Electromechanical Relay:** Form "C"

contacts, rated 2.0 @ 240 Vac resistive

**DC Trigger:** 18 Vdc, 15 mA max

**Open Collector:** Requires external power up to 50 mA @ 32 Vdc

**Alarm/Timer/Event Outputs:** Any of the 4 outputs can be programmed as an alarm, timer or event output using SSR, EMR, DC trigger or OC board(s)

**On/Off Output Deadband:** 0 to 5% span, settable in 0.01% increments

**Cycle Time:** 1 to 511 seconds with 1 second resolution

**Proportional Band:** 5 to 4000 display units with 1 unit increments

**Reset (Integral):** 0.01 to 20 repeats per minute, settable in 0.01 increments; reset can be turned off by setting reset to 0

**Anti-Reset Windup:** Inhibits automatic reset when the process input is outside of the proportional band

**Rate (Derivative):** 0.01 to 5 minutes, settable in 0.01 minute increments; rate can be turned off by setting rate to 0

**Drive Unit Deadband**

**(Valve Positioner):**

Settable 0.00 to 25.50% of span

**Auto/Manual:** Bumpless transfer

**Autotune:** User-initiated program optimizes PID parameters during "cold" start or on demand; PID values can be read and manually changed

**Profile Control:** Stores up to 99 profiles of up to 99 segments each with assured soak, multiple programmed events and link and loop programming position display

**Control Limiters:** Set rate of setpoint, change limit or rate of ramp on startup limit in units per selected time; set maximum or minimum output power in 1% increments

**Enclosure:** Assembly with plug-in output boards; NEMA 4 (IP65) front bezel when properly secured with tension bolt; polycarbonate flame-retardant bezel and rear terminal block

**Weight:**

1.6 kg (3.5 lb)



The CN3000 has a history graph that can display temperature over time.



### Input Type and Range Table for Both Inputs

Input Types		Range: °C (°F)
J	Iron-Constantan	-212 to 1148 (-350 to 2100)
K	CHROMEGA®-ALOMEGA®	-212 to 1371 (-350 to 2500)
R	Pt-13%Rh/Pt	-45 to 1760 (-50 to 3200)
S	Pt-10%Rh/Pt	-45 to 1760 (-50 to 3200)
T	Copper-Constantan	-240 to 398 (-400 to 750)
N	OMEGA-P®-OMEGA-N®	-128 to 1260 (-200 to 2300)
E	CHROMEGA®-Constantan	-212 to 982 (-350 to 1800)
B	Pt-30%Rh/Pt-6%Rh	21 to 1815 (70 to 3300)
PLII	Platinel II	-73 to 1371 (-100 to 2500)
	Ni/Ni 18% Mo	-15 to 1310 (0 to 2390)
C	W5-Re/W26-Re	0 to 2315 (32 to 4200)
D	W3-Re/W25-Re	0 to 2371 (32 to 4300)
G	W/W26-Re	0 to 2315 (32 to 4200)
RTD	100 Ω Pt (0.00385)	-142 to 848 (-225 to 1560)
RTD	100 Ω Pt (0.00392)	-142 to 628 (-225 to 1160)

**AVAILABLE FOR FAST DELIVERY!**

### To Order (Specify Model Number)

Model No.	Price	Description
CN3001	\$2452	Single output, mechanical relay
CN3002	2452	Single output, AC SSR
CN3003	2452	Single output, 4 to 20 mA/0 to 5 Vdc
CN3004	2452	Single output, DC pulse/open collector

Comes with complete operator's manual.

Each unit supplied with mounting bracket and complete operator's manual.

**Ordering Example:** CN3001-R3-D3-D3, 4-output controller with 2 A mechanical relay and 2 DC pulse outputs, \$2452 + 56 + 56 + 56 = \$2620.

**OCW-1, OMEGACARE™** extends standard 1-year warranty to a total of 2 years (\$150), \$2620 + 150 = \$2770.

### Plug-In Output Modules (Maximum 3 Output Slots Available)

Ordering Suffix	Price	Description
-R3*	\$56	2 A mechanical relay
-T3*	56	50 mA AC SSR
-F3*	107	4 to 20 mA/0 to 5 Vdc
-D3*	56	DC pulse/open collector

\* Note: Each CN3000 controller can have up to 4 outputs (3 optional modules plus the original standard output).

### Transducer Power Supply (Uses 1 Plug-In Output Slot)

Ordering Suffix	Price	Description
-X3*	\$110	Transducer power, 12/24 V, 25 mA DC

\*Field installable. Can be ordered separately.

**Ordering Example:** CN3000-X3, field-installable transducer power supply module, \$110.



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