

# 1/16, 1/8, and 1/4 DIN Temperature/Process Controllers with Fuzzy Logic



CN4000 Series



CN4116-R1-R2



CN418H-R1-R2



CN418V-R1-R2



CN414-R1-R2

- ✓ Dual Display
- ✓ Single Control Output
- ✓ Fuzzy Logic
- ✓ Autotune
- ✓ Dual 4-Digit LED Display and Indicators for Output and Alarm Status
- ✓ Single Alarm Output
- ✓ Universal Power Supply
- ✓ Isolated Analog Control Output (Selected Models)
- ✓ 10 Segments of Ramp/Soak (Selected Models)

The CN4000 Series temperature/process controllers set a new standard for ease-of-use and value. Units feature dedicated input models with thermocouple and RTD inputs, and models with universal inputs for both temperature and process inputs. Standard features include autotune, fuzzy logic, fully adjustable PID or on/off single control output with one alarm. Selected thermocouple and RTD input models can show whole or tenth of degree display resolution. Output types include relay, dc pulse, or an isolated analog 0 to 20 mA output.

## Specifications

**Selectable Inputs:** Thermocouple, RTD, DC voltage, DC current, resistance (dependent on model)

**Display:** Two 4-digit, 7 segment, LED (red PV, green SV)

**Resolution:** 1.0, 0.1 (dependent on model)

**Sample Rate:** 8 per second

**Accuracy:** ±0.3% FS (thermocouple and RTD dedicated models), ±0.2% FS (universal input models)

**Supply Voltage:** 100 to 240 Vac (-15%, +10%); 50 to 60 Hz or optional 24 Vdc

**Power Consumption:** 3 W (thermocouple and RTD dedicated models), 6 W (universal input models)

**Operating Temperature:** -10 to 60°C (14 to 140°F)

**Humidity:** 0 to 90 RH%

### Control Output Ratings:

**Relay:** SPDT, 30 Vdc/1A, 250 Vac/1A (1/8 and 1/4 DIN models)

**Relay:** SPST, 30 Vdc/1A, 250 Vac/1A (1/16 DIN models)

**Proportional Current (Isolated):** 0 to 20 mA DC

**DC Pulse:** 12 Vdc/30 mA

### Alarm Output Ratings:

**Relay:** SPDT, 30 Vdc/1A, 250 Vac/1A

**DC Pulse:** 12 Vdc/30 mA

## Universal Input Models

	K	S	R	E	J	N
<b>T/C</b>	0 to 1300°C 32 to 2372°F	0 to 1700°C 32 to 3092°F	0 to 1700°C 32 to 3092°F	0 to 1000°C 32 to 1832°F	0 to 1200°C 32 to 2192°F	0 to 1300°C 32 to 2372°F
	PT100	Cu50	—	—	—	—
<b>RTD</b>	-200 to 800°C -328 to 1472°F	-50 to 150°C -58 to 302°F	—	—	—	—
<b>Current</b>	0 to 20 mA	4 to 20 mA	—	—	—	—
<b>Voltage</b>	0 to 20 mV 1 to 5V	0 to 100 mV 0 to 5V	0 to 60 mV 0 to 10V	0 to 500 mV 2 to 10V	100 to 500 mV 0 to 20V	—
<b>Resistor</b>	0 to 80 Ω	0 to 400 Ω	—	—	—	—

## Inputs Dedicated Thermocouple/RTD Models

Input Type	Thermocouple						RTD
	K	S	R	E	J	N	PT100
<b>Range</b>	0 to 1300°C (32 to 2372°F)	0 to 1700°C (32 to 3092°F)	0 to 1600°C (32 to 2412°F)	0 to 1000°C (32 to 1832°F)	0 to 1200°C (32 to 2192°F)	0 to 1300°C (32 to 2372°F)	-200 to 800°C (-328 to 1472°F)

## Dimensions

Size	Front Panel W x H mm (inch)	Cut Out W x H mm (inch)	Depth Behind Mounting Surface mm (inch)
1/16 DIN	48 x 48 (1.89 x 1.89)	45 x 45 (1.77 x 1.77)	95 (3.74)
1/8 DIN Vertical	48 x 96 (1.89 x 3.77)	45 x 92 (1.77 x 3.62)	100 (3.94)
1/8 DIN Horizontal	96 x 48 (3.77 x 1.89)	92 x 45 (3.62 x 1.77)	100 (3.94)
1/4 DIN	96 x 6 (3.77 x 0.23)	92 x 92 (3.62 x 3.62)	100 (3.94)

## To Order

Model No.	Description	Input Type/Resolution
<b>1/16 DIN Models (Single Control Output with One Alarm)</b>		
CN4116-R1-R2	Relay/relay	T/C, RTD/1.0
CN4116-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/1.0
CN4116-DC1-R2	DC pulse/relay	T/C, RTD/1.0
CN4116-DC1-DC2	DC pulse/DC pulse	T/C, RTD/1.0
CN4216-R1-R2	Relay/relay	T/C, RTD/0.1
CN4216-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/0.1
CN4216-DC1-R2	DC pulse/relay	T/C, RTD/0.1
CN4216-DC1-DC2	DC pulse/DC pulse	T/C, RTD/0.1
CN4316-R1-R2	Relay/relay	Universal/0.1
CN4316-R1-R2-LV	Relay/relay, low voltage	Universal/0.1
CN4316-DC1-R2	DC pulse/relay	Universal/0.1
CN4316-DC1-DC2	DC pulse/DC pulse	Universal/0.1
CN4316-F1-R2	0 to 20 mA/relay	Universal/0.1
CN4416-R1-R2	Ramp and soak, relay/relay	Universal/0.1
CN4416-R1-R2-LV	Ramp and soak, relay/relay, low voltage	Universal/0.1
CN4416-DC1-R2	Ramp and soak, DC pulse/relay	Universal/0.1
CN4416-DC1-DC2	Ramp and soak, DC pulse/DC pulse	Universal/0.1
CN4416-F1-R2	Ramp and soak, 0 to 20 mA/relay	Universal/0.1
<b>1/8 DIN Horizontal Models (Single Control Output with One Alarm)</b>		
CN418H-R1-R2	Relay/relay	T/C, RTD/1.0
CN418H-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/1.0
CN418H-DC1-R2	DC pulse/relay	T/C, RTD/1.0
CN418H-DC1-DC2	DC pulse/DC pulse	T/C, RTD/1.0
CN428H-R1-R2	Relay/relay	T/C, RTD/0.1
CN428H-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/0.1
CN428H-DC1-R2	DC pulse/relay	T/C, RTD/0.1
CN428H-DC1-DC2	DC pulse/DC pulse	T/C, RTD/0.1
CN438H-R1-R2	Relay/relay	Universal/0.1
CN438H-R1-R2-LV	Relay/relay, low voltage	Universal/0.1
CN438H-DC1-R2	DC pulse/relay	Universal/0.1
CN438H-DC1-DC2	DC pulse/DC pulse	Universal/0.1
CN438H-F1-R2	0 to 20 mA/relay	Universal/0.1
CN448H-R1-R2	Ramp and soak, relay/relay	Universal/0.1
CN448H-R1-R2-LV	Ramp and soak, relay/relay, low voltage	Universal/0.1
CN448H-DC1-R2	Ramp and soak, DC pulse/relay	Universal/0.1
CN448H-DC1-DC2	Ramp and soak, DC pulse/DC pulse	Universal/0.1
CN448H-F1-R2	Ramp and soak, 0 to 20 mA/relay	Universal/0.1

Comes complete with operator's manual.

**Ordering Examples:** CN4116-R1-R2-LV, 1/16 DIN universal input controller, single control relay output with one alarm relay, ramp and soak, low voltage.  
CN428H-DC1-R2, 1/8 DIN horizontal universal input controller, single DC pulse control output with one alarm relay, low voltage.

# 1/16, 1/8 and 1/4 DIN Temperature/ Process Controllers with Fuzzy Logic

To Order		
Model No.	Description	Input Type/Resolution
<b>1/8 DIN Vertical Models (Single Control Output with One Alarm)</b>		
CN418V-R1-R2	Relay/relay	T/C, RTD/1.0
CN418V-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/1.0
CN418V-DC1-R2	DC pulse/relay	T/C, RTD/1.0
CN418V-DC1-DC2	DC pulse/DC pulse	T/C, RTD/1.0
CN428V-R1-R2	Relay/relay	T/C, RTD/0.1
CN428V-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/0.1
CN428V-DC1-R2	DC pulse/relay	T/C, RTD/0.1
CN428V-DC1-DC2	DC pulse/DC pulse	T/C, RTD/0.1
CN438V-R1-R2	Relay/relay	Universal/0.1
CN438V-R1-R2-LV	Relay/relay, low voltage	Universal/0.1
CN438V-DC1-R2	DC pulse/relay	Universal/0.1
CN438V-DC1-DC2	DC pulse/DC pulse	Universal/0.1
CN438V-F1-R2	0 to 20 mA/relay	Universal/0.1
CN448V-R1-R2	Ramp and soak, relay/relay	Universal/0.1
CN448V-R1-R2-LV	Ramp and soak, relay/relay, low voltage	Universal/0.1
CN448V-DC1-R2	Ramp and soak, DC pulse/relay	Universal/0.1
CN448V-DC1-DC2	Ramp and soak, DC pulse/DC pulse	Universal/0.1
CN448V-F1-R2	Ramp and soak, 0 to 20 mA/relay	Universal/0.1
<b>1/4 DIN Models (Single Control Output with One Alarm)</b>		
CN414-R1-R2	Relay/relay	T/C, RTD/1.0
CN414-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/1.0
CN414-DC1-R2	DC pulse/relay	T/C, RTD/1.0
CN414-DC1-DC2	DC pulse/DC pulse	T/C, RTD/1.0
CN424-R1-R2	Relay/relay	T/C, RTD/0.1
CN424-R1-R2-LV	Relay/relay, low voltage	T/C, RTD/0.1
CN424-DC1-R2	DC pulse/relay	T/C, RTD/0.1
CN424-DC1-DC2	DC pulse/DC pulse	T/C, RTD/0.1
CN434-R1-R2	Relay/relay	Universal/0.1
CN434-R1-R2-LV	Relay/relay, low voltage	Universal/0.1
CN434-DC1-R2	DC pulse/relay	Universal/0.1
CN434-DC1-DC2	DC pulse/DC pulse	Universal/0.1
CN434-F1-R2	0 to 20 mA/relay	Universal/0.1
CN444-R1-R2	Ramp and soak, relay/relay	Universal/0.1
CN444-R1-R2-LV	Ramp and soak, relay/relay, low voltage	Universal/0.1
CN444-DC1-R2	Ramp and soak, DC pulse/relay	Universal/0.1
CN444-DC1-DC2	Ramp and soak, DC pulse/DC pulse	Universal/0.1
CN444-F1-R2	Ramp and soak, 0 to 20 mA/relay	Universal/0.1

Comes complete with operator's manual.

**Ordering Examples:** CN444-F1-R2, 1/4 DIN universal input controller, single 0 to 20 mA control output with one alarm relay.

CN448V-R1-R2, 1/8 DIN vertical universal input controller, ramp and soak, relay/relay.

## Accessory (Field Installable)

Model Number	Description
CNQUENCHARC	Noise suppression, RC snubber (2 leads), 110 to 230 Vac