

1/16 DIN Ramp/Soak Temperature/Process Controllers

CN6201 Series



- ✓ Dual Display
- ✓ Universal Input
- ✓ Single 16-Segment Ramp/Soak Program
- ✓ RS485 Communications
- ✓ Alarms (Optional)
- ✓ Retransmission Output (Optional)

The CN6201 Series temperature controllers have 1 program pattern consisting of 16 segments that can easily be set and operated. The 2 event outputs are provided as standard. External contact input, RS485 communication and retransmission outputs are optional. The universal input supports thermocouple, RTD and voltage input types and the 3 types of outputs. The front panel has a splash-proof and dust-proof design (IP65).

Specifications

PV/SP Data Display: 4-digit, PV/SP separately

PV Inputs:

Method: Universal input

Thermocouple: Types K, J, T, E, R, S, B, N, L, U, Platinel 2

RTD: Pt100, JPt100

Voltage: 0 to 100 mV, 0 to 5V, 1 to 5V, 0 to 10V

Input Accuracy:

Thermocouple: $\pm 2^{\circ}\text{C} \pm 1\text{digit}$

RTD: $\pm 1^{\circ}\text{C} \pm 1\text{digit}$

Voltage (mV, V): $\pm 0.3\% \pm 1\text{digit}$

Sampling Period: 500 ms

Number of Program Patterns: 1

Number of Program Segments: 16

Program Time Span: 0 s to 1599 hour

Accuracy of Program Time Span:

$\pm 2\%$ of program time span

Event Output:

Number of Points: 2 relay

Type: PV and time



Panel Punches Available

CN6201-R shown actual size.

Power Supply: 100 to 240 Vac or 24 Vac/dc (optional)

Safety and EMC Standard: CSA, CE and UL

Construction (Front Protection): IP65

Dimensions: 48 W x 48 H x 100 mm D (1.89 x 1.89 x 3.94")

Weight: Approximately 200 g (0.44 lb)

External Contact Input (Optional):

Run/reset, hold/cancel hold

PV Retransmission Output:

4 to 20 mA dc

RS485 Communication (Optional):

MODBUS®/Ladder/PC-link protocol

24V Power Supply (Optional):

24 Vdc/24 Vac

Measured Value (PV) Input

Input: 1 point

Type: Universal, selectable by software

Accuracy (at $23 \pm 2^{\circ}\text{C}$ Ambient Temperature):

Thermocouple: $\pm 2^{\circ}\text{C} \pm 1\text{digit}$

Input -200 to -100°C: $\pm 4^{\circ}\text{C}$

Input -100 to -0°C: $\pm 3^{\circ}\text{C}$

Types R and S: $\pm 5^{\circ}\text{C}$ ($\pm 9^{\circ}\text{C}$ for 0 to 500°C)

Type B: $\pm 9^{\circ}\text{C}$ (accuracy is not guaranteed for 0 to 400°C)

RTD: $\pm 1^{\circ}\text{C} \pm 1\text{digit}$

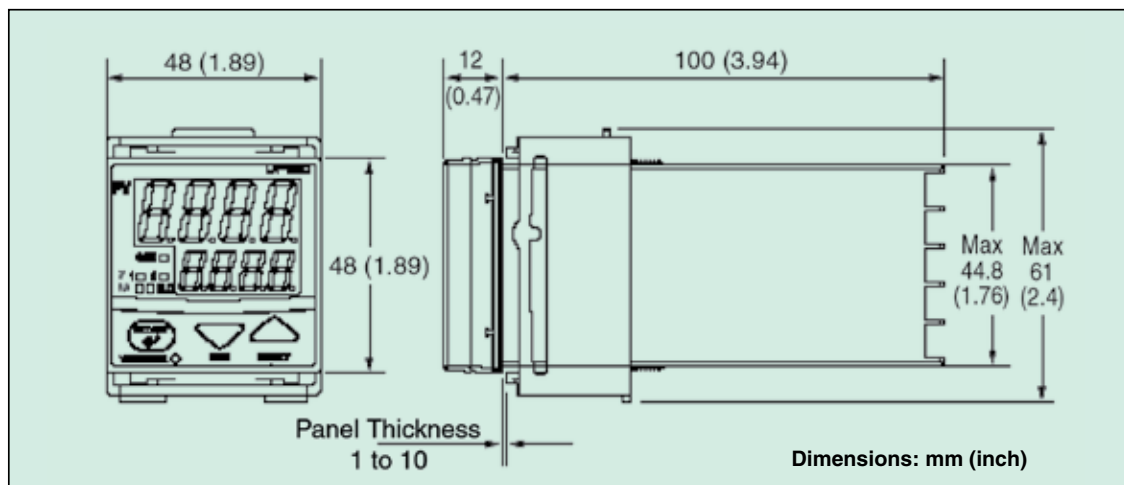
Voltage (mV, V): $\pm 0.3\% \pm 1\text{digit}$

Sampling Period for Measured Value

Input: 500 ms

Input Table

Input Type		Range ($^{\circ}\text{C}$)	Range ($^{\circ}\text{F}$)
Thermocouple	K	-270 to 1370	-300 to 2500
		0 to 600	32 to 999.9
		0 to 400	32 to 750
		-199.9 to 200	-300 to 400
	J	-199.9 to 999.9	-300 to 2100
		-199.9 to 400	-300 to 750
		-199.9 to 999.9	-300 to 1800
		0 to 1700	32 to 3100
	S	0 to 1700	32 to 3100
		0 to 1800	32 to 3200
		-200 to 1300	-300 to 2400
		-199.9 to 900	-300 to 1600
	U	-199.9 to 400	-300 to 750
		0 to 1390	32 to 2500
RTD	Pt100	-199.9 to 850	-199.9 to 999.9
		0 to 400	32 to 750
		-199.9 to 200	-300 to 400
		-19.9 to 99.9	-199.9 to 999.9
	JPt100	-199.9 to 500	N/A



Burn-Out Detection: Functions for thermocouple or RTD input (burn-out upscale only; cannot be switched off)

Input Resistance: 1 M Ω or greater for thermocouple or mVdc inputs; approximately 1 M Ω for Vdc input

Maximum Allowable Signal Source Resistance: 250 Ω for thermocouple or mVdc inputs; 2 k Ω for Vdc input

Maximum Allowable Wiring Resistance for RTD Input: 10 Ω /wire (the resistance values of 3 wires must be the same)

Allowable Input Voltage: ± 10 Vdc for thermocouple or mVdc inputs; ± 20 Vdc for Vdc input

Noise Rejection Ratio:

Normal Mode Noise: Minimum 40 dB (50/60 Hz)

Common Mode Noise: Minimum 120 dB (90 dB for Vdc input)

Error of Reference Junction

Compensation: $\pm 1.5^\circ\text{C}$ (at 15 to 35°C); $\pm 2.0^\circ\text{C}$ (at 0 to 50°C) The reference junction compensation cannot be switched off

Applicable Standards: Thermocouple and RTD, JIS/IEC/DIN, (ITS90)

Retransmission Output (Optional)

Output Signal: Measured value in 4 to 20 mA_{dc} can be scaled.

Maximum Load Resistance: 600 Ω

Output Accuracy: $\pm 0.3\%$ of span (at $23 \pm 2^\circ\text{C}$ ambient temperature)

Power Supply and Isolation

Power Supply:

Voltage: 110 to 240 Vac ($\pm 10\%$) 24 Vac/Vdc, 20 to 29V of allowable range

Frequency: 50 or 60 Hz

Maximum Power Consumption:

8 VA max (4 W maximum); 3 W maximum (-LV option)

Memory: Non-volatile

Withstanding Voltage:

Between Primary and Secondary

Terminals: 1500 Vac for 1 minute (see Notes 1, 2 and 3)

Insulation Resistance:

Between Primary and Secondary Terminals: 20 M Ω or more at 500 Vdc (see Notes 1, 2 and 3)

Note 1: The primary terminals are the power supply terminals and event output terminals. The secondary terminals are the analog input and output terminals, the voltage pulse output terminals, and the contact input terminals.

Note 2: The withstanding voltage is specified as 2300 Vac per minute to provide a margin of safety.

Note 3: AC/DC 24V terminals are secondary terminals.

Contact Inputs (Optional)

Functions: Hold/cancel hold switching, Run/reset switching

Input: 2 points (with the shared common terminal)

Type: Non-voltage contact or transistor contact input

Contact Capacity: At least 12V/10 mA

On/Off Judgment: On-state for 1 k Ω or less; off-state for 20 k Ω or greater

Control Output

Output: 1 point

Output Type: Choose one from (1) to (3) below:

(1) Relay Contact Output

Contact Capacity: 3 A at 240 Vac or 3 A at 30 Vdc (with resistance load)

Note: The control output relay cannot be replaced by users.

(2) Voltage Pulse Output

On Voltage: 12 to 18 Vdc

Load Resistance: 600 Ω or greater

Off Voltage: 0.1 Vdc or less

Short-Circuit Current: Approximately 30 mA

(3) Current Output

Output Signal: 4 to 20 mA

Maximum Load Resistance: 600 Ω

Output Accuracy: $\pm 0.3\%$ of span (at $23 \pm 2^\circ\text{C}$ ambient temperature)

To Order

Model No.	Description
CN6201-R	Single output, relay
CN6201-DC	Single output, DC Pulse
CN6201-F	Single output, 4 to 20 mA

Comes complete with operator's manual.

Options

Ordering Suffix	Description
-AL	Dual alarms
-PV	4 to 20 mA retransmission output
-LV	24 Vac/Vdc power
-C4*	RS485 communications
-DI *	Digital input switching

* Only one option can be ordered.

Accessories (Field Installable)

Model Number	Description
CNQUENCHARC	Noise suppression kit, 110 to 230 Vac
DPP-4	$\frac{1}{16}$ DIN panel punch

Ordering Example: CN16201-R-C4, single output controller, mechanical relay, RS485 communications.