

# 1/16 DIN Ramp/Soak Temperature/Process Controllers

Panel Punches Available

## CN6201 Series



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



CN6201-R shown actual size.

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

**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 mAdc

**RS485 Communication (Optional):**

MODBUS<sup>®</sup>/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 $^{\circ}\text{C}$ :**  $\pm 4^{\circ}\text{C}$

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

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

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

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

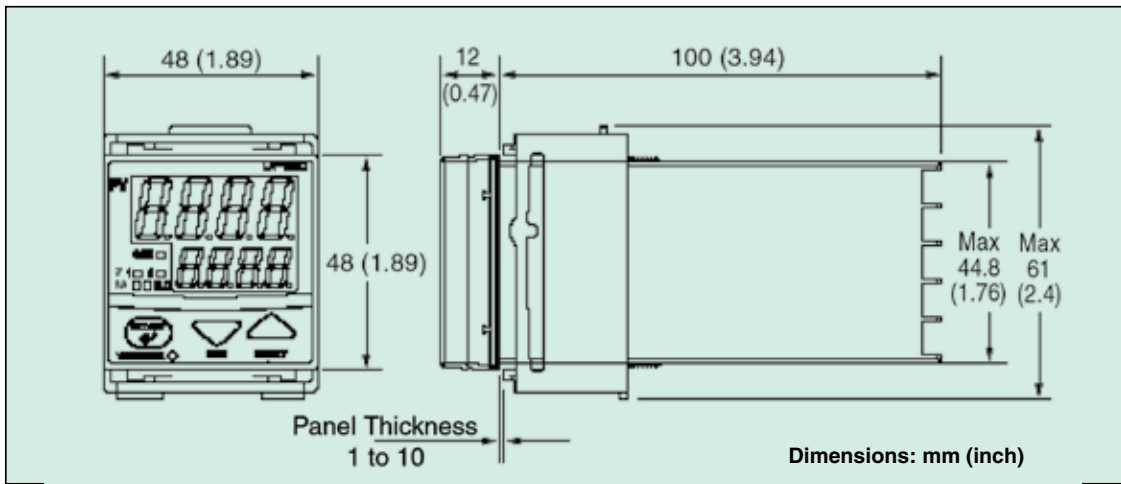
**Voltage (mV, V):**  $\pm 0.3\% \pm 1\text{digit}$

**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 T E R S B N L U	-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
		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
		-199.9 to 400	-300 to 750
Platinel 2	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 $\Omega$  or greater for thermocouple or mVdc inputs; approximately 1 M $\Omega$  for Vdc input

**Maximum Allowable Signal Source Resistance:** 250  $\Omega$  for thermocouple or mVdc inputs; 2 k $\Omega$  for Vdc input

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

**Allowable Input Voltage:**  $\pm 10$  Vdc for thermocouple or mVdc inputs;  $\pm 20$  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 $^\circ\text{C}$ );  $\pm 2.0^\circ\text{C}$  (at 0 to 50 $^\circ\text{C}$ ) 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<sub>dc</sub> can be scaled.

**Maximum Load Resistance:** 600 $\Omega$

**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 $\Omega$  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 $\Omega$  or less; off-state for 20 k $\Omega$  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 $\Omega$  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  $\Omega$

**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.