Features

- Multi-input
  - CN-610: Thermocouple 12 types, RTD 5 types, Analog (mV, V, mA) 6 types
  - CN-640: 0 to 50.00 kHz
- Improves visibility with negative LCD: 12 segment, 3 colors (selectable red, green, yellow)
- Displays input type and unit on display part
- Various outputs
  - 4EA, 2EA, 1EA alarm output, 0-20 mA transmission output (adjustable insulation, output range), 0-10 VDC voltage output (adjustable insulation, output range)
- Various functions
  - High/Low peak monitoring, sensor disconnection alarm output (burn-out), input correction, user input range, display scale, transmission output scale, analog output range setting
- Built-in power supply for sensor (24 VDC)

Ordering information

<table>
<thead>
<tr>
<th>CN</th>
<th>6</th>
<th>10</th>
<th>0</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>Transmission output (0-20 mA) 1EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>Transmission output (0-2.0 mA) 2EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1</td>
<td>Transmission output (0-10 V) 1EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V2</td>
<td>Transmission output (0-10 V) 2EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>Alarm output 1EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>Alarm output 2EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td>Alarm output 4EA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>100-240 VAC 50 to 60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>24 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Universal input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Pulse input (option)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN-6</td>
<td>Isolated Converter</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part descriptions

① Display part (selectable red, green, yellow)
- Run mode: Displays current measured value.
- Parameter set mode: Displays parameters and SV.
② Unit display part (red)
③ Output scale Bar: For transmission output mode, displays output as % by scale bars.
④ Alarm output indicator: Turns ON when the alarm output is on.
⑤ MODE key: Used to enter parameter set mode, move to parameters, save SV and return to RUN mode.
⑥ +, - key: Used to change parameter SV.
⑦ D.IN3: Press the + and - keys for 3 sec. at the same time, it operates the set function (alarm clear, display hold, zero-point adjustment) at [d\(^t\) + k].
⑧ Input type (only for CN-610)
  - Turns ON the selected temperature sensor type at [ N - P] parameter. (In case of thermocouple type, L, N, U, P types are not displayed. In case of RTD type, RTD is displayed.)
  - (In case of thermocouple type, L, N, U, P types are not displayed. In case of RTD type, RTD is displayed.)
Connections

CN-610

- 8PIN

- 11PIN

CN-640

- 8PIN

- 11PIN
### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>CN-610</th>
<th>CN-640</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC voltage</td>
<td>100-240 VAC 50 to 60 Hz</td>
<td></td>
</tr>
<tr>
<td>DC voltage</td>
<td>24 VDC</td>
<td></td>
</tr>
<tr>
<td>Allowable voltage range</td>
<td>90 to 110% of rated voltage</td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC voltage</td>
<td>Max. 8 VA</td>
<td></td>
</tr>
<tr>
<td>DC voltage</td>
<td>Max. 3 W</td>
<td></td>
</tr>
<tr>
<td>Display method</td>
<td>4-digit: 12 Segment LCD Display (selectable red, green, yellow)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphic bar and Input/Unit display part (red)</td>
<td></td>
</tr>
<tr>
<td>Character size</td>
<td>Display part: 6.4×11.0 mm (12 Segment), Input/Unit display part: 1.4×2.75 mm (unit)</td>
<td></td>
</tr>
<tr>
<td>Input type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTD</td>
<td>JPt100Ω, DPt100Ω, DPt50Ω, Cu50Ω, Cu100Ω</td>
<td></td>
</tr>
<tr>
<td>Thermocouple</td>
<td>K, J, E, T, R, B, S, N, C, L, U, PLII</td>
<td></td>
</tr>
<tr>
<td>Analog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>-50.0-50.0 mV, -199.9-200.0 mV, -1.000-1.000 V, -1.00-10.00 V</td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>0.00-20.00 mA, 4.00-20.00 mA</td>
<td></td>
</tr>
<tr>
<td>Pulse input</td>
<td>0 to 50.00 kHz (input impedance 10 kΩ)</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission output</td>
<td>0-20 mA (adjustable output range), load resistance max. 600 Ω (accuracy: ±0.3 F.S., resolutions: 8000)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-10 VDC (adjustable output range), load resistance max. 10 kΩ (accuracy: ±0.3 F.S., resolutions: 8000)</td>
<td></td>
</tr>
<tr>
<td>Alarm output</td>
<td>1-point: Relay contact capacity 250 VAC 5 A 1 a, 2-point: Relay contact capacity 250 VAC 3 A 1 c, 4-point: Relay capacity 250 VAC 5 A 1 a</td>
<td></td>
</tr>
<tr>
<td>Display accuracy</td>
<td>±0.2% F.S. ±1 digit (25±5 °C), ±0.3% F.S. ±1 digit (-10 to 20 °C, 30 to 50 °C)</td>
<td></td>
</tr>
<tr>
<td>Setting method</td>
<td>Set by front keys</td>
<td></td>
</tr>
<tr>
<td>Sampling cycle</td>
<td>Analog input: 100 ms, Temperature sensor input: 250 ms</td>
<td></td>
</tr>
<tr>
<td>Display cycle</td>
<td>Same with pulse input cycle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When pulse input cycle is over 10 sec., it is updated by every 10 sec.</td>
<td></td>
</tr>
<tr>
<td>Dielectric voltage</td>
<td>2000 VAC 50/60 Hz for 1 min. (between input terminal and power terminal)</td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td>0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min.) in each of X, Y, Z directions for 2 hours</td>
<td></td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>Min. 100 MO.(at 500VDC megger)</td>
<td></td>
</tr>
<tr>
<td>Noise resistance</td>
<td>Square shaped noise by noise simulator (pulse width 1 μs) ±2 kV</td>
<td></td>
</tr>
<tr>
<td>Memory retention</td>
<td>Approx. 10 years (non-volatile semiconductor memory type)</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>Ambient temperature</td>
<td>-10 to 50 °C, storage: -20 to 60 °C</td>
</tr>
<tr>
<td></td>
<td>Ambient humidity</td>
<td>35 to 85%RH, storage: 35 to 85%RH</td>
</tr>
<tr>
<td>Approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit weight</td>
<td>Approx. 160 g Approx. 200 g</td>
<td></td>
</tr>
</tbody>
</table>

※ Environment resistance is rated at no freezing or condensation.

### Dimensions

- **8PIN socket**
  - Dimensions (unit:mm)
  - MIN. 51

- **11PIN socket**
  - Dimensions (unit:mm)
  - MIN. 51
**Input type selection switch**

- **mA**: Select it for 0(4)-20 mA input
- **10 V**: Select it for -1 V-10 V input
- **TC, RTD, mV, ±1V**: Select it for RTD, TC temperature sensor or ±1 V, mV input

※ The pulse input model (CN-640□□) does not have this input type selection switch.

### CN-610□□ (universal input)

<table>
<thead>
<tr>
<th>Input type</th>
<th>Parameter</th>
<th>Input range (°C)</th>
<th>Input range (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermocouple</td>
<td>K(CA)</td>
<td>$\xi C - K$</td>
<td>-200 to 1350</td>
</tr>
<tr>
<td></td>
<td>J(C)</td>
<td>$\xi C - J$</td>
<td>-199.9 to 999.9</td>
</tr>
<tr>
<td></td>
<td>E(CR)</td>
<td>$\xi C - E$</td>
<td>-199.9 to 800.0</td>
</tr>
<tr>
<td></td>
<td>T(CC)</td>
<td>$\xi C - T$</td>
<td>-199.9 to 400.0</td>
</tr>
<tr>
<td></td>
<td>B(PR)</td>
<td>$\xi C - b$</td>
<td>400 to 1800</td>
</tr>
<tr>
<td></td>
<td>R(PR)</td>
<td>$\xi C - R$</td>
<td>0 to 1750</td>
</tr>
<tr>
<td></td>
<td>S(PR)</td>
<td>$\xi C - S$</td>
<td>0 to 1750</td>
</tr>
<tr>
<td></td>
<td>N(NN)</td>
<td>$\xi C - N$</td>
<td>-200 to 1300</td>
</tr>
<tr>
<td></td>
<td>C(W5)</td>
<td>$\xi C - C$</td>
<td>0 to 2300</td>
</tr>
<tr>
<td></td>
<td>L(IC)</td>
<td>$\xi C - L$</td>
<td>-199.9 to 900.0</td>
</tr>
<tr>
<td></td>
<td>U(CC)</td>
<td>$\xi C - U$</td>
<td>-199.9 to 400.0</td>
</tr>
<tr>
<td></td>
<td>Platinel II</td>
<td>$\xi C - P$</td>
<td>0 to 1390</td>
</tr>
<tr>
<td>RTD</td>
<td>Cu50Ω</td>
<td>$\xi U - S$</td>
<td>-199.9 to 200.0</td>
</tr>
<tr>
<td></td>
<td>Cu100Ω</td>
<td>$\xi U - 10$</td>
<td>-199.9 to 200.0</td>
</tr>
<tr>
<td></td>
<td>JP100Ω</td>
<td>$\xi P - 1$</td>
<td>-199.9 to 600.0</td>
</tr>
<tr>
<td></td>
<td>DP50Ω</td>
<td>$\xi P - 5$</td>
<td>-199.9 to 600.0</td>
</tr>
<tr>
<td></td>
<td>DP100Ω</td>
<td>$\xi P - 1$</td>
<td>-199.9 to 850.0</td>
</tr>
<tr>
<td>Analog</td>
<td>Current</td>
<td>0.00 - 20.00 mA</td>
<td>$R - n - 1$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.00 - 20.00 mA</td>
<td>$R - n - 2$</td>
</tr>
<tr>
<td></td>
<td>Voltage</td>
<td>-50.0 - 50.0 mV</td>
<td>$R - n - 1$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-199.9 - 200.0 mV</td>
<td>$R - n - 2$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1.000 - 1.000 V</td>
<td>$R - v - 1$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-1.00 - 10.00 V</td>
<td>$R - v - 2$</td>
</tr>
</tbody>
</table>

### CN-640□□ (pulse input)

<table>
<thead>
<tr>
<th>Input type</th>
<th>Measuring cycle</th>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse</td>
<td>0 to 9.999 Hz</td>
<td>Max. 10 sec.</td>
<td>$10K$</td>
</tr>
<tr>
<td></td>
<td>0 to 99.9 Hz</td>
<td>Max. 10 sec.</td>
<td>$10K$</td>
</tr>
<tr>
<td></td>
<td>0 to 999.9 Hz</td>
<td>Max. 1 sec.</td>
<td>$10K$</td>
</tr>
<tr>
<td></td>
<td>0 to 50.00 kHz</td>
<td>Max. 0.1 sec.</td>
<td>$50K$</td>
</tr>
</tbody>
</table>

※ Pulse input: Non-contact 0 to 50 kHz, Contact 0 to 45 Hz (displays 0 for below 0.1Hz)
※ Input Low Level : 0-1 VDC / Input High Level : 5-24 VDC
※ Duty Ratio : 30 to 70%
※ The principle of displaying frequency is converting the time difference between input pulses to the frequency. 1 sec. is required to measure 1 Hz, and 10 sec. is required to measure 0.1 Hz. Therefore, it is normal that the lower pulse, the slower response speed. In case of 0 Hz, if there are no pulses for over 2 sec., it is programmed to display 0 Hz to prevent slow response speed.
**CN-6000 Series**

### Functions

#### Alarm \( [\text{AL-1, AL-2, AL-3, AL-4}] \)

This product has 1 alarm or 2 or 4 alarms to operate individually when the value is too high or low. Alarm function is set by the combination of alarm operation and alarm option.

To clear alarm, use digital input function (setting as \( \text{ALRE} \) for \( \text{DI-K} \)) or turn the power OFF and ON.

※For the model without alarm output (CN-6□□□□C1/C2/V1/V2), these parameters are not displayed.

![Alarm Diagram](image)

#### Alarm operation

<table>
<thead>
<tr>
<th>Mode</th>
<th>Name</th>
<th>Alarm operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{AL} )</td>
<td>No alarm operation</td>
<td></td>
<td>No alarm operation</td>
</tr>
<tr>
<td>( \text{AL} )</td>
<td>High limit alarm</td>
<td>ON ( \text{PV} \geq \text{alarm temperature} ), alarm is ON</td>
<td>PV ≥ alarm temperature, alarm is ON</td>
</tr>
<tr>
<td>( \text{AL} )</td>
<td>Low limit alarm</td>
<td>OFF ( \text{PV} \leq \text{alarm temperature} ), alarm is ON</td>
<td>PV ≤ alarm temperature, alarm is ON</td>
</tr>
<tr>
<td>( \text{SB} )</td>
<td>Sensor break alarm</td>
<td></td>
<td>It will be ON when it detects sensor disconnection. Sensor break alarm does not have alarm option.</td>
</tr>
</tbody>
</table>

※ 1. Only for CN-610□□□□

#### Alarm option

<table>
<thead>
<tr>
<th>Mode</th>
<th>Name</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{AL} )</td>
<td>Standard alarm</td>
<td>If it is an alarm condition, alarm output is ON. Unless an alarm condition, alarm output is OFF.</td>
</tr>
<tr>
<td>( \text{AL} )</td>
<td>Alarm latch</td>
<td>If it is an alarm condition, alarm output is ON. Before clearing the alarm, an ON condition is latched. (Holding the alarm output)</td>
</tr>
<tr>
<td>( \text{AL} )</td>
<td>Standby sequence</td>
<td>First alarm condition is ignored. From the second alarm condition, standard alarm operates. When power is ON and it is an alarm condition, it is ignored. From the second alarm condition, standard alarm operates.</td>
</tr>
<tr>
<td>( \text{AL} )</td>
<td>Alarm latch and standby sequence</td>
<td>If it is an alarm condition, it operates both alarm latch and standby sequence. When power is ON and it is an alarm condition, it is ignored. From the second alarm condition, alarm latch operates.</td>
</tr>
</tbody>
</table>

#### Alarm output hysteresis

(Program mode : \( \text{A-HY} \))

Set the interval of ON/OFF alarm output. The set hysteresis is applied to AL1 to AL4 and it is as below.

※(Ex) \( \text{A-HY} \) 4, high limit alarm value: 800, low limit alarm value: 200

![Alarm Hysteresis Diagram](image)

#### High/Low peak monitoring

( monitoring mode: \( \text{HPEK, LPEK} \))

This function is to save high/low peak to check the invisible abnormal condition of system at [ \( \text{HPEK} \) ] or [ \( \text{LPEK} \) ] in monitoring mode.

When the high/low peak is out of the temperature range, it displays \( \text{HHHH} \) or \( \text{LLLL} \).

To initialize high/low peak, press the \( 4, 3 \) keys at the same time for 3 sec. at \( \text{[HPEK]} \) or \( \text{[LPEK]} \).

In this case, peak value is the present input value.

#### Error

<table>
<thead>
<tr>
<th>Display</th>
<th>Descriptions</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{LLL} )</td>
<td>Flashes when measured sensor input is lower than the temperature range.</td>
<td>When input is moved within the temperature range, it is cleared.</td>
</tr>
<tr>
<td>( \text{HHHH} )</td>
<td>Flashes when measured sensor input is higher than the temperature range.</td>
<td></td>
</tr>
<tr>
<td>( \text{burn} )</td>
<td>Flashes when the sensor is break or not connected.</td>
<td>Check temperature sensor connection.</td>
</tr>
<tr>
<td>( \text{ERR} )</td>
<td>Flashes when there is error to SV.</td>
<td>Check set conditions and re-set it.</td>
</tr>
<tr>
<td>( \text{EPR2} )</td>
<td>Flashes when [ ( \text{H-N-P} ) ] setting and input type selection switch setting are not same.</td>
<td>Check input type.</td>
</tr>
</tbody>
</table>

※ 1. Only for CN-610□□□□

---

**Autonics**

C-6
Parameter initialization

To initialize all parameter as factory default, press the MODE and \( \in \) keys at the same time in RUN mode and it enters initialization parameter.

\[
\begin{array}{c}
\text{RUN mode} \\
\text{Press the MODE + \( \in \) keys at the same time.}
\end{array}
\]

Completes initialization.

\( \ast \) Parameter initialization is available only when lock \( \{(\text{L.oC})\} \) is set as \( \text{OFF} \).

Temperature unit [Program mode : \( \text{UNIT} \)]

Temperature unit \((\text{°C/°F})\) is selectable. When changing temperature unit, user input range, display scale, output scale, alarm SV are initialized. You should set the parameters again for your purpose.

\( \ast \) When selecting analog input, this parameter [\( \text{UNIT} \)] is not displayed.

Front display unit [Program mode : \( \text{dUNIT} \)]

- When selecting analog input, select the unit \((\text{mV, V, mA, °C, °F, %})\) of display value. (CN-610-4)
- When selecting pulse input, select the unit \((\text{kHz, Hz, %})\) of display value. (CN-640-4)
- When not displaying unit, set \( \text{OFF} \) and it turns OFF all indicators.

User input range [Program mode : \( \text{L-ROG, H-ROG} \)]

When selecting analog input, you can set the input range for your purpose. Set low limit input value \((\text{L-ROG})\) and high limit input value \((\text{H-ROG})\) to limit the input range.

- Set conditions:
  - Low limit input value \((\text{L-ROG})\) \(+20\%\) F.S. < High limit input value \((\text{H-ROG})\)

Decimal point [Program mode : \( \text{dP} \)]

It is able to change decimal point position for high/low limit scale value. It changes decimal point position of display value.

Display scale [Program mode : \( \text{L-SC, H-SC} \)]

For analog input, this function is to set (-1999 to 9999) for particular high/low limit value in order to display high/low limit value of measurement input. If measurement inputs are \('a' and 'b'\) and particular values are \('A' and 'B'\), it will display \(a=A, b=B\) as below graphs.

Display scale function is able to change display value for max./min., measured input by setting high limit scale \((\text{H-SC})\) and low limit scale \((\text{L-SC})\) in program mode.

\( \ast \) Ex) Set high/low scale value (input range is 0 to 10V)

\[
\begin{array}{c}
\text{Display value} \\
\text{Input value 10V} \\
\text{L-SC = 0.00, H-SC = 5.00} \\
\text{Display value} \\
\text{Input value 10V} \\
\text{L-SC = 1.00, H-SC = 5.00}
\end{array}
\]

\( \ast \) When changing input type, high/low scale is changed as factory default.

Input correction [Program mode : \( \text{IN-b} \)]

This function is to correct the error occurring from a thermocouple, a RTD or analog input out of allowable error range of this unit.

This is also available to correct error when a sensor cannot contact the subject position by calculating the error temperature.

Variable temperature sensors have accuracy level. Because high accuracy type is expensive, standard thermocouples are generally used.

In this case, temperature sensor may occur error. By executing this function, you can get more accurate temperature.

When executing input correction function, you should measure the error from a sensor accurately. If the measured error is not correct, error may be greater.

\( \ast \) Ex) When measured temperature is 4 °C and actual temperature is 0 °C. Set \( \text{IN-b} \) as -4, and display value is 0 °C.
Transmission output range
[Program mode: LoR, HoR]
Transmission output scale
[Program mode: LoU, HoU]
This function is to set output scale and range for display value for transmission output.
When the input value set at LoU/LoU2 is displayed, the output value set at LoP/LoP2 is transmitted.
When the input value set at HoU/HiU2 is displayed, the output value set at HoP/HiP2 is transmitted.
※Relation among input range, user input range, display scale, transmission scale, and output range

The below figure is the example for 4 to 20 mA input and 0-20 mA transmission output.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Function</th>
<th>Graph</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1N</td>
<td>Outputs as input value</td>
<td><img src="image" alt="Graph" /></td>
<td>Standard characteristics. Input for linearity.</td>
</tr>
<tr>
<td>Root</td>
<td>Outputs the rooted (\sqrt{ }) input value</td>
<td><img src="image" alt="Graph" /></td>
<td>Used for measuring flows by pressure signal.</td>
</tr>
<tr>
<td>SQAR</td>
<td>Outputs the squared input value</td>
<td><img src="image" alt="Graph" /></td>
<td>Used for outputting differential pressure by flow signal.</td>
</tr>
</tbody>
</table>

![Graph](image)

Display value and mA output value for SQAR:
Display value = Input value \times (H-SC \times L-SC)

Display value and mA output value for Root:
Display value = Input value \times \sqrt{H-SC \times L-SC}

Two Unit Function [LUF]
When connecting a pressure sensor, compound pressure which is below atmospheric pressure (0) is for vacuum as mmHg and which is atmospheric pressure or over it is for positive pressure as kg/cm².
Atmospheric pressure is 0kg/cm². When this unit does not display 0kg/cm², you can correct zero-point adjustment function.
When using two unit function, L-SC is fixed as -760. L-SC parameter is displayed but you cannot set this. You can set H-SC within 0 to 9999 range.

Atmospheric pressure (0) setting for Two Unit Function
[Program mode: D51, I NSF: LUF]
This function is to set analog input value for atmospheric pressure (0) at analog input range.
Ex) When pressure range is -760.0 mmHg to 3,000 kg/cm², and pressure transmitter outputs 4-20 mA and it outputs 8.00 mA for atmospheric pressure (0), set input special function as LUF, H-SC: 3000, dP: 0000, D51: 0800. This unit displays for 4 mA input as -760, for 8 mA input as 0000 and 20 mA input as 3000.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0P</td>
<td>Outputs 4 to 20 mA within analog input range.</td>
</tr>
<tr>
<td>5P</td>
<td>Outputs 3.2 to 20.8 mA for 5% out of the analog input range.</td>
</tr>
<tr>
<td>lOP</td>
<td>Outputs 2.4 to 21.6 mA for 10% out of the analog input range.</td>
</tr>
</tbody>
</table>

※This parameter is not displayed for not transmission output (4-20 mA, 0-10 V) model, or for selecting temperature sensor input.
※Below 0 mA, 0 VDC cannot extend.
※±1 VDC, 10 VDC input are available to extend only 5%.

Bar display channel
[Program mode: bRP, User level: Hi GH]
This function is to select OUT1 or OUT2 for Bar display of transmission output scale.
※Only for the model which has two transmission outputs (CN-6C-C2/V2), this parameter is displayed.

Input and transmission output extension
[Program mode: E U J a]
This function is to extend analog input and 4 to 20 mA, 0-10 VDC transmission output to 5% or 10% range.
The below table is the case of 4 to 20 mA transmission output range setting.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0P</td>
<td>Outputs 4 to 20 mA within analog input range.</td>
</tr>
<tr>
<td>5P</td>
<td>Outputs 3.2 to 20.8 mA for 5% out of the analog input range.</td>
</tr>
<tr>
<td>lOP</td>
<td>Outputs 2.4 to 21.6 mA for 10% out of the analog input range.</td>
</tr>
</tbody>
</table>

※This parameter is not displayed for not transmission output (4-20 mA, 0-10 V) model, or for selecting temperature sensor input.
※Below 0 mA, 0 VDC cannot extend.
※±1 VDC, 10 VDC input are available to extend only 5%.
Isolated Converter

- **Span correction [Program mode: SPRN, User level: HI GH]**
  It corrects the error of display value for 100% input.
  - Set range: 0.900 to 1.100

- **Digital filter [Program mode: AvF/MAvF, User level: HI GH]**
  Digital filter is able to stably display and output the noise from input line and irregular signals.
  Normal average filter AvF displays the averaged N times of input values periodically. Moving average filter MAvF displays the moving averaged N times of input values in real time.
  - Filter set range: 01 to 16

- **Display color [Program mode: CLOR]**
  This function is to change display color for occurring error, operating alarm automatically. User can check the status of this unit directly.
  ※ Color of monitoring mode, program mode is red.

- **Alarm output for disconnecting input sensor [Program mode: bURN]**
  When disconnecting input sensor, you can set the status of transmission output.
  It flashes bURN and it outputs the set value of HHHH or LLLL.

- **Lock [Program mode: Lock]**
  It limits to check parameter set value and to change it.

---

![Graph of Span correction](image)

![Graph of Digital filter](image)
### Monitoring mode

**RUN mode**

- Press the **MODE** key.
- Displays output value by each channel.

**Alarm value**

- Set each alarm value: \([R_L - 1\) to \(R_L - 4}\) in program mode.
  - Set range: Temperature sensor input \(\rightarrow\) within temperature range
    Analog input \(\rightarrow\) L-5°C to H-5°C
  - When alarm operation \(R_L - 1\) to \(R_L - 4\) in program mode is
    no alarm \([5, 6, 7, 8]\) or sensor disconnection alarm \([5, 6, 7]\), these parameters are not displayed.
  - For 1EA (CN-6000-R1) or 2EA (CN-6000-R2) alarm models, \(R_L 3, R_L 4\) are not displayed.

**High peak value**

- Displays high/low peak value.
  - **High/Low peak value is available only to check and initialize it.**
    (Refer to 'High/Low peak monitoring' for initialization.)
  - Initial high/low peak is saved after 2 sec. from supplying the power.
Isolated Converter

**Program mode**

- **CN-610□-□ (universal input)**

  1. Press any key among the [1], [2], [3].
  2. [2]: Moves digits / [3], [4]: Changes SV.
  3. Press the [MODE] key after checking/changing SV in each parameter.

### RUN mode

- Press [MODE] key for 3 sec.
- **Input type**
  - [1] IN-P
  - [2] RNA2

### Temperature unit

- Select temperature unit.
- [1] OC

### Display unit

- Select front display unit.
- [1] °C

### Low limit input value

- [1] L-RG

### High limit input value

- [1] H-RG

### Decimal point

- [1] dP

### Low limit scale value

- [1] L-SC

### High limit scale value

- [1] H-SC

### Input correction

- [1] IN-b

### Transmission output 1

- **low-limit**
  - [1] LoR1
  - Set low limit value of transmission output 1.
  - Range: Current output → 0-20 mA, Voltage output → 0-10 VDC

- **high-limit**
  - [1] HoR1
  - Set high limit value of transmission output 1.
  - Range: Current output → 0-20 mA, Voltage output → 0-10 VDC

### Transmission output 2

- **low-limit**
  - [1] LoR2
  - Set low limit value of transmission output 2.
  - Range: Current output → 0-20 mA, Voltage output → 0-10 VDC

- **high-limit**
  - [1] HoR2
  - Set high limit value of transmission output 2.
  - Range: Current output → 0-20 mA, Voltage output → 0-10 VDC

- Press [MODE] key for 3 sec.

- **Select input type.** (Refer to “Input type and range.”)

- **Display only when selecting temperature sensor input type.**

- **Displayed only when selecting analog input type.**

- **Displays only for the transmission output model.**

- **After entering setting group, press the [MODE] key for 3 sec. or there is no additional key operation in 30 sec., it returns to RUN mode.**

- **This parameter might not be displayed depending on other parameter settings.**

**CN-6000**

- A. Recorder
- B. Indicator
- C. Converter
- D. Controller
- E. Thyristor unit
- F. Pressure transmitter
- G. Temp. transmitter
- H. Accessories
Set low limit scale value of transmission output 1.
- Set range: Temperature sensor input → within temperature range, Analog input → L-SC to H-SC

Set low limit scale value of transmission output 2.
- Set range: Temperature sensor input → within temperature range, Analog input → L-SC to H-SC

Set high limit scale value of transmission output 1.
- Set range: Temperature sensor input → within temperature range, Analog input → L-SC to H-SC

Set high limit scale value of transmission output 2.
- Set range: Temperature sensor input → within temperature range, Analog input → L-SC to H-SC

Select the channel for Bar display.
※Displayed only when selecting user level [USER] as HI GHz.

Select extension range of analog input and transmission output.
※Displayed only when selecting user level [USER] as HI GHz.

Select AL1 to AL4 alarm operation and option.
※SV changing method of AL 2 to AL 4 is same as AL 1’s.
※For 1EA (CN-610-R1) or 2EA (CN-610-R2) alarm models, AL 3, AL 4 are not displayed.
※No alarm [AL 0], sensor break alarm [SB a] do not have alarm option.
※Set alarm value [AL 1 to AL 4] in monitoring mode.

Set alarm output hysteresis.
- Set range: 001 to 999
※When alarm operation [AL 1 to AL 4] in program mode is no alarm [AL 0], sensor disconnection alarm [SB a], this parameter is not displayed.

Select input special function.
※Displayed only when selecting analog input type.
Isolated Converter

Atmospheric pressure

- Span correction
- Normal average digital filter
- Moving average digital filter
- Digital input key
- Display color
- Sensor break alarm output
- User level
- Lock

Set analog input value for atmospheric pressure (0) at Two Unit Function.
- Set range: L-RG to H-RG
※Displayed when setting input special function [InSF] as TUF.

Correct the error of display value for 100% input.
- Set range: 0.900 to 1.100
※Displayed only when selecting user level [USER] as HI GH.

Set the number of normal average digital filters.
- Set range: 01 to 16
※Displayed only when selecting user level [USER] as HI GH.

Set the number of moving average digital filters.
- Set range: 01 to 16
※Displayed only when selecting user level [USER] as HI GH.

Select digital input function by front keys.
※Press 3, 4 keys for 3 sec. at the same time and it executes the selected function.
※For the model without alarm output (CN-610-C1/C2/V1/V2), ALRE is not displayed.

Select display part color for RUN mode and error.
※Refer to 「Display color」.

Select output status when sensor disconnection.
※Displayed only when selecting temperature sensor input type.

Select user level.
Select lock function.

CN-6000
CN-6000 Series

- CN-640□-□ (pulse input)

  **RUN mode**
  - Press the RUN key for 3 sec.

  - **Input type**
    - IN-P
  - **Display unit**
    - dUNT
  - **Low limit input value**
    - L-RG
  - **High limit input value**
    - H-RG
  - **Decimal point**
    - dP
  - **Low limit scale value**
    - L-SC
  - **High limit scale value**
    - H-SC
  - **Input correction**
    - IN-b

  **Transmission output 1**
  - **low-limit**
    - LoR1
  - **high-limit**
    - HoR1

  **Transmission output 2**
  - **low-limit**
    - LoR2
  - **high-limit**
    - HoR2

  **Bar display CH**
  - **OUT1**
  - **OUT2**

**Notes:**
- 1. Press any key among the ▼, ▼, ▼.
- 2. ▼: Moves digits / ▼, ▼: Changes SV.
- 3. Press the MODE key after checking/changing SV in each parameter.
  - The value flashes twice and is saved. It moves to next parameter.
  - After entering setting group, press the MODE key for 3 sec. or there is no additional key operation in 30 sec., it returns to RUN mode.
  - ※This parameter might not be displayed depending on other parameter settings.

- Select input type. (Refer to 「Input type and range」.)
- Select display unit.
- Set low limit of input range.
  - Set range: within input type range
- Set high limit of input range.
  - Set range: within input type range
- Select decimal point position of display scale value.
- Set low limit scale value.
  - Set range: -1999 to 9999
- Set high limit scale value.
  - Set range: -1999 to 9999
- Set input correction value.
  - Set range: -999 to 999

- Set low limit scale value of transmission output 1.
  - Set range: Current output → 0-20 mA, Voltage output → 0-10 VDC
- Set high limit scale value of transmission output 1.
  - Set range: Current output → 0-20 mA, Voltage output → 0-10 VDC
- Set low limit scale value of transmission output 2.
  - Set range: Current output → 0-20 mA, Voltage output → 0-10 VDC
- Set high limit scale value of transmission output 2.
  - Set range: Current output → 0-20 mA, Voltage output → 0-10 VDC

- Select the channel for Bar display.
  - ※Displayed only when selecting user level [USER] as [HIGH].
Transmission output 1
- Set low limit scale value of transmission output 1.
  - Set range: L-SC to H-SC

Transmission output 1
- Set high limit scale value of transmission output 1.
  - Set range: L-SC to H-SC

Transmission output 2
- Set low limit scale value of transmission output 2.
  - Set range: L-SC to H-SC

Transmission output 2
- Set high limit scale value of transmission output 2.
  - Set range: L-SC to H-SC

Input and transmission output extension
- Select extension range of analog input and transmission output.
  ※ Displayed only when selecting user level [USER] as HI GH.

Set alarm output hysteresis.
- Set range: 001 to 999
  ※ When alarm operation [AL - 1 to AL - 4] in program mode is no alarm [AL 0], sensor disconnection alarm [SB a] does not have alarm option.
  ※ Set alarm value [AL 1 to AL 4] in monitoring mode.

Span correction
- Correct the error of display value for 100% input.
  ※ Set range: 0.900 to 1.100
  ※ Displayed only when selecting user level [USER] as HI GH.

Moving average digital filter
- Set the number of moving average digital filters.
  ※ Set range: 01 to 16
  ※ Displayed only when selecting user level [USER] as HI GH.

Digital input key
- Select digital input function by front keys.
  ※ Press the keys for 3 sec. at the same time and it executes the selected function.
  ※ For the model without alarm output (CN-6400-11/C1/C2/V1/V2), AL RE is not displayed.

Display color
- Select display part color for RUN mode and error.
  ※ Refer to Display color.

User level
- Select user level.

Lock
- Select lock function.
CN-6000 Series

Factory default

- CN-610□-□ (universal input)
- CN-640□-□ (pulse input)

Monitoring mode

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Parameter</th>
<th>Default</th>
<th>Parameter</th>
<th>Default</th>
<th>Parameter</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT1</td>
<td>AL1</td>
<td>OUT2</td>
<td>AL2</td>
<td>OUT3</td>
<td>AL3</td>
<td>OUT4</td>
<td>AL4</td>
</tr>
<tr>
<td></td>
<td>hPEK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Program mode

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Parameter</th>
<th>Default</th>
<th>Parameter</th>
<th>Default</th>
<th>Parameter</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN-P</td>
<td>50KH</td>
<td>LoR1</td>
<td>0000</td>
<td>HoU2</td>
<td>0000</td>
<td>HoR2</td>
<td>0000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Proper usage

- Caution for using
  - For connecting the power, use a crimp terminal (M3.5, min. 7.2 mm).
  - The connection of this unit should be separated from the power line and high voltage line in order to prevent inductive noise.
  - Install a power switch or a circuit breaker to supply or cut off the power.
  - Switch or circuit breaker should be installed nearby users for convenient control.
  - Do not use this unit near the high frequency instruments (high frequency welding machine & sewing machine, large capacity SCR controller).
  - When supplying input, if HHHH or LLLL is displayed, measured input may have problem. Turn off the power and check the line.
  - Installation environment
    - It shall be used indoors.
    - Pollution degree 2
    - Altitude max. 2,000m
    - Installation category II
  - It may cause malfunction if above instructions are not followed.
Isolated Converter

MEMO

A. Recorder
B. Indicator
C. Converter
D. Controller
E. Thyristor unit
F. Pressure transmitter
G. Temp. transmitter
H. Accessories