

General Specifications

Model CCH7 Isolator (Programmable Isolator)

SMPSC

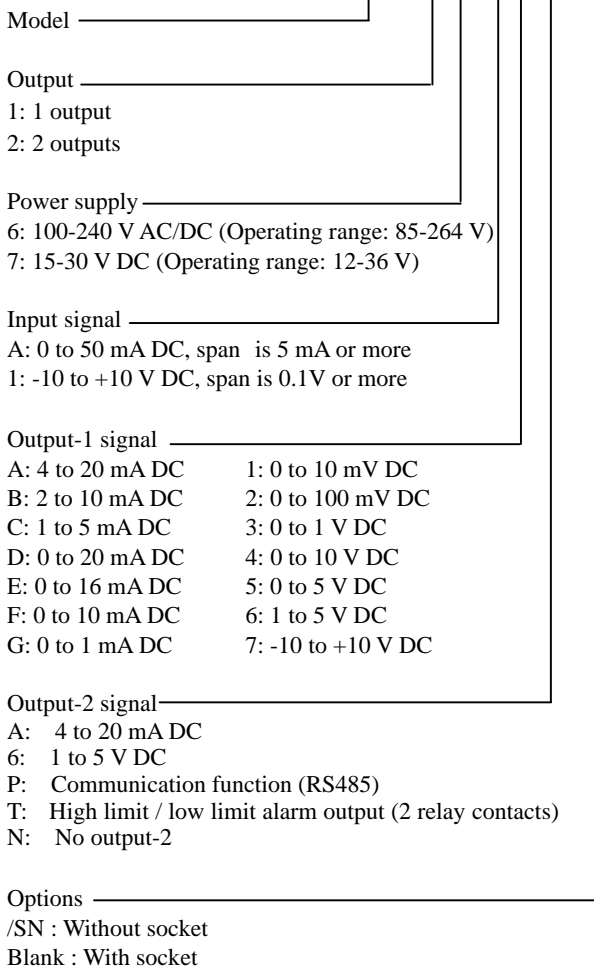
◆ General

The plug-in type isolator converts DC current or DC voltage signal into isolated DC current or DC voltage signal.

- DC voltage signal, communication output (RS485), or alarm output (2 relay contacts) is selectable as output-2
- Incorporation of microcomputer allows the change of input ranges and I/O monitoring etc. through Setup Utility.

◆ Model and Suffix Codes

CCH7-0□□□□0/□



◆ Input/Output Specifications

■ Input

Input Range:

- Code A: 0 to +50 mA DC, span is 5 mA or more
- Code 1: -10 to +10 V DC, span is 0.1 V or more

Input Resistance:

- DC current signal : 100 Ω (Shunt resistor)
- DC voltage signal: 1 MΩ (100 kΩ when power off)

■ Output-1

| Output-1 Range | Allowable Load Resistance | Output-1 Range | Allowable Load Resistance |
|----------------|---------------------------|----------------|---------------------------|
| 4 to 20 mA DC | 750Ω max. | 0 to 10 mV DC | 250KΩ min. |
| 2 to 10 mA DC | 1500Ω max. | 0 to 100 mVDC | 250KΩ min. |
| 1 to 5 mA DC | 3000Ω max. | 0 to 1 V DC | 2KΩ min. |
| 0 to 20 mA DC | 750Ω max. | 0 to 10 V DC | 10KΩ min. |
| 0 to 16 mA DC | 900Ω max. | 0 to 5 V DC | 2KΩ min. |
| 0 to 10 mA DC | 1500Ω max. | 1 to 5 V DC | 2KΩ min. |
| 0 to 1 mA DC | 15KΩ max. | -10 to +10V DC | 10KΩ min. |

■ Output-2

• Analog Output

| Output Signal | Output Resistance | Permissible Load Resistance |
|---------------|-------------------|-----------------------------|
| 1 to 5 V DC | 1 Ω or less | 2 kΩ or more |
| 4 to 20 mA DC | 500 kΩ or more | 350Ω or less |

• Communication Function

This isolator can be connected to a personal computer, or programmable controllers.

Standards: EIA RS485

Maximum number of connectable controllers: 31 controllers

Maximum communication distance: 1200 m

Communication method: 2-wire half duplex, start-stop

synchronization, non-procedural

Communication rate: 1200, 2400, 4800, 9600, 19200 bps

Data length: 8 bit

Stop bit: 1, 2 bit

Parity: Even parity, odd parity, or none

Communication protocol: MODBUS RTU

• Alarm Output

Signal type: Relay contact

Output signal: N.O. contact output (contact ON at excitation) 2 points, COM common

Contact capacity: 30 V DC, 1 A

Alarm operating direction: High limit alarm or low limit alarm

Relay operating direction setting: Excitation or non-excitation at normal status

Alarm setting range: 0 to 100 % of input range

Setting resolution: 0.1 %, 4 significant digits

Hysteresis setting range: Set the value added to alarm setting point at alarm release, 0 to 100 % of input range

Setting resolution: 0.1 %, 4 significant digits

Alarm on-delay setting: Delay time from alarm condition completion to output
(Ex. Outputted when alarm status continues for 1 second or more after input value is over alarm point in case of set value "1 second.")

Setting range: 0 to 999 seconds

Setting resolution: 1 second (however, add about 0.2 seconds to setting time to prevent wrong operation)

Alarm off-delay setting: Delay time from alarm normal condition completion to output
(Ex. Released when normal status continues for 2 seconds or more after input value becomes normal status from alarm status in case of set value "2 seconds.")

Setting range: 0 to 999 seconds

Setting resolution: 1 second (however, add about 0.2 seconds to setting time to prevent wrong operation)

Alarm operation display: Front LED lights at excitation, 2 LEDs

◆Items Available to Be Set

The following items can be set through Setup Utility:
Input range, address number, communication rate, parity, data length, stop bit, alarm operating direction, relay operating direction, alarm setting, hysteresis, alarm on-delay, alarm off-delay

◆Standard Performance

Accuracy rating: ± 0.1 % of span
However accuracy is limited in the following case according to the input ranges:

Input range is -10 to +10 V (H range), span is under 5 V;
accuracy (%) = $\pm 0.1\% \times 5 \text{ V} / \text{input span [V]}$

Input range is -5 to +5 V (M range), span is under 2.5 V;
accuracy (%) = $\pm 0.1\% \times 2.5 \text{ V} / \text{input span [V]}$

Input range is -1 to +1 V (L range), span is under 0.5 V;
accuracy (%) = $\pm 0.1\% \times 0.5 \text{ V} / \text{input span [V]}$

When current input, apply [input range \times input resistance] to the above, and add 0.1 % of resistance error.

Response speed: 200 ms, 63 % response (10 to 90 %)
Alarm output: 350 ms (input change 10 to 90 %, alarm setting point 50 %, time till alarm output, when alarm delay setting and hysteresis are min.)

Effect of power supply voltage fluctuation: ± 0.1 % or less of span for power supply voltage fluctuation of 15 to 30 V DC (± 20 %), 100 to 240 V AC/DC

Effect of ambient temperature change: ± 0.2 % or less of span for change of 10°C

◆Safety and EMC Standards

The followings will be acquired.

Safety:

Conforms to IEC1010-1: 1990 and EN61010-11: 1993.
Certified for CSA1010
CSA1010 category: CAT II (IEC1010-1)
Certified for UL508

Non-Incendive Explosion-Proof:

CSA C22.2 No. 213 Class I, Division 2,
Groups A, B, C & D
FM No. 3611 Class I, Division 2, Groups A, B, C & D

The above certified/approved instrument is only for voltage of 15 to 30 V DC.

EMC Standards:

Conforms to the following EMC standards.
EN55011: 1991 Class A Group1 for EMI (emissions)
EN50082-2: 1995 for EMS (immunity)

The above conformed instrument is only for voltage of 15 to 30 V DC.

◆Power Supply and Isolation

Supply rated voltage range: 100-240 V AC/DC 50/60Hz or 15-30 V DC

Supply input voltage range: 100-240 V AC/DC (-15, +10%) 50/60Hz or 15-30 V DC ($\pm 20\%$)

Power consumption: 2.2W at 24V DC; 2.1W at 110 V DC; 4.2 VA at 100V AC; 6.1VA at 200 V AC

Insulation resistance: 100 M Ω minimum at 500V DC between input, output-1, output-2, power supply and grounding terminals mutually

Withstanding voltage: 2000 V AC for one minute between input, (output-1 and output-2), power supply and grounding terminals mutually; 1000 V AC for one minute between output-1 and output-2 terminals

◆Environmental Conditions

Operating temperature range: 0 to 50

Operating humidity range: 5 to 90% RH (no condensation)

Operating conditions: Avoid installation in such environments as corrosive gas like sulfide hydrogen, dust, sea breeze and direct sunlight.

Installation altitude: 2000 m or less above sea level.

◆Mounting and Appearance

Construction: Compact plug-in type

Material: Modified polyphenylene oxide (case body)

Mounting method: Wall or DIN rail mounting

Connection method: M3 screw terminal

External dimension: 29.5 \times 76 \times 124.5mm (W \times H \times D)

Weight: Approx. 170 g

◆Instruction Required When Ordering

• Model and suffix code

Shipped after setting the input ranges as specified.

◆ Factory Setting

Factory settings are as follows:

- Input range: 0 to 10 V DC

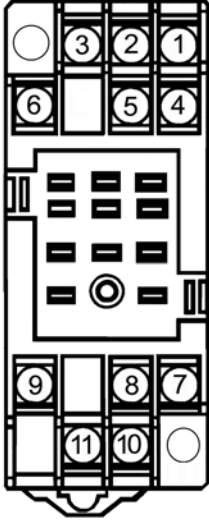
■ When output-2 is specified as communication output

- Address No.: 01
- Communication rate: 9600 bps
- Parity: None
- Data length: 8 bit
- Stop bit: 1 bit

■ When output-2 is specified as alarm output

- Alarm operating direction: High limit alarm (alarm-1),
High limit alarm (alarm-2)
- Relay operating direction: De-energized at alarm (alarm-1 / 2)
- Alarm setting: 100 % (alarm-1), 100 % (alarm-2)
- Hysteresis: 3 % (alarm-1 / 2)
- Alarm on-delay: 0 second (alarm-1 / 2)
- Alarm off- delay: 0 second (alarm-1 / 2)

◆ Terminal Arrangement & Terminal Connection



| Terminal No. | Signal | Output-2 Analog output | Output-2 Communication output | Output-2 Alarm output |
|--------------|----------|------------------------|-------------------------------|-----------------------|
| 1 | Input | (+) (+) | | |
| 2 | Output-2 | (+) | B (+) | ALM1 |
| 3 | Input | (-) (-) | | |
| 4 | Input | N.C. | | |
| 5 | Output-2 | (-) | A (-) | COM |
| 6 | Output-2 | N.C. | COM | ALM2 |
| 7 | Output-1 | (+) (+) | | |
| 8 | GND | GND | | |
| 9 | Output-1 | (-) (-) | | |
| 10 | Supply | (L+) (L+) | | |
| 11 | Supply | (N-) (N-) | | |

Note: In case of one output type, output-2 is N.C.

