General Specifications

GS 77J01H07-01E

Model VJH7
Isolator (Multi-function)
(Isolated Single-output and Isolated Dual-output Types)

JUXTA

■ General

This 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 Handy Terminal (JHT200 etc.).

■ Specifications

VJH7-0□□-□□□0

Model

Output
1: 1 output
2: 2 outputs

Power Supply
6: 100 to 240 V AC/DC ≃ (-15, +10 %) 50/60 Hz
7: 15 to 30 V DC ⎓ (±20 %)

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

Output-1 Signal
A: 4 to 20 mA DC
6: 1 to 5 V DC
Z: (Custom Order) DC current/voltage signal

Output-2 Signal
A: 4 to 20 mA DC
6: 1 to 5 V DC
P: Communication function (RS485)
T: High limit / low limit alarm output (2 relay contacts)
N: No output-2

■ Input

Input Signal: DC voltage signal
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

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	750 Ω or less

- **Custom Order Output Signal**
  2 to 10 mA DC, 1 to 5 mA DC, 0 to 20 mA DC, 0 to 16 mA DC, 0 to 10 mA DC, 0 to 1 mA DC, 0 to 10 mV DC, 0 to 100 mV DC, 0 to 1 V DC, 0 to 10 V DC, 0 to 5 V DC, -10 to +10 V DC

2. 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	350 Ω or less

- **Communication Function**

This isolator can be connected to a personal computer, graphic panel, YOKOGAWA programmable controller FA-M3, or programmable controllers of other manufacturers.

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 bps
Data length: 8, 7 bit
Stop bit: 1, 2 bit
Parity: Even parity, odd parity, or none
Communication protocol: PC-link, PC-link with SUM, MODBUS ASCII, MODBUS RTU, or LADDER
PC-link communication: Communication protocol with a personal computer, graphic panel, UT link module of FA-M3
MODBUS communication: Communication protocol with a personal computer (SCADA).
Ladder communication: Communication protocol with ladder communication module of FA-M3 and programmable controller of other manufacturers

GS 77J01H07-01E

5th Edition Nov. 2014 (YK)

- **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: Set the value added to alarm setting point at alarm release.
Setting range: 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 Handy Terminal:

Input range, address number, communication rate, parity, data length, stop bit, protocol, 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 (%)=±0.1 % x 5 V / input span [V]
Input range is -5 to +5 V (M range), span is under 2.5 V; accuracy (%)=±0.1 % x 2.5 V / input span [V]
Input range is -1 to +1 V (L range), span is under 0.5 V; accuracy (%)=±0.1 % x 0.5 V / input span [V]
When current input, apply [input range3input 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: Approved by CAN/CSA C22.2 No.61010-1(CSA), approved by UL61010-1.
Installation category: CAT. II
Pollution degree: 2
As for the apparatus authorized, power supply voltage is limited to 15V-30VDC, and the circuit to connect is limited to a class 2.

Category	Description	Remarks
CAT.I	For measurements performed on circuits not directly connected to MAINS.	
CAT.II	For measurements performed on circuits directly connected to the low voltage installation.	Appliances, portable equipments, etc.
CAT.III	For measurements performed in the building installation.	Distribution board, circuit breaker, etc.
CAT.IV	For measurements performed at the source of the low-voltage installation.	Overhead wire, cable systems, etc.

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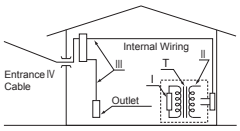


EMC standards:
Compliant with CE marking EN 61326-1.
KC marking: Electromagnetic wave interference prevention standard, electromagnetic wave protection standard compliance.
The instrument continues to operate at a measurement accuracy of within ±20% of the range during testing.
The above conformed instrument is only for voltage of 15 to 30 V DC.

■ Power Supply and Isolation

Power Supply Rated Voltage:
100 to 240 V AC/DC ≂ 50/60 Hz
15 to 30 V DC ⎓
Power Supply Input Voltage: 100 to 240 V AC/DC ≂ (-15, +10 %) 50/60 Hz
15 to 30 V DC ⎓ (±20 %)
Power Dissipation: 24 V DC 2.6 W, 110 V DC 2.6 W
100 V AC 5 VA, 200 V AC 6.7 VA
Insulation Resistance: 100 MΩ/500 V DC between input, output-1, output-2, power supply and ground mutually
Withstand Voltage: 2000 V AC / minute between input, (output-1, output-2), power supply, and ground mutually
1000 V AC / minute between output-1 and output-2
1000 V AC / minute between input and output-2 at alarm output

■ Environmental Conditions

Temperature: 0 to 50 °C
Humidity: 5 to 90 % RH (no condensation)
Ambient Condition: Avoid installation in such environments as corrosive gas like sulfide hydrogen, dust, sea breeze and direct sunlight
Installation altitude 2000m or less above sea level.

■ Mounting and Appearance

Construction: Compact plug-in type
Material: Modified Polyphenylene Oxide (Case body)
Mounting Method: Wall, DIN rail, or dedicated VJ mounting base mountings
Connection Method: M3 screw terminal
External Dimension: 29.5x76x124.5mm (WxHxD)
Weight: Approx. 170 g

■ Accessories

Tag Number Label: 1 sheet
Range Label: 1 sheet
Shunt Resistor: 1 (only when current input is specified)

■ 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: 1 to 5 V DC

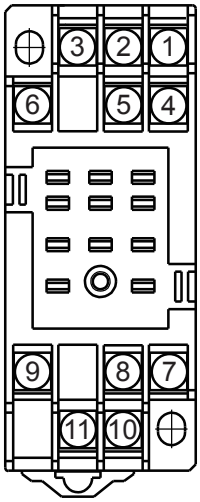
- **When output-2 is specified as communication output**

• Address No.: 01
• Communication rate: 9600 bps
• Parity: Even
• Data length: 8 bit
• Stop bit: 1 bit
• Protocol: PCLINK

- **When output-2 is specified as alarm output**

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

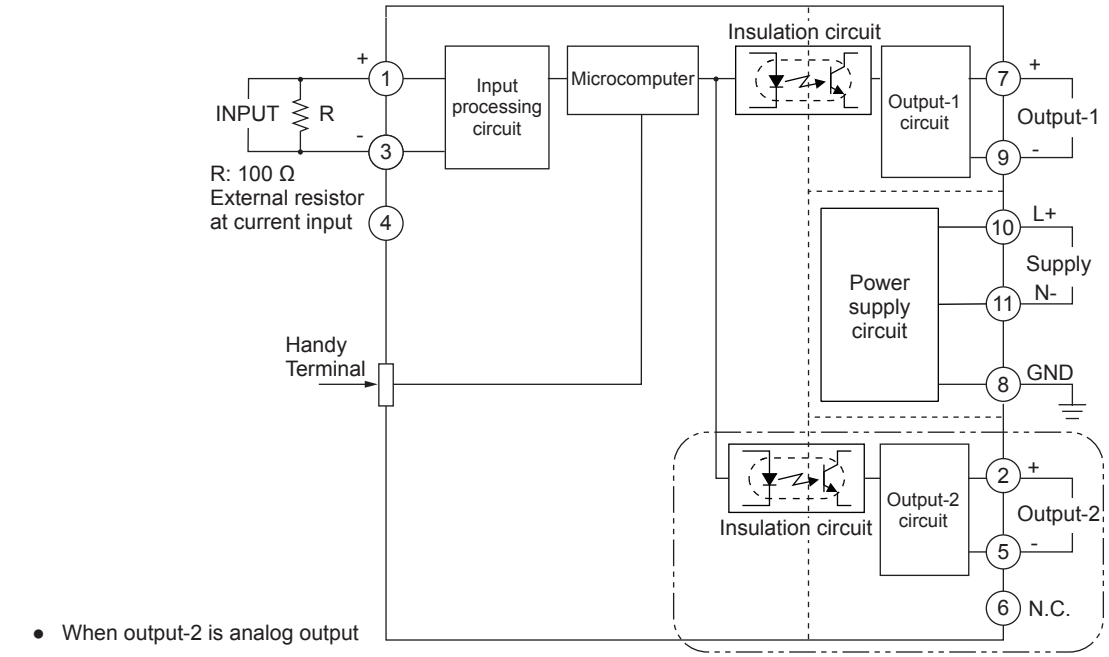
■ Terminal Arrangement & Terminal Connection



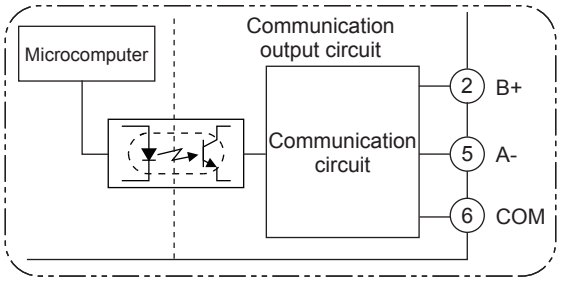
Terminal No.	Signal	Output-2 Analog output	Output-2 Communication output	Output-2 Alarm output
1	Input	(+)		
2	Output-2	(+)	B (+)	ALM1
3	Input	(-)		
4	Input	N.C.		
5	Output-2	(-)	A (-)	COM
6	Output-2	N.C.	COM	ALM2
7	Output-1	(+)		
8	GND	GND		
9	Output-1	(-)		
10	Supply	(L+)		
11	Supply	(N-)		

Note 1: In case of one output type, output-2 is N.C.

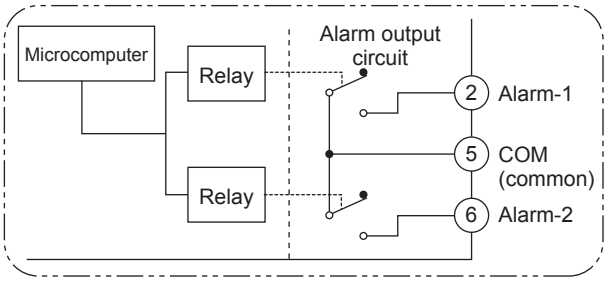
■ Block Diagram



- When output-2 is analog output



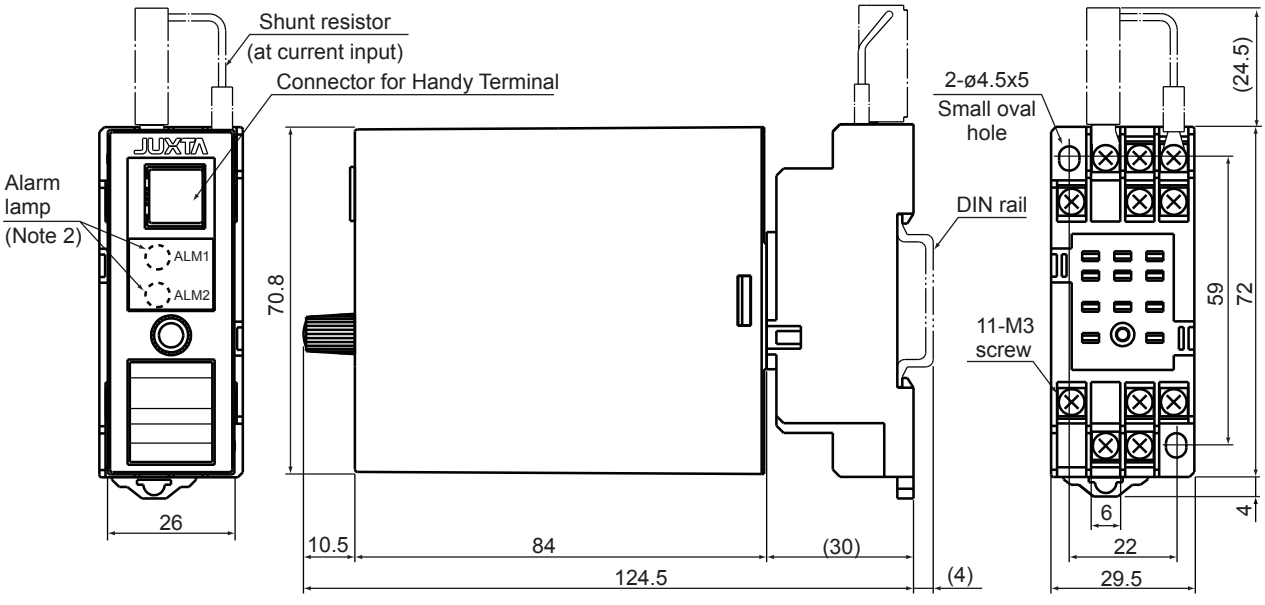
- When output-2 is communication output



- When output-2 is alarm output

■ External Dimension

Unit : mm



Note 2: Only when output-2 is alarm output