General Specifications

GS 77J01H12-01E

Model VJHR
Isolator (Reverse Output Type)
(Isolated Single-output and Isolated Dual-output Types)

JUXTA

■ General

The VJHR is a compact, plug-in type isolator that converts DC current or DC voltage signals into isolated and inverted DC current or DC voltage signals.

■ Model and Suffix Codes

VJHR-0 □□ - □□□ 0/ □

Model

Output
1: 1 output
2: 2 outputs

Power supply
6: 100-240 V AC/DC (Operating range: 85 to 264 V)
7: 15-30 V DC (Operating range: 12 to 36 V)

Input signal
A: 4 to 20 mA DC
B: 2 to 10 mA DC
C: 1 to 5 mA DC
D: 0 to 20 mA DC
E: 0 to 16 mA DC
F: 0 to 10 mA DC
G: 0 to 1 mA DC
H: 10 to 50 mA DC
1: 0 to 10 mV DC
2: 0 to 100 mV DC
3: 0 to 1 V DC
4: 0 to 10 V DC
5: 0 to 5 V DC
6: 1 to 5 V DC
7: -10 to +10 V DC
Z: Custom order (DC current/voltage signal)
See Customized Signal Specifications.

Output-1 signal
A: 20 to 4 mA DC
B: 10 to 2 mA DC
C: 5 to 1 mA DC
D: 20 to 0 mA DC
E: 16 to 0 mA DC
F: 10 to 0 mA DC
G: 1 to 0 mA DC
1: 10 to 0 mV DC
2: 100 to 0 mV DC
3: 1 to 0 V DC
4: 10 to 0 V DC
5: 5 to 0 V DC
6: 5 to 1 V DC
7: +10 to -10 V DC
Z: Custom order (DC current/voltage signal)
See Customized Signal Specifications.

Output-2 signal
A: 20 to 4 mA DC
6: 5 to 1 V DC
N: No output-2
Z: Custom order (DC current/voltage signal)
See Customized Signal Specifications.

Option
/SN: No socket (with socket if not specified)
/C0: Coating *
/FB: Fuse bypass *

* When option code /C0 or /FB is specified, the conformity to the safety and EMC standards is excluded. CE marking is not applicable.

Note 1: "/C0" option: Polyurethane coating. The "/C0" option does not guaranteed the coating effect though it is expected that the corrosion resistance for electric circuit is reinforced. And it is not able to submit coating test data.
Note 2: "/FB" option: The primary power supply fuse is deleted, short circuit and ship it.

■ Ordering Information

• Model and Suffix Code: e.g. VJHR-026-AAA0

■ Input/Output Specifications

Input signal: DC voltage or DC current signal
Input resistance: Attach an external resistor for current input.

Input Range	Input Resistance	Input Range	Input Resistance
4 to 20 mA DC	250 Ω	0 to 10 mV DC	1 MΩ during power on 10 kΩ or more during power off
2 to 10 mA DC	500 Ω	0 to 100 mV DC	
1 to 5 mA DC	1 kΩ	0 to 1 V DC	
0 to 20 mA DC	250 Ω	0 to 10 V DC	1 MΩ during power on 800 kΩ or more during power off
0 to 16 mA DC	250 Ω	0 to 5 V DC	
0 to 10 mA DC	500 Ω	1 to 5 V DC	
0 to 1 mA DC	1 kΩ	-10 to +10 V DC	
10 to 50 mA DC	100 Ω		

Output signal: DC voltage or DC current signal
Allowable input level:
- Voltage input: Within ±30 V DC
- Current input: Any level that satisfies the following condition,
  (Input current)^2 × Input resistance ≤ 0.5 W

Allowable load resistance:

Output-1 Range	Allowable Load Resistance	Output-1 Range	Allowable Load Resistance
20 to 4 mA DC	750 Ω maximum	10 to 0 mV DC	250 kΩ minimum
10 to 2 mA DC	1500 Ω maximum	100 to 0 mV DC	250 kΩ minimum
5 to 1 mA DC	3000 Ω maximum	1 to 0 V DC	2 kΩ minimum
20 to 0 mA DC	750 Ω maximum	10 to 0 V DC	10 kΩ minimum
16 to 0 mA DC	900 Ω maximum	5 to 0 V DC	2 kΩ minimum
10 to 0 mA DC	1500 Ω maximum	5 to 1 V DC	2 kΩ minimum
1 to 0 mA DC	15 kΩ maximum	+10 to −10 V DC	10 kΩ minimum
Output-2 Range	**Allowable Load Resistance**	**Output-2 Range**	**Allowable Load Resistance**
20 to 4 mA DC	350 Ω maximum	5 to 1 V DC	2 kΩ minimum

Output resistance: Current output; 500 kΩ or more
Voltage output other than below: 1 Ω or less
10 to 0 mV DC, 100 to 0 mV DC
Zero adjustment: –5 to +5%
Span adjustment: 95 to 105%

GS 77J01H12-01E
©Copyright Mar. 1999 (MC)
8th Edition Apr. 2019 (YK)

■ Standard Performance

Accuracy rating: ±0.1% of span (aside from the ±0.1% accuracy of the external resistor for current input); accuracy is not guaranteed for output levels less than 0.5% of the span of a X to 0 mA output range type.
Response speed: 150 ms, 63% response (10 to 90%)
Effect of power supply voltage fluctuation: Accuracy range or less of span for power supply voltage fluctuation.
Effect of ambient temperature change: ±0.15 % or less of span for change of 10 °C

■ Safety and EMC Standards

CSA: CSA 22.2 No. 61010-1, installation category II *1, pollution degree 2 *2, and CSA C22.2 No. 61010-2-030
UL: UL61010-1, UL 61010-2-030 (CSA NRTL/C)
CE:
EMC directive
EN 61326-1 compliance, Class A Table 2 *3
EN 61326-2-3 compliance
EN 61000-3-2 compliance
EN 61000-3-3 compliance
EN 55011 Class A Group 1
Low voltage directive:
EN 61010-1, EN 61010-2-030
Installation category II *1
Pollution degree 2 *2
Measurement category O (other)
EMC Regulatory Arrangement in Australia and New Zealand (RCM): EN 55011 Class A, Group 1
KC marking: Electromagnetic wave interference prevention standard, electromagnetic wave protection standard compliance

*1 Installation category (overvoltage category) II: Describes a number which defines a transient overvoltage condition. Implies the regulation for impulse withstand voltage.
"II" applies to electrical equipment which is supplied from the fixed installation like a distribution board.

*2 Pollution degree 2: Describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength or surface resistivity is adhering.
"2" applies to normal indoor atmosphere. Normally, only non-conductive pollution occurs.

*3 The instrument continues to operate at a measurement accuracy of within ±20% of the range during testing.

However, if optional code /C0 or /FB is specified, the conformity to the safety and EMC standards is excluded.

■ Environment Standard

RoHS Directive: EN 50581
(However, when option code /C0 or /FB is specified, CE marking is not applicable because the product does not comply with the Safety and EMC standards.)

■ Power Supply and Isolation

Supply rated voltage range: 100-240 V AC/DC ≂ 50/60 Hz or 15-30 V DC ⎓
Supply input voltage range: 100-240 V AC/DC ≂ (–15, +10%) 50/60 Hz or 15-30 V DC ⎓ (±20%)
Power consumption: 2.2 W at 24 V DC ; 2.1 W at 110 V DC; 4.2 VA at 100 V AC; 6.1 VA at 200 V AC
Insulation resistance: 100 MΩ minimum at 500 V 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

Temperature: -10 to 55 °C (45 °C or less for side-by-side close installation*)
* If the previous model (style S3.xx earlier) is installed together, the ambient temperature is 0 to 40°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.
Magnetic field: 400 A/m or less.
Continuous vibration (at 5 to 9 Hz) Half amplitude of 3 mm or less (at 9 to 150 Hz) 4.9 m/s^2 or less, 1 oct/min for 90 minutes each in the 3-axis directions.
Impact: 98 m/s^2 or less, 11 msec, 3-axis 3 times each in 6 directions.
Altitude: 2000 m or less.
Warm-up time: At least 30 minutes after power on.

■ Transport and Storage Conditions

Ambient temperature: –25 to 70 °C
Temperature change rate: 20 °C per hour or less
Ambient humidity: 5 to 95 %RH (no condensation)

■ Mounting and Appearance

Construction: Compact plug-in type
Material: Modified polyphenylene oxide (casing)
Mounting method: Wall, DIN rail or dedicated VJ mounting base (VJCE) mounting
Connection method: M3 screw terminals
External dimensions: 76 (H) × 29.5 (W) × 124.5 (D) mm (including a socket)
Weight: Main unit; 100 g or less
Socket; 50 g or less

■ Accessories

Tag number label: One
Resistor (Shunt resistor): One (attached for current input)

Resistance	Part No.	Resistance	Part No.
100 Ω	E9786WD	500 Ω	E9786WF
250 Ω	E9786WE	1 kΩ	E9786WG

All Rights Reserved. Copyright © 1999, Yokogawa Electric Corporation

■ Customized Signal Specifications

● Input custom specification

• Customized specifications complying with safety standards, EMC standards, and environmental standards

Input range (DC)	Standard span (DC)	Input resistance
−0.025 to 0.025 V	0.01 V	1 MΩ during power on 10 kΩ or more during power off
−0.125 to 0.125 V	0.04 V	
−1.25 to 1.25 V	0.4 V	
−2.5 to 2.5 V	1 V	1 MΩ during power on 800 kΩ or more during power off
−12.5 to 12.5 V	4 V	
−25 to 25 V	8 V	
−0.1 to 0.1 mA	0.04 mA	1 kΩ
−1 to 1 mA	0.4 mA	
−5 to 5 mA	4 mA	
−10 to 10 mA	8 mA	500 Ω
−20 to 20 mA *1	16 mA	250 Ω
−50 to 50 mA *2	40 mA	100 Ω

*1 The following can not be produced.

Input range (DC)	Input span (DC)
−20 to −16.8 mA	3.2 mA or less
16.8 to 20 mA	

*2 The following can not be produced.

Input range (DC)	Input span (DC)
−50 to −30 mA	20 mA or less
30 to 50 mA	

Accuracy rating: ±0.1% of span *5

• Customized specifications that do not comply with safety standards, EMC standards, and environmental standards

Input range (DC)	Standard span (DC)	Input resistance
−100 to 100 V	40 V	1 MΩ during power on 800 kΩ or more during power off
−200 to 200 V	80 V	
−300 to 300 V	120 V	
−70 to 70 mA *3	80 mA	50 Ω
−150 to 150 mA *4	100 mA	10 Ω

*3 The following can not be produced.

Input range (DC)	Input span (DC)
−70 to −42 mA	28 mA or less
42 to 70 mA	

*4 The following can not be produced.

Input range (DC)	Input span (DC)
−150 to −90 mA	60 mA or less
90 to 150 mA	

Accuracy rating: ±0.1% of span *5

*5 Accuracy restrictions

When the input span is less than the standard span, the accuracy calculated by the following formula is applied.

$$\text{Accuracy rating (\%)} = \pm 0.1\% \times \frac{\text{Standard span}}{\text{Input span}}$$

Other restrictions

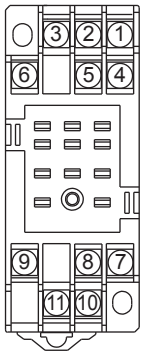
- The input span is 1/10 or more of the standard span

● Output custom specification

	Current Signal	Voltage Signal
Output range (DC)	24 to 0 mA	+10 to −10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	−100 to +200%

Note: Customized specifications for the output-1 signal within 20 to 0 mA DC or within +10 to −10 V DC comply with safety standards, EMC standards, and environmental standards.
- The above note is limited to the standard specification of output-2.
- Other customized specifications do not conform to these standards.

■ Terminal Assignments

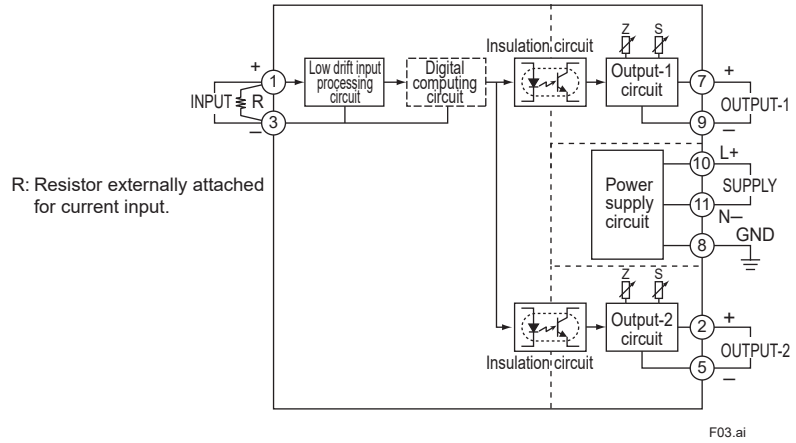


1	Input	(+)
2	Output-2	(+)
3	Input	(−)
4	Do not use	
5	Output-2	(−)
6	Do not use	
7	Output-1	(+)
8	GND	
9	Output-1	(−)
10	Supply	(L+)
11	Supply	(N−)

Do not use output-2 for the single-output type.

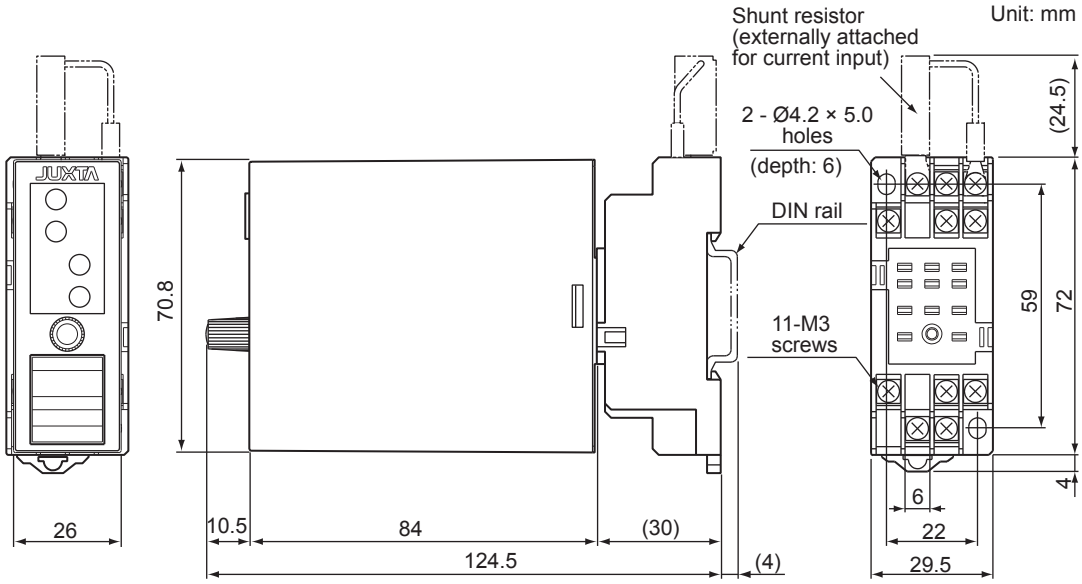
All Rights Reserved. Copyright © 1999, Yokogawa Electric Corporation

■ Block Diagram



R: Resistor externally attached for current input.

■ External Dimensions



All Rights Reserved. Copyright © 1999, Yokogawa Electric Corporation
Subject to change without notice.