

General Specifications

VJQ0 Analog to Pulse Converter (Isolated Single-output and Isolated Dual-output Types)



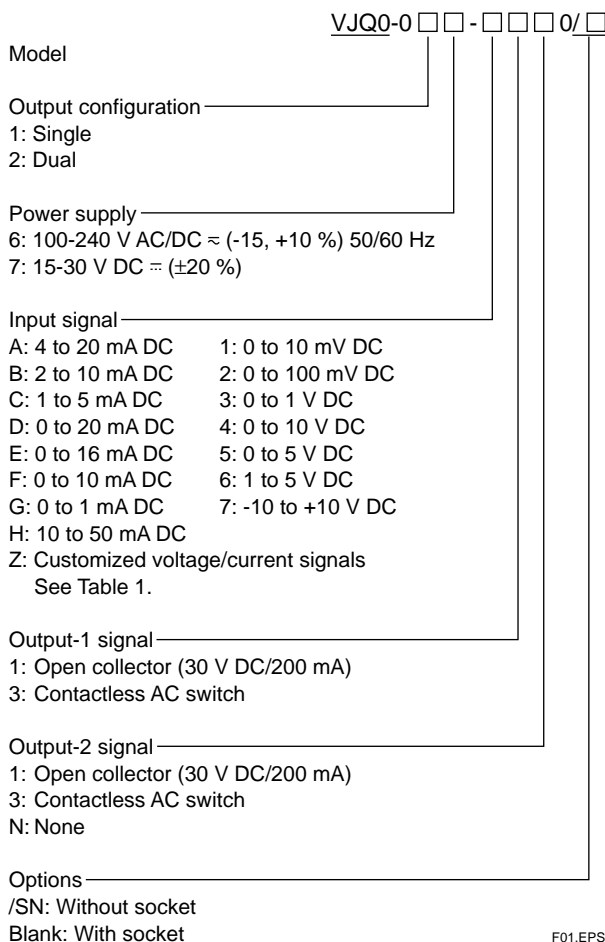
GS 77J01Q10-01E

General

The VJQ0 is a compact, plug-in analog to pulse converter that receives DC voltage or DC current signal and converts it into isolated pulse-train signal. The converter provides either open-collector output or contactless AC switch output.

- a wide choice of input signal ranges;
- a low-level cutoff function (which is set at 1% as standard, but can be set between 1% and 10%);
- four isolated ports (input, output-1, output-2, power supply and grounding) on a dual-output model;
- a withstanding voltage of 2000 V AC;
- a wide supply voltage range - supporting both 100 V and 200 V power lines of AC or DC; and
- close side-by-side mounting.

Model and Suffix Codes



Items to be specified when ordering

- Model and Suffix Code: e.g. VJQ0-026-A110
- Pulse width (ms): e.g. 10 ms for ON-state pulse
- Output frequency range: e.g. 0 to 30 Hz
- Low cut point (%): e.g. 3

* If no pulse width is specified, the product is shipped with the duty ratio set to 50%. If it is required the fixed pulse width, it is at the ON-state pulse width.

* If no low cut point (%) is specified, the product is shipped with the low cut point set to 1%.

Input/Output Specifications

Type of input: DC voltage or DC current signal

Input resistance:

Current Input	Voltage Input
250 Ω for 4 to 20 mA DC range	Approx. 1 MΩ for 0 to 10 mV DC range
500 Ω for 2 to 10 mA DC range	Approx. 1 MΩ for 0 to 100 mV DC range
1 kΩ for 1 to 5 mA DC range	Approx. 1 MΩ for 0 to 1 V DC range
250 Ω for 0 to 20 mA DC range	Approx. 1 MΩ for 0 to 10 V DC range
250 Ω for 0 to 16 mA DC range	Approx. 1 MΩ for 0 to 5 V DC range
500 Ω for 0 to 10 mA DC range	Approx. 1 MΩ for 1 to 5 V DC range
1 kΩ for 0 to 1 mA DC range	Approx. 1 MΩ for -10 to +10 V DC range
100 Ω for 10 to 50 mA DC range	(or 100 kΩ when turned off)

Low-level cutoff point: 1% as standard and user-selectable between 1% and 10%

Output signal form: Open collector or contactless AC switch; selected individually for output 1 and output 2, provided that output 2 and output 1 have the same pulse width and pulse rate.

Maximum allowable load: 30 V DC/200 mA for open-collector output
100 V AC/200 mA for contactless AC switch output

Output frequency range: 0 to 4000 Hz

Span range: 0.001 to 4000 Hz

Zero elevation: 0%

Pulse width: 50% duty ratio or a fixed width (that can be selected from eight options)
 Note that both outputs 1 and 2 have the same pulse width.

Output Pulse Width (T _w)	Frequency Range for 100% Output	
Fixed 50% duty ratio	0.001 Hz to 4 kHz	
Fixed pulse width	0.1 ms	0.001 Hz to 4 kHz
	0.5 ms	0.001 Hz to 1 kHz
	1 ms	0.001 to 500 Hz
	5 ms	0.001 to 100 Hz
	10 ms	0.001 to 50 Hz
	50 ms	0.001 to 10 Hz
	100 ms	0.001 to 5 Hz
	500 ms	0.001 to 1 Hz

For fixed pulse widths, the relationship between the pulse width (T_w) and the frequency for 100% output (F₁₀₀) is: $F_{100} \leq \{1/(2 \cdot T_w)\}$.

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Zero and span adjustment: Within ±1% of span for zero adjustment and within ±5% of span for span adjustment

■ Standard Performance

- Accuracy rating: ±0.1% of span (aside from the ±0.1% accuracy of the external resistor on current-input models)
- Response: 150 ms at a span of 100 Hz or greater or 1.5 s at a span smaller than 100 Hz for a 63% response (10 to 90% change of range)
- 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, output-2), power supply and grounding terminals mutually;
 1000 V AC for one minute between output-1 and output-2 terminals
- Operating temperature range: 0 to 50°C
- Operating humidity range: 5 to 90% RH (no condensation)
- Supply voltage range: 100-240 V AC/DC ≈ (-15, +10%)
 50/60 Hz or 15-30 V DC ∓ (±20%)
- Effects of power line regulation: Up to ±0.1% of span for a supply voltage range of 85 to 264 V AC (47 to 63 Hz), 85 to 264 V DC or 12 to 36 V DC
- Effects of ambient temperature variations: Up to ±0.2% of span per 10°C
- Power Dissipation: 24 V DC 1.8W
 100 V AC 3.7 VA, 200 V AC 5.0 VA

■ Conformance to EMC Standards

Applicable EMC standard: EN61326

CE-certified models mean those which are CE certified on condition that they be operated over a supply voltage range of 15-30 V DC \pm (\pm 20%) only; models that have contactless AC switch output are not CE certified.

■ Mounting and Appearance

Material: Modified Polyphenylene Oxide (Case body)
 Mounting: Wall mounting, DIN rail mounting, or mounting on a side-by-side multiple mounting base

Connection: Terminals with M3 size screws
 External dimensions: 76 (H) \times 29.5 (W) \times 124.5 (D) mm
 Weight: Main unit = approx. 122 g; socket = approx. 51 g

■ Accessories

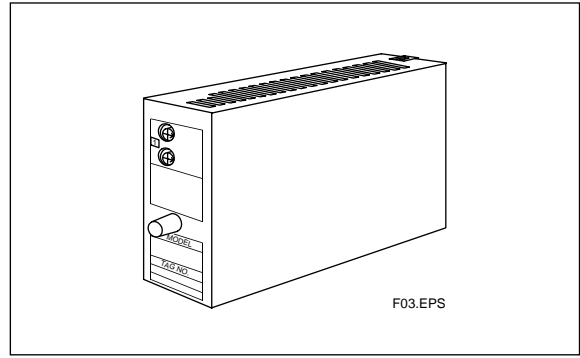
Tag number label: One
 Resistor module: One (for current input models)

■ Customized Signal Specifications

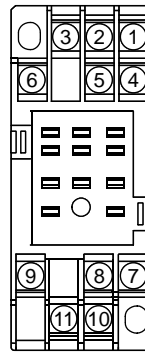
Table 1 Manufacturable Ranges

	Current Signal	Voltage Signal
Input range	0 to +150 mA DC	-10 to +10 V DC
Span	100 μ A to 150 mA DC	10 mV to 20 V DC
Zero elevation	0% to +73%	-80% to +73%

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■ Terminal Assignments

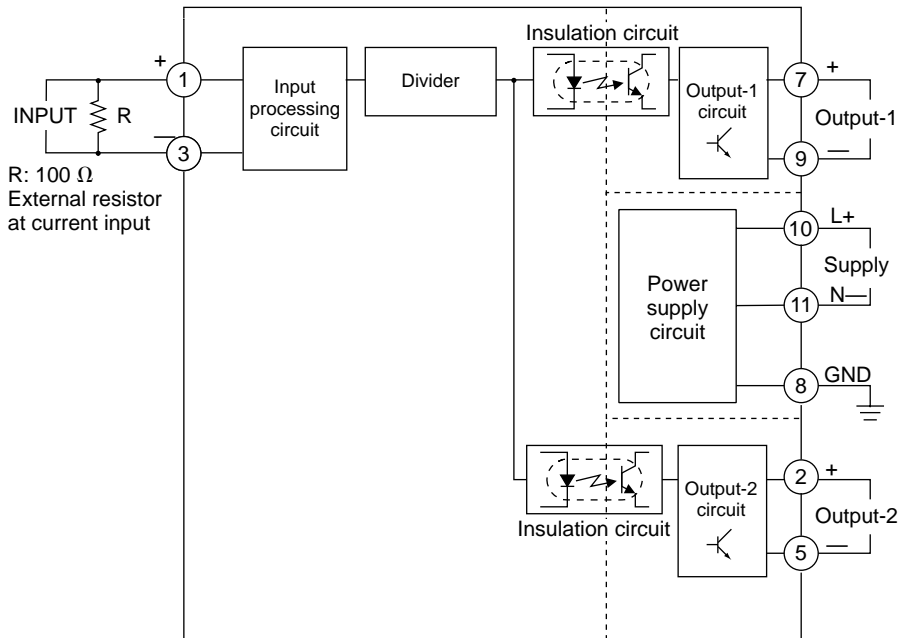


1	INPUT	(+)
2	OUTPUT 2	(+)
3	INPUT	(-)
4	N.C.	
5	OUTPUT 2	(-)
6	N.C.	
7	OUTPUT 1	(+)
8	GND	
9	OUTPUT 1	(-)
10	SUPPLY	(L+)
11	SUPPLY	(N-)

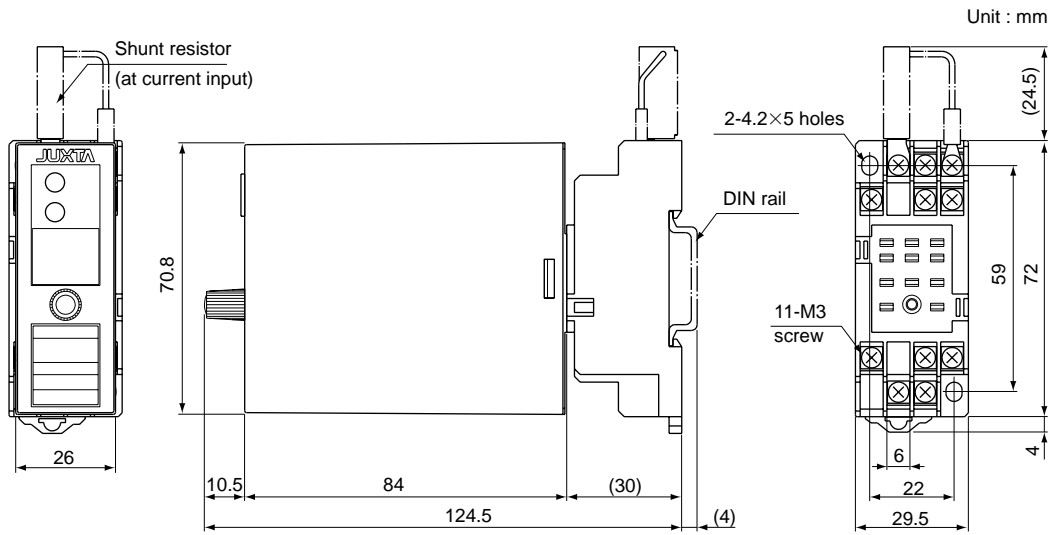
Note: For single-output models, OUTPUT2 is N.C.

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■ Block Diagrams



External Dimensions



- The information covered in this document is subject to change without notice for reasons of improvements in quality and/or performance.