

General Specifications

Models WQ2A, WQ2V Pulse to Analog Converter (Free Range Type)



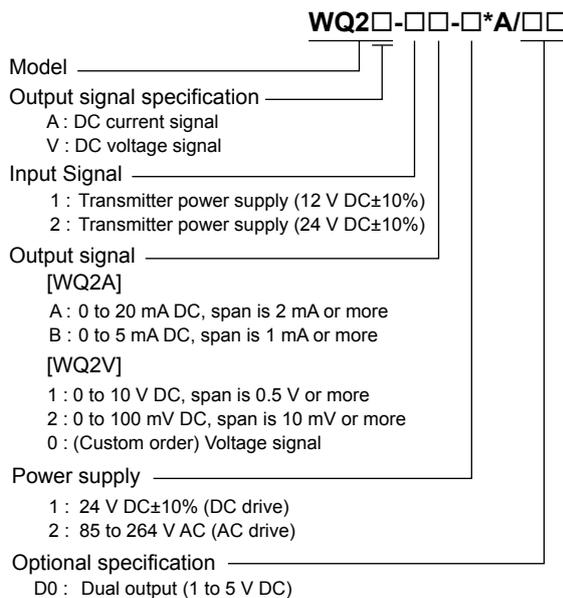
GS 77J09Q02-01E

■ General

The WQ2A/WQ2V is a compact, front terminal connection type pulse-to-analog converter that receives pulse-train signals and converts them into DC voltage or DC current signals proportional to the frequency.

- With built-in 12 V or 24 V power supply for pulse transmitter inputs.
- Input pulse types include current pulse, voltage pulse, non-voltage contact, and open collector contact.
- I/O range, input pulse width, and low cut point setting, zero/span adjustment and I/O monitoring can be made on-site, using the optional Parameter Setting Tool (VJ77) or Handy Terminal (JHT200).
- Internal filter can be set to eliminate chattering. (In cases where the input frequency range is up to 100Hz, the pulse width is 3ms or more)
- Dual output and 2000 V AC withstand voltage specifications are available upon requests.

■ Model and Suffix Codes



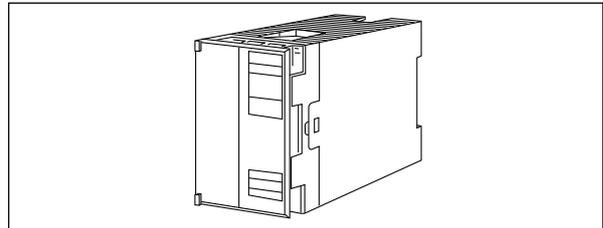
■ Ordering Information

Specify the following when ordering.

- Model and suffix codes: e.g. WQ2V-2A-2*A
 - Input range: e.g. 0 to 1000 Hz
 - Output range: e.g. 4 to 20 mA DC
 - Low cut point: e.g. 1 Hz
 - Input resistance: e.g. 200 Ω
 - Filter: e.g. No specification*
- *:In case the input frequency range is up to 100Hz (pulse width is 3ms or more), ON/OFF can be specified.

■ Input/Output Specifications

Input signal: Contact pulse, voltage pulse or current pulse



Input frequency: F_0 to F_{100} Hz
 $(0 \text{ Hz} \leq F_0 \leq F_{100}/2 \text{ Hz})$
 $(0.1 \text{ Hz} \leq F_{100} \leq 10 \text{ kHz})$
 $F_0=0\%$ input, $F_{100}=100\%$ input

Input resistance:
 Contact pulse or voltage pulse: 10 kΩ or more
 Current pulse: 200 Ω/500 Ω/1 kΩ
 (selectable with switch inside)

Input signal level:
 Low level (V_L): -1 to +8 V
 High level (V_H): 2 to 24 V
 Swing width: $V_H - V_L \geq 2V$

Input pulse width: Pulse width with a duty of 50±30% when the input is 100%

Transmitter power supply:
 12 V DC/30 mA or 24 V DC/30 mA

Output signal: DC current or DC voltage signal
 Output signal setting range and allowable load resistance:

Code	Setting range (DC)	Allowable load resistance
A	0 to 20 mA, span is 2 mA	15 V / 100% output (A) Ω or less
B	0 to 5 mA, span is 1 mA	
1	0 to 10 V DC, span is 0.5 V	10 kΩ or more
2	0 to 100mV, span is 10 mV	250 kΩ or more

Output adjustment: ±10% (Zero/Span)
 Span adjustment: 90 to 110%

■ Standard Performance

Accuracy rating: ±0.1% of span
 Accuracy is not guaranteed for output level less than 0.5% of the span of a 0 to X mA output range type.

The accuracy is limited according to output range setting.

Output accuracy

Code	Setting range (DC)	Output accuracy (%)
A	Span is less than 8 mA	$0.1 \times 8 / \text{Span (mA)}$
B	Span is less than 2 mA	$0.1 \times 2 / \text{Span (mA)}$
1	$V_{100} \leq 5V$ Span is less than 2 V	$0.1 \times 2 / \text{Span (V)}$
	$V_{100} > 5V$ Span is less than 4 V	$0.1 \times 4 / \text{Span (V)}$
2	$V_{100} \leq 50 \text{ mV}$ Span is less than 20 mV	$0.1 \times 20 / \text{Span (mV)}$
	$V_{100} > 50 \text{ mV}$ Span is less than 40 mV	$0.1 \times 40 / \text{Span (mV)}$

V_{100} : 100% output

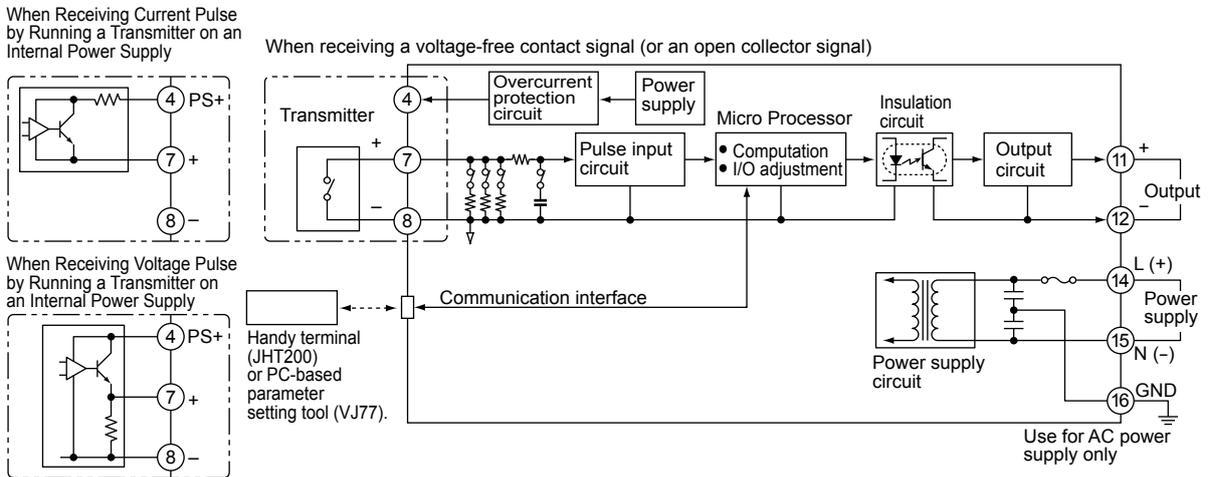
Dual output (optional): Relative error between output 1 and 2 is within ±0.2%. These outputs are not insulated.

- Response speed: 2 intervals of input + 50 ms, 63% response (10 to 90%)
- Insulation resistance: 100 MΩ or more at 500 V DC between input and output, input and power supply, input and ground, output and power supply, output and ground, and power supply and ground.
- DC drive 1500 V AC/min. between input and (output and power supply).
500 V AC/min. between output and power supply.
- AC drive 1500 V AC/min. between input and output, input and power supply, input and ground, output and power supply, output and ground, and power supply and ground.

■ Environmental Conditions

- Operating temperature range: 0 to 50°C
- Operating humidity range: 5 to 90% RH (no condensation)
- Power supply voltage: 85 to 264 V AC, 47 to 63Hz or 24 V DC±10%
- Effect of power supply voltage fluctuations: ±0.1% of span or less for fluctuation within the operating range of power supply voltage specification.
- Effect of ambient temperature change: ±0.2% of span or less for a temperature change of 10°C.
- Current consumption:
24 V DC 90 mA (WQ2A), 60 mA (WQ2V)
- Power consumption:
100 V AC 8 VA (WQ2A), 6 VA (WQ2V)

■ Block Diagram



■ Mounting and Dimensions

Material: ABS resin (Case body)
 Mounting method: Rack, Wall or DIN rail mounting
 Connection method: M4 screw terminals
 External dimensions: 72 (H) × 48 (W) × 127 (D) mm
 Weight: DC; Approx.200g, AC; Approx.300g

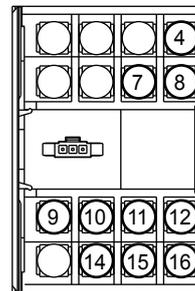
■ Standard Accessories

Tag number label: 1
 Mounting block: 2
 Mounting screw: M4 screw x 4

■ Custom Order Specifications

Output range (DC)	-10 to +10 V
Span (DC)	10 mV to 20 V
Zero elevation	-100 to +200%

■ Terminal Assignments



4	Input (PS+)
7	Input (+)
8	Input (-)
9	Output 2 (+)
10	Output 2 (-)
11	Output 1 (+)
12	Output 1 (-)
14	Supply (L+)
15	Supply (N-)
16	Ground (GND)*

Terminals ⑨—⑩ are used for Output 2 in case dual output is specified.

*: Use for AC power supply only

External Dimensions

