

General Specifications

Models FQ1A, FQ1V Pulse to Analog Converter



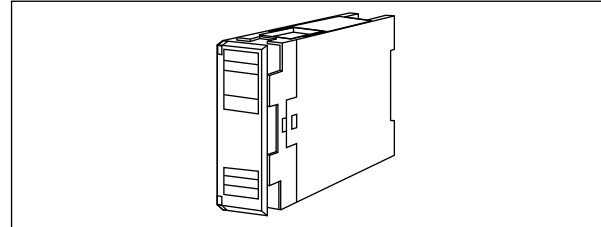
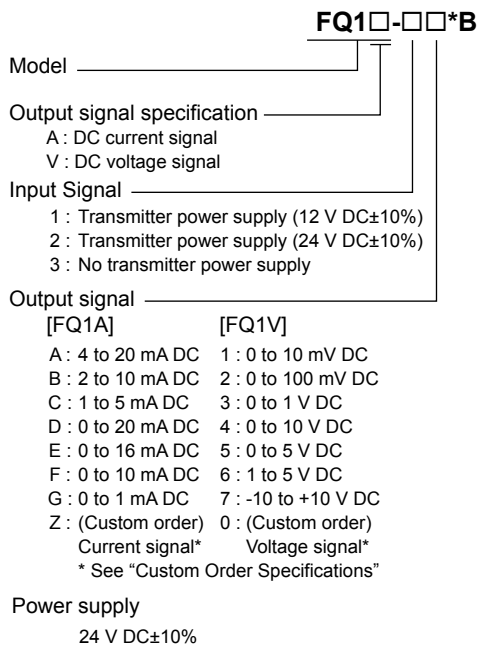
GS 77J08Q01-01E

General

The FQ1A/FQ1V is a compact, front terminal connection type pulse-to-analog converter that receives pulse-train signals and converts them into isolated DC voltage or DC current signals.

- 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.
- Internal filter to eliminate chattering can be specified when ordering. (In cases where the input frequency range is up to 100Hz, the pulse width is 3ms or more)

Model and Suffix Codes



Input resistance:

Contact pulse or voltage pulse: 10 kΩ
 Current pulse: 200 Ω/510Ω/1 kΩ
 (Customer may specify from the above on purchase order.)

Input signal level:

Low level (V_L): -1 to +8 V
 High level (V_H): 2 V or more
 Swing width: 2 to 50 V

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

Allowable load resistance:

DC current output	Allowable load resistance	DC voltage output	Allowable load resistance
4 to 20 mA	750 Ω or less	0 to 10 mV	250 kΩ or more
2 to 10 mA	1500 Ω or less	0 to 100 mV	250 kΩ or more
1 to 5 mA	3000 Ω or less	0 to 1 V	2 kΩ or more
0 to 20 mA	750 Ω or less	0 to 10 V	10 kΩ or more
0 to 16 mA	900 Ω or less	0 to 5 V	2 kΩ or more
0 to 10 mA	1500 Ω or less	1 to 5 V	2 kΩ or more
0 to 1 mA	15 kΩ or less	-10 to +10 V	10 kΩ or more

Zero adjustment: -5 to +5%

Span adjustment: 95 to 105%

Standard Performance

Accuracy rating: ±0.3% 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.

Response speed (63% response (10 to 90%)):

500 Hz span minimum: 600 ms
 500 Hz span maximum: 3 sec.

Insulation resistance: 100 MΩ or more at 500 V DC between input and output, output and power supply, and input and power supply.

Withstand voltage: 1500 V AC/min. between input and (output and power supply.)
 500 V AC/min. between output and power supply.

Ordering Information

Specify the following when ordering.

For current pulse input, the resistance can be selected from 200 Ω/510Ω/1 kΩ.

- Model and suffix codes :e.g. FQ1A-2A*B
- Input range :e.g. 0 1000 Hz
- Input resistance : e.g. 200 Ω
- Filter : e.g. No specification*

*: In cases where the input frequency range is up to 100Hz (pulse width is 3 ms or more), ON/OFF can be specified.

Input/Output Specifications

Input signal: Contact pulse, voltage pulse or current pulse

Input frequency: 0 to F₁₀₀ Hz (F₁₀₀=input frequency)
 (50 Hz ≤ F₁₀₀ ≤ 10 kHz)

■ Environmental Conditions

Operating temperature range: 0 to 50°C
 Operating humidity range: 5 to 90% RH (no condensation)
 Power supply voltage: 24 V DC±10% (percentage ripple is 5%p-p or less)
 Effect of power supply voltage fluctuations: ±0.1% of span or less for the 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 (FQ1A), 60 mA (FQ1V)

■ Mounting and Dimensions

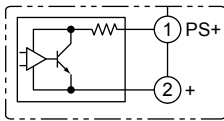
Material: ABS resin (Case body)
 Mounting method: Rack, Wall or DIN rail mounting
 Connection method: M4 screw terminals
 External dimensions: 72 (H) × 24 (W) × 127 (D) mm
 Weight: Weight: Approx.200g

■ Standard Accessories

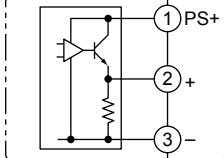
Tag number label: 1
 Mounting block: 2
 Mounting screw: M4 x 2

■ Block Diagram

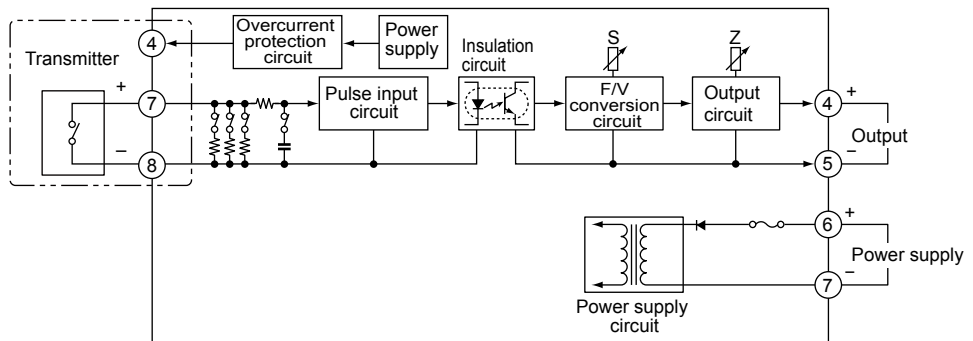
When receiving current pulse using internal resistor power supply



When receiving voltage pulse using internal transmitter power supply



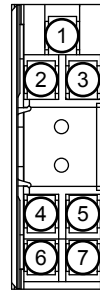
When receiving voltage-free contact signal or voltage pulse (where terminal 3 is the positive input (+), terminal 4 is the negative input (-) for voltage pulse)



■ Custom Order Specifications

Input range (DC)	0 to 10 kHz	
Span (DC)	50 Hz to 10 kHz	
Zero elevation	0% only	
	Current signal	Voltage signal
Output range (DC)	0 to 24 mA	-10 to +10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	-100 to +200%

■ Terminal Assignments



1	Input	(PS+)
2	Input	(+)
3	Input	(-)
4	Output	(+)
5	Output	(-)
6	Supply	(+)
7	Supply	(-)

■ External Dimensions

