

General Specifications

Model VJA5 Distributor (with Square Root Extractor) (Isolated Single-output and Isolated Dual-output Types)

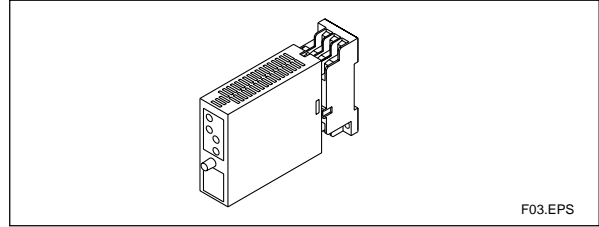


GS 77J01A05-01E

General

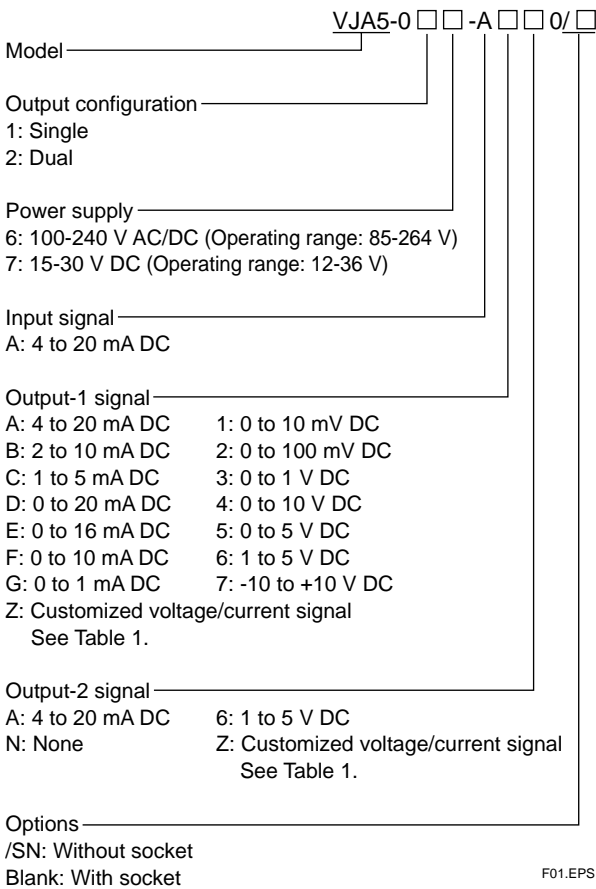
The VJA5 is a compact, plug-in type distributor that is used in combination with a two-wire type transmitter to calculate the square root of 4 to 20 mA DC input signals from the transmitter and then convert them into isolated DC current or DC voltage signals.

- Supports BARD-800.



F03.EPS

Model and Suffix Codes



F01.EPS

Items to be specified when ordering

- Model and Suffix Code: e.g. VJA5-026-AAA0

Input/Output Specifications

Input signal: 4 to 20 mA DC signal from two-wire type transmitter

Input resistance: 250 Ω

Transmitter power supply: 25.25±0.25 V DC (provided with a current limiter to keep the current between 25 and 35 mA)

Allowable conductor resistance (RL): Up to [(20 – transmitter's minimum operating voltage) / 0.02 A] Ω

Maximum allowable input current: 40 mA DC

Input compensation:

$$Y = \left[\frac{X - (0\% \text{ of input value})}{\text{Input span}} \right] \cdot (\text{Output span}) + (0\% \text{ of output value})$$

where

Y = Output signal value

X = Input signal value

(The low-level cutoff point is 1.0% of the input span.)

F02.EPS

Output signal: DC voltage or DC current signal

Allowable load resistance:

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

T02.EPS

Zero adjustment: -5 to +5%

Span adjustment: 95 to 105%

■ **Standard Performance**

Accuracy rating: ±0.1% of span; ±1% of span for input from 1% up to 2%; accuracy is not guaranteed for output levels less than 0.5% of the span of a 0 to X mA output range type.
Response speed: 150 ms, 63% response (10 to 90%)
Effects of power line regulation: Up to ±0.1% of span for the regulation within allowable range of each supply voltage range
Effects of ambient temperature vaiations: Up to ±0.15% of span per 10°C

■ **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 ... (±20%) only.

■ **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: 3.2 W at 24 V DC ; 3.1 W at 110 V DC; 6.1 VA at 100 V AC; 8.3 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**

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

■ **Mounting and Appearance**

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: Approx. 125 g (main unit), approx. 51 g (socket)

■ **Accessories**

Tag number label: One

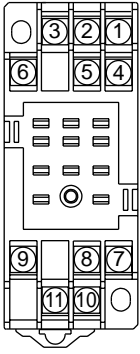
■ **Customized Signal Specifications**

Table 1 Manufacturable Ranges

	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%

T01.EPS

Terminal Assignments



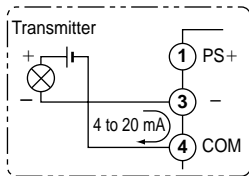
1	INPUT	(PS+)
2	OUTPUT-2	(+)
3	INPUT	(-)
4	INPUT	(COM)
5	OUTPUT-2	(-)
6	N.C.	
7	OUTPUT-1	(+)
8	GND	
9	OUTPUT-1	(-)
10	SUPPLY	(L+)
11	SUPPLY	(N-)

F03.EPS

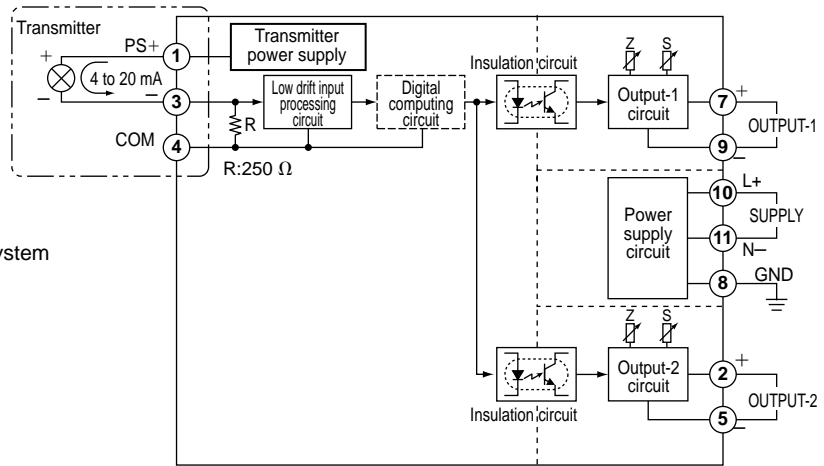
Note: For single-output type, OUTPUT-2 is N.C.

Block Diagrams

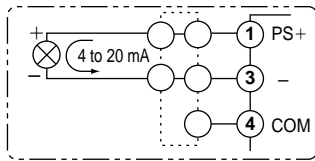
(1) Combination with two-wire type transmitter using external power supply



(3) Combination with two-wire type transmitter using internal power supply

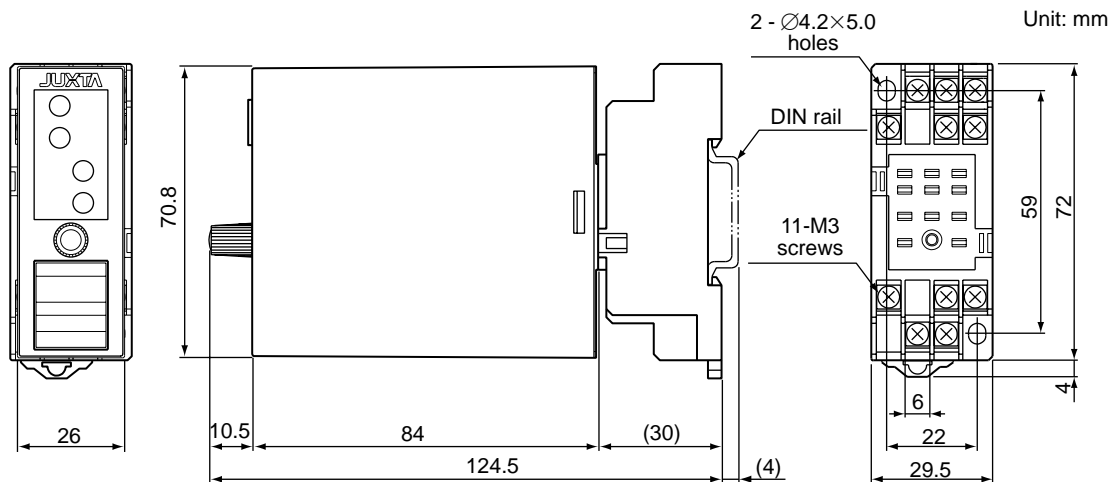


(2) Example to construct Intrinsically Safe System using Zener Barrier



F04.EPS

External Dimensions



F05.EPS

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