

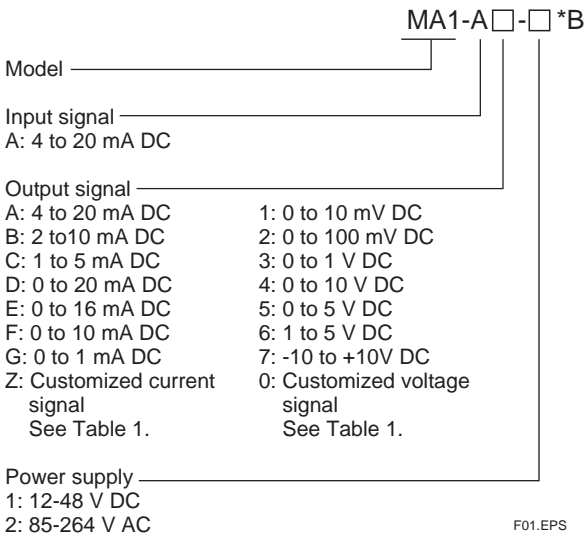
GS 77J04A01-01E

### General

The MA1 is a plug-in type distributor that is used in combination with a two-wire type transmitter to convert the transmitter's 4 to 20 mA DC signals into isolated DC current or DC voltage signals.

- Supports BARD-800.
- Provided with Power indicator lamp

### Model and Suffix Codes



### Items to be specified when ordering

- Model and Suffix Codes: e.g. MA1-A6-2\*B

### 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) V/0.02 A] Ω

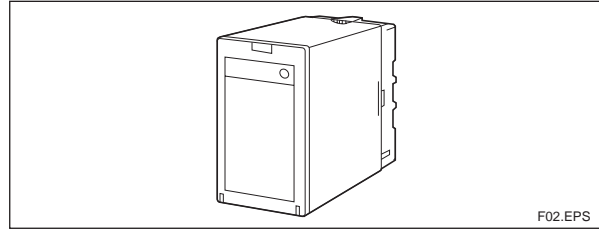
Maximum allowable input current: 40 mA DC

Output signal: DC voltage or DC current signal

Allowable load resistance:

Output Range	Allowable Load Resistance	Output 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

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Zero adjustment: -5 to +5%

Span adjustment: 95 to 105%

### Standard Performance

Accuracy rating: ±0.1% of span

Response speed: 150 ms, 63% response (10 to 90%)

Insulation resistance: 100 MΩ minimum at 500 V DC between input, output, power supply and grounding terminals mutually

Withstanding voltage: 2000 V AC for one minute between input, output, power supply and grounding terminals mutually

Operating temperature range: 0 to 50°C

Operating humidity range: 5 to 90% RH (no condensation)

Supply voltage range: 85-264 V AC 47-63 Hz or 12-48 V DC

Effects of power line regulation: Up to ±0.1% of span for the regulation of 85 to 264 V AC or 12 to 48 V DC

Effects of ambient temperature variations: Up to ±0.15% of span per 10°C

Power consumption: 2.6 W at 24 V DC; 4.9 VA at 100 V AC; 6.9 VA at 200 V AC

### Mounting and Appearance

Material: ABS resin (casing)

Mounting method: Wall or DIN rail mounting

More than 5 mm interval is required for side-by-side close mounting.

Connection method: M3.5 screw terminals

External dimensions: 85 (H)×51 (W)×123 (D) mm (including a socket)

Weight: Approx. 250 g (main unit), approx. 60 g (socket)

### Accessories

Spacer: One (used for DIN rail mounting)

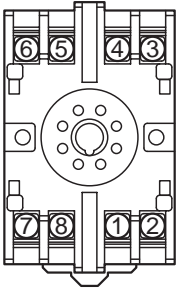
### Customized Signal Specifications

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%	-125 to +200%

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## Terminal Assignments

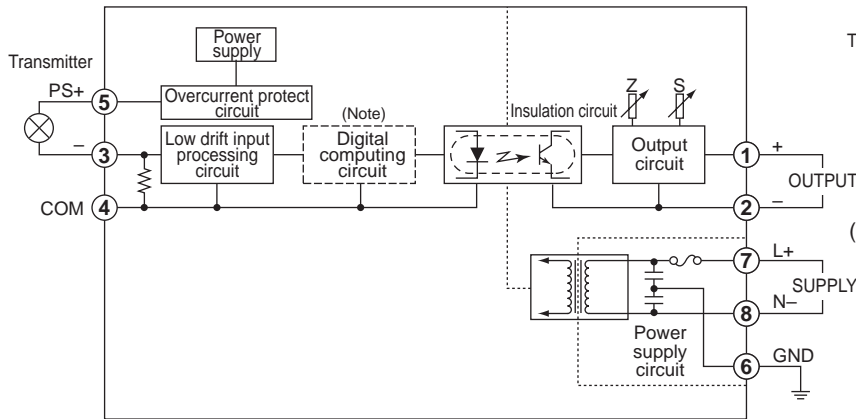


1	OUTPUT	(+)
2	OUTPUT	(-)
3	INPUT	(-)
4	INPUT	(COM)
5	INPUT	(PS+)
6	GND	
7	SUPPLY	(L+)
8	SUPPLY	(N-)

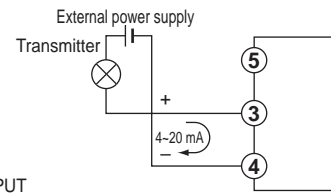
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## Block Diagrams

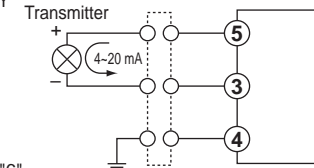
(1) Combination with two-wire type transmitter using internal power supply



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



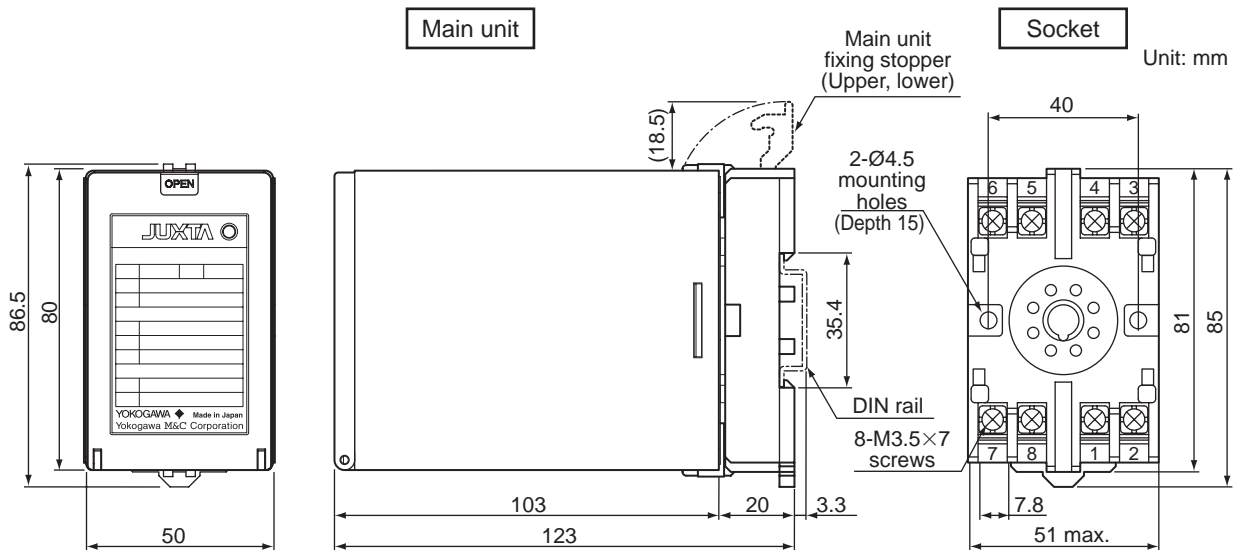
(3) Example to construct Intrinsically Safe System using Zener Barrier



Note: Digital computing circuit is added for the input/output suffix codes other than "A" and "6".

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## External Dimensions



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