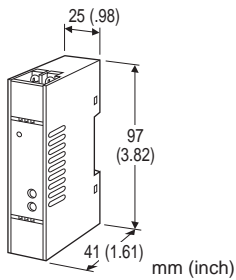


Super-mini Terminal Block Signal Conditioners M5-UNIT

FREQUENCY TRANSMITTER

Functions & Features

- Converts the output from a pulse-type transducer into a standard process signal
- High-density mounting
- Power LED
- CE marking for 24 V DC power



MODEL: M5PA-[1][2]-[3][4]

ORDERING INFORMATION

Specify a code from below for each [1] through [4].

- Code number: M5PA-[1][2]-[3][4]
(e.g. M5PA-CA-R/Q)

Specify variables.

- Frequency range (e.g. 0 - 1 kHz)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q
(e.g. /C01)

[1] INPUT

- A1:** Open collector
- A2:** Mechanical contact
- C:** 5 V pulse (sensitivity 2 V)
- D:** 12 V/24 V pulse (sensitivity 5 V)

[2] OUTPUT

Current

- A:** 4 - 20 mA DC (Load resistance 550 Ω max.)
- Z:** Specify current (See OUTPUT SPECIFICATIONS)

Voltage

- 4:** 0 - 10 V DC (Load resistance 1000 Ω min.)
- 5:** 0 - 5 V DC (Load resistance 500 Ω min.)
- 6:** 1 - 5 V DC (Load resistance 500 Ω min.)
- 4W:** -10 - +10 V DC (Load resistance 8000 Ω min.)
- 5W:** -5 - +5 V DC (Load resistance 4000 Ω min.)
- 0:** Specify voltage (See OUTPUT SPECIFICATIONS)

[3] POWER INPUT

AC Power

M: 85 - 264 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)
(CE not available)

DC Power

R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[4] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to M-System's web site.)

- /C01:** Silicone coating
- /C02:** Polyurethane coating
- /C03:** Rubber coating

GENERAL SPECIFICATIONS

- Construction:** Terminal block
- Connection:** M3.5 screw terminals (torque 0.8 N·m)
- Screw terminal:** Nickel-plated steel
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Zero adjustment:** -2 to +2 % (front)
- Span adjustment:** 98 to 102 % (front)
- Chattering protection:** Filter provided for mechanical contact input
- Power LED:** Green light turns on when the power is supplied.

INPUT SPECIFICATIONS

■ Open Collector

- Frequency range:** 0 - 0.01 Hz through 100 kHz
- Pulse width time requirement:** ≥ 4 μsec. for both ON and OFF
- Sensing voltage/current:** 5 V DC @2 mA
- Detecting levels:** ≤ 0.7 V / 350 Ω for ON; ≥ 4 V / 10 kΩ for OFF

■ Mechanical Contact

- Frequency range:** 0 - 0.01 Hz through 30 Hz
- Pulse width time requirement:** ≥ 10 msec. for both ON and OFF
- Sensing voltage/current:** 5 V DC @2 mA
- Detecting levels:** ≤ 0.7 V / 350 Ω for ON; ≥ 4 V / 10 kΩ for OFF

■ Voltage Pulse

- Frequency range:** 0 - 0.01 Hz through 100 kHz
- Pulse width time requirement:** ≥ 4 μsec. for both H and L levels



Waveform: Square or sine

Input impedance: $\geq 10\text{ k}\Omega$

Max. voltage between input terminals: $\pm 50\text{ V}$

Detecting H level

5 V pulse: $\geq 3\text{ V}$

12 V, 24 V pulse: $\geq 6\text{ V}$

Detecting L level

5 V pulse: $\leq 1\text{ V}$

12 V, 24 V pulse: $\leq 4\text{ V}$

OUTPUT SPECIFICATIONS

■ **DC Current:** 0 - 20 mA DC

Minimum span: 1 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 11 V max.

■ **DC Voltage:** 0 - 10 V DC

Minimum span: 1 V

Offset: Max. 1.5 times span

Load resistance: Output drive 10 mA max.; at $\geq 1\text{ V}$

INSTALLATION

Power Consumption

• **AC:**

Approx. 2 VA at 100 V

Approx. 3 VA at 200 V

Approx. 3 VA at 264 V

• **DC:** Approx. 2 W

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 0 to 90 %RH (non-condensing)

Mounting: DIN rail

Weight: 80 g (2.8 oz)

PERFORMANCE in percentage of span

Accuracy: $\pm 0.1\%$

Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ ($\pm 0.008\%/^{\circ}\text{F}$)

Response time: Max. 0.5 sec. + 1 pulse cycle (0 - 90 %)

Line voltage effect: $\pm 0.1\%$ over voltage range

Insulation resistance: $\geq 100\text{ M}\Omega$ with 500 V DC

Dielectric strength (input to output to power to ground)

DC powered: 2000 V AC @1 minute

AC powered: 1500 V AC @1 minute

STANDARDS & APPROVALS

CE conformity:

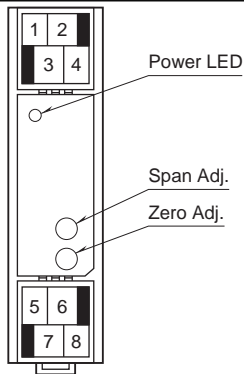
EMC Directive (2004/108/EC)

EMI EN 61000-6-4: 2007

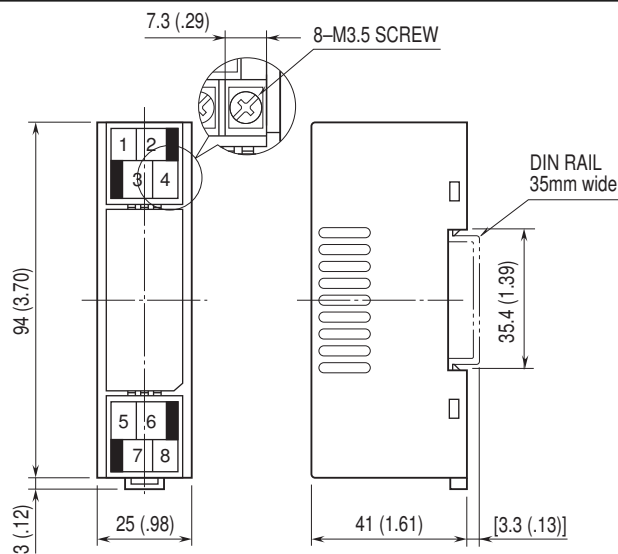
EMS EN 61000-6-2: 2005



FRONT VIEW

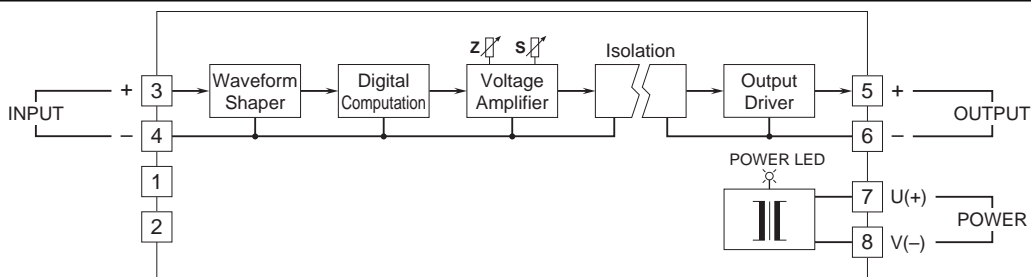


DIMENSIONS unit: mm (inch)



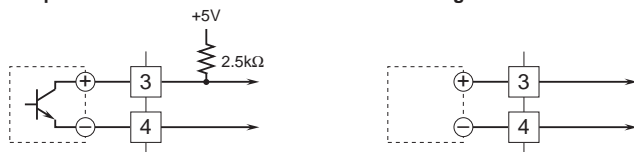
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Input Connection Examples

■ Open Collector or Mechanical Contact ■ Voltage Pulse





Specifications are subject to change without notice.



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