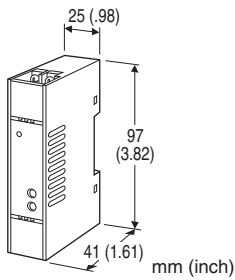


## Super-mini Terminal Block Signal Conditioners M5-UNIT

### FREQUENCY TRANSMITTER

#### Functions & Features

- Converts the output from a pulse-type transducer into a standard process signal
- High-density mounting
- Power LED



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

#### ORDERING INFORMATION

- Code number: M5PA-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].  
(e.g. M5PA-CA-R/Q)
- Frequency range (e.g. 0 - 1 kHz)
- Special output range (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

#### [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 or UKCA 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 (multiple selections)

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

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

##### TERMINAL SCREW MATERIAL

- /S01:** Stainless steel

#### GENERAL SPECIFICATIONS

- Construction:** Terminal block
- Connection:** M3.5 screw terminals (torque 0.8 N·m)
- Screw terminal:** Nickel-plated steel (standard) or stainless steel
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Overrange output:** Approx. 0 to 110 % at 1 - 5 V
- Zero adjustment:** -2 to +2 % (front)
- Span adjustment:** 98 to 102 % (front)
- Chattering protection:** Filter provided for mechanical contact input
- Power indicator LED:** Green LED 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

OFF

■ **Voltage Pulse**  
Frequency range: 0 - 0.01 Hz through 100 kHz  
Pulse width time requirement:  $\geq 4 \mu\text{sec.}$  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:  $\leq 4 \text{ V}$

EMI EN 61000-6-4  
EMS EN 61000-6-2  
RoHS Directive  
**UK conformity (UKCA):**  
The UK legislations and designated standards are equivalent to the applicable EU directives.  
(Refer to M-System's website for more information about the legislations and designated standards.)

## 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)

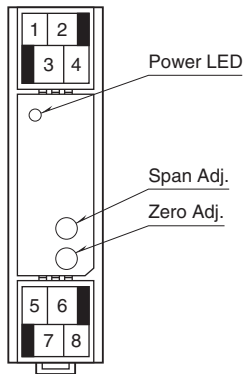
## PERFORMANCE in percentage of span

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

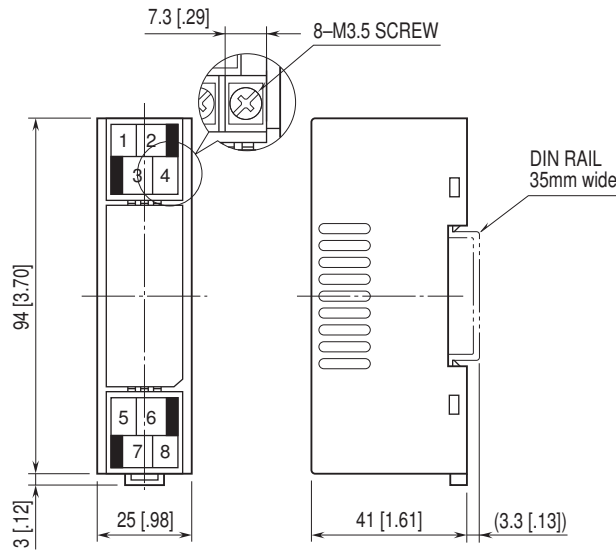
## STANDARDS & APPROVALS

EU conformity:  
EMC Directive

## FRONT VIEW

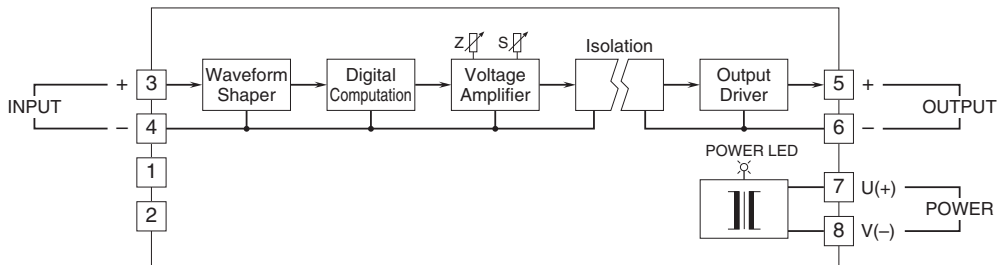


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



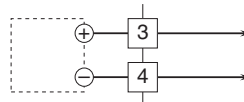
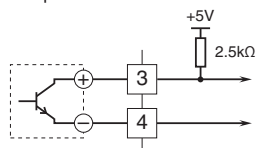
• When mounting, no extra space is needed between units.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Input Connection Examples

■ Open Collector or Mechanical Contact    ■ Voltage Pulse





Specifications are subject to change without notice.