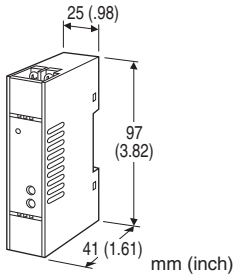
Super-mini Terminal Block Signal Conditioners M5-UNIT

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

■ **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: ≥ 10 kΩ

Max. voltage between input terminals: ±50 V

Detecting H level

5 V pulse: ≥ 3 V

12 V, 24 V pulse: ≥ 6 V

Detecting L level

5 V pulse: ≤ 1 V

12 V, 24 V pulse: ≤ 4 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 ≥ 1 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: ±0.1 %

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

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

Line voltage effect: ±0.1 % over voltage range

Insulation resistance: ≥ 100 MΩ 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

EMI EN 61000-6-4

EMS EN 61000-6-2

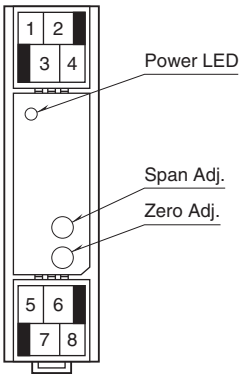
RoHS Directive

UK conformity (UKCA):

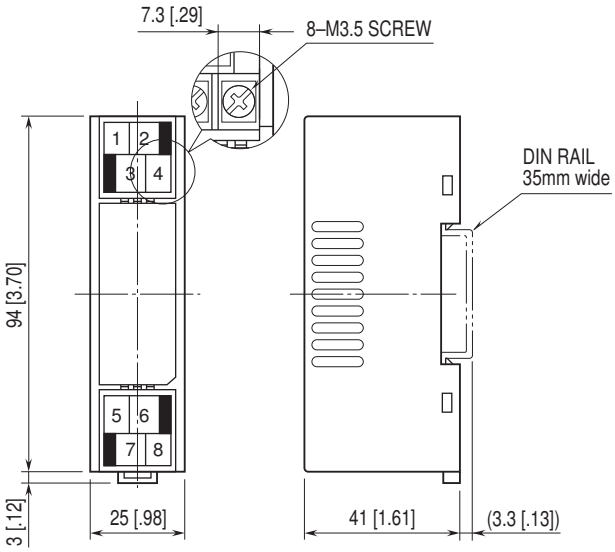
The UK legislations and designated standards are equivalent to the applicable EU directives.

(Refer to M-System's website for more information about the legislations and designated standards.)

FRONT VIEW

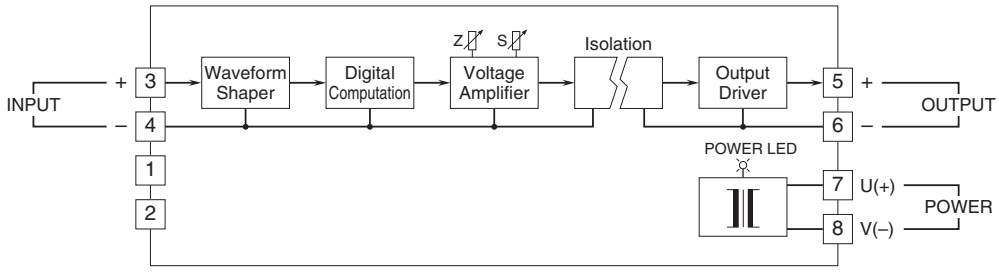


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



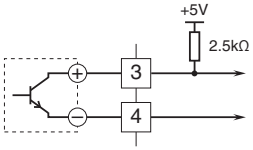
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

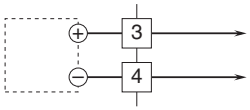


Input Connection Examples

■ Open Collector or Mechanical Contact



■ Voltage Pulse



⚠ Specifications are subject to change without notice.

M-SYSTEM CO., LTD.
http://www.m-system.co.jp/