

**Super-mini Signal Conditioners Mini-M Series**

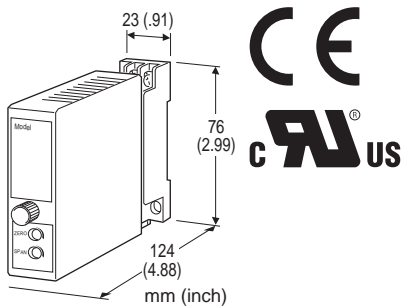
**TACHOGENERATOR TRANSMITTER**

**Functions & Features**

- Converts an AC voltage from a tachogenerator (tachometer) into a standard process signal
- Wide input range
- CE marking
- UL approval

**Typical Applications**

- Measuring rotating or moving speed of multispeed motors, belt conveyers, metering pumps



**MODEL: M2TG-[1][2]-[3][4]**

**ORDERING INFORMATION**

- Code number: M2TG-[1][2]-[3][4]
- Specify a code from below for each [1] through [4]. (e.g. M2TG-AA-M2/CE/Q)
- Special input and output ranges (For codes U, Z&0)
- Specify the specification for option code /Q (e.g. /C01/S01)

**[1] INPUT**

**Voltage**

- 1: 0 - 35 V AC (Input resistance 100 kΩ min.)
- 2: 0 - 50 mV AC (Input resistance 100 kΩ min.)
- 3: 0 - 60 mV AC (Input resistance 100 kΩ min.)
- 4: 0 - 100 mV AC (Input resistance 100 kΩ min.)
- 5: 0 - 1 V AC (Input resistance 100 kΩ min.)
- 6: 0 - 10 V AC (Input resistance 100 kΩ min.)
- 7: 0 - 100 V AC (Input resistance 100 kΩ min.)
- 8: 0 - 110 V AC (Input resistance 100 kΩ min.)
- 9: 0 - 150 V AC (Input resistance 100 kΩ min.)
- A: 0 - 200 V AC (Input resistance 100 kΩ min.)
- B: 0 - 250 V AC (Input resistance 100 kΩ min.)
- U: Specify voltage (0 % input must be 0 V.)

**[2] OUTPUT**

**Current**

- A: 4 - 20 mA DC (Load resistance 750 Ω max.)
- B: 2 - 10 mA DC (Load resistance 1500 Ω max.)
- C: 1 - 5 mA DC (Load resistance 3000 Ω max.)
- D: 0 - 20 mA DC (Load resistance 750 Ω max.)
- E: 0 - 16 mA DC (Load resistance 900 Ω max.)
- F: 0 - 10 mA DC (Load resistance 1500 Ω max.)
- G: 0 - 1 mA DC (Load resistance 15 kΩ max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

**Voltage**

- 1: 0 - 10 mV DC (Load resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Load resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Load resistance 1000 Ω min.)
- 4: 0 - 10 V DC (Load resistance 10 kΩ min.)
- 5: 0 - 5 V DC (Load resistance 5000 Ω min.)
- 6: 1 - 5 V DC (Load resistance 5000 Ω min.)
- 4W: -10 - +10 V DC (Load resistance 10 kΩ min.)
- 5W: -5 - +5 V DC (Load resistance 5000 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)

(Select '/N' for 'Standards & Approvals' code.)

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

(90 - 264 V for UL)

**DC Power**

R: 24 V DC

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

R2: 11 - 27 V DC

(Operational voltage range 11 - 27 V, ripple 10 %p-p max.)

(Select '/N' for 'Standards & Approvals' code.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

(110 V ±10 % for UL)

**[4] OPTIONS (multiple selections)**

**STANDARDS & APPROVALS (must be specified)**

/N: Without CE or UL

/CE: CE marking

/UL: UL approval (CE marking)

**OTHER OPTIONS**

blank: none

/Q: Option other than the above (specify the specification) (UL not available)

## 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:** Plug-in

**Connection:** M3 screw terminals (torque 0.8 N·m)

**Housing material:** Flame-resistant resin (black)

**Isolation:** Input to output to power

**Overrange output:** 0 to 120 % at 1 - 5 V

**Zero adjustment:** -5 to +5 % (front)

**Span adjustment:** 95 to 105 % (front)

## INPUT SPECIFICATIONS

• **AC Voltage:** 0 - 250 V AC

**Minimum span:** 50 mV

**Frequency:** 15 Hz min., 1 kHz max. with 100 % input

**Input resistance:**  $\geq 100 \text{ k}\Omega$

## OUTPUT SPECIFICATIONS

• **DC Current:** 0 - 20 mA DC

**Minimum span:** 1 mA

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 15 V max.

• **DC Voltage:** -10 - +12 V DC

**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 1 mA max.; at  $\geq 0.5 \text{ V}$

## INSTALLATION

### Power Consumption

• **AC Power input:**

Approx. 3 VA at 100 V

Approx. 4 VA at 200 V

Approx. 5 VA at 264 V

• **DC Power input:** Approx. 3 W

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

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail

**Weight:** 150 g (0.33 lbs)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.4 \%$

**Temp. coefficient:**  $\pm 0.05 \%/^{\circ}\text{C}$  ( $\pm 0.03 \%/^{\circ}\text{F}$ )

**Response time:**  $\leq 0.7 \text{ sec.}$  (0 - 90 %)

**Ripple:** 0.5 %p-p max. (100/120 Hz)

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

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

**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

## STANDARDS & APPROVALS

### CE conformity:

EMC Directive (2004/108/EC)

EN 61000-6-4 (EMI)

EN 61000-6-2 (EMS)

Low Voltage Directive (2006/95/EC)

EN 61010-1

Installation Category II

Pollution Degree 2

Max. operating voltage 300 V

Input or output to power: Reinforced insulation

Input to output: Basic insulation

### Approval:

UL/C-UL nonincendive Class I, Division 2,

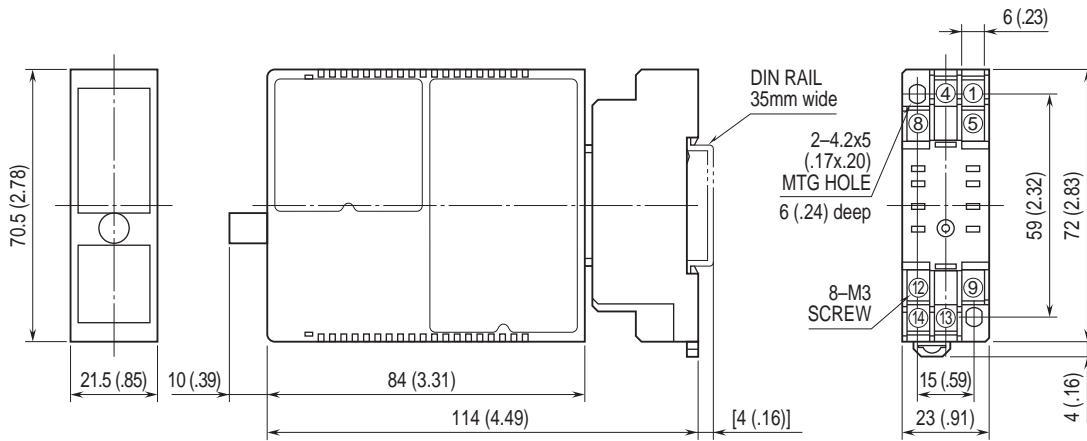
Groups A, B, C, and D hazardous locations

(UL 1604, CAN/CSA-C22.2 No.213)

UL/C-UL general safety requirements

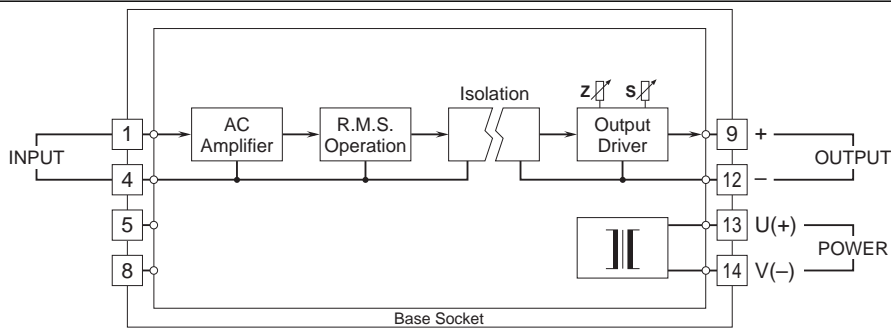
(UL 61010B-1, CAN/CSA-C22.2 No.1010-1)

## DIMENSIONS unit: mm (inch)



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.