

**Plug-in Signal Conditioners M-UNIT**

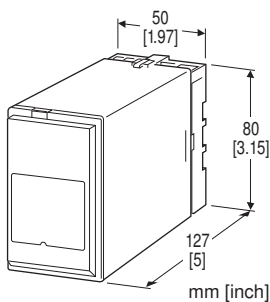
**PULSE DURATION TRANSMITTER**

**Functions & Features**

- Converting a DC input into an output pulse
- The duration or "ON" time is linearly proportional to the input analog signal amplitude
- Frame duration adjustable
- High-density mounting

**Typical Applications**

- Transmission or telemetering
- Proportional ON-OFF control to operate solenoid valves or other similar final control elements



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

**ORDERING INFORMATION**

- Code number: MTD-[1]4-[2][3]
- Specify a code from below for each of [1] through [3]. (e.g. MTD-A4-K/Q)
- Special input range (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

**[1] INPUT**

Current

- A:** 4 - 20 mA DC (Input resistance 250 Ω)
- A1:** 4 - 20 mA DC (Input resistance 50 Ω)
- B:** 2 - 10 mA DC (Input resistance 500 Ω)
- C:** 1 - 5 mA DC (Input resistance 1000 Ω)
- D:** 0 - 20 mA DC (Input resistance 50 Ω)
- E:** 0 - 16 mA DC (Input resistance 62.5 Ω)
- F:** 0 - 10 mA DC (Input resistance 100 Ω)
- G:** 0 - 1 mA DC (Input resistance 1000 Ω)
- H:** 10 - 50 mA DC (Input resistance 100 Ω)
- Z:** Specify current (See INPUT SPECIFICATIONS)

Voltage

- 1:** 0 - 10 mV DC (Input resistance 10 kΩ min.)
- 2:** 0 - 100 mV DC (Input resistance 100 kΩ min.)

- 3:** 0 - 1 V DC (Input resistance 1 MΩ min.)
- 4:** 0 - 10 V DC (Input resistance 1 MΩ min.)
- 5:** 0 - 5 V DC (Input resistance 1 MΩ min.)
- 6:** 1 - 5 V DC (Input resistance 1 MΩ min.)
- 4W:** -10 - +10 V DC (Input resistance 1 MΩ min.)
- 0:** Specify voltage (See INPUT SPECIFICATIONS)

**OUTPUT**

**4:** 24 V voltage pulse

**[2] POWER INPUT**

AC Power

**K:** 85 - 132 V AC

(Operational voltage range 85 - 132 V, 47 - 66 Hz)

**L:** 170 - 264 V AC

(Operational voltage range 170 - 264 V, 47 - 66 Hz)

**[3] OPTIONS**

**blank:** none

**/Q:** With options (specify the specification)

**SPECIFICATIONS OF OPTION: Q (multiple selections)**

**COATING** (For the detail, refer to our web site.)

**/C01:** Silicone coating

**/C02:** Polyurethane coating

**/C03:** Rubber coating

**TERMINAL SCREW MATERIAL**

**/S01:** Stainless steel

**GENERAL SPECIFICATIONS**

**Construction:** Plug-in

**Connection:** M3.5 screw terminals

**Screw terminal:** Chromated steel (standard) or stainless steel

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

**Frame duration:** 0.1 - 102.4 sec. adjustable

**Preselection:** Front-accessed rotary switch

**Fine adjustment:** Front-accessed potentiometer

**Isolation:** Input to output to power

**Zero adjustment:** 0 - 20 % (front)

**Span adjustment:** 80 - 100 % (front)

**INPUT SPECIFICATIONS**

**DC Current:**

Shunt resistor attached to the input terminals (0.5 W)

Specify input resistance value for code Z.

**DC Voltage:** -300 - +300 V DC

**Minimum span:** 10 mV

**Offset:** Max. 1.5 times span

**Input resistance**

Span 10 - 100 mV :  $\geq 10 \text{ k}\Omega$

Span 0.1 - 1 V :  $\geq 100 \text{ k}\Omega$

Span  $\geq 1 \text{ V}$  :  $\geq 1 \text{ M}\Omega$

## OUTPUT SPECIFICATIONS

### ■ Voltage Pulse

**High pulse width:** Duty cycle 0 - 100 %

**High level:** 24 V  $\pm 2$  V

**Low level:** 0 V  $\pm 1$  V

**Maximum current:** 50 mA at high level

**Load resistance:** 480  $\Omega$  min.

### Output frames

PRESELECTION SWITCH POSITION (FR SEL)	ADJUSTABLE RANGE BY POTENTIOMETER (FRAME)
0	0.1 to 0.2 seconds
1	0.2 to 0.4 seconds
2	0.4 to 0.8 seconds
3	0.8 to 1.6 seconds
4	1.6 to 3.2 seconds
5	3.2 to 6.4 seconds
6	6.4 to 12.8 seconds
7	12.8 to 25.6 seconds
8	25.6 to 51.2 seconds
9	51.2 to 102.4 seconds

Ex-factory setting: Preselection Switch = 3, Frame = 1.0 sec., Zero/Span = Output 1 - 99% with the input 1 - 99%.

## INSTALLATION

### Power consumption

•AC: Approx. 2.5 VA

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

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

**Mounting:** Surface or DIN rail

**Weight:** 400 g (0.88 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1$  % or 1 msec., whichever is greater, with output duration 1 - 99 %

**Temp. coefficient:**  $\pm 0.015$  %/°C ( $\pm 0.008$  %/°F)

**Response time:**  $\leq 0.5$  sec. (0 - 90 %)

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

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

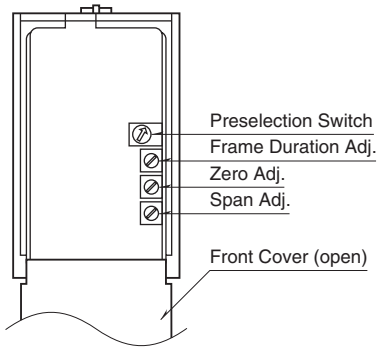
**Dielectric strength:** 1000 V AC @1 minute

(input to output to power)

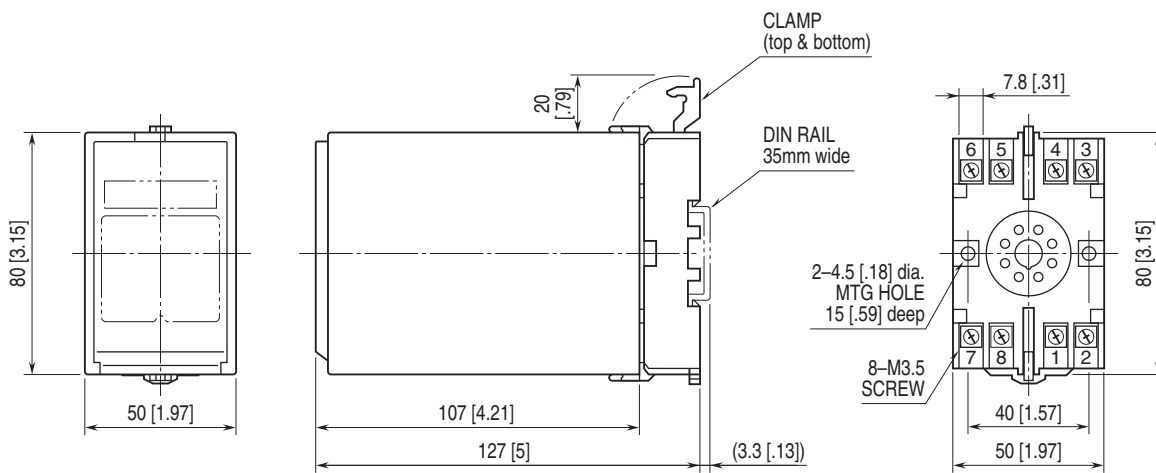
2000 V AC @1 minute

(input or output or power to ground)

## EXTERNAL VIEW

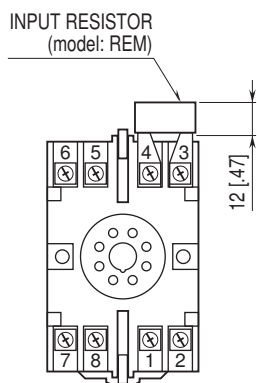


## EXTERNAL DIMENSIONS unit: mm [inch]



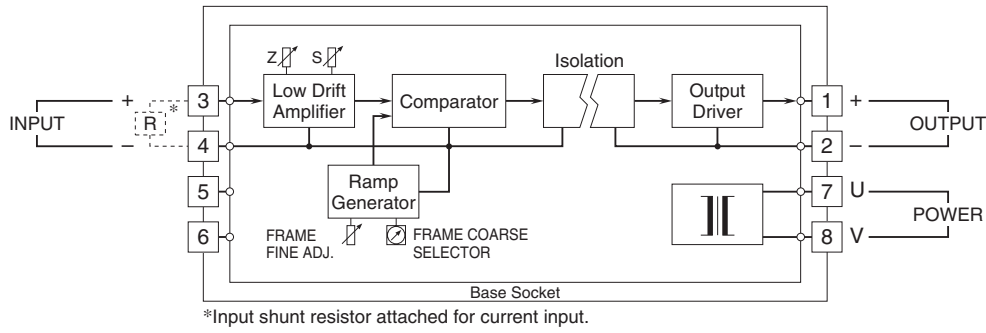
• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm [inch]



Input shunt resistor attached for current input.

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.