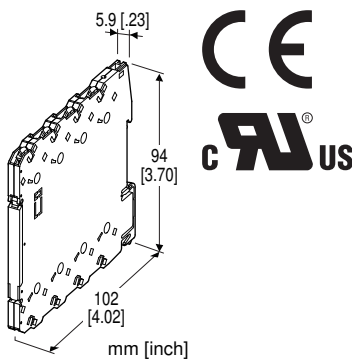


## Tension-Clamp Ultra-Slim Signal Conditioners M6S Series

### FREQUENCY TRANSMITTER

#### Functions & Features

- Maintenance-free tension clamp connection
- 5.9-mm wide ultra-slim design
- Low profile allows the M6S module mounted in a 120-mm deep panel
- Converts the output from a pulse-type transducer into a standard process signal
- High-density mounting
- Power indicator LED



### MODEL: M6SPA-[1][2]-R[3]

#### ORDERING INFORMATION

- Code number: M6SPA-[1][2]-R[3]
- Specify a code from below for each of [1] through [3].  
(e.g. M6SPA-CA-R/UL/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)

#### [1] INPUT

- A1:** Open collector
- A2:** Mechanical contact
- C:** 5 V pulse (sensitivity 2 V)
- D:** 24 V pulse (sensitivity 10 V)

#### [2] OUTPUT

- Current
- A:** 4 - 20 mA DC (Load resistance 550  $\Omega$  max.)
  - Z:** Specify current (See OUTPUT SPECIFICATIONS)
- Voltage
- 4:** 0 - 10 V DC (Load resistance 10 k $\Omega$  min.)
  - 5:** 0 - 5 V DC (Load resistance 5000  $\Omega$  min.)

- 6:** 1 - 5 V DC (Load resistance 5000  $\Omega$  min.)
- 4W:** -10 - +10 V DC (Load resistance 20 k $\Omega$  min.)
- 5W:** -5 - +5 V DC (Load resistance 10 k $\Omega$  min.)
- 0:** Specify voltage (See OUTPUT SPECIFICATIONS)

#### POWER INPUT

- DC Power
- R:** 24 V DC  
(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

#### [3] OPTIONS (multiple selections)

- Standards & Approvals
- blank:** CE marking
- /UL:** UL approval, CE marking
- Other Options
- blank:** none
- /Q:** Option other than the above (specify the specification)

#### SPECIFICATIONS OF OPTION: Q

- COATING (For the detail, refer to our web site.)
- /C01:** Silicone coating
- /C02:** Polyurethane coating

#### GENERAL SPECIFICATIONS

- Connection**
- Input and output:** Tension clamp
- Power input:** Via the Installation Base (model: M6SBS) or Tension clamp
- Applicable wire size:** 0.2 to 2.5 mm<sup>2</sup>, stripped length 8 mm
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Zero adjustment:** -2 to +2 % (front)  
(Output code 4W, 5W: Adjustable at 0V.)
- 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:**  $\geq 4 \mu\text{sec.}$  for both H and L levels

**Sensing voltage/current:** 2.5 V DC @1 mA (approx.)

**Detecting levels:**  $\leq 750 \Omega/0.75 \text{ V}$  for ON;  
 $\geq 3 \text{ k}\Omega/1.6 \text{ V}$  for OFF

### ■ Mechanical Contact

**Frequency range:** 0 - 0.01 Hz through 30 Hz

**Pulse width time requirement:**  $\geq 10 \text{ msec.}$  for both ON and OFF

**Sensing voltage/current:** 2.5 V DC @1 mA (approx.)

**Detecting levels:**  $\leq 750 \Omega/0.75 \text{ V}$  for ON;  
 $\geq 3 \text{ k}\Omega/1.6 \text{ V}$  for 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:  $\geq 3 \text{ V}$

24 V pulse:  $\geq 14 \text{ V}$

### Detecting L level

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

24 V pulse:  $\leq 6 \text{ V}$

## OUTPUT SPECIFICATIONS

■ **DC Current:** 2 - 20 mA DC (and 0 - 1 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 1 mA max.; at  $\geq 1 \text{ V}$

## INSTALLATION

**Power consumption:** Approx. 0.5 W

**Operating temperature:** -20 to +55°C (-4 to +131°F)

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

**Mounting:** Installation Base (model: M6SBS) or DIN rail

**Weight:** 60 g (2.1 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:** 2000 V AC @1 minute (input to output to power to ground)

## STANDARDS & APPROVALS

### EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

### Approval:

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

Groups A, B, C, and D hazardous locations

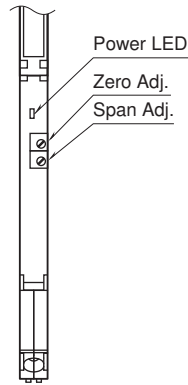
(ANSI/ISA-12.12.01, CAN/CSA-C22.2 No.213)

UL/C-UL general safety requirements

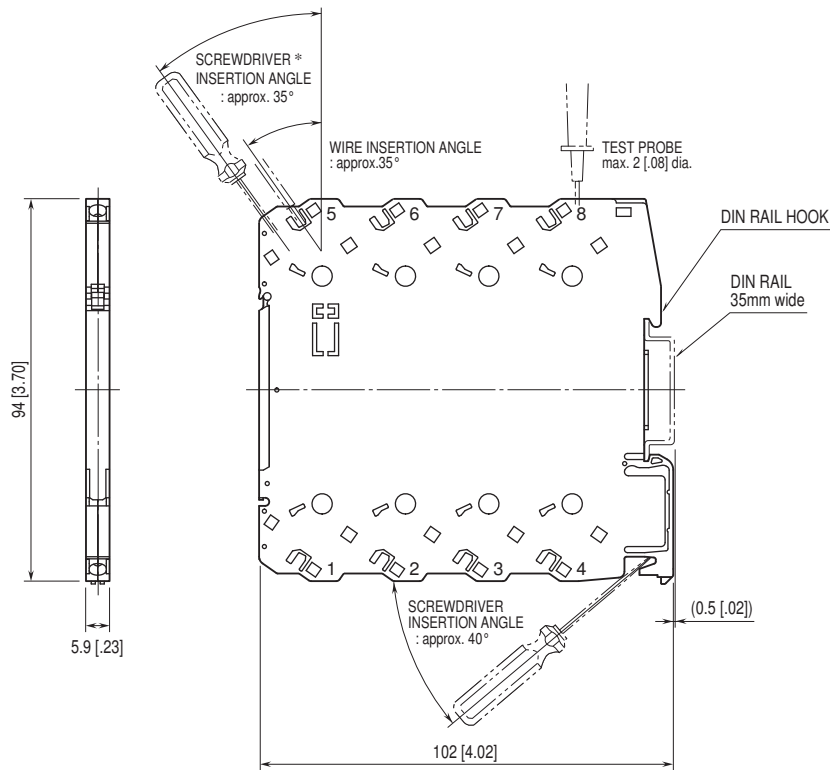
(UL 61010-1, CAN/CSA-C22.2 No.61010-1)

## EXTERNAL VIEW

(With the cover open)



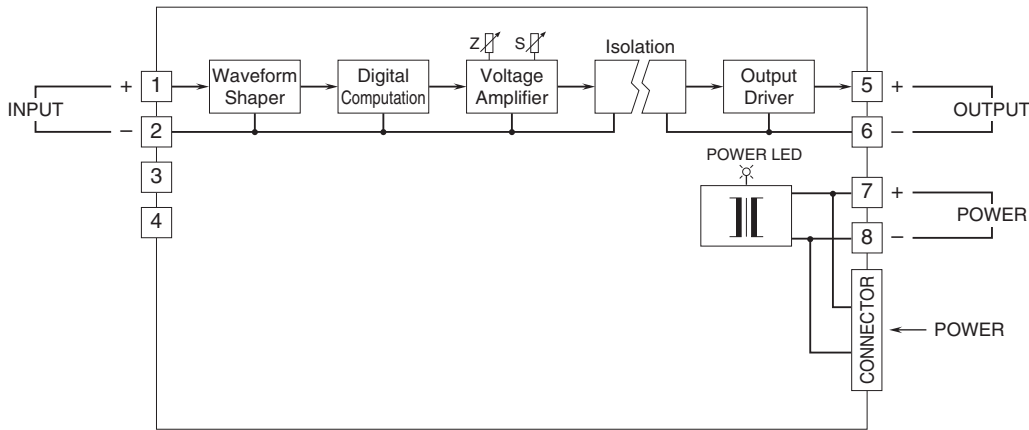
## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

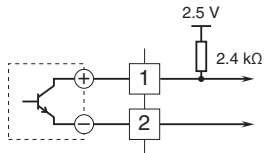
\*Use a minus screwdriver: tip width 3.8 mm max., tip thickness 0.5 to 0.6 mm

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

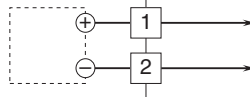


### Input Connection Examples

■ Open Collector or Mechanical Contact



■ Voltage Pulse



Specifications are subject to change without notice.