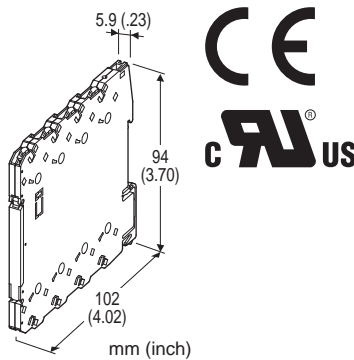


## Tension-Clamp Ultra-Slim Signal Conditioners M6S Series

### 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
- UL approval



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

#### ORDERING INFORMATION

- Code number: M6SPA-[1][2]-R[3]  
Specify a code from below for each [1] through [3].  
(e.g. M6SPA-CA-R/UL)
- Frequency range (e.g. 0 - 1 kHz)
- Special output range (For codes Z & 0)

#### [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 Ω max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

##### Voltage

- 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 20 kΩ min.)
- 5W: -5 - +5 V DC (Load resistance 10 kΩ min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

#### POWER INPUT

##### DC Power

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

#### [3] OPTIONS

##### STANDARDS & APPROVALS

- blank: CE marking
- /UL: UL approval (CE marking)

#### 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 LED: Green light 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 H and L levels

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

Detecting levels: ≤ 750 Ω for ON; ≥ 3 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: 2.5 V DC @1 mA (approx.)

Detecting levels: ≤ 750 Ω for ON; ≥ 3 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:  $\geq 3$  V  
24 V pulse:  $\geq 14$  V  
**Detecting L level**  
5 V pulse:  $\leq 1$  V  
24 V pulse:  $\leq 6$  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  $\geq 1$  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:**  $\pm 0.015$  %/°C ( $\pm 0.008$  %/°F)  
**Response time:** Max. 0.5 sec. + 1 pulse cycle (0 – 90 %)  
**Line voltage effect:**  $\pm 0.1$  % over voltage range  
**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC  
**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

## STANDARDS & APPROVALS

### CE conformity:

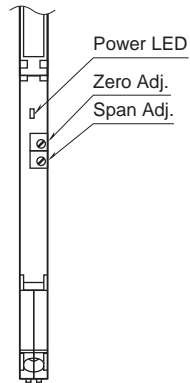
EMC Directive (2004/108/EC)  
EN 61000-6-4 (EMI)  
EN 61000-6-2 (EMS)

### Approval:

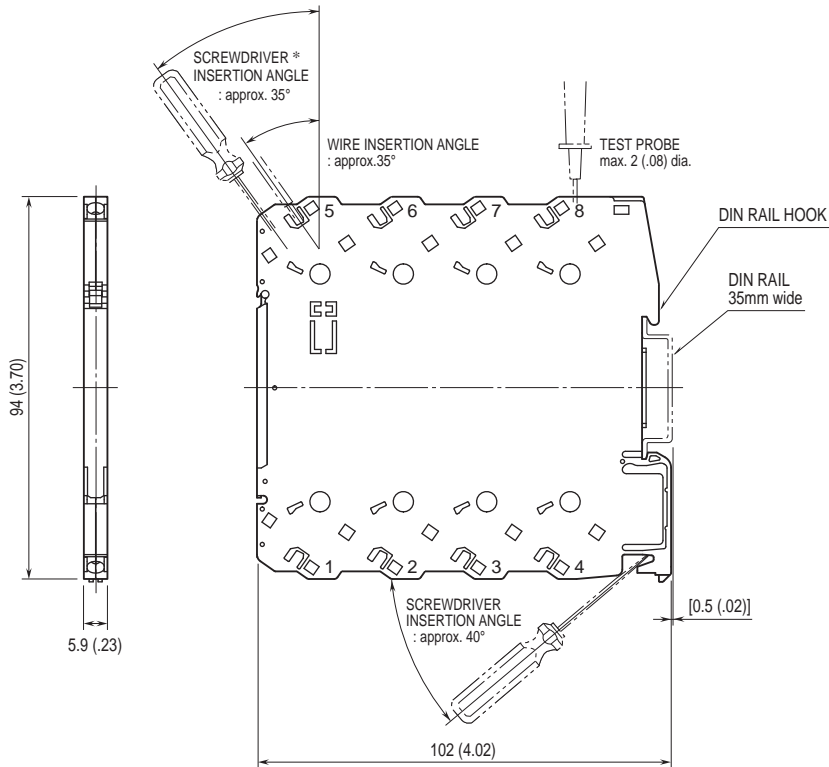
UL/C-UL nonincendive Class I, Division 2,  
Groups A, B, C, and D hazardous locations  
(ANSI/ISA-12.12.01, CAN/CSA-C22.2 No.213)  
UL/C-UL general safety requirements  
(UL 61010-1, CAN/CSA-C22.2 No.61010-1)

## EXTERNAL VIEW

(With the cover open)



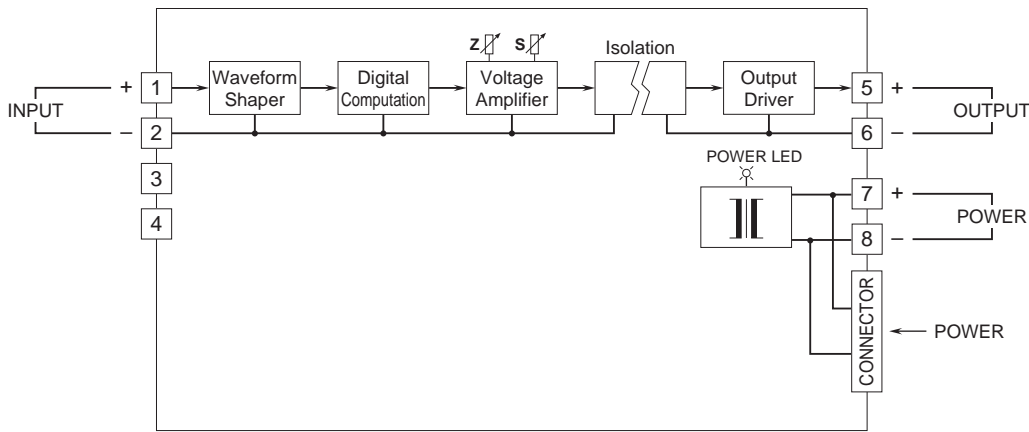
## DIMENSIONS unit: mm (inch)



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

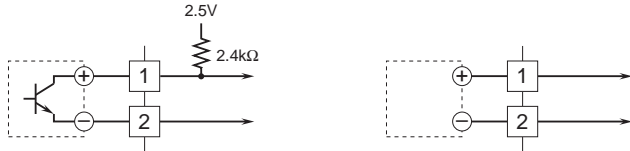
\*Use a minus screwdriver: tip width 3.8 mm max., tip thickness 0.5 to 0.6 mm

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



**Input Connection Examples**

- Open Collector or Mechanical Contact
- Voltage Pulse



Specifications are subject to change without notice.