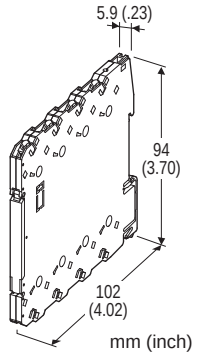
Tension-Clamp Ultra-Slim Signal Conditioners M6S Series

POTENTIOMETER TRANSMITTER

(PC programmable)

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
- Provides a DC output proportional to a potentiometer or slidewire position input
- Linearization and burnout protection
- PC programmable
- High-density mounting
- Power indicator LED



MODEL: M6SXM–1[1]–R[2]

ORDERING INFORMATION

- Code number: M6SXM-1[1]-R[2]
  Specify a code from below for each [1] and [2].
  (e.g. M6SXM-1Z1-R/UL/Q)
- Potentiometer range (total resistance) (e.g. 0 – 1000 Ω)
- Output range (e.g. 4 – 20 mA DC)
- Specify the specification for option code /Q
  (e.g. /C01)

INPUT

1: Total resistance 100 – 5000 Ω
(Configurator software is used to change the input range.)

[1] OUTPUT

Current
Z1: Range 0 – 20 mA DC
Voltage
V2: Range -10 – +10 V DC
V3: Range -5 – +5 V DC
(Configurator software is used to change output over the described range of the selected suffix code.
For changing between suffix codes, set the Output Range Selector on the side of unit before software adjustment.)

POWER INPUT

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

[2] 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 M-System's web site.)
/C01: Silicone coating
/C02: Polyurethane coating

RELATED PRODUCTS

- PC configurator software (model: M6CFG)
  Downloadable at M-System's web site.
  A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.

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^2, stripped length 8 mm
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power
Overrange output: -2 – +102 %
(Negative current output is not available.)
Zero adjustment: -2 to +2 % (PC programming)
Span adjustment: 98 to 102 % (PC programming)
Burnout: Upscale standard; downscale or no burnout optional by programming
Power LED: Green light turns on when the power is supplied.
Status indicator LED: Orange LED; Blinking patterns indicate different operating status of the transmitter.
Programming: Downloaded from PC; input type (range),

output type and range, zero and span, burnout type, user's linearization table, etc.
For detailed information, refer to the users manual for the PC configurator.
Configurator connection: 2.5 dia. miniature jack; RS-232-C level

INPUT SPECIFICATIONS

Sensing current: ≤ 0.15 mA
Minimum span of each range
0 – 100 Ω : 10 Ω
0 – 300 Ω : 30 Ω
0 – 600 Ω : 60 Ω
0 – 1200 Ω : 120 Ω
0 – 2500 Ω : 250 Ω
0 – 5000 Ω : 500 Ω
If not specified, the input range is 0 – 1200 Ω.

OUTPUT SPECIFICATIONS

■ DC Current
Output range: 0 – 20 mA DC
Conformance range: 0 – 20.4 mA DC
Minimum span: 1 mA
Offset: Lower range can be any specific value within the output range provided that the minimum span is maintained.
Load resistance: Output drive 11 V max.
(e.g. 4 – 20 mA: 550 Ω [11 V ÷ 20 mA])
If not specified, the output range is 4 – 20 mA DC.

■ DC Voltage
Code V2 (wide spans)
Output range: -10 – +10 V DC
Conformance range: -10.4 – +10.4 V DC
Minimum span: 1 V
Code V3 (narrow spans)
Output range: -5 – +5 V DC
Conformance range: -5.2 – +5.2 V DC
Minimum span: 0.5 V
Offset: Lower range can be any specific value within the output range provided that the minimum span is maintained.
Load resistance: Output drive 1 mA max.
(e.g. 1 – 5 V: 5000 Ω [5 V ÷ 1 mA])
If not specified, the output range is shown below.
V2: 0 – 10 V DC
V3: 1 – 5 V DC

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: 65 g (2.3 oz)

PERFORMANCE in percentage of span

Overall accuracy: Input accuracy + output accuracy
Inversely proportional to the span.
See CALCULATION EXAMPLES OF OVERALL ACURACY.
• **Input accuracy**: (% of range)
0 – 100 Ω : ±0.05 %
0 – 300 Ω : ±0.05 %
0 – 600 Ω : ±0.03 %
0 – 1200 Ω : ±0.03 %
0 – 2500 Ω : ±0.01 %
0 – 5000 Ω : ±0.01 %
• **Output accuracy**: ±0.04 % of max. output range
Temp. coefficient: ±0.01 %/°C (±0.006 %/°F) of max. span
Response time: ≤ 1 sec. (0 – 90 %)
Burnout response: ≤ 10 sec.
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2000 V AC @1 minute (input to output to power to ground)

CALCULATION EXAMPLES OF OVERALL ACCURACY

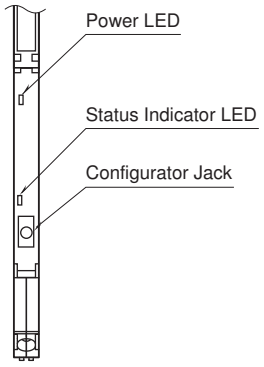
[Example] Total Resistance 0 – 1200 Ω, Input Range 250–750 Ω, Output Type -5 – +5 V, Output Range 1 – 5 V
Max. Input Range (1200 Ω) ÷ Span (500 Ω) × 0.01 %
+ Max. Output Range (10 V) ÷ Span (4 V) × 0.04 %
= 0.18 %

STANDARDS & APPROVALS

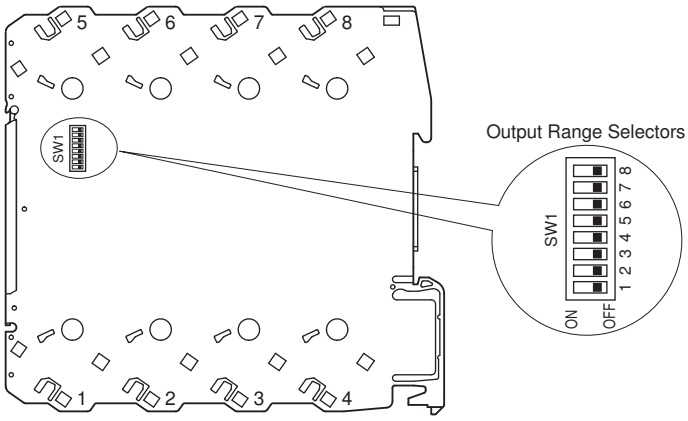
EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
RoHS Directive
EN 50581
Approval:
UL/C-UL nonincendive Class I, Division 2, Groups A, B, C, and D hazardous locations (ANSI/ISA-12.12.01, CAN/CSA-C22.2 No.213)
UL/C-UL general safety requirements (UL 61010-1, CAN/CSA-C22.2 No.61010-1)

EXTERNAL VIEW

FRONT VIEW (with the cover open)

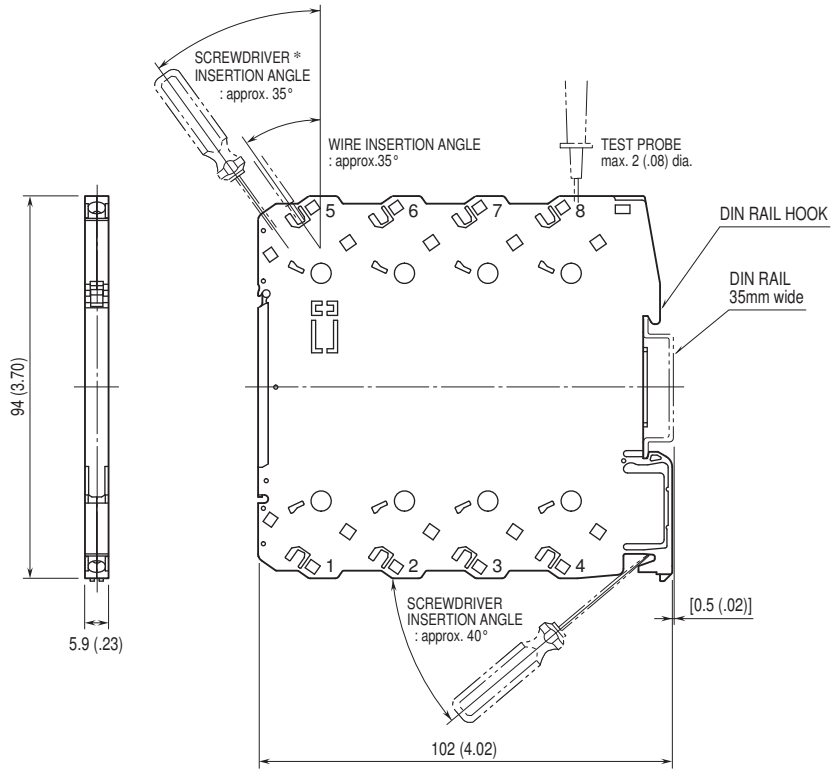


SIDE VIEW



The DIP switch setting is required to select output types before setting a precise output range using PC Configurator Software (model: M6CFG).
Refer to the instruction manual for detailed procedures.

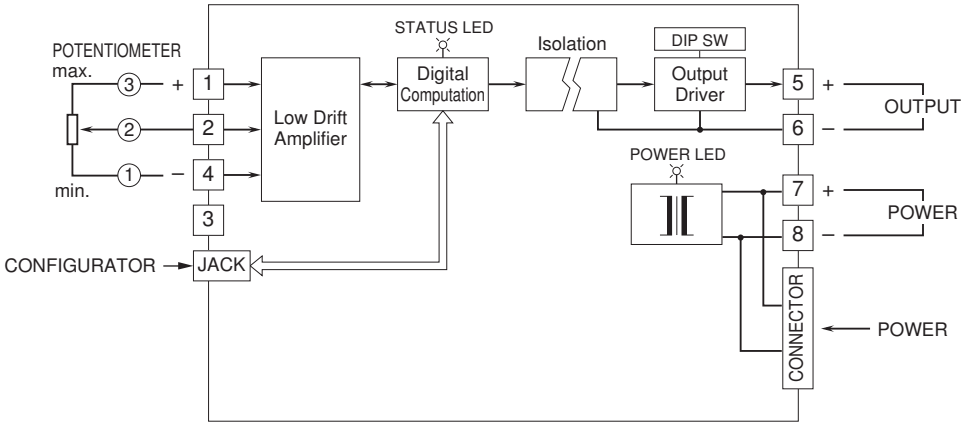
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



• 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



⚠ Specifications are subject to change without notice.