**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

5.9 [.23]

CE

94 [3.70]

102 [4.02]

mm [inch]
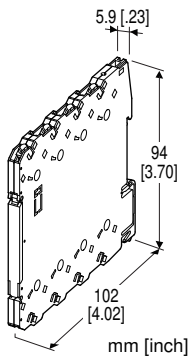
MODEL: M6SXM–1[1]–R[2]

ORDERING INFORMATION
• Code number: M6SXM-1[1]-R[2]
Specify a code from below for each of [1] and [2].
  (e.g. M6SXM-1Z1-R/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
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 indicator LED: Green LED 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

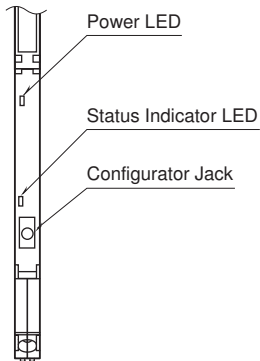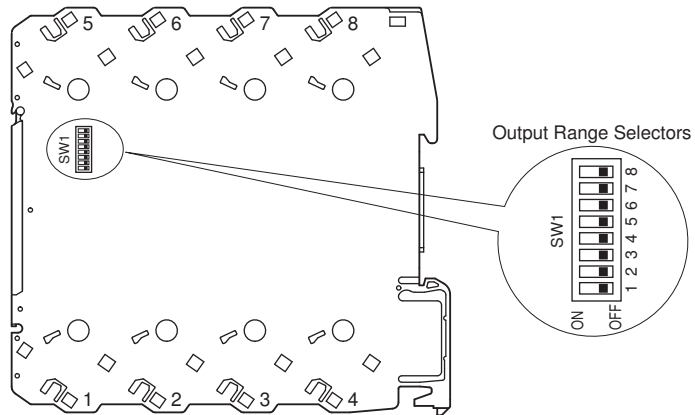 EMI EN 61000-6-4

  EMS EN 61000-6-2

RoHS Directive

EXTERNAL VIEW

FRONT VIEW (with the cover open)   **SIDE VIEW**

Power LED

Status Indicator LED

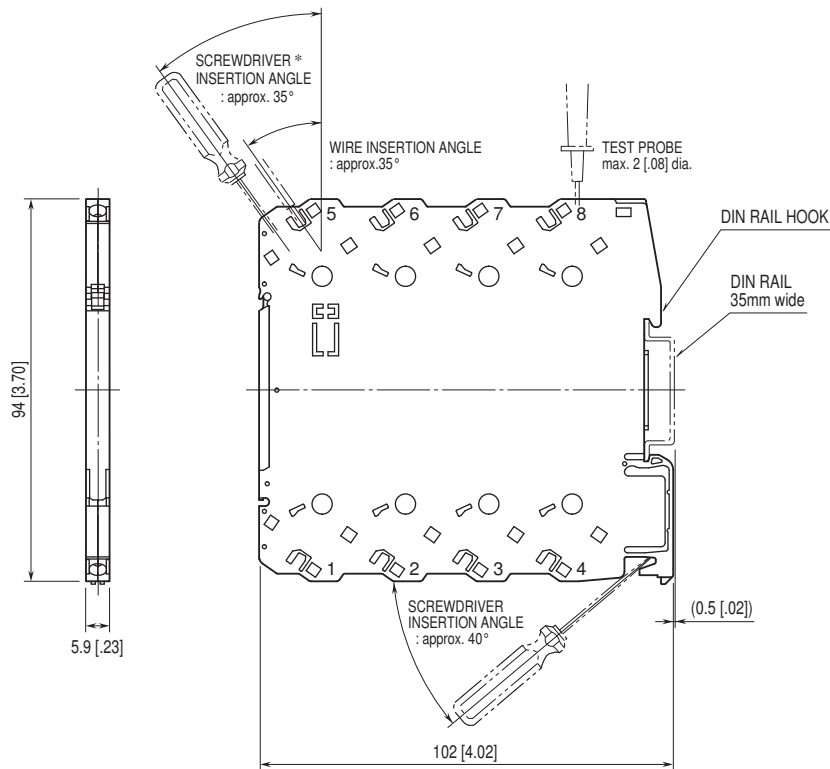Configurator Jack

Output Range Selectors

SW1

ON OFF

1 2 3 4 5 6 7 8

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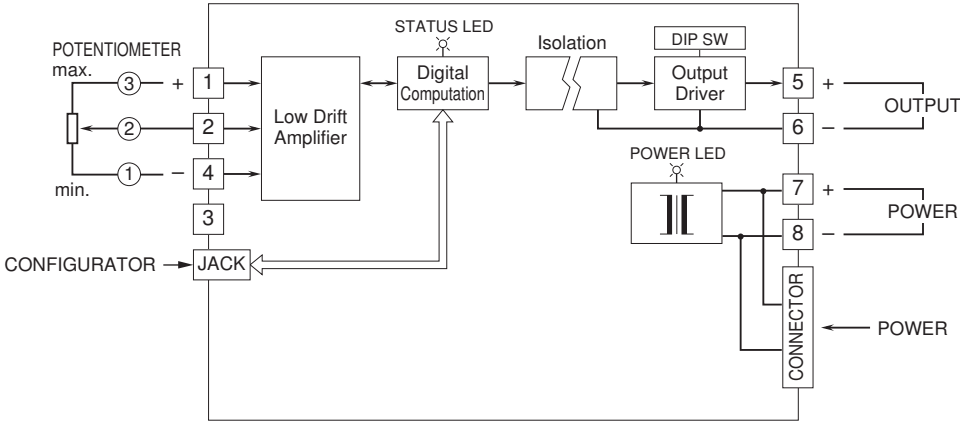Refer to the instruction manual for detailed procedures.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS   unit: mm [inch]

SCREWDRIVER *
INSERTION ANGLE
: approx. 35°

WIRE INSERTION ANGLE
: approx.35°

TEST PROBE
max. 2 [.08] dia.

DIN RAIL HOOK

DIN RAIL
35mm wide

94 [3.70]

5.9 [.23]

SCREWDRIVER
INSERTION ANGLE
: approx. 40°

(0.5 [.02])

102 [4.02]

• 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

POTENTIOMETER
max.
③ + 1
② 2
① − 4
min.
3

Low Drift
Amplifier

STATUS LED
Digital
Computation

Isolation

DIP SW
Output
Driver

5 +
6 −
OUTPUT

POWER LED
7 +
8 −
POWER

CONFIGURATOR → JACK

CONNECTOR ← POWER

⚠ Specifications are subject to change without notice.