

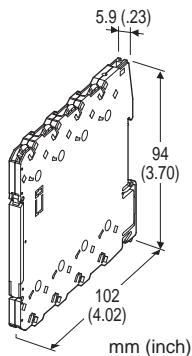
Tension-Clamp Ultra-Slim Signal Conditioners M6S Series

RTD ALARM

(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 relay contact output at preset DC input levels
- PC programmable
- Linearization and upscale and downscale burnout protection
- High-density mounting
- Power and status indicator LEDs



MODEL: M6SXAR-[1]-R

ORDERING INFORMATION

- Code number: M6SXAR-[1]-R
Specify a code from below for [1].
(e.g. M6SXAR-4-R)
- Temperature range (e.g. 0 – 100°C)

[1] INPUT RTD

- 1:** JPt 100 (JIS'89)
(Usable range: -200 to +500°C, -328 to +932°F)
- 3:** Pt 100 (JIS'89)
(Usable range: -200 to +650°C, -328 to +1202°F)
- 4:** Pt 100 (JIS'97, IEC)
(Usable range: -200 to +850°C, -328 to +1562°F)
- 5:** Pt 50 Ω (JIS'81)
(Usable range: -200 to +649 °C, -328 to +1200°F)
- 7:** Pt 1000
(Usable range: -200 to +850°C, -328 to +1562°F)
- 9:** Cu 10 @25°C
(Usable range: -50 to +250°C, -58 to +482°F)
- 0:** Specify (Please provide a resistance table.)

(Configurator software is used to change the input type and range. Input code 7: Pt 1000 cannot be switched to/from other input types while its temperature range can be changed.)

OUTPUT

Relay; SPDT or transfer contact

POWER INPUT

DC Power

R: 24 V DC

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

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 mm², stripped length 8 mm

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Burnout: Upscale standard; downscale or no burnout optional by programming

In case of upscale standard, the alarm operates as if the input signal has exceeded over the range.

Linearization: Standard

Power LED: Green light turns on when the power is supplied.

Status indicator LED: Orange LED; Flashing patterns indicate different operating status of the transmitter.

Alarm monitor LED: Red LED turns on when the alarm is tripped.

Programming: Downloaded from PC

Input type and range

Input fine adjustments

User's RTD table (max. 300 points)

Burnout (Upscale, downscale or no burnout)

Alarm setpoint (input %)

Trip action (High or Low)

Relay coil (energized or de-energized)

Power ON delay time (0 to 999 sec.)

Alarm ON delay time (0 to 999 sec.)

Hysteresis (deadband) (input %)

Alarm test, and others

Configurator connection: 2.5 dia. miniature jack;
RS-232C level

Factory default setting

- Alarm setpoint: 80%
- Trip action: High
- Relay coil at alarm: Energized
- Power ON delay time: 5 seconds
- Alarm ON delay time: 0 seconds
- Hysteresis (deadband): 1.0%
- Burnout: Upscale

INPUT SPECIFICATIONS

- INPUT: 2- or 3-wire RTD
- Maximum leadwire resistance: 10 Ω per wire
- Sensing current: ≤ 1.5 mA (≤ 0.15 mA for Pt 1000)
- Minimum span: 20°C or 36°F
- If not specified, the input range is 100°C.

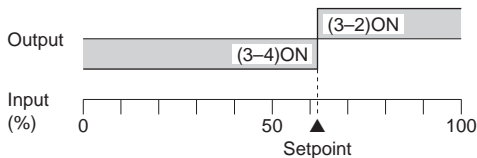
OUTPUT SPECIFICATIONS

- RELAY OUTPUT
- Relay rating:
 - 250 V AC @2 A (cos φ = 1)
 - 30 V DC @2 A (resistive load)
- Maximum switching voltage: 250 V AC or 125 V DC
- Maximum switching power: 500 VA or 60 W
- Minimum load: 5 V DC @100 mA
- Mechanical life: 5 × 10⁵ cycles (rate 180/min.)

Alarm Trip Operation Terminal No. in parentheses

• Setting Example

- Hi alarm (coil energized at alarm) or
- Lo alarm (coil de-energized at alarm)



Trip operation in power failure: Terminals 3 – 4 turn ON.

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

- Setpoint accuracy (trip point accuracy)
- Pt and JPt: Whichever greater ±0.1 % of input range or ±0.15°C

Cu10: ±1°C

Temp. coefficient: ±0.01 %/°C (±0.006 %/°F) of max. span

Response time: ≤ 1 sec. (0 - 100 % at 90 % setpoint)

Burnout response time: ≤ 1 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 SETPOINT ACCURACY

[Example] Input type Pt 100, Input range 0 - 100°C

Setpoint accuracy ^{*1} (0.15°C ^{*2}) / Span (100°C) × 100 %

*1. Calculate the accuracy in °C

*2. 100 °C × 0.1 % = 0.1 °C ≤ 0.15 °C. 0.15 °C is used as input accuracy value.

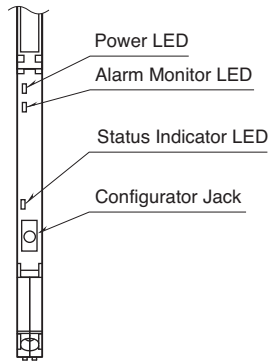
STANDARDS & APPROVALS

CE conformity:

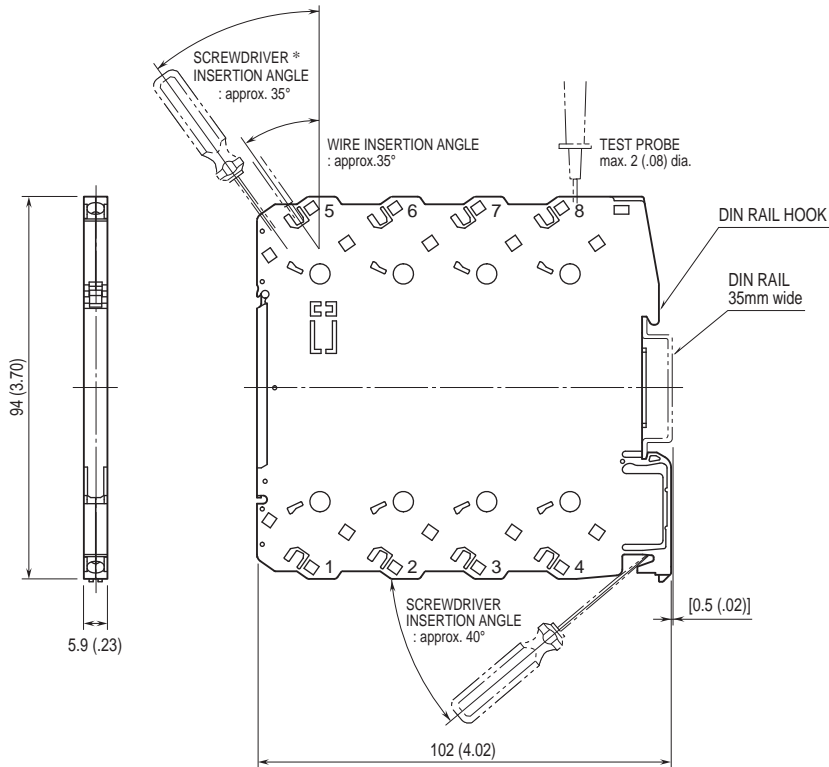
- EMC Directive (2004/108/EC)
- EN 61000-6-4 (EMI)
- EN 61000-6-2 (EMS)
- Low Voltage Directive (2006/95/EC)
- EN 61010-1
- Overvoltage Category II
- Pollution Degree 2
- Max. operating voltage 250 V (relay output circuit)
- Input or power to output: Reinforced insulation
- Input to power: Basic insulation

EXTERNAL VIEW

(With the cover open)



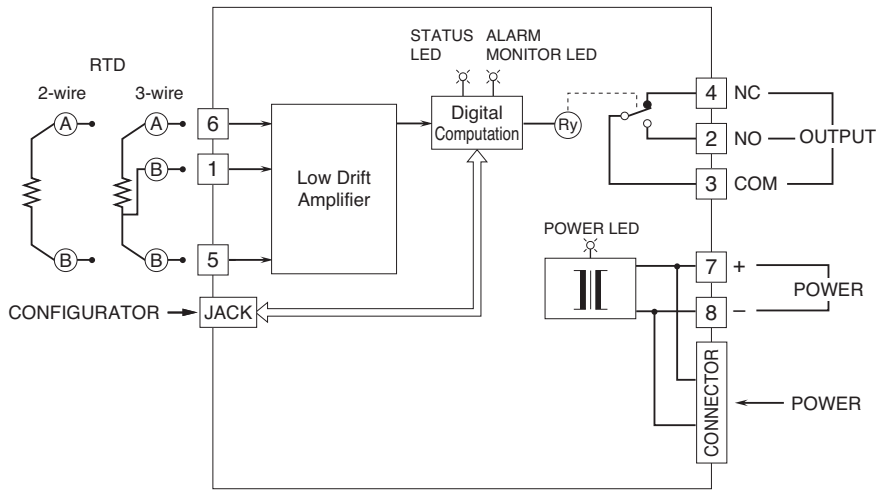
DIMENSIONS unit: mm (inch)



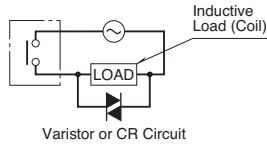
• When mounting, no extra space is needed between units.

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

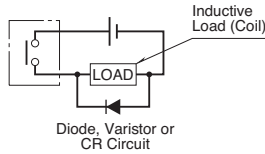
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



■ Relay Protection
• AC Powered



• DC Powered



Specifications are subject to change without notice.