Super-space-saving Signal Conditioners M3S-UNIT Series

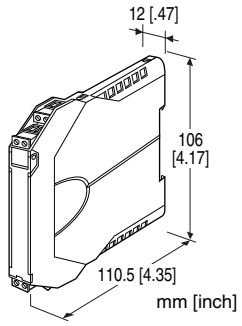
RTD TRANSMITTER

Functions & Features

• Accepts direct input from an RTD and provides a standard process signal
• Linearization
• Burnout protection
• Universal AC/DC power input
• Fast response type available
• High-density mounting
• Power indicator LED

Typical Applications

• Long distance transmission between the RTD and the transmitter
• Combination with intrinsic safety barriers



CE

MODEL: M3SRS–[1][2]–[3][4]

ORDERING INFORMATION

• Code number: M3SRS-[1][2]-[3][4]
Specify a code from below for each of [1] through [4].
(e.g. M3SRS-4A-R/K/BL/Q)
• Temperature range (e.g. 0 – 500°C)
• Special output range (For codes Z & 0)
• Specify the specification for option code /Q
(e.g. /C01)

[1] INPUT RTD (2- or 3-wire)

1: JPt 100 (JIS'89)
(Usable range: -200 to +500°C, -328 to +932°F; min.span: 50°C, 90°F)
3: Pt 100 (JIS'89)
(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)
4: Pt 100 (JIS'97, IEC)
(Usable range: -200 to +850°C, -328 to +1562°F; min.span: 50°C, 90°F)
5: Pt 50 Ω (JIS'81)
(Usable range: -200 to +500°C, -328 to +932°F; min.span: 100°C, 180°F)
6: Ni 508.4 Ω
(Usable range: -50 to +200°C, -58 to +392°F; min.span: 30°C, 54°F)
0: Specify
Note: Consult us for 2-wire RTD

[2] OUTPUT

Current
A: 4 – 20 mA DC (Load resistance 550 Ω max.)
B: 2 – 10 mA DC (Load resistance 1100 Ω max.)
C: 1 – 5 mA DC (Load resistance 2200 Ω max.)
D: 0 – 20 mA DC (Load resistance 550 Ω max.)
E: 0 – 16 mA DC (Load resistance 680 Ω max.)
F: 0 – 10 mA DC (Load resistance 1100 Ω max.)
G: 0 – 1 mA DC (Load resistance 11 kΩ max.)
Z: Specify current (See OUTPUT SPECIFICATIONS)
Voltage
1: 0 – 10 mV DC (Load resistance 10 kΩ min.)
2: 0 – 100 mV DC (Load resistance 100 kΩ min.)
3: 0 – 1 V DC (Load resistance 1000 Ω min.)
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 10 kΩ min.)
5W: -5 – +5 V DC (Load resistance 5000 Ω min.)
0: Specify voltage (See OUTPUT SPECIFICATIONS)

[3] POWER INPUT

AC Power
M2: 100 – 240 V AC (Operational voltage range 90 – 264 V, 47 – 66 Hz)
DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)
Universal
AD: 100 – 240 V AC / 24 – 240 V DC (universal)
(Operational voltage range 90 - 264 V AC, 47 - 66 Hz / 21.6 - 264 V DC, ripple 10 %p-p max.)

[4] OPTIONS (multiple selections)

Response Time (0 – 90 %)
blank: Standard (≤ 0.5 sec.)
/K: Fast Response (Approx. 25 msec.)
Burnout
blank: Upscale burnout
/BL: Downscale burnout
Other Options
blank: none
/Q: Option other than the above (specify the specification)

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SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to our web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating

GENERAL SPECIFICATIONS

Construction: Small-sized front terminal structure
Connection: Euro type connector terminal
Applicable wire size: 0.2 to 2.5 mm^2, stripped length 8 mm
Housing material: Flame-resistant resin (gray)
Isolation: Input to output to power
Overrange output: Approx. -10 to +120 % at 1 – 5 V
Zero adjustment: -2 to +2 % (front)
Span adjustment: 98 to 102 % (front)
Burnout: Upscale standard;downscale optional
Linearization: Standard
Power indicator LED: Green LED turns on when the power is supplied.

INPUT SPECIFICATIONS

Maximum leadwire resistance: 200 Ω per wire (3-wire)
Sensing current: 1.3 mA (Pt); 0.7 mA (Ni 508.4 Ω)

OUTPUT SPECIFICATIONS

■ **DC Current**: 0 – 20 mA DC
Minimum span: 1 mA
Offset: Max. 1.5 times span
Load resistance: Output drive 11 V max.
■ **DC Voltage**: -10 – +11 V DC
Minimum span: 5 mV
Offset: Max. 1.5 times span
Load resistance: Output drive 1 mA maximum; at ≥ 0.5 V

INSTALLATION

Power consumption
•**AC**:
Approx. 2 VA at 100 V
Approx. 3 VA at 200 V
Approx. 4 VA at 264 V
•**DC**: Approx. 1 W
Operating temperature: -10 to +55°C (14 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: DIN rail
Weight: 100 g (0.22 lb)

PERFORMANCE in percentage of span

Accuracy: ±0.2 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
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)

STANDARDS & APPROVALS

EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
Low Voltage Directive
EN 61010-1
Installation Category II
Pollution Degree 2
Input or output to power: Reinforced insulation (300 V)
Input to output: Basic insulation (300 V)
RoHS Directive

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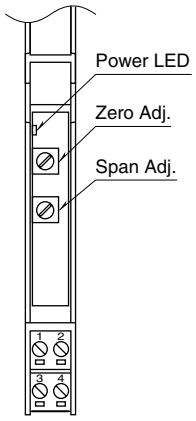
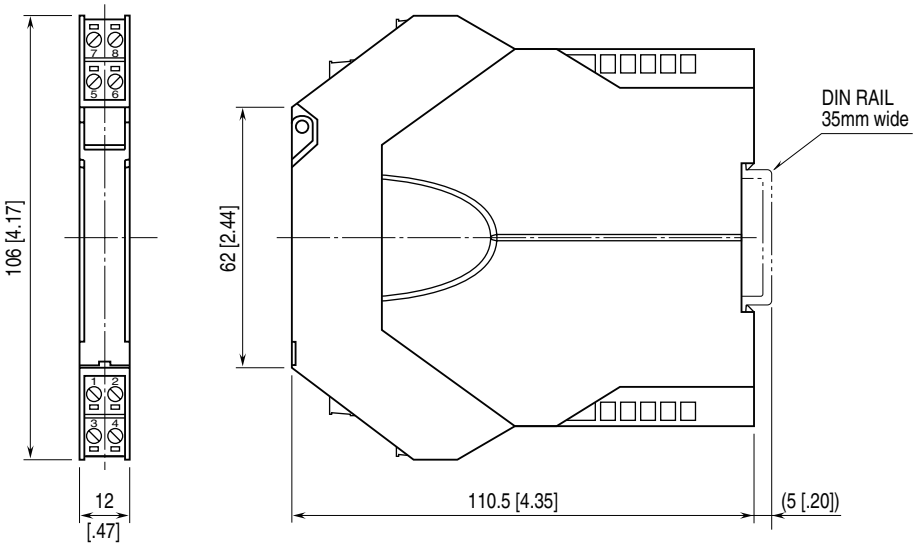
EXTERNAL VIEW

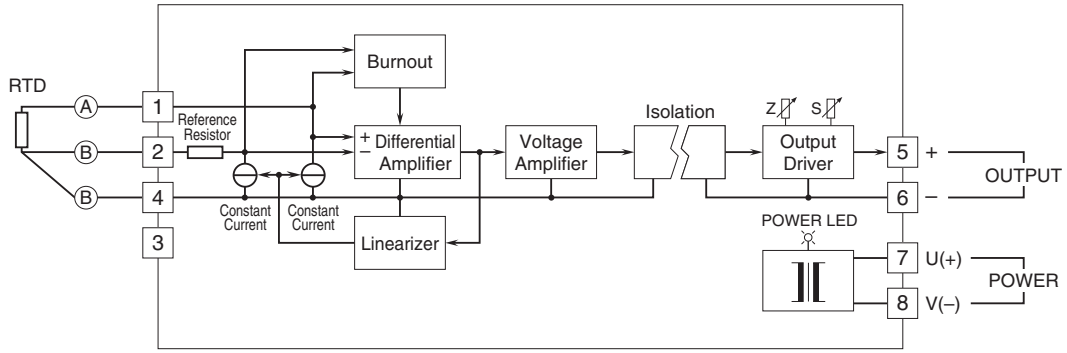


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



⚠ Specifications are subject to change without notice.

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