

Super-mini Signal Conditioners Mini-M Series

6: 1 - 5 V DC

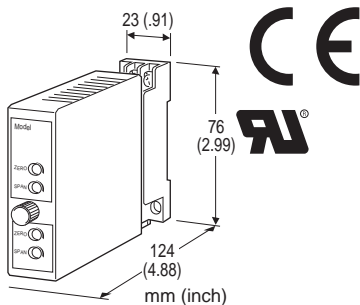
INPUT LOOP POWERED ISOLATOR

Functions & Features

- Loop-powered design eliminates output loop power supply
- Two isolators housed in one enclosure
- 350 Ω output drive with 4 - 20 mA
- CE marking
- UL approval

Typical Applications

- Isolation between control room and field instrumentation, between telemetering system and input device
- Eliminates ground problems in existing systems thanks to easiness of application without requiring additional power wiring



MODEL: M2SN-[1][2][3][4]

ORDERING INFORMATION

- Code number: M2SN-[1][2][3][4]
Specify a code from below for each [1] through [4].
(e.g. M2SN-2A6/CE/Q)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[1] NO. OF CHANNELS

- 1: 1 channel
- 2: 2 channels

[2] INPUT

Current

- A: 4 - 20 mA DC
- H: 10 - 50 mA DC

[3] OUTPUT

Current

- A: 4 - 20 mA DC

Voltage

[4] OPTIONS (multiple selections)

Standards & Approvals (must be specified)

- /N: Without CE or UL
- /CE: CE marking
- /UL: UL approval, CE marking

Other Options

- blank: none
- /Q: Option other than the above (specify the specification)
(UL not available)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to M-System's web site.)

- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

TERMINAL SCREW MATERIAL

- /S01: Stainless steel

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3 screw terminals (torque 0.8 N·m)

Housing material: Flame-resistant resin (black)

Isolation: Input to output; between channels

Zero adjustment (front)

Voltage output: -4 to +4 %

Current output: -0.5 to +0.5 %

Span adjustment (front)

Voltage output: 95 to 105 %

Current output: 98.5 to 101.5 %

INPUT & OUTPUT

■ Input 4 - 20 mA DC / Output 1 - 5 V DC

Equivalent input impedance: Approx. 250 Ω with 20 mA input

Operational range: 3 - 22 mA DC

(Accuracy is assured within 4 - 22 mA)

Load resistance: \geq 50 k Ω

■ Input 10 - 50 mA DC / Output 1 - 5 V DC

Equivalent input impedance: Approx. 100 Ω with 50 mA input

Operational range: 7 - 55 mA DC

(Accuracy is assured within 8 - 55 mA)

Load resistance: \geq 50 k Ω

■ Input 4 - 20 mA DC / Output 4 - 20 mA DC

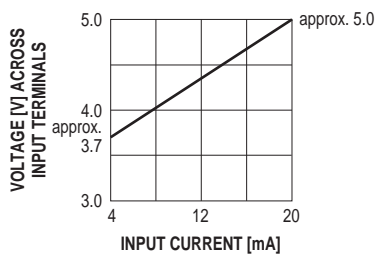
Equivalent input impedance: 230 Ω plus load resistance with 20 mA input



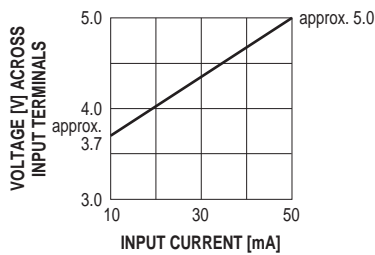
Operational range: 3 – 22 mA DC
 (Accuracy is assured within 4 – 22 mA)
Load resistance: 50 – 350 Ω (min. 50 Ω required for adequate operation)

■ **Input 10 – 50 mA DC / Output 4 – 20 mA DC**
Equivalent input impedance: $90 \Omega + [\text{load resistance} \times 0.16]$
 with 50 mA input
Operational range: 7 – 55 mA DC
 (Accuracy is assured within 8 – 55 mA)
Load resistance: 50 – 600 Ω (min. 50 Ω required for adequate operation)

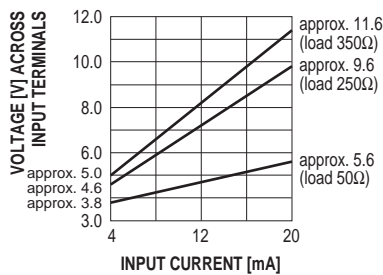
• **INPUT 4 - 20 mA DC / OUTPUT 1 - 5 V DC**



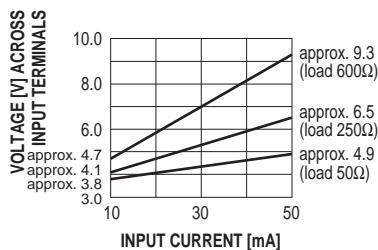
• **INPUT 10 - 50 mA DC / OUTPUT 1 - 5 V DC**



• **INPUT 4 - 20mA DC / OUTPUT 4 - 20 mA DC**



• **INPUT 10 - 50 mA DC / OUTPUT 4 - 20 mA DC**



INSTALLATION

Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail
Weight: 150 g (0.33 lb)

PERFORMANCE in percentage of span

Accuracy: ±0.1 %
Temp. coefficient
Voltage output: ±0.015 %/°C (±0.008 %/°F)
Current output: ±0.02 %/°C (±0.01 %/°F)

Response time
Voltage output: ≤ 0.5 sec. (0 – 90 %)
Current output: Approx. 15 msec. (0 – 90 %)

Load effect (current output)
4 – 20 mA input: 0.015 %/Ω (50 – 150 Ω)
 0.003 %/Ω (150 – 350 Ω)
10 – 50 mA input: 0.015 %/Ω (50 – 100 Ω)
 0.003 %/Ω (100 – 600 Ω)

(The unit is calibrated with 250 Ω load at the factory.)

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength:

500 V AC @1 minute (input to output)
 2000 V AC @1 minute (between channels)
 2000 V AC @1 minute (input or output to ground)

STANDARDS & APPROVALS

CE conformity:

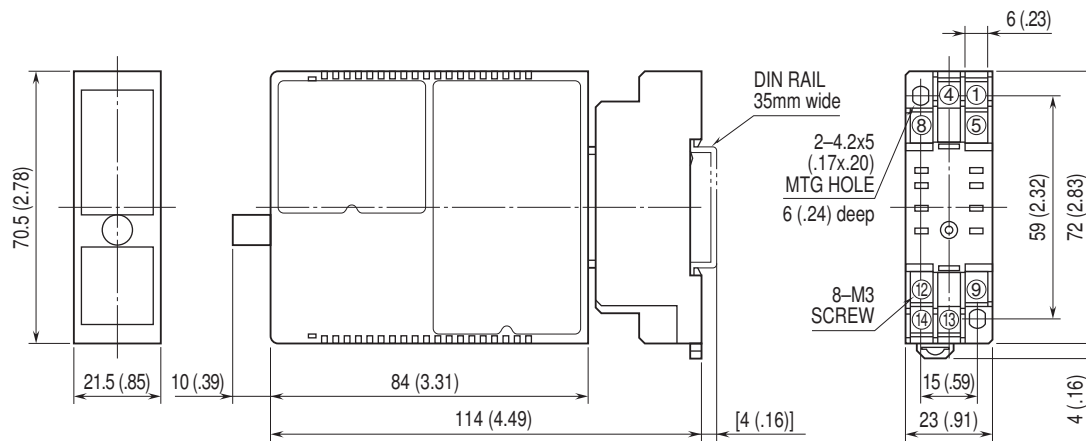
EMC Directive (2004/108/EC)
 EMI EN 61000-6-4: 2007
 EMS EN 61000-6-2: 2005

Approval:

UL/C-UL nonincendive Class I, Division 2,
 Groups A, B, C, and D
 (UL 1604:1994)
 UL general safety requirements
 (UL 61010B-1:2003)



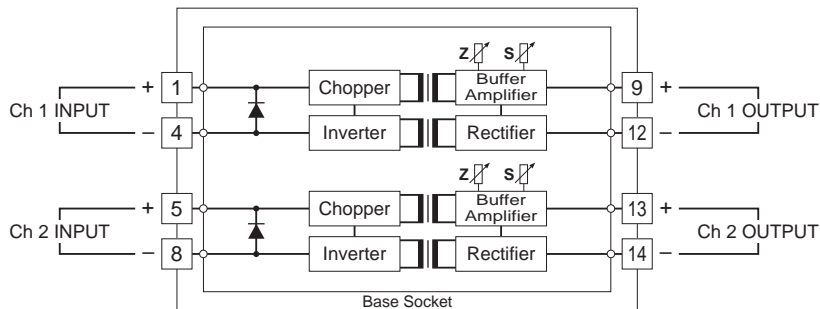
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



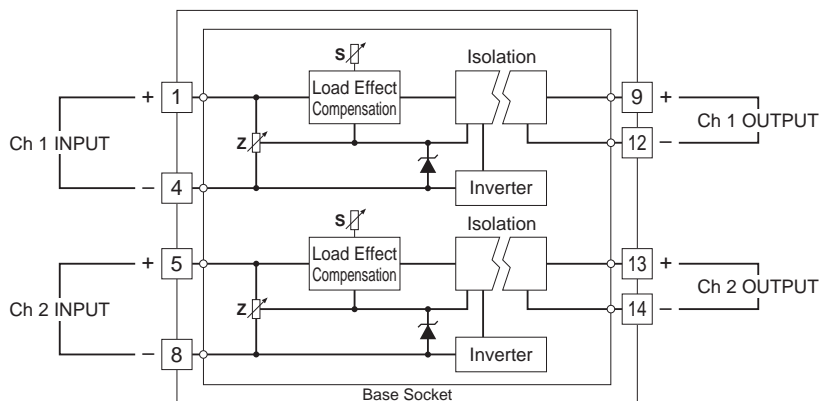
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ VOLTAGE OUTPUT



■ CURRENT OUTPUT



Specifications are subject to change without notice.