

Super-mini Signal Conditioners Mini-M Series

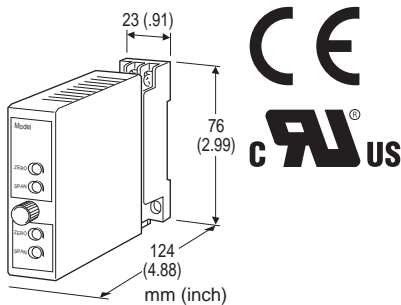
INPUT LOOP POWERED ISOLATOR

Functions & Features

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

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

- 6: 1 - 5 V DC

[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)

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 (UL not available)

TERMINAL SCREW MATERIAL

/S01: Stainless steel (UL not available)

GENERAL SPECIFICATIONS

Construction: Plug-in

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

Screw terminal: Chromated steel (standard) or stainless steel

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: $\geq 50 \text{ k}\Omega$

■ 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: $\geq 50 \text{ k}\Omega$

■ 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

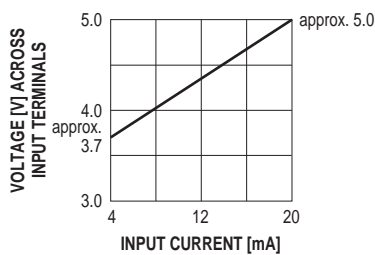
Equivalent input impedance: $90 \Omega + [\text{load resistance} \times 0.16]$ with 50 mA input

Operational range: 7 – 55 mA DC

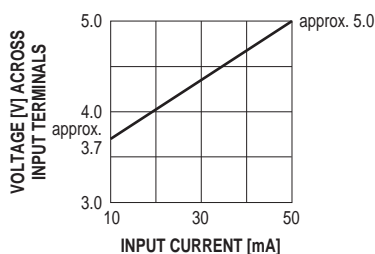
(Accuracy is assured within 8 – 55 mA)

Load resistance: 50 – 600 Ω (min. 50 Ω required for adequate operation)

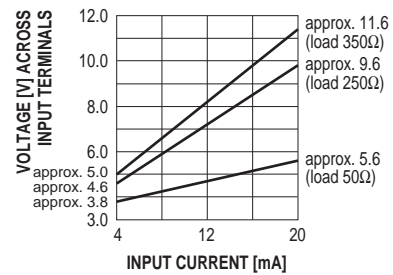
• INPUT 4 – 20 mA DC / OUTPUT 1 – 5 V DC



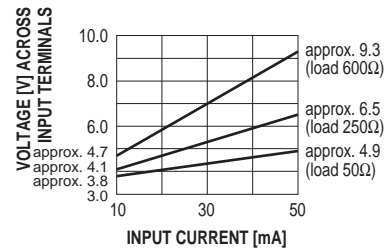
• INPUT 10 – 50 mA DC / OUTPUT 1 – 5 V DC



• INPUT 4 – 20 mA 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: $\pm 0.1 \%$

Temp. coefficient

Voltage output: $\pm 0.015 \%/^{\circ}\text{C}$ ($\pm 0.008 \%/^{\circ}\text{F}$)

Current output: $\pm 0.02 \%/^{\circ}\text{C}$ ($\pm 0.01 \%/^{\circ}\text{F}$)

Response time

Voltage output: $\leq 0.5 \text{ sec.}$ (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: $\geq 100 \text{ M}\Omega$ 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

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,

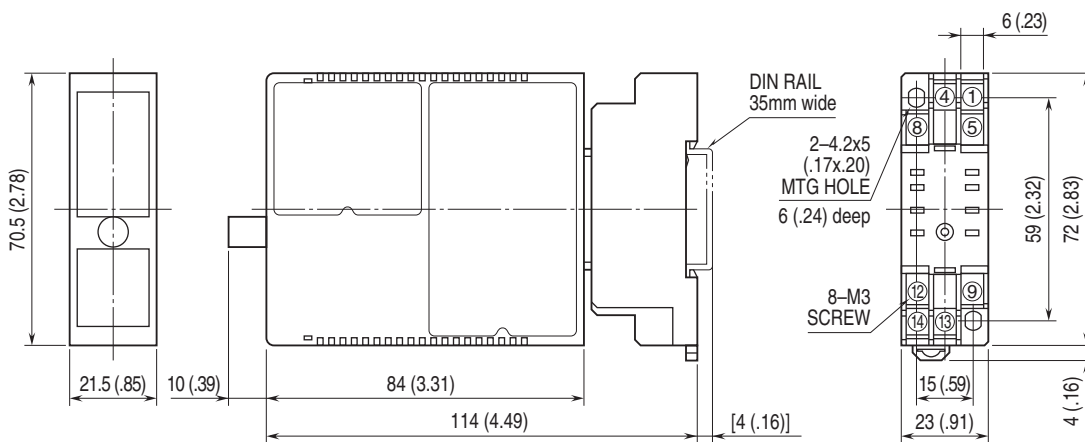
Groups A, B, C, and D

(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)

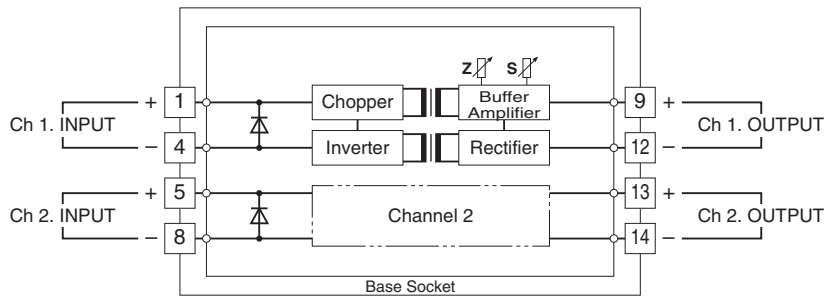
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



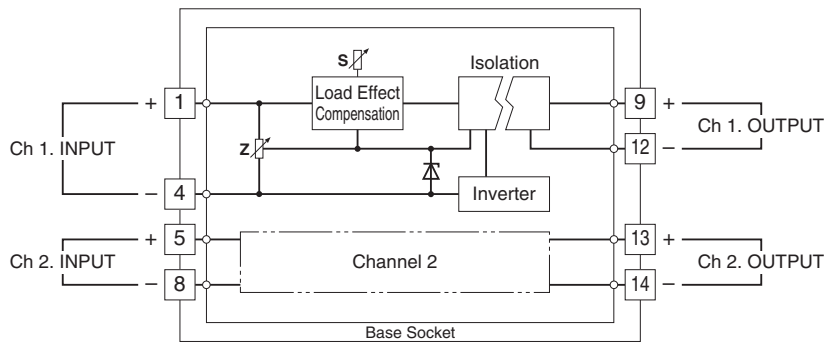
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ VOLTAGE OUTPUT



■ CURRENT OUTPUT



Specifications are subject to change without notice.