

Super-mini Signal Conditioners Mini-M Series

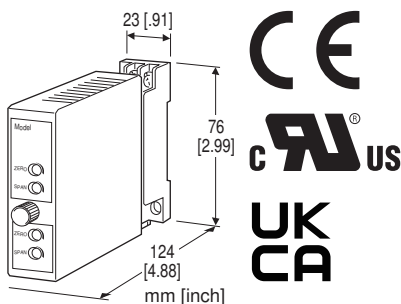
INPUT LOOP POWERED ISOLATOR

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 of [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, UKCA or UL
 - /CE: CE marking
 - /UK: CE, UKCA 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 our web site.)
- /C01: Silicone coating
 - /C02: Polyurethane coating
 - /C03: Rubber coating (UL not available)
 - /C04: Polyolefin 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:** ≥ 50 kΩ
- **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:** ≥ 50 kΩ
- **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**

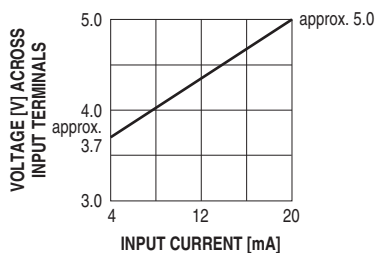
Equivalent input impedance: 90 Ω + [load resistance × 0.16] with 50 mA input

Operational range: 7 – 55 mA DC

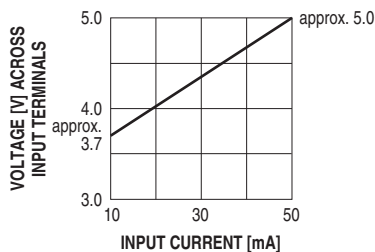
(Accuracy is assured within 8 – 55 mA)

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

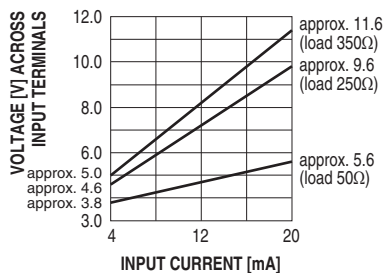
• INPUT 4 – 20 mA DC / OUTPUT 1 – 5 V DC



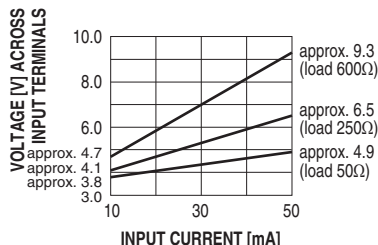
• INPUT 10 – 50 mA DC / OUTPUT 1 – 5 V DC



• 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: ±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

4 – 20 mA DC input: Approx. 15 msec. (0 – 90 %, 50 Ω load)

10 – 50 mA DC input: Approx. 8 msec. (0 – 90 %, 50 Ω load)

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

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

UK conformity (UKCA):

The UK legislations and designated standards are equivalent to the applicable EU directives.

(Refer to our website for more information about the legislations and designated standards.)

Approval:

UL/C-UL nonincendive Class I, Division 2,

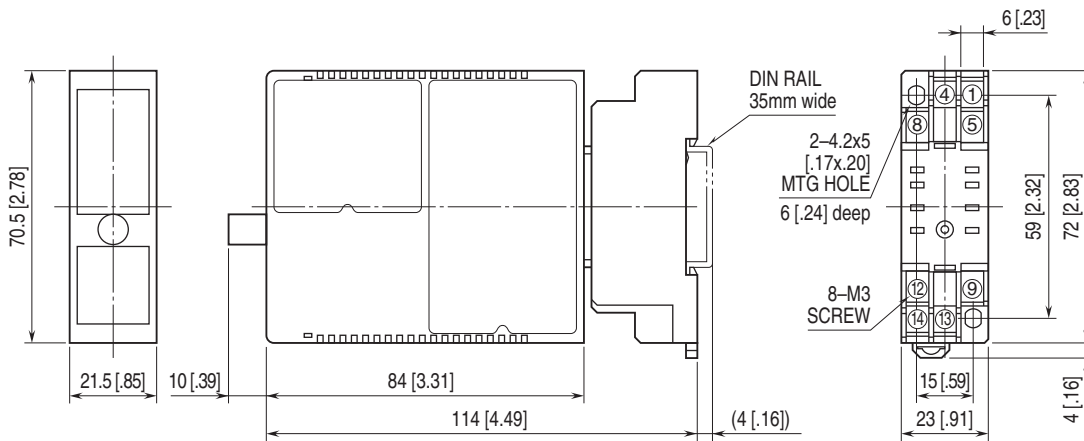
Groups A, B, C, and D

(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)

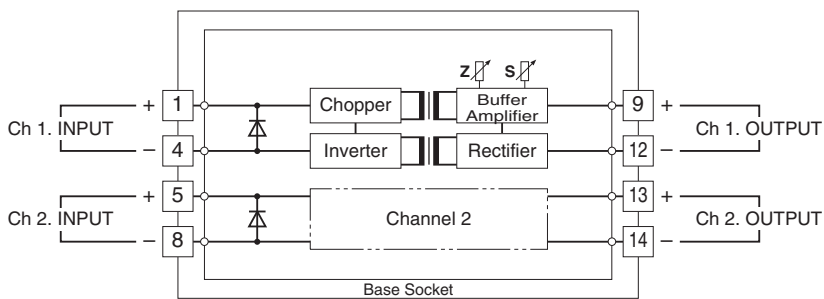
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



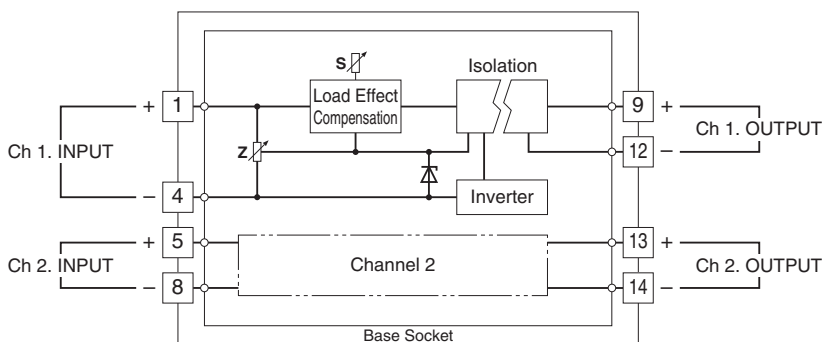
• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ VOLTAGE OUTPUT



■ CURRENT OUTPUT



Specifications are subject to change without notice.