

## Super-mini Signal Conditioners Mini-M Series

6: 1 - 5 V DC

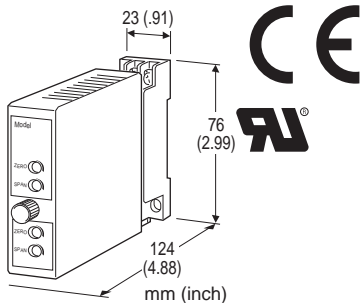
### INPUT LOOP POWERED ISOLATOR

#### 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:** -5 to +5 %

**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**

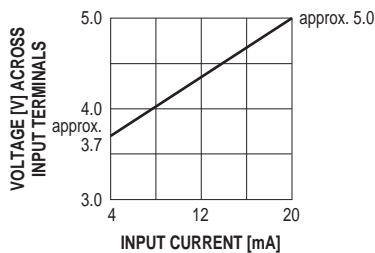
**Equivalent input impedance:** 90 Ω + [load resistance × 0.16]  
with 50 mA input

**Operational range:** 7 – 55 mA DC

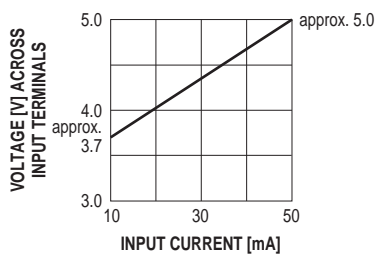
(Accuracy is assured within 8 – 55 mA)

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

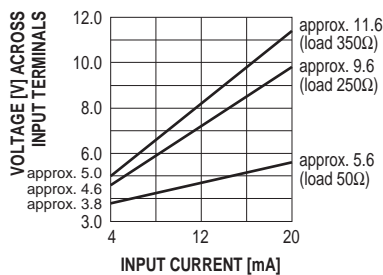
• **INPUT 4 – 20 mA DC / OUTPUT 1 – 5 V DC**



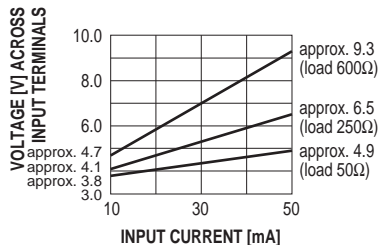
• **INPUT 10 – 50 mA DC / OUTPUT 1 – 5 V DC**



• **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 lbs)

## 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)

EN 61000-6-4 (EMI)

EN 61000-6-2 (EMS)

**Approval:**

UL nonincendive Class I, Division 2,

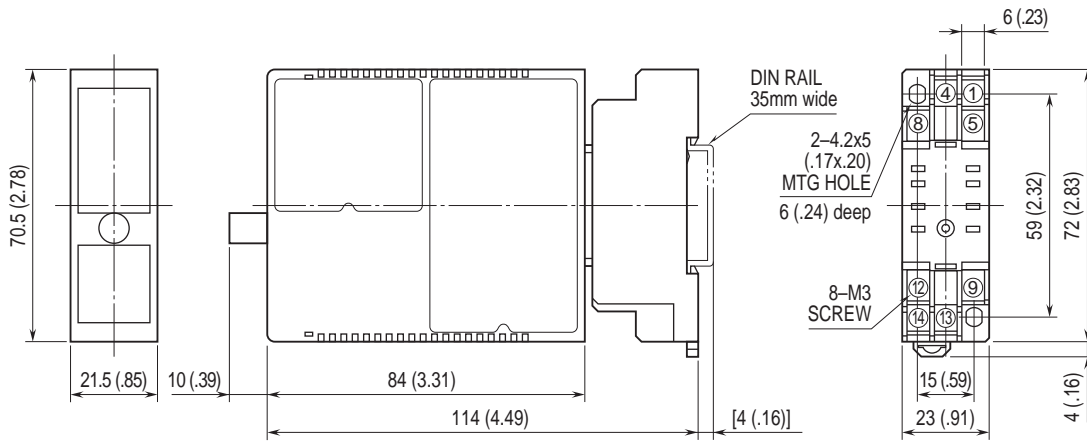
Groups A, B, C, and D hazardous locations

(UL 1604)

UL general safety requirements

(UL 61010B-1)

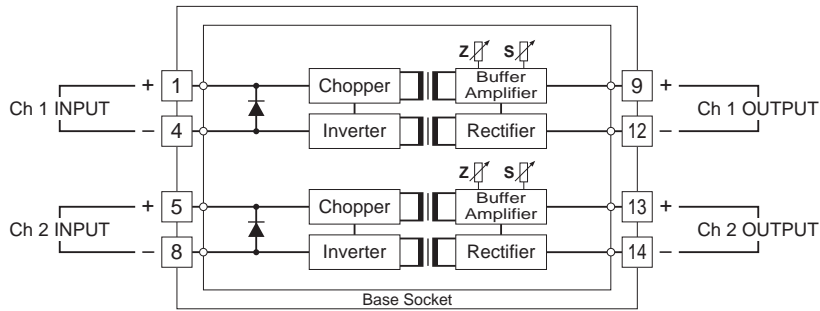
## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



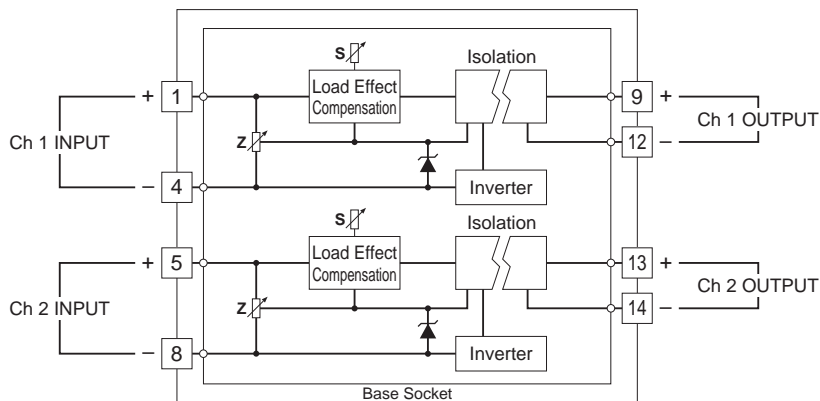
• When mounting, no extra space is needed between units.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

### ■ VOLTAGE OUTPUT



### ■ CURRENT OUTPUT



Specifications are subject to change without notice.