

## Super-mini Signal Conditioners Mini-M Series

### CURRENT LOOP SUPPLY

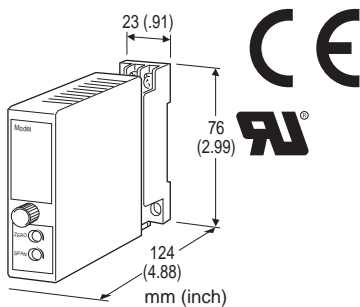
(with square root extractor; non-isolated)

#### Functions & Features

- Powers a 4 - 20 mA DC current loop
- Square root extraction
- Shortcircuit protection
- Applicable to smart transmitters
- CE marking for 24 V DC power
- UL approval for 24 V DC power

#### Typical Applications

- Various 2-wire transmitters



### MODEL: M2DL-24-[1][2]

#### ORDERING INFORMATION

- Code number: M2DL-24-[1][2]
- Specify a code from below for [1] and [2].  
(e.g. M2DL-24-R/CE/Q)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

### SUPPLY OUTPUT

24: 24 V DC

### INPUT

#### Current

4 - 20 mA DC (Input resistance 310 Ω)

### OUTPUT

#### Voltage

1 - 5 V DC (Load resistance 10 k Ω min.)

### [1] POWER INPUT

#### AC Power

M: 85 - 264 V AC (Operational voltage range 85 - 264 V,  
47 - 66 Hz)

(Select '/N' for 'Standards & Approvals' code.)

#### DC Power

R: 24 V DC

(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

R2: 11 - 27 V DC

(Operational voltage range 11 - 27 V, ripple 10 %p-p max.)

(Select '/N' for 'Standards & Approvals' code.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

(Select '/N' for 'Standards & Approvals' code.)

### [2] 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)

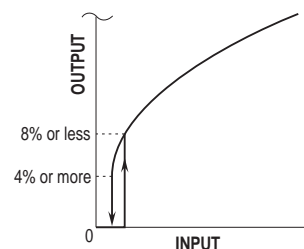
Isolation: Input or output to power

Overrange output: 0 to 110 % at 1 - 5 V

Zero adjustment: -5 to +5 % (front)

Span adjustment: 95 to 105 % (front)

Low-end cutout: Approx. 4 - 8 % (output)



#### SUPPLY OUTPUT

Output voltage: 24 - 28 V DC with no load

Current rating: ≤ 22 mA DC

- Shortcircuit Protection



**Current limited:** 30 mA max.

**Protected time duration:** No limit

## INPUT SPECIFICATIONS

- **DC Current:** Input resistor incorporated

## INSTALLATION

### Power Consumption

• **AC Power input:**

Approx. 3 VA at 100 V

Approx. 4 VA at 200 V

Approx. 5 VA at 264 V

• **DC Power input:** Approx. 3 W

**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:**  $\pm 0.2\%$  (input 1 - 100 %)

**Temp. coefficient:**  $\pm 0.015\%/^{\circ}\text{C}$  ( $\pm 0.008\%/^{\circ}\text{F}$ )

**Response time:**  $\leq 0.5$  sec. (0 - 90 %)

### Line voltage effect

**Supply output:**  $\pm 3\%$  over voltage range

**Output signal:**  $\pm 0.1\%$  over voltage range

**Insulation resistance:**  $\geq 100\ \text{M}\Omega$  with 500 V DC

**Dielectric strength:** 2000 V AC @1 minute (input or output to power 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

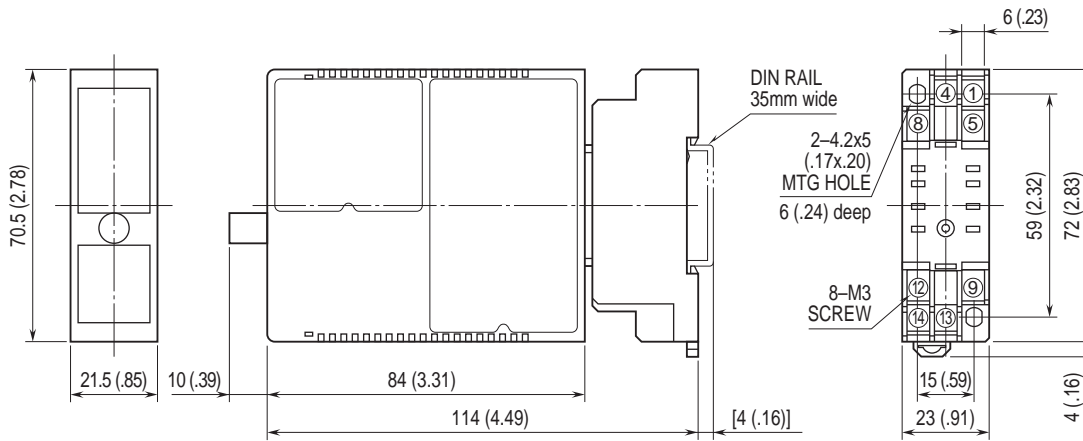
(UL 1604)

UL general safety requirements

(UL 61010B-1)

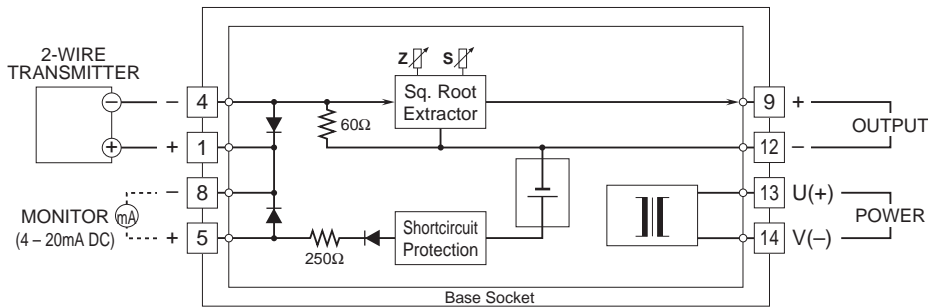


## DIMENSIONS unit: mm (inch)



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.