

## Super-mini Signal Conditioners Mini-M Series

### CURRENT LOOP SUPPLY

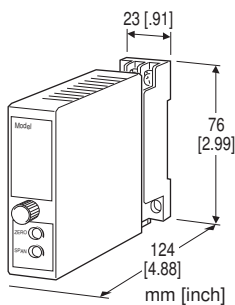
(with square root extractor; non-isolated)

#### Functions & Features

- Powers a 4 - 20 mA DC current loop
- Square root extraction
- Shortcircuit protection
- Applicable to smart transmitters

#### 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 each of [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 kΩ 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)

#### 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)

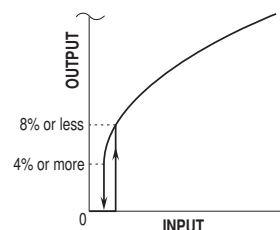
Isolation: Input or output to power

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:

Approx. 3 VA at 100 V  
Approx. 4 VA at 200 V  
Approx. 5 VA at 264 V

#### •DC: 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 lb)

## PERFORMANCE in percentage of span

**Accuracy:** ±0.2 % (input 1 - 100 %)

**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)

**Response time:** ≤ 0.5 sec. (0 - 90 %)

### Line voltage effect

**Supply output:** ±3 % over voltage range

**Output signal:** ±0.1 % over voltage range

**Insulation resistance:** ≥ 100 MΩ with 500 V DC

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

## STANDARDS & APPROVALS

### EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

### Approval:

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

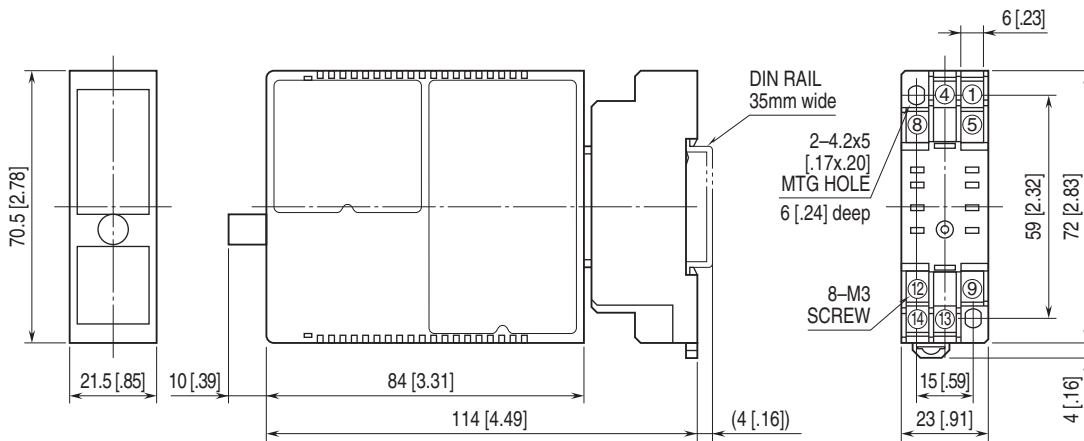
Groups A, B, C, and D

(ANSI/ISA-12.12.01, CAN/CSA-C22.2 No.213)

UL/C-UL general safety requirements

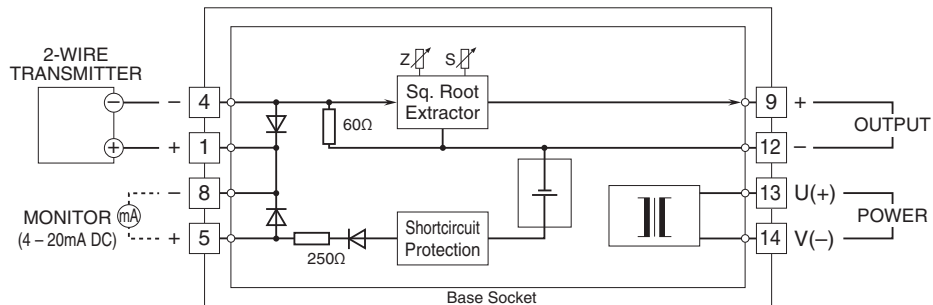
(UL 61010-1, CAN/CSA-C22.2 No.61010-1)

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.