

## Super-mini Signal Conditioners Mini-M Series

### CURRENT REPEATER

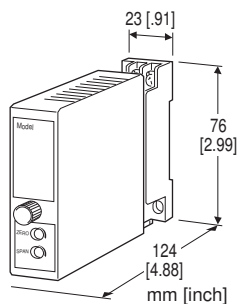
(applicable to HART signal, opencircuit detection selectable)

#### Functions & Features

- Isolation between 2-wire transmitters and current loop supplies
- Isolates and relays HART signals
- Shortcircuit protection
- Opencircuit detection selectable
- Applicable to smart transmitters

#### Typical Applications

- 2-wire HART transmitters



### MODEL: M2DYHR-24-[1][2]

#### ORDERING INFORMATION

- Code number: M2DYHR-24-[1][2]
- Specify a code from below for each of [1] and [2].  
(e.g. M2DYHR-24-M2/B/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 approx. 250 Ω)

#### OUTPUT

##### Current

4 - 20 mA DC (Supply voltage: 12 - 32 V DC)

#### [1] POWER INPUT

##### AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V,

47 - 66 Hz)

##### 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.)

#### [2] OPTIONS (multiple selections)

##### Opencircuit detection

blank: none

/B: Opencircuit detector

##### Standards & Approvals (must be specified)

/N: Without CE

/CE: 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

/C04: Polyolefin coating

##### TERMINAL SCREW MATERIAL

/S01: Stainless steel

#### 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 to power

**Overrange output:** Approx. -10 to +110 %

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

**Span adjustment:** 95 to 105 % (front)

**Opencircuit detection:** Input current 0 mA when the output loop is open.

Photo MOSFET Relay ON Resistance; 3 Ω max.

#### SUPPLY OUTPUT

(across the terminals 1 - 5)

**Output voltage:** 24 - 28 V DC with no load

18 V DC min. at 20 mA

**Current rating:** ≤ 22 mA DC

- Shortcircuit Protection

**Current limited:** 30 mA max.  
**Protected time duration:** No limit

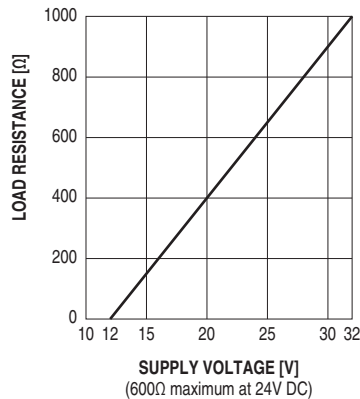
**Output signal:**  $\pm 0.1\%$  over voltage range  
**Insulation resistance:**  $\geq 100\text{ M}\Omega$  with 500 V DC  
**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

## INPUT SPECIFICATIONS

■ **DC Current:** Input resistor incorporated

## OUTPUT SPECIFICATIONS

■ **Load resistance vs. supply voltage:**  
Load Resistance ( $\Omega$ ) = (Supply Voltage (V) - 12 (V))  $\div$  0.02 (A)  
(including leadwire resistance)  
250  $\Omega \pm 10\%$  for HART communication



## STANDARDS & APPROVALS

**EU conformity:**  
EMC Directive  
EMI EN 61000-6-4  
EMS EN 61000-6-2  
Low Voltage Directive  
EN 61010-1  
Installation Category II  
Pollution Degree 2  
Input or output to power: Reinforced insulation (300 V)  
Input to output: Basic insulation (300 V)  
RoHS Directive

## HART COMMUNICATION

**Transmission gain:** Approx. -3 dB (within 1 - 3 kHz)  
measured with 250  $\Omega$  at output  
**Loop impedance:** 250  $\Omega \pm 10\%$   
**Communication directions:** Bidirectional

## INSTALLATION

### Power Consumption

• **AC:**  
Approx. 4 VA at 100 V  
Approx. 6 VA at 200 V  
Approx. 7 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:**  $\pm 0.1\%$

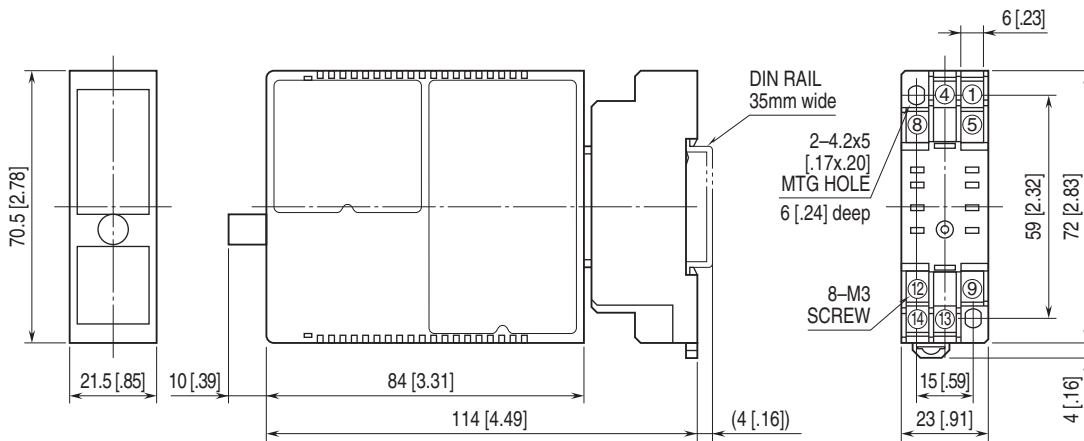
**Temp. coefficient:**  $\pm 0.015\%/^{\circ}\text{C}$  ( $\pm 0.008\%/^{\circ}\text{F}$ )

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

**Line voltage effect**

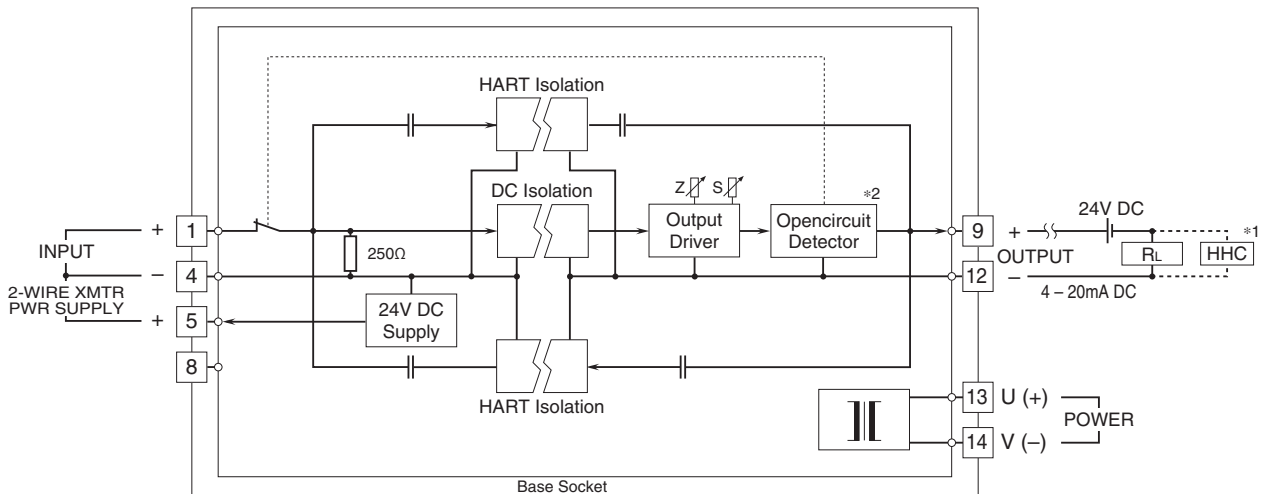
**Supply output:**  $\pm 3\%$  over voltage range

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



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

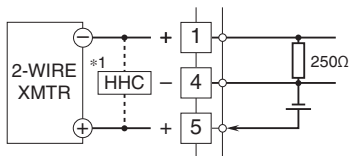
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



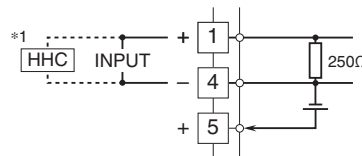
\*1. Hand-held communicator

\*2. Only for opencircuit detector (code /B)

■ When Used as DC Supply



■ When Used as Isolator



Specifications are subject to change without notice.