

## Super-mini Signal Conditioners Mini-M Series

### CURRENT REPEATER

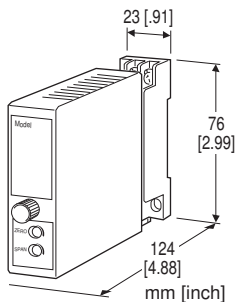
(applicable to HART signal, opencircuit detection selectable)

#### 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 our 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

## INPUT SPECIFICATIONS

■ **DC Current:** Input resistor incorporated

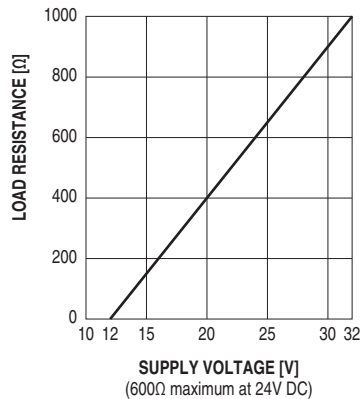
## OUTPUT SPECIFICATIONS

■ **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



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

## 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 %

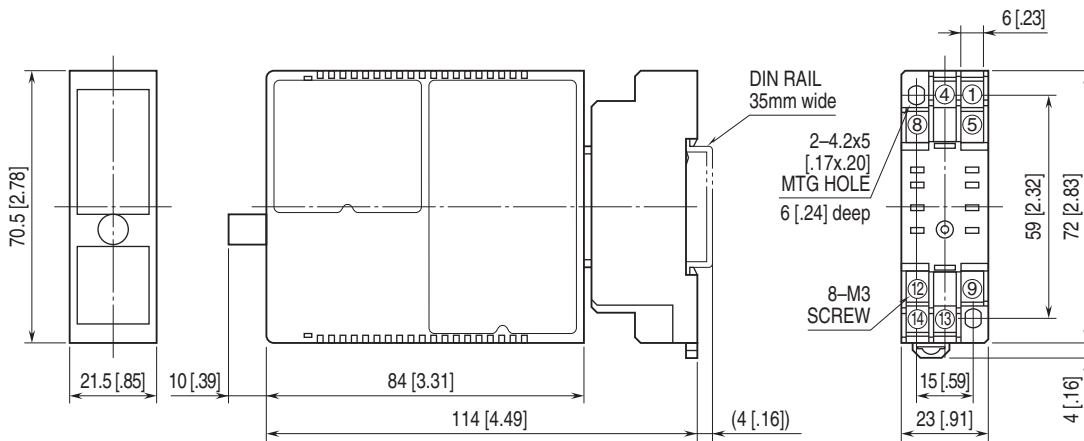
**Temp. coefficient:**  $\pm$ 0.015 %/°C ( $\pm$ 0.008 %/°F)

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

**Line voltage effect**

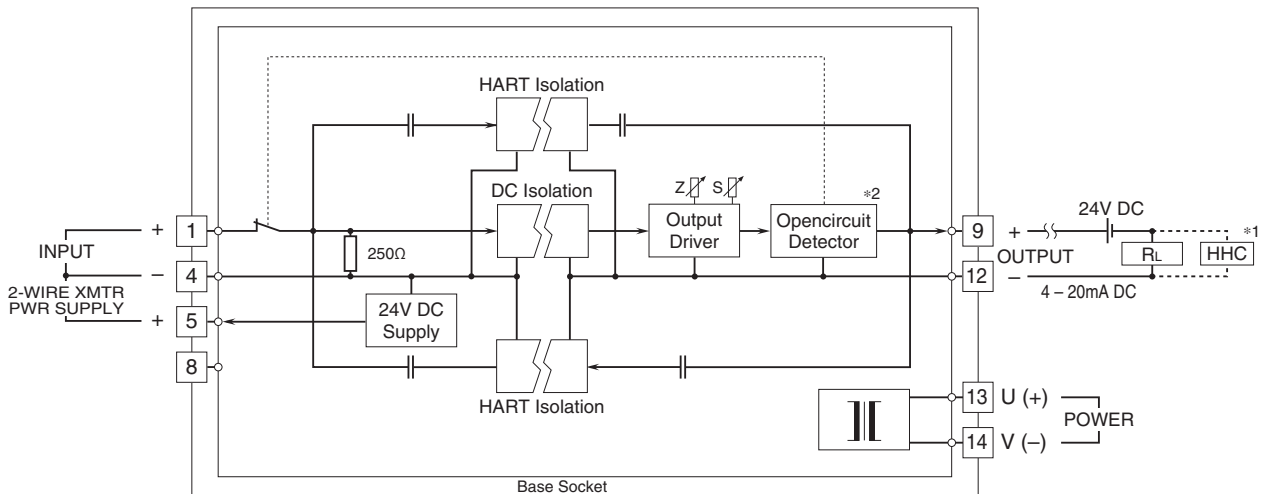
**Supply output:**  $\pm$ 3 % over voltage range

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



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

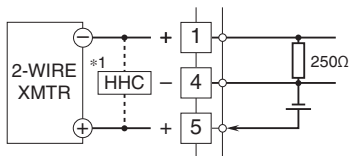
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



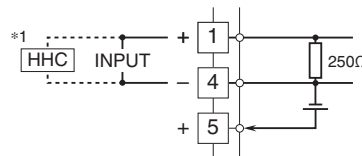
\*1. Hand-held communicator

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

■ When Used as DC Supply



■ When Used as Isolator



Specifications are subject to change without notice.