

## Super-mini Signal Conditioners Mini-M Series

### CURRENT REPEATER

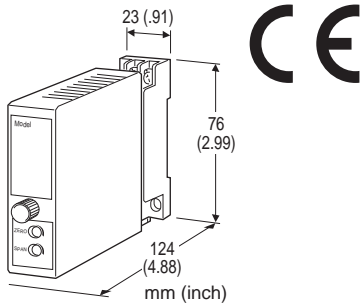
(applicable to HART signal)

#### Functions & Features

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

#### 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 [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

blank: none

/Q: With options (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

##### 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 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 MOS 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

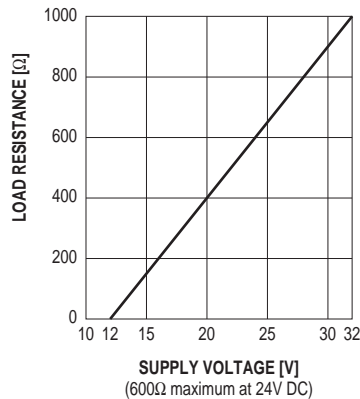
## OUTPUT SPECIFICATIONS

- **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



## STANDARDS & APPROVALS

### CE conformity:

EMC Directive (2004/108/EC)

EMI EN 61000-6-4: 2007

EMS EN 61000-6-2: 2005

Low Voltage Directive (2006/95/EC)

EN 61010-1: 2001

Installation Category II

Pollution Degree 2

Input or output to power: Reinforced insulation (300 V)

Input to output: Basic insulation (300 V)

## HART COMMUNICATION

**Transmission gain:** Approx. -3 dB (within 1 k - 3 kHz)

measured with 250  $\Omega$  at output

**Communication directions:** Bidirectional

## INSTALLATION

### Power Consumption

#### •AC Power input:

Approx. 4 VA at 100 V

Approx. 6 VA at 200 V

Approx. 7 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:**  $\pm$ 0.1 %

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

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

### Line voltage effect

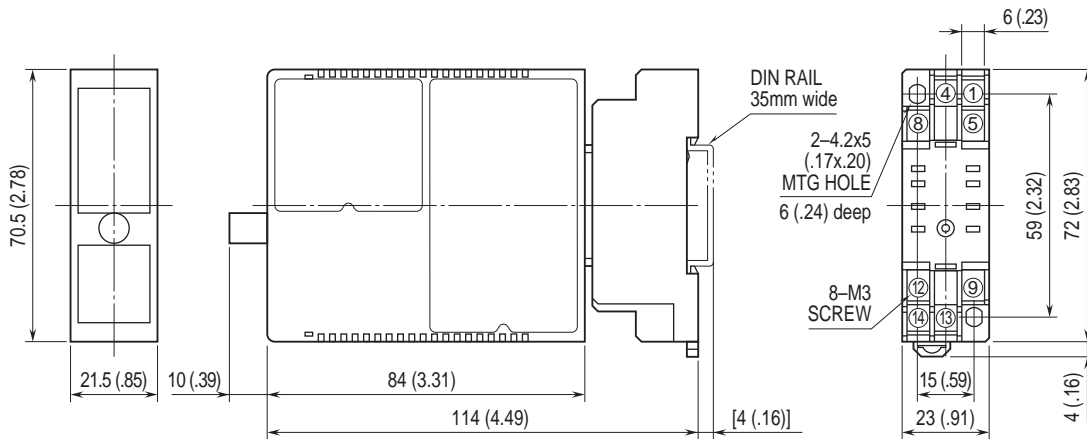
**Supply output:**  $\pm$ 3 % over voltage range

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

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

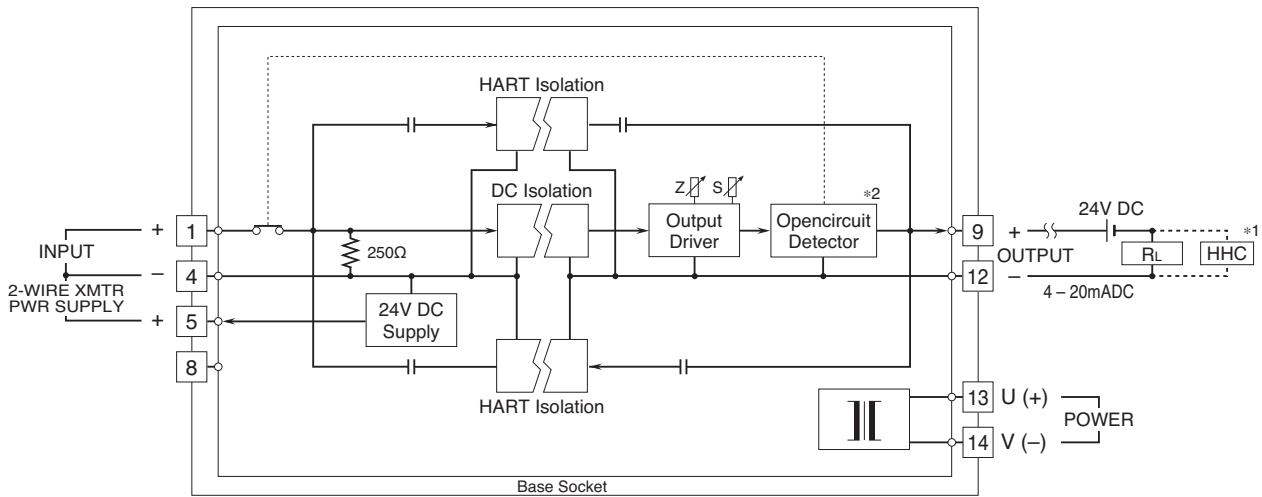
**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

## DIMENSIONS unit: mm (inch)



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

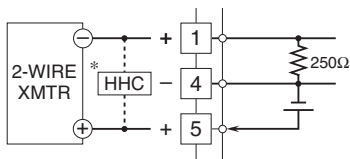
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



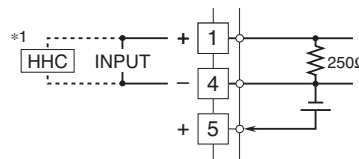
\*1. Hand-held communicator

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

### ■ When Used as DC Supply



### ■ When Used as Isolator



Specifications are subject to change without notice.