

## Space-saving Dual Output Signal Conditioners Mini-MW Series

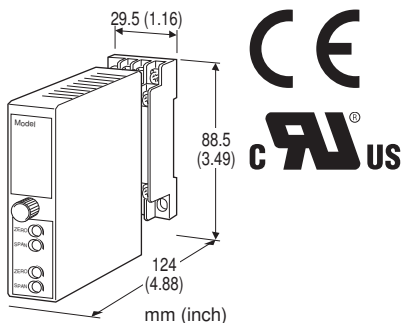
### POTENTIOMETER TRANSMITTER

#### Functions & Features

- Provides a DC output proportional to a potentiometer or slidewire position input
- Constant voltage excitation allows use with pots with total resistances from 100 – 10 k $\Omega$  without affecting accuracy
- 50 % zero/span adjustments with minimal interaction
- Fast response type available

#### Typical Applications

- Tank levels
- Positions



## MODEL: W2MS-[1][2]-[3][4]

### ORDERING INFORMATION

- Code number: W2MS-[1][2]-[3][4]  
Specify a code from below for each [1] through [4].  
(e.g. W2MS-A6-M2/K/CE/Q)
  - Special output ranges (For codes Z & 0)
  - Specify the specification for option code 'Q.'  
(e.g. /C01/S01)
- Note: If one of the outputs should be a current range, specify it for the Output 1 to allow a greater load.

### INPUT

Total resistance 100  $\Omega$  – 10 k $\Omega$

### [1] OUTPUT 1

#### Current

- A: 4 – 20 mA DC (Load resistance 750  $\Omega$  max.)
- B: 2 – 10 mA DC (Load resistance 1500  $\Omega$  max.)
- C: 1 – 5 mA DC (Load resistance 3000  $\Omega$  max.)
- D: 0 – 20 mA DC (Load resistance 750  $\Omega$  max.)
- E: 0 – 16 mA DC (Load resistance 900  $\Omega$  max.)
- F: 0 – 10 mA DC (Load resistance 1500  $\Omega$  max.)

G: 0 – 1 mA DC (Load resistance 15 k $\Omega$  max.)

Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

- 1: 0 – 10 mV DC (Load resistance 10 k $\Omega$  min.)
- 2: 0 – 100 mV DC (Load resistance 100 k $\Omega$  min.)
- 3: 0 – 1 V DC (Load resistance 1000  $\Omega$  min.)
- 4: 0 – 10 V DC (Load resistance 10 k $\Omega$  min.)
- 5: 0 – 5 V DC (Load resistance 5000  $\Omega$  min.)
- 6: 1 – 5 V DC (Load resistance 5000  $\Omega$  min.)
- 4W: -10 – +10 V DC (Load resistance 10 k $\Omega$  min.)
- 5W: -5 – +5 V DC (Load resistance 5000  $\Omega$  min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

### [2] OUTPUT 2

Y: None

#### Current

- A: 4 – 20 mA DC (Load resistance 350  $\Omega$  max.)
- B: 2 – 10 mA DC (Load resistance 700  $\Omega$  max.)
- C: 1 – 5 mA DC (Load resistance 1400  $\Omega$  max.)
- D: 0 – 20 mA DC (Load resistance 350  $\Omega$  max.)
- E: 0 – 16 mA DC (Load resistance 430  $\Omega$  max.)
- F: 0 – 10 mA DC (Load resistance 700  $\Omega$  max.)
- G: 0 – 1 mA DC (Load resistance 7000  $\Omega$  max.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

#### Voltage

Same range availability as Output 1

### [3] POWER INPUT

#### AC Power

M2: 100 – 240 V AC (Operational voltage range 85 – 264 V, 47 – 66 Hz)  
(90 – 264 V for UL)

#### DC Power

R: 24 V DC  
(Operational voltage range 24 V  $\pm$ 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.)  
(110 V  $\pm$ 10 % for UL)

### [4] OPTIONS (multiple selections)

#### Response Time (0 – 90 %)

blank: Standard ( $\leq$  0.5 sec.)  
/K: Fast Response (Approx. 25 msec.)

#### 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)

**Screw terminal:** Chromated steel (standard) or stainless steel

**Housing material:** Flame-resistant resin (black)

**Isolation:** Input to output 1 to output 2 to power

**Zero adjustment:** 0 - 50 % of total resistance (front)

**Span adjustment:** 50 - 100 % of total resistance (front)

Adjustable individually for each output 1 and output 2.

## INPUT SPECIFICATIONS

**Minimum span:** 50 % of total resistance

**Excitation:** 0.5 V DC

## OUTPUT SPECIFICATIONS

■ **DC Current:** 0 - 20 mA DC

**Minimum span:** 1 mA

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 15 V max. for Output 1;  
7 V max. for Output 2

■ **DC Voltage:** -10 - +12 V DC (up to 10 V for Output 2)

**Minimum span:** 5 mV

**Offset:** Max. 1.5 times span

**Load resistance:** Output drive 1 mA max.; at  $\geq 0.5$  V

## INSTALLATION

**Power Consumption**

• **AC:**

Approx. 4 VA at 100 V

Approx. 5 VA at 200 V

Approx. 6 VA at 240 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:** 200 g (0.44 lb)

## PERFORMANCE in percentage of span

**Accuracy:**  $\pm 0.1$  %

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

**Line voltage effect:**  $\pm 0.1$  % over voltage range

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

**Dielectric strength:** 2000 V AC @1 minute (input to output  
1 to output 2 to power to ground)

## STANDARDS & APPROVALS

**EU conformity:**

EMC Directive 2004/108/EC (until April 19th, 2016) and

Directive 2014/30/EU (from April 20th, 2016)

EMI EN 61000-6-4: 2007/A1: 2011

EMS EN 61000-6-2: 2005

Low Voltage Directive 2006/95/EC (until April 19th, 2016)

and Directive 2014/35/EU (from April 20th, 2016)

EN 61010-1: 2010

Installation Category II

Pollution Degree 2

Input or output 1 or output 2 to power input:

Reinforced insulation (300 V)

Input to output 1 to output 2: Basic insulation (300 V)

RoHS Directive 2011/65/EU

EN 50581:2012

**Approval:**

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

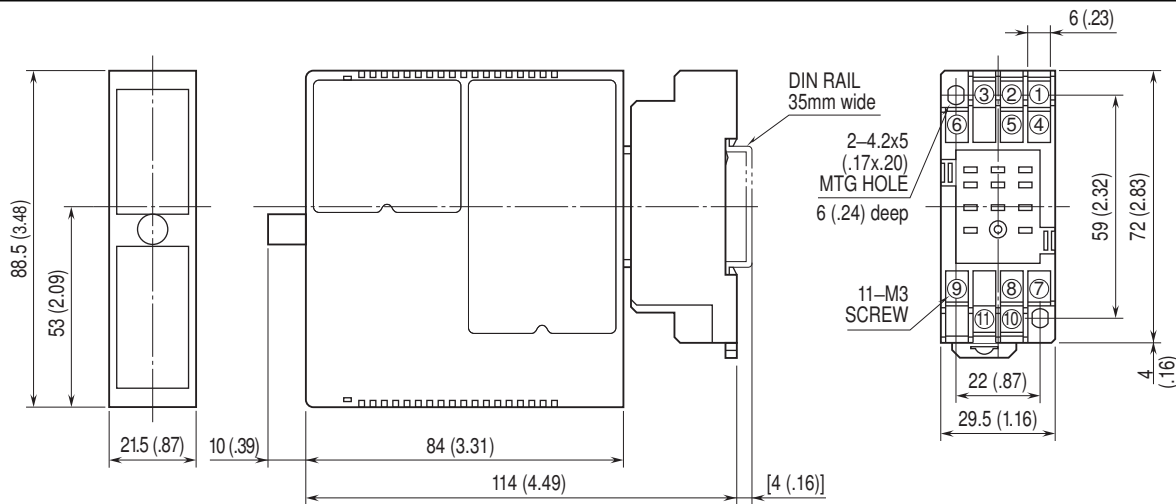
Groups A, B, C, and D

(ANSI/ISA-12.12.01:2013, CAN/CSA-C22.2 No.213:1987)

UL/C-UL general safety requirements

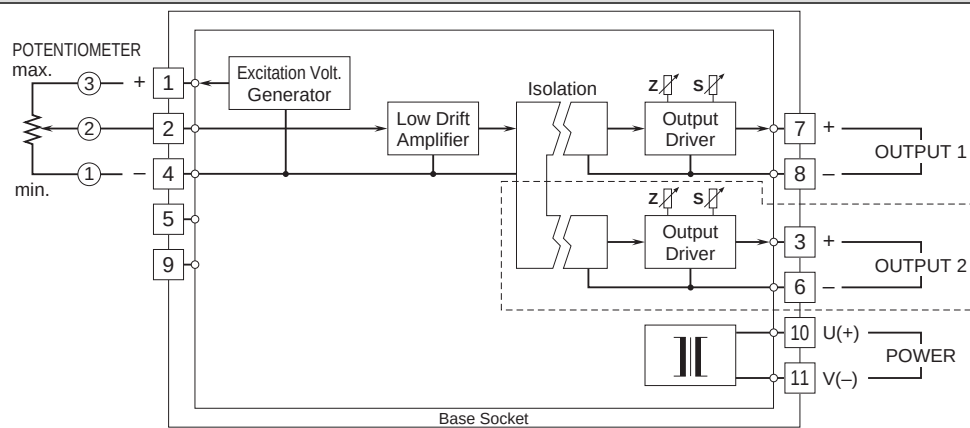
(UL 61010-1:2008, CAN/CSA-C22.2 No.61010-1:2008)

## DIMENSIONS unit: mm (inch)



When mounting, no extra space is needed between units.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Remark: The section enclosed by broken line is only with 2nd output option.



Specifications are subject to change without notice.