Super-mini Signal Conditioners Mini-M Series

SIGNAL TRANSMITTER
(two isolated outputs)

Functions & Features
• Converts DC input from a sensor into a standard process signal
• Fast response type available

Typical Applications
• Isolation between control room and field instrumentation

MODEL: M2WVS-[1][2][3]-[4][5]

ORDERING INFORMATION
• Code number: M2WVS-[1][2][3]-[4][5]
  Specify a code from below for each [1] through [5].
  (e.g. M2WVS-6A6-M2/K/CE/Q)
• Special input and output ranges (For codes Z & 0)
  • Specify the specification for option code /Q
    (e.g. /C01/S01)
Note: When the user requires a current and a voltage output, specify the current to be the Output 1 which allows a greater load.

[1] INPUT
Current
A: 4 – 20 mA DC (Input resistance 250 Ω)
A1: 4 – 20 mA DC (Input resistance 50 Ω)
B: 2 – 10 mA DC (Input resistance 500 Ω)
C: 1 – 5 mA DC (Input resistance 1000 Ω)
D: 0 – 20 mA DC (Input resistance 50 Ω)
E: 0 – 16 mA DC (Input resistance 62.5 Ω)
F: 0 – 10 mA DC (Input resistance 100 Ω)
G: 0 – 1 mA DC (Input resistance 1000 Ω)
H: 10 – 50 mA DC (Input resistance 1000 Ω)
J: 0 – 10 μA DC (Input resistance 1000 Ω)
K: 0 – 100 μA DC (Input resistance 1000 Ω)
GW: -1 – +1 mA DC (Input resistance 1000 Ω)

FW: -10 – +10 mA DC (Input resistance 100 Ω)
Z: Specify current (See INPUT SPECIFICATIONS)

Voltage
1: 0 – 10 mV DC (Input resistance 10 kΩ min.)
(Select ‘N’ for ‘Standards & Approvals’ code.)
15: 0 – 50 mV DC (Input resistance 10 kΩ min.)
16: 0 – 60 mV DC (Input resistance 10 kΩ min.)
2: 0 – 100 mV DC (Input resistance 100 kΩ min.)
3: 0 – 1 V DC (Input resistance 1 MΩ min.)
4: 0 – 10 V DC (Input resistance 1 MΩ min.)
5: 0 – 5 V DC (Input resistance 1 MΩ min.)
6: 1 – 5 V DC (Input resistance 1 MΩ min.)
4W: -10 – +10 V DC (Input resistance 1 MΩ min.)
5W: -5 – +5 V DC (Input resistance 1 MΩ min.)
0: Specify voltage (See INPUT SPECIFICATIONS)

[2] OUTPUT 1
Current
A: 4 – 20 mA DC (Load resistance 750 Ω max.)
B: 2 – 10 mA DC (Load resistance 1500 Ω max.)
C: 1 – 5 mA DC (Load resistance 3000 Ω max.)
D: 0 – 20 mA DC (Load resistance 750 Ω max.)
E: 0 – 16 mA DC (Load resistance 900 Ω max.)
F: 0 – 10 mA DC (Load resistance 1500 Ω max.)
G: 0 – 1 mA DC (Load resistance 15 kΩ max.)
Z: Specify current (See OUTPUT SPECIFICATIONS)

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

[3] OUTPUT 2
Y: None

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

Voltage
Same range availability as Output 1
[4] 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.)

[5] OPTIONS (multiple selections)

Response Time (0 – 90 %)
blank: Standard (≤ 0.5 sec.)
/K: Fast Response (Approx. 25 msec.)

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

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
Overrange output: Approx. -10 to +120 % at 1 – 5 V
Zero adjustment: -5 to +5 % (front)
(No output less than 0 mA for codes D, E, F)
Span adjustment: 95 to 105 % (front)
Adjustable individually for each output 1 and output 2.

INPUT SPECIFICATIONS

■ DC Current:
Shunt resistor attached to the input terminals (0.5 W)
Specify input resistance value for code Z.
■ DC Voltage: -300 – +300 V DC

Minimum span: 3 mV
Offset: Max. 1.5 times span
Input resistance
Span 3 – 10 mV : ≥ 10 kΩ
Span 10 – 100 mV : ≥ 10 kΩ
Span 0.1 – 1 V : ≥ 100 kΩ
Span ≥ 1 V : ≥ 1 MΩ

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 ≥ 0.5 V

INSTALLATION

Power consumption
• AC:
  ≤ 3 VA at 100 V
  ≤ 4 VA at 200 V
  ≤ 5 VA at 264 V
• DC: ≤ 3 W
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 10 to 85 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: 150 g (0.33 lb)

PERFORMANCE in percentage of span

Accuracy: ±0.1 %
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ 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
EMI EN 61000-6-4
EMS EN 61000-6-2
Low Voltage Directive
EN 61010-1
Installation Category II
Pollution Degree 2
Input to power input: Reinforced insulation (300 V)
Output 1 or output 2 to power input: Basic insulation (300...
V)
Input to output 1 to output 2: Basic insulation (300 V)
RoHS Directive
EN 50581

**EXTERNAL VIEW**

![Diagram of the M2WVS model showing the external view with zero and span adjustments for output 1 and output 2.]

**EXTERNAL DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension (mm)</th>
<th>Dimension (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>21.5</td>
</tr>
<tr>
<td>Height</td>
<td>10.5</td>
</tr>
<tr>
<td>Depth</td>
<td>2.78</td>
</tr>
</tbody>
</table>

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

**TERMINAL ASSIGNMENTS**

- **Input Resistor** (model: REM2)

  ![Diagram showing terminal assignments with input shunt resistor attached for current input.]

  Input shunt resistor attached for current input.
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Specifications are subject to change without notice.

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

* Input shunt resistor attached for current input.