

Plug-in Signal Conditioners M-UNIT

SPLIT-RANGE TRANSMITTER

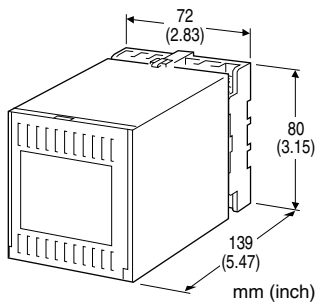
(isolated four outputs)

Functions & Features

- Generates four isolated signals which could control multiple final control elements
- PC programmable
- High-density mounting

Typical Applications

- Manipulating multiple valves for split-range control



MODEL: MFS2-[1][2]-[3]

ORDERING INFORMATION

- Code number: MFS2-[1][2]-[3]
Specify a code from below for each [1] through [3].
(e.g. MFS2-A4-M)
- Use Ordering Information Sheet (No. ESU-1383)
- Factory default setting (See "OPERATION DIAGRAM") will be used if not otherwise specified.

[1] INPUT

Current

A: 4 - 20 mA DC (Input resistance 250 Ω)

Voltage

4: 0 - 10 V DC (Input resistance 1 MΩ min.)

6: 1 - 5 V DC (Input resistance 1 MΩ min.)

[2] OUTPUT 1 through 4

Current

A: 4 - 20 mA DC (Load resistance 500 Ω max.)

Voltage

4: 0 - 10 V DC (Load resistance 10 kΩ min.)

6: 1 - 5 V DC (Load resistance 5000 Ω min.)

[3] POWER INPUT

AC Power

M: 85 - 264 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.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

RELATED PRODUCTS

- PC configurator software (model: MFS2CFG)
Software downloadable at M-System's web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual for the PC configurator for applicable cable types.

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals

Housing material: Flame-resistant resin (black)

Isolation: Input to output 1 to output 2 to output 3 to output 4 to power

Overrange output: 0 to 100 %

Zero adjustment: -5 to +5 % (PC programming)

Span adjustment: 95 to 105 % (PC programming)

Power LED: Green light turns on in normal operating conditions.

Programming: Downloaded from PC; I/O characteristics, high/low limits, fixed output, etc.

Configurator connection: 2.5 dia. miniature jack; RS-232-C level

Fixed output: Preset fixed outputs provided by contact signal control at the terminals 5 - 6 (Open or Close trigger conditions can be programmed.)

INPUT SPECIFICATIONS

- DC Current:

Shunt resistor attached to the input terminals (0.5 W)

■ CONTACT INPUT

ON resistance: ≤ 200 Ω

OFF resistance: ≥ 100 kΩ

INSTALLATION

Power Consumption

- AC:

approx. 3 VA at 100 V

approx. 3.5 VA at 200 V

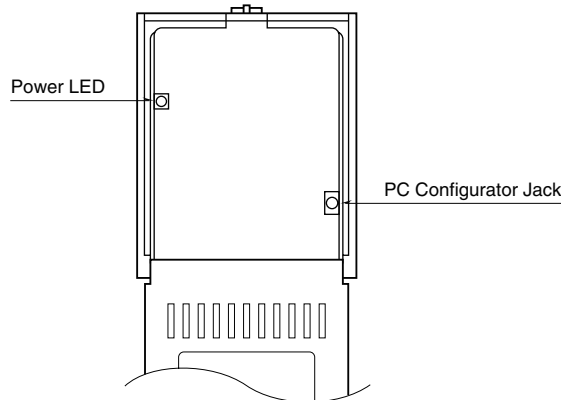
approx. 4 VA at 264 V

- DC Power input: Approx. 2 W
- Operating temperature: 0 to 50°C (32 to 122°F)
- Operating humidity: 30 to 90 %RH (non-condensing)
- Mounting: Surface or DIN rail
- Weight: 400 g (0.88 lbs)

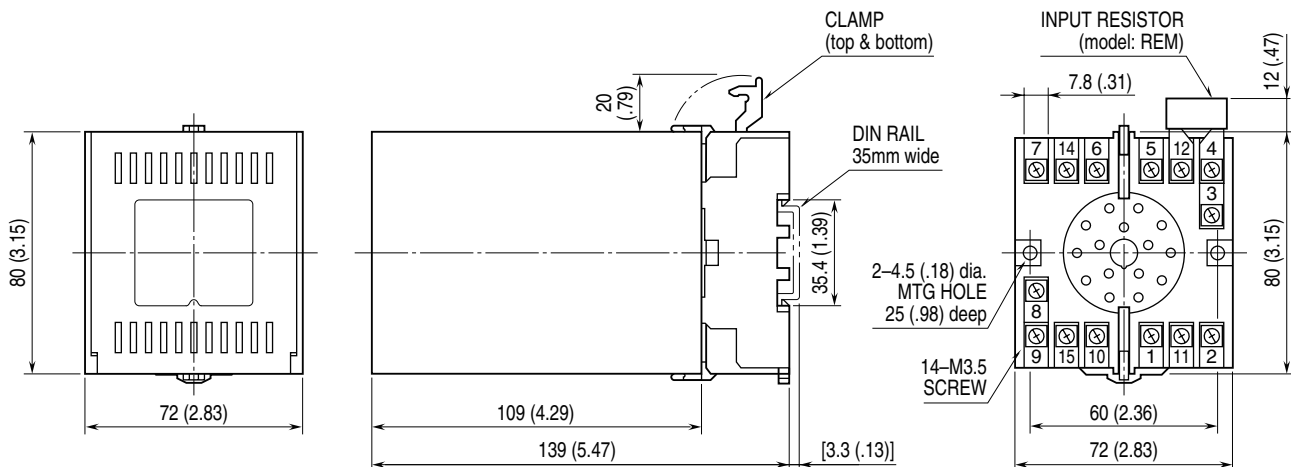
PERFORMANCE in percentage of span

- Accuracy: $\pm 0.5\%$
- Temp. coefficient: $\pm 0.05\%/^{\circ}\text{C}$ ($\pm 0.03\%/^{\circ}\text{F}$)
- Response time: ≤ 0.5 sec. (0 - 90 %)
- Line voltage effect: $\pm 0.5\%$ over voltage range
- Insulation resistance: $\geq 100\ \text{M}\Omega$ with 500 V DC
- Dielectric strength: 2000 V AC @ 1 minute
(input to output 1 or output 2 or output 3 or output 4 to power to ground)
- 500 V AC @ 1 minute (between each output)

EXTERNAL VIEW

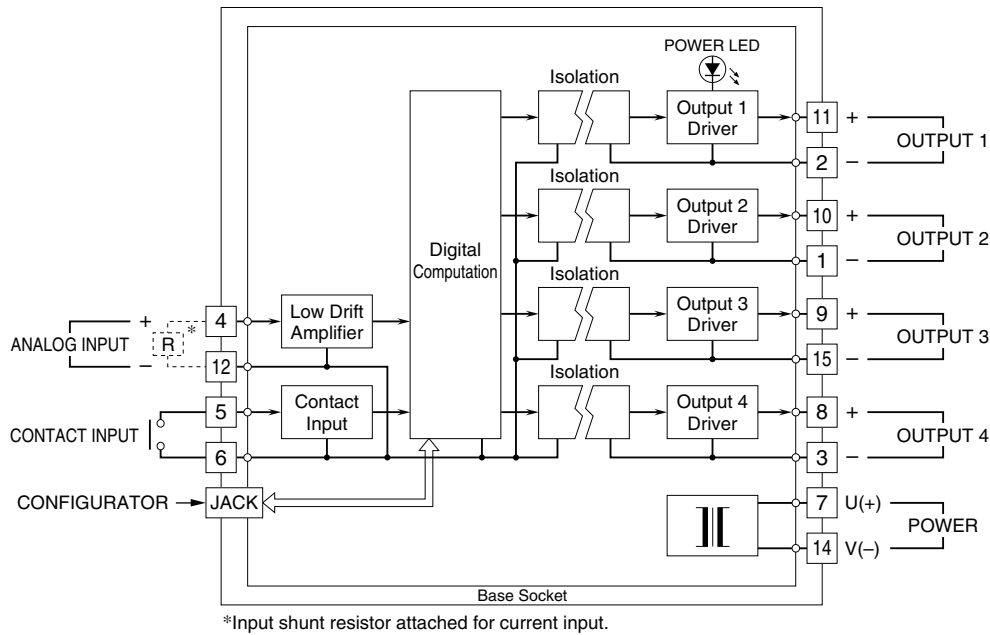


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



- When mounting, no extra space is needed between units.
- Input shunt resistor attached for current input.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



OPERATION DIAGRAM

The diagram below shows an example of I/O characteristics as specified in Table 1.

The split-range operations can be specified when ordering, by using Ordering Information Sheet, or programmed by the user using PC Configurator Software. Please refer to Users Manual for the PC Configurator for more information.

- 1) Two pairs of analog input and output in % define each split I/O range.
Proportional (positive) or inverted (negative) characteristics can be specified.
- 2) High and low limits for each output can be specified independently within the full-scale range.
- 3) Fixed output value for each output can be specified independently in advance.
These outputs are provided when the contact input is closed or opened (predefined).
H limit ≥ Fixed output ≥ Low limit
- 4) Applying the fixed output or not can be specified independently for each output.

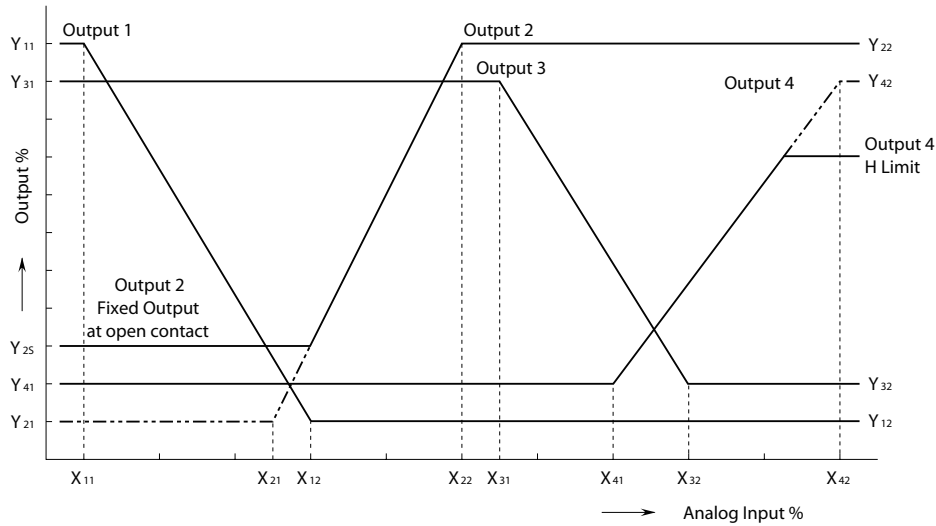


Table 1

	INPUT %	OUTPUT %	LIMIT %	FIXED OUTPUT %	CONTACT INPUT	TRIGGER CONDITION
Output 1	X ₁₁ = 0.00 X ₁₂ = 30.00	Y ₁₁ = 100.00 Y ₁₂ = 0.00	H ₁ = 100.00 L ₁ = 0.00	Y _{1S} = 0.00	Not applied	----
Output 2	X ₂₁ = 25.00 X ₂₂ = 50.00	Y ₂₁ = 0.00 Y ₂₂ = 100.00	H ₂ = 100.00 L ₂ = 0.00	Y _{2S} = 30.00	Applied	Open
Output 3	X ₃₁ = 55.00 X ₃₂ = 80.00	Y ₃₁ = 90.00 Y ₃₂ = 10.00	H ₃ = 90.00 L ₃ = 10.00	Y _{3S} = 0.00	Not applied	----
Output 4	X ₄₁ = 70.00 X ₄₂ = 100.00	Y ₄₁ = 10.00 Y ₄₂ = 90.00	H ₄ = 70.00 L ₄ = 10.00	Y _{4S} = 0.00	Not applied	----

Factory default setting used if no Ordering Information is provided:

	INPUT %	OUTPUT %	LIMIT %	FIXED OUTPUT %	CONTACT INPUT	TRIGGER CONDITION
Output 1	X ₁₁ = 0.00 X ₁₂ = 100.00	Y ₁₁ = 0.00 Y ₁₂ = 100.00	H ₁ = 100.00 L ₁ = 0.00	Y _{1S} = 0.00	Not applied	Open
Output 2	X ₂₁ = 0.00 X ₂₂ = 100.00	Y ₂₁ = 0.00 Y ₂₂ = 100.00	H ₂ = 100.00 L ₂ = 0.00	Y _{2S} = 0.00	Not applied	Open
Output 3	X ₃₁ = 0.00 X ₃₂ = 100.00	Y ₃₁ = 0.00 Y ₃₂ = 100.00	H ₃ = 100.00 L ₃ = 0.00	Y _{3S} = 0.00	Not applied	Open
Output 4	X ₄₁ = 0.00 X ₄₂ = 100.00	Y ₄₁ = 0.00 Y ₄₂ = 100.00	H ₄ = 100.00 L ₄ = 0.00	Y _{4S} = 0.00	Not applied	Open



Specifications are subject to change without notice.