

Plug-in Signal Conditioners MX-UNIT

SIGNAL TRANSMITTER

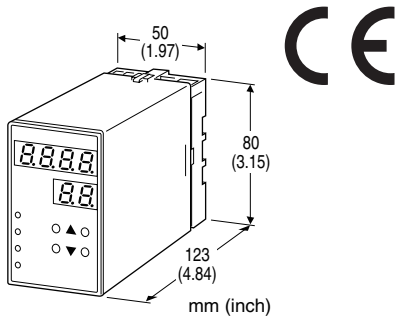
(front configurable function module)

Functions & Features

- Converts a DC input into a standard process signal
- Field-programmable I/O range
- Easy programming via front UP-DOWN keys with a help of 4-digit and 2-digit displays
- Square, square root, reciprocal functions
- I/O signal inversion feature
- Ratio + output bias setting
- High/low limits setting
- Isolation up to 2000 V AC
- Loop test output
- High-density mounting

Typical Applications

- Isolation between control room and field instrumentation
- Wide span adjustment for measured signals
- Securing minimum fuel flow in a combustion control loop



MODEL: MXF-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: MXF-[1][2]-[3][4]
- Specify a code from below for each [1] through [4]. (e.g. MXF-S1V1-M2/Q)
- Specify the specification for option code /Q (e.g. /SET)

[1] INPUT

Voltage

- S1:** Range -1 - +1 V DC (Input resistance 1 MΩ min.)
- S2:** Range -10 - +10 V DC (Input resistance 1 MΩ min.)
- S3:** Range -30 - +30 V DC (Input resistance 1 MΩ min.)

[2] OUTPUT

Current

Z1: Range 0 - 20 mA DC (Load resistance 600Ω max.)

Voltage

- V1:** Range -1 - +1 V DC (Load resistance 1000Ω min.)
- V2:** Range -10 - +10 V DC (Load resistance 10kΩ min.)

[3] 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.)
- P:** 110 V DC (Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

[4] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet (No. ESU-1718)

RELATED PRODUCTS

- Resistor module (model: REM)

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals

Housing material: Flame-resistant resin (black)

Isolation: Input to output to power

Formula: $X_o = K \times F(X_i) + B$

where

X_o = Output

X_i = Input

$F()$ = Function

B = Output bias

K = Output gain

Programming: Via front keys

- Function (Proportional, Square, Reciprocal, Square root)
- Scaled range
- Input range
- Output range
- Moving average
- etc...

(Refer to the instruction manual for details)



■ DISPLAY

LED: 8 mm (.31") 7 segment, red

Number of display digits: 4 digits for DATA display; 2 digits for ITEM display

Scaling: -9999 to 9999

PV indication: Output signal in engineering unit

Overrange indication: DATA display LEDs blink at I/O overrange or when the output limit is activated.

Power saving mode: Displays turn off if the keys are untouched for a preset time period

LEDs: Red; the PL1 turns on with negative polarity and the PL2 with programming error.

INPUT SPECIFICATIONS

■ INPUT

Code S1: -1.00 - +1.00 V DC

Operational range: -1.15 - +1.15 V DC

Minimum increment: 10 mV

Code S2: -10.0 - +10.0 V DC

Operational range: -11.5 - +11.5 V DC

Minimum increment: 100 mV

Code S3: -30.0 - +30.0 V DC

Operational range: -34.5 - +34.5 V DC

Minimum increment: 100 mV

Notes:

-Set the 100 % input value with a larger value than the 0 % input value.

-Inverted output is available with the configuration.

-Operational range is of -15 to +115 % or in the usable range as indicated above.

Default setting:

Code S1: -1.00 - +1.00 V DC

Code S2: -10.0 - +10.0 V DC

Code S3: -30.0 - +30.0 V DC

OUTPUT SPECIFICATIONS

■ DC Current: 0.0 - 20.0 mA DC

Operational range: 0.0 - 24.0 mA DC

Minimum increment: 0.1 mA

Default setting: 4.0 - 20.0 mA DC

■ DC Voltage

Code V1: -1.00 - +1.00 V DC

Operational range: -1.15 - +1.15 V DC

Minimum increment: 10 mV

Code V2: -10.0 - +10.0 V DC

Operational range: -11.5 - +11.5 V DC

Minimum increment: 100 mV

Note: Set to the 100 % output with a larger value than the 0 % output value.

Default setting:

Code V1: -1.00 - +1.00 V DC

Code V2: -10.0 - +10.0 V DC

INSTALLATION

Power consumption

•AC:

approx. 3 VA at 100 V

approx. 4.5 VA at 200 V

approx. 5.5 VA at 264 V

•DC: Approx. 3.5 W (100 mA at 24 V)

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 450 g (0.99 lb)

PERFORMANCE

Accuracy: Input + output

Input: $\pm 0.05\%$

Output: $\pm 0.05\%$

Min. span required to ensure the accuracy:

20 % of the nominal I/O range

Display accuracy: Input accuracy ± 1 digit (with 0.0 - 100.0 scaling)

Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ ($\pm 0.008\%/^{\circ}\text{F}$)

Response time: ≤ 0.5 sec. (0 - 90 %)

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

Insulation resistance: $\geq 100\text{ M}\Omega$ with 500 V DC

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

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

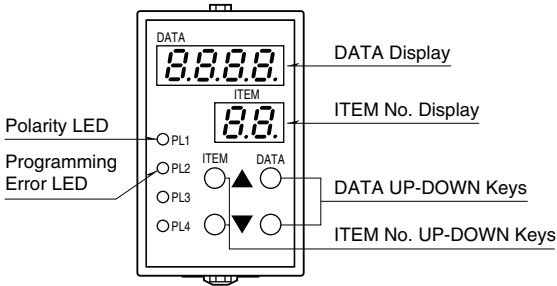
Pollution Degree 2

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

Input to output: Basic insulation (300 V)

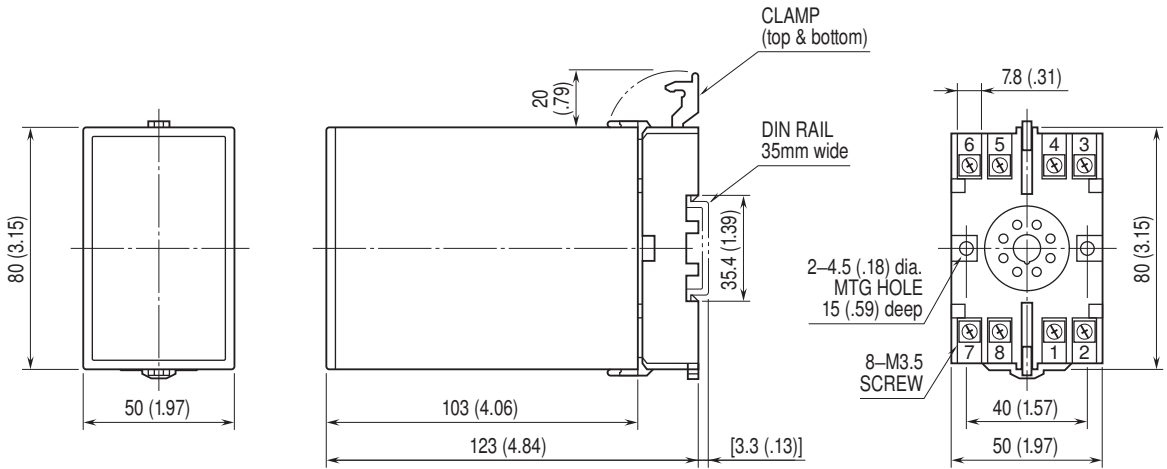


EXTERNAL VIEW



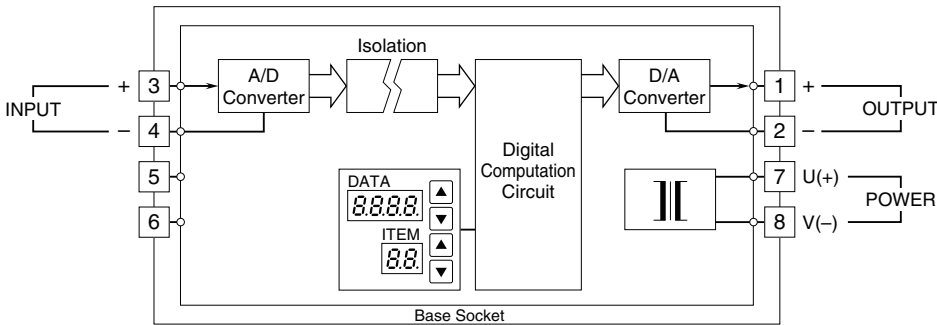
Refer to the instruction manual for detailed procedures.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.