

## Plug-in Signal Conditioners MX-UNIT

### SIGNAL TRANSMITTER

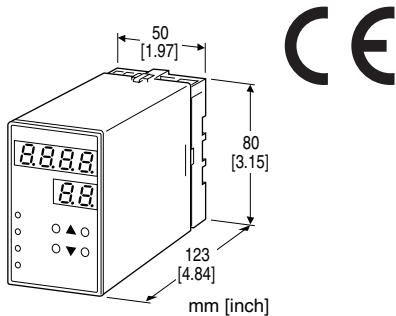
(front configurable function module)

#### 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 of [1] through [4].  
(e.g. MXF-S1V1-M2/Q)
- Specify the specification for option code /Q  
(e.g. /C01/S01/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 (multiple selections)

**COATING** (For the detail, refer to our web site.)

**/C01:** Silicone coating

**/C02:** Polyurethane coating

**/C03:** Rubber coating

**TERMINAL SCREW MATERIAL**

**/S01:** Stainless steel

**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

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

**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:** ±0.05 %

**Output:** ±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:** ±0.015 %/°C (±0.008 %/°F)

**Response time:** ≤ 0.5 sec. (0 – 90 %)

**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 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

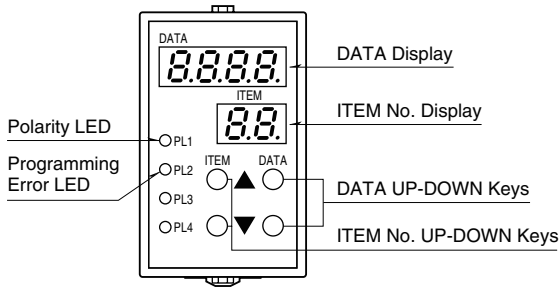
Pollution Degree 2

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

Input to output: Basic insulation (300 V)

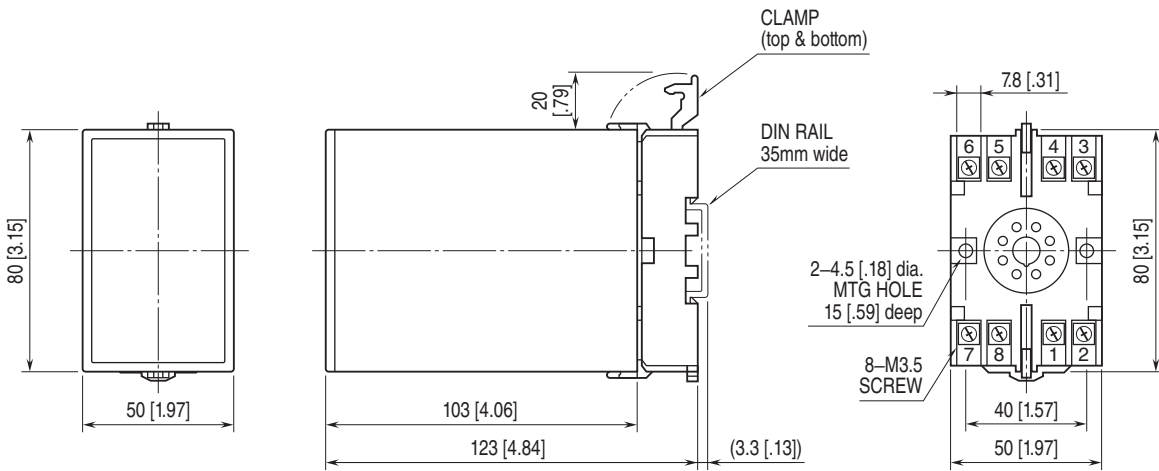
RoHS Directive

## EXTERNAL VIEW



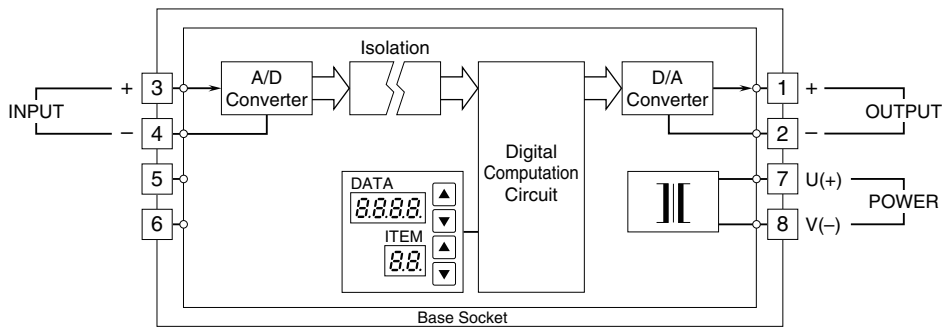
Refer to the instruction manual for detailed procedures.

## 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.