Super-mini Signal Conditioners *Mini-M Series*

LINEARIZER
(PC programmable)

MODEL **M2XF**

MODEL & SUFFIX CODE SELECTION

M2XF–❑❑–❑❑

MODEL
INPUT*1
Current
Z1 : Range 0 – 50mA DC
Voltage
S1 : Range -1 – +1V DC
S2 : Range -10 – +10V DC
OUTPUT*2
Current
Z1 : Range 0 – 20mA DC
Voltage
V1 : Range -2.5 – +2.5V DC
V2 : Range -10 – +10V DC
POWER INPUT
AC Power: **M2** : 100 – 240V AC
DC Power: **R** : 24V DC; **P** : 110V DC
STANDARDS & APPROVALS
/N : Without CE or UL
/CE: CE marking
/UL : UL approval (CE marking)

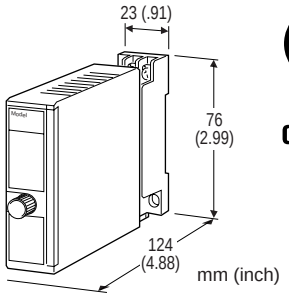
*1: Configurator software is used to change input over the described range of the selected suffix code. For changing out of this range (between S1 and S2), set the Input Range Selector on the side of unit before software adjustment.
For a current input, set the Selector to the same setting as for S2 and use a receiving resistor.
*2: Configurator software is used to change output over the described range of the selected suffix code. For changing out of this range, set the Output Range Selectors inside the unit before software adjustment.

ORDERING INFORMATION

Specify code number and variables. Default setting (table below) will be used if not otherwise specified.
- **Code number** (e.g. M2XF-S2Z1-M2/CE)
- **Input range** (e.g. 0 – 5V DC)
- **Output range** (e.g. 4 – 20mA DC)

INPUT CODE	DEFAULT
Z1	4 – 20mA DC
S1	0 – 100mV DC
S2	1 – 5V DC
OUTPUT CODE	**DEFAULT**
Z1	4 – 20mA DC
V1	0 – 1V DC
V2	1 – 5V DC

ISOLATION



Functions & Features
• Accepting non-linear input and providing a linearized output, proportional to the process variables • 100-point calibration • PC programmable • Three-way isolation • High-density mounting • Wide ambient temperature range • CE marking • UL approval

Typical Applications
• V-notch weir • Gas analyzer • Irregular-shaped tank level input for volume calculation • Square root extracting for DP transmitter

RELATED PRODUCTS

- **JX configurator connection kit** (model: JXCON)

GENERAL SPECIFICATIONS

Construction: plug-in
Connection: M3 screw terminals (torque 0.8 N·m)
Housing material: flame-resistant resin (black)
Isolation: input to output to power
Overrange output: approx. -15 – +115%
(Negative current output is not provided.)
Manual zero/span adjustments: See Front View.
Linearization: 100 points max. within the range of -15 – +115% input or output; represented as percentage of full-scale (No table setting is done at shipping. [gain = 1])
Programming: downloaded from PC; input range, output range, zero and span, simulating output, linearization table, etc.
Status indicator LED: flashing patterns indicate different operating status of the transmitter.
Configurator connection: 2.5 dia. miniature jack; RS-232C level

INPUT & OUTPUT

■INPUT

•**DC Current**: 0 – 50mA DC; shunt resistor attached to input terminals (100Ω, 0.5W)
Operational range: 0 – 70mA DC
Minimum span: 2mA
Zero suppression: available

•**DC Voltage**: -10 – +10V DC
Operational range: -11.5 – +11.5V DC
Minimum span: 10mV for S1; 100mV for S2
Zero suppression/elevation: available

■OUTPUT

•**DC Current**: 0 – 20mA DC
Operational range: 0 – 24mA DC
Minimum span: 1mA
Zero suppression: available
Load resistance: output drive 15V maximum (e.g. 4 – 20mA: 750Ω [15V/20mA])

•**DC Voltage**: -2.5 – +2.5V DC for V1; -10 – +10V DC for V2
Operational range: -3 – +3V DC for V1; -11.5 – +11.5V DC for V2
Minimum span: 250mV for V1; 1V for V2
Zero suppression/elevation: available
Load resistance: output drive 1mA maximum (e.g. 1 – 5V: 5000Ω [5V/1mA])

INSTALLATION

Power input
AC: operational voltage range 85 – 264V (90 – 264V for UL); 47 – 66 Hz, approx. 2.3VA
DC: operational voltage range for R: 24V ±10% or P: 85 – 150V (110V ±10% for UL); approx. 0.9W (ripple 10% p-p max.)
Operating temperature: -30 to +60°C (-22 to +140°F)
Operating humidity: 30 to 90% RH (non-condensing)
Mounting: surface or DIN rail
Dimensions: W23×H76×D124 mm (0.91"×2.99"×4.88") See General Spec. Sheet Figure A-2.
Weight: 120 g (0.26 lbs)
Terminal assignment: See General Spec. Sheet Figure B-2.

PERFORMANCE

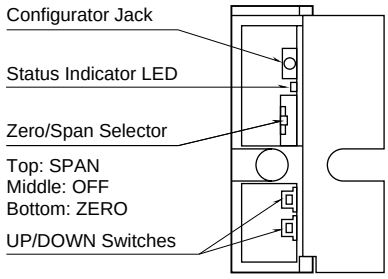
Accuracy: input accuracy + output accuracy [gain≤1]
(inp. accuracy + out. accuracy) × gain [gain ≥1]
Input accuracy*: (% of input range)
-1 – +1V : ≤ ±0.01 (%)
-10 – +10V : ≤ ±0.01
0 – 50mA : ≤ ±0.01**
(e.g. 1 – 5V: 0.05% [20/4*0.01])
Output accuracy*: ≤ ±0.01% of output range
*Inversely proportional to the span
**Except the accuracy of input resistor
Temp. coefficient
(at -5 to +55°C [23 to 131°F] of I/O range)
Input: ±0.008%/°C (±0.005%/°F) with current
±0.002%/°C (±0.001%/°F) with voltage
Output: ±0.013%/°C (±0.007%/°F)
Response time: ≤0.9 seconds (0 – 90%)
Line voltage effect: ±0.1% over voltage range
Insulation resistance: ≥100MΩ with 500V DC
Dielectric strength: 2000V AC @1 minute
(input to output to power to ground)

STANDARDS & APPROVALS

CE conformity: EMC Directive (89/336/EEC)
EMI EN61000-6-4
EMS EN61000-6-2
Low Voltage Directive (73/23/EEC)
Installation category II
Pollution degree 2
Max. operating voltage 300V
Input or output to power – Reinforced insulation
Input to output – Basic insulation
Approval: UL/C-UL nonincendive Class I, Division 2, Groups A, B, C, and D hazardous locations (UL 1604, CAN/CSA-C22.2 No.213); UL/C-UL general safety requirements (UL 3111-1, CAN/CSA-C22.2 No.1010-1)

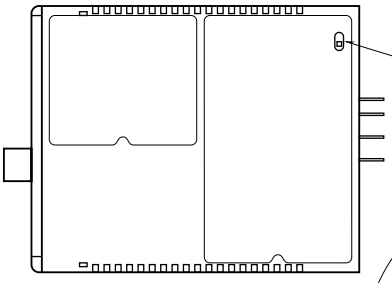
FRONT & SIDE VIEWS

■FRONT VIEW (with cover open)

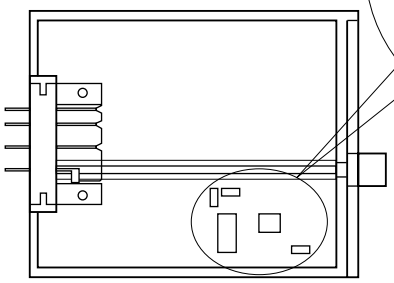


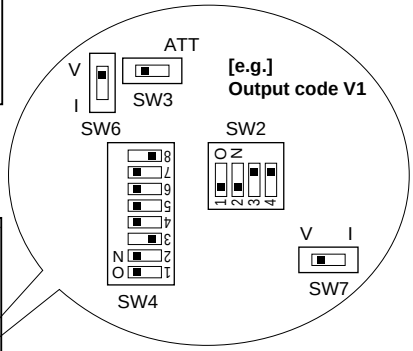
The front cover cannot be turned open by 180 deg. when there is no extra space between units.

■RIGHT SIDE VIEW



■LEFT SIDE VIEW (with cover removed)





Manual zero/span adjustments: ±5% (set to 0% and 100% respectively at factory)

Zero/span selector

- **ZERO**: UP/DOWN switches usable for zero adjustment.
- **OFF**: UP/DOWN switches unavailable.
- **SPAN**: UP/DOWN switches usable for span adjustment.

UP/DOWN switches

- **UP**: Pressing UP increases adjusted values.
- **DOWN**: Pressing DOWN decreases adjusted values.

(Press both switches at once for resetting zero/span adjustments.)

Input range selector: switching input range between S1 and S2 ranges. Bottom position for current (Z1).

Output range selectors

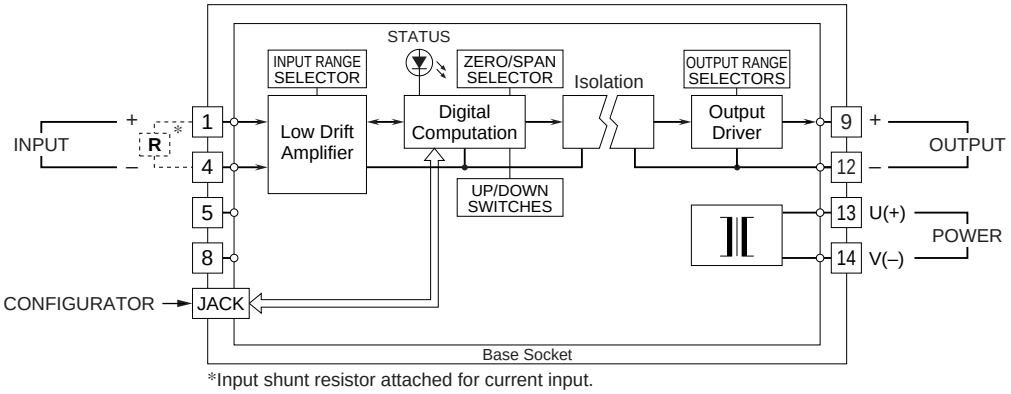
	SW2				SW3
	1	2	3	4	
V1	OFF	OFF	ON	ON	Not ATT
V2	OFF	OFF	ON	ON	Not ATT
Z1	ON	ON	OFF	OFF	Not ATT

	SW4							
	1	2	3	4	5	6	7	8
V1	ON	ON	OFF	ON	ON	*	ON	OFF
V2	ON	OFF	ON	OFF	ON	*	ON	OFF
Z1	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF

	SW6		SW7	
	V	I	V	I
V1	ON	OFF	ON	OFF
V2	ON	OFF	ON	OFF
Z1	OFF	ON	OFF	ON

*Don't care.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*Input shunt resistor attached for current input.