

Super-mini Signal Conditioners *Mini-M Series*
RTD TRANSMITTER
(PC programmable)

MODEL M2XR
MODEL & SUFFIX CODE SELECTION
MODEL _____ **M2XR**-□□-□□

INPUT RTD (2- or 3-wire)*1 _____

- 1** : JPt 100 (JIS '89)
3 : Pt 100 (JIS '89)
4 : Pt 100 (JIS '97, DIN, IEC751)
5 : Pt 50Ω (JIS '81)
6 : Ni 508.4Ω
7 : Pt 1000
8 : Ni 100 (user's table)
9 : Cu 10 (user's table)
0 : Specify (user's table)

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)

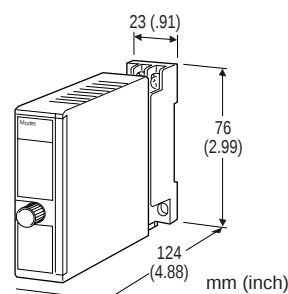
*1: Configurator software is used to change input type and temperature range.

*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 to the right) will be used if not otherwise specified. Input Code 4: Pt 100 (JIS '97, DIN, IEC751) setting will be used if the input code is not specified.

- **Code number** (e.g. M2XR-4Z1-M2/CE)
- **Temperature range** (e.g. 0 – 500°C)
- **Output range** (e.g. 4 – 20mA DC)

ISO/AT/ON

Functions & Features

- Accepting direct input from an RTD and providing a standard process signal
- PC programmable
- High accuracy
- Wide ambient temperature range
- User's temperature table can be used
- Leadwire resistance compensation
- CE marking
- UL approval

Typical Applications

- Long distance transmission between the RTD and the transmitter
- Combination with intrinsic safety barriers

INPUT CODE	DEFAULT	
1	JPt 100	0 – 100°C
3	Pt 100	0 – 100°C
4	Pt 100	0 – 100°C
5	Pt 50Ω	0 – 200°C
6	Ni 508.4Ω	0 – 100°C
7	Pt 1000	0 – 100°C
8	Ni 100	0 – 100°C
9	Cu 10	0 – 100°C
OUTPUT CODE	DEFAULT	
Z1	4 – 20mA DC	
V1	0 – 1V DC	
V2	1 – 5V DC	

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.

Programming: downloaded from PC; RTD type, temp. range, output range, zero and span, simulating output, etc.

Burnout protection: upscale standard; downscale or no burnout optional by programming

Linearization: standard

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:** 2- or 3-wire RTDs

Maximum leadwire resistance: 200Ω per wire (3-wire)

Sensing current: ≤1.0mA

Temperature range

RTD	USABLE RANGE	
	°C	°F
JPt 100 (JIS '89)	-200 to +500	-328 to +932
Pt 100 (JIS '89)	-200 to +850	-328 to +1562
Pt 100 (JIS '97/DIN/IEC)	-200 to +850	-328 to +1562
Pt 50Ω (JIS '81)	-200 to +649	-328 to +1200
Ni 508.4Ω	-50 to +200	-58 to +392
Pt 1000	-200 to +200	-328 to +392
Ni 100	-50 to +200	-58 to +392
Cu 10	-50 to +200	-58 to +392

■ 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-1.

PERFORMANCE

Accuracy: input accuracy + output accuracy

Input accuracy*: (% of input range)

JPt 100 (JIS '89) : ≤ ±0.01 (%)

Pt 100 (JIS '89) : ≤ ±0.01

Pt 100 (JIS '97/DIN/IEC751) : ≤ ±0.01

Pt 50Ω (JIS '81) : ≤ ±0.02

Ni 508.4Ω : ≤ ±0.01

Pt 1000 : ≤ ±0.01

Ni 100 : ≤ ±0.07

Cu 10 : ≤ ±0.2

(e.g. Pt 100, 0 – 350°C: 0.03% [usable span 1050°C/350°C×0.01])

Output accuracy*: ≤ ±0.01% of output range

*Inversely proportional to the span

Temp. coefficient: ±0.015%/°C (±0.008%/°F) at -5 to +55°C (23 to 131°F) of I/O range
(input ±0.002%/°C, output ±0.013%/°C)

Response time: ≤0.9 seconds (0 – 90%)

Burnout response: ≤10 seconds

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

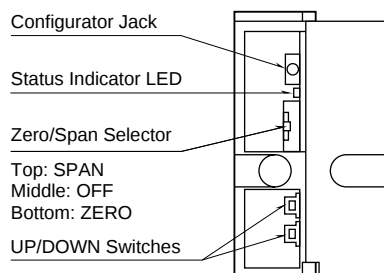
Input or output to power – Reinforced insulation

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)

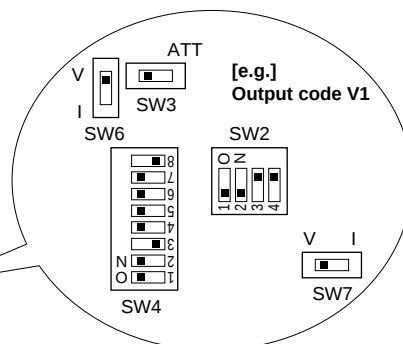
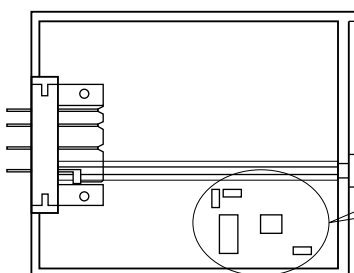
FRONT VIEW

FRONT VIEW (with cover open)



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

LEFT SIDE VIEW (with cover removed)



Output Range Selectors

Manual zero/span adjustments: $\pm 5\%$ (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.)

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

