M·SYSTEM CO.,LTD.

Space-saving Dual Output Signal Conditioners *Mini-MW Series*

RTD TRANSMITTER

MODEL **W2RS**

MODEL & SUFFIX CODE SELECTION

W2RS–❑❑❑–❑❑❑

MODEL

INPUT RTD (2- or 3-wire)

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
0 : Specify

OUTPUT 1

Current	Voltage
A : 4 – 20mA DC	**1** : 0 – 10mV DC
B : 2 – 10mA DC	**2** : 0 – 100mV DC
C : 1 – 5mA DC	**3** : 0 – 1V DC
D : 0 – 20mA DC	**4** : 0 – 10V DC
E : 0 – 16mA DC	**5** : 0 – 5V DC
F : 0 – 10mA DC	**6** : 1 – 5V DC
G : 0 – 1mA DC	**0** : Specify voltage
Z : Specify current	

OUTPUT 2

Same range availability as Output 1
Y : None

POWER INPUT

AC Power	DC Power
M2: 100 – 240V AC	**R** : 24V DC
	R2: 11 – 27V DC *1
	P : 110V DC

*1 : Select '/N' for 'Standards & Approvals' code.

OPTIONS (none or multiple selections)

/K : Fast response
/BL : Downscale burnout

STANDARDS & APPROVALS (must be specified)

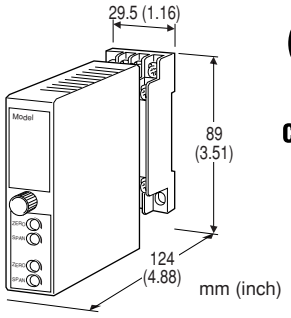
/N : Without CE or UL
/CE : CE marking
/UL : UL approval (CE marking)

ORDERING INFORMATION

Specify code number and variables. When the user requires a current and a voltage output, specify the current to be the Output 1 which allows a greater load.

- **Code number** (e.g. W2RS-4A6-M2/BL/CE)
- **Temperature range** (e.g. 0 – 500°C)
- **Special output ranges** (For codes Z & 0)

ISOLATION



Functions & Features

• Accepting direct input from an RTD • Two independent output ranges • Linearization • Burnout protection • "Active bridge" circuit containing two constant current sources allows large leadwire resistances up to 200Ω • Fast response type available • High-density mounting • CE marking • UL approval

Typical Applications

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

GENERAL SPECIFICATIONS

Construction: plug-in
Connection: M3 screw terminals (torque 0.8 N·m)
Housing material: flame-resistant resin (black)
Isolation: input to output 1 to output 2 to power
Overrange output: approx. -10 – +120% at 1 – 5V
Front adjustments: zero and span; ±5%
Burnout protection: upscale standard; downscale optional
Linearization: standard

INPUT & OUTPUT

■**INPUT**: 2- or 3-wire RTDs
Maximum leadwire resistance: 200Ω per wire (3-wire)
Sensing current: 2mA (Pt); 1mA (Ni 508.4Ω)
Temperature range

RTD	USABLE RANGE		MIN. SPAN	
	°C	°F	°C	°F
JPt 100 (JIS '89)	-200 to +500	-328 to +932	50	90
Pt 100 (JIS '89)	-200 to +650	-328 to +1202	50	90
Pt 100 (JIS '97/DIN/IEC)	-200 to +650	-328 to +1202	50	90
Pt 50Ω (JIS '81)	-200 to +500	-328 to +932	100	180
Ni 508.4Ω	-50 to +200	-58 to +392	30	54

■**OUTPUTS (two)**

•**DC Current**: 0 – 20mA DC
Minimum span: 1mA
Zero suppression/elevation: max. 1.5 times span
Load resistance: output drive 15V max. for Output 1; 7V max. for Output 2

Output	Ch.1 L.R.	Ch.2 L.R.
4 – 20mA	: 750	350 (Ω max.)
2 – 10mA	: 1500	700
1 – 5mA	: 3000	1400
0 – 20mA	: 750	350
0 – 16mA	: 900	430
0 – 10mA	: 1500	700
0 – 1mA	: 15k	7000

•**DC Voltage**: -10 – +12V DC (up to +10V for Out. 2)
Minimum span: 5mV
Zero suppression/elevation: max. 1.5 times span
Load resistance: output drive 1mA maximum at ≥0.5V

Output	Load Resistance
0 – 10mV	: 10k (Ω minimum)
0 – 100mV	: 100k
0 – 1V	: 1000
0 – 10V	: 10k
0 – 5V	: 5000
1 – 5V	: 5000

INSTALLATION

Power input

AC: operational voltage range 85 – 264V (90 – 264V for UL);
47 – 66 Hz; approx. 4VA at 100V
approx. 5VA at 200V
approx. 6VA at 264V

DC: operational voltage range for R: 24V ±10%, R2: 11 – 27V, or P: 85 – 150V (110V ±10% for UL);
ripple 10% p-p max.; approx. 3W

Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90% RH (non-condensing)
Mounting: surface or DIN rail
Dimensions: W29.5×H89×D124 mm (1.16"×3.51"×4.88")
See General Spec. Sheet Figure A-1.
Weight: 200 g (0.44 lbs)
Terminal assignment: See General Spec. Sheet Figure B-1.

PERFORMANCE in percentage of span

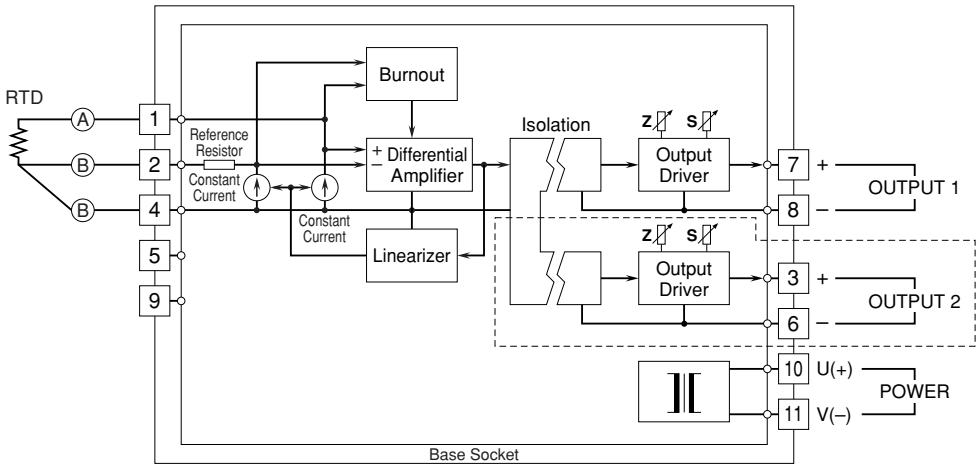
Accuracy: ±0.2%
Temp. coefficient: ±0.015%/°C (±0.008%/°F)
Response time: ≤0.5 seconds (0 – 90%)
approx. 25 milliseconds with option /K
Burnout response: ≤10 seconds
Line voltage effect: ±0.1% over voltage range
Insulation resistance: ≥100MΩ with 500V DC
Dielectric strength: 2000V AC @1 minute (input to output 1 to output 2 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)
EN61010-1
Installation category II
Pollution degree 2
Max. operating voltage 300V
Input or output 1 or output 2 to power – Reinforced insulation
Input to output 1 to output 2 – Basic insulation

Approval: UL/C-UL nonincendive
Class I, Division 2, Groups A, B, C, and D
(UL 1604, CAN/CSA-C22.2 No.213)
UL/C-UL general safety requirements
(UL 3111-1, CAN/CSA-C22.2 No.1010-1)

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Remark: The section enclosed by broken line is only with 2nd output option.