

**Super-mini Signal Conditioners *Mini-M Series***
**RTD TRANSMITTER**
**MODEL M2RS**
**MODEL & SUFFIX CODE SELECTION**
**M2RS-**
**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**
**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

**POWER INPUT**
**AC Power**
**DC Power**
**M** : 85 – 264V AC\*

**R** : 24V DC

**M2** : 100 – 240V AC

**R2** : 11 – 27V DC\*

**P** : 110V DC

\*CE or UL not available

**OPTIONS**
**/K** : Fast response

**/BL** : Downscale burnout

**/UL** : UL approval

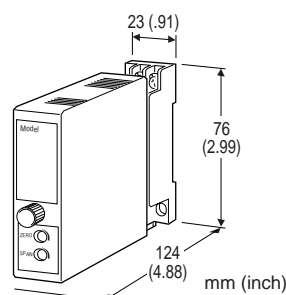
**ORDERING INFORMATION**

Specify code number and variables.

 • **Code number** (e.g. M2RS-4A-M/BL)

 • **Temperature range** (e.g. 0 – 500°C)

 • **Special output range** (For codes Z & 0)

**ISOLATION**

**CE**  
**UL**
**Functions & Features**

• Accepting direct input from an RTD and providing a standard process signal • 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)

**Power fuse:** 0.25A incorporated

(0.5A for 24V or 11 – 27V DC power)

**Isolation:** input to output 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

**■OUTPUT**

•DC Current: 0 – 20mA DC

Minimum span: 1mA

Zero suppression/elevation: max. 1.5 times span

Load resistance: output drive 15V maximum

Output	Load Resistance
4 – 20mA	: 750 ( $\Omega$ maximum)
2 – 10mA	: 1500
1 – 5mA	: 3000
0 – 20mA	: 750
0 – 16mA	: 900
0 – 10mA	: 1500
0 – 1mA	: 15k

•DC Voltage: -10 – +12V DC

Minimum span: 5mV

Zero suppression/elevation: max. 1.5 times span

Load resistance: output drive 1mA maximum; at  $\geq 0.5V$

Output	Load Resistance
0 – 10mV	: 10k ( $\Omega$ 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. 3VA at 100V  
approx. 4VA at 200V  
approx. 5VA at 264V

**DC:** operational voltage range for R: 24V  
 $\pm 10\%$ , R2: 11 – 27V, or P: 85 – 150V  
(110V  $\pm 10\%$  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:** W23×H76×D124 mm (0.91"×2.99"×4.88")

See General Spec. Sheet Figure A-1.

**Weight:** 150 g (0.33 lbs)

**Terminal assignment:** See General Spec. Sheet Figure B-1.

**PERFORMANCE in percentage of span**

**Accuracy:**  $\pm 0.2\%$

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

**Response time:**  $\leq 0.5$  seconds (0 – 90%)  
approx. 25 milliseconds with option /K

**Burnout response:**  $\leq 10$  seconds

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

**Insulation resistance:**  $\geq 100M\Omega$  with 500V DC

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

**STANDARDS & APPROVALS**

**CE conformity:** Electromagnetic Compatibility

Directive (89/336/EEC)

EMI EN50081-2

EMS EN50082-2 (EN61000-6-2)

Low Voltage Directive (73/23/EEC)

Installation category II

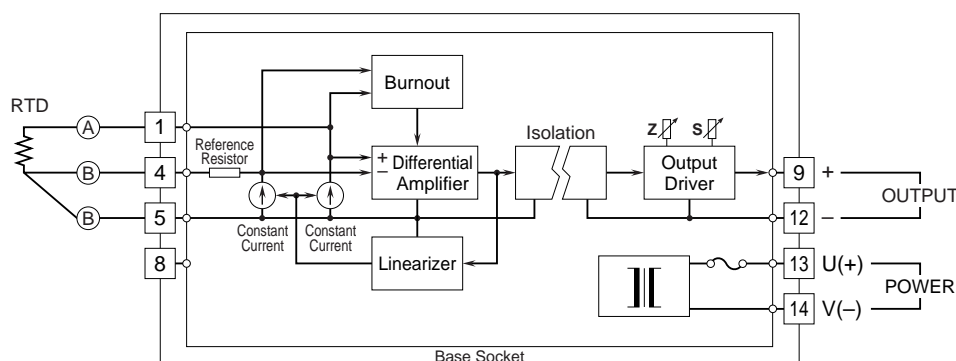
Pollution degree 2

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)

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**

Specifications subject to change without notice.