

Euro Terminal Ultra-Slim Signal Conditioners *M6D Series*

RTD TRANSMITTER
(PC programmable)

MODEL **M6DXR**

MODEL & SUFFIX CODE SELECTION

MODEL _____ M6DXR-□□-R

INPUT RTD _____

1 : JPt 100 (JIS '89)
 3 : Pt 100 (JIS '89)
 4 : Pt 100 (JIS '97, IEC)
 5 : Pt 50Ω (JIS '81)
 7 : Pt 1000
 9 : Cu 10 @25°C
 0 : Specify *1

*1. Please provide a resistance table.

OUTPUT _____

Current
 Z1 : Range 0 – 20mA DC

Voltage
 V2 : Range -10 – +10V DC
 V3 : Range -5 – +5V DC

POWER INPUT
 R : 24V DC

PC Configurator Software is used to change I/O types and precise ranges, except for the input code 7: Pt 1000 is fixed and cannot be switched to/from other input types.

ORDERING INFORMATION

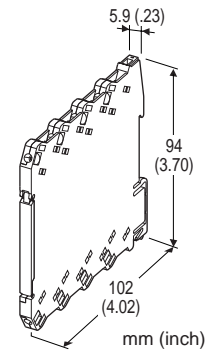
Specify code number and variables. Default setting (table below) will be used if not otherwise specified.

- **Code number** (e.g. M6DXR-4Z1-R)
- **Temperature range** (e.g. 0 – 100°C)
- **Output range** (e.g. 4 – 20mA DC)

INPUT CODE	DEFAULT
All	0 – 100°C
OUTPUT CODE	DEFAULT
Z1	4 – 20mA DC
V2	0 – 10V DC
V3	1 – 5V DC

RELATED PRODUCTS

- PC configurator software (model: M6CFG)
 Downloadable at M-System's web site:
<http://www.m-system.co.jp>
- PC configurator cable (model: MCN-CON)



Functions & Features

- 5.9-mm wide ultra-slim design
- Low profile allows the M6D module mounted in a 120-mm deep panel
- Accepts direct input from an RTD and provides a standard process signal
- Linearization and burnout protection
- PC programmable
- High-density mounting
- Power and status indicator LEDs

GENERAL SPECIFICATIONS

- Connection:** Euro terminal (torque 0.3 N·m)
- Applicable wire size:** 0.2 to 2.5 mm²
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Overrange output:** -2 – +102%
 (Negative current output is not available.)
- Zero & span adjustments:** ±2% (PC programming)
- Burnout protection:** Upscale standard; downscale or no burnout optional by programming
- Linearization:** Standard
- Power LED:** Green light turns on when the power is supplied.
- Status indicator LED:** Orange LED; Flashing patterns indicate different operating status of the transmitter.
- Programming:** Downloaded from PC; input type and range, output type and range, zero and span, burnout type, user's linearization table, etc.
- Configurator connection:** 2.5 dia. miniature jack; RS-232C level

INPUT

■ **INPUT:** 2-, 3- or 4-wire RTDs
Maximum leadwire resistance: 10Ω per wire
Sensing current: ≤1.5mA (≤0.15mA for Pt 1000)
Temperature range

RTD	USABLE RANGE	
	°C	°F
JPt 100 (JIS '89)	-200 to +500	-328 to +932
Pt 100 (JIS '89)	-200 to +650	-328 to +1202
Pt 100 (JIS '97, IEC)	-200 to +850	-328 to +1562
Pt 50Ω (JIS '81)	-200 to +649	-328 to +1200
Pt 1000	-200 to +850	-328 to +1562
Cu 10 @25°C	-50 to +250	-58 to +482

Minimum span: 20°C or 36°F

OUTPUT■ **DC CURRENT**

Operational range: 0 – 20mA DC
Conformance range: 0 – 20.4mA DC
Minimum span: 1mA
Offset: Lower range can be any specific value within the output range provided that the minimum span is maintained.
Load resistance: Output drive 11V maximum (e.g. 4 – 20mA: 550Ω [11V/20mA])

■ **DC VOLTAGE****Code V2 (wide spans)**

Operational range: -10 – +10V DC
Conformance range: -10.4 – +10.4V DC
Minimum span: 1V

Code V3 (narrow spans)

Operational range: -5 – +5V DC
Conformance range: -5.2 – +5.2V DC
Minimum span: 0.5V

Offset: Lower range can be any specific value within the output range provided that the minimum span is maintained.

Load resistance: output drive 1mA maximum (e.g. 1 – 5V: 5000Ω [5V/1mA])

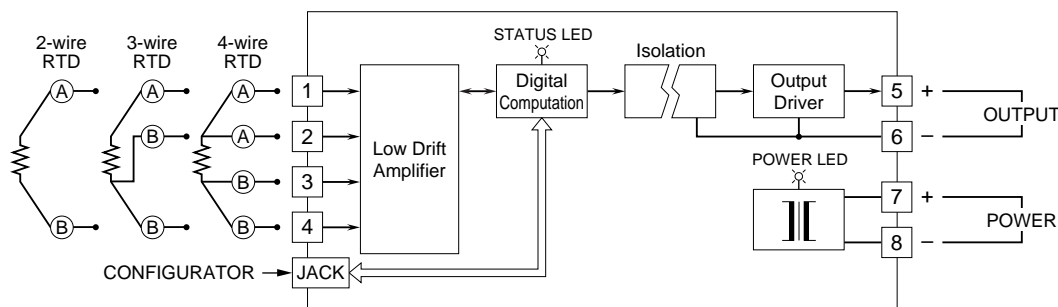
INSTALLATION

Power input: Operational voltage range 24V DC ±10%, approx. 0.5W; ripple 10% p-p max.
Operating temperature: -20 to +55°C (-4 to +131°F)
Operating humidity: 30 to 90% RH (non-condensing)
Mounting: DIN rail
Dimensions: W5.9×H94×D102 mm (0.23"×3.70"×4.02")
 See General Spec. Sheet Figure A-1.
Weight: 65 g (2.3 oz)
Terminal assignment: See General Spec. Sheet Figure A-1.

PERFORMANCE

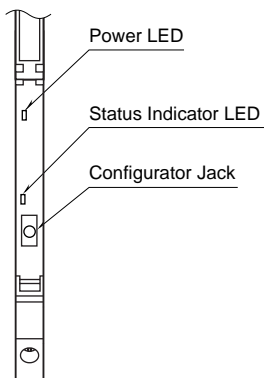
Accuracy: Input accuracy + output accuracy
Input accuracy*: (whichever is greater)
 ±0.1% of input range or ±0.15°C (Pt and JPt)
 ±0.1% of input range or ±1°C (Cu 10)
Output accuracy*: ≤ ±0.04% of operational range
 *Inversely proportional to the span.
 [Example] Pt 100, 0 – 100°C, Output Type -5 – +5V, Output Range 1 – 5V

$$\text{Input Accuracy}^{**} (0.15^{\circ}\text{C}^{***}) / \text{Span} (100^{\circ}\text{C}) \times 100\% + \text{Max. Output Range} (10\text{V}) / \text{Span} (4\text{V}) \times 0.04\% = 0.25\%$$
****Calculate the accuracy in °C.**
*******100°C × 0.1% = 0.1°C ≤ 0.15°C. 0.15°C is used as input accuracy value.
Temp. coefficient: ±0.01%/°C (±0.006%/°F) of max. span
Response time: ≤1 second (0 – 90%)
Burnout response time: ≤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)

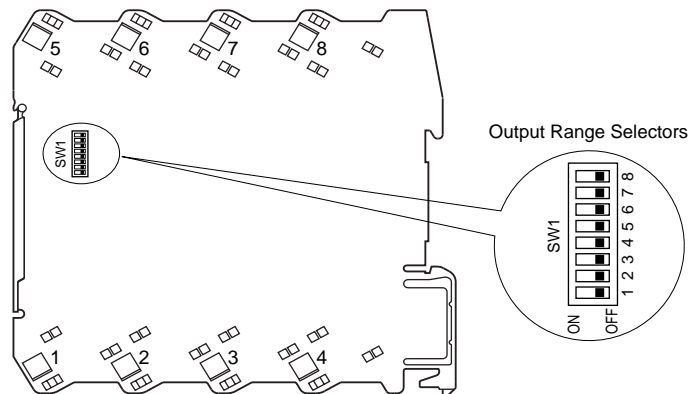
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

EXTERNAL VIEWS

■ FRONT VIEW (with the cover open)



■ SIDE VIEW



INPUT & OUTPUT RANGING

The internal DIP switch setting is required to select output types before setting a precise output range using PC Configurator Software (model: M6CFG).

For detailed information on the PC configuration, refer to the M6CFG instruction manual.

Table 1. DIP switch setting: Output type

Output Type	SW1							
	1	2	3	4	5	6	7	8
0 – 20mA*1	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
-5 – +5V	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
-10 – +10V	OFF	OFF	ON	OFF	OFF	ON	OFF	ON

*1. For 0 – 1mA range, set switches as in the table below.

Output Range	SW1							
	1	2	3	4	5	6	7	8
0 – 1mA	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF