

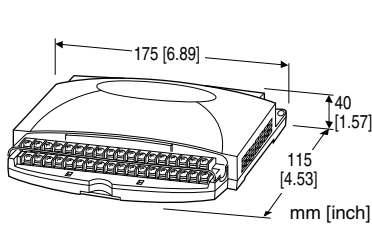
PC Recorders R1M Series

PC RECORDER

(RTD or potentiometer input, 8 points)

Functions & Features

- Industrial recorder on PC
- 8-point RTD or potentiometer inputs
- Easy system expansion via Modbus RTU
- Recorded data exportable to spreadsheet applications



MODEL: R1M-J3T-[1][2]

ORDERING INFORMATION

- Code number: R1M-J3T-[1][2]

Specify a code from below for each of [1] and [2].

- (e.g. R1M-J3T-M2/MSR/Q)
- Specify the specification for option code /Q (e.g. /C01)

FIELD TERMINAL TYPE

T: M3 screw terminals

[1] POWER INPUT

AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

DC Power

R: 24 V DC

(Operational voltage range 24 V \pm 10 %, ripple 10 %p-p max.)

[2] OPTIONS (multiple selections)

PC Recorder Software Package (must be specified)

/MSR: With

Other Options

blank: none

/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to M-System's web site.)

- /C01: Silicone coating
- /C02: Polyurethane coating
- /C03: Rubber coating

PACKAGE INCLUDES...

- PC Recorder Software CD
- 9-pin D-sub connector, straight type (1 m or 3.3 ft)

GENERAL SPECIFICATIONS

Connection

Power input, transmission: Euro type connector terminal (Applicable wire size: 0.2 - 2.5 mm² (AWG24 - 12), stripped length 7 mm)

RS-232-C: 9-pin D-sub connector (male) (Lock screw No. 4-40 UNC)

Input: M3 screw terminals (torque: 0.6N·m)

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (gray)

Isolation: Input to RS-232-C or RS-485 to power

Node address setting: Rotary switch; 1 - F (15 nodes)

RUN indicator LED: Green light blinks in normal conditions.

COMMUNICATION

Baud rate: 38.4 kbps

Communication: Half-duplex, asynchronous, no procedure

Protocol: Modbus RTU

■ RS-232-C

Standard: Conforms to RS-232-C, EIA

Transmission distance: 10 meters max.

■ RS-485

Standard: Conforms to TIA/EIA-485-A

Transmission distance: 500 meters max.

Transmission media: Shielded twisted-pair cable (CPEV-S 0.9 dia.)

INPUT SPECIFICATIONS

Input: RTD or potentiometer input, 8 points

Maximum leadwire resistance: 20 Ω per wire (3-wire)

Sensing current: \leq 1 mA

RTDs: JPt 100 (JIS '89), Pt 100 (JIS '89), Pt 100 (JIS '97, IEC), Pt 50 Ω (JIS '81), Ni 508.4 Ω , Pt 1000

Potentiometers: 0 - 100 Ω , 0 - 500 Ω , 0 - 1 k Ω , 0 - 10 k Ω

Sampling rate: 100 msec./8 points

Trigger input: Dry contact; ON detected at \leq 1.5 V

Sensing: Approx. 5 V DC @ 1 mA

INSTALLATION

Power consumption

- AC: Approx. 10 VA
- DC: Approx. 7 W

Operating temperature: -5 to +60°C (23 to 140°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 400 g (0.88 lb)

PERFORMANCE (% of measuring range)

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

Insulation resistance: $\geq 100\text{ M}\Omega$ with 500 V DC

Dielectric strength: 2000 V AC @ 1 minute (input to RS-232-C or RS-485 to power to FG)

Accuracy

Potentiometer input: $\pm 0.3\%$

RTD input: See the table below.

RTD	USABLE RANGE		ACCURACY (%)
	$^{\circ}\text{C}$	$^{\circ}\text{F}$	
JPt 100 (JIS '89)	-200 to +500	-328 to +932	± 0.2
Pt 100 (JIS '89)	-200 to +660	-328 to +1220	± 0.2
Pt 100 (JIS '97, IEC)	-200 to +850	-328 to +1562	± 0.2
Pt 50 Ω (JIS '81)	-200 to +649	-328 to +1200	± 0.3
Ni 508.4 Ω	-50 to +280	-58 to +536	± 0.3
Pt 1000	-200 to +850	-328 to +1562	± 0.2

STANDARDS & APPROVALS

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

Installation Category II

Pollution Degree 2

Input or RS-232-C/RS-485 to power: Reinforced insulation (300 V)

Input to RS-232-C/RS-485: Basic insulation (300 V)

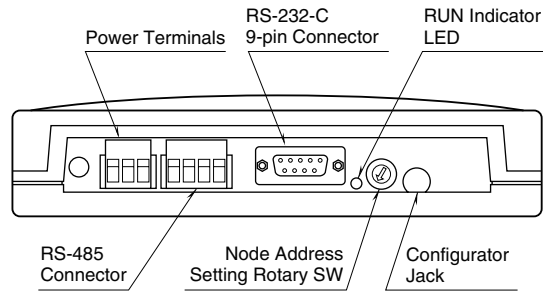
RoHS Directive

PC RECORDER SOFTWARE

PC Recorder Software Package (model: MSRPAC-2010) is included with purchases of this model.

Refer to the MSRPAC-2010 data sheet for the contents of the package and the requirements for the PC to be prepared by the user.

EXTERNAL VIEW

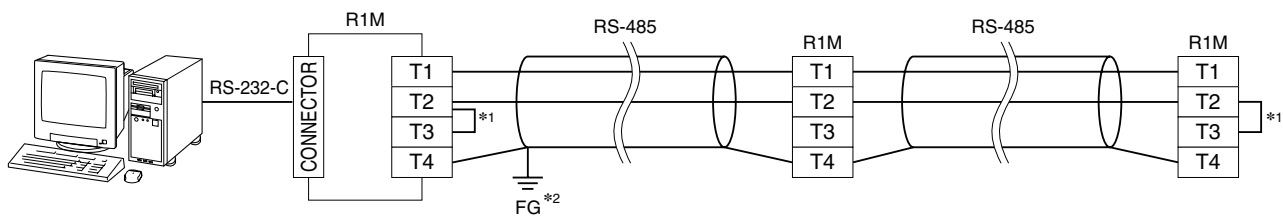


■ RS-232-C INTERFACE



ABBR.	PIN NO.	EXPLANATION OF FUNCTION
BA (SD)	2	Transmitted Data
BB (RD)	3	Received Data
AB (SG)	5	Signal Common
CB (CS)	7	Clear to Send
CA (RS)	8	Request to Send
	1	Not Used.
	4	DO NOT connect. Connecting may cause malfunctions.
	6	
	9	

MODBUS WIRING CONNECTION



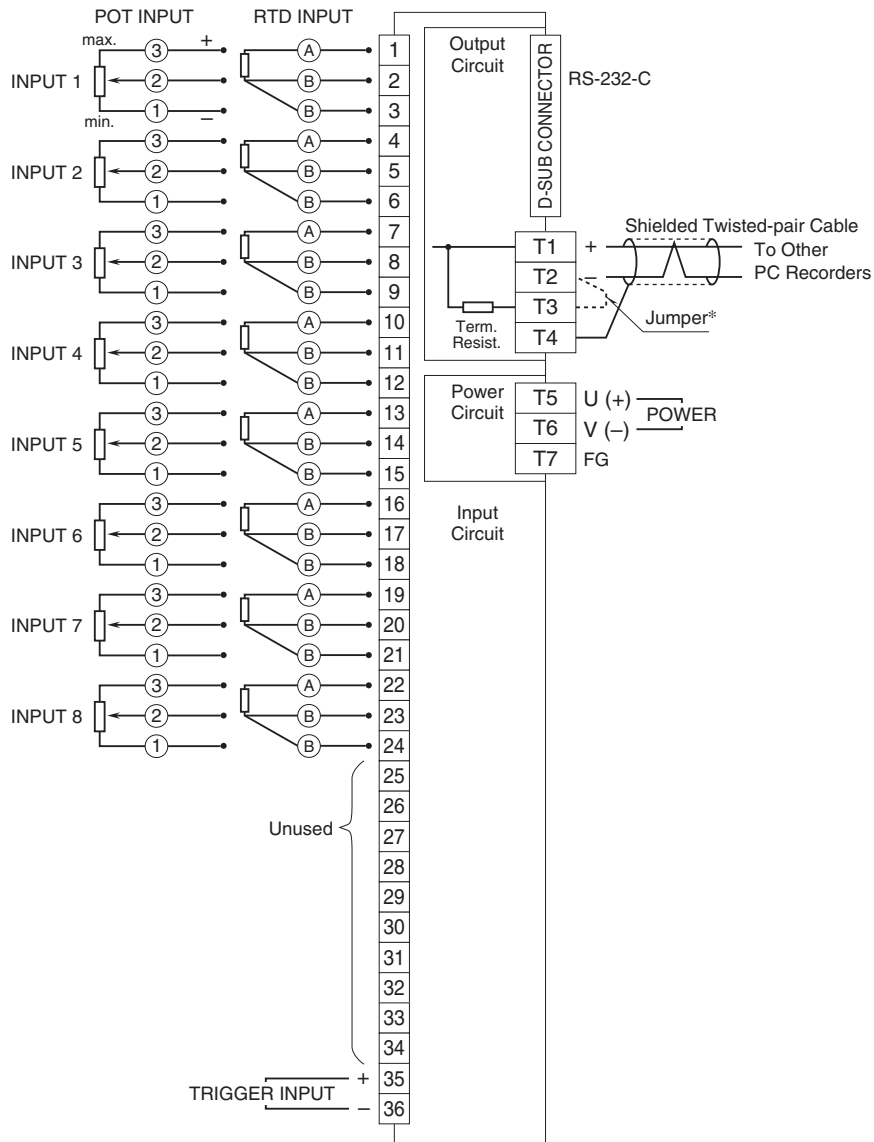
*1. Internal terminating resistor is used when the device is at the end of a transmission line.

*2. Install shielded cables to all sections and ground them at single point.

CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FG terminal to ground.

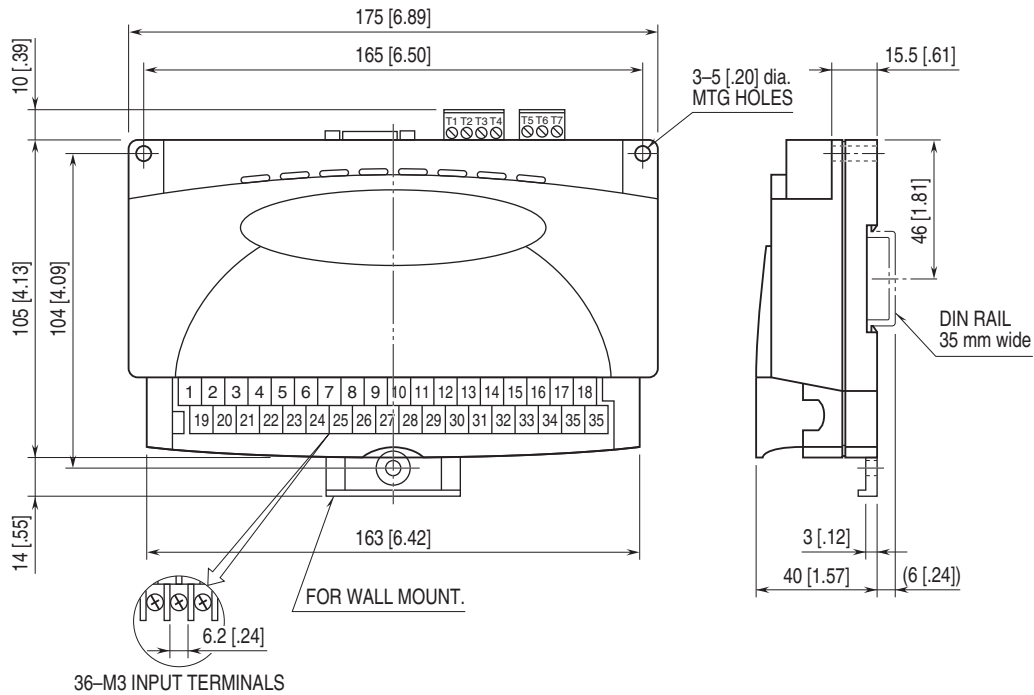
Caution: FG terminal is NOT a protective conductor terminal.



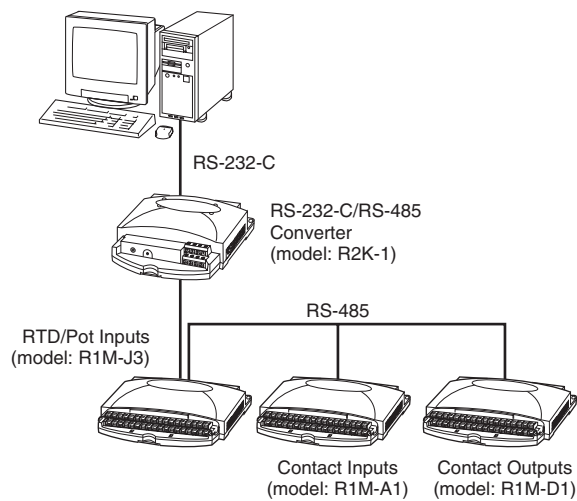
* When the device is located at the end of a transmission line via twisted-pair cable, (when there is no cross-wiring), close across the terminal T2 – T3 with the attached jumper pin (or with a leadwire). When the device is not at the end, remove the jumper pin.

This device is not designed to attenuate noises on input signals, therefore we recommend that the user takes precautions to eliminate noises from the input signals e.g. by using shielded twisted-pair cable. DO NOT CONNECT to the terminals 25 through 34. Wrong connection may cause failure of the device.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SYSTEM CONFIGURATION EXAMPLES



When the cable distance between the PC and the R1Ms is long, insert an RS-232C/RS-485 Converter for isolation.



Specifications are subject to change without notice.