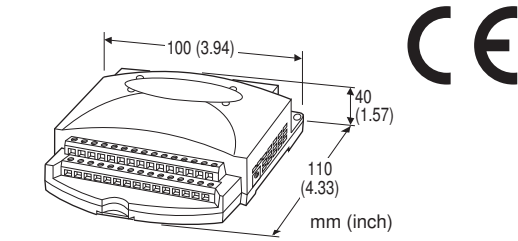## PC Recorders Series

PC RECORDER

(thermocouple input, 8 points; RS-232-C)

Functions & Features
- Industrial recorder on PC
- 8-point input
- One trigger input and one alarm output
- Recorded data exportable to spreadsheet applications

MODEL: R2M-2H3-[1]/MSR

ORDERING INFORMATION

Code number: R2M-2H3-R/MSR
Consult Factory for AC power input.

[1] POWER INPUT
DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

OPTIONS
PC Recorder Software Package
/MSR: With

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

GENERAL SPECIFICATIONS
Connection
  DC power, input, alarm output: Euro-type terminal block; 0.14 – 1.5 mm² or AWG26 – 16; stranded and solid
  AC adaptor: Miniature jack (side)
  RS-232-C: 9-pin D-sub connector (male)
(Lock screw No. 4-40 UNC)
  Configurator: Miniature jack (rear); RS-232-C level
Isolation: Input or configurator jack to alarm output to RS-232-C or 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.

INPUT SPECIFICATIONS
Input: Thermocouple input, 8 points; differential (max. 3.0 V difference between inputs)
Input resistance: 300 kΩ min.
Thermocouple types: PR, K, E, J, T, B, R, S, C, N, U, L, P
Sampling rate: 50 millisec./8 points
• **Trigger input**: Dry contact; ON detected at ≤ 1.5 V
Sensing: Approx. 5 V DC @ 1 mA

OUTPUT SPECIFICATIONS
■ **Alarm Output**: Photo MOSFET relay (no polarity); ≤ 50 Ω at ON, ≥ 1 MΩ at OFF; OFF when not powered
Peak load voltage: 50 V max.
Continuous load current: 50 mA max.
Peak load current: 300 mA max. (≤0.1 sec.)

INSTALLATION
Power consumption
•**DC**: Approx. 0.9 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: 300 g (0.66 lb)

PERFORMANCE (% of measuring range)
Cold junction compensation error: ±1°C or ±1.8°F max. (at 20°C ±10°C or 68°F ±18°F)
Temp. coefficient: ±0.01 %/°C (±0.006 %/°F)
Accuracy: See the table next.
Response time: Approx. 0.5 sec. (0 – 90 %)
Insulation resistance: ≥ 100 MΩ with 500 V DC
(RS-232-C or DC power terminal or AC adaptor jack to ground terminal to alarm output to AC plug (NOT for DC power))
Dielectric strength: 500 V AC @ 1minute
(ground terminal to input or configurator jack to RS-232-C or DC power terminal or AC adaptor jack)
2000 V AC @ 1 minute (input or configurator jack or DC power terminal or AC adaptor jack or ground terminal to alarm output)

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TEL : (02)2598-1199   E-mail : info@xintop.com
FAX : (02)2596-2331   Website : www.xintop.com

2000 V AC @ 1 minute (AC plug (NOT for DC power) to RS-232-C or DC power terminal)

T/C	USABLE RANGE		ACCURACY
	°C	°F	(%)
(PR)	0 to 1770	32 to 3218	±0.6*1
K (CA)	-270 to +1370	-454 to +2498	±0.2
E (CRC)	-270 to +1000	-454 to +1832	±0.2
J (IC)	-210 to +1200	-346 to +2192	±0.2
T (CC)	-270 to +400	-454 to +752	±0.4
B (RH)	100 to 1820	212 to 3308	±0.8*2
R	-50 to +1760	-58 to +3200	±0.6*1
S	-50 to +1760	-58 to +3200	±0.6*1
C (WRe 5-26)	0 to 2320	32 to 4208	±0.5
N	-270 to +1300	-454 to +2372	±0.3
U	-200 to +600	-328 to +1112	±0.4
L	-200 to +900	-328 to +1652	±0.2
P (Platinel II)	0 to 1395	32 to 2543	±0.3

*1. ≥400°C or ≥752°F
*2. ≥700°C or ≥1292°F
The described accuracy may be partially not satisfied when the temperature ranges below 0°C.

STANDARDS & APPROVALS

EU conformity:
EMC Directive
  EMI EN 61000-6-4
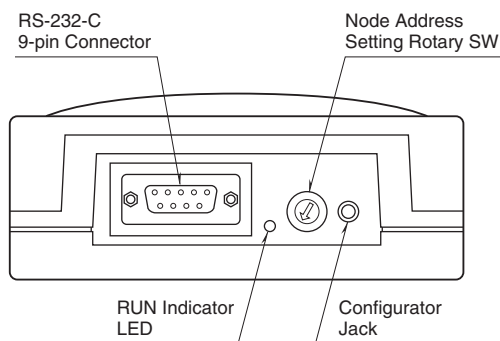 EMS EN 61000-6-2
RoHS Directive
  EN 50581

PC RECORDER SOFTWARE

PC Recorder Software Package (model: MSRPAC-2010) is included with purchases of this model.
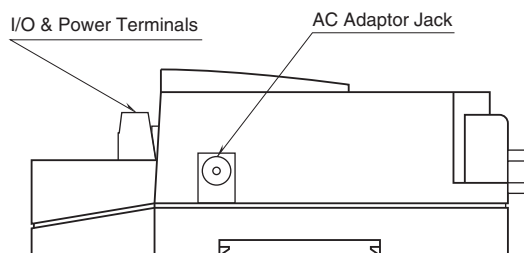Refer to the MSRPAC-2010 data sheet for the contents of the package and the requirements for the PC to be prepared by the user.

EXTERNAL VIEW

■ **REAR VIEW**

RS-232-C 9-pin Connector
Node Address Setting Rotary SW
RUN Indicator LED
Configurator Jack

■ **SIDE VIEW**

I/O & Power Terminals
AC Adaptor Jack

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MODEL: R2M-2H3

■ RS-232-C CABLE

• When connecting a R2M directly to a PC, use a 'straight' cable. A short 'straight' cable is included in the product package.
• When connecting a R2M to a R1M or R2K-1, use a RS-232-C Interlink/Reverse cable.
  This cable should meet the following conditions:
    - Must include wires indicated in solid lines in the figure below.
    - Must not connect between Pins No. 8 of the both connectors. (May cause failure)

• Pin Assignments

R1M or R2K-1   R2M

① ②③④⑤⑥⑦⑧⑨   ① ②③④⑤⑥⑦⑧⑨
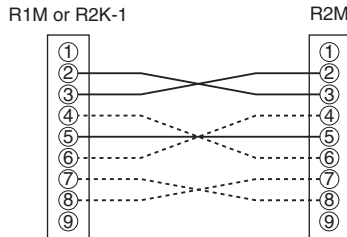
The above example with solid and broken lines shows an 'interlink' type cable.

■ RS-232-C INTERFACE

1 5
6 9

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
	6	cause malfunctions.
	9	

CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FG terminal to ground.
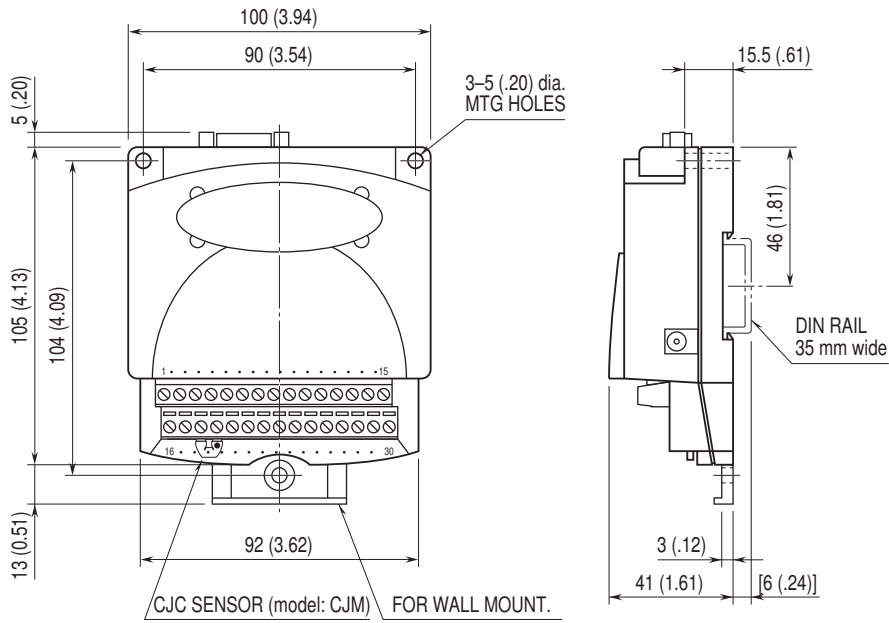Caution: FG terminal is NOT a protective conductor terminal.

T/C
INPUT 1 + ext. wire + 1
         −   − 2
INPUT 2 + 3
         − 4
INPUT 3 + 5
         − 6
INPUT 5 + 7
         − 8
INPUT 7 + 9
         − 10
TRIGGER INPUT − 11
               + 12
NC 13
ALARM OUTPUT 14
              15
NC 16
NC 17
CJC SENSOR 18
            19
INPUT 4 + 20
         − 21
INPUT 6 + 22
         − 23
INPUT 8 + 24
         − 25
NC 26
FG 27
NC 28
DC POWER + 29
          − 30

PC Interface — D-SUB CONNECTOR — RS-232-C
REAR JACK ← Configurator Cable
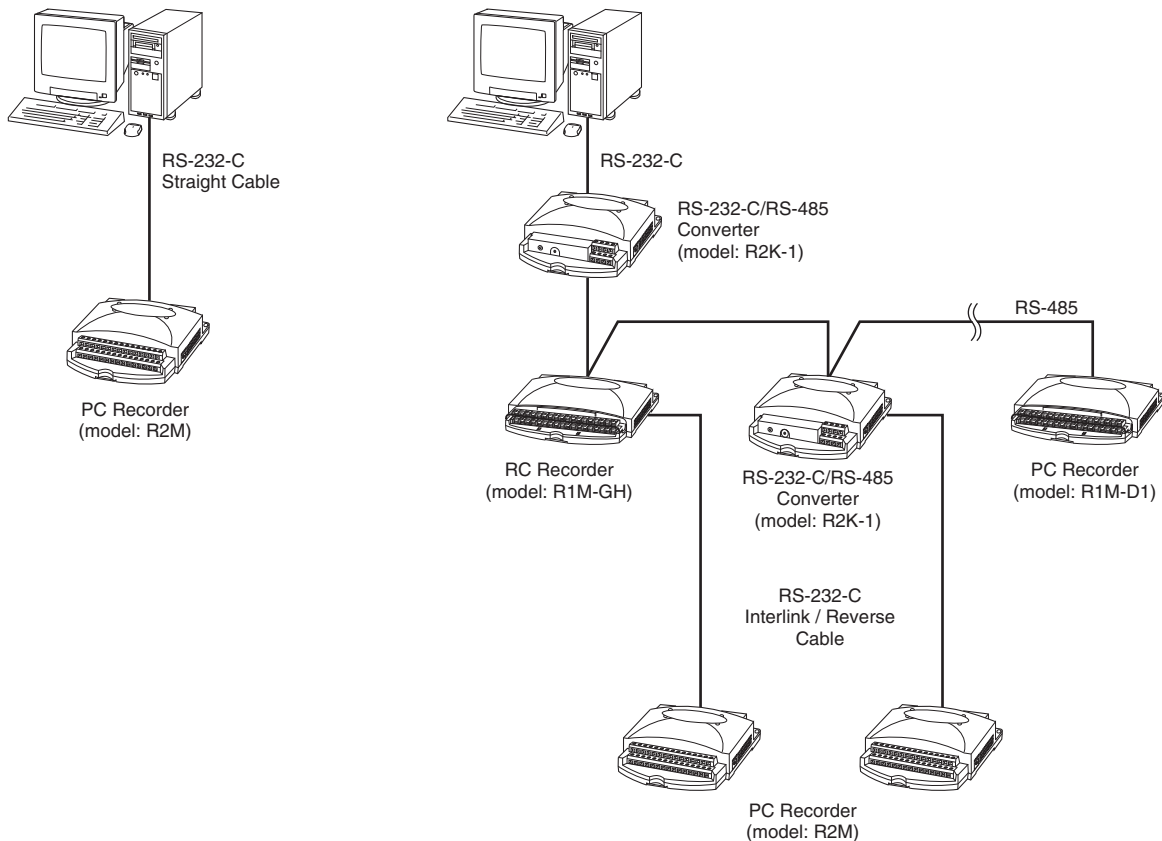Input Circuit
Power Circuit
SIDE JACK ← AC ADAPTOR
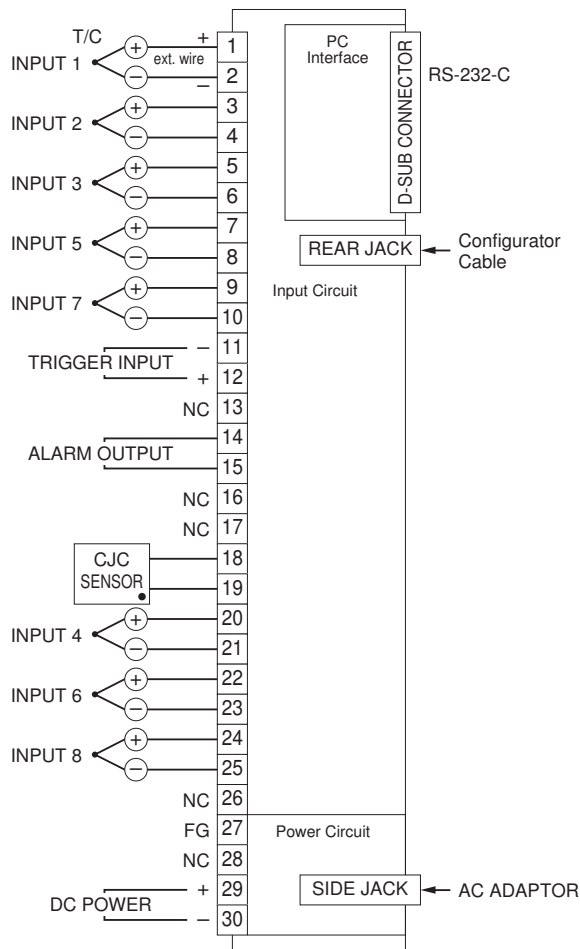
Remarks

1) DO NOT connect the terminals 13, 16, 17, 26 and 28 (NC: No Connection).
   Wrong connection may cause failures of the module.
2) Use shielded twisted cables for the input or take other necessary measures so that there is no noise interference.
   Thermocouples must not be grounded.
3) Ground the terminal 27 (FG) for safety.
4) The terminal 30 (DC Power –) and the signal ground (SG) of the D-sub connector are internally connected. The terminal 27 (FG) is used to lead noise from R2M's I/O terminals to the ground. For protecting your PC and the R2M, we recommend that both the terminal 27 and 30 be connected to the PC's ground before connecting an RS-232-C cable between the PC and the R2M.
5) The AC adaptor jack and the DC power input terminals 29 and 30 are directly connected. Supplying at the both sides may damage the power sources connected to the terminals/jack.

MODEL: R2M-2H3

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

100 (3.94)
90 (3.54)
5 (.20)
105 (4.13)
104 (4.09)
13 (0.51)
92 (3.62)

3–5 (.20) dia. MTG HOLES

1 ... 15
16 ... 30

CJC SENSOR (model: CJM)   FOR WALL MOUNT.

15.5 (.61)
46 (1.81)
DIN RAIL 35 mm wide
3 (.12)
41 (1.61)   [6 (.24)]

SYSTEM CONFIGURATION EXAMPLES

RS-232-C
Straight Cable

PC Recorder
(model: R2M)

RS-232-C

RS-232-C/RS-485
Converter
(model: R2K-1)

RS-485

RC Recorder
(model: R1M-GH)

RS-232-C/RS-485
Converter
(model: R2K-1)

PC Recorder
(model: R1M-D1)

RS-232-C
Interlink / Reverse
Cable

PC Recorder
(model: R2M)

⚠ Specifications are subject to change without notice.

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