PC Recorders R1M Series
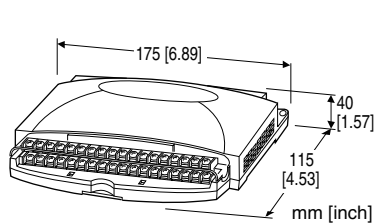
PC RECORDER
(contact input, 32 points)

Functions & Features
• Industrial recorder on PC
• 32-point dry contact inputs
• Easy system expansion via Modbus RTU
• Recorded data exportable to spreadsheet applications

175 [6.89]
40 [1.57]
115 [4.53]
mm [inch]

CE

MODEL: R1M-A1[1]-[2][3]

ORDERING INFORMATION
• Code number: R1M-A1[1]-[2][3]
Specify a code from below for each of [1] through [3].
  (e.g. R1M-A1T-M2/MSR/Q)
• Specify the specification for option code /Q
  (e.g. /C01)

[1] FIELD TERMINAL TYPE
T: M3 screw terminals
C1: FCN type connector (No CE conformance)

[2] 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 ±10 %, ripple 10 %p-p max.)

[3] 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

RELATED PRODUCTS
• Connector terminal block (model: CNT)
• Special cable (model: FCN32)

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 mm^2 (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)
  or FCN type connector (OTAX N364P032AU
  (Fujitsu FCN-364P032-AU...discontinued))
Screw terminal: Nickel-plated steel
Housing material: Flame-resistant resin (gray)
Isolation: Input to RS-232-C or RS-485 to power
Count memory at power loss: Count value is not saved
when the power supply is lost.
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: Dry contact, 32 points
Commons: All negatives
Sensing: Approx. 5 V DC (pull-up resistance 22 kΩ)
≤ 1.5 V at ON
≥ 4 V at OFF
Sampling rate: 50 msec.
• **Totalizing Counter Function**
Number of input channels: 16
(ch.1 thr. 16 available both with instantaneous status and totalized value)
Max. input frequency: 100 Hz
Minimum pulse width: 5 ms
Counter reset input: Pulse rising (ch.32 assigned)
Max. counter value: 999 999 999 (reset to zero at overflow)

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

Multi-transmission time: 5 msec.
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2000 V AC @ 1 minute (input to RS-232-C or RS-485 to power to FG)

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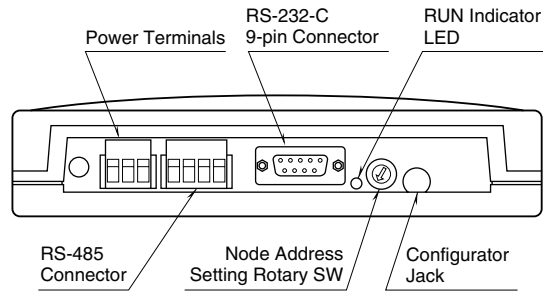 Input to RS-232-C/RS-485: Basic insulation (300 V)
RoHS Directive

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.
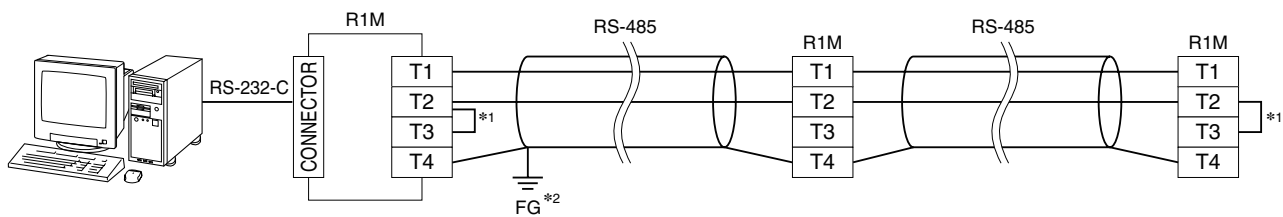
EXTERNAL VIEW

■ 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
	6	cause malfunctions.
	9	

MODBUS WIRING CONNECTION

*1. Internal terminating resistor is used when the device is at the end of a transmission line.
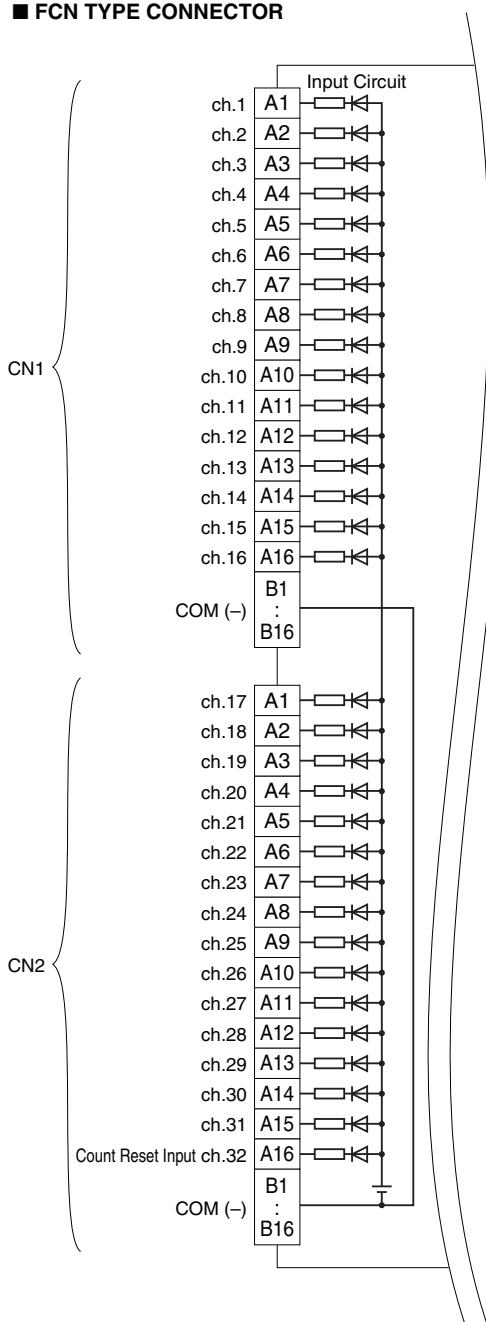*2. Install shielded cables to all sections and ground them at single point.
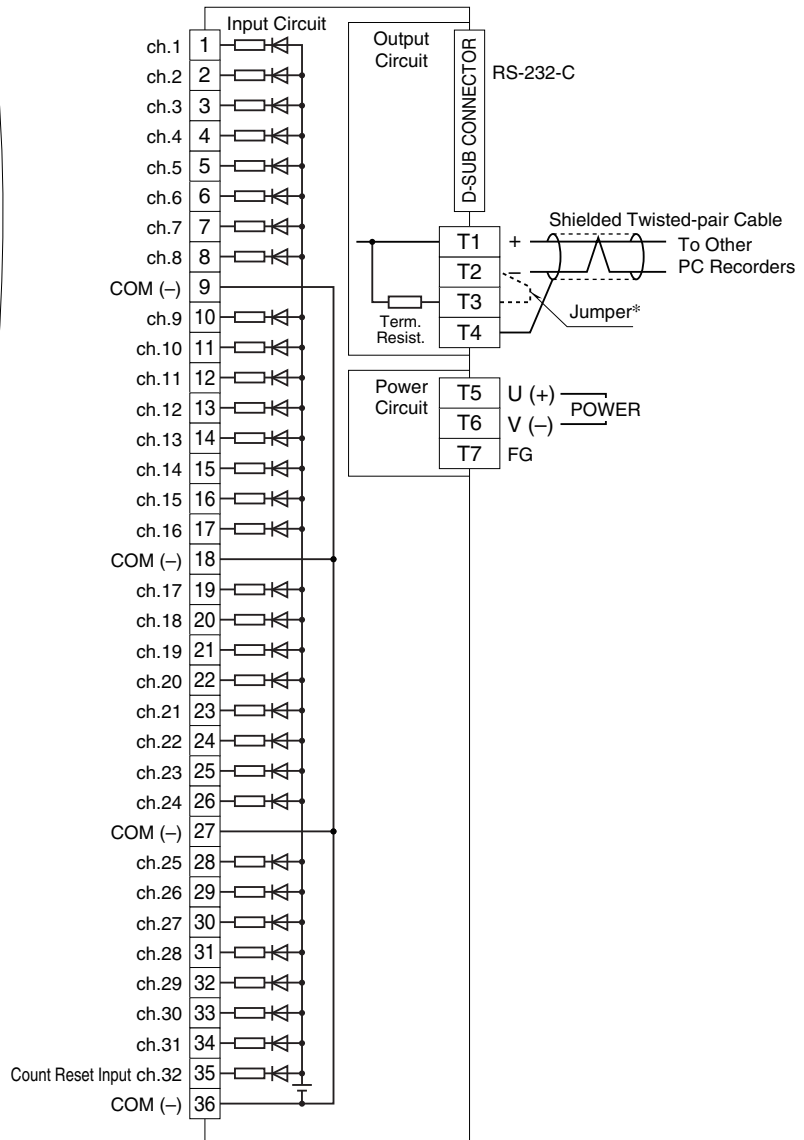
CONNECTION DIAGRAM

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

Caution: FG terminal is NOT a protective conductor terminal.
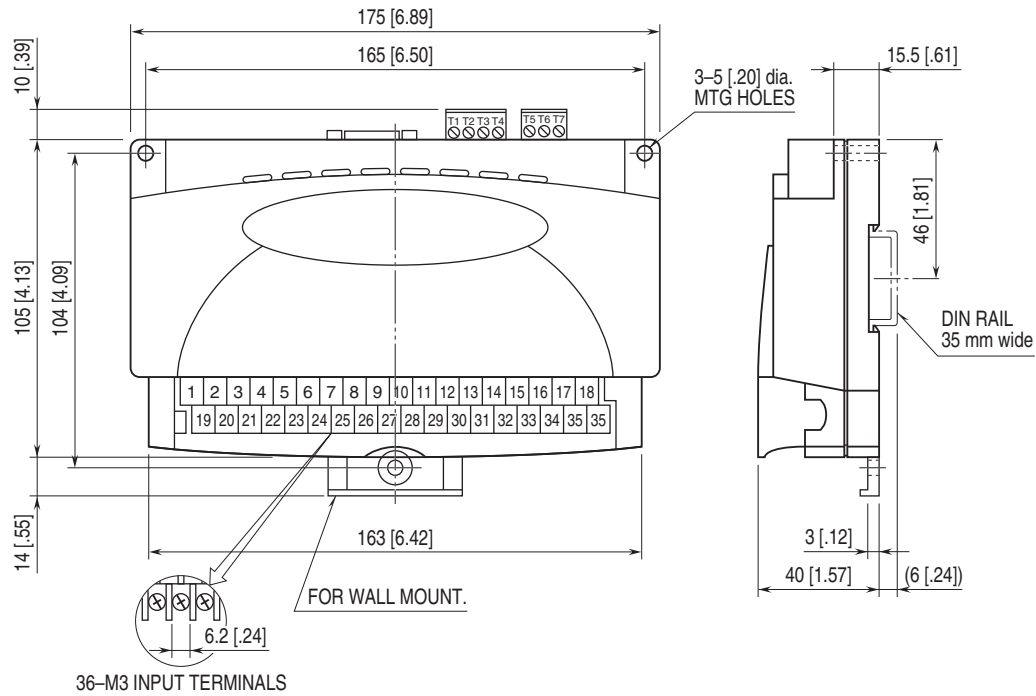
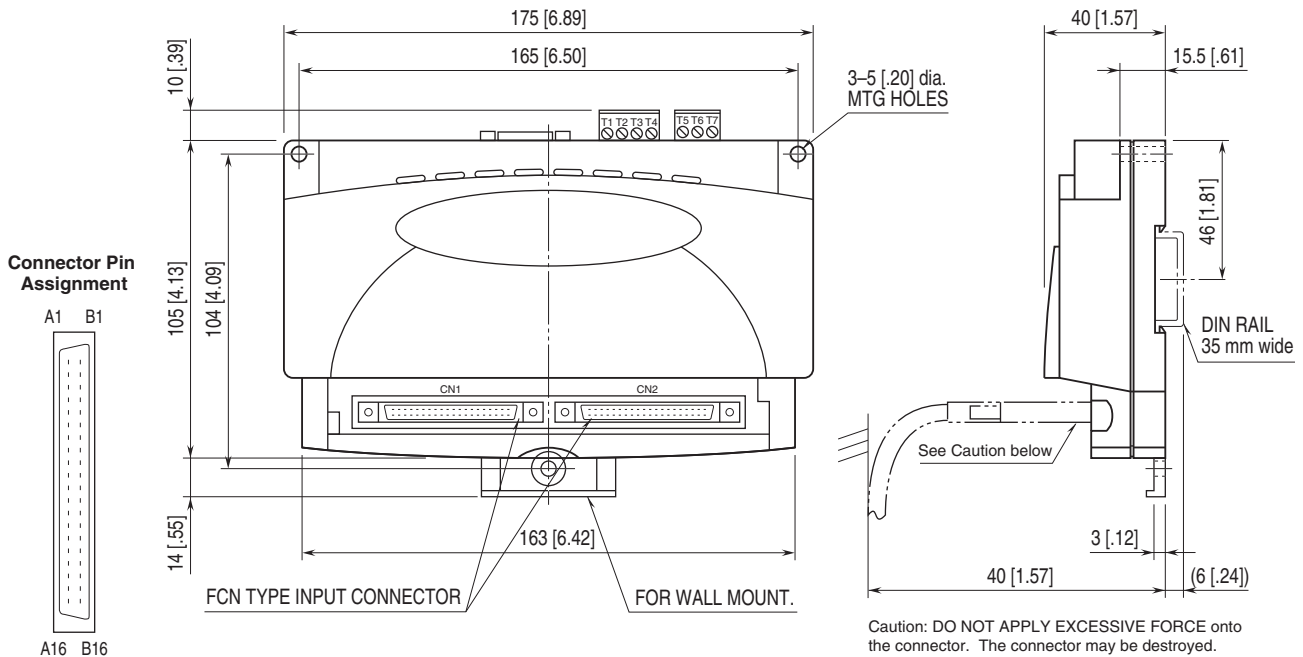■ **FCN TYPE CONNECTOR**

■ **M3 SCREW TERMINALS**

* 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.

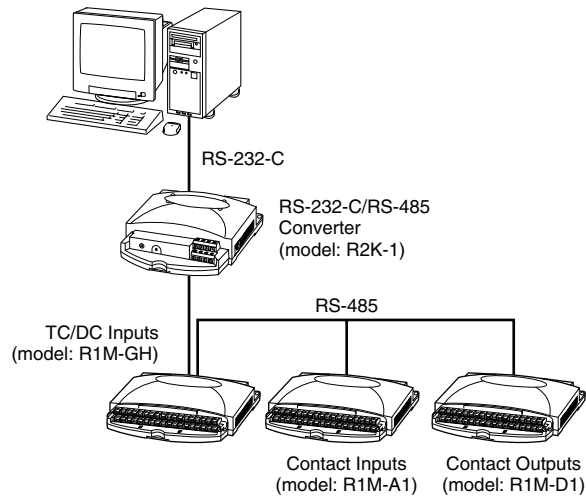## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS   unit: mm [inch]

■ M3 SCREW TERMINALS

175 [6.89]
165 [6.50]
10 [.39]
3–5 [.20] dia. MTG HOLES
15.5 [.61]
T1 T2 T3 T4   T5 T6 T7
105 [4.13]
104 [4.09]
46 [1.81]
DIN RAIL 35 mm wide

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

163 [6.42]
14 [.55]
FOR WALL MOUNT.
6.2 [.24]
36–M3 INPUT TERMINALS

3 [.12]
40 [1.57]
(6 [.24])

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Connector Pin Assignment
A1   B1

105 [4.13]
104 [4.09]
46 [1.81]

CN1   CN2

DIN RAIL 35 mm wide

A16   B16

14 [.55]
163 [6.42]
FCN TYPE INPUT CONNECTOR
FOR WALL MOUNT.

See Caution below

3 [.12]
40 [1.57]
(6 [.24])

Caution: DO NOT APPLY EXCESSIVE FORCE onto the connector. The connector may be destroyed.

SYSTEM CONFIGURATION EXAMPLES

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

⚠ Specifications are subject to change without notice.