

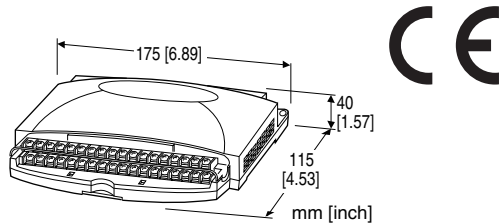
## PC Recorders R1M Series

### 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



### 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  $\pm$ 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<sup>2</sup> (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 (Fujitsu FCN-365P040-AU)

**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 k $\Omega$ )

$\leq 1.5$  V at ON

$\geq 4$  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:**  $\geq 100$  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)

## 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)

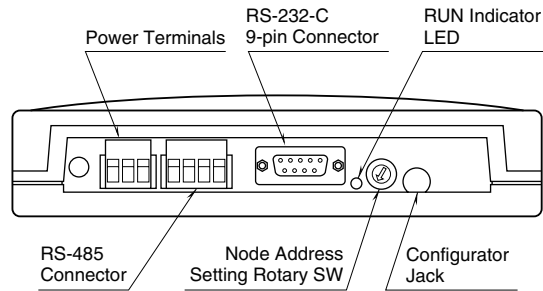
RoHS Directive

## 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

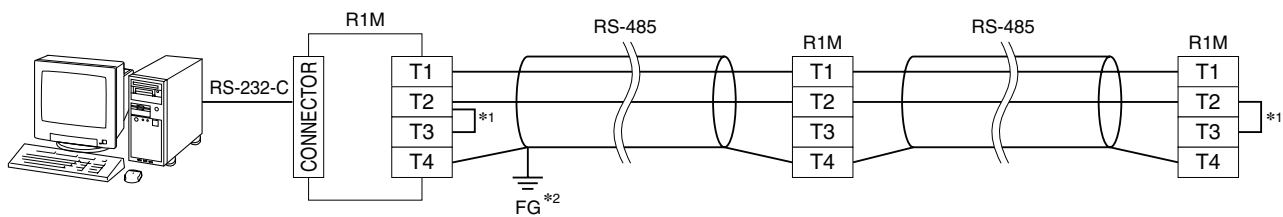


### ■ RS-232-C INTERFACE



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.

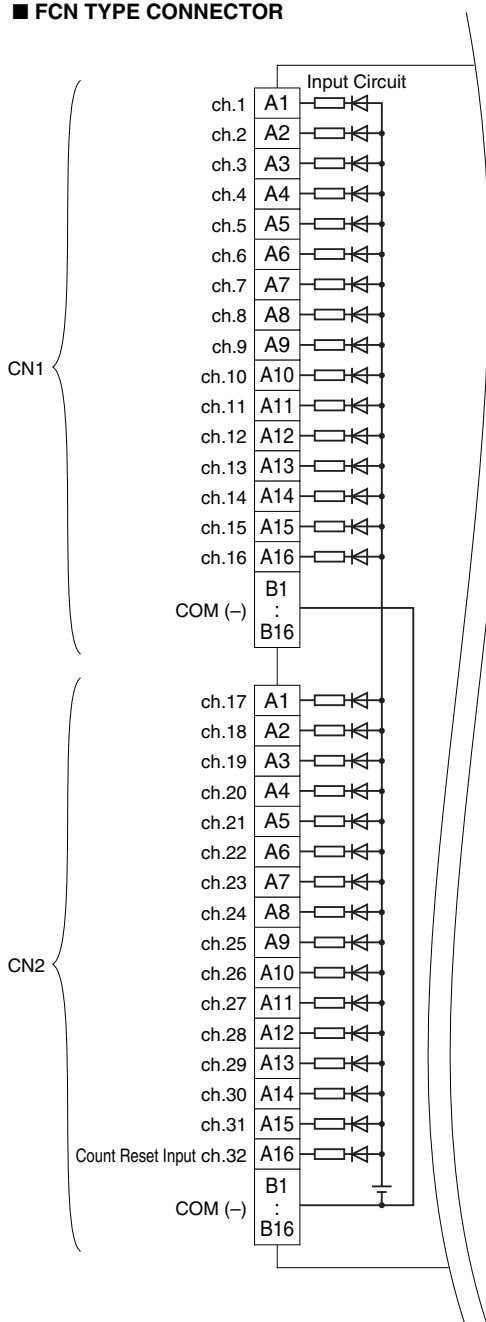
\*2. Install shielded cables to all sections and ground them at single point.

## CONNECTION DIAGRAM

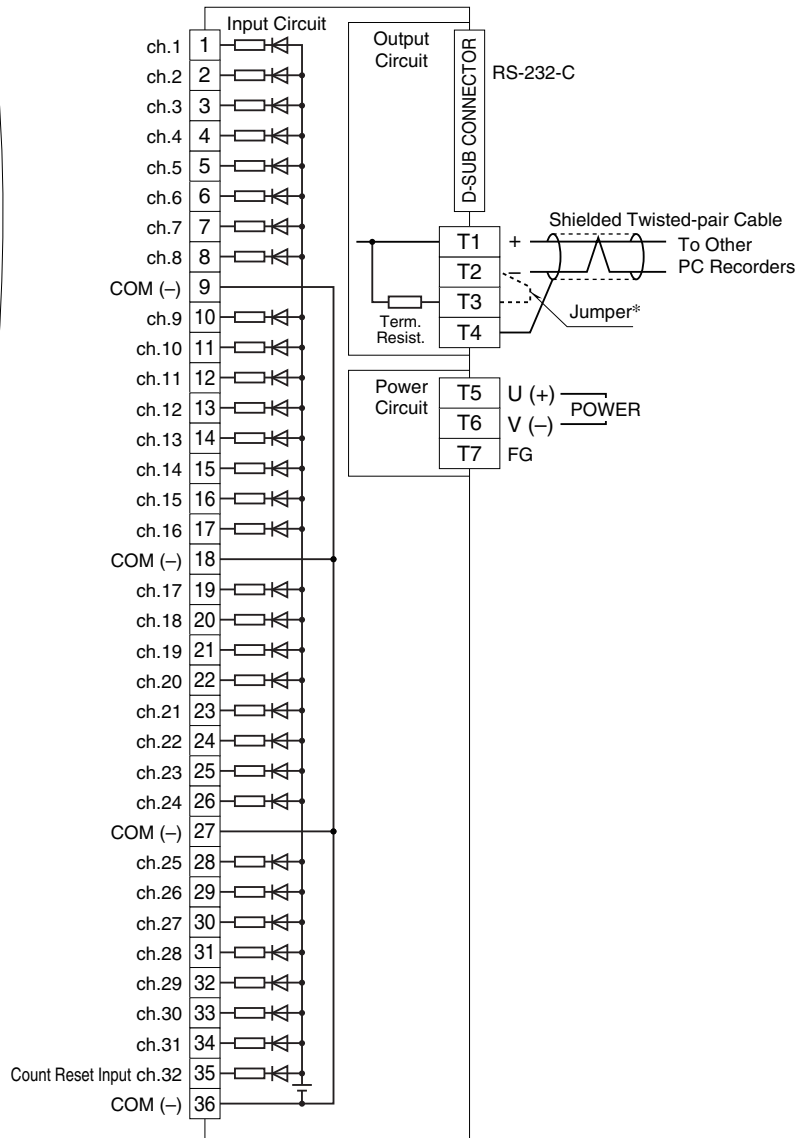
Note: In order to improve EMC performance, bond the FG terminal to ground.

Caution: FG terminal is NOT a protective conductor terminal.

### ■ FCN TYPE CONNECTOR



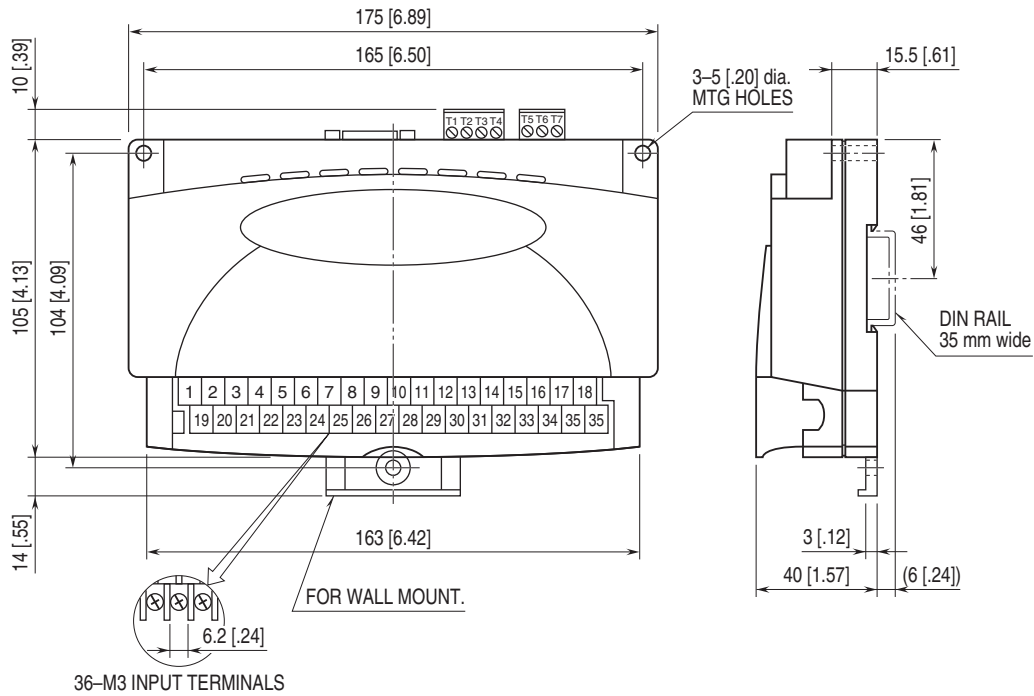
### ■ M3 SCREW TERMINALS



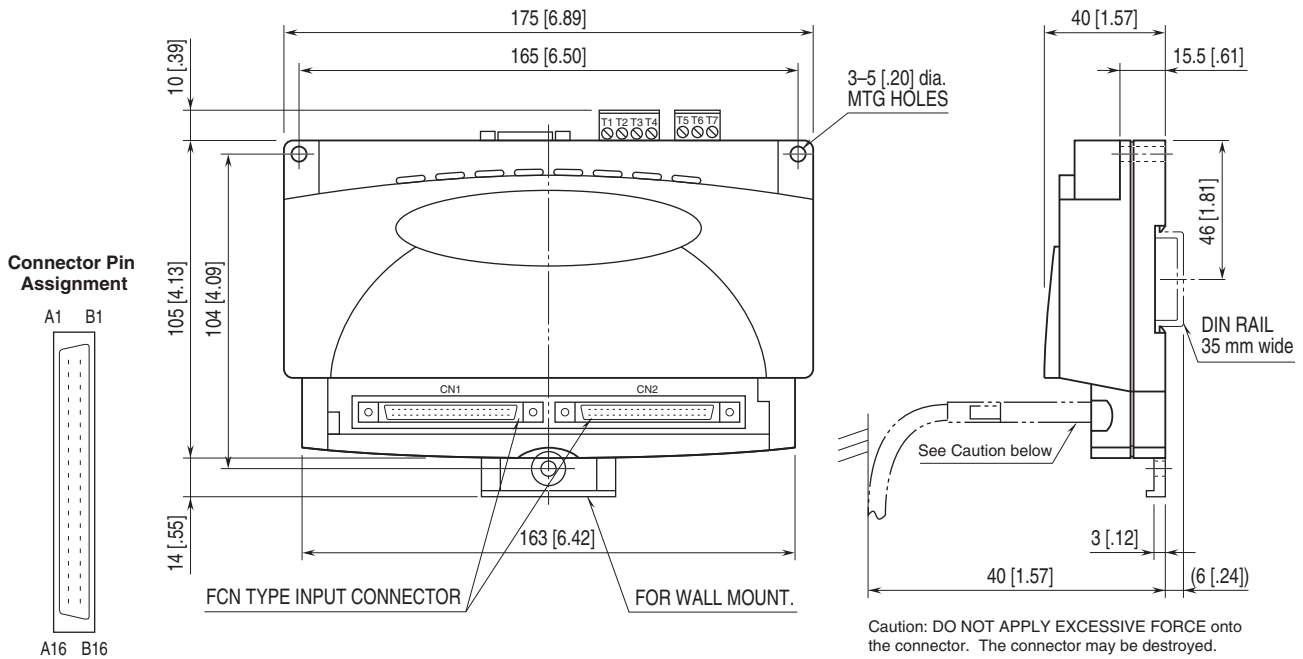
\* When the device is located at the end of a transmission line via twisted-pair cable, (when there is no cross-wiring), close across the terminal T2 – T3 with the attached jumper pin (or with a leadwire).  
When the device is not at the end, remove the jumper pin.

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

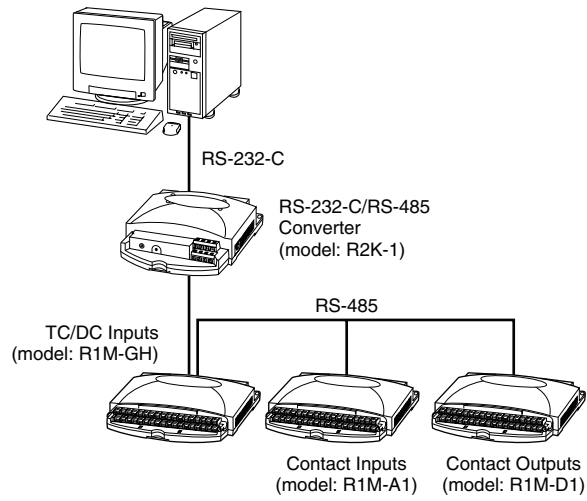
### ■ M3 SCREW TERMINALS



### ■ FCN TYPE CONNECTOR



**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.