

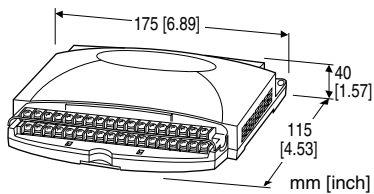
## PC Recorders R1M Series

### PC RECORDER

(4 totalized counter inputs, 8 contact inputs and outputs)

#### Functions & Features

- Industrial recorder on PC
- Totalized counter inputs
- Counts stored in E<sup>2</sup>PROM
- Easy system expansion via Modbus RTU
- Recorded data exportable to spreadsheet applications



### MODEL: R1M-P4T-[1][2]

#### ORDERING INFORMATION

- Code number: R1M-P4T-[1][2]
- Specify a code from below for each of [1] and [2].  
(e.g. R1M-P4T-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 ±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 our 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 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)

**I/O:** M3 screw terminals (torque: 0.6N·m)

**Screw terminal:** Nickel-plated steel

**Housing material:** Flame-resistant resin (gray)

**Channel selector for the digital display:** Rotary DIP switch;  
1 thr. 8: ch.1 thr. ch.8 contact input  
A thr. D: ch.A thr. ch.D totalized counter input  
0, 9, E, F: no display

**Isolation:** RS-232-C or RS-485 to I/O to power

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

**RUN indicator LED:** Green light blinks in normal conditions.

**Count memory at power loss:** Count value is saved in the the non-volatile memory (E<sup>2</sup>PROM) when the power supply is lost.

**Number of rewritable times:** 10<sup>5</sup> times

**Data storing characteristics:** 10 years at 20°C

##### ■ Indicators

**Digital display:** 6-digit red LED; 4.6 mm high; Shows either totalized (lower 6 digits only) or momentary value; selectable with internal DIP switch

#### 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**

■ **Totalized Counter Input (high speed):** Dry contact, 4 points

**Commons:** All negatives

**Max. input frequency:** 10 kHz

**Minimum pulse width:** 50  $\mu$ sec.

**Max. counter value:** 999 999 999 (reset to zero at overflow)

**Sensing:** Approx. 5 V DC (pull-up resistance 22 k $\Omega$ );  $\leq$  0.8 V at Lo;  $\geq$  4 V at Hi

Caution: The totalized counter itself can accept frequencies as high as 10 kHz. In order to eliminate unwanted input by chattering, be careful to choose an input device to be free of the problem (e.g. mercury relay).

■ **Contact Input:** Dry contact, 8 points

**Commons:** All negatives

**Sensing:** Approx. 5 V DC (pull-up resistance 22 k $\Omega$ );  $\leq$  0.8 V at Lo;  $\geq$  4 V at Hi

**Sampling rate:** 50 msec.

**Totalizing counter function**

**Number of input channels:** 8

**Max. input frequency:** 100 Hz

**Minimum pulse width:** 5 msec.

**Max. counter value:** 999 999 999 (reset to zero at overflow)

■ **Counter Reset Input:** Dry contact, 1 point

**Commons:** All negatives

**Sensing:** Approx. 5 V DC (pull-up resistance 22 k $\Omega$ );  $\leq$  0.8 V at Lo;  $\geq$  4 V at Hi

**Sampling rate:** 50 msec.

**Logic:** Enable at pulse edge sinking

**OUTPUT SPECIFICATIONS**

■ **Contact Output:** Open collector, 8 points

**Commons:** All negatives

**Rating:** 24 V DC @ 50 mA (resistive load)

**Saturation voltage:** 1.6 V DC

For use with inductive loads, external protection of contact and noise quenching is recommended.

**Sampling rate:** 50 msec.

**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 (RS-232-C or RS-485 to I/O to power to ground)

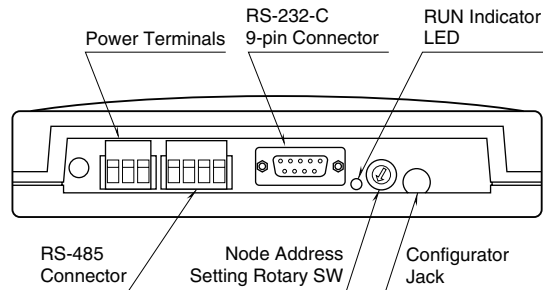
## PC RECORDER SOFTWARE

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

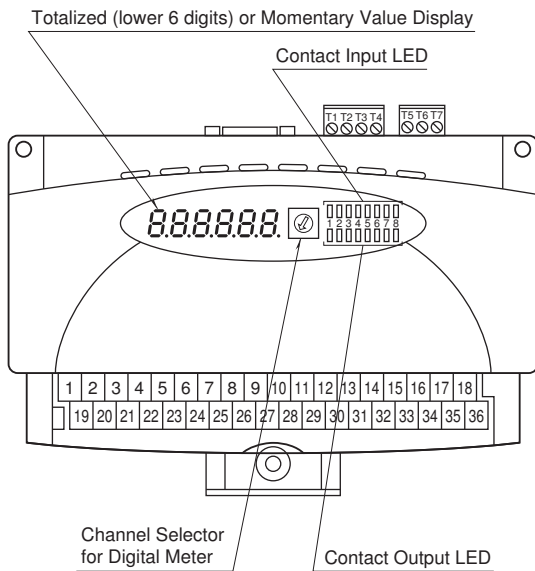
Refer to the MSRPAC-2010 data sheet for the contents of the package and the requirements for the PC to be prepared by the user.

## EXTERNAL VIEW

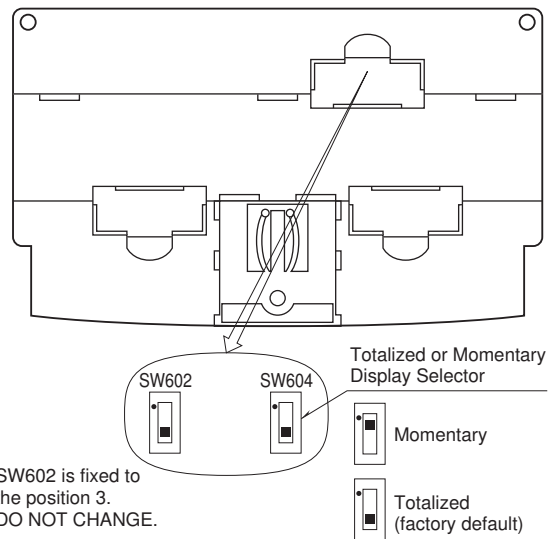
### REAR VIEW



### TOP VIEW



### BOTTOM VIEW

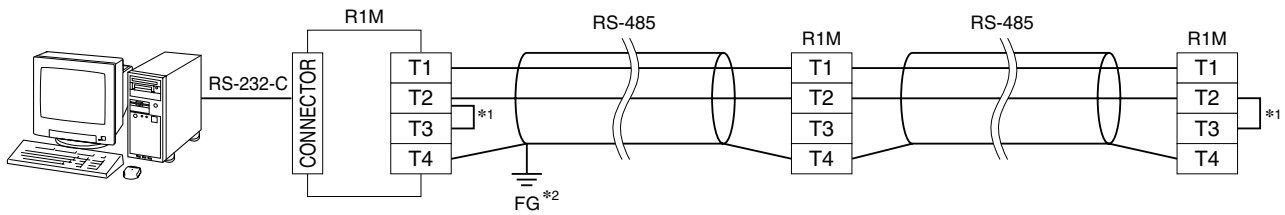


### RS-232-C INTERFACE



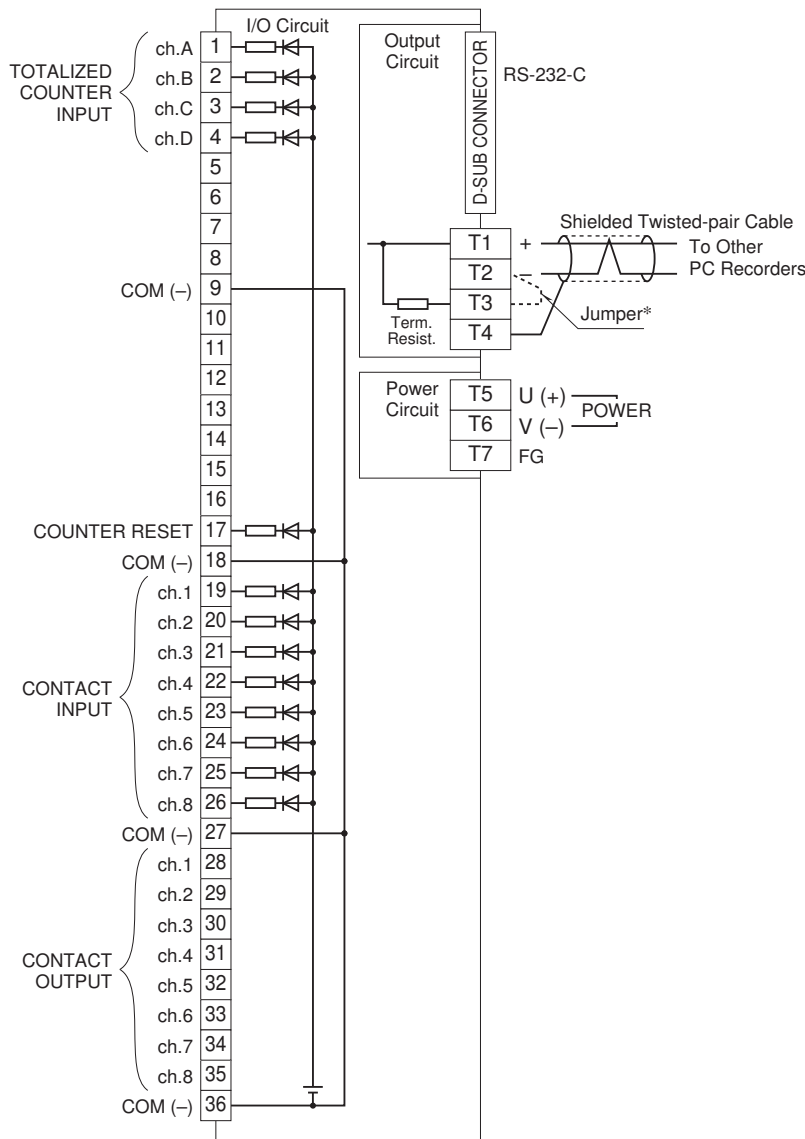
ABBR.	PIN NO.	EXPLANATION OF FUNCTION
BA (SD)	2	Transmitted Data
BB (RD)	3	Received Data
AB (SG)	5	Signal Common
CB (CS)	7	Clear to Send
CA (RS)	8	Request to Send
	1	Not Used.
	4	DO NOT connect. Connecting may cause malfunctions.
	6	
	9	

## 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

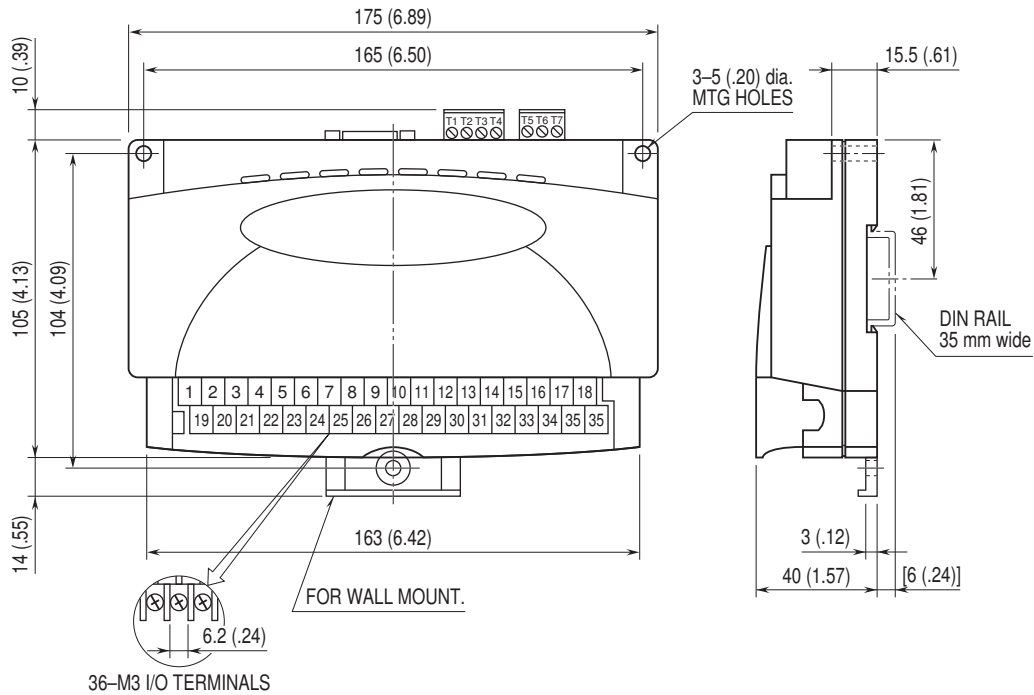


- \* When the device is located at the end of a transmission line via twisted-pair cable, (when there is no cross-wiring), close across the terminal T2 –T3 with the attached jumper pin (or with a leadwire).  
When the device is not at the end, remove the jumper pin.

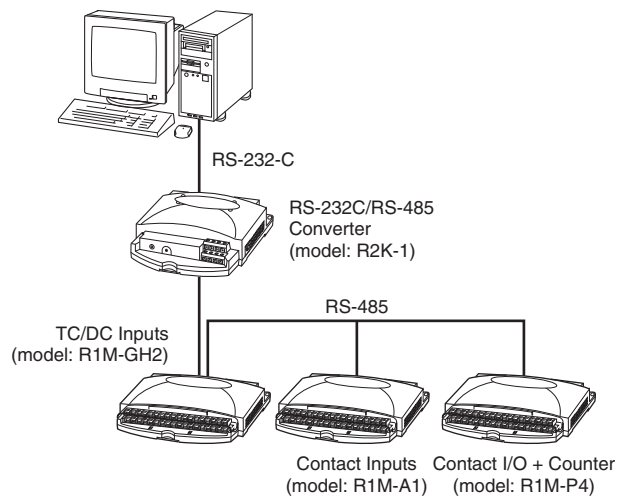
DO NOT CONNECT to the terminals 5 thr. 8 or 10 thr. 16.  
Wrong connection may cause failure of the device.

Caution: FG terminal is NOT a protective conductor terminal.

## 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.