INSTRUCTION MANUAL

PC RECORDER (DC input, 8 points; RS-232-C)	MODEL **R2M-2G3**

BEFORE USE ....

Thank you for choosing us. Before use, please check contents of the package you received as outlined below.
If you have any problems or questions with the product, please contact our sales office or representatives.

This product is for use in general industrial environments, therefore may not be suitable for applications which require higher level of safety (e.g. safety or accident prevention systems) or of reliability (e.g. vehicle control or combustion control systems).

For safety, installation and maintenance of this product must be conducted by qualified personnel.

■ PACKAGE INCLUDES:

PC Recorder ....(1)
Cable (9-pin D-sub cable, straight type) ....(1)
CD (software and users manual) ....(1)

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures. Read also the Users Manual for the software included in the CD for maximum use of the PC Recorder.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

• Altitude up to 2000 meters.
• The equipment must be mounted inside a panel.
• Insert noise filters. TDK Model ZCAT 3035-1330 or equivalent for the RS-232-C and power input cable are recommended.
• The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures* to ensure the CE conformity.
  * For example, installation of noise filters and clamp filters for the power source, input and output connected to the unit, etc.
• Install lightning surge protectors for those wires connected to remote locations.

■ POWER INPUT RATING & OPERATIONAL RANGE

• Locate the power input rating marked on the product and confirm its operational range as indicated below:
  24V DC rating: 24V ±10%, approx. 0.9W

■ GENERAL PRECAUTIONS

• Before you remove the module, turn off the power supply and input signal for safety.

■ PC RECORDER SOFTWARE

• Use the latest version of PC Recorder Software included in the product package.

■ ENVIRONMENT

• Indoor use.
• When heavy dust or metal particles are present in the air, install the module inside proper housing with sufficient ventilation.
• Do not install the module where it is subjected to continuous vibration. Do not subject the unit to physical impact.
• Environmental temperature must be within -5 to +60°C (23 to 140°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.
• Be sure that the ventilation slits are not covered with cables, etc.

■ WIRING

• Wrong connection may damage the module.
• Do not connect cables to moving parts or pull them tightly.
• Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
• Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
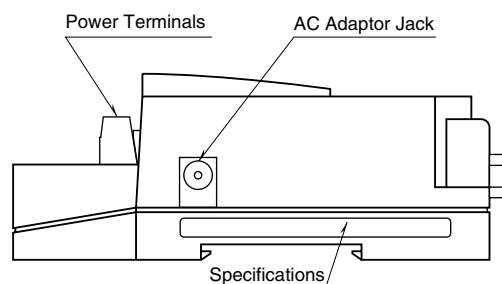
■ AND ....

• The module is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION

■ REAR VIEW
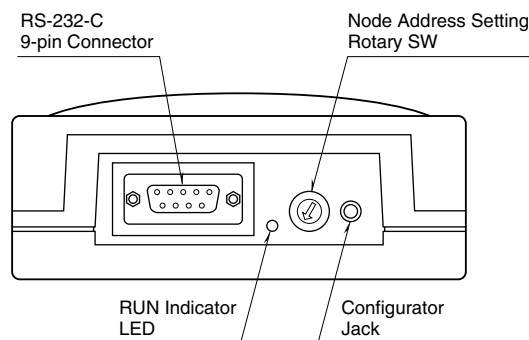
### ■ SIDE VIEW

PC REQUIREMENTS (provided by the user)

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.

INSTALLATION

■ DIN RAIL MOUNTING

Set the body so that its DIN rail adaptor is at the bottom. Pull down the DIN rail adaptor. Hang the upper hook at the rear side on the DIN rail and push in the lower. Push back the DIN rail adaptor.
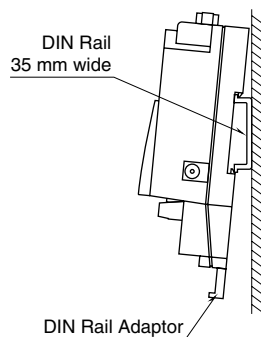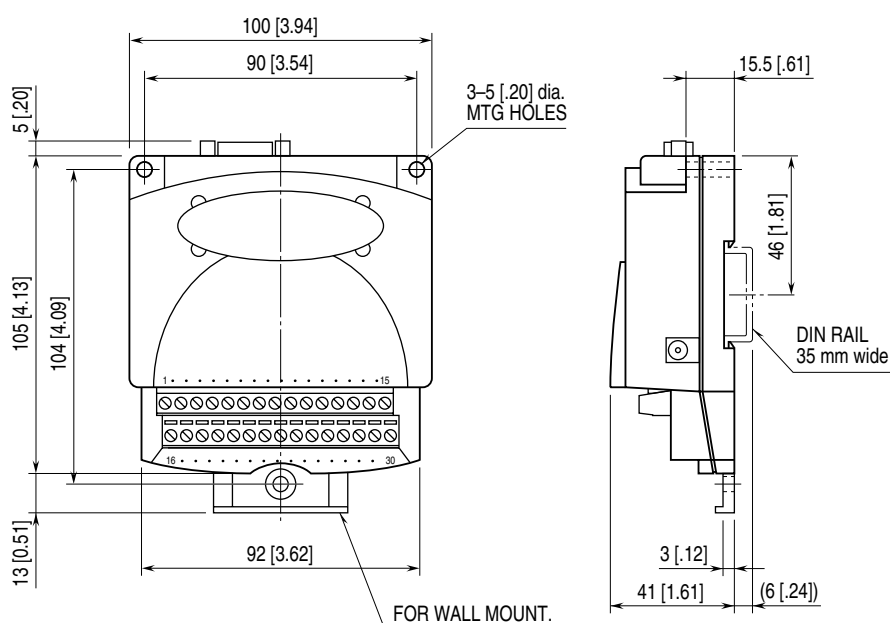
■ WALL MOUNTING

Set the body so that its DIN rail adaptor is at the bottom. Pull down the DIN rail adaptor. Refer to "EXTERNAL DIMENSIONS."

DIN Rail 35 mm wide

DIN Rail Adaptor

TERMINAL CONNECTIONS
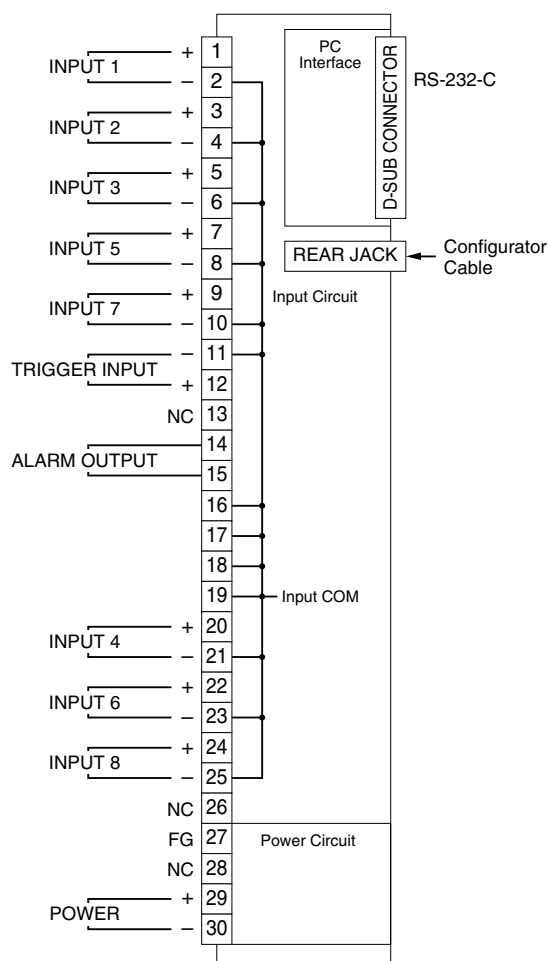
Connect the unit as in the diagram below.

■ EXTERNAL DIMENSIONS unit: mm [inch]

■ **CONNECTION DIAGRAM**

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

Note 1: Terminals 2, 4, 6, 8, 10, 11, 16, 17, 18, 19, 21, 23 and 25 are common negative. No. 11 is used only for a trigger input.
　　　　Be aware the interconnected terminals when wiring as a large current, if it flows across these terminals, may destroy the module.
Note 2: Use shielded twisted cables for the input or take other necessary measures so that there is no noise interference.
Note 3: Ground the terminal 27 (FG) for safety.
Note 4: The terminal 30 (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 both termimals, 27 and 30, to be connected to the PC's ground before
　　　　connecting an RS-232-C cable between the PC and the R2M.
Note 5: DO NOT connect the terminals 13, 26 and 28 (NC: No Connection). Wrong connection may cause failures of the module.

■RS-232-C INTERFACE

```
1   5
 ○○○○○
 ○○○○
6   9
```

| ABBR.	PIN NO.	EXPLANATION OF FUNCTION
BA (SD)	2	Transmitted Dat
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	

■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          ①
②          ②
③          ③
④          ④
⑤          ⑤
⑥          ⑥
⑦          ⑦
⑧          ⑧
⑨          ⑨
```
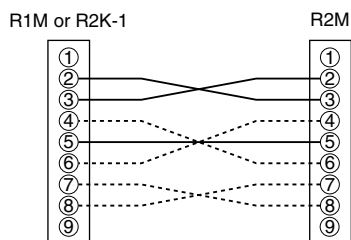
The above example with solid and broken lines shows an 'interlink' type cable.

WIRING INSTRUCTIONS

■ EURO TYPE TERMINAL BLOCK

Applicable wire size: 0.14 to 1.5 mm² (AWG26 to 16)
Stripped length: 6 mm

CHECKING

1) Terminal wiring: Check that all cables are correctly connected according to the connection diagram.
2) Power input: Check supply voltage. For DC power input, check voltage across the terminal 29 – 30.
3) Input: Check that the input is within 0 – 100% of full-scale.

ADJUSTMENT PROCEDURE

This unit is calibrated at the factory to meet the ordered specifications, therefore you usually do not need any calibration.

MAINTENANCE

Regular calibration procedure is explained below:

■ CALIBRATION

Warm up the unit for at least 10 minutes. Apply 0%, 25%, 50%, 75% and 100% input signal. Check that the output signal for the respective input signal remains within accuracy described in the data sheet. When the output is out of tolerance, please contact our sales office or representatives.