INSTRUCTION MANUAL

PC RECORDER

(Bus powered USB, 16 points DC input, 2 points dry contact, 2 points photo MOSFET relay output, tension clamp terminal)

MODEL **R7K4GUS-G16D4**

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 equipment 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 equipment must be conducted by qualified personnel.

■ PACKAGE INCLUDES:

PC recorder.....(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.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- The equipment must be mounted inside the instrument panel of a metal enclosure.
- 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.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
  5V DC power input by USB bus powered: ≤ 160mA
- The R7K4GUS-G16D4 is a high power device supplied through the USB port.
- The USB high power port must be capable of 500mA power consumption. When connecting the R7K4GUS-G16D4 to a USB hub, choose the self-powered configuration. Laptop PC's supply current may be limited by its battery power.
- Confirm the USB port's current capacity in advance.

■ GENERAL PRECAUTIONS

- Before you remove the unit or mount it, turn off the power supply and I/O signal for safety.
- Before wiring the terminal blocks, turn off the power supply and I/O signal for safety.

■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -10 to +55°C (14 to 131°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 pull cables 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.

■ CONNECTING/DISCONNECTING TO THE PC

- Do not connect/disconnect the R7K4GUS-G16D4 while the PC Recorder software program is running (when the screen is not in pause).
- Wait that RUN LED turns on before starting recording.

■ USB HUB

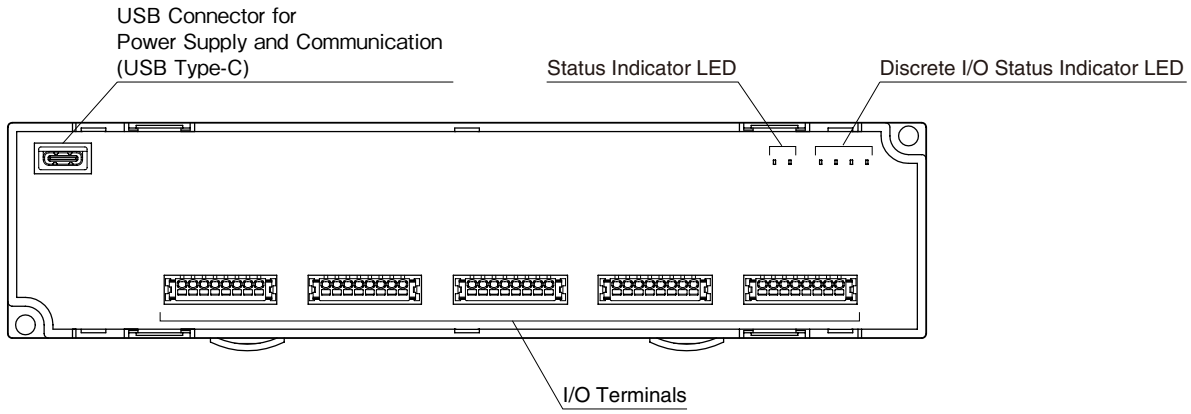
- In certain system configurations using a USB hub/switch, there are possibilities of missing sampling due to delays at the hub. We recommend to limit the number of connected devices to the minimum if a hub must be used.

■ AND ....

- The unit 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.

MG CO., LTD. www.mgco.jp
5-2-55 Minamitsumori, Nishinari-ku, Osaka 557-0063 JAPAN

COMPONENT IDENTIFICATION



■ STATUS INDICATOR LED

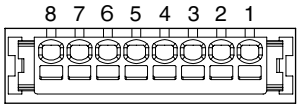
ID	STATUS	COLOR	FUNCTION
PWR	ON	Green	The power is supplied
	OFF	–	No power is supplied.
RUN	ON	Green	Communicating
	OFF	–	No communication

■ DISCRETE I/O STATUS INDICATOR LED

LED green indicators shows the signal status.
ON : LED ON
OFF : LED OFF

■ POWER SUPPLY, I/O TERMINAL ASSIGNMENT

Terminal block: PTSM0,5/8-2,5-V SMD R44 (Phoenix Contact)
Applicable wire size: 0.2 - 0.5mm²
Stripped length: 6mm
Recommended solderless terminal
AI0,25-6BU 0.25mm² (Phoenix Contact)
AI0,25-6YE 0.25mm² (Phoenix Contact)
AI0,34-6TQ 0.34mm² (Phoenix Contact)



· DISCRETE I/O

PIN NO.	ID	FUNCTION
1	DO2	Photo MOSFET output 2
2	DO2	Photo MOSFET output 2
3	DO1	Photo MOSFET output 1
4	DO1	Photo MOSFET output 1
5	NC	Unused
6	DI2	Discrete input 2
7	DI1	Discrete input 1
8	COM	Common

· ANALOG INPUT

PIN NO.	ID	FUNCTION
1	AI4–	Input 4–
2	AI4+	Input 4+
3	AI3–	Input 3–
4	AI3+	Input 3+
5	AI2–	Input 2–
6	AI2+	Input 2+
7	AI1–	Input 1–
8	AI1+	Input 1+

PIN NO.	ID	FUNCTION
1	AI8–	Input 8–
2	AI8+	Input 8+
3	AI7–	Input 7–
4	AI7+	Input 7+
5	AI6–	Input 6–
6	AI6+	Input 6+
7	AI5–	Input 5–
8	AI5+	Input 5+

PIN NO.	ID	FUNCTION
1	AI12–	Input 12–
2	AI12+	Input 12+
3	AI11–	Input 11–
4	AI11+	Input 11+
5	AI10–	Input 10–
6	AI10+	Input 10+
7	AI9–	Input 9–
8	AI9+	Input 9+

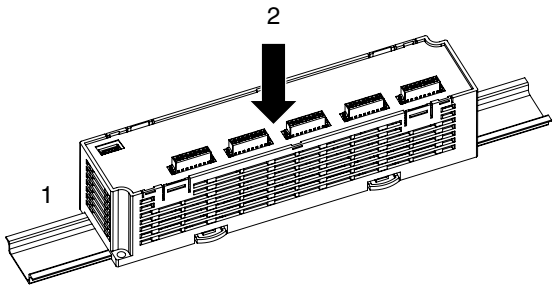
PIN NO.	ID	FUNCTION
1	AI16–	Input 16–
2	AI16+	Input 16+
3	AI15–	Input 15–
4	AI15+	Input 15+
5	AI14–	Input 14–
6	AI14+	Input 14+
7	AI13–	Input 13–
8	AI13+	Input 13+

MOUNTING INSTRUCTIONS

■ DIN RAIL MOUNTING

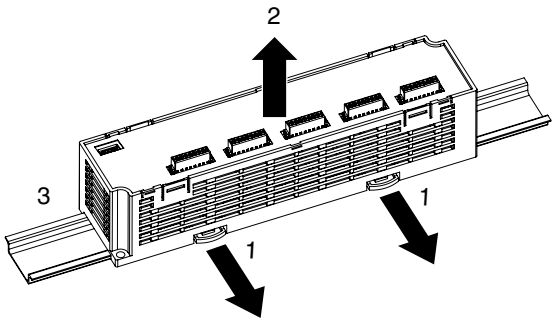
• Mounting

1) Set the upper hook at the rear side of the unit on the DIN rail.
2) Push in the lower.



• Dismounting

1) Push down the DIN rail mounter slider with tip of a minus screwdriver.
2) Pull the lower of the unit.
3) Remove the upper hook of the unit from the DIN rail.



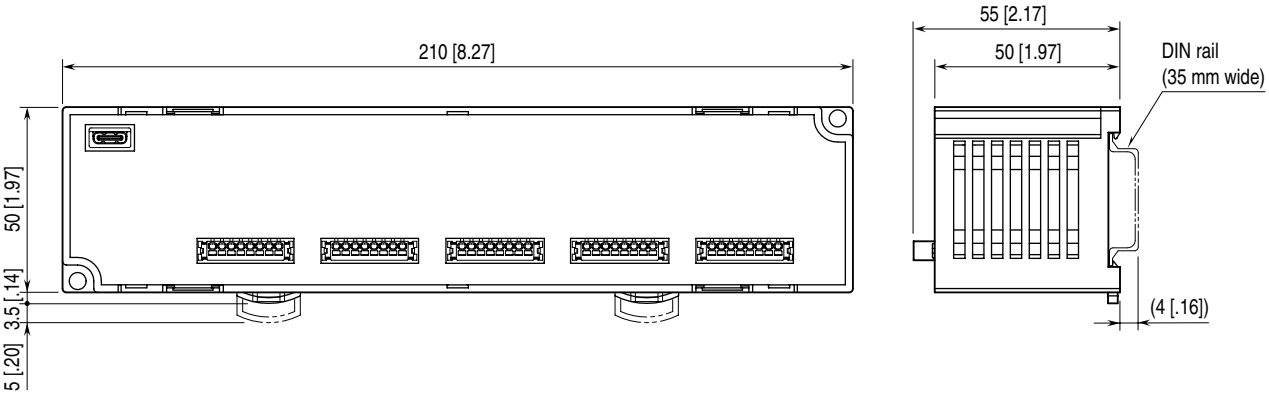
■ SURFACE MOUNTING unit: mm [inch]

Torque: 1.4 N·m

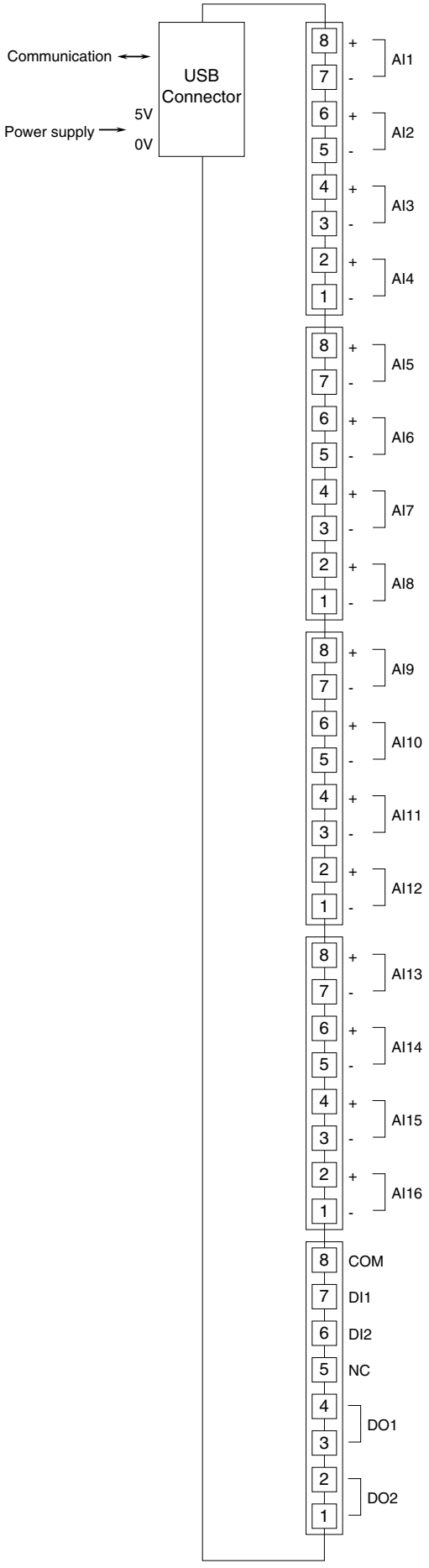
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

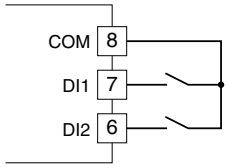
■ EXTERNAL DIMENSIONS unit: mm [inch]



■ CONNECTION DIAGRAM

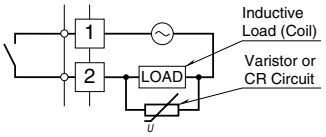


■ Input Connection Examples

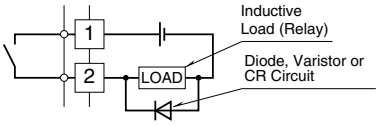


■ Relay protection

· AC Powered



· DC Powered



READING AND WRITING I/O DATA VIA MODBUS-RTU COMMUNICATION

The device is intended to be used with PC recorder software (model: PC Recorder), but it is also possible to read and write I/O data via Modbus-RTU communication through USB (virtual COM port).
When the PC and the device are connected with a USB cable, a virtual COM port is created on the PC.
The node address is fixed at 1, and communication is possible with any settings for baud rate, parity, and stop bit.

MODBUS FUNCTION CODES & SUPPORTED CODES

■ Data and Control Functions

CODE	NAME	
03	Read Holding Registers	General purpose register within the slave
04	Read Input Registers	Collected data from the field by the slave
06	Preset Single Registers	General purpose register within the slave
16	Preset Multiple Registers	General purpose register within the slave

■ Exception Codes

CODE	NAME	
01	Illegal Function	Function code is not allowable for the slave
02	Illegal Data Address	Address is not available within the slave
03	Illegal Data Value	Data is not valid for the function

MODBUS I/O ASSIGNMENT

REGISTER	R/W	ADDRESS	DATA RANGE	DATA
Input Register (3X) Holding Register (4X)	R	1 to 16	-27500 to +27500	Data of analog input 1 to 16
		33	0, 1	Discrete input 1 (0 = OFF, 1 = ON)
		34	0, 1	Discrete input 2 (0 = OFF, 1 = ON)
	R/W	35	0, 1	Discrete output 1 (0 = OFF, 1 = ON)
		36	0, 1	Discrete output 2 (0 = OFF, 1 = ON)

Note: DO NOT access addresses 37 or later. Such access may cause problems such as inadequate operation.

■ ANALOG INPUT DATA

ANALOG INPUT RANGE	DATA
Wide span voltage	-25000 to +25000 for -10 to +10 V
Middle span voltage	-25000 to +25000 for -0.8 to +0.8 V
Narrow span voltage	-25000 to +25000 for -80 to +80 mV