

# RELAY C CONTACT OUTPUT MODULE, 4 points (Modbus)

MODEL **R7M-DC4G**

## BEFORE USE ....

Thank you for choosing M-System. 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 M-System's Sales Office or representatives.

### ■ PACKAGE INCLUDES:

Relay contact output module.....(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.
- Altitude up to 2000 meters.
- The equipment must be installed such that appropriate clearance and creepage distances are maintained to conform to CE requirements. Failure to observe these requirements may invalidate the CE conformance.
- 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.
- 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  $\pm$ 10%, approx. 35mA

### ■ GENERAL PRECAUTIONS

- Before you remove the unit or mount it, turn off the power supply and output signal for safety.
- Before you remove the terminal block or mount it, make sure to turn off the power supply and output signal for safety.
- DO NOT set the switches on the module while the power is supplied. The switches are used only for maintenance without the power.

### ■ 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.

### ■ WIRING

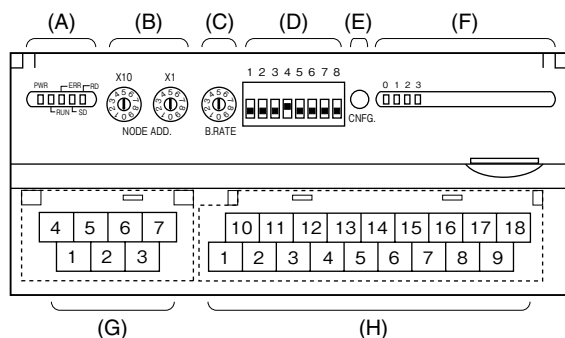
- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
- Be sure to close the terminal cover for safety.

### ■ AND ....

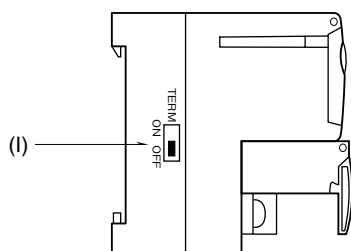
- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

## COMPONENT IDENTIFICATION

### FRONT VIEW



### LEFT SIDE VIEW



- (A) Status Indicator LED
- (B) Station Address Setting Rotary SW
- (C) Baud Rate Setting Rotary SW
- (D) Operation Mode Setting DIP SW (SW1)
- (E) PC Configurator Jack
- (F) Discrete Output Status Indicator LED
- (G) Modbus, Power Supply Terminal
- (H) Output Terminals
- (I) Terminating Resistor SW

### STATUS INDICATOR LED

ID	COLOR	FUNCTION
PWR	Red	Turns on when the internal 5V is supplied normally.
RUN	Red	Turns on when the data is received normally.
ERR	Red	Turns on when the received data is abnormal. Blinks when setting is abnormal.
SD	Red	Turns on when the module is transmitting.
RD	Red	Turns on when the module is receiving.

### DISCRETE OUTPUT STATUS INDICATOR LED

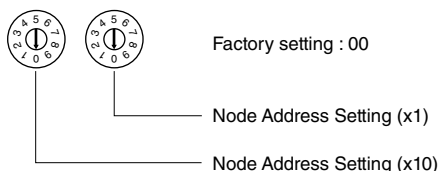
LED red indicators show the signal status.

ON : a contact output (NO)

OFF : b contact output (NC)

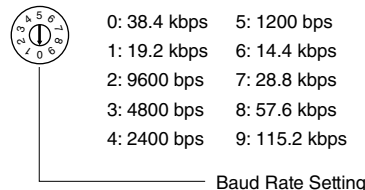
### NODE ADDRESS

Node Address is selected between 1 and 99 in decimal. The left switch determines the tenth place digit, while the right switch does the ones place digit of the address.



### BAUD RATE

Baud Rate is selected with the rotary switch.  
(Factory setting 0).



### OPERATING MODE

#### Output at the Loss of Communication: SW1-4

SW1-4	OUTPUT AT THE LOSS OF COMMUNICATION
OFF	B contact output (Discard the last data received normally)
ON	Hold the output (*) (maintains the last data received normally)

(\*) Factory setting

Note: Be sure to set unused SW1-1 through 1-3 and 1-5 through 1-8 to OFF.

### POWER SUPPLY, MODBUS TERMINAL ASSIGNMENT

4	5	6	7
DA	DG	+24V	0V
1	2	3	
DB	SLD	FG	

- (1) DB -
- (2) SLD Shield
- (3) FG FG
- (4) DA -
- (5) DG -
- (6) +24V Power input (24V DC)
- (7) 0V Power input (0V)

### OUTPUT TERMINAL ASSIGNMENT

10	11	12	13	14	15	16	17	18
+24V	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
1	2	3	4	5	6	7	8	9
0V	COM0	COM0	COM0	COM0	COM1	COM1	COM1	COM1

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	0V	0V	10	+24V	24V DC
2	COM0	Output common 0	11	Y0	Output 0 (NO)
3	COM0	Output common 0	12	Y1	Output 0 (NC)
4	COM0	Output common 1	13	Y2	Output 1 (NO)
5	COM0	Output common 1	14	Y3	Output 1 (NC)
6	COM1	Output common 2	15	Y4	Output 2 (NO)
7	COM1	Output common 2	16	Y5	Output 2 (NC)
8	COM1	Output common 3	17	Y6	Output 3 (NO)
9	COM1	Output common 3	18	Y7	Output 3 (NC)

### TERMINATING RESISTOR

To use the terminating resistor, turn the switch ON, and OFF to invalidate.  
(Factory setting OFF)

### EXTENSION MODULE

Combinations with all extension modules are available

## PC CONFIGURATOR

The following parameter items can be set with using PC Configurator Software (model: R7CON).  
Refer to the users manual for the R7CON for detailed operation of the software program.

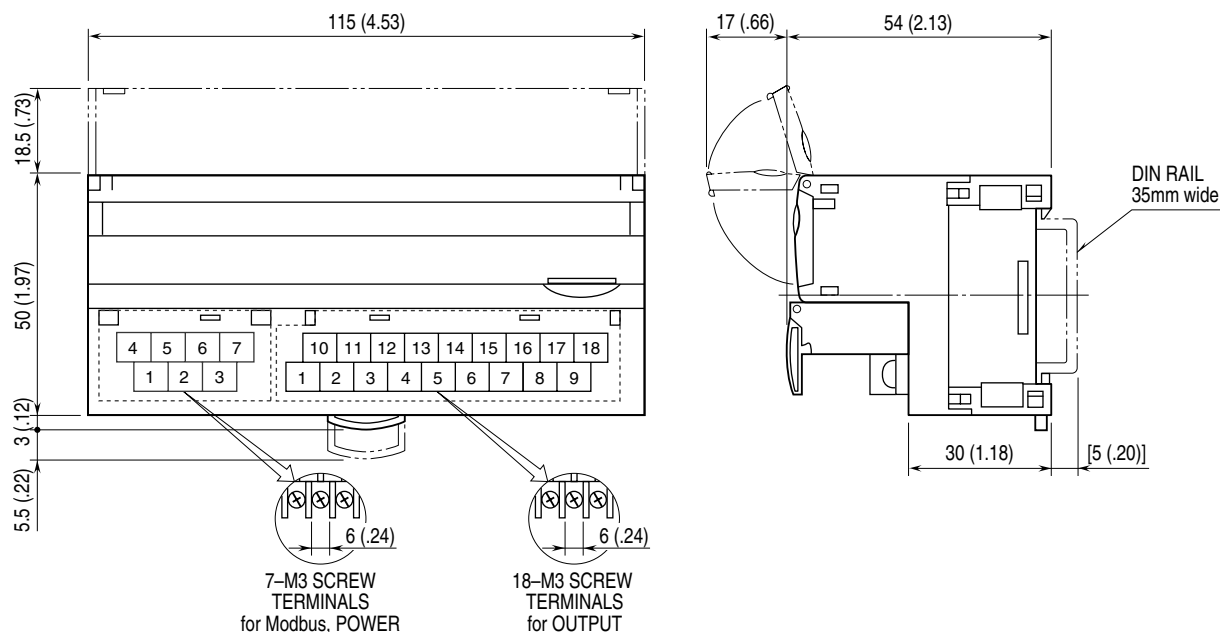
### ■ INTERFACE SETTING

PARAMETER	SETTING RANGE	DEFAULT SETTING
Communication Timeout	0.0 – 3276.7 (sec.)	3.0 (sec.)
Data Mode	RTU / ASCII	RTU
Parity	NONE / ODD / EVEN	NONE

## TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

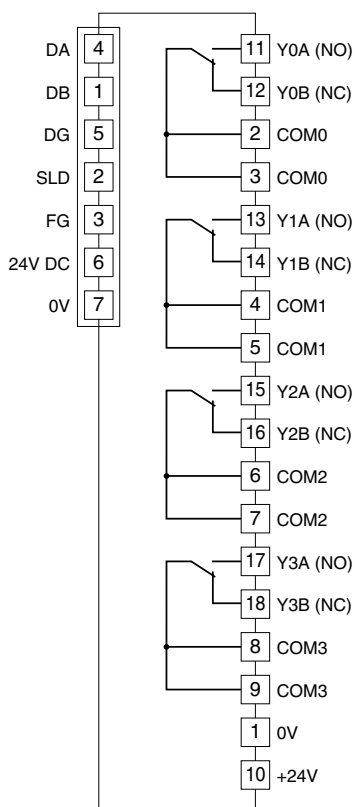
### ■ EXTERNAL DIMENSIONS unit: mm (inch)



## ■ CONNECTION DIAGRAM

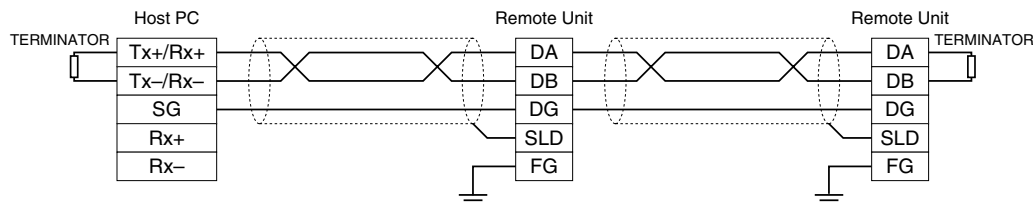
Note: In order to improve EMC performance, bond the FG terminal to ground.

Caution: FG terminal is NOT a protective conductor terminal.



## COMMUNICATION CABLE CONNECTIONS

### ■ MASTER CONNECTION



Be sure to connect the terminating resistor included in the product package to the unit at both ends of transmission line.

The terminator must be connected across DA and DB.

The Host PC can be located other than at the extreme ends of transmission line.

## WIRING INSTRUCTIONS

### ■ SCREW TERMINAL

Torque: 0.5 N·m

### ■ SOLDERLESS TERMINAL

Refer to the drawing below for recommended ring tongue terminal size. Spade tongue type is also applicable.

Applicable wire size: 0.25 to 1.65 mm<sup>2</sup> (AWG 22 to 16)

Recommended manufacturer: Japan Solderless Terminal

MFG. Co., Ltd, Nichifu Co., Ltd

