## INSTRUCTION MANUAL

# PULSE OUTPUT MODULE
### (NPN transistor output, 4 points, voltage contact)

MODEL **R8-PC4A**

## 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:
Pulse 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 a panel.
• 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.

### ■ GENERAL PRECAUTIONS
• Before you remove or mount the unit, turn off the power supply and output signal for safety.
• Switches on the side of the module can be set for maintenance only while the power supply is off. Do not access them while the power is supplied.

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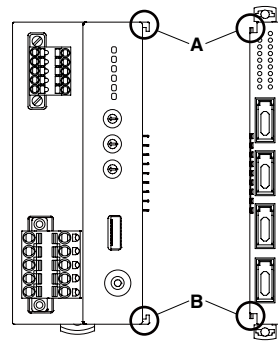
### ■ AND ....
• The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.
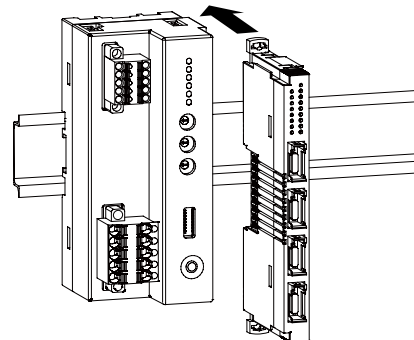
## INSTALLATION

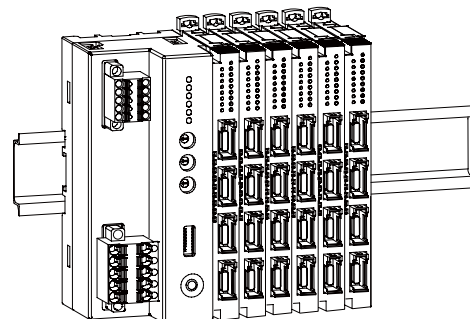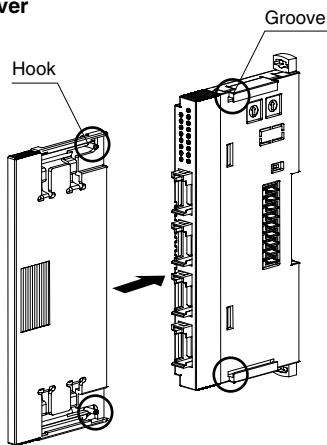### ■ HOW TO MOUNT THE MODULE ON DIN RAIL

• I/O Module



Confirm that the locking clamps of the I/O module are set.
Insert the module in parallel to the next one while aligning the grooves of both modules (A & B in the above figure).
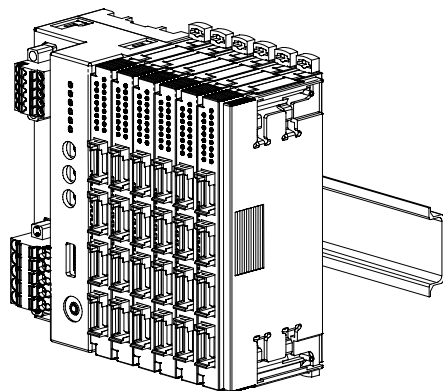Maintain it perpendicularly to the rail.



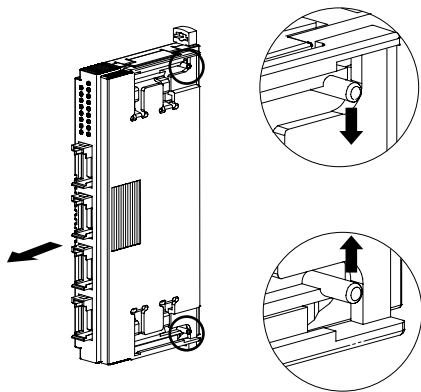More I/O modules can be added in the same manner.

**• Protective Cover**

Hook

Groove



The protective cover is to be attached over the connected I/O module at the right end.
Align the hooks on the cover with the grooves of the module and slide it straight until the hooks are latched.
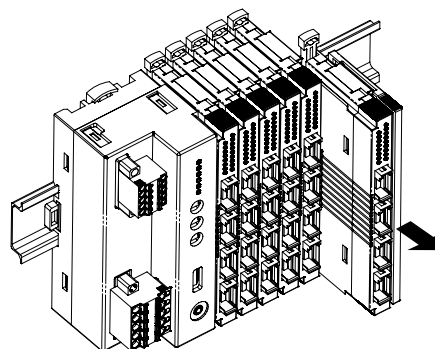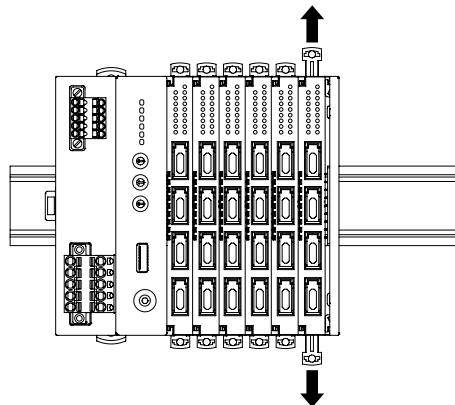


When removing the cover, pull it out while squeezing the hooks inward.



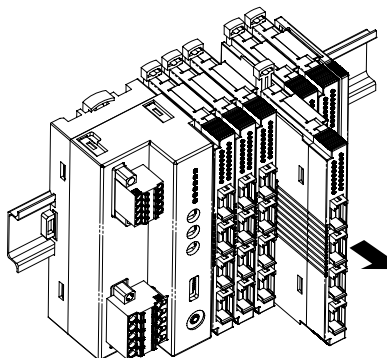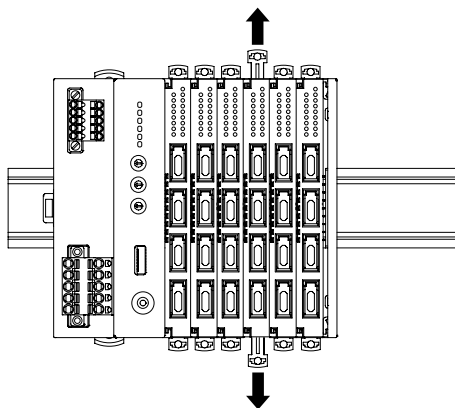## ■ HOW TO UNMOUNT THE MODULE ON DIN RAIL

Release the locking clamps and pull out straight the module.
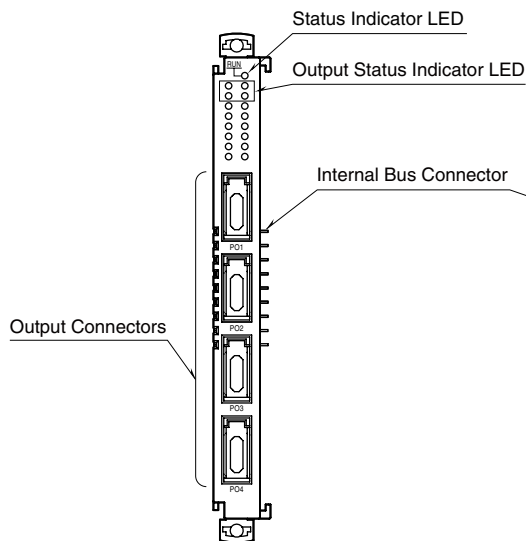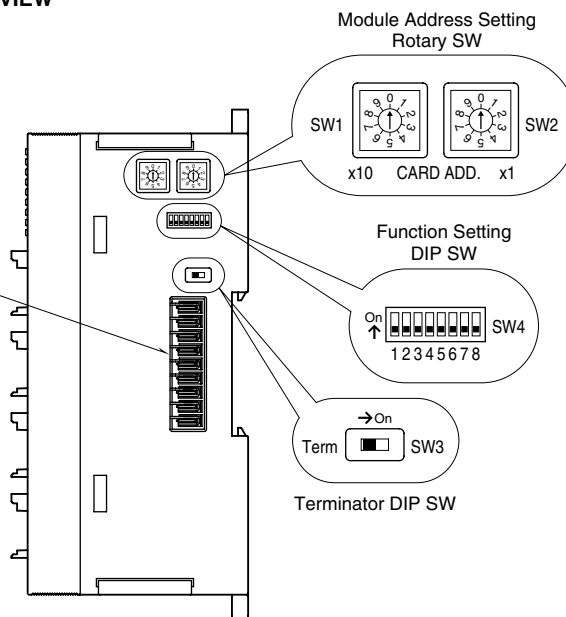


**• Removing an intermediate module**



**Caution !**
1) Be careful not to hurt your hand by pointed edges of the internal bus connector.
2) I/O modules cannot hold tightly on the DIN rail by themselves without power/network module.
   Secure them to the position if necessary by using DIN rail end plates.

# COMPONENT IDENTIFICATION

■**FRONT VIEW**　　　　　　　　■**SIDE VIEW**

Status Indicator LED

Output Status Indicator LED

Internal Bus Connector

Output Connectors

PO1
PO2
PO3
PO4

Module Address Setting
Rotary SW

SW1　　SW2

x10　CARD ADD.　x1

Function Setting
DIP SW

On
↑

SW4

1 2 3 4 5 6 7 8

→On

Term ■□ SW3

Terminator DIP SW

■ **INDICATOR LED**

| ID | OPERATION | FUNCTION |
|----|-----------|----------|
| Status | OFF | Stopping |
| | Green ON | Valid host communication |
| | Green Blinking | Reading/writing configuration |
| | Red ON | Setting error |
| | Red Blinking | Parameter error |
| Output Status | OFF | OFF |
| | Green ON | ON |

■ **OUTPUT CONNECTOR ASSIGNMENT**

| PIN No. | ID | FUNCTION |
|---------|-----|----------|
| 1 | 24V | 24V |
| 2 | NC | No connection |
| 3 | NC | No connection |
| 4 | PO | Output |

Note: Pin 1 is connected to the excitation supply.

■ **MODULE ADDRESS: SW1, 2**

The left switch determines the tenth place digit, while the right one does the ones place digit of the module address. Address is selected between 0 to 30.
(Factory setting: 0)

Module Address Setting (x1)

Module Address Setting (x10)
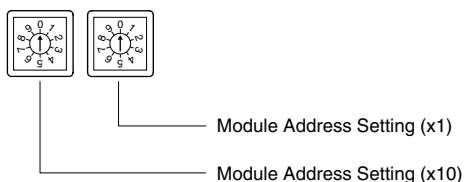
■ **OPERATING MODE**

(*) Factory setting

• **Counter Reset: SW4-1**

1) Turn the power off.

2) Turn ON the Counter Reset SW (SW4-1).

3) Return the module to the base and turn the power supply ON. The status indicator LED turns ON in amber.

4) Wait at least 5 seconds. Turn the power supply OFF.

5) Turn OFF the Counter Reset SW (SW4-1).

6) Return the module to the base and turn the power supply ON.

Note: Counter Reset SW must be turned OFF after this procedure because the module does not start counting with ON state.

• **ON/OFF Pulse Width: SW4-2, 3, 4, 5, 6, 7**

Setting for all outputs.
Setting for each output can be done with a PC.

| ON | | | OFF | | | PULSE WIDTH TIME *1 |
|----|----|----|----|----|----|----|
| 2 | 3 | 4 | 5 | 6 | 7 | |
| OFF | OFF | OFF | OFF | OFF | OFF | 5 msec.(*) |
| ON | OFF | OFF | ON | OFF | OFF | 10 msec. |
| OFF | ON | OFF | OFF | ON | OFF | 15 msec. |
| ON | ON | OFF | ON | ON | OFF | 100 msec. |
| OFF | OFF | ON | OFF | OFF | ON | 500 msec. |
| ON | OFF | ON | ON | OFF | ON | 1 sec. |
| OFF | ON | ON | OFF | ON | ON | 1.5 sec. |
| ON | ON | ON | ON | ON | ON | 2 sec. |

*1. Minimum ensured time duration. For example, with 5 msec. setting, the minimum pulse width is 5 msec. (Max. value = Setting time + 2 msec.)

• **Configuration Mode: SW4-8**

| CONFIGURATION MODE | SW4-8 |
|--------------------|-------|
| DIP switch setting (*) | OFF |
| PC Configurator and communication | ON |

■ **TERMINATOR DIP SW: SW3**

| TERMINATOR SWITCH | SW3 |
|---|---|
| Without (*) | OFF |
| With | ON |

■ **OPERATION**

When writing the number of output pulse (target value) from a host, R8-PC4A outputs the difference from the number of pulse outputs until now (present value) as the remainder number of pulse.

The present value of the R8-PC4A is held even with power off. If target value is '0' or higher than totalized pulse upper limit, it is invalid. When the target value is not less than 2001 for the present value, the unit does not output the pulse and the present value is equal to the target value.

E.g.1) Present value = 1000 and target value = 1500, it outputs 500 pulses.

E.g.2) Present value = 9000 and target value = 500, it outputs 1500 pulses.

E.g.3) Present value = 1000 and target value = 3001, it does not outputs any pulse, present value = 3001. (When the totalized pulse upper limit is initial setting, 10000.)

# PC CONFIGURATOR

The following parameter items can be configured with PC Configurator Software (model: R8CFG). Refer to the users manual of the software for detailed operations.

■ **CHANNEL INDIVIDUAL SETTING**

| PARAMETER | SETTING RANGE | DEFAULT SETTING |
|---|---|---|
| Max. Totalized pulse count | 1 to 65535 | 10000 |
| Pulse ON time | 5, 10, 50, 100, 500, 1000, 1500, 2000 (msec.) | 5 (msec.) |
| Pulse OFF time | 5, 10, 50, 100, 500, 1000, 1500, 2000 (msec.) | 5 (msec.) |

■ **CHANNEL BATCH SETTING**

| PARAMETER | SETTING RANGE | DEFAULT SETTING |
|---|---|---|
| Loss of internal bus communication detection time | 0.0 to 99.9 (sec.) | 1.0 (sec.) |

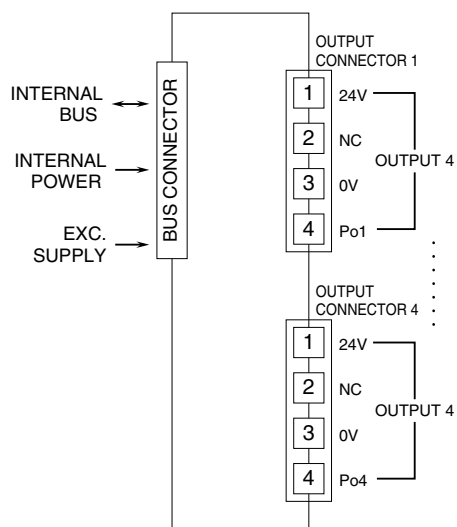Note: Turn SW4-8 ON to allow programming by the PC Configurator via the Power/Network Module.

# TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

## ■ EXTERNAL DIMENSIONS  unit: mm (inch)
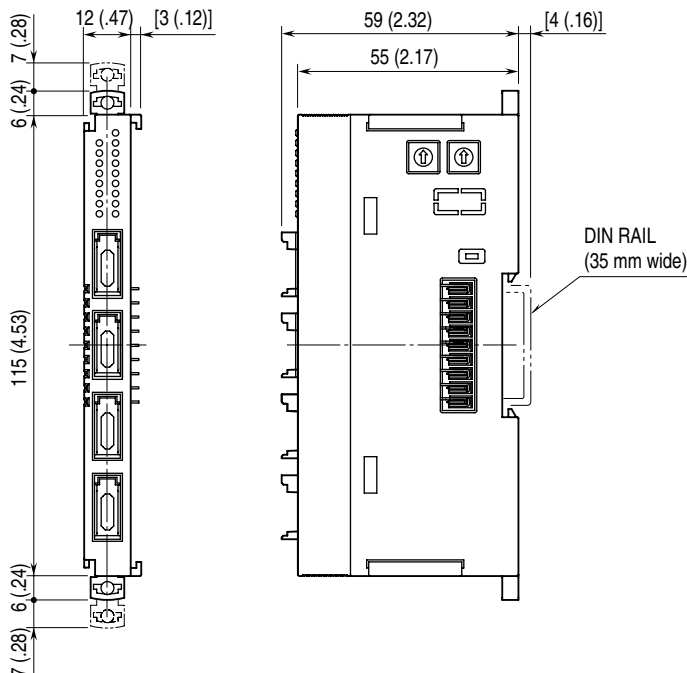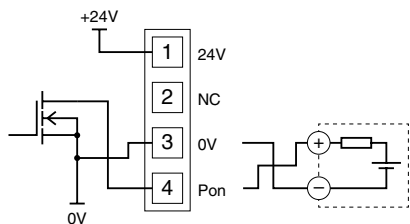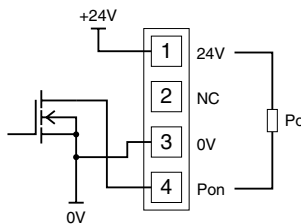


## ■ CONNECTION DIAGRAM



Note: Pin 1 of output connector is connected to 24V of the excitation supply.
Pin 1 of output connector is connected to 0V of the excitation supply.

Output Connection Examples

### ■ Open Collector



### ■ Wet Contact

# WIRING INSTRUCTIONS

## ■ e-CON connector

Unit side connector: XN2D-1474-S002 (Omron)

Recommended cable side connector: XN2A-1470 (Omron)[1]

Applicable wire size: 0.08 to 0.5 mm$^2$ (AWG28 to 20)

Outer sheath diameter: max. 1.5 dia

[1]. The cable side connector is not included in the package.
    Refer to the specifications of the product.