

NPN TRANSISTOR OUTPUT MODULE
(16 points, full and individual interlock)

MODEL R8-DCM16ALK

BEFORE USE

Thank you for choosing M-System. Before use, check the contents of the package you received as below.

If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

PACKAGE INCLUDES:

Transistor output module(1)

MODEL NO.

Confirm that the model number described on the product is 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 I/O 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 apply physical impact to the unit.
- 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.

EXCITATION SUPPLY

- Input connector: Rated current 50mA DC per channel
- Output connector: Rated current 3A DC (rated current 3A for internal fuse (slow blow fuse i^2t (A²sec) max. 5.04)

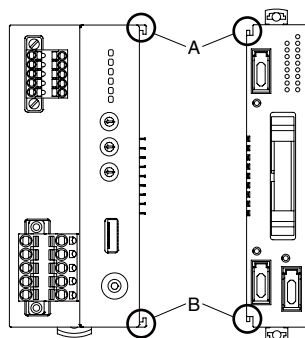
AND

- 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.

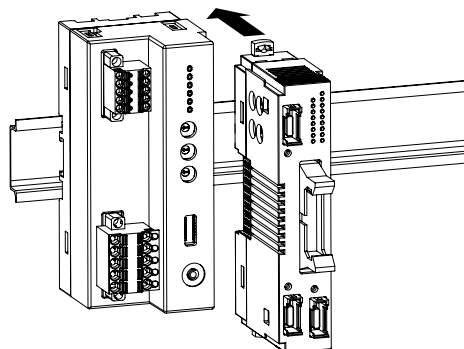
INSTALLATION

HOW TO MOUNT THE MODULE ON DIN RAIL

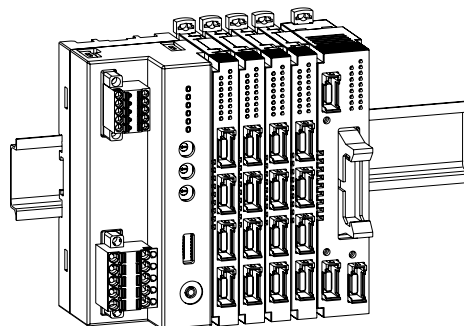
I/O Module



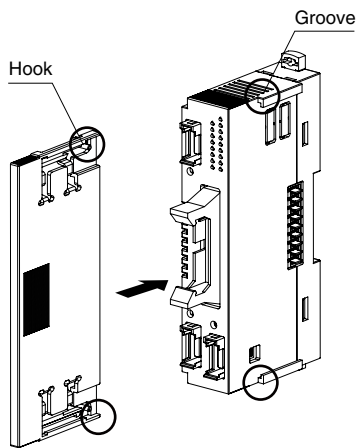
Confirm that the locking clamps of the I/O module are set. Insert the module in parallel to the next one while aligning the grooves of both modules (A & B in the above figure). Maintain it perpendicularly to the rail.



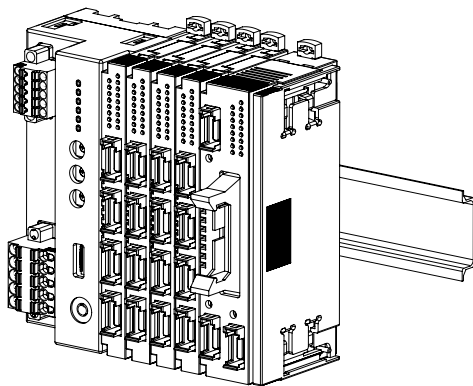
More I/O modules can be added in the same manner.



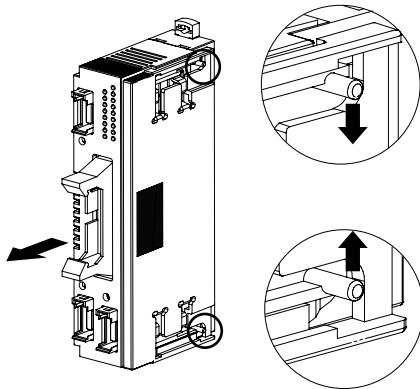
• Protective Cover



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.

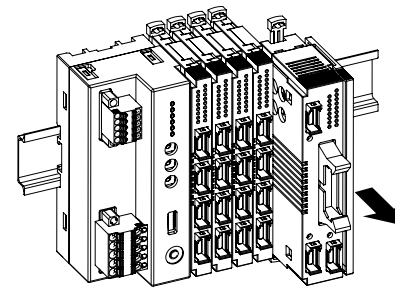
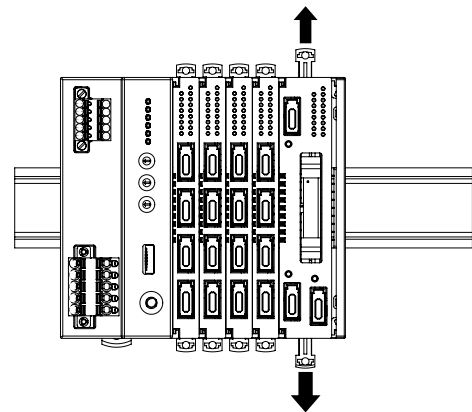


When removing the cover, pull it out while squeezing the hooks inward.

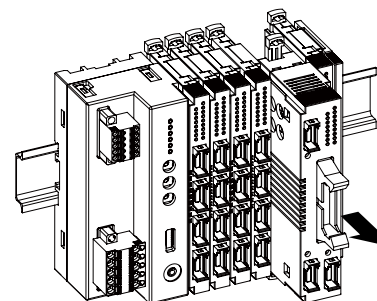
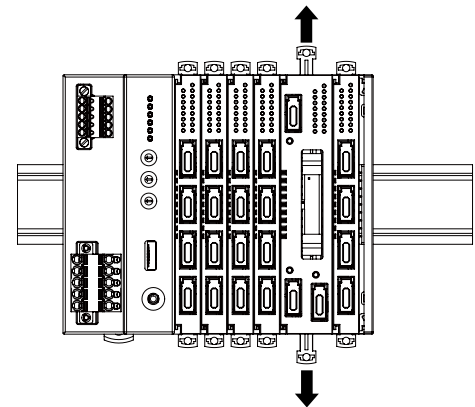


■ HOW TO MOUNT THE MODULE ON DIN RAIL

Release the locking clamps and pull out straight the module.



• Removing an intermediate module

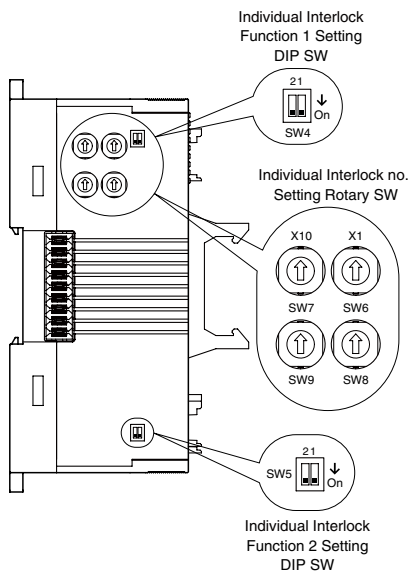


Caution !

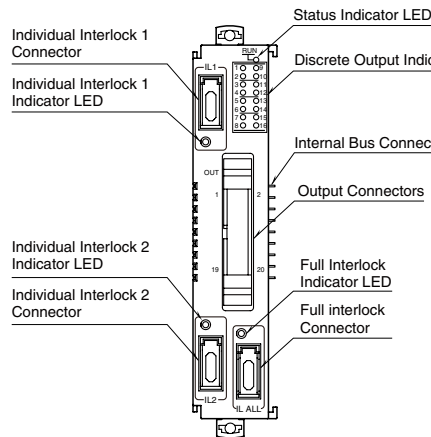
- 1) Be careful not to hurt your hand by pointed edges of the internal communication bus connector.
- 2) I/O modules cannot hold tightly on the DIN rail by themselves without power/network module.
Secure them to the position if necessary by using DIN rail end plates.

COMPONENT IDENTIFICATION

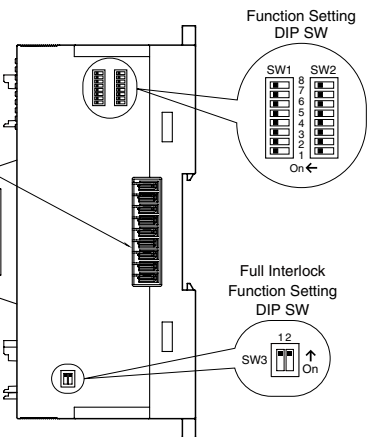
LEFT SIDE VIEW



FRONT VIEW



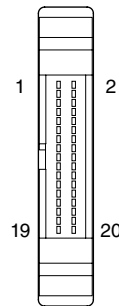
RIGHT SIDE VIEW



INDICATOR LED

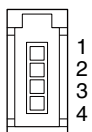
LED	OPERATION	FUNCTION
Status	OFF	Stopping
	Green ON	Valid host communication
	Green Blinking	Reading/writing configuration
	Red ON	Setting error
Output	Red Blinking	Parameter error
	OFF	OFF
Interlock	Green ON	ON
		OFF
	Red ON	Interlock valid Output ON
	Red ON	Interlock valid Output OFF

OUTPUT CONNECTOR ASSIGNMENT



PIN No.	ID	FUNCTION
1	Do1	Output 1
2	Do2	Output 2
3	Do3	Output 3
4	Do4	Output 4
5	Do5	Output 5
6	Do6	Output 6
7	Do7	Output 7
8	Do8	Output 8
9	Do9	Output 9
10	Do10	Output 10
11	Do11	Output 11
12	Do12	Output 12
13	Do13	Output 13
14	Do14	Output 14
15	Do15	Output 15
16	Do16	Output 16
17, 18	0V	Excitation supply 0V
19, 20	24V	Excitation supply 24V

INPUT CONNECTOR ASSIGNMENT



PIN No.	ID	FUNCTION
1	24V	Excitation supply 24 V
2	IL	Discrete input
3	0V	Excitation supply 0 V
4	NC	No connection

■ MODULE ADDRESS

Module address can be set with SW1-1 through 1-4 for the tens, and SW1-5 through 1-8 for the ones place digit. Address is selected between 0 to 31. (Factory setting: 0)

MODULE ADDRESS	SW1			
	1 5	2 6	3 7	4 8
0	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	ON
2	OFF	OFF	ON	OFF
3	OFF	OFF	ON	ON
4	OFF	ON	OFF	OFF
5	OFF	ON	OFF	ON
6	OFF	ON	ON	OFF
7	OFF	ON	ON	ON
8	ON	OFF	OFF	OFF
9	ON	OFF	OFF	ON

■ OPERATING MODE

*Factory setting

• Interlock Communication Logic Reversal

Setting internal communication bus logic.

INTERLOCK COMMUNICATION LOGIC REVERSAL	SW2-1
Interlock function setting off: 1 Interlock function setting on: normal = 1, interlock = 0	ON
Interlock function setting off: 0 (*) Interlock function setting on: normal = 0, interlock = 1	OFF

Caution: 1 and 0 values are validated as logic through internal communication bus logic.

• Output at The Loss of Communication

Setting for all output.

OUTPUT AT THE LOSS OF COMMUNICATION	SW2-5
Output Hold (*) (last data correctly received is hold)	OFF
Stop output (Output fixed at OFF)	ON

• Terminator DIP SW

TERMINATOR SW	SW2-6
Without (*)	OFF
With	ON

• Configuration Mode

CONFIGURATION MODE	SW2-8
DIP switch setting (*)	OFF
PC Configurator and communication	ON

Caution: SW2-2 through 2-4 and 2-7 are unused; be sure to turn OFF unused channels.

■ FULL INTERLOCK FUNCTION

It is available to apply full interlock function to all outputs (Do1 through Do16)

FULL INTERLOCK FUNCTION	SW3-1
OFF	OFF
ON (*) (all outputs OFF if input OFF)	ON

Caution: SW3-2 is unused; be sure to turn OFF unused channels.

■ INDIVIDUAL INTERLOCK

At output, it is available to apply interlock function to 2 points arbitrary.

• Individual interlock function 1

INDIVIDUAL INTERLOCK 1	SW4-1
SW6, 7 OFF	OFF
SW6, 7 ON (*) (Input OFF with output OFF)	ON

• Individual interlock function 2, channel

INDIVIDUAL INTERLOCK 1 CHANNEL	SW6	SW7
	Ones	Tens
ON	01 through 16	
OFF	00, 17 through 99	

• Individual interlock function 2

INDIVIDUAL INTERLOCK 2	SW5-1
SW8, 9 OFF	OFF
SW8, 9 ON (*) (Input OFF with output OFF)	ON

• Individual interlock function 2, channel

INDIVIDUAL INTERLOCK 2 CHANNEL	SW8	SW9
	Ones	Tens
ON	01 through 16	
OFF	00, 17 through 99	

Caution: SW4-2 and 5-2 are unused; be sure to turn OFF unused channels.

■ PC CONFIGURATOR

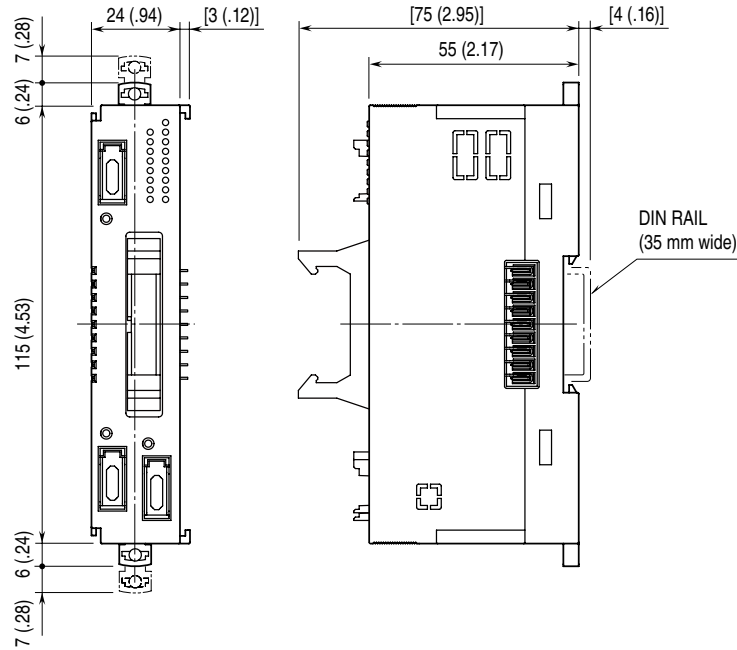
The following parameters can be set with using PC Configurator Software (model: R8CFG):

- Output at the startup
- Output at the loss of communication
- Common setting (loss of internal bus communication detection time)

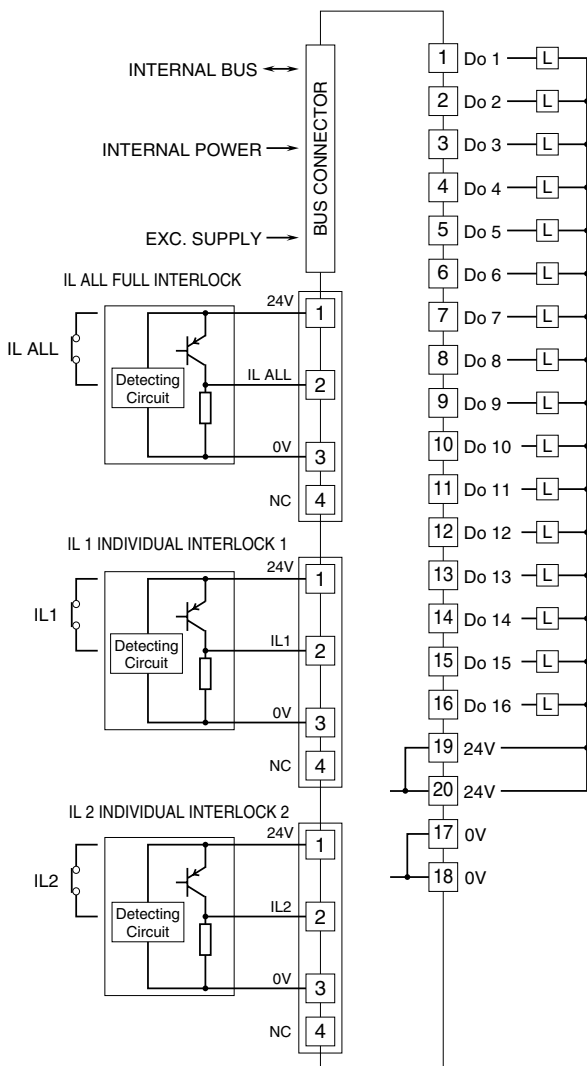
Turn SW2-8 ON to allow programming by the PC Configurator via the Power / Network Module.

Refer to the users manual of the R8CFG for detailed operation of the software program.

EXTERNAL DIMENSIONS unit: mm (inch)



CONNECTION DIAGRAM



WIRING INSTRUCTIONS

■ **e-CON connector (discrete input)**

PWB connector XN2D-1474-S002 (Omron)
 Recommended cable connector XN2A-1470 (Omron)*1
 Applicable wire size: 0.08 mm² (AWG28) - 0.5 mm² (AWG20)
 (Outer sheath diameter: max. 1.5 dia)

■ **MIL connector (discrete output)**

PWB connector XG4A-2034 (Omron)
 Recommended socket XG5N-201 (Omron)*1
 Recommended contact XG5W-0231 (Omron)*1
 Applicable wire size: AWG22, number of conductor 17, diameter of conductor 0.16 mm

*1. Not included in the package. Refer to the specifications of the product.