

## CC-Link I/O MODULE

(PNP discrete input, 16 points, one-touch connector)

MODEL R7F4DC-DA16B-J

### 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:

Discrete input module.....(1)  
DIN rail mounter slider.....(2)

#### ■ 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.

#### ■ CSP+ file

CSP+ file is downloadable at M-System's web site (<https://www.m-system.co.jp>) or CC-Link Partner Association's web site (<https://www.cc-link.org>).

### 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:  
24V DC rating: 24V  $\pm$ 10%, approx. 26 mA

#### ■ GENERAL PRECAUTIONS

- Before you remove the unit or mount it, turn off the power supply and input signal for safety.
- Before you remove the connector or mount it, make sure to turn off the power supply and input 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.
- With vertical mounting, for heat dissipation leave at least 10 mm (.39 in.) at the both side of the unit.

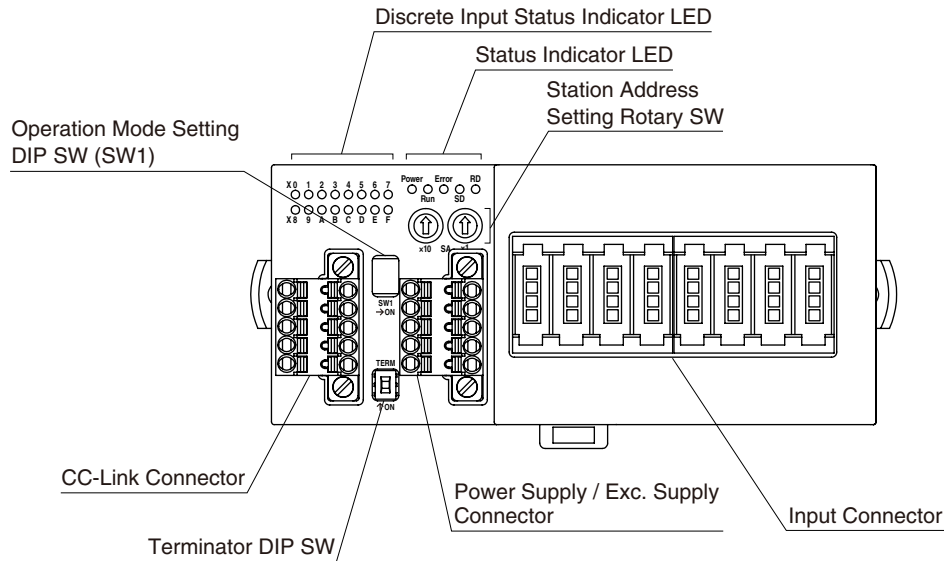
#### ■ WIRING

- 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.

## COMPONENT IDENTIFICATION



### ■ STATUS INDICATOR LED

| ID    | COLOR | FUNCTION                                       |
|-------|-------|------------------------------------------------|
| Power | Green | ON when internal 5V power is in normal status. |
| Run   | Green | ON when the communication is normal*1          |
| Error | Red   | ON when the received data is abnormal.         |
| SD    | Green | ON when the module is transmitting.            |
| RD    | Green | ON when the module is receiving.               |

\*1. Run LED turns off when no command is received from the master device.

### ■ DISCRETE INPUT STATUS INDICATOR LED

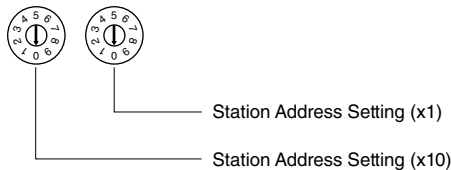
Green LED shows the input status.

ON : LED ON  
OFF : LED OFF

### ■ STATION ADDRESS

The left switch determines the tenth place digit, while the right one does the ones place digit of the station address (1 - 64).

(Factory setting: 00)



### ■ OPERATING MODE

(\* Factory setting)

#### • Baud Rate (SW1-1, 1-2, 1-3)

Baud Rate is selected with the DIP switch

| BAUD RATE    | SW1 |     |     |
|--------------|-----|-----|-----|
|              | 1   | 2   | 3   |
| 156 kbps (*) | OFF | OFF | OFF |
| 625 kbps     | ON  | OFF | OFF |
| 2.5 Mbps     | OFF | ON  | OFF |
| 5 Mbps       | ON  | ON  | OFF |
| 10 Mbps      | OFF | OFF | ON  |

Note: Be sure to set unused SW1-4 to OFF.

### ■ TERMINATING RESISTOR

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

## ■ STATUS INDICATOR LED

| PWR | RUN | ERR | SD *1 | RD     | STATUS *2                                                                                                                                                        |
|-----|-----|-----|-------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ON  | ON  | BL  | BL    | ON     | Communicates normally with occasional CRC errors due to noise interference.                                                                                      |
| ON  | ON  | BL  | BL    | ON     | Communicates normally but the Baud Rate and/or Station Address switches failed. ERR LED blinks approximately in 0.5 seconds intervals.                           |
| ON  | ON  | BL  | BL    | OFF    | ----                                                                                                                                                             |
| ON  | ON  | BL  | OFF   | ON     | CRC error detected in the received data. Unable to respond.                                                                                                      |
| ON  | ON  | BL  | OFF   | OFF    | ----                                                                                                                                                             |
| ON  | ON  | OFF | BL    | ON     | Normal communication                                                                                                                                             |
| ON  | ON  | OFF | BL    | OFF    | ----                                                                                                                                                             |
| ON  | ON  | OFF | OFF   | ON     | Unable to receive data addressed to the station.                                                                                                                 |
| ON  | ON  | OFF | OFF   | OFF    | ----                                                                                                                                                             |
| ON  | OFF | BL  | BL    | ON     | Polling response is made but CRC error is detected in received refresh data.                                                                                     |
| ON  | OFF | BL  | BL    | OFF    | ----                                                                                                                                                             |
| ON  | OFF | BL  | OFF   | ON     | CRC error detected in the data addressed to the station.                                                                                                         |
| ON  | OFF | BL  | OFF   | OFF    | ----                                                                                                                                                             |
| ON  | OFF | OFF | BL    | ON     | Link is not started.                                                                                                                                             |
| ON  | OFF | OFF | BL    | OFF    | ----                                                                                                                                                             |
| ON  | OFF | OFF | OFF   | ON     | No data addressed to the station. Or unable to receive data addressed to the station due to noise interference. (Missing parts of the data sent from the master) |
| ON  | OFF | OFF | OFF   | OFF    | Unable to receive data due to wire breakdown                                                                                                                     |
| ON  | OFF | ON  | OFF   | ON/OFF | Faulty Baud Rate and/or Station Address setting                                                                                                                  |
| OFF | OFF | OFF | OFF   | OFF    | Power input removed or power supply failure.                                                                                                                     |

OFF = OFF, ON = ON, BL = Blinking

\*1. SD LED which is blinking may appear to be ON with high baud rate especially when fewer modules are connected.

\*2. LED combinations indicated with "----" do not occur in normal operation unless LED failure or the like occurs.

## ■ TERMINAL ASSIGNMENTS

### • CC-Link, Power Supply, Exc. Supply Assignment

Unit side connector: MCV1,5/5-GF-3,5 (Phoenix contact)

Cable side connector: TFMC1,5/5-STF-3,5 (Phoenix contact)

Applicable wire size: 0.2 - 1.5mm<sup>2</sup>

Stripped length: 10mm

Recommended solderless terminal:

AI0,25-10YE 0.25mm<sup>2</sup> (Phoenix contact)

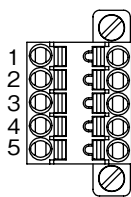
AI0,34-10TQ 0.34mm<sup>2</sup> (Phoenix contact)

AI0,5-10WH 0.5mm<sup>2</sup> (Phoenix contact)

AI0,75-10GY 0.75mm<sup>2</sup> (Phoenix contact)

AI1-10 1.0mm<sup>2</sup> (Phoenix contact)

AI1,5-10 1.5mm<sup>2</sup> (Phoenix contact)



### • CC-Link

| PIN NO. | ID  | FUNCTION       |
|---------|-----|----------------|
| 1       | FE  | Function earth |
| 2       | SLD | Shield         |
| 3       | DB  | DB             |
| 4       | DG  | DG             |
| 5       | DA  | DA             |

Note: The numbers marked on the connector have no relationship to the pin number of the unit. Wire according to the instruction manual of the unit.

### • POWER SUPPLY / EXC. SUPPLY

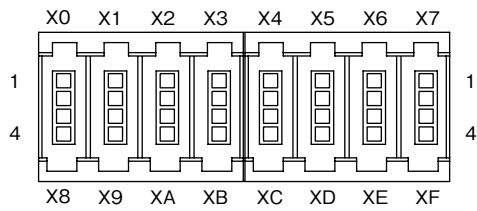
| PIN NO. | ID        | FUNCTION       |
|---------|-----------|----------------|
| 1       | PWR+      | Power supply + |
| 2       | PWR-      | Power supply - |
| 3       | FE1       | Grounding      |
| 4       | SNSR.EXC+ | Exc. supply +  |
| 5       | SNSR.EXC- | Exc. supply -  |

### • Input Terminal Assignment

Unit side connector: 33216-62M3 PL (3M Company)

Cable side connector: 33104-6( )00 FL (3M Company)

(The cable connector is not included in the package. Specify wire size instead of ( ); refer to the specifications of the product)



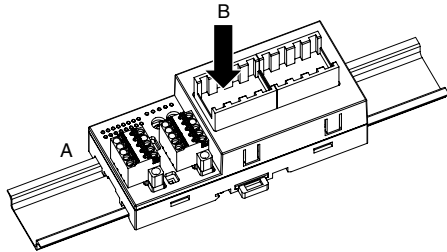
| PIN NO. | ID | FUNCTION | PIN NO.  | ID | FUNCTION |      |          |
|---------|----|----------|----------|----|----------|------|----------|
| X0      | 1  | X0       | Input 0  | X4 | 1        | X4   | Input 4  |
| X8      | 2  | X8       | Input 8  | XC | 2        | XC   | Input 12 |
|         | 3  | +24V     | 24V DC   |    | 3        | +24V | 24V DC   |
|         | 4  | GND      | 0V       |    | 4        | GND  | 0V       |
| X1      | 1  | X1       | Input 1  | X5 | 1        | X5   | Input 5  |
| X9      | 2  | X9       | Input 9  | XD | 2        | XD   | Input 13 |
|         | 3  | +24V     | 24V DC   |    | 3        | +24V | 24V DC   |
|         | 4  | GND      | 0V       |    | 4        | GND  | 0V       |
| X2      | 1  | X2       | Input 2  | X6 | 1        | X6   | Input 6  |
| XA      | 2  | XA       | Input 10 | XE | 2        | XE   | Input 14 |
|         | 3  | +24V     | 24V DC   |    | 3        | +24V | 24V DC   |
|         | 4  | GND      | 0V       |    | 4        | GND  | 0V       |
| X3      | 1  | X3       | Input 3  | X7 | 1        | X7   | Input 7  |
| XB      | 2  | XB       | Input 11 | XF | 2        | XF   | Input 15 |
|         | 3  | +24V     | 24V DC   |    | 3        | +24V | 24V DC   |
|         | 4  | GND      | 0V       |    | 4        | GND  | 0V       |

## MOUNTING INSTRUCTIONS

### ■ DIN RAIL MOUNTING (PARALLEL)

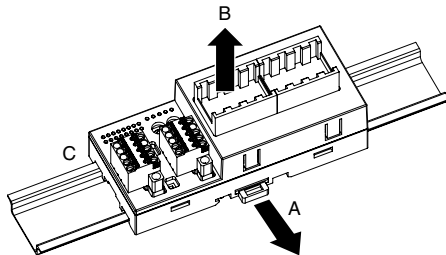
#### • Mounting

- A) Set the upper hook at the rear side of the unit on the DIN rail.
- B) Push in the lower.



#### • Dismounting

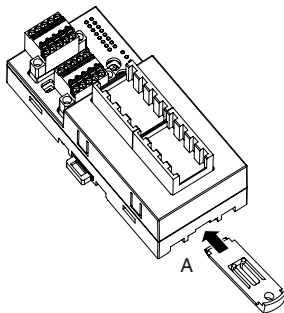
- A) Push down the DIN rail mounter slider with tip of a minus screwdriver.
- B) Pull the lower of the unit.
- C) Remove the upper hook of the unit from the DIN rail.



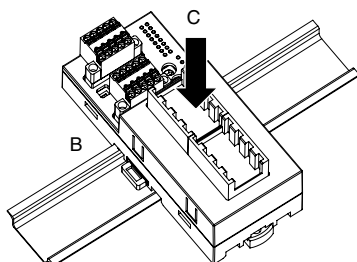
### ■ DIN RAIL MOUNTING (RIGHT ANGLE)

#### • Mounting

- A) Insert the longer DIN rail mounter slider until it clicks twice, as shown below.

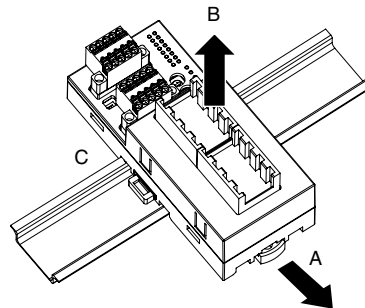


- B) Set the upper hook at the rear side of the unit on the DIN rail.
- C) Push in the lower.



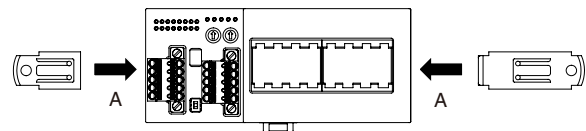
#### • Dismounting

- A) Push down the DIN rail mounter slider with tip of a minus screwdriver.
- B) Pull the lower of the unit.
- C) Remove the upper hook of the unit from the DIN rail.

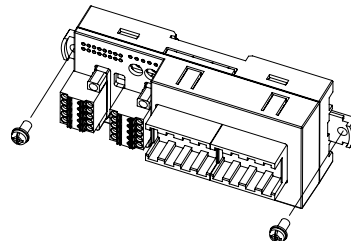


### ■ SURFACE MOUNTING

- A) Insert the two DIN rail mounter sliders until it clicks once, as shown below.



- B) Mount the unit with M4 screws referring the External Dimensions. (Torque: 1.4 N·m)

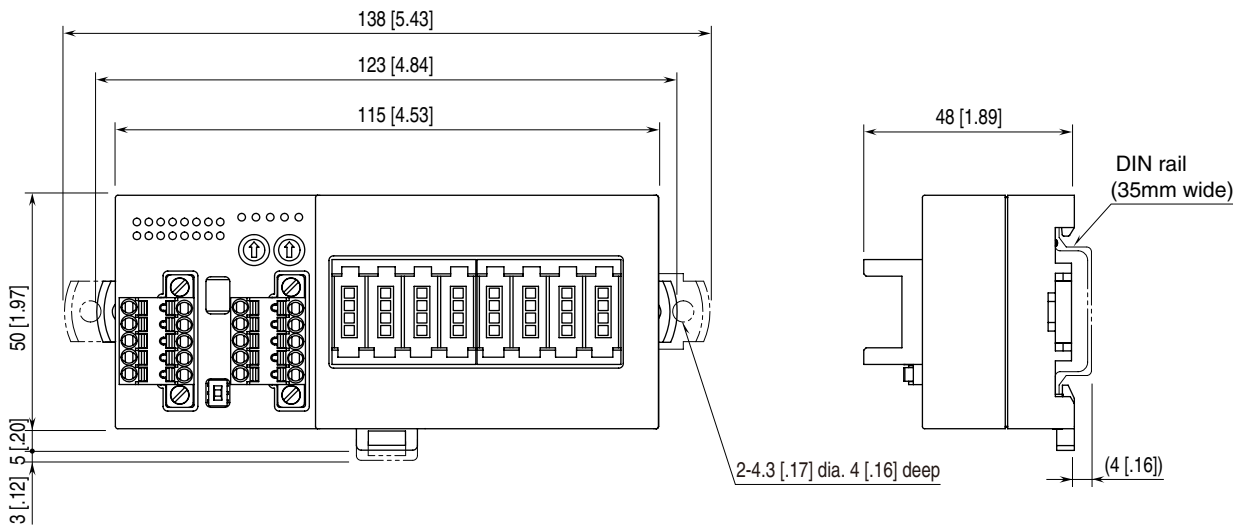


Note: leave at least 10 mm (.39 in.) at the both side of the unit.

# TERMINAL CONNECTIONS

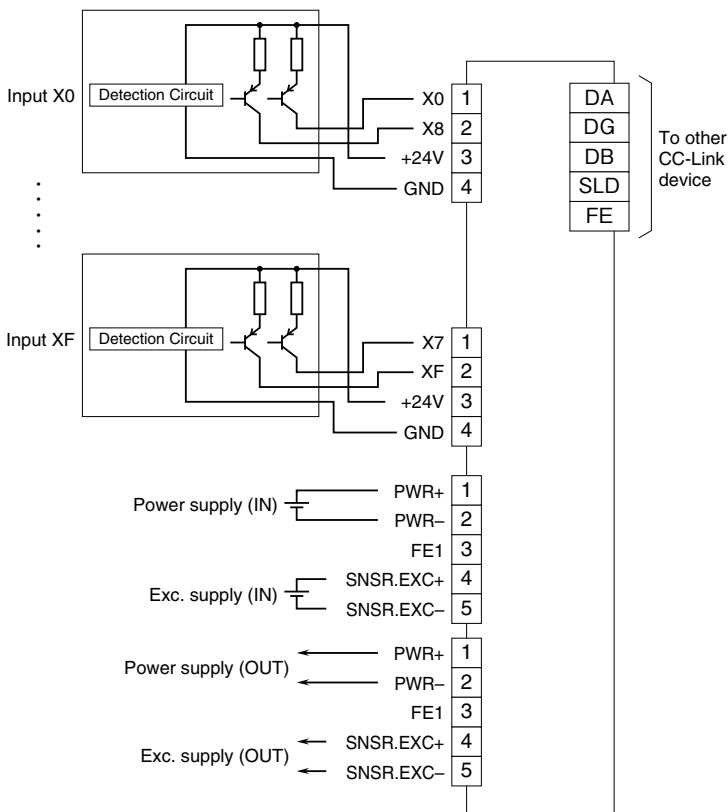
Connect the unit as in the diagram below.

## EXTERNAL DIMENSIONS unit: mm [inch]

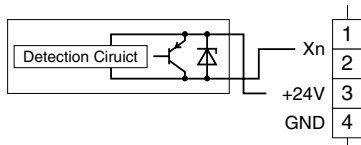


## CONNECTION DIAGRAM

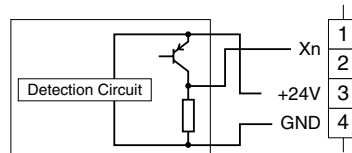
Note: In order to improve EMC performance, bond the FE1 terminal to ground.  
 Caution: FE1 terminal is NOT a protective conductor terminal.



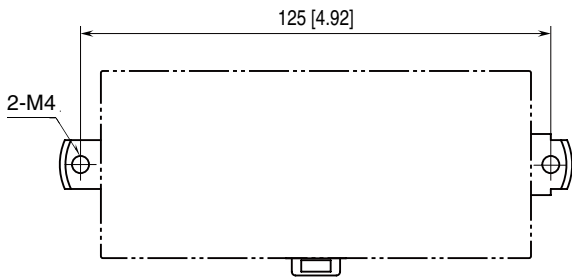
### 2-Wire Sensor



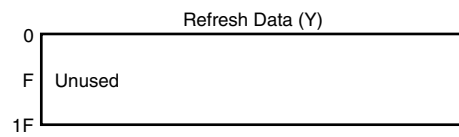
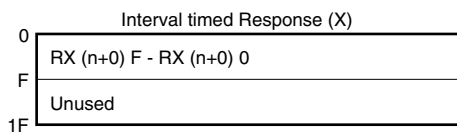
### 3-Wire Sensor



## MOUNTING REQUIREMENTS unit: mm [inch]

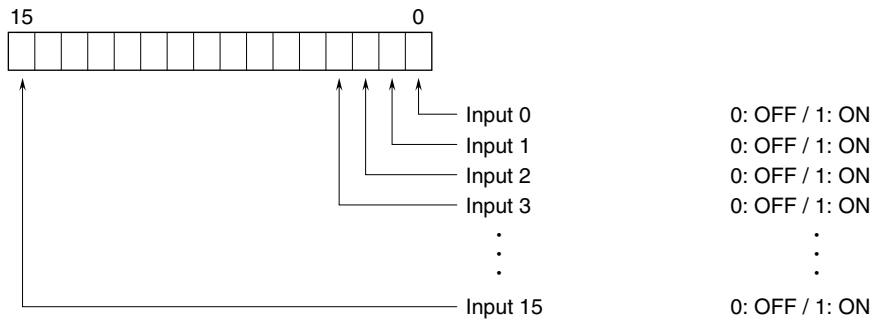


## DATA ALLOCATION



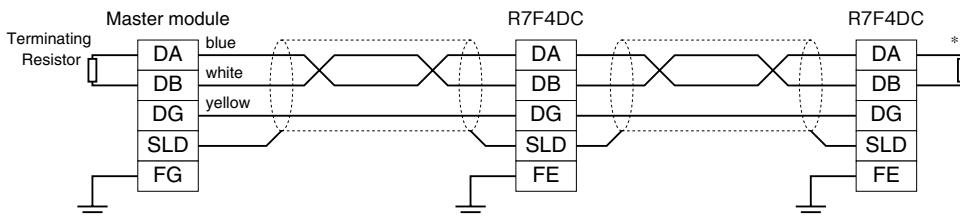
## I/O DATA DESCRIPTIONS

### DISCRETE INPUT



## COMMUNICATION CABLE WIRING

### MASTER CONNECTION



\*1. Turn on the terminator DIP switch to activate the internal terminating resistor.