INSTRUCTION MANUAL

HI-SPEED LINK SYSTEM I/O MODULE
(PNP transistor output, 16 points, MIL connector)

MODEL **R7F4DH-2-DC16B**
R7F4DH-3-DC16B

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.

■ PACKAGE INCLUDES:

Transistor output 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.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVE

- Use dual-shield cables (Shinko Seisen Industry Model ZHY262 PBA) for the network. If it is not sufficient, use a ferrite core (Kitagawa Industries Model GRFC-13) for the network cable.
- 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 DC ±10%, approx. 50mA

■ GENERAL PRECAUTIONS

- Before you remove the unit or mount it, 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.

■ 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.

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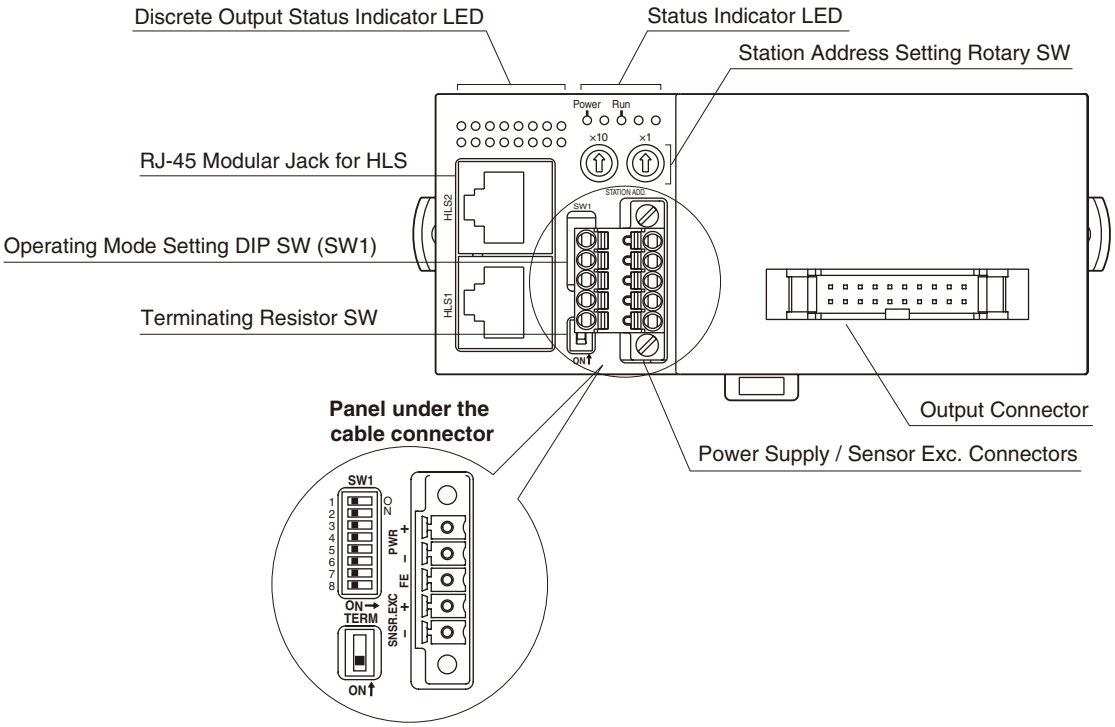
COMPONENT IDENTIFICATION

■ FRONT VIEW



■ STATUS INDICATOR LED

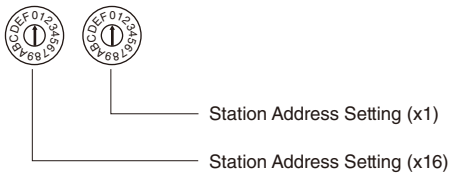
ID	COLOR	FUNCTION
Power	Green	Turns on when the internal 5V is supplied normally.
Run	Green	Turns on when the refresh data is received normally.

■ DISCRETE OUTPUT STATUS INDICATOR LED

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

■ STATION ADDRESS

The left switch determines the sixteenths place digit, while the right switch does the ones place digit of the address. (Range: 01H to 3FH)



■ OPERATING MODE

(*) Factory setting

• Transfer rate (SW1-1, 1-2)

SW1-1	SW1-2	TRANSFER RATE
OFF	OFF	12Mbps (*)
ON	OFF	6Mbps
OFF	ON	3Mbps

• Output at the loss of communication (SW1-3)

SW1-3	OUTPUT AT THE LOSS OF COMMUNICATION
OFF	Hold the output (*) (maintains the last data received normally)
ON	Reset the output (turned off)

Note: Be sure to set unused SW1-4 through 1-8 to OFF

■ TERMINATING RESISTOR

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

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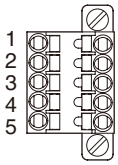
■ POWER SUPPLY, SENSOR EXCITATION

Cable connector: TFMC1,5 / 5-STF-3,5
(Phoenix Contact) (included in the package)
Applicable wire size: 0.2 – 1.5 mm²; stripped length 10 mm
Recommended solderless terminal

- AI0,25-10YE 0.25 mm² (Phoenix Contact)
- AI0,34-10TQ 0.34 mm² (Phoenix Contact)
- AI0,5-10WH 0.5 mm² (Phoenix Contact)
- AI0,75-10GY 0.75 mm² (Phoenix Contact)
- A1-10 1.0 mm² (Phoenix Contact)
- A1,5-10 1.5 mm² (Phoenix Contact)



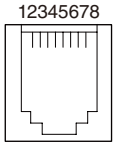
1. PWR+ Power Supply
2. PWR– Power Supply
3. FE Functional earth
4. SNSR.EXC+ Sensor excitation
5. SNSR.EXC– Sensor excitation

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.

■ NETWORK

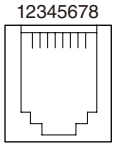
Recommended cable connector: TM21P-88P (Hirose Electric)
(not included in the package)

• Full-duplex communication



1. NC Unused
2. NC Unused
3. TXD+ Network (slave, transmission +)
4. TXD– Network (slave, transmission –)
5. RXD+ Network (master, transmission +)
6. RXD– Network (master, transmission –)
7. NC Unused
8. SLD Shield

• Half-duplex communication

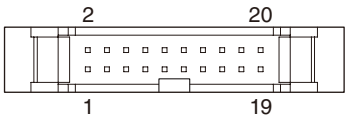


1. NC Unused
2. NC Unused
3. TR+ Network (+)
4. TR– Network (–)
5. NC Unused
6. NC Unused
7. NC Unused
8. SLD Shield

■ TERMINAL ASSIGNMENTS

• Output Connection

Recommended cable connector: XG4M-2030 (OMRON)
(not included in the package)



1. Terminal block code 2

PIN No.	ID	FUNCTION	PIN No.	ID	FUNCTION
1	Y0	Output 0	11	YA	Output 10
2	Y1	Output 1	12	YB	Output 11
3	Y2	Output 2	13	YC	Output 12
4	Y3	Output 3	14	YD	Output 13
5	Y4	Output 4	15	YE	Output 14
6	Y5	Output 5	16	YF	Output 15
7	Y6	Output 6	17	GND	0V
8	Y7	Output 7	18	GND	0V
9	Y8	Output 8	19	+24V	24V DC
10	Y9	Output 9	20	+24V	24V DC

2. Terminal block code 3

PIN No.	ID	FUNCTION	PIN No.	ID	FUNCTION
1	+24V	24V DC	11	YC	Output 12
2	+24V	24V DC	12	Y4	Output 4
3	GND	0V	13	YB	Output 11
4	GND	0V	14	Y3	Output 3
5	YF	Output 15	15	YA	Output 10
6	Y7	Output 7	16	Y2	Output 2
7	YE	Output 14	17	Y9	Output 9
8	Y6	Output 6	18	Y1	Output 1
9	YD	Output 13	19	Y8	Output 8
10	Y5	Output 5	20	Y0	Output 0

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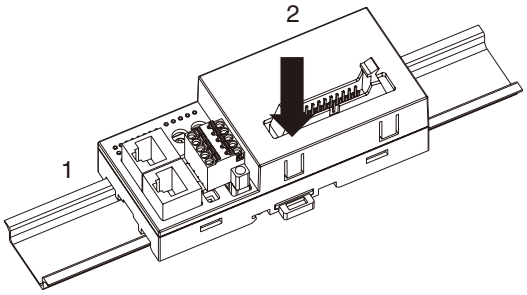
MOUNTING INSTRUCTIONS

■ DIN RAIL MOUNTING (PARALLEL)

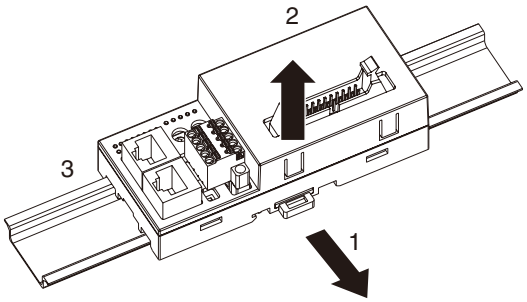
• Mounting

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



• Dismounting

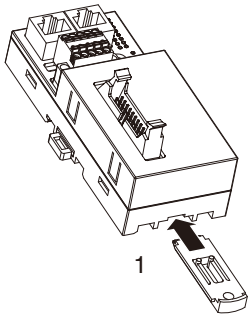
1) Push down the DIN rail mounter slider with tip of a minus screwdriver.
2) Pull the lower of the unit.
3) Remove the upper hook of the unit from the DIN rail.



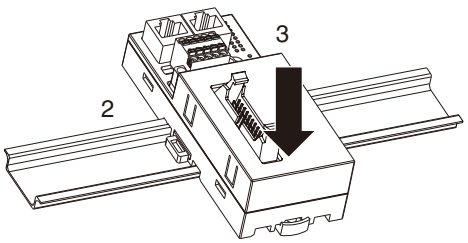
■ DIN RAIL MOUNTING (RIGHT ANGLE)

• Mounting

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

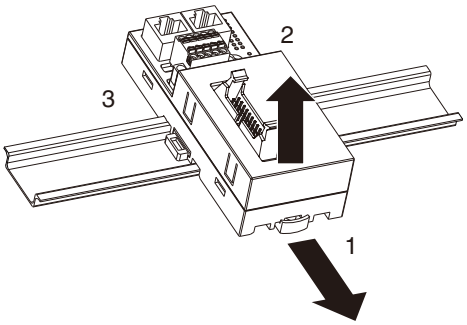


2) Set the upper hook at the rear side of the unit on the DIN rail.
3) Push in the lower.



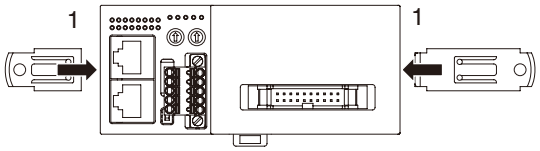
• Dismounting

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.

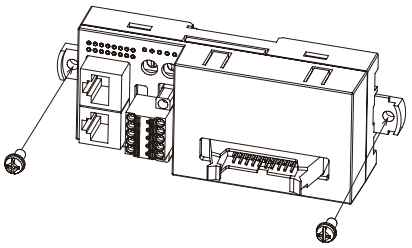


■ SURFACE MOUNTING

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



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



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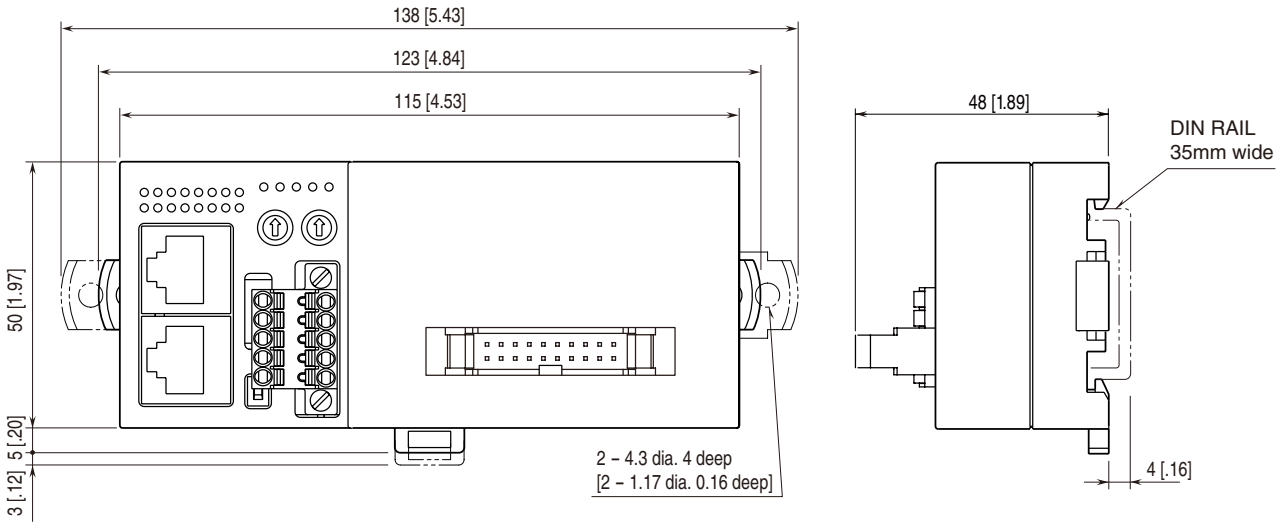
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

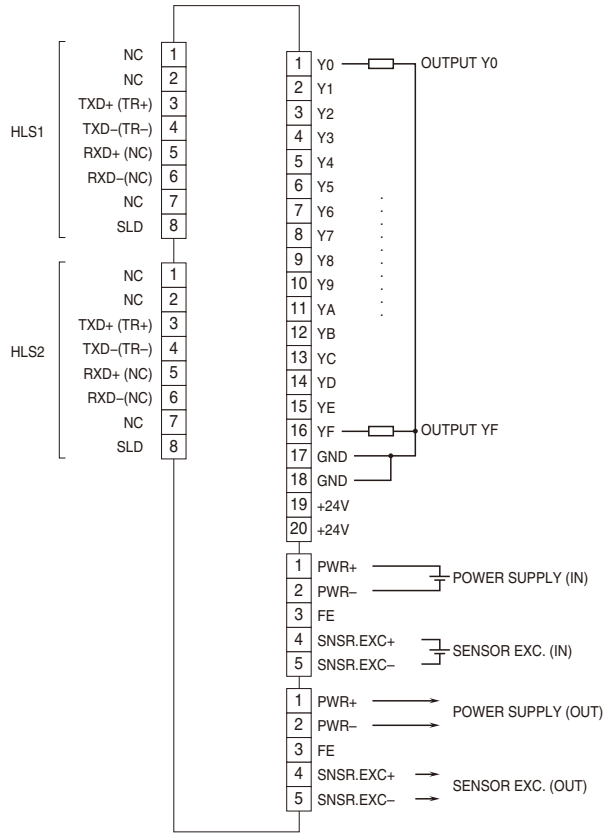
■ EXTERNAL DIMENSIONS unit: mm [inch]



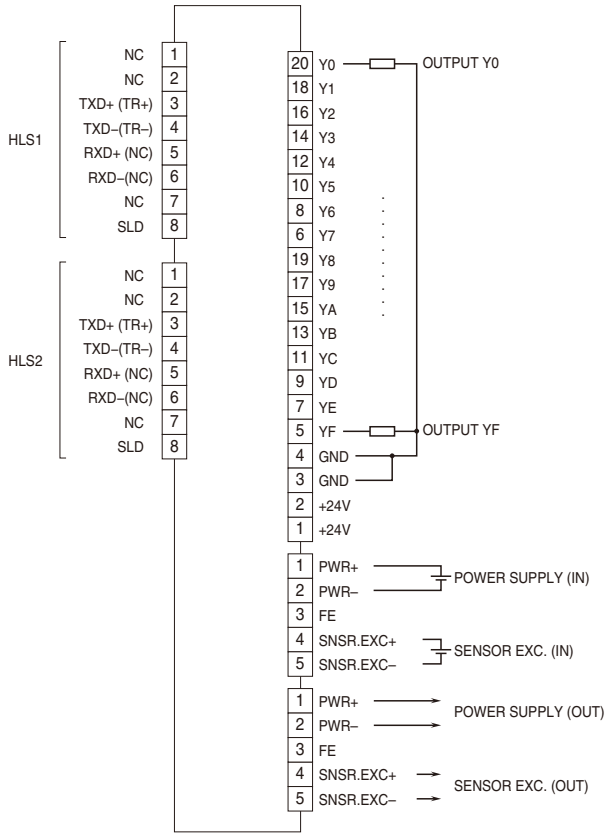
■ CONNECTION DIAGRAM

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

■ TERMINAL BLOCK CODE 2



■ TERMINAL BLOCK CODE 3



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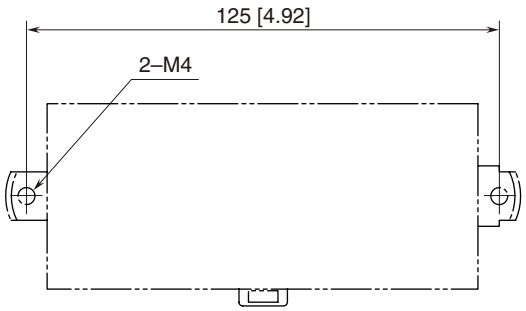
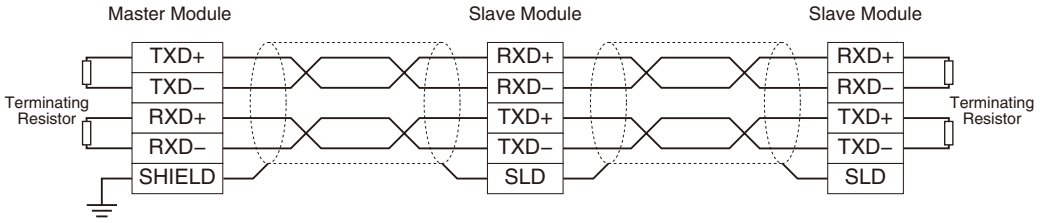
MOUNTING REQUIREMENTS unit: mm [inch]



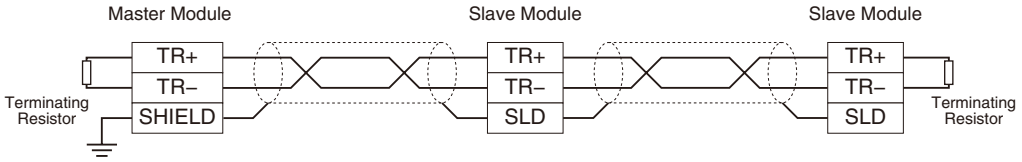
COMMUNICATION CABLE CONNECTIONS

■ MASTER CONNECTION

• Full-duplex communication



• Half-duplex communication

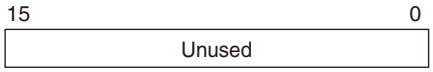


Note: Be sure to turn ON the switch of the terminating resistor located at both ends of the modules.

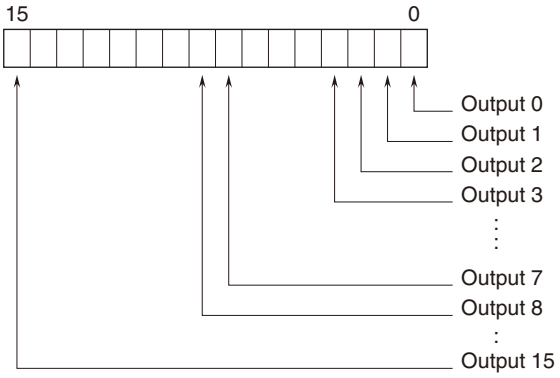
I/O DATA DESCRIPTIONS

■ DISCRETE OUTPUT

• Di



• Do



0: OFF
1: ON

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