INSTRUCTION MANUAL

HUB MODULE
(High-speed Link System)

MODEL **JC-HL**

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:

Hub module .....(1)
DIN rail mounter slider.....(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.
- Use dual-shield cables (Shinko Seisen Industry Model ZHY262PBA) for the network. If it is not sufficient, use a ferrite core (TDK Model ZCAT3035-1330 or equivalent) for the network cable.
- Expose the shield at a part of the cable cover, clip it with a Loop clamp (Seiwa Electric Mfg. Model E08P03 or equivalent), and ground it to the internal panel of the control panel.
- The actual installation environments such as panel configurations, connected devices and 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 CE conformity.

■ 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 ±10%

16–32V DC rating: 15–33V DC

Power consumtpion:
JC-HL-3: approx. 1 W, JC-HL-7: approx. 1.4 W

■ GENERAL PRECAUTIONS

Before you remove the unit or mount it, turn off the power supply and input signal for safety.

■ 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 10 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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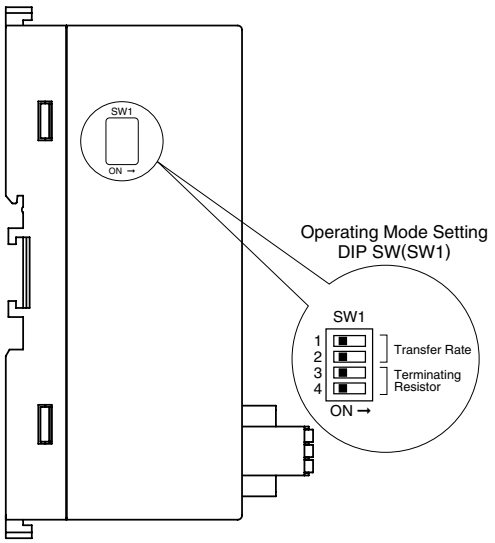
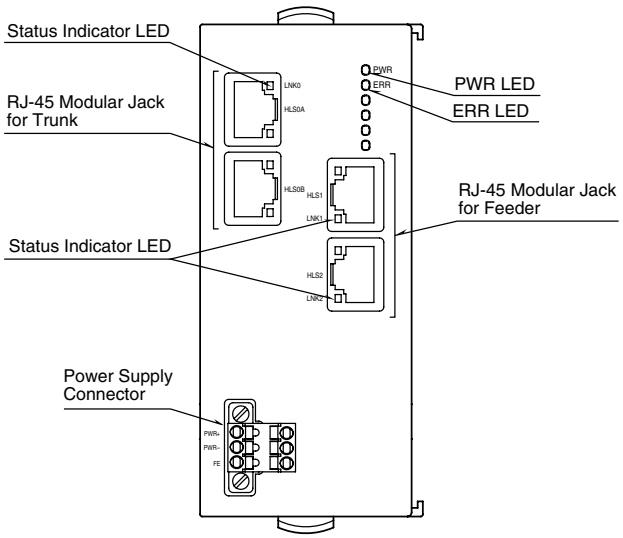
COMPONENT IDENTIFICATION

■ **I/O TYPE : 3 3port**

• **SIDE VIEW**

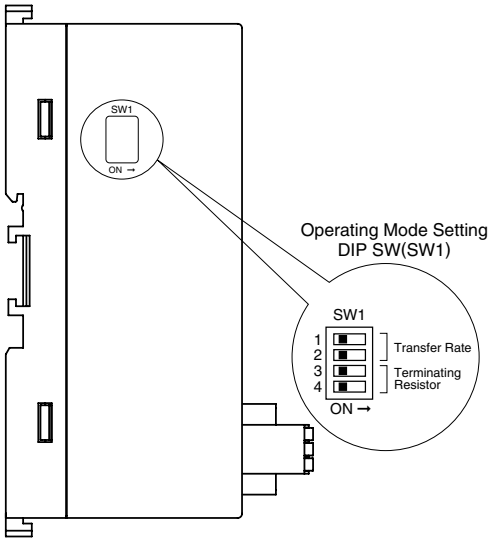


• **FRONT VIEW**

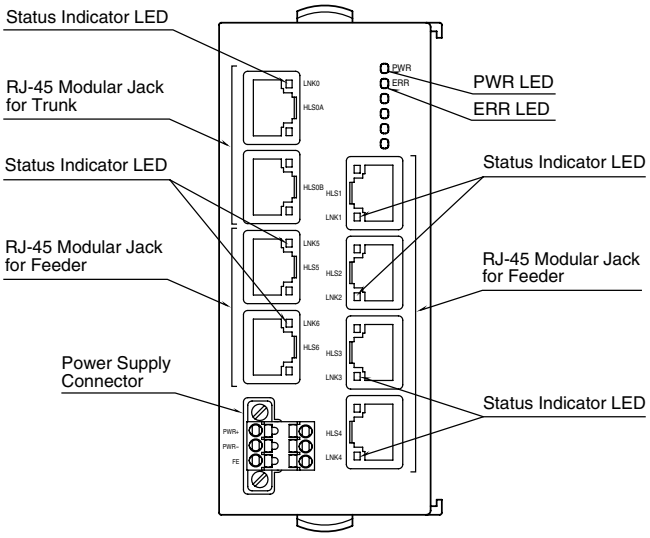


■ **I/O TYPE : 7 7port**

• **SIDE VIEW**



• **FRONT VIEW**



■ STATUS INDICATOR LED

ID	COLOR	FUNCTION
PWR	Green	ON when internal power supply is supplied normally
ERR	Red	ON when receiving error packet at least one communication port
LNK 0–6	Green	ON at normal communication

■ TERMINATING RESISTOR (SW1-3, 1-4)

SW1-1	SW1-2	TERMINATING RESISTOR
OFF	OFF	Disable(*)
ON	ON	Enable

(*) Factory setting

■ OPERATING MODE

• **Transfer rate (SW1-1, 1-2)**

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

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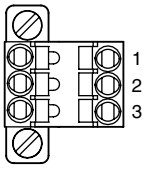
■ POWER SUPPLY

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)



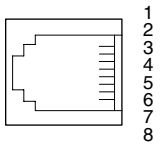
1. PWR +	Power Supply
2. PWR –	Power Supply
3. FE	Functional earth

■ NETWORK

Reccommended cable connector: TM21P–88P (Hirose Electric)
(not included in the package)

• COMMUNICATION CONNECTOR PIN ASSIGNMENT CODE: 1

Full-duplex communication



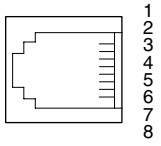
Trunk (HLS0A, HLS0B)

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

Feeder (HLS1, HLS2, HLS3, HLS4, HLS5, HLS6)

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

Half-duplex communication



Trunk (HLS0A, HLS0B)

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

Feeder (HLS1, HLS2, HLS3, HLS4, HLS5, HLS6)

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

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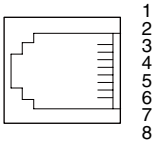
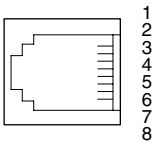
- **COMMUNICATION CONNECTOR PIN ASSIGNMENT CODE: 2**

Full-duplex communication



Trunk (HLS0A, HLS0B)		Feeder (HLS1, HLS2, HLS3, HLS4, HLS5, HLS6)	
1. NC	Unused	1. NC	Unused
2. NC	Unused	2. NC	Unused
3. TXD+	Network (HUB, transmission +)	3. RXD+	Network (slave, transmission +)
4. RXD–	Network (master, transmission –)	4. TXD–	Network (HUB, transmission –)
5. RXD+	Network (master, transmission +)	5. TXD+	Network (HUB, transmission +)
6. TXD–	Network (HUB, transmission –)	6. RXD–	Network (slave, transmission –)
7. NC	Unused	7. NC	Unused
8. SLD	Shield	8. SLD	Shield

Half-duplex communication



Trunk (HLS0A, HLS0B)		Feeder (HLS1, HLS2, HLS3, HLS4, HLS5, HLS6)	
1. NC	Unused	1. NC	Unused
2. NC	Unused	2. NC	Unused
3. NC	Unused	3. NC	Unused
4. TR–	Network (–)	4. TR–	Network (–)
5. TR+	Network (+)	5. TR+	Network (+)
6. NC	Unused	6. NC	Unused
7. NC	Unused	7. NC	Unused
8. SLD	Shield	8. SLD	Shield

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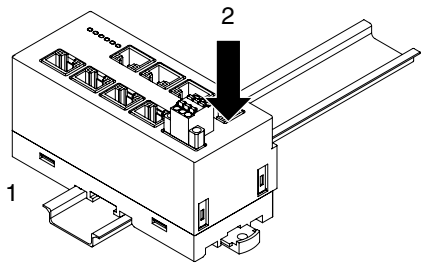
MOUNTING INSTRUCTIONS

■ DIN RAIL MOUNTING

• Mounting

1) Set the upper hook at the rear side of the unit on the DIN rail.

2) Push in the lower.

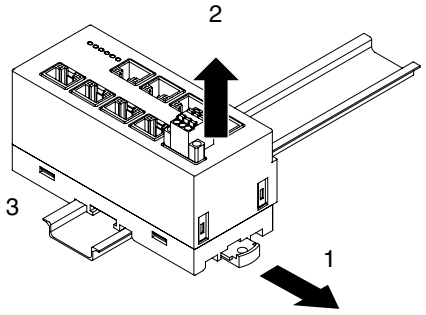


• Dismounting

1) Push down the DIN rail mounter slider with tip of a minus screwdriver.

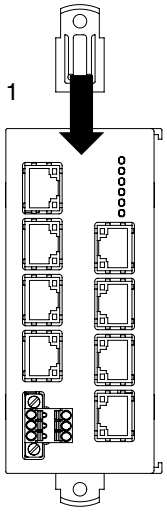
2) Pull the lower of the unit.

3) Remove the upper hook of the unit from the DIN rail.

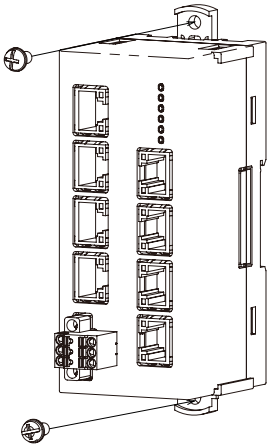


■ SURFACE MOUNTING

1) Insert the DIN rail mounter slider 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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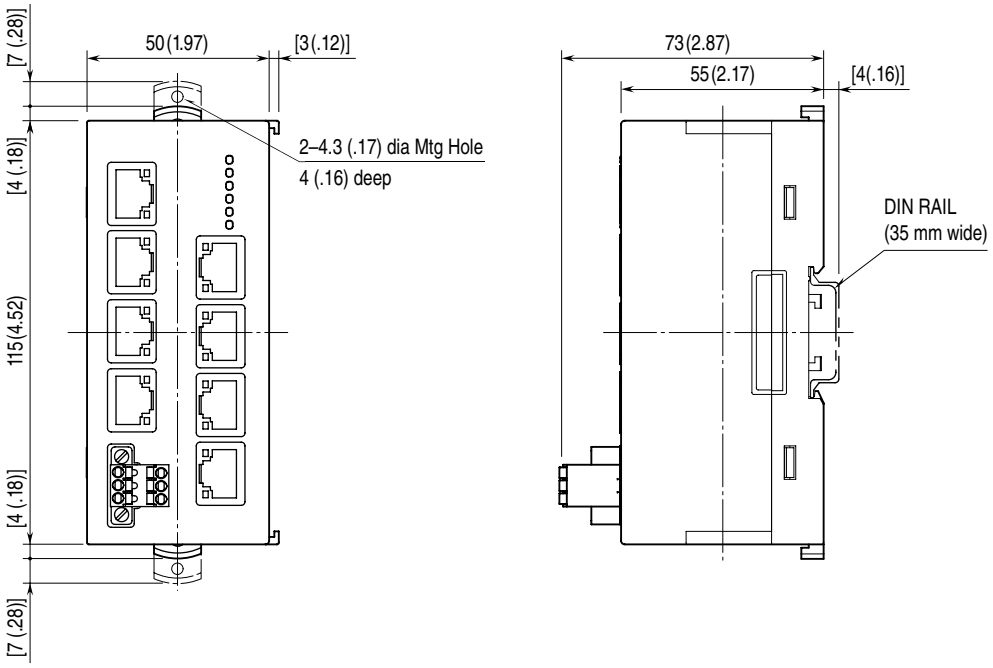
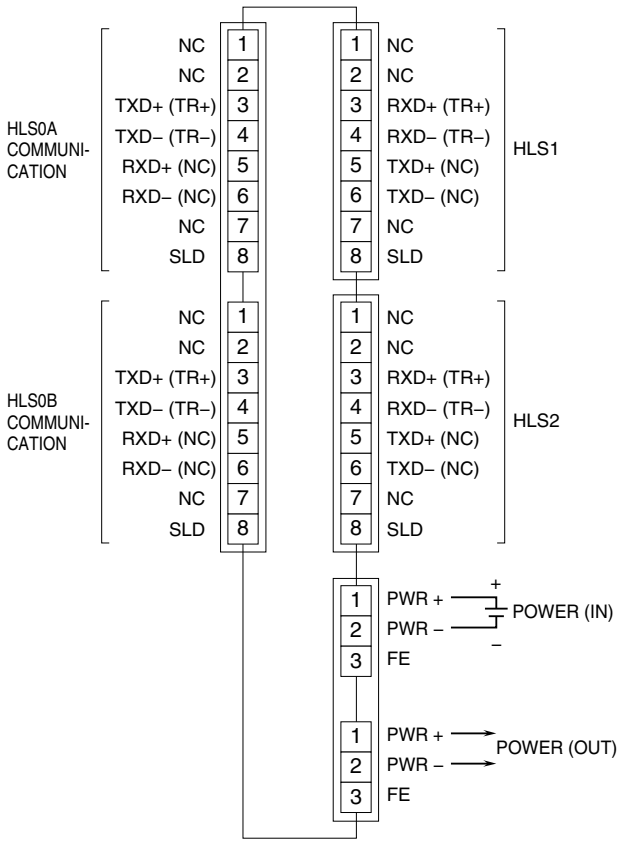
EXTERNAL DIMENSIONS unit: mm (inch)



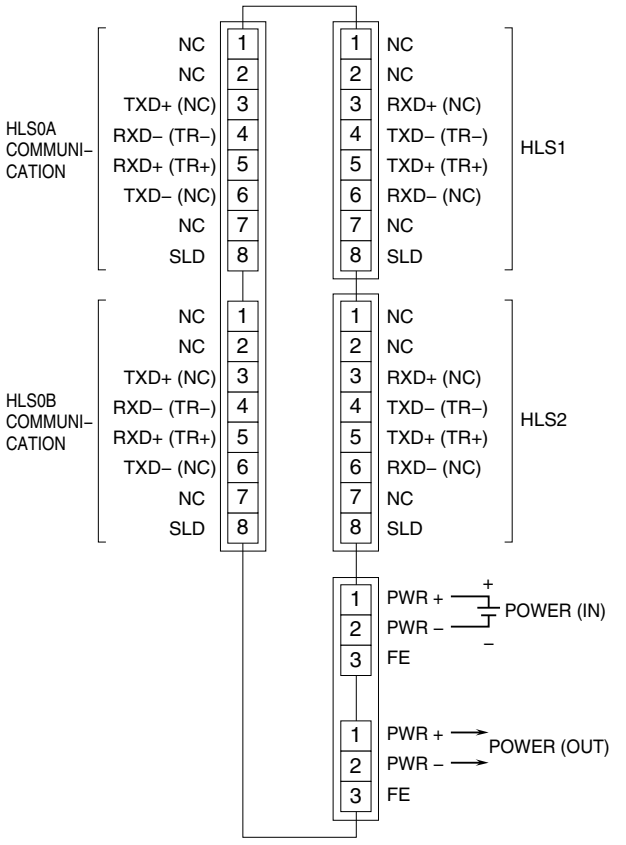
CONNECTION DIAGRAM

Connect the unit as in the diagram below.
In order to improve EMC performance, bond the FG terminal to ground.
Caution: FG terminal is NOT a protective conductor terminal.

■ **JC–HL–3–11**



■ **JC–HL–3–12**



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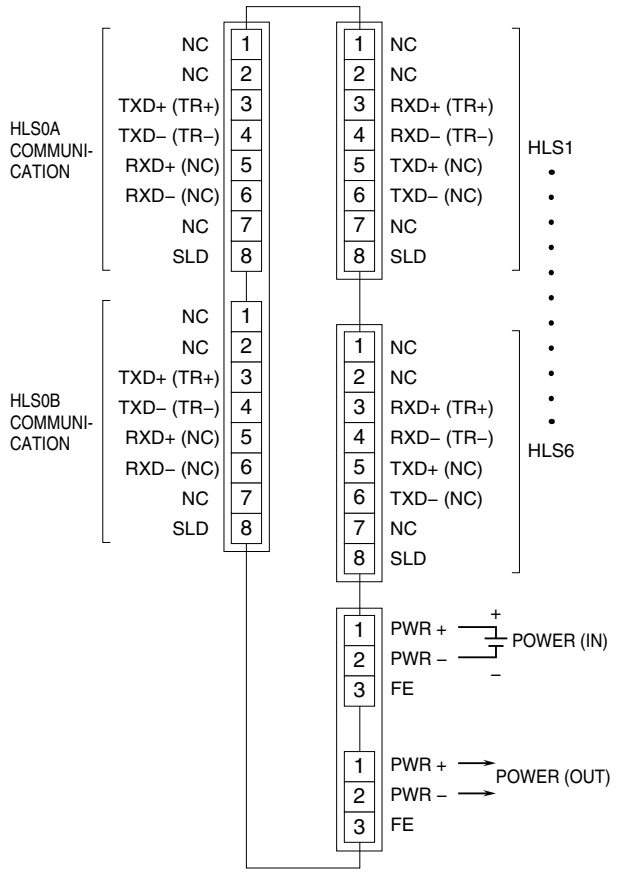
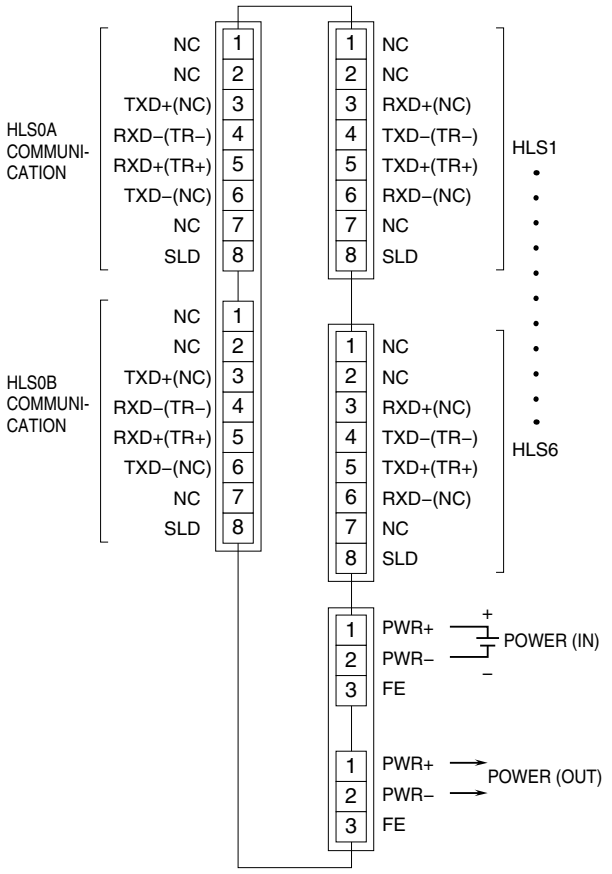
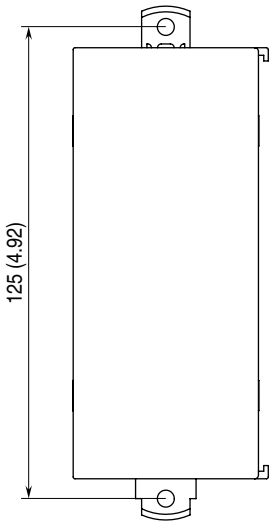
■ JC–HL–7–11



■ JC–HL–7–12



MOUNTING REQUIREMENTS unit: mm (inch)



CONFIGURATIONS

- The configurations such as communication mode and transfer rate must be same for all units connected to the communication line.
- The terminating resistor must be enabled for the units at both end of the communication line. The terminating resistors of the units other than them must be disabled. (The terminating resistor is incorporated in the feeder side port of the JC-HL as it is end of the communication line.)
- The configuration of the number of inserted HUBs must be set with the master unit. Refer to the instruction manual for your master unit.

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