

Remote I/O R7 Series

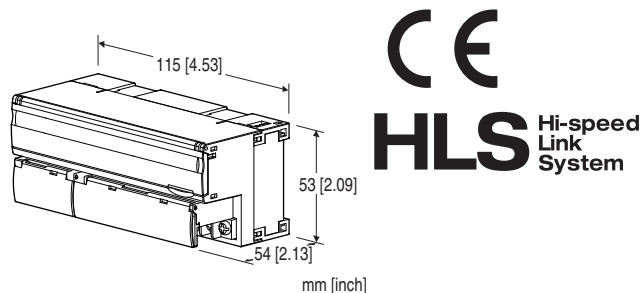
HI-SPEED LINK SYSTEM I/O MODULE

(discrete input, 16 points)

Functions & Features

- 16 points discrete input module for HLS

HLS is the abbreviation for “Hi-speed Link System” of Step Technica Co., Ltd.



MODEL: R7HL-DA16-R[1]

ORDERING INFORMATION

- Code number: R7HL-DA16-R[1]
Specify a code from below for [1].
(e.g. R7HL-DA16-R/H/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

DA16: Discrete input, 16 points

POWER INPUT

DC Power

R: 24 V DC

(Operational voltage range 24 V $\pm$ 10 %, ripple 10 %p-p max.)

[1] OPTIONS (multiple selections)

Communication Mode

blank: Full-duplex

/H: Half-duplex

Other Options

blank: none

/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet
(No. ESU-7812-F)

GENERAL SPECIFICATIONS

Connection: M3 separable screw terminal (torque 0.5 N·m)

Solderless terminal: Refer to the drawing at the end of the section.

• Communication cable

Recommended manufacture: J.S.T. Mfg. Co., Ltd.

Applicable wire size: 0.2 to 0.5 mm² (AWG 26 to 22)

• Others

Recommended manufacture: J.S.T. Mfg. Co., Ltd.,
NICHIFU Co., Ltd.

Applicable wire size: 0.25 to 1.65 mm² (AWG 22 to 16)

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (gray)

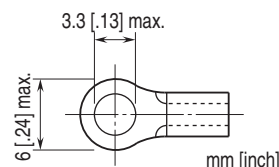
Isolation: Input to HLS to power input to FG

Status indicator LEDs: PWR, RUN

(Refer to the instruction manual)

Discrete input status indicator LED: LED turns on with input ON

■ Recommended solderless terminal



HLS COMMUNICATION

Communication mode:

Communication mode option code blank: Full-duplex

Communication mode option code /H: half-duplex

Network cable

• Shield cable

Full-duplex communication:

ZHY262PS and ZHT262PS

(Shinko Seisen Industry Co., Ltd.)

Half-duplex communication:

ZHY221PS (Shinko Seisen Industry Co., Ltd.)

• Dual-shield cable:

ZHY262PBA (Shinko Seisen Industry Co., Ltd.)

Transmission distance / Transfer rate:

100 meters (328 ft)/12 Mbps (default),

200 meters (656 ft)/6 Mbps

(Selectable with DIP switch)

Station address: Rotary switch

(Refer to the instruction manual)

Data allocation: 1

Terminating resistor: Built-in (Selected with the DIP SW;

factory setting: disabled)

INPUT SPECIFICATIONS

Common: Positive or negative common (NPN/PNP) per 16 points

Maximum inputs applicable at once: No limit (at 24 V DC)

Rated input voltage: 24 V DC $\pm 10\%$; ripple 5 %p-p max.

ON voltage / current: ≥ 15 V DC (input - COM) / ≥ 3.5 mA

OFF voltage / current: ≤ 5 V DC (input - COM) / ≤ 1 mA

Input current: ≤ 5.5 mA per point at 24 V DC

Input resistance: Approx. 4.4 k Ω

ON delay: ≤ 0.5 msec.

OFF delay: ≤ 0.5 msec.

INSTALLATION

Current consumption

•DC: Approx. 35 mA

Operating temperature: -10 to +55°C (14 to 131°F)

Storage temperature: -20 to +65°C (-4 to +149°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Atmosphere: No corrosive gas or heavy dust

Mounting: DIN rail (35 mm rail)

Weight: 200 g (0.44 lb)

PERFORMANCE

Insulation resistance: ≥ 100 M Ω with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (input to HLS to power to FG)

STANDARDS & APPROVALS

Refer to the manuals to comply with the standards.

EU conformity:

EMC Directive

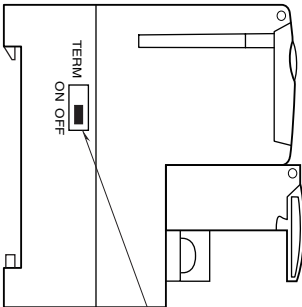
EMI EN 61000-6-4

EMS EN 61000-6-2

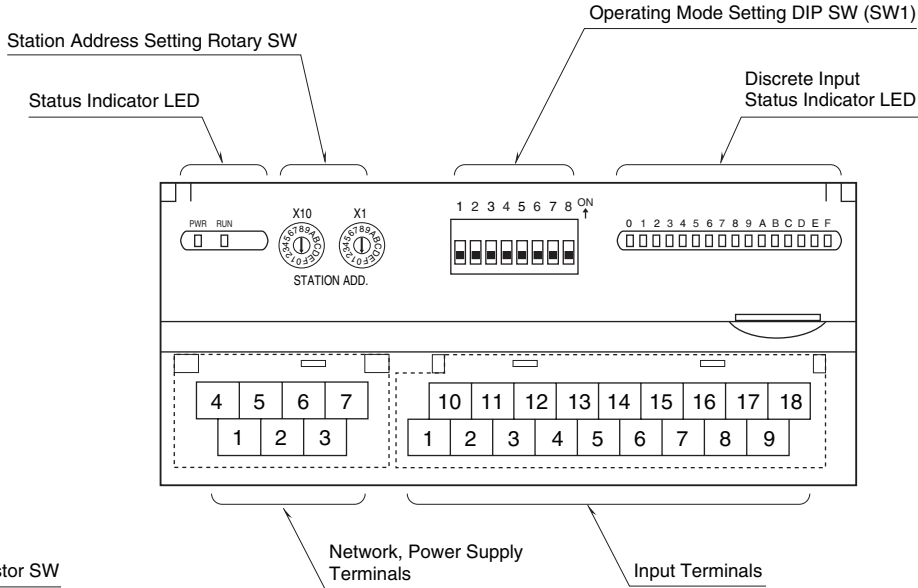
RoHS Directive

EXTERNAL VIEW

■ SIDE VIEW



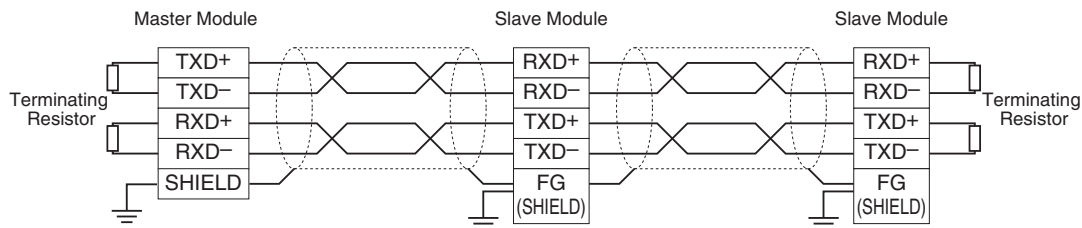
■ FRONT VIEW



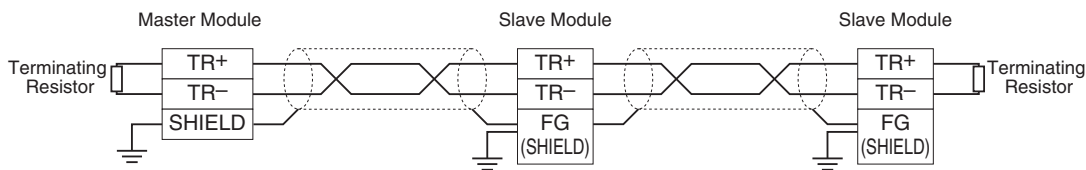
COMMUNICATION CABLE CONNECTIONS

■ 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.

TERMINAL ASSIGNMENTS**■ INPUT TERMINAL ASSIGNMENT**

10 COM	11 X1	12 X3	13 X5	14 X7	15 X9	16 XB	17 XD	18 XF
1 COM	2 X0	3 X2	4 X4	5 X6	6 X8	7 XA	8 XC	9 XE

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	COM	Common	10	COM	Common
2	X0	Input 0	11	X1	Input 1
3	X2	Input 2	12	X3	Input 3
4	X4	Input 4	13	X5	Input 5
5	X6	Input 6	14	X7	Input 7
6	X8	Input 8	15	X9	Input 9
7	XA	Input 10	16	XB	Input 11
8	XC	Input 12	17	XD	Input 13
9	XE	Input 14	18	XF	Input 15

■ NETWORK, POWER SUPPLY TERMINAL ASSIGNMENT**• Full-duplex communication**

4 RXD+	5 RXD-	6 +24V	7 0V
1 TXD+	2 TXD-	3 FG	

NO.	ID	FUNCTION, NOTES
1	TXD+	Network (slave, transmission +)
2	TXD-	Network (slave, transmission -)
3	FG	FG
4	RXD+	Network (master, transmission +)
5	RXD-	Network (master, transmission -)
6	+24V	Power input (24V DC)
7	0V	Power input (0V)

• Half-duplex communication

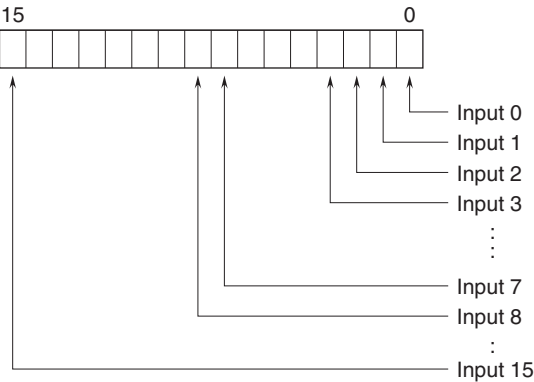
4 TR+	5 TR-	6 +24V	7 0V
1 NC	2 NC	3 FG	

NO.	ID	FUNCTION, NOTES
1	NC	No connection
2	NC	No connection
3	FG	FG
4	TR+	Network
5	TR-	Network
6	+24V	Power input (24V DC)
7	0V	Power input (0V)

I/O DATA DESCRIPTIONS

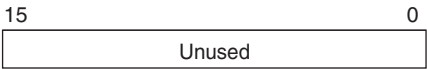
■ DISCRETE INPUT

• Di area

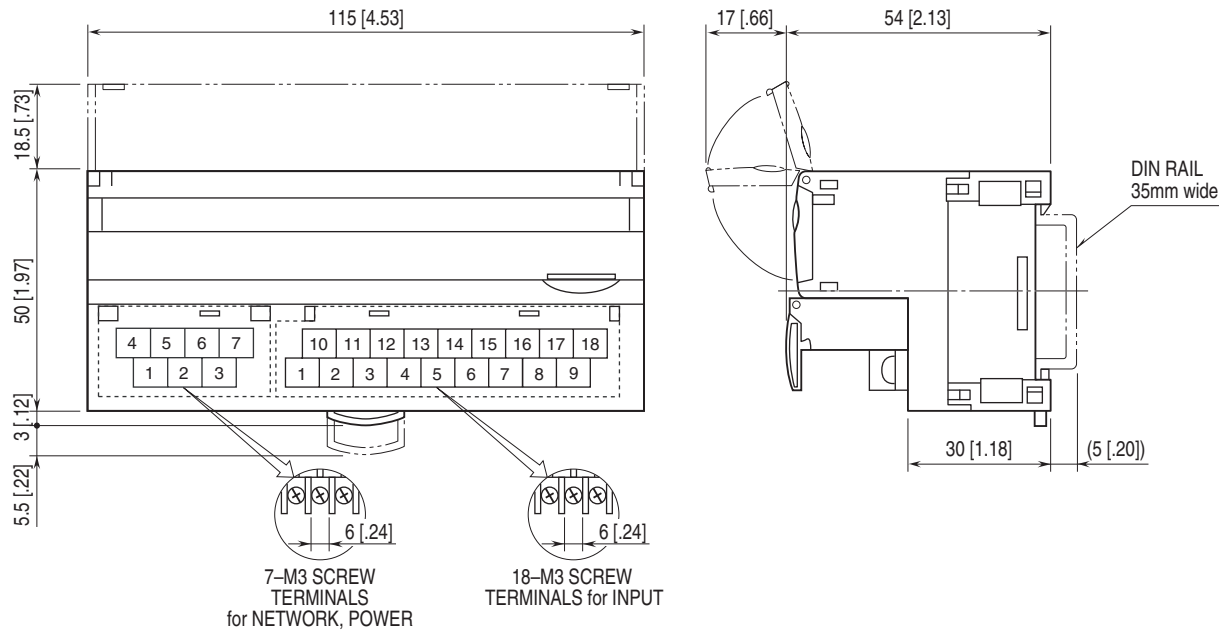


0: OFF
1: ON

• Do area

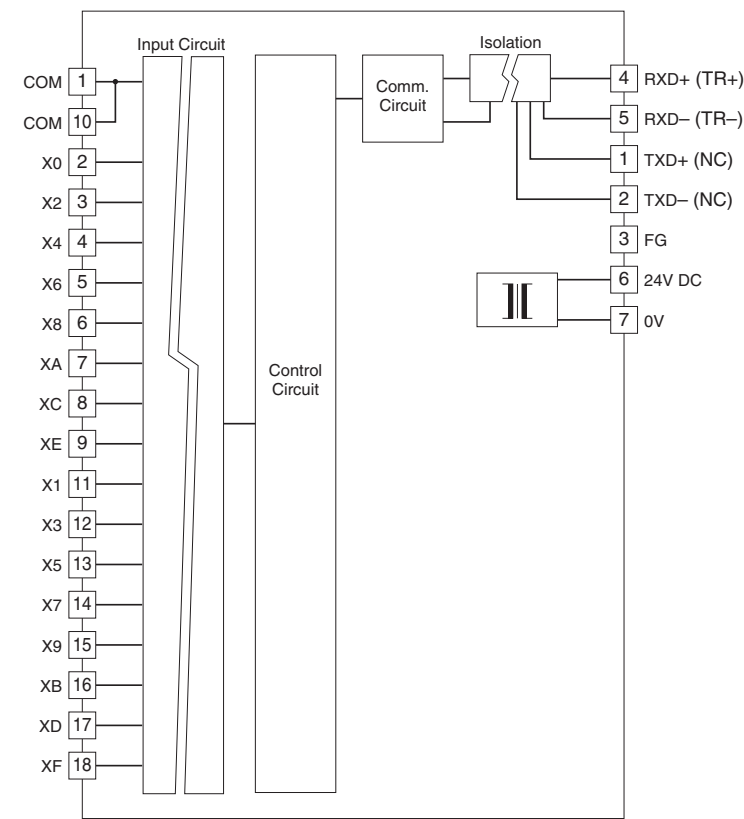


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



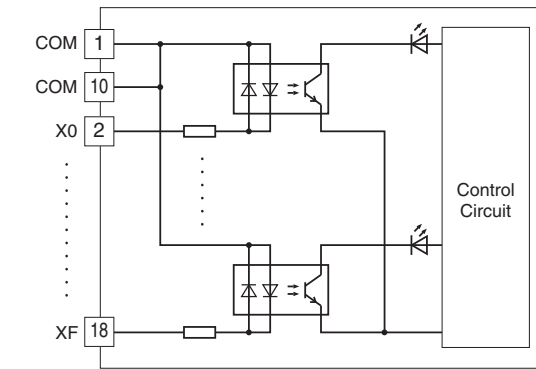
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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

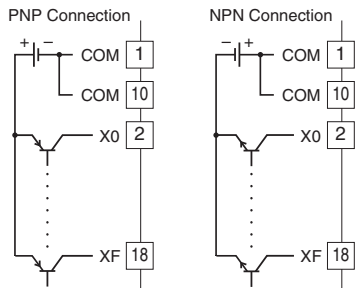


Note: Terminal numbers in parentheses are for half-duplex communication model.

Input Circuit



Input Connection Examples





Specifications are subject to change without notice.