

Remote I/O R7 Series

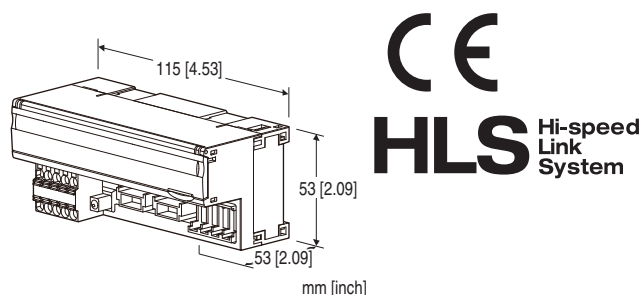
HI-SPEED LINK SYSTEM I/O MODULE

(totalized pulse input, 4 points, non-isolated, e-CON connector)

Functions & Features

- 4 points totalized pulse input module for HLS

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



MODEL:R7HL-PA4E-R[1]

ORDERING INFORMATION

- Code number: R7HL-PA4E-R[1]
Specify a code from below for [1].
(e.g. R7HL-PA4E-R/H/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

PA4E: Totalized pulse input, 4 points (non-isolated)

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-AM)

GENERAL SPECIFICATIONS

Connection

HLS: Tension clamp terminal block

Power & Sensor excitation: Link connector

Input: e-CON connector

Housing material: Flame-resistant resin (gray)

Isolation: Input or sensor excitation to HLS to power

Status indicator LEDs: PWR, RUN

(Refer to the instruction manual)

Input status indicator LED: Red LED turns on with contact on
(Lo between GND and IN0 through IN3)

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: 4

Terminating resistor: Built-in (Selected with the DIP SW;
factory setting: disabled)

INPUT SPECIFICATIONS

■ Sensor Excitation (External)

Supply voltage: 24 V DC $\pm$ 10 % (ripple 5 %p-p max.)

Supply current: 0.4 A per point, 1.6 A per common

■ Totalized Pulse Input

Common: Positive common (NPN) per 4 points

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

ON voltage / current: $\geq$ 16 V DC (input to +24V) / $\geq$ 7.2 mA

OFF voltage / current: $\leq$ 6 V DC (input to +24V) / $\leq$ 2.5 mA

Input current: $\leq$ 11.2 mA per point at 24 V DC

Input resistance: Approx. 2 k Ω

Max. frequency: 10 kHz

Min. pulse width requirement: 20 μ sec. for both ON and OFF

■ Counter

Count range: 0000H to FFFFH (16 bits)

Operating mode: Ring up counter

Max. ring value: FFFFH

Pulse detection: Sink (the output of sensor turns on)

Count reset: LSB of Do area (set per channel)

0: Count up

1: Reset

INSTALLATION

Current consumption

• DC: Approx. 50 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: 130 g (0.29 lb)

PERFORMANCE

Insulation resistance: $\geq$ 100 M Ω with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (input or sensor excitation to HLS to power input)

STANDARDS & APPROVALS

Refer to the manuals to comply with the standards.

EU conformity:

EMC Directive

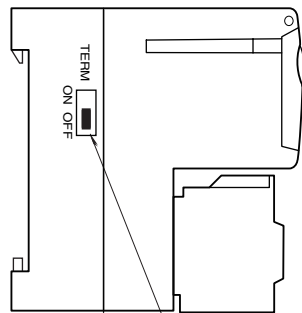
EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

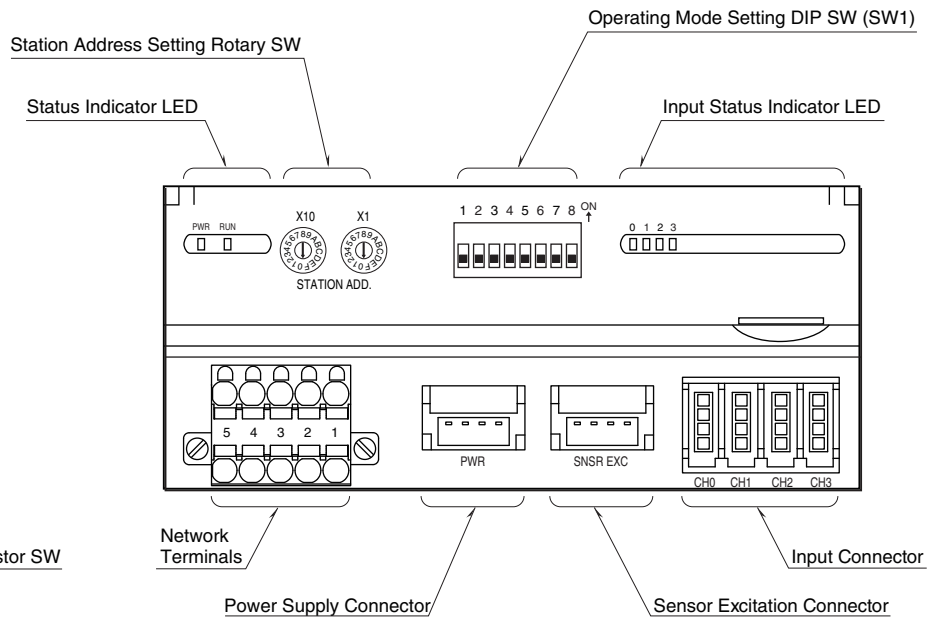
EXTERNAL VIEW

■ SIDE VIEW



Terminating Resistor SW

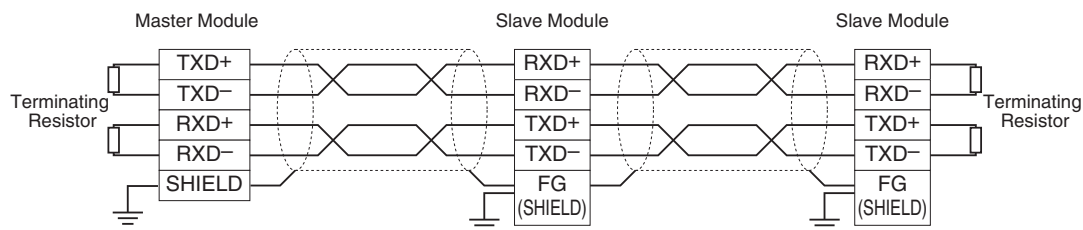
■ FRONT VIEW



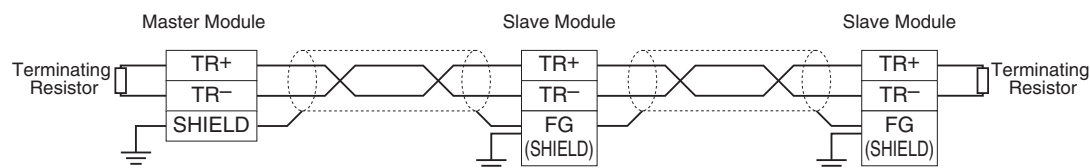
COMMUNICATION CABLE CONNECTIONS

■ MASTER CONNECTION

• Full-duplex communication



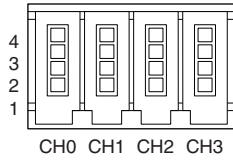
• Half-duplex communication



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

TERMINAL ASSIGNMENTS**■ INPUT TERMINAL ASSIGNMENT****e-CON connector****Recommended cable connector:** 37104-()-000FL (3M Company)

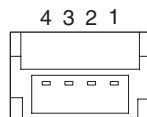
(The cable connector is not included in the package. Specify wire size instead of (); refer to the specifications of the product)



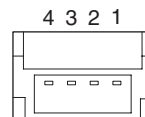
NO.	ID	FUNCTION
4	IN0 through IN3	Input 0 through 3
3	GND	GND
2	NC	No connection
1	+24V	Sensor excitation

■ POWER SUPPLY / SENSOR EXC. TERMINAL ASSIGNMENT**Link connector****Recommended cable connector:** 38104-00()-000FL (3M Company)

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

• Power supply connector

NO.	ID	FUNCTION, NOTES
4	0V	Power input (0V)
3	0V	Power input (0V)
2	24V DC	Power input (24V DC)
1	24V DC	Power input (24V DC)

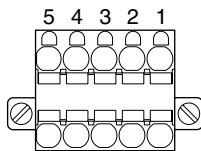
• Sensor excitation connector

NO.	ID	FUNCTION, NOTES
4	GND	Sensor excitation (0V)
3	GND	Sensor excitation (0V)
2	+24V	Sensor excitation (24V DC)
1	+24V	Sensor excitation (24V DC)

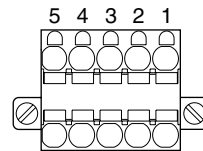
■ NETWORK TERMINAL ASSIGNMENT**Cable connector:** TFKC2,5/5-STF-5,08AU (Phoenix Contact) (included in the package)**Applicable wire size:** 0.2 – 2.5 mm² stripped length 10mm**Recommended solderless terminal**

For ZHY262PS, ZHT262PS and ZHY262PBA: TUB-0.5 (J.S.T. Mfg. Co., Ltd.)

For ZHY221PS: AI0,5-10WH (Phoenix Contact)

• Full-duplex communication

NO.	ID	FUNCTION, NOTES
5	RXD-	Network (master, transmission -)
4	RXD+	Network (master, transmission +)
3	TXD-	Network (slave, transmission -)
2	TXD+	Network (slave, transmission +)
1	SHIELD	Shield

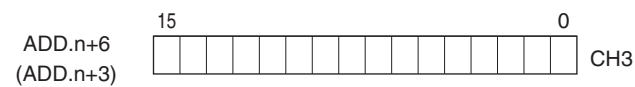
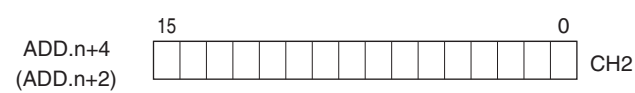
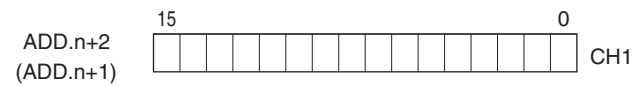
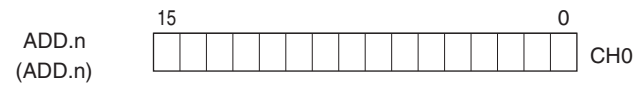
• Half-duplex communication

NO.	ID	FUNCTION, NOTES
5	NC	Unused
4	NC	Unused
3	TR-	Network
2	TR+	Network
1	SHIELD	Shield

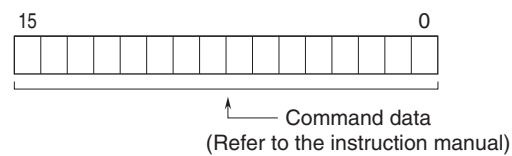
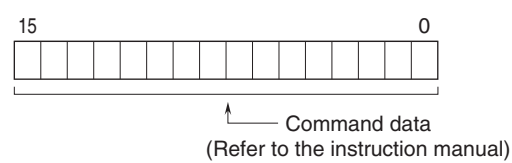
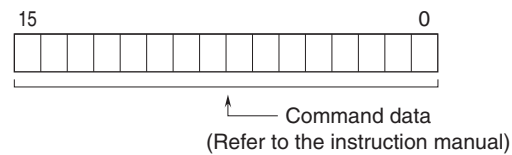
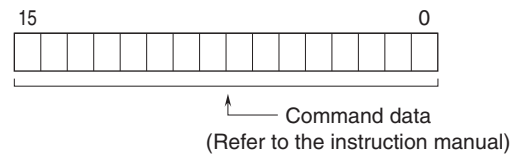
I/O DATA DESCRIPTIONS

■ TOTALIZED PULSE INPUT

• Di area

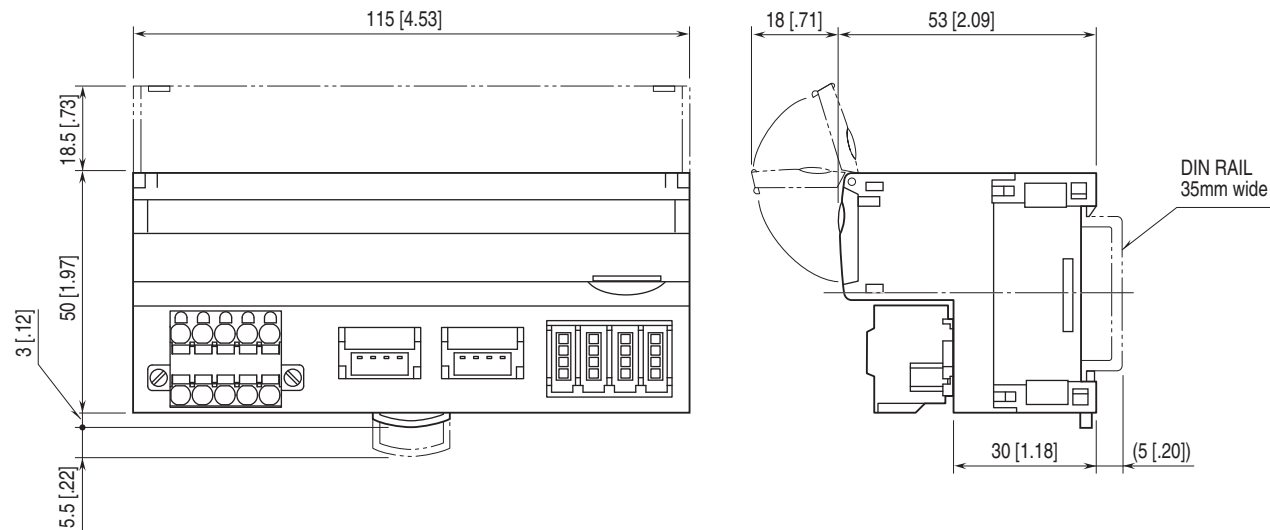


• Do area

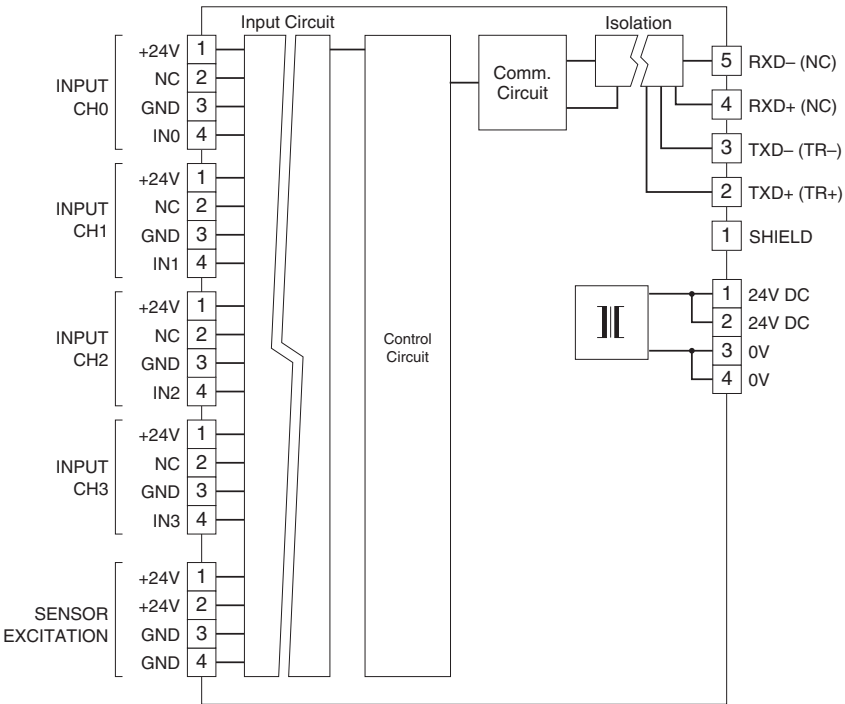


The data is 16-bit binary.
Addresses in parentheses are for half-duplex mode.

EXTERNAL DIMENSIONS unit: mm [inch]

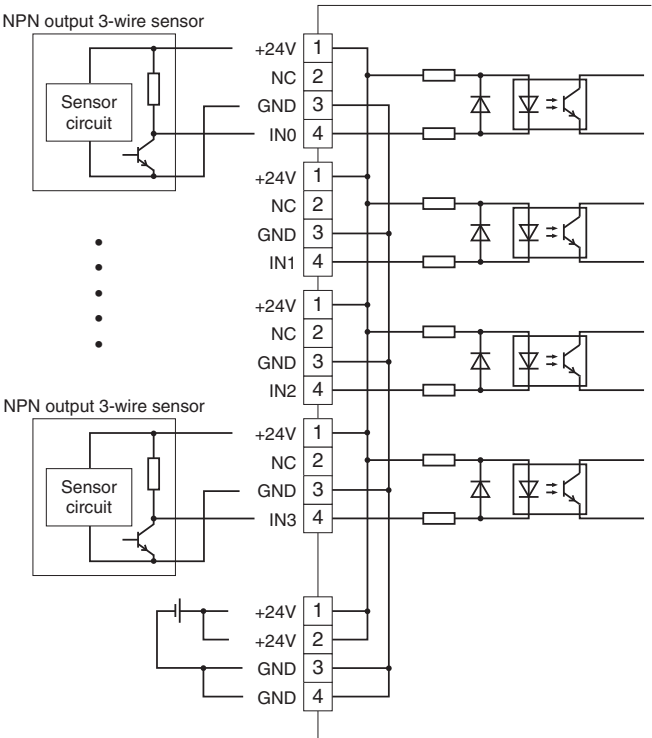


SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

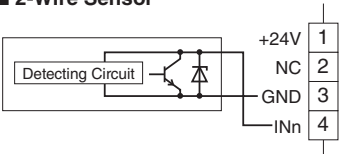


Note: Terminal numbers in parentheses are for half-duplex communication model.

Input Circuit



2-Wire Sensor





Specifications are subject to change without notice.