Remote I/O R7 Series

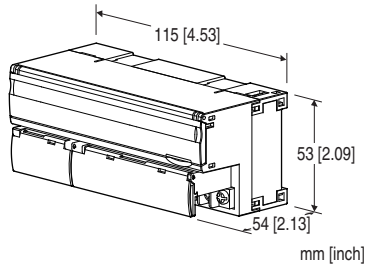
HI-SPEED LINK SYSTEM I/O MODULE

(high-speed DC voltag input, 8 points, non-isolated, 12 bits data)

Functions & Features

• 8 points high-speed DC voltage input module for HLS
• Input range can be selected with the front DIP switches for all channels
• Easy parameter setting of individual channels with the configurator software (model: R7CON)

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



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HLS Hi-speed Link System

MODEL: R7HL–SVF8NL-R[1]

ORDERING INFORMATION

• Code number: R7HL-SVF8NL-R[1]
Specify a code from below for [1].
(e.g. R7HL-SVF8NL-R/H/3/Q)
• Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

SVF8NL: DC voltage input, high-speed, 8 points
(non-isolated, 12 bits data)

POWER INPUT

DC Power
R: 24 V DC
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)

[1] OPTIONS (multiple selections)

Communication Mode
blank: Full-duplex
/H: Half-duplex
Transfer rate
blank: 12 Mbps/6 Mbps
/3: 3 Mbps
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-AU)

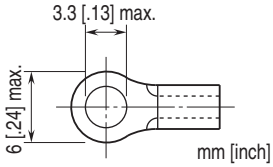
RELATED PRODUCTS

• PC Configurator cable (model: MCN-CON or COP-US)
• PC configurator software (model: R7CON)
Downloadable at our web site.

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 mm^2 (AWG 26 to 22)
• Others
Recommended manufacture: J.S.T. Mfg. Co., Ltd., NICHIFU Co., Ltd.
Applicable wire size: 0.25 to 1.65 mm^2 (AWG 22 to 16)
Screw terminal: Nickel-plated steel
Housing material: Flame-resistant resin (gray)
Isolation: Input to HLS to power input to FG
Zero adjustments: Configurable via R7CON
Span adjustments: Configurable via R7CON
Input range: Selectable with the DIP SW on the front of the unit or configurable via R7CON
Status indicator LEDs: PWR, RUN
(Refer to the instruction manual)
Configurator connection: 2.5 dia. miniature jack

■**Recommended solderless terminal**



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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.)
Transfer rate code:
blank: 100 meters (328 ft)/12 Mbps (default),
200 meters (656 ft)/6 Mbps
/3: 300 meters (984 ft)/3 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

Input resistance: ≥ 1 MΩ
Input range: -10 to +10 V DC (*), -5 to +5 V DC,
0 to 10 V DC, 0 to 5 V DC, 1 to 5 V DC
(*) Factory default setting

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: 200 g (0.44 lb)

PERFORMANCE

Conversion accuracy: ±0.1 %
Conversion rate: 2.5 msec. / channel
Data range: 0 – 4095 of the input range
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time: 20 msec. (0 – 90 %)
Insulation resistance: ≥ 100 MΩ 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

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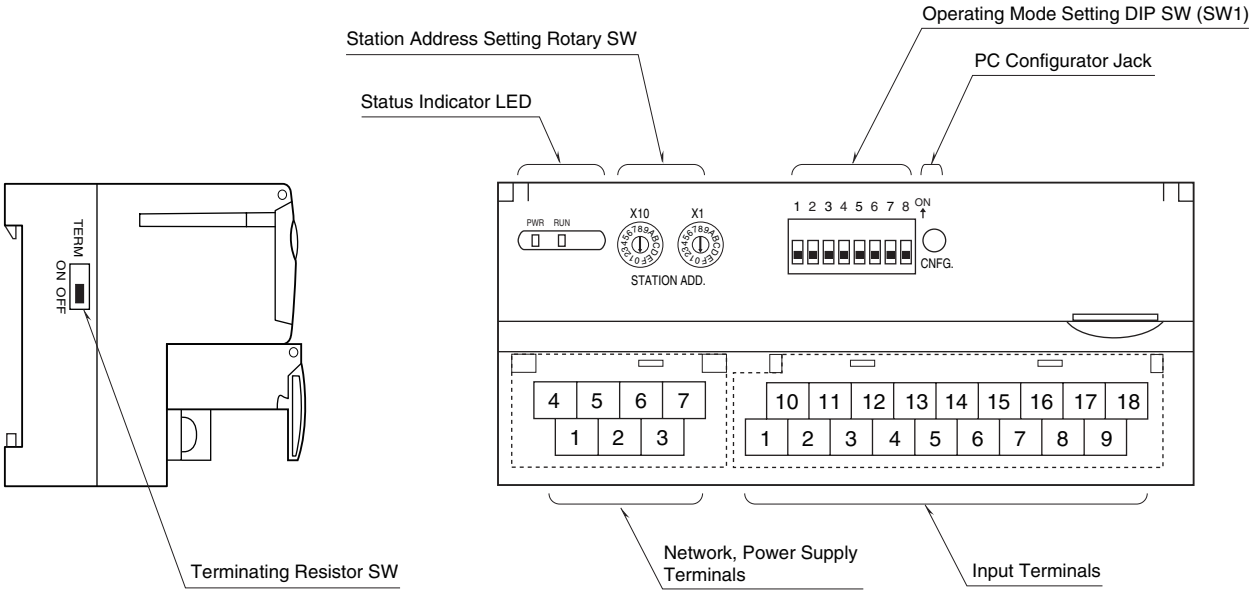
EXTERNAL VIEW

■ **SIDE VIEW**

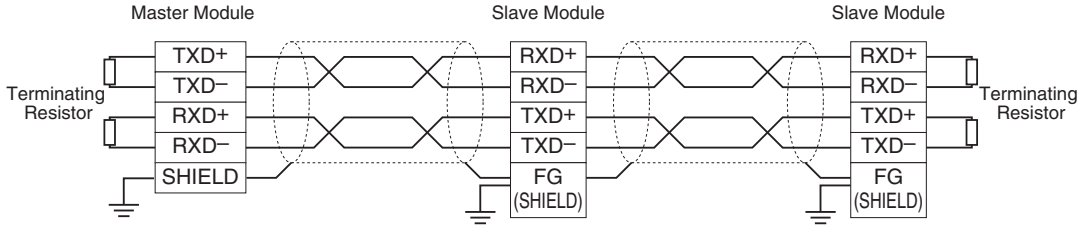
■ **FRONT VIEW**



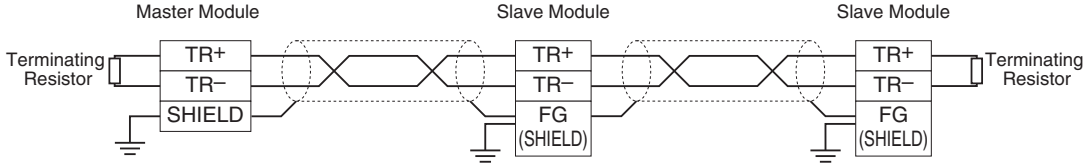
COMMUNICATION CABLE CONNECTIONS

■ **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.

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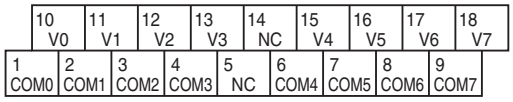
TERMINAL ASSIGNMENTS

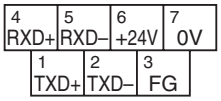
■ INPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	COM0	Common 0	10	V0	Voltage Input 0
2	COM1	Common 1	11	V1	Voltage Input 1
3	COM2	Common 2	12	V2	Voltage Input 2
4	COM3	Common 3	13	V3	Voltage Input 3
5	NC	No connection	14	NC	No connection
6	COM4	Common 4	15	V4	Voltage Input 4
7	COM5	Common 5	16	V5	Voltage Input 5
8	COM6	Common 6	17	V6	Voltage Input 6
9	COM7	Common 7	18	V7	Voltage Input 7

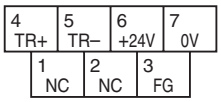
■ NETWORK, POWER SUPPLY TERMINAL ASSIGNMENT

• Full-duplex communication



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



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)

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DATA CONVERSION

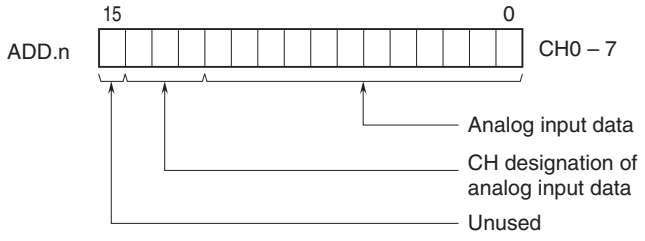
■ 12 BITS DATA CONVERSION

The analog data for input is converted to 12 bits digital value (0 to 4095) by each input range.
Input range refers range of the input, when input exceeds this range it is fixed to 0 or 4095.

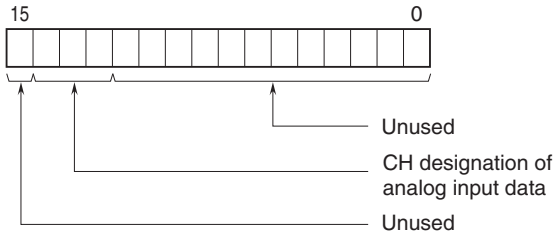
I/O DATA DESCRIPTIONS

■ **ANALOG INPUT**

• Di area

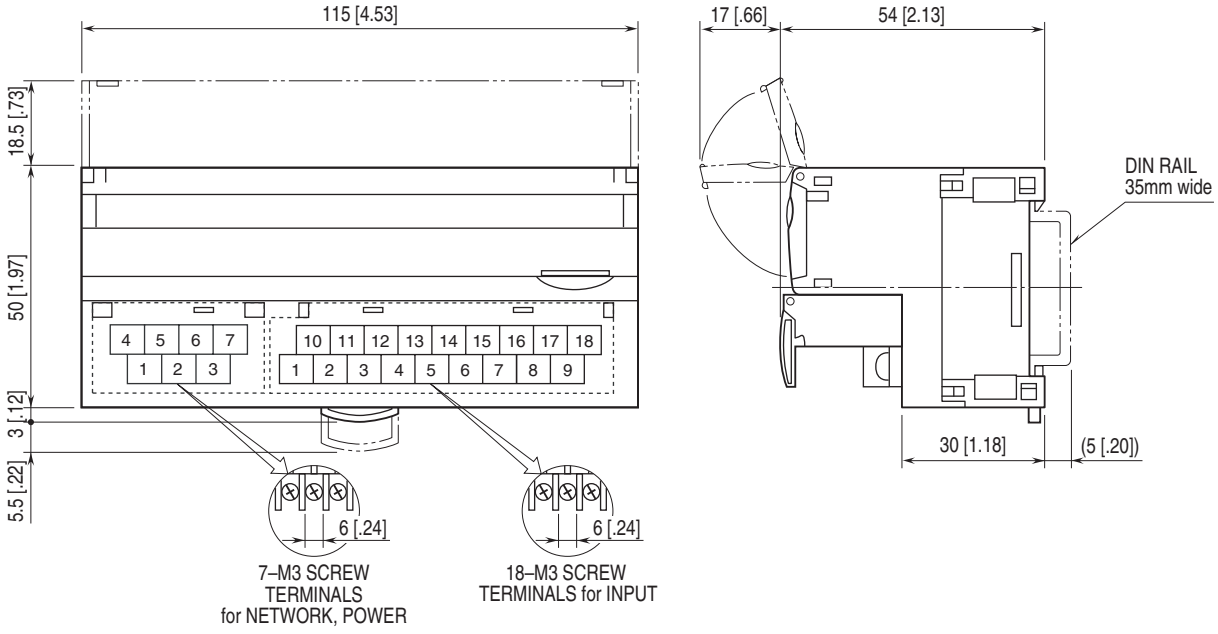


• Do area



The data is 12-bit binary.
Divided by 8 times scan, 8 points input data is transferred by using CH designation bit.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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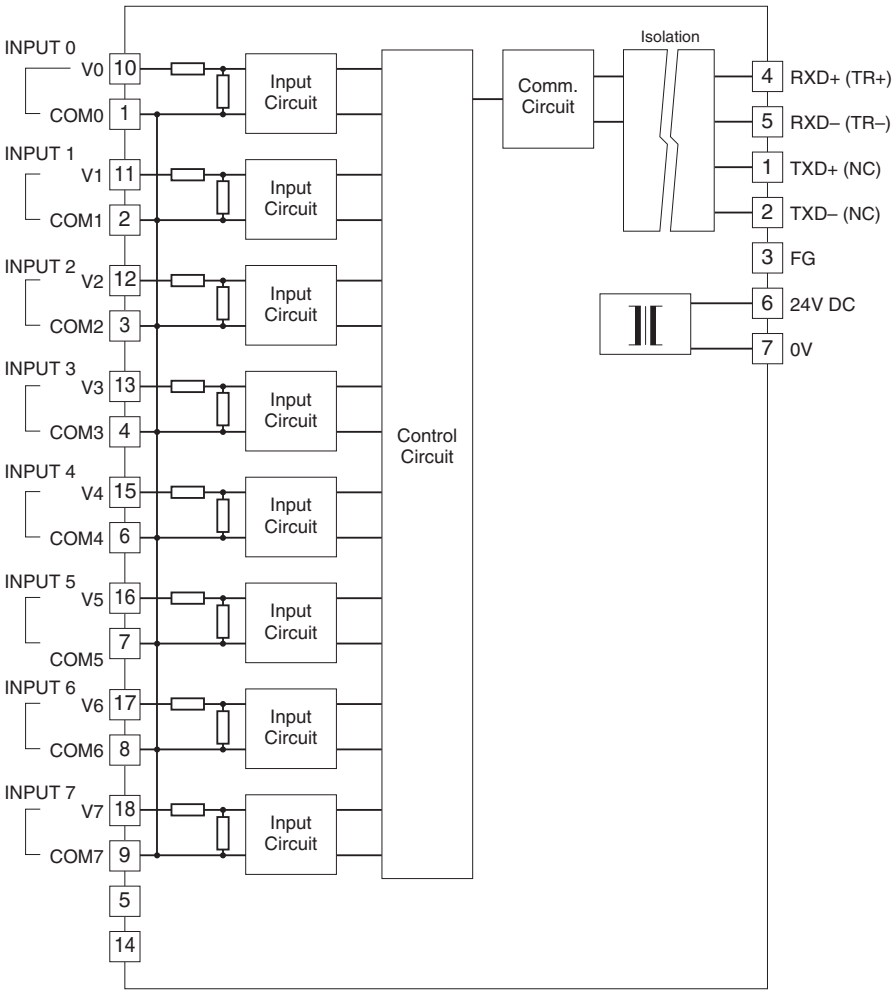
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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.

⚠ Specifications are subject to change without notice.

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