Remote I/O R7 Series

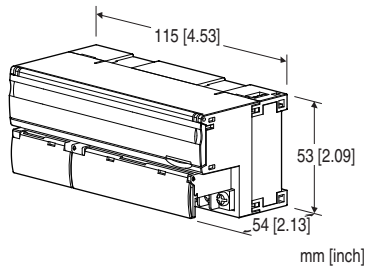
CC-Link I/O MODULE

(CC-Link V.1.10; DC current output, 4 points, isolated)

Functions & Features

• 4 points DC current output module for CC-Link

• Individual channels, zero adjustment, span adjustment, and scaling can be set with the configurator software (model: R7CON)



MODEL:R7C–YS4–[1][2]

ORDERING INFORMATION

• Code number: R7C-YS4-[1][2]

Specify a code from below for each of [1] and [2].
(e.g. R7C-YS4-AR/Q)

• Specify the specification for option code /Q
(e.g. /C01)

If you need factory setting, use Ordering Information Sheet (No. ESU-7801-AE).

I/O TYPE

YS4: DC current output, 4 points

[1] POWER INPUT

DC Power

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

Universal

AR: 24 V AC/24 V DC (universal)
(Operational voltage range 24 V AC±10 %, 50 - 60 Hz / 24 V DC±10 %, ripple 10 %p-p max.)
(CE not available)

[2] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

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

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

CAUTION

• Extension modules cannot be connected.

RELATED PRODUCTS

• PC Configurator cable (model: MCN-CON or COP-US)
• PC configurator software (model: R7CON)
• CSP+ file

The configurator software and CSP+ file are downloadable at our web site.

CSP+ file is also downloadable at CC-Link Partner Association's 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.

Recommended manufacturer: Japan Solderless Terminal 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: Output 0 to output 1 to output 2 to output 3 to power to CC-Link or FG

Zero adjustments: Configurable via R7CON

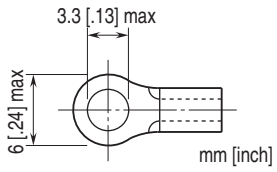
Span adjustments: Configurable via R7CON

Output at the loss of communication:
Hold the output (*), Reset the output
Selectable with the front DIP SW
(*) Factory default setting

Status indicator LED: PWR

Configurator connection: 2.5 dia. miniature jack

■Recommended solderless terminal



CC-Link COMMUNICATION

CC-Link: Ver.1.10

Connector: M3 screw terminal

Network cable: CC-Link cable designated by Mitsubishi Electric

Station number: 1 - 64 (rotary switch, default:00)

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Station type: Remote device
Data allocation: 1
Baud rate setting: 156 kbps (default), 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps (rotary switch)
Terminating resistor: Built-in (side DIP SW, default: disable)
Status indicator LEDs: RUN, ERR, SD, RD

OUTPUT SPECIFICATIONS

Output range: 4 to 20 mA DC
Load resistance: ≤ 550 Ω
Operational range: -15 to +115 % of output range

INSTALLATION

Current consumption
•**AC**: Approx. 280 mA
•**DC**: Approx. 160 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: 180 g (0.40 lb)

PERFORMANCE

Conversion accuracy: ±0.1 %
Data range: 0 – 10000 of the output range
(Scaling of converted data is configurable with the configurator software (model: R7CON))
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time: 250 msec. (0 – 90 %)
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (output 0 to output 1 to output 2 to output 3 to power to CC-Link or FG)

STANDARDS & APPROVALS

EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
RoHS Directive

FUNCTIONS

Output hold function:
Output at the loss of communication is selectable from output clear (fix the output at -15 %) and output hold (last normally received data) with DIP switch.
At the startup, it outputs -15 % until the communication is established and normal data is received.

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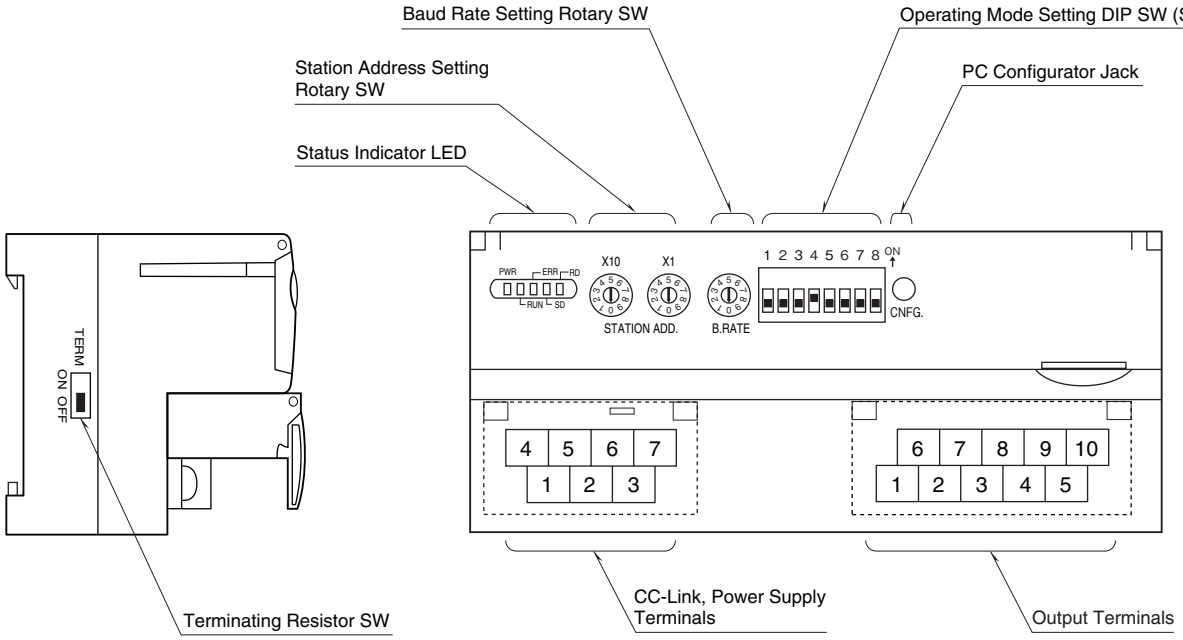
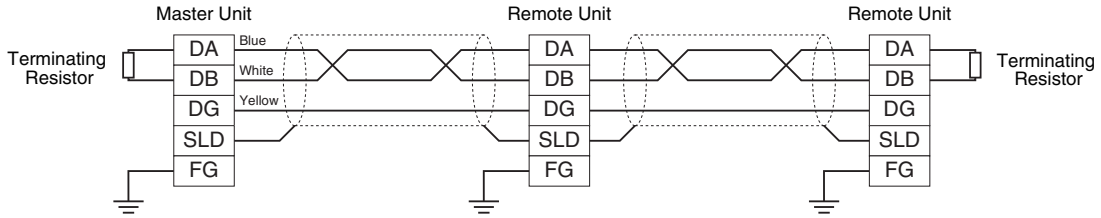
EXTERNAL VIEW

■ SIDE VIEW ■ FRONT VIEW



COMMUNICATION CABLE CONNECTIONS

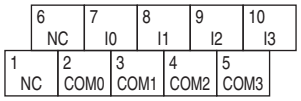
■ MASTER CONNECTION



Note: Be sure to connect the terminating resistor across DA and DB at both ends of communication line.
When this unit is located at an end, turn the terminating resistor SW ON.
The Master Unit can be located at not only both ends but also any node of the of communication line.

TERMINAL ASSIGNMENTS

■OUTPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	6	NC	No connection
2	COM0	Common 0	7	I0	Current output 0
3	COM1	Common 1	8	I1	Current output 1
4	COM2	Common 2	9	I2	Current output 2
5	COM3	Common 3	10	I3	Current output 3

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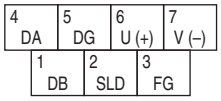
■ **POWER SUPPLY, CC-LINK TERMINAL ASSIGNMENT**



NO.	ID	FUNCTION, NOTES
1	DB	White
2	SLD	Shield
3	FG	FG
4	DA	Blue
5	DG	Yellow
6	U (+)	Power input (+)
7	V (–)	Power input (–)

INDICATOR LED

■ **STATUS INDICATOR LED**

PWR	RUN	ERR	SD*1	RD	STATUS*2
ON	ON	BL	BL	ON	Communicates normally with occasional CRC errors due to noise interference.
ON	ON	BL	BL	ON	Communicates normally but the Baud Rate and/or Station Address switches failed. ERR LED blinks approximately in 0.5 seconds intervals.
ON	ON	BL	BL	OFF	----
ON	ON	BL	OFF	ON	CRC error detected in the received data. Unable to respond.
ON	ON	BL	OFF	OFF	----
ON	ON	OFF	BL	ON	Normal communication
ON	ON	OFF	BL	OFF	----
ON	ON	OFF	OFF	ON	Unable to receive data addressed to the station.
ON	ON	OFF	OFF	OFF	----
ON	OFF	BL	BL	ON	Polling response is made but CRC error is detected in received refresh data.
ON	OFF	BL	BL	OFF	----
ON	OFF	BL	OFF	ON	CRC error detected in the data addressed to the station.
ON	OFF	BL	OFF	OFF	----
ON	OFF	OFF	BL	ON	Link is not started.
ON	OFF	OFF	BL	OFF	----
ON	OFF	OFF	OFF	ON	No data addressed to the station. Or unable to receive data addressed to the station due to noise interference. (Missing parts of the data sent from the master)
ON	OFF	OFF	OFF	OFF	Unable to receive data due to wire breakdown
ON	OFF	ON	OFF	ON/OFF	Faulty Baud Rate and/or Station Address setting
OFF	OFF	OFF	OFF	OFF	Power input removed or power supply failure.

OFF = OFF, ON = ON, BL = Blinking

*1. SD LED which is blinking may appear to be ON with high baud rate especially when fewer modules are connected.

*2. LED combinations indicated with "----" do not occur in normal operation unless LED failure or the like occurs.

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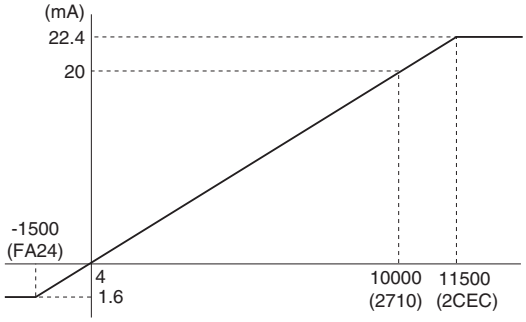
DATA CONVERSION

■ OUTPUT RANGE AND DATA CONVERSION (FACTORY DEFAULT SETTING)

Digital output data is converted into analog representations of 0 – 100% proportional to each scaled range.
Overrange output is possible from -15 to +115% of the nominal range.
When the signal exceeds the limit, the data is fixed at -15% or +115%.

• Output Range 4 – 20 mA DC

Digital Value, Decimal	Degital Value, HEX	Output Value, Engineering Unit	Output Value, %
-1500	FA24	≤ 1.6 mA	-15%
0	0	4 mA	0%
10000	2710	20 mA	100%
11500	2CEC	≥ 22.4 mA	115%



DATA ALLOCATION

■ ANALOG OUTPUT

	Interval-timed Response (X)
RWr n+0	Unused
+1	Unused
+2	Unused
+3	Unused

	Refresh Data (Y)
RWw n+0	Analog output 0
+1	Analog output 1
+2	Analog output 2
+3	Analog output 3

I/O DATA DESCRIPTIONS

■ ANALOG OUTPUT

16-bit binary data
Negative values represented in 2's complements

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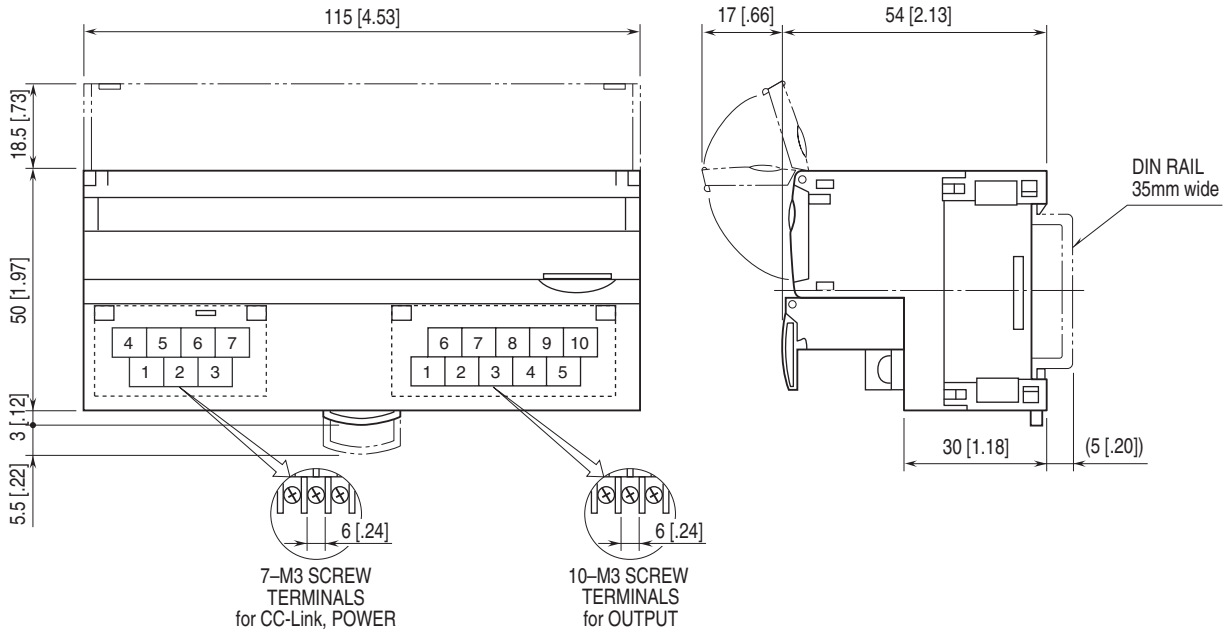
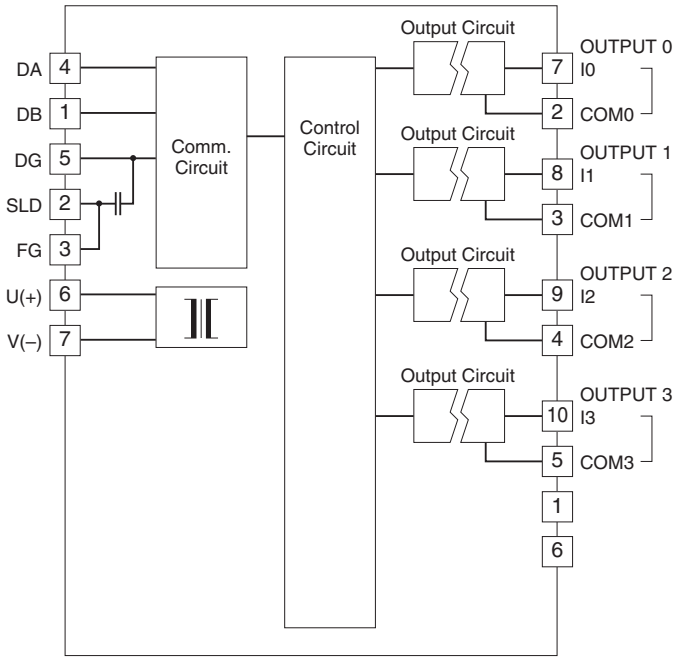
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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.



⚠ Specifications are subject to change without notice.

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