

Remote I/O R7 Series

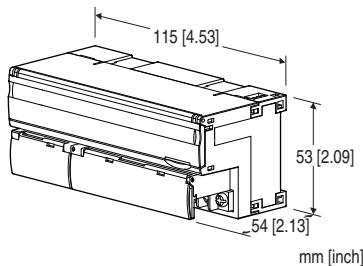
(UL not available)

CC-Link I/O MODULE

(CC-Link V.1.10; DC voltage output, 2 points, isolated)

Functions & Features

- 2 points DC voltage output module for CC-Link
- Extension module can be connected
- Output range can be selected with the front DIP switches for all channels
- Individual channels, zero adjustment, span adjustment, and scaling can be set with the configurator software (model: R7CON)



MODEL:R7C-YV2-R[1]

ORDERING INFORMATION

- Code number: R7C-YV2-R[1]

Specify a code from below for [1].

- (e.g. R7C-YV2-R/Q)
- Specify the specification for option code /Q (e.g. /C01)

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

I/O TYPE

YV2: DC voltage output, 2 points

POWER INPUT

DC Power

R: 24 V DC

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

[1] OPTIONS

Standards & Approvals

blank: CE marking

/UL: UL approval, CE marking

Other Options

blank: none

/Q: Option other than the above (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

RELATED PRODUCTS

- PC Configurator cable (model: MCN-CON or COP-US)

- PC configurator software (model: R7CON)

Downloadable at our web site.

- Discrete input extension module (model: R7C-EAx)

- Discrete output extension module (model: R7C-ECx)

PACKAGE INCLUDES...

- Terminating resistor (110 Ω , 0.5 W)

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 mm² (AWG 22 to 16)

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (gray)

Isolation: Output 0 to output 1 to power to CC-Link or FG

Zero adjustments: Configurable via R7CON

Span adjustments: Configurable via R7CON

Output range: Selectable with the front DIP SW or configurable via R7CON

Extension: No extension (*), Discrete input 8 or 16 points, Discrete output 8 or 16 points

Selectable with the front DIP SW

(*) Factory default setting

Output at the loss of communication:

Hold the output (*), Reset the output

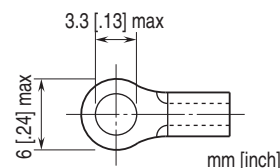
Selectable with the front DIP SW

(*) 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)

Station Type: Remote device

Data allocation: 1

Baud rate setting: 156 kbps (default), 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps (rotary switch)

Status indicator LEDs: RUN, ERR, SD, RD

OUTPUT SPECIFICATIONS

■ Narrow Span voltage

Output range: -1 - +1 V DC, 0 - 1 V DC, -0.5 - +0.5 V DC

Load resistance: $\geq 100 \text{ k}\Omega$

■ Wide Span voltage

Output range: -10 - +10 V DC (*), -5 - +5 V DC, 0 - 10 V DC, 0 - 5 V DC, 1 - 5 V DC

(*) factory default setting

Load resistance: $\geq 100 \text{ k}\Omega$

■ Operational range

Except -10 to +10 V DC: -15 to +115 % of output range

-10 to +10 V DC: Approx. -11.5 to +11.5 V DC

INSTALLATION

Current consumption

•DC: Approx. 140 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: $\pm 0.1 \%$

Data range: 0 - 10000 of the output range

(Scaling of converted data is configurable with the configurator software (model: R7CON))

Temp. coefficient: $\pm 0.015 \text{ } \%/^{\circ}\text{C}$ ($\pm 0.008 \text{ } \%/^{\circ}\text{F}$)

Response time: 250 msec. (0 - 90 %)

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (output 0 to output 1 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

Approval:

UL/C-UL nonincendive Class I, Division 2, Groups A, B, C, and D

(ANSI/UL 121201, CAN/CSA-C22.2 No.213-17)

UL/C-UL general safety requirements

(UL 61010-1, CAN/CSA-C22.2 No.61010-1)

Note: This equipment is to be supplied by a Class 2 power supply when using as conformity with UL/C-UL.

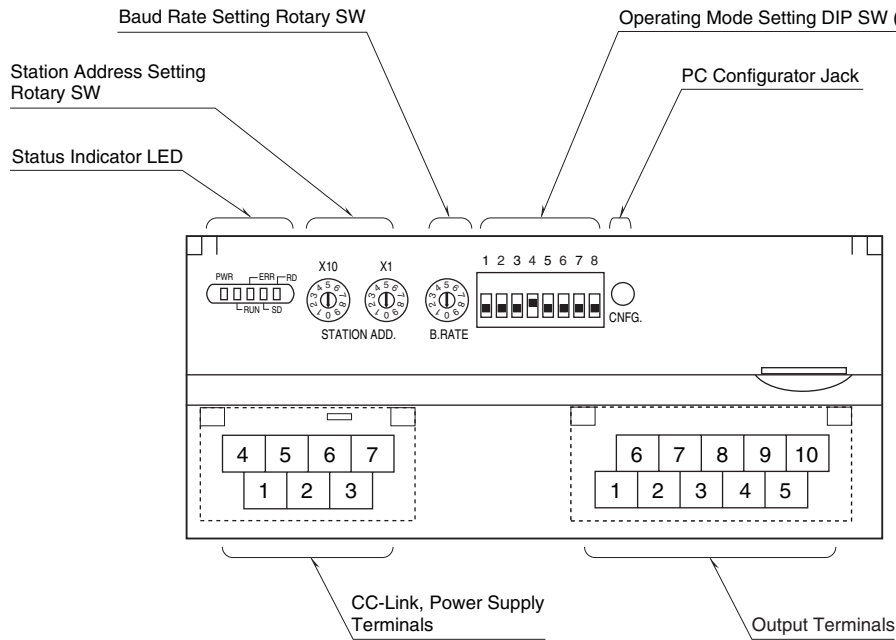
FUNCTIONS

Output hold function:

Output at the loss of communication is selectable from output clear (fix the output at -15 % or approx. -11.5 V) and output hold (last normally received data) with DIP switch.

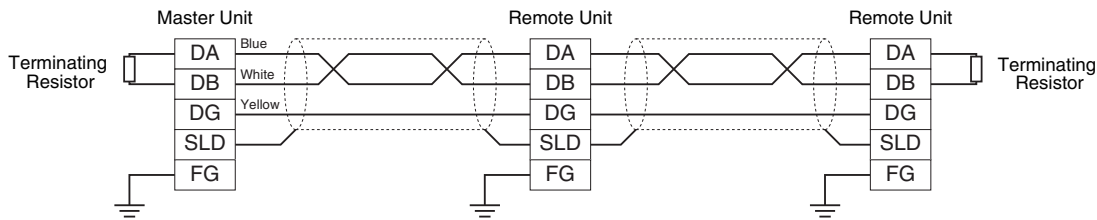
At the startup, it outputs -15 % or approx. -11.5 V until the communication is established and normal data is received.

EXTERNAL VIEW



COMMUNICATION CABLE CONNECTIONS

MASTER CONNECTION



Note: Be sure to connect the terminating resistor included in the product package to the unit at both ends of communication line.
The terminator must be connected across DA and DB.
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

6	7	8	9	10
NC	VH0	VL0	VH1	VL1
1	2	3	4	5
NC	COM0	COM0	COM1	COM1

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	6	NC	No connection
2	COM0	Common 0	7	VH0	Wide span volt. 0
3	COM0	Common 0	8	VL0	Narrow span volt. 0
4	COM1	Common 1	9	VH1	Wide span volt. 1
5	COM1	Common 1	10	VL1	Narrow span volt. 1

■ POWER SUPPLY, CC-LINK TERMINAL ASSIGNMENT

4	5	6	7
DA	DG	+24 V	0V
1	2	3	
DB	SLD	FG	

NO.	ID	FUNCTION, NOTES
1	DB	White
2	SLD	Shield
3	FG	FG
4	DA	Blue
5	DG	Yellow
6	+24 V	Power input (24 V DC)
7	0 V	Power input (0 V DC)

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.

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.

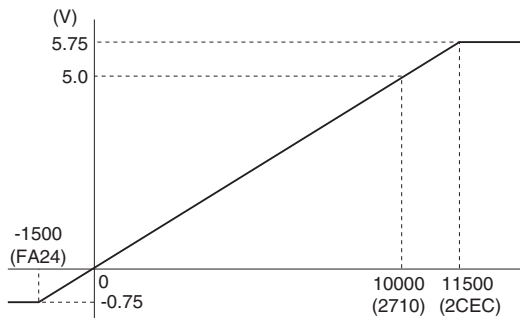
Overrange output is possible from -15 to +115% of the nominal range.

When the signal exceeds the limit, the data is fixed at -15% or +115%.

(approx. -11.5 V or +11.5 V when the output range is -10 - +10 V)

• Output Range 0 – 5V DC

Digital Value, Decimal	Digital Value, HEX	Output Value, Engineering Unit	Output Value, %
-1500	FA24	$\leq -0.75V$	-15%
0	0	0V	0%
10000	2710	5V	100%
11500	2CEC	$\geq 5.75V$	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	Unused
+3	Unused

• Without Extension Module

Interval-timed Response (X)

RX(n+0)	Unused
RX(n+1)	Reserved

Refresh Data (Y)

RY(n+0)	Unused
RY(n+1)	

• With Extension Module R7C-EA16

Interval-timed Response (X)

RX(n+0)	R7C-EA16
RX(n+1)	Reserved

Refresh Data (Y)

RY(n+0)	Unused
RY(n+1)	

• With Extension Module R7C-EC16x

Interval-timed Response (X)

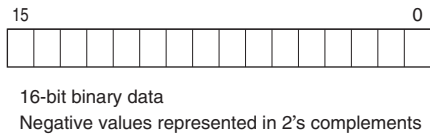
RX(n+0)	Unused
RX(n+1)	Reserved

Refresh Data (Y)

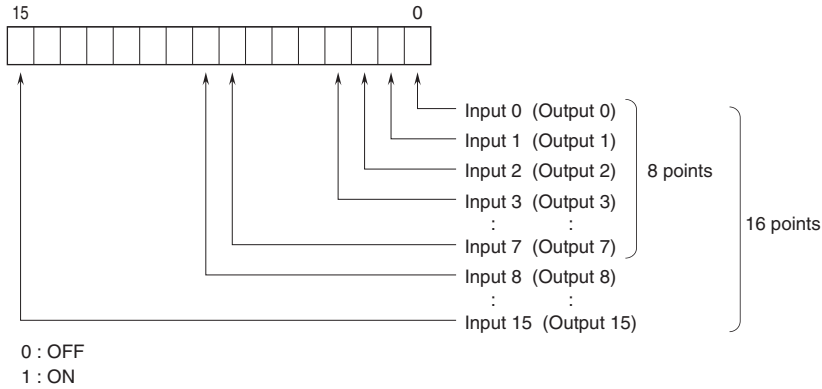
RY(n+0)	R7C-EC16x
RY(n+1)	Unused

I/O DATA DESCRIPTIONS

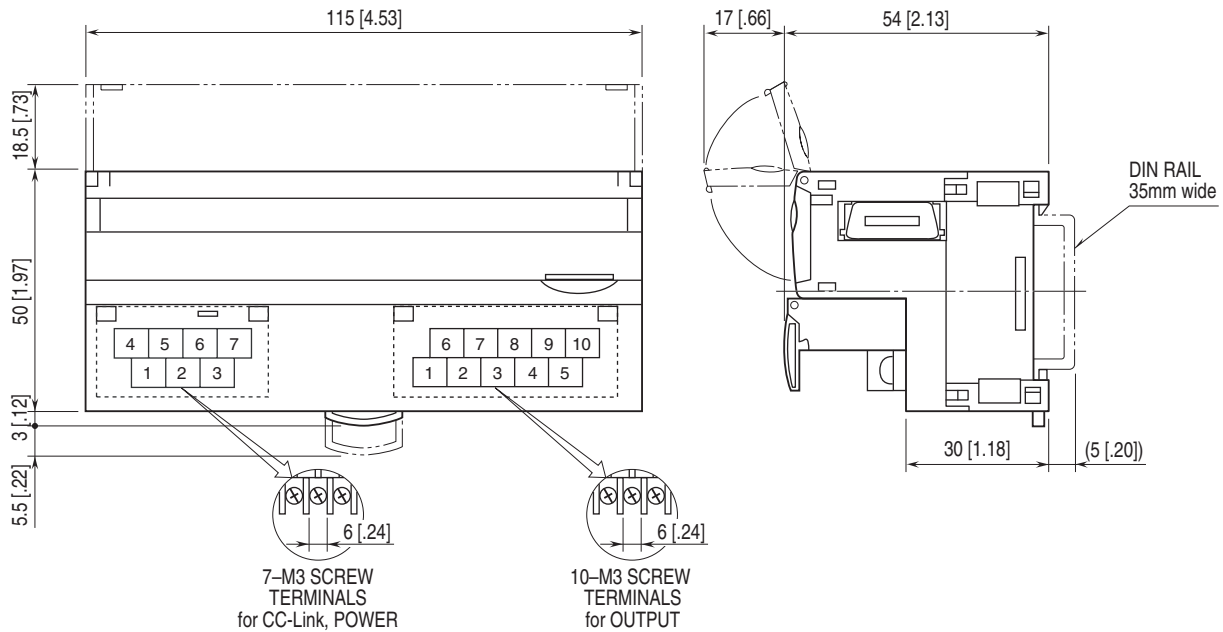
■ ANALOG OUTPUT



■ DISCRETE I/O



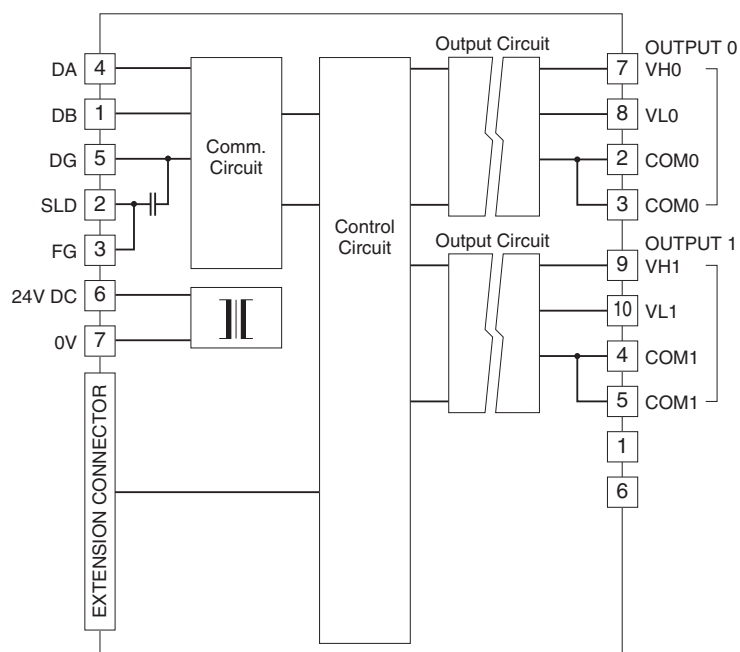
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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.



■ Output Connection Examples



Specifications are subject to change without notice.