

Remote I/O R7 Series

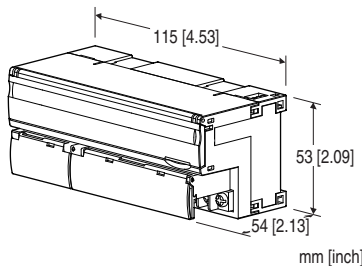
(UL not available)

CC-Link I/O MODULE

(CC-Link V.1.10; DC voltage/current input, 4 points, isolated)

Functions & Features

- 4 points DC voltage/current input module for CC-Link
- Extension module can be connected
- Input 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-SV4-R[1]

ORDERING INFORMATION

- Code number: R7C-SV4-R[1]

Specify a code from below for [1].

- (e.g. R7C-SV4-R/Q)
- Specify the specification for option code /Q (e.g. /C01)

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

I/O TYPE

SV4: DC voltage/current input (10 V/20 mA), 4 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)
- 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.

- 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: Input 0 to input 1 to input 2 to input 3 to power to CC-Link or 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

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

Selectable with the front DIP SW

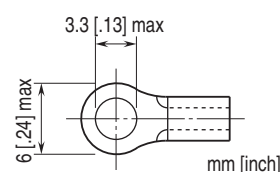
(*) Factory default setting

Conversion rate: Selectable with the front DIP SW

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

INPUT SPECIFICATIONS

■ **DC Current**
Input resistor: 70 Ω
Input range: -20 to +20 mA DC, 0 to 20 mA DC, 4 to 20 mA DC
 ■ **Narrow span voltage**
Input resistance: $\geq 100 \text{ k}\Omega$
Input range: -1 to +1 V DC, 0 to 1 V DC, -0.5 to +0.5 V DC
 ■ **Wide span voltage**
Input resistance: $\geq 1 \text{ M}\Omega$
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. 90 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)

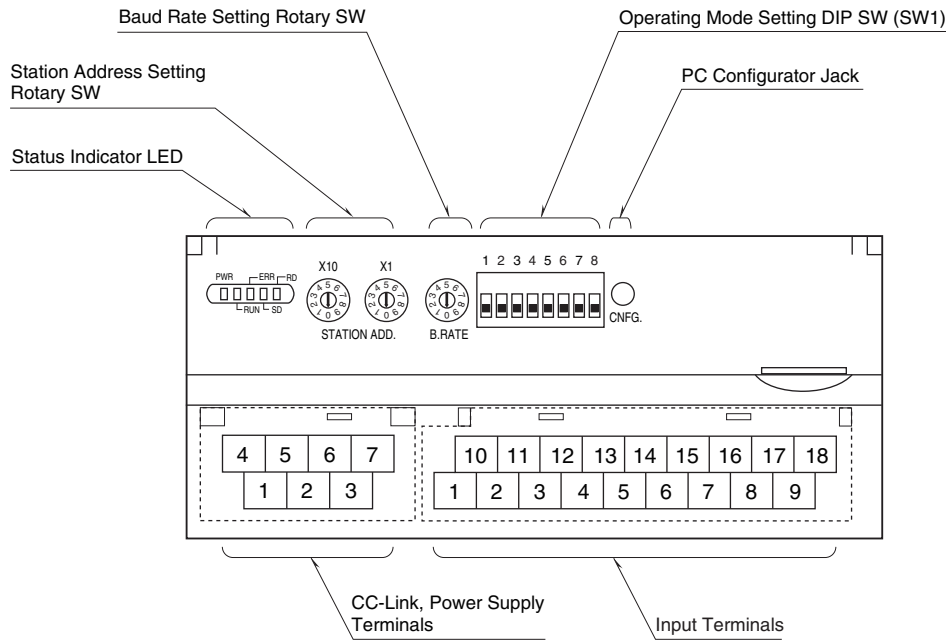
PERFORMANCE

Conversion rate / conversion accuracy:
 10 msec./ $\pm 0.8 \%$, 20 msec./ $\pm 0.4 \%$, 40 msec./ $\pm 0.2 \%$, 80 msec./ $\pm 0.1 \%$ (*)
 (*) Factory setting
Data range: 0 - 10000 of the input 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: Conversion rate $\times 2 + 50 \text{ msec.}$ (0 - 90 %)
Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (input 0 to input 1 to input 2 to input 3 to power to CC-Link or FG)

STANDARDS & APPROVALS

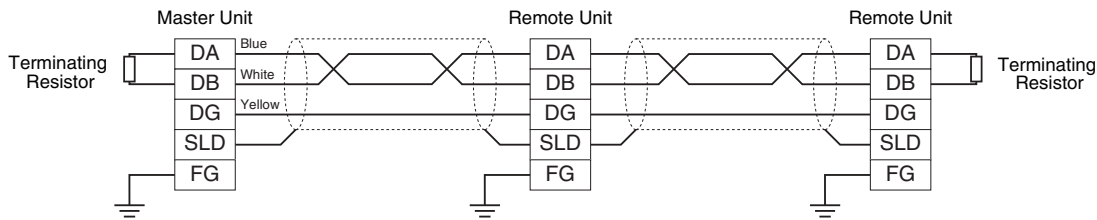
EU conformity:
 EMC Directive
 EMI EN 61000-6-4
 EMS EN 61000-6-2
 RoHS Directive
Approval:
 UL/C-UL nonincendive Class I, Division 2, Groups A, B, C, and D
 (ANSI/UL 121201, CAN/CSA-C22.2 No.213-17)
 UL/C-UL general safety requirements
 (UL 61010-1, CAN/CSA-C22.2 No.61010-1)
 Note: This equipment is to be supplied by a Class 2 power supply when using as conformity with UL/C-UL.

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

INPUT TERMINAL ASSIGNMENT

10	11	12	13	14	15	16	17	18
VL0	I0	VL1	I1	NC	VL2	I2	VL3	I3
1	2	3	4	5	6	7	8	9
VH0	COM0	VH1	COM1	NC	VH2	COM2	VH3	COM3

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	VH0	Wide span volt. 0	10	VL0	Narrow span volt. 0
2	COM0	Common 0	11	I0	Current range 0
3	VH1	Wide span volt. 1	12	VL1	Narrow span volt. 1
4	COM1	Common 1	13	I1	Current range 1
5	NC	No connection	14	NC	No connection
6	VH2	Wide span volt. 2	15	VL2	Narrow span volt. 2
7	COM2	Common 2	16	I2	Current range 2
8	VH3	Wide span volt. 3	17	VL3	Narrow span volt. 3
9	COM3	Common 3	18	I3	Current range 3

■ 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

■ INPUT RANGE AND DATA CONVERSION (FACTORY DEFAULT SETTING)

Analog input data is converted into digital representations of 0 – 100% proportional to each scaled range.

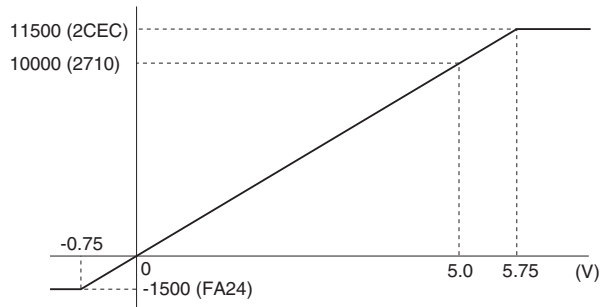
The converted % values are multiplied by 100 and expressed in 16 bits.

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

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

• Input Range 0 – 5V DC

Input Value	Input %	Converted Data, Decimal	Converted Data, Hex
$\leq -0.75V$	-15%	-1500	FA24
0V	0%	0	0
5V	100%	10000	2710
$\geq 5.75V$	115%	11500	2CEC



DATA ALLOCATION

■ ANALOG INPUT

Interval-timed Response (X)

RWn n+0	Analog input 0
+1	Analog input 1
+2	Analog input 2
+3	Analog input 3

Refresh Data (Y)

RWw n+0	Unused
+1	Unused
+2	Unused
+3	Unused

• Without Extension Module

Interval-timed Response (X)

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

Refresh Data (Y)

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

• 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)	Unused

• With Extension Module R7C-EC16x

Interval-timed Response (X)

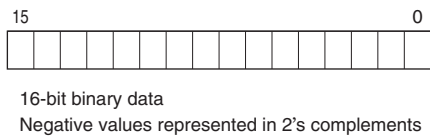
RX(n+0)	Status
RX(n+1)	Reserved

Refresh Data (Y)

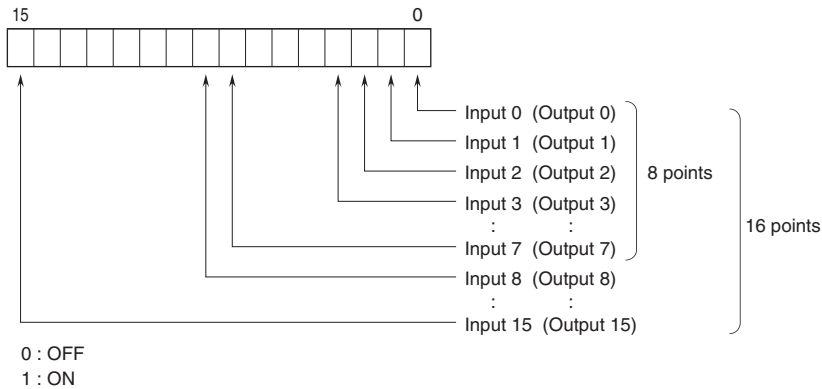
RY(n+0)	R7C-EC16x
RY(n+1)	Unused

I/O DATA DESCRIPTIONS

■ ANALOG INPUT

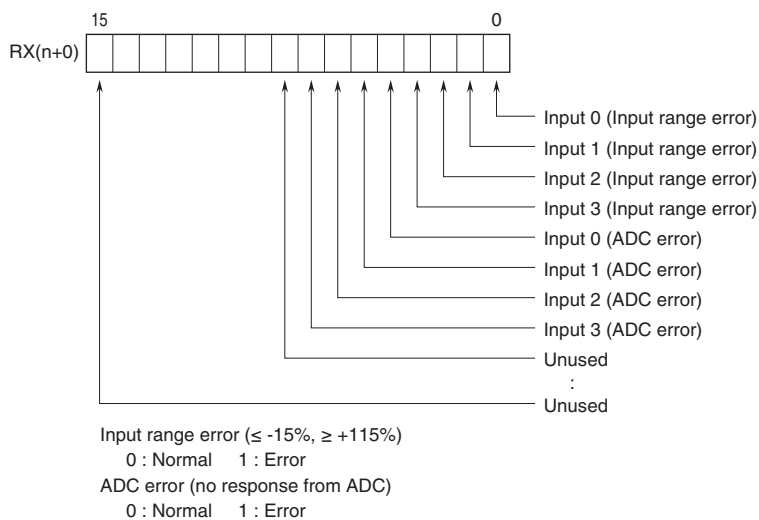


■ DISCRETE I/O



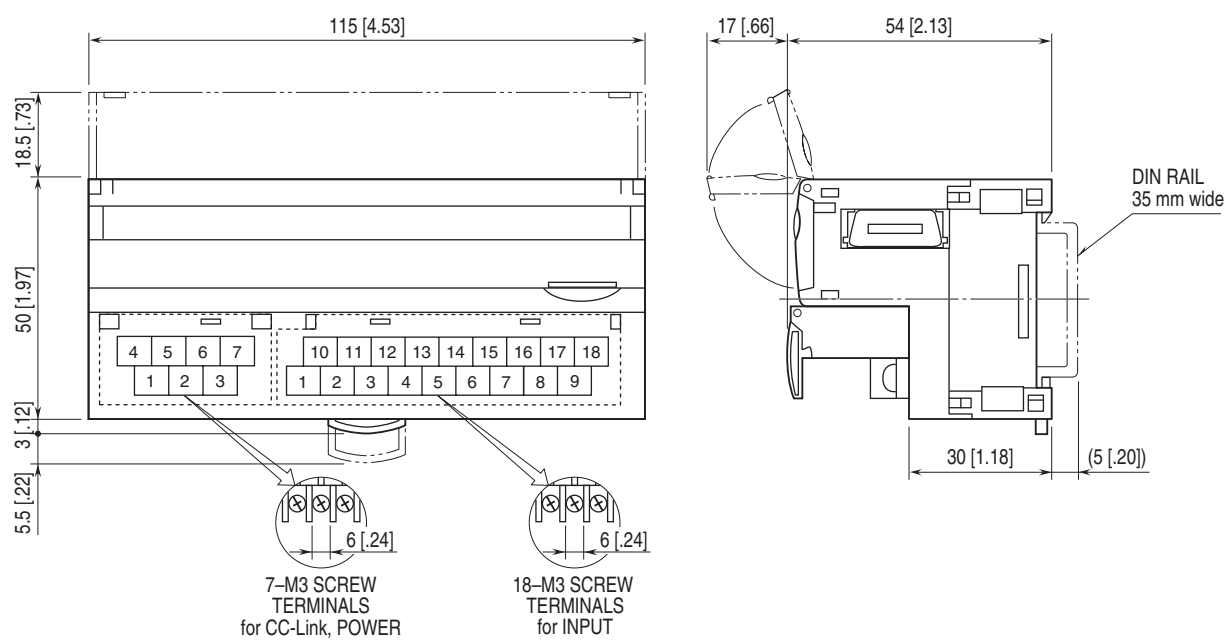
■ STATUS

Analog input module without extension module can show input status of each channel.



MODEL: R7C-SV4

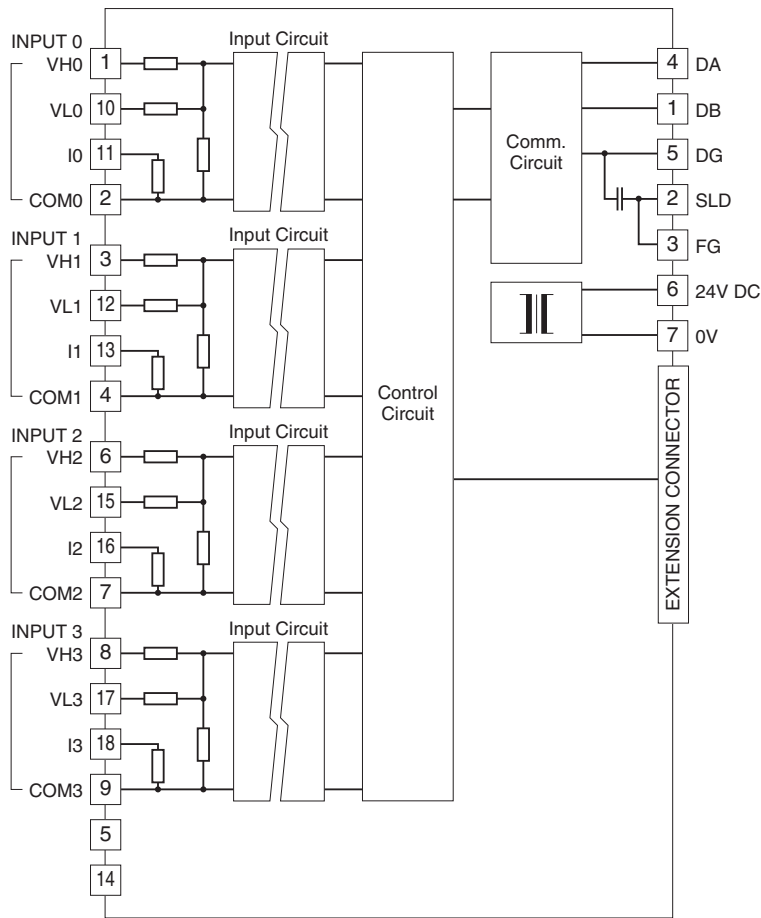
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



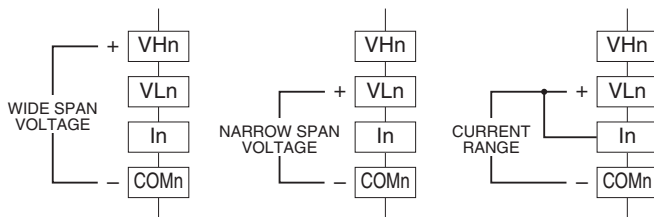
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FG terminal to ground.

Caution: FG terminal is NOT a protective conductor terminal.



Input Connection Examples



Be sure to close across VLn and In terminals for a current input.



Specifications are subject to change without notice.