

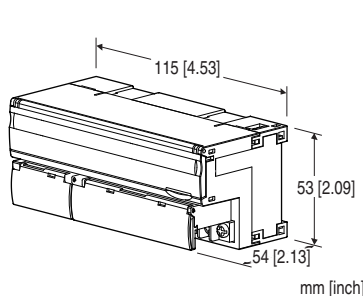
Remote I/O R7 Series

CC-Link I/O MODULE

(CC-Link V.1.10; AC current input, 4 points, isolated, RMS sensing, clamp-on current sensor CLSE use)

Functions & Features

- 4 points AC current I/O 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-CT4E-R[1]

ORDERING INFORMATION

- Code number: R7C-CT4E-R[1]
- Specify a code from below for [1].
(e.g. R7C-CT4E-R/Q)
- Specify the specification for option code /Q
(e.g. /C01)

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

I/O TYPE

CT4E: AC current input, 4 points, clamp-on current sensor CLSE use

POWER INPUT

DC Power

R: 24 V DC

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

[1] 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

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.

- Clamp-on current sensor (model: CLSE)

The clamp-on current sensors, not included in this product package, must be ordered separately. Required number depends upon the system configuration.

- 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

Input waveform

RMS sensing: Up to 15 % of 3rd harmonic content

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

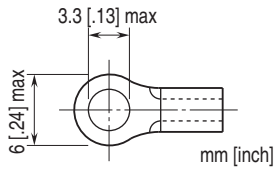
(*) Factory default setting

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

Input range (Optional)

CLSE-R5: 0 - 5 A AC

CLSE-05: 0 - 50 A AC

CLSE-10: 0 - 100 A AC

CLSE-20: 0 - 200 A AC

CLSE-40: 0 - 400 A AC

CLSE-60: 0 - 600 A AC (*)

(*) Factory setting

Frequency: 50 / 60 Hz (45 - 65 Hz)

Operational range: 5 - 115 % of rating (Operational range for the CLSE-60 is limited up to approx. 109 % (65535).)

Overload capacity: 120 % of rating (continuous)

Note: Use in the circuits below 480 V.

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: 200 g (0.44 lb)

PERFORMANCE

Conversion rate / conversion accuracy:

10 msec./±2.0 %, 20 msec./±1.0 %, 40 msec./±0.5 %, 80 msec./±0.5 % (*)

(*) Factory setting

(The conversion accuracy does not include the accuracy of the sensor)

the sensor)

Data range: Engineering unit value (A) × 100 (integer)
(For CLSE-R5, engineering unit value (A) × 1000 (integer))

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

Response time: ≤ 1.0 sec. (0 - 90 %)

Insulation resistance: ≥ 100 MΩ 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:

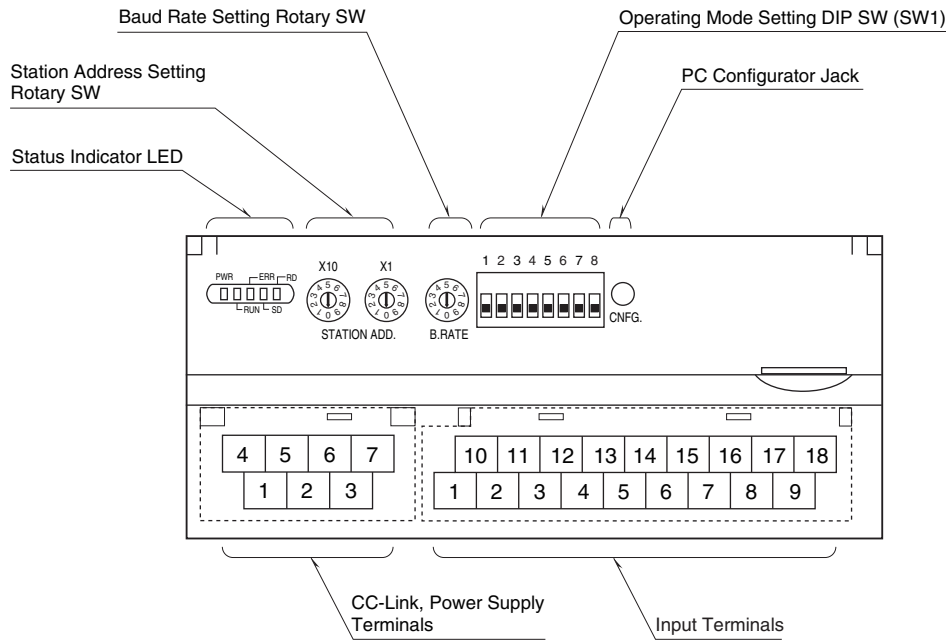
EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

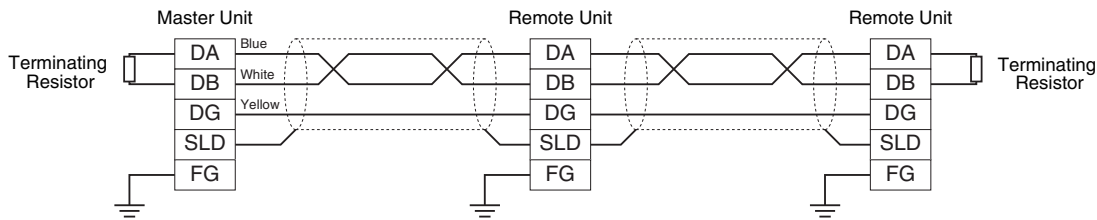
RoHS Directive

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
K0	L0	K1	L1	NC	K2	L2	K3	L3
1	2	3	4	5	6	7	8	9
NC	NC	NC	NC	NC	NC	NC	NC	NC

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	10	K0	AC current K0
2	NC	No connection	11	L0	AC current L0
3	NC	No connection	12	K1	AC current K1
4	NC	No connection	13	L1	AC current L1
5	NC	No connection	14	NC	No connection
6	NC	No connection	15	K2	AC current K2
7	NC	No connection	16	L2	AC current L2
8	NC	No connection	17	K3	AC current K3
9	NC	No connection	18	L3	AC current L3

■ 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

■ ENGINEERING UNIT CONVERSION

Integer obtained by multiplying engineering unit value (A) by 100 is represented in 16-bit.

(For CLSE-R5, integer obtained by multiplying engineering unit value (A) by 1000.)

DATA ALLOCATION

■ ANALOG INPUT

Interval-timed Response (X)	
RWr 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)	

• 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)	

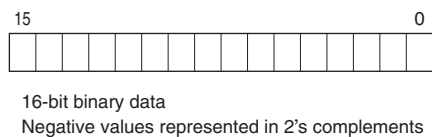
• With Extension Module R7C-EC16x

Interval-timed Response (X)	
RX(n+0)	Status
RX(n+1)	Reserved

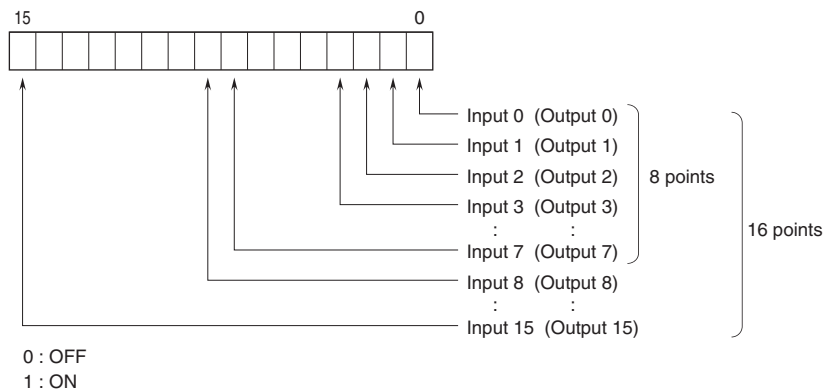
Refresh Data (Y)	
RY(n+0)	R7C-EC16x
RY(n+1)	Unused

I/O DATA DESCRIPTIONS

■ ANALOG INPUT

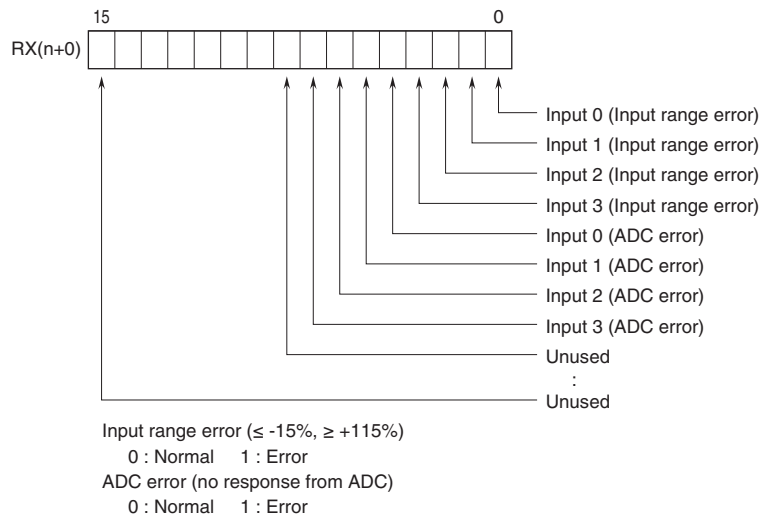


■ DISCRETE I/O

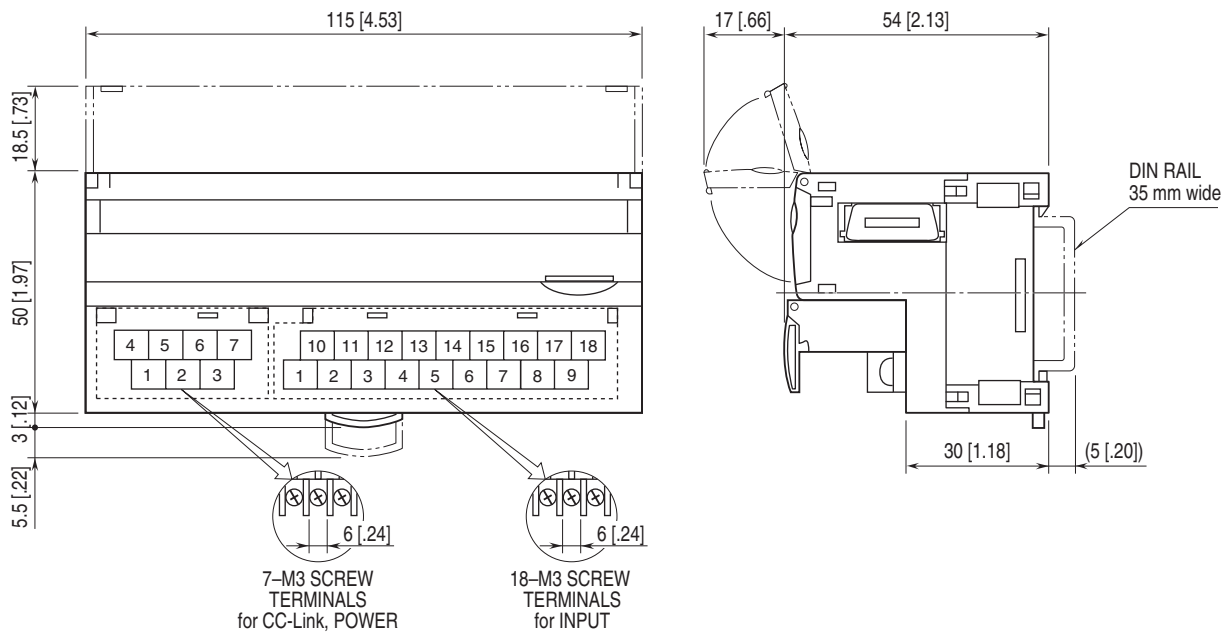


■ STATUS

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



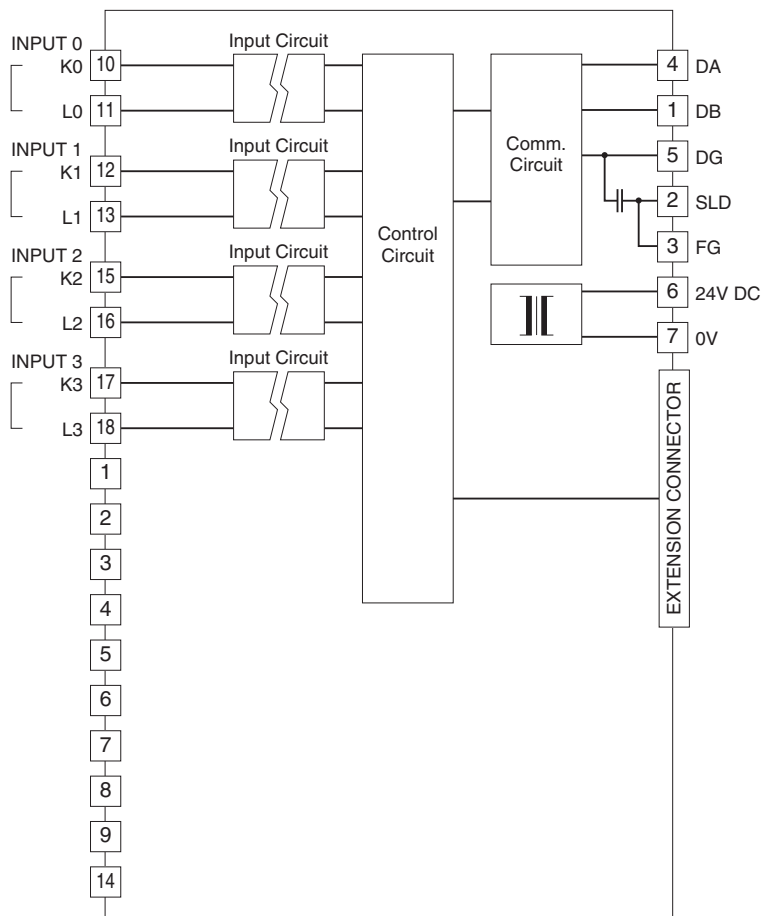
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



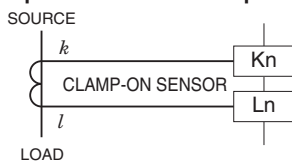
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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

Caution: FG terminal is NOT a protective conductor terminal.



Input Connection Example



Specifications are subject to change without notice.