

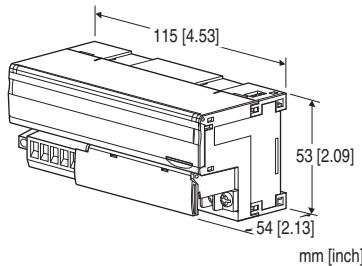
Remote I/O R7 Series

DeviceNet® I/O MODULE

(AC current input, 4 points, isolated, RMS sensing, clamp-on current sensor CLSE use)

Functions & Features

- 4 points AC current I/O module for DeviceNet
- 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:R7D-CT4E[1]

ORDERING INFORMATION

- Code number: R7D-CT4E[1]
- Specify a code from below for [1].
(e.g. R7D-CT4E/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

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

[1] OPTIONS

blank: none

/Q: With options (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-7802-R)

RELATED PRODUCTS

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

The EDS files and configurator software are downloadable at our web site.

(Extension modules are registered in the EDS file as a combination of a basic module)

- 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: R7D-EAx)
- Discrete output extension module (model: R7D-ECx)

GENERAL SPECIFICATIONS

Connection

DeviceNet: Euro type connector terminal

(applicable wire size: 0.2 to 2.5 mm², stripped length 7 mm)

Input: 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 DeviceNet

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

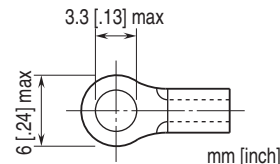
Selectable with the front DIP SW

(* Factory default setting)

Conversion rate: Selectable with the front DIP SW

Configurator connection: 2.5 dia. miniature jack

■Recommended solderless terminal



DeviceNet COMMUNICATION

Network cable: Approved for DeviceNet

Baud rate setting: 125 kbps (default), 250 kbps, 500 kbps,

auto-tracking (rotary switch)
(Refer to the instruction manual.)

Status indicator LEDs: MS, NS

(Refer to the instruction manual for details.)

Node address setting: 1 - 63 (rotary switch, default:00)

(Refer to the instruction manual.)

Communication: Supports poll and cyclic

(Bit-strobe and COS (change of state) are not supported)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

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

Supply voltage to network: 11 - 25 V DC supplied through the network terminal block

Current Consumption:

Approx. 80 mA @ 24 V DC

Approx. 170 mA @ 11 V DC

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)

Data range: Engineering unit value (A) × 100 (integer)

(For CLSE-R5, engineering unit value (A) × 1000 (integer))

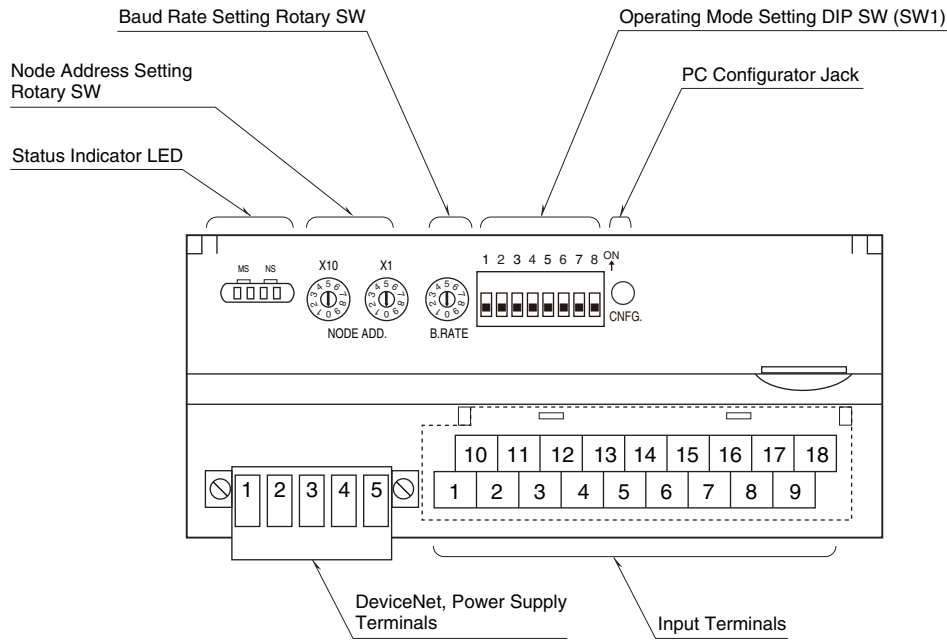
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

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 DeviceNet)

EXTERNAL VIEW



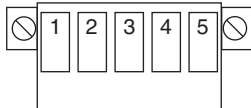
TERMINAL ASSIGNMENTS

■ 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

■ DeviceNet TERMINAL ASSIGNMENT



PIN NO.	COLOR	ID	FUNCTION
1	Red	V+	Network power supply +
2	White	CAN_H	Network data High
3	—	Drain	Shield
4	Blue	CAN_L	Network data Low
5	Black	V-	Network power supply -

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

'Begin' address is determined by the R7D's node address and the master setting.

Example 1. Analog Input Module, without Status

Output Data		Input Data
Begin +0	Analog Input Module CH0	None
+1	CH1	
+2	CH2	
+3	CH3	

Example 2. Analog Input Module, with Status

Output Data		Input Data
Begin +0	Analog Input Module CH0	None
+1	CH1	
+2	CH2	
+3	CH3	
+4	Status	

Example 3. Analog Input Module + R7D-EA16, with Status

Output Data		Input Data
Begin +0	Analog Input Module CH0	None
+1	CH1	
+2	CH2	
+3	CH3	
+4	R7D-EA16	
+5	Status	

Example 4. Analog Input Module + R7D-EC16x, with Status

Output Data		Input Data
Begin +0	Analog Input Module CH0	R7D-EC16x
+1	CH1	
+2	CH2	
+3	CH3	
+4	Status	

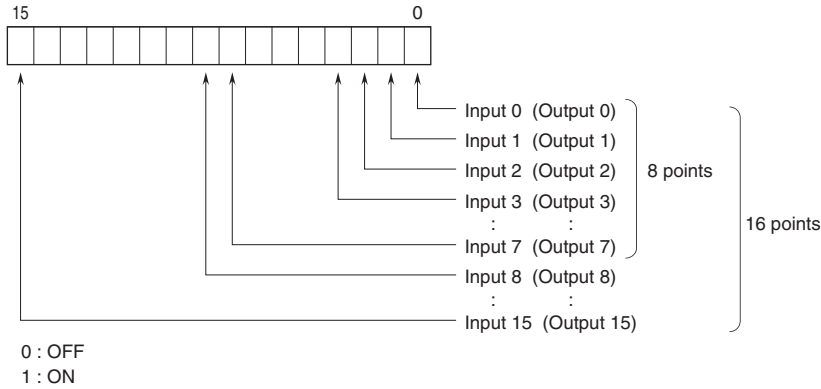
I/O DATA DESCRIPTIONS

■ ANALOG INPUT



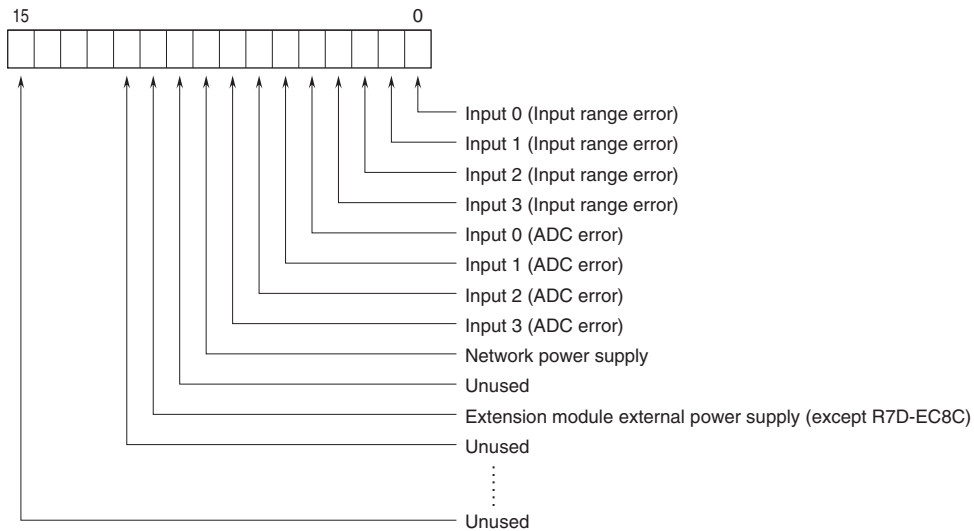
16-bit binary data
Negative values represented in 2's complements

■ DISCRETE I/O



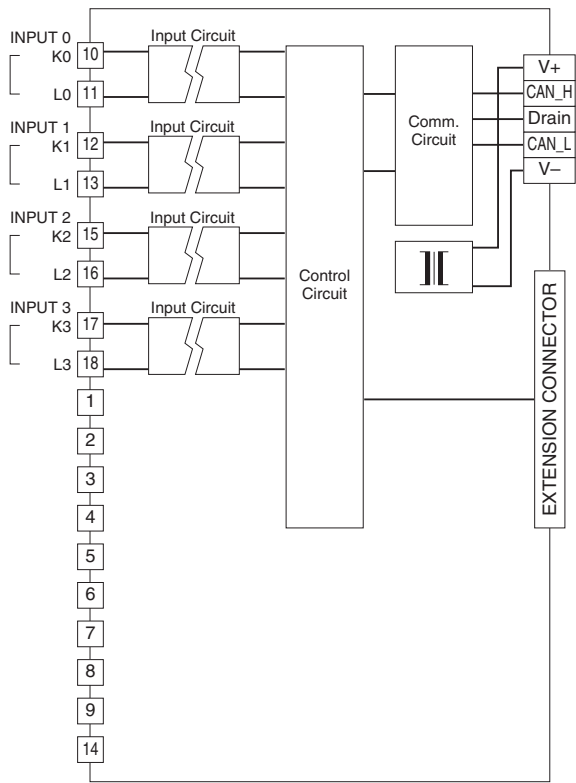
■ STATUS

Bit 0 to 7: Analog input modules can show input status of each channel.
Bit 8 to 10: Shows the power supply status.

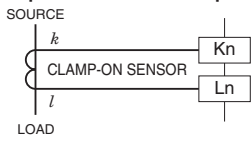


Input range error ($\leq -15\%$, $\geq +115\%$)
0 : Normal 1 : Error
ADC error (no response from ADC)
0 : Normal 1 : Error
Power supply
0 : Normal 1 : Error

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Input Connection Example



Specifications are subject to change without notice.