

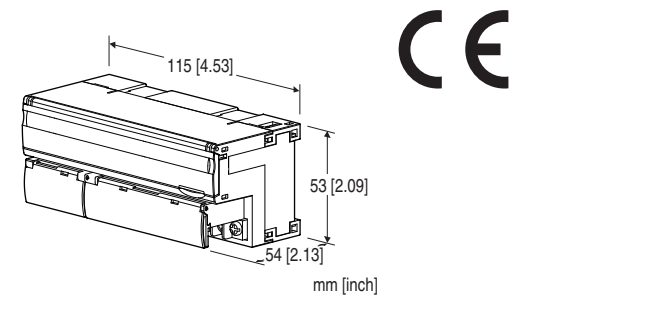
## Remote I/O R7 Series

### ETHERNET I/O MODULE

(discrete input, 16 points, Modbus/TCP use)

#### Functions & Features

- 16 points discrete input module for Modbus/TCP (Ethernet)
- Extension module can be connected



### MODEL:R7E-DA16-R[1]

#### ORDERING INFORMATION

- Code number: R7E-DA16-R[1]
- Specify a code from below for [1].  
(e.g. R7E-DA16-R/Q)
- Specify the specification for option code /Q  
(e.g. /C01/SET)

#### I/O TYPE

**DA16:** Discrete input, 16 points

#### 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 (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-7807-F)

#### 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: R7E-EAx)
  - Discrete output extension module (model: R7E-ECx)

Note: PC Configurator Software is required to set IP address.

#### GENERAL SPECIFICATIONS

##### Connection

**Ethernet:** RJ-45 connector

**Power, 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 mm<sup>2</sup> (AWG 22 to 16)

**Screw terminal:** Nickel-plated steel

**Housing material:** Flame-resistant resin (gray)

**Isolation:** Input to Ethernet to power to FG

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

Selectable with the front DIP SW

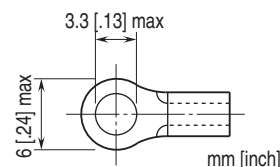
(\* Factory default setting)

**Status indicator LEDs:** PWR, RUN

**Discrete input status indicator LED:** LED turns on with input ON

**Configurator connection:** 2.5 dia. miniature jack

##### ■Recommended solderless terminal



#### ETHERNET COMMUNICATION

**Physical layer standard:** IEEE 802.3u

**Data link layer:** 10BASE-T / 100BASE-TX

**Baud rate:** 10 / 100 Mbps, Auto Negotiation

**Protocol:** Modbus/TCP

**Data:** RTU (binary)

**Max. number of socket connections:** Two (2)

**Transmission media:** 10BASE-T (STP cable, category 5)  
100BASE-TX (STP cable, category 5e)

**Max. segment length:** 100 meters

**IP address:** Can be set and changed with PC Configurator Software (model: R7CON) (default: 192.168.0.1)

**Subnet Mask:** Can be set and changed with PC Configurator Software (model: R7CON) (default: 255.255.255.0)

**Default Gateway:** Can be set and changed with PC Configurator Software (model: R7CON) (Ver.2.41 or later) (default: 192.168.0.100)

**Port No.:** 502

DHCP available (Ver.3.00 or later)

**Ethernet indicator LEDs:** LINK, LINK100, COL

## INPUT SPECIFICATIONS

**Common:** Positive or negative common (NPN/PNP) per 16 points

**Maximum inputs applicable at once:** No limit (at 24 V DC)

**Rated input voltage:** 24 V DC  $\pm 10\%$ ; ripple 5 %p-p max.

**ON voltage / current:**  $\geq 15$  V DC (input - COM) /  $\geq 3.5$  mA

**OFF voltage / current:**  $\leq 5$  V DC (input - COM) /  $\leq 1$  mA

**Input current:**  $\leq 5.5$  mA per point at 24 V DC

**Input resistance:** Approx. 4.4 k $\Omega$

**ON delay:**  $\leq 2.0$  msec.

**OFF delay:**  $\leq 2.0$  msec.

## INSTALLATION

**Current consumption**

•DC: Approx. 74 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

**Insulation resistance:**  $\geq 100$  M $\Omega$  with 500 V DC

**Dielectric strength:** 1500 V AC @ 1 minute (input to Ethernet to power to FG)

## STANDARDS & APPROVALS

**EU conformity:**

EMC Directive

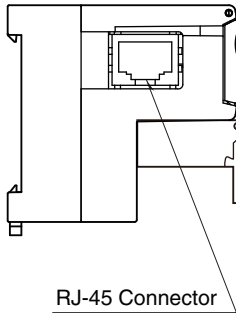
EMI EN 61000-6-4

EMS EN 61000-6-2

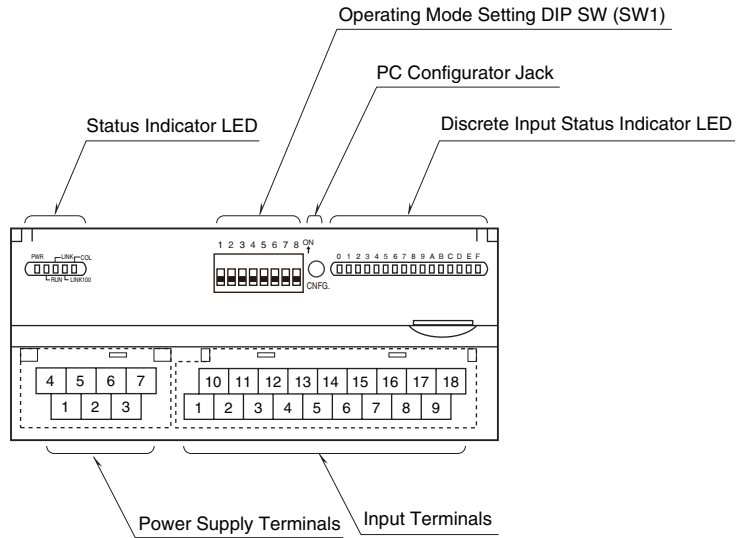
RoHS Directive

## EXTERNAL VIEW

### ■ SIDE VIEW



### ■ FRONT VIEW



## TERMINAL ASSIGNMENTS

### ■ INPUT TERMINAL ASSIGNMENT

10	11	12	13	14	15	16	17	18
NC	X1	X3	X5	X7	X9	XB	XD	XF
1	2	3	4	5	6	7	8	9
COM	X0	X2	X4	X6	X8	XA	XC	XE

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	COM	Common	10	NC	No Connection
2	X0	Input 0	11	X1	Input 1
3	X2	Input 2	12	X3	Input 3
4	X4	Input 4	13	X5	Input 5
5	X6	Input 6	14	X7	Input 7
6	X8	Input 8	15	X9	Input 9
7	XA	Input 10	16	XB	Input 11
8	XC	Input 12	17	XD	Input 13
9	XE	Input 14	18	XF	Input 15

### ■ POWER SUPPLY TERMINAL ASSIGNMENT

4	5	6	7
NC	NC	+24V	0V
1	2	3	
NC	NC	FG	

NO.	ID	FUNCTION, NOTES
1	NC	----
2	NC	----
3	FG	FG
4	NC	----
5	NC	----
6	+24V	Power input (24V DC)
7	0V	Power input (0V)

**MODBUS FUNCTION CODES & SUPPORTED CODES****■ Data and Control Functions**

CODE	NAME	
01	Read Coil Status	Digital output from the slave
02	Read Input Status	Status of digital inputs to the slave
03	Read Holding Registers	General purpose register within the slave
04	Read Input Registers	Collected data from the field by the slave
05	Force Single Coil	Digital output from the slave
06	Preset Single Register	General purpose register within the slave
08	Diagnostics	
11	Fetch Comm. Event Counter	Fetch a status word and an event counter
12	Fetch Comm. Event Log	A status word, an event counter, a message count and a field of event bytes
15	Force Multiple Coils	Digital output from the slave
16	Preset Multiple Registers	General purpose register within the slave
17	Report Slave ID	Slave type/ 'RUN' status

**■ Exception Codes**

CODE	NAME	
01	Illegal Function	Function code is not allowable for the slave
02	Illegal Data Address	Address is not available within the slave
03	Illegal Data Value	Data is not valid for the function

**■ Diagnostic Subfunctions**

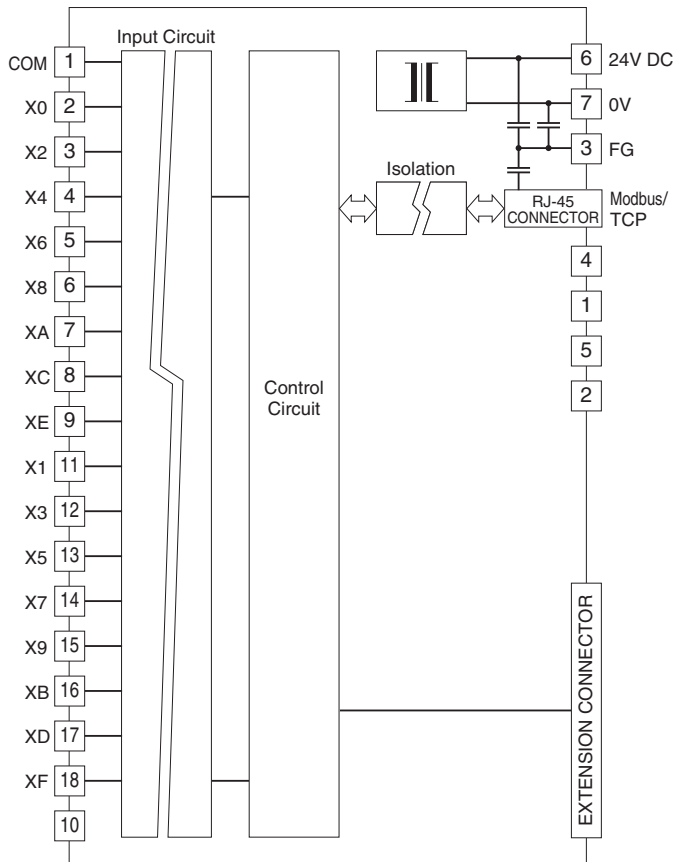
CODE	NAME	
00	Return Query Data	Loop back test



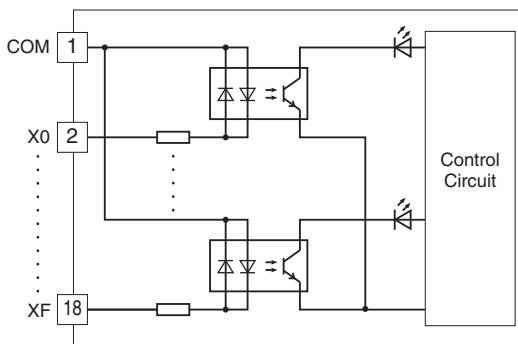
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

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

Caution: FG terminal is NOT a protective conductor terminal.

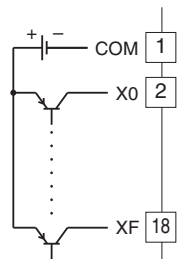


### Input Circuit

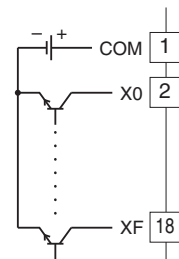


### Input Connection Examples

PNP Connection



NPN Connection





Specifications are subject to change without notice.