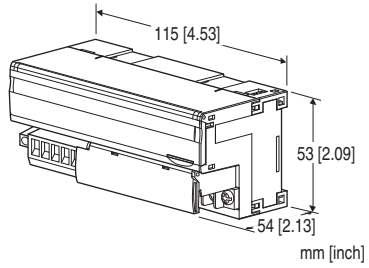
Remote I/O R7 Series

DeviceNet® I/O MODULE

(discrete input, 16 points)

Functions & Features

- 16 points discrete input module for DeviceNet
- Extension module can be connected



MODEL:R7D–DA16[1]

ORDERING INFORMATION

- Code number: R7D-DA16[1]

Specify a code from below for [1].
(e.g. R7D-DA16/Q)

- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

DA16: Discrete input, 16 points

[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-F)

RELATED PRODUCTS

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

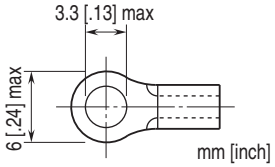
The EDS files and configurator software are downloadable at our web site.
(Extension modules are registered in the EDS file as a combination of a basic module)

- 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 mm^2, 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 mm^2 (AWG 22 to 16)
Screw terminal: Nickel-plated steel
Housing material: Flame-resistant resin (gray)
Isolation: Input to DeviceNet
Extension: No extension (*), Discrete input 8 or 16 points, Discrete output 8 or 16 points
Selectable with the front DIP SW
(*) Factory default setting
Discrete input status indicator LED: LED turns on with input ON
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 suported)

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 ±10 %; ripple 5 %p-p max.
ON voltage / current: ≥ 15 V DC (input – COM1) / ≥ 3.5 mA

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OFF voltage / current: ≤ 5 V DC (input – COM1) / ≤ 1 mA
Input current: ≤ 5.5 mA per point at 24 V DC
Input resistance: Approx. 4.4 kΩ
ON delay: ≤ 2.0 msec.
OFF delay: ≤ 2.0 msec.

INSTALLATION

Supply voltage to network: 11 – 25 V DC supplied through the network terminal block
Current Consumption:
Approx. 40 mA @ 24 V DC
Approx. 75 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

Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (input to DeviceNet)

STANDARDS & APPROVALS

EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
RoHS Directive

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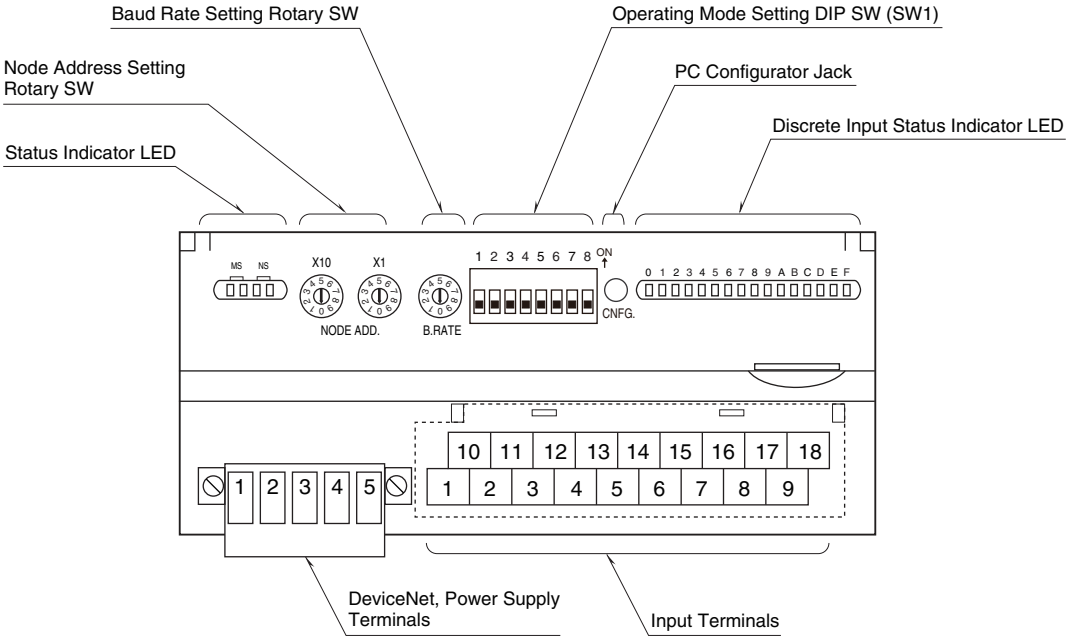
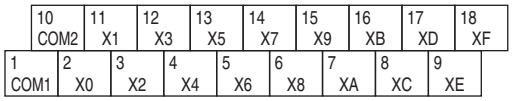
EXTERNAL VIEW



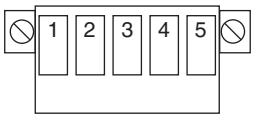
TERMINAL ASSIGNMENTS

■ INPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	COM1	Common 1	10	COM2	Common 2
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

■ 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 –

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DATA ALLOCATION

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

• Example 1. R7D-DA16, without Status

	Output Data	Input Data
Begin +0	R7D-DA16	None

• Example 2. R7D-DA16, with Status

	Output Data	Input Data
Begin +0	R7D-DA16	None
+1	Status	

• Example 3. R7D-DA16 + R7D-EA16, with Status

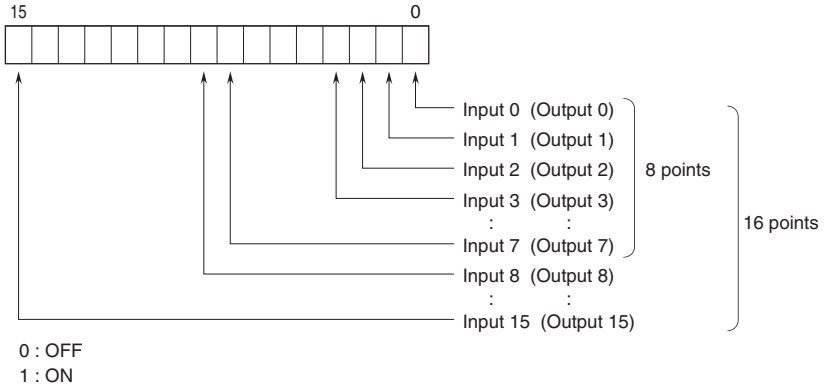
	Output Data	Input Data
Begin +0	R7D-DA16	None
+1	R7D-EA16	
+2	Status	

• Example 4. R7D-DA16 + R7D-EC16x, with Status

	Output Data		Input Data	
Begin +0	R7D-DA16	Begin +0	R7D-EC16x	
+1	Status			

I/O DATA DESCRIPTIONS

■ DISCRETE I/O



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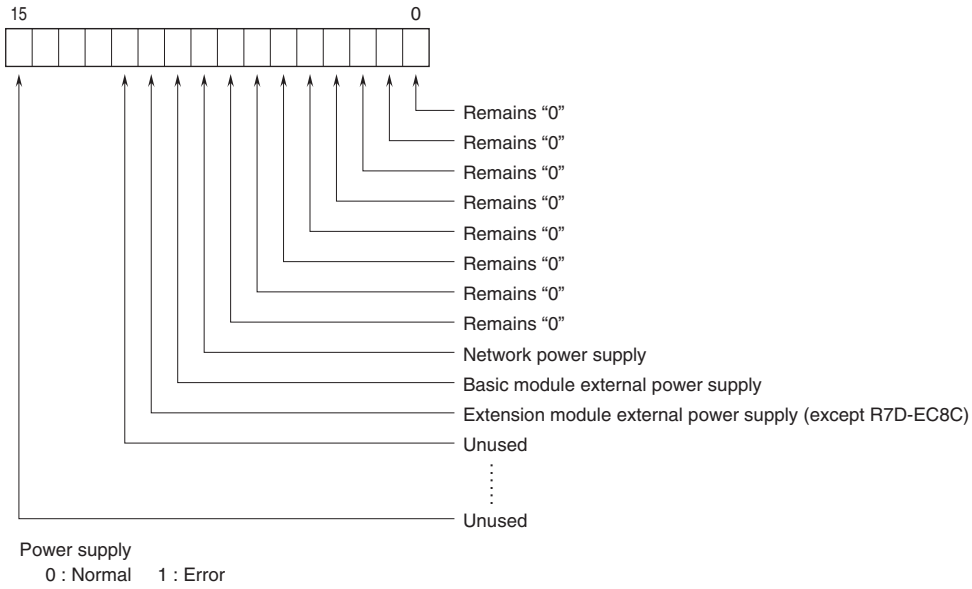
■ **STATUS**

Bit 0 to 7: Discrete input module shows '0' at the same address.
Bit 8 to 10: Shows the power supply status.



TRANSMISSION DATA DESCRIPTIONS

■ **BASIC MODULE**

Transmitted data (word) depends upon the modules types.

MODEL	OUTPUT DATA*1 (R7D to Master)	INPUT DATA*2 (Master to R7D)
R7D-DA16	1	0

■ **EXTENSION MODULE**

Transmitted data (word) for the extension module is added.

MODEL	OUTPUT DATA*1 (R7D to Master)	INPUT DATA*2 (Master to R7D)
R7D-EAx	1	0
R7D-ECx	0	1

■ **STATUS**

Status signal can be included in the transmission data when the setting is enabled using the PC Configurator software (model: R7CON). For details, refer to "STATUS in I/O DATA DESCRIPTIONS".

STATUS	OUTPUT DATA*1 (R7D to Master)	INPUT DATA*2 (Master to R7D)
Enabled	1	0
Disabled	0	0

*1. Output Data means those sent to the master.
*2. Input Data means those received from the master.

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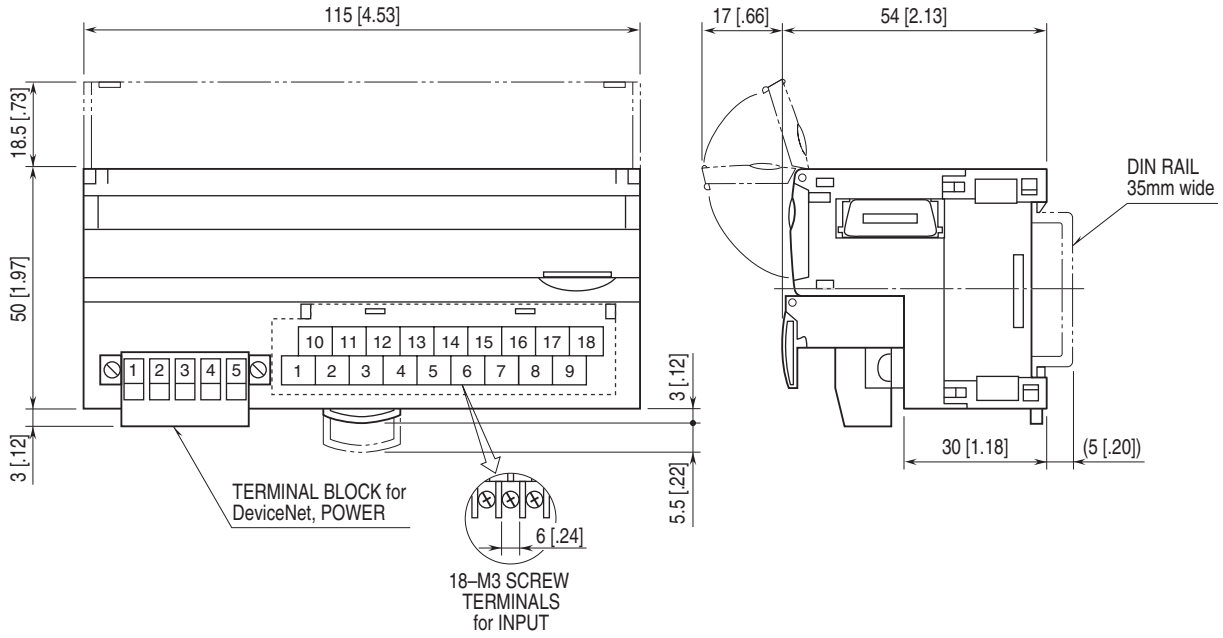
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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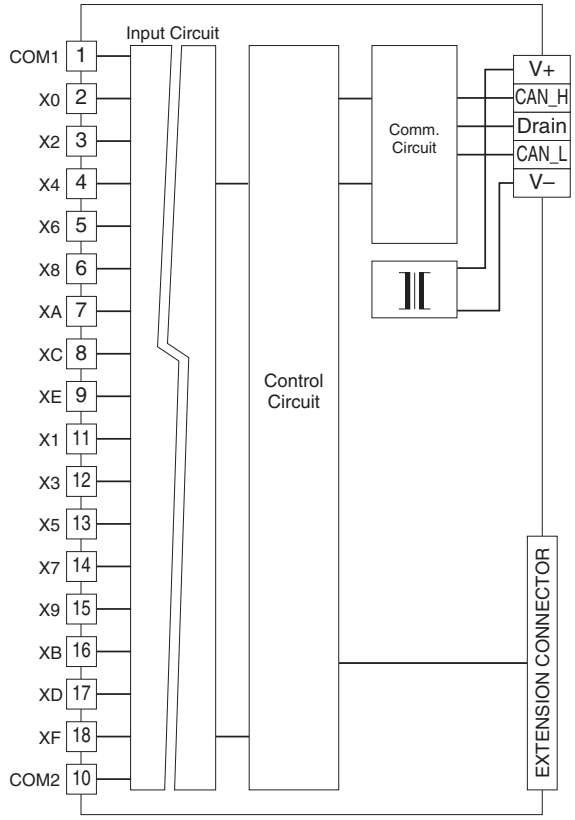
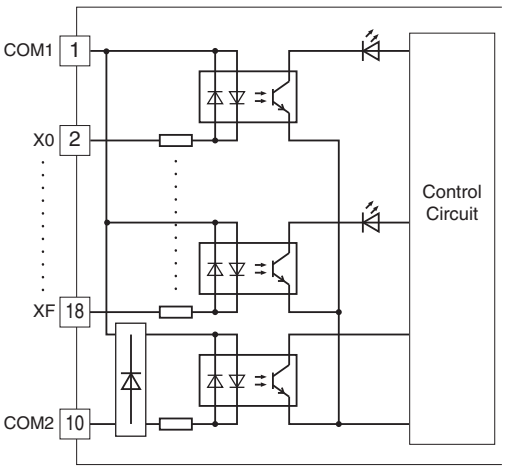
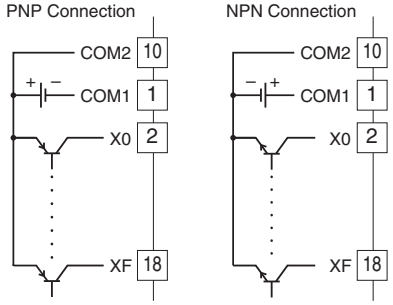
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



■ **Input Circuit**



■ **Input Connection Examples**



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⚠ Specifications are subject to change without notice.

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