

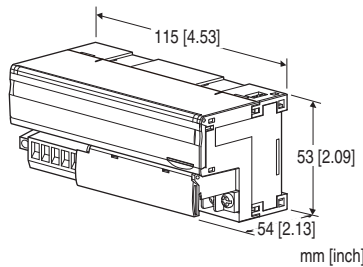
Remote I/O R7 Series

DeviceNet® I/O MODULE

(totalized pulse input, 8 points)

Functions & Features

- 8 points totalized pulse input module for DeviceNet
- Extension module can be connected



MODEL:R7D-PA8[1]

ORDERING INFORMATION

- Code number: R7D-PA8[1]
- Specify a code from below for [1].
(e.g. R7D-PA8/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

PA8: Totalized pulse input, 8 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-A)

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 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 to DeviceNet

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

Discrete output 8 or 16 points

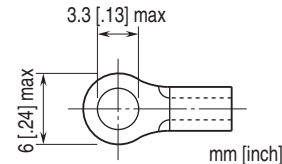
Selectable with the front DIP SW

(* Factory default setting)

Totalized pulse input status indicator LED: LED turns ON with contact 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 supported)

INPUT SPECIFICATIONS

Common: Positive or negative common (NPN/PNP) per 8 points

- **Open collector input (NPN, PNP)**

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

ON voltage / current: ≥ 16 V DC (V+ - P1x) / ≥ 3.7 mA

OFF voltage / current: ≤ 5 V DC (V+ - Plx) / ≤ 1 mA

• **Voltage pulse input**

ON voltage / current: ≥ 16 V DC (Plx - Cx) / ≥ 3.7 mA

OFF voltage / current: ≤ 5 V DC (Plx - Cx) / ≤ 1 mA

Input current: ≤ 5.5 mA per point at 24 V DC

Input resistance: Approx. 4.4 k Ω

ON delay: ≤ 2.0 msec.

OFF delay: ≤ 2.0 msec.

Max. Frequency: 100 Hz (This unit is designed to be able to accept a frequency up to 100 Hz, however, 'chattering' contact must be avoided for accurate measuring of such high frequency. Use relays that do not cause any chattering)

Minimum ON/OFF pulse requirements: 5 msec.

Totalized pulse count: 0 - 4 294 967 295

Max. totalized pulse count: 1 000 - 4 294 967 295

(Factory default: 9 999 999)

Overflow reset value: 0 or 1 (Factory default: 0)

INSTALLATION

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

Current Consumption:

Approx. 40 mA @ 24 V DC

Approx. 70 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 M Ω with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (input to DeviceNet)

STANDARDS & APPROVALS

EU conformity:

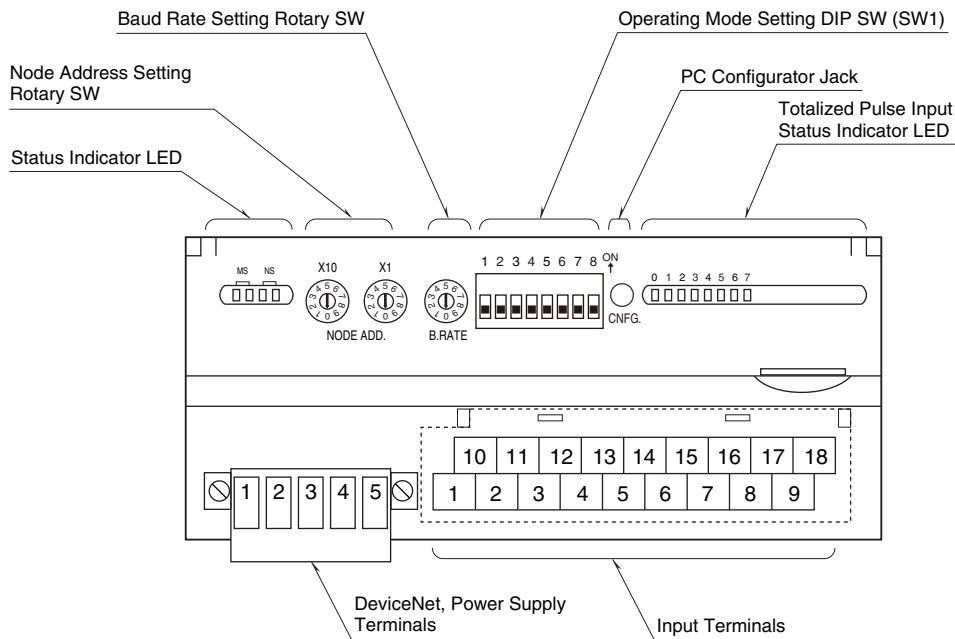
EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

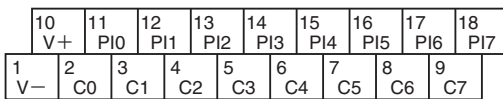
RoHS Directive

EXTERNAL VIEW



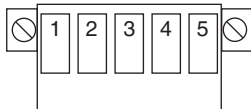
TERMINAL ASSIGNMENTS

INPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	V-	Excitation (-)	10	V+	Excitation (+)
2	C0	Common	11	PI0	Input 0
3	C1	Common	12	PI1	Input 1
4	C2	Common	13	PI2	Input 2
5	C3	Common	14	PI3	Input 3
6	C4	Common	15	PI4	Input 4
7	C5	Common	16	PI5	Input 5
8	C6	Common	17	PI6	Input 6
9	C7	Common	18	PI7	Input 7

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

■ COUNT VALUE

The count value is 32-bit data. It is divided in 2 words of 16 bits represented with 2 addresses. The lower address is allocated in the lower word (LSB) and the upper address in the upper word (MSB). The count value is 0 - 4 294 967 295. The maximum count value available is 1 000 - 4 294 967 295. In case of overflow, the value is reset to 0 or 1 (configurable) from which the count will restart. The preset of the count value is also available. Use the R7CON or commands for the configuration.

DATA ALLOCATION

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

The table below shows data allocation of R7D-PA8. Parameter preset and other settings are available with command setting of R7D-PA8. Set the commands according to the procedure explained next.

Parameter of each channel is two-word integer not signed. Make sure that data is written or read in a two-word unit. When overflowing, the value to which response can be set is "0" or "1". The maximum range available is 1 000 to 4 294 967 295. (Factory setting: 9 999 999)

Parameters may be preset to a value between the overflow response value and the maximum value.

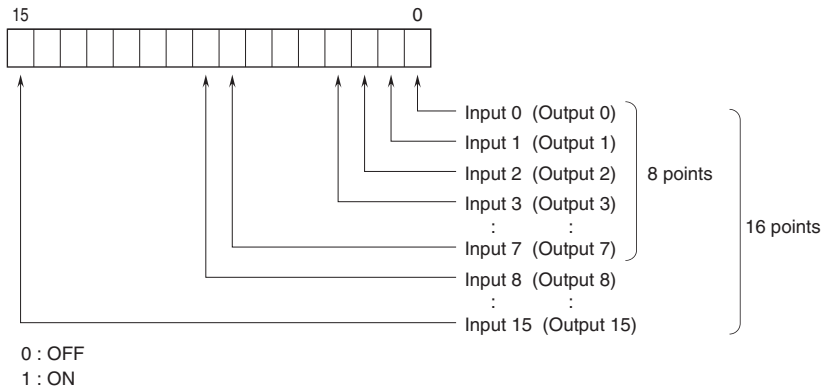
OUTPUT DATA *1			INPUT DATA *2		
	15	0		15	0
Begin +0	Data to read (upper)	CH0	Begin +0	Data to write (upper)	CH0
+1	Data to read (lower)	CH0	+1	Data to write (lower)	CH0
+2	Data to read (upper)	CH1	+2	Data to write (upper)	CH1
+3	Data to read (lower)	CH1	+3	Data to write (lower)	CH1
+4	Data to read (upper)	CH2	+4	Data to write (upper)	CH2
+5	Data to read (lower)	CH2	+5	Data to write (lower)	CH2
+6	Data to read (upper)	CH3	+6	Data to write (upper)	CH3
+7	Data to read (lower)	CH3	+7	Data to write (lower)	CH3
+8	Data to read (upper)	CH4	+8	Data to write (upper)	CH4
+9	Data to read (lower)	CH4	+9	Data to write (lower)	CH4
+10	Data to read (upper)	CH5	+10	Data to write (upper)	CH5
+11	Data to read (lower)	CH5	+11	Data to write (lower)	CH5
+12	Data to read (upper)	CH6	+12	Data to write (upper)	CH6
+13	Data to read (lower)	CH6	+13	Data to write (lower)	CH6
+14	Data to read (upper)	CH7	+14	Data to write (upper)	CH7
+15	Data to read (lower)	CH7	+15	Data to write (lower)	CH7
+16	Command setting		+16	Command setting	
	• Command address			• Command address	
	CH0: Bit 0, 1			CH0: Bit 0, 1	
	CH1: Bit 2, 3			CH1: Bit 2, 3	
	CH2: Bit 4, 5			CH2: Bit 4, 5	
	CH3: Bit 6, 7			CH3: Bit 6, 7	
	CH4: Bit 8, 9			CH4: Bit 8, 9	
	CH5: Bit 10, 11			CH5: Bit 10, 11	
	CH6: Bit 12, 13			CH6: Bit 12, 13	
	CH7: Bit 14, 15			CH7: Bit 14, 15	
	• Command			• Command	
	00: Read data			00: Read data	
	01: Preset			01: Preset	
	10: Overflow response value			10: Overflow response value	
	11: Maximum value			11: Maximum value	
+17	Extension discrete input data		+17	Extension discrete output data	
+18	Status		+18	-	

Note 1: Output Data means those sent to the master.

Note 2: Input Data means those received from the master.

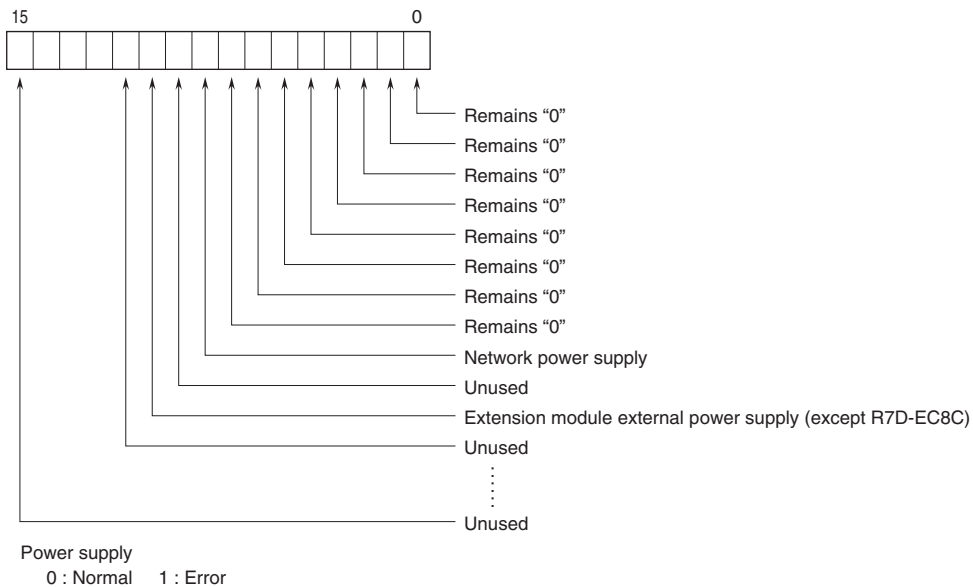
I/O DATA DESCRIPTIONS

■ DISCRETE I/O



■ STATUS

Bit 0 to 7: Totalized pulse 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-PA8	17	17

■ 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

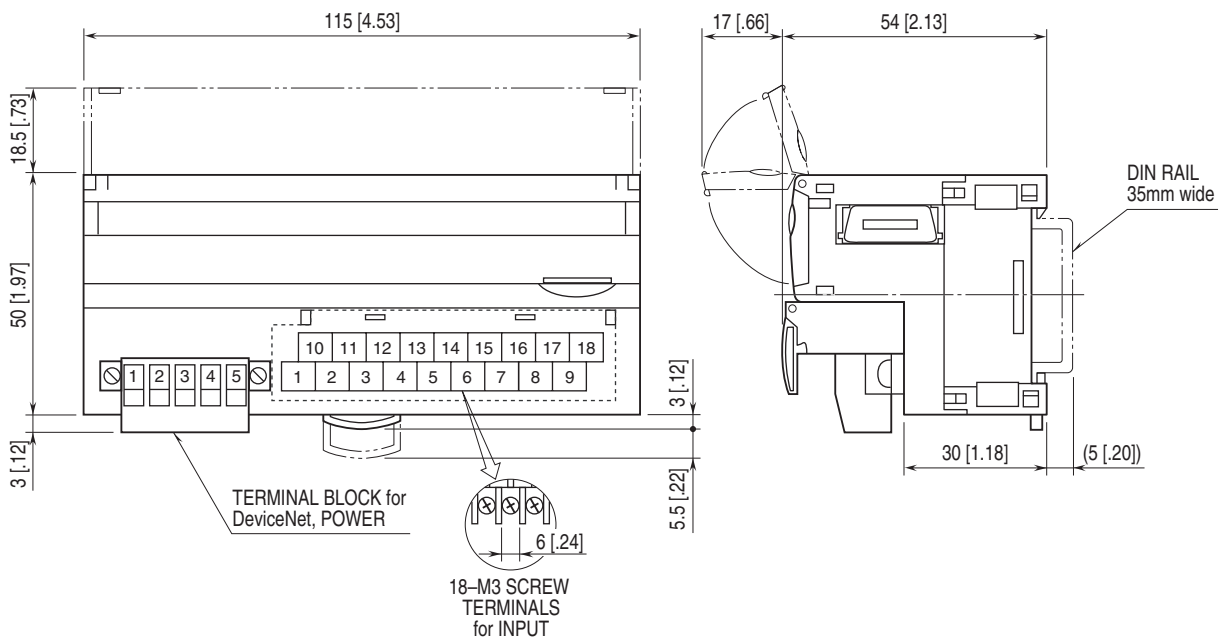
Status signal can be included in the transmission data when the setting is enabled using the PC Configurator software (model: R7CON). For details, refer to "STATUS in I/O DATA DESCRIPTIONS".

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

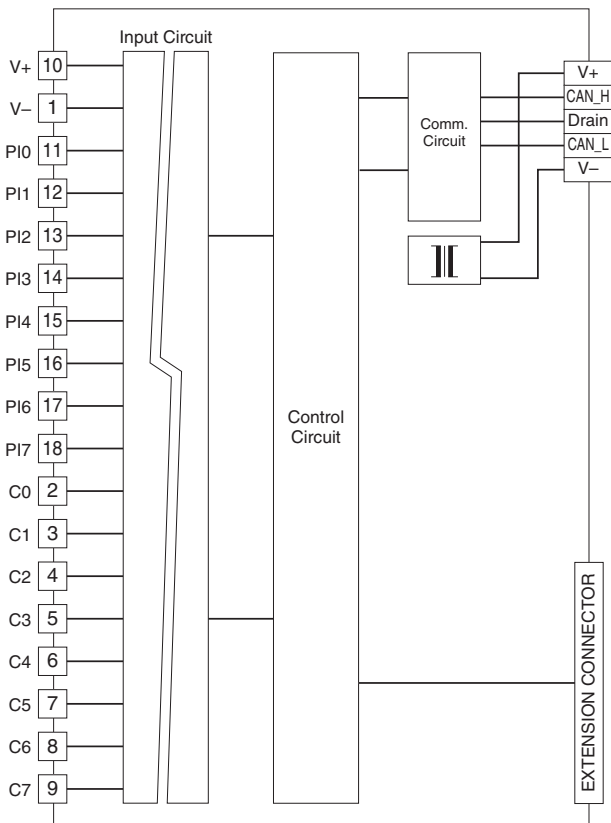
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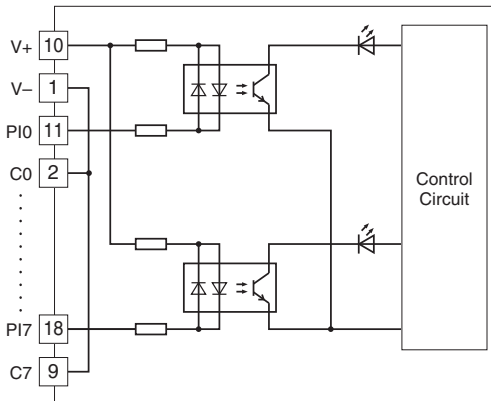
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



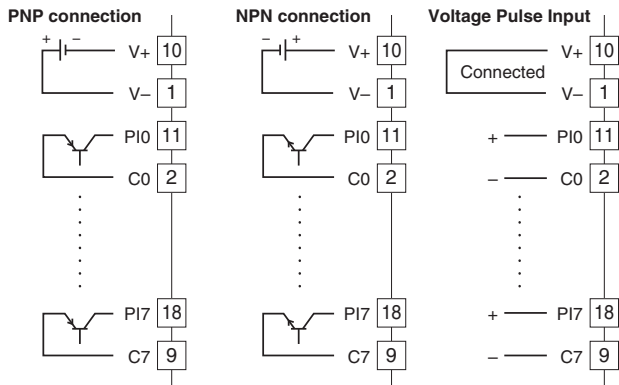
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



■ Input Circuit



■ Input Connection Examples





Specifications are subject to change without notice.