

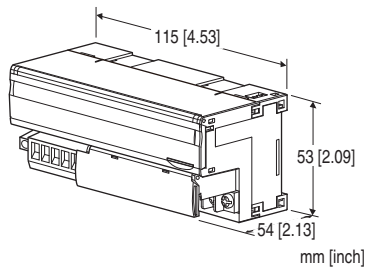
Remote I/O R7 Series

DeviceNet® I/O MODULE

(DC voltage output, 2 points, isolated)

Functions & Features

- 2 points DC voltage output module for DeviceNet
- Extension module can be connected
- Output 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-YV2[1]

ORDERING INFORMATION

- Code number: R7D-YV2[1]
- Specify a code from below for [1].
(e.g. R7D-YV2/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

YV2: DC voltage output, 2 points

[1] OPTIONS

Standards & Approvals

blank: CE marking

/UL: UL approval, CE marking

Other Options

blank: none

/Q: Option other than the above (specify the specification)
(UL not available)

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-D)

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)

Output: 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: Output 0 to output 1 to DeviceNet

Zero adjustments: Configurable via R7CON

Span adjustments: Configurable via R7CON

Output range: Selectable with the front DIP SW 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)

Output at the loss of communication:

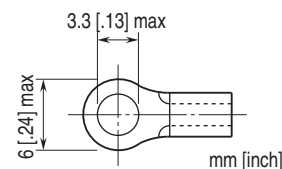
Hold the output (*), Reset the output

Selectable with the front DIP SW

(* Factory default setting)

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)

OUTPUT SPECIFICATIONS

■ **Narrow Span voltage**
Output range: -1 - +1 V DC, 0 - 1 V DC, -0.5 - +0.5 V DC
Load resistance: $\geq 100 \text{ k}\Omega$

■ **Wide Span voltage**
Output range: -10 - +10 V DC (*), -5 - +5 V DC, 0 - 10 V DC, 0 - 5 V DC, 1 - 5 V DC
 (*) factory default setting
Load resistance: $\geq 100 \text{ k}\Omega$

■ **Operational range**
Except -10 to +10 V DC: -15 to +115 % of output range
-10 to +10 V DC: Approx. -11.5 to +11.5 V DC

INSTALLATION

Supply voltage to network: 11 - 25 V DC supplied through the network terminal block
Current Consumption:
 Approx. 70 mA @ 24 V DC
 Approx. 130 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: 150 g (0.33 lb)

PERFORMANCE

Conversion accuracy: $\pm 0.1 \%$
Data range: 0 - 10000 of the output range
 (Scaling of converted data is configurable with the configurator software (model: R7CON))
Temp. coefficient: $\pm 0.015 \%/^{\circ}\text{C}$ ($\pm 0.008 \%/^{\circ}\text{F}$)
Response time: 250 msec. (0 - 90 %)
Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (output 0 to output 1 to DeviceNet)

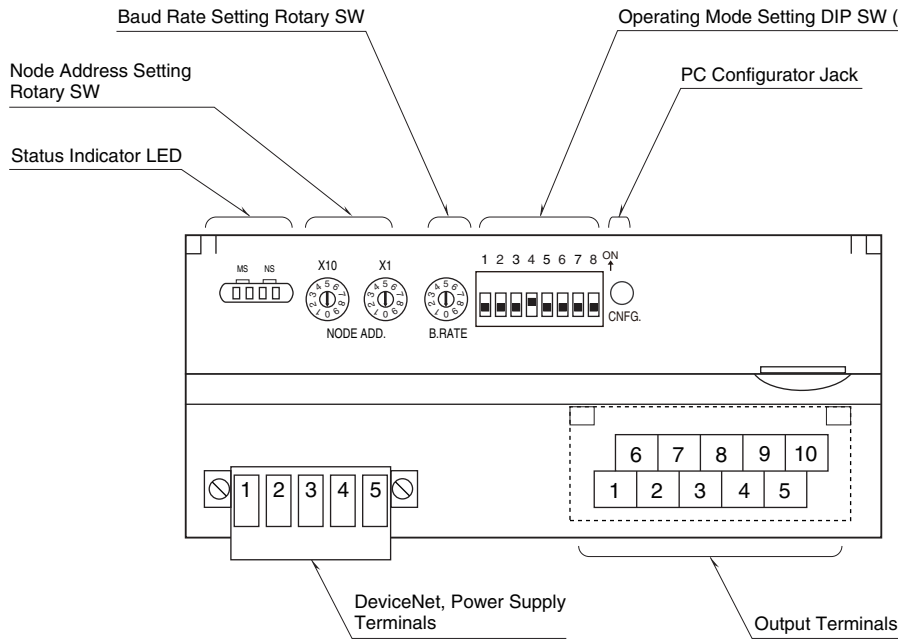
STANDARDS & APPROVALS

EU conformity:
 EMC Directive
 EMI EN 61000-6-4
 EMS EN 61000-6-2
 RoHS Directive
Approval:
 UL/C-UL nonincendive Class I, Division 2, Groups A, B, C, and D
 (ANSI/UL 121201, CAN/CSA-C22.2 No.213-17)
 UL/C-UL general safety requirements
 (UL 61010-1, CAN/CSA-C22.2 No.61010-1)
 Note: This equipment is to be supplied by a Class 2 power supply when using as conformity with UL/C-UL.

FUNCTIONS

Output hold function:
 Output at the loss of communication is selectable from output clear (fix the output at -15 % or approx. -11.5 V) and output hold (last normally received data) with DIP switch. At the startup, it outputs -15 % or approx. -11.5 V until the communication is established and normal data is received.

EXTERNAL VIEW



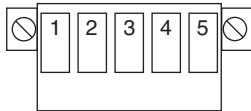
TERMINAL ASSIGNMENTS

■ OUTPUT TERMINAL ASSIGNMENT

6	7	8	9	10
NC	VH0	VL0	VH1	VL1
1	2	3	4	5
NC	COM0	COM0	COM1	COM1

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	6	NC	No connection
2	COM0	Common 0	7	VH0	Wide span volt. 0
3	COM0	Common 0	8	VL0	Narrow span volt. 0
4	COM1	Common 1	9	VH1	Wide span volt. 1
5	COM1	Common 1	10	VL1	Narrow span volt. 1

■ 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

■ OUTPUT RANGE AND DATA CONVERSION (FACTORY DEFAULT SETTING)

Digital output data is converted into analog representations of 0 – 100% proportional to each scaled range.

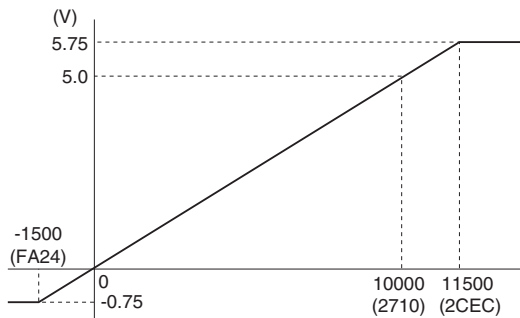
Overrange output is possible from -15 to +115% of the nominal range.

When the signal exceeds the limit, the data is fixed at -15% or +115%.

(approx. -11.5 V or +11.5 V when the output range is -10 - +10 V)

• Output Range 0 – 5V DC

Digital Value, Decimal	Digital Value, HEX	Output Value, Engineering Unit	Output Value, %
-1500	FA24	≤ -0.75V	-15%
0	0	0V	0%
10000	2710	5V	100%
11500	2CEC	≥ 5.75V	115%



DATA ALLOCATION

• Example 1. Analog Output Module, without Status

Output Data

None

Input Data

Begin +0	Analog Output Module	CH0
+1		CH1

• Example 2. Analog Output Module, with Status

Output Data

Begin +0	Status
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Input Data

Begin +0	Analog Output Module	CH0
+1		CH1

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

Output Data

Begin +0	R7D-EA16
+1	Status

Input Data

Begin +0	Analog Output Module	CH0
+1		CH1

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

Output Data

Begin +0	Status
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Input Data

Begin +0	Analog Output Module	CH0
+1		CH1
+2	R7D-EC16x	

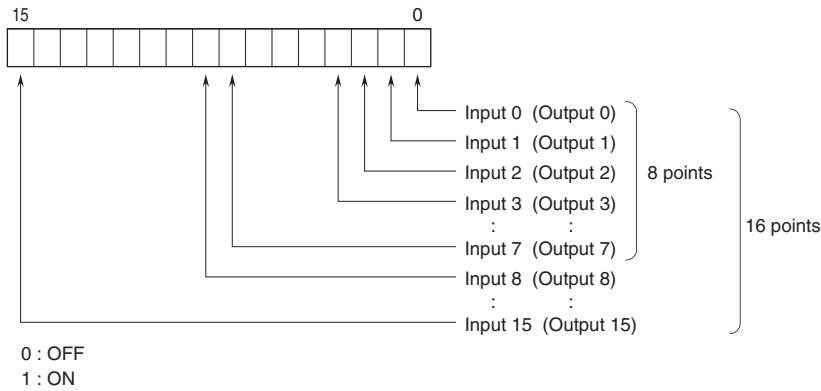
I/O DATA DESCRIPTIONS

■ ANALOG OUTPUT



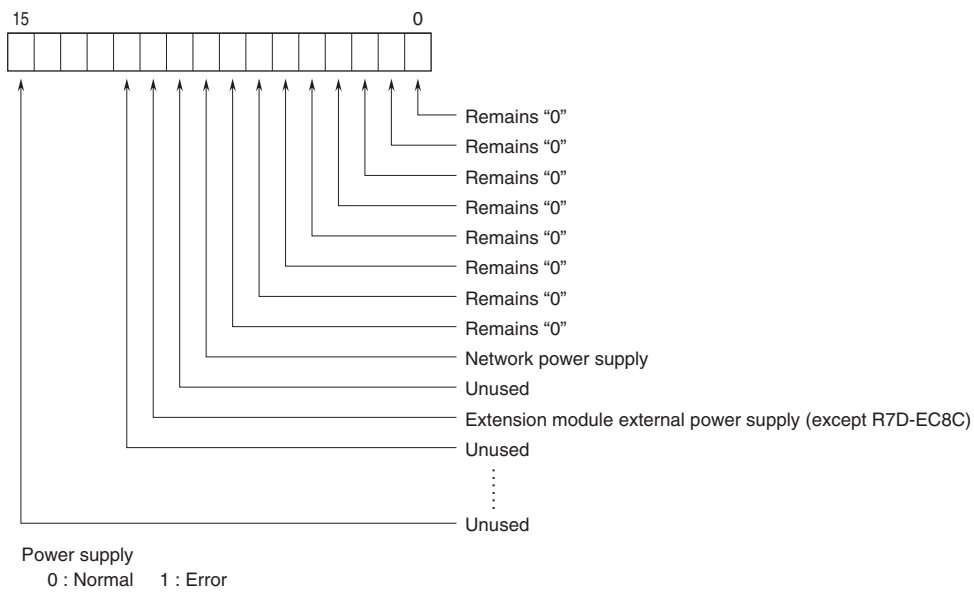
16-bit binary data
Negative values represented in 2's complements

■ DISCRETE I/O



■ STATUS

Bit 0 to 7: Analog output 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-YV2x	0	2

■ 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

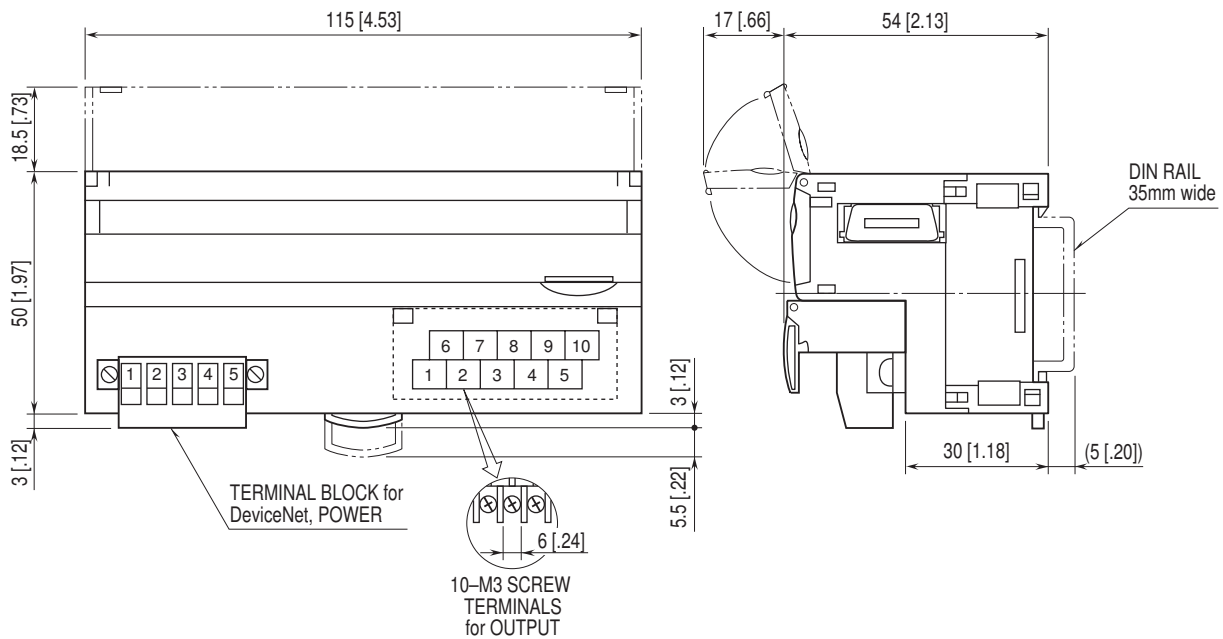
Status signal can be included in the transmission data when the setting is enabled using the PC Configurator software (model: R7CON). For details, refer to "STATUS in I/O DATA DESCRIPTIONS".

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

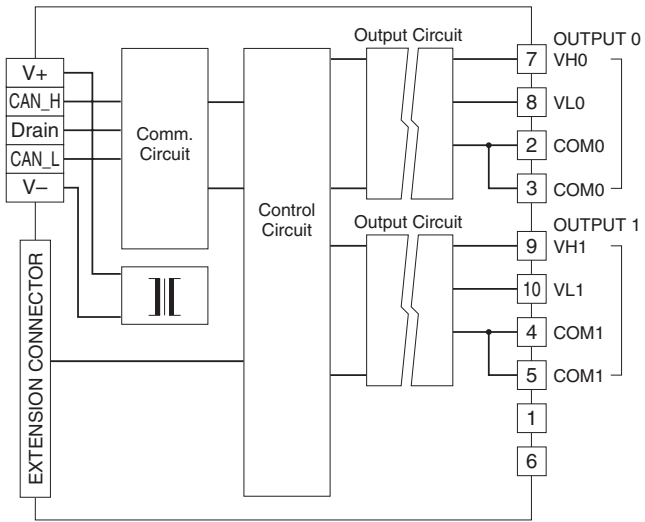
*1. Output Data means those sent to the master.

*2. Input Data means those received from the master.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



■ Output Connection Examples



Specifications are subject to change without notice.