

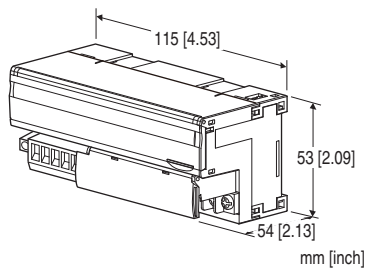
Remote I/O R7 Series

DeviceNet® I/O MODULE

(DC current output, 2 points, isolated, external power supply)

Functions & Features

- 2 points DC current output module for DeviceNet
- Extension module can be connected
- Individual channels, zero adjustment, span adjustment, and scaling can be set with the configurator software (model: R7CON)



MODEL:R7D-YS2A[1]

ORDERING INFORMATION

- Code number: R7D-YS2A[1]
Specify a code from below for [1].
(e.g. R7D-YS2A/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

I/O TYPE

YS2A: DC current output, external power supply, 2 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-E)

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 to external power supply

Zero adjustments: Configurable via R7CON

Span adjustments: 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:

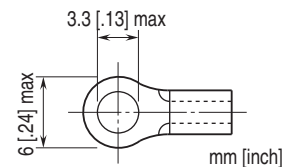
Hold the output (*), Reset the output

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

Output supply voltage/current: 24 V DC $\pm 10\%$ / approx. 70 mA

Output range: 4 to 20 mA DC

Load resistance: $\leq 600\ \Omega$

Operational range: -15 to +115 % of output range

INSTALLATION

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

Current Consumption:

Approx. 35 mA @ 24 V DC

Approx. 55 mA @ 11 V DC

Supply output current: Approx. 70 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: 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 to external power supply)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

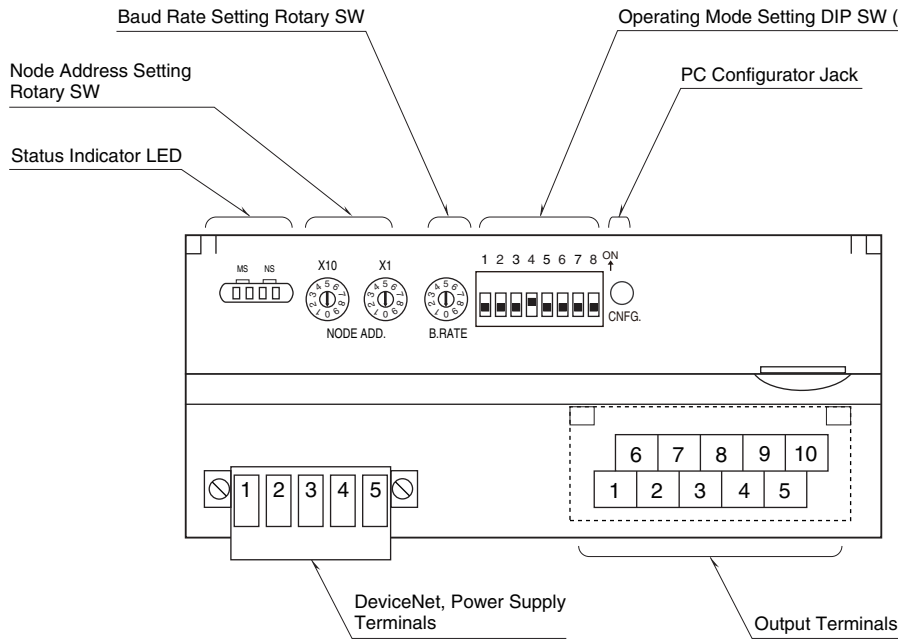
FUNCTIONS

Output hold function:

Output at the loss of communication is selectable from output clear (fix the output at -15 %) and output hold (last normally received data) with DIP switch.

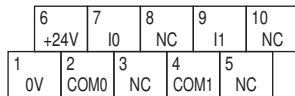
At the startup, it outputs -15 % until the communication is established and normal data is received.

EXTERNAL VIEW



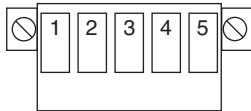
TERMINAL ASSIGNMENTS

■ OUTPUT TERMINAL ASSIGNMENT



| NO. | ID | FUNCTION | NO. | ID | FUNCTION |
|-----|------|---------------|-----|------|---------------|
| 1 | 0V | 0V | 6 | +24V | 24V DC |
| 2 | COM0 | Common 0 | 7 | I0 | Current 0 |
| 3 | NC | No connection | 8 | NC | No connection |
| 4 | COM1 | Common 1 | 9 | I1 | Current 0 |
| 5 | NC | No connection | 10 | NC | No connection |

■ 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)

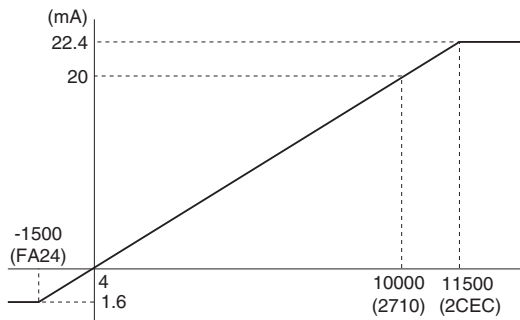
Digital output data is converted into analog representations of 0 – 100% proportional to each scaled range.

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%.

• Output Range 4 – 20 mA DC

| Digital Value, Decimal | Digital Value, HEX | Output Value, Engineering Unit | Output Value, % |
|------------------------|--------------------|--------------------------------|-----------------|
| -1500 | FA24 | ≤ 1.6 mA | -15% |
| 0 | 0 | 4 mA | 0% |
| 10000 | 2710 | 20 mA | 100% |
| 11500 | 2CEC | ≥ 22.4 mA | 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 |
|----------|--------|

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 |
|----------|--------|

Input Data

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

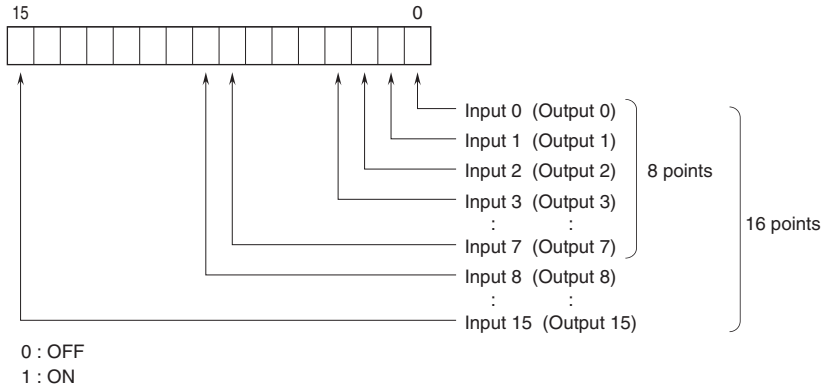
I/O DATA DESCRIPTIONS

■ ANALOG OUTPUT



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

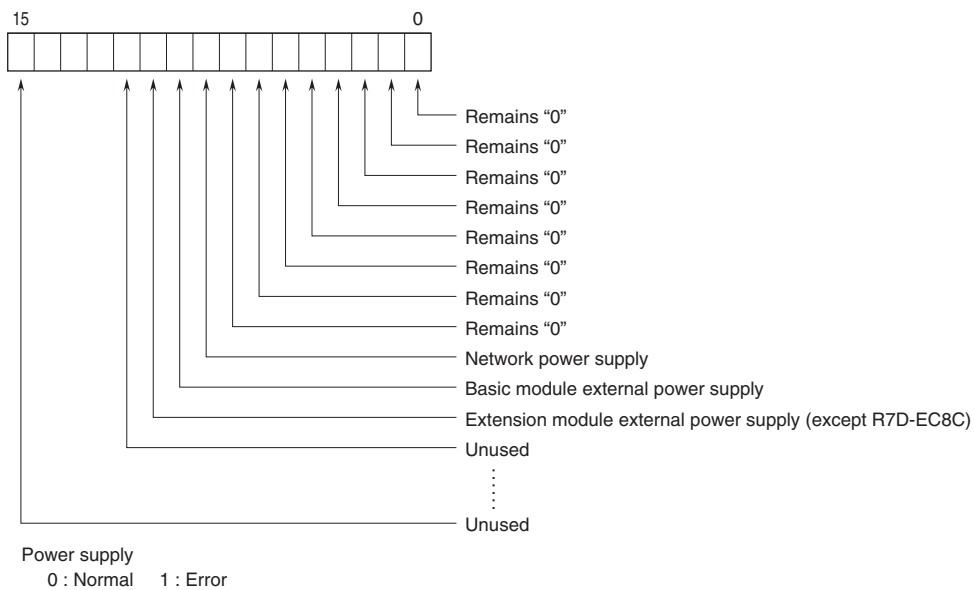
■ DISCRETE I/O



■ 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-YS2x | 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

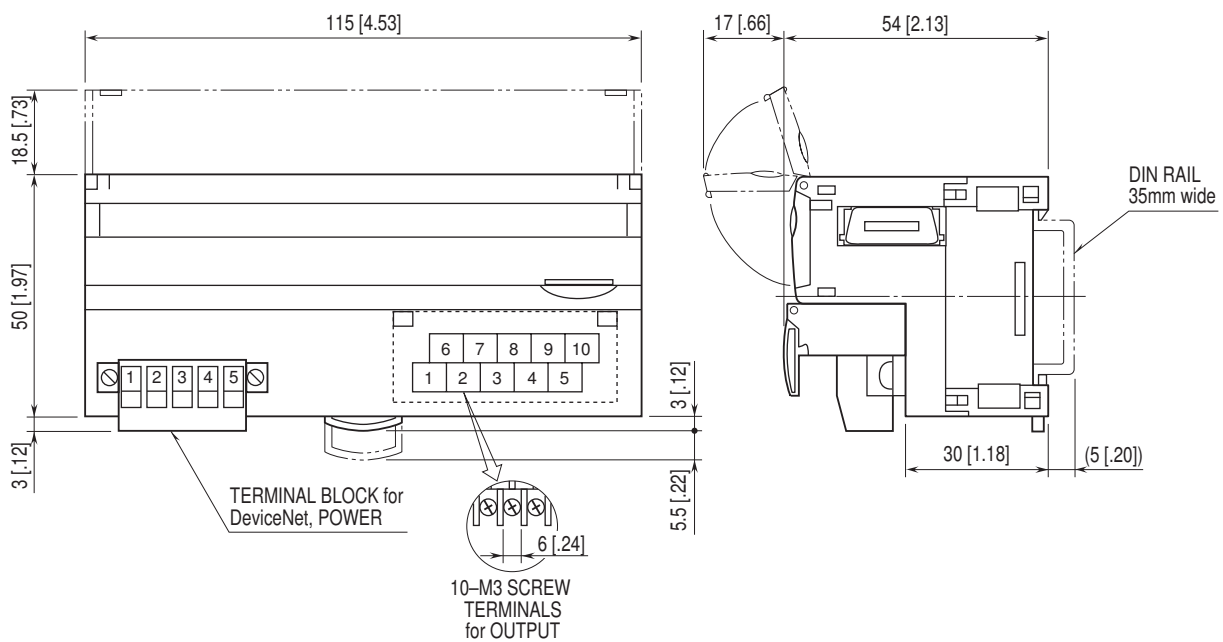
Status signal can be included in the transmission data when the setting is enabled using the PC Configurator software (model: R7CON). For details, refer to "STATUS in I/O DATA DESCRIPTIONS".

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

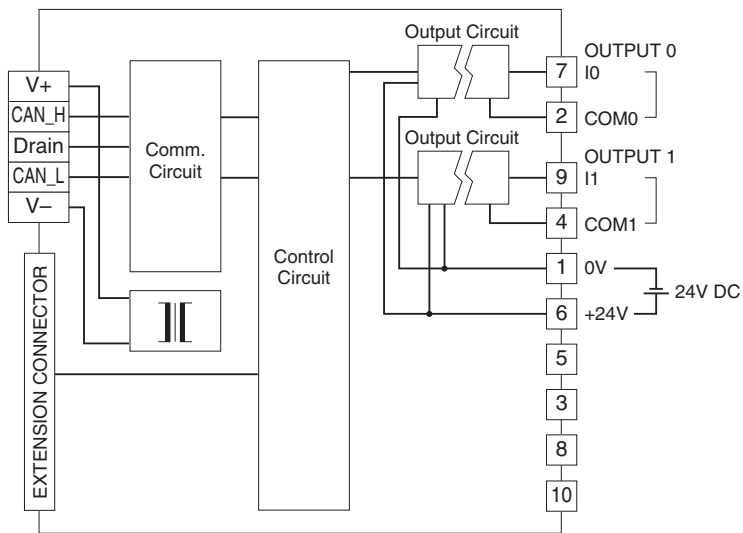
*1. Output Data means those sent to the master.

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

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.