

**BEFORE USE ....**

Thank you for choosing M-System. Before use, please check contents of the package you received as outlined below.

If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

**■ PACKAGE INCLUDES:**

Remote control relay control module .....(1)

**■ MODEL NO.**

Confirm Model No. marking on the product to be exactly what you ordered.

**■ INSTRUCTION MANUAL**

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

**■ EDS FILE**

EDS files are downloadable at M-System's web site: <http://www.m-system.co.jp>

**POINTS OF CAUTION****■ GENERAL PRECAUTIONS**

- Before you remove the unit or mount it, turn off the power supply and output signal for safety.
- DO NOT set the switches on the module while the power is supplied. The switches are used only for maintenance without the power.

**■ ENVIRONMENT**

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -10 to +55°C (14 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

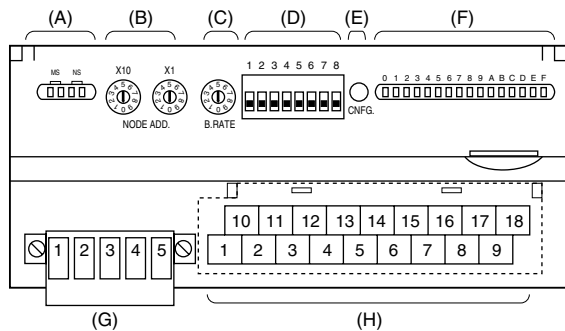
**■ WIRING**

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

**■ AND ....**

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

# COMPONENT IDENTIFICATION



- (A) Status Indicator LED
- (B) Node Address Setting Rotary SW
- (C) Baud Rate Setting Rotary SW
- (D) Operating Mode Setting DIP SW (SW1)
- (E) PC Configurator Jack
- (F) I/O Status Indicator LED
- (G) DeviceNet, Power Supply Terminals
- (H) Output Terminals

## STATUS INDICATOR LED

ID	STATE	TO INDICATE
MS	Green	Operating in a normal condition
	Blinking Green	Standby (needs commissioning)
	Red	Critical failure
	Blinking Red	Minor failure
	OFF	No power supplied
NS	Green	Link on-line and connections in the established state
	Blinking Green	Link on-line but no connections in the established state
	Red	Critical link failure
	Blinking Red	Minor link failure
	OFF	No power supplied

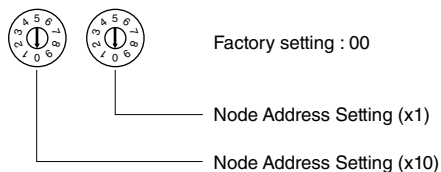
## I / O STATUS INDICATOR LED

Output and feedback input status are indicated with LED.

- ON : LED ON
- OFF : LED OFF

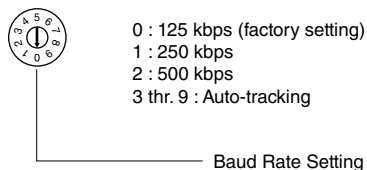
## NODE ADDRESS

Node Address is selected between 1 and 63 in decimal. The left switch determines the tenth place digit, while the right switch does the ones place digit of the address.



## BAUD RATE

Baud Rate is selected with the rotary switch.



The R7D communicates in the baud rate setting detected at the startup with the switch set to the positions 0 (125 kbps), 1 (250 kbps) or 2 (500 kbps).

For the settings 3 through 9, it analyzes the PLC's network to determine the baud rate on the network.

## OPERATING MODE

(\*) Factory setting

### Extension (SW1-1, 1-2)

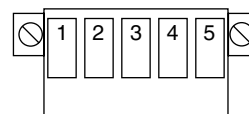
SW1-1	SW1-2	EXTENSION
OFF	OFF	No extension (*)
ON	OFF	Discrete input, 8 or 16 points
OFF	ON	Discrete output, 8 or 16 points

### Output Data Length: (SW1-3)

SW1-3	OUTPUT DATA LENGTH
OFF	16 bit (*)
ON	8 bit

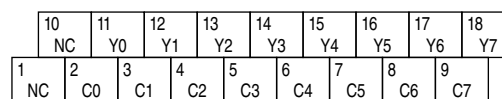
Note: Be sure to set unused SW1-4 through 1-8 to OFF.

## DeviceNet TERMINAL ASSIGNMENT



NO.	ID	FUNCTION, NOTES
1	V+	Network power supply +
2	CAN_H	Network data High
3	Drain	Shield
4	CAN_L	Network data Low
5	V-	Network power supply -

## OUTPUT TERMINAL ASSIGNMENT



NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	10	NC	No connection
2	C0	Common	11	Y0	Output 0
3	C1	Common	12	Y1	Output 1
4	C2	Common	13	Y2	Output 2
5	C3	Common	14	Y3	Output 3
6	C4	Common	15	Y4	Output 4
7	C5	Common	16	Y5	Output 5
8	C6	Common	17	Y6	Output 6
9	C7	Common	18	Y7	Output 7

## EXTENSION MODULE

Combinations with all extension modules are selectable.

## PC CONFIGURATOR

With configurator software, settings shown below are available.  
Refer to the software manual of R7CON for detailed operation.

### INTERFACE MODULE SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Communication Timeout	0.0 – 3276.7 (sec.)	1.0 (sec.)
Status Data	ON: Disable OFF: Enable	OFF: Enable
Serial ID	English one-byte characters within 8 characters	

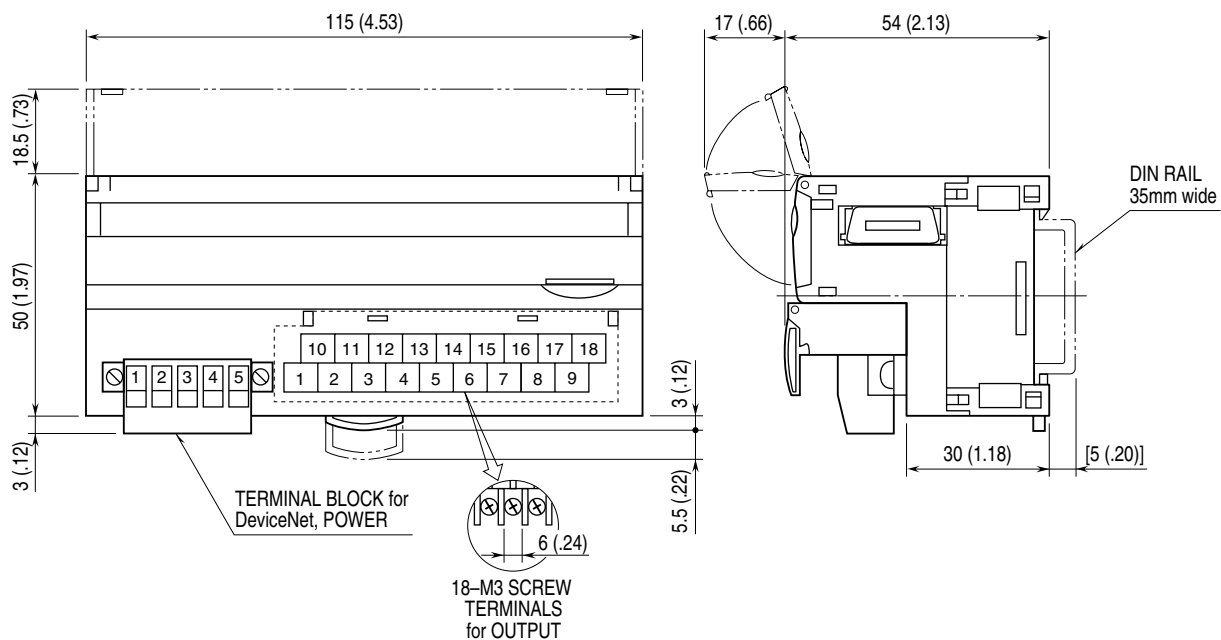
### EXTENSION MODULE SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Output Hold/Clear	Output Hold Output Clear	Output Hold

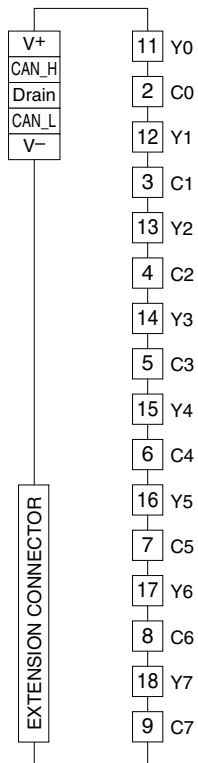
## TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

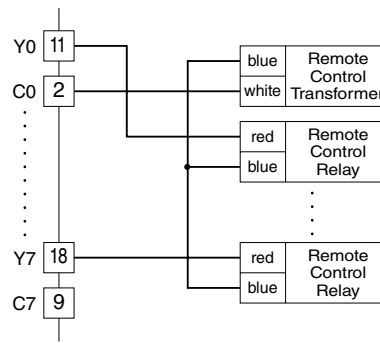
### EXTERNAL DIMENSIONS unit: mm (inch)



■ CONNECTION DIAGRAM



■ Output Connection Example



## INPUT OUTPUT DATA BIT & DATA ALLOCATION

Output data length can be set with the front DIP switch. Input data length is regardless of output data length, feedback inputs 1 to 8 are assigned to bit 0 to 7.

Input ON: 1, Input OFF: 0

### ■ OUTPUT DATA BIT: 16 BITS (SW1-3: OFF)

When output data bit is 16 bits, set each output with 2 bits. The table below shows data allocation.

BIT	SETTING	OPERATION
0, 1	0, 0	No operation
	1, 0	Output 1 ON
	0, 1	Output 1 OFF
	1, 1	Output 1 RESET
2, 3	0, 0	No operation
	1, 0	Output 2 ON
	0, 1	Output 2 OFF
	1, 1	Output 2 RESET
4, 5	0, 0	No operation
	1, 0	Output 3 ON
	0, 1	Output 3 OFF
	1, 1	Output 3 RESET
6, 7	0, 0	No operation
	1, 0	Output 4 ON
	0, 1	Output 4 OFF
	1, 1	Output 4 RESET
8, 9	0, 0	No operation
	1, 0	Output 5 ON
	0, 1	Output 5 OFF
	1, 1	Output 5 RESET
10, 11	0, 0	No operation
	1, 0	Output 6 ON
	0, 1	Output 6 OFF
	1, 1	Output 6 RESET
12, 13	0, 0	No operation
	1, 0	Output 7 ON
	0, 1	Output 7 OFF
	1, 1	Output 7 RESET
14, 15	0, 0	No operation
	1, 0	Output 8 ON
	0, 1	Output 8 OFF
	1, 1	Output 8 RESET

By setting with 2 bits, the module operates as shown above. ON or OFF can be set consecutively. To output ON twice successively, set ON (1, 0), RESET (1, 1), and then set ON (1, 0) again.

### ■ OUTPUT DATA BIT: 8 BITS (SW1-3: ON)

When output data bit is 8 bits, set each output with 1 bit. The table below shows data allocation.

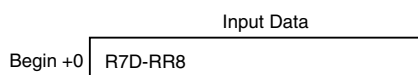
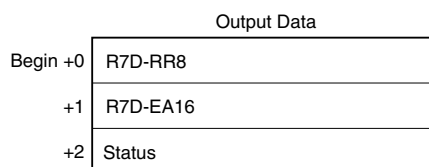
BIT	SETTING	OPERATION
0	0	Output 1 OFF
	1	Output 1 ON
1	0	Output 2 OFF
	1	Output 2 ON
2	0	Output 3 OFF
	1	Output 3 ON
3	0	Output 4 OFF
	1	Output 4 ON
4	0	Output 5 OFF
	1	Output 5 ON
5	0	Output 6 OFF
	1	Output 6 ON
6	0	Output 7 OFF
	1	Output 7 ON
7	0	Output 8 OFF
	1	Output 8 ON
8	—	Unused
9	—	Unused
10	—	Unused
11	—	Unused
12	—	Unused
13	—	Unused
14	—	Unused
15	—	Unused

ON (or OFF) cannot be set consecutively, because when each bit is “1”, ON is set and when each bit is “0”, OFF is set.

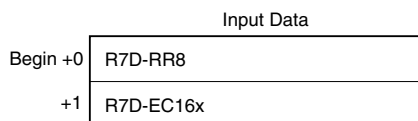
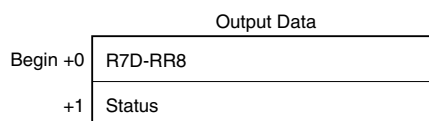
## DATA ALLOCATION

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

### • Example 1. R7D-RR8 + R7D-EA16, with Status



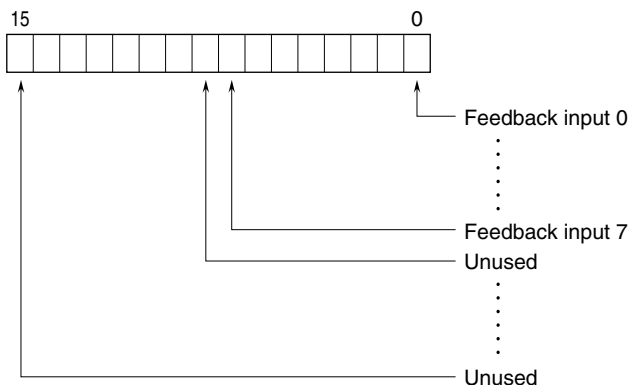
### • Example 2. R7D-RR8 + R7D-EC16x, with Status



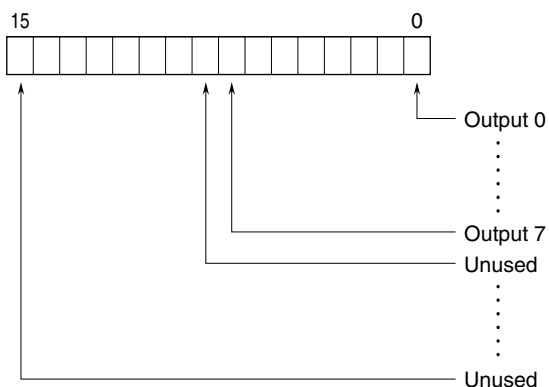
## I/O DATA DESCRIPTIONS

■ R7D-RR8

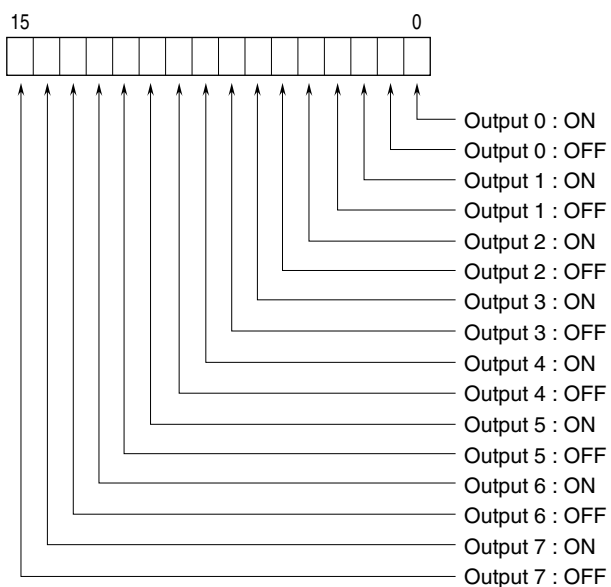
• Output Data



• Input Data (output data length: 8 bit)

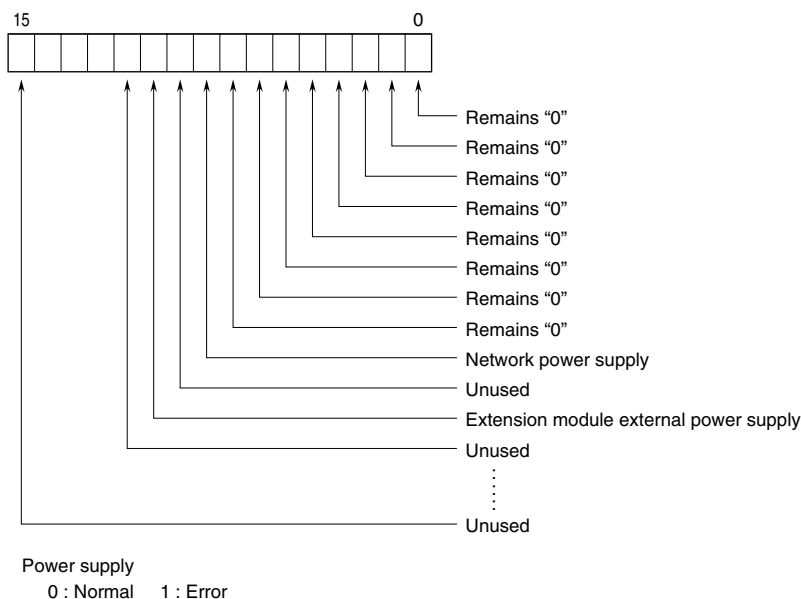


• Input Data (output data length: 16 bit)



**■ STATUS**

Bit 0 to 7: Remote control relay control 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-RR8	1	1

**■ 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.

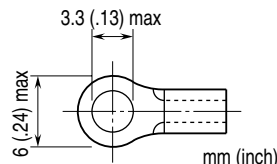
**WIRING INSTRUCTIONS**

**■ SCREW TERMINAL (Output)**

Torque: 0.5 N·m

**• SOLDERLESS TERMINAL**

Refer to the drawing below for recommended ring tongue terminal size. Spade tongue type is also applicable.  
 Applicable wire size: 0.25 to 1.65 mm<sup>2</sup> (AWG 22 to 16)  
 Recommended manufacturer: Japan Solderless Terminal MFG. Co., Ltd, Nichifu Co., Ltd



**■ EURO TYPE CONNECTOR TERMINAL (DeviceNet)**

Applicable wire size: 0.2 – 2.5 mm<sup>2</sup>  
 Stripped length: 7 mm