

Remote I/O R6 Series

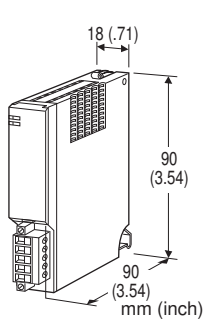
DeviceNet INTERFACE MODULE

Functions & Features

- Free combination of analog and discrete I/O
- Direct sensor inputs
- Space-saving
- Low power consumption

Typical Applications

- Remote I/O for DCS and PLC



MODEL: R6-ND1[1]

ORDERING INFORMATION

- Code number: R6-ND1[1]
- Specify a code from below for [1].
(e.g. R6-ND1/Q)
- Specify the specification for option code /Q
(e.g. /C01)

[1] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to M-System's web site.)

/C01: Silicone coating

/C02: Polyurethane coating

RELATED PRODUCTS

- EDS file
(downloadable at M-System's web site.)

GENERAL SPECIFICATIONS

Connection

DeviceNet: Euro type connector terminal
(applicable wire size: 0.2 to 2.5 mm², stripped length 7 mm)

Internal bus: Via the Installation Base (model: R6x-BS)

Internal power: Via the Installation Base (model: R6x-BS)

Max. number of I/O modules: 32 (analog 64 points)

Isolation: DeviceNet to internal bus or internal power

Data allocation: Mode 1 or 2 set with the side DIP switch

DeviceNet COMMUNICATION

Transmission cable: Approved for DeviceNet

I/O data area size: Input and output data area size set with side DIP SW

Node address setting: DIP switch; 00 - 63

Baud rate setting: DIP switch
125 kbps, 250 kbps, 500 kbps

NS (Network Status) indicator: Bi-color (green/red) LED indicates status of the communication link.

MS (Module Status) indicator: Bi-color (green/red) LED indicates device status.

INSTALLATION

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

Supply current to network: 50 mA max.

Operating temperature: -10 to +55°C (14 to 131°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Atmosphere: No corrosive gas or heavy dust

Mounting: Installation Base (model: R6x-BS)

Weight: 100 g (3.53 oz)

PERFORMANCE

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 2000 V AC @ 1 minute (DeviceNet to internal bus or internal power)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

EMI EN 61000-6-4

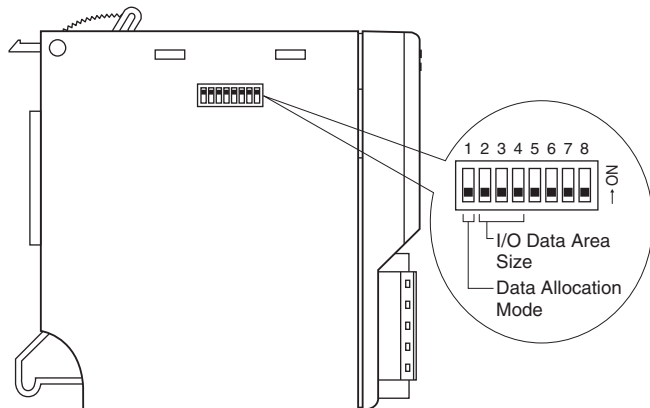
EMS EN 61000-6-2

RoHS Directive

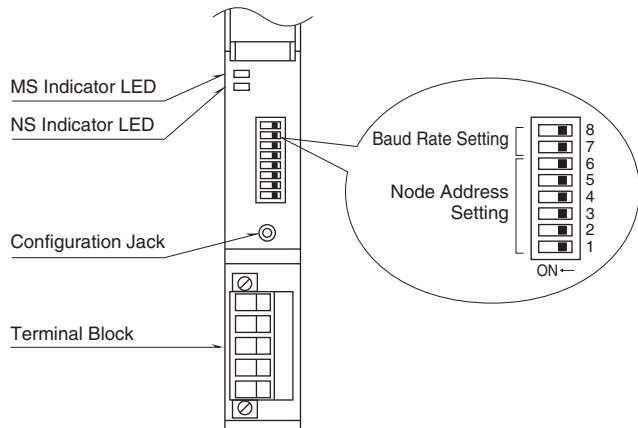
EN 50581

EXTERNAL VIEW

■ SIDE VIEW



■ FRONT VIEW



TRANSMISSION DATA DESCRIPTIONS

The DIP SW located at the side of the module switches the unit's data allocation mode.

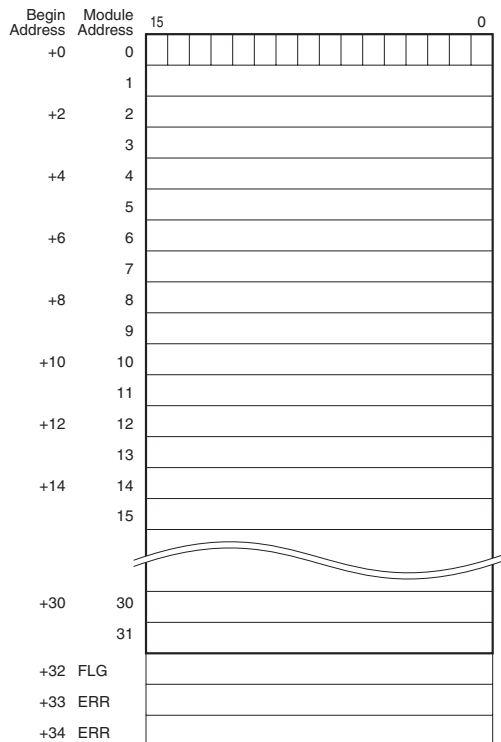
In the Data Allocation Mode 1, one (1) word is assigned per module. The second channel of analog I/O modules cannot be used. In the Data Allocation Mode 2, two (2) words are assigned per module regardless of whether the second word area is required or not, even for discrete I/O modules that require one (1) word.

A maximum of 32 I/O modules can be mounted per node.

■ DATA ALLOCATION MODE 1

• Output Data

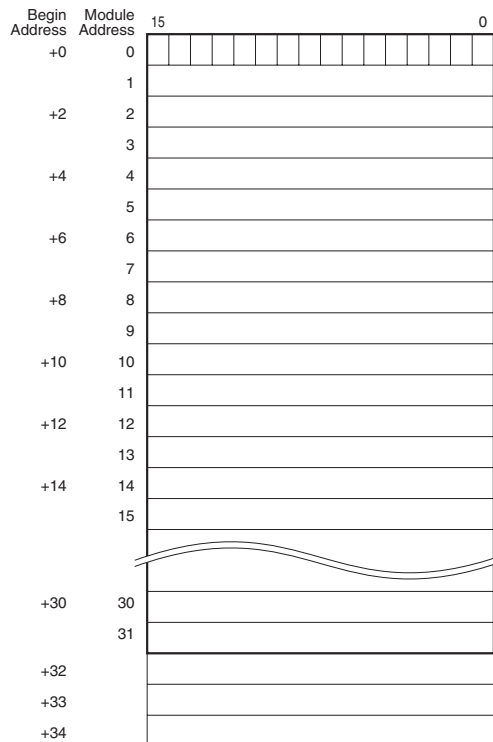
The figure below shows the allocation of data sent from the network module to the master.



I/O data area

• Input Data

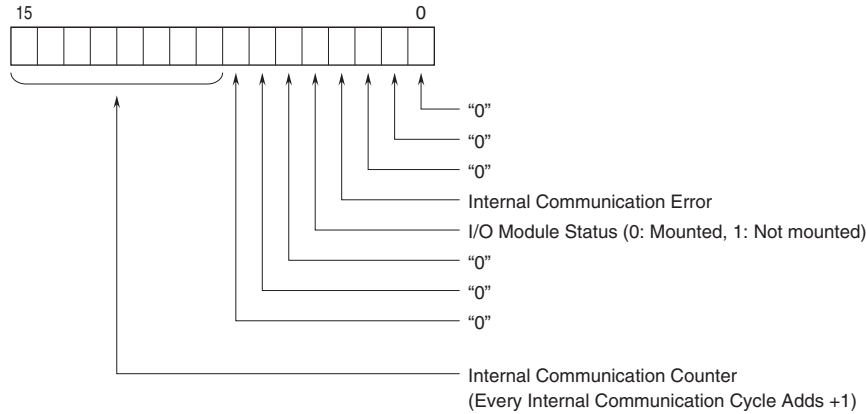
The figure below shows the allocation of data sent from the master to the network module.



Each module takes one-word areas for input and output respectively, regardless of whether the module type is input or output. If a module for Data Allocation Mode 2 is used, the second channel data is invalid. Field input data is set in the module's output data area. The input data area is also secured though not used for an input module.

• **Status Flag**

FLG: Communication status data. When the module is unmounted, or when communication errors occur frequently, the corresponding bit turns to “1.”

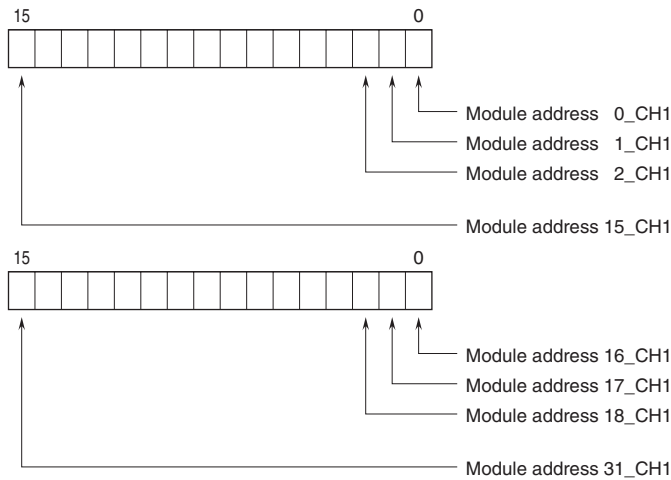


ERR: I/O module data error

- Input overrange ($\leq -15\%$ or $\geq 115\%$) of Input modules except R6x-TSx and R6x-RSx.
- Inputs of R6x-TSx, R6x-RSx burnout.
- Output wire breakdown of R6x-YSx (Firmware Version 2.00 or later). *1

In the above case, the corresponded bit is “1.”

Also the corresponded bit for unmounted channels is “1.”

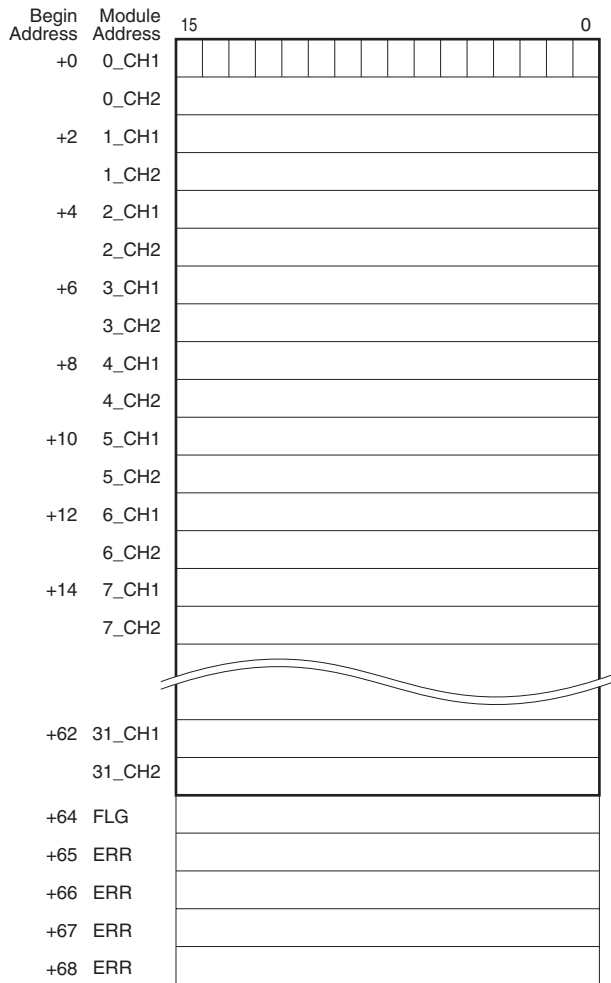


*1. R6-ND1 is compatible with Firmware version 1.03 or later.

■ DATA ALLOCATION MODE 2

• Output Data

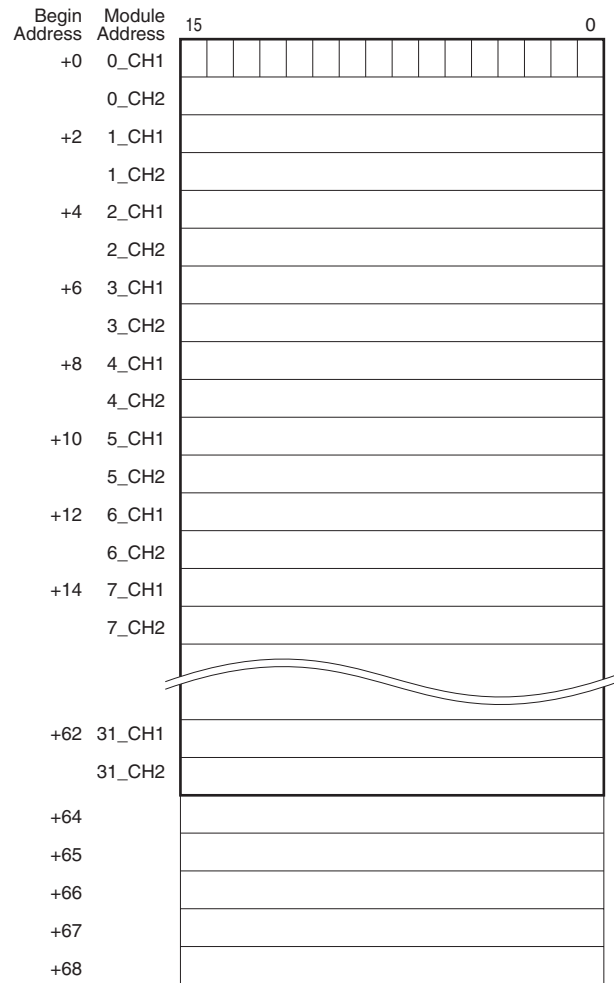
The figure below shows the allocation of data sent from the network module to the master.



I/O data area

• Input Data

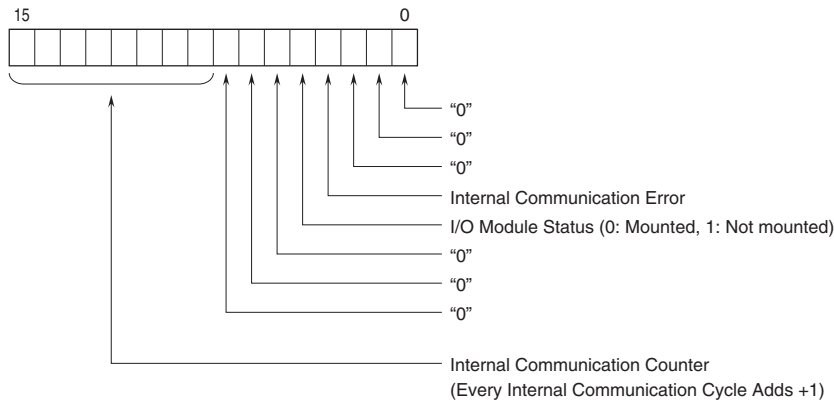
The figure below shows the allocation of data sent from the master to the network module.



Each module takes two-word areas for input and output respectively, regardless of whether the module type is input or output. If a module for Data Allocation Mode 1 is used, all the bits for the second channel data turn to "0" (unused). Field input data is set in the module's output data area. The input data area is also secured though not used for an input module.

• **Status Flag**

FLG: Communication status data. When the module is unmounted, or when communication errors occur frequently, the corresponding bit turns to "1."

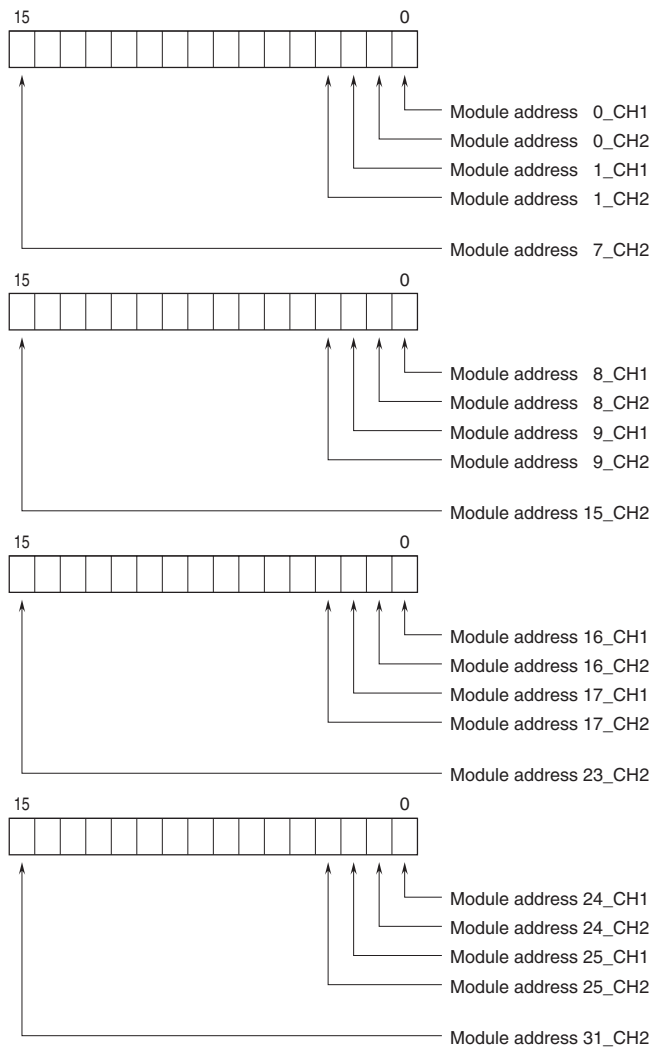


ERR: I/O module data error

- Input overrange ($\leq -15\%$ or $\geq 115\%$) of Input modules except R6x-TSx and R6x-RSx.
- Inputs of R6x-TSx, R6x-RSx burnout.
- Output wire breakdown of R6x-YSx (Firmware Version 2.00 or later). *2

In the above case, the corresponded bit is "1."

Also the corresponded bit for unmounted channels is "1."



*2. R6-ND1 is compatible with Firmware version 1.03 or later.

I/O DATA DESCRIPTIONS

■ 16-BIT ANALOG DATA

0 to 100% of the selected I/O range is converted into 0 to 10000 (binary).

With °C or Kelvin temperature unit, raw data is multiplied by 10. For example, 25.5°C is converted into 255.

With °F temperature unit, the integer section of raw data is directly converted into the data. For example, 135.4°F is converted into 135.

Negative values are represented in 2's complements.



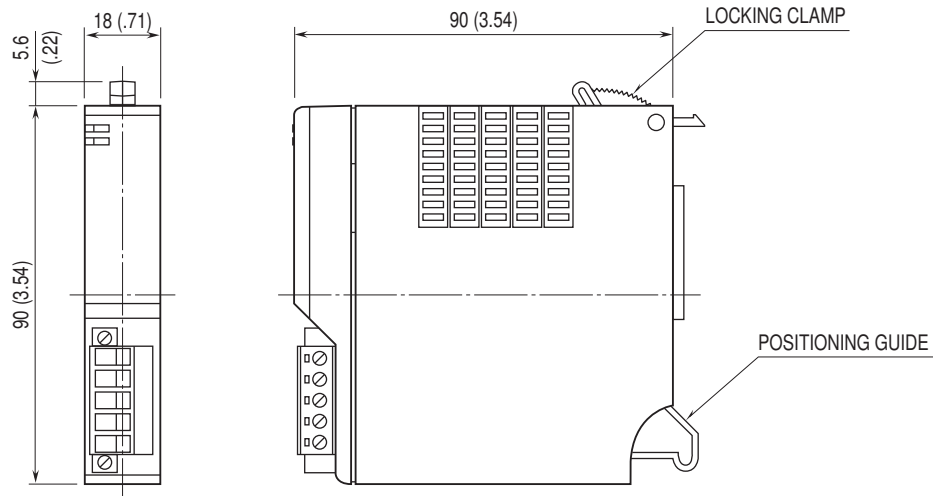
■ DISCRETE DATA



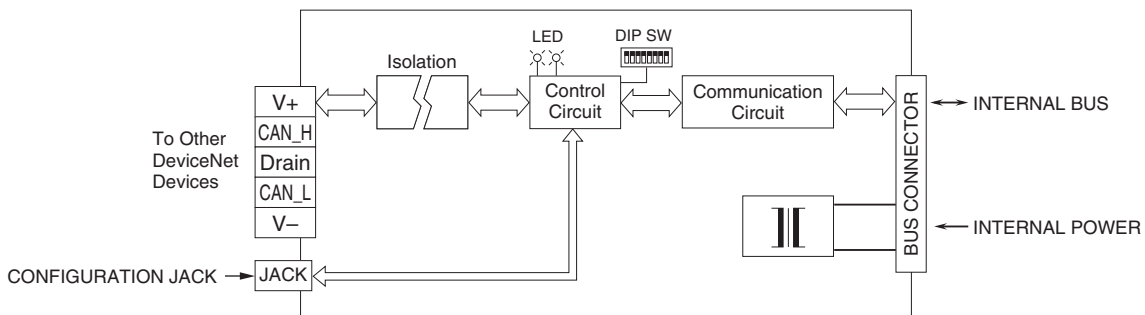
Input 1 (Output 1)
 Input 2 (Output 2)
 Input 3 (Output 3)
 Input 4 (Output 4)
 Not Used (Remains "0")

0 : OFF
 1 : ON

EXTERNAL DIMENSIONS unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM





Specifications are subject to change without notice.