

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:

Network interface 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.

■ GSD FILE

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

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- The equipment must be mounted inside the instrument panel of a metal enclosure.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.

■ GENERAL PRECAUTIONS

- Before you remove or mount the unit, turn off the power supply.
- PROFIBUS Standard requires that all outputs be turned off when turning the power supply on. Therefore remove the power before replacing the PROFIBUS modules. (Outputs all OFF for discrete and '0' for analog signals.)
- Do not set the DIP switch on the side panel while the power is supplied. The DIP switch is selectable 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.

INSTALLATION

Use the Installation Base (model: R5-BS).

Before mounting the Network Interface Module onto the Base, be sure to configure the module as explained below.

■ DATA ALLOCATION MODE

The setting determines the data area size assigned to each I/O module mounted on the base.

The data sent/received via PROFIBUS is mapped according to this setting.

When one or more of the analog I/O modules are 2-channel types, select the Mode 2. (The 2nd channel cannot be sent/received in the Mode 1.)

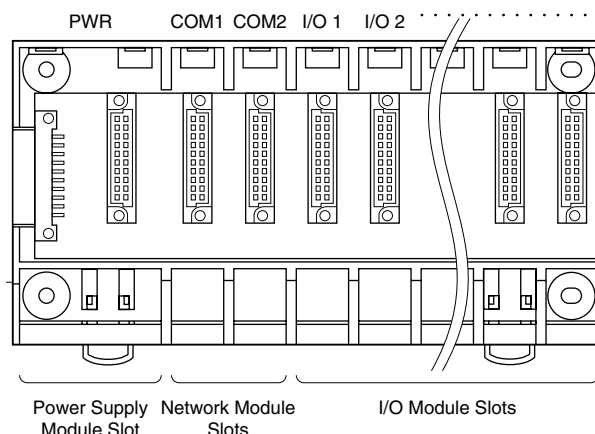
See "DATA DESCRIPTION".

■ STATION ADDRESS

See "COMPONENT IDENTIFICATION".

Station address is selectable from 00 to 7E via the front rotary switches. It is programmed to 7E if a larger number is set on the switches.

■ NETWORK SLOTS ON THE BASE



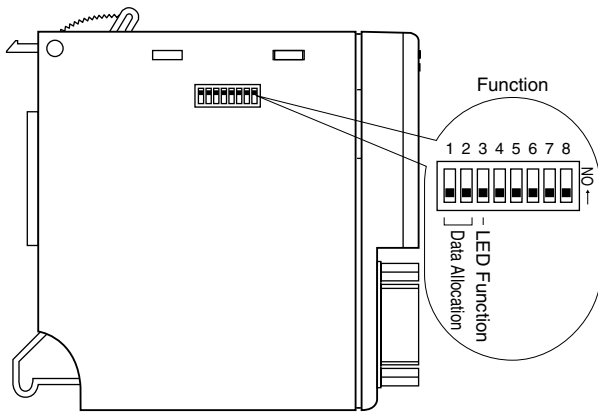
The Network Interface Modules must be mounted on the COM1 on the Base.

The COM2 is used only when the dual redundant communication is selected. If the I/O modules are selected for the dual communication, the Network Module can be mounted either on the COM1 or COM2.

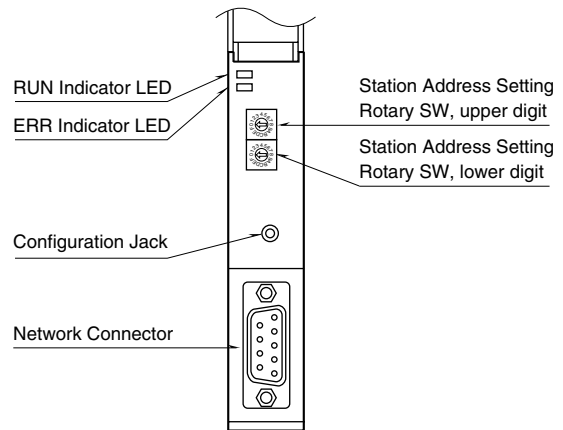
The bases for single communication mode (model: R5-BS05, R5-BS09) does not have COM2.

COMPONENT IDENTIFICATION

■ SIDE VIEW



■ FRONT VIEW



■ SIDE DIP SW

(*) Factory setting

• Data Allocation Mode: SW1, SW2

SW	DATA ALLOCATION MODE	
	2	1
1	OFF (*)	ON
2	OFF (*)	OFF

• LED Function: SW3

SW3	LED FUNCTION	
	RUN	ERR
OFF (*)	Green when normal	Green when abnormal
ON	Red when receiving	Red when transmitting

Note: Be sure to set unused SW4 through 8 to OFF.

■ FRONT ROTARY SW

• Station Address: SA1, SA2

Station Address is set in Hexadecimal.

(Setpoint adjustment: 00 – 7E)

■ PROFIBUS INTERFACE



PIN NO.	SIGNAL	SIGNIFICANCE
1	NC	Not used
2	NC	Not used
3	B_line	Network, B-line
4	RTS	RTS signal
5	GND	0V
6	P5V	5V
7	NC	Not used
8	A_line	Network, A-line
9	NC	Not used

PC CONFIGURATOR

With configurator software, settings shown below are available.

Refer to the software manual of R5CON for detailed operation.

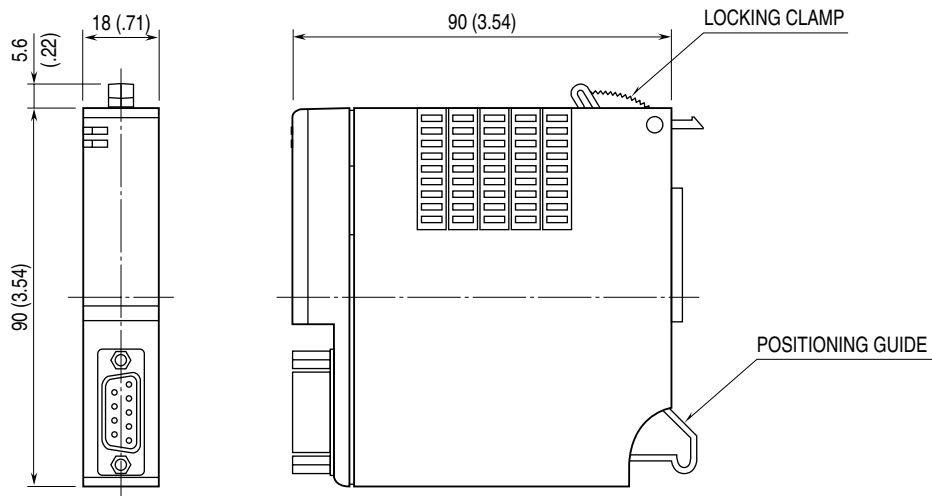
■ NETWORK MODULE SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Communication Timeout	0.0 – 3276.7 (sec.)	3.0 (sec.)

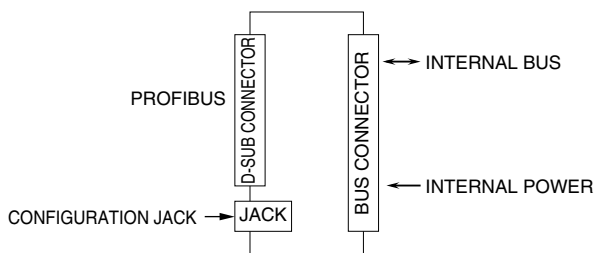
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

EXTERNAL DIMENSIONS unit: mm (inch)



CONNECTION DIAGRAM



DATA DESCRIPTIONS

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

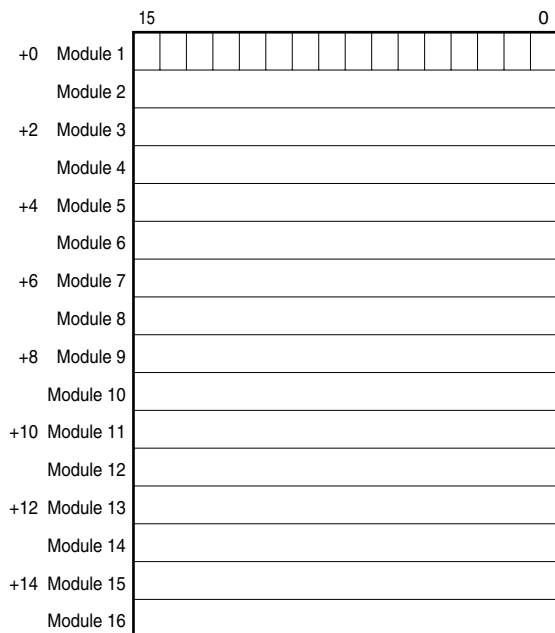
The Data Allocation Mode 1 is used when all analog I/O modules are single-channel types. In this mode, one (1) word is assigned for one I/O module. The second channel on the dual-channel modules cannot be used. Max. 16 I/O modules can be used per node.

The Data Allocation Mode 2 is used when one or more analog I/O modules are dual-channel types. In this mode, two (2) words are assigned for one I/O module regardless of whether the second word area is required or not. For example, discrete I/O modules require only one (1) word, but two (2) words are automatically assigned to these modules.

■ DATA ALLOCATION MODE 1

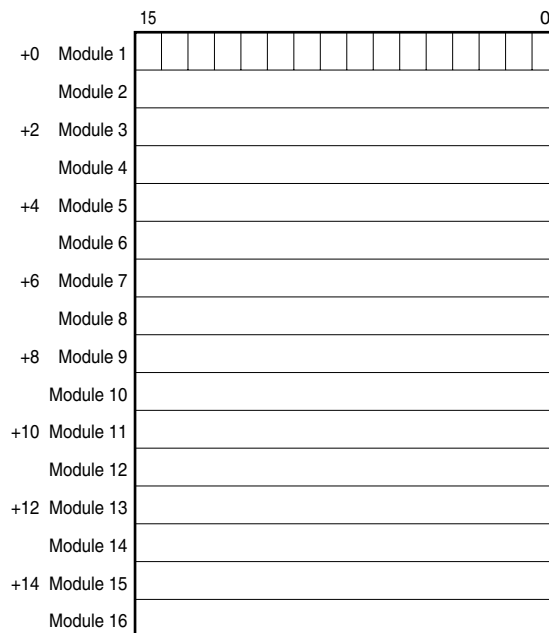
• Output Data

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



• Input Data

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



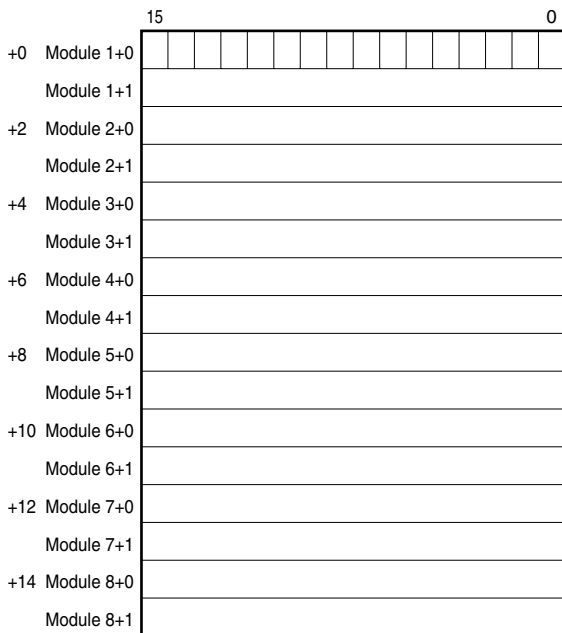
Each module takes one-word areas for input and output respectively, regardless of whether the module type is input or output. If a module for Data Allocation Mode 2 is used, the second channel data is not transmitted.

An input module stores data in the output data area. The input data area is secured for the module but not used.

■ DATA ALLOCATION MODE 2

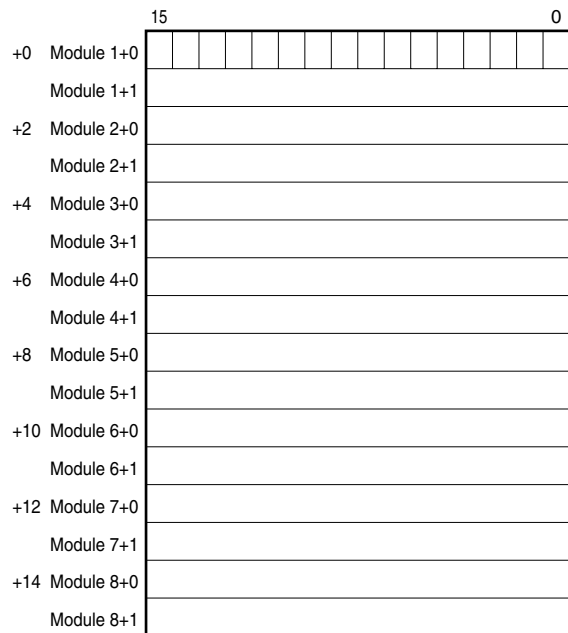
• Output Data

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



• Input Data

The figure below shows the allocation of the 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 Module n+1 data turn to “0” (unused). An input module stores data in the output data area. The input data area is secured for the module but not used.

■ I/O CAPACITY

In Data Allocation Mode 1, a maximum of 16 I/O modules can be mounted per node. If two-channel type analog modules are mixed, the second channel I/O cannot be used.

In Data Allocation Mode 2, a maximum of 8 I/O modules can be mounted per node.

I/O DATA DESCRIPTIONS

The data allocations for typical I/O modules are shown below.
Refer to the manual for each module for detailed data allocations.

■ 16-BIT ANALOG DATA (models: R5-SV, YV, DS, YS, RS, TS, etc.)

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

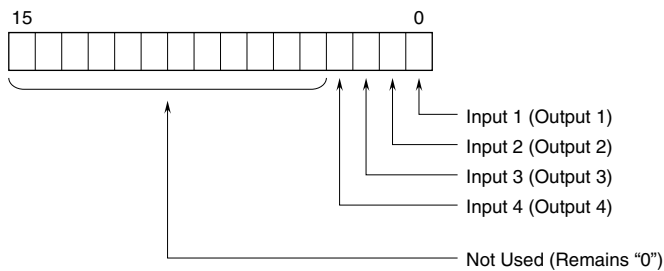
With °C or Kelvin temperature unit, raw data is multiplied by 10. For example, 25.5°C is converted into 255.

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.

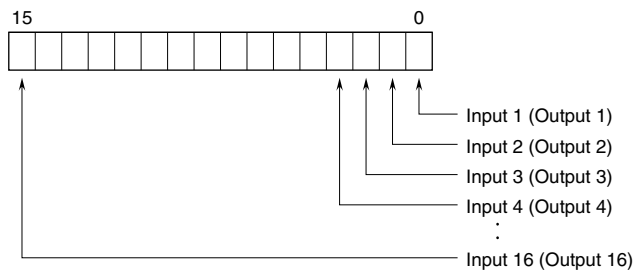


■ 4-POINT DISCRETE DATA (models: R5-DA4, DC4, etc.)



0 : OFF
1 : ON

■ 16-POINT DISCRETE DATA (models: R5-DA16, DC16, etc.)



0 : OFF
1 : ON