PROFIBUS-DP INTERFACE MODULE
(for 32-point analog signals)

MODEL **R5-NP2**

BEFORE USE ....

Thank you for choosing us. 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 our 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 our web site.

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.

■ STATION ADDRESS

See "COMPONENT IDENTIFICATION".
Station address is selectable from 00 to 7D via the front rotary switches. It is programmed to 7D if a larger number is set on the switches.

■ NETWORK SLOTS ON THE BASE

Power Supply Module Slot   Network Module Slots   I/O Module Slots
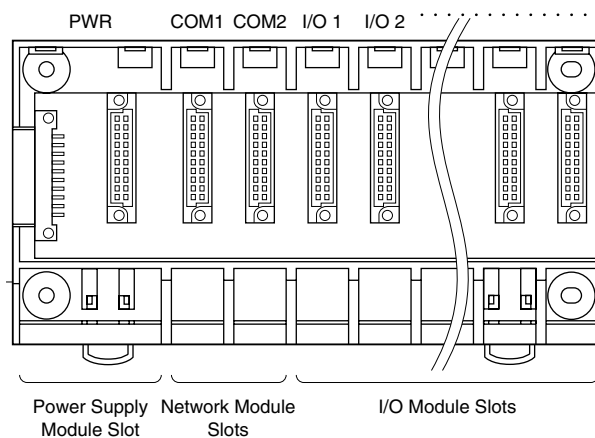
The Network Interface Modules must be mounted on the COM1 on the Base.
The COM2 is used only when the dual redundant communication is selected. If the I/O modules are selected for the dual communication, the Network Module can be mounted either on the COM1 or COM2.
The bases for single communication mode (model: R5-BS05, R5-BS09) does not have COM2.

COMPONENT IDENTIFICATION

■ **SIDE VIEW**

■ **FRONT VIEW**
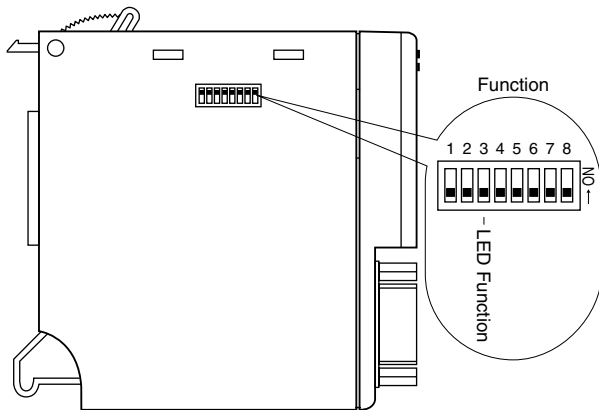
■ **SIDE DIP SW**

• **LED Function: SW3**

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

(*) Factory setting
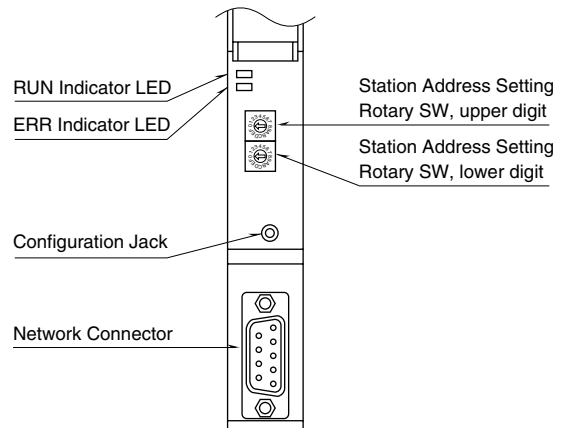Note: Be sure to set unused SW1, 2 and 4 through 8 to OFF.

■ **FRONT ROTARY SW**

• **Station Address: SA1, SA2**

Station Address is set in Hexadecimal.
(Setpoint adjustment: 00 – 7D)

■ **PROFIBUS INTERFACE**

PIN NO.	SIGNAL	SIGNIFICANCE
1	NC	Not used
2	NC	Not used
3	B_ine	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.
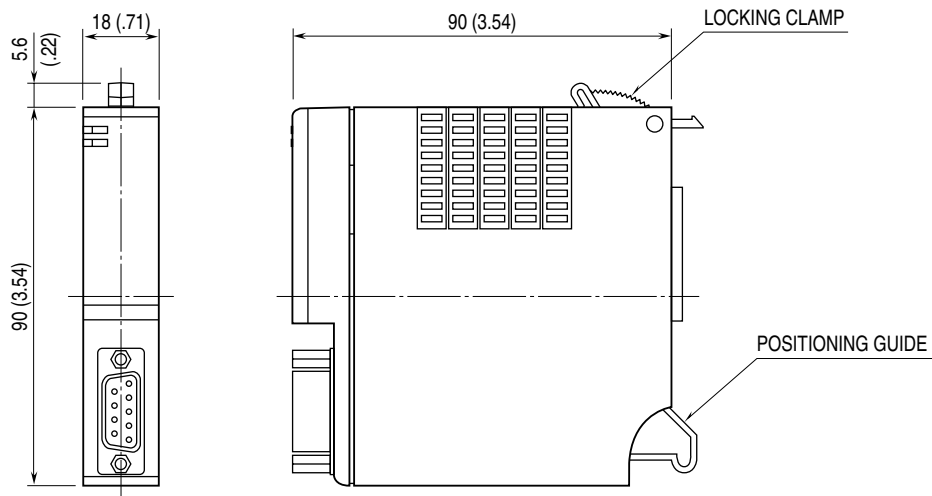Refer to the software manual of R5CON for detailed operation.

■ **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)**

18 (.71)

5.6 (.22)

90 (3.54)

90 (3.54)

LOCKING CLAMP

POSITIONING GUIDE

■ **CONNECTION DIAGRAM**

PROFIBUS

D-SUB CONNECTOR

BUS CONNECTOR
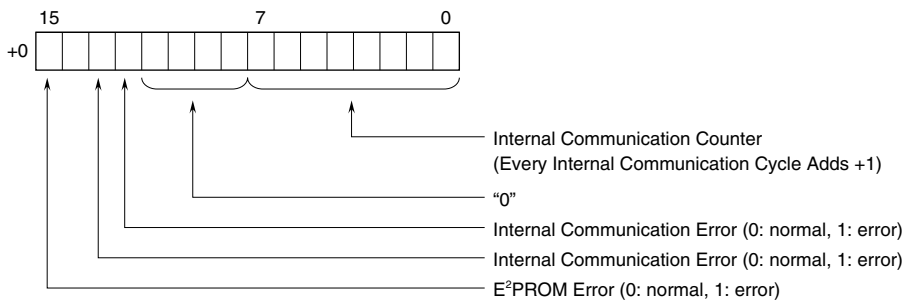
INTERNAL BUS

INTERNAL POWER

CONFIGURATION JACK → JACK
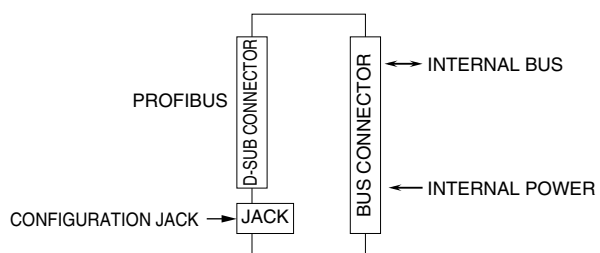
DATA DESCRIPTIONS

■ **STATUS FLAG**

(Usable by defining "R5-IO-MODULE-STATUS" at a non-assigned module slot when defining I/O module configurations)

FLG: Communication status data. When the module is unmounted, the module type is not correct, or when communication errors occur frequently, the corresponding bit turns to "1."


Internal Communication Counter
(Every Internal Communication Cycle Adds +1)

"0"

Internal Communication Error (0: normal, 1: error)

Internal Communication Error (0: normal, 1: error)

E^2PROM Error (0: normal, 1: error)

ERR1, ERR2: Analog input modules check high/low limits and ADC. When there is an error in one or more channels, the bit corresponding to the channels turns to "1." The bit corresponding to unmounted channels turns to "1."
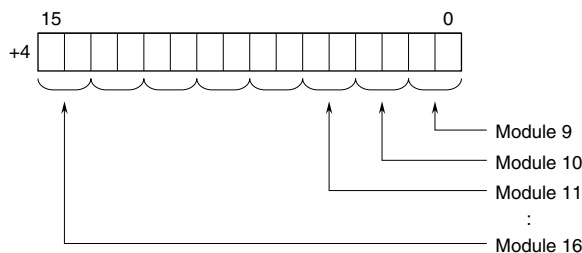
DC current output modules check output wire breakdown to alert as an error. The bit corresponding to the channels turns to "1."

Among the two bits assigned for each module, the least significant bit is used for channel 1 of a two-channel analog module or for a discrete module.

• ERR1

Module 1
Module 2
Module 3
:
Module 8

• ERR2

Module 9
Module 10
Module 11
:
Module 16
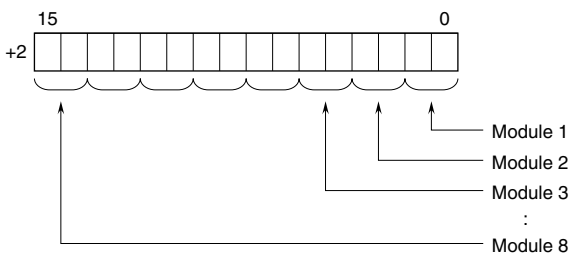
I/O DATA DESCRIPTIONS

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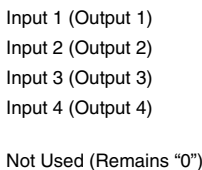
With °C or Kelvin temperature unit, raw data is multiplied by 10. For example, 25.5°C is converted into 255.

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.

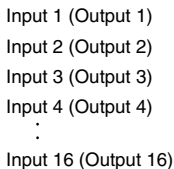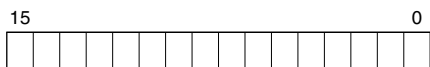Negative values are represented in 2's complements.

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

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

0 : OFF
1 : ON

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

Input 1 (Output 1)
Input 2 (Output 2)
Input 3 (Output 3)
Input 4 (Output 4)
Input 16 (Output 16)

0 : OFF
1 : ON