

CC-Link INTERFACE MODULE (CC-Link Ver.2.00; for 64-point analog signals)

MODEL **R6-NC3**

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)
Terminating resistor (110 Ω, 0.5 W).....(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.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- The equipment must be mounted inside a panel.
- 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.

■ HOT INSERTION/REMOVAL OF MODULES

- It is possible to replace the module with the power is supplied. Be sure to replace it when the module is not communicating with a host, as it is possible to affect the system. However, replacing multiple modules at once may greatly change line voltage levels. We recommend that you replace them one by one.

■ GENERAL PRECAUTIONS

- 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 Base Model R6x-BSA or R6x-BSB.

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

■ DATA ALLOCATION

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

The data sent/received via CC-Link is mapped according to this setting.

In order to use the second channel of analog I/O modules, choose the Mode 2. (The 2nd channel cannot be sent/received in the Mode 1.)

See "COMPONENT IDENTIFICATION."

■ STATION No. & BAUD RATE

See "COMPONENT IDENTIFICATION."

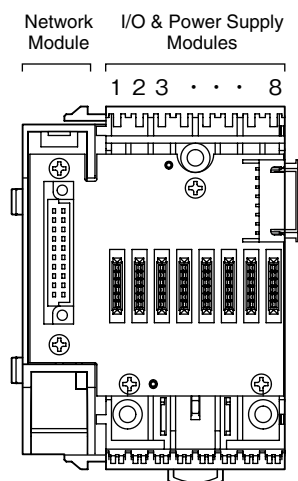
■ NETWORK SLOTS ON THE BASE

Mount the Network Module to the dedicated slot on the base.

• R6x-BSA

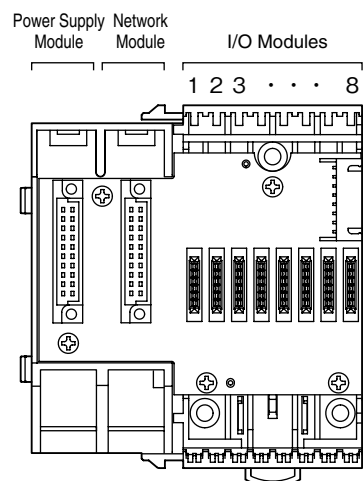
The I/O and the power (model: R6x-PF1) modules can be positioned freely on whichever among the slots 1 through 8.

Set a module address to each I/O module.

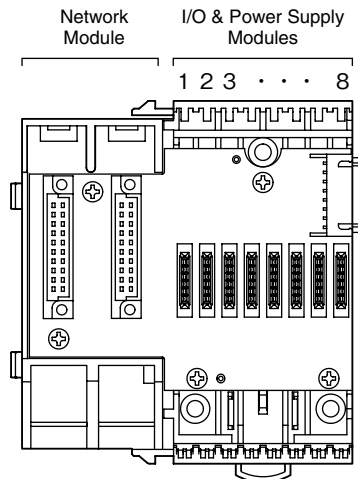


• R6x-BSB

The power module (model: R6-PSM) should be located on the extreme left, the I/O modules can be positioned freely on whichever among the slots 1 through 8. Set a module address to each I/O module.

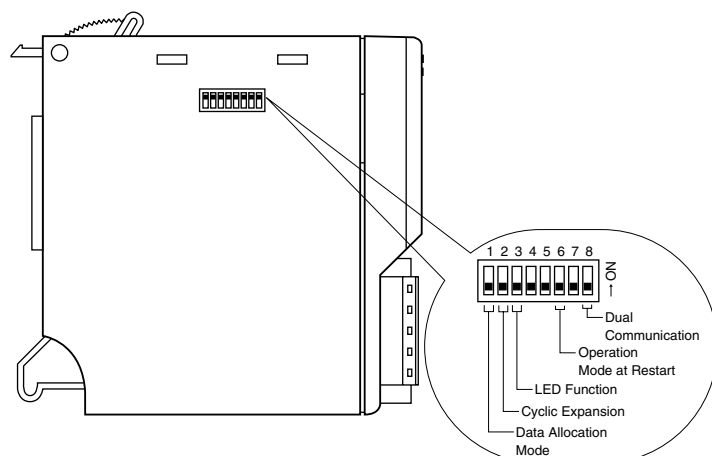


For use in dual redundant communication system, two network modules (model: R6-NC3/W) need to be mounted to the slot for network module.

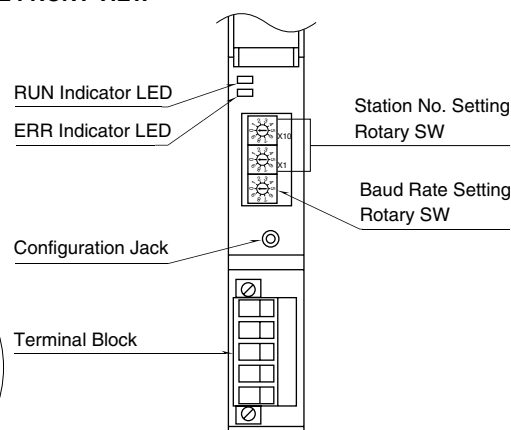


COMPONENT IDENTIFICATION

■ SIDE VIEW



■ FRONT VIEW



■ SIDE DIP SW

(*) Factory setting

• Data Allocation Mode: SW1

DATA ALLOCATION MODE	SW1
2 (2 words) (*)	
1 (1 word)	■

■ = ON, Blank = OFF

• Cyclic Expansion: SW2

CYCLIC EXPANSION	SW2
2 (*)	
4	■

■ = ON, Blank = OFF

• LED Function: SW3

LED FUNCTION	SW3
RUN : Green ON in normal communications(*)	
ERR : Green ON/blinks in an abnormality(*)	
RUN : Red ON when receiving	■
ERR : Red ON when transmitting	

■ = ON, Blank = OFF

• Main Network Module's Operation Mode at Restart *1: SW6

Set the operation mode of main network module when it restarts. Be sure to set the main network module and the sub network module as the same mode. If both are set differently, the RUN indicator will be OFF.

OPERATION MODE	SW6
Main-operation Mode (*)	
Sub-operation Mode	■

■ = ON, Blank = OFF

• Dual Communication *1: SW8

When two network modules are mounted, one must be 'main network module' (OFF) and the other must be 'sub network module' (ON). For single communication, the network module must be set to 'main network module' (OFF).

OPERATION MODE	SW8
Sub Network Module (*)	
Main Network Module	■

■ = ON, Blank = OFF

*1. Only for R6-NC3/W

Note: Be sure to set unused SW4, SW5 and SW7 to OFF.

■ FRONT ROTARY SW

• Station No.: SA1, SA2

Station No. is set in decimal.
(Setpoint adjustment: 01 – 64)

• Baud Rate

SW POSITION	BAUD RATE
0 (*)	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps
Other positions	Invalid; ERR LED ON

■ LED SPECIFICATIONS

ID	OPERATION	SW3	STATE
RUN	Green ON	OFF	Normal communication
	Green Blinking	OFF	Normal communication (Sub-operation *2)
	Red ON	ON	Receiving
	OFF	OFF	Sending error, SW6 setting error *2
ERR	Green ON/Blinking	OFF	Baud rate, station No. error
	Red ON	ON	Transmitting
	OFF	OFF	Normal communication
		ON	No transmitting

*2. Only for R6-NC3/W

PC CONFIGURATOR

With configurator software, settings shown below are available.
Refer to the software manual of R6CON for detailed operation.

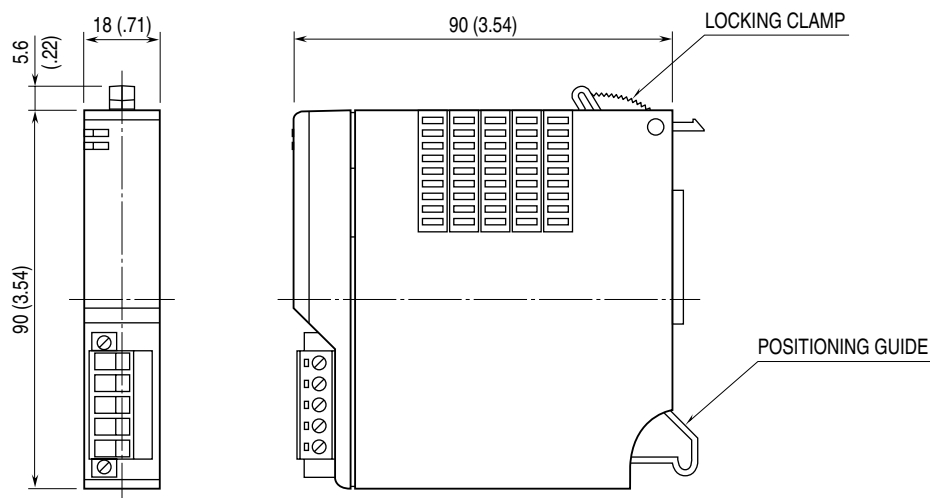
INTERFACE MODULE SETTING

PARAMETER	AVAILABLE RANGE	DEFAULT SETTING
Communication Failure Detection Time	0.2 – 3200.0 (sec.)	3.0 (sec.)
Main-operation Restart Delay Time	0 – 32000 (msec.)	0 (msec.)
Card map	00000000 to FFFFFFFF	FFFFFFF

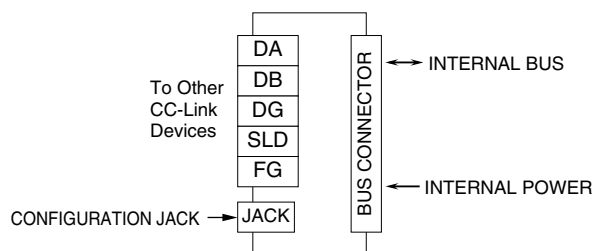
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

EXTERNAL DIMENSIONS unit : mm (inch)



CONNECTION DIAGRAM



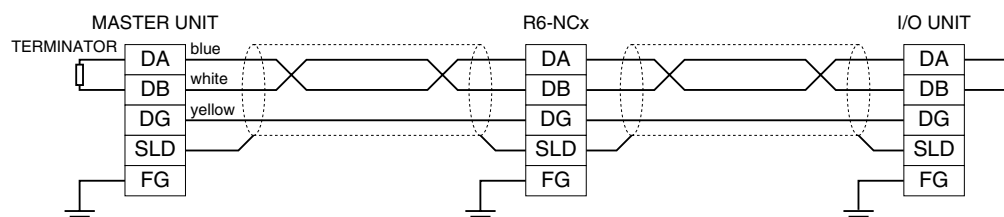
Note: The FG terminal is not connected with the FG of the power supply module (Model: R6x-PF1 or R6-PSM).

WIRING INSTRUCTIONS

EURO TYPE CONNECTOR TERMINAL (CC-Link)

Applicable wire size: 0.2 – 2.5 mm² (AWG24 – 12)
Stripped length: 7 mm

COMMUNICATION CABLE CONNECTION



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.

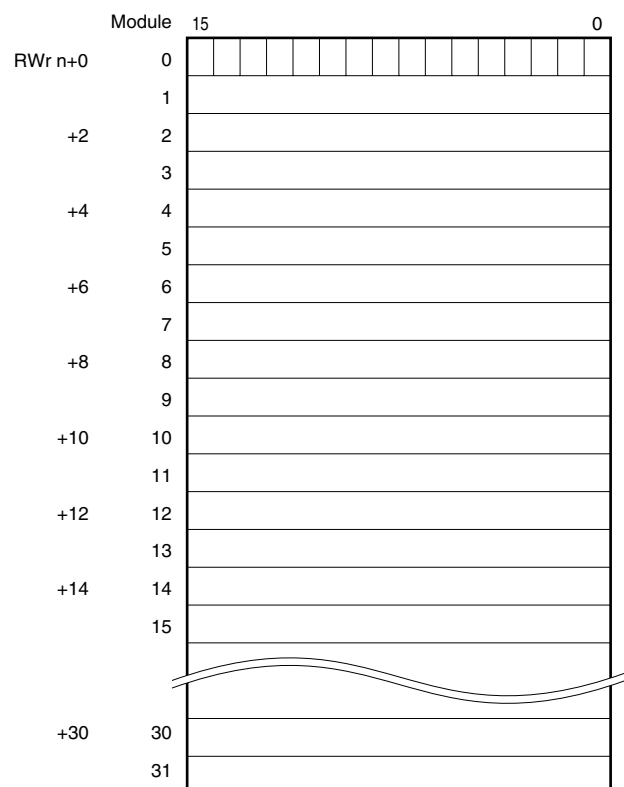
A maximum of 32 I/O modules can be mounted per node.

Each Status data is available when the Ready is "1" (the internal bus in normal condition). While the Ready is "0," all of the Status data is "0" (the internal bus in abnormal condition).

■ DATA ALLOCATION MODE 1

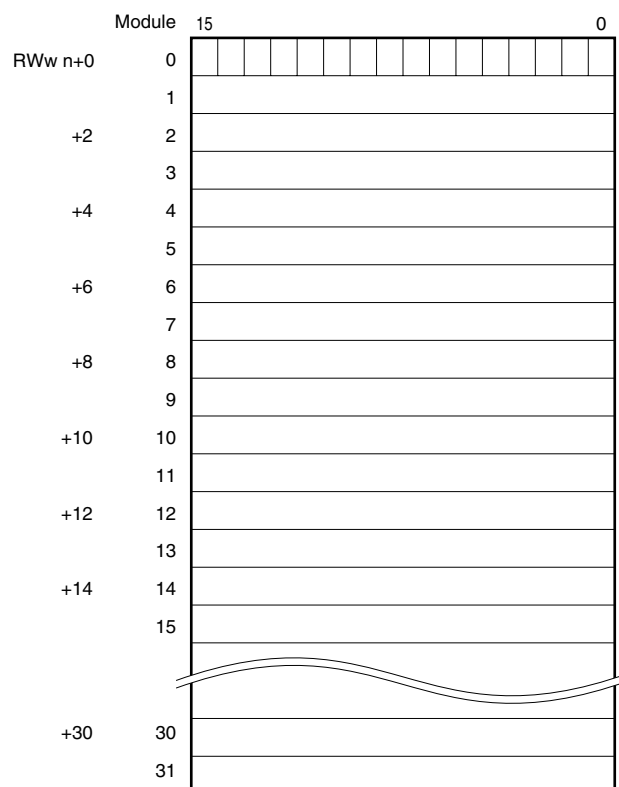
• Output Data

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



• Input Data

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



16 × m (m = cyclic expansion setting) data areas are available for this module.

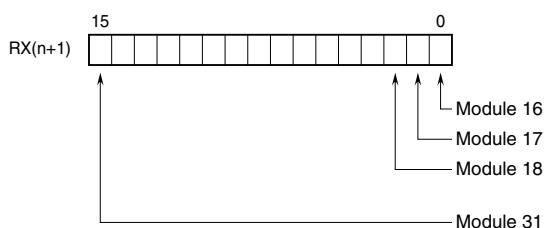
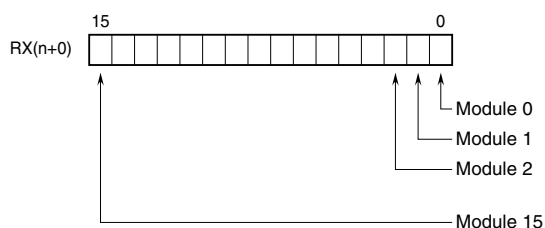
In Data Allocation Mode 1, set Cyclic Expansion two (2). When Cyclic Expansion setting is 4, data of module address 32 or larger is invalid.

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.

• Module Status

RX (n+0) 0 through RX (n+1) 15 indicate that modules are mounted in each slot.

0: mounted; 1: not mounted.



• Hardware Error Status

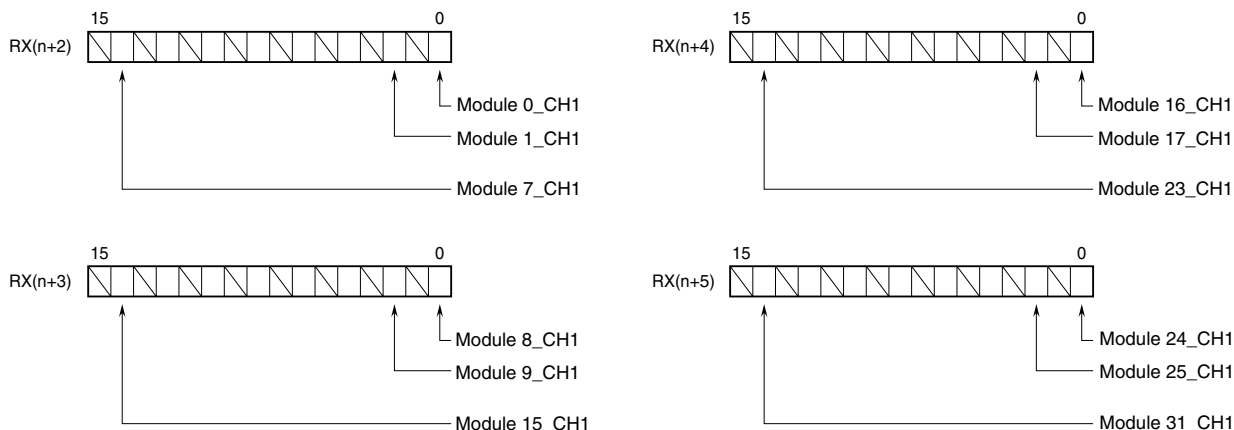
RX (n+2) 0 through RX (n+5) 15, indicate following I/O Error.

0: normal; 1: error

Burnout of R6x-TSx, R6x-RSx

Current Output Error of R6x-YSx (Load resistor no connection etc.)

Input Circuit failure



Note: In Data Allocation mode “1,” CH2 is invalid, and its all bits turn to “0.”

• Data Error Status

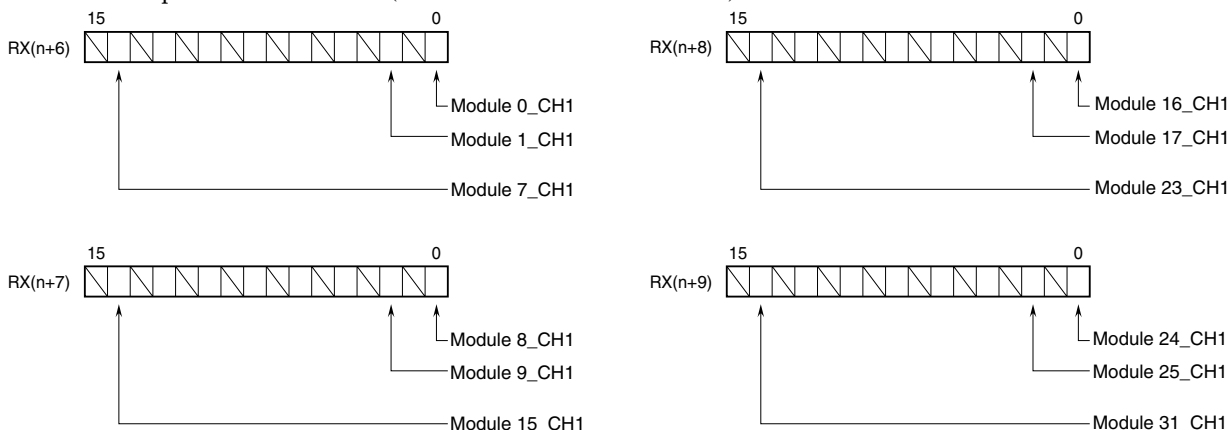
RX (n+6) 0 through RX (n+9) 15 indicate following I/O module data error.

0: normal; 1: error

The input values of the analog input module except R6x-TSx and R6x-RSx are -15% or less, or 115% or more.

Input of R6x-TSx, R6x-RSx are Burnout.

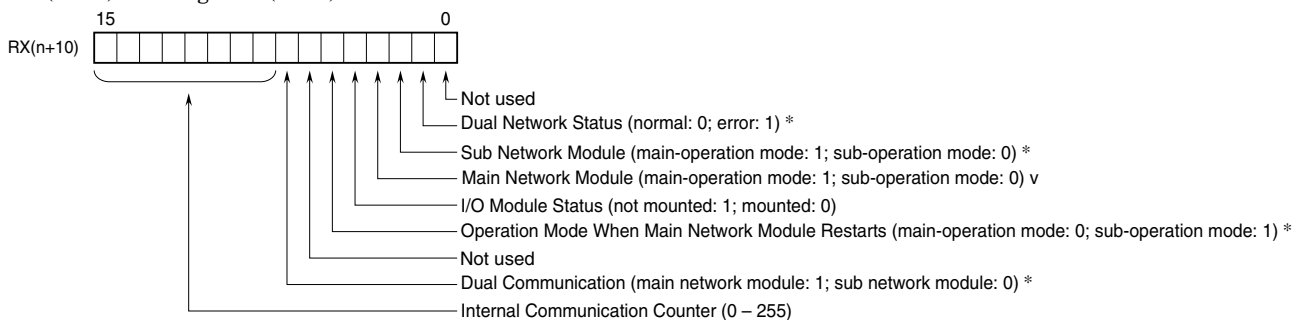
Current Output Error of R6x-YSx (Load resistor no connection etc.)



Note: In Data Allocation mode “1,” CH2 is invalid, and its all bits turn to “0.”

• Internal Bus Status

RX (n+10) 0 through RX (n+10) 15 indicate the module's status.



* Effective only for option code /W. For other models, all bits are “0.”

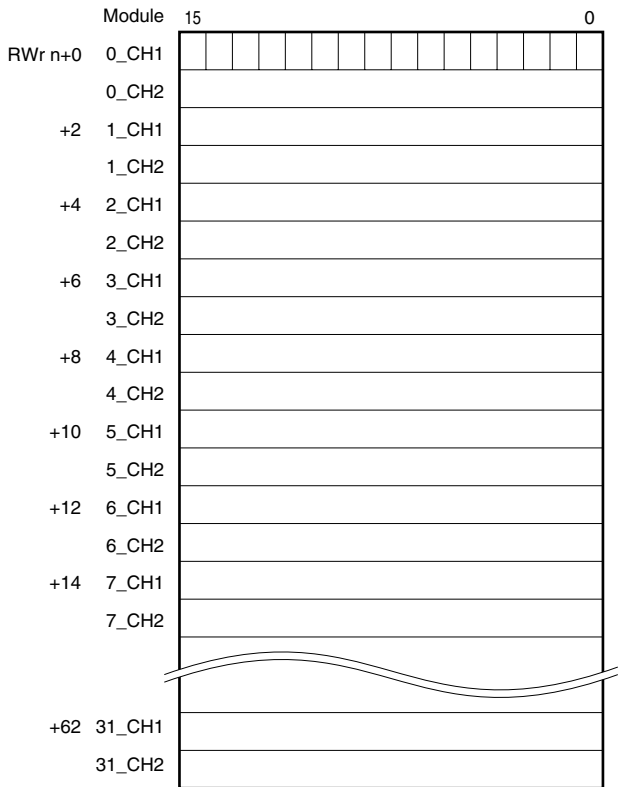
• Ready

RX (n+13) 11 is assigned to Ready signal, which turns to “1” when the internal bus is in normal conditions.

■ DATA ALLOCATION MODE 2

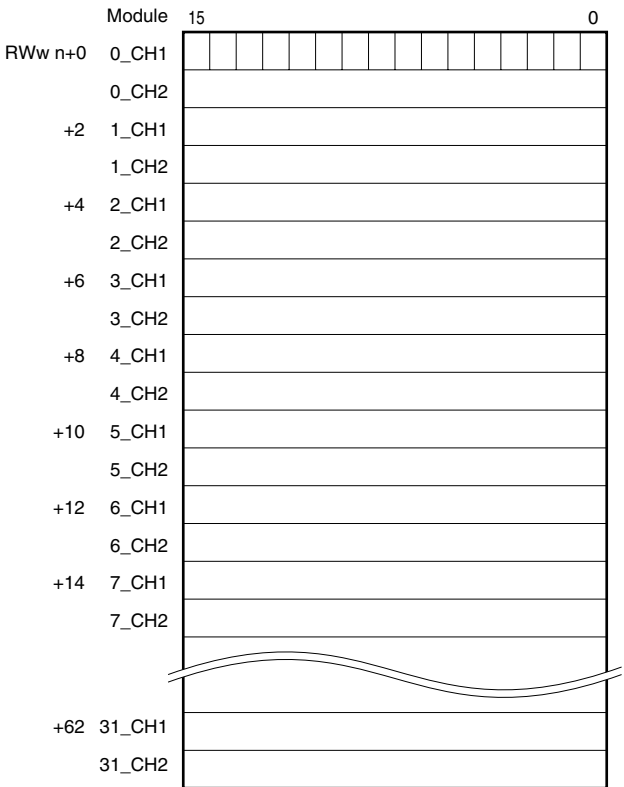
• Output Data

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



• Input Data

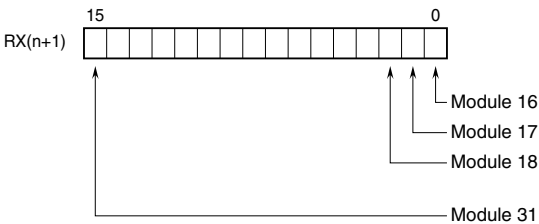
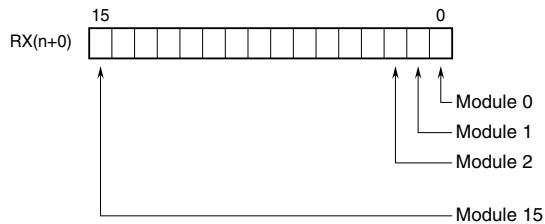
The figure below shows the allocation of data sent from the master to the network module.



16 × m (m = cyclic expansion setting) data areas are available for this module.
Field input data is set at the module's output data area. The input data area is also secured though not used for an input module.

• Module Status

RX (n+0) 0 through RX (n+1) 15 indicate that modules are mounted in each slot.
0: mounted; 1: not mounted.



• Hardware Error Status

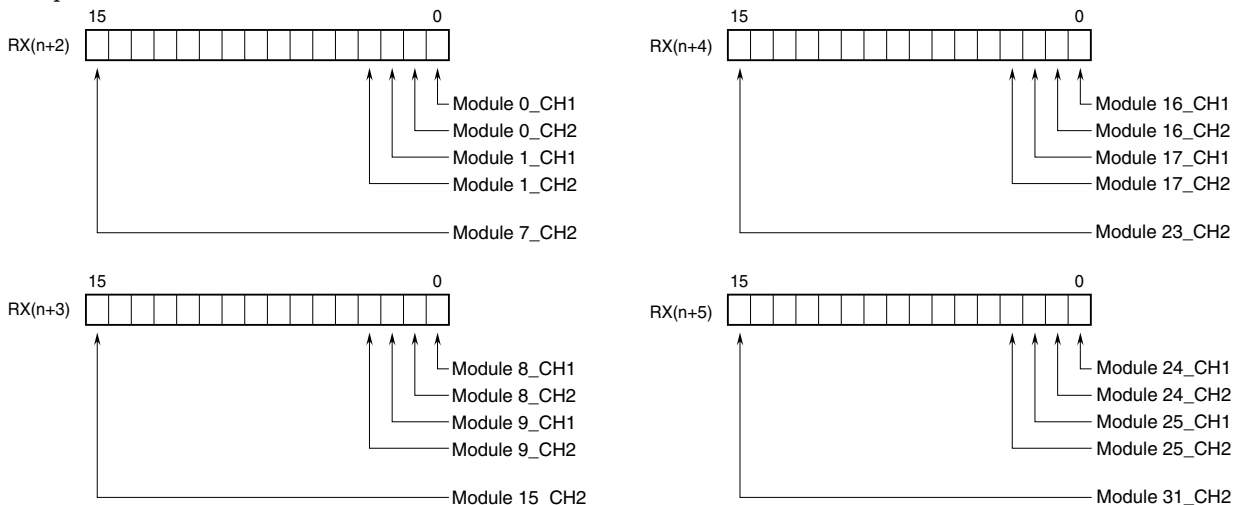
RX (n+2) 0 through RX (n+5) 15, indicate following I/O Error.

0: normal; 1: error

Burnout of R6x-TSx, R6x-RSx

Current Output Error of R6x-YSx (Load resistor no connection etc.)

Input Circuit failure



• Data Error Status

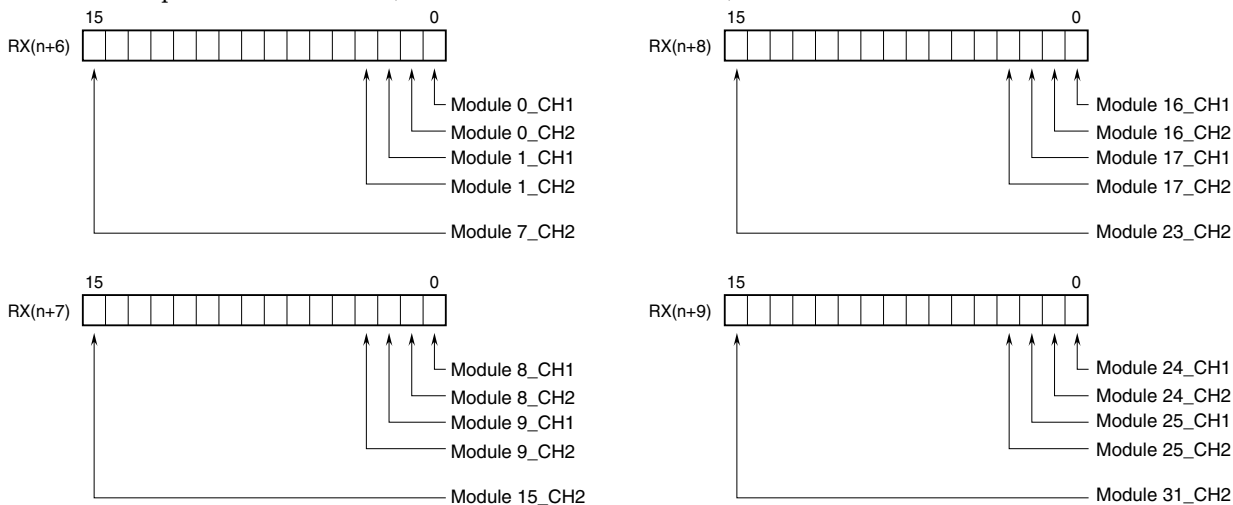
RX (n+6) 0 through RX (n+9) 15 indicate following I/O module data error.

0: normal; 1: error

The input values of the analog input module except R6x-TSx and R6x-RSx are -15% or less, or 115% or more.

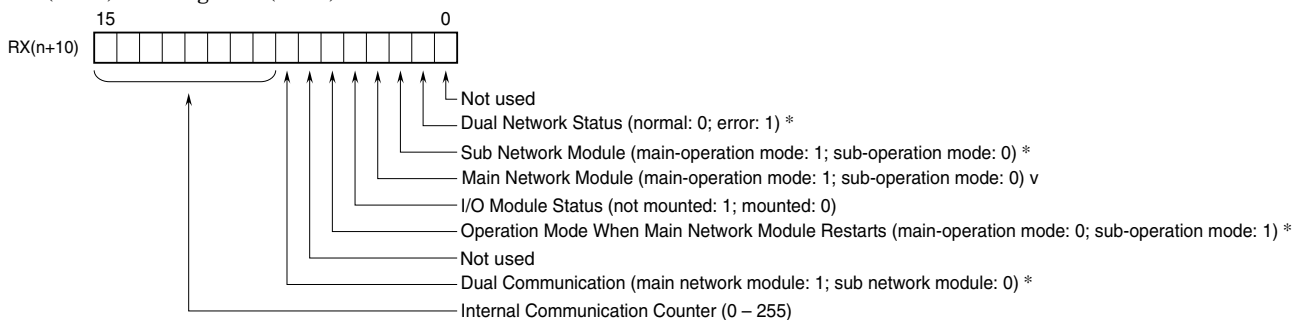
Input of R6x-TSx, R6x-RSx are burnout.

Current Output Error of R6x-YSx (Load resistor no connection etc.)



• Internal Bus Status

RX (n+10) 0 through RX (n+10) 15 indicate the module's status.



* Effective only for option code /W. For other models, all bits are "0."

• Ready

RX (n+27) 11 is assigned to Ready signal, which turns to "1" when the internal bus is in normal conditions.

I/O DATA DESCRIPTIONS

• 16-bit Analog Data

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

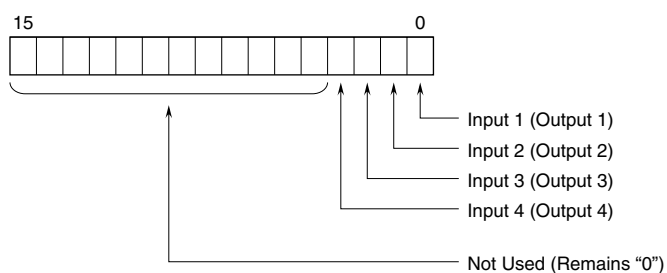
With °C temperature unit, raw data is multiplied by 10. For example, 25.5°C is converted into 255.

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



0 : OFF
1 : ON