

Remote I/O R3 Series

CC-Link INTERFACE MODULE

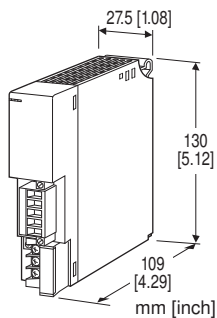
(CC-Link Ver.1.10/Ver.2.00)

Functions & Features

- Enables other protocol interface modules to communicate with CC-Link data (gateway).
- Recognized as an analog I/O mixed module by other protocol interface modules.

Typical Applications

- A gateway for CC-Link and Modbus.



MODEL: R3-GC1S[1]

ORDERING INFORMATION

- Code number: R3-GC1S[1]
- Specify a code from below for [1].
(e.g. R3-GC1S/CE/Q)
- Specify the specification for option code /Q
(e.g. /C01)

COMMUNICATION MODE

S: Single

[1] OPTIONS (multiple selections)

Standards & Approvals

blank: Without CE

/CE: CE marking

Other Options

blank: none

/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q

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

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

CAUTION

- When selecting network modules, note that this unit is not designed to be used with network modules of certain types or versions.
- This unit CANNOT be used with R3-NC2, R3-NEIP1, R3-NFx, and R3-NLx.
- This unit CAN be used with:
 - R3-NM3 and R3-NML3 of firmware version V1.00 or higher;
 - R3-NC1, R3-NC3, R3-NDx, R3-NE1, R3-NFL1, R3-NM1, R3-NM4, and R3-NP1 of firmware version V2.00 or higher;
 - and other models of any firmware versions.

PACKAGE INCLUDES...

- Terminating resistor (110 Ω, 0.5 W)

GENERAL SPECIFICATIONS

Connection

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

Internal bus: Via the Installation Base
(model: R3-BSx)

Internal Power: Via the Installation Base
(model: R3-BSx)

RUN contact output: M3 separable screw terminal
(torque 0.5 N·m)

Screw terminal: Nickel-plated steel

Isolation: CC-Link to internal bus or internal power to RUN contact output

RUN indicator: Bi-color (green/red) LED
Green turns ON when CC-Link communication is normal and fieldbus communication on the R3 Network module side is also normal; or

Red turns ON when receiving data.

Indication selectable with DIP SW3-4.

ERR indicator: Bi-color (green/red) LED
Green turns ON/blinks in communication errors (OFF with wire breakdown; Green blinks with setting errors); or Red turns ON when transmitting data.

Indication selectable with DIP SW3-4.

■ RUN CONTACT OUTPUT

RUN contact: Turns on while the green RUN LED is ON (only when CC-Link communication and the field bus built-in the interface module are in normal).

Rated load: 250 V AC @ 0.5 A (cos φ = 1)

30 V DC @ 0.5 A (resistive load)

(Less than 50 V AC to conform with EU Directive)

Maximum switching voltage: 250 V AC or 30 V DC

Maximum switching power: 250 VA or 150 W

Minimum load: 1 V DC @ 1 mA

Mechanical life: 2×10^7 cycles (300 cycles/min.)

When driving an inductive load, external contact protection and noise quenching recommended.

CC-Link COMMUNICATION

CC-Link: Both Version 1.10 and Version 2.00 are available.

Select the version with DIP SW3.

Cyclic expansion: 2, 4, 8 folds (Function selected with DIP SW)

Station No. setting: Rotary switch; 1 - 64

Baud rate setting: Rotary switch

156kbps, 625kbps, 2.5Mbps, 5Mbps, 10Mbps

Station type: Remote device station

Required nodes: 4

Ver.1.10: (128 I/O points, 16 words)

Ver.2.00: (112 I/O points, 16 words) $\times m$ (m = expanded cyclic setting)

Transmission cable: Approved for CC-Link

INSTALLATION

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: R3-BSx)

Weight: 200 g (0.44 lb)

PERFORMANCE

Data allocation

Ver.1.10: 16

Ver.2.00: $16 \times m$ (m = expanded cyclic setting)

Current consumption: 120 mA

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute

(CC-Link to internal bus or internal power to RUN contact output)

2000 V AC @ 1 minute (power input to FG; isolated on the power supply module)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

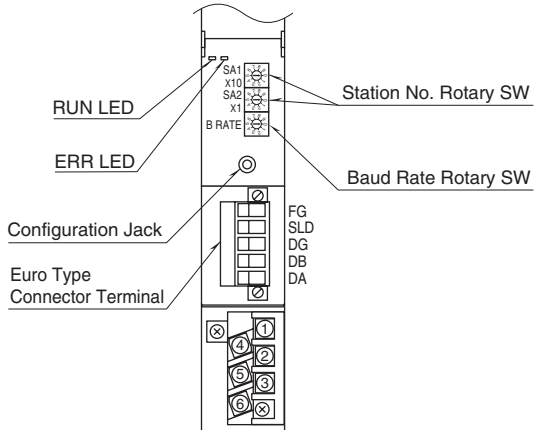
EMI EN 61000-6-4

EMS EN 61000-6-2

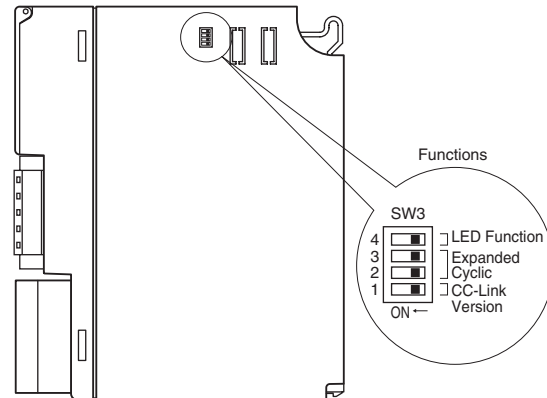
RoHS Directive

EXTERNAL VIEW

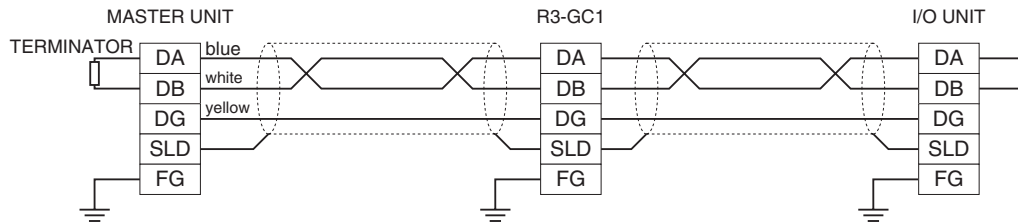
■ FRONT VIEW



■ SIDE VIEW



COMMUNICATION CABLE CONNECTIONS



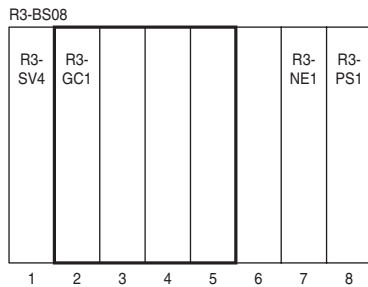
TRANSMISSION DATA DESCRIPTIONS

Use the DIP SW located at the side of the module to specify expanded cyclic setting. 16 words input and 16 words output make 1 cyclic. Max. 8 cyclic (128 words input, 128 words output) transmission is available. 1 cyclic is equivalent to 1 I/O module (analog input 16 points, analog output 16 points). Max. 8 I/O modules can be assigned to 8 slots.

Note: Do not mount any modules in the slots which are occupied by virtual modules. If a real I/O module is mounted in the slot, an internal bus error occurs and the ERR LED turns on. Max. 16 real I/O modules and virtual modules are available. The interface module can not read the data for more than 16 modules.

■ WHEN R3-GC1 IS MOUNTED ON SLOT NO. 2 (4 CYCLIC)

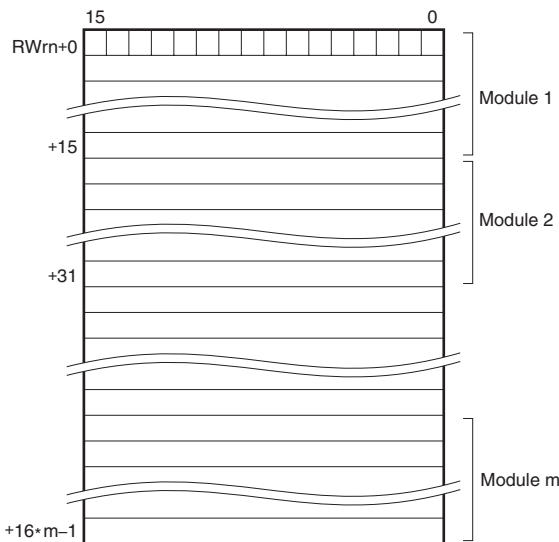
Real I/O modules are mounted on Slots No. 1 and 2, however, the network module (R3-NE1) recognizes that each of Slots No. 1 to 5 is occupied. That is, R3-NE1 recognizes R3-SV4 mounted on Slot No.1 as it is and recognizes R3-GC1 mounted on Slot No.2 as divided into four modules and occupying Slots No. 2 to 5.



SLOT	REAL MODULE	VERTUAL MODULE	NO. OF WORDS
Slot No.1	R3-SV4	R3-SV4	4 Words
Slot No.2	R3-GC1	R3-GC1 (1/4)	16 Words
Slot No.3	No module	R3-GC1 (2/4)	16 Words
Slot No.4	No module	R3-GC1 (3/4)	16 Words
Slot No.5	No module	R3-GC1 (4/4)	16 Words
Slot No.6	No module	No module	----
Slot No.7	R3-NE1	R3-NE1	----
Slot No.8	R3-PS1	R3-PS1	----

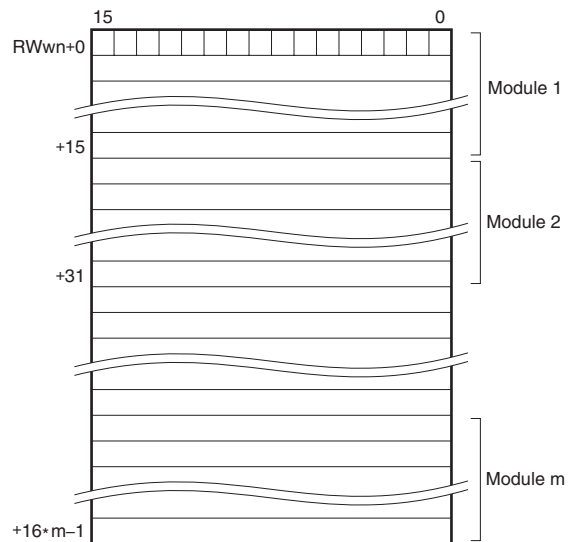
■ OUTPUT DATA

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

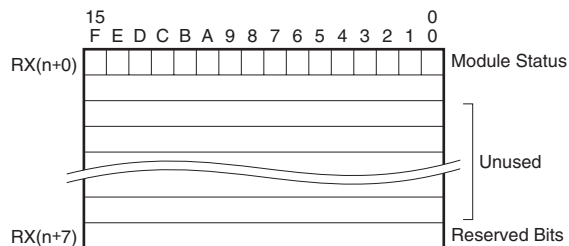


■ INPUT DATA

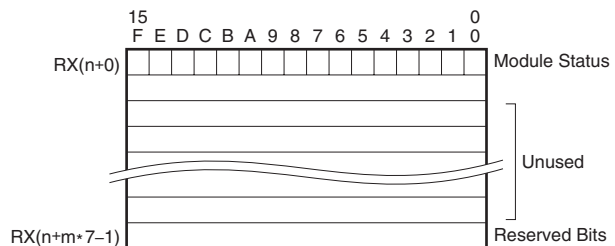
The figure below shows the allocation of the data sent from the master to the network module.



- The available data area for R3-GC1 is [16*m] (m=expanded cyclic setting)
CC-Link Ver.1.10



CC-Link Ver.2.00



• CC-Link Ver.1.10

1. Module Status

RX (n + 0) 0 indicates whether a virtual I/O module is specified or not.
The virtual I/O module is a fixed one for CC-Link Ver.1.10, the related bit must be "1".

- | | |
|--------------|----------------------|
| RX (n + 0) 0 | Virtual I/O module 1 |
|--------------|----------------------|
2. RX (n + 1) to RX (n + 6) are not used.
 3. RX (n + 7) 0 to RX (n + 7) 7 is a reservation area.
RX (n + 7) B is used as Ready signal, the bit is "1" when this module is in normal.
RX (n + 7) 8 to A, C to F are not used.

• CC-Link Ver.2.00

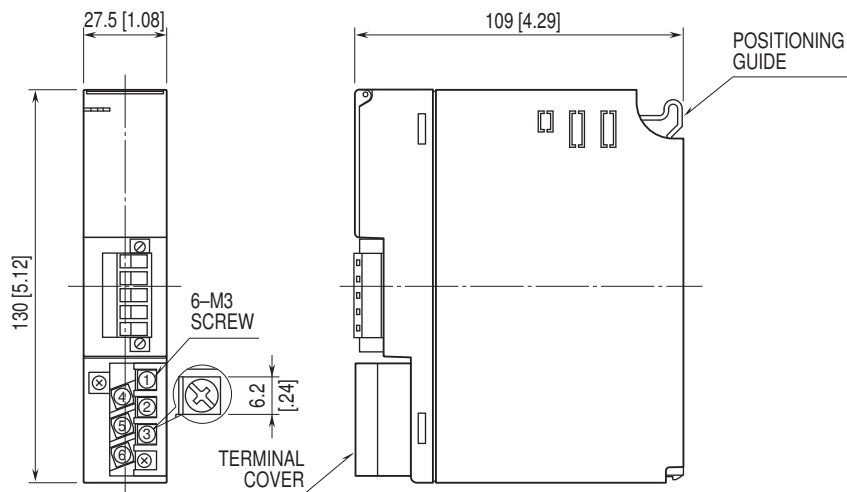
1. Module Status

RX (n + 0) 0 to RX (n + 0) 7 indicates whether virtual I/O modules are specified or not.
When a virtual module is specified, the related bit is "1". When a virtual module is not specified, the related bit is "0".
The detailed information is as shown below.

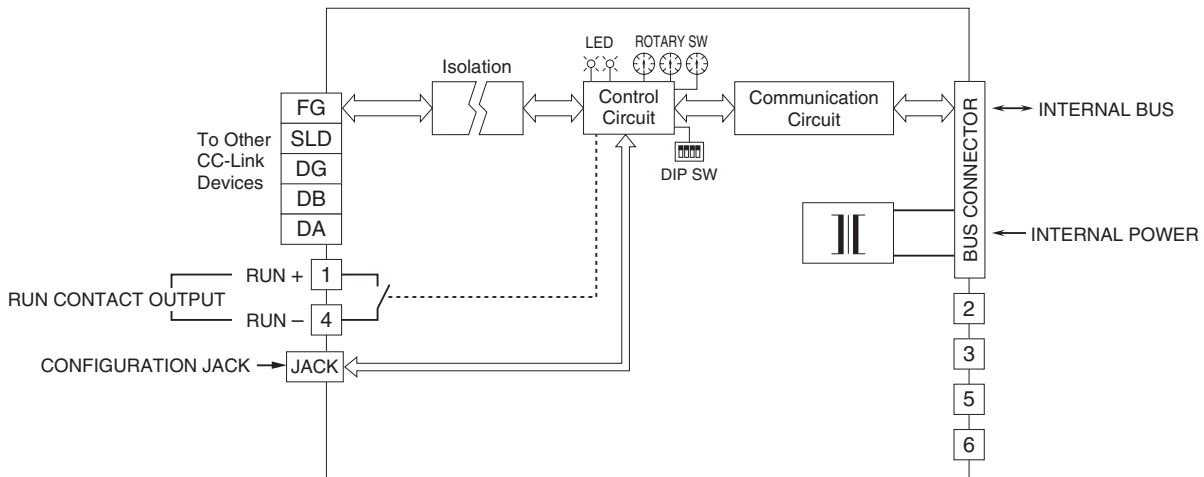
RX (n + 0) 0	Virtual I/O module 1
RX (n + 0) 1	Virtual I/O module 2
RX (n + 0) 2	Virtual I/O module 3
RX (n + 0) 3	Virtual I/O module 4
RX (n + 0) 4	Virtual I/O module 5
RX (n + 0) 5	Virtual I/O module 6
RX (n + 0) 6	Virtual I/O module 7
RX (n + 0) 7	Virtual I/O module 8

2. RX (n + 1) to RX (n + m * 7 - 2) are not used.
3. RX (n + m * 7 - 1) 0 to RX (n + m * 7 - 1) 7 is a reservation area.
RX (n + m * 7 - 1) B is used as Ready signal, the bit is "1" when this module is in normal.
RX (n + m * 7 - 1) 8 to A, C to F are not used.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

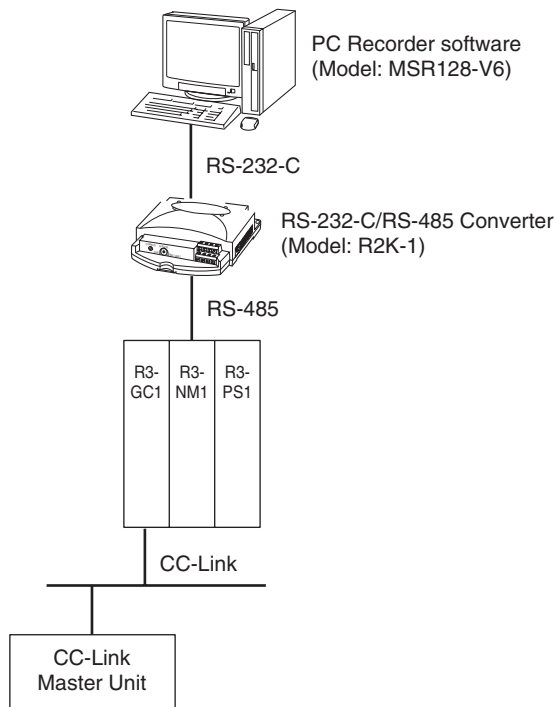


SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



SYSTEM CONFIGURATION EXAMPLES

In the following system configuration, PC Recorder software captures the CC-Link data via R3-GC1 which is used as a gateway.



Specifications are subject to change without notice.