Remote I/O R3 Series

DeviceNet INTERFACE MODULE

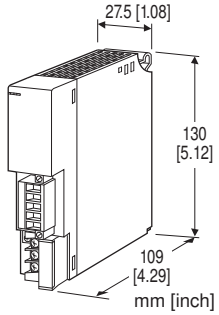
(for 64-point analog signals)

Functions & Features

• Enables other protocol interface modules to communicate with DeviceNet data (gateway).
• Recognized as an analog I/O mixed module by other protocol interface modules.
• Used as DeviceNet slave device like R3-NDx.

Typical Applications

• A gateway for DeviceNet and Modbus/TCP.



CE

MODEL: R3-GD1S[1]

ORDERING INFORMATION

• Code number: R3-GD1S[1]
Specify a code from below for [1].
(e.g. R3-GD1S/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.

RELATED PRODUCTS

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

GENERAL SPECIFICATIONS

Connection

Network: Euro type connector terminal
(applicable wire size: 0.2 to 2.5 mm^2, 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: DeviceNet to internal bus or internal power to RUN contact output
Module allocation: Set with the side DIP switch.

■ RUN CONTACT OUTPUT

RUN contact: Turns on when both MS and NS LEDs are green (Both the DeviceNet and fieldbus on the other R3 interface module are in normal communication.)
Rated load: 250 V AC @ 0.5 A (cos ø = 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.

DeviceNet COMMUNICATION

Transmission cable: Approved for DeviceNet
Node address setting: DIP switch; 00 – 63
Baud rate: 125 kbps, 250 kbps, 500 kbps DIP switch
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.
Required data words: 64 words for input data 64 words for output data

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: R3-BSx)
Weight: 200 g (0.44 lb)

PERFORMANCE

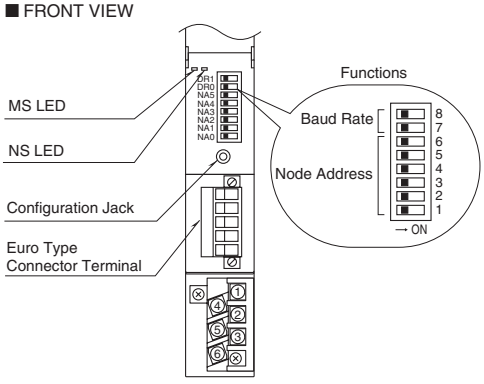
Data allocation: 16 × n (Module allocation: 1 to 4)
Current consumption: 80 mA
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute
(DeviceNet to internal bus or internal power to RUN contact output)
2000 V AC @ 1 minute (power input to FG; isolated on the power supply module)

STANDARDS & APPROVALS

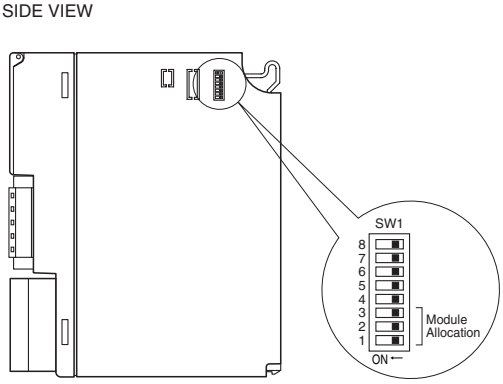
EU conformity:
EMC Directive
EMI EN 61000-6-4
EMS EN 61000-6-2
RoHS Directive

EXTERNAL VIEW

■ FRONT VIEW



■ SIDE VIEW

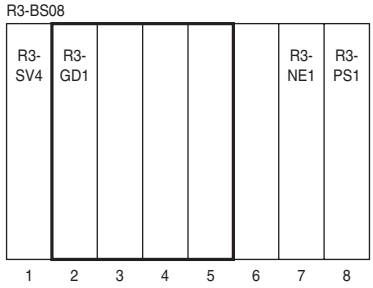


TRANSMISSION DATA DESCRIPTIONS

Use the DIP SW located at the side of the module to specify module allocation.
1 module is equivalent to 1 I/O module with 16 words analog input and 16 words analog output. Max. 4 modules (64 words input, 64 words output) transmission is available. It seems as if max. 4 I/O modules are mounted to 4 slots via DeviceNet.
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-GD1 IS MOUNTED ON SLOT NO. 2 (4 modules)

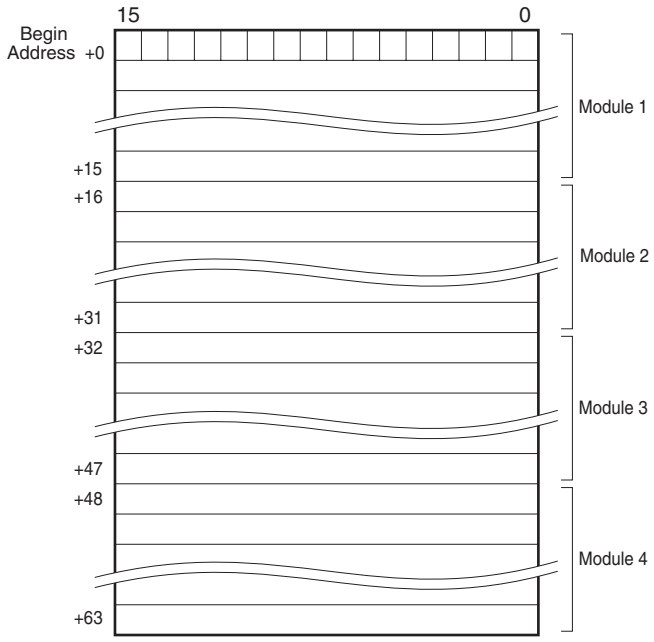
IReal I/O modules are mounted on Slots No. 1 and 2, however, the network module (R3-NE1) recognizes that each of Slots No. 1 to 5 is occupied. That is, R3-NE1 recognizes R3-SV4 mounted on Slot No.1 as it is and recognizes R3-GD1 mounted on Slot No.2 as divided into four modules and occupying Slots No. 2 to 5.



SLOT	REAL MODULE	VERTUAL MODULE	NO. OF WORDS
Slot No.1	R3-SV4	R3-SV4	4 Words
Slot No.2	R3-GD1	R3-GD1 (1/4)	16 Words
Slot No.3	No module	R3-GD1 (2/4)	16 Words
Slot No.4	No module	R3-GD1 (3/4)	16 Words
Slot No.5	No module	R3-GD1 (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	----

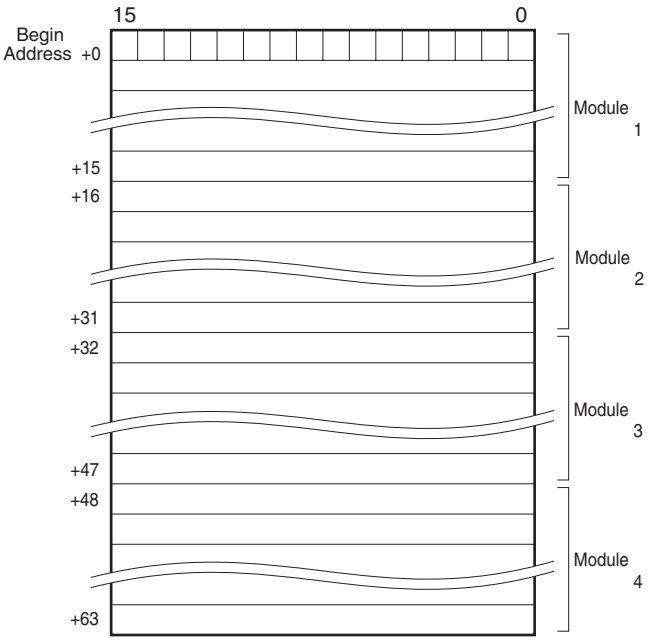
■ OUTPUT DATA

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.



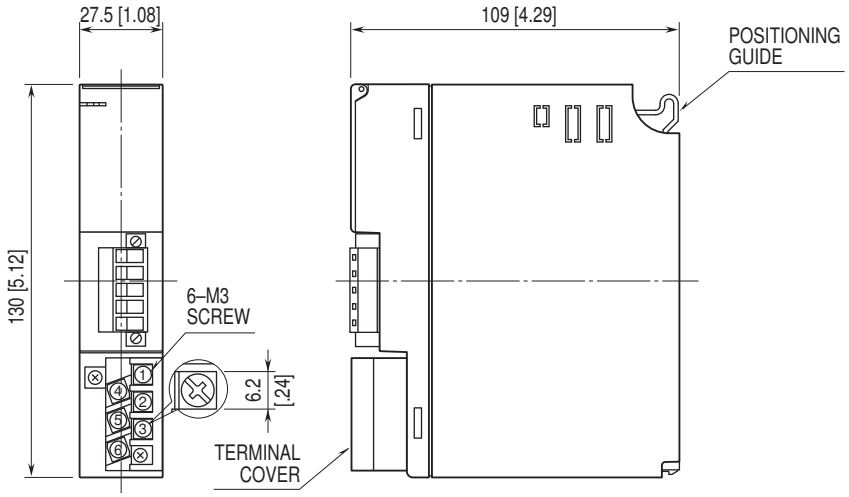
I/O DATA DESCRIPTIONS

■ ANALOG DATA

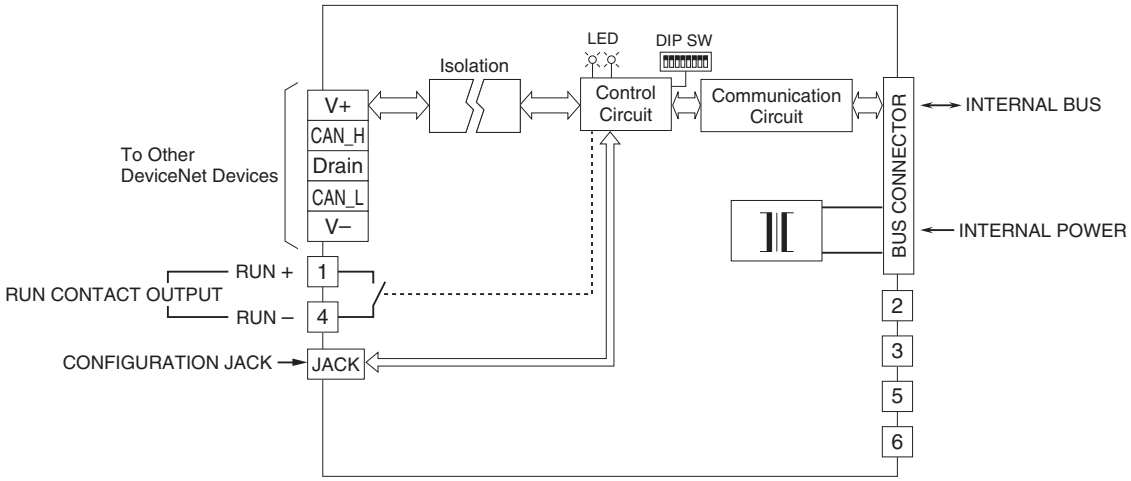
16-bit binary data.



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

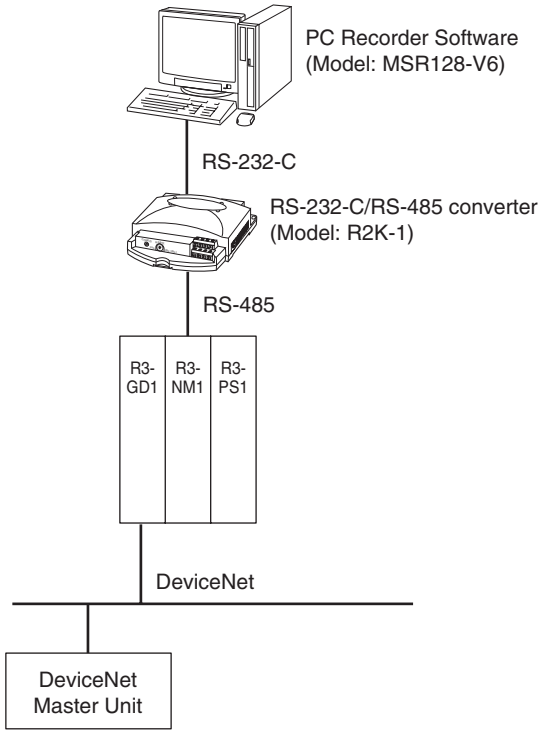


SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



SYSTEM CONFIGURATION EXAMPLES

When the DeviceNet data is acquired with a PC recorder and this module as a gateway, the system configuration is as follows.



⚠ Specifications are subject to change without notice.