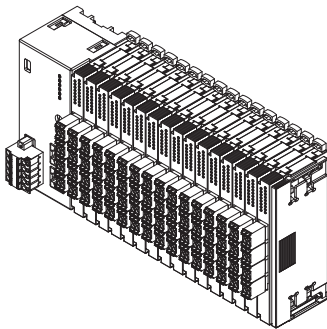## Remote I/O R80 Series

R80 SERIES GENERAL SPECIFICATIONS

Functions & Features
• Remote I/O modules which interchange analog or digital I/O signals with the fieldbus
• Space-saving

Typical Applications
• Remote I/O for DCS and PLC
• Personal computer I/O

ORDERING INFORMATION

Refer to the specifications of the respective modules for details.

POWER/NETWORK MODULE: R80[1]-R

Refer to the specifications for the respective models.

[1] MODULE TYPE

NCIT1: CC-Link IE TSN
ND2: DeviceNet
NECT1: EtherCAT
NEIP1: EtherNet/IP

POWER INPUT

DC power
R: 24 V DC
(Operational voltage range: ±10 %; ripple 10 %p-p max.)

I/O MODULE: R80[1]

Refer to the specifications for the respective models.

[1] MODULE TYPE

• Analog Input
FST4NJ: DC voltage/current input module, 4 points
(built-in excitation, 4 points, non-isolated, Tension clamp terminal block)
UST4: Universal input module, 4 points
(4 points, isolated, tension clamp terminal block)
• Analog Output
YST4N: DC current output module, 4 points
(4 points, non-isolated, Tension clamp terminal block)
YVT4N: DC voltage output module, 4 points
(4 points, non-isolated, Tension clamp terminal block)
• Discrete Input
DAT8A: NPN discrete input module, 8 points
(Tension clamp terminal block)
DAT16A2: NPN discrete input module, 16 points
(tension clamp terminal block)
• Discrete Output
DCT4D: Relay output module
(4 points, Tension clamp terminal block)
DCT8A: NPN transistor output module, 8 points
(tension clamp terminal block)
DCT16A2: NPN transistor output module, 16 points
(tension clamp terminal block)

Since internal power supply source and internal communication bus are performed through the connector of each module, installation base is unnecessary.

EXTENSION POWER SUPPLY MODULE: R80PS1-R

Refer to the specifications of the respective modules for details of extension power supply module.

POWER INPUT

DC power
R: 24 V DC
(Operational voltage range: ±10 %; ripple 10 %p-p max.)

FUNCTIONS & FEATURES

The R80 Series Remote I/O is composed of power/network modules, I/O modules and extention power supply modules.
■ I/O MODULE
Performs data conversion of field inputs; Data conversion of data received through the internal bus into outputs.
■ POWER/NETWORK MODULE
The power/network module supplies the I/O modules with required internal electrical power source.
The power/network module changes the receiving data from internal bus into output signal and vice versa, acts as a gateway between transmission line and internal bus.
■EXTENSION POWER SUPPLY MODULE
Install the extension power supply module in the middle of the I/O module to supply power, when the output current of the power/network module is insufficient.
■INTERNAL DATA CONVERSION

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Differs by the types and setting range of the I/O module. For DC voltage input and DC current input, handles setting range as 0 - 100% and converts to 0000 - 2710 of hexadecial (decimal number: 0 - 10000).

-5 - 0% is represented by two's complements.

For DC voltage input and DC current output, handles the range set by output module as 0 - 100% and converts to 0000 - 2710 of hexadecimal (decimal number: 0 - 10000).

-5 - 0% is represented by two's complements.

For RTD and thermocouple, with factory default setting, converted to the signed binary data that multiplied the engineering value (°C) by ten.

(e.g.) When 27.5 °C is measured, converted to "275".

Refer to the specifications of the respective modules for details.

■SCALING, ZERO/SPAN SETTING

Use PC configurator software (model: R80CFG) to perform scaling for 0 - 100% data.

Setting range is -32000 - 32000.

By setting the temperature range by PC configurator software, for example, 100 - 200 °C can be handled as 0 - 10000 numeric value.

■ HOT INSERTION/REMOVAL OF I/O MODULES

Since internal power supply and internal bus are performed through the connector of each module, it cannot be replaced with the power on.

■ DIELECTRIC STRENGTH

As dielectric strength differs depending on each module, refer to each specification sheet.

RELATED PRODUCTS

• PC configurator software (model: R80CFG)
Downloadable at our web site.
For connecting to PC, use commercially available Mini-B type USB cable. (provided by user)

GENERAL SPECIFICATIONS

Power input:
•**R80NCIT1-R**
•**R80ND2-R**
•**R80NECT1-R**
•**R80NEIP1-R**
•**R80PS1-R**
 24 V DC ±10 %; ripple 10 %p-p max.
 Power consumption
 •**DC**: Approx. 12 W (approx. 11 W for R80PS1-R)
  24 V DC (@ output current 1.6 A)
 Internal power
 •**DC**: 5 V DC
 •**Operational current**: 1.6 A
 Excitation supply output

 •**DC**: 24 V DC ±10 %
 •**Operational current**: 10 A (8 A for R80PS1-R)
  (Power output current consumption must be under rated current)

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: DIN rail (35 mm wide)
Connection
•**Power/network module**
·**Power supply, exc. supply**:
 Tension clamp terminal block (Front twin connection)
 Applicable wire size: 0.2 to 2.5 mm^2, stripped length 10 mm
·**CC-Link IE TSN, EtherCAT**: RJ-45 connector
•**Extension power supply module**:
·**Power supply, exc. supply**:
 Tension clamp terminal block (Front twin connection)
 Applicable wire size: 0.2 to 1.5 mm^2, stripped length 10 mm
•**I/O module**:
 Tension clamp terminal block: 4, 8, 16, 20 pin type (except R80UST4)
 Applicable wire size: 0.2 to 1.5 mm^2, stripped length 10 mm
 Applicable wire size: 0.14 to 0.5 mm^2, stripped length 7 mm
Housing material: Flame-resistant resin (black)
Max. number of I/O modules: 16 (module address: 0 to 15)
Internal communication bus: Transmission cycle approx. 65 μsec. + 65 μsec. x No. of Modules
■ **Weight**
 R80NCIT1: 210 g (0.46 lb) (including Protective cover)
 R80ND2: 190 g (0.42 lb) (including Protective cover)
 R80NECT1: 210 g (0.46 lb) (including Protective cover)
 R80NEIP1: 210 g (0.46 lb) (including Protective cover)
 R80FST4NJ: 120 g (0.26 lb)
 R80UST4: 120 g (0.26 lb)
 R80YST4N: 120 g (0.26 lb)
 R80YVT4N: 105 g (0.23 lb)
 R80DAT8A: 80 g (0.18 lb)
 R80DAT16A2: 110 g (0.24 lb)
 R80DCT4D: 115 g (0.25 lb)
 R80DCT8A: 80 g (0.18 lb)
 R80DCT16A2: 110 g (0.24 lb)
 R80PS1: 100 g (0.22 lb)
 Protective cover: 15 g (0.03 lb) (included in power/network module)

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CURRENT CONSUMPTION

The I/O modules operate by the DC voltage (5 V DC) supplied from the power/network module. Arrange these modules in order that the total current consumed by these modules can be within the supply current capacity.

Insert the extension power supply module when the supply current capacity of internal power of power/network module is insufficient.

Even if total consumption current of the I/O modules is less than the supply current capacity, the total install number of the modules is max. 16 (except extension power supply module).

For example, for R80UST4, total current consumption is 170 mA × 9 modules = 1530 mA. Use extension power supply module when mounting 10 or more modules because teh supply current capacity of internal power exceeds 1.6 A.

■ Max. current consumption of internal power
R80FST4NJ: 120 mA
R80UST4: 170 mA
R80YST4N: 100 mA
R80YVT4N: 210 mA
R80DAT8A: 100 mA
R80DAT16A2: 125 mA
R80DCT4D: 110 mA
R80DCT8A: 120 mA
R80DCT16A2: 160 mA

USING EXCITATION SUPPLY

Some I/O modules use excitation supply, on the other hand some I/O modules do not. When excitation supply is cut off during power supply is on, operation is as the table shown below.

MODEL	EXC. SUPPLY	OPERATION AT ONLY EXC. SUPPLY CUTOFF
R80FST4NJ	−	Continues normal operation.
R80UST4	−	Continues normal operation.
R80YST4N	√	Output is turned OFF.
R80YVT4N	−	Continues normal operation.
R80DAT8A	√	Input is turned OFF.
R80DAT16A2	√	Input is turned OFF.
R80DCT4D	√	Output is turned OFF.
R80DCT8A	√	Output is turned OFF.
R80DCT16A2	√	Output is turned OFF.

'√': Excitation supply is used.
'−': Excitation supply is not used.

■ Max. current consumption of exc. supply
Following module generates power supply for output circuit from exc. supply.
R80YST4N : 90 mA
R80DCT4D : 25 mA

BASIC CONFIGURATION

The number of I/O modules that can be mounted changes depending on the power/network module. Refer to the specifications of each power/network module for details. Althoug the module address can be arbitrarily set regardless of its mounting position, to avoid overlapped and unused addresses, set them consecutively starting at 0. Only for rightmost module, set termination resistor to enable. Protective cover is included in the package of power/network module.
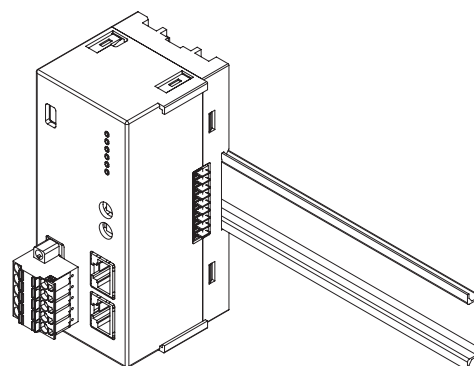

POWER/NETWORK MODULE
I/O MODULES
PROTECTIVE COVER
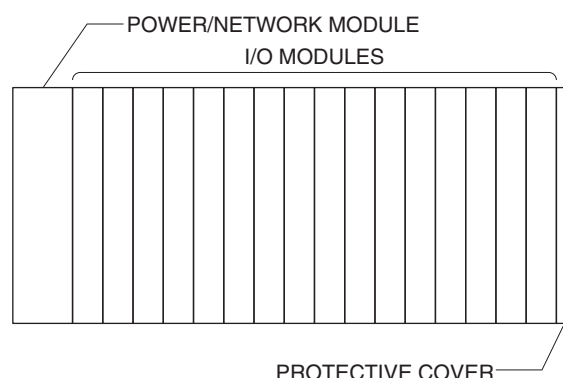
■ **HOW TO MOUNT THE MODULE ON DIN RAIL**
• **Power/Network Module**

Hook
DIN Rail Adaptor
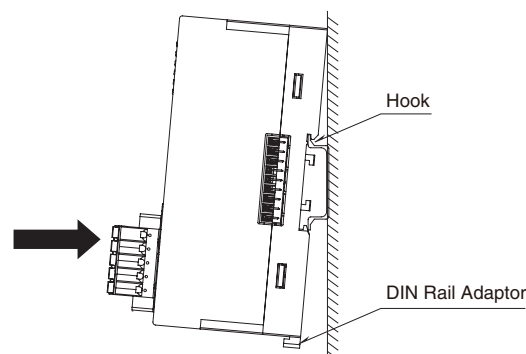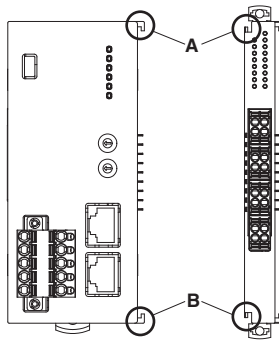
Position the upper hook at the rear on the DIN rail and push in the lower. When removing the module, push down the DIN rail adaptor utilizing a flat-blade screwdriver and pull.
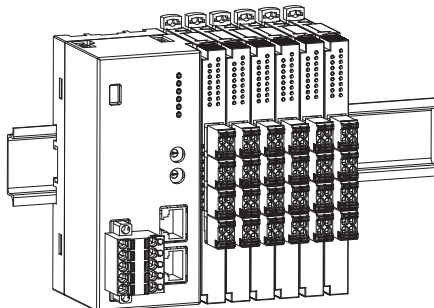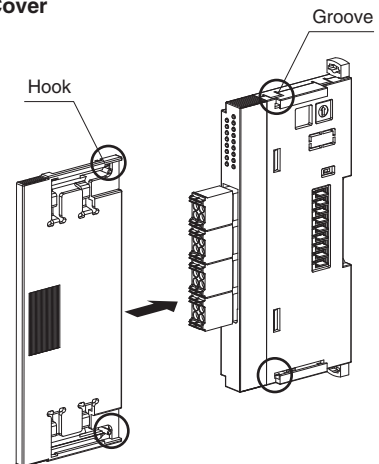
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• I/O Module

Confirm that the locking clamps of the I/O module are set.
Insert the module in parallel to the next one while aligning the grooves of both modules (A & B in the above figure).
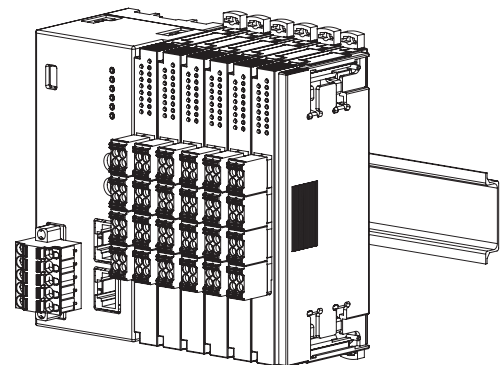Maintain it perpendicularly to the rail.
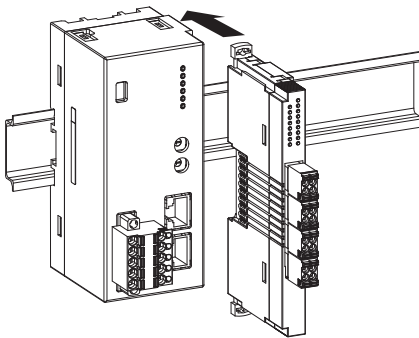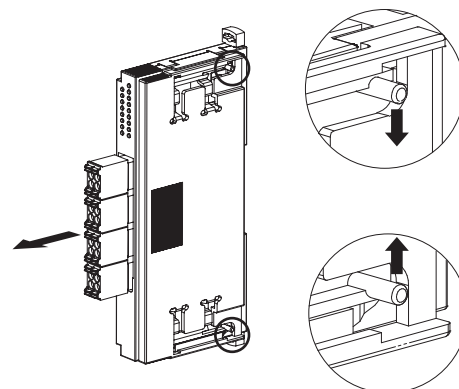

More I/O modules can be added in the same manner.

• Protective Cover

The protective cover is to be attached over the connected I/O module at the right end.
Align the hooks on the cover with the grooves of the module and slide it straight until the hooks are latched.
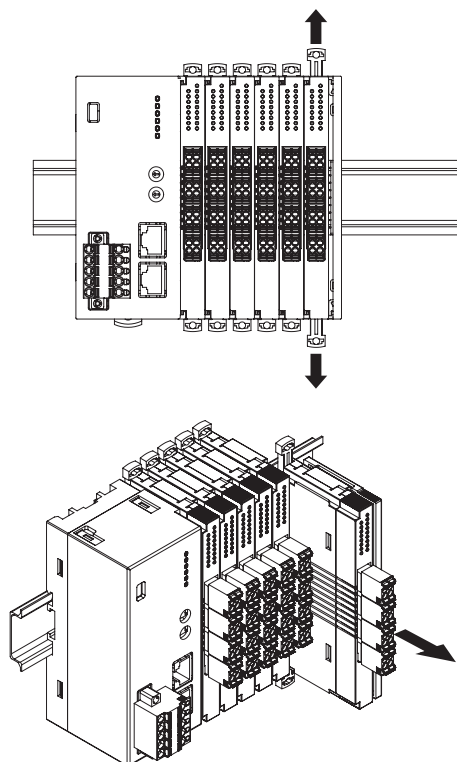

When removing the cover, pull it out while squeezing the hooks inward.
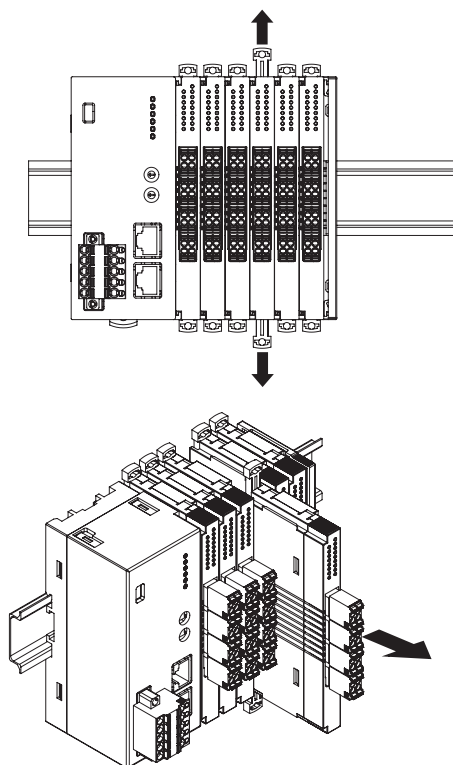
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■ HOW TO UNMOUNT THE MODULE FROM DIN RAIL

• Release the locking clamps and pull out straight the module.

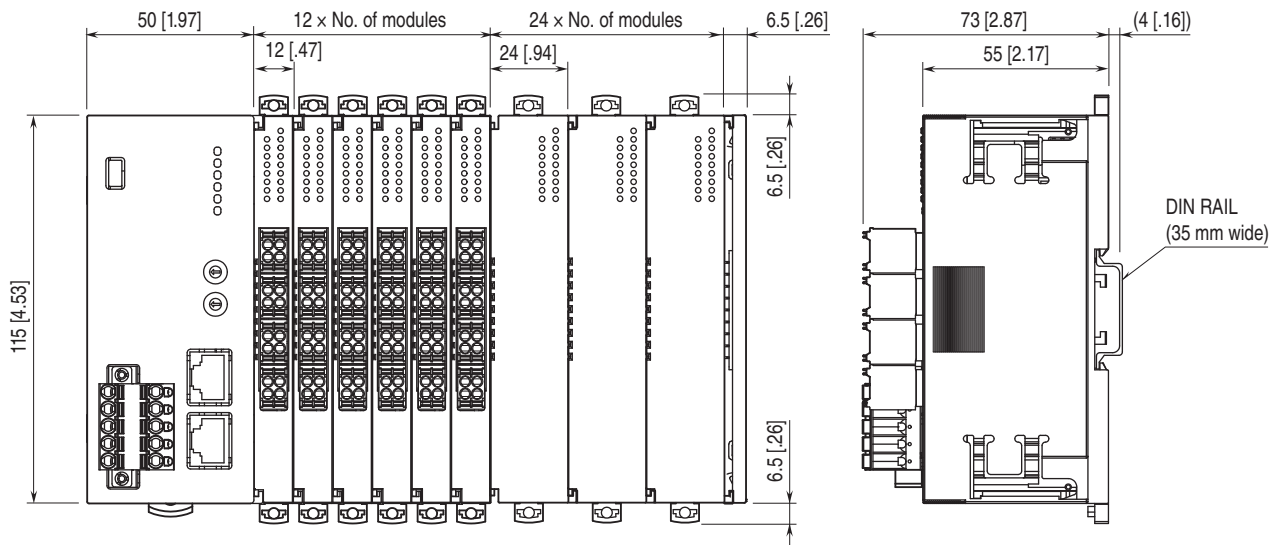• Removing an intermediate module

Note 1: Be careful not to hurt your hand by pointed edges of the internal
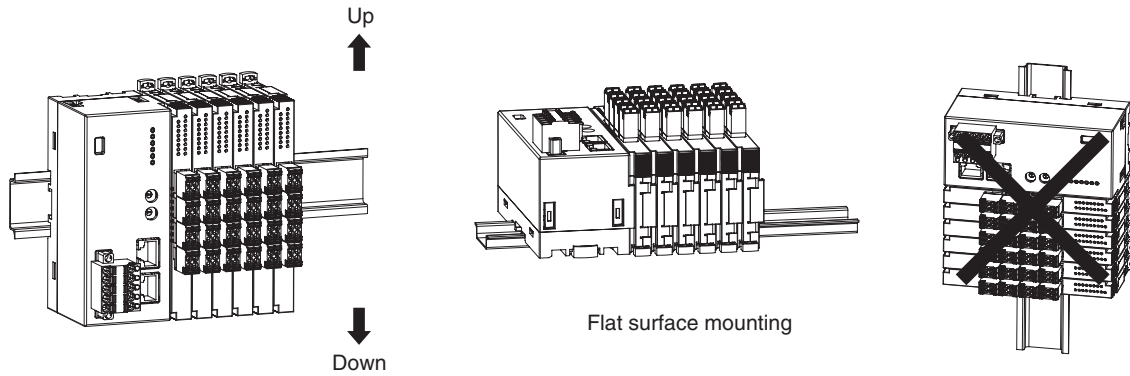 bus connector.
Note 2: I/O modules cannot hold tightly on the DIN rail by themselves
  without power/network module.
 Secure them to the position if necessary by using DIN rail end
  plates.

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MODEL: R80

MOUNTING REQUIREMENTS unit: mm [inch]

50 [1.97]　　12 × No. of modules　　24 × No. of modules　　6.5 [.26]　　73 [2.87]　　(4 [.16])

12 [.47]　　24 [.94]　　55 [2.17]

115 [4.53]

6.5 [.26]

6.5 [.26]

DIN RAIL
(35 mm wide)

■ MOUNTING DIRECTION

Up

Down

Flat surface mounting

■ MOUNTING TO PANEL

Leave enough space between the modules and the mounting panel.

35 [1.38]

20 [.79]　　20 [.79]

35 [1.38]
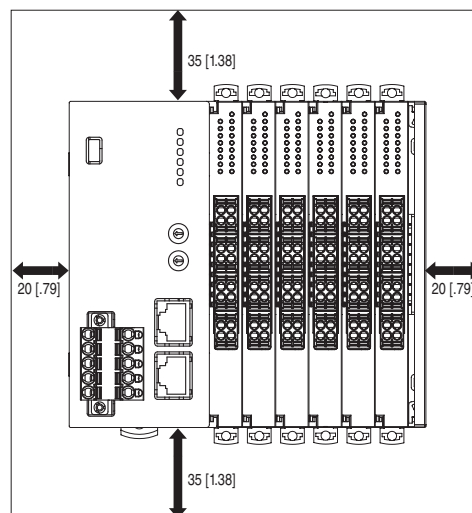
SYSTEM CONFIGURATION EXAMPLES

■ **POWER/NETWORK MODULE: EXAMPLE OF R80NECT1**
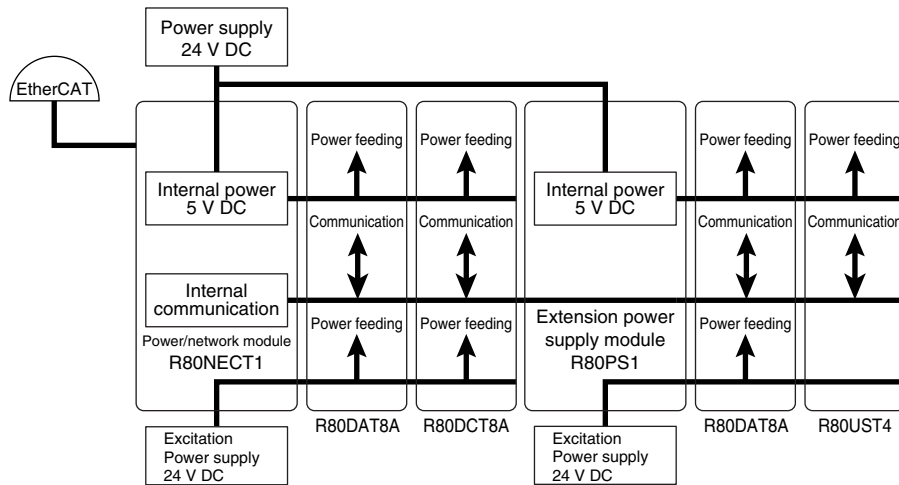
Note1. Use same power supply for the power/network module and extension power supply module.
Note2. Max. 2 extension power supply module can be used at the same time.

⚠ Specifications are subject to change without notice.

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