# I/O Modules and User Interface Modules for Infilex™ AC, Infilex™ GC, Infilex™ GD

# Model RY50XX

## General

Model RY50XX series modules are connected to Infilex GC (multipurpose controller) / Infilex GD (multipurpose data gathering panel) / Infilex AC (AHU controller). The modules are varied as follows:

- I/O (input/output) modules
- User interface modules
  - UT (user terminal) module
  - Operator Panel (integral type)

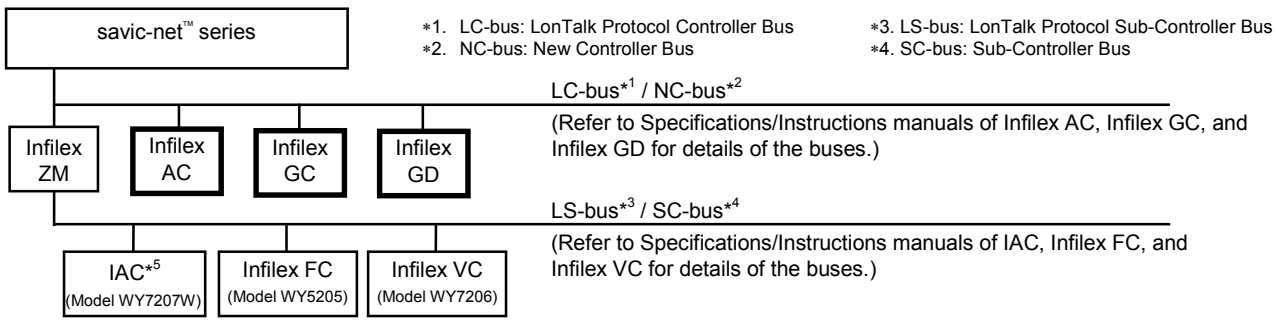
A desired combination of modules can be connected to Infilex GC or Infilex GD corresponding to the application or purpose. To Infilex AC, one I/O module (and one user interface module) can be connected.

I/O modules
Model RY50XX

## Features

- Compact design:
  Infilex AC, Infilex GC, Infilex GD, and their modules are compact, allowing free installation in a desired place.
- I/O module configuration:
  Input and output types can be selected and the number of mounting points can be increased or decreased corresponding to the application or purpose.
- Cooperation with Building Management System (BMS):
  By connecting to the BAS, each building facility enables to be centrally controlled.
- Autonomous distributed control:
  Even if a trouble occurs in the BAS, Infielx AC / Infilex GC / Infilex GD (combined with Model RY50XX) individually performs the backup operation to distribute potential risks caused by malfunction of the system.
- Installation:
  I/O modules and user interface modules (UT module, Operator Panel (integral type)) attached to Infilex AC/Infilex GC/Infilex GD are mounted with DIN rail or with screws.
  Quick-fit screwless terminal block (clamp terminals) is provided on the I/O modules, and modular jack is provided on the user interface modules. This facilitates the wiring work.

## System Configuration Example




∗ *Yamatake's controllers Infilex series: Infilex is named for 'Infinity' and 'Flexible.'*

## Safety Instructions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.

### Usage Restrictions

This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact Yamatake's sales representative. Yamatake Corporation will not bear any responsibility for the results produced by the operators.

### ⚠ WARNING

- DANGER: To prevent the risk of severe or fatal electrical shock, always disconnect the power supply before performing any wiring.
- Do not disassemble the product. Equipment damage or electrical shock may occur.
- Make sure all the wires are tightly connected to prevent heat generation or equipment damage.
- The strip length of insulated wires to be connected to the quick-fit screwless terminal block must be 8 mm. If the strip length is longer than 8 mm, the conductor will be exposed, causing electrical shock or short circuit between adjacent terminals. If it is shorter, the conductor will not contact the connector.

### ⚠ CAUTION

- Installation must be performed by qualified personnel in accordance with all applicable safety standards.
- Installation must be carried out according to the operating conditions specified in this manual to prevent equipment damages.
- All wiring must comply with local codes of indoor wiring and electric installation rules.
- To prevent equipment damages, do not connect or disconnect the I/O modules or user interface modules with the power supplied.
- If more than the rated power supply voltage is applied, product replacement is required for safety.
- Install this product in a location out of reach of unauthorized people (e.g. inside of the control panel).
- Implement protection measures against lighting in consideration of the regional characteristics and building structure in order to minimize lightning damages.
- After completing the wiring, be sure to peel off the protective sheet.
- Do not block the vent holes on the upper or lower part of the product to prevent equipment damages.
- Before replacing an I/O module or a user interface module, be sure to disconnect the power.
- After mounting on DIN rail, make sure that the holding parts of all the connected modules are securely fixed on the DIN rail. The modules may drop from the DIN rail and get damaged due to improper mounting.
- Do not incinerate the product for waste disposal (the housing produces toxic gas when incinerated). Do not recycle all or a part of this product, either.

## Model Selection Table

| Model number | | | | Description | Object points and I/O points to be used | Abbr. of modules | Connection to Infilex AC |
|---|---|---|---|---|---|---|---|
| RY50 | | | | Base model number | — | | |
| | 08 | S | 0000 | I/O module for 8 digital input points | For SOP, AOP: DI 1 point<br>For SAP, SCP: DI 2 points<br>For CCP, OOA inputs: DI 1 point<br>For CAP, HOL inputs: DI 2 points | DI | No |
| | 16 | S | 0000 | I/O module for 16 digital input points | | | |
| | 08 | D | 0000 | I/O module for 8 relay output points (N.O. (normally open) contacts) | For COP maintained, CCP maintained, and CAP maintained: DO 1 point*1<br>For COP momentary/local, CCP momentary/local, CAP momentary/local: DO 2 points | DO | No |
| | 16 | D | 0000 | I/O module for 16 relay output points (N.O. contacts) | | | |
| | 16 | R | 0000 | I/O module for 8 relay output points (N.O. contacts) + 8 digital input points | ∗ Combination of modules<br>(For relay output, see DO. For digital input, see DI.) | DO+DI | Yes*5,*7 |
| | 08 | C | 0000 | I/O module for 8 relay output points (N.O./N.C. (normally open/normally close) contacts) | For OOA transfer/HOL transfer: N.O./N.C. contact DO 2 points*2<br>When using HOL momentary/local => <See Note ∗4 > | DOC | No |
| | 04 | Y | 0000 | I/O module for 4 remote control relay output points | For limited to CCP local: RRD 1 point (DI is not necessary.) | RRD | No |
| | 04 | T | 0000 | I/O module for 4 totalizer pulse input points | For limited to TTD: Pulse input 1 point | TOT | No |
| | 16 | T | 0000 | I/O module for 16 totalizer pulse input points | | | |
| | 02 | M | 0000 | I/O module for 2 voltage/current output points | For limited to AO4 or AO5: AO 1 point<br>AO4 (4-20 mA) or<br>AO5 (2-10 V/0-10 V/1-5 V/0-5 V) | AO | Yes*6,*7 |
| | 04 | M | 0000 | I/O module for 4 voltage/current output points | | | No |
| | 04 | A | 0000 | I/O module for 4 voltage/current input points | For limited to AI:<br>AI 1 point (4-20 mA/2-10 V/0-10 V/1-5 V/0-5 V) | AI | No |
| | 04 | P | 0000 | I/O module for 4 temperature input points | For limited to AI:<br>Pt 1 point (0 to 100 °C/0 to 50 °C / -20 to 80 °C / -20 to 30 °C / -50 to 100 °C) | Pt | No |
| | 04 | J | 0000 | I/O module for 2 voltage /current input points + 2 temperature input points | ∗ Combination of modules<br>(For voltage/current input, see AI. For temperature input, see Pt.) | AI+Pt | Yes*7 |
| | 01 | F | 0000 | I/O module for 1 Modutrol Motor output point | Output is limited to AO3.<br>Input (measurement of actual opening) is limited to AI. } MM 1 point*3 | MM | No |
| | 03 | F | 0000 | I/O module for 3 Modutrol Motor output points | | | |
| | 01 | U | 0000 | User terminal (UT) module | For Neopanel™, Neoplate, Operator Panel (panel mount type) | UT | Yes |
| | 01 | Q | 0000 | Operator Panel (integral type) | For Neopanel™, Neoplate | OP | Yes |

SOP: Status Only Point
SAP: Status Alarm Point
CCP: Command with COS Point
CAP: Command with SAP
TTD: Totalizer Digital Point
AOP: Alarm Only Point
SCP: Status and COS (Change of Status) Point
OOA: ON/OFF/Auto Point
HOL: HI/OFF/LO Command with COS Point

Notes:

∗1 Since the DO module does not have any N.C. (normally close) contact, the DOC module is used for the OOA or HOL.

∗2 In the OOA transfer, ON/OFF is assigned to the first N.O./N.C. contact, and AUTO is assigned to the second N.O./N.C. contact.
In the HOL transfer, HI/OFF is assigned to the first N.O./N.C. contact, and LO is assigned to N.O. of the second N.O./N.C. contact.

∗3 Two points, AO3 and AI, are assigned to one MM point in the point file.
The following shows the points correnponsing to IO numbers.

| | IO number | Point type |
|---|---|---|
| MM1: | (1, 2) | (AO3, AI) |
| MM2: | (3, 4) | (AO3, AI) |
| MM3: | (5, 6) | (AO3, AI) |

∗4 For the HOL momentary/local, 3 points of N.O./N.C. contact DO of the DOC module are required.
HI: N.O. contact of DO, OFF: N.C. contact of DO2, and LO: N.O. contact of DO3

∗5 For DO+DI module connected to Infilex AC (Model WY5117C1400/WY5317C0400), I/O points are limited to DI 4 points and DO 4 points.

∗6 For AO module connected to Infilex AC (Model WY5117C1400/WY5317C0400), voltage output (0-5 V, 0-10 V, 1-5 V, 2-10 V) is only available.

∗7 For DO+DI module, AO module, and AI+Pt module, connectabe Infilex AC is Model WY5117C1400/WY5317C0400 only

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## Hardware Configuration

### Infilex GC and Infilex GD

Inputs and outputs of the Infilex GC or Infilex GD are configured by I/O modules which are directly connected to the Infilex GC / Infilex GD.

Desired I/O modules corresponding to the required input/output specifications are combined and connected to the basic unit (Infilex GC / Infilex GD).

Generally, desired input/output configuration can be made with multiple slots. Up to 99 object points are available for the Infilex GC / Infilex GD. (See Fig. 1)

When a user interface module (UT module / Operator Panel (integral type)) is combined with I/O modules, modules connectable to the basic unit are restricted since the power supplied by the basic unit to its modules are limited. Note that multiple UT modules or Operator Panels (integral type) cannot be connected and that UT module and Operator Panel cannot be combined. (See Figs. 2 and 3.) For details, contact Yamatake's sales personnel.

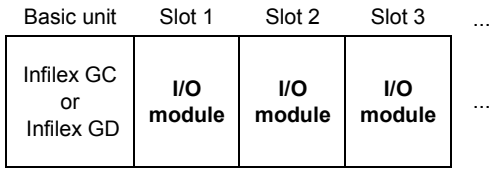



Figure 1. Hardware configuration:
Infilex GC / Infilex GD with I/O modules

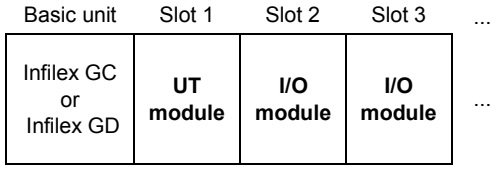



Figure 2. Hardware configuration:
Infilex GC / Infilex GD with UT module and I/O modules

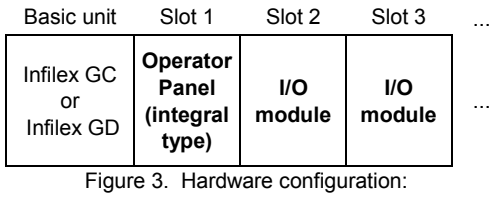



Figure 3. Hardware configuration:
Infilex GC / Infilex GD with Operator Panel (integral type) and I/O modules

### Infilex AC

To Infilex AC Model WY5117C1X00/WY5317C0X00, one user interface module (UT module / Operator Panel (integral type)) can be connected. Note that multiple UT modules and Operator Panels (integral type) cannot be connected and that UT module or Operator Panel (integral type) cannot be combined. (See Figs. 5 and 6.)

To Infilex AC Model WY5117C1400/WY5317C0400, one I/O module (DO+DI, AO, or AI + Pt) can be connected in addition to one user interface module. (See Figs. 7 and 8.) An I/O module without user interface module is connectable to Model WY5117C1400/WY5317C0400 as well. (See Fig. 4.)

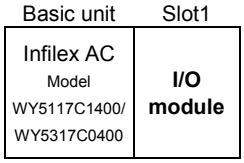



Figure 4. Hardware configuration:
Infilex AC Model WY5117C1400/WY5317C0400
with I/O module

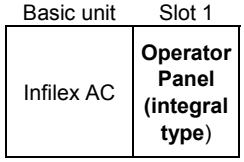



Figure 5. Hardware configuration:
Infilex AC Model WY5117C1X00/WY5317C0X00
with Operator Panel (integral type)

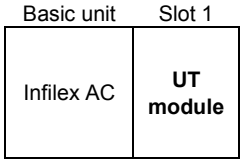



Figure 6. Hardware configuration
Infilex AC Model WY5117C1X00/WY5317C0X00
with UT module

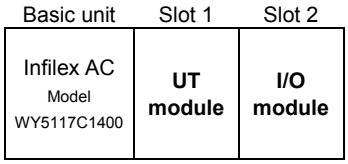



Figure 7. Hardware configuration:
Infilex AC Model WY5117C1400/WY5317C0400
with UT module and I/O module

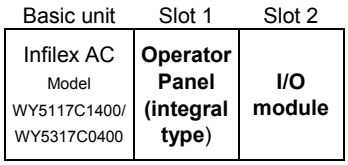



Figure 8. Hardware configuration:
Infilex AC Model WY5117C1400/WY5317C0400
with Operator Panel (integral type) and I/O module

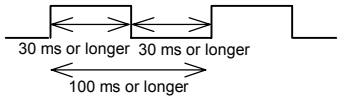
## Specifications

### Basic specifications: I/O modules and UT module

For the specifications of Operator Panel (integral type), please refer to Specifications/Instructions manual AB-6546.

| Item | | | | Specification | |
|---|---|---|---|---|---|
| Environ-mental conditions | Rated operating conditions | Ambient temperature | | 0 °C to 50 °C | |
| | | Ambient humidity | | 10 %RH to 90 %RH (Non-condensing) | |
| | | Vibration | | Max. 5.9 m/s² (0.6 G) (at 10 Hz to 150 Hz) when connected to Infilex AC | |
| | | | | Max. 3.2 m/s² (0.33 G) (at 10 Hz to 150 Hz) when connected to Infilex GC / Infilex GD | |
| | Transport and storage conditions | Ambient temperature | | -20 °C to 60 °C | |
| | | Ambient humidity | | 5 %RH to 95 %RH (Non-condensing) | |
| | | Vibration for storage | | Max. 5.9 m/s² (0.6 G) (at 10 Hz to 150 Hz) | |
| | | Vibration for transport | | Max. 9.8 m/s² (1 G) (at 10 Hz to 150 Hz) | |
| Inputs of I/O modules | Digital input, totalizer pulse input*1 | Current | | 5 mA DC (typ.) | |
| | | Voltage | | 24 V DC (typ.) | |
| | | Connectable output | | Potential free contact | |
| | Temperature input | Input signal | | Pt RTD (Pt 100 Ω/0 °C) | |
| | | Measuring range | | -50 °C to 100 °C | |
| | | Allowable setting range | | 0 °C to 100 °C / 0 °C to 50 °C / -20 °C to 80 °C / -20 °C to 30 °C / -50 °C to 100 °C | |
| | Voltage input | Input voltage range | | 0 V DC to 5 V DC / 0 V DC to 10 V DC / 1 V DC to 5 V DC / 2 V DC to 10 DC V | |
| | | Input impedance | | 500 kΩ (typ.) | |
| | Current input | Input current range | | 4 mA DC to 20 mA DC | |
| | | Input impedance | | 250 Ω (typ.) | |
| Outputs of I/O modules | Relay output (NO contact) | Output method | | Relay output, N.O. contact (N.O. contacts use the same common line.) | |
| | | Contact rating | | Max. 24 V AC, 0.5 A (Inductive load: cos ϕ 0.4 or more) | |
| | | | | Max. 24 V DC, 0.5 A | |
| | | Minimum applicable load | | 5 V DC / 5V AC, 10 mA | |
| | Relay output (NO/NC contact) | Output method | | Relay output, N.O./N.C. contact | |
| | | Contact rating | | Max. 24 V AC, 1 A (Inductive load: cos ϕ0.4 or more) | |
| | | | | Max. 24 V DC, 1 A | |
| | | Minimum applicable load | | 5 V DC / 5 V AC, 100 mA | |
| | Voltage output | Output voltage range | | 0 V DC to 5 V DC / 0 V DC to 10 V DC / 1 V DC to 5 V DC / 2 V DC to 10 DC V | |
| | | Minimum load resistance | | 10 kΩ or higher | |
| | Current output | Output current range | | 4 mA DC to 20 mA DC | |
| | | Maximum load resistance | | 500 Ω or lower | |
| | Remote control relay output | Output method | | Thyristor output | |
| | | Output rating | | 24 V AC, 1.5 A | |
| | | Cconnectable units | | One remote control relay per point | |
| | Modutrol Motor output | Output method | | Relay output, N.O. contact | |
| | | Contact rating | | Max. 24 V AC / 24 V DC, 1.0 A | |
| | | Input signal | | 3-wire type feedback potentiometer Load resistance range: 100 Ω to 10 kΩ | |
| Power failure backup | | | | Non-volatile memory backup | |
| Weight | | | I/O module | DI | 160 g |
| | | | | DO | 210 g |
| | | | | DO+DI | 190 g |
| | | | | DOC | 230 g |
| | | | | RRD | 170 g |
| | | | | TOT | 160 g |
| | | | | AO | 170 g |
| | | | | AI | 160 g |
| | | | | Pt | 160 g |
| | | | | AI+Pt | 160 g |
| | | | | MM | 190 g |
| | | | UT module | UT | 160 g |
| Material / color | | | | Modified PPE / light gray | |
| Terminal connection | | | | I/O modules: Quick-fit screwless terminal block UT module / Operator Panel (integral type): Modular connector | |

Note:
The pulse width and pulse intervals must satisfy three conditions shown in the figure below.



**Input/output specifications: UT module and Operator Panel (integral type)**

| Input to / output from: | Description | Specifications | Connection | Wire specification |
|---|---|---|---|---|
| Digital user terminal | Temperature setting, AC ON/OFF, etc. | Serial voltage transmission<br>Transmission speed: 100 bps | Connector connection*1 | LAN cable*2<br>Max. 50 m |
| Analog user terminal | AC ON/OFF, etc. | Potential free contact × 1 pt. (instantaneous)<br>Applied voltage/current: 12 V DC typ./<br>10 mA DC typ. | | |
| | LED output | Voltage output | | |
| | Temperature setting inpout | Potentiometer input (1 kΩ to 10 kΩ) | | |

Notes:
∗1 For connector connection, use Stewart Connector's Plug: Model 940-SP-3088R.
This plug is also available at Yamatake. (Part No. DY7207A0100, 100 pieces/set)
∗2 LAN cable compliant with EIA/TIA-568 Category 3 or over (ϕ0.5 mm × 4 poles) is required.
For ∗1 and ∗2, the cable with connector (Part No. DY7210) and the short cable with connector (Part No. DY7220) are available.

**DP-bus specifications: UT module**

Port for DP-bus is provided on the front surface of the UT module. With the DP-bus, Operator Panel (panel mount type) is connected to the UT module.

| Item | Specification |
|---|---|
| Transmission system | RS-485 |
| Transmission speed | 4800 bps |
| Connectable number of the bus | 1 line to Infilex GC, Infilex GD, or Infilex AC |
| Transmission distance (cable length) | 10 m modular cable |

**Wiring specifications**

⚠ CAUTION

- Before the power is applied, make sure that the wiring installation is correct. Incorrect wiring will cause equipment damages.

| Item | | Specification | Wiring length*1 |
|---|---|---|---|
| I/O modules*5 | Temperature input | JIS*2 IV, JIS CVV, KPEV*3 1.25 $mm^2$ | 100 m |
| | Voltage/current input | JIS IV, JIS CVV, KPEV 1.25 $mm^2$ | 100 m |
| | Voltage/current output | JIS IV, JIS CVV, KPEV 0.9 $mm^2$, 1.25$mm^2$ | 100 m |
| | Modutrol Motor output | JIS IV, JIS CVV, KPEV 1.25 $mm^2$ | 100 m |
| | Digital input | JIS IV, JIS CVV, KPEV<br>0.5 $mm^2$, 0.75 $mm^2$, 0.9 $mm^2$, 1.25 $mm^2$ | 100 m |
| | Relay output | JIS IV, JIS CVV, KPEV 1.25 $mm^2$ | 100 m |
| | Remote control relay output | JIS IV, JIS CVV, KPEV 1.25 $mm^2$ | 100 m |
| User interface module | UT module*4 | LAN cable | 50 m (Remote Controller bus) |
| | | | 10 m (DP-bus)<br>DP: Display Panel |
| | Operator Panel (integral type)*5 | LAN cable | 50 m (Remote Controller bus) |

Notes:
∗1 The wiring length is the total of the wiring length to the relay terminal and the wiring length to the load after the relay terminal.
∗2 JIS: Japanese Industrial Standards.
∗3 KPEV is a wiring standard provided by Furukawa Electric Co., Ltd.
∗4 On the I/O modules, quick-fit screwless (clamp) terminal blocks are provided. The wires therefore can be connected simply by stripping the sheath. (Sheath stripping length: 8 mm (Pin terminal cannot be used.))
On UT module and Operator Panel (integral type), modular jacks are provided.

## Dimensions

For the dimensions of Operator Panel (integral type), please refer to Specifications/Instructions manual AB-6546.

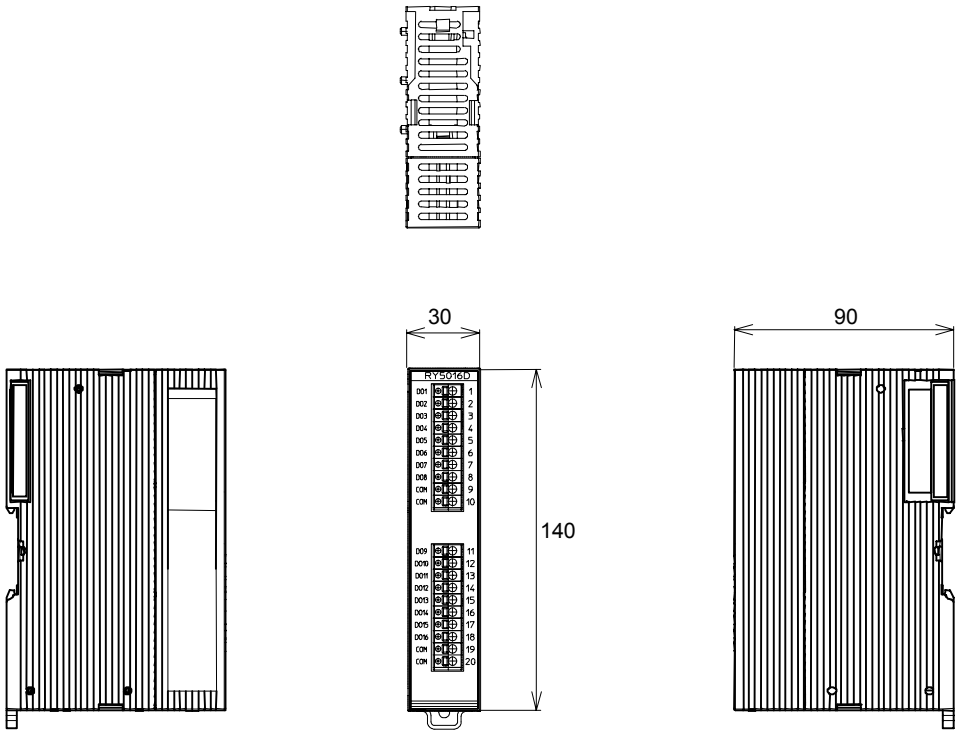



Figure 9. Dimensions of the I/O module Model RY5016D (mm)

Outline dimensions of the other I/O modules and UT module are the same as above though the drawing (graphic description) of the Fig. 9 is different from their actual appearances.

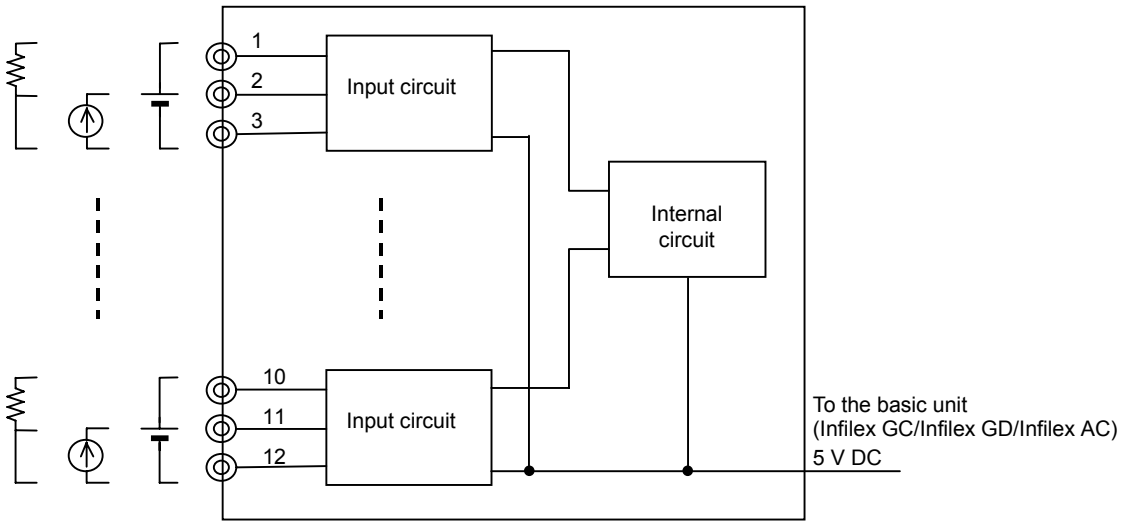
### Wire Connections

For the wiring connection of Operator Panel (integral type), please refer to Specifications/Instructions manual AB-6546.

**AI module** **Model RY5004A**

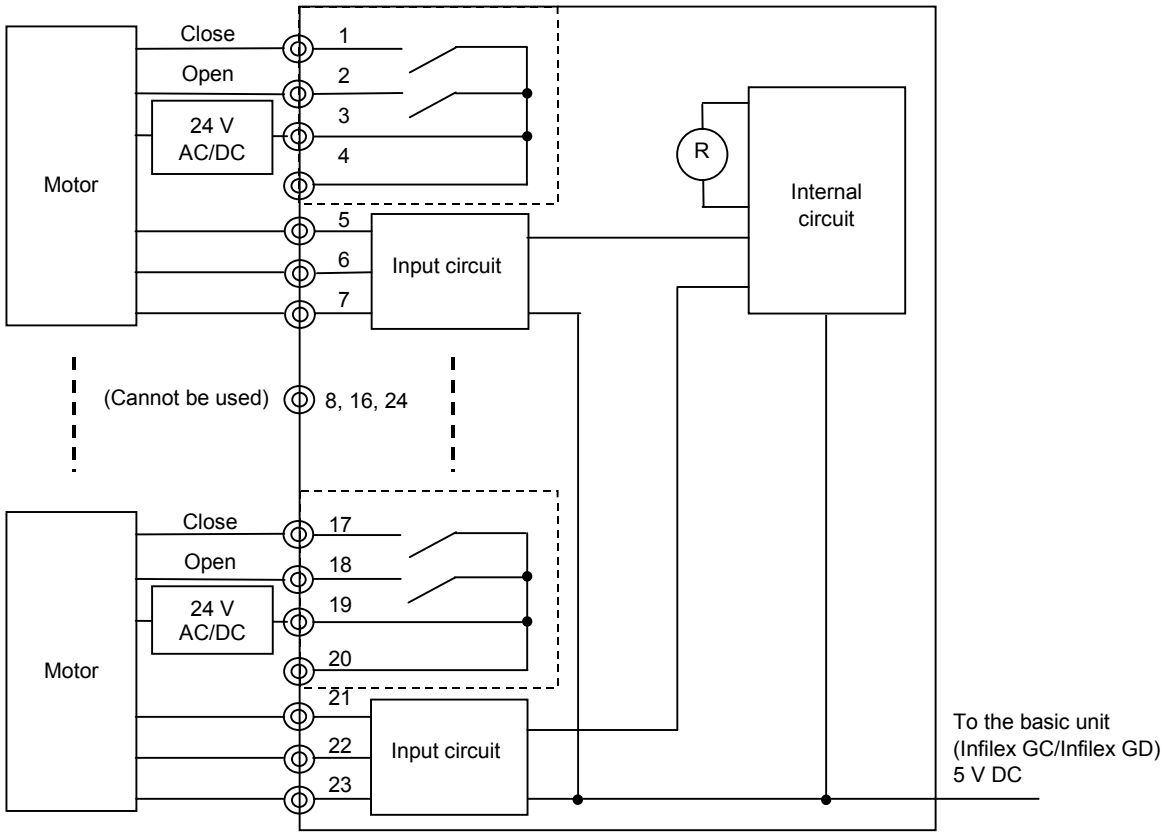
**Pt module** **Model RY5004P**

**AI+Pt module** **Module RY5004J**



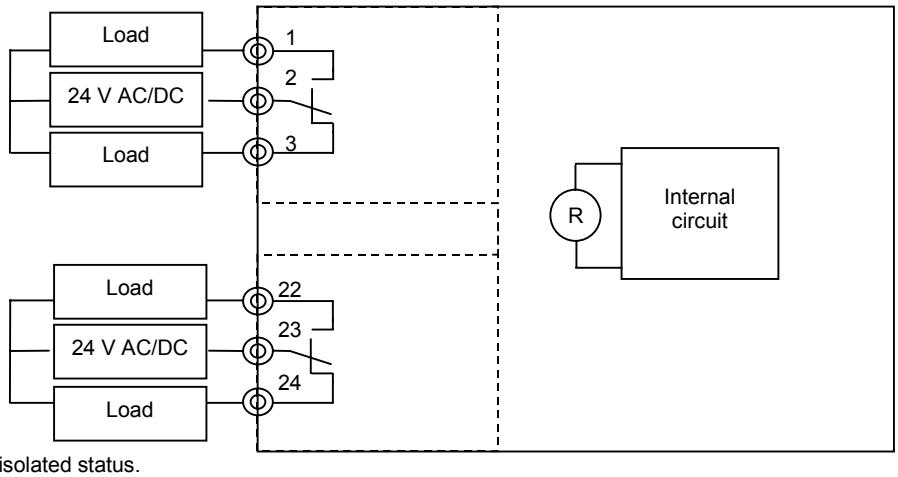

* Be sure to isolate the wires and/or devices to be connected to when performing wiring of voltage/current input.

**MM module** **Model RY5001F/Model RY5003F**



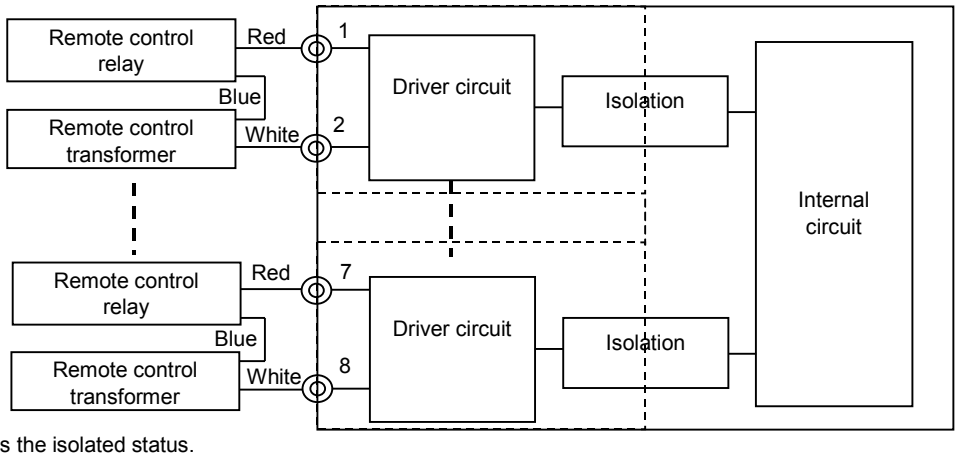

* "- - -" shows the isolated status.

**DOC module** **Model RY5008C**



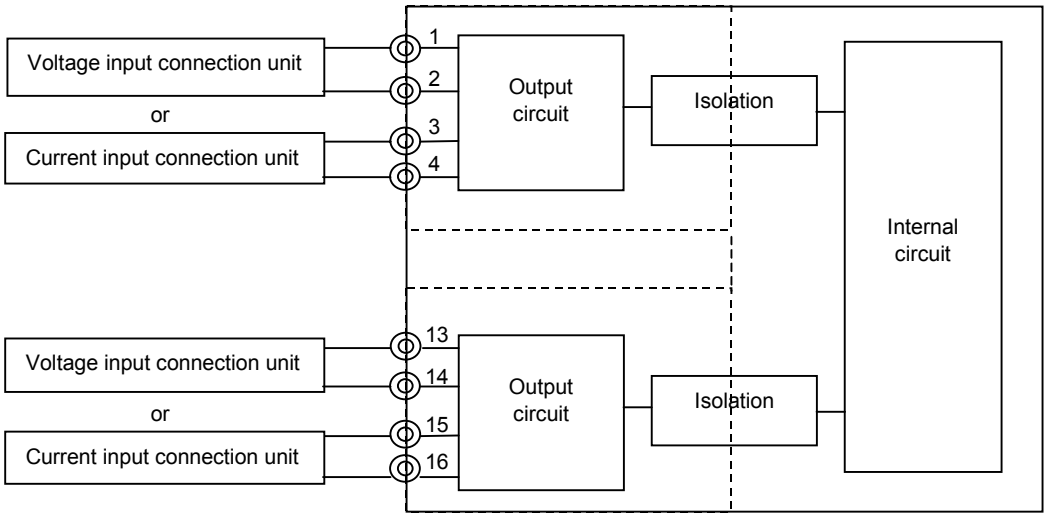

∗ "- - -" shows the isolated status.

**RRD module** **Model RY5004Y**




∗ "- - -" shows the isolated status.

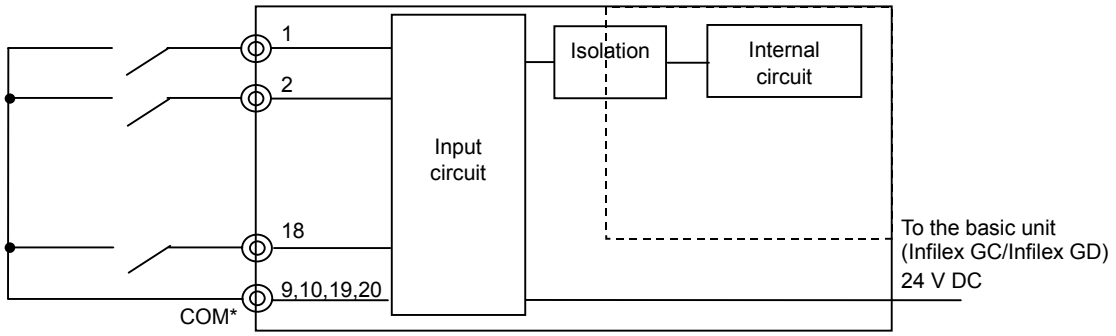
**AO module** **Model RY5002M/RY5004M**




∗1 "- - -" shows the isolated status.
∗2 Do not concurrently use the voltage output and current output.

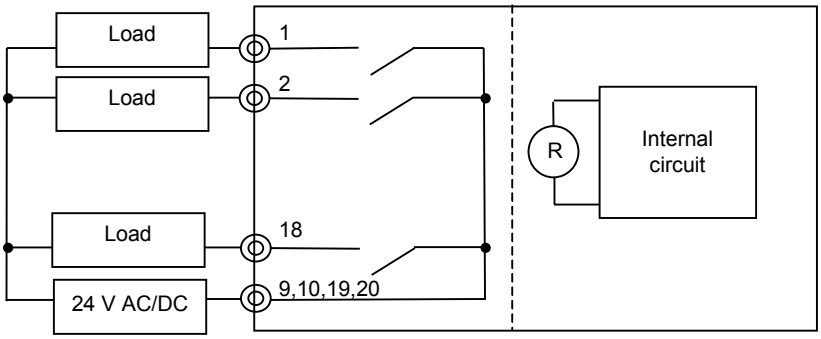
**DI module** **Model RY5008S/RY5016S**

**TOT module** **Model RY5004T/RY5016T**



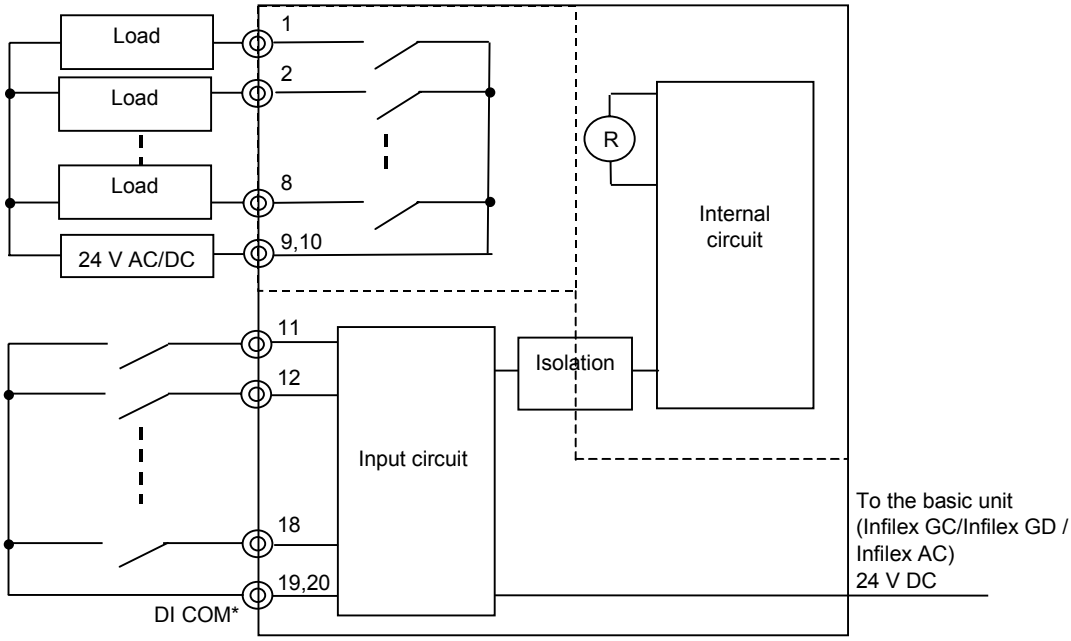

∗1 "- - -" shows the isolated status.
∗2 The COM terminals of other DI and/or TOT modules cannot be used.

**DO module** **Model RY5008D/RY5016D**



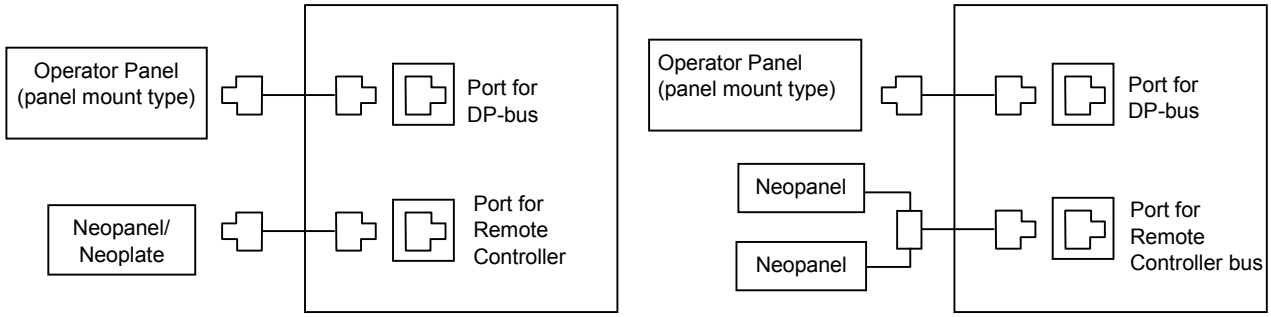

∗ "- - -" shows the isolated status.

**DO+DI module** **Model RY5016R**




∗1 "- - -" shows the isolated status.
∗2 The COM terminals of other DO + DI module cannot be used.

**UT module** **Model RY5001U**




Note: For the restrictions on UT module connection, refer to "2. Restrictions on UT module connection" of the following section.

## Precautions for I/O Modules And User Interface Modules Configuration

### 1. Limited Supply Current

Up to 99 object points are available for the basic unit Infilex GC or Infilex GD.

In addition to the limited object points, there are other restrictions on capacity of the power supplied by the basic unit to the connected I/O modules and user interface modules (UT module / Operator Panel (integral type)).

**Current to be supplied by the basic unit**

The current supplied by Infilex AC is not limited.

5 V DC and 24 V DC are supplied by the basic unit (Infilex GC / Infilex GD) to the I/O modules and user interface modules. (5 V DC and 24 V DC are isolated from each other.)

The following table shows the supply capacity and application of 5 V DC and 24 V DC power.

| Power supply | Maximum current to be supplied | Maximum power to be supplied | Application of supplied power |
|---|---|---|---|
| 5 V DC | 1.8 A | 15 W | I/O operation and relay drive |
| 24 V DC | 0.625 A | | I/O operation and DI circuit |

Conditions:

- The current of each power supply system must not exceed the maximum current to be supplied.
- The synthetic value of the power capacity (for both 5 V DC and 24 V DC) must not exceed the maximum power to be supplied.

  Example 1) When using 5 V DC and 1.8 A, up to 24 V DC and 0.25 A can be supplied.

  Example 2) When using 5 V DC and 0 A , up to 24 V DC and 0.625 A can be supplied.

  Example 3) When using 5 V DC and 1 A, up to 24 V DC and 0.416 A can be supplied.

**Totalizing consumption current of I/O modules and user terminal modules**

The number of I/O modules and user terminal modules to be connected is determined by the total of consumption current values calculated according to the basic capacity and additional capacity. If the output of the I/O modules cannot be specified, the number of modules to be connected is determined by the value calculated according to the maximum consumption value.

Basic capacity:
Consumption current necessary to operate the module. The basic capacity is the consumption current value under the conditions shown in the following.

- DO, DO+DI, and DOC modules:
  Current value when all outputs are OFF.
- AO module:
  Voltage output only.
- Other modules:
  No restrictions.

Additional capacity:
Consumption current determined by the application. DO, DO+DI, DOC, and AO modules may have the additional capacity.

1) Basic capacity

| | Number of points | Power supply | |
|---|---|---|---|
| | | 5 V DC | 24 V DC |
| Basic unit | — | 0.15 | 0 |
| DI module | 8 | 0.02 | 0.04 |
| | 16 | 0.02 | 0.08 |
| DO module* | 8/16 | 0.02 | 0 |
| DOC module* | 8 | 0.02 | 0 |
| DO+DI module* | 16 | 0.02 | 0.04 |
| TOT module | 4 | 0.02 | 0.02 |
| | 16 | 0.02 | 0.08 |
| RRD module | 4 | 0.02 | 0 |
| MM module | 1 | 0.07 | 0 |
| | 3 | 0.15 | 0 |
| AO module* | 2/4 | 0.04 | 0.08 |
| AI module | 4 | 0.02 | 0.02 |
| Pt module | 4 | 0.02 | 0.02 |
| AI+Pt module | 4 | 0.02 | 0.02 |
| UT module | — | 0.02 | 0.04 |
| Operator Panel (integral type) | — | 0.02 | 0.04 |

(Unit: A)

∗Note: Additional capacity is added according to the application.

2) Additional capacity

DO, DO+DI, and DOC modules

| | |
|---|---|
| Maintain output | DO module:<br>"5 V, 30 mA" is added per one output. |
| | DO+DI module:<br>"5 V, 30 mA" is added per one output. |
| | DOC module:<br>"5 V, 50 mA" is added per one output. |
| Momentary output | Infilex GC/Infilex GD:<br>"5 V, 100 mA" is added in total.<br>(Additional value of the momentary output is not related to the number of momentary outputs.) |

AO module

| | |
|---|---|
| Current output | "24 V, 25 mA" is added per one output. |

3) Max. power consumption current of each module

| | Number of points | Power supply | |
|---|---|---|---|
| | | 5 V DC | 24 V DC |
| Basic unit | — | 0.15 | 0 |
| DI module | 8 | 0.02 | 0.04 |
| | 16 | 0.02 | 0.08 |
| DO module | 8 | 0.26 | 0 |
| | 16 | 0.50 | 0 |
| DOC module | 8 | 0.42 | 0 |
| DO+DI module | 16 | 0.26 | 0.04 |
| TOT module | 4 | 0.02 | 0.02 |
| | 16 | 0.02 | 0.08 |
| RRD module | 4 | 0.02 | 0 |
| MM module | 1 | 0.07 | 0 |
| | 3 | 0.15 | 0 |
| AO module | 2 | 0.04 | 0.13 |
| | 4 | 0.04 | 0.18 |
| AI module | 4 | 0.02 | 0.02 |
| Pt module | 4 | 0.02 | 0.02 |
| AI+Pt module | 4 | 0.02 | 0.02 |
| UT module | — | 0.02 | 0.04 |
| Operator Panel (integral type) | — | 0.02 | 0.04 |

(Unit: A)

4) Calculation example

| | |
|---|---|
| CAP momentary output: NO contact × 2 | 3 points |
| COP maintained | 2 points |
| AOP | 2 points |
| Pt100 | 3 points |
| 1-5 V input | 3 points |
| AO (current) output | 2 points |
| AO (voltage) output | 1 point |

Power consumption of the points described in the table above is calculated as follows:

1. Calculation of points by input/output type

| | |
|---|---|
| Contact outputs | CAP (DO × 2) × 3 + COP (DO × 1) × 2 = 8 |
| Contact inputs | CAP (DI × 2) × 3 + AOP (DI × 1) × 2 = 8 |
| Pt100 | 3 |
| AI (1-5 V) | 3 |
| AO | 3 |

2. Determination of I/O module

| | |
|---|---|
| DO+DI module | 1 |
| Pt module | 1 |
| AI module | 1 |
| AO 4 points module | 1 |

3. Calculation of power capacity

| | | Power supply | |
|---|---|---|---|
| | | 5 V DC | 24 V DC |
| Basic capacity | Basic unit | 0.15 | 0 |
| | DO+DI module | 0.02 | 0.04 |
| | Pt module | 0.02 | 0.02 |
| | AI module | 0.02 | 0.02 |
| | AO module (for 4 points) | 0.04 | 0.08 |
| Additional capacity | DO+DI (maintain) | 0.03×2 | 0 |
| | DO+DI (momentary) | 0.1 | 0 |
| | AO (current output) | 0 | 0.025×2 |
| Total | | 0.41 | 0.21 |
| Power consumption | Total: 7.09 W | 2.05 W | 5.04 W |

(Unit: A)

In this example, both the output capacity (Max. 5 V DC: 1.8 A and 24 V DC: 0.625 A) and power consumption (Max. 15 W) of each power supply do not exceed the max. values. That is, these points can be mounted to the basic unit.

If an output type (momentary/maintain) cannot be specified, the power capacity is calculated according to the maximum current consumption of each module. Total power consumption therefore is assumed as follows:

| | | Power supply | |
|---|---|---|---|
| | | 5 V DC | 24 V DC |
| Maximum consumption current | Basic unit | 0.15 | 0 |
| | DO+DI module | 0.26 | 0.04 |
| | Pt module | 0.02 | 0.02 |
| | AI module | 0.02 | 0.02 |
| | AO module | 0.04 | 0.18 |
| Total | | 0.49 | 0.26 |
| Power consumption | Total: 8.69 W | 2.45 W | 6.24 W |

(Unit: A)

## 2. Restrictions on UT Module Connection

To the basic unit Infilex AC / Infilex GC / Infilex GD, one UT module can be connected.

To the UT module, user terminal(s) (Neopanel / Neoplate) is (are) connected with Remote Controller bus. For the hardware configurations of the UT module* with Neopanel / Neoplate connected, refer to the table below.

| Config. type | Remote Controller bus (connected from UT module) | Neopanel Address 1 | Neopanel Address 2 | Neoplate |
|---|---|---|---|---|
| 1 | | ✓ | | |
| 2 | | ✓ | ✓ | |
| 3 | | | | ✓ |

Notes:

* As for Neopanel, up to 2 units (Address 1 and Address 2) are connectable to the UT module. In this case, a modular branch unit (Part No. DY7203A0000) is required.
* As for Neoplate, only 1 unit is connectable to the UT module.
* Operator Panel (panel mount type) is connectable with DP-bus regardless of Neopanel/Neoplate connected or unconnected to the UT module.

## 3. Restrictions on Operator Panel (Integral Type) Connection

To the basic unit Infilex AC / Infilex GC / Infilex GD, one Operator Panel (integral type) can be connected.

To an Operator Panel (integral type), user terminal(s) (Neopanel / Neoplate) is (are) connected with Remote Conotroller bus. For the hardware configurations of an Operator Panel (integral type) with Neopanel / Neoplate connected, refer to the table below.

| Config. type | Remote Controller bus (connected from Operator Panel (integral type)) | Neopanel Address 1 | Neopanel Address 2 | Neoplate |
|---|---|---|---|---|
| 1 | | ✓ | | |
| 2 | | ✓ | ✓ | |
| 3 | | | | ✓ |

Notes:

* As for Neopanel, up to 2 units (Address 1 and Address 2) are connectable to the Operator Panel (integral type). In this case, a modular branch unit (Part No. DY7203A0000) is required.
* As for Neoplate, only 1 unit is connectable to the UT module.

## Precautions for I/O Modules And User Interface Modules Connection

### Address setup

After I/O modules and user interface modules are connected and configured by Yamatake's service personnel, an address is automatically set for each of the I/O modules and the user interface modules (UT module / Operator Panel (integral type)) based on their physical locations.

The addresses are sequentially set from the module closer to the basic unit. At this time, if any I/O module or user interface module is missing, the address cannot be set.
(Missing of module means that the housing of the I/O module or user interface module exists, but the PCB (print-circuit board) is not mounted.)

The addresses are saved into the non-volatile memory in their respective modules. Therefore, if an I/O module or user interface module is replaced, it is necessary to automatically set the address again.

### Module connection order

The power is supplied to the I/O modules and the user interface modules (UT module / Operator Panel (integral type)) by the basic unit (Infilex AC / Infilex GC / Infilex GD) through the connector. At this time, in order to reduce the voltage drop, connect a module having larger current consumption to the slot closer to the basic unit.

Connect the I/O modules and the user interface modules in the order shown below.

Basic unit → DO modules (DO, DO+DI, DOC) →
MM modules → Other modules

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*Specifications are subject to change without notice.*


Yamatake Corporation

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