General-purpose PLC → MELSEC iQ-R series
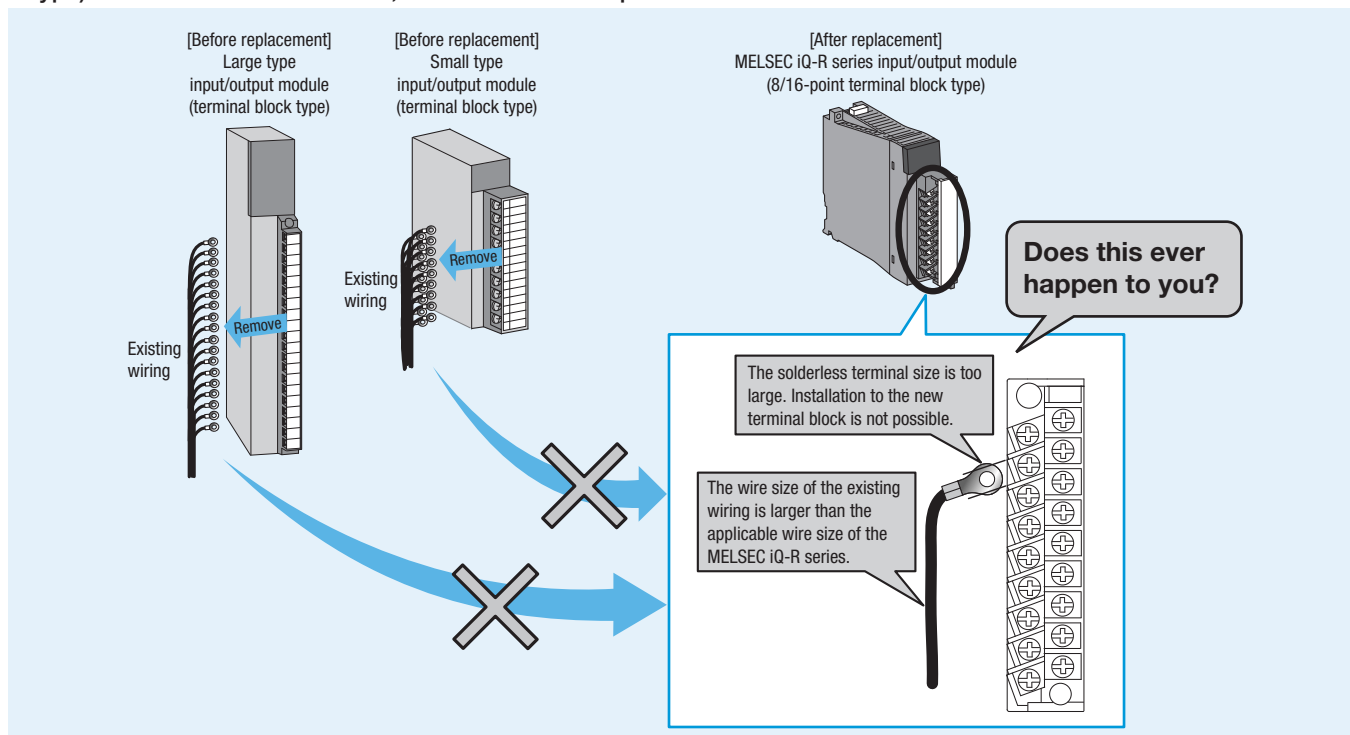# Upgrade tool "Universal conversion adapter"

Replacing general-purpose PLC with the MELSEC iQ-R series
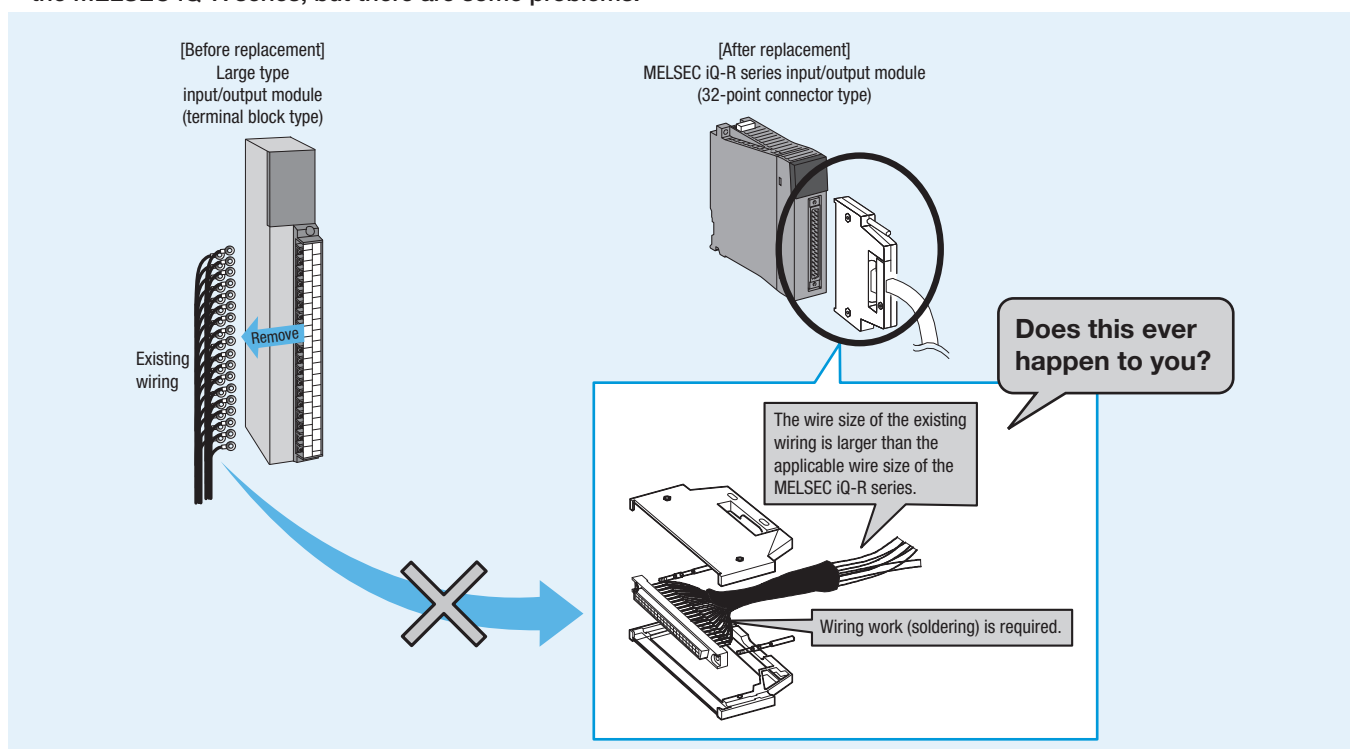
■ Universal conversion adapter
The universal conversion adapter reduces the time required for rewiring input/output modules (terminal block type) when replacing a general-purpose PLC with the MELSEC iQ-R series programmable controller manufactured by Mitsubishi Electric.
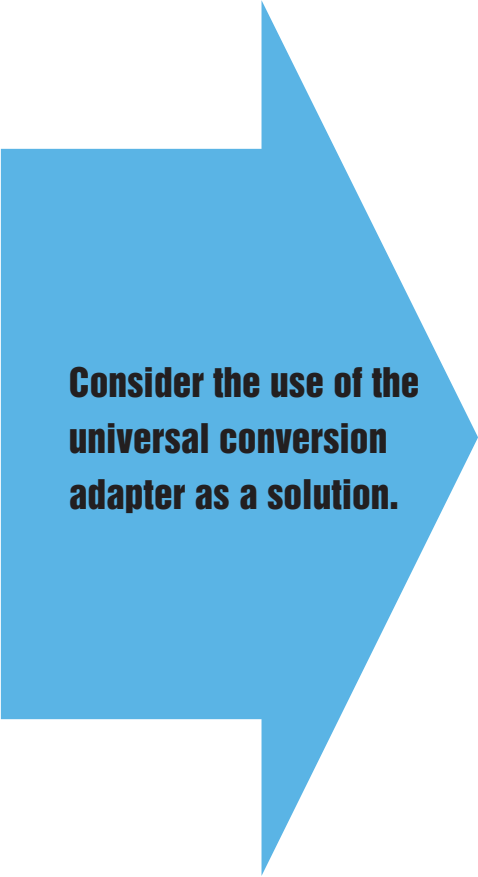
Product overview

● You want to replace input/output modules (terminal block type) of a general-purpose PLC with those (terminal block type) of the MELSEC iQ-R series, but there are some problems.

[Before replacement]
Large type
input/output module
(terminal block type)

[Before replacement]
Small type
input/output module
(terminal block type)

[After replacement]
MELSEC iQ-R series input/output module
(8/16-point terminal block type)

Existing wiring

Remove

Existing wiring

Remove

Does this ever happen to you?

The solderless terminal size is too large. Installation to the new terminal block is not possible.

The wire size of the existing wiring is larger than the applicable wire size of the MELSEC iQ-R series.

● You want to replace input/output modules (terminal block type) of a general-purpose PLC with those (connector type) of the MELSEC iQ-R series, but there are some problems.

[Before replacement]
Large type
input/output module
(terminal block type)

[After replacement]
MELSEC iQ-R series input/output module
(32-point connector type)

Existing wiring

Remove

Does this ever happen to you?

The wire size of the existing wiring is larger than the applicable wire size of the MELSEC iQ-R series.

Wiring work (soldering) is required.

Consider the use of the universal conversion adapter as a solution.

If the specifications of the devices currently connected satisfy the specifications of the MELSEC iQ-R series input/output module, you can use a universal conversion adapter for replacement, regardless of the manufacturer of the existing PLC!
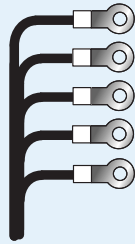
Note that this product is designed under the premises that rewiring (reinstallation of existing wiring to the terminal block) will be performed by the user.

Replacement procedure

1) Remove the wiring from the terminal block of the existing module.

Existing module

Remove the wiring.

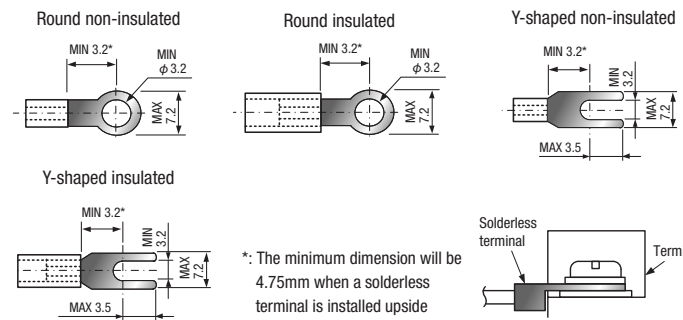Existing wiring
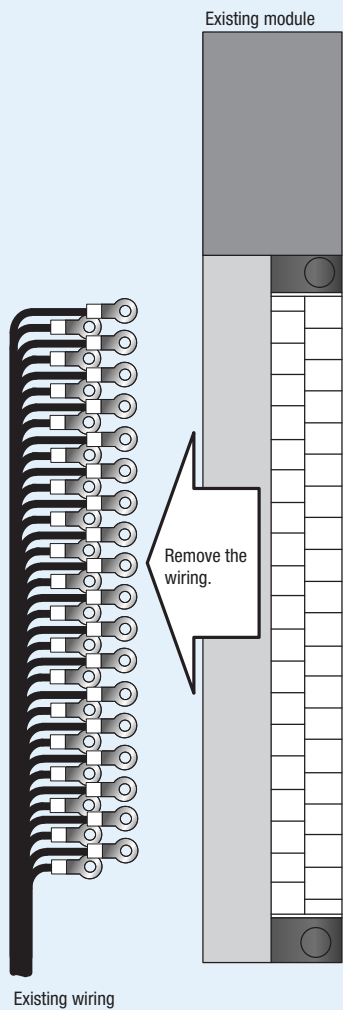
2) Check the solderless terminals.

- Check the dimensions of solderless terminals.
- Change the terminals which are not applicable to the universal conversion adapter.

Universal conversion adapter (large type)

- Applicable solderless terminals
Unit: mm

Round non-insulated
MIN 3.2* MIN φ 3.2 MAX 7.2

Round insulated
MIN 3.2* MIN φ 3.2 MAX 7.2

Y-shaped non-insulated
MIN 3.2* MIN 3.2 MAX 7.2 MAX 3.5

Y-shaped insulated
MIN 3.2* MIN 3.2 MAX 7.2 MAX 3.5

*: The minimum dimension will be 4.75mm when a solderless terminal is installed upside down as shown in the right figure.

Solderless terminal   Terminal block

- Terminal block shape
Unit: mm

M3 screw
7.2   8.6
4.75 3.5
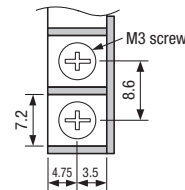
Universal conversion adapter (small type)

- Applicable solderless terminals
Unit: mm

Round non-insulated
MIN 3.5* MIN φ 3.7 MAX 7.3

Round insulated
MIN 3.5* MIN φ 3.7 MAX 7.3

Y-shaped non-insulated
MIN 3.5* MIN 3.7 MAX 7.3 MAX 4.2

Y-shaped insulated
MIN 3.5* MIN 3.7 MAX 7.3 MAX 4.2

*: The minimum dimension will be 5.0mm when a solderless terminal is installed upside down as shown in the right figure.

Solderless terminal   Terminal block

- Terminal block shape
Unit: mm

M3.5 screw
7.3   8.4
5.0 4.2
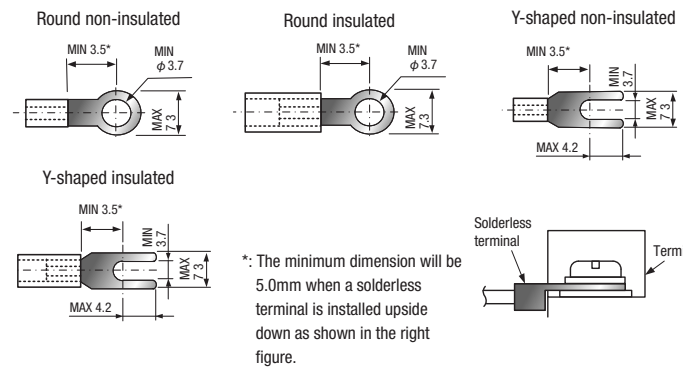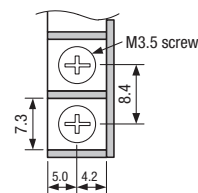
3) Reinstall the removed wiring to the terminal block of the universal conversion adapter.

Check the external connection diagram of each MELSEC iQ-R series module used, and reinstall the removed wiring to the terminal block of the universal conversion adapter.

External connection diagram (example)

Terminal block

MELSEC iQ-R series module

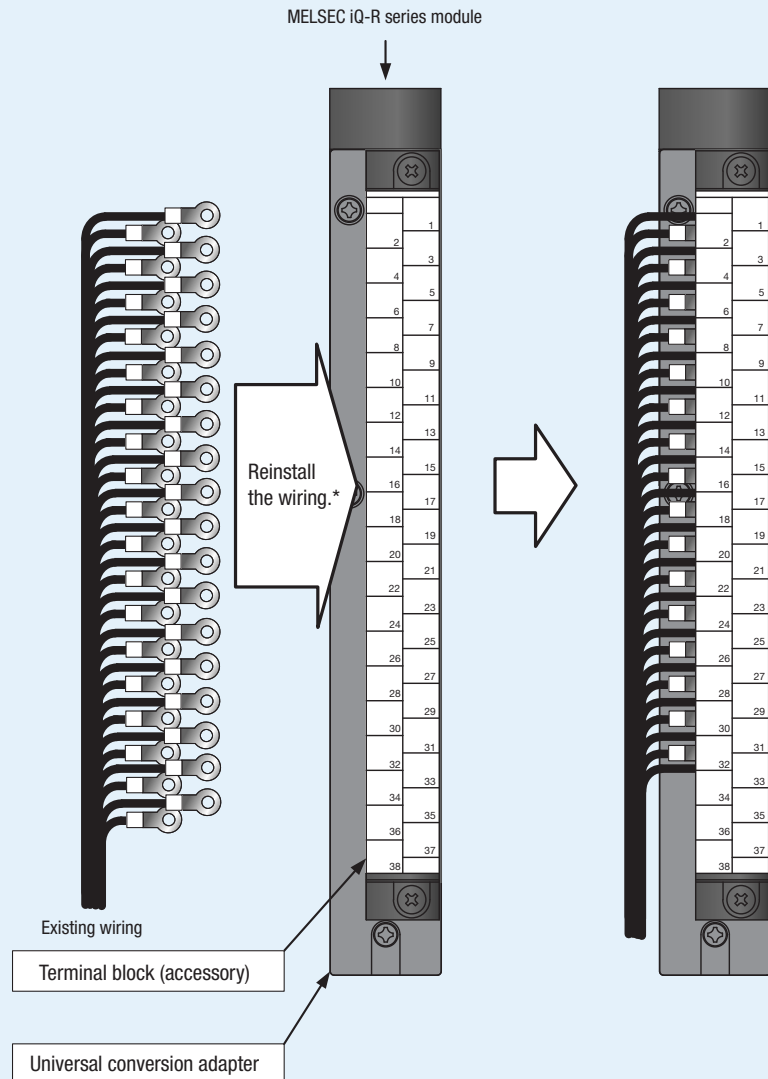| Terminal No.	Signal name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	X10
TB18	X11
TB19	X12
TB20	X13
TB21	X14
TB22	X15
TB23	X16
TB24	X17
TB25	X18
TB26	X19
TB27	X1A
TB28	X1B
TB29	X1C
TB30	X1D
TB31	X1E
TB32	X1F
TB33	COM
TB34	Open
TB35	Open
TB36	Open
TB37	Open
TB38	Open

24VDC

Reinstall the wiring.*

Existing wiring

Terminal block (accessory)

Universal conversion adapter

*: After replacement, connect wires in accordance with the terminal numbers and signal names of the universal conversion adapter.

*: Depending on the change in the number of points per common (for example 8 points/common → 16 points/common), the connected devices (such as switches) may also need to be changed.

*: When any wires are left unconnected, connect them to open terminals or insulate them.

Replacing a general-purpose PLC (large type) with the MELSEC iQ-R series

[After replacement]
MELSEC iQ-R series input/output module
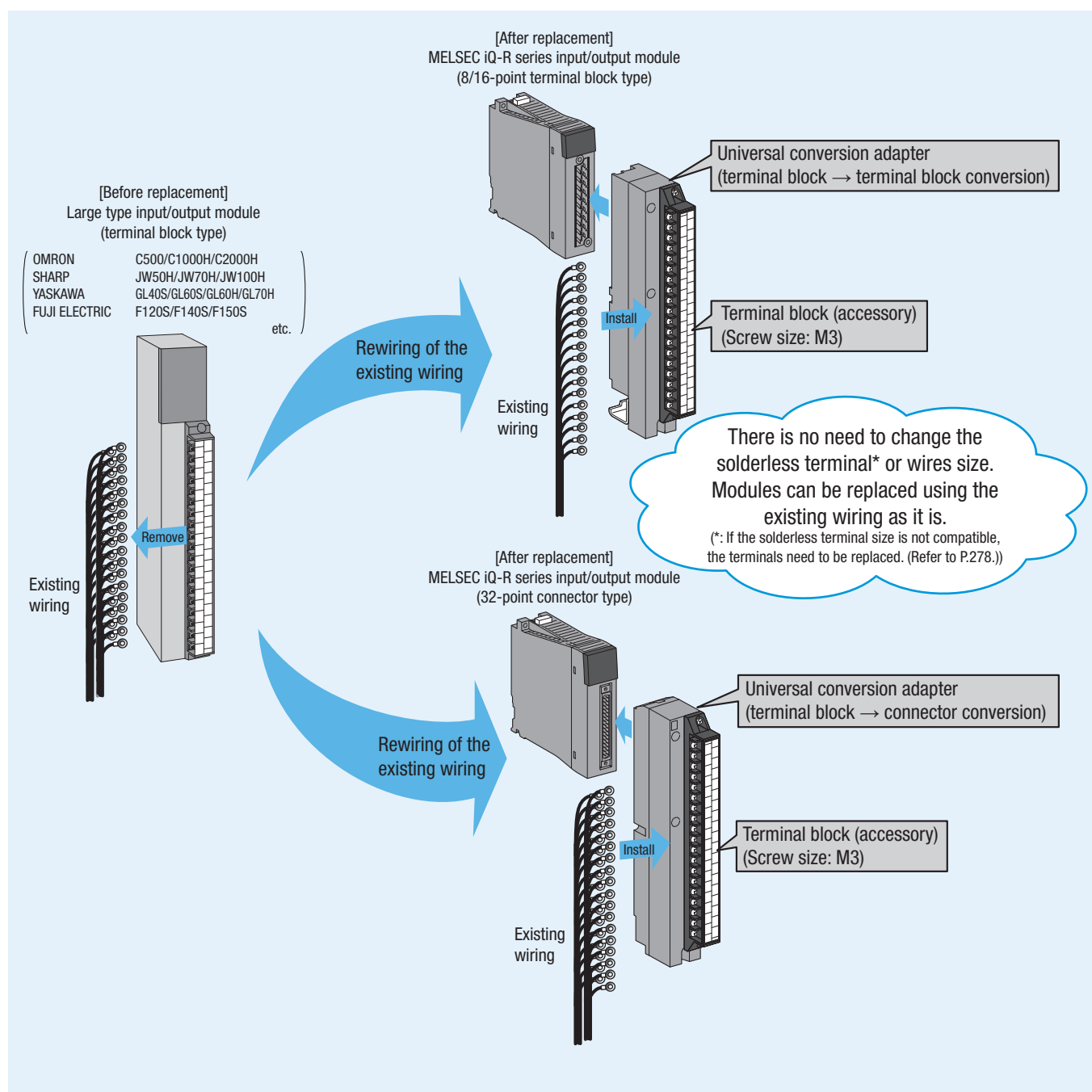(8/16-point terminal block type)

Universal conversion adapter
(terminal block → terminal block conversion)

[Before replacement]
Large type input/output module
(terminal block type)

OMRON	C500/C1000H/C2000H
SHARP	JW50H/JW70H/JW100H
YASKAWA	GL40S/GL60S/GL60H/GL70H
FUJI ELECTRIC	F120S/F140S/F150S
	etc.

Rewiring of the
existing wiring

Install

Terminal block (accessory)
(Screw size: M3)

Existing
wiring

Remove

Existing
wiring

There is no need to change the
solderless terminal* or wires size.
Modules can be replaced using the
existing wiring as it is.
(*: If the solderless terminal size is not compatible,
the terminals need to be replaced. (Refer to P.278.))

[After replacement]
MELSEC iQ-R series input/output module
(32-point connector type)

Universal conversion adapter
(terminal block → connector conversion)

Rewiring of the
existing wiring

Install

Terminal block (accessory)
(Screw size: M3)

Existing
wiring

Replacing a general-purpose PLC (small type) with the MELSEC iQ-R series

[Before replacement]
Small type input/output module
(terminal block type)

OMRON   C200H/C200HS/C200HX/C200HE/C200HG
SHARP   JW20H/JW30H/JW300
FUJI ELECTRIC   F55/F70
                                        etc.

Existing
wiring

Remove

Rewiring of the
existing wiring

[After replacement]
MELSEC iQ-R series input/output module
(8/16-point terminal block type)

Universal conversion adapter
(terminal block → terminal block conversion)

Terminal block (accessory)
(Screw size: M3.5)

Install

Existing
wiring

There is no need to change the
solderless terminal* or wires size.
Modules can be replaced using the
existing wiring as it is.
(*: If the solderless terminal size is not compatible,
the terminals need to be replaced. (Refer to P.278.))