General-purpose PLC → MELSEC-Q series Upgrade tool "Universal conversion adapter"
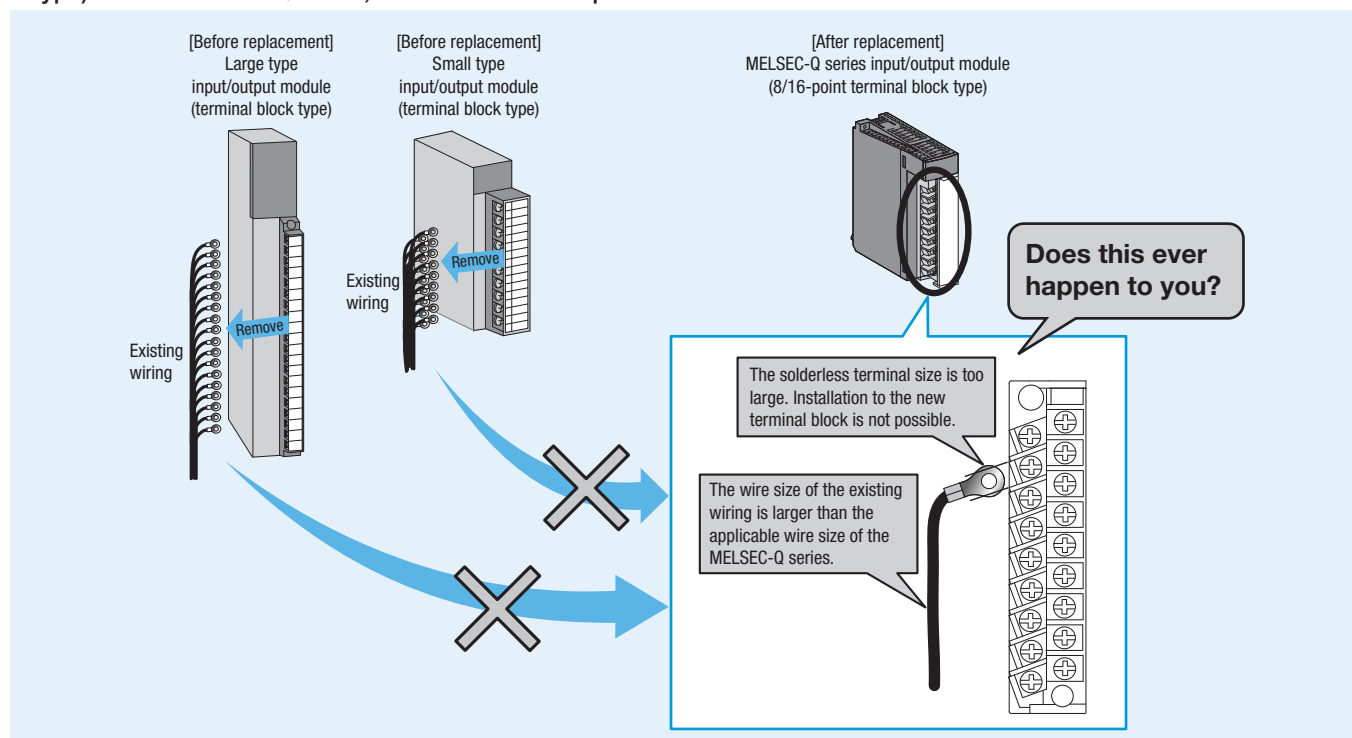
Replacing general-purpose PLC with the MELSEC-Q series
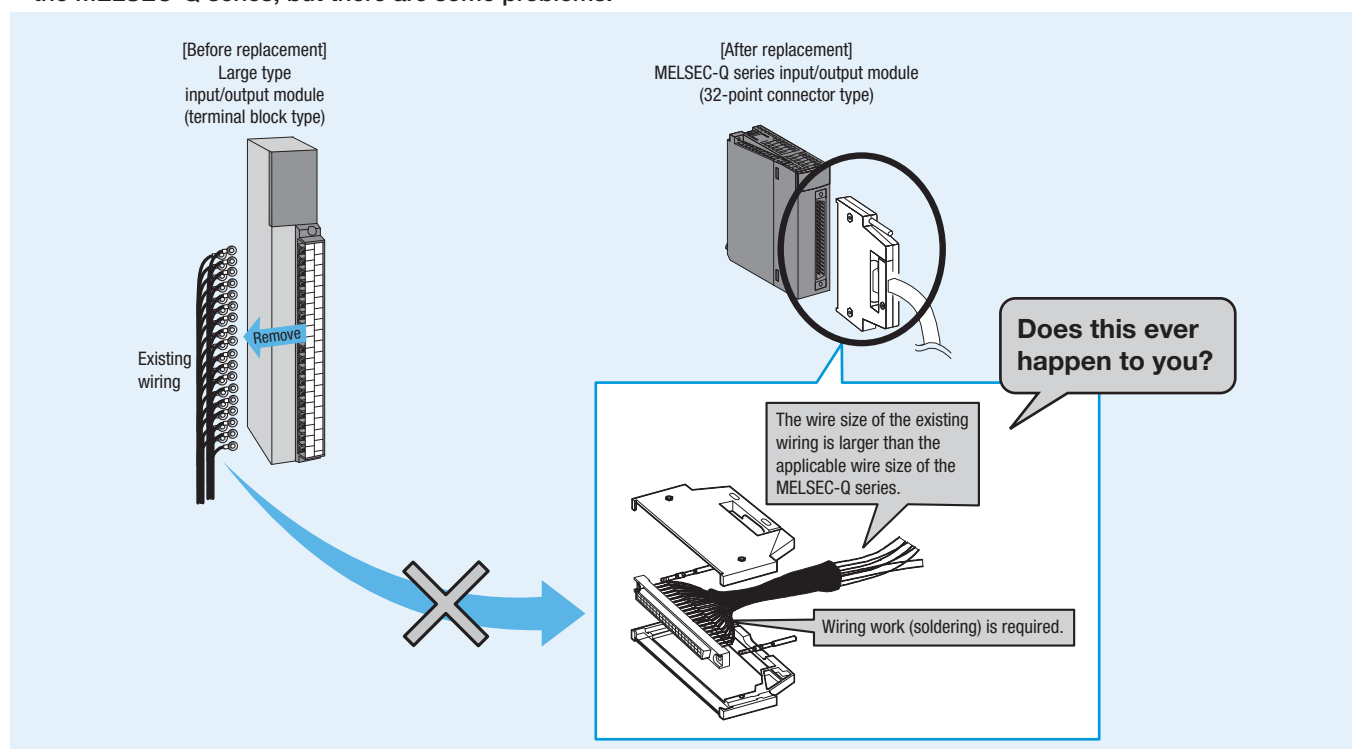
■ Universal conversion adapter
The universal conversion adapter reduces the time required for rewiring input/output modules (terminal block type) when replacing a general-purpose PLC with the MELSEC-Q series programmable controller manufactured by Mitsubishi Electric.

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-Q 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-Q series input/output module
(8/16-point terminal block type)

Remove

Remove

Existing wiring

Existing wiring

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-Q series.

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

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

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

Remove

Existing wiring

Does this ever happen to you?

The wire size of the existing wiring is larger than the applicable wire size of the MELSEC-Q 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-Q series input/output module, you can use the universal conversion adapter for replacement, regardless of the manufacturer of the PLC!
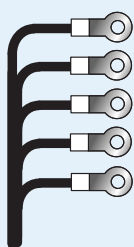
Note that this product is designed under the premises that rewiring (reinstallation of existing wiring to the terminal block) will be performed by the user.

Replacement procedure

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

Existing module

Remove the wiring.

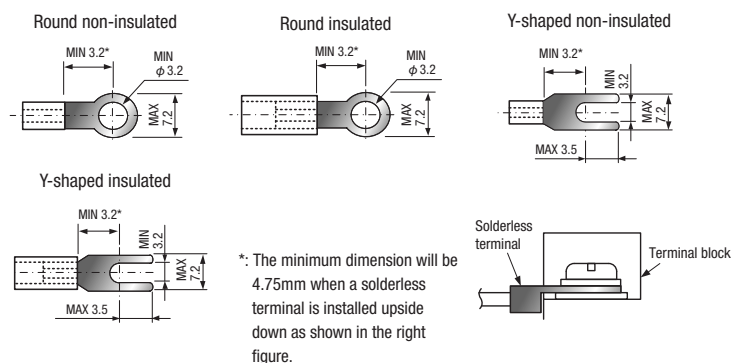Existing wiring
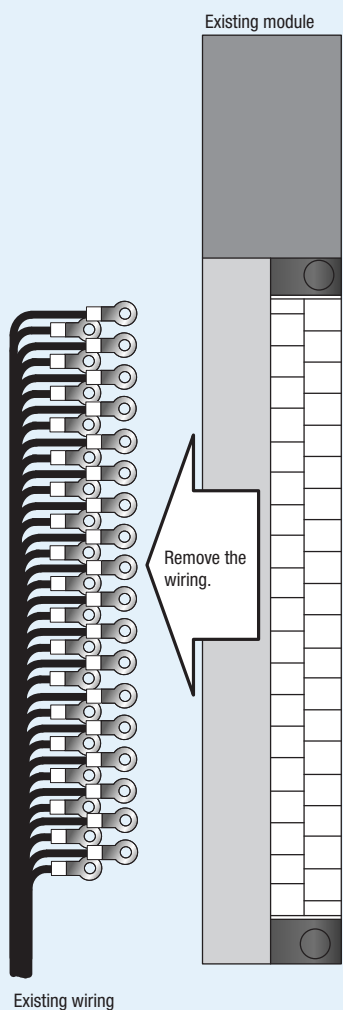
2) Check the solderless terminals.

- 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 8.6 7.2 4.75 3.5
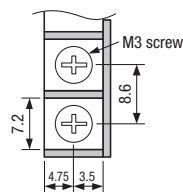
Universal conversion adapter (small type)

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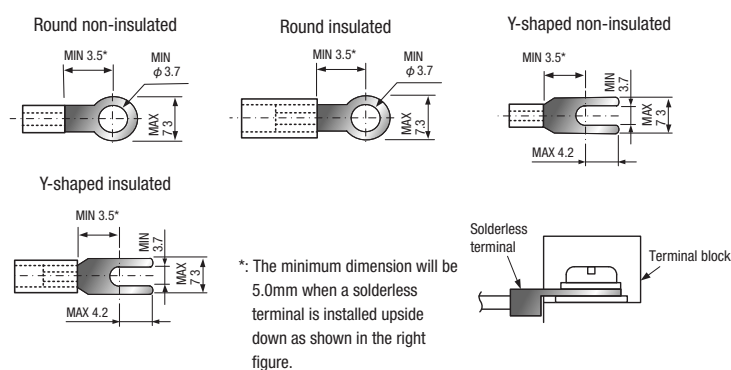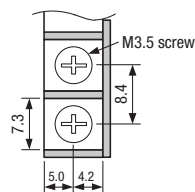
3) Reinstall the removed wiring to the terminal block of the universal conversion adapter.

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

External connection diagram (example)

MELSEC-Q series module

Terminal block

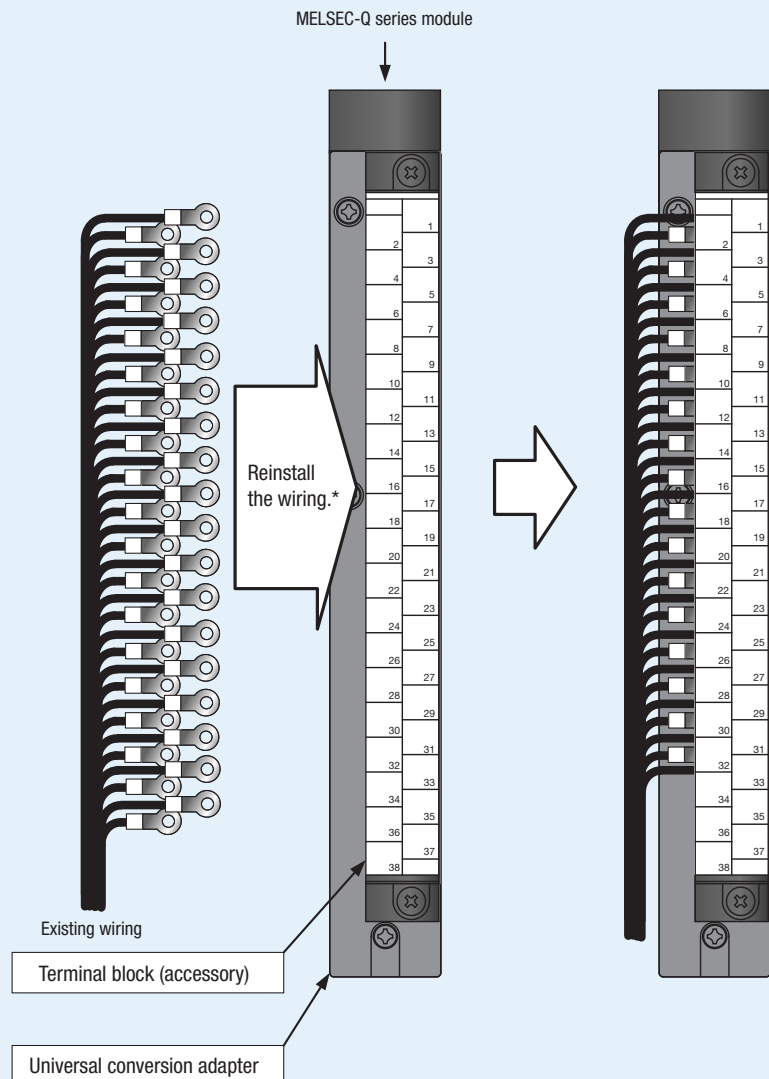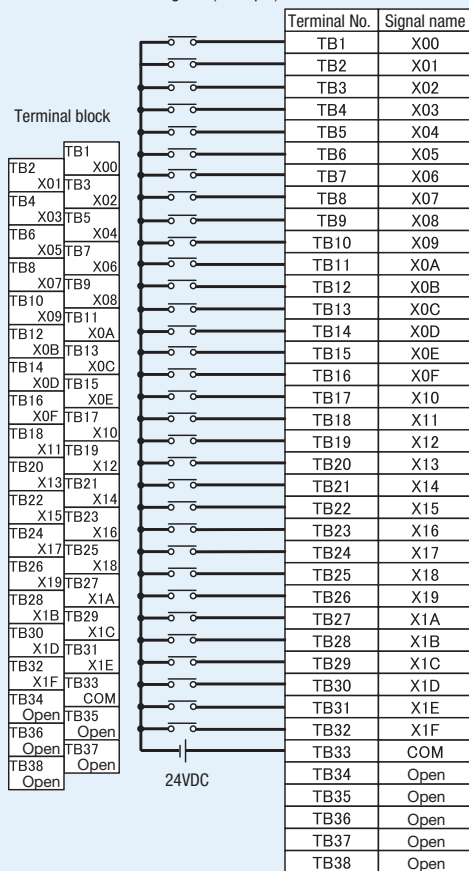| Terminal No.	Signal name
TB1	X00
TB2	X01
TB3	X02
TB4	X03
TB5	X04
TB6	X05
TB7	X06
TB8	X07
TB9	X08
TB10	X09
TB11	X0A
TB12	X0B
TB13	X0C
TB14	X0D
TB15	X0E
TB16	X0F
TB17	X10
TB18	X11
TB19	X12
TB20	X13
TB21	X14
TB22	X15
TB23	X16
TB24	X17
TB25	X18
TB26	X19
TB27	X1A
TB28	X1B
TB29	X1C
TB30	X1D
TB31	X1E
TB32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

Terminal block diagram labels: TB1 X00, TB2 X01, TB3, TB4 X02, TB5 X03, TB6 X04, TB7 X05, TB8 X06, TB9 X07, TB10 X08, TB11 X09, TB12 X0A, TB13 X0B, TB14 X0C, TB15 X0D, TB16 X0E, TB17 X0F, TB18 X10, TB19 X11, TB20 X12, TB21 X13, TB22 X14, TB23 X15, TB24 X16, TB25 X17, TB26 X18, TB27 X19, TB28 X1A, TB29 X1B, TB30 X1C, TB31 X1D, TB32 X1E, TB33 X1F, TB34 COM, 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.

For programmable controllers

General-purpose PLC ▲ Q   General-purpose PLC

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

[After replacement]
MELSEC-Q 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.300.))

[After replacement]
MELSEC-Q 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-Q 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-Q 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.300.))