MITSUBISHI

QA65B/QA68B Extension Base Unit

User's Manual

Thank you for buying the Mitsubishi general-purpose programmable logic controller MELSEC-Q Series

Prior to use, please read both this manual and detailed manual thoroughly and familiarize yourself with the product.

MELSEC-Q

Mitsubishi Programmable
Logic Controller

MODEL	QA65B-U-E
MODEL CODE	13JR26
IB(NA)-0800158-B(0605)MEE	

1. Overview

1.1 Overview
This User's Manual describes the specifications, configuration devices, names and settings of each part, and mounting and installation of the QA65B extension base unit, QA68B extension base unit (hereinafter, QA6☐B).
Refer to the QCPU (Q Mode) User's Manual (Hardware Section) IB-0800061 enclosed with the main base unit for the matters not described in this manual, such as the QA6☐B safety precautions and general specifications.

1.2 Supplied parts
The parts enclosed with this module are listed below.

Product	Type	Quantity
Extension base unit	QA6☐B	1
I/O number seal	-	1
This manual	-	1

2. System Configuration

2.1 System configuration

The system configuration and precautions for using the QA6☐B extension base unit are described in this section.

    (1) Extension base unit connection order

        When using the Q5☐B/Q6☐B, QA1S6☐B and QA6☐B together, connect from the unit closest to the main base unit in the order of Q5☐B/Q6☐B, QA1S6☐B and QA6☐B.

    (2) Setting order of the expansion stage numbers for expansion base units

        Expansion base units require the setting of the expansion stage numbers (1 to 7) using the stage setting connector.

        Assign the expansion stage numbers starting from 1 to 7 to the expansion base units counting from the one which is connected to the main base unit.
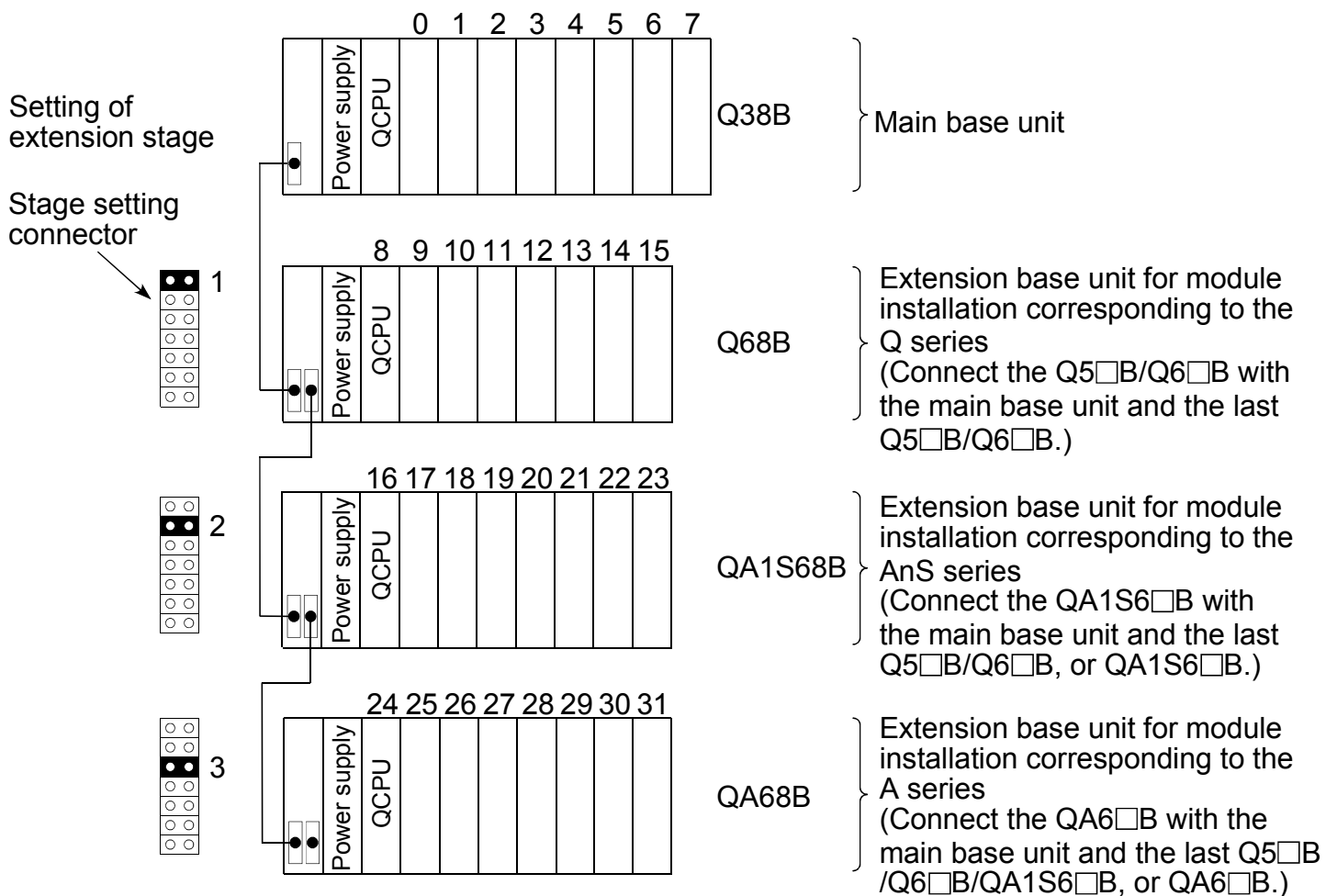
2.2 List of configuration devices

The following shows the applicable types for configurations of the QA6□B.

Module	Type				Remarks
Power module	A61P,	A62P,	A63P,	A68P	
	A61PEU,	A62PEU			
Input module	AX10,	AX11,	AX11EU,	AX20	
	AX21,	AX21EU,	AX31,	AX31-S1	
	AX40,	AX41,	AX41-S1,	AX42	
	AX42-S1,	AX50-S1,	AX60-S1,	AX70	
	AX71,	AX80,	AX80E,	AX81	
	AX81-S1,	AX81-S2,	AX81-S3,	AX81B	
	AX82				
Output module	AY10,	AY10A,	AY11,	AY11A	
	AY11E,	AY11AEU,	AY11EEU,	AY13	
	AY13E,	AY13EU,	AY15EU,	AY22	
	AY23,	AY40,	AY40A,	AY41	
	AY42,	AY42-S1,	AY42-S2,	AY42-S3	
	AY42-S4,	AY50,	AY51,	AY51-S1	
	AY60,	AY60S,	AY60E,	AY70	
	AY71,	AY72,	AY80,	AY81	
	AY82EP				
I/O module	A42XY,	AH42			
High-speed counter module	AD61,	AD61S1			*1
Analog-digital conversion module	A68AD,	A68AD-S2,	A68ADN,	A616AD	
Digital-analog conversion module	A62DA,	A62DA-S1,	A68DAV,	A68DAI-S1	
	A616DAV,	A616DAI			
Temperature-digital conversion module	A68RD3,	A68RD4,	A616TD,	A60MX	
	A60MXR,	A60MXT			
Interrupt module	AI61,	AI61-S1			*2
Positioning module	AD70,	AD72			
	AD75P1-S3,	AD75P2-S3,	AD75P3-S3		*1
	AD75M1,	AD75M2,	AD75M3		
MELSECNET/MINI-S3 master module	AJ71PT32-S3,	AJ71T32-S3			*1

Module	Type	Remarks
Intelligent communication module	AD51-S3, AD51H-S3	*2
PC fault detection module	AS91	
MELSEC-I/OLINK module	AJ51T64	
B/NET module	AJ71B62-S3	
Blanking module	AG60	
Dummy module	AG62	
A-A1S conversion adapter	A1ADP-XY, A1ADP-SP	*3

*1: The dedicated commands used in the QnA and A Series program cannot be used with the Q mode CPU.
Replace these with FROM/TO commands.

*2: There is a limit to the number of mountable modules.

Module	Type	number of mountable
Intelligent communication module	AD51, AD51H-S3	6 *4
Interrupt module	AI61, AI61-S1	1 *5

*3: For units to be installed, refer to the A-A1S conversion adapter manual.

*4: In combined use of the QA1S6□B and QA6□B, up to 6 intelligent communication modules can be installed.

*5: Only one interrupt module is valid which can be chosen from QI60, A1SI61, AI61 or AI61-S1.

3. Specifications

3.1 Specifications

The QA6□B performance specifications are given below.
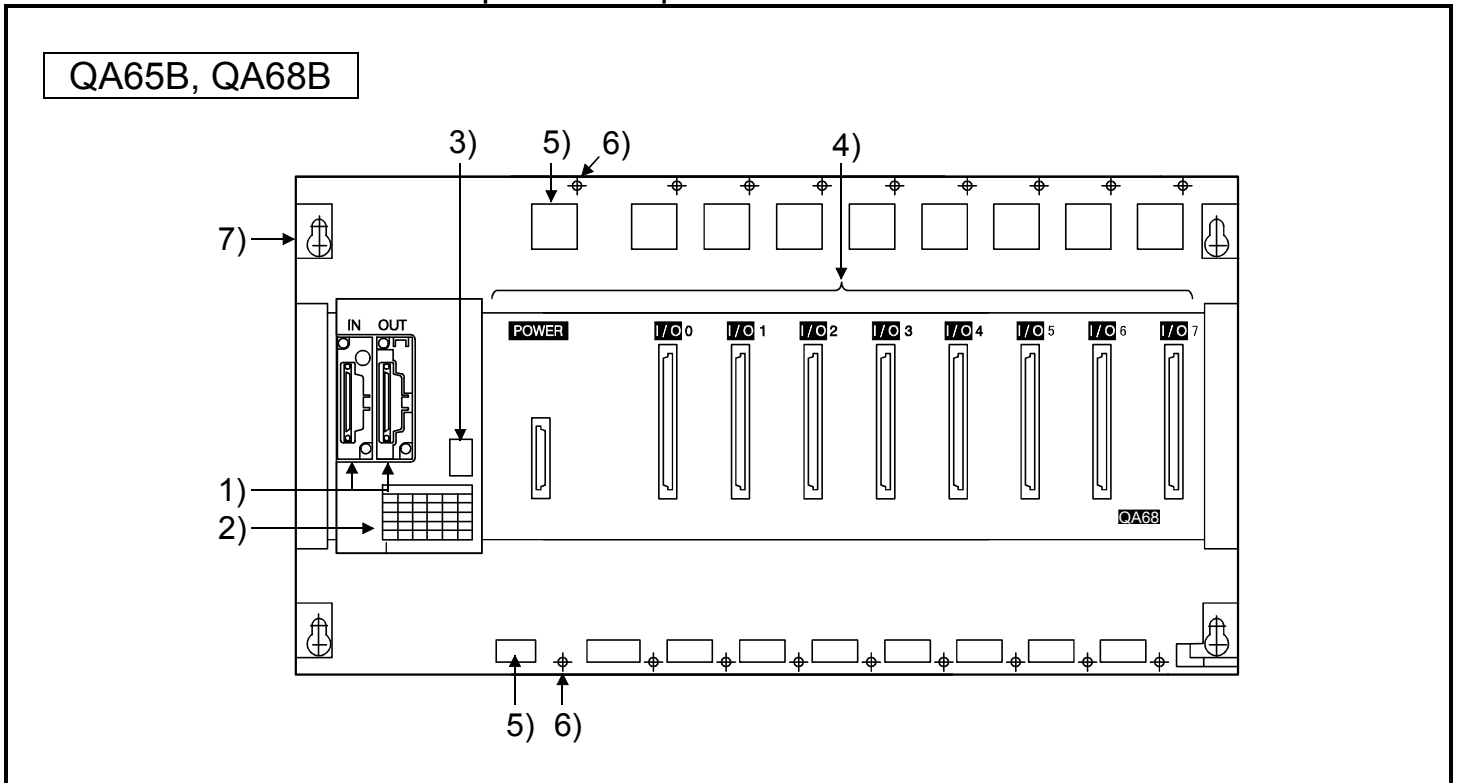
Type Item	QA65B	QA68B
Number of I/O modules connected	5	8
Applicable modules	A series module	
5VDC internal current consumption (A)	0.117	0.117
Weight (kg)	1.60	2.00

4.Names and setting of parts

The names of and settings for each QA6□B part are explained in this section.
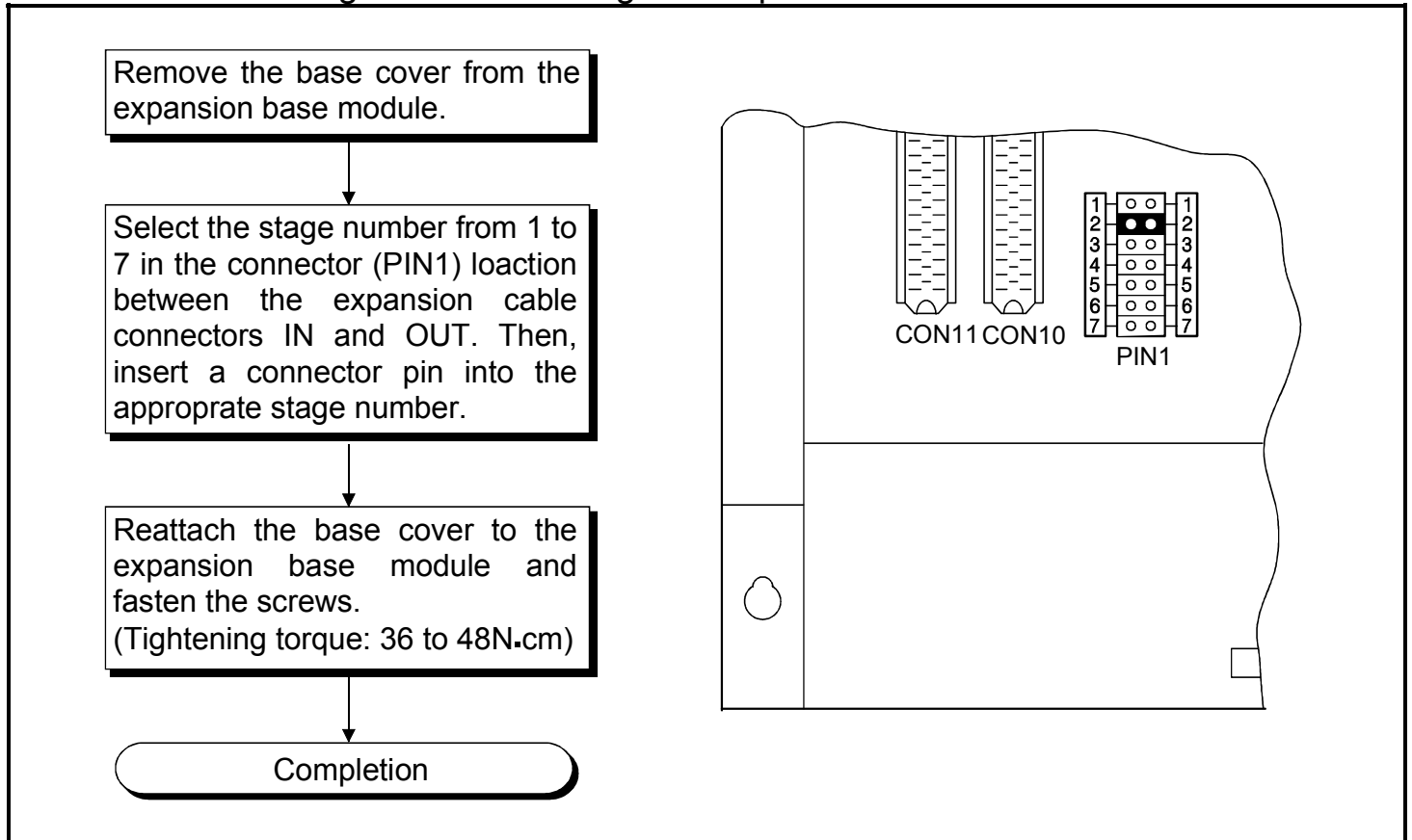
4.1 Names of parts
The names of each QA6□B part are explained below.

QA65B, QA68B

No.	Name	Usage
1)	Expansion cable connector	A connector for signal transmission with the basic base module or the other expansion base module. Connects the expansion cable. Do not remove the supplied connector cover.
2)	Base cover	PCB surface protection cover.
3)	Stage number setting connector	A used to set the stage numbers of the expansion base modules. Refer to section 4.2 for the setting procedure.
4)	Module connector	Connector for mounting power supply unit, input/output unit and special function module. Mount the dustproof connector cover, blank cover unit (AG60) or dummy unit (AG62) on the connector in the spare spaces with module connected.
5)	Module fixing hole	Cut out to accept projection and hook at rear of modules.
6)	Screw hole for fastening modules	A screw hole used for fastening a module to the base. (M4 screw)
7)	Base module installation hole	A hole used for mounting the base module to a panel such as a control panel.

4.2 Setting the expansion stage numbers

The method of setting the QA6□B stages is explained below.

Remove the base cover from the expansion base module.
↓
Select the stage number from 1 to 7 in the connector (PIN1) loaction between the expansion cable connectors IN and OUT. Then, insert a connector pin into the approprate stage number.
↓
Reattach the base cover to the expansion base module and fasten the screws. (Tightening torque: 36 to 48N•cm)
↓
Completion

CON11 CON10

PIN1

Stage number setting for expansion base modules

	Stage number setting						
	1th stage	2th stage	3th stage	4th stage	5th stage	6th stage	7th stage
Position of connector pin in stage number setting connector	PIN1	PIN1	PIN1	PIN1	PIN1	PIN1	PIN1

Point
(1) To set the stage number setting connector, select the appropriate number from 1 through 7 in ascending order according to the number of expansion modules.
(2) Do not assign the same stage number to several modules or skip any stage numbers. Otherwise, improper I/O operation results.
(3) The expansion stage number is factory-set to 1.

5. Loading and Installation

5.1 Module Installation

This section describes the precautions to handle the CPU, I/O, special function, power supply, and base module.

    (1) Do not drop or apply a strong impact to the module housing, memory card, terminal block connectors, and pin connectors.

    (2) Do not remove the PC board of the modules from housing. Otherwise, malfunctions may result.

    (3) When using the expansion base module QA6□B, be sure to install the power supply module.

    Although the module may work without the power supply module under light load, stable operation is not guaranteed.
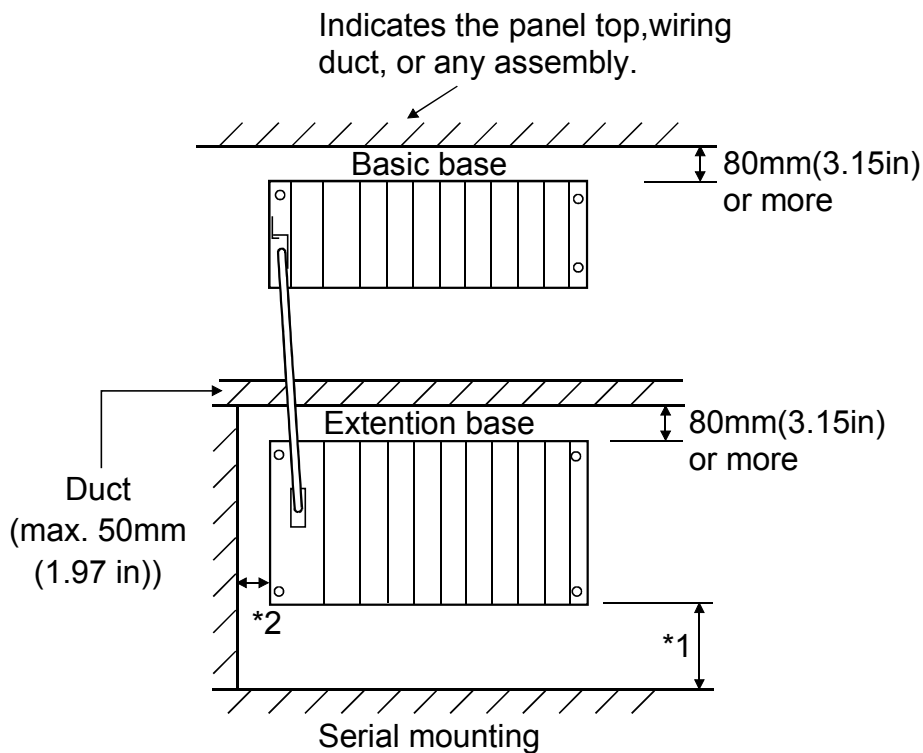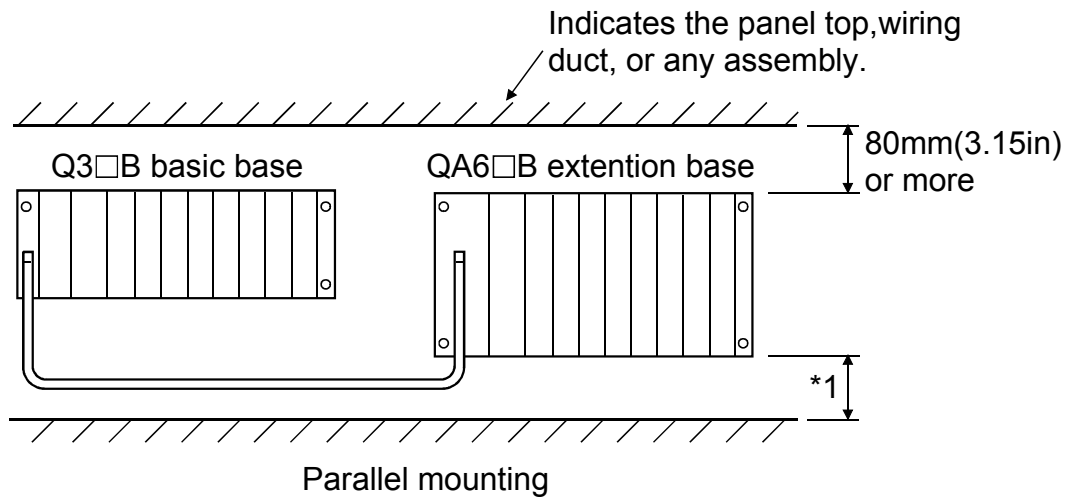
    (4) Limit the tightening torque for the module installation screws and terminal block screws within the following range:

Location of screw	Tightening torque range
I/O module terminal block installation screw (M3)	36 to 48N•cm
A series module installation screw (M4)	78 to 118N•cm
I/O module terminal screw (M4)	
Power supply module terminal screw (M4)	98 to 137N•cm

    (5) When using the expansion cable, do not bind it with or place it close to the main circuit (high-voltage, large-current) lines.

5.2 Precautions for installing base unit

(1) Unit installation position

Indicates the panel top,wiring duct, or any assembly.

Q3□B basic base   QA6□B extention base

80mm(3.15in) or more

*1

Parallel mounting

Indicates the panel top,wiring duct, or any assembly.

Basic base

80mm(3.15in) or more

Duct (max. 50mm (1.97 in))

Extention base

80mm(3.15in) or more

*2

*1

Serial mounting

*1:

| When link module is not used | 50mm or more |
When using φ4.5mm optical fiber cable	100mm or more
When using a coaxial cable	
When using φ8.5mm optical fiber cable	130mm or more

*2: 20mm or more when connecting extension cable without removing adjacent modules.
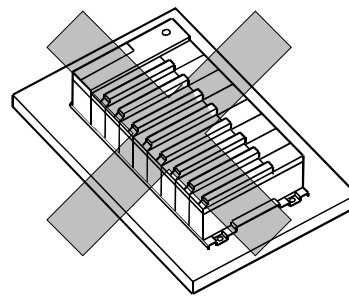
(2) Module installing position
   (a) Install the PC in the following position to ensure ventilation for heat radiation.
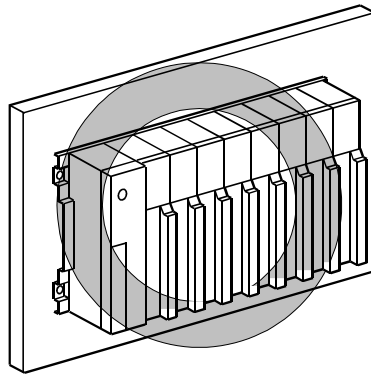
   (b) Do not install the PC in the following positions.
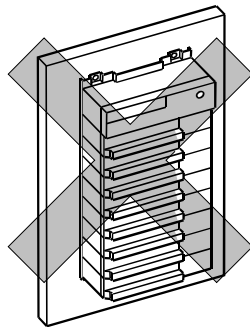
Vertical position   Horizontal position

(3) Install the base module on a flat surface.
   When the base module is installed on an uneven surface, the PC board may be strained, resulting in malfunction.
(4) Do not install the PC close to a vibration source such as a large electromagnetic contactor or no-fuse breaker. Install the PC to the separate panel or isolate it as far as possible.
(5) Provide the following distances between the PC and devices (contactor or relay) to avoid the influence of radiation noise or heat.
   • Device installed in front of the PC: 100mm or more
   • Device installed on either side of the PC: 50mm or more

100mm or more

Contactor relay,etc

50mm or more

50mm or more
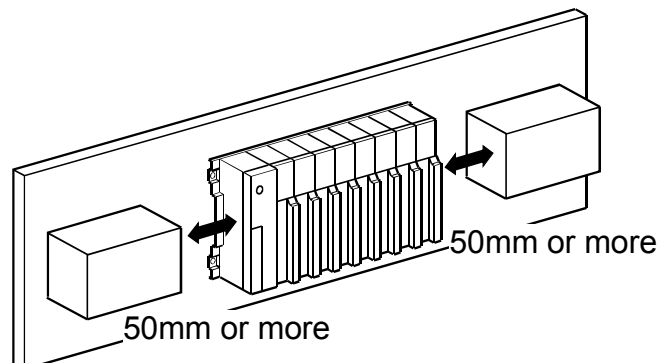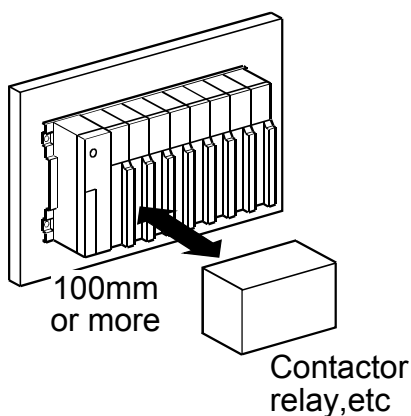
5.3 Installation and removal of modules

This section explains the installation and removal procedures of the power supply module, CPU module, I/O module, special function module, etc to and from the base unit.

(1) Installation of module

Insert the two module fizing projections (two) into the module fixing hole (B) in the base unit.

↓

Load the module into the base unit by pushing it in the direction of arrow.

↓

Check if the hook of module is securely inserted in the module fixing hole (A) in the base unit.

↓

Complated

Module fixing hole(A)

Base unit

Hook

Module unit

Module connector

Module fixing hole(B)

Two module fixing projections

Base unit
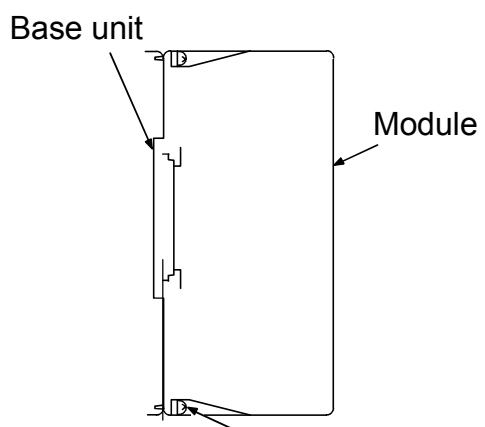
Module

Module mounting screw
(M4(0.16)×0.7(0.03)×12(0.47))
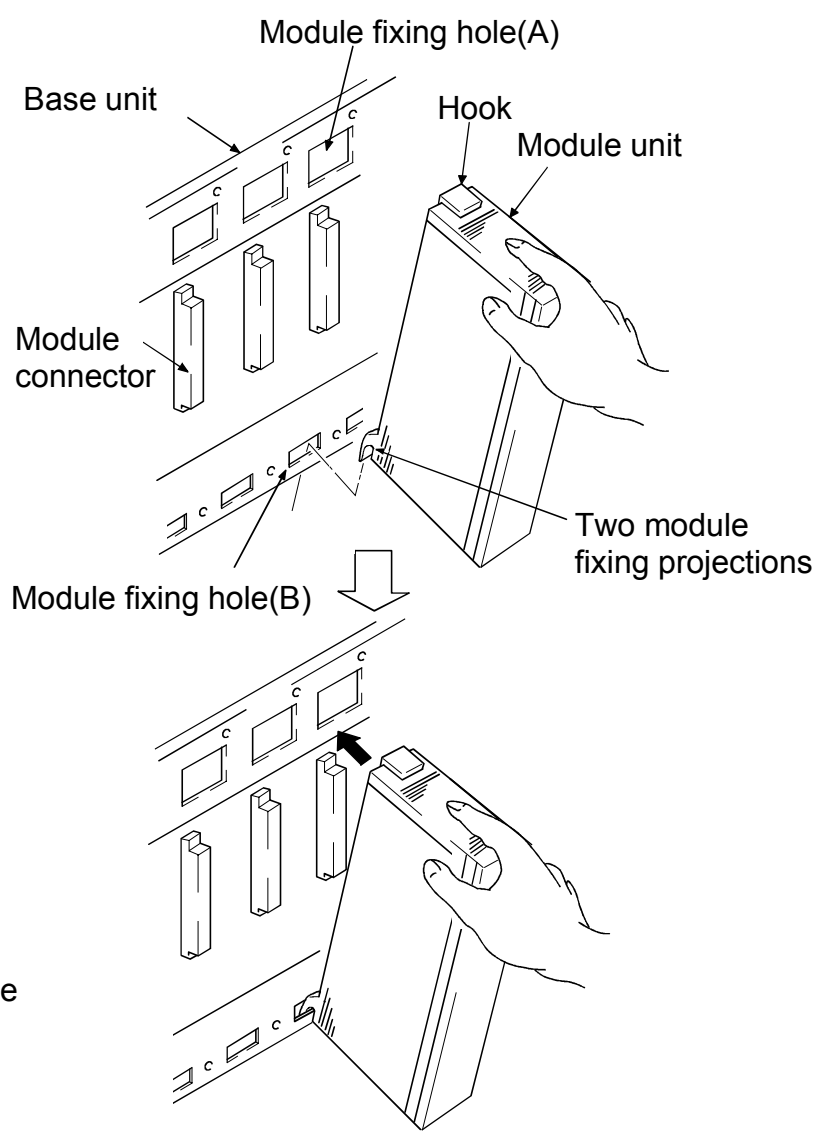
Points

(1) To fix the module, be sure to insert the module fixing projection into the module fixing hole (B). If the module is forcibly fixed without insertion, the pins in the module connector may be bent or damaged.
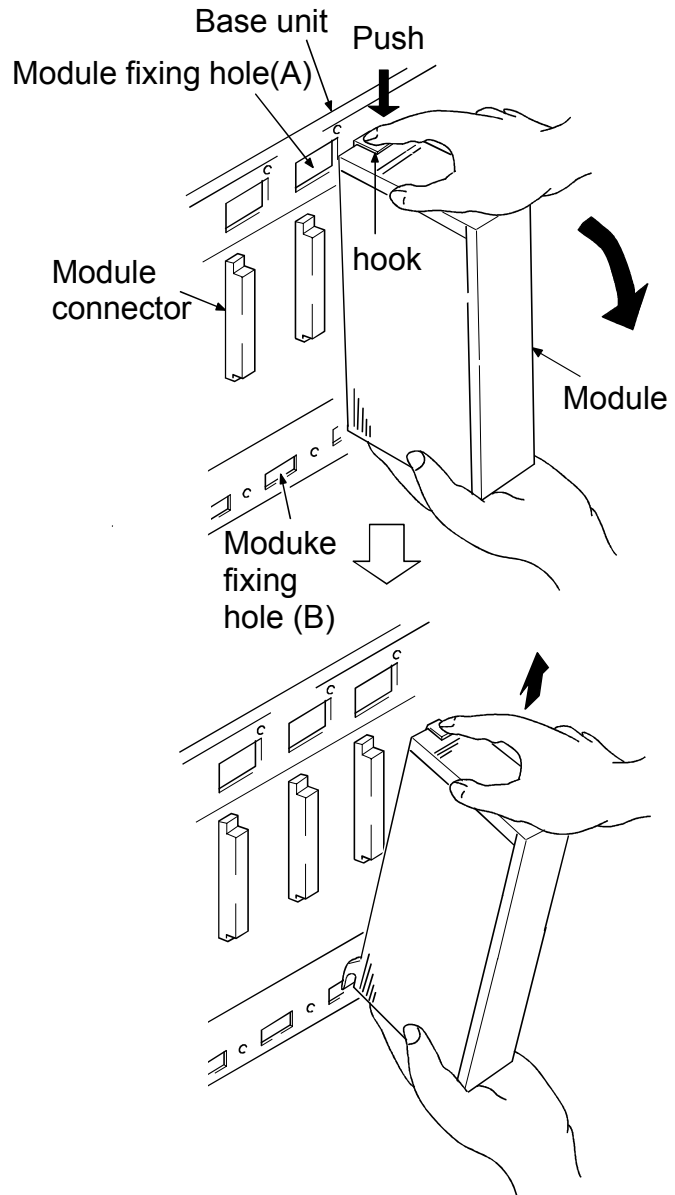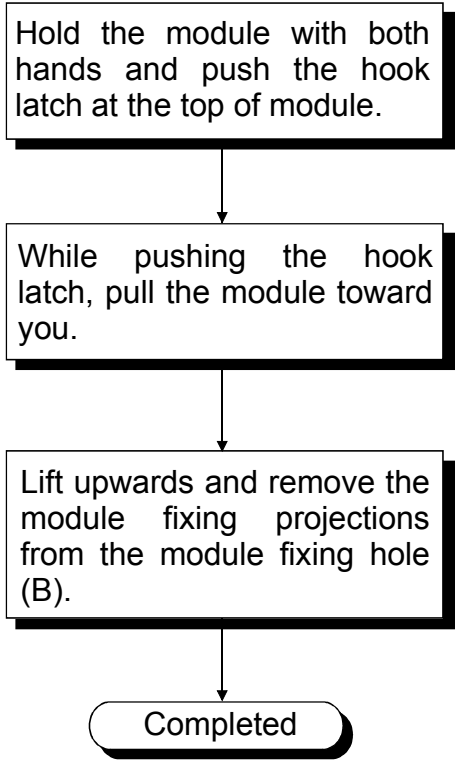
(2) When the base unit is used at locations where there are especially large vibration and/or shock, screw the module to the base.

(2) Removal of module

```
┌─────────────────────────────┐
│ Hold the module with both   │
│ hands and push the hook     │
│ latch at the top of module. │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│ While  pushing  the  hook   │
│ latch, pull the module toward│
│ you.                        │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│ Lift upwards and remove the │
│ module  fixing  projections │
│ from the module fixing hole │
│ (B).                        │
└─────────────────────────────┘
              │
              ▼
       ( Completed )
```

Base unit   Push
Module fixing hole(A)

hook

Module connector

Module

Moduke fixing hole (B)

┌───┐
│ Points   │
│ To remove the module, be sure to disengage the hook from the module fixing hole (A) │
│ and then remove the module fixing projections from the module fixing hole (B). If the │
│ module is forcibly removed, the hook or module fixing projections will be damaged.   │
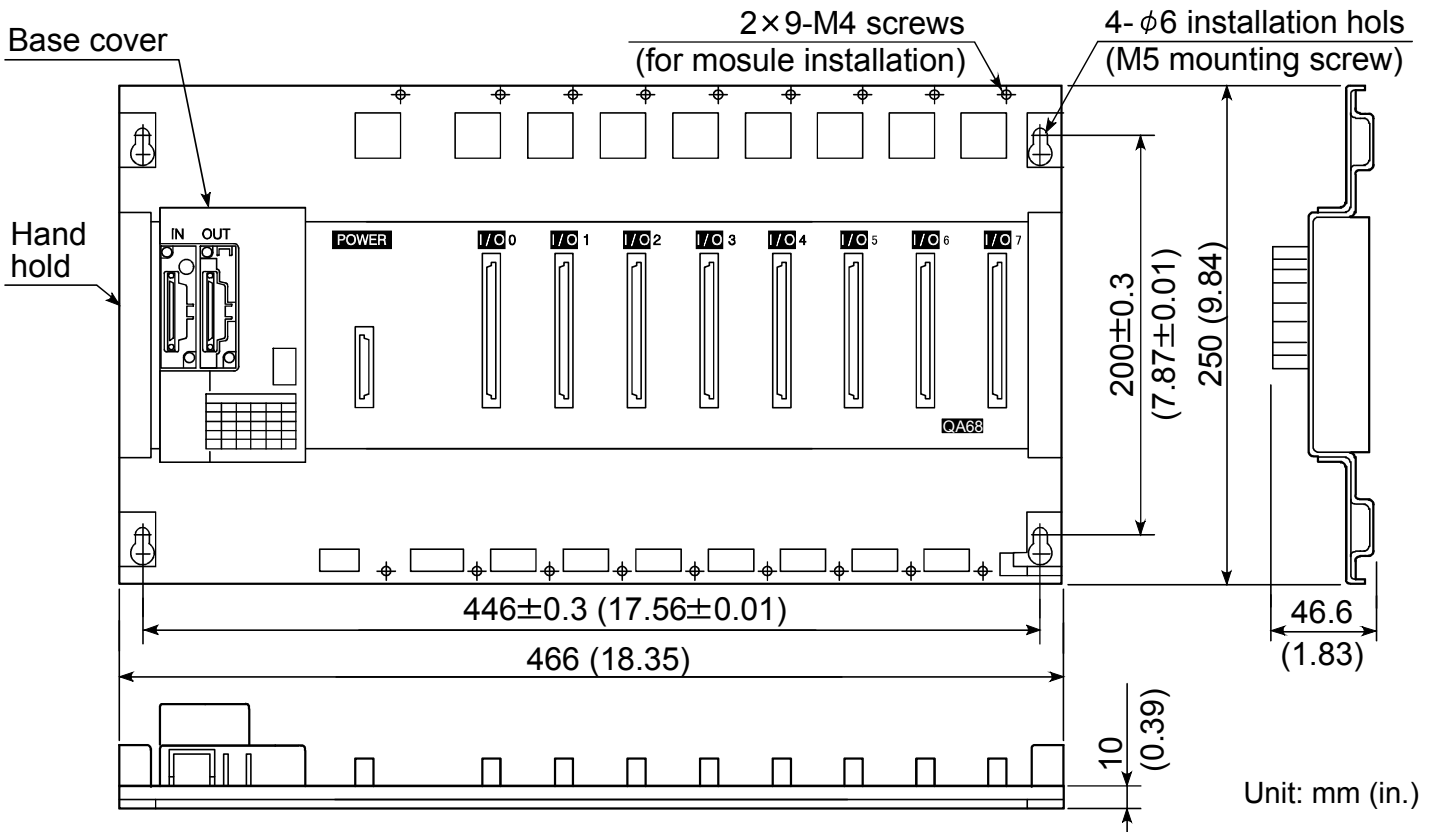└───┘

Appendices

Appendices 1 External Dimension Diagram

The external dimensions of the QA6□B are shown below.
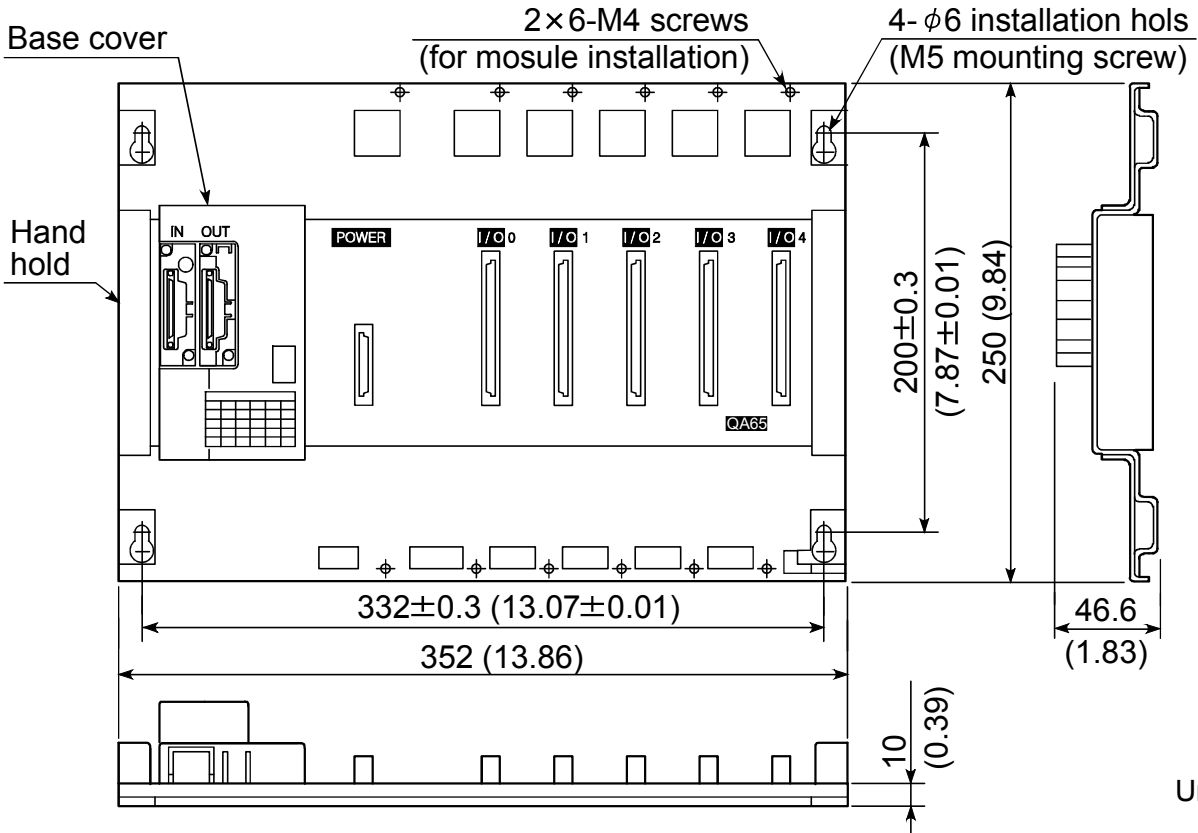
The external dimensions of the QA65B

The external dimensions of the QA68B

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Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

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- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
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