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QA65B/QA68B Extension Base Unit

User's Manual

Thank you for purchasing the Mitsubishi Electric programmable controller MELSEC-Q series.

Prior to use, please read this and relevant manuals thoroughly to fully understand the product.

Programmable Controller
MELSEC-Q

MODEL	QA65B-U
MODEL CODE	13JT32
IB(NA)-0800157-G(1806)MEE	

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REVISIONS

*The manual number is given on the bottom right of the cover.

Print date	*Manual number	Revision
September 2015	IB(NA)-0800157-E	The Japanese manual (IB-0800157) with the English manual (IB-0800158) are combined.
December 2016	IB(NA)-0800157-F	Descriptions are revised due to compliance with the new China RoHS.
June 2018	IB(NA)-0800157-G	Descriptions are revised due to compliance with the Chinese standardized law.

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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 User's Manual(Hardware Design, Maintenance and Inspection) SH-080483ENG 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 Included Parts

This section describes parts included with this product.

Item	Type	Quantity
Extension base unit	QA6□B	1
I/O number seal	—	1
This manual	—	1

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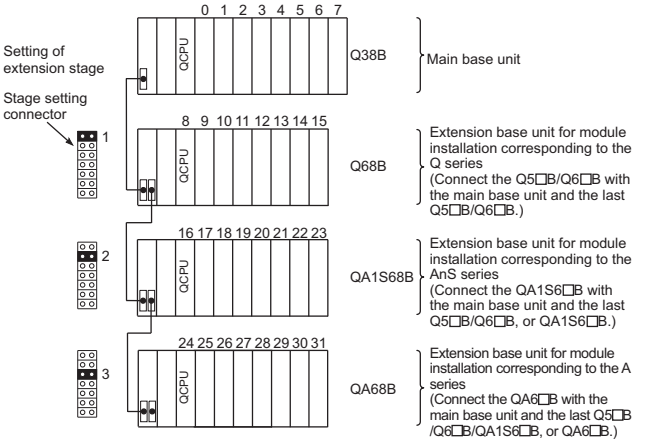
2. SYSTEM CONFIGURATION

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 extension stage numbers for extension base units
Extension base units require the setting of the extension stage numbers (1 to 7) using the stage setting connector.
Assign the extension stage numbers starting from 1 to 7 to the extension base units counting from the one which is connected to the main base unit.



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2.2 List of configuration devices

The following table lists the mountable modules on the QA6□B extension base unit.

Module	Type	Remarks
Power module	A61P, A61PN, 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, A68RD3N, A68RD4, A68RD4N, A616TD, A60MX, A60MXR, A60MXRN, A60MXT, A60MXTN	—
Interrupt module	AI61, AI61-S1	*2
Positioning module	AD70, AD70D, AD71, AD71S1, AD71S2, AD71S7, AD72	—
	AD75P1-S3, AD75P2-S3, AD75P3-S3, AD75M1, AD75M2, AD75M3	*1
MELSECNET/MINI-S3 master module	AJ71PT32-S3, AJ71T32-S3	*1
Intelligent communication module	AD51, AD51E, AD51H, AD51-S3, AD51E-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

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*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, AD51E, AD51-S3, AD51E-S3, AD51H, AD51H-S3	6 *4
Interrupt module	AI61, AI61-S1	1 *5

*3 The AnS series modules (equivalent ones to the modules listed in the table) also can be used by using the A-A1S conversion adapter.
(Example: A68AD → A1S68AD)
For precautions on the module replacement, refer to the manual for the A-A1S conversion adapter.

*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

The QA6□B performance specifications are given below.

Item	Type	
	QA65B	QA68B
Number of I/O modules connected	5	8
Applicable modules	A series module	
5VDC internal current consumption	0.12A	
Weight	1.60kg	2.00kg

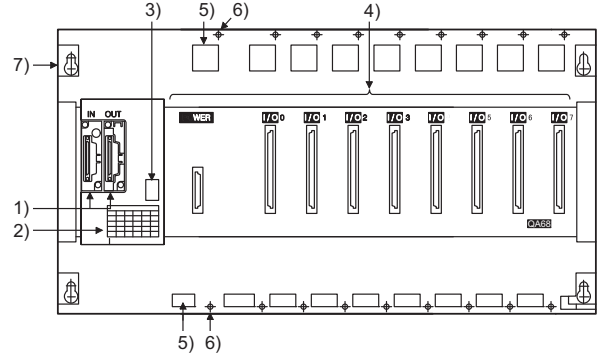
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4. PART NAMES AND SETTING

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

4.1 Part Names

The names of each QA6□B part are explained below.



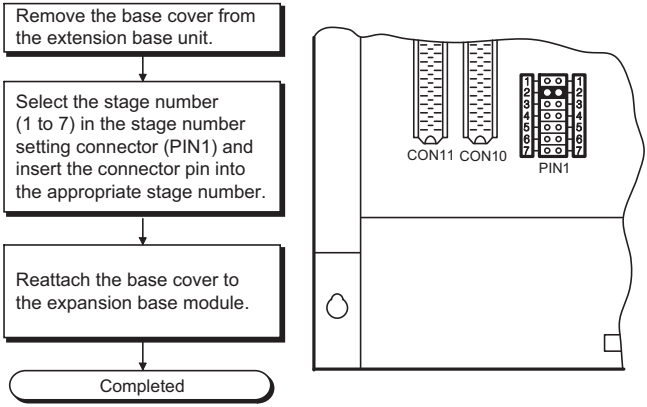
No.	Name	Application
1)	Extension cable connector	Connector for connecting an extension cable (for signal communications with the main base unit or other extension base unit)
2)	Base cover	Protective cover of extension cable connector. Before connecting an extension cable, the part under OUT on the base cover must be removed with a tool such as a flat blade screwdriver.
3)	Stage number setting connector	A connector used to set the stage numbers of the extension base units. Refer to Section 4.2 for the setting procedure.
4)	Module connector	Connectors for installing the power supply module, I/O modules, and special function modules. To those connectors located in the spare space where these modules are not installed, apply the supplied connector cover or blank cover module (AG60) / dummy module (AG62) to prevent entry of dirt.
5)	Module fixing hole	Cut out to accept projection and hook at rear of modules.
6)	Module fixing screw hole	Screw hole for fixing the module to the base unit. (M4 screw)
7)	Base unit installation hole	Hole for mounting this base unit on the panel such as a control panel. (M5 screw)

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4.2 Extension Stage Number Setting

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



Stage number setting for extension base unit

	Extension stage number setting						
	1st stage	2nd stage	3rd stage	4th stage	5th stage	6th stage	7th stage
Stage number setting connector setting	 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 extension stage number is factory-set to 1.

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5. MOUNTING AND INSTALLATION

5.1 Module Installation

This section describes precautions for handling CPU modules, I/O modules, special function modules, power supply modules, and base units.

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

(2) Do not remove the printed-circuit board of the modules from the case. Otherwise, malfunctions may result.

(3) When using the extension base unit 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.

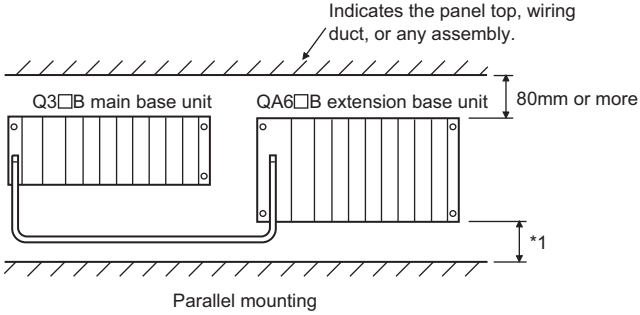
(4) Limit the tightening torque for the module installation screws and terminal block screws within the following range:

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

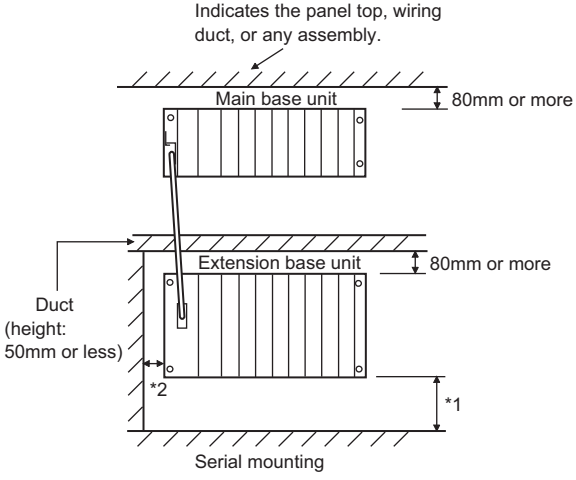
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5.2 Precautions for installing base unit

(1) Unit installation position



Parallel mounting



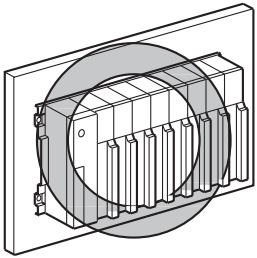
Serial mounting

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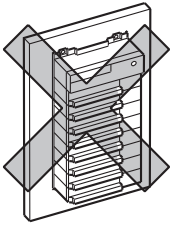
*1 When link module is not used : 50mm or more
When using ϕ4.5mm optical fiber cable : 100mm or more
When using a coaxial cable : 100mm or more
When using ϕ8.5mm optical fiber cable : 130mm or more
*2 20mm or more when connecting extension cable without removing adjacent modules.

(2) Module installing position

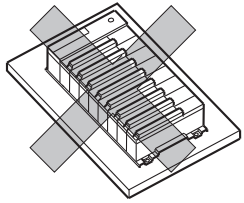
(a) Install the PC in the following position to ensure ventilation for heat radiation.



(b) Do not install the PC in the following positions.



Vertical position



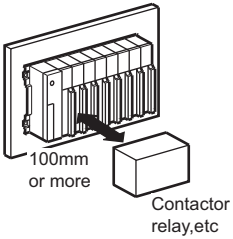
Horizontal position

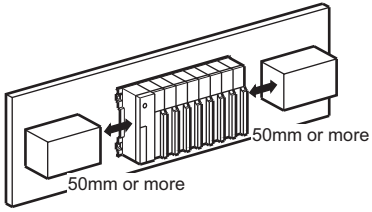
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(3) Install the base unit on a flat surface.
When the base unit is installed on an uneven surface, the printed-circuit board may be strained, resulting in malfunction.

(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



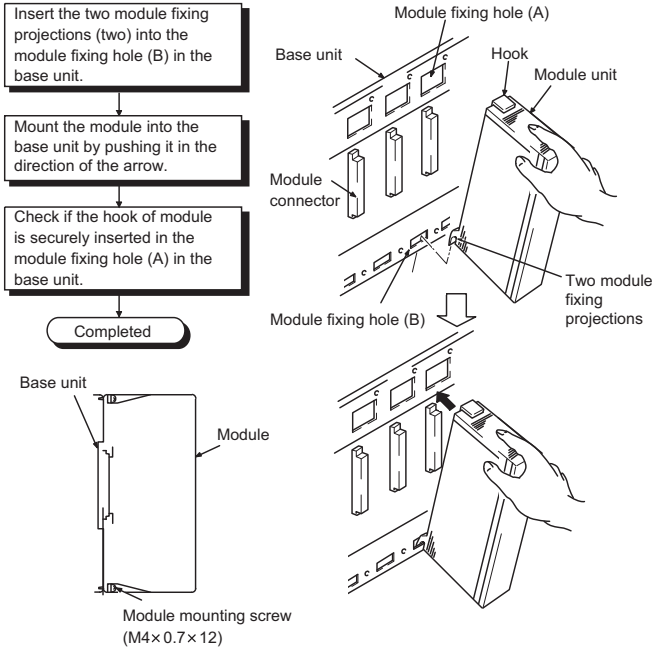


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5.3 Installation and removal of modules

This section explains how to install and remove modules, such as the power supply module, CPU module, I/O module, special function module, to and from the base unit.

(1) Installation of module



POINT
(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.

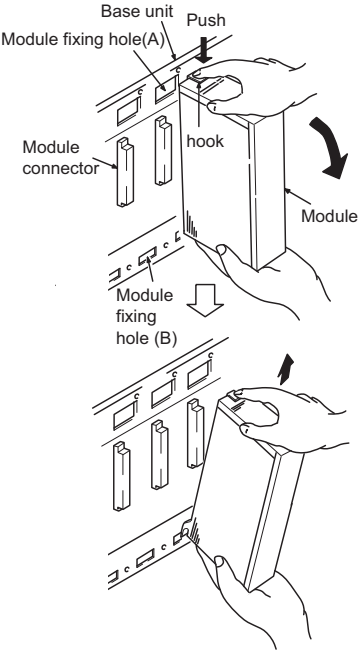
(2) Removal of module

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



POINT

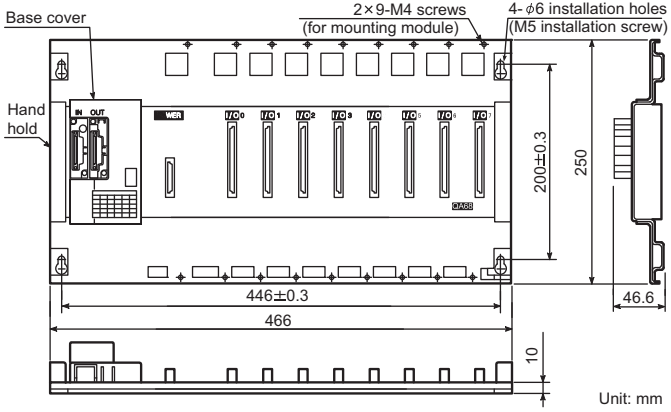
To remove the module, be sure to disengage the hook from the module fixing hole (A) and then remove the module fixing projections from the module fixing hole (B). If the module is forcibly removed, the hook or module fixing projections will be damaged.

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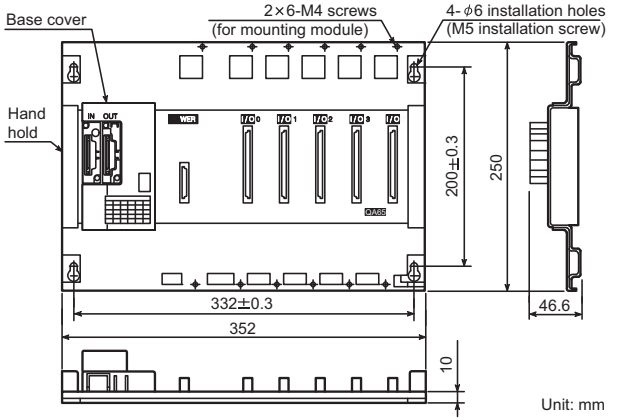
6. EXTERNAL DIMENSIONS

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

(1) The external dimensions of the QA68B



(2) The external dimensions of the QA65B



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