

MITSUBISHI QA65B 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-A(0010)MEE | |

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2. System Configuration

2.1 System configuration

The system configuration and precautions for using the QA65B extension base unit are described in this section

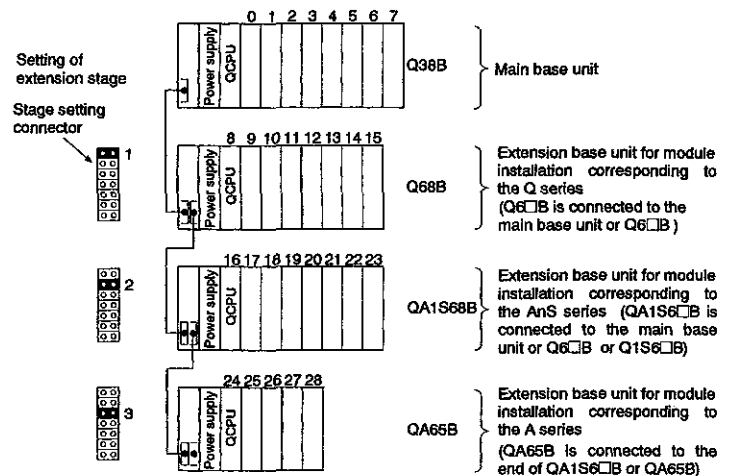
(1) Extension base unit connection order

When using the Q6□B, QA1S6□B and QA65B together, connect from the unit closest to the main base unit in the order of Q6□B, QA1S6□B and QA65B

(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



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 (hereinafter, QA65B)

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 QA65B safety precautions and general specifications

1.2 Supplied parts

The parts enclosed with this module are listed below.

| Product | Type | Quantity |
|---------------------|-------|----------|
| Extension base unit | QA65B | 1 |
| I/O number seal | - | 1 |
| This manual | - | 1 |

2.2 List of configuration devices

The possible configurations when using the QA65B extension base unit are shown below.

| Module | Type | | | | Remarks |
|--|--|--|---|---|---------|
| Power module | A61P, A67P, A62PEU | A62P, A66P, | A63P, A68P | A65P A61PEU | |
| Input module | AX10, AX21, AX40, AX42-S1, AX60-S1, AX80E, AX81-S3, | AX11, AX21EU, AX41, AX50, AX70, AX81, AX81B, | AX11EU, AX31, AX41-S1, AX50-S1, AX71, AX81-S1, AX82 | AX20 AX31-S1 AX42 AX60 AX80 AX81-S2 | |
| Output module | AY10, AY11E, AY13E, AY22, AY40A, AY42-S1, AY50, AY60S, Y71, AY81, | AY10A, AY11AEU, AY13EU, AY23, AY41, AY42-S2, AY51, AY60E, AY72, AY81EP, | AY11, AY11EEU, AY15EU, AY40, AY41P, AY42-S3, AY51-S1, AY60EP, AY80, AY82EP | AY11A AY13 AY20EU AY40P AY42 AY42-S4 AY60 AY70 AY80EP | |
| I/O module | A42XY, AD61, | AH42 | | | |
| High-speed counter module | AD61, | AD61S1 | | | *1 |
| Analog-digital conversion module | A68AD, | A68AD-S2 | A68AND, | A616AD | |
| Digital-analog conversion module | A62DA, A616DAV, | A62DA-S1, A616DAI | A68DAV, | A68DAI-S1 | |
| Temperature-digital conversion module | A68RD3, A60MXR, | A68RD4, A60MXT | A616TD, | A60MX | |
| Interrupt module | AI61, | AI61 S1 | | | *2 |
| Multi drop data link module | AJ71C22S1 | | | | |
| Host controller high-speed link module | AJ71C23-S3 | | | | |
| Positioning module | AD70, AD71S2, AD75M1, AD75P2 S3, | AD70D, AD71S7, AD75M2, AD75P3-S3 | AD71, AD72, AD75M3, | AD71S AD778M AD75P1 S3 | *1 |
| MELSECNET/mini-S3 master module | AJ71PT32-S3, | AJ71T32-S3 | | | *1 |

O: Configuration possible module, Δ: Configuration possible module (with some limits), x: Configuration not possible module

| Module | Type | Remarks |
|---|--|---------|
| Intelligent communication module | AD51-S3, AD51H-S3 | *2 |
| PC fault detection module | AS91 | |
| Memory card centronics interface module | AD59, AD59-S1 | |
| ID interface module | AJ71ID1-R4, AJ71ID2-R4 AD92ID1, AD92ID2 | *2 |
| MELSEC-I/OLINK module | AJ51T64 | |
| B/NET module | AJ71B62-S3 | |
| Voice output module | A11VC | |
| Blanking module | AG60 | |
| Dummy module | AG62 | |

*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 *3 |
| ID interface module | AJ71ID1-R4, AJ71ID2-R4 | |
| Interrupt module | AI61, AI61-S1 | 1 *4 |

3: When using QA1S65B, QA1S68B, the total of the same name modules of "" mounted to QA1S65B, QA1S68B, QA65B is 6

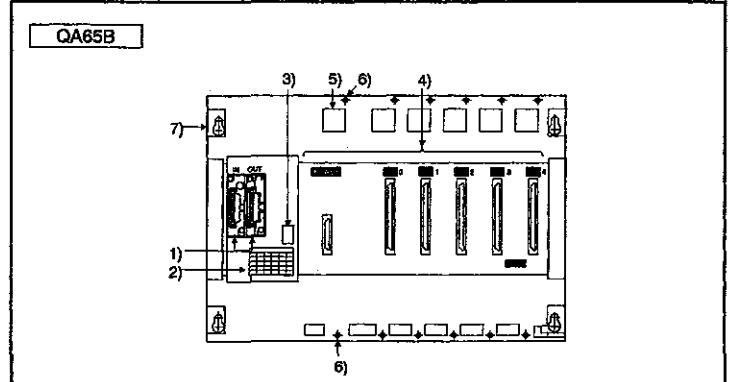
*4: Only one interrupt module is valid which can be chosen from QI60, AI61, AI61-S1, AI61 or AI61-S1

4. Names and setting of parts

The names of and settings for each QA65B part are explained in this section

4 1 Names of parts

The names of each QA65B part are explained below.



| 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. |

3. Specifications

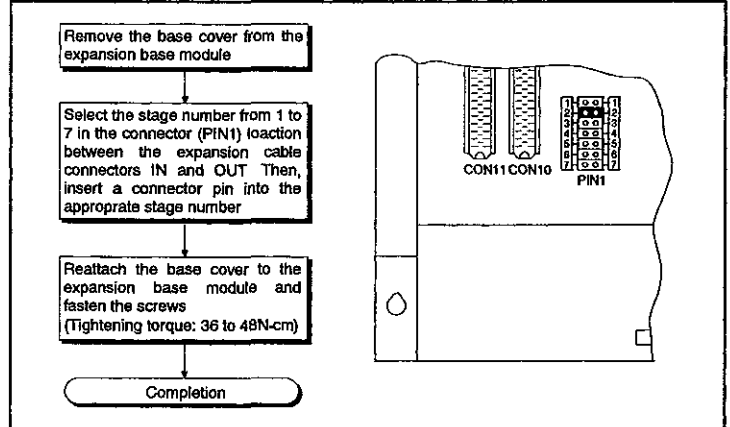
3 1 Specifications

The QA65B performance specifications are given below.

| Item | Type | QA65B |
|---------------------------------------|------|-----------------|
| Number of I/O modules connected | | 5 |
| Applicable modules | | A series module |
| SVDC internal current consumption (A) | | 0.117 |
| Weight (kg) | | 1.60 |

4 2 Setting the expansion stage numbers

The method of setting the QA65B stages is explained below.



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

- 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
- Do not assign the same stage number to several modules or skip any stage numbers. Otherwise, improper I/O operation results
- 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

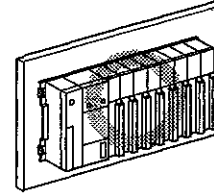
- (1) Do not drop or apply a strong impact to the module housing, memory card, terminal block connectors, and pin connectors
- (2) Do not remove the PC board of the modules from housing. Otherwise, malfunctions may result
- (3) When using the expansion base module QA65B, be sure to install the power 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) | |

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

(2) Module installing position

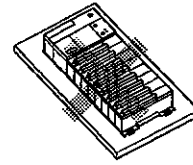
- (a) Install the PC in the following position to ensure ventilation for heat radiation



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



Vertical position

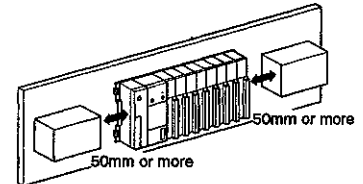
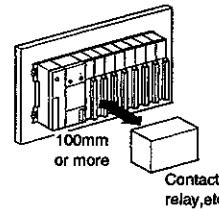


Horizontal position

- (3) Install the base module on a flat surface

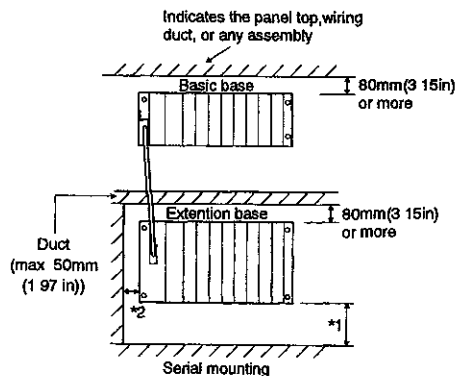
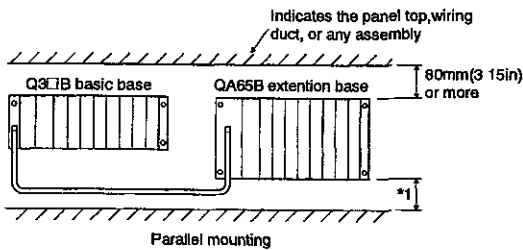
When the base module is installed on an uneven surface, the PC board may be strained, resulting in malfunction

- (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



5.2 Precautions for installing base unit

- (1) Unit installation position



*1.

| | |
|--|---------------|
| When link module is not used | 50mm or more |
| When using $\phi 4.5$ mm optical fiber cable | 100mm or more |
| When using a coaxial cable | |
| When using $\phi 8.5$ mm optical fiber cable | 130mm or more |

*2 20mm or more when connecting extension cable without removing adjacent modules

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

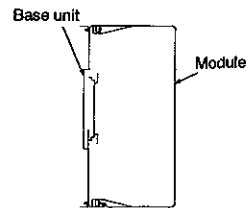
- (1) Installation of module

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

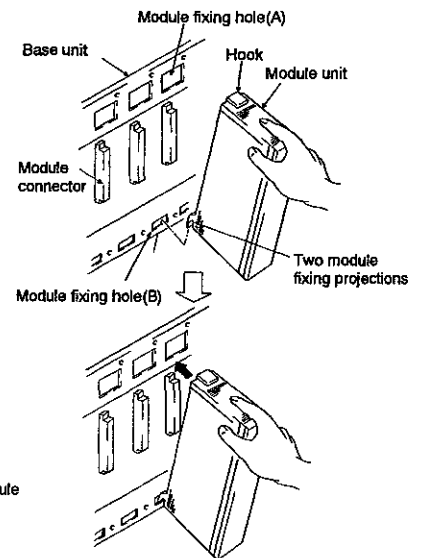
Load the module into the base unit by pushing it in the direction of arrow.

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

Completed



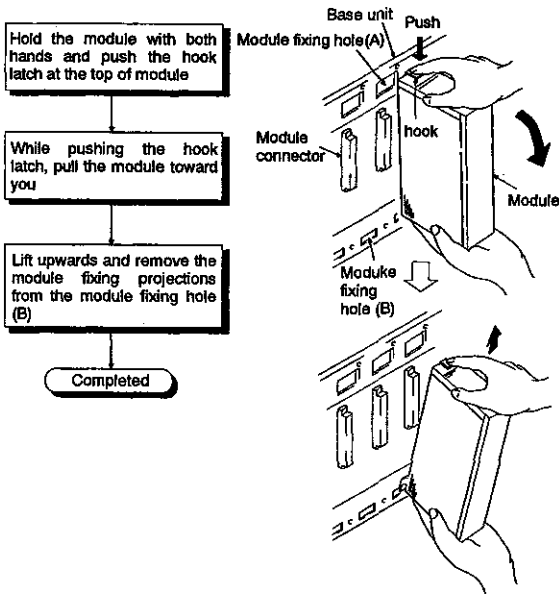
Module mounting screw
(M4(0.16) × O 7(0.03) × 12(0.47))



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

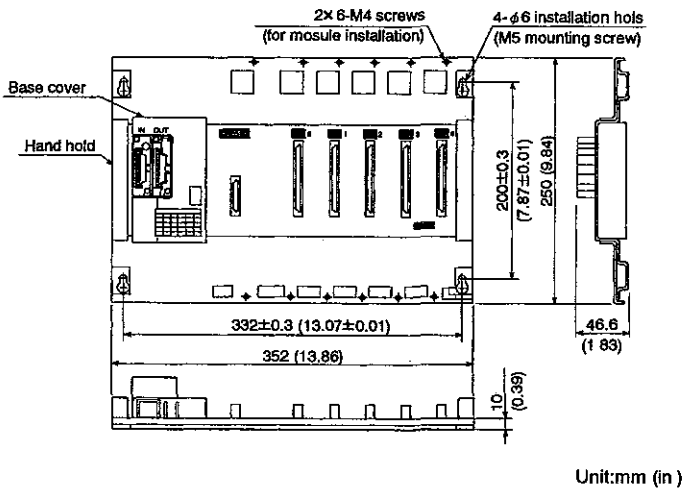


Points
To remove the module, be sure to disengage the hook from the module fixing hole (A) and then remove the module fixing projections from the module fixing hole (B). If the module is forcibly removed, the hook or module fixing projections will be damaged.

Appendices

Appendices 1 External Dimension Diagram

The external dimensions of the QA65B are shown below



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