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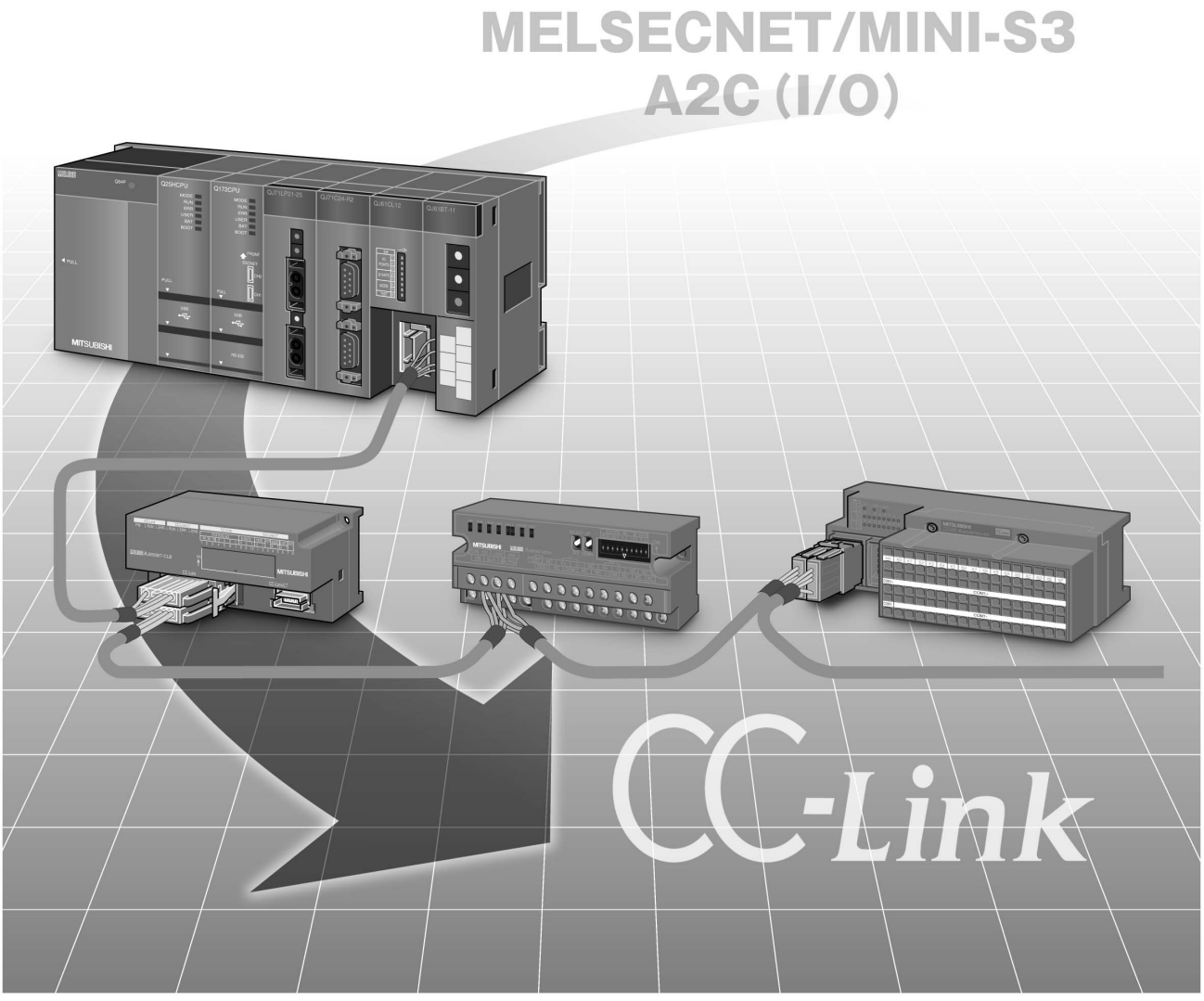
Mitsubishi Programmable Controller

Transition from MELSECNET/MINI-S3, A2C (I/O) to CC-Link Handbook



● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

In this manual, the safety precautions are classified into two levels: "⚠WARNING" and "⚠CAUTION".

⚠WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠CAUTION" may lead to serious consequences. Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

⚠WARNING

- Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller. Incorrect output or malfunction due to a communication failure may result in an accident.
  (1) Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.
  (2) When the programmable controller detects the following problems, it will stop calculation and turn off all outputs in the case of (a).
  In the case of (b), it will hold or turn off all outputs according to the parameter setting.
  Note that the A series module will turn off the output in either of cases (a) and (b).

	Q series module	A series module
(a) The power supply module has over current protection equipment and over voltage protection equipment.	Output OFF	Output OFF
(b) The programmable controller CPU self-diagnosis functions, such as the watchdog timer error, detect problems.	Hold or turn off all output according to the parameter setting.	Output OFF

  Also, all outputs may be turned on if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller. For a fail-safe circuit example, refer to the MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection).
  (3) Outputs may remain on or off due to a failure of a component such as a transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident. Configure an external circuit for monitoring output signals that could cause a serious accident.

[Design Precautions]

⚠WARNING

- In an output module, when a load current exceeding the rated current or an overcurrent caused by a load short-circuit flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.
- Configure a circuit so that the programmable controller is turned on first and then the external power supply.
  If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.
- In the case of a communication failure in the network, the status of the error station will be as follows: Check the communication status information and configure an interlock circuit in the sequence program to ensure that the entire system will operate safely.
  Incorrect output or malfunction due to a communication failure may result in an accident.
  (1) All inputs from remote I/O stations are turned off.
  (2) All outputs from remote I/O stations are turned off.
- When connecting a peripheral with the CPU module or connecting an external device, such as a personal computer, with an intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely.
  For other forms of control (such as program modification or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding.
  Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure.
  To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

[Design Precautions]

⚠CAUTION

- Use the programmable controller in an environment that meets the general specifications in a product manual.
  Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- Do not install the control lines or communication cables together with the main circuit lines or power cables.
  Keep a distance of 100mm or more between them.
  Failure to do so may result in malfunction due to noise.
- During control of an inductive load such as a lamp, heater, or solenoid valve through an output module, a large current (approximately ten times greater than normal) may flow when the output is turned from off to on. Therefore, use a module that has a sufficient current rating.

[Installation Precautions]

⚠CAUTION

- Connectors for external devices must be crimped with the tool specified by the manufacturer, or must be correctly soldered. Securely connect the connector to the module.
- Use the programmable controller in an environment that meets the general specifications in the QCPU User's Manual (Hardware Design, Maintenance and Inspection).
  Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- To mount the module, while pressing the module mounting lever located in the lower part of the module, fully insert the module fixing projection(s) into the hole(s) in the base unit and press the module until it snaps into place.
  Incorrect interconnection may cause malfunction, failure, or drop of the module.
  When using the programmable controller in an environment of frequent vibrations, fix the module with a screw.
  Tighten the screws within the specified torque range.
  Undertightening can cause drop of the screw, short circuit, or malfunction.
  Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- When using an extension cable, connect it to the extension cable connector of the base unit securely.
  Check the connection for looseness.
  Poor contact may cause incorrect input or output.
- Shut off the external power supply (all phases) used in the system before cleaning the module.
  Failure to do so may result in damage to the product.
  A module can be replaced online (while power is on) on any MELSECNET/H remote I/O station or in the system where a CPU module supporting the online module change function is used.
  Note that there are restrictions on the modules that can be replaced online, and each module has its predetermined replacement procedure.
  For details, refer to the QCPU User's Manual (Hardware Design, Maintenance and Inspection) and the online module change in the manual for the module corresponding the online module change.
- Do not directly touch any conductive parts of the module.
  Doing so can cause malfunction or failure of the module.

[Wiring Precautions]

⚠WARNING

- Shut off the external power supply (all phases) used in the system before wiring.
  Failure to do so may result in electric shock or damage to the product.
- After wiring, attach the included terminal cover to the module before turning it on for operation.
  Failure to do so may result in electric shock.

[Wiring Precautions]

⚠CAUTION

- Individually ground the FG terminal of the programmable controller with a ground resistance of 100Ω or less. Failure to do so may result in electric shock or malfunction.
- Check the rated voltage and terminal layout before wiring to the module, and connect the cables correctly.
  Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
- Connectors for external devices must be crimped or pressed with the tool specified by the manufacturer, or must be correctly soldered.
  Incomplete connections may cause short circuit, fire, or malfunction.
- Tighten the screws within the specified torque range.
  Undertightening can cause short circuit, fire, or malfunction.
  Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- Tighten any unused terminal screws within the specified torque range (42 to 50N•cm).
  Failure to do so may cause a short circuit due to contact with a solderless terminal.
- Use applicable solderless terminals and tighten them within the specified torque range.
  If any spade solderless terminal is used, it may be disconnected when a terminal screw comes loose, resulting in failure.
- Prevent foreign matter such as dust or wire chips from entering the module.
  Such foreign matter can cause a fire, failure, or malfunction.
- A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring.
  Do not remove the film during wiring.
  Remove it for heat dissipation before system operation.
- Place the cables in a duct or clamp them.
  If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Do not install the control lines together with the communication cables.
  Failure to do so may result in malfunction due to noise.
- When disconnecting the communication cable or power cable from the module, do not pull the cable by the cable part.
  For the cable with connector, hold the connector part of the cable. Loosen the screws of a cable without a connector before disconnecting the cable. Failure to do so may result in damage to the module or cable or malfunction due to poor contact.

[Startup and Maintenance Precautions]

⚠WARNING

- Do not touch any terminal or connector while power is on.
  Failure to do so may result in electric shock.
- Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal screws or module fixing screws.
  Failure to do so may result in electric shock.
  Undertightening can cause drop of the screw, short circuit, or malfunction.
  Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.

[Startup and Maintenance Precautions]

⚠CAUTION

- Before performing online operations (especially, program modification, forced output, and operating status change) for the running CPU module from the peripheral device connected, read relevant manuals carefully and ensure the safety.
  Improper operation may damage machines or cause accidents.
- Do not disassemble or modify the module.
  Doing so may cause failure, malfunction, injury, or a fire.
- Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from the programmable controller.
  Failure to do so may cause malfunction.
- Do not drop or apply strong shock to the module.
  Doing so may damage the module.
- Shut off the external power supply (all phases) used in the system before mounting or removing a module.
  Failure to do so may cause the module to fail or malfunction.
- After the first use of the product, do not mount/remove the module to/from the base unit more than 50 times (IEC 61131-2 compliant) respectively.
  Exceeding the limit may cause malfunction.
- Before handling the module, touch a conducting object such as a grounded metal to discharge the static electricity from the human body.
  Failure to do so may cause the module to fail or malfunction.

[Disposal Precautions]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.

●CONDITIONS OF USE FOR THE PRODUCT●

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
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("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

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REVISIONS

* The handbook number is given on the bottom left of the back cover.

Print Date	* Handbook Number	Revision
Dec., 2005	L(NA)-08061ENG-A	First edition
Aug., 2007	L(NA)-08061ENG-B	Model addition Addition of modules to be replaced AJ65DBTB1-32D, AJ65BTB1-16D, AJ65BTB2-16D, AJ65DBTB1-32R, AJ65DBTB1-32T1, AJ65BTB1-16T, AJ65DBTB1-32DR, AJ65DBTB1-32DT1, AJ65BT-R2N, A6ADP-1MC16D, A6ADP-1MC16T, A6ADP-2MC16D Partial correction SAFETY PRECAUTIONS, Section 1.1, Section 1.2, Section 5.1, Section 5.2.1, Section 5.2.2, Section 5.2.3, Section 5.3, Chapter 8, Section 9.2, Appendix 1.3
Mar., 2008	L(NA)-08061ENG-C	Model addition Renewal tool for A0J2 Partial correction Section 1.1, Section 1.2 to Section 1.4 → Section 1.3 to Section 1.5, Section 1.3, Section 5.1, Section 5.2.1 to Section 5.2.3, Section 8.2, Appendix 1 → Appendix 2, Appendix 2.1, Appendix 2.4, Appendix 2.5
Mar., 2013	L(NA)-08061ENG-D	Deletion of the AJ65BT-R2 from the alternative models Addition CONDITIONS OF USE FOR THE PRODUCT, GENERIC TERMS AND ABBREVIATIONS, Specifications comparison between AX80Y10C and AJ65DBTB1-32DR Partial correction SAFETY PRECAUTIONS, Section 1.3.2, Section 1.5, Section 2.1, Section 2.2.1, Section 2.2.2, Section 8.1, Section 8.2, Section 9.2, Appendix 2, WARRANTY

Japanese Handbook Version L-08057-F

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CONTENTS

SAFETY PRECAUTIONS ..... A - 1
CONDITIONS OF USE FOR THE PRODUCT ..... A - 7
REVISIONS ..... A - 8
CONTENTS ..... A - 9
GENERIC TERMS AND ABBREVIATIONS ..... A - 12

CHAPTER 1 INTRODUCTION 1 - 1 to 1 - 6

1.1 Replacing with Q series ..... 1 - 1
1.2 Suggestions for Replacement with the Remote I/O Module of CC-Link System ..... 1 - 2
1.3 Suggestions for Replacement with Renewal tool for A0J2 ..... 1 - 3
1.3.1 Advantages of using renewal tool for A0J2 (manufactured by Mitsubishi Electric System & Service Co., Ltd.) ..... 1 - 3
1.3.2 Proposal of replacement with renewal tool for A0J2 ..... 1 - 5
1.4 Precautions for Replacement ..... 1 - 6
1.5 Contact of the Relevant Products ..... 1 - 6

CHAPTER 2 PERFORMANCE SPECIFICATIONS COMPARISONS 2 - 1 to 2 - 6

2.1 Performance Specifications Comparisons between MELSECNET/MINI-S3 and CC-Link ..... 2 - 1
2.2 Wiring in CC-Link ..... 2 - 3
2.2.1 CC-Link Ver.1.00 cable specifications ..... 2 - 3
2.2.2 CC-Link Ver.1.10 cable specifications ..... 2 - 6

CHAPTER 3 FUNCTIONAL COMPARISONS 3 - 1 to 3 - 1

3.1 Functional Comparisons between MELSECNET/MINI-S3 and CC-Link ..... 3 - 1

CHAPTER 4 REPLACING MASTER MODULE/REMOTE MODULE 4 - 1 to 4 - 2

4.1 Replacing Master Module ..... 4 - 1
4.1.1 List of alternative master module models ..... 4 - 1
4.2 Replacing Remote Module ..... 4 - 2
4.2.1 List of alternative remote module models ..... 4 - 2

CHAPTER 5 REPLACING I/O MODULE 5 - 1 to 5 - 101

5.1 List of Aternative I/O Module Models ..... 5 - 1
5.2 I/O Module Specifications Comparison ..... 5 - 18
5.2.1 Input module specifications comparison ..... 5 - 18
5.2.2 Output module specifications comparisons ..... 5 - 32
5.2.3 I/O Module Specifications Comparison ..... 5 - 56
5.3 Precautions for Replacement of I/O Module ..... 5 - 100

CHAPTER 6 REPLACING ANALOG I/O MODULE 6 - 1 to 6 - 48

6.1 List of Alternative Analog I/O Module Models .... 6 - 1
6.2 List of Alternative Master Module Models .... 6 - 4
6.2.1 Comparisons of analog input module .... 6 - 4
6.2.2 Analog output module comparison .... 6 - 18
6.2.3 Comparison of temperature input module .... 6 - 41

CHAPTER 7 REPLACING THE HIGH-SPEED COUNTER MODULE 7 - 1 to 7 - 9

7.1 List of Alternative High-speed Counter Module Models .... 7 - 1
7.2 High-speed Counter Module Comparison .... 7 - 2

CHAPTER 8 REPLACING THE COMMUNICATION MODULES 8 - 1 to 8 - 7

8.1 List of Alternative Communication Module Models .... 8 - 1
8.2 Serial Communication Module Comparisons .... 8 - 2

CHAPTER 9 EXTERNAL DIMENSIONS 9 - 1 to 9 - 57

9.1 External Dimensions of MELSECNET/MINI-S3, A2C (I/O) .... 9 - 1
9.2 CC-Link External Dimensions .... 9 - 18

APPENDICES App - 1 to App - 18

Appendix 1 Performance Specifications Comparison between MELSECNET/MINI-S3 I/O Module and Renewal Tool for A0J2 .... App - 1
Appendix 2 Related Manuals .... App - 16
Appendix 2.1 Replacement handbooks .... App - 16
Appendix 2.2 MELSECNET/MINI-S3 .... App - 17
Appendix 2.3 CC-Link .... App - 18
Appendix 2.4 Products manufactured by Mitsubishi Electric Engineering Co., Ltd. .... App - 18
Appendix 2.5 Products manufactured by Mitsubishi Electric System & Service Co., Ltd. .... App - 18

- For the products shown in handbooks for transition, catalogues, and transition examples, refer to the manuals for the relevant products and check the detailed specifications, precautions for use, and restrictions before replacement.
  For the products manufactured by Mitsubishi Electric Engineering Co., Ltd., Mitsubishi Electric System & Service Co., Ltd., and other companies, refer to the catalogue for each product and check the detailed specifications, precautions for use, and restrictions before use.
  The manuals and catalogues for our products, products manufactured by Mitsubishi Electric Engineering Co., Ltd., and Mitsubishi Electric System & Service Co., Ltd. are shown in Appendix of each handbook for transition.
- Products shown in this handbook are subject to change without notice.

GENERIC TERMS AND ABBREVIATIONS

Unless otherwise specified, this handbook uses the following generic terms and abbreviations.

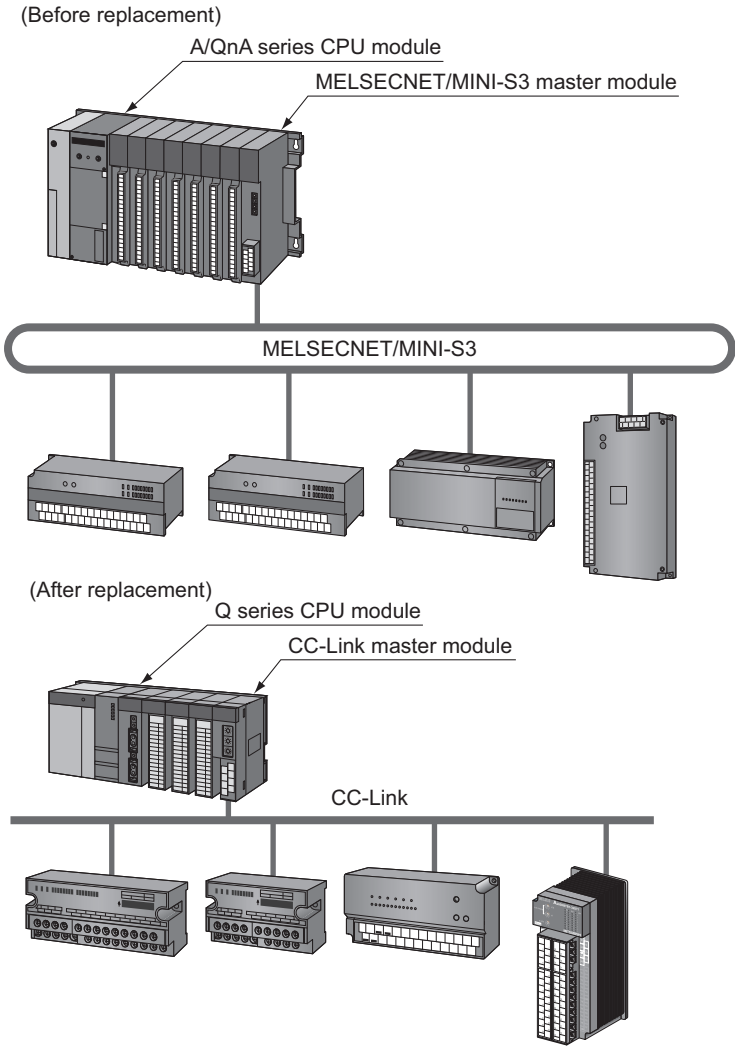
Generic term/abbreviation	Description
■Series	
A series	The abbreviation for large types of Mitsubishi MELSEC-A series programmable controllers
AnS series	The abbreviation for compact types of Mitsubishi MELSEC-A series programmable controllers
A/AnS series	A generic term for A series and AnS series
QnA series	The abbreviation for large types of Mitsubishi MELSEC-QnA series programmable controllers
QnAS series	The abbreviation for compact types of Mitsubishi MELSEC-QnA series programmable controllers
QnA/QnAS series	A generic term for QnA series and QnAS series
A/AnS/QnA/QnAS series	A generic term for A series, AnS series, QnA series, and QnAS series
Q series	The abbreviation for Mitsubishi MELSEC-Q series programmable controllers
■CPU module type	
CPU module	A generic term for A series, AnS series, QnA series, QnAS series, Q series, and L series CPU modules
Basic model QCPU	A generic term for the Q00JCPU, Q00CPU, and Q01CPU
High Performance model QCPU	A generic term for the Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, and Q25HCPU * This handbook mainly explains the Q02CPU, Q02HCPU, Q06HCPU, and Q12HCPU.
Process CPU	A generic term for the Q02PHCPU, Q06PHCPU, Q12PHCPU, and Q25PHCPU
Redundant CPU	A generic term for the Q12PRHCPU and Q25PRHCPU
Universal model QCPU	A generic term for the Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, and Q100UDEHCPU * This handbook mainly explains about the Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, and Q06UDHCPU, which can replace the AnS/QnAS series. The specifications and functions of the Q10UDEHCPU to Q100UDEHCPU are the same as those of the modules described above, although the program and memory capacities increase.
LCPU	A generic term for the L02CPU, L02CPU-P, L26CPU-BT, and L26CPU-PBT
■CPU module model	
ACPU	A generic term for MELSEC-A series CPU modules
AnSCPU	A generic term for MELSEC-AnS series CPU modules
AnNCPU	A generic term for the A1NCPU, A1NCPUP21/R21, A1NCPUP21-S3, A2NCPU, A2NCPU-S1, A2NCPUP21/R21, A2NCPUP21/R21-S1, A2NCPUP21-S3(S4), A3NCPU, A3NCPUP21/R21, and A3NCPUP21-S3
AnACPU	A generic term for the A2ACPU, A2ACPU-S1, A3ACPU, A2ACPUP21/R21, A2ACPUP21/R21-S1, and A3ACPUP21/R21
AnUCPU	A generic term for the A2UCPU, A2UCPU-S1, A3UCPU, and A4UCPU
AnUS(H)CPU	A generic term for the A2USCPU, A2USCPU-S1, A2USHCPU-S1
A/AnSCPU	A generic term for MELSEC-A series and -AnS series CPU modules
AnN/AnACPU	A generic term for the AnNCPU and AnACPU
AnN/AnA/AnSCPU	A generic term for the AnNCPU, AnACPU, and AnSCPU
QnACPU	A generic term for MELSEC-QnA series CPU modules
QnASCPU	A generic term for MELSEC-QnAS series CPU modules

Generic term/abbreviation	Description
QnA/QnASCPU	A generic term for MELSEC-QnA series and -QnAS series CPU modules
A/AnS/QnA/QnASCPU	A generic term for MELSEC-A series, -AnS series, -QnA series, and -QnAS series CPU modules
QCPU	A generic term for MELSEC-Q series CPU modules
LCPU	A generic term for MELSEC-L series CPU modules

1 INTRODUCTION

1.1 Replacing with Q series

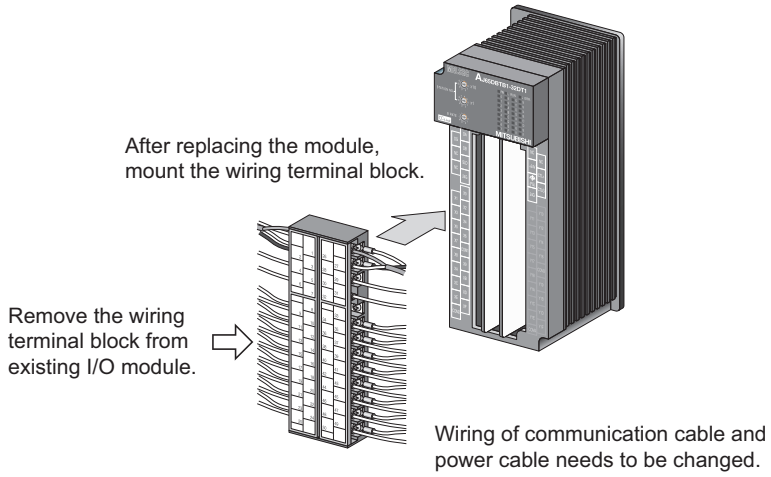
The Q series does not have a MELSECNET/MINI-S3 master module. For this reason, it is recommended to use the CC-Link system when replacing the MELSECNET/MINI-S3 system with the Q series.



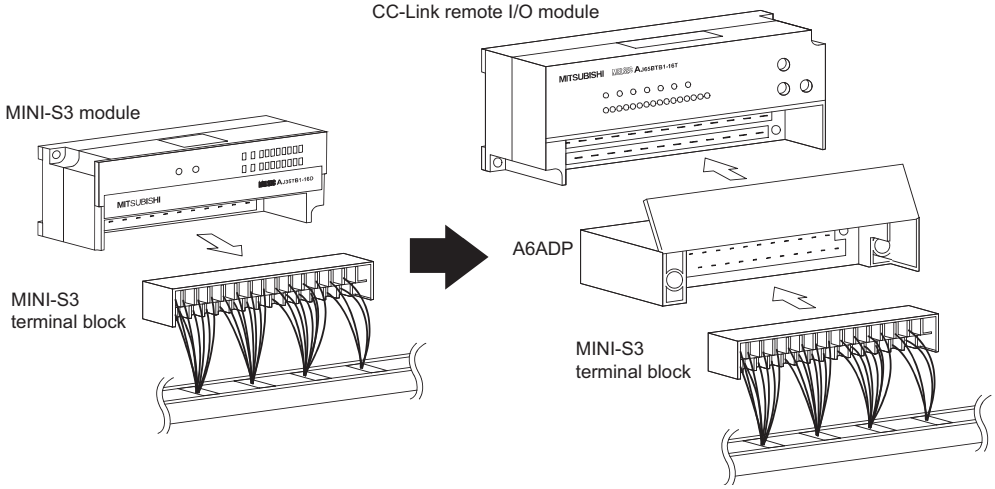
1.2 Suggestions for Replacement with the Remote I/O Module of CC-Link System

Module before replacement (current status)	Module after replacement		Corresponding module (before replacement → after replacement)
	Type	Outline	
MELSECNET/MINI-S3-compatible module (AJ35□-□) A2C (I/O) module (A□C)	CC-Link system compact type remote I/O module	• Reconfiguration of the system is easy. Selecting the best match model from the wide selection of modules for a module before replacement is possible.	(All models)
	CC-Link system remote I/O module (A2C shape)	• Module mounting size is the same. This A2C shape CC-Link I/O module has the same shape (same mounting dimensions) with A2C (I/O) module. No processing for mounting holes is required when replacing the module. • I/O signal wiring is the same. Since the terminal block of the same shape is used, I/O signal wiring is the same.*1 • Optional products are available. The A6DIN1C and A2CCOM-TB (sold separately) are available. If the A2C (I/O) is used before replacement, it can be utilized.	AX41C/AX81C → AJ65DBTB1-32D AY51C → AJ65DBTB1-32T1 AX40Y50C → AJ65DBTB1-32DT1 AY13C → AJ65DBTB1-32R AX40Y10C → AJ65DBTB1-32DR
	CC-Link system remote I/O module	• Change in wiring is unnecessary. By using a wiring conversion adapter, terminal block of the module before replacement can be utilized to the module after replacement *2 (regarding communication cable and power cable, wiring change is required).	AJ35TB1-16D → AJ65BTB1-16D AJ35TB2-16D → AJ65BTB2-16D AJ35TB1-16T → AJ65BTB1-16T

*1 Man-hour taken for wiring change can be reduced since wiring to the external device can also be used by partially changing the wiring of power cable and communication cable.



*2 Image figure of replacement using wiring conversion adapter



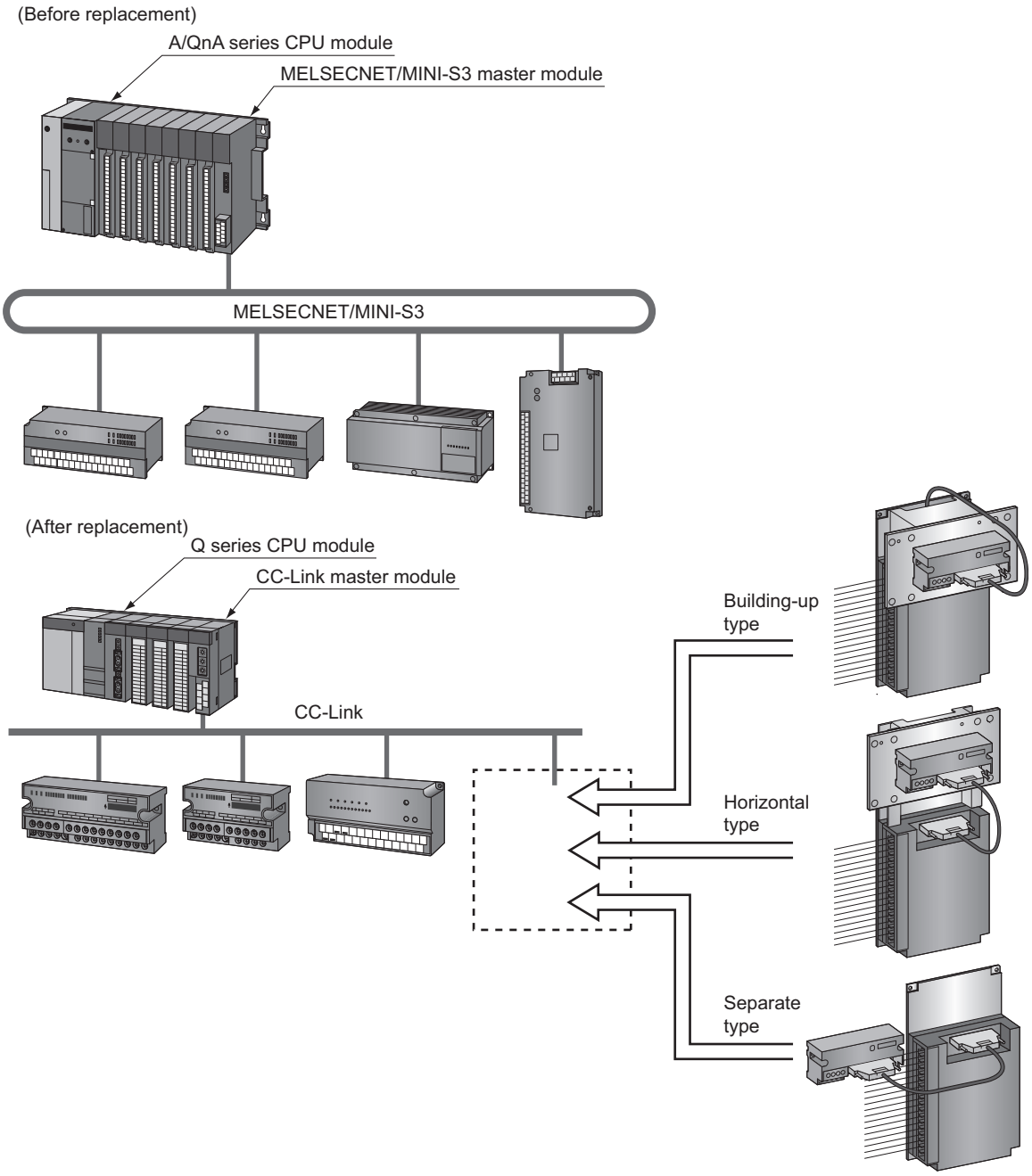
1.3 Suggestions for Replacement with Renewal tool for A0J2

1.3.1 Advantages of using renewal tool for A0J2 (manufactured by Mitsubishi Electric System & Service Co., Ltd.)

(1) The MELSECNET/MINI-S3 system can be replaced with CC-Link without changing existing wiring.

Although the CPU module, A/QnA series is replaced with the Q series, the external wiring terminal block attached to the existing MELSECNET/MINI-S3 I/O module*1 can be utilized to the interface module. It allows to replace the modules without external wiring change. (The module is replaced with FCN connector type DC input/output module of CC-Link.)
Also, new wiring is unnecessary since the CC-Link I/O module is connected to the interface module with dedicated cable.

*1: The MELSECNET/MINI-S3 compact type remote I/O module is the target module.



POINT

For specifications comparison and functional comparison between the existing MELSECNET/MINI-S3 compact type remote I/O module and the renewal tool for A0J2 after replacement, refer to APPENDICES.

(2) Processing the mounting holes is unnecessary.

Mounting dimensions of the base adapter included with renewal tool for A0J2 is the same with dimensions of existing A0J2 I/O module. Replacement without processing the mounting holes is possible.

(3) I/O address change is unnecessary.

By replacing the MELSECNET/MINI-S3 compact type remote I/O module with FCN connector type DC input/output module of CC-Link, the I/O address assignment of the MELSECNET/MINI-S3 compact type remote I/O module can be utilized.
It eliminates I/O address change and allows substantial reduction of program correction.

POINT

1) Renewal tool for A0J2
This tool is used for the following replacement.
- Replacing the A0J2 (H) system with Q series
- Replacing the A0J2 (H) system with AnS series
- Replacing the MELSECNET/MINI-S3 compact type remote I/O module with FCN connector type DC input/output module of CC-Link

It is composed of interface module to which wiring terminal block of existing I/O module can be attached and base adapter for utilizing the existing mounting hole, etc.
Installation method can be selected according to the installation space.

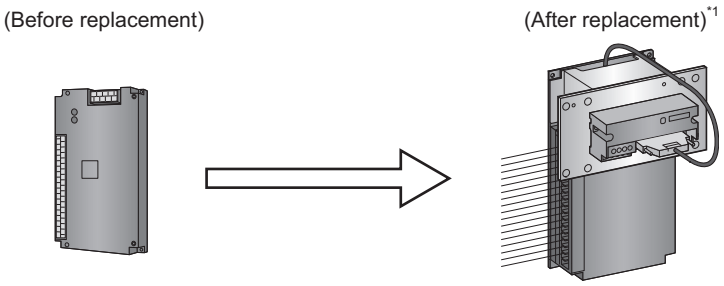
2) Interface module
This module has the conversion function that converts DC output into relay output or AC input into DC input. Therefore, it can be replaced in combination with FCN connector type DC input/output module of CC-Link.
Wire between the interface module and the CC-Link I/O module with dedicated connection cable.
(List of models supporting interface module)

Discontinued modules (MELSECNET/MINI(-S3))		Alternative modules (CC-Link)	
Product name	Model name	Alternative programmable controller I/O module	Interface module
Output module	AJ35PTF-24R	AJ65SBTCF1-32T	SC-A0JQIF24R
I/O module	AJ35PTF-28DR	AJ65SBTCF1-32D, AJ65SBTCF1-32T	SC-A0JQIF28DR
	AJ35PTF-28DT	AJ65SBTCF1-32D, AJ65SBTCF1-32T	SC-A0JQIF28DT
	AJ35PTF-56AR	AJ65SBTCF1-32D, AJ65SBTCF1-32T	SC-A0JQIF56AR
	AJ35PTF-56DR	AJ65SBTCF1-32D, AJ65SBTCF1-32T	SC-A0JQIF56DR
	AJ35PTF-56DT	AJ65SBTCF1-32D, AJ65SBTCF1-32T	SC-A0JQIF56DT

1.3.2 Proposal of replacement with renewal tool for A0J2

(1) Building-up type

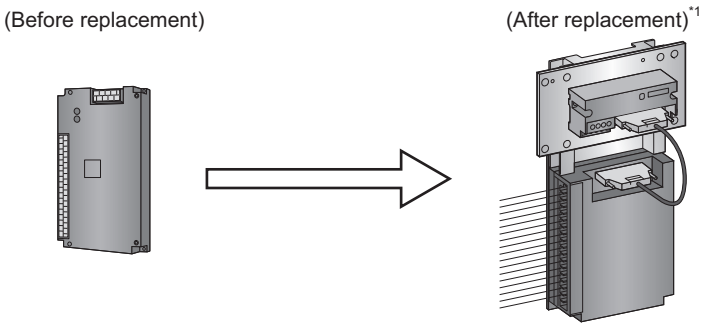
The CC-Link I/O module can be built up to the existing panel if there is room for depth in front of existing module, and can be installed on the installation surface of the existing panel.



*1: Up to two interface modules can be used for each renewal tool for A0J2.

(2) Horizontal type

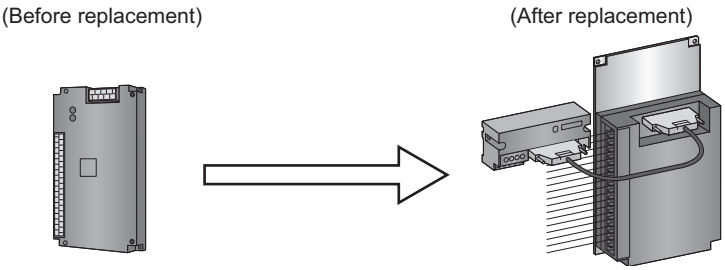
The CC-Link I/O module can be installed horizontally, if there is room above the existing module.



*1: Up to two interface modules can be used for each renewal tool for A0J2.

(3) Separate type

Only the CC-Link I/O module can be installed separately (Only this method is available for the AnS series).



Remark

Other than CC-Link, replacement to the QCPU or AnSCPU is possible.
For details, contact your local Mitsubishi sales representative. (refer to Section 1.5).

1.4 Precautions for Replacement

(a) Before replacing MELSECNET/MINI-S3 with CC-Link, be sure to refer to the manuals for each of the CC-Link modules, and confirm the functions, specifications and methods of use of the modules.

(b) For replacement using renewal tool for A0J2, always refer to the following manual. Select correct products after checking the functions, specifications, and usage. (Reference manual)

- Renewal tool for A0J2 series transition from MELSEC-A0J2(H) series to renewal system using renewal tool (Refer to Appendix 2.5.)

(c) When stations installing a MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter to the CC-Link remote I/O module (AJ65BTB1-16D, AJ65BTB2-16D or AJ65BTB1-16T) is mixed, the maximum number of connected modules is 32 with the use of a version 1.10 compatible CC-Link dedicated cable.
(No restrictions when using cables other than a version 1.10 compatible CC-Link dedicated cable.)

(d) After replacing MELSECNET/MINI-S3 with CC-Link, be sure to check operation of the entire system before starting actual operation.

1.5 Contact of the Relevant Products

Renewal tool manufactured by Mitsubishi Electric Engineering Co., Ltd.
For products manufactured by Mitsubishi Electric Engineering Co., Ltd., contact your local sales representative.

Introduction of "replacement of MELSEC-A series, system renewal service, and renewal tool for A0J2"
For replacement of MELSEC-A series and system renewal service, contact your local sales representative.

2 PERFORMANCE SPECIFICATIONS COMPARISONS

2.1 Performance Specifications Comparisons between MELSECNET/MINI-S3 and CC-Link

○: Compatible, △: Partial change required, ×: Not compatible

Item		Specifications		Compatibility	Precautions for replacement
		MELSECNET/MINI-S3	CC-Link		
Per master station	Max. number of link stations	64 stations (8 points/station)	64 stations (32 points/station)	○	
	Maximum control I/O points	1024 points *1	4096 points + 512 words	○	
Number of master modules mounted		Max. 64 modules (according to the specifications for the CPU module used.)	When setting parameters with GX Developer: 8 modules *2*3*4 When setting parameters with dedicated instructions: Max. 64 modules (according to the specifications for the CPU module used.)	○	
Communication speed		1.5Mbps	156k/625k/2.5M/5M/10Mbps	○	
Transmission method		Ring	Bus	×	New cable must be laid.
Overall cable distance		No restriction	1200m (at 156kbps)	×	When the transmission distance exceeds 1200m, use a CC-Link repeater module.
Max. transmission distance between stations		Optical data link: 50m (35m)*5 Twisted pair data link: 100m (50m)*6	1200m (at 156kbps)	○	
Number of occupied I/O points per stations		In I/O dedicated mode: 32 points In extended mode: 48 points	32 points	○	

*1: When 16 separate refresh type remote I/O modules AJ35PTF-128DT (number of occupied stations: 4) are connected, 1024 I/O points each can be controlled.

*2: The following CPU modules have the restriction of the number of modules mounted.
- Q00J/Q00/Q01CPU: 2
- Q00UJ/Q00U/Q01UCPU: 2
- Q02UCPU: 4

*3: When more than 4 modules are used by the parameter setting in GX Developer, refer to the following to check the version for the CPU module and GX Developer.
- MELSEC-Q CC-Link System Master/Local Module User's Manual

*4: Total number of CC-Link master stations and local stations.

*5: When a 2VTPE-1 optical combined vinyl-insulated sheath cable (manufactured by Mitsubishi Cable Industries, Ltd.) is used, the max. transmission distance between stations is 35m.

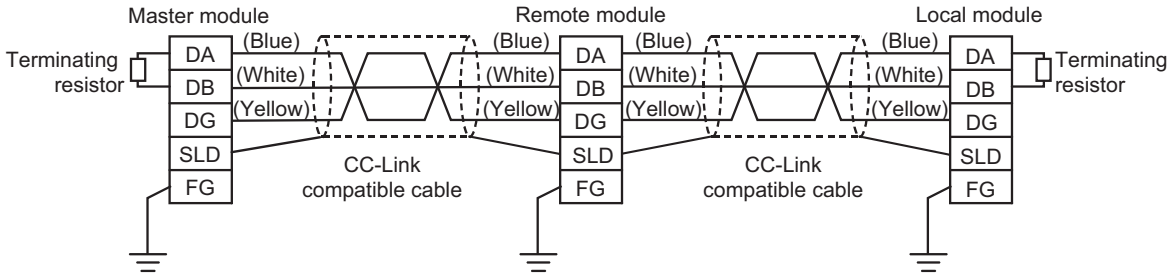
*6: The max. transmission distance between stations varies according to the size of the twisted pair cable.
0.2mm^2 or more to less than 0.5mm^2 ... 50m,
0.5mm^2 or more ... 100m

2.2 Wiring in CC-Link

New cables must be laid when replacing MELSECNET/MINI-S3 with CC-Link as the two systems differ in the applicable cable types.

2.2.1 CC-Link Ver.1.00 cable specifications

(1) Connection method

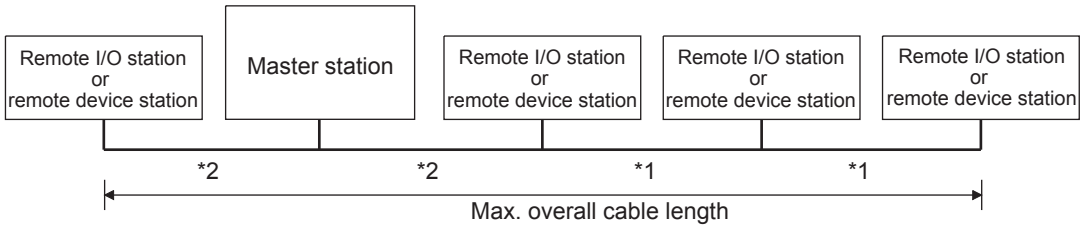


In the CC-Link system, the terminal resistor to be connected varies according to the cable to be used.

Cable type	Terminal resistor
CC-Link dedicated cable	110Ω 1/2 W (brown/brown/brown)
CC-Link dedicated high-performance cable	130Ω 1/2 W (brown/orange/brown)

(2) Cable length between stations, max. overall cable length

1) When the system is composed of only remote I/O stations and remote device stations



*1: Cable length between remote I/O stations or remote device stations

*2: Cable length between master station and next stations

CC-Link dedicated cable (110Ω used as terminal resistor)

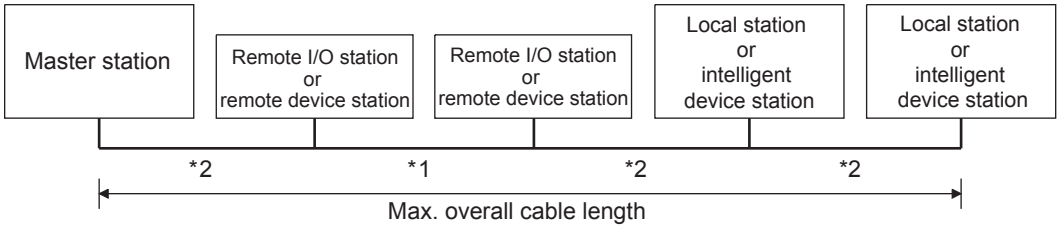
Transmission speed	Cable length between stations		Max. overall cable length
	*1	*2	
156kbps	30cm or more	1m or more	1200m
625kbps			600m
2.5Mbps			200m
5Mbps	30cm to 59cm*		110m
	60cm or more		150m
10Mbps	30cm to 59cm*		50m
	60cm to 99cm*		80m
	1m or more		100m

CC-Link dedicated high-performance cable (130Ω used as terminal resistor)

Transmission speed		Cable length between stations		Max. overall cable length
		*1	*2	
156kbps		30cm or more	1m or more	1200m
625kbps				900m
2.5Mbps				400m
5Mbps				150m
10Mbps	Number of connected modules :1 to 32			100m
	Number of connected modules :33 to 48	30cm to 39cm*		80m
		40cm or more		100m
	Number of connected modules :49 to 64	30cm to 39cm*		20m
		40cm to 69cm*		30m
		70cm or more		100m

* When an actual cable length between remote I/O stations or remote device stations is in this range at even one location, the above max. overall cable length applies.

2) When the system is composed of remote I/O stations, remote device stations, local stations, and intelligent device stations



*1: Cable length between remote I/O stations or remote device stations

*2: Cable length between master/local stations or intelligent device stations and next stations

CC-Link dedicated cable (110Ω used as terminal resistor)

Transmission speed	Cable length between stations		Max. overall cable length
	*1	*2	
156kbps	30cm or more	2m or more	1200m
625kbps			600m
2.5Mbps			200m
5Mbps	30cm to 59cm*		110m
	60cm or more		150m
10Mbps	30cm to 59cm*		50m
	60cm to 99cm*		80m
	1m or more		100m

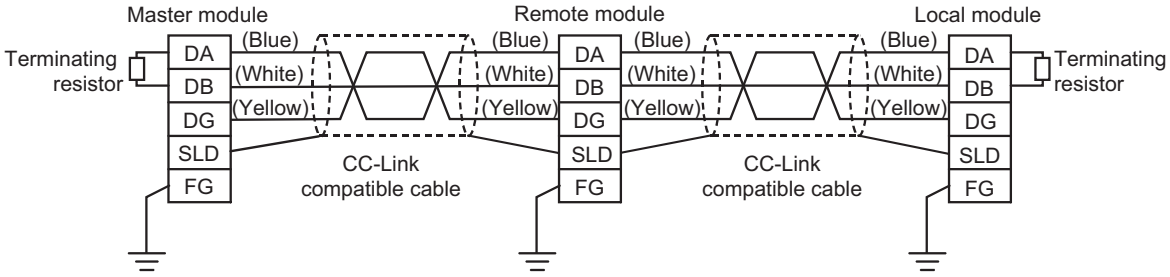
CC-Link dedicated high-performance cable (130Ω used as terminal resistor)

Transmission speed	Cable length between stations		Max. overall cable length
	*1	*2	
156kbps	30cm or more	2m or more	1200m
625kbps			600m
2.5Mbps			200m
5Mbps	30cm to 59cm*		110m
	60cm or more		150m
10Mbps	70cm to 99cm*		50m
	1m or more		80m

* When an actual cable length between remote I/O stations or remote device stations is in this range at even one location, the above max. overall cable length applies.

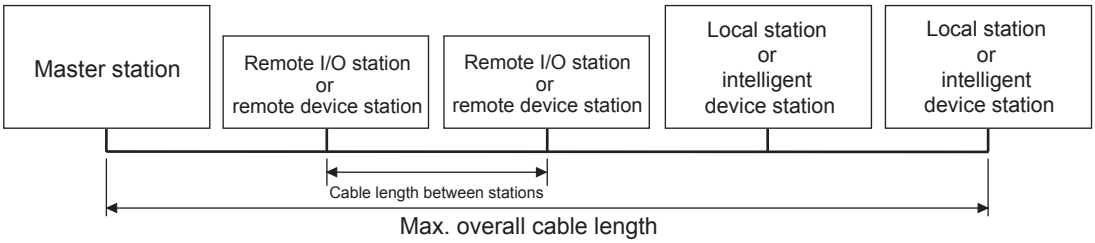
2.2.2 CC-Link Ver.1.10 cable specifications

(1) Connection method



Cable type	Terminal resistor
Ver1.10-compatible CC-Link dedicated cable	110Ω 1/2 W (brown/brown/brown)

(2) Cable length between stations, max. overall cable length



Ver.1.10-compatible CC-Link dedicated cable (110Ω used as terminal resistor)

Transmission speed	Cable length between stations	Max. overall cable length
156kbps	20cm or more	1200m
625kbps		900m
2.5Mbps		400m
5Mbps		160m
10Mbps		100m

3 FUNCTIONAL COMPARISONS

3.1 Functional Comparisons between MELSECNET/MINI-S3 and CC-Link

○: Compatible, △: Partial change required, ×: Not compatible

Item		Specifications		Compatibility	Precautions for replacement
		MELSECNET/MINI-S3	CC-Link		
Communication with remote station		Communication with batch refresh type remote I/O modules, separate refresh type remote I/O modules and remote terminal modules is possible.	Communication with remote I/O stations, remote device stations, local stations, and intelligent device stations is possible.	×	Create new programs as the two systems are not compatible in the program.
RAS function	Communication / line error detection	Communications with all stations sometimes is discontinued when an error occurs on even one station. The faulty station is detected on the master station and is stored to buffer memory.	Only the faulty station is disconnected, and communication with other stations is continued normally. The faulty station is detected on the master station and is stored to buffer memory.	△	The method of confirmation is different. Review the program.
	Line check	Breakage of the optical cables and twisted pair cables can be checked by changing the operation mode of the master station.	Breakage of twisted pair cables can be checked by changing the operation mode of the master station.	△	
Others	Monitor station function	The I/O status of the remote I/O module can be monitored by the LEDs on the master station.	None	×	Connect the programming tool and check by the device monitor.

4 REPLACING MASTER MODULE/REMOTE MODULE

4.1 Replacing Master Module

4.1.1 List of alternative master module models

MELSECNET/MINI-S3 models to be discontinued		Alternative model for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Master module	AJ71PT32-S3	QJ61BT11N	Examine replacement with CC-Link. For details, refer to the User's Manual for the respective module.
	AJ71T32-S3		
	A1SJ71PT32-S3		
	A1SJ71T32-S3		

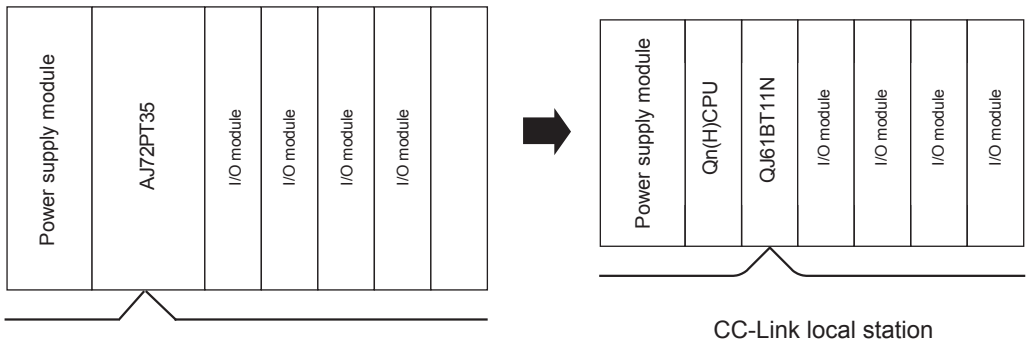
4.2 Replacing Remote Module

CC-Link does not have a remote module that uses a building block type I/O module. When changing the remote module, it is recommended to replace with the respective remote modules or a local station (QCPU+QJ61BT11N) of CC-Link.

4.2.1 List of alternative remote module models

MELSECNET/MINI-S3 models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Remote module	AJ72PT35	None	It is recommended to replace with the respective remote module or a local station*1 (QCPU+QJ61BT11N) of CC-Link.
	AJ72T35	None	

*1: A program is required for local station QJ61BT11N as it cannot directly control I/O modules.
For this reason, the following system changes are required.



MELSECNET/MINI-S3 remote station

CC-Link local station

5 REPLACING I/O MODULE

5.1 List of Aternative I/O Module Models

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative model for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Input module	AX11C	AJ65SBTB2N-16A	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Required Change in input resistance: Required 5) Change in functions: Required (2-wire type for inputs)
	AX21C	None	No alternative model
	AX31C	AJ65SBTB1-32D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12/24VAC, 12VDC not allowed) Change in rated input current: Not required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in input response time: Required (35/30ms→ 1.5ms) 5) Change in functions: Required (12/24VAC, 12VDC not allowed)
	AX41C	AJ65SBTB1-32D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Not required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Required (12VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Input module	AX41C	AJ65DBTB1-32D	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in input response time: Not required 5) Change in functions: Required (12VDC not allowed)
	AX81C	AJ65SBTB1-32D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Not required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Required (12VDC not allowed)
		AJ65DBTB1-32D	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in input response time: Not required 5) Change in functions: Required (12VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Input module	AJ35PTF-32D	AJ65SBTB1-32D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Required (12VDC not allowed, no optics)
	AJ35TB1-16A	AJ65SBTB2N-16A	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Required Change in input resistance: Required 5) Change in functions: Required (2-wire type for inputs)
	AJ35TB3-8D	AJ65SBTB3-8D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Not required
	AJ35TB1-16D	AJ65SBTB1-16D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Not required

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Input module	AJ35TB1-16D	AJ65BTB1-16D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Not required 5) Change in functions: Not required
	AJ35TB2-16D	AJ65SBTB3-16D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Required (2-wire type → 3-wire type)
		AJ65BTB2-16D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Not required 5) Change in functions: Not required
	AJ35TC1-32D	AJ65SBTCF1-32D	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) 5) Change in functions: Not required

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Output module	AY13C	AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs)
		AJ65DBTB1-32R	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Not required
	AY15CEU	AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required (Note that a connect life is half.) 5) Change in functions: Required (2-wire type for outputs)
		AJ65DBTB1-32R	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: : Not required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Not required
	AY23C	AJ65SBTB2N-16S	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Required 5) Change in functions: Required (2-wire type for outputs)
	AY51C	AJ65SBTB1-32T1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Required 5) Change in functions: Not required

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Output module	AY51C	AJ65DBTB1-32T1	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Required 5) Change in functions: Not required
	AY61CE	AJ65SBTB1-16TE	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Required (5VDC not allowed) Change in rated output current: Required (2A → 0.1A) 5) Change in functions: Required (5VDC not allowed)
		AJ65SBTB1-32TE1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated output voltage: Required (5VDC not allowed) Change in rated output current: Required (2A → 0.5A) 5) Change in functions: Required (5VDC not allowed)
	AY81C	AJ65SBTB1-16TE	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Required Change in rated output current: Required (0.5A →0.1A) 5) Change in functions: Not required
		AJ65SBTB1-32TE1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: : Not required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Not required
	AJ35PTF-24S	AJ65SBTB2N-16S	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, no high-speed type fuse , no optics)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Output module	AJ35PTF-24T	AJ65SBTB1-32T1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (no optics)
	AJ35TB1A-8R	AJ65SBTB2N-8R	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (Change to 16 points per common (2-wire type))
	AJ35TB2-8R	AJ65SBTB2N-8R	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Not required
	AJ35TB1-16R	AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs)
	AJ35TB1A-8T	AJ65SBTB1-8T1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Required Change in rated output current: Required 5) Change in functions: Required (Change to 16 points per common (2-wire type))
	AJ35TB2-8T	AJ65SBTB2-8T1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (5VDC not allowed) Change in rated output current: Not required 5) Change in functions: Required (5VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative model for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Output module	AJ35TB1-16T	AJ65SBTB1-16T1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Required Change in rated output current: Required 5) Change in functions: Not required
		AJ65BTB1-16T	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Not required
	AJ35TB2-16T	AJ65SBTB2-16T1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Required Change in rated output current: Required 5) Change in functions: Not required
	AJ35TC1-32T	AJ65SBTCF1-32T	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated output voltage: Required Change in rated output current: Not required 5) Change in functions: Not required 6) Others: External wiring connectors not attached
	AJ35PTF-24R*1	AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules: Required (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, no optics)

*1: Replacement using renewal tool for A0J2 is possible (refer to Appendix 1).

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative model for CC-Link	
Product name	**Model name**	**Model name**	**Remarks (restrictions)**
I/O module	AX10Y10C	AJ65SBTB2N-16A + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for I/Os)
	AX10Y22C	AJ65SBTB2N-16A + AJ65SBTB2N-16S	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Required 5) Change in functions: Required (2-wire type for I/Os)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AX40Y10C	AJ65SBTB1-16D + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, 12VDC not allowed)
		AJ65SBTB32-16DR	1) Change in external wiring: Required 2) Change in number of modules: Required (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (12VDC not allowed)
	AX40Y10C	AJ65DBTB1-32DR	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (12VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AX40Y50C	AJ65SBTB1-32DT2	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Required (12VDC not allowed) Change in rated output current: Required 5) Change in functions: Required (12VDC not allowed)
		AJ65DBTB1-32DT1	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in input response time: Not required Change in rated output voltage: Not required Change in rated output current: Required 5) Change in functions: Required (12VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AX80Y10C	AJ65SBTB1-16D + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms → 1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, 12VDC not allowed)
		AJ65DBTB1-32DR	1) Change in external wiring: Required (Communication cable and power cable only) 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (12VDC not allowed)
	AX80Y14CEU	AJ65SBTB1-16D + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in rated output voltage: Not required Change in rated output current: Not required (Note that a connect life is half.) 5) Change in functions: Required (2-wire type for outputs, 12VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AX80Y80C	AJ65SBTB1-16D + AJ65SBTB1-16TE	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Required Change in rated output current: Required (0.5A →0.1A) 5) Change in functions: Required (12VDC not allowed)
	AX80Y80C	AJ65SBTB1-32DTE1	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (12VDC not allowed)
	AJ35PTF-56AR*1	AJ65SBTB2N-16A + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules: Required (4 modules necessary: AJ65SBTB2N-16A × 2 modules AJ65SBTB2N-16R × 2 modules) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Not required (Note that a connect life is half.) 5) Change in functions: Required (2-wire type for I/Os, no optics)

*1: Replacement using renewal tool for A0J2 is possible (refer to Appendix 1).

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AJ35PTF-56AS	AJ65SBTB2N-16A + AJ65SBTB2N-16S	1) Change in external wiring: Required 2) Change in number of modules: Required (4 modules necessary: AJ65SBTB2N-16A × 2 modules AJ65SBTB2N-16S × 2 modules) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for I/Os, no high-speed fuse, no optics)
	AJ35PTF-28DS	AJ65SBTB1-16D + AJ65SBTB2N-16S	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, no optics, 12VDC not allowed)
	AJ35PTF-56DS	AJ65SBTB1-32D + AJ65SBTB2N-16S	1) Change in external wiring: Required 2) Change in number of modules: Required (3 modules necessary: AJ65SBTB1-32D × 1 module AJ65SBTB2N-16S × 2 modules) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, no optics, 12VDC not allowed)

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AJ35PTF-28DR*1	AJ65SBTB1-32D + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules: Required (2 modules necessary: AJ65SBTB1-32D × 1 module AJ65SBTB2N-16R × 1 modules) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Required Change in rated output current: Required 5) Change in functions: Required (2-wire type for outputs, no optics, 12VDC not allowed)
	AJ35PTF-56DR*1	AJ65SBTB1-32D + AJ65SBTB2N-16R	1) Change in external wiring: Required 2) Change in number of modules: Required (3 modules necessary: AJ65SBTB1-32D × 1 module AJ65SBTB2N-16R × 2 modules) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs, no optics, 12VDC not allowed)

*1: Replacement using renewal tool for A0J2 is possible (refer to Appendix 1).

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AJ35PTF-28DT*1	AJ65SBTB1-32D + AJ65SBTB1-32T1	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (no optics, 12VDC not allowed)
	AJ35PTF-56DT*1	AJ65SBTB1-32D + AJ65SBTB1-32T1	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Required (12VDC not allowed) Change in rated input current: Required Change in ON voltage/ON current: Required Change in OFF voltage/OFF current: Required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (no optics, 12VDC not allowed)
	AJ35TB1-16AR	AJ65SBTB2N-8A + AJ65SBTB2N-8R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Required Change in input resistance: Required Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for I/Os)

*1: Replacement using renewal tool for A0J2 is possible (refer to Appendix 1).

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
I/O module	AJ35TB1-16DR	AJ65SBTB1-8D + AJ65SBTB2N-8R	1) Change in external wiring: Required 2) Change in number of modules (2 modules necessary) 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Not required 5) Change in functions: Required (2-wire type for outputs)
	AJ35TB1-16DT	AJ65SBTB1-16DT2	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Not required Change in rated output current: Required 5) Change in functions: Not required
	AJ35TC1-32DT	AJ65SBTCF1-32DT	1) Change in external wiring: Required 2) Change in number of modules: Not required 3) Change in program Change in number of occupied I/O points: Not required 4) Change in specifications Change in rated input voltage: Not required Change in rated input current: Not required Change in ON voltage/ON current: Not required Change in OFF voltage/OFF current: Not required Change in input resistance: Not required Change in input response time: Required (10ms →1.5ms) Change in rated output voltage: Required Change in rated output current: Not required 5) Change in functions: Not required 6) Others: External wiring connectors not attached

5.2 I/O Module Specifications Comparison

5.2.1 Input module specifications comparison

(1) Specifications comparison between AX11C and AJ65SBTB2N-16A

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX11C	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
Number of input points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16A modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		Approx. 6mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	○	
Operating voltage range		85 to 132VAC (50/60Hz ± 5%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		75% simultaneously ON (at 110VAC)	100% simultaneously ON (at 110VAC) 60% simultaneously ON (at 132VAC)	○	
Inrush current		Max. 200mA, within 1ms (with 132VAC)	Max. 200mA, within 1ms (with 132VAC)	○	
ON voltage/ON current		80V or more/5mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		30V or less/1mA or less	30V or less/1.7mA or less	○	
Input impedance		Approx. 18kΩ (60Hz), Approx. 21kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	○	
Response time	OFF→ON	15ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	30ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		16 points/common	16 points/common (2-wire type)	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3 , RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	56mA (at 24V TYP.)	40mA or less (24VDC when all points are ON)	△	The current consumption increases by using two AJ65SBTB2N-16As. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D)mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.62kg	0.25kg	○	

(2) Specifications comparison between AX31C and AJ65SBTB1-32D

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AX31C		AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points		32 points	○	
Insulation method		Photocoupler		Photocoupler	○	
Rated input voltage		12/24VDC	12/24VAC 50/60Hz	24VDC	△	12/24VAC, 12VDC cannot be used.*1
Rated input current		4mA (12VAC/DC), 8.5mA (24VAC/DC)		Approx. 7mA	△	12/24VAC, 12VDC cannot be used.*1 Rated input current is smaller.*2
Operating voltage range		10.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VAC (50/60Hz ± 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12/24VAC, 12VDC cannot be used.*1
Maximum number of simultaneous input points		70% simultaneously ON (at 26.4VAC)		100% simultaneously ON	○	
ON voltage/ON current		7V or more/2mA or more		14V or more/3.5mA or more	△	12/24VAC, 12VDC cannot be used.*1
OFF voltage/OFF current		2.5V or more 0.7mA or less		6V or less/1.7mA or less	△	12/24VAC, 12VDC cannot be used.*1
Input resistance (Input impedance)		Approx 2.7kΩ		Approx. 3.3kΩ	△	Input resistance is inreased.*2
Response time	OFF→ON	30ms or less (12/24VDC)	35ms or less (12/24VAC, 60Hz)	1.5ms or less (at 24VDC)	△	The response times differ.
	ON→OFF	30ms or less (12/24VDC)	35ms or less (12/24VAC, 60Hz)	1.5ms or less (at 24VDC)	△	
Common terminal arrangement		16 points/common		32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)		1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)		ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included		Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2		0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5		RAV1.25-3 (Conforming to JIS C 2805) V2-MS3 , RAP2-3SL ,TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC		20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	56mA (at 24VDC TYP.)		45mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm		54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.62kg		0.25kg	○	

*1: To use at 24VAC, convert to direct current externally before inputting.

*2: Confirm the specifications of the sensors or switches to be connected to the AJ65SBTB1-32D.

(3) Specifications comparison between AX41C and AJ65SBTB1-32D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX41C	AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3 , RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	55mA (at 24VDC TYP.)	45mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.6kg	0.25kg	○	

(4) Specifications comparison between AX41C and AJ65DBTB1-32D

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AX41C	AJ65DBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 5mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	20.4 to 31.2VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% (at 26.4VDC)	○	
ON voltage/ON current		8V or more/2mA or more	15V or more/3mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	5V or less/1.5mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 4.7kΩ	△	Input resistance becomes higher. *1
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common (2 points) (terminal block 1-wire type)	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit parts included	50-point terminal block (M3.5 × 7 screws) Transmission circuit parts included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	55mA (at 24VDC TYP.)	45mA or less (24VDC, when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.6kg	0.6kg	○	

*1: Check the specifications of the sensors or switches to be connected to the AJ65DBTB1-32D.

(5) Specifications comparison between AX81C and AJ65SBTB1-32D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX81C	AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	55mA (at 24VDC TYP.)	45mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.6kg	0.25kg	○	

(6) Specifications comparison between AX81C and AJ65DBTB1-32D

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AX81C	AJ65DBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 5mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	20.4 to 31.2VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% (at 26.4VDC)	○	
ON voltage/ON current		8V or more/2mA or more	15V or more/3mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	5V or less/1.5mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 4.7kΩ	△	Input resistance becomes higher. *1
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common (2 points) (terminal block 1-wire type)	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit parts included	50-point terminal block (M3.5 × 7 screws) Transmission circuit parts included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	55mA (at 24VDC TYP.)	45mA or less (24VDC, when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.6kg	0.6kg	○	

*1: Check the specifications of the sensors or switches to be connected to the AJ65DBTB1-32D.

(7) Specifications comparison between AJ35PTF-32D and AJ65SBTB1-32D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-32D	AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		75% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		9.5V or more/2.6mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		6.0V or less/1.0mA or less	6.0V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 6ms TYP.)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 7.5ms TYP.)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		Transmission/module power supply parts: 8-point terminal block (M3 screw) I/O part: 36-point terminal block (M3 × 6 screws)	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	110mA	45mA or less (24VDC when all points are ON)	○	
External dimensions		254(H) × 132(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.25kg	○	

(8) Specifications comparison between AJ35TB1-16A and AJ65SBTB2N-16A

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TB1-16A	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		Approx. 6mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	○	
Operating voltage range		85 to 132VAC (50/60Hz ± 5%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON (at 110VAC) 60% simultaneously ON (at 132VAC)	△	Use within specification range.
ON voltage/ON current		80V or more/5mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		30V or less/1mA or less	30V or less/1.7mA or less	○	
Input impedance		Approx. 18kΩ (60Hz), Approx. 21kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	○	
Response time	OFF→ON	15ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	30ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		16 points/common	16 points/common (2-wire type)	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		34-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	50mA (at 24VDC)	40mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.25kg	○	

(9) Specifications comparison between AJ35TB3-8D and AJ65SBTB3-8D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB3-8D	AJ65SBTB3-8D	Compatibility	Precautions for replacement
Number of input points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		8 points/common (3-wire type)	8 points/common (3-wire type)	○	
Number of occupied stations (number of occupied points)		1 station (1 station × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	69mA (at 24VDC)	40mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.18kg	○	

(10) Specifications comparison between AJ35TB1-16D and AJ65SBTB1-16D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16D	AJ65SBTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		70% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common (2 terminals)	16 points/common	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	45mA or less (at 24VDC)	35mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.18kg	○	

(11) Specifications comparison between AJ35TB1-16D and AJ65BTB1-16D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16D	AJ65BTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 28.8VDC (ripple ratio within 5%)	△	The operating voltage range differs.
Maximum number of simultaneous input points		70% simultaneously ON (at 26.4VDC)	100%	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	10ms or less	10ms or less	○	
Common terminal arrangement		16 points/common (2 terminals)	16 points/common (terminal block 1-wire type)	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26 point terminal block (M3 screws) Transmission circuit part included	27 point terminal block (M3.5 screws) Transmission circuit and module power supply terminal included	△	The existing terminal block of the AJ35TB1-16D can be used by using wiring conversion adapter *1.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	△	The existing terminal block of the AJ35TB1-16D can be used by using wiring conversion adapter *1.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	15.6 to 28.8VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	45mA or less (at 24VDC)	60mA or less (at 24VDC TYP.)	×	The operating current differs.
External dimensions		55(H) × 135(W) × 50(D) mm	65(H) × 151.9(W) × 46(D) mm *2	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.32kg	×	

*1: The A6ADP-1MC16D, MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter can be used. For the mounting image, refer to *1 of Section 1.1.

*2: When using the A6ADP-1MC16D, MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter, the external dimensions are increased by 5.1mm (0.20inch)(height) and 28.5mm (1.12inch) (depth).

(12) Specifications comparison between AJ35TB2-16D and AJ65SBTB3-16D

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TB2-16D	AJ65SBTB3-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common (terminal block 2-wire type)	16 points/common (3-wire type)	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		34-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	45mA or less (at 24VDC)	45mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.25kg	○	

(13) Specifications comparison between AJ35TB2-16D and AJ65BTB2-16D

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB2-16D	AJ65BTB2-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 28.8VDC (ripple ratio within 5%)	△	The operating voltage range differs.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100%	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	10ms or less	10ms or less	○	
Common terminal arrangement		16 points/common (terminal block 2-wire type)	16 points/common (terminal block 2-wire type)	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		34 point terminal block (M3 screws) Transmission circuit part included	37 point terminal block (M3.5 screws) Transmission circuit and module power supply terminal included	△	The existing terminal block of the AJ35TB2-16D can be used by using wiring conversion adapter *1.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	△	The existing terminal block of the AJ35TB2-16D can be used by using wiring conversion adapter *1.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	15.6 to 28.8VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	45mA or less (at 24VDC)	60mA or less (at 24VDC TYP.)	×	The operating current differs.
External dimensions		55(H) × 166(W) × 50(D) mm	65(H) × 197.4(W) × 46(D) mm *2	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.4kg	×	

*1: The A6ADP-2MC16D, MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter can be used. For the mounting image, refer to *1 of Section 1.1.

*2: When using the A6ADP-2MC16D, MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter, the external dimensions are increased by 5.1mm (0.20inch)(height) and 28.5mm (1.12inch) (depth).

(14) Specifications comparison between AJ35TC1-32D and AJ65SBTCF1-32D

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TC1-32D	AJ65SBTCF1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 5mA	Approx. 5mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		85% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		17.5V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 4.7kΩ	Approx. 4.7kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		32 points/common	32 points/common	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		Transmission circuit: 8-point terminal block (M3 screws)	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
		I/O part: 40-pin connector	I/O part: 40-pin connector	○	The existing connector can be attached without change.
Applicable wire size		Terminal block: 0.75 to 2mm^2 40-pin connector: 0.3mm^2	Terminal block: 0.3 to 2mm^2 40-pin connector: 0.3mm^2 or less (for A6CON1, A6CON4) 0.2 to 0.08mm^2 (for A6CON2) Twisted cable of 0.08mm^2, ϕ 0.25mm (for A6CON3)	○	
Accessory		1 external wiring connector	None	×	40-pin connectors for external wiring are sold separately.
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	55mA (at 24VDC)	45mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.25kg	0.15kg	○	

5.2.2 Output module specifications comparisons

(1) Specifications comparison between AY13C and AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY13C	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of output points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16R modules.
Insulation method		Photocoupler	Relay isolation	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 4A/common (2A/1 terminal)	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	184mA (24VDC, all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AY13C	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	90mA (at 24VDC TYP.)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. the current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.35kg	○	

(2) Specifications comparison between AY13C and AJ65DBTB1-32R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY13C	AJ65DBTB1-32R	Compatibility	Precautions for replacement
Number of output points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 4A/common (2A/1 terminal)	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common (2A/1 terminal)	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	24VDC ± 10% Ripple ratio 4Vp-p or less	○	
	Current	184mA (24VDC, all points ON)	180mA or less (24VDC, when all points are ON)	○	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	8 points/common (terminal block 1-wire type)	△	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	90mA (at 24VDC TYP.)	80mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.7kg	0.7kg	○	

(3) Specifications comparison between AY15CEU and AJ65SBTB2N-16R

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AY15CEU		AJ65SBTB2N-16R		Compatibility	Precautions for replacement
Number of output points		24 points		16 points		×	When seventeen or more points are used, use two AJ65SBTB2N-16R modules.
Insulation method		Photocoupler		Relay isolation		△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/ current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common		○	
Minimum switching load		5VDC 10mA		5VDC 1mA		○	
Maximum switching voltage		264VAC 125VDC		264VAC, 125VDC		○	
Response time	OFF→ON	10ms or less		10ms or less		○	
	ON→OFF	12ms or less		12ms or less		○	
Mechanical life		20 million times or more		20 million times or more		○	
Electrical life		Rated switching voltage/current load 200,000 times or more 200VAC 2A, 240VAC 1.8A (COS ϕ =0.7) 200,000 times or more 200VAC 1.1A, 240VAC 0.9A (COS ϕ =0.35) 200,000 times or more 24VDC 1.1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more		Rated switching voltage/ current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more		×	Reduce the exchange intervals of the modules as Mechanical/Electrical Life is cut to about half.
Maximum switching frequency		3,600 times/hr		3,600 times/hr		○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less		None		–	
	Current	230mA (24VDC all points ON)		None		–	
Surge suppressor		None		None		○	
Common terminal arrangement		8 points/common 4 points/common		16 points/common (2-wire type)		△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Dielectric withstand voltage		AC external batch- Relay drive power supply, internal 5V circuit	2,830VAC rms/3 cycle (elevation 2,000m)	Between AC external batch and ground	2,830VAC rms/3 cycle (elevation 2,000m)	○	
		Relay drive power supply- internal 5V circuit	500VDC 1 minute	Between DC external batch and ground	500VDC 1 minute	○	
Insulation resistance		10MΩ or more with the insulation resistance tester		Between AC external batch and ground 500VDC with the insulation resistance tester 10MΩ or more Between DC external batch and ground 500VDC with the insulation resistance tester 10MΩ or more		○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY15CEU	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		RAV1.25-3.5,RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	94mA (at 24VDC TYP.)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. the current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.75kg	0.35kg	○	

(4) Specifications comparison between AY15CEU and AJ65DBTB1-32R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY15CEU	AJ65DBTB1-32R	Compatibility	Precautions for replacement
Number of output points		24 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/ point 240VAC 2A (COS ϕ =1)/point 4A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common (2A/1 terminal)	○	
Minimum switching load		5VDC 10mA	5VDC 1mA	○	
Maximum switching voltage		264VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/ current load 200,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 200,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	×	The service life is reduced to almost half. Shorten the exchange intervals of the module.
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	24VDC ± 10% Ripple ratio 4Vp-p or less	○	
	Current	230mA (24VDC, all points ON)	180mA or less (24VDC, when all points are ON)	○	

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AY15CEU		AJ65DBTB1-32R	Compatibility	Precautions for replacement
Surge suppressor		None		None	○	
Common terminal arrangement		8 points/common 4 points/common		8 points/common (terminal block 1-wire type)	○	
Dielectric withstand voltage		AC external batch - Relay drive power supply, internal 5V circuit	2,830VAC rms/e cycle (elevation 2000m)	Between AC external terminal batch and ground 1500VAC 1 minute Between DC external terminal batch and ground 500VAC 1 minute	△	
		Relay drive power supply - internal 5V circuit	500VDC 1 minute		○	
Insulation resistance		10MΩ or more with the insulation resistance tester		Between AC external terminal batch and ground 500VDC with the insulation resistance tester 10MΩ or more Between DC external terminal batch and ground 500VDC with the insulation resistance tester 10MΩ or more	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)		1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)		ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2		0.75 to 2mm^2	○	
Applicable solderless terminal		RAV1.25-3.5, RAV2-3.5		RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	○	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC		20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	94mA (at 24VDC TYP.)		80mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm		170(H) × 64(W) × 80(D) mm	○	
Weight		0.75kg		0.7kg	○	

(5) Specifications comparison between AY23C and AJ65SBTB2N-16S

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY23C	AJ65SBTB2N-16S	Compatibility	Precautions for replacement
Number of output points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16S modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		100-240VAC, 40 to 70Hz	100-240VAC, 50/60Hz ± 5%	○	
Maximum load voltage		264VAC	264VAC	○	
Maximum load current		0.3A/point 60% simultaneously ON	0.6A/point, 4.8A/common	○	
Minimum load voltage/ current		18VAC 10mA, 100VAC 10mA, 240VAC 10mA	50VAC 100mA, 100VAC 10mA, 240VAC 10mA	○	
Maximum inrush current		20A 10ms or less	25A 10ms or less	○	
Leakage current at OFF		Approx. 1.5mA (120VAC, 60Hz) Approx. 3.0mA (240VAC, 60Hz)	1.5mA (100VAC, 60Hz) 3.0mA (200VAC, 60Hz)	○	
Maximum voltage drop at ON		1.5V or less (100 to 300mA) 1.8V or less (50 to 100mA) 2.5V or less (10 to 50mA)	1.5V or less (at 0.6A)	○	
Response time	OFF→ON	1ms or less	1ms or less	○	
	ON→OFF	0.5Hz+1ms or less	1/2 cycle + 1ms or less	○	
Surge suppressor		CR absorber (0.01 μF+68 Ω)	CR absorber (0.01 μF+47 Ω)	○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	180mA (at 24VDC TYP.)	85mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.75kg	0.35kg	○	

(6) Specifications comparison between AY51C and AJ65SBTB1-32T1

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AY51C	AJ65SBTB1-32T1	Compatibility	Precautions for replacement
Number of output points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12/24VDC	12/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.3A/point 75% simultaneously ON (7.2A/1 common (2A/1 terminal)	0.5A/point, 4.8A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		1.2A 10ms or less	1.0A 10ms or less	△	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.3A 1.5VDC or less (MAX.) 0.3A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 31.2VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
	Current	64mA (24VDC)	50mA or less (24VDC)	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		32 points/common	32 points/common	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	93mA (at 24VDC TYP.)	65mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.25kg	○	

(7) Specifications comparison between AY51C and AJ65DBTB1-32T1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY51C	AJ65DBTB1-32T1	Compatibility	Precautions for replacement
Number of output points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12/24VDC	12/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 31.2VDC (ripple ratio within 5%)	○	
Maximum load current		0.3A/point 75% simultaneously ON (7.2A/1 common (2A/1 terminal))	0.5A/point, 8A/common (2A/1 terminal)	○	
Maximum inrush current		1.2A 10ms or less	1.2A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.3A 1.5VDC or less (MAX.) 0.3A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 31.2VDC	10.2 to 31.2VDC (ripple ratio within 5%)	○	
	Current	64mA (24VDC)	50mA or less (24VDC, when all points are ON) External load current not included	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		32 points/common	32 points/common (4 points) (terminal block 1-wire type)	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3.5 (Conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	93mA (at 24VDC TYP.)	65mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.7kg	0.7kg	○	

(8) Specifications comparison between AY61CE and AJ65SBTB1-16TE

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY61CE	AJ65SBTB1-16TE	Compatibility	Precautions for replacement
Number of output points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB1-16TE modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		5/12/24VDC	12/24VDC	△	5VDC cannot be used.
Operating load voltage range		4.5 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	△	5VDC cannot be used.
Maximum load current		2.0A/point (Condition: τ =L/R≦ 2.5ms) 5A/common	0.1A/point 1.6A/common	×	The maximum load current per point becomes lower. Pay attention to the selection of the load to be used. The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		8A 10ms or less	1A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.25V or less (TYP.) 2.0A 0.4V or less (MAX.) 2.0A	0.1V or less (TYP.) 0.1A 0.2V or less (MAX.) 0.1A	○	
Output method		Source type	Source type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	10ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output transistor is required.
	Current	None	30mA or less (24VDC)	×	Wiring of the power supply for driving the output transistor is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		8 points/common	16 points/common	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	150mA (at 24VDC TYP.)	50mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.18kg	○	

(9) Specifications comparison between AY61CE and AJ65SBTB1-32TE1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY61CE	AJ65SBTB1-32TE1	Compatibility	Precautions for replacement
Number of output points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		5/12/24VDC	12/24VDC	△	5VDC cannot be used.
Operating load voltage range		4.5 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	△	5VDC cannot be used.
Maximum load current		2.0A/point (Condition: τ =L/R≦2.5ms) 5A/common	0.5A/point 4.8A/common	×	The maximum load current per point becomes lower. Pay attention to the selection of the load to be used. The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		8A 10ms or less	1A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.25V or less (TYP.) 2.0A 0.4V or less (MAX.) 2.0A	0.5V or less (TYP.) 0.1A 0.8V or less (MAX.) 0.1A	×	The value of maximum voltage drop at ON becomes higher.
Output method		Source type	Source type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	10ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output transistor is required.
	Current	None	15mA or less (TYP.DC24V, per common) External load current not included	×	Wiring of the power supply for driving the output transistor is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		8 points/common	32 points/common (terminal block 1-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required. The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	150mA (at 24VDC TYP.)	60mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.26kg	○	

(10) Specifications comparison between AY81C and AJ65SBTB1-16TE

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AY81C	AJ65SBTB1-16TE	Compatibility	Precautions for replacement
Number of output points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB1-16TE.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		21.6 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.5A/point 60% simultaneously ON	0.1A/point 1.6A/common	×	The maximum load current per point becomes lower. Pay attention to the selection of the load to be used. The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		2A 10ms or less	1A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9V or less (TYP.) 0.5A 1.5V or less (MAX.) 0.5A	0.1V or less (TYP.) 0.1A 0.2V or less (MAX.) 0.1A	○	
Output method		Source type	Source type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	21.6 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
	Current	17mA (24VDC)	30mA or less (24VDC)	△	The current consumption increases. the current capacity needs to be reconsidered.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		32 points/common	16 points/common	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3 RAP2-3SL TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	100mA (at 24VDC TYP.)	50mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.18kg	○	

(11) Specifications comparison between AY81C and AJ65SBTB1-32TE1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AY81C	AJ65SBTB1-32TE1	Compatibility	Precautions for replacement
Number of output points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		21.6 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.5A/point 60% simultaneously ON	0.5A/point 4.8A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		2A 10ms or less	1A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load to used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9V or less (TYP.) 0.5A 1.5V or less (MAX.) 0.5A	0.5V or less (TYP.) 0.5A 0.8V or less (MAX.) 0.5A	○	
Output method		Source type	Source type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	21.6 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
	Current	17mA (24VDC)	15mA or less (TYP.24VDC, per common) External load current not included	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		32 points/common	32 points/common (terminal block 1-wire type)	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required. The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3 RAP2-3SL TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	100mA (at 24VDC TYP.)	60mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.7kg	0.26kg	○	

(12) Specifications comparison between AJ35PTF-24S and AJ65SBTB2N-16S

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35PTF-24S	AJ65SBTB2N-16S	Compatibility	Precautions for replacement
Number of output points		24 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16S modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		100-240VAC,40 to 70Hz	100-240VAC, 50/60Hz± 5%	○	
Maximum load voltage		264VAC	264VAC	○	
Maximum load current		0.6A/point, 2.4A/common	0.6A/point, 4.8A/common	○	
Minimum load voltage/ current		24VAC 100mA, 100VAC 10mA, 240VAC 10mA	50VAC 100mA, 100VAC 10mA, 240VAC 10mA	○	
Maximum inrush current		20A 10ms or less, 8A 100ms or less	25A 10ms or less	○	
Leakage current at OFF		1.5mA (120VAC, 60Hz) 3.0mA (240VAC, 60Hz)	1.5mA (100VAC, 60Hz) 3.0mA (200VAC, 60Hz)	○	
Maximum voltage drop at ON		1.5V or less (0.1 to 0.6A) 1.8V or less (50 to 100mA) 2.0V or less (10 to 50mA)	1.5V or less (at 0.6A)	○	
Response time	OFF→ON	1ms or less	1ms or less	○	
	ON→OFF	0.5Hz+1ms or less	1/2 cycle + 1ms or less	○	
Surge suppressor		CR absorber (0.022 μF+47 Ω)	CR absorber (0.01 μF+47 Ω)	○	
Fuse rating		High speed type fuse 3.2A (one fuse/common) HP-32	None	×	The fuse is not built in.*1
Fuse blown indication		Available	None	×	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	×	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws)	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	200mA	85mA or less (24VDC when all points are ON)	○	
External dimensions		254(H) × 132(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.83kg	0.35kg	○	

*1: Install a fuse for each external terminal point to prevent the burnout of the external devices and modules during load shorts. In addition, when a fuse blown indication is necessary, configure an external circuit.

(13) Specifications comparison between AJ35PTF-24T and AJ65SBTB1-32T1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-24T	AJ65SBTB1-32T1	Compatibility	Precautions for replacement
Number of output points		24 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12/24VDC	12/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 26.4VDC (ripple ratio within 5%)	△	Voltages exceeding 26.4VDC cannot be applied.
Maximum load current		0.5A/point, 3.2A/common	0.5A/point, 4.8A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		4A 10ms or less	1.0A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leaking current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 31.2VDC	10.2 to 26.4VDC (ripple ratio within 5%)	△	Voltages exceeding 26.4VDC cannot be applied.
	Current	23mA (24VDC TYP./common)	50mA or less (24VDC)	×	The current consumption increases. The current capacity needs to be reconsidered.
Surge suppressor		Varistor (52 to 62V)	Zener diode	○	
Common terminal arrangement		8 points/common	32 points/common	△	As common terminal arrangement changes from 8 points/common to 32 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws)	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (Conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases the solderless terminal must be changed.
I/O module Power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	130mA	65mA or less (24VDC when all points are ON)	○	
External dimensions		254(H) × 132(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.73kg	0.25kg	○	

(14) Specifications comparison betweenAJ35TB1A-8R and AJ65SBTB2N-8R

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TB1A-8R	AJ65SBTB2N-8R	Compatibility	Precautions for replacement
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/ current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1) point	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	45mA (24VDC, all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		Independent common	8 points/common (2-wire type)	×	Becomes a shared common.
Number of occupied stations (number of occupied points)		1 station (1 station × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL,TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	70mA (at 24VDC)	85mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.25kg	○	

(15) Specifications comparison between AJ35TB2-8R and AJ65SBTB2N-8R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB2-8R	AJ65SBTB2N-8R	Compatibility	Precautions for replacement
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Common terminal arrangement		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	45mA (24VDC all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common (2-wire type)	8 points/common (2-wire type)	○	
Number of occupied stations (number of occupied points)		1 station (1 station × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL,TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	70mA (at 24VDC)	85mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.25kg	○	

(16) Specifications comparison between AJ35TB1-16R and AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16R	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	90mA (24VDC all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed.(8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		34-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	75mA (at 24VDC)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.35kg	○	

(17) Specifications comparison between AJ35TB1A-8T and AJ65SBTB1-8T1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1A-8T	AJ65SBTB1-8T1	Compatibility	Precautions for replacement
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.3A/point	0.5A/point, 2.4A/common	○	
Maximum inrush current		1.0A 10ms or less	1.0A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.3A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms of less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output circuit is required.
	Current	None	15mA or less (24VDC)	×	Wiring of the power supply for driving the output circuit is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		Independent common	8 points/common	×	Becomes a shared common.
Number of occupied stations (number of occupied points)		1 station (1 station × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 10-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL,TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	85mA(at 24VDC)	35mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 87.3(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.14kg	○	

(18) Specifications comparison between AJ35TB2-8T and AJ65SBTB2-8T1

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TB2-8T	AJ65SBTB2-8T1	Compatibility	Precautions for replacement
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		5/12/24VDC	12/24VDC	△	5VDC cannot be used.
Operating load voltage range		4.5 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	△	5VDC cannot be used.
Maximum load current		0.5A/point	0.5A/point, 2.4A/common	○	
Maximum inrush current		2.0A 10ms or less	1.0A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.2VDC or less (MAX.) 0.5A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms of less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	4.5 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	△	5VDC cannot be used.
	Current	20mA or less (24VDC)	17.8mA or less (24VDC)	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		8 points/common (2-wire type)	8 points/common (2-wire type)	○	
Number of occupied stations (number of occupied points)		1 station (1 station × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	70mA (at 24VDC)	45mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.18kg	○	

(19) Specifications comparison between AJ35TB1-16T and AJ65SBTB1-16T1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16T	AJ65SBTB1-16T1	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.1A/point, 1.6A/common	0.5A/point, 3.6A/common	○	
Maximum inrush current		0.4A 10ms or less	1.0A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.1A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output circuit is required.
	Current	None	30mA or less (24VDC)	×	Wiring of the power supply for driving the output circuit is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	16 points/common	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	130mA or less (at 24VDC)	50mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 135(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.18kg	○	

(20) Specifications comparison between AJ35TB1-16T and AJ65BTB1-16T

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TB1-16T	AJ65BTB1-16T	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 28.8VDC (ripple ratio within 5%)	○	
Maximum load current		0.1A/point, 1.6A/common	0.5A/point 4A/1 common (Ta = 45℃) 2.8A/1 common (Ta = 55℃)	○	
Maximum inrush current		0.4A 10ms or less	4.0A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.1A	0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	2ms or less	○	
	ON→OFF	2ms or less (resistance load)	2ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 28.8VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output circuit is required.
	Current	None	100mA or less (TYP.24VDC per common) External load current not included	×	Wiring of the power supply for driving the output circuit is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	8 points/common (terminal block 1-wire type)	△	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		26-point terminal block (M3 screw) Transmission circuit part included	27-point terminal block (M3.5 screw) Transmission circuit and module power supply terminal included	△	The existing terminal block of the AJ35TB1-16T can be used by using wiring conversion adapter *1. Note that wiring to the CTR+ terminal is required.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3.5 (conforming to JIS C 2805) RAV2-3.5	△	The existing terminal block of the AJ35TB1-16T can be used by using wiring conversion adapter *1. Note that wiring to the CTR+ terminal is required.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	15.6 to 28.8VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	130mA or less (at 24VDC)	80mA or less (at 24VDC TYP.)	○	
External dimensions		55(H) × 135(W) × 50(D) mm	65(H) × 151.9(W) × 46(D) mm *2	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.3kg	0.34kg	×	

*1: The A6ADP-1MC16T, MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter can be used. For the mounting image, refer to *1 of Section 1.1.

*2: When using the A6ADP-1MC16T, MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter, the external dimensions are increased by 5.1mm (0.20inch) (height) and 28.5mm (1.12inch) (depth).

(21) Specifications comparison between AJ35TB2-16T and AJ65SBTB2-16T1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB2-16T	AJ65SBTB2-16T1	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.1A/point, 1.6A/common	0.5A/point, 3.6A/common	○	
Maximum inrush current		0.4A 10ms or less	1.0A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.1A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output circuit is required.
	Current	None	24.2mA or less (24VDC)	×	Wiring of the power supply for driving the output circuit is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common (2-wire type)	16 points/common (2-wire type)	○	
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		34-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL,TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	130mA (at 24VDC)	55mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.25kg	○	

(22) Specifications comparison between AJ35TC1-32T and AJ65SBTCF1-32T

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AJ35TC1-32T	AJ65SBTCF1-32T	Compatibility	Precautions for replacement
Number of output points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.1A/point, 2A/common	0.1A/point, 3.2A/common	○	
Maximum inrush current		0.4A 10ms or less	1.0A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.1A	0.085VDC or less (TYP.) 0.1A 0.2VDC or less (MAX.) 0.1A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output circuit is required.
	Current	None	50mA or less (24VDC)	×	Wiring of the power supply for driving the output circuit is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		32 points/common	32 points/common	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		Transmission circuit: 8-point terminal block (M3 screws)	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
		I/O part: 40-pin connector	I/O part: 40-pin connector	○	The existing connector can be attached without change.
Applicable wire size		Terminal block: 0.75 to 2mm^2 40-pin connector:0.3mm^2	Terminal block: 0.3 to 2mm^2 40 pin connector: 0.3mm^{2}or less(A6CON1, A6CON4) 0.2 to 0.08mm^2 (for A6CON2) From 0.08mm^{2}twisted line, ϕ 0.25mm (for A6CON3)	○	
Accessory		1 external wiring connector	None	×	40-pin connectors for external wiring are sold separately.
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	55mA(at 24V)	60mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.25kg	0.15kg	○	

5.2.3 I/O Module Specifications Comparison

(1) Specifications comparison between AX10Y10C and AJ65SBTB2N-16A+ AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX10Y10C input specifications	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	×	Use AJ65SBTB2N-16A in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		Approx. 6mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	○	
Operating voltage range		85 to 132VAC (50/60Hz ± 5%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		100% simultaneously ON (at 110VAC)	100% simultaneously ON (at 110VAC) 60% simultaneously ON (at 132VAC)	○	
Inrush current		Max. 200mA, within 1ms (at 132VAC)	Max. 200mA, within 1ms (at 132VAC)	○	
ON voltage/ON current		80V or more/5mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		30V or less/1mA or less	30V or less/1.7mA or less	○	
Input impedance		Approx. 18kΩ (60Hz), Approx. 21kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	○	
Response time	OFF→ON	15ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	30ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		16 points/common	16 points/common (2-wire type)	○	
Specifications		**AX10Y10C output specifications**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	×	Use AJ65SBTB2N-16A in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/ current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AX10Y10C output specifications	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	92mA (24VDC, all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.

Specifications		AX10Y10C	AJ65SBTB 2N-16A	AJ65SBTB 2N-16R	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	74mA (at 24VDC TYP.)	40mA or less (24VDC when all points are ON)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.66kg	0.25kg	0.35kg	○	

(2) Specifications comparison between AX10Y22C and AJ65SBTB2N-16A+ AJ65SBTB2N-16S

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AX10Y22C input specifications	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	×	Use AJ65SBTB2N-16A in combination with AJ65SBTB2N-16S.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		Approx. 6mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	○	
Operating voltage range		85 to 132VAC (50/60Hz ± 5%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		60% simultaneously ON (at 110VAC)	100% simultaneously ON (at 110VAC) 60% simultaneously ON (at 132VAC)	○	
Inrush current		Max. 200mA, within 1ms (at 132VAC)	Max. 200mA, within 1ms (at132VAC)	○	
ON voltage/ON current		80V or more/5mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		30V or less/1mA or less	30V or less/1.7mA or less	○	
Input impedance		Approx. 18kΩ (60Hz), Approx. 21kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	○	
Response time	OFF→ON	15ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	30ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		16 points/common	16 points/common (2-wire type)	○	
Specifications		**AX10Y22C output specifications**	**AJ65SBTB2N-16S**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	×	Use AJ65SBTB2N-16A in combination with AJ65SBTB2N-16S.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		100-240VAC, 40 to 70Hz	100-240VAC,50/60Hz ± 5%	○	
Maximum load voltage		264VAC	264VAC	○	
Maximum load current		0.3A/point 75% simultaneously ON	0.6A/point 4.8A/common	○	
Minimum load voltage/current		18VAC 10mA, 100VAC 10mA, 240VAC 10mA	50VAC 100mA, 100VAC 10mA, 240VAC 10mA	○	
Maximum inrush current		20A 10ms or less	25A, 10ms or less	○	
Leakage current at OFF		Approx.1.5mA(120VAC,60Hz) Approx.3.0mA(240VAC,60Hz)	1.5mA (100VAC, 60Hz) 3.0mA (200VAC, 60Hz)	○	
Maximum voltage drop at ON		1.5V or less (100 to 300mA) 1.8V or less (50 to 100mA) 2.5V or less (10 to 50mA)	1.5V or less (at 0.6A)	○	
Response time	OFF→ON	1ms or less	1ms or less	○	
	ON→OFF	0.5Hz+1ms or less	1/2 cycle + 1ms or less	○	
Surge suppressor		CR absorber (0.01 μF+68Ω)	CR absorber (0.01 μF+47Ω)	○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX10Y22C	AJ65SBTB 2N-16A	AJ65SBTB 2N-16S	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	116mA (at 24V TYP.)	40mA or less (24VDC when all points are ON)	85mA or less (24VDC with all points ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.68kg	0.25kg	0.35kg	○	

(3) Specifications comparison between AX40Y10C and AJ65SBTB1-16D+ AJ65SBTB2N-16R

○: Compatible, △: Partial change required, × : Not compatible

Specifications		AX40Y10C input specifications	AJ65SBTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	△	The response times differ.
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	△	
Common terminal arrangement		16 points/common	16 points/common	○	
Specifications		**AX40Y10C output specifications**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A(COS ϕ = 1)/point 4A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ = 1)/point 8A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	92mA (24VDC all points ON)	None	–	
Surge suppressor		None	None	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y10C output specifications	AJ65SBTB2N-16R		Compatibility	Precautions for replacement
Common terminal arrangement		8 points/common	16 points/common (2-wire type)		△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Specifications		**AX40Y10C**	**AJ65SBTB1-16D**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	72mA (at 24V TYP.)	35mA or less (24VDC) when all points are ON)	120mA or less (24VDC) when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 118(W) × 40(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.18kg	0.35kg	○	

(4) Specifications comparison between AX40Y10C and AJ65DBTB1-32DR

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y10C input specifications	AJ65DBTB1-32DR input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 5mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	20.4 to 31.2VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% (at 26.4VDC)	○	
ON voltage/ON current		8V or more/2mA or more	15V or more/3mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	5V or less/1.5mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 4.7kΩ	△	Input resistance becomes higher. *1
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common (2 points) (terminal block 1-wire type)	○	
Specifications		**AX40Y10C output specifications**	**AJ65DBTB1-32DR output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A(COS ϕ = 1)/point 4A/common (2A/terminal)	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ = 1)/point 4A/common (2A/terminal)	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	24VDC ± 10% Ripple voltage 4Vp-p or less	○	
	Current	92mA (24VDC all points ON)	90mA (24VDC all points ON)	○	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	8 points/common (terminal block 1-wire type)	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y10C	AJ65DBTB1-32DR	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	72mA (at 24V TYP.)	60mA or less (24VDC, when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.65kg	0.65kg	○	

*1: Check the specifications of the sensors or switches to be connected to the AJ65DBTB1-32D.

(5) Specifications comparison between AX40Y10C and AJ65SBTB32-16DR

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y10C input specifications	AJ65SBTB32-16DR input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	8 points	×	When nine or more points are used, use two AJ65SBTB32-16DR modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100%	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	8 points/common (terminal block 3-wire type)	○	
Specifications		**AX40Y10C output specifications**	**AJ65SBTB32-16DR output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	8 points	×	When nine or more points are used, use two AJ65SBTB32-16DR modules.
Insulation method		Photocoupler	Relay	△	Although the insulation method differs, the insulation performance is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A(COS ϕ = 1)/point 4A/common (2A/terminal)	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ = 1)/point 4A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	-	
	Current	92mA (24VDC all points ON)	None	-	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	4 points/common (terminal block 2-wire type)	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y10C	AJ65SBTB32-16DR	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)	×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required. The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	72mA (at 24V TYP.)	85mA or less (24VDC, when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.28kg	○	

(6) Specifications comparison between AX40Y50C and AJ65SBTB1-32DT2

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y50C input specifications	AJ65SBTB1-32DT2 input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx.3mA/Approx.7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive common (sink type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common (Common shared by I/O)	△	As input common and output common are shared, wiring a different voltage for each common is not possible.

Specifications		AX40Y50C output specifications	AJ65SBTB1-32DT2 output specifications	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Operating load voltage range		10.2 to 31.2VDC	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum load current		0.3A/point 75% simultaneously ON	0.5A/point, 3.6A/common	○	
Maximum inrush current		1.2A 10ms or less	1.0A, 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.3A 1.5VDC or less (MAX.) 0.3A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 31.2VDC	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
	Current	64mA (24VDC)	30mA or less (24VDC)	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	32 points/common (I/O shared)	△	As input common and output common are shared, wiring a different voltage for each common is not possible.

Specifications	AX40Y50C	AJ65SBTB1-32DT2	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)	4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication	ON indication (LED)	ON indication (LED)	○	
External connection method	50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size	0.75 to 2mm^2	0.3 to 2mm^2	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y50C	AJ65SBTB1-32DT2	Compatibility	Precautions for replacement
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	74mA (at 24V TYP.)	60mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.25kg	○	

(7) Specifications comparison between AX40Y50C and AJ65DBTB1-32DT1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y50C input specifications	AJ65DBTB1-32DT1 input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx.3mA/Approx.7mA	Approx. 5mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	20.4 to 31.2VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON (at 26.4VDC)	100% (at 26.4VDC)	○	
ON voltage/ON current		8V or more/2mA or more	15V or more/3mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	5V or less/1.5mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 4.7kΩ	○	Input resistance becomes higher. *1
Input method		Positive common (sink type)	Positive common (sink type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common (2 points) (terminal block 1-wire type)	○	
Specifications		**AX40Y50C output specifications**	**AJ65DBTB1-32DT1 output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12VDC/24VDC	12VDC/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 31.2VDC (ripple ratio within 5%)	○	
Maximum load current		0.3A/point 75% simultaneously ON	0.5A/point, 4A/common (2A/terminal)	○	
Maximum inrush current		1.2A 10ms or less	1.2A, 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.3A 1.5VDC or less (MAX.) 0.3A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 31.2VDC	10.2 to 31.2VDC (ripple ratio within 5%)	○	
	Current	64mA (24VDC)	30mA or less (24VDC, when all points are ON) External load current not included	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	16 points/common (2 points) (terminal block 1-wire type)	○	
Specifications		**AX40Y50C**	**AJ65DBTB1-32DT1**	**Compatibility**	**Precautions for replacement**
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX40Y50C	AJ65DBTB1-32DT1	Compatibility	Precautions for replacement
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	R1.25-3.5 (conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	74mA (at 24V TYP.)	55mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.65kg	0.65kg	○	

*1: Check the specifications of the sensors or switches to be connected to the AJ65DBTB1-32DT1.

(8) Specifications comparison between AX80Y10C and AJ65SBTB1-16D+ AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y10C input specifications	AJ65SBTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common	○	

Specifications		AX80Y10C output specifications	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R= 7ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R= 7ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	92mA (24VDC all points ON)	None	–	
Surge suppressor		None	None	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y10C output specifications	AJ65SBTB2N-16R		Compatibility	Precautions for replacement
Common terminal arrangement		8 points/common	16 points/common (2-wire type)		△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Specifications		**AX80Y10C**	**AJ65SBTB1-16D**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		50-point terminal block (M3.5 × 7screws) Transmission circuit part included	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	Transmission/ module power supply parts 7 points terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	72mA (at 24V TYP.)	35mA or less (24VDC when all points are ON)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 118(W) × 40(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.18kg	0.35kg	○	

(9) Specifications comparison between AX80Y10C and AJ65DBTB1-32DR

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y10C input specifications	AJ65DBTB1-32DR input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx.3mA/Approx.7mA	Approx. 5mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	20.4 to 31.2VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON (at 26.4VDC)	100% (at 26.4VDC)	○	
ON voltage/ON current		8V or more/2mA or more	15V or more/3mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	5V or less/1.5mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 4.7kΩ	△	Input resistance becomes higher.*1
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	10ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common (2 points) (terminal block 1-wire type)	○	
Specifications		**AX80Y10C output specifications**	**AJ65DBTB1-32DR output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage/ current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common (2A/terminal)	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1 A (COS ϕ = 0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	24VDC ± 10% Ripple voltage 4Vp-p or less	○	
	Current	92mA (24VDC all points ON)	90mA or less (24VDC all points ON)	○	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	8 points/common (terminal block 1-wire type)	○	

Specifications		AX80Y10C	AJ65DBTB1-32DR	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	○	The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.75 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	R1.25-3.5 (conforming to JIS C 2805) RAV2-3.5	○	
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	72mA (at 24V TYP.)	60mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	170(H) × 64(W) × 80(D) mm	○	
Weight		0.65kg	0.65kg	○	

*1: Check the specifications of the sensors or switches to be connected to the AJ65DBTB1-32DR.

(10) Specifications comparison between AX80Y14CEU and AJ65SBTB1-16D +AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y14CEU input specifications	AJ65SBTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common	○	

Specifications		AX80Y14CEU output specifications	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of output points		12 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB2N-16R.
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	○	
Minimum switching load		5VDC 10mA	5VDC 1mA	○	
Maximum switching voltage		264VAC 125VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more 200VAC 2A, 240VAC 1.8A (COS ϕ = 0.7)200,000 times or more 200VAC 1.1A, 240VAC 0.9A (COS ϕ = 0.35)200,000 times or more 24VDC 1.1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ = 0.7) 100000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	×	Reduce the exchange intervals of the modules as Mechanical/Electrical Life is cut to about half.
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	118mA (24VDC all points ON)	None	–	
Surge suppressor		None	None	○	

○: Compatible, △: Partial change required, × : Not compatible

Specifications	AX80Y14CEU output specifications		AJ65SBTB2N-16R		Compatibility	Precautions for replacement
Common terminal arrangement	8 points/common 4 points/common		16 points/common (2-wire type)		△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Dielectric withstand voltage	AC external batch-Relay drive power supply-internal 5V circuit	AC2,830Vrms /3 cycle (elevation 2,000m)	Between AC external terminal batch and ground	AC2,830Vrms /3 cycle (elevation 2,000m)	○	
	Relay drive power supply, internal 5V circuit	500VDC/ minute	Between DC external batch and ground	500VDC/ minute	○	
Insulation resistance	10MΩ or more with the insulation resistance tester		Between AC external batch and ground 500VDC with the insulation resistance tester 10MΩ or more Between DC external batch and ground 500VDC with the insulation resistance tester 10MΩ or more		○	

Specifications		AX80Y14CEU	AJ65SBTB1-16D	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		50-point terminal block (M3.5 × 7screws) Transmission circuit part included	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	73mA (at 24V TYP.)	35mA or less (24VDC when all points are ON)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 118(W) × 40(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.18kg	0.35kg	○	

(11) Specifications comparison between AX80Y80C and AJ65SBTB1-16D+ AJ65SBTB1-16TE

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y80C input specifications	AJ65SBTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB1-16TE.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON (at 26.4VDC)	100% simultaneously ON	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	△	The response times differ.
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	△	
Common terminal arrangement		16 points/common	16 points/common	○	

Specifications		AX80Y80C output specifications	AJ65SBTB1-16TE	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	×	Use AJ65SBTB1-16D in combination with AJ65SBTB1-16TE.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12/24VDC	○	
Operating load voltage range		21.6 to 26.4VDC	10.2 to 26.4VDC	○	
Maximum load current		0.5A/point, 60% simultaneously ON	0.1A/point 1.6A/common	×	The maximum load current per point becomes lower. Pay attention to the selection of the load to be used.
Maximum inrush current		2A 10ms or less	1A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.1VDC or less (TYP.) 0.1A 0.2VDC or less (MAX.) 0.1A	○	
Output method		Source type	Source type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	21.6 to 26.4VDC	10.2 to 26.4VDC (ripple ratio within 5%)	○	
	Current	10mA (24VDC)	30mA or less (24VDC)	△	The current consumption increases. The current capacity needs to be reconsidered.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	16 points/common	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y80C	AJ65SBTB1-16D	AJ65SBTB1-16TE	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	82mA (at 24V TYP.)	35mA or less (24VDC when all points are ON)	50mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 118(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.18kg		○	

(12) Specifications comparison between AX80Y80C and AJ65SBTB1-32DTE1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y80C input specifications	AJ65SBTB1-32DTE1 input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON (at 26.4VDC)	100%	○	
ON voltage/ON current		8V or more/2mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		4V or less/1mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Negative common (Source type)	△	A positive common input method is not supported.
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common (terminal block 1-wire type)	△	Input and output shares common.
Specifications		**AX80Y80C output specifications**	**AJ65SBTB1-32DTE1 output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	24VDC	○	
Operating load voltage range		21.6 to 26.4VDC	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.5A/point, 60% simultaneously ON	0.5A/point 3.6A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		2A 10ms or less	1A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.5VDC or less (TYP.) 0.5A 0.8VDC or less (MAX.) 0.5A	○	
Output method		Source type	Source type	○	
Response time	OFF→ON	2ms or less	0.5ms or less	○	
	ON→OFF	2ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	21.6 to 26.4VDC	19.2 to 26.4VDC (ripple ratio within 5%)	○	
	Current	10mA (24VDC)	10mA or less (TYP.24VDC, per common) External load current not included	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	32 points/common (terminal block 1-wire type)	△	Input and output shares common.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AX80Y80C	AJ65SBTB1-32DTE1	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication		ON indication (LED)	ON indication (LED)	○	
External connection method		50-point terminal block (M3.5 × 7 screws) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required. The number of applicable solderless terminals inserted is within two.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal		R1.25-3.5, R2-3.5 RAV1.25-3.5, RAV2-3.5	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	×	Change in wiring is required.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	82mA (at 24V TYP.)	50mA or less (24VDC when all points are ON)	○	
External dimensions		170(H) × 64(W) × 80(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.65kg	0.26kg	○	

(13) Specifications comparison between AJ35PTF-56AR and AJ65SBTB2N-16A+ AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56AR input specifications	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
Number of input points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16A modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		10mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	△	Rated input current has been reduced.*1
Operating voltage range		85 to 132VAC (50/60Hz ± 3%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON (at 110VAC) 60% simultaneously ON (at 132VAC)	△	Use within specification range.
Inrush current		Max. 300mA, within 0.3ms (132VAC)	Max. 200mA, within 1ms (132VAC)	○	
ON voltage/ON current		80V or more/6mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		40V or less/4mA or less	30V or less/1.7mA or less	△	OFF current has been reduced. *1
Input impedance		Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	△	Input impedance has increased. *1
Response time	OFF→ON	15ms or less (6ms TYP.)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	25ms or less (16ms TYP.)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		16 points/common	16 points/common (2-wire type)	○	
Specifications		**AJ35PTF-56AR output specifications**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of output points		24 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16R modules.
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	△	Use caution on the common current.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		264VAC, 125VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	△	Reduce the exchange intervals of the modules as Mechanical/Electrical Life is cut to about half.
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56AR output specifications	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	220mA (24VDC, all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.

Specifications		AJ35PTF-56AR	AJ65SBTB2N-16A	AJ65SBTB2N-16R	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws) 2 pieces	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	150mA	40mA or less (24VDC when all points are ON)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		254(H) × 190(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		1.2kg	0.25kg	0.35kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the AJ65SBTB2N-16A.

(14) Specifications comparison between AJ35PTF-56AS and AJ65SBTB2N-16A+ AJ65SBTB2N-16S

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56AS input specifications	AJ65SBTB2N-16A	Compatibility	Precautions for replacement
Number of input points		32 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16A modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		10mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	△	Rated input current has been reduced.*1
Operating voltage range		85 to 132VAC (50/60Hz ± 5%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		60% simultaneously ON	100% simultaneously ON (at 110VAC) 60% simultaneously ON (at 132VAC)	△	Use within specification range.
Inrush current		Max. 300mA, within 0.3ms (132VAC)	Max. 200mA, within 1ms (132VAC)	○	
ON voltage/ON current		80V or more/6mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		40V or less/4mA or less	30V or less/1.7mA or less	△	OFF current has been reduced. *1
Input impedance		Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	△	Input impedance has increased. *1
Response time	OFF→ON	15ms or less (6ms TYP.)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	35ms or less (16ms TYP.)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		16 points/common	16 points/common (2-wire type)	○	
Specifications		**AJ35PTF-56AS output specifications**	**AJ65SBTB2N-16S**	**Compatibility**	**Precautions for replacement**
Number of output points		24 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16S modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		100 to 240VAC, 40 to 70Hz	100-240VAC, 50/60Hz ± 5%	○	
Maximum load voltage		264VAC	264VAC	○	
Maximum load current		0.6A/point, 2.4A/common	0.6A/point, 4.8A/common	○	
Minimum load voltage/current		24VAC 100mA, 100VAC 10mA, 240VAC 10mA	50VAC 100mA 100VAC 10mA, 240VAC 10mA	○	
Maximum inrush current		20A 10ms or less 8A 100ms or less	25A 10ms or less	○	
Leakage current at OFF		1.5mA (132VAC, 60Hz) 3.0mA (264VAC, 60Hz)	1.5mA (100VAC, 60Hz) 3.0mA (200VAC, 60Hz)	○	
Maximum voltage drop at ON		1.5V or less (0.1 to 0.6A) 1.8V or less (50 to 100mA) 2.0V or less (10 to 50mA)	1.5V or less (at 0.6A)	○	
Response time	OFF→ON	1ms or less	1ms or less	○	
	ON→OFF	0.5Hz+1ms or less	1/2 cycle + 1ms or less	○	
Surge suppressor		CR absorber (0.022μF+47Ω)	CR absorber (0.01μF+47Ω)	○	
Fuse rating		High speed type fuse 3.2A (one fuse /common) HP-32	None	×	The fuse is not built in.*2
Fuse blown indication		Available	None	×	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56AS	AJ65SBTB2N-16A	AJ65SBTB2N-16S	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws) 2 pieces	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	230mA	40mA or less (24VDC when all points are ON)	85mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		254(H) × 190(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		1.1kg	0.25kg	0.35kg	○	

*1: Confirm the specifications of the sensors or switches to be connected to the AJ65SBTB2N-16A.

*2: Install a fuse for each external terminal point to prevent the burnout of the external devices and modules during load shorts. In addition, when a fuse blown indication is necessary, configure an external circuit.

(15) Specifications comparison between AJ35PTF-28DS and AJ65SBTB1-16D+ AJ65SBTB2N-16S

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-28DS input specifications	AJ65SBTB1-16D	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		9.5V or more/2.6mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		6V or less/1.0mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (7.5ms TYP.)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common	○	
Specifications		**AJ35PTF-28DS output specifications**	**AJ65SBTB2N-16S**	**Compatibility**	**Precautions for replacement**
Number of output points		12 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		100-240VAC, 40 to 70Hz	100-240VAC, 50/60Hz ± 5%	○	
Maximum load voltage		264VAC	264VAC	○	
Maximum load current		0.6A/point, 2.4A/common	0.6A/point, 4.8A/common	○	
Minimum load voltage/current		24VAC 100mA, 100VAC 10mA, 240VAC 10mA	50VAC 100mA, 100VAC 10mA, 240VAC 10mA	○	
Maximum inrush current		20A 10ms or less 8A 100ms or less	25A 10ms or less	○	
Leakage current at OFF		1.5mA (132VAC, 60Hz) 3.0mA (264VAC, 60Hz)	1.5mA (100VAC, 60Hz) 3.0mA (200VAC, 60Hz)	○	
Maximum voltage drop at ON		1.5V or less (0.1 to 0.6A) 1.8V or less (50 to 100mA) 2.0V or less (10 to 50mA)	1.5V or less (at 0.6A)	○	
Response time	OFF→ON	1ms or less	1ms or less	○	
	ON→OFF	0.5Hz+1ms or less	1/2 cycle + 1ms or less	○	
Surge suppressor		CR absorber (0.022μF+47Ω)	CR absorber (0.01μF+47Ω)	○	
Fuse rating		High speed type fuse 3.2A (one fuse /common) HP-32	None	×	The fuse is not built in.*1
Fuse blown indication		Available	None	×	
Common terminal arrangement		8 points/common 4 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-28DS	AJ65SBTB1-16D	AJ65SBTB2N-16S	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws)	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply]	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	150mA	35mA or less (24VDC when all points are ON)	85mA or less (24VDC when all points are ON)	○	
External dimensions		254(H) × 132(W) × 41(D) mm	54(H) × 118(W) × 40(D) mm	54(H) × 179(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.76kg	0.18kg	0.35kg	○	

*1 Install a fuse for each external terminal point to prevent the burnout of the external devices and modules during load shorts. In addition, when a fuse blown indication is necessary, configure an external circuit.

(16) Specifications comparison between AJ35PTF-56DS and AJ65SBTB1-32D+ AJ65SBTB2N-16S

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56DS input specifications	AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		9.5V or more/2.6mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		6V or less/1.0mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (7.5ms TYP.)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common	○	

Specifications		AJ35PTF-56DS output specifications	AJ65SBTB2N-16S	Compatibility	Precautions for replacement
Number of output points		24 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16S modules.
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		100-240VAC, 40 to 70Hz	100-240VAC, 50/60Hz ± 5%	○	
Maximum load voltage		264VAC	264VAC	○	
Maximum load current		0.6A/point, 2.4A/common	0.6A/point, 4.8A/common	○	
Minimum load voltage/current		24VAC 100mA, 100VAC 10mA, 240VAC 10mA	50VAC 100mA, 100VAC 10mA, 240VAC 10mA	○	
Maximum inrush current		20A 10ms or less, 8A 100ms or less	25A 10ms or less	○	
Leakage current at OFF		1.5mA (132VAC, 60Hz) 3.0mA (264VAC, 60Hz)	1.5mA (100VAC, 60Hz) 3.0mA (200VAC, 60Hz)	○	
Maximum voltage drop at ON		1.5V or less (0.1 to 0.6A) 1.8V or less (50 to 100mA) 2.0V or less (10 to 50mA)	1.5V or less (at 0.6A)	○	
Response time	OFF→ON	1ms or less	1ms or less	○	
	ON→OFF	0.5Hz+1ms or less	1/2 cycle + 1ms or less	○	
Surge suppressor		CR absorber (0.022μF+47Ω)	CR absorber (0.01μF+47Ω)	○	
Fuse rating		High speed type fuse 3.2A (one fuse /common) HP-32	None	×	The fuse is not built in.*1
Fuse blown indication		Available	None	×	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)	△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56DS	AJ65SBTB1-32D	AJ65SBTB2N-16S	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws) 2 pieces	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	230mA	45mA or less (24VDC when all points are ON)	85mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		254(H) × 190(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		1.16kg	0.25kg	0.35kg	○	

*1 Install a fuse for each external terminal point to prevent the burnout of the external devices and modules during load shorts. In addition, when a fuse blown indication is necessary, configure an external circuit.

(17) Specifications comparison between AJ35PTF-56DR and AJ65SBTB1-32D+ AJ65SBTB2N-16R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56DR input specifications	AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		9.5V or more/2.6mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		6V or less/1.0mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (7.5ms TYP.)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.
Specifications		**AJ35PTF-56DR output specifications**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of output points		24 points	16 points	×	When seventeen or more points are used, use two AJ65SBTB2N-16R modules.
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 8A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		264VAC, 125VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ =0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	△	Reduce the exchange intervals of the modules as Mechanical/Electrical Life is cut to about half.
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	-	
	Current	220mA (24VDC, all points ON)	None	-	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56DR output specifications	AJ65SBTB2N-16R		Compatibility	Precautions for replacement
Surge suppressor		None	None		○	
Common terminal arrangement		8 points/common	16 points/common (2-wire type)		△	As common terminal arrangement changes from 8 points/common to 16 points/common, wiring with a different voltage per common is not possible.
Specifications		**AJ35PTF-56DR**	**AJ65SBTB1-32D**	**AJ65SBTB2N-16R**	**Compatibility**	**Precautions for replacement**
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws) 2 pieces	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	150mA	45mA or less (24VDC when all points are ON)	120mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		254(H) × 190(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		1.16kg	0.25kg	0.35kg	○	

(18) Specifications comparison between AJ35PTF-56DT and AJ65SBTB1-32D+ AJ65SBTB1-32T1

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56DT input specifications	AJ65SBTB1-32D	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12/24VDC	24VDC	△	12VDC cannot be used.
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 7mA	△	12VDC cannot be used.
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	△	12VDC cannot be used.
Maximum number of simultaneous input points		60% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		9.5V or more/2.6mA or more	14V or more/3.5mA or more	△	12VDC cannot be used.
OFF voltage/OFF current		6V or less/1.0mA or less	6V or less/1.7mA or less	△	12VDC cannot be used.
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	
Input method		Positive common (sink type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (7.5ms TYP.)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.

Specifications		AJ35PTF-56DT output specifications	AJ65SBTB1-32T1	Compatibility	Precautions for replacement
Number of output points		24 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12VDC/24VDC	12VDC/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 26.4VDC (ripple ratio within 5%)	△	Voltages exceeding 26.4VDC cannot be applied.
Maximum load current		0.5A/point, 3.2A/common	0.5A/point, 4.8A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Maximum inrush current		4.0A 10ms or less	1.0A 10ms or less	△	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC or less (TYP.) 0.5A 1.5VDC or less (MAX.) 0.5A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2.0ms or less	0.5ms or less	○	
	ON→OFF	2.0ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	10.2 to 31.2VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	△	Voltages exceeding 26.4VDC cannot be applied.
	Current	23mA (24VDC TYP./common)	50mA or less (24VDC)	×	The current consumption increases. The current capacity needs to be reconsidered.
Surge suppressor		Varistor (52 to 62V)	Zener diode	○	
Common terminal arrangement		8 points/common	32 points/common	△	As common terminal arrangement changes from 16 points/common to 32 points/common, wiring with a different voltage per common is not possible.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35PTF-56DT	AJ65SBTB1-32D	AJ65SBTB1-32T1	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		○	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		Transmission/module power supply parts: 8-point terminal block I/O part: 36-point terminal block (M3 × 6 screws) 2 pieces	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 34-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	160mA	45mA or less (24VDC when all points are ON)	65mA or less (24VDC when all points are ON)	○	
External dimensions		254(H) × 190(W) × 41(D) mm	54(H) × 179(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		1.09kg	0.25kg	0.25kg	○	

(19) Specifications comparison between AJ35TB1-16AR and AJ65SBTB2N-8A+ AJ65SBTB2N-8R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16AR input specifications	AJ65SBTB2N-8A	Compatibility	Precautions for replacement
Number of input points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100-120VAC, 50/60Hz	100-120VAC, 50/60Hz	○	
Rated input current		Approx. 6mA (100VAC, 60Hz)	Approx. 7mA (100VAC, 60Hz)	○	
Operating voltage range		85 to 132VAC (50/60Hz ± 5%)	85 to 132VAC (50/60Hz ± 3%, distortion rate 5% within)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON (at 110VAC), 60% simultaneously ON (at 132VAC)	△	Use within specification range.
Inrush current		–	Max. 200mA, within 1ms (132VAC)	○	
ON voltage/ON current		80V or more/5mA or more	80V or more/5mA or more	○	
OFF voltage/OFF current		30V or less/1mA or less	30V or less/1.7mA or less	○	
Input impedance		Approx. 18kΩ (60Hz), Approx. 21kΩ (50Hz)	Approx. 15kΩ (60Hz), Approx. 18kΩ (50Hz)	○	
Response time	OFF→ON	15ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
	ON→OFF	30ms or less (100VAC, 60Hz)	20ms or less (100VAC, 60Hz)	○	
Common terminal arrangement		8 points/common	8 points/common (2-wire type)	○	
Specifications		**AJ35TB1-16AR output specifications**	**AJ65SBTB2N-8R**	**Compatibility**	**Precautions for replacement**
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Relay isolation	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	45mA (24VDC, all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	8 points/common (2-wire type)	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16AR	AJ65SBTB2N-8A	AJ65SBTB2N-8R	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		34-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)		×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	62mA (at 24V)	35mA or less (24VDC when all points are ON)	85mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.20kg	0.25kg	○	

(20) Specifications comparison between AJ35TB1-16DR and AJ65SBTB1-8D+ AJ65SBTB2N-8R

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16DR input specifications	AJ65SBTB1-8D	Compatibility	Precautions for replacement
Number of input points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6V or less/1.7mA or less	6V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		8 points/common	8 points/common	○	
Specifications		**AJ35TB1-16DR output specifications**	**AJ65SBTB2N-8R**	**Compatibility**	**Precautions for replacement**
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Relay	△	Although the insulation methods differ, the performance of the insulation is the same.
Rated load voltage/current		24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 5A/common	24VDC 2A (resistance load)/point 240VAC 2A (COS ϕ =1)/point 4A/common	△	The maximum load current per common differs. Pay attention to the operating current of the entire module.
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		250VAC, 110VDC	264VAC, 125VDC	○	
Response time	OFF→ON	10ms or less	10ms or less	○	
	ON→OFF	12ms or less	12ms or less	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	Rated switching voltage/current load 100,000 times or more 200VAC 1.5A, 240VAC 1A (COS ϕ =0.7) 100,000 times or more 200VAC 1A, 240VAC 0.5A (COS ϕ = 0.35) 100,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7 ms) 100,000 times or more	○	
Maximum switching frequency		3,600 times/hr	3,600 times/hr	○	
External power supply	Voltage	24VDC ± 10% Ripple voltage 4Vp-p or less	None	–	
	Current	45mA (24VDC, all points ON)	None	–	
Surge suppressor		None	None	○	
Common terminal arrangement		8 points/common	8 points/common (2-wire type)	○	

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16DR	AJ65SBTB1-8D	AJ65SBTB 2N-8R	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)		2 stations (2 stations × 8 points)	1 station (1 station × 32 points × 2 modules)		×	The number of I/O points assigned per station is changed. (8 points → 32 points) The number of occupied stations are two (one station × two modules).
Operation indication		ON indication (LED)	ON indication (LED)		○	
External connection method		34-point terminal block (M3 screw) Transmission circuit part included	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 10-point terminal block (M3 × 5.2 screws)	Transmission/ module power supply parts 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size		0.75 to 2mm^2	0.3 to 2mm^2		○	
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N		△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)		△	The operating voltage range differs.
	Current	62mA (at 24VDC)	30mA or less (24VDC when all points are ON)	85mA or less (24VDC when all points are ON)	△	The current consumption increases. The current capacity needs to be reconsidered.
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 87.3(W) × 40(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.14kg	0.25kg	○	

(21) Specifications comparison between AJ35TB1-16DT and AJ65SBTB1-16DT2

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16DT input specifications	AJ65SBTB1-16DT2 input specifications	Compatibility	Precautions for replacement
Number of input points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 7mA	Approx. 7mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		14V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6.0V or less/1.7mA or less	6.0V or less/1.7mA or less	○	
Input resistance		Approx. 3.3kΩ	Approx. 3.3kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive common (sink type)	△	A negative common current cannot be used.
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		8 points/common	8 points/common	○	

Specifications		AJ35TB1-16DT output specifications	AJ65SBTB1-16DT2 output specifications	Compatibility	Precautions for replacement
Number of output points		8 points	8 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.3A/point, 2.4A/common	0.5A/point, 2.4A/common	○	
Maximum inrush current		3.0A 10ms or less	1.0A 10ms or less	×	The inrush current value differs. Pay attention to the selection of the load used.
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.3A	0.3VDC or less (TYP.) 0.5A 0.6VDC or less (MAX.) 0.5A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2.0ms or less	0.5ms or less	○	
	ON→OFF	2.0ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
	Current	60mA or less (24VDC)	17.8mA or less (24VDC)	○	
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		8 points/common	8 points/common	○	

Specifications	AJ35TB1-16DT	AJ65SBTB1-16DT2	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)	2 stations (2 stations × 8 points)	1 station (1 station × 32 points)	×	The number of I/O points assigned per station is changed. (8 points → 32 points)
Operation indication	ON indication (LED)	ON indication (LED)	○	
External connection method	34-point terminal block (M3 screw) Transmission circuit part included	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws) I/O part: 18-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
Applicable wire size	0.75 to 2mm^2	0.3 to 2mm^2	○	
Applicable solderless terminal	R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TB1-16DT	AJ65SBTB1-16DT2	Compatibility	Precautions for replacement
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	61mA (at 24VDC)	50mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.35kg	0.18kg	○	

(22) Specifications comparison between AJ35TC1-32DT and AJ65SBTCF1-32DT

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TC1-32DT input specifications	AJ65SBTCF1-32DT input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		24VDC	24VDC	○	
Rated input current		Approx. 5mA	Approx. 5mA	○	
Operating voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	19.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum number of simultaneous input points		100% simultaneously ON	100% simultaneously ON	○	
ON voltage/ON current		17.5V or more/3.5mA or more	14V or more/3.5mA or more	○	
OFF voltage/OFF current		6V or less/1.7mA or less	6V or less/1.7mA or less	○	
Input resistance		Approx. 4.7kΩ	Approx. 4.7kΩ	○	
Input method		Positive/negative common shared type (sink/source shared type)	Positive/negative common shared type (sink/source shared type)	○	
Response time	OFF→ON	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
	ON→OFF	10ms or less (at 24VDC)	1.5ms or less (at 24VDC)	○	
Common terminal arrangement		16 points/common	16 points/common	○	

Specifications		AJ35TC1-32DT output specifications	AJ65SBTCF1-32DT output specifications	Compatibility	Precautions for replacement
Number of output points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		24VDC	12VDC/24VDC	○	
Operating load voltage range		19.2 to 26.4VDC (ripple ratio within 5%)	10.2 to 26.4VDC (ripple ratio within 5%)	○	
Maximum load current		0.1A/point, 1.6A/common	0.1A/point, 1.6A/common	○	
Maximum inrush current		0.4A 10ms or less	1.0A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		1.5VDC or less (MAX.) 0.1A	0.085VDC or less (TYP.) 0.1A 0.2VDC or less (MAX.) 0.1A	○	
Output method		sink type	sink type	○	
Response time	OFF→ON	2.0ms or less	0.5ms or less	○	
	ON→OFF	2.0ms or less (resistance load)	1.5ms or less (resistance load)	○	
External power supply	Voltage	None	10.2 to 26.4VDC (ripple ratio within 5%)	×	Wiring of the power supply for driving the output circuit is required.
	Current	None	30mA or less (24VDC)	×	Wiring of the power supply for driving the output circuit is required.
Surge suppressor		Zener diode	Zener diode	○	
Common terminal arrangement		16 points/common	16 points/common	○	

Specifications	AJ35TC1-32DT	AJ65SBTCF1-32DT	Compatibility	Precautions for replacement
Number of occupied stations (number of occupied points)	4 stations (4 stations × 8 points)	1 station (1 station × 32 points)	○	The number of points assigned per module is not changed.
Operation indication	ON indication (LED)	ON indication (LED)	○	
External connection method	Transmission circuit: 8-point terminal block (M3 screw)	Transmission/module power supply parts: 7-point terminal block (M3 × 5.2 screws)	×	Change in wiring is required.
	I/O part: 40-pin connector	I/O part: 40-pin connector	○	The existing connector can be attached without change.

○: Compatible, △: Partial change required, ×: Not compatible

Specifications		AJ35TC1-32DT	AJ65SBTCF1-32DT	Compatibility	Precautions for replacement
Applicable wire size		Terminal block: 0.75 to 2mm^2 FCN connector:0.3mm^2	Terminal block: 0.3 to 2mm^2 FCN connector: 0.3mm^{2}or less (for A6CON1, A6CON4) 0.2 to 0.08mm^2 (for A6CON2) Twisted wire of 0.08mm^2, ϕ 0.25mm (for A6CON3)	○	
Accessory		1 external wiring connector	None	×	40-pin connectors for external wiring are sold separately.
Applicable solderless terminal		R1.25-3, R2-3 RAV1.25-3, RAV2-3	RAV1.25-3 (conforming to JIS C 2805) V2-MS3, RAP2-3SL, TGV2-3N	△	In some cases, the solderless terminal must be changed.
I/O module power supply	Voltage	15.6 to 31.2VDC (peak voltage 31.2VDC)	20.4 to 26.4VDC (ripple ratio within 5%)	△	The operating voltage range differs.
	Current	137mA (at 24VDC)	50mA or less (24VDC when all points are ON)	○	
External dimensions		55(H) × 166(W) × 50(D) mm	54(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.
Weight		0.25kg	0.15kg	○	

5.3 Precautions for Replacement of I/O Module

(1) Wiring

(a) Wire gauge and size of solderless terminals

As CC-Link supports compact modules and terminal blocks, the wire gauge and size of the solderless terminals applicable to terminal blocks differ from those that can be used on the MELSECNET/MINI-S3, A2C(I/O).
For this reason, when replacing the existing system with CC-Link, use wires and solderless terminals that meet the CC-Link specifications.

(b) Input method

Contents of the "Input method" item in the "Specifications" column for input modules and I/O modules in Section 5.2 are described below.
Positive common (Sink type) : means that DC power + is connected to the common terminal.
Negative common (Source type) : means that DC power - is connected to the common terminal.
Positive/negative common shared type (Sink/source shared type):
means that either DC power + or DC power - is connected to the common terminal.

(c) Using wiring conversion adapter

When installing a MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter to the CC-Link remote I/O module (AJ65BTB1-16D, AJ65BTB2-16D or AJ65BTB1-16T), the external dimensions are increased by 5.1mm (0.20inch) (height) and 28.5mm (1.12inch) (depth).
If the connected cable is not long enough, wiring to the CC-Link remote I/O module cannot be made.

(2) External wiring connector

(a) Purchasing external wiring connectors

At the CC-Link 32-point connector type I/O module, the external wiring connector is not included in the package. The external wiring connector (A6CON□) must be purchased separately.

(3) Tightening module mounting screws and terminal block screws

Tighten module mounting screws and terminal block screws within the range described below.
Tightening screws too much may cause damage to the module case. For details, refer to each product manual.

(a) CC-Link system compact type remote I/O module

For terminal block type, one-touch connector type, and FCN connector type remote I/O module

Screw	Tightening torque range
Module mounting screw (M4 screw with plain washer finished round)	78 to 108N•cm
Terminal block screw (M3 screw)	59 to 88N•cm
Terminal block mounting screw (M3.5 screw)	68 to 98N•cm

(b) CC-Link system remote I/O module (A2C shape)

Screw	Tightening torque range
Module mounting screw (M4 screw with plain washer finished round)	78 to 108N•cm
Terminal block screw (M3.5 screw)	68 to 92N•cm
Terminal block mounting screw (M4 screw)	102 to 138N•cm

(c) CC-Link system remote I/O module

Screw	Tightening torque range
Module mounting screw (M4 screw)	78 to 118N•cm
Terminal block screw (M3.5 screw)	59 to 88N•cm
Terminal block mounting screw (M4 screw)	78 to 118N•cm

(d) Wiring conversion adapter

Screw	Tightening torque range
Adapter, Terminal block mounting screw (M4 screw)	78 to 118N•cm
CTL + terminal screw (M3 screw)	49 to 78.4N•cm

(4) Precautions for input module (specifications change)

(a) The rated input current

Some CC-Link modules support a smaller rated input current than MELSECNET/MINI-S3,A2C(I/O) modules do. Confirm the specifications of the sensors or switches to be connected before use.

(b) The rated voltage value

CC-Link's DC input module is dedicated for use at 24VDC.
Confirm the specifications of the sensors or switches to be connected before use.

(c) The common terminal arrangement

Use caution when using voltages that differ depending on each common as the common terminal arrangement may differ between the CC-Link and the MELSECNET/MINI-S3, A2C(I/O).

(5) Precautions for output module (specifications change)

(a) The output current values

Some CC-Link modules support a smaller output current than MELSECNET/MINI-S3,A2C(I/O) modules do. Before using an output module having a smaller output current on CC-Link, confirm the specifications on the load side.

(b) The common terminal arrangement

Use caution when using voltages that differ depending on each common as the common terminal arrangement may differ between the CC-Link and the MELSECNET/MINI-S3, A2C(I/O).

(c) The common maximum load current

Sometimes the maximum load current per common differs between CC-Link and MELSECNET/MINI-S3,A2C(I/O). Check the maximum load current per common before use.

6 REPLACING ANALOG I/O MODULE

6.1 List of Alternative Analog I/O Module Models

MELSECNET/MINI-S3, A2C models to be discontinued		Replacement to CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Analog input module	A68ADC	AJ65BT-64AD	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Required (2 modules necessary) 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: 4CH/module 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required
		AJ65SBT-64AD	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Required (2 modules necessary) 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: 4CH/module, negative current conversion not possible 5) Change in functional specifications: An averaging processing function can handle only a moving averaging processing. 6) Change in dimensions for mounting the panel: Required
		AJ65VBTCU-68ADVN	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Voltage input only 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required

MELSECNET/MINI-S3, A2C models to be discontinued		Replacement to CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Analog input module	A68ADC	AJ65VBTCU-68ADIN	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Current input only 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required
Analog output module	A64DAVC	AJ65BT-64DAV	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Change in resolution 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required
		AJ65SBT-62DA	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Required (2 modules necessary) 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Change in resolution 5) Change in functional specifications: 2CH/module 6) Change in dimensions for mounting the panel: Required
		AJ65VBTCU-68DAVN	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: 8CH/module 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required

MELSECNET/MINI-S3, A2C models to be discontinued		Replacement to CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
Analog output module	A64DAIC	AJ65BT-64DAI	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Upward compatible 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required
		AJ65SBT-62DA	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Required (2 modules necessary) 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Change in resolution 5) Change in functional specifications: 2CH/module 6) Change in dimensions for mounting the panel: Required
Temperature input module	A64RD3C	AJ65BT-64RD3	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Change in temperature detecting output current, change in resistive values of allowable conductor 5) Change in functional specifications: Not required 6) Change in dimensions for mounting the panel: Required
	A64RD4C	AJ65BT-64RD4	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Change in temperature detecting output current, change in resistive values of allowable conductor 5) Changes in functional specifications: Change in the specifications of the line breakage detection function 6) Change in dimensions for mounting the panel: Required

6.2 List of Alternative Master Module Models

6.2.1 Comparisons of analog input module

(1) Comparisons between A68ADC and AJ65BT-64AD

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, × : Not compatible

<table>
<tr><th>Item</th><th>A68ADC</th><th>AJ65BT-64AD</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Analog input</td><td>Voltage: -10 to 0 to +10VDC
(input resistance 30K Ω)
Current: +4 to +20mA DC
(input resistance 250 Ω)

Select via input terminal
* Current input can also be used as -20 to 0 to +20mA.</td><td>Voltage: -10 to 0 to +10VDC
(input resistance 1M Ω)
Current: -20 to 0 to +20mA DC
(input resistance 250 Ω)

(select via input terminal)</td><td>○</td><td></td></tr>
<tr><td>Digital output</td><td>16bits signed binary
(data part 11bits)
-2048 to 2047</td><td>16bits signed binary
(data part 12bits)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th>Analog input</th><th>Digital output</th></tr><tr><td>+10V</td><td>+2000</td></tr><tr><td>+5V or +20mA</td><td>+1000</td></tr><tr><td>0V or +4mA</td><td>± 0</td></tr><tr><td>-5V or -12mA</td><td>-1000</td></tr><tr><td>-10V</td><td>-2000</td></tr></table></td><td><table><tr><th>Analog input value</th><th>Digital output value</th></tr><tr><td>-10 to 10V or -20 to 20mA</td><td>0 to 4000 or -2000 to 2000</td></tr><tr><td>0 to 10V or 0 to 20mA</td><td>0 to 4000 or -2000 to 2000</td></tr><tr><td>0 to 5V or 0 to 20mA</td><td>0 to 4000 or -2000 to 2000</td></tr><tr><td>1 to 5V or 4 to 20mA</td><td>0 to 4000 or -2000 to 2000</td></tr></table></td><td>△</td><td>Precautions are needed as gain values are different.</td></tr>
<tr><td>Maximum resolution</td><td>Voltage 5mV (1/2000)
Current 20 μA (1/1000)</td><td><table><tr><th>Analog input value</th><th>Resolution</th></tr><tr><td>-10 to 10V or -20 to 20mA</td><td>5mV or 20 μA</td></tr><tr><td>0 to 10V or 0 to 20mA</td><td>2.5mV or 10 μA</td></tr><tr><td>0 to 5V or 0 to 20mA</td><td>1.25mV or 5 μA</td></tr><tr><td>1 to 5V or 4 to 20mA</td><td>1mV or 4 μA</td></tr></table></td><td>○</td><td></td></tr>
<tr><td>Overall accuracy</td><td>Within ± 1% (± 20)
(accuracy relative to maximum value)</td><td>± 1%(± 40)</td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Max. 2.5ms/channel</td><td>1ms/channel</td><td>○</td><td></td></tr>
<tr><td>Absolute maximum input</td><td colspan="2">Voltage ± 15V, current ± 30mA</td><td>○</td><td></td></tr>
<tr><td>Analog input</td><td>8 channels/module</td><td>4 channels/module</td><td>×</td><td>Please consider replacing by using two or more AJ65BT-64AD modules.</td></tr>
<tr><td>Insulation method</td><td>Photocoupler isolation between input terminal and programmable controller power supply
(non-isolated between channels)</td><td>Photocoupler isolation between power supply/communication system and analog input
(non-isolated between channels)</td><td>○</td><td></td></tr>
</table>

○: Compatible, △: Partial change required, ×: Not compatible

Item	A68ADC	AJ65BT-64AD	Compati-bility	Precautions for replacement
Number of occupied I/O stations (number of points)	4 stations (32 points)	2 stations (RX/RY 32 points each, RWr/RWw 8 points each)	×	The number of occupied stations has been changed.
Connected terminal	47-point terminal block	27-point terminal block	×	Change in wiring is required.
Applicable wire size	0.75 to 2mm^2 (applicable tightening torque 7kg ▪ cm)		○	
Applicable solderless terminal	V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV1.25-3.5, RAV2-3.5	×	
24VDC internal current consumption	0.3A	0.12A	○	
Weight	1.01kg	0.35kg	○	
External dimensions	170(H) × 100(W) × 80(D)mm	65(H) × 151.9(W) × 63(D)mm	×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A68ADC	AJ65BT-64AD	Compati-bility	Precautions for replacement
Averaging processing A/D conversion system	A/D conversion is performed according to set times or set processing time on a channel, which is specified for the averaging processing to be performed on by the programmable controller CPU. After the conversion, the maximum and minimum values are removed, and the remaining total is averaged and the results are stored in the buffer memory.	A/D conversion is performed according to the preset number of times or preset time on each channel, the A/D conversion data obtained during that time is averaged, and the average value is stored to the remote register as a digital output value.	○	
Specification of channel to use	The A68ADC has an 8 channels of the A/D conversion circuit. Execution/non-execution of the A/D conversion can be specified on each of those channels. With the programmable controller CPU, the channel to execute A/D conversion on is specified to address 0 (specification of channel to use) of the buffer memory.	Enable (execute)/disable (do not execute) A/D conversion is specified on each channel. (default: execution on all channels disabled) By making unused channels conversion prohibited, sampling time can be shortened.	○	
Offset/gain setting	Changes the I/O conversion characteristics.	Changes the I/O conversion characteristics. For that, offset/gain settings can be configured for each channel without a aid of a various register.	○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.
For details on I/O signals and sequence programs, refer to the User's Manual.

A68ADC				AJ65BT-64AD			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0	CH1 A/D Conversion completed flag	RYn0	Offset/gain value selection
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal *1	RXn1	CH2 A/D Conversion completed flag	RYn1	Voltage/current selection
X(n+5)	A68ADC reset switch ON detection flag	Y(n+5)	Reset signal for reset switch ON detection flag	RXn2	CH3 A/D Conversion completed flag	RYn2 to RY(n+1)7	Use prohibited
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RXn3	CH4 A/D Conversion completed flag		
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal *1	RXn4 to RX(n+1)7	Use prohibited		
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+1F)	Use prohibited	RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data processing complete flag
				RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
X(n+18)	A/D conversion READY			RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
X(n+19) to X(n+1F)	Use prohibited			RX(n+1)B	Remote READY	RY(n+1)B to RY(n+1)F	Use prohibited
				RX(n+1)C to RX(n+1)F	Use prohibited		

*1: The signal contents differ when a version B A68ADC is combined with a version B A2CCPU.

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memories and sequence programs, refer to the User's Manual.

A68ADC			AJ65BT-64AD		
Address	Name	Read/write	Address	Name	Read/write
0	Specification of channel to use	R/W	RWwm	Averaging processing specification	W
1	Averaging processing specification		RWwm+1	CH1 Averaging time, count	
2	CH1 Averaging time, count		RWwm+2	CH2 Averaging time, count	
3	CH2 Averaging time, count		RWwm+3	CH3 Averaging time, count	
4	CH3 Averaging time, count		RWwm+4	CH4 Averaging time, count	
5	CH4 Averaging time, count		RWwm+5	Data format	
6	CH5 Averaging time, count		RWwm+6	A/D conversion enable/disable specification	
7	CH6 Averaging time, count		RWwm+7	Use prohibited	–
8	CH7 Averaging time, count		RWrn	CH1 Digital output value	R
9	CH8 Averaging time, count		RWrn+1	CH2 Digital output value	
10	CH1 Digital output value	R	RWrn+2	CH3 Digital output value	
11	CH2 Digital output value		RWrn+3	CH4 Digital output value	
12	CH3 Digital output value		RWrn+4	Error code	
13	CH4 Digital output value		RWrn+5	Use prohibited	–
14	CH5 Digital output value		RWrn+6		
15	CH6 Digital output value		RWrn+7		
16	CH7 Digital output value				
17	CH8 Digital output value				
18	Write data error code	R/W			
19	A/D conversion completed flag	R			

(2) Comparisons between A68ADC and AJ65SBT-64AD

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A68ADC</th><th>AJ65SBT-64AD</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Analog input</td><td>Voltage: -10 to 0 to +10VDC
(input resistance 30K Ω)
Current: +4 to +20mA DC
(input resistance 250 Ω)

Select via input terminal
* Current input can also be used as
-20 to 0 to +20mA.</td><td>Voltage: -10 to 0 to +10VDC
(input resistance 1M Ω)
Current: 0 to +20mA DC
(input resistance 250 Ω)</td><td>△</td><td>Negative current cannot be converted.</td></tr>
<tr><td>Digital output</td><td>16bits signed binary (data part 11bits)
-2048 to 2047</td><td>16bits signed binary
(-4096 to +4095)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th>Analog input</th><th>Digital output</th></tr><tr><td>+10V</td><td>+2000</td></tr><tr><td>+5V or +20mA</td><td>+1000</td></tr><tr><td>0V or +4mA</td><td>± 0</td></tr><tr><td>-5V or -12mA</td><td>-1000</td></tr><tr><td>-10V</td><td>-2000</td></tr></table></td><td><table><tr><th></th><th>Analog input range</th><th>Digital output</th><th>Accuracy
Ambient Temperature 0 to 55 ℃</th><th>Accuracy
Ambient Temperature 25 ± 5 ℃</th><th>Maximum resolution</th></tr><tr><td rowspan="5">Voltage</td><td>-10 to +10V</td><td rowspan="2">-4000 to +4000</td><td rowspan="5">± 0.4%
(± 16 digits*)</td><td rowspan="5">± 0.2%
(± 8 digits*)</td><td>2.5mV</td></tr><tr><td>User range setting 1 (-10 to +10V)</td><td>1.25mV</td></tr><tr><td>0 to 5V</td><td rowspan="3">0 to 4000</td><td rowspan="2">1.0mV</td></tr><tr><td>1 to 5V</td></tr><tr><td>User range setting 2 (0 to 5V)</td></tr><tr><td rowspan="3">Current</td><td>0 to 20mA</td><td rowspan="3">0 to 4000</td><td>5 μ A</td></tr><tr><td>4 to 20mA</td><td rowspan="2">4 μ A</td></tr><tr><td>User range setting 3 (0 to 20mA)</td></tr></table>*: Digit is the digital value.
Factory-set: -10 to +10V.</td><td>△</td><td>Precautions are needed as gain values are different.</td></tr>
<tr><td>Maximum resolution</td><td>Voltage 5mV (1/2000)
Current 20 μ A (1/1000)</td><td></td><td>○</td><td></td></tr>
<tr><td>Overall accuracy</td><td>Within ± 1% (± 20)
(accuracy relative to maximum value)</td><td></td><td>○</td><td></td></tr>
<tr><td>Max. conversion speed</td><td>Maximum 2.5ms/channel</td><td>1ms/channel</td><td>○</td><td></td></tr>
<tr><td>Absolute maximum input</td><td colspan="2">Voltage ± 15V, current ± 30mA</td><td>○</td><td></td></tr>
<tr><td>Number of analog input points</td><td>8 channels/module</td><td>4 channels/module</td><td>×</td><td>Consider replacing by using two or more AJ65SBT-64AD modules.</td></tr>
<tr><td>Insulation method</td><td>Photocoupler isolation between input terminal and programmable controller power supply (non-isolated between channels)</td><td>Between communication line and all analog inputs:
Photocoupler isolation
between power line and all analog inputs:
Photocoupler isolation
(non-isolated between channels)</td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td>1 station
(RX/RY 32 points each,
RWr/RWw 4 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
<tr><td>Connected terminal</td><td>47-point terminal block</td><td>25-point terminal block</td><td>×</td><td rowspan="3">Change in wiring is required.</td></tr>
<tr><td>Applicable wire size</td><td>0.75 to 2mm^2
(applicable tightening torque 7kg ▪ cm)</td><td>0.3 to 0.75mm^2</td><td>×</td></tr>
<tr><td>Applicable solderless terminal</td><td>V1.25-3, V1.25-YS3A,
V2-S3, V2-YS3A</td><td>▪ RAV1.25-3 (conforming to JIS C 2805)
[Applicable wire size: 0.3 to 1.25mm^2]
▪ V2-MS3, RAP2-3SL, TGV2-3N
[Applicable wire size: 1.25 to 2.0mm^2]</td><td>×</td></tr>
<tr><td>24VDC internal current consumption</td><td>0.3A</td><td>0.09A</td><td>○</td><td></td></tr>
<tr><td>Weight</td><td>1.01kg</td><td>0.20kg</td><td>○</td><td></td></tr>
<tr><td>External dimensions</td><td>170(H) × 100(W) × 80(D)mm</td><td>50(H) × 118(W) × 40(D)mm</td><td>×</td><td>The overall size differs.
Pay attention to the mounting dimensions.</td></tr>
</table>

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A68ADC	AJ65SBT-64AD	Compati-bility	Precautions for replacement
Averaging processing A/D conversion system	A/D conversion is performed according to set times or set processing time on a channel, which is specified for the averaging processing to be performed on by the programmable controller CPU. After the conversion, the maximum and minimum values are removed, and the remaining total is averaged and the results are stored in the buffer memory.	Digital output values for the specified number of times, which have been obtained by measuring at each sampling period, are averaged.	△	Averaging processing performed on the AJ65SBT-64AD is movement averaging processing.
Specification of channel to use	The A68ADC has 8 channels of an A/D conversion circuit. Execution/non-execution of the A/D conversion can be specified on each of those channels. With the programmable controller CPU, the channel to execute A/D conversion on is specified to address 0 (specification of channel to use) of the buffer memory.	Enable (execute)/disable (do not execute) A/D conversion is specified on each channel. By making unused channels conversion prohibited, sampling period can be shortened.	○	
Switching function of input range	–	Sets the analog input range on each channel and changes the I/O conversion characteristics. The following eight input ranges can be selected: Input range / Set value -10 to +10V / 0_H 0 to 5V / 1_H 1 to 5V / 2_H 0 to 20mA / 3_H 4 to 20mA / 4_H User range setting 1 (-10 to +10V) / 5_H User range setting 2 (0 to 5V) / 6_H User range setting 3 (0 to 20mA) / 7_H	–	
Offset/gain setting	Changes the I/O conversion characteristics.	Changes the I/O conversion characteristics. For that, offset/gain settings can be configured for each channel without a aid of a various register.	○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.
For details on I/O signals and sequence programs, refer to the User's Manual.

A68ADC				AJ65SBT-64AD			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0	CH1 A/D Conversion complete flag	RYn0	CH1 Specified flag of movement averaging processing
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal *1	RXn1	CH2 A/D Conversion complete flag	RYn1	CH2 Specified flag of movement averaging processing
X(n+5)	A68ADC reset switch ON detection flag	Y(n+5)	Reset signal of reset switch ON detection flag	RXn2	CH3 A/D Conversion complete flag	RYn2	CH3 Specified flag of movement averaging processing
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RXn3	CH4 A/D Conversion completed flag	RYn3	CH4 Specified flag of movement averaging processing
				RXn4	CH1 Range error flag	RYn4 to RY(n+1)7	Use prohibited
				RXn5	CH2 Range error flag		
				RXn6	CH3 Range error flag		
				RXn7	CH4 Range error flag		
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal *1	RXn8 to RXnB	Use prohibited		
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+1F)	Use prohibited	RXnC	E^2PROM write error flag		
				RXnD	Use prohibited		
X(n+18)	A/D conversion READY			RxnE			
X(n+19) to X(n+1F)	Use prohibited			RXnF	Test mode flag		
				RX(n+1)0 to RX(n+1)7	Use prohibited		
				RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data setting complete flag
				RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
				RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
				RX(n+1)B	Remote READY	RY(n+1)B to RY(n+1)F	Use prohibited
				RX(n+1)C to RX(n+1)F	Use prohibited		

*1: The signal contents differ when a version B A68ADC is combined with a version B A2CCPU.

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memory and sequence programs, refer to the User's Manual.

A68ADC			AJ65SBT-64AD		
Address	Name	Read/write	Address	Name	Read/write
0	Specification of channel to use	R/W	RWwm	A/D conversion enable/disable specification	W
1	Averaging processing specification		RWwm+1	Input range setting	
2	CH1 Averaging time, count		RWwm+2	Number of movement averaging processing setting	
3	CH2 Averaging time, count		RWwm+3	Use prohibited	–
4	CH3 Averaging time, count		RWrn	CH1 Digital output value	R
5	CH4 Averaging time, count		RWrn+1	CH2 Digital output value	
6	CH5 Averaging time, count		RWrn+2	CH3 Digital output value	
7	CH6 Averaging time, count		RWrn+3	CH4 Digital output value	
8	CH7 Averaging time, count				
9	CH8 Averaging time, count				
10	CH1 Digital output value	R			
11	CH2 Digital output value				
12	CH3 Digital output value				
13	CH4 Digital output value				
14	CH5 Digital output value				
15	CH6 Digital output value				
16	CH7 Digital output value				
17	CH8 Digital output value				
18	Write data error code	R/W			
19	A/D conversion completed flag	R			

(3) Comparisons between A68ADC and AJ65VBTCU-68ADVN/AJ65VBTCU-68ADIN

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A68ADC</th><th>AJ65VBTCU-68ADVN</th><th>AJ65VBTCU-68ADIN</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Analog input</td><td>Voltage: -10 to 0 to +10VDC
(input resistance 30K Ω)
Current: +4 to +20mA DC
(input resistance 250 Ω)

Select via input terminal
* Current input can also be used as -20 to 0 to +20mA.</td><td>Voltage:
-10 to +10VDC
(input resistance
1M Ω)</td><td>Current:
0 to +20mA DC
(input resistance
250 Ω)</td><td>△</td><td>Voltage and current cannot be mixed, and negative current cannot be converted.</td></tr>
<tr><td>Digital output</td><td>16bits signed binary
(data part 11bits)
-2048 to 2047</td><td>16bits signed binary
(-4096 to +4095)</td><td>16bits signed binary
(-96 to +4095)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th>Analog input</th><th>Digital output</th></tr><tr><td>+10V</td><td>+2000</td></tr><tr><td>+5V or +20mA</td><td>+1000</td></tr><tr><td>0V or +4mA</td><td>± 0</td></tr><tr><td>-5V or
-12mA</td><td>-1000</td></tr><tr><td>-10V</td><td>-2000</td></tr></table></td><td colspan="2"><table><tr><th></th><th>Analog input range</th><th>Digital output</th><th>Accuracy
Ambient temperature 0 to 55℃</th><th>Accuracy
Ambient temperature 25 ± 5℃</th><th>Maximum resolution</th></tr><tr><td rowspan="4">AJ65VBTCU-68 ADV voltage</td><td>-10 to +10V</td><td rowspan="2">-4000 to +4000</td><td rowspan="5">± 0.3%
(± 12 digits*)</td><td rowspan="5">± 0.2%
(± 8 digits*)</td><td>2.5mV</td></tr><tr><td>User range setting 1 (-10 to +10V)</td><td>1.25mV</td></tr><tr><td>0 to 5V</td><td rowspan="3">0 to 4000</td><td rowspan="2">1.0mV</td></tr><tr><td>1 to 5V</td></tr><tr><td>User range setting 2 (0 to 5V)</td></tr><tr><td rowspan="3">AJ65VBTCU-68 ADI current</td><td>0 to 20mA</td><td rowspan="3">0 to 4000</td><td>5 μ A</td></tr><tr><td>4 to 20mA</td><td rowspan="2">4 μ A</td></tr><tr><td>User range setting 3 (0 to 20mA)</td></tr></table>*: Digit is the digital value.</td><td>△</td><td>Precautions are needed as gain values are different.</td></tr>
<tr><td>Maximum resolution</td><td>Voltage 5mV (1/2000)
Current 20 μ A (1/1000)</td><td colspan="2" rowspan="2"></td><td>○</td><td></td></tr>
<tr><td>Overall accuracy</td><td>Within ± 1% (± 20)
(accuracy relative to maximum value)</td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Maximum 2.5ms/channel</td><td colspan="2">1ms/channel</td><td>○</td><td></td></tr>
<tr><td>Absolute maximum input</td><td colspan="3">Voltage ± 15V, current ± 30mA</td><td>○</td><td></td></tr>
<tr><td>Number of analog input points</td><td colspan="3">8 channels/module</td><td>○</td><td></td></tr>
<tr><td>Insulation method</td><td>Photocoupler isolation between input terminal and programmable controller power supply
(non-isolated between channels)</td><td colspan="2"><table><tr><th>Isolated locations</th><th>Isolation method</th><th>Dielectric withstand voltage</th><th>Isolation resistance</th></tr><tr><td>Between communication line and all analog inputs:</td><td>Photocoupler isolation</td><td rowspan="2">500VAC for 1 min</td><td rowspan="2">5M Ω or more by 500VDC insulation resistance tester</td></tr><tr><td>Between power supply line and all analog inputs:</td><td>Transformer</td></tr><tr><td>Between channels</td><td>Non-isolated</td><td>-</td><td>-</td></tr></table></td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td colspan="2">When set to Ver.1 remote device station
(Ver.1 compatible slave station): 3 stations
(RX/RY 32 points each,
RWr/RWw 12 points each)
When set to Ver.2 remote device station
(Ver.2 compatible slave station): 1 station
(Expanded cyclic setting: 4X)
(RX/RY 32 points each,
RWr/RWw 16 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
</table>

○: Compatible, △: Partial change required, ×: Not compatible

Item	A68ADC	AJ65VBTCU-68ADVN	AJ65VBTCU-68ADIN	Compati-bility	Precautions for replacement
Connected terminal	47-point terminal block	One-touch connector for communication: Communication line: Ver.1.10 compatible CC-Link dedicated cable 0.5mm² (AWG#20) [ϕ 2.2 to 3.0] Shield wire 0.5mm²(AWG#20) One-touch connector for power supply/FG: 0.66 to 0.98mm²(AWG#18) [ϕ 2.2 to 3.0] Wire diameter 0.16mm or more One-touch connector for analog I/O: ・ ϕ 1.0 to 1.4 (A6CON-P214), ϕ 1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2mm²] ・ ϕ 1.0 to 1.4 (A6CON-P514), ϕ 1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5mm²]		×	Change in wiring is required.
Applicable wire size	0.75 to 2mm² (applicable tightening torque 7kg ・ cm)				
Applicable solderless terminal	V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A				
24VDC internal current consumption	0.3A	0.1A		○	
Weight	1.01kg	0.17kg		○	
External dimensions	170(H) × 100(W) × 80(D)mm	115(H) × 41(W) × 67(D)mm		×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A68ADC	AJ65VBTCU-68ADVN/ AJ65VBTCU-68ADIN	Compati-bility	Precautions for replacement
Averaging processing A/D conversion system	A/D conversion is performed according to set times or set processing time on a channel, which is specified for the averaging processing to be performed on by the programmable controller CPU. After the conversion, the maximum and minimum values are removed, and the remaining total is averaged and the results are stored in the buffer memory.	A/D conversion is performed according to set times or set processing time on a channel, which is specified for the averaging processing to be performed on. After the conversion, the results are stored in the remote register.	○	
Specification of channel to use	The A68ADC has 8 channels of an A/D conversion circuit. Execution/non-execution of A/D conversion can be specified on each of those channels. With the programmable controller CPU, the channel to execute A/D conversion on is specified to address 0 (specification of channel to use) of the buffer memory.	Enable (execute)/disable (do not execute) A/D conversion is specified on each channel. By making unused channels conversion prohibited, sampling period can be shortened.	○	
Offset/gain setting	Changes the I/O conversion characteristics.		○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.

For details on I/O signals and sequence programs, refer to the User's Manual.

A68ADC				AJ65VBTCU-68ADVN/AJ65VBTCU-68ADIN			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0	CH1 A/D Conversion complete flag	RYn0 to RY(n+1)7	Use prohibited
				RXn1	CH2 A/D Conversion completed flag		
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal *1	RXn2	CH3 A/D Conversion completed flag		
				RXn3	CH4 A/D Conversion completed flag		
				RXn4	CH5 A/D Conversion completed flag		
X(n+5)	A68ADC reset switch ON detection flag	Y(n+5)	Reset switch ON detection flag reset signal	RXn5	CH6 A/D Conversion completed flag		
				RXn6	CH7 A/D Conversion completed flag		
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RXn7	CH8 A/D Conversion completed flag		
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal *1	RXn8 to RXnB	Use prohibited		
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+1F)	Use prohibited	RXnC	E^2PROM write error flag		
				RXnD to RX(n+1)7	Use prohibited		
X(n+18)	A/D conversion READY			RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data processing complete flag
				RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
X(n+19) to X(n+1F)	Use prohibited			RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
				RX(n+1)B	Remote READY	RY(n+1)B to RY(n+5)F	Use prohibited
				RX(n+1)C to RX(n+5)F	Use prohibited		

*1: The signal contents differ when a version B A68ADC is combined with a version B A2CCPU.

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memory and sequence programs, refer to the User's Manual.

A68ADC			AJ65VBTCU-68ADVN/AJ65VBTCU-68ADIN		
Address	Name	Read/write	Address	Name	Read/write
0	Specification of channel to use	R/W	RWwm+0	A/D conversion enable/disable specification	W
1	Averaging processing specification		RWwm+1	CH1 to 4 input range setting	
2	CH1 Averaging time, count		RWwm+2	CH5 to 8 input range setting	
3	CH2 Averaging time, count		RWwm+3	Averaging processing specification	
4	CH3 Averaging time, count		RWwm+4	CH1 Averaging time, count	
5	CH4 Averaging time, count		RWwm+5	CH2 Averaging time, count	
6	CH5 Averaging time, count		RWwm+6	CH3 Averaging time, count	
7	CH6 Averaging time, count		RWwm+7	CH4 Averaging time, count	
8	CH7 Averaging time, count		RWwm+8	CH5 Averaging time, count	
9	CH8 Averaging time, count		RWwm+9	CH6 Averaging time, count	
10	CH1 Digital output value	R	RWwm+A	CH7 Averaging time, count	
11	CH2 Digital output value		RWwm+B	CH8 Averaging time, count	
12	CH3 Digital output value		RWrn+0	CH1 Digital output value	R
13	CH4 Digital output value		RWrn+1	CH2 Digital output value	
14	CH5 Digital output value		RWrn+2	CH3 Digital output value	
15	CH6 Digital output value		RWrn+3	CH4 Digital output value	
16	CH7 Digital output value		RWrn+4	CH5 Digital output value	
17	CH8 Digital output value		RWrn+5	CH6 Digital output value	
18	Write data error code	R/W	RWrn+6	CH7 Digital output value	
19	A/D conversion completed flag	R	RWrn+7	CH8 Digital output value	
			RWrn+8	Error code	
			RWrn+9 to RWrn+B	Use prohibited	–

6.2.2 Analog output module comparison

(1) Comparisons between A64DAVC and AJ65BT-64DAV

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A64DAVC</th><th>AJ65BT-64DAV</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Digital output</td><td>(1) 16-bit signed binary value
(2) Setting range:<table><tr><th>Set resolution</th><th>Setting range</th></tr><tr><td>1/4000</td><td>-4000 to 4000</td></tr><tr><td>1/8000</td><td>-8000 to 8000</td></tr><tr><td>1/12000</td><td>-12000 to 12000</td></tr></table></td><td>16bits signed binary
(valid bits: 12 bits)
-2048 to +2047</td><td>×</td><td>The setting range has been changed.</td></tr>
<tr><td>Analog output</td><td>-10 to 0 to 10VDC
(external load resistance: 2kΩ to 1MΩ)</td><td>Voltage: -10 to +10VDC
(external load resistance: 2kΩ to 1MΩ)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th></th><th colspan="3">Digital value resolution</th><th rowspan="2">Analog output value*</th></tr><tr><th>Digital input value</th><th>1/4000</th><th>1/8000</th><th>1/12000</th></tr><tr><td>4000</td><td>8000</td><td>12000</td><td>+10V</td></tr><tr><td>2000</td><td>4000</td><td>6000</td><td>+5V</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0V</td></tr><tr><td>-2000</td><td>-4000</td><td>-6000</td><td>-5V</td></tr><tr><td>-4000</td><td>-8000</td><td>-12000</td><td>-10V</td></tr></table>* When the offset value is set to 0V and the gain value is set to 10V</td><td><table><tr><th>Digital input value</th><th>Analog conversion value</th></tr><tr><td>+2000</td><td>+10V</td></tr><tr><td>+1000</td><td>+5V</td></tr><tr><td>0</td><td>± 0V</td></tr><tr><td>-1000</td><td>-5V</td></tr><tr><td>-2000</td><td>-10V</td></tr></table></td><td>△</td><td>The digital input range is different.</td></tr>
<tr><td>Maximum resolution of digital value</td><td>0.83mV (1/12000)</td><td>5mV (1/2000)</td><td>×</td><td>The maximum resolution is different.</td></tr>
<tr><td>Overall accuracy (accuracy of maximum value)</td><td colspan="2">± 1.0% (± 100mV)</td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Within 25ms/4 channels
(1 channel is same period of time)</td><td>Max. 1ms/channel
(4ms/4 channels)</td><td>○</td><td></td></tr>
<tr><td>Number of analog output points</td><td colspan="2">4 channels/module</td><td>○</td><td></td></tr>
<tr><td>Insulation method</td><td>Between the output terminal and programmable controller power supply: Photocoupler isolation
(non-isolated between channels)</td><td>Between output channels: Non-isolated
Between external power supply and analog output: Transformer insulation</td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td>2 stations
(RX/RY 32 points each, RWr/RWw 8 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
<tr><td>Connected terminal</td><td>47-point terminal block</td><td>27-point terminal block</td><td>×</td><td rowspan="3">Change in wiring is required.</td></tr>
<tr><td>Applicable wire size</td><td colspan="2">0.75 to 2mm^2 (applicable tightening torque 39 to 59N · cm)</td><td>○</td></tr>
<tr><td>Applicable solderless terminal</td><td>V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A</td><td>RAV1.25-3.5
(comforting to JIS C 2805), RAV2-3.5</td><td>×</td></tr>
<tr><td>24VDC internal current consumption</td><td>0.12A</td><td>0.18A</td><td>×</td><td>The current consumption has increased.</td></tr>
<tr><td>Weight</td><td>1.01kg</td><td>0.4kg</td><td>○</td><td></td></tr>
<tr><td>External dimensions</td><td>170(H) × 100(W) × 80(D) mm</td><td>65(H) × 151.9(W) × 63(D) mm</td><td>×</td><td>The overall size differs. Pay attention to the mounting dimensions.</td></tr>
</table>

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAVC	AJ65BT-64DAV	Compati-bility	Precautions for replacement
Analog output enable signal	With the analog output enable signals (Yn+18 to Yn+1B), it is possible to select the type of output values at each channel from D/A converted analog values and output offset values.	By turning the analog output enable signal ON or OFF with the sequence program, it is possible to select the type of output values at each channel from D/A converted analog values and output offset values. Note, however, that the D/A conversion time (conversion speed) is fixed regardless of the setting of the analog output enable signal.	○	
Analog output enable/disable setting	Stores the channel to disable analog output from (0V/0mA) in the buffer memory of the A64DAVC.	By writing "0" or "1" to the address of the remote register using the sequence program, it is possible to select on each channel whether to enable or disable outputs of analog values.	○	
HOLD/CLEAR setting	In preparation for the event that the programmable controller CPU enters a stop status or an error status, select HOLD or CLEAR (offset values or 0V/0mA) analog values that are stored before a stop or an error occurrence using the HOLD/CLEAR terminal.	In preparation for the event that the programmable controller CPU enters a stop status or the AJ65BT-64DAV stops D/A conversion due to an error, the HLD/CLR terminal can be used to select whether to hold or clear analog values (output offset values) that are being output from each channel right before those stops. The HLD/CLR terminal is provided on the front of the module and this selection can be made on all channels at once. (Including the case of the disconnections of link communication)	○	
Offset/gain setting	Changes the I/O conversion characteristics.	I/O conversion characteristics can be changed as desired when the detailed ones are required. To do this, short the test mode terminal to enter a test mode, and configure the offset/gain settings for each channel without a aid of a various register. Also, if detailed I/O conversion characteristics are not required, the default offset/gain values can be used by turning on the I/O signal RYn4 (offset/gain selection) to the master station.	○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.

For details on I/O signals and sequence programs, refer to the User's Manual.

<table>
<tr><th colspan="4">A64DAVC</th><th colspan="4">AJ65BT-64DAV</th></tr>
<tr><th>Device No.</th><th>Description</th><th>Device No.</th><th>Description</th><th>Device No.</th><th>Description</th><th>Device No.</th><th>Description</th></tr>
<tr><td rowspan="6">X(n+0)
to
X(n+3)</td><td rowspan="6">Use prohibited</td><td rowspan="6">Y(n+0)
to
Y(n+3)</td><td rowspan="6">Use prohibited</td><td rowspan="6">RXn0
to
RXnF</td><td rowspan="7">Use prohibited</td><td>RYn0</td><td>CH1 Enable signal flag for analog output</td></tr>
<tr><td>RYn1</td><td>CH2 Enable signal flag for analog output</td></tr>
<tr><td>RYn2</td><td>CH3 Enable signal flag for analog output</td></tr>
<tr><td>RYn3</td><td>CH4 Enable signal flag for analog output</td></tr>
<tr><td>RYn4</td><td>Offset/gain value selection</td></tr>
<tr><td rowspan="2">X(n+4)</td><td rowspan="2">Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error</td><td rowspan="2">Y(n+4)</td><td rowspan="2">Error detection reset signal</td><td>RYn5 to RYnF</td><td rowspan="2">Use prohibited</td></tr>
<tr><td>RX(n+1)0
to
RX(n+1)7</td><td>RY(n+1)0
to
RY(n+1)7</td></tr>
<tr><td>X(n+5)</td><td>A64DAVC reset switch ON detection flag</td><td>Y(n+5)</td><td>Reset signal for reset switch ON detection flag</td><td>RX(n+1)8</td><td>Initial data processing request flag</td><td>RY(n+1)8</td><td>Initial data processing complete flag</td></tr>
<tr><td>X(n+6)</td><td>Use prohibited</td><td>Y(n+6)</td><td>Use prohibited</td><td>RX(n+1)9</td><td>Initial data setting complete flag</td><td>RY(n+1)9</td><td>Initial data setting request flag</td></tr>
<tr><td>X(n+7)</td><td>Communication completion response signal wait flag</td><td>Y(n+7)</td><td>Communication reset signal</td><td>RX(n+1)A</td><td>Error status flag</td><td>RY(n+1)A</td><td>Error reset request flag</td></tr>
<tr><td>X(n+8)
to
X(n+17)</td><td>Use prohibited</td><td>Y(n+8)
to
Y(n+17)</td><td>Use prohibited</td><td>RX(n+1)B</td><td>Remote READY</td><td>RY(n+1)B</td><td rowspan="5">Use prohibited</td></tr>
<tr><td rowspan="4">X(n+18)</td><td rowspan="4">D/A conversion READY</td><td>Y(n+18)</td><td>CH1 Analog output enable signal</td><td>RX(n+1)C</td><td rowspan="4">Use prohibited</td><td>RY(n+1)C</td></tr>
<tr><td>Y(n+19)</td><td>CH2 Analog output enable signal</td><td>RX(n+1)D</td><td>RY(n+1)D</td></tr>
<tr><td>Y(n+1A)</td><td>CH3 Analog output enable signal</td><td>RX(n+1)E</td><td>RY(n+1)E</td></tr>
<tr><td>Y(n+1B)</td><td>CH4 Analog output enable signal</td><td>RX(n+1)F</td><td>RY(n+1)F</td></tr>
<tr><td>X(n+19)
to
X(n+1F)</td><td>Use prohibited</td><td>Y(n+1C)
to
Y(n+1F)</td><td>Use prohibited</td><td colspan="4"></td></tr>
</table>

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64DAVC			AJ65BT-64DAV		
Address	Name	Read/write	Address	Name	Read/write
0	CH1 Digital value setting area	R/W	RWwm	CH1 Digital value setting area	W
1	CH2 Digital value setting area		RWwm+1	CH2 Digital value setting area	
2	CH3 Digital value setting area		RWwm+2	CH3 Digital value setting area	
3	CH4 Digital value setting area		RWwm+3	CH4 Digital value setting area	
4	CH1 Analog output disable/enable setting area		RWwm+4	Analog output enable/disable area	
5	CH2 Analog output disable/enable setting area		RWwm+5	Use prohibited	–
6	CH3 Analog output disable/enable setting area		RWwm+6		
7	CH4 Analog output disable/enable setting area		RWwm+7		
8	Resolution of digital value setting area		RWrn	CH1 Set value check code	R
9	Error code storage area		RWrn+1	CH2 Set value check code	
			RWrn+2	CH3 Set value check code	
			RWrn+3	CH4 Set value check code	
			RWrn+4	Error code	
			RWrn+5	Use prohibited	–
			RWrn+6		
			RWrn+7		

(2) Comparisons between A64DAVC and AJ65SBT-62DA

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A64DAVC</th><th>AJ65SBT-62DA</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Digital input</td><td>(1) 16-bit signed binary value
(2) Setting range:
<table><tr><th>Set resolution</th><th>Setting range</th></tr><tr><td>1/4000</td><td>-4000 to 4000</td></tr><tr><td>1/8000</td><td>-8000 to 8000</td></tr><tr><td>1/12000</td><td>-12000 to 12000</td></tr></table></td><td>Voltage: 16bits signed binary
(-4096 to +4095)
Current: 16bits signed binary
(0 to 4095)</td><td>×</td><td>The setting range has been changed.</td></tr>
<tr><td>Analog output</td><td>-10 to 0 to 10VDC
(external load resistance:
2kΩ to 1MΩ)</td><td>Voltage: -10 to +10VDC
(external load resistance:
2kΩ to 1MΩ)
Current: 0 to 20mA DC
(external load resistance: 0 to 600Ω)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th></th><th colspan="3">Digital value resolution</th><th rowspan="2">Analog output value*</th></tr><tr><th></th><th>1/4000</th><th>1/8000</th><th>1/12000</th></tr><tr><td rowspan="5">Digital input value</td><td>4000</td><td>8000</td><td>12000</td><td>+10V</td></tr><tr><td>2000</td><td>4000</td><td>6000</td><td>+5V</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0V</td></tr><tr><td>-2000</td><td>-4000</td><td>-6000</td><td>-5V</td></tr><tr><td>-4000</td><td>-8000</td><td>-12000</td><td>-10V</td></tr></table>* When the offset value is set to 0V and the gain value is set to 10V</td><td><table><tr><th></th><th>Digital input value</th><th>Analog output</th><th>Accuracy
Ambient temperature 0 to 55℃</th><th>Accuracy
Ambient temperature 25±5℃</th><th>Maximum resolution</th></tr><tr><td rowspan="4">Voltage</td><td rowspan="2">-4000 to +4000</td><td>-10 to +10V</td><td rowspan="2">±0.4%
(±40mV)</td><td rowspan="2">±0.2%
(±20mV)</td><td>2.5mV</td></tr><tr><td>User range setting 1 (-10 to +10V)</td><td>2.5mV</td></tr><tr><td rowspan="2">0 to 4000</td><td>0 to 5V</td><td rowspan="2">±0.4%
(±20mV)</td><td rowspan="2">±0.2%
(±10mV)</td><td>1.25mV</td></tr><tr><td>1 to 5V
User range setting 2 (0 to 5V)</td><td>1.0mV</td></tr><tr><td rowspan="3">Current</td><td rowspan="3">0 to 4000</td><td>0 to 20mA</td><td rowspan="3">±0.4%
(±80μA)</td><td rowspan="3">±0.2%
(±40μA)</td><td>5μA</td></tr><tr><td>4 to 20mA</td><td>4μA</td></tr><tr><td>User range setting 3 (0 to 20mA)</td><td></td></tr></table></td><td>△</td><td>The digital input range is different.</td></tr>
<tr><td>Maximum resolution of digital value</td><td>0.83mV(1/12000)</td><td rowspan="2">Factory-set: -10 to +10V.</td><td>×</td><td>The maximum resolution is different.</td></tr>
<tr><td>Overall accuracy (accuracy of maximum value)</td><td>±1.0% (±100mV)</td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Within 25ms/4 channels
(1 channel is same period of time)</td><td>1ms/channel</td><td>○</td><td></td></tr>
<tr><td>Absolute maximum output</td><td>–</td><td>Voltage: ±12V, current: +21mA</td><td>○</td><td></td></tr>
<tr><td>Number of analog output points</td><td>4 channels/module</td><td>2 channels/module</td><td>×</td><td>Please consider replacing by using two or more AJ65SBT-62DA modules.</td></tr>
<tr><td>Insulation method</td><td>Between the output terminal and programmable controller power supply:
Photocoupler isolation
(non-isolation between channels)</td><td>Between communication line and all analog outputs:
Photocoupler isolation
between power supply line and all analog outputs:
Photocoupler isolation
(non-isolated between channels)</td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td>1 station
(RX/RY 32 points each,
RWr/RWw 4 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
</table>

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAVC	AJ65SBT-62DA	Compati-bility	Precautions for replacement
Connected terminal	47-point terminal block	25-point terminal block	×	Change in wiring is required.
Applicable wire size	0.75 to 2mm^2 (Applicable tightening torque 39 to 59 N ▪ cm)	0.3 to 0.75mm^2	×	
Applicable solderless terminal	V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	▪ RAV1.25-3 (conforming to JIS C 2805) [Applicable wire size: 0.3 to 1.25mm^2] ▪ V2-MS3, RAV2-3SL, TGV2-3N [Applicable wire size: 1.25 to 2.0mm^2]	×	
24VDC internal current consumption	0.12A	0.16A	×	The current consumption has increased.
Weight	1.01kg	0.20kg	○	
External dimensions	170(H) × 100(W) × 80(D)mm	50(H) × 118(W) × 40(D)mm	×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAVC	AJ65SBT-62DA	Compati-bility	Precautions for replacement
D/A output enable/disable function	Selects on each channel whether to output D/A conversion values or offset values. Note, however, that the conversion speed is fixed regardless of the output enable/disable setting.	Selects on each channel whether to output D/A conversion values or offset values. Note, however, that the conversion speed is fixed regardless of the output enable/disable setting.	○	
D/A conversion enable/disable function	–	Selects whether to enable or disable D/A conversion on each channel. By making unused channels D/A conversion prohibited, sampling period can be shortened.	–	
Output range switching function	–	Sets the analog output range on each channel and changes the I/O conversion characteristics. The following eight input ranges can be selected: Output range / Set value: -10 to +10V: 0_H 0 to 5V: 1_H 1 to 5V: 2_H 0 to 20mA: 3_H 4 to 20mA: 4_H User range setting 1 (-10 to +10V): 5_H User range setting 2 (0 to 5V): 6_H User range setting 3 (0 to 20mA): 7_H	–	
HOLD/CLEAR setting	As the analog output status of the programmable controller CPU that is in RUN, at STOP, or in an error status, switching the type of output values as desired between D/A conversion values, offset values and 0V/0mA is possible.	In preparation for the event that the programmable controller CPU enters a stop status or the AJ65SBT-62DA stops D/A conversion due to an error, this settings can be configured to select whether to hold or clear analog values (output offset values) that are being output from each channel right before those stops.	○	
Offset/gain value selection	Changes the I/O conversion characteristics.	Changes the I/O conversion characteristics as desired. For that, offset/gain settings can be configured for each channel without a aid of a various register.	○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.
For details on I/O signals and sequence programs, refer to the User's Manual.

A64DAVC				AJ65SBT-62DA			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0 to RXnB	Use prohibited	RYn0	CH1 Analog output enable/disable flag
				RXnC	E^2PROM write error flag	RYn1	CH2 Analog output enable/disable flag
				RXnD	Use prohibited	RYn2 toRY(n+1)7	Use prohibited
				RxnE			
				RXnF	Test mode flag		
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal	RX(n+1)0 to RX(n+1)7	Use prohibited		
X(n+5)	A64DAVC reset switch ON detection flag	Y(n+5)	Reset signal for reset switch ON detection flag	RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data processing complete flag
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal	RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+17)	Use prohibited	RX(n+1)B	Remote READY	RY(n+1)B to RY(n+1)F	Use prohibited
X(n+18)	D/A conversion READY	Y(n+18)	CH1 Analog output enable signal	RX(n+1)C to RX(n+1)F	Use prohibited		
		Y(n+19)	CH2 Analog output enable signal				
		Y(n+1A)	CH3 Analog output enable signal				
		Y(n+1B)	CH4 Analog output enable signal				
X(n+19) to X(n+1F)	Use prohibited	Y(n+1C) to Y(n+1F)	Use prohibited				

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64DAVC			AJ65SBT-62DA		
Address	Name	Read/write	Address	Name	Read/write
0	CH1 Digital value setting area	R/W	RWwm	CH1 Digital value setting	W
1	CH2 Digital value setting area		RWwm+1	CH2 Digital value setting	
2	CH3 Digital value setting area		RWwm+2	Analog output enable/disable setting	
3	CH4 Digital value setting area		RWwm+3	Output range HOLD/CLEAR setting	
4	CH1 Analog output disable/enable setting area		RWrn	CH1 Check code	R
5	CH2 Analog output disable/enable setting area		RWrn+1	CH2 Check code	
6	CH3 Analog output disable/enable setting area		RWrn+2	Error code	
7	CH4 Analog output disable/enable setting area		RWrn+3	Use prohibited	
8	Resolution of digital value setting area				
9	Error code storage area				

(3) Comparisons between A64DAVC and AJ65VBTCU-68DAVN

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A64DAVC</th><th>AJ65VBTCU-68DAVN</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Digital input</td><td>(1) 16-bit signed binary value
(2) Setting range:
<table><tr><th>Set resolution</th><th>Setting range</th></tr><tr><td>1/4000</td><td>-4000 to 4000</td></tr><tr><td>1/8000</td><td>-8000 to 8000</td></tr><tr><td>1/12000</td><td>-12000 to 12000</td></tr></table></td><td>16bits signed binary
(-4096 to +4095)</td><td>×</td><td>The setting range has been changed.</td></tr>
<tr><td>Analog output</td><td>-10 to 0 to 10VDC
(external load resistance:
2kΩ to 1MΩ)</td><td>-10 to +10V DC
(external load resistance:
2kΩ to 1MΩ)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th rowspan="2">Digital input value</th><th colspan="3">Digital value resolution</th><th rowspan="2">Analog output value*</th></tr><tr><th>1/4000</th><th>1/8000</th><th>1/12000</th></tr><tr><td>4000</td><td>8000</td><td>12000</td><td>+10V</td></tr><tr><td>2000</td><td>4000</td><td>6000</td><td>+5V</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0V</td></tr><tr><td>-2000</td><td>-4000</td><td>-6000</td><td>-5V</td></tr><tr><td>-4000</td><td>-8000</td><td>-12000</td><td>-10V</td></tr></table>* When the offset value is set to 0V and the gain value is set to 10V</td><td><table><tr><th rowspan="2">Voltage</th><th rowspan="2">Digital input value</th><th rowspan="2">Analog output range</th><th colspan="2">Accuracy</th><th rowspan="2">Maximum resolution</th></tr><tr><th>Ambient temperature 0 to 55℃</th><th>Ambient temperature 25±5℃</th></tr><tr><td rowspan="5">-4000 to +4000</td><td>-10 to +10V</td><td rowspan="2">±0.3% (±30mV)</td><td rowspan="2">±0.2% (±20mV)</td><td rowspan="2">2.5mV</td></tr><tr><td>User range setting 1 (-10 to +10V)</td></tr><tr><td>0 to 5V</td><td rowspan="3">±0.3% (±15mV)</td><td rowspan="3">±0.2% (±10mV)</td><td>1.25mV</td></tr><tr><td>1 to 5V</td><td rowspan="2">1.0mV</td></tr><tr><td>User range setting 2 (0 to 5V)</td></tr><tr><td>0 to 4000</td><td colspan="4"></td></tr></table></td><td>△</td><td>The digital input range is different.</td></tr>
<tr><td>Maximum resolution of digital value</td><td>0.83mV(1/12000)</td><td></td><td>×</td><td>The maximum resolution is different.</td></tr>
<tr><td>Overall accuracy (accuracy relative to maximum value)</td><td>±1.0% (±100mV)</td><td></td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Within 25ms/4 channels
(1 channel is same period of time)</td><td>1ms/channel</td><td>○</td><td></td></tr>
<tr><td>Absolute maximum output</td><td>–</td><td>±12V</td><td>○</td><td></td></tr>
<tr><td>Analog output points</td><td>4 channels/module</td><td>8 channels/module</td><td>△</td><td>The number of channels has increased.</td></tr>
<tr><td>Insulation method</td><td>Between the output terminal and programmable controller power supply: Photocoupler isolation
(non-isolated between channels)</td><td><table><tr><th>Isolated locations</th><th>Isolation method</th><th>Dielectric withstand voltage</th><th>Isolation resistance</th></tr><tr><td>Between communication line and all analog outputs:</td><td>Photocoupler</td><td rowspan="2">500VAC for 1 minute</td><td rowspan="2">500VDC 5MΩ or more by isolation resistance tester</td></tr><tr><td>Between power supply line and all analog outputs:</td><td>Transformer</td></tr><tr><td>Between channels</td><td>Non-isolated</td><td>-</td><td>-</td></tr></table></td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td>When set to Ver.1 remote device station (Ver.1 compatible slave station): 3 stations
(RX/RY 32 points each,
RWr/RWw 12 points each)
When set to Ver.2 remote device station (Ver.2 compatible slave station): 1 station
(Expanded cyclic setting: 4X)
(RX/RY 32 points each,
RWr/RWw 16 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
</table>

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAVC	AJ65VBTCU-68DAVN	Compati-bility	Precautions for replacement
Connected terminal	47-point terminal block	One-touch connector for communication: Communication line: Ver.1.10-compatible CC-Link dedicated cable 0.5mm^2 (AWG 20)[ϕ2.2 to 3.0], shield wire 0.5mm^2 (AWG 20) One-touch connector for power supply/FG: 0.66 to 0.98mm^2(AWG 18)[ϕ2.2 to 3.0] wire diameter 0.16mm or more One-touch connector for analog I/O: • ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2mm^2] • ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2mm^2]	×	Change in wiring is required.
Applicable wire size	0.75 to 2mm^2 (Applicable tightening torque 39 to 59 N・cm)			
Applicable solderless terminal	V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A			
24VDC internal current consumption	0.12A	0.15A	×	The current consumption has increased.
Weight	1.01kg	0.16kg	○	
External dimensions	170(H) × 100(W) × 80(D) mm	115(H) × 41(W) × 67(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAVC	AJ65VBTCU-68DAVN	Compati-bility	Precautions for replacement
D/A output enable/disable function	Selects on each channel whether to output D/A conversion values or offset values. Note, however, that the conversion speed is fixed regardless of the output enable/disable setting.	Selects on each channel whether to output D/A conversion values or offset values. Note, however, that the conversion speed is fixed regardless of the output enable/disable setting.	○	
D/A conversion enable/disable function	–	Selects whether to enable or disable D/A conversion on each channel. By making unused channels D/A conversion prohibited, sampling period can be shortened.	–	
Output range switching function	–	Sets the analog output range on each channel and changes the I/O conversion characteristics. The following five output ranges can be selected: Output range / Set value -10 to +10V / 0_H 0 to 5V / 1_H 1 to 5V / 2_H User range setting 1 (-10 to +10V) / 3_H User range setting 2 (0 to 5V) / 4_H	–	
HOLD/CLEAR setting	As the analog output status of the programmable controller CPU that is in RUN, at STOP, or in an error status, switching the type of output values as desired between D/A conversion values, offset values and 0V/0mA is possible. D/A conversion value outputs, offset value outputs and 0V/0mA outputs can be revised arbitrarily.	In preparation for the event that the programmable controller CPU enters a stop status or the AJ65VBTCU-68DAVN stops D/A conversion due to an error, this settings can be configured to select whether to hold or clear analog values (output offset values) that are being output from each channel right before those stops.	○	
Offset/gain value selection	Changes the I/O conversion characteristics.	Changes the I/O conversion characteristics as desired. For that, offset/gain settings can be configured for each channel without a aid of a various register.	○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.

For details on I/O signals and sequence programs, refer to the User's Manual.

A64DAVC				AJ65VBTCU-68DAVN			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0 to RXnB	Use prohibited	RYn0	CH1 Analog output enable/disable flag
						RYn1	CH2 Analog output enable/disable flag
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal			RYn2	CH3 Analog output enable/disable flag
				RXnC	E^2PROM write error flag	RYn3	CH4 Analog output enable/disable flag
				RXnD to RX(n+1)7	Use prohibited	RYn4	CH5 Analog output enable/disable flag
X(n+5)	A64DAVC reset switch ON detection flag	Y(n+5)	Reset switch ON detection flag			RYn5	CH6 Analog output enable/disable flag
						RYn6	CH7 Analog output enable/disable flag
						RYn7	CH8 Analog output enable/disable flag
X(n+6)	Use prohibited	Y(n+6)	Use prohibited			RYn8 to RY(n+1)7	Use prohibited
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal				
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+17)	Use prohibited	RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data processing complete flag
X(n+18)	A/D conversion READY	Y(n+18)	CH1 Analog output enable signal	RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
		Y(n+19)	CH2 Analog output enable signal	RX(n+1)A	Error status flag	RY(n+1)A	Error reset
		Y(n+1A)	CH3 Analog output enable signal	RX(n+1)B	Remote READY	RY(n+1)B to RY(n+5)F	Use prohibited
		Y(n+1B)	CH4 Analog output enable signal	RX(n+1)C to RX(n+5)F	Use prohibited		
X(n+19) to X(n+1F)	Use prohibited	Y(n+1C) to Y(n+1F)	Use prohibited				

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64DAVC			AJ65VBTCU-68DAVN		
Address	Name	Read/write	Address	Name	Read/write
0	CH1 Digital value setting area	R/W	RWwm+0	CH1 Digital value setting	W
1	CH2 Digital value setting area		RWwm+1	CH2 Digital value setting	
2	CH3 Digital value setting area		RWwm+2	CH3 Digital value setting	
3	CH4 Digital value setting area		RWwm+3	CH4 Digital value setting	
4	CH1 Analog output disable/enable setting area		RWwm+4	CH5 Digital value setting	
5	CH2 Analog output disable/enable setting area		RWwm+5	CH6 Digital value setting	
6	CH3 Analog output disable/enable setting area		RWwm+6	CH7 Digital value setting	
7	CH4 Analog output disable/enable setting area		RWwm+7	CH8 Digital value setting	
8	Resolution of digital value setting area		RWwm+8	Analog output enable/disable setting	
9	Error code storage area		RWwm+9	CH1 to CH4 Output range setting	
			RWwm+A	CH5 to CH8 Output range setting	
			RWwm+B	HOLD/CLEAR setting	
			RWrn+0	CH1 Check code	R
			RWrn+1	CH2 Check code	
			RWrn+2	CH3 Check code	
			RWrn+3	CH4 Check code	
			RWrn+4	CH5 Check code	
			RWrn+5	CH6 Check code	
			RWrn+6	CH7 Check code	
			RWrn+7	CH8 Check code	
			RWrn+8	Error code	
			RWrn+9 to RWrn+B	Use prohibited	–

(4) Comparisons between A64DAIC and AJ65BT-64DAI

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A64DAIC</th><th>AJ65BT-64DAI</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Digital input</td><td>(1) 16-bit signed binary value
(2) Setting range:
<table><tr><th>Set resolution</th><th>Setting range</th></tr><tr><td>1/4000</td><td>0 to 4000</td></tr><tr><td>1/8000</td><td>0 to 8000</td></tr><tr><td>1/12000</td><td>0 to 12000</td></tr></table></td><td>16bits signed binary
(valid bits: 12 bits)
0 to 4095</td><td>×</td><td>The setting range has been changed.</td></tr>
<tr><td>Analog output</td><td colspan="2">0 to 20mA DC
(external load resistance: 0 to 600 Ω)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th></th><th colspan="3">Digital value resolution</th><th>Analog output value*</th></tr><tr><th></th><th>1/4000</th><th>1/8000</th><th>1/12000</th><th></th></tr><tr><td rowspan="3">Digital input value</td><td>4000</td><td>8000</td><td>12000</td><td>+20mA</td></tr><tr><td>2000</td><td>4000</td><td>6000</td><td>+12mA</td></tr><tr><td>0</td><td>0</td><td>0</td><td>+4mA</td></tr></table>* When the offset value is set to 4mA and the gain value is set to 20mA</td><td><table><tr><th>Digital input value</th><th>Analog conversion value</th></tr><tr><td>4000</td><td>+20mA</td></tr><tr><td>2000</td><td>+12mA</td></tr><tr><td>0</td><td>+4mA</td></tr></table></td><td>△</td><td>The digital input range is different.</td></tr>
<tr><td>Maximum resolution of digital value</td><td>1.3 μA(1/2000)</td><td>4 μA(1/4000)</td><td>×</td><td>The maximum resolution is different.</td></tr>
<tr><td>Overall accuracy (accuracy relative to maximum value)</td><td colspan="2">± 1.0%(± 200 μA)</td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Within 25ms/4 channels
(1 channel is same period of time)</td><td>Max. 1ms/channel
(4ms/4 channels)</td><td>○</td><td></td></tr>
<tr><td>Analog output</td><td colspan="2">4 channels/module</td><td>○</td><td></td></tr>
<tr><td>Insulation method</td><td>Between the output terminal and programmable controller power supply: Photocoupler isolation
(non-isolated between channels)</td><td>Between output channels: Non-isolated
(Between external power supply and analog output: Transformer isolation)</td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td>2 stations:
(RX/RY 32 points each,
RWr/RWw 8 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
<tr><td>Connected terminal</td><td>47-point terminal block</td><td>27-point terminal block</td><td>×</td><td rowspan="3">Change in wiring is required.</td></tr>
<tr><td>Applicable wire size</td><td colspan="2">0.75 to 2mm^2 (applicable tightening torque 39 to 59N ▪ cm)</td><td>○</td></tr>
<tr><td>Applicable solderless terminal</td><td>V1.25-3, V1.25-YS3A,
V2-S3, V2-YS3A</td><td>RAV1.25-3.5
(conforming to JIS C 2805),
RAV2-3.5</td><td>×</td></tr>
<tr><td>24VDC internal current consumption</td><td>0.15A</td><td>0.27A</td><td>×</td><td>The current consumption has increased.</td></tr>
<tr><td>Weight</td><td>1.01kg</td><td>0.4kg</td><td>○</td><td></td></tr>
<tr><td>External dimensions</td><td>170(H) × 100(W) × 80(D) mm</td><td>65(H) × 151.9(W) × 63(D) mm</td><td>×</td><td>The overall size differs. Pay attention to the mounting dimensions.</td></tr>
</table>

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAIC	AJ65BT-64DAI	Compati-bility	Precautions for replacement
Analog output enable signal	With the analog output enable signals (Yn+18 to Yn+1B), it is possible to select the type of output values at each channel from D/A converted analog values and output offset values.	By turning the analog output enable signal ON or OFF with the sequence program, it is possible to select the type of output values at each channel from D/A converted analog values and output offset values. Note, however, that the D/A conversion time (conversion speed) is fixed regardless of the setting of the analog output enable signal.	○	
Analog output enable/disable setting	Stores the channel to disable analog output from (0V/0mA) in the buffer memory of the A64DAIC.	By writing "0" or "1" to the address of the remote register using the sequence program, it is possible to select on each channel whether to enable or disable outputs of analog values.	○	
HOLD/CLEAR setting	In preparation for the event that the programmable controller CPU enters a stop status or an error status, the HOLD/CLEAR terminal can be used to select HOLD or CLEAR (offset values or 0V/0mA) analog values that are stored before a stop or an error occurrence.	In preparation for the event that the programmable controller CPU enters a stop status or the AJ65BT-64DAI stops D/A conversion due to an error, the HLD/CLR terminal can be used to select whether to hold or clear analog values (output offset values) that are being output from each channel right before those stops. The HLD/CLR terminal is provided on the front of the module and this selection can be made on all channels at once. (Including the case of the disconnections of link communication)	○	
Offset/gain setting	Changes the I/O conversion characteristics.	I/O conversion characteristics can be changed as desired when the detailed ones are required. To do this, short the test mode terminal to enter a test mode, and configure the offset/gain settings for each channel without a aid of a various register. Also, if detailed I/O conversion characteristics are not required, the default offset/gain values can be used by turning on the I/O signal RYn4 (offset/gain selection) to the master station.	○	

(c) Programmable controller CPU I/O signal comparisons

I/O signal is different, so the sequence program must be changed.

For details on I/O signals and sequence programs, refer to the User's Manual.

A64DAIC				AJ65BT-64DAI			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0 to RXnF	Use prohibited	RYn0	CH1 Analog output enable flag
						RYn1	CH2 Analog output enable flag
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal			RYn2	CH3 Analog output enable flag
						RYn3	CH4 Analog output enable flag
						RYn4	Offset/gain value selection
						RYn5 to RYnF	Use prohibited
X(n+5)	A64DAIC reset switch ON detection flag	Y(n+5)	Reset switch ON detection flag reset signal	RX(n+1)0 to RX(n+1)7		RY(n+1)0 to RY(n+1)7	
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data processing complete flag
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal	RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+17)	Use prohibited	RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
X(n+18)	D/A conversion READY	Y(n+18)	CH1 Analog output enable signal	RX(n+1)B	Remote READY	RY(n+1)B	Use prohibited
X(n+19) to X(n+1F)	Use prohibited	Y(n+19)	CH2 Analog output enable signal	RX(n+1)C	Use prohibited	RY(n+1)C	
		Y(n+1A)	CH3 Analog output enable signal	RX(n+1)D		RY(n+1)D	
		Y(n+1B)	CH4 Analog output enable signal	RX(n+1)E		RY(n+1)E	
		Y(n+1C) to Y(n+1F)	Use prohibited	RX(n+1)F		RY(n+1)F	

(d) Buffer memory addresses comparisons

Buffer memory allocation is different, so the sequence program must be changed.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64DAIC			AJ65BT-64DAI		
Address	Name	Read/write	Address	Name	Read/write
0	CH1 Digital value setting area	R/W	RWwm	CH1 Digital value setting area	W
1	CH2 Digital value setting area		RWwm+1	CH2 Digital value setting area	
2	CH3 Digital value setting area		RWwm+2	CH3 Digital value setting area	
3	CH4 Digital value setting area		RWwm+3	CH4 Digital value setting area	
4	CH1 Analog output disable setting area		RWwm+4	Analog output enable/disable area	
5	CH2 Analog output disable setting area		RWwm+5	Use prohibited	–
6	CH3 Analog output disable setting area		RWwm+6		
7	CH4 Analog output disable setting area		RWwm+7		
8	Resolution of digital value setting area		RWrn	CH1 Set value check code	R
9	Error code storage area		RWrn+1	CH2 Set value check code	
			RWrn+2	CH3 Set value check code	
			RWrn+3	CH4 Set value check code	
			RWrn+4	Error code	
			RWrn+5	Use prohibited	–
			RWrn+6		
			RWrn+7		

(5) Comparisons between A64DAIC and AJ65SBT-62DA

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

<table>
<tr><th>Item</th><th>A64DAIC</th><th>AJ65SBT-62DA</th><th>Compati-bility</th><th>Precautions for replacement</th></tr>
<tr><td>Digital input</td><td>(1) 16-bit signed binary value
(2) Setting range:
<table><tr><th>Set resolution</th><th>Setting range</th></tr><tr><td>1/4000</td><td>0 to 4000</td></tr><tr><td>1/8000</td><td>0 to 8000</td></tr><tr><td>1/12000</td><td>0 to 12000</td></tr></table></td><td>Voltage: 16-bit signed binary
(-4096 to +4095)
Current: 16bits signed binary
(0 to 4095)</td><td>×</td><td>The setting range has been changed.</td></tr>
<tr><td>Analog output</td><td>0 to 20mA DC
(external load resistance: 0 to 600 Ω)</td><td>Voltage: -10 to +10V DC
(external load resistance:
2k Ω to 1M Ω)
0 to 20mA DC
(external load resistance: 0 to 600 Ω)</td><td>○</td><td></td></tr>
<tr><td>I/O characteristics</td><td><table><tr><th></th><th colspan="3">Digital value resolution</th><th>Analog output value*</th></tr><tr><th></th><th>1/4000</th><th>1/8000</th><th>1/12000</th><th></th></tr><tr><td rowspan="3">Digital input value</td><td>4000</td><td>8000</td><td>12000</td><td>+20mA</td></tr><tr><td>2000</td><td>4000</td><td>6000</td><td>+10mA</td></tr><tr><td>0</td><td>0</td><td>0</td><td>+4mA</td></tr></table>* When the offset value is set to 4mA and the gain value is set to 20mA</td><td><table><tr><th></th><th>Digital input value</th><th>Analog output range</th><th>Accuracy
Ambient temperature 0 to 55 ℃</th><th>Accuracy
Ambient temperature 25±5 ℃</th><th>Maximum resolution</th></tr><tr><td rowspan="4">Voltage</td><td rowspan="2">-4000 to +4000</td><td>-10 to +10V</td><td rowspan="2">± 0.4%
(± 40mV)</td><td rowspan="2">± 0.2%
(± 20mV)</td><td>2.5mV</td></tr><tr><td>User range setting1
(-10 to +10V)</td><td>2.5mV</td></tr><tr><td rowspan="3">0 to 4000</td><td>0 to 5V</td><td rowspan="3">± 0.4%
(± 20mV)</td><td rowspan="3">± 0.2%
(± 10mV)</td><td>1.25mV</td></tr><tr><td>1 to 5V</td><td rowspan="2">1.0mV</td></tr><tr><td>User range setting 2
(0 to 5V)</td></tr><tr><td rowspan="3">Current</td><td rowspan="3">0 to 4000</td><td>0 to 20mA</td><td rowspan="3">± 0.4%
(± 80 μ A)</td><td rowspan="3">± 0.2%
(± 40 μ A)</td><td>5 μ A</td></tr><tr><td>4 to 20mA</td><td rowspan="2">4 μ A</td></tr><tr><td>User range setting3
(0 to 20mA)</td></tr></table></td><td>△</td><td>The digital input range is different.</td></tr>
<tr><td>Maximum resolution of digital value</td><td>1.3 μA(1/12000)</td><td rowspan="2">Factory-set: -10 to +10V.</td><td>×</td><td>The maximum resolution is different.</td></tr>
<tr><td>Overall accuracy (accuracy relative to maximum value)</td><td>± 1.0%(± 200 μA)</td><td>○</td><td></td></tr>
<tr><td>Maximum conversion speed</td><td>Within 25ms/4 channels
(1 channel is same period of time)</td><td>1ms/channel</td><td>○</td><td></td></tr>
<tr><td>Number of analog output points</td><td>4 channels/module</td><td>2 channels/module</td><td>×</td><td>Please consider replacing by using two or more AJ65SBT-62DA modules.</td></tr>
<tr><td>Insulation method</td><td>Between the output terminal and programmable controller power supply:
Photocoupler isolation
(non-isolated between channels)</td><td>Between communication line and all analog outputs:
Photocoupler isolation
between power supply line and all analog outputs:
Photocoupler isolation
(non-isolated between channels)</td><td>○</td><td></td></tr>
<tr><td>Number of occupied I/O stations (number of points)</td><td>4 stations (32 points)</td><td>1 stations
(RX/RY 32 points each,
RWr/RWw 4 points each)</td><td>×</td><td>The number of occupied stations has been changed.</td></tr>
<tr><td>Connected terminal</td><td>47-point terminal block</td><td>25-point terminal block</td><td>×</td><td rowspan="3">Change in wiring is required.</td></tr>
<tr><td>Applicable wire size</td><td>0.75 to 2mm^2
(Applicable tightening torque 39 to 59 N ▪ cm)</td><td>0.3 to 0.75mm^2</td><td>×</td></tr>
<tr><td>Applicable solderless terminal</td><td>V1.25-3, V1.25-YS3A,
V2-S3, V2-YS3A</td><td>▪ RAV1.25-3 (conforming to JIS C 2805)
[Applicable wire size: 0.3 to 1.25mm^2]
▪ V2-MS3, RAP2-3SL, TGV2-3N
[Applicable wire size: 1.25 to 2.0mm^2]</td><td>×</td></tr>
</table>

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAIC	AJ65SBT-62DA	Compati-bility	Precautions for replacement
24VDC internal current consumption	0.15A	0.16A	×	The current consumption has increased.
Weight	1.01kg	0.20kg	○	
External dimensions	170(H) × 100(W) × 80(D) mm	50(H) × 118(W) × 40(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64DAIC	AJ65SBT-62DA	Compati-bility	Precautions for replacement
D/A output enable/disable function	Selects on each channel whether to output D/A conversion values or offset values. Note, however, that the conversion speed is fixed regardless of the output enable/disable setting.	Selects on each channel whether to output D/A conversion values or offset values. Note, however, that the conversion speed is fixed regardless of the output enable/disable setting.	○	
D/A conversion enable/disable function	–	Selects whether to enable or disable D/A conversion on each channel. By making unused channels D/A conversion prohibited, sampling period can be shortened.	–	
Output range switching function	–	Sets the analog output range on each channel and changes the I/O conversion characteristics. The following eight output ranges can be selected: Output range / set value -10 to +10V / 0_H 0 to 5V / 1_H 1 to 5V / 2_H 0 to 20mA / 3_H 4 to 20mA / 4_H User range setting 1 (-10 to +10V) / 5_H User range setting 2 (0 to 5V) / 6_H User range setting 3 (0 to 20mA) / 7_H	–	
HOLD/CLEAR setting	As the analog output status of the programmable controller CPU that is in RUN, at STOP, or in an error status, switching the type of output values as desired between D/A conversion values, offset values and 0V/0mA is possible. D/A conversion value outputs, offset value outputs and 0V/0mA outputs can be revised arbitrarily.	In preparation for the event that the programmable controller CPU enters a stop state or the AJ65SBT-62DA stops D/A conversion due to an error, this settings can be configured to select whether to hold or clear analog values (output offset values) that are being output from each channel right before those stops.	○	
Offset/gain setting	Changes the I/O conversion characteristics.	Changes the I/O conversion characteristics as desired. For that, offset/gain settings can be configured for each channel without a aid of a various register.	○	

(c) Programmable controller CPU I/O signal comparisons

The sequence program must be changed as the I/O signals differ.

For details on I/O signals and sequence programs, refer to the User's Manual.

A64DAIC				AJ65SBT-62DA			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0 to RXnB	Use prohibited	RYn0	CH1 Analog output enable/disable flag
				RXnC	E^2PROM write error flag	RYn1	CH2 Analog output enable/disable flag
X(n+4)	Communication error detection flag indicating that execution of the FROM and TO instructions resulted in a communication error	Y(n+4)	Error detection reset signal	RXnD	Use prohibited	RYn2 to RY(n+1)7	Use prohibited
				RXnE			
				RXnF	Test mode flag		
				RX(n+1)0 to RX(n+1)7	Use prohibited		
X(n+5)	A64DAIC reset switch ON detection flag	Y(n+5)	Reset switch ON detection flag reset signal	RX(n+1)8	Initial data processing request flag	RY(n+1)8	Initial data processing complete flag
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RX(n+1)9	Initial data setting complete flag	RY(n+1)9	Initial data setting request flag
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal	RX(n+1)A	Error status flag	RY(n+1)A	Error reset request flag
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+17)	Use prohibited	RX(n+1)B	Remote READY	RY(n+1)B to RY(n+1)F	Use prohibited
X(n+18)	D/A conversion READY	Y(n+18)	CH1 Analog output enable signal	RX(n+1)C	Use prohibited		
		Y(n+19)	CH2 Analog output enable signal	RX(n+1)D			
		Y(n+1A)	CH3 Analog output enable signal	RX(n+1)E			
		Y(n+1B)	CH4 Analog output enable signal	RX(n+1)F			
X(n+19) to X(n+1F)	Use prohibited	Y(n+1C) to Y(n+1F)	Use prohibited				

(d) Buffer memory addresses comparisons

The sequence program must be changed as the buffer memory assignments differ.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64DAIC			AJ65SBT-62DA		
Address	Name	Read/write	Address	Name	Read/write
0	CH1 Digital value setting area	R/W	RWwm	CH1 Digital value setting	W
1	CH2 Digital value setting area		RWwm+1	CH2 Digital value setting	
2	CH3 Digital value setting area		RWwm+2	Analog output enable/disable setting	
3	CH4 Digital value setting area		RWwm+3	Output range HOLD/CLEAR setting	
4	CH1 Analog output disable/enable setting area		RWrn	CH1 Check code	R
5	CH2 Analog output disable/enable setting area		RWrn+1	CH2 Check code	
6	CH3 Analog output disable/enable setting area		RWrn+2	Error code	
7	CH4 Analog output disable/enable setting area		RWrn+3	Use prohibited	–
8	Resolution of digital value setting area				
9	Error code storage area				

6.2.3 Comparison of temperature input module

(1) Comparisons between A64RD3C and AJ65BT-64RD3

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64RD3C	AJ65BT-64RD3	Compatibility	Precautions for replacement
Measurement method	3-wire type		○	
Connectable platinum resistance thermometer	Pt100 (JIS C 1604-1989, DIN43760-1980)	Pt100, JPt100	○	
	JPt100 (JIS C 1604-1981)		○	
Temperature input range	Pt100: -180[°C] to +600[°C] (27.08Ω to 313.59Ω)	-180[°C] to 600[°C]	○	
	Pt100: -180[°C] to +600[°C] (25.8Ω to 317.28Ω)		○	
Detected temperature value	16bits signed binary -1800 to +6000 (down to 1 decimal place × 10)		○	
	32bits signed binary -180000 to +600000 (down to 3 decimal places × 1000)		○	
Resolution	0.025°C		○	
Overall accuracy	± 1% (accuracy relative to full-scale)	Ambient temperature (25 ± 5°C): ± 0.1% (accuracy relative to maximum value) Ambient temperature (20°C or less, 30°C or more): ± 0.25% (accuracy relative to maximum value)	○	
Conversion speed	40ms/channel		○	
Number of temperature input points	4 channels/module	4 channels/module	○	
Output current for temperature detection	4.2mA (MIN.), 4.7mA (MAX.)	1mA	×	The temperature detecting output current has been changed.
Insulation method	Between input terminal and programmable controller: Photocoupler isolation (non-isolated between channels)	Between platinum resistance thermometer input and CC-Link transmission line: Photocoupler isolation (non-isolated between channels)	○	
Number of occupied stations (number of occupied points)	4 stations (32 points)	4 stations (RX/RY 128 points each, RWw/RWr 16 points each)	○	
Connected terminal block	47-point terminal block	27-point terminal block	×	Change in wiring is required.
Applicable wire size	0.75 to 2.00mm^2		○	
Applicable solderless terminal	V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV 1.25-3.5, RAV 2-3.5 (conforming to JIS C 2805)	×	Change in wiring is required.
24VDC internal current consumption	0.2A	0.17A	○	
Weight	0.81kg	0.38kg	○	
External dimensions	170(H) × 100(W) × 80(D)mm	65(H) × 151.9(W) × 63(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64RD3C	AJ65BT-64RD3	Compati-bility	Precautions for replacement
Conversion enable/disable specification for each channel	Selects on each channel whether to enable or disable temperature detection.		○	
Sampling/ averaging processing specification	Performs processing on a detected temperature in the specified processing method, and stores the processed data to the buffer memory. The following three processing methods are available: • Sampling processing • Time averaging processing • Count averaging processing	Selects on each channel whether to perform the sampling processing or movement averaging processing. (default⋯ sampling processing)	△	The AJ65BT-64RD4 has been provided the movement averaging processing instead of the averaging processing on A64RD3C.
Storage of detected temperature value	The value down to the 1st decimal place and the value down to the 3rd decimal place are stored to the buffer memory. • Value down to 1st decimal place (16-bit signed binary) Example) 53.8(℃) → 538 • Value down to 3rd decimal place (32-bit signed binary) Example) 216.025(℃) → 216025	The value down to the 1st decimal place and the value down to the 3rd decimal place are stored to the remote register.	○	
Wire break detection	Detects wire breaks on the connected Pt100 or cable. Wire breaks on each channel are detected, and the wire break detection flag (X19 to X1A) corresponding to each channel is turned ON.	Detects wires breaks on the connected platinum resistance thermometer for each channel.	○	
Specification of platinum temperature measuring resistor type	Specifies platinum temperature measuring resistor type to be used. The following two types of platinum temperature measuring resistors can be used: • Pt100⋯ new JIS ▪ DIN type (JIS C 1604-1989, DIN43760-1980) • JPt100⋯ conventional JIS type (JIS C 1604-1981)	Specifies platinum temperature measuring resistor type to be used. The following two types of platinum temperature measuring resistors can be used: • Pt100⋯⋯ new JIS, IEC type (JIS C 1604-1997, IEC 751 1983) • JPt100⋯ conventional JIS type (JIS C 1604-1981)	○	

(c) Programmable controller CPU I/O signal comparisons

The sequence program must be changed as the I/O signals differ.

For details on I/O signals and sequence programs, refer to the User's Manual.

A64RD3C				AJ65BT-64RD3			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0	CH1 Conversion completed flag	RYn0	CH1 Conversion enable flag
				RXn1	CH2 Conversion completed flag	RYn1	CH2 Conversion enable flag
X(n+4)	FROM/TO instruction error detection flag	Y(n+4)	Error detection reset signal	RXn2	CH3 Conversion completed flag	RYn2	CH3 Conversion enable flag
				RXn3	CH4 Conversion completed flag	RYn3	CH4 Conversion enable flag
				RXn4	CH1 Wire break detection flag	RYn4	CH1 Sampling processing/ movement averaging processing specification flag
X(n+5)	A64RD3C reset switch ON detection flag	Y(n+5)	Reset switch ON detection flag reset signal	RXn5	CH2 Wire break detection flag	RYn5	CH2 Sampling processing/ movement averaging processing specification flag
				RXn6	CH3 Wire break detection flag	RYn6	CH3 Sampling processing/ movement averaging processing specification flag
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RXn7	CH4 Wire break detection flag	RYn7	CH4 Sampling processing/ movement averaging processing specification flag
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal	RXn8	E^2PROM error flag	RYn8 to RY(n+7)6	Use prohibited
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+1F)	Use prohibited	RXn9	Test mode flag		
X(n+18)	READY flag			RXnA to RX(n+7)7	Use prohibited	RY(n+7)7	Offset/gain value selection flag
X(n+19)	CH1 Wire break detection flag			RX(n+7)8	Initial data processing request flag	RY(n+7)8	Initial data processing complete flag
X(n+1A)	CH2 Wire break detection flag			RX(n+7)9	Initial data setting complete flag	RY(n+7)9	Initial data setting request flag
X(n+1B)	CH3 Wire break detection flag			RX(n+7)A	Error status flag	RY(n+7)A	Error reset
X(n+1C)	CH4 Wire break detection flag			RX(n+7)B	Remote READY	RY(n+7)B to RY(n+7)F	Use prohibited
X(n+1D) to X(n+1F)	Use prohibited			RX(n+7)C to RX(n+7)F	Use prohibited		

(d) Buffer memory addresses comparisons

The sequence program must be changed as the buffer memory assignments differ.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64RD3C			AJ65BT-64RD3		
Address	Name	Read/write	Address	Name	Read/write
0	Conversion enable/disable specification	R/W	RWwm to RWwm+15	Use prohibited	–
1	Averaging processing specification				
2	CH1 Averaging time, count				
3	CH2 Averaging time, count				
4	CH3 Averaging time, count				
5	CH4 Averaging time, count				
6	CH1 Detected temperature value	R	RWrn	CH1 Detected temperature value (16 bits)	R
7	CH2 Detected temperature value		RWrn+1	CH2 Detected temperature value (16 bits)	
8	CH3 Detected temperature value		RWrn+2	CH3 Detected temperature value (16 bits)	
9	CH4 Detected temperature value		RWrn+3	CH4 Detected temperature value (16 bits)	
10	CH1 Detected temperature value (L)		RWrn+4	CH1 Detected temperature value (32 bits)	
11	(32 bits) (H)		RWrn+5		
12	CH2 Detected temperature value (L)		RWrn+6	CH2 Detected temperature value (32 bits)	
13	(32 bits) (H)		RWrn+7		
14	CH3 Detected temperature value (L)		RWrn+8	CH3 Detected temperature value (32 bits)	
15	(32 bits) (H)		RWrn+9		
16	CH4 Detected temperature value (L)		RWrn+10	CH4 Detected temperature value (32 bits)	
17	(32 bits) (H)		RWrn+11		
18	Write data error code	R/W	RWrn+12 to RWrn+15	Use prohibited	–
19	Conversion completed flag	R			
20	Specification of platinum temperature measuring resistor type	R/W			

(2) Comparisons between A64RD4C and AJ65BT-64RD4

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64RD4C	AJ65BT-64RD4	Compati-bility	Precautions for replacement
Measuring method	4-wire type		○	
Connectable platinum temperature measuring resistor	Pt100 (JIS C 1604-1989, DIN43760-1980)	Pt100,JPt100	○	
	JPt100 (JIS C 1604-1981)		○	
Temperature input range	Pt100: -180[℃] to +600[℃] (27.08Ω to 313.59Ω)	-180[℃] to 600[℃]	○	
	JPt100: -180[℃] to +600[℃] (25.8Ω to 317.28Ω)		○	
Detected temperature value	16bits signed binary -1800 to +6000 (down to 1 decimal place × 10)		○	
	32bits signed binary -180000 to +600000 (down to 3 decimal places × 1000)		○	
Resolution	0.025℃		○	
Overall accuracy	±1% (accuracy relative to full-scale)	Ambient temperature: (25±5℃) ±0.1% (accuracy relative to maximum value) Ambient temperature (20℃ or less, 30℃ or more): ±0.25% (accuracy relative to maximum value)	○	
Conversion speed	40ms/channel		○	
Number of temperature input points	4 channels/module	4 channels/module	○	
Output current for temperature detection	4.2mA (MIN.), 4.7mA (MAX.)	1mA	×	The temperature detecting output current has been changed.
Insulation method	Between input terminal and programmable controller: Photocoupler isolation (non-isolated between channels)	Between platinum temperature measuring resistor input and CC-Link transmission line: Photocoupler isolation (non-isolated between channels)	○	
Number of occupied stations (number of occupied points)	4 stations (32 points)	4 stations (RX/RY 128 points each, RWw/RWr 16 points each)	○	
Connected terminal block	47-point terminal block	27-point terminal block	×	Change in wiring is required.
Applicable wire size	0.75 to 2.00mm^2		○	
Applicable solderless terminal	V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	RAV 1.25-3.5, RAV 2-3.5 (conforming to JIS C 2805)	×	Change in wiring is required.
24VDC internal current consumption	0.15A	0.17A	○	
Weight	0.81kg	0.38kg	○	
External dimensions	170(H) × 100(W) × 80(D) mm	65(H) × 151.9(W) × 63(D) mm	×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	A64RD4C	AJ65BT-64RD4	Compati-bility	Precautions for replacement
Conversion enable/disable specification for each channel	Selects on each channel whether to enable or disable temperature detection.		○	
Sampling/ averaging processing specification	Performs processing on a detected temperature in the specified processing method, and stores the processed data to the buffer memory. The following three processing methods are available: • Sampling processing • Time averaging processing • Count averaging processing	Selects on each channel whether to perform the sampling processing or movement averaging processing. (default⋯sampling processing)	△	The AJ65BT-64RD4 has been provided the movement averaging processing instead of the averaging processing on A64RD3C.
Storage of detected temperature value	The value down to the 1st decimal place and the value down to the 3rd decimal place are stored to the buffer memory. • Value down to 1st decimal place (16-bit signed binary) Example) 53.8(℃) → 538 • Value down to 3rd decimal place (32-bit signed binary) Example) 216.025(℃) → 216025	The value down to the 1st decimal place and the value down to the 3rd decimal place are stored to the remote register.	○	
Wire break detection	Detects wire breaks on the connected Pt100 or cable. A wire break on a wire on a channel is detected, turning the ∑ wire break detection flag (X19) ON.	Detects wires breaks on the connected platinum temperature measuring resistor for each channel.	○	
Specification of platinum temperature measuring resistor type	Specifies the platinum temperature measuring resistor type to be used. The following two types of platinum temperature measuring resistor can be used: • Pt100⋯new JIS ▪ DIN type (JIS C 1604-1989, DIN43760-1980) • JPt100⋯conventional JIS type (JIS C 1604-1981)	Specifies the platinum temperature measuring resistor type to be used. The following two types of platinum temperature measuring resistor can be used: • Pt100⋯⋯new JIS, IEC type (JIS C 1604-1997, IEC 751 1983) • JPt100⋯conventional JIS type (JIS C 1604-1981)	○	

(c) Programmable controller CPU I/O signal comparisons

The sequence program must be changed as the I/O signals differ.

For details on I/O signals and sequence programs, refer to the User's Manual.

A64RD4C				AJ65BT-64RD4			
Device No.	Description	Device No.	Description	Device No.	Description	Device No.	Description
X(n+0) to X(n+3)	Use prohibited	Y(n+0) to Y(n+3)	Use prohibited	RXn0	CH1 Conversion completed flag	RYn0	CH1 Conversion enable flag
				RXn1	CH2 Conversion completed flag	RYn1	CH2 Conversion enable flag
X(n+4)	FROM/TO instruction error detection flag	Y(n+4)	Error detection reset signal	RXn2	CH3 Conversion completed flag	RYn2	CH3 Conversion enable flag
				RXn3	CH4 Conversion completed flag	RYn3	CH4 Conversion enable flag
				RXn4	CH1 Wire break detection flag	RYn4	CH1 Sampling processing/ movement averaging processing specification flag
X(n+5)	A64RD4C reset switch ON detection flag	Y(n+5)	Reset switch ON detection flag reset signal	RXn5	CH2 Wire break detection flag	RYn5	CH2 Sampling processing/ movement averaging processing specification flag
				RXn6	CH3 Wire break detection flag	RYn6	CH3 Sampling processing/ movement averaging processing specification flag
X(n+6)	Use prohibited	Y(n+6)	Use prohibited	RXn7	CH4 Wire break detection flag	RYn7	CH4 Sampling processing/ movement averaging processing specification flag
X(n+7)	Communication completion response signal wait flag	Y(n+7)	Communication reset signal	RXn8	E^2PROM error flag	RYn8 to RY(n+7)6	Use prohibited
X(n+8) to X(n+17)	Use prohibited	Y(n+8) to Y(n+1F)	Use prohibited	RXn9	Test mode flag		
X(n+18)	READY flag			RXnA to RX(n+7)7	Use prohibited	RY(n+7)7	Offset/gain value selection flag
X(n+19)	∑ wire break detection flag			RX(n+7)8	Initial data processing request flag	RY(n+7)8	Initial data processing complete flag
X(n+1A) to X(n+1F)	Use prohibited			RX(n+7)9	Initial data setting complete flag	RY(n+7)9	Initial data setting request flag
				RX(n+7)A	Error status flag	RY(n+7)A	Error reset request flag
				RX(n+7)B	Remote READY	RY(n+7)B to RY(n+7)F	Use prohibited
				RX(n+7)C to RX(n+7)F	Use prohibited		

(d) Buffer memory addresses comparisons

The sequence program must be changed as the buffer memory assignments differ.
For details on buffer memory and sequence programs, refer to the User's Manual.

A64RD4C			AJ65BT-64RD4		
Address	Name	Read/write	Address	Name	Read/write
0	Conversion enable/disable specification	R/W	RWwm to RWwm+15	Use prohibited	–
1	Averaging processing specification				
2	CH1 Averaging time, count				
3	CH2 Averaging time, count				
4	CH3 Averaging time, count				
5	CH4 Averaging time, count				
6	CH1 Detected temperature value	R	RWrn	CH1 Detected temperature value (16 bits)	R
7	CH2 Detected temperature value		RWrn+1	CH2 Detected temperature value (16 bits)	
8	CH3 Detected temperature value		RWrn+2	CH3 Detected temperature value (16 bits)	
9	CH4 Detected temperature value		RWrn+3	CH4 Detected temperature value (16 bits)	
10	CH1 Detected temperature value (L)		RWrn+4	CH1 Detected temperature value (32 bits)	
11	(32 bits) (H)		RWrn+5		
12	CH2 Detected temperature value (L)		RWrn+6	CH2 Detected temperature value (32 bits)	
13	(32 bits) (H)		RWrn+7		
14	CH3 Detected temperature value (L)		RWrn+8	CH3 Detected temperature value (32 bits)	
15	(32 bits) (H)		RWrn+9		
16	CH4 Detected temperature value (L)		RWrn+10	CH4 Detected temperature value (32 bits)	
17	(32 bits) (H)		RWrn+11		
18	Write data error code	R/W	RWrn+12 to RWrn+15	Use prohibited	–
19	Conversion completed flag	R			
20	Specification of platinum temperature measuring resistor type	R/W			

7 REPLACING THE HIGH-SPEED COUNTER MODULE

7.1 List of Alternative High-speed Counter Module Models

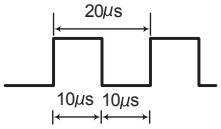
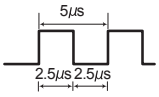
MELSECNET/MINI-S3, A2C models to be discontinued		Alternative model for CC-Link	
Product name	Model name	Model name	Remarks (restrictions)
High-speed counter module	AD61C	AJ65BT-D62	1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size change of signal wire 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Change in interface specifications of coincidence output 5) Change in functional specifications: Not required 6) Change in dimensions for mounting to the panel: Required
	AD62C		1) Change in external wiring: Wiring change due to differences in terminal blocks, communication cable change to CC-Link dedicated cable, applicable wire size of signal lead change 2) Change in number of modules: Not required 3) Change in program: Change to programs for CC-Link 4) Change in performance specifications: Counting range change, external output specifications change 5) Change in functional specifications: Limit switch output function not provided 6) Change in dimensions for mounting to the panel: Required

7.2 High-speed Counter Module Comparison

(1) Comparison between AD61C and AJ65BT-D62

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item			AD61C		AJ65BT-D62 Counting speed switch settings switch HIGH side	AJ65BT-D62 Counting speed switch settings switch LOW side	Compatibility	Precautions for replacement
Number of occupied stations (occupied points)			4 stations (32 points)		4 stations (RX/RY 128 points each, RWw/RWr 16 points each)		○	
Number of channels			2 channels				○	
Performance specifications of one channel	Count input signal	Phase	1-phase input, 2-phase input				○	
		Signal level (ϕA, ϕB)	5VDC / 12VDC / 24VDC: 2 to 5mA				○	
	Counter	Counting speed (max.)	1-phase input	50KPPS	200KPPS	10KPPS	○	
			2-phase input	50KPPS	200KPPS	7KPPS	○	
		Counting range	0 to 16,777,215 (decimal notation): Binary format 24bits				○	
		System	Addition/subtraction preset counter + ring counter function		UP/DOWN preset counter + ring counter function		○	
		Min. count pulse width (1-, 2-phase input)			 (1-, 2-phase input)	 (1-phase input) (2-phase input)	○	
			Set input rise and fall times to 5 μs or less. Duty ratio 50%		Set input rise and fall times to 2 μs or less. Duty ratio 50%		○	
	Maximum /minimum comparison	Comparison range	Binary format 24bits				○	
		Comparison result	Setting value < Count value Set value = Count value Setting value > Count value		Setting value < Count value Set value = Count value Setting value > Count value		○	
	External input	Preset	12/24VDC 3/6mA 5VDC 5mA		5/12/24VDC 2 to 5mA		△	At AJ65BT-D62, external input/output specifications are different, so confirm the external device specifications.
		Count disable	12/24VDC 3/6mA 5VDC 5mA		–		△	
		Function start	–		5/12/24VDC 2 to 5mA		△	
	External output	Coincidence output	Transistor (open collector) output 12/24VDC 0.3A		12/24VDC 2A per common		△	
24VDC internal current consumption			0.15A		0.07A		○	
Weight			1.0kg		0.41kg		○	
External dimensions			170(H) × 100(W) × 80(D) mm		65(H) × 151.9(W) × 63(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item	AD61C	AJ65BT-D62	Compatibility	Precautions for replacement
Count function at 1-phase/ 2-phase pulse input	• Captures 1-phase or 2-phase pulses from a pulse generator, and counts each of these pulses at its rise and fall. 1-phase input ▪ ▪ ▪ Two counts are performed on a single pulse. 2-phase input ▪ ▪ ▪ Four counts are performed on a single pulse at each of the A and B phases. • Specifies the addition and subtraction counts in buffer memory during 1-phase input. During 2-phase input, it is automatically judged to perform addition when the A phase pulse comes before the B phase pulse, and perform subtraction when the B phase pulse comes before the A phase pulse.	• Captures 1-phase or 2-phase pulses from a pulse generator, and counts each of these pulses at its rise and fall. 1-phase input ▪ ▪ ▪ Two counts are performed on a single pulse. 2-phase input ▪ ▪ ▪ Four counts are performed on a single pulse at each of the A and B phases. • Specifies the addition and subtraction counts to RY during 1-phase input. During 2-phase input, it is automatically judged to perform addition when the A phase pulse comes before the B phase pulse, and perform subtraction when the B phase pulse comes before the A phase pulse.	○	
Comparison signal output function for counter value	• Compares the counter value with the set value, and outputs result signals of small, large (>, <), or coincidence (=) to the programmable controller CPU. • Performs external outputs of the coincidence signal to the external (EQU) terminal when the set value coincides with the count value. Note, however, that to do this the coincidence signal output enable flag must be turned ON beforehand by the sequence program.	Sets the output status of any channel in advance, and compares it with the current value to output ON/OFF signals.	○	
Preset function	• Changes the current counter value to the specified value. • Execution of a preset is performed by the sequence program or input of an external preset.		○	
Ring counter function	• Outputs the coincidence signal when the set value matches the counter value, and set the current value as the preset value. Note, however, that to do this the ring counter switch must be turned ON.	Counts repeatedly between the ring counter value and the preset value by the ring counter command.	○	
Count start/ stop function by external input	• Starts or stops counting by the external disable (DIS) terminal turning ON/OFF.	–	△	This is performed on the function start terminal.
Hardware reset function	• Initializes (clears data and sets default value) AD61C I/O signals and buffer memory by the reset switch on the front of the AD61C.	–	×	This function is not available.
Error detection function	• Stores the first error to buffer memory if any errors are found in communication (FROM/TO instructions) from the programmable controller CPU to buffer memory on AD61C.	–	×	This function is not available.

(c) Programmable controller CPU I/O signal comparisons

The sequence program must be changed as the I/O signals differ.
For details on I/O signals and sequence programs, refer to the User's Manual.

AD61C						AJ65BT-D62					
Device No.		Description	Device No.		Description	Device No.		Description	Device No.		Description
CH1	CH2		CH1	CH2		CH1	CH2		CH1	CH2	
X00 to X03		Use prohibited	Y00 to Y03		Use prohibited	RXn0	RXn4	Counter value large (Point No. 1)	RYn0 to RYnF		Use prohibited
X04 *1		Communication error detection	Y04 *1		Communication error detection reset	RXn1	RXn5	Counter value coincidence (Point No. 1)	RY (n+1)0	RY (n+1)7	Point No.1 coincidence signal reset command
X05		Detection of reset status	Y05		Reset status detection reset	RXn2	RXn6	Counter value small (Point No.1)	RY (n+1)1	RY (n+1)8	Preset command
X06		Use prohibited	Y06		Use prohibited	RXn3	RXn7	External preset command detection	RY (n+1)2	RY (n+1)9	Coincidence signal enable
X07 *2		Communication completion wait flag	Y07 *2		Communication completion wait flag reset	RXn8	RXnB	Counter value large (Point No. 2)	RY (n+1)3	RY (n+1)A	Down count command
X08 to X17		Use prohibited	Y08 to Y17		Use prohibited	RXn9	RXnC	Counter value coincidence (Point No. 2)	RY (n+1)4	RY (n+1)B	Count enable command
X18	X1C	CH1/CH2 counter value small/large	Y18	Y1C	CH1/CH2 coincidence signal reset command	RXnA	RXnD	Counter value small (Point No. 2)	RY (n+1)5	RY (n+1)C	Use prohibited
X19	X1D	CH1/CH2 counter value coincidence	Y19	Y1D	CH1/CH2 preset command	RXnE	RXnF	Use prohibited	RY (n+1)6	RY (n+1)D	Counter function selection start command
X1A	X1E	CH1/CH2 external preset request detection	Y1A	Y1E	CH1/CH2 count enable command	RX (n+1)0	RX (n+1)2	Preset completion	RY(n+1)E to RY(n+1)F		Use prohibited
X1B	X1F	CH1/CH2 preset completion	Y1B	Y1F	CH1/CH2 external preset request detection	RX (n+1)1	RX (n+1)3	Counter function detection	RY (n+2)0	RY (n+2)2	External preset detection reset command
						RX(n+1)4 to RX(n+7)7		Use prohibited	RY (n+2)1	RY (n+2)3	Point No.2 coincidence signal reset command
									RY(n+2)4 to RY(n+7)7		Use prohibited
						RX(n+7)8		Initial data processing request flag	RY(n+7)8		Initial data processing complete flag
						RX(n+7)9 to RX(n+7)A		Use prohibited	RY(n+7)9 to RY(n+7)F		Use prohibited
						RX(n+7)B		Remote READY			
						RX(n+7)C to RX(n+7)F		Use prohibited			

*1, *2: These input signals are used on the A2CCPU side.

(d) Buffer memory addresses comparisons

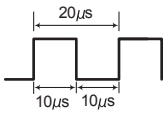
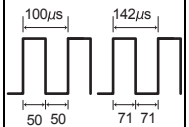
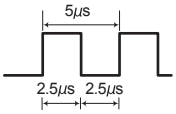
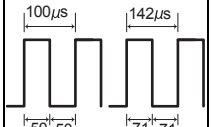
The sequence program must be changed as the buffer memory assignments differ. For details on buffer memory and sequence programs, refer to the User's Manual.

AD61C			AJ65BT-D62			
Address	Name	Read/write	Address CH1	Address CH2	Name	Read/write
0	CH1 mode register	R/W	RWwm	RWwm+8	Preset value setting area (L)	W
1	CH1 subtraction count specification	W	RWwm+1	RWwm+9	Preset value setting area (H)	
2	CH1 coincidence signal output enable flag		RWwm+2	RWwm+A	Pulse input mode/ Function selection register/ External output hold/ clear setting area	
3	CH1 set value	R/W	RWwm+3	RWwm+B	Coincidence output point No.1 setting area (L)	
4			RWwm+4	RWwm+C	Coincidence output point No.1 setting area (H)	
5	CH1 preset value	W	RWwm+5	RWwm+D	Sampling/periodic setting area	
6			RWwm+6	RWwm+E	Coincidence output point No.2 setting area (L)	
7	CH2 mode register	R/W	RWwm+7	RWwm+F	Coincidence output point No.2 setting area (H)	
8	CH2 down count specification	W	RWrn	RWrn+8	Current value storage area (L)	R
9	CH2 coincidence signal output enable flag		RWrn+1	RWrn+9	Current value storage area (H)	
10	CH2 set value	R/W	RWrn+2	RWrn+A	Latch count value/ Sampling count value (L)	
11			RWrn+3	RWrn+B	Periodic pulse count previous value storage area (H)	
12	CH2 preset value	W	RWrn+4	RWrn+C	Periodic pulse count present value storage area (L)	
13			RWrn+5	RWrn+D	Periodic pulse count present value storage area (H)	
14	CH1 current value	R	RWrn+6		Sampling/periodic counter flag storage area (common for CH1, CH2)	
15			RWrn+7 RWrn+E RWrn+F		Use prohibited	–
16	CH2 current value					
17						
18	Error code					

(2) Comparisons between AD62C and AJ65BT-D62

(a) Performance specifications comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item		AD62C			AJ65BT-D62		Compatibility	Precautions for replacement
Counting speed switch settings		50k pulse/s (on silk-screen diagram: 50kPPS)		10k pulse/s (on silk-screen diagram: 10kPPS)	Counting speed switch settings switch		○	
					HIGH side	LOW side		
Number of occupied stations (number of occupied points)		4 stations (32 points)			4 stations (RX/RY 128 points each, RWw/RWr 16 points each)		○	
Number of channels		1 channel			2 channels		○	
Count input signal	Phase	1-phase input, 2-phase input					○	
	Signal level (ϕA, ϕB)	5VDC / 12VDC / 24VDC 2 to 5mA					○	
Counter	Counting speed* (max.)	1-phase input	50k pulse/s	10k pulse/s	200kPPS	10kPPS	○	
		2-phase input	50k pulse/s	7k pulse/s	200kPPS	7kPPS	○	
	Counting range	32bits signed binary -2147483648 to 2147483647			0 to 16,777,215 (decimal notation) Binary format 24bits		×	The counting range varies.
	Type	UP/DOWN Preset counter + Ring counter function					○	
	Minimum count pulse width	 (1-, 2-phase input)		 (1-phase input) (2-phase input)	 (1-, 2-phase input)	 (1-phase input) (2-phase input)	○	
		Limit the input rise and fall times to 5 μs or less. Duty ratio 50%			Limit the input rise and fall times to 2 μs. or less. Duty ratio 50%		○	
Limit switch output	Comparison range	32bits signed binary			–		×	Limit switch output is not available.
	Comparison result	N/O contact action: Dog ON address ≦ Count value ≦ Dog OFF address N/C contact action: Dog OFF address ≦ Count value ≦ Dog ON address			–		×	
External input	Preset / Function start	12/24VDC 3/6mA, 5VDC 5mA			5/12/24VDC 2 to 5mA		△	As the external input/output specifications are different on AJ65BT-D62, confirm the specifications of external device.
External output	Comparison output	Transistor (open collector) output 12/24VDC, 0.1A per point, 0.8A per common			12/24VDC 2A per common		△	
24VDC internal current consumption		0.15A			0.07A		○	
Weight		0.86kg			0.41kg		○	
External dimensions		170(H) × 100(W) × 80(D) mm			65(H) × 151.9(W) × 63(D) mm		×	The overall size differs. Pay attention to the mounting dimensions.

(b) Functional comparisons

○: Compatible, △: Partial change required, ×: Not compatible

Item		AD62C	AJ65BT-D62	Compatibility	Precautions for replacement
Preset function		Any value can be overwritten to the counter's present values. Preset is performed by the sequence program or an external preset input.		○	
Ring counter function		Counts repeatedly between the ring counter value and the preset value by the ring counter command.		○	
Limit switch output function		Sets the output status of any channel in advance, and compares it with the current value of the limit switch output command counter to output ON/OFF signals.	–	×	The limit switch output function is not available.
Counter function selection*	Latch counter function	Stores the current value of the counter to buffer memory when the counter function selection start command signal is input.	Stores the current value of the counter to the remote register when the counter function selection start command signal is input.	○	
	Sampling counter function	Stores the number of input pulses to the buffer memory for the preset sampling period after a signal carrying the counter function selection start command is input.	Stores the number of input pulses to the remote register for the preset sampling period after a signal carrying the counter function selection start command is input.	○	
	Periodic pulse counter function	Stores the number of input pulses to the buffer memory at each preset cycle time for the duration that a signal carrying the counter function selection start command is being input.	Stores the number of input pulses to the remote register at each preset cycle time for the duration that a signal carrying the counter function selection start command is being input.	○	
	Count disable function	Stops counting of the pulse while the count enable command is ON.		○	

*: With counter function selection, only one of the four functions can be selected and used.

(c) Programmable controller CPU I/O signal comparisons

The sequence program must be changed as the I/O signals differ.

For details on I/O signals and sequence programs, refer to the User's Manual.

AD62C				AJ65BT-D62					
Device No.	Description	Device No.	Description	Device No. CH1	Device No. CH2	Description	Device No. CH1	Device No. CH2	Description
X00 to X03	Use prohibited	Y00 to Y03	Use prohibited	RXn0	RXn4	Counter value large (Point No. 1)	RYn0 to RYnF		–
X04 *1	Communication error detection	Y04 *1	Communication error detection reset	RXn1	RXn5	Counter value coincidence (Point No. 1)	RY (n+1)0	RY (n+1)7	Point No.1 coincidence signal reset command
X05	Detection of reset status	Y05	Reset status detection reset	RXn2	RXn6	Counter value small (Point No.1)	RY (n+1)1	RY (n+1)8	Preset command
X06	Use prohibited	Y06	Use prohibited	RXn3	RXn7	External preset command detection	RY (n+1)2	RY (n+1)9	Coincidence signal enable
X07 *2	Communication completion wait flag	Y07 *2	Communication completion flag reset	RXn8	RXnB	Counter value large (Point No. 2)	RY (n+1)3	RY (n+1)A	Down count command
X08 to X1A	Use prohibited	Y08 to Y17	Use prohibited	RXn9	RXnC	Counter value coincidence (Point No. 2)	RY (n+1)4	RY (n+1)B	Count enable
		Y18	Count enable command	RXnA	RXnD	Counter value small (Point No. 2)	RY (n+1)5	RY (n+1)C	–
		Y19	Down count command	RXnE	RXnF	–	RY (n+1)6	RY (n+1)D	Counter function selection start command
		Y1A	Preset command				RY(n+1)E to RY(n+1)F		–
X1B	Fuse blown detection	Y1B	Ring counter command	RX (n+1)0	RX (n+1)2	Preset completion	RY (n+2)0	RY (n+2)2	External preset detection reset command
X1C	Sampling/ periodic counter ON/OFF flag	Y1C	Counter function selection start command	RX (n+1)1	RX (n+1)3	Counter function detection	RY (n+2)1	RY (n+2)3	Point No.2 coincidence signal reset command
				RX(n+1)4 to RX(n+7)7		–	RY(n+2)4 to RY(n+7)7		–
X1D	Limit switch output READY flag	Y1D	Limit switch output command	RX(n+7)8		Initial data processing request flag	RY(n+7)8		Initial data processing complete flag
X1E	External preset request detection	Y1E	External preset request detection reset command	RX(n+7)9 to RX(n+7)A		–	RY(n+7)9 to RY(n+7)F		–
X1F	Multiple-dog setting error detection	Y1F	Multiple-dog setting error detection reset	RX(n+7)B		Remote READY			
				RX(n+7)C to RX(n+7)F		–			

*1, *2: These input signals are used on the A2CCPU side.

(d) Buffer memory addresses comparisons

The sequence program must be changed as the buffer memory assignments differ.
For details on buffer memory and sequence programs, refer to the User's Manual.

AD62C			AJ65BT-D62			
Address	Name	Read/write	Address CH1	Address CH2	Name	Read/write
0	Present value (L)	R	RWwm	RWwm+8	Preset value setting area (L)	W
1	Present value (H)		RWwm+1	RWwm+9	Preset value setting area (H)	
2	Counter function selection count value (L)		RWwm+2	RWwm+A	Pulse input mode/Function selection register/External output hold and clear setting area	
3	Counter function selection count value (H)		RWwm+3	RWwm+B	Coincidence output point No.1 setting area (L)	
4	Limit switch output status flag (CH1 to CH8)		RWwm+4	RWwm+C	Coincidence output point No.1 setting area (H)	
5	Pulse input mode setting	R/W	RWwm+5	RWwm+D	Sampling/periodic setting area	
6	Counter function selection setting		RWwm+6	RWwm+E	Coincidence output point No.2 setting area (L)	
7	Preset value setting (L)		RWwm+7	RWwm+F	Coincidence output point No.2 setting area (H)	
8	Preset value setting (H)		RWrn	RWrn+8	Current value storage area (L)	R
9	Ring counter value setting (L)		RWrn+1	RWrn+9	Current value storage area (H)	
10	Ring counter value setting (H)		RWrn+2	RWrn+A	Latch count value/Sampling count value/Periodic pulse count previous value storage area (L)	
11	Sampling/periodic setting		RWrn+3	RWrn+B	Latch count value/Sampling count value/Periodic pulse count previous value storage area (H)	
12	Communication error code		RWrn+4	RWrn+C	Periodic pulse count present value storage area (L)	
13	Multiple-dog setting error code		RWrn+5	RWrn+D	Periodic pulse count present value storage area (H)	
14 to 30	CH1 limit switch output data setting	R/W	RWrn+6		Sampling/periodic counter flag storage area (common for CH1, CH2)	
31 to 47	CH2 limit switch output data setting		RWrn+7 RWrn+E RWrn+F		Use prohibited	–
48 to 64	CH3 limit switch output data setting					
65 to 81	CH4 limit switch output data setting					
82 to 98	CH5 limit switch output data setting					
99 to 115	CH6 limit switch output data setting					
116 to 132	CH7 limit switch output data setting					
133 to 149	CH8 limit switch output data setting					

8 REPLACING THE COMMUNICATION MODULES

8.1 List of Alternative Communication Module Models

MELSECNET/MINI-S3, A2C models to be discontinued		Alternative models for CC-Link	
Product name	**Model name**	**Model name**	**Remarks (restrictions)**
Serial Communication	AJ35PTF-R2	AJ65BT-R2N	1) Change in RS-232C cable (25-pin → 9-pin) 2) Change in general-purpose I/O specifications (power voltage range, number of points) 3) Change is required as the program is not compatible.
Operating box	AJ35T-OPB-P1-S3	None	Transition to GOT is recommended.
	AJ35PT-OPB-M1-S3	None	
Cable for operating box	AC30MINI	None	
Joint box	AJ35T-JB-S3	None	
Transmission converter	AJ35PTC-CNV	AJ65SBT-RPS	New cable must be used as the two systems differ in cable types.

8.2 Serial Communication Module Comparisons

(1) Comparisons between AJ35PTF-R2 and AJ65BT-R2N

(a) Performance specifications comparisons

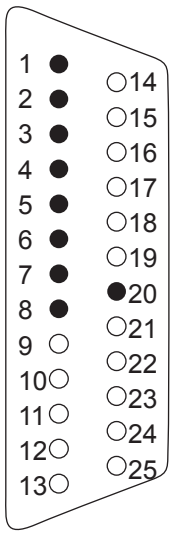
○: Compatible, △: Partial change required, ×: Not compatible

Item		Specifications		Compatibility	Precautions for replacement
		AJ35PTF-R2	AJ65BT-R2N		
Interface specifications		RS-232C-compliant (25-pin) × 1 channel	RS-232C-compliant (9-pin) × 1 channel	△	For differences in the RS-232C interface specifications, refer to 1).
Communication method		Full-duplex communication system (nonprocedural)	Full-duplex communication system (nonprocedural)	○	
Synchronization method		Asynchronous method	Asynchronous method	○	
Transmission speed		300, 600, 1200, 2400, 4800, 9600, 19200 bps	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps*1	○	
Data type	Start bit	1	1	○	
	Data bit	7 or 8	7 or 8	○	
	Parity bit	1 or 0 (none)	1 or 0 (none)	○	
	Stop bit	1 or 2	1 or 2	○	
Error detection		Parity check (Odd or Even)	Parity check (Odd or Even)	○	
Communication control		DTR/DSR (ER/DR) control	DTR/DSR (ER/DR) control	○	
		XON/XOFF (DC1/DC3) control	DC1/DC3 control	○	
Transmission distance		15m	Up to 15m	○	
OS receive buffer		2048 bytes	5120 bytes	○	
General-purpose I/O	Input	12/24VDC (sink type) × 4 points	24VDC (sink type) × 2 points	△	For differences in the general-purpose I/O specifications, refer to 2) and 3).
	Output	Transistor output (sink type) 12/24VDC × 4 points	Transistor output (sink type) 12/24VDC × 2 points		
Number of occupied stations		4 stations	1 station	×	The number of occupied stations is different.
Power supply voltage		15.6 to 31.2VDC	24VDC	○	
Current consumption		130mA (24V)	110mA (24V)	○	
Weight		0.71kg	0.40kg	○	
Max. size of send/ receive buffer		1000 bytes each for send/receive (1000 bytes for total of send and receive)	(1536 words for total of send and receive)	○	
External dimensions		250(H) × 132(W) × 41(D)mm	80(H) × 170(W) × 47(D)mm	×	The overall size differs. Pay attention to the mounting dimensions.

1) RS-232 interface specifications comparisons

The RS-232C cable must be changed as the RS-232C interface specifications are different between the AJ35PTF-R2 and AJ65BT-R2N.

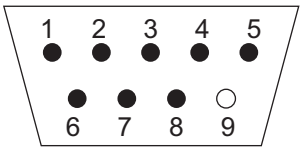
[AJ35PTF-R2]



Pin No.	Name	Signal code	Signal direction AJ35PTF-R2↔External device
1	Frame ground	FG	← →
2	Send data	SD(TXD)	→
3	Receive data	RD(RXD)	←
4	Request to send	RS(RTS)	→
5	Clear to send	CS(CTS)	←
6	Data set ready	DSR(DR)	←
7	Signal ground	SG	←
8	Carrier detect	CD	←
20	Data terminal ready	DTR(ER)	→

25-pin D-sub (female) screw type
17LE-13250-22-D2AC (DDK Ltd.) or equivalent

[AJ65BT-R2N]



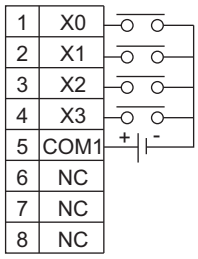
Use the following model as a connector of the AJ65BT-R2N side connection cable.
・DDK Ltd.
Plug, chell: 17JE-23090-02 (D8A) (-CG)

Pin No.	Name	Signal code	Signal direction AJ65BT-R2N ↔ External device
1	Data carrier detect	CD(DCD)	←
2	Received data	RD(RXD)	←
3	Transmitted data	SD(TXD)	→
4	Data terminal ready	ER(DTR)	→
5	Signal ground	SG	←
6	Data set ready	DR(DSR)	←
7	Request to send	RS(RTS)	→
8	Clear to send	CS(CTS)	←
9	—	—	—

2) General-purpose input specifications comparisons

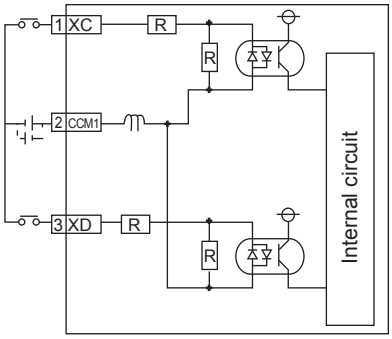
[AJ35PTF-R2]

Item		DC input (sink type)	
		AJ35PTF-R2	Terminal layout
Number of input points		4 points	
Insulation method		Photocoupler	
Rated input voltage		12VDC / 24VDC	
Rated input current		3mA / 7mA	
Operating voltage range		10.2 to 31.2VDC (ripple ratio within 5%)	
Maximum number of simultaneous input points		100% (4 points) simultaneously ON	
ON voltage/ON current		9.5V or more / 2.6mA or more	
OFF voltage/OFF current		6V or less / 1.0mA or less	
Input resistance		Approx. 3.4kΩ	
Response time	OFF→ON	10ms or less	
	ON→OFF	10ms or less	
Wiring method for common		4 points per common (common terminal: TB5)	
Operation indication		ON indication (LED)	
External connection		8-point terminal block connector (M3 × 6 screws)	
Applicable wire size		0.75 to 2mm^2 (applicable tightening torque 7kg · cm)	
Applicable solderless terminal		1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A, 1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	
Number of occupied stations		4 stations	



[AJ65BT-R2N]

Item		DC input (positive/negative common shared type)	
		AJ65BT-R2N	External connection
Number of input points		2 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 7mA	
Operating voltage range		19.2 to 28.8VDC (ripple ratio within 5%)	
Maximum number of simultaneous input points		100%	
ON voltage/ON current		14V or more / 3.5mA or more	
OFF voltage/OFF current		6V or less / 1.7mA or less	
Input resistance		Approx. 3.3kΩ	
Response time	OFF→ON	10ms or less	
	ON→OFF	10ms or less	
Wiring method for common		2 points/common (COM1) Positive/negative common shared type	
External connection system		7-point terminal block (M3.5 screw)	
Applicable wire size		0.75 to 2mm^2	
Applicable solderless terminal		RAV1.25-3.5, RAV2-3.5 (JIS C 2805-compliant)	

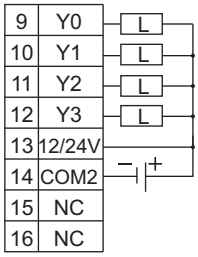


Terminal number	Signal	Terminal number	Signal
TB1	XC	TB3	XD
TB2	COM1	–	–

3) General-purpose output specifications comparisons

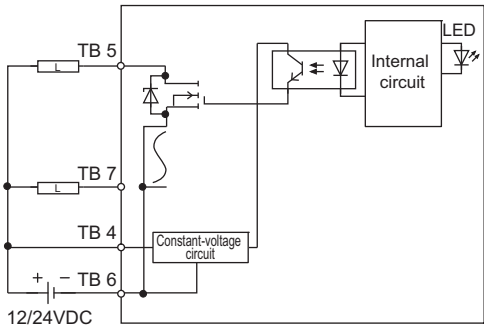
[AJ35PTF-R2]

Item		Transistor output (sink type)	
		AJ35PTF-R2	Terminal layout
Number of output points		4 points	
Insulation method		Photocoupler	
Rated load voltage		12/24VDC	
Operating load voltage range		10.2 to 31.2VDC	
Maximum load current		0.1A/point, 0.4A/common	
Maximum inrush current		0.4A 100ms or less	
Leakage current at OFF		0.1mA or less	
Maximum voltage drop at ON		2.5V (0.1A), 1.75V (5mA), 1.7V (1mA)	
Response time	OFF→ON	2ms or less	
	ON→OFF	2ms or less (resistance load)	
Surge suppressor		Clamp diode	
Wiring method for common		4 points per common (common terminal: TB14)	
Operation indication		ON indication (LED)	
External connection		8-point terminal block connector (M3 × 6 screws)	
Applicable wire size		0.75 to 2mm^2 (applicable tightening torque 7kg · cm)	
Applicable solderless terminal		1.25-3 1.25-YS3A 2-S3 2-YS3A V1.25-3 V1.25-YS3A V2-S3 V2-YS3A	
Number of occupied stations		4 stations	
External power supply for output	Voltage	10.2 to 31.2VDC	
	Current	15mA (TYP.24VDC)	



[AJ65BT-R2N]

Item		Transistor output (Sink type)	
		AJ65BT-R2N	External connection
No. of output points		2 points	
Insulation method		Photocoupler	
Rated load voltage		12 to 24VDC (+20/-15%)	
Operating load voltage range		10.2 to 28.8VDC (Ripple ratio is 5% or less)	
Max. load current		0.1A/point 0.2A/common	
Max. inrush current		0.7A, 10ms or less	
Leakage current at OFF		0.1mA or lower	
Max. voltage drop at ON		0.1VDC(TYP.)0.1A, 0.2VDC(MAX.)0.1A	
Output method		sink type	
Response time	OFF→ON	1ms or less	
	ON→OFF	1ms or less (Resistance load)	
External power supply of output section	Voltage	10.2 to 28.8VDC (Ripple ratio is 5% or less)	
	Current	10mA (at 24VDC) (MAX all points ON)	
Surge suppressor		Zener diode	
Wiring method for common		2 points/common (COM2)	
External connection method		7-point terminal block (M3.5 screw)	
Applicable wire size		0.75 to 2mm^2	
Applicable solderless terminal		RAV1.25-3.5, RAV2-3.5 (JIS C 2805-Compliant)	
Protective function		Provided • Overheat protective function operates in unit of 1 point. • Overload protective function operates in unit of 1 point. (Detection disabled)	



Terminal number	Signal	Terminal number	Signal
TB4	+24V	TB6	COM2
TB5	YC	TB7	YD

(b) Functional comparisons

The following table shows serial communication module comparisons between MELSECNET/MINI-S3 and CC-Link.

○: Compatible, △: Partial change required, × : Not compatible

Item	Functions		Compati-bility	Precautions for replacement
	AJ35PTF-R2	AJ65BT-R2N		
Barcode reading	Actually required data only can be read to the programmable controller CPU regardless of the data communication protocol of the compatible barcode reader.	None	×	Utilize nonprocedural communication.
ID card reading/ writing	Data can be read from and written to a programmable controller CPU by setting the MINI standard protocol for communication with the compatible ID card controller.	None	×	Utilize nonprocedural communication.
Nonprocedural communication	Nonprocedural communication with external devices is available.	Nonprocedural communication with external devices is available. There are two methods for nonprocedural communications: the automatic buffer memory update function and the RIWT (RISEND) and RIRD (RIRCV) instructions.	△	Create new programs as there is no compatibility in programs.

(c) Switch comparisons

The switch settings on the serial communication module are not compatible as MELSECNET/MINI-S3 and CC-Link are different networks.
For details, refer to the User's Manual for each module.

(d) Parameter comparisons

The parameter settings on the serial communication module are not compatible as MELSECNET/MINI-S3 and CC-Link are different networks.
For details, refer to the User's Manual for each module.

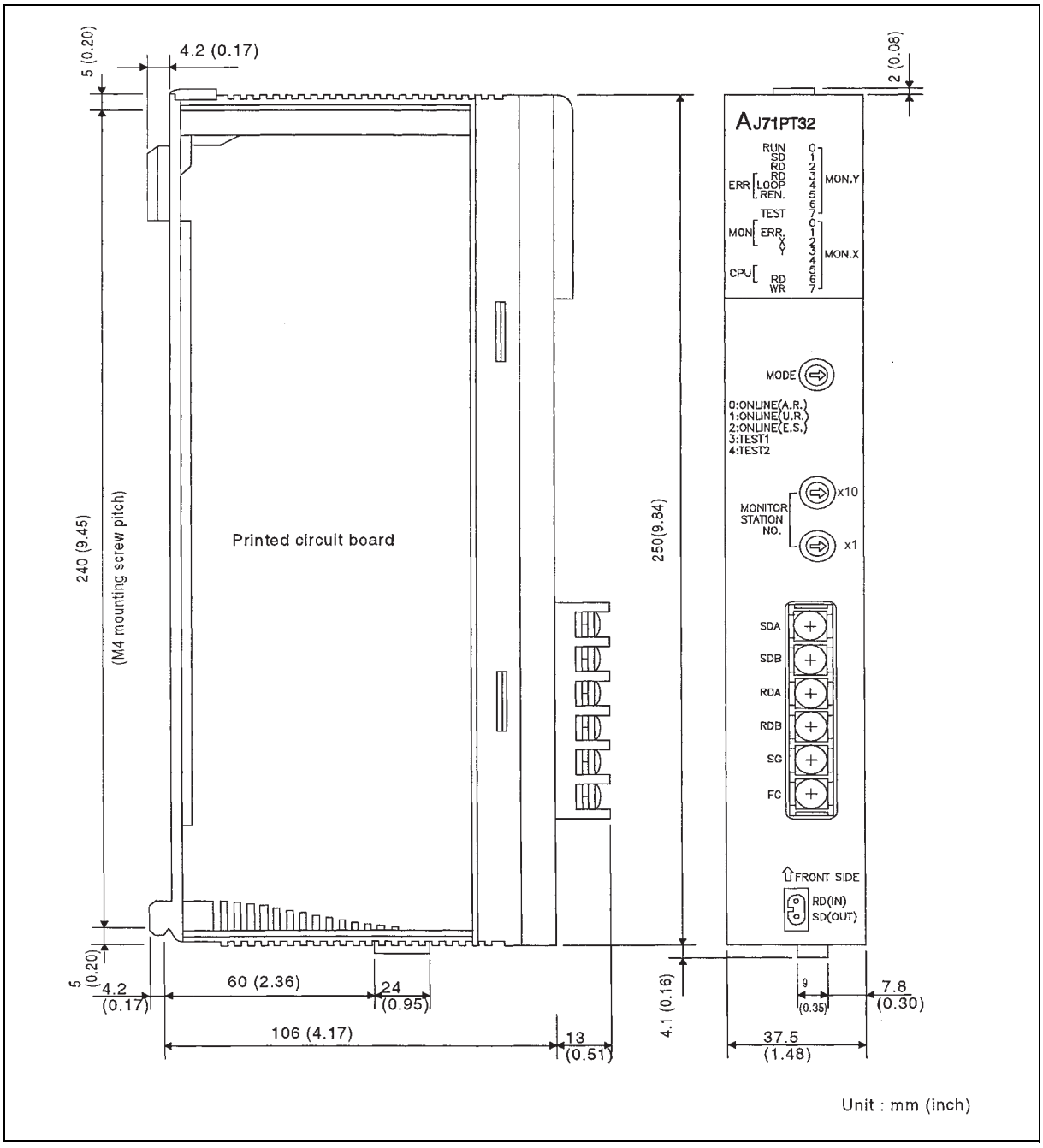
(e)Program Comparisons

The I/O signals and buffer memory on the serial communication module are not compatible as MELSECNET/MINI-S3 and CC-Link are different networks.
For details, refer to the User's Manual for each module.

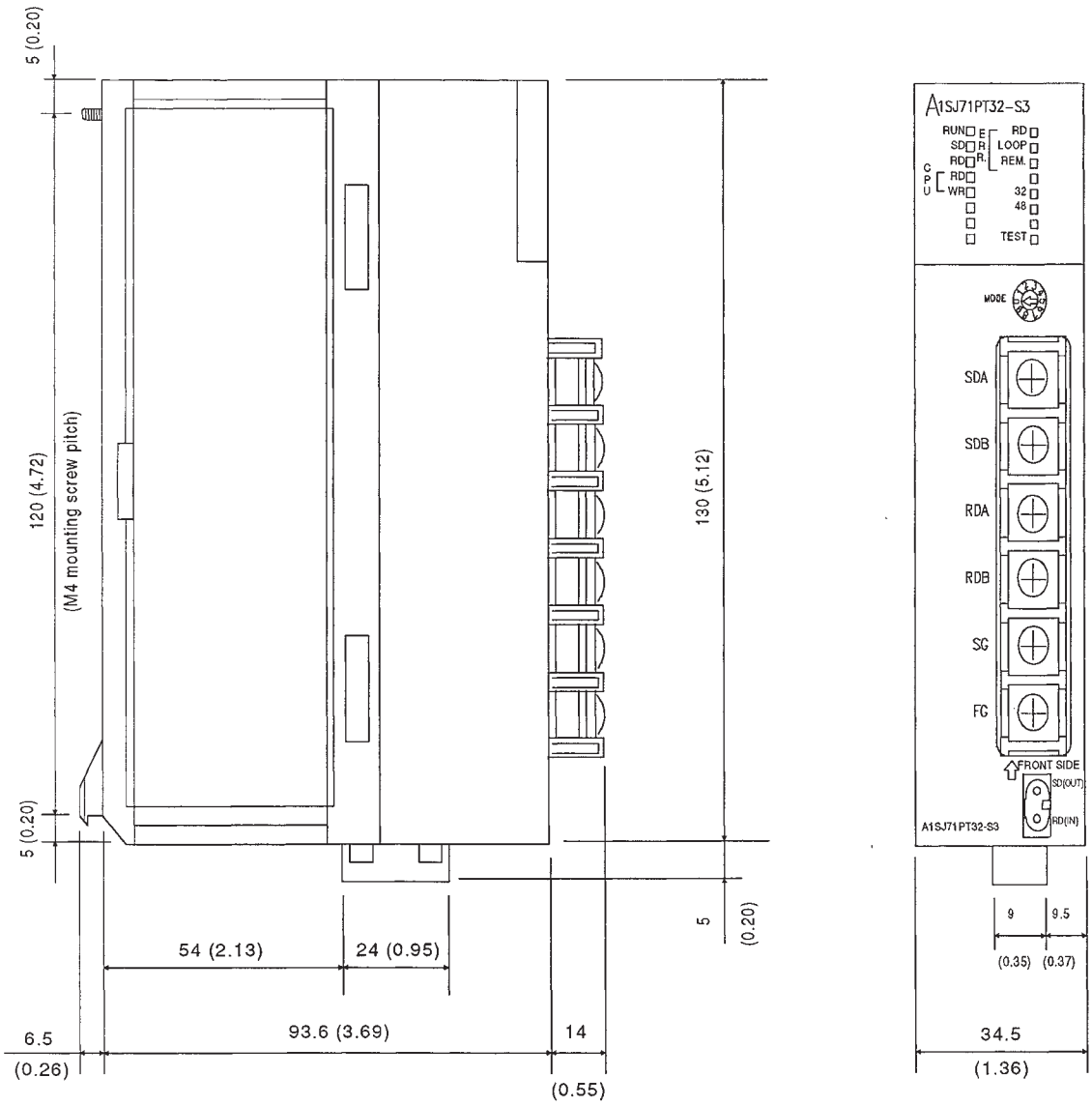
9 EXTERNAL DIMENSIONS

9.1 External Dimensions of MELSECNET/MINI-S3, A2C (I/O)

(1) AJ71PT32-S3, AJ71T32-S3



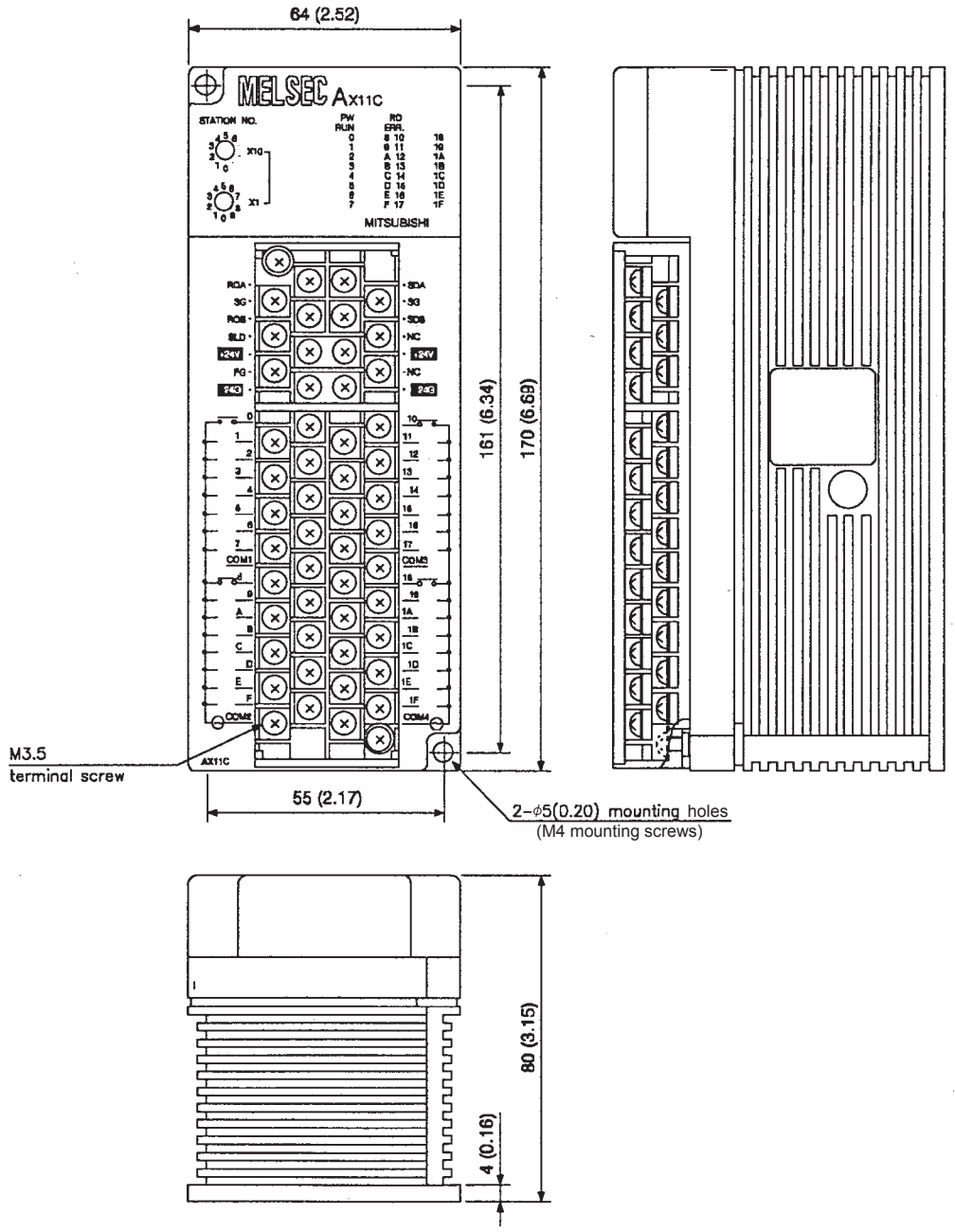
(2) A1SJ71PT32-S3, AISJ71T32-S3



Unit : mm (inch)

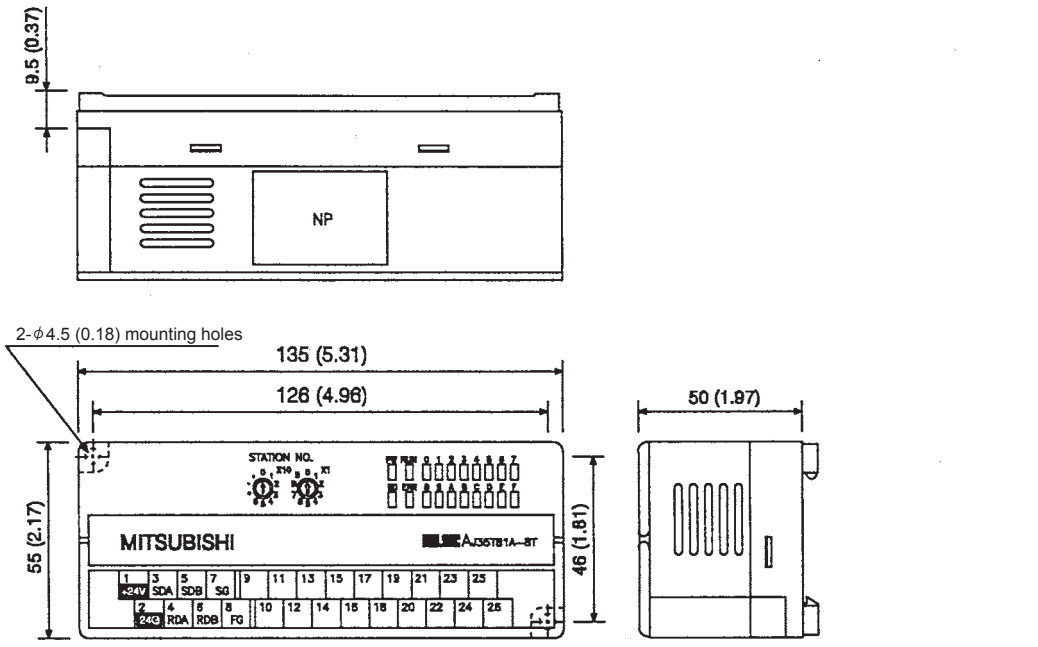
(3) A2C I/O module

The following shows the external dimensions of the AX□C, AY□C, and AX□Y□C.



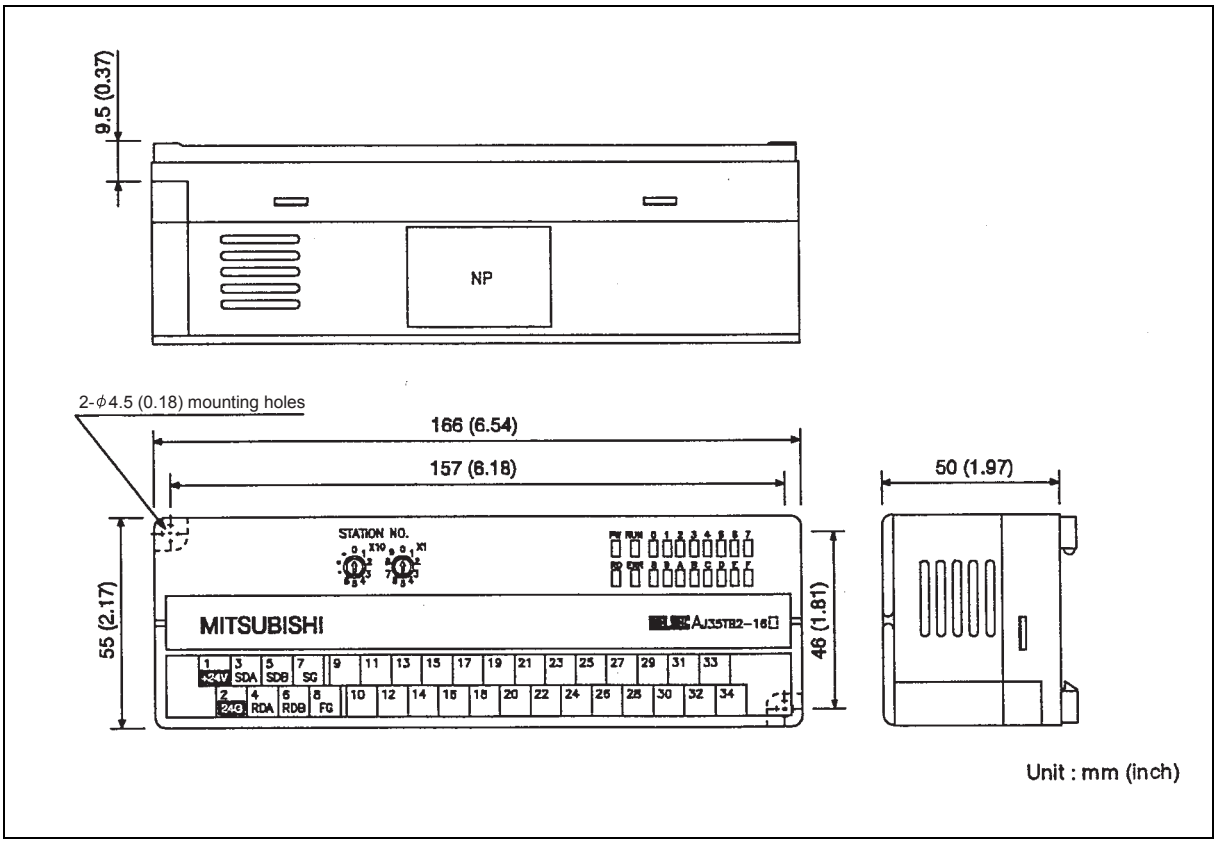
(4) Remote terminal block I/O module, remote connector I/O module

(a) External dimensions of 26-point terminal block module type

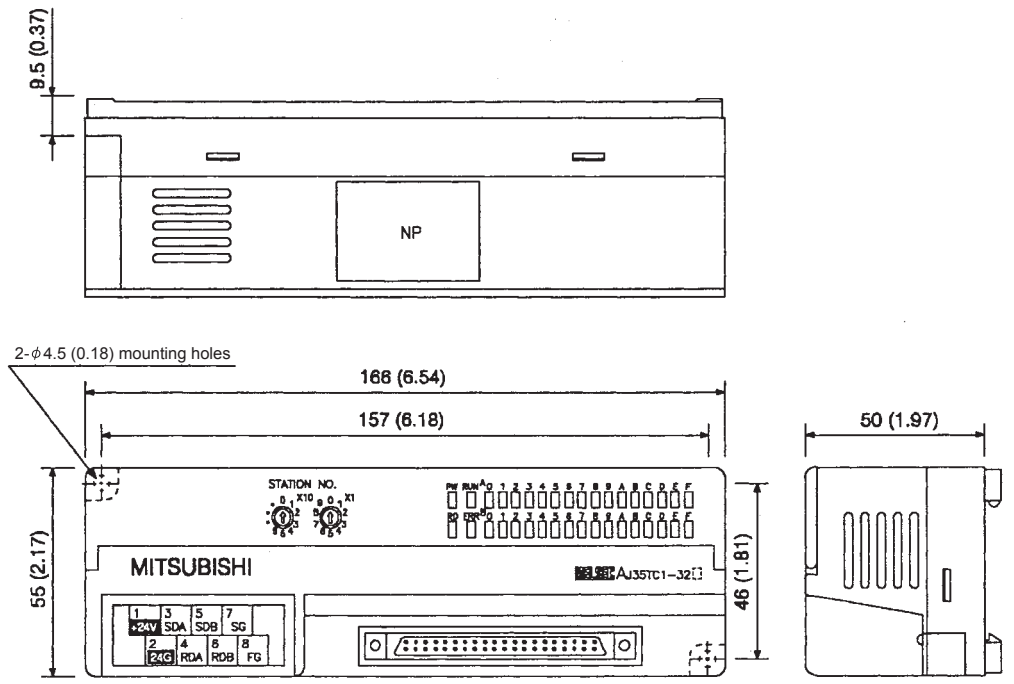


Unit : mm (inch)

(b) External dimensions of 34-point terminal block module type



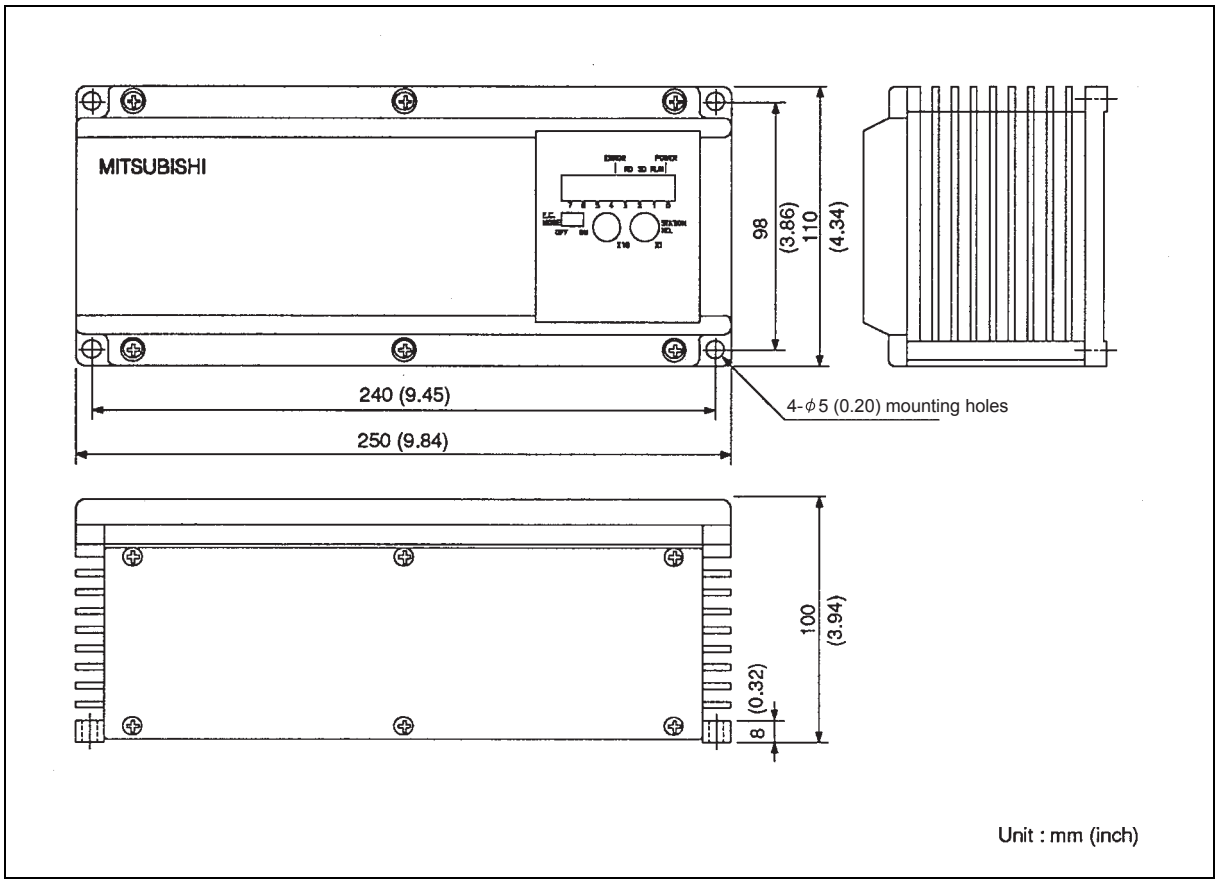
(c) External dimensions of AJ35TC1-32□



Unit : mm (inch)

(5) Stand-alone remote I/O module

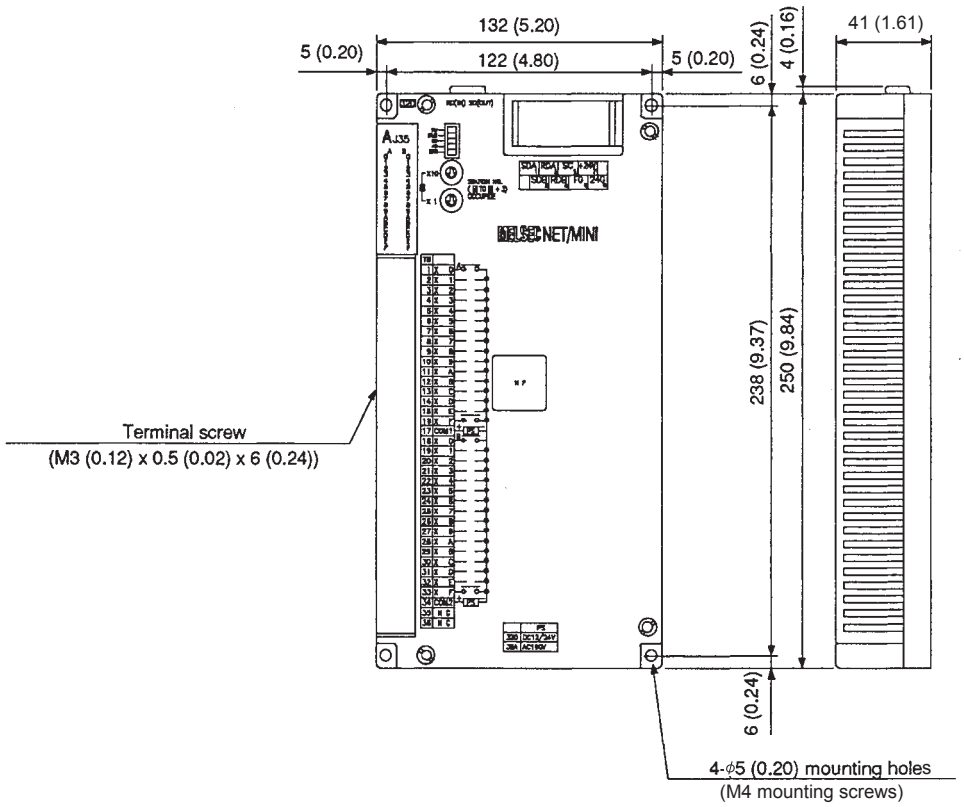
(a) External dimensions of AJ35□J-8□



(6) Compact type remote I/O module

(a) External dimensions of AJ35PTF-32, 28, 24□□

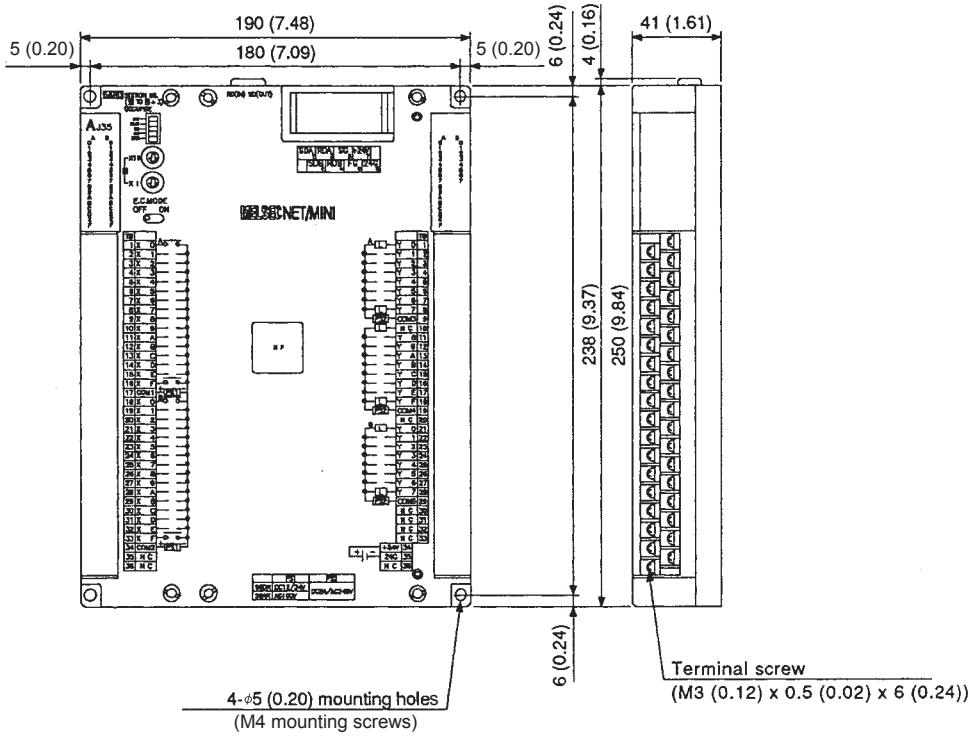
The figure below shows the external dimensions of AJ35PTF-32□. The external dimensions of the AJ35PTF-28 □□and AJ35PTF-24□ are the same.



Use M4 mounting screws with a length of 18 (0.71) to 20 (0.79)(mm(inch)).

Unit : mm (inch)

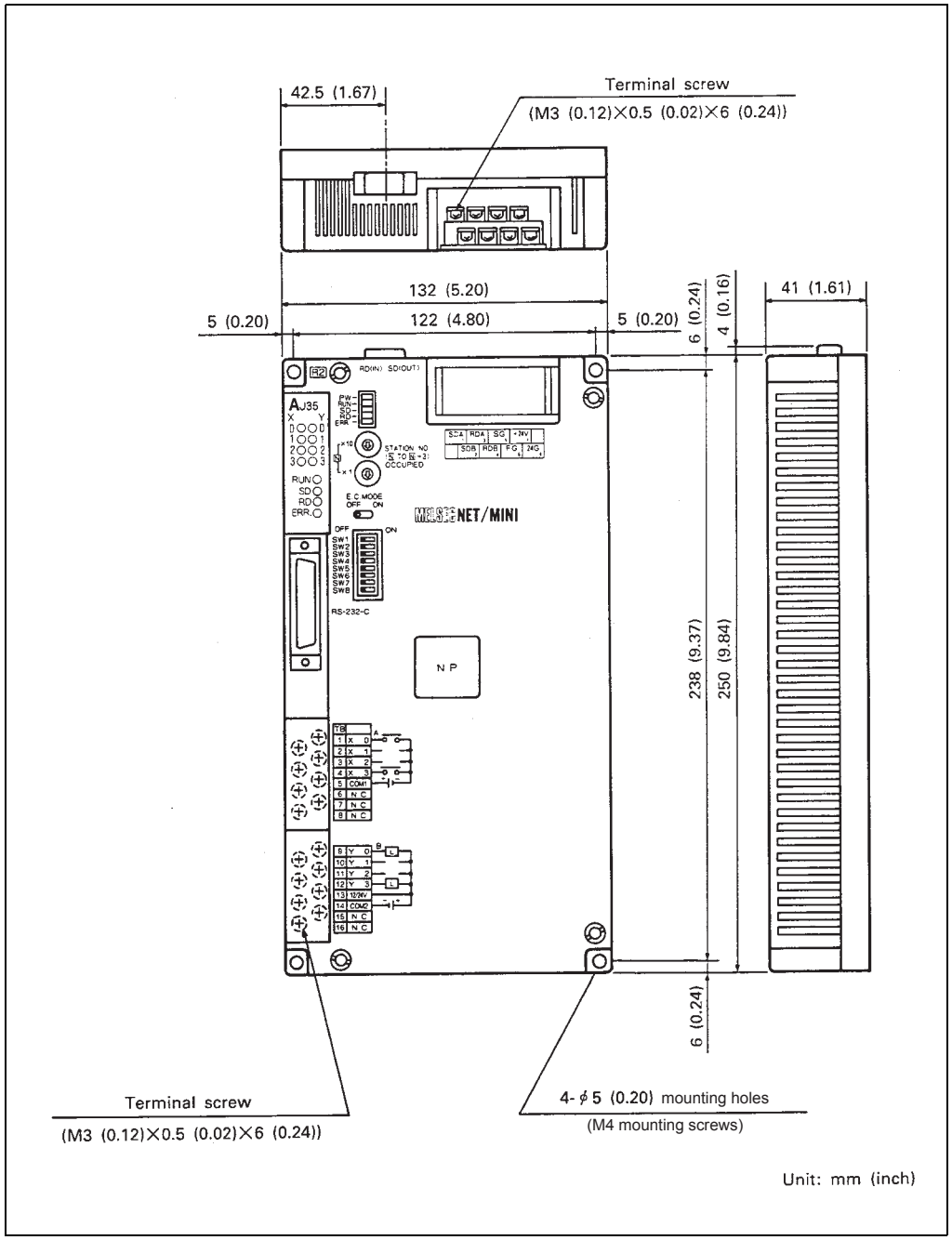
(b) External dimensions of AJ35PTF-56□□



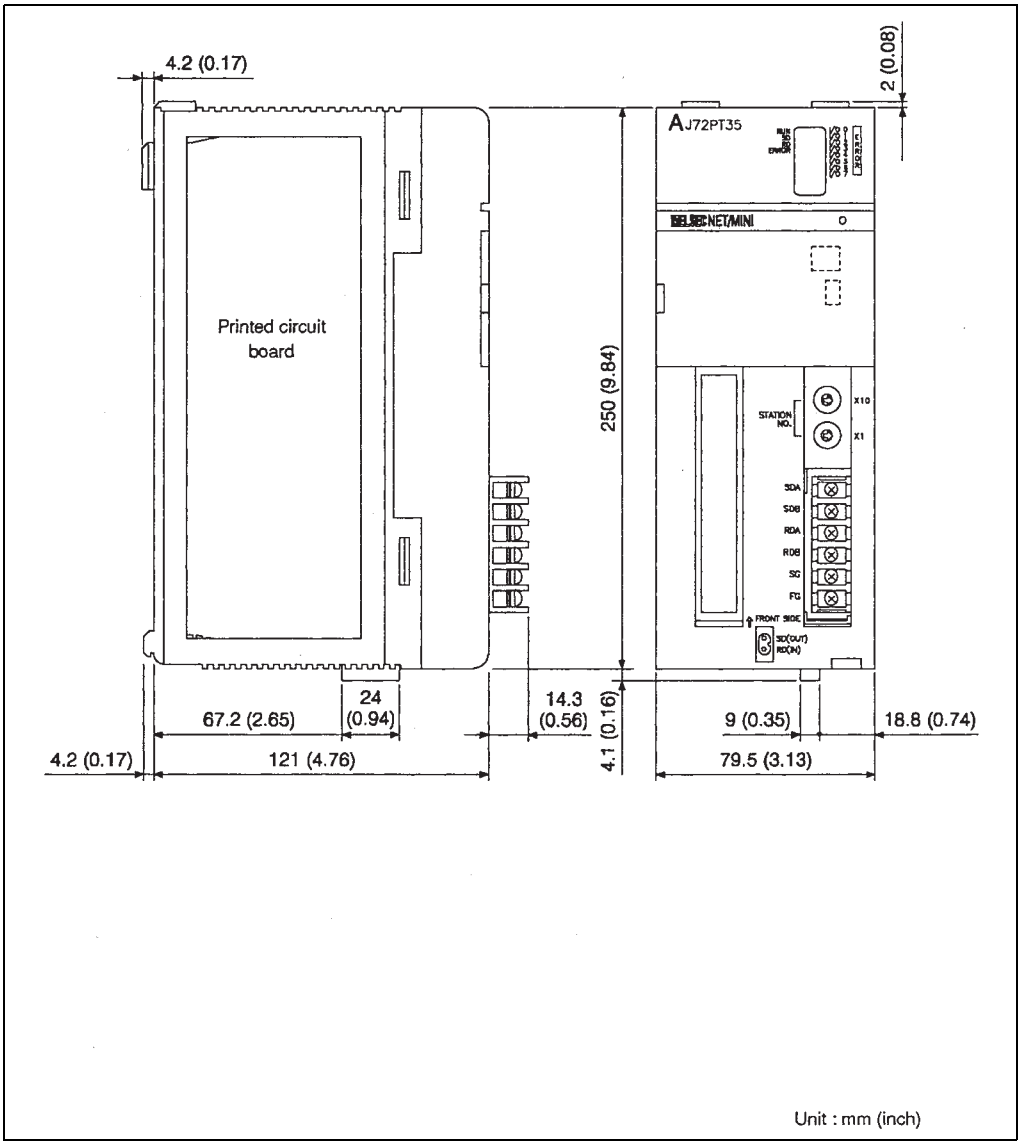
Use M4 mounting screws with a length of 18 (0.71) to 20 (0.79)(mm (inch)).

Unit : mm (inch)

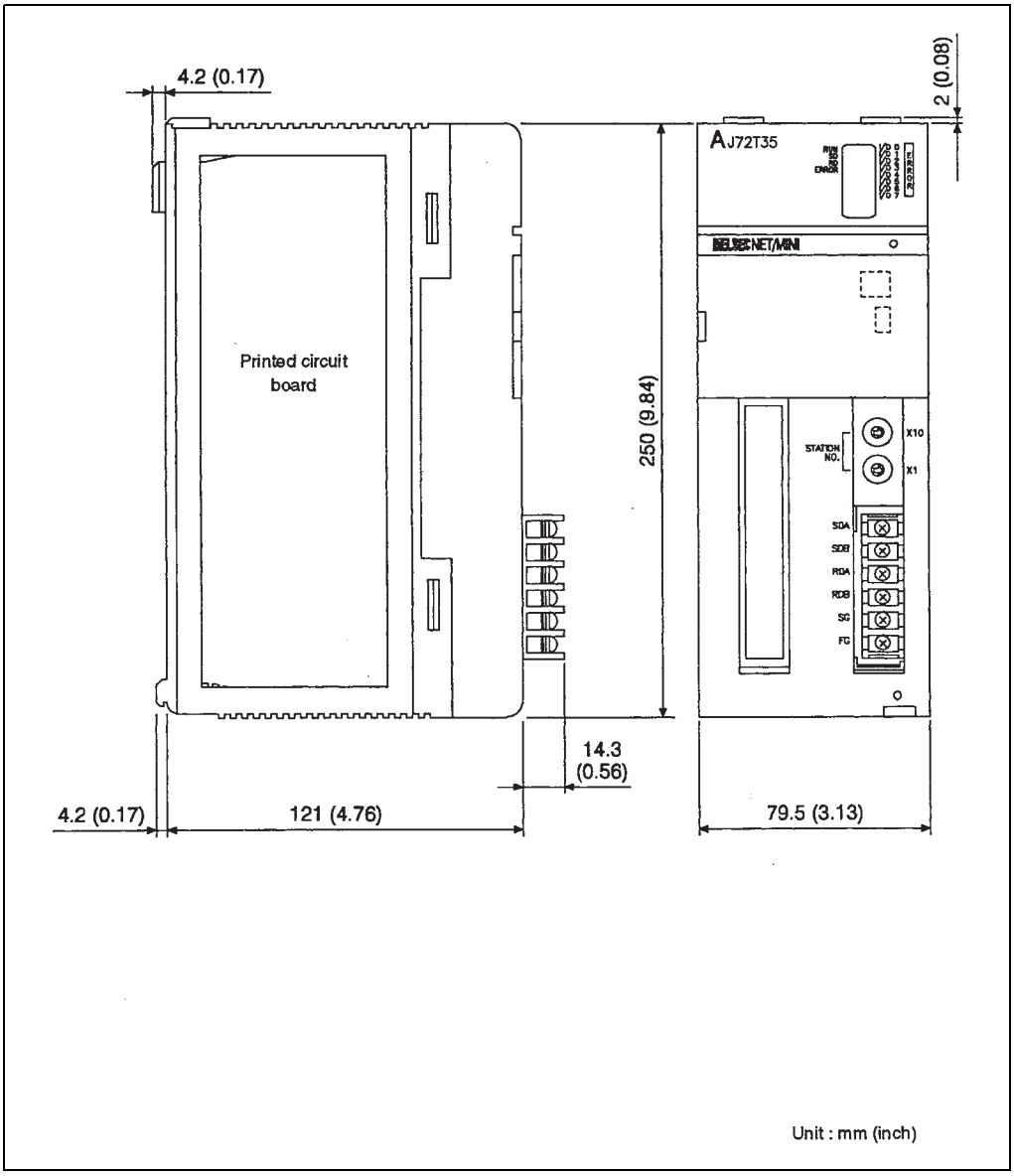
(7) AJ35PTF-R2


42.5 (1.67)
Terminal screw
(M3 (0.12)×0.5 (0.02)×6 (0.24))
132 (5.20)
122 (4.80)
5 (0.20)
5 (0.20)
6 (0.24)
4 (0.16)
41 (1.61)
238 (9.37)
250 (9.84)
6 (0.24)
Terminal screw
(M3 (0.12)×0.5 (0.02)×6 (0.24))
4-ϕ5 (0.20) mounting holes
(M4 mounting screws)
Unit: mm (inch)

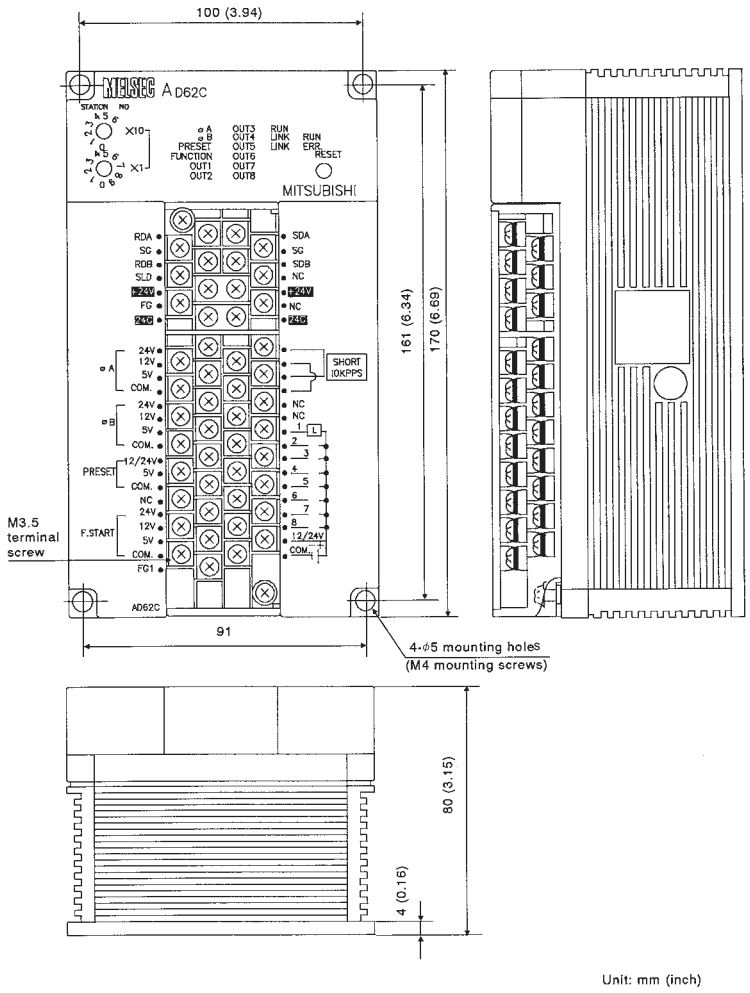
(8) AJ72PT35


4.2 (0.17)
2 (0.08)
AJ72PT35
MELSECNET/MINI
Printed circuit board
250 (9.84)
STATION NO.
X10
X1
SDA
SDB
RDA
RDB
SG
FG
FRONT SIDE
SD(OUT)
RD(IN)
24 (0.94)
67.2 (2.65)
14.3 (0.56)
4.1 (0.16)
9 (0.35)
18.8 (0.74)
4.2 (0.17)
121 (4.76)
79.5 (3.13)
Unit : mm (inch)

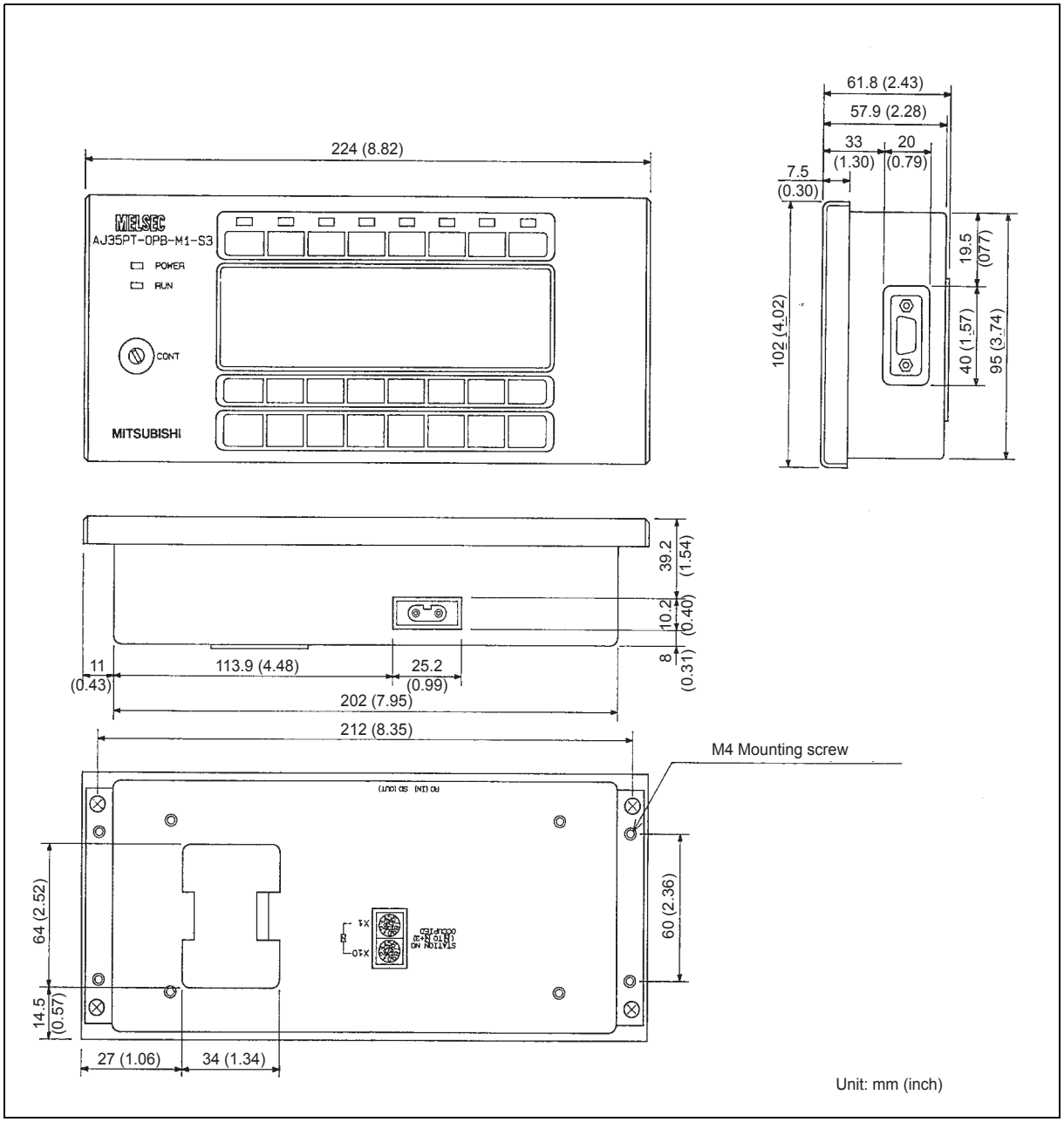
(9) AJ72T35


4.2 (0.17)
2 (0.08)
AJ72T35
Printed circuit board
250 (9.84)
STATION NO.
X10
X1
SDA
SDB
RDA
RDB
SG
FG
14.3 (0.56)
4.2 (0.17)
121 (4.76)
79.5 (3.13)
Unit : mm (inch)

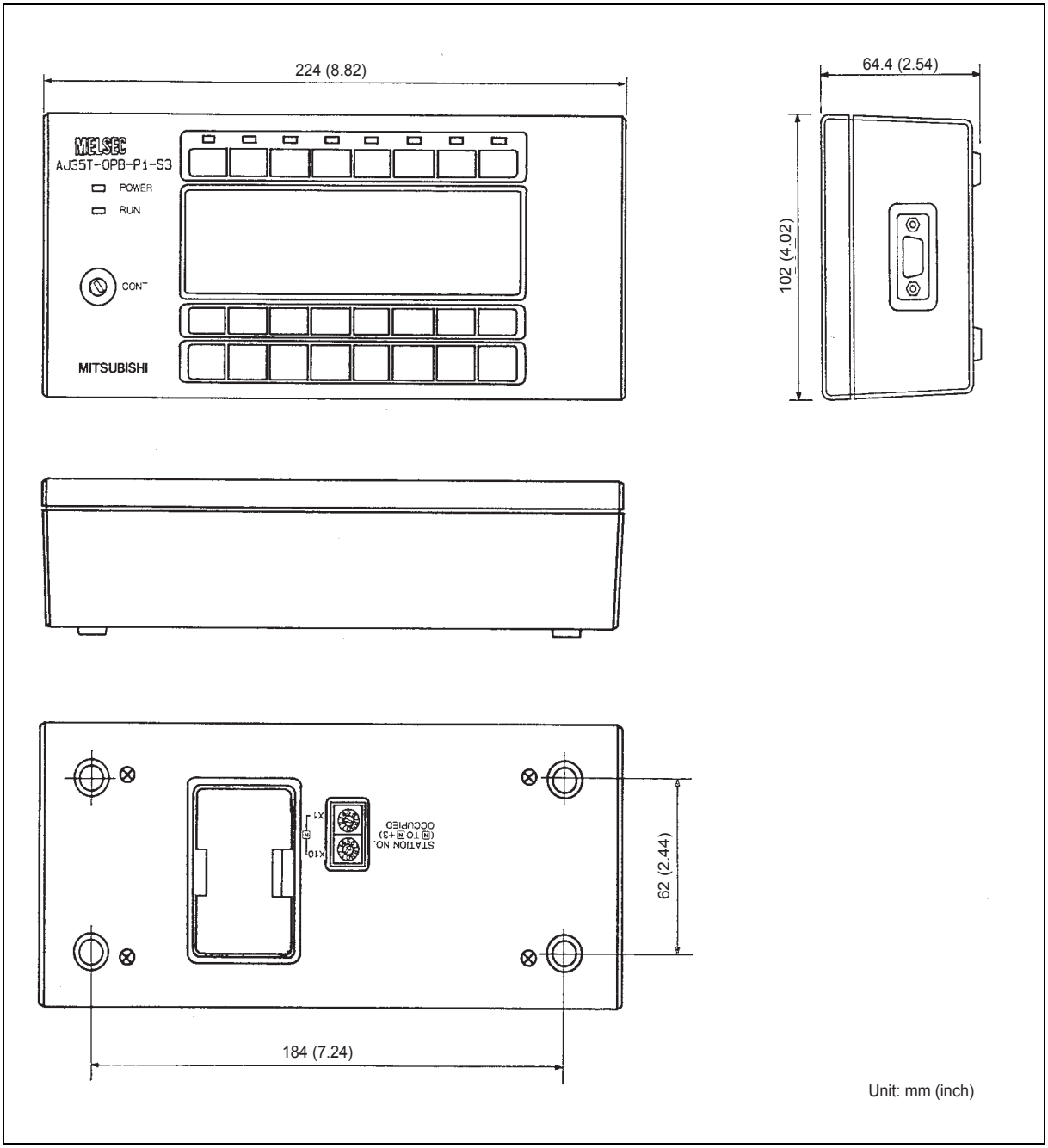
(10) AD62C, AD61C, A64RD4C, A64RD3C, A64DAVC, A64DAIC, A68ADC



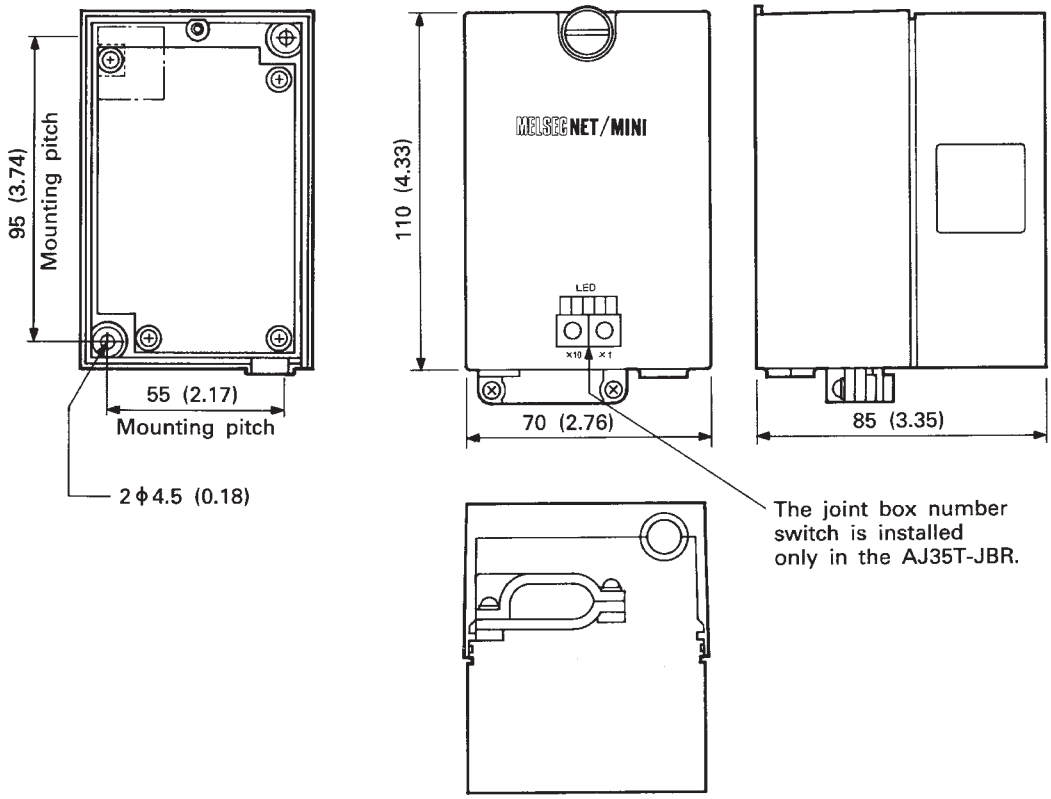
(11) AJ35PT-OPB-M1-S3



(12) AJ35T-OPB-P1-S3

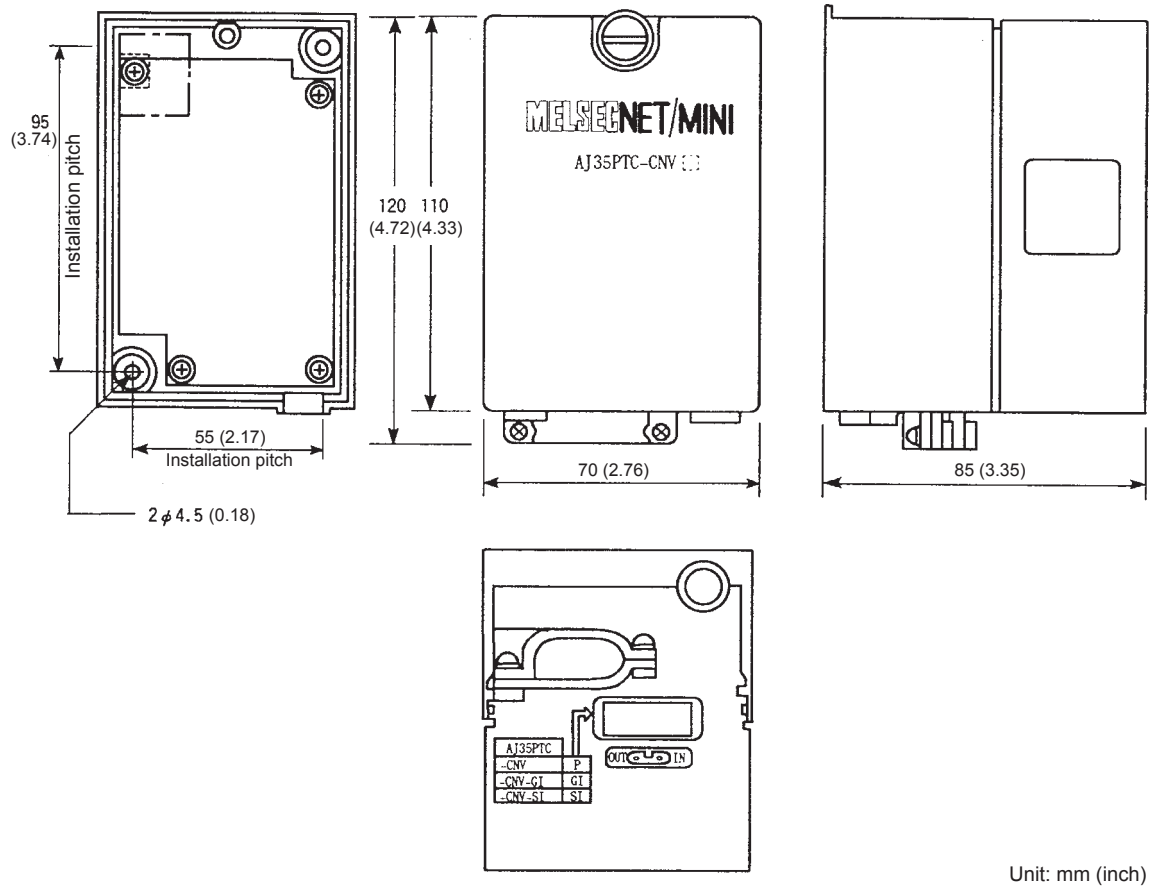


(13) AJ35T-JB-S3, AJ35T-JBR-S3



Unit: mm (inch)

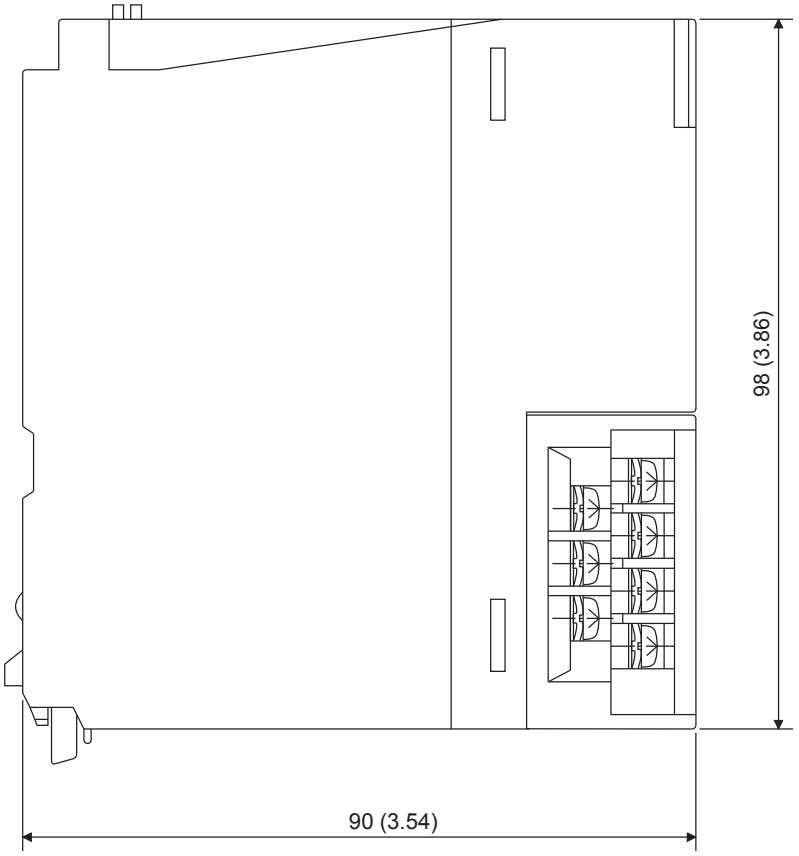
(14) AJ35PTC-CNV□

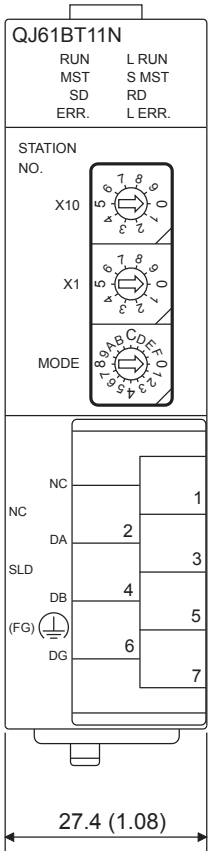


Unit: mm (inch)

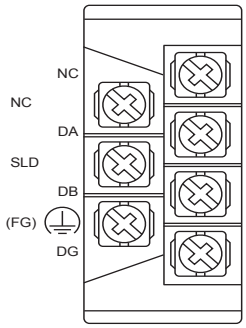
9.2 CC-Link External Dimensions

(1) QJ61BT11N



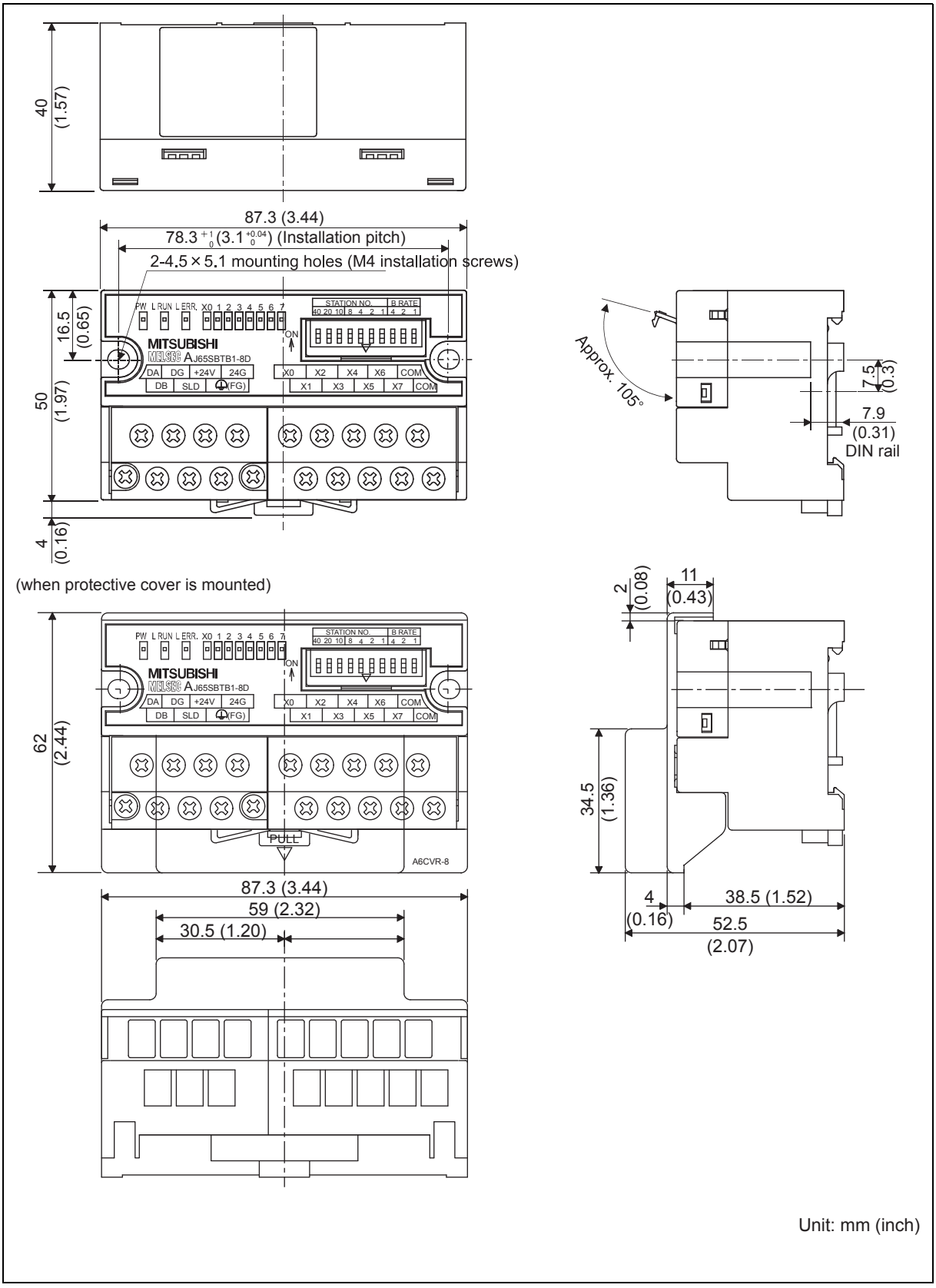


[View with cover of terminal block open]



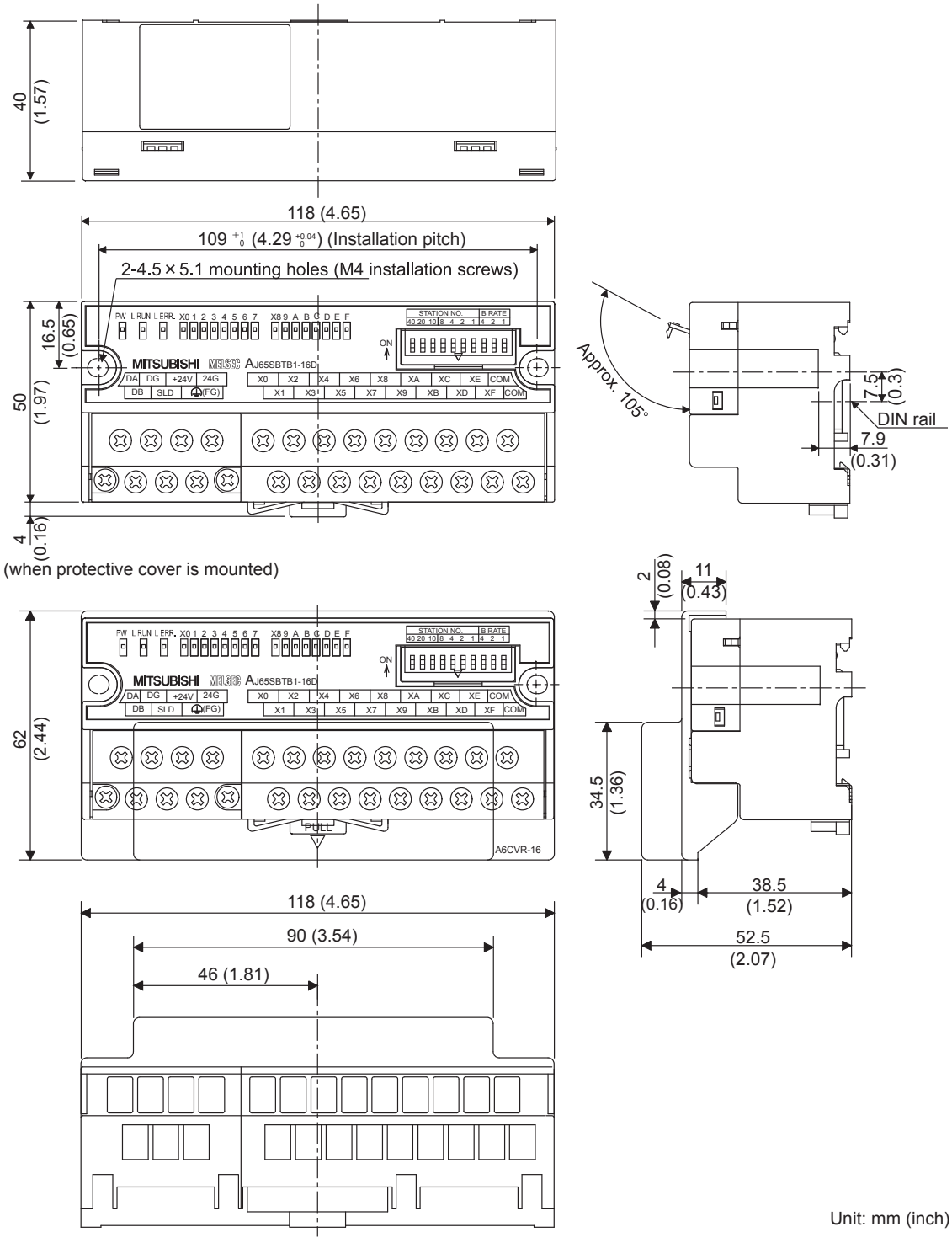
Unit: mm (inch)

(2) AJ65SBTB1-8□ remote I/O module



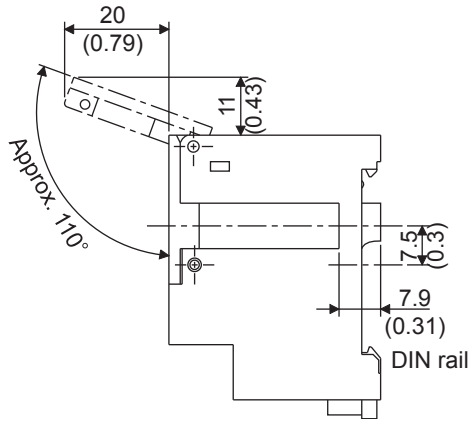
Unit: mm (inch)

(3) AJ65SBTB1-16□ remote I/O module

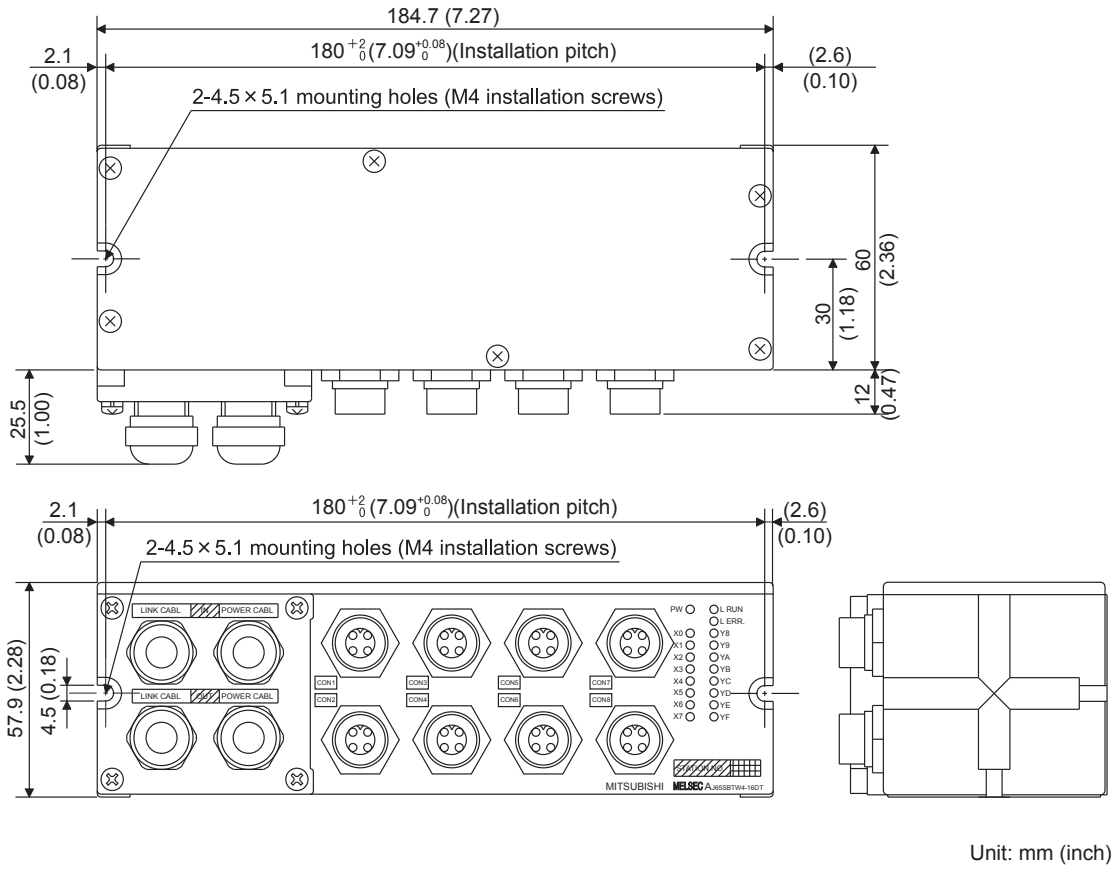


Remark

The following shows the side face of AJ65SBTB1-16D and AJ65SBTB1-16T remote I/O modules of hardware version D or earlier.

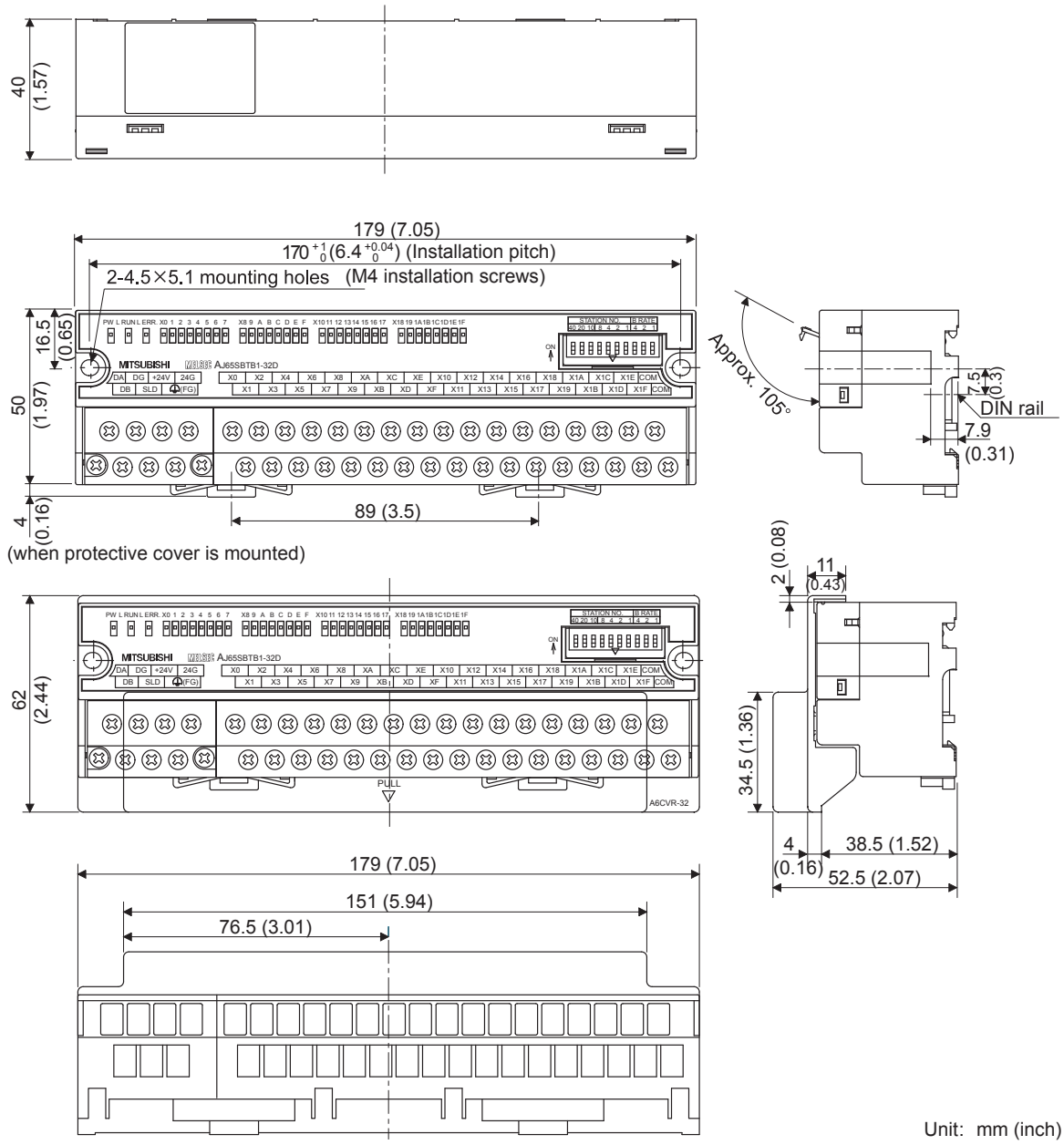


(4) AJ65SBTW4-16□ remote I/O module



Unit: mm (inch)

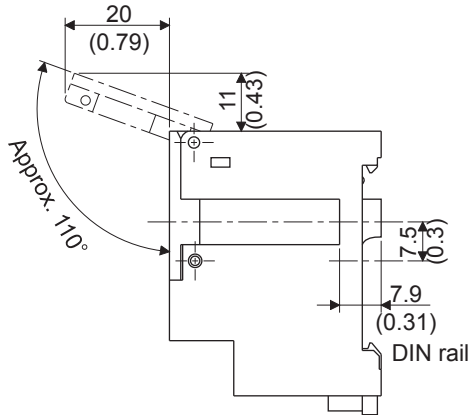
(5) AJ65SBTB1-32□ remote I/O module



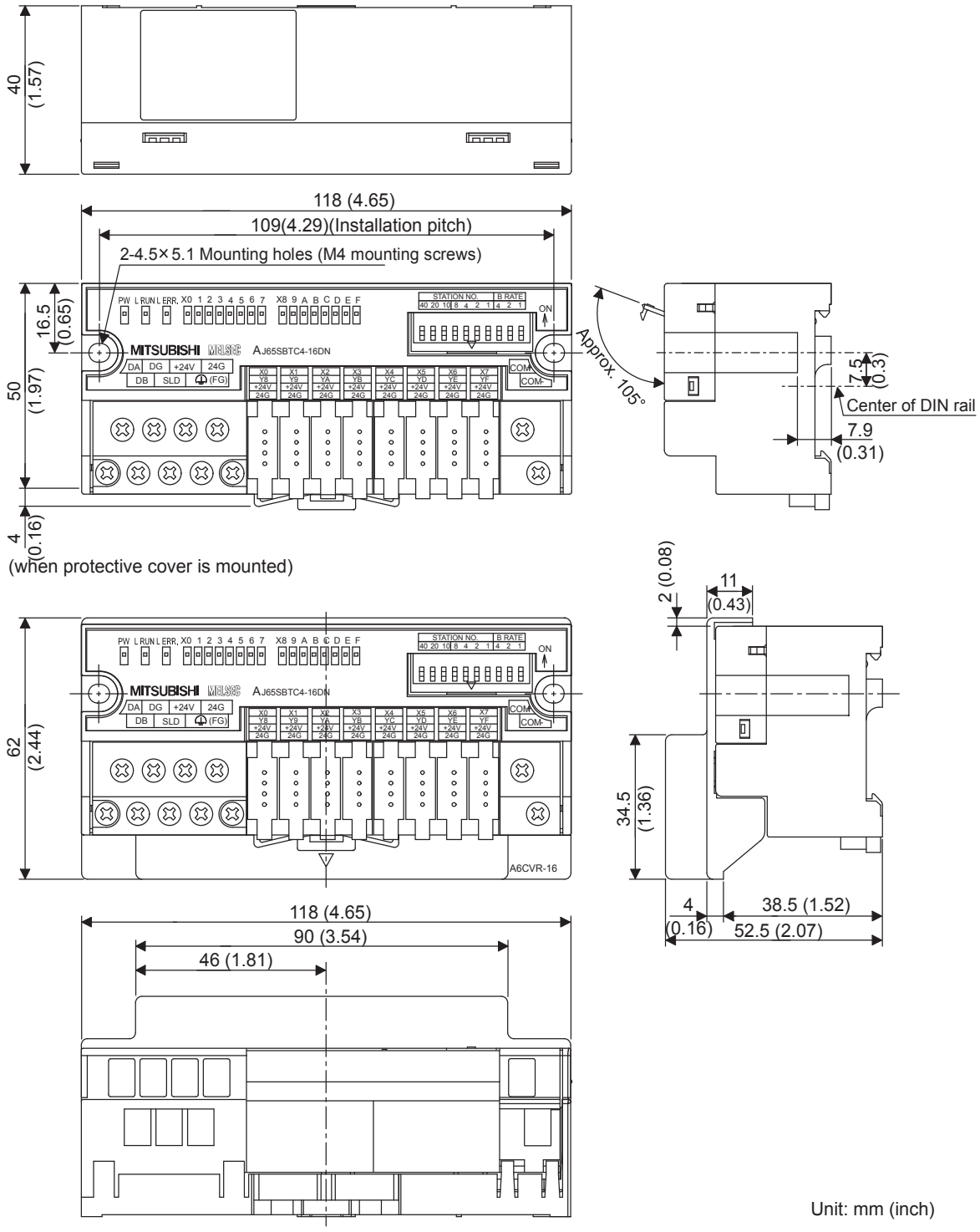
Unit: mm (inch)

Remark

The following shows the side face of AJ65SBTB1-32D and AJ65SBTB1-32T remote I/O modules of hardware version D or earlier.

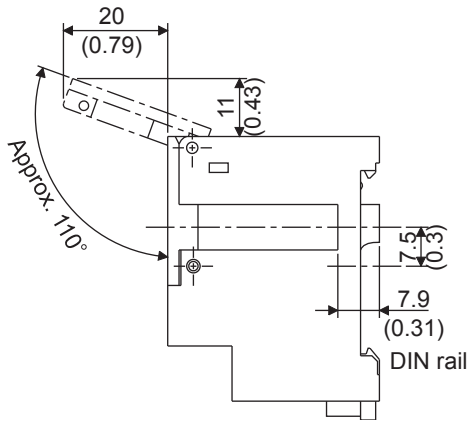


(6) AJ65SBTC4-16□, AJ65SBTC1-32□ remote I/O module



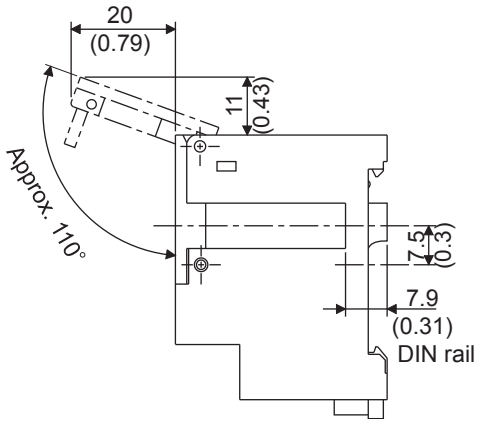
Remark

- The following shows the side face of the AJ65SBTC4-16D remote I/O module.

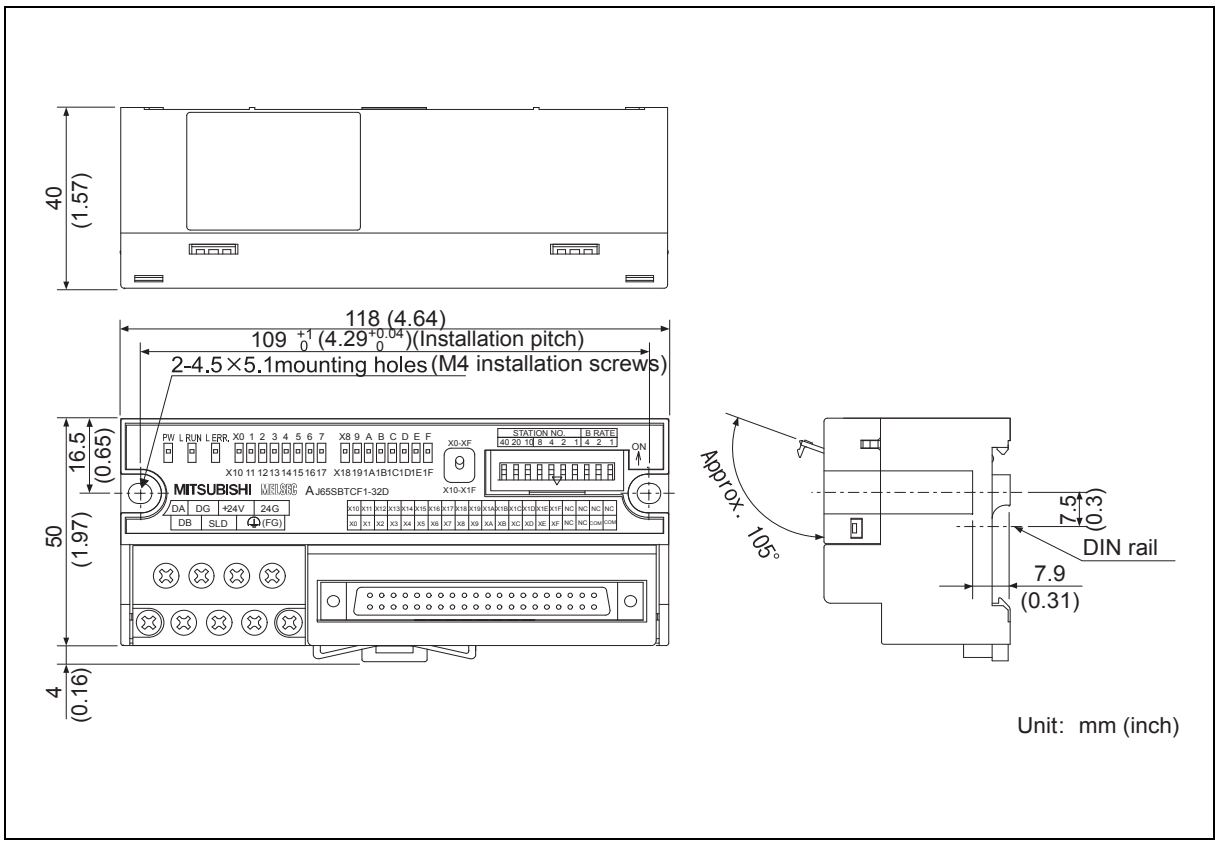


- The following shows the side face of the modules in the following table.

Model name	Target hardware version
AJ65SBTC1-32D	N or earlier
AJ65SBTC1-32D1	N or earlier
AJ65SBTC1-32T	Q or earlier
AJ65SBTC1-32T1	E or earlier
AJ65SBTC1-32DT	Q or earlier
AJ65SBTC1-32DT1	Q or earlier
AJ65SBTC1-32DT2	D or earlier
AJ65SBTC1-32DT3	D or earlier
AJ65SBTC4-16DT	J or earlier
AJ65SBTC4-16DT2	C or earlier



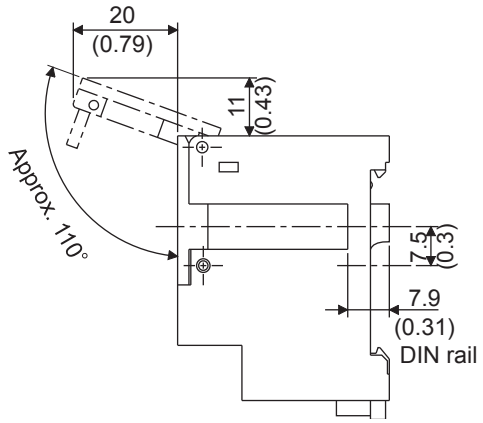
(7) AJ65SBTCF1-32□ remote I/O module



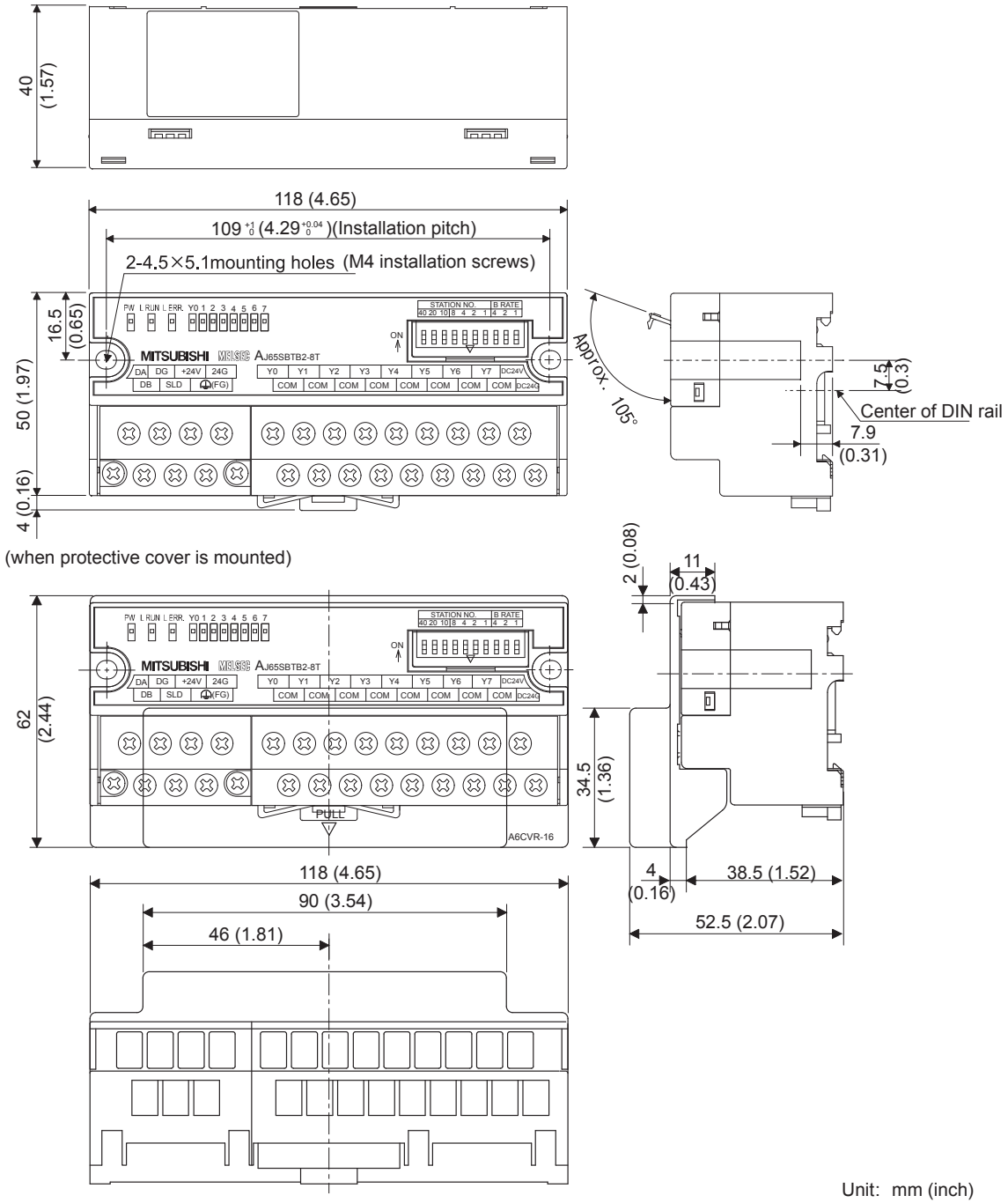
Remark

The following shows the side face of the modules in the following table.

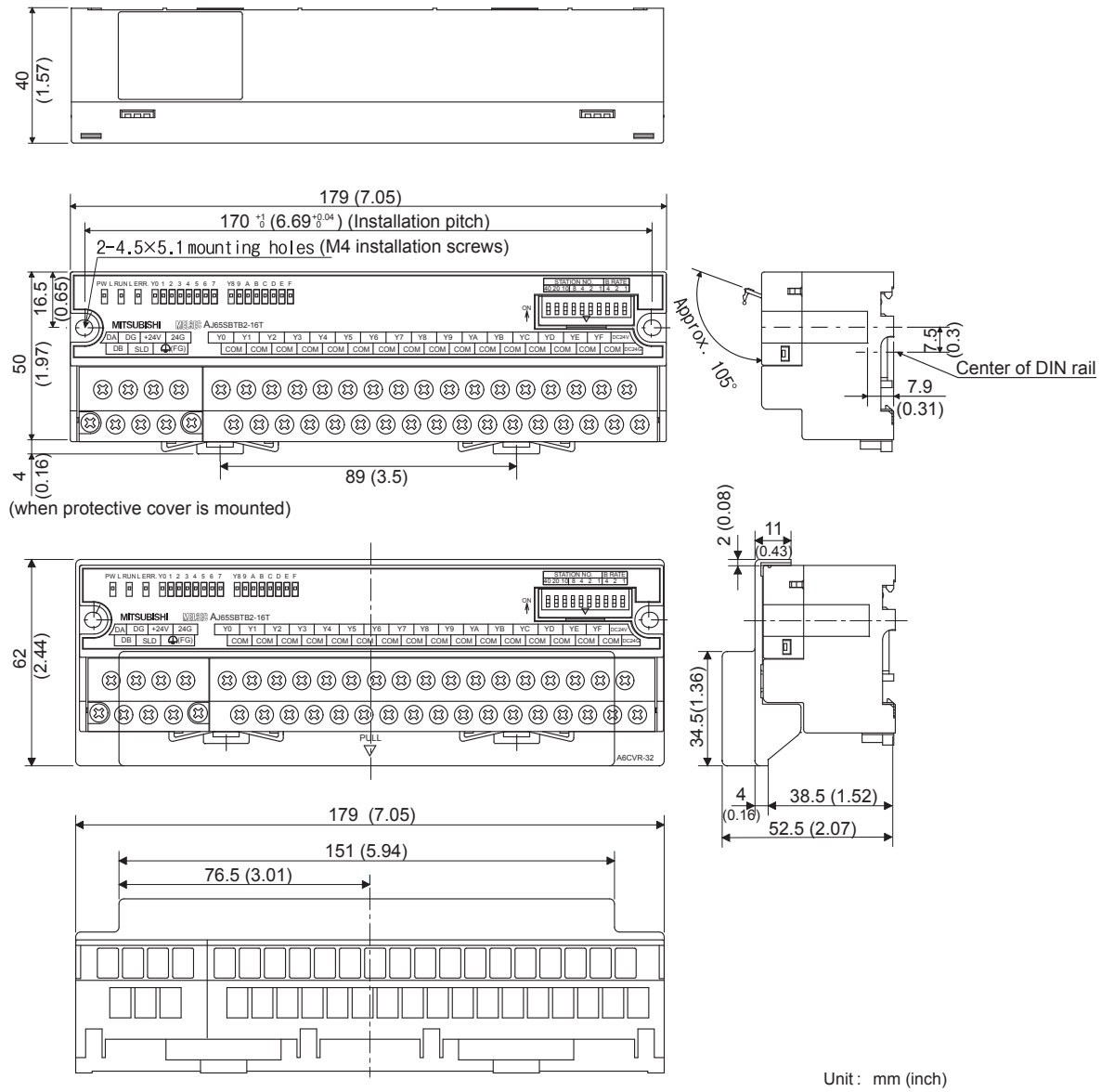
Model name	Target hardware version
AJ65SBTCF1-32D	F or earlier
AJ65SBTCF1-32T	F or earlier
AJ65SBTCF1-32DT	F or earlier



(8) AJ65SBTB2-8□, AJ65SBTB3-8□, AJ65SBTB32-8□ remote I/O module

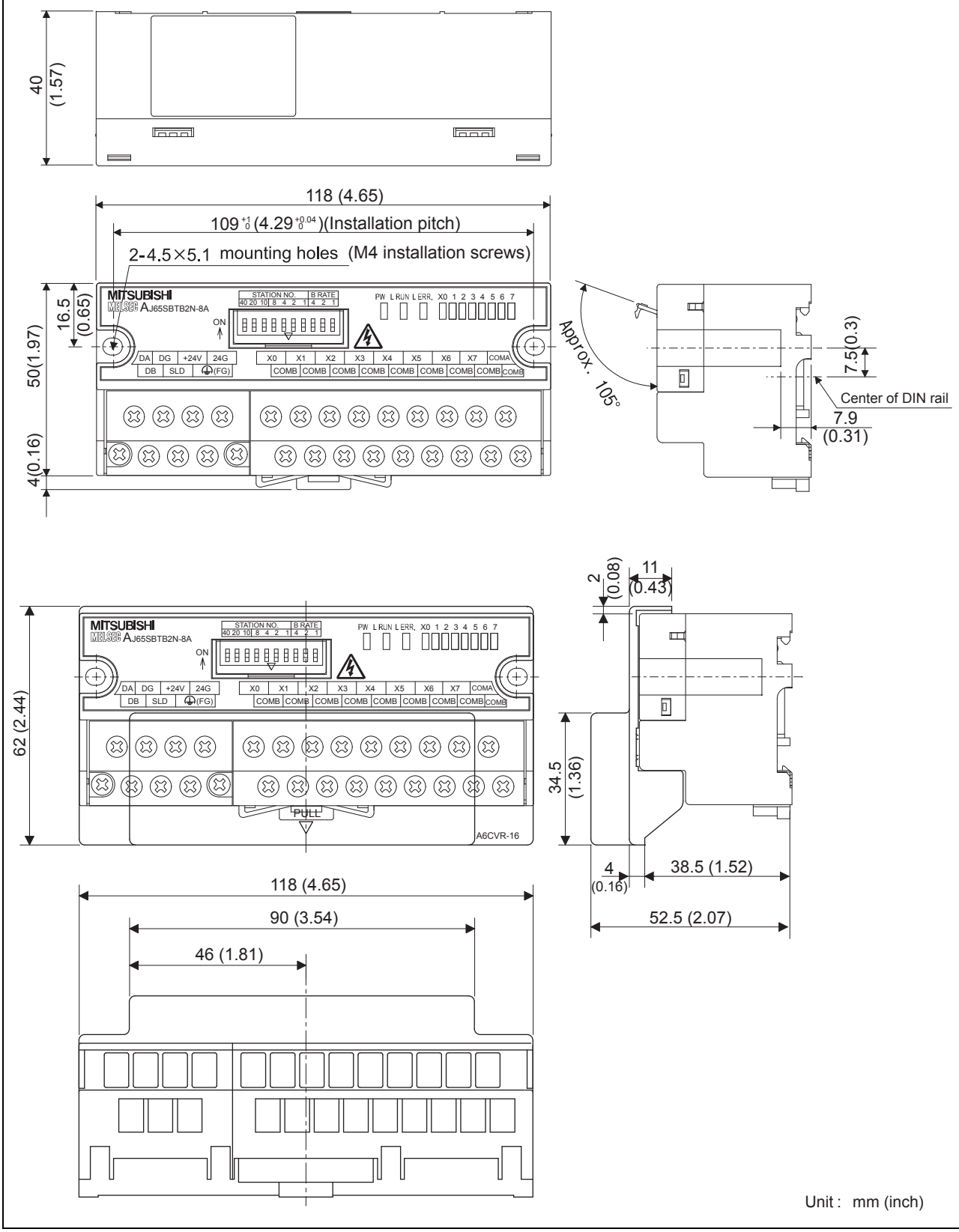


(9) AJ65SBTB2-16□, AJ65SBTB3-16□, AJ65SBTB32-16□ remote I/O module



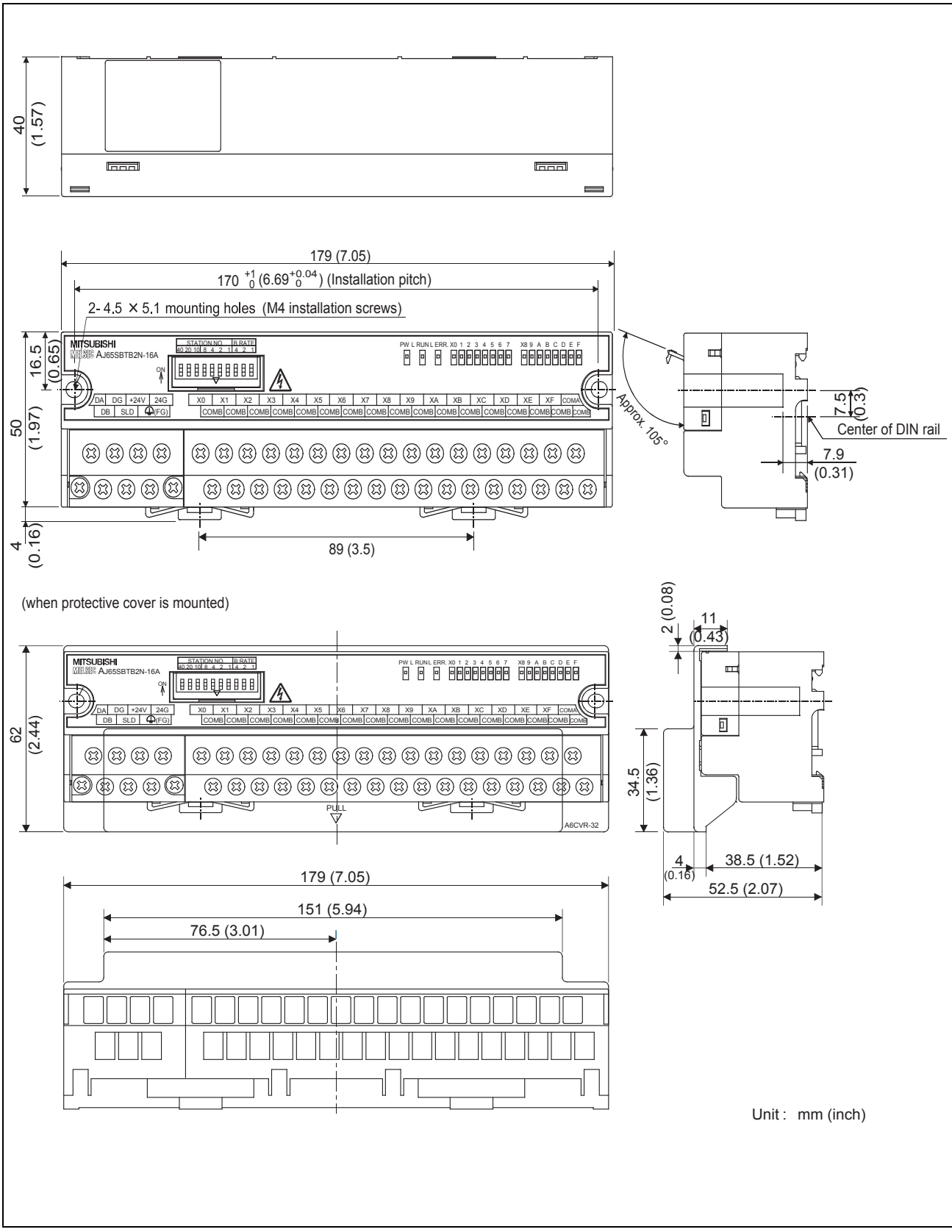
Unit : mm (inch)

(10) AJ65SBTB2N-8□ remote I/O module



Unit : mm (inch)

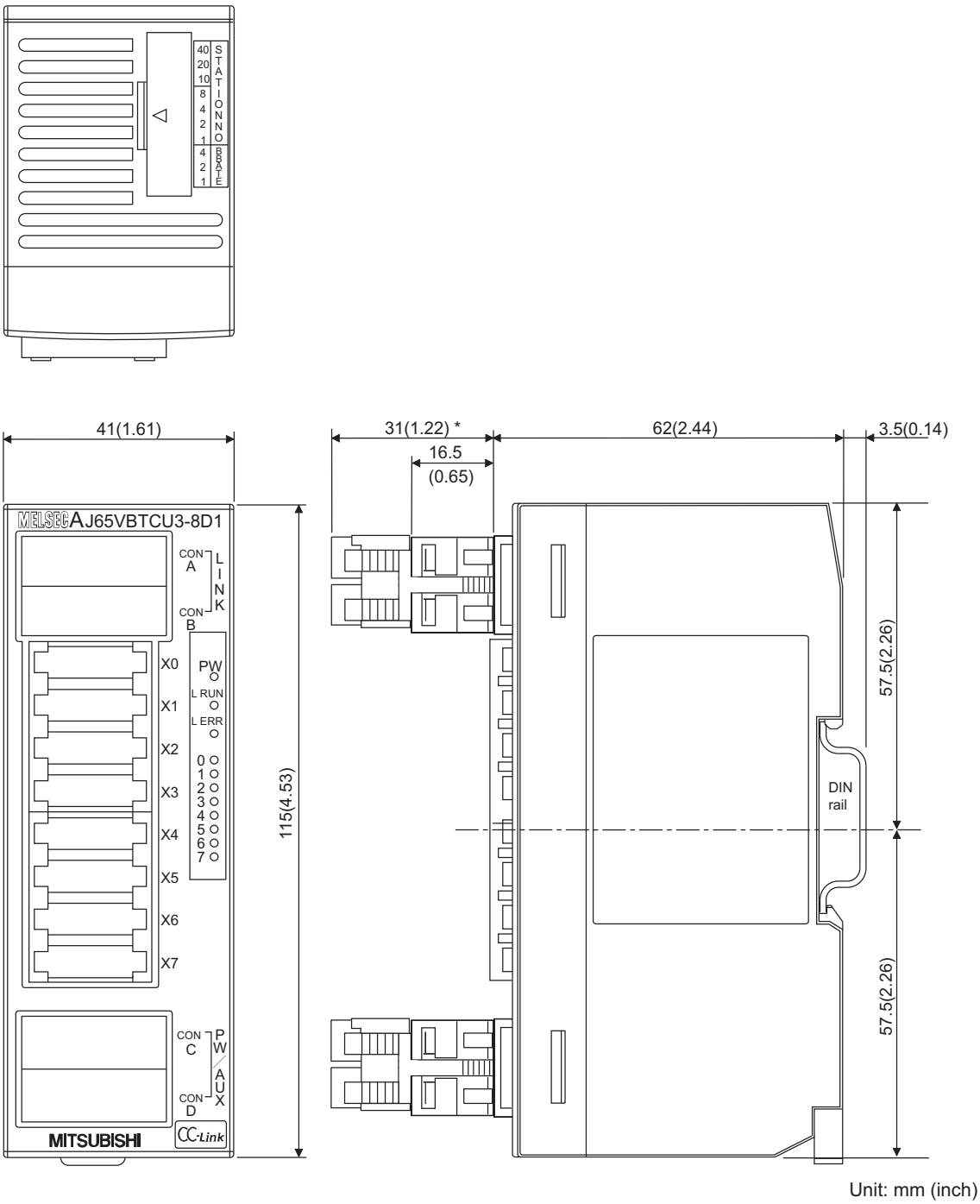
(11) AJ65SBTB2N-16□ remote I/O module



Unit : mm (inch)

(12) AJ65VBTCU□-8□, AJ65VBTCU□-16□, AJ65VBTCF1-32□ remote I/O module

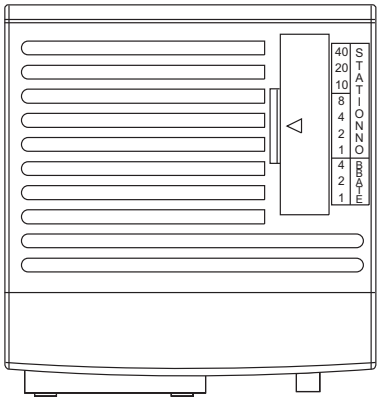
AJ65VBTCU□ -8□

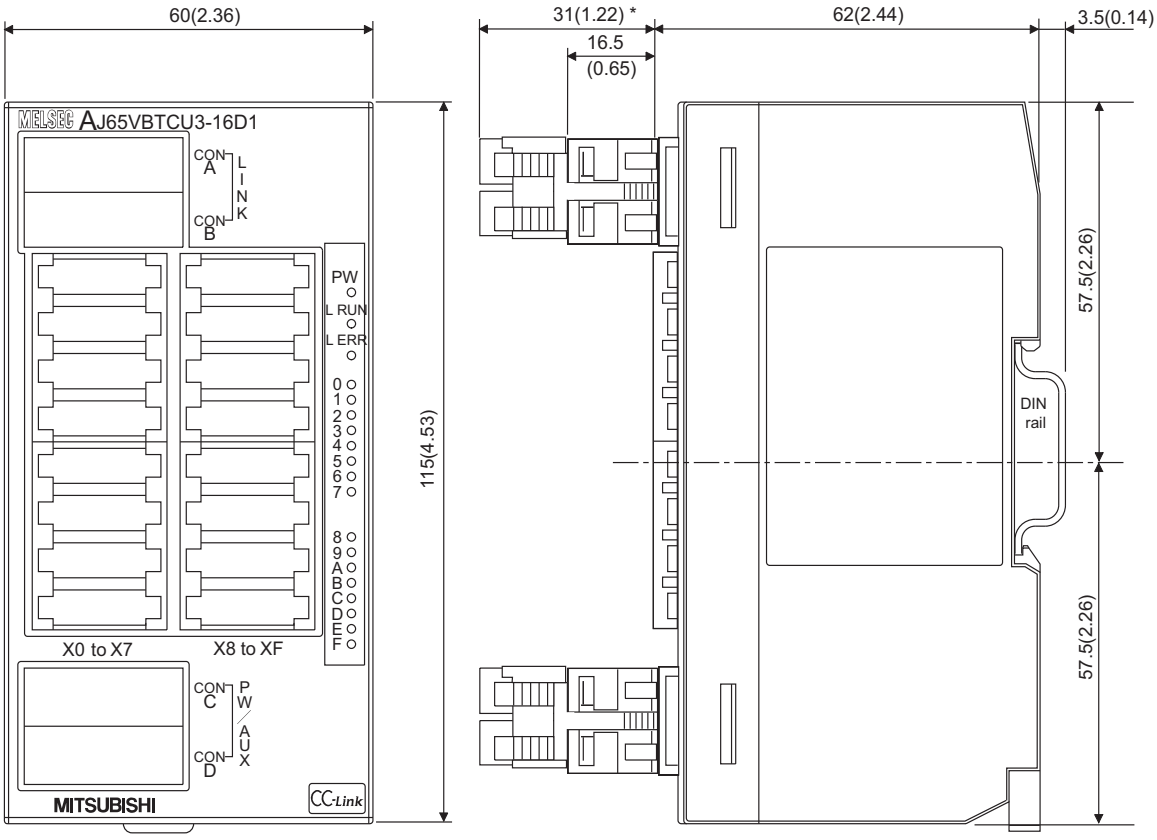


Unit: mm (inch)

*: This is 14.5mm (0.57inch) when the online connector is not mounted.

AJ65VBTCU□-16□

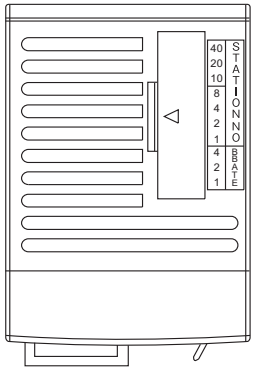


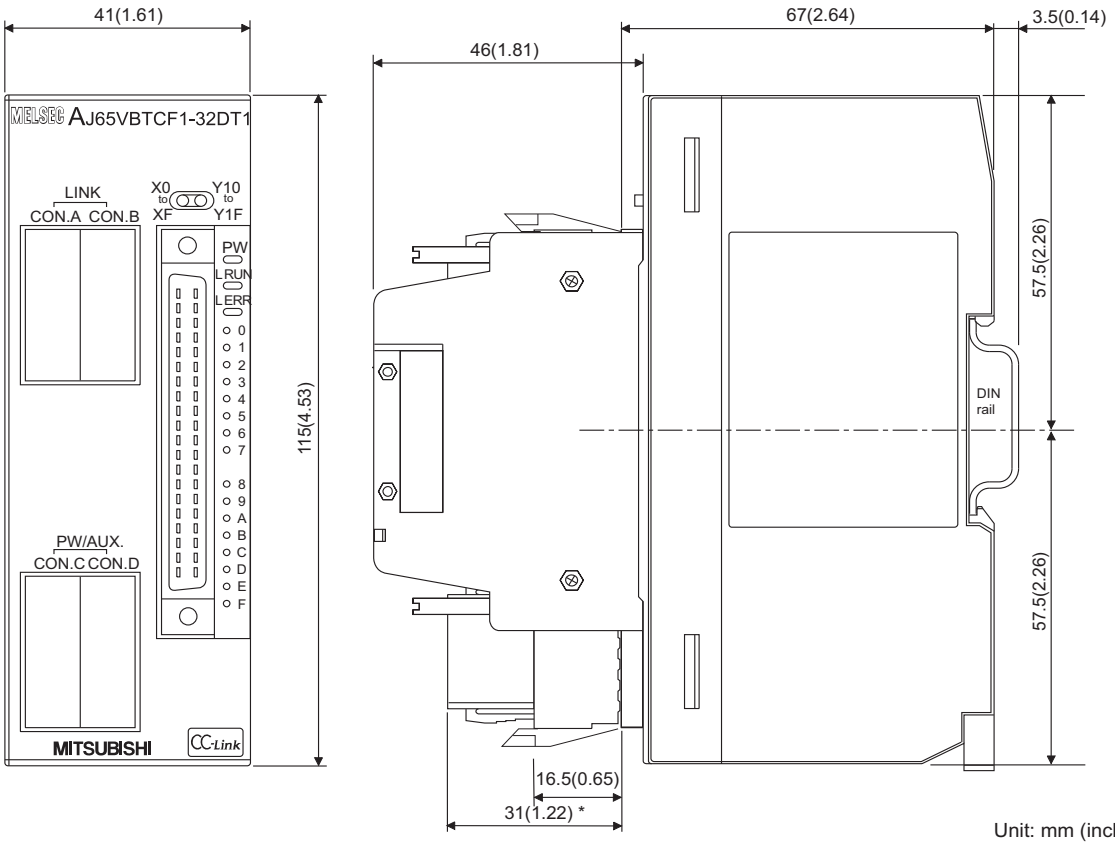


Unit: mm (inch)

*: This is 14.5mm (0.57inch) when the online connector is not mounted.

AJ65VBTCF1-32□



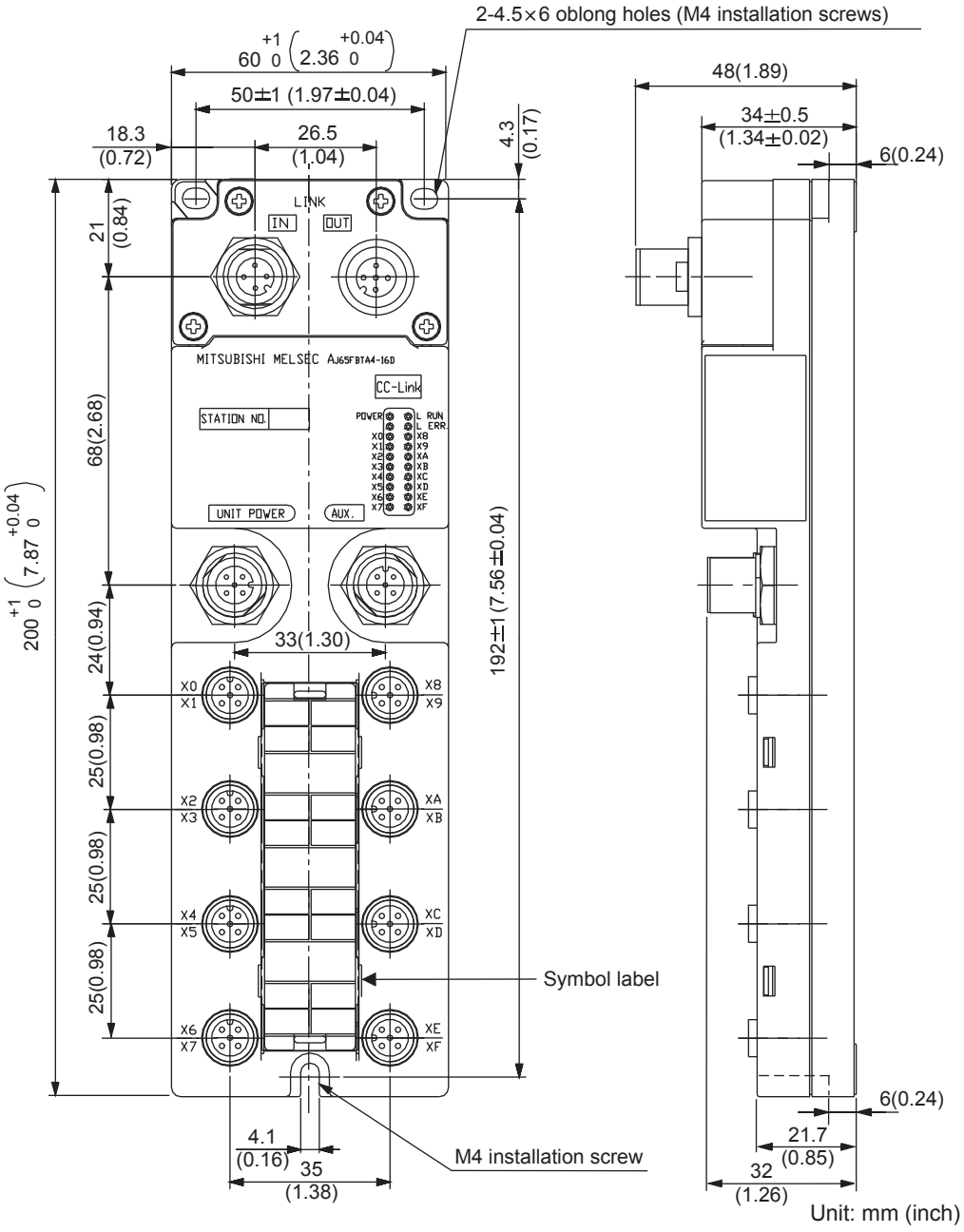


Unit: mm (inch)

*: This is 14.5mm (0.57inch) when the online connector is not mounted.

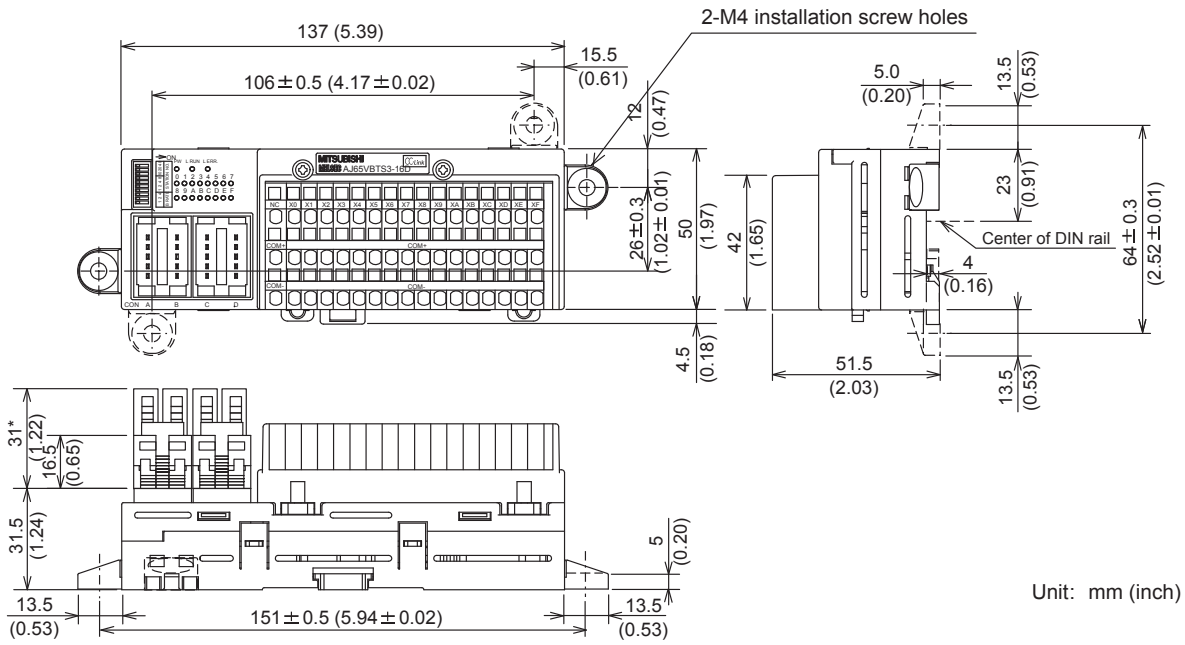
(13) AJ65FBTA□-16□ remote I/O module

AJ65FBTA□-16□



(14) AJ65VBTS□-16□, AJ65VBTS□-32□ remote I/O module

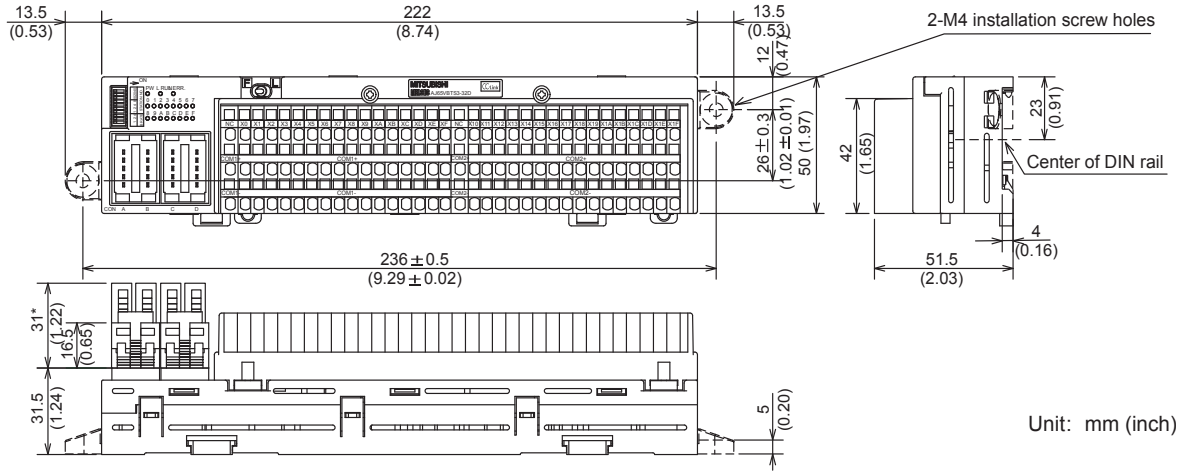
AJ65VBTS□-16□



Unit: mm (inch)

*: This is 14.5mm (0.57inch) when the online connector is not mounted.

AJ65VBTS□ -32□

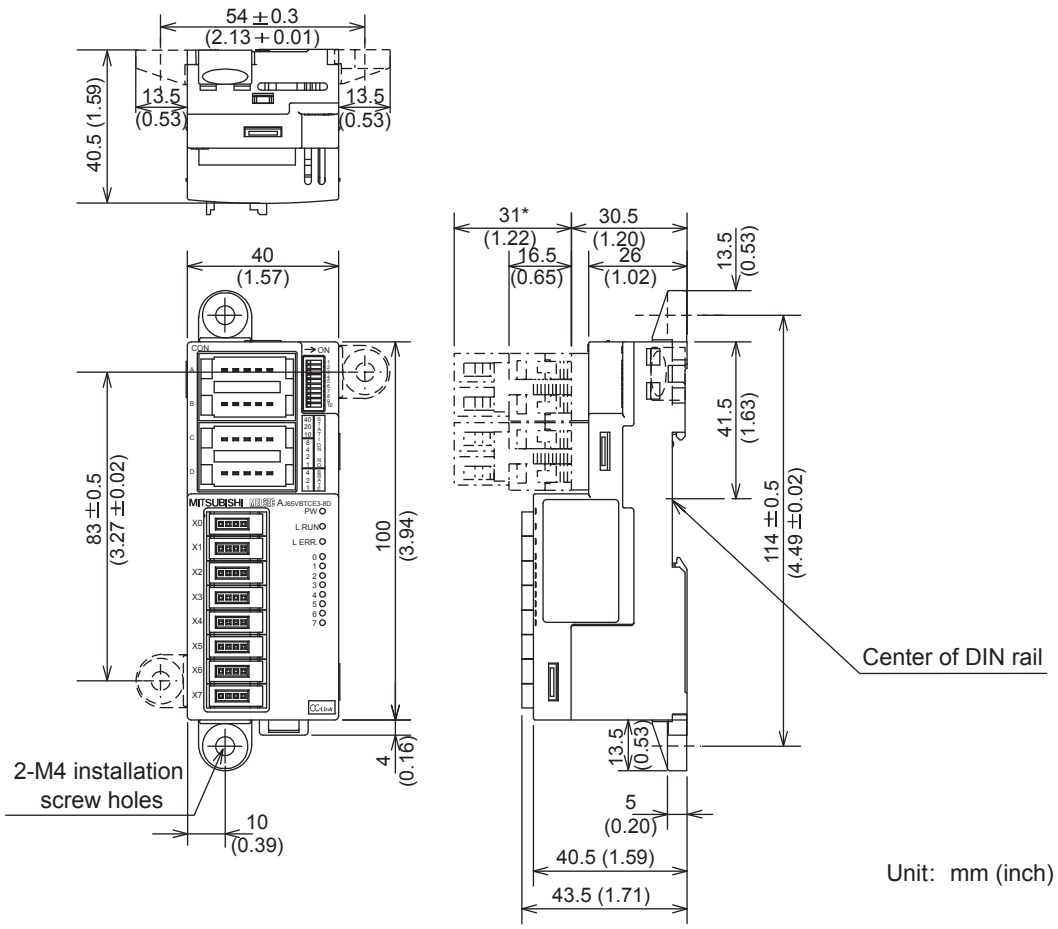


Unit: mm (inch)

*: This is 14.5mm (0.57inch) when the online connector is not mounted.

(15) AJ65VBTCE□-8□, AJ65VBTCE□-16□, AJ65VBTCE□-32□ remote I/O module

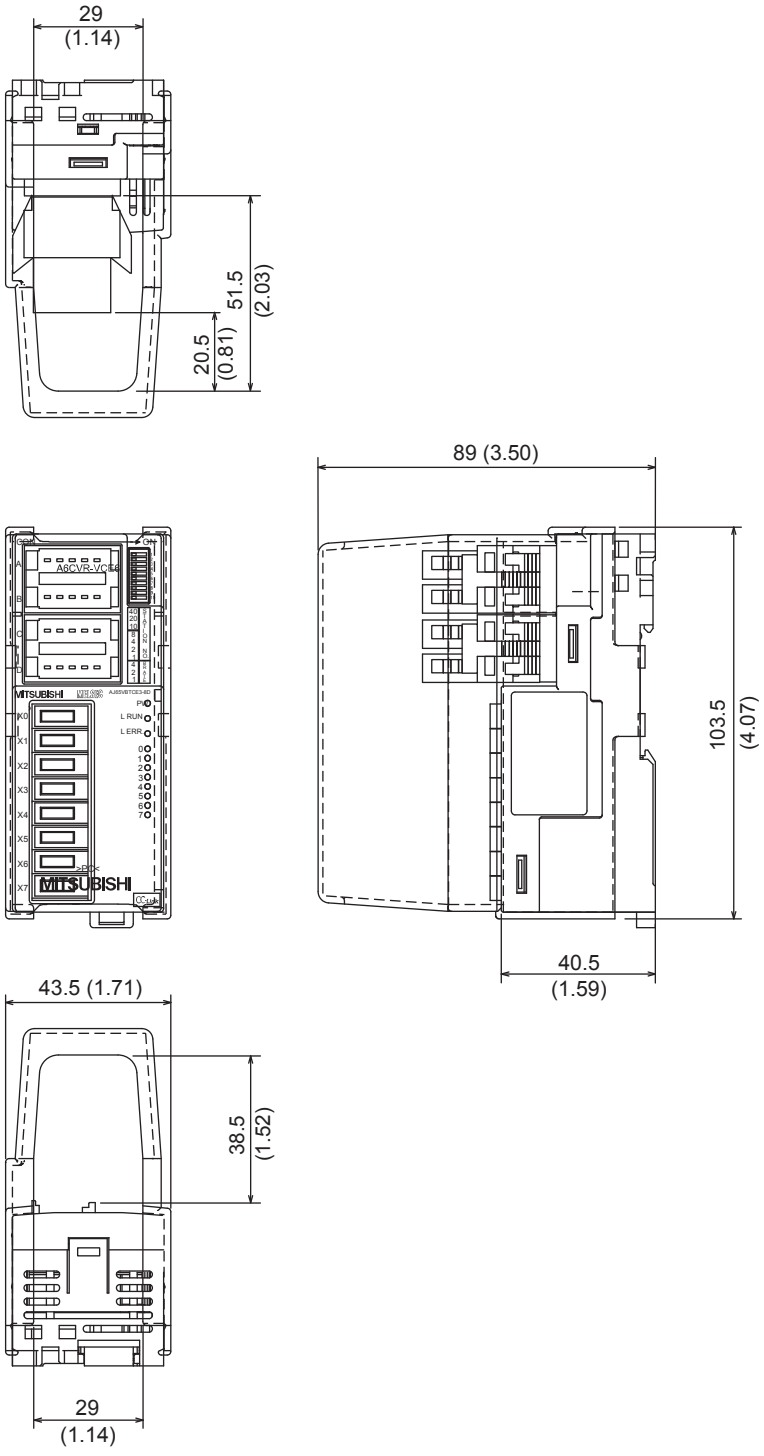
AJ65VBTCE□-8□



*: This is 14.5mm (0.57inch) when the online connector is not mounted.

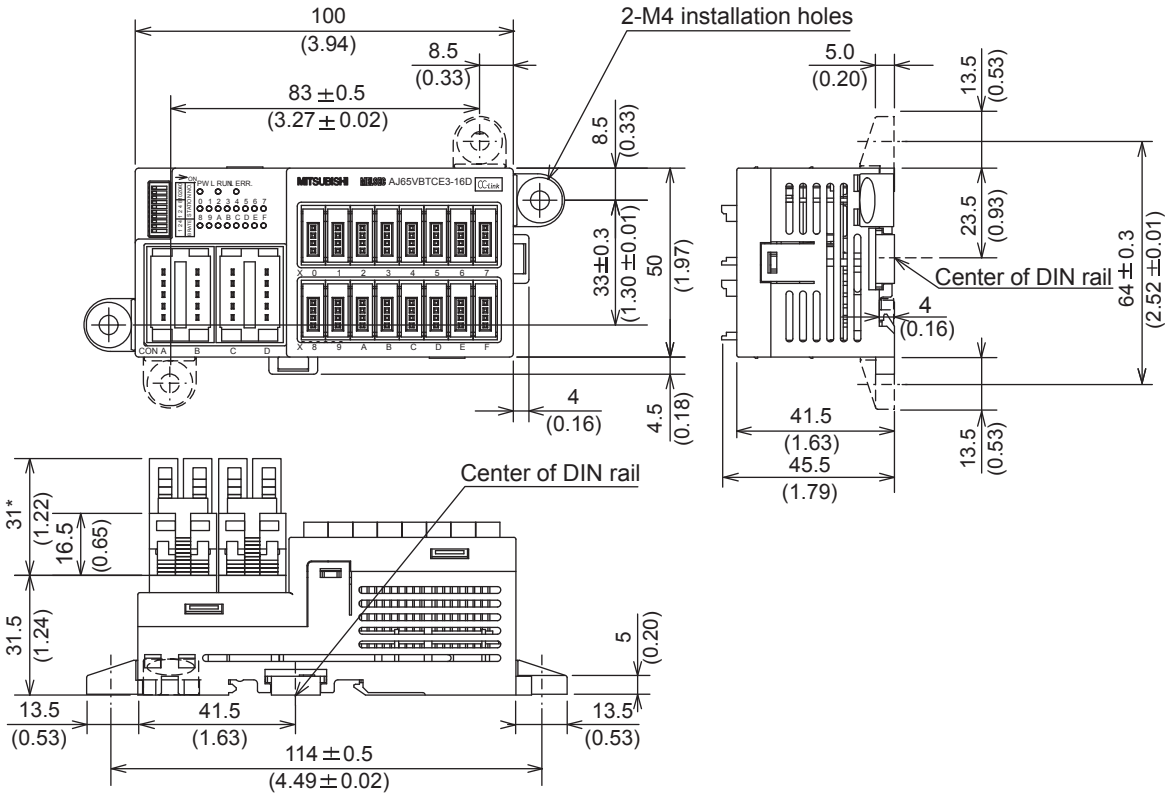
AJ65VBTCE□-8□

(when protective cover is mounted)



Unit: mm (inch)

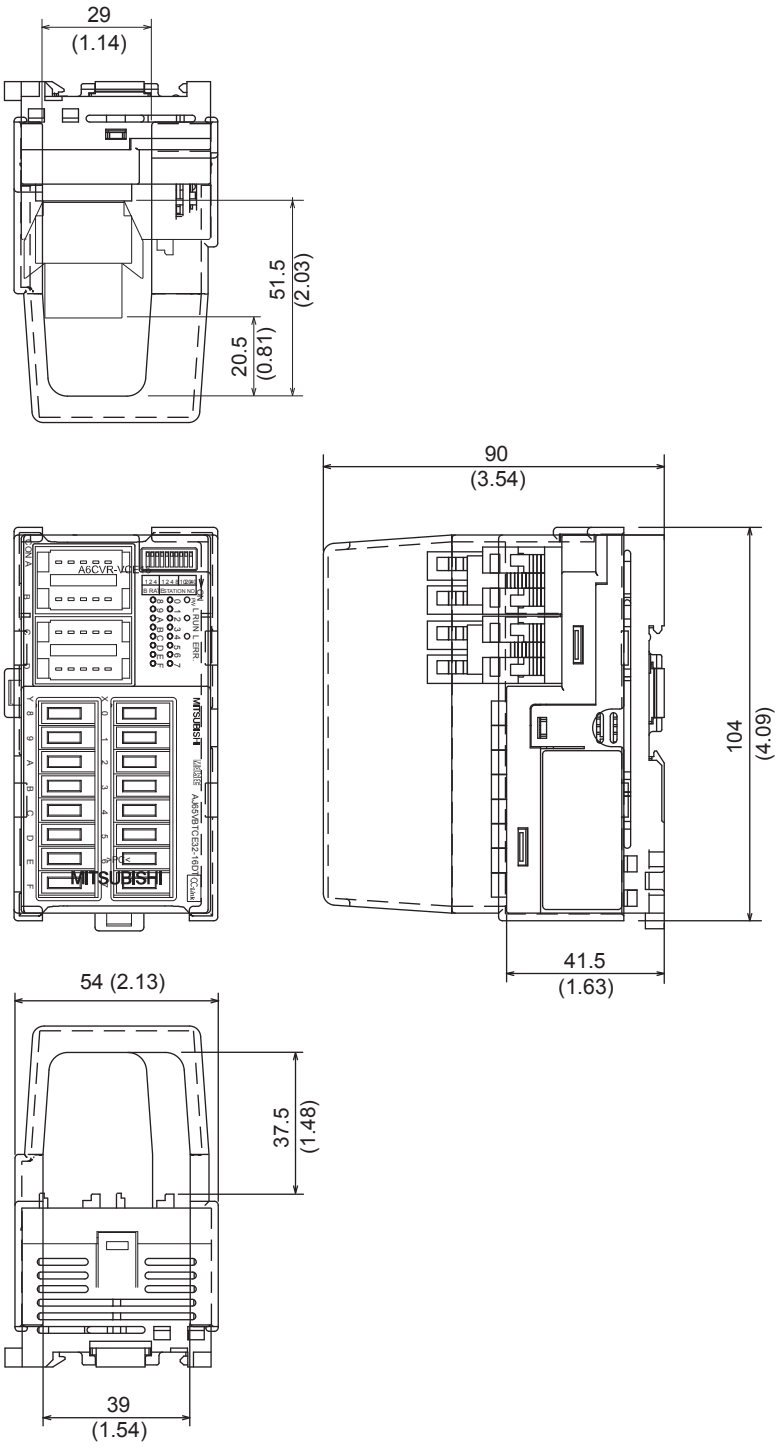
AJ65VBTCE□-16□



Unit: mm (inch)

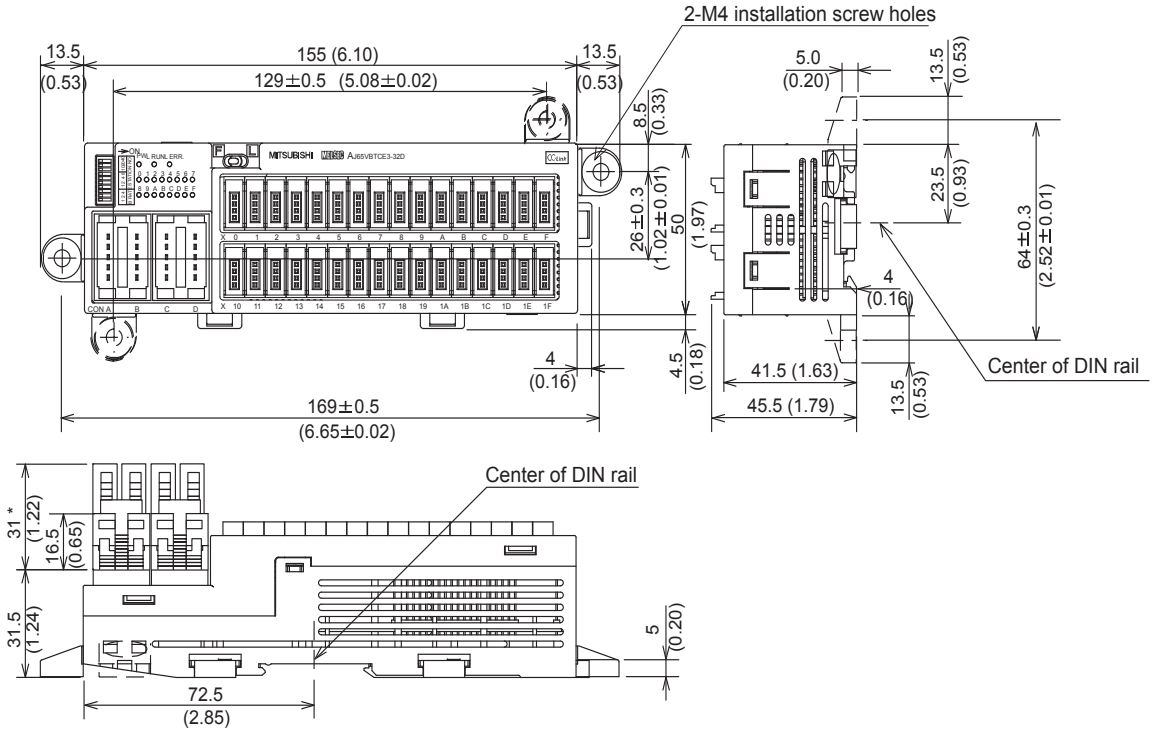
*: This is 14.5mm (0.57inch) when the online connector is not mounted.

AJ65VBTCE□-16□
(when protective cover is mounted)



Unit: mm (inch)

AJ65VBTCE□-32□

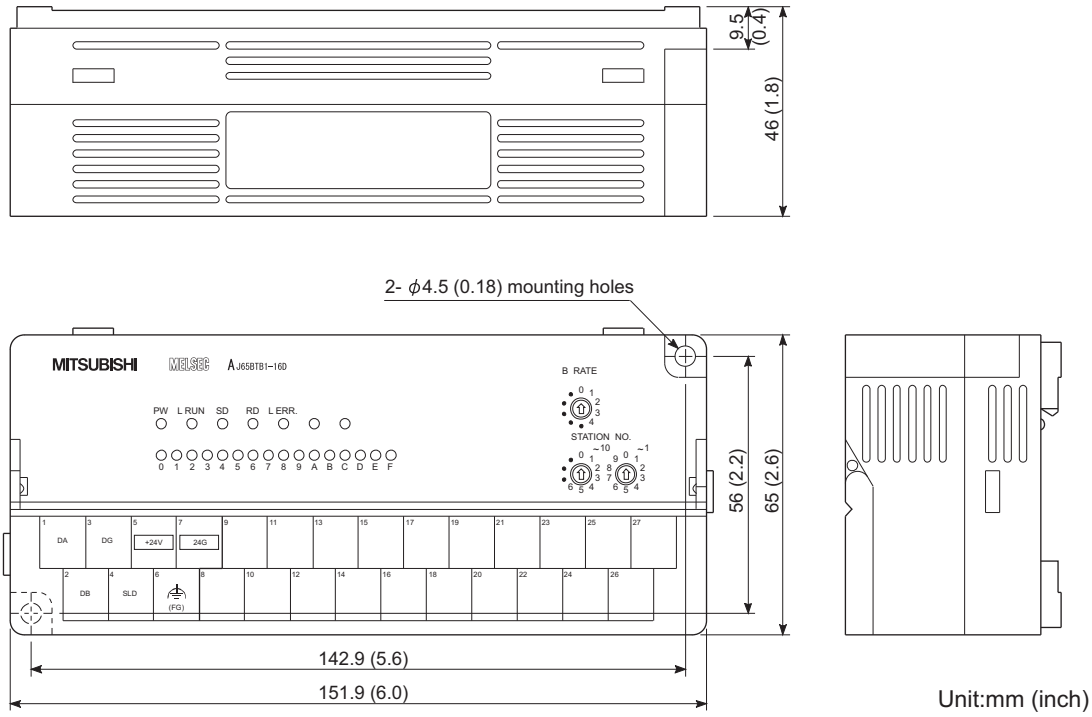


Unit: mm (inch)

*: This is 14.5mm (0.57inch) when the online connector is not mounted.

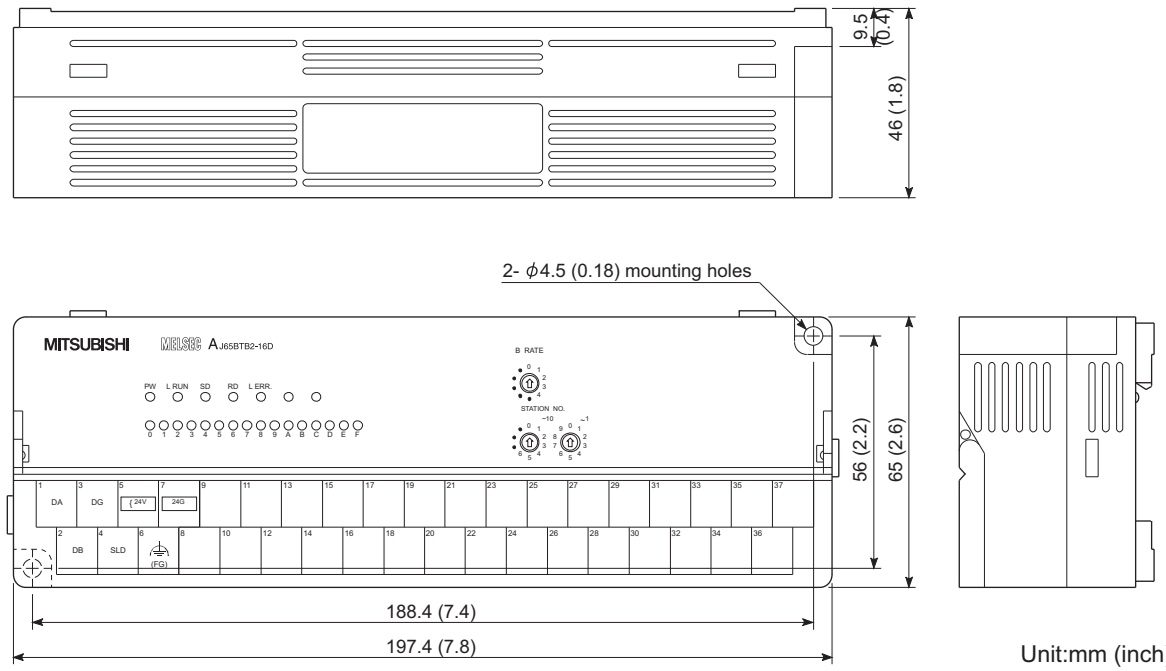
(16) AJ65BTB1-16□, AJ65BTB2-16□ remote I/O module

AJ65BTB1-16 □



Unit:mm (inch)

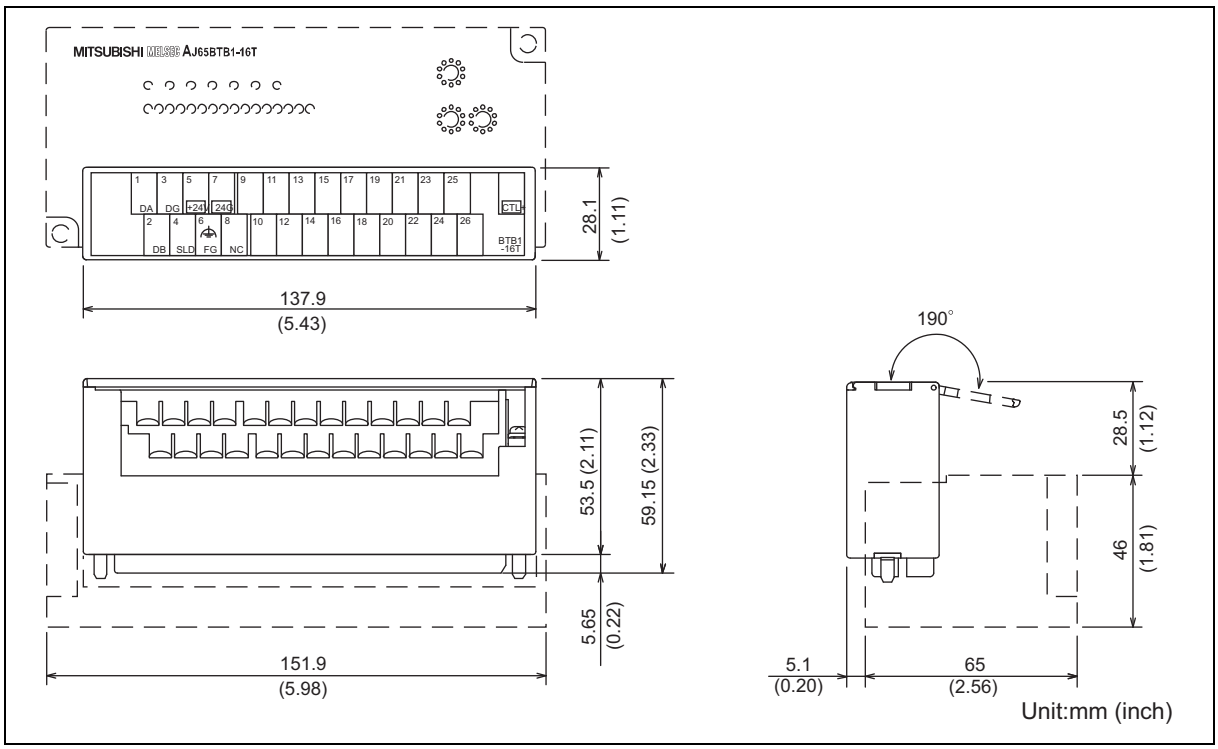
AJ65BTB2-16 □



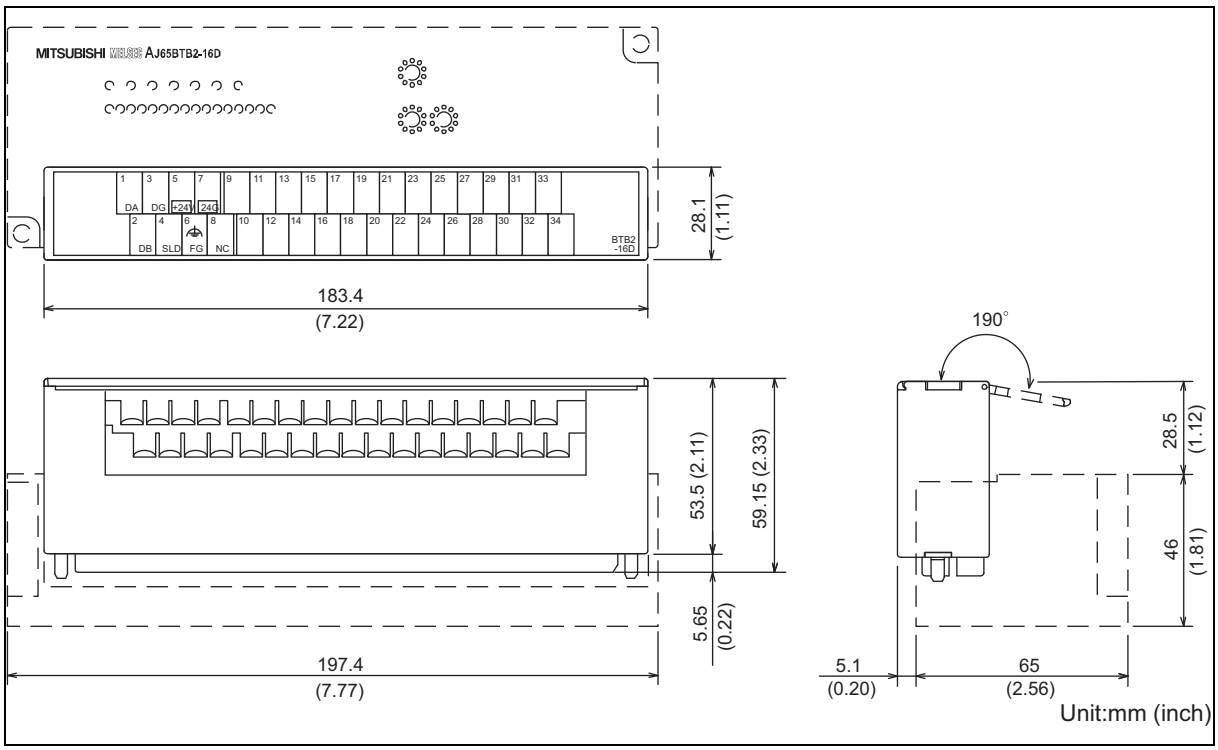
Unit:mm (inch)

*1: When using a MELSECNET/MINI-S3 - CC-Link module wiring conversion adapter, the external dimensions are increased by 5.1mm (0.20inch) (height) and 28.5mm (1.12inch) (depth) .

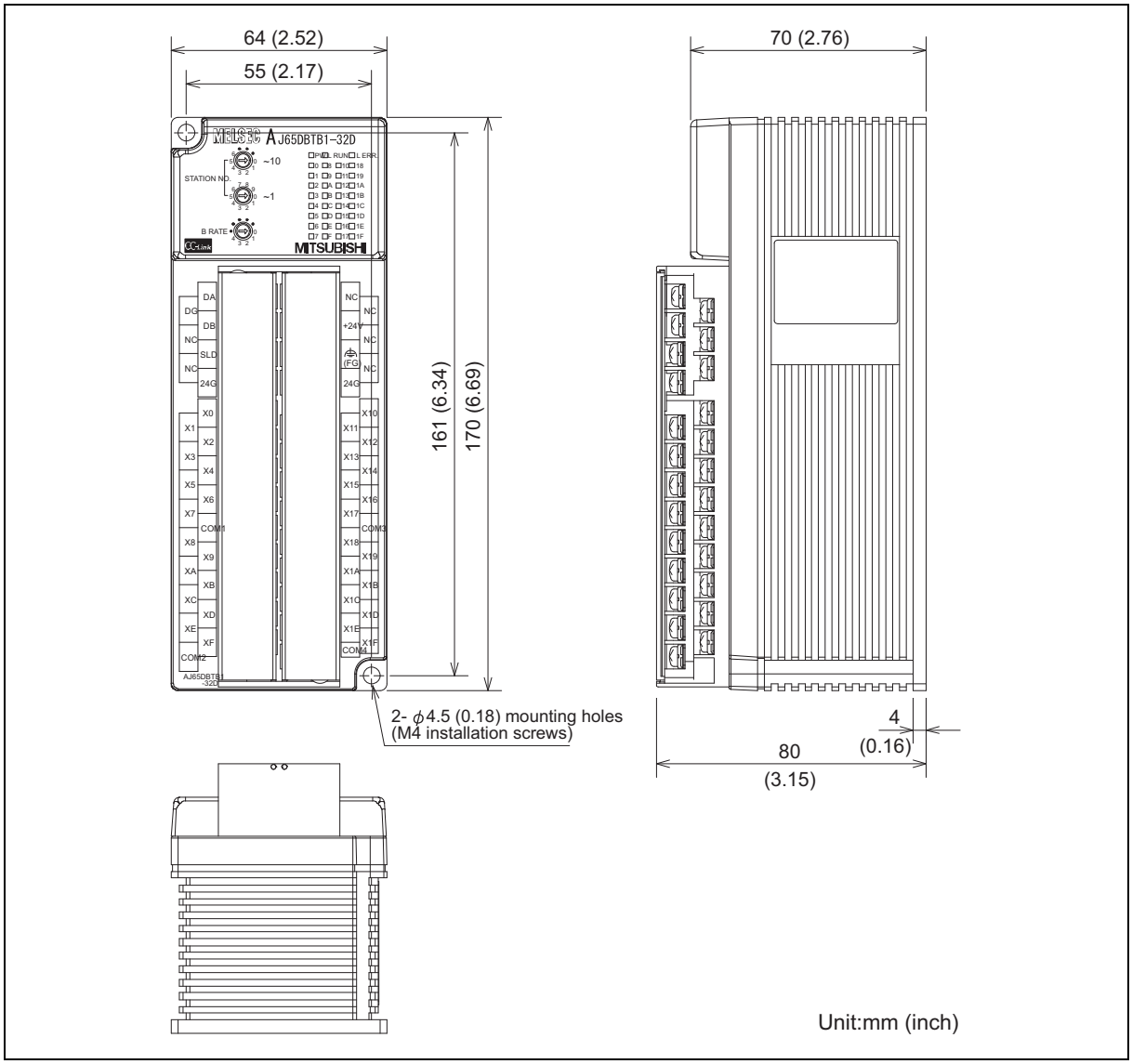
(1) A6ADP-1MC16D/A6ADP-1MC16T



(2) A6ADP-2MC16D

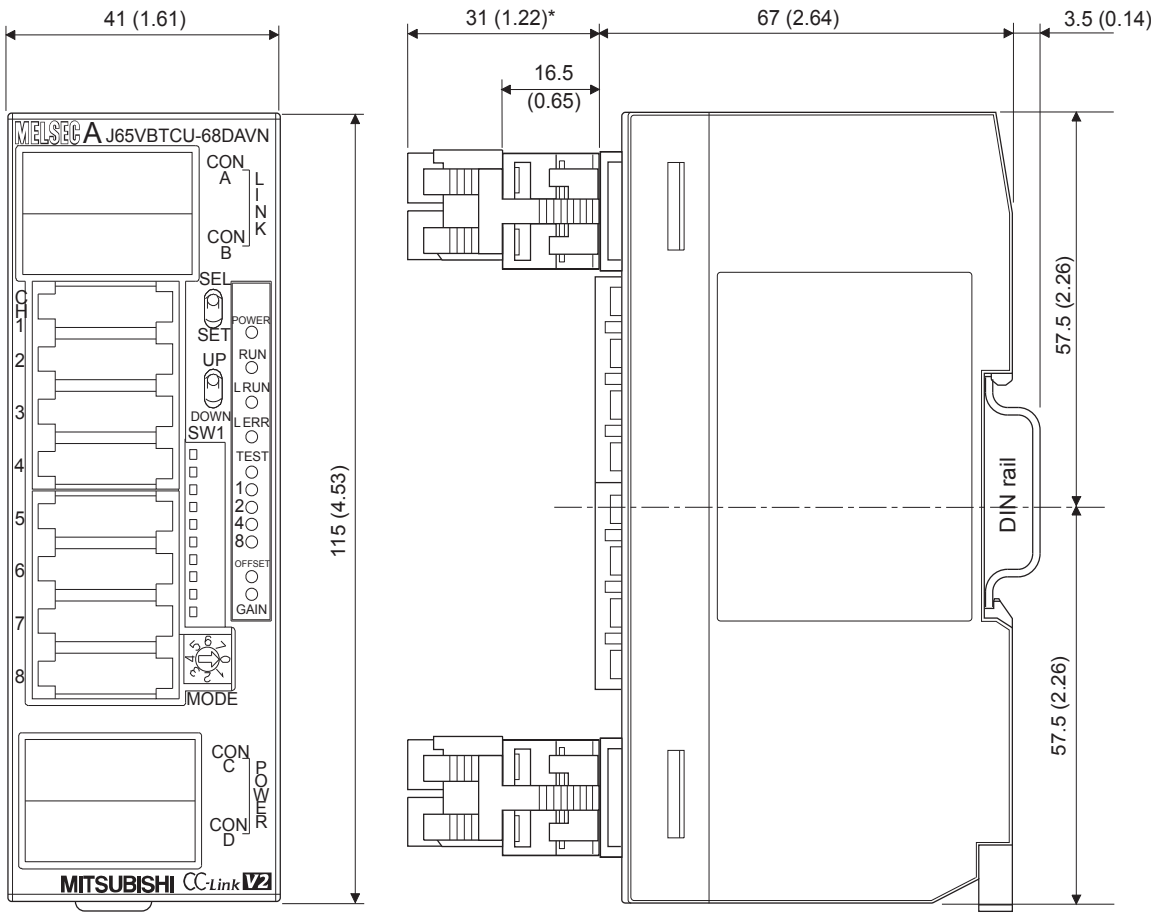


(17) AJ65DBTB1-32□ remote I/O module



(18) AJ65VBTCU-68ADVN/ADIN

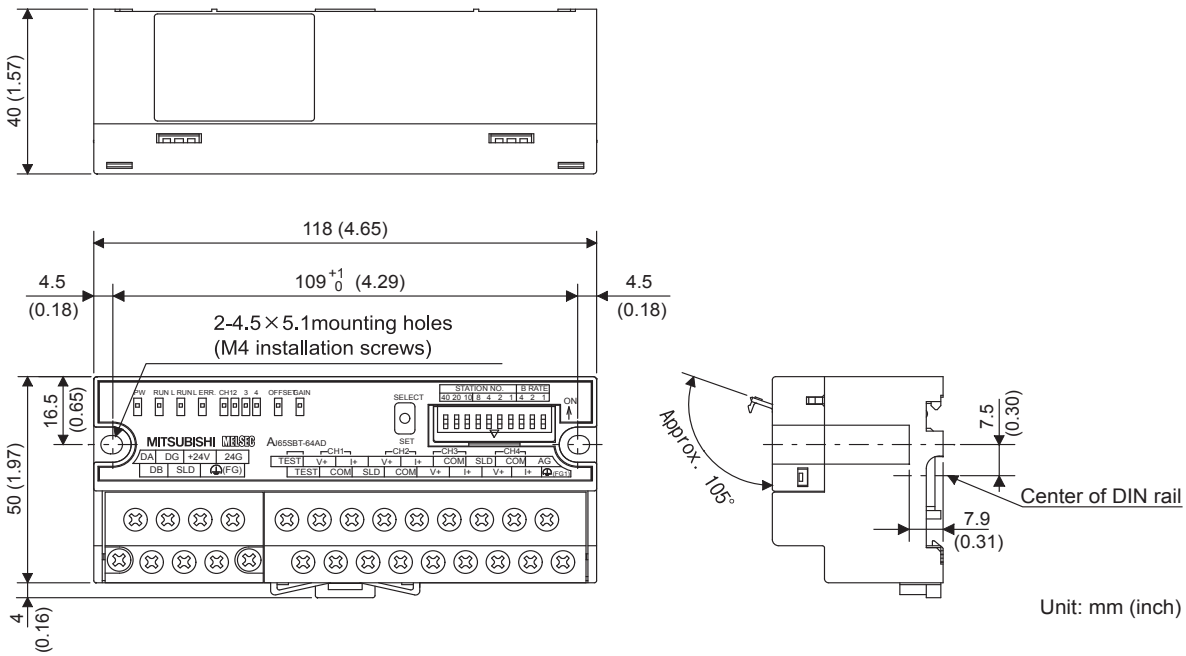
AJ65VBTCU-68ADVN/ADIN



*: This is 14.5mm (0.57inch) when the online connector is not mounted.

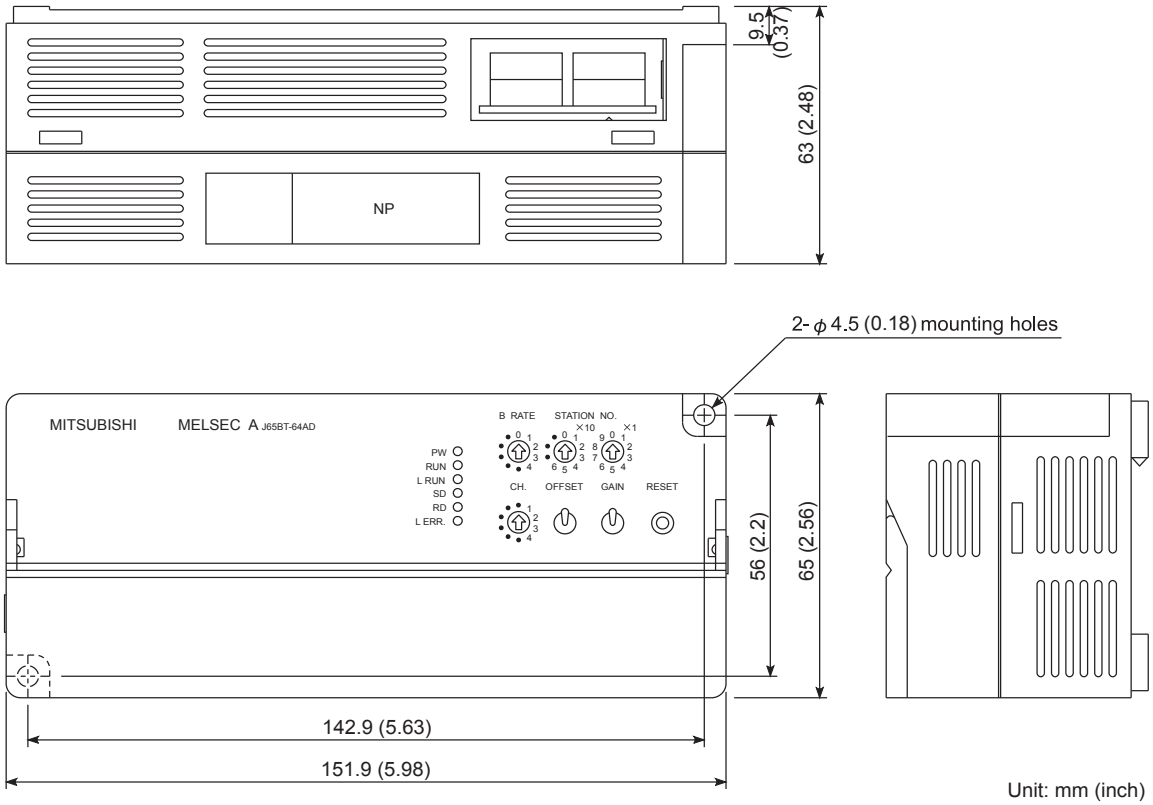
Unit: mm (inch)

(19) AJ65SBT-64AD



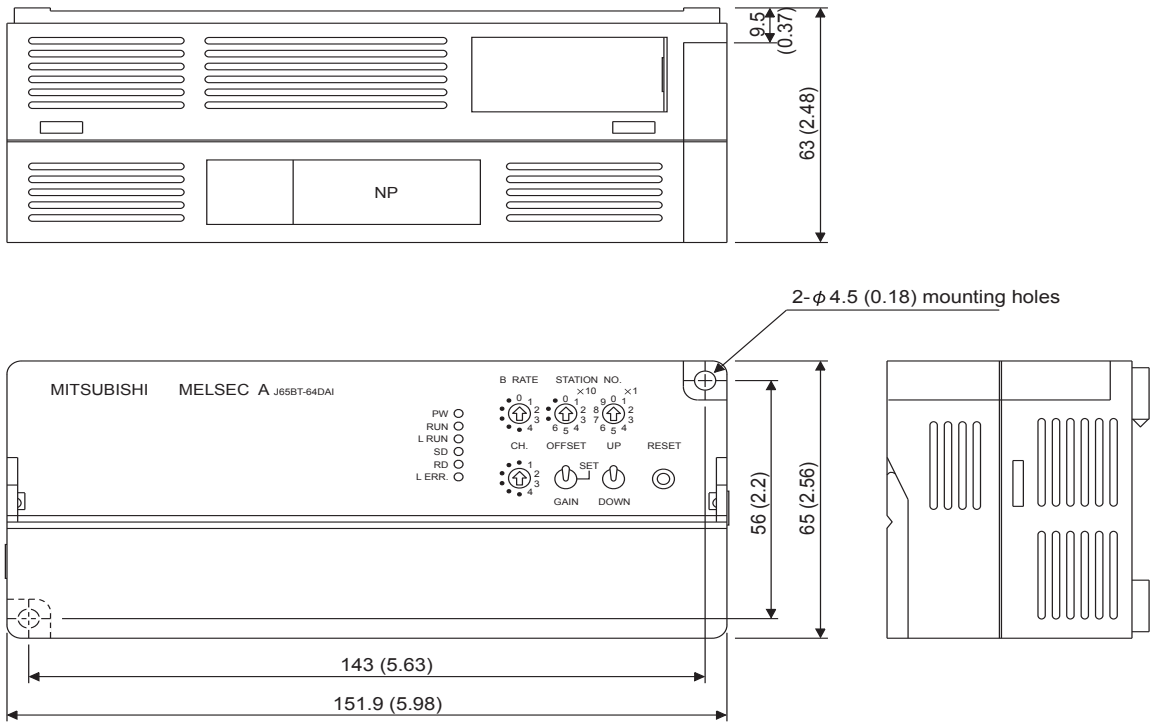
Unit: mm (inch)

(20) AJ65BT-64AD



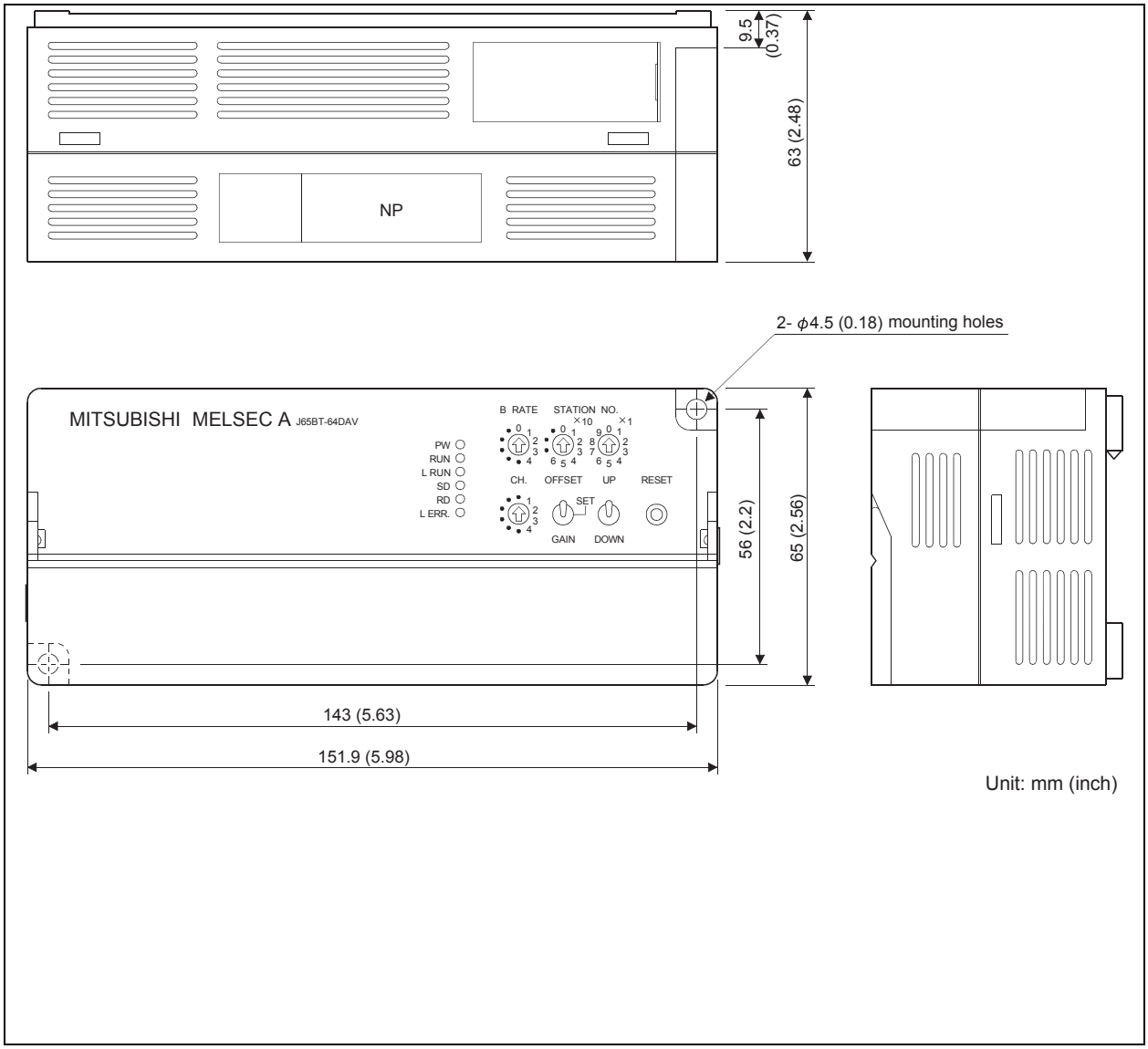
Unit: mm (inch)

(21) AJ65BT-64DAI

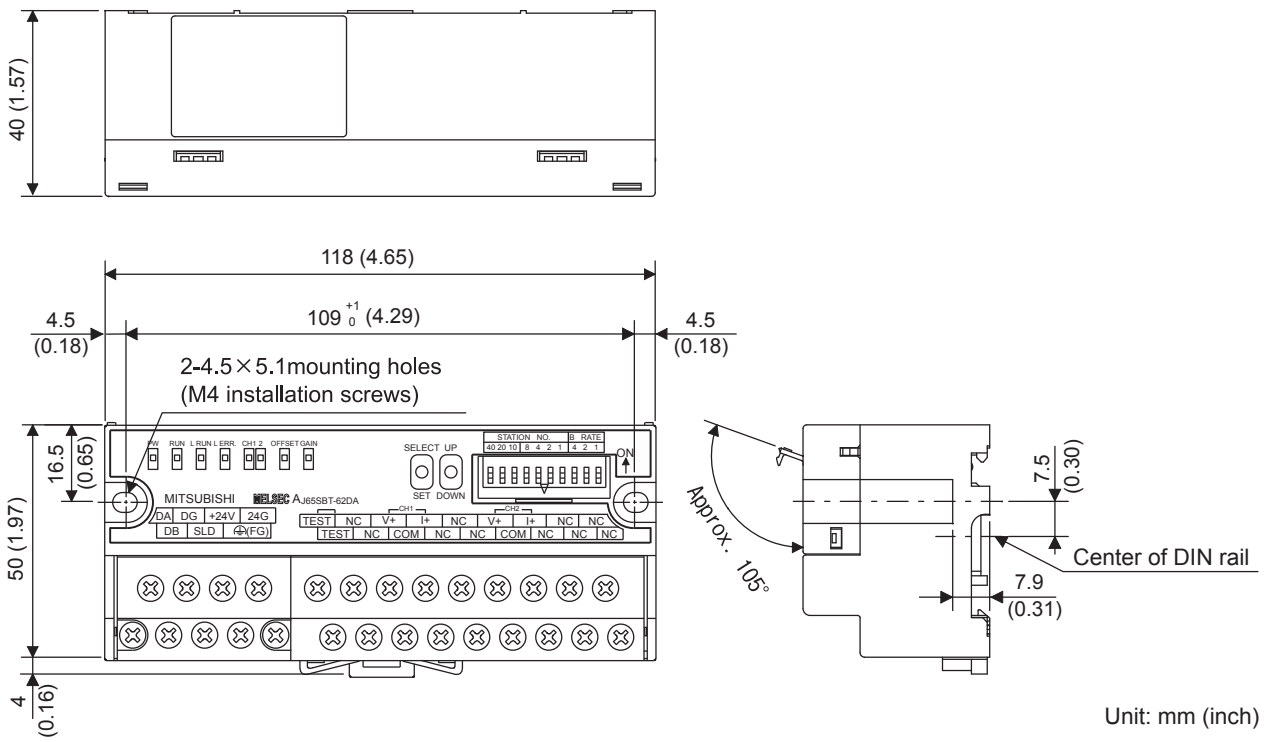


Unit: mm (inch)

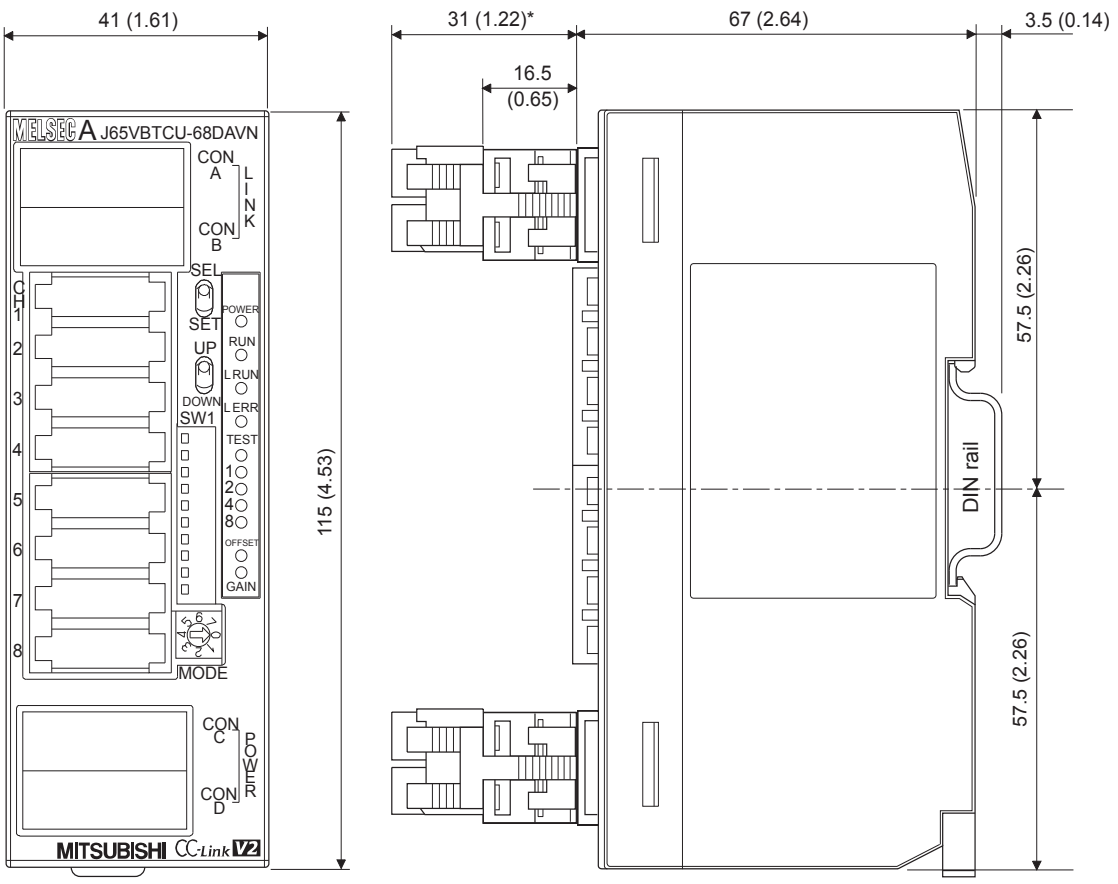
(22) AJ65BT-64DAV



(23) AJ65SBT-62DA



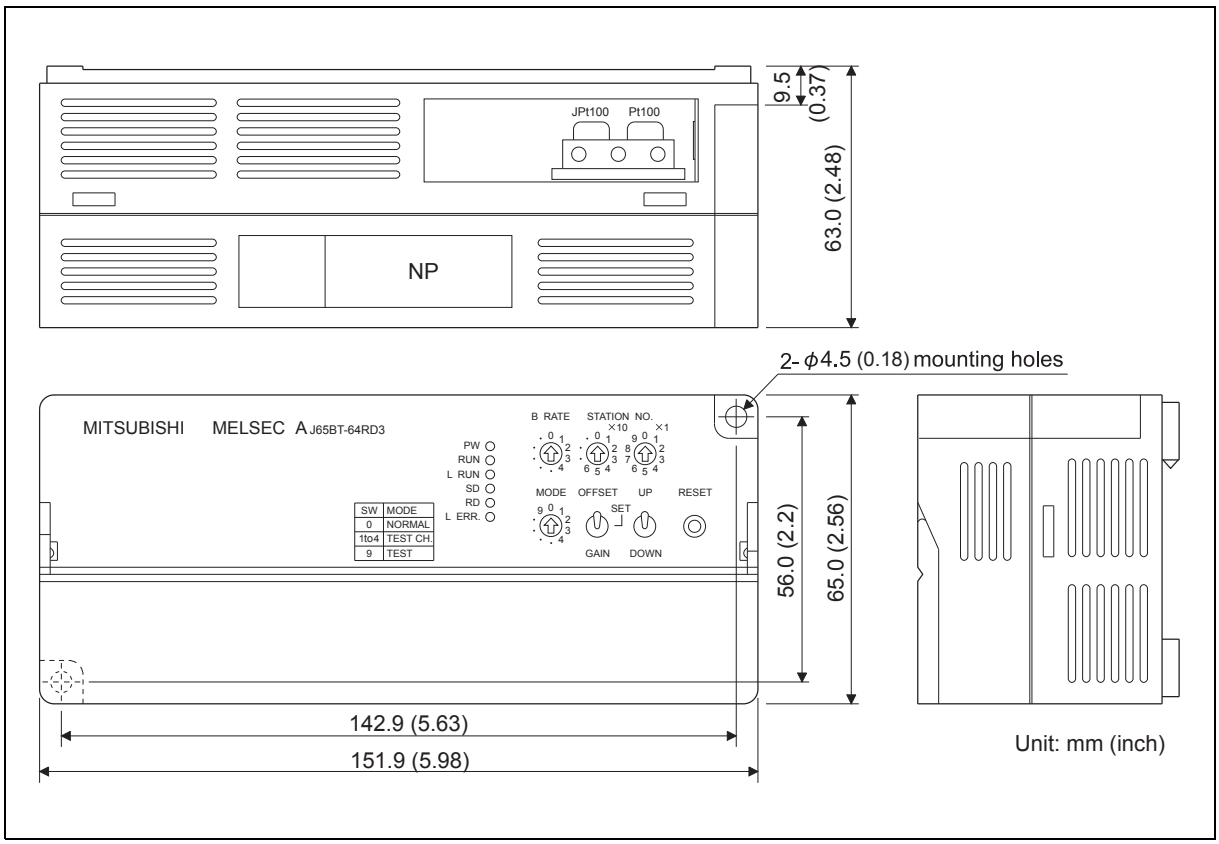
(24) AJ65VBTCU-68DAVN



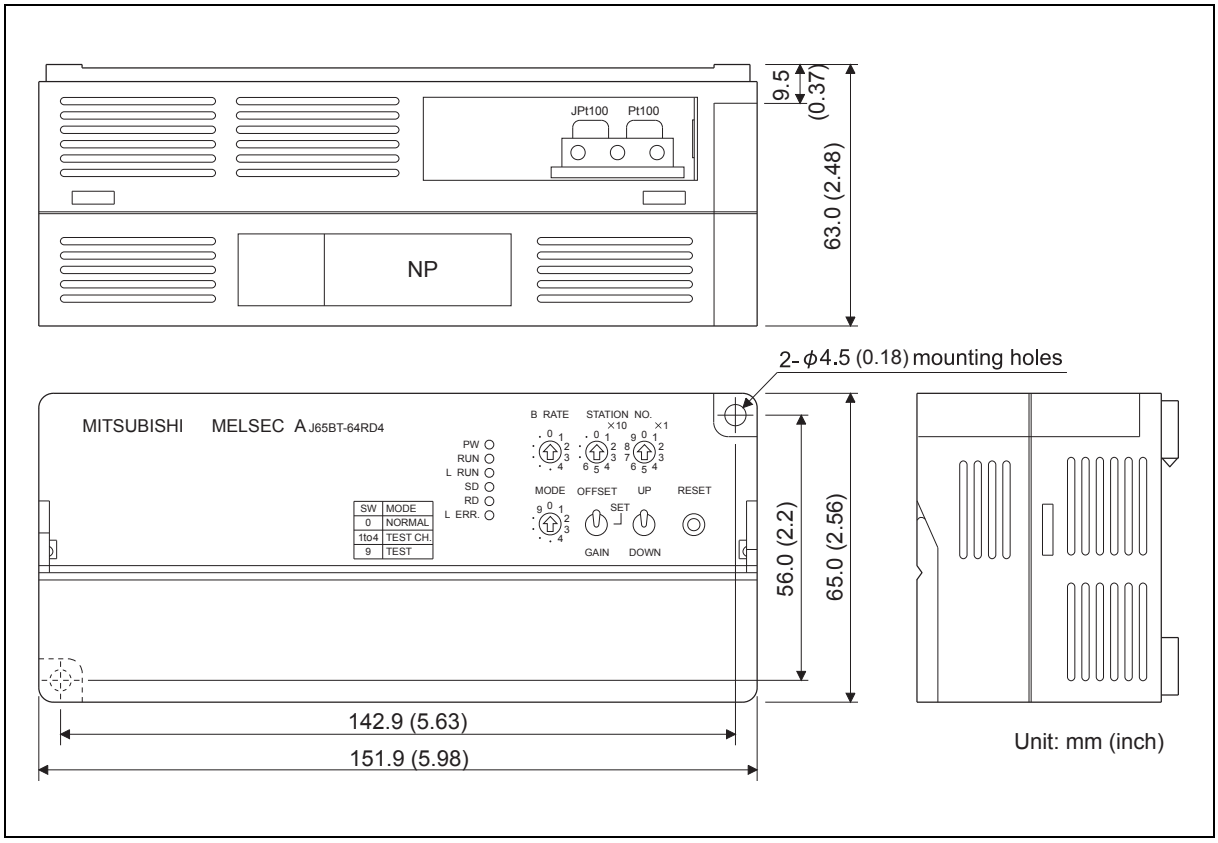
*: This is 14.5mm (0.57inch) when the online connector is not mounted.

Unit: mm (inch)

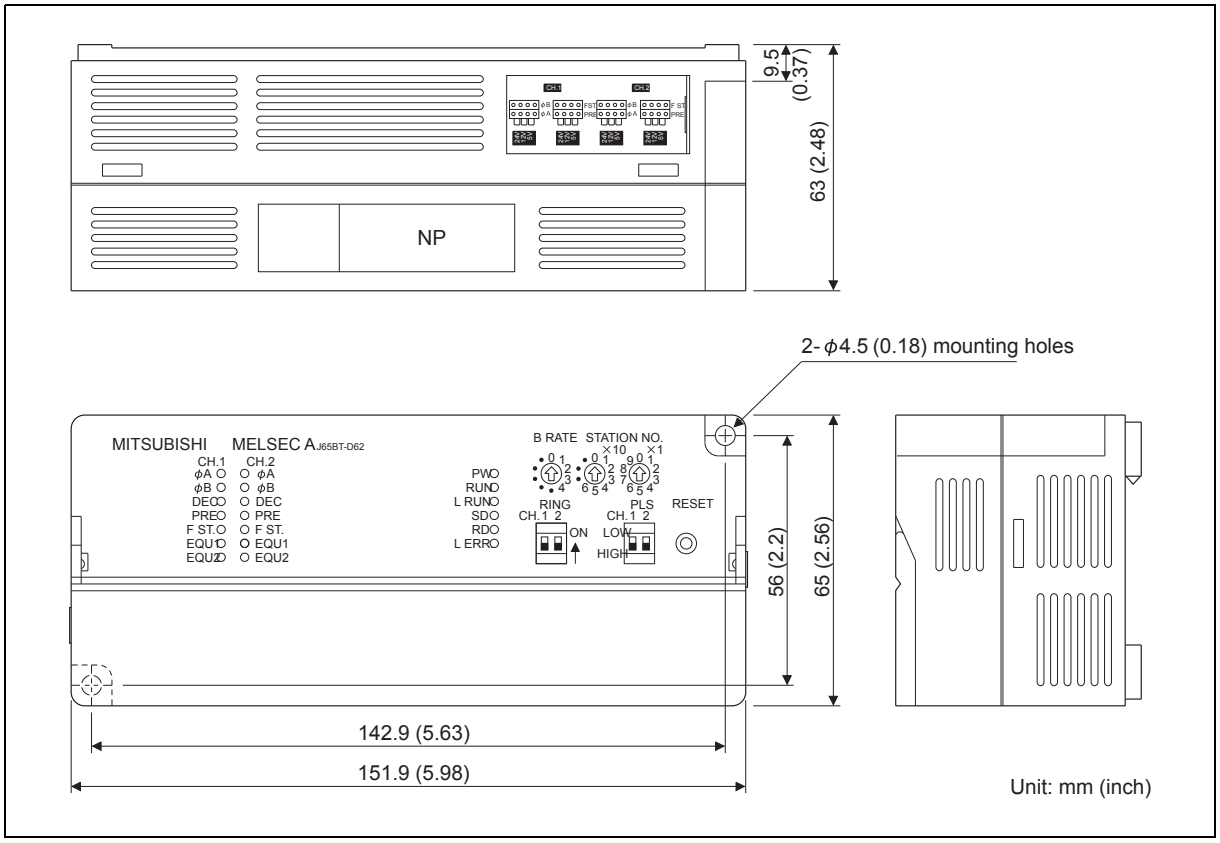
(25) AJ65BT-64RD3



(26) AJ65BT-64RD4

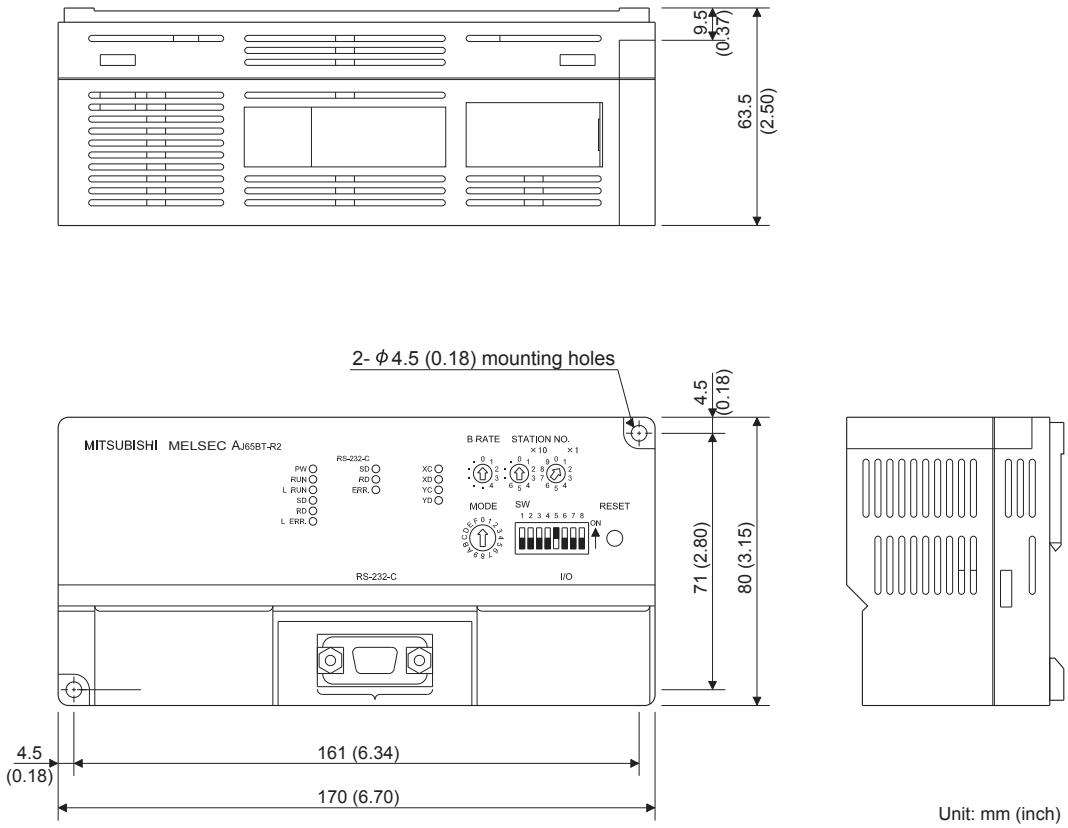


(27) AJ65BT-D62, AJ65BT-D62D, AJ65BT-D62D-S1



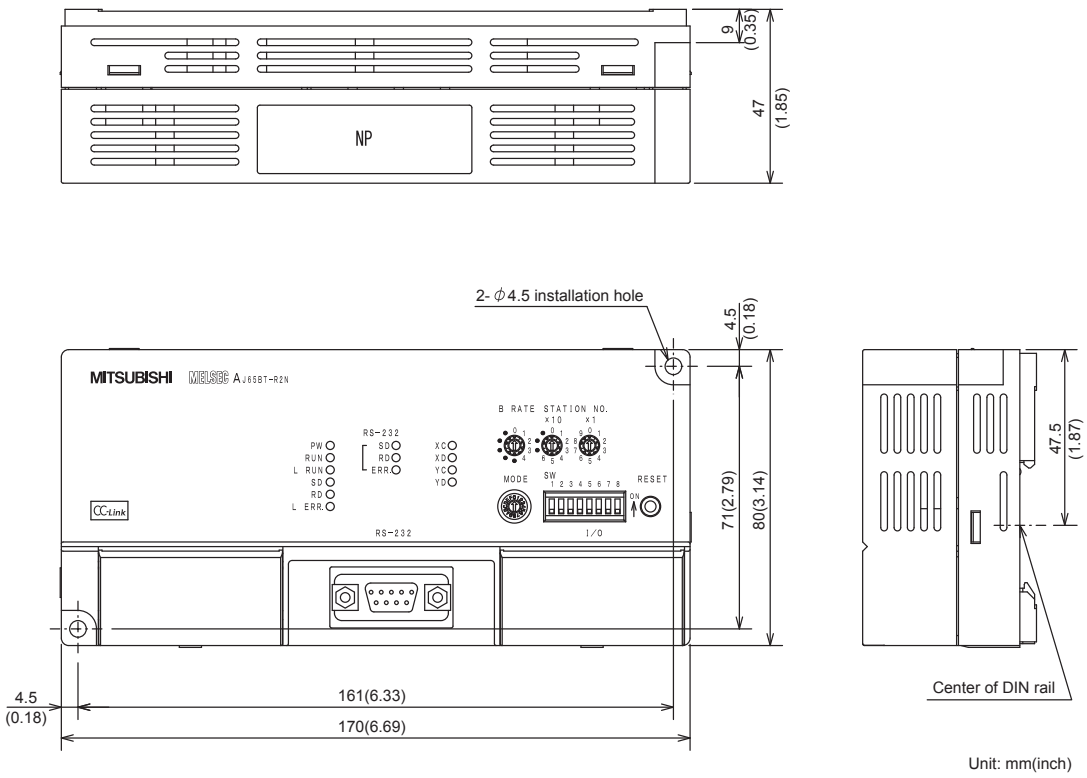
(28) AJ65BT-R2, AJ65BT-R2N

AJ65BT-R2



Unit: mm (inch)

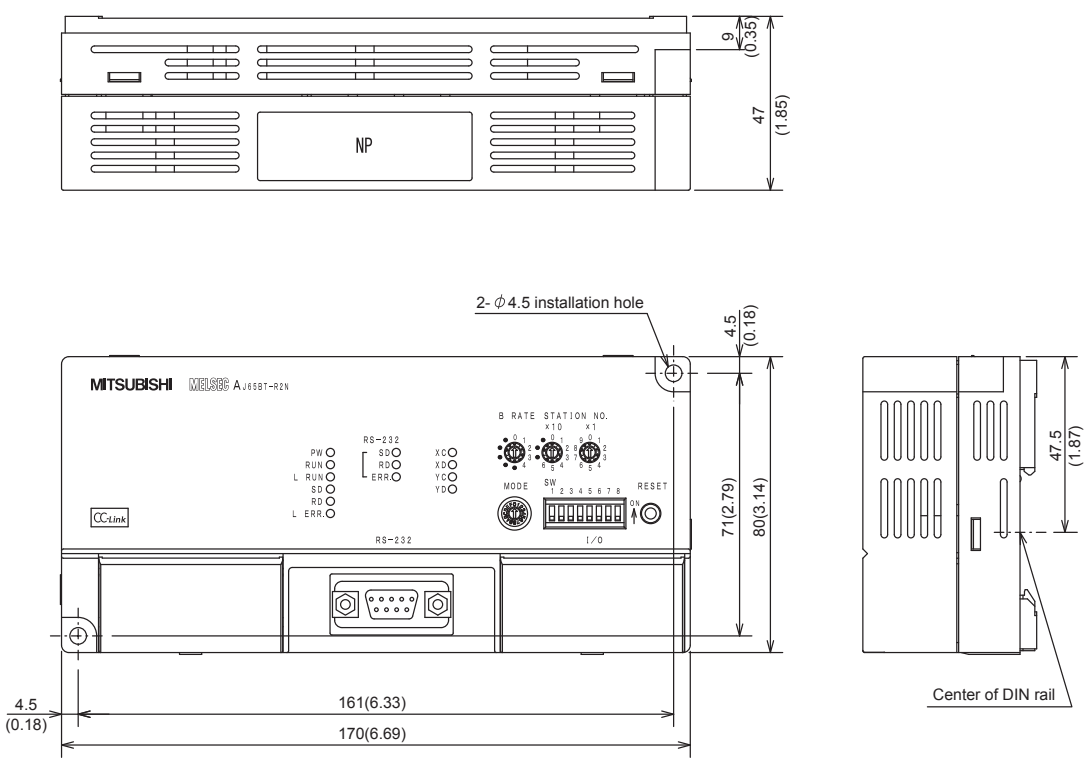
AJ65BT-R2N



Unit: mm(inch)

(29) AJ65BT-R2N

AJ65BT-R2



APPENDICES

Appendix 1 Performance Specifications Comparison between MELSECNET/MINI-S3 I/O Module and Renewal Tool for A0J2

This section shows the performance specifications comparison between MELSECNET/MINI-S3 compact type remote I/O module and interface module of renewal tool for A0J2 described in Section 1.2.

1) Specifications comparison between AJ35PTF-28DR and interface module (SC-A0JQIF28DR)

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-28DR input specifications	SC-A0JQIF28DR input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	12VDC/24VDC	○	
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 3mA/Approx. 7mA	○	
Operating voltage range		10.2 to 31.2VDC (Ripple ratio within 5%)	10.2 to 26.4VDC (Ripple ratio within 5%)	△	The operating voltage range differs.
Maximum number of simultaneous input points		100% (16 points/common) simultaneously ON	100% (16 points/common) simultaneously ON	○	
ON voltage/ON current		9.5VDC or more/2.6mA or more	9.5VDC or more/2.6mA or more	○	
OFF voltage/OFF current		6VDC or less/1.0mA or less	6VDC or less/1.0mA or less	○	
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	Input resistance is smaller.
Input form		Sink input (Input current flows off.)	Sink input (Input current flows off.)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
	ON→OFF	10ms or less (7.5ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
Common terminal arrangement		16 points/common (Common terminal: TB17)	16 points/common (Common terminal: TB17)	○	
Operation indication		Available (Turning ON the input turns LED ON)	None	△	Operation indication can be checked with CC-Link input module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-28DR output specifications	SC-A0JQIF28DR output specifications	Compatibility	Precautions for replacement
Number of output points		12 points	12 points	○	
Insulation method		Photocoupler	None	△	Photocoupler is provided on CC-Link output module side.
Rated switching voltage/ current		24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		264VAC 125VDC	264VAC 125VDC	○	
Maximum switching frequency		3600 times/hr	3600 times/hr	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more	Rated switching voltage/current load 200,000 times or more	○	
		200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 0.75A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	○	
Response time	OFF→ON	10ms or less	9ms or less	△	In combination with CC-Link output module: 9.5ms or less*2
	ON→OFF	12ms or less	11ms or less	△	In combination with CC-Link output module: 12.5ms or less*2
External supply power (Relay coil driving power)	Voltage	24VDC±10% Ripple voltage 4Vp-p or less	24VDC±10% Ripple voltage 4Vp-p or less	○	
	Current	110mA (24VDC All points are ON.)	125mA (24VDC All points are ON.)	△	Review current capacity since current consumption is increased.
Surge suppressor		None	None	○	
Fuse rating		None	None	○	
Fuse blown indication		–	–	○	
Relay socket		None	None	○	
Common terminal arrangement		8 points/common (Common terminal: TB26) 3 points/common (Common terminal: TB31) Independent contact (Common terminal: TB33)	8 points/common (Common terminal: TB26) 3 points/common (Common terminal: TB31) Independent contact (Common terminal: TB33)	○	
Operation indication		Available (Turning ON the output turns LED ON)	None	△	Operation indication can be checked with CC-Link output module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-28DR	SC-A0JQIF28DR	Compatibility	Precautions for replacement
External supply power (Module power supply)	Voltage	15.6 to 31.2VDC	24VDC ± 10% Ripple voltage 4Vp-p or less	△	To deliver a power for programmable controller operation, connecting a module power supply to the interface module, TB27 or TB36 is required.
	Current	120mA	100mA	○	If the voltage exceeds existing power capacity, add 24VDC power supply separately.
External connection method		36-point terminal block connector (M3 × 6 screws)	36-point terminal block connector (M3 × 6 screws)	○	
Applicable wire size		0.75 to 2mm^2 (Applicable tightening torque 69N • cm)	0.75 to 2mm^2 (Applicable tightening torque 69N • cm)	○	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	–	–	When using the AJ65SBTCF1-32D and AJ65SBTCF1-32T, the number of occupied stations is 2 stations (When using CC-Link, it is 1 station × 32 points).
Weight		0.76kg	0.42kg	△	Also consider the weight of fixed stand of programmable controller.*3
External dimensions		250(H) × 132(W) × 41(D) mm*4	182(H) × 132(W) × 41(D) mm*5	×	Check the dimensions since they depend on the installation type (building-up/horizontal/separate type).

*1: A value when using the AJ65SBTCF1-32D.

*2: A value when using the AJ65SBTCF1-32T.

*3: The weight of fixed stand of programmable controller depends on replacement type of renewal tool for A0J2.

*4: External dimensions of the AJ35PTF-28DR does not include dimensions of the optical fiber cable connector.

*5: The external dimensions of the SC-A0JQIF28DR do not include those of its projection.

2) Specifications comparison between AJ35PTF-56DR and interface module (SC-A0JQIF56DR)

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56DR input specifications	SC-A0JQIF56DR input specifications	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	12VDC/24VDC	○	
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 3mA/Approx. 7mA	○	
Operating voltage range		10.2 to 31.2VDC (Ripple ratio within 5%)	10.2 to 26.4VDC (Ripple ratio within 5%)	△	The operating voltage range differs.
Maximum number of simultaneous input points		60% (10 points/common) simultaneously ON	60% (10 points/common) simultaneously ON	○	
ON voltage/ON current		9.5VDC or more/2.6mA or more	9.5VDC or more/2.6mA or more	○	
OFF voltage/OFF current		6VDC or less/1.0mA or less	6VDC or less/1.0mA or less	○	
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	Input resistance is smaller.
Input form		Sink input (Input current flows off.)	Sink input (Input current flows off.)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
	ON→OFF	10ms or less (7.5ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
Common terminal arrangement		16 points/common (Common terminal: TB17, TB34)	16 points/common (Common terminal: TB17, TB34)	○	
Operation indication		Available (Turning ON the input turns LED ON)	None	△	Operation indication can be checked with CC-Link input module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56DR output specifications	SC-A0JQIF56DR output specifications	Compatibility	Precautions for replacement
Number of output points		24 points	24 points	○	
Insulation method		Photocoupler	None	△	Photocoupler is provided on CC-Link output module side.
Rated switching voltage/ current		24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		264VAC 125VDC	264VAC 125VDC	○	
Maximum switching frequency		3600 times/hr	3600 times/hr	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more	Rated switching voltage/current load 200,000 times or more	○	
		200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 0.75A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	○	
Response time	OFF→ON	10ms or less	9ms or less	△	In combination with CC-Link output module: 9.5ms or less*2
	ON→OFF	12ms or less	11ms or less	△	In combination with CC-Link output module: 12.5ms or less*2
External supply power (Relay coil driving power)	Voltage	24VDC±10% Ripple voltage 4Vp-p or less	24VDC±10% Ripple voltage 4Vp-p or less	○	
	Current	220mA (24VDC All points are ON.)	230mA (24VDC All points are ON.)	△	Review current capacity since current consumption is increased.
Surge suppressor		None	None	○	
Fuse rating		None	None	○	
Fuse blown indication		–	–	○	
Relay socket		None	None	○	
Common terminal arrangement		8 points/common (Common terminal: TB9, TB19, TB29)	8 points/common (Common terminal: TB9, TB19, TB29)	○	
Operation indication		Available (Turning ON the output turns LED ON)	None	△	Operation indication can be checked with CC-Link output module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56DR	SC-A0JQIF56DR	Compatibility	Precautions for replacement
External supply power (Module power supply)	Voltage	15.6 to 31.2VDC	24VDC ± 10% Ripple voltage 4Vp-p or less	△	To deliver a power for programmable controller operation, connecting a module power supply to the interface module, TB35 or TB36 is required.
	Current	150mA	200mA	△	If the voltage exceeds existing power capacity, add 24VDC power supply separately.
External connection method		36-point terminal block connector (M3 × 6 screws) 2 pieces	36-point terminal block connector (M3 × 6 screws) 2 pieces	○	
Applicable wire size		0.75 to 2mm^2 (Applicable tightening torque 69N · cm)	0.75 to 2mm^2 (Applicable tightening torque 69N · cm)	○	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	○	
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	–	–	When using the AJ65SBTCF1-32D and AJ65SBTCF1-32T, the number of occupied stations is 2 stations (When using CC-Link, it is 1 station × 32 points).
Weight		1.16kg	0.62kg	△	Also consider the weight of fixed stand of programmable controller.*3
External dimensions		250(H) × 190(W) × 41(D)mm*4	182(H) × 190(W) × 41(D)mm*5	×	Check the dimensions since they depend on the installation type (building-up/horizontal/separate type).

*1: A value when using the AJ65SBTCF1-32D.

*2: A value when using the AJ65SBTCF1-32T.

*3: The weight of fixed stand of programmable controller depends on replacement type of renewal tool for A0J2.

*4: External dimensions of the AJ35PTF-56DR does not include dimensions of the optical fiber cable connector.

*5: The external dimensions of the SC-A0JQIF56DR do not include those of its projection.

3) Specifications comparison between AJ35PTF-28DT and interface module (SC-A0JQIF28DT)

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-28DT input specifications	SC-A0JQIF28DT input specifications	Compatibility	Precautions for replacement
Number of input points		16 points	16 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	12VDC/24VDC	○	
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 3mA/Approx. 7mA	○	
Operating voltage range		10.2 to 31.2VDC (Ripple ratio within 5%)	10.2 to 26.4VDC (Ripple ratio within 5%)	△	The operating voltage range differs.
Maximum number of simultaneous input points		100% (16 points/common) simultaneously ON	100% (16 points/common) simultaneously ON	○	
ON voltage/ON current		9.5VDC or more/2.6mA or more	9.5VDC or more/2.6mA or more	○	
OFF voltage/OFF current		6VDC or less/1.0mA or less	6VDC or less/1.0mA or less	○	
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	Input resistance is smaller.
Input form		Sink input (Input current flows off.)	Sink input (Input current flows off.)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
	ON→OFF	10ms or less (7.5ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
Common terminal arrangement		16 points/common (Common terminal: TB17)	16 points/common (Common terminal: TB17)	○	
Operation indication		Available (Turning ON the input turns LED ON)	None	△	Operation indication can be checked with CC-Link input module.
Specifications		**AJ35PTF-28DT output specifications**	**SC-A0JQIF28DT output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		12 points	12 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12VDC/24VDC	12VDC/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 30VDC	△	The operating load voltage range differs.
Maximum load current		0.5A/point, 3.2A/common	0.5A/point, 4A/common	○	The maximum load current differs.
Maximum inrush current		4A 10ms or less	4A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC (TYP.) 0.5A 1.5VDC (MAX.) 0.5A	0.5VDC (TYP.) 0.5A 0.8VDC (MAX.) 0.5A	○	
Output method		Sink type	Sink type	○	
Response time	OFF→ON	2ms or less	1ms or less	△	In combination with CC-Link output module: 1.5ms or less*2
	ON→OFF	2ms or less (Resistance load)	1ms or less (Resistance load)	△	In combination with CC-Link output module: 2.5ms or less (Resistance load)*2
External supply power	Voltage	12VDC/24VDC (10.2 to 31.2VDC)	12VDC/24VDC (10.2 to 30VDC)	△	The operating voltage range differs.
	Current	23mA (TYP. 24VDC 8 points/common ON)	5mA (TYP. 24VDC 8 points/common ON)	○	
Surge suppressor		Varistor (52 to 62V)	Varistor (50.4 to 61.6V)	○	
Common terminal arrangement		8 points/common (Common terminal: TB26) 4 points/common (Common terminal: TB33)	8 points/common (Common terminal: TB26) 4 points/common (Common terminal: TB33)	○	
Operation indication		Available (Turning ON the output turns LED ON)	None	△	Operation indication can be checked with CC-Link output module.
Fuse		None	None	○	
Fuse blown indication		None	None	○	

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-28DT	SC-A0JQIF28DT	Compatibility	Precautions for replacement
External supply power (Module power supply)	Voltage	15.6 to 31.2VDC	24VDC ± 10% Ripple voltage 4Vp-p or less	△	To deliver a power for programmable controller operation, connecting a module power supply to the interface module, TB35 or TB36 is required.
	Current	110mA	130mA	△	If the voltage exceeds existing power capacity, add 24VDC power supply separately.
External connection method		36-point terminal block connector (M3 × 6 screws)	36-point terminal block connector (M3 × 6 screws)	○	
Applicable wire size		0.75 to 2mm^2 (Applicable tightening torque 69N · cm)	0.75 to 2mm^2 (Applicable tightening torque 69N · cm)	○	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	–	–	When using the AJ65SBTCF1-32D and AJ65SBTCF1-32T, the number of occupied stations is 2 stations (When using CC-Link, it is 1 station × 32 points).
Weight		0.65kg	0.36kg	△	Also consider the weight of fixed stand of programmable controller.*3
External dimensions		250(H) × 132(W) × 41(D)mm*4	182(H) × 132(W) × 41(D)mm*5	×	Check the dimensions since they depend on the installation type (building-up/horizontal/separate type).

*1: A value when using the AJ65SBTCF1-32D.

*2: A value when using the AJ65SBTCF1-32T.

*3: The weight of fixed stand of programmable controller depends on replacement type of renewal tool for A0J2.

*4: External dimensions of the AJ35PTF-28DT does not include dimensions of the optical fiber cable connector.

*5: The external dimensions of the SC-A0JQIF28DT do not include those of its projection.

4) Specifications comparison between AJ35PTF-56DT and interface module (SC-A0JQIF56DT)

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56DT input specifications	SC-A0JQIF56DT input specifications	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		12VDC/24VDC	12VDC/24VDC	○	
Rated input current		Approx. 3mA/Approx. 7mA	Approx. 3mA/Approx. 7mA	○	
Operating voltage range		10.2 to 31.2VDC (Ripple ratio within 5%)	10.2 to 26.4VDC (Ripple ratio within 5%)	△	The operating voltage range differs.
Maximum number of simultaneous input points		60% (10 points/common) simultaneously ON	60% (10 points/common) simultaneously ON	○	
ON voltage/ON current		9.5VDC or more/2.6mA or more	9.5VDC or more/2.6mA or more	○	
OFF voltage/OFF current		6VDC or less/1.0mA or less	6VDC or less/1.0mA or less	○	
Input resistance		Approx. 3.4kΩ	Approx. 3.3kΩ	○	Input resistance is smaller.
Input form		Sink input (Input current flows off.)	Sink input (Input current flows off.)	○	
Response time	OFF→ON	10ms or less (6ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
	ON→OFF	10ms or less (7.5ms TYP.)	5ms or less (1ms TYP.)	△	In combination with CC-Link input module: 6.5ms or less (2.5ms TYP.)*1
Common terminal arrangement		16 points/common (Common terminal: TB17, TB34)	16 points/common (Common terminal: TB17, TB34)	○	
Operation indication		Available (Turning ON the input turns LED ON)	None	△	Operation indication can be checked with CC-Link input module.
Specifications		**AJ35PTF-56DT output specifications**	**SC-A0JQIF56DT output specifications**	**Compatibility**	**Precautions for replacement**
Number of output points		24 points	24 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated load voltage		12VDC/24VDC	12VDC/24VDC	○	
Operating load voltage range		10.2 to 31.2VDC	10.2 to 30VDC	△	The operating load voltage range differs.
Maximum load current		0.5A/point, 3.2A/common	0.5A/point, 4A/common	○	The maximum load current differs.
Maximum inrush current		4A 10ms or less	4A 10ms or less	○	
Leakage current at OFF		0.1mA or less	0.1mA or less	○	
Maximum voltage drop at ON		0.9VDC (TYP.) 0.5A 1.5VDC (MAX.) 0.5A	0.5VDC (TYP.) 0.5A 0.8VDC (MAX.) 0.5A	○	
Output method		Sink type	Sink type	○	
Response time	OFF→ON	2ms or less	1ms or less	△	In combination with CC-Link output module: 1.5ms or less*2
	ON→OFF	2ms or less (Resistance load)	1ms or less (Resistance load)	△	In combination with CC-Link output module: 2.5ms or less (Resistance load)*2
External supply power	Voltage	12VDC/24VDC (10.2 to 31.2VDC)	12VDC/24VDC (10.2 to 30VDC)	△	The operating voltage range differs.
	Current	23mA (TYP. 24VDC 8 points/common ON)	5mA (TYP. 24VDC 8 points/common ON)	○	
Surge suppressor		Varistor (52 to 62V)	Varistor (50.4 to 61.6V)	○	
Common terminal arrangement		8 points/common (Common terminal: TB9, TB19, TB29)	8 points/common (Common terminal: TB9, TB19, TB29)	○	
Operation indication		Available (Turning ON the output turns LED ON)	None	△	Operation indication can be checked with CC-Link output module.
Fuse		None	None	○	
Fuse blown indication		None	None	○	

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56DT	SC-A0JQIF56DT	Compatibility	Precautions for replacement
External supply power (Module power supply)	Voltage	15.6 to 31.2VDC	24VDC ± 10% Ripple voltage 4Vp-p or less	△	To deliver a power for programmable controller operation, connecting a module power supply to the interface module, TB35 or TB36 is required.
	Current	160mA	260mA	△	If the voltage exceeds existing power capacity, add 24VDC power supply separately.
External connection method		36-point terminal block connector (M3 × 6 screws) 2 pieces	36-point terminal block connector (M3 × 6 screws) 2 pieces	○	
Applicable wire size		0.75 to 2mm^2 (Applicable tightening torque 69N · cm)	0.75 to 2mm^2 (Applicable tightening torque 69N · cm)	○	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	○	
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	–	–	When using the AJ65SBTCF1-32D and AJ65SBTCF1-32T, the number of occupied stations is 2 stations (When using CC-Link, it is 1 station × 32 points).
Weight		1.09kg	0.49kg	△	Also consider the weight of fixed stand of programmable controller.*3
External dimensions		250(H) × 190(W) × 41(D)mm*4	182(H) × 190(W) × 41(D)mm*5	×	Check the dimensions since they depend on the installation type (building-up/horizontal/separate type).

*1: A value when using the AJ65SBTCF1-32D.

*2: A value when using the AJ65SBTCF1-32T.

*3: The weight of fixed stand of programmable controller depends on replacement type of renewal tool for A0J2.

*4: External dimensions of the AJ35PTF-56DT does not include dimensions of the optical fiber cable connector.

*5: The external dimensions of the SC-A0JQIF56DT do not include those of its projection.

5) Specifications comparison between AJ35PTF-24R and interface module (SC-A0JQIF24R)

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-24R output specifications	SC-A0JQIF24R output specifications	Compatibility	Precautions for replacement
Number of output points		24 points	24 points	○	
Insulation method		Photocoupler	None	△	Photocoupler is provided on CC-Link output module side.
Rated switching voltage/ current		24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		264VAC 125VDC	264VAC 125VDC	○	
Maximum switching frequency		3600 times/hr	3600 times/hr	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more	Rated switching voltage/current load 200,000 times or more	○	
		200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 0.75A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	○	
Response time	OFF→ON	10ms or less	9ms or less	△	In combination with CC-Link output module: 9.5ms or less *1
	ON→OFF	12ms or less	11ms or less	△	In combination with CC-Link output module: 12.5ms or less *1
External supply power (Relay coil driving power)	Voltage	24VDC±10% Ripple voltage 4Vp-p or less	24VDC±10% Ripple voltage 4Vp-p or less	○	
	Current	220mA (24VDC All points are ON.)	230mA (24VDC All points are ON.)	○	Review current capacity since current consumption is increased.
Surge suppressor		None	None	○	
Fuse rating		None	None	○	
Fuse blown indication		–	–	○	
Relay socket		None	None	○	
Common terminal arrangement		8 points/common (Common terminal: TB9, TB19, TB29)	8 points/common (Common terminal: TB9, TB19, TB29)	○	
Operation indication		Available (Turning ON the output turns LED ON)	None	△	Operation indication can be checked with CC-Link output module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-24R	SC-A0JQIF24R	Compatibility	Precautions for replacement
External supply power (Module power supply)	Voltage	15.6 to 31.2VDC	–	○	
	Current	120mA	–	○	
External connection method		36-point terminal block connector (M3 × 6 screws)	36-point terminal block connector (M3 × 6 screws)	○	
Applicable wire size		0.75 to 2mm^2 (Applicable tightening torque 69N・cm)	0.75 to 2mm^2 (Applicable tightening torque 69N・cm)	○	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	○	
Number of occupied stations (number of occupied points)		4 stations (4 stations × 8 points)	–	–	When using the AJ65SBTCF1-32T, the number of occupied stations is 1 station (When using CC-Link, it is 1 station ×32 points).
Weight		0.80kg	0.47kg	△	Also consider the weight of fixed stand of programmable controller.*2
External dimensions		250(H) × 132(W) × 41(D) mm*3	182(H) × 132(W) × 41(D)mm*4	×	Check the dimensions since they depend on the installation type (building-up/horizontal/separate type).

*1: A value when using the AJ65SBTCF1-32T.

*2: The weight of fixed stand of programmable controller depends on replacement type of renewal tool for A0J2.

*3: External dimensions of the AJ35PTF-24R does not include dimensions of the optical fiber cable connector.

*4: The external dimensions of the SC-A0JQIF24R do not include those of its projection.

6) Specifications comparison between AJ35PTF-56AR and interface module (SC-A0JQIF56AR)

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56AR input specifications	SC-A0JQIF56AR input specifications	Compatibility	Precautions for replacement
Number of input points		32 points	32 points	○	
Insulation method		Photocoupler	Photocoupler	○	
Rated input voltage		100 to 120VAC 50/60Hz	100 to 120VAC 50/60Hz	○	
Rated input current		10mA (100VAC 60Hz)	10mA (100VAC 60Hz)	○	
Operating voltage range		85 to 132VAC (50/60Hz±5%)	85 to 132VAC (50/60Hz±5%)	○	
Maximum number of simultaneous input points		100% (16 points/common) simultaneously ON	60% (10 points/common) simultaneously ON	△	The maximum number of simultaneous input points differs.
ON voltage/ON current		80VAC or more/6mA or more	80VAC or more/6mA or more	○	
OFF voltage/OFF current		40VAC or less/4mA or less	26VAC or less/1.7mA or less	△	OFF voltage/OFF current is smaller.*1
Inrush current		Maximum 300mA, Within 0.3ms (132VAC)	Maximum 300mA, Within 0.3ms (132VAC)	○	
Input impedance		Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)	Approx. 10kΩ (60Hz), Approx. 12kΩ (50Hz)	○	
Response time	OFF→ON	15ms or less (6ms TYP.)	14ms or less (11ms TYP.)	△	In combination with CC-Link input module: 15.5ms or less (12ms TYP.)*2
	ON→OFF	25ms or less (16ms TYP.)	19ms or less (13ms TYP.)	△	In combination with CC-Link input module: 21.5ms or less (14ms TYP.)*2
Common terminal arrangement		16 points/common (Common terminal: TB17, TB34)	16 points/common (Common terminal: TB17, TB34)	○	
Operation indication		Available (Turning ON the input turns LED ON)	None	△	Operation indication can be checked with CC-Link input module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56AR output specifications	SC-A0JQIF56AR output specifications	Compatibility	Precautions for replacement
Number of output points		24 points	24 points	○	
Insulation method		Photocoupler	None	△	Photocoupler is provided on CC-Link output module side.
Rated switching voltage/ current		24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	24VDC 2A (Resistance load)/point 240VAC 2A (COSϕ=1)/point 5A/common	○	
Minimum switching load		5VDC 1mA	5VDC 1mA	○	
Maximum switching voltage		264VAC 125VDC	264VAC 125VDC	○	
Maximum switching frequency		3600 times/hr	3600 times/hr	○	
Mechanical life		20 million times or more	20 million times or more	○	
Electrical life		Rated switching voltage/current load 200,000 times or more	Rated switching voltage/current load 200,000 times or more	○	
		200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 1A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	200VAC 1.5A, 240VAC 1A (COSϕ=0.7) 200,000 times or more 200VAC 0.75A, 240VAC 0.5A (COSϕ=0.35) 200,000 times or more 24VDC 1A, 100VDC 0.1A (L/R=7ms) 200,000 times or more	○	
Response time	OFF→ON	10ms or less	9ms or less	△	In combination with CC-Link output module: 9.5ms or less*3
	ON→OFF	12ms or less	11ms or less	△	In combination with CC-Link output module: 12.5ms or less *3
External supply power (Relay coil driving power)	Voltage	24VDC±10% Ripple voltage 4Vp-p or less	24VDC±10% Ripple voltage 4Vp-p or less	○	
	Current	220mA (24VDC All points are ON.)	230mA (24VDC All points are ON.)	△	Review current capacity since current consumption is increased.
Surge suppressor		None	None	○	
Fuse rating		None	None	○	
Fuse blown indication		–	–	○	
Relay socket		None	None	○	
Common terminal arrangement		8 points/common (Common terminal: TB9, TB19, TB29)	8 points/common (Common terminal: TB9, TB19, TB29)	○	
Operation indication		Available (Turning ON the output turns LED ON)	None	△	Operation indication can be checked with CC-Link output module.

○: Compatible, △: Partially changed, ×: Incompatible

Specifications		AJ35PTF-56AR	SC-A0JQIF56AR	Compatibility	Precautions for replacement
External supply power (Module power supply)	Voltage	15.6 to 31.2VDC	24VDC ± 10% Ripple voltage 4Vp-p or less	△	To deliver a power for programmable controller operation, connecting a module power supply to the interface module, TB35 or TB36 is required.
	Current	150mA	210mA	△	If the voltage exceeds existing power capacity, add 24VDC power supply separately.
External connection method		36-point terminal block connector (M3 × 6 screws) 2 pieces	36-point terminal block connector (M3 × 6 screws) 2 pieces	○	
Applicable wire size		0.75 to 2mm^2 (Applicable tightening torque 69N ▪ cm)	0.75 to 2mm^2 (Applicable tightening torque 69N ▪ cm)	○	
Applicable solderless terminal		R1.25-3, R2-3, RAV1.25-3, RAV2-3	1.25-3, 1.25-YS3A, 2-S3, 2-YS3A, V1.25-3, V1.25-YS3A, V2-S3, V2-YS3A	○	
Number of occupied stations (number of occupied points)		8 stations (8 stations × 8 points)	–	–	When using the AJ65SBTCF1-32D and AJ65SBTCF1-32T, the number of occupied stations is 2 stations (When using CC-Link, it is 1 station × 32 points).
Weight		1.20kg	0.66kg	△	Also consider the weight of fixed stand of programmable controller.*4
External dimensions		250(H) × 190(W) × 41(D)mm*5	182(H) × 190(W) × 41(D)mm*6	×	Check the dimensions since they depend on the installation type (building-up/horizontal/separate type).

*1: Check that the specifications of leakage current of the used sensor and switches are equal to or less than the OFF current value.
If leakage current is equal to or more than the OFF current specifications, take measures against it with referring to "Input Module Troubleshooting" in the following handbook.
(Handbook for replacement)
Renewal tool for A0J2 series Transition from MELSEC-A0J2(H) series to renewal system using renewal tool (refer to Appendix 2.5.)

*2: A value when using the AJ65SBTCF1-32D.

*3: A value when using the AJ65SBTCF1-32T.

*4: The weight of fixed stand of programmable controller depends on replacement type of renewal tool for A0J2.

*5: External dimensions of the AJ35PTF-56AR does not include dimensions of the optical fiber cable connector.

*6: The external dimensions of the SC-A0JQIF56AR do not include those of its projection.

Appendix 2 Related Manuals

Appendix 2.1 Replacement handbooks

No.	Manual Name	Manual Number	Model Code
1	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Fundamentals)	L-08043ENG	-
2	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Intelligent Function Modules)	L-08046ENG	-
3	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Network Modules)	L-08048ENG	-
4	Transition from MELSEC-A/QnA (Large Type) Series to Q Series Handbook (Communications)	L-08050ENG	-
5	Transition from MELSEC-A0J2H Series to Q Series Handbook	L-08060ENG	-
6	Transition from MELSECNET/MINI-S3, A2C(I/O) to CC-Link Handbook	L-08061ENG	-
7	Transition from MELSEC-I/OLINK to CC-Link/LT Handbook	L-08062ENG	-
8	Transition from MELSEC-A/QnA Large Type Series to AnS/Q2AS Small Type Series Handbook	L-08064ENG	-
9	Transition of CPUs in MELSEC Redundant System Handbook (Transition from Q4ARCPU to QnPRHCPU)	L-08117ENG	-

Appendix 2.2 MELSECNET/MINI-S3

No.	Manual Name	Manual Number	Model Code
1	MELSECNET/MINI-S3 Master Module Type AJ71PT32-S3, AJ71T32-S3, A1SJ71PT32-S3, A1SJ71T32-S3 User's Manual	IB-66565	13JE64
2	A2C, MELSECNET/MINI-S3 I/O MODULE User's Manual	SH-3546	13JL00
3	Analog-Digital Converter Module type A68ADC User's Manual	IB-66247	13J782
4	Digital-Analog Converter Module type A64DAVC/A64DAIC User's Manual	IB-66248	13J783
5	Pt100 input module type A64RD3C/4C User's Manual	IB-66312	13J671
6	High Speed Counting Module type AD61C User's Manual	IB-66246	13J779
7	High speed counter unit type AD62C User's Manual	IB-66400	13JE17
8	RS-232C interface unit type AJ35PTF-R2 User's Manual	IB-66219	13J771
9	Operating boxes type AJ35PT-OPB-M1/AJ35T-OPB-P1 User's Manual	IB-66218	13J770
10	Transmission converter unit type AJ35PTC(PP)-CNV-(SI/GI) User's Manual	IB-66349	13J669

Appendix 2.3 CC-Link

No.	Manual Name	Manual Number	Model Code
1	Open Field Network CC-Link, CC-Link/LT Catalog	L-08038E	-
2	CC-Link and CC-Link/LT Compatible Product databook	L-08039E	-
3	CC-Link System Master/Local Module User's Manual	SH-080394	13JR64
4	CC-Link System Compact Type Remote I/O Module User's Manual	SH-4007	13JL72
5	CC-Link System Remote I/O Module User's Manual	IB-66728	13J878
6	MELSECNET/MINI-S3 - CC-Link Module Wiring Conversion Adapter User's Manual A6ADP-1MC16D/A6ADP-1MC16T/A6ADP-2MC16D	IB-0800373	13JY20
7	AJ65BT-64AD Analog-Digital Converter Module User's Manual	SH-3614	13J893
8	Analog-Digital Converter Module type AJ65SBT-64AD User's Manual	SH-080106	13JR18
9	Analog-Digital Converter Module type AJ65VBTCU-68ADVN/ADIN User's Manual	SH-080401E	13JR65
10	Digital-Analog Conversion Module type AJ65BT-64DAV/DAI User's Manual	SH-3615	13J895
11	Digital-Analog Converter Module type AJ65SBT-62DA User's Manual	SH-080107	13JR19
12	Digital-Analog Converter Module type AJ65VBTCU-68DAVN User's Manual	SH-080402E	13JR66
13	Pt 100 Temperature Input Module Type AJ65BT-64RD3/AJ65BT-64RD4 User's Manual	SH-4001	13JL54
14	High-Speed Counter Module type AJ65BT-D62/AJ65BT-D62D/ AJ65BT-D62D-S1 User's Manual	IB-66823	13JL45
15	CC-Link System RS-232 Interface Module User's Manual (Nonprocedural Protocol Mode) (AJ65BT-R2N)	SH-080685ENG	13JZ00
16	CC-Link System RS-232 Interface Module User's Manual (MELSOFT Connection Mode) (AJ65BT-R2N)	SH-080687ENG	13JZ01
17	CC-Link System Repeater Optical Repeater Module User's Manual AJ65SBT-RPS/AJ65SBT-RPG	IB-0800089	13JQ85

Appendix 2.4 Products manufactured by Mitsubishi Electric Engineering Co., Ltd.

No.	Catalog name	Catalog Number
1	Mitsubishi Programmable Controller Upgrade Tool	SAN C033E·04Z

Appendix 2.5 Products manufactured by Mitsubishi Electric System & Service Co., Ltd.

No.	Data/catalog	Number
1	Renewal tool for A0J2 series Transition from MELSEC-A0J2(H) series to renewal system using renewal tool	X903071003
2	Replace A0J2(H) system with Q series using existing wiring!	X900707-115
3	Renewal tool for A0J2 series Interface module User's manual	X903071001
4	Renewal tool for A0J2 series Fixed stand/Base adaptor Replacement manual	X903071002

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.
However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.
[Gratis Warranty Term]
The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.
[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
    1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
    2. Failure caused by unapproved modifications, etc., to the product by the user.
    3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
    4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
    5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
    6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
    7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued.
    Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

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L(NA)08061ENG-D

Mitsubishi Programmable Controller

MITSUBISHI ELECTRIC CORPORATION

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Specifications subject to change without notice.