MELSEC A/Q Series

Programmable Logic Controllers

User's Manual

CC-Link System Compact Type Remote I/O Modules

Art. no.: 103494
01 07 2004
SH(NA)-4007
Version O

MITSUBISHI ELECTRIC INDUSTRIAL AUTOMATION

• SAFETY PRECAUTIONS •

(Always read these instructions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.
In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

⚠ DANGER	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 medium or slight personal injury or physical damage.

Note that the ⚠CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Design Precautions]

⚠ DANGER

- When there are communication errors with the data link, the communication error station will enter the following condition.
  Build an interlock circuit into the sequence program to operate system safely by using the communication state information.
  An accident may occur by a false output or a malfunction.
  (1) Turn off all input from Remote I/O station.
  (2) Turn off all output from Remote I/O station.
- The output may be left ON or OFF due to trouble in the remote I/O module.
  Configure a circuit to monitor output signals which may lead to a serious accident..

⚠ CAUTION

- Use the module in an environment that meets the general specifications contained in this manual. Using this module in an environment outside the range of the general specifications could result in electric shock, fire, malfunction, and damage to or deterioration of the product.
- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other. (AJ65SBTW□-16 only)
  They should be installed 100 mm (3.9 in.) or more from each other.
  Not doing so could result in noise that would cause malfunction.

[Installation Precautions]

⚠ CAUTION

- Do not directly touch the module's conductive parts.
  Doing so could cause malfunction or failure in the module.
- Make sure to fix the module with DIN rail or installation screws and tighten the installation screws with the specified torque.
- Make sure to connect the connector of each connecting cable to the attachment part.
  Defective contact could cause malfunction.

[Wiring Precautions]

⚠ DANGER

- Before beginning any installation or wiring work, make sure that all phases of the power supply have been obstructed from the outside.
  Failure to completely shut off the power supply phases may cause electric shock and/or damage to the module.

⚠ CAUTION

- The FG terminals should always be grounding using the class-D (class-3) or higher grounding designed specially for the PLC.
- Make sure to use the spare terminal screws as it is tightened.
  Failure to do so could make a short circuit with bare solderless terminals.
- When wiring the module, check the rated voltage and terminal layout and make sure the wiring is done correctly.
  Connecting a power supply that differs from the rated voltage or wiring it incorrectly may cause fire or failure.
- Tighten the terminal screws within the range of specified torque.
  If the terminal screws are loose, it may result in fire or malfunction.
  Tightening the screws too far may cause damage to the screws, resulting in short circuit or malfunction.
- When securing the CC-Link cable or power cable using the through pipe of the waterproof remote I/O module, securely tighten the nuts using a wrench or the like. Loose nuts may result in malfunction due to water intrusion. (AJ65SBTW□-16□ only.)
- Carry out tightening of the waterproof cap and communications adapter installation screws within the specified tightening torque range. (AJ65FBTA□-16□ only.)
  If the screws are loose, it could cause fire or malfunction.
  If the screws are overtightened, they could be damaged, and this could cause a short circuit or malfunction.
- The IP67 is satisfactory only when all the waterproof plugs, waterproof caps and communications adapters are installed (AJ65FBTA□-16□ only.)

[Wiring Precautions]

⚠ CAUTION

- Since the I/O connector, communications connector and power supply connector are the same shape, do not connect the communications cable to the I/O connector.
  Doing so could cause the module to break down or malfunction. (AJ65FBTA□-16□ only.)
- Make sure that there are no foreign substances such as sawdust or wiring debris inside the module.
  Such debris could cause fire, failure or malfunction.
- Make sure that the communication cable connected to the module is kept in the duct or fixed with cramps.
  Failure to do so may cause a damage to the module or cables due to dangling, shifting or inadvertent handling of cables, or misoperation because of bad cable contacts.
- Do not grab on the cable when removing the communication cable connected to the module.
  When removing the cable with a connector, hold the connector on the side that is connected to the module.
  When removing the cable without a connector, loose the screws on the side that is connected to the module.
  Pulling the cable that is still connected to the module may cause a damage to the module or cable, or malfunction due to bad cable contacts.

[Starting and Maintenance Precautions]

⚠ DANGER

- Do not touch the terminals or connector while the power is on.
  Doing so may cause electric shock or malfunction.
- Make sure to switch all phases of the external power supply off before cleaning or re-tightening the terminal screws.
  Failure to do so may damage the module or cause malfunction.
- Set the sink/source selector switch after shutting off the power supply at all phases.
  Failure to do so may result in failures or malfunctions in the opponent device.

⚠ CAUTION

- Do not disassemble or modify the module.
  Doing so could cause failure, malfunction, injury or fire.
- Because the case of the module is made of resin, be careful not to drop it or expose it to strong impact.
  It may damage the module.
- Switch all phases of the external power supply off before mounting or removing the module.
  Failure to do so may damage the module or cause malfunction.

[Disposal Precautions]

⚠ CAUTION
• When disposing of this product, treat it as industrial waste.

A - 4

REVISIONS

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

Print Date	* Manual Number	Revision
June 1998	SH(NA)-4007-A	First printing
Nov. 1998	SH(NA)-4007-B	Additional model AJ65SBTB1-8D, AJ65SBTC4-16D, AJ65SBTW4-16D AJ65SBTB1-8T, AJ65SBTC4-16DT, AJ65SBTW4-16DT Addition Section 7.3, 7.4 Correction Section 1.1, 1.2, 1.4, Chapter 2, 4, 5, 6, Section 7.1, Appendix 1
Apr. 1999	SH(NA)-4007-C	Addition Contents Section 8.2.2
June 1999	SH(NA)-4007-D	Additional model AJ65SBTB1-32T1, AJ65SBTCF1-32D, AJ65SBTCF1-32T, AJ65SBTCF1-32DT
Nov. 1999	SH(NA)-4007-E	Addition Section 1.4, 4.1.6, 4.1.7, 4.4, 5.1.8, 5.1.9, 5.1.10, 5.1.11, 5.3, 6.1, 6.4, 7.4, Appendix 1.6, 1.7, 1.8 Correction Section 1.1, 1.2, 1.3, 1.5, 1.6, Chapter 2, Chapter 3, Section 4.2.1, 4.3.1, 6.2.1, 6.3.1, Section 7.1, 7.4, 8.2.1, Appendix 1 Additional model AJ65SBTB1-32DT, AJ65SBTCF1-32D, AJ65SBTCF1-32T, AJ65SBTCF1-32DT, AJ65SBTB2-8A, AJ65SBTB2-16A, AJ65SBTB2-8R, AJ65SBTB2-16R, AJ65SBTB2-8S, AJ65SBTB2-16S
Dec. 1999	SH(NA)-4007-F	Addition Section 1.2, 4.1.6, 4.1.7, 5.1.8, 5.1.9, 5.1.10, 5.1.11
Mar. 2000	SH(NA)-4007-G	Additional model AJ65SBTB2N-8A, AJ65SBTB2N-16A, AJ65SBTB3-8D, AJ65SBTB3-16D, AJ65SBTB2-8T, AJ65SBTB2-16T, AJ65SBTB2N-8R, AJ65SBTB-16R, AJ65SBTB2N-8S, AJ65SBTB2N-16S, AJ65SBTB32-8DT, AJ65SBTB32-16DT, AJ65SBTB1-16DT, AJ65SBTB1-16DT1, AJ65SBTB1-32DT1 Addition Section 4.1.8, 4.1.9, 4.1.10, 4.1.11, Section 5.1.12, 5.1.13, 5.1.14, 5.1.15, 5.1.16, 5.1.17, Section 6.1.1, 6.1.3, 6.1.4, 6.1.5, 6.1.6, Appendix 1.9, 1.10
Oct. 2000	SH(NA)-4007-H	Additional model AJ65VBTCU3-8D1, AJ65VBTCU3-16D1, AJ65VBTCU2-8T, AJ65VBTCU2-16T, AJ65VBTCF1-32DT1 Addition Section 4.5, 5.4, 6.5, 7.2.3, 7.2.4, Appendix 1.13 Correction Section 1.1, 1.4, 1.5, Chapter 2, Section 4.3.1, 7.1 Deletion AJ65SBTB2-8A, AJ65SBTB2-16A, AJ65SBTB2-8R, AJ65SBTB2-16R, AJ65SBTB2-8S, AJ65SBTB2-16S

Print Date	* Manual Number	Revision
Jan. 2001	SH(NA)-4007-I	Additional model AJ65FBTA4-16D, AJ65FBTA4-16DE, AJ65FBTA42-16DT, AJ65FBTA42-16DTE Addition Section 1.6, 7.4, Appendix 1.14 Correction Section 1.2, 1.4, 1.5, Chapter 2,3, Section 4.5.2, 5.3.1, 5.4.1, 5.4.2, 6.5.1, 7.1 Appendix 1.13
Jul. 2001	SH(NA)-4007-J	Additional model AJ65FBTA2-16T, AJ65FBTA2-16TE Correction Section 1.2, 1.4, 1.5, 4.1.6, 4.1.7, 4.2.1, 4.2.2, 4.3.1, 6.2.1, 6.2.2, 6.3.1, 6.5.1, 6.6.1, 6.6.2, 7.2.3 Appendix 1.14
Sep. 2001	SH(NA)-4007-K	Additional model AJ65SBTB1-16DT2, AJ65SBTB1-32DT2 Correction Section 1.4, 6.1.1, 8.2.1, Appendix 1.13
Jan. 2002	SH(NA)-4007-L	Additional model AJ65SBTB1-8T1, AJ65SBTB2-8T1, AJ65SBTB2-16T1, AJ65SBTC1-32T1, AJ65SBTB1-16DT3, AJ65SBTB1-32DT3, AJ65SBTB32-8DT2, AJ65SBTB32-16DT2, AJ65SBTC4-16DT2, AJ65SBTC1-32DT2, AJ65SBTC1-32DT3 Correction Section 1.3, 1.4, 1.5, 5.5.2, 6.1.1, 7.7, 8.2.1 Appendix 1.13 Changed item numbers Section 5.1.4 to Section 5.1.9 → Section 5.1.5 to Section 5.1.10 Section 5.1.10 to Section 5.1.13 → Section 5.1.13 to Section 5.1.16 Section 6.1.5 to Section 6.1.6 → Section 6.1.9 to Section 6.1.10 Section 6.2.2 to Section 6.2.3 → Section 6.2.3 to Section 6.2.4
Dec. 2002	SH(NA)-4007-M	Correction Section 2, Section 4 to Section 6, Section 8.2.1
May. 2003	SH(NA)-4007-N	Correction Section 1.3, 1.6
Jun. 2004	SH(NA)-4007-O	Additional model AJ65VBTS3-16D, AJ65VBTS3-32D, AJ65VBTS2-16T, AJ65VBTS2-32T, AJ65VBTS32-16DT, AJ65VBTS32-32DT, AJ65VBTCE3-8D, AJ65VBTCE3-16D, AJ65VBTCE2-8T, AJ65VBTCE2-16T, AJ65VBTCE32-16DT Addition Section 1.6.1 to 1.6.3, 4.5.3 to 4.5.5, 5.4.3 to 5.4.5, 6.5.2 to 6.5.4, 7.8, 7.9 Appendix 1.15, 1.16 Correction Chapter 1, 2, Section 4.4.1, 4.5, 5.1, 5.4, 6.1, 6.5, 6.2.2, 6.4.1, 6.5.1, 7.2 to 7.4

INTRODUCTION

Thank you for purchasing the MELSEC-A series PLC.
Before using the equipment, please read this manual carefully to develop full familiarity with the functions and performance of the A-series PLC you have purchased, so as to ensure correct use.
Please forward a copy of this manual to the end user.

CONTENTS

About Manuals

The following manuals are also related to this product.

In necessary, order them by quoting the details in the tables below.

Related Manuals

Manual Name	Manual Number (Model Code)
CC-Link System Master/Local Module type AJ61BT11/A1SJ61BT11 User's Manual This manual describes the system configuration, performance specification, function, handling, wiring and troubleshooting for AJ61BT11 and A1SJ61BT11. (Sold separately)	IB-66721 (13J872)
CC-Link System Master/Local Module type AJ61QBT11/A1SJ61QBT11 User's Manual This manual describes the system configuration, performance specification, function, handling, wiring and troubleshooting for AJ61QBT11 and A1SJ61QBT11. (Sold separately)	IB-66722 (13J873)
CC-Link System Master/Local Module type QJ61BT11N User's Manual This manual describes the system configuration, performance specification, function, handling, wiring and troubleshooting for QJ61BT11N (Sold separately)	SH-080394 (13JR64)

Conformation to the EMC Directive and Low Voltage Instruction

For details on making Mitsubishi PLC conform to the EMC directive and low voltage instruction when installing it in your product, please see Chapter 3, "EMC Directive and Low Voltage Instruction" of the PLC CPU User's Manual (Hardware).

The CE logo is printed on the rating plate on the main body of the PLC that conforms to the EMC directive and low voltage instruction.

1 OVERVIEW

This manual describes the specifications of the compact remote I/O module (hereinafter referred to as the "compact remote I/O module") used as the remote I/O station of the Control & Communication Link (hereinafter referred to as the "CC-Link").

1.1 Features

The following are the features of the compact remote I/O module:

(1) The remote I/O module is reduced in size yet retains all the functions of the conventional module

The conventional remote I/O module has furthermore been reduced in size.

[External dimensions]

Module model name	Compact remote I/O module			Conventional remote I/O module		
	AJ65SBTB1-8 □	AJ65SBTB1-16 □ AJ65SBTB2-8 □ AJ65SBTB2N-8 □ AJ65SBTC1-32 □ AJ65SBTC4-16 □ AJ65SBTCF1-32 □ AJ65SBTB3-8 □ AJ65SBTB32-8 □	AJ65SBTB1-32 □ AJ65SBTB2-16 □ AJ65SBTB2N-16 □ AJ65SBTB3-16 □ AJ65SBTB32-16 □	AJ65BTB1-16 □	AJ65BTB2-16 □	AJ65BTC1-32 □
Height	50 (1.97)			65 (2.56)		
Width	87.3 (3.44)	118 (4.65)	179 (7.04)	151.9 (5.98)	197.5 (7.78)	165.0 (6.5)
Depth	40 (1.57)			46 (1.81)		

Unit : mm (in.)

(2) More models in the compact remote I/O module lineup

Waterproof-type terminals have been added to the line of compact remote I/O modules for the CC-Link systems. Along with the conventional terminal block type and one-touch connector type modules and FCN connector type and connector type and spring clamp terminal block type and sensor connector (e-CON) type. Seven types are now available.

The 8-point type has been added to the conventional 16-point and 32-point remote I/O modules, allowing the user to select a module that most suits his/her objective and environment.

(3) 4-wire compact remote I/O module featuring easy connection of a 4-wire sensor

A 4-wire sensor can be easily connected via the common pin provided on each plug without installing a relay terminal block.

For a 4-wire compact remote I/O module, one sensor is connected to each plug. Therefore, sensors can be exchanged by plug, reducing work steps.

(4) Terminal block connection provides easy connection of 2-wire and 3-wire sensors or loads

Since the terminal block connection allows connection of 2-wire and 3-wire sensors or loads, common connections are not needed and it makes connection easier.

1

(5) Wiring work can be minimized

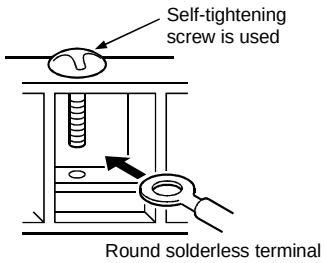
(a) Terminal-block module
The number of wiring steps can be dramatically reduced by adopting the use of self-tightening screws on the terminal block.

(b) One-touch connector module, connector module
The number of wiring steps can be dramatically reduced by adopting use of the pressure-displacement wire-connection method (soldering, peeling of shield and screwing not necessary).

(c) FCN connector module
The number of wiring steps can be dramatically reduced by adopting 40-pin connector for I/O part.

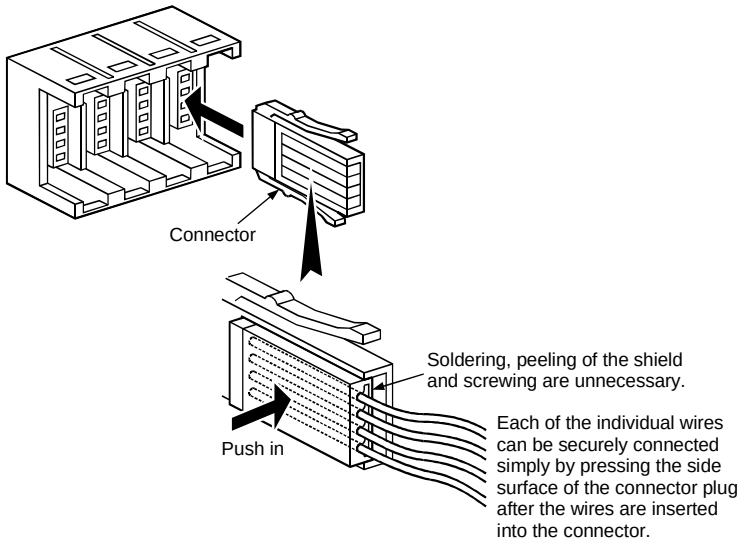
(d) Spring clamp terminal block module
The number of wiring steps can be dramatically reduced by adopting spring clamps (screwing not necessary).

<Terminal-block module>

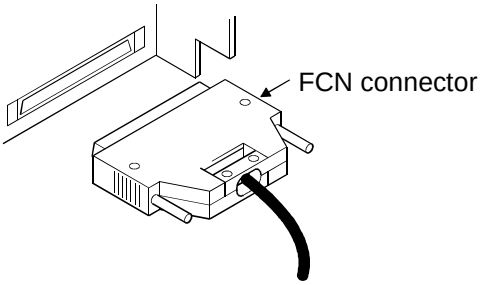


The round solderless terminal can be connected simply by loosening the screw on the terminal block.

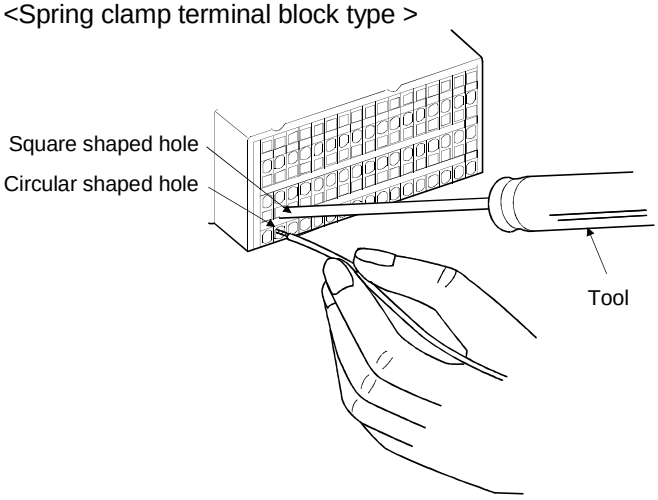
<One-touch connector module, connector module>



<FCN connector module>>



<Spring clamp terminal block type >



1 - 2

(6) Waterproof remote I/O modules with improved resistance against water and oil

The waterproof remote I/O module, low profile waterproof remote I/O module adopts a protection structure compatible with IP67, providing even safer usage in areas in which water and oil are present.

(7) Up to a maximum of 64 remote I/O modules can be connected

In the CC-Link system, a maximum of 64 remote I/O modules can be connected per master station.

Since each remote I/O module occupies 32 points, a maximum of 2048 link points can be set.

(8) Modules can be exchanged without stopping the CC-Link system

With the adoption of a two-piece terminal block for the CC-Link cable connection, modules may be exchanged without stopping the CC-Link system.

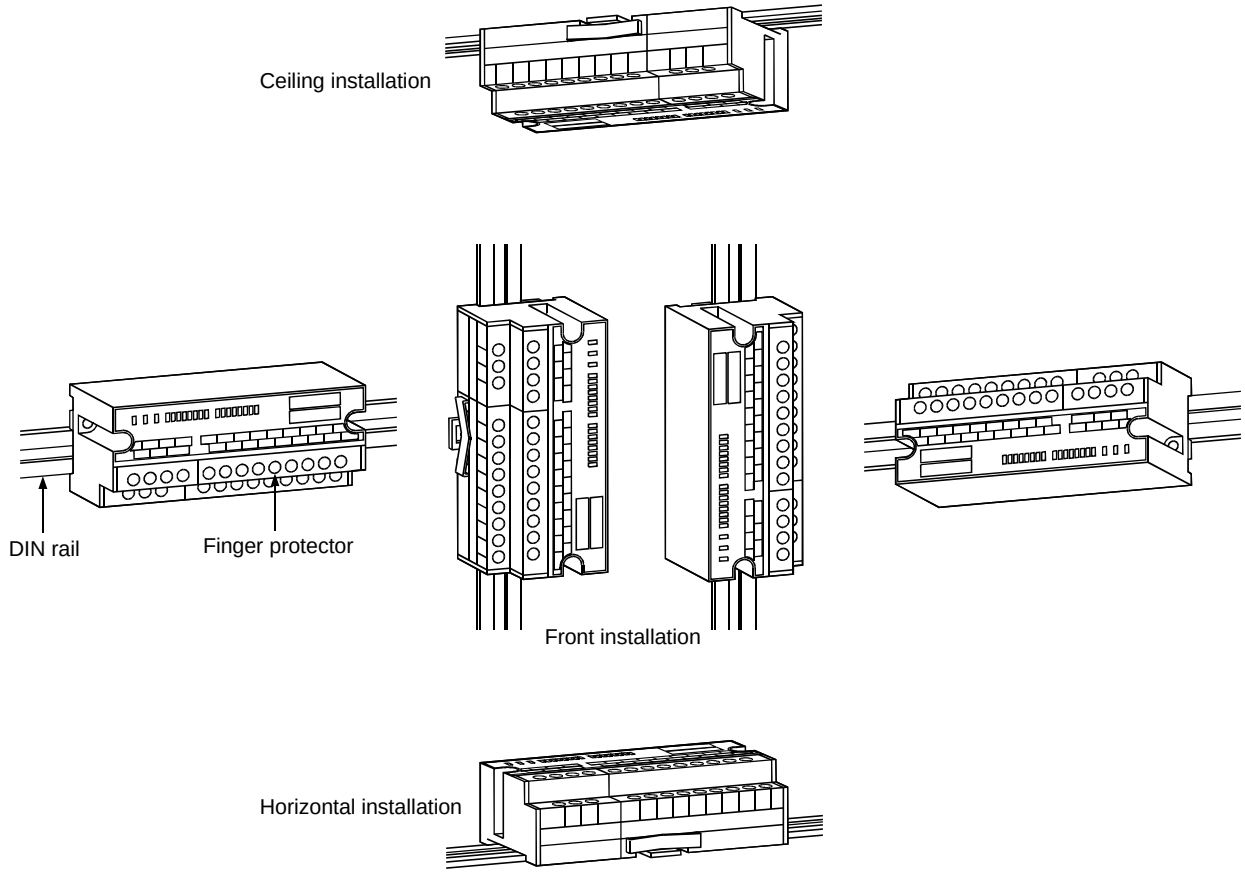
(9) Direct installation to the machine is feasible

The terminal-block remote I/O module may be installed directly to the machine, since the charged area is protected by a finger protector in the upper area of the terminal block.

(10) The module can be installed in six orientations

The compact remote I/O module can be installed in six different orientations. (Restrictions may apply to some installation orientations.)

The module can also be installed using the DIN rail.

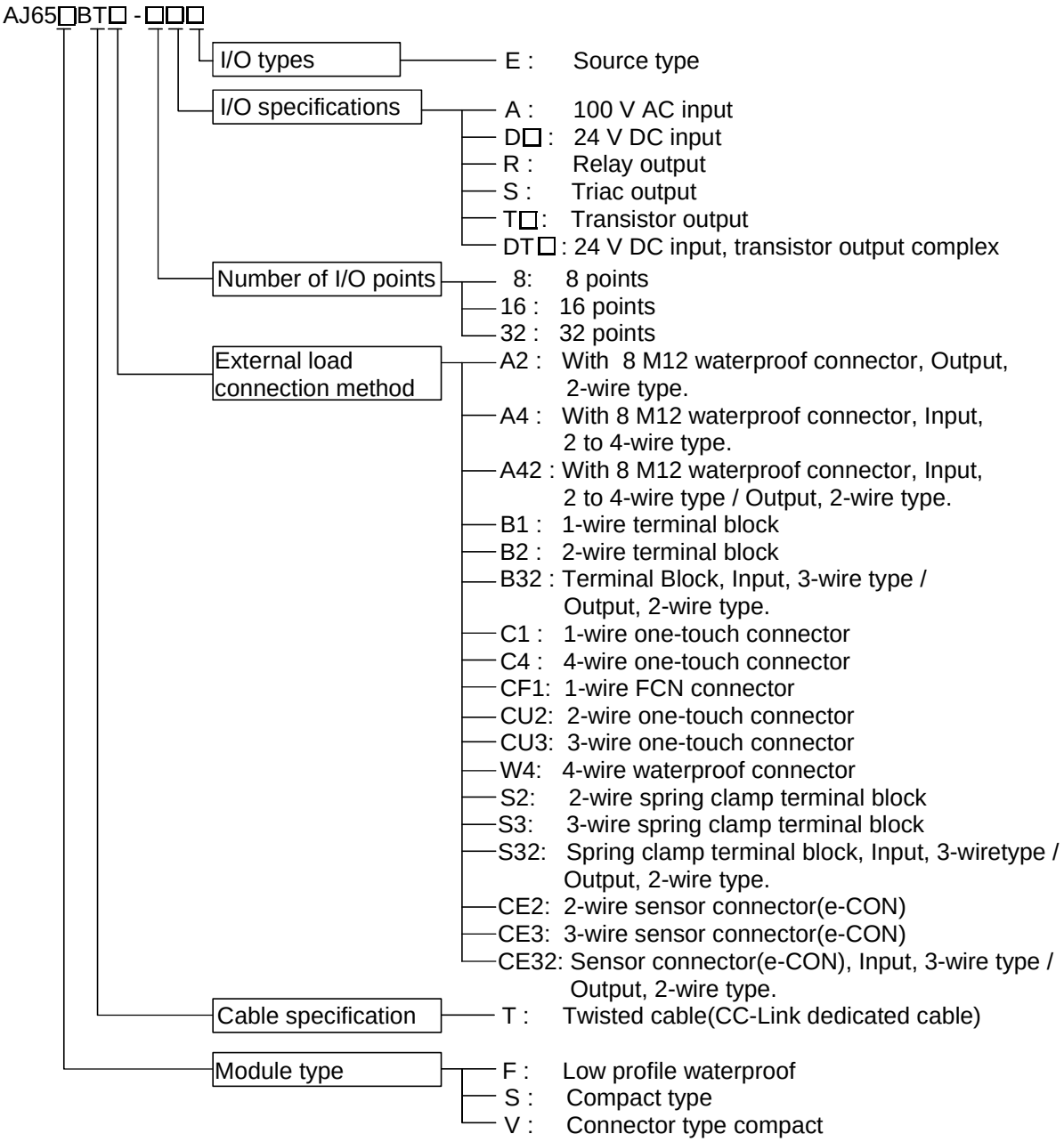


(11) Transistor output module with improved protection functions

The transistor output module is designed to achieve an even greater degree of module protection by adopting short-circuit protection, overload protection, thermal protection and overvoltage protection as standard. As a result, the PLC system's reliability is further improved.

1.2 Identifying the Compact Remote I/O Module Type

The following shows how to identify the type of a compact remote I/O module:



1.3 Cautionary Notes when Selecting a Remote I/O Module

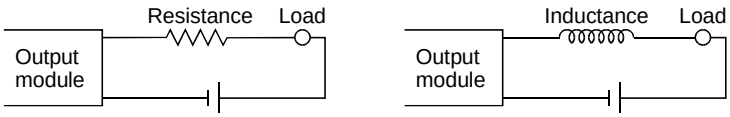
The following explains the cautionary notes and specifications that apply when selecting a remote I/O module for use in the CC-Link system:

(1) This is a remote I/O module designed specifically for the CC-Link system. Do not connect the module to other data-link systems, such as the MELSECNET/MINI.

(2) 32 points are assigned per station for a compact remote I/O module. For 16-point modules the 16 points in the second half and for 8-points module the 24 points in the second half remain empty but are not usable.

(3) For the maximum switching frequency when driving a load in the output module, set to one second or more each for ON and OFF.

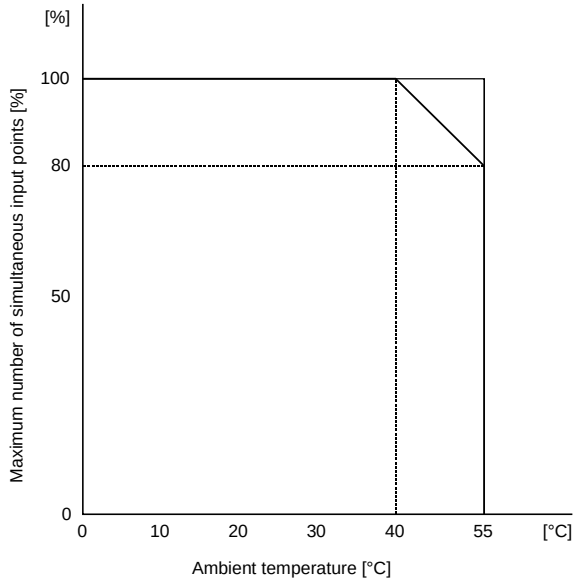
(4) When using a counter, a timer or the like that uses a DC/DC converter as the load for a transistor output module having a maximum load current of 0.1A, a rush current flows when the module is turned on and at fixed intervals during operation. For this reason, malfunctions may occur if the average current is set. When the above load is used, connect resistance or inductance in parallel to the load, or use an output module having a large maximum load current in order to minimize the effects of the rush current.



(5) Since the output modules of the AJ65SBTB1-16T1, AJ65BTB1-32T1, AJ65SBTB1-8T1, AJ65SBTB2-8T1, AJ65SBTB2-16T1, AJ65SBTC1-32T1, AJ65SBTB1-16DT2, AJ65SBTB1-32DT2, AJ65SBTB1-16DT3, AJ65SBTB1-32DT3, AJ65SBTB32-8DT2, AJ65SBTB32-16DT2, AJ65SBTC4-16DT2, AJ65SBTC1-32DT2 and AJ65SBTC1-32DT3 are not equipped with a short protection function, install an external short protection circuit.

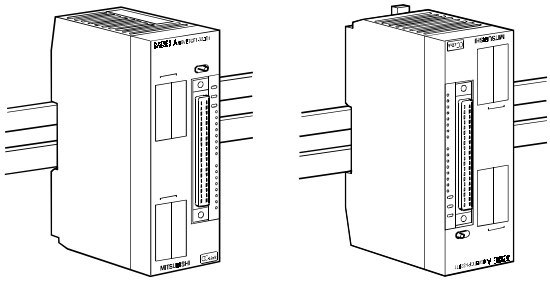
(6) When using the AJ65SBTC1-32D or AJ65SBTC1-32D1 input module, the maximum number of simultaneous input points listed in the specifications will change, depending on the ambient temperature.
The maximum number of simultaneous input points is shown in the diagram below:

Dilating curve for the AJ65SBTC1-32D or AJ65SBTC1-32D1



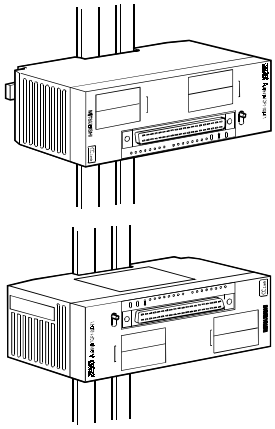
(7) When using the AJ65VBTCF1-32DT1, the maximum number of simultaneous input points described in the specifications will change, depending on the installation orientation.

1) Regarding maximum number of simultaneous input points unrestricted installation orientations.
In the installation orientations shown below, there is no restriction on the maximum number of simultaneous input points.

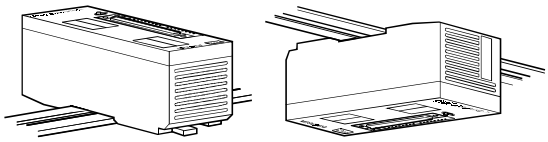


Front installation

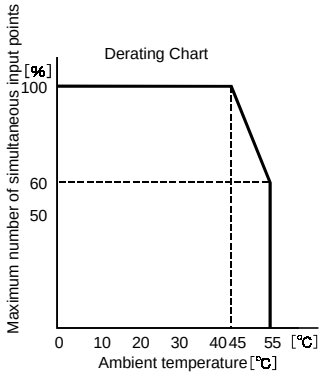
2) Regarding maximum number of simultaneous input points restricted installation orientations.
In the installation orientations shown below, The maximum number of simultaneous input points will be 60%, when the circumambient temperature is 55°C.
(Refer to the Derating Chart)



Front installation

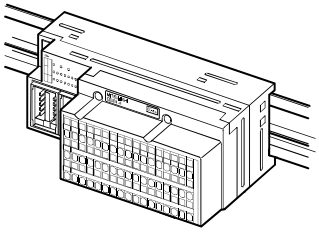


Horizontal installation Ceiling installation



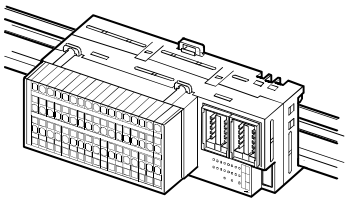
(8) When using the AJ65VBTS3-16D, the maximum number of simultaneous input points described in the specifications will change, depending on the installation orientation.

1) Regarding maximum number of simultaneous input points unrestricted installation orientations.
In the installation orientation shown below, there is no restriction on the maximum number of simultaneous input points.

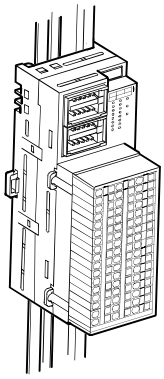


Front installation (Basic orientation)

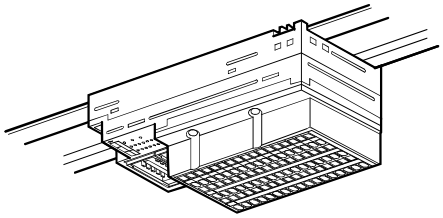
2) Regarding maximum number of simultaneous input points restricted installation orientations.
In the installation orientations shown below, the maximum number of simultaneous input points will be 75% when the circumambient temperature is 55°C.
(Refer to the Derating Chart)



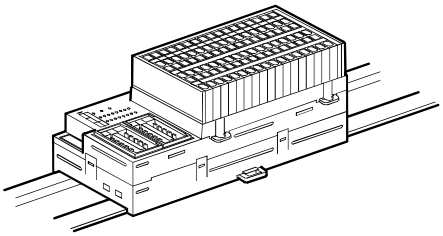
Front installation (Upside-down orientation)



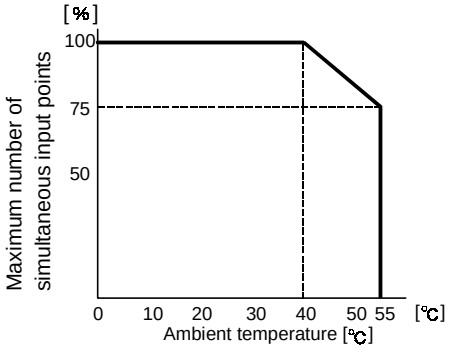
Front installation (Vertical orientation)



Ceiling installation



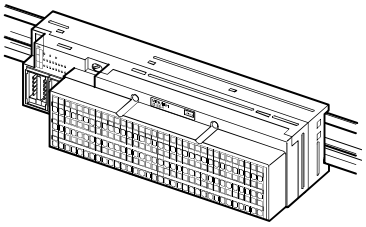
Horizontal installation



Derating Chart

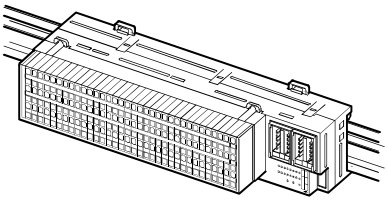
(9) When using the AJ65VBTS3-32D, the maximum number of simultaneous input points described in the specifications will change, depending on the installation orientation.

1) Regarding maximum number of simultaneous input points unrestricted installation orientations.
In the installation orientation shown below, there is no restriction on the maximum number of simultaneous input points.

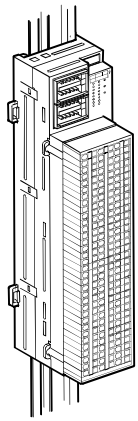


Front installation (Basic orientation)

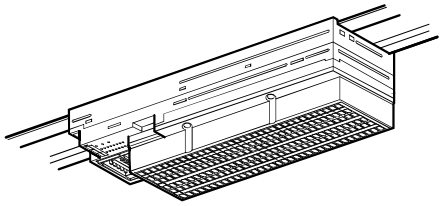
2) Regarding maximum number of simultaneous input points restricted installation orientations.
In the installation orientations shown below, the maximum number of simultaneous input points will be 69% (11 points/common) when the circumambient temperature is 55°C.
(Refer to the Derating Chart)



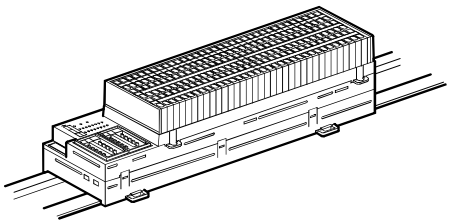
Front installation (Upside-down orientation)



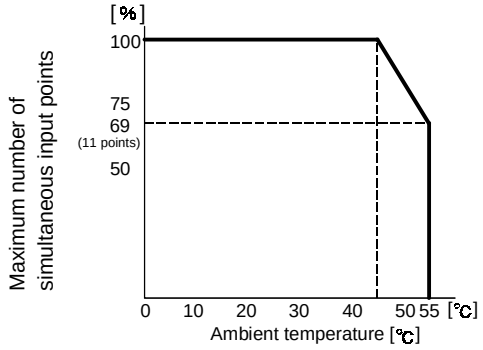
Front installation (Vertical orientation)



Ceiling installation



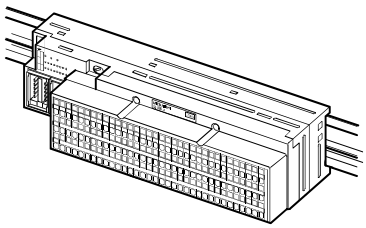
Horizontal installation



Derating Chart

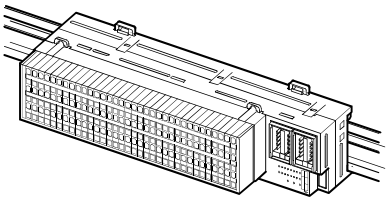
(10) When using the AJ65VBTS32-32DT, the maximum number of simultaneous input points described in the specifications will change, depending on the installation orientation.

1) Regarding maximum number of simultaneous input points unrestricted installation orientations.
In the installation orientation shown below, there is no restriction on the maximum number of simultaneous input points.

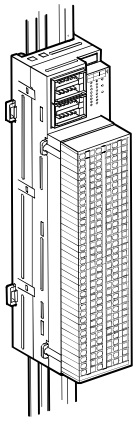


Front installation (Basic orientation)

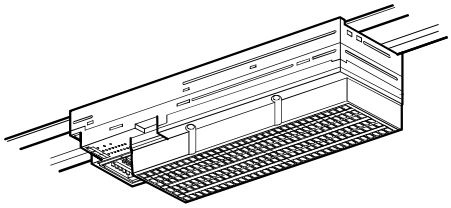
2) Regarding maximum number of simultaneous input points restricted installation orientations.
In the installation orientations shown below, the maximum number of simultaneous input points will be 75% when the circumambient temperature is 55°C.
(Refer to the Derating Chart)



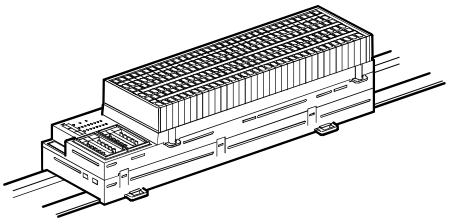
Front installation (Upside-down orientation)



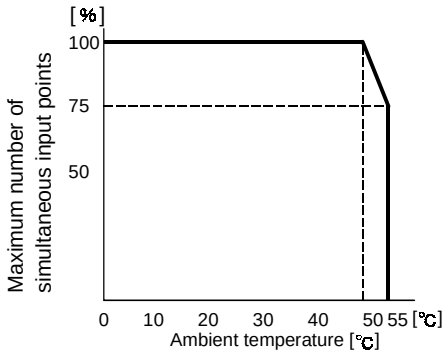
Front installation (Vertical orientation)



Ceiling installation



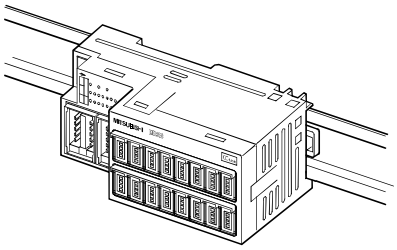
Horizontal installation



Derating Chart

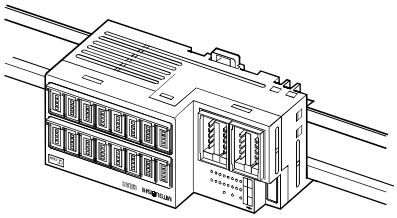
(11) When using the AJ65VBTCE3-16D, the maximum number of simultaneous input points described in the specifications will change, depending on the installation orientation.

1) Regarding maximum number of simultaneous input points unrestricted installation orientations.
In the installation orientation shown below, there is no restriction on the maximum number of simultaneous input points.

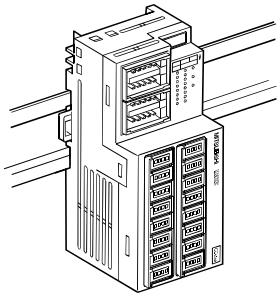


Front installation (Basic orientation)

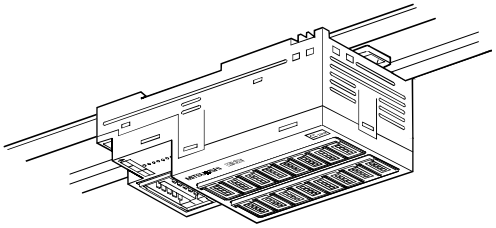
2) Regarding maximum number of simultaneous input points restricted installation orientations.
In the installation orientations shown below, the maximum number of simultaneous input points will be 62.5% when the circumambient temperature is 55°C.
(Refer to the Derating Chart)



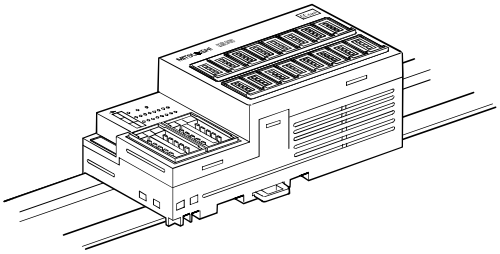
Front installation (Upside-down orientation)



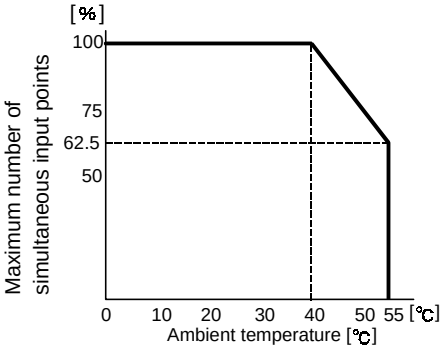
Front installation (Vertical orientation)



Ceiling installation

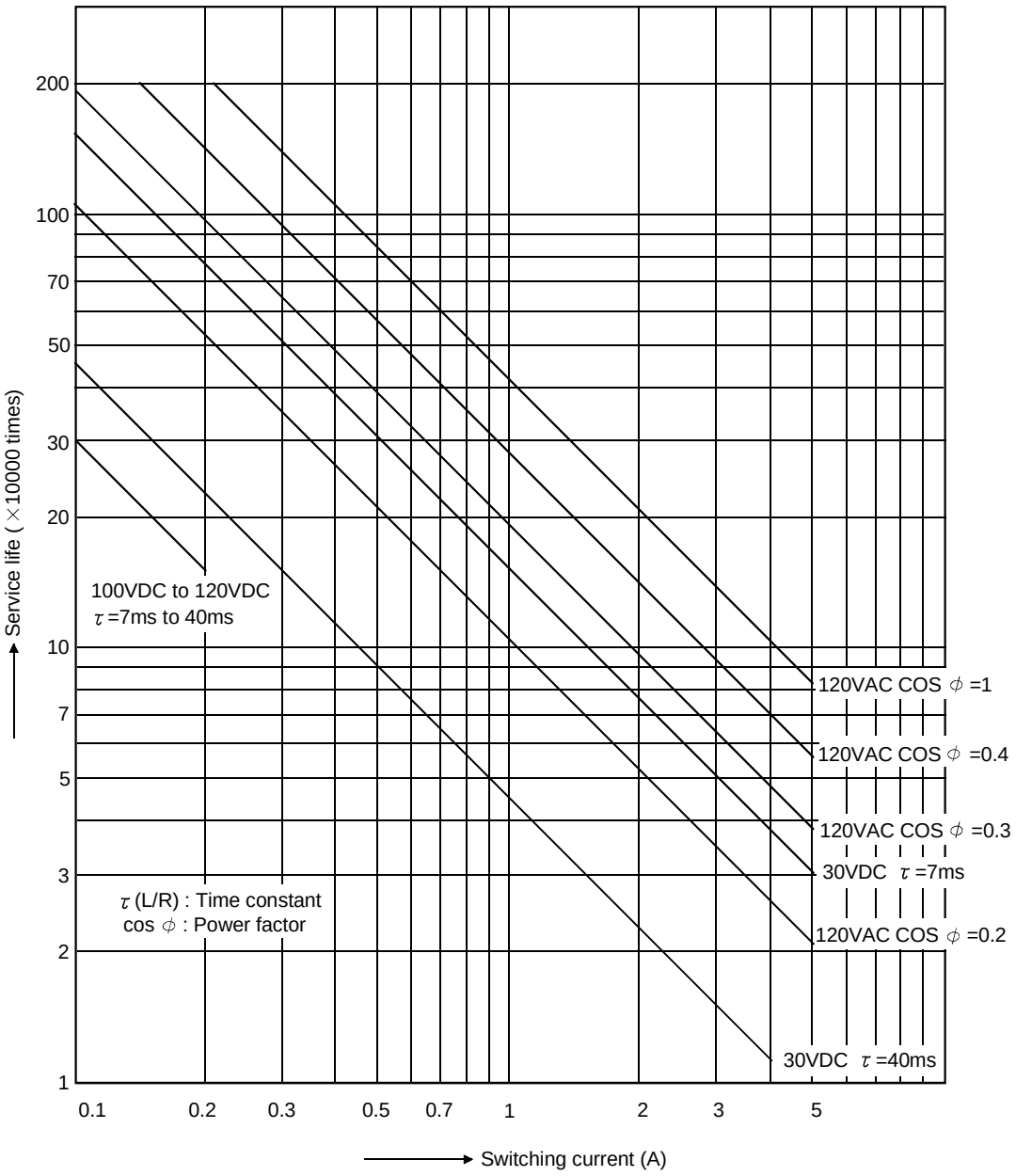


Horizontal installation



Derating Chart

(12) The following chart shows the service life of the relay output module.
Applicable module: AJ65SBTB2N-8R, AJ65SBTB2N-16R



1 - 12

POINT

(1) When using the module for the application in which the relay contact is frequently switched, the relay life span should be considered. Therefore, it is recommended to use a triac output module.

(2) The relay life curve shows the value based on actual use, which is not guaranteed. Therefore, make sure to allow for a margin of error.
The relay life span differs according to the specifications as follows:

Rated switching voltage, current load	100 thousand operations
200V AC 1.5A, 240V AC 1A (COS ϕ =0.7)	100 thousand operations
200V AC 1A, 240V AC 0.5A (COS ϕ =0.35)	100 thousand operations
24V DC 1A, 100V DC 0.1A (L/R=7ms)	100 thousand operations

(3) Relay life is substantially affected by the load type and inrush current characteristics.
The inrush current may cause the contact welding. Therefore, consideration should be given to it as well as constant current.

(a) Inductive load
When the inductive load such as electromagnetic contactor or solenoid is shut off, high counter-electromotive force is generated between the contacting materials to produce an arc discharge. Consideration should be made especially when the power factor is low, as it may decrease the life period.
In addition, make sure to consider the contact melting, as the inrush current equivalent to 5 to 15 times of constant current flows when the module is powered on.

(b) Lamp load
Make sure to consider the contact melting, as the inrush current equivalent to 10 to 15 times of constant current flows in the lamp circuit.

(c) Capacitive load
Make sure to consider the contact melting when a device such as condenser is used in a load circuit, as the inrush current equivalent to 20 to 40 times of constant current may flow in the circuit.
Also, pay full attention to the wire capacity if long length of wire is routed.

1.4 Specification List

Specification list for each compact remote I/O module is shown below.

(1) Input module

Model	Input format	No. of points per module	Insulation method	Rated input voltage	Input current	Operation voltage		Input response time		Input display	External connection	Common connection	Internal current consumption	External dimensions	Reference
						ON voltage	OFF voltage	OFF → ON	ON → OFF						
AJ65SBRB1-8D	DC input (Positive/Negative common)	8 points	Photocoupler insulation	24 V DC	Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less		LED display	1-wire terminal block	8 points 1 common	30 mA	＊1	4.1.1
AJ65SBRB1-16D		16 points										16 points 1 common	35 mA	＊2	4.1.2
AJ65SBTB1-16D1					Approx. 5 mA	15 V or more	3 V or less	0.2 ms or less					40 mA		4.1.3
AJ65SBTB1-32D		32 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				32 points 1 common	45 mA	＊3	4.1.4
AJ65SBTB1-32D1					Approx.5 mA	15 V or more	3 V or less	0.2 ms or less					50 mA		4.1.5
AJ65SBTC1-32D						14 V or more	6 V or less	1.5 ms or less			1-wire one-touch connector		45 mA	＊2	4.2.2
AJ65SBTC1-32D1						15 V or more	3 V or less	0.2 ms or less							4.2.3
AJ65SBTC4-16D		16 points				14 V or more	6 V or less	1.5 ms or less			4-wire one-touch connector	16 points 1 common	35 mA		4.2.1
AJ65SBTW4-16D											4-wire waterproof connector		120 mA	＊4	4.3.1
AJ65SBTCF1-32D		32 points									1-wire FCN connector	32 points 1 common	45 mA	＊2	4.4.1
AJ65SBTB3-8D		8 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less			3-wire terminal block	8 points 1 common	40 mA	＊2	4.1.8
AJ65SBTB3-16D		16 points										16 points 1 common	45 mA	＊3	4.1.9
AJ65VBTCU3-8D1	DC input (Positive common)	8 points			Approx. 5 mA	15 V or more	3 V or less	0.2 ms or less			3-wire one-touch connector	8 points 1 common	35 mA	＊5	4.5.1
AJ65VBTCU3-16D1		16 points										16 points 1 common	40 mA	＊6	4.5.2
AJ65SBTB2N-8A	AC input	8 points		100 to 120 V AC 50/60 Hz		80 V or more	30 V or less	20 ms or less			2-wire terminal block	8 points 1 common	35 mA	＊2	4.1.6
AJ65SBTB2N-16A		16 points										16 points 1 common	40 mA	＊3	4.1.7
AJ65FBTA4-16D	DC input (Positive common)	16 points		24VDC	Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less			2 to 4-wire waterproof connector	16 points 1 common	40 mA	＊7	4.6.1
AJ65FBTA4-16DE	DC input (Negative common)														4.6.2
AJ65VBTS3-16D	DC input (Positive common)				Approx. 5 mA						Spring clamp terminal block 3-wire type		35mA	＊8	4.5.3
AJ65VBTS3-32D		32 points											40mA	＊9	4.5.4
AJ65VBTCE3-8D		8 points									Sensor connector (e-CON) 3-wire type	8 points 1 common	30mA	＊10	4.5.5
AJ65VBTCE3-16D		16 points										16 points 1 common	35mA	＊11	4.5.6

＊1 : 87.3 (3.44) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
＊2 : 118 (4.65) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
＊3 : 179 (7.05) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
＊4 : 184.7 (7.27) (W) × 57.9 (2.28) (H) × 86 (3.39) (D) mm (in.)
＊5 : 41 (1.61) (W) × 115 (4.53) (H) × 62 (2.44) (D) mm (in.)
＊6 : 60 (2.36) (W) × 115 (4.53) (H) × 62 (2.44) (D) mm (in.)
＊7 : 60 (2.36) (W) × 200 (7.87) (H) × 48 (1.89) (D) mm (in.)
＊8 : 137 (5.39) (W) × 50 (1.97) (H) × 51.5 (2.03) (D) mm (in.)
＊9 : 222 (8.74) (W) × 50 (1.97) (H) × 51.5 (2.03) (D) mm (in.)
＊10 : 100 (3.94) (W) × 40 (1.57) (H) × 43.5 (1.71) (D) mm (in.)
＊11 : 100 (3.94) (W) × 50 (1.97) (H) × 45.5 (1.79) (D) mm (in.)

(2) Output module

Model	Output format	No. of points per module	Insulation method	Rated input voltage	Maximum load current		Output response time		Output display	Surge suppression	External connection	Common connection	Internal current consumption	External dimensions	Reference
					1 point	1 common	OFF → ON	ON → OFF							
AJ65SBTB1-8T	Transistor output ＊9 (sink type)	8 points	Photocoupler insulation	12/24 V DC	0.5 A	2.4 A	0.5 ms or less	1.5 ms or less	LED display	Zener diode	1-wire terminal block	8 points 1 common	35 mA	＊1	5.1.1
AJ65SBTB1-16T		16 points				3.6 A						16 points 1 common	50 mA	＊2	5.1.2
AJ65SBTB1-32T		32 points				4.8 A						32 points 1 common	65 mA	＊3	5.1.3
AJ65SBTC1-32T					0.1 A	3.2 A					1-wire one-touch connector		60 mA	＊2	5.2.1
AJ65SBTB1-8T1	Transistor output ＊12 (sink type)	8 points			0.5 A	2.4A					1-wire terminal block	8 points 1 common	35 mA	＊1	5.1.4
AJ65SBTB1-16T1		16 points				3.6 A						16 points 1 common	50 mA	＊2	5.1.5
AJ65SBTB1-32T1		32 points				4.8 A						32 points 1 common	65 mA	＊3	5.1.6
AJ65SBTC1-32T1		32 points			0.1 A	3.2 A					1-wire one-touch connector		60 mA	＊2	5.2.2
AJ65SBTB1-8TE	Transistor output ＊8 (source type)	8 points			0.1 A	0.8 A					1-wire terminal block	8 points 1 common	35 mA	＊1	5.1.7
AJ65SBTB1-16TE		16 points				1.6 A						16 points 1 common	50 mA	＊2	5.1.8
AJ65SBTB2-8T	Transistor output ＊13 (sink type)	8 points			0.5 A	2.4 A					2-wire terminal block	8 points 1 common	45 mA	＊2	5.1.9
AJ65SBTB2-16T		16 points				3.6 A						16 points 1 common	55 mA	＊3	5.1.10
AJ65SBTB2-8T1	Transistor output ＊12 (sink type)	8 points			0.5 A	2.4 A						8 points 1 common	45 mA	＊2	5.1.11
AJ65SBTB2-16T1		16 points				3.6 A						16 points 1 common	55 mA	＊3	5.1.12
AJ65SBTB2N-8R	Relay output	8 points	Relay insulatin	24V DC 240V AC	2 A	4 A	10 ms or less	12 ms or less		None		8 points 1 common	85 mA	＊2	5.1.13
AJ65SBTB2N-16R		16 points				8 A						16 points 1 common	120 mA	＊3	5.1.14
AJ65SBTB2N-8S	Triac output ＊14	8 points	Photocoupler insulation	100 to 240 V AC 50/60 Hz	0.6 A	2.4 A	1 ms or less	1/2 cycle + 1 ms or less		C·R Absorber		8 points 1 common	55 mA	＊2	5.1.15
AJ65SBTB2N-16S		16 points				4.8 A						32 points 1 common	85 mA	＊3	5.1.16
AJ65SBTCF1-32T	Transistor output ＊12 (sink type)	32 points		12/24 V DC	0.1 A	3.2 A	0.5 ms or less	1.5 ms or less		Zener diode	1-wire FCN connector	32 points 1 common	60 mA	＊2	5.3.1
AJ65VBTCU2-8T		8 points				0.8 A	1 ms or less	1 ms or less			2-wire one-touch connector	8 points 1 common	35 mA	＊5	5.4.1
AJ65VBTCU2-16T		16 points				1.6 A						16 points 1 common	40 mA	＊6	5.4.2
AJ65FBTA2-16T	Transistor output (sink type)				0.5 A	4.0 A	0.5ms or less	1.5ms or less			2-wire waterproof connector	16 points 1 common	50 mA	＊7	5.5.1
AJ65FBTA2-16TE	Transistor output (source type)				1.0 A								50 mA	＊7	5.5.2
AJ65VBTS2-16T	Transistor output ＊12 (sink type)				0.5 A		1 ms or less	1 ms or less			Spring clamp terminal block 2-wire type	16 points 1 common	45mA	＊8	5.4.3
AJ65VBTS2-32T		32 points										16 points 1 common	60mA	＊9	5.4.4
AJ65VBTCE2-8T		8 points			0.1 A	0.8 A					Sensor connector (e-CON) 2-wire type	8 points 1 common	35mA	＊10	5.4.5
AJ65VBTCE2-16T		16 points				1.6 A						16 points 1 common	45mA	＊11	5.4.6

＊1 : 87.3 (3.44) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
＊2 : 118 (4.65) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
＊3 : 179 (7.05) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
＊4 : 184.7 (7.27) (W) × 57.9 (2.28) (H) × 86 (3.39) (D) mm (in.)
＊5 : 41 (1.61) (W) × 115 (4.53) (H) × 62 (2.44) (D) mm (in.)
＊6 : 60 (2.36) (W) × 115 (4.53) (H) × 62 (2.44) (D) mm (in.)
＊7 : 60 (2.36) (W) × 200 (7.87) (H) × 48 (1.89) (D) mm (in.)
＊8: 137 (5.39) (W) × 50 (1.97) (H) × 51.5 (2.03) (D) mm (in.)
＊9: 222 (8.74) (W) × 50 (1.97) (H) × 51.5 (2.03) (D) mm (in.)
＊10 : 100 (3.94) (W) × 40 (1.57) (H) × 43.5 (1.71)(D) mm (in.)
＊11 : 100 (3.94) (W) × 50 (1.97) (H) × 45.5 (1.79) (D) mm (in.)
＊12 : Leakage current when the transistor output is OFF (0.1 mA or less)
＊13 : Leakage current when the transistor output is OFF (0.25 mA or less)
＊14 : Leakage current when the triac output is OFF 1.5 mA rms or less (100 V AC rms 60 Hz), 3 mA rms or less (200 V AC rms 60 Hz)

1 - 15

(3) Combined I/O module

In the combined I/O module, the input side and the output side are structure as a pair.

(a) Input side

Division	Model	Input format	No. of points per module	Insulation method	Rated input voltage	Input current	Operation voltage: ON voltage	Operation voltage: OFF voltage	Input response time: OFF → ON	Input response time: ON → OFF	Input display	External connection	Common connection	Internal current consumption	External dimensions	Reference
Input side	AJ65SBTC1-32DT	DC input (Positive common)	16 points	Photocoupler insulation	24 V DC	Approx. 5 mA	14 V or more	6 V or less	1.5 ms or less		LED display	1-wire one-touch connector	32 points 1 common (shared with output)	50 mA	∗2	6.2.3
	AJ65SBTC1-32DT1						15 V or more	3 V or less	0.2 ms or less							6.2.4
	AJ65SBTC1-32DT2						14 V or more	6 V or less	1.5 ms or less							6.2.5
	AJ65SBTC1-32DT3						15 V or more	3 V or less	0.2 ms or less							6.2.6
	AJ65SBTC4-16DT		8 points				14 V or more	6 V or less	1.5 ms or less			4-wire one-touch connector	16 points 1 common (shared with output)	40 mA		6.2.1
	AJ65SBTC4-16DT2						14 V or more	6 V or less	1.5 ms or less							6.2.2
	AJ65SBTW4-16DT						14 V or more	6 V or less	1.5 ms or less			4-wire waterproof connector		90 mA	∗4	6.3.1
	AJ65SBTB1-16DT		8 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less			1-wire terminal block	16 points 1 common (shared with output)	50 mA	∗2	6.1.1
	AJ65SBTB1-32DT		16 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				32 points 1 common (shared with output)	32 mA	∗3	6.1.2
	AJ65SBTB1-16DT1		8 points			Approx. 5 mA	15 V or more	3 V or less	0.2 ms or less				16 points 1 common (shared with output)	55 mA	∗2	6.1.3
	AJ65SBTB1-32DT1		16 points			Approx. 5 mA	15 V or more	3 V or less	0.2 ms or less				32 points 1 common (shared with output)	60 mA	∗3	6.1.4
	AJ65SBTB1-16DT2		8 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				16 points 1 common (shared with output)	50 mA	∗2	6.1.5
	AJ65SBTB1-32DT2		16 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				32 points 1 common (shared with output)	60 mA	∗3	6.1.6
	AJ65SBTB1-16DT3		8 points			Approx. 5 mA	15 V or more	3 V or less	0.2 ms or less				16 points 1 common (shared with output)	55 mA	∗2	6.1.7
	AJ65SBTB1-32DT3		16 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				32 points 1 common (shared with output)	60 mA	∗3	6.1.8
	AJ65SBTB32-8DT		4 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less			Input 3-wire Output 2-wire terminal block	8 points 1 common (shared with output)	45 mA	∗2	6.1.9
	AJ65SBTB32-16DT		8 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				16 points 1 common (shared with output)	50 mA	∗3	6.1.10
	AJ65SBTB32-8DT2		4 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				8 points 1 common (shared with output)	45 mA	∗2	6.1.11
	AJ65SBTB32-16DT2		8 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less				16 points 1 common (shared with output)	50 mA	∗3	6.1.12
	AJ65SBTCF1-32DT	DC input (Positive/ Negative common)	16 points			Approx. 5 mA	14 V or more	6 V or less	1.5 ms or less			1-wire one-touch connector	16 points 1 common	50 mA	∗2	6.4.1
	AJ65VBTCF1-32DT1						15 V or more	3 V or less	0.2 ms or less						∗5	6.5.1
	AJ65FBTA42-16DT	DC input (Positive common)	8 points			Approx. 7 mA	14 V or more	6 V or less	1.5 ms or less			2 to 4-wire waterproof connector	8 points 1 common (Shared with output)	50 mA	∗6	6.6.1
	AJ65FBTA42-16DTE	DC input (Negative common)												45 mA		6.6.2
	AJ65VBTS32-16DT	DC input (sink type)				Approx. 5 mA						Spring clamp terminal block 3-wire type	16 points 1 common (shared with output)	40mA	∗7	6.5.2
	AJ65VBTS32-32DT		16 points										16 points 1 common	50mA	∗8	6.5.3
	AJ65VBTCE32-16DT		8 points									Sensor connector (e-CON) 3-wire type	16 points 1 common (shared with output)	40mA	∗9	6.5.4

∗1 : 87.3 (3.44) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
∗2 : 118 (4.65) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
∗3 : 179 (7.05) (W) × 50 (1.97) (H) × 40 (1.57) (D) mm (in.)
∗4 : 184.7 (7.27) (W) × 57.9 (2.28) (H) × 86 (3.39) (D) mm (in.)
∗5 : 41 (1.61) (W) × 115 (4.53) (H) × 67 (2.64) (D) mm (in.)
∗6 : 60 (2.36) (W) × 200 (7.87) (H) × 48 (1.89) (D) mm (in.)
∗7 : 137 (5.39) (W) × 50 (1.97) (H) × 51.5 (2.03) (D) mm (in.)
∗8 : 222 (8.74) (W) × 50 (1.97) (H) × 51.5 (2.03) (D) mm (in.)
∗9 : 100 (3.94) (W) × 50 (1.97) (H) × 41.5 (1.63) (D) mm (in.)

1 - 16

(b) Output side

Division	Model	Output format	No. of points per module	Insulation method	Rated input voltage	Maximum load current		Output response time		Output display	Surge suppression	External connection	Common connection	Internal current consumption	External dimensions	Reference
						1 point	1 common	OFF → ON	ON → OFF							
Output side	AJ65SBTC1-32DT	Transistor output ∗11 (sink type)	16 points	Photocoupler insulation	24 V DC	0.1 A	1.6 A	0.5 ms or less	1.5 ms or less	LED display	Zener diode	1-wire one-touch connector	32 points 1 common (shared with input)	See input side	—	6.2.3
	AJ65SBTC1-32DT1															6.2.4
	AJ65SBTC1-32DT2	Transistor output ∗10 (sink type)														6.2.5
	AJ65SBTC1-32DT3															6.2.6
	AJ65SBTC4-16DT	Transistor output ∗11 (sink type)	8 points			0.5 A	2.4 A					4-wire one-touch connector	16 points 1 common (shared with input)			6.2.1
	AJ65SBTC4-16DT2	Transistor output ∗10 (sink type)														6.2.2
	AJ65SBTW4-16DT	Transistor output ∗11 (sink type)										4-wire waterproof connector				6.3.1
	AJ65SBTB1-16DT		8 points					0.5 ms or less	1.5 ms or less			1-wire terminal block	16 points 1 common (shared with input)			6.1.1
	AJ65SBTB1-32DT		16 points			0.5 A	3.6 A						32 points 1 common (shared with input)			6.1.2
	AJ65SBTB1-16DT1		8 points			0.5 A	2.4 A						16 points 1 common (shared with input)			6.1.3
	AJ65SBTB1-32DT1		16 points				3.6 A						32 points 1 common (shared with input)			6.1.4
	AJ65SBTB1-16DT2	Transistor output ∗10 (sink type)	8 points				2.4 A						16 points 1 common (shared with input)			6.1.5
	AJ65SBTB1-32DT2		16 points				3.6 A						32 points 1 common (shared with input)			6.1.6
	AJ65SBTB1-16DT3		8 points				2.4 A						16 points 1 common (shared with input)			6.1.7
	AJ65SBTB1-32DT3		16 points				3.6 A						32 points 1 common (shared with input)			6.1.8
	AJ65SBTB32-8DT	Transistor output ∗11 (sink type)	4 points				1.2 A					Input 3-wire Output 2-wire terminal block	8 points 1 common (shared with input)			6.1.9
	AJ65SBTB32-16DT		8 points				2.4 A						16 points 1 common (shared with input)			6.1.10
	AJ65SBTB32-8DT2	Transistor output ∗10 (sink type)	4 points				1.2 A						8 points 1 common (shared with input)			6.1.11
	AJ65SBTB32-16DT2		8 points				2.4 A						16 points 1 common (shared with input)			6.1.12
	AJ65SBTCF1-32DT		16 points		12/24 V DC	0.1 A	1.6 A	0.5 ms or less	1.5 ms or less			1-wire FCN connector	16 points 1 common			6.4.1
	AJ65VBTCF1-32DT1							1 ms or less	1 ms or less							6.5.1
	AJ65FBTA42-16DT	Transistor output (sink type)	8 points		24 V DC	0.5 A	2.4 A	0.5 ms or less	1.5 ms or less			2-wire waterproof connector	8 points 1 common (shared with input)			6.6.1
	AJ65FBTA42-16DTE	Transistor output (source type)				1.0 A	4.0 A									6.6.2
	AJ65VBTS32-16DT	Transistor output ∗10 (sink type)				0.5 A		1 ms or less	1 ms or less			Spring clamp terminal block 2-wire type	16 points 1 common (shared with input)			6.5.2
	AJ65VBTS32-32DT		16 points		12/24 V DC								16 points 1 common			6.5.3
	AJ65VBTCE32-16DT		8 points		24 V DC	0.1 A	0.8 A					Sensor connector (e-CON) 2-wire type	16 points 1 common (shared with input)			6.5.4

∗10 : Leakage current when the transistor output is OFF (0.1 mA or less)
∗11 : Leakage current when the transistor output is OFF (0.25 mA or less)

1 - 17

1.5 Parts Sold Separately

The plugs for one-touch connector module are sold separately.
Please purchase them as necessary.

	Mitsubishi model name	Part model name (manufacturer)	Specifications				Color of the cover
			Applicable cable core size (mm^2)		Applicable cable outer diameter (mm)	Maximum rated current (A)	
Plug for one-touch connector ∗1	A6CON-P214	33104-6000FL (3M)	0.14 to 0.2 (AWG#26 to 24)		ϕ 1.0 to 1.4	2	Transparent
	A6CON-P220	33104-6100FL (3M)			ϕ 1.4 to 2.0		Yellow
	A6CON-P514	33104-6200FL (3M)	0.3 to 0.5 (AWG#22 to 20)		ϕ 1.0 to 1.4	3	Red
	A6CON-P520	33104-6300FL (3M)			ϕ 1.4 to 2.0		Blue
One-touch connector for communication ∗2	A6CON-L5P	35505-6000-BOM GF (3M)	communication line	0.5 (AWG#20)	ϕ 2.2 to 3.0		Red
			shielded cable	0.5 (AWG#20)			
One-touch connector for power supply and FG ∗2 ∗4	A6CON-PW5P	35505-6080-A00 GF (3M)	0.75 (0.66 to 0.98) (AWG#18) wire diameter 0.16 mm or more Outer insulation layer material: PVC (Heat-resistant vinyl)		ϕ 2.2 to 3.0	7	Gray
	A6CON-PW5P-SOD	35505-6180-A00 GF(3M)			ϕ 2.0 to 2.3		Blue
Dustproof cap ∗1	A6CAP-DC1	—	(AJ65SBTW□-16□ only)			—	—
Waterproof cap ∗1	A6CAP-WP1	—	Protection construction : IP67 (AJ65SBTW□-16□ only)			—	—
	A6CAP-WP2	—	Protection of degree : IP67 (AJ65FBTA□-16□ only)			—	—
FCN connector	A6CON1	—	Soldering type (Straight-out type)			—	—
	A6CON2	—	Crimp-contact type (Straight-out type)			—	—
	A6CON3	—	Pressure-displacement type (Flat cable type)			—	—
	A6CON4	—	Soldering type (Straight-out/diagonal-out type)			—	—
Online connector for communication ∗3	A6CON-LJ5P	35720-L200-B00 AK (3M)	—	—	—	—	—
Online connector for power supply ∗3	A6CON-PWJ5P	35720-L200-A00 AK (3M)	—	—	—	—	—
Terminal resister attached one-touch connector plug (including 1)	A6CON-TR11	—	One-touch connector plug with terminal resister attached for communication (110Ω)		—	—	—
Connector Type Metal Installation Fitting (set of 5)	A6PLT-J65V1	—	For modules with a width of 41 mm (AJ65VBTCU□-8□, AJ65VBTCU□-32□, AJ65VBTCU-68□) 10 M4×8 SWPW attached hole section screws			—	—
	A6PLT-J65V2	—	For modules with a width of 60 mm (AJ65VBTCU□-16□) 10 M4×8 SWPW attached hole section screws			—	—

	Mitsubishi model name	Applicable module				
Protect cover for compact remote I/O module (including 10)	A6CVR-8	Input : AJ65SBTB1-8D Output : AJ65SBTB1-8T	AJ65SBTB1-8TE	AJ65SBTB1-8T1		
		Repeater : AJ65SBT-RPT				
	A6CVR-16	Input : AJ65SBTB1-16D	AJ65SBTB1-16D1	AJ65SBTC1-32D	AJ65SBTC1-32D1	
		AJ65SBTC4-16D	AJ65SBTB3-8D	AJ65SBTB2-8A	AJ65SBTB2N-8A	
		Output : AJ65SBTB1-16T	AJ65SBTC1-32T	AJ65SBTB1-16T1	AJ65SBTB2-8T	
		AJ65SBTB1-16TE	AJ65SBTB2-8R	AJ65SBTB2-8S	AJ65SBTB2N-8R	
		AJ65SBTB2N-8S	AJ65SBTB2-8T1			
		Combined : AJ65SBTC1-32DT	AJ65SBTC1-32DT1	AJ65SBTC4-16DT	AJ65SBTB1-6DT	
		AJ65SBTB1-16DT1	AJ65SBTB1-16DT2	AJ65SBTB32-8DT	AJ65SBTC1-32DT2	
		AJ65SBTC1-32DT3	AJ65SBTC4-16DT2	AJ65SBTB1-16DT3	AJ65SBTB32-8DT2	
		Optical Repeater : AJ65SBT-RPS	AJ65SBT-RPG			
	A6CVR-32	Input : AJ65SBTB1-32D	AJ65SBTB1-32D1	AJ65SBTB2-16A	AJ65SBTB2N-16A	
		AJ65SBTB3-16D				
		Output : AJ65SBTB1-32T	AJ65SBTB1-32T1	AJ65SBTB2-16T	AJ65SBTB2-16R	
		AJ65SBTB2-16S	AJ65SBTB2N-16R	AJ65SBTB2N-16S	AJ65SBTB2-16T1	
		Combined : AJ65SBTB1-32DT	AJ65SBTB1-32DT1	AJ65SBTB1-32DT2	AJ65SBTB32-16DT	
		AJ65SBTB1-32DT3	AJ65SBTB32-16DT2			

∗1 Mitsubishi's A6CON-P□□, A6CAP-□□1 includes 20 plugs.
∗2 Mitsubishi's A6CON-□5P includes 10 plugs.
∗3 Mitsubishi's A6CON-□J5P includes 5 plugs.
∗4 Confirm the outer sheath diameter of the applicable cable and select the connector.

1.6 Recommended Connection Device List

1.6.1 Recommended connection devices for low profile waterproof remote I/O module

The following shows communication devices needed for use of the low profile waterproof type remote I/O module (AJ65FBTA□-16□).

(1) Communications Module Waterproof Plug (Male / Female)・・・4-pin / 5-pin can be used.

(a) For LINK In Side (Female)

Model Name	Maker	Specifications	Connection Cable Diameter
ELKA 4012 PG9	HIRSCHMANN	M12-4-pin Female Straight Type	ϕ 6.0 to 8.0mm
ELKA 5012 PG9	HIRSCHMANN	M12-5-pin Female Straight Type	ϕ 6.0 to 8.0mm
CM02A-8DP5S(03)	DDK Ltd.		ϕ 8.0mm
ELWIKA 4012 PG9	HIRSCHMANN	M12-4-pin Female Right-angle Type	ϕ 6.0 to 8.0mm
ELWIKA 5012 PG9	HIRSCHMANN	M12-5-pin Female Right-angle Type	ϕ 6.0 to 8.0mm

(b) For LINK OUT Side (Male)

Model Name	Maker	Specifications	Connection Cable Diameter
ELST 4012 PG9	HIRSCHMANN	M12-4-pin Male Straight Type	ϕ 6.0 to 8.0mm
ELST 5012 PG9	HIRSCHMANN	M12-5-pin Male Straight Type	ϕ 6.0 to 8.0mm
CM02A-8DJ5P(03)	DDK Ltd.		ϕ 8.0mm
ELWIST 4012 PG9	HIRSCHMANN	M12-4-pin Male Right-angle Type	ϕ 6.0 to 8.0mm
ELWIST 5012 PG9	HIRSCHMANN	M12-5-pin Male Right-angle Type	ϕ 6.0 to 8.0mm

(2) Power Supply Module - Waterproof Plug (Female)・・・5-pin only can be used.

Model Name	Maker	Specifications	Connection Cable Diameter
ELKA 5012 PG7	HIRSCHMANN	M12-5-pin Female Straight Type	ϕ 4.0 to 6.0mm
ELKA 5012 PG9			ϕ 6.0 to 8.0mm
CM02A-8DP5S(03)	DDK Ltd.		ϕ 8.0mm
ELWIKA 5012 PG7	HIRSCHMANN	M12-5-pin Female Right-angle Type	ϕ 4.0 to 6.0mm
ELWIKA 5012 PG9			ϕ 6.0 to 8.0mm

(3) I/O connector waterproof plug (male)・・・4-pin/5-pin can be used. The plug for LINK OUT side (male) mentioned in Section (1) (b) can be used.

(4) I/O Connector Y Branch Connector

Model Name	Maker	Remarks
SAC-3P-M12Y	PHOENIX CONTACT	—
SAC-5P-M12Y		
XS2R series	OMRON Corporation	—
VA-4YG-2	CORRENS Corporation	—

(5) CC-Link Cable

Model Name	Maker	Remarks
FA-CBL series	MITSUBISHI ELECTRIC ENGINEERING Co.,Ltd	CC-Link dedicated cable with waterproof connector
Cable with M12 Connector	Shinwa Co.,Ltd	The CA series cannot be used.

1.6.2 Recommended connection devices for low profile sensor connector (e-CON) remote I/O module

The following shows communication devices needed for use of the sensor connector (e-CON) remote I/O module (AJ65VBTCE□-□□).
For how to wire the sensor connector (e-CON), refer to the catalog of the corresponding maker.

(1) I/O sensor connector (e-CON) plug ∗1

Model Name	Maker	Specifications			Cover Color
		Applicable cable core size (mm^2)	Applicable cable outer diameter (mm)	Maximum rated current (A)	
ECN-A014R	(Mitsubishi Electric System Service Co., Ltd.)	0.08 to 0.20 (AWG28 to 24)	ϕ 0.9 to 1.0	2	Red
ECN-A004Y		0.20 to 0.30 (AWG24 to 22)	ϕ 1.0 to 1.15		Yellow
ECN-A024BL		0.30 to 0.50 (AWG22 to 20)	ϕ 1.15 to 1.3		Blue
ECN-M014R		0.14 to 0.30 (AWG26 to 24)	ϕ 0.8 to 1.0		Red
ECN-M024Y			ϕ 1.0 to 1.2		Yellow
ECN-M0340R			ϕ 1.2 to 1.6		Orange
ECN-M044GN		0.30 to 0.50 (AWG22 to 20)	ϕ 1.0 to 1.2		Green
ECN-M054BL			ϕ 1.2 to 1.6		Blue
ECN-M064GY			ϕ 1.6 to 2.0		Gray

∗1 The ECN-□□□□ includes 20 plugs.

1 - 20

1.7 About the Generic, Abbreviated and Technical Terms Used in This Manual

The abbreviated and technical terms used in this manual are listed below:

Generic/abbreviated/ technical term	Description
CC-Link	Abbreviation of Control & Communications Link
Master/local module	Generic term for the AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 CC-Link system master/local modules
Compact remote I/O module	Generic term for the AJ65SBT□□-□□ CC-Link system compact remote I/O modules
Conventional remote I/O module	Generic term for the AJ65BT□□-□□ CC-Link system remote I/O modules
Remote I/O module	Generic term for the AJ65BT□□-□□/AJ65SBT□□-□□ CC-Link system remote I/O modules
Input module	Generic term for the AJ65SBT□□-□A/D(1) remote I/O modules
Output module	Generic term for the AJ65SBT□□-□R/T /T1/TE remote I/O modules
Combined module	Generic term for the AJ65SBT□□-□DT(1) remote I/O modules
Waterproof type remote I/O module	Generic term for the AJ65SBTW4-16□ remote I/O modules
Low profile waterproof type remote I/O module	Generic term for the AJ65FBTA□-16□ remote I/O modules
Spring clamp terminal block type remote I/O module	Generic term for the AJ65VBTS□-□□ remote I/O modules
Sensor connector (e-CON) type remote I/O module	Generic term for the AJ65VBTCE□-□□ remote I/O modules

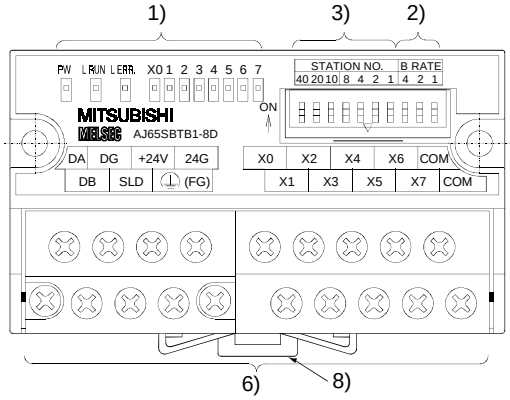
MEMO

1 - 22

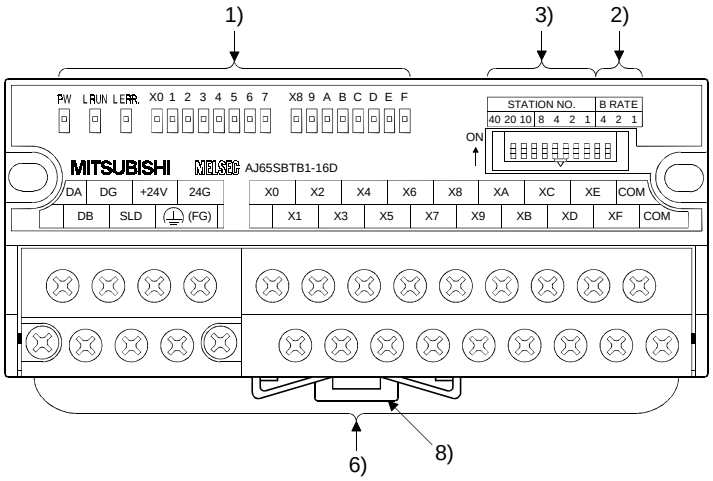
2 NAMES AND SETTINGS FOR EACH PART

The names and settings for the components of the compact remote I/O module are shown below:

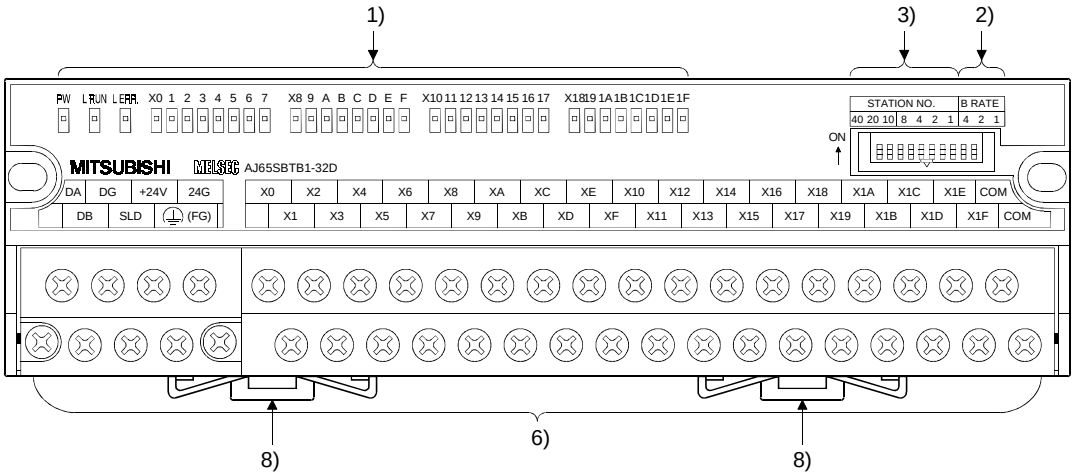
AJ65SBTB1-8 □ (Terminal-block 8 point module, single-wire)



AJ65SBTB1-16 □ (Terminal-block 16 point module, single-wire)

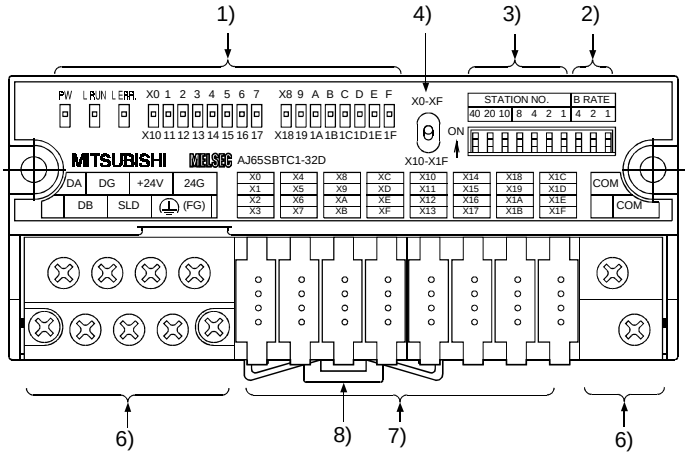


AJ65SBTB1-32 □ (Terminal-block 32 point module, single-wire)

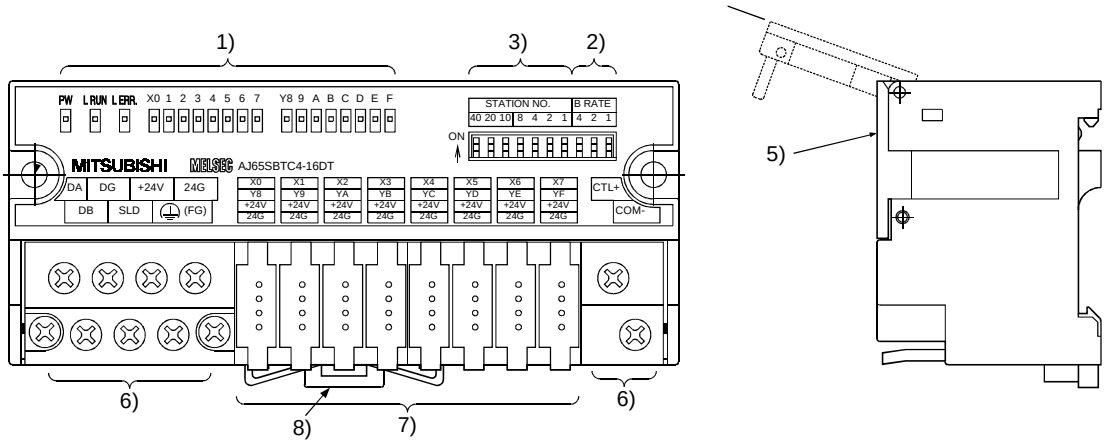


2 - 1

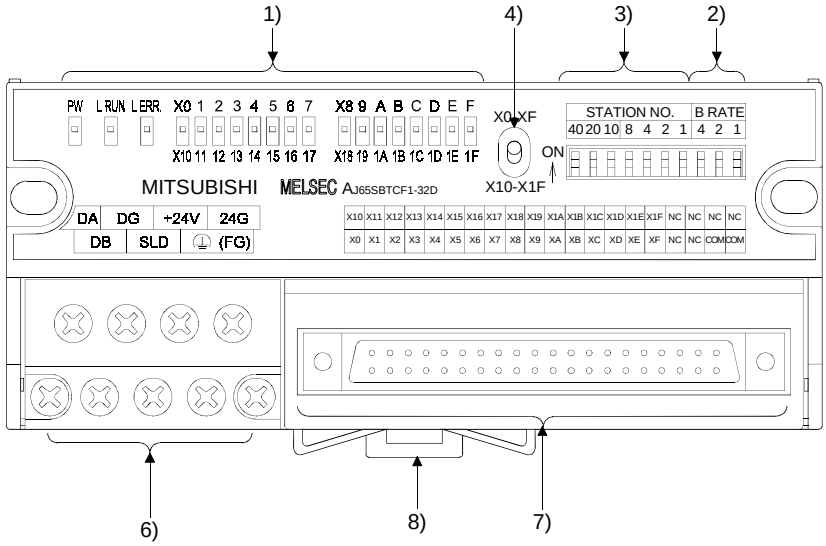
AJ65SBTC1-32 ☐ (One-touch connector 32 point module, single-wire)



AJ65SBTC4-16 ☐ (One-touch connector 16 point module, 4-wire)

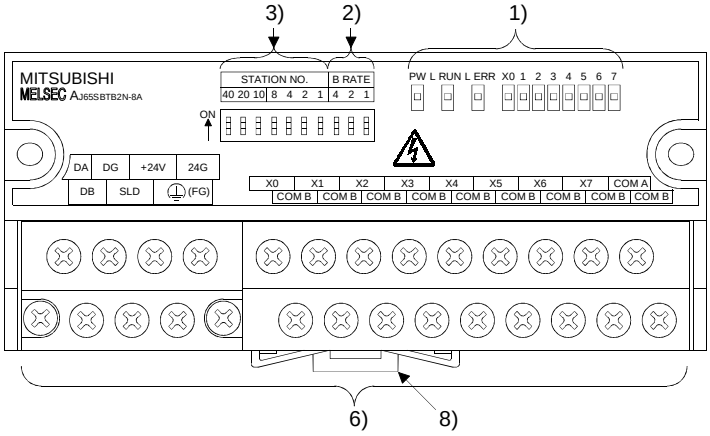


AJ65SBTCF1-32 ☐ (Terminal block 32 point module, single - wire FCN 40-pin connector)

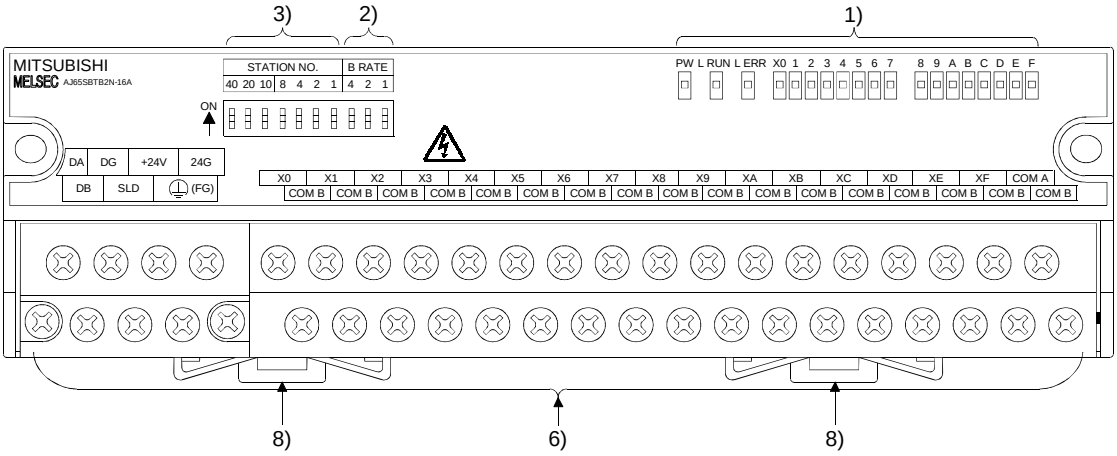


2 - 2

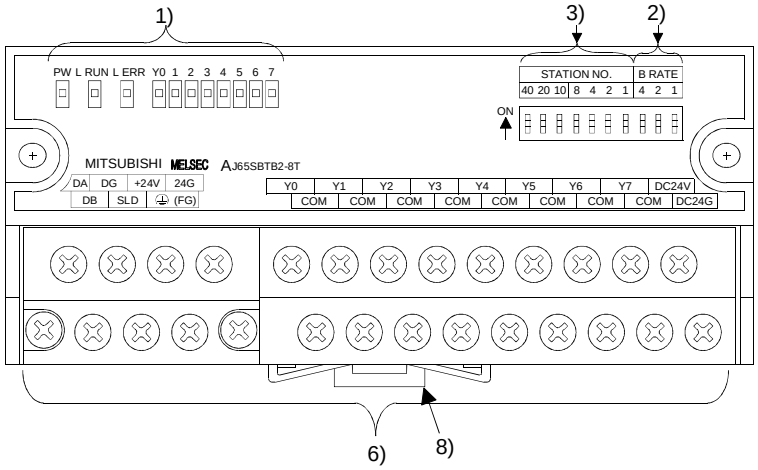
AJ65SBTB2N-8 □ (Terminal block 8 point module, 2-wire)



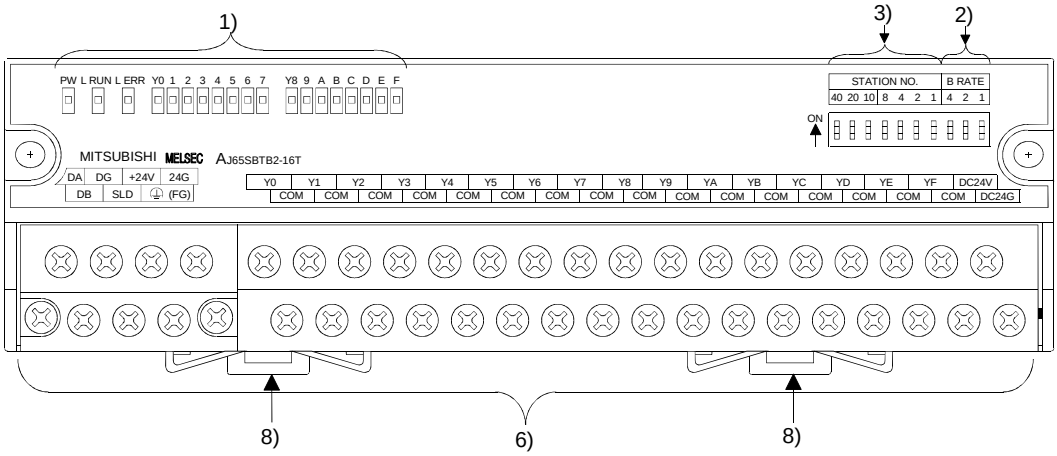
AJ65SBTB2N-16 □ (Terminal block 16 point module, 2-wire)



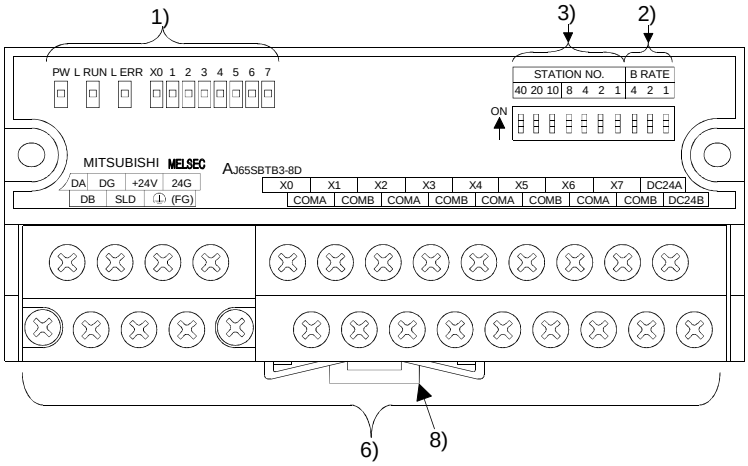
AJ65SBTB2-8 □ (Terminal block 8 point module, 2-wire)



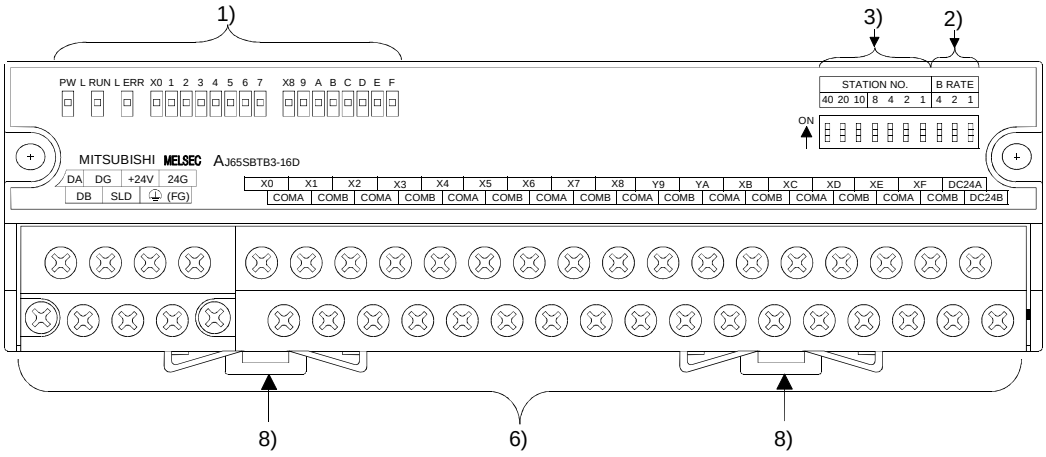
AJ65SBTB2-16 □ (Terminal block 16 point module, 2-wire)



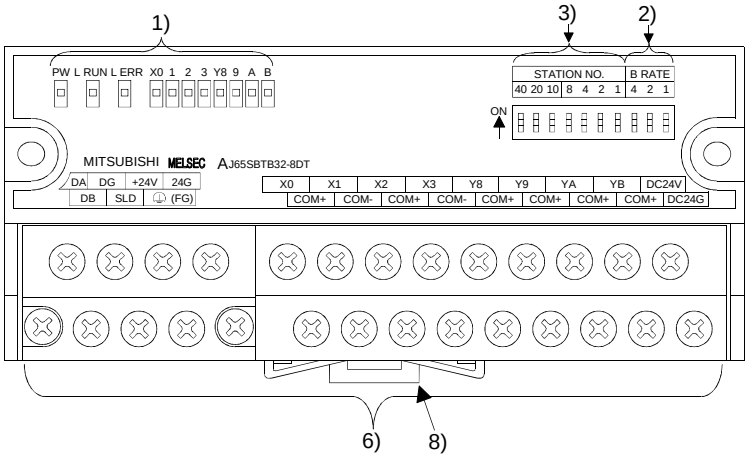
AJ65SBTB3-8 □ (Terminal block 8 point module, 3-wire)



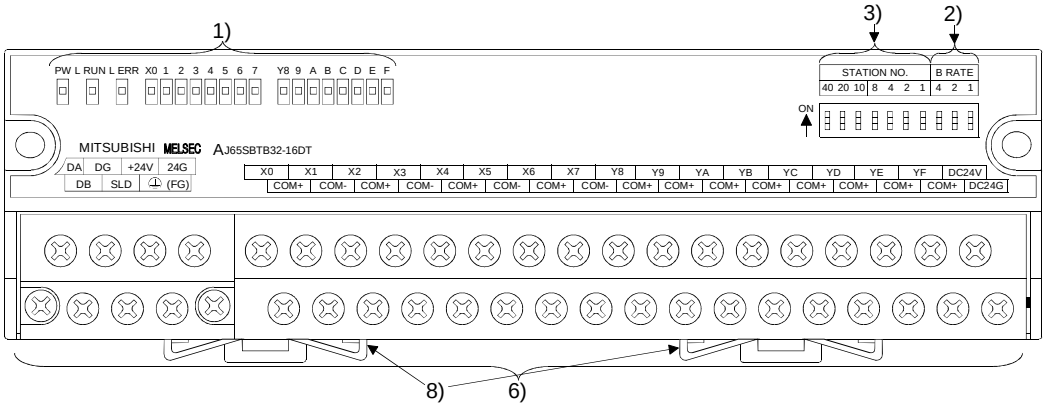
AJ65SBTB3-16 □ (Terminal block 16 point module, 3-wire)



AJ65SBTB32-8 □ (Terminal block 8 point module, 3-wire input, 2-wire output)

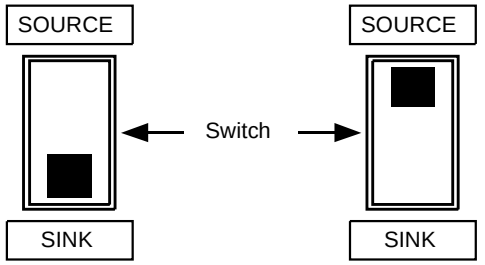


AJ65SBTB32-16 □ (Terminal block 16 point module, 3-wire input, 2-wire output)

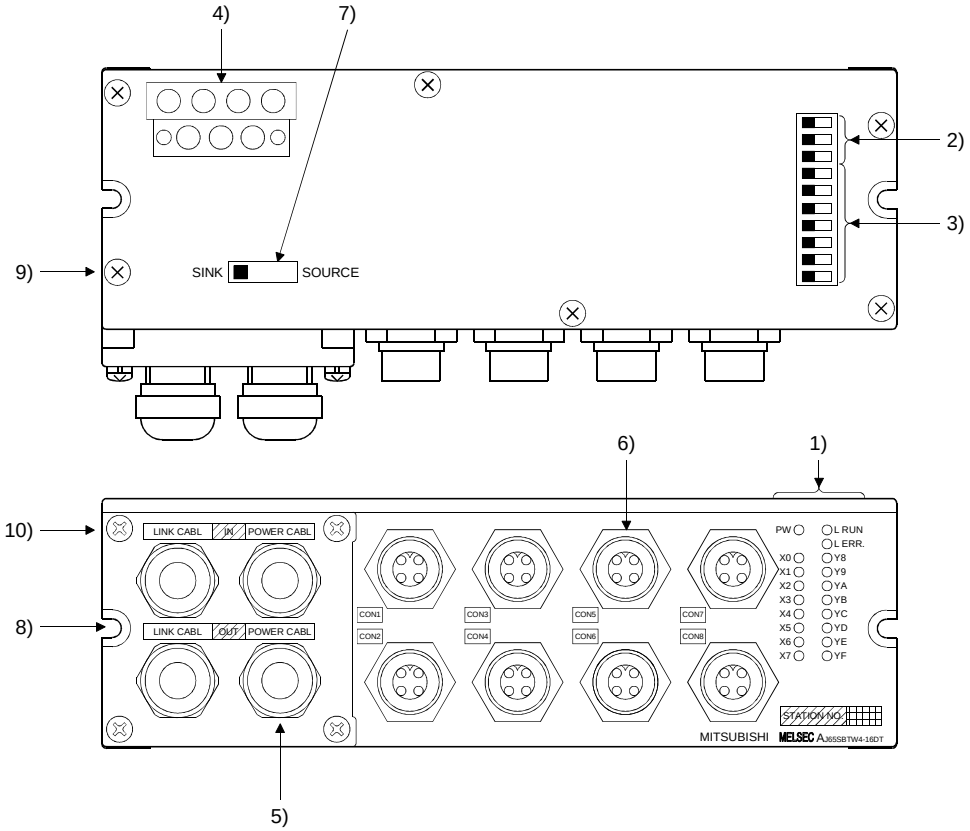


<table>
<tr><th>No.</th><th>Item</th><th colspan="2">Description</th></tr>
<tr><td rowspan="4">1)</td><td rowspan="4">Operating status indicator LEDs</td><td>LED name</td><td>Confirmation details</td></tr>
<tr><td>PW</td><td>On: Power supply on.
Off: Power supply off.</td></tr>
<tr><td>L RUN</td><td>On: Normal communication.
Off: Communication cutoff.
(time expiration error)</td></tr>
<tr><td>L ERR</td><td>On: Communication data error.
Flicker at regular intervals:
Indicates that the station number setting or transmission speed setting switch position was changed while power is on.
Flicker at irregular intervals:
When the connection of the terminal resistor was forgotten; when the cable for the module, CC-Link is receiving noise influence.
Off: Normal communication.</td></tr>
<tr><td>X0 to 1F
Y0 to 1F</td><td>On: INPUT ON, Off: INPUT OFF.
On: OUTPUT ON, Off: OUTPUT OFF.</td></tr>
<tr><td>2)</td><td>Transmission speed setting</td><td colspan="2">
<table>
<tr><th rowspan="2">Setting value</th><th colspan="3">Setting switch status</th><th rowspan="2">Transmission speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156 kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625 kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5 Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0 Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10 Mbps</td></tr>
</table>
Be sure to set the transmission speed within the above range.</td></tr>
<tr><td>3)</td><td>Station number setting switches</td><td colspan="2">Select "10," "20" or "40" to set the ten's place of the station number.
Select "1," "2," "4" or "8" to set the one's place of the station number.
Always set the station number within the range of 1 to 64. (*1)
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>2</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>3</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>10</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>11</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>64</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table>
(Example) Set the switches as below when setting the station number to 32:
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>32</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
</table></td></tr>
</table>

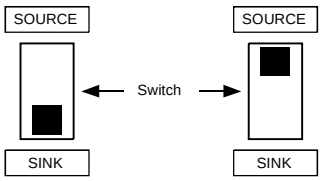
*1 Duplicate station number cannot be set.

No.	Item	Description
4)	I/O display switch	Setting the switch to X/Y0-X/YF displays the on/off status of X/Y0-X/YF. Setting the switch to X/Y10-X/Y1F displays the on/off status of X/Y10-X/Y1F.
5)	Sink/source switch (For AJ65SBTC1-16D only)	Switches the input format between sink and source. Open the unit top cover to perform the setting. <When setting for sink type> <When setting for source type> 
6)	Terminal block	A terminal block for connection to the power supply of compact remote I/O module, transmission and I/O signals.
7)	Connector	An input signal connector
8)	Hook for DIN rail	Hook to install the module to the DIN rail. When installing, push on the center line of the hook for DIN rail with a finger tip until a clicking sound is heard.

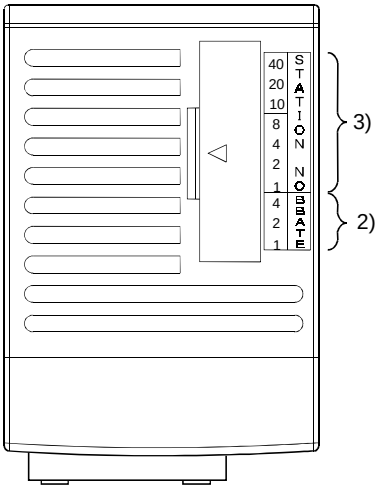
AJ65SBTW4-16 □ (waterproof connector 16 point module, single wire,)

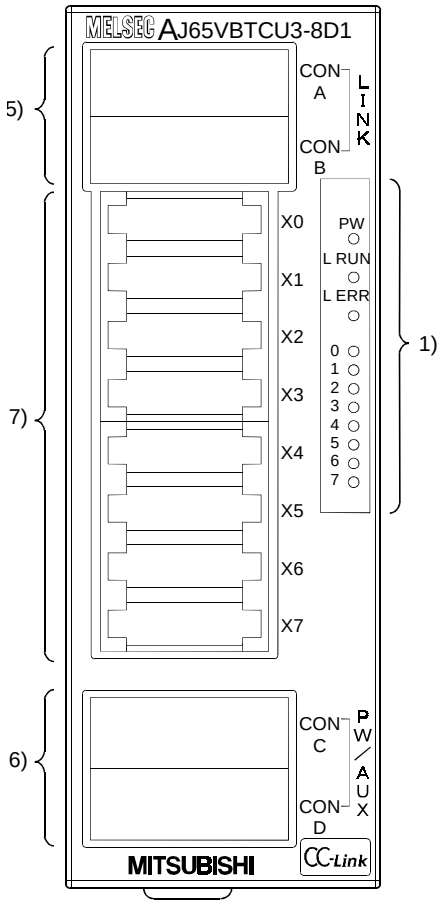


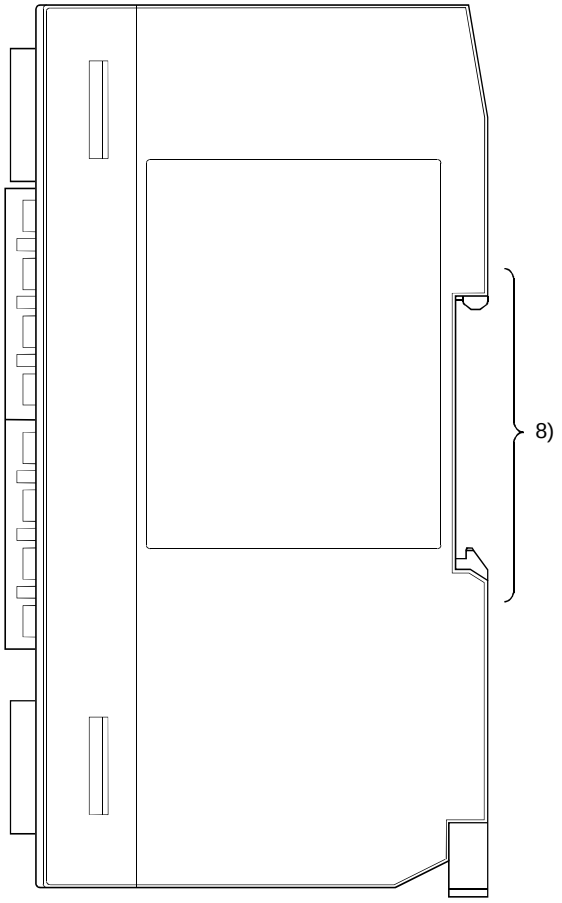
No.	Item	Description	
1)	Operating status indicator LEDs	LED name	Confirmation details
		PW	On: Power supply on. Off: Power supply off.
		L RUN	On: Normal communication. Off: Communication cutoff. (time expiration error)
		L ERR	On: Communication data error. Flicker at regular intervals: Indicates that the station number setting or transmission speed setting switch position was changed while power is on. Flicker at irregular intervals: When the connection of the terminal resistor was forgotten; when the cable for the module, CC-Link is receiving noise influence. Off: Normal communication.
		X0 to 1F Y0 to 1F	On: INPUT ON, Off: INPUT OFF. On: OUTPUT ON, Off: OUTPUT OFF.

<table>
<tr><th>No.</th><th>Item</th><th>Description</th></tr>
<tr><td>2)</td><td>Transmission speed setting</td><td>
<table>
<tr><th rowspan="2">Setting value</th><th colspan="3">Setting switch status</th><th rowspan="2">Transmission speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156 kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625 kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5 Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0 Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10 Mbps</td></tr>
</table>
Be sure to set the transmission speed within the above range.
</td></tr>
<tr><td>3)</td><td>Station number setting switches</td><td>
Select "10," "20" or "40" to set the ten's place of the station number.
Select "1," "2," "4" or "8" to set the one's place of the station number.
Always set the station number within the range of 1 to 64.
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>2</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>3</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>10</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>11</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>64</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table>
(Example) Set the switches as below when setting the station number to 32:
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>32</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
</table>
</td></tr>
<tr><td>4)</td><td>Terminal block</td><td>The terminal block for connecting the I/O module power supply and transmission cable.</td></tr>
<tr><td>5)</td><td>Through pipe for transmission and module power-supply cables</td><td>The through pipe used to connect the transmission and module power-supply cables to the terminal block.
Open the module top cover and remove the terminal block to perform connection work of the transmission and module power-supply cables to the terminal block. Attach the waterproof plugs provided with the product to unused through pipes.</td></tr>
<tr><td>6)</td><td>Waterproof connector for I/O wire</td><td>A connector (waterproof) for I/O signals.
Attach the optional dustproof caps (A6CAP-DC1) to unused waterproof connectors.</td></tr>
<tr><td>7)</td><td>Sink/source switch
(For AJ65SBTW4-16D only)</td><td>Selects the input format from sink or source. Open the module top cover to perform the setting.
< When setting for sink type > < When setting for source type >
 
</td></tr>
<tr><td>8)</td><td>Metal fitting</td><td>Module terminal for FG</td></tr>
<tr><td>9)</td><td>Module top-cover installation screw (M3)</td><td rowspan="2">Refer to Section 7.1 for tightening torque value for installation screws.</td></tr>
<tr><td>10)</td><td>Module front-cover installation screw (M3)</td></tr>
</table>

AJ65VBTCU □ -8 □ (One-touch connector 8 points module)

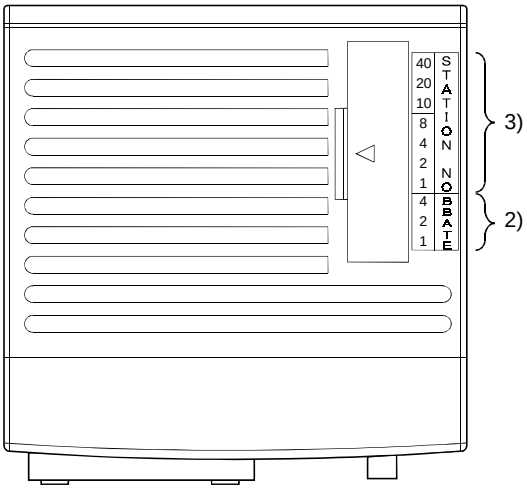


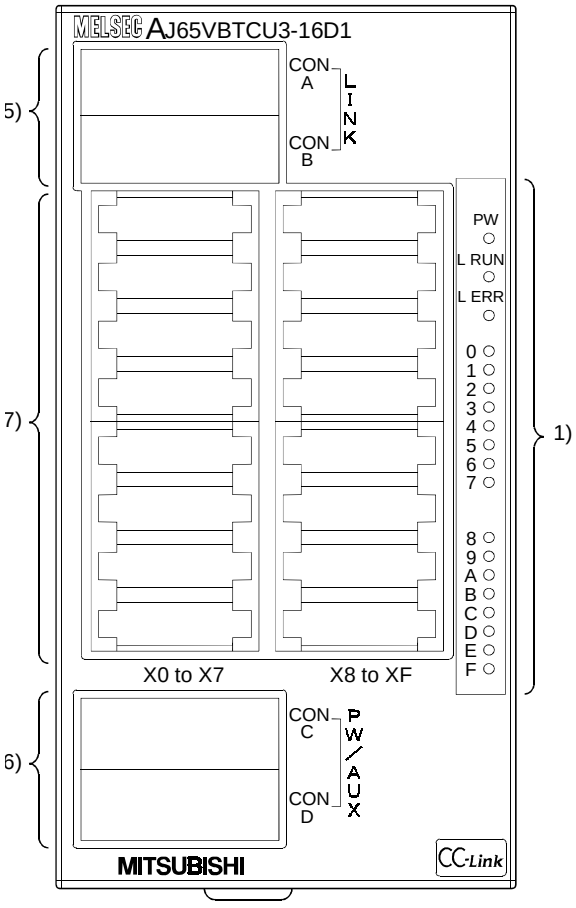


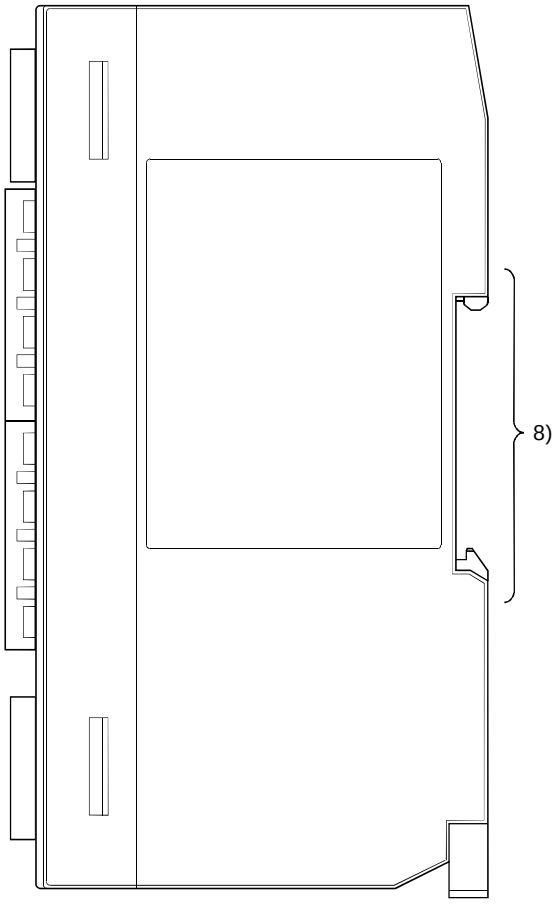


2 - 10

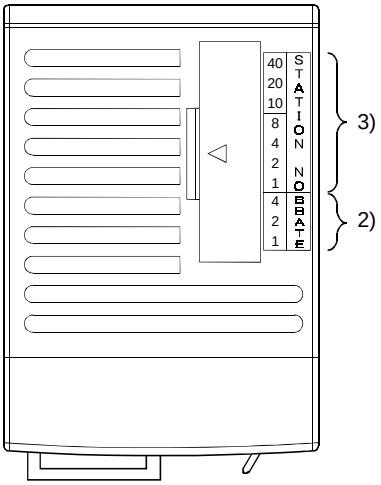
AJ65VBTCU □ -16 □ (One-touch connector 16 points module)

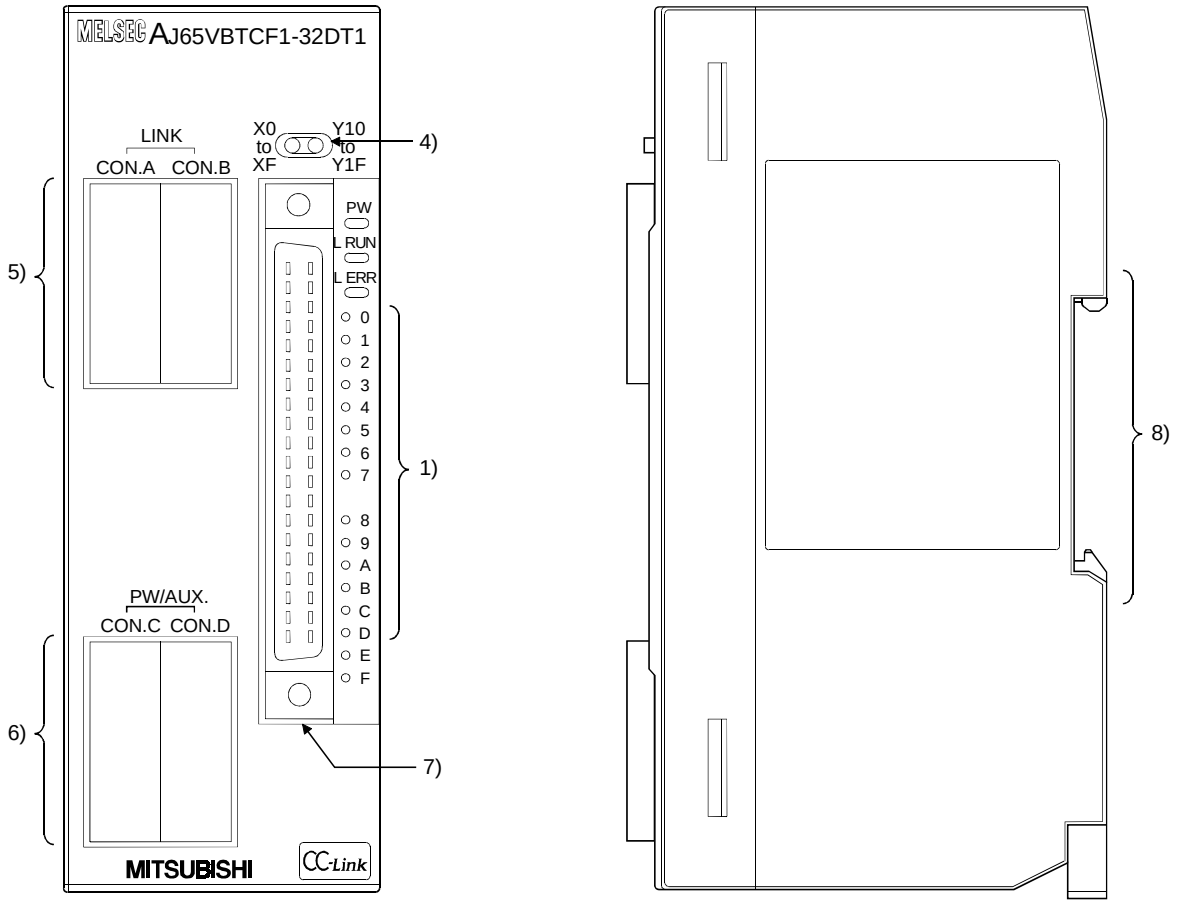






AJ65VBTCF1-32DT1 (1-wire FCN connector 32 points module)



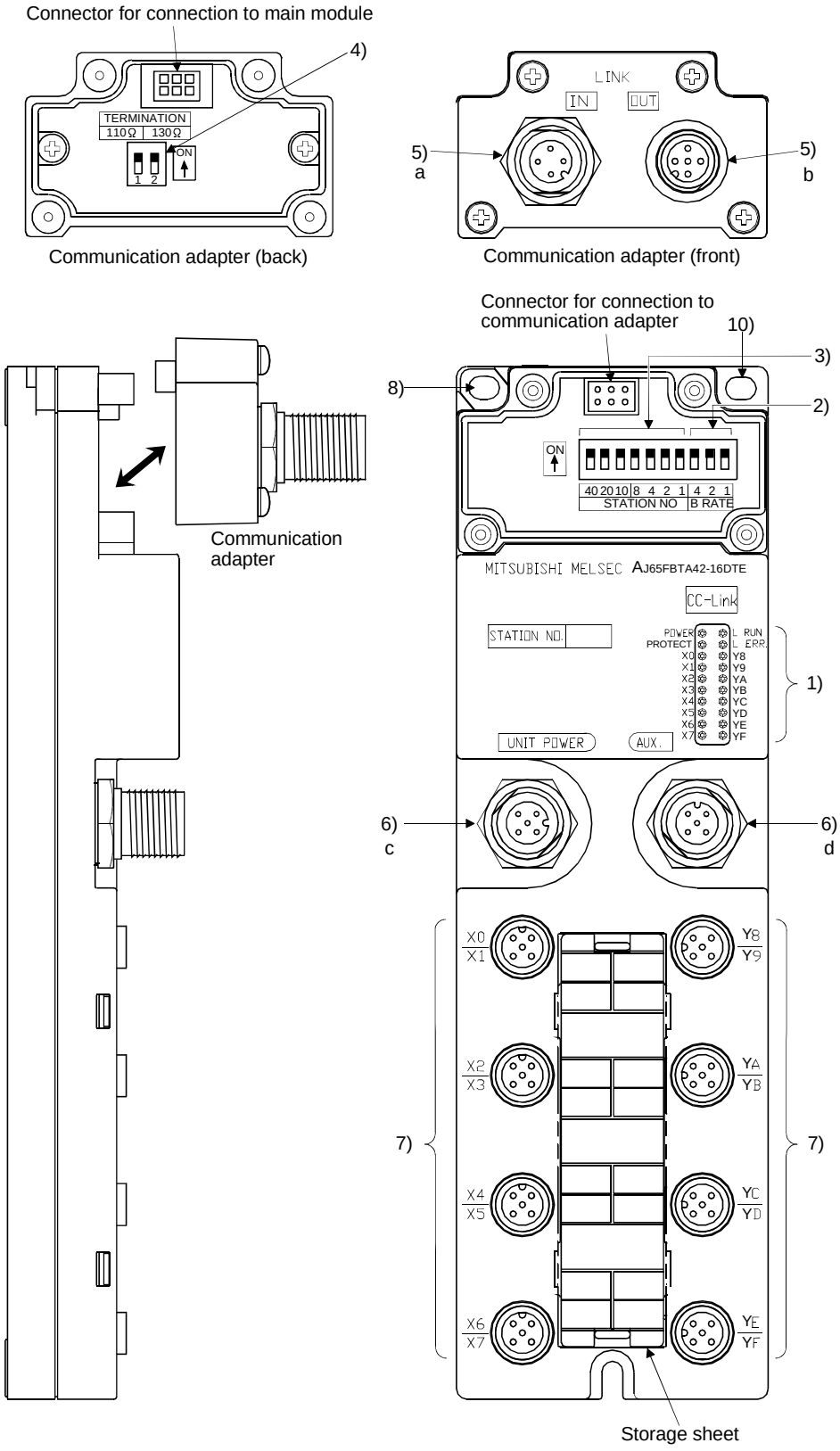


<table>
<tr><th>No.</th><th>Item</th><th colspan="2">Description</th></tr>
<tr><td rowspan="4">1)</td><td rowspan="4">Operating status indicator LEDs</td><td>LED name</td><td>Confirmation details</td></tr>
<tr><td>PW</td><td>On: Power supply on.
Off: Power supply off.</td></tr>
<tr><td>L RUN</td><td>On: Normal communication.
Off: Communication cutoff.
(time expiration error)</td></tr>
<tr><td>L ERR</td><td>On: Communication data error.
Flicker at regular intervals:
Indicates that the station number setting or transmission speed setting switch position was changed while power is on.
Flicker at irregular intervals:
When the connection of the terminal resistor was forgotten; when the cable for the module, CC-Link is receiving noise influence.
Off: Normal communication.</td></tr>
<tr><td>X0 to 1F
Y0 to 1F</td><td>On: INPUT ON, Off: INPUT OFF.
On: OUTPUT ON, Off: OUTPUT OFF.</td></tr>
<tr><td>2)</td><td>Transmission speed setting</td><td colspan="2">
<table>
<tr><th rowspan="2">Setting value</th><th colspan="3">Setting switch status</th><th rowspan="2">Transmission speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156 kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625 kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5 Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0 Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10 Mbps</td></tr>
</table>
Be sure to set the transmission speed within the above range.</td></tr>
<tr><td>3)</td><td>Station number setting switches</td><td colspan="2">Select "10," "20" or "40" to set the ten's place of the station number.
Select "1," "2," "4" or "8" to set the one's place of the station number.
Always set the station number within the range of 1 to 64. (*1)
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>2</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>3</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>10</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>11</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>64</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table>
(Example) Set the switches as below when setting the station number to 32:
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>32</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
</table></td></tr>
</table>

*1 Duplicate station number cannot be set.

No.	Item	Description
4)	I/O display switch	Setting the switch to X/Y0-X/YF displays the on/off status of X/Y0-X/YF. Setting the switch to X/Y10-X/Y1F displays the on/off status of X/Y10-X/Y1F.
5)	One-touch connector for communication	A one-touch connector for connection of the communication line When carrying out wiring, connect two optional one-touch connector plugs for communication (A6CON-L5P) at top and bottom. When changing the module online, connect the optional online connectors (A6CON-LJ5P) between the connector and plugs. When using the module at either end of the CC-Link system, fit the optional one-touch connector plug with termination resistor (110Ω) (A6CON-TR11).
6)	One-touch connector for power supply and FG	A one-touch connector for connection of the module power supply line, I/O power supply line and FG When carrying out jumper wiring, connect two optional one-touch connector plugs for power supply/FG at top and bottom. Two different types (A6CON-PW5P, A6CON-PW5P-SOD) are available as the one-touch connector plugs for power supply and FG. When not carrying out jumper wiring, also connect the plugs (for safety and dust prevention). When changing the module online, connect the optional online connectors (A6CON-PWJ5P) between the connector and plugs.
7)	Connector	An input signal connector
8)	Hook for DIN rail	Hook to install the module to the DIN rail or connector type Metal installation fitting (option). When installing, push on the center line of the hook for DIN rail with a finger tip until a clicking sound is heard.

AJ65FBTA□-16□ (Low profile waterproof connector 16 points module)



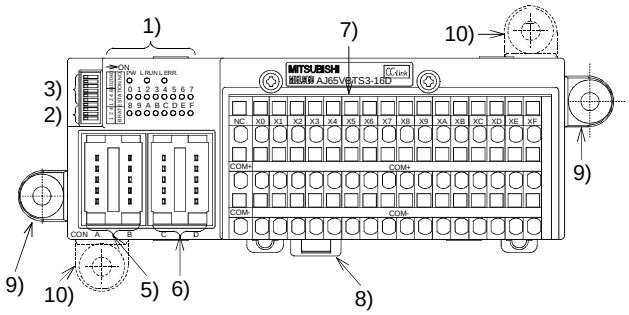
<table>
<tr><th>No.</th><th>Item</th><th colspan="2">Description</th></tr>
<tr><td rowspan="5">1)</td><td rowspan="5">Operating status indicator LEDs</td><td>LED name</td><td>Confirmation details</td></tr>
<tr><td>POWER</td><td>On: Power supply on. Off: Power supply off.</td></tr>
<tr><td>PROTECT</td><td>Lights up when the output section protection function is working.
(AJ65FBTA□-16□TE)
(During the protect operation, fuse interruption is searched in the master unit side.)</td></tr>
<tr><td>L RUN</td><td>On: Normal communication.
Off : Communication cutoff.
(time expiration error)</td></tr>
<tr><td>L ERR.</td><td>On: Communication data error.
Flicker at regular intervals:
Indicates that the station number setting or transmission speed setting switch position was changed while power is on.
Flicker at irregular intervals:
When the connection of the terminal resistor was forgotten; when the cable for the module, CC-Link is receiving noise influence.
Off: Normal communication.</td></tr>
<tr><td>X0 to X7/
Y0 to YF/
X0 to X7,
Y0 to YF</td><td colspan="2">On: INPUT ON, Off: INPUT OFF.
On: OUTPUT ON, Off: OUTPUT OFF.</td></tr>
<tr><td>2)</td><td>Trans-mission speed setting</td><td colspan="2">
<table>
<tr><th rowspan="2">Setting value</th><th colspan="3">Setting switch status</th><th rowspan="2">Transmission speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156 kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625 kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5 Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0 Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10 Mbps</td></tr>
</table>
Be sure to set the transmission speed within the above range.
Remove the communication adapter on the top part of the module to set the transmission speed.
(When shipped from the factory, all settings are set to OFF.)</td></tr>
<tr><td>3)</td><td>Station number setting switches</td><td colspan="2">Select "10", "20" or "40" to set the ten's place of the station number.
Select "1","2","4" or "8" to set the one's place of the station number.
Always set the station number within the range of 1 to 64. (*1)
(Example) Set the switches as below when setting the station number to 10:
<table>
<tr><th rowspan="2">Station number</th><th>Ten's place</th><th colspan="7">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>10</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
</table>
Remove the communication adapter on the top part of the module to set the station number.
(When shipped from the factory, all settings are set to OFF.)</td></tr>
<tr><td>4)</td><td>Terminal resistor select switches</td><td colspan="2">The terminal register can be turned to the ON setting by using the select switch.
<table>
<tr><th>DIP switch 1</th><th>DIP switch 2</th><th>Contents</th></tr>
<tr><td>OFF</td><td>OFF</td><td>No terminal resistance</td></tr>
<tr><td>ON</td><td>OFF</td><td>110Ω resistor ON</td></tr>
<tr><td>OFF</td><td>ON</td><td>130Ω resistor ON</td></tr>
<tr><td>ON</td><td>ON</td><td>Setting prohibited</td></tr>
</table>
(When shipped from the factory, all settings are set to OFF.)</td></tr>
</table>

*1 Duplicate station number cannot be set.

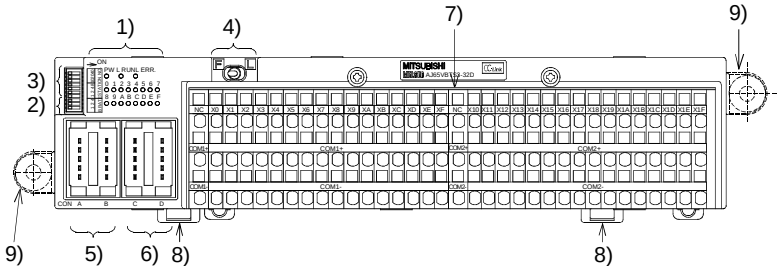
<table>
<tr><th>No.</th><th>Item</th><th>Description</th></tr>
<tr><td>5)</td><td>Waterproof connector for transmission line *2</td><td>
<table>
<tr><th></th><th>Silk</th><th>Contents</th></tr>
<tr><td>a</td><td>LINK IN</td><td>Connector for connecting the transmission line from the IN side (master station side). (Male 4 pins)</td></tr>
<tr><td>b</td><td>LINK OUT</td><td>Connector for connecting the transmission line from the OUT side. Be sure to attach the waterproof cap when not in use. (Female 5 pins)</td></tr>
</table>
</td></tr>
<tr><td>6)</td><td>Waterproof connector for power line *2</td><td>
<table>
<tr><th></th><th>Silk</th><th>Contents</th></tr>
<tr><td>c</td><td>UNIT POWER</td><td>Connector for supplying power to the module. (Male 5 pins)</td></tr>
<tr><td>d</td><td>AUX.</td><td>Connector for supplying power to a load, etc. (Male 5 pins)</td></tr>
</table>
</td></tr>
<tr><td>7)</td><td>Waterproof connector for input connection*2</td><td>Waterproof connector for connection input signal. (Female 5 pins)
Be sure to attach waterproof cap A6CAP-WP2 (sold separately) when not in use.
(Tightening torque range: 0.29 N/m to 0.34 N/m.)</td></tr>
<tr><td>8)</td><td>FG metal fitting</td><td>For module FG terminal (tightening torque range: 0.78 N/m to 1.18 N/m)</td></tr>
<tr><td>9)</td><td>Screw for communication adapter removal/attachment</td><td>Use this screw for removal/attachment of the communication adapter to the main module when online or when changing the switch settings.
(Tightening torque range: 0.42 N/m to 0.58 N/m).</td></tr>
<tr><td>10)</td><td>Module attachment hole</td><td>Screw hole for module attachment. 2-4.5 X 6 length hole (M4 attachment screw)
(Tightening torque range: 0.78 N/m to 1.18 N/m).</td></tr>
</table>

*2: Waterproof connector (based on IEC947-5-2, M12 type)

AJ65VBTS□-16□ (Spring clamp terminal block type 16 points module)



AJ65VBTS□-32□ (Spring clamp terminal block type 32 points module)



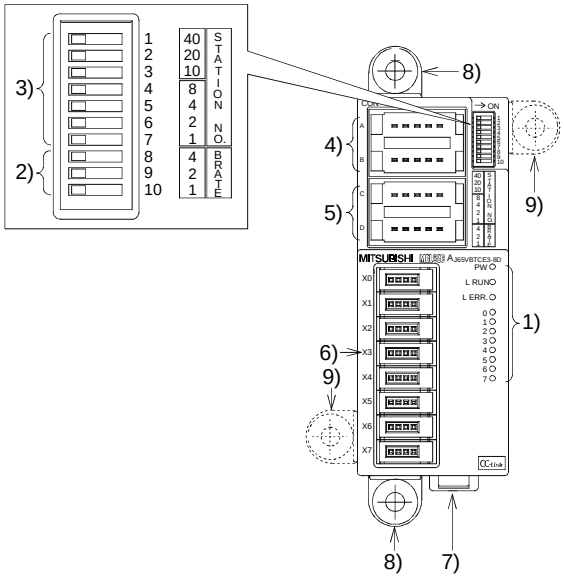
<table>
<tr><th>No.</th><th>Item</th><th colspan="2">Description</th></tr>
<tr><td rowspan="4">1)</td><td rowspan="4">Operating status indicator LEDs</td><td>LED name</td><td>Confirmation details</td></tr>
<tr><td>PW</td><td>On: Power supply on.
Off: Power supply off.</td></tr>
<tr><td>L RUN</td><td>On: Normal communication.
Off: Communication cutoff.
(time expiration error)</td></tr>
<tr><td>L ERR</td><td>On: Communication data error.
Flicker at regular intervals:
Indicates that the station number setting or transmission speed setting switch position was changed while power is on.
Flicker at irregular intervals:
When the connection of the terminal resistor was forgotten; when the cable for the module, CC-Link is receiving noise influence.
Off: Normal communication.</td></tr>
<tr><td>X0 to 1F
Y0 to 1F</td><td>On: INPUT ON, Off: INPUT OFF.
On: OUTPUT ON, Off: OUTPUT OFF.</td></tr>
<tr><td>2)</td><td>Transmission speed setting</td><td colspan="2">
<table>
<tr><th rowspan="2">Setting value</th><th colspan="3">Setting switch status</th><th rowspan="2">Transmission speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156 kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625 kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5 Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0 Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10 Mbps</td></tr>
</table>
Be sure to set the transmission speed within the above range.</td></tr>
<tr><td>3)</td><td>Station number setting switches</td><td colspan="2">Select "10," "20" or "40" to set the ten's place of the station number.
Select "1," "2," "4" or "8" to set the one's place of the station number.
Always set the station number within the range of 1 to 64. (*1)
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>2</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>3</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>10</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>11</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>64</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table>
(Example) Set the switches as below when setting the station number to 32:
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>32</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
</table></td></tr>
</table>

*1 Duplicate station number cannot be set.

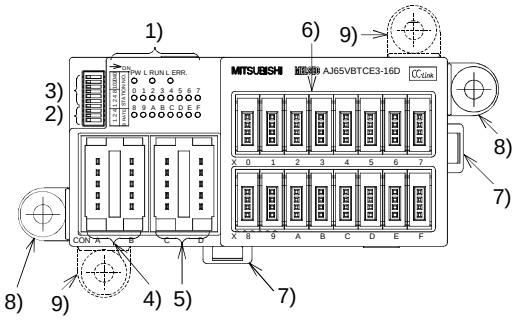
2 - 19

No.	Item	Description
4)	I/O display switch	The ON/OFF status of the first 16 points is displayed when this switch is set to "F". The ON/OFF status of the remaining 16 points is displayed when this switch is set to "L".
5)	One-touch connector for communication	A one-touch connector for connection of the communication line When carrying out wiring, connect two optional one-touch connector plugs for communication (A6CON-L5P) at top and bottom. When changing the module online, connect the optional online connectors (A6CON-LJ5P) between the connector and plugs. When using the module at either end of the CC-Link system, fit the optional one-touch connector plug with termination resistor (110Ω) (A6CON-TR11).
6)	One-touch connector for power supply and FG	A one-touch connector for connection of the module power supply line, I/O power supply line and FG When carrying out jumper wiring, connect two optional one-touch connector plugs for power supply/FG at top and bottom. Two different types (A6CON-PW5P, A6CON-PW5P-SOD) are available as the one-touch connector plugs for power supply and FG. When not carrying out jumper wiring, also connect the plugs (for safety and dust prevention). When changing the module online, connect the optional online connectors (A6CON-PWJ5P) between the connector and plugs.
7)	Spring clamp 2-piece terminal block	2-piece terminal block for connection of I/O signal.
8)	Hook for DIN rail	Hook to install the module to the DIN rail or connector type Metal installation fitting (option). When installing, push on the center line of the hook for DIN rail with a finger tip until a clicking sound is heard.
9) 10)	Holding fixtures for screw installation (Accessory)	When mounting a module to a panel or similar, attach the fixtures to the module.

AJ65VBTCE□-8□ (Sensor connector (e-CON) type 8 points module)



AJ65VBTCE□-16□ (Sensor connector (e-CON) type 16 points module)



2 - 21

<table>
<tr><th>No.</th><th>Item</th><th colspan="2">Description</th></tr>
<tr><td rowspan="4">1)</td><td rowspan="4">Operating status indicator LEDs</td><td>LED name</td><td>Confirmation details</td></tr>
<tr><td>PW</td><td>On: Power supply on.
Off: Power supply off.</td></tr>
<tr><td>L RUN</td><td>On: Normal communication.
Off: Communication cutoff.
(time expiration error)</td></tr>
<tr><td>L ERR</td><td>On: Communication data error.
Flicker at regular intervals:
Indicates that the station number setting or transmission speed setting switch position was changed while power is on.
Flicker at irregular intervals:
When the connection of the terminal resistor was forgotten; when the cable for the module, CC-Link is receiving noise influence.
Off: Normal communication.</td></tr>
<tr><td>X0 to 7
8 to F</td><td>On: INPUT ON, Off: INPUT OFF.
On: OUTPUT ON, Off: OUTPUT OFF.</td></tr>
<tr><td>2)</td><td>Transmission speed setting</td><td colspan="2">
<table>
<tr><th rowspan="2">Setting value</th><th colspan="3">Setting switch status</th><th rowspan="2">Transmission speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156 kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625 kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5 Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0 Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10 Mbps</td></tr>
</table>
Be sure to set the transmission speed within the above range.</td></tr>
<tr><td>3)</td><td>Station number setting switches</td><td colspan="2">Select "10," "20" or "40" to set the ten's place of the station number.
Select "1," "2," "4" or "8" to set the one's place of the station number.
Always set the station number within the range of 1 to 64. (*1)
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>2</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>3</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr>
<tr><td>4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>10</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>11</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>64</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table>
(Example) Set the switches as below when setting the station number to 32:
<table>
<tr><th rowspan="2">Station number</th><th colspan="3">Ten's place</th><th colspan="4">One's place</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>32</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
</table></td></tr>
</table>

*1 Duplicate station number cannot be set.

No.	Item	Description
4)	One-touch connector for communication	A one-touch connector for connection of the communication line When carrying out wiring, connect two optional one-touch connector plugs for communication (A6CON-L5P) at top and bottom. When changing the module online, connect the optional online connectors (A6CON-LJ5P) between the connector and plugs. When using the module at either end of the CC-Link system, fit the optional one-touch connector plug with termination resistor (110Ω) (A6CON-TR11).
5)	One-touch connector for power supply and FG	A one-touch connector for connection of the module power supply line, I/O power supply line and FG When carrying out jumper wiring, connect two optional one-touch connector plugs for power supply/FG at top and bottom. Two different types (A6CON-PW5P, A6CON-PW5P-SOD) are available as the one-touch connector plugs for power supply and FG. When not carrying out jumper wiring, also connect the plugs (for safety and dust prevention). When changing the module online, connect the optional online connectors (A6CON-PWJ5P) between the connector and plugs.
6)	Connector	An input signal connector
7)	Hook for DIN rail	Hook to install the module to the DIN rail or connector type Metal installation fitting (option). When installing, push on the center line of the hook for DIN rail with a finger tip until a clicking sound is heard.
8) 9)	Holding fixtures for screw installation (Accessory)	When mounting a module to a panel or similar, attach the fixtures to the module (in two positions of 8) and 9)). Holding fixtures for screw installation are removal.

3 SPECIFICATIONS

This section explains the compact Remote I/O Module general specifications.

Table 3.1 General specifications

Item	Specifications					
Operating ambient temperature	0 to 55 °C ∗6					
Storage ambient temperature	-20 to 75 °C ∗6					
Operating ambient humidity	10 to 90 % RH, No condensation (The waterproof remote I/O module conforms to IP67. ∗4)					
Storage ambient humidity	10 to 90 % RH, No condensation					
Vibration resistance	Conforming to JIS B 3502, IEC 61132-2		Frequency	Acceleration	Amplitude	Sweep Count
		When there is intermittent vibration	10 to 57 Hz	—	0.075 mm	10 times each in X, Y and Z axis (80 minutes)
			57 to 150 Hz	9.8 m/s^2 {1G}	—	
		When there is continuous vibration	10 to 57 Hz	—	0.035 mm	
			57 to 150 Hz	4.9 m/s^2 {1G}	—	
Shock resistance	Conforming to JIS B3502, IEC 61131-2 (147 m/s^2 {15G}, 3 times each in 3 directions)					
Operating environment	No corrosive gas present					
Operating height ∗3	2000 m(6562 ft) or less					
Installation area	On the control board ∗5					
Over-voltage category ∗1	II or less					
Pollution rate ∗2	2 or less					

∗1 Indicates the location where the device is connected from the public cable network to the device structure wiring area.
Category II applies to the devices to which the power is supplied from a fixed equipment. Surge withstand voltage for devices with up to 300 V of rated voltage is 2500 V.

∗2 This is an index which indicates the degree of conductive object generation in the environment Pollution level 2 is when only non-conductive pollution occurs.
A temporary conductivity caused by condensation must be expected occasionally.

∗3 Do not use or store the PC in the environment where the pressure is higher than the atmospheric pressure at sea level. Otherwise, malfunction may result. To use the PC in high-pressure environment, contact your nearest Mitsubishi representative.

∗4 Applicable only when all waterproof connectors are being used, or when waterproof caps are installed on unused waterproof connectors or feed-through tubes. (Feed-through tubes are used in the AJ65SBTW□-16□ only.)

∗5 It can also be used in an environment other than on the control panel if the conditions such as usage ambient temperature and humidity are satisfied.

∗6 In the case of the waterproof remote I/O module, usage ambient temperature and storage ambient temperature are the following. (AJ65SBTW□-16□ only)

Item		Specification
Usage ambient temperature		0 to 45°C
Storage ambient temperature	Not wired (individual product)	-20 to 65°C
	Wired (after cable installation)	-10 to 55°C

MEMO

3 - 2

4 SPECIFICATIONS FOR INPUT MODULES

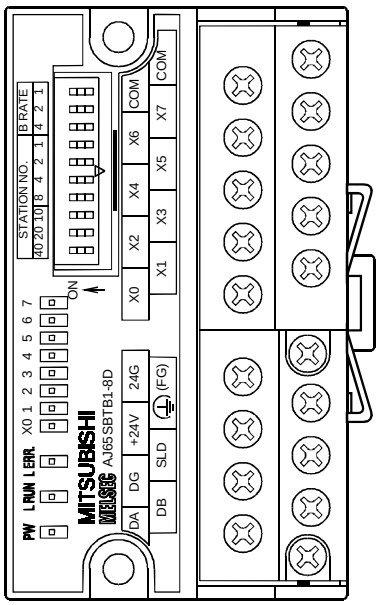
This chapter describes the specifications for a input module that can be connected to the CC-Link system.

4.1 Terminal Block Type Input Module

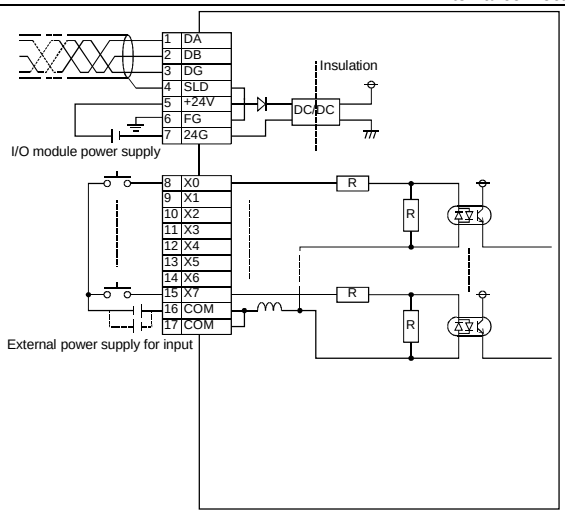
4.1.1 AJ65SBTB1-8D 24 V DC input module (Positive common (sink), negative common (source) loading)

Form / Specification		DC input module AJ65SBTB1-8D
Number of input points		8 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 7 mA
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. simultaneous ON input points		100 %
ON voltage/ON current		14 V or higher/3.5 mA or higher
OFF voltage/OFF current		6 V or lower/1.7 mA or lower
Input resistance		Approx. 3.3 kΩ
Response time	OFF→ON	1.5 ms or lower (when 24 V DC)
	ON→OFF	1.5 ms or lower (when 24 V DC)
Wiring method for common		8 points/1 common (2 points)(terminal block single wire type)
Input form		Positive/Negative common shared type(Sink/source shared type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)
	Current	30 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.14kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 10-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88 N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions
Applicable DIN rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape

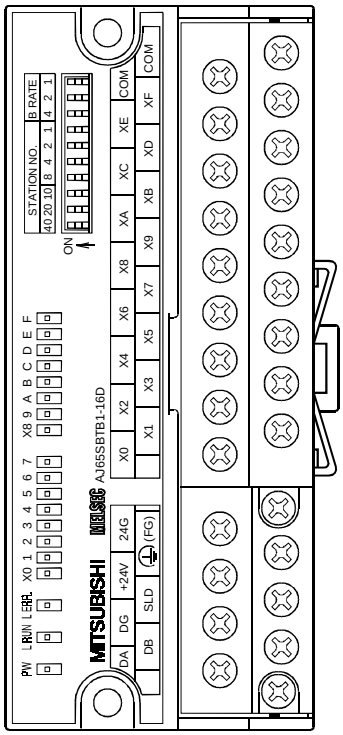


External connection

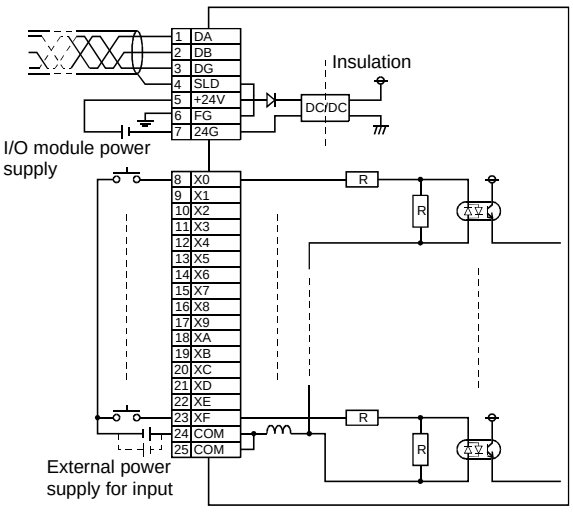


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	COM
TB17	COM

4.1.2 AJ65SBTB1-16D 24 V DC input module (Positive common (sink), negative common (source) loading)

Form / Specification		DC input module: AJ65SBTB1-16D	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 7 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14 V or higher/3.5 mA or higher	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Response time	OFF→ON	1.5 ms or lower (when 24 V DC)	
	ON→OFF	1.5 ms or lower (when 24 V DC)	
Wiring method for common		16 points/1 common (2 points) (terminal block single wire type)	
Input form		Positive/Negative common shared type (Sink/source shared type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)	
	Current	35 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.18kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88 N•cm)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manual	

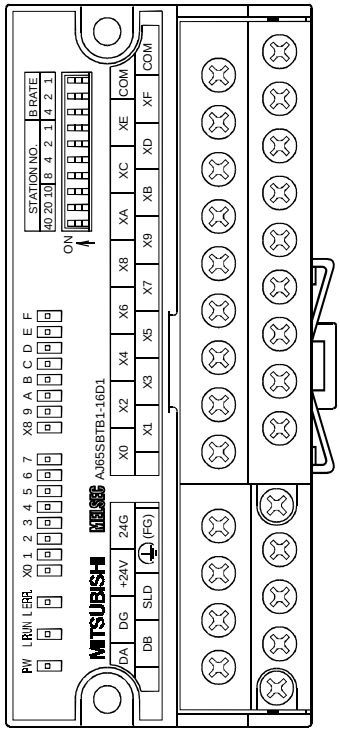
External connection



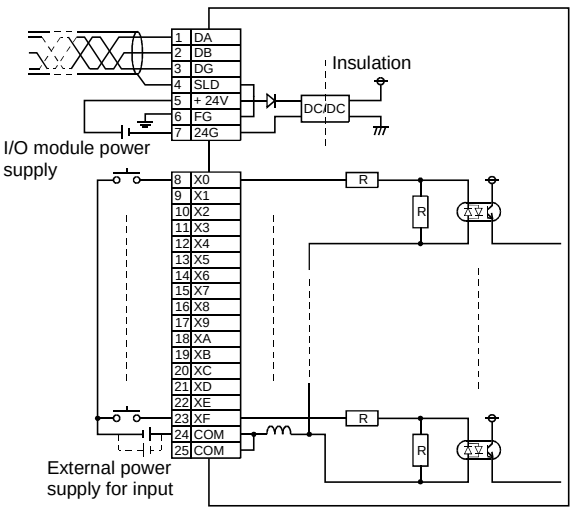
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	X8
TB17	X9
TB18	XA
TB19	XB
TB20	XC
TB21	XD
TB22	XE
TB23	XF
TB24	COM
TB25	COM

4.1.3 AJ65SBTB1-16D1 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module	
		AJ65SBTB1-16D1	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 5 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		15 V or higher/3 mA or higher	
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF→ON	0.2 ms or lower (when 24 V DC)	
	ON→OFF	0.2 ms or lower (when 24 V DC)	
Wiring method for common		16 points/1 common (2 points) (terminal block single wire type)	
Input form		Positive/Negative common shared type (Sink/source shared type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)	
	Current	40 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.18kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88 N•cm)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manual	



External connection

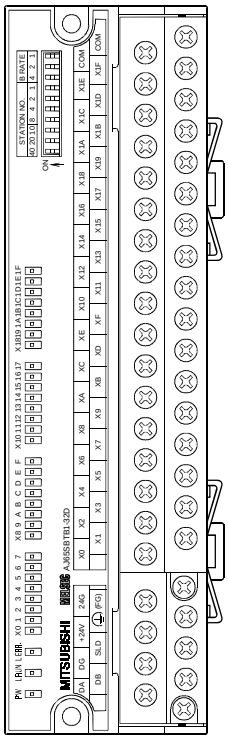


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	X8
TB17	X9
TB18	XA
TB19	XB
TB20	XC
TB21	XD
TB22	XE
TB23	XF
TB24	COM
TB25	COM

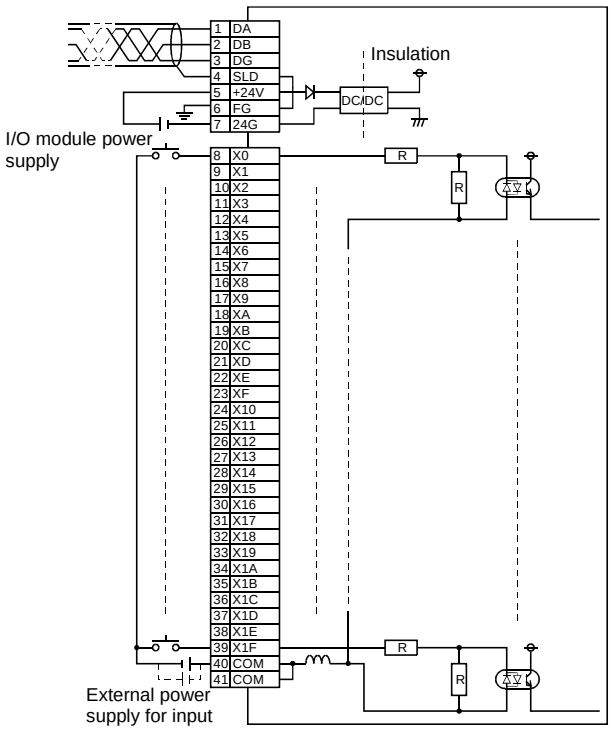
4.1.4 AJ65SBTB1-32D 24 V DC input module (Positive common (sink), negative common (source) loading)

Form / Specification		DC input module: AJ65SBTB1-32D
Number of input points		32 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 7 mA
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. simultaneous ON input points		100 %
ON voltage/ON current		14 V or higher/3.5 mA or higher
OFF voltage/OFF current		6 V or lower/1.7 mA or lower
Input resistance		Approx. 3.3 kΩ
Response time	OFF→ON	1.5 ms or lower (When 24 V DC)
	ON→OFF	1.5 ms or lower (When 24 V DC)
Wiring method for common		32 points/1 common (2 points) (terminal block single wire type)
Input form		Positive/Negative common shared type (Sink/source shared type)
Number of stations occupied		1 station 32 points assignment (use 32 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	45 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.25kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88 N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions
Applicable DIN rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection

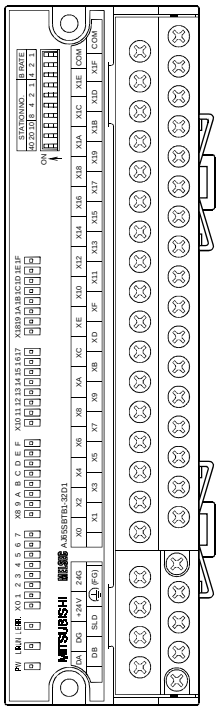


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	X8
TB17	X9
TB18	XA
TB19	XB
TB20	XC
TB21	XD
TB22	XE
TB23	XF
TB24	X10
TB25	X11
TB26	X12
TB27	X13
TB28	X14
TB29	X15
TB30	X16
TB31	X17
TB32	X18
TB33	X19
TB34	X1A
TB35	X1B
TB36	X1C
TB37	X1D
TB38	X1E
TB39	X1F
TB40	COM
TB41	COM

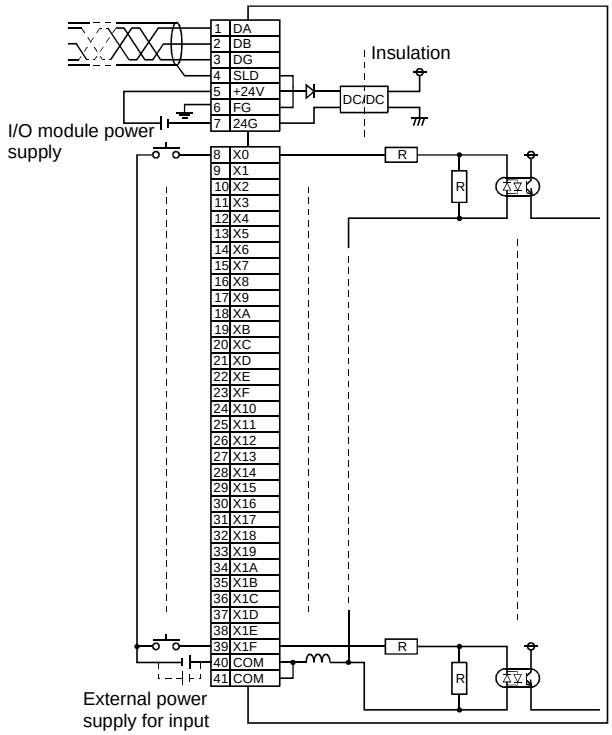
4.1.5 AJ65SBTB1-32D1 input module (Positive common (sink), negative common (source) loading)

Form / Specification		DC input module: AJ65SBTB1-32D1
Number of input points		32 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 5 mA
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. simultaneous ON input points		100 %
ON voltage/ON current		15 V or higher/3 mA or higher
OFF voltage/OFF current		3 V or lower/0.5 mA or lower
Input resistance		Approx. 4.7 k Ω
Response time	OFF→ON	0.2 ms or lower (When 24 V DC)
	ON→OFF	0.2 ms or lower (When 24 V DC)
Wiring method for common		32 points/1 common (2 points) (terminal block single wire type)
Input form		Positive/Negative common shared type (Sink/source shared type)
Number of stations occupied		1 station 32 points assignment (use 32 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	50 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.25kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88 N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions
Applicable DIN rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection (Sink input)

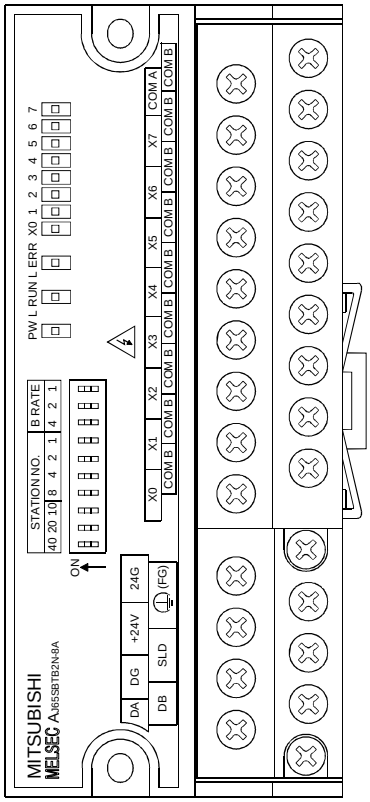


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	X1
TB10	X2
TB11	X3
TB12	X4
TB13	X5
TB14	X6
TB15	X7
TB16	X8
TB17	X9
TB18	XA
TB19	XB
TB20	XC
TB21	XD
TB22	XE
TB23	XF
TB24	X10
TB25	X11
TB26	X12
TB27	X13
TB28	X14
TB29	X15
TB30	X16
TB31	X17
TB32	X18
TB33	X19
TB34	X1A
TB35	X1B
TB36	X1C
TB37	X1D
TB38	X1E
TB39	X1F
TB40	COM
TB41	COM

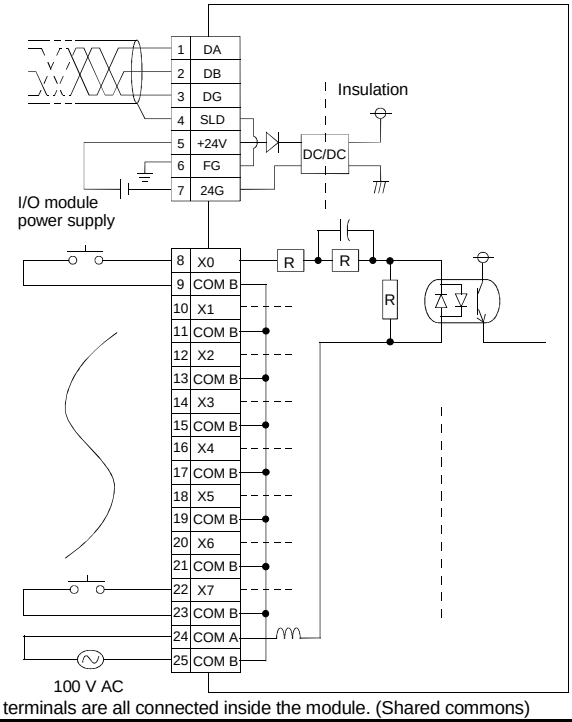
4.1.6 AJ65SBTB2N-8A 100 V AC input module

Specification \ Form		AC input module AJ65SBTB2N-8A
Number of input points		8 points
Isolation method		Photocoupler
Rated input voltage/Frequency		100 to 120 V AC 50/60 Hz
Rated input current		Approx. 7 mA (100 V AC 60 Hz)
Operating voltage range		85 to 132 V AC (50/60Hz ±3Hz (within 5% of distortion rate))
Max. simultaneous ON input points		100 % simultaneous ON (at 110 V AC) 60 % simultaneous ON (at 132 V AC)
Inrush current		Max. 200 mA within 1 ms (at 132 V AC)
ON voltage/ON current		80 V AC or higher/3.5 mA or higher
OFF voltage/OFF current		30 V AC or lower/1.7 mA or lower
Input resistance		Approx. 15 k Ω (60 Hz), Approx. 18 k Ω (50 Hz)
Response time	OFF→ON	20 ms or lower (at 100 V AC 60 Hz)
	ON→OFF	20 ms or lower (at 100 V AC 60 Hz)
Wiring method for common		8 points/1 common (terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	35 mA or lower (24 V DC and all point is ON)
Noise durability		Simulator noise 1500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition) First transient/noise burst IEC61000-4-4 : 1 kV
Withstand voltage		1780 V AC between all AC external terminals and ground, rms/ 3 cycles (2000 m above sea level) 500 V AC for 1 minutes between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all AC external terminals and ground 10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Weight		0.2kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm)DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2.0 mm^2]
Accessory		User's Manual

Surface shape



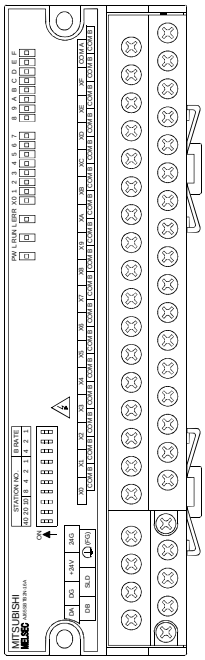
External connection



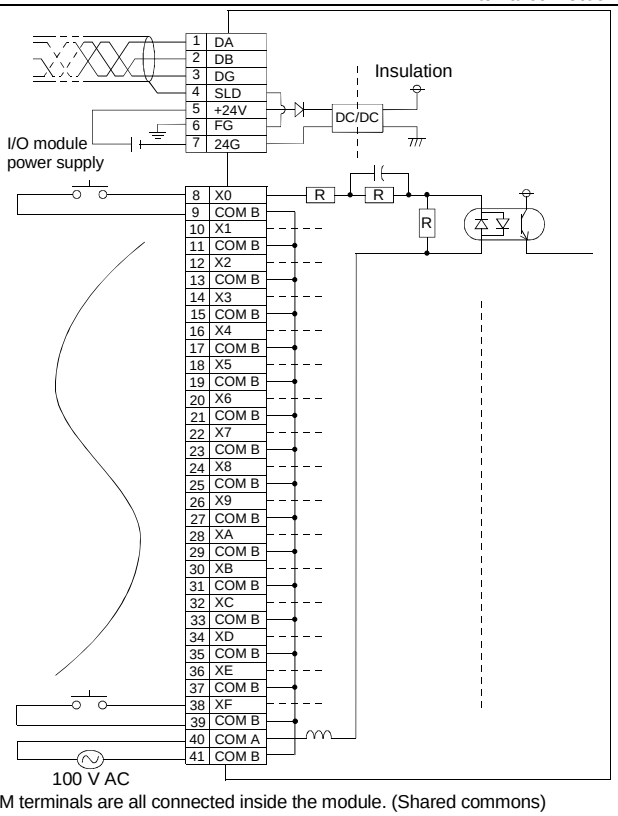
The COM terminals are all connected inside the module. (Shared commons)

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	COMB
TB10	X1
TB11	COMB
TB12	X2
TB13	COMB
TB14	X3
TB15	COMB
TB16	X4
TB17	COMB
TB18	X5
TB19	COMB
TB20	X6
TB21	COMB
TB22	X7
TB23	COMB
TB24	COMA
TB25	COMB

4.1.7 AJ65SBTB2N-16A 100 V AC input module

Specification \ Form		AC input module	
		AJ65SBTB2N-16A	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage/Frequency		100 to 120 V AC 50/60 Hz	
Rated input current		Approx. 7 mA (100 V AC 60 Hz)	
Operating voltage range		85 to 132 V AC (50/60Hz ±3Hz (within 5% of distortion rate))	
Max. simultaneous ON input points		100 % simultaneous ON (at 110 V AC) 60 % simultaneous ON (at 132 V AC)	
Inrush current		Max. 200 mA within 1 ms (at 132 V AC)	
ON voltage/ON current		80 V AC or higher/3.5 mA or higher	
OFF voltage/OFF current		30 V AC or lower/1.7 mA or lower	
Input resistance		Approx. 15 kΩ (60 Hz), Approx. 18 kΩ (50 Hz)	
Response time	OFF→ON	20 ms or lower (at 100 V AC 60 Hz)	
	ON→OFF	20 ms or lower (at 100 V AC 60 Hz)	
Wiring method for common		16 points/1 common (terminal block 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	40 mA or lower (24 V DC and all point is ON)	
Noise durability		Simulator noise 1500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition) First transient/noise burst IEC61000-4-4 : 1 kV	
Withstand voltage		1780 V AC between all AC external terminals and ground, rms/ 3 cycles (2000 m above sea level) 500 V AC for 1 minutes between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester between all AC external terminals and ground 10 MΩ or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground	
Weight		0.25kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable Din rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2.0 mm^2]	
Accessory		User's Manual	

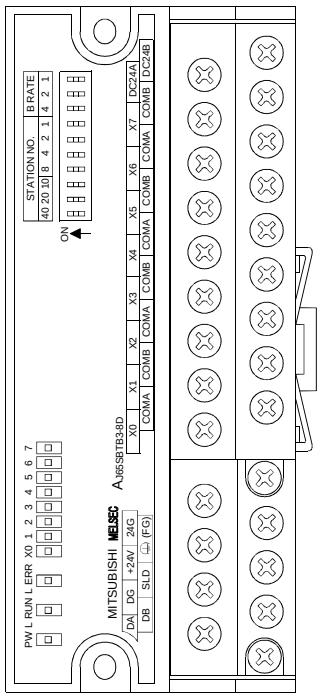
External connection



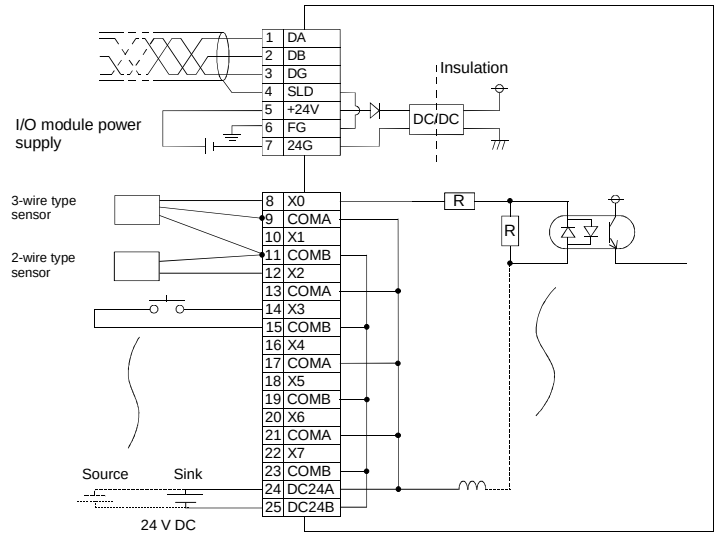
The COM terminals are all connected inside the module. (Shared commons)

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	COM B
TB10	X1
TB11	COM B
TB12	X2
TB13	COM B
TB14	X3
TB15	COM B
TB16	X4
TB17	COM B
TB18	X5
TB19	COM B
TB20	X6
TB21	COM B
TB22	X7
TB23	COM B
TB24	X8
TB25	COM B
TB26	X9
TB27	COM B
TB28	XA
TB29	COM B
TB30	XB
TB31	COM B
TB32	XC
TB33	COM B
TB34	XD
TB35	COM B
TB36	XE
TB37	COM B
TB38	XF
TB39	COM B
TB40	COM A
TB41	COM B

4.1.8 AJ65SBTB3-8D 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module	
		AJ65SBTB3-8D	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 7 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14 V or higher/3.5 mA or higher	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	
Input resistance		Approx. 3.3 kΩ	
Response time	OFF→ON	1.5 ms or lower (when 24 V DC)	
	ON→OFF	1.5 ms or lower (when 24 V DC)	
Wiring method for common		8 points/1 common (terminal block B-wire type)	
Input form		Positive/Negative common shared type (Sink/source shared type)	
Number of stations occupied		1 station 32 points assignment (use 8 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)	
	Current	40 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.18kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable Din rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2.0 mm^2]	
Accessory		User's Manual	

External connection

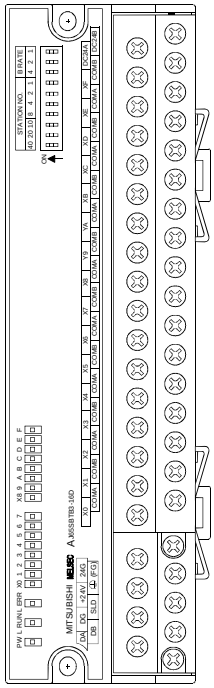


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	COM A
TB10	X1
TB11	COM B
TB12	X2
TB13	COM A
TB14	X3
TB15	COM B
TB16	X4
TB17	COM A
TB18	X5
TB19	COM B
TB20	X6
TB21	COM A
TB22	X7
TB23	COM B
TB24	DC24A
TB25	DC24B

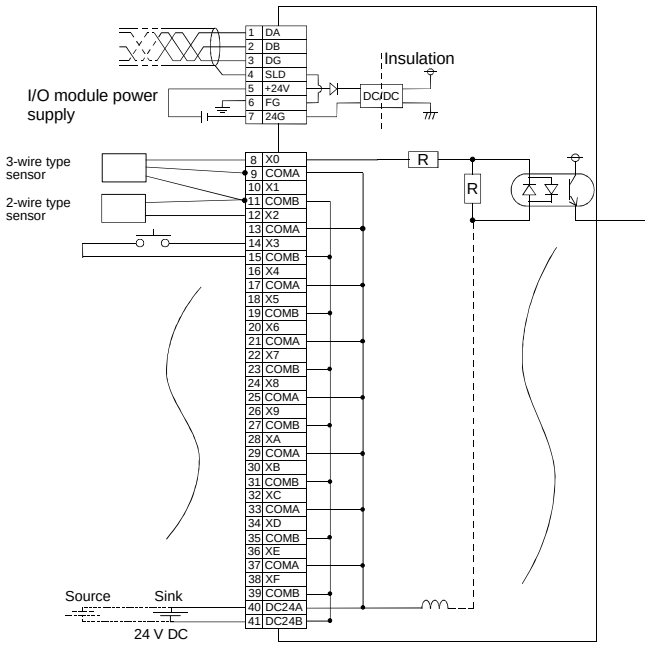
4.1.9 AJ65SBTB3-16D 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module
		AJ65SBTB3-16D
Number of input points		16 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 7 mA
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. simultaneous ON input points		100 %
ON voltage/ON current		14 V or higher/3.5 mA or higher
OFF voltage/OFF current		6 V or lower/1.7 mA or lower
Input resistance		Approx. 3.3 kΩ
Response time	OFF→ON	1.5 ms or lower (When 24 V DC)
	ON→OFF	1.5 ms or lower (When 24 V DC)
Wiring method for common		16 points/1 common(terminal block 3-wire type)
Input form		Positive/Negative common shared type (Sink/source shared type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	45 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.25kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm).
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



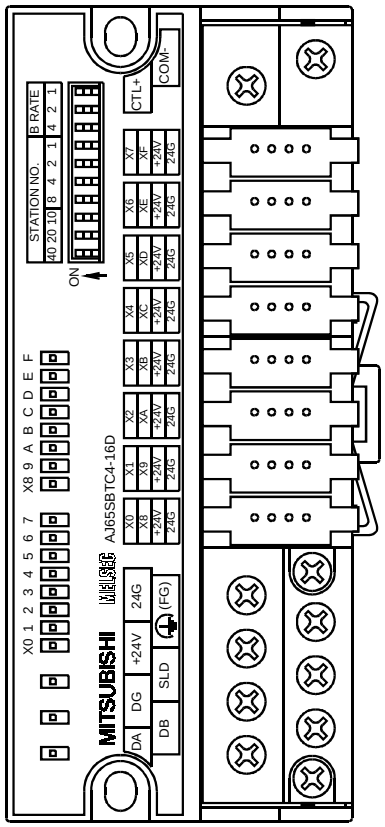
External connection



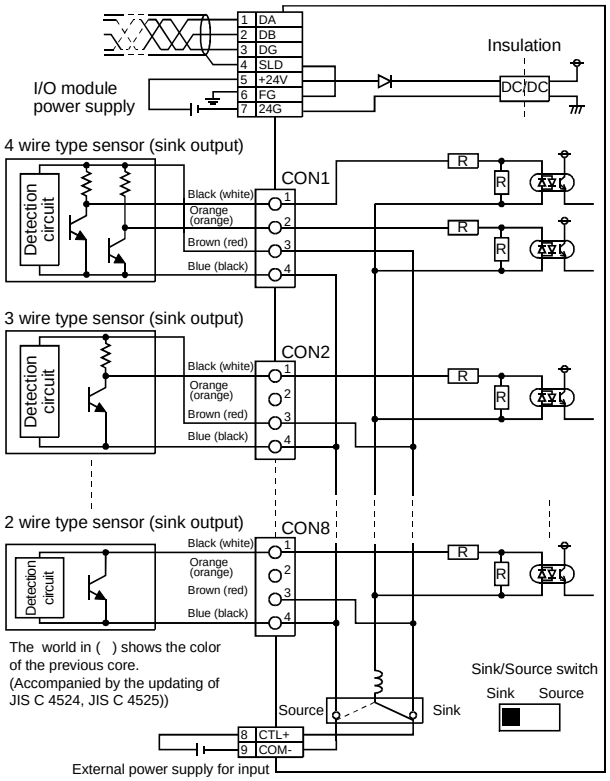
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
TB8	X0
TB9	COMA
TB10	X1
TB11	COMB
TB12	X2
TB13	COMA
TB14	X3
TB15	COMB
TB16	X4
TB17	COMA
TB18	X5
TB19	COMB
TB20	X6
TB21	COMA
TB22	X7
TB23	COMB
TB24	X8
TB25	COMA
TB26	X9
TB27	COMB
TB28	XA
TB29	COMA
TB30	XB
TB31	COMB
TB32	XC
TB33	COMA
TB34	XD
TB35	COMB
TB36	XE
TB37	COMA
TB38	XF
TB39	COMB
TB40	DC24A
TB41	DC24B

4.2 One-Touch Connector Type Input Module

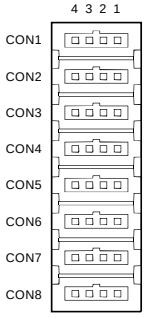
4.2.1 AJ65SBTC4-16D 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module	
		AJ65SBTC4-16D	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 5 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14 V or higher/3.5 mA or higher	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF→ON	1.5 ms or lower (When 24 V DC)	
	ON→OFF	1.5 ms or lower (When 24 V DC)	
Wiring method for common		16 points/1 common (quick connector plug 4 wire type)	
Input form		Positive/Negative common shared type (Sink/source shared type) (switch via the selector switch)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	35 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.15kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm), Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (conforming to JIS C 2812)	
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
	I/O area connector	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]	
Accessory		User's Manual	

External connection (When positive common (sink) input)



Pin arrangement

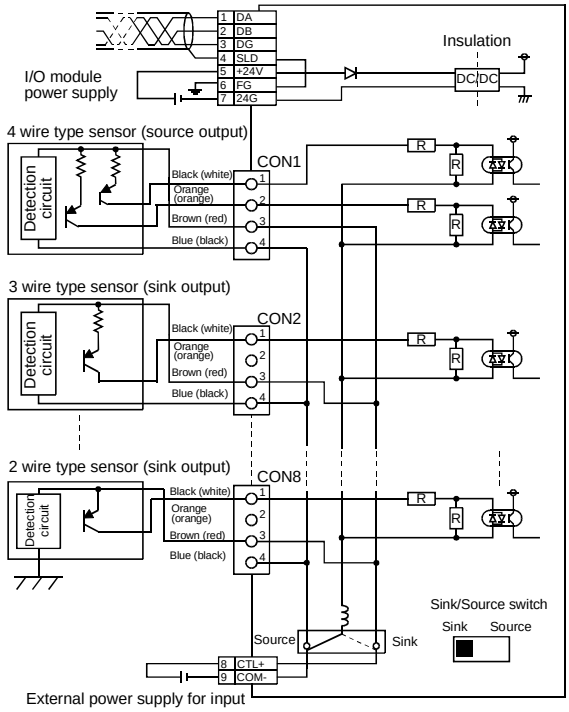


A module view from the top.

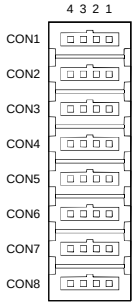
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X8
CON1-3	+24V
CON1-4	24G
CON2-1	X1
CON2-2	X9
CON2-3	+24V
CON2-4	24G
CON3-1	X2
CON3-2	XA
CON3-3	+24V
CON3-4	24G
CON4-1	X3
CON4-2	XB
CON4-3	+24
CON4-4	24G
CON5-1	X4
CON5-2	XC
CON5-3	+24V
CON5-4	24G
CON6-1	X5
CON6-2	XD
CON6-3	+24V
CON6-4	24G
CON7-1	X6
CON7-2	XE
CON7-3	+24V
CON7-4	24G
CON8-1	X7
CON8-2	XF
CON8-3	+24V
CON8-4	24G
Terminal number	Signal name
TB8	CTL+
TB9	COM-

4 - 11

External connection (when negative common (source) input)



Pin arrangement

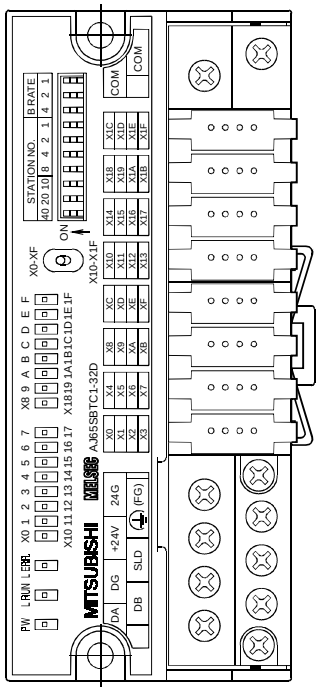


A module view from the top.

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X8
CON1-3	+24V
CON1-4	24G
CON2-1	X1
CON2-2	X9
CON2-3	+24V
CON2-4	24G
CON3-1	X2
CON3-2	XA
CON3-3	+24V
CON3-4	24G
CON4-1	X3
CON4-2	XB
CON4-3	+24
CON4-4	24G
CON5-1	X4
CON5-2	XC
CON5-3	+24V
CON5-4	24G
CON6-1	X5
CON6-2	XD
CON6-3	+24V
CON6-4	24G
CON7-1	X6
CON7-2	XE
CON7-3	+24V
CON7-4	24G
CON8-1	X7
CON8-2	XF
CON8-3	+24V
CON8-4	24G
Terminal number	Signal name
TB8	CTL+
TB9	COM

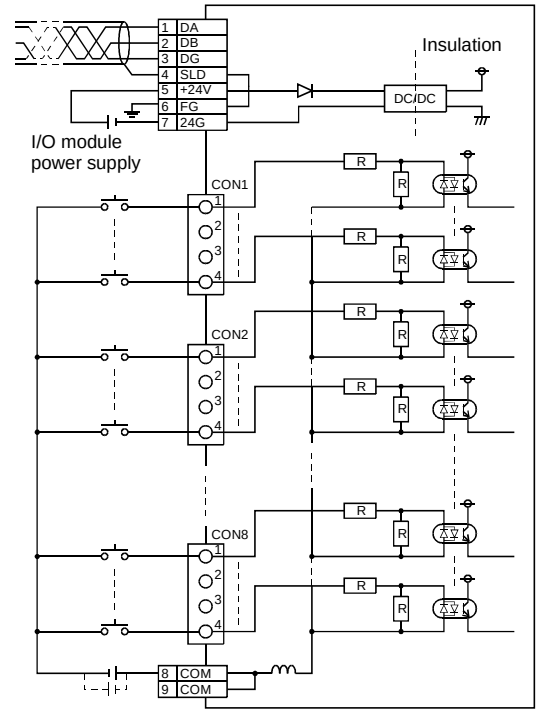
4 - 12

4.2.2 AJ65SBTC1-32D 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module	
		AJ65SBTC1-32D	Surface shape
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 5 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		80 %	
ON voltage/ON current		14 V or higher/3.5 mA or higher	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF→ON	1.5 ms or lower (When 24 V DC)	
	ON→OFF	1.5 ms or lower (When 24 V DC)	
Wiring method for common		32 points/1 common (2 points) (quick connector plug single wire type)	
Input form		Positive/Negative common shared type (Sink/source shared type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	45 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Weight		0.16kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm), Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
	I/O area connector	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]	
Accessory		User's Manual	

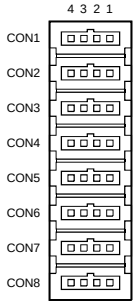
4 - 13

External connection (Sink input)



External power supply for input

Pin arrangement

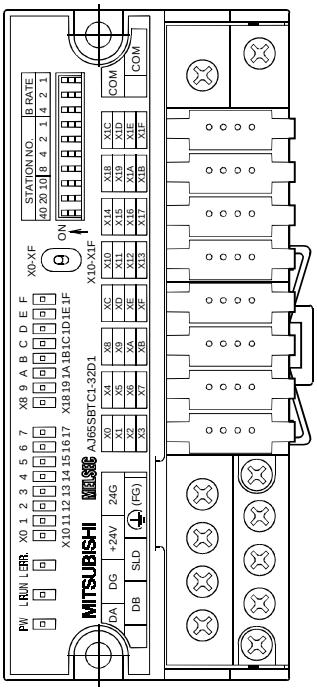


A module view
from the top.

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X1
CON1-3	X2
CON1-4	X3
CON2-1	X4
CON2-2	X5
CON2-3	X6
CON2-4	X7
CON3-1	X8
CON3-2	X9
CON3-3	XA
CON3-4	XB
CON4-1	XC
CON4-2	XD
CON4-3	XE
CON4-4	XF
CON5-1	X10
CON5-2	X11
CON5-3	X12
CON5-4	X13
CON6-1	X14
CON6-2	X15
CON6-3	X16
CON6-4	X17
CON7-1	X18
CON7-2	X19
CON7-3	X1A
CON7-4	X1B
CON8-1	X1C
CON8-2	X1D
CON8-3	X1E
CON8-4	X1F
Terminal number	Signal name
TB8	COM
TB9	COM

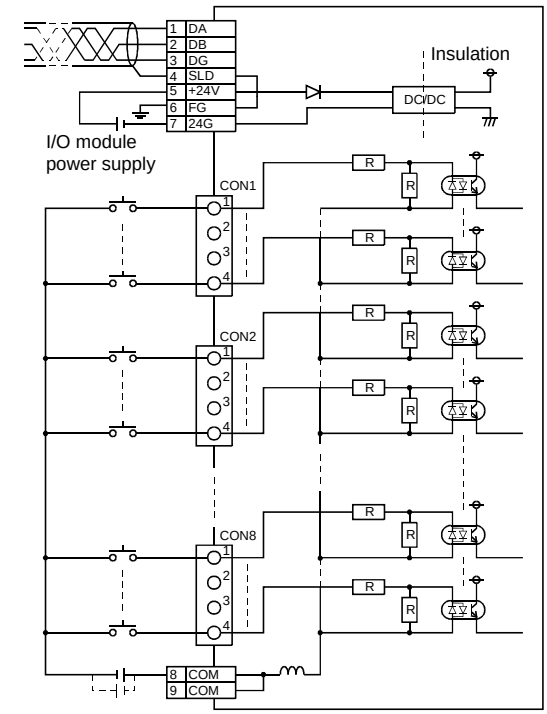
4 - 14

4.2.3 AJ65SBTC1-32D1 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module	
		AJ65SBTC1-32D1	Surface shape
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 5 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		15 V or higher/3 mA or higher	
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	
Input resistance		Approx. 4.7 k Ω	
Response time	OFF→ON	0.2 ms or lower (When 24 V DC)	
	ON→OFF	0.2 ms or lower (When 24 V DC)	
Wiring method for common		32 points/1 common (2 points) (quick connector plug single wire type)	
Input form		Positive/Negative common shared type (Sink/source shared type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	45 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.16kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm), Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al, TH35-15 Fe (conforming to JIS C 2812)	
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
	I/O area connector	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]	
Accessory		User's Manual	

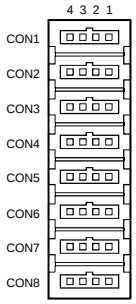
4 - 15

External connection (Sink input)



External power supply for input

Pin arrangement



A module view from the top.

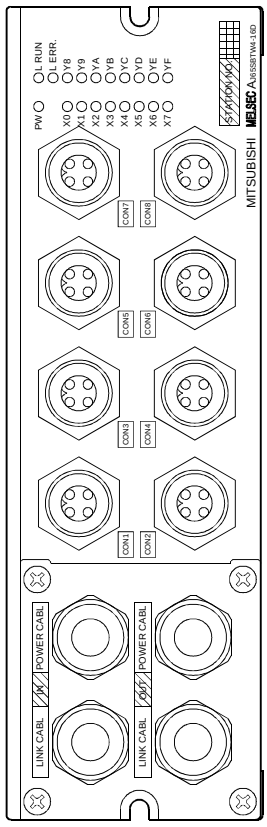
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X1
CON1-3	X2
CON1-4	X3
CON2-1	X4
CON2-2	X5
CON2-3	X6
CON2-4	X7
CON3-1	X8
CON3-2	X9
CON3-3	XA
CON3-4	XB
CON4-1	XC
CON4-2	XD
CON4-3	XE
CON4-4	XF
CON5-1	X10
CON5-2	X11
CON5-3	X12
CON5-4	X13
CON6-1	X14
CON6-2	X15
CON6-3	X16
CON6-4	X17
CON7-1	X18
CON7-2	X19
CON7-3	X1A
CON7-4	X1B
CON8-1	X1C
CON8-2	X1D
CON8-3	X1E
CON8-4	X1F
Terminal number	Signal name
TB8	COM
TB9	COM

4 - 16

4.3 Waterproof Type Input Module

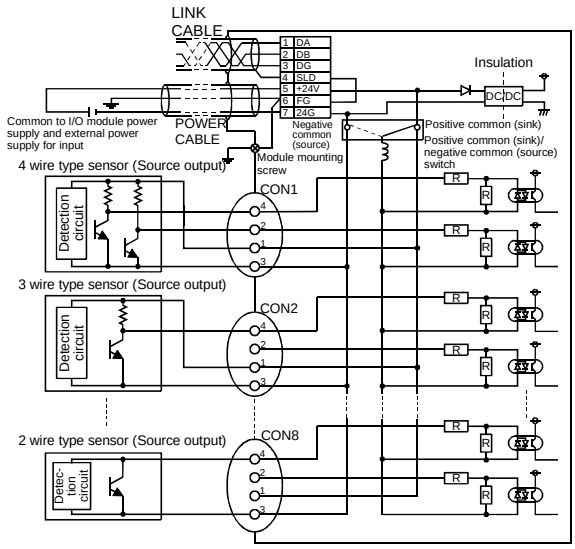
4.3.1 AJ65SBTW4-16D 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module	
		AJ65SBTW4-16D	Surface shape
Ambient operating temperature		0 to 45℃	
Ambient storage temperature		-20 to 65℃	
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 5 mA	
Operating voltage range		20.4 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14 V or higher/3.5 mA or higher	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF→ON	1.5ms or lower (when 24 V DC)	
	ON→OFF	1.5ms or lower (when 24 V DC)	
Wiring method for common		16 points/1 common (waterproof connector plug 4 wire type) Common to module power supply	
Input form		Positive/Negative common shared type (Sink/source shared type) (Switch via the selector switch.)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5%)	
	Current	35 mA or lower (when 24 V DC and all point is ON) (Input current of I/O section in not included)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP67	
Weight		0.7kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), (M3 screw tightening torque 59 to 88N•cm), Waterproof connector [conforms to NECA 4202 (IEC 947-5-2); 4 pins, male, M12-type, protection construction IP67] (Connector in the I/O area) <Options> Dustproof caps: A6CAP-DC1 (20 caps) Waterproof caps: A6CAP-WP1 (20 caps)	
Tightening torque value	Module top-cover installation screw (M3)	54 to 64 N•cm	
	Module front-cover installation screw (M3)	54 to 64 N•cm	
	Module installation screws (M4 screw with plain washer finished round)	127 to 147 N•cm	
	Through pipe	99 to 148 N•cm	
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV 1.25 to 3.5 (conforming to JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S, RAP2-3SL(Japan Terminal Co., Ltd.) 2-3N, 2-3S [Applicable wire size: 1.25 to 2.0 mm^2]	
	I/O area connector	-	
Through pipe specifications		Applicable cable size: ϕ5.0 to 8.0	
Accessory		User's manual: Waterproof plugs (2 plugs)	

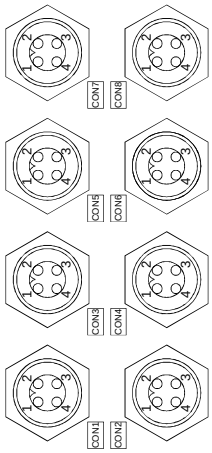


4 - 17

External connection (When positive common (sink) input)



Pin arrangement

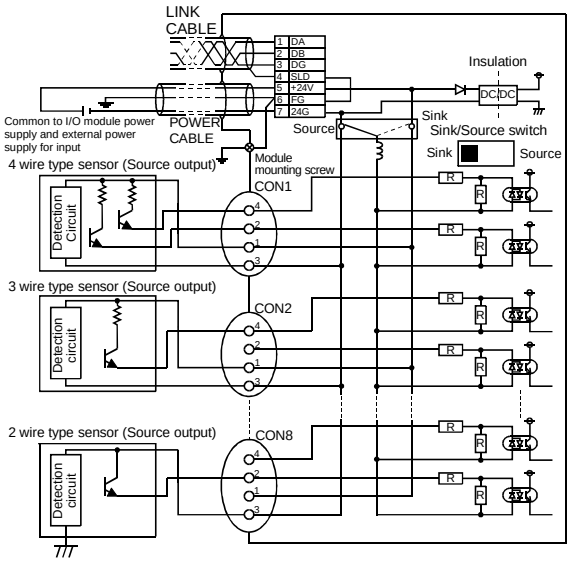


A module view from the top.

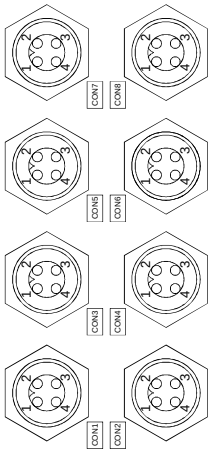
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
Pin number	Signal name
CON1-1	+24V
CON1-2	X8
CON1-3	24G
CON1-4	X0
CON2-1	+24V
CON2-2	X9
CON2-3	24G
CON2-4	X1
CON3-1	+24V
CON3-2	XA
CON3-3	24G
CON3-4	X2
CON4-1	+24V
CON4-2	XB
CON4-3	24G
CON4-4	X3
CON5-1	+24V
CON5-2	XC
CON5-3	24G
CON5-4	X4
CON6-1	+24V
CON6-2	XD
CON6-3	24G
CON6-4	X5
CON7-1	+24V
CON7-2	XE
CON7-3	24G
CON7-4	X6
CON8-1	+24V
CON8-2	XF
CON8-3	24G
CON8-4	X7

4 - 18

External connection (When negative common (source) input)



Pin arrangement



A module view from the top.

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G
Pin number	**Signal name**
CON1-1	+24V
CON1-2	X8
CON1-3	24G
CON1-4	X0
CON2-1	+24V
CON2-2	X9
CON2-3	24G
CON2-4	X1
CON3-1	+24V
CON3-2	XA
CON3-3	24G
CON3-4	X2
CON4-1	+24V
CON4-2	XB
CON4-3	24G
CON4-4	X3
CON5-1	+24V
CON5-2	XC
CON5-3	24G
CON5-4	X4
CON6-1	+24V
CON6-2	XD
CON6-3	24G
CON6-4	X5
CON7-1	+24V
CON7-2	XE
CON7-3	24G
CON7-4	X6
CON8-1	+24V
CON8-2	XF
CON8-3	24G
CON8-4	X7

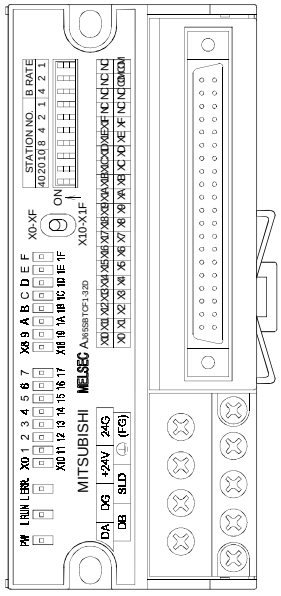
4 - 19

4.4 FCN Connector Type Input Module

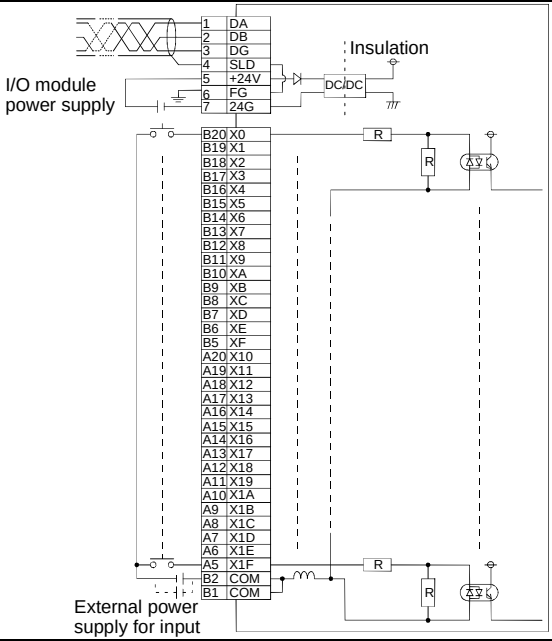
4.4.1 AJ65SBTCF1-32D 24 V DC input module (Positive common (sink), negative common (source) loading)

Specification \ Form		DC input module: AJ65SBTCF1-32D
Number of input points		32 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 5 mA
Operating voltage range		19.2 to 26.4 V DC(ripple ratio: within 5 %)
Max. simultaneous ON input points		100 %
ON voltage/ON current		14 V or higher/3.5 mA or higher
OFF voltage/OFF current		6 V or lower/1.7 mA or lower
Input resistance		Approx. 4.7 kΩ
Response time	OFF→ON	1.5 ms or lower (at 24 V DC)
	ON→OFF	1.5 ms or lower (at 24 V DC)
Wiring method for common		32 points/1 common (FCN connector single wire type)
Input form		Positive/Negative common shared type (Sink/source shared type)
Number of stations occupied		1 station 32 points assignment (use 32 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)
	Current	45 mA or lower (24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Protection of degree		IP2X
Weight		0.15kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), 40-pin connector (I/O power supply area, I/O connector) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (conforming to JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Applicable input connector		A6CON1, A6CON2, A6CON3, A6CON4
Accessory		User's Manual

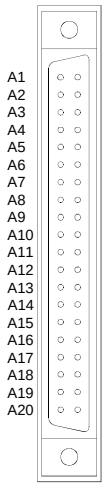
Surface shape



External connection



Pin arrangement



A module view from the top.

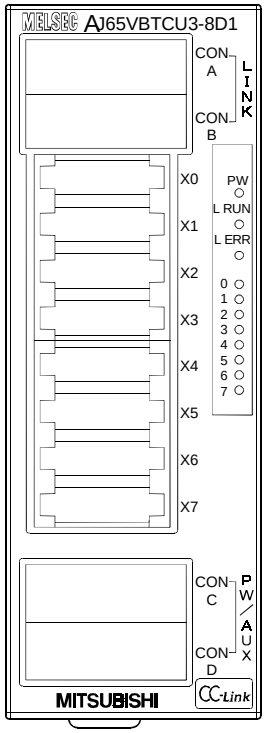
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚(FG)
TB7	24G

Pin number	Signal name	Pin number	Signal name
B20	X0	A20	X10
B19	X1	A19	X11
B18	X2	A18	X12
B17	X3	A17	X13
B16	X4	A16	X14
B15	X5	A15	X15
B14	X6	A14	X16
B13	X7	A13	X17
B12	X8	A12	X18
B11	X9	A11	X19
B10	XA	A10	X1A
B9	XB	A9	X1B
B8	XC	A8	X1C
B7	XD	A7	X1D
B6	XE	A6	X1E
B5	XF	A5	X1F
B4	Vacancy	A4	Vacancy
B3	Vacancy	A3	Vacancy
B2	COM	A2	Vacancy
B1	COM	A1	Vacancy

4 - 20

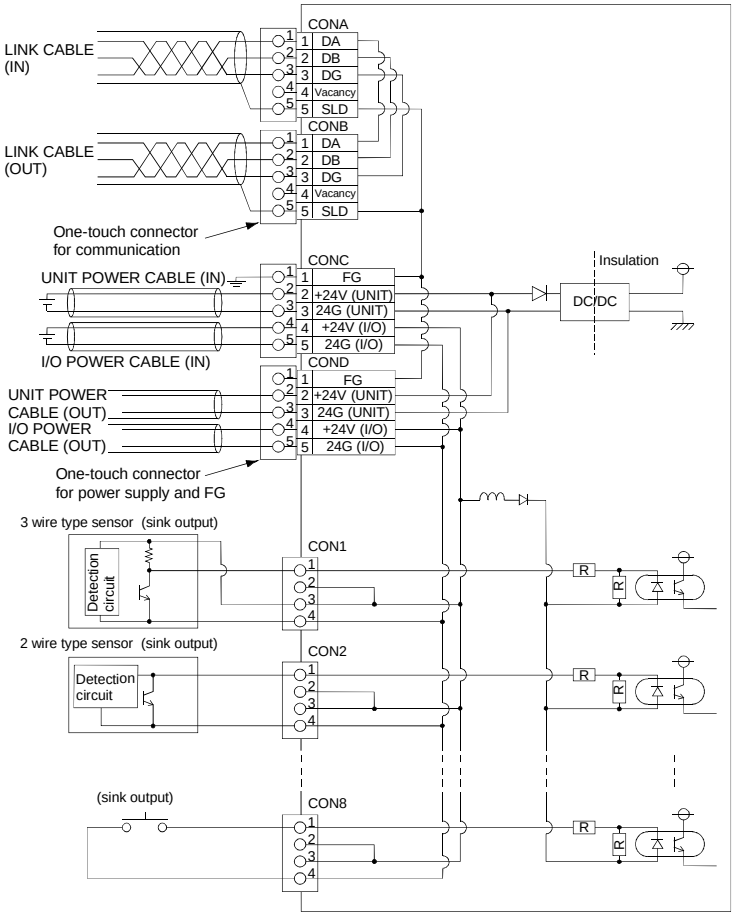
4.5 Connector Type Input Module

4.5.1 AJ65VBTCU3-8D1 24 V DC input module (Positive common (sink type))

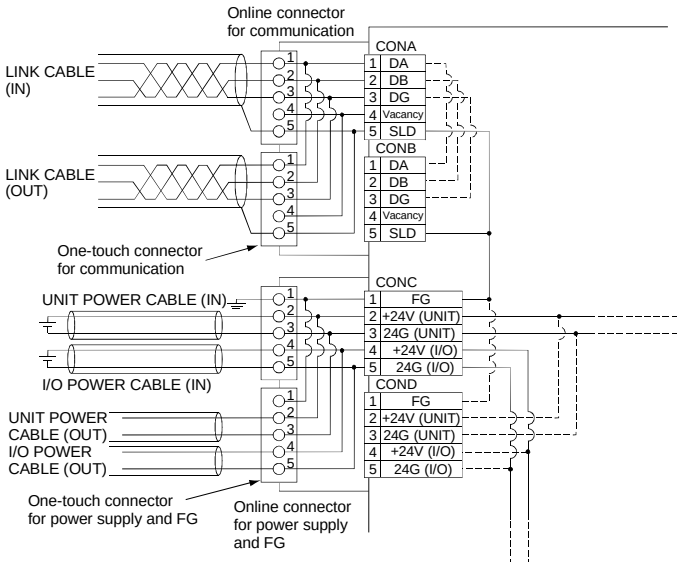
Specification \ Form		DC input module	
		AJ65VBTCU3-8D1	Surface shape
Number of input points		8 points	
Isolation method		Photocoupler	
Rated input voltage		24 V DC	
Rated input current		Approx. 5 mA	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		15 V or higher/3 mA or higher	
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF→ON	0.2 ms or lower (when 24 V DC)	
	ON→OFF	0.2 ms or lower (when 24 V DC)	
Wiring method for common		8 points/1 common (quick connector plug 3-wire type)	
Input form		Positive common (sink type)	
Number of stations occupied		1 station 32 points assignment (use 8 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)	
	Current	35 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.15kg	
External wiring system		One-touch connector for communication [Transmission circuit] (5 pins pressure welding type) The plug for the connector is sold separately One-touch connector for power supply and FG [I/O module power supply, external power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately: A6CON-PW5P, A6CON-PW5P-SOD One-touch connector for I/O (4 pins pressure welding type) The plug for the connector is sold separately <Option> Online connector for communication : A6CON-LJ5P Online connector for power supply : A6CON-PWJ5P	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Cable for communication	Applicable cable:FANC-110SBH	
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG#18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] Wire diameter 0.16 mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	Connector for I/O	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable cable : 0.14 to 0.2 mm2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable cable : 0.3 to 0.5 mm2]	
Accessory		User's Manual	

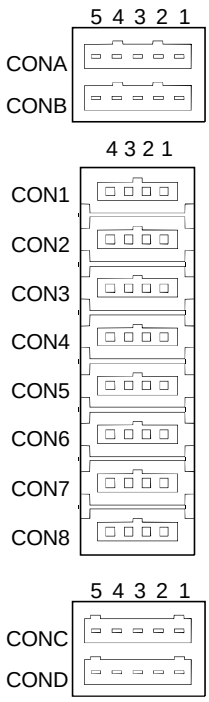
4 - 21

External connection



<When using online connector>





A module view from the top

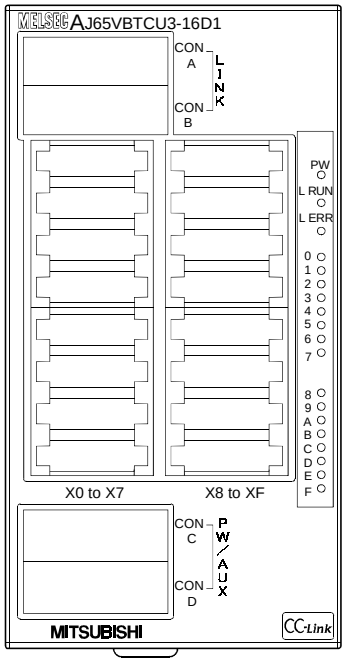
Pin arrangement	Pin No.		Signal name
	CONA, B	1	DA
		2	DB
		3	DG
		4	Vacancy
		5	SLD
	CON1	1	X0
		2	+V
		3	+24V
		4	24G
	CON2	1	X1
		2	+V
		3	+24V
		4	24G
	CON3	1	X2
		2	+V
		3	+24V
		4	24G
	CON4	1	X3
		2	+V
		3	+24V
		4	24G
	CON5	1	X4
		2	+V
		3	+24V
		4	24G
	CON6	1	X5
		2	+V
		3	+24V
		4	24G
	CON7	1	X6
		2	+V
		3	+24V
		4	24G
	CON8	1	X7
		2	+V
		3	+24V
		4	24G
	CONC, D	1	⏚(FG)
		2	+24V (UNIT)
		3	24G (UNIT)
		4	+24V (I/O)
		5	24G (I/O)

4 - 22

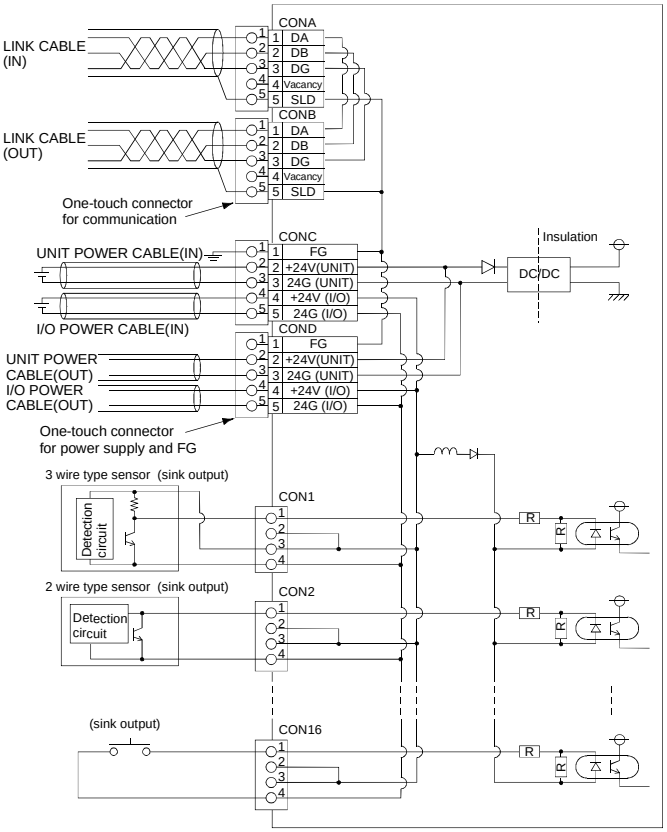
4.5.2 AJ65VBTCU3-16D1 24 V DC input module (Positive common (sink type))

Specification \ Form		DC input module: AJ65VBTCU3-16D1
Number of input points		16 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 5 mA
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. simultaneous ON input points		100 %
ON voltage/ON current		15 V or higher/3 mA or higher
OFF voltage/OFF current		3 V or lower/0.5 mA or lower
Input resistance		Approx. 4.7 kΩ
Response time	OFF→ON	0.2 ms or lower (when 24 V DC)
	ON→OFF	0.2 ms or lower (when 24 V DC)
Wiring method for common		16 points/1 common (quick connector plug 3-wire type)
Input form		Positive common (sink type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple rate: within 5 %)
	Current	40 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP1XB
Weight		0.19kg
External wiring system		One-touch connector for communication [Transmission circuit] (5 pins pressure welding type) The plug for the connector is sold separately One-touch connector for power supply and FG [I/O module power supply, external power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately: A6CON-PW5P, A6CON-PW5P-SOD One-touch connector for I/O (4 pins pressure welding type) The plug for the connector is sold separately <Option> Online connector for communication : A6CON-LJ5P Online connector for power supply : A6CON-PWJ5P
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable wire size	Cable for communication	Applicable cable : FANC-110SBH, CS-110
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG#18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] Wire diameter 0.16 mm or more Outer insulation layer material PVC (Heat-resistant vinyl)
	Connector for I/O	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable cable : 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable cable : 0.3 to 0.5 mm^2]
Accessory		User's Manual

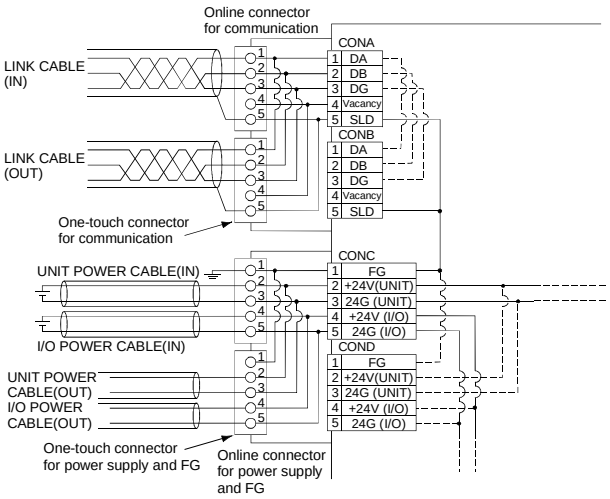
Surface shape



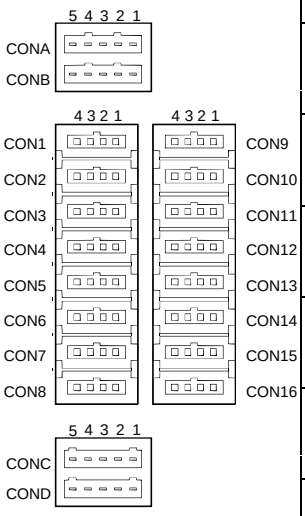
External connection



<When using online connector>



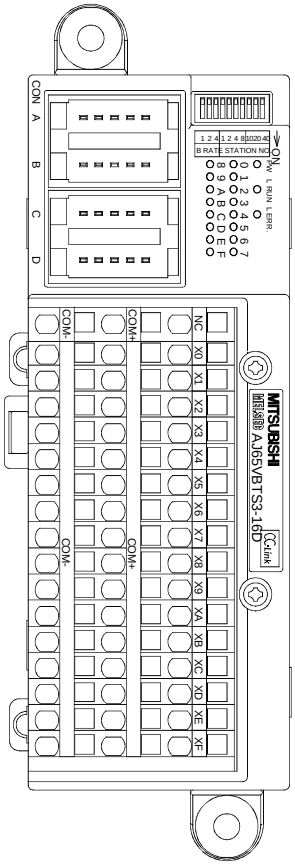
Pin arrangement



A module view from the top

Pin No.		Signal name
CONA, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON1	1	X0
	2	+V
	3	+24V
	4	24G
CON2	1	X1
	2	+V
	3	+24V
	4	24G
CON3	1	X2
	2	+V
	3	+24V
	4	24G
CON4	1	X3
	2	+V
	3	+24V
	4	24G
CON5	1	X4
	2	+V
	3	+24V
	4	24G
CON6	1	X5
	2	+V
	3	+24V
	4	24G
CON7	1	X6
	2	+V
	3	+24V
	4	24G
CON8	1	X7
	2	+V
	3	+24V
	4	24G
CON9	1	X8
	2	+V
	3	+24V
	4	24G
CON10	1	X9
	2	+V
	3	+24V
	4	24G
CON11	1	XA
	2	+V
	3	+24V
	4	24G
CON12	1	XB
	2	+V
	3	+24V
	4	24G
CON13	1	XC
	2	+V
	3	+24V
	4	24G
CON14	1	XD
	2	+V
	3	+24V
	4	24G
CON15	1	XE
	2	+V
	3	+24V
	4	24G
CON16	1	XF
	2	+V
	3	+24V
	4	24G
CONC, D	1	⏚(FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

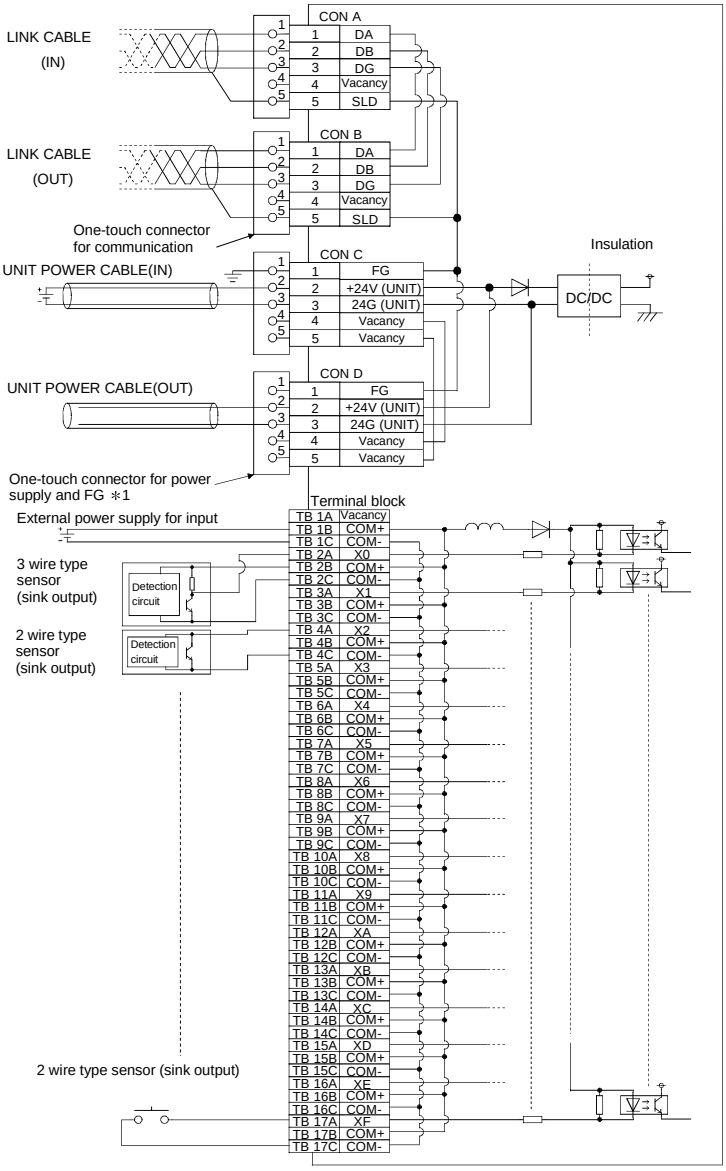
4.5.3 AJ65VBTS3-16D 24V DC input module (Positive common (sink type)) (Spring clamp terminal block type)

Specification \ Form		DC input module AJ65VBTS3-16D	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 5mA	
Operating voltage range		19.2 to 26.4VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		100 %/75 % (Refer to Chapter 1.3)	
ON voltage/ON current		14V or higher/3.5mA or higher	
OFF voltage/OFF current		6V or lower/1.7mA or lower	
Input resistance		Approx. 4.7 kΩ	
Response time	OFF → ON	1.5ms or lower (when 24VDC)	
	ON → OFF	1.5ms or lower (when 24VDC)	
Wiring method for common		16 points/common (Spring clamp terminal block type 3-wire type)	
Input form		Positive common (Sink type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	35mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.24kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply • FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	2-piece, spring clamp terminal block [I/O power supply, I/O signal]	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	I/O spring clamp terminal block	Stranded wire 0.08 to 1.5 mm^2 (AWG28 to 16) ＊1 Wire strip length: 8 to 11 mm	
	Applicable solderless terminal	TE0.5 (NICHIFU Co., ltd) [Applicable wire size : 0.5 mm^2] TE0.75 (NICHIFU Co., ltd) [Applicable wire size : 0.75 mm^2] TE1 (NICHIFU Co., ltd) [Applicable wire size : 0.9 to 1.0 mm^2] TE1.5 (NICHIFU Co., ltd) [Applicable wire size : 1.25 to 1.5 mm^2] FA-VTC125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2] FA-VTCW125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2]	
Accessory		User'sManual, Holding fixtures for screw installation	

＊1: Basically, insert a wire into a terminal.

4 - 25

External connection

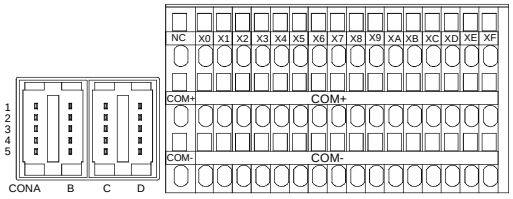


Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	Vacancy
	5	Vacancy

Terminal block

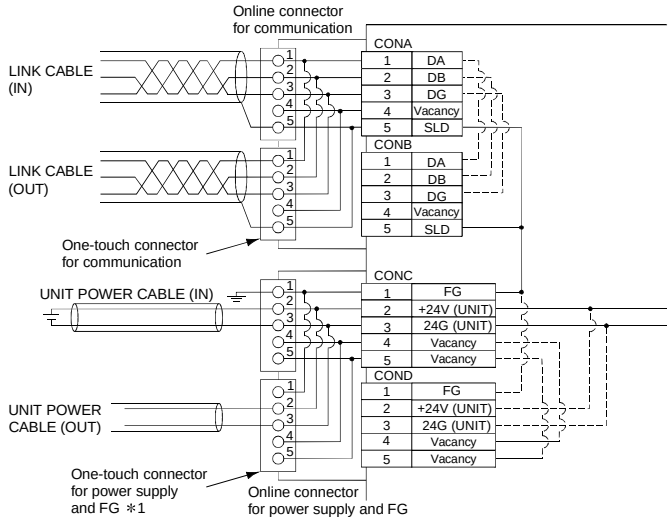
Column A		Column B		Column C	
1	Vacancy	1	COM+	1	COM-
2	X0	2	COM+	2	COM-
3	X1	3	COM+	3	COM-
4	X2	4	COM+	4	COM-
5	X3	5	COM+	5	COM-
6	X4	6	COM+	6	COM-
7	X5	7	COM+	7	COM-
8	X6	8	COM+	8	COM-
9	X7	9	COM+	9	COM-
10	X8	10	COM+	10	COM-
11	X9	11	COM+	11	COM-
12	XA	12	COM+	12	COM-
13	XB	13	COM+	13	COM-
14	XC	14	COM+	14	COM-
15	XD	15	COM+	15	COM-
16	XE	16	COM+	16	COM-
17	XF	17	COM+	17	COM-

Pin arrangement



A module view from the top

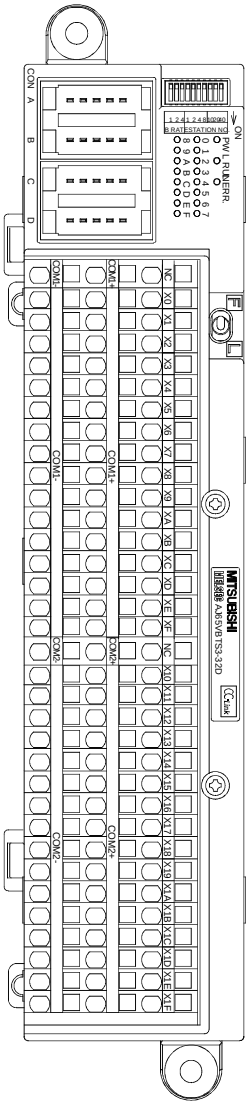
＜When using online connector＞



∗1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

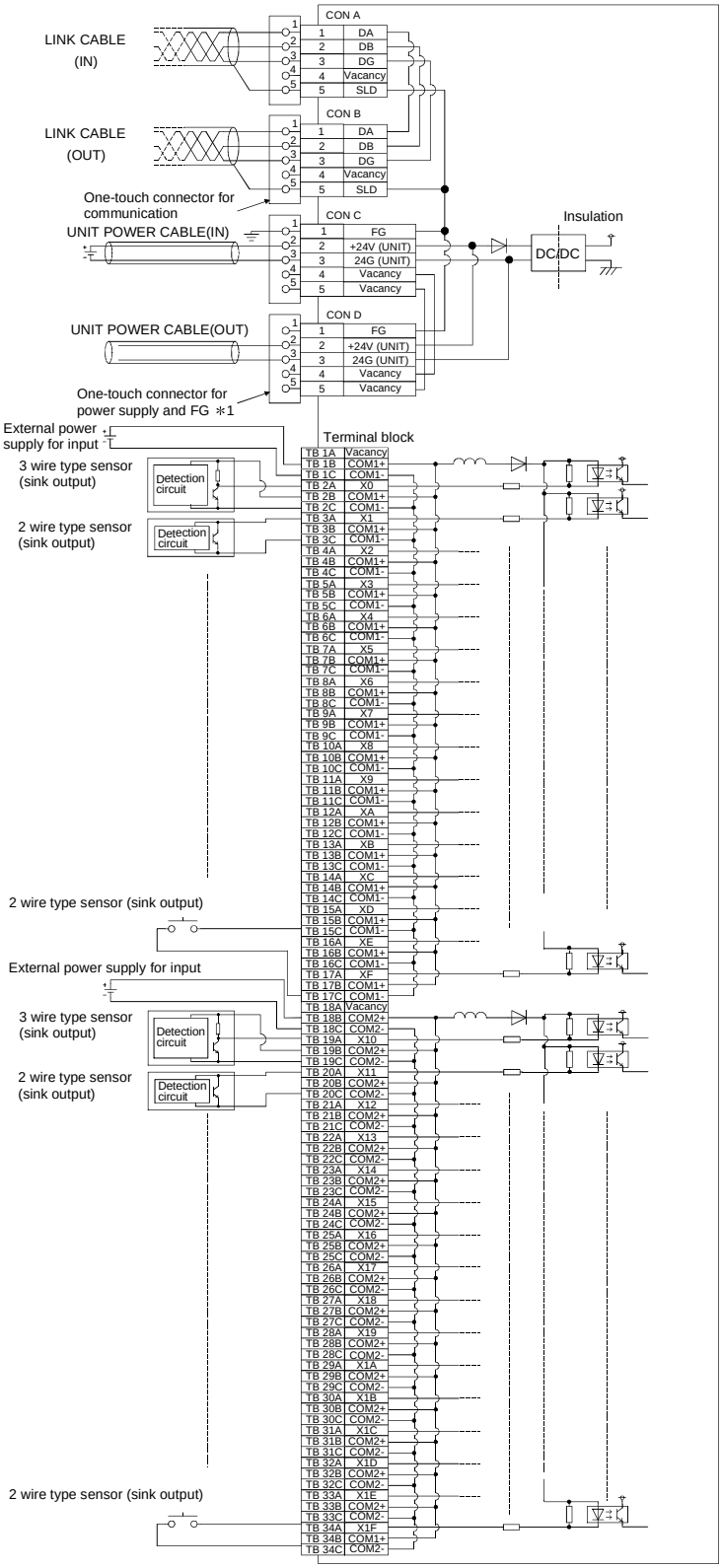
4 - 26

4.5.4 AJ65VBTS3-32D 24V DC input module (Positive common (sink type)) (Spring clamp terminal block type)

Specification \ Form		DC input module	
		AJ65VBTS3-32D	Surface shape
Number of input points		32 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 5mA	
Operating voltage range		19.2 to 26.4VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		100 %/69 % (Refer to Chapter 1.3)	
ON voltage/ON current		14V or higher/3.5mA or higher	
OFF voltage/OFF current		6V or lower/1.7mA or lower	
Input resistance		Approx. 4.7kΩ	
Response time	OFF → ON	1.5ms or lower (when 24VDC)	
	ON → OFF	1.5ms or lower (when 24VDC)	
Wiring method for common		16 points/common (Spring clamp terminal block type 3-wire type)	
Input form		Positive common (Sink type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	40mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.41kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication: A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply • FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	2-piece, spring clamp terminal block [I/O power supply, I/O signal]	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	I/O spring clamp terminal block	Stranded wire 0.08 to 1.5 mm^2 (AWG28 to 16) ＊1 Wire strip length: 8 to 11 mm	
	Applicable solderless terminal	TE0.5 (NICHIFU Co., ltd) [Applicable wire size : 0.5 mm^2] TE0.75 (NICHIFU Co., ltd) [Applicable wire size : 0.75 mm^2] TE1 (NICHIFU Co., ltd) [Applicable wire size : 0.9 to 1.0 mm^2] TE1.5 (NICHIFU Co., ltd) [Applicable wire size : 1.25 to 1.5 mm^2] FA-VTC125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2] FA-VTCW125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2]	
Accessory		User'sManual, Holding fixtures for screw installation	

＊1: Basically, insert a wire into a terminal.

External connection



Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	Vacancy
	5	Vacancy

Terminal block

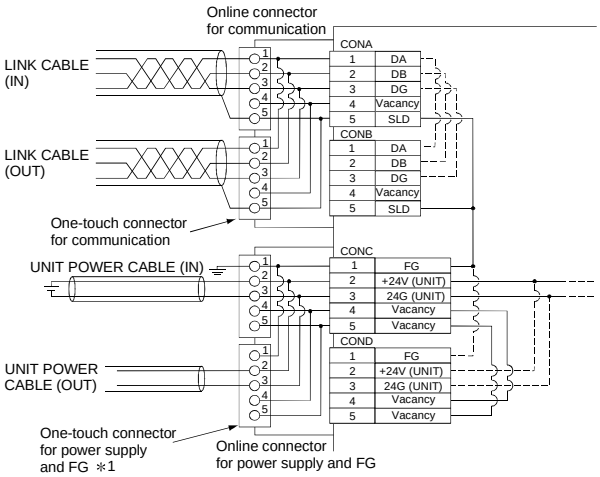
Column A		Column B		Column C	
1	Vacancy	1	COM1+	1	COM1-
2	X0	2	COM1+	2	COM1-
3	X1	3	COM1+	3	COM1-
4	X2	4	COM1+	4	COM1-
5	X3	5	COM1+	5	COM1-
6	X4	6	COM1+	6	COM1-
7	X5	7	COM1+	7	COM1-
8	X6	8	COM1+	8	COM1-
9	X7	9	COM1+	9	COM1-
10	X8	10	COM1+	10	COM1-
11	X9	11	COM1+	11	COM1-
12	XA	12	COM1+	12	COM1-
13	XB	13	COM1+	13	COM1-
14	XC	14	COM1+	14	COM1-
15	XD	15	COM1+	15	COM1-
16	XE	16	COM1+	16	COM1-
17	XF	17	COM1+	17	COM1-
18	Vacancy	18	COM2+	18	COM2-
19	X10	19	COM2+	19	COM2-
20	X11	20	COM2+	20	COM2-
21	X12	21	COM2+	21	COM2-
22	X13	22	COM2+	22	COM2-
23	X14	23	COM2+	23	COM2-
24	X15	24	COM2+	24	COM2-
25	X16	25	COM2+	25	COM2-
26	X17	26	COM2+	26	COM2-
27	X18	27	COM2+	27	COM2-
28	X19	28	COM2+	28	COM2-
29	X1A	29	COM2+	29	COM2-
30	X1B	30	COM2+	30	COM2-
31	X1C	31	COM2+	31	COM2-
32	X1D	32	COM2+	32	COM2-
33	X1E	33	COM2+	33	COM2-
34	X1F	34	COM2+	34	COM2-

* 1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

4 - 28

External connection

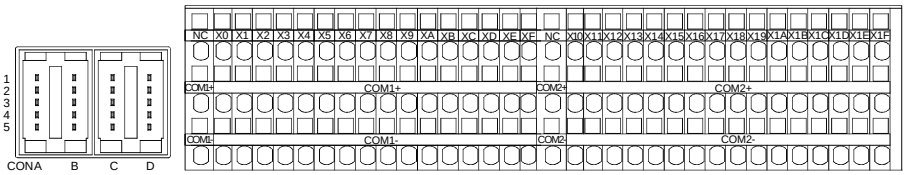
＜When using online connector＞



＊1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

Pin arrangement

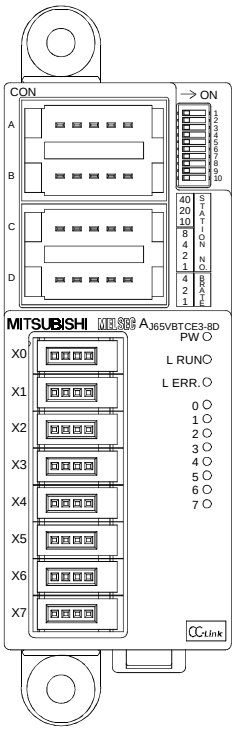
A module view from the top



4 - 29

4.5.5 AJ65VBTCE3-8D 24V DC input module (Positive common (sink type)) (Sensor connector (e-CON) type)

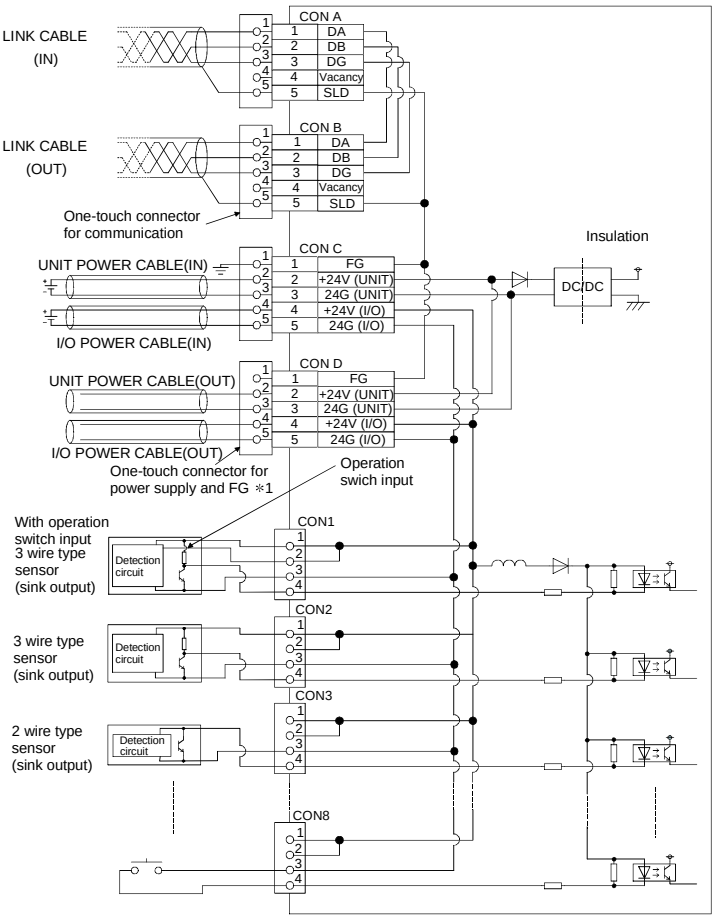
Specification \ Form		DC input module	
		AJ65VBTCE3-8D	Surface shape
Number of input points		8 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 5mA	
Operating voltage range		19.2 to 26.4VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14V or higher/3.5mA or higher	
OFF voltage/OFF current		6V or lower/1.7mA or lower	
Input resistance		Approx. 4.7kΩ	
Response time	OFF → ON	1.5ms or lower (when 24VDC)	
	ON → OFF	1.5ms or lower (when 24VDC)	
Wiring method for common		8 points/common (Sensor connector (e-CON) 3-wire type)	
Input form		Positive common (Sink type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	30mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.10kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply, External power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	Sensor connector (e-CON) [I/O signal] (4 pins pressure welding type) The plug for the connector is sold separately ＊1	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	Connector for I/O	Sensor connector (e-CON) Plug for connector sold separately ＊1 (Applicable wire size : 0.08 to 0.5 mm^2, depending on the plug for connector)	
Accessory		User's Manual, Holding fixtures for screw installation	



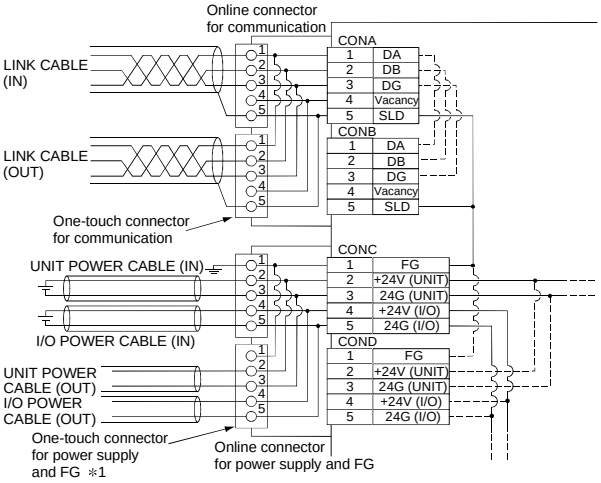
＊1: Refer to Section 1.6.2 for details.

4 - 30

External connection

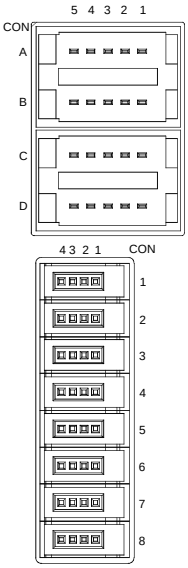


＜When using online connector＞



Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Terminal block			Pin arrangement
Pin No.		Signal name	
CON1 (X0)	1	+24V	
	2	+V	
	3	24G	
	4	X0	
CON2 (X1)	1	+24V	
	2	+V	
	3	24G	
	4	X1	
CON3 (X2)	1	+24V	
	2	+V	
	3	24G	
	4	X2	
CON4 (X3)	1	+24V	
	2	+V	
	3	24G	
	4	X3	
CON5 (X4)	1	+24V	
	2	+V	
	3	24G	
	4	X4	
CON6 (X5)	1	+24V	
	2	+V	
	3	24G	
	4	X5	
CON7 (X6)	1	+24V	
	2	+V	
	3	24G	
	4	X6	
CON8 (X7)	1	+24V	
	2	+V	
	3	24G	
	4	X7	



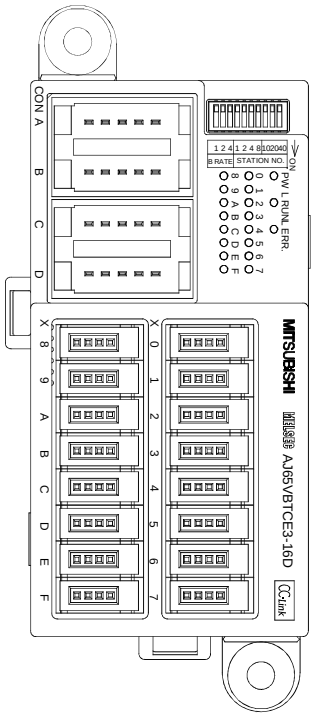
A module view from the top

※1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

4 - 31

4.5.6 AJ65VBTCE3-16D 24V DC input module (Positive common (sink type)) (Sensor connector (e-CON) type)

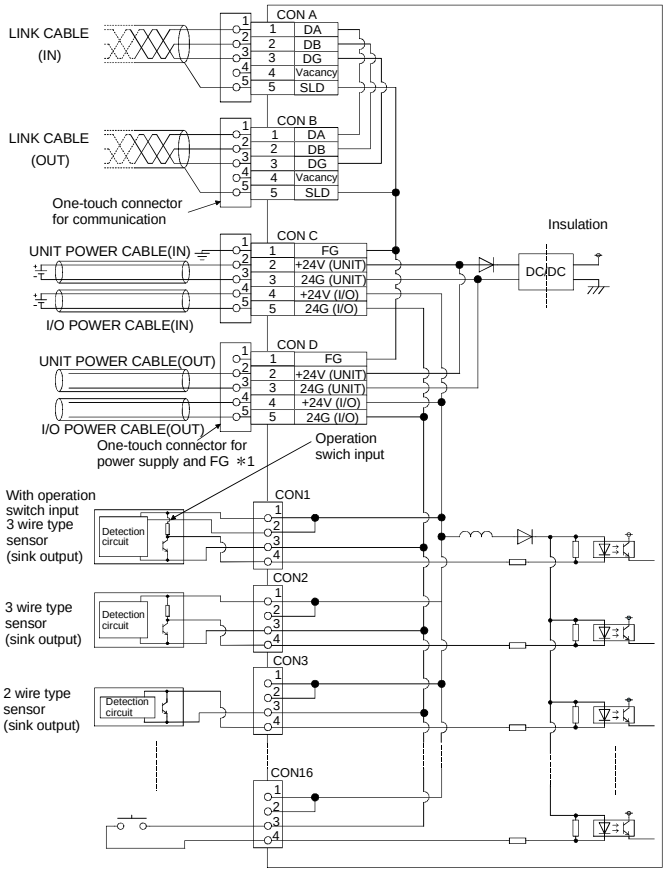
Specification \ Form		DC input module	
		AJ65VBTCE3-16D	Surface shape
Number of input points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 5mA	
Operating voltage range		19.2 to 26.4VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		100 %/62.5 % (Refer to Chapter 1.3)	
ON voltage/ON current		14V or higher/3.5mA or higher	
OFF voltage/OFF current		6V or lower/1.7mA or lower	
Input resistance		Approx. 4.7kΩ	
Response time	OFF → ON	1.5ms or lower (when 24VDC)	
	ON → OFF	1.5ms or lower (when 24VDC)	
Wiring method for common		16 points/common (Sensor connector (e-CON) 3-wire type)	
Input form		Positive common (Sink type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	35mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.10kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply, External power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	Sensor connector (e-CON) [I/O signal] (4 pins pressure welding type) The plug for the connector is sold separately ＊1	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	Connector for I/O	Sensor connector (e-CON) Plug for connector sold separately ＊1 (Applicable wire size : 0.08 to 0.5 mm^2, depending on the plug for connector)	
Accessory		User's Manual, Holding fixtures for screw installation	



＊1: Refer to Section 1.6.2 for details.

4 - 32

External connection

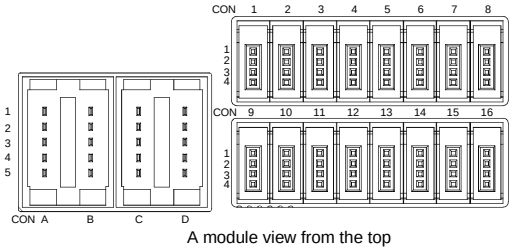


Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Terminal block

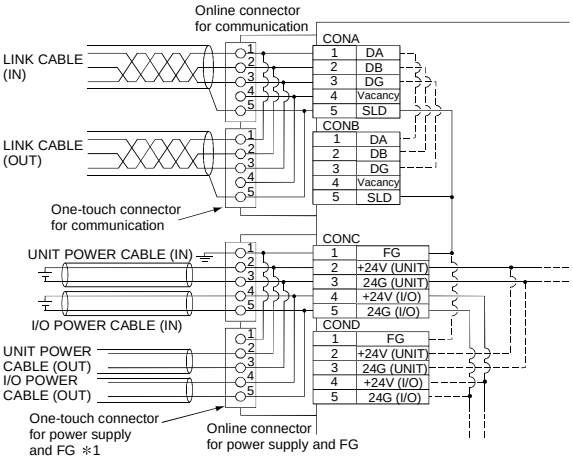
Pin No.		Signal name	Pin No.		Signal name	Pin No.		Signal name	Pin No.		Signal name
CON 1 (X0)	1	+24V	CON 5 (X4)	1	+24V	CON 9 (X8)	1	+24V	CON 13 (XC)	1	+24V
	2	+V		2	+V		2	+V		2	+V
	3	24G		3	24G		3	24G		3	24G
	4	X0		4	X4		4	X8		4	XC
CON 2 (X1)	1	+24V	CON 6 (X5)	1	+24V	CON 10 (X9)	1	+24V	CON 14 (XD)	1	+24V
	2	+V		2	+V		2	+V		2	+V
	3	24G		3	24G		3	24G		3	24G
	4	X1		4	X5		4	X9		4	XD
CON 3 (X2)	1	+24V	CON 7 (X6)	1	+24V	CON 11 (XA)	1	+24V	CON 15 (XE)	1	+24V
	2	+V		2	+V		2	+V		2	+V
	3	24G		3	24G		3	24G		3	24G
	4	X2		4	X6		4	XA		4	XE
CON 4 (X3)	1	+24V	CON 8 (X7)	1	+24V	CON 12 (XB)	1	+24V	CON 16 (XF)	1	+24V
	2	+V		2	+V		2	+V		2	+V
	3	24G		3	24G		3	24G		3	24G
	4	X3		4	X7		4	XB		4	XF

Pin arrangement



A module view from the top

＜When using online connector＞

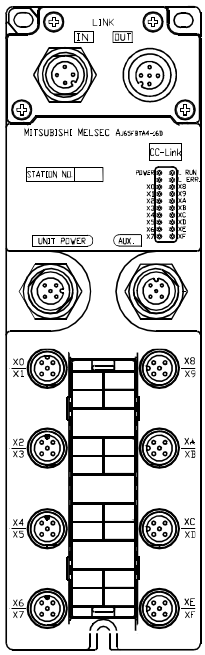


*1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

4 - 33

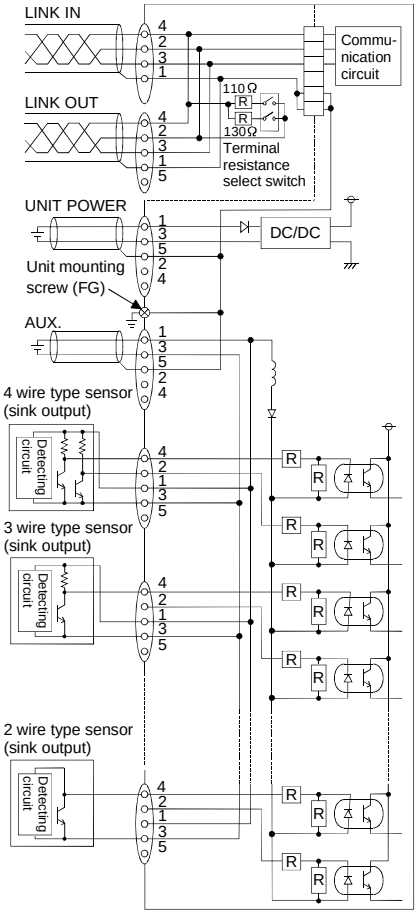
4.6 Low Profile Waterproof Type Input Module

4.6.1 AJ65FBTA4-16D 24VDC input module (Positive common (sink type))

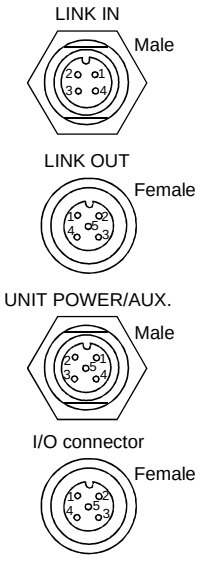
Specification \ Form		DC input module	
		AJ65FBTA4-16D	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 7mA	
Operating voltage range		20.4 to 26.4VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14V or higher/3.5mA or higher	
OFF voltage/OFF current		6V or lower/1.7mA or lower	
Input resistance		Approx. 3.3kΩ	
Response time	OFF→ON	1.5ms or lower (when 24VDC)	
	ON→OFF	1.5ms or lower (when 24VDC)	
Wiring method for common		16 points/1 common (waterproof connector 2 to 4-wire type)	
Input form		Positive Common (sink type)	
Number of stations occupied		1 station 32 points assignment (use 16points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	40mA or lower (when 24VDC and all point is ON)	
Noise durability		DC type noise withstand voltage 500Vp-p, noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP67	
Weight		0.40kg	
Accessory		User's Manual	
Option		Waterproof cap: A6CAP-WP2	
Other connected protection		See section 1.6	

4 - 34

External connection



Pin arrangement



Communication connector

Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Vacancy

Power connector

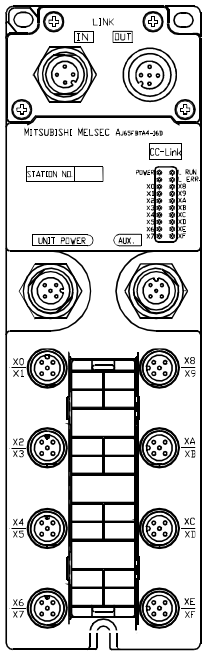
Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Vacancy	Vacancy
3	24G(UNIT)	24G(I/O)
4	Vacancy	Vacancy
5	FG	FG

I/O connector

	Pin No.	Signal name		Pin No.	Signal name
X0/X1	1	+24V	X8/X9	1	+24V
	2	X1		2	X9
	3	24G		3	24G
	4	X0		4	X8
	5	Vacancy		5	Vacancy
X2/X3	1	+24V	XA/XB	1	+24V
	2	X3		2	XB
	3	24G		3	24G
	4	X2		4	XA
	5	Vacancy		5	Vacancy
X4/X5	1	+24V	XC/XD	1	+24V
	2	X5		2	XD
	3	24G		3	24G
	4	X4		4	XC
	5	Vacancy		5	Vacancy
X6/X7	1	+24V	XE/XF	1	+24V
	2	X7		2	XF
	3	24G		3	24G
	4	X6		4	XE
	5	Vacancy		5	Vacancy

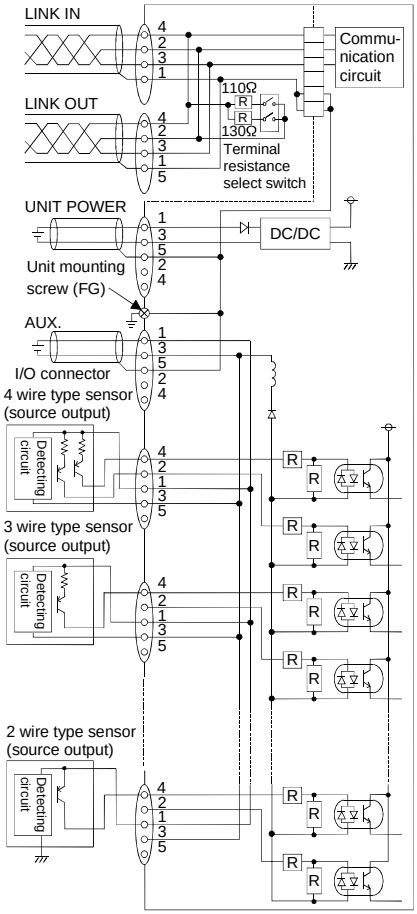
4 - 35

4.6.2 AJ65FBTA4-16DE 24VDC input module (Negative common (source type))

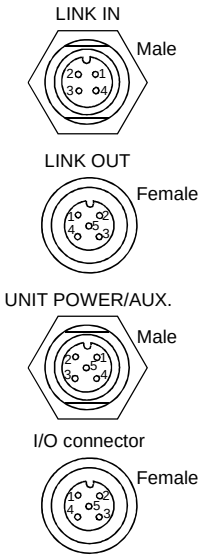
Specification \ Form		DC input module	
		AJ65FBTA4-16DE	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated input voltage		24VDC	
Rated input current		Approx. 7mA	
Operating voltage range		20.4 to 26.4VDC (ripple ratio : within 5 %)	
Max. simultaneous ON input points		100 %	
ON voltage/ON current		14V or higher/3.5mA or higher	
OFF voltage/OFF current		6V or lower/1.7mA or lower	
Input resistance		Approx. 3.3kΩ	
Response time	OFF→ON	1.5ms or lower (when 24VDC)	
	ON→OFF	1.5ms or lower (when 24VDC)	
Wiring method for common		16 points/1 common (waterproof connector 2 to 4-wire type)	
Input form		Negative Common (source type)	
Number of stations occupied		1 station 32 points assignment (use 16points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	40mA or lower (when 24VDC and all point is ON)	
Noise durability		DC type noise withstand voltage 500Vp-p, noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP67	
Weight		0.40kg	
Accessory		User's Manual	
Option		Waterproof cap : A6CAP-WP2	
Other connected protection		See section 1.6	

4 - 36

External Connections



Pin arrangement



Communication connector

Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Vacancy

Power connector

Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Vacancy	Vacancy
3	24G(UNIT)	24G(I/O)
4	Vacancy	Vacancy
5	FG	FG

I/O connector

	Pin No.	Signal name		Pin No.	Signal name
X0/X1	1	+24V	X8/X9	1	+24V
	2	X1		2	X9
	3	24G		3	24G
	4	X0		4	X8
	5	Vacancy		5	Vacancy
X2/X3	1	+24V	XA/XB	1	+24V
	2	X3		2	XB
	3	24G		3	24G
	4	X2		4	XA
	5	Vacancy		5	Vacancy
X4/X5	1	+24V	XC/XD	1	+24V
	2	X5		2	XD
	3	24G		3	24G
	4	X4		4	XC
	5	Vacancy		5	Vacancy
X6/X7	1	+24V	XE/XF	1	+24V
	2	X7		2	XF
	3	24G		3	24G
	4	X6		4	XE
	5	Vacancy		5	Vacancy

MEMO

4 - 38

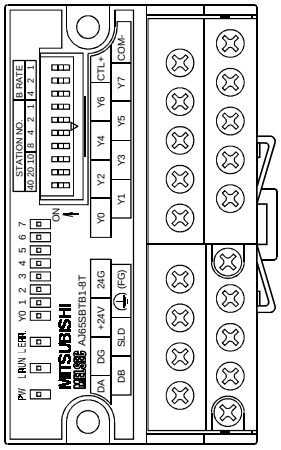
5 SPECIFICATIONS FOR OUTPUT MODULES

This chapter describes the specifications for an output module that can be connected to the CC-Link system.

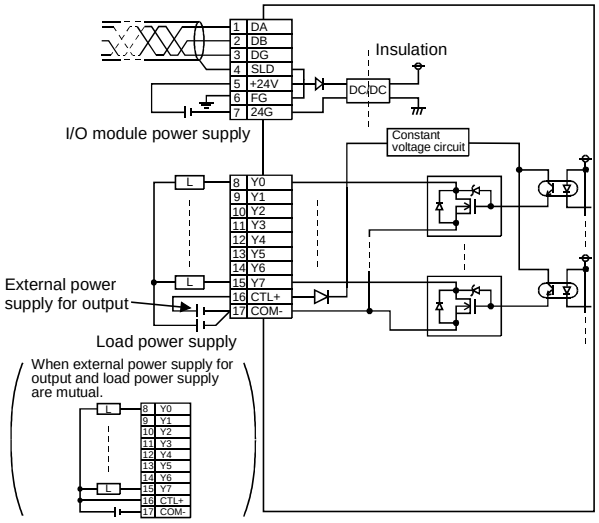
5.1 Terminal Block Type Output Module

5.1.1 AJ65SBTB1-8T transistor output module (Sink type)

Specification \ Form		Transistor output module	
		AJ65SBTB1-8T	Surface shape
Number of output points		8 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 2.4 A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.25 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Positive common (Sink type))	
Protection function		Overload protection function, overvoltage protection function and overheat protection function	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	15 mA (TYP.24 VDC/common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		8 points/1 common (Terminal block single wire type)	
Number of stations occupied		1 station 32 points assignment (use 8 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	35 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.14kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 10-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3 R1.25-3 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manuals	



External connection

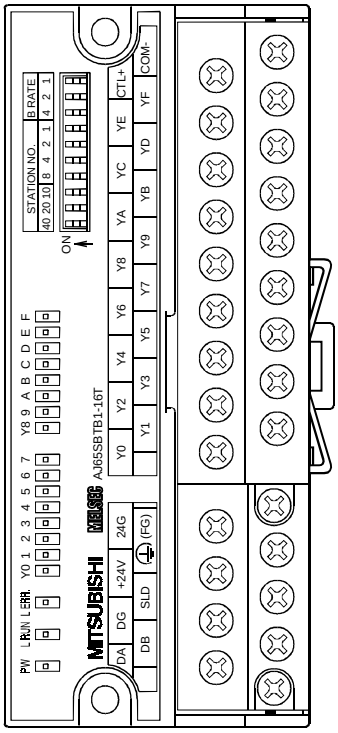


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	CTL+
TB17	COM-

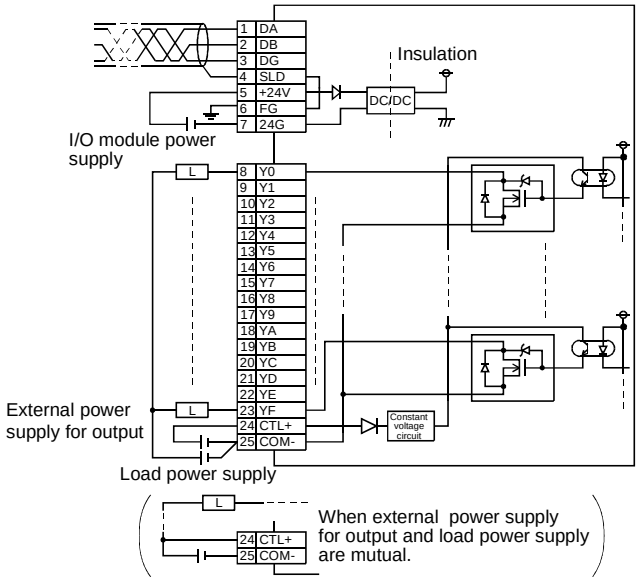
5.1.2 AJ65SBTB1-16T transistor output module (Sink type)

Specification \ Form		Transistor output module: AJ65SBTB1-16T
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.5 A/point 3.6 A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.25 mA or lower
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A
Output form		Positive common (Sink type)
Protection function		Overload protection function, overvoltage protection function and overheat protection function
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	30 mA or lower (TYP.24 VDC/common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		16 points/1 common (Terminal block single wire type)
Number of stations occupied		1 station 32 points assignment(use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Current	50 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.18kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape

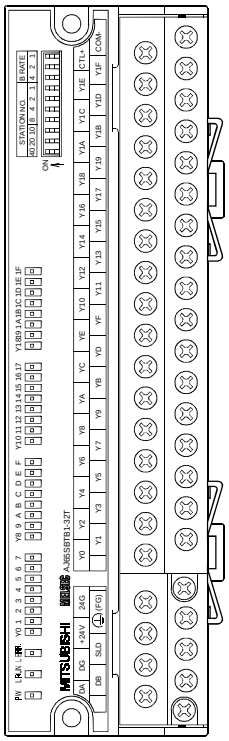


External connection

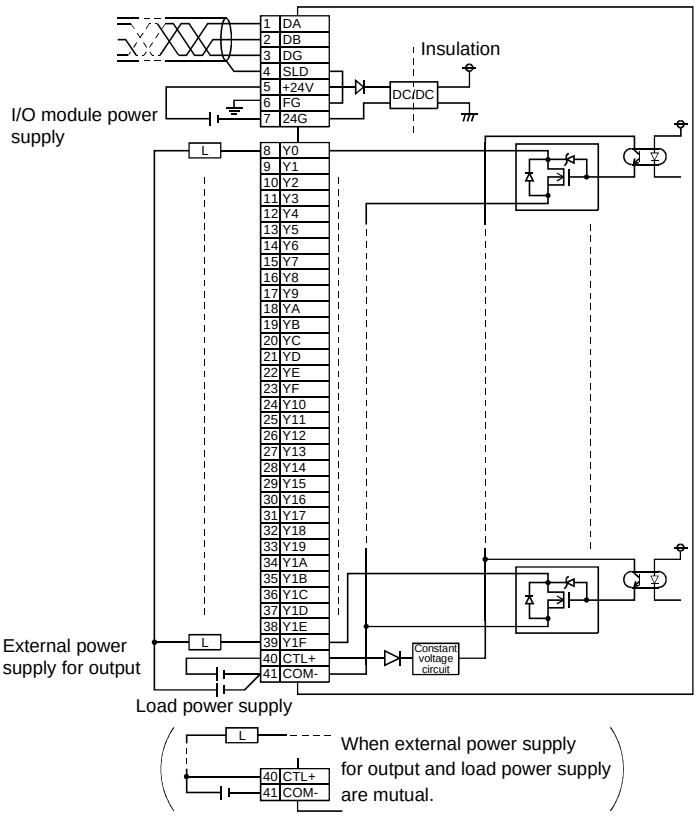


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	Y8
TB17	Y9
TB18	YA
TB19	YB
TB20	YC
TB21	YD
TB22	YE
TB23	YF
TB24	CTL+
TB25	COM-

5.1.3 AJ65SBTB1-32T transistor output module (Sink type)

Specification \ Form		Transistor output module	
		AJ65SBTB1-32T	Surface shape
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 4.8 A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.25 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Sink type)	
Protection function		Overload protection function and overvoltage protection function	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	50 mA or lower (TYP.24 VDC/common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (Terminal block single wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	65 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.25kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manual	

External connection



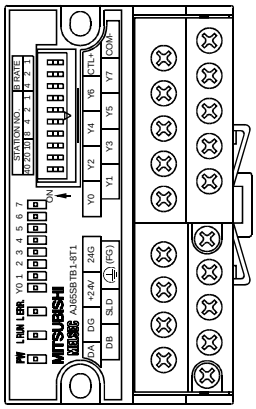
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	Y8
TB17	Y9
TB18	YA
TB19	YB
TB20	YC
TB21	YD
TB22	YE
TB23	YF
TB24	Y10
TB25	Y11
TB26	Y12
TB27	Y13
TB28	Y14
TB29	Y15
TB30	Y16
TB31	Y17
TB32	Y18
TB33	Y19
TB34	Y1A
TB35	Y1B
TB36	Y1C
TB37	Y1D
TB38	Y1E
TB39	Y1F
TB40	CTL+
TB41	COM-

5 - 4

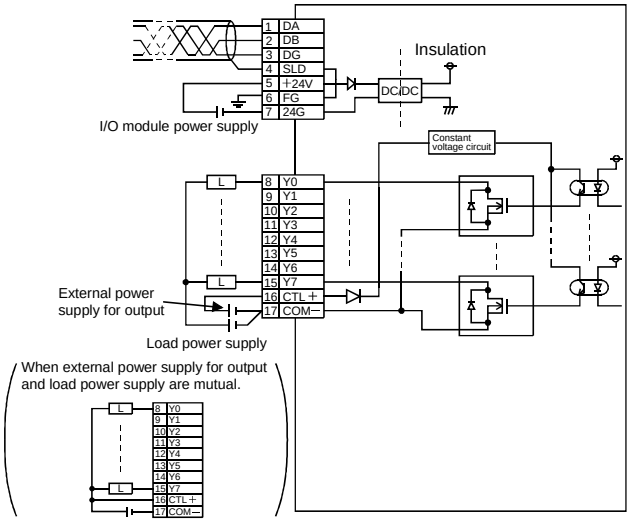
5.1.4 AJ65SBTB1-8T1 transistor output module (Sink type)

Specification \ Form		Transistor output module: AJ65SBTB1-8T1
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.5 A/point 2.4 A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A
Output form		Positive common (Sink type)
Protection function		None
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	15 mA (TYP.24 VDC/common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		8 points/1 common (Terminal block single wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	35 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.14kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 10-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3 R1.25-3 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manuals

Surface shape



External connection

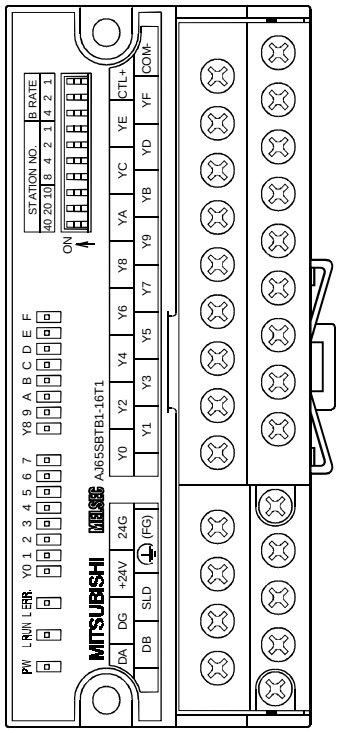


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	CTL+
TB17	COM-

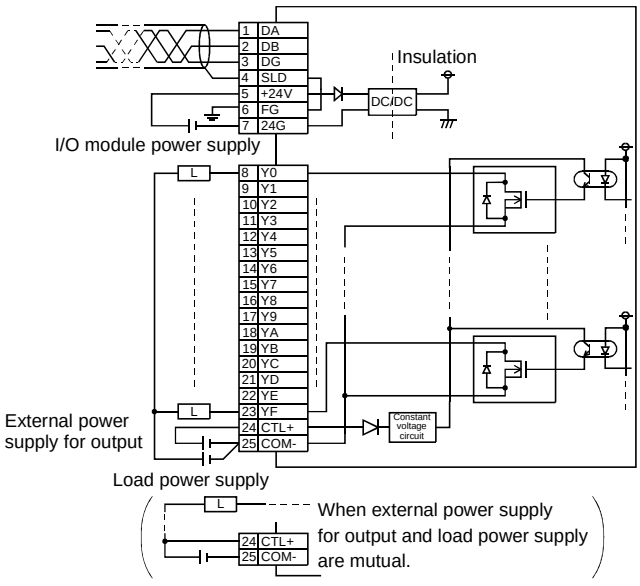
5.1.5 AJ65SBTB1-16T1 transistor output module (Sink type)

Specification \ Form		Transistor output module: AJ65SBTB1-16T1
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.5 A/point 3.6 A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A
Output form		Positive common (Sink type)
Protection function		None
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	30 mA or lower (TYP.24 VDC/common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		16 points/1 common (Terminal block single wire type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Current	50 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 600 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.18kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 derections
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



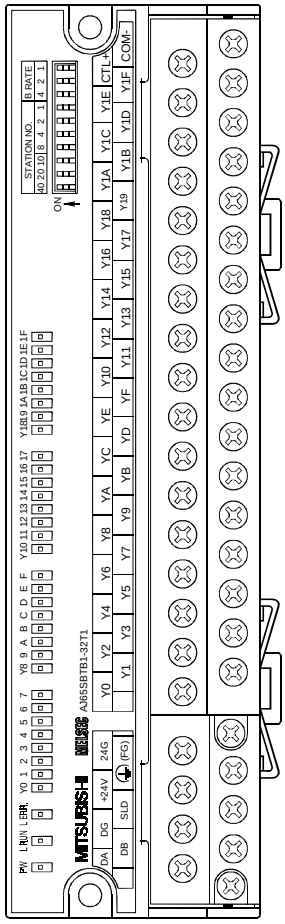
External connection



Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	Y8
TB17	Y9
TB18	YA
TB19	YB
TB20	YC
TB21	YD
TB22	YE
TB23	YF
TB24	CTL+
TB25	COM-

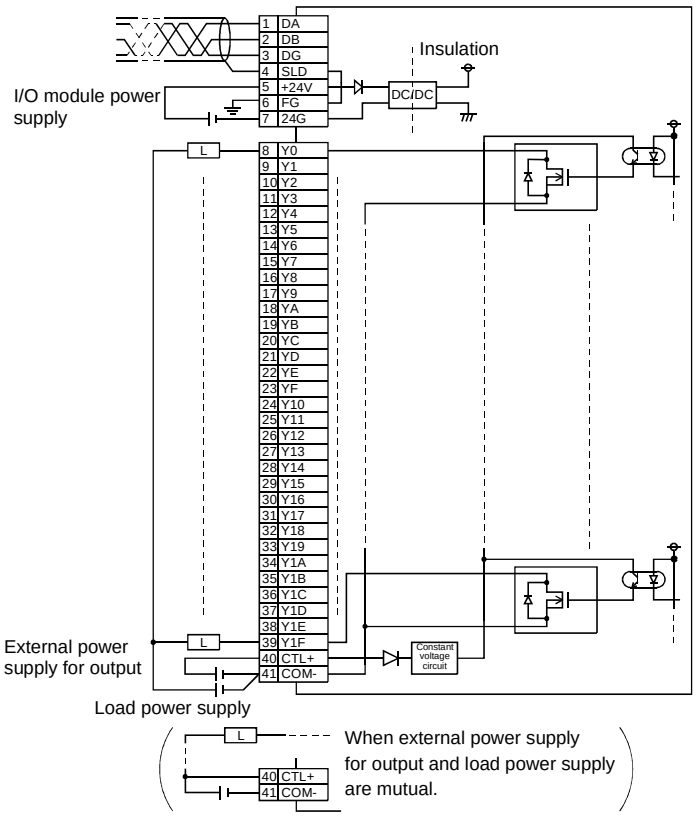
5.1.6 AJ65SBTB1-32T1 transistor output module (Sink type)

Specification \ Form		Transistor output module	
		AJ65SBTB1-32T1	Surface shape
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 4.8 A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Sink type)	
Protection function		None	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	50 mA or lower (TYP.24 VDC/1 common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (Terminal block single wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	65 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.25kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manual	



5 - 7

External connection

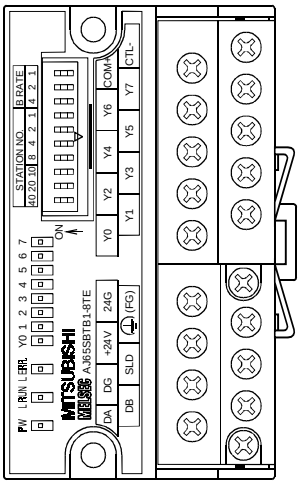


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	Y8
TB17	Y9
TB18	YA
TB19	YB
TB20	YC
TB21	YD
TB22	YE
TB23	YF
TB24	Y10
TB25	Y11
TB26	Y12
TB27	Y13
TB28	Y14
TB29	Y15
TB30	Y16
TB31	Y17
TB32	Y18
TB33	Y19
TB34	Y1A
TB35	Y1B
TB36	Y1C
TB37	Y1D
TB38	Y1E
TB39	Y1F
TB40	CTL+
TB41	COM-

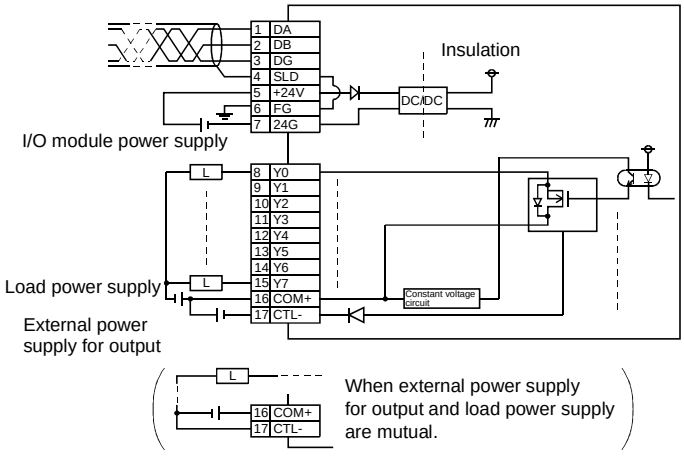
5.1.7 AJ65SBTB1-8TE transistor output module (Source type)

Specification \ Form		Transistor output module: AJ65SBTB1-8TE
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.1 A/point 0.8 A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A
Output form		Negative common (Source type)
Protection function		Overload protection function and overheat protection function
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	15 mA or lower (TYP.24 VDC/1 common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		8 points/1 common (Terminal block single wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Current	35 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Weight		0.14kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 10-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 derections
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3 R1.25-3 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection



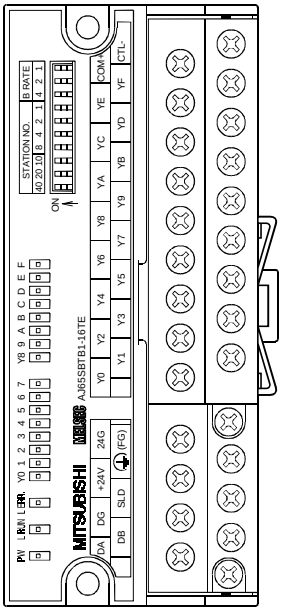
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	COM+
TB17	CTL-

5 - 9

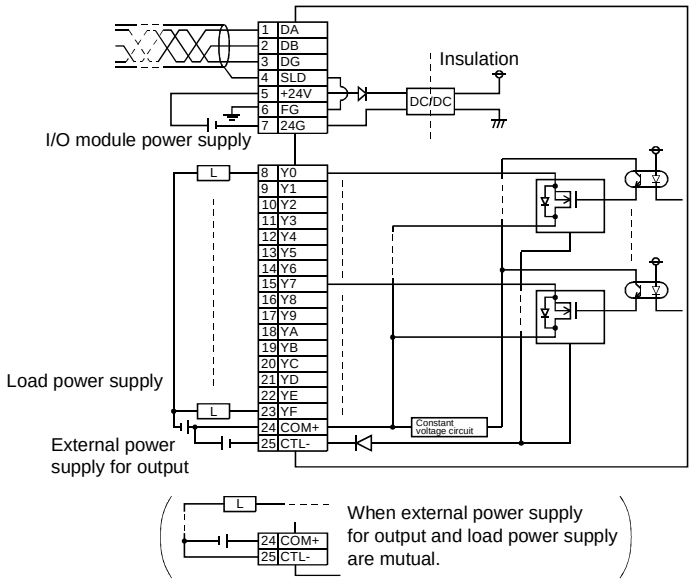
5.1.8 AJ65SBTB1-16TE transistor output module (Source type)

Specification \ Form		Transistor output module AJ65SBTB1-16TE
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.1 A/point 1.6 A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A
Output form		Negative common (Source type)
Protection function		Overload protection function and overheat protection function
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	30 mA or lower (TYP.24 VDC/1 common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		16 points/1 common (Terminal block single wire type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Current	50 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Weight		0.18kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm),
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection

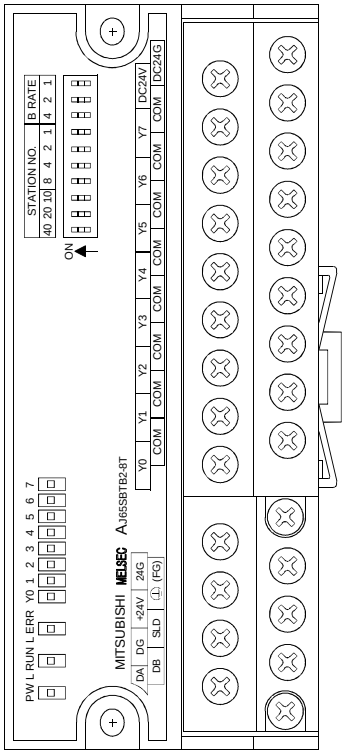


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	Y1
TB10	Y2
TB11	Y3
TB12	Y4
TB13	Y5
TB14	Y6
TB15	Y7
TB16	Y8
TB17	Y9
TB18	YA
TB19	YB
TB20	YC
TB21	YD
TB22	YE
TB23	YF
TB24	COM+
TB25	CTL-

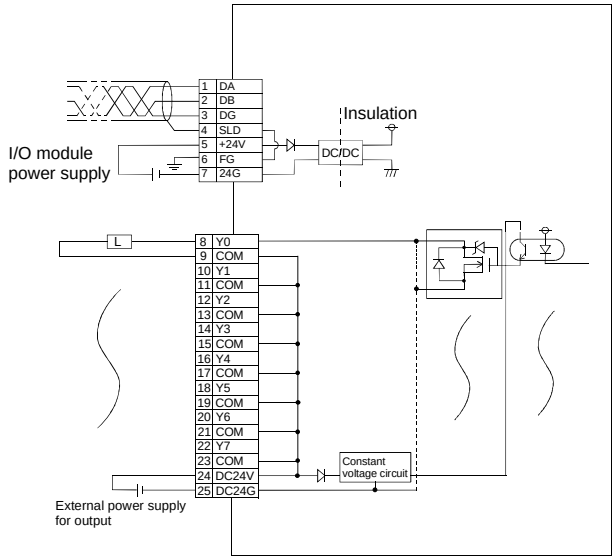
5.1.9 AJ65SBTB2-8T transistor output module (Sink type)

Specification \ Form		Transistor output module: AJ65SBTB2-8T
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.5 A/point 2.4A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.25 mA or lower
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A
Output form		Positive common (Sink type)
Protection function		Overload protection function, overvoltage protection function and overheat protection function
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	17.8 mA or lower (TYP.24 VDC/1 common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		8 points/1 common (terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Current	45 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.18kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape

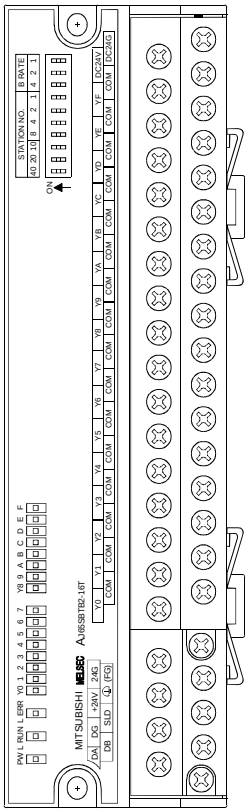


External connection

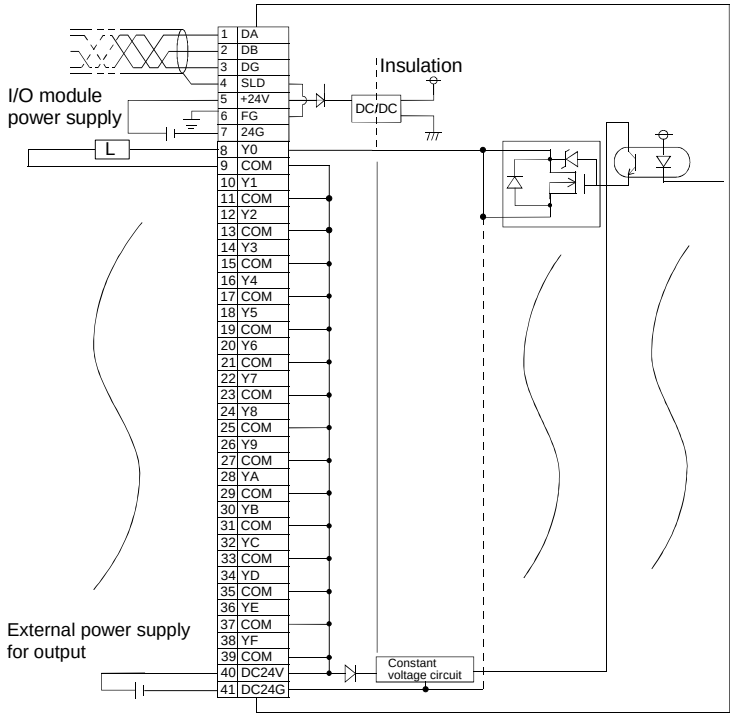


Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COM
TB10	Y1
TB11	COM
TB12	Y2
TB13	COM
TB14	Y3
TB15	COM
TB16	Y4
TB17	COM
TB18	Y5
TB19	COM
TB20	Y6
TB21	COM
TB22	Y7
TB23	COM
TB24	DC24V
TB25	DC24G

5.1.10 AJ65SBTB2-16T transistor output module (Sink type)

Form / Specification		Transistor output module	
		AJ65SBTB2-16T	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 3.6A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.25 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Sink type)	
Protection function		Overload protection function, overvoltage protection function and overheat protection function	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	24.2 mA or lower (TYP.24 VDC/1 common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		16 points/1 common (Terminal block 2-wire type)	
Occupied station number		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	55 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.25kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manual	

External connection



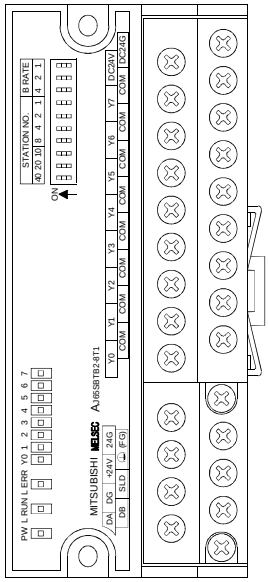
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COM
TB10	Y1
TB11	COM
TB12	Y2
TB13	COM
TB14	Y3
TB15	COM
TB16	Y4
TB17	COM
TB18	Y5
TB19	COM
TB20	Y6
TB21	COM
TB22	Y7
TB23	COM
TB24	Y8
TB25	COM
TB26	Y9
TB27	COM
TB28	YA
TB29	COM
TB30	YB
TB31	COM
TB32	YC
TB33	COM
TB34	YD
TB35	COM
TB36	YE
TB37	COM
TB38	YF
TB39	COM
TB40	DC24V
TB41	DC24G

5 - 13

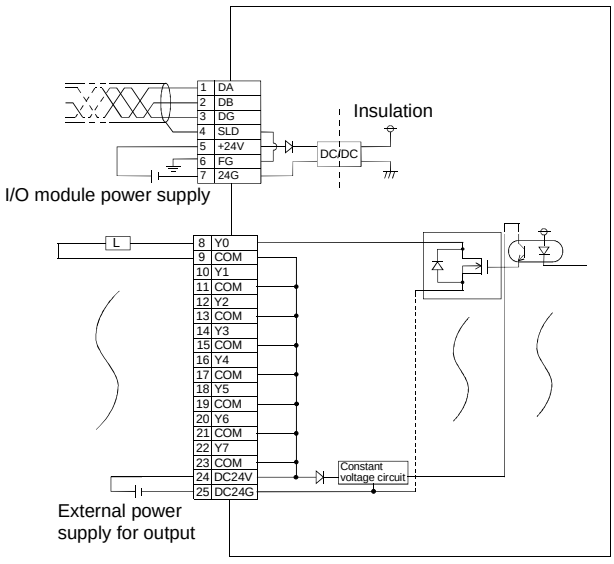
5.1.11 AJ65SBTB2-8T1 transistor output module (Sink type)

Specification \ Form		Transistor output module: AJ65SBTB2-8T1
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.5 A/point 3.6A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A
Output form		Positive common (Sink type)
Protection function		None
Response time	OFF→ON	0.5 ms or lower
	ON→OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	17.8 mA or lower (TYP.24 VDC/1 common) Not including external load current
Surge suppression		Zener diode
Wiring method for common		8 points/1 common (terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)
	Current	45 mA or lower (when 24 V DC and all point is ON)
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester
Protection of degree		IP2X
Weight		0.18kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape

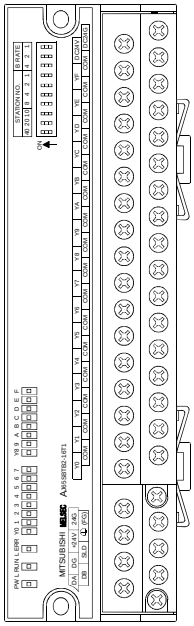


External connection



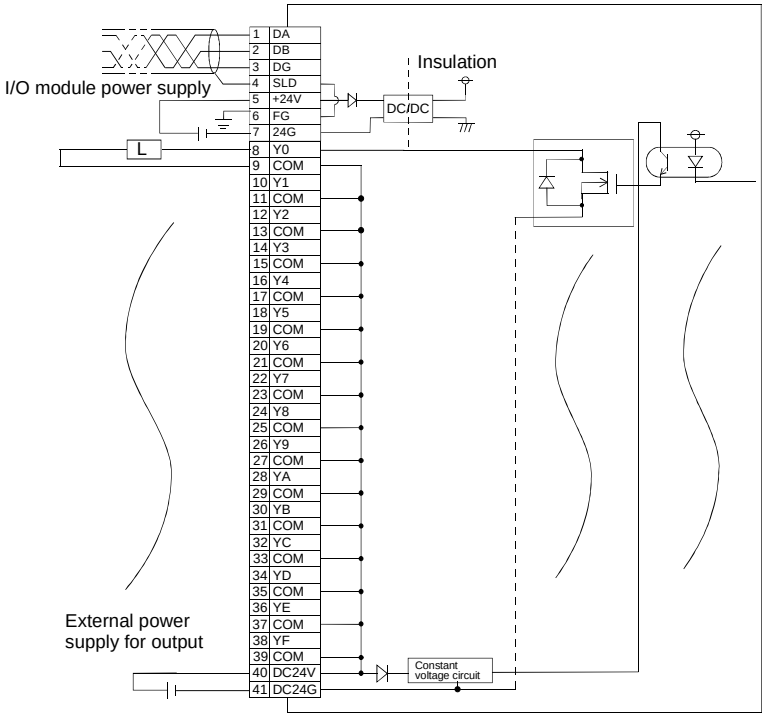
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COM
TB10	Y1
TB11	COM
TB12	Y2
TB13	COM
TB14	Y3
TB15	COM
TB16	Y4
TB17	COM
TB18	Y5
TB19	COM
TB20	Y6
TB21	COM
TB22	Y7
TB23	COM
TB24	DC24V
TB25	DC24G

5.1.12 AJ65SBTB2-16T1 transistor output module (Sink type)

Specification \ Form		Transistor output module	
		AJ65SBTB2-16T1	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 3.6A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Sink type)	
Protection function		None	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	24.2 mA or lower (TYP.24 VDC/1 common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		16 points/1 common (Terminal block 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	55 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.25kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory		User's Manual	

5 - 15

External connection



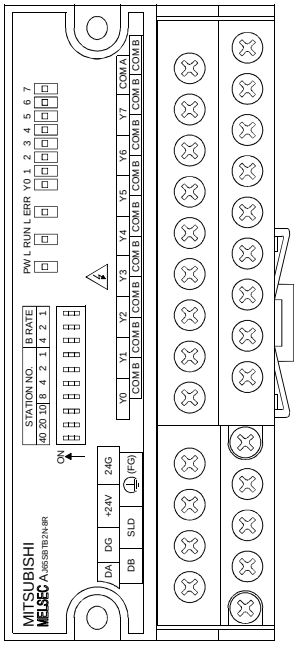
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COM
TB10	Y1
TB11	COM
TB12	Y2
TB13	COM
TB14	Y3
TB15	COM
TB16	Y4
TB17	COM
TB18	Y5
TB19	COM
TB20	Y6
TB21	COM
TB22	Y7
TB23	COM
TB24	Y8
TB25	COM
TB26	Y9
TB27	COM
TB28	YA
TB29	COM
TB30	YB
TB31	COM
TB32	YC
TB33	COM
TB34	YD
TB35	COM
TB36	YE
TB37	COM
TB38	YF
TB39	COM
TB40	DC24V
TB41	DC24G

5 - 16

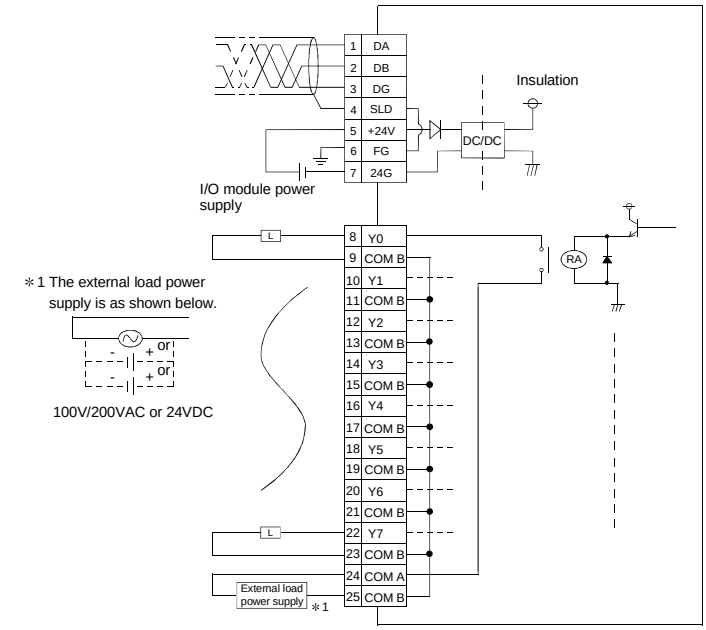
5.1.13 AJ65SBTB2N-8R relay output module

Specification \ Form		Transistor output module: AJ65SBTB2N-8R
Number of output points		8 points
Isolation method		Relay
Rated load voltage/current		24 V DC (resistive load), 240 V AC ($\cos\phi = 1$)/ 2 A/1 point 4 A/1 common
Min. switching load		5 V DC 1 mA
Max. switching voltage		264 V AC 125 V DC
Response time	OFF→ON	10 ms or lower
	ON→OFF	12 ms or lower
Life	Mechanical	20 million times or more
	Electrical	Rated switching voltage/current load 10 million times or more
		200 V AC 1.5 A, 240 V AC 1 A ($\cos\phi = 0.7$) 10 million times or more
		200 V AC 1 A, 240 V AC 0.5 A ($\cos\phi = 0.35$) 10 million times or more
		24 V DC 1 A, 100 V DC 0.1 A (L/R = 7 ms) 10 million times or more
Max. switching frequency		3600 times/hour
Surge suppression		None
Wiring method for common		8 points/1 common (Terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	85 mA or lower (when 24 V DC and all point is ON)
Noise durability		Simulator noise 1500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition) First transient/noise burst IEC61000-4-4 : 1 kV
Withstand voltage		2830 V AC between all AC external terminals and ground, rms/ 3 cycles (2000 m above sea level) 500 V AC for 1 minutes between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all AC external terminals and ground 10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Weight		0.25kg
External connection method		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection



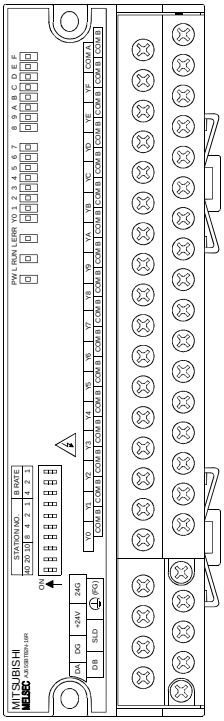
The COM terminals are all connected inside the module. (Shared commons)

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COMB
TB10	Y1
TB11	COMB
TB12	Y2
TB13	COMB
TB14	Y3
TB15	COMB
TB16	Y4
TB17	COMB
TB18	Y5
TB19	COMB
TB20	Y6
TB21	COMB
TB22	Y7
TB23	COMB
TB24	COMA
TB25	COMB

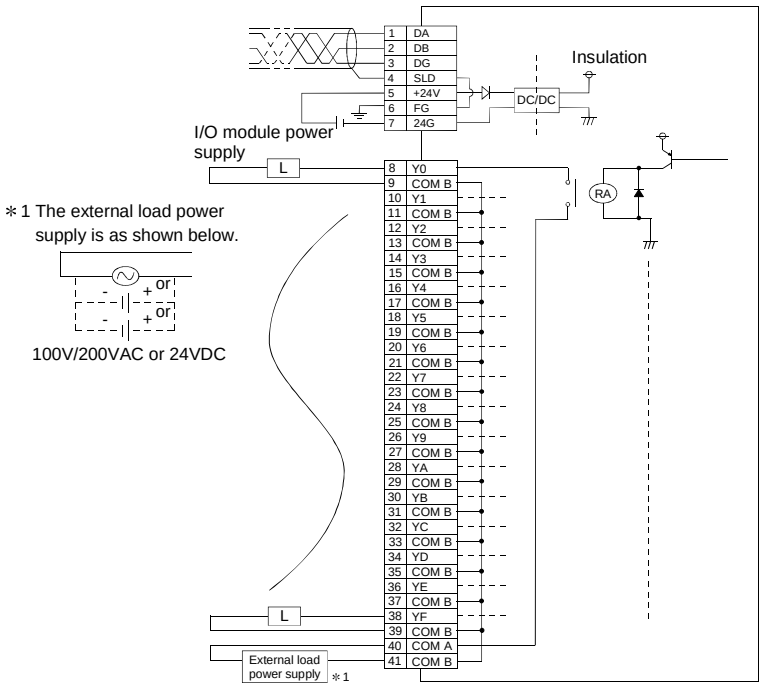
5.1.14 AJ65SBTB2N-16R relay output module

Specification \ Form		Transistor output module AJ65SBTB2N-16R
Number of output points		16 points
Isolation method		Relay
Rated load voltage/current		24 V DC (resistive load), 240 V AC ($\cos\phi$ = 1)/2 A/1 point 8 A/1 common
Min. switching load		5 V DC 1 mA
Max. switching voltage		264 V AC 125 V DC
Response time	OFF →ON	10 ms or lower
	ON →OFF	12 ms or lower
Life	Mechanical	20 million times or more
	Electrical	Rated switching voltage/current load 10 million times or more
		200 V AC 1.5 A, 240 V AC 1 A ($\cos\phi$ = 0.7) 10 million times or more
		200 V AC 1 A, 240 V AC 0.5 A ($\cos\phi$ = 0.35) 10 million times or more
		24 V DC 1 A, 240 V DC 1 A (L/R = 7 ms) 10 million times or more
Max. switching frequency		3600 times/hour
Surge suppression		None
Wiring method for common		16 points/1 common (Terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	120 mA or lower (when 24 V DC and all point is ON)
Noise durability		Simulator noise 1500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition) First transient/noise burst IEC61000-4-4 : 1 kV
Withstand voltage		2830 V AC between all AC external terminals and ground, rms/ 3 cycles (2000 m above sea level) 500 V AC for 1 minutes between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all AC external terminals and ground 10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Weight		0.35kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection



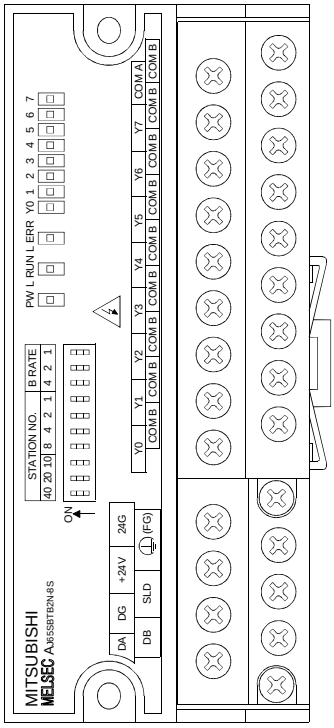
The COM terminals are all connected inside the module. (Shared commons)

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COMB
TB10	Y1
TB11	COMB
TB12	Y2
TB13	COMB
TB14	Y3
TB15	COMB
TB16	Y4
TB17	COMB
TB18	Y5
TB19	COMB
TB20	Y6
TB21	COMB
TB22	Y7
TB23	COMB
TB24	Y8
TB25	COMB
TB26	Y9
TB27	COMB
TB28	YA
TB29	COMB
TB30	YB
TB31	COMB
TB32	YC
TB33	COMB
TB34	YD
TB35	COMB
TB36	YE
TB37	COMB
TB38	YF
TB39	COMB
TB40	COMA
TB41	COMB

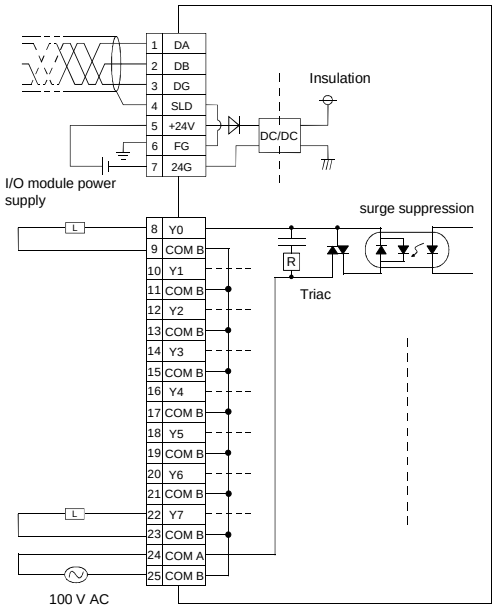
5.1.15 AJ65SBTB2N-8S triac output module

Specification \ Form		Triac output module: AJ65SBTB2N-8S
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 V AC 50/60 Hz ±5 %
Max. load voltage		264 V AC
Max. load current		0.6 A/point, 2.4 A/common
Min. load voltage·current		50 V AC 100 mA, 100 V AC 10 mA, 240 V AC 10 mA
Max. inrush current		25 A 10 ms or lower
Leakage current at OFF		1.5 mA rms or lower (100 V AC rms 60 Hz), 3 mA rms or lower (200 V AC rms 60 Hz)
Max. voltage drop at ON		1.5 V rms or lower (when 0.6 A)
Response time	OFF→ON	1 ms or lower
	ON→OFF	1/2 cycle + 1 ms or lower
Surge suppression		C/R absorver (0.01 μF + 47 Ω)
Wiring method for common		8 points/1 common (Terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 8 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	55 mA or lower (when 24 V DC and all point is ON)
Noise durability		Simulator noise 1500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition) First transient/noise burst IEC61000-4-4 : 1 kV
Withstand voltage		2830 V AC between all AC external terminals and ground, rms/ 3 cycles (2000 m above sea level) 500 V AC for 1 minutes between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester between all AC external terminals and ground 10 MΩ or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Weight		0.25kg
External connection method		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection



The COM terminals are all connected inside the module. (Shared commons)

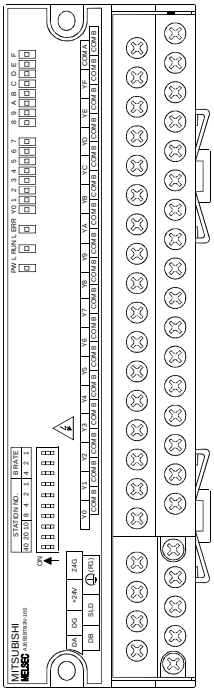
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COMB
TB10	Y1
TB11	COMB
TB12	Y2
TB13	COMB
TB14	Y3
TB15	COMB
TB16	Y4
TB17	COMB
TB18	Y5
TB19	COMB
TB20	Y6
TB21	COMB
TB22	Y7
TB23	COMB
TB24	COMA
TB25	COMB

5 - 19

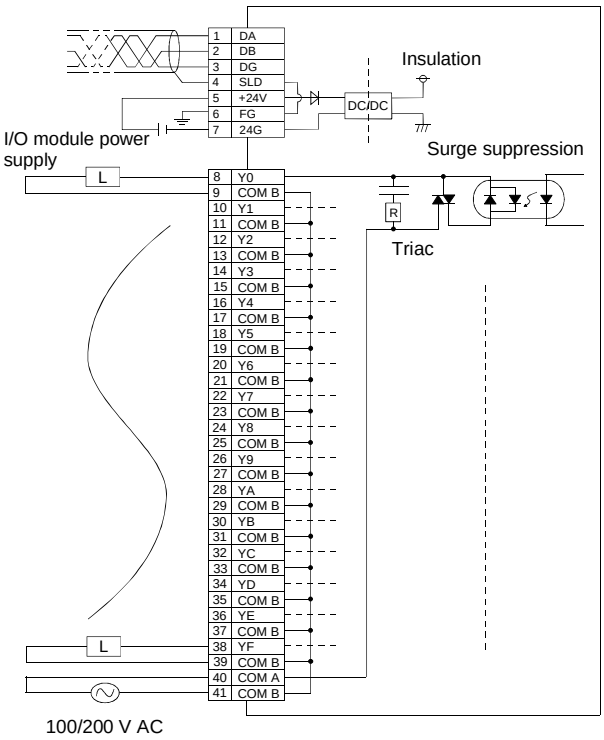
5.1.16 AJ65SBTB2N-16S triac output module

Specification \ Form		Triac output module AJ65SBTB2N-16S
Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		100 to 240 V AC 50/60 Hz ± 5 %
Max. load voltage		264 V AC
Max. load current		0.6 A/point, 4.8A/common
Min. load voltage·current		50 V AC 100 mA, 100 V AC 10 mA, 240 V AC 10 mA
Max. inrush current		25 A 10 ms or lower
Leakage current at OFF		1.5 mA rms or lower (100 V AC rms 60 Hz), 3 mA rms or lower (200 V AC rms 60 Hz)
Max. voltage drop at ON		1.5 V rms or lower (when 0.6 A)
Response time	OFF→ON	1 ms or lower
	ON→OFF	1/2 cycle + 1 ms or lower
Surge suppression		C·R absorber (0.01 μF + 47 Ω)
Wiring method for common		16 points/1 common (terminal block 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	85 mA or lower (when 24 V DC and all point is ON)
Noise durability		Simulator noise 1500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition) First transient/noise burst IEC61000-4-4 : 1 kV
Withstand voltage		2830 V AC between all AC external terminals and ground, rms/ 3 cycles (2000 m above sea level) 500 V AC for 1 minutes between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all AC external terminals and ground 10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Weight		0.35kg
External connection method		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm)DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5AI (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Surface shape



External connection

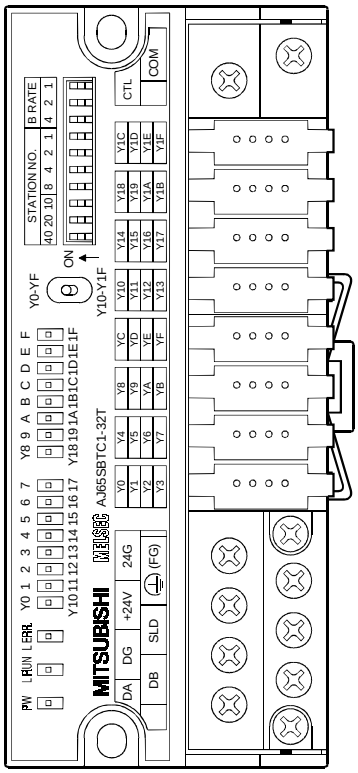


The COM terminals are all connected inside the module. (Shared commons)

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
TB8	Y0
TB9	COMB
TB10	Y1
TB11	COMB
TB12	Y2
TB13	COMB
TB14	Y3
TB15	COMB
TB16	Y4
TB17	COMB
TB18	Y5
TB19	COMB
TB20	Y6
TB21	COMB
TB22	Y7
TB23	COMB
TB24	Y8
TB25	COMB
TB26	Y9
TB27	COMB
TB28	YA
TB29	COMB
TB30	YB
TB31	COMB
TB32	YC
TB33	COMB
TB34	YD
TB35	COMB
TB36	YE
TB37	COMB
TB38	YF
TB39	COMB
TB40	COMA
TB41	COMB

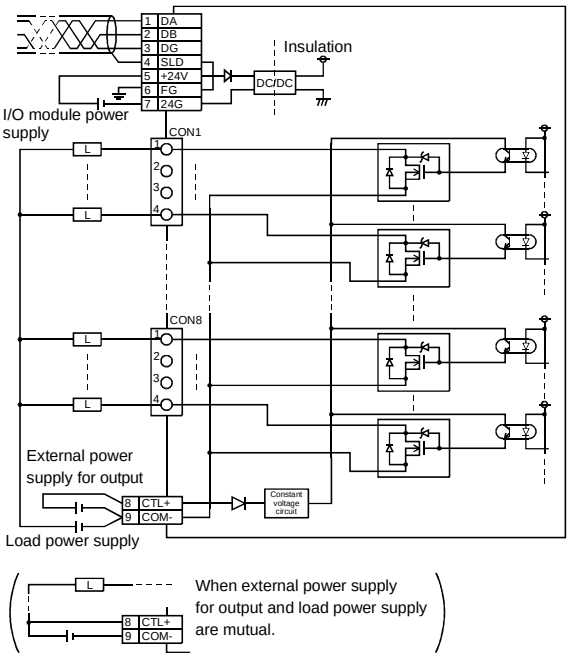
5.2 One-Touch Connector Type Output Module

5.2.1 AJ65SBTC1-32T transistor output module (Sink type)

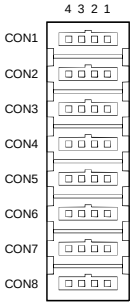
Specification \ Form		Transistor output module	
		AJ65SBTC1-32T	Surface shape
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.1 A/point 3.2 A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.25 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.1 A, 0.6 V or lower (MAX) 0.1 A	
Output form		Positive common (Sink type)	
Protection function		Overload protection function, overvoltage protection function and overheat protection function	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	50 mA or lower (TYP.24 VDC/common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (quick connector plug single wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	60 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.16kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm) Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)	
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
	I/O area connector	• φ1.0 to 1.4 (A6CON-P214), φ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • φ1.0 to 1.4 (A6CON-P514), φ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]	
Accessory		User's Manual	

5 - 21

External connection (Sink input)



Pin arrangement



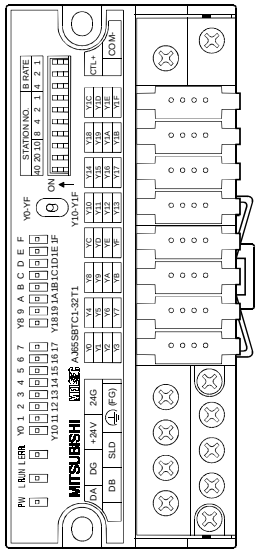
A module view from the top.

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	Signal name
CON1-1	Y0
CON1-2	Y1
CON1-3	Y2
CON1-4	Y3
CON2-1	Y4
CON2-2	Y5
CON2-3	Y6
CON2-4	Y7
CON3-1	Y8
CON3-2	Y9
CON3-3	YA
CON3-4	YB
CON4-1	YC
CON4-2	YD
CON4-3	YE
CON4-4	YF
CON5-1	Y10
CON5-2	Y11
CON5-3	Y12
CON5-4	Y13
CON6-1	Y14
CON6-2	Y15
CON6-3	Y16
CON6-4	Y17
CON7-1	Y18
CON7-2	Y19
CON7-3	Y1A
CON7-4	Y1B
CON8-1	Y1C
CON8-2	Y1D
CON8-3	Y1E
CON8-4	Y1F
Terminal number	Signal name
TB8	CLT+
TB9	COM-

5 - 22

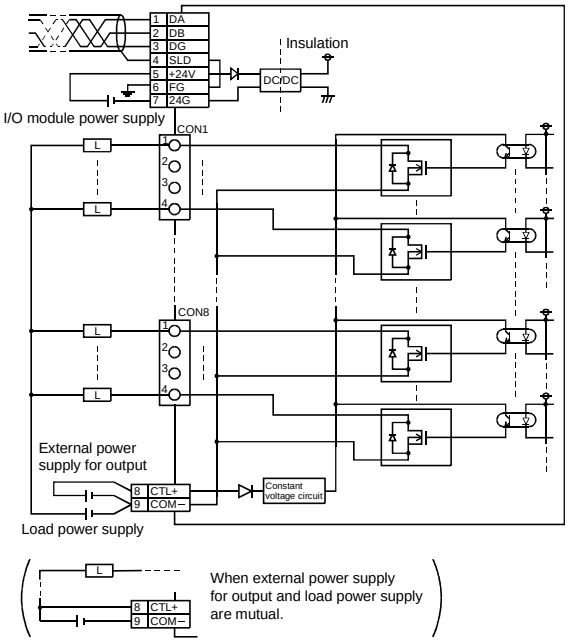
5.2.2 AJ65SBTC1-32T1 transistor output module (Sink type)

Specification \ Form		Transistor output module	
		AJ65SBTC1-32T1	Surface shape
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.1 A/point 3.2 A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.1 A, 0.6 V or lower (MAX) 0.1 A	
Output form		Positive common (Sink type)	
Protection function		None	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	50 mA or lower (TYP.24 VDC/1 common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (quick connector plug single wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	60 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP2X	
Weight		0.16kg	
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm) Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS-C2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
	I/O area connector	• φ1.0 to 1.4 (A6CON-P214), φ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • φ1.0 to 1.4 (A6CON-P514), φ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]	
Accessory		User's Manual	

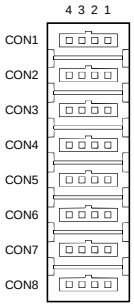


5 - 23

External connection (Sink input)



Pin arrangement



A module view from the top.

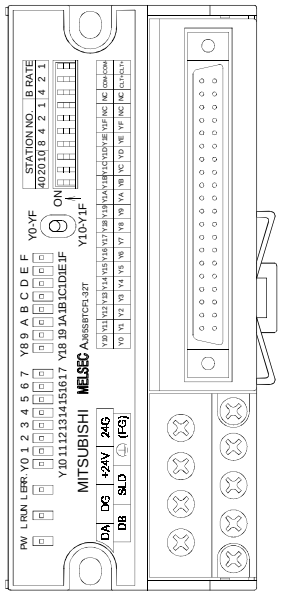
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	Signal name
CON1-1	Y0
CON1-2	Y1
CON1-3	Y2
CON1-4	Y3
CON2-1	Y4
CON2-2	Y5
CON2-3	Y6
CON2-4	Y7
CON3-1	Y8
CON3-2	Y9
CON3-3	YA
CON3-4	YB
CON4-1	YC
CON4-2	YD
CON4-3	YE
CON4-4	YF
CON5-1	Y10
CON5-2	Y11
CON5-3	Y12
CON5-4	Y13
CON6-1	Y14
CON6-2	Y15
CON6-3	Y16
CON6-4	Y17
CON7-1	Y18
CON7-2	Y19
CON7-3	Y1A
CON7-4	Y1B
CON8-1	Y1C
CON8-2	Y1D
CON8-3	Y1E
CON8-4	Y1F
Terminal number	Signal name
TB8	CLT+
TB9	COM-

5 - 24

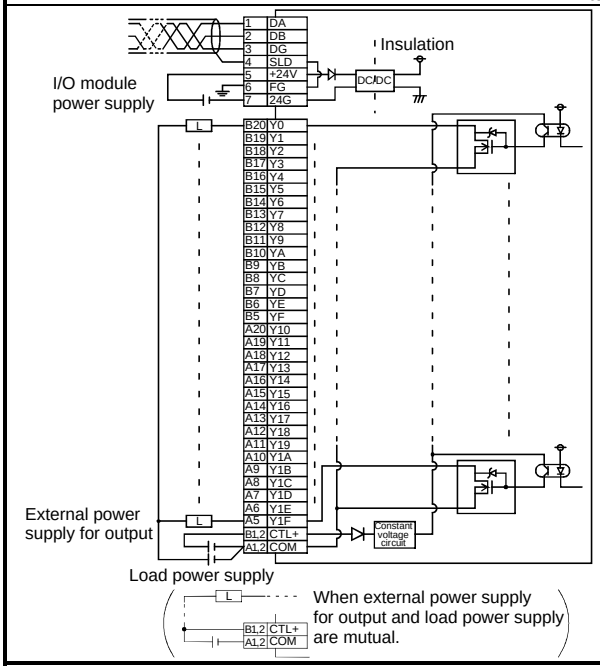
5.3 FCN Connector Type Output Module

5.3.1 AJ65SBTCF1-32T type transistor output module (Sink type)

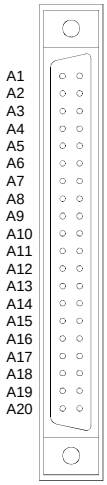
Specification \ Form		Triac output module	Surface shape
		AJ65SBTCF1-32T	
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 VDC (ripple ratio : within 5 %)	
Max. load current		0.1 A/point 3.2 A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A	
Output form		Positive common (Sink type)	
Protection function		Overload protection function,overvoltage protection function, overheat protection function	
Response time	OFF→ON	0.5 ms or lower	
	ON→OFF	1.5 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio : within 5 %)	
	Current	50 mA or lower (TYP.24 VDC/common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (FCN connector single wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	60 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester.	
Weight		0.15kg	
External connection method		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), 40-pin connector (I/O power supply area, I/O connector) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal		• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Applicable output connector		A6CON1, A6CON2, A6CON3, A6CON4	
Accessory		User's Manual	



External connection



Pin arrangement



A module view from the top

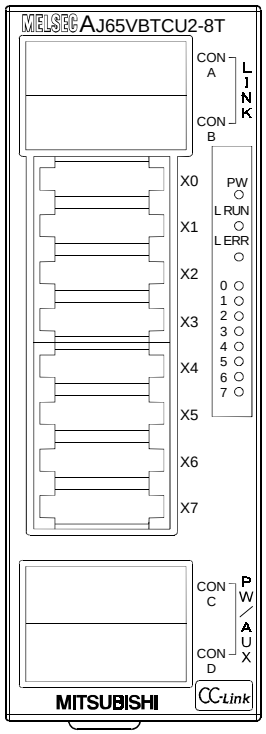
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G

Pin No.	Single name	Pin No.	Single name
B20	Y00	A20	Y10
B19	Y01	A19	Y11
B18	Y02	A18	Y12
B17	Y03	A17	Y13
B16	Y04	A16	Y14
B15	Y05	A15	Y15
B14	Y06	A14	Y16
B13	Y07	A13	Y17
B12	Y08	A12	Y18
B11	Y09	A11	Y19
B10	Y0A	A10	Y1A
B9	Y0B	A9	Y1B
B8	Y0C	A8	Y1C
B7	Y0D	A7	Y1D
B6	Y0E	A6	Y1E
B5	Y0F	A5	Y1F
B4	Vacancy	A4	Vacancy
B3	Vacancy	A3	Vacancy
B2	CTL+	A2	COM
B1	CTL	A1	COM

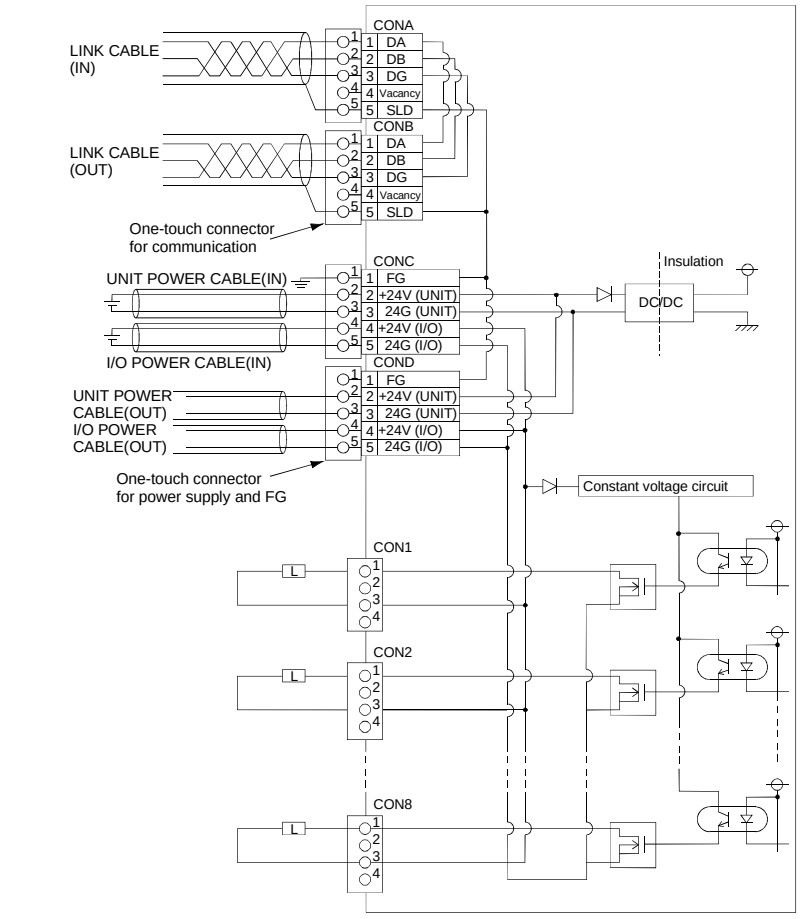
5 - 25

5.4 Connector Type Output Module

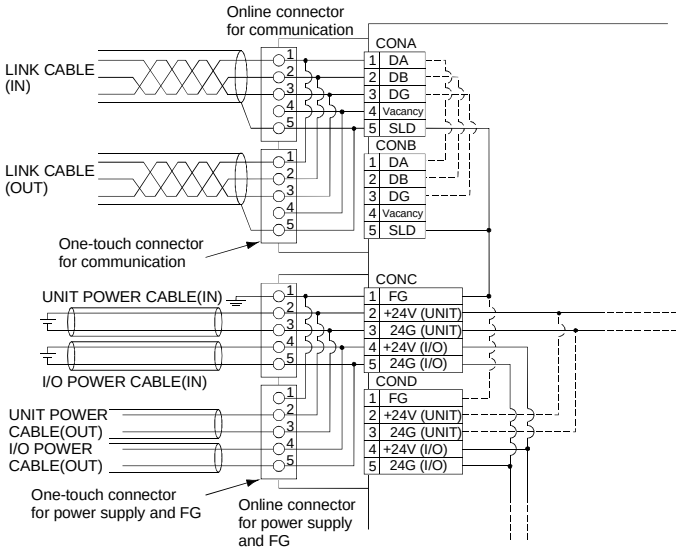
5.4.1 AJ65VBTCU2-8T transistor output module (Sink type)

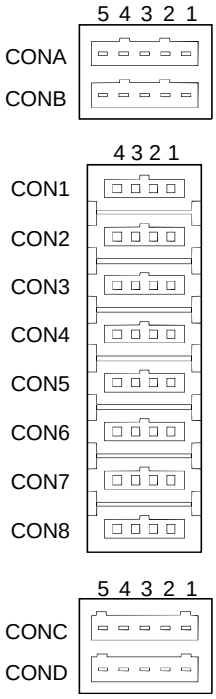
Specification \ Form		Transistor output module AJ65VBTCU2-8T	Surface shape
Number of output points		8 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.1 A/point 0.8 A/common	
Max. inrush current		0.7 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A	
Output form		Positive common (Sink type)	
Protection function		Overload protection function, overvoltage protection function and overheat protection function	
Response time	OFF→ON	1 ms or lower	
	ON→OFF	1 ms or lower (rated load, resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	5 mA or lower (TYP.24 VDC/common) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		8 points/1 common (Quick connector plug 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 8 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	35 mA or lower (when 24 V DC and all point is ON)	
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.15kg	
External wiring system		One-touch connector for communication [Transmission circuit] (5 pins pressure welding type) The plug for the connector is sold separately One-touch connector for power supply and FG [I/O module power supply, external power supply for output and FG] (5 pins pressure welding type) The plug for the connector is sold separately: A6CON-PW5P, A6CON-PW5P-SOD One-touch connector for I/O (4 pins pressure welding type) The plug for the connector is sold separately <Option> Online connector for communication : A6CON-LJ5P Online connector for power supply : A6CON-PWJ5P	
Applicable Din rail		TH35-7.5Fe, TH35-7.5AI (conforming to JIS C 2812)	
Applicable wire size	Cable for communication	Applicable cable : FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG#18) [φ2.2 to 3.0 mm (A6CON-PW5P), φ2.0 to 2.3 mm (A6CON-PW5P-SOD)] Wire diameter 0.16 mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	Connector for I/O	• φ1.0 to 1.4 (A6CON-P214), φ1.4 to 2.0 (A6CON-P220) [Applicable cable : 0.14 to 0.2 mm2] • φ1.0 to 1.4 (A6CON-P514), φ1.4 to 2.0 (A6CON-P520) [Applicable cable : 0.3 to 0.5 mm^2]	
Accessory		User's Manual	

External connection



<When using online connector>





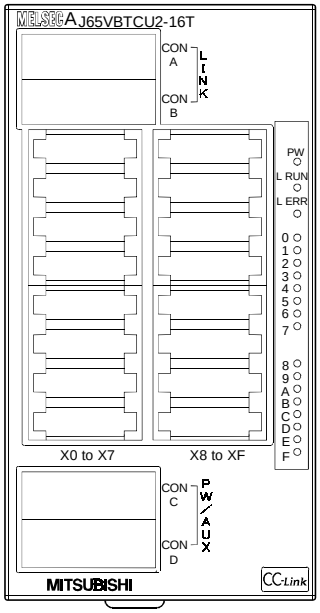
A module View from the top

Pin arrangement	Pin No.		Signal name
	CONA, B	1	DA
		2	DB
		3	DG
		4	Vacancy
		5	SLD
	CON1	1	Y0
		2	Vacancy
		3	+24V
		4	Vacancy
	CON2	1	Y1
		2	Vacancy
		3	+24V
		4	Vacancy
	CON3	1	Y2
		2	Vacancy
		3	+24V
		4	Vacancy
	CON4	1	Y3
		2	Vacancy
		3	+24V
		4	Vacancy
	CON5	1	Y4
		2	Vacancy
		3	+24V
		4	Vacancy
	CON6	1	Y5
		2	Vacancy
		3	+24V
		4	Vacancy
	CON7	1	Y6
		2	Vacancy
		3	+24V
		4	Vacancy
	CON8	1	Y7
		2	Vacancy
		3	+24V
		4	Vacancy
	CONC, D	1	⏚ (FG)
		2	+24V (UNIT)
		3	24G (UNIT)
		4	+24V (I/O)
		5	24G (I/O)

5 - 27

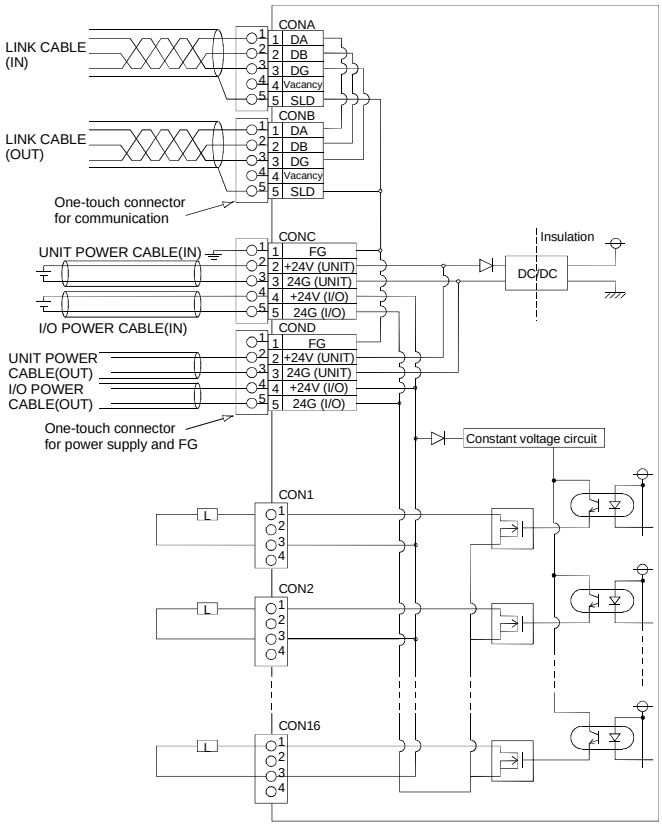
5.4.2 AJ65VBTCU2-16T transistor output module (Sink type)

Specification \ Form			Transistor output module: AJ65VBTCU2-16T	Surface shape
Number of output points			16 points	
Isolation method			Photocoupler	
Rated load voltage			12/24 V DC	
Operating load voltage range			10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current			0.1 A/point 1.6 A/common	
Max. inrush current			0.7 A 10 ms or lower	
Leakage current at OFF			0.1 mA or lower	
Max. voltage drop at ON			0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A	
Output form			Positive common (Sink type)	
Protection function			Overload protection function, overvoltage protection function and overheat protection function	
Response time	OFF→ON		1 ms or lower	
	ON→OFF		1 ms or lower (rated load, resistive load)	
External Power supply for output	Voltage		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current		10 mA or lower (TYP.24 VDC/common) Not including external load current	
Surge suppression			Zener diode	
Wiring method for common			16 points/1 common (Quick connector plug 2-wire type)	
Number of stations occupied			1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage		20.4 to 26.4 V DC (ripple ratio: within 5 %)	
	Current		40 mA or lower (when 24 V DC and all point is ON)	
Noise durability			DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)	
Withstand voltage			500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance			10 MΩ or higher, measured with a 500 V DC insulation resistance tester	
Protection of degree			IP1XB	
Weight			0.19kg	
External wiring system			One-touch connector for communication [Transmission circuit] (5 pins pressure welding type) The plug for the connector is sold separately One-touch connector for power supply and FG [I/O module power supply, external power supply for output and FG] (5 pins pressure welding type) The plug for the connector is sold separately: A6CON-PW5P, A6CON-PW5P-SOD One-touch connector for I/O (4 pins pressure welding type) The plug for the connector is sold separately <Option> Online connector for communication : A6CON-LJ5P Online connector for power supply : A6CON-PWJ5P	
Applicable Din rail			TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Cable for communication		Applicable cable : FANC-110SBH, CS-110	
	Connector for power supply and FG		0.66 to 0.98 mm^2 (AWG#18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] Wire diameter 0.16 mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	Connector for I/O		• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable cable : 0.14 to 0.2 mm2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable cable : 0.3 to 0.5 mm2]	
Accessory			User's Manual	

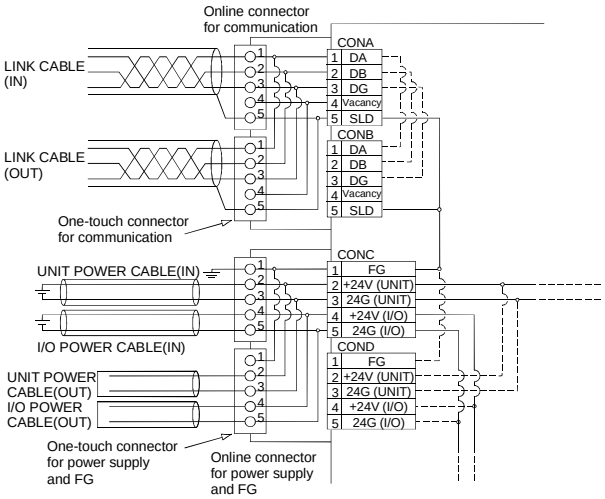


5 - 28

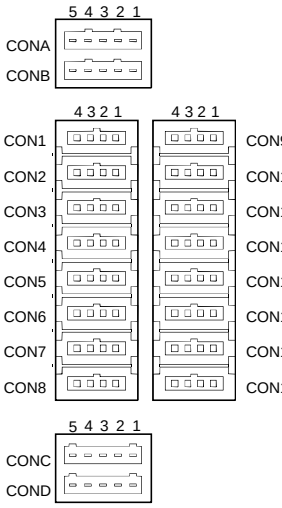
External connection



<When using online connector>



Pin arrangement



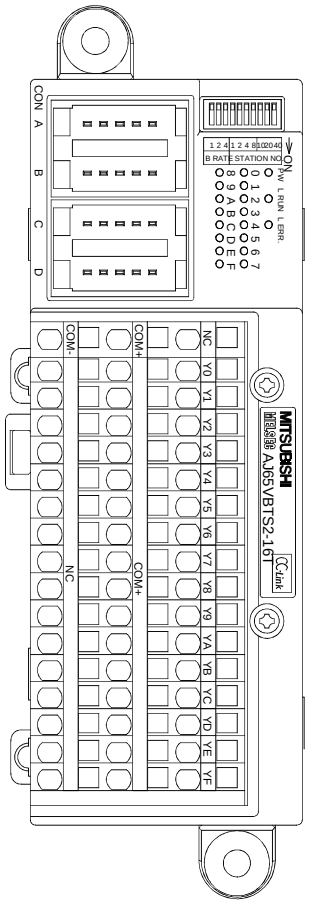
A module view from the top

Pin No.		Signal name
CONA, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON1	1	Y0
	2	Vacancy
	3	+24V
	4	Vacancy
CON2	1	Y1
	2	Vacancy
	3	+24V
	4	Vacancy
CON3	1	Y2
	2	Vacancy
	3	+24V
	4	Vacancy
CON4	1	Y3
	2	Vacancy
	3	+24V
	4	Vacancy
CON5	1	Y4
	2	Vacancy
	3	+24V
	4	Vacancy
CON6	1	Y5
	2	Vacancy
	3	+24V
	4	Vacancy
CON7	1	Y6
	2	Vacancy
	3	+24V
	4	Vacancy
CON8	1	Y7
	2	Vacancy
	3	+24V
	4	Vacancy
CON9	1	Y8
	2	Vacancy
	3	+24V
	4	Vacancy
CON10	1	Y9
	2	Vacancy
	3	+24V
	4	Vacancy
CON11	1	YA
	2	Vacancy
	3	+24V
	4	Vacancy
CON12	1	YB
	2	Vacancy
	3	+24V
	4	Vacancy
CON13	1	YC
	2	Vacancy
	3	+24V
	4	Vacancy
CON14	1	YD
	2	Vacancy
	3	+24V
	4	Vacancy
CON15	1	YE
	2	Vacancy
	3	+24V
	4	Vacancy
CON16	1	YF
	2	Vacancy
	3	+24V
	4	Vacancy
CONC, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

5 - 29

5.4.3 AJ65VBTS2-16T transistor output module (Sink type) (Spring clamp terminal block type)

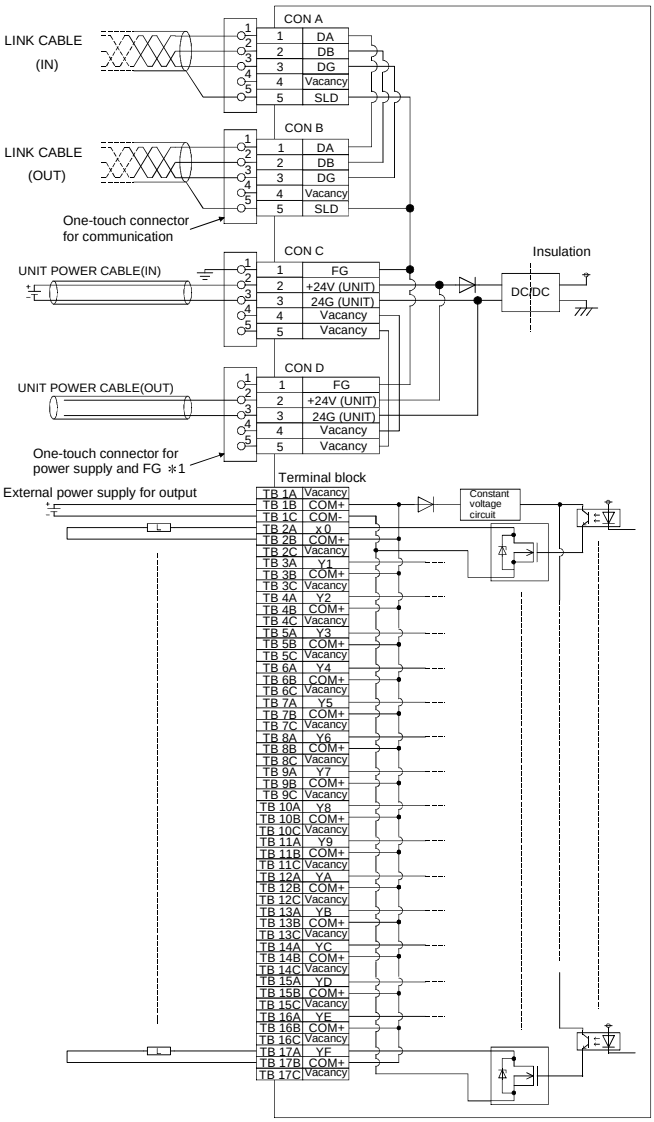
Specification \ Form		Transistor output module	
		AJ65VBTS2-16T	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 4A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Sink type)	
Protection function		None	
Response time	OFF→ON	1 ms or lower	
	ON→OFF	1 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	30 mA or lower (when 24 V DC and all point is ON) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		16 points/common (Spring clamp terminal block type 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	45mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.24kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply, FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	2-piece, spring clamp terminal block [I/O power supply, I/O signal]	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	I/O spring clamp terminal block	Stranded wire 0.08 to 1.5 mm^2 (AWG28 to 16) ＊1 Wire strip length: 8 to 11 mm	
	Applicable solderless terminal	TE0.5 (NICHIFU Co., ltd) [Applicable wire size : 0.5 mm^2] TE0.75 (NICHIFU Co., ltd) [Applicable wire size : 0.75 mm^2] TE1 (NICHIFU Co., ltd) [Applicable wire size : 0.9 to 1.0 mm^2] TE1.5 (NICHIFU Co., ltd) [Applicable wire size : 1.25 to 1.5 mm^2] FA-VTC125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2] FA-VTCW125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2]	
Accessory		User's Manual, Holding fixtures for screw installation	



＊1: Basically, insert a wire into a terminal.

5 - 30

External connection

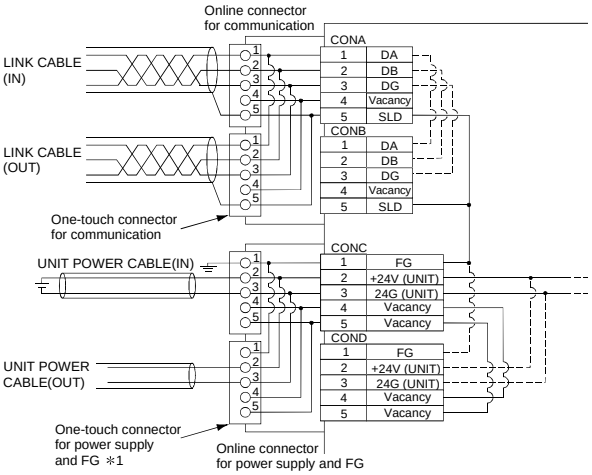


Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	Vacancy
	5	Vacancy

Terminal block

Column A		Column B		Column C	
1	Vacancy	1	COM+	1	COM-
2	Y0	2	COM+	2	Vacancy
3	Y1	3	COM+	3	Vacancy
4	Y2	4	COM+	4	Vacancy
5	Y3	5	COM+	5	Vacancy
6	Y4	6	COM+	6	Vacancy
7	Y5	7	COM+	7	Vacancy
8	Y6	8	COM+	8	Vacancy
9	Y7	9	COM+	9	Vacancy
10	Y8	10	COM+	10	Vacancy
11	Y9	11	COM+	11	Vacancy
12	YA	12	COM+	12	Vacancy
13	YB	13	COM+	13	Vacancy
14	YC	14	COM+	14	Vacancy
15	YD	15	COM+	15	Vacancy
16	YE	16	COM+	16	Vacancy
17	YF	17	COM+	17	Vacancy

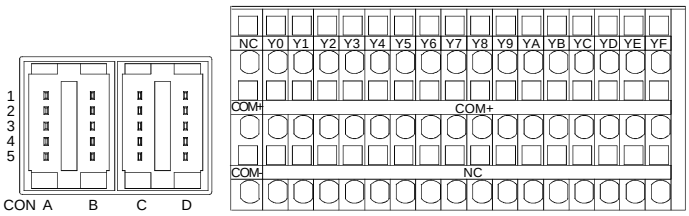
＜When using online connector＞



*1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

5 - 31

Pin arrangement

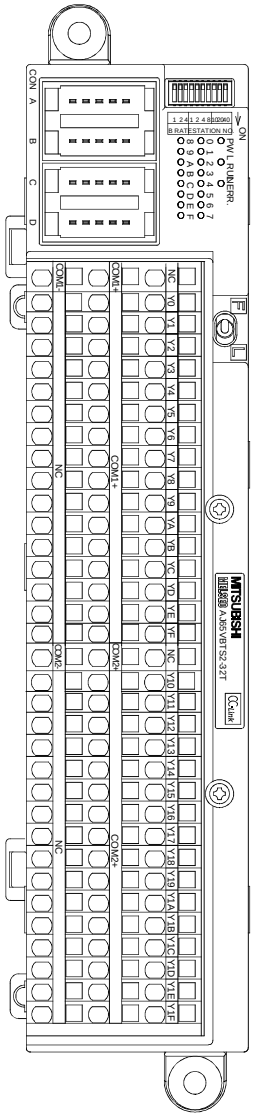


A module view from the top

5 - 32

5.4.4 AJ65VBTS2-32T transistor output module (Sink type) (Spring clamp terminal block type)

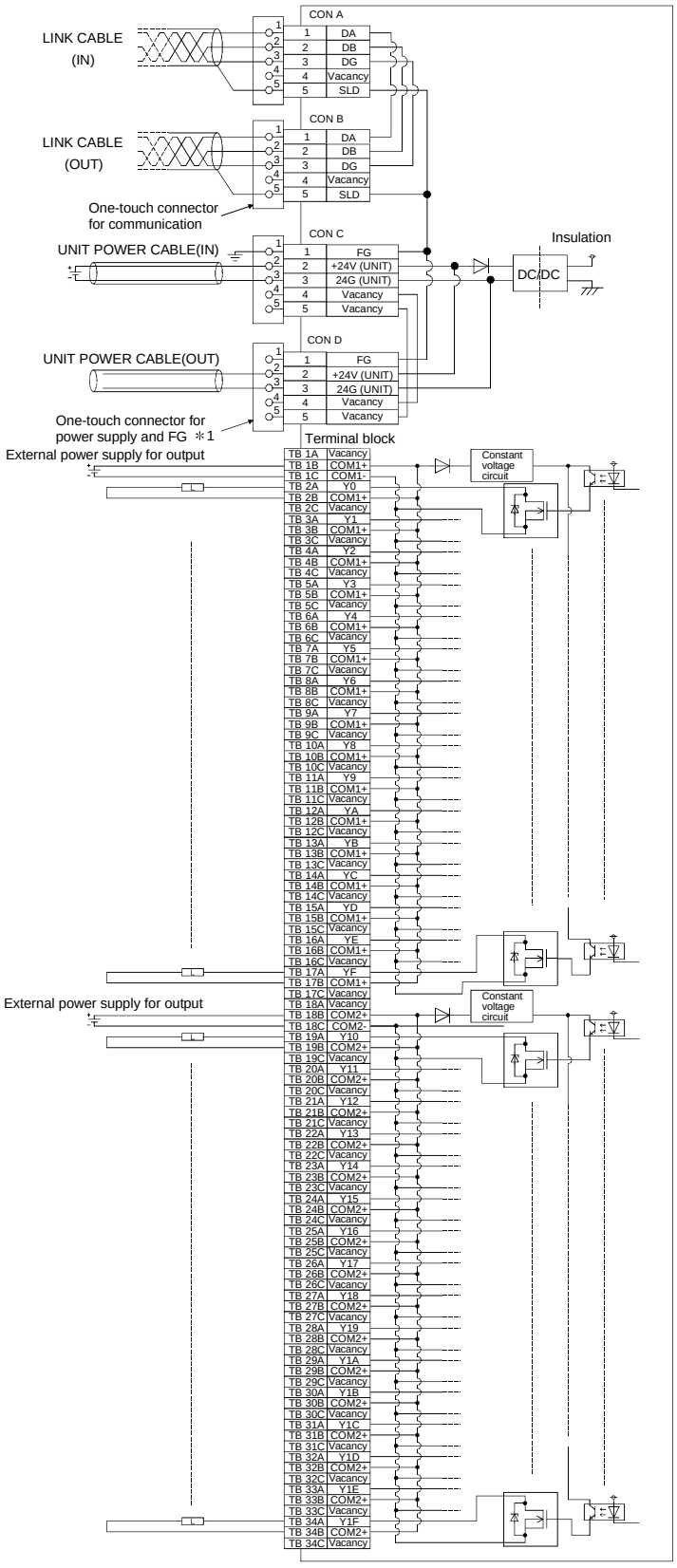
Specification \ Form		Transistor output module	
		AJ65VBTS2-32T	Surface shape
Number of output points		32 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.5 A/point 4A/common	
Max. inrush current		1.0 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Output form		Positive common (Sink type)	
Protection function		None	
Response time	OFF→ON	1 ms or lower	
	ON→OFF	1 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	30 mA or lower (when 24 V DC and all point is ON) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		16 points/common (Spring clamp terminal block type 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	60mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.40kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply, FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	2-piece, spring clamp terminal block [I/O power supply, I/O signal]	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	I/O spring clamp terminal block	Stranded wire 0.08 to 1.5 mm^2 (AWG28 to 16) ＊1 Wire strip length: 8 to 11 mm	
	Applicable solderless terminal	TE0.5 (NICHIFU Co., ltd) [Applicable wire size : 0.5 mm^2] TE0.75 (NICHIFU Co., ltd) [Applicable wire size : 0.75 mm^2] TE1 (NICHIFU Co., ltd) [Applicable wire size : 0.9 to 1.0 mm^2] TE1.5 (NICHIFU Co., ltd) [Applicable wire size : 1.25 to 1.5 mm^2] FA-VTC125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2] FA-VTCW125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2]	
Accessory		User's Manual, Holding fixtures for screw installation	



＊1: Basically, insert a wire into a terminal.

5 - 33

External connection



Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	Vacancy
	5	Vacancy

Terminal block

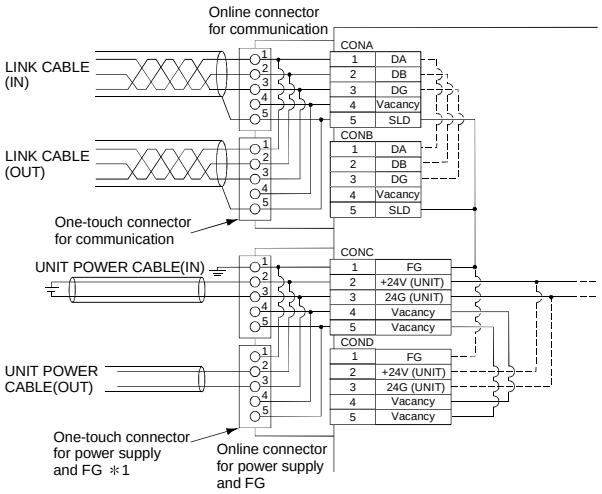
Column A		Column B		Column C	
1	Vacancy	1	COM1+	1	COM1-
2	Y0	2	COM1+	2	Vacancy
3	Y1	3	COM1+	3	Vacancy
4	Y2	4	COM1+	4	Vacancy
5	Y3	5	COM1+	5	Vacancy
6	Y4	6	COM1+	6	Vacancy
7	Y5	7	COM1+	7	Vacancy
8	Y6	8	COM1+	8	Vacancy
9	Y7	9	COM1+	9	Vacancy
10	Y8	10	COM1+	10	Vacancy
11	Y9	11	COM1+	11	Vacancy
12	YA	12	COM1+	12	Vacancy
13	YB	13	COM1+	13	Vacancy
14	YC	14	COM1+	14	Vacancy
15	YD	15	COM1+	15	Vacancy
16	YE	16	COM1+	16	Vacancy
17	YF	17	COM1+	17	Vacancy
18	Vacancy	18	COM2+	18	COM2-
19	Y10	19	COM2+	19	Vacancy
20	Y11	20	COM2+	20	Vacancy
21	Y12	21	COM2+	21	Vacancy
22	Y13	22	COM2+	22	Vacancy
23	Y14	23	COM2+	23	Vacancy
24	Y15	24	COM2+	24	Vacancy
25	Y16	25	COM2+	25	Vacancy
26	Y17	26	COM2+	26	Vacancy
27	Y18	27	COM2+	27	Vacancy
28	Y19	28	COM2+	28	Vacancy
29	Y1A	29	COM2+	29	Vacancy
30	Y1B	30	COM2+	30	Vacancy
31	Y1C	31	COM2+	31	Vacancy
32	Y1D	32	COM2+	32	Vacancy
33	Y1E	33	COM2+	33	Vacancy
34	Y1F	34	COM2+	34	Vacancy

＊1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

5 - 34

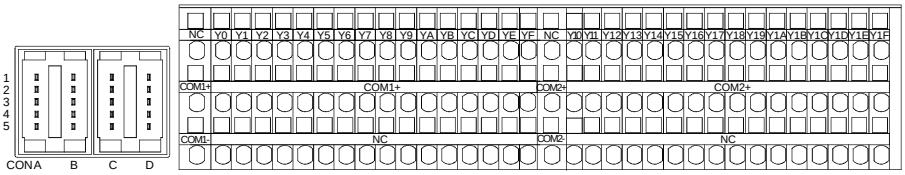
External connection

＜When using online connector＞



＊1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

Pin arrangement



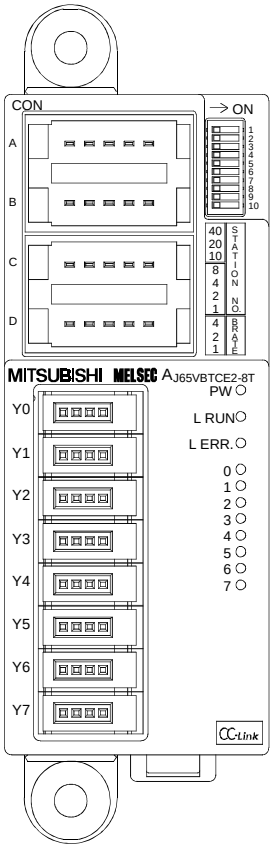
A module view from the top

5 - 35

5.4.5 AJ65VBTCE2-8T transistor output module (Sink type) (Sensor connector (e-CON) type)

Specification \ Form		Transistor output module: AJ65VBTCE2-8T
Number of output points		8 points
Isolation method		Photocoupler
Rated load voltage		12/24 V DC
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. load current		0.1 A/point 0.8A/common
Max. inrush current		0.7 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A
Output form		Positive common (Sink type)
Protection function		Overload protection function, overvoltage protection function and overheat protection function
Response time	OFF→ON	1 ms or lower
	ON→OFF	1 ms or lower (resistive load)
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	5 mA or lower (when 24 V DC and all point is ON) Not including external load current
Surge suppression		Zener diode
Wiring method for common		8 points/common (Sensor connector (e-con) type 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 16 points)
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)
	Current	35mA or lower (When 24VDC and all point is on)
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester
Protection of degree		IP1XB
Weight		0.10kg
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P
	Power supply section	One-touch connector for power supply and FG[I/O module power supply, External power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P
	I/O section	Sensor connector (e-CON) [I/O signal] (4 pins pressure welding type) The plug for the connector is sold separately ＊1
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)
	Connector for I/O	Sensor connecter (e-CON) Plug for connector is sold separately ＊1 (Applicable wire size : 0.08 to 0.5 mm^2, depending on the plug for connector)
Accessory		User's Manual, Holding fixtures for screw installation

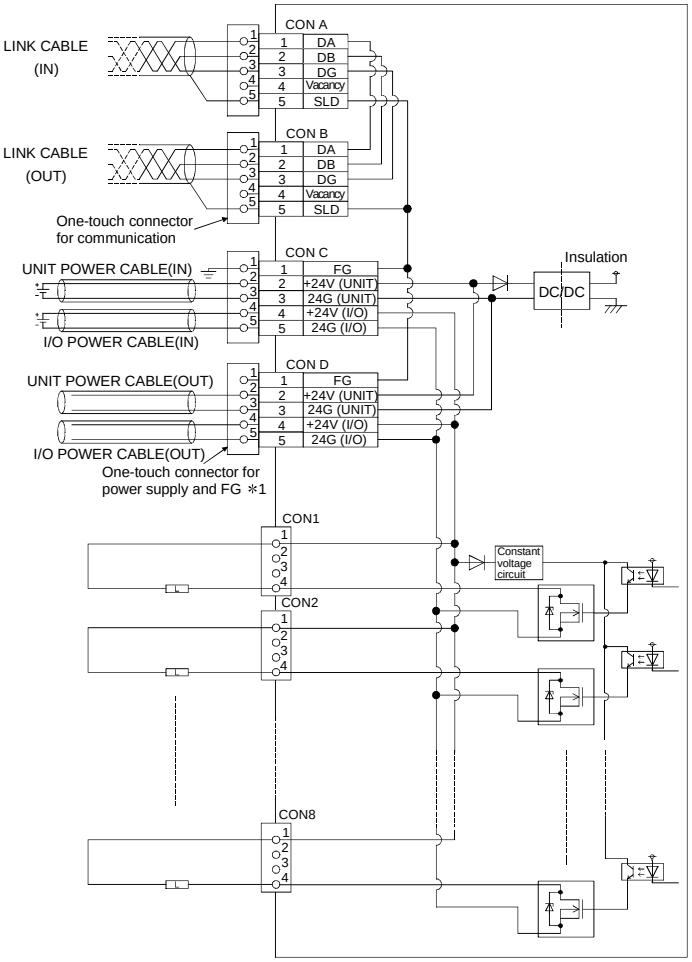
Surface shape



＊1: Refer to Section 1.6.2 for details.

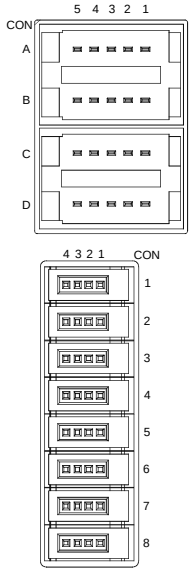
5 - 36

External connection



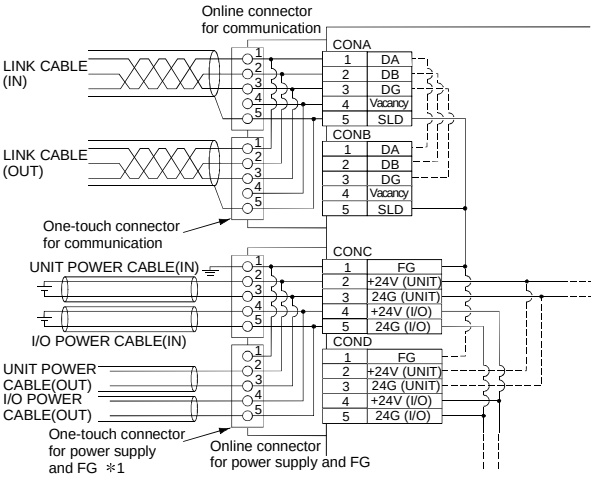
Pin No.		Signal name
CON A,B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C,D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Terminal block			Pin arrangement
Pin No.		Signal name	
CON1 (Y0)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y0	
CON2 (Y1)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y1	
CON3 (Y2)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y2	
CON4 (Y3)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y3	
CON5 (Y4)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y4	
CON6 (Y5)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y5	
CON7 (Y6)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y6	
CON8 (Y7)	1	+24V	
	2	Vacancy	
	3	Vacancy	
	4	Y7	



A module view from the top

＜When using online connector＞

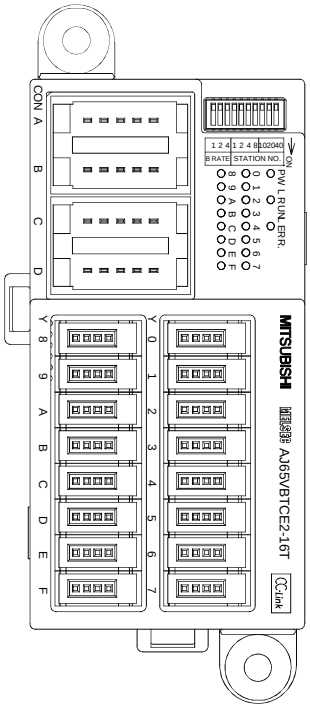


∗1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

5 - 37

5.4.6 AJ65VBTCE2-16T transistor output module (Sink type) (Sensor connector (e-CON) type)

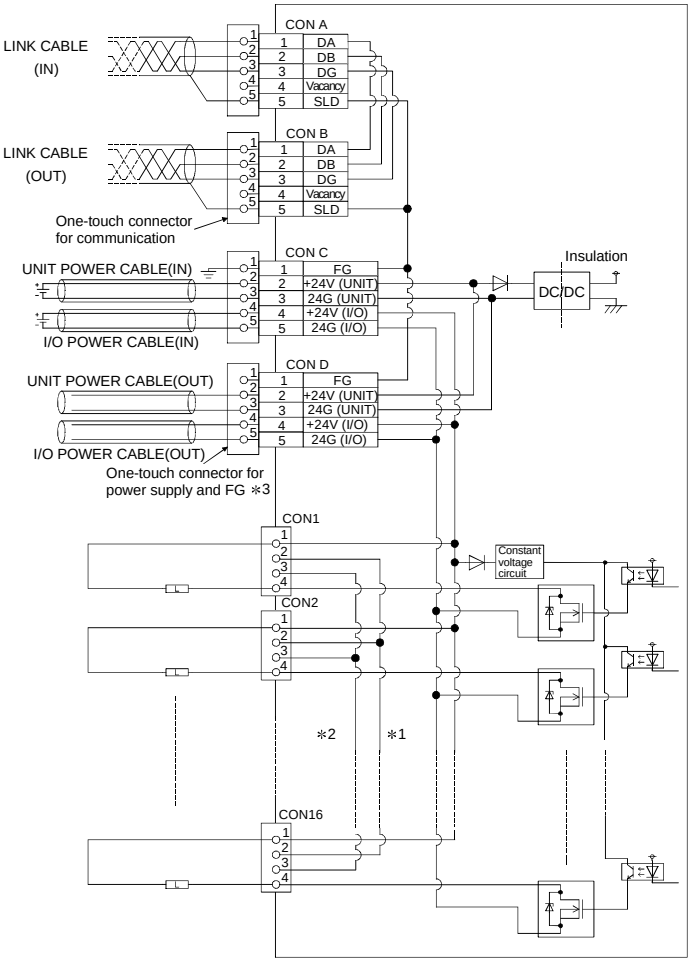
Specification \ Form		Transistor output module: AJ65VBTCE2-16T	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated load voltage		12/24 V DC	
Operating load voltage range		10.2 to 26.4 V DC (ripple ratio: within 5 %)	
Max. load current		0.1 A/point 1.6A/common	
Max. inrush current		0.7 A 10 ms or lower	
Leakage current at OFF		0.1 mA or lower	
Max. voltage drop at ON		0.1 V or lower (TYP) 0.1 A 0.2 V or lower (MAX) 0.1 A	
Output form		Positive common (Sink type)	
Protection function		Overload protection function, overvoltage protection function and overheat protection function	
Response time	OFF→ON	1 ms or lower	
	ON→OFF	1 ms or lower (resistive load)	
External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
	Current	10 mA or lower (when 24 V DC and all point is ON) Not including external load current	
Surge suppression		Zener diode	
Wiring method for common		16 points/common (Sensor connector (e-con) type 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	45mA or lower (When 24VDC and all point is on)	
Noise durability		DC type noise voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP1XB	
Weight		0.10kg	
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-L5P < option > Online connector for communication:A6CON-LJ5P	
	Power supply section	One-touch connector for power supply and FG[I/O module power supply, External power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately : A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P	
	I/O section	Sensor connector (e-CON) [I/O signal] (4 pins pressure welding type) The plug for the connector is sold separately ＊1	
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110	
	Connector for power supply and FG	0.66 to 0.98mm^2 (AWG18) [ϕ2.2 to 3.0mm (A6CON-PW5P), ϕ2.0 to 2.3mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)	
	Connector for I/O	Sensor connecter (e-CON) Plug for connector is sold separately ＊1 (Applicable wire size : 0.08 to 0.5 mm^2, depending on the plug for connector)	
Accessory		User's Manual, Holding fixtures for screw installation	



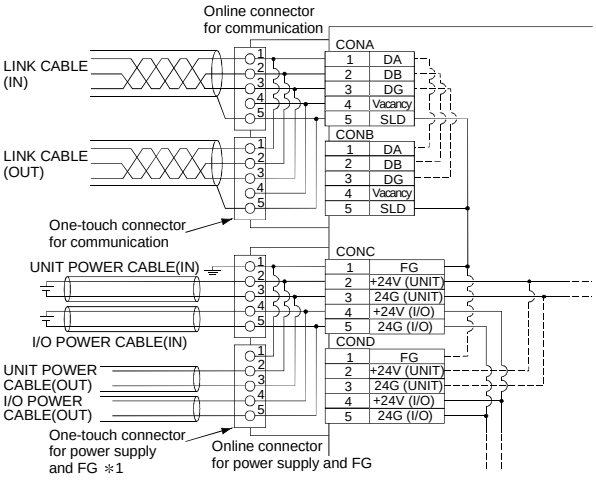
＊1: Refer to Section 1.6.2 for details.

5 - 38

External connection



＜When using online connector＞



Pin No.		Signal name
CON A, B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C, D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V (I/O)
	5	24G (I/O)

Terminal block

Pin No.		Signal name	Pin No.		Signal name
CON1 (Y0)	1	+24V	CON9 (Y8)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y0		4	Y8
CON2 (Y1)	1	+24V	CON10 (Y9)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y1		4	Y9
CON3 (Y2)	1	+24V	CON11 (YA)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y2		4	YA
CON4 (Y3)	1	+24V	CON12 (YB)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y3		4	YB
CON5 (Y4)	1	+24V	CON13 (YC)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y4		4	YC
CON6 (Y5)	1	+24V	CON14 (YD)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y5		4	YD
CON7 (Y6)	1	+24V	CON15 (YE)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y6		4	YE
CON8 (Y7)	1	+24V	CON16 (YF)	1	+24V
	2	Vacancy ＊1		2	Vacancy ＊1
	3	Vacancy ＊2		3	Vacancy ＊2
	4	Y7		4	YF

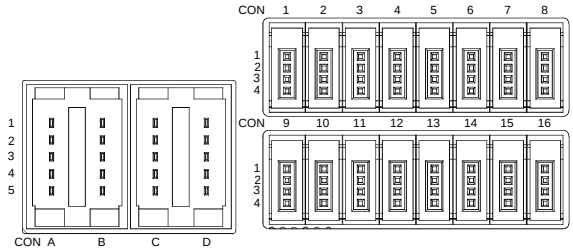
＊1: No.2 pins of CON1 to 16 are internally connected and unusable.

＊2: No.3 pins of CON1 to 16 are internally connected and unusable.

＊3: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

5 - 39

Pin arrangement

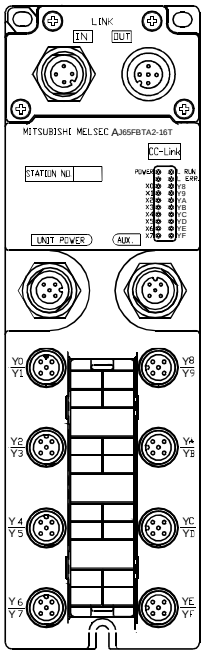


A module view from the top

5 - 40

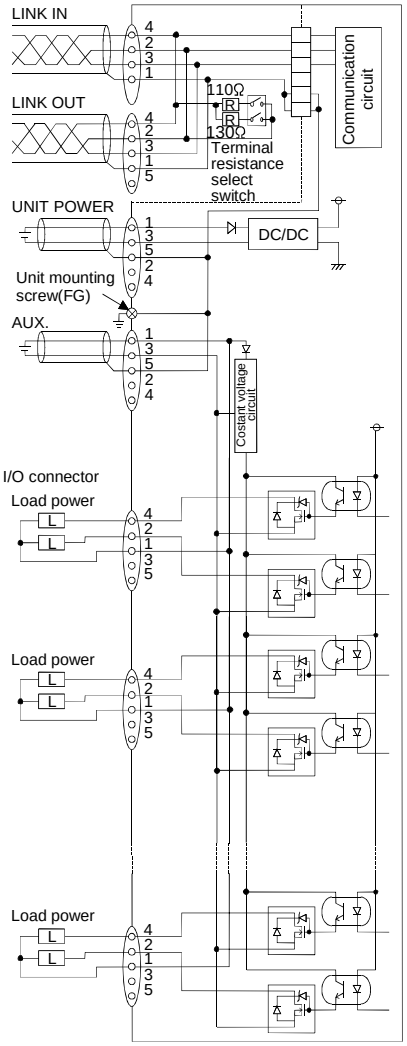
5.5 Low Profile Waterproof Type Output Module

5.5.1 AJ65FBTA2-16T transistor output module (Sink type)

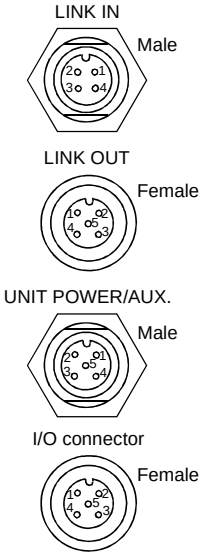
Specification \ Form		transistor output module	
		AJ65FBTA2-16T	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated load voltage		12 - 24VDC	
Operating load voltage range		10.2 to 28.8VDC (ripple ratio : within 5 %)	
Max. load current		0.5A/point 4.0A/common	
Max. load inrush current		1.0A 10ms or lower	
Leakage current at OFF		0.25mA or lower	
Max. voltage drop at ON		0.15V or lower (TYP) 0.5A 0.25V or lower (MAX) 0.5A	
Response time	OFF→ON	0.5ms or lower	
	ON→OFF	1.5ms or lower (resistive load)	
Output form		Positive common (Sink type)	
Protect function		Yes(thermal protection, short circuit protections) ・Thermal protection is activated in increments of 1 points. ・Short circuit protection is activated in increments of 1 points. ・There is no LED display. ・Automatic reset	
External Power supply for output	Voltage	10.2 to 28.8VDC (ripple ratio : within 5%)	
	Current	20mA or lower (When 24VDC and all point is ON) Not including external load current	
Surge suppressor		Zener diode	
Wiring method for common		16 points/1 common (waterproof connector 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 16points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	50mA or lower (When 24VDC and all point is ON)	
Noise durability		DC type noise withstand voltage 500Vp-p, noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP67	
Weight		0.40kg	
Accessory		User's Manual	
Option		Waterproof cap : A6CAP-WP2	
Other connected protection		See section 1.6	

5 - 41

External connection



Pin arrangement



Front view

Communication connector

Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Vacancy

Power connector

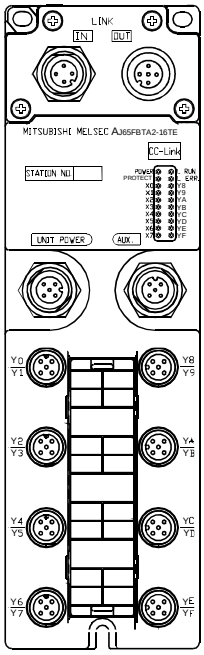
Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Vacancy	Vacancy
3	24G(UNIT)	24G(I/O)
4	Vacancy	Vacancy
5	FG	FG

I/O connector

	Pin No.	Signal name		Pin No.	Signal name
Y0/Y1	1	+24V	Y8/Y9	1	+24V
	2	Y1		2	Y9
	3	Vacancy		3	Vacancy
	4	Y0		4	Y8
	5	Vacancy		5	Vacancy
Y2/Y3	1	+24V	YA/YB	1	+24V
	2	Y3		2	YB
	3	Vacancy		3	Vacancy
	4	Y2		4	YA
	5	Vacancy		5	Vacancy
Y4/Y5	1	+24V	YC/YD	1	+24V
	2	Y5		2	YD
	3	Vacancy		3	Vacancy
	4	Y4		4	YC
	5	Vacancy		5	Vacancy
Y6/Y7	1	+24V	YE/YF	1	+24V
	2	Y7		2	YF
	3	Vacancy		3	Vacancy
	4	Y6		4	YE
	5	Vacancy		5	Vacancy

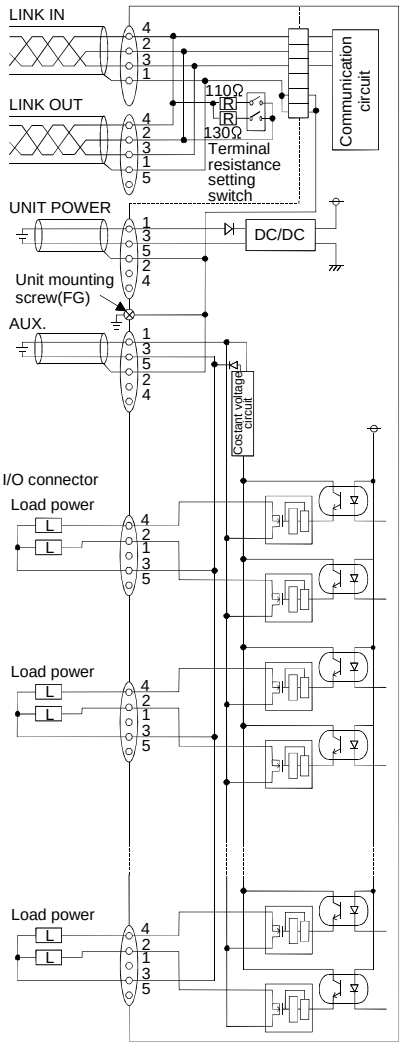
5 - 42

5.5.2 AJ65FBTA2-16TE transistor output module (Source type)

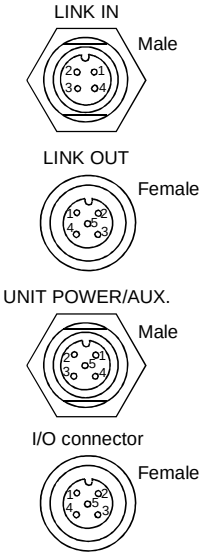
Specification \ Form		transistor output module	
		AJ65FBTA2-16TE	Surface shape
Number of output points		16 points	
Isolation method		Photocoupler	
Rated load voltage		12/24VDC	
Operating load voltage range		10.2 to 28.8VDC (ripple ratio : within 5 %)	
Max. load current		1.0A/point 4.0A/common	
Max. load inrush current		2.0A 10ms or lower	
Leakage current at OFF		0.3mA or lower	
Max. voltage drop at ON		0.15V or lower (TYP) 0.5A 0.25V or lower (MAX) 0.5A	
Response time	OFF→ON	0.5ms or lower	
	ON→OFF	1.5ms or lower (resistive load)	
Output form		Negative common (Source type)	
Protection function		Yes (thermal protection short circuit protections) ・Thermal protection is activated in increments of 1 points. ・Short circuit protection is activated in increments of 1 points. ・Lights up when the output section protection function is working. (During the protect operation, fuse interruption is searched in the master unit side.) ・Automatic reset	
External Power supply for output	Voltage	10.2 to 28.8VDC (ripple ratio : within 5%)	
	Current	30mA or lower(When 24VDC and all point is ON) Not including external load current	
Surge suppressor		Zener diode	
Wiring method for common		16 points/1 common (waterproof connector 2-wire type)	
Number of stations occupied		1 station 32 points assignment (use 16points)	
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)	
	Current	50mA or lower (When 24VDC and all point is ON)	
Noise durability		DC type noise withstand voltage 500Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)	
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground	
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester	
Protection of degree		IP67	
Weight		0.40kg	
Accessory		User's Manual	
Option		Waterproof cap : A6CAP-WP2	
Other connected protection		See section 1.6	

5 - 43

External connection



Pin arrangement



Front view

Communication connector

Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Vacancy

Power connector

Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Vacancy	Vacancy
3	24G(UNIT)	24G(I/O)
4	Vacancy	Vacancy
5	FG	FG

I/O connector

	Pin No.	Signal name		Pin No.	Signal name
Y0/Y1	1	Vacancy	Y8/Y9	1	Vacancy
	2	Y1		2	Y9
	3	24G		3	24G
	4	Y0		4	Y8
	5	Vacancy		5	Vacancy
Y2/Y3	1	Vacancy	YA/YB	1	Vacancy
	2	Y3		2	YB
	3	24G		3	24G
	4	Y2		4	YA
	5	Vacancy		5	Vacancy
Y4/Y5	1	Vacancy	YC/YD	1	Vacancy
	2	Y5		2	YD
	3	24G		3	24G
	4	Y4		4	YC
	5	Vacancy		5	Vacancy
Y6/Y7	1	Vacancy	YE/YF	1	Vacancy
	2	Y7		2	YF
	3	24G		3	24G
	4	Y6		4	YE
	5	Vacancy		5	Vacancy

5 - 44

MEMO

5 - 45

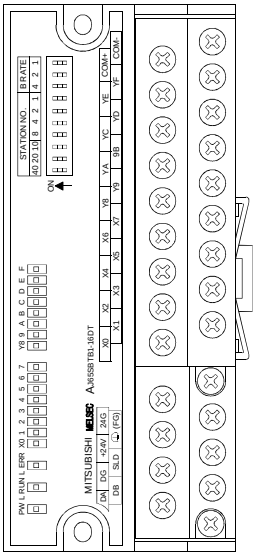
6 SPECIFICATIONS FOR COMBINED MODULES

This chapter describes the specifications for a combined module that can be connected to the CC-Link system.

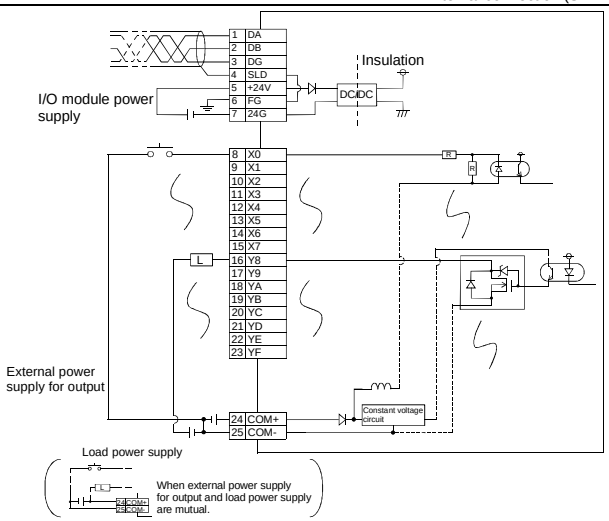
6.1 Terminal Block Type Combined Module

6.1.1 AJ65SBTB1-16DT combined module

Form / Specification		DC input transistor output combined module: AJ65SBTB1-16DT			Surface shape
Input specification			Output specification		
Number of input points		8 points	Number of output points	8 points	
Isolation method		Photocoupler	Isolation method	Photocoupler	
Rated input voltage		24 V DC	Rated load voltage	24 V DC	
Rated input current		Approx. 7 mA	Operating load voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 2.4A/common	
Max. simulataneous ON input points		100 %	Max. inrush current	1.0 A 10 ms or lower	
ON voltage/ON current		14 V or higher/3.5 mA or higher	Leakage current at OFF	0.25 mA or lower	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance		A pprox. 3.3 k Ω	Output form	Positive common (Sink type)	
			Protection function	Overload protection function, overvoltage protection function, overheat protection function	
Response time	OFF →ON	1.5 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower	
	ON →OFF	1.5 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)	
			External Power supply for output: Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
			External Power supply for output: Current	17.8 mA or lower (When 24VDC and all point is ON)	
Input form		Positive common (Sink type)	Surge suppression	Zener diode	
Wiring method for common		16 points/1 common (Terminal block single wire type)			
Number of stations occupied		1 station 32 points assignment (use 16 points)			
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)			
	Current	50 mA or lower (when 24 V DC and all point is ON) Not including external load current			
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground			
Protection of degree		IP2X			
Weight		0.18kg			
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)			
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions			
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable solderless terminal		• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm²] • V2-MS3, RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm²]			
Applicable I/O connector		A6CON1, A6CON2, A6CON3, A6CON4			
Accessory		User's Manual			



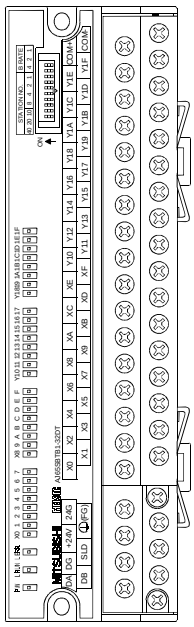
External connection (Sink input)



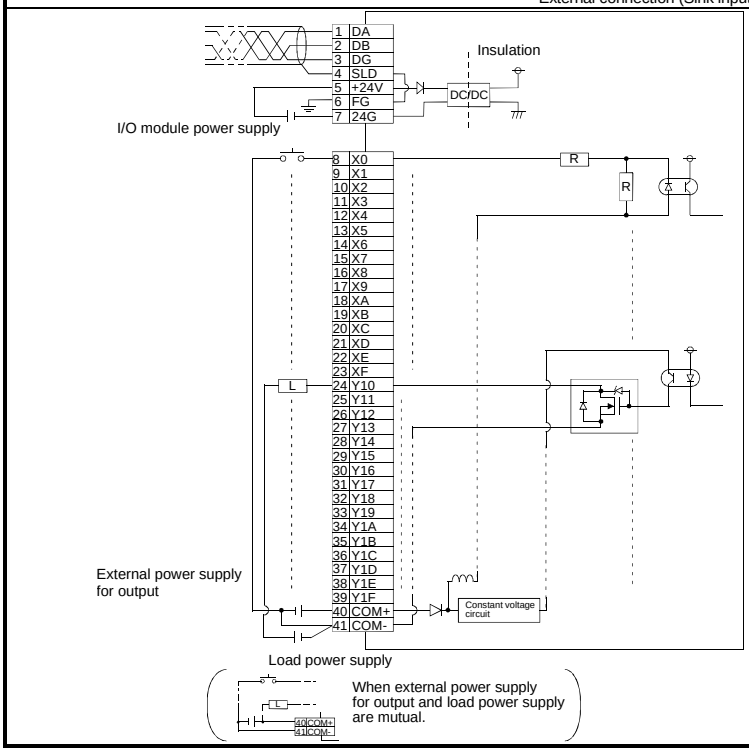
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB8	X0
TB2	DB	TB9	X1
TB3	DG	TB10	X2
TB4	SLD	TB11	X3
TB5	+24V	TB12	X4
TB6	⏚ (FG)	TB13	X5
TB7	24G	TB14	X6
		TB15	X7
		TB16	X8
		TB17	X9
		TB18	XA
		TB19	XB
		TB20	XC
		TB21	XD
		TB22	XE
		TB23	XF
		TB24	COM+
		TB25	COM-

6.1.2 AJ65SBTB1-32DT combined module

Form / Specification	DC input transistor output combined module: AJ65SBTB1-32DT			Surface shape
Input specification		**Output specification**		
Number of input points	16 points	Number of output points	16 points	
Isolation method	Photocoupler	Isolation method	Photocoupler	
Rated input voltage	24 V DC	Rated load voltage	24 V DC	
Rated input current	Approx. 7 mA	Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 3.6 A/common)	
Max. simulataneous ON input points	100 %	Max. inrush current	1.0 A 10 ms or lower	
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF	0.25 mA or lower	
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance	A pprox. 3.3 k Ω	Output form	Positive common (Sink type)	
		Protection function	Overload protection function, overvoltage protection function, overheat protection function	
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower	
Response time ON →OFF	1.5 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)	
		External Power supply for output Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
		External Power supply for output Current	30 mA or lower (24VDC/common) Not including external load current	
Input form	Positive common (Sink type)	Surge suppression	Zener diode	
Wiring method for common	32 points/1 common (Terminal block single wire type)			
Number of stations occupied	1 station 32 points assignment (use 32 points)			
I/O module power supply Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)			
I/O module power supply Current	50mA or lower (When 24VDC and all point is ON)			
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester			
Protection of degree	IP2X			
Weight	0.25kg			
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (M3 screw tightening torque 59 to 88N•cm)			
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions			
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]			
Accessory	User's Manual			



External connection (Sink input)

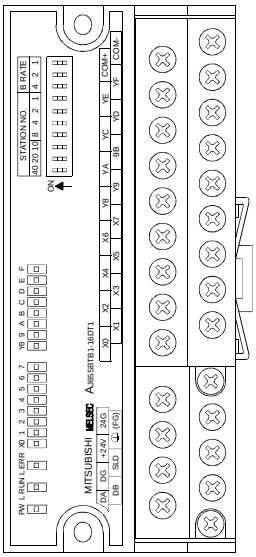


Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB22	XE
TB2	DB	TB23	XF
TB3	DG	TB24	Y10
TB4	SLD	TB25	T11
TB5	+24V	TB26	Y12
TB6	⏚ (FG)	TB27	Y13
TB7	24G	TB28	Y14
TB8	X0	TB29	Y15
TB9	X1	TB30	Y16
TB10	X2	TB31	Y17
TB11	X3	TB32	Y18
TB12	X4	TB33	Y19
TB13	X5	TB34	Y1A
TB14	X6	TB35	Y1B
TB15	X7	TB36	Y1C
TB16	X8	TB37	Y1D
TB17	X9	TB38	Y1E
TB18	XA	TB39	Y1F
TB19	XB	TB40	COM+
TB20	XC	TB41	COM-
TB21	XD		

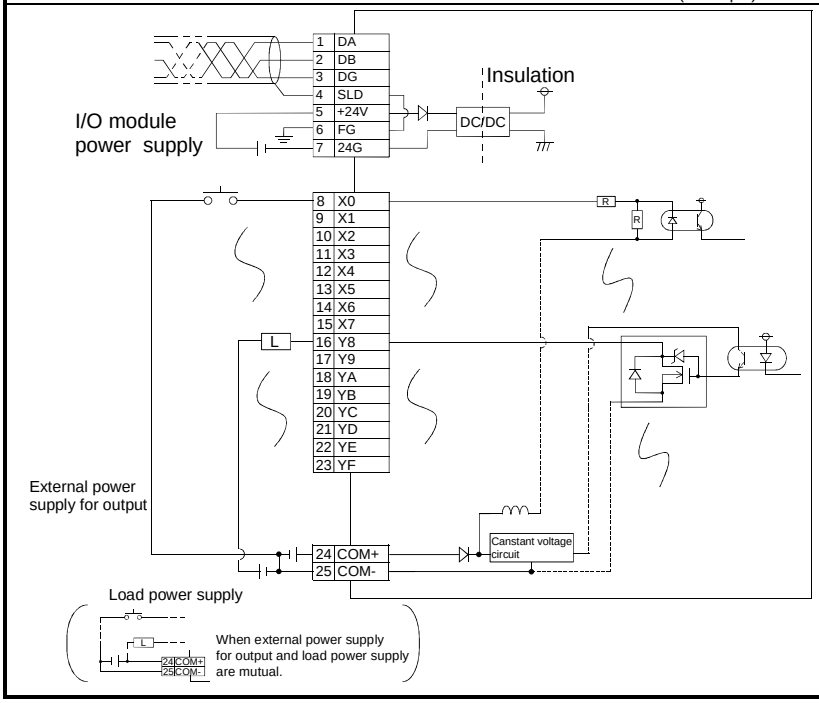
6 - 2

6.1.3 AJ65SBTB1-16DT1 combined module

Form / Specification	DC input transistor output combined module AJ65SBTB1-16DT1			Surface shape
Input specification		Output specification		
Number of input points	8 points	Number of output points	8 points	
Isolation method	Photocoupler	Isolation method	Photocoupler	
Rated input voltage	24 V DC	Rated load voltage	24 V DC	
Rated input current	Approx. 5 mA	Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 2.4 A/common	
Max. simulataneous ON input points	100 %	Max. inrush current	1.0 A 10 ms or lower	
ON voltage/ON current	15 V or higher/3.0 mA or higher	Leakage current at OFF	0.25 mA or lower	
OFF voltage/OFF current	3 V or lower/0.5 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance	A pprox. 4.7 k Ω	Output form	Positive common (Sink type)	
		Protection function	Overload protection function, overvoltage protection function, overheat protection function	
Response time OFF →ON	0.2 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower	
Response time ON →OFF	0.2 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)	
		External Power supply for output Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
		External Power supply for output Current	17.8 mA or lower (When 24 V DC and all point is ON) Not including external load current	
Input form	Positive common (Sink type)	Surge suppression	Zener diode	
Wiring method for common	16 points/1 common (Terminal block single wire type)			
Number of stations occupied	1 station 32 points assignment (use 16 points)			
I/O module power supply Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)			
I/O module power supply Current	55 mA or lower (When 24 V DC and all point is ON)			
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground			
Protection of degree	IP2X			
Weight	0.18kg			
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)			
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]			
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4			
Accessory	User's Manual			



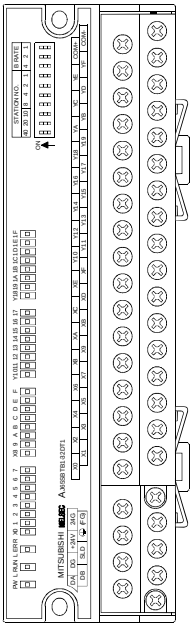
External connection (Sink input)



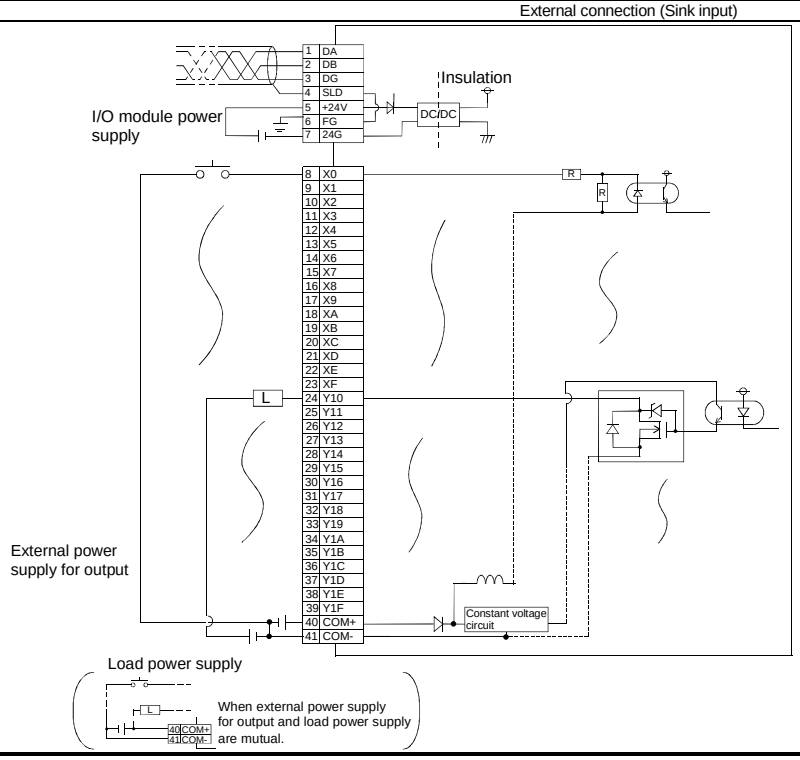
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB8	X0
TB2	DB	TB9	X1
TB3	DG	TB10	X2
TB4	SLD	TB11	X3
TB5	+24V	TB12	X4
TB6	⏚ (FG)	TB13	X5
TB7	24G	TB14	X6
		TB15	X7
		TB16	X8
		TB17	X9
		TB18	XA
		TB19	XB
		TB20	XC
		TB21	XD
		TB22	XE
		TB23	XF
		TB24	COM+
		TB25	COM-

6.1.4 AJ65SBTB1-32DT1 combined module

Form / Specification	DC input transistor output combined module: AJ65SBTB1-32DT1				Surface shape
Input specification			Output specification		
Number of input points	16 points		Number of output points	16 points	
Isolation method	Photocoupler		Isolation method	Photocoupler	
Rated input voltage	24 V DC		Rated load voltage	24 V DC	
Rated input current	Approx. 5 mA		Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)		Max. load current	0.5 A/point 3.6 A/common	
Max. simulataneous ON input points	100 %		Max. inrush current	1.0 A 10 ms or lower	
ON voltage/ON current	15 V or higher/3.0 mA or higher		Leakage current at OFF	0.25 mA or lower	
OFF voltage/OFF current	3 V or lower/0.5 mA or lower		Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance	A pprox. 4.7 k Ω		Output form	Positive common (Sink type)	
			Protection function	Overload protection function, overvoltage protection function, overheat protection function	
Response time OFF →ON	0.2 ms or lower (when 24 V DC)		Response time OFF →ON	0.5 ms or lower	
Response time ON →OFF	0.2 ms or lower (when 24 V DC)		Response time ON →OFF	1.5 ms or lower (resistive load)	
			External Power supply for output Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
			External Power supply for output Current	24.2 mA or lower (When 24 V DC and all point is ON) Not including external load current	
Input form	Positive common (Sink type)		Surge suppression	Zener diode	
Wiring method for common	32 points/1 common (Terminal block single wire type)				
Number of stations occupied	1 station 32 points assignment (use 32 points)				
I/O module power supply Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)				
I/O module power supply Current	60 mA or lower (When 24 V DC and all point is ON)				
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)				
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground				
Protection of degree	IP2X				
Weight	0.25kg				
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)				
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions				
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4				
Accessory	User's Manual				



External connection (Sink input)



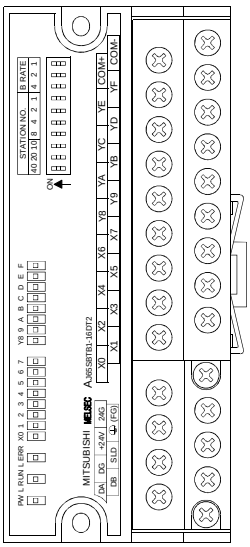
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB22	XE
TB2	DB	TB23	XF
TB3	DG	TB24	Y10
TB4	SLD	TB25	T11
TB5	+24V	TB26	Y12
TB6	⏚ (FG)	TB27	Y13
TB7	24G	TB28	Y14
Terminal number	Signal name	TB29	Y15
		TB30	Y16
TB8	X0	TB31	Y17
TB9	X1	TB32	Y18
TB10	X2	TB33	Y19
TB11	X3	TB34	Y1A
TB12	X4	TB35	Y1B
TB13	X5	TB36	Y1C
TB14	X6	TB37	Y1D
TB15	X7	TB38	Y1E
TB16	X8	TB39	Y1F
TB17	X9	TB40	COM+
TB18	XA	TB41	COM-
TB19	XB		
TB20	XC		
TB21	XD		

6.1.5 AJ65SBTB1-16DT2 combined module

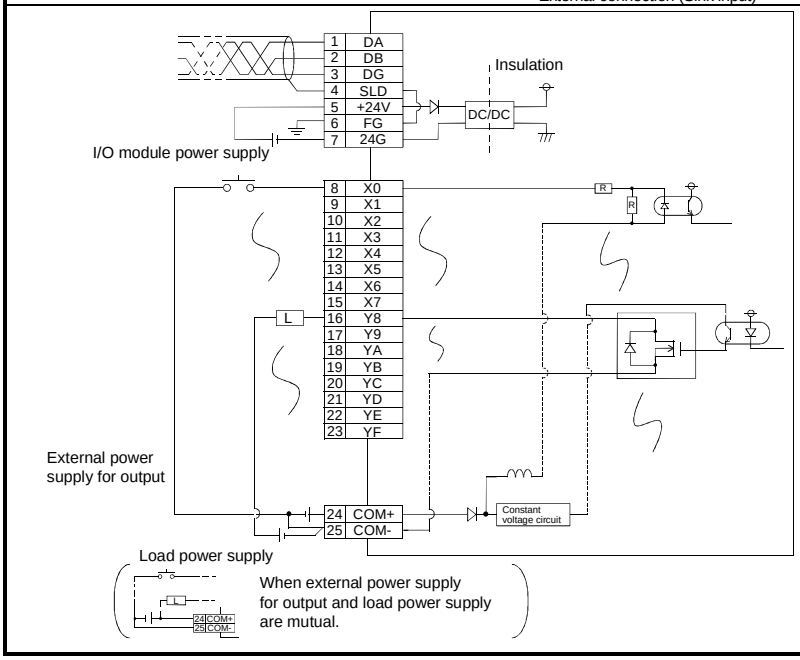
Form / Specification	DC input transistor output combined module AJ65SBTB1-16DT2	Surface shape

Input specification		Output specification		
Number of input points	8 points	Number of output points		8 points
Isolation method	Photocoupler	Isolation method		Photocoupler
Rated input voltage	24 V DC	Rated load voltage		24 V DC
Rated input current	Approx. 7 mA	Operating load voltage range		19.2 to 26.4 V DC(ripple ratio: within 5 %)
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.5 A/point 2.5A/common
Max. simulataneous ON input points	100 %	Max. inrush current		1.0 A 10 ms or lower
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF		0.1 mA or lower
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON		0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A
Input resistance	A pprox. 3.3 k Ω	Output form		Positive common (Sink type)
		Protection function		None
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Response time	OFF →ON	0.5 ms or lower
Response time ON →OFF	1.5 ms or lower (when 24 V DC)		ON →OFF	1.5 ms or lower (resistive load)
		External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
			Current	17.8 mA or lower (When 24 V DC and all point is ON) Not including external load current
Input form	Positive common (Sink type)	Surge suppression		Zener diode

Wiring method for common	16 points/1 common (Terminal block single wire type)	
Number of stations occupied	1 station 32 points assignment (use 16 points)	
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	50 mA or lower (When 24 V DC and all point is ON), Not including external load current
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)	
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground	
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground	
Protection of degree	IP2X	
Weight	0.18kg	
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)	
Module installation screw	M4 screw with plain washer finished round (tightening torque range 78 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions	
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)	
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]	
Accessory	User's Manual	



External connection (Sink input)



Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB8	X0
TB2	DB	TB9	X1
TB3	DG	TB10	X2
TB4	SLD	TB11	X3
TB5	+24V	TB12	X4
TB6	⏚ (FG)	TB13	X5
TB7	24G	TB14	X6
		TB15	X7
		TB16	X8
		TB17	X9
		TB18	XA
		TB19	XB
		TB20	XC
		TB21	XD
		TB22	XE
		TB23	XF
		TB24	COM+
		TB25	COM-

6.1.6 AJ65SBTB1-32DT2 combined module

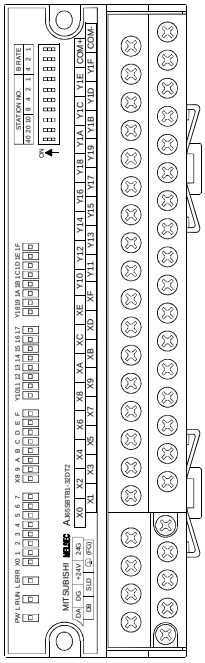
Form / Specification	DC input transistor output combined module: AJ65SBTB1-32DT2	Surface shape

Input specification

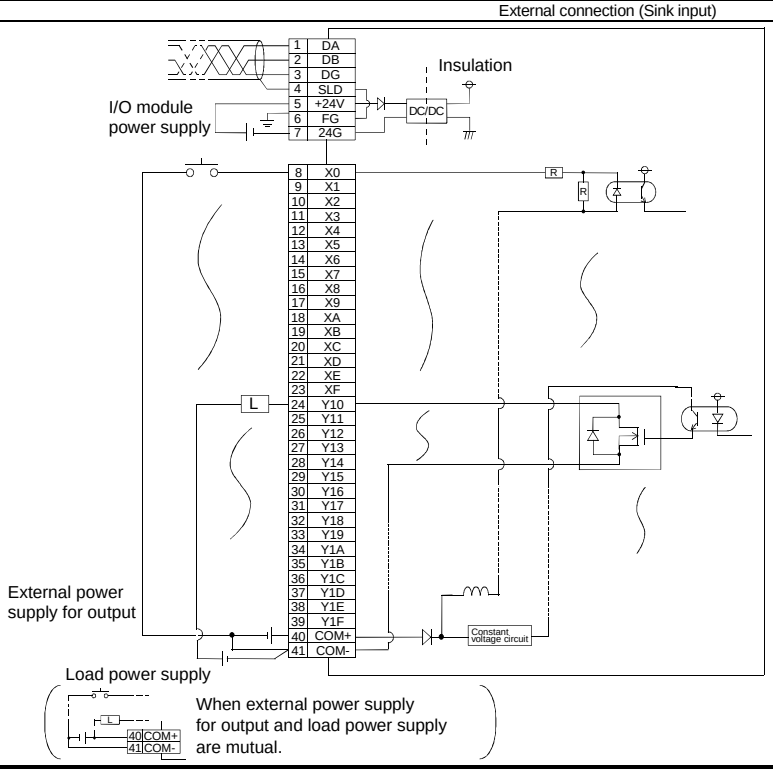
Number of input points		16 points
Isolation method		Photocoupler
Rated input voltage		24 V DC
Rated input current		Approx. 7 mA
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Max. simulataneous ON input points		100 %
ON voltage/ON current		14 V or higher/3.5 mA or higher
OFF voltage/OFF current		6 V or lower/1.7 mA or lower
Input resistance		A pprox. 3.3 k Ω
Response time	OFF →ON	1.5 ms or lower (when 24 V DC)
	ON →OFF	1.5 ms or lower (when 24 V DC)
Input form		Positive common (Sink type)
Wiring method for common		32 points/1 common (Terminal block single wire type)
Number of stations occupied		1 station 32 points assignment (use 32 points)
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
	Current	60 mA or lower (When 24 V DC and all point is ON), Not including external load current
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Protection of degree		IP2X
Weight		0.25kg
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw		M4 screw with plain washer finished round (tightening torque range 78 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal		• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Accessory		User's Manual

Output specification

Number of output points		16 points
Isolation method		Photocoupler
Rated load voltage		24 V DC
Operating load voltage range		19.2 to 26.4 V DC(ripple ratio: within 5 %)
Max. load current		0.5 A/point 3.6A/common
Max. inrush current		1.0 A 10 ms or lower
Leakage current at OFF		0.1 mA or lower
Max. voltage drop at ON		0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A
Output form		Positive common (Sink type)
Protection function		None
Response time	OFF →ON	0.5 ms or lower
	ON →OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	30 mA or lower (When 24 V DC and all point is ON) Not including external load current
Surge suppression		Zener diode



External connection (Sink input)

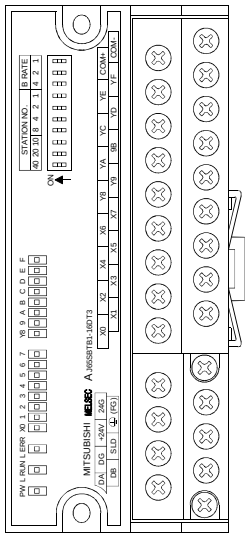


Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB22	XE
TB2	DB	TB23	XF
TB3	DG	TB24	Y10
TB4	SLD	TB25	T11
TB5	+24V	TB26	Y12
TB6	⏚ (FG)	TB27	Y13
TB7	24G	TB28	Y14
TB8	X0	TB29	Y15
TB9	X1	TB30	Y16
TB10	X2	TB31	Y17
TB11	X3	TB32	Y18
TB12	X4	TB33	Y19
TB13	X5	TB34	Y1A
TB14	X6	TB35	Y1B
TB15	X7	TB36	Y1C
TB16	X8	TB37	Y1D
TB17	X9	TB38	Y1E
TB18	XA	TB39	Y1F
TB19	XB	TB40	COM+
TB20	XC	TB41	COM-
TB21	XD		

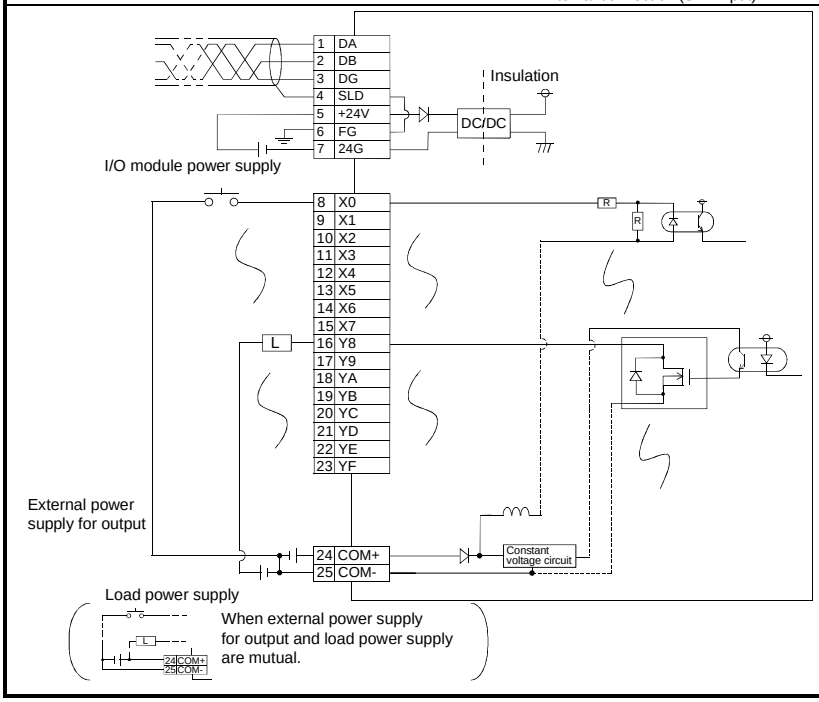
6.1.7 AJ65SBTB1-16DT3 combined module

Form / Specification	DC input transistor output combined module: AJ65SBTB1-16DT3	Surface shape

Input specification			Output specification		
Number of input points		8 points	Number of output points		8 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		24 V DC	Rated load voltage		24 V DC
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC(ripple ratio: within 5 %)
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.5 A/point 2.4 A/common
Max. simulataneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower
ON voltage/ON current		15 V or higher/3.0 mA or higher	Leakage current at OFF		0.1 mA or lower
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	Max. voltage drop at ON		0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A
Input resistance		A pprox. 4.7 k Ω	Output form		Positive common (Sink type)
			Protection function		None
Response time	OFF →ON	0.2 ms or lower (when 24 V DC)	Response time	OFF →ON	0.5 ms or lower
	ON →OFF	0.2 ms or lower (when 24 V DC)		ON →OFF	1.5 ms or lower (resistive load)
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
				Current	17.8 mA or lower (When 24 V DC and all point is ON) Not including external load current
Input form		Positive common (Sink type)	Surge suppression		Zener diode
Wiring method for common		16 points/1 common (Terminal block single wire type)			
Number of stations occupied		1 station 32 points assignment (use 16 points)			
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)			
	Current	55 mA or lower (When 24 V DC and all point is ON)			
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground			
Protection of degree		IP2X			
Weight		0.18kg			
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)			
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions			
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable solderless terminal		• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]			
Applicable I/O connector		A6CON1, A6CON2, A6CON3, A6CON4			
Accessory		User's Manual			



External connection (Sink input)



Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB8	X0
TB2	DB	TB9	X1
TB3	DG	TB10	X2
TB4	SLD	TB11	X3
TB5	+24V	TB12	X4
TB6	⏚ (FG)	TB13	X5
TB7	24G	TB14	X6
		TB15	X7
		TB16	X8
		TB17	X9
		TB18	XA
		TB19	XB
		TB20	XC
		TB21	XD
		TB22	XE
		TB23	XF
		TB24	COM+
		TB25	COM-

6.1.8 AJ65SBTB1-32DT3 combined module

Form / Specification	DC input transistor output combined module: AJ65SBTB1-32DT3	Surface shape

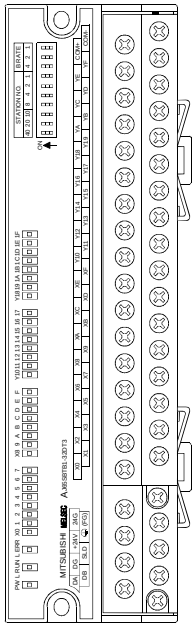
Input specification

Number of input points	16 points		
Isolation method	Photocoupler		
Rated input voltage	24 V DC		
Rated input current	Approx. 5 mA		
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)		
Max. simulataneous ON input points	100 %		
ON voltage/ON current	15 V or higher/3.0 mA or higher		
OFF voltage/OFF current	3 V or lower/0.5 mA or lower		
Input resistance	A pprox. 4.7 k Ω		
Response time	OFF →ON	0.2 ms or lower (when 24 V DC)	
	ON →OFF	0.2 ms or lower (when 24 V DC)	
Input form	Positive common (Sink type)		
Wiring method for common	32 points/1 common (Terminal block single wire type)		
Number of stations occupied	1 station 32 points assignment (use 32 points)		
I/O module power supply	Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)	
	Current	60 mA or lower (When 24 V DC and all point is ON)	

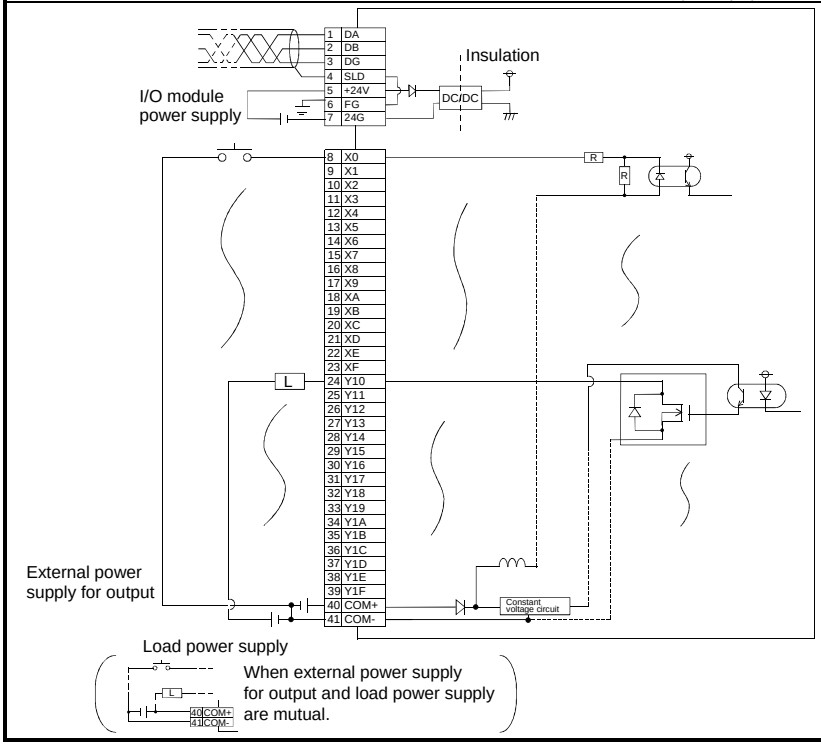
Output specification

Number of output points	16 points	
Isolation method	Photocoupler	
Rated load voltage	24 V DC	
Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)	
Max. load current	0.5 A/point 3.6 A/common	
Max. inrush current	1.0 A 10 ms or lower	
Leakage current at OFF	0.1 mA or lower	
Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Output form	Positive common (Sink type)	
Protection function	None	
Response time	OFF →ON	0.5 ms or lower
	ON →OFF	1.5 ms or lower (resistive load)
External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
	Current	24.2 mA or lower (When 24 V DC and all point is ON) Not including external load current
Surge suppression	Zener diode	

Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Protection of degree	IP2X
Weight	0.25kg
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4
Accessory	User's Manual



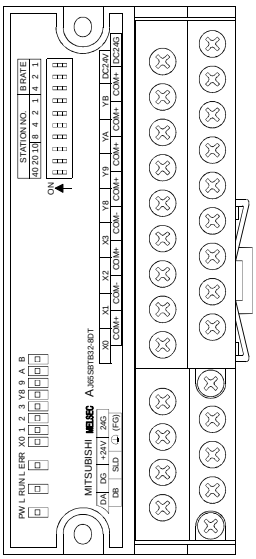
External connection (Sink input)



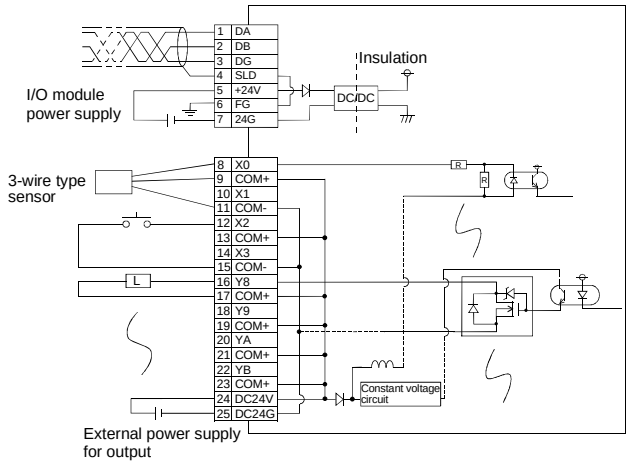
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB22	XE
TB2	DB	TB23	XF
TB3	DG	TB24	Y10
TB4	SLD	TB25	T11
TB5	+24V	TB26	Y12
TB6	⏚ (FG)	TB27	Y13
TB7	24G	TB28	Y14
Terminal number	Signal name	TB29	Y15
		TB30	Y16
TB8	X0	TB31	Y17
TB9	X1	TB32	Y18
TB10	X2	TB33	Y19
TB11	X3	TB34	Y1A
TB12	X4	TB35	Y1B
TB13	X5	TB36	Y1C
TB14	X6	TB37	Y1D
TB15	X7	TB38	Y1E
TB16	X8	TB39	Y1F
TB17	X9	TB40	COM+
TB18	XA	TB41	COM-
TB19	XB		
TB20	XC		
TB21	XD		

6.1.9 AJ65SBTB32-8DT combined module

Form / Specification	DC input transistor output combined module AJ65SBTB32-8DT			Surface shape
Input specification		Output specification		
Number of input points	4 points	Number of output points	4 points	
Isolation method	Photocoupler	Isolation method	Photocoupler	
Rated input voltage	24 V DC	Rated load voltage	24 V DC	
Rated input current	Approx. 7 mA	Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 1.2 A/common	
Max. simulataneous ON input points	100 %	Max. inrush current	1.0 A 10 ms or lower	
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF	0.25 mA or lower	
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance	A pprox. 3.3 k Ω	Output form	Positive common (Sink type)	
		Protection function	Overload protection function, overvoltage protection function, overheat protection function	
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower	
Response time ON →OFF	1.5 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)	
		External Power supply for output Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
		External Power supply for output Current	14.6 mA or lower (When 24 V DC and all point is ON) Not including external load current	
Input form	Positive common (Sink type)	Surge suppression	Zener diode	
Wiring method for common	8 points/1 common (Terminal block 3-wire type:Input Terminal block 2-wire type:output)			
Number of stations occupied	1 station 32 points assignment (use 8 points)			
I/O module power supply Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)			
I/O module power supply Current	45 mA or lower (When 24 V DC and all point is ON)			
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester			
Protection of degree	IP2X			
Weight	0.18kg			
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)			
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions			
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]			
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4			
Accessory	User's Manual			



External connection (Sink input)



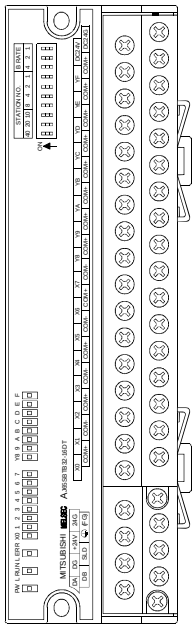
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB8	X0
TB2	DB	TB9	COM+
TB3	DG	TB10	X1
TB4	SLD	TB11	COM-
TB5	+24V	TB12	X2
TB6	⏚ (FG)	TB13	COM+
TB7	24G	TB14	X3
		TB15	COM-
		TB16	X8
		TB17	COM+
		TB18	X9
		TB19	COM+
		TB20	XA
		TB21	COM+
		TB22	YB
		TB23	COM+
		TB24	DC24V
		TB25	DC24G

6.1.10 AJ65SBTB32-16DT combined module

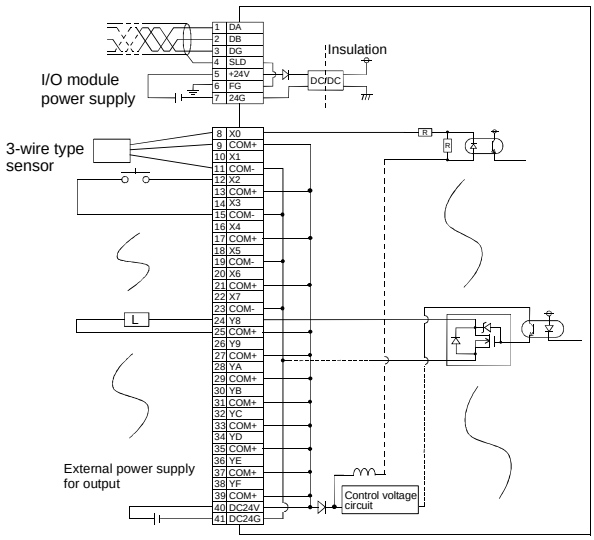
Form / Specification	DC input transistor output combined module: AJ65SBTB32-16DT	Surface shape

Input specification		Output specification	
Number of input points	8 points	Number of output points	8 points
Isolation method	Photocoupler	Isolation method	Photocoupler
Rated input voltage	24 V DC	Rated load voltage	24 V DC
Rated input current	Approx. 7 mA	Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 2.4 A/common
Max. simulataneous ON input points	100 %	Max. inrush current	1.0 A 10 ms or lower
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF	0.25 mA or lower
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A
Input resistance	A pprox. 3.3 k Ω	Output form	Positive common (Sink type)
		Protection function	Overload protection function, overvoltage protection function, overheat protection function
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower
Response time ON →OFF	1.5 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)
		External Power supply for output Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
		External Power supply for output Current	17.8 mA or lower (When 24 V DC and all point is ON) Not including external load current
Input form	Positive common (Sink type)	Surge suppression	Zener diode

Wiring method for common	16 points/1 common (Terminal block 3-wire type:Input Terminal block 2-wire type:output)
Number of stations occupied	1 station 32 points assignment (use 16 points)
I/O module power supply Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)
I/O module power supply Current	50 mA or lower (When 24 V DC and all point is ON)
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground
Protection of degree	IP2X
Weight	0.25kg
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4
Accessory	User's Manual



External connection (Sink input)

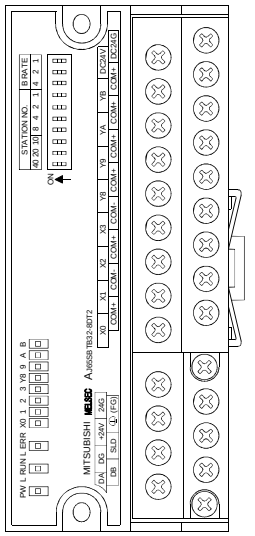


Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB21	COM+
TB2	DB	TB22	X7
TB3	DG	TB23	COM-
TB4	SLD	TB24	Y8
TB5	+24V	TB25	COM+
TB6	⏚ (FG)	TB26	Y9
TB7	24G	TB27	COM+
Terminal number	Signal name	TB28	YA
		TB29	COM+
TB8	X0	TB30	YB
TB9	COM+	TB31	COM+
TB10	X1	TB32	YC
TB11	COM-	TB33	COM+
TB12	X2	TB34	YD
TB13	COM+	TB35	COM+
TB14	X3	TB36	YE
TB15	COM-	TB37	COM+
TB16	X4	TB38	YF
TB17	COM+	TB39	COM+
TB18	X5	TB40	DC24V
TB19	COM-	TB41	DC24G
TB20	X6		

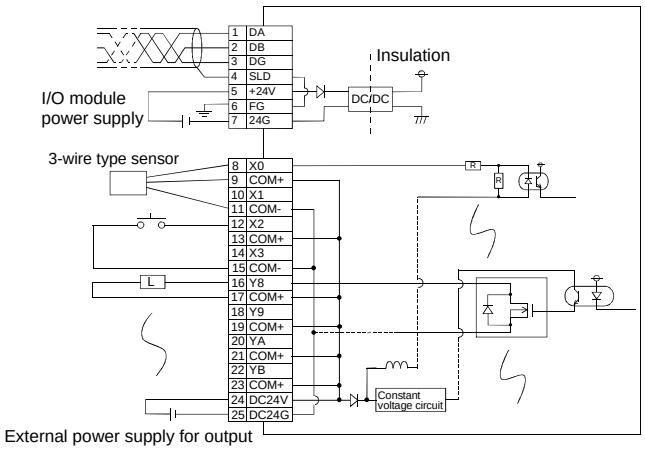
6 - 10

6.1.11 AJ65SBTB32-8DT2 combined module

Form / Specification	DC input transistor output combined module: AJ65SBTB32-8DT2			Surface shape
Input specification		Output specification		
Number of input points	4 points	Number of output points	4 points	
Isolation method	Photocoupler	Isolation method	Photocoupler	
Rated input voltage	24 V DC	Rated load voltage	24 V DC	
Rated input current	Approx. 7 mA	Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 1.2 A/common	
Max. simulataneous ON input points	100 %	Max. inrush current	1.0 A 10 ms or lower	
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF	0.1 mA or lower	
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance	A pprox. 3.3 k Ω	Output form	Positive common (Sink type)	
		Protection function	None	
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower	
Response time ON →OFF	1.5 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)	
		External Power supply for output: Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
		External Power supply for output: Current	14.6 mA or lower (When 24 V DC and all point is ON) Not including external load current	
Input form	Positive common (Sink type)	Surge suppression	Zener diode	
Wiring method for common	8 points/1 common (Terminal block 3-wire type:Input Terminal block 2-wire type:output)			
Number of stations occupied	1 station 32 points assignment (use 8 points)			
I/O module power supply: Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)			
I/O module power supply: Current	45 mA or lower (When 24 V DC and all point is ON)			
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester			
Protection of degree	IP2X			
Weight	0.18kg			
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 18-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)			
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions			
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]			
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4			
Accessory	User's Manual			



External connection (Sink input)

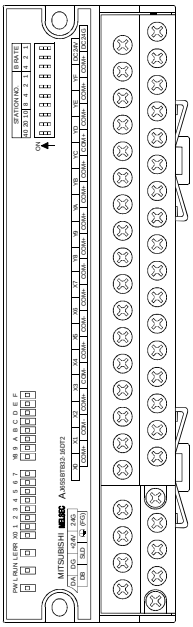


Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB8	X0
TB2	DB	TB9	COM+
TB3	DG	TB10	X1
TB4	SLD	TB11	COM-
TB5	+24V	TB12	X2
TB6	⏚ (FG)	TB13	COM+
TB7	24G	TB14	X3
		TB15	COM-
		TB16	X8
		TB17	COM+
		TB18	X9
		TB19	COM+
		TB20	XA
		TB21	COM+
		TB22	YB
		TB23	COM+
		TB24	DC24V
		TB25	DC24G

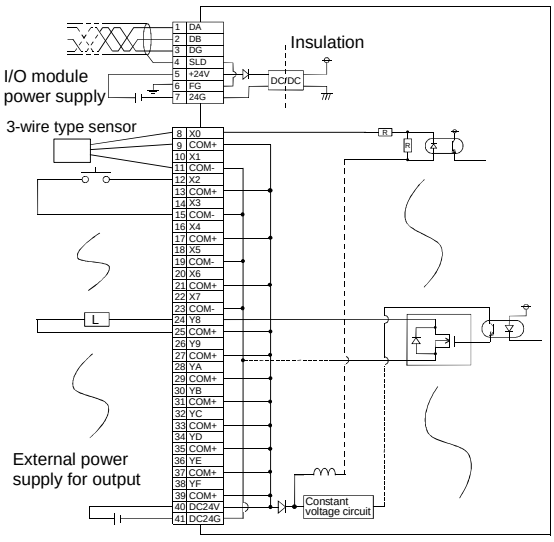
6 - 11

6.1.12 AJ65SBTB32-16DT2 combined module

Form / Specification	DC input transistor output combined module AJ65SBTB32-16DT2		Surface shape
Input specification		**Output specification**	
Number of input points	8 points	Number of output points	8 points
Isolation method	Photocoupler	Isolation method	Photocoupler
Rated input voltage	24 V DC	Rated load voltage	24 V DC
Rated input current	Approx. 7 mA	Operating load voltage range	19.2 to 26.4 V DC(ripple ratio: within 5 %)
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.5 A/point 2.4 A/common
Max. simulataneous ON input points	100 %	Max. inrush current	1.0 A 10 ms or lower
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF	0.1 mA or lower
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON	0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A
Input resistance	A pprox. 3.3 k Ω	Output form	Positive common (Sink type)
		Protection function	None
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Response time OFF →ON	0.5 ms or lower
Response time ON →OFF	1.5 ms or lower (when 24 V DC)	Response time ON →OFF	1.5 ms or lower (resistive load)
		External Power supply for output Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
		External Power supply for output Current	17.8 mA or lower (When 24 V DC and all point is ON) Not including external load current
Input form	Positive common (Sink type)	Surge suppression	Zener diode
Wiring method for common	16 points/1 common (Terminal block 3-wire type:Input Terminal block 2-wire type:output)		
Number of stations occupied	1 station 32 points assignment (use 16 points)		
I/O module power supply Voltage	20.4 to 26.4 V DC(ripple ratio: within 5 %)		
I/O module power supply Current	50 mA or lower (When 24 V DC and all point is ON)		
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)		
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground		
Insulation resistance	10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground		
Protection of degree	IP2X		
Weight	0.25kg		
External wiring system	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 34-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm)		
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions		
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)		
Applicable solderless terminal	• RAV1.25-3.5(in conformance with JIS-C2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]		
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4		
Accessory	User's Manual		



External connection (Sink input)



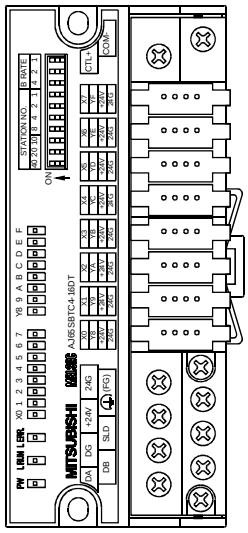
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	TB21	COM+
TB2	DB	TB22	X7
TB3	DG	TB23	COM-
TB4	SLD	TB24	Y8
TB5	+24V	TB25	COM+
TB6	⏚ (FG)	TB26	Y9
TB7	24G	TB27	COM+
Terminal number	Signal name	TB28	YA
		TB29	COM+
TB8	X0	TB30	YB
TB9	COM+	TB31	COM+
TB10	X1	TB32	YC
TB11	COM-	TB33	COM+
TB12	X2	TB34	YD
TB13	COM+	TB35	COM+
TB14	X3	TB36	YE
TB15	COM-	TB37	COM+
TB16	X4	TB38	YF
TB17	COM+	TB39	COM+
TB18	X5	TB40	DC24V
TB19	COM-	TB41	DC24G
TB20	X6		

6 - 12

6.2 One Touch Connector Type Combined Module

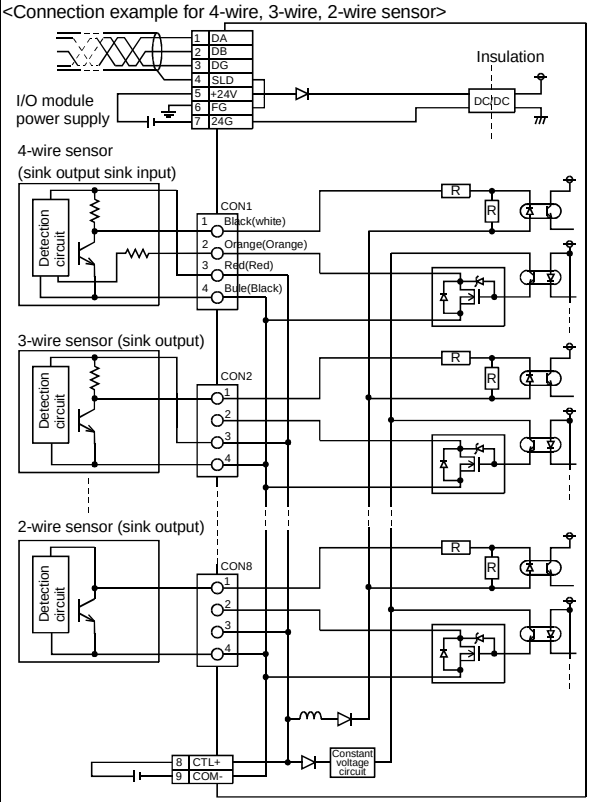
6.2.1 AJ65SBTC4-16DT combined module

Form / Specification		DC input transistor output combined module			
		AJ65SBTC4-16DT			Surface shape
Input specification			Output specification		
Number of input points		8 points	Number of output points		8 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		24 V DC	Rated load voltage		24 V DC
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.5 A/point 2.4 A/common
Max. simulataneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower
ON voltage/ON current		14 V or higher/ 3.5 mA or higher	Leakage current at OFF		0.25 mA or lower
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	Max. voltage drop at ON		0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A
Input resistance		Approx. 4.7 k Ω			
Response time	OFF →ON	1.5 ms or lower (when 24 V DC)	Output method		Positive common (Sink type)
			Protection function		Overload protection function, overvoltage protection function, overheat protection function
	ON →OFF	1.5 ms or lower (when 24 V DC)	Response time	OFF →ON	0.5 ms or lower
Input form		Positive common (Sink type)		ON →OFF	1.5 ms or lower (resistive load)
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
				Current	13 mA or lower (when 24 V DC and all point is ON) Not including external load current
			Surge suppression		Zener diode
Wiring method for common		16 points/1 common (quick connector plug 4 wire type)			
Number of stations occupied		1 station 32 points assignment (use 16 points)			
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)			
	Current	40 mA or lower (When 24 VDC and all point is ON)			
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)			
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground			
Protection of degree		IP2X			
Weight		0.15kg			
External connection method		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm), Dedicated quick connector (4-pin pressure-displacement type, connector plug sold separately.)			
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions			
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]			
	I/O area connector	• φ1.0 to 1.4 (A6CON-P214), φ1.4 to 2.0 (A6CON-P220) [Applicable wire size : 0.14 to 0.2 mm^2] • φ1.0 to 1.4 (A6CON-P514), φ1.4 to 2.0 (A6CON-P520) [Applicable wire size : 0.3 to 0.5 mm^2]			
Accessory		User's Manual			

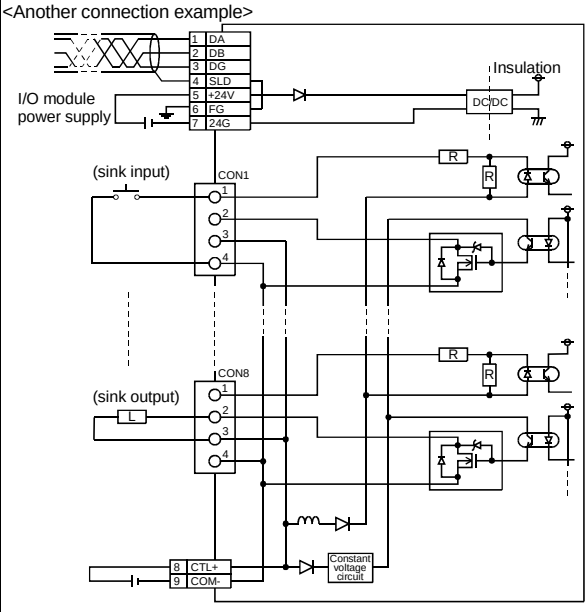


External connection

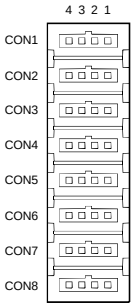
<Connection example for 4-wire, 3-wire, 2-wire sensor>



<Another connection example>



Pin arrangement



A module view from the top.

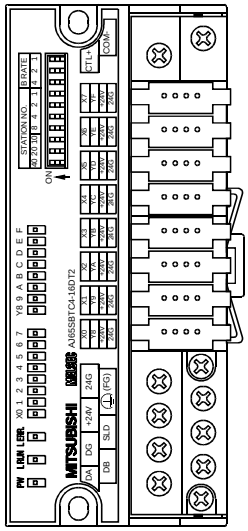
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	CON4-1	X3
TB2	DB	CON4-2	YB
TB3	DG	CON4-3	+24V
TB4	SLD	CON4-4	24G
TB5	+24V	CON5-1	X4
TB6	⏚ (FG)	CON5-2	YC
TB7	24G	CON5-3	+24V
Pin signal	Signal name	CON5-4	24G
CON1-1	X0	CON6-1	X5
CON1-2	Y8	CON6-2	YD
CON1-3	+24V	CON6-3	+24V
CON1-4	24G	CON6-4	24G
CON2-1	X1	CON7-1	X6
CON2-2	Y9	CON7-2	YE
CON2-3	+24V	CON7-3	+24V
CON2-4	24G	CON7-4	24G
CON3-1	X2	CON8-1	X7
CON3-2	YA	CON8-2	YF
CON3-3	+24V	CON8-3	+24V
CON3-4	24G	CON8-4	24G

Terminal number	Signal name
TB8	CTL+
TB9	COM-

6 - 14

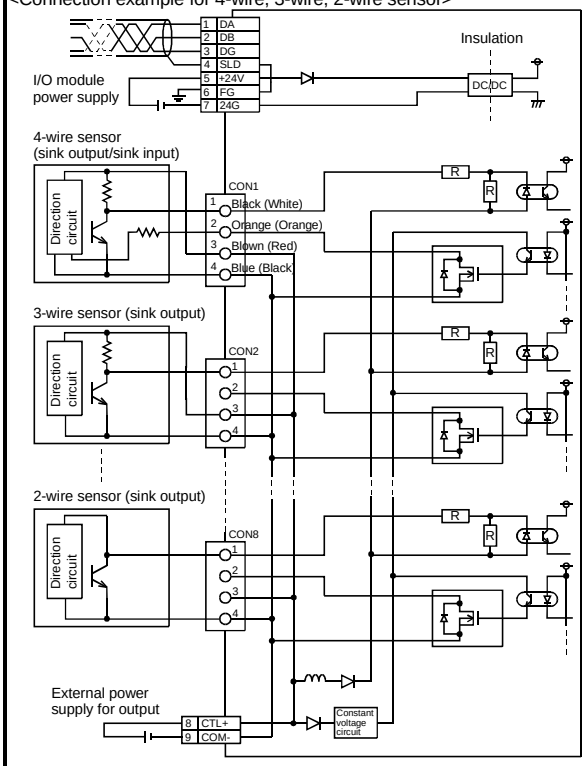
6.2.2 AJ65SBTC4-16DT2 combined module

Form / Specification			DC input transistor output combined module			Surface shape
			AJ65SBTC4-16DT2			
Input specification			Output specification			
Number of input points		8 points	Number of output points		8 points	
Isolation method		Photocoupler	Isolation method		Photocoupler	
Rated input voltage		24 V DC	Rated load voltage		24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.5 A/point , 2.4 A/common	
Max. simulataneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current		14 V or higher/ 2.5 mA or higher	Leakage current at OFF		0.1 mA or lower	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	Max. voltage drop at ON		0.3 V or lower (TYP)0.5 A 0.6 V or lower (MAX)0.5 A	
Input resistance		Approx. 4.7 k Ω				
Response time	OFF →ON	1.5 ms or lower (when 24 V DC)	Output method		Positive common (Sink type)	
			Protection function		None	
	ON →OFF	1.5 ms or lower (when 24 V DC)	Response time	OFF →ON	0.5 ms or lower	
Input form		Positive common (Sink type)		ON →OFF	1.5 ms or lower (resistive load)	
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
				Current	13 mA or lower (when 24 V DC and all point is ON) Not including external load current	
			Surge suppression		Zener diode	
Wiring method for common		16 points/1 common (quick connector plug 4 wire type)				
Number of stations occupied		1 station 32 points assignment (use 16 points)				
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)				
	Current	40 mA or lower (When 24 VDC and all point is ON)				
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)				
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminals and ground				
Protection of degree		IP2X				
Weight		0.15kg				
External connection method		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm), Dedicated quick connector (4-pin pressure-displacement type, connector plug sold separately.)				
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions				
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
I/O area connector		• φ1.0 to 1.4 (A6CON-P214), φ1.4 to 2.0 (A6CON-P220) [Applicable wire size : 0.14 to 0.2 mm^2] • φ1.0 to 1.4 (A6CON-P514), φ1.4 to 2.0 (A6CON-P520) [Applicable wire size : 0.3 to 0.5 mm^2]				
Accessory		User's Manual				

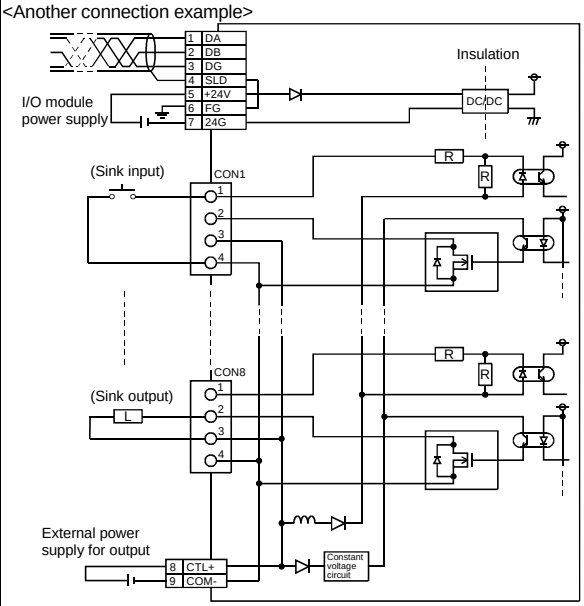


External connection

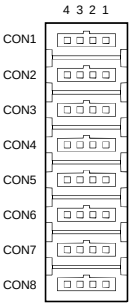
<Connection example for 4-wire, 3-wire, 2-wire sensor>



<Another connection example>



Pin arrangement



A module view from the top.

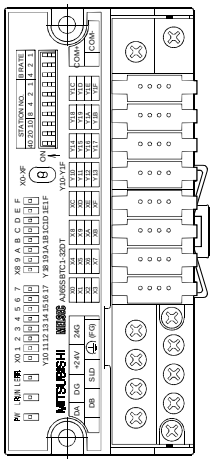
Terminal number	Signal name	Terminal number	Signal name
TB1	DA	CON4-1	X3
TB2	DB	CON4-2	YB
TB3	DG	CON4-3	+24V
TB4	SLD	CON4-4	24G
TB5	+24V	CON5-1	X4
TB6	⏚ (FG)	CON5-2	YC
TB7	24G	CON5-3	+24V
Pin signal	Signal name	CON5-4	24G
CON1-1	X0	CON6-1	X5
CON1-2	Y8	CON6-2	YD
CON1-3	+24V	CON6-3	+24V
CON1-4	24G	CON6-4	24G
CON2-1	X1	CON7-1	X6
CON2-2	Y9	CON7-2	YE
CON2-3	+24V	CON7-3	+24V
CON2-4	24G	CON7-4	24G
CON3-1	X2	CON8-1	X7
CON3-2	YA	CON8-2	YF
CON3-3	+24V	CON8-3	+24V
CON3-4	24G	CON8-4	24G

Terminal number	Signal name
TB8	CTL+
TB9	COM-

6 - 16

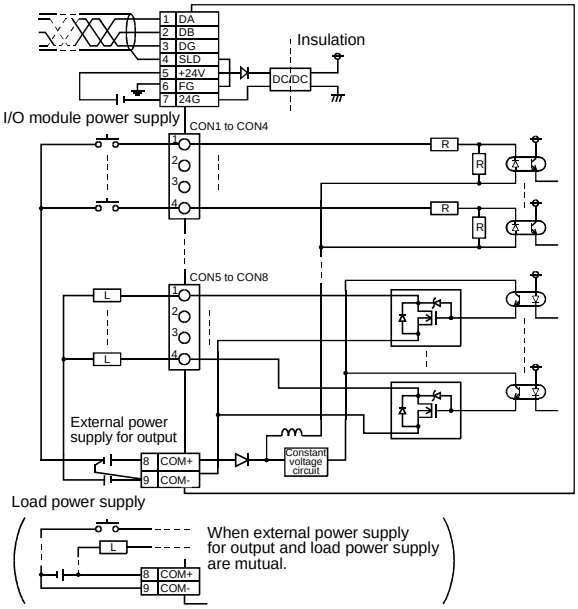
6.2.3 AJ65SBTC1-32DT combined module

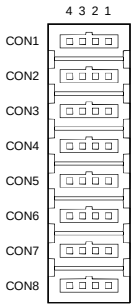
Specification \ Form		DC input transistor output combined module				Surface shape
		AJ65SBTC1-32DT				
Input specification			Output specification			
Number of input points		16 points	Number of output points		16 points	
Isolation method		Photocoupler	Isolation method		Photocoupler	
Rated input voltage		24 V DC	Rated load voltage		24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.1 A/point 1.6 A/common	
Max. simultaneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current		14 V or higher/3.5 mA or higher	Leakage current at OFF		0.25 mA or lower	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	Max. voltage drop at ON		0.3 V DC or lower (TYP) 0.1 A 0.6 V DC or lower (MAX) 0.1 A	
Input resistance		Approx. 4.7 kΩ				
Response time	OFF→ON	1.5 ms or lower (when 24 V DC)	Output method		Positive common (Sink type)	
			Protection function		Overload protection function, overvoltage protection function, overheat protection function	
	ON→OFF	1.5 ms or lower (when 24 V DC)	Response time	OFF→ON	0.5 ms or lower	
Input form		Positive common (Sink type)		ON→OFF	1.5 ms or lower (resistive load)	
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
				Current	17 mA or lower (when 24 V DC and all point is ON) Not including external load current	
			Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (quick connector plug single wire type)				
Number of stations occupied		1 station 32 points assignment (use 32 points)				
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)				
	Current	50 mA or lower lower (When 24 VDC and all point is ON)				
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)				
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester				
Weight		0.16kg				
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm), Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)				
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 derections				
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25 –3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2 - MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
	I/O area connector	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]				
Accessory		User's Manual				



6 - 17

External connection





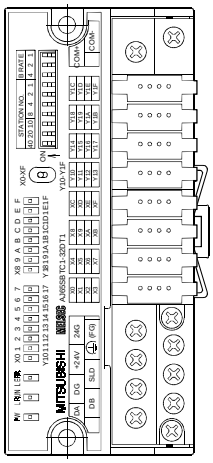
A module view from the top

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X1
CON1-3	X2
CON1-4	X3
CON2-1	X4
CON2-2	X5
CON2-3	X6
CON2-4	X7
CON3-1	X8
CON3-2	X9
CON3-3	XA
CON3-4	XB
CON4-1	XC
CON4-2	XD
CON4-3	XE
CON4-4	XF
CON5-1	Y10
CON5-2	Y11
CON5-3	Y12
CON5-4	Y13
CON6-1	Y14
CON6-2	Y15
CON6-3	Y16
CON6-4	Y17
CON7-1	Y18
CON7-2	Y19
CON7-3	Y1A
CON7-4	Y1B
CON8-1	Y1C
CON8-2	Y1D
CON8-3	Y1E
CON8-4	Y1F
Terminal number	Signal name
TB8	COM+
TB9	COM-

6 - 18

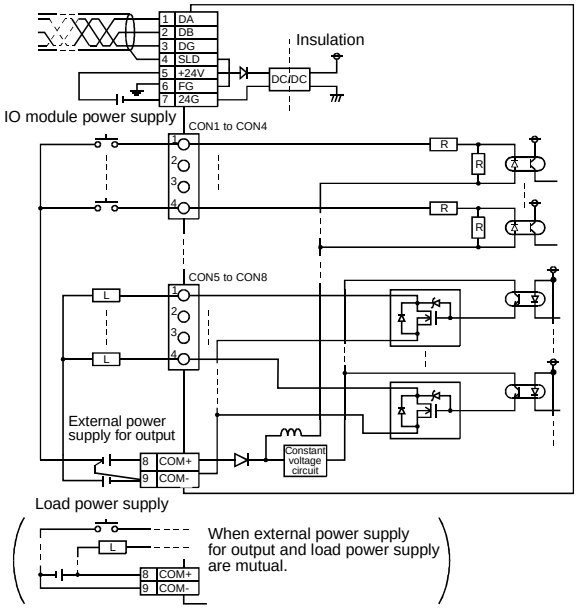
6.2.4 AJ65SBTC1-32DT1 combined module

Specification \ Form		DC input transistor output combined module				Surface shape
		AJ65SBTC1-32DT1				
Input specification			Output specification			
Number of input points		16 points	Number of output points		16 points	
Isolation method		Photocoupler	Isolation method		Photocoupler	
Rated input voltage		24 V DC	Rated load voltage		24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.1 A/point 1.6 A/common	
Max. simultaneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current		15 V or higher/3 mA or higher	Leakage current at OFF		0.25 mA or lower	
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	Max. voltage drop at ON		0.3 V DC or lower(TYP)0.1 A 0.6 V DC or lower(MAX)0.1 A	
Input resistance		Approx. 4.7 kΩ				
Response time	OFF→ON	0.2 ms or lower (when 24 V DC)	Output method		Positive common (Sink type)	
			Protection function		Overload protection function, overvoltage protection function, overheat protection function	
	ON→OFF	0.2 ms or lower (when 24 V DC)	Response time	OFF→ON	0.5 ms or lower	
Input form		Positive common (Sink type)		ON→OFF	1.5 ms or lower (resistive load)	
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
				Current	17 mA or lower (when 24 V DC and all point is ON) Not including external load current	
			Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (quick connector plug single wire type)				
Number of stations occupied		1 station 32 points assignment (use 32 points)				
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)				
	Current	50 mA or lower (When 24 VDC and all point is ON)				
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)				
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester				
Protection of degree		IP2X				
Weight		0.16kg				
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm) Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)				
Module installation screw		M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 derections				
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25 –3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2 - MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
	I/O area connector	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]				
Accessory		User's Manual				

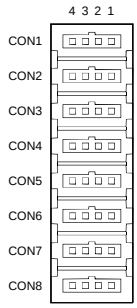


6 - 19

External connection



Pin arrangement



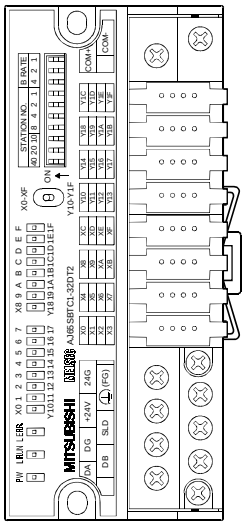
A module view from the top

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X1
CON1-3	X2
CON1-4	X3
CON2-1	X4
CON2-2	X5
CON2-3	X6
CON2-4	X7
CON3-1	X8
CON3-2	X9
CON3-3	XA
CON3-4	XB
CON4-1	XC
CON4-2	XD
CON4-3	XE
CON4-4	XF
CON5-1	Y10
CON5-2	Y11
CON5-3	Y12
CON5-4	Y13
CON6-1	Y14
CON6-2	Y15
CON6-3	Y16
CON6-4	Y17
CON7-1	Y18
CON7-2	Y19
CON7-3	Y1A
CON7-4	Y1B
CON8-1	Y1C
CON8-2	Y1D
CON8-3	Y1E
CON8-4	Y1F
Terminal number	Signal name
TB8	COM+
TB9	COM-

6 - 20

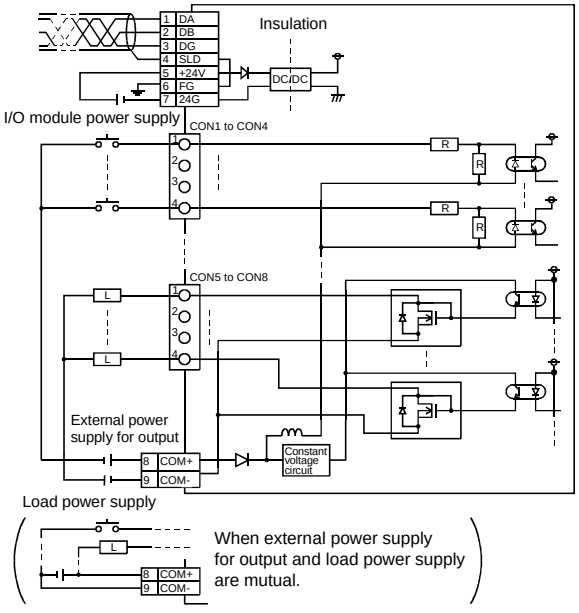
6.2.5 AJ65SBTC1-32DT2 combined module

Specification \ Form		DC input transistor output combined module				Surface shape
		AJ65SBTC1-32DT2				
Input specification			Output specification			
Number of input points		16 points	Number of output points		16 points	
Isolation method		Photocoupler	Isolation method		Photocoupler	
Rated input voltage		24 V DC	Rated load voltage		24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.1 A/point 1.6 A/common	
Max. simultaneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current		14 V or higher/2.5 mA or higher	Leakage current at OFF		0.1 mA or lower	
OFF voltage/OFF current		6 V or lower/1 mA or lower	Max. voltage drop at ON		0.3 V DC or lower(TYP)0.1 A 0.6 V DC or lower(MAX)0.1 A	
Input resistance		Approx. 4.7 kΩ				
Response time	OFF→ON	1.5 ms or lower (when 24 V DC)	Output method		Positive common (Sink type)	
			Protection function		None	
	ON→OFF	1.5 ms or lower (when 24 V DC)	Response time	OFF→ON	0.5 ms or lower	
Input form		Positive common (Sink type)		ON→OFF	1.5 ms or lower (resistive load)	
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
				Current	17 mA or lower (when 24 V DC and all point is ON) Not including external load current	
			Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (quick connector plug single wire type)				
Number of stations occupied		1 station 32 points assignment (use 32 points)				
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)				
	Current	50 mA or lower (When 24 VDC and all point is ON)				
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)				
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester				
Protection of degree		IP2X				
Weight		0.16kg				
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm) Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)				
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions				
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25 –3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2 - MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
	I/O area connector	• ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]				
Accessory		User's Manual				

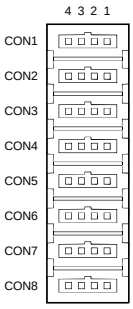


6 - 21

External connection



Pin arrangement



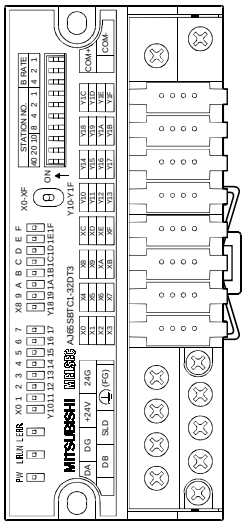
A module view from the top.

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	Signal name
CON1-1	X0
CON1-2	X1
CON1-3	X2
CON1-4	X3
CON2-1	X4
CON2-2	X5
CON2-3	X6
CON2-4	X7
CON3-1	X8
CON3-2	X9
CON3-3	XA
CON3-4	XB
CON4-1	XC
CON4-2	XD
CON4-3	XE
CON4-4	XF
CON5-1	Y10
CON5-2	Y11
CON5-3	Y12
CON5-4	Y13
CON6-1	Y14
CON6-2	Y15
CON6-3	Y16
CON6-4	Y17
CON7-1	Y18
CON7-2	Y19
CON7-3	Y1A
CON7-4	Y1B
CON8-1	Y1C
CON8-2	Y1D
CON8-3	Y1E
CON8-4	Y1F
Terminal number	Signal name
TB8	COM+
TB9	COM-

6 - 22

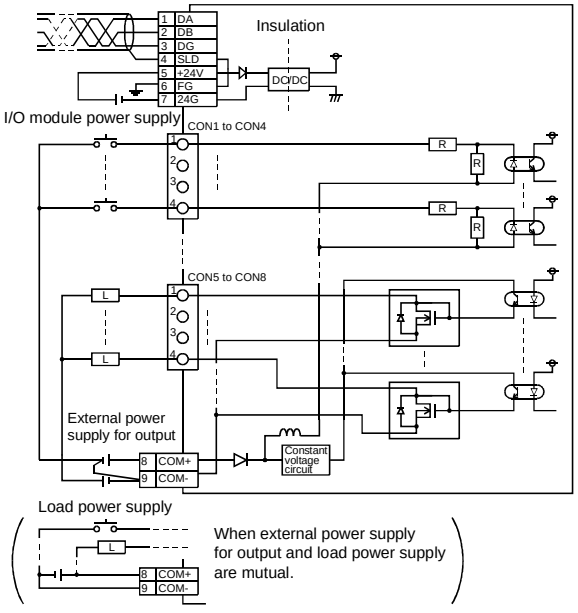
6.2.6 AJ65SBTC1-32DT3 combined module

Specification \ Form		DC input transistor output combined module				Surface shape
		AJ65SBTC1-32DT3				
Input specification			Output specification			
Number of input points		16 points	Number of output points		16 points	
Isolation method		Photocoupler	Isolation method		Photocoupler	
Rated input voltage		24 V DC	Rated load voltage		24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.1 A/point 1.6 A/common	
Max. simultaneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current		15 V or higher/3 mA or higher	Leakage current at OFF		0.1 mA or lower	
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	Max. voltage drop at ON		0.3 V DC or lower(TYP)0.1 A 0.6 V DC or lower(MAX)0.1 A	
Input resistance		Approx. 4.7 kΩ				
Response time	OFF→ON	0.2 ms or lower (when 24 V DC)	Output method		Positive common (Sink type)	
			Protection function		None	
	ON→OFF	0.2 ms or lower (when 24 V DC)	Response time	OFF→ON	0.5 ms or lower	
Input form		Positive common (Sink type)		ON→OFF	1.5 ms or lower (resistive load)	
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)	
				Current	17 mA or lower (when 24 V DC and all point is ON) Not including external load current	
			Surge suppression		Zener diode	
Wiring method for common		32 points/1 common (quick connector plug single wire type)				
Number of stations occupied		1 station 32 points assignment (use 32 points)				
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)				
	Current	50 mA or lower (When 24 VDC and all point is ON)				
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz(noise simulator condition)				
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester				
Protection of degree		IP2X				
Weight		0.16kg				
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), Direct-type 2-point terminal block (I/O power supply area) (M3 screw tightening torque 59 to 88N•cm) Dedicated quick connector (4-pin pressure-displacement type, Connector plug sold separately.)				
Module installation screw		M4 screws with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rails can be used for installation and can be installed in 6 directions				
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25 –3.5 (in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2 - MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
	I/O area connector	• φ1.0 to 1.4 (A6CON-P214), φ1.4 to 2.0 (A6CON-P220) [Applicable wire size: 0.14 to 0.2 mm^2] • φ1.0 to 1.4 (A6CON-P514), φ1.4 to 2.0 (A6CON-P520) [Applicable wire size: 0.3 to 0.5 mm^2]				
Accessory		User's Manual				

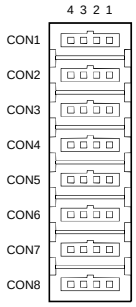


6 - 23

External connection



Pin arrangement



A module view from the top.

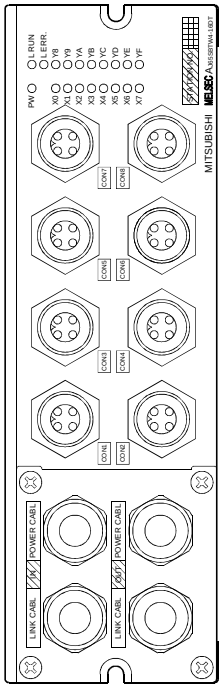
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	**Signal name**
CON1-1	X0
CON1-2	X1
CON1-3	X2
CON1-4	X3
CON2-1	X4
CON2-2	X5
CON2-3	X6
CON2-4	X7
CON3-1	X8
CON3-2	X9
CON3-3	XA
CON3-4	XB
CON4-1	XC
CON4-2	XD
CON4-3	XE
CON4-4	XF
CON5-1	Y10
CON5-2	Y11
CON5-3	Y12
CON5-4	Y13
CON6-1	Y14
CON6-2	Y15
CON6-3	Y16
CON6-4	Y17
CON7-1	Y18
CON7-2	Y19
CON7-3	Y1A
CON7-4	Y1B
CON8-1	Y1C
CON8-2	Y1D
CON8-3	Y1E
CON8-4	Y1F
Terminal number	**Signal name**
TB8	COM+
TB9	COM-

6 - 24

6.3 Waterproof Type Combined Module

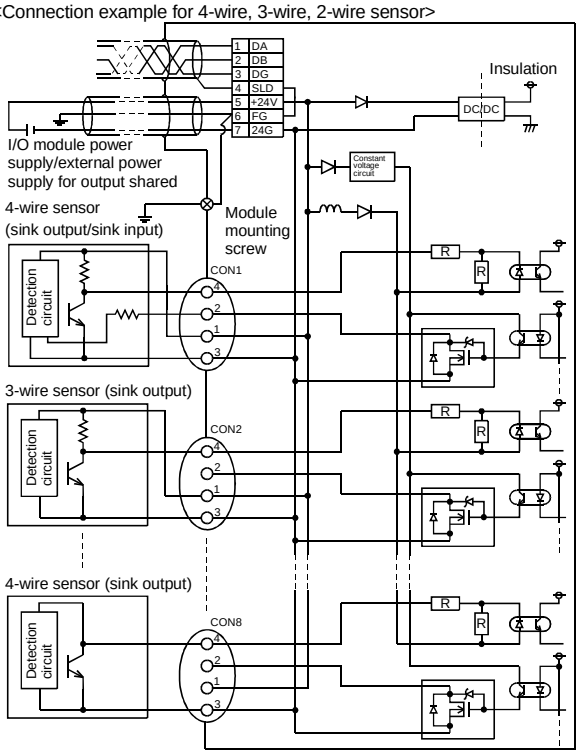
6.3.1 AJ65SBTW4-16DT combined module

Form / Specification			DC input transistor output combined module			
			AJ65SBTW4-16DT			Surface shape
Input specification			Output specification			
Number of input points		8 points	Number of output points		8 points	
Isolation method		Photocoupler	Isolation method		Photocoupler	
Rated input voltage		24 V DC	Rated load voltage		24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range		20.4 to 26.4 V DC (ripple ratio:within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.5 A/point 2.4 A/common	
Max. simultaneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current		14 V or higher/ 3.5 mA or higher	Leakage current at OFF		0.25 mA or lower	
OFF voltage/OFF current		6 V or lower/1.7 mA or lower	Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A	
Input resistance		Approx. 4.7 kΩ				
Response time	OFF→ON	1.5 ms or lower (When 24 V DC)	Output method		Positive common (Sink type)	
			Protection function		Overload protection function, overvoltage protection function, overheat protection function	
	ON→OFF	1.5 ms or lower (When 24 V DC)	Response time	OFF→ON	0.5 ms or lower	
Input form		Positive common (Sink type)		ON→OFF	1.5 ms or lower (resistive load)	
			External Power supply for output	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)	
				Current	13 mA or lower (when 24 V DC and all point is ON)	
			Surge suppression		Zener diode	
Wiring method for common		16 points/1 common (waterproof connector plug 4 wire type) Common to I/O module power supply				
Number of stations occupied		1 station 32 points assignment (use 16 points)				
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5%)				
	Current	50 mA or lower (when 24 V DC and all point is ON) (Input current of I/O section in not included)				
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)				
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester				
Protection of degree		IP67				
Weight		0.70kg				
External wiring system		7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), (M3 screw tightening torque 59 to 88N•cm), Waterproof connector [conforms to NECA 4202 (IEC 947-5-2); 4 pins,male, M12-type, protection construction IP67] (Connector in the I/O area) <Options> Dustproof caps: A6CAP-DC1 (20 caps) Waterproof caps: A6CAP-WP1 (20 caps)				
Applicable wire size	Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV 1.25 to 3.5 (conforming to JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S, RAP2-3SL (Japan Terminal Co., Ltd.) 2-3N, 2-3S [Applicable wire size: 1.25 to 2.0 mm^2]				
	I/O area connector	-				
Tightening torque value	Module top-cover installation screw (M3)	54 to 64 N•cm				
	Module front-cover installation screw (M3)	54 to 64 N•cm				
	Module installation screws (M4 screw with plain washer finished round)	127 to 147 N•cm				
	Through pipe	99 to 148 N•cm				
Through pipe specifications		Applicable cable size: ϕ5.0 to 8.0				
Accessory		User's Manual: Waterproof plugs (2 plugs)				

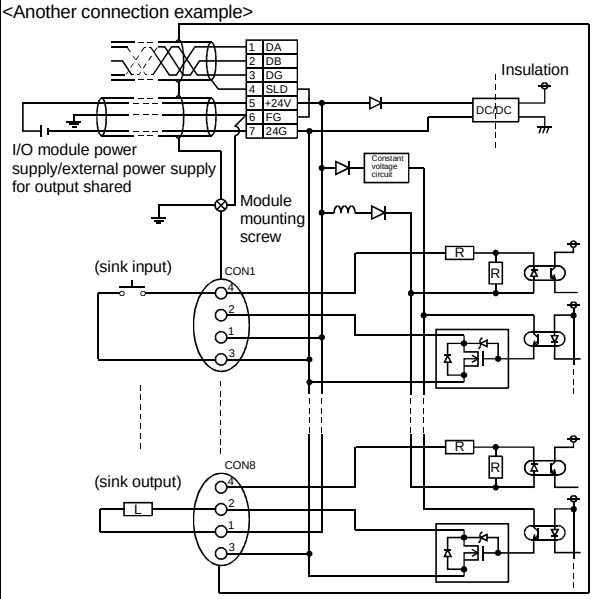


External connection

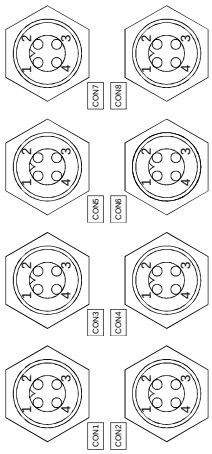
<Connection example for 4-wire, 3-wire, 2-wire sensor>



<Another connection example>



Pin arrangement



A module view from the top.

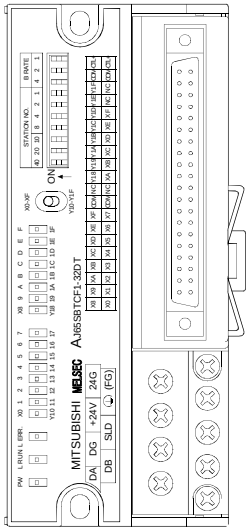
Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SLD
TB5	+24V
TB6	⏚ (FG)
TB7	24G
Pin number	**Signal name**
CON1-1	+24V
CON1-2	Y8
CON1-3	24G
CON1-4	X0
CON2-1	+24V
CON2-2	Y9
CON2-3	24G
CON2-4	X1
CON3-1	+24V
CON3-2	YA
CON3-3	24G
CON3-4	X2
CON4-1	+24V
CON4-2	YB
CON4-3	24G
CON4-4	X3
CON5-1	+24V
CON5-2	YC
CON5-3	24G
CON5-4	X4
CON6-1	+24V
CON6-2	YD
CON6-3	24G
CON6-4	X5
CON7-1	+24V
CON7-2	YE
CON7-3	24G
CON7-4	X6
CON8-1	+24V
CON8-2	YF
CON8-3	24G
CON8-4	X7

6 - 26

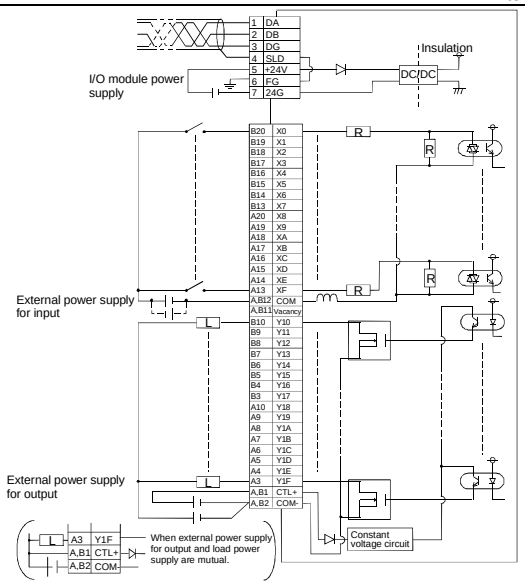
6.4 FCN Connector Type Combined Module

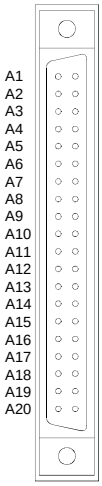
6.4.1 AJ65SBTCF1-32DT combined module

Specification \ Form	DC input transistor output combined module AJ65SBTCF1-32DT				Surface shape
Input specification		Output specification			
Number of input points	16 points	Number of output points		16 points	
Isolation method	Photocoupler	Isolation method		Photocoupler	
Rated input voltage	24 V DC	Rated load voltage		12/24 V DC	
Rated input current	Approx. 5 mA	Operating load voltage range		10.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range	19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current		0.1 A/point 1.6 A/common	
Max. simulataneous ON input points	100 %	Max. inrush current		1.0 A 10 ms or lower	
ON voltage/ON current	14 V or higher/3.5 mA or higher	Leakage current at OFF		0.1 mA or lower	
OFF voltage/OFF current	6 V or lower/1.7 mA or lower	Max. voltage drop at ON		0.1 V or lower (TYP)0.1 A 0.2 V or lower (MAX)0.1 A	
Input resistance	Approx. 4.7kΩ				
Response time OFF →ON	1.5 ms or lower (when 24 V DC)	Output form		Positive common (Sink type)	
Response time ON →OFF	1.5 ms or lower (when 24 V DC)	Protection function		Overload protection function, overvoltage protection function, overheat protection function	
Input form	Positive/Negative common shared type (Sink/source shared type)	Response time	OFF →ON	0.5 ms or lower	
Wiring method for common	16-points /1 common (FCN connector single wire type)		ON →OFF	1.5 ms or lower (resistive load)	
		External Power supply for output	Voltage	10.2 to 26.4 V DC (ripple ratio: within 5 %)	
			Current	30 mA or lower (TYP. 24VDC/common) Not including external load current	
		Wiring method for common		16 points/1 common (FCN connector single wire type)	
		Surge suppression		Zener diode	
Number of stations occupied	1 station 32 points assignment (use 32 points)				
I/O module power supply Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)				
I/O module power supply Current	50 mA or lower (When 24VDC and all point is ON)				
Noise durability	DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)				
Withstand voltage	500 V AC for 1 minute between all DC external terminals and ground				
Insulation resistance	10 MΩ or higher, measured with a 500 V DC insulation resistance tester between all DC external terminal and gound				
Protection of degree	IP2X				
Weight	0.15kg				
External connection method	7-point 2-piece terminal block (transmission circuit, I/O module power supply terminal), 40-pin connector (I/O power supply area, I/O connector) (M3 screw tightening torque 59 to 88N•cm)				
Module installation screw	M4 screw with plain washer finished round (tightening torque range 79 to 108 N•cm) DIN rail can be used for installation and can be installed in 6 directions				
Applicable Din rail	TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)				
Applicable wire size Transmission circuit, I/O module power supply terminal and I/O power supply area	• RAV1.25-3.5(in conformance with JIS C 2805) [Applicable wire size: 0.3 to 1.25 mm^2] • V2-MS3 RAP2-3S RAP2-3SL 2-3N, 2-3S [Applicable wire size: 1.25 to 2 mm^2]				
Applicable I/O connector	A6CON1, A6CON2, A6CON3, A6CON4				
Accessory	User's Manual				



External connection





A module view from the top.

Terminal number	Signal name
TB1	DA
TB2	DB
TB3	DG
TB4	SDL
TB5	+24 V
TB6	⏚ (FG)
TB7	24G

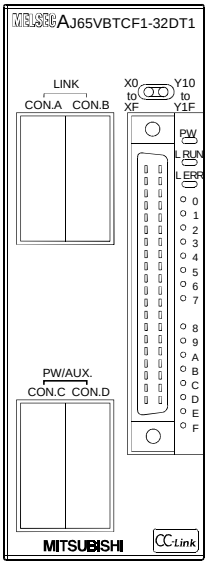
Pin No.	Signal name	Pin No.	Signal name
B20	X00	A20	X08
B19	X01	A19	X09
B18	X02	A18	X0A
B17	X03	A17	X0B
B16	X04	A16	X0C
B15	X05	A15	X0D
B14	X06	A14	X0E
B13	X07	A13	X0F
B12	COM	A12	COM
B11	Vacancy	A11	Vacancy
B10	Y10	A10	Y18
B9	Y11	A9	Y19
B8	Y12	A8	Y1A
B7	Y13	A7	Y1B
B6	Y14	A6	Y1C
B5	Y15	A5	Y1D
B4	Y16	A4	Y1E
B3	Y17	A3	Y1F
B2	COM-	A2	COM-
B1	CTL+	A1	CTL+

6 - 27

6.5 Connector Type Combined Module

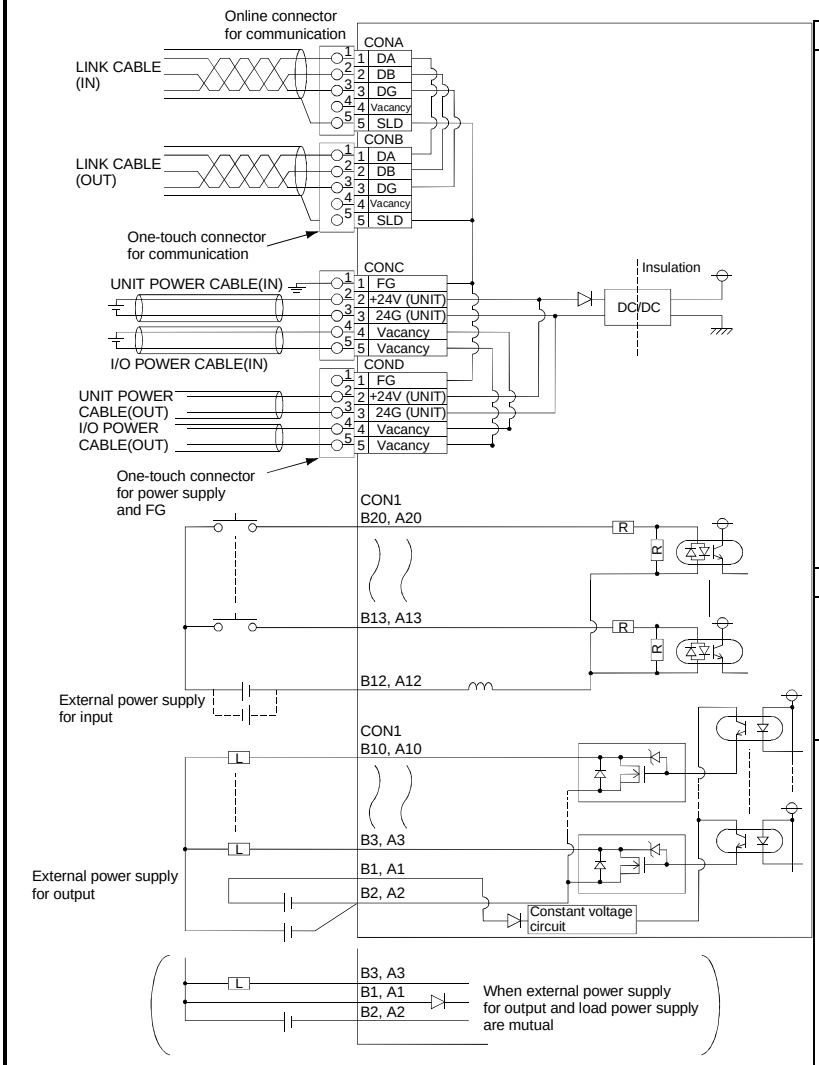
6.5.1 AJ65VBTCF1-32DT1 combined module

Form / Specification		DC input transistor output combined module: AJ65VBTCF1-32DT1			Surface shape
Input specification			Output specification		
Number of input points		16 points	Number of output points	16 points	
Isolation method		Photocoupler	Isolation method	Photocoupler	
Rated input voltage		24 V DC	Rated load voltage	12/24 V DC	
Rated input current		Approx. 5 mA	Operating load voltage range	10.2 to 26.4 V DC(ripple ratio: within 5 %)	
Operating voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)	Max. load current	0.1 A/point 1.6 A/common	
Max. simulataneous ON input points		100 %/60 % (See Section 1.3 (7))	Max. inrush current	0.7 A 10 ms or lower	
ON voltage/ON current		15 V or higher/3 mA or higher	Leakage current at OFF	0.1 mA or lower	
OFF voltage/OFF current		3 V or lower/0.5 mA or lower	Voltage drop at ON	0.1 V or lower (TYP)0.1 A 0.2 V or lower (MAX)0.1 A	
Input resistance		Approx. 4.7kΩ			
Response time	OFF →ON	0.2 ms or lower (when 24 V DC)	Output form	Positive common (Sink type)	
	ON →OFF	0.2 ms or lower (when 24 V DC)	Protection function	Overload protection function, overvoltage protection function, overheat protection function	
Input form		Positive/Negative common shared type (Sink/source loading type)	Response time	OFF →ON: 1 ms or lower	
Wiring method for common		16-points /1 common (FCN connector single wire type)		ON →OFF: 1ms or lower (rated load, resistive load)	
			External Power supply for output	Voltage: 10.2 to 26.4 V DC (ripple ratio: within 5 %)	
				Current: 50 mA or lower (For TYP 24 V DC 1 common)	
			Wiring method for common	16 points/1 common (FCN connector single wire type)	
Number of stations occupied		1 station 32 points assignment (use 32 points)			
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio: within 5 %)			
	Current	50 mA or lower (when TYP. 24 V DC and all point is ON.)			
Noise durability		DC type noise voltage 500 Vp-p, noise width 1 μs, noise carrier frequency 25 to 60 Hz (noise simulator condition)			
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 M Ω or higher, measured with a 500 V DC insulation resistance tester between all DC external terminal and gound			
Protection of degree		IP1XB			
Weight		0.16kg			
External wiring system		One-touch connector for communication [Transmission circuit] (5 pins pressure welding type) The plug for the connector is sold separately One-touch connector for power supply and FG [I/O module power supply and FG] (5 pins pressure welding type) The plug for the connector is sold separately: A6CON-PW5P, A6CON-PW5P-SOD Connector for I/O (40-pin connector) (M3 screw tightening torque 59 to 88N•cm) <Option> Online connector for communication : A6CON-LJ5P Online connector for power supply : A6CON-PWJ5P			
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable wire size	Cable for communication	Applicable cable : FANC-110SBH, CS-110			
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG#18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] Wire diameter 0.16 mm or more Outer insulation layer material PVC (Heat-resistant vinyl)			
	Connector for I/O	0.3 mm^2 (AWG22)			
Applicable I/O connector		A6CON1, A6CON2, A6CON3, A6CON4			
Accessory		User's Manual			

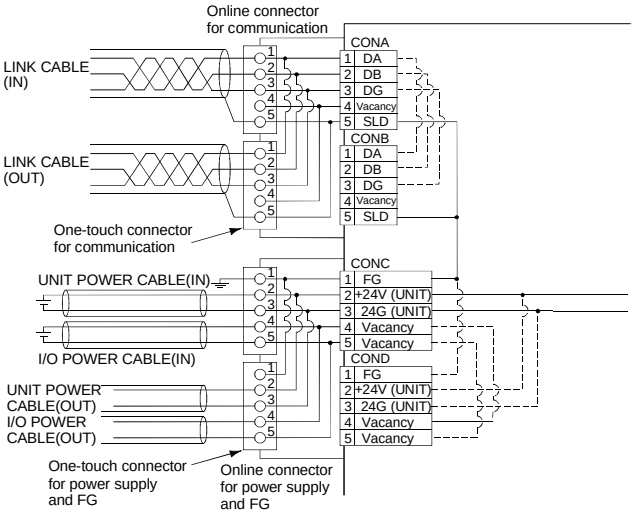


6 - 28

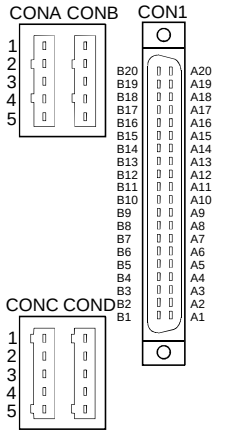
External connection



<When using online connector>



Pin arrangement

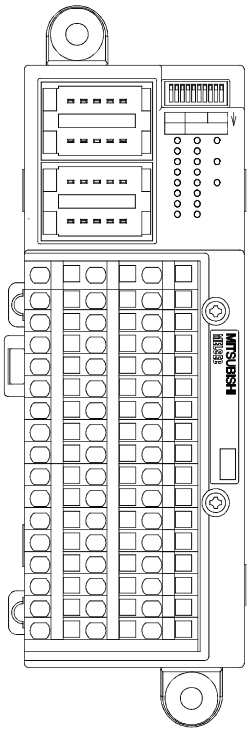


Pin No.		Signal name	Pin No.		Signal name
CONA,B	1	DA			
	2	DB			
	3	DG			
	4	Vacancy			
	5	SLD			
CON1-B	20	X00	CON1-A	20	X08
	19	X01		19	X09
	18	X02		18	X0A
	17	X03		17	X0B
	16	X04		16	X0C
	15	X05		15	X0D
	14	X06		14	X0E
	13	X07		13	X0F
	12	COM		12	COM
	11	Vacancy		11	Vacancy
	10	Y10		10	Y18
	9	Y11		9	Y19
	8	Y12		8	Y1A
	7	Y13		7	Y1B
	6	Y14		6	Y1C
	5	Y15		5	Y1D
	4	Y16		4	Y1E
	3	Y17		3	Y1F
	2	COM-		2	COM-
	1	CTL+		1	CTL+
CONC-D	1	⏚ (FG)			
	2	+24V(UNIT)			
	3	24G(UNIT)			
	4	Vacancy			
	5	Vacancy			

6 - 29

6.5.2 AJ65VBTS32-16DT 24V DC combined module (Spring clamp terminal block type)

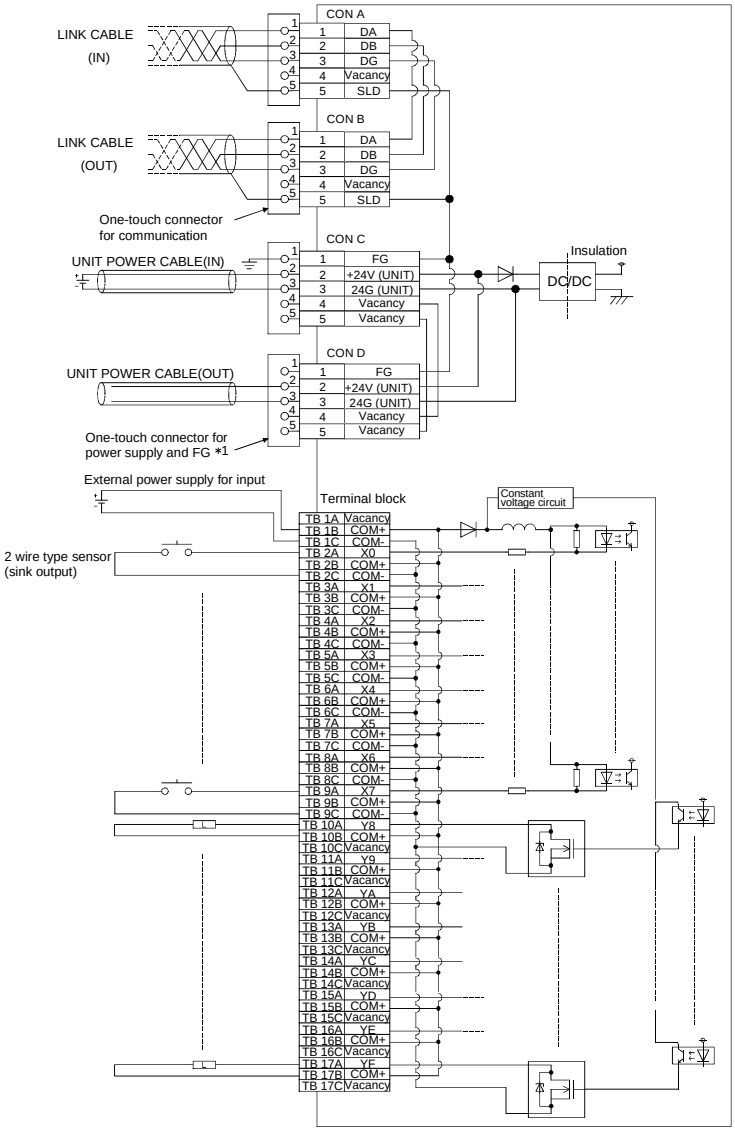
Form / Specification		DC input transistor output combined module			Surface shape
		AJ65VBTS32-16DT			
Input specification			Output specification		
Number of input points		8 points	Number of output points		8 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		24 V DC	Rated load voltage		24 V DC
Rated input current		Approx. 5mA	Operating load voltage range		19.2 to 26.4 V DC (ripple ratio: within 5 %)
Operating voltage range		19.2 to 26.4 V DC (ripple ratio : within 5 %)	Max. load current		0.5 A/point 4A/common
Max. simultaneous ON input points		100 %	Max. inrush current		1.0 A 10 ms or lower
ON voltage/ON current		14V or higher/3.5mA or higher	Leakage current at OFF		0.1 mA or lower
OFF voltage/OFF current		6V or lower/1.7mA or lower	Max. voltage drop at ON		0.3 V or lower (TYP) 0.5 A 0.6 V or lower (MAX) 0.5 A
Input resistance		Approx. 4.7kΩ			
Response time	OFF →ON	1.5 ms or lower (when 24 V DC)	Output form		Positive common (Sink type)
	ON →OFF	1.5 ms or lower (when 24 V DC)	Protection function		None
Input form		Positive common (Sink type)	Response time	OFF →ON	1 ms or lower
				ON →OFF	1 ms or lower (resistive load)
			External Power supply for output	Voltage	19.2 to 26.4 V DC (ripple ratio: within 5 %)
				Current	15 mA or lower (when 24 V DC and all point is ON) Not including external load current
			Surge suppression		Zener diode
Wiring method for common		16 points/common (Spring clamp terminal block type 3-wire type: Input Spring clamp terminal block type 2-wire type: Output)			
Number of stations occupied		1 station 32 points assignment (use 16 points)			
I/O module power supply	Voltage	20.4 to 26.4 V DC (ripple ratio : within 5%)			
	Current	40mA or lower (When 24 V DC and all point is on)			
Noise durability		DC type noise voltage 500 Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)			
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester			
Protection of degree		IP1XB			
Weight		0.24kg			
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-L5P < option > Online connector for communication:A6CON-LJ5P			
	Power supply section	One-touch connector for power supply and FG[I/O module power supply • FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P			
	I/O section	2-piece, spring clamp terminal block [I/O power supply, I/O signal]			
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110			
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)			
	I/O spring clamp terminal block	Stranded wire 0.08 to 1.5 mm2 (AWG28 to 16) ＊1 Wire strip length: 8 to 11 mm			
	Applicable solderless terminal	TE0.5 (NICHIFU Co., ltd) [Applicable wire size : 0.5 mm^2] TE0.75 (NICHIFU Co., ltd) [Applicable wire size : 0.75 mm^2] TE1 (NICHIFU Co., ltd) [Applicable wire size : 0.9 to 1.0 mm^2] TE1.5 (NICHIFU Co., ltd) [Applicable wire size : 1.25 to 1.5 mm^2] FA-VTC125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2] FA-VTCW125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65mm^2]			
Accessory		User's Manual, Holding fixtures for screw installation			



＊1: Basically, insert a wire into a terminal.

6 - 30

External connection

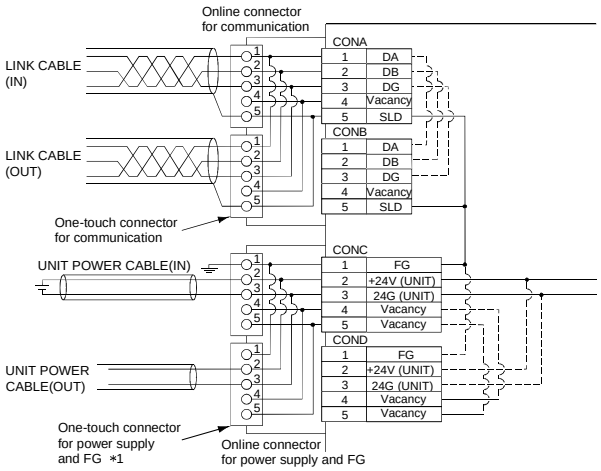


Pin No		Signal name
CON A,B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C,D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	Vacancy
	5	Vacancy

Terminal block

Column A		Column B		Column C	
1	Vacancy	1	COM+	1	COM-
2	X0	2	COM+	2	COM-
3	X1	3	COM+	3	COM-
4	X2	4	COM+	4	COM-
5	X3	5	COM+	5	COM-
6	X4	6	COM+	6	COM-
7	X5	7	COM+	7	COM-
8	X6	8	COM+	8	COM-
9	X7	9	COM+	9	COM-
10	Y8	10	COM+	10	Vacancy
11	Y9	11	COM+	11	Vacancy
12	YA	12	COM+	12	Vacancy
13	YB	13	COM+	13	Vacancy
14	YC	14	COM+	14	Vacancy
15	YD	15	COM+	15	Vacancy
16	YE	16	COM+	16	Vacancy
17	YF	17	COM+	17	Vacancy

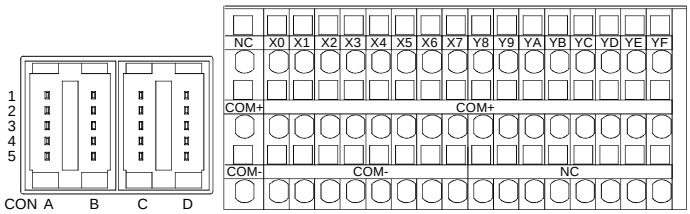
＜When using online connector＞



* 1:The connector in non-divided line should be installed to empty of connector for the power supply and FG.

6 - 31

Pin arrangement

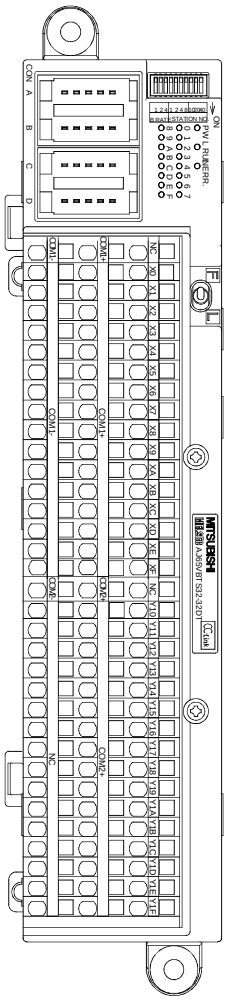


A module view from the top

6 - 32

6.5.3 AJ65VBTS32-32DT 24V DC combined module (Spring clamp terminal block type)

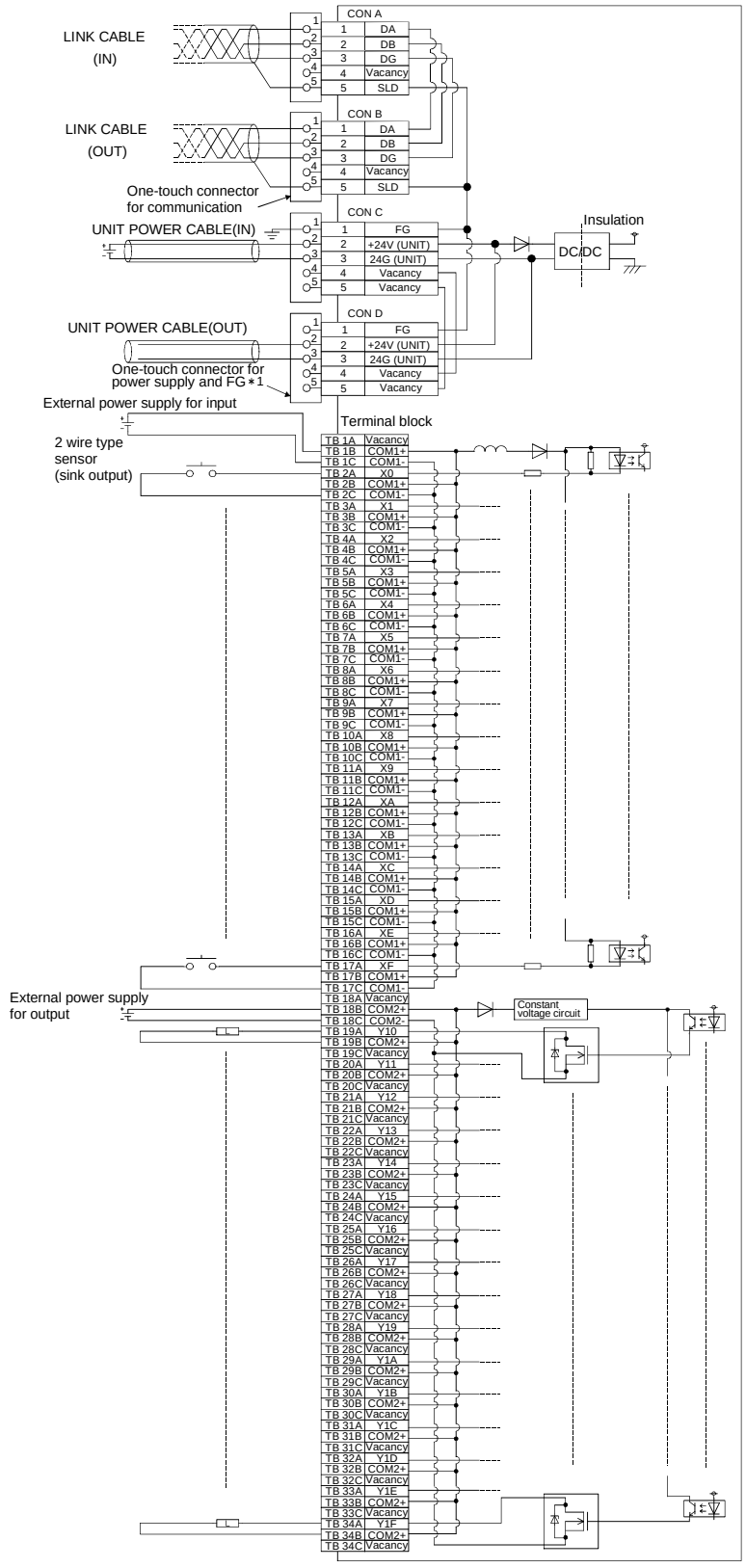
Form / Specification		DC input transistor output combined module			Surface shape
		AJ65VBTS32-32DT			
Input specification			Output specification		
Number of input points		16 points	Number of output points		16 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		24 V DC	Rated load voltage		12/24 V DC
Rated input current		Approx. 5mA	Operating load voltage range		10.2 to 26.4V DC (ripple ratio: within 5%)
Operating voltage range		19.2 to 26.4 V DC (ripple ratio : within 5 %)	Max. load current		0.5A/point 4A/common
Max. simultaneous ON input		100 %/75 % (Refer to Chapter 1.3)	Max.inrush current		1.0A 10ms or lower
ON voltage/ON current		14V or higher/3.5mA or higher	Leakage current at OFF		0.1 mA or lower
OFF voltage/OFF current		6V or lower/1.7mA or lower	Max. voltage drop at ON		0.3V or lower (TYP) 0.5A 0.6v or lower (MAX) 0.5A
Input resistance		Approx. 4.7kΩ			
Response time	OFF →ON	1.5ms or lower (when 24 V DC)	Output form		Positive common (Sink type)
	ON →OFF	1.5ms or lower (when 24 V DC)	Protection function		None
Input form		Positive common (Sink type)	Response time	OFF →ON	1 ms or lower
				ON →OFF	1 ms or lower (resistive load)
			External Power supply for output	Voltage	10.2 to 26.4VDC (ripple ratio: 5%)
				Current	30mA or lower (when 24VDC and all point is ON) Not including external load current
			Surge suppression		Zener diode
Wiring method for common		16 points/common (Spring clamp terminal block type 3-wire type: Input Spring clamp terminal block type 2-wire type: Output)			
Number of stations occupied		1 station 32 points assignment (use 32 points)			
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)			
	Current	50mA or lower (When 24VDC and all point is on)			
Noise durability		DC type noise voltage 500 Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)			
Withstand voltage		500 V AC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 MΩ or higher, measured with a 500 V DC insulation resistance tester			
Protection of degree		IP1XB			
Weight		0.41kg			
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-L5P < option > Online connector for communication:A6CON-LJ5P			
	Power supply section	One-touch connector for power supply and FG[I/O module power supply • FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD < option > Online connector for power supply : A6CON-PWJ5P			
	I/O section	2-piece, spring clamp terminal block [I/O power supply, I/O signal]			
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110			
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)			
	I/O spring clamp terminal block	Stranded wire 0.08 to 1.5 mm^2 (AWG28 to 16) ＊1 Wire strip length: 8 to 11 mm			
	Applicable solderless terminal	TE0.5 (NICHIFU Co., ltd) [Applicable wire size : 0.5 mm^2] TE0.75 (NICHIFU Co., ltd) [Applicable wire size : 0.75 mm^2] TE1 (NICHIFU Co., ltd) [Applicable wire size : 0.9 to 1.0 mm^2] TE1.5 (NICHIFU Co., ltd) [Applicable wire size : 1.25 to 1.5 mm^2] FA-VTC125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65 mm^2] FA-VTCW125T9 (MITSUBISHI ELECTRIC ENGINEERING CO., LTD) [Applicable wire size : 0.3 to 1.65 mm^2]			
Accessory		User's Manual, Holding fixtures for screw installation			



＊1: Basically, insert a wire into a terminal.

6 - 33

External connection



Pin No.		Signal name
CON A,B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C,D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	Vacancy
	5	Vacancy

Terminal block

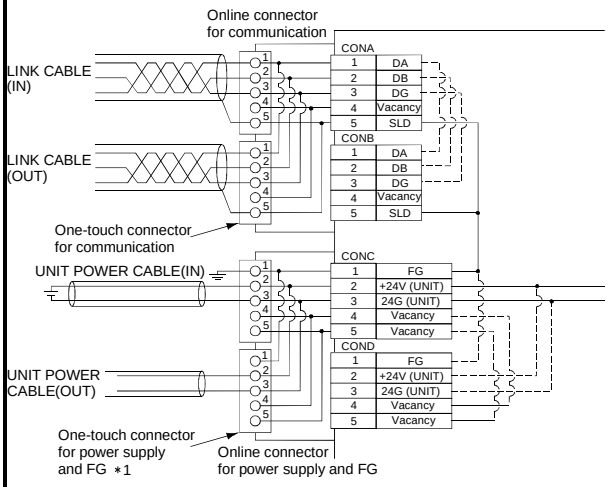
Column A		Column B		Column C	
1	Vacancy	1	COM1+	1	COM1-
2	X0	2	COM1+	2	COM1-
3	X1	3	COM1+	3	COM1-
4	X2	4	COM1+	4	COM1-
5	X3	5	COM1+	5	COM1-
6	X4	6	COM1+	6	COM1-
7	X5	7	COM1+	7	COM1-
8	X6	8	COM1+	8	COM1-
9	X7	9	COM1+	9	COM1-
10	X8	10	COM1+	10	COM1-
11	X9	11	COM1+	11	COM1-
12	XA	12	COM1+	12	COM1-
13	XB	13	COM1+	13	COM1-
14	XC	14	COM1+	14	COM1-
15	XD	15	COM1+	15	COM1-
16	XE	16	COM1+	16	COM1-
17	XF	17	COM1+	17	COM1-
18	Vacancy	18	COM2+	18	COM2-
19	Y10	19	COM2+	19	Vacancy
20	Y11	20	COM2+	20	Vacancy
21	Y12	21	COM2+	21	Vacancy
22	Y13	22	COM2+	22	Vacancy
23	Y14	23	COM2+	23	Vacancy
24	Y15	24	COM2+	24	Vacancy
25	Y16	25	COM2+	25	Vacancy
26	Y17	26	COM2+	26	Vacancy
27	Y18	27	COM2+	27	Vacancy
28	Y19	28	COM2+	28	Vacancy
29	Y1A	29	COM2+	29	Vacancy
30	Y1B	30	COM2+	30	Vacancy
31	Y1C	31	COM2+	31	Vacancy
32	Y1D	32	COM2+	32	Vacancy
33	Y1E	33	COM2+	33	Vacancy
34	Y1F	34	COM2+	34	Vacancy

* 1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

6 - 34

External connection

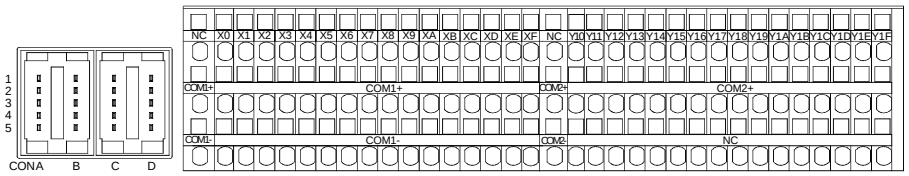
＜When using online connector＞



＊1: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

Pin arrangement

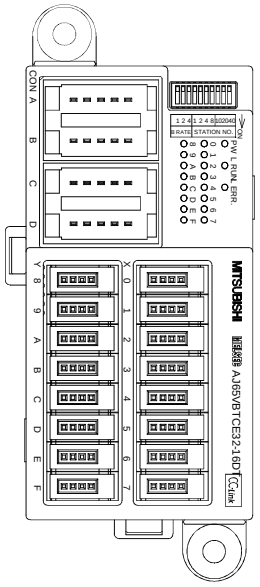
A module view from the top



6 - 35

6.5.4 AJ65VBTCE32-16DT 24V DC combined module

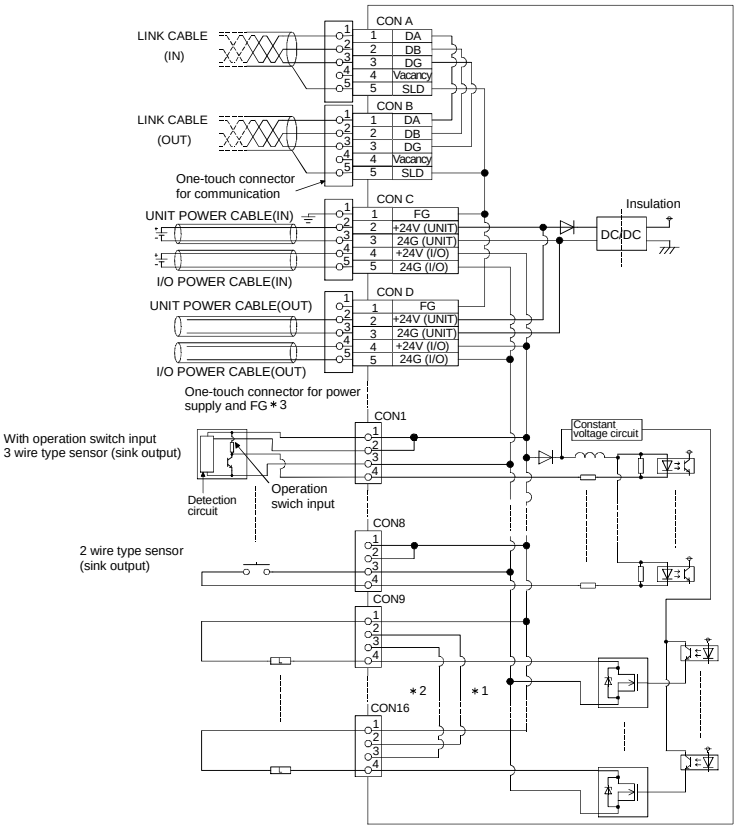
Specification \ Form		DC input transistor output combined module AJ65VBTCE32-16DT			Surface shape
Input specification			Output specification		
Number of input points		8 points	Number of output points	8 points	
Isolation method		Photocoupler	Isolation method	Photocoupler	
Rated input voltage		24 V DC	Rated load voltage	24 V DC	
Rated input current		Approx. 5mA	Operating load voltage range	19.2 to 26.4V DC (ripple ratio: within 5%)	
Operating voltage range		19.2 to 26.4VDC (ripple ratio : within 5 %)	Max. load current	0.1A/point 0.8A/common	
Max. simultaneous ON input		100 %	Max.inrush current	0.7A 10ms or lower	
ON voltage/ON current		14V or higher/3.5mA or higher	Leakage current at OFF	0.1mA or lower	
OFF voltage/OFF current		6V or lower/1.7mA or lower	Max. voltage drop at ON	0.1V or lower (TYP) 0.1A 0.2V or lower (MAX) 0.1A	
Input resistance		Approx. 4.7kΩ			
Response time	OFF →ON	1.5ms or lower (when 24 V DC)	Output form	Positive common (Sink type)	
	ON →OFF	1.5ms or lower (when 24 V DC)	Protection function	Overload protection function, overvoltage protection function and overheat protection function	
Input form		Positive common (Sink type)	Response time	OFF →ON: 1 ms or lower	
				ON →OFF: 1 ms or lower (resistive load)	
			External Power supply for output	Voltage: 19.2 to 26.4VDC (ripple ratio: 5%)	
				Current: 5mA or lower (when 24VDC and all point is ON) Not including external load current	
			Surge suppression	Zener diode	
Wiring method for common		16 points/common (Sensor connector (e-CON) 3-wire type: Input Sensor connector (e-CON) 2-wire type: Output)			
Number of stations occupied		1 station 32 points assignment (use 16 points)			
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)			
	Current	40mA or lower (When 24VDC and all point is on)			
Noise durability		DC type noise voltage 500 Vp-p noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)			
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 M Ω or higher, measured with a 500VDC insulation resistance tester			
Protection of degree		IP1XB			
Weight		0.11kg			
External wiring system	Communication section	One-touch connector for communication [Trans-mission circuit] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-L5P <option> Online connector for sommunication:A6CON-LJ5P			
	Power supply section	One-touch connector for power supply and FG [I/O module power supply, External power supply for input and FG] (5 pins pressure welding type) The plug for the connector is sold separately :A6CON-PW5P, A6CON-PW5P-SOD <option> Online connector for power supply:A6CON-PWJ5P			
	I/O section	Sensor connector (e-CON) [I/O signal] (4 pins pressure welding type) The plug for the connector is sold separately ＊1			
Applicable Din rail		TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)			
Applicable wire size	Connector for communication	Applicable cable:FANC-110SBH, CS-110			
	Connector for power supply and FG	0.66 to 0.98 mm^2 (AWG18) [ϕ2.2 to 3.0 mm (A6CON-PW5P), ϕ2.0 to 2.3 mm (A6CON-PW5P-SOD)] wire diameter 0.16mm or more Outer insulation layer material PVC (Heat-resistant vinyl)			
	Connector for I/O	Sensor connector (e-CON) Plug for connector is sold separately ＊1 (Applicable wire size : 0.08 to 0.5 mm^2, depending on the plug for connector)			
Accessory		User's Manual, Holding fixtures for screw installation			



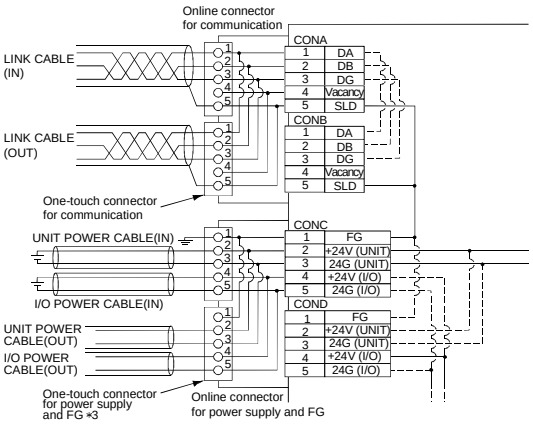
＊1: Refer to Section 1.6.2 for details.

6 - 36

External connection



＜When using online connector＞



Pin No.		Signal name
CON A,B	1	DA
	2	DB
	3	DG
	4	Vacancy
	5	SLD
CON C,D	1	⏚ (FG)
	2	+24V (UNIT)
	3	24G (UNIT)
	4	+24V(I/O)
	5	24G(I/O)

Terminal block

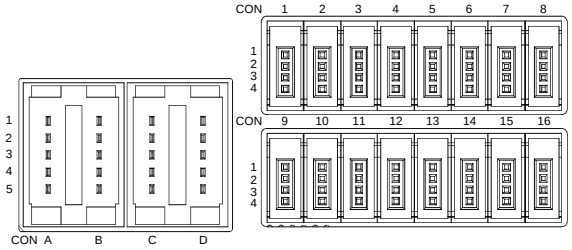
Pin No.		Signal name	Pin No.		Signal name
CON1 (X0)	1	+24V	CON9 (Y8)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X0		4	Y8
CON2 (X1)	1	+24V	CON10 (Y9)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X1		4	Y9
CON3 (X2)	1	+24V	CON11 (YA)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X2		4	YA
CON4 (X3)	1	+24V	CON12 (YB)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X3		4	YB
CON5 (X4)	1	+24V	CON13 (YC)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X4		4	YC
CON6 (X5)	1	+24V	CON14 (YD)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X5		4	YD
CON7 (X6)	1	+24V	CON15 (YE)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X6		4	YE
CON8 (X7)	1	+24V	CON16 (YF)	1	+24V
	2	+V		2	Vacancy ＊1
	3	24G		3	Vacancy ＊2
	4	X7		4	YF

＊1: No.2 pins of CON9 to 16 are internally connected and unusable.

＊2: No.3 pins of CON9 to 16 are internally connected and unusable.

＊3: The connector in non-divided line should be installed to empty of connector for the power supply and FG.

Pin arrangement



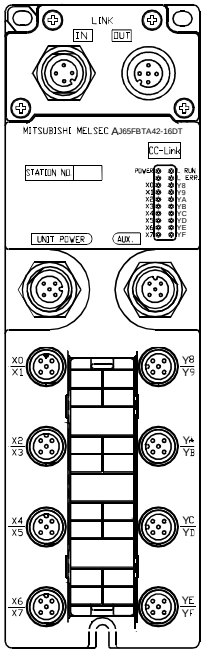
A module view from the top

6 - 37

6.6 Low Profile Waterproof Type Combined Module

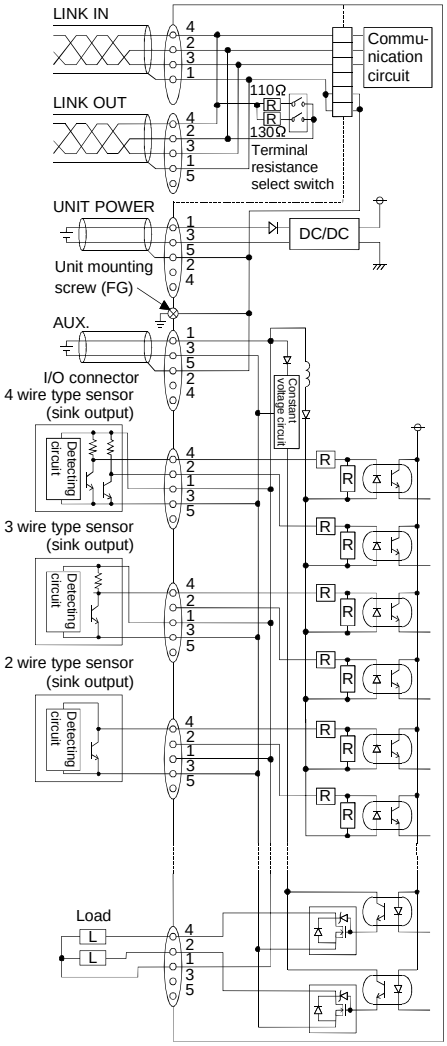
6.6.1 AJ65FBTA42-16DT Combined Module

Form / Specification		DC input transistor output combined module			
		AJ65FBTA42-16DT			Surface shape
Input specification			Output specification		
Number of output points		8 points	Number of output points		8 points
Isolation method		Photocoupler	Isolation method		Photocoupler
Rated input voltage		24VDC	Rated load voltage		24VDC
Rated input current		Approx. 7mA	Operating load voltage range		20.4 to 26.4VDC (ripple ratio : within 5 %)
Operating voltage range		20.4 to 26.4VDC (ripple ratio : within 5 %)	Max. load current		0.5A/point 2.4A/common
Max. simultaneous ON input points		100 %	Max. load inrush current		1.0A 10ms or lower
ON voltage/ ON current		14V or higher/3.5mA or higher	Leakage current at OFF		0.25mA or lower
OFF voltage/ OFF current		6V or lower/1.7mA or lower	Max. voltage drop at ON		0.15V or lower (TYP) 0.5A 0.25V or lower (MAX) 0.5A
Input resistance		Approx. 3.3kΩ			
Response time	OFF→ON	1.5ms or lower (when 24VDC)	Response time	OFF→ON	0.5ms or lower
	ON→OFF	1.5ms or lower (when 24VDC)		ON→OFF	1.5ms or lower (resistive load)
Input form		Positive common (Sink type)	Output method		Positive common (Sink type)
			Protect function		Yes (thermal protection, short circuit protection)
			External Power supply for output	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)
				Current	10mA or lower (When 24VDC and all point is ON) Not including external load current
			Surge suppressor		Zener diode
Wiring method for common		8 points/1 common (waterproof connector 2 to 4-wire type)	Wiring method for common		8 points/1 common (waterproof connector 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 16points)			
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)			
	Current	50mA or lower (When 24VDC and all point is ON)			
Noise durability		DC type noise withstand voltage 500Vp-p, noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)			
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester			
Protection of degree		IP67			
Weight		0.40kg			
Accessory		User's Manual			
Option		Waterproof cap : A6CAP-WP2			
Other connected protection		See section 1.6			

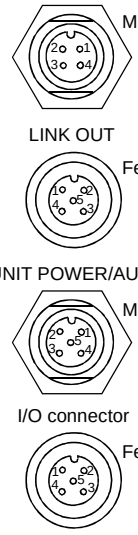


6 - 38

External connection



Pin arrangement



Communication connector

Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Vacancy

Power connector

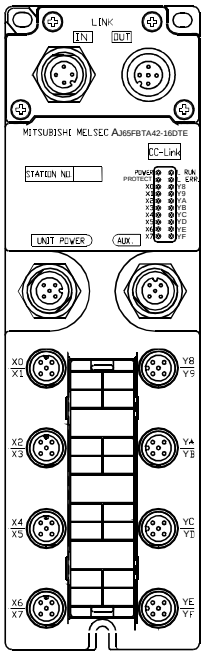
Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Vacancy	Vacancy
3	24G(UNIT)	24G(I/O)
4	Vacancy	Vacancy
5	FG	FG

I/O connector

	Pin No.	Signal name		Pin No.	Signal name
X0/X1	1	+24V	Y8/Y9	1	+24V
	2	X1		2	Y9
	3	24G		3	Vacancy
	4	X0		4	Y8
	5	Vacancy		5	Vacancy
X2/X3	1	+24V	YA/YB	1	+24V
	2	X3		2	YB
	3	24G		3	Vacancy
	4	X2		4	YA
	5	Vacancy		5	Vacancy
X4/X5	1	+24V	YC/YD	1	+24V
	2	X5		2	YD
	3	24G		3	Vacancy
	4	X4		4	YC
	5	Vacancy		5	Vacancy
X6/X7	1	+24V	YE/YF	1	+24V
	2	X7		2	YF
	3	24G		3	Vacancy
	4	X6		4	YE
	5	Vacancy		5	Vacancy

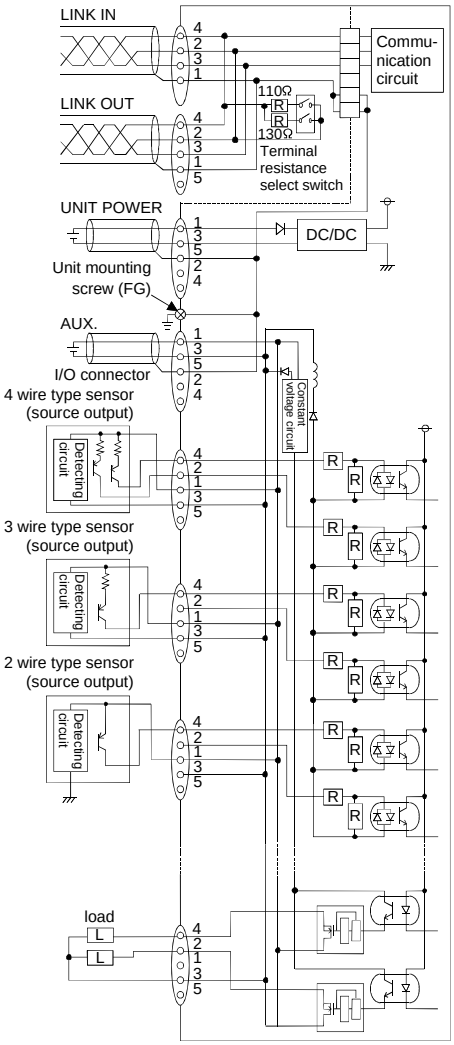
6 - 39

6.6.2 AJ65FBTA42-16DTE Combined Module

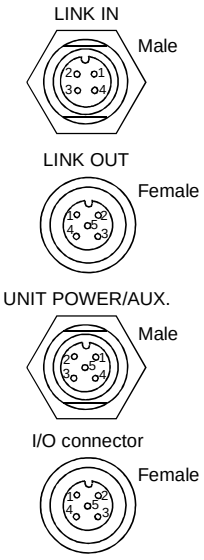
Form / Specification		DC input transistor output combined module: AJ65FBTA42-16DTE			Surface shape
Input specification			Output specification		
Number of output points		8 points	Number of output points	8 points	
Isolation method		Photocoupler	Isolation method	Photocoupler	
Rated input voltage		24VDC	Rated load voltage	24VDC	
Rated input current		Approx. 7mA	Operating load voltage range	20.4 to 26.4VDC (ripple ratio : within 5 %)	
Operating voltage range		20.4 to 26.4VDC (ripple ratio : within 5 %)	Max. load current	1.0A/point 4.0A/common	
Max. simultaneous ON input points		100 %	Max. load inrush current	2.0A 10ms or lower	
ON voltage/ ON current		14V or higher/3.5mA or higher	Leakage current at OFF	0.3mA or lower	
OFF voltage/ OFF current		6V or lower/1.7mA or lower	Max. voltage drop at ON	0.15V or lower (TYP) 0.5A 0.2V or lower (MAX) 0.5A	
Input resistance		Approx. 3.3kΩ			
Response time	OFF→ON	1.5ms or lower (when 24VDC)	Response time	OFF→ON	0.5ms or lower
	ON→OFF	1.5ms or lower (when 24VDC)		ON→OFF	1.5ms or lower (resistive load)
Input form		Negative common (Source type)	Output method		Negative common (Source type)
			Protection function		Yes (thermal protection, short circuit protection) LED lights up when protection is occurring.
			External Power supply for output	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)
				Current	10mA or lower (When 24VDC and all point is ON) Not including external load current
			Surge suppressor		Zener diode
Wiring method for common		8 points/1 common (waterproof connector 2 to 4-wire type)	Wiring method for common		8 points/1 common (waterproof connector 2-wire type)
Number of stations occupied		1 station 32 points assignment (use 16points)			
I/O module power supply	Voltage	20.4 to 26.4VDC (ripple ratio : within 5%)			
	Current	45mA or lower (When 24VDC and all point is ON)			
Noise durability		DC type noise withstand voltage 500Vp-p, noise width 1μs,noise carrier frequency 25 to 60Hz (noise simulator condition)			
Withstand voltage		500VAC for 1 minute between all DC external terminals and ground			
Insulation resistance		10 MΩ or higher, measured with a 500VDC insulation resistance tester			
Protection of degree		IP67			
Weight		0.40kg			
Accessory		User's Manual			
Option		Waterproof cap : A6CAP-WP2			
Other connected protection		See section 1.6			

6 - 40

External connection



Pin arrangement



Communication connector

Pin No.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pins	Vacancy

Power connector

Pin No.	UNIT POWER	AUX.
1	+24V(UNIT)	+24V(I/O)
2	Vacancy	Vacancy
3	24G(UNIT)	24G(I/O)
4	Vacancy	Vacancy
5	FG	FG

I/O connector

	Pin No.	Signal name		Pin No.	Signal name
X0/X1	1	+24V	Y8/Y9	1	Vacancy
	2	X1		2	Y9
	3	24G		3	24G
	4	X0		4	Y8
	5	Vacancy		5	Vacancy
X2/X3	1	+24V	YA/YB	1	Vacancy
	2	X3		2	YB
	3	24G		3	24G
	4	X2		4	YA
	5	Vacancy		5	Vacancy
X4/X5	1	+24V	YC/YD	1	Vacancy
	2	X5		2	YD
	3	24G		3	24G
	4	X4		4	YC
	5	Vacancy		5	Vacancy
X6/X7	1	+24V	YE/YF	1	Vacancy
	2	X7		2	YF
	3	24G		3	24G
	4	X6		4	YE
	5	Vacancy		5	Vacancy

6 - 41

7 HANDLING COMPACT REMOTE I/O MODULES

7.1 Precautionary Notes for Handling and Installation

The precautionary notes when handling and installing the compact remote I/O module for the CC-Link system are described below.

DANGER

- Do not touch the terminals or connector while the power is on.
  Doing so may cause electric shock or malfunction.

CAUTION

- Make sure that there are no foreign substances such as sawdust or wiring debris inside the module.
  Such debris could cause fire, failure or malfunction.
- Do not disassemble or modify the module.
  Doing so could cause failure, malfunction, injury or fire.
- Do not directly touch the module's conductive parts.
  Doing so could cause malfunction or failure in the module.
- Because the case of the module is made of resin, be careful not to drop it or expose it to strong impact. It may damage the module.
- Tighten the terminal screws within the range of specified torque.
  If the terminal screws are loose, it may result in fire or malfunction.
  Tightening the screws too far may cause damage to the screws, resulting in short circuit or malfunction.
- When disposing of this product, treat it as industrial waste.
- Use the module in an environment that meets the general specifications contained in this manual.
  Using this module in an environment outside the range of the general specifications could result in electric shock, fire, malfunction, and damage to or deterioration of the product.
- Make sure to fix the module with DIN rail or installation screws and tighten the installation screws with the specified torque.
  If the screws are loose, it may result in fallout, short circuits, or malfunctions.
  Tightening the screws too far may cause damage to the screw, resulting in fallout and short circuits.
- Switch all phases of the external power supply off before mounting or removing the module.
  Failure to do so may damage the module or cause malfunction.

(1) Tighten the module installation screws and terminal block screws using torque within the following ranges. Tightening the screws too far may cause damage to the module case:

(a) Terminal block, quick connector type remote I/O module

Screw location	Tightening torque range
Module installation screws (M4 screws with polished, round flat washers)	78 to 108 N·cm
Terminal block screws (M3 screws)	59 to 88 N·cm
Terminal block installation screw (M3.5 screws)	68 to 98 N·cm

(b) Waterproof type remote I/O module (AJ65SBTW□-16□)

Screw location	Tightening torque range
Module top cover installation screws (M3 screws)	54 to 64 N·cm
Module front cover installation screws (M3 screws)	54 to 64 N·cm
Through pipe	99 to 148 N·cm
Module installation screws (M4 screws with polished, round flat washers)	127 to 147 N·cm
Terminal block screws (M3 screws)	59 to 88 N·cm
Terminal block installation screw (M3.5 screws)	68 to 98 N·cm

(c) Low profile waterproof remote I/O module (AJ65FBTA□-16□)

Screw location	Tightening torque range
Communication adaptor installation screws (M4 screws)	42 to 58 N·cm
Module installation screws (M4 screws)	78 to 118 N·cm
Waterproof cap (A6CAP-WP2)	29 to 34 N·cm

(d) Spring clamp terminal block, sensor connector (e-CON) remote I/O modules

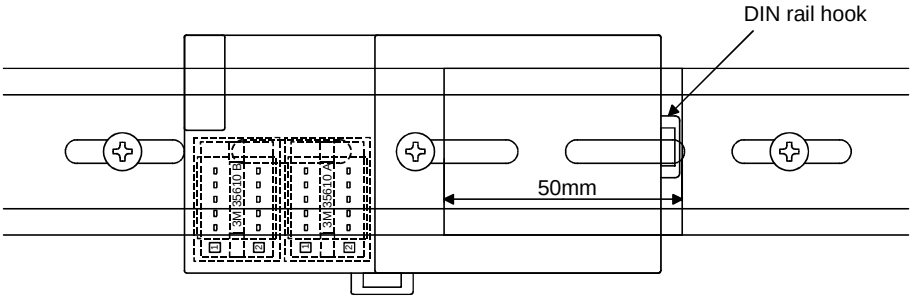
Screw location	Tightening torque range
Screwing fixture (M4 screw)	82 to 111 N·cm

(2) When using a DIN rail, attach the DIN rail after taking the following items into consideration:

(a) Applicable DIN rail types (conform to JIS C 2812)
TH35-7.5Fe
TH35-7.5Al

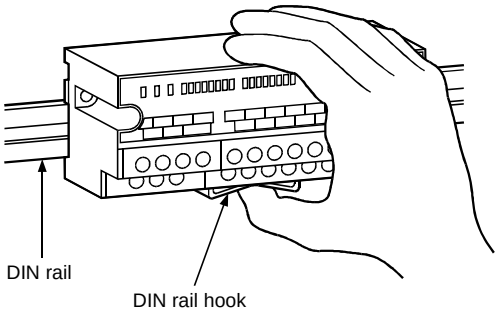
(b) Intervals between the DIN rail's installation screws
Tighten the screws using a pitch of 200mm(7.87 in.) or less when attaching a DIN rail.
The conventional remote I/O module has furthermore been reduced in size.

(c) Area where screws cannot used for Din rail installation.
When installing the AJ65VBTCE□-16□ to the DIN rail horizontally as shown below, tighten screws so that 50mm or more distance will be ensured between each screw and each DIN rail hook on the right side of module. Failure to do so may cause the screw to interfere with the DIN rail hook.

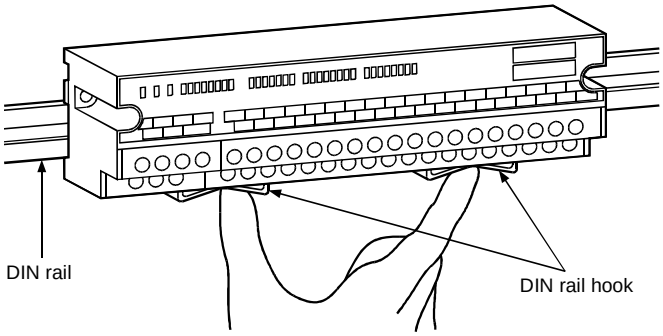


(3) To attach the compact remote I/O module to the DIN rail, press the centerline area of the DIN rail hook beneath the module until a click is heard.

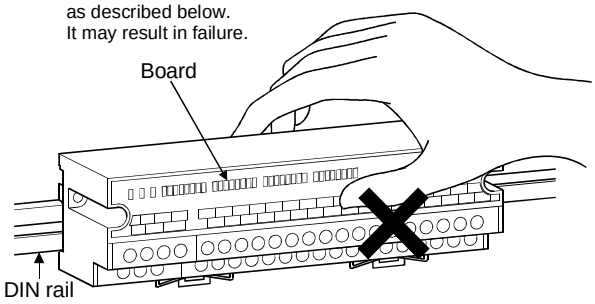
For AJ65SBTB1-8 □/AJ65SBTB1-16 □/ AJ65SBTC4-16 □/ AJ65SBTC1-32 □/ AJ65SBTCF1-32 □, AJ65SBTB2-8 □, AJ65SBTB2N-8 □, AJ65SBTB32-8 □, AJ65VBTS □ -16□, AJ65VBTCE □ -8 □, AJ65VBTCE □ -16 □ compact remote I/O modules



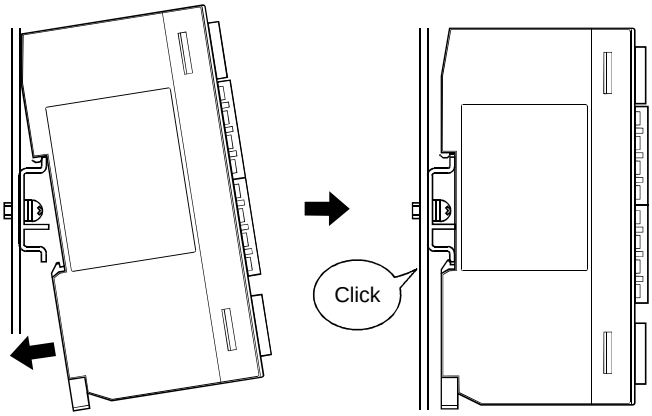
For AJ65SBTB1-32 □, AJ65SBTB2-16 □, AJ65SBTB2N-16□, AJ65SBTB3-16□, AJ65SBTB32-16□, AJ65VBTS□-32□ compact remote I/O modules



Note: Do not touch the board as described below. It may result in failure.

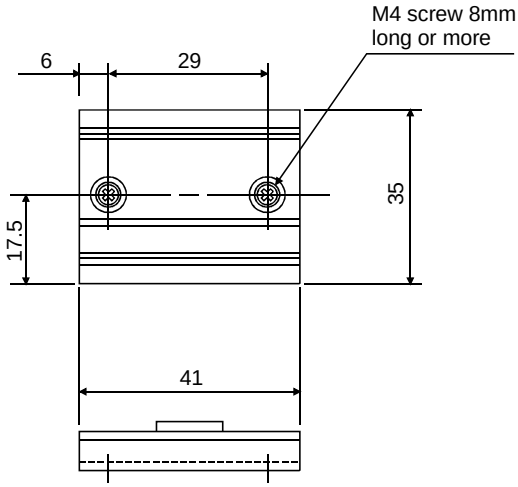


(4) When mounting the compact remote I/O module on the DIN rail, put its upper hook onto the fixing bracket and push the module until it clicks.

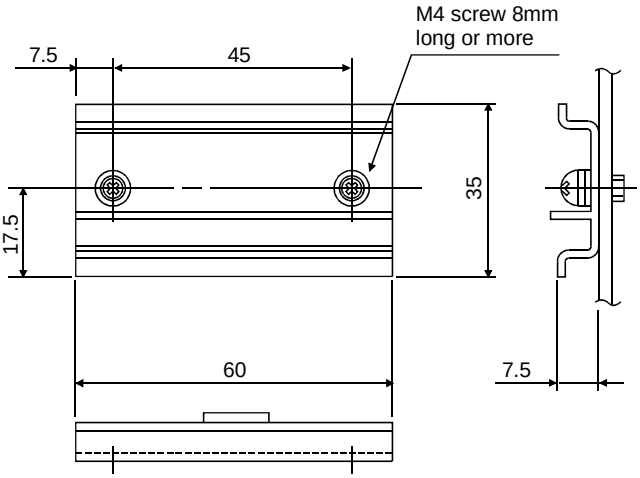


[Mounting dimensions]

(a) A6PLT-J65V1 (For module width 41mm only)



(b) A6PLT-J65V2 (For module width 60mm only)



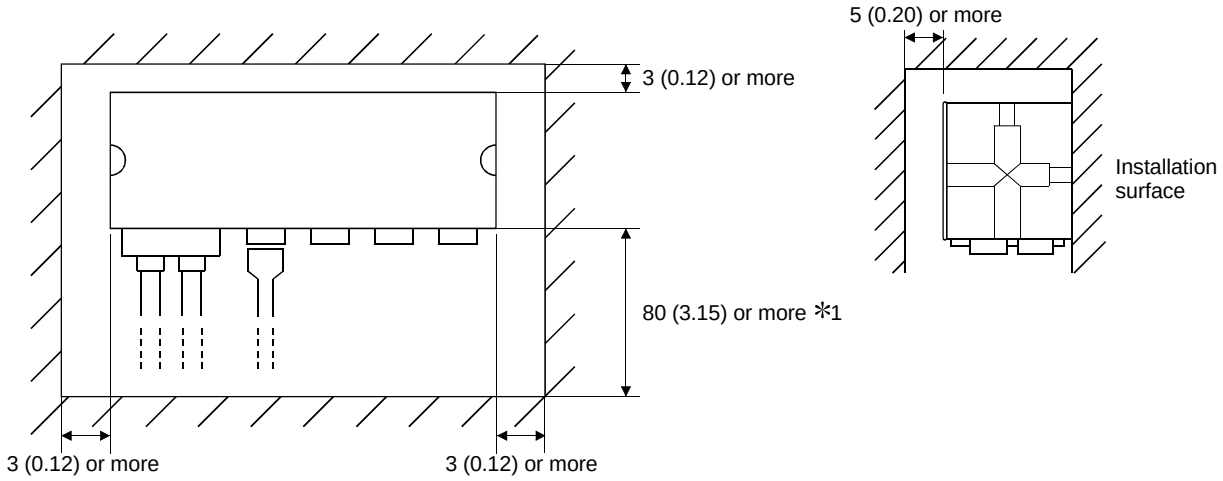
Unit : mm

(5) Avoid the following conditions for the installation location of a compact remote I/O module:
   (a) Location where the ambient temperature exceeds the range of 0 to 55°C. (0 to 45°C for waterproof remote I/O module)
   (b) Location where the ambient humidity exceeds the range of 10 to 90%.
   (c) Location where condensation occurs due to a sudden temperature change.
   (d) Location where corrosive gas or flammable gas exists.
   (e) Location where a lot of conductive powdery substance such as dust and iron filing, oil mist, salt, or organic solvent exists.
   (f) Location exposed to direct sunlight.
   (g) Location where strong electric fields or magnetic fields form.
   (h) Location where vibration or impact is directly applied to the main module.

(6) When installing the compact remote I/O module into a panel, etc., provide 60 mm (2.36 in.) or more of space between the top and bottom of the module and other structures or parts so that good ventilation and ease of operation when exchanging modules can be secured.

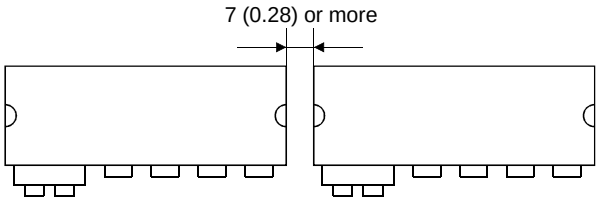
(7) Install the compact remote I/O module on a level surface.
If the surface is uneven, unnecessary force is applied to the printed circuit board, causing malfunctions.

(8) When installing the waterproof-type remote I/O module, provide the space shown in the figure below between the top and bottom of the module and other structures or parts so that good ventilation can be secured and that interference and application of load on the waterproof connector can be prevented.
When connecting two modules in parallel, secure 5 mm (0.2 in.) of space between them.



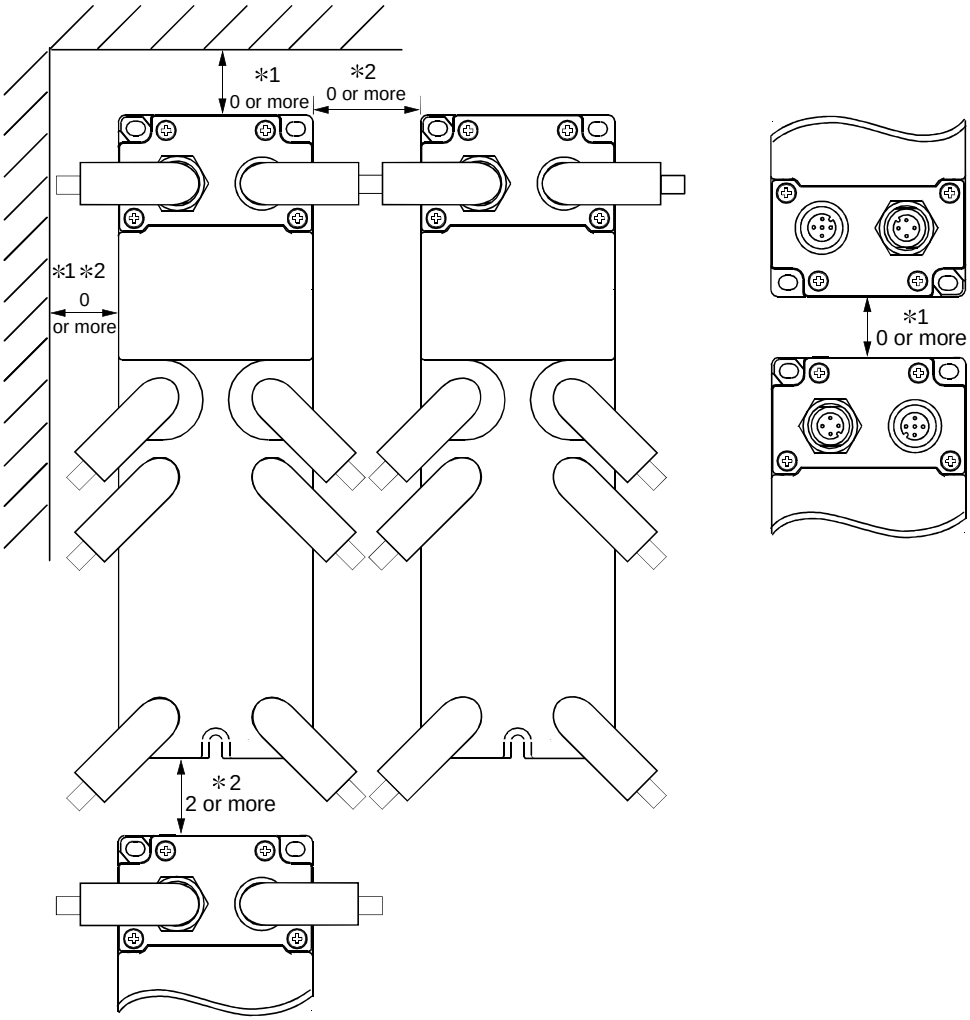
*1 Provide a space so that no load is applied to the cable (the space differs depending on the waterproof connector used).

<When two modules are installed in parallel>



Unit : mm (in.)

(9) If a waterproof cap is being installed on the low profile waterproof type remote I/O module, in order to improve ventilation and also to prevent interference, as well as to prevent a load from bearing on the waterproof connector, all the distances shown in the following figures between the module's side surfaces and the structure or parts.



* 1 If you disconnect and connect the communications adapter, set the operating distance using a screwdriver, etc.

* 2 If you are using a right angle type waterproof plug or Y branch connector, set a distance where no load will be brought to bear on the cable.

(10) The overload protection function, overvoltage protection function and overheat protection function of the following modules are described below.

- Modules with overload protection function, overvoltage protection function and overheat protection function

Output module	AJ65SBTB1-8T, AJ65SBTB1-16T, AJ65SBTB1-32T, AJ65SBTB2-8T, AJ65SBTB2-16T, AJ65SBTC1-32T, AJ65SBTCF1-32T, AJ65VBTCU2-8T, AJ65VBTCU2-16T, AJ65VBTCE2-16T, AJ65VBTCE2-8T
Combined module	AJ65SBTB1-16DT, AJ65SBTB1-32DT, AJ65SBTB1-16DT1, AJ65SBTB1-32DT1, AJ65SBTB32-8DT, AJ65SBTB32-16DT, AJ65SBTC4-16DT, AJ65SBTC1-32DT, AJ65SBTC1-32DT1, AJ65SBTW4-16DT, AJ65SBTCF1-32DT, AJ65VBTCF1-32DT1, AJ65VBTCE32-16DT

- Modules with overload protection function and overheat protection function

Output module	AJ65SBTB1-8TE, AJ65SBTB1-16TE

Function	Description
Common to overload protection function, overvoltage protection function and overheat protection function	1. When overcurrent due to an overload continues to exist, this generates heat and the overheat protection function is activated. 2. These functions are for protecting the modules' internal elements but not for external devices.
Overload protection function	1. The overload protection function is activated in a load condition of 1 A to 3 A per point. 2. The overload protection function automatically returns to normal operation when the load drops to the rated value.
Overvoltage protection function	1. This function protects elements from an abrupt surge caused when a coil load is used.
Overheat protection function	1. The overheat protection function works in two-point units. (The points are paired as Y0/Y1, Y2/Y3, etc., and the overheat protector is activated for two points in a pair simultaneously. If the overheat condition is prolonged, the heat spreads and other overheat protectors may also be activated.) 2. The actual output voltage oscillates in the range of 0 V to the load voltage only if the output is ON when the overheat protection function was activated. In this case, the average voltage during oscillation with the load voltage of 24 V is approximately 7 V. (No oscillation occurs when the output is OFF.) To ensure that output turns OFF when the overheat protection function is activated, use an external load that turns OFF at 7 V or more. 3. The overheat protection function automatically returns to normal operation when the heat drops.

7.2 Wiring Procedures for One-touch Connector Plugs

7.2.1 List of one-touch connector plug types

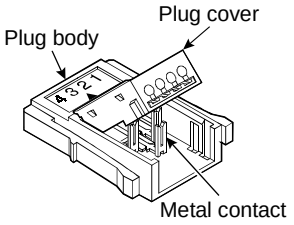
The one-touch connector plugs compatible with the compact remote I/O modules for CC-Link are listed below:

Product name	Mitsubishi model name	Part model name (manufacturer)	Specifications				Color of the cover
			Applicable cable core size (mm^2)		Applicable cable outer diameter (mm)	Maximum rated current (A)	
Plug for one-touch connector ∗1, ∗4	A6CON-P214	33104-6000FL ∗5	0.14 to 0.2 (AWG#26 to 24)		ϕ1.0 to 1.4	2	Transparent
	A6CON-P220	33104-6100FL ∗5			ϕ1.4 to 2.0		Yellow
	A6CON-P514	33104-6200FL ∗5	0.3 to 0.5 (AWG#22 to 20)		ϕ1.0 to 1.4	3	Red
	A6CON-P520	33104-6300FL ∗5			ϕ1.4 to 2.0		Blue
One-touch connector for communication ∗2, ∗4	A6CON-L5P	35505-6000-B0M GF∗5	Communication line	0.5 (AWG#20)	ϕ2.2 to 3.0		Red
			shielded cable	0.5 (AWG#20)			
One-touch connector for power supply and FG ∗2, ∗4, ∗6	A6CON-PW5P	35505-6080-A00 GF∗5	0.75 (0.66 to 0.98) (AWG#18) wire diameter 0.16 mm or more Outer insulation layer material PVC (Heat-resistant vinyl)		ϕ2.2 to 3.0	7	Gray
	A6CON-PW5P-SOD	35505-6180-A00 GF∗5			ϕ2.0 to 2.3		Blue
Online connector for communication ∗3, ∗4	A6CON-LJ5P	35720-L200-B00 AK∗5	—	—	—	—	—
Online connector for power supply ∗3, ∗4	A6CON-PWJ5P	35720-L200-A00 AK∗5	—	—	—	—	—

∗1 Mitsubishi's A6CON-P□□□ includes 20 plugs.
∗2 Mitsubishi's A6CON-□5P includes 10 plugs.
∗3 Mitsubishi's A6CON-□J5P includes 5 plugs.
∗4 The contacts for the plug manufacturers are listed below:
∗5 Sumitomo 3M Co., Ltd.
∗6 Confirm the outer sheath diameter of the applicable cable and select the connector.

7.2.2 Wiring procedures for the one-touch connector

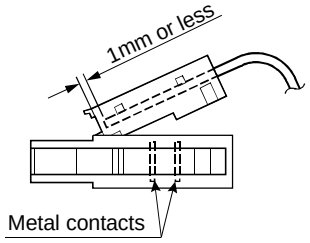
The following are the wiring procedures for the one-touch connector of the one-touch connector type or connector type compact remote I/O module.



↓

1) Check the connector.
Check that the plug cover is attached to the plug body.

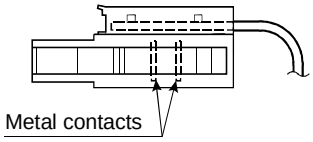
Note: Do not push the plug cover into the plug body.
Once pressed, the plug cannot be used any more.



↓

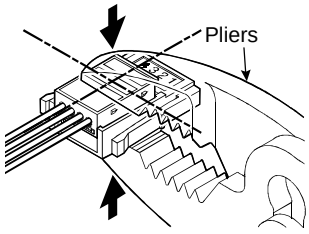
2) Insert the cable. (∗1)
Lift the end of the plug cover and insert the cable until it almost reaches the plug body (within 1mm from the other end of the plug cover).
Insufficient cable insertion may cause improper press fitting.

Note: When inserting the cable, prevent the cable from sticking out from the plug cover end.



↓

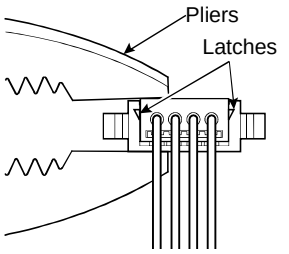
3) Set the plug cover.
After inserting the cable, put down the plug cover so that its face is horizontal to the plug surface, allowing the metal contacts to be fitted into the plug cover.



↓

4) Press the center part of the plug cover.
Using pliers, press the center part of the plug cover vertically and strongly.

For the one-touch connectors, use adjustable pliers so that their jaws can be widely opened.



↓

5) Press both ends of the plug cover
After pressing the center part of the plug cover, press both ends of the plug cover where latches are located.
Verify that the latches engage with the plug body.

↓

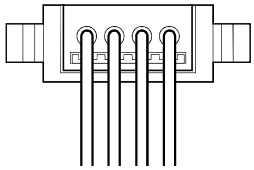
(To the next page)

7 - 9

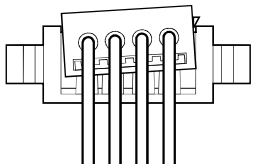
(From the previous page)

↓

[Correct example]

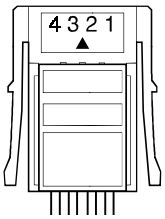


[Wrong example]

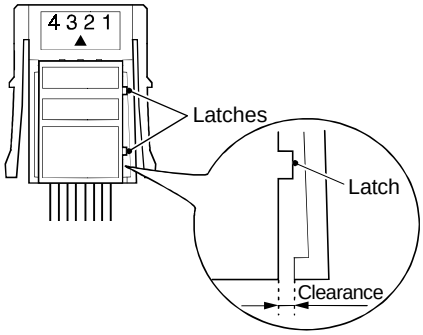


↓

[Correct example]



[Wrong example]



↓

(Wiring completed)

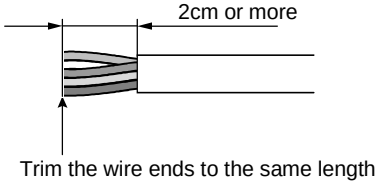
6) Check the press-fit condition (viewing from the wiring side).
Viewing from the wiring side, check that the plug surface is flush with the plug cover.
Do not allow the plug cover to protrude from the plug surface.

Note: The condition where the plug cover is tilted or protrudes from the plug surface as shown in [Wrong example] is an improper press-fit condition.
Press the plug cover firmly with pliers until it looks like [Correct example] condition illustrated on the left.

7) Check the press-fit condition (viewing from the top).
Viewing from the top, check that there is no clearance between the plug body and plug cover.

Note: Clearance may occur between the plug body and plug cover when the latches do not engage securely as shown in [Wrong example].
Press the plug cover firmly with pliers until it looks like [Correct example] condition illustrated on the left.

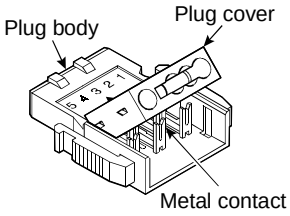
*1 When using a cabtyre cable:
Strip the cable 2cm or more.
If the electric wire lengths are not even, trim their ends with a nipper to the same length so as to insert them neatly into a connector.



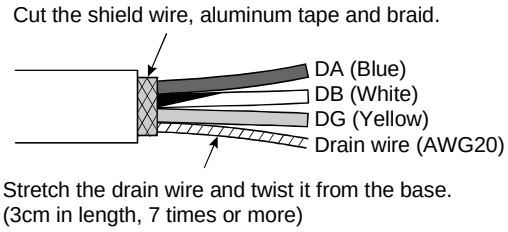
7 - 10

7.2.3 Wiring procedures for the one-touch connector for communication

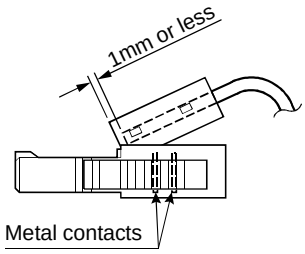
This section provides the wiring procedures of the one-touch connector for communication used for the connector type compact I/O module.



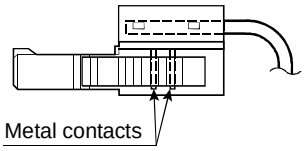
↓



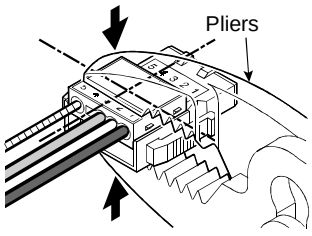
↓



↓



↓



↓

(To the next page)

1) Check the connector.
Check that the plug cover is attached to the plug body.

Note: Do not push the plug cover into the plug body.
Once pressed, the plug cannot be used any more.

2) Processing for communication cable
Strip the cable 3cm or more and perform the processing indicated at left.
If the electric wire lengths are not even, trim their ends with a nipper to the same length so as to insert them neatly into a connector.

3) Insert the cable.
Lift the end of the plug cover and insert the cable until it almost reaches the plug body (within 1mm from the other end of the plug cover).
Insufficient cable insertion may cause improper press fitting.

Note: When inserting the cable, prevent the cable from sticking out from the plug cover end.

4) Set the plug cover.
After inserting the cable, put down the plug cover so that its face is horizontal to the plug surface, allowing the metal contacts to be fitted into the plug cover.

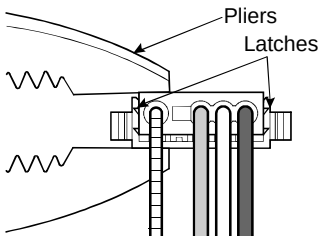
5) Press the center part of the plug cover.
Using pliers, press the center part of the plug cover vertically and strongly.

For the one-touch connectors, use adjustable pliers so that their jaws can be widely opened.

7 - 11

(From the previous page)

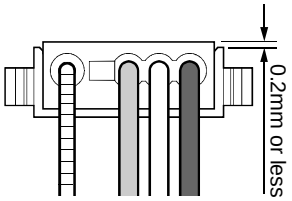
↓



↓

6) Press both ends of the plug cover
After pressing the center part of the plug cover, press both ends of the plug cover where latches are located.
Verify that the latches engage with the plug body.

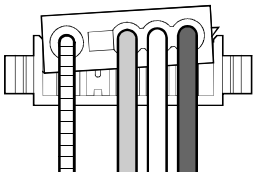
[Correct example]



7) Check the press-fit condition (viewing from the wiring side).
Viewing from the wiring side, check that the plug surface is flash with the plug cover.
The difference between the plug cover and the plug surface must be 0.2mm or less.

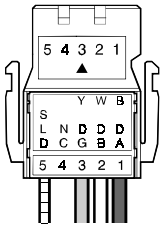
Note: The condition where the plug cover is tilted as shown in [Wrong example] or protrudes from the plug surface 0.2mm or more is an improper press-fit condition.
Press the plug cover securely with pliers until it looks like [Correct example] condition illustrated on the left.

[Wrong example]



↓

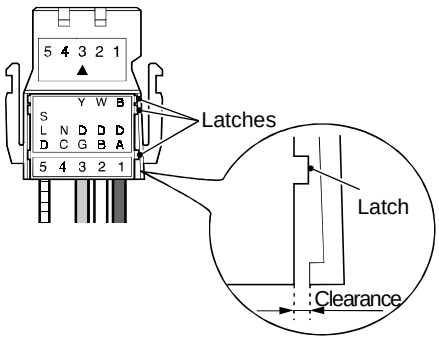
[Correct example]



8) Check the press-fit condition (viewing from the top).
Viewing from the top, check that there is no clearance between the plug body and plug cover.

Note: Clearance may occur between the plug body and plug cover when the latches do not engage securely as shown in [Wrong example].
Press the plug cover firmly with pliers until it looks like [Correct example] condition illustrated on the left.

[Wrong example]



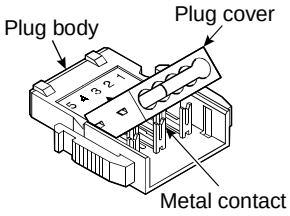
↓

(Wiring completed)

7 - 12

7.2.4 Wiring procedures for the one-touch connector for power supply and FG

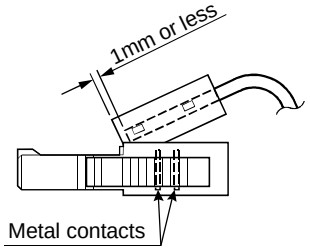
The following are the wiring procedures for the one-touch connector used for power supply and FG of the connector type compact I/O module.



↓

1) Check the connector.
Check that the plug cover is attached to the plug body.

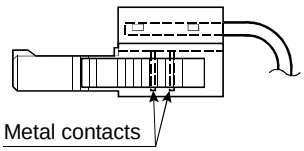
Note: Do not push the plug cover into the plug body.
Once pressed, the plug cannot be used any more.



↓

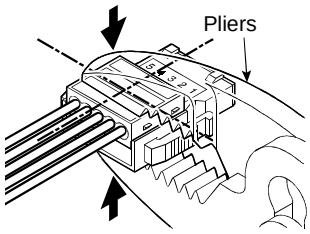
2) Insert the cable. (*1)
Lift the end of the plug cover and insert the cable until it almost reaches the plug body (within 1mm from the other end of the plug cover).
Insufficient cable insertion may cause improper press fitting.

Note: When inserting the cable, prevent the cable from sticking out from the plug cover end.



↓

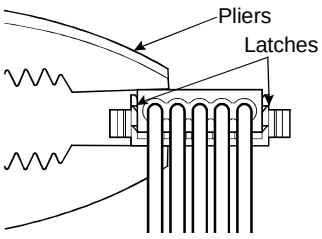
3) Set the plug cover.
After inserting the cable, put down the plug cover so that its face is horizontal to the plug surface, allowing the metal contacts to be fitted into the plug cover.



↓

4) Press the center part of the plug cover.
Using pliers, press the center part of the plug cover vertically and strongly.

For the one-touch connector for power supply and FG, use adjustable pliers so that their jaws can be widely opened.



↓

5) Press both ends of the plug cover
After pressing the center part of the plug cover, press both ends of the plug cover where latches are located.
Verify that the latches engage with the plug body.

↓

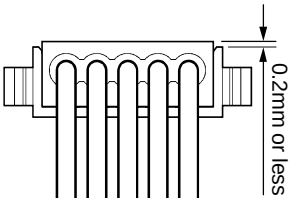
(To the next page)

7 - 13

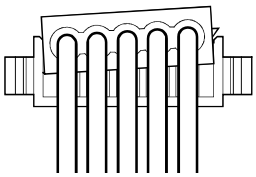
(From the previous page)

↓

[Correct example]

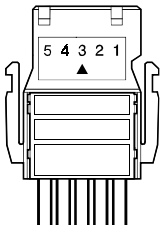


[Wrong example]

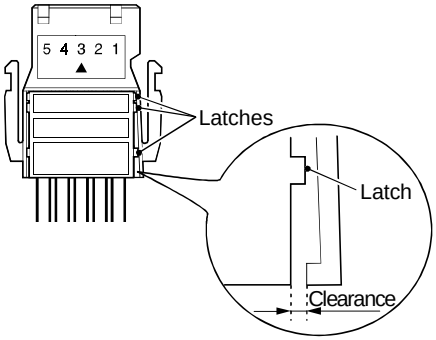


↓

[Correct example]



[Wrong example]



↓

(Wiring completed)

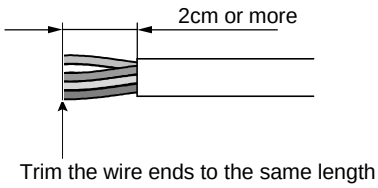
6) Check the press-fit condition (viewing from the wiring side).
Viewing from the wiring side, check that the plug surface is flush with the plug cover.
Set the plug cover so that it protrudes 0.2mm or less from the plug surface.

Note: The condition where the plug cover is tilted or protrudes 0.2mm or more from the plug surface as shown in [Wrong example] is an improper press-fit condition.
Press the plug cover firmly with pliers until it looks like [Correct example] condition illustrated on the left.

7) Check the press-fit condition (viewing from the top).
Viewing from the top, check that there is no clearance between the plug body and plug cover.

Note: Clearance may occur between the plug body and plug cover when the latches do not engage securely as shown in [Wrong example].
Press the plug cover firmly with pliers until it looks like [Correct example] condition illustrated on the left.

*1 When using a cabtyre cable:
Strip the cable 2cm or more.
If the electric wire lengths are not even, trim their ends with a nipper to the same length so as to insert them neatly into a connector.



7 - 14

7.3 Handling of the Waterproof-type Remote I/O Module

7.3.1 List of dust-proof and waterproof cap models

The following table shows the model names of dust-proof caps and waterproof caps compatible with the CC-Link system waterproof-type remote I/O module:

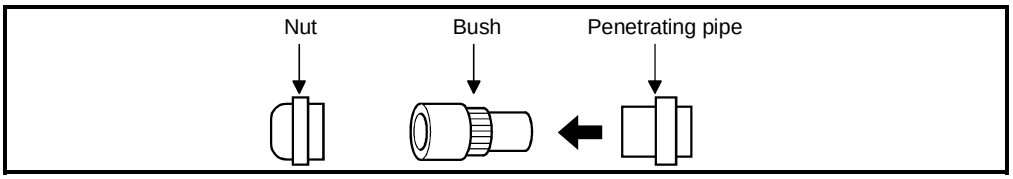
	Mitsubishi Model Name	Specifications
Dust-proof cap ∗1	A6CAP-DC1	—
Waterproof cap ∗1	A6CAP-WP1	Protection of degree IP67

∗1 Mitsubishi's A6CAP-□□ 1 includes 20 caps.

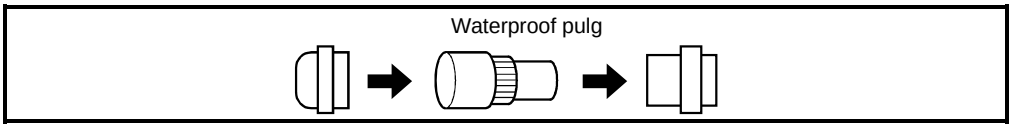
7.3.2 Waterproof plug attachment procedure

The attachment procedure for the waterproof plug supplied with the AJ65SBTW4-16□ is shown below. In order to prevent water leakage, attach a waterproof plug to the penetrating pipe for the transmission and module power-supply lines in the following way.

1) Remove the nut and bushing from the penetrating pipe attached to the module.



2) Insert the waterproof plug into the penetrating pipe and secure it by tightening the nut.

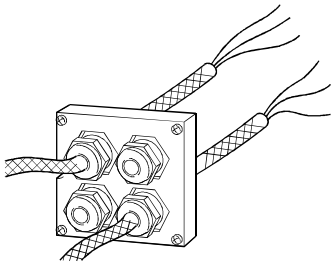


7 - 15

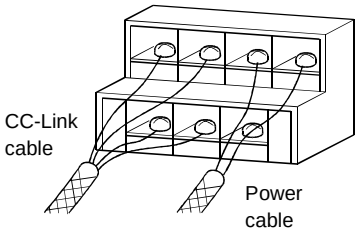
7.3.3 Wiring procedure for the terminal block

The following shows the procedure for wiring the terminal block of the waterproof-type remote I/O module.

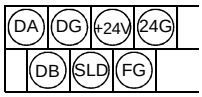
1) Remove the module front cover, and pass the cables through the through pipe for the transmission and module power-supply lines.



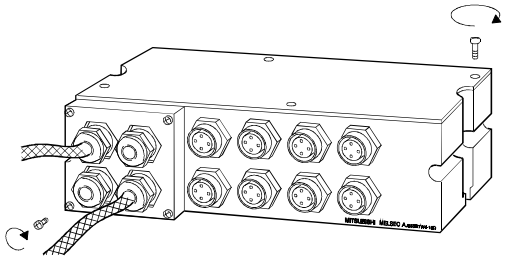
2) Open the module top cover and remove the terminal block, then perform wiring to the terminal block.



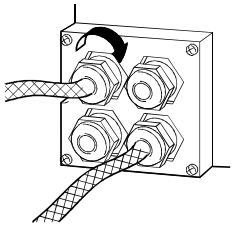
Terminal layout diagram



3) Secure the terminal block using screws, then fasten the module front and top covers using screws.



4) Tighten the nut* on the through pipe for the transmission and module power-supply lines.



POINT

- Always install a waterproof plug to the unused through pipe for the transmission and module power-supply lines. (Refer to Section 7.3.2)
- When wiring the transmission and module power-supply lines, please take care not to apply force in excess of 39 N·cm excessive force to the wiring at the inlet.
- In the event of the ambient temperature exceeding 56 °C after wiring the unit, make sure to re-tighten the nuts.

7.4 Handling of the Low Profile Waterproof Type Remote I/O Module

7.4.1 List of model names of waterproof caps

The model name of the waterproof cap applicable to the CC-Link system low profile waterproof type remote I/O module (AJ65FBTA□-16□) is shown below.

	Mitsubishi Product Model Name	Use
Waterproof Cap (20 pcs., Sold separately)	A6CAP-WP2	For Link Out connector, I/O Connector

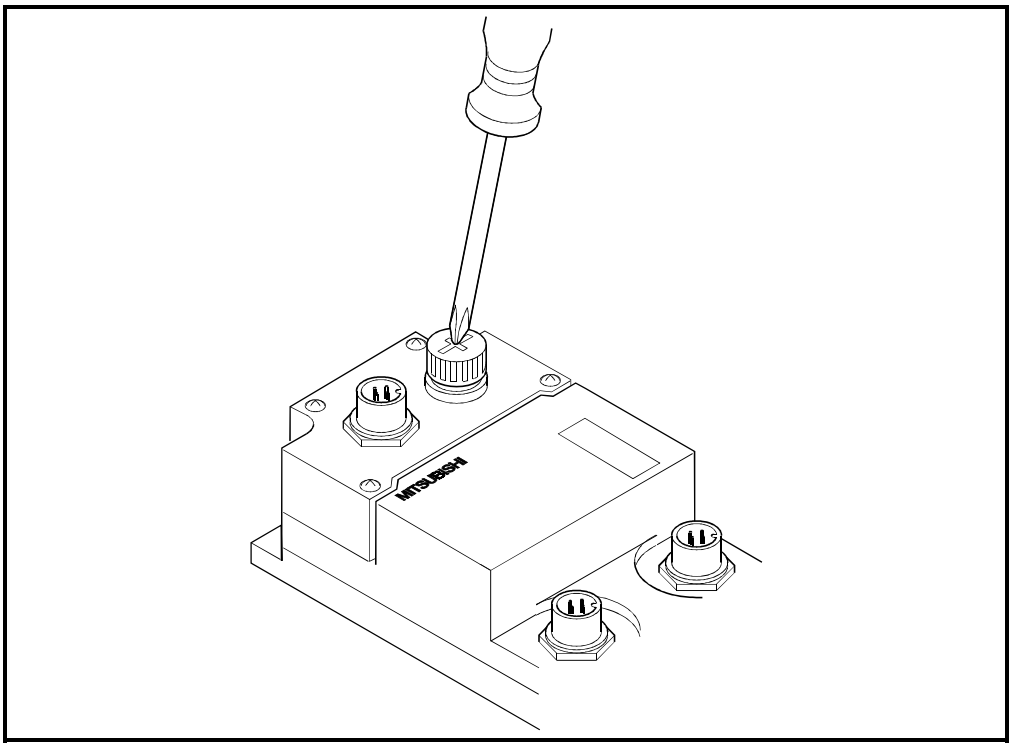
POINT

- Cannot be used with the previous type of waterproof cap (A6CAP-WP1).

7.4.2 Waterproof cap installation method

The installation method for the waterproof caps packed with the product is shown below.
In order to prevent water penetration, install the waterproof caps on the unused Link Out side connectors and I/O connectors using the following method.

1) Insert the waterproof cap in the empty connector on the main module, then tighten it.
   Tightening Torque Range: 29 to 34 N·cm



7.5 Connectors and Tools Used for Connecting the FCN Connector Cables

⚠DANGER	• When connecting the connector cables by crimp-contact, pressure-displacement or soldering, make sure to use the tools listed in the table below. Attach the connectors securely to the module.

Three types of 40-pin connectors are available for the AJ65□BTCF1-32□; they are soldering type, pressure-displacement type and crimp-contact type.
Please purchase the required 40-pin connector, and either pressure-displacement or crimp-contact type tool according to the listing below.

(1) Connector types

Type	Model name
Soldering type connector (Straight-out type)	A6CON1
Crimp-contact type connector (Straight-out type)	A6CON2
Pressure-displacement type connector (Flat cable type)	A6CON3
Soldering type connector (Straight-out/diagonal-out type)	A6CON4

(2) Crimp-contact and pressure-displacement type tools

Type	Model name	Cable size	Manufacturer
Crimp-contact tool	FCN-363T-T005/H	AWG#24 to 28	FUJITSU TAKAMISAWA COMPONENT Co., Ltd. • FUJITSU TAKAMISAWA AMERICA, INC. (1-408) 745-4900 • FUJITSU TAKAMISAWA EUROPE B.V. Zweiniederlassung Deutschland (49)89-42742320 • FUJITSU TAKAMISAWA ASIA PACIFIC PTE LIMITED (65)375-8560
Pressure-displacement tool	FCN-367T-T012/H (locator plate)	AWG#28 (strand cable) AWG#30 (single cable)	
	FCN-707T-T001/H (cable cutter)		
	FCN-707T-T101/H (hand press)		

7 - 18

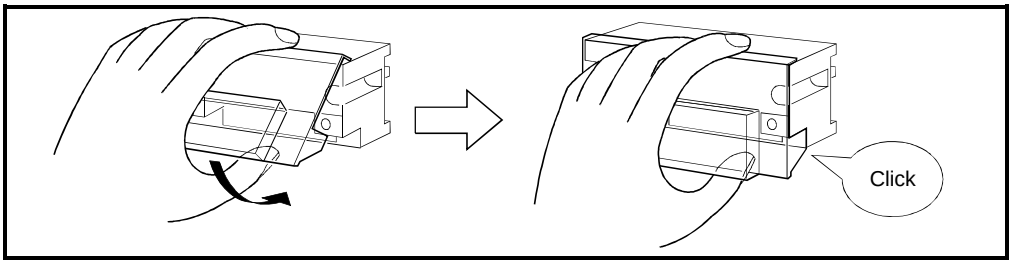
7.6 Attaching and Removing the Protective Cover for the Compact Remote I/O Module

Covering the front of the CC-Link system compact remote I/O module with a protective cover (A6CVR-8/16/32) can prevent foreign objects from entering the terminal block. For the model name of the protective cover for the compact remote I/O module, see Section 1.5.

Follow the procedure illustrated below to mount the protective cover on the module.

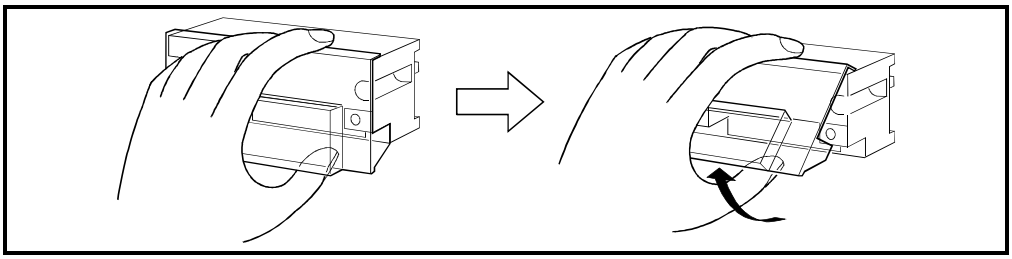
<How to mount>

Hook the top of the protective cover onto the top of the remote I/O module, then push the lower part of the cover toward the module until you hear a click sound.



<How to remove>

Place your thumb under the protective cover and pull it upwards.



7 - 19

7.7 Connection Method of CC-Link Dedicated Cable

The procedure for connecting the master module and compact remote I/O module CC-Link dedicated cable is shown below.

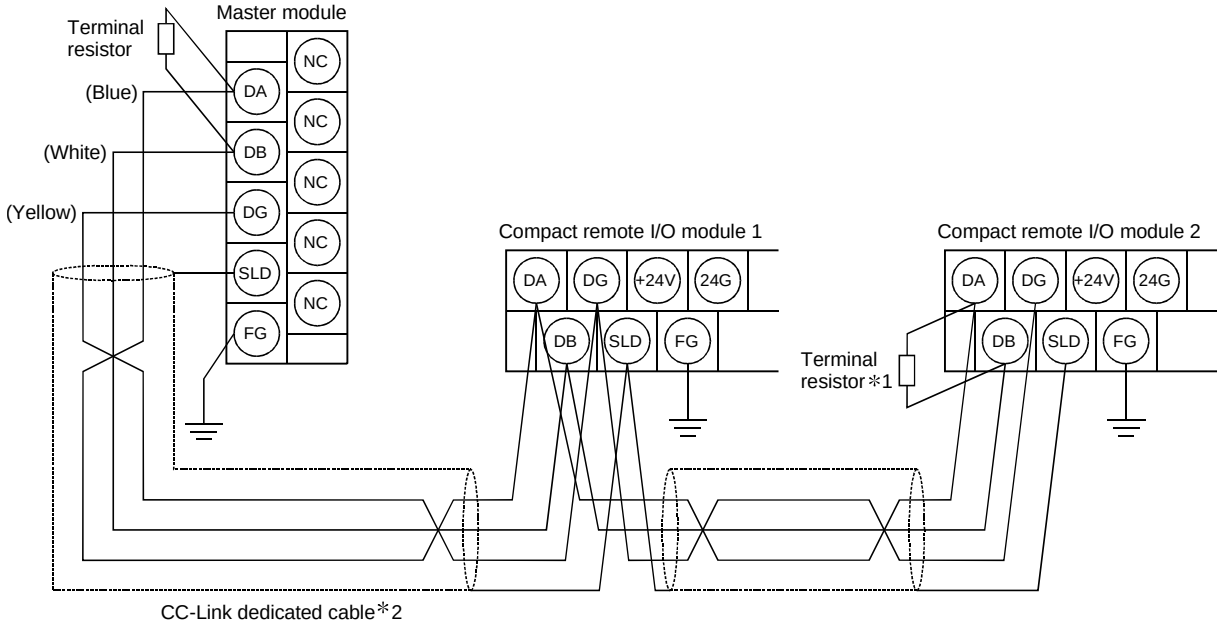
DANGER

- Before beginning any installation or wiring work, make sure all phases of the power supply have been obstructed from the outside.
  Failure to completely shut off the power supply phases may cause electric shock and/or damage to the module.
- When turning on the power or operating the module after installation or wiring work, make sure that the module's terminal covers are correctly attached.
  Failure to attach the terminal covers may result in electric shock.
- Make sure to switch all phases of the external power supply off before cleaning or re-tightening the terminal screws.
  Failure to do so may damage the module or cause malfunction.

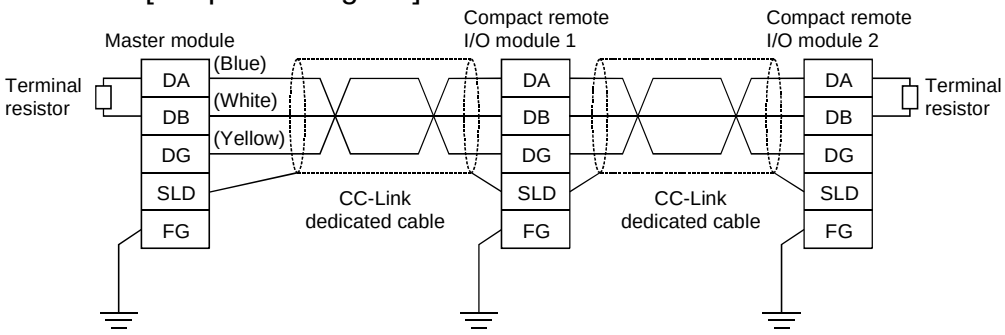
CAUTION

- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other.
  They should be installed 100 mm (3.9 in.) or more from each other.
  Not doing so could result in noise that would cause malfunction.
- The FG terminals should always be grounding using the class-D (class-3) or higher grounding designed specially for the PLC.
  Make sure to use the spare terminal screws as it is tightened.
  Failure to do so could make a short circuit with bare solderless terminals.
- When wiring the module, check the rated voltage and terminal layout and make sure the wiring is done correctly.
  Connecting a power supply that differs from the rated voltage or wiring it incorrectly may cause fire or failure.
- Make sure to connect the connector of each connecting cable to the attachment part.
  Defective contact could cause malfunction.
- Make sure that the communication cable connected to the module is kept in the duct or fixed with cramps.
  Failure to do so may cause a damage to the module or cables due to dangling, shifting or inadvertent handling of cables, or misoperation because of bad cable contacts.
- Do not grab on the cable when removing the communication cable connected to the module.
  When removing the cable with a connector, hold the connector on the side that is connected to the module.
  When removing the cable without a connector, loose the screws on the side that is connected to the module.
  Pulling the cable that is still connected to the module may cause a damage to the module or cable, or malfunction due to bad cable contacts.

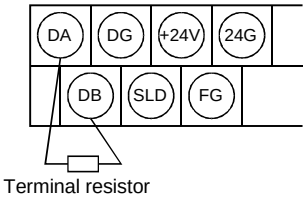
(1) The procedure for connecting the master module and compact remote I/O module is shown below:



[Simplified diagram]



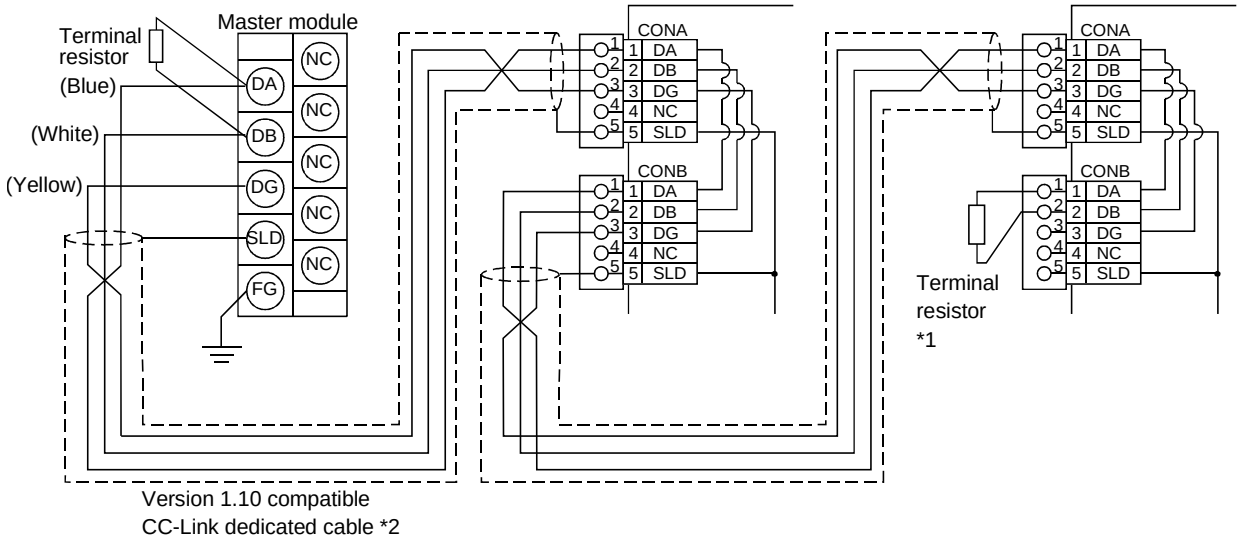
∗1 Connect the terminal resistor to the compact remote I/O module terminating station in the locations shown below:
(The terminal resistor is provided with the master module.)



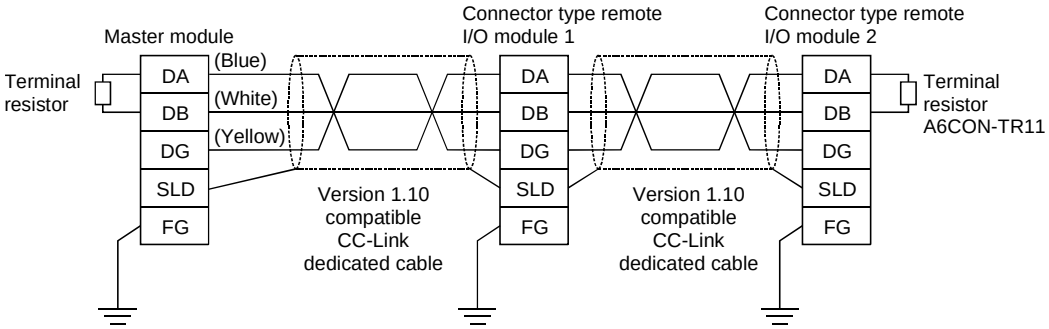
∗2 Use the CC-Link dedicated cables in the CC-Link system.
If the cables other than the CC-Link dedicated cables are used, we cannot guarantee the performance of the CC-Link system.
Refer to the CC-Link Partner Association Home Page: http://www.cc-link.org/ for the specifications and contact information of the CC-Link dedicated cables.

POINT
Compact remote I/O modules with an input response of 0.2 ms are more susceptible to noise interference than other modules. Keep the wiring of the I/O module away from power cables as much as possible.

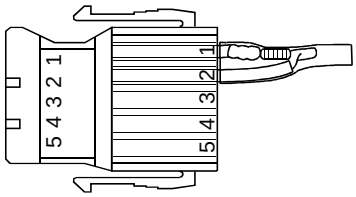
(2) The procedure for connecting the master module and compact remote I/O module is shown below:



[Simplified diagram]



*1 Use the following terminal resistor whe using connector type remote I/O at the terminal station. (Sold separately)



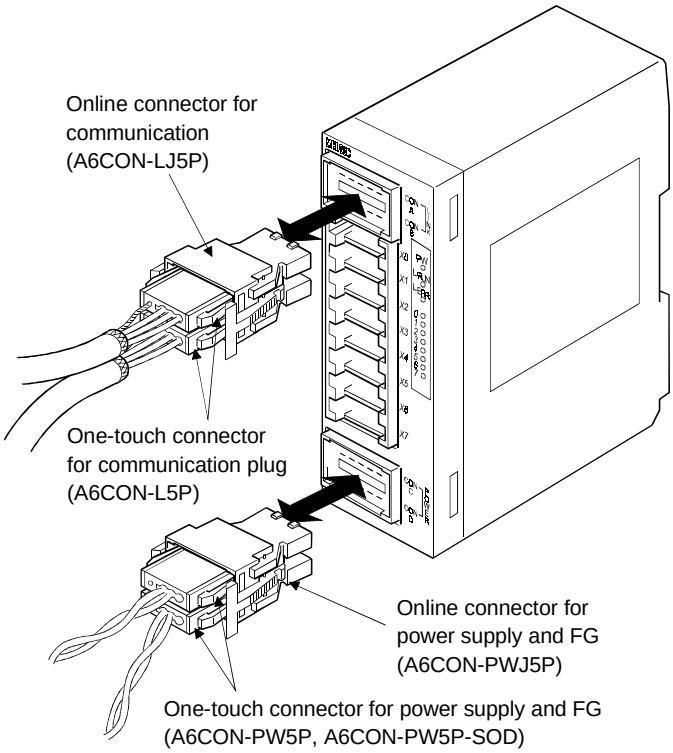
A6CON-TR11

*2 Use the CC-Link dedicated cables in the CC-Link system.
If the cables other than the CC-Link dedicated cables are used, we cannot guarantee the performance of the CC-Link system.
Refer to the CC-Link Partner Association Home Page: http://www.cc-link.org/ for the specifications and contact information of the CC-Link dedicated cables.

POINT

Compact remote I/O modules with an input response of 0.2 ms are more susceptible to noise interference than other modules. Keep the wiring of the I/O module away from power cables as much as possible.

(3) The following show the connection of the one-touch connector and online connector are shown below.



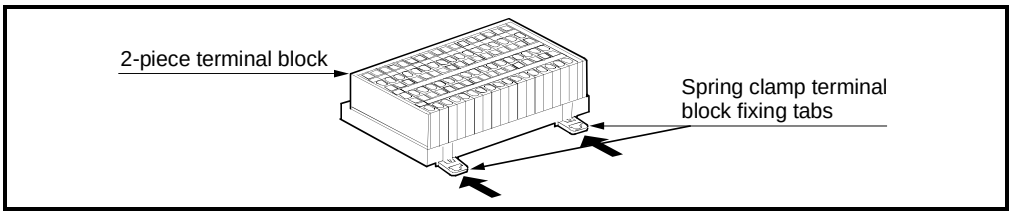
7.8 Handling of Spring Clamp Terminal Block Type Remote I/O Module

7.8.1 Installation and removal of the spring clamp terminal block

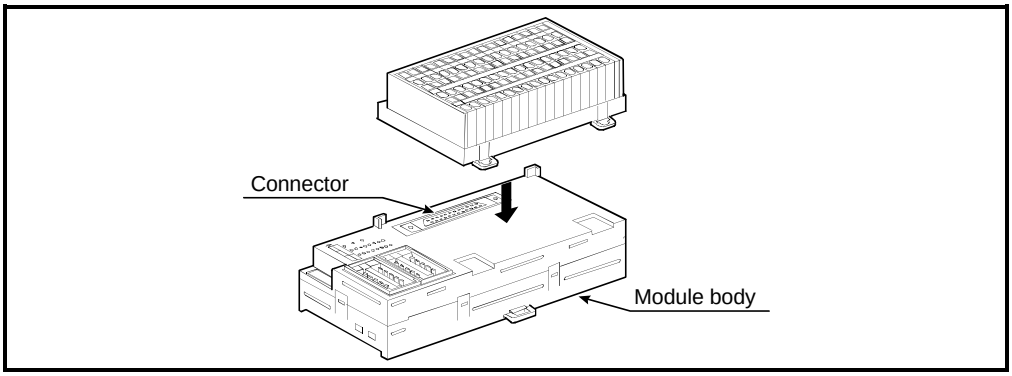
(1) Installing the spring clamp terminal block

How to install a 2-piece spring clamp terminal block is shown below.
Secure the terminal block part using the following method. Incomplete installation may cause fall, short circuit or malfunction.

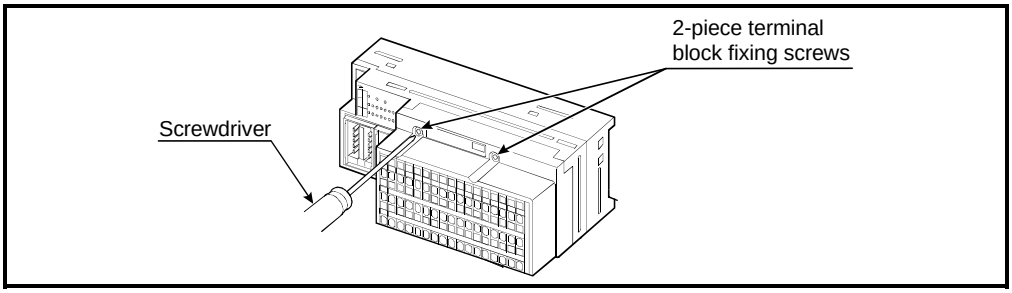
1) Push the spring clamp terminal block fixing tabs of the 2-piece terminal block in the arrow direction until a click can be heard.



2) Connect the connector (female) of the 2-piece terminal block to the connector (male) of the module body and press it until a click can be heard. Check that both of two fixing tabs are inserted completely.



3) Tighten the 2-piece terminal block fixing screws. (Tightening torque: 34 to 46N·cm)



(2) Removing the spring clamp terminal block

Remove the spring clamp terminal block in reverse order of the above installation procedure.

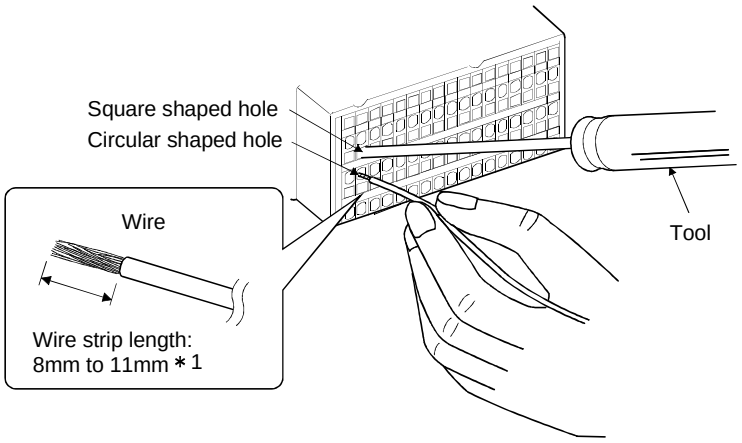
1) Loosen the 2-piece terminal block fixing screws.
2) Pull out the spring clamp terminal block fixing tabs.
3) Lift the 2-piece terminal block to remove it from the main body.

7.8.2 Procedure for wiring the spring clamp terminal block

This section describes the procedure for wiring the spring clamp terminal block remote I/O module.

(1) Cable Installation

Insert the tool into the square shaped hole (AJ65VBTS□-□□□), which corresponds to the terminal you wish to use.
While the tool is inside the hole, insert the wire into the circular shaped hole (as shown below).
Remove the tool from the square shaped hole, taking care not to remove the wire.
After the wire has been clamped, gently pull the wire to confirm that it is secure.



*1: Take care that the wire strip length is between 8mm to 11mm.
If the wire strip length is too long, this will expose the bare wire, which increases the risk of electric shock or short circuit.
If the wire strip length is too short, this will result in the wire not being securely attached.

(2) Cable removal

Insert the tool into the corresponding square shaped hall until it stops.
Pull the wire out of the hall completely.

POINT

- Make sure to mount/remove the cable by using the dedicated tool, i.e., a tool dedicated to spring clamp terminal block. If a general slotted screwdriver is used instead of the dedicated tool, the spring clamp terminal part or terminal block resin part might be broken.
- Do not insert two or more wires into one terminal.

(3) Recommended product list

Product name	Model name	Applicable wire size	Contact
Tool (for insertion)	KD-5339	—	Mitsubishi Electric System Service Co., Ltd.
Bar solderless terminal ✻1	FA-VTC125T9	0.3 to 1.65 mm^2	Mitsubishi Electric Engineering Co., Ltd.
	FA-VTCW125T9		
Dedicated bar solderless terminal tool	FA-NH65A	—	
Bar solderless terminal ✻1	TE 0.5	0.5 mm^2	NICHIFU TERMINAL MFG. Co., Ltd.
	TE 0.75	0.75 mm^2	
	TE 1	0.9 to 1.0 mm^2	
	TE 1.5	1.25 to 1.5 mm^2	
Dedicated bar solderless terminal tool	NH79	—	

✻1 Use the product used when inserting a terminated wire into the spring clamp terminal block or when inserting two or more wires into one terminal.

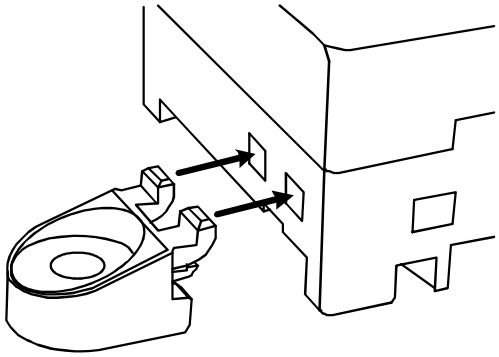
7 - 26

7.9 Installing Holding Fixtures for Screw Installation

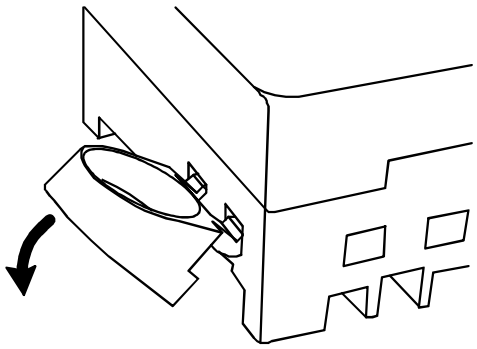
7.9.1 Installation procedure for holding fixtures for screw installation

When directly installing the AJ65VBTS□-□□□ or AJ65VBTCE□-□□□ to a control panel, take the following steps to fix it using the holding fixtures for screw installation. Incomplete installation may cause fall, short circuit or malfunction.

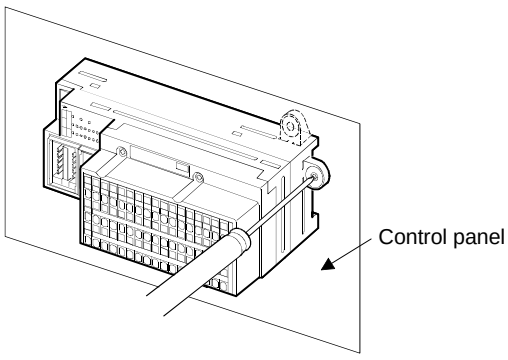
(1) Align the projected parts of the holding fixture with the corresponding holes in the module.



(2) Tilt the holding fixture, insert the projected parts into the holes in the module and press the holding fixture in the direction of an arrow until it clicks.



(3) Tighten the screws to fix to the control panel. (Tightening torque: 82 to 111N·cm)

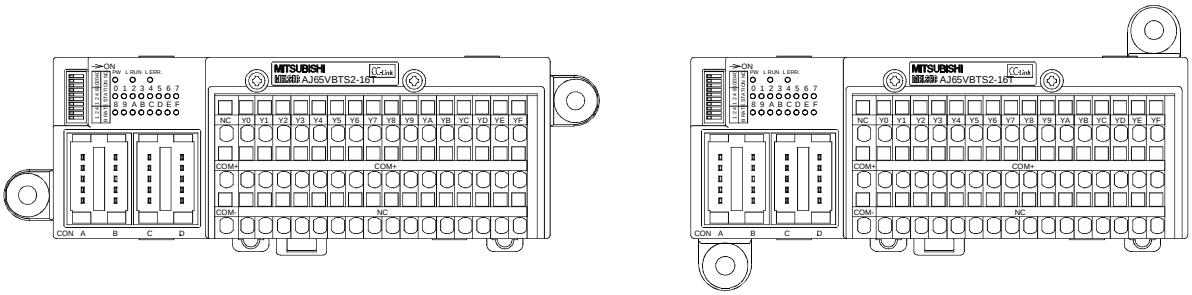


7 - 27

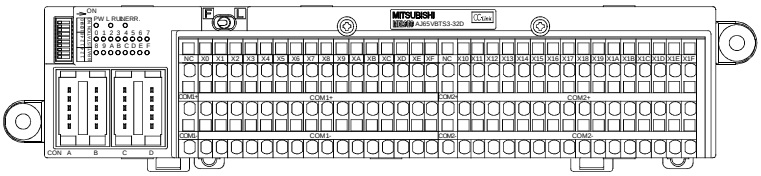
7.9.2 Precautions for installing holding fixtures for screw installation

Care must be taken for the holding fixtures for screw installation since the orientation depends on the module type.
Install the holding fixtures to 2 locations.

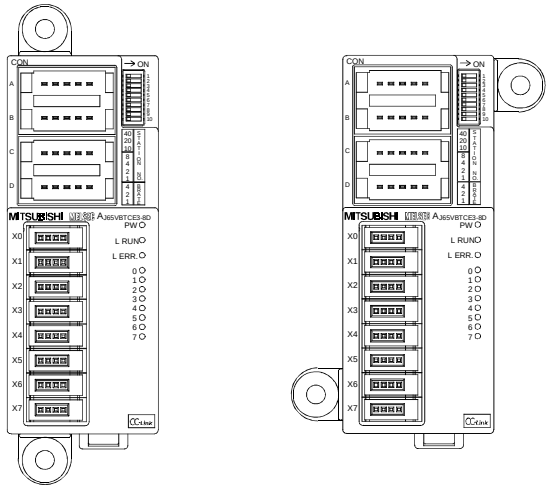
(1) AJ65VBTS□-16□ Two installation orientations are applicable as shown below.



(2) AJ65VBTS□-32□ Only one installation orientation shown below is allowed.

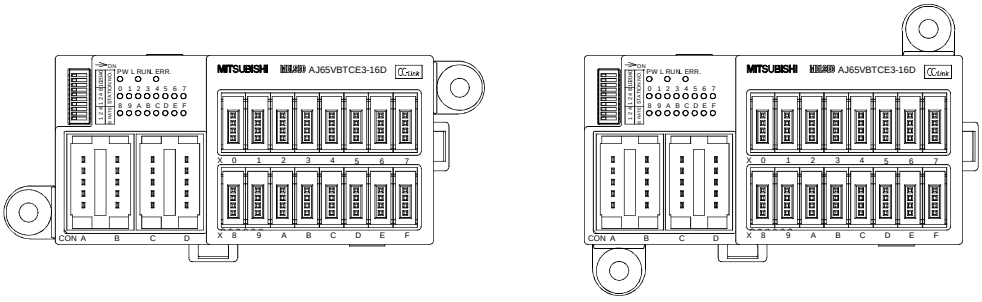


(3) AJ65VBTCE□-8□ Two installation orientations are applicable as shown below.



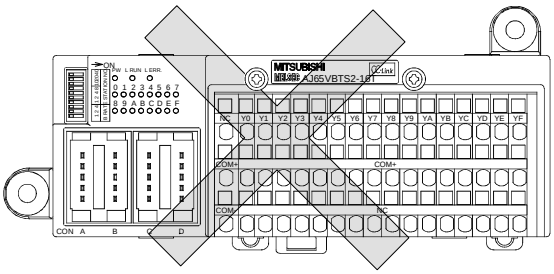
7 - 28

(4) AJ65VBTCE□-16□ Two installation orientations are applicable as shown below.



POINT

- Do not install the holding fixtures in any positions other than those above.

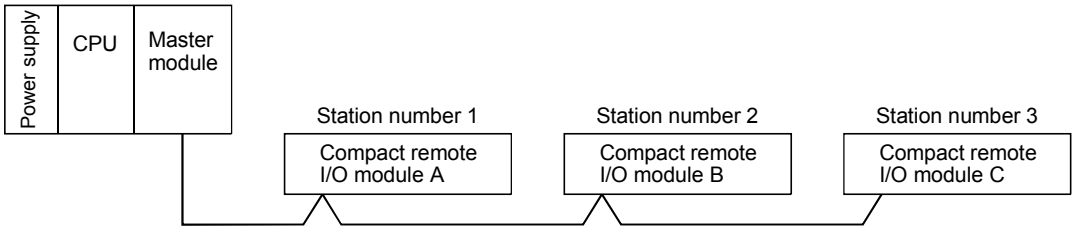


7 - 29

8 TROUBLESHOOTING

8.1 Verifying Errors from LED Status

The following table lists causes and corrective actions for errors indicated by LEDs on the compact remote I/O module when the SW, M/S and PRM LEDs are all off (i.e. the master module is set properly) in the system configuration example shown below.



LED status				Cause	Corrective action
Master module	Remote I/O module				
	A	B	C		
	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	Normal	—
	PW ○ L RUN ○ L ERR ○	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	Since the LEDs on the compact remote I/O module A are all off, the 24 V power is not supplied or voltage is low.	Check the voltage of the 24 V power supply, and supply the proper power to the compact remote I/O module.
	PW ✳ L RUN ✳ L ERR ✳	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	The compact remote I/O module A is malfunctioning and the LEDs are unstable (all lights are off, in many cases).	Exchange the compact remote I/O module.
TIME ○ LINE ○ or TIME ● LINE ●	PW ● L RUN ● L ERR ○	PW ● L RUN ○ L ERR ○	PW ● L RUN ○ L ERR ○	The L RUN lights on the compact remote I/O module B and beyond are off, indicating the transmission cable between the compact remote I/O module A and B has been disconnected or removed from the terminal block.	Identify the disconnected point by referring to the LED status, and correct it.
	PW ● L RUN ○ L ERR ○	PW ● L RUN ○ L ERR ○	PW ● L RUN ○ L ERR ○	The transmission cable is shorted.	Find the shorted cable among the three transmission cables and repair it.
	PW ● L RUN ○ L ERR ✳	PW ● L RUN ○ L ERR ✳	PW ● L RUN ○ L ERR ✳	The transmission cable is wired incorrectly.	Verify wiring in the terminal box of the compact remote I/O module and correct.
	PW ● L RUN ○ L ERR ○	PW ● L RUN ● L ERR ○	PW ● L RUN ○ L ERR ○	The L RUN lights on the compact remote I/O modules A and C are off, indicating the station numbers for A and C are overlapping.	Restart the power supply after the overlapped station numbers for the compact remote I/O modules are corrected.

●: lit, ○: unlit, ◎ : flashing, ✳: lit, flashing or unlit

8 - 1

LED status				Cause	Corrective action
Master module	Remote I/O module				
	A	B	C		
	PW ● L RUN ● L ERR ○	PW ● L RUN ○ L ERR ○	PW ● L RUN ● L ERR ○	The L RUN light on the compact remote I/O module B is off, indicating the transmission speed setting for module B is invalid within the setting range (0 to 4).	Restart the power supply after the transmission speed is set correctly.
TIME ○ LINE ○ or TIME ● LINE ○	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ◎	The L ERR of the compact remote I/O module C is flashing at fixed intervals, indicating the setting switch for module C has been changed during normal operation.	Return the setting switch of the compact remote I/O module to the original position.
	PW ● L RUN ○ L ERR ●	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	The L RUN of the compact remote I/O module A is off and L ERR of the same module is lit, indicating the setting switch for module A is set out of range (transmission speed: 5 to 9, station number: 65 or greater).	Correct the setting switch of the compact remote I/O module, and restart the power supply.
	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ●	PW ● L RUN ● L ERR ○	The L ERR of the compact remote I/O module B is lit, indicating that module B is being affected by noise. (L RUN may be off.)	Correctly perform grounding of the FGs for the master module and all compact remote I/O modules.
TIME ● LINE ● or TIME ○ LINE ●	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ●	PW ● L RUN ● L ERR ●	The L ERR lights on the compact remote I/O module B and beyond are lit, indicating the transmission cable is affected by noise in the area between modules A and B. (L RUN may be off.)	Verify the grounding of the SLD of the transmission cable. Separate the wire from the power cable as much as possible (100 mm (3.94 in.)or more).
	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ○	PW ● L RUN ● L ERR ●	A terminal resistor is not attached. (L RUN may be off.)	Check if a terminal resistor is attached.

●: lit, ○: unlit, ◎: flashing, ∗: lit, flashing or unlit

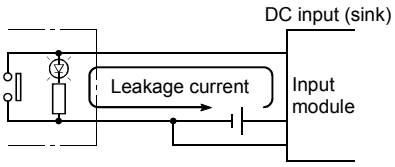
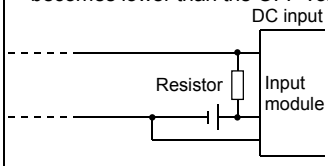
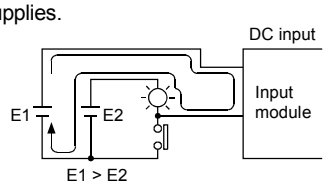
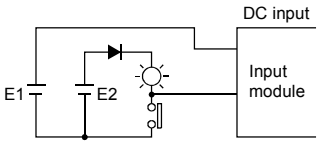
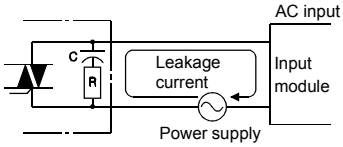
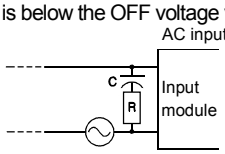
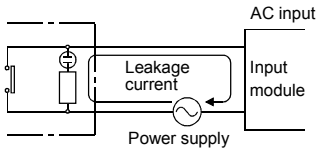
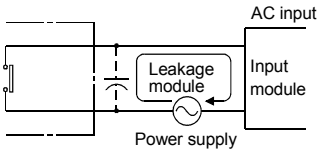
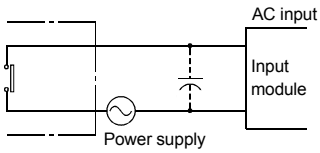
8 - 2

8.2 Examples of Errors for Compact Remote I/O Modules

This section explains examples of errors that occur in the input circuit, and the appropriate corrective actions.

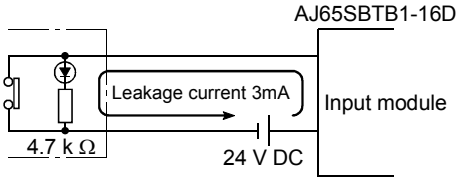
8.2.1 Errors occurring in the input circuit and corrective actions

Examples of errors that occur in the input circuit and corrective actions are explained below:

	Error status	Cause	Corrective action
Example 1	Input signals do not turn off.	• Activation via the LED display switch. 	• Connect a resistor so that the voltage between the input terminal and COM1 becomes lower than the OFF voltage.  * A calculation example used to obtain the resistance value to be connected is shown on the following page.
Example 2	Input signals do not turn off.	• Sneak path due to the use of two power supplies. 	• Reduce the number of power supplies from two to one. • Connect a diode to prevent sneak path. (as below) 
Example 3	Input signals do not turn off.	• Input switch leakage current (driving with a contactless switch). 	• Connect the appropriate resistor so that the terminal-to-terminal voltage of the input module is below the OFF voltage value.  0.1 to 0.47(F + 47 to 120((1/2W) is recommended for the CR constant.
Example 4	Input signals do not turn off.	• Driving using a limit switch with neon lamp. 	• Same as Example 3. • Or, create a completely separate display circuit.
Example 5	Input signals do not turn off.	• Leakage current due to line capacity of the wiring cable. The line capacity "C" of a twisted pair wire is about C=100PF/m. 	• Same as Example 3. • However, this problem will not occur if the power supply as shown below is provided at the input device side. 

<Sample calculation for example 1>

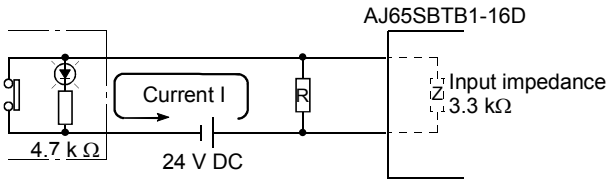
When a switch with a LED display is connected to the AJ65SBTB1-16D and current of 3mA is leaked.



- Voltage VTB across the terminal and common base is:

  VTB = 3 [mA] x 3.3 [kΩ] = 9.9 [V] (Ignore the voltage drop caused by the LED.)

  Because the condition for the OFF voltage (6 [V] or less) is not satisfied, the input does not turn off. To correct this, connect a resistor as shown below.



- Calculation of current I for resistor R

  The voltage across the terminals of the AJ65SBTB1-16D must be reduced to 6 [V] or less. The required current I is:

  (24 – 6 [V]) ÷ 4.7 [kΩ] = 3.83 [mA]

  Therefore, resistor R of flowing current of 3.83 [mA] or more must be connected.

- Calculation of resistance of connected resistor R

  6 [V] ÷ R > 3.83 – 6 [V] ÷ 3.3 [kΩ] (Input impedance)

  6 [V] ÷ 2.01 [mA] > R

  2.99 [kΩ] > R

  Suppose that the resistance R is 2.9 [kΩ].

  The power capacity W of the resistor during activation of the switch is:

  W = (Applied voltage)^2/R

  W = (26.4[V])^2/2.7[kΩ] = 0.258W

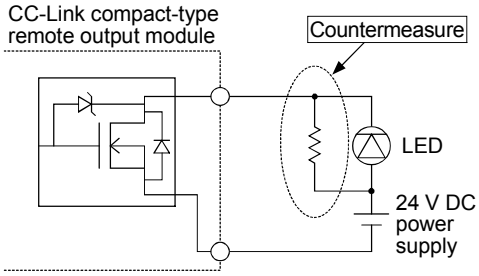
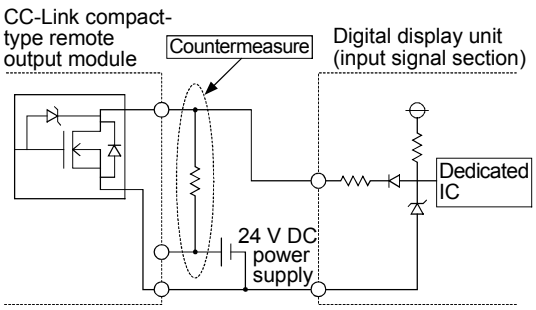
- Because the resistance is selected so that the power capacity is three to five times the actual power consumption, 1 to 1.5 [W] should be selected.

  In this case, a resistor of 2.7[kΩ] and 1 to 1.5 [W] should be connected across the terminal and COM.

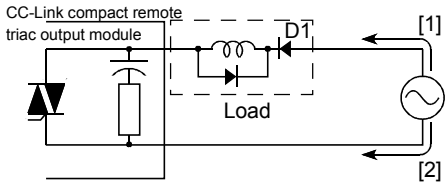
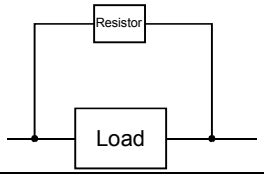
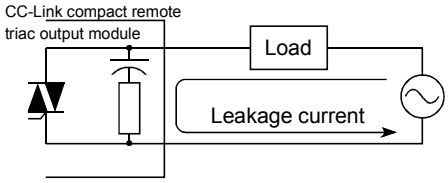
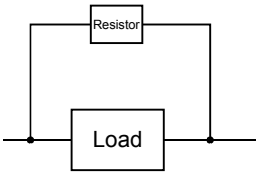
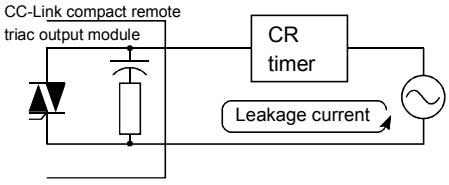
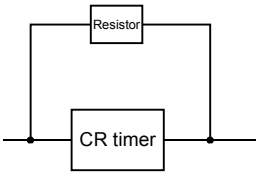
8.2.2 Errors occurring in the output circuit and corrective action

Examples of errors that may occur in the output circuit and the respective corrective action are described below.

(1) When AJ65SBTB1-16T or AJ65SBTB1-32T is used

<table>
<tr><th></th><th>Condition</th><th>Cause</th><th>Corrective action</th></tr>
<tr><td>Example 1</td><td>When an LED is connected as a load, sometimes the LED dimly lights up even when the output module is turned off.
(Example) LED push button by Izumi Electric, Co.: ALFN22211DNR
 
</td><td rowspan="2">For the output modules listed below, the output module specification and the leak current specification value during OFF are 24 V DC 0.5 A and 0.25 mA, respectively (the leak current during OFF is specified as above since an MOS with a built-in protection function and PET transistor output are used.)
<Applicable modules>
AJ65SBTB1-16T,
AJ65SBTB1-32T</td><td>Connect a resistor with 5 to 50 k Ω in parallel to the load LED.</td></tr>
<tr><td>Example 2</td><td>When a segment LED display device is connected as a load, the display contents sometimes become incorrect.
(Example) M7E digital display unit (dimension 14□ mm/ 0.55□ inch) by Omron, Co.: M7E-01DBN2
 
</td><td>Connect a pull-up resistor with 5 to 50 k Ω and 0.5(W) between the 24 V DC power supply and the output module output.</td></tr>
</table>

(2) When AJ65SBTB2(N)-8S or AJ65SBTB2(N)-16S is used

	Condition	Cause	Corrective action
Example 1	Excessive voltage is applied to the output OFF load.	• The load is half-wave rectified internally. (Some solenoids do this process.)  • When the polarity of the power supply is [1], C is charging. When the polarity is [2], the voltage charged in C + power supply voltage is applied to both ends of D1. The maximum value of the voltage is about 2.2E.	• Connect a resistor of several tens K Ω to several hundreds K Ω to both ends of the load. When this type of method is used, no problems will occur in the output elements, but the diode that is built in the load may deteriorate and may be damaged. 
Example 2	The load does not turn off. (Triac output)	• Leakage current due to built-in surge suppression. 	• Connect a resistor to both ends of the load. Caution is required when the wiring distance from the output card to the load is long, since there may be leakage current due to the line capacity. 
Example 3	Time limit changes when the load is a CR type timer. (Triac output)		• Drive the relay first, and then drive the CR type timer at that contact. Caution is required as indicated in Example 1 since the internal circuit may be half-wave rectified depending on the timer.  Calculate the resistor constant according to the load.

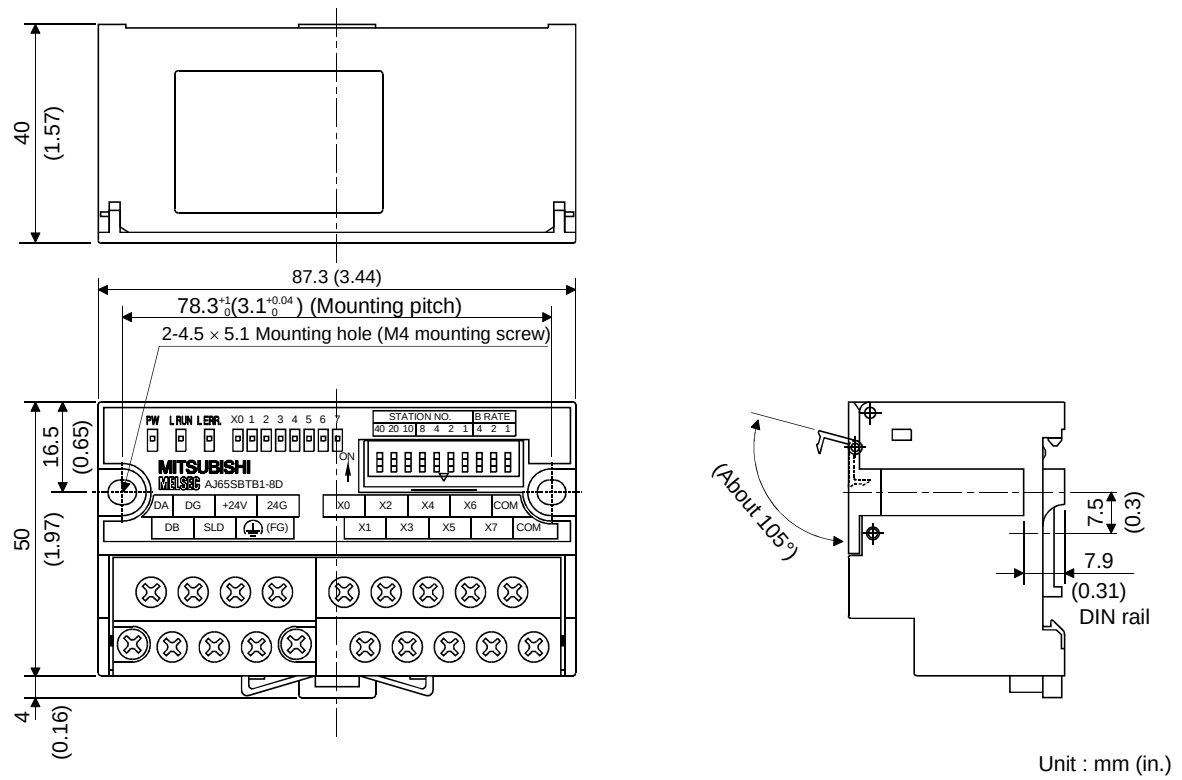
8 - 6

APPENDIX

Appendix 1 External Dimensions

Appendix 1.1 AJ65SBTB1-8□ remote I/O module

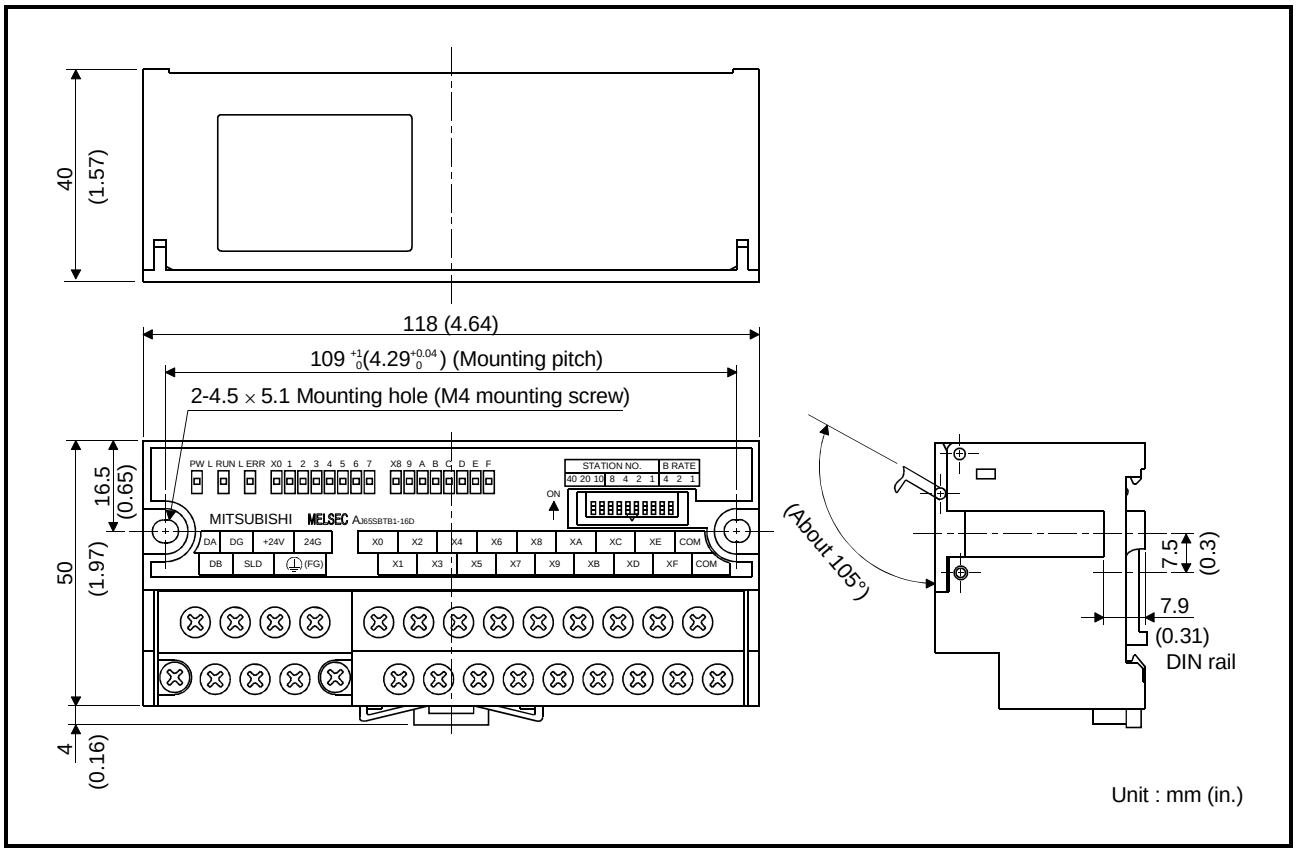
The external dimensions for the AJ65SBTB1-8□ remote I/O module are shown below.



APP

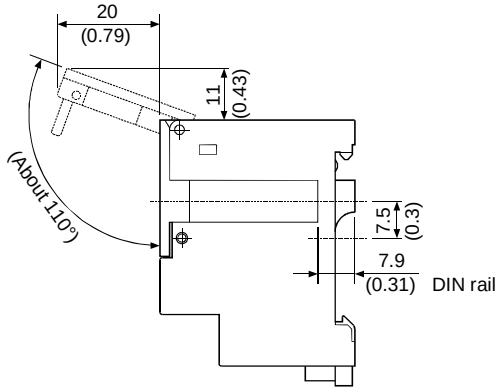
Appendix 1.2 AJ65SBTB1-16□ remote I/O module

The external dimensions for the AJ65SBTB1-16□ remote I/O module are shown below.



Remark

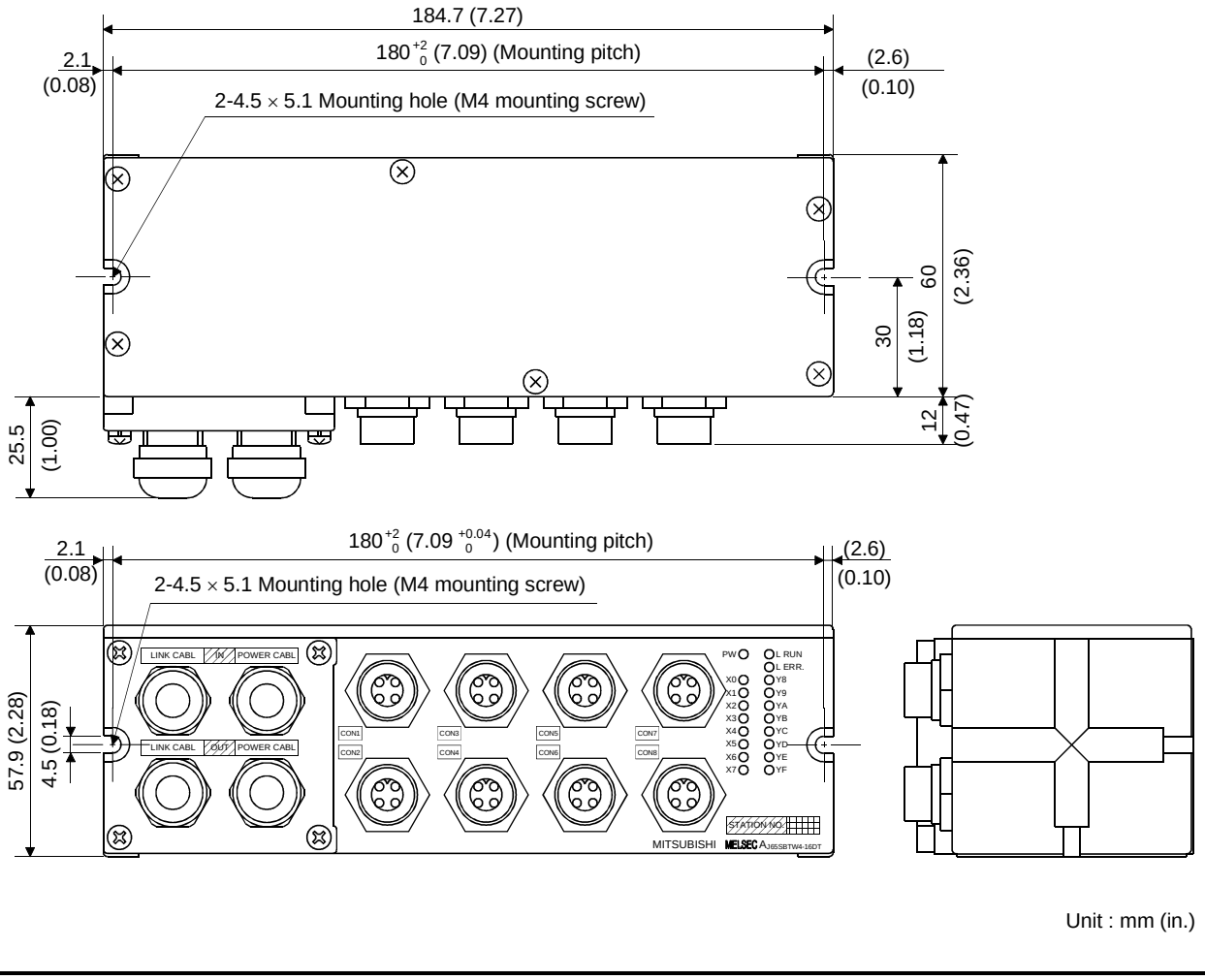
For AJ65SBTB1-16D, AJ65SBTB1-16T Remote I/O Module of hardware version D or before, side face diagram of the module is as follows.



APP

Appendix 1.3 AJ65SBTW4-16□ remote I/O module

The external dimensions for the AJ65SBTW4-16□ remote I/O module are shown below.

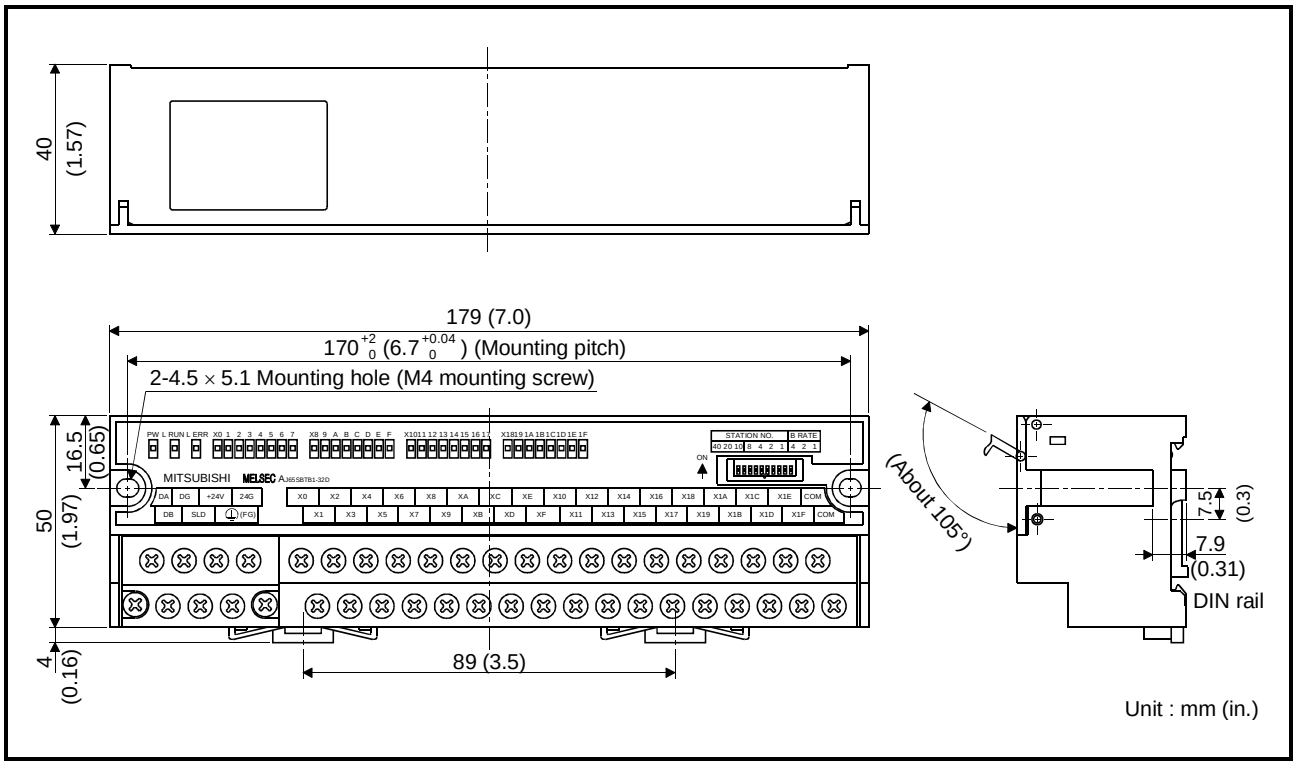


Unit : mm (in.)

App - 3

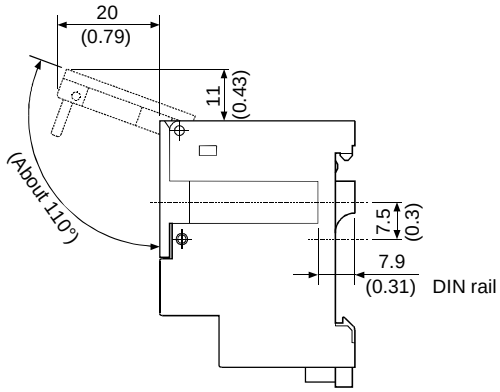
Appendix 1.4 AJ65SBTB1-32□ remote I/O module

The external dimensions for the AJ65SBTB1-32□ remote I/O module are shown below.



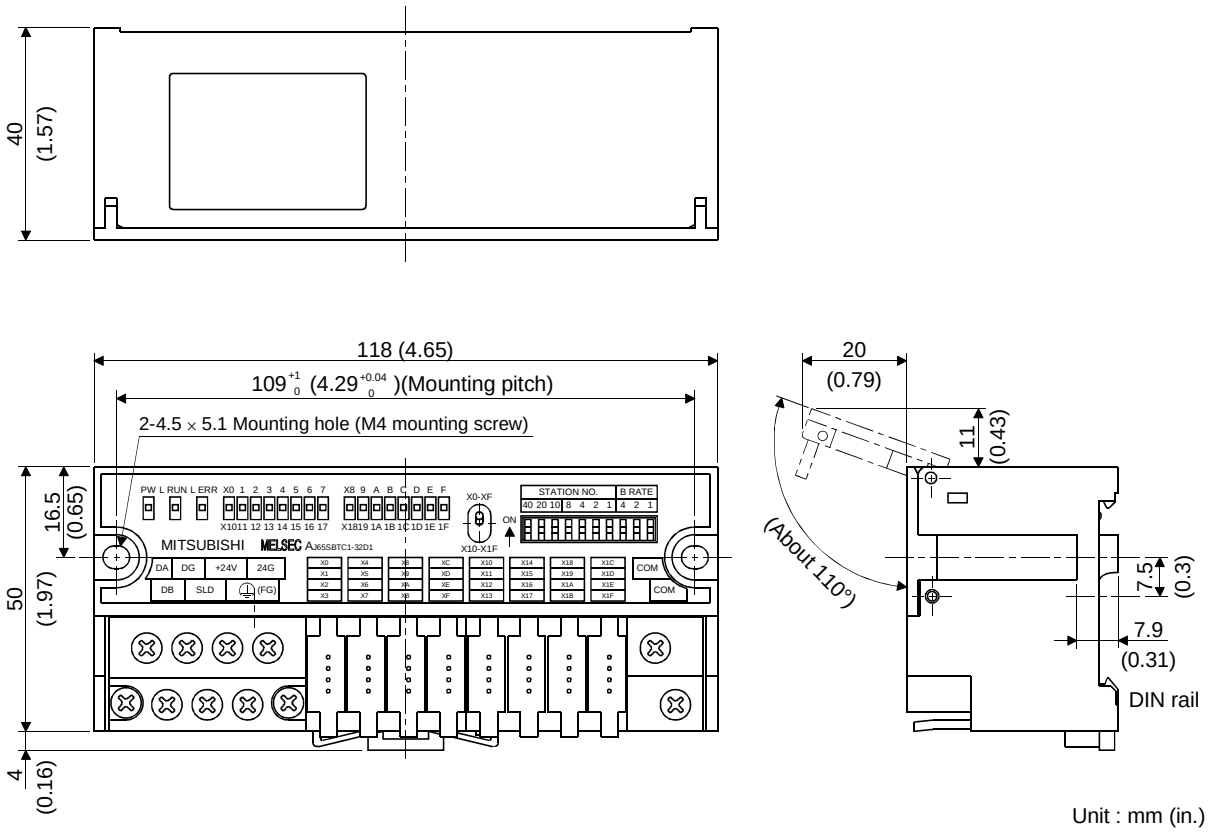
Remark

For AJ65SBTB1-32D, AJ65SBTB1-32T Remote I/O Module of hardware version D or before, side face diagram of the module is as follows.



Appendix 1.5 AJ65SBTC1-32□, AJ65SBTC4-16□ remote I/O module

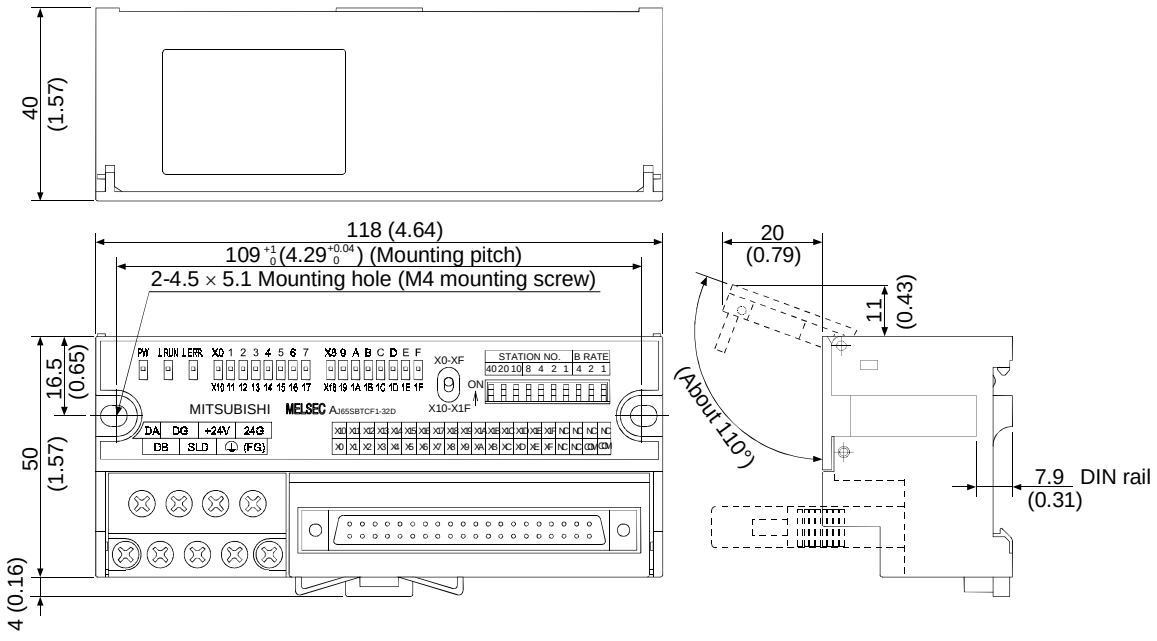
The external dimensions for the AJ65SBTC1-32□, AJ65SBTC4-16□ remote I/O modules are shown below.



App - 5

Appendix 1.6 AJ65SBTCF1-32□ remote I/O module

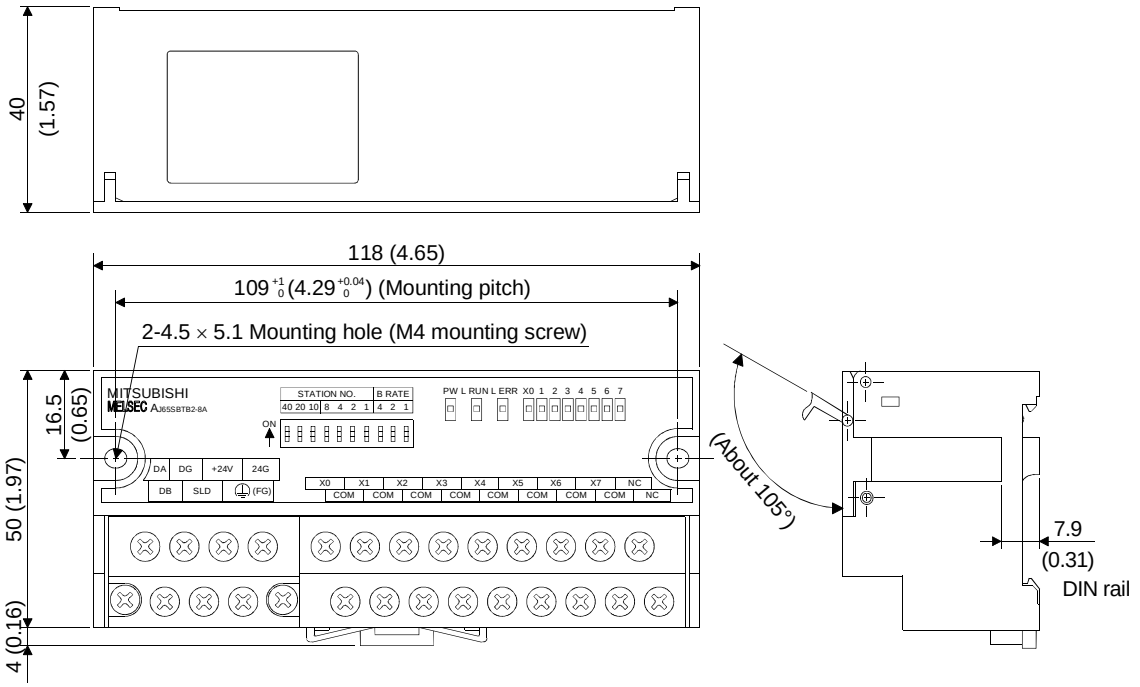
The external dimensions for the AJ65SBTCF1-32□ remote I/O module are shown below.



App - 6

Appendix 1.7 AJ65SBTB2-8□, AJ65SBTB3-8□, AJ65SBTB32-8□ remote I/O module

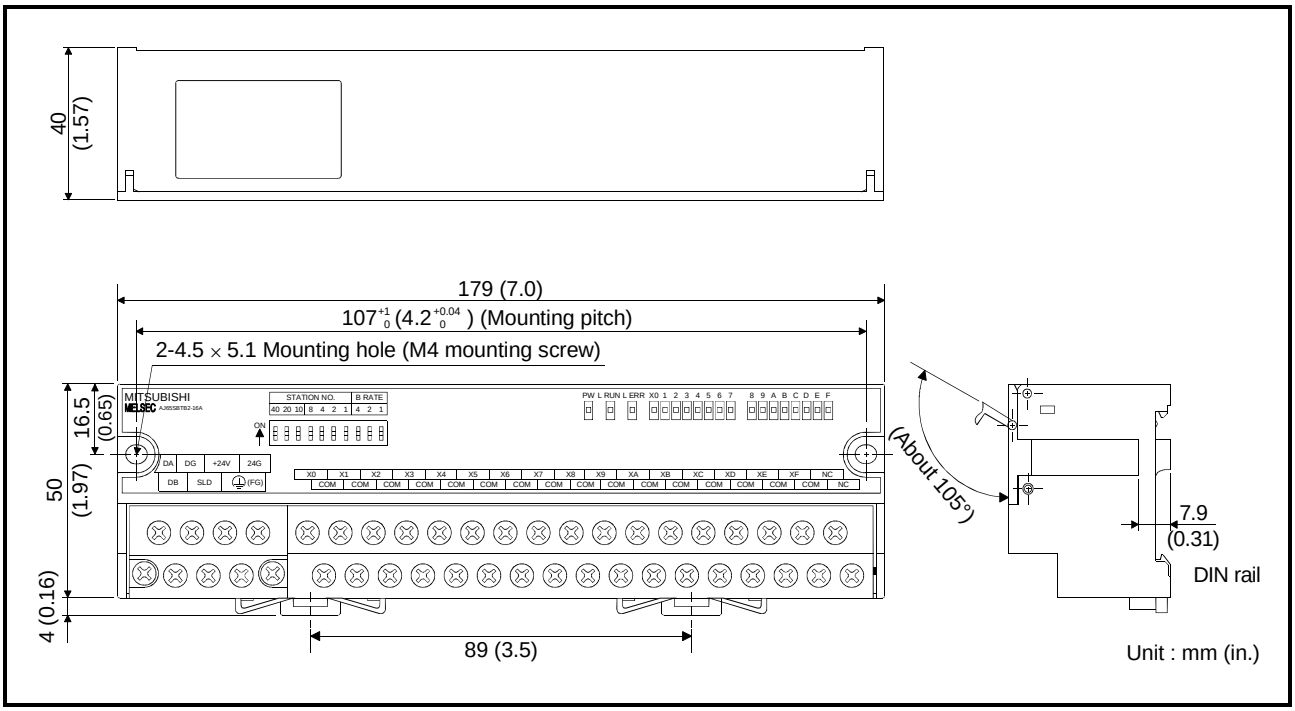
The external dimensions for the AJ65SBTB2-8□, AJ65SBTB3-8□, AJ65SBTB32-8□ remote I/O modules are shown below.



App - 7

Appendix 1.8 AJ65SBTB2-16□, AJ65SBTB3-16□, AJ65SBTB32-16□ remote I/O module

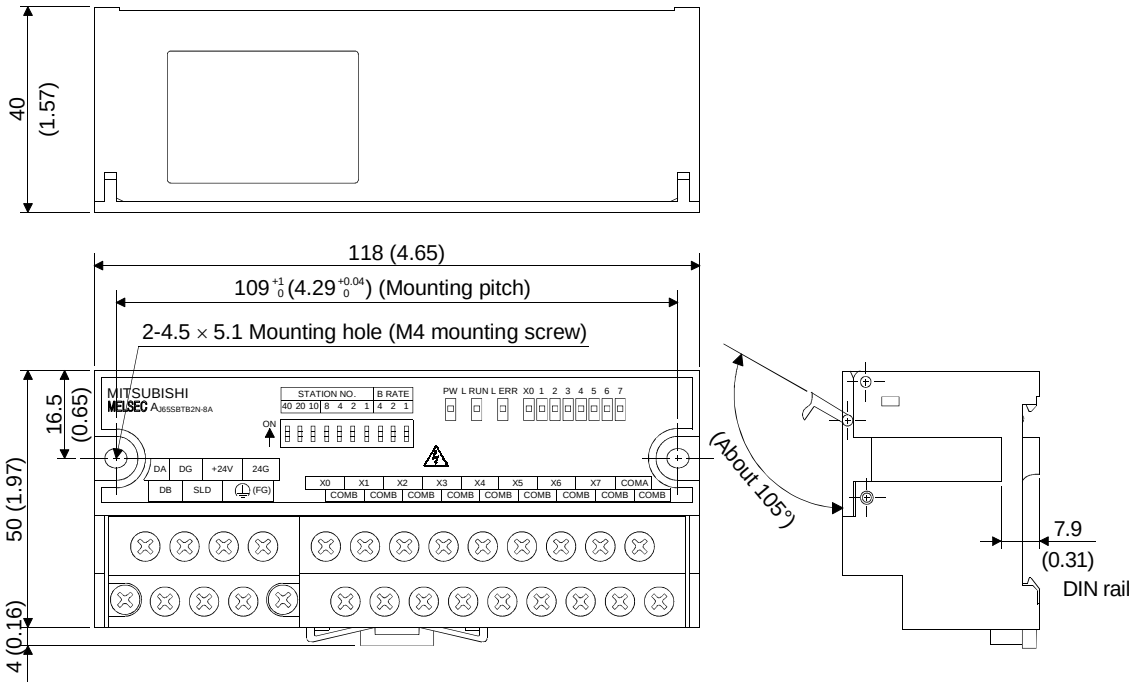
The external dimensions for the AJ65SBTB2-16□, AJ65SBTB3-16□, AJ65SBTB32-16□ remote I/O modules are shown below.



App - 8

Appendix 1.9 AJ65SBTB2N-8□ remote I/O module

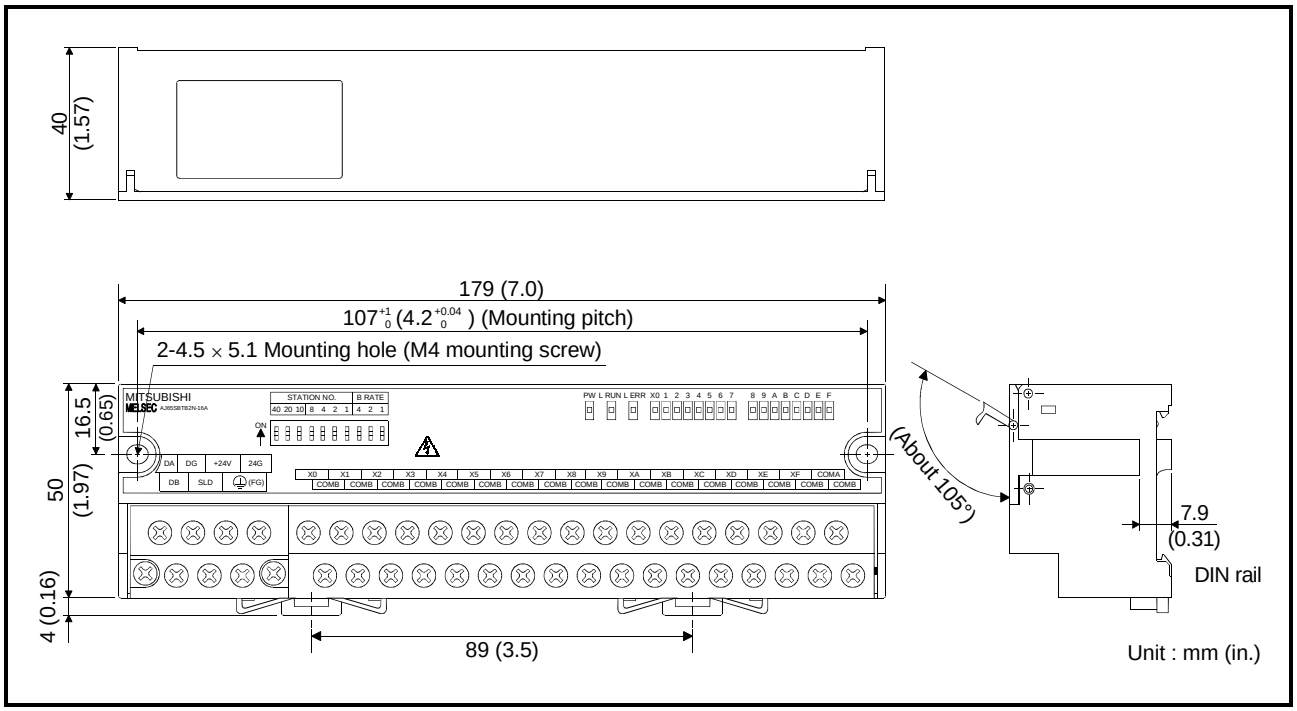
The external dimensions for the AJ65SBTB2N-8□ remote I/O module are shown below.



App - 9

Appendix 1.10 AJ65SBTB2N-16□ remote I/O module

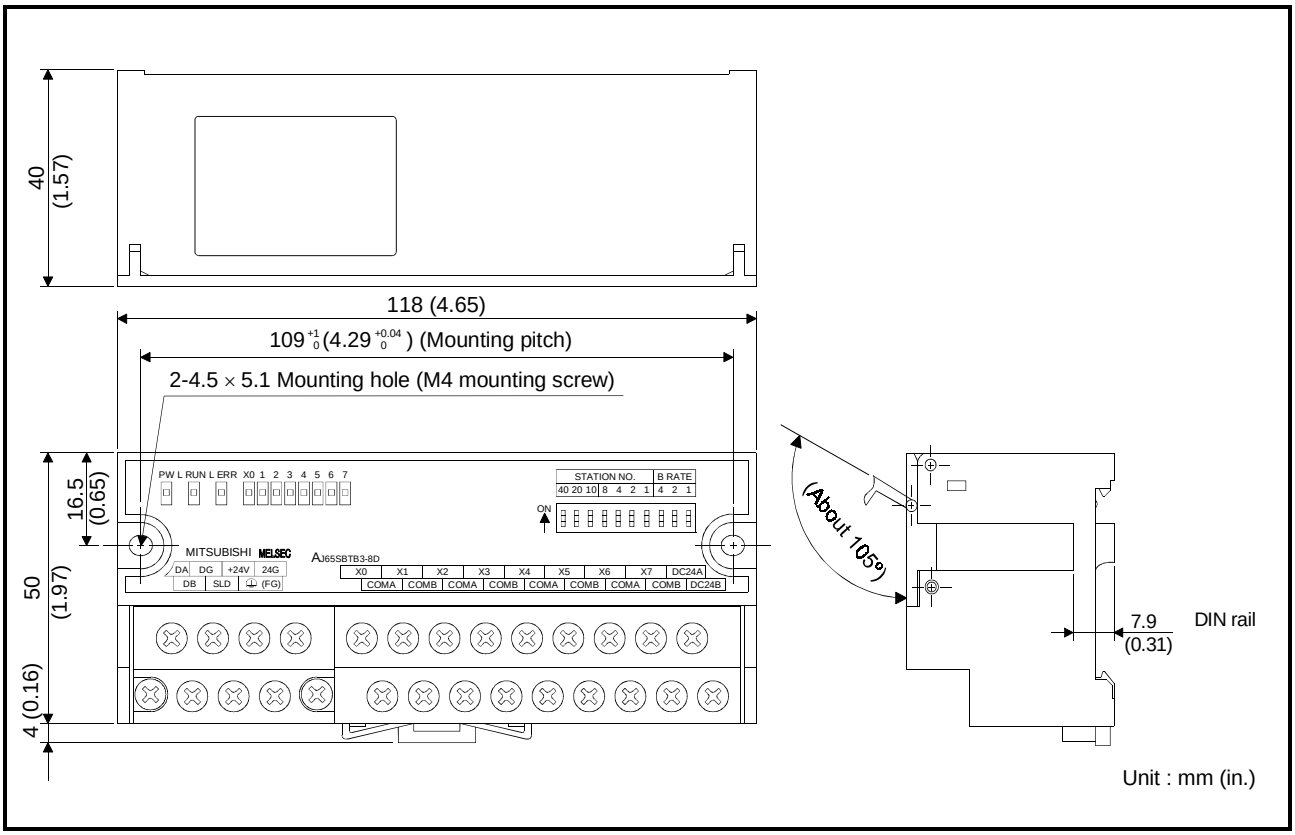
The external dimensions for the AJ65SBTB2N-16□ remote I/O module are shown below.



App - 10

Appendix 1.11 AJ65SBTB3-8□, AJ65SBTB32-8□ remote I/O module

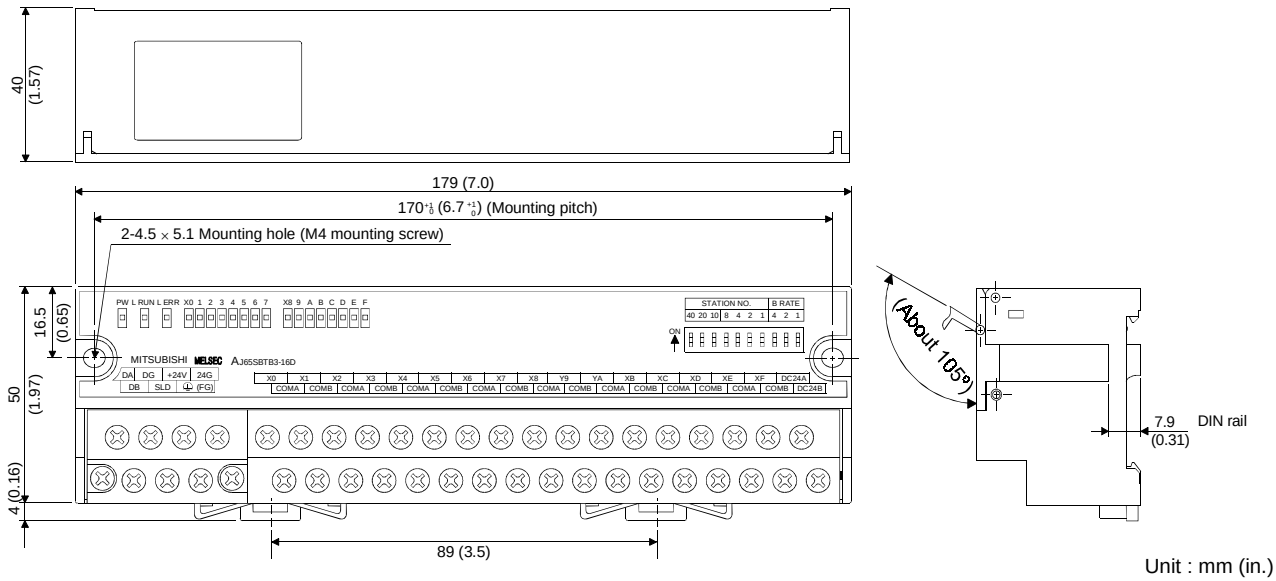
The external dimensions for the AJ65SBTB3-8□, AJ65SBTB32-8□ remote I/O modules are shown below.



App - 11

Appendix 1.12 AJ65SBTB3-16□, AJ65SBTB32-16□ remote I/O module

The external dimensions for the AJ65SBTB3-16□, AJ65SBTB32-16□ remote I/O modules are shown below.

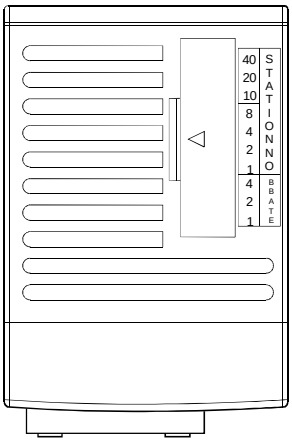


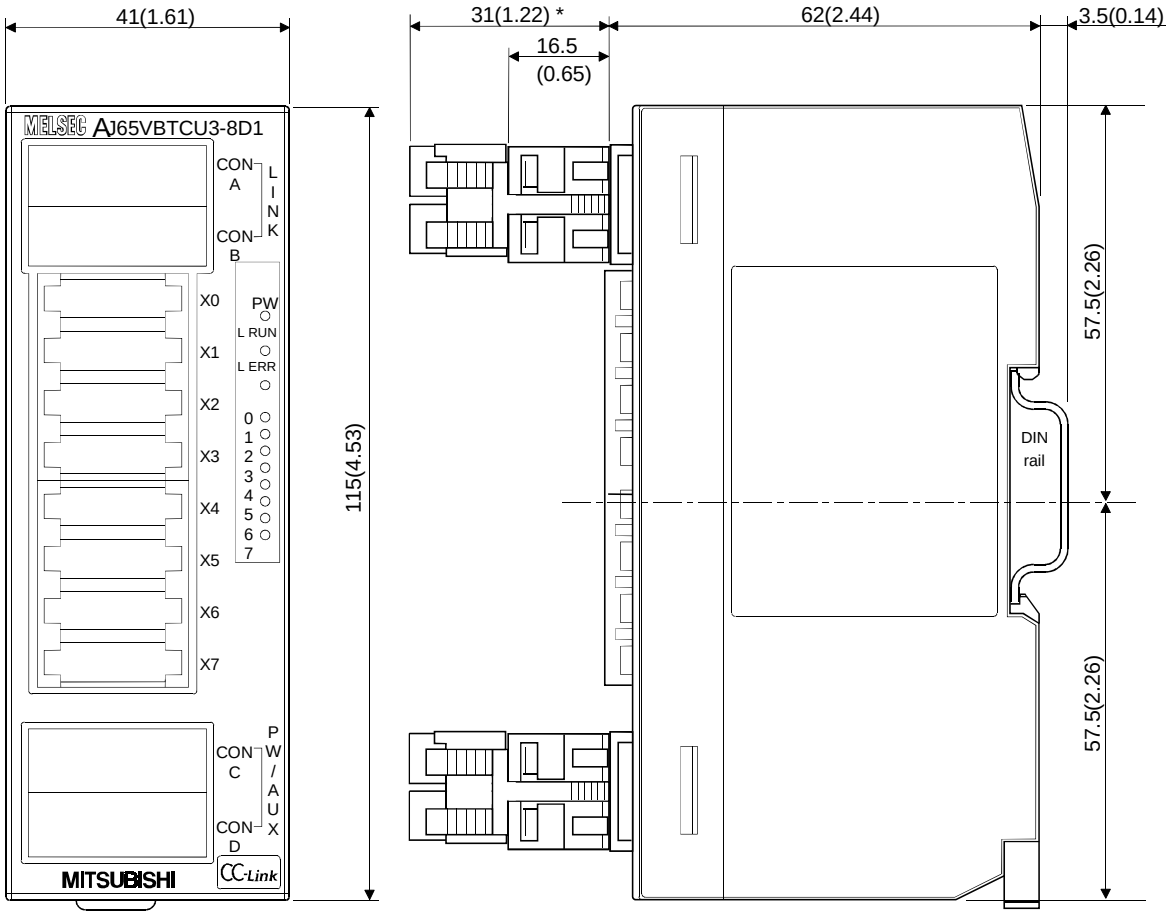
App - 12

Appendix 1.13 AJ65VBTCU□-8□, AJ65VBTCU□-16□, AJ65VBTCF1-32□ remote I/O module

The external dimensions for the AJ65VBTCU□-8□, AJ65VBTCU□-16□, AJ65VBTCF1-32□ remote I/O modules are shown below.

AJ65VBTCU□-8□

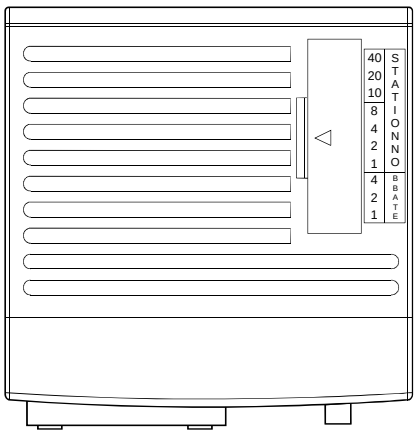


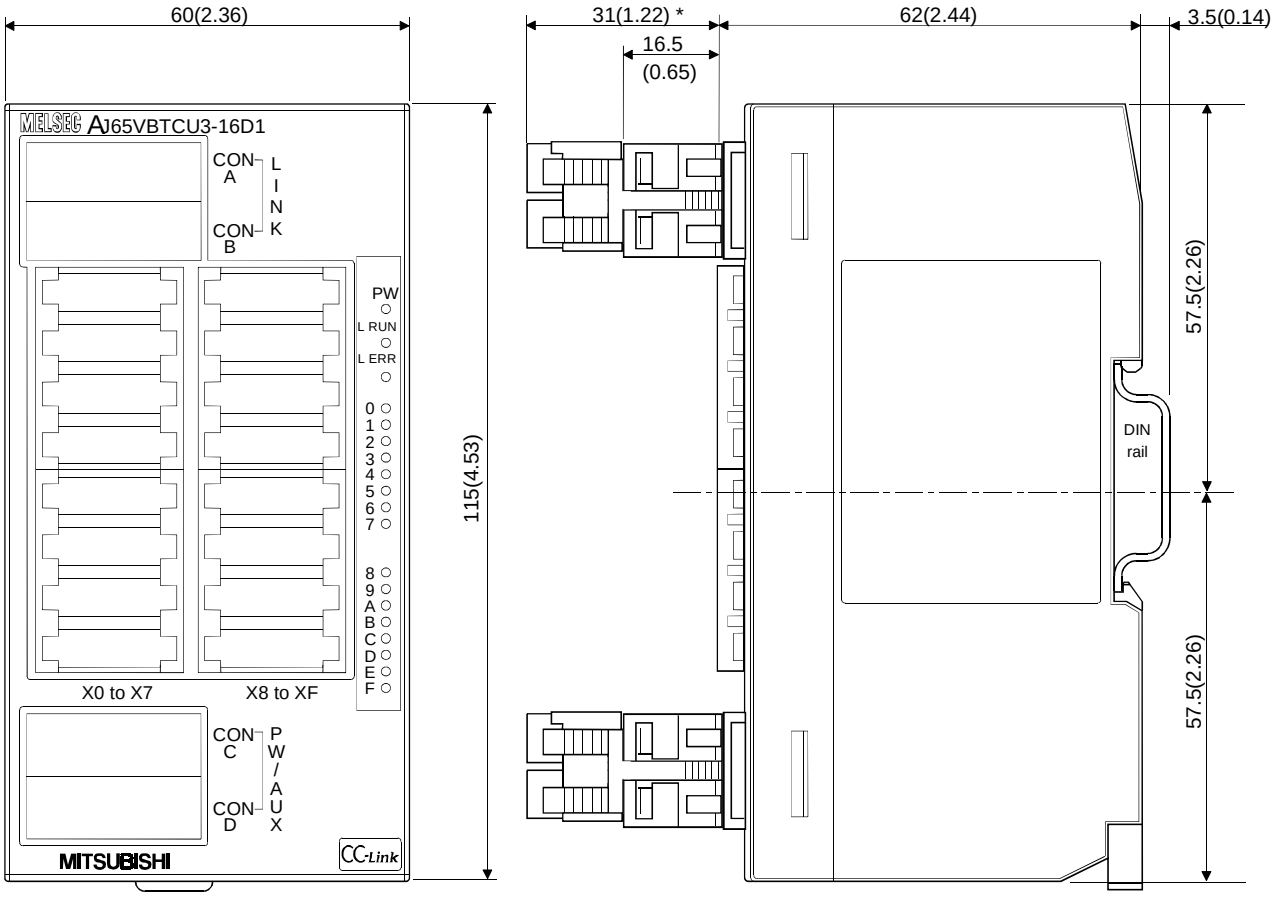


Unit : mm (in.)

*: This section should be 14.5 mm (0.57 in.) when an online connector is not installed.

AJ65VBTCU□-16□



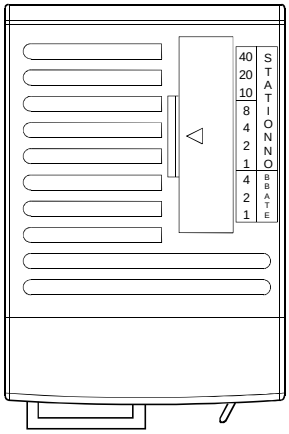


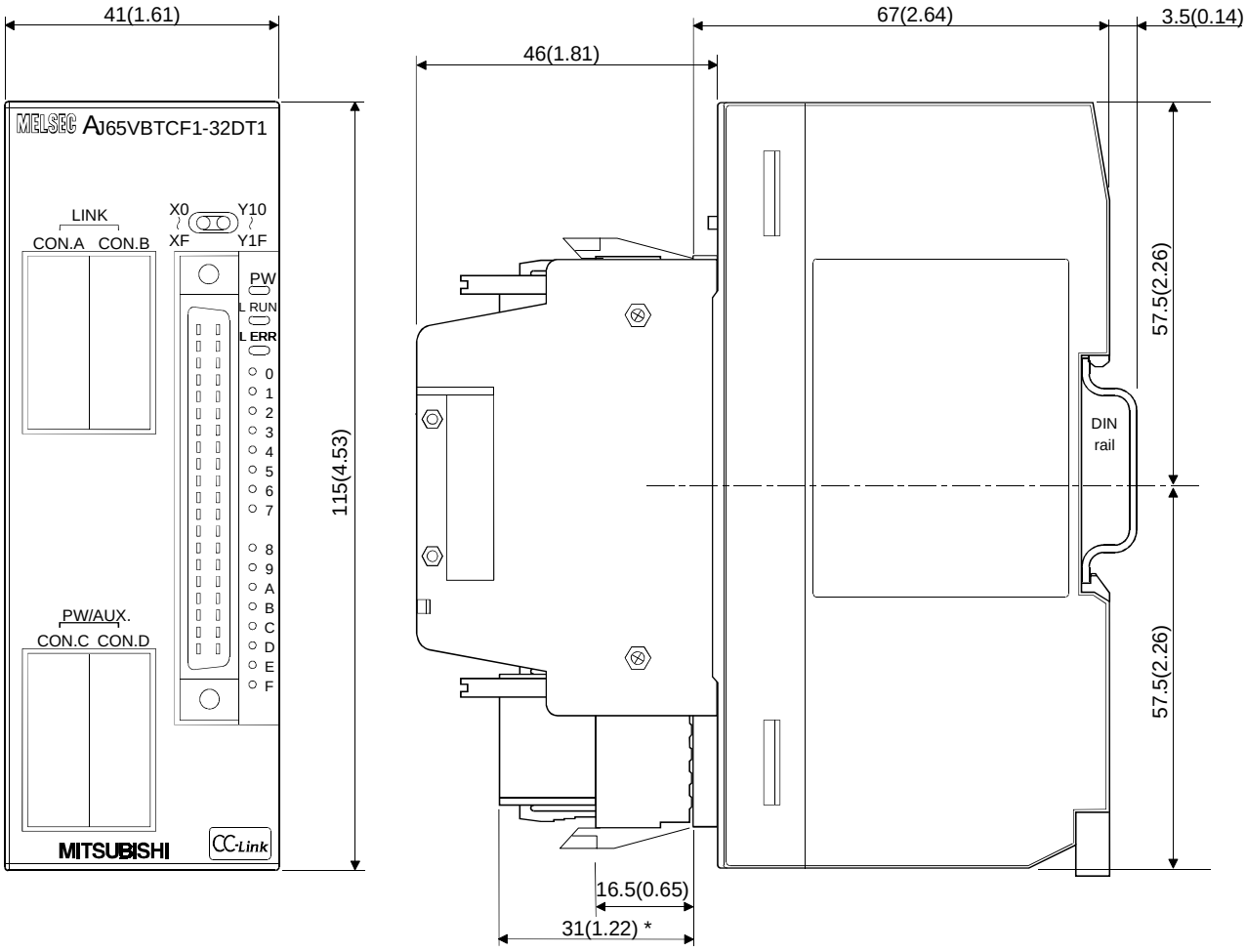
Unit : mm (in.)

*: This section should be 14.5 mm (0.57 in.) when an online connector is not installed.

App - 14

AJ65VBTCF1-32□





Unit : mm (in.)

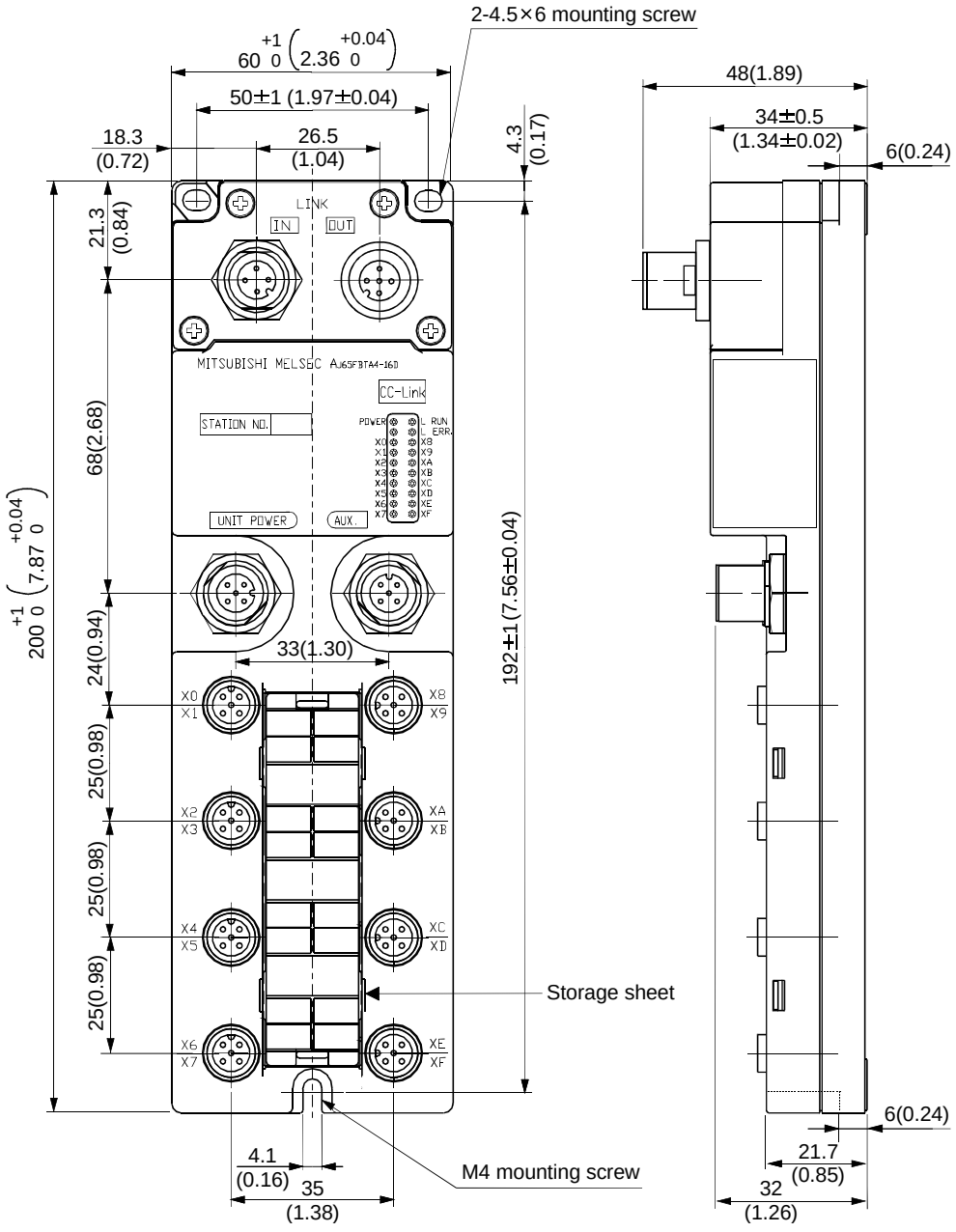
*: This section should be 14.5 mm (0.57 in.) when an online connector is not installed.

App - 15

Appendix 1.14 AJ65FBTA□-16□ remote I/O module

The external dimensions for the AJ65FBTA□-16□ remote I/O modules are shown below.

AJ65FBTA□-16□



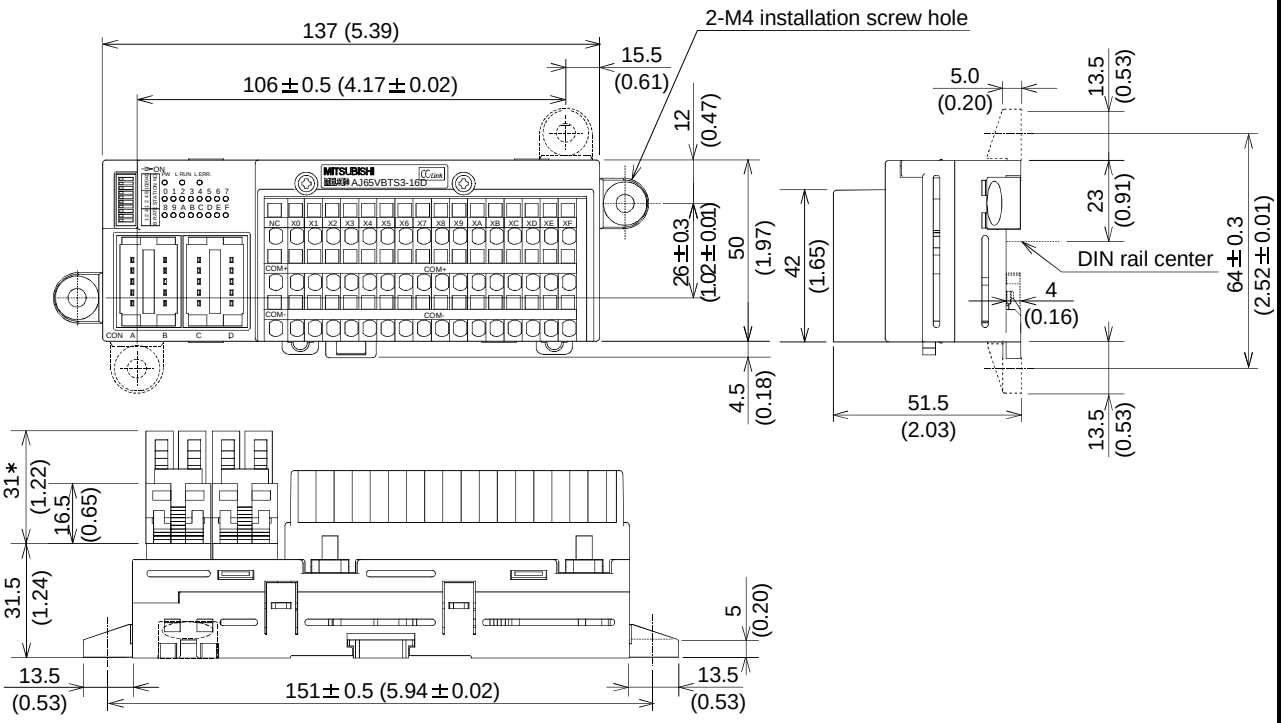
Unit:mm(in.)

App - 16

Appendix 1.15 AJ65VBTS□-16□, AJ65VBTS□-32□ remote I/O module

The external dimensions of the AJ65VBTS□-16□ and AJ65VBTS□-32□ remote I/O modules are shown below.

AJ65VBTS□-16□

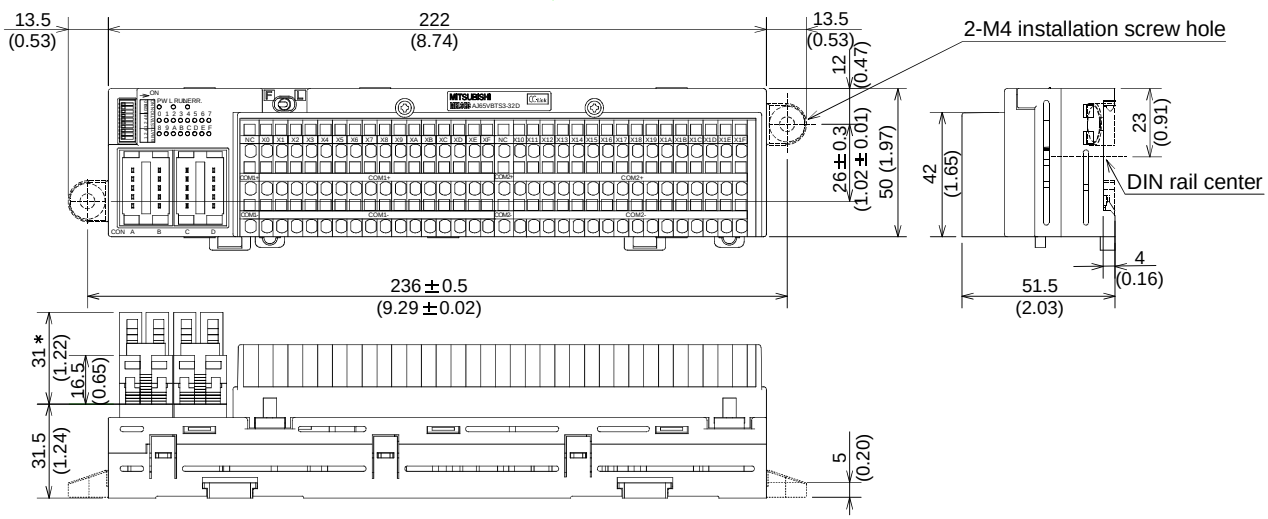


Unit : mm (in.)

*: This section should be 145 mm (0.57in.) when an online connector is not installed.

App - 17

AJ65VBTS□-32□



Unit : mm (in.)

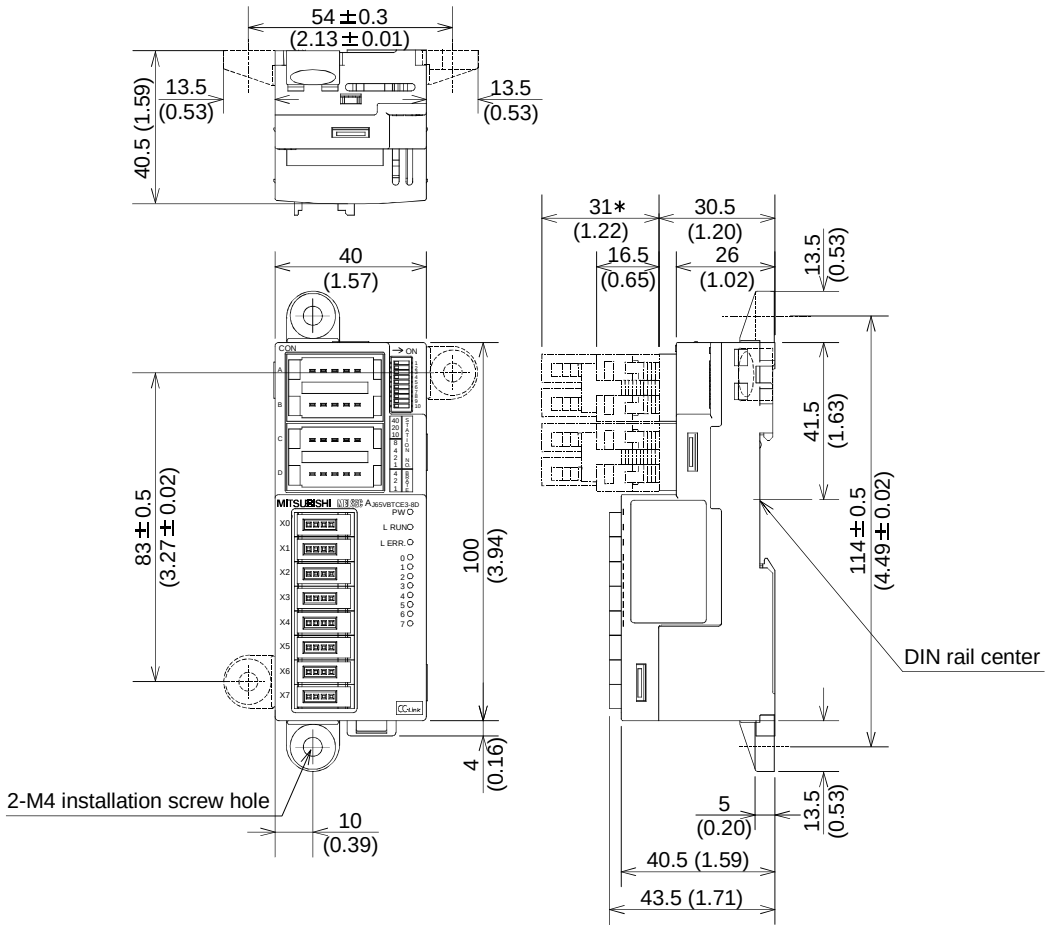
*: This section should be 14.5 mm (0.57in.) when an online connector is not installed.

App - 18

Appendix 1.16 AJ65VBTCE□-8□, AJ65VBTCE□-16□ remote I/O module

The external dimensions of the AJ65VBTCE□-8□ and AJ65VBTCE□-16□ remote I/O modules are shown below.

AJ65VBTCE□-8□

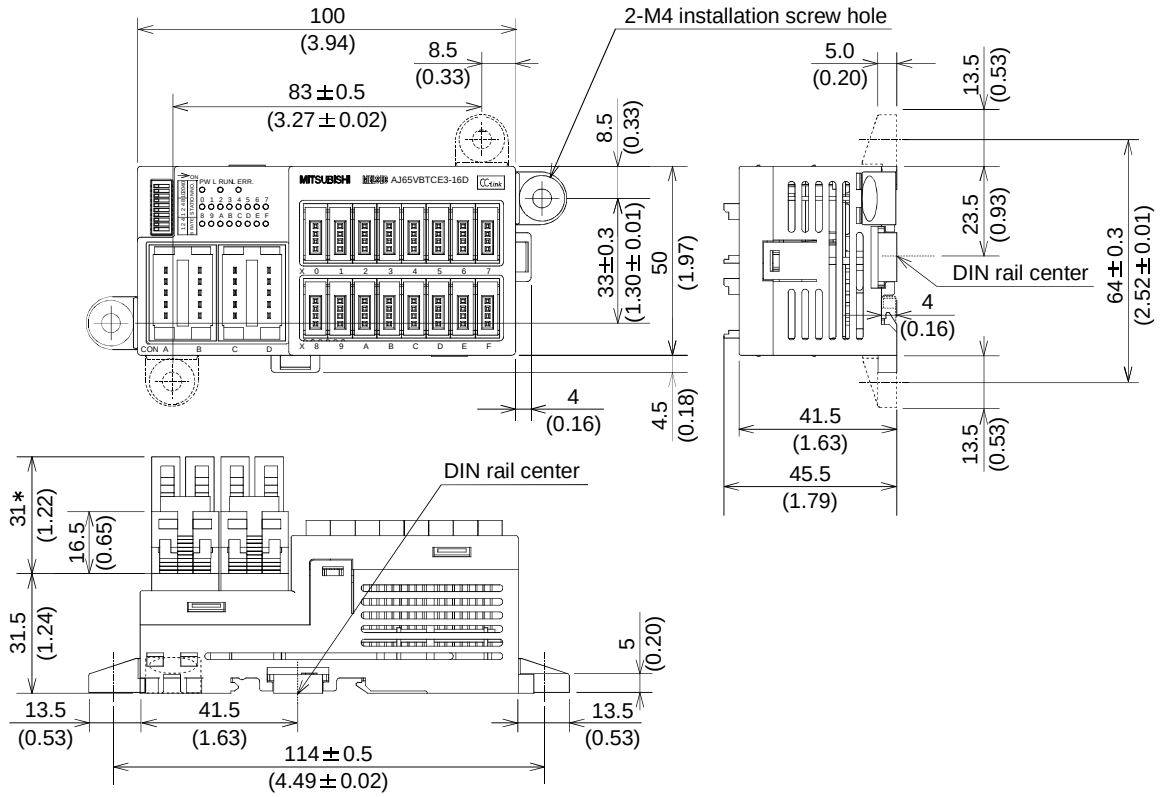


Unit : mm (in.)

*: This section should be 14.5mm (0.57in.) when an online connector is not installed.

App - 19

AJ65VBTCE□-16□



Unit : mm (in.)

*: This section should be 14.5mm (0.57in.) when an online connector is not installed.

App - 20

WARRANTY

Please confirm the following product warranty details before starting use.

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 dealer or Mitsubishi Service Company. Note that if repairs are required at a site overseas, on a detached island or remote place, expenses to dispatch an engineer shall be charged for.

[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 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 possible 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 chance loss and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to damages caused by any cause found not to be the responsibility of Mitsubishi, chance losses, lost profits incurred to the user by Failures of Mitsubishi products, damages and secondary damages caused from special reasons regardless of Mitsubishi's expectations, compensation for accidents, and compensation for damages to products other than Mitsubishi products and other duties.

5. Changes in product specifications

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

6. Product application

(1) In using the Mitsubishi MELSEC programmable logic controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable logic controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.

(2) The Mitsubishi general-purpose programmable logic controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or National Defense purposes shall be excluded from the programmable logic controller applications.

Note that even with these applications, if the user approves that the application is to be limited and a special quality is not required, application shall be possible.

When considering use in aircraft, medical applications, railways, incineration and fuel devices, manned transport devices, equipment for recreation and amusement, and safety devices, in which human life or assets could be greatly affected and for which a particularly high reliability is required in terms of safety and control system, please consult with Mitsubishi and discuss the required specifications.

HEADQUARTERS

MITSUBISHI ELECTRIC EUROPE B.V. — EUROPE
German Branch
Gothaer Straße 8
D-40880 Ratingen
Phone: +49 (0)2102 486-0
Fax: +49 (0)2102 486-1120
e mail: megfamail@meg.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. — FRANCE
French Branch
25, Boulevard des Bouvets
F-92741 Nanterre Cedex
Phone: +33 1 55 68 55 68
Fax: +33 1 55 68 56 85
e mail: factory.automation@fra.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. — IRELAND
Irish Branch
Westgate Business Park, Ballymount
IRL-Dublin 24
Phone: +353 (0) 1 / 419 88 00
Fax: +353 (0) 1 / 419 88 90
e mail: sales.info@meir.mee.com

MITSUBISHI ELECTRIC . EUROPE B.V — ITALY
Italian Branch
Via Paracelso 12
I-20041 Agrate Brianza (MI)
Phone: +39 039 60 53 1
Fax: +39 039 60 53 312
e mail: factory.automation@it.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. — SPAIN
Spanish Branch
Carretera de Rubí 76-80
E-08190 Sant Cugat del Vallés
Phone: +34 9 3 565 3131
Fax: +34 9 3 589 2948
e mail: industrial@sp.mee.com

MITSUBISHI ELECTRIC EUROPE B.V. — UK
UK Branch
Travellers Lane
GB-Hatfield Herts. AL10 8 XB
Phone: +44 (0) 1707 / 27 61 00
Fax: +44 (0) 1707 / 27 86 95
e mail: automation@meuk.mee.com

MITSUBISHI ELECTRIC CORPORATION — JAPAN
Office Tower "Z" 14 F
8-12,1 chome, Harumi Chuo-Ku
Tokyo 104-6212
Phone: +81 3 622 160 60
Fax: +81 3 622 160 75

MITSUBISHI ELECTRIC AUTOMATION — USA
500 Corporate Woods Parkway
Vernon Hills, IL 60061
Phone: +1 847 478 21 00
Fax: +1 847 478 22 83

EUROPEAN REPRESENTATIVES

GEVA — AUSTRIA
Wiener Straße 89
AT-2500 Baden
Phone: +43 (0)2252 / 85 55 20
Fax: +43 (0)2252 / 488 60
e mail: office@geva.at

TEHNIKON — BELARUS
Oktjabrskaya 16/5, Ap 704
BY-220030 Minsk
Phone: +375 (0)17 / 2104626
Fax: +375 (0)17 / 2275830
e mail: tehnikon@belsonet.net

Getronics b.v. Control Systems — BELGIUM
Pontbeeklaan 43
BE-1731 Asse-Zellik
Phone: +32 (0)2 / 467 17 51
Fax: +32 (0)2 / 467 17 45
e mail: infoautomation@getronics.com

TELECON CO. — BULGARIA
4, A. Ljapchev Blvd.
BG-1756 Sofia
Phone: +359 (0)2 / 97 44 058
Fax: +359 (0)2 / 97 44 061
e mail: —

INEA CR d.o.o. — CROATIA
Losinjska 4 a
HR-10000 Zagreb
Phone: +385 (0) 1 / 36 940-01
Fax: +385 (0) 1 / 36 940-03
e mail: inea@inea.hr

AutoCont Control Systems s.r.o. — CZECH REPUBLIC
Nemocnicni 12
CZ-70200 Ostrava 2
Phone: +420 59 / 6152 111
Fax: +420 59 / 6152 562
e mail: consys@autocont.cz

louis poulsen industri & automation — DENMARK
Geminivej 32
DK-2670 Greve
Phone: +45 (0)43 / 95 95 95
Fax: +45 (0)43 / 95 95 91
e mail: lpia@lpmail.com

UTU Elektrotehnika AS — ESTONIA
Pärnu mnt.160i
EE-10621 Tallinn
Phone: +372 (0)6 / 51 72 80
Fax: +372 (0)6 / 51 72 88
e mail: utu@utu.ee

UTU POWEL OY — FINLAND
Box 236
FIN-28101 Pori
Phone: +358 (0)2 / 550 800
Fax: +358 (0)2 / 550 8841
e mail: tehoelektroniikka@urhotuominen.fi

UTECO A.B.E.E. — GREECE
5, Mavrogenous Str.
GR-18542 Piraeus
Phone: +302 (0)10 / 42 10 050
Fax: +302 (0)10 / 42 12 033
e mail: uteco@uteco.gr

Meltrade Automatika Kft. — HUNGARY
55, Harmat St.
HU-1105 Budapest
Phone: +36 (0)1 / 2605 602
Fax: +36 (0)1 / 2605 602
e mail: office@meltrade.hu

SIA POWEL — LATVIA
Lienes iela 28
LV-1009 Riga
Phone: +371 784 2280
Fax: +371 784 2281
e mail: utu@utu.lv

EUROPEAN REPRESENTATIVES

UAB UTU POWEL — LITHUANIA
Savanoriu Pr. 187
LT-2053 Vilnius
Phone: +370 (0)52323-101
Fax: +370 (0)52322-980
e mail: powel@utu.lt

Intehsis Srl — MOLDOVA
Cuza-Voda 36/1-81
MD-2061 Chisinau
Phone: +373 (0)2 / 562 263
Fax: +373 (0)2 / 562 263
e mail: intehsis@mdl.net

Getronics b.v. Control Systems — NETHERLANDS
Donauweg 2 B
NL-1043 AJ Amsterdam
Phone: +31 (0)20 / 587 6700
Fax: +31 (0)20 / 587 6839
e mail: info.gia@getronics.com

Motion Control Automation b.v. — NETHERLANDS
Markenweg 5
NL-7051 HS Varsseveld
Phone: +31 (0)315 / 257 260
Fax: +31 (0)315 / 257 269
e mail: —

Beijer Electronics AS — NORWAY
Teglverksveien 1
NO-3002 Drammen
Phone: +47 (0)32 / 24 30 00
Fax: +47 (0)32 / 84 85 77
e mail: info@beijer.no

MPL Technology Sp. z o.o. — POLAND
ul. Sliczna 36
PL-31-444 Kraków
Phone: +48 (0)12 / 632 28 85
Fax: +48 (0)12 / 632 47 82
e mail: krakow@mpl.pl

Sirius Trading & Services srl — ROMANIA
Str. Biharia Nr. 67-77
RO-013981 Bucuresti 1
Phone: +40 (0) 21 / 201 1146
Fax: +40 (0) 21 / 201 1148
e mail: sirius@siriustrading.ro

ACP Autocomp a.s. — SLOVAKIA
Chalupkova 7
SK-81109 Bratislava
Phone: +421 (02)5292-2254
Fax: +421 (02)5292-2248
e mail: info@acp-autocomp.sk

INEA d.o.o. — SLOVENIA
Stegne 11
SI-1000 Ljubljana
Phone: +386 (0)1 513 8100
Fax: +386 (0)1 513 8170
e mail: inea@inea.si

Beijer Electronics AB — SWEDEN
Box 426
S-20124 Malmö
Phone: +46 (0)40 / 35 86 00
Fax: +46 (0)40 / 35 86 02
e mail: info@beijer.de

ECONOTEC AG — SWITZERLAND
Postfach 282
CH-8309 Nürensdorf
Phone: +41 (0)1 / 838 48 11
Fax: +41 (0)1 / 838 48 12
e mail: info@econotec.ch

GTS — TURKEY
Darülaceze Cad. No. 43A KAT: 2
TR-80270 Okmeydani-Istanbul
Phone: +90 (0)212 / 320 1640
Fax: +90 (0)212 / 320 1649
e mail: gts@turk.net

EUROPEAN REPRESENTATIVES

CSC Automation — UKRAINE
15, M. Raskova St., Fl. 10, Off. 1010
UA-02002 Kiev
Phone: +380 (0)44 / 238 83 16
Fax: +380 (0)44 / 238 83 17
e mail: csc-a@csc-a.kiev.ua

EURASIAN REPRESENTATIVE

CONSYS — RUSSIA
Promyshlennaya St. 42
RU-198099 St Petersburg
Phone: +7 812 / 325 36 53
Fax: +7 812 / 325 36 53
e mail: consys@consys.spb.ru

ELEKTROSTYLE — RUSSIA
ul. Garschina 11
RU-140070 Moscow Oblast
Phone: +7 095/ 557 9756
Fax: +7 095/ 746 8880
e mail: mjuly@elektrostyle.ru

ELEKTROSTYLE — RUSSIA
Krasnij Prospekt 220-1, Office 312
RU-630049 Novosibirsk
Phone: +7 3832 / 10 66 18
Fax: +7 3832 / 10 66 26
e mail: elo@elektrostyle.ru

ICOS — RUSSIA
Ryazanskij Prospekt, 8A, Office 100
RU-109428 Moscow
Phone: +7 095 / 232 0207
Fax: +7 095 / 232 0327
e mail: mail@icos.ru

SMENA — RUSSIA
Polzunova 7
RU-630051 Novosibirsk
Phone: +7 095 / 416 4321
Fax: +7 095 / 416 4321
e mail: smena-nsk@yandex.ru

SSMP Rosgidromontazh Ltd — RUSSIA
23, Lesoparkovaya Str.
RU-344041 Rostov On Don
Phone: +7 8632 / 36 00 22
Fax: +7 8632 / 36 00 26
e mail: —

STC Drive Technique — RUSSIA
Poslannikov per., 9, str.1
RU-107005 Moscow
Phone: +7 095 / 786 21 00
Fax: +7 095 / 786 21 01
e mail: info@privod.ru

MIDDLE EAST REPRESENTATIVE

SHERF Motion Techn. Ltd — ISRAEL
Rehov Hamerkava 19
IL-58851 Holon
Phone: +972 (0)3 / 559 54 62
Fax: +972 (0)3 / 556 01 82
e mail: —

AFRICAN REPRESENTATIVE

CBI Ltd — SOUTH AFRICA
Private Bag 2016
ZA-1600 Isando
Phone: +27 (0)11 / 928 2000
Fax: +27 (0)11 / 392 2354
e mail: cbi@cbi.co.za