Changes for the Better

MITSUBISHI ELECTRIC

Open Field Network
CC-Link Compatible Product Catalog

Nagoya works, Mitsubishi Electric Corporation, has acquired certification for systems of environmental management under ISO 14001, and for quality management systems under ISO 9001.

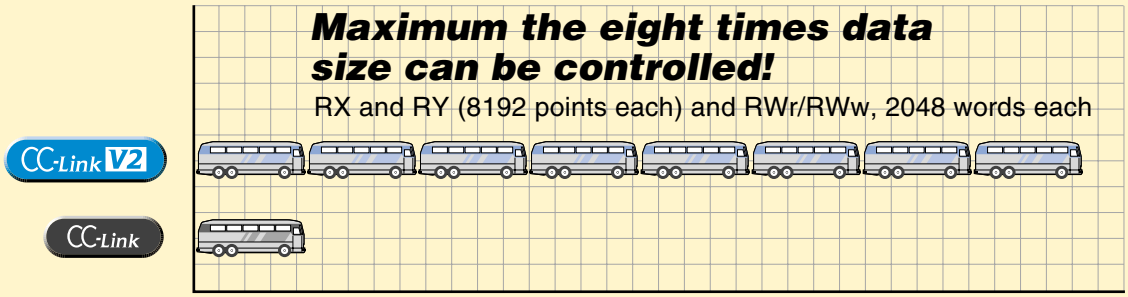
ISO 14001 JACO UKAS ENVIRONMENTAL MANAGEMENT 051

BVQI ISO 9001 UKAS QUALITY MANAGEMENT 008

New Line up!

CC-Link V2 compatible products have been developed!

CC-Link Ver. 2 can control a maximum of eight times data size compared with earlier CC-Link products.



Master Module for Q Series
QJ61BT11N

New

P.18

Analog Module
AJ65VBTCU-68ADVN／AJ65VBTCU-68ADIN
AJ65VBTCU-68DAVN

New

P.74
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The " CC-Link V2 " logo is printed on the products compatible with CC-Link Ver. 2.

Embedded I/O Adapters
AJ65MBTL1N-□

New

P.54

CC-Link–CC-Link/LT Bridge Module
AJ65SBT-CLB

New

P.122

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(FX Series interface blocks, inverters, AC servo amplifiers, CNC, breakers, etc.)

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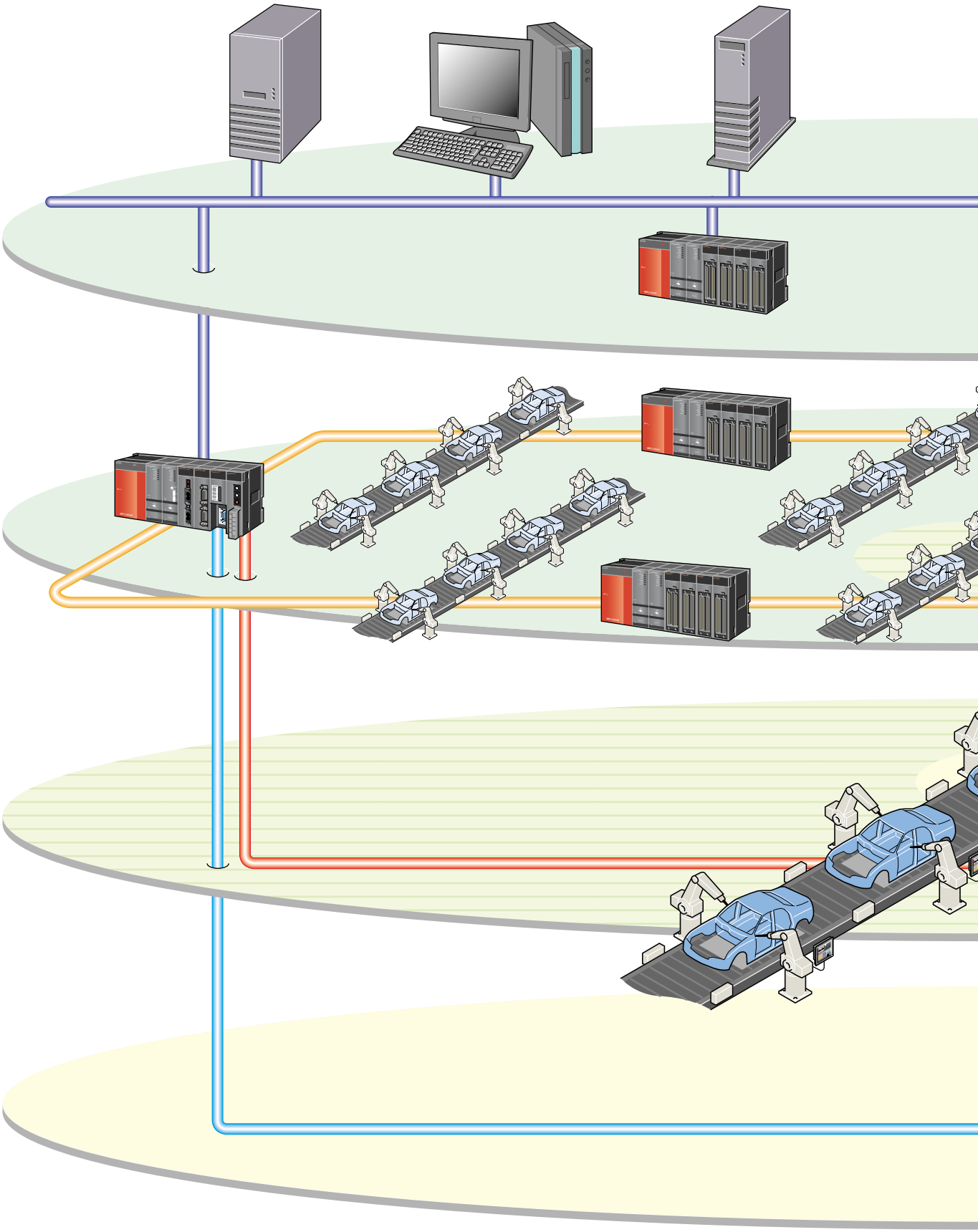
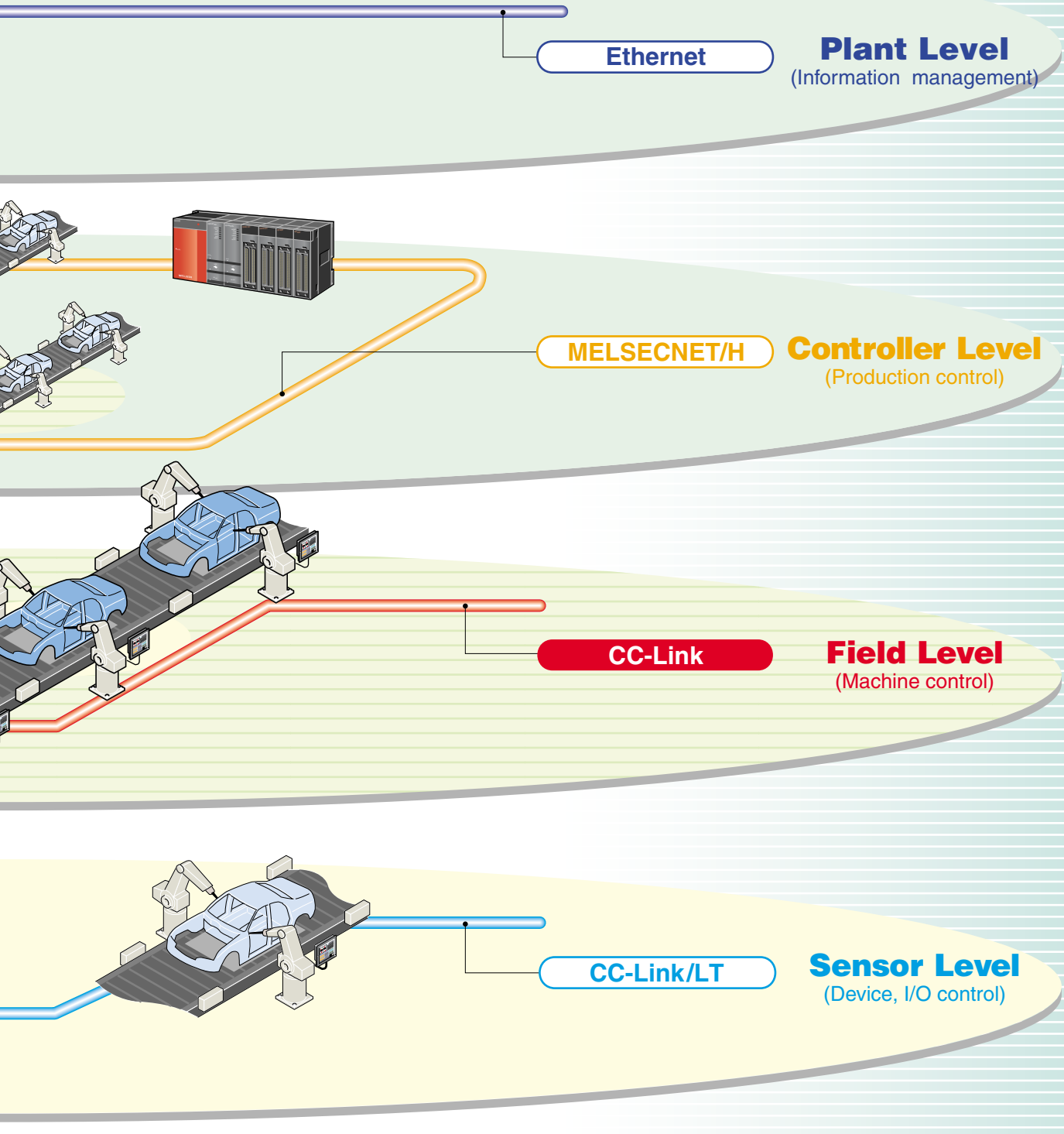
Total Network Solution

• Total Network Solution



Total Network Solution

From information management to production control, machine control, device and I/O control ...
Looking ahead to network interconnection in all of these layers,
Mitsubishi has presented one product after another that are compatible with not only Ethernet but also MELSECNET/H and CC-Link.
An integrated seamless network is realized in all levels of the hierarchy for FA application.
Therefore, Mitsubishi's network solution provides a 'total network' solution environment, which can be used as a strong tool for production system applications.



Family

• CC-Link Family

To expand open network possibilities to every corner of a field.
The CC-Link family realizes flexible system configuration.

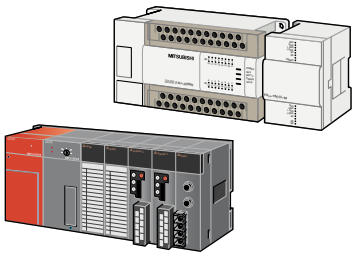
For machine control inside line

CC-Link

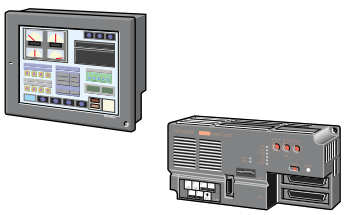
CC-Link is a high-speed field network that can handle both control and information together. At high communication speed of 10Mbps, it is compatible with 100m transmission distance and up to 64 connectable stations. Thanks to this overwhelming performance, CC-Link was certified for SEMI standard and is accelerating its openness.

- Fast communication
- Communication distance (100m to 1,200m)
- Improved workability by repeaters (T branch, optical, optical/spatial)
- Wide choice of partner maker products
- Fast cyclic transmission, large-capacity transient transmission (message data)

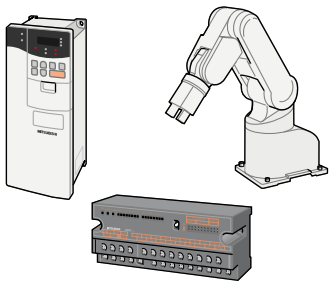
CC-Link master station



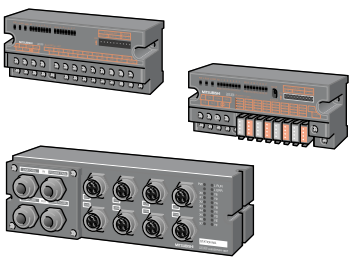
Intelligent device stations



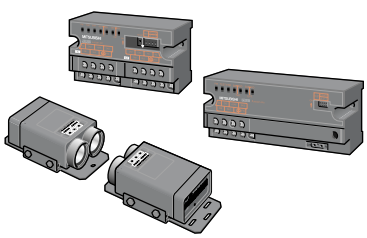
Remote device stations



Remote I/O stations



Repeater modules



Partner products

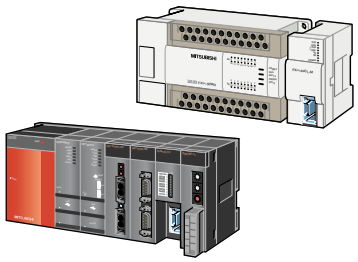
For networking inside a panel/machine

CC-Link/LT

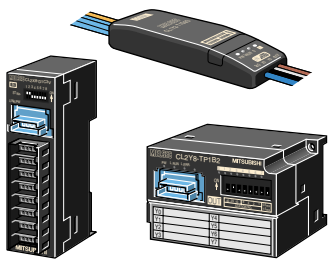
CC-Link/LT is a reduced-wiring network for use inside a panel/machine, designed to relieve on-site workers from complicated wiring, miswiring, etc. It is a practical solution for reducing wiring between sensors, actuators and controllers. Also, it utilizes the high performance of CC-Link such as fast response.

- Fast response
- Ease of working by connection of connectors
- Ease of extension and addition
- Communication and power supply lines are integrated into one line.
- 2-, 4-, 8- and 16-point remote I/O units are available.

CC-Link/LT master station



Remote I/O stations

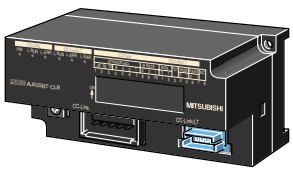


Partner products

CC-Link CLPA PARTNER ASSOCIATION

CC-Link–CC-Link/LT bridge

New



Features

• Features of CC-Link

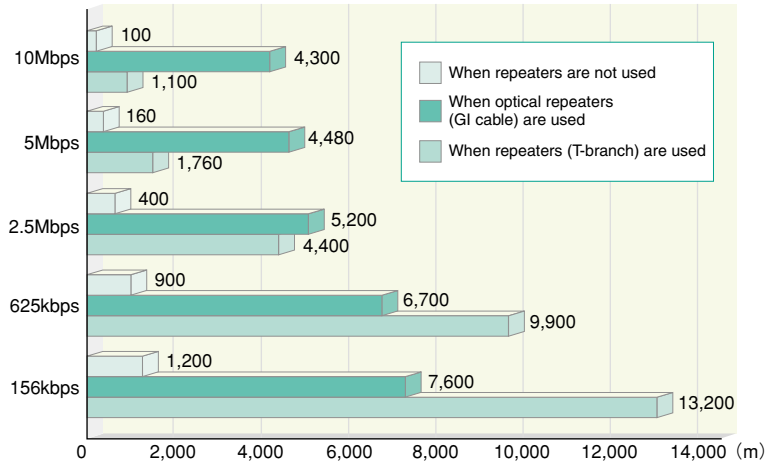
High Speed and High-Capacity Data Transmission

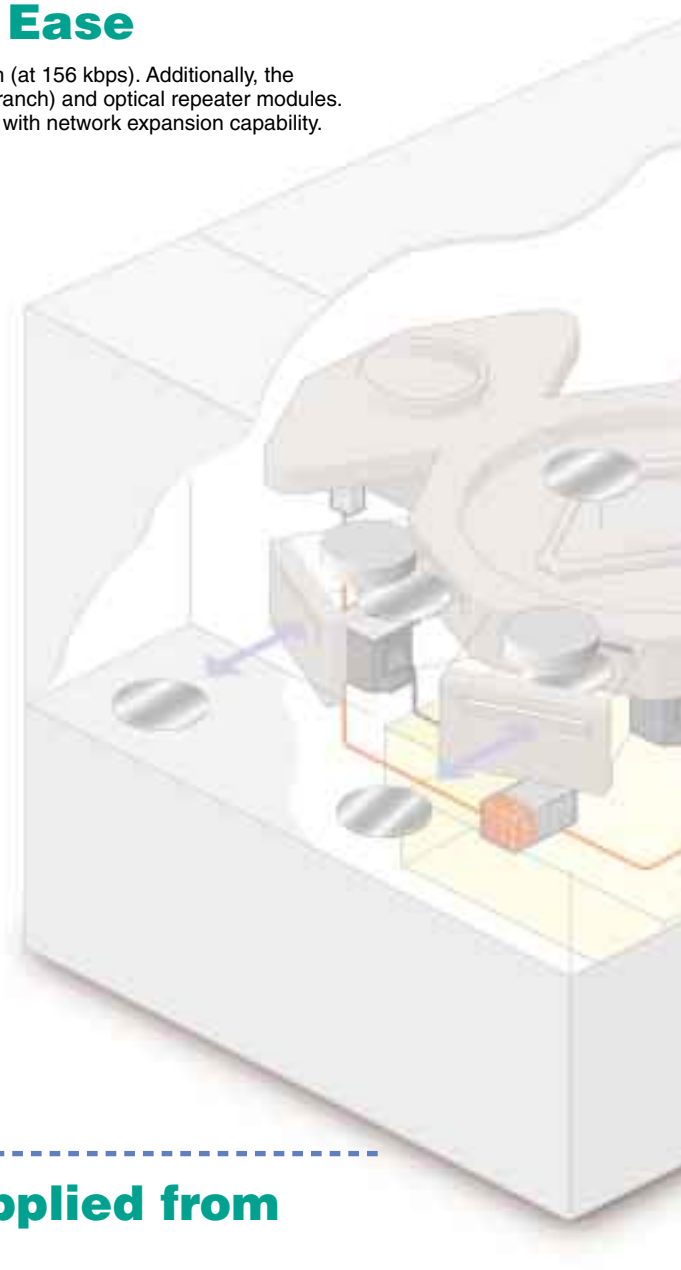
CC-Link is a high-performance network that utilizes high speed communications (10 Mbps industry fastest), in order to allow transmission of bit data and word data at high speed and maximum capacity.

- **High-speed cyclic transmission**
- **Large-capacity transient transmission (message data)**

Increasing the Distance with Ease

The total distance covered by the CC-Link network can be increased up to 1.2 km (at 156 kbps). Additionally, the transmission distance can be further extended through the use of a repeater (T-branch) and optical repeater modules. Therefore, it can provide a solution for equipment that require increased distance with network expansion capability.





Communication between controllers realizes distributed control.

CC-Link utilizes the highly stable cyclic transmission, which gives N:N communication between controllers (master station and local stations), Therefore, this N:N communication method between controllers realizes a distributed control system for each system.

Diverse range of products supplied from partner manufacturers

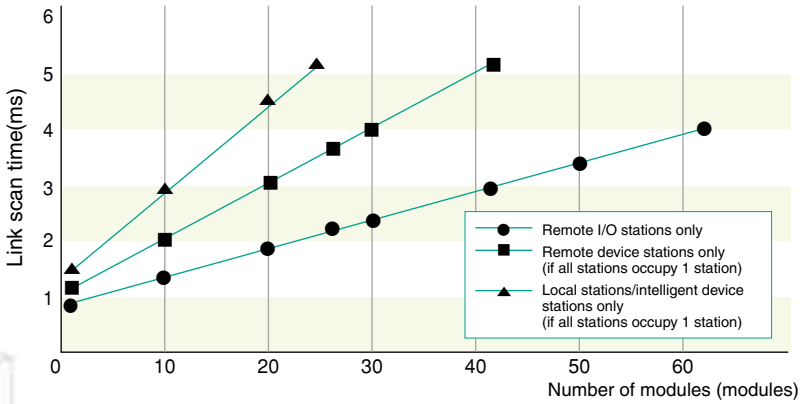
More than 450 types of products are supplied from more than 400 companies worldwide. (As of December 2002)

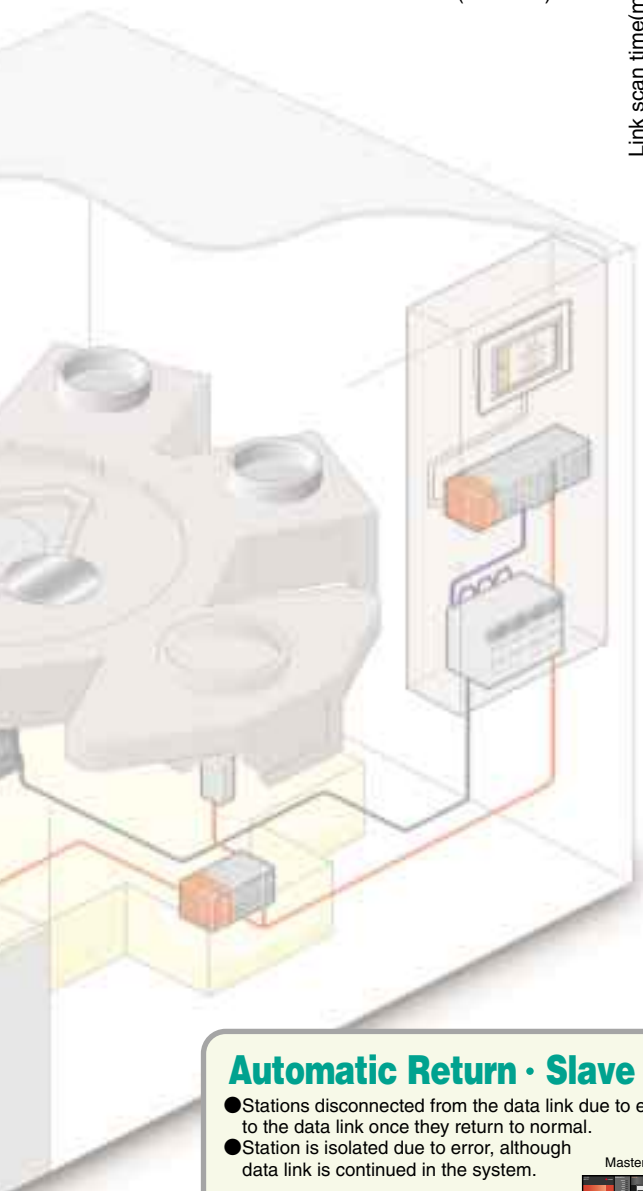
Consistent Network Communication Time

CC-Link can transmit bit data and word data at high speed with cyclic transmission, and the transmission time is stable as well (guarantee for regularity). The cyclic transmission time (link scan time) is not affected by irregular message transmission (transient transmission) to the HMI products. It is therefore possible to achieve highly stable control.

■Standard link scan time
(At transmission speed 10 Mbps, cyclic transmission)

4 ms/64 stations (modules)

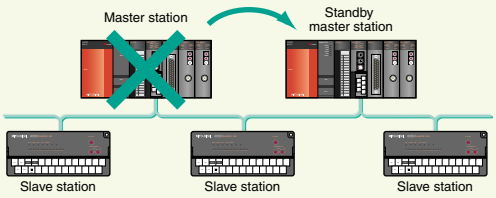




Full RAS Functionality

Standby Master

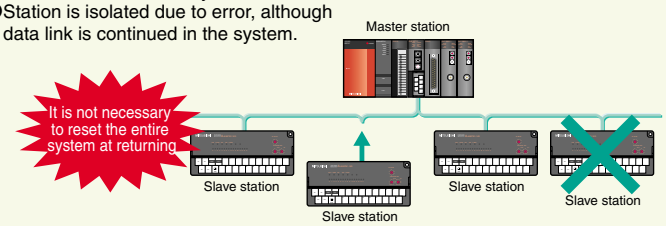
●By setting a local station as a standby master station, the data link can be continued even if an error occurs in the master station.



Reliable system can be created using CC-Link

Automatic Return · Slave Station Isolation

●Stations disconnected from the data link due to errors are automatically returned to the data link once they return to normal.
●Station is isolated due to error, although data link is continued in the system.



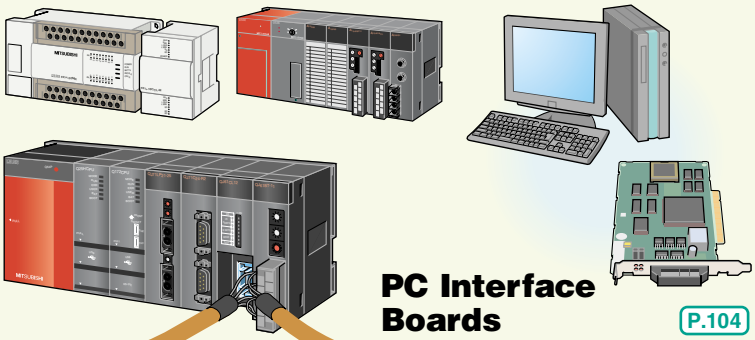
Diagnosis/Link Status Confirmation

●It is possible to check the data link status using special relays and registers.
●Hardware and line connections can be tested via offline tests.
●It is possible to test the line connection and start/stop the data link from peripheral devices via online tests.

∗ RAS:Reliability, Availability, Serviceability

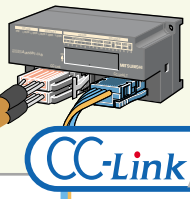
System the line-up

Master/Local Modules
P.16

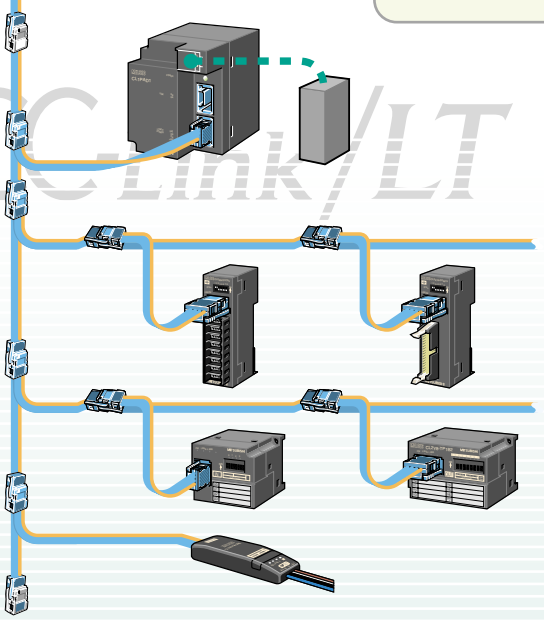


PC Interface Boards
P.104

CC-Link-CC-Link/LT Bridge Module
P.122

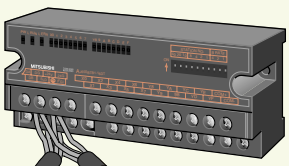


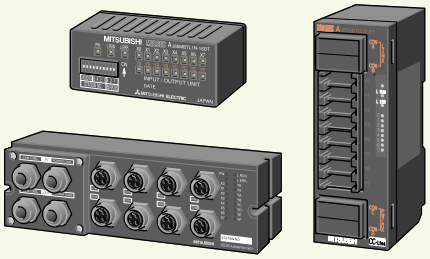
CC-Link/LT



Remote I/O Modules
P.30

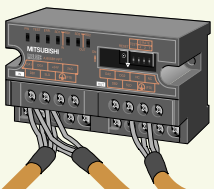
Line of products supporting various applications



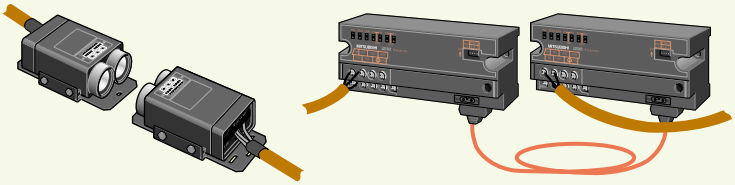


Repeater Modules
P.108

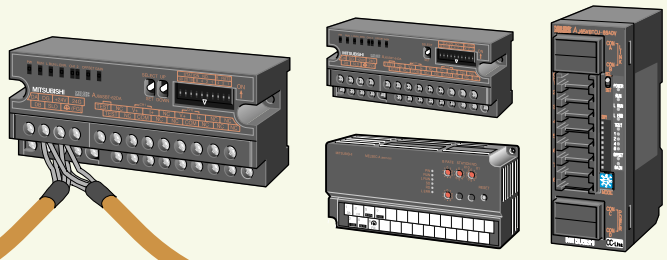
Support for various types of wiring, including T-branching and cable extension



●Wireless Optical Repeater ●Optical Repeater



Analog Modules P.72

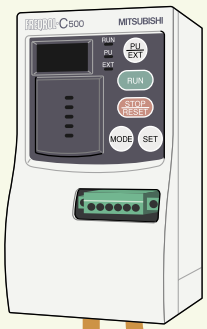


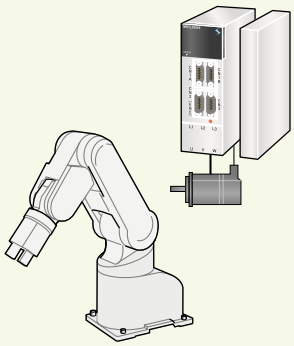
Partner Products

- Cable
- Robot
- Solenoid Valves
- HMI
- Indicators, etc.

Please see
the CC-Link Partner Association Catalog.

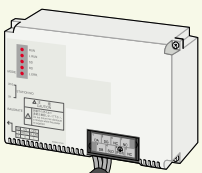
Others

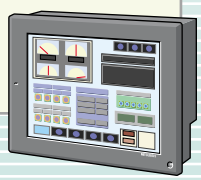




Link

Communication Modules for HMI(GOT) P.98

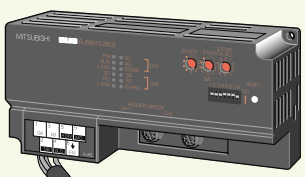




Optional Parts P.126

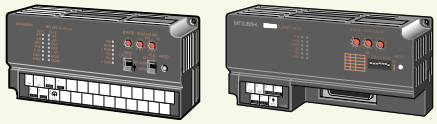
Software P.132

Special function module



- FX Series Interface Blocks P.141
- Inverters P.134
- AC Servo Amplifiers P.135
- Breakers P.142
- Power Measurement Modules P.143
- Industrial Robots P.138
- Protective Relays P.145
- CC-Link Dedicated Communication LSI P.140
- CNC P.137

- High-Speed Counter Modules P.84
- Positioning Modules P.88
- Peripheral Device Connection Modules P.94
- RS-232 Interface Modules P.118

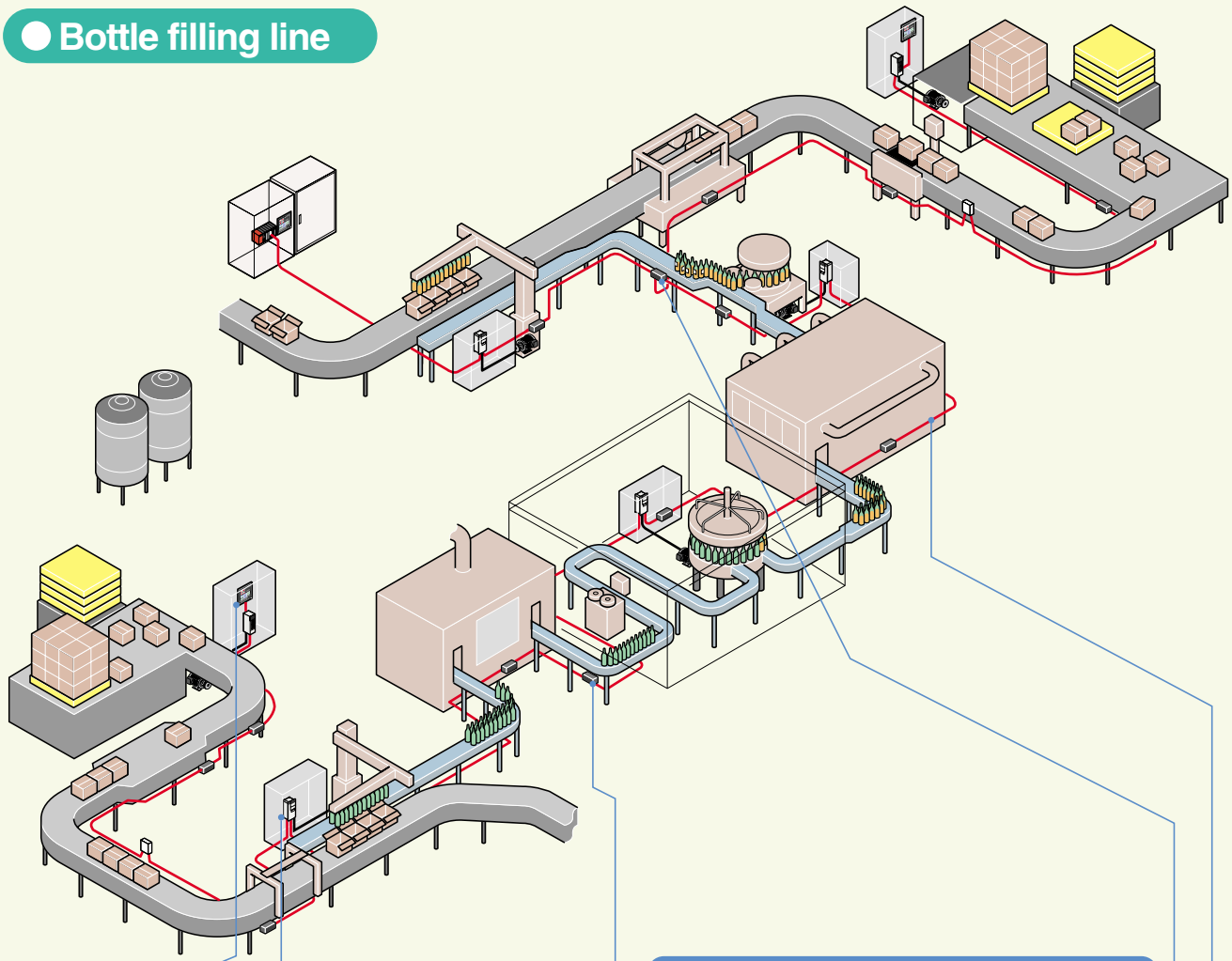


Application

• Application Examples

① CC-Link System example using CC-Link

● Bottle filling line



Improved workability by repeaters

Using a repeater module,
a T branch can be connected randomly
even at 10Mbps communication speed.

Various devices can be connected.

Various controllers such as inverters, servos, analog modules and ID controllers as well as I/O modules can be connected.

Increasable distance

The total extension distance
of CC-Link is 1.2km (156kbps).
However it can be extended up to 13.2km
by using repeaters.

Large-capacity transient transmission

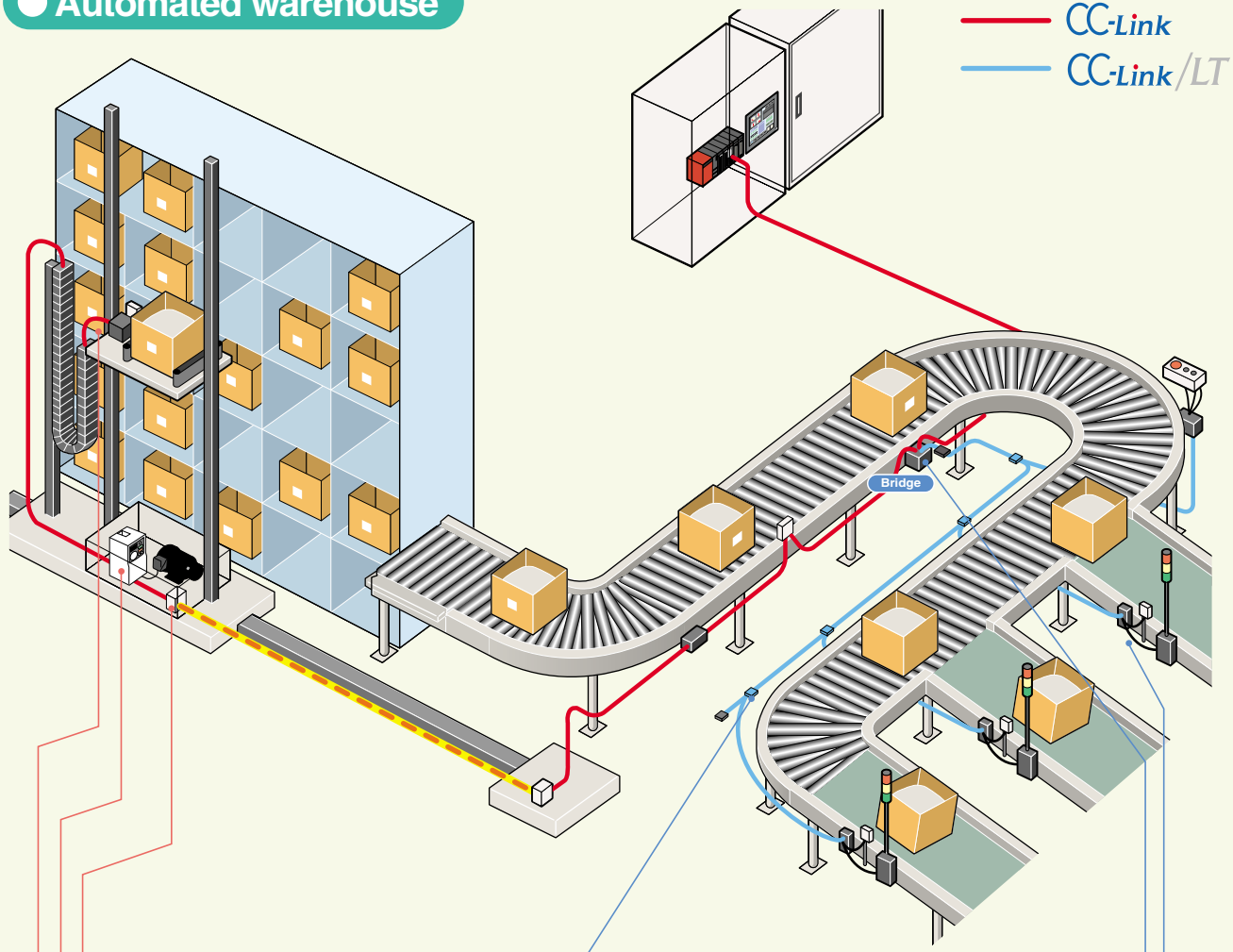
Using transient transmission
(message data), data can be monitored
at HMI products or the like
without program.

Waterproof type remote I/O according to IP67

The waterproof type remote I/O
module is housed in a protective structure
conforming to IP67, therefore it can be used without
worry in an environment where water is present.

② System example combining CC-Link and CC-Link/LT

Automated warehouse



Improved workability by repeaters

Workability of high degree of flexibility can be realized by optical/spatial repeaters, optical repeaters and repeaters (T branch).

Connection of various devices

A wide variety of controllers and I/O units can be connected, e.g. inverters, servos, analog units and ID controllers.

Wide selection of partner products

You can choose the optimum device from among many partner products to construct a system with a high degree of flexibility.

CC-Link–CC-Link/LT bridge for seamless communication

Data can be sent/received seamlessly from the host controller and monitoring/diagnostics can be performed using GX Developer.

Ease of connecting various sensors

The adoption of the open sensor connector ensures ease of connecting sensors, etc.

Improved maintainability

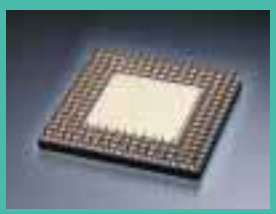
The dedicated flat cable and connector ensure flexible response to addition and moddification.

Application

• Application Examples from the Industry

CC-Link supports a number of different applications.

Semiconductor /Electronic Component Production



- LED material packing machines
- Printed circuit board production line
- LCD production line
- Hard-disk parts production
- Hard-disk platter grinding devices
- Bump plating devices
- Liquid crystal filler
- Bonder
- CMP devices

CC-Link conforms to the SEMI standard (SEMI E54.12), the international standard of the semiconductor/FPD industry.

Main Requirements

- Being on schedule (stable communication)
- Decentralization
- Saving wiring and space
- High-capacity analog data communication, etc.

Introducing CC-Link: Key Advantages

CC-Link can communicate analog data of MFCs (mass-flow controllers) etc., at high speed and a constant cycle, even amid the occurrence of irregular recipe data transmission events and similar irregularities.Additionally, compact modules that can be installed in any direction can be placed in the clearances of devices, making it possible to achieve a greater degree of device miniaturization.

Transportation System

- Home delivery sorting devices
- PET bottle product transportation line
- Transportation line for shipping storage of home electric appliances
- CRT transportation line
- Woodworking machinery conveyer
- NC loader
- Printed material transportation system
- Airport luggage-transportation system

Main Requirements

- High-speed response
- Improved application
- Decentralization, etc.

Introducing CC-Link: Key Advantages

System response can be dramatically improved due to 10 Mbps high-speed data transmission. Moreover, various repeater modules can ease restrictions on wiring routes and overall distance, thus facilitating highly flexible applications.

Building /Factory Utility Management

- Large-scale business/industrial air-conditioning systems
- Power-monitoring systems

Main Requirements

- Long-distance transmission
- Remote monitoring
- Improved application, etc.

Introducing CC-Link: Key Advantages

CC-Link is not only adaptable to high-speed applications but will also accommodate a system construction emphasizing overall distance. That overall distance can be extended to 1.2 km at a transmission speed of 156 kbps (up to 13.2 km if a repeater is used).
Additionally, by placing intelligent devices in various places, it becomes possible to monitor various control data and trend information remotely.

Others/General Manufacturing

Application Examples from the Industry

Food Manufacturing /Medical Supply Chemical/Plant

- Detergent packing lines
- Tire-production devices
- Synthetic leather production lines
- Kiln preprocessing
- Polishing-agent weighing
- Concrete automatic weighing machines
- Powdered-tea production lines
- Food-packing machines, filling machines
- Hydrogen booster devices
- Cardboard production equipment
- Concrete production/filling devices for tunnel construction
- Blood-examination equipment

Main Requirements

- Improved environmental resistance
- Improved maintenance and reliability
- High-capacity analog data communication, etc.

Introducing CC-Link: Key Advantages

It is possible to construct distributed control units without control boards through the use of modules that are highly resistant to harsh environmental conditions, such as waterproof I/O modules.
Moreover, it is possible to perform maintenance without stopping the devices due to full RAS functionality,*1 for instance in the standby master function and at online connection/ disconnection.

*1 RAS: Reliability, Availability, Serviceability

Automobile Manufacturing

- Coating lines
- Manufacturing-specification instruction system
- Engine transportation devices
- Body assembly lines
- Welding line
- Electric furnace heating devices for crankshafts
- Disc-brake processing devices
- Untightened screw reminders
- Electric parts lines

Main Requirements

- High-capacity data transmission
- Saving wiring
- Selection of devices suited for control, etc.

Introducing CC-Link: Key Advantages

CC-Link allows communication of high-capacity I/O data and numerical data, accommodates large-scale control systems and production lines, yet requires less wiring and lower cost.
Additionally, the large selection of partner product lines, such as robots, servos, inverters and "nut runners" will improve the flexibility of facilities design.

- Refrigerator production lines
- Air-conditioner production lines
- Inverter production lines
- Sheet-fed printing presses
- Rotary presses (offset, newspaper)
- Printing-press production lines
- Injection-molding machines
- Pyrotechnic pistols
- Cigarette production systems
- Bearing manufacturing
- Train-wheel inspection
- Microwave heating devices

Main Requirements

- High-speed response
- Saving wiring/space
- Cost reduction
- Enhanced reliability
- Ease of programming and debugging, etc.

Introducing CC-Link: Key Advantages

With the full products line, CC-Link can support a great diversity of applications.
The customer can even choose the best devices for each application from various partner products.
Moreover, CC-Link products use the same program for the same device type, ensuring plug & play functionality (memory-mapped profile) for each device.

CC-Link

Open Field Network

Product Information

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Overview

Master/Local Modules

Master/local modules control the CC-Link system with total freedom.

QJ61BT11N For Q Series

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AJ61QBT11 For QnA Series

Product description ▶ Page 20

A1SJ61QBT11 For QnAS Series

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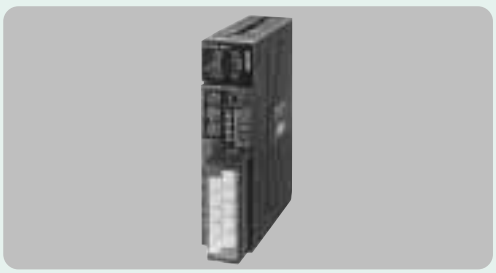
AJ61BT11 For A Series

Product description ▶ Page 24

A1SJ61BT11 For AnS Series



Product description ▶ Page 26

FX2N-16CCL-M For FX Series

Product description ▶ Page 28

Overview

■ One master station is required for one network.

■ QJ61BT11N

● Ver. 2 mode
Ver. 1 remote stations and Ver. 2 remote stations can be connected in a single network.
A single master module can handle RX and RY (8192 points each), RWw 2048 words and RWr 2048 words of data.
→ For details of CC-Link Ver. 2, refer to Technical Information (page 157).

● Additional mode
Ver. 2 remote stations can be added in a system configured with Ver. 1 remote stations.
The sequence program for Ver. 1 remote stations can be used without having to be modified.
(Modification of sequence programs can be minimized.)

● Ver. 1 mode
The module functions as QJ61BT11.

■ Master/local modules are provided for the Q, QnA, QnAS, A, and AnS Series.

■ It is possible to connect various PLC CPUs to the same network, regardless of the series.

■ An FX PLC can be used as the master station by adding an FX Series master block.

● Up to seven remote I/O stations and eight remote device stations can be connected.

List of Models

Product name	Model name	Number of occupied I/O points	Number of occupied stations (at local station)	Related manual	Page with detailed information
Master/local module for the Q Series	QJ61BT11N	32	1 to 4 *1 (can be set arbitrarily)	User's Manual (Details) SH-080394E (13JR64)	18
Master/local module for the QnA Serie	AJ61QBT11	32	1 to 4 *2 (can be set arbitrarily)	User's Manual (Details) IB-66722 (13J873)	20
Master/local module for the QnAS Series	A1SJ61QBT11	32	1 to 4 *2 (can be set arbitrarily)	User's Manual (Details) IB-66722 (13J873)	22
Master/local module for the A Serie	AJ61BT11	32	1 to 4 *2 (can be set arbitrarily)	User's Manual (Details) IB-66721 (13J872)	24
Master/local module for the AnS Serie	A1SJ61BT11	32	1 to 4 *2 (can be set arbitrarily)	User's Manual (Details) IB-66721 (13J872)	26
Master block for the FX Seriesss	FX_{2N}-16CCL-M	8	—	User's Manual JY992D93101	28

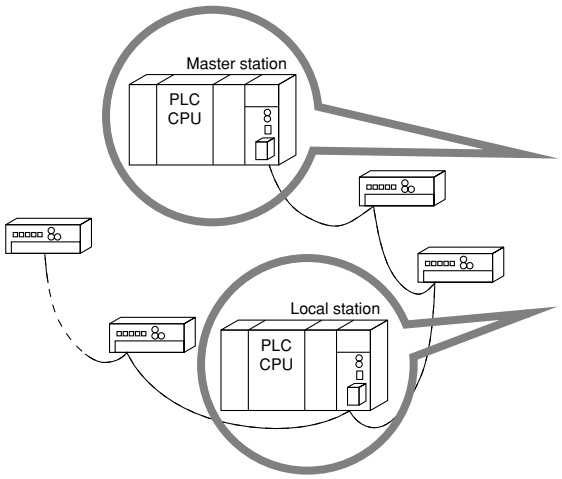
*1 The number of occupied stations at a local station is set by a parameter in GX Developer.
*2 The number of occupied stations at a local station is set by the "condition setting switch" on the front face of the modules.

Product Description

Master/Local Module

QJ61BT11N

For Q CPU



CC-Link V2

The Q Series is **easy** and **safe** to use.

Features

CC-Link parameters

It is possible to set the CC-Link parameters from the parameter setting screen of GX Developer (up to four master stations). *1
Alternatively, the CC-Link parameters can be set via a sequence program (using dedicated instructions)(up to 64 master stations). *1

Ver. 2 mode *2

Using double, quadruple, octuple setting, you can use cyclic data of RX and RY (8192 points each) and RWw and RWr (2048 words each) at maximum.

Additional mode *3

Modification of sequence programs is minimized in this mode when Ver. 2 remote stations are added to an existing system.

Ver. 1 mode

This mode is completely compatible with Ver. 1.10. (QJ61BT11-equivalent mode)

8 point and 16-point setting of remote I/O station

In Ver. 1 mode, remote I/O net mode, and additional mode, the remote I/O station occupies 32 points of RX and RY regardless of the module's actual occupied points.
However, in Ver. 2 mode, the number of occupied I/O points can be selected between 0, 8, or 16 points, using the 8 or 16 point setting (GX-Developer parameter setting) of the remote I/O station. Therefore this function reduces the number of surplus I/O points from being wasted and devices for the PLC can be used effectively.

Remote I/O network mode

High-speed communication in the remote I/O network mode is possible when all slave stations are remote I/O stations. (Parameter setting is not necessary, either.)

Support for duplex function

The master station can go back to online, even while the standby master station is controlling the data link, therefore waiting when the standby master station goes down.

Automatic CC-Link startup *4

Automatic CC-Link startup and refreshment of the entire data can be made without configuring CC-Link parameters. (CC-Link parameter setting is required to optimize them.)

Remote device station initialization procedure registration function

It is possible to register the initialization procedure of a remote device station from the parameter setting screen of GX Developer.

*1 With the basic model, parameters can be set at up to two master stations.
*2 Ver.2 mode is supported by GX Developer Ver. 8.03D or later.
*3 This mode is not supported by Basic model, Process CPU. High Performance model QCPU with first five digits of serial number 05032 or later supports the additional mode.
*4 This operation is available in Ver.1 mode only.

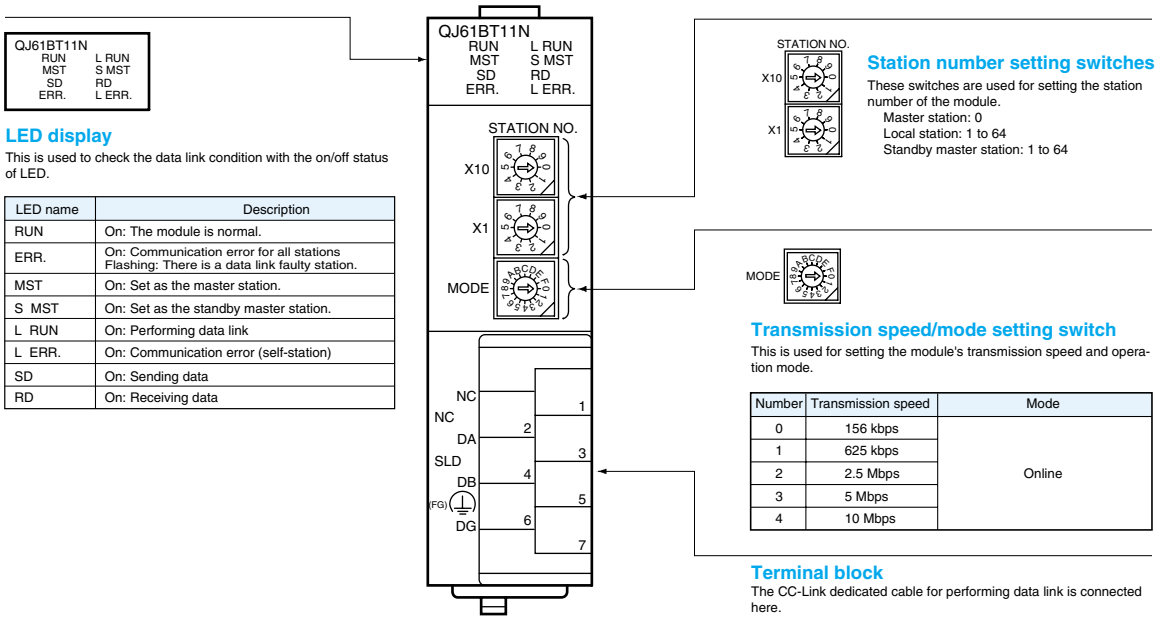
Specification

See page 154 for the general specifications.

- Functions for CC-Link: Cyclic transmission, expanded cyclic transmission, transient transmission, station-to-station cable length relaxation
- Expanded cyclic setting at local station Single, double, guadruple, octuple
- Internal current consumption 0.46 A
- Weight 0.12 kg

See page 148 for the CC-Link common specifications.

Name and Setting of Each Part



LED display

This is used to check the data link condition with the on/off status of LED.

LED name	Description
RUN	On: The module is normal.
ERR.	On: Communication error for all stations Flashing: There is a data link faulty station.
MST	On: Set as the master station.
S MST	On: Set as the standby master station.
L RUN	On: Performing data link
L ERR.	On: Communication error (self-station)
SD	On: Sending data
RD	On: Receiving data

Station number setting switches

These switches are used for setting the station number of the module.

- Master station: 0
- Local station: 1 to 64
- Standby master station: 1 to 64

Transmission speed/mode setting switch

This is used for setting the module's transmission speed and operation mode.

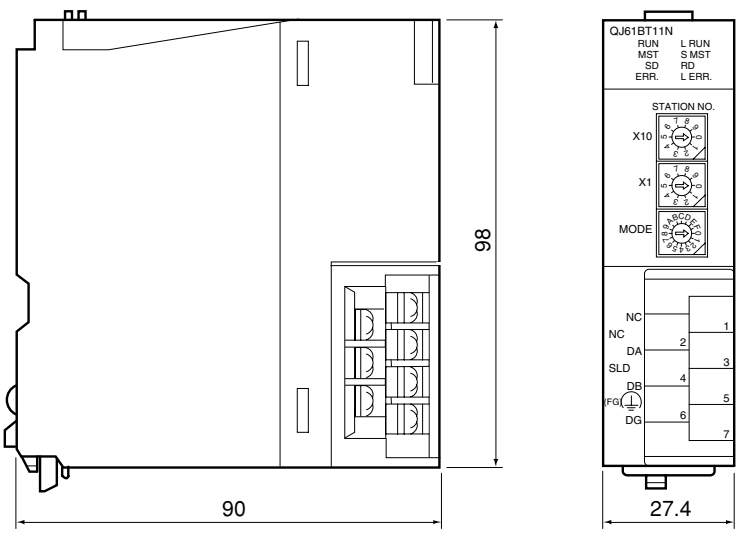
Number	Transmission speed	Mode
0	156 kbps	Online
1	625 kbps	
2	2.5 Mbps	
3	5 Mbps	
4	10 Mbps	

Terminal block

The CC-Link dedicated cable for performing data link is connected here.

External Dimension Diagram

Unit: mm

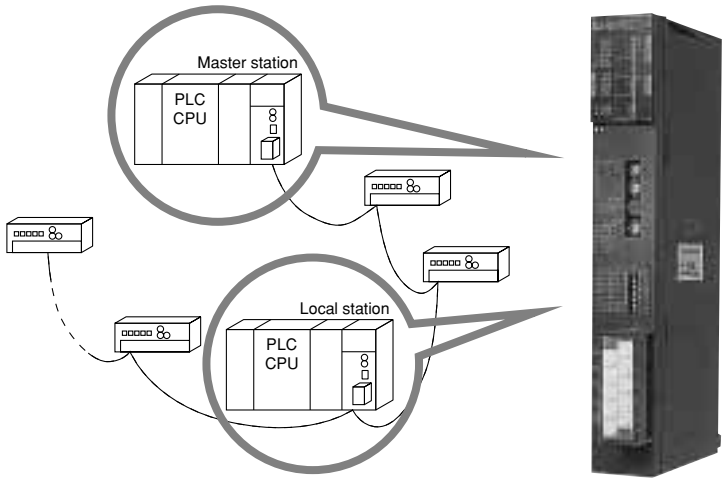


Product Description

Master/Local Module

AJ61QBT11

For QnA and Q4AR CPUs



Features

CC-Link parameters

It is possible to set the CC-Link parameters from the parameter setting screen of GX Developer (up to eight master stations).
Alternatively, the CC-Link parameters can be set via a sequence program (up to 64 master stations).

Remote I/O network mode

High-speed communication in the remote I/O network mode is possible when all slave stations are remote I/O stations. (Parameter setting is not necessary.)

Specification

See page 154 for the general specifications.

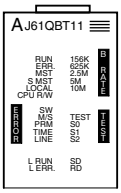
Internal current consumption 0.45 A

Weight 0.4 kg

See page 148 for the CC-Link common specifications.

Name and Setting of Each Part

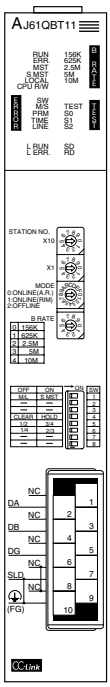
LED display



LED name	Description
RUN	On: The module is normal.
ERR.	On: Communication error for all stations Flashing: There is a communication faulty station.
MST	On: Set as the master station.
S MST	On: Set as the standby master station.
LOCAL	On: Set as a local station.
CPU R/W	On: Communicating with the PLC CPU (FROM/TO).
ERROR	Turns on at an error.
L RUN	On: Performing data link
L ERR.	On: Communication error (self-station)
B RATE	The LED corresponding to the transmission speed set by the transmission speed setting switch turns on.
SD	On: Sending data
RD	On: Receiving data

Station number setting switches

These switches are used for setting the module's station number.
Master station: 0
Local station: 1 to 64
Standby master station: 1 to 64
∗ If the mode switch is set to remote I/O network mode, the setting specifies the number of connected modules.



Mode setting switch

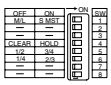
This is used for setting the module's transmission speed and operation mode.

Number	Name	Description
0	Online (remote network mode)	Select this mode when performing data link in the remote network mode.
1	Online (remote I/O network mode)	Select this mode when performing data link in the remote I/O network mode.
2	Offline	Data link is disconnected.

Transmission speed setting switch

This is used for setting the module's transmission speed.

Number	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps



Condition setting switch

Number	Setting	Switch status		
SW1	Station type	Off: Master/local station On: Standby master station		
SW4	Input data status of data link faulty station	Off: Clear On: Retain		
SW5 SW6	Number of occupied stations	Number of occupied stations	SW5	SW6
		1 station	Off	Off
		2 stations*	Off	On
		3 stations*	On	On
		4 stations	On	Off

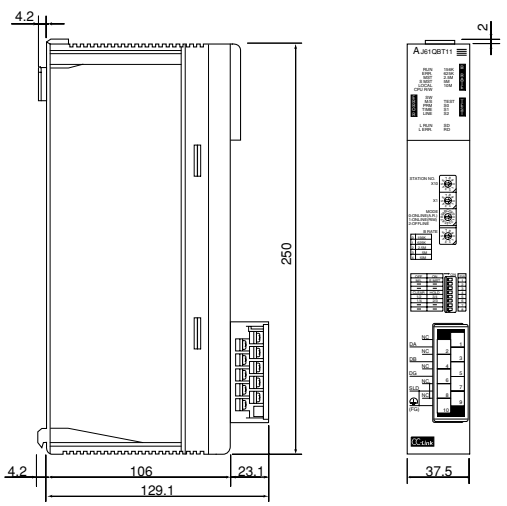
∗ Supported by hardware version F or later of the AJ61QBT11. In cases other than the above, the number of occupied stations is set by SW5 only.
Off: Occupies 1 station.
On: Occupies 4 stations.
Always set SW6 to off, as it is not used.

Terminal block

The CC-Link dedicated cable for performing data link is connected here.

External Dimension Diagram

Unit: mm

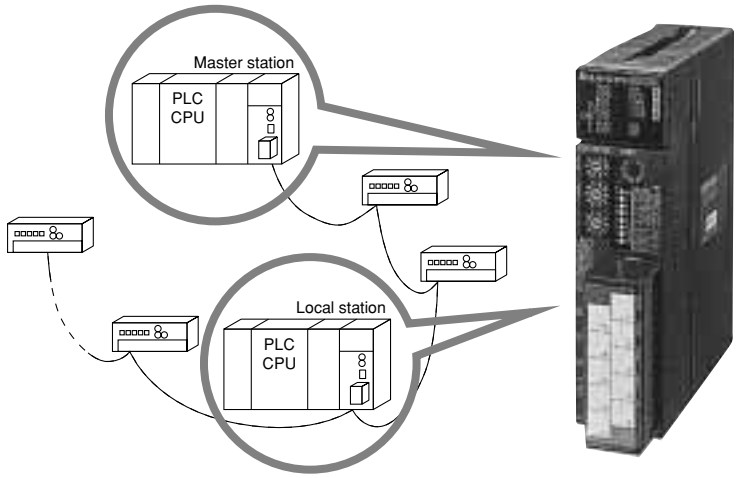


Product Description

Master/Local Module

A1SJ61QBT11

For QnAS and QnASH CPUs



Features

CC-Link parameters

It is possible to set the CC-Link parameters from the parameter setting screen of GX Developer (up to eight master stations).
Alternatively, the CC-Link parameters can be set via a sequence program (up to 64 master stations).

Remote I/O network mode

High-speed communication in the remote I/O network mode is possible when all slave stations are remote I/O stations. (Parameter setting is not necessary.)

Specification

See page 154 for the general specifications.

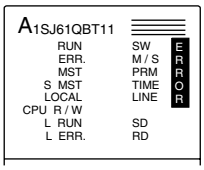
Internal current consumption 0.4 A

Weight 0.25 kg

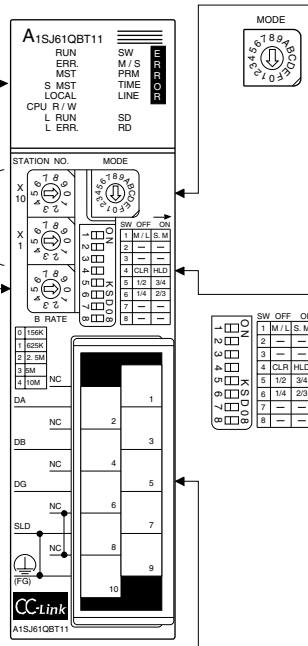
See page 148 for the CC-Link common specifications.

Name and Setting of Each Part

LED display



LED name	Description
RUN	On: The module is normal.
ERR.	On: Communication error for all stations Flashing: There is a communication faulty station.
MST	On: Set as the master station.
S MST	On: Set as the standby master station.
LOCAL	On: Set as a local station.
CPU R/W	On: Communicating with the PLC CPU (FROM/TO).
ERROR	Turns on at an error.
L RUN	On: Performing data link
L ERR.	On: Communication error (self-station)
SD	On: Sending data
RD	On: Receiving data



Mode setting switch

This is used for setting the module's operation mode.

Number	Name	Description
0	Online (remote network mode)	Select this mode when performing data link in the remote network mode.
1	Online (remote I/O network mode)	Select this mode when performing data link in the remote I/O network mode.
2	Offline	Data link is disconnected.

Condition setting switch

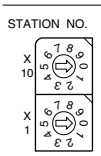
Number	Setting	Switch status		
SW1	Station type	Off: Master/local station On: Standby master station		
SW4	Input data status of data link faulty station	Off: Clear On: Retain		
SW5 SW6	Number of occupied stations	Number of occupied stations	SW5	SW6
		1 station	Off	Off
		2 stations*	Off	On
		3 stations*	On	On
		4 stations	On	Off

* Supported by hardware version F or later of the AJ61QBT11. In cases other than the above, the number of occupied stations is set by SW5 only.
Off: Occupies 1 station.
On: Occupies 4 stations.
Always set SW6 to off, as it is not used.

Terminal block

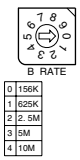
The CC-Link dedicated cable for performing data link is connected here.

Station number setting switches



These switches are used for setting the module's station number.
Master station: 0
Local station: 1 to 64
Standby master station: 1 to 64
* If the mode switch is set to remote I/O network mode, the setting specifies the number of connected modules.

Transmission speed setting switch

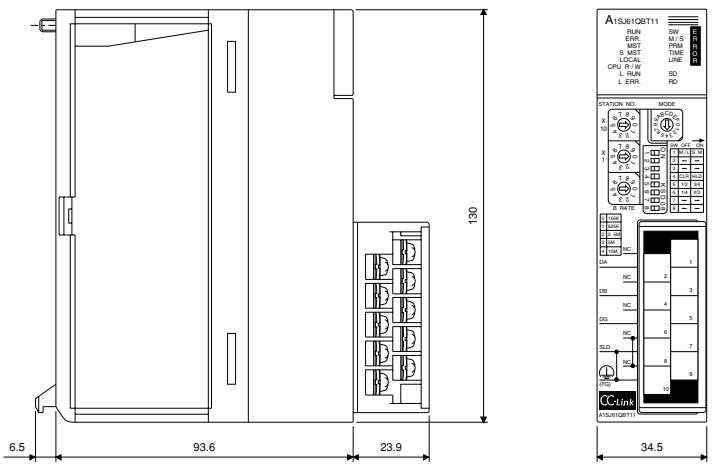


This is used for setting the module's transmission speed.

Number	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps

External Dimension Diagram

Unit: mm

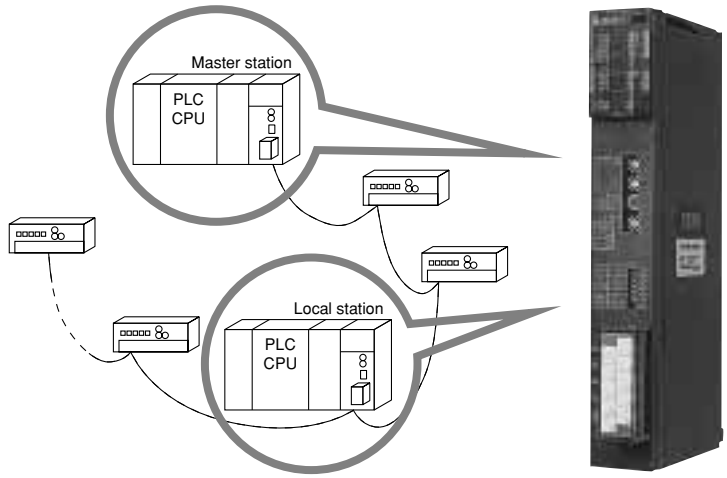


Product Description

Master/Local Module

AJ61BT11

For AnN, AnA, and AnU CPUs as well as A273UH CPU



Features

Auto refresh

Data communication can be easily performed using dedicated instructions, without using the FROM/TO instruction. *1

CC-Link parameters

The CC-Link parameters can be easily set using dedicated instructions, without using the TO instruction. *1

Remote I/O network mode

By selecting the remote I/O network mode, high-speed communication is possible when all slave stations are remote I/O stations. *1 (It is not necessary to set the parameters.)

Precautions when selecting modules

Here are the following restrictions on the PLC CPUs to which modules can be mounted and the number of modules that can be mounted:

PLC CPU	I/O mode *2	Intelligent mode *2
A0J2(H)CPU	No restriction	2 modules
AnSCPU		
A1SCPUC24-R2		1 module
AnSHCPU		2 modules
AnUSCPU		6 modules
ACPU		2 modules
AnACPU		6 modules
AnUCPU		

Pay attention here.

*1 This function is available only when used with AnUCPU, AnUSCPU and AnSHCPU.
*2 The mode is switched by the condition setting switch described in Name and Setting of Each Part on the page to the right.
See page 131, "Technical Information" for a detailed description of the I/O mode and intelligent mode.

Specification

See page 154 for the general specifications.

Internal current consumption 0.45 A

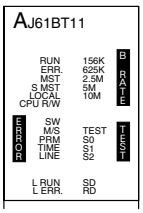
Weight 0.4 kg

See page 148 for the CC-Link common specifications.

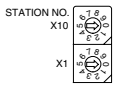
Name and Setting of Each Part

LED display

It is possible to check the data link condition by the on/off status of the LED display.



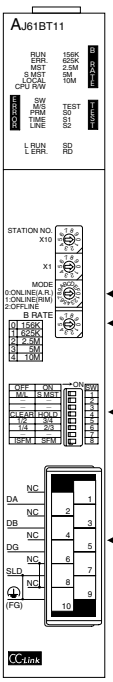
LED name	Description
RUN	On: The module is normal.
ERR.	On: Communication error for all stations Flashing: There is a communication faulty station.
MST	On: Set as the master station.
S MST	On: Set as the standby master station.
LOCAL	On: Set as a local station.
CPU R/W	On: Communicating with the PLC CPU (FROM/TO).
ERROR	Turns on at an error.
L RUN	On: Performing data link
L ERR.	On: Communication error (self-station)
B RATE	The LED corresponding to the transmission speed set by the transmission speed setting switch turns on.
SD	On: Sending data
RD	On: Receiving data

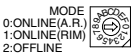


Station number setting switches

These switches are used for setting the module's station number.
Master station: 0
Local station: 1 to 64
Standby master station: 1 to 64

∗ If the mode switch is set to remote I/O network mode, the setting specifies the number of connected modules.

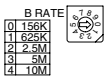




Mode setting switch

This is used for setting the module's operation mode.

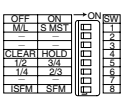
Number	Name	Description
0	Online (remote network mode)	Select this mode when performing data link in the remote network mode.
1	Online (remote I/O network mode)	Select this mode when performing data link in the remote I/O network mode.
2	Offline	Data link is disconnected.



Transmission speed setting switch

This is used for setting the module's transmission speed.

Number	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps



Condition setting switch

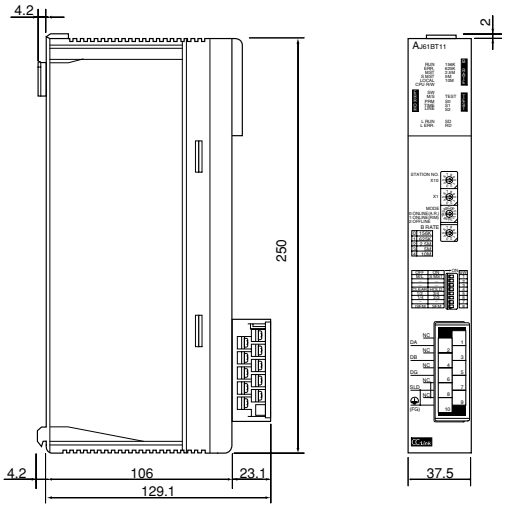
Number	Setting	Switch status		
SW1	Station type	Off: Master/local station On: Standby master station		
SW5 SW6	Number of occupied stations	Number of occupied stations	SW5	SW6
SW8	Module mode	1 station	Off	Off
		2 stations*	Off	On
		3 stations*	On	On
		4 stations	On	Off
		Off: Intelligent mode On: I/O mode		

∗ Supported by hardware version F or later of the AJ61QBT11.
In cases other than the above, the number of occupied stations is set by SW5 only.
Off: Occupies 1 station.
On: Occupies 4 stations.
Always set SW6 to off, as it is not used.

Terminal block

The CC-Link dedicated cable for performing data link is connected here.

External Dimension Diagram



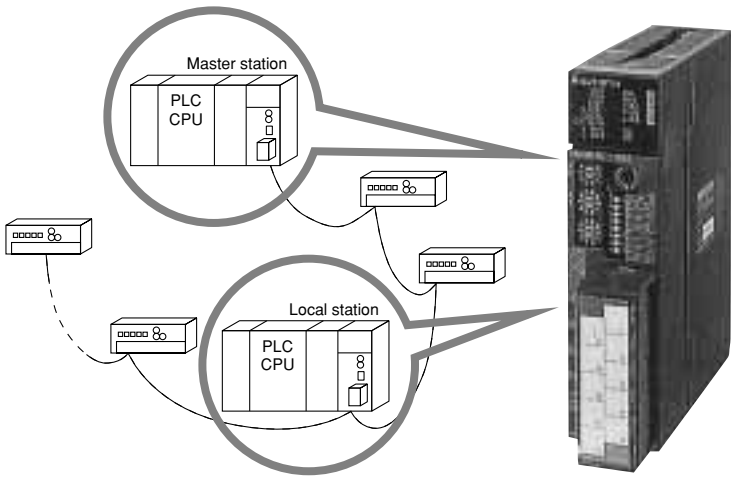
Unit: mm

Product Description

Master/Local Module

A1SJ61BT11

For AnS, AnSH, AnUS, and AnUSH CPUs as well as A171SHCPUN and A172SHCPUN



Features

Auto refresh

Data communication can be easily performed using dedicated instructions, without using the FROM/TO instruction. *1

CC-Link parameters

The CC-Link parameters can be easily set using dedicated instructions, without using the TO instruction. *1

Remote I/O network mode

By selecting the remote I/O network mode, high-speed communication is possible when all slave stations are remote I/O stations. *1 (It is not necessary to set the parameters.)

Precautions when selecting modules

Here are the following restrictions on the PLC CPUs to which modules can be mounted and the number of modules that can be mounted:

PLC CPU	I/O mode *2	Intelligent mode *2
A0J2(H)CPU	Not used	Not used
AnSCPU	No restriction	2 modules
A1SCPUC24-R2		1 module
AnSHCPU		2 modules
AnUSCPU		6 modules
ACPU	Not used	Not used
AnACPU		
AnUCPU		

Pay attention here.

*1 This function is available only when used with AnSHCPU and AnUSCPU.
*2 The mode is switched by the condition setting switch described in Name and Setting of Each Part on the page to the right.
See page 131, "Technical Information" for the detailed description of the I/O mode and intelligent mode.

Specification

See page 154 for the general specifications.

Internal current consumption 0.4 A

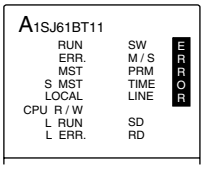
Weight 0.25 kg

See page 148 for the CC-Link common specifications.

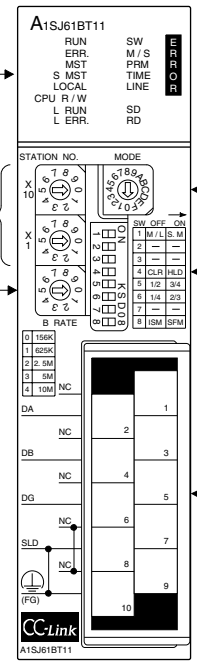
Name and Setting of Each Part

LED display

It is possible to check the data link condition by the on/off status of the LED display.



LED name	Description
RUN	On: The module is normal.
ERR.	On: Communication error for all stations Flashing: There is a communication faulty station.
MST	On: Set as the master station.
S MST	On: Set as the standby master station.
LOCAL	On: Set as a local station.
CPU R/W	On: Communicating with the PLC CPU (FROM/TO).
ERROR	Turns on at an error.
L RUN	On: Performing data link
L ERR.	On: Communication error (self-station)
SD	On: Sending data
RD	On: Receiving data



Mode setting switch

This is used for setting the module's transmission speed and operation mode.

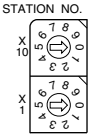
Number	Name	Description
0	Online (remote network mode)	Select this mode when performing data link in the remote network mode.
1	Online (remote I/O network mode)	Select this mode when performing data link in the remote I/O network mode.
2	Offline	Data link is disconnected.

Condition setting switch

Number	Setting	Switch status		
SW1	Station type	Off: Master/local station On: Standby master station		
SW5 SW6	Number of occupied stations	Number of occupied stations	SW5	SW6
SW8	Module mode	1 station	Off	Off
		2 stations*	Off	On
		3 stations*	On	On
		4 stations	On	Off
		Off: Intelligent mode On: I/O mode		

∗ Supported by hardware version F or later of the AJ61QBT11.
In cases other than the above, the number of occupied stations is set by SW5 only.
Off: Occupies 1 station.
On: Occupies 4 stations.
Always set SW6 to off, as it is not used.

Station number setting switches

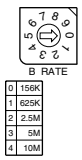


These switches are used for setting the module's station number.
Master station: 0
Local station: 1 to 64
Standby master station: 1 to 64
∗ If the mode switch is set to remote I/O network mode, the setting specifies the number of connected modules.

Terminal block

The CC-Link dedicated cable for performing data link is connected here.

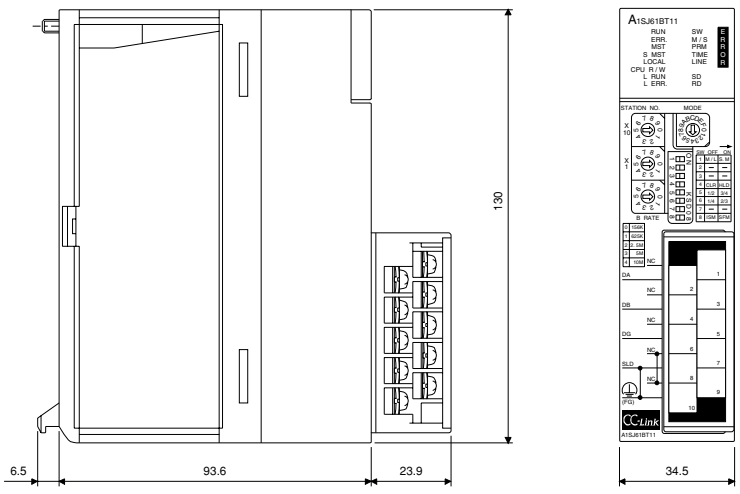
Transmission speed setting switch



This is used for setting the module's transmission speed.

Number	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps

External Dimension Diagram

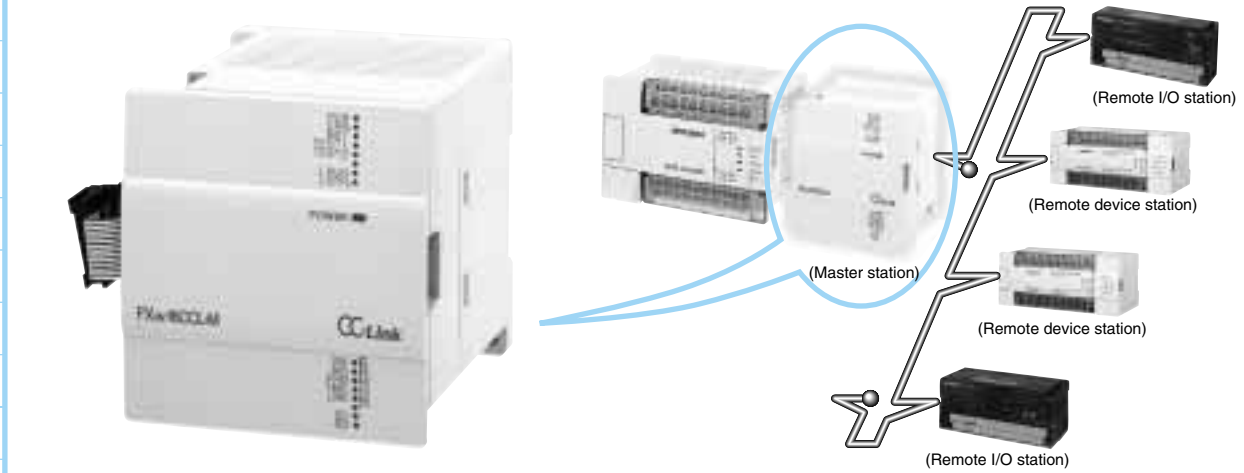


Product Description

Master Block

FX2N-16CCL-M

For FX1N/FX2N and FX1NC/FX2NC CPUs



Features

- An FX PLC can be used as the master station for CC-Link. Therefore it is possible to construct a high-speed field network system at low cost.
- It is possible to connect up to seven remote I/O stations and eight remote device stations to the master station.
- By using an FX2N-32CCL type CC-Link interface, it is possible to connect an FX PLC as a remote device station of this master module.

Precautions when selecting modules

- Up to seven remote I/O stations (up to the maximum number of I/O points of the PLC *1) and eight remote device stations can be connected.
- A remote I/O station occupies 32 PLC actual I/O points per station.
- The local station and standby master station functions are not available. Further, local stations and intelligent device stations cannot be connected.
- Applicable programmable logic controller *2: Mitsubishi's Micro Programmable Logic Controller FX1N (manufactured in and after August 2000), FX2N (V2.20 or later), FX1NC (all; FX2NC-CNV-IF necessary), FX2NC (V2.20 or later; FX2NC-CNV-IF necessary)

*1 The maximum I/O points of PLC is 128 points for FX1N/FX1NC CPU, and 256 points for FX2N/FX2NC CPU.
*2 Cannot be used simultaneously with model FX2N-ASI-M AS-i master block.

Specification

See page 154 for the general specifications

Internal current consumption (5 VDC): 5 VDC supplied by the module itself. (The 5 VDC supply of the PLC is not used.)

External current consumption (24 VDC): 150 mA

Weight 0.4 kg

See page 148 for the CC-Link common specifications.

Name and Setting of Each Part

Station number setting switches

These switches are used for setting the module's station number.

Mode setting switch

This is used for setting the module's operation mode.

Number	Setting
0	Online
2	Offline
3	Line test 1
4	Line test 2
5	Parameter check test
6	Hardware test

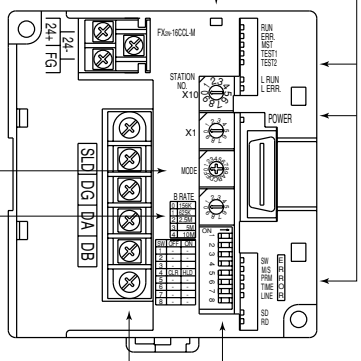
Transmission speed setting switch

This is used for setting the module's transmission speed.

Number	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps

Terminal block

Twisted-pair cables and power supply for data link are connected here.



LED display

It is possible to check the data link condition by the on/off status of the LED display.

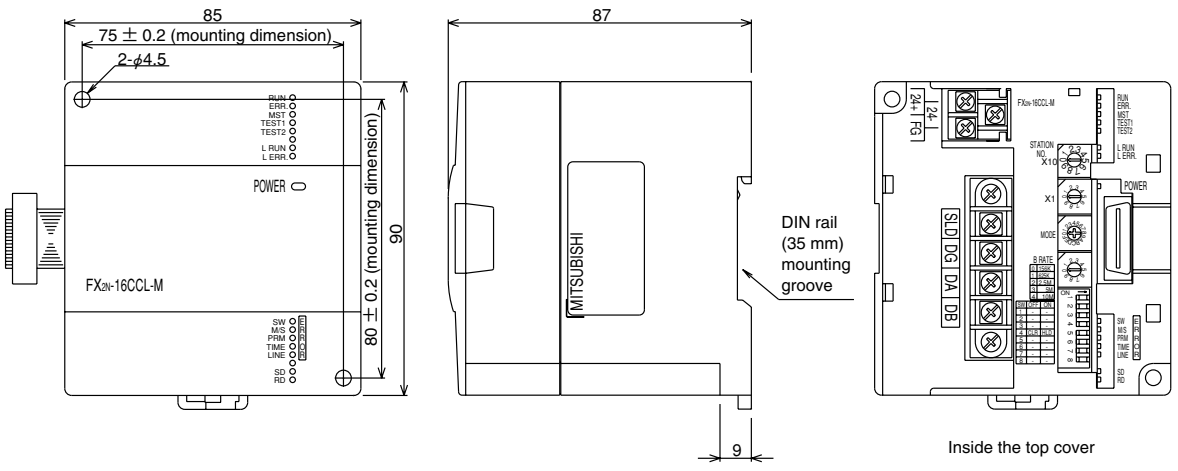
LED name		Description
RUN		On: The module is normal. Off: Watch dog timer error
ERR.		Shows the status of the communication with the station specified by the parameter. On: Communication error for all stations Flashing: There is a faulty station.
MST		On: Set as the master station.
TEST1		Displays the test result.
TEST2		Displays the test result.
L RUN		On: Performing data link (self-station)
L ERR.		On: Communication error (self-station) Flashing: The switch settings are changed while the power supply is turned on.
POWER		Turns on when 24 VDC is externally supplied.
ERROR	SW	On: Switch settings are erroneous.
	M/S	On: A master station already exists on the same line.
	PRM	On: Parameter setting is erroneous.
	TIME	On: Data link monitoring timer was enabled (error for all stations).
	LINE	On: A cable is disconnected, or the transmission path is affected by noise etc.
SD		On: Sending data
RD		On: Receiving data

Condition setting switch

This is used for setting the operation conditions.

Number	Setting
SW 1 to 3	(Not used)
SW4	Input data status of a data link faulty station
SW 5 to 8	(Not used)

External Dimension Diagram

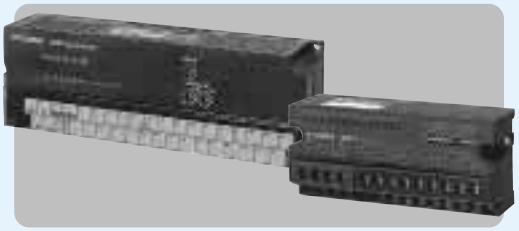


Overview

Remote I/O Modules

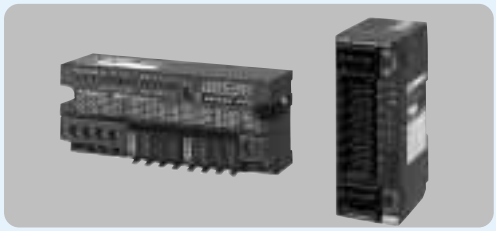
Pursuing the limits of trouble-saving in wiring work, reduction of size, and elimination of control boards

AJ65SBTB□-□
AJ65BTB□-□
Terminal block type



Product description ▶ Page 36

AJ65SBTC□-□
AJ65VBTCU□-□
One-touch connector type



Product description ▶ Page 48

AJ65MBTL1N-□
Embedded I/O Adapters

Product description ▶ Page 54

AJ65FBTA□-□
AJ65SBTW□-□
Waterproof connector type

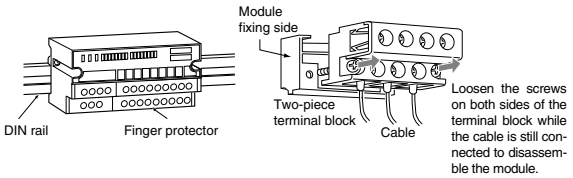
Product description ▶ Page 58

AJ65SBTCF□-□
AJ65VBTCF□-□
AJ65BTC□-□
FCN connector type

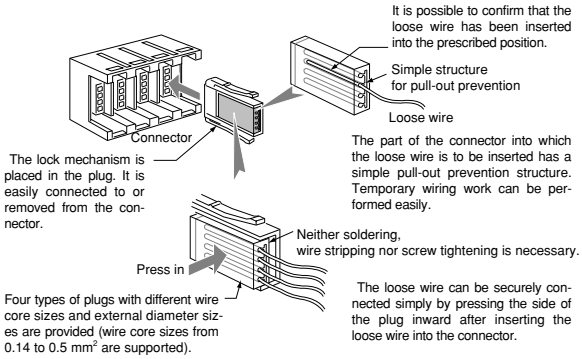
Product description ▶ Page 66

Overview

- A remote I/O module occupies one remote I/O station.
- Installation on the control board can be done either with screws or using a DIN rail.
- Ultra-miniature compact size saves space.
- It is possible to install the module from any of the six directions, i.e., it can be installed in a flat surface installation, front installation or ceiling installation.
- All modules employ photocoupler isolation or relay isolation.
- The compact-type remote I/O modules have "self-up screws" that prevent the terminal screws from dropping off. Wiring to the terminal block is easy.
- A two-piece terminal block is employed in the communication portion and power-supply portion of the CC-Link system. It is possible to replace a module without stopping the CC-Link system.
- Due to the use of one-touch connectors, the wiring to a connector has been made easier. Neither soldering, wire stripping nor screw tightening is necessary.(AJ65SBTC□-□, AJ65VBTCU□-□)
- Due to the protective structure compliant to IP67, it is safe to use in an environment where water is used (waterproof type: AJ65FBTA□-□, AJ65SBTW4-□)



Simple connector type module



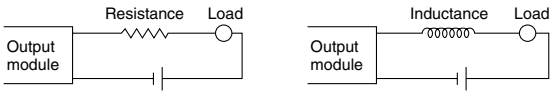
Precautions when Selecting Modules

(1) This module is a remote I/O module dedicated to the CC-Link system.
Do not connect it to another data link system such as MELSECNET/MINI.

(2) Thirty-two points are assigned to one station for a compact remote I/O module.
The latter 16 points and 24 points become vacant in case of 16-point modules and eight-point modules, respectively.

(3) Use an output module with the maximum open/close frequency to drive the L load of "On" for one second or more and "Off" one second or more.

(4) If a counter or timer that uses a DC/DC converter is used as a load for a transistor output module with a maximum load current of 0.1 A, a rush current will flow at a constant frequency during the on or operation time. Selecting a module according to the average current it can conduct may cause failure.
If the load above is to be used, connect a resistance or inductance in series with the load to reduce the rush current, or use an output module with a larger maximum load current.



(5) When the output module of AJ65BTB1-16T is used, the common current specified in specifications varies according to conditions such as the input current and ambient temperature. Therefore refer to the dilating curve for the number of simultaneously activated points. (See the manual for the dilating curve.)

(6) The additional output module of AJ65SBTB1-16T1, AJ65SBTB1-32T1, 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 does not have a short-circuit protection function. Install an external short-circuit protection circuit.
The maximum number of simultaneously activated input points specified in the specifications varies according to the ambient temperature condition when the input module of AJ65SBTC1-32D or AJ65SBTC1-32D1 is used.
The maximum number of simultaneously activated input points varies according to the dilating curve. (For the dilating curve, see the manual.)

(7) When AJ65VBTCF1-32DT1 is used, the maximum number of simultaneously activated input points varies according to the mounting direction. (See the manual for details.)

(8) When model AJ65MBTL1N-16D, -16DT or -32D CC-Link Embedded I/O adapter is used, the maximum number of simultaneously activated input points specified in the specifications varies according to the ambient temperature conditions. The maximum number of simultaneously activated input points varies according to the dilating curve. (For the dilating curve, see the manual.)

How to Read the Model Name

AJ65□BT□-□□□

I/O type	E	: Input negative common (source) type, output source type
I/O specification	A	: 100 VAC input
	D	: 24 VDC input
	R	: Relay output
	S	: Triac output
	T	: Transistor output
	DT	: 24 VDC input, transistor output combined
	DR	: 24 VDC input, relay output combined
I/O points	8	: 8 points
	16	: 16 points
	32	: 32 points
External load connection method	A2	: With eight M12 waterproof connectors, 2 wire type output
	A4	: With eight M12 waterproof connectors, 2- to 4-wire type input
	A42	: With eight M12 waterproof connectors, 2- to 4-wire type input/2-wire type output
	B1	: Terminal block 1 wire type
	B2	: Terminal block 2 wire type
	B3	: Terminal block 3 wire type
	B32	: Terminal block 3-wire type input, 2-wire type output
	C1	: FCN connector 1 wire type (standard type)/ One-touch connector 1 wire type (small type)
	C4	: One-touch connector 4 wire type
	CF1	: FCN connector 1 wire type
	CU2	: One-touch connector 2 wire type
	CU3	: One-touch connector 3 wire type
	W4	: Waterproof connector 4 wire type
	L1N	: 1-wire lead type
Cable specification	T	: Twisted cable (dedicated CC-Link cable)
Module type	F	: Thin waterproof type
	S	: Compact type
	V	: Connector type compact
	None	: Standard type
	M	: Embedded adapter type

List of Models

Product name		Model name	Number of input points	Description	External load connection method	Pagewith detailed information
Input module	Compact type remote I/O module	AJ65SBTB1-8D	8	DC+COM,–COM common input, one wire type	Terminal block type	36
		AJ65SBTB1-16D	16	DC+COM,–COM common input, one wire type	Terminal block type	36
		AJ65SBTB1-16D1	16	DC+COM,–COM common input, high-speed response, one wire type	Terminal block type	36
		AJ65SBTB1-32D	32	DC+COM,–COM common input, one wire type	Terminal block type	36
		AJ65SBTB1-32D1	32	DC+COM,–COM common input, high-speed response, one wire type	Terminal block type	36
		AJ65SBTB2N-8A	8	AC input, two wire type	Terminal block type	36
		AJ65SBTB2N-16A	16	AC input, two wire type	Terminal block type	36
		AJ65SBTB3-8D	8	DC+COM,–COM common input, three wire type	Terminal block type	36
		AJ65SBTB3-16D	16	DC+COM,–COM common input, three wire type	Terminal block type	36
		AJ65SBTC1-32D	32	DC+COM,–COM common input, one wire type	One-touch connector type	48
		AJ65SBTC1-32D1	32	DC+COM,–COM common input, high-speed response, one wire type	One-touch connector type	48
		AJ65SBTC4-16D	16	DC+COM,–COM common input, four wire type	One-touch connector type	48
		AJ65SBTCF1-32D	32	DC+COM,–COM common input, one wire type	FCN connector type	66
		AJ65FBTA4-16D	16	DC+COM input, four wire type	Waterproof connector type	58
		AJ65FBTA4-16DE	16	DC–COM input, four wire type	Waterproof connector type	58
		AJ65SBTW4-16D	16	DC+COM,–COM common input, four wire type	Waterproof connector type	58
		AJ65VBTCU3-8D1	8	DC+COM input, high-speed response, three wire type	One-touch connector type	48
		AJ65VBTCU3-16D1	16	DC+COM input, high-speed response, three wire type	One-touch connector type	48
	Remote I/O module	AJ65BTB1-16D	16	DC+COM,–COM common input, one wire type	Terminal block type	36
		AJ65BTB2-16D	16	DC+COM,–COM common input, two wire type	Terminal block type	36
		AJ65BTC1-32D	32	DC+COM,–COM common input, one wire type	FCN connector type	66
Embedded input adapter		AJ65MBTL1N-16D	16	DC+COM input	Embedded type 44 pins (2 rows)	54
		AJ65MBTL1N-32D	32	DC+COM input	Embedded type 62 pins (2 rows)	54

Product name		Model name	Number of input points	Description	External load connection method	Pagewith detailed information
Output module	Compact type remote I/O module	AJ65SBTB1-8T	8	0.5 A transistor output (Sink type), one wire type	Terminal block type	36
		AJ65SBTB1-16T	16	0.5 A transistor output (Sink type), one wire type	Terminal block type	36
		AJ65SBTB1-32T	32	0.5 A transistor output (Sink type), one wire type	Terminal block type	36
		AJ65SBTB1-8T1	8	0.5 A transistor output (Sink type), one wire type, low leakage current	Terminal block type	36
		AJ65SBTB1-16T1	16	0.5 A transistor output (Sink type), one wire type, low leakage current	Terminal block type	36
		AJ65SBTB1-32T1	32	0.5 A transistor output (Sink type), one wire type, low leakage current	Terminal block type	36
		AJ65SBTB1-8TE	8	0.1 A transistor output (Source type), one wire type	Terminal block type	36
		AJ65SBTB1-16TE	16	0.1 A transistor output (Source type), one wire type	Terminal block type	36
		AJ65SBTB2-8T	8	0.5 A transistor output (Sink type), two wire type	Terminal block type	36
		AJ65SBTB2-16T	16	0.5 A transistor output (Sink type), two wire type	Terminal block type	36
		AJ65SBTB2-8T1	8	0.5 A transistor output (Sink type), two wire type, low leakage current	Terminal block type	36
		AJ65SBTB2-16T1	16	0.5 A transistor output (Sink type), two wire type, low leakage current	Terminal block type	36
		AJ65SBTB2N-8R	8	24 VDC/240 VAC 2 A, relay output, two wire type	Terminal block type	36
		AJ65SBTB2N-16R	16	24 VDC/240 VAC 2 A, relay output, two wire type	Terminal block type	36
		AJ65SBTB2N-8S	8	0.6 A triac output, two wire type	Terminal block type	36
		AJ65SBTB2N-16S	16	0.6 A triac output, two wire type	Terminal block type	36
		AJ65SBTC1-32T	32	0.1 A transistor output (Sink type), one wire type	One-touch connector type	36
		AJ65SBTCF1-32T	32	0.1 A transistor output (Sink type), one wire type	FCN connector type	66
		AJ65SBTC1-32T1	32	0.1 A transistor output (Sink type), one wire type, low leakage current	One-touch connector type	48
		AJ65FBTA2-16T	16	0.5 A transistor output (Sink type), two wire type	Waterproof connector type	58
		AJ65FBTA2-16TE	16	1.0 A transistor output (Source type), two wire type	Waterproof connector type	58
		AJ65VBTCU2-8T	8	0.1 A transistor output (Sink type), two wire type	One-touch connector type	48
		AJ65VBTCU2-16T	16	0.1 A transistor output (Sink type), two wire type	One-touch connector type	48
	Remote I/O module	AJ65BTB1-16T	16	0.5 A transistor output (Sink type), one wire type	Terminal block type	36
		AJ65BTB2-16R	16	24 VDC/240 VAC 2 A, relay output two wire type	Terminal block type	36
		AJ65BTB2-16T	16	0.5 A transistor output (Sink type), two wire type	Terminal block type	36
		AJ65BTC1-32T	32	0.1 A transistor output (Sink type), one wire type	FCN connector type	66
Embedded output adapter		AJ65MBTL1N-16T	16	0.1 A transistor output (Sink type)	Embedded type 44 pins (2 rows)	54
		AJ65MBTL1N-32T	32	0.1 A transistor output (Sink type)	Embedded type 62 pins (2 rows)	54

Related manual				
	AJ65SBT□-□	AJ65FBT□-□	AJ65FBTA□-□	AJ65BT□-□
	User's Manual (Details)			User's Manual (Details)
	SH-4007 (13JL72)			IB-66728 (13J878)
	AJ65MBTL1N-□			
	User's Manual			
	SH-080324E(13JR59)			

Product name		Model name	Number of input/out put points	Description	External load connection method	Pagewith detailed information
I/O module	Compact type remote I/O module	AJ65SBTB1-16DT	8	DC+COM input, one wire type	Terminal block type	36
			8	0.5 A transistor output (Sink type), one wire type		
		AJ65SBTB1-16DT1	8	DC+COM input,one wire type, high-speed response	Terminal block type	36
			8	0.5 A transistor output (Sink type), one wire type		
		AJ65SBTB1-16DT2	8	DC+COM input, one wire type	Terminal block type	36
			8	0.5 A transistor output (Sink type), one wire type, low leakage current		
		AJ65SBTB1-16DT3	8	DC+COM input,one wire type, high-speed response	Terminal block type	36
			8	0.5 A transistor output (Sink type), one wire type, low leakage current		
		AJ65SBTB1-32DT	16	DC+COM input, one wire type	Terminal block type	36
			16	0.5 A transistor output (Sink type), one wire type		
		AJ65SBTB1-32DT1	16	DC+COM input, one wire type, high-speed response	Terminal block type	36
			16	0.5 A transistor output (Sink type), one wire type		
		AJ65SBTB1-32DT2	16	DC+COM input, one wire type, high-speed response	Terminal block type	36
			16	0.5 A transistor output (Sink type), one wire type, low leakage current		
		AJ65SBTB1-32DT3	16	DC+COM input, one wire type	Terminal block type	36
			16	0.5 A transistor output (Sink type), one wire type,low leakage current		
		AJ65SBTB32-8DT	4	DC+COM input, three wire type	Terminal block type	36
			4	0.5 A transistor output (Sink type), two wire type		
		AJ65SBTB32-8DT2	4	DC+COM input, three wire type	Terminal block type	36
			4	0.5 A transistor output (Sink type), two wire type, low leakage current		
		AJ65SBTB32-16DT	8	DC+COM input, three wire type	Terminal block type	36
			8	0.5 A transistor output (Sink type), two wire type		
		AJ65SBTB32-16DT2	8	DC+COM input, three wire type	Terminal block type	36
			8	0.5 A transistor output (Sink type), two wire type, low leakage current		
		AJ65SBTC1-32DT	16	DC+COM input, one wire type	One-touch connector type	48
			16	0.1 A transistor output (Sink type), one wire type		
		AJ65SBTC1-32DT1	16	DC+COM input, one wire type, high-speed response	One-touch connector type	48
			16	0.1 A transistor output (Sink type), one wire type		
		AJ65SBTC1-32DT2	16	DC+COM input, one wire type	One-touch connector type	48
			16	0.1 A transistor output (Sink type), one wire type, low leakage current		
		AJ65SBTC1-32DT3	16	DC+COM input, one wire type high-speed response	One-touch connector type	48
			16	0.1 A transistor output (Sink type), one wire type, low leakage current		
		AJ65SBTC4-16DT	8	DC+COM input, four wire type	One-touch connector type	48
			8	0.5 A transistor output (Sink type), four wire type		
		AJ65SBTC4-16DT2	8	DC+COM input, four wire type	One-touch connector type	48
			8	0.5 A transistor output (Sink type), four wire type, low leakage current		
		AJ65SBTCF1-32DT	16	DC+COM,–COM common input, one wire type	FCN connector type	66
			16	0.1 A transistor output (Sink type), one wire type		
		AJ65FBTA42-16DT	8	DC+COM input, four wire type	Waterproof connector type	58
			8	0.5 A transistor output (Sink type), two wire type		
		AJ65FBTA42-16DTE	8	DC–COM input, four wire type	Waterproof connector type	58
			8	0.1 A transistor output (Source type), two wire type		
		AJ65SBTW4-16DT	8	DC+COM input, four wire type	Waterproof connector type	58
			8	0.5 A transistor output (Sink type), four wire type		
		AJ65VBTCF1-32DT1	16	DC+COM,–COM common input, one wire type, high-speed response	FCN connector type	66
			16	0.1 A transistor output (Sink type), one wire type		
	remote I/O module	AJ65BTB1-16DT	8	DC+COM input, one wire type	Terminal block type	36
			8	0.5 A transistor output (Sink type), one wire type		
		AJ65BTB2-16DT	8	DC+COM input, two wire type	Terminal block type	36
			8	0.5 A transistor output (Sink type), two wire type		
		AJ65BTB2-16DR	8	DC+COM,–COM common input, one wire type	Terminal block type	36
			8	24 VDC/240 VAC 2 A, relay output, two wire type		
Embedded I/O adapter		AJ65MBTL1N-16DT	8	DC+COM input	Embedded type 44 pins (2 rows)	54
			8	0.1 A transistor output (Sink type),		

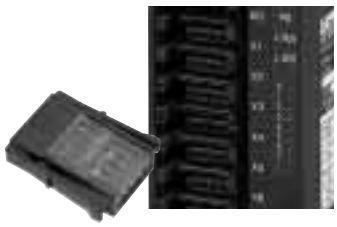
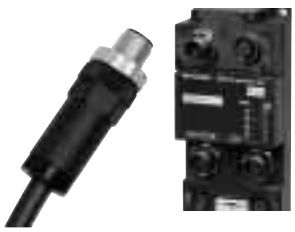
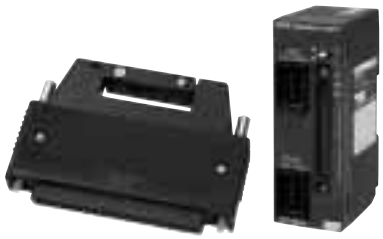
※+COM: Positive common (sink) -COM: Negative common (source)

Memo

Selection of Remote I/O Modules

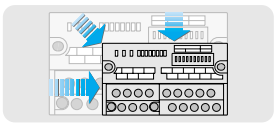
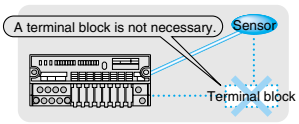
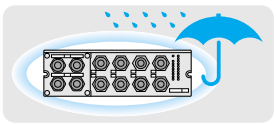
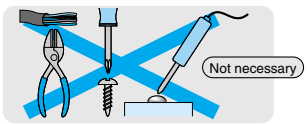
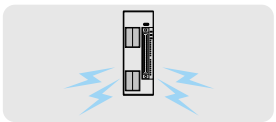
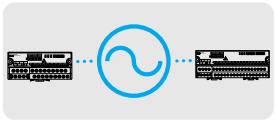
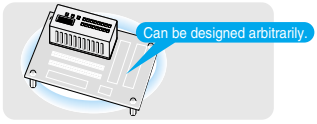
If the external connection is of this type···?

Select this!

Selection condition ▶▶▶	Feature of module	Model name of the module that should be selected	Page with detailed information
 **Terminal block type**	This is the typical connection method suitable for connecting solderless terminals.	AJ65SBTB□-□ AJ65BTB□-□	▶36
 **One-touch connector type**	This type uses the loose wire pressure-welding connection method, which makes wiring work easier.	AJ65SBTC□-□ AJ65VBTCU□-□	▶48
 **Waterproof connector type**	This type makes connection of sensors and valves easy.	AJ65FBTA□-□ AJ65SBTW4-□	▶58
 **FCN connector type**	This type provides an easy and economical way of wiring (it uses 40-pin connectors). It is effective when the device is placed near the I/O module.	AJ65SBTCF1-□ AJ65BTC1-□ AJ65VBTCF1-□	▶66
 **Embedded I/O adapter type**	Customer can develop external connection.	AJ65MBTL1N-□	▶54

If the module is used in this way···?

Select this!

Selection condition ▶▶▶	Feature of module	Model name of the module that should be selected	Page with detailed information
 If you want to place in a small board and /or want to use the clearance effectively	The ultra-miniature compact size will save space.	AJ65SBTB□-□ AJ65VBTCU□-□	▶36 ▶48
 If you want to connect a sensor directly	It is possible to connect the sensor easily without using a relay terminal block.	AJ65SBTB3-□ AJ65SBTC4-□ AJ65VBTCU□-□	▶36 ▶48 ▶48
 If you want to use the module in a harsh environment where water may be splashed	Due to the protective structure compliant to IP67, this module is safely used in a wet environment.	AJ65FBTA□-□ AJ65SBTW4-□	▶58
 If you want to reduce the wiring man-hours	The wiring of these modules is made easy due to the use of one-touch connectors, eliminating the need for soldering, wire stripping, or tightening of screws.	AJ65SBTC□-□ AJ65VBTCU□-□	▶48
 If you want to take advantage of the high-speed feature of the CC-Link	Being 0.2 ms or less, the input response time accommodates high speed communication. Use these modules when high response speed is required.	AJ65SBTB1-□D1 ▶36 ▶48 AJ65SBTC1-□DT1 ▶36 ▶48 AJ65SBTB1-□DT1 ▶36 ▶48 AJ65SBTC1-□DT3 ▶36 ▶48 AJ65SBTB1-□DT3 ▶36 ▶66 AJ65VBTCU3-□D1 ▶48 ▶66 AJ65SBTC1-□D1 AJ65VBTCF1-□DT1	
 If you want to use an output module with small leakage current	The off time leakage current of the transistor output is small, 0.1 mA or less. These modules are suited for driving light loads such as LED displays.	AJ65SBTB□-□T1 ▶36 ▶48 AJ65VBTCU2-□T ▶48 ▶66 AJ65SBTC1-□T1 ▶36 ▶66 AJ65SBTCF1-□DT ▶36 ▶66 AJ65SBTB□-□DT2 ▶48 ▶54 AJ65SBTCF1-□T ▶48 AJ65SBTB□-□DT3 AJ65VBTCF1-□DT1 AJ65SBTC□-□DT2 AJ65MBTL1N-□ AJ65SBTC1-□DT3	
 If you want to use AC system devices	These modules can control AC input/output.	AJ65SBTB2N-□A AJ65SBTB2N-□R AJ65SBTB2N-□S AJ65BTB2-16R AJ65BTB2-16DR	▶36
 If you want to build in a machine or your equipment	The embedded I/O adapter can be built in a circuit board designed and manufactured by Customer.	AJ65MBTL1N-□	▶54

Product Description

Remote I/O

AJ65SBTB□-□ AJ65BTB□-□

Terminal Block Type

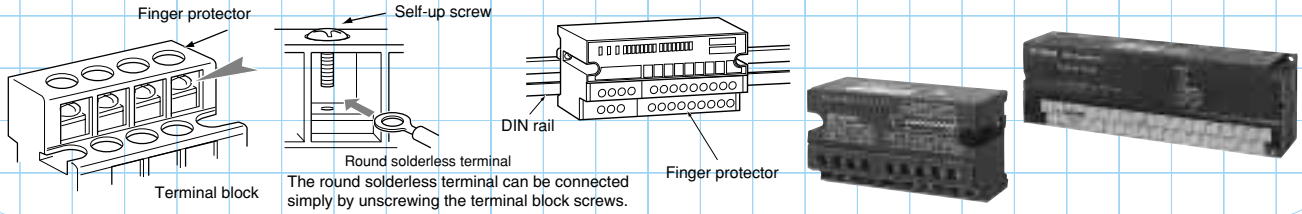
AJ65SBTB□-□

■ Saves labor due to easy wiring

● Equipped with "self-up screws" (no need to remove the terminal screws when wiring the round solderless terminals).

■ Can be installed directly on machines

● The charging area is covered by a finger protector on the upper part of the terminal block so that people cannot touch it. Therefore it is possible to install the terminal block type remote I/O module directly on the machine.



Performance Specifications

See page 154 for the general specifications.

Input module model name	Input type		Number of input points	Isolation method	Rated input voltage	Operating voltage		Input response time		External connection wire type	Common connection	Internal current consumption
						ON voltage	OFF voltage	OFF→ON	ON→OFF			
AJ65SBTB1-8D	DC input	+COM/–COM common type	8 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	One wire type	8 points 1 common	30mA
AJ65SBTB1-16D	DC input	+COM/–COM common type	16 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	One wire type	16 points 1 common	35mA
AJ65SBTB1-16D1	DC input	+COM/–COM common type	16 points	Photocoupler	24 VDC	15 V min.	3 V max.	0.2 ms max.	0.2 ms max.	One wire type	16 points 1 common	40mA
AJ65SBTB1-32D	DC input	+COM/–COM common type	32 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	One wire type	32 points 1 common	45mA
AJ65SBTB1-32D1	DC input	+COM/–COM common type	32 points	Photocoupler	24 VDC	15 V min.	3 V max.	0.2 ms max.	0.2 ms max.	One wire type	32 points 1 common	50mA
AJ65SBTB2N-8A	AC input	—	8 points	Photocoupler	100 to 120 VAC	80 V min.	30 V max.	20 ms max.	20 ms max.	Two wire type	8 points 1 common	35mA
AJ65SBTB2N-16A	AC input	—	16 points	Photocoupler	100 to 120 VAC	80 V min.	30 V max.	20 ms max.	20 ms max.	Two wire type	16 points 1 common	40mA
AJ65SBTB3-8D	DC input	+COM/–COM common type	8 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	Three wire type	8 points 1 common	40mA
AJ65SBTB3-16D	DC input	+COM/–COM common type	16 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	Three wire type	16 points 1 common	45mA
AJ65BTB1-16D	DC input	+COM/–COM common type	16 points	Photocoupler	24 VDC	14 V min.	6 V max.	10 ms max.	10 ms max.	One wire type	16 points 1 common	60mA
AJ65BTB2-16D	DC input	+COM/–COM common type	16 points	Photocoupler	24 VDC	14 V min.	6 V max.	10 ms max.	10 ms max.	Two wire type	16 points 1 common	60mA

Output module model name	Output type		Number of output points	Isolation method	Rated load voltage	Maximum load current		Output response time		Leakage current	Surge suppression	External connection wire type	Common connection	Internal current consumption
						1 point	1 common	OFF→ON	ON→OFF					
AJ65SBTB1-8T	Transistor output	Sink type	8 points	Photocoupler	12/24 VDC	0.5A	2.4A	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type	8 points 1 common	35mA
AJ65SBTB1-8T1	Transistor output	Sink type	8 points	Photocoupler	12/24 VDC	0.5A	2.4A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type	8 points 1 common	35mA
AJ65SBTB1-16T	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.5A	3.6A	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type	16 points 1 common	50mA
AJ65SBTB1-32T	Transistor output	Sink type	32 points	Photocoupler	12/24 VDC	0.5A	4.8A	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type	32 points 1 common	65mA
AJ65SBTB1-16T1	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.5A	3.6A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type	16 points 1 common	50mA
AJ65SBTB1-32T1	Transistor output	Sink type	32 points	Photocoupler	12/24 VDC	0.5A	4.8A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type	32 points 1 common	65mA
AJ65SBTB1-8TE	Transistor output	Source type	8 points	Photocoupler	12/24 VDC	0.1A	0.8A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type	8 points 1 common	35mA
AJ65SBTB1-16TE	Transistor output	Source type	16 points	Photocoupler	12/24 VDC	0.1A	1.6A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type	16 points 1 common	50mA
AJ65SBTB2-8T	Transistor output	Sink type	8 points	Photocoupler	12/24 VDC	0.5A	2.4A	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	Two wire type	8 points 1 common	45mA
AJ65SBTB2-16T	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.5A	3.6A	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	Two wire type	16 points 1 common	55mA
AJ65SBTB2-8T1	Transistor output	Sink type	8 points	Photocoupler	12/24 VDC	0.5A	2.4A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	Two wire type	8 points 1 common	45mA
AJ65SBTB2-16T1	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.5A	3.6A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	Two wire type	16 points 1 common	55mA
AJ65SBTB2N-8R	Relay output	—	8 points	Relay	24 VDC/240 VAC	2A	4A	10 ms max.	12 ms max.	—	None	Two wire type	8 points 1 common	85mA
AJ65SBTB2N-16R	Relay output	—	16 points	Relay	24 VDC/240 VAC	2A	8A	10 ms max.	12 ms max.	—	None	Two wire type	16 points 1 common	120mA
AJ65SBTB2N-8S	Triac output	—	8 points	Photocoupler	100 to 240 VAC	0.6A	2.4A	1 ms max.	1/2c + 1 ms max.	—	C-R absorber	Two wire type	8 points 1 common	55mA
AJ65SBTB2N-16S	Triac output	—	16 points	Photocoupler	100 to 240 VAC	0.6A	4.8A	1 ms max.	1/2c + 1 ms max.	—	C-R absorber	Two wire type	16 points 1 common	85mA
AJ65BTB1-16T	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.5A	4A	2 ms max.	2 ms max.	0.1 mA max.	Zener diode	One wire type	8 points 1 common	80mA
AJ65BTB2-16R	Relay output	—	16 points	Relay	24 VDC/240 VAC	2A	8A	10 ms max.	12 ms max.	—	None	Two wire type	8 points 1 common	85mA
AJ65BTB2-16T	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.5A	4A	2 ms max.	2 ms max.	0.1 mA max.	Zener diode	Two wire type	8 points 1 common	80mA

Combined I/O module model name	I/O type		Number of I/O points	Isolation method	input/load voltage	Input response time	Maximum load current		Operating voltage		Output response time		Leakage current	Surge suppression	connection wire type on input/output sides	Common connection	Internal current consumption
							1 point	1 common	ON voltage	OFF voltage	OFF→ON	ON→OFF					
AJ65SBTB1-16DT	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	2.4A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type / One wire type	16 points 1 common	50mA
AJ65SBTB1-16DT1	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/24VDC	0.2 ms max.	0.5A	2.4A	15 V min.	3 V max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type / One wire type	16 points 1 common	55mA
AJ65SBTB1-16DT2	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	2.4A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	16 points 1 common	50mA
AJ65SBTB1-16DT3	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/24VDC	0.2 ms max.	0.5A	2.4A	15 V min.	3 V max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	16 points 1 common	55mA
AJ65SBTB1-32DT	DC input /transistor output	+COM type/sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	3.6A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	60mA
AJ65SBTB1-32DT1	DC input /transistor output	+COM type/sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	0.2 ms max.	0.5A	3.6A	15 V min.	3 V max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	60mA
AJ65SBTB1-32DT2	DC input /transistor output	+COM type/sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	3.6A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	60mA
AJ65SBTB1-32DT3	DC input /transistor output	+COM type/sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	0.2 ms max.	0.5A	3.6A	15 V min.	3 V max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	60mA
AJ65SBTB32-8DT	DC input /transistor output	+COM type/sink type	4 points /4 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	1.2A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	Three wire type / Two wire type	8 points 1 common	45mA
AJ65SBTB32-8DT2	DC input /transistor output	+COM type/sink type	4 points /4 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	1.2A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	Three wire type / Two wire type	8 points 1 common	45mA
AJ65SBTB32-16DT	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	2.4A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	Three wire type / Two wire type	16 points 1 common	50mA
AJ65SBTB32-16DT2	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/24VDC	1.5 ms max.	0.5A	2.4A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	Three wire type / Two wire type	16 points 1 common	50mA
AJ65BTB1-16DT	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/12/24VDC	10 ms max.	0.5A	4A	14 V min.	6 V max.	2 ms max.	2 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	8 points 1 common	70mA
AJ65BTB2-16DT	DC input /transistor output	+COM type/sink type	8 points /8 points	Photocoupler / photocoupler	24VDC/12/24VDC	10 ms max.	0.5A	4A	14 V min.	6 V max.	2 ms max.	2 ms max.	0.1 mA max.	Zener diode	Two wire type/ Two wire type	8 points 1 common	70mA
AJ65BTB2-16DR	DC input /relay output	+COM/–COM common type/–	8 points /8 points	Photocoupler /relay	24VDC/240VAC	10 ms max.	2A	8A	14 V min.	6 V max.	10 ms max.	12 ms max.	—	None	Two wire type/ Two wire type	8 points 1 common	70mA

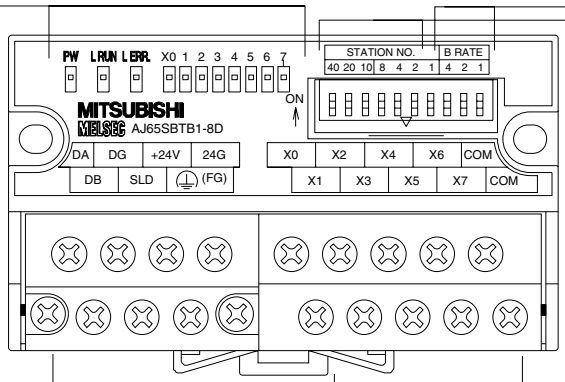
※+COM: Positive common (sink) -COM: Negative common (source)

Name and Setting of Each Part

●AJ65SBTB1-8□

LED display

LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. (It turns off when the settings are modified and the power supply is turned off then on again.) It flashes if the station-number and transmission-speed settings are changed while the communication is active. (L RUN also turns on. The module operates under the conditions given via the station-number and transmission-speed settings at the time the power supply was turned on.)
X0 to 1F	Displays the on/off status of input. The LEDs turn on in the "On" state, and off in the "Off" state.



Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Station number setting switches

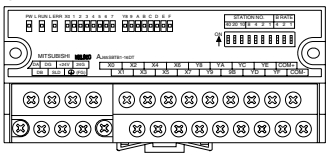
"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Terminal block

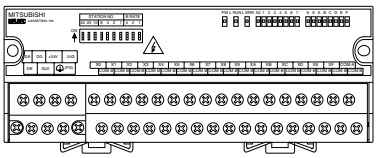
DIN rail hook

Hook for mounting the module to the DIN rail

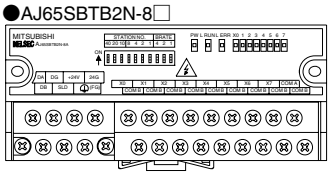
●AJ65SBTB1-16□



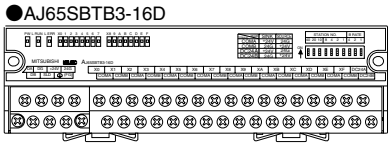
●AJ65SBTB2N-16□



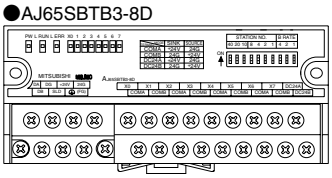
●AJ65SBTB2N-8□



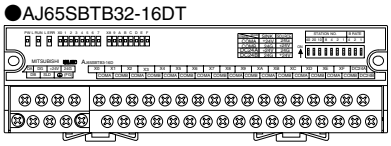
●AJ65SBTB3-16D



●AJ65SBTB3-8D



●AJ65SBTB32-16DT



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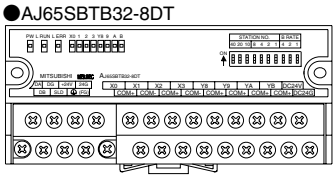
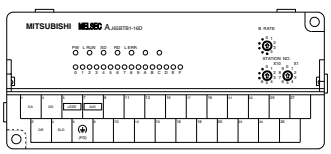


●AJ65BTB1-16□



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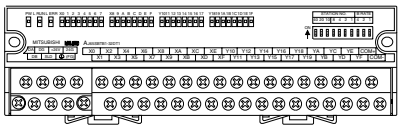

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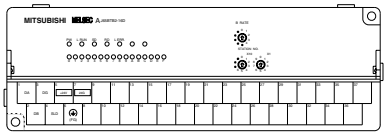
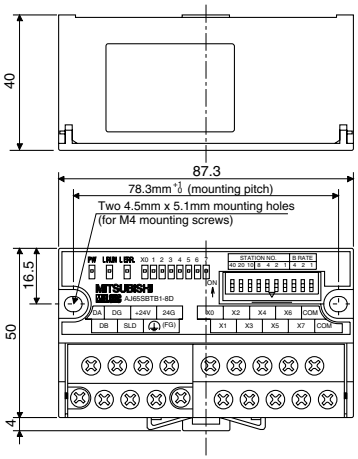


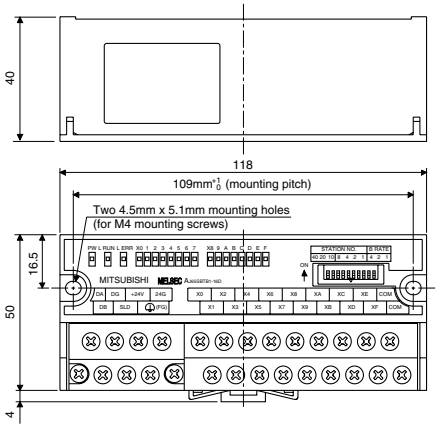
External Connection Diagram

Unit: mm

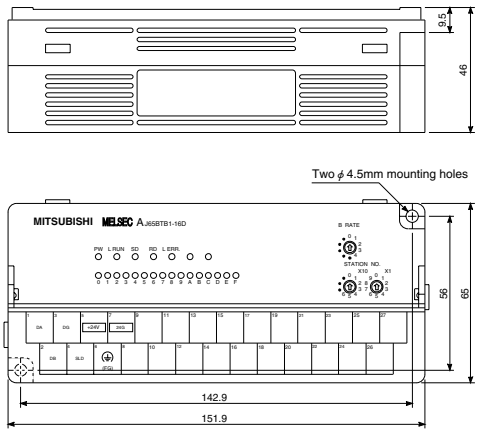
●AJ65SBTB1-8□



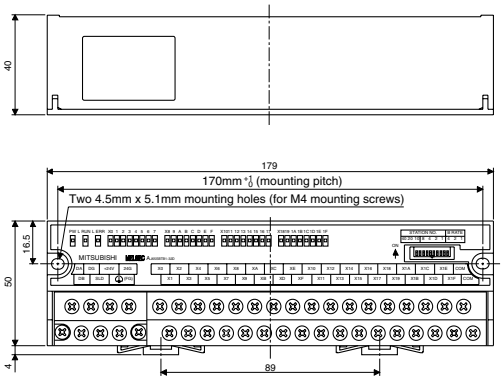
●AJ65SBTB1-16□
●AJ65SBTB3-8□
●AJ65SBTB2-8□
●AJ65SBTB2N-8□
●AJ65SBTB32-8□



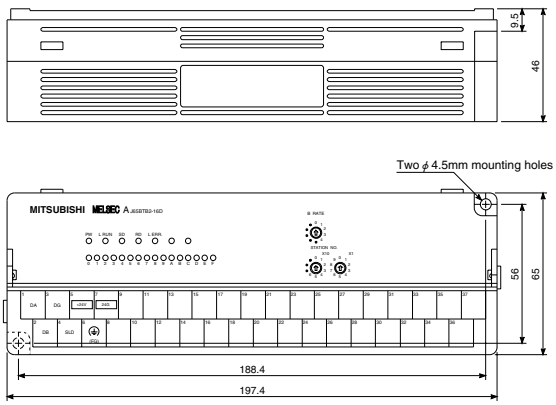
●AJ65BTB1-16□



●AJ65SBTB1-32□
●AJ65SBTB3-16□
●AJ65SBTB2-16□
●AJ65SBTB2N-16□
●AJ65SBTB32-16□



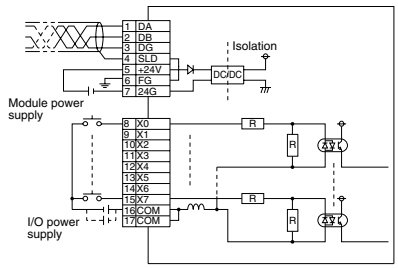
●AJ65BTB2-16□



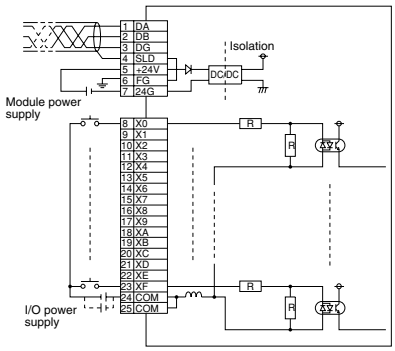
External Connection Diagram

Input Module

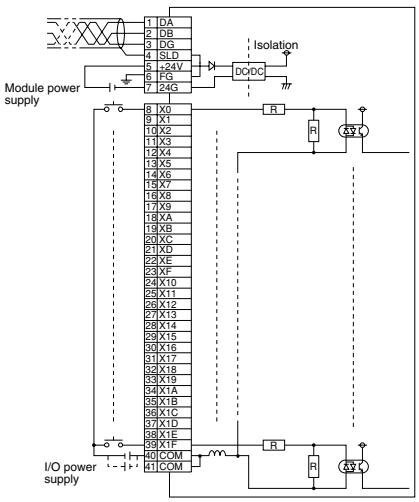
●AJ65SBTB1-8D type



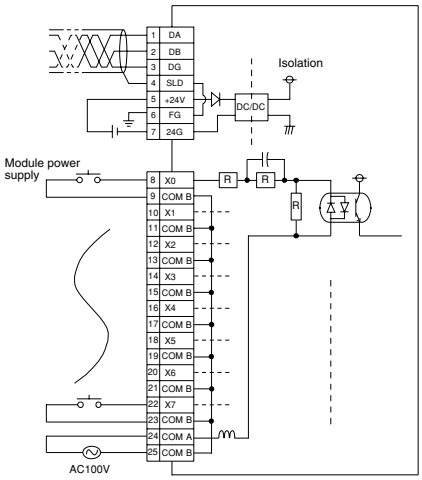
●AJ65SBTB1-16D type, AJ65SBTB1-16D1 type



●AJ65SBTB1-32D type, AJ65SBTB1-32D1 type



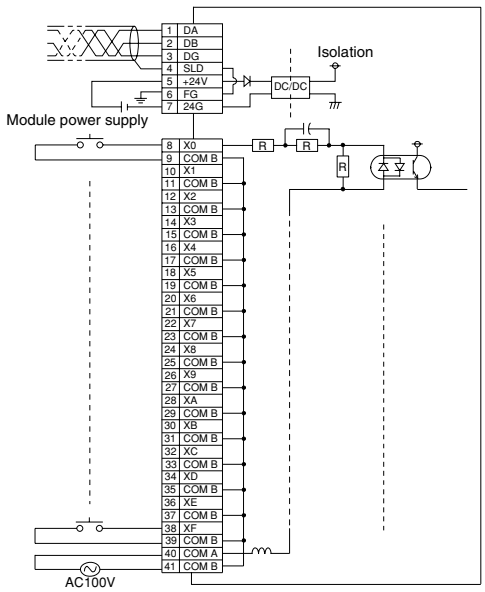
●AJ65SBTB2N-8A type



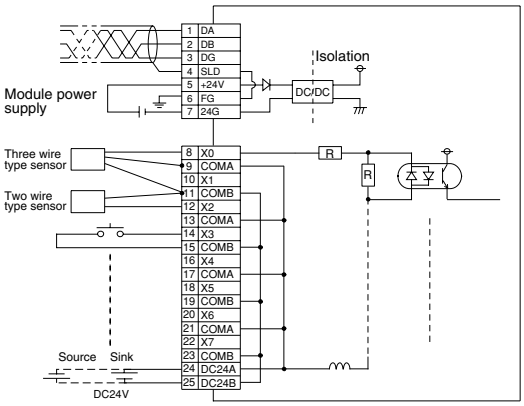
External Connection Diagram

Input Module

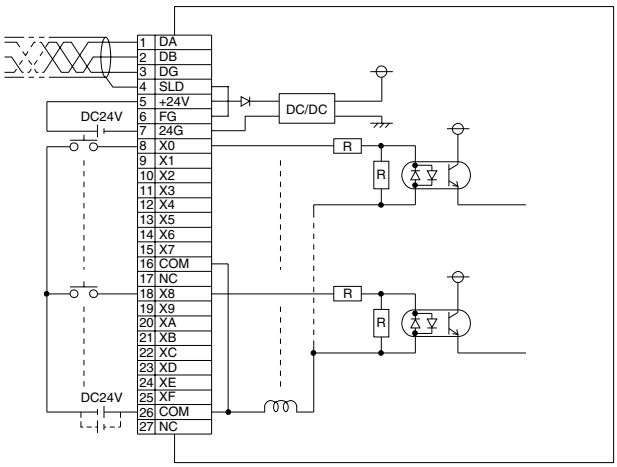
●AJ65SBTB2N-16A type



●AJ65SBTB3-8D type



●AJ65BTB1-16D type



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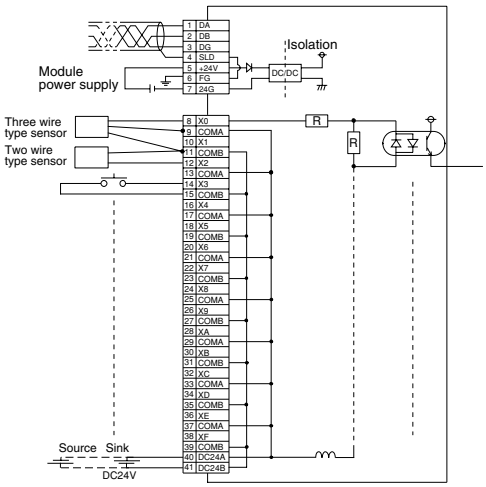
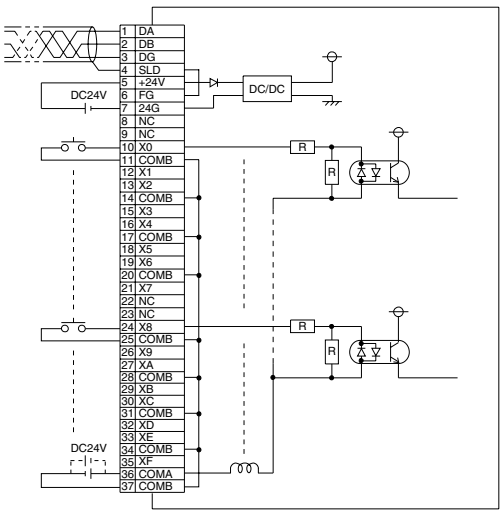


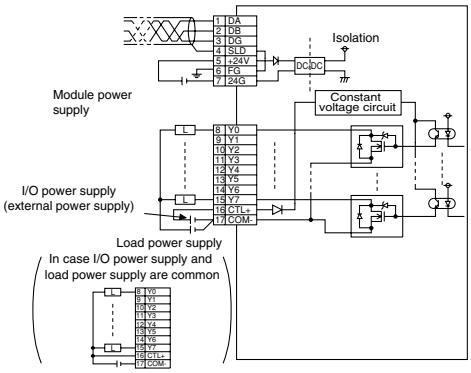
●AJ65BTB2-16D type



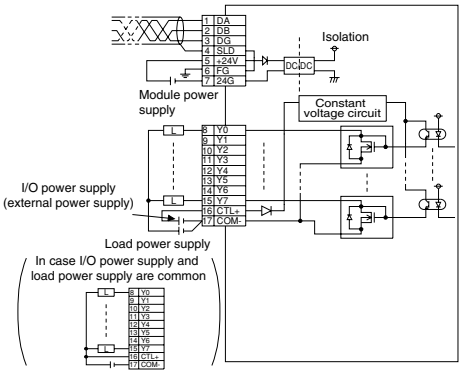
External Connection Diagram

Output Module

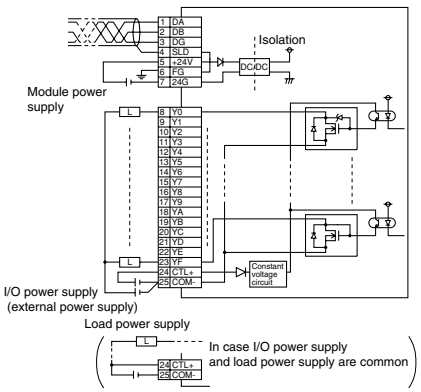
●AJ65SBTB1-8T type



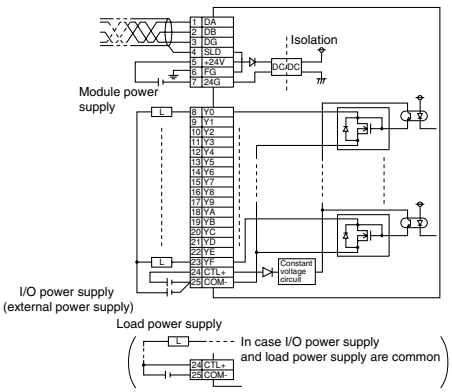
●AJ65SBTB1-8T1 type



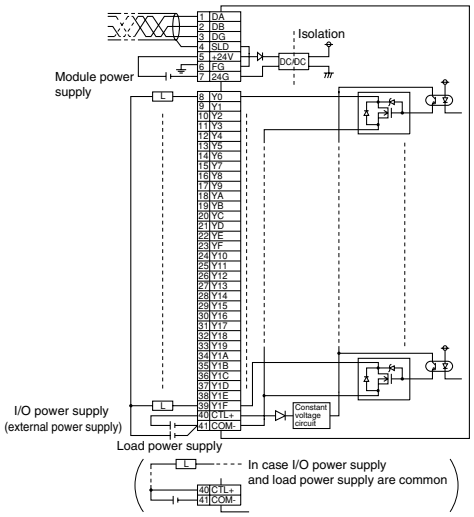
●AJ65SBTB1-16T type



●AJ65SBTB1-16T1 type



●AJ65SBTB1-32T type



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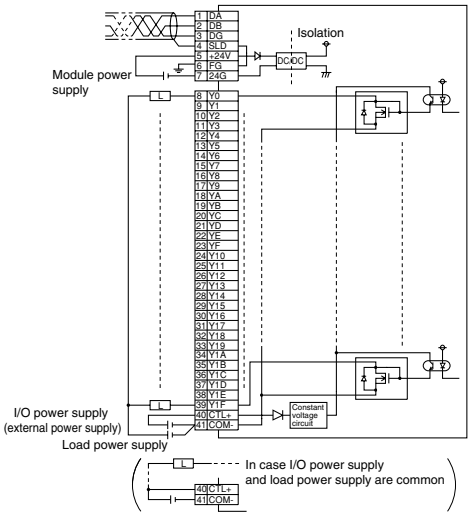
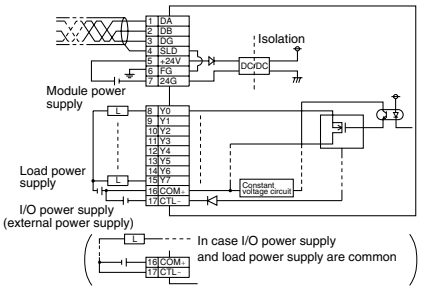


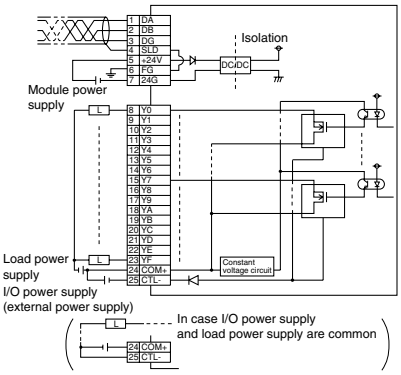
External Connection Diagram

Output Module

●AJ65SBTB1-8TE type



●AJ65SBTB1-16TE type



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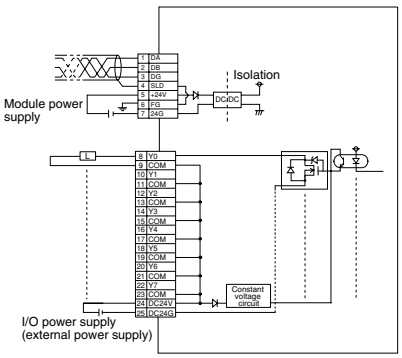
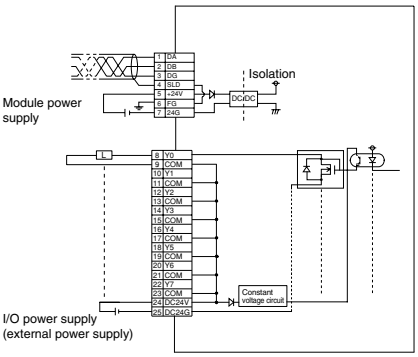


●AJ65SBTB2-8T1 type



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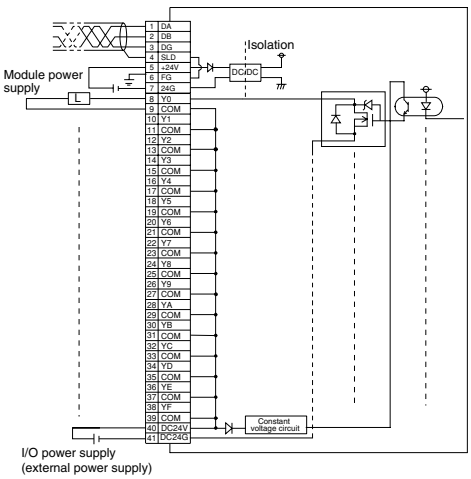
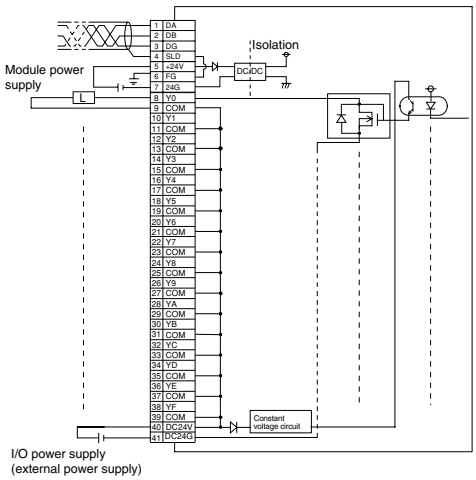


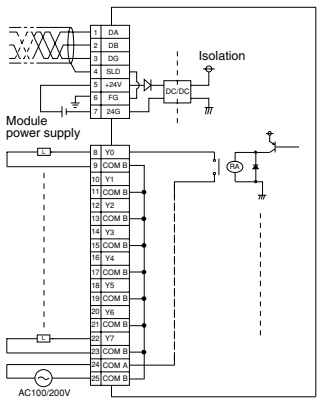
●AJ65SBTB2-16T1 type



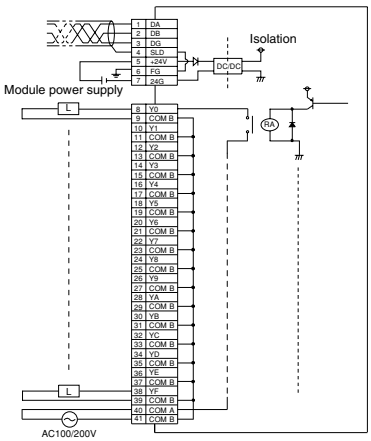
External Connection Diagram

Output Module

●AJ65SBTB2N-8R type



●AJ65SBTB2N-16R type



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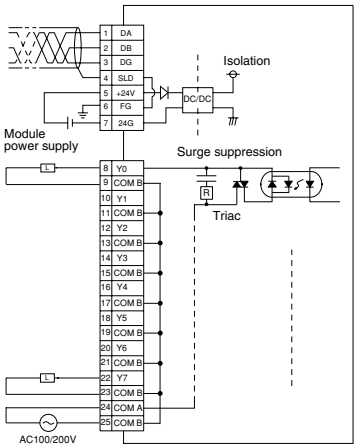

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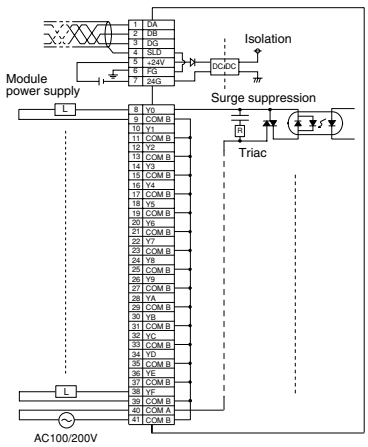
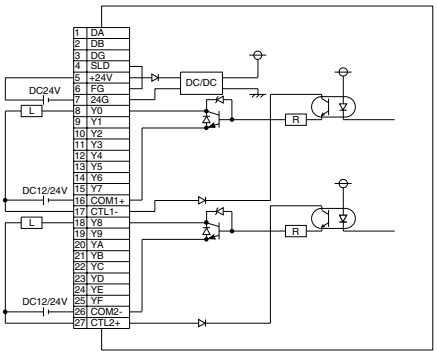


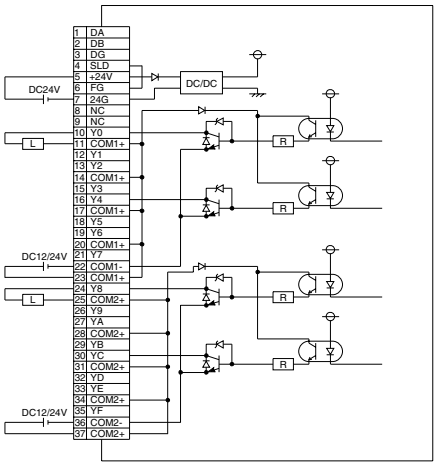
External Connection Diagram

Output Module

●AJ65BTB1-16T type



●AJ65BTB2-16T type



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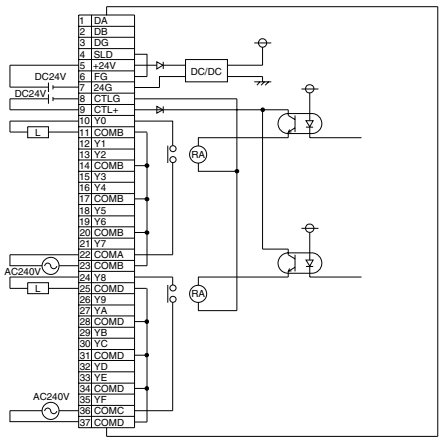
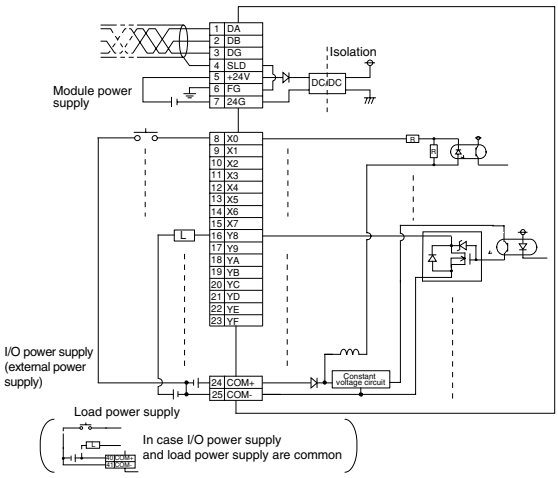


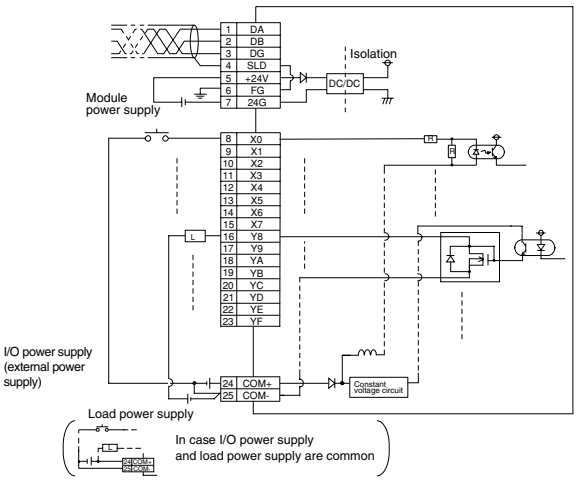
External Connection Diagram

I/O Module

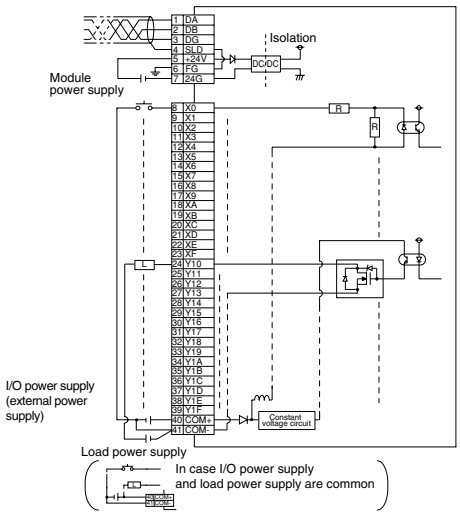
●AJ65SBTB1-16DT,AJ65SBTB1-16DT1 type



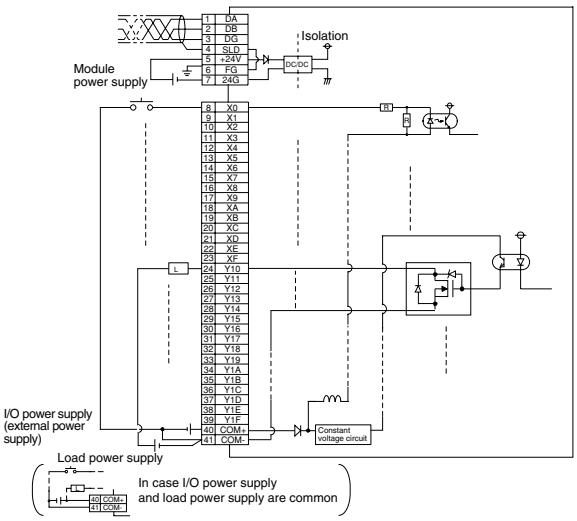
●AJ65SBTB1-16DT2, AJ65SBTB1-16DT3 type



●AJ65SBTB1-32DT,AJ65SBTB1-32DT1 type



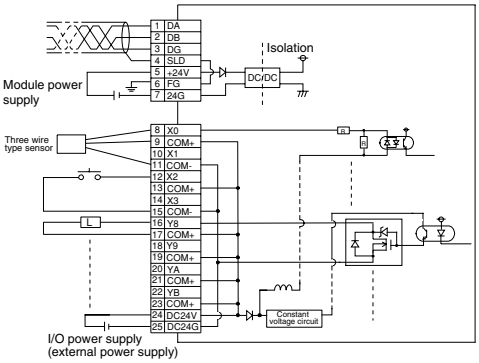
●AJ65SBTB1-32DT2, AJ65SBTB1-32DT3 type



External Connection Diagram

I/O Module

●AJ65SBTB32-8DT type



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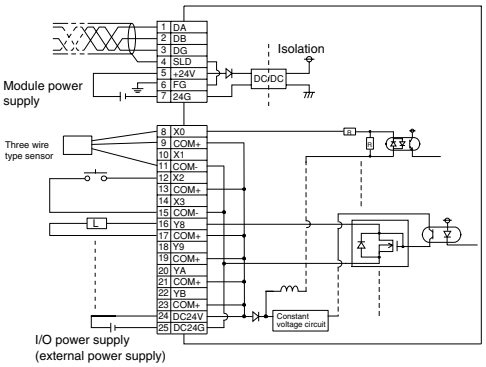

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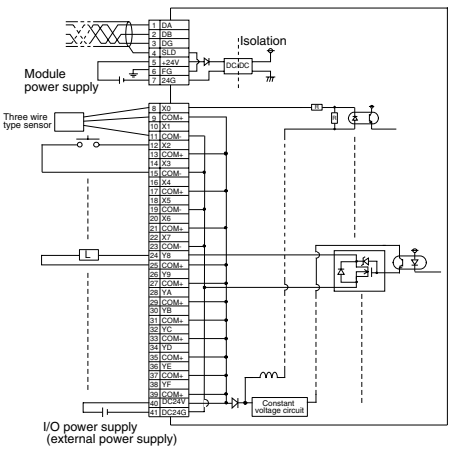
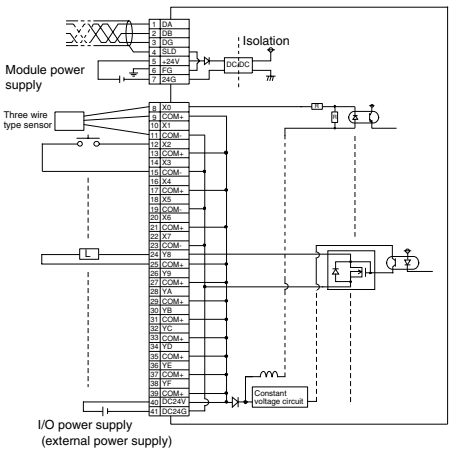


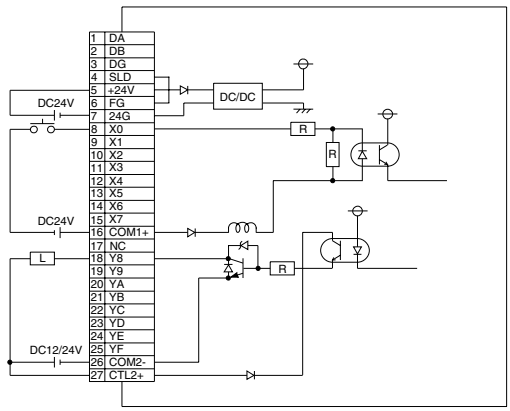
●AJ65SBTB32-16DT2 type



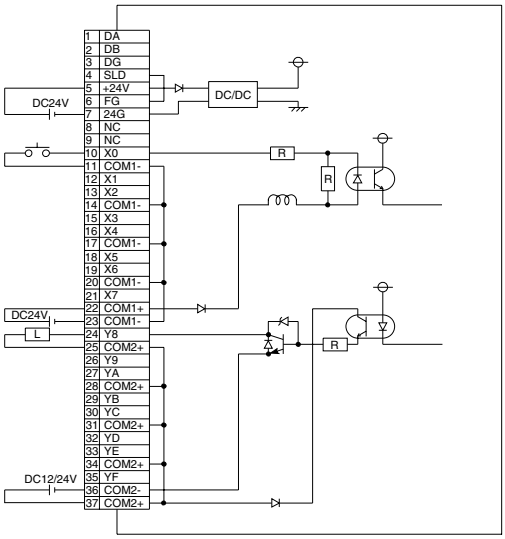
External Connection Diagram

I/O Module

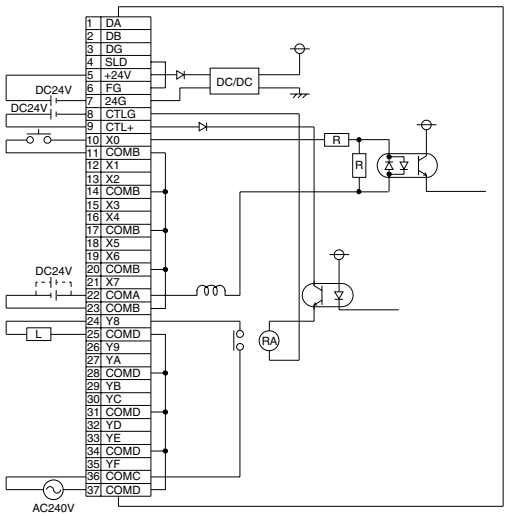
●AJ65BTB1-16DT type



●AJ65BTB2-16DT type



●AJ65BTB2-16DR type



Product Description

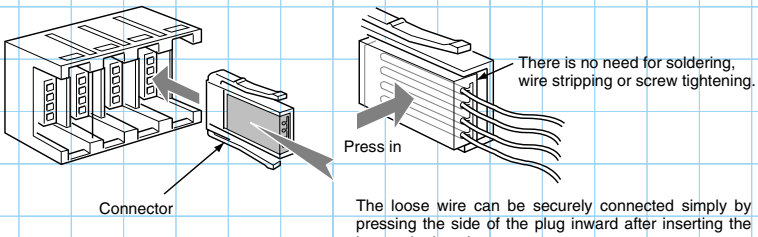
Remote I/O

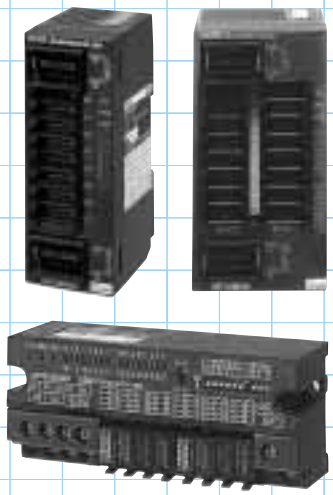
AJ65SBTC□-□ AJ65VBTCU□-□

One-Touch Connector Type

Saves labor due to easy wiring

● Due to the loose wire pressure-welding wire-connection method (eliminating the need for soldering, wire stripping or screw tightening), the amount of man-hours needed for wiring work is dramatically reduced.





∗ For a detailed description of the connectors, see page 108.

Performance Specifications

See page 154 for the general specifications.

Input module model name	Input type		Number of input points	Isolation method	Rated input voltage	Operating voltage		Input response time		External connection wire type	Common connection	Internal current consumption
						ON voltage	OFF voltage	OFF→ON	ON→OFF			
AJ65SBTC1-32D	DC input	+COM/–COM common type	32 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	One wire type	32 points 1 common	45mA
AJ65SBTC1-32D1	DC input	+COM/–COM common type	32 points	Photocoupler	24 VDC	15 V min.	3 V max.	0.2 ms max.	0.2 ms max.	One wire type	32 points 1 common	45mA
AJ65SBTC4-16D	DC input	+COM/–COM common type	16 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	1.5 ms max.	Four wire type	16 points 1 common	35mA
AJ65VBTCU3-8D1	DC input	+COM type	8 points	Photocoupler	24 VDC	15 V min.	3 V max.	0.2 ms max.	0.2 ms max.	Three wire type	8 points 1 common	35mA
AJ65VBTCU3-16D1	DC input	+COM type	16 points	Photocoupler	24 VDC	15 V min.	3 V max.	0.2 ms max.	0.2 ms max.	Three wire type	16 points 1 common	40mA

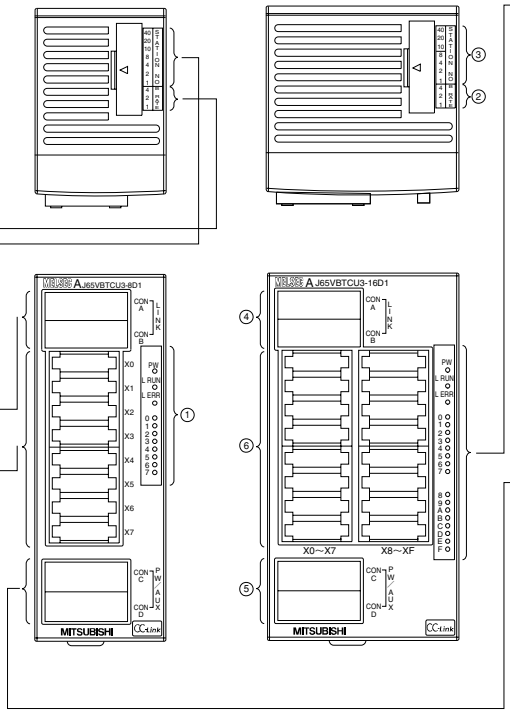
Output module model name	Output type		Number of output points	Isolation method	Rated load voltage	Maximum load current		Output response time		Leakage current	Surge suppression	External connection wire type	Common connection	Internal current consumption
						1 point	1 common	OFF→ON	ON→OFF					
AJ65SBTC1-32T	Transistor output	Sink type	32 points	Photocoupler	12/24 VDC	0.1A	3.2A	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type	32 points 1 common	60mA
AJ65SBTC1-32T1	Transistor output	Sink type	32 points	Photocoupler	12/24 VDC	0.1A	3.2A	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type	32 points 1 common	60mA
AJ65VBTCU2-8T	Transistor output	Sink type	8 points	Photocoupler	12/24 VDC	0.1A	0.8A	1 ms max.	1 ms max.	0.1 mA max.	Zener diode	Two wire type	8 points 1 common	35mA
AJ65VBTCU2-16T	Transistor output	Sink type	16 points	Photocoupler	12/24 VDC	0.1A	1.6A	1 ms max.	1 ms max.	0.1 mA max.	Zener diode	Two wire type	16 points 1 common	40mA

Combined I/O model name	I/O type		Number of I/O points	Isolation method	Rated input/load voltage	Operating voltage		Maximum load current		Input response time	Output response time		Leakage current	Surge suppression	External connection wire type on input/ out put sides	Common connection	Internal current consumption
						ON voltage	OFF voltage	1 point	1 common		OFF→ON	ON→OFF					
AJ65SBTC4-16DT	DC input / transistor output	+COM type / sink type	8 points / 8 points	Photocoupler / photocoupler	24VDC/24VDC	14 V min.	6 V max.	0.5A	2.4A	1.5 ms max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	Four wire type / Four wire type	16 points 1 common	40mA
AJ65SBTC4-16DT2	DC input / transistor output	+COM type / sink type	8 points / 8 points	Photocoupler / photocoupler	24VDC/24VDC	14 V min.	6 V max.	0.5A	2.4A	1.5 ms max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	Four wire type / Four wire type	16 points 1 common	40mA
AJ65SBTC1-32DT	DC input / transistor output	+COM type / sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	14 V min.	6 V max.	0.1A	1.6A	1.5 ms max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	50mA
AJ65SBTC1-32DT1	DC input / transistor output	+COM type / sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	15 V min.	3 V max.	0.1A	1.6A	0.2 ms max.	0.5 ms max.	1.5 ms max.	0.25 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	50mA
AJ65SBTC1-32DT2	DC input / transistor output	+COM type / sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	14 V min.	6 V max.	0.1A	1.6A	1.5 ms max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	50mA
AJ65SBTC1-32DT3	DC input / transistor output	+COM type / sink type	16 points /16 points	Photocoupler / photocoupler	24VDC/24VDC	15 V min.	3 V max.	0.1A	1.6A	0.2 ms max.	0.5 ms max.	1.5 ms max.	0.1 mA max.	Zener diode	One wire type / One wire type	32 points 1 common	50mA

※+COM: Positive common (sink) -COM: Negative common (source)

Name and Setting of Each Part

●AJ65VBTCU□-8□ ●AJ65VBTCU□-16□



②Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

①Operation LED display

LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It flashes if the station-number and transmission-speed settings are changed while the communication is active.
X0 to 1F Y0 to 1F	Displays the on/off status of input/output.

③Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

④One-touch connector for communication

Connector pin no.

4 3 2 1

Pin no.	4	3	2	1
Name	SLD	NC	V−/I−	V+/I+

⑤One-touch connector for power supply and FG

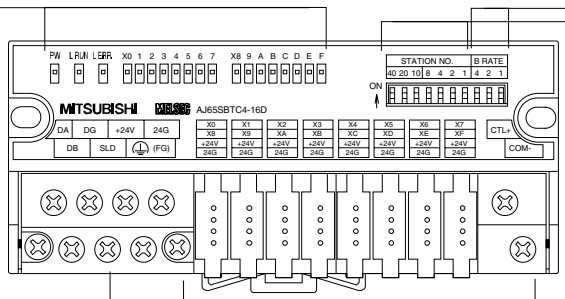
Connector pin no.

5 4 3 2 1

Pin no.	5	4	3	2	1
Name	FGI	AG	ユニット24V	ユニット+24V	FG

⑥Connector for input/output signals

●AJ65SBTC□-16□



Operation LED display

LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It flashes if the station-number and transmission-speed settings are changed while the communication is active.
X0 to F X0 to 7/Y8 to F Y0 to F	Displays the on/off status of input/output. Lit in ON state and unlit in OFF state.

Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Station number setting switches

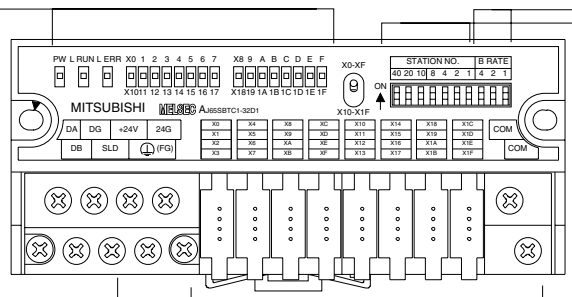
"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Terminal block for communication

Connector for input/output signals

DIN rail hook

●AJ65SBTC□-32□



Operation LED display

LED name	Item checked
PW	Turns on when the power supply to the digital I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It flashes if the station-number and transmission-speed settings are changed while the communication is active.
X0 to 1F X0 to F/ Y10 to 1F Y0 to 1F	Displays the on/off status of input/output. Lit in ON state and unlit in OFF state.

Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Terminal block for communication

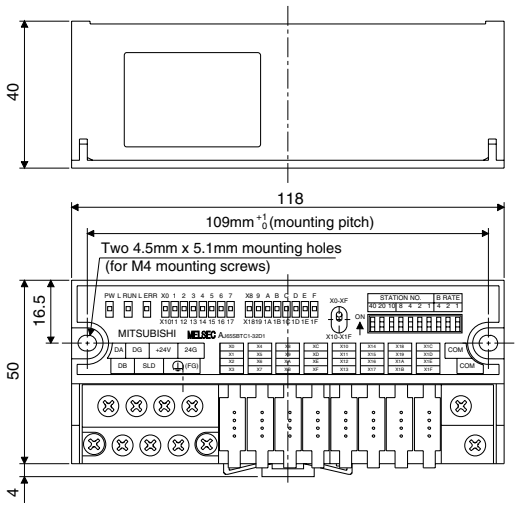
Connector for input/output signals

DIN rail hook

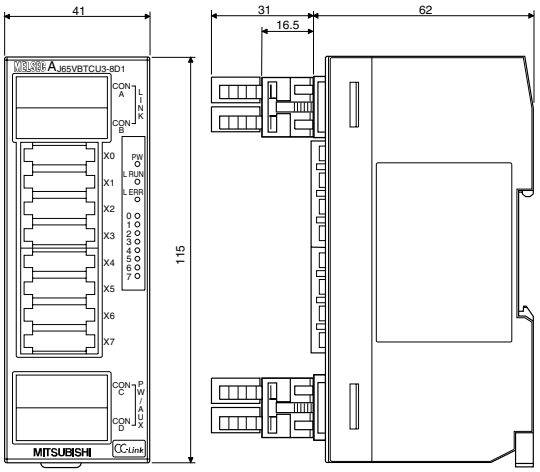
External Dimension Diagram

Unit: mm

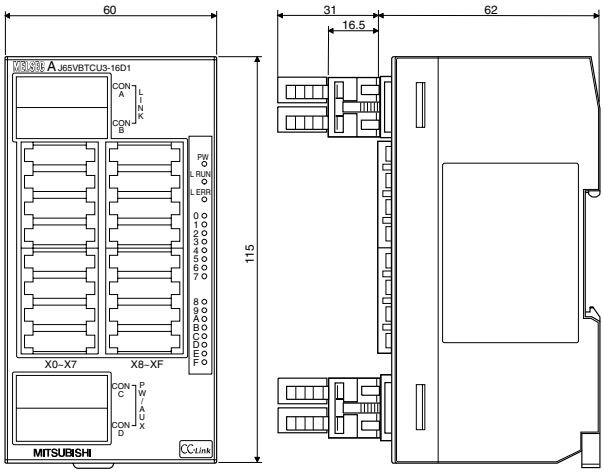
●AJ65SBTC1-32□
●AJ65SBTC4-16□



●AJ65VBTCU□-8□



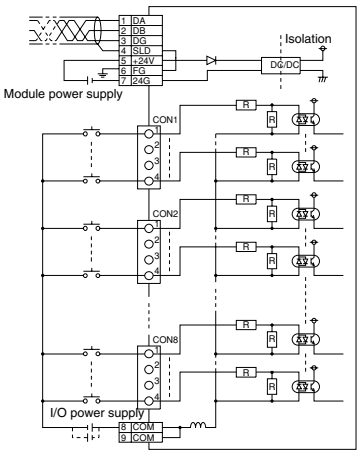
●AJ65VBTCU□-16□



External Connection Diagram

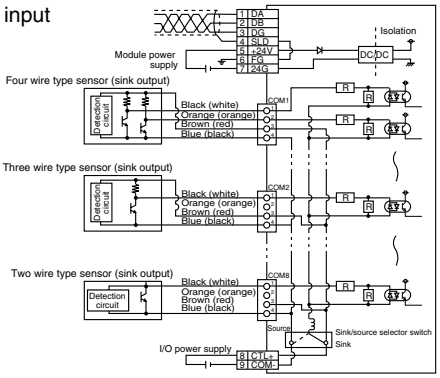
●Input Module

●AJ65SBTC1-32D, AJ65SBTC1-32D1 type

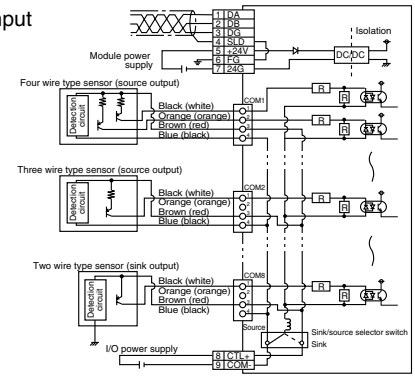


●AJ65SBTC4-16D type

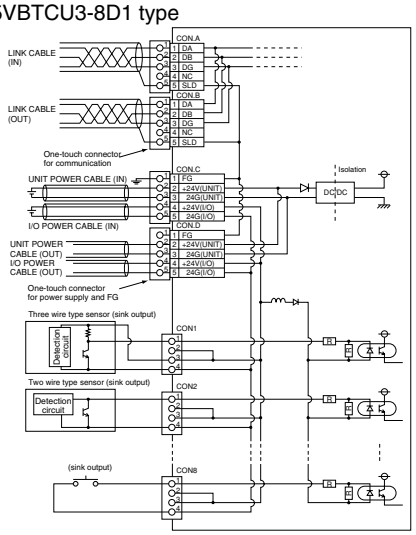
Sink input



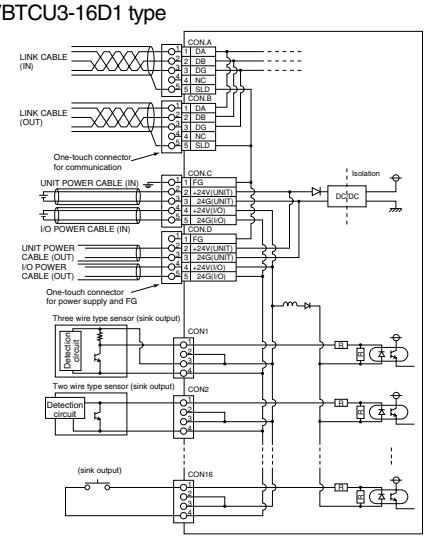
Source input



●AJ65VBTCU3-8D1 type



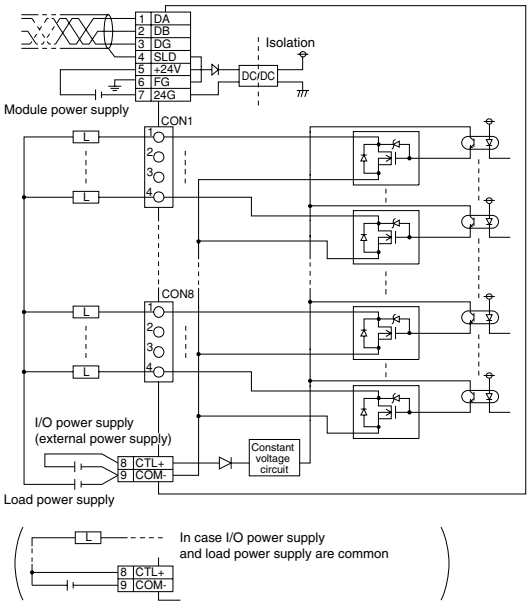
●AJ65VBTCU3-16D1 type



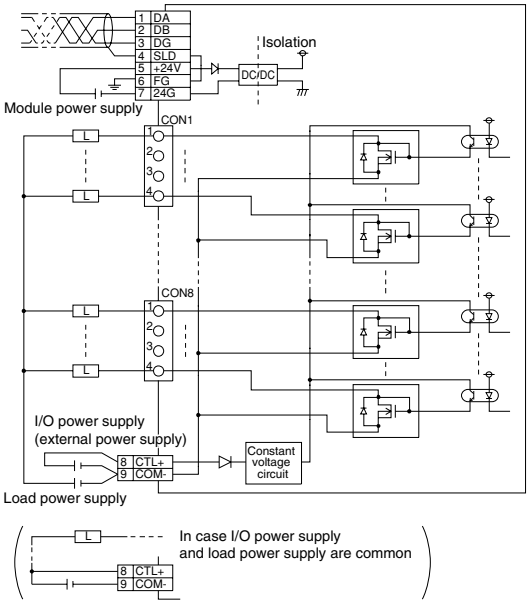
External Connection Diagram

●Output Module

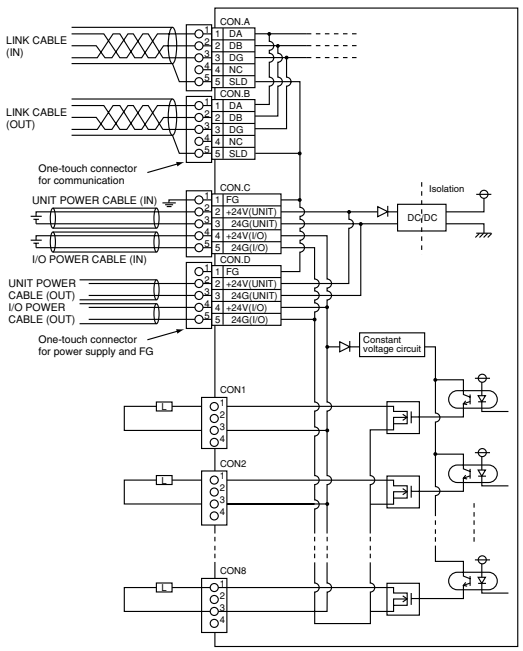
●AJ65SBTC1-32T type



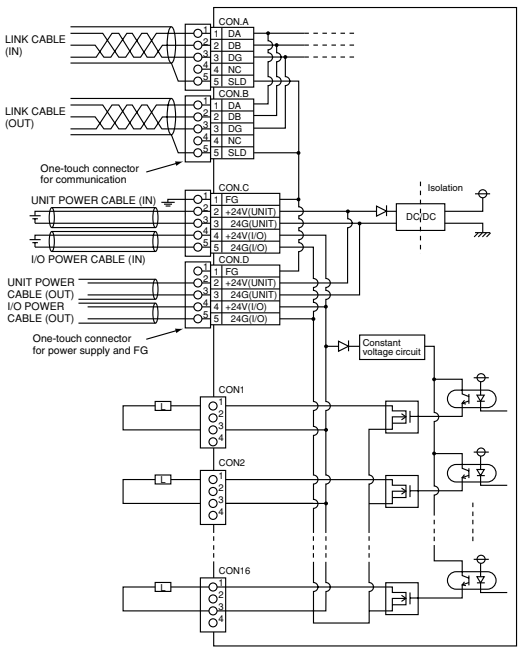
●AJ65SBTC1-32T1 type



●AJ65VBTCU2-8T type



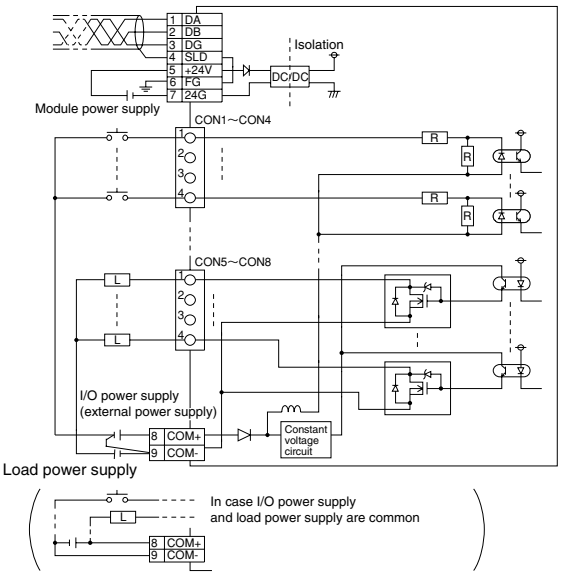
●AJ65VBTCU2-16T type



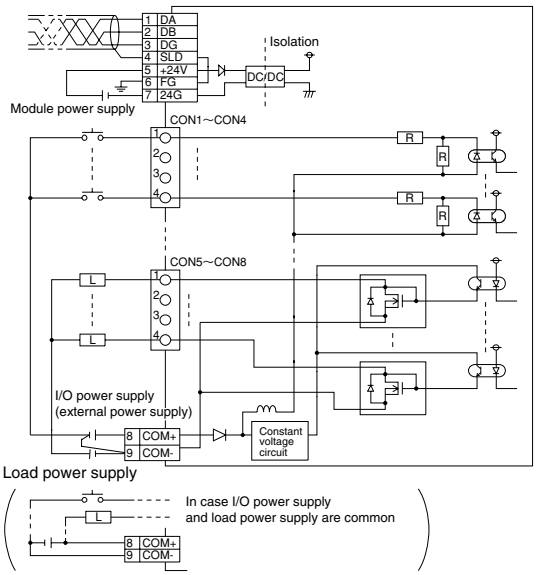
External Connection Diagram

●I/O Module

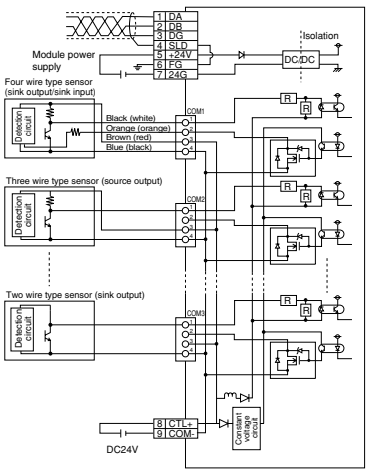
●AJ65SBTC1-32DT, AJ65SBTC1-32DT1 type



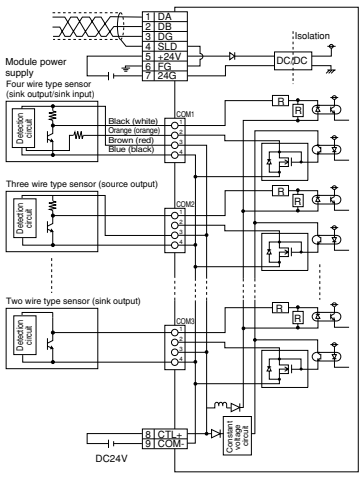
●AJ65SBTC1-32DT2, AJ65SBTC1-32DT3 type



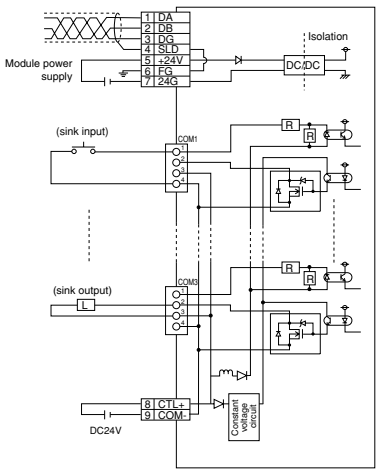
●AJ65SBTC4-16DT type
<Example of Connection with 4-, 3-, and 2-wire type Sensors>



●AJ65SBTC4-16DT2 type
<Example of Connection with 4-, 3-, and 2-wire type Sensors>



<Other Example of Connection>



Product Description

Remote I/O

AJ65MBTL1N-□

Embedded I/O Adapters

AJ65MBTL1N-□

■ Ultra-compact direct mountable adapter has been developed!

■ Realizing free and efficient design!

New

- Ultra-compact type
- Pin header connection
- Cascade connection
- An external additional filter is available to enhance noise durability
- Transformer-isolation for power supply, and photo-coupler isolation for external I/O
- Various protective functions

Performance Specifications

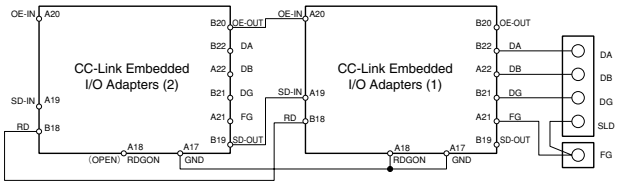
See page 154 for the general specifications.

Item		Input adapter		Output adapter		I/O combination adapter
		AJ65MBTL1N-16D	AJ65MBTL1N-32D	AJ65MBTL1N-16T	AJ65MBTL1N-32T	AJ65MBTL1N-16DT
Input/output type		DC input	DC input	Transistor output	Transistor output	DC input/Transistor output
		+COM type	+COM type	Sink type	Sink type	+COM type/Sink type
Number of input/ output points		16 points	32 points	16 points	32 points	8 points / 8 points
Isolation method		Photocoupler	Photocoupler	Photocoupler	Photocoupler	Photocoupler / Photocoupler
Rated input/ load voltage		24 VDC	24 VDC	12/24 VDC	12/24 VDC	24 VDC / 24 VDC
Maximum load current	1 point	—	—	0.1A	0.1A	0.1A
	1 common	—	—	1.6A	3.2A	0.8A
Operating voltage	ON voltage	18 V min.	18 V min.	—	—	14 V min. / —
	OFF voltage	6 V max.	6 V max.	—	—	6 V max. /—
Response time	OFF→ON	1.5 ms max.	1.5 ms max.	1.0 ms max.	1.0 ms max.	1.5 ms max. / 1.0 ms max.
	ON→OFF	1.5 ms max.	1.5 ms max.	1.0 ms max.	1.0 ms max.	1.5 ms max. / 1.0 ms max.
Leakage current		—	—	0.1mA	0.1mA	—／0.1mA
Surge suppression		—	—	Zener diode	Zener diode	—/ Zener diode
External connection wire type		44 pins（2 rows）	62 pins（2 rows）	44 pins（2 rows）	62 pins（2 rows）	44 pins（2 rows）
Common connection		16 points 1common	32 points 1common	16 points 1common	32 points 1common	16 points 1common
Current consumption		35mA	45mA	50mA	60mA	50mA

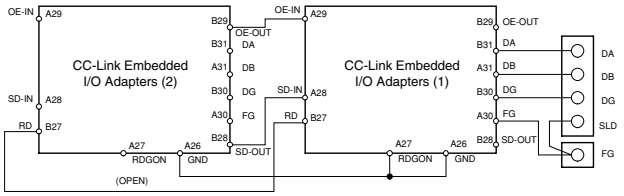
※+COM: Positive common (sink)

Cascade connection method

●AJ65MBTL1N-16D ●AJ65MBTL1N-16DT
●AJ65MBTL1N-16T



●AJ65MBTL1N-32D
●AJ65MBTL1N-32T



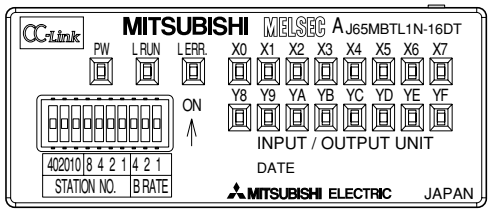
※ Reserve at least 5mm between I/O modules.

Name and Setting of Each Part

●AJ65MBTL1N-□

LED display

LED name	Item checked
PW	Lit when the embedded I/O module of CC-Link is turned on.
L RUN	Checks if the embedded I/O module of CC-Link communicates correctly with the master station. The lamp lights up upon reception of correct data from the master station, or it is unlit upon time-out.
L ERR	Lit: Communication data error (CRC error), out-of-range setting at station number setting or data link transmission speed setting switch Blink at certain intervals: Modification of station number setting or transmission speed setting switch setting in power-on state Blink at irregular intervals: Missing terminator, noise effect on embedded I/O module or special cable of CC-Link
XO～XF ／ XO～X1F YO～YF ／ YO～Y1F	The ON/OFF state of the input/output is displayed. Lit in ON state and unlit in OFF state.



Transmission speed setting switch

Setting value	Transmission speed
0	156kbps
1	625kbps
2	2.5Mbps
3	5.0Mbps
4	10Mbps

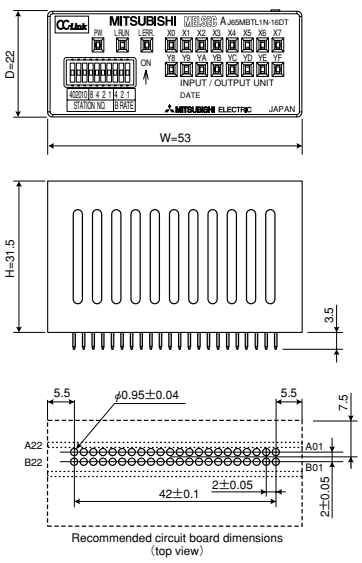
Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

External Dimension Diagram

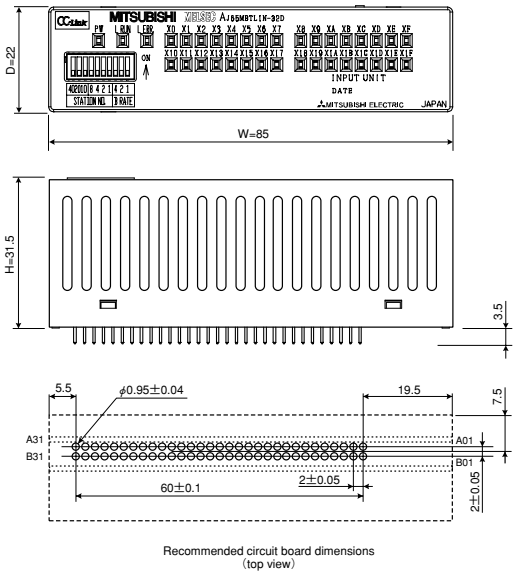
Unit：mm

●AJ65MBTL1N-16DT
●AJ65MBTL1N-16T
●AJ65MBTL1N-16D



Recommended circuit board dimensions
(top view)

●AJ65MBTL1N-32D
●AJ65MBTL1N-32T

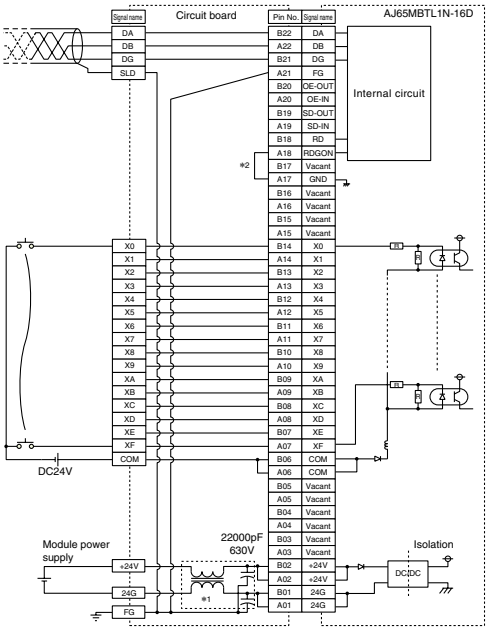


Recommended circuit board dimensions
(top view)

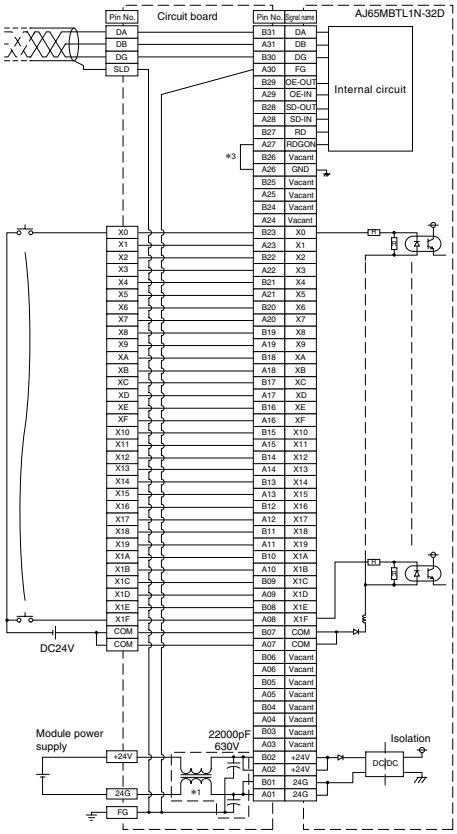
External Connection Diagram

Input Module

●AJ65MBTL1N-16D

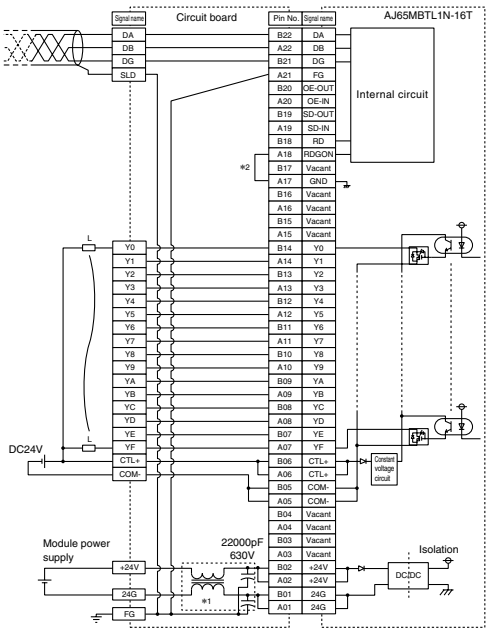


●AJ65MBTL1N-32D



Output Module

●AJ65MBTL1N-16T

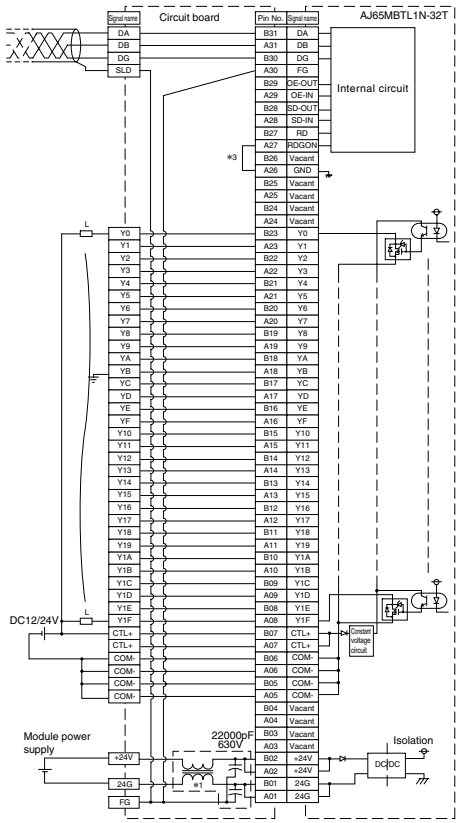


*1: Add according to environmental noise when necessary. (Procured by customer)
*2: Connect A17 and A18 without fail if cascade connection is not made.
*3: Connect A26 and A27 without fail if cascade connection is not made.

External Connection Diagram

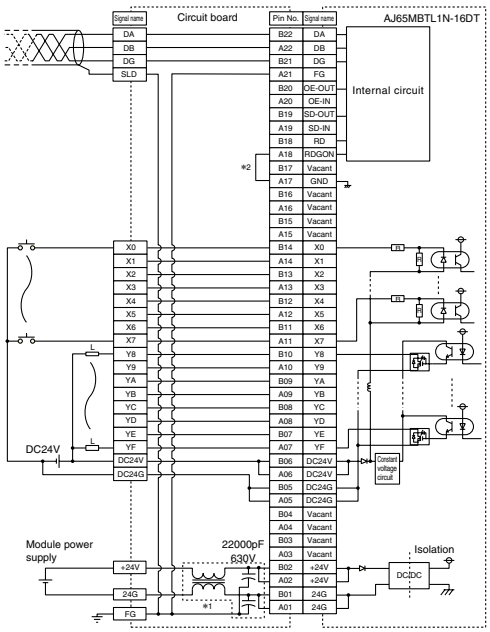
Output Module

●AJ65MBTL1N-32T



入出力複合モジュール

●AJ65MBTL1N-16DT



*1:Add according to environmental noise when necessary. (Procured by customer)

*2:Connect A17 and A18 without fail if cascade connection is not made.

*3:Connect A26 and A27 without fail if cascade connection is not made.

Product Description

Remote I/O

AJ65FBTA□-16□ AJ65SBTW4-16□

Waterproof Connector Type

AJ65FBTA□-16□, AJ65SBTW4-16□

■ Waterproof type module compliant with the IP67 standard for water resistance

● The waterproof types of remote I/O modules employ a protective structure compliant with the IP67 standard. It can be used safely in an environment where water is used.

■ Modules can be replaced without stopping the system.

● It is possible to replace the modules without stopping the CC-Link system due to the use of two-piece terminals.

AJ65FBTA□-16□

■ Easy connection without the need for tools saves labor in wiring .

● Because of the connector wiring, tools are not necessary and the man-hours needed for wiring work can be reduced.

■ Easy switch setting.

● It is possible to set all the switches from the front of the module (station number, transmission speed, and terminal resistor settings).

■ No need to mount terminal resistors

● The terminal resistor is built in, therefore it is not necessary to mount a terminal resistor.

■ Thinner modules

● The thickness of the modules is further decreased to save space.

■ Operating ambient temperature of 55˚C

AJ65FBTA42-16□

AJ65SBTW4-16□

Dust-proof and waterproof protection caps are available to protect unused connector areas. For detailed descriptions, see page 111.

Performance Specifications

See page 154 for the general specifications.

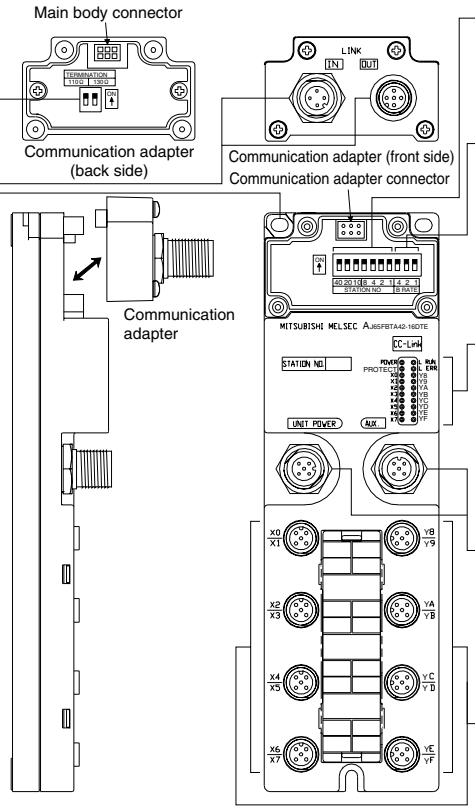
Item		Input module model name			Output module model name		I/O module model name		
		AJ65FBTA4-16D	AJ65FBTA4-16DE	AJ65SBTW4-16D	AJ65FBTA2-16T	AJ65FBTA2-16TE	AJ65FBTA42-16DT	AJ65FBTA42-16DTE	AJ65SBTW4-16DT
Input/output type		DC input	DC input	DC input	Transistor output	Transistor output	DC input / transistor output	DC input / transistor output	DC input / transistor output
		+COM:Positive common (Sink)	–COM:Negative common (Source)	+COM:Positive common(Sink) –COM:Negative common(Source) common type	Sink type	Source type	+COM:Positive common (Sink) / sink type	–COM:Negative common (Source) / source type	+COM:Positive common (Sink) / sink type
Number of input/ output points		16 points	16 points	16 points	16 points	16 points	8 points/8 points	8 points/8 points	8 points/8 points
Isolation method		Photocoupler	Photocoupler	Photocoupler	Photocoupler	Photocoupler	Photocoupler /photocoupler	Photocoupler /photocoupler	Photocoupler /photocoupler
Rated input/ load voltage		24 VDC	24 VDC	24 VDC	12/24VDC	12/24VDC	24 VDC/24 VDC	24 VDC/24 VDC	24 VDC/24 VDC
Maximum load current	1 point	—	—	—	0.5A	1.0A	0.5A	1.0A	0.5A
	1 common	—	—	—	4.0A	4.0A	2.4A	4.0A	2.4A
Operating voltage	ON voltage	14 V min.	14 V min.	14 V min.	—	—	14 V min.	14 V min.	14 V min.
	OFF voltage	6 V max.	6 V max.	6 V max.	—	—	6 V max.	6 V max.	6 V max.
Response time	OFF→ON	1.5 ms max.	1.5 ms max.	1.5 ms max.	0.5 ms max.	0.5 ms max.	1.5 ms/0.5 ms max.	1.5 ms/0.5 ms max.	1.5 ms/0.5 ms max.
	ON→OFF	1.5 ms max.	1.5 ms max.	1.5 ms max.	1.5 ms max.	1.5 ms max.	1.5 ms/1.5ms max.	1.5 ms/1.5 ms max.	1.5 ms/0.5 ms max.
Surge suppression		—	—	—	Zener diode	Zener diode	Zener diode	Zener diode	Zener diode
External connection wire type		Four wire type	Four wire type	Four wire type	Two wire type	Two wire type	Four wire type / two wire type	Four wire type / two wire type	Four wire type / two wire type
Common connection		16 points 1 common	16 points 1 common	16 points 1 common	16 points 1 common	16 points 1 common	8 points 1 common /8 points 1 common	8 points 1 common /8 points 1 common	8 points 1 common /8 points 1 common
Current consumption		40mA	40mA	35mA	50mA	50mA	50mA	45mA	40mA
Through pipe specification		—	—	Fitting cable size ϕ4.0mm to 8.0mm/-	—	—	—	—	Fitting cable size ϕ4.0mm to 8.0mm/-

Name and Setting of Each Part

AJ65FBTA□-16□

Terminal resistor setting

Dip switch 1	Dip switch 2	Description
OFF	OFF	No terminal resistor
ON	OFF	110Ωterminal On
OFF	ON	130Ωterminal On
ON	ON	Setting prohibited



Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Operating condition LED display

	Description
POWER	On: Power supply is turned on.
L RUN	On: Communication is normal.
L ERR.	Off: Communication is normal.
PROTECT	Off: Normal On: Protection function is enabled.

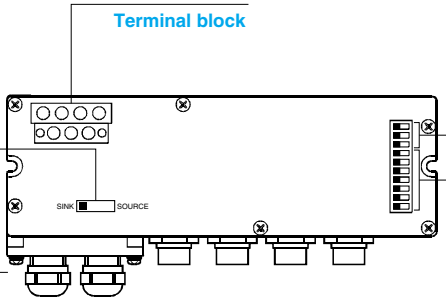
Waterproof connector for transmission line

FG metal fittings

Waterproof connector for power-supply line

Waterproof connector for input/output

AJ65SBTW4-16□



Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

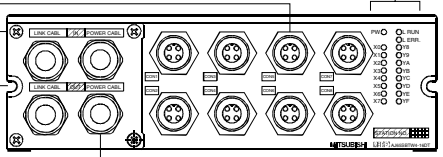
Sink/source selector switch (only for AJ65SBTW4-16D)

Switch the +COM, –COM type to either sink or source type.

Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Module top-cover mounting screw



Operation LED display

LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It turns on if the station-number and transmission-speed settings are changed while the communication is active.
X0 to 1F Y0 to 1F	Displays the on/off status of input. The LEDs turn on in the "On" state, and off in the "Off" state.

Waterproof connector for input/output line

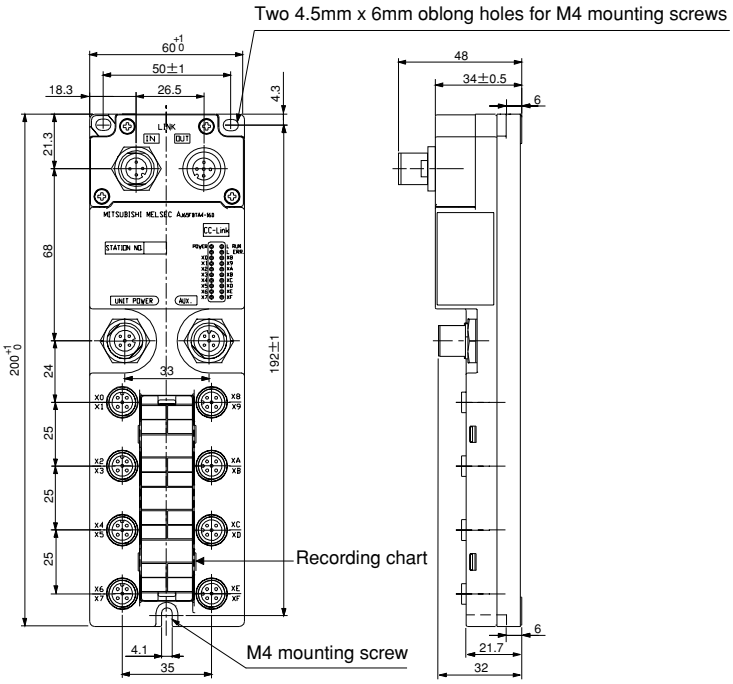
Module front-cover mounting screw

FG metal fittings

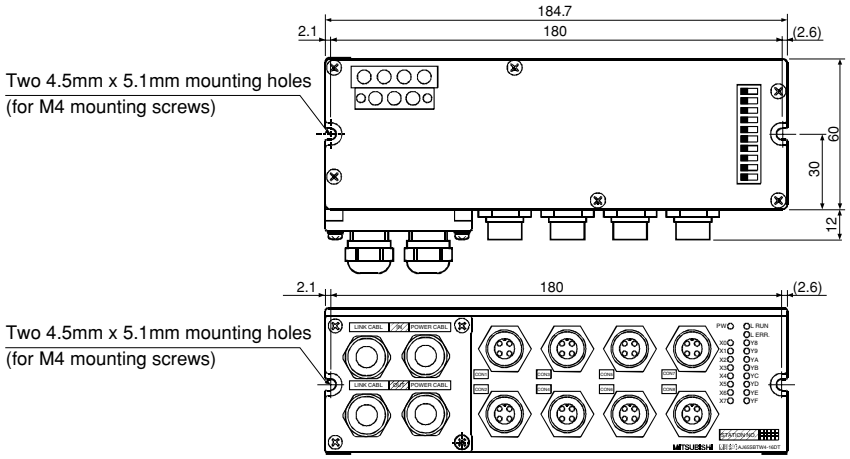
Through pipe for transmission/module power supply line

External Dimension Diagram

AJ65FBTA4-16D, AJ65FBTA4-16DE
AJ65FBTA2-16T, AJ65FBTA2-16TE
AJ65FBTA42-16DT, AJ65FBTA42-16DTE



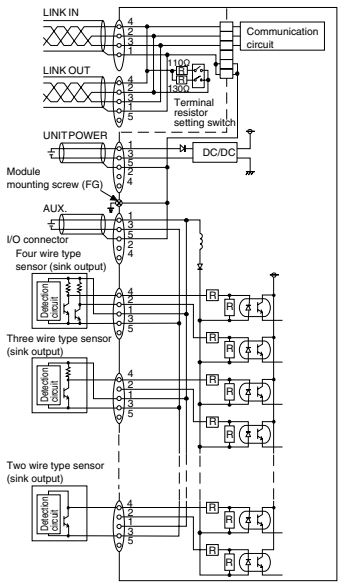
AJ65SBTW4-16D, AJ65SBTW4-16DT



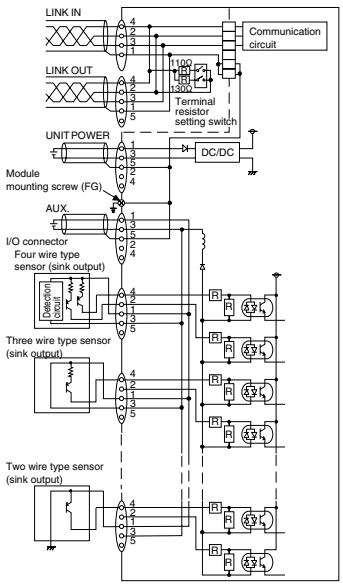
External Connection Diagram

●Input Module

AJ65FBTA4-16D



AJ65FBTA4-16DE



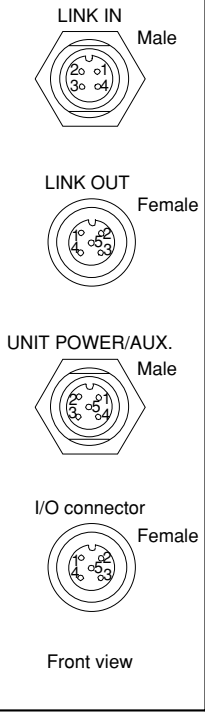
Communication connector		
Pin no.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pin	Vacant

Power supply connector		
Pin no.	UNIT POWER	AUX.
1	+24V (UNIT)	+24V (I/O)
2	Vacant	Vacant
3	24G (UNIT)	24G (I/O)
4	Vacant	Vacant
5	FG	FG

I/O connector

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

Pin layout



Communication connector		
Pin no.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pin	Vacant

Power supply connector		
Pin no.	UNIT POWER	AUX.
1	+24V (UNIT)	+24V (I/O)
2	Vacant	Vacant
3	24G (UNIT)	24G (I/O)
4	Vacant	Vacant
5	FG	FG

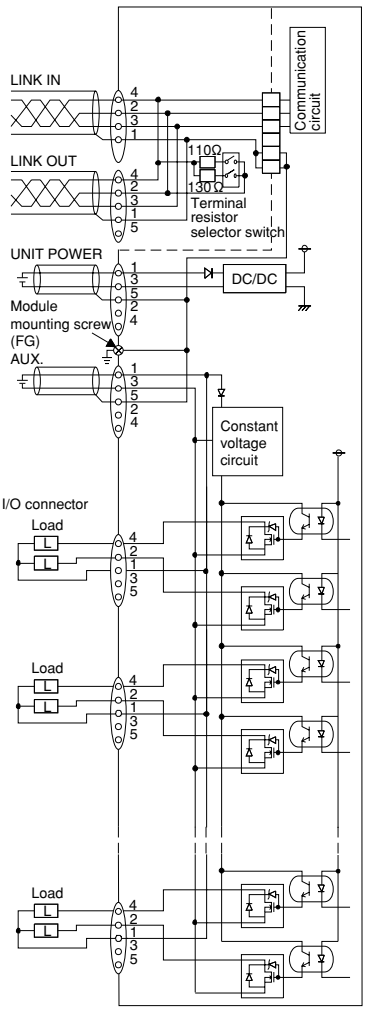
I/O connector

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

External Dimension Diagram

●Output Modules

AJ65FBTA2-16T



Communication circuit

Pin no.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pin	Vacant

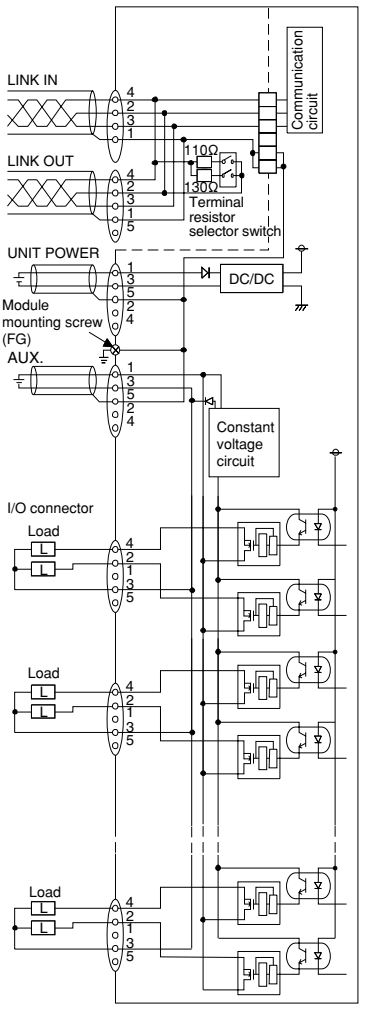
Power supply connector

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

I/O connector

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

AJ65FBTA2-16TE



Communication circuit

Pin no.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pin	Vacant

Power supply connector

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

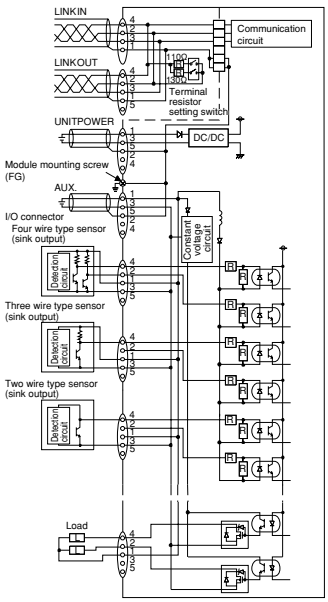
I/O connector

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

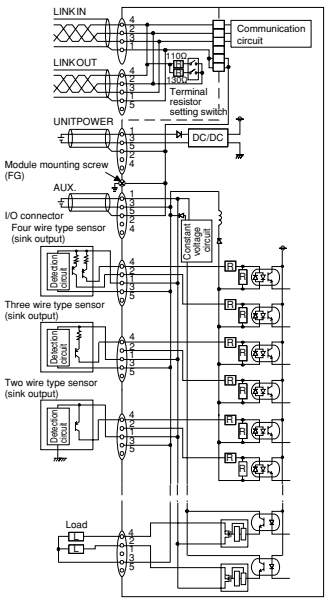
External Connection Diagram

●I/O Modules

AJ65FBTA42-16DT



AJ65FBTA42-16DTE



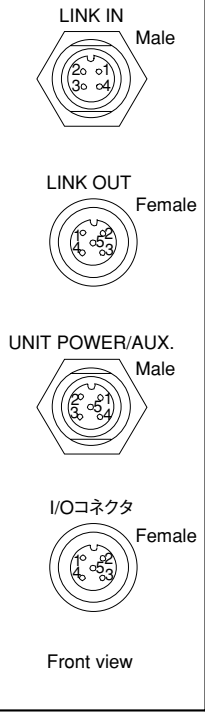
Communication connector		
Pin no.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pin	Vacant

Power supply connector		
Pin no.	UNIT POWER	AUX.
1	+24V (UNIT)	+24V (I/O)
2	Vacant	Vacant
3	24G (UNIT)	24G (I/O)
4	Vacant	Vacant
5	FG	FG

I/O connector

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

Pin layout



Communication connector		
Pin no.	LINK IN	LINK OUT
1	SLD	SLD
2	DB	DB
3	DG	DG
4	DA	DA
5	No pin	Vacant

Power supply connector		
Pin no.	UNIT POWER	AUX.
1	+24V (UNIT)	+24V (I/O)
2	Vacant	Vacant
3	24G (UNIT)	24G (I/O)
4	Vacant	Vacant
5	FG	FG

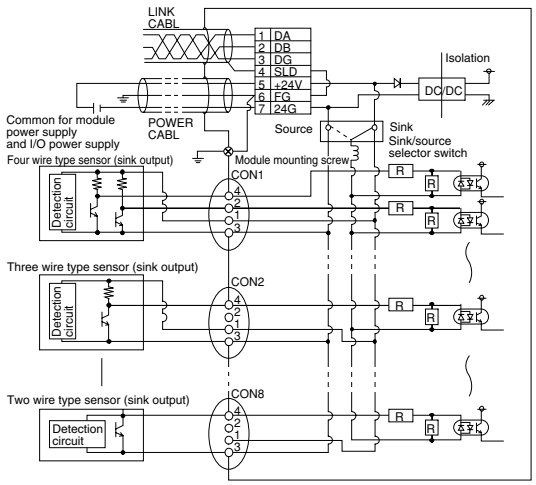
I/O connector

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

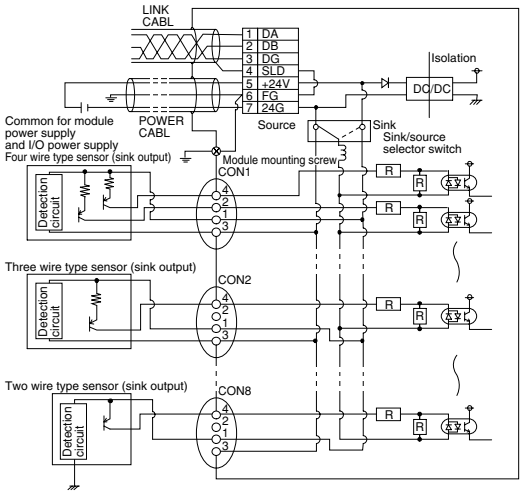
External Connection Diagram

AJ65SBTW4-16D

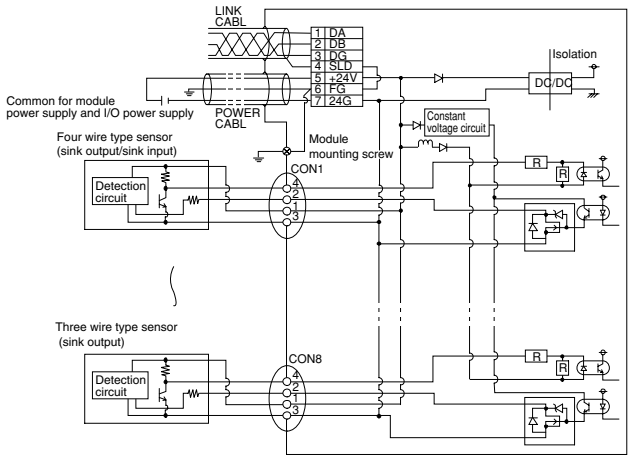
Sink input



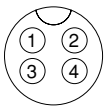
Source input



AJ65SBTW4-16DT



Pin layout



AJ65SBTW4-16D		AJ65SBTW4-16DT	
Pin No.	Signal name	Pin No.	Signal name
1	+24V	1	+24V
2	X8～XF	2	Y8～YF
3	24G	3	24G
4	X0～X7	4	X0～X7

Memo

Product Description

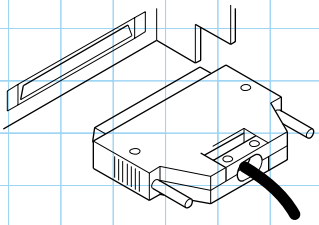
Remote I/O

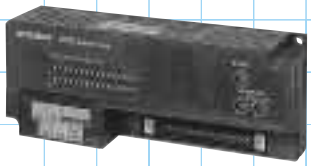
AJ65SBTCF□-□ AJ65VBTCF□-□ AJ65BTC□-□

FCN Connector Type

■ Saves labor due to easy wiring

●Due to the use of 40-pin connectors for I/O, the man-hours needed for wiring work are dramatically reduced.





Performance Specifications

See page 154 for the general specifications.

Input module model name	Input type	Number of input points	Isolation method	Rated input voltage	Operating voltage		Input response time	External connection wire type	Common connection	Internal current consumption
					ON voltage	OFF voltage				
AJ65SBTCF1-32D	DC input (sink/source common type)	32 points	Photocoupler	24 VDC	14 V min.	6 V max.	1.5 ms max.	One wire type	32 points 1 common	45mA
AJ65BTC1-32D	DC input (sink, source type)	32 points	Photocoupler	24 VDC	14 V min.	6 V max.	10 ms max.	One wire type	32 points 1 common	70mA

Output module model name	Output type	Number of output points	Isolation method	Rated load voltage	Maximum load current		Output response time		Surge suppression	External connection wire type	Common connection	Internal current consumption
					1 point	1 common	OFF→ON	ON→OFF				
AJ65SBTCF1-32T	Transistor output (sink type)	32 points	Photocoupler	12/24 VDC	0.1A	3.2A	0.5 ms max.	1.5 ms max.	Zener diode	One wire type	32 points 1 common	60mA
AJ65BTC1-32T	Transistor output (sink type)	32 points	Photocoupler	12/24 VDC	0.1A	2A	0.5 ms max.	2 ms max.	Clamp diode	One wire type	32 points 1 common	115mA

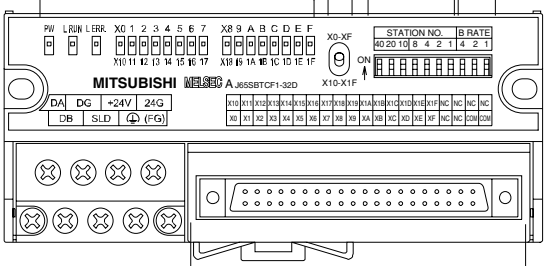
I/O module model name	I/O type		Number of I/O points	Isolation method	Rated voltage		Input response time	Maximum load current		Operating voltage		Output response time		Surge suppression	External connection wire type on input /output sides	Common connection	Internal current consumption
					Input	Load		1 point	1 common	ON voltage	OFF voltage	OFF→ON	ON→OFF				
AJ65SBTCF1-32DT	DC input / transistor output	Sink, source type / sink type	16 points /16 points	Photocoupler /photocoupler	24 VDC	12/24 VDC	1.5ms	0.1A	0.8A	14 V min.	6 V max.	0.5 ms max.	1.5 ms max.	Zener diode	One wire type	16 points 1 common /16 points 1 common	50mA
AJ65VBTCF1-32DT1	DC input / transistor output	Sink, source type / sink type	16 points /16 points	Photocoupler /photocoupler	24 VDC	12/24 VDC	0.2ms	0.1A	1.6A	15 V min.	3 V max.	0.5 ms max.	1.5 ms max.	Zener diode	One wire type	16 points 1 common /16 points 1 common	50mA

Name and Setting of Each Part

●AJ65SBTCF1-32□

Operation LED display

LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It flashes if the station-number and transmission-speed settings are changed while the communication is active.
X0 to 1F Y0 to 1F	Displays the on/off status of input. The LEDs turn on in the "On" state, and off in the "Off" state.



Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Input/output display selector switch

Connector

Connector for input/output signals

DIN rail hook

Hook for mounting the module to the DIN rail

Terminal block

The compact remote I/O module power supply, transmission, and I/O signals are connected here.

Name and Setting of Each Part

●AJ65VBTCF1-32DT1

Transmission speed setting switch

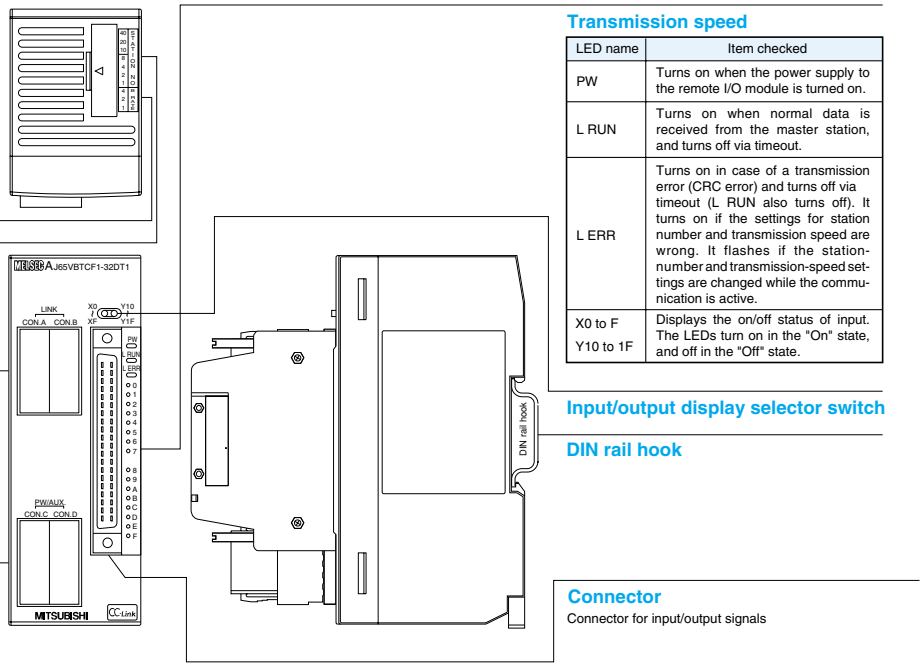
Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

One-touch connector for communication

One-touch connector for power supply and FG



Transmission speed

LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It flashes if the station-number and transmission-speed settings are changed while the communication is active.
X0 to F Y10 to 1F	Displays the on/off status of input. The LEDs turn on in the "On" state, and off in the "Off" state.

Input/output display selector switch

DIN rail hook

Connector
Connector for input/output signals

●AJ65BTC1-32□

Operation LED display

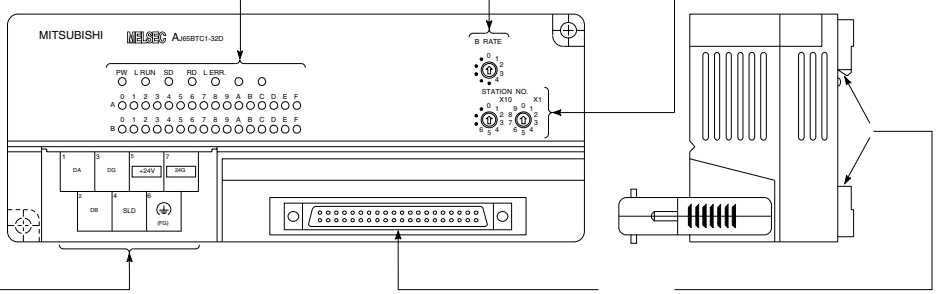
LED name	Item checked
PW	Turns on when the power supply to the remote I/O module is turned on.
L RUN	Turns on when normal data is received from the master station, and turns off via timeout.
L ERR	Turns on in case of a transmission error (CRC error) and turns off via timeout (L RUN also turns off). It turns on if the settings for station number and transmission speed are wrong. It flashes if the station-number and transmission-speed settings are changed while the communication is active.
0 to F	Displays the on/off status of input. The LEDs turn on in the "On" state, and off in the "Off" state.

Transmission speed setting switch

Setting value	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Station number setting switches

"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.



Terminal block
The compact remote I/O module power supply, transmission, and I/O signals are connected here.

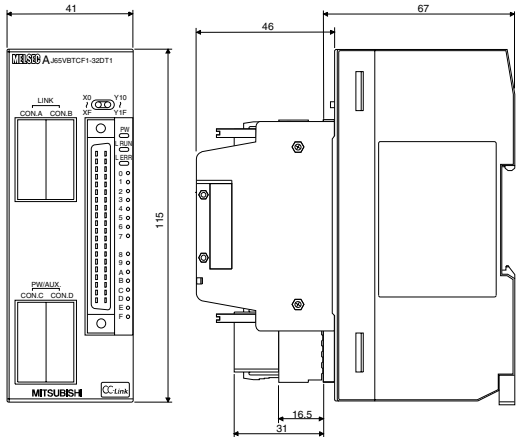
Connector
Connector for input/output signals

DIN rail hook
Hook for mounting the module to the DIN rail

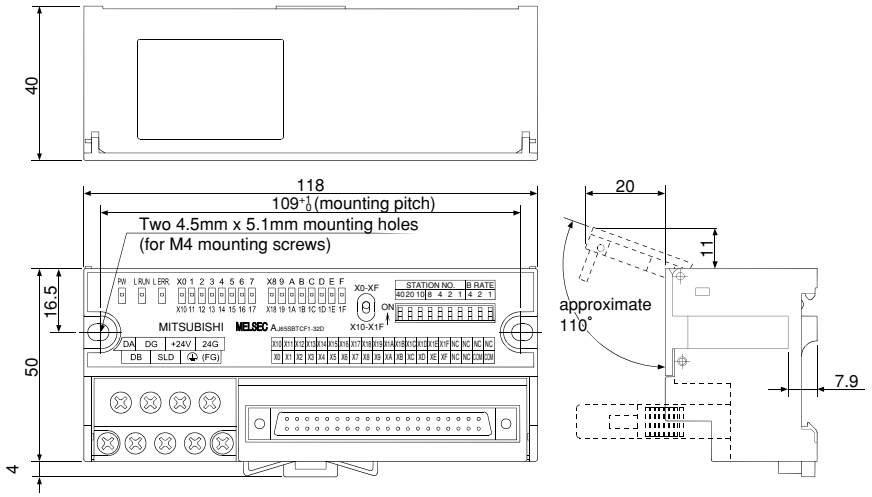
External Dimension Diagram

Unit: mm

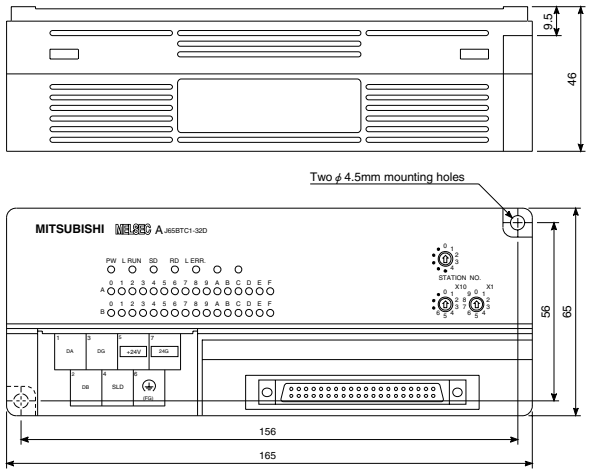
●AJ65VBTCF1-32□



●AJ65SBTCF1-32□



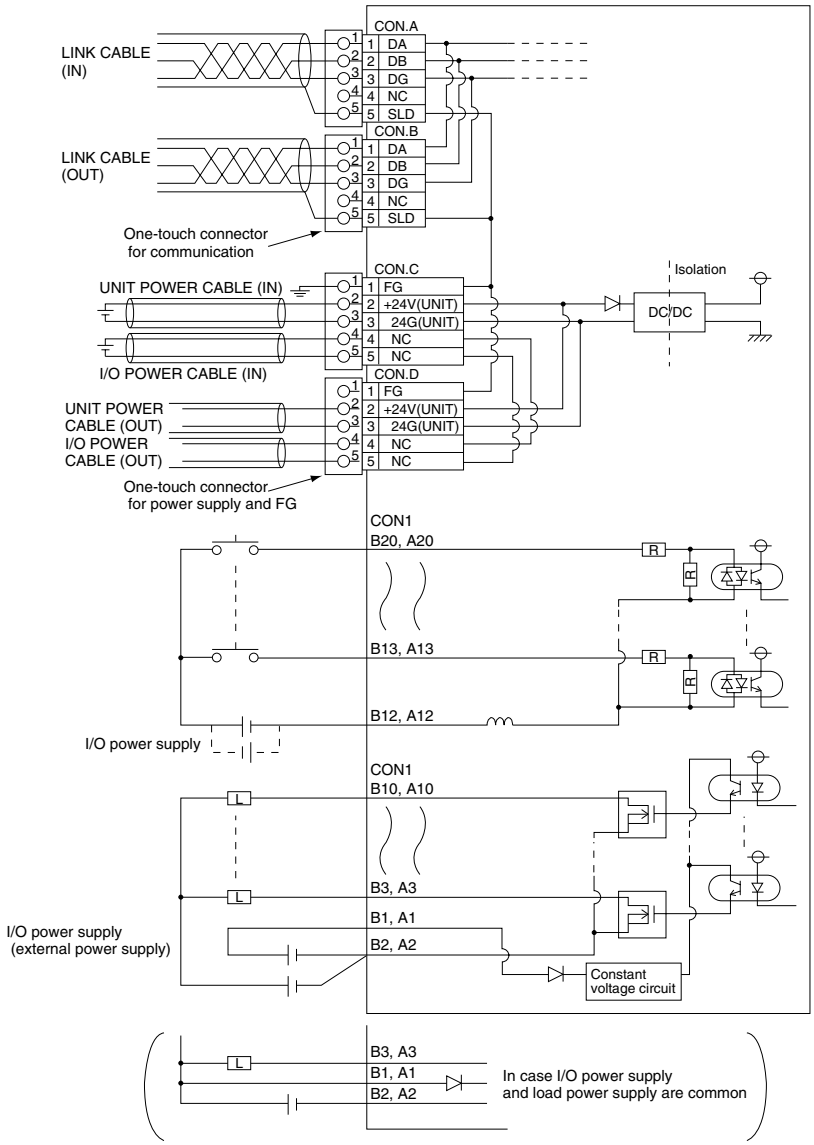
●AJ65BTC1-32□



External Connection Diagram

I/O Module

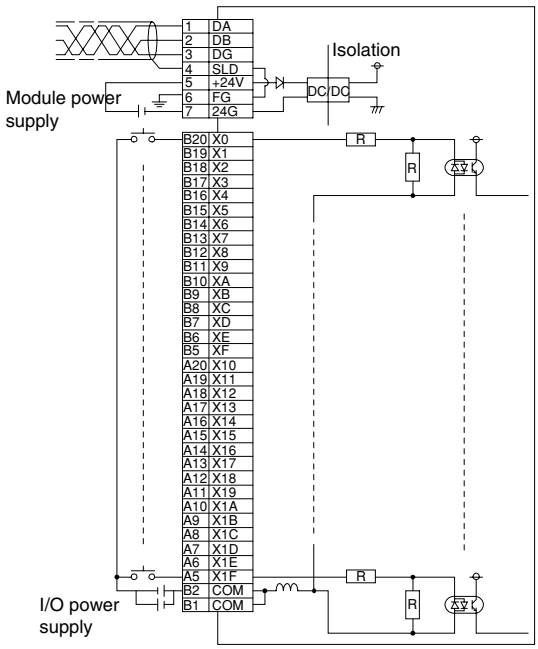
●AJ65SBTCF1-32DT1



External Connection Diagram

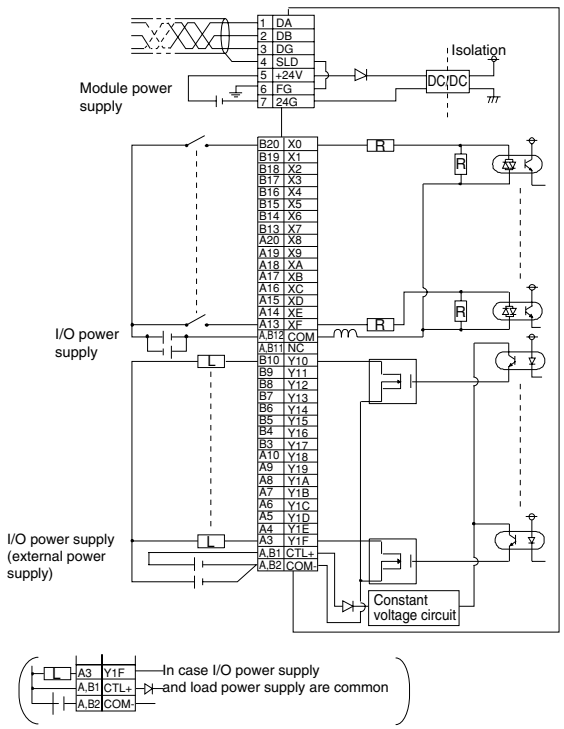
Input Module

●AJ65SBTCF1-32D type



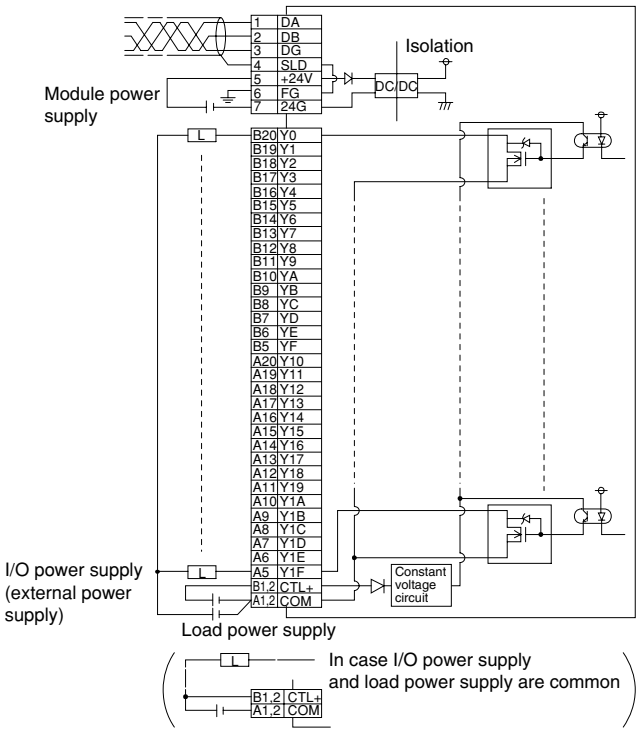
I/O Module

●AJ65SBTCF1-32DT type



Output Module

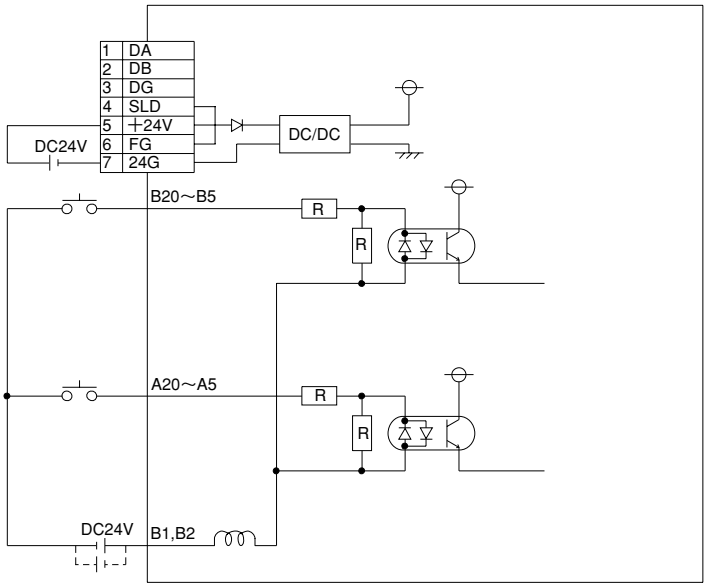
●AJ65SBTCF1-32T type



External Connection Diagram

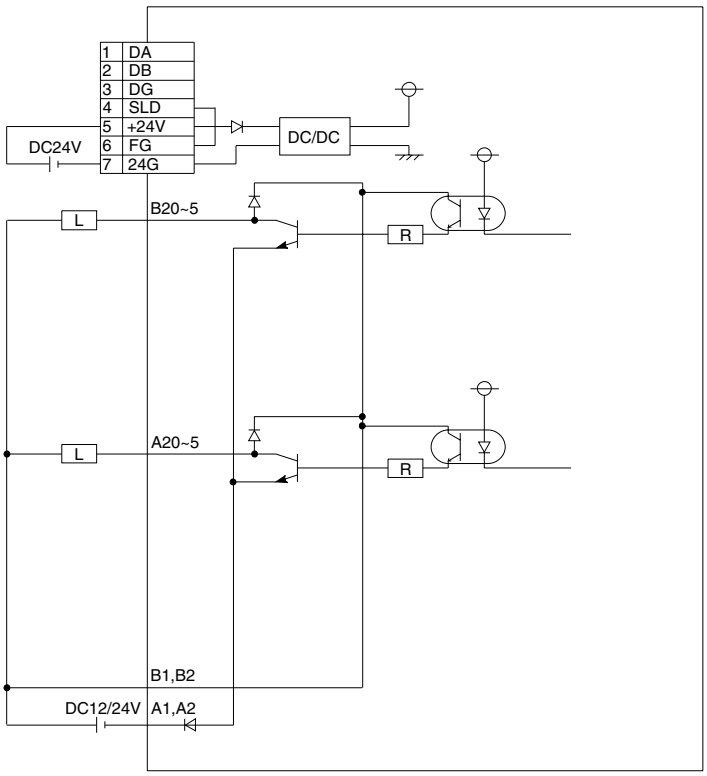
Input Module

●AJ65BTC1-32D type



Output Module

●AJ65BTC1-32T type



Overview

Analog Modules

Achieves high precision and high resolution

Analog to digital converter module

AJ65VBTCU-68ADVN/68ADIN

Product description ▶ Page 74

Digital to analog converter module

AJ65VBTCU-68DAVN

Product description ▶ Page 78

Analog to digital converter module

AJ65SBT-64AD AJ65BT-64AD

Product description ▶ Page 76

Digital to analog converter module

AJ65SBT-62DA AJ65BT-64DAV/64DAI

Product description ▶ Page 80

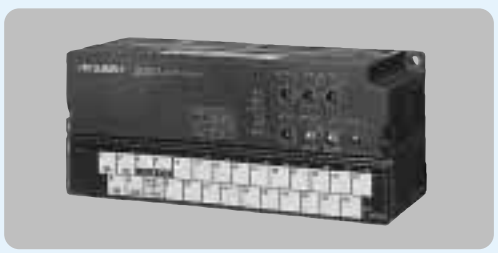
Thermocouple temperature input module

AJ65BT-68TD

Product description ▶ Page 82

Platinum resistance temperature sensor Pt 100 temperature input module

AJ65BT-64RD3/64RD4



Product description ▶ Page 82

Overview

■ All the analog modules are remote device stations. A wide range of selections is available to suit any application.

	Analog input		Analog output	
	Voltage input	Current input	Voltage Input	Current Output
AJ65VBTCU-	68ADVN	68ADIN	68DAVN	—
AJ65SBT-	64AD		62DA	
AJ65BT-	64AD		64DAV	64DAI

List of Models

Product name	Model name	Number of channels	Input/output type	Number of occupied stations	Station type	Related manual	Page with detailed information
Analog to digital converter module	AJ65VBTCU-68ADVN	8 channels	Voltage input	1/3 *	Remote device	User's Manual (Details) SH-080401E (13JR65)	74
	AJ65VBTCU-68ADIN	8 channels	Current input	1/3 *	Remote device	User's Manual (Details) SH-080401E (13JR65)	74
	AJ65SBT-64AD	4 channels	Voltage/current input	1	Remote device	User's Manual (Details) SH-080106 (13JR18)	76
	AJ65BT-64AD	4 channels	Voltage/current input	2	Remote device	User's Manual (Details) SH-3614 (13J893)	76
Digital to analog converter module	AJ65VBTCU-68DAVN	8 channels	Voltage output	1/3 *	Remote device	User's Manual (Details) SH-080402E (13JR66)	78
	AJ65SBT-62DA	2 channels	Voltage/current output	1	Remote device	User's Manual (Details) SH-080107 (13JR19)	80
	AJ65BT-64DAV	4 channels	Voltage output	2	Remote device	User's Manual (Details) SH-3615 (13J895)	80
	AJ65BT-64DAI	4 channels	Current output	2	Remote device	User's Manual (Details) SH-3615 (13J895)	80
Thermocouple temperature input module	AJ65BT-68TD	8 channels	For thermocouple connection, temperature input	4	Remote device	User's Manual (Details) SH-3304 (13JL52)	82
Platinum resistance temperature sensor Pt 100 temperature input module	AJ65BT-64RD3	4 channels	For Pt 100 connection (three wire type), temperature input	4	Remote device	User's Manual (Details) SH-4001 (13JL54)	82
	AJ65BT-64RD4	4 channels	For Pt 100 connection (four wire type), temperature input	4	Remote device	User's Manual (Details) SH-4001 (13JL54)	82

* Three stations are occupied in Ver. 1 mode, or one station is occupied in Ver. 2 mode.

Product Description

Analog Modules

AJ65VBTCU-68ADVN AJ65VBTCU-68ADIN

Analog to digital converter module

CC-Link V2

New

- Compatible with Ver. 2
  The module having occupied three stations for eight channels is renewed to be compatible with CC-Link Ver. 2 and occupies one station for eight channels. With this change, up to 42 modules can be connected to a single master. Using a rotary switch, the module can be used as a conventional ver. 1 module.
- Selecting models according to the purpose
  AJ65VBTCU-68ADVN All eight channels are voltage input.
  AJ65VBTCU-68ADIN All eight channels are current input.
- High precision
  These modules perform A/D conversion at an accuracy of ± 0.3% of the maximum digital output value when the operating ambient temperature is 0 to 55˚C, and at an accuracy of ± 0.2% of the maximum digital output value when the operating ambient temperature is 25 ± 5˚C.
- It is possible to switch between different input ranges for each channel.
  It is possible to switch between different analog input ranges for each channel, and to change the input/output conversion characteristics.
- A high resolution of 1/± 4000 is possible
  A high-resolution digital value can be obtained. By switching to the relerant input range, it is possible to achieve a resolution of the digital output of either 1/4000 or 1/± 4000 (only for AJ65VBTCU-68ADV).
- Specification of sampling or averaging processing
  It is possible to select and specify either sampling or averaging processing as the conversion method for each of the channels.
- More channels compared to conventional A/D conversion module
  The number of channels is doubled compared to the conventional CC-Link A/D conversion module (AJ65SBT-64AD).
- It is possible to dramatically reduce the man-hours needed for wiring work.
  One-touch connectors of loose wire pressure-welding connection method (eliminating the need for soldering, wire stripping and screw tightening) are used for the communication cable and power-supply cable connections. Therefore it is possible to dramatically reduce the man-hours needed for wiring work.
- Dramatically improved ease of wiring
  One-touch connectors allow separate connections for the IN and OUT sides. This dramatically improves the ease of wiring, particularly when connecting wires within the board. (The I/O module wiring and power-supply wiring cannot be mixed up and interconnected by mistake.)
- It is possible to replace a module without stopping the CC-Link system.
  By using the online connector (for communication and power supply), it is possible to replace a module without stopping the CC-Link system.

Performance Specifications

See page 154 for the general specifications.

Model name		AJ65VBTCU-68ADVN	AJ65VBTCU-68ADIN
Analog input	Voltage	-10 to + 10 VDC (input resistance 1 mΩ)	—
	Current	—	0 to 20 mA DC (input resistance 250Ω)
Digital value		16-bit signed binary (-4096 to +4095)	16-bit signed binary (-96 to +4095)

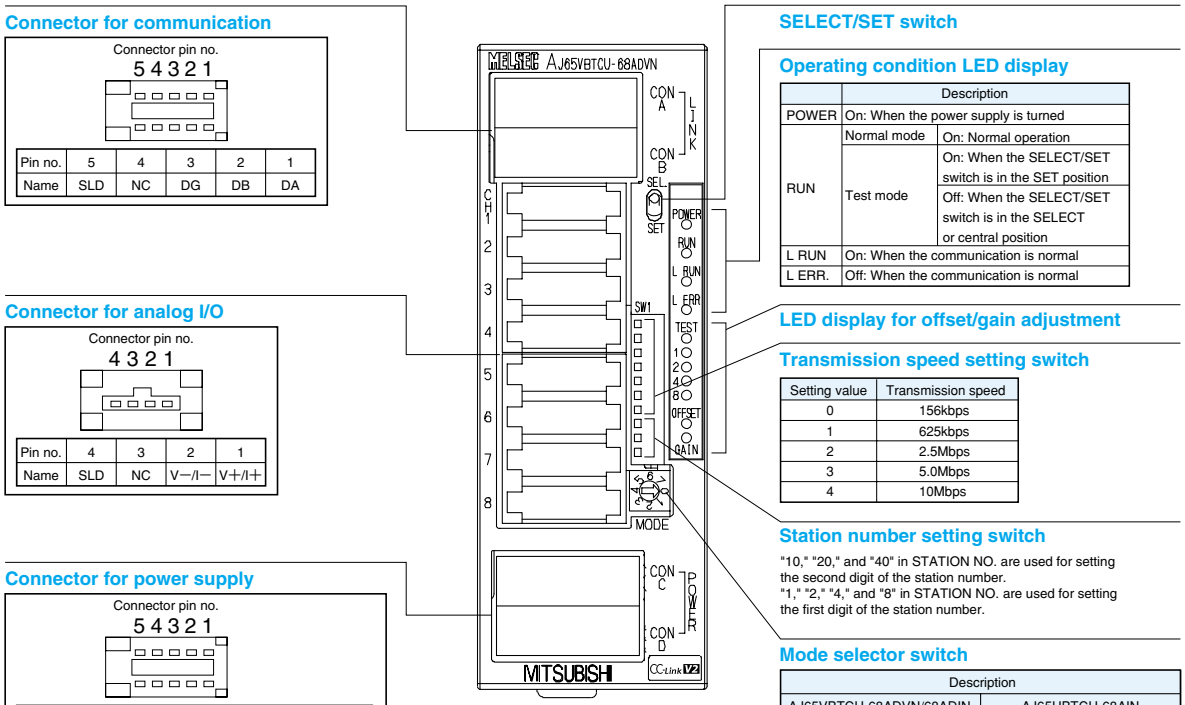
Input/output characteristics ∗Accuracy (Accuracy relative to the maximum digital output value)

	Analog input range	Digital value	Accuracy: Ambient temperature 0 to 55 ˚C	Accuracy: Ambient temperature 25 ± 5 ˚C	Maximum resolution
AJ65VBTCU-68ADV Voltage	-10 to +10V	-4000 to +4000	±0.3% (±12digit ∗)	±0.2% (±8digit ∗)	2.5mV
	User range setting 1 (-10 to +10 V)				
	0 to 5 V	0 to 4000			1.25mV
	1 to 5 V				1.0mV
	User range setting 2 (-10 to +10 V)				1.25mV
AJ65VBTCU-68ADI Current	0 to 20 mA	0 to 4000			5μA
	4 to 20 mA				4μA
	User range setting (0 to 20 mA)				5μA

∗: 1 digit refers to one digital unit.

Input range switching		For each channel	
Offset/gain setting		Yes	
Maximum conversion speed		1 ms/channel	
Absolute maximum input		Voltage: ±15 V	Voltage:±30 mA
Number of analog input points		8 channels/module	
Station type		Remote device station	
Number of occupied stations, Expanded cyclic setting		Ver. 1 mode: 3 stations (RWr/RWw 12 words each, RS/RY 32 points) Ver. 2 mode: 1 station (extended word (RWr/RWw) 16 words each, RX/RY 32 points), Quadruple	
CC-Link-compatible function		Cyclic transmission, extended cyclic transmission, station-to-station cable length relaxation	
Withstand voltage		Between batch of power supply/communication systems and batch of analog inputs: 500 VAC for one minute	
Isolation method		Between communication system and batch of analog inputs: Photocoupler isolation / Between power supply system and batch of analog inputs: Photocoupler isolation Between channels: No isolation / Communication interface: No isolation	
External connection method		One-touch connector for communication [transmission circuit] (5-pin/solderless type. The connector plug is sold separately.) One-touch connector for power supply and FG [module power supply and FG] (5-pin/solderless type. The connector plug is sold separately.) One-touch connector for analog input (4-pin/solderless type. The connector plug is sold separately.) (Optional parts) Online connector for communication: A6CON-LJ5P, online connector for power supply: A6CON-PWJ5P	
Applicable wire size	One-touch connector for communication	Communication line: CC-Link dedicated cable compatible with Ver.1.10, 0.5 mm² (AWG20) [ϕ2.2 to 3.3 mm] Shielded power supply 0.5 mm² (AWG20)	
	One-touch connector for power supply	0.66 to 0.98 mm² (AWG18) [ϕ2.2 to 3.0 mm], wire size 0.08 mm² or more	
	One-touch connector for analog I/O	ϕ1.0 to 1.4 mm (A6CON-P214), ϕ1.4 to 2.0 mm (A6CON-P220), [applicable wire size: 0.14 to 0.2 mm²] ϕ1.0 to 1.4 mm (A6CON-P514), ϕ1.4 to 2.0 mm (A6CON-P520), [applicable wire size: 0.3 to 0.3 mm²]	
Module mounting screws or applicable metal fittings		A6PLT-J65VI	
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant to JIS C 2812)	
External power supply		24 VDC(20.4 to 26.4 VDC with a ripple rate of 5% or less)	
Inrush current		4.2 A, 1.2 ms max.	
Internal current consumption (24 VDC)		0.10A	
Weight		0.17kg	
External dimensions		41 (W) ×115 (H) ×67 (D)	

Name and Setting of Each Part



Operating condition LED display

	Description	
POWER	On: When the power supply is turned	
RUN	Normal mode	On: Normal operation
	Test mode	On: When the SELECT/SET switch is in the SET position
		Off: When the SELECT/SET switch is in the SELECT or central position
L RUN	On: When the communication is normal	
L ERR.	Off: When the communication is normal	

Transmission speed setting switch

Setting value	Transmission speed
0	156kbps
1	625kbps
2	2.5Mbps
3	5.0Mbps
4	10Mbps

Station number setting switch

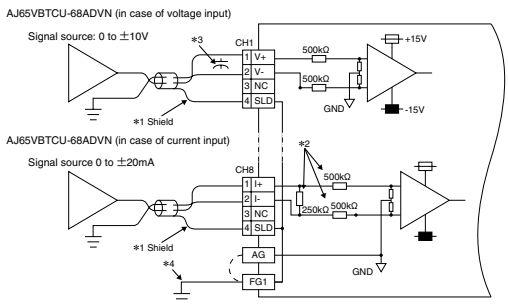
"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Mode selector switch

Description			
AJ65VBTCU-68ADVN/68ADIN		AJ65UBTCU-68AIN	
Ver.1mode	Ver.2 mode	Ver.1mode	Ver.2 mode
0: Normal mode 1: Test mode (user range setting 1) 2: Test mode (user range setting 2)	3: Normal mode 4: Test mode (user range setting 1) 5: Test mode (user range setting 2) 6 to 7: Not used	0: Normal mode 1: Test mode (user range setting 1)	3: Normal mode 4: Test mode (user range setting 1) 2,5~7: Not used

∗For a detailed description of the connectors, see page 108.

External Connection Diagram



∗1 For wire, use two-core shielded twisted-pair cable.

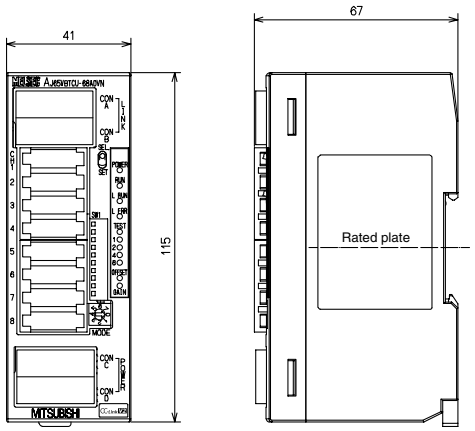
∗2 Indicate the input resistance of AJ65VBTCU-68ADI.

∗3 Connect a capacitor of around 0.1 to 0.47 μF (it must be a product that can withstand voltages of 25 V or more) between the V and COM terminals if noise or ripple is generated in the external wiring.

∗4 Be sure to ground FG1. There are cases where AG should also be grounded if the signal is particularly noisy.
The offset or gain value should be set again if the ground wiring is changed after setting the offset or gain value (whether the signals were connected to ground or not).

External Dimension Diagram

Unit: mm



Product Description

Analog Module

AJ65SBT-64AD AJ65BT-64AD

Analog to digital converter module

AJ65SBT-64AD

Analog Input

- Four channels (voltage input/current input)
- It is possible to switch between different ranges for each channel.
- Analog values of −10 V to +10 V or 0 mA to +20 mA can be converted to digital values from −4000 to +4000 or from 0 to +4000.
- Higher precision and resolution can be achieved than with an AJ65BT-64AD module.
- Size-wise, the mounting area is 60 percent and the volume is 38 percent smaller than the AJ65BT-64AD module.
- It is possible to perform average processing without changing the conversion speed.

AJ65BT-64AD

Analog Input

- Four channels (voltage input/current input)
- Analog values of −10 V to +10 V or −20 mA to +20 mA can be converted to digital values from 0 to +4000 or from −2000 to +2000.

Performance Specifications

See page 154 for the general specifications.

Model name		AJ65SBT-64AD					AJ65BT-64AD				
Analog input	Voltage	−10 to +10 VDC (input resistance 1 m Ω)					−10 to +10 VDC (input resistance 1 mΩ)				
	Current	0 to 20 mA DC (input resistance 250 Ω)					−20 to +20 mA DC (input resistance 250 Ω)				
Digital value		−4096 to +4095					0 to 4000, or −2000 to +2000				
Input/output characteristics ∗Accuracy (Accuracy relative to the maximum digital output value)		Analog input range		Digital value	Maximum resolution	Accuracy: Ambient temperature 0 to 55 ℃ / Ambient temperature 25 ± 5℃	Analog input range		Digital value	Maximum resolution	Accuracy: Ambient temperature 0 to 55℃
							Voltage/current				
	Voltage	−10 to +10 V		−4000 to +4000	2.5mV	±0.4% (±16digit∗) / ±0.2% (±8digit∗)	Voltage	−10 to +10 V	0 to +4000,or −2000 to +2000	5mV	±1% (±40digit∗)
		−10 to +10 V (user range setting 1)						0 to +10 V		2.5mV	
		0 to 5 V		0 to 4000	1.25mV			0 to 5 V		1.25mV	
		1 to 5 V			1.0mV			1 to 5 V		1mV	
		0 to +5 V (user range setting 2)			1.25mV						
	Current	0 to 20mA		0 to 4000	5μA		Current	−20 to 20 mA	0 to +4000,or −2000 to +2000	20μA	
		4 to 20mA			4μA			0 to 20mA		10μA	
		0 to −20 mA (user range setting 3)			5μA			4 to 20mA		5μA	
Input range switching		For each channel					All channels in the batch				
Offset/gain setting		Yes									
Maximum conversion speed		1 ms/channel									
Absolute maximum input		Voltage: ± 15 V, current: ± 30 mA									
Number of analog input points		4 channels/module									
Station type		Remote device station									
Number of occupied stations		1 station (32 points each for RX/RY, 4 words each for RWr/RWw)					2 stations (32 points each for RX/RY, 8 words each for RWr/RWw)				
Withstand voltage		Between batch of power supply/communication systems and batch of analog inputs: 500 VAC for one minute									
Isolation method		Between power supply system and batch of analog inputs: Photocoupler isolation/Between communication system and batch of analog inputs: Photocoupler isolation/Between channels: No isolation									
External connection method		7-point 2-piece terminal block (transmission, power supply), directly mounted 18-point terminal block (analog output area)					27-point terminal block (M3.5)				
Applicable wire size		0.3 to 0.75 mm²					0.75 to 2.00 mm²				
Module mounting screws		M4 x 0.7 mm x 16 mm or more, possible to mount on a DIN rail									
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant to JIS C 2812)					TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (compliant to JIS C 2812)				
Applicable solderless terminal		RAV1.25 to 3.5 (compliant to JIS C 2805)					RAV1.25 to 3.5, RAV2 to 3.5				
Internal current consumption (24 VDC)		0.09A					0.12A				
Weight		0.20kg					0.35kg				
External dimensions		118 (W) ×50 (H) ×40 (D) mm					151.9 (W) ×65 (H) ×63 (D) mm				

∗: 1 digit refers to one digital unit.

AJ65SBT-64AD Name and Setting of Each Part

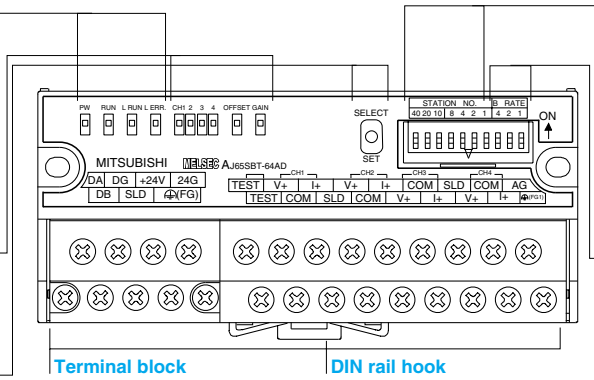
Operating condition LED display

LED name	Item checked
PW	On: When the power supply is turned on
RUN	Normal mode / On: Normal operation
L RUN	On: When the communication is normal
L ERR.	On: When the transmission speed or station number setting is outside the range

LED display for offset/gain adjustment

CH□ OFFSET GAIN	Normal mode	Always off

SELECT/SET switch



Terminal block

The compact remote I/O module power supply, transmission, and I/O signals are connected here.

DIN rail hook

Station number setting switches

Station no.	10-digit			Unit-digit			
	40	20	10	8	4	2	1
1	OFF	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	OFF	ON	OFF	OFF
:	:	:	:	:	:	:	:
10	OFF	OFF	ON	OFF	OFF	OFF	OFF
11	OFF	OFF	ON	OFF	OFF	OFF	ON
:	:	:	:	:	:	:	:
64	ON	ON	OFF	OFF	ON	OFF	OFF

Transmission speed setting switches

Setting value	Setting switch			Transmission speed
	4	2	1	
0	OFF	OFF	OFF	156 kbps
1	OFF	OFF	ON	625 kbps
2	OFF	ON	OFF	2.5 Mbps
3	OFF	ON	ON	5.0 Mbps
4	ON	OFF	OFF	10 Mbps

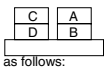
AJ65BT-64AD Name and Setting of Each Part

Station number setting switches

Transmission speed setting switch

Setting number	Transmission speed
0	156 kbps (factory setting)
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps
Other than 0 to 4	Not used (L ERR. LED turns on and a communication error occurs.)

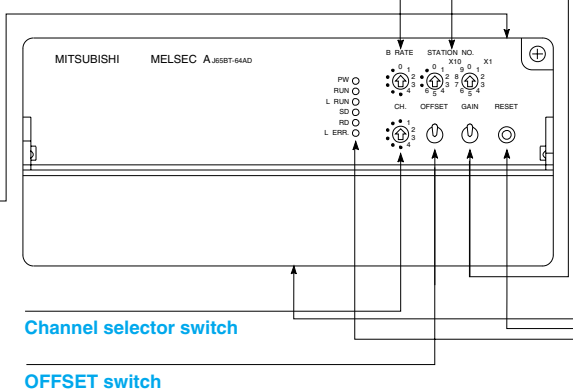
Analog input range setting pins



The analog input range is set as follows:

	Voltage	Current
A	0~10V	(0~20mA)*
B	1~5V	4~20mA
C	−10~10V	−20~20mA
D	0~5V	0~20mA

* Use D when 0 to 20 mA is used.



Channel selector switch

OFFSET switch

GAIN switch

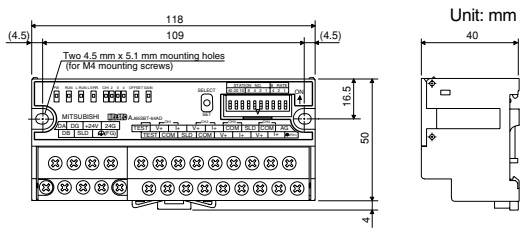
RESET switch

Operating condition LED display

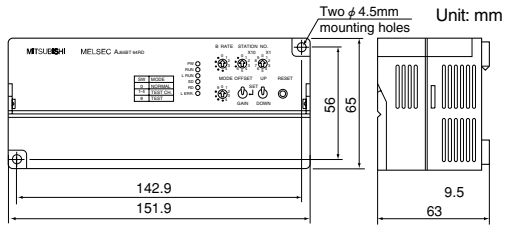
LED name	Item checked
PW LED	On: When the power supply is turned on
RUNLED	Normal mode / On: Normal operation
L RUN LED	On: When the communication is normal
SD LED	Turns on during data transmission
RD LED	Turns on during data reception
L ERR. LED	On: Communication data error

Terminal block

AJ65SBT-64AD External Dimention Diagram



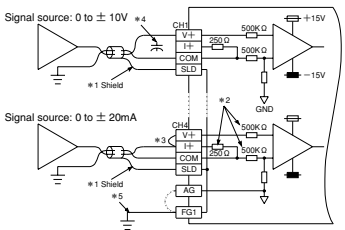
AJ65BT-64AD External Dimention Diagram



AJ65SBT-64AD/AJ65BT-64AD External Connection Diagram

● In case of voltage input
Signal source: 0 to ± 10V

● In case of current input
Signal source: 0 to ± 20mA



*1 For wire, use two-core shielded twisted-pair cable.

*2 Indicates the input resistance of AJ65SBT-64AD and AJ65BT-64AD, respectively.

*3 Connect a capacitor of around 0.1 to 0.47 μF (it must be a product that can withstand voltages of 25 V or more) between the V and COM terminals if noise or ripple is generated in the external wiring.

*4 Be sure to ground FG1. There are cases where AG should also be grounded if the signal is particularly noisy.
The offset or gain value should be set again if the ground wiring is changed after setting the offset or gain value (whether the signals were connected to ground or not).

Product Description

Analog I/O Module

AJ65VBTCU-68DAVN

Digital to analog converter module

CC-Link V2

New

- Compatible with Ver. 2
  The module having occupied three stations for eight channels is renewed to be compatible with CC-Link Ver. 2 and occupies one station for eight channels. With this change, up to 42 modules can be connected to a single master. Using a rotary switch, the module can be used as a conventional ver. 1 module.
- High precision
  These modules perform D/A conversion at an accuracy of ± 0.3% of the maximum analog output value when the operating ambient temperature is 0 to 55˚C, and at an accuracy of ± 0.2% of the maximum analog output value when the operating ambient temperature is 25 ± 5˚C.
- It is possible to switch between different output ranges for each channel.
  It is possible to switch between different analog input ranges for each channel, and to change the input/output conversion characteristics.
- A high resolution of 1/± 4000 is possible.
  A high resolution of the analog output can be obtained. By switching to the proper output range, it is possible to achieve resolution of the analog output of either 1/4000 or 1/± 4000. (If the output should be in the -10 to +10 V range, user range setting 1 should be selected.)
- It is possible to set to retain or clear analog output when the PLC CPU stops.
  It is possible to specify whether to retain or clear the analog values output from each channel of the module immediately before the PLC CPU stops or the D/A conversion is stopped due to an error.
- More channels compared to conventional D/A conversion module
  The number of channels is four times more compared to the conventional CC-Link D/A conversion module (AJ65SBT-62DA).
- It is possible to dramatically reduce the man-hours needed for wiring work.
  One-touch connectors of loose wire pressure-welding connection method (eliminating the need for soldering, wire stripping and screw tightening) are used for the communication cable and power-supply cable connections. Therefore it is possible to dramatically reduce the man-hours needed for wiring work.
- Dramatically improved ease of wiring
  One-touch connectors allow separate connections for the IN and OUT sides. This dramatically improves the ease of wiring, particularly when connecting wires within the board. (The I/O module wiring and power-supply wiring cannot be mixed up and interconnected by mistake.)
- It is possible to replace a module without stopping the CC-Link system.
  By using the online connector (for communication and power supply), it is possible to replace a module without stopping the CC-Link system.

Performance Specifications

See page 154 for the general specifications.

Model name		AJ65VBTCU-68DAVN
Digital value		16-bit signed binary (-4096 to +4095)
Analog output		−10 to + 10 VDC (external load resistance: 2 kΩ to 1 MΩ)
Input/output characteristics *Accuracy (Accuracy relative to the maximum analog output value)		See table below
Output range switching		For each channel
Offset/gain setting		Yes
Maximum conversion speed		1 ms/channel
Output short-circuit protection		Yes
Absolute maximum output		±12V
Number of analog output points		8 channels/module
Station type		Remote device station
Number of occupied stations, Expanded cyclic setting		Ver. 1 mode: 3 stations (RWr/RWw 12 words each, RS/RY 32 points) Ver. 2 mode: 1 station (extended word (RWr/RWw) 16 words each, RX/RY 32 points), Quadruple
CC-Link-compatible function		Cyclic transmission, extended cyclic transmission, station-to-station cable length relaxation
Isolation method		Between communication system and batch of analog outputs: Photocoupler isolation Between power supply system and batch of analog outputs: Photocoupler isolation Between channels: No isolation
External connection method		One-touch connector for communication [transmission circuit] (5-pin/solderless type. The connector plug is sold separately.) One-touch connector for power supply and FG [module power supply and FG] (5-pin/solderless type. The connector plug is sold separately.) One-touch connector for analog input (4-pin/solderless type. The connector plug is sold separately.) (Optional parts) Online connector for communication: A6CON-LJ5P, online connector for power supply: A6CON-PWJ5P
Applicable wire size	One-touch connector for communication	Communication line: CC-Link dedicated cable compatible with Ver.1.10, 0.5 mm² (AWG20) [ϕ 2.2 to 3.3 mm] Shielded power supply 0.5 mm² (AWG20)
	One-touch connector for power supply	0.66 to 0.98 mm₂ (AWG18) [ϕ 2.2 to 3.0 mm], wire size 0.08 mm₂ or more
	One-touch connector for analog I/O	ϕ1.0 to 1.4 mm (A6CON-P214), ϕ1.4 to 2.0 mm (A6CON-P220), [applicable wire size: 0.14 to 0.2 mm²] ϕ1.0 to 1.4 mm (A6CON-P514), ϕ1.4 to 2.0 mm (A6CON-P520), [applicable wire size: 0.3 to 0.3 mm²]
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (compliant to JIS C 2812) Metal fitting for CC-Link connector type: A6PLT-J65V1
External power supply		24 VDC(20.4 to 26.4 VDC with a ripple rate of 5% or less)
Inrush current		4.3 A, 1.2 ms max.
Internal current consumption		0.15A
Weight		0.16kg
External dimensions		41 (W) ×115 (H) ×63 (D)

	Digital	Analog	Accuracy: Ambient temperature 0 to 55 ˚C	Accuracy: Ambient temperature 25 ± 5 ˚C	Maximum resolution
Voltage	−4000 to +4000	−10 to +10 V	±0.3% (±30mV)	±0.2% (±20mV)	2.5mV
		User range setting 1 (−10 to +10 V)			
	0 to 4000	0 to 5 V	±0.3% (±15mV)	±0.2% (±10mV)	1.25mV
		1 to 5 V			1.0mV
		User range setting 2 (0 to 5 V)			1.25mV

Name and Setting of Each Part

Connector for communication

Connector pin no.

5 4 3 2 1

Pin no.	5	4	3	2	1
Name	SLD	NC	DG	DB	DA

Connector for analog I/O

Connector pin no.

4 3 2 1

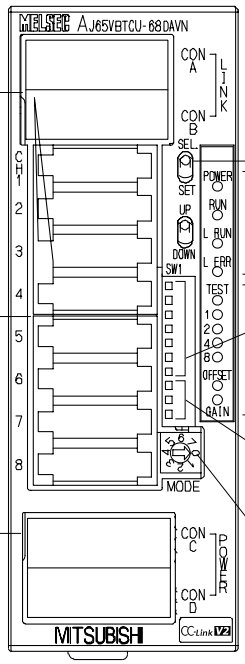
Pin no.	4	3	2	1
Name	SLD	NC	V−/I−	V+/I+

Connector for power supply

Connector pin no.

5 4 3 2 1

Pin no.	5	4	3	2	1
Name	FGI	AG	Module −24V	Module +24V	FG



SELECT/SET switch

Operating condition LED display

	Description	
POWER	On: When the power supply is turned on	
RUN	Normal mode	On: Normal operation
	Test mode	On: When the SELECT/SET switch is in the SET position
		Off: When the SELECT/SET switch is in the SELECT or central position
L RUN	On: When the communication is normal	
L ERR.	Off: When the communication is normal	

LED display for offset/gain adjustment

Transmission speed setting switch

Setting value	Transmission speed
0	156kbps
1	625kbps
2	2.5Mbps
3	5.0Mbps
4	10Mbps

Station number setting switch

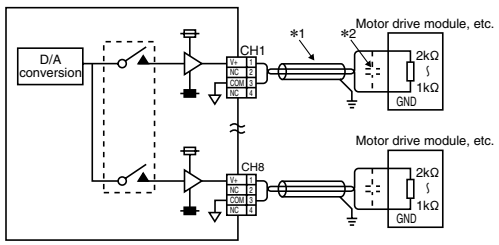
"10," "20," and "40" in STATION NO. are used for setting the second digit of the station number.
"1," "2," "4," and "8" in STATION NO. are used for setting the first digit of the station number.

Mode selector switch

Description	
AJ65VBTCU-68DAVN	
Ver.1mode	Ver.2 mode
0: Normal mode 1: Test mode (user range setting 1) 2: Test mode (user range setting 2)	3: Normal mode 4: Test mode (user range setting 1) 5: Test mode (user range setting 2) 6 to 7: Not used

∗ For a detailed description of the connectors, see page 108.

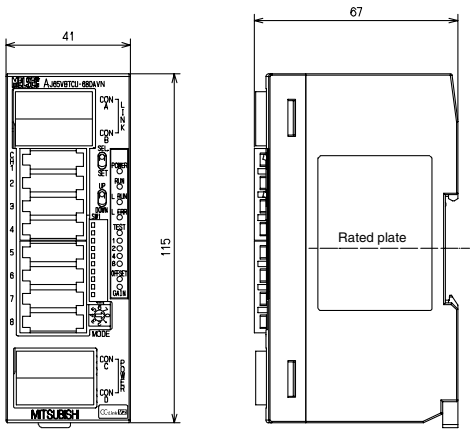
External Connection Diagram



∗1 For wire, use two-core shielded twisted-pair cable.
∗2 Connect a capacitor of around 0.1 to 0.47 μF (it must be a product that can withstand voltages of 25 V or more) between the V and COM terminals if noise or ripple is generated in the external wiring.

External Dimension Diagram

Unit: mm



Product Description

Analog Module

AJ65SBT-62DA AJ65BT-64DAV AJ65BT-64DAI

Digital to analog converter module

AJ65SBT-62DA

Analog Output

- Two channels
- Digital values from −4000 to +4000 or from 0 to +4000 can be converted to analog values of −10 V to +10 V or 0 mA to +20 mA.
- It is possible to switch between different ranges for each channel.
- A higher precision and resolution can be achieved than with an AJ65BT-64DAV/DAI module.
- Size-wise, the mounting area is 60 percent and the volume is 38 percent smaller than an AJ65BT-64DAV/DAI module.

AJ65BT-64DAV

Analog Output

- Four channels (voltage output)
- Digital values from −2000 to +2000 can be converted to analog values of −10V to +10 V.

AJ65BT-64DAI

Analog Output

- Four channels (current output)
- Digital values from 0 to +4000 can be converted to analog values of 4 mA to +20 mA.

Performance Specifications

See page 154 for the general specifications.

Model name		AJ65SBT-62DA					AJ65BT-64DAV				AJ65BT-64DAI			
Digital value	Voltage	16-bit signed binary (− 4096 to+4095)					16-bit signed binary (− 2048 to+2047)							
	Current	16-bit signed binary (0 to+4095)									16-bit signed binary (0 to 4095)			
Analog output	Voltage	−10 to + 10 VDC (external load resistance: 2 kΩ to 1 MΩ)					−10 to + 10 VDC (external load resistance: 2 kΩ to 1 MΩ)							
	Current	0 to 20 mA DC (external load resistance: 0 Ω to 600 Ω)									4 to 20 mA DC (external load resistance: 0 Ω to 600 Ω)			
Input/output characteristics		Digital value	Analog output	Maximum resolution	Accuracy Ambient temperature 0 to 55 ℃	Accuracy Ambient temperature 25 ± 5 ℃	Digital value	Analog output	Maximum resolution	Accuracy (overall)	Digital value	Analog output	Maximum resolution	Accuracy (overall)
*Accuracy (Accuracy relative to the maximum analog output value)	Voltage	− 4000 to +4000	−10 to +10 V	2.5mV	±0.4%	±0.2%	+2000	+10V	5mV	±1 (±10mV)				
		− 4000 to +4000	-10 to +10 V (user range setting 1)	2.5mV	(±40mV)	(±20mV)	+1000	+5V						
		0 to 4000	0 to 5 V	1.25mV	±0.4%	±0.2%	0	±0						
		0 to 4000	1 to 5 V	1.0mV	(±20mV)	(±10mV)	−1000	−5V						
		0 to 4000	0 to 5 V (user range setting 2)	1.25mV			−2000	−10V						
	Current	0 to 4000	0 to 20 mA	5μA	±0.4%	±0.2%					4000	+20mA	4μA	±1
		0 to 4000	4 to 20 mA	4μA	(±80μA)	(±40μA)					2000	+12mA		(±200mA)
		0 to 4000	0 to 20 mA (user range setting 3)	5μA							0	+4mA		
Output range switching		For each channel					None							
Offset/gain setting		Yes												
Output short-circuit protection		Yes												
Maximum conversion speed		1 ms/channel												
Number of analog output points		2 channels/module					4 channels/module							
Number of occupied stations		1 station (32 points each for RX/RY, 4 words each for RWr/RWw)					2 stations (32 points each for RX/RY, 8 words each for RWr/RWw)							
Connection terminal block		7-point 2-piece terminal block (transmission, power supply), directly mounted 18-point terminal block (analog output area), M3 screws					17-point terminal block, M3.5 screws							
Applicable wire size		0.3 to 0.75 mm²					0.75 to 2.00 mm²							
Module mounting screws		M4 x 0.7 mm x 16 mm or more, possible to mount on a DIN rail												
Applicable DIN rail		TH35-7.5Fe, TH35-7.5AI (compliant to JIS C 2812)					TH35-7.5Fe, TH35-7.5AI, TH35-15Fe (compliant to JIS C 2812)							
Applicable solderless terminal		RAV1.25 to 3.5 (compliant to JIS C 2805)					RAV1.25 to 3.5, RAV2 to 3.5							
Internal current consumption (24 VDC)		0.16A					0.18 A				0.27A			
Weight		0.2kg					0.2kg							
External dimensions		118 (W) ×50 (H) ×40 (D) mm					151.9 (W) ×65 (H) ×63 (D) mm							

AJ65SBT-62DA Name and Setting of Each Part

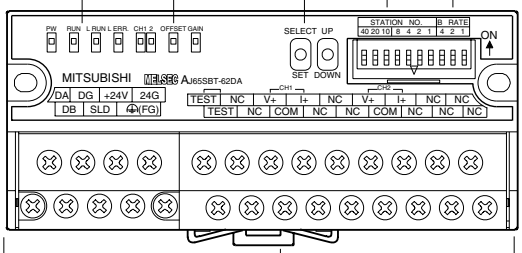
Operating condition LED display

LED name	Item checked	
PW	On: When the power supply is turned on	
RUN	Normal mode	On: Normal operation
L RUN	On: When the communication is normal	
L ERR.	On: When the transmission speed or station number setting is outside the range	

LED display for offset /gain adjustment

CH□ OFFSET GAIN	Normal mode	Always off

SELECT/SET switch



Terminal block

The compact remote I/O module power supply, transmission, and I/O signals are connected here.

DIN rail hook

Hook for mounting the module to the DIN rail

Station number setting switches

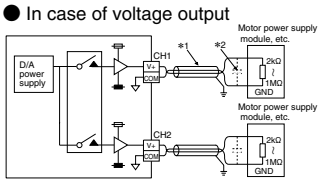
Station no.	10-digit 40	20	10	Unit-digit 8	4	2	1
1	OFF	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	OFF	ON	OFF	OFF
:	:	:	:	:	:	:	:
10	OFF	OFF	ON	OFF	OFF	ON	OFF
11	OFF	OFF	ON	OFF	OFF	ON	ON
:	:	:	:	:	:	:	:
64	ON	ON	OFF	OFF	ON	OFF	OFF

Transmission speed setting switches

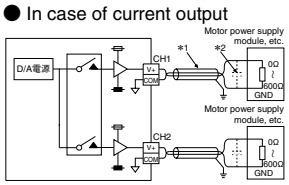
Setting value	Setting switch 4	2	1	Transmission speed
0	OFF	OFF	OFF	156 kbps
1	OFF	OFF	ON	625 kbps
2	OFF	ON	OFF	2.5 Mbps
3	OFF	ON	ON	5.0 Mbps
4	ON	OFF	OFF	10 Mbps

AJ65SBT-62DA External Connection Diagram

● In case of voltage output



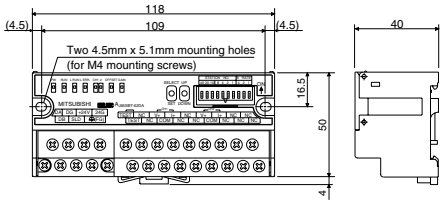
● In case of current output



*1···For wire, use two-core shielded twisted-pair cable.
*2···Connect a capacitor of around 0.1 to 0.47 μF (it must be a product that can withstand voltages of 25 V or more) to the input terminals of an external device if noise or ripple is generated in the external wiring.

AJ65SBT-62DA External Dimension Diagram

Unit: mm



AJ65BT-64DAV / 64DAI Name and Setting of Each Part

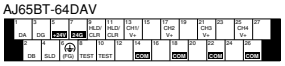
Station number setting switches

Transmission speed setting switch

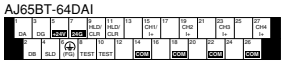
Setting number	Transmission speed
0	156 kbps (factory setting)
1	625 kbps
2	2.5 Mbps
3	5.0 Mbps
4	10 Mbps

Terminal block

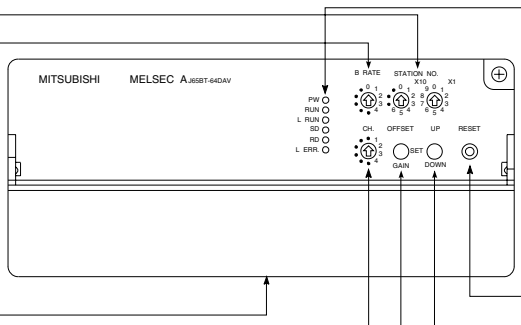
AJ65BT-64DAV



AJ65BT-64DAI



HLD/CLR setting terminal
HOLD is set by short-circuiting the terminals, while CLEAR is set by having no connection between them.



Station number setting switch

LED name	Item checked	
PW	On: When the power supply is turned on	
RUN	Normal mode	On: Normal operation
L RUN	On: When the communication is normal	
SD	Turns on during data transmission	
RD	Turns on during data reception	
L ERR.	On: When the baud rate or station number setting is outside the range	

RESET (reset switch)

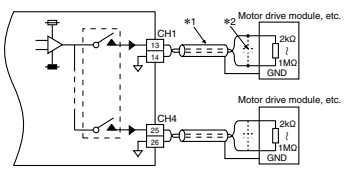
CH. (CHANNEL) selector switch

OFFSET/GAIN

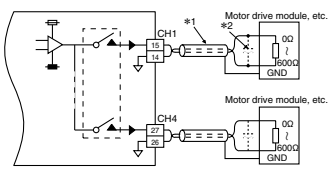
UP/DOWN switch

AJ65BT-64DAV / 64DAI External Connection Diagram

●AJ65BT-64DAV



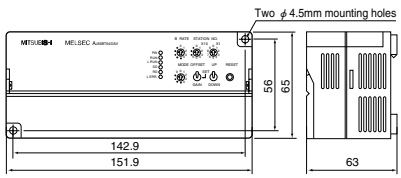
●AJ65BT-64DAI



*1···For wire, use two-core shielded twisted-pair cable.
*2···Connect a capacitor of around 0.1 to 0.47 μF 25V to the input terminals of an external device if noise or ripple is generated in the external wiring.

AJ65BT-64DAV / 64DAI External Dimension Diagram

Unit: mm



Product Description

Analog Module

AJ65BT-68TD AJ65BT-64RD3 AJ65BT-64RD4

Temperature Input Module

AJ65BT-68TD

- It is possible to perform temperature/digital conversion of eight channels via one module.
- It is possible to use seven types of thermocouple (K, E, J, T, B, R, S) conforming to the JIS standard.
- It is possible to select any thermocouple for each channel.
- It is possible to specify whether to permit or prohibit conversion for each channel.
- By prohibiting conversion of unused channels, it is possible to prevent generation of unnecessary disconnection detection flags, and the sampling time can be shortened.
- It is possible to detect disconnection of the thermocouple or compensating conductor for each channel.
- It is possible to select either sampling or moving average processing for each channel.
- A Pt 100 resistance temperature sensor is used; cold-junction compensation is automatically performed.
- It is possible to compensate for errors by the offset/gain setting for each channel.

AJ65BT-64RD3 / 64RD4

- It is possible to perform temperature/digital conversion of four channels via one module.
- Sensors using new JIS/DIN-standard Pt100 resistors (conforming to JIS C1604-1997 and IEC 751 1983) and older JIS JPt100 resistors (conforming to JIS C1604-1981) are available.
- It is possible to specify whether to permit or prohibit conversion for each channel.
- By prohibiting conversion of unused channels, it is possible to prevent generation of unnecessary disconnection detection flags, and the sampling time can be shortened.
- The average of the four past temperature conversion values obtained from the platinum resistance temperature sensor for each channel is calculated and stored in the remote register when moving average processing is enabled.
- By storing the average value, errors due to noise influence can be reduced.
- It is possible to detect disconnection of the shielded cables connected to each channel.
- Temperature is detected with high accuracy; the overall accuracy of temperature detection is ± 0.25% of the full scale, and ± 0.1% of the maximum value when the operating ambient temperature is 25 ± 5˚C.

Performance Specifications

See page 154 for the general specifications.

Model name	AJ65BT-68TD	AJ65BT-64RD3	AJ65BT-64RD4
Measurement method		Three wire type	Four wire type
Connectable platinum resistance temperature sensors		Pt100、JPt100	
Connectable thermocouples	B、R、S、K、E、J、T		
Temperature input range	−200 to 1700 ˚C	−180 to 600 ˚C	
Temperature detection value	16-bit signed binary (−2000 to 17000: Value up to the first decimal place × 10)	16-bit signed binary (−800 to 6000: Value up to the first decimal place × 10) 32-bit signed binary (−80000 to 600000: Value up to the third decimal place × 1000)	
Scaling value	16-bit signed binary (0 to 2000)		
Overall accuracy	*1	Ambient temperature (20 ˚C or less, 30 ˚C or more)	±0.1% (accuracy relative to the maximum value)
		Ambient temperature (20 ˚C or less, 30 ˚C or more)	±0.25% (accuracy relative to the maximum value)
Cold-junction compensation system (˚C)	±1.0		
Resolution (˚C)	B、R、S：0.3˚C、 K、E、J、T：0.1˚C	0.025˚C	
Conversion speed (sampling time: ms/ch) *2	45 ms/channel	40 ms/channel	
Temperature sensor input channel	8 channels + 1 channel for connecting the Pt100 sensor	4 channels/module	
Station type	Remote device station		
Number of occupied stations	4 stations (128 points each for RX/RY, 16 words each for RWr/RWw)		
Isolation method	Between thermocouple input and CC-Link transmission system and between channels: Transformer isolation	Between platinum resistance temperature sensor input and CC-Link transmission system : Photo-coupler isolation / Between channels: No isolation	
Applicable solderless terminal	RAV1.25 to 3.5 (compliant to JIS C 2805)	RAV1.25 to 3.5, RAV2 to 3.5 (compliant to JIS C 2805)	
Connection terminal block	27-point terminal block (M3.5 x 7 screws)		
Allowable momentary power failure period	1ms		
Applicable wire size	0.75 to 2.00 mm²		
Module mounting screws	M4 x 0.7 mm x 16 mm or more, possible to mount on a DIN rail		
Applicable DIN rail	TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (compliant to JIS C 2812)		
External power supply	24 VDC (18 to 30 VDC)		
Internal current consumption (24 VDC)	0.081A	0.17A	
Weight	0.40kg	0.38kg	
External dimensions	151.9 (W) ×65 (H) ×63 (D) mm		

*1 The calculation method of overall accuracy is as shown below:
(Overall accuracy) = (Conversion accuracy) + (Temperature characteristic) × (Operating ambient temperature change) + (Cold-junction compensation accuracy)
Here, the operating ambient temperature change denotes a value not within the operating ambient temperature range of 25±5˚C.

Example: In the case of the overall accuracy with operating thermocouple of K, measured temperature of 150˚C, and operating ambient temperature of 35˚C, the following applies:
(±0.5˚C) + (±0.06˚C) × (5 ˚C) + (±1˚C) = ±1.8˚C

AJ65BT-68TD Name and Setting of Each Part

Station setting switches

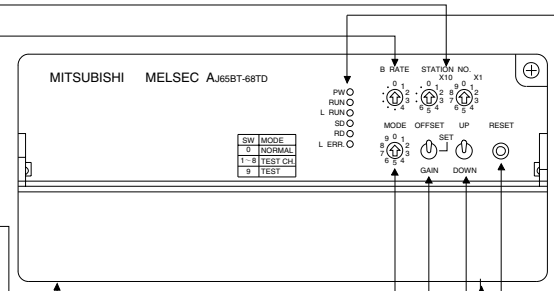
Transmission speed setting switch

Setting number	Transmission speed
0	156 kbps (factory setting)
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps
Other than 0 to 4	Not used (If other than 0 to 4 is set, L ERR. LED turns on and a communication error occurs.)

Mode setting switch

0	NORMAL	Select this when ending the test mode and entering normal operation (factory setting)
1 to 8	TEST CH.	These settings select a channel for which errors are compensated for in the test mode.
9	TEST	Select TEST to compensate for errors. The test mode is entered after 2 seconds.

Terminal block



Offset/gain setting switch

OFFSET	Compensation mode of the offset value
GAIN	Compensation mode of the gain value
SET	The temperature detection value when the OFFSET/GAIN switch is placed in the SET position, is stored in the internal memory of AJ65BT-68TD as the offset/gain value.

Operating condition LED display

LED name	Item checked
PW LED	On: When the power supply is turned on
RUNLED	Normal mode / On: Normal operation
L RUN LED	On: When thecommunication is normal
SD LED	Turns on during data transmission
RD LED	Turns on during data reception
L ERR. LED	On: Communication data error (CRC error)

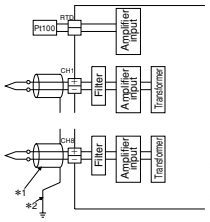
Reset switch

UP/DOWN switch

Pt100 resistance temperature sensor

Resistance temperature sensor for measuring terminal block temperature (attached to the module)

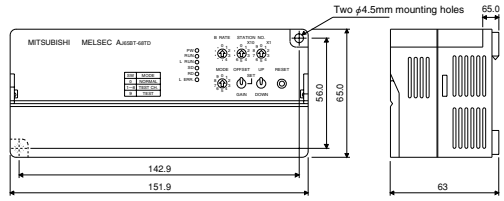
AJ65BT-68TD External Connection Diagram



*1 Make sure to use shielded compensating conductor cable.
*2 Make sure to ground.

AJ65BT-68TD External Dimension Diagram

Unit: mm



AJ65BT-64RD3/64RD4 Name and Setting of Each Part

Transmission speed setting switch

Setting number	Transmission speed
0	156 kbps (factory setting)
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps
Other than 0 to 4	Not used (If other than 0 to 4 is set, L ERR. LED turns on and a communication error occurs.)

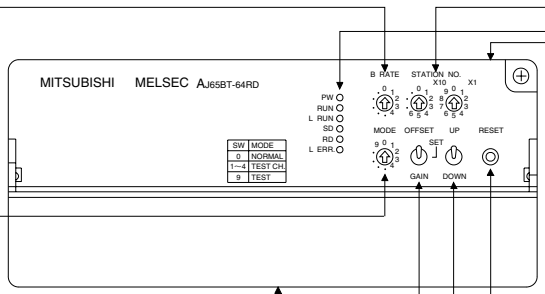
Mode setting switch

0	NORMAL	Select this when ending the test mode and entering normal operation (factory setting)
1~8	TEST CH.	These settings select a channel for which errors are compensated for in the test mode.
9	TEST	Select TEST to compensate for errors. The test mode is entered after 2 seconds.

Terminal block

AJ65BT-64RD3

AJ65BT-64RD4

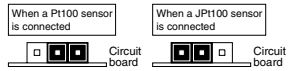


Offset/gain setting switch

OFFSET	Compensation mode of the offset value
GAIN	Compensation mode of the gain value
SET	The temperature detection value when the OFFSET/GAIN switch is placed in the SET position, is stored in the internal memory of AJ65BT-68TD as the offset/gain value.

Station setting switches

Pins for specifying the platinum resistance temperature sensor type



Station setting switches

LED name	Item checked
PW LED	On: When the power supply is turned on
RUNLED	Normal mode / On: Normal operation
L RUN LED	On: When thecommunication is normal
SD LED	Turns on during data transmission
RD LED	Turns on during data reception
L ERR. LED	On: Communication data error (CRC error)

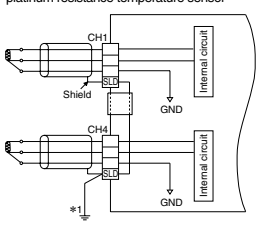
Reset switch

UP/DOWN switch

AJ65BT-64RD3/64RD4 External Connection Diagram

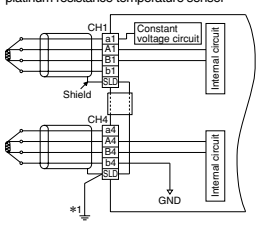
● AJ65BT-64RD3

The highest accuracy can be obtained for AJ65BT-64RD3 by using 3-conductor type platinum resistance temperature sensors. Example of connecting a 3-conductor type platinum resistance temperature sensor



● AJ65BT-64RD4

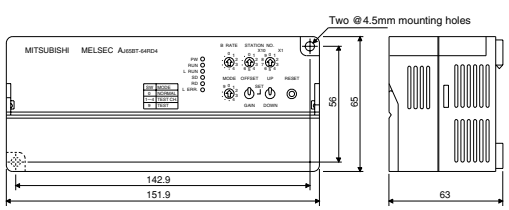
The highest accuracy can be obtained for AJ65BT-64RD4 by using 4-conductor type platinum resistance temperature sensors. Example of connecting a 4-conductor type platinum resistance temperature sensor



*1 According to the operating environment, it may be better to connect in some cases.

AJ65BT-64RD3/64RD4 External Dimension Diagram

Unit: mm



Overview

High-Speed Counter Modules

Pulses from pulse generators and similar equipment can be acquired and counted.

AJ65BT-D62
AJ65BT-D62D
AJ65BT-D62D-S1

Product description ▶ Page 86

Overview

■ All the high-speed counter modules are remote-device stations.

■ It is possible to select from three types of counter modules, depending on the output method of the external device connected to the counter modules.

Item		AJ65BT-D62	AJ65BT-D62D	AJ65BT-D62D-S1
Type		DC input/sink output type	Differential input/sink output type	
External input	Preset	5/12/24 VDC, 2 to 5 mA		Differential input
	Function start			5/12/24 VDC, 2 to 5 mA
Maximum counting speed		Maximum 200 kpps	Maximum 400 kpps	
Station type		Remote device station (occupies 4 stations)		
Counting range		24-bit binary (0 to 16777215)		
Counting speed options		200k/10k	1 phase: 400 k/10 k 2 phases: 300 k/10 k	

■ The 1- and 2-phase pulse inputs are counted in one of the following ways:.

- 1-phase pulse input multiple of 1 Counted at rising or falling edge of pulse
- 1-phase pulse input multiple of 2 Counted at rising and falling edge of pulse
- 2-phase pulse input multiple of 1 Counted at rising or falling edge of phase A pulse
- 2-phase pulse input multiple of 2 Counted at rising and falling edge of phase A pulse
- 2-phase pulse input multiple of 4 Counted at rising and falling edge of phase A pulse and phase B pulse

List of Models

Product name	Model name	Pulse input	Preset input	Counting range	Number of occupied stations	Station type	Related manual	Page with detailed information
High-speed counter module	AJ65BT-D62	DC input	DC input	0 to 16777215 (24-bit binary)	4	Remote device	User's Manual IB-66823 (13JL45)	86
	AJ65BT-D62D	Differential input	DC input		4	Remote device		86
	AJ65BT-D62D-S1	Differential input	Differential input		4	Remote device		86

Product Description

High-Speed Counter Module

AJ65BT-D62 AJ65BT-D62D AJ65BT-D62D-S1

AJ65BT-D62/D62D/D62D-S1

- Large counting range, from 0 to 16777215 (24-bit binary).
- External input: 5/12/24 VDC (2 to 5 mA)
- It is possible to multiply the count value.
- It is possible to count slow rising and falling edges without errors by switching to the slow counting speed.
- It is possible to select four counter functions.
  - Latch-counter function
  - Periodic pulse-counter function
  - Sampling counter function
  - Count-disable function

AJ65BT-D62

- DC input/sink output type
- Preset DC input
- Maximum counting speed: 200 kpps

AJ65BT-D62D

- Differential input/sink output type
- Preset DC input
- Maximum counting speed: 400 kpps

AJ65BT-D62D-S1

- Differential input/sink output type
- Preset differential input
- Maximum counting speed: 400 kpps

Performance Specifications

See page 154 for the general specifications.

Model name			AJ65BT-D62		AJ65BT-D62D		AJ65BT-D62D-S1	
Counting speed selector switch setting			HIGH side	LOW side	HIGH side	LOW side	HIGH side	LOW side
Number of channels			2 channels					
Count input signal	Phase		1 phase input, 2 phase input					
	Signal level (φA, φB)		5/12/24 VDC, 2 to 5 mA		EIA standard, RS-422-A differential type line driver level [Equivalent to Am26L31 (Japan Texas Instruments, Inc)]			
Counter	Counting speed (maximum)	1 phase input	200kpps	10kpps	400kpps	10kpps	400kpps	10kpps
		2 phase input	200kpps	7kpps	300kpps	7kpps	300kpps	7kpps
	Counting range		24-bit binary 0 to 16777215					
	Model		Preset up/down counter and ring counter functions					
	Minimum count pulse width		5μs, 2.5μs 2.5μs (1 and 2 phase input) *1	100μs, 50 μs 50 μs (1 phase input); 142μs, 71 μs 71 μs (2 phase input) *1	2.5μs, 1.25 μs 1.25 μs (1 phase input); 3.3μs, 1.65 μs 1.65 μs (2 phase input) *2	100μs, 50 μs 50 μs (1 phase input); 142μs, 71 μs 71 μs (2 phase input) *2	2.5μs, 1.25 μs 1.25 μs (1 phase input); 3.3μs, 1.65 μs 1.65 μs (2 phase input) *2	100μs, 50 μs 50 μs (1相入力); 142μs, 71 μs 71 μs (2相入力) *2
Coincidence output	Comparison range		24-bit binary					
	Comparison result		Setting value < count value, setting value = count value, setting value > count value					
External input	Preset		5/12/24 VDC, 2 to 5 mA				EIA standard, RS-422-A differential type line driver level [Equivalent to Am26L31 (Japan Texas Instruments, Inc)]	
	Function start		5/12/24 VDC, 2 to 5 mA				5/12/24 VDC, 2 to 5 mA	
	Response time		OFF→ON : 0.5 ms max., ON→OFFF : 3 ms max.					
External output	Coincidence output		2A/1 common					
	Response time		0.1 ms max.					
Station type			Remote device station					
Number of occupied stations			4 stations					
Power supply voltage			18 to 28.8 VDC					
Current consumption (at 24 VDC)			70mA		100mA		120mA	
Connection terminal block			27-point terminal block (M3.5 x 7 screws)					
Applicable wire size			0.75 to 2.00 mm^2					
Applicable solderless terminal			RAV1.25 to 3.5, RAV2 to 3.5 (compliant to JIS C 2805)					
Allowable momentary power failure period			1ms					
Module mounting screws			M4 x 0.7 mm x 16 mm or more, possible to mount on a DIN rail					
Applicable DIN rail			TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (compliant to JIS C 2812)					
Weight			0.41kg		0.42kg			

*1 The rise and fall time of the input signal should be 2 μs or less and have a duty cycle of 50%.
*2 The rise and fall time of the input signal should be 0.1 μs or less and have a duty cycle of 50%.

Name and Setting of Each Part

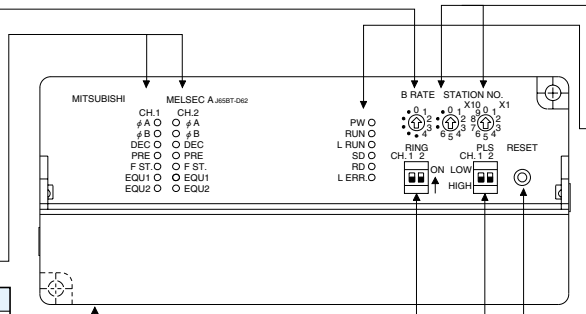
Transmission speed setting switch

This is used for setting the transmission speed of the high-speed counter module (for data link).

Setting number	Transmission speed
0	156 kbps (factory setting)
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps
Other than 0 to 4	Not used (If other than 0 to 4 is set, L ERR. LED turns on and a communication error occurs.)

LED display

LED name	Item checked
ϕA	Turns on when voltage is applied to the phase A pulse input terminal.
ϕB	Turns on when voltage is applied to the phase B pulse input terminal.
DEC	Turns on when the counter value is decremented.
PRE	Turns on and remains on when voltage is applied to the RESET terminal. Turns off when the external preset detection reset command signal is asserted.
F ST.	Turns on when voltage is applied to the F.START terminal.
EQU1	Turns on when the counter value is equal to coincidence output setting No. 1.
EQU2	Turns on when the counter value is equal to coincidence output setting No. 2. (Not available in AJ65BT-D62D-S1)



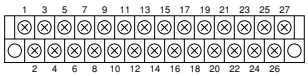
Station number setting switches

The station number of the high-speed counter module should be set within the range from 1 to 61.
"X10" is used for setting the ten-digit of the station number.
"X1" is used for setting the unit-digit of the station number.

LED display

LED name	Item checked
PW	On: When the power supply is turned on
RUN	On: Normal operation
L RUN	On: When the communication is normal
SD	Turns on during data transmission
RD	Turns on during data reception
L ERR.	On: Communication data error

Terminal block

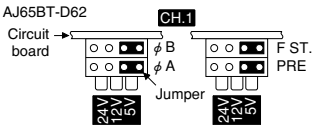


Mode switch

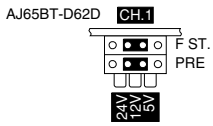
Ring counter setting switch

This is used to set whether to enable or disable the ring-counter function.

Pulse input setting pin (same for CH.2)

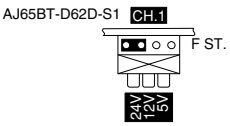


(When the jumper is connected to 5 V)



(When the jumper is connected to 12 V)

Reset switch

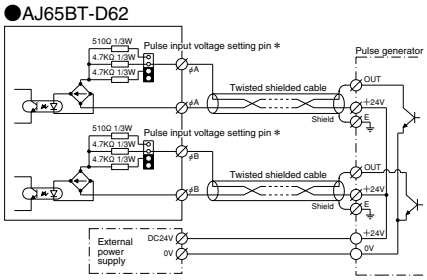


(When the jumper is connected to 24 V)

External Connection Diagram (Example of Connection with a Pulse Generator)

Example of connection with a pulse generator (24 VDC) of open-collector output type

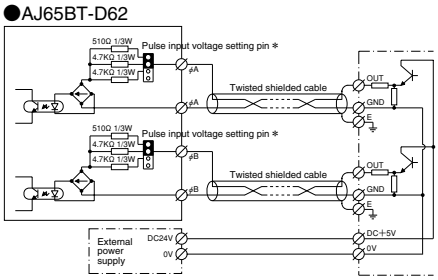
●AJ65BT-D62



Remark:* Set the pulse input voltage setting pin to the position.

Example of connection with a pulse generator (5 VDC) of voltage-output type

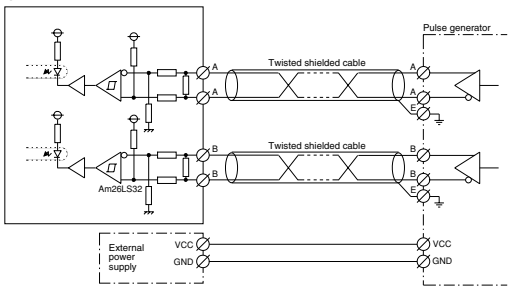
●AJ65BT-D62



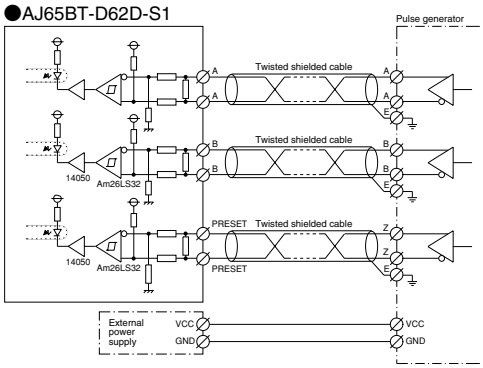
Remark:* Set the pulse input voltage setting pin to the position.

Example of connection with a line driver pulse generator (equivalent to Am26L31)

●AJ65BT-D62D

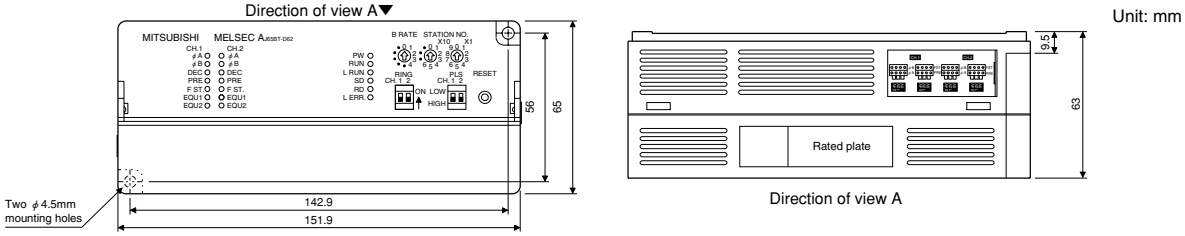


●AJ65BT-D62D-S1



External Dimension Diagram

Unit: mm



Overview

Positioning Module

Complicated positioning control tasks can be handled by reading various signals, parameters and data, and by implementing the control loop on a PLC CPU.

AJ65BT-D75P2-S3

Product description Page 90

Overview

- It is possible to use the positioning function equivalent to positioning modules AD75P2-S3 and A1SD75P2-S3 of the MELSEC-A Series in a CC-Link slave station. Moreover, the following functions are added:
  - Home position return specified by data
  - Speed/position switch control function (ABS mode)
  - Absolute position detection function
- Various software packages (GX Configurator-AP, SW□-AD75P) can be used to set positioning parameters and data, as well as monitoring and tests. *1
- Programs for accessing the buffer memory of AJ65BT-D75P2-S3 can be easily created using CC-Link dedicated instructions (RIWT, RIRD) of the PLC CPU *2.

*1 RS-422/RS-232 conversion cables and A1SD75-C01HA conversion cables for the positioning module (converting between 25-pin and 14-pin connectors) should be used for connection between AJ65BT-D75PA-S3 and a PC.
*2 The CC-Link dedicated instruction can be used in combination with QCPU, QnACPU, AnUCPU, AnUSCPU and AnSHCPU.

List of Model

Product name	Model name	Description	Number of occupied stations	Station type	Related manual	Page with detailed information
Positioning module	AJ65BT-D75P2-S3	2 axes (independent, linear and circular interpolation at the same time), 400 kbps, pulse count from -2147483648 to 2147483647	4	Intelligent device	User's Manual (Details) IB-66824 (13JL46)	90

Product Description

Positioning Module

AJ65BT-D75P2-S3

- The positioning modules can be de-centralized.
- An absolute position detection system can be easily constructed by using the AC servo MELSERVO-H/J2/J2S Series.
- The positioning modules are equipped with a differential driver to allow:
  - ●High-speed pulse output (400 kpps)
  - ●Longer connection distance to the driver module (up to 10 m)
- A wide selection of positioning control functions
  - ●It is possible to set a large number of positioning data, up to 600 data points per axis.
  - ●Seven types of home position return functions are available.
  - ●Automatic trapezoid acceleration/deceleration and S-curve acceleration/deceleration methods are provided.

Performance Specifications

See page 154 for the general specifications.

Item		Specification
Number of control axes		2 axes
Interpolation function		2-axis linear interpolation, 2-axis circular interpolation *1
Control method		PTP (Point to Point) control, locus control (both linear and circular interpolation can be set), speed control, speed/position switch control
Control unit		mm,inch,degree,pulse
Positioning data		It is possible to set 600 data points (positioning data No.: 1 to 600) per axis
Peripheral device /software package		Windows version 75P GX Configurator-AP A7HGP /SW1RX-AD75P or later PC-9800 series /SW1NX-AD75P or later *2 DOS/V PC (IBM PC/AT compatible PC) /SW1IVD-AD75P or later *3
Teaching module		AD75TU (software version D or later)
Backup		Parameters and positioning data are stored in the flash memory (battery-less).
Positioning	Positionin method	PTP control: Increment/absolute system Speed/position switch control: Increment/absolute systemr *4 Locus control: Increment/absolute system
	Positioning range	Absolute system • −214748364.8 to 214748364.7 (μm)/ −13421772.8 to 13421772.7 (μm) *5 • −21474.83648 to 21474.83647 (inch)/ −1342.17728 to 1342.17727 (inch) • 0 to 359.99999 (degree)/0 to 359.99999 (degree) • 2147483648 to 2147483647 (pulse)/ −134217728 to 134217727 (pulse) Increment system • −214748364.8 to 214748364.7 (μm)/ −13421772.8 to 13421772.7 (μm) • −21474.83648 to 21474.83647 (inch)/ −1342.17728 to 1342.17727 (inch) • −21474.83648 to 21474.8364.7 (degree)/ −1342.17728 to 1342.17727 (degree) • −2147483648 to 2147483647 (pulse)/ −134217728 to 134217727 (pulse) Speed/position switch control (increment system) • 0 to 214748364.7 (μm)/0 to 13421772.7 (μm) • 0 to 21474.83647 (inch)/0 to 1342.17727 (inch) • 0 to 21474.83647 (degree)/0 to 1342.17727 (degree) • 0 to 2147483647 (pulse)/0 to 134217727 (pulse) Speed/position switch control (absolute system) • 0 to 359.99999 (degree)/0 to 359.99999 (degree)
	Speed command	0.01 to 6000000.00 (mm/min)/0.01 to 375000.00 (mm/min) *5 0.001 to 600000.000 (inch/min)/0.001 to 37500.000 (inch/min) 0.001 to 600000.000 (degree/min)/0.001 to 37500.000 (degree/min) 1 to 1000000 (pulse/s)/1 to 62500 (pulse/s)

Item		Specification
Positioning	Acceleration /deceleration processing	Automatic trapezoid acceleration/deceleration and S-curve acceleration/deceleration *6
	Acceleration /deceleration time	It is possible to switch between 1 to 65535 (ms) and 1 to 8388608 (ms) It is possible to set 4 patterns for both acceleration and deceleration times.
	Rapid-stop deceleration time	It is possible to switch between 1 to 65535 (ms) and 1 to 8388908 (ms) (same ranges as for the acceleration/deceleration time)
	Starting time	20 ms or less (excluding link scan time)
Connector		10136-3000VE (soldering-type, accessory)
		10136-6000EL (pressure connection type, sold separately)
Applicable wire size		In case of 10138-3000VE: AWG#2 to #30 (approximately 0.05 to 0.2 SQ)
		In case of 10138-6000VE: AWG#28 (approximately 0.08 SQ)
Maximum output pulse		When connected to differential driver: 400 kbps
		When connected to open collector: 200 kbps
Maximum connection distance between servos		When connected to differential driver: 10 m
		When connected to open collector: 2 m
Station type		Intelligent device station
Number of occupied stations		4 stations (128 points each for RX/RY, 16 words each for RWr/RWw)
External power supply		24 VDC (20.4 to 26.4 V)
Applicable wire size		0.75 to 2.00 mm^2
Module mounting screws		M4 x 0.7 mm x 16 mm or more, possible to mount on a DIN rail
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (compliant to JIS C 2812)
Applicable solderless terminal		RAV1.25 to 3.5, RAV2 to 3.5
24 VDC internal current consumption		0.30A
External dimensions		170 (W) ×63.5 (H) ×80 (D) mm
Weight		0.50kg

*1 The circular interpolation function is not available when a stepping motor is used.
*2 PC-9800 Series is a registered trademark of NEC
*3 DOS/V is a registered trademark of IBM Japan, Ltd.
*4 In the absolute method, the control unit of the speed/position switch control is "degree" only.
*5 Indicates the setting range of "standard mode/stepping motor mode."
*6 The automatic S-curve acceleration/deceleration is not available when a stepping motor is used.

Name and Setting of Each Part

Axis LED display
These LEDs indicate the axis to which the information displayed if the "17-segment LED display" applies.

17-segment LED display
These LEDs display information indicating operation status according to the selected mode.

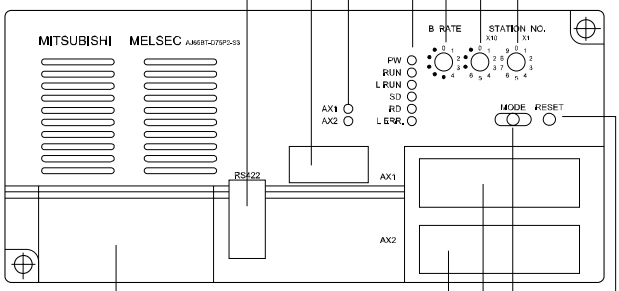
RS-422 connector for peripherals
This connector is used for connection with peripheral devices.

Terminal block
Terminal for connecting to the master module

Drive module connectors (AX1 and AX2)
These connectors are used to connect to drive modules, mechanical system inputs and manual pulse generators.

LED display mode selector switch
The information displayed in the "[1] Axis LED display" and the "17-segment LED display" is switched every time this switch is pressed.

Reset switch
Press this switch to initialize input signal, remote register, and calculation processing.



CC-Link status LED display
These LEDs display power-supply status and data-communication status.

LED name	Item checked
PW	On: When the power supply is turned on
RUN	On: Normal operation
L RUN	On: When the communication is normal
SD	Turns on during data transmission
RD	Turns on during data reception
L ERR.	On: Communication data error

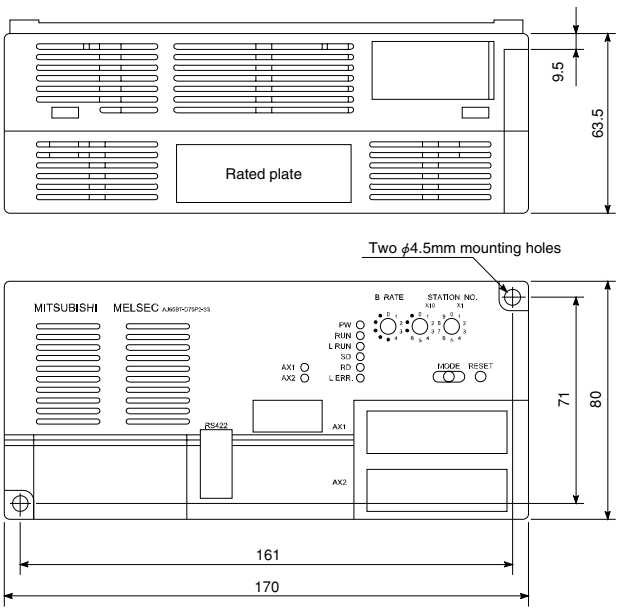
Transmission speed setting switch
This is used for setting the data communication speed.

Setting number	Transmission speed
0	156 kbps
1	625 kbps
2	2.5 Mbps
3	5 Mbps
4	10 Mbps

Station number setting switches
These switches are used for setting the station number of D75P2.

External Dimension Diagram

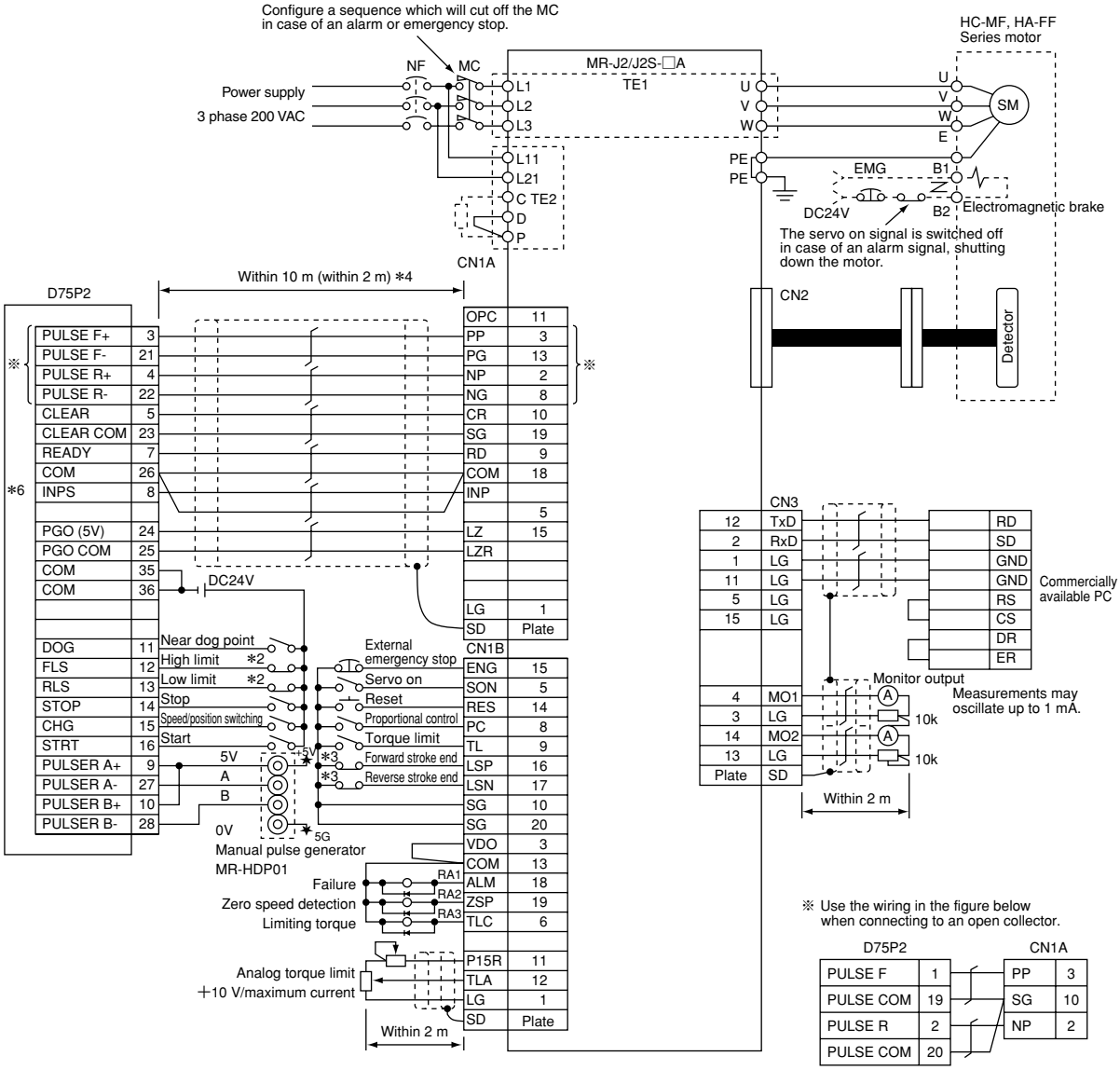
Unit: mm



External Connection Diagram

Example of Connection between D75P2 and MR-J2/J2S-□A (Differential Driver (Open Collector), Negative Logic *5)

The figure below does not have a connection for recovering absolute position.
See the next page for the connection for recovery of absolute position.



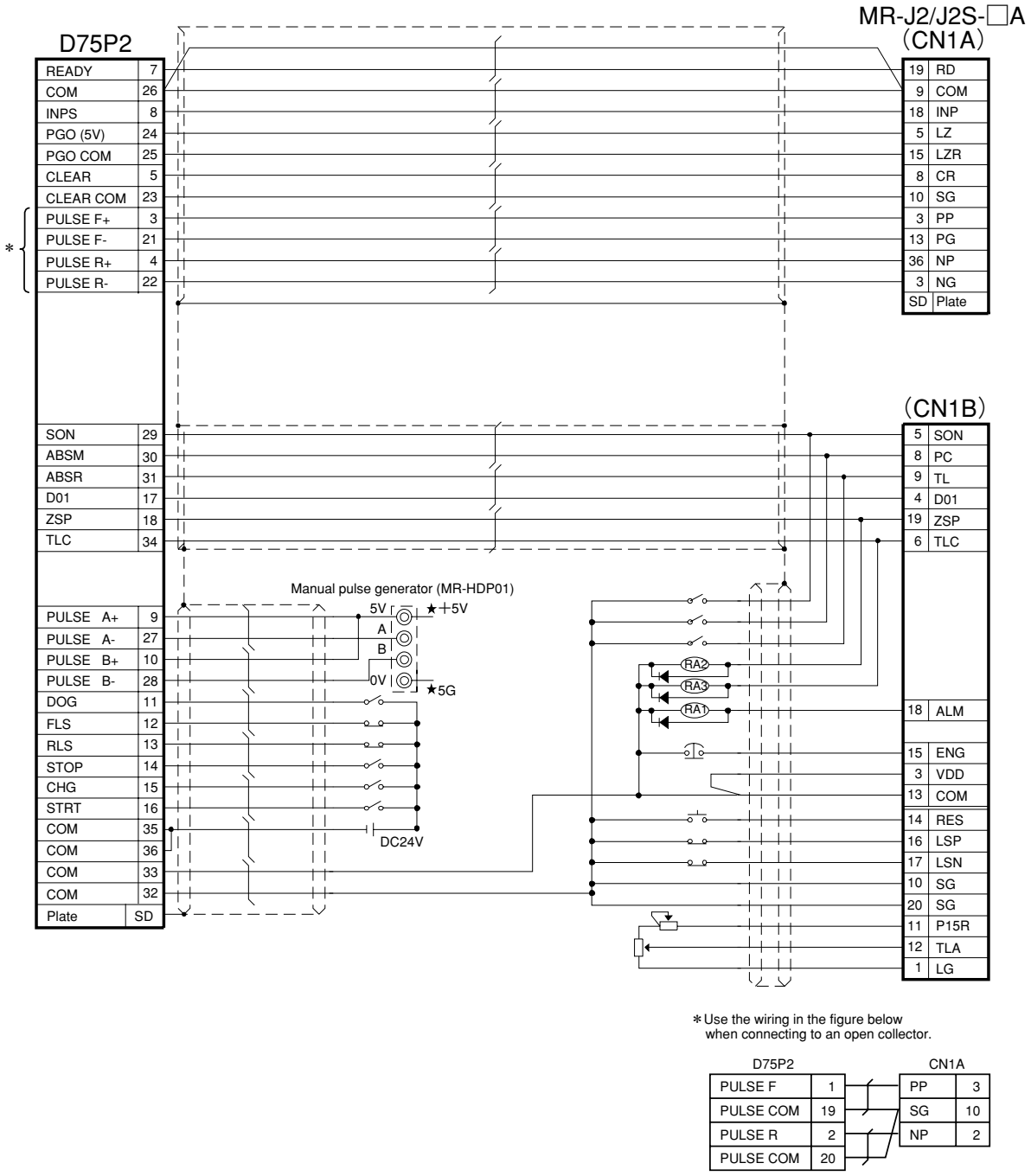
*1 The same connector pin numbers of D75P2 are used for axes 1 and 2.
*2 The high limit (FLS) and low limit (RLS) of D75P2 are used in the retry function when returning to home position. Set them inside the limit switches for the servo.
*3 Limit switch for servo (for stopping)
*4 Indicates distance between the controller and amplifier.
*5 Set detail parameter 1, the pulse output logic selection for the drive unit, to negative logic for D75P2.
*6 It is not mandatory to wire the in-position signal.
(It is only reflected in the in-position flags (RX(n+1)4, rx (n+4)4); it is not used in the internal processing of D75P2.)

Remark

"AD75C20SNJ2 type cable (for differential driver)" can be used for the connection between D75P2 and MR-J2/J2S-□A.

External Connection Diagram

Example of Connection for Performing Absolute Position Recovery



Overview

Peripheral Device Connection Module

Module for operating PLC CPU remotely via CC-Link

AJ65BT-G4-S3

Product description ▶ Page 96

Overview

■The following table lists peripheral devices that can be connected to AJ65BT-G4-S3, along with the MELSEC PLC programming software that can be used.

Connectable peripheral device		Available MELSEC PLC programming software	Remark
PC	Windows® compatible	GX Developer (SWnD5C-GPPW) GX Component (SWnD5C-ACT) GX Configurator-CC (SWnD5C-J61P) GX Configurator-AD (SWnD5C-QADU) GX Configurator-DA (SWnD5C-QDAU) GX Configurator-CT (SWnD5C-QCTU) GX Configurator-TC (SWnD5C-QTCU) GX Configurator-FL (SWnD5C-QFLU) GX Configurator-TI (SWnD5C-QTIU) GX Configurator-PT (SWnD5C-QPTU)	GX Developer that supports QCPU is SW6D5C-GPPW or later.
	IBM PC/AT compatible PC	SW□IVD-GPPA,SW□IVD-GPPQ	———
	PC-9800	SW□NX-GPPA,SW□NX-GPPQ	
A7PHP,LM7000		SWORX-GPPA,SWOSRX-GPPA,SW□SRXV-GPPA,SW□S-GPPA	
A7HGP		SW□HX-GPPA	
A6GPP,A6HGP,A6PHP		SW3GP-GPPA,SW4GP-GPPA,SW□GP-GPPAU,SW3-GPPA,SW3-HGPA	

■For the converters and cables that can be used, see the operating manual for the peripheral device and MELSEC PLC programming software to be used.

■An RS-422/RS-232 conversion cable is required when performing online operation of QCPU, as well.

List of Models

Product name	Model name	Description	Number of occupied stations	Station type	Related manual	Page with detailed information
Peripheral device connection module for the GPP function	AJ65BT-G4-S3	Select master station and local station PLC, and perform online operations: PC read, PC write, monitoring, and test.	1	Intelligent device	User's Manual (Details) SH-080105 (13JR17)	96

Product Description

Peripheral Device Connection Module

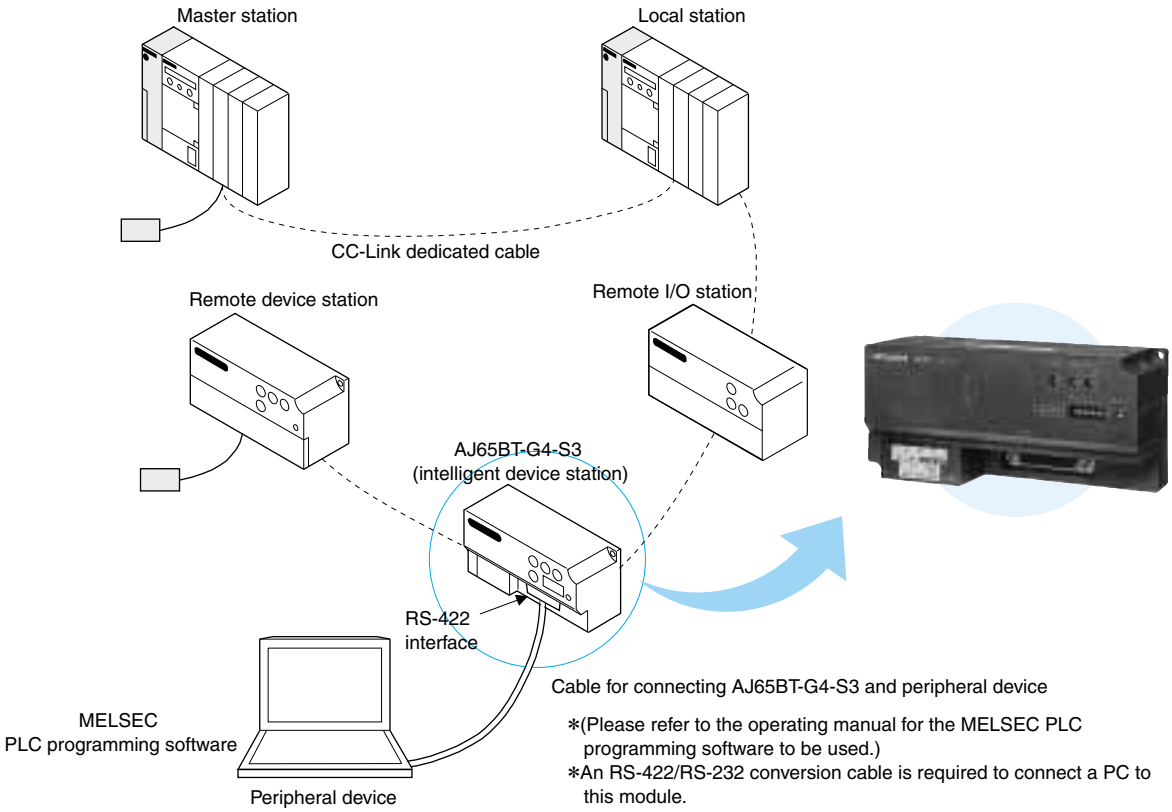
AJ65BT-G4-S3

■It is possible to perform remote operation via CC-Link.

Online operations such as PC write, PC read, monitoring and test can be performed from peripheral devices to QCPU, QnACPU and ACPU modules at remote locations on the CC-Link network.

■It is possible to connect various peripheral devices.

It is possible to connect peripheral devices equipped with MELSEC PLC programming software.



Performance Specifications

See page 154 for the general specifications.

Model name	AJ65BT-G4-S3
Peripheral device connector	D-sub 25 pin 1 channel
Station type	Intelligent device station
Number of occupied stations	1 stations (32 points each for RX/RY, 4 words each for RWr/RWw)
Allowable momentary power failure period	1ms
Applicable solderless terminal	RAV1.25 to 3.5, RAV2 to 3.5 (compliant to JIS C 2805)
Module mounting screws	M4 x 0.7 mm x 16 mm screws or larger
	Possible to mount on a DIN rail
Applicable DIN rail	TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (compliant to JIS C 2812)
24 VDC internal current consumption	0.19A
External power supply (for driving the module)	24 VDC (15.6 to 28.8 V)
Weight	0.36kg
External dimensions	80 (W) ×170 (H) ×63.5 (D) mm

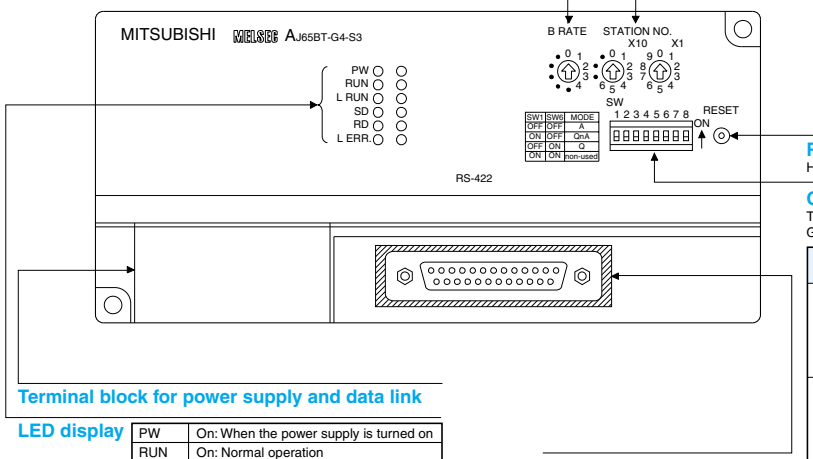
Name and Setting of Each Part

Transmission speed setting switch

Setting number	Transmission speed
0	156 kbps (factory setting)
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps
Other than 0 to 4	Not used (If other than 0 to 4 is set, L ERR. LED turns on and a communication error occurs.

Station number setting switches

These switches are used for setting the station number of G4-S3 in the range from 1 to 63 or 1 to 64.



Reset switch

Hardware reset

Operation setting DIP switch

This is used for setting the operation specification of G4-S3.

Switch no.	Setting item	Status of setting switch		
		ON		OFF
1.6	Operation mode	SW1	SW6	Operation mode
		OFF	OFF	A mode
		ON	OFF	QnA mode
		OFF	ON	Q mode
		ON	ON	Setting not allowed
2.3	Peripheral device transmission speed (bps)	SW2	SW3	Transmission speed
		OFF	OFF	9600bps
		ON	OFF	19200bps
		OFF	ON	38400bps
		ON	ON	Setting not allowed
4.5	Not used	Fixed at OFF		
7	Not used	---		
8	Test mode	Test mode		Online mode

Terminal block for power supply and data link

LED display

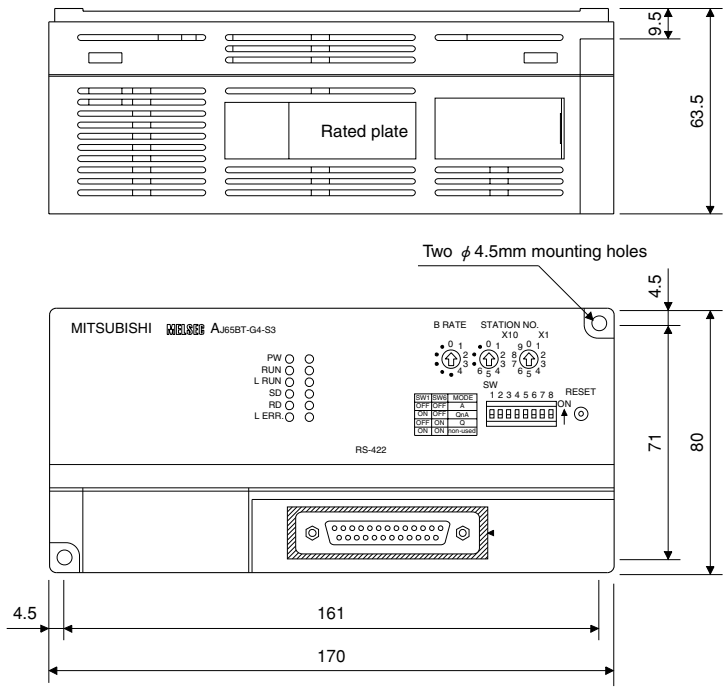
PW	On: When the power supply is turned on
RUN	On: Normal operation
L RUN	On: Normal communication
SD	Turns on during data transmission
RD	Turns on during data reception
L ERR.	Off: When the communication is normal

RS-422 interface

Interface for connecting peripheral devices

External Dimension Diagram

Unit: mm



Overview

Communication Modules for HMI (GOT)

The GOT-A900/800 Series GOTs can be used in CC-Link.

Communication module A8GT-J61BT13

Product description ▶ Page 100

Communication module A8GT-J61BT15

Product description ▶ Page 102

Overview

■Use A8GT-J61BT13 when handling large amounts of data at once.
No sequence program is required.
■Use A8GT-J61BT15 when handling small amounts of data with hight speed and stable communication.
■Utility functions supported by the modules

Function	A8GT-J61BT13	A8GT-J61BT15
System monitor	○	×
Circuit monitor	○	×
Special module monitor	○	×
Screen copy	○	○
Setup	○	○
Self diagnosis	○	○
Memory information	○	○
Clock set	○	×
Screen cleanup	○	○
File	○	△*

*The data storage time cannot be displayed.

○:Function supported
×:Function not supported
△:Limited support

■Differences in the sprite functions supported
A8GT-J61BT15 does not support a clock function.
It does not support the generation timetable in the alarm-list display and time display of the Alarm History function.

List of Models

Product name	Model name	Description	Number of occupied stations	Station type	Related manual	Page with detailed information
CC-Link communication module	A8GT-J61BT13	CC-Link connection module for GOT-A900/800 Series	1/4	Intelligent device	User's Manual IB-66838 (13JL56)	100
	A8GT-J61BT15	CC-Link connection module for GOT-A900/800 Series	2/4	Remote device	User's Manual (Hardware) IB-66788 (13JL29)	102

Product Description

Communication Modules for HMI (GOT)

A8GT-J61BT13

Connection to CC-Link

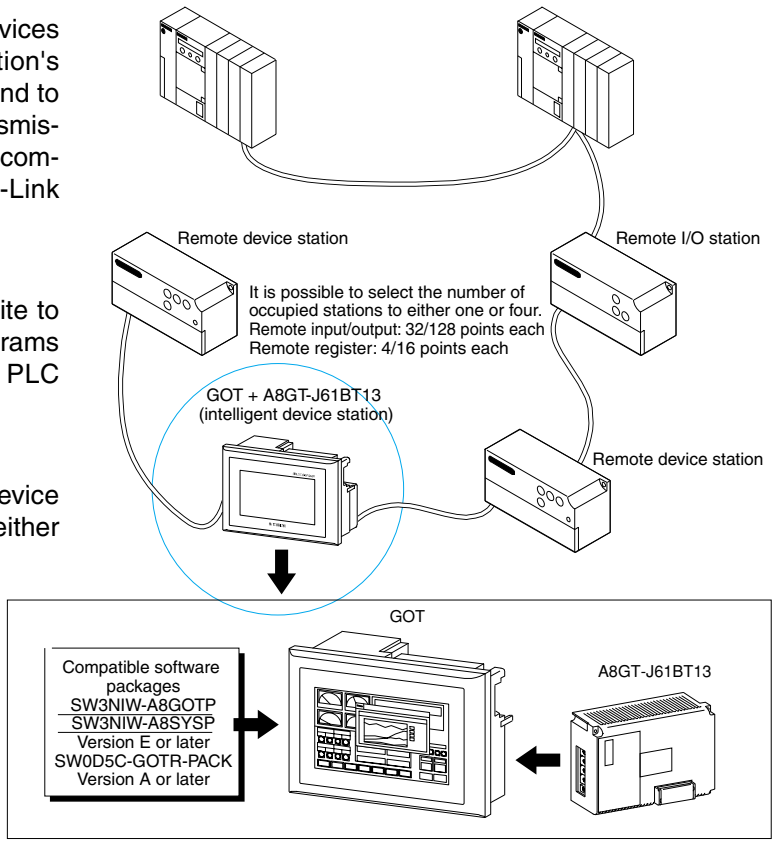
It is possible to monitor all the devices of the master station/local station's PLCs via transient transmission and to perform monitoring by cyclic transmission by A900/800 Series GOT combined with A8GT-J61BT13 CC-Link module.

System monitor

It is possible to read from and write to devices as well as monitor programs of the master/local station's PLC CPUs.

Station type

This module is an intelligent device station. It is possible to select either one or four stations.



Performance Specifications

See page 154 for the general specifications.

Model name		A8GT-J61BT13
Station type		Intelligent device station
Number of occupied stations		Selectable from 1 station/4 stations
		At one station (32 points each for RX/RY, 4 words each for RWr/RWw)
		At four stations (128 points each for RX/RY, 16 words each for RWr/RWw)
Monitor device	Monitoring by cyclic transmission	Writing from GOT: RX and RWw assigned to GOT (varies depending on the number of occupied stations)
		Reading to GOT: All points of RX/RY and RWw/RWr
	Monitoring by transient transmission	All devices of PLCs of the master/local stations
Applicable solderless terminal		RAV1.25 to 3, RAV3 to 3.5 (compliant to JIS C 2805)
Power supply method		Supplied from GOT
Current consumption		0.25 A (included in the current consumption of the main body. Only the power consumption of A850GOT is added to the current consumption of the main body.)
External dimensions		149 (W) ×99 (H) ×34 (D) mm
Weight		0.21kg

Name and Setting of Each Part

Mode setting switch

This is used for setting the operation condition of the module. (The factory setting is 0.)

Number	Name	Description
0	Online	Data link and automatic return are enabled.
1	(Not used)	—
2	Online	Disconnected from data link
3 to F	(Not used)	—

Station number setting switch

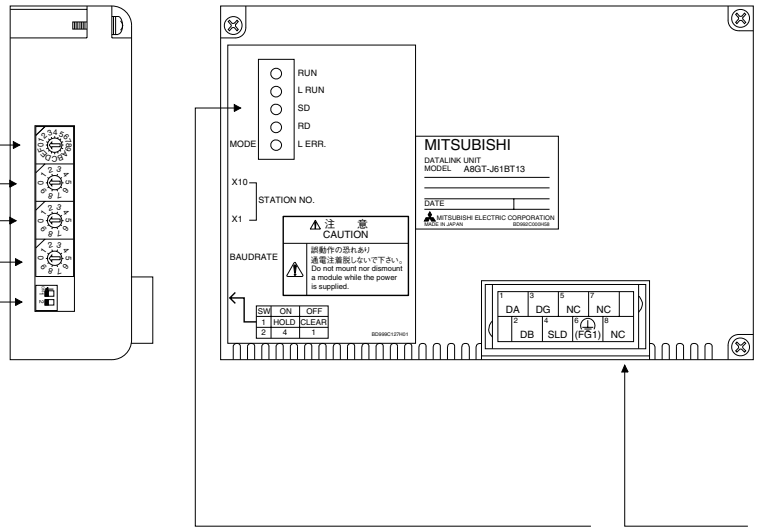
These switches are used to set the station number of A8GT-J61BT13 in the range from 1

Transmission speed setting switch

Setting number	Transmission speed
0	156kbps (factory setting)
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps
Other than 0 to 4	Not used (If other than 0 to 4 is set, L ERR. LED turns on and a communication error occurs.)

Condition setting switch

Number	Setting
SW2	Number of occupied stations On: 4 stations, Off: 1 station
SW1	Input data condition of data link faulty stations. On: Retain, Off: Clear



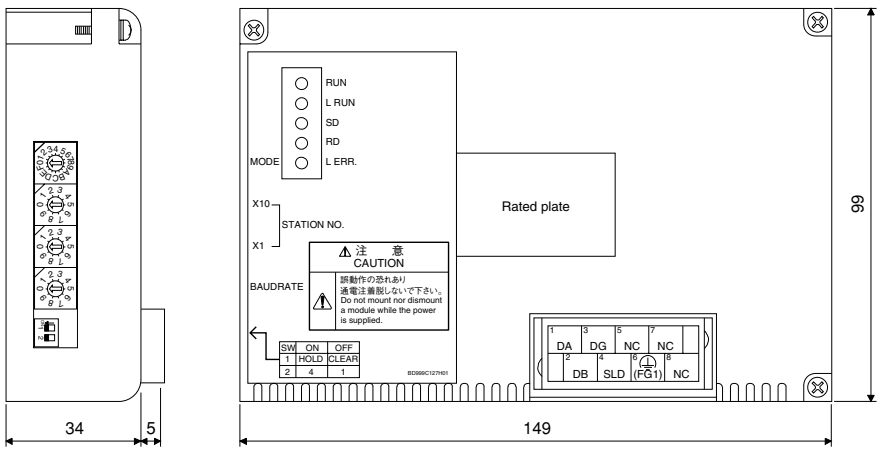
LED display

L RUN	On: Communication is normal. Off: Communication is down (timeout error).
SD	SD: Turns on during data
RD	RD: Turns on during data reception.
L ERR.	On: Communication data error (CRC error) Flashing: Station number/baud rate switch setting error Off: Communication is normal.

Terminal block

External Dimension Diagram

Unit: mm



Product Description

Communication Modules for HMI (GOT)

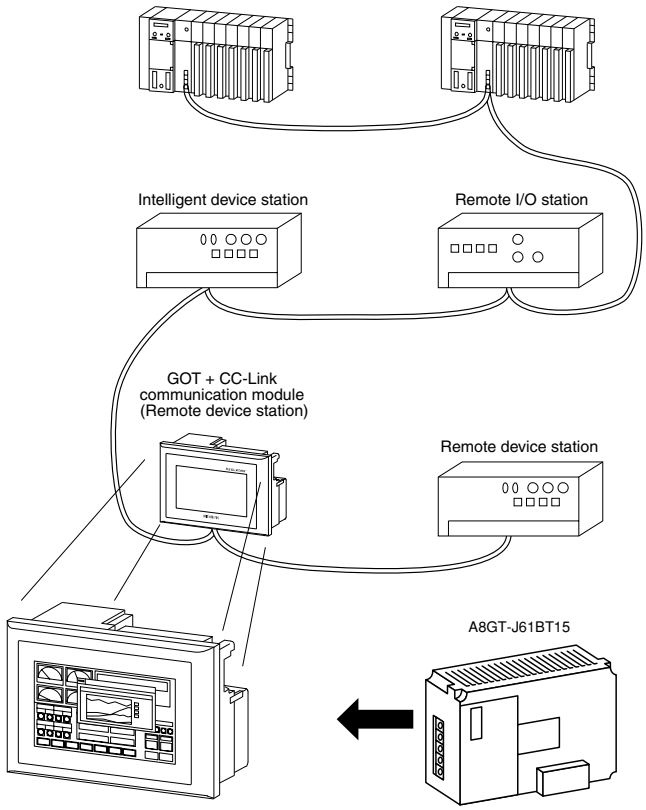
A8GT-J61BT15

Connection to CC-Link

It is possible to perform monitoring by cyclic transmission by A900/800 Series GOT combined with A8GT-J61BT15 CC-Link module.

Station type

This module is a remote device station. It is possible to select either two or four stations.

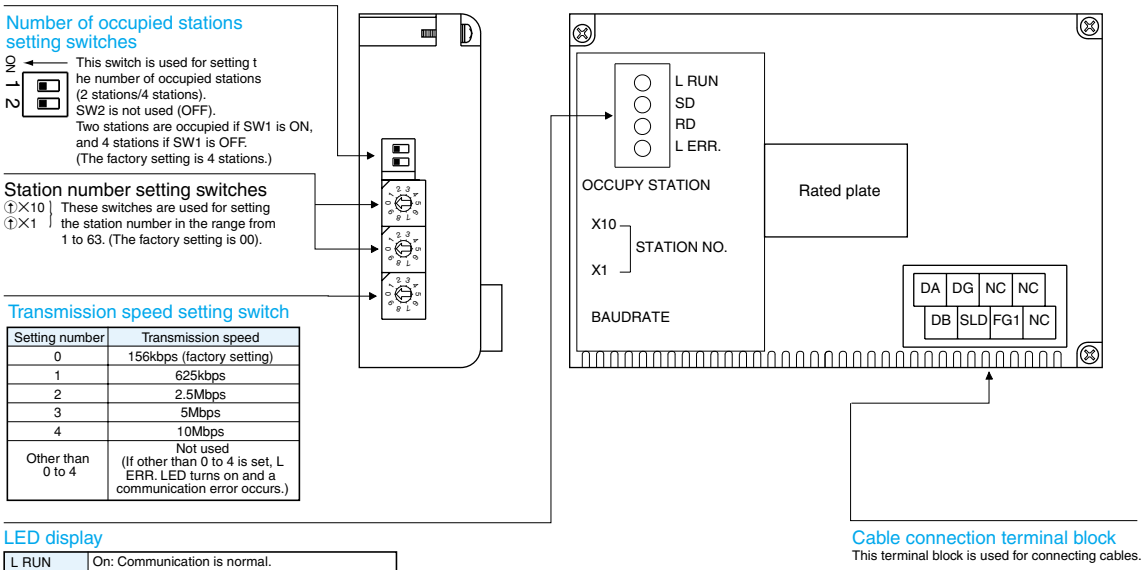


Performance Specifications

See page 154 for the general specifications.

Model name	A8GT-J61BT15	
Station type	Remote device station	
Number of occupied stations	Selectable from 2 stations/4 stations	
	At two stations (64 points each for RX/RY, 8 words each for RWr/RWw)	
	At four stations (128 points each for RX/RY, 16 words each for RWr/RWw)	
Monitor device	Monitoring by cyclic transmission	Writing from GOT/Reading to GOT RX/RY and RWw/RWr assigned to GOT (varies depending on the number of occupied stations)
Connection terminal block	8-point terminal block (M3 x 8 screws)	
Applicable solderless terminal	R1.25 - 3、1.25 - YS3、RAV1.25 - 3、V1.25 - YS3	
Power supply method	Supplied from GOT	
Current consumption	0.1 A (included in the current consumption of the main body. Only the power consumption of A850GOT is added to the current consumption of the main body.)	
External dimensions	149 (W) ×99 (H) ×34 (D) mm	
Weight	0.20kg	

Name and Setting of Each Part



Transmission speed setting switch

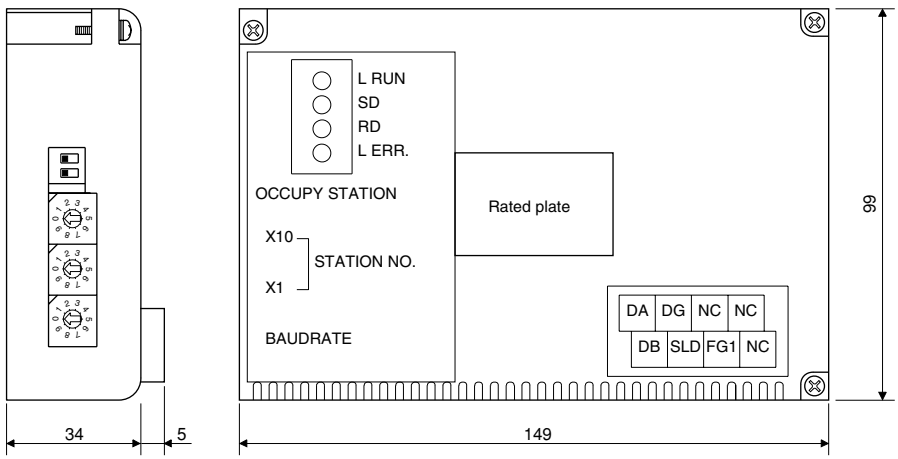
Setting number	Transmission speed
0	156kbps (factory setting)
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps
Other than 0 to 4	Not used (If other than 0 to 4 is set, L ERR. LED turns on and a communication error occurs.)

LED display

L RUN	On: Communication is normal. Off: Communication is down (timeout error).
SD	SD: Turns on during data
RD	RD: Turns on during data reception.
L ERR.	On: Communication data error (CRC error) Flashing: Station number/baud rate switch setting error Off: Communication is normal.

External Dimension Diagram

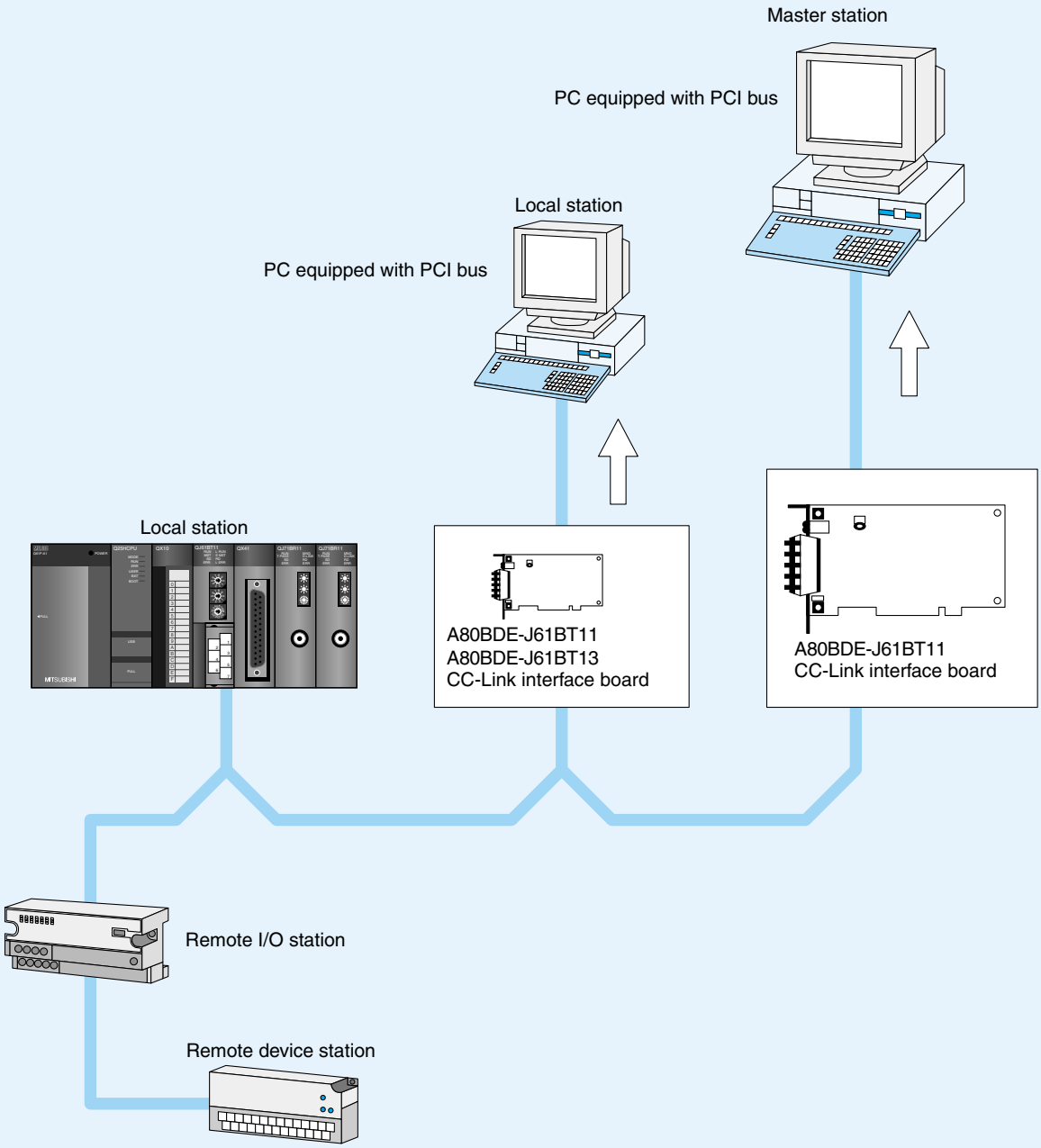
Unit: mm



Overview

PC Interface Boards

IBM PC/AT compatible PCs can be used as master/local stations of CC-Link.



Overview

- It is possible to incorporate PCs equipped with PCI bus into the CC-Link system as master/local stations.
- A80BDE-J61BT11 can be used as a master/local station, and A80BDE-J61BT13 as a local station.
- Drivers supporting various OS are supplied together with the module (Windows® 2000, Windows® NT Ver 4.0, Windows® 98, Windows® 95).
- Windows® 2000 or Windows® NT Ver 4.0 must be used if A80BDE-J61BT11 is used as the master station.
- Various settings of the CC-Link system can be performed using the supplied utilities.
- It is possible to create applications in Visual C++® and Visual Basic®.
- The module can be used with various MELSOFT software.

List of Models

Product name	Model name	Description	Number of occupied stations	Station type	Related manual	Page with detailed information
PC interface board	A80BDE-J61BT11	CC-Link interface board for IBM PC/AT compatible PC (master/local station for PCI bus slot)	1／4	Master/ local station	User's Manual IB-0800175 (13JR28)	106
	A80BDE-J61BT13	CC-Link interface board for IBM PC/AT compatible PC (local station for PCI bus slot)	1／4	Local station	User's Manual (SW3DNF-CC-link compatible) IB-0800176 (13JR29)	106

Operating Environment

Product name	A80BDE-J61BT11		A80BDE-J61BT13
	Used as the master station	Used as a local station	Local station
IBM PC/AT compatible PC	IBM PC/AT compatible PC equipped with a Pentium 133 MHz CPU or better, and PCI bus slot (including FC98-NX) Multi-processor PCs cannot be used.		
Operating system	Either Microsoft® Windows® 2000 Professional Operating system (English version) or Microsoft® Windows® NT Workstation Operating System Version 4.0 (English version) (Microsoft® Windows® 98 Operating System (English version) and Microsoft® Windows® 95 Operation System (English version) cannot be used.)	Either Microsoft® Windows® 2000 Professional Operating system (English version), Microsoft® Windows® NT Workstation Operating System Version 4.0 (English version)*, Microsoft® Windows® 98 Operating System (English version), or Microsoft® Windows® 95 Operation System (English version)	
Programming language	Either Microsoft® Visual Basic® 5.0 (English version), Microsoft® Visual Basic® 6.0 (English version), Microsoft® Visual C++® 5.0 (English version), or Microsoft® Visual C++® 6.0 (English version)		
Required memory	32 MB min.		
Required free hard disk space	15 MB min.		
Disk drive (necessary at driver installation)	3.5 inch (1.44 MB) floppy disc drive		

*Service Pack 3 or later is required when this operating system is used.

Product Description

PC Interface Boards

A80BDE-J61BT11 (Master/Local Station) A80BDE-J61BT13 (Local Station)

PC Interface boards

■A PC incorporating a PCI bus can be used as the master station, standby master station*1, or as a local station by mounting A80BDE-J61BT11, or as a local station by mounting A80BDE-J61BT13.

■When A80BDE-J61BT11 is used as the master station, it is possible to control remote I/O stations, remote device stations, intelligent device stations and local stations from an IBM PC/AT compatible PC.

■Various drivers are supplied; a system can be constructed easily to suit the environment of use.

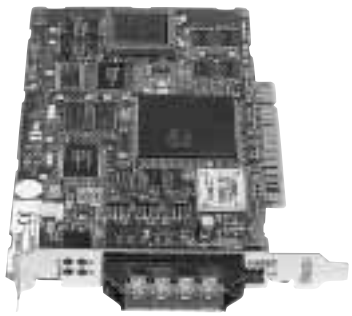
・Windows® 2000 Professional (English version) : Master station, standby master station (only for A80BDE-J61BT11), local station

・Windows® NT Workstation 4.0 (English version) : Master station, standby master station (only for A80BDE-J61BT11), local station

・Windows® 95 (English version) : Local station only

・Windows® 98 (English version) : Local station only

■It is possible to perform the various settings required to construct a CC-Link system using the supplied CC-Link Utility. In addition, it is possible to perform parameter setting (only when A80BDE-J61BT11 is the master station), and set and display test and monitor conditions of the CC-Link system.



■User applications can be easily created via functions compatible with Visual C++® and Visual Basic®.

It is possible to control other stations on CC-Link remotely, and to read/write from/to devices.

Example: On/off control of input X and output Y of a remote I/O station

Analog voltage output control of a remote device station (analog module)

Communication control of an intelligent device station (RS-232C module)

■Station numbers are specified via logical station numbers using CC-Link Utility. It is possible to communicate with each QCPU (in Q mode) of a multiple-CPU system.

■Various MELSOFT software can be used.

*1:The Standby Master Station function is available only when both the master and standby master stations are A80BD-J61BT11.

Performance Specifications

See page 154 for the general specifications.

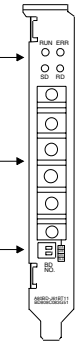
Model name	A80BDE-J61BT11	A80BDE-J61BT13
Station type	Master/local station	Local station
Number of occupied stations	1 station/4 stations (when used as a local station)	1 station/4 stations
Number of mountable modules	Up to 4 modules (total number of modules of A80BD-J61BT11 and A80BD-J61BT13)	
Mounting slot	IBM PC/AT compatible PC PCI bus slot	
Number of occupied slots	1 slot	
Current consumption (5 VDC)	0.4A	
External dimensions	192 (W) ×126 (H) ×18 (D) mm	
Weight	0.16kg	

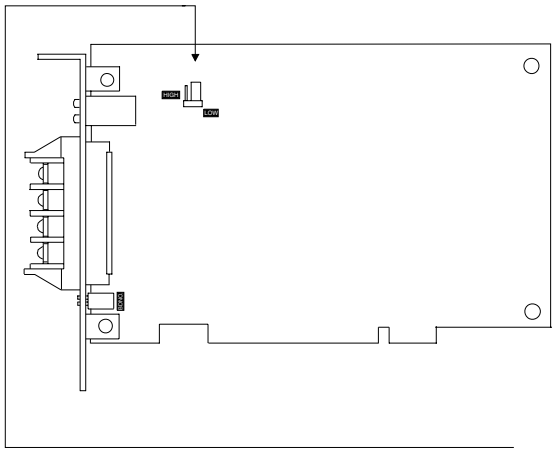
The general specifications for when the CC-Link board is mounted depend on the IBM PC/AT compatible PC.

Name and Setting of Each Part

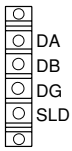
Operation LED display

RUN ERR / SD RD	LED name	Description	ON	OFF
	RUN	Turns on when the CC-Link board is normal, and turns off at a WDT error.	The CC-Link board is normal.	·WDT error ·The power supply to the PC is turned off.
	ERR.	Turns on when the network communication status is abnormal.	Data link communication is abnormal.	Data link communication is normal.
	SD	Flashes during data link data transmission.	Flashes during data link transmission.	
	RD	Flashes during data link data reception.	Flashes during data link reception.	





Terminal block for data link



Temperature abnormal detection selector setting switch

This is used for setting the abnormal temperature detection limit.

Board number	Description	Remark
HIGH	Set the abnormal temperature detection limit to 55 .	
LOW	Set the abnormal temperature detection limit to 45 .	Default setting

Channel number setting switch

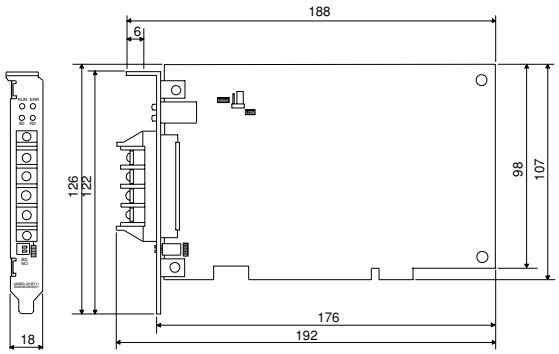
This is used for setting the channel number of the CC-Link board.

Board number	Channel number	Switch 1	Switch 2	Remark
0	81	OFF	OFF	Default setting
1	82	ON	OFF	
2	83	OFF	ON	
3	84	ON	ON	

If two or more CC-Link boards are mounted, they should be set in such a way that the board numbers do not overlap.

External Dimension Diagram

Unit: mm



Utility

CC-Link Utility (supplied)

●The CC-Link Utility software package provides the following functions:

- ·Board list display, board information display
- ·Line monitor (self-station/other stations)
- ·Memory and I/O diagnosis
- ·Test
- ·Parameter setting (only when A80BDE-J61BT11 is the master station)

Device Monitor Utility (supplied)

●The Device Monitor Utility software package provides the following functions:

- ·Batch monitor and 16-point registration monitor
- ·Network setting and device setting
- ·Device write and device set/reset

Programming environment

●Functions for reading board information, opening/closing lines and reading/writing from/to devices are provided.

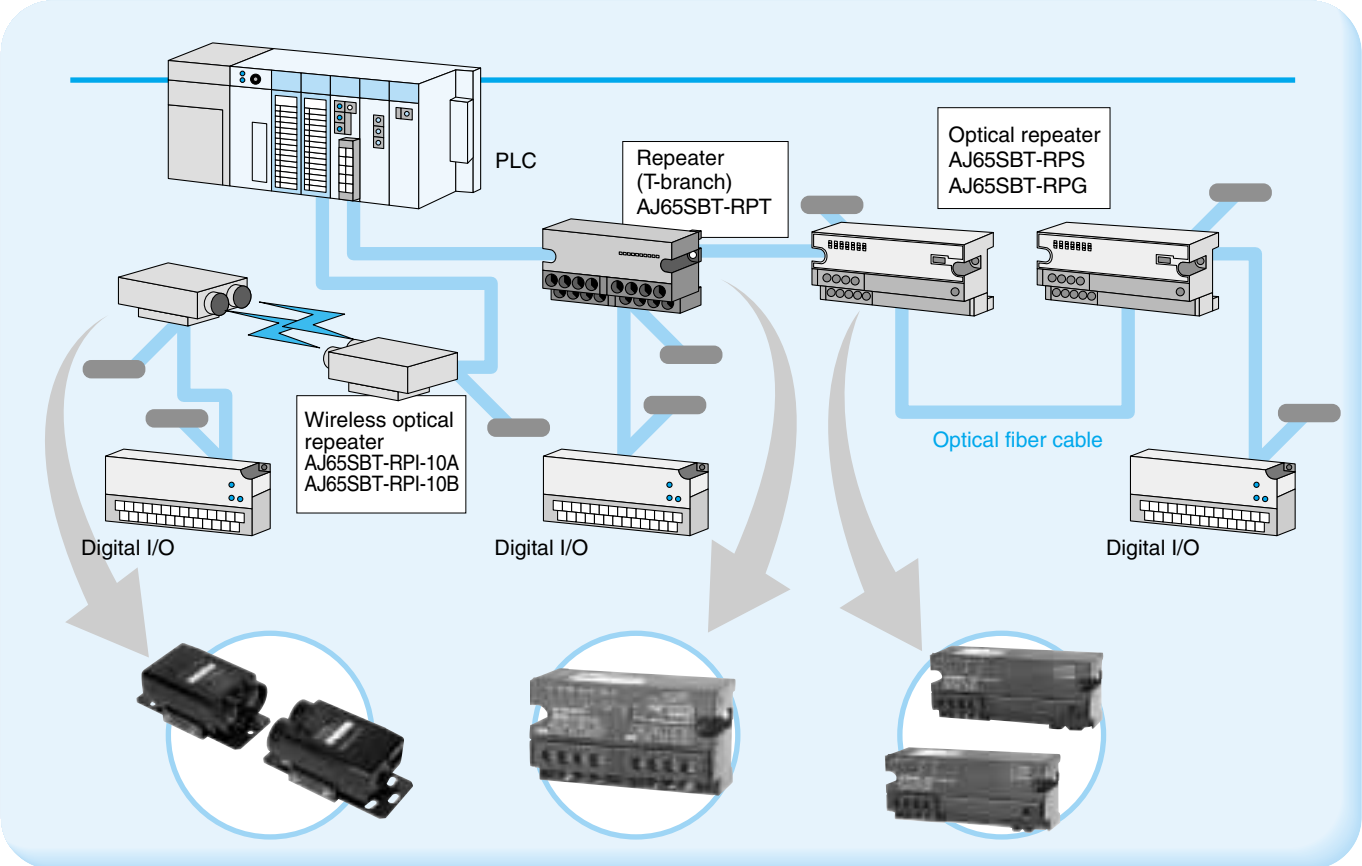
●Support Visual Basic® Ver.5.0, Visual Basic® Ver.6.0, Visual C++® Ver.5.0, and Visual C++® Ver.6.0.

(Visual Basic® Ver.5.0 and Visual C++® Ver.5.0 cannot be used when Windows® 2000 Professional is used.)

Overview

Repeater Modules

Various repeater modules expand the range of CC-Link adaptations and enhance the freedom of application.



Overview

■Three types (five models) of repeater module are available for use according to the desired purpose in the CC-Link network.

●Repeater (T-branch) module: AJ65SBT-RPT

This allows a T-branch at any transmission speed, and allows the extension of transmission distance.

●Optical repeater modules: AJ65SBT-RPS, AJ65SBT-RPG

With the optical fiber cable it is possible to extend the transmission distance and prevent problems with noise in the transmission path.
Additionally, this module allows T-branch wiring.

●Wireless optical repeater modules: AJ65BT-RPI-10A, AJ65BT-RPI-10B

The wireless transmission via infrared light allows data transfer to controllers in places where wiring would be difficult.

■Up to 64 modules of remote I/O stations, remote device stations, local stations, standby master stations, intelligent device stations, and repeaters are allowed within one segment *1. Note that the number of slave stations that can be controlled by one master station is the same for CC-Link systems using repeaters.

■By using repeater modules it is possible to communicate with up to 10 levels of slave stations from a segment containing the master station (when AJ65SBT-RPT is used). (Up to three levels are possible when AJ65SBT-RPS is used, and up to two levels are possible when AJ65SBT-RPG, AJ65BT-RPI-10A or AJ65BT-RPI-10B is used.)

*1 A block of devices connected by wiring from one terminal resistor to another terminal resistor is referred to as a segment in a CC-Link system that uses repeater.

Selection of Repeater Modules

If the module is used in this way···?

Select this!

Selection condition ▶▶▶	Feature of module that should be selected	Model name of the module that should be selected	Page with detailed information
To extend the transmission distance	Select a module according to the transmission distance that can be used at all transmission speeds.	AJ65SBT-RPT AJ65SBT-RPS AJ65SBT-RPG	▶110 ▶112
To avoid problems due to noise	Through the use of optical fiber cable, problems due to noise can easily be avoided and system stability improved.	AJ65SBT-RPS AJ65SBT-RPG	▶112
To use T-branches and branching lines in your network topology	T-branch wiring can be made at all transmission speeds.	AJ65SBT-RPT AJ65SBT-RPS AJ65SBT-RPG	▶110 ▶112
To use CC-Link in a place where cables cannot be laid	Wireless transmission (over distances from 0 to 100 m) via infrared light is made possible (the maximum transmission speed is 2.5 Mbps).	AJ65BT-RPI-10A AJ65BT-RPI-10B	▶114

List of Models

Product name	Model name	Description	Number of occupied stations	Station type	Related manual	Page with detailed information
CC-Link system repeater (T-branch) module	AJ65SBT-RPT	Maximum number of connected levels: 10, T-branch wiring is possible.	—	—	User's Manual IB-0800078 (13JQ81)	110
CC-Link system optical repeater module	AJ65SBT-RPS	SI/QSI-type optical fiber cables are used (combining and using two modules). Maximum number of connected levels: 3, maximum transmission distance: 500 m (SI)/ 1000 m (QSI)	—	—	User's Manual IB-0800089 (13JQ85)	112
	AJ65SBT-RPG	GI-type optical fiber cables are used (combining and using two modules). Maximum number of connected levels: 2, maximum transmission distance: 2000 m	—	—		112
CC-Link system wireless optical repeater module	AJ65BT-RPI-10A	Use AJ65BT-RPI-10A and AJ65BT-RPT-10B as a set.Transmission speeds of 156 kbps, 625 kbps and 2.5 Mbps are supported. Wireless transmission distances from 0 to 100 m via infrared light.Optical communication status monitoring function	—/1	Remote I/O station when occupying one station	User's Manual IB-0800090 (13JQ86)	114
	AJ65BT-RPI-10B		—/1	Remote I/O station when occupying one station		114

Precautions when Configuring the System

■It is necessary to match the transmission speed of each segment to the transmission speed of the master station.

Product Description

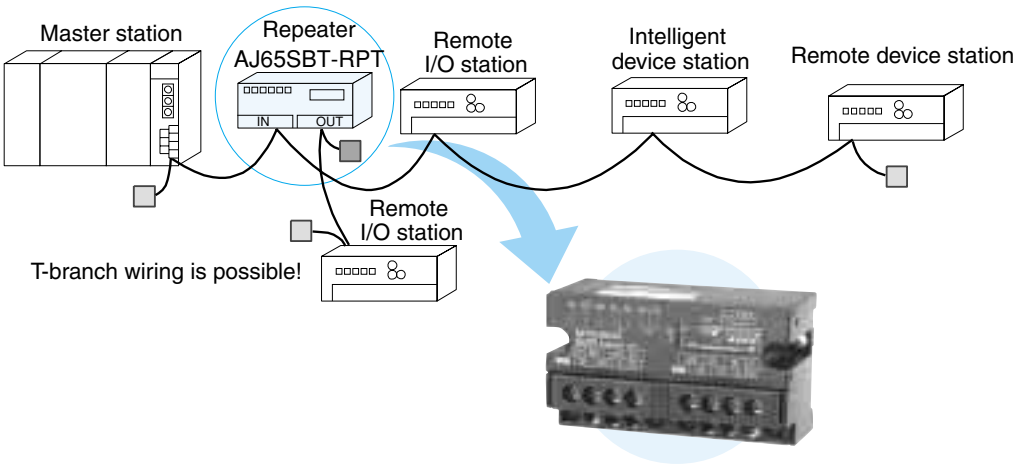
Repeater Module

AJ65SBT-RPT

CC-Link System Repeater (T-Branch) Module

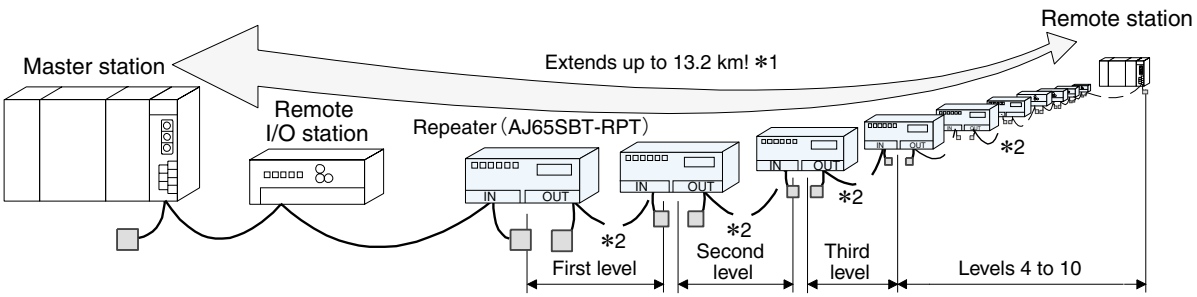
A T-branch configuration can be included in the CC-Link network.

By placing this module between other modules in the CC-Link system, T-branches can be inclu ded in the CC-Link network at all supported speeds (10 Mbps, 5 Mbps, 2.5 Mbps, 625 kbps and 156 kbps).



The transmission distance of the CC-Link system can be extended.

This module allows the CC-Link system's transmission distance to be extended.
It is possible to extend the transmission distance by up to 10 levels using several of these modules.



*1 The figure shows the maximum transmission distance when the transmission speed is set to 156 kbps.
*2 Although not shown here, it is possible to connect other slave stations between repeaters.

Performance Specifications

See page 154 for the general specifications.

Model name	AJ65SBT-RPT
Maximum number of connected modules (levels) per segment	10
Maximum transmission distance of each segment	Varies depending on the transmission speed. Same as the normal CC-Link system (a system consisting of one segment)
Number of occupied stations (stations)	— (does not occupy any stations)
Station numbers that can be set	No station number
Power supply voltage	20.4 to 26.4 VDC
Current consumption	0.06 A (at TYP 24 VDC)
External dimensions	87.3 (W) ×54 (H) ×40 (D) mm
Weight	0.2kg

Name and Setting of Each Part

Operation LED display

The status of the module can be checked by the on/off status of the LED display.

LED名	At hardware test	At normal operation
PW	On: The power supply is turned on.	
	Off: The power supply is turned off, or the reset switch is pressed.	
TEST	On: A hardware test is being performed.	
	Off: During communication operation	
ERR.	On: Hardware error The switch setting value is abnormal.	On: Communication error The switch setting value is abnormal.
	Flashing: The switch setting value was changed during operation.	Flashing: The switch setting value was changed during operation.
	Off: Normal	Off: Communication is normal.
SD1	Flashing: The circuit is normal.	Flashing: Transmitting data to the IN side.
	Off: The circuit is abnormal.	Off: Not transmitting data to the IN side.
RD1	Flashing: The IN side circuit is normal.	Flashing: Receiving data from the IN side.
	Off: The IN side circuit is abnormal.	Off: No reception data from the IN side.
SD2	Flashing: The circuit is normal.	Flashing: Transmitting data to the OUT side.
	Off: The circuit is abnormal.	Off: No data is transmitted to the OUT side.
RD2	Flashing: The OUT side circuit is normal.	Flashing: Receiving data from the OUT side.
	Off: The OUT side circuit is abnormal.	Off: No reception data from the OUT side.

Reset switch

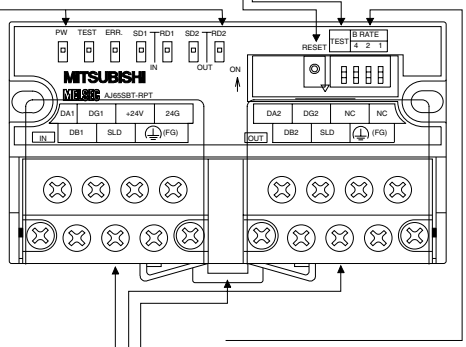
Pressing this switch resets the module's hardware. (The factory setting is OFF.)

Switch status	Operation status
ON	Hardware test
OFF	Normal operation

Test switch

This is used to set the operating condition of the module. (The factory setting is OFF.)

Switch status	Operation status
ON	Hardware test
OFF	Normal operation



IN side terminal block

This terminal block is used to connect the CC-Link dedicated cable on the side where the power supply and master station exist.

OUT side terminal block

This terminal block is used to connect the CC-Link dedicated cable on the side where the master station does not exist.

DIN rail hook

Hook for mounting the module to the DIN rail

Press on the centerline of the DIN rail hook until it clicks in order to mount the module.

Transmission speed setting switch

This is used for setting the transmission speed of the module. (The factory setting is 0.)

Make sure to set the transmission speed in the range below. The "ERR." LED of the LED display turns on if a setting other than the ones listed below is made.

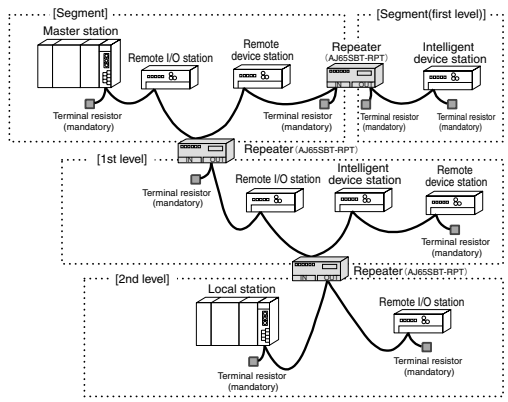
Setting value	Status of setting switch 4	2	1	Transmission speed
0	OFF	OFF	OFF	156kbps
1	OFF	OFF	ON	625kbps
2	OFF	ON	OFF	2.5Mbps
3	OFF	ON	ON	5Mbps
4	ON	OFF	OFF	10Mbps

●Point●

The settings of the test switch and transmission speed setting switch are valid as made when the power supply to the module is turned off and back on again or the reset switch is turned off.

The operations above should be performed again if the settings are changed while the power supply to the module is turned on.

System Configuration



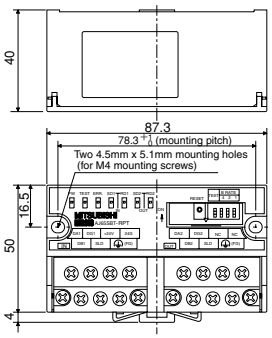
∗1 The repeater is a module used to connect each segment and extend the CC-Link system.

∗2 In a CC-Link system using repeaters, a block of devices connected by wiring from one terminal resistor to another terminal resistor is referred to as a segment. (A conventional CC-Link system can be said to be a single-segment configuration.)

∗3 It is necessary to match the transmission speed of each segment to the transmission speed of the master station.

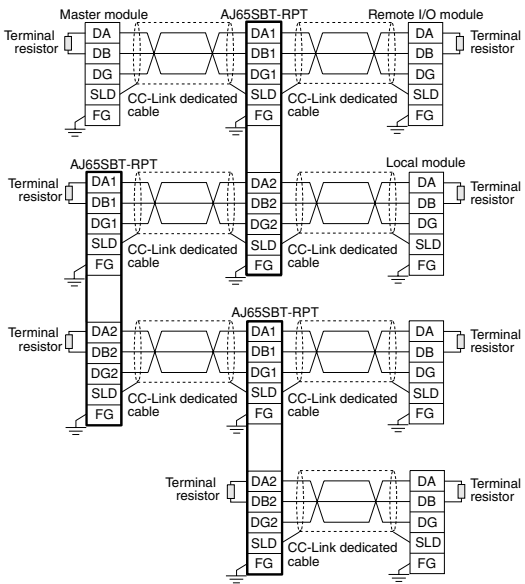
External Dimension Diagram

Unit: mm



Module Connection

The following figure shows how to connect AJ65SBT-RPT to the CC-Link system with cables.



●Important●

It is possible to use CC-Link dedicated cables of different specifications for each segment. However, within each segment CC-Link dedicated cables with the same specifications should be used. Normal data transmission cannot be guaranteed if multiple specifications are used.

●Point●

- Make sure to connect a terminal resistor to the modules at both ends of a segment. Terminal resistors should also be connected between DA and DB (between DA1 and DB1 as well as DA2 and DB2 in case of AJ56SBT-RPT).
- The terminal resistors used vary according to the type of cable used. For more information, see the user's manual for the master module to be used.
- The shielded wire of the CC-Link dedicated cable should be connected to "SLD" of each module, and both sides should be treated with Class D grounding (Class 3 grounding) via "FG." Note that SDL and FG are connected within the module.

Product Description

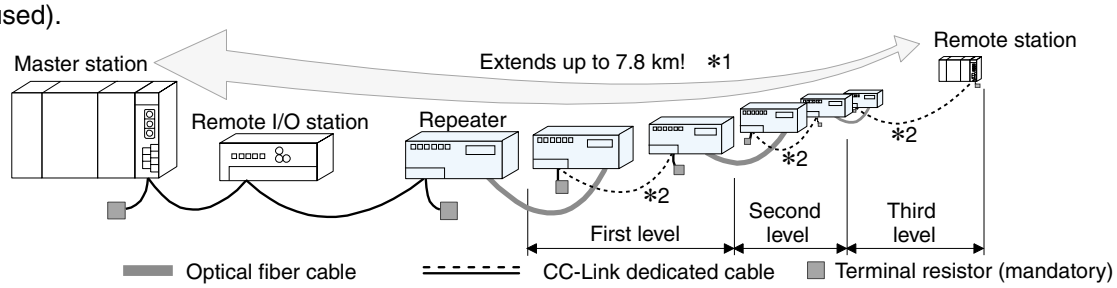
Repeater Module

AJ65SBT-RPS AJ65SBT-RPG

CC-Link System Optical Repeater Module

CC-Link system optical repeater module

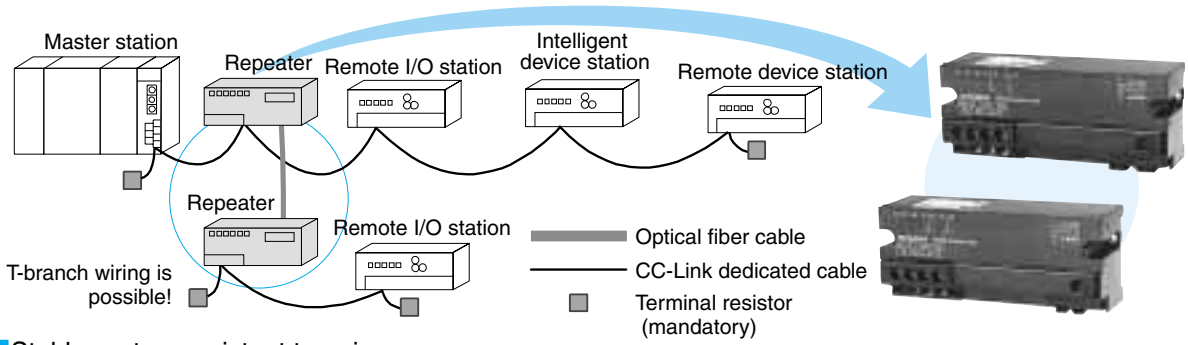
The transmission distance of the CC-Link system can be extended.
It is possible to extend the transmission distance of the CC-Link system by using pairs of these products, either AJ65SBT-RPS (for SI/QSI type optical fiber cable) or AJ65SBT-RPG (for GI type optical fiber cable). In addition, it is possible to extend the transmission distance by up to three levels using several pairs of these modules (up to two levels if AJ65SBT-RPG modules are used).



*1 The figure shows the maximum transmission distance in a system where the transmission speed is set to 156 kbps and where only AJ65SBT-RPS modules are used as repeaters.
*2 Although not shown here, it is possible to connect other slave stations to the CC-Link dedicated cable between repeaters.

T-branch configuration can be included in the CC-Link network.

By placing this module between other modules in the CC-Link system, T-branches can be included in the CC-Link network.



Stable system resistant to noise

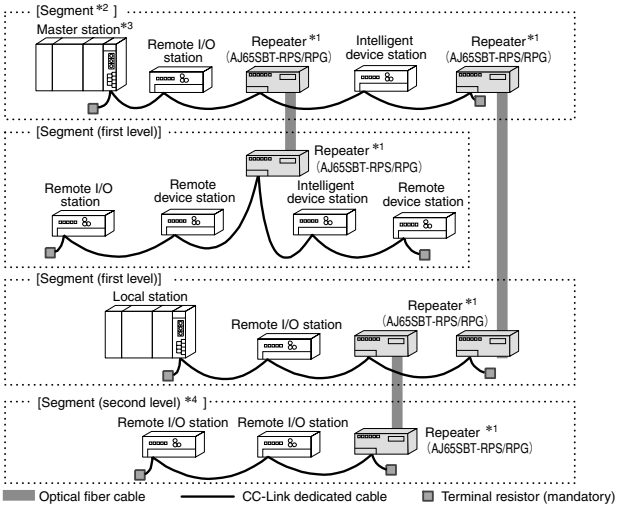
Since optical fiber cables are used for branching and extension, it is easier to avoid problems due to noise, and it is possible to enhance the stability of the system.

Performance Specifications

See page 154 for the general specifications.

Model name			AJ65SBT-RPS		AJ65SBT-RPG
Common specification	Power supply	Voltage	20.4 to 26.4 VDC		
		Current	0.06 A (at TYP 24 VDC)		
	External dimensions		118 (W) ×54 (H) ×40 (D) mm		
	Weight		0.2kg		
CC-Link communication specification	Supplied parts		Terminal resistors (110Ω×1, 130Ω×1)		
	Maximum number of connected levels in a system		3 levels		2 levels
	Number of occupied stations		−(does not occupy any stations)		
Optical communication specification	Connection cable		SI-200/220	QSI-185/230	GI-50/125
	Applicable connector		CA7003		CA9103S
	Maximum transmission distance of optical fiber cable between repeaters		500m	1000m	2000m

System Configuration



Combinations of optical repeater module and optical fiber cable to be used

The optical repeater modules can be used in the following combinations with optical fiber cable.

Optical repeater module	Optical fiber cable
AJ65SBT-RPS	SI-type optical fiber cable (maximum extension distance of cable: 500 m)
	QSI-type optical fiber cable (maximum extension distance of cable: 1000 m)
AJ65SBT-RPG	GI-type optical fiber cable (maximum extension distance of cable: 2000 m)

*1 The repeater is a module used to connect each segment and extend the CC-Link system.
*2 In a CC-Link system using repeaters, a block of devices connected by wiring from one terminal resistor to another terminal resistor is referred to as a segment. (A conventional CC-Link system can be said to be a single-segment configuration.)
*3 It is necessary to match the transmission speed of each segment to the transmission speed of the master station.
*4 Up to 3 levels can be used in one segment (up to 2 levels when AJ65SBT-RPG modules are used).

Name and Setting of Each Part

Operation LED display

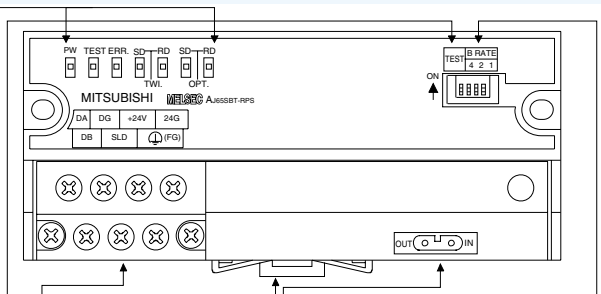
The status of the module can be checked by the on/off status of the LED display.

LED name	At hardware test	At normal operation
PW	On: The power supply is turned on.	
	Off: The power supply is turned off.	
TEST	On: A hardware test is being performed.	
	Off: During communication operation	
ERR.	On: Hardware error The switch setting value is abnormal.	On: Communication error The switch setting value is abnormal.
	Flashing: The switch setting value was changed during operation.	Flashing: The switch setting value was changed during operation.
	Off: Normal	Off: Communication is normal.
TWI.SD	Flashing: The circuit is normal.	Flashing: Not transmitting data to the CC-Link side.
	Off: The circuit is abnormal.	Off: Not transmitting data to the CC-Link side.
TWI.RD	Flashing: The CC-Link side circuit is normal.	Flashing: Receiving data from the CC-Link side.
	Off: The optical communication side circuit is abnormal.	Off: No reception data from the CC-Link side.
OPT.SD	Flashing: The circuit is normal.	Flashing: Transmitting data to the optical communication side.
	Off: The circuit is abnormal.	Off: No data is transmitted to the optical communication side.
OPT.RD	Flashing: The CC-Link side circuit is normal.	Flashing: Receiving data from the optical communication side.
	Off: The optical communication side circuit is abnormal.	Off: No reception data from the optical communication side.

Test switch

This is used to set the operating condition of the module. (The factory setting is OFF.)

Switch status	Operation status
ON	Hardware test
OFF	Normal operation



Transmission speed setting switch

This is used for setting the transmission speed of the module. (The factory setting is 0.)Make sure to set the transmission speed in the range below. The "ERR." LED of the LED display turns on if a setting other than the ones listed below is made.

Setting value	Status of setting switch 4	2	1	Transmission speed
0	OFF	OFF	OFF	156kbps
1	OFF	OFF	ON	625kbps
2	OFF	ON	OFF	2.5Mbps
3	OFF	ON	ON	5Mbps
4	ON	OFF	OFF	10Mbps

DIN rail hook

Optical interface

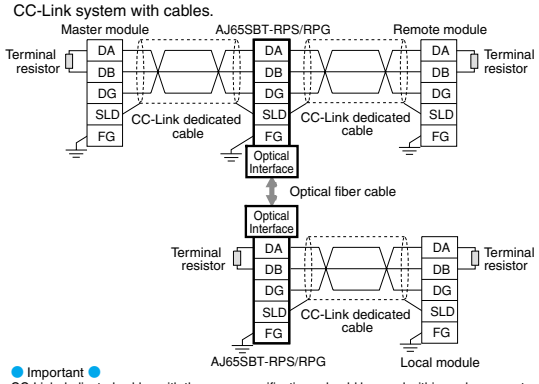
Terminal block

This terminal block is used for connecting the power supply and CC-Link dedicated cables.

● Point ●
The settings of the test switch and transmission speed setting switch are valid as made while the power supply to the module is turned off and back on again.The operations above should be performed again if the settings are changed while the power supply to the module is turned on.

Module Connection

The following figure shows how to connect AJ65SBT-RPS/RPG to the CC-Link system with cables.

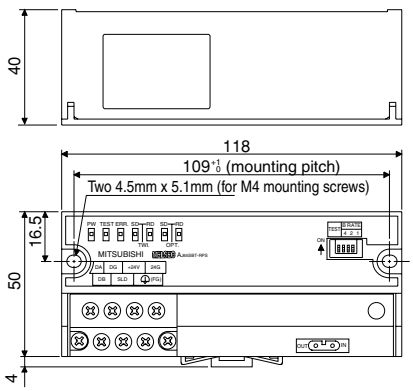


● Important ●
CC-Link dedicated cables with the same specifications should be used within each segment. Normal data transmission cannot be guaranteed if multiple specifications are used.

● Point ●
- Make sure to connect a terminal resistor to the modules at both ends of a segment. Terminal resistors should also be connected between DA and DB. (Terminal resistors are supplied with the module.)
- The terminal resistors used vary according to the type of cable used.For more information, see the user's manual for the master module to be used.
- The shielded wire of the CC-Link dedicated cable should be connected to "SLD" of each module, and both sides should be treated with Class D grounding (Class 3 grounding) via "FG." Note that SDL and FG are connected within the module.

External Dimension Diagram

Unit: mm



Product Description

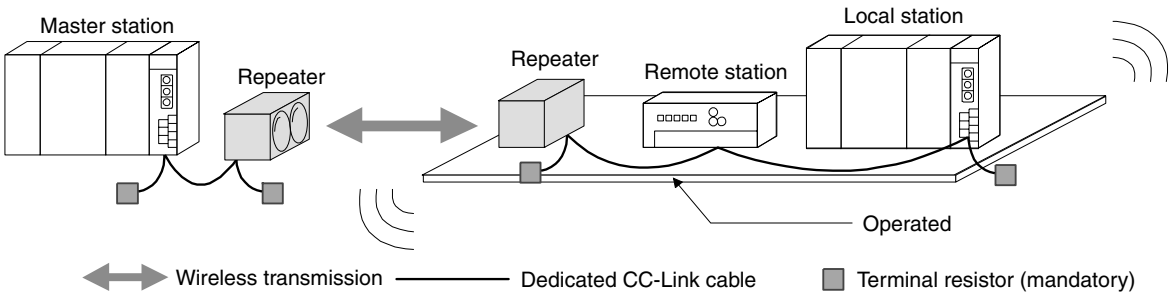
Repeater Module

AJ65BT-RPI-10A AJ65BT-RPI-10B

CC-Link System Wireless Optical Repeater Module

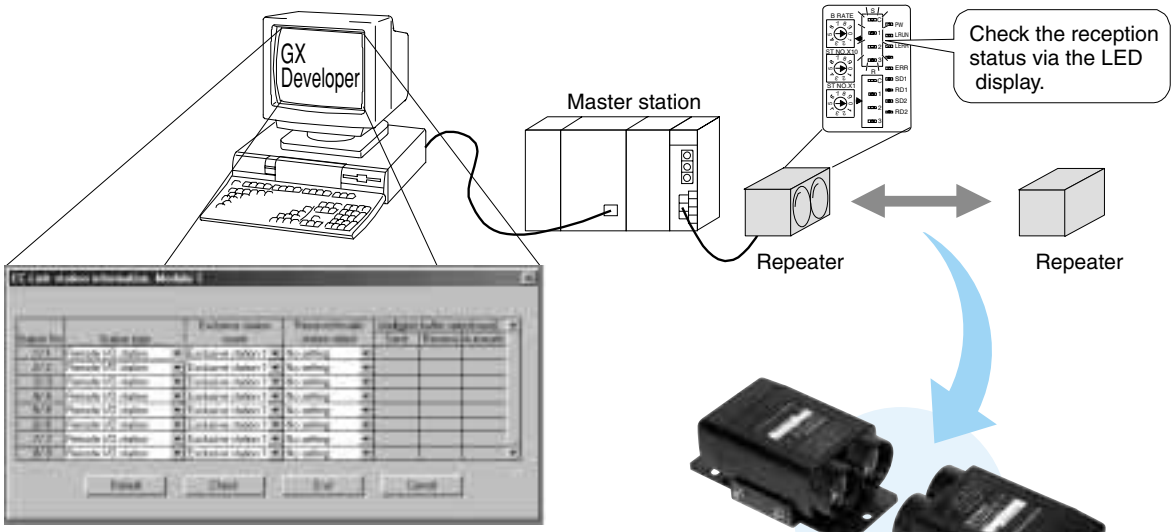
■Wireless transmission can be achieved by infrared light.。

By using AJ65BT-RPI-10A and AJ65BT-RPI-10B modules combined, it becomes possible to perform wireless transmission in the CC-Link system over distances from 0 to 100 m using infrared light. This allows the use of the CC-Link system in a place where wiring would be difficult. The transmission speed can be up to 2.5 Mbps.



■It is possible to monitor the module communication status.

Set the station number for this module and parameters in the same way as for a remote I/O station in the master station in order to monitor (i.e., read to the master station) the status of the module's optical reception status.
Also, it is possible to display the reception status of the target module on the host-station's LED display via a sequence program executed on the master station. Therefore it is possible to fine-tune the optical axis.



(Screen of GX Developer)

* It is not necessary to set the station number and parameters if the module is used as a repeater only without monitoring the optical reception status.

■AJ65BT-RPI-10A and AJ65BT-RPI-10B must be used as a pair.

Performance Specifications

See page 154 for the general specifications.

Model name			AJ65BT-RPI-10A AJ65BT-RPI-10B
Common specification	Power supply	Voltage	20.4 to 26.4 VDC
		Current	0.137A (at TYP. 24VDC)
	External dimensions		161 (W) ×100 (H) ×57.5 (D) mm
	Weight		0.5kg
CC-Link communication specification	Transmission speed		2.5M/625k/156kbps
	Maximum number of connected levels in a segment		2 levels
	Number of occupied stations		When the monitoring function is used: 1 (remote I/O station), when the monitoring function is not used: 0 (no station is occupied)
Optical communication specification	Optical transmission distance		0 to 100 m
	Angle of beam spread (°)		When the optical transmission distance is 0 to 50 m: Total angle±2 When the optical transmission distance is 50 to 100 m: Total angle ±1
	Modulation frequency		Module A to module B: 36 ± 3 MHz Module B to module A: 44 ±2.5MHz
	Modulation method		FSK
Specially noted general specification	Ambient illumination *		Must be 10000 lx or less (avoid direct sunlight)

*Reference values (based on JIS Z9110) of ambient illumination are shown below.
・Illumination required for detailed visual work in a plant: 3000 to 1500 lx
・Illumination required for work in an office: 2000 to 750 lx

Name and Setting of Each Part

Operation LED display

The status of the module can be checked by the on/off status of the LED display.

LED name	Description	
PW	On: The power supply is turned on.	
	Off: The power supply is turned off.	
LRUN	On: Normal communication while the monitoring function is used	
	Off: When a communication error occurred while the monitoring function is used, or while the monitoring function is not used	
LERR	On: When a communication error occurred while the monitoring function is used, or while the monitoring function is not used	
	Off: Normal communication while the monitoring function is used	
ERR	On: Communication error	
	Off: Normal	
SD1	On: Sending data to the cable side	
	Off: Not sending data to the cable side	
SD2	On: Sending data to the optical output side	
	Off: Not sending data to the optical output side	
RD1	On: Receiving data from the connection cable side	
	Off: Not receiving data from the connection cable side	
RD2	On: Receiving data from the optical input side	
	Off: Not receiving data from the optical input side	
SC	RY (n+1) 0 is turned on.	Turns on only when the monitoring function is used.
	Off: RY (n+1) 0 is turned off.	
S1	On: RY (n+1) 1 is turned on.	
	Off: RY (n+1) 1 is turned off.	
S2	On: RY (n+1) 2 is turned on.	
	Off: RY (n+1) 2 is turned off.	
S3	On: RY (n+1) 3 is turned on.	
	Off: RY (n+1) 3 is turned off.	
RC	On: Optical reception is enabled for the self-station.	
	Off: Optical reception is disabled for the self-station.	
R1	On: The margin in light reception of the self-station is 1.5 times or more.	
	Off: The margin in light reception of the self-station is less than 1.5 times.	
	(Using RC as the standard.)	
R2	On: The margin in light reception of the self-station is 2.0 times or more.	
	Off: The margin in light reception of the self-station is less than 2.0 times.	
	(Using RC as the standard.)	
R3	On: The margin in light reception of the self-station is 2.5 times or more.	
	Off: The margin in light reception of the self-station is less than 2.5 times.	
	(Using RC as the standard.)	

Transmission speed setting switch

This is used for setting the transmission speed of the module.
(The factory setting is 0.)

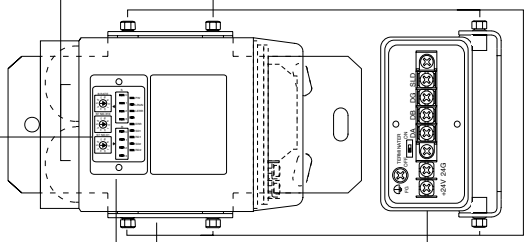
Setting value	Transmission speed
0	156kbps
1	625kbps
2	2.5Mbps
3 to 9	Setting not allowed

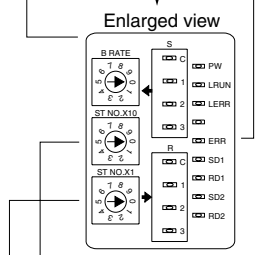
Lens surface

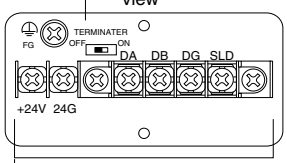
This is the lens surface used for performing optical communication.

Module mounting screws

These are used for fixing the module to the mounting metal fittings.







Station number setting switch (ten digits)

Station number setting switch (unit digits)

This is used for setting the station number of the module, and to set whether or not to use the monitoring function. (The factory setting is OFF.)

00	When the monitoring function should not be used
01 to 64	Station number when the monitoring function is used
65 to 99	Setting not allowed

Terminal block

This terminal block is used for connecting the power supply and CC-Link dedicated cable.

Terminal resistor switch

This is used for setting whether or not to use the module's built-in terminal resistor (110 Ω). (The factory setting is 0.)

Mounting metal fittings

Metal fittings for mounting the module

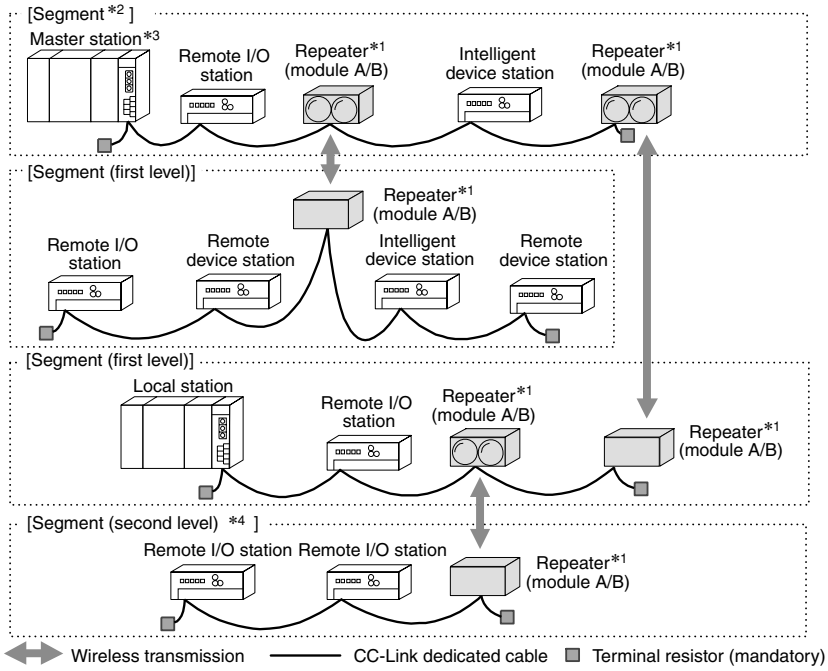
Display window mounting screw

This screw is used for fixing the display window to the module. Remove the display window when performing the switch setting.

● Point ●

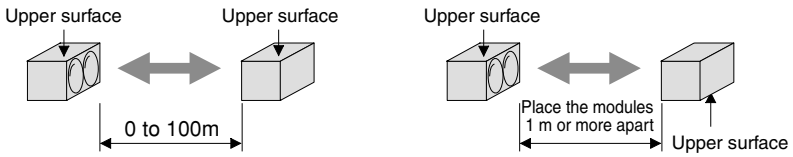
The settings of the transmission speed setting switch and station number setting switches are valid as made while the power supply to the module is turned off and back on again. The operations above should be performed again if the settings are changed while the power supply to the module is turned on.

System Configuration

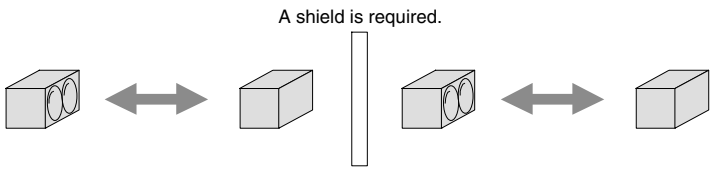


*1 The repeater is a module used to connect each segment and extend the CC-Link system.
AJ65BT-RPI-10A (module A) and AJ65BT-RPI-10B (module B) must be used as a pair.
*2 In a CC-Link system using repeaters, a block of devices connected by wiring from one terminal resistor to another terminal resistor is referred to as a segment. (A conventional CC-Link system can be said to be a single-segment configuration.)
*3 It is necessary to match the transmission speed of each segment to the transmission speed of the master station (2.5 Mbps/625 kbps/156 kbps).
*4 Up to 2 levels can be used in one segment.

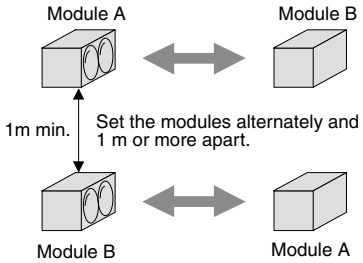
●There are no restrictions on the direction in which the AJ65BT-RPI-10A/10B modules themselves are mounted. However, the upper surface should face in the same direction as the module with which optical communication is performed. If it is mounted in a different direction, the two modules should be placed 1 m or more apart.



●If several pairs of AJ65BT-RPI-10A/10B modules are used arranged in series, a shield should be placed between each pair. Without a shield there is a risk that they may malfunction due to interference.

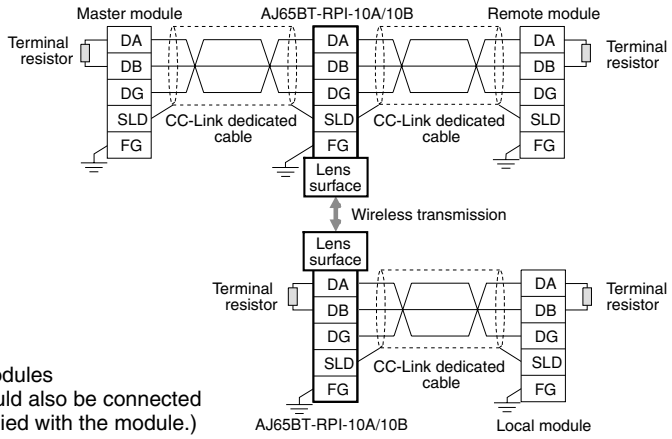


●If several pairs of AJ65BT-RPI-10A/10B modules are used arranged in parallel, the positions of modules A and B should be alternated and the pairs should be placed 1 m or more apart. If their positions are not alternated, there is a risk that they may malfunction due to interference.



Module Connection

Here it is explained how to connect the AJ65BT-RPI-10A/10B to the CC-Link system with the CC-Link dedicated cables. Remove the terminal block protection cover of the modules beforeperforming the wiring work.



Important

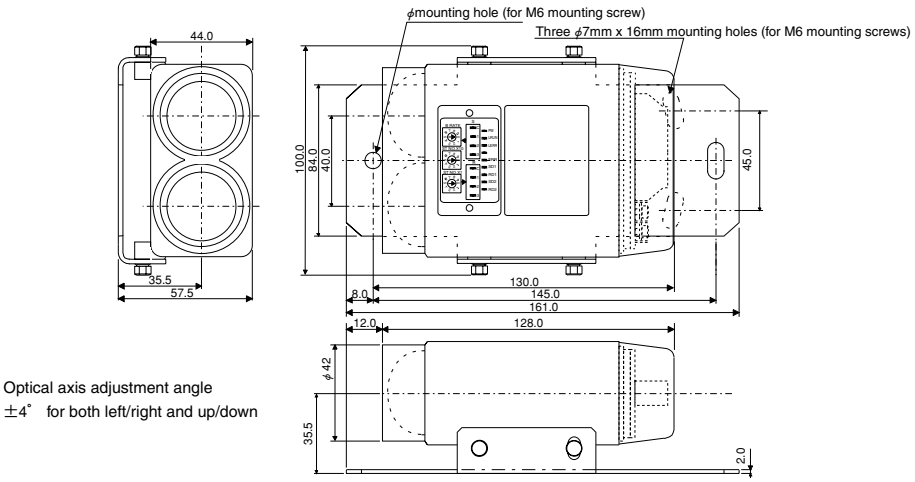
CC-Link dedicated cables with the same specifications should be used within each segment. Normal data transmission cannot be guaranteed if multiple specifications are used.

Point

- Make sure to connect a terminal resistor to the modules at both ends of a segment. Terminal resistors should also be connected between DA and DB. (Terminal resistors are supplied with the module.)
- The terminal resistors used vary according to the type of cable used. For more information, see the user's manual for the master module to be used.
- The shielded wire of the CC-Link dedicated cable should be connected to "SLD" of each module, and both sides should be treated with Class D grounding (Class 3 grounding) via "FG." Note that SDL and FG areconnected within the module.

External Dimension Diagram

Unit: mm



Optical axis adjustment angle
±4° for both left/right and up/down

RS-232 Interface Module

Overview

It is possible to perform data communication with external devices, such as bar-code readers and ID controllers that communicate via RS-232, and general-purpose PCs.

AJ65BT-R2

Product description Page 120

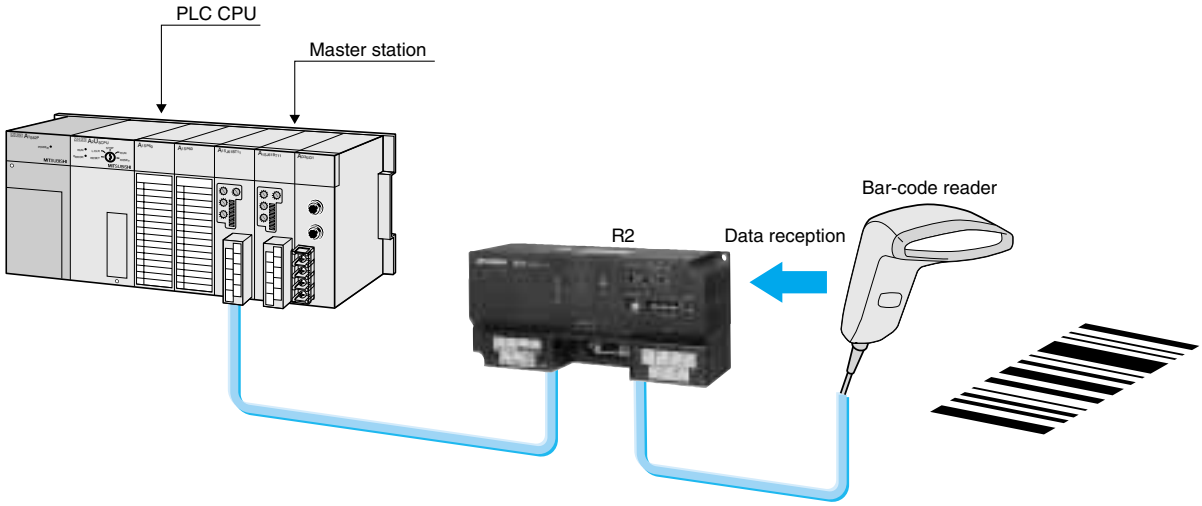
Overview

■The table below shows a list of external devices that can be connected to AJ65BT-R2 (as of July, 1997).

Connected device	Manufacturer	Model name	Remark
Bar-code readers	Manufactured by Nippon Electric Industry Co., Ltd.	2600 Series BCR-2530	·Only non procedure is supported as the transmission method.
	Manufactured by Tohken Co., Ltd.	TLMS-3500RV	
	Manufactured by Izumi Datalogic.	DS50AF	
ID controllers	Manufactured by Omron Corporation.	V620	
	Manufactured by Sunx Limited.	ID/R	
		ID/X	
General-purpose external devices	—	General-purpose PC	
		General-purpose printer, etc.	

■Inquire with the appropriate manufacturers regarding connections with other devices.

Overview



The automatic buffer memory update function makes communication easy.

This function automatically updates the buffer memory between R2 and the master station at the timing interval set for R2. With this function it is possible to perform data read/write between R2 and the master station using only the FROM/TO instructions, making the programs simpler. (It can be used in all the CPUs.)

Data can be inserted into frames at data communication with external devices.

By adding bit fields at the head and end of the frames, individual message formats can be easily created and communicated according to the specifications of external devices, such as bar-code readers and ID controllers.
Two types of frames are provided: the default frame and the user-created frame (user-registration frame).

It is possible to perform automatic transmission using any timing when the transmission conditions specified by the user are met.

It is possible to send data to external devices automatically whenever the transmission conditions (e.g., changes of RX, RY and RW) specified by the user are met.

Two points of general-purpose input and output are provided as standard.

Two points each of general-purpose input and output are provided as standard. It is possible to input/output synchronization signals directly from/to bar-code readers and ID controllers, without having to set up separate

digital I/O modules.

※ The AJ65BT-R2 module is referred to as R2 in the explanation.

List of Model

Product name	Model name	Description	Number of occupied station	Station type	Related manual	Page with detailed information
RS-232 interface module	AJ65BT-R2	Single-channel RS-232, 2 DC input points and 2 transistor output points	1	Intelligent device	User's Manual (Details) IB-66781 (13JL24)	120

Product Description

Product Description RS-232 Interface Module

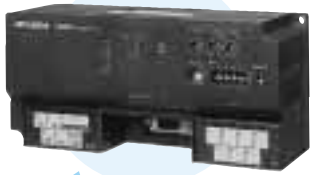
AJ65BT-R2

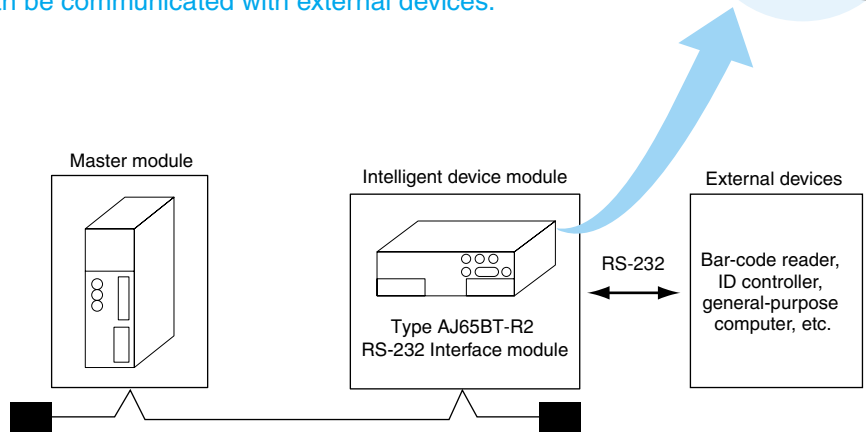
■One channel of the RS-232 interface can be used.

■The general-purpose input/output function is available.
Two general-purpose input and output points are provided.

■Easy programming with the automatic buffer memory update function
Programming is easy because data read/write operations from/to external devices can be performed via the FROM/TO instruction.

■With the non-procedure communication function, any data can be communicated with external devices.



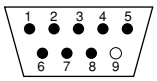


Performance Specifications

See page 154 for the general specifications.

Model name			AJ65BT-R2
RS-232 specification	Interface specification		Conforms to single-channel RS-232Ⓐ
	Transmission method		Full duplex communication method
	Synchronization method		Asynchronous method
	Transmission speed		300, 600, 1200, 2400, 4800, 9600, 19200 bps (Selected by the RC-232 transmission specification setting switch)
	Data format	Start bit	1
		Data bit	7/8
		Parity bit	1 (yes)/0 (no)
		Stop bit	1/2
	Error detection		Odd/even parity check/no parity check
	Communication control (flow control)		DTR/DSR (ER/DR) control DC1/DC3 control
	Transmission distance		15m
	OS reception area		5120 bytes
Data link specification	General-purpose I/O specification		Input side: 24 VDC (sink/source common type) 2 points Output side: Transistor output (sink type) 12/24 VDC 2-point terminal block Ⓑ Ⓒ
	CC-Link station type		Intelligent device station
	Number of occupied stations		1 station (32 points each for RX/RY, 4 words each for RWr/RWw)
	Power supply voltage		24 VDC
	Current consumption		Typically 110 mA (24 VDC), 180 mA (16.8 V) maximum
	EEPROM writing life		100,000 times
	External dimensions		170 (W) ×80 (H) ×63.5 (D) mm
	Weight		395g

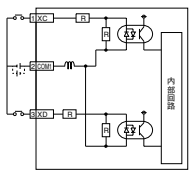
Ⓐ Specification of the RS-232 interface for connecting with external devices



The following type of connector is mounted on the AJ65BT-R2 side; use the matching connector on the connected side. 9-pin D-sub (female) screw type connector manufactured by DDK Ltd. 17JE-13090-37 (D23A)

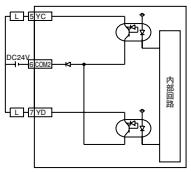
Pin no.	Name	Signal code	Signal direction AJ65BT-R2↔External device
1	Reception carrier detection	CD	←
2	Reception data	RD (RXD)	←
3	Transmission data	SD (TXD)	→
4	Data terminal ready	ER (DTR)	→
5	Signal ground	SG	←
6	Data set ready	DR (DSR)	←
7	Transmission request	RS (RTS)	→
8	Transmission enabled	CS (CTS)	←
9	Not used	---	---

Ⓑ Specifications of general-purpose input of AJ65BT-R2

	AJ65BT-R2	External connection
DC input (sink/source common type)	Number of input points: 2 points Isolation method: Photocoupler isolation Rated input voltage: 24 VDC Rated input current: Approx. 7 mA Operating voltage range: 19.2 to 28.8 VDC(with a ripple rate of 5% or less) Maximum simultaneous load on input points: 100% ON voltage/ON current: 14 V min./3.5 mA min. OFF voltage/OFF current: 6 V max./1.7 mA max. Input resistance: Approx. 3.3 kΩ Response time: OFF→ON : 10 msec max. ON→OFF: 10 msec max. Common method: 2 points 1 common (COM1) sink/source common type External connection method: 9-pin connector (I/O area) 7-point terminal block (M3.5 screws) Includes transmission circuit and module power supply terminal. Applicable wire size: 0.75 to2mm² Applicable solderless terminal: RAV1.25 to 3.5, RAV2 to 3.5 (compliant to JIS C 2805)	

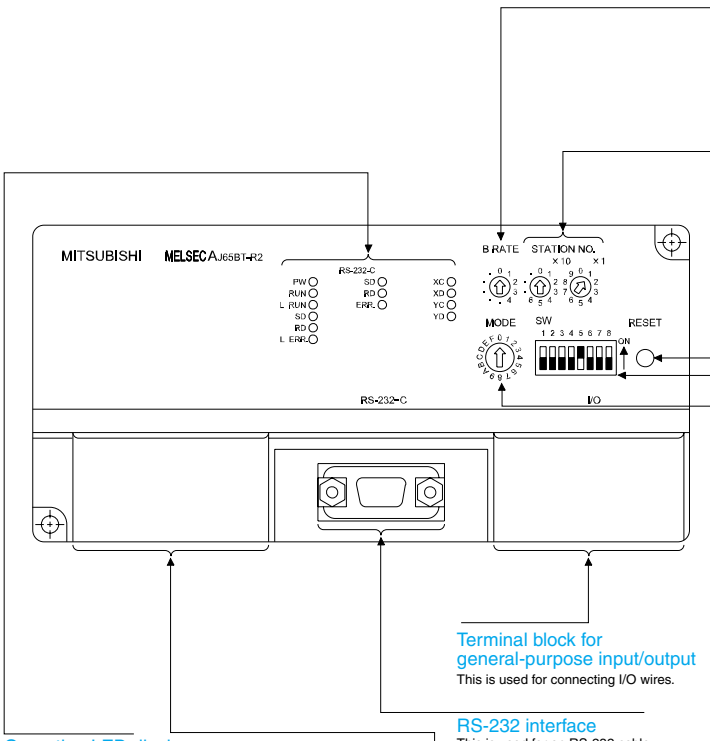
Terminal number	Signal name	Terminal numbe	Signal name
TB1	XC	TB3	XD
TB2	COM1	TB4	NC

Ⓒ Specifications of general-purpose output of AJ65BT-R2

	AJ65BT-R2	External connection
Transistor output (sink type)	Number of output points: 2 points Isolation method: Photocoupler isolation Rated load voltage: 12/24 VDC Rated load voltage range: 10.2 to 28.8 VDC (with a ripple rate of 5% or less) Maximum load current: 0.1 A/point, 0.2 A/common Maximum inruch current: 0.4 A, 10 msec max. Leakage current at OFF: 0.1 mA max. Maximum voltage drop at ON: 1.5 VDC max. (MAX) 0.1A Output method: Sink type Response time: OFF→ON : 2 msec max. ON→OFF: 2 msec max. External power supply in the output area: 10.2 to 28.8 VDC (with a ripple rate of 5% or less) 50 A or less (per TPY 24 VDC 1 common) External load power supply is not included. Surge suppression: Zener diode Common method: 2 points 1 common (COM2) External connection method: 9-pin connector (I/O area) 7-point terminal block (M3.5 screws) Includes transmission circuit and module power supply terminal. Applicable wire size: 0.75 to 2mm² Applicable solderless terminal: RAV1.25 to 3.5, RAV2 to 3.5 (compliant to JIS C 2805)	

Terminal number	Signal name	Terminal number	Signal name
TB5	YC	TB7	YD
TB6	COM2		

Name and Setting of Each Part



Transmission speed setting switch

Setting value	Transmission speed
0	156kbps
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps
5to9	Setting error

Station number setting switches

These switches are used for setting the station number of the module.

Reset switch

Pressing this switch causes the module to return to the status when the power supply is turned on.

RS-232 transmission specification setting switch

This is used for setting the RS-232 transmission specification.

Number	Setting item	Status of setting switch				
		ON			OFF	
SW1to 8	Transmission speed	SW	1	2	3	
			0	0	0	300bps
			1	0	0	600bps
			0	1	0	1200bps
			1	1	0	2400bps
			0	0	1	4800bps
			1	0	1	9600bps
			0	1	1	19200bps
		0:OFF 1:ON				
SW4	Not used					
SW5	Number of data bits	8			7	
SW6	Parity bit enable/disable	Enable			Disable	
SW7		Even			Odd	
SW8	Setting item	2			1	

Terminal block for general-purpose input/output

This is used for connecting I/O wires.

RS-232 interface

This is used for an RS-232 cable connected to an external device.

Operation LED display

LED name		Description
Initial status	PW	Turns on when the power is normally supplied.
	RUN	Turns on when the module is normal, and turns off at a WDT error.
	L RUN	Turns on when the network communication is normal.
Status	L ERR.	Turns on when the network communication is abnormal (e.g., CRC error).
Other	SD	Flashes when sending data link data.
	RD	Flashes when receiving data link data.
XC,XD		Status of general-purpose inputs.
YC,YD		Status of general-purpose outputs.
RS-232 SD		Turns on when sending RS-232 data.
RS-232 RD		Turns on when receiving RS-232 data.
RS-232 ERR		Turns on at an RS-232 transmission error, etc.

Mode setting switch

This is for setting the operating condition of the module.

Number	Name	Setting
0	Online mode (The automatic buffer memory update function is not active.)	Online communication mode. The automatic buffer memory update function is not active.
1	Online mode (The automatic buffer memory update function is active.)	Online communication mode. The automatic buffer memory update function is active.
D	Hardware test mode	Mode to confirm that the module itself operates properly.

Terminal block for data link

A twisted pair cable is connected for the power supply and data link (two-piece termina

External Connection

The following shows how to connect the pins of the RS-232 interfaces of the AJ65BT-R2 module and the external device.

Example of connection where DC code control and DTR/DSR signal control are possible

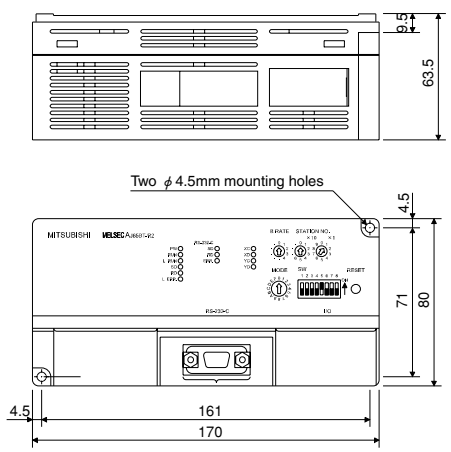
AJ65BT-R2 side (DTE)		Cable connection and signal method	External device (DTE)
Signal code	Pin no.		Signal code
SD	3		SD
RD	2		RD
RS	7		RS
CS	8		CS
DR	6		DR
SG	5		SG
CD	1		CD
ER	4		ER

Example of connection where only DC code control is possible

AJ65BT-R2 side (DTE)		Cable connection and signal method	External device (DTE)
Signal code	Pin no.		Signal code
SD	3		SD
RD	2		RD
RS	7		RS
CS	8		CS
DR	6		DR
SG	5		SG
CD	1		CD
ER	4		ER

External Dimension Diagram

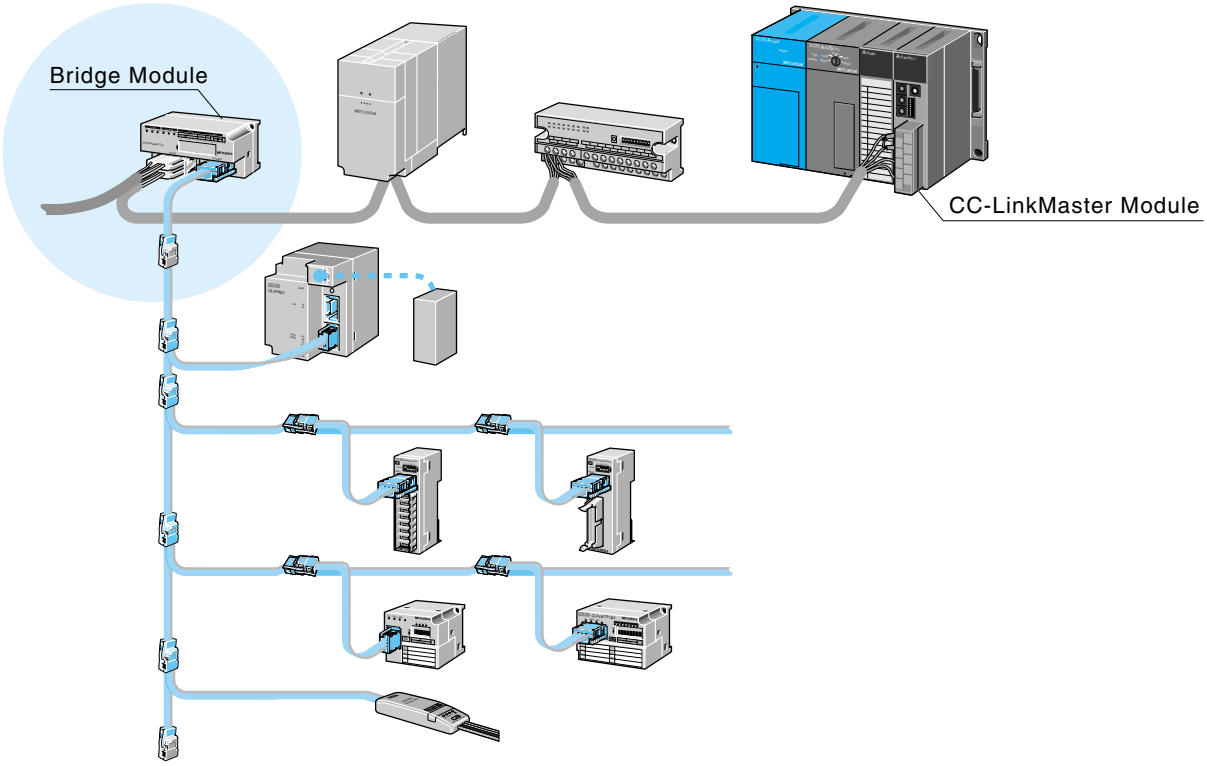
Unit: mm



Overview

CC-Link-CC-Link/LTBridge Module

Seamless connection is realized between CC-Link and CC-LInk/LT



AJ65SBT-CLB

New

Product description ▶ Page 124

CC-LInk-CC-link/LT Bridge Module

Overview

■Maximum 224 points can be controlled with a single bridge module.
■The master station of CC-Link can monitor the state of remote I/O stations of CC-Link/LT.
■CC-Link/LT can be configured with A and QnA Series.

●Applicable master modules

Model of connectable master modules	
Q Series	QJ61BT11N
QnA Series	AJ61QBT11, A1SJ61QBT11
A Series	AJ61BT11, A1SJ61BT11
FX Series	FX_{2N}-16CCL-M (※1)
PCI Board	A80BD-J61BT11
Others	Master module made by partner manufacturers of CC-Link

※1 FX Series can be used in the following range of the number of input/output points.
FX_{1N}, FX_{1NC} ≦128 points
FX_{1N}, FX_{2NC} ≦128 points

List of Model

Product name	Model name	Number of occupied station	Station type	Related manual	Page with detailed information
AJ65SBT-CLB type CC-Link-CC-Link/LT Bridge Module	AJ65SBT-CLB	2.4.8	Remorte device	User's manual (Details) SH-080362E (13JR63)	124

Product Description

CC-Link–CC-Link/LT Bridge Module

AJ65SBT-CLB

■Seamlessly connecting two networks

The AJ65SBT-CLB is a bridge module that enables seamless connection of the CC-Link and CC-Link/LT networks.

Up to 224 points (448 points when using I/O) can be controlled with one bridge module by using RX and RY (bit devices).

■Monitoring Communication status of CC-Link/LT remote I/O stations

The data link status and I/O errors in the CC-Link/LT romote I/O stations can be monitored from the CC-Link master station mounted PLC CPU.

■Connecting CC-Link/LT to A and QnA Series system

CC-Link/LT system can be connected to MELSEC-A and QnA Series via CC-Link.

■Reduced wiring and simplify tasks

Easily connect the system by using one-touch communication connector for the CC-Link.

■Compact size

The size is equivalent to the AJ65SBTB1-8□ compact remote I/O module (W87.0 x H50.0 x D 40.0mm)

The module can be mounted by either mounting screws or DIN rails.

Performance Specifications

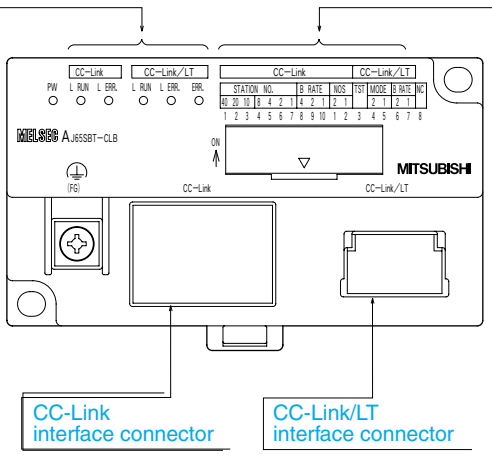
See page 154 for the general specifications.

Model name			AJ65SBT-CLB		
CC-Link side	Station type		Rimote device station		
	Number of occupied stations	2 stations	64 points each for RX and RY (16 points are used in the system) 8 points each for RWr and RWw		
		4 stations	128 points each for RX and RY (16 points are used in the system) 16 points each for RWr and RWw		
		8 stations (4 occupied stations x 2 modules)	256 points each for RX and RY (32 points are used by the system) 32 points each for RWr and RWw		
	AJ65SBT-CLB connecting position		No restrictions		
	External connection system		One-touch connector for communication [transmission circuit] (5-pin, insulation displacement type connector plug is sold separately) <Option> Online connector for communication: A6CON-LJ5P		
CC-Link/LT side			4-point mode	8-point mode	16-point mode
	Control specifications	Maximum number of link points Number in parentheses applieswhen using I/O	224 (448 points)		
		Number of linked points per station Number in parentheses applies when using I/O	4 (8)	8 (16)	16 (32)
	Communication specifications	Transmission speed	2.5Mbps/625kbps/156kbps		
		Communication syastem	BITR (Broadcast Polling+Interval Timed Response) System		
		Transmission path format	T-branch system		
		Error control system	CRC		
		Number of connected modules	56 module		
		Remote station number	1-56		
		AJ65SBT-CLB connection position	Connected at the end of the main line		
		RAS function	Network diagnosis, internal loopback diagnosis, slave station separation, automatic return to system		
		Connection cable	Dedicated flat cable		
Common	Module mounting screw		M4×0.7mm×16mm or more screw Tightening torque range 78 to 108N·cm DIN rail can also be used for mounting		
	Module mounting direction		Can be mounted in any of six orientations (No restrictions on mounting directions)		
	24VDC power supply	Voltage	24VDC externally supplied (20.4V to 26.4V, ripples within 5%)		
		Current consumption	24V 0.075A		
		Current at start-up	24V 0.165A		
	Level of protection		IP2X		
	Weight		0.09kg		

Name and Setting of Each Part

LED Display

	Name of LED	Color	Description of LED
Common	PW	Red	Lit during correct operation of module. Lit: During correct operation of module Unlit: Clock stop or no power supply
① CC-Link part	L RUN		State of data link Lit: Data link execution in progress Unlit: Data link error (time-out)
	L ERR.		Data link fault station detection Lit: CC-Link side switch setting fault CRC fault in received data Blink: CC-Link side switch changed during operation Unlit: No fault
② CC-Link/LT part	L RUN		<During regular operation> Lit: Data link execution in progress Unlit: Data link stopped <Self loop-back test mode> Lit: Self loop-back test normal Unlit: Self loop-back test fault
	L ERR.		<During regular operation> Lit: Data link fault station detection. Some stations are out of control range. Blink: Data link fault at all stations Unlit: No fault <In self loop-back test mode> Lit: Self loop-back test fault Unlit: Self loop-back test normal
	ERR.		Setting fault detection Lit: LT side switch setting fault Blink: LT side switch changed during operation Unlit: No fault



Operation setting switch

Name		Description of LED
CC-Link	Station number setting switch STATION NO.	Use STATION NO. "10," "20" and "40" to set the tens digit of t he station number. Use STATION NO. "1," "2," "4" and "8" to set the units digit of the station number.

Station No.	Tens digit 40	20	10	Units digit 8	4	2	1
1	OFF	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	OFF	ON	OFF	OFF
••							
10	OFF	OFF	ON	OFF	OFF	OFF	OFF
11	OFF	OFF	ON	OFF	OFF	OFF	ON
••							
63	ON	ON	OFF	OFF	OFF	ON	ON

All switches are OFF in the factory shipment state. When two stations are occupied, the setting range is from "1" to "63." When four stations are occupied, the setting range is from "1" to "61." When eight stations are occupied, the setting range is from "1" to "57." Settings out of the permissible range cause a setting error.Transmission speed setting switch

CC-Link	Transmission speed setting switch B RATE	Setting	Setting switch 4	2	1	Transmission speed
		0(Factory shipment setting)	OFF	OFF	OFF	156kbps
		1	OFF	OFF	ON	625kbps
		2	OFF	ON	OFF	2.5Mbps
		3	OFF	ON	ON	5.0Mbps
		4	ON	OFF	OFF	10Mbps

Settings other than above cause a setting error.

CC-Link	Number of occupied stations setting switch NOS : Numbers of Occupied Stations	Setting	Setting switch 2	1	Number of Occupied Stations
		0(Factory shipment setting)	OFF	OFF	2 stations
		1	OFF	ON	4 stations
		2	ON	OFF	8 stations

Settings other than above cause a setting error.

CC-Link/LT	Self loop-back test setting switch	OFF: Regular operation mode (Factory shipment setting) ON: Self loop-back test mode

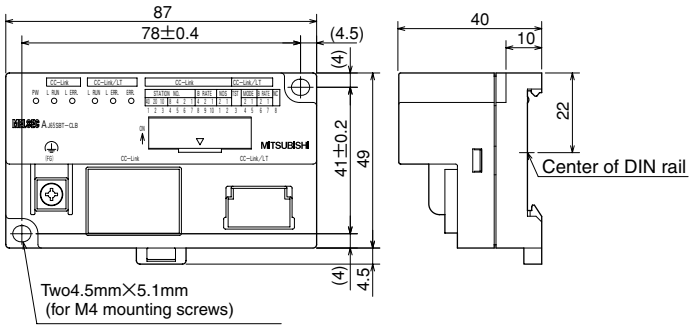
CC-Link/LT	Number of points mode setting switch MODE	Setting	Setting switch 2	1	Number of points
		0(Factory shipment state)	OFF	OFF	8 points
		1	OFF	ON	4 points
		2	ON	OFF	16 points

Settings other than above cause a setting error.

CC-Link/LT	Number of points mode setting switch B RATE	Setting	Setting switch 2	1	Transmission speed
		0(Factory shipment state)	OFF	OFF	156kbps
		1	OFF	ON	625kbps
		2	ON	OFF	2.5Mbps

Settings other than above cause a setting error.

External Dimension Diagram

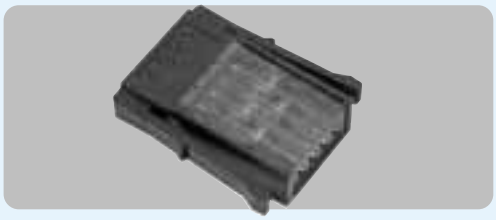


Overview

Optional Parts

Various optional parts are available for I/O modules.

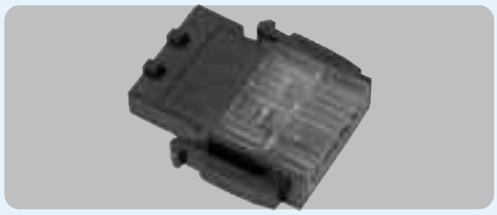
One-touch connector plug



Model name	Application
A6CON-P214 **A6CON-P220** **A6CON-P514** **A6CON-P520**	AJ65SBTC□-□ type digital I/O module AJ65VBTCU□-□type digital I/O module AJ65VBTCU-□ type analog I/O module

Product description ▶ Page 128

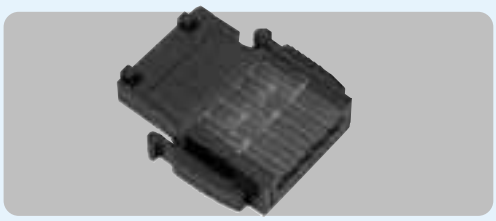
One-touch connector plug for communication



Model name	Application
A6CON-L5P	AJ65VBTCU□-□type digital I/O module AJ65VBTCU-□type analog I/O module

Product description ▶ Page 129

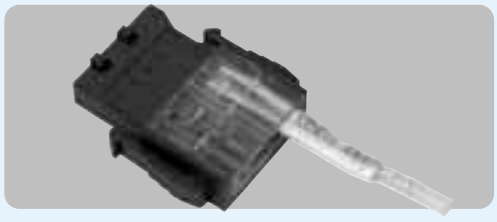
One-touch connector plug for power supply and FG



Model name	Application
A6CON-PW5P	AJ65VBTCU□-□type digital I/O module AJ65VBTCU-□type analog I/O module

Product description ▶ Page 129

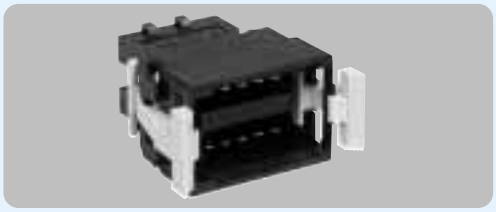
One-touch connector plug with terminal resistor



Model name	Application
A6CON-TR11	AJ65VBTCU□-□ type digital I/O module AJ65VBTCU-□type analog I/O module

Product description ▶ Page 129

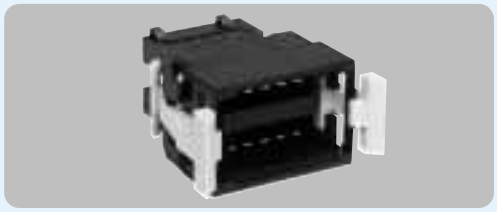
Online connector for communication



Model name	Application
A6CON-LJ5P	AJ65VBTCU□-□type digital I/O module AJ65VBTCU-□type analog I/O module

Product description ▶ Page 129

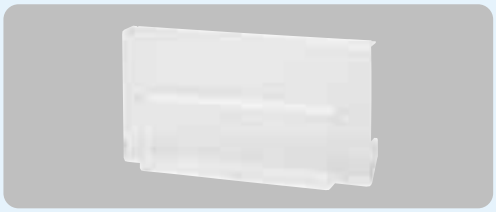
Online connector for power supply



Model name	Application
A6CON-PWJ5P	AJ65VBTCU□-□digital I/O module AJ65VBTCU-□type analog I/O module

Product description ▶ Page 129

Protective cover



Model name	Application
A6CVR-8 A6CVR-16 A6CVR-32	AJ65SBTB□-□type digital I/O module AJ65SBTC□-□type digital I/O module

Product description ▶ Page 130

FCN connector

Model name	Application
A6CON1 A6CON2 A6CON3	AJ65SBTC□-□type digital I/O module AJ65BTCF□-□type digital I/O module AJ65VBTCF□-□type digital I/O module

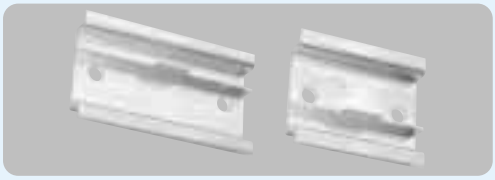
Product description ▶ Page 131

Protective cap for unused connector areas

Model name	Application
A6CAP-DC1 A6CAP-WP1	AJ65SBTW□-□type digital I/O module
A6CAP-WP2	AJ65FBTA□-□type digital I/O module

Product description ▶ Page 131

Module mounting fitting



Model name	Application
A6PLT1V A6PLT2V	AJ65VBTCU□-□type digital I/O module AJ65VBTCU-□type analog I/O module

Product description ▶ Page 131

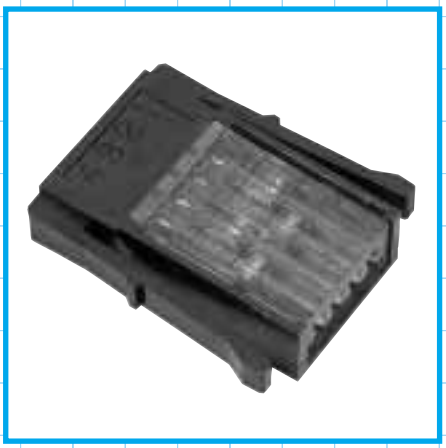
Product Description

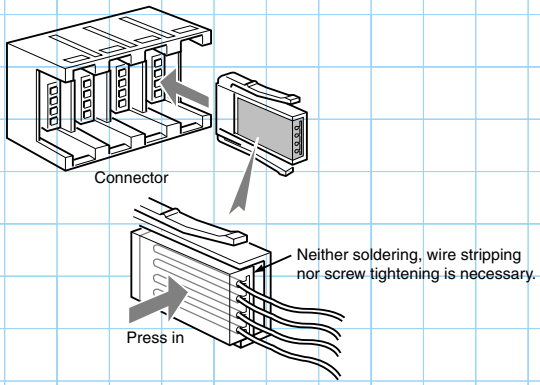
Optional Parts for I/O Modules

A6CON-P214 A6CON-P514
A6CON-P220 A6CON-P520

One-Touch Connector Plug

The following are one-touch connectors for input/output. Due to the easy-to-use loose wire pressure-welding connection method (eliminating the need for soldering, wire stripping and screw tightening), the man-hours required for wiring work can be dramatically reduced.





The loose wire can be securely connected simply by pressing the side of the plug inward after inserting the loose wire into the connector.

(Note: Once the plug cover is pressed shut, the one-touch connector plug cannot be reused.)

List of Models

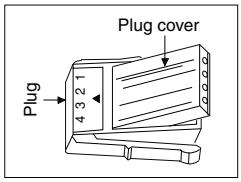
	Model name	Specification		Color of cover
		Applicable cable core wire size (mm^2)	Applicable cable external size (mm)	
One-touch connector plugs (a pack contains 20 pieces)	A6CON-P214	0.14 to 0.2 (AWG#26 to24)	ϕ1.0 to 1.4	Transparent
	A6CON-P220		ϕ1.4 to 2.0	Yellow
	A6CON-P514	0.3 to 0.5 (AWG#22 to20)	ϕ1.0 to 1.4	Red
	A6CON-P520		ϕ1.4 to 2.0	Blue

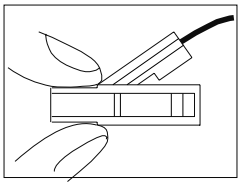
Wiring Method

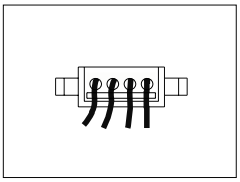
(1) Confirm that the plug cover is mounted in the main body of the plug.
∗: Do not press the plug cover into the plug before inserting cables. Once the plug cover is pressed shut, the plug cannot be reused.

(2) Lift up the rear of the plug cover and insert the cables until they touch the bottom of the plug.

(3) Press the plug cover into the plug with a pliers or the like, and press the plug cover shut.
Once the plug cover is pressed shut, confirm that it is securely mounted in the plug as shown in the figure below.







Optional Parts for I/O Modules

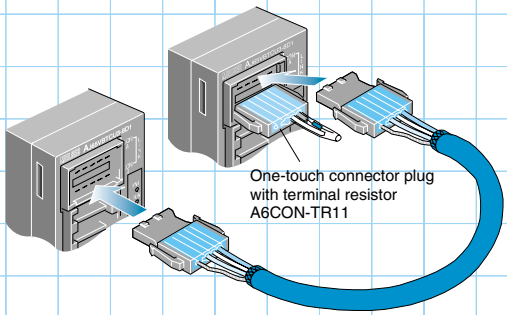
Product Description

A6CON-L5P
A6CON-PW5P
One-Touch Connector Plug for Communication, Power Supply and FG

A6CON-LJ5P
A6CON-PWJ5P
Online Connector for Communication, Power Supply

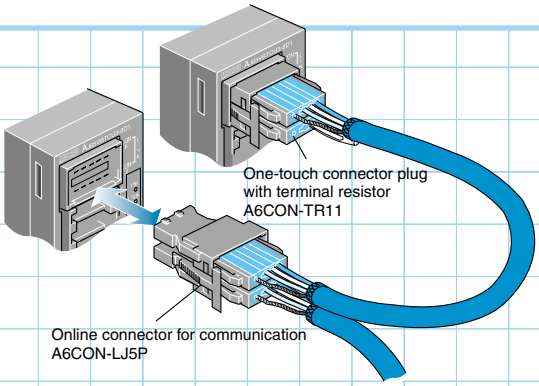
A6CON-TR11
One-Touch Connector with Terminal Resistor

The following parts are provided for AJ65VBTCU□-□ type digital I/O modules and AJ65VBTCU-□type analog I/O modules.
Due to the use of loose wire pressure-welding connection method (eliminating the need for soldering, wire stripping and screw tightening), and by placing the connectors on the same surface, the wiring work is made much simpler.
Additionally, by using online connectors for communication and power supply, it is possible to replace modules without stopping the communication.



●The IN and OUT sides for the communication cable and power supply cable are connected separately; laying out the wiring on a circuit board is surprisingly easy.
●All connectors are placed on the same surface; all connections can be made by wiring on the front surface, and the wiring work is made much simpler.

(Note: Once the plug cover is pressed shut, the one-touch connector plug cannot be reused.)



●By using online connectors for communication and power supply, it is possible to replace modules without stopping the communication.

List of Models

Product name	Model name	Specification
One-touch connector plug for communication (a pack contains 10 pieces)	A6CON-L5P	Five-pole one-touch connector plug for communication [transmission circuit terminal (pressure connect type)] Applicable cable: FANC-110SBH (manufactured by Kuramo Electric Co., Ltd.)CS-110 (manufactured by Daiden Co., Ltd.)
One-touch connector plug for power supply and FG (a pack contains 10 pieces)	A6CON-PW5P	Five-pole one-touch connector plug for power supply and FG [module power supply terminal, I/O power supply terminal, and FG terminal (pressure connect type)]Applicable wire size: 0.66 to 0.98 mm² (AWG18) [@2.2 to 3.0]Wire diameter: 0.16 mm or more
Online connector for communication (a pack contains 5 pieces)	A6CON-LJ5P	Five-pole online connector for communication (10 poles)
Online connector for power supply (a pack contains 5 pieces)	A6CON-PWJ5P	Five-pole online connector for power supply (10 poles)
One-touch connector plug with terminal resistor (a pack contains 1 piece)	A6CON-TR11	One-touch connector plug for communication with terminal resistor (110Ω) ・ Make sure to use this terminal resistor if a connector type I/O module is used at the terminal station.

Product Description

Optional Parts for I/O Modules

A6CVR-8 A6CVR-16 A6CVR-32

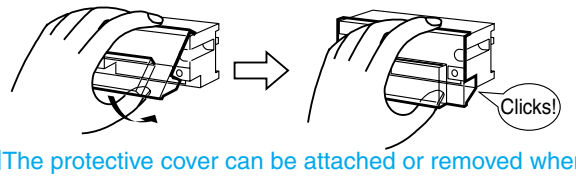
Protective cover

These protective covers can be easily attached on digital I/O modules of the AJ65SBTB□-□ (terminal block type) and the AJ65SBTC□-□ types (one-touch connector type), as well as repeater modules of the AJ65SBT-RP□ type.

■It is possible to prevent foreign substances from getting into the opening area of the terminal block.

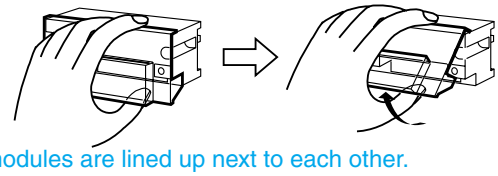
How to attach the cover

Hook the upper part of the cover to the upper part of the module, and press the lower part of the cover until it clicks. The cover is then installed.



How to remove the cover

Place a finger at the lower part of the protective cover and pull the cover up.



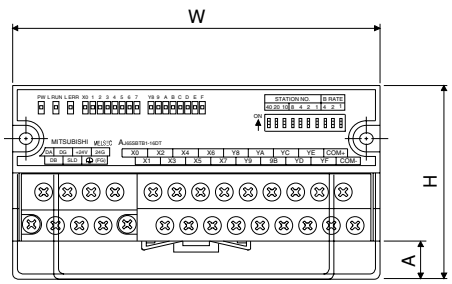
■The protective cover can be attached or removed when the modules are lined up next to each other.

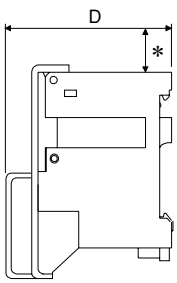
●The protective cover can be attached or removed even when the modules are lined up immediately next to each other so that there is no space between modules.

List of Models

Product name	Model name	Model name Applicable module
Protective cover for 8-point module (a pack contains 10 pieces)	A6CVR-8	AJ65SBTB1-8□, AJ65SBT-RPT
Protective cover for 16-point module (a pack contains 10 pieces)	A6CVR-16	AJ65SBTB1-16□, AJ65SBTC1-32□, AJ65SBT-RPG,AJ65SBT-RPS, AJ65SBTC4-□, AJ65SBTB2N-8□,AJ65SBTB2-8□, AJ65SBTB3-8D,AJ65SBTB32-8DT
Protective cover for 32-point module (a pack contains 10 pieces)	A6CVR-32	AJ65SBTB1-32□, AJ65SBTB2-32□, AJ65SBTB2N-16□, AJ65SBTB3-16□,AJ65SBTB32-16DT

External Dimension Diagram





	W	H	D	A
When the protective cover for 8-point module is attached	87.3	62	54	10.1
When the protective cover for 16-point module is attached	118			
When the protective cover for 32-point module is attached	179			

*The minimum dimension of the upper part of the protective cover is 10 mm or more.

Unit: mm

Product Description

Optional Parts for I/O Modules

A6CAP-DC1 A6CAP-WP1 A6CAP-WP2

Protective Cap for Unused Connector Areas

A6CAP-DC1 is a dust-proof cap, and A6CAP-WP1 and A6CAP-WP2 are water-proof caps conforming to the IP67 standard. A6CAP-WP1 (aluminum) and A6CAP-WP2 (resin) are optional parts for remote I/O modules of the AJ65FBTA□-□ and AJ65SBTW□-□ types.

List of Models

Product name	Model name	Specification
Dust-proof cap (a pack contains 20 pieces)	A6CAP-DC1	Dust-proof only (not conforming to the IP67 standard), applicable to AJ65SBTW□-□type I/O modules
Waterproof cap (a pack contains 20 pieces)	A6CAP-WP1	Waterproof structure: Conforming to the IP67 standard, applicable to remote I/O modules of the AJ65SBTW□-□ types, made of aluminum
	A6CAP-WP2	Waterproof structure: Conforming to the IP67 standard, applicable to remote I/O modules of the AJ65FBTA□-□ types, made of resin

Product Description

Optional Parts for I/O Modules

A6CON1 A6CON2 A6CON3

FCN Connector

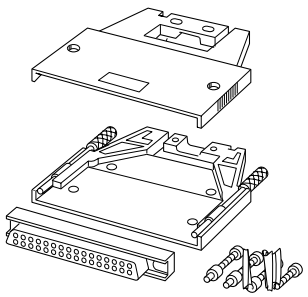
The FCN connector is an optional part for I/O modules of the AJ65SBTCF□-□ (FCN connector type) and AJ65BTC□-□ (FCN connector type) AJ65VBTCF□-□ type (FCN connector type) types.

List of Models

Product name	Model name	Specification
FCN connector	A6CON1	Soldered type 40-pin connector
	A6CON2	Solderless type 40-pin connector
	A6CON3	Pressure connection type 40-pin connector

Wiring Method (in case of A6CON1)

Disassemble the cap as shown in the figure when connecting a cable.
The cap can be disassembled/assembled
via the following procedure:
[1] Loosen the four screws and remove them.
[2] Open the cover from the connector side.
[3] Connect the cable.
[4] Place the connector in one half of the cover.
[5] Insert the fixing screws.
[6] Place the other half of the cover on top.
[7] Tighten the four screws. The longer screws are for clamping the cable.
Take precautions so that small screws and nuts are not lost when the cover is disassembled.



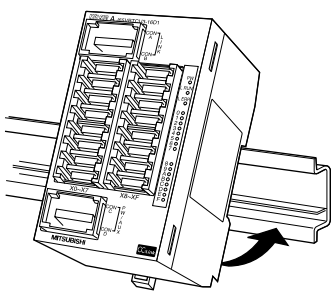
Product Description

Optional Parts for I/O Modules

A6PLT1V A6PLT2V

Module mounting fitting

A6PLT1V is a mounting fitting for model AJ65VBTCU□-□ remote I/O module.
A6PLT2V is a mounting fitting for model AJ65VBTCU-□ analog module.



List of Models

Product name	Model name	Specification
Module mounting fitting	A6PLT1V	AJ65VBTCU□-□ type digital I/O module
	A6PLT2V	AJ65VBTCU-□ type analog I/O module

Product Description

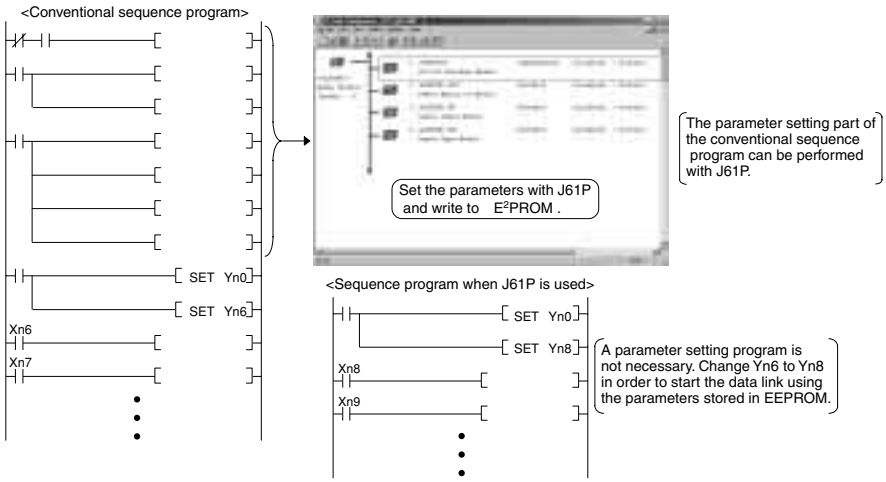
Software

GX Configurator-CC

SW□D5C-J61P-E

Configurator for CC-Link

■It is possible to set parameters directly in Windows® without having to create a sequence program.



■It is possible to set the master parameters of the A Series master module.
■It is possible to perform uploading/downloading, monitoring, and test of the parameters of a remote device station connected to a master module of the Q, QnA and A Series.
■It is possible to set the buffer memory of AJ65BT-R2 via the A Series master module.
■Full diagnostic function

Operating Environment

	Operating environment
OS	Windows® 95 (English version), Windows® 98 (English version), Windows® NT, Workstation 4.0 (English version), Windows® 2000 Professional (English version), Windows® ME (English version)
CPU	Pentium 133 MHz or more*1
Display	Resolution:800×600or more(1024×768are recommended.)
Memory	32 MB min.*2
Required free hard disk space	120 MB min.
Disk drive	CD-ROM disc drive
Communication interface	RS-232C port: Necessary for communication with PLC CPU (Required for access to PLC CPU other than Q02H/Q06H/Q12H/Q25HCPU) USB port:Usable for communication with QCPU(Q mode)(Except for Q00J/Q00/Q01/Q02CPU and Remote I/O module)

*1 Pentium 150MHz or faster processor is recommended to use Windows® Millennium Edition.
*2 64MB or more memory is recommended to use Windows® 2000 Professional.

List of Models

Product name	Model name	Description	Related manual
GX Configurator-CC	SW□D5C-J61P-E	Software package for parameter setting of the CC-Link master module as well as parameter setting, line test, and monitoring of remote device stations	Operating manual SH-080103 Mitsubishi Integrated FA Software Catalog L(NA)08008

Precaution

FX PLCs cannot be used. The master station parameters for the Q and QnA Series PLC CPUs must be set by GX Developer.

Product Description

Software

GX Developer

SW8D5C-GPPW-E

MELSOFT

MELSEC Programming Software

■CC-Link parameter setting can be done with GX Developer alone.
■Ver. 2 mode parameters can be entered simply.

■The parameter setting function "Network Parameter (CC-Link)" of GX Developer allows the setting of parameters without a sequence program for QCPU (Q mode) and QnA PLC CPUs.
■Networks with Q, QnA and A PLC CPUs can be monitored with the "CC-Link Diagnosis" function of GX Developer.

Operating Environment

	Operating environment
OS	Windows® 95 (English version), Windows® 98 (English version), Windows® NT, Workstation 4.0 (English version), Windows® 2000 Professional (English version), Windows® ME (English version)
CPU	Pentium 133 MHz or morev*1
Display	Resolution: 800 x 600 or more (1024 x 768 are recommended.)
Memory	32 MB min.,for Windows® 2000:64MB min.,for Windows® XP:128MB min.*2
hard disk space	150 MB min.
Disk drive	CD-ROM disc drive
Communication interface	RS-232C port: Necessary for communication with PLC CPU (Required for access to PLC CPU other than Q02H/Q06H/Q12H/Q25HCPU) USB port:Usable for communication with QCPU(Q mode)(Except for Q00J/Q00/Q01/Q02CPU and Remote I/O module)

*1 Pentium 150MHz or faster processor is recommended to use Windows® Millennium Edition.
*2 64MB or more memory is recommended to use Windows® 2000 Professional.
*3 For Windows® XP:128MB
*4 Ver. 2 mode is supported by Ver. 8.03D or later.
*5 Parameters can be set with GX Developer not supporting Ver. 2 if they are entered with sequence programs.

List of Models

Product name	Model name	Description	Related manual
GX Developer	SW8D5C-GPPW-E	MELSEC PLC programming software package	Operating manual SH080166(13J014) Integrated FA Software Catalog L(NA)08008

Product Description

Inverters

FREQROL-□500

■FREQROL-E500 Series FR-E520-0.1KN to 7.5KN 9 models
FR-E540-0.4K to 7.5K 7 models 16 models in total

- Torque outputs as high as 150 percent is achieved at a low speed and 1 Hz.
- FR-E540-□K uses the optional FR-A5NC inverter module, which means that the inverters can be connected to the CC-Link. Up to 42 inverters can be connected.
- The inverters are not only able to stop operation of the connected inverters, they can also monitor the status and read/write parameters.

■FREQROL-A500 Series FR-E520-0.4K to 55K 15 models
FR-E540-0.4K to 55K 15 models 30 models in total
■FREQROL-A500L Series FR-E520L-75K, 90K 2 models
FR-E540L-75K to 280K 7 models 9 models in total

- By using the optional FR-A5NC inverter module, these inverters can be connected to the CC-Link. A maximum of 42 inverters can be connected.
- The inverters are not only able to stop operation of the connected inverters, they can also monitor the status and read/write parameters.
- The noise amplification is reduced and held to a minimum using Mitsubishi's own Soft-PWM control

■FREQROL-F500 Series FR-F520-0.75K to 55K 14 models
FR-F540-0.75 K to 55K 14 models 28 models in total
■FREQROL-F500L Series FR-F520L-75K to 110K 3 models
FR-F540L-75K to 375K 9 models 12 models in total

- Smoother operation of fans and pumps
- The highest level of energy savings in the industry has been achieved through optimized control of excitation.
- By using the optional FR-A5NC inverter module, these inverters can be connected to the CC-Link. A maximum of 42 inverters can be connected.
- The inverters are not only able to stop operation of the connected inverters, they can also monitor the status and read/write parameters.
- The noise amplification is reduced and held to a minimum using Mitsubishi's own Soft-PWM control method.

■FREQROL-C500 Series FR-C520-0.1KN~3.7KN 7 models in total

- Because of the programmable logic controller function built in the inverter, the programmable logic controller control is realized only with the inverter (without input/output options).
- The sequence ladder can be programmed with "GX Developer."
- Because the CC-Link function is build, communication between the master station and inverter is made with one CC-Link cable, reducing the number of cables.

■FREQROL-V500Series FR-V520-1.5K~55K 13models FR-A540-1.5K~55K 13models 26models in total
■FREQROL-V500LSeries FR-V520L-75K 1models FR-A540L-75K~250K 7models 8models in total

- Inverter option FR-A5NC is used to operate CC-Link. Up to 42 inverters can be connected.
- Using the adaptive magnetic flux observer, torque variation caused by temperature changes of the motor can be reduced.
- Simple gain tuning automatically adjusts the speed control gain and position loop gain.

Performance Specifications

Item	FREQROL-LC500	FREQROL-E500 (200 V class (CC-Link type), 400 V class)	FREQROL-A500/A500L	FREQROL-F500/F500L	FREQROL-V500/V500L
Detail catalog number	L (Na) 06034	L (Na) 06003	L (Na) 06005/K-177-7-C3417	L (Na) 06004/K-177-9-C4088	L (Na) 06022/NA-M-003
Capacity range	0.1 kW to3.7 kW (200 V)	0.1 kW to 7.5 kW (200 V) 0.4 kW to 7.5 kW (400 V)	0.4 kW to 55 kW/75 kW, 90 kW (200 V) 0.4 kW to 55 kW/75 kW to 280 kW (400 V)	0.75 kW to 55 kW/75 kW to 110 kW (200 V) 0.75 kW to 55 kW/75 kW to 375 kW (400 V)	1.5 kW to 55 kW/75 kW (200 V) 1.5 kW to 55 kW/75 kW to 250kW (400 V)
Output frequency range	0.5 to 120 Hz	0.2 to 400 Hz		0.5 to 120 Hz	0 to 3000r/min
Control method	V/F control	General-purpose magnetic-flux vector control and V/F control	Advanced magnetic-flux vector control and V/F control	Optimal excitation control and V/F control	General-purpose magnetic-flux V/F control
Frequency setting signal	CC-Link communication, RS-485 communication and digital setting using built-in programmable logic controller function	Input through CC-Link communicationor Paramerter module(optional).	Input via CC-Link communication and/or panel, and parameter module (option) (Analog input: 0 to 5 VDC, 0 to 10 VDC, 0 to ±10 VDC, 4 to 20 mA)		Input via CC-Link communication and/or panel, and parameter module (option) (Analog input: 0 to 10 VDC, 0 to ±10 VDC)
Start torque	————	150%: At 1 Hz (in case of general-purpose magnetic-flu x vector control, and when the slip compensation is set)	150%: At 0.5 Hz (in case of advanced magnetic-flux vector control)	————	150%1r/min (in case of vector control)
Acceleration/deceleration time	Can be set to values from 0.01 to 999 s. (Individual setting is allowed.)	Can be set to values from 0.01 to 3600 s. (Individual setting is allowed.)	Can be set to values from 0 to 3600 s. (Individual setting)		
Acceleration/deceleration pattern	linear	Can be switched between linear, S-curve type A, and S-curve type B			Linear/S-curve type A, B and C switching
Protection/alarm functions	Over-current shielding, regenerative over-voltage, overload shielding, fin overheat, stall prevention etc.	Over-current shielding, regenerative over-voltage, overload shielding, output short-circuit, stall prevention, momentary power failure etc.			Over-current shielding, regenerative over-voltage, overload shielding, stall prevention, momentary power failure etc.
Ambient temperatur		-10℃ to + 50 ℃ (no freezing allowed)			
Number of occupied stations		1 station (remote device station)			

Product Description

AC Servo Amplifier / Interface module

MR-J2S-□CP-S084/MR-J2S-T01

- Because the servo amplifier houses the positioning function, no positioning controller is necessary.
- The advanced function servo is provided with high level real time auto tuning, machine resonance suppression filter and other functions.
- Suitable for highly frequent positioning applications
- Transmission of positioning data, starting, stopping and monitoring can be made via CC-Link.
- The applicable servomotor is 50W to 7kW.
- A distributed control system of the AC-servo can be configured easily.

Performance Specifications

Feeding method			Positioning method
Command method	Point table		Up to 31 points
	Position data input *	Position data (feed rate)	○ (When occupying 2 stations)
		Speed data	
Absolute position system			○
Number of occupied stations			1 station/2 stations (remote device station)

* The position data input method is a method where the positioning data is transferred directly to the servo amplifier via CC-Link communication.
Note: A servo amplifier (MR-J2S-xCP-S084) and CC-Link interface module (MR-J2S-T01) are necessary. Supply power (5VDC) from the servo amplifier to MR-J2S-T01.

Web home page for MR-J2S Series MELFANS compatible with CC-Link

http://www.nagoya.melco.co.jp/servo/nproduct/mr-j2scc/j2scc01d.htm

Product Description

AC Servo Amplifier

MR-H□TN

- This servo amplifier has a built-in positioning function, so a positioning controller is not required.
- The best choice for high-frequency feeding applications such as press feeders, cut-sheet feeders, etc.
- It is possible to send positioning data, start and stop commands, and monitor the status via CC-Link.
- Servomotors from 50 W to 22 kW are supported.
- It is equipped with model adaptation control and real-time auto tuning, making it easy to enhance the machine's performance.
- It is easy to construct a distributed control system in which the AC servo amplifier takes part.

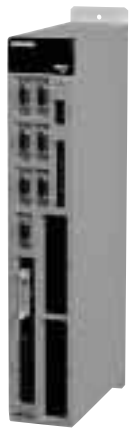
Performance Specifications

Feeding method			Positioning method	Roll feed method
Command method	Point table	Position data (feed rate)	Up to 256 points (8 points when 1 station is occupied/256 points when 2 stations are occupied)	Up to 2 points
		Speed data	Up to 8 speeds	Up to 256 points (8 points when 1 station is occupied/256 points when 2 stations are occupied)
	Position data input *	Position data (feed rate)	○ (When occupying 2 stations)	○ (When occupying 2 stations)
		Speed data		
Absolute position system			○	×
Number of occupied stations			1 station/2 stations (remote device station)	

* The position data input method is a method where the positioning data is transferred directly to the servo amplifier via CC-Link communication.

CNC

MELDAS Series



Global CNC MELDAS 64AS/64S/65S/66S

- CPU performance higher than M60 Series using an LSI for 64-bit CPU and PLC; hardware performance at the highest level in the world
- Global CNC supporting major 12 languages in the world
- Compatibility with various networks
- Configuration of comfortable system development environment
- Thorough pursuit for high-speed accuracy machining Full-fledged multi-axis multi-system control functions

CNC for machining line C6/C64

- Improved basic performance and control functions withstandard installation of 64-bit RISC processor
- Strengthened built-in PLC playing the major role of control, reducing the number of electric design man-hour
- Enhanced maintenance functions for reduction of downtime
- Compatibility with various networks

Performance Specifications

Model			MELDAS C6		MELDAS C64			MELDAS 64AS		MELDAS 64S		MELDAS 65S		MELDAS 66S	
Machining center family			TORAMAN C6 (T family)	—	FTL C64 (M family)	—	TORAMAN C64 (T family)	M64ASM		M64SM		M65SM		M66SM	
Lathe family			—	FTL C6 (L family)	—	FTL C64 (L family)	—		M64ASL		M64SL		M65SL		M66SL
Control axis	Max. number of axes (NC axis + spindle + PLC axis)		7	7	14	14	14	5	5	7	7	7	14	7	14
	Peripheral axes (MR-J2-CT)		5		7			4	4	4	4	4	4	4	4
Machine interface	Machine contacts (standard/max.)	DI	16／80		16／80			*1) 64／512 (RIO type)		*1) 64／512 (RIO type)		*1) 64／256 (RIO type)		*1) 64／512 (RIO type)	
	Operation board I/F (DI／DO)	DO	1／65		1／65			*1) 48／512 (RIO type)		*1) 48／512 (RIO type)		*1) 48／256 (RIO type)		*1) 48／512 (RIO type)	
	Operation board I/F (DI／DO)	1	—		—			64／48		64／48		64／48		64／48	
		2	—		—			64／48 (Total:128／96)		64／48 (Total:128／96)		64／48 (Total:128／96)		64／48 (Total:128／96)	
	Remote I/O max.		512／512		512/512			—		—		—		—	
Tape length (standard/max.)			40／600		40／600			40／600		40／5120		40／5120		40／5120	
PLC/APLC memory capacity (Max.)			32000Step		32000Step			32000Step		32000Step		32000Step		32000Step	
Station types and number of occupied stations			Master station /Local station 1 to 4 station												

Product Description

Industrial Robot

RP, RV-A, RH-A, RV-T, RH/RC-G Series

<Controller>
Network functions are strengthened so that the robot controller realizes configuration of various systems.
The robot controller is compatible with the robots listed on the right side page. (Contact us for combination.)

■With its reinforced network functionality, this robot controller can be used in various system structures.

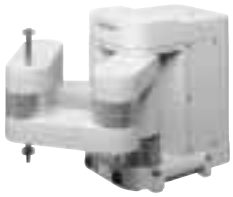
- The 64-bit RISC processor employed in the robot allows for high-speed, highly accurate and complex path motions. In addition, various functions are available according to the tasks.
- With the additional axis control function (option), traveling axis and turntable can be controlled. (Max. 8 axes)
- Using PC support software, you can edit programs and support start-up of monitoring functions. (Option)
- CC-Link communication is enabled simply by mounting the CC-Link interface card in the option slot.
- Other devices connected to CC-Link can easily be accessed using the robot-dedicated language (MELFA-BASIC IV).

Performance Specifications

Model name	CR1-571	CR2A-572	CR4-533
Path control methaod	PTP control, CP control		
Number of control axes	4 to 6 axes (it is possible to control 2 additional axes at the same time.)		
Main functions	Joint interpolation, linear interpolation, three-dimensional circular interpolation, palletizing, conditional branching, subroutines, multitasks, Adaptive acceleration/deceleration control, deflection correction, Cartesian compliance control, etc.		
Number of occupied stations	1 station or 4 stations [set by the DIP switch] (intelligent device station)		

<Robot>
These robots are compatible with the controllers specified on the left side page.
(Contact us for combination.)

* Our standard conditions



Micro robot RP Series

■Small size, high speed and high accuracy are realized.

- ●Max. load 1kg to 5kg
- ●Max. reaching radius 236mm to 453mm
- ●Cycle time 0.28 sec *

Vertical articulated robot RV Series

■Work can be done at various attitudes.

- ●Max. load 1kg to 20kg
- ●Max. reaching radius 418mm to 1561mm
- ●Oil mist and clean room-compatible specification
  <Special specification>
- ●5-axis model, 6-axis model

Horizontal articulated robot RH Series

■Suitable for high-speed accurate work from above

- ●Max. load 5kg to 15kg
- ●Max. reaching radius 350mm to 850mm
- ●Oil mist and clean room-compatible specification
<Special specification>
- ●Cycle time 0.46 sec *

Palletizing robot RV-T Series

■High-speed palletizing robot suitable for physical distribution and transportation

- ●Max. load 100kg to 150kg
- ●Max. reaching radius 2360mm to 2730mm
- ●Processing capacity: Max. 1600 cycles/hour*

LCD glass substrate transfer robot RH/RC-G Series

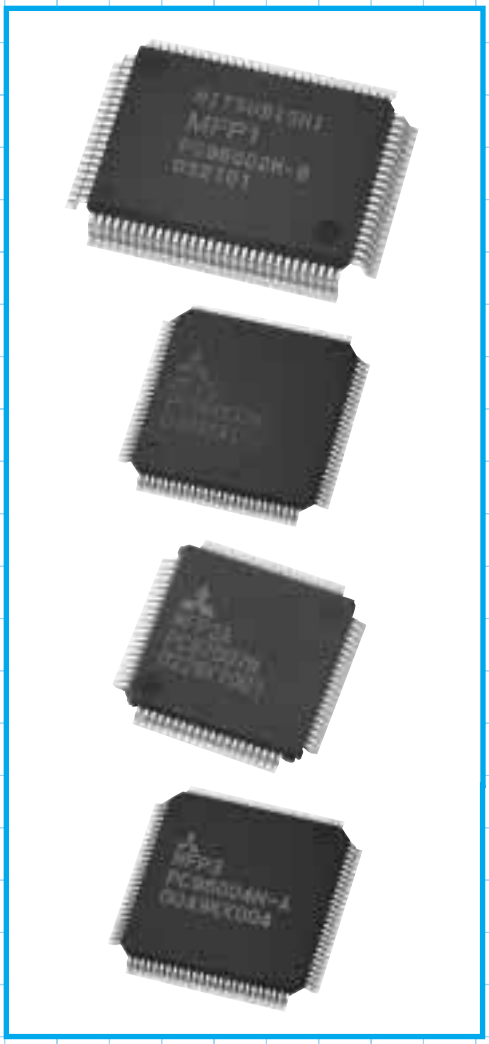
■High-speed large glass substrate transfer robot

- ●The axis configuration allows various movements such as cylindrical, scholar and double-arm.
- ●Compatible with various substrate sizes and layouts
- ●High-speed accurate transfer is realized through correction of deflection.

Product Description

Dedicated CC-Link Communication LSI

MFP1 MFP2 MFP2A MFP3



The development of CC-Link compatible devices is made easy.

- CC-Link compatible devices can be developed easily without worrying about the communication protocol. Also the CC-Link communication protocol is built-in.
- MFP1 (for master/local and intelligent device stations)
  Simply access to an external CPU via the two-port RAM to transmit bit information (digital input/output), word information (remote register), and messages without concern for the communication protocol.
- MFP2 /MFP2A (for remote I/O stations)
  Devices that handle bit information (digital input/output) can be developed easily without a CPU.
- MFP2 can control max. 32 points and MFP2A can control max. 16 points.
- MFP3 (for remote device stations)
  Simply access to an external CPU via the two-port RAM. Devices that handle bit information (digital input/output) and word information (remote register) can be developed easily without concern for communication protocol.

List of Models

Product name	MFP2A		MFP2		MFP3	
Ordering model name	A6GA-CCMFP2AN 60F	A6GA-CCMFP2AN 300F	A6GA-CCMFP2N 60F	A6GA-CCMFP2N 300F	A6GA-CCMFP3N 60F	A6GA-CCMFP3N 300F
Application	For remote I/O stations		For remote I/O stations		For remote device stations	
Package unit	Includes 60 pieces	Includes 300 pieces	Includes 60 pieces	Includes 300 pieces	Includes 60 pieces	Includes 300 pieces
LSI external shape	80-pin QFP (Quad FLAT Package) 12x12 mm body, 0.5 mm between pins		100-pin QFP (Quad FLAT Package) 14x14 mm body, 0.5 mm between pins			

●MFP:Mitsubishi Field-network Processor

Precautions

- A separate license contract is necessary for the development of products using MFP1. Contact Open System Center specified below for details.
- In order to purchase this communication LSI, it is necessary to join (as a regular member or higher) the CC-Link Partner Association (CLPA). See page 162 for information about CC-Link Partner Association.

Open System Center Tel: 81-52-712-2369 Fax: 81-52-712-2419
Business hours: 9:00 to 12:00, 13:00 to 17:00 (excluding Saturdays, Sundays, and company holidays)

Product Description

FX Series Interface Block

FX2N-32CCL

■This is an interface block used to connect Mitsubishi Micro-PLCs of the FX0N, FX1N, FX2N, FX1NC and FX2NC Series to a CC-Link network as remote-device stations

- With the micro-PLC, distributed control can be made easily and economically.
- It is possible to communicate up to 112 points of bit data and 16 words of word data (occupying four stations for both) with the master station.
- It is possible to select the number of communication points to correspond to one to four occupied stations. The system can therefore be constructed according to the size of the control configuration.

Performance Specifications

Number of occupied stations	1 to 4 stations (set by the rotary switch) (remote device station)
Power supply	5 VDC 130 mA (power is supplied from the PLC) 24 VDC 50 mA (uses external power supply. It is possible to use the service power supply of the PLC.)
Supported PLC	Mitsubishi micro-PLCs FX0N, FX1N, FX2N Series FX1NC, FX2NC Series (connector conversion module required)
Number of occupied I/O points	8 points for the FX PLC
External dimensions	42 (W) ×90 (H) ×87 (D) mm
Weight	0.2kg

Product Description

Breaker

MDU Breaker

■A breaker equipped with a display function
The built-in VT and CT save space.

- ●This conventional low-pressure breaker is equipped-with adisplay function.
  The display function measures the load current, line voltage, power, harmonic current, leakage current and power factor within the breaker to keep track of energy use in detail, therebyhelping support the customers' energy-conservation activities.
- ●VT and CT are built into the main body to save space.
  The breaker achieves excellent cost-benefit performance in new constructions and renewal applications.
- ● The wide variations in ratings, from 50 A (225 A frame) to 800 A (800 A frame), allow it to be used for any purpose.
- ● In addition to CC-Link transmission, the line-up includes options for B/NET transmission and pulse transmission. It offers flexible support for different transmission types.

Performance Specifications

Measured values	Load current (current value, demand value, and maximum demand value) Line voltage (current value, demand value, and maximum demand value) Power (current value, demand value, and maximum demand value) Electric energy (integrating value, time electric energy, and maximum time electric energy value) Leakage current (current value, demand value, and maximum demand value) Power factor (current value)
Number of occupied stations	1 station (remote device station)

Product Description

Power Measurement Module

EMU-C3P5 EMU-C3P5-5A

■It can be easily installed in an already constructed circuit, as well!Support for various system structures

- ●In combination with the distributed current sensor (50 A, 100 A, and 250 A), it can be easily installed in an already constructed circuit.
- ●A full range of measurements (current, voltage, power, electric energy, leakage current and generation time for each maximum value) allows various systems to be constructed according to the purpose.
- ●If the display module (sold separately) is mounted, it is possible to display data on the main body. The display module employs the "rotation mechanism," which can rotate the display image 90 degrees to the left or right, allowing the module to be placed vertically or horizontally at will.

Performance Specifications

Model name	EMU-C3P5	EMU-C3P5-5A
Phase/wire type	Single phase 2 wire/single phase 3 wire/3 phase 3 wire (selected by the setting switch)	
Rated voltage	110/220 V (selected by the setting switch)	
Rated current	250 A/100 A/50 A (switching)	5 A (current on the first current sensor side)
Measured values	Current (each phase, total, demand, and maximum demand value) Voltage (each phase, total, and maximum value) Power (current, demand, and maximum demand value) Electric energy (integrating, time integrating, and maximum time) Leakage current (current, demand, and maximum demand value) Each maximum value generation time	
Number of occupied stations	1 station (remote device station)	

Product Description

Multi-Circuit Electric Power Measuring Module

EMU-C7P4-6-A

Multi-Circuit Electric Power Measuring Module

- The current, voltage, Watt and Watt-hour of multiple low-voltage circuits are measured simultaneously with memorization, indication or transmission of measurement data. Realizes space-saving and reduced wiring work.
- Max. four circuits of pulse inputs count the production quantity and measure energies other than electric power such as vapor flow rate and gas flow rate, for use of energy intensity control.
- This module realizes energy-saving control through the network (CC-Link transmission or other B/NET transmission, LONWORKS compatible) and stand-alone energy-saving control/analysis where logged data is stored in the main body. The system can be upgraded according to the budget through cassette configuration of the communication module.

Performance Specifications

Model name	EMU-C7P4-6-A
Phase and cable type	Single-phase 2-wire, single-phase 3-wire, 3-phase 3-wire, 3-phase 4-wire
Measuring circuit	8 circuits (single-phase 2-wire), 6 circuits (single-phase 3-wire and 3-phase 3-wire), 4 circuits (3-phase 4-wire). Pulse input is accepted at maximum 4 circuits
Rated voltage	110, 220 or 440V (single-phase 2-wire and 3-phase 3-wire). * A VT is necessary for 440V or 245/440V setting. 220V (single-phase 3-wire), 63.5/110, 110/190, 240/415, 254/440V (3-phase 4-wire)
Rated current	5, 50, 100, 250, 400, 600A (for special current sensor). 5A current sensor is used in combination with a current transformer (__/5A).
Measurement items	Current, voltage, Watt, Watt-hour. The time of occurrence of maximum value is stored in non-volatile memory.
Communication output	CC-Link transmission or LOCAL communication (standard)
Data memory	Automatic logging or selective logging
Transmission speed	156kbps／625kbps／2.5Mbps／5Mbps／10Mbps
Station number setting	1 to 64
Max. number of connected units/system	Max. 42 units
Number of occupied stations	1 (remote device station)

Product Description

Protective Relay

MELPRO-D Series

■Compatibility with advanced communication networks provides powerful support for automatic power distribution.

- ●Full access from the central control system (setting, measurement value, operation status, full-time monitoring, time, etc.)
- ●A product lineup containing a wide variety of models allows protection of various high-power/extra-high-power systems (ensuring protection for reception/distribution of electrical energy, transformers, motors, generators, system interconnection, etc.).
- ●A full range of measurement functions (memory at failure, current, voltage, power, frequency, etc.)
- ●Other features include:
  - ・Programmable contacts that allow any output contact setting with OR logic
  - ・ Highly accurate protection through the use of high-speed sampling digital expressions
  - ・ Advanced full-time monitoring function that improves reliability
  - ・ Module lead type for greater ease of maintenance

Performance Specifications

Model name	C□□□-A□□D□
Control power supply	Common for 100 to 220 VDC and 100 to 220 VAC
External dimensions/weight	D1 module: Approx. 150 (W) x 250 (H) x 200 (D), approx. 3 kg D2 module: Approx. 300 (W) x 250 (H) x 200 (D), approx. 5 kg
Number of occupied stations	1 station (remote device station)

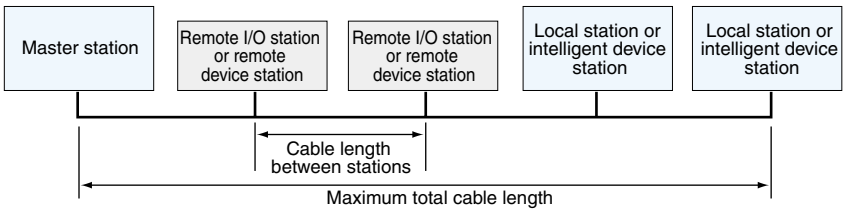
CC-Link Open Field Network

Technical Information

● Overview of CC-Link From page 148

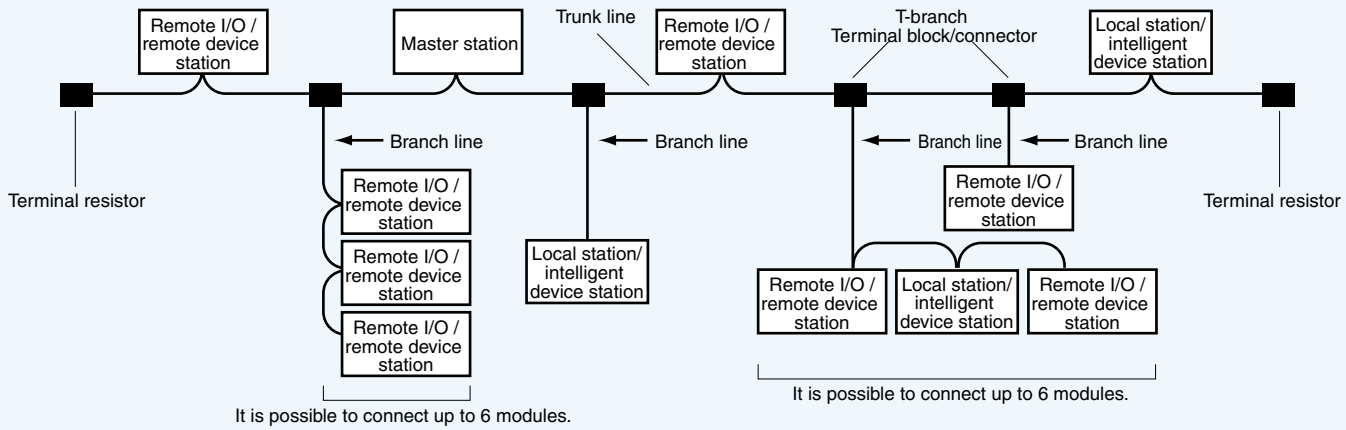
● General Specifications/Glossary From page 154

CC-Link (Version1.10) Specifications

Item		Specification
Control specification	Maximum number of link points	Remote I/O (RX, RY): 2048 points each Remote register (RWw): 256 words Remote register (RWr): 256 words
	Number of link points per station	Remote I/O (RX, RY): 32 points each Remote register (RWw): 4 words Remote register (RWr): 4 words
Communication specification	Communication speed	10M/5M/2.5M/625k/156kbps
	Transmission method	Broadcast polling method
	Synchronous method	Frame synchronous method
	Encoding method	NRZI method
	Transmission path	Bus type (conforming to EIA RS485)
	Transmission format	Conforming to HDLC
	Error control system	CRC ($X^{16}+X^{12}+X^5+1$)
	Number of connected modules	64 modules. However, the following conditions must be satisfied. (1 x a) + (2 x b) + (3 x c) + (4 x d) ≦ 64 a: Number of modules occupying 1 station, b: Number of modules occupying 2 stations, c: Number of modules occupying 3 stations, d: Number of modules occupying 4 stations (16 x A) + (54 x B) + (88 x C) ≦ 2304 A: Number of remote I/O station modules — Maximum 64 B: Number of remote device station modules — Maximum 42 C: Local station, standby master station, intelligent device station — Maximum 26
	Remote station number	1 to 64
	Maximum total cable length and cable length between stations	 Cables compatible with CC-Link Version 1.10 (terminal resistor 110Ω is used) Communication speed / Between stations Cable length / Maximum total cable length 156kbps — 20 cm min. — 1200m 625kbps — 900m 2.5Mbps — 400m 5Mbps — 160m 10Mbps — 100m If cables compatible with Version 1.10 and Version 1.00 are used together, the specifications for maximum total cable length and cable length between stations of Version 1.00 are used. For information about the specifications of Version 1.00, see page 127.
	Connection cable	Dedicated cable compatible with CC-Link Version 1.10 ・Use the dedicated cable certified by CC-Link Partnership Association. Please note that operation will not be guaranteed if the other cable is used. ・Cables from different manufacturers can be used together if they support Version 1.10. ・For the specifications of the CC-Link dedicated cable or the contact information on them, refer to the partner product catalogs published by CC-Link Partner Association or visit its web site at http://www.cc-link org.
Function		Auto refresh function *1 RAS function (Standby master, automatic return, slave station separation, link special relay, error detection by the register, test/monitor) Remote I/O network mode*1 Scan synchronous function Automatic CC-Link startup *2 Reserved station function Error invalid station setting function Support for duplex function *2 *1 May not be supported depending on CPUs to be used together. *2 This function is available only for the Q Series.

T-Branch Communication Specification (When Repeater (T-Branch) Modules are not Used)

System Configuration



Communication specifications not listed below are determined by the CC-Link specification.
The table below lists the communication specifications when T-branch connections are used in the network without repeater (T-branch) modules.

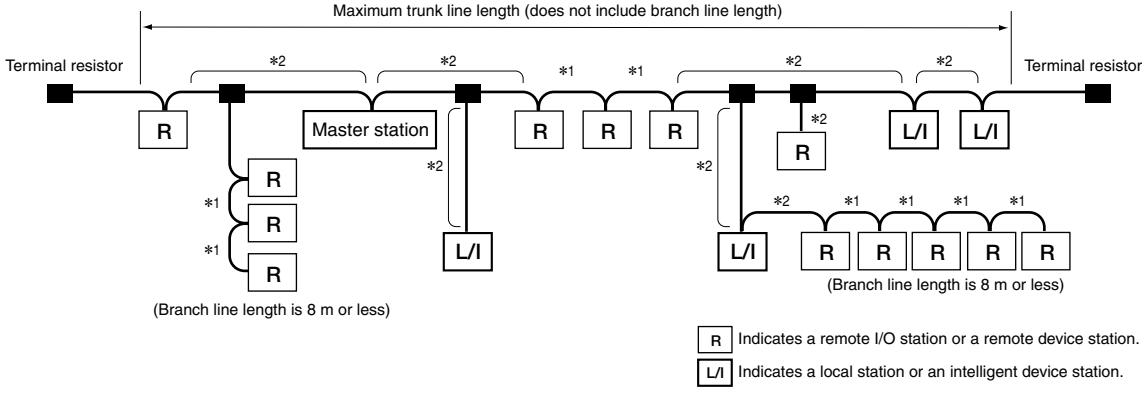
Item	Specification		Remark
Communication speed	625kbps	156kbps	10 M, 5 M and 2.5 Mbps cannot be used.
Maximum trunk line length	100m	500m	The length of the cable between terminal resistors, without including the length of the T branch.
Maximum branch length	8m		The length of the cable per branch
Total branch length	50m	200m	The total length of all branch lines
Maximum number of modules connected to the branch line	6 per branch		The maximum number of connected modules is determined by the CC-Link specification.
Connection cable	・CC-Link dedicated cable (Example: FANC-SB, CSFV-SLAB, 100ZCLK-SB-20AWGX3C)		・Do not use the CC-Link dedicated high performance cable (e.g., FANC-SBH). ・Do not use cables from different manufacturers together.
T-branch Terminal block/connector	・Terminal block: Any commercially available terminal block can be used ・Connector: The connector for the FA sensor is recommended to conform to NECA4202 (IEC947-5-2) standard or equivalent. (NECA: Nihon Electrical Control Equipment Industrial Association Standard.)		・Make the sheath-stripped sections of the cable on the trunk line side as short as possible.

Maximum trunk line length, T-branch spacing length, and cable length between stations

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

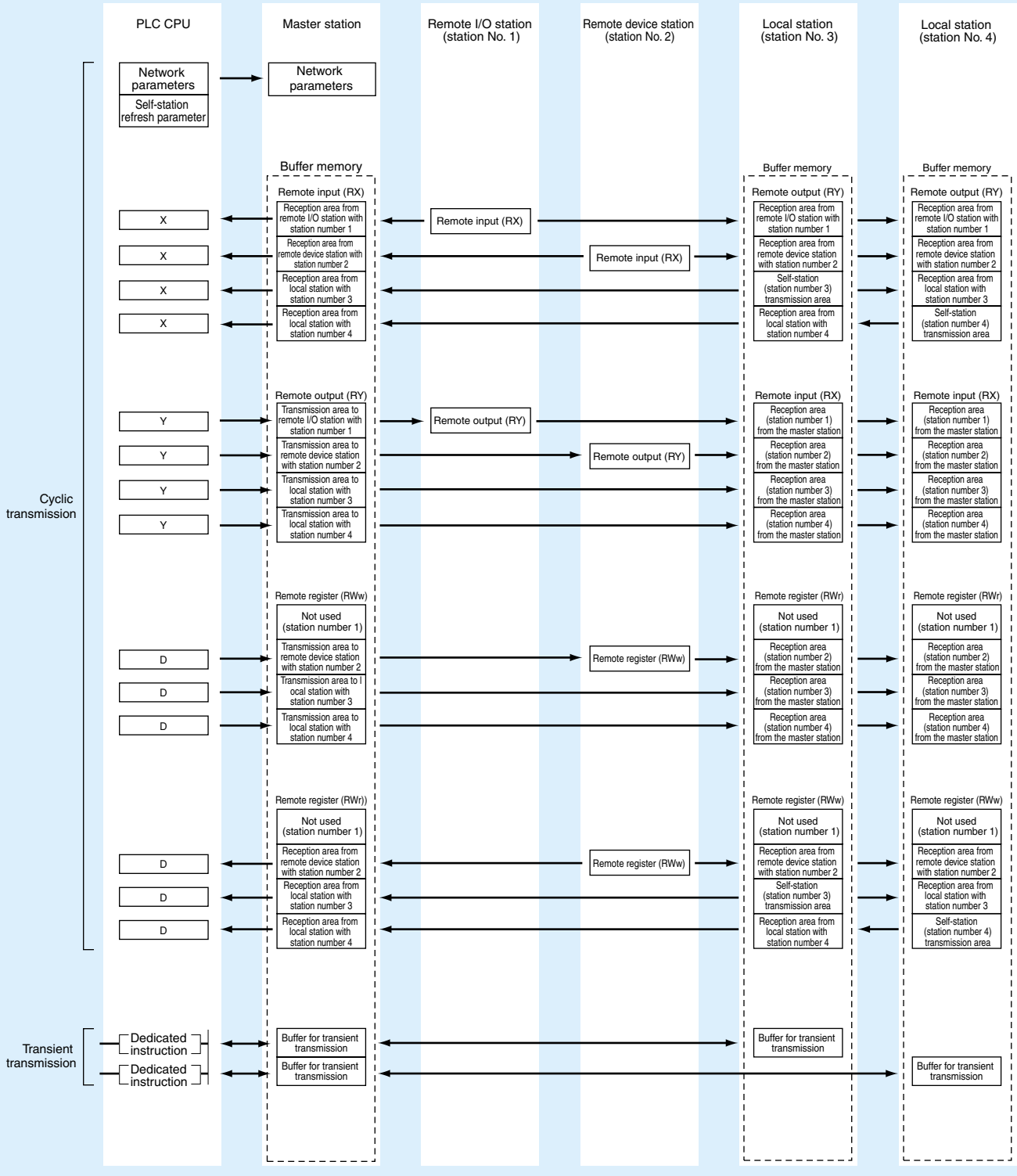
Communication speed	Maximum trunk line length	T-branch spacing length	Cable length between remote I/O stations or remote device stations ∗1	Cable length between the master/local station or intelligent device station and stations before and after ∗2
625kbps	100m	No limit	30 cm min.	1 m min. (∗1) /2 m min. (∗2)
156kbps	500m			

∗1 1 m or more in case of a system configuration with remote I/O and remote device stations only.
∗2 2 m or more in case of a system configuration that includes local stations and intelligent device stations.



Overview of CC-Link

CC-Link Communication



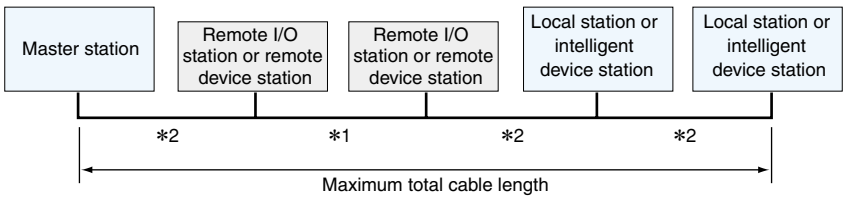
Cyclic transmission	Bit transmission	It is possible to communicate 32 input points and 32 output points of data per station.
	Word transmission	It is possible to read/write 4 points of data per station.
Transient transmission	Dedicated instruction	Transient transmission to local stations and intelligent device stations is possible.

Memo

Differences Between Versions 1.10 and 1.00

■The specifications of CC-Link Version 1.10 and Version 1.00 differ with respect to the following two subjects:
●Maximum total cable length and cable length between stations
●Connection cable

Specification List of CC-Link Version 1.00 (Differences from Version 1.10)

<table>
<tr><th>Item</th><th>Specification</th></tr>
<tr><td>Maximum total cable length
and cable length between stations</td><td>


∗1 Cable length between remote I/O stations or remote device stations
∗2 Cable length between the master/local station or intelligent device station and stations before and after

CC-Link dedicated cable (terminal resistor 110Ω is used)
<table>
<tr><th rowspan="2">Communication speed</th><th colspan="2">Cable length between stations</th><th rowspan="2">Maximum total cable length</th></tr>
<tr><th>∗1</th><th>∗2</th></tr>
<tr><td>156kbps</td><td rowspan="3">30 cm min.</td><td rowspan="8">1mmin.(A)
／2mmin.(B)</td><td>1200m</td></tr>
<tr><td>625kbps</td><td>600m</td></tr>
<tr><td>2.5Mbps</td><td>200m</td></tr>
<tr><td rowspan="2">5Mbps</td><td>30 to 59 cm</td><td>110m</td></tr>
<tr><td>60 cm min.</td><td>150m</td></tr>
<tr><td rowspan="3">10Mbps</td><td>30 to 59 cm</td><td>50m</td></tr>
<tr><td>60 to 99 cm</td><td>80m</td></tr>
<tr><td>1 m min.</td><td>100m</td></tr>
</table>
If wiring is made with this range of the cable length between remote IO stations or remote device stations in at least at one place, the maximum total cable length above must be used.

(A) : 1m or more in case of a system configuration with remote I/O and remote device stations only.
(B) : 2m or more in case of a system configuration that includes local stations and intelligent device stations.
</td></tr>
<tr><td>Connection cable</td><td>CC-Link dedicated cable/CC-Link dedicated high performance cable
・The dedicated cable and dedicated high performance cable cannot be used together.
・Cables from different manufacturers cannot be used together.</td></tr>
</table>

Differences Between Versions 2 and 1

■With Ver. 2, the cyclic data size can be increased through extended cyclic setting.

CC-Link Ver. 1 specification

Item		Specification		
Maximum number of link points		Remote I/0 (RX、RY) :2048 points each	Remote register (RWw) :256 words	Remote register (RWr) :256 words
Number of link points per station		Remote I/0 (RX、RY) :32 points each	Remote register (RWw) :4 words each	Remote register (RWr) :4 words each
Number of linked points for each occupied station number	1station occupied	Remote I/0 (RX、RY) :32 points each	Remote register (RWw) :4 words each	Remote register (RWr) :4 words each
	2station occupied	Remote I/0 (RX、RY) :64 points each	Remote register (RWw) :8 words each	Remote register (RWr) :8 words each
	3station occupied	Remote I/0 (RX、RY) :96 points each	Remote register (RWw) :12 words each	Remote register (RWr) :12 words each
	4station occupied	Remote I/0 (RX、RY) :128 points each	Remote register (RWw) :16words each	Remote register (RWr) :16 words each
Number of connected modules		①Total number of stations (1×a) + (2×b) + (3×c) + (4×d) ≦64 a: Number of modules of 1 occupied station, b: Number of modules of 2 occupied stations, c: Number of modules of 3 occupied stations, d: Number of modules of 4 occupied station ②Number of connected modules (16×A) + (54×B) + (88×C) ≦2304 A: Number of modules of remote I/O station — Max. 64 modules B: Number of remote device stations — Max. 42 modules C: Local station, waiting master station, intelligent device station — Max. 26 modules		

CC-Link Ver. 2 specification

Item			Specification			
Maximum number of link points			Remote I/0 (RX、RY) :8192 points each, Remote register (RWw) : 2048points , Remote register (RWr) :2048points			
Expanded cyclic setting			Single	Double	Quadruple	Octuple
Number of link points per station		Remote I/0 ((RX、RY) Remote register (RWw) Remote register (RWr)	32 points each 4 words 4 words	32 points each 8 words 8 words	64 points each 16 words 16 words	128 points each 32 words 32 words
Number of Linked points for each occupied station number	1station occupied	Remote I/0 ((RX、RY) Remote register (RWw) Remote register (RWr)	32 points each 4 words 4 words	32 points each 8 words 8 words	64 points each 16 words 16 words	128 points each 32 words 32 words
	2station occupied	Remote I/0 ((RX、RY) Remote register (RWw) Remote register (RWr)	64 points each 8 words 8 words	96 points each 16 words 16 words	192 points each 32 words 32 words	384 points each 64 words 64 words
	3station occupied	Remote I/0 ((RX、RY) Remote register (RWw) Remote register (RWr)	96 points each 12 words 12 words	160 points each 24 words 24 words	320 points each 48 words 48 words	640 points each 96 words 96 words
	4station occupied	Remote I/0 ((RX、RY) Remote register (RWw) Remote register (RWr)	128 points each 16 words 16 words	224 points each 32 words 32 words	448 points each 64 words 64 words	896 points each 128 words 128 words
Number of connected modules			①Total number of stations (a+a2+a4+a8) + (b+b2+b4+b8) ×2+ (c+c2+c4+c8) ×3+ (d+d2+d4+d8) ×4≦64 ②Number of input/output points of all remote stations (a×32+a2×32+a4×64+a8×128) + (b×64+b2×96+b4×192+b8×384) + (c×96+c2×160+c4×320+c8×640) + (d×128+d2×224+d4×448+d8×896) ≦8192 ③Number of all remote register words (a×4+a2×8+a4×16+a8×32) + (b×8+b2×16+b4×32+b8×64) + (c×12+c2×24+c4×48+c8×96) + (d×16+d2×32+d4×64+d8×128) ≦2048 a :Number of modules of single setting of 1 occupied station — b :Number of modules of single setting of 2 occupied station c :Number of modules of single setting of 3 occupied station — d :Number of modules of single setting of 4 occupied station a2:Number of modules of double setting of 1 occupied station — b2:Number of modules of double setting of 2 occupied station c2:Number of modules of double setting of 3 occupied station — d2:Number of modules of double setting of 2 occupied station a4:Number of modules of quadruple setting of 1 occupied station — b4:Number of modules of quadruple setting of 2 occupied station c4:Number of modules of quadruple setting of 3 occupied station — d4:Number of modules of quadruple setting of 4 occupied station a8:Number of modules of octuple setting of 1 occupied station — b8:Number of modules of octuple setting of 2 occupied station c8:Number of modules of octuple setting of 3 occupied station — d8:Number of modules of octuple setting of 4 occupied station ④Number of connected modules (16×A) + (54×B) + (88×C) ≦2304 A: Number of modules of remote I/O station — Max. 64 modules B: Number of remote device stations — Max. 42 modules C: Local station, waiting master station, intelligent device station — Max. 26 modules			

*②and ③are Ver. 2 mode only; calculation is necessary.

* There is no change in the cable and wiring specification for CC-Link Ver. 2. Use Ver. 1 cable for the connection of Ver. 2 devices. For details of cable wiring specification, refer to pages 152 and 154.

General Specifications

Item	Specification					
Operating ambient temperature	0 to 55 ℃*4					
Storage ambient temperature	− 20 to 75 ℃*4					
Operating ambient humidity	10 to 90 %RH, no condensation allowed*5 (The waterproof type remote I/O modules conform to the IP67 standard.*6)					
Storage ambient humidity	10 to 90 %RH, no condensation allowed*5					
Vibration resistance	Conform to JIS B 3502, IEC61131-2		Frequency	Acceleration	Amplitude	Sweep count
		At intermittent vibration	10 to 57Hz	—	0.075mm	10 times in the X, Y, and Z directions (80 minutes)
			57 to 150Hz	9.8m/s²	—	
		At continuous vibration	10 to 57Hz	—	0.035mm	
			57 to 150Hz	4.9m/s²	—	
Shock resistance	Conform to JIS B 3502, IEC61131-2 (147 m/s², 3 times in the X, Y, and Z directions)					
Electric strength*1	500 VAC between batch of DC external terminals and ground for one minute					
Isolation resistance*1	DC external terminal batch and ground: 500VDC. 10M(minimum with insulation resistance meter					
Operating ambience	No corrosive gas					
Operating height	2000 m max.*7					
Installation location	Within control panel*8					
Over-voltage category*2	Ⅱ or less					
Pollution level*3	2 or less					

∗1: Interface boards for use in PCs depend on the PC used.

∗2: This indicates to which power-distribution area the device is connected until it reaches the mechanical device within the premises from the public distribution grid.
Category II is applied to devices to which power is supplied from a fixed facility.
Voltage-surge resistance of devices is provided up to a rating of 300 V is 2500 V.

∗3: This index shows the degree of generation of conductive substances in the environment where the device is used.
Only non-conductive pollution occurs in pollution level 2. However, conduction may occur temporarily due to accidental condensation.

∗4: The table below shows the operating ambient temperature and storage ambient temperature for the AJ65SBTW4-16□ type waterproof remote I/O modules and Q Series master module.

Item		AJ65SBTW4-16□	Q Series master module
Operating ambient temperature		0 to 45 ℃	0 to 55 ℃
Storage ambient temperature	No wiring (product itself)	− 20 to 65 ℃	− 25 to 57 ℃
	IWired (after inserting cable)	− 10 to 55 ℃	—

∗5: The Q Series master module can be used within 5 to 95 %RH.

∗6: This is applicable to conditions where waterproof connectors are used for all modules or waterproof caps are placed in unused through-pipes.

∗7: Do not operate or store the programmable logic controller at altitude 0m or more in a pressurized environment. It may malfunction if it is operated.
Contact us when operating in a pressurized state.

∗8: It can be used in an environment other than a control panel as long as conditions such as operating ambient temperature and humidity are satisfactory.

Glossary and Definition of Abbreviations

I/Omode	A mode in which the PLC CPU cannot receive transient transmission requests from intelligent device stations.
Intelligent mode	A mode in which the PLC CPU can receive transient transmission requests from intelligent device stations.
Intelligent device station	A station that can perform cyclic transmission and transient transmission on a 1:n basis with the master station (AJ65BT-R2, local station, etc.).
Intelligent device module	A module that can perform transient transmission (AJ65BT-R2, local station module, etc.).
Error invalid station setting	Prevents a module whose power supply is turned off in system configuration from being treated as a data link faulty station by the network parameter specification.
Off-line test	It is possible to perform a hardware test (operation of the module itself is checked), a line test (connection status of the module is checked), and a parameter check test (information of the parameters thus set is checked).
Station	A device that is connected via CC-Link for which a station number between 0 and 64 can be set.
Number of stations	The total number of occupied stations of all slave stations connected via CC-Link.
Station number	A station number of 0 is assigned to the master station, and station numbers from 1 to 64 are assigned to slave stations on the CC-Link network. The station numbers assigned to the slave stations must be unique, and the number of occupied stations must be taken into consideration so that the station numbers do not overlap.
Slave station separation	Disconnect only modules that cannot perform data link, for instance because the power supply is turned off, and continue the data link with the normal modules only.
Cyclic transmission	A type of data exchange performed cyclically within the same network connected with the CC-Link.
Automatic return	A function that allows modules disconnected from the data link, for instance because the power supply is turned off, to join the data link automatically once they return to normal status.
Slave station	A generic term for stations other than the master station (remote I/O station, remote device station, intelligent device station, and local station).
Number of occupied stations	The number of stations used by a single slave station. One to four stations can be set according to the number of data. A remote I/O station can have only one occupied station.
Standby master station	A station that functions as the master station in order to continue data link in case the master station stops functioning. The standby master station operates as a local station under normal operating conditions, but is equipped with the same functions as the master station.
Number of modules	The number of physical devices connected via one CC-Link network.
Additional mode	In this mode, Ver. 2 slave stations are added in a system configured with existing Ver. 1 mode. The addition mode minimizes modification of programs.
Expanded cyclic setting	The cyclic data flow used with a single module can be increased with 2-fold, 4-fold or 8-fold setting.
Transient transmission	Transmission method used for 1 to 1 communication by specifying the target at an arbitrary timing of a communication request.
Bit data	Information in which one bit represents one of two conditions: 0 (OFF) or 1(ON).
Broadcast polling method	A method used to perform inquiry and data communication to each station using the same packet, and to send such data to all stations.
Master station	A station that controls one or more slave stations (remote I/O stations, remote device stations, intelligent device stations and/or local stations). The master station retains control information (parameters) and manages the entire network. One master station is required for each system.
Master/local module	A generic term for the QJ61BT11, AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 modules.
Master module	A generic term for when QJ61BT11, AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 modules are used as master stations.
Message	Data that is exchanged via transient transmission.
Reserved station	A function that prevents modules to be connected in the future from being treated as data link faulty stations. If this function is specified for connected modules, they cannot perform data link.
Remote I/O station	A remote station that handles bit information only and occupies only one station (exchanging input/output information with external devices: e.g., AJ65BTB1-16D and AJ65SBTB1-16D).
Remote I/O network mode	A special mode in which high-speed data communication with a remote I/O station is performed. (The link scan time can be shortened in the case of a system made up of only the master station and remote I/O stations.)
Remote network mode	A mode in which communication can be performed with all stations on the CC-Link network (remote I/O stations, remote device stations, local station, intelligent device stations and the standby master station).
Remote station	A generic term for remote I/O stations and remote device stations; controlled by the master station.
Remote device station	A remote station that can handle bit information and word information (exchanging input/output information with external devices, performing analog data exchange: e.g., AJ65BT-64AD, AJ65BT-64DAV and AJ65BT-64DAI).
Local station	A station that can perform cyclic transmission and transient transmission on an n:n basis with the master station and other local stations. It can also monitor RX, RY, RWr and RWw of a remote station.
Local module	A generic term for when QJ61BT11, AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 modules are used as local stations.
Word data	Information expressed in 16-bit units. One word can express ranges of -32,768 to 32,767 in signed decimal, 0 to 95535 in unsigned decimal, and 0 to FFFFh in hexadecimal base.
A0J2(H)CPU	A generic term for the A0J2CPU and A0J2HCPU.
AnSCPU	A generic term for the A1SCPU, A1SJCPU (-S3) and A2SCPU.
AnSHCPU	A generic term for the A1SHCPU, A1SJHCPU and A2SHCPU.
AnUSCPU	A generic term for the A2USCPU (-S1) and A2USHCPU-S1.
ACPU	A generic term for the A1CPU, A2CPU (-S1), A3CPU, A1NCPU, A2NCPU (-S1), A3NCPU, A3MCPU and A3HCPU.
AnACPU	A generic term for the A2ACPU (-S1) and A3ACPU.
AnUCPU	A generic term for the A2UCPU (-S1), A3UCPU and A4UCPU.
QCPU (A mode)	A generic term for the Q02CPU-A, Q02HCPU-A and Q06HCPU-A.
QCPU	A generic term for the Q00JCPU, Q00CPU, Q01CPU, Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU and Q25HCPU.
QnACPU	A generic term for the Q2ASCPU, Q2ASCPU-S1, Q2ASHCPU, Q2ASHCPU-S1, Q2ACPU, Q2ACPU-S1, Q3ACPU, Q4ACPU and Q4ARCPU.
RAS function	R (Reliability) A (Availability) S (Serviceability).
RX	Remote input: Bit data transmitted to each station via cyclic transmission. For convenience, the area that stores this information is expressed by RX. Input data is referred to as RX at the master station.
RY	Remote output: Bit data transmitted to each station via cyclic transmission. For convenience, the area that stores this information is referred to as RY. Output data is referred to as RY at the master station.
RWr	Remote registers (read area): Word data transmitted to each station via cyclic transmission. For convenience, the area that stores this information is referred to as RWr. Input data is referred to as RWr at the master station.
RWw	Remote registers (write area): Word data transmitted to each station via cyclic transmission. For convenience, the area that stores this information is referred to as RWw. Output data is referred to as RWw at the master station.
SB	Link special relay: The master station, local station, and intelligent device stations store the data link status in the self-station's memory by turning bits On/Off. For convenient, this area is referred to as SB.
SW	Link special register: The master station, local station and intelligent device stations store the data link status in the self-station's memory as word information. For convenience, this area is referred to as SW.
Ver. 1 mode	Mode of conventional CC-Link (Ver. 1.10)
Ver. 2 mode	In this mode, cyclic data can be increased with expanded cyclic setting.

Support

CC-Link Open Field Network

Support

● Overseas Support System From page 158

● CC-Link Partner Association (CLPA) From page 162

Overseas Support System

North America FA Center

Mitsubishi Electric Automation,Inc.

500 Corporate Woods Parkway Vernon Hills,IL60061
Tel 1-847-478-2100
1-847-478-2469 (Japanese Account Division)
Fax 1-847-478-0328
1-847-478-2396
Language:English/Japanese
http://www.meau.com/

Europe FA Center

Mitsubishi Electric Europe B.V.German Branch
(Industrial Automation Division)

Gothaer Strasse 8 D-40880 Ratingen,GERMANY
Tel 49-2102-486-0
49-2102-486-9830 (Support in Japanese language)
49-2102-486-2630 (Support in Japanese language)
Fax49-2102-486-7170
Language:English/Japanese/German
http://www.mitsubishi-automation.de

UK FA Center

Mitsubishi Electric Europe B.V.UK.Branch
(Automation Systems Division)

Travellers Lane,Hatfield,Herts.,AL10 8XB,UK
Tel 44-1707-276100 Fax 44-1707-278695
Language:English/Japanese
http://www.mitsubishi.co.uk/automation

Asean FA Center

Mitsubishi Electric Asia Pte,Ltd.

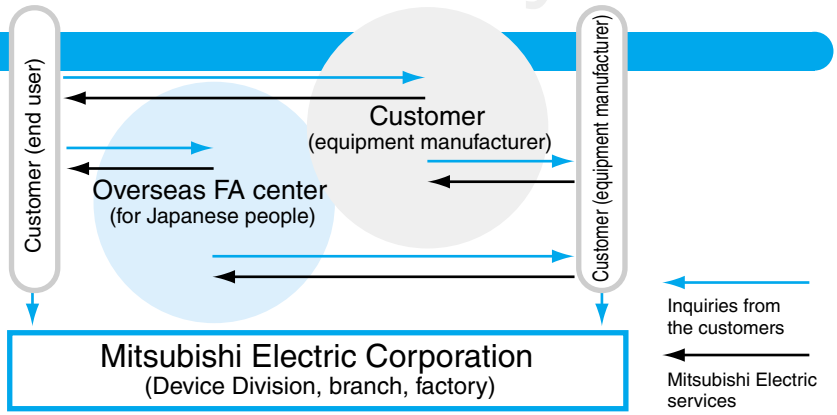
307 ALEXANDRA ROAD #05-01/02
MITSUBISHI ELECTRIC BUILDING SINGAPORE
159943
Tel65-473-2308 65-470-2480 (Direct)
Fax65-476-7439 (Direct)
Language:English/Japanese
http://www.mitsubishielectric-com.sg

Essential S
for Custom
through a
Truly Glob

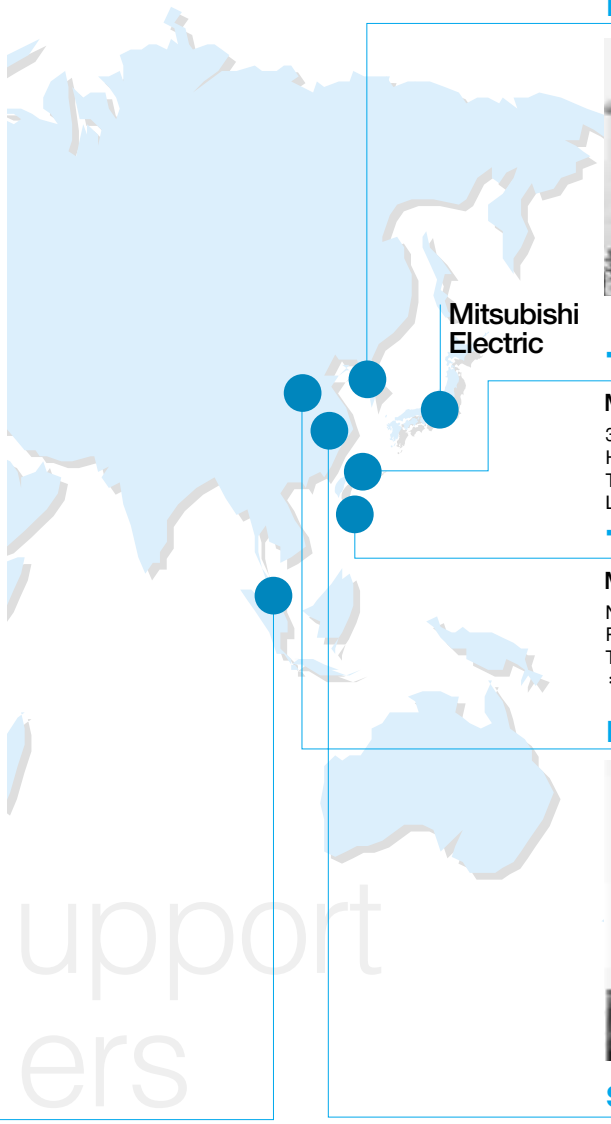
Service Network

Consulting the FA Center First

Please consult the FA Center if you are not in Japan, just as you would consult a branch office in Japan. The branch offices in the individual areas are the key stations for domestic information, and the FA centers are the key stations for local information. They work together within Mitsubishi Electric to promote cooperation within and outside Japan.In local locations the FA centers and local agencies (service shops) work together and provide various services.



<PLCs, Inverters, Servos, HMIs> Overseas Support System



Korea FA Center

Han Neung TECHNO Co.,Ltd.

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157-030,KOREA
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Fax 82-2-3663-0475
Languages: Korean and Japanese
＊Resident Japanese-speaking engineers are available.

Taipei FA Center

Mitsubishi Electric Taiwan Co.,Ltd.

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Languages: Chinese and English

Setsuyo Enterprise Co.,Ltd.

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Tel 886-2-2299-2499 Fax 886-2-2299-2509
Languages: Chinese and English

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7F-7,No.77,Zheng Bei 1st RD,Taichung City,Taiwan
Tel 886-4-2258-1027 Fax 886-4-2252-0967

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Beijing 100005 China
Tel 86-10-6518-8830
Fax 86-10-6518-8030
Languages: Chinese and English

Shanghai FA Center

KELING ELECTRIC (SHANGHAI) CO.,LTD.
Subsidiary of Mitsubishi Electric Corp.

2F Block5 Building Automation Instrumentation Plaza
103 Cao Bao Rd.Shanghai 200233 China
Tel 86-21-6484-9360
Fax 86-21-6484-9361
Languages: Chinese, English and Japanese
＊Resident Japanese-speaking engineers are available

List of Service Models

Model	PLC		Inverter	AC servo
Series	MELSEC-AnS Series MELSEC-A0J2H Series MELSEC-A2C, A2CJ Series MELSEC-AnN Series MELSEC-AnA Series MELSEC-AnU Series ＊ MELSEC-QnA Series ＊ MELSEC-Q Series GOT Series ＊	MELSEC-F1 Series MELSEC-F2 Series MELSEC-FX0 Series MELSEC-FX0N Series MELSEC-FX1 Series MELSEC-FX2 Series MELSEC-FX2C Series MELSEC-FX0S Series MELSEC-FX2N Series DU Series (excluding North America)	FREQROL-A Series FREQROL-Z Series FREQROL-U Series FREQROL-E500 Series FREQROL-S500 Series MELTRAC-A Series SC-A Series ＊	MELSERVO-J Series ＊ MELSERVO-H Series ＊ MELSERVO-SA Series＊ MELSERVO-J2 Series MELSERVO-J2-Super Series MELSERVO-C Series Motion controller ＊

●Some products must be ordered from Japan.●Please make separate inquiries for the models not listed above.
＊Some services cannot be provided, depending on area. Please inquire with Mitsubishi Electric for detailed information hereof.

Overseas Support System

North America FA Center

Mitsubishi Electric Automation,Inc.

500 Corporate Woods Parkway Vernon Hills,IL60061
Tel 1-847-478-2311(Direct)
Fax 1-847-478-2253
Language:English/Japanese
http://www.meau.com/

Europe FA Center

Mitsubishi Electric Europe B.V.German Branch

(Industrial Automation Division)

Gothaer Strasse 8 D-40880 Ratingen,GERMANY
Tel 49-2102-486-0
Fax49-2102-486-7170
Language:English/Japanese/German
http://www.mitsubishi-automation.de

UK FA Center

Mitsubishi Electric Europe B.V.UK.Branch

(Automation Systems Division)

Travellers Lane,Hatfield,Herts.,AL10 8XB,UK
Tel 44-1707-276100 Fax 44-1707-278695
Language:English/Japanese
http://www.mitsubishi.co.uk/automation

Asean FA Center

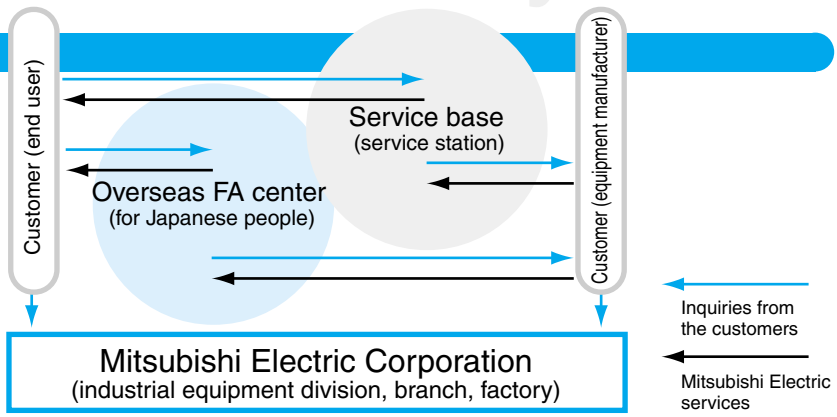
Mitsubishi Electric Asia Pte,Ltd.

307 ALEXANDRA ROAD #05-01/02
MITSUBISHI ELECTRIC BUILDING SINGAPORE
159943
Tel 65-470-2480 (Direct)
Fax65-476-7439 (Direct)
Language:English/Japanese
http://www.mitsubishielectric-com.sg

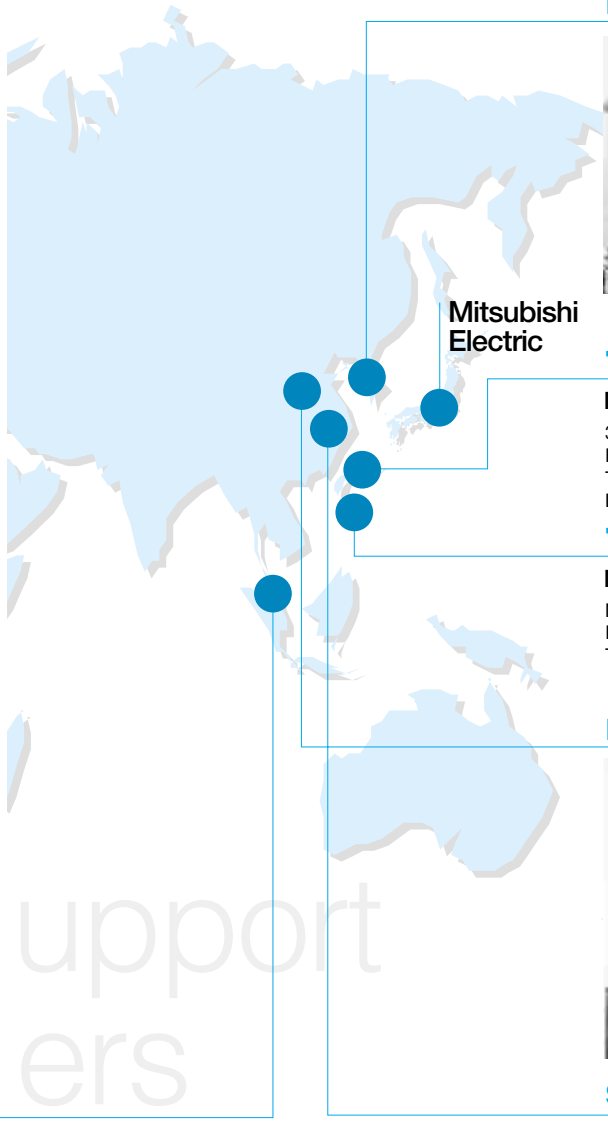
Service Network

Consulting the FA Center First

Please consult the FA Center if you are not in Japan, just as you would consult a branch office in Japan. The branch offices in the individual areas are the key stations for domestic information, and the FA centers are the key stations for local information. They work together within Mitsubishi Electric to promote cooperation within and outside Japan.In local locations the FA centers and local agencies (service shops) work together and provide various services.



<Robots> Overseas Support System



Korea FA Center

Han Neung TECHNO Co.,Ltd.

DONGSEO GAME CHANNEL BLDG.660-11,
DEUNGCHON-DONG,KANGSEO-KU,SEOUL
157-030,KOREA
Tel 82-2-3660-9607
Tel 82-2-3663-0471,3~4
Fax 82-2-3663-0475

Taipei FA Center

Mitsubishi Electric Taiwan Co.,Ltd.

3FL.No.122 Wu Kung 2nd RD,Wu-Ku Hsiang,Taipei
Hsien,Taiwan
Tel 886-2-2299-3060 Fax 886-2-2298-1909
Languages: Chinese and English

Taichung FA Center

Mitsubishi Electric Taiwan Co.,Ltd.

No.8-1 Gong Yeh 16th RD.Taichung Industrial
Park,Taichung city Taiwan
Tel 886-4-2359-0688 Fax 886-4-2359-0689

Beijing FA Center

Gangling Electronic Technology Development (Beijing) Co.,Ltd.
Industrial Automation Engineering Dept.

Unit 917-918,9/F Office Tower Z, Henderson Center,
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Fax 86-10-6518-8030

Shanghai FA Center

KELING ELECTRIC (SHANGHAI) CO.,LTD.
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2F Block5 Building Automation Instrumentation Plaza
103 Cao Bao Rd.Shanghai 200233 China
Tel 86-21-6484-9360
Fax 86-21-6484-9361

● Industrial Robots

●Some products must be ordered from Japan.
*Some services cannot be provided, depending on area. Please inquire with Mitsubishi Electric for detailed information hereof.

North/South America

North America FA Center

Mitsubishi Electric Automation,Inc.
Chicago [MEAU (IL)]
500 Corporate Woods Parkway,Vernon Hills,Illinois 60061,USA
Tel 1-847-478-2500 Fax 1-847-478-2650

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New Jersey [MEAU (NJ)]
Vantage Court South 200 Cottontail Lane Somerset,New Jersey 08873,USA
Tel 1-732-560-4500 Fax 1-732-560-4531

Mitsubishi Electric Automation,Inc.
Georgia [MEAU (GA)]
2810 Premiere Parkway Suite 400.Duluph,GA,30097,USA
Tel 1-678-258-4500 Fax 1-678-258-4598

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California [MEAU (CA)]
5665 Plaza Drive,Cypress,California,90630,USA
Tel 1-714-220-4796 Fax 1-714-229-3818

Mitsubishi Electric Automation,Inc.
CANADA [MEAU (TOR)]
4229 14th Avenue,Markham,Ontario L3R OJ2,CANADA
Tel 1-905-475-7728 Fax 1-905-475-7935

Mitsubishi Electric Automation,Inc.
Michigan [MEAU (MI)]
2545,38th street allegan,MI 49010,USA
Tel 1-847-478-2617 Fax 1-616-686-8022

Mitsubishi Electric Automation,Inc.
Ohio [MEAU (OH)]
7566 Paragon Road,Centerville,OH 45459,USA
Tel 1-937-291-4600 Fax 1-937-291-2097

Mitsubishi Electric Automation,Inc.
Texas [MEAU (TX)]
1000 Nolen Drive,Suite 200,Grapevine TX 76051,USA
Tel 1-817-251-7468 Fax 1-817-416-1439

Automation Ind.Com.Imp.E.Exp.Ltda
BRAZIL (Sao Paulo)
Acesso Jose Sartorelli Km 2.1,Parque das Arvores Boituva SP,
CEP 18550-000,BRAZIL
Tel 55-15-263-4826 Fax 55-15-263-3168

Melco de Mexico,S.A De C.V.
MEXICO
Mariano Escobedo 69 Tlalnepantla,54030 Edo.De Mexico
Tel 52-5-384-0410 Fax 52-5-565-4926

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Mitsubishi Electric Europe B.V.German Branch
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Gothaer Strasse 10,40880 Ratingen,GERMANY
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Mitsubishi Electric Europe B.V.Germany
Technical Center South
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Mitsubishi Electric Europe B.V.French Branch
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25,Boulevard Des Bouvets,92741 Nanterre Cedex,FRANCE
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Mitsubishi Electric Europe B.V.Italian Branch
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Centro Direzionale Colleoni,Palazzo Persero-Ingresso 2,
VIA Paracelso 12,20041 Agrate Brianza,ITALY
Tel 39-039-60531 Fax 39-039-6053-206

Mitsubishi Electric Europe B.V.Spain Branch NC Service
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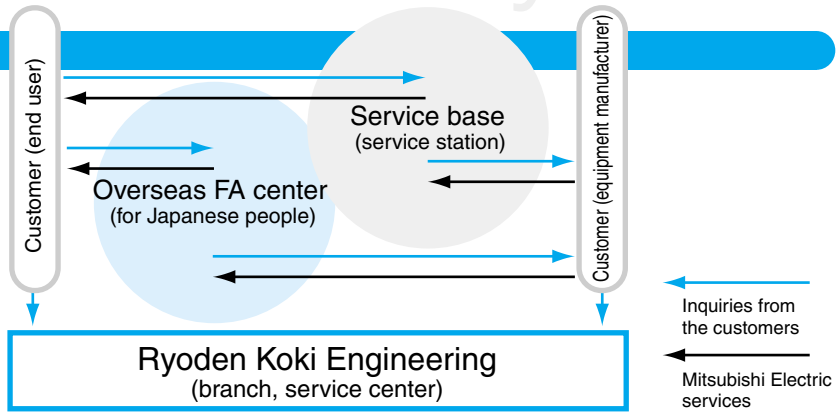
Pol.Ind."Can Magi"-C/.Joan Buscalla,2-4-A.C.420,
08190 Sant Cugat del Valles (Barcelona),SPAIN
Tel 34-935-65-3322 Fax 34-935-89-1579

Service Network

Consulting the FA Center First

Please consult the FA Center if you are not in Japan, just as you would consult a branch office in Japan. The branch offices in the individual areas are the key stations for domestic information, and the FA centers are the key stations for local information. They work together within Mitsubishi Electric to promote cooperation within and outside Japan.In local locations the FA centers and local agencies (service shops) work together and provide various services.



<CNC> Overseas Support System

China/Hong Kong

Ryoden Automation (Shanghai) Ltd.Beijing Office
Beijin

9/F,Office Tower 1,Henderson Center,18 Jianguomennei Dajie,
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2F Block5 Building Automation Instrumentation Plaza,
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Hong Kong

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Seoul

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Thailand Representative Office [MEAP (TH)]
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18th Floor Q-House Sathorn.11 South Sathorn RD.,Sathorn,
Bangkok 10120.THAILAND
Tel 66-2-679-2021 Fax 66-2-679-2024

Messung Sales And Service Private Ltd.
INDIA

B-36FF,Pavana Industrial Premises Co-Operative Society,
Plot No.204 Midc,Bhosari Pune 411026,INDIA
Tel 91-20-711-9483 Fax 91-212-798-115
※Spare parts sales only.

P.T.Autoteknindo Sumber Makmur
INDONESIA・Jakarta

Wisma Nusantara 14th Floor JL.M.H.Tnamrin 59,
Jakarta 10350,INDONESIA
Tel 62-21-3917-144 Fax 62-21-3917-164

ASEAN&India

PDC (Parts delivery center)

Flexible Automations System Sdn,Bhd.
MALAYSIA・Kuala Lumpur

60 Jalan USJ 10/1B 47620 UEP Subang Jaya Selangor D. E MALAYSIA
Tel 60-3-5631-7587 Fax 60-3-5631-7610

Flexible Automations System Corporation
PHILIPPINES・Manila

Unit No.411,Alabamg Corpotate Center KM25.
West Service Road South Superhighway,
Alabang Muntinlupa Metro Manila,PHILIPPINES 1771
Tel 63-2-807-2416 Fax 63-2-807-2417

※SPDC is only for spare parts Sales.

CC-Link Partner Asso

CC-Link Association backs partner members throughout the world for CC-Link and CC-Link/LT.

What is the CC-Link Partner Association?

The CC-Link Partner Association is an organization made up of CC-Link and CC-Link/LT product-development partner manufacturers in order to popularize CC-Link.

Name CC-Link Partner Association
Abbreviation CLPA

The CC-Link Partner Association helps users to construct automated plants and vendors to develop products that are compatible with CC-Link and CC-Link/LT.

Vendor Support

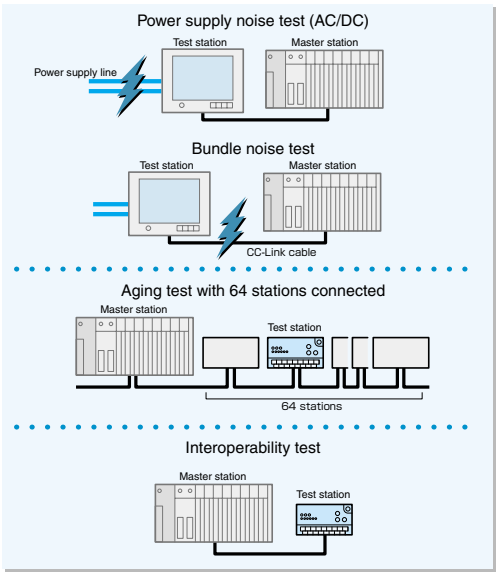
- Presentations at various exhibitions
- Planning and organizing various seminars
- Delivery of information using homepages and Internet services
- Delivery of catalogs and materials for easy selection of partner manufacturers' products and network-related products
- Support of development of CC-Link and CC-Link/LT compatible products
- Performing conformance tests
- Operation of the window used to join the CC-Link Partner Association

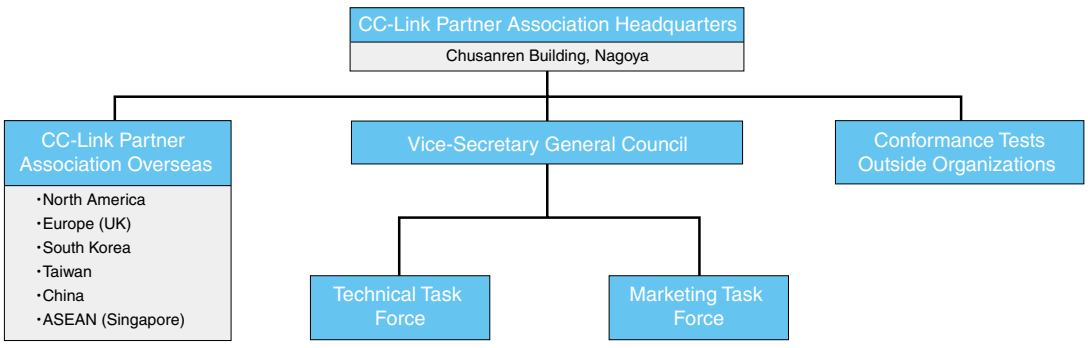
User Support

- Delivery of information using homepages and Internet services
- Delivery of catalogs and materials for easy selection of partner manufacturers' products and network-related products

What Does a Conformance Test Mean?

A conformance test is conducted for each model of all the CC-Link and CC-LinkL/T products sold by a partner manufacturer. The test ensures that it can be used safely.

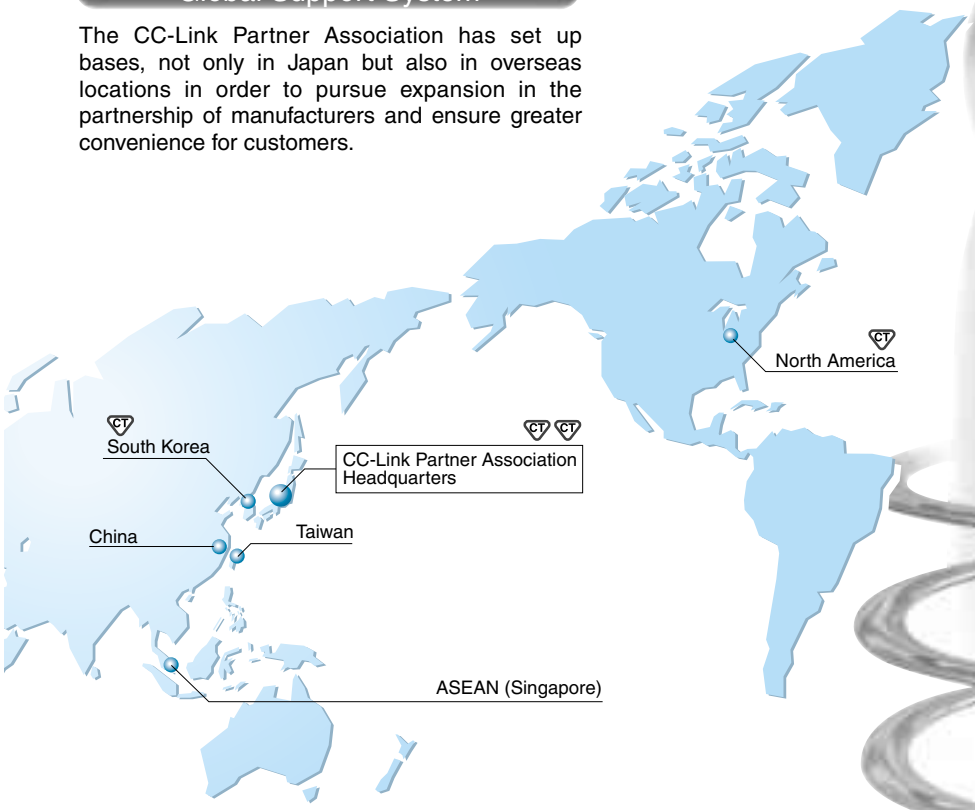




ciation

Global Support System

The CC-Link Partner Association has set up bases, not only in Japan but also in overseas locations in order to pursue expansion in the partnership of manufacturers and ensure greater convenience for customers.



CT :Testing organization installed

Contact

CC-Link Partner Association

Chuusanren-building, 3-12-13 Shirakabe, Higasi-ku,Nagoya Ciry,
461-0011, JAPAN
TEL:81-52-936-6050 FAX:81-52-936-6005

e-mail address: cc-link@post0.mind.ne.jp

Web site URL of CC-Link partner Assocoation

http://www.cc-link.org

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List of Models/Index

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List of CC-Link Related Product Models

■List of CC-Link Related Product Models

Product name	Model name	Specification	IP display	Page describing function and specification
Master/local module	AJ61BT11	Master/local module for AnN/AnA/AnUCPUs	—	24
	A1SJ61BT11	Master/local module for AnS/AnSH/AnUS/AnUSHCPUs	—	26
	AJ61QBT11	Master/local module for QnACPU	—	20
	A1SJ61QBT11	Master/local module for QnAS/QnASHCPUs	—	22
	QJ61BT11N New	Master/local module for QCPU compatible with CC-Link Ver. 2	IP1XB	18
	FX2N-16CCL-M	Master block for FX Series (FX1N/FX2N/FX2NC CPUs)	—	28
Compact remote input module	AJ65FBTA4-16D	24 VDC (+COM), 4 wire type, thin waterproof type, response time 1.5 ms	IP67	58
	AJ65FBTA4-16DE	24 VDC (-COM), 4 wire type, thin waterproof type, response time 1.5 ms	IP67	58
	AJ65SBTB1-8D	8-point 24 VDC (+COM/-COM common type), 1 wire type, terminal block type, response time 1.5 ms	IP2X	36
	AJ65SBTB1-16D	16-point 24 VDC (+COM/-COM common type), 1 wire type, terminal block type, response time 1.5 ms	IP2X	36
	AJ65SBTB1-16D1	16-point 24VDC (+COM/-COM common type), 1 wire type, high-speed response, terminal block type, response time 0.2 ms	IP2X	36
	AJ65SBTB1-32D	32-point 24 VDC (+COM/-COM common type), 1 wire type, terminal block type, response time 1.5 ms	IP2X	36
	AJ65SBTB1-32D1	32-point 24VDC (+COM/-COM common type), 1 wire type, high-speed response, terminal block type response time 0.2 ms	IP2X	36
	AJ65SBTC1-32D	32-point 24 VDC (+COM/-COM common type), 1 wire type, one-touch connector type (Plugs are sold separately.) response time 1.5 ms	IP2X	48
	AJ65SBTC1-32D1	32-point 24 VDC (+COM/-COM common type), 1 wire type, high-speed response, one-touch connector type (Plugs are sold separately.) response time 0.2 ms	IP2X	48
	AJ65SBTC4-16D	16-point 24 VDC, 4 wire type, response time 1.5 ms, one-touch connector type (for 8 sensors) (+COM/-COM common type: switched by the switch) (Plugs are sold separately.)	IP2X	48
	AJ65SBTW4-16D	16-point 24 VDC, response time 1.5 ms, waterproof 4 wire type (for 8 sensors), (+COM/-COM common type: switched by the switch) (Caps are sold separately), waterproof type	IP67	58
	AJ65SBTCF1-32D	32-point 24 VDC (+COM/-COM common type), 1 wire type, response time 1.5 ms, FCN connector type (40-pin connector)	IP2X	66
	AJ65SBTB3-8D	8-point 24 VDC (+COM/-COM common type), 3 wire type, response time 1.5 ms, terminal block type	IP2X	36
	AJ65SBTB3-16D	16-point 24 VDC (+COM/-COM common type), 3 wire type, response time 1.5 ms, terminal block type	IP2X	36
	AJ65SBTB2N-8A	8-point 100 to 120 VAC, 2 wire type, response time 20 ms, terminal block type	IP1X	36
	AJ65SBTB2N-16A	16-point 100 to 120 VAC, 2 wire type, response time 20 ms, terminal block type	IP1X	36
	AJ65VBTCU3-8D1	8-point 24 VDC (+COM) 3 wire type, response time 0.2 ms, one-touch connector type	IP1XB	48
	AJ65VBTCU3-16D1	16-point 24 VDC (+COM) 3 wire type, response time 0.2 ms, one-touch connector type	IP1XB	48
Compact remote output module	AJ65FBTA2-16T	16-point 12/24 VDC (0.5 A), transistor output (sink type), 2 wire type, thin waterproof type	IP67	58
	AJ65FBTA2-16TE	16-point 12/24 VDC (1.0 A), transistor output (source type), 2 wire type, thin waterproof type	IP67	58
	AJ65SBTB1-8T	8-point 12/24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-16T	16-point 12/24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-32T	32-point 12/24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTC1-32T	32-point, 12/24 VDC (0.1 A), transistor output (sink type), 1 wire type, one-touch connector type (One-touch connector plugs are sold separately.)	IP2X	48
	AJ65SBTB1-8T1	8-point, 12/24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB1-16T1	16-point, 12/24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB1-32T1	32-point, 12/24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTC1-32T1	32-point, 12/24 VDC (0.1 A), transistor output (sink type), 1 wire type, one-touch connector type (low leakage current at output OFF)	IP2X	48
	AJ65SBTCF1-32T	32-point 12/24 VDC (0.1 A), transistor output (sink type), 1 wire type, FCN connector type (40-pin connector)	IP2X	66
	AJ65SBTB2-8T	8-point 12/24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type	IP2X	36
	AJ65SBTB2-16T	16-point 12/24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type	IP2X	36
	AJ65SBTB2-8T1	8-point, 12/24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB2-16T1	16-point, 12/24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB1-8TE	8-point 12/24 VDC (0.1 A), transistor output (source type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-16TE	16-point 12/24 VDC (0.1 A), transistor output (source type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB2N-8R	8-point 24 VDC/240 VAC (2 A), relay output, 2 wire type, terminal block type	IP1X	36
	AJ65SBTB2N-16R	16-point 24 VDC/240 VAC (2 A), relay output, 2 wire type, terminal block type	IP1X	36
	AJ65SBTB2N-8S	8-point 100 to 240 VAC (0.6 A), triac output, 2 wire type, terminal block type	IP1X	36
	AJ65SBTB2N-16S	16-point 100 to 240 VAC (0.6 A), triac output, 2 wire type, terminal block type	IP1X	36
	AJ65VBTCU2-8T	8-point 12/24 VDC (0.1 A), transistor output (sink type) 2 wire type, one-touch connector type	IP1XB	48
	AJ65VBTCU2-16T	16-point 12/24 VDC (0.1 A), transistor output (sink type) 2 wire type, one-touch connector type	IP1XB	48

※+COM: Positive common (sink) -COM: Negative common (source)

List of CC-Link Related Product Models

Product name	Model name	Specification	IP display	Page describing function and specification
Compact remote I/O combined module	AJ65FBTA42-16DT	8-point input, 24 VDC (+COM), 4 wire type, response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 2 wire type, thin waterproof type	IP67	58
	AJ65FBTA42-16DTE	8-point input, 24 VDC (-COM)), 4 wire type, response time 1.5 ms 8-point output, 24 VDC (1.0 A), transistor output (source type), 2 wire type, thin waterproof type	IP67	58
	AJ65SBTC1-32DT	16-point input, 24 VDC (+COM), 1 wire type, response time 1.5 ms 16-point output, 24 VDC (0.1 A), transistor output (sink type), 1 wire type, one-touch connector type (Plugs are sold separately.)	IP2X	48
	AJ65SBTC1-32DT1	16-point input, 24 VDC (+COM), 1 wire type, high-speed response, response time 0.2 ms 16-point output, 24 VDC (0.1 A), transistor output (sink type), 1 wire type, one-touch connector type (Plugs are sold separately.)	IP2X	48
	AJ65SBTC1-32DT2	16-point input, 24 VDC (+COM), 1 wire type, response time 1.5 ms 16-point output, 24 VDC (0.1 A), transistor output (sink type), 1 wire type, one-touch connector type (Plugs are sold separately.) (low leakage current at output OFF)	IP2X	48
	AJ65SBTC1-32DT3	16-point input, 24 VDC (+COM), 1 wire type, high-speed response, response time 0.2 ms 16-point output, 24 VDC (0.1 A), transistor output (sink type), 1 wire type, one-touch connector type (Plugs are sold separately.) (low leakage current at output OFF)	IP2X	48
	AJ65SBTC4-16DT	8-point input, 24 VDC (+COM), 4 wire type (for 8 sensors), response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 4 wire type, one-touch connector type (Plugs are sold separately.)	IP2X	48
	AJ65SBTC4-16DT2	8-point input, 24 VDC (+COM), 4 wire type, response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 4 wire type, one-touch connector type (Plugs are sold separately.) (low leakage current at output OFF)	IP2X	48
	AJ65SBTW4-16DT	8-point input, 24 VDC (+COM), waterproof 4 wire type (for 8 sensors), response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type) (Caps are sold separately.)	IP67	58
	AJ65SBTB1-16DT	8-point input, 24 VDC (+COM), 1 wire type, response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-16DT1	8-point input, 24 VDC (+COM), 1 wire type, high-speed response, response time 0.2 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-16DT2	8-point input, 24 VDC (+COM), 1 wire type, response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB1-16DT3	8-point input, 24 VDC (+COM), 1 wire type, high-speed response, response time 0.2 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB1-32DT	16-point input, 24 VDC (+COM), 1 wire type, response time 1.5 ms 16-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-32DT1	16-point input, 24 VDC (+COM), 1 wire type, high-speed response, response time 0.2 ms 16-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65SBTB1-32DT2	16-point input, 24 VDC (+COM), 1 wire type, response time 1.5 ms 16-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB1-32DT3	16-point input, 24 VDC (+COM), 1 wire type, high-speed response, response time 0.2 ms 16-point output, 24 VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTCF1-32DT	16-point input, 24 VDC (+COM/-COM common type), 1 wire type, response time 1.5 ms 16-point output, 12/24 VDC (0.1 A), transistor output (sink type), 1 wire type, FCN connector type (40-pin connector)	IP2X	66
	AJ65SBTB32-8DT	4-point input, 24 VDC (+COM), 3 wire type, response time 1.5 ms 4-point output, 24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type	IP2X	36
	AJ65SBTB32-8DT2	4-point input, 24 VDC (+COM), 3 wire type, response time 1.5 ms 4-point output, 24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65SBTB32-16DT	8-point input, 24 VDC (+COM), 3 wire type, response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type	IP2X	36
	AJ65SBTB32-16DT2	8-point input, 24 VDC (+COM), 3 wire type, response time 1.5 ms 8-point output, 24 VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type (low leakage current at output OFF)	IP2X	36
	AJ65VBTCF1-32DT1	16-point input, 24 VDC (+COM/-COM common type), 1 wire type, response time 0.2 ms 16-point output, 12/24 VDC (0.1 A), transistor output (sink type)1 wire type, FCN connector type	IP1XB	66
Remote input module	AJ65BTB1-16D	16-point 24 VDC (+COM/-COM common type), 1 wire type, terminal block type, response time 10 ms	IP2X	36
	AJ65BTB2-16D	16-point 24 VDC (+COM/-COM common type), 2 wire type, terminal block type, response time 10 ms	IP2X	36
	AJ65BTC1-32D	32-point 24 VDC (+COM/-COM common type), 1 wire type, FCN connector type (40-pin connector), response time 10 ms	IP2X	66
Remote output module	AJ65BTB1-16T	16-point 12/24VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65BTB2-16T	16-point 12/24VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type	IP2X	36
	AJ65BTC1-32T	32-point 12/24VDC (0.1 A), transistor output (sink type), 1 wire type, FCN connector type (40-pin connector)	IP2X	66
	AJ65BTB2-16R	16-point 24 VDC/240 VAC (2 A), relay output, 2 wire type, terminal block type	IP1X	36
Combined remote I/O module	AJ65BTB1-16DT	8-point input, 24 VDC (+COM)), response time 10 ms 8-point output, 12/24VDC (0.5 A), transistor output (sink type), 1 wire type, terminal block type	IP2X	36
	AJ65BTB2-16DT	8-point input, 24 VDC (+COM)), response time 10 ms 8-point output, 12/24VDC (0.5 A), transistor output (sink type), 2 wire type, terminal block type	IP2X	36
	AJ65BTB2-16DR	8-point input, 24 VDC (+COM/-COM common type), response time 10 ms 8-point output, 24 VDC/240 VAC (2 A), relay output, 2 wire type, terminal block type	IP1X	36

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List of CC-Link Related Product Models

■List of CC-Link Related Product Models

Product name	Model name	Specification	IP display	Page describing function and specification
Embedded input adapter	AJ65MBTL1N-16D New	16-point, 24 VDC(+COM), pin header type 44pins (2rows). embedded type, responce time 1.5ms	—	54
	AJ65MBTL1N-32D New	32-point, 24 VDC(+COM), pin header type 62pins (2rows). embedded type, responce time 1.5ms	—	54
Embedded output adapter	AJ65MBTL1N-16T New	16-point, 12/24 VDC (0.1 A), transistor output (sink type), pin header type 44pins (2rows). embedded type	—	54
	AJ65MBTL1N-32T New	32-point, 12/24 VDC (0.1 A), transistor output (sink type),pin header type 62pins (2rows). embedded type	—	54
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	AJ65VBTCU-68ADIN New	Compatible with CC-Link Ver.2 8-channel current input	IP1XB	74
	AJ65SBT-64AD	4-channel voltage/current input	IP2X	76
	AJ65BT-64AD	4-channel voltage/current input	IP2X	76
Digital to analog converter	AJ65VBTCU-68DAVN New	Compatible with CC-Link Ver.2 8-channel voltage output	IP1XB	78
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	AJ65BT-D62D-S1	Differential input, preset differential input	IP2X	86
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RS-232 interface module	AJ65BT-R2	RS-232, 1 channel, with 2 points of DC input and 2 points of transistor output	IP2X	120
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	A80BD-J61BT13	CC-Link interface board for IBM PC/AT compatible PC (for PCI bus slot: Local station)	—	106
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CC-Link system optical repeater module	AJ65SBT-RPS	For SI/QSI-type optical fiber cable (combine two modules to use)	IP2X	112
	AJ65SBT-RPG	For GI-type optical fiber cable (combine two modules to use)	IP2X	112
CC-Link system wireless optical repeater module	AJ65BT-RPI-10A	Use AJ65BT-RPI-10A and AJ65BT-RPI-10B as a set, support 156 k, 625 k, and 2.5 Mbps.	IP2X	114
	AJ65BT-RPI-10B		IP2X	114
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Optional Parts for I/O Modules

■One-Touch Connector Plug

Product name	Model name	Specification			Page describing function and specification
		Color of cover	Applicable cable core wire size (mm)	Applicable cable external size (mm)	
One-touch connector plugs (a pack contains 20 pieces)	A6CON-P214	Transparent	0.14 to 0.2 (AWG#26 to 24)	ϕ1.0 to 1.4	128
	A6CON-P220	Yellow		ϕ1.4 to 2.0	128
	A6CON-P514	Red	0.3 to 0.5 (AWG#22 to 20)	ϕ1.0 to 1.4	128
	A6CON-P520	Blue		ϕ1.4 to 2.0	128
One-touch connector plug for communication (a pack contains 10 pieces)	A6CON-L5P	Five-pole one-touch connector plug for communication [transmission circuit terminal (pressure connect type)] Applicable cable: FANC-110SBH (manufactured by Kuramo Electric Co., Ltd.)CS-110 (manufactured by Daiden Co., Ltd.)			129
One-touch connector plug for power supply and FG (a pack contains 10 pieces)	A6CON-PW5P	Five-pole one-touch connector plug for power supply and FG [module power supply terminal, I/O power supply terminal, and FG terminal (pressure connect type)]Applicable wire size: 0.66 to 0.98 mm² (AWG18) ϕ2.2 to 3.0]Wire diameter: 0.16 mm or more			129
One-touch connector plug with terminal resistor (a pack contains 1 piece)	A6CON-TR11	One-touch connector plug for communication with terminal resistor (110Ω) ・Make sure to use this terminal resistor if a connector type I/O module is used at the terminal station.			129

■Online Connector

Product name	Model name	Specification	Page describing function and specification
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■Protective Cover for Remote I/O Modules

Product name	Model name	Applicable module	Page describing function and specification
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■Module mounting fitting

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CC-Link Compatible Product Catalog

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