

MITSUBISHI

Programmable Logic Controller

MELSEC-A

Mitsubishi General Use PLC User's Manual

GPP function peripheral connection module type AJ65BT-G4 (Hardware)

Thank you for buying the Mitsubishi General Use PLC MELSEC-A Series.
Before use, please read this manual carefully and correctly operate the
module with a sufficient understanding of the A series PLC functions and
performance.

Please place this manual in a location where it is available to end users.

MODEL	AJ65BTG4-U-HW-E
MODEL CODE	13JL39



IB (NA) -66817-C (9912) MEE

● SAFETY PRECAUTIONS ●

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in this manual. Also pay careful attention to safety and handle the module properly.

These precautions apply only to Mitsubishi equipment. Refer to the CPU module user's manual for a description of the PLC system safety precautions.

These ● SAFETY PRECAUTIONS ● classify the safety precautions into two categories: "DANGER" and "CAUTION".

 DANGER	Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.
 CAUTION	Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.

Depending on circumstances, procedures indicated by  CAUTION may also be linked to serious results.

In any case, it is important to follow the directions for usage.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[DESIGN PRECAUTION]

 DANGER	
<ul style="list-style-type: none">● When using the GPP function peripheral for the online operation of the running PLC (e.g. data change, forced output, program change or operating status change), establish an interlock circuit outside the PLC system so that the wholesystem always operates on the safe side. Also, the user should determine corrective and other actions to be taken when a data communication error occurs between the peripheral and PLC.	

 CAUTION	
<ul style="list-style-type: none">● Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other. They should be installed 100mm(3.94inch) or more from each other. Not doing so could result in noise that would cause malfunction.	

[INSTALLATION PRECAUTIONS]

CAUTION

- Use the module in an environment that meets the general specifications contained in the manual.
Using this module in an environment outside the range of the general specifications could result in fire, malfunction, and damage to or deterioration of the product.
- Securely fix the module using the DIN rail or mounting screws and fully tighten the mounting screws within the specified torque range.
If the screws are loose, it may result in fallout, short circuits or malfunctions. Tightening the screw too far may cause damages to the screws and/or the module, resulting in fallout, short circuits, or malfunctions.
- Do not directly touch the module's conductive parts or electronic components.
Doing so could cause malfunction or failure in the module.

[WIRING PRECAUTIONS]

DANGER

- Make sure to switch all phases of the external power supply off when installing or placing wiring.
Not doing so could result in electric shock or damage to the product.
- When switching power on or starting operation after mounting, wiring, operation check or other work, always close the terminal cover.
Not doing so can cause a short circuit or misoperation due to module damage or cable connection fault.

CAUTION

- Before wiring the module, confirm the rated voltage and terminal arrangement of the product.
A fire or failure can occur if the power supply connected is different from the rating or wiring is incorrect.
- Tighten the terminal screws within the range of the specified torque.
If the terminal screws are loose, it may result in short circuits, or malfunctions.
Tightening the terminal screws too far may cause damages to the terminal screws and/or the module, resulting in short circuits, or malfunctions.
- Be sure there are no foreign substances such as sawdust or wiring debris inside the module.
Such debris could cause fires, failure, or malfunction.

[WIRING PRECAUTIONS]

CAUTION

- Be sure to ground the FG terminal using the class D (class 3) or higher grounding designated for PLCs.
Not doing so may cause misoperation.
- Always secure the communication and power cables connected to the module in conduits or with clamps.
Not doing so can damage the module or cables due to dangling, moved or accidentally pulled cables or can cause misoperation due to cable contact failure.
- Do not grab on the cable when removing the communication or power cable connected to the module.
When removing the cable with a connector, hold the connector on the side that is connected to the module.
When disconnecting a cable without a connector, first loosen the screws on the part that is connected to the module.
Pulling the cable when it is still connected to the module may cause damage to the module or cable, or misoperation due to cable contact failure.
- Before connecting the cables, check the type of interface to be connected.
Do not connect the cables to the equipment of different interface specifications.
It can cause the module to fail.
- Perform correct pressure-displacement, crimp-contact or soldering for wire connections using the tools specified by the manufactures. Attach connectors to the module securely.
Doing so could cause malfunction or failure in the module.

[STARTING AND MAINTENANCE PRECAUTIONS]

DANGER

- Do not touch the connector while the power is on.
Doing so could cause malfunction.
- Make sure to switch all phases of the external power supply off before cleaning or retightening screws.
If you do not switch off the external power supply, it will cause failure or malfunction of the module.
If the screws are loose, it may result in fallout, short circuits, or malfunctions.
Tightening the screws too far may cause damages to the screws and/or the module, resulting in a fallout, short circuits, or malfunctions.

[STARTING AND MAINTENANCE PRECAUTIONS]

CAUTION

- Do not disassemble or modify the module.
Doing so could cause failure, malfunction, injury, or fire.
- The module case is made of resin. Do not drop it or give it hard impact.
This can damage the module.
- Before mounting or dismounting the module to or from an enclosure, always switch power off externally in all phases. Otherwise, the module can fail or misoperate.
- While power is on, do not change the switch settings (except SW1 (operation mode setting) of the operation setting DIP switches).
This can cause a failure or misoperation.
- When mounting, wiring or operation check is not performed, always close the terminal cover.
Not doing so can cause a short circuit or misoperation due to module damage or cable connection fault.

[OPERATING PRECAUTIONS]

DANGER

- Before using the GPP function peripheral for the online operation of the running PLC (e.g. data change, forced output, program change or operating status change), thoroughly read the manual to ensure complete safety.
Otherwise, improper operation may cause machine damage or accident.

[DISOSAL PRECAUTIONS]

CAUTION

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

About This Manual

The following product manuals are available.

Please use this table as a reference to request the appropriate manual as necessary.

Detailed Manuals

Manual Name	Manual No. (Model Code)
GPP function peripheral connection module type AJ65BT-G4 User's Manual	SH-3650 (13JL40)

Related Manuals

Manual Name	Manual No. (Model Code)
CC-Link System Master · Local Module type AJ61BT11/A1SJ61BT11 User's Manual	IB-66721 (13J872)
CC-Link System Master · Local Module type AJ61QBT11/A1SJ61QBT11 User's Manual	IB-66722 (13J873)
GPP Function software for Windows SW4D5C-GPPW-E(V) Operating Manual	SH-080032 (13J963)
Type SW2IVD-GPPQ Software package Operating Manual (Online)	IB-66775 (13J922)
Type SW2IVD-GPPQ Software package Operating Manual (Offline)	IB-66774 (13J921)
Type SW4IVD-GPPA(GPP) Operating Manual	IB-66855 (13JL62)
Type A6GPP/A6PHP(SW4GP-GPPA) Operating Manual	IB-66259 (13J717)

Revisions

* The manual number is noted at the lower left of the back cover.

Print Date	*Manual Number	Revision
Jan.1998	IB (NA) 66817-A	First printing
Mar.1998	IB (NA)-66817-B	<p>Corrections</p> <p>Entire manual (mode name changed from Q mode to QnA mode), Compliance with EMC Directive, Section 2.2, Section 7.1</p> <p>Additions</p> <p>POINT in Appendix 1</p>
Dec.1999	IB (NA)-66817-C	<p>Corrections</p> <p>SAFETY PRECAUTIONS, About This Manual, Compliance with EMC Directive, Section 1.1, Section 2.1, Section 2.2 (1), Section 3.1, Section 4.1, Section 5.1(Table), Section 5.2 (*1), Section 6.1 (1), Chapter 7, Appendix 1</p> <p>Additions</p> <p>Entire manual (reflections of GPPW), Section 2.2 (2), Section 4.1 (POINT), Section 5.1 (*), Appendix 2 (POINT)</p>

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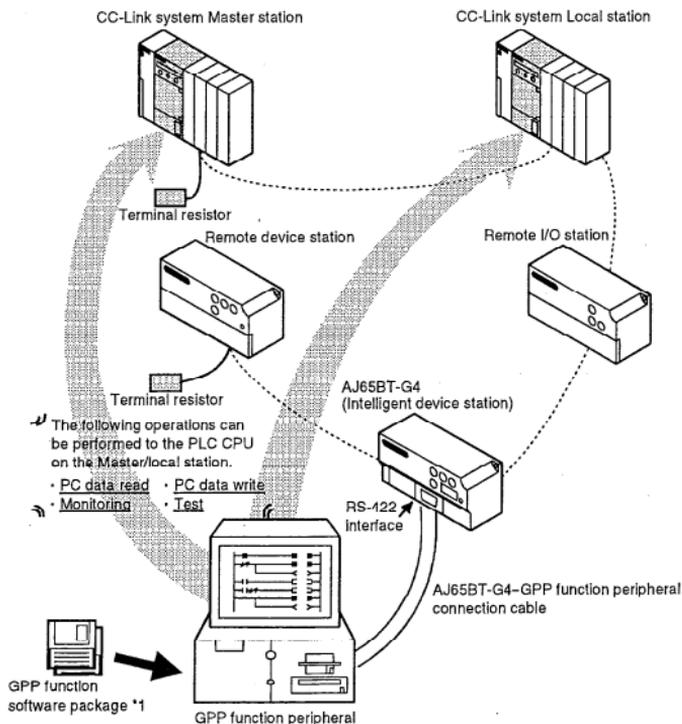
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1. Overview

1.1 Overview

This user's manual describes the specifications and handling information of the AJ65BT-G4 GPP function peripheral connection module (hereinafter referred to as "the AJ65BT-G4") compatible with the A/QnA series PLC used in the Control & Communication Link (hereinafter referred to as "CC-Link") system.

The AJ65BT-G4 is designed to incorporate a GPP function peripheral into the CC-Link system to perform PLC data write, PLC data read, monitoring, test and other functions from the GPP function peripheral to the Master and Local stations in the CC-Link system and to other station PLC on the MELSECNET.



- *1: GPPW: GPP function software for Windows (SW2D5C/F-GPPW-E and above)
GPPQ: SW□-GPPQ GPP function software
GPPA: SW□-GPPA GPP function software

1.2 Abbreviations and Generic Names Used in This Manual

In this manual, the following abbreviations and generic names are used for explanation.

Abbreviation/Generic Name	Description
AJ65BT-G4	Abbreviation for the AJ65BT-G4 GPP function peripheral connection module.
AJ61BT11	Abbreviation for the AJ61BT11 CC-Link system Master/local module.
A1SJ61BT11	Abbreviation for the A1SJ61BT11 CC-Link system Master/local module.
AJ61QBT11	Abbreviation for the AJ61QBT11 CC-Link system Master/local module.
A1SJ61QBT11	Abbreviation for the A1SJ61QBT11 CC-Link system Master/local module.
Master/local module	Generic name for the AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11.
Master module	Generic name for the AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 when used as the Master stations.
Local module	Generic name for the AJ61BT11, A1SJ61BT11, AJ61QBT11 and A1SJ61QBT11 when used as Local stations.
Remote module	Generic name for modules used as Remote I/O, Remote device and Intelligent device stations.
Master station	Station which controls Remote and Local stations. One Master station is required in a single system.
Local station	Station which has a CPU and can communicate with the Master and other Local stations.
Remote I/O station	Remote station which handles bit data only.
Remote device station	Remote station which handles bit data and word data.
Intelligent device station	Station which can make transient transmission. The AJ65BT-G4 is an Intelligent device station.
GPP function peripheral	Generic name for the peripheral in which one of the following GPP function software is installed: <ul style="list-style-type: none"> · GPP function software for Windows (SW2D5C/F-GPPW-E and above) · SW□-GPPQ GPP function software · SW□-GPPA GPP function software
GPPW	Abbreviation for the GPP function software for Windows (SW2D5C/F-GPPW-E and above)
GPPQ	Abbreviation for the SW□-GPPQ type GPP function software package.
GPPA	Abbreviation for the SW□-GPPA type GPP function software package.

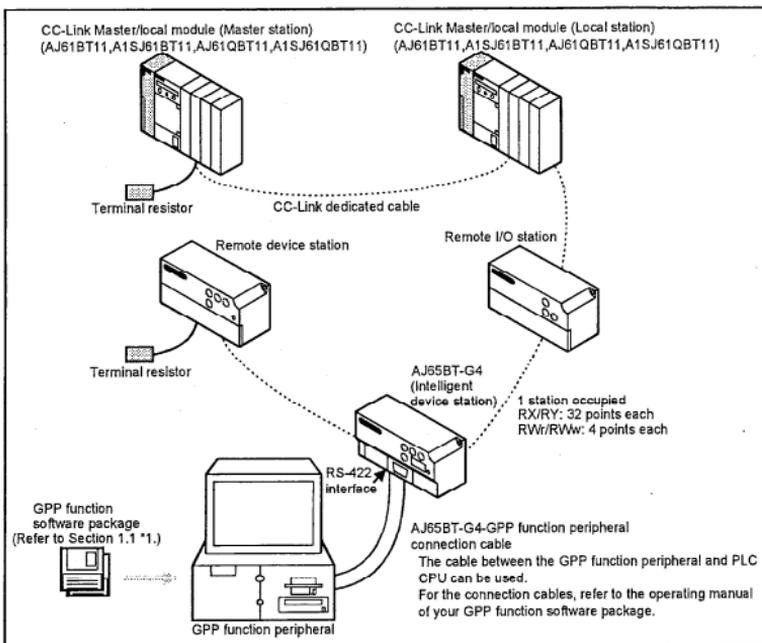
2. System Configuration

This chapter describes the system configuration for use of the AJ65BT-G4.

2.1 Overall Configuration

The following diagram shows the overall configuration for use of the AJ65BT-G4.

Up to 26 AJ65BT-G4's may be connected to one CC-Link Master module.



*Refer to Control & Communication Link System Master/Local Module User's Manual for the maximum distance of the total system extension.

2.2 Instructions for System Configuration

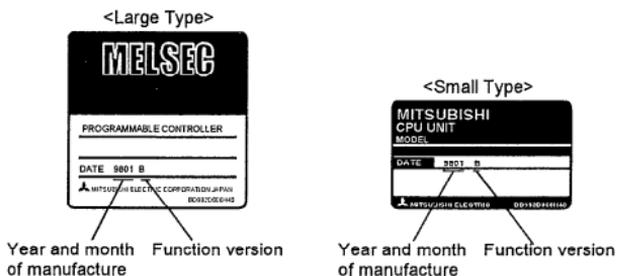
When using the AJ65BT-G4, follow these system configuration instructions.

(1) Master/local module with which the AJ65BT-G4 may be used

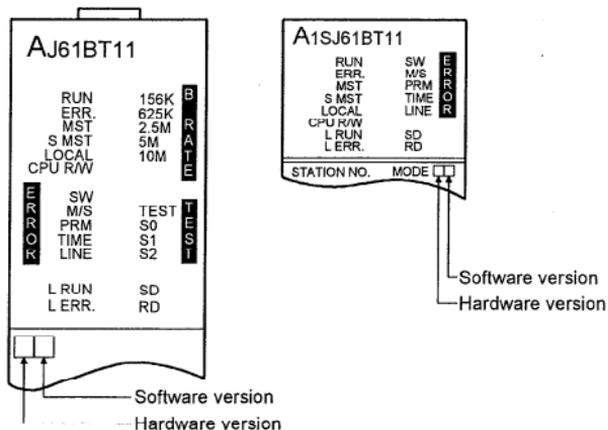
The AJ65BT-G4 may be used with the Master/local module whose function version is B or later and whose software version is J or later.

The modules that do not support the versions described above cannot be used.

The function version is indicated in the DATE field of the rating plate.



The software version is indicated on the module version sticker on the front panel of the module.



(2) Applicable versions of the AJ65BT-G4

Use the following software versions of the AJ65BT-G4 according to the PLC CPU accessed with the GPP function. (Select it by setting the operation mode with the DIP switch on the front panel of the AJ65BT-G4.) (Refer to Section 5.1* and 5.2 *1.)

- When accessing the QnA series CPU: Version B and above
- When accessing the A series CPU: Version A and above

3. Specifications

The following table lists the specifications of the AJ65BT-G4.
For general specifications, refer to the AJ65BT-G4 user's manual.

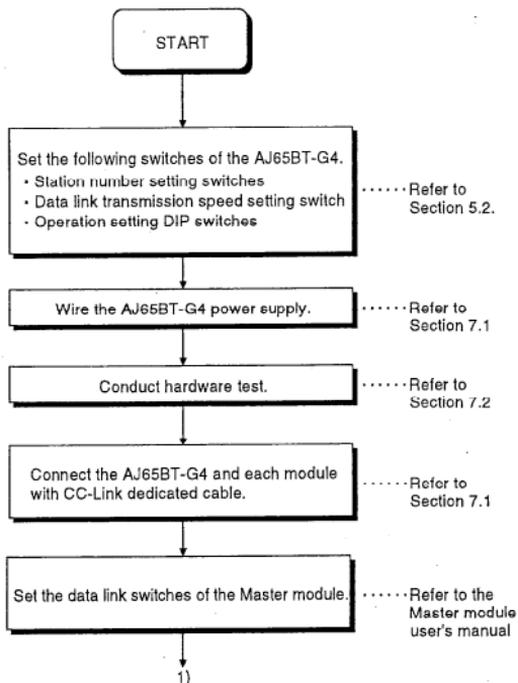
3.1 Performance Specifications

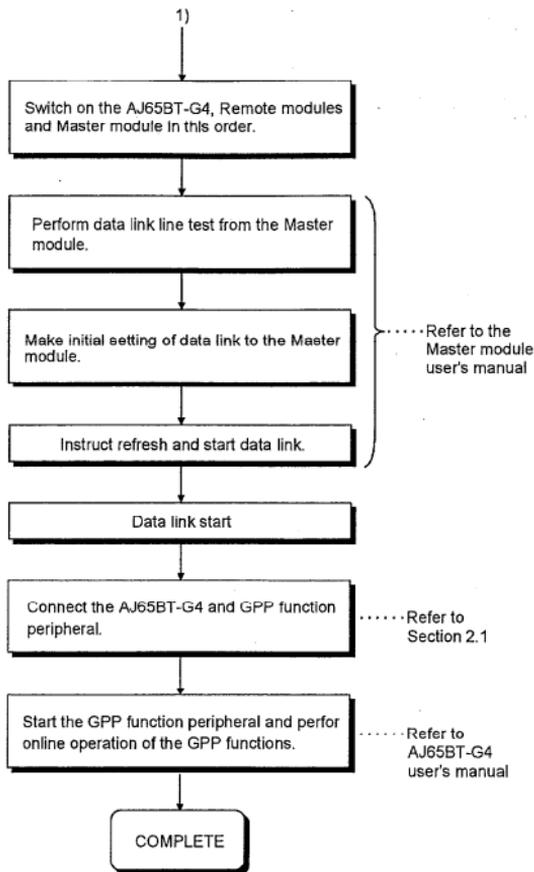
Item	Specifications
CC-Link station type	Intelligent device station
Number of stations occupied	1 station: RX/RV 32 points each RWr/RWw 4 points each
Transmission speed/ Max. transmission distance	(Refer to Control & Communication Link System Master/Local Module User's Manual.)
Connect cable (CC-Link)	
Max. number of modules connected	Up to 26
Power supply	24VDC
Current consumption(A)	0.19
Noise immunity	Measure using a noise simulator of noise voltage 500Vp-p, noise width 1 μ s and noise frequency 25 to 60Hz.
Withstanding voltage	500VAC for 1 minute across all DC external terminals and grounding terminal
Insulation resistance	10M Ω or more across all DC external terminals and grounding terminal using a 500VDC insulation resistance tester.
Terminal block	7-pin terminal block (M3.5 \times 7 screws)
Applicable cable size(mm ²)	0.75 to 2.00
Applicable crimping terminal	RAV1.25-3, RAV2-3.5 (conforming to JIS C2805)
Permissible instantan- eous power failure time (ms)	1
RS-422 interface	For connection of GPP function peripheral, 1 channel
Module mounting screws	Screws of M4 \times 0.7mm \times 16mm or larger DIN rail may also be used for mounting.
Applicable DIN rails	TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (conforming to JIS-C2B12)
Weight(kg)	0.36
Outline dimensions(mm)(inch)	80(3.15) \times 170(6.70) \times 63.5(2.50)

4. Pre-operation Procedure

4.1 Pre-Operation Procedure

The following flowchart indicates a pre-operation procedure for the AJ65BT-G4.





POINT

If the following modules are used as the Master station of the CC-Link system to which the AJ65BT-G4 is connected, set SW8 of the condition setting switches of the Master station to OFF (Module mode: Intelligent mode).

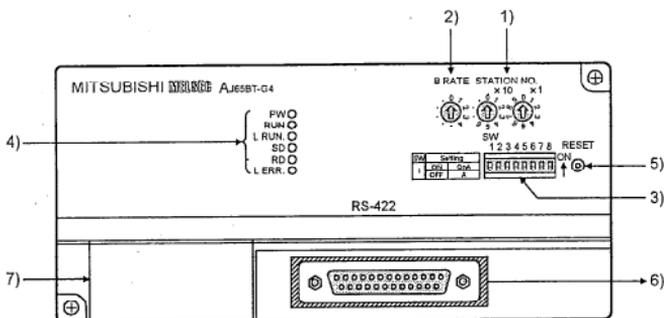
(Modules to which the setting above is applied)

- AJ61BT11 CC-Link system Master/Local module
- A1SJ61BT11 CC-Link system Master/Local module

5. Names of the Parts and Their Settings

5.1 Names of the Parts

This section provides the names of the AJ65BT-G4 parts.



*The hardware and software versions of the AJ65BT-G4 are indicated in the end of the DATE field of the rating plate on the rear side of the module.

(Indication example in the DATE field)

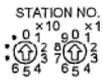
DATE 9901 A B
 └── Software version
 └── Hardware version
 └── Date of manufacture: Year (Last two digits), Month (Two digits)

Number	Name	Description
1)	Station number setting switches	Refer to Section 5.2.
2)	Data link transmission speed setting switch	
3)	Operation setting DIP switches	

Number	Name	Description	
4)	Indicator LEDs PW ○ RUN ○ L RUN ○ SD ○ RD ○ L ERR ○	PW	ON: Power on OFF: Power off
		RUN	ON: Normal operation OFF: 24VDC power off or watchdog timer error
		L RUN	ON: Normal communication OFF: Communication fault (time excess error)
		SD	ON to indicate data transmission.
		RD	ON to indicate data receive.
		L ERR	ON: Indicates that a communication data error (CRC error) occurred or that the station number setting or data link transmission speed setting switch is set to outside the range. Flicker at regular intervals: Indicates that the station number setting or data link transmission speed setting switch position was changed while power is on. Flicker at irregular intervals: Indicates that the terminal resistor is left unconnected or that the module or CC-Link dedicated cable is affected by noise. OFF: Normal communication
5)	Reset switch RESET 	Hardware reset. Used to reset to the power-on status.	
6)	RS-422 interface	Interface for connecting the GPP function peripheral. The cable between the GPP function peripheral and PLC CPU can be used as the connection cable. For the connection cables, refer to the operating manual of the GPP function software package.	
7)	Power supply and data link terminal block	Terminal block for power supply and data link. For the wiring method, refer to Section 7.1. 	

5.2 Setting of the Parts

This section provides how to set the parts of the AJ65BT-G4.

Name	Description														
Station number setting switches 	Used to set the station number of the AJ65BT-G4 between 1 and 64. (If the station number you set is other than 1 to 64, the L.ERR LED is ON.) Use "x10" to set the tens. Use "x1" to set the modules. <div style="text-align: right;">(Factory setting: 00)</div>														
Data link transmission speed setting switch 	Used to set the transmission speed of the AJ65BT-G4. (For data link) <table border="1" data-bbox="388 429 942 662"> <thead> <tr> <th>Number to be Set</th> <th>Transmission Speed</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>156kbps</td> </tr> <tr> <td>1</td> <td>625kbps</td> </tr> <tr> <td>2</td> <td>2.5Mbps</td> </tr> <tr> <td>3</td> <td>5Mbps</td> </tr> <tr> <td>4</td> <td>10Mbps</td> </tr> <tr> <td>Other than 0 to 4</td> <td>Unused (If the value you set is other than 0 to 4, the L.ERR LED is ON to indicate a communication error.)</td> </tr> </tbody> </table> <div style="text-align: right;">(Factory setting: 0 (156kbps))</div>	Number to be Set	Transmission Speed	0	156kbps	1	625kbps	2	2.5Mbps	3	5Mbps	4	10Mbps	Other than 0 to 4	Unused (If the value you set is other than 0 to 4, the L.ERR LED is ON to indicate a communication error.)
Number to be Set	Transmission Speed														
0	156kbps														
1	625kbps														
2	2.5Mbps														
3	5Mbps														
4	10Mbps														
Other than 0 to 4	Unused (If the value you set is other than 0 to 4, the L.ERR LED is ON to indicate a communication error.)														

Name	Description																		
Operation setting DIP switches SW 1 2 3 4 5 6 7 8 	Used to set the operational specifications of the AJ65BT-G4.																		
SW Num-ber	Setting Item	Setting Switch Position		Description															
		ON	OFF																
1	Operation mode setting	QnA mode	A mode	Set this switch according to the access estimation PLC CPU, etc. of the GPP functions. (Refer to *1) This switch setting may be changed during operation.															
2,3	Peripheral-to-peripheral transmission speed setting (bps)	<table border="1" data-bbox="505 463 709 700"> <thead> <tr> <th>SW2</th> <th>SW3</th> <th>Transmission Speed (bps)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>9600</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>19200</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>38400</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>Must not be set.</td> </tr> </tbody> </table>		SW2	SW3	Transmission Speed (bps)	OFF	OFF	9600	ON	OFF	19200	OFF	ON	38400	ON	ON	Must not be set.	Valid for the QnA mode setting only. Set this switch according to the GPP function peripheral.
SW2	SW3	Transmission Speed (bps)																	
OFF	OFF	9600																	
ON	OFF	19200																	
OFF	ON	38400																	
ON	ON	Must not be set.																	
4	Parity bit yes/no setting	No (Must not be selected)	Yes	Always set SW 4 and 5 to the OFF position.															
5		Even (Must not be selected)	Odd																
6,7	Not used	—		—															
8	Test mode setting	Test mode	Online mode	Set this switch to ON when making hardware test.															

(Factory setting: All switches in OFF position)

*1: Operation mode setting switch setting method

Operation Mode	Description		
QnA mode	Set to the QnA mode under the following conditions.		
	Item	Equipment Used	
	GPP function software package	Device where GPPW/GPPQ is installed	
	CC-Link system Master/Local module (Refer to Section 2.2.)	Master/Local module compatible with the MELSEC-QnA series	
	PLC CPU in CC-Link system Master/Local module (midway station)	MELSEC-QnA series CPU	
	Relay station	MELSECNET(II)/B	AnU, QnACPU, and QCPU (A mode)
		MELSECNET/10	
	Ethernet	The following modules with function version B and above: · AJ71QE71 (-B5) · A1SJ71QE71-B2/B5	
Access destination PLC CPU	MELSEC-QnA series CPU		
AJ65BT-G4 (Refer to Section 2.2)	—		
A mode	Set to the A mode under the following conditions.		
	Item	Equipment Used	
	GPP function software package	Device where GPPW/GPPQ is installed	
	CC-Link system Master/Local module (Refer to Section 2.2.)	Master/Local module compatible with the MELSEC-QnA series	
	PLC CPU in CC-Link system Master/Local module (midway station)	MELSEC-A series CPU, QCPU (A mode)	
	Access destination PLC CPU	MELSEC-A series CPU, QCPU (A mode)	
	AJ65BT-G4 (Refer to Section 2.2)	—	

6. Handling

6.1 Handling Instructions

This section gives the handling instructions of the AJ65BT-G4.

POINT

For handling instructions such as module installation / removal, read ●SAFETY PRECAUTIONS● given at the beginning of this manual.

- (1) Tighten the mounting, terminal and other screws of the module in the following ranges.

Screw Location	Tightening Torque Range N-cm
Module mounting screw (M4 screw)	78 to 118
Terminal block terminal screw (M3.5 screw)	59 to 88
Terminal block mounting screw (M4 screw)	78 to 118
RS-422 connector mounting screw (M2.6 screw)	19 to 24

- (2) When using the DIN rail adapter, note the following in mounting the DIN rail.

- (a) Applicable DIN rail type (conforming to JIS-C2B12)

TH35-7.5Fe

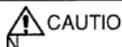
TH35-7.5Al

TH35-15Fe

- (b) DIN rail mounting screw pitch

When mounting the DIN rail, tighten screws in 200mm(7.88inch) or less pitch.

6.2 Installation Environment



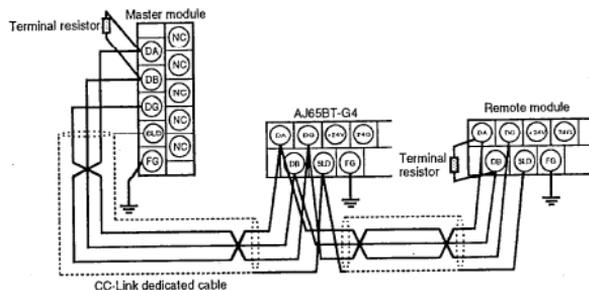
When installing the module, avoid the following environment. If the environment of the module used is outside the range of general specifications, an electric shock, fire, misoperation or product damage or deterioration can occur.

- Ambient temperature outside the range 0 to 55°C.
- Ambient humidity outside the range 10 to 90%RH.
- Condensation due to sudden temperature changes.
- Corrosive or combustible gasses.
- Dust, conductive powder (e.g. metal filings), oil mist, salt and organic solvent.
- Direct sunlight.
- Strong power and magnetic fields.
- Vibration and impact.

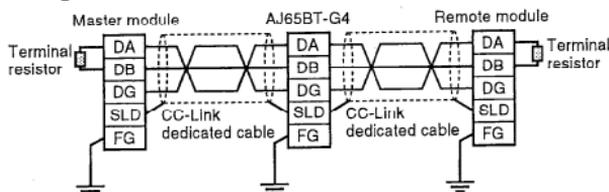
7. Wiring

7.1 Connection of Cables with the Modules

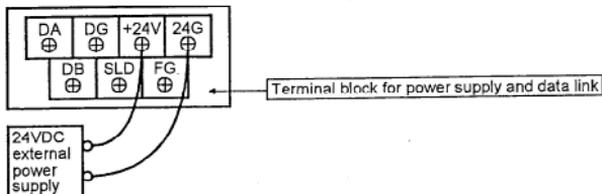
The following diagram shows how to CC-Link dedicated cables between the Master module and Remote module and how to wire the power supply.



【Sketch】



【Power supply wiring method】



POINT

"Terminal resistors" must be connected to the sections between DA and DB of the modules at the both ends of the CC-Link.
 When connecting the terminal resistor to the AJ65BT-G4, use the terminal resistor supplied with the Master module.
 (Refer to the Control & Communication Link System Master/Local Module User's Manual.)

7.2 Hardware Check Test Operation Procedure

The following procedure indicates how to perform the AJ65BT-G4 hardware check test (hereinafter referred to as "the hardware test") operation.

Always perform the hardware test before incorporating the AJ65BT-G4 into the CC-Link system.

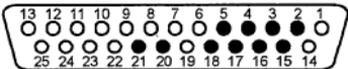
(Step 1)

When the CC-Link dedicated cables are used for the connection of the AJ65BT-G4 and GPP function peripherals, disconnect each cable.

(Step 2)

Connect the RS-422 single-station loopback cable to the AJ65BT-G4.

Refer to the RS-422 single-station loopback cable specifications given below and fabricate the cable on the user side.

RS-422 Interface	Pin number	Cable Connection
	2	←
	3	←
	4	←
	5	←
	15	←
	16	←
	17	←
	18	←
	20	←
	21	←

(Step 3)

Set the operation setting DIP switch SW8 of the AJ65BT-G4 to ON (test mode). (Refer to Section 5.2.)

Set the station number setting switches to 0. (Refer to Section 5.2.)

(Step 4)

Switch on the AJ65BT-G4. If it is already on, press the reset switch.

(Step 5)

Check the L ERR LED of the AJ65BT-G4.

L ERR LED Status	Error Definition
Flickers at intervals of 0.5 seconds for 30 seconds or longer.	Normal
Flickers at intervals of 2 seconds	ROM check error
Flickers at intervals of 4 seconds	RAM check error
Flickers at intervals of 6 seconds	Data link loopback check error
Flickers at intervals of 8 seconds	RS-422 loopback check error
ON	Hardware fault

If the L ERR LED is still ON or flickers at 2, 4, 6, or 8-second intervals, check the following content and perform the hardware test again.

- 1) The CC-Link dedicated cable is not connected to the AJ65BT-G4 (if connected, disconnect).
- 2) The operation setting DIP switch SW8 of the AJ65BT-G4 is set to ON (test mode) and the station number setting switches are set to 0.
- 3) The GPP function peripheral connection cable is not connected to the AJ65BT-G4 (if connected, disconnect).

Then, perform the hardware test again. If the L ERR LED is still ON or flickers at 2, 4, 6, or 8-second intervals after the test, the possible cause is a hardware fault. Consult your sales representative.

(Step 6)

Switch off the AJ65BT-G4, disconnect the RS-422 single-station loopback cable, and set the operation setting DIP switch SW8 to OFF.

Set the station number setting switches to the station number assigned to the AJ65BT-G4 in the CC-Link system.

Appendix

Appendix 1 Troubleshooting

This section describes how to check an error using the indicator LEDs of the AJ65BT-G4.

For errors related to the PLC CPU and Master module, refer to the PLC CPU and Master/Local module user's manuals.

- (1) If the PW LED of the AJ65BT-G4 goes OFF

Cause	Corrective Action
24VDC power is not supplied to the AJ65BT-G4 or voltage is insufficient.	Check the voltage of the 24VDC power supply.

- (2) If the RUN LED of the AJ65BT-G4 goes OFF

Cause	Corrective Action
Watchdog timer error occurred.	Switch on power of the AJ65BT-G4 again. *1 If the RUN LED does not turn ON after power is switched on again, the hardware may be faulty. Consult your sales representative.

- (3) If the L RUN LED of the AJ65BT-G4 goes OFF

Cause	Corrective Action
Watchdog timer error occurred.	Switch on power of the AJ65BT-G4 again. *1 If the L RUN LED does not turn ON after power is switched on again, the hardware may be faulty. Consult your sales representative.
CC-Link dedicated cable is broken or shorted.	Check and repair the CC-Link dedicated cable.
Master station stopped link.	Check for an error at Master station.
Station number was repeated.	Switch power on again*1 after correcting the station number setting of the module of which station number was repeated.
Station number setting switch or data link transmission setting switch setting is wrong.	Switch power on again*1 after correcting the station number setting switch or data link transmission setting switch setting.

- (4) If the L ERR LED of the AJ65BT-G4 flickers at regular intervals

Cause	Corrective Action
Station number setting switch or data link transmission speed setting switch setting was changed during normal operation.	Return the station number or data link transmission speed to the previous setting. If the L RUN LED does not turn ON with the previous setting, the hardware may be faulty. Consult your sales representative.
Station number setting switches or data link transmission speed setting switch is faulty	If the L ERR LED begins to flicker although the switch setting was not changed during operation, the hardware may be faulty. Consult your sales representative.

- (5) If the L ERR LED of the AJ65BT-G4 flickers at irregular intervals

Cause	Corrective Action
Terminal resistors are left unconnected.	Check that the terminal resistors are connected. If not, connect them and switch power on again*1.
Modules or CC-Link dedicated cables are affected by noise.	<ul style="list-style-type: none"> · Ground the both ends of the shielded wire of the CC-Link dedicated cable using the class D grounding (class 3 grounding) via SLD and FG of each module. · Securely connect the FG terminal of the module to ground. · Securely ground the piping when running cables in piping.

- (6) If the L ERR LED of the AJ65BT-G4 is ON

Cause	Corrective Action
Station number setting switch or data link transmission setting switch setting is wrong.	Switch power on again*1 after correcting the station number setting switch or data link transmission setting switch setting.

*1 Switch power on again: Switch on the AJ65BT-G4 again or press the reset switch of the AJ65BT-G4.

POINT

The following table lists the causes and corrective actions when the online operation of the GPP functions cannot be performed.

Cause	Corrective Action						
CC-Link communication error occurred.	Check the indicator LEDs. (Refer to Appendix 1 and Appendix 2.)						
Cable is not connected properly between AJ65BT-G4 and GPP function peripheral.	<p>Check the connection cable. Whether cable connection between AJ65BT-G4 and GPP function peripheral is proper or not can be checked using the remote input signal of the AJ65BT-G4.</p> <table border="1" data-bbox="479 380 860 525"> <thead> <tr> <th data-bbox="479 380 593 428">Input Number</th> <th data-bbox="593 380 684 428">Signal Name</th> <th data-bbox="684 380 860 428">Status</th> </tr> </thead> <tbody> <tr> <td data-bbox="479 428 593 525">RX(n+1)A</td> <td data-bbox="593 428 684 525">Remote station ready signal</td> <td data-bbox="684 428 860 525">ON : Normal connection OFF : Connection error</td> </tr> </tbody> </table> <p>n: Indicates the first I/O number of the AJ65BT-G4 assigned to the Master module by station number setting.</p>	Input Number	Signal Name	Status	RX(n+1)A	Remote station ready signal	ON : Normal connection OFF : Connection error
Input Number	Signal Name	Status					
RX(n+1)A	Remote station ready signal	ON : Normal connection OFF : Connection error					
Operation setting DIP switches of the AJ65BT-G4 are not set to correct positions.	Check the operation setting DIP switches. (Refer to Section 5.2.)						
PLC cannot be accessed by GPP function peripheral.	<p>If error message "CANNOT COMMUNICATE WITH PLC" appears on the GPP function screen, check for:</p> <ul style="list-style-type: none"> • Incorrect station number specified for the station to communicate with. • Abnormal data communication between master module and AJ65BT-G4. (This can be checked by the indicator LED.) • Abnormal operation of the PLC to be accessed. (This can be checked by the ERROR LED and special relay/special data register.) • Abnormal data link of the MELSECNET when access is made to the other station via the MELSECNET. (This can be checked by the special relay/special data register, etc. for MELSECNET.) • A fault of the cable for connection between GPP function peripheral and AJ65BT-G4. (Refer to the Corrective Action of the second Cause above.) 						

GPP function setting error

If any of the following error message is displayed on the GPP function peripheral screen, first check the PLC station number setting, etc. of the access destination (Refer to Chapter 6.)

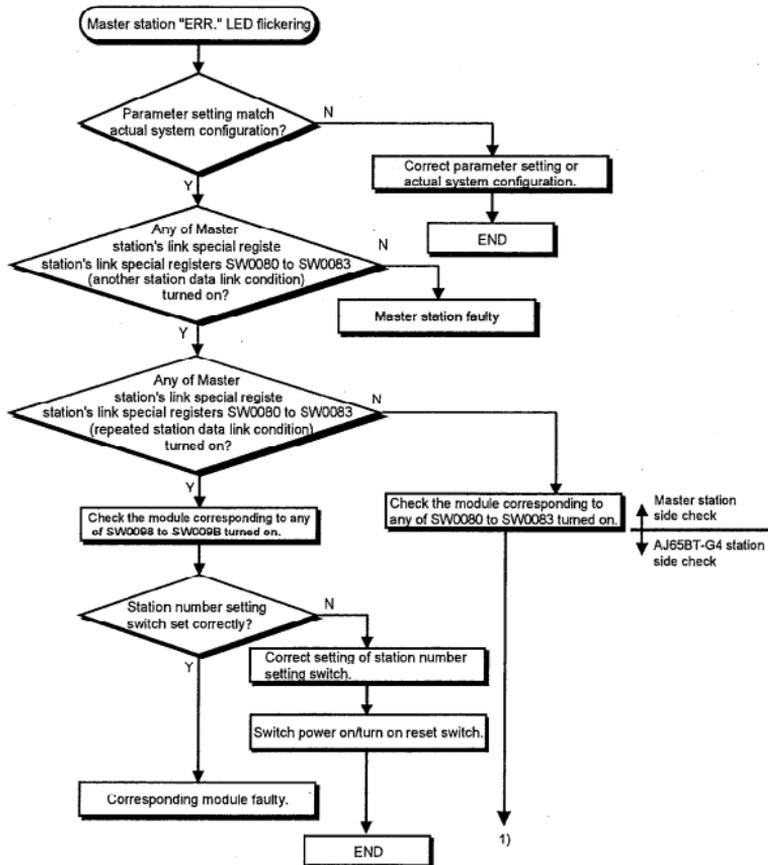
- "Password is not released"
- "Cannot receive from PLC(time over)"
- "PLC type incorrect"

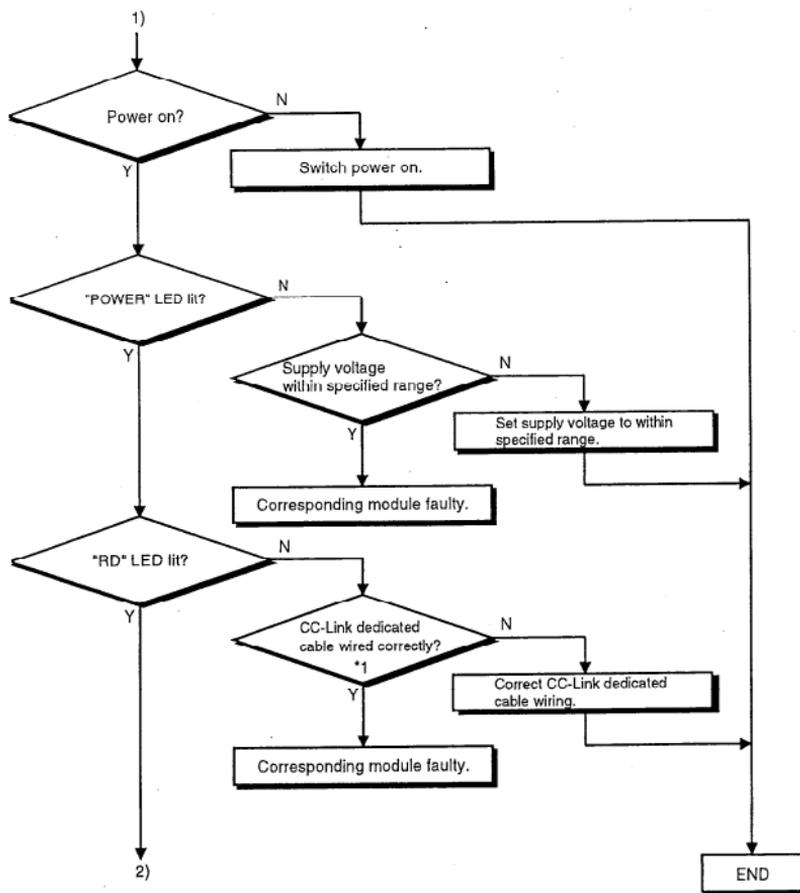
When online operation cannot be performed after checking and correct setting are made in accordance with Chapter 6 or when the error message displayed on the GPP function peripheral screen is other than the above, refer to the operating manual of the GPP function software package used and take corrective action.

Appendix 2 Troubleshooting Flowchart

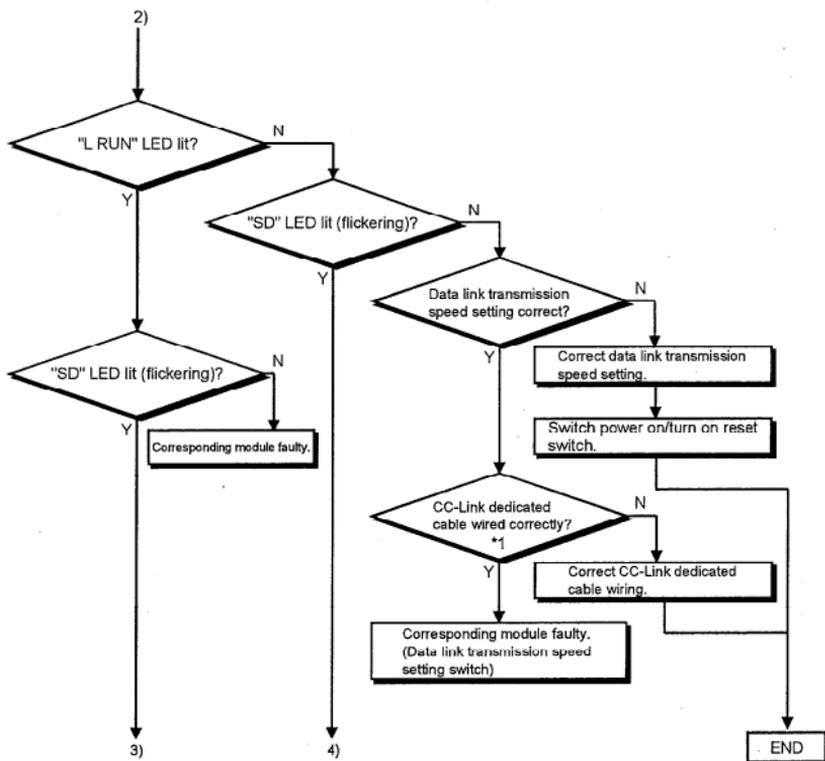
- (1) Communication error occurs between Master station and this module
 If any repeated station number bit in any of the link special registers SW0098 to SW009B (repeated station number status) of the Master station switches on, check the AJ65BT-G4 of the corresponding station number in the following flowchart.

Troubleshooting flowchart used when the "ERR." LED of the Master station flickers

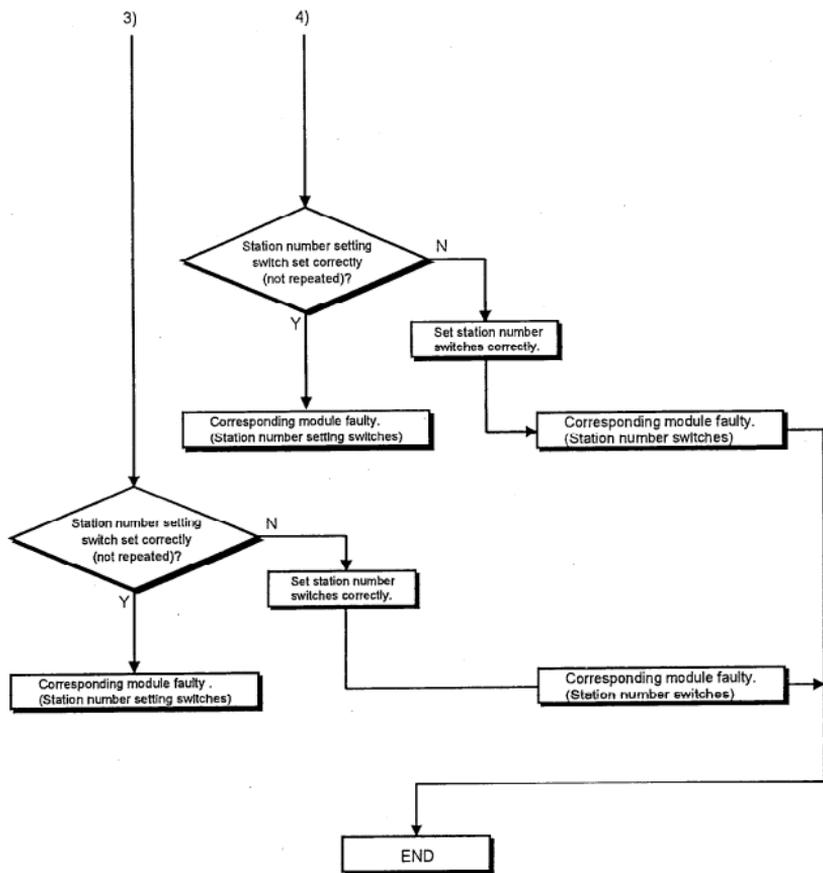




1: Check for short circuit, reverse connection, wire breakage, no terminal resistor, improper FG connection, improper overall distance and improper interstation distance.



1: Check for short circuit, reverse connection, wire breakage, no terminal resistor, improper FG connection, improper overall distance and improper interstation distance.



POINT

(1) If the following modules are used as the Master station of the CC-Link system to which the AJ65BT-G4 is connected, set SW8 of the condition setting switches of the Master station to OFF (Module mode: Intelligent mode).

(Modules to which the setting above is applied)

- AJ61BT11 CC-Link system Master/Local module
- A1SJ61BT11 CC-Link system Master/Local module

(2) Use the following software versions of the AJ65BT-G4 according to the PLC CPU accessed with the GPP function. (Select it by setting the operation mode with the DIP switch on the front panel of the AJ65BT-G4.) (Refer to Section 5.2 *1.)

- When accessing the QnA series CPU: Version B and above
- When accessing the A series CPU: Version A and above

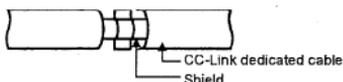
Correspondence to EMC DIRECTIVE

To make the PLCs compliant with the EMC directive, refer to Chapter 3 "EMC AND LOW-VOLTAGE DIRECTIVE" in the PLC user's manual (Hardware).

*When the PLC CPU user's manual (Hardware) does not include Chapter 3 "EMC AND LOW-VOLTAGE DIRECTIVE", refer to QnA Series CPU Compatible High-Speed Access Basic Base Unit Corresponding CPU EMC Conforming Product Additional Explanation (IB-68837) (optional). Please observe the following precautions when using the CC-Link dedicated cable.

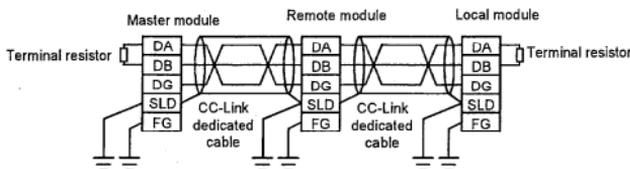
- (1) Be sure to ground the cable shield that is connected to the CC-Link module close to the exit of control panel or to any of the CC-Link stations within 30cm (11.8 in.) from the module or stations.

The CC-Link dedicated cable is a shielded cable. As shown in the illustration below, remove a portion of the outer covering and ground as large a surface area of the exposed shield part as possible.



- (2) Always use the specified CC-Link dedicated cable.
- (3) Do not use a ferrite core for the CC-Link module or CC-Link stations.
- (4) The CC-Link module, the CC-Link stations and the FG line inside the control panel should be connected at both the FG terminal and the SLD terminal as shown in the diagram below.

[Simplified diagram]



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