MITSUBISHI

Analog-Digital Converter Module

User's Manual

(Hardware)

AJ65VBTCU-68ADVN/ADIN

Thank you for buying the Mitsubishi general-purpose programmable controller MELSEC Series

Prior to use, please read both this manual and detailed manual thoroughly and familiarize yourself with the product.

MODEL	AJ65V-68ADN-U-HW
MODEL CODE	13JP19
IB(NA)-0800251-D(0704)MEE	

● SAFETY PRECAUTIONS ●

(Always read before starting use)

When using this equipment, thoroughly read this manual. Also pay careful attention to safety and handle the module properly.
These precautions apply only to this equipment.
Refer to the user's manual of the CPU module to use 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 PRECAUTIONS]

⚠DANGER

- When there are communication problems with the data link, the data for the master module will be held.
  Configure an interlocking circuit in a sequence program so that the safety of the overall system is always maintained.

⚠CAUTION

- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other.
  They should be installed 100mm (3.9inch) or more from each other.
  Not doing so could result in noise that would cause erroneous operation.

[INSTALLATION PRECAUTIONS]

⚠CAUTION

- Use each module in an environment as specified in the "general specification" in the detailed manual.
  Using the PLC outside the range of the general specifications may result in electric shock, fire or malfunction, or may damage or degrade the module.
- Securely fix the module to a DIN rail or securely fix it with the CC-Link connector type fitting.
  Not doing so can cause a drop or malfunction.
- Do not touch the conducted area of the module.
  Doing so may cause module malfunctioning or breakdowns.

[WIRING PRECAUTIONS]

⚠CAUTION

- Be sure to shut off all phases of the external power supply used by the system before installation or wiring.
  Not doing so can cause the product to be damaged or malfunction.
- Always ground the FG pin and FG1 pin to the protective ground conductor.
  Not doing so can cause a malfunction.
- Wire the module correctly after confirming the rated voltage and pin layout of the product.
  Not doing so can cause a fire or failure.
- Do not insert the one-touch connector plug for I/O of the one-touch connector type/connector type compact remote I/O unit into the one-touch connector for analog I/O accidentally.
  Doing so can cause the module to be damaged.
- Ensure that no foreign matter such as chips and wire-offcuts enter the module.
  Foreign matter can cause a fire, failure or malfunction.
- Always fit a non-wired, one-touch connector plug to the open one-touch connector for power supply/FG.
  Not doing so can cause a failure or malfunction.
- When connecting the wires or cables to the module, always run them in conduits or clamp them.
  Not doing so can damage the module and cables due to loose, moved or accidentally pulled cables or can cause a malfunction due to a cable connection fault.
- Do not install the control lines together with the communication cables, or bring them close to each other. Failure to do so may cause malfunctions due to noise.

[WIRING PRECAUTIONS]

⚠CAUTION

- When disconnecting the communication and power supply cables from the module, do not hold and pull the cable part.
  Disconnect the cables after loosening the screws in the portions connected to the module. Pulling the cables connected to the module can damage the module and cables or can cause a malfunction due to a cable connection fault.

[STARTING AND MAINTENANCE PRECAUTIONS]

⚠CAUTION

- Do not touch the pin while the power is on. Doing so may cause malfunction.
- Be sure to shut off all phases of the external power supply used by the system before cleaning.
  Not doing so can cause the module to fail or malfunction.
- Never disassemble or modify the module.
  This may cause breakdowns, malfunctioning, injury and/or fire.
- Do not drop the module or give it hard impact since its case is made of resin.
  Doing so can damage the module.
- Be sure to shut off all phases of the external power supply used by the system before mounting or dismounting the module to or from the panel.
  Not doing so can cause the module to fail or malfunction.
- Always make sure to touch the grounded metal to discharge the electricity charged in the body, etc., before touching the module.
  Failure to do so may cause a failure or malfunctions of the module.

[DISPOSAL PRECAUTIONS]

⚠CAUTION

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

Revisions

* The manual number is noted at the lower right of the top cover.

Print Date	*Manual Number	Revision
Mar., 2003	IB(NA)-0800251-A	First printing
Jul., 2005	IB(NA)-0800251-B	Partial correction SAFETY PRECAUTIONS
Sep., 2006	IB(NA)-0800251-C	Partial correction Chapter 3, Chapter 8
Apr., 2007	IB(NA)-0800251-D	Partial correction Section 2.1, Section 6.2, Chapter 8

CONTENTS

About the Manuals

The following manuals are also related to this product.
Order them if necessary.

Detailed Manual

Manual name	Manual No. (Model code)
Analog-Digital Converter Module type AJ65VBTCU-68ADVN/ADIN User's Manual	SH-080401E (13JR65)

Related Manual

Manual name	Manual No. (Model code)
Control & Communication Link System Master/Local Module type AJ61BT11/A1SJ61BT11 User's Manual	IB-66721 (13J872)
Control & Communication Link System Master/Local Module type AJ61QBT11/A1SJ61QBT11 User's Manual	IB-66722 (13J873)
Control & Communication Link System Master/Local Module type QJ61BT11N User's Manual	SH-080394 (13JR64)

Conformation to the EMC Directive and Low Voltage Instruction

When complying with EMC Directives and Low-Voltage Directives by assembling a Mitsubishi PLC compatible with EMC Directive and Low-Voltage Directives into the user product, refer to Chapter 3 "EMC Directives and Low-Voltage Directives" in the User's Manual (Hardware Section) for the CPU module being used. The CE logo is printed on the rating plate on the main body of the PLC that conforms to the EMC directive and low voltage instruction. To conform this product to the EMC Directive and Low Voltage Directive, refer to the Section of "CC-Link Modules" in Chapter 3 "EMC Directive and Low Voltage Directive" of the User's Manual (Hardware) of the CPU module used.

1. Overview

This user's manual explains the specifications, names and setting of parts, wiring and others of Type AJ65VBTCU-68ADVN analog-digital converter module (hereafter abbreviated to the "AJ65VBTCU-68ADVN"), Type AJ65VBTCU-68ADIN analog-digital converter module (hereafter abbreviated to the "AJ65VBTCU-68ADIN") which is used as a remote device station of a CC-Link system.
In this manual, the AJ65VBTCU-68ADVN and AJ65VBTCU-68ADIN are generically referred to as the AJ65VBTCU-68ADVN/ADIN.

Confirm if the following items are included in the package after unpacking.

Item name	Number of items
Analog-Digital Converter Module type AJ65VBTCU-68ADVN	1
Analog-Digital Converter Module type AJ65VBTCU-68ADIN	1

2. Specification

2.1 Performance specifications

The performance specifications of the AJ65VBTCU-68ADVN/ADIN are shown below. For general specifications, refer to detailed manual.

<table>
<tr><th colspan="2">Item</th><th>AJ65VBTCU-68ADVN</th><th>AJ65VBTCU-68ADIN</th></tr>
<tr><td rowspan="3">Analog input</td><td>Protection class</td><td colspan="2">IP1XB</td></tr>
<tr><td>Voltage</td><td>–10 to 0 to +10V DC
(input resistance 1MΩ)</td><td>—</td></tr>
<tr><td>Current</td><td>—</td><td>0 to +20mA DC
(input resistance 250Ω)</td></tr>
<tr><td colspan="2">Digital output</td><td>16-bit signed binary (-4096 to +4095)</td><td>16-bit signed binary (-96 to +4095)</td></tr>
<tr><td colspan="2">I/O characteristics, maximum resolution, accuracy (accuracy relative to maximum value of digital output value)</td><td colspan="2">
<table>
<tr><th rowspan="2"></th><th rowspan="2">Analog input range</th><th rowspan="2">Digital output</th><th colspan="2">Accuracy</th><th rowspan="2">Max. Resolution</th></tr>
<tr><th>Ambient temperature 0 to 55°C</th><th>Ambient temperature 25±5°C</th></tr>
<tr><td rowspan="5">AJ65VBTCU-68ADVN (Voltage)</td><td>-10 to +10V</td><td rowspan="2">-4000 to +4000</td><td rowspan="8">±0.3% (±12 digit*)</td><td rowspan="8">±0.2% (±8 digit*)</td><td rowspan="2">2.5mV</td></tr>
<tr><td>User range setting 1 (-10 to +10V)</td></tr>
<tr><td>0 to 5V</td><td rowspan="3">0 to 4000</td><td>1.25mV</td></tr>
<tr><td>1 to 5V</td><td rowspan="2">1.0mV</td></tr>
<tr><td>User range setting 2 (0 to 5V)</td></tr>
<tr><td rowspan="3">AJ65VBTCU-68ADIN (Current)</td><td>0 to 20mA</td><td rowspan="3">0 to 4000</td><td>5μA</td></tr>
<tr><td>4 to 20mA</td><td rowspan="2">4μA</td></tr>
<tr><td>User range setting (0 to 20mA)</td></tr>
</table>
* : digit indicates digital value.
</td></tr>
<tr><td colspan="2">Maximum conversion speed</td><td colspan="2">1ms/channel.</td></tr>
<tr><td colspan="2">Absolute maximum input</td><td>Voltage ±15 V</td><td>current ±30mA</td></tr>
<tr><td colspan="2">Analog input points</td><td colspan="2">8 channels/module</td></tr>
<tr><td colspan="2">CC-Link station type</td><td colspan="2">Remote device station
(Ver.1 remote device station, Ver.2 remote device station)</td></tr>
</table>

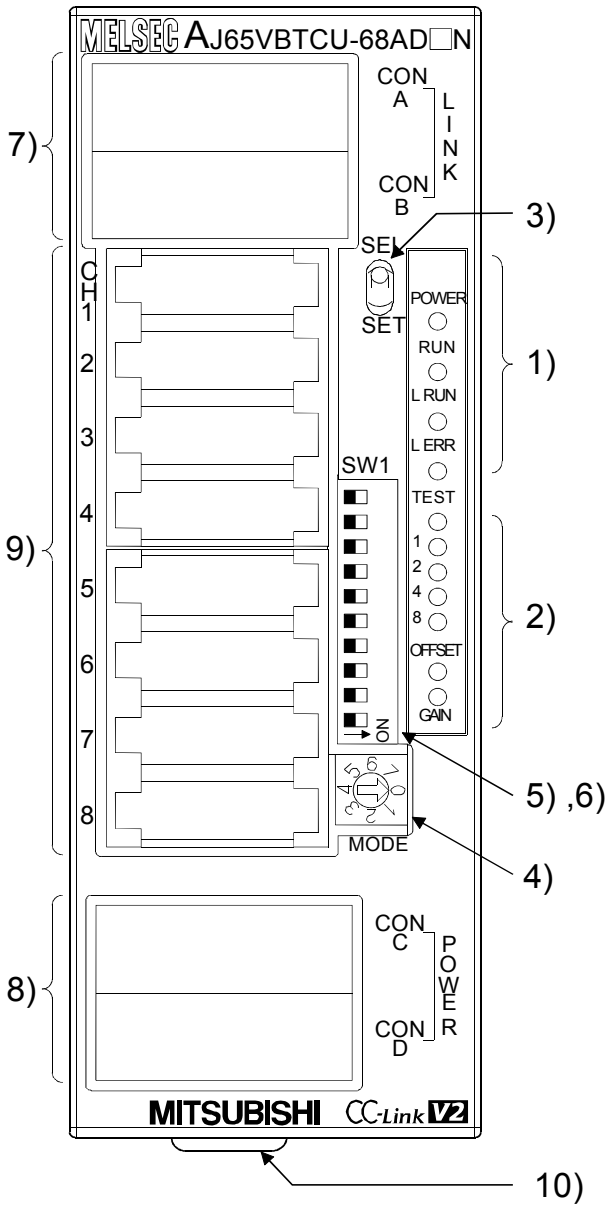
<table>
<tr><td colspan="2">Item</td><td>AJ65VBTCU-68ADVN</td><td>AJ65VBTCU-68ADIN</td></tr>
<tr><td colspan="2">Number of occupied stations</td><td colspan="2">When Ver.1 remote device station (Ver.1-compatible slave station) is set:
3 stations (RX/RY: 32 points each, RWr/RWw: 12 points each)
When Ver.2 remote device station (Ver.2-compatible slave station) is set:
1 station (RX/RY: 32 points each, RWr/RWw: 16 points each)</td></tr>
<tr><td colspan="2">Communication cable</td><td colspan="2">Ver.1.10 compatible CC-Link dedicated cable:
FANC-110SBH, FA-CBL200PSBH, CS-110</td></tr>
<tr><td colspan="2">Isolation specifications</td><td colspan="2"><table>
<tr><th>Specific isolated area</th><th>Isolation method</th><th>Dielectric withstand voltage</th><th>Insulation resistance</th></tr>
<tr><td>Across communication system terminals and all analog input terminals</td><td>Photocoupler isolation</td><td rowspan="2">500VAC for 1 minute</td><td rowspan="2">5MΩ or higher, measured with 500VDC insulation resistance tester</td></tr>
<tr><td>Across power supply system terminals and all analog input terminals</td><td>Transformer isolation</td></tr>
<tr><td>Between channels</td><td>Not isolated</td><td>-</td><td>-</td></tr>
</table></td></tr>
<tr><td colspan="2">Noise durability</td><td colspan="2">By noise simulator of 500Vp-p noise voltage, 1μs noise width and 25 to 60Hz noise frequency</td></tr>
<tr><td colspan="2">External wiring system</td><td colspan="2">One-touch connector for communication [Transmission circuit]
(5 pins pressure welding type, the plug for the connector is sold separately)
One-touch connector for power supply and FG [Unit power supply and FG]
(5 pins pressure welding type, the plug for the connector is sold separately)
One-touch connector for analog I/O
(4 pins pressure welding type, the plug for the connector is sold separately)
<Sold separately>
Online connector for communication: A6CON-LJ5P
Online connector for power supply: A6CON-PWJ5P</td></tr>
<tr><td rowspan="3">Applicable wire size</td><td>One-touch connector for communicati-on</td><td colspan="2">Communication line : Ver. 1.10 compatible CC-Link dedicated cable
0.5mm^2 (AWG#20) [ϕ2.2 to 3.0], shielded wire 0.5mm^2 (AWG#20)</td></tr>
<tr><td>One-touch connector for power supply/FG</td><td colspan="2">0.66 to 0.98 mm^2 (AWG#18) [ϕ2.2 to 3.0]
Wire diameter 0.08 mm^2 or more</td></tr>
<tr><td>One-touch connector for analog I/O</td><td colspan="2">ϕ1.0 to 1.4 (A6CON-P214), ϕ1.4 to 2.0 (A6CON-P220)
[Applicable cable: 0.14 to 0.2 mm^2]
ϕ1.0 to 1.4 (A6CON-P514), ϕ1.4 to 2.0 (A6CON-P520)
[Applicable cable: 0.3 to 0.5 mm^2]</td></tr>
<tr><td colspan="2" rowspan="2">Applicable DIN rail</td><td colspan="2">TH35-7.5Fe, TH35-7.5Al (conforming to JIS C 2812)</td></tr>
<tr><td colspan="2">CC-Link connector type metal installation fitting: A6PLT-J65V1</td></tr>
<tr><td colspan="2" rowspan="3">External power supply</td><td colspan="2">24VDC (20.4VDC to 26.4VDC, ripple factor within 5%)</td></tr>
<tr><td colspan="2">Inrush current: 4.2A, within 1.2ms</td></tr>
<tr><td colspan="2">Current consumption 0.10A</td></tr>
<tr><td colspan="2">Weight</td><td colspan="2">0.17kg</td></tr>
</table>

Point

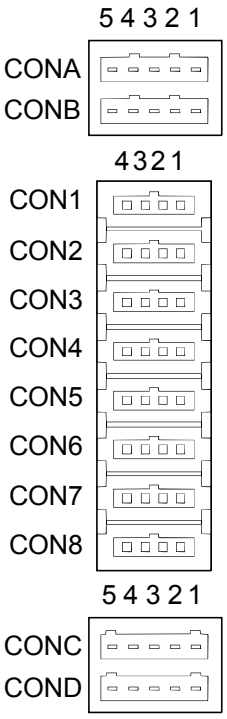
A/D conversion values are fluctuated by self-heating within approx. 30 minutes after power is turned ON.

3. Names and Setting of Parts

The name of each part in the AJ65VBTCU-68ADVN/ADIN is shown.



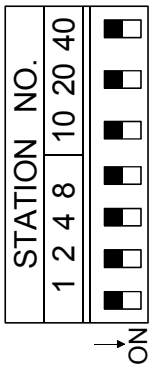
[Pin layout and signals name]



A module view from the top

Pin No.		Signal name
CONA,B	1	DA
	2	DB
	3	DG
	4	NC
	5	SLD
CON1	1	CH1 V+/I+
	2	CH1 V-/I-
	3	NC
	4	SLD
CON2	1	CH2 V+/I+
	2	CH2 V-/I-
	3	NC
	4	SLD
CON3	1	CH3 V+/I+
	2	CH3 V-/I-
	3	NC
	4	SLD
CON4	1	CH4 V+/I+
	2	CH4 V-/I-
	3	NC
	4	SLD
CON5	1	CH5 V+/I+
	2	CH5 V-/I-
	3	NC
	4	SLD
CON6	1	CH6 V+/I+
	2	CH6 V-/I-
	3	NC
	4	SLD
CON7	1	CH7 V+/I+
	2	CH7 V-/I-
	3	NC
	4	SLD
CON8	1	CH8 V+/I+
	2	CH8 V-/I-
	3	NC
	4	SLD
CONC,D	1	FG
	2	+24V (UNIT)
	3	24G (UNIT)
	4	AG
	5	FG1

<table>
<tr><th>No.</th><th>Name and appearance</th><th colspan="3">Description</th></tr>
<tr><td rowspan="5">1)</td><td rowspan="5">Operation status display LED</td><td>POWER</td><td colspan="2">ON : Power supply on
OFF : Power supply off</td></tr>
<tr><td rowspan="2">RUN</td><td>Normal mode</td><td>On : Normal operation
Flickering: 0.1s intervals :Input range setting error, mode select switch setting error. This module is used as the Ver.2 remote device station (Ver.2 compatible slave station) when the network parameter mode is set to remote network Ver.1 mode.
0.5s intervals:Average value setting (count) time error. Mode select switch setting is changed after power-on.
Off : 24VDC power supply shutoff or watchdog timer error occurred.</td></tr>
<tr><td>Test mode</td><td>On : Indicates that the SELECT/SET switch is in the SET position.
Flickering: 0.1s intervals :Mode select switch setting error
0.5s intervals:An attempt was made to make setting outside the setting range at the time of offset/gain setting.
Off : Indicates that the SELECT/SET switch is in the SELECT or center position.</td></tr>
<tr><td>L RUN</td><td colspan="2">On : Normal communication
Off : Communication cutoff (time expiration error)</td></tr>
<tr><td>L ERR.</td><td colspan="2">On : Indicates that transmission speed setting or station number setting is outside the range.
Flicker at fixed intervals :Indicates that transmission speed setting or station number setting was changed from that at power-on.
Flicker at unfixed intervals :Indicates that you forgot fitting the termination resistor or the module or CC-Link dedicated cable is affected by noise.
Off : Indicates normal communications.</td></tr>
<tr><td rowspan="2">2)</td><td rowspan="2">Offset/gain adjusting LEDs</td><td rowspan="2">TEST
CH☐
OFFSET
GAIN</td><td>Normal mode</td><td>Normally OFF</td></tr>
<tr><td>Test mode</td><td>TEST:ON
The OFFSET/GAIN/ CH☐ LEDs lit change every time the SELECT/SET switch is moved to SELECT.</td></tr>
<tr><td>3)</td><td>SELECT/SET switch</td><td colspan="3">The switch to be used for making the offset/gain settings during test mode.</td></tr>
<tr><td>4)</td><td>Mode select switch (Factory-set to "0")</td><td colspan="3">The switch to be used for selecting the mode among Ver. ☐ remote device station (Ver. ☐-compatible slave station)/Normal mode/Test mode
<table>
<tr><th colspan="2">AJ65VBTCU-68ADVN</th><th colspan="2">AJ65VBTCU-68ADIN</th></tr>
<tr><td>Ver.1 remote device station (Ver.1-compatible slave station)</td><td>0: Norma mode
1: Test mode (User range setting 1)
2: Test mode (User range setting 2)</td><td>Ver.1 remote device station (Ver.1-compatible slave station)</td><td>0: Norma mode
1: Test mode (User range setting)</td></tr>
<tr><td>Ver.2 remote device station (Ver.2-compatible slave station)</td><td>3: Norma mode
4: Test mode (User range setting 1)
5: Test mode (User range setting 2)</td><td>Ver.2 remote device station (Ver.2-compatible slave station)</td><td>3: Norma mode
4: Test mode (User range setting)</td></tr>
<tr><td>-</td><td>6 to 7: Use prohibited</td><td>-</td><td>2, 5 to 7: Use prohibited</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>No.</th><th>Name and appearance</th><th>Description</th></tr>
<tr><td>5)</td><td>Transmission speed setting switches
 
</td><td>
<table>
<tr><th rowspan="2">Set Value</th><th colspan="3">Setting Switches</th><th rowspan="2">Transmission Speed</th></tr>
<tr><th>4</th><th>2</th><th>1</th></tr>
<tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>156kbps</td></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>ON</td><td>625kbps</td></tr>
<tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>2.5Mbps</td></tr>
<tr><td>3</td><td>OFF</td><td>ON</td><td>ON</td><td>5.0Mbps</td></tr>
<tr><td>4</td><td>ON</td><td>OFF</td><td>OFF</td><td>10Mbps</td></tr>
</table>
Always set the transmission speed within the above range.
The switches are all factory-set to OFF.
Making any other setting than the above will result in an error flickering the "L ERR." LED.
Confirm the transmission speed setting switch numbers on the seal located on the side face of the connector for analog I/O.</td></tr>
<tr><td>6)</td><td>Station number setting switches
 
</td><td>Use the switches in STATION NO. "10", "20" and "40" to set the tens of the station number.
Use the switches in STATION NO. "1", "2", "4" and "8" to set the units of the station number.
The switches are all factory-set to OFF.
Always set the station number within the range 1 to 64.
Setting any other number than 1 to 64 will result in an error, flickering the "L ERR." LED.
You cannot set the same station number to two or more stations.
<table>
<tr><th rowspan="2">Station Number</th><th colspan="3">Tens</th><th colspan="4">Units</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>1</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>2</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>3</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td></tr>
<tr><td>4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>10</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td></tr>
<tr><td>11</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td><td>:</td></tr>
<tr><td>64</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table>
(Example) To set the station number to "32", set the switches as indicated below.
<table>
<tr><th rowspan="2">Station Number</th><th colspan="3">Tens</th><th colspan="4">Units</th></tr>
<tr><th>40</th><th>20</th><th>10</th><th>8</th><th>4</th><th>2</th><th>1</th></tr>
<tr><td>32</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
</table>
Confirm the station number setting switch numbers on the seal located on the side face of the connector for analog I/O.</td></tr>
<tr><td>7)</td><td>One-touch connector for communication</td><td>A one-touch connector for connection of the communication line
When carrying out wiring, connect two optional one-touch connector plugs for communication at top and bottom.</td></tr>
<tr><td>8)</td><td>One-touch connector for power supply and FG</td><td>A one-touch connector for connection of the module power supply line and FG.
When carrying out jumper wiring, connect two optional one-touch connector plugs for power supply/FG at top and bottom.</td></tr>
<tr><td>9)</td><td>One-touch connector for analog I/O</td><td>One-touch connector for analog I/O
Connect a one-touch connector plug when wiring.</td></tr>
<tr><td>10)</td><td>DIN rail hook</td><td>Used to mount the module to the DIN rail.</td></tr>
</table>

Point

After power-on, do not change the mode select switch setting.
If you change it midway during operation, the setting at power-on is valid.

4. Loading and Installation

4.1 Precautions when handling

The following is an explanation of handling precautions of the module.

(1) Because the case of the module is made of resin, be careful not to drop it or expose it to strong impact.

4.2 Installation environment

Never install the module in the following environments:

(1) Locations where the ambient temperature is outside the range of 0 to 55°C.
(2) Locations where the ambient humidity is outside the range of 10 to 99%RH.
(3) Locations where dew condensation takes place due to sudden temperature changes.
(4) Locations where there are corrosive and/or combustible gasses.
(5) Locations where there is a high level of conductive power (such as dust and iron filings, oil mist, salt, and organic solvents).
(6) Locations exposed to the direct rays of the sun.
(7) Locations where strong power and magnetic fields are generated.
(8) Locations where vibration and shock are directly transmitted to the main module.

5. Data Link Cable Wiring

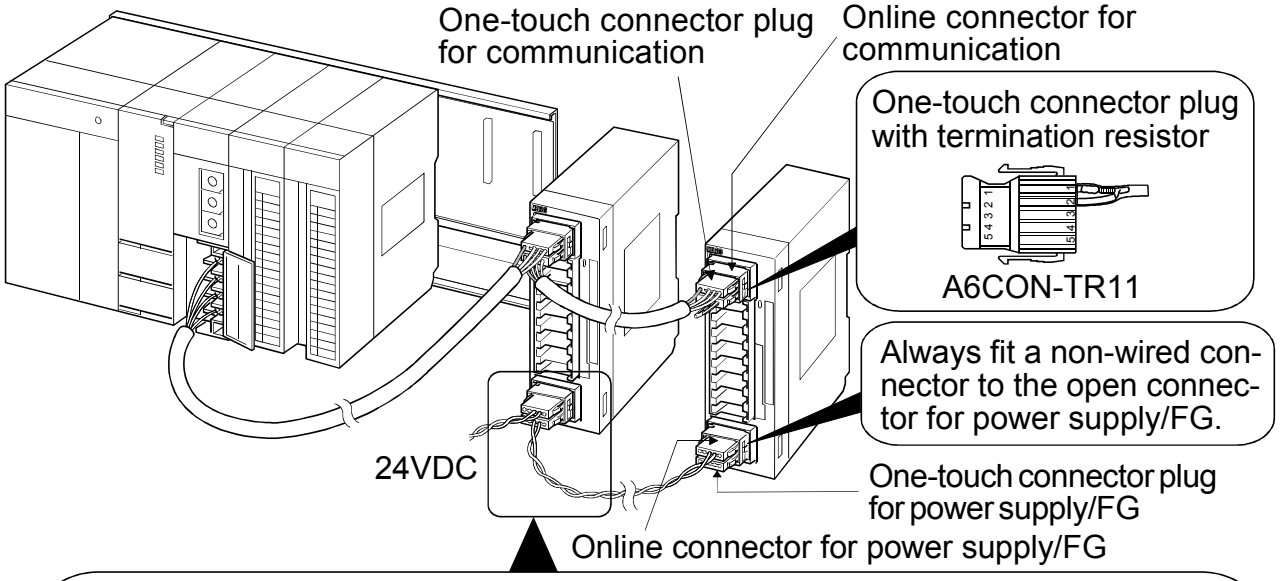
5.1 Instructions for handling the CC-Link dedicated cables

Do not handle the CC-Link dedicated cables roughly as described below. Doing so can damage the cables.

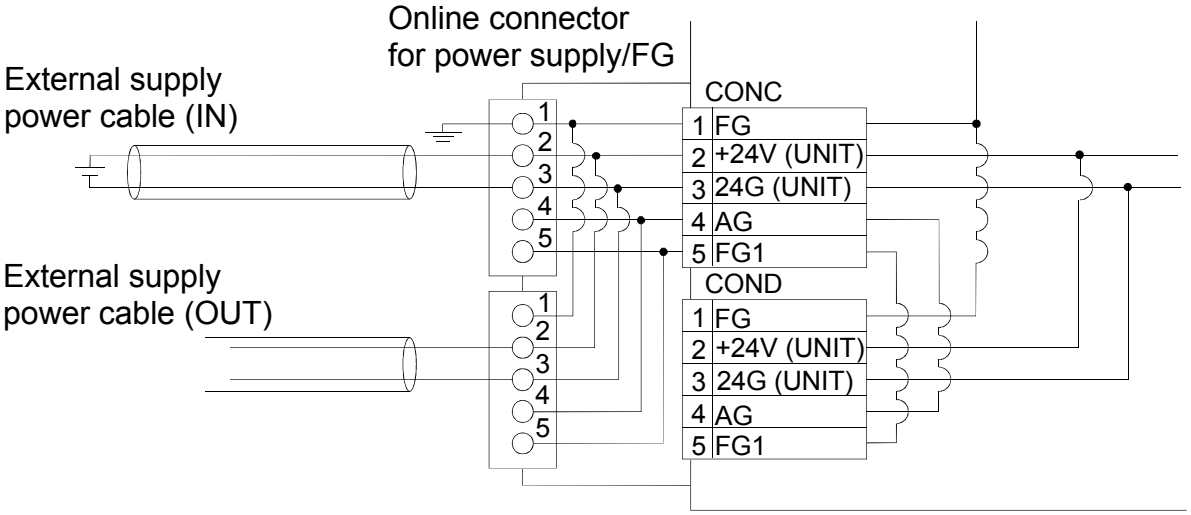
- Compact with a sharp object.
- Twist the cable excessively.
- Pull the cable hard. (more than the permitted elasticity.)
- Step on the cable.
- Place an object on the top.
- Scratch the cable's protective layer.

5.2 Connection of the CC-Link dedicated cables

Connect the CC-Link dedicated cable between the AJ65VBTCU-68ADVN/ADIN and master module as shown below.

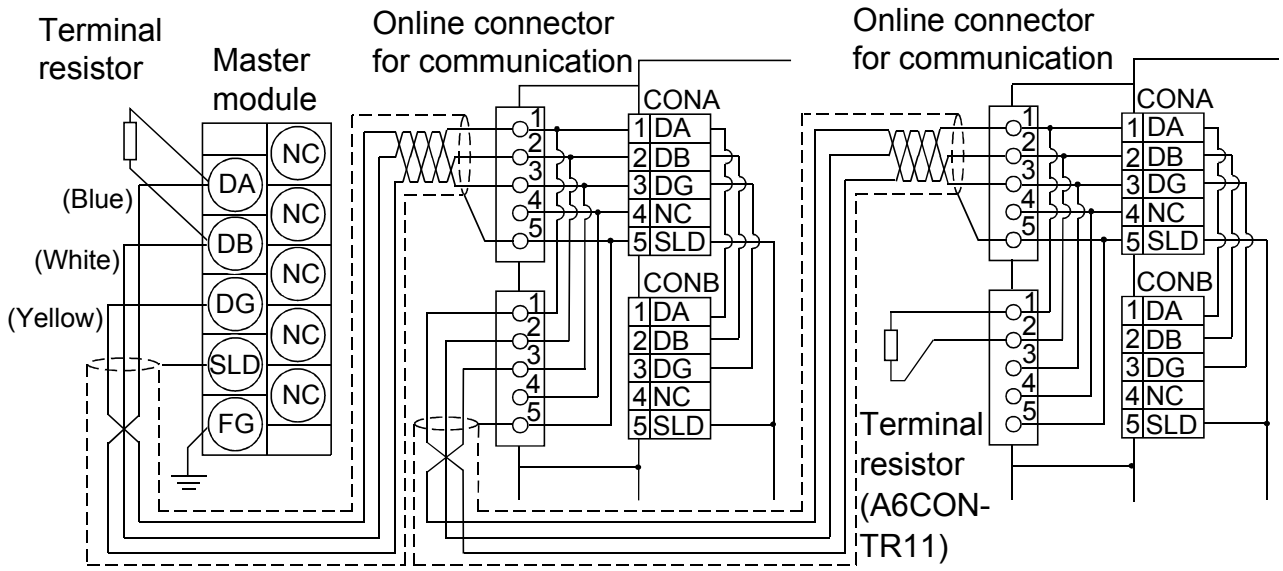


[Power supply/FG cable wiring diagram]



* The power cables cannot be conected with the other remote I/O module having the one-touch connector for power supply.

[CC-Link dedicated cable wiring diagram]



Ver.1.10 Compatible CC-Link dedicated cable (FANC-110SBH,CS-110,FA-CBL200PSBH)

Point

- On this unit, use the Ver. 1.10-compatible CC-Link dedicated cable (FANC-110SBH, CS-110, FA-CBL200PSBH).
  You cannot use the Ver. 1.10-compatible CC-Link dedicated cables of other than the above types, CC-Link dedicated cables and CC-Link dedicated, high-performance cables.
- The shield cable of the CC-Link dedicated cable should be connected to "SLD" in each module, and both ends should be grounded through "FG".

6. Wiring

6.1 Wiring precautions

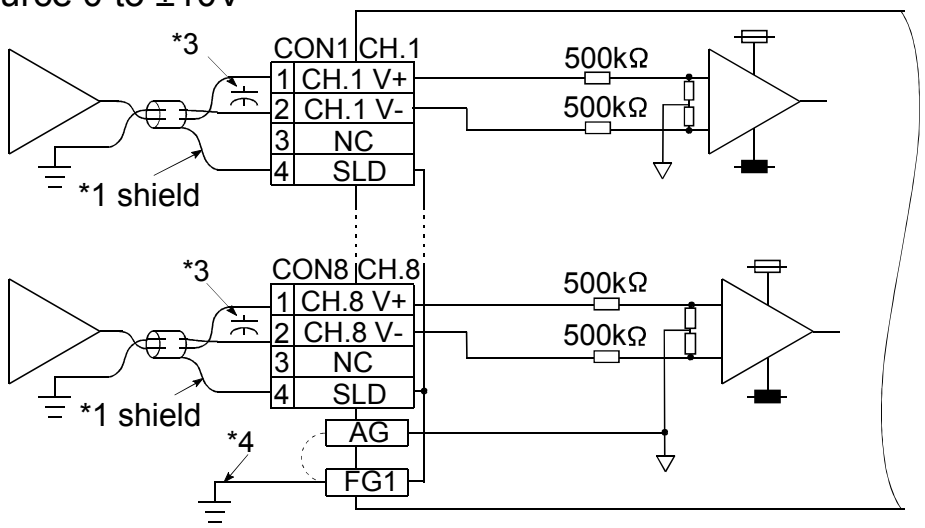
To obtain maximum performance from the functions of AJ65VBTCU-68ADVN/ADIN and improve the system reliability, an external wiring with high durability against noise is required.
The precautions when performing external wiring are as follows:

(1) Use separate cables for the AC and AJ65VBTCU-68ADVN/ADIN external input signals, in order not to be affected by the AC side surge or conductivity.
(2) Do not bundle or place with load carrying wires other than the main circuit line, high voltage line or PLC. Noises, surges, or conductivity may affect the system.
(3) Place a one-point grounding on the PLC side for the shielded line or shielded cable. However, depending on the external noise conditions, it may be better have a grounding externally.

6.2 Module connection example

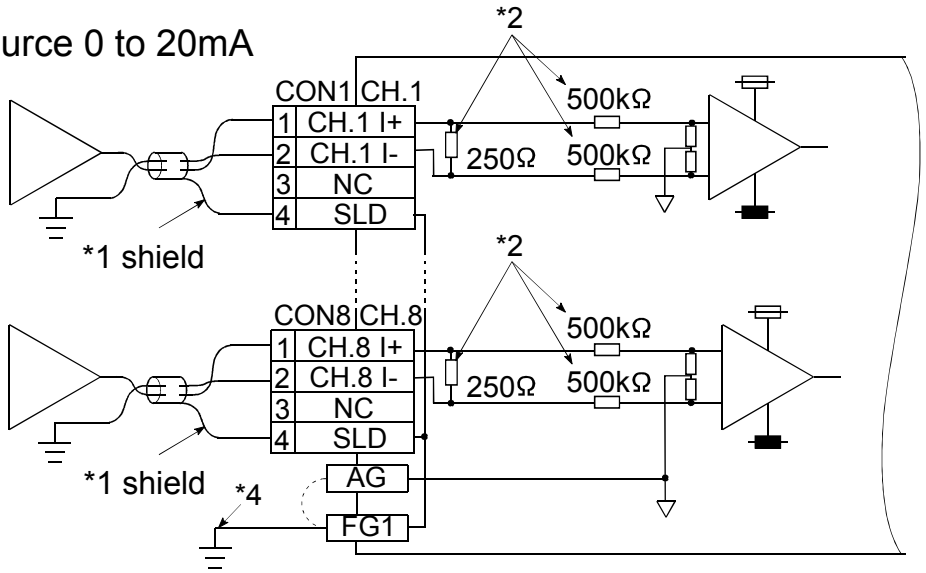
(1) AJ65VBTCU-68ADVN (For voltage input)

Signal source 0 to ±10V



(2) AJ65VBTCU-68ADIN (For current input)

Signal source 0 to 20mA



*1: Use a two-core twisted shield line for the power cable.
*2: Indicates the AJ65VBTCU-68ADIN input resistor.
*3: When noise or ripple occurs with the external cable, connect a condenser with about 0.1 to 0.47μF (25V or higher voltage-resistant product) between the terminal V+ and V-.
*4: Always perform grounding for FG1. When there is a lot of noise, it may be better ground AG as well.
If the grounding wiring (grounding yes/no) is changed after the offset and gain are set, perform the setting of the offset/gain values again.

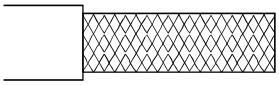
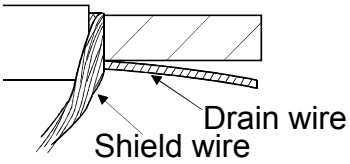
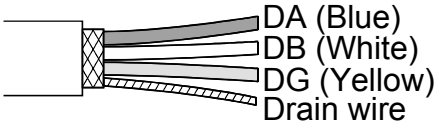
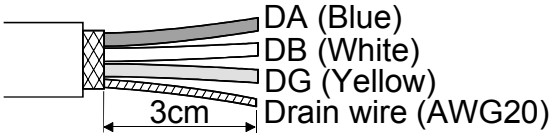
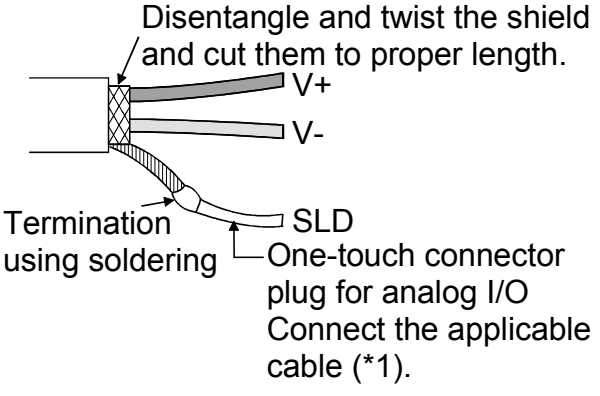
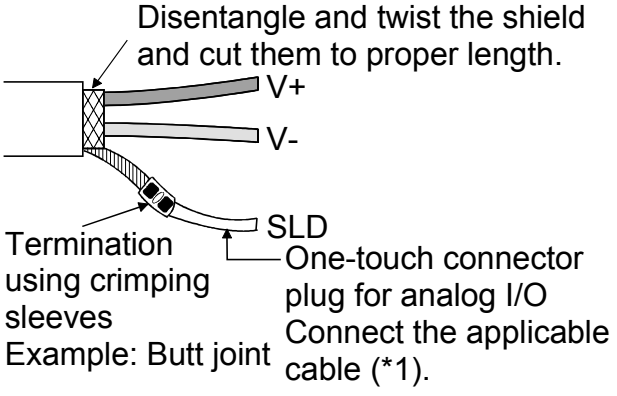
Point
• Do not insert the one-touch connector plug for I/O of the one-touch connector type/connector type compact remote I/O unit into the one-touch connector for analog I/O accidentally. Doing so can cause the module to be damaged.

7. How to Wire the One-Touch Connector Plug

This section describes the way to wire the one-touch connector plug.
Refer to the AJ65VBTCU-68ADVN/ADIN Analog-Digital User's Manual for more information on the types and specifications of the one-touch connector plugs which conform to the AJ65VBTCU-68ADVN/ADIN.

(1) Cable termination work

Do the following work on the cable terminations of the communication and analog input cables that are inserted into the one-touch connector plugs.

<table>
<tr><th colspan="2">Communication Cable Termination Work</th></tr>
<tr><td>1. Cut the sheath.
  </td><td>2. Separate the shield and drain wire and cut the shield.
  </td></tr>
<tr><td>3. Cut the aluminum tape and intervening cord.
  </td><td>4. Straighten out the drain wire and twist it from the root. (3cm seven or more times)
  </td></tr>
<tr><th colspan="2">Analog Input Cable Termination Work</th></tr>
<tr><th>Termination using soldering</th><th>Termination using crimping sleeves</th></tr>
<tr><td>  </td><td>  </td></tr>
</table>

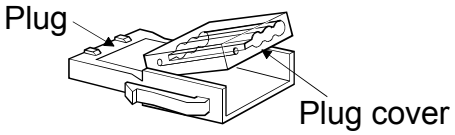
*1: For the applicable cable size, refer to the AJ65VBTCU-68ADVN/ADIN Analog-Digital User's Manual.

Point

- Where possible, round the tip that was cut with nippers or like.
  If the section of the cable to be inserted is not round, the cable may be caught at any point and not go far enough.
- Do insulation work as necessary on the area of the shield that will not be inserted into the one-touch connector plug.

(2) Checking the plug cover

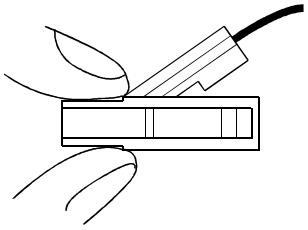
Check whether the plug cover is installed in the plug.



Caution:
Before inserting the cable, do not push the plug cover into the plug. Once insulation-displaced, the plug cannot be reused.

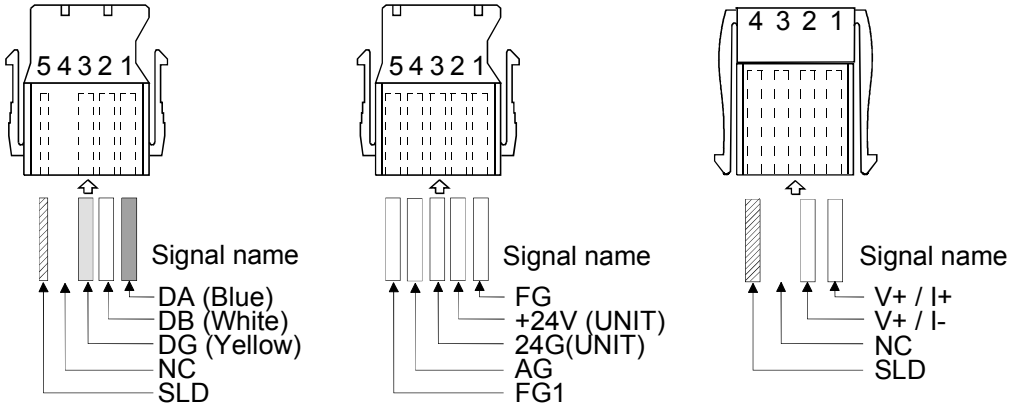
(3) Inserting the cable

Lift the back of the plug cover and insert the cable until it makes contact with the plug.



Insert the signal cables into the one-touch connector plug as shown below.

<For communication> <For power supply/FG> <For analog input>

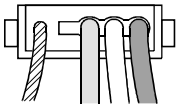


Point

- Insert the cables far enough.
  Not doing so can cause an insulation displacement fault.
- The cable inserted may come out of the cover front.
  At this time, pull it back until the cable tip goes back into the plug cover.

(4) Insulation displacement of plug cover

Using pliers or like, push the plug cover into the plug to insulation-displace it.
After insulation displacement, make sure that the plug cover is securely installed in the plug as shown below.

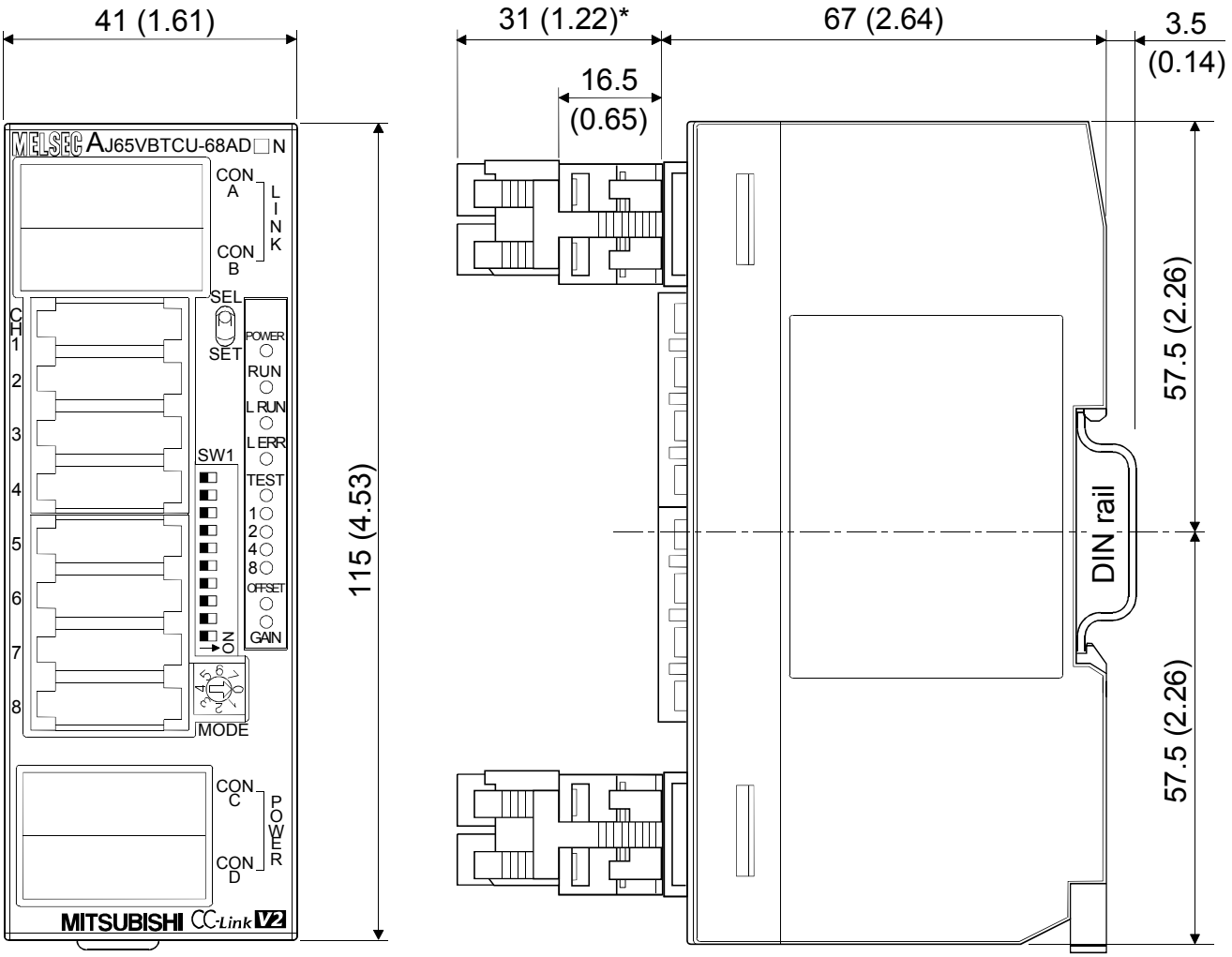


Point

- The plug cover and plug latches may not engage at the time of insulation displacement, raising the cover. Since the plug cover has not been insulation-displaced sufficiently in this state, push the cover into the plug until it is installed securely.

8. External Dimension Diagram

[AJ65VBTCU-68ADVN/ADIN]



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

Unit: mm (inch)

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Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

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- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
- This product has been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

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