



**MITSUBISHI
ELECTRIC**

Analog-Digital Converter Module

User's Manual
(Hardware)

AJ65SBT-64AD

Thank you for buying the programmable controller MELSEC Series

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



MODEL	AJ65S-64AD-U-H-JE
MODEL CODE	13JT09
IB(NA)-0800138-K(2102)MEE	

● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

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

These precautions apply only to this equipment.

Refer to the user's manual of the CPU module to use for a description of the programmable controller system safety precautions.

In this manual, the safety precautions are classified into two levels:


"WARNING" and "CAUTION".

WARNING

Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.

CAUTION

Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

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

[Design Precautions]

WARNING

- In the case of a communication failure in the network, data in the master module are held.
Check the communication status information (SB, SW) and configure an interlock circuit in the sequence program to ensure that the entire system will operate safely.

CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables.
Keep a distance of 100mm or more between them.
Failure to do so may result in malfunction due to noise.

[Installation Precautions]

CAUTION

- Use the programmable controller in an environment that meets the general specifications in this manual.
Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- For protection of the switches, do not remove the cushioning material before installation.
- Securely fix the module with a DIN rail or mounting screws.
Tighten the screws within the specified torque range.
Undertightening can cause drop of the screw, short circuit or malfunction.
Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- Do not directly touch any conductive part of the module.
Doing so can cause malfunction or failure of the module.

[Wiring Precautions]

CAUTION

- Shut off the external power supply for the system in all phases before wiring.
Failure to do so may result in damage to the product.
- Ground the FG and FG1 terminals to the protective ground conductor dedicated to the programmable controller.
Failure to do so may result in malfunction.
- Tighten any unused terminal screws within the specified torque range (0.42 to 0.50N·m).
Failure to do so may cause a short circuit due to contact with a solderless terminal.
- Use applicable solderless terminals and tighten them within the specified torque range.
If any spade solderless terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
- Check the rated voltage and terminal layout before wiring to the module, and connect the cables correctly.
Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
- Tighten the terminal screw within the specified torque range.
Undertightening can cause short circuit or malfunction.
Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- Prevent foreign matter such as dust or wire chips from entering the module.
Such foreign matter can cause a fire, failure, or malfunction.

[Wiring Precautions]

CAUTION

- Place the cables in a duct or clamp them.
If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Failure to do so may result in malfunction due to noise.
- When disconnecting the cable from the module, do not pull the cable by the cable part. Loosen the screws of connector before disconnecting the cable. Failure to do so may result in damage to the module or cable or malfunction due to poor contact.

[Startup and Maintenance Precautions]

CAUTION

- Do not touch any terminal while power is on. Doing so may cause malfunction.
- Shut off the external power supply for the system in all phases before cleaning the module or retightening the terminal screws.
Failure to do so may cause the module to fail or malfunction.
Undertightening the terminal screws can cause short circuit or malfunction.
Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- Do not disassemble or modify the modules.
Doing so may cause failure, malfunction, injury, or a fire.
- Do not drop or apply strong shock to the module.
Doing so may damage the module.
- Shut off the external power supply for the system in all phases before mounting or removing the module to or from the panel.
Failure to do so may cause the module to fail or malfunction.
- After the first use of the product, do not mount/remove the terminal block to/from the module more than 50 times. (IEC 61131-2 compliant)
- Before handling the module, touch a grounded metal object to discharge the static electricity from the human body.
Failure to do so may cause the module to fail or malfunction.

[Disposal Precautions]

CAUTION

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

● PRÉCAUTIONS DE SÉCURITÉ ●

(Lire ces précautions avant toute utilisation du produit.)

Avant d'utiliser ce produit, lire attentivement ce manuel ainsi que les manuels auxquels il renvoie, et toujours considérer la sécurité comme de la plus haute importance en manipulant le produit correctement.

Ces précautions ne concernent que cet équipement.

Dans le manuel de l'utilisateur du module CPU correspondant, voir l'exposé des précautions de sécurité concernant le système de l'automate programmable.


Dans ce manuel, les instructions de sécurité sont classées "AVERTISSEMENT" ou "ATTENTION".

AVERTISSEMENT

Attire l'attention sur le fait qu'une négligence peut créer une situation de danger avec risque de mort ou de blessures graves.

ATTENTION

Attire l'attention sur le fait qu'une négligence peut créer une situation de danger avec risque de blessures légères ou de gravité moyennes ou risque de dégâts matériels.

Dans certaines circonstances, le non-respect d'une précaution de sécurité introduite sous le titre "ATTENTION" peut avoir des conséquences graves.

Les précautions de ces deux niveaux doivent être observées dans leur intégralité car elles ont trait à la sécurité des personnes et aussi du système.

Veiller à ce que les utilisateurs finaux lisent ce manuel qui doit être conservé soigneusement à portée de main pour s'y référer autant que de besoin.

[Précautions lors de la conception]

AVERTISSEMENT

- En cas de problème de communication dans le réseau, les données sont gardées en mémoire du module maître.
Vérifier les infos d'état de communication (SB, SW) et constituer un circuit de verrouillage dans le programme séquentiel pour garantir la sécurité de fonctionnement de l'ensemble du système.

ATTENTION

- Ne pas entremêler les lignes de commandes ou câbles de communication avec les lignes des circuits principaux ou les câbles d'alimentation.
Les installer en maintenant entre eux une distance minimum de 100mm (3,94 pouces).
Faute de quoi, il y a risque de dysfonctionnement par un bruit.

[Précautions d'installation]

ATTENTION

- *Utiliser l'automate programmable dans un environnement en conformité avec les spécifications générales que présente ce manuel.
Faute de quoi, il a risque d'électrocution, de départ de feu, de dysfonctionnement, d'endommagement ou de détérioration du produit.*
- *Pour la protection des commutateurs, ne pas enlever le matériau de rembourrage avant l'installation.*
- *Fixer fermement le module avec un rail DIN ou avec des vis.
Serrer les vis dans les limites du couple de serrage prescrit.
Si les vis sont insuffisamment serrées, le module risque de tomber et il peut y avoir des court-circuits ou des dysfonctionnements.
Un serrage excessif risque d'endommager la vis et/ou le module et peut être à l'origine d'une chute, d'un court-circuit ou d'un dysfonctionnement.*
- *Éviter tout contact direct avec les parties conductrices du module.
Une manipulation incorrecte peut être à l'origine de dysfonctionnements ou de pannes du module.*

[Précautions de câblage]

ATTENTION

- *Couper l'alimentation externe du système sur toutes les phases avant de commencer à câbler.
Faute de quoi, le produit risquerait d'être endommagé.*
- *Toujours mettre à la masse la borne FG sur le conducteur de protection de terre.
Faute de quoi, cela peut entraîner un dysfonctionnement.*
- *Serrer les vis des bornes inutilisées dans les limites du couple de serrage prescrit (0,42 à 0,50N•m).
Faute de quoi, il y a risque de court-circuit par contact avec une borne sans soudure.*
- *Utiliser des bornes sans soudure de type approprié et serrer au couple de serrage prescrit.
Si on utilise des bornes sans soudure de type embrochable, il y a risque de déconnexion et de panne au cas où une vis de borne se desserrerait.*
- *Vérifier la tension nominale et l'affectation des bornes avant le câblage du module et raccorder les câbles correctement.
Le raccordement d'une alimentation d'une tension autre que la tension nominale ou une erreur de câblage peut être à l'origine d'un départ de feu ou d'une panne.*

[Précautions de câblage]



ATTENTION

- *Serrer les vis de borne dans les limites du couple de serrage prescrit. Un serrage insuffisant peut être à l'origine d'un court-circuit ou de dysfonctionnements.
Un serrage excessif risque d'endommager la vis et/ou le module et peut être à l'origine d'une chute, d'un court-circuit ou d'un dysfonctionnement.*
- *Veiller à ne pas laisser la poussière, les copeaux métalliques ou d'autres corps étrangers pénétrer dans le module.
De tels corps étrangers peuvent être à l'origine d'un départ de feu, d'une panne ou d'un dysfonctionnement.*
- *Les câbles doivent être placés dans un conduit de câbles ou doivent être attachés.
Faute de quoi, le ballonnement ou le déplacement des câbles pourrait endommager le module ou les câbles et être à l'origine de dysfonctionnements par mauvais contact.*
- *Ne pas entremêler les lignes de commandes ou câbles de communication avec les lignes des circuits principaux ou les câbles d'alimentation. Faute de quoi, il y a risque de dysfonctionnement par un bruit.*
- *Pour débrancher le câble du module, ne tirer directement sur le câble proprement dit. Desserrer les vis du connecteur avant de débrancher le câble.
Faute de quoi, il y a risque d'endommagement du module ou du câble ou un mauvais contact pourrait être à l'origine de dysfonctionnements.*

[PRÉCAUTIONS DE MISE EN SERVICE ET DE MAINTENANCE]

ATTENTION

- *Ne toucher à aucun des bornes quand le système est sous tension. Cela pourrait être à l'origine de dysfonctionnements.*
- *Avant de nettoyer le module ou de resserrer les vis de borne, couper l'alimentation externe du système sur toutes les phases.
Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.
Un serrage insuffisant des vis de bornes peut être à l'origine d'un court-circuit ou de dysfonctionnement.
Un serrage excessif peut endommager les vis et/ou le module, avec aussi un risque de chute, de court-circuits et de dysfonctionnements.*
- *Ne pas démonter ni modifier les modules.
Cela pourrait entraîner des pannes ou dysfonctionnements et être à l'origine de blessures ou de départs de feu.*
- *Ne pas faire tomber le module et ne pas le soumettre à des chocs.
Cela risquerait d'endommager le module.*
- *Avant d'installer ou retirer le module du tableau, couper l'alimentation externe du système sur toutes les phases.
Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.*
- *Après la première utilisation du produit, le nombre maximum admissible d'opérations de pose/retrait du bornier sur le module est de 50. (selon IEC 61131-2)*
- *Avant de manipuler un module, se débarrasser de la charge électrostatique qu'accumule le corps humain en touchant un objet métallique raccordé à la terre.
Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.*

[PRÉCAUTIONS DE MISE AU REBUT]

ATTENTION

- *Lors de sa mise au rebut, ce produit doit être traité comme un déchet industriel.*

● CONDITIONS OF USE FOR THE PRODUCT ●

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

- (2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTS are required. For details, please contact the Mitsubishi representative in your region.

REVISIONS

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

Print Date	*Manual Number	Revision
Sep., 2000	IB(NA)-0800138-A	First printing
July, 2002	IB(NA)-0800138-B	Partial correction Contact address (Back cover)
Mar., 2005	IB(NA)-0800138-C	Addition Section 2.3 Correction SAFETY PRECAUTIONS, Conformation to the EMC Directive and Low Voltage Instruction, Chapter 1, Section 2.1, 2.2, 5.2, Chapter 7
Mar., 2006	IB(NA)-0800138-D	Partial correction Section 2.3
Sep., 2006	IB(NA)-0800138-E	Partial correction SAFETY PRECAUTIONS, Chapter 3, Chapter 7
Dec., 2006	IB(NA)-0800138-F	Partial correction Chapter 6
Oct., 2008	IB(NA)-0800138-G	Partial correction SAFETY PRECAUTIONS, Compliance with the EMC and Low Voltage Directives Section 2.1, 2.2, 4.1, 6.1 Deletion Section 5.1
Sep., 2010	IB(NA)-0800138-H	Addition CONDITIONS OF USE FOR THE PRODUCT Partial correction SAFETY PRECAUTIONS, Section 2.1, 2.2, 2.3, 4.1, 5.1, 6.2, Back cover

Print Date	*Manual Number	Revision
Dec., 2011	IB(NA)-0800138-I	<div style="border: 1px solid black; display: inline-block; padding: 2px;">Addition</div> SAFETY PRECAUTIONS(Chinese) <div style="border: 1px solid black; display: inline-block; padding: 2px;">Partial correction</div> COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES, Section 2.1, 2.2
Dec., 2016	IB(NA)-0800138-J	<div style="border: 1px solid black; display: inline-block; padding: 2px;">Addition</div> SAFETY PRECAUTIONS(French) <div style="border: 1px solid black; display: inline-block; padding: 2px;">Correction</div> Chapter 2, Section 2.2, 4.1, 5.1, 6.2 Chapter 3, 7
Feb., 2021	IB(NA)-0800138-K	<div style="border: 1px solid black; display: inline-block; padding: 2px;">Correction</div> Section 2.2

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CONTENTS

1. OVERVIEW	1
2. SPECIFICATION	1
2.1 General specifications	1
2.2 Performance specifications.....	3
2.3 Checking hardware versions	4
3. NAME OF EACH PART	5
4. LOADING AND INSTALLATION	7
4.1 Precautions when handling.....	7
4.2 Installation environment.....	7
5. DATA LINK CABLE WIRING	8
5.1 Connection of the CC-Link dedicated cables	8
6. WIRING	9
6.1 Wiring precautions.....	9
6.2 Module connection example.....	9
7. EXTERNAL DIMENSIONS	11

ABOUT MANUALS

The following manuals are also related to this product.
In necessary, order them by quoting the details in the tables below.

Related Manual

Manual name	Manual No. (Model code)
Analog-Digital Converter Module Type AJ65SBT-64AD User's Manual	SH-080106 (13JR18)

COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES

(1) Method of ensuring compliance

To ensure that Mitsubishi programmable controllers maintain EMC and Low Voltage Directives when incorporated into other machinery or equipment, certain measures may be necessary. Please refer to one of the following manuals.

- User's manual for the CPU module or head module used
- Safety Guidelines

(This manual is included with the CPU module, base unit, or head module)

The CE mark on the side of the programmable controller indicates compliance with EMC and Low Voltage Directives.

(2) Additional measures

To ensure that this product maintains EMC and Low Voltage Directives, please refer to one of the manuals listed under (1).

1. OVERVIEW

This user's manual explains the specifications, names and setting of parts, wiring and others of Type AJ65SBT-64AD analog-digital converter module (hereafter abbreviated to the "AJ65SBT-64AD") which is used as a remote device station of a CC-Link system.

2. SPECIFICATION

2.1 General specifications

The general specifications of the AJ65SBT-64AD are shown below.

Item	Specification					
Operating ambient temperature <i>Température ambiante de fonctionnement</i>	0 to 55°C 0 à 55 °C					
Storage ambient temperature	-20 to 75°C					
Operating ambient humidity	10 to 90%RH, non-condensing					
Storage ambient humidity						
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2	Under Intermittent vibration	Frequency	Constant acceleration	Half amplitude	Sweep count
			5 to 8.4Hz	—	3.5mm	10 times each in X, Y, Z directions
		Under continuous vibration	8.4 to 150Hz	9.8m/s ²	—	
			5 to 8.4Hz	—	1.75mm	—
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147 m/s ² , 3 times each in 3 directions X, Y, Z)					
Operating atmosphere	No corrosive gases					
Operating altitude* ³	0 to 2000m					
Installation location	Inside a control panel					
Overvoltage category* ¹	II or less					
Pollution degree* ²	2 or less					

*1 This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises.

Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300V is 2500V.

*2 This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used.

Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.

*3 Do not use or store the programmable controller under pressure higher than the atmospheric pressure of altitude 0m. Doing so may cause malfunction. When using the programmable controller under pressure, please consult your local Mitsubishi Electric representative.

2.2 Performance specifications

The performance specifications of the AJ65SBT-64AD are shown below.

Item		Specification																																	
Analog input	Voltage	-10 to 10V DC (input resistance 1M Ω)																																	
	Current	0 to 20mA DC (input resistance 250 Ω)																																	
Digital output		16-bit signed binary (-4096 to +4095)																																	
I/O characteristics, maximum resolution, accuracy (accuracy relative to maximum value of digital output value)		<table border="1"> <thead> <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\pm5°C</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Voltage</td> <td>-10 to 10V</td> <td rowspan="2">-4000 to 4000</td> <td rowspan="4">\pm0.4% (\pm16 digit*¹)</td> <td rowspan="4">\pm0.2% (\pm8 digit*¹)</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="2">0 to 4000</td> <td>1.25mV</td> </tr> <tr> <td>1 to 5V User range setting 2 (0 to 5V)</td> <td>1.0mV</td> </tr> <tr> <td rowspan="3">Current</td> <td>0 to 20mA</td> <td rowspan="3">0 to 4000</td> <td rowspan="3">\pm0.4% (\pm16 digit*¹)</td> <td rowspan="3">\pm0.2% (\pm8 digit*¹)</td> <td>5μA</td> </tr> <tr> <td>4 to 20mA</td> <td rowspan="2">4μA</td> </tr> <tr> <td>User range setting 3 (0 to 20mA)</td> </tr> </tbody> </table>						Analog input range	Digital output	Accuracy		Max. Resolution	Ambient temperature 0 to 55°C	Ambient temperature 25 \pm 5°C	Voltage	-10 to 10V	-4000 to 4000	\pm 0.4% (\pm 16 digit* ¹)	\pm 0.2% (\pm 8 digit* ¹)	2.5mV	User range setting 1 (-10 to 10V)	0 to 5V	0 to 4000	1.25mV	1 to 5V User range setting 2 (0 to 5V)	1.0mV	Current	0 to 20mA	0 to 4000	\pm 0.4% (\pm 16 digit* ¹)	\pm 0.2% (\pm 8 digit* ¹)	5 μ A	4 to 20mA	4 μ A	User range setting 3 (0 to 20mA)
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Factory setting is -10 to 10V.																																			
Maximum conversion speed		1ms/channel																																	
Absolute maximum input		Voltage \pm 15 V, current \pm 30mA* ²																																	
Analog input points		4 channels/module																																	
CC-Link station type		Remote device station																																	
Communication method		Broadcast polling method																																	
Number of occupied stations		1 station																																	
Communication cable		CC-Link dedicated cable																																	
Dielectric withstand voltage		Between power supply/communication system batch and analog input batch: 500VAC, 1 minute																																	
Isolation system		Between communication system terminals and all analog input terminals: Digital isolator Between power supply system terminals and all analog input terminals: Photocoupler Between channels: Non-isolation																																	
Noise immunity		By noise simulator of 500Vp-p noise voltage, 1 μ s noise width and 25 to 60Hz noise frequency																																	
External connection	Communication area, module power supply	7-point 2-piece terminal block [transmission circuit, module power supply, FG] M3 \times 5.2 Tightening torque: 0.59 to 0.88N·m Applicable solderless terminals: 2 max.																																	
	I/O area	Direct-coupled, 18-point terminal block [analog output area] M3 \times 5.2 Tightening torque: 0.59 to 0.88N·m Applicable solderless terminals: 2 max.																																	
Applicable wire size		0.3 to 0.75mm ²																																	
Applicable solderless terminals		<ul style="list-style-type: none"> RAV1.25-3 (conforming to JIS C 2805) [Applicable wire size: 0.3 to 1.25mm²] V2-MS3, RAP2-3SL, TGV2-3N [Applicable wire size: 1.25 to 2.0mm²] 																																	
Module mounting screw		M4 screw \times 0.7mm \times 16mm or more (tightening torque range: 0.78 to 1.08N·m) Can also be mounted to DIN rail																																	

Item	Specification
Supported DIN rail	TH35-7.5Fe, TH35-7.5Al (conforming to IEC 60715)
External supply power	24V DC (ripple ratio: within 5%) (allowable voltage range 20.4 to 26.4V DC)
	Inrush current: 8.5A, within 2.3ms
	Current consumption: 0.090A (at 24VDC)
Weight	0.20kg

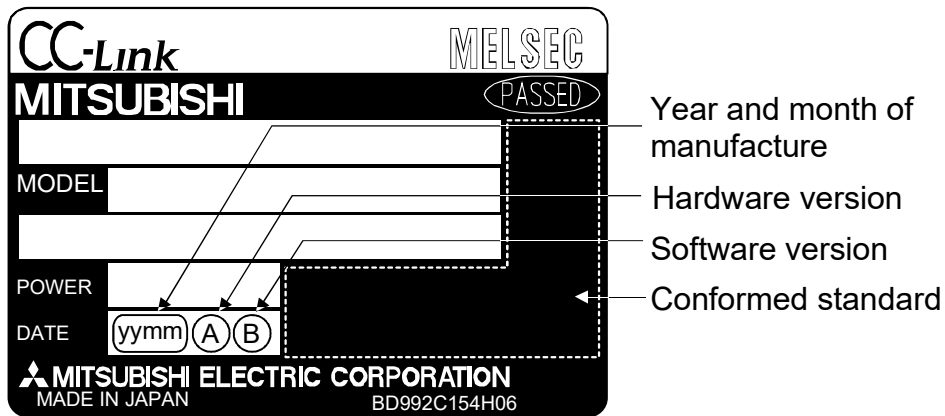
Point
A/D conversion values are fluctuated by self-heating within approx. 30 minutes after power is turned ON.

*1 Digit indicates digital value

*2 Current value indicates value of instant input current that does not break module inner electrical resistance.

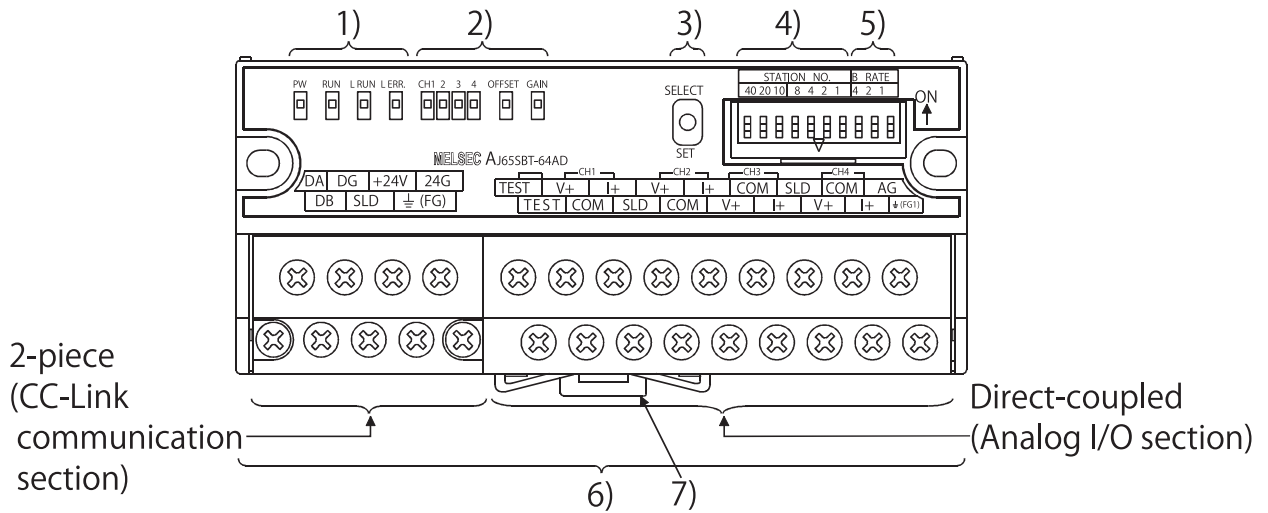
2.3 Checking hardware versions

The hardware versions of the AJ65SBT-64AD can be checked on the DATE section on the rating plate, which is situated on the side of the module.

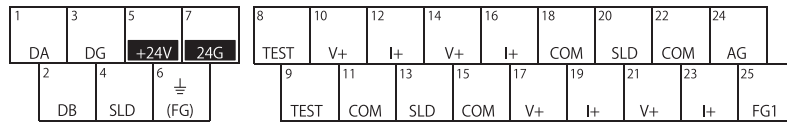


3. NAME OF EACH PART

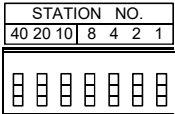
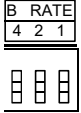
The name of each part in the AJ65SBT-64AD is shown.



[Terminal numbers and signal names]



Number	Name and appearance	Description	
1)	Operation status display LED	PW LED ON : Power supply on OFF : Power supply off	
		RUN LED	Normal mode On : Normal operation Flashing : 0.1s intervals indicate an input range error. Off : 24VDC power supply shutoff or watchdog timer error occurred.
			Test mode On : Indicates that the SELECT/SET switch is in the SET position. Flashing : 0.1s intervals indicate that the input range setting is not any of "user range settings 1 to 3". 0.5s intervals indicate that you attempted to make offset/gain setting outside the setting range. Off : Indicates that the SELECT/SET switch is in the SELECT or center position.
		L RUN LED On : Normal communication Off : Communication cutoff (time expiration error)	
L ERR. LED 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.			

Number	Name and appearance	Description																																																																																																													
2)	Offset/gain adjusting LEDs	CH <input type="checkbox"/>	Normally OFF.																																																																																																												
		<table border="1"> <tr> <td>OFFSET</td> <td>Normal mode</td> </tr> <tr> <td>GAIN</td> <td>Test mode</td> </tr> </table>	OFFSET	Normal mode	GAIN	Test mode	The LEDs lit change every time the SELECT/SET switch is moved to SELECT.																																																																																																								
OFFSET	Normal mode																																																																																																														
GAIN	Test mode																																																																																																														
3)	SELECT/SET switch	Used to make offset/gain setting in the test mode.																																																																																																													
4)	Station number setting switches 	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 border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>(Example) To set the station number to "32", set the switches as indicated below.</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table>		Station number	Tens			Units				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	Station number	Tens			Units				40	20	10	8	4	2	1	32	OFF	ON	ON	OFF	OFF
Station number	Tens				Units																																																																																																										
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32	OFF	ON	ON	OFF	OFF	ON	OFF																																																																																																								
5)	Transmission speed setting switches 	<table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>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.</p>		Set value	Setting switches			Transmission speed	4	2	1	0	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																																																																											
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4	ON	OFF	OFF	10Mbps																																																																																																											
6)	Terminal block	Used to connect the module power supply, transmission and I/O signals.																																																																																																													
7)	DIN rail hook	Used to mount the module to the DIN rail.																																																																																																													

4. LOADING AND INSTALLATION

4.1 Precautions when handling

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

- (1) Do not drop or apply any strong impact to the module.
- (2) Tighten the mounting screws of the module within the following ranges.

Screw location	Tightening torque range
Module mounting screw (M4 screw)	0.78 to 1.08N•m
Terminal block terminal screw (M3 screw) <i>Vis de borne du bornier FG (vis M3)</i>	0.59 to 0.88N•m <i>0,59 à 0,88N•m</i>
Terminal block mounting screw (M3.5 screw)	0.68 to 0.98N•m

4.2 Installation environment

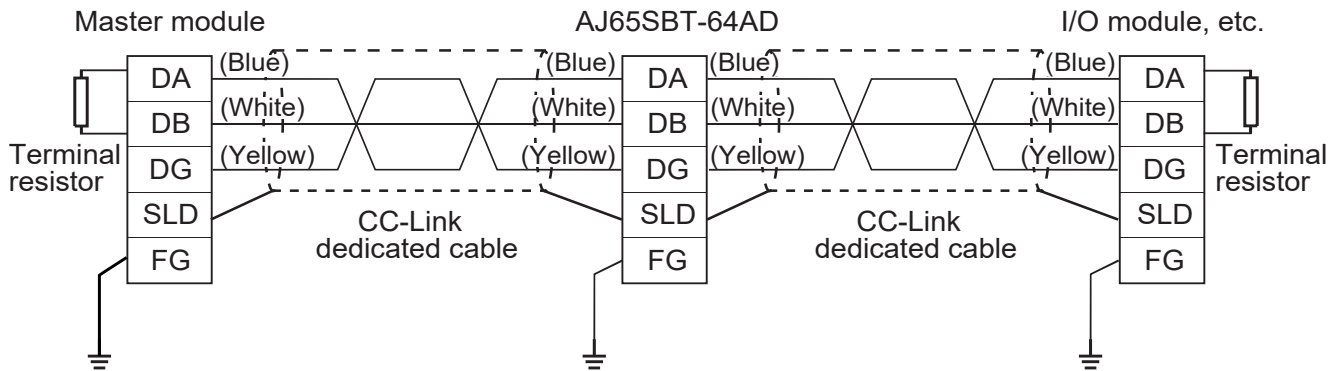
Never install the A series programmable controller in the following environments:

- (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 90%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 Connection of the CC-Link dedicated cables

Connect the CC-Link dedicated cable between the AJ65SBT-64AD and master module as shown below.



English	French
Master module	<i>Module maître</i>
I/O module, etc.	<i>Côté module d'entrée/sortie</i>
Terminating resistor	<i>Résistance d'extrémité</i>
CC-Link dedicated cable	<i>Câble dédié pour CC-Link</i>
Blue	<i>Bleu</i>
White	<i>Blanc</i>
Yellow	<i>jaune</i>

6. WIRING

6.1 Wiring precautions

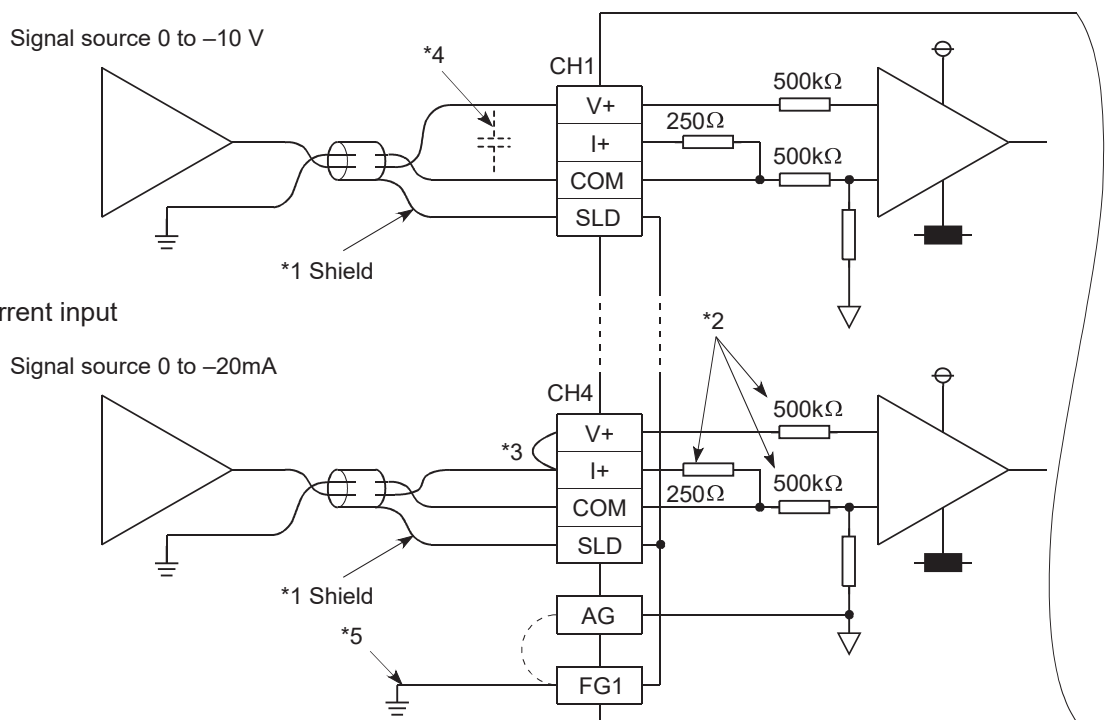
To obtain maximum performance from the functions of AJ65SBT-64AD and improve the system reliability, an external wiring with high durability against noise is required.

The precautions when performing external wiring are as follows:

- (1) Use separate cables for the AC and AJ65SBT-64AD 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 programmable controller. Noises, surges, or conductivity may affect the system.
- (3) Place a one-point grounding on the programmable controller 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) For voltage input



English	French
For voltage input	<i>Pour entrée de tension</i>
Signal source 0 to 10 V	<i>Source de signal 0 à 10V</i>
Shield	<i>Pour entrée de courant</i>
For current input	<i>Pour entrée de courant</i>
Signal source 0 to 20mA	<i>Source de signal 0 à 20mA</i>

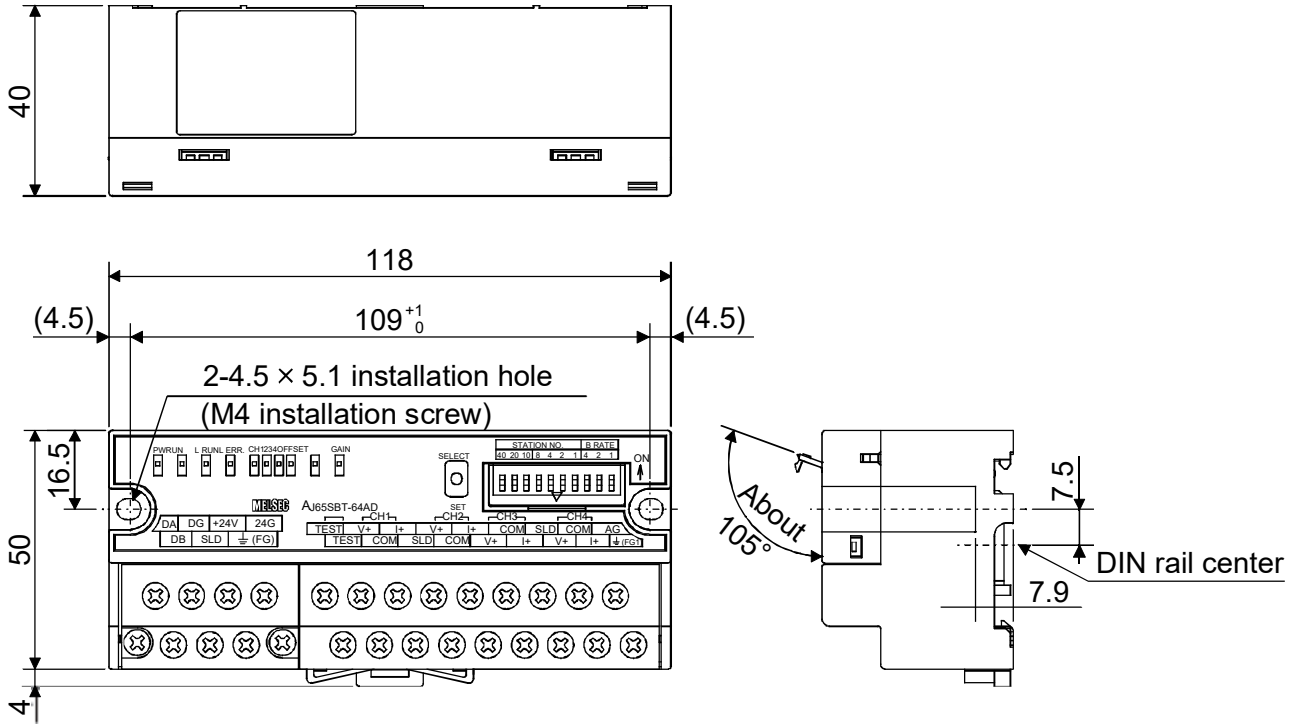
- *1 Use a two-core twisted shield line for the power cable.
 - *2 Indicates the AJ65SBT-64AD input resistor.
 - *3 For the current input, be sure to connect the (V+) and (I+) terminals.
 - *4 When noise or ripple occurs with the external cable, connect a condenser with about 0.1 to 0.47 μ F (25V or higher voltage-resistant product) between the terminal V and COM.
 - *5 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.
- *1 *Utilisez une ligne blindée à torsion double-base pour le câble d'alimentation.*
 - *2 *Indique la résistance d'entrée AJ65SBT-64AD.*
 - *3 *Pour l'entrée de courant, le raccordement doit se faire aux bornes (V+) et (I+).*
 - *4 *En cas de bruit ou d'ondulation sur le câble externe, connectez un condensateur d'environ 0,1 à 0,47 μ F (produit résistant à une tension de 25 V ou plus) entre les bornes V et COM.*
 - *5 *Mettez toujours à la terre pour FG1. Lorsqu'il y a beaucoup de bruit, il peut être préférable de mettre AG à la terre également.
Si le câblage mis à la terre (mise à la terre oui/non) est modifié après le réglage du décalage et du gain, effectuez à nouveau le réglage des valeurs de décalage/gain.*

7. EXTERNAL DIMENSIONS

The external dimensions of the AJ65SBT-64AD are shown below. The appearance of the AJ65SBT-64AD varies depending on the hardware version.

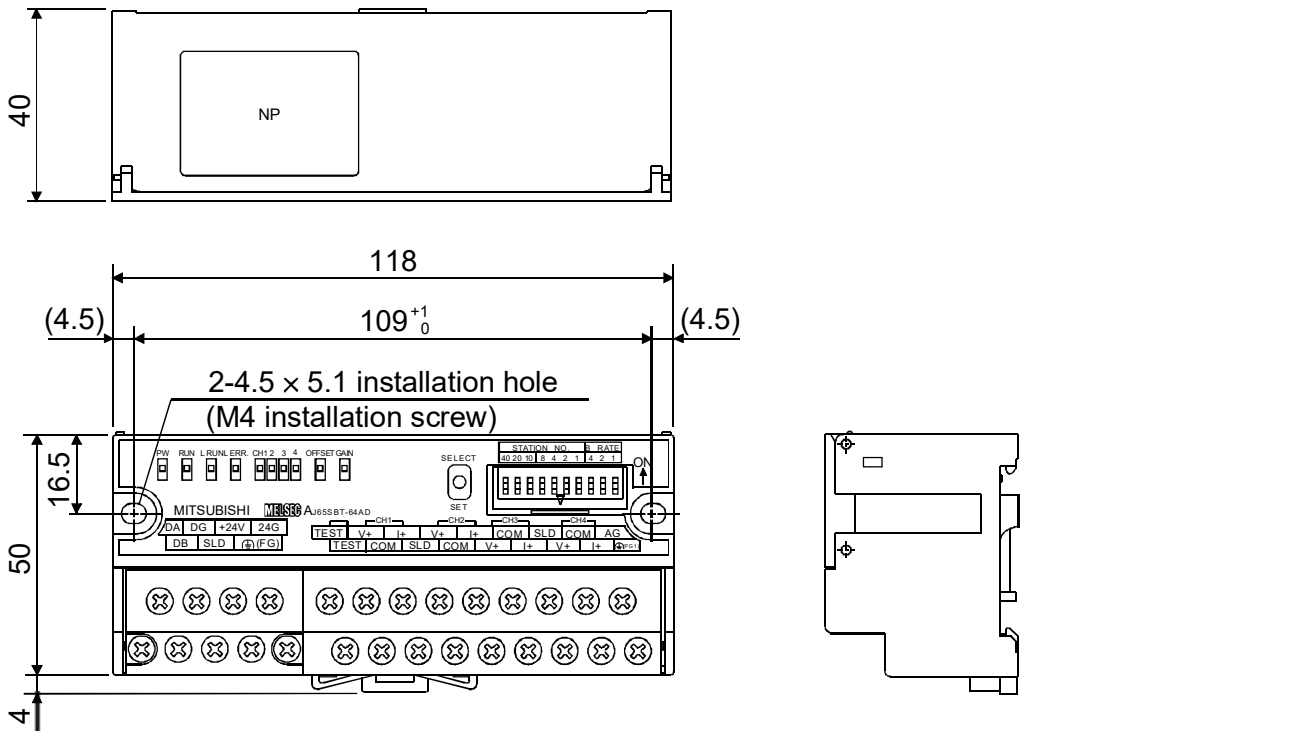
For checking method of the hardware version, refer to Section 2.3.

(1) Hardware version F or later



Unit: mm

(2) Hardware version E or earlier



Unit: mm

WARRANTY

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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