



**MITSUBISHI
ELECTRIC**

RTD Input Module

User's Manual
(Hardware)

AJ65SBT2B-64RD3

Thank you for purchasing the programmable controller .

Prior to use, please read this and relevant manuals thoroughly to fully understand the product.



MODEL	AJ65S-64RD3-U-HW
MODEL CODE	13JY77
IB(NA)-0800420-D(1612)MEE	

● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

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

The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.

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

"⚠ WARNING" and "⚠ CAUTION".



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



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 data link error, the master module data is backed up. Using the communication status information, create an interlock circuit on the sequence program for the system to operate safely.

CAUTION

- Do not install the control or communication cable(s) together with the main circuit or power cables.
Keep a distance of 100mm or more between them.
Failure to do so may cause malfunctions due to noise.

[Installation Precautions]

CAUTION

- Use the module in an environment that meets the general specifications given in this manual.
Operating it in any other environment may cause an electric shock, fire, malfunction, product damage or deterioration.
- For protection of the switches, do not remove the cushioning material before installation.
- Securely fix the module with the DIN rail or fixing screws. Fixing screws must be tightened within the specified torque range.
A loose screw may cause a drop of the module or malfunction.
Overtightening may damage the screw, resulting in a drop or malfunction of the module.
- Do not directly touch any conductive part of the module.
Doing so may result in a malfunction or failure of the module.

[Wiring Precautions]

CAUTION

- Be sure to shut off all phases of the external power supply used by the system before installation or wiring.
Failure to do so may cause a damage to the product and/or malfunctions.
- Always ground the FG terminal to the protective ground conductor.
Failure to do so may result in malfunctions.
- Be sure to tighten any unused terminal screws within a tightening torque range.
Failure to do so may cause a short circuit due to contact with a solderless terminal.
- Use applicable solderless terminals and tighten them with the specified torque.
If any solderless spade terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
- Check the rated voltage and terminal layout and then wire the module correctly.
Connecting a power supply of a different voltage rating or incorrect wiring may cause a fire or failure.
- Tighten terminal screws within the specified torque range.
A loose terminal screw may cause a short circuit or malfunction.
Overtightening can cause a short circuit or malfunction due to damage of the screws or module.
- Take care to prevent foreign matter such as dust or wire chips from entering the module.
Failure to do so may cause a fire, failure or malfunctions.
- Place the connection wires and cables in a duct or clamp them.
If not, dangling cables may swing or inadvertently be pulled, resulting in damage to the module and/or cables or malfunctions due to poor cable connection.

[Wiring Precautions]

CAUTION

- Do not install the control cable(s) together with the communication cable(s). Doing so may cause malfunctions due to noise.
- When disconnecting the 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 cable that is still connected to the module may damage the module and/or cable and cause malfunctions due to poor cable connection.

[Starting and Maintenance Precautions]

CAUTION

- Do not touch the terminals 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 or retightening the terminal screws.
Not doing so can cause the module to fail or malfunction.
Undertightening can cause a drop, short circuit or malfunction.
Overtightening can cause a drop, short circuit or malfunction due to damage of the screws or module.
- Never disassemble or modify the module.
This may cause breakdowns, malfunction, injury and/or fire.
- Do not drop or apply any strong impact to the module.
Doing so may 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.
- Do not install/remove the terminal block more than 50 times after the first use of the product. (IEC 61131-2 compliant)
- Before handling the module, always touch grounded metal, etc. to discharge static electricity from the human body.
Failure to do so can 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.

Les précautions à observer figurant dans ce manuel concernent ce produit. Pour les consignes de sécurité du système de contrôleur programmable, prière de se reporter au manuel d'utilisation du module CPU.

Dans ce manuel, les précautions de sécurité sont classées en deux niveaux, à savoir : "▲ AVERTISSEMENT" et "▲ 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

- *À la survenance d'une erreur dans la liaison de données, les données du module maître sont sauvegardées.
Sur la base des infos de communication, constituer dans le programme séquentiel un circuit de verrouillage permettant de garantir la sécurité de fonctionnement du système.*

ATTENTION

- *Ne pas installer le(s) câble(s) de commande ou de communication avec les câbles des circuits principaux ou d'alimentation.
Les installer en maintenant entre eux une distance minimum de 100 mm.
Faute de quoi, les bruits parasites produiront des dysfonctionnements.*

[Précautions d'installation]

ATTENTION

- *Utiliser le module dans un environnement en conformité avec les spécifications générales que présente ce manuel.
Son utilisation dans tout autre environnement expose au risque d'électrocution, de départ de feu, de dysfonctionnement 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 de fixation. Les vis de fixation doivent être serrées dans les limites du couple de serrage prescrit.
Une vis mal serrée peut entraîner la chute ou un dysfonctionnement du module.
Un serrage excessif risque d'endommager la vis et provoquer la chute ou le dysfonctionnement du module.*
- *Éviter tout contact direct avec les parties conductrices du module.
Faute de quoi, il y a risque de panne ou de dysfonctionnement du module.*

[Précautions de câblage]

⚠ ATTENTION

- *Avant installation ou câblage, toujours vérifier que les alimentations externes utilisées par le système ont été coupées sur toutes les phases.
Faute de quoi, il y a risque d'endommagement et/ou de dysfonctionnements du produit.*
- *Toujours mettre à la masse la borne FG sur le conducteur de protection de terre.
Faute de quoi, cela peut entraîner un dysfonctionnement.*
- *Toujours serrer les vis des bornes inutilisées dans les limites du couple de serrage prescrit.
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 en les serrant dans les limites du couple de serrage prescrit.
Une borne sans soudure dont la vis se desserre peut être une source de mauvais contact avec risque de panne.*
- *Vérifier les tensions nominales et l'affectation des bornes pour être sûr que le module sera câblé correctement.
Le raccordement d'une alimentation de tension nominale différente ou toute erreur de câblage peuvent être à l'origine d'un départ de feu ou d'une panne.*
- *Serrer les vis de bornes dans les limites du couple de serrage prescrit.
Une vis de borne desserrée peut être à l'origine d'un court-circuit ou d'un dysfonctionnement.
Un serrage excessif peut endommager les vis ou le module et être à l'origine de court-circuits ou de dysfonctionnements.*
- *Veiller à ne laisser pénétrer dans le module aucun corps étranger, poussière, débris de fil ou autres.
Faute de quoi, il y a risque de départ de feu, de panne ou de dysfonctionnement.*
- *Placer les fils et câbles de raccordement dans un conduits, ou les fixer avec des colliers.
Faute de quoi, le ballottage ou le déplacement des câbles par inadvertance pourrait endommager le module et/ou les câbles et être à l'origine de dysfonctionnements par mauvais contact.*
- *Ne pas installer le(s) câble(s) de commande avec le(s) câble(s) de communication.
Cela pourrait produire des interférences à l'origine de dysfonctionnements.*

[Précautions de câblage]

ATTENTION

- *Pour débrancher les câbles du module, ne pas tirer sur le câble lui-même. Débrancher les câbles après avoir desserré les vis de la prise de raccordement sur le module.
Tout effort de traction sur un câble encore raccordé au module risque d'endommager le module et/ou le câble et peut être à l'origine de dysfonctionnement par suite de mauvais contact.*

[Précautions de démarrage et de maintenance]

ATTENTION

- *Ne pas toucher aux bornes quand l'appareil est sous tension. Cela pourrait être à l'origine de dysfonctionnements.*
- *Ne pas oublier de couper toutes les phases de l'alimentation externe utilisée par le système avant le nettoyage ou le resserrage des vis de bornes. Faute de quoi, il y a risque de panne ou de dysfonctionnement du module. Un serrage insuffisant peut être à l'origine d'une chute, d'un court-circuit ou d'un dysfonctionnement.
Un serrage excessif risque d'endommager le module ou les vis dont la chute pourrait entraîner un court-circuit ou des dysfonctionnements.*
- *Ne jamais démonter, ni modifier le module. Cela pourrait être à l'origine de pannes, dysfonctionnement, blessures et/ou départ de feu.*
- *Ne pas faire tomber le module, ni le soumettre à de forts chocs. Cela risquerait d'endommager le module.*
- *Ne pas oublier de couper toutes les phases de l'alimentation externe utilisée par le système avant de mettre le module en place dans le tableau ou de l'en retirer.
Faute de quoi, il y a risque de panne ou de dysfonctionnement du module.*
- *Après la mise en service du produit, le nombre maximum admissible d'opérations de pose/retrait de la plaque à bornes est de 50 (selon IEC 61131-2).*
- *Avant de manipuler le module, toujours se décharger de la charge électrostatique dont le corps est porteur en touchant un objet métallique mis à la terre.
Faute de quoi, il y a risque de panne ou de dysfonctionnement 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;
- where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
 - 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
May, 2008	IB(NA)-0800420-A	First edition
Dec., 2010	IB(NA)-0800420-B	<u>Addition</u> CONDITIONS OF USE FOR THE PRODUCT <u>Partial correction</u> SAFETY PRECAUTIONS, ABOUT MANUALS, Section 2.1, 4.1, 5.2, 6.2
Dec., 2011	IB(NA)-0800420-C	<u>Addition</u> SAFETY PRECAUTIONS(Chinese) <u>Partial correction</u> Section 2.1, 4.1
Dec., 2016	IB(NA)-0800420-D	<u>Addition</u> SAFETY PRECAUTIONS(French) <u>Partial correction</u> Section 2.2, Chapter 3, 7

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

CONTENTS

1. OVERVIEW.....	1
2. SPECIFICATIONS.....	2
2.1 General Specifications.....	2
2.2 Performance Specifications.....	4
3. PART NAMES AND SETTINGS.....	7
3.1 Part Names.....	7
4. LOADING AND INSTALLATION.....	10
4.1 Handling Precautions.....	10
5. DATA LINK CABLE WIRING.....	11
5.1 Wiring Precautions.....	11
5.2 CC-Link Dedicated Cable Connection Method.....	11
5.3 Connection of Terminating Resistor.....	12
6. WIRING.....	13
6.1 Wiring Precautions.....	13
6.2 Wiring with RTD.....	14
7. EXTERNAL DIMENSIONS.....	15

ABOUT MANUALS

The following manuals are also related to this product.
If necessary, place an order.

Related Manuals

Manual name	Manual Number (Model code)
RTD Input Module Type AJ65SBT2B-64RD3 User's Manual	SH-080770ENG (13JZ21)
Type AnSHCPU/AnACPU/AnUCPU/QCPU-A (A Mode) Programming Manual (Dedicated Instructions)	IB-66251 (13J742)

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 of the components and wiring for the type AJ65SBT2B-64RD3 RTD Input Module (hereafter AJ65SBT2B-64RD3) which are used as a remote device station of a CC-Link system.

2. SPECIFICATIONS

2.1 General Specifications

The general specifications for the AJ65SBT2B-64RD3 are shown in the following table.

Table 2.1 General specifications

Item	Specification					
Operating ambient temperature <i>Température ambiante de fonctionnement</i>	0 to 55°C <i>0 à 55°C</i>					
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	For intermittent vibration	Frequency	Constant acceleration	Half amplitude	Sweep count
			5 to 8.4Hz	-	3.5mm	10 times each in X, Y, Z directions
		For 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 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 for the AJ65SBT2B-64RD3 are shown in the following table.

Table 2.2 Performance specifications

Item	AJ65SBT2B-64RD3				
Measurement method	3-wire				
Measured temperature value	16-bit signed binary (-2000 to 8500)				
Usable RTD	Pt100 (JIS C 1604-1997), JPt100 (JIS C 1604-1981), Ni100 (DIN 43760 1987)				
Detecting current	1mA				
Detecting range, degree of conversion accuracy, resolution	Detecting range		Degree of conversion accuracy ^{*1*2}		Resolution
			Ambient temperature 0 to 55°C	Ambient temperature 25±5°C	
	Pt100	-200 to 850°C	±1.4°C	±0.5°C	0.1°C
		-20 to 120°C	±0.6°C	±0.2°C	
		0 to 200°C	±0.6°C	±0.2°C	
	JPt100	-180 to 600°C	±1.0°C	±0.4°C	
		-20 to 120°C	±0.6°C	±0.2°C	
		0 to 200°C	±0.6°C	±0.2°C	
Ni100	-60 to 180°C	±0.5°C	±0.2°C		
Conversion speed	40ms/channel				
Temperature input point	4 channels/1 module				
Maximum number of writes for Flash memory	MAX. 10,000 times				
CC-Link station type	Remote device station				
No. of occupied stations	1 station (RX/Ry: 32 points each, RWr/RWw: 4 points each)				
Connection cable <i>Cable de connexion</i>	CC-Link dedicated cable <i>Cable dedie pour CC-Link</i>				
Withstand voltage	500 V AC for 1 minute across all power supply and communication system terminals and all RTD input terminals				
Isolation system	Between communication system and all RTD inputs: Photocoupler isolation Between power supply system and all RTD inputs: Trans isolation Between channels: No isolation				
Noise immunity	Noise voltage : 500Vp-p, tested by noise simulator of noise width of 1 μs and noise frequency of 25 to 60Hz				
Wire break detection	Capable (channels respectively)				

Table 2.2 Performance specifications

Item		AJ65SBT2B-64RD3
External connection system Système des connexions externes	Communication part, module power supply part <i>Partie communication, Partie alimentation du module</i>	7-point 2-piece terminal block M3 × 5.2 tightening torque: 0.59 to 0.88N•m Applicable solderless terminals: 2 max. <i>Plaque à bornes 7-points deux pièces</i> M3 × 5,2 Couple de serrage : 0,59 à 0,88 N•m <i>Borne sans soudure à utiliser : 2 ou moins</i>
	I/O part <i>Partie entrée/sortie</i>	18-point 2-piece terminal block M3 × 5.2 tightening torque: 0.59 to 0.88N•m Applicable solderless terminals: 2 max. <i>Plaque à bornes 18-points deux pièces</i> M3 × 5,2 Couple de serrage : 0,59 à 0,88 N•m <i>Borne sans soudure à utiliser : 2 ou moins</i>
Applicable wire size <i>Taille du fil à utiliser</i>		0.3 to 2.0mm ² <i>0,3 à 2,0 mm²</i>
Applicable solderless terminals <i>Borne sans soudure à utiliser</i>		<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] • RAV1.25-3 (conforme à la norme JIS C 2805) [Taille de fil à utiliser : 0,3 à 1,25mm²] • V2-MS3, RAP2-3SL, TGV2-3N [Taille de fil à utiliser : 1,25 à 2,0mm²]
Module fixing screw		M4 screw × 0.7mm × 16mm or larger (tightening torque range: 0.78 to 1.08N•m) DIN-rail mounting is also possible.
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al (Compliant with IEC 60715)
External power supply		24V DC (ripple ratio: within 5%) (allowable voltage range 20.4 to 28.8V DC)
		Inrush current: 1.7A 2.4ms
		Current consumption: 0.14A (24VDC)
Weight		0.25kg

*1 The accuracy does not apply when noise exists.

*2 Accuracy of measured temperature value is calculated by the total of degree of conversion accuracy and degree of tolerance of RTD (Refer to Table 2.3).

(Example)

RTD to be used: Pt100, Class A

Detecting range: From -200 to 850°C

Ambient temperature: 40°C (0 to 55°C)

The degree of accuracy for measured temperature value at 800°C as follows.

$$\begin{aligned} \left(\text{Accuracy of measured temperature value} \right) &= \left(\text{Degree of conversion accuracy} \right) + \left(\text{Degree of tolerance of RTD (Refer to Table 2.3.)} \right) \\ &= (\pm 1.40^{\circ}\text{C}) + ((\pm(0.15^{\circ}\text{C} + 0.002 \times 800^{\circ}\text{C}))) \\ &= \pm 3.15^{\circ}\text{C} \end{aligned}$$

Because the resolution is 0.1°C = $\pm 3.2^{\circ}\text{C}$

Table 2.3 Degree of tolerance of RTD

Resistance thermometer detector	Class	Tolerance
Pt100 (JIS C 1604-1997)	A	$\pm(0.15+0.002 t)^{\circ}\text{C}$
	B	$\pm(0.3+0.005 t)^{\circ}\text{C}$
JPt100 (JIS C 1604-1981)	0.15	$\pm(0.15+0.0015 t)^{\circ}\text{C}$
	0.2	$\pm(0.15+0.002 t)^{\circ}\text{C}$
	0.5	$\pm(0.3+0.005 t)^{\circ}\text{C}$
Ni100 (DIN 43760 1987)	0 to 250°C	$\pm(0.4+0.007 t)^{\circ}\text{C}$
	-60 to 0°C	$\pm(0.4+0.0028 t)^{\circ}\text{C}$

t: Measured temperature

3. PART NAMES AND SETTINGS

3.1 Part Names

This section explains the names of the components for the AJ65SBT2B-64RD3.

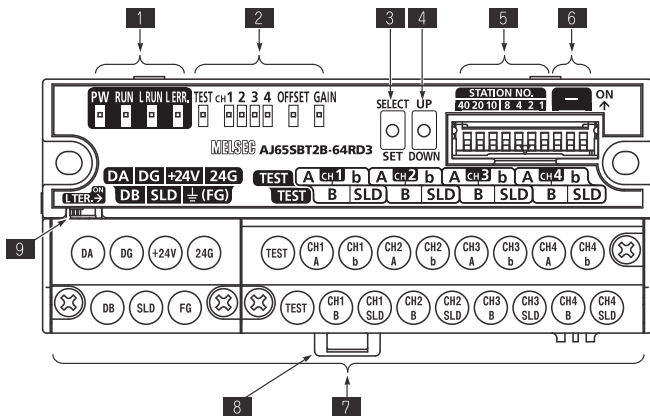


Figure 3.1 Appearance of the AJ65SBT2B-64RD3

Table 3.1 Part names

No.	Name	Description		
1	Operation status display LED	PW LED	On: Power supply on Off: Power supply off	
		RUN LED	Normal mode	On: Normal operation Flashing: 0.1-second interval: CH□ measurement range error occurs. 0.5-second interval: Out of average processing setting range error occurs. Off: Indicates that 24VDC power supply interrupted, watchdog timer error occurred, write error for flash memory occurred.
			Test mode	On: Indicate that the SELECT/SET switch is in the SET position. Flashing: The offset value is during correction, or the gain value is out of the setting range. (The gain value is out of range of the measurement temperature or less than 10°C when the offset value is subtracted from the gain value.) 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 station number setting is outside the range. Flicker at fixed intervals: Indicates that station number setting was changed from that at power-on. Flicker at unfixed intervals: Indicates that you forgot fitting the terminating resistor or the module or CC-Link dedicated cable is affected by noise. Off: Indicates normal communications.	
2	Offset/gain adjusting LEDs	V I	Normal mode	Normally OFF.
		CH□ OFFSET GAIN	Test mode	The LEDs lit change every time the SELECT/SET switch is moved to SELECT.
3	SELECT/SET switch	Used to make offset/gain setting in the test mode.		
4	UP/DOWN switch	Used to adjust the offset value and gain value of the channel specified by the SELECT/SET switch.		

Table 3.1 Part names

No.	Name	Description																																																																																																														
5	Station number setting switches	<p>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. Cannot set the same station number to two or more stations. Setting any other number than 1 to 64 will result in an error, flickering the "L ERR." LED.</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>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	ON	OFF
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	ON	OFF																																																																																																									
6	Use prohibited	Set all station number to OFF.																																																																																																														
7	Terminal block	Used to connect the module power supply, transmission and analog I/O signals.																																																																																																														
8	DIN rail hook	Used to mount the module to the DIN rail.																																																																																																														
9	L TER. (Line Termination) switch	Turned ON to validate the terminating resistor stored in the AJ65SBT2B-64RD3. Used to when the AJ65SBT2B-64RD3 is used on the network edge.																																																																																																														

* The transmission speed is automatically set depending on the setting of the master module.

4. LOADING AND INSTALLATION

4.1 Handling Precautions

The following is an explanation of handling precautions of the AJ65SBT2B-64RD3.

- (1) Tighten screws (such as a module fixing screw) within the tightening torque range specified in the table below.

Table 4.1 Tightening torque range

Screw location	Tightening torque range
Module fixing screw (M4 screw)	0.78 to 1.08N·m
Terminal block terminal screw (M3 screw) <i>Vis de borne sur plaque a bornes (vis M3)</i>	0.59 to 0.88N·m <i>0,59 à 0,88 N·m</i>
Terminal block installation screw (M3.5 screw)	0.68 to 0.98N·m

- (2) When using the DIN rail, pay attention to the followings.
 - (a) Applicable DIN rail type (Compliant with IEC 60715)
TH35-7.5Fe
TH35-7.5Al
 - (b) DIN rail installation screw pitch
When installing a DIN rail, tighten the screws at a pitch of 200mm or less.
- (3) When mounting the AJ65SBT2B-64RD3 to the DIN rail, press with your finger the centerline of the DIN rail hook at the bottom of the module until it clicks.

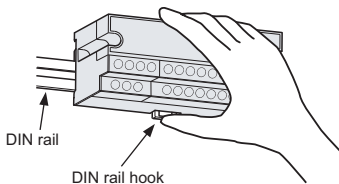


Figure 4.1 Installation to DIN rail

- (4) Refer to the Master Module user's manual for the name, specification, and manufacturers of supported cables for the use with AJ65SBT2B-64RD3.

5. DATA LINK CABLE WIRING

5.1 Wiring Precautions

When using existing CC-Link dedicated cables, rewire the system using communication terminal block for the AJ65SBT2B-64RD3.

5.2 CC-Link Dedicated Cable Connection Method

Méthode de raccordement par câble dédié CC-Link

The following shows how to connect the AJ65SBT2B-64RD3 to a master module and a remote module with CC-Link dedicated cables.

Le schéma ci-dessous explique comment connecter un AJ65SBT2B-64RD3 à un module maître et à un module distant au moyen de câbles dédiés CC-Link.

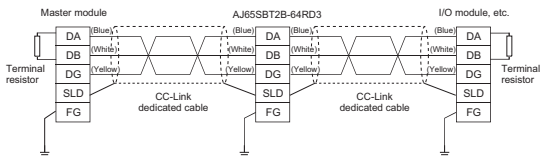


Figure 5.1 Connection of the CC-Link dedicated cables

English	French
Master module	<i>Module maître</i>
I/O module, etc.	<i>Module d'entrée/sortie, etc.</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>
Figure 5.1 Connection of the CC-Link dedicated cables	<i>Figure 5.1 Raccordement des câbles dédiés CC-Link</i>

5.3 Connection of Terminating Resistor

The AJ65SBT2B-64RD3 stores the terminating resistor of 110Ω , so there is no need the external wiring

(1) Precautions

- (a) Move the L TER. switch until it clicks.



- (b) Make sure that between DA and DB is high resistance (when the L TER. switch is off) or is 110Ω (When the L TER. switch is on) with a tester before wiring the system with CC-Link dedicated cables.
- (c) The built-in terminating resistor cannot be used in the following cases. Wire a terminating resistor (110 or 130Ω).
- A CC-Link system is configured using CC-Link cables of 130Ω .
 - The AJ65SBT2B-64RD3 may be replaced during data link.

6. WIRING

6.1 Wiring Precautions

External wiring that is less susceptible to noise is required as a condition of enabling a highly reliable system and making full use of the capabilities of AJ65SBT2B-64RD3.

The precautions when performing external wiring are as follows:

- (1) Use separate cables for the AC control circuit and the external input signals of the AJ65SBT2B-64RD3 to avoid the influence of the AC side surges and inductions.
- (2) Always place the RTD at least 10cm away from the main circuit cables and AC control circuit lines. Fully keep it away from high-voltage cables and circuits, which include high frequency waves, such as an inverter's load circuit. Not doing so will cause the module more susceptible to noises, surges and inductions.
- (3) The shield wire or the shield of the shielded cable must be grounded at one end. However, Grounding outside may be suitable depending on the noise circumstances.

6.2 Wiring with RTD

The method for connecting between the AJ65SBT2B-64RD3 and the RTD. is shown in figure 6.1.

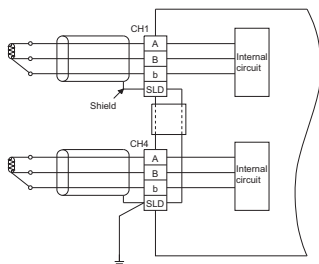


Figure 6.1 wiring of RTD

English	French
Internal circuit	<i>Circuit interne</i>
Shield	<i>Blindage</i>
Figure 6.1 wiring of RTD	<i>Figure 6.1 Câblage de RTD</i>

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.

Country/ Region	Sales office/ Tel	Country/ Region	Sales office/ Tel
USA	MITSUBISHI ELECTRIC AUTOMATION, INC. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A. Tel : +1-847-478-2100	Turkey	MITSUBISHI ELECTRIC TURKEY A.Ş Ümraniye Branch Serifali Mahallesi Nutuk Sokak No:5, TR-34775 Ümraniye/Istanbul, Turkey Tel : +90-216-526-3990
Mexico	MITSUBISHI ELECTRIC AUTOMATION, INC. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalneapantla Edo. Mexico, C.P.54030 Tel : +52-55-3067-7500	UAE	MITSUBISHI ELECTRIC EUROPE B.V. Dubai Branch Dubai Silicon Oasis, P.O.BOX 341241, Dubai, U.A.E. Tel : +971-4-3724716
Brazil	MITSUBISHI ELECTRIC DO BRASIL COMÉRCIO E SERVIÇOS LTDA. Avenida Adélio Cardana, 293, 21 andar, Bethaville, Barueri SP, Brazil Tel : +55-11-4689-3000	South Africa	ADROIT TECHNOLOGIES 20 Waterford Office Park, 189 Witkoppen Road, Fourways, South Africa Tel : +27-11-658-8100
Germany	MITSUBISHI ELECTRIC EUROPE B.V. German Branch Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany Tel : +49-2102-486-0	China	MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD. No.1386 Hongqiao Road, Mitsubishi Electric Automation Center, Shanghai, China Tel : +86-21-2322-3030
UK	MITSUBISHI ELECTRIC EUROPE B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K. Tel : +44-1707-28-8780	Taiwan	SETSUYO ENTERPRISE CO., LTD. 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan Tel : +886-2-2299-2499
Ireland	MITSUBISHI ELECTRIC EUROPE B.V. Irish Branch Westgate Business Park, Ballymount, Dublin 24, Ireland Tel : +353-1-4198800	Korea	MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD. 7F-9F, Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Gangseo-Gu, Seoul 07528, Korea Tel : +82-2-3660-9530
Italy	MITSUBISHI ELECTRIC EUROPE B.V. Italian Branch Centro Direzionale Colleoni-Palazzo Sirio Viale Colleoni 7, 20864 Agrate Brianza(Milano) Italy Tel : +39-039-60531	Singapore	MITSUBISHI ELECTRIC ASIA PTE. LTD. 307, Alexandra Road, Mitsubishi Electric Building, Singapore 159943 Tel : +65-6473-2308
Spain	MITSUBISHI ELECTRIC EUROPE, B.V. Spanish Branch Carretera de Rubí, 76-80-Apdo. 420, 08190 Sant Cugat del Vallés (Barcelona), Spain Tel : +34-935-65-3131	Thailand	MITSUBISHI ELECTRIC FACTORY AUTOMATION (THAILAND) CO., LTD. 12th Floor, SV City Building, Office Tower 1, No. 896/19 and 20 Rama 3 Road, Kwaeng Bangpangpang, Khet Yannawa, Bangkok 10120, Thailand Tel : +66-2682-6522
France	MITSUBISHI ELECTRIC EUROPE B.V. French Branch 25, Boulevard des Bouvets, 92741 Nanterre Cedex, France Tel : +33-1-55-68-55-68	Vietnam	MITSUBISHI ELECTRIC VIETNAM COMPANY LIMITED Hanoi Branch 6th Floor, Detech Tower, 8 Ton That Thuyet Street, My Dinh 2 Ward, Nam Tu Liem District, Hanoi, Vietnam Tel : +84-4-3937-8075
Czech Republic	MITSUBISHI ELECTRIC EUROPE B.V. Czech Branch Avenir Business Park, Radlicka 751/1136, 158 00 Prahá5, Czech Republic Tel : +420-251-551-470	Indonesia	PT. MITSUBISHI ELECTRIC INDONESIA Gedung Jaya 11th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia Tel : +62-21-3192-6461
Poland	MITSUBISHI ELECTRIC EUROPE B.V. Polish Branch ul. Krakowska 50, 32-083 Balice, Poland Tel : +48-12-347-65-00	India	MITSUBISHI ELECTRIC INDIA PVT. LTD. Pune Branch Emerald House, EL-3, J Block, M.I.D.C., Bhosari, Pune-411026, Maharashtra, India Tel : +91-20-2710-2000
Sweden	MITSUBISHI ELECTRIC EUROPE B.V. (Scandinavia) Fjellvägen 8, SE-22736 Lund, Sweden Tel : +46-8-625-10-00	Australia	MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD. 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W 2116, Australia Tel : +61-2-9684-7777
Russia	MITSUBISHI ELECTRIC (RUSSIA) LLC St. Petersburg Branch Piskarevsky pr. 2, bld 2, lit "Sch", BC "Benua", office 720; 195027 St. Petersburg, Russia Tel : +7-812-633-3497		

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA, JAPAN

When exported from Japan, this manual does not require application to the Ministry of Economy,
Trade and Industry for service transaction permission.

Specifications subject to change without notice.