MITSUBISHI ELECTRIC

CC-Link System RS-232 Interface Module

User's Manual
(Hardware)

AJ65BT-R2N

Thank you for purchasing the programmable controller MELSEC-A series.

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

A
MELSEC

MODEL	AJ65BT-R2N-U-HW
MODEL CODE	13JY30
IB(NA)-0800381-E(1612)MEE	

● SAFETY PRECAUTIONS ●

(Always read these instructions before using this equipment.)

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 user's manual for the CPU module used.

In this manual, the safety instructions are ranked as " ⚠ 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.

Note that the ⚠ CAUTION level may lead to a serious consequence according to the circumstances.

Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Design Precautions]

⚠WARNING

● When controlling a running programmable controller (data modification) by connecting a peripheral to a CPU module or connecting a personal computer to an intelligent/special function module, create an interlock circuit on the sequence program so that the whole system will operate safely all the time. Also, before performing other controls (e.g. program modification, operating status change (status control)), read this manual carefully and ensure the safety.

Especially, in the control from an external device to a programmable controller in a remote location, some programmable-controller-side problems cannot be resolved immediately due to a data communication failure.
To prevent this, establish corrective procedures for communication failure between the external device and the programmable controller CPU, as well as creating an interlock circuit on the sequence program.

● In the case of a data link error, the operation status of a faulty station is as shown below. Using the communication status information, create an interlock circuit on the sequence program for the system to operate safely. Incorrect output or malfunction can lead to an accident.
(1) All of general-purpose inputs from this module turn OFF.
(2) All of general-purpose outputs from this module turn OFF.

● Depending on the module failure, inputs and outputs may turn ON or OFF incorrectly.
For I/O signals that may cause a serious accident, provide an external monitoring circuit.

⚠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 100 mm (3.94 inch) or more from each other.
Not doing so could result in noise that would cause erroneous operation.

● Always use the data link terminal block for connection of a CC-Link dedicated cable to a master module.
Care must be taken because, if the cable is incorrectly inserted into the general-purpose I/O terminal block instead of the data link terminal block, the module will break down.

[Installation Precautions]

⚠ CAUTION

● Use the programmable controller in an environment that meets the general specifications given in this manual.
  Using this programmable controller in an environment outside the range of the general specifications could result in electric shock, fire, erroneous operation, and damage to or deterioration of the product.

● Using a tool specified by the manufacturer, correctly press, crimp, or solder the wires of the connector and securely connect the connector to the module.
  Incomplete connection may cause a short circuit and/or malfunctions.

● Do not directly touch the module's conductive parts or electronic components.
  Touching the conductive parts could cause an operation failure or give damage to the module.

● Securely fix the module with the DIN rail or installation screws. Installation screws must be tightened within the specified torque range.
  A loose screw may cause a drop of the module, short circuit or malfunction. Overtightening may damage the screw, resulting in a drop of the module or a short circuit.

● Completely connect each cable connector to each receptacle.
  Incomplete connection may cause a malfunction due to poor contact.

[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 an electric shock, damage to the product and/or malfunctions.

● Attach the terminal cover to the product before energizing and operating the system after installation or wiring.
  Failure to do so may cause an electric shock.

● Be sure to ground the FG terminals and LG terminals to the protective ground conductor.
  Failure to do so may result in malfunctions.

● When wiring in the programmable controller, be sure that it is done correctly by checking the product's rated voltage and the terminal layout.
  Connecting a power supply that is different from the rating or incorrectly wiring the product could result in fire or damage.

[Wiring Precautions]

⚠ CAUTION

● Tighten the terminal screws with the specified torque.
  If the terminal screws are loose, it could result in short circuits, fire, or erroneous operation.
  Overtightening a terminal screw may damage the screw, resulting in a short circuit or malfunction.

● Be sure there are no foreign substances such as sawdust or wiring debris inside the module.
  Such debris could cause fires, damage, or erroneous operation.

● 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.

● Do not install the control cable(s) together with the communication cable(s).
  Doing so may cause malfunctions due to noise.

● When disconnecting a communication or power cable from the module, do not pull it by holding the cable part.
  For a cable with connector, hold the connector and disconnect it from the module.
  For a cable without connector, loosen the connector screw and disconnect the cable.
  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.

● Make sure that the interface type is correct before connecting the cable.
  Do not connect a cable to a module that has different interface specification.
  Doing so will cause a module failure.

● Using a tool specified by the manufacturer, correctly press, crimp, or solder the wires of the connector and securely connect the connector to the module.
  Failure to do so may cause a malfunction or failure of the module.

[Startup and Maintenance Precautions]

⚠ CAUTION

● Before performing online operations (especially, program modification, forced output or operating status change) through connection between a running CPU module and a peripheral, read this manual carefully and ensure the safety.
  An improper operation will cause mechanical damage or accidents.

[Startup and Maintenance Precautions]

⚠CAUTION

● Do not touch terminals while the power is ON.
　Doing so may cause an electric shock.

● Be sure to shut off all phases of the external power supply used by the
　system before cleaning or retightening the terminal screw or module fixing
　screw.
　Failure to do so may result in a failure or malfunction of the module.
　A loose screw may cause a drop of the module, short circuit or malfunction.
　Overtightening may damage the screw and/or module, resulting in a drop of
　the module, a short circuit or malfunctions.

● Do not touch any connector under the cover on the front of the module.
　Doing so may result in a failure or malfunction of the module.

● Do not disassemble or remodel the module.
　Doing so may cause a failure, malfunctions, personal injuries and/or a fire.

● Do not drop or apply a strong shock to the module since the case is made of
　resin.
　Doing so will damage the module.

● Be sure to shut off all phases of the external power supply before mounting
　or removing the module to/from the panel.
　Failure to do so may result in a failure or malfunction of the module.

● 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, touch a conducting object such as a grounded
　metal to discharge the static electricity from the human body.
　Failure to do so may cause the module to fail or malfunction.

● Do not change the switch settings while the power is ON.
　Doing so may cause a failure or malfunctions.

● The terminal cover must be closed all the time, except during installation,
　wiring or operation check.
　If the cover remains open, it may cause damage to the module, a short circuit
　due to cable connection failure, or malfunctions.

[Disposal Precautions]

⚠CAUTION

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

● *PRÉCAUTIONS DE SÉCURITÉ* ●

(Toujours prendre la peine de lire ces instructions avants d'utiliser cet équipement.)

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 concernant le système de contrôleur programmable, prière de se reporter au manuel d'utilisation du module CPU utilisé.

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.*

On remarquera que même au niveau ⚠ ATTENTION, les conséquences peuvent être graves dans certaines circonstances.

Toujours appliquer les consignes sur les deux niveaux car elles sont importantes pour la sécurité des personnes.

Prière de garder se manuel à portée de main de veiller à ce que l'utilisateur final l'ait aussi à sa disposition.

[Précautions lors de la conception]

⚠ AVERTISSEMENT

● *Pour pouvoir intervenir (modifier des données) sur un automate programmable en marche en connectant un périphérique au module CPU ou en connectant un ordinateur individuel à un module fonctionnel spécial/ intelligent, prévoir dans le programme séquentiel un circuit de verrouillage permettant de garantir en tous temps la sécurité de fonctionnement de l'ensemble du système. De plus, avant toute autre intervention de commande (changement de programme, changement d'état opérationnel (commande d'état)), lire attentivement ce manuel pour pouvoir opérer en toute sécurité.*

En particulier lors d'une vérification d'un contrôleur programmable à partir d'un périphérique externe situé à distance, certains problèmes collatéraux du contrôleur programmable pourraient ne pas être résolus immédiatement en raison d'une erreur de communication.

Pour éviter cela, prévoir les mesures correctives après défaillance de la communication entre le dispositif externe et la CPU de l'automate programmable, en plus de la création d'un circuit de verrouillage dans le programme séquentiel.

● *À la survenance d'une erreur dans la liaison de données, l'état opérationnel de la station défaillante est comme indiqué ci-après. 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.*

Une sortie erronée ou un dysfonctionnement peuvent être à l'origine d'un accident.

(1) Toutes les entrées à usage général de ce module sont désactivées.

(2) Toutes les sorties à usage général de ce module sont désactivées.

● *Selon la nature de la panne du module, il se peut que les entrées et sorties passent inopinément ON ou OFF.*

Prévoir un circuit de surveillance externe pour le suivi des signaux d'entrée/ sortie qui peuvent être à l'origine d'accidents ou incidents graves.

⚠️*ATTENTION*

● *Ne pas grouper les fils de commande ou câbles de communication avec les fils des circuits principaux ou de l'alimentation, et ne pas les installer à proximité les uns des autres.*
Les installer à une distance minimum de 100 mm (3,94 pouces) l'un de l'autre.
Faute de quoi, il y a risque de bruit entraînant un fonctionnement erratique.

● *Pour le raccordement au module maître par câble dédié CC-LINK, toujours utiliser le bornier de liaison de données.*
Il faut être très vigilant car, si on raccordait par erreur le câble sur le bornier à usage général au lieu du bornier pour liaison de données, cela endommagerait le module.

[Précautions d'installation]

```
                        ⚠ ATTENTION

● Utiliser le contrôleur programmable dans un environnement en conformité
  avec les spécifications générales que présente ce manuel.
  L'utilisation de ce contrôleur programmable dans un environnement autre
  que celui prévu dans les spécifications générales peut être à l'origine d'un
  choc électrique, d'un départ de feu ou d'un dysfonctionnement, ou peut
  endommager ou détériorer le produit.

● À l'aide de l'outil prescrit par le fabricant, raccorder correctement les fils au
  connecteur par pression, sertissage ou brasage et brancher de manière
  sécurisée le connecteur au module.
  Une connexion imparfaite peut être à l'origine de court-circuits et/ou
  dysfonctionnements.

● Éviter tout contact direct avec les parties conductrices ou les composants
  électroniques du module.
  Tout contact avec les pièces conductrices peut entraîner un défaut de
  fonctionnement ou un endommagement du module.

● Fixer fermement le module avec un rail DIN ou avec des vis d'installation.
  Les vis de fixation doivent être serrées dans les limites du couple de serrage
  prescrit.
  Une vis mal serrée peut entraîner la chute du module, un court-circuit ou des
  dysfonctionnements.
  Un serrage excessif risque d'endommager la vis et provoquer la chute du
  module ou un court-circuit.

● Veiller à ce que tous les connecteurs de câble soient bien enfichés dans les
  prises correspondantes.
  Une connexion imparfaite peut être à l'origine de dysfonctionnements par
  mauvais contact.
```

[Pécautions 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 de choc électrique, d'endommagement et/ou de dysfonctionnements du produit.

● *En fin d'installation et de câblage, remettre en place le couvre-bornes du produit avant la mise sous tension et la mise en marche du système.*
Faute de quoi, il y aurait risque de choc électrique.

● *Toujours mettre à la masse les bornes FG et LG sur le conducteur de protection de terre.*
Faute de quoi, cela peut entraîner un dysfonctionnement.

● *Pour effectuer le câblage d'un automate programmable correctement, vérifier les tensions nominales et l'affectation des bornes pour ce produit.*
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.

[Pécautions de câblage]

⚠ *ATTENTION*

● *Serrer les vis de borne au couple de serrage prescrit.*
  Des vis desserrées peuvent être à l'origine d'un court-circuit, d'un départ de feu ou d'un fonctionnement erratique.
  Le serrage excessif d'une vis de borne peut endommager la vis et être à l'origine d'un court-circuit ou d'un dysfonctionnement.

● *Vérifier qu'aucun corps étrangers, limaille, débris de fil ou autres, n'a pénétré dans le module.*
  Des débris de ce genre peuvent être à l'origine d'un départ de feu, d'une panne ou d'un fonctionnement erratique.

● *Placer les fils et câbles de raccordement dans un conduits, ou les fixer avec des colliers.*
  Faute de quoi, le ballottement 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.

● *Pour débrancher un câble de communication ou d'alimentation du module, ne pas tirer sur le câble lui-même.*
  Si le câble dispose d'un connecteur, maintenir le connecteur et le débrancher du module.
  Si le câble ne dispose pas d'un connecteur, dévisser la vis du connecteur et débrancher le câble.
  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.

● *Vérifier le type d'interface avant de raccorder le câble.*
  Ne pas raccorder au module un câble prévu pour un type d'interface différent.
  Cela pourrait être à l'origine d'une panne sur le module.

● *À l'aide de l'outil prescrit par le fabricant, raccorder correctement les fils au connecteur par pression, sertissage ou brasage et brancher de manière sécurisée le connecteur au module.*
  Faute de quoi, il y a risque de dysfonctionnement ou de panne du module.

[Précautions de démarrage et de maintenance]

⚠ ATTENTION

● *Avant d'effectuer des opérations en ligne (en particulier une modification de programme, une sortie forcée ou un changement d'état opérationnel) en connectant un périphérique au module CPU en marche, lire attentivement ce manuel pour pouvoir garantir la sécurité.*
Une fausse manœuvre peut être à l'origine de dégâts matériels ou d'un accident.

[Précautions de démarrage et de maintenance]

⚠ ATTENTION

- ● *Ne pas toucher aux bornes quand l'équipement est sous tension.*
  Il aurait risque de choc électrique.

- ● *Avant d'entreprendre de nettoyer ou resserrer les vis des bornes ou les vis de fixation du module, vérifier que l'alimentation externe utilisé par le système a bien été coupée sur toutes les phases.*
  Faute de quoi, il y a risque de panne ou de dysfonctionnements du module.
  Une vis mal serrée peut entraîner la chute du module, un court-circuit ou des dysfonctionnements.
  Un serrage excessif risque d'endommager le module et/ou les vis dont la chute pourrait entraîner un court-circuit ou des dysfonctionnements.

- ● *Ne toucher à aucun des connecteurs sous le capot à l'avant du module.*
  Faute de quoi, il y a risque de panne ou de dysfonctionnement du module.

- ● *Ne pas tenter de démonter ou modifier le module.*
  Cela pourrait être à l'origine d'une panne, de dysfonctionnements, blessures personnelles et/ou d'un départ de feu.

- ● *Ne pas faire tomber le module dont le boîtier est en matière plastique, et ne pas le soumettre à des chocs violents.*
  Cela risquerait d'endommager le module.

- ● *Avant d'insérer/retirer le module du tableau, vérifier que l'alimentation externe a bien été coupée sur toutes les phases.*
  Faute de quoi, il y a risque de panne ou de dysfonctionnements 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 un module, se débarrasser de la charge électrostatique qu'accumule le corps humain en touchant un objet conducteur approprié.*
  Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.

- ● *Ne pas changer la position des commutateurs pendant que le système est sous tension.*
  Cela pourrait être à l'origine d'une panne ou d'un dysfonctionnement.

- ● *En dehors des opérations d'installation, de câblage e de contrôle, le couvre-bornes doit rester fermé.*
  Laisser le couvercle ouvert peut être à l'origine d'une détérioration du module, d'un court-circuit par mauvais contact du câble, ou d'autres dysfonctionnements.

[*Précaution 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
May, 2007	IB(NA)-0800381-A	First edition
Oct., 2007	IB(NA)-0800381-B	Partially revised Section 2.2, Section 2.4.1, Section 2.4.2, Section 3.1
Sep., 2008	IB(NA)-0800381-C	Partially revised SAFETY PRECAUTIONS, Compliance with the EMC and Low Voltage Directives, Section 2.4.1, Section 2.5, Section 3.1
Dec., 2011	IB(NA)-0800381-D	Added SAFETY PRECAUTIONS (Chinese), CONDITIONS OF USE FOR THE PRODUCT Partially revised COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES, Section 2.1
Dec., 2016	IB(NA)-0800381-E	Added PRÉCAUTIONS DE SÉCURITÉ Partially revised Section 2.2, 2.4.1, 2.5, 3.1, Chapter 4, Section 5.1, Chapter 6

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.

© 2007 MITSUBISHI ELECTRIC CORPORATION

CONTENTS

ABOUT MANUALS

The following manuals are also related to this product.
Please purchase it if necessary.

Related manuals

Manual name	Manual number (Model code)
CC-Link System RS-232 Interface Module User's Manual (Nonprocedural Protocol Mode)	SH-080685ENG (13JY00)
CC-Link System RS-232 Interface Module User's Manual (MELSOFT Connection Mode)	SH-080687ENG (13JZ01)

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 manual describes how to install and connect the AJ65BT-R2N CC-Link system RS-232 interface module (hereinafter referred to as AJ65BT-R2N).

(Packing list)

Table 1.1 Packing list

Model	Product name	Quantity
AJ65BT-R2N	AJ65BT-R2N CC-Link system RS-232 interface module	1

2. SPECIFICATIONS

2.1 General Specifications

Table 2.1 General specifications

Item	Specification			
Operating ambient temperature *Température ambiante de fonctionnement*	0 to 55℃ *0 a 55 ℃*			
Storage ambient temperature	-20 to 75℃			
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
		8.4 to 150Hz	9.8m/s^2	-	
		Under continuous vibration		
		Frequency	Constant acceleration	Half amplitude	Sweep count
		5 to 8.4Hz	-	1.75mm	-
		8.4 to 150Hz	4.9m/s^2	-	
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 [1]	0 to 2000m			
Installation location	Inside a control panel			
Overvoltage category [2]	II or less			
Pollution degree [3]	2 or less			

[1] Do not use or store the AJ65BT-R2N under pressure higher than the atmospheric pressure of altitude 0m. Doing so may cause malfunction. When using the AJ65BT-R2N under pressure, please consult your local Mitsubishi Electric representative.

*2   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.

*3   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.

2.2 Performance Specifications

Table 2.2 Performance specifications

Item		Specifications
RS-232		-
	Interface	RS-232 compliant (D-Sub 9P)
	Communication method	Full-duplex communication method
	Synchronization method	Asynchronous method
	Transmission speed	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600[*1], 115200[*1](bps) (Select with RS-232 transmission setting switches.)
	Transmission distance	Up to 15m
Data format	Start bit	1
	Data bit	7/8
	Parity bit	1 (Vertical parity)/None
	Stop bit	1/2
Error detection	Parity check	Checked (even/odd)/Not checked
	Communication control (Flow control)	DTR/DSR (ER/DR) control DC1/DC3 control
	OS reception area	5120 bytes
CC-Link		-
	CC-Link station type	Intelligent device station
	Connection cable	CC-Link dedicated cable/CC-Link high-performance cable/CC-Link Ver.1.10-compatible cable[*2]
	No. of occupied stations	1 station (RX/RY: 32 points each, RWw/RWr: 4 points each)
No. of writes to E^{2}PROM		Up to 100,000 times
Withstand voltage		One minute at 500V AC between all external DC terminals and ground
Insulation resistance		500V DC between all external DC terminals and ground, 10MΩ or more with insulation resistance tester
Noise immunity		DC type noise voltage: 500Vp-p, tested by noise simulator of noise width of 1μs and noise frequency of 25 to 60Hz
Module fixing screw		M4×0.7mm×16mm or larger DIN-rail mounting is also possible.
Applicable DIN rail		TH35-7.5Fe, TH35-7.5Al, TH35-15Fe (Compliant with IEC 60715)
External power supply		24V DC (Ripple ratio is 5% or less) (Allowable voltage range 20.4 to 26.4V DC)
		Current consumption: 0.11A (TYP. 24V DC)
Allowable momentary power failure time		1ms
External dimensions		80(H)×170(W)×47(D) [mm]
Weight		0.40kg

*1 Unless data are sent concurrently from the AJ65BT-R2N and external-device sides in Nonprocedural protocol mode, communication at 57600bps or 115200bps is available.

If data is communicated simultaneously, the RS-232 receive overrun error (BB23H) may occur.

*2 Combined use of CC-Link Ver.1.10-compatible cables, CC-Link dedicated cables (Ver.1.00) and/or CC-Link high-performance cables is not allowed. If cables of different types are used, normal data transmission cannot be ensured.

Also, terminating resistors appropriate to the cable type must be used.

2.3 CC-Link Dedicated Cable Specifications

In CC-Link systems, use CC-Link dedicated cables.
The performance of the CC-Link system cannot be guaranteed when any other than dedicated CC-Link cables is used.
For more information, visit the following website.
☞ CC-Link Partner Association (www.cc-link.org)

Remarks

Refer to the CC-Link Cable Wiring Manual issued by the CC-Link Partner Association.

2.4 RS-232 Interface Specifications

2.4.1 RS-232 connector specifications

The following describes specifications of the RS-232 connector connected to the external device.
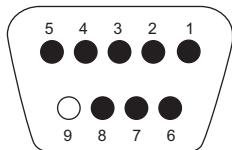

Figure 2.1 RS-232 connector(Seen from the front of the module)

Table 2.3 RS-232 connector specifications

Pin No.	Abbreviation	Signal name	Signal direction	
			AJ65BT-R2N ⟷	External device
1	CD(DCD)	Data carrier detect	←	
2	RD(RXD)	Received data	←	
3	SD(TXD)	Transmitted data	→	
4	ER(DTR)	Data terminal ready	→	
5	SG	Signal ground	←	
6	DR(DSR)	Data set ready	←	
7	RS(RTS)	Request to send	→	
8	CS(CTS)	Clear to send	←	
9	Unused	-	-	

English	French
Signal name	Nom de signal
Pin No.	Broche N°
Abbreviation	Abréviation
Signal direction	Sens du signal
External device	Appareil externe
Data carrier detect	Détection porteuse de données
Received data	Données reçues
Transmitted data	Données émises
Data terminal ready	Prêt à émettre
Signal ground	Masse signal
Data set ready	Ensemble de données prêt
Request to send	Demande d'envoi
Clear to send	Réponse à demande d'envoi
Unused	Inutilisé

Use the following model as a connector shell of the AJ65BT-R2N side connection cable.

• DDK Ltd.
 Plug, shell: 17JE-23090-02 (D8A) (-CG)

Comme enveloppe de connecteur pour le câble de connexion côté AJ65BT-R2N, utiliser le modèle suivant.
DDK Ltd.
Fiche, coque : 17JE-23090-02 (D8A) (-CG)

2.4.2 RS-232 cable specifications

Use an RS-232 cable that is compliant with the RS-232 standard, in a length of 15m or less.

(Recommended cable)
• Oki Electric Cable Co., Ltd.
 7/0.127□P HRV-SV (□:Specify the number of pairs.)

2.5 General-purpose I/O Specifications

A terminal name of the general-purpose I/O terminal block and general-purpose output specifications have been changed from hardware version B.
For products of hardware version A, refer to the following manual.
⌦ CC-Link System RS-232 Interface Module User's Manual (Nonprocedural Protocol Mode)

(1) General-purpose I/O terminal block
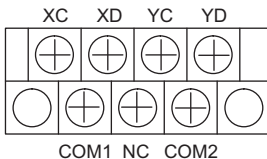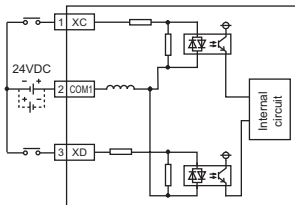The following explains the general-purpose I/O terminal block.

Figure 2.2 General-purpose I/O terminal block

Table 2.4 General-purpose input specifications

Item		DC input (Positive common/negative common shared type)	
		AJ65BT-R2N	External connection view
No. of input points		2 points	
Insulation method		Photocoupler	
Rated input voltage		24V DC (Ripple ratio is 5% or less)	
Rated input current		Approx. 7mA	
Operating voltage range		19.2 to 28.8V DC	
Max. No. of simultaneous input points		100%	
ON voltage/ON current		14V or more/3.5mA or more	
OFF voltage/OFF current		6V or less/1.7mA or less	
Input resistance		Approx. 3.3kΩ	
Response time	OFF → ON	10ms or less	
	ON → OFF	10ms or less	
Wiring method for common		2 points/common (COM1) Positive common/negative common shared type	
External connection method		7-point terminal block (M3.5 screw)	

Applicable wire size *Taille du fil à utiliser*	0.75 to 2mm² *0,75 à 2 mm²*	Terminal No.	Signal name	Terminal No.	Signal name
Applicable solderless terminal *Borne sans soudure à utiliser*	RAV1.25-3.5, RAV2-3.5 (Compliant with JIS C 2805) *RAV1.25-3.5, RAV2-3.5 (conforme à la norme JIS C 2805)*	TB1	XC	TB3	XD
		TB2	COM1	-	-

(3) General-purpose output specifications

Table 2.5 General-purpose output specifications

Item		Transistor output (Sink type)	
		AJ65BT-R2N	External connection view
No. of output points		2 points	
Insulation method		Photocoupler	
Rated load voltage		12-24V DC (+20/-15%) (Ripple ratio: 5% or less)	
Operating load voltage range		10.2 to 28.8V DC	
Max. load current		0.1A/point 0.2A/common	
Max. inrush current		0.7A, 10ms or less	
Leakage current at OFF		0.1mA or less	
Max. voltage drop at ON		0.1V DC (TYP.) 0.1A, 0.2V DC (MAX.) 0.1A	
Response time	OFF → ON	1ms or less	
	ON → OFF	1ms or less (Resistance load)	
External power supply of output section	Voltage	12-24V DC (Ripple ratio: 5% or less) (Allowable voltage range 10.2 to 28.8V DC)	
	Current	10mA (at 24V DC) (MAX all points ON)	
Surge suppressor		Zener diode	
Wiring method for common		2 points/common (COM2)	
External connection method		7-point terminal block (M3.5 screw)	
Applicable wire size *Taille du fil à utiliser*		0.75 to 2mm^2 *0,75 à 2 mm^2*	
Applicable solderless terminal *Borne sans soudure à utiliser*		RAV1.25-3.5, RAV2-3.5 (Compliant with JIS C 2805) *RAV1.25-3.5, RAV2-3.5 (conforme à la norme JIS C 2805)*	
Protective function		Provided • Overheat protective function operates in unit of 1 point. • Overload protective function operates in unit of 1 point. (Detection disabled)	

Terminal No.	Signal name	Terminal No.	Signal name
TB4	NC	TB6	COM2
TB5	YC	TB7	YD

3. IMPLEMENTATION AND INSTALLATION

3.1 Handling Precautions

> POINT
>
> For handling precautions on installation or removal of the module, read ●SAFETY PRECAUTIONS● provided at the beginning of this manual.

(1) Tighten the module installation screws within the following ranges.

Table 3.1 Screw tightening torque

Screw	Tightening toque range	Remarks
Module installation screw (M4)	0.78 to 1.18N•m	-
Terminal block terminal screw (M3.5) *Vis de borne sur plaque à bornes (M3,5)*	0.59 to 0.88N•m *0,59 à 0,88 N•m*	-
Terminal block installation screw (M4)	0.98 to 1.37N•m	-
RS-232 cable connector screw (M2.6)	0.20 to 0.39N•m	Screw hole depth: L=3.2mm or less (Internal dimension from end face)

(2) When using the DIN rail adapter, pay attention to the following.

    (a) Applicable DIN rail type (Compliant with IEC 60715)
- TH35-7.5Fe
- TH35-7.5Al
- TH35-15Fe

    (b) DIN rail installation screw pitch
    When installing a DIN rail, tighten the screws at a pitch of 200mm or less.

3.2 Installation Environment

(1) AJ65BT-R2N
For the AJ65BT-R2N installation environment, refer to the following.
    ☞ Section 2.1 General Specifications

(2) CC-Link
For the installation environment for the CC-Link system, refer to the following.
    ☞ User's Manual for the master module to be used
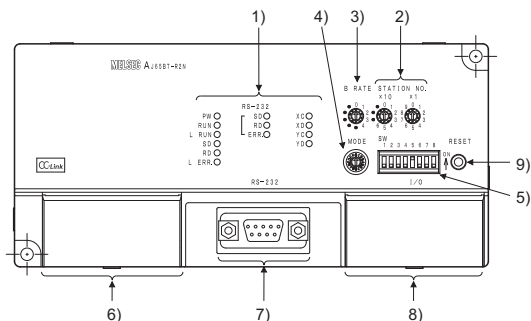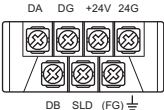
4. PART NAMES AND SETTINGS

Figure 4.1 AJ65BT-R2N outline view

Table 4.1 Part names

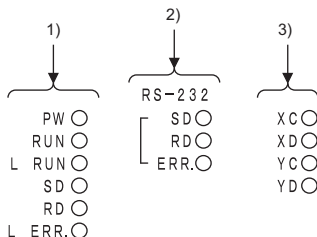| No.	Name	Description
1)	Indicator LEDs	Indicate the operating status of the AJ65BT-R2N. For details, refer to (1) in this section.
2)	Station No. setting switches	Set a station No. for the AJ65BT-R2N. (Factory default: 0) Setting range: 1 to 64 Set the tens place of the station No. with "× 10", and the ones place with "× 1".
3)	Data link transmission speed setting switch	Set the transmission speed of the AJ65BT-R2N. For details, refer to (2) in this section.
4)	Mode setting switch	Set the operation status of the AJ65BT-R2N. For details, refer to (3) in this section.
5)	RS-232 transmission setting switches	Set the RS-232 transmission specifications. For details, refer to (4) in this section.
6)	Data link terminal block	Connect a CC-Link dedicated cable for power supply and data link. (Detachable terminal block) DA DG +24V 24G DB SLD (FG)
7)	RS-232 interface	Connect an RS-232 cable for connection to an external device.
8)	General-purpose I/O terminal block	Connect input/output wires. (Detachable terminal block)
9)	Reset switch	Used to return to the power-up status.

(1) Indicator LEDs

Figure 4.2 Indicator LEDs

Table 4.2 Indicator LEDs

	LED	State	Description
1)	PW	ON	Power is ON
		OFF	Power is OFF
	RUN	ON	Operating normally
		OFF	• 24V DC power failure or watchdog timer error occurred • In MELSOFT connection mode, any of the RS-232 transmission setting switches, SW1 to SW8 is ON • Incorrect switch setting
	L RUN	ON	Communicating normally
		OFF	• Communication failure or timeout error occurred • Incorrect switch setting
	SD	ON	Data being sent by data link
		Flashing	Data being sent by data link
		OFF	Data not sent by data link
	RD	ON	Data being received by data link
		Flashing	Data being received by data link
		OFF	Data not received by data link
	L ERR.	ON	Invalid transmission speed or station No. setting
		Flashing regularly	Transmission speed or station No. setting changed after power-ON
		Flashing irregularly	• Terminating resistor not connected • AJ65BT-R2N or CC-Link dedicated cable affected by noise
		OFF	Communicating normally

Table 4.2 Indicator LEDs (Continued)

	LED	State	Description
2)	SD	ON	RS-232 data being sent
		Flashing	RS-232 data being sent
		OFF	RS-232 data not sent
	RD	ON	RS-232 data being received
		Flashing	RS-232 data being received
		OFF	RS-232 data not received
	ERR.	ON	When Nonprocedural protocol mode is active, RS-232 transmission error
		OFF	• In Nonprocedural protocol mode, normal communication • In MELSOFT connection mode, always OFF
3)	XC, XD	ON	General-purpose input (XC, XD) is ON
		OFF	General-purpose input (XC, XD) is OFF
	YC, YD	ON	General-purpose output (YC, YD) is ON
		OFF	General-purpose output (YC, YD) is OFF

(2) Data link transmission speed setting switch

B RATE

Figure 4.3 Data link transmission speed setting switch

Table 4.3 Data link transmission speed setting switch

Setting	Transmission speed
0[*1]	156kbps
1	625kbps
2	2.5Mbps
3	5Mbps
4	10Mbps
•	Use prohibited

*1 Data link transmission speed setting switch at factory default setting is 0
(156kbps).

(3) Mode setting switch

MODE

Figure 4.4 Mode setting switch

Table 4.4 Mode setting switch

Setting	Name			Description
0[*1]	Nonprocedural protocol mode	For send/ receive buffer communication function	Mode 0	Communications are performed in Nonprocedural protocol mode. Set this when using the send/receive buffer communication function.
1		For buffer memory auto-refresh function	Mode 1	Communications are performed in Nonprocedural protocol mode. Set this when using the buffer memory auto-refresh function.
2			Mode 2	
3			Mode 3	
4			Mode 4	
5	MELSOFT connection mode			Used for communications with GX Developer.
6	Use prohibited			Setting error (RUN LED OFF)
7				
8				
9				
A				
B				Use prohibited
C				
D	Hardware test mode			Set this when conducting a hardware test.
E	Use prohibited			Setting error (RUN LED OFF)
F				

*1 Mode setting switch at factory default setting is 0 (Nonprocedural protocol mode).
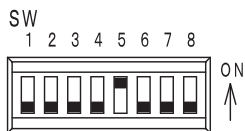
(4) RS-232 transmission setting switches

Figure 4.5 RS-232 transmission setting switches

Table 4.5 RS-232 transmission setting switches

Switch No.	Setting item	Switch status		Factory default setting
		ON	OFF	
SW1	Transmission speed	For details, refer to Table 4.6.		OFF
SW2				
SW3				
SW4				
SW5	Data bit length	8	7	ON
SW6	Parity bit	Present	None	OFF
SW7		Even	Odd	
SW8	Stop bit length	2	1	

Table 4.6 RS-232 transmission setting switches (SW1 to SW4)

Setting item		Switch No.			
		SW1	SW2	SW3	SW4
Transmission speed	300bps	OFF	OFF	OFF	OFF
	600bps	ON	OFF	OFF	OFF
	1200bps	OFF	ON	OFF	OFF
	2400bps	ON	ON	OFF	OFF
	4800bps	OFF	OFF	ON	OFF
	9600bps	ON	OFF	ON	OFF
	19200bps	OFF	ON	ON	OFF
	38400bps	ON	ON	ON	OFF
	57600bps	OFF	OFF	OFF	ON
	115200bps	ON	OFF	OFF	ON

POINT	

(1) When MELSOFT connection mode is used, turn OFF SW1 to SW8.
   If any of SW1 to SW8 is ON, the setting error (RUN LED is OFF) may occur.

(2) Unless data are sent concurrently from the AJ65BT-R2N and external-device sides in Nonprocedural protocol mode, communication at 57600bps or 115200bps is available.
   If data is communicated simultaneously, the RS-232 receive overrun error (BB23$_H$) may occur.

5. WIRING

5.1 CC-Link Dedicated Cable Connection Method

Méthode de raccordement par câble dédié CC-Link

The following shows how to connect the AJ65BT-R2N to a master module and a remote module with CC-Link dedicated cables.
Le schéma ci-dessous explique comment connecter un AJ65BT-R2N à un module maître et à un module distant au moyen de câbles dédiées CC-Link.
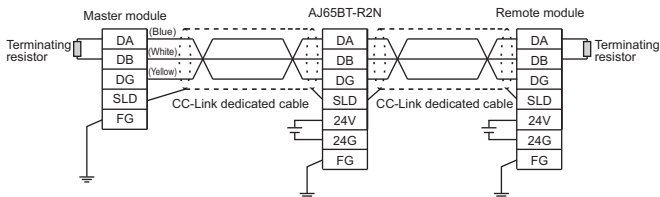

Figure 5.1 Connection between AJ65BT-R2N and master module

English	*French*
Master module	*Module maître*
Remote module	*Module distant*
Terminating resistor	*Résistance d'extrémité*
Blue	*bleu*
White	*blanc*
Yellow	*jaune*
CC-Link dedicated cable	*Câble dédié pour CC-Link*
Figure 5.1 Connection between AJ65BT-R2N and master module	*Figure 5.1 Raccordement entre AJ65BT-R2N et module maître*

| POINT |
| *POINT* |

Be sure to connect terminating resistors, which are supplied with the
master module, to modules on both ends of the data link network.
(Connect it between DA and DB.)
*Toujours raccorder les "résistances terminales" fournies avec le
module maîtres aux modules des deux extrémités de la liaison de
données. (Faire le raccordement entre DA et DB.)*

5.2 External Device Connection Method

(1) Connection examples

The AJ65BT-R2N cannot use the CD signal as the control signal for sending/receiving data to/from the external device.

Wire the CD signal line of the AJ65BT-R2N and external device as shown in Table 5.1.

(a) Connection example where DC code control and DTR/DSR (ER/DR) control are executable

Table 5.1 DC code control and DTR/DSR (ER/DR) control

AJ65BT-R2N side (DTE)		Cable connection and signaling	External device (DTE)
Signal name	Pin No.		Signal name
SD	3		SD
RD	2		RD
RS	7		RS
CS	8		CS
DR	6		DR
SG	5		SG
CD	1		CD
ER	4		ER

(b) Connection example only DC code control is executable

Table 5.2 Connection example only DC code control is executable

AJ65BT-R2N side (DTE)		Cable connection and signaling	External device (DTE)
Signal name	Pin No.		Signal name
SD	3		SD
RD	2		RD
RS	7		RS
CS	8		CS
DR	6		DR
SG	5		SG
CD	1		CD
ER	4		ER

(2) Precautions for connection

(a) Connect the FG signal line and shield of the RS-232 cable as follows:

Table 5.3 Precautions for connection

RS-232 cable	Connection method	Remarks
FG signal	Connected to the screw clamp of the AJ65BT-R2N side connector.	• Do not short-circuit the FG and SG signal lines of the RS-232 cable.
Shield	Connected to the screw clamp of the AJ65BT-R2N side connector. (Not connected to external device)	• If the FG and SG signal lines are connected inside the external-device side, do not connect the FG signal line on the AJ65BT-R2N side to the external device.

(b) When data communication cannot be performed normally due to external noise, connect the wires as follows:

1) Connect the FG terminals of both stations with the shield of the RS-232 cable.
For the external device side, refer to the handling instructions for the external device.

2) Each signal line (except for SG) must be twisted with the SG signal line.

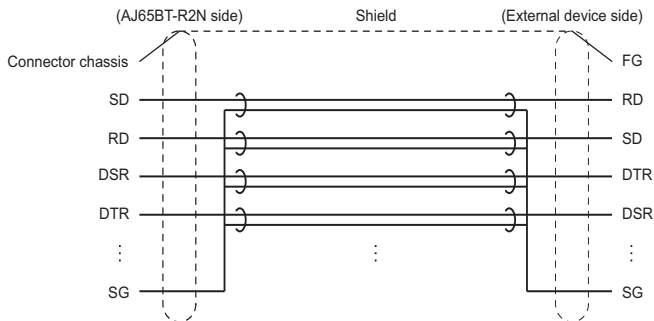3) FG of the AJ65BT-R2N is connected to the screw clamp of the connector, acting as FG of the module.

Figure 5.2 Precautions for connection

(c) Do not connect an RS-422 device to the RS-232 interface. Doing so will damage the RS-422 interface of the connected device, resulting in communication failure.
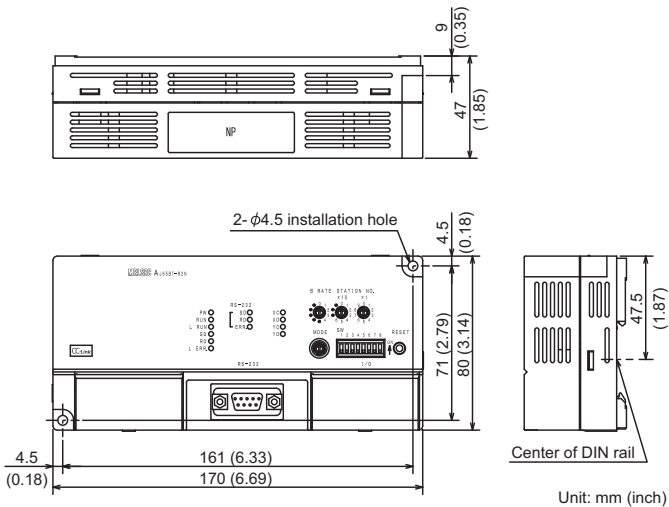
6. EXTERNAL DIMENSIONS

Figure 6.1 External dimensions

Unit: mm (inch)

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
USA	MITSUBISHI ELECTRIC AUTOMATION, INC. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A. Tel : +1-847-478-2100
Mexico	MITSUBISHI ELECTRIC AUTOMATION, INC. Mexico Branch Mariano Escobedo #69, Col. Zona Industrial, Tlalnepantla Edo. Mexico, C.P.54030 Tel : +52-55-3067-7500
Brazil	MITSUBISHI ELECTRIC DO BRASIL COMÉRCIO E SERVIÇOS LTDA. Avenida Adelino Cardana, 293, 21 andar, Bethaville, Barueri SP, Brazil Tel : +55-11-4689-3000
Germany	MITSUBISHI ELECTRIC EUROPE B.V. German Branch Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany Tel : +49-2102-486-0
UK	MITSUBISHI ELECTRIC EUROPE B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, U.K. Tel : +44-1707-28-8780
Ireland	MITSUBISHI ELECTRIC EUROPE B.V. Irish Branch Westgate Business Park, Ballymount, Dublin 24, Ireland Tel : +353-1-4198800
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
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
France	MITSUBISHI ELECTRIC EUROPE B.V. French Branch 25, Boulevard des Bouvets, 92741 Nanterre Cedex, France Tel : +33-1-55-68-55-68
Czech Republic	MITSUBISHI ELECTRIC EUROPE B.V. Czech Branch Avenir Business Park, Radlicka 751/113e, 158 00 Praha5, Czech Republic Tel : +420-251-551-470
Poland	MITSUBISHI ELECTRIC EUROPE B.V. Polish Branch ul. Krakowska 50, 32-083 Balice, Poland Tel : +48-12-347-65-00
Sweden	MITSUBISHI ELECTRIC EUROPE B.V. (Scandinavia) Fjelievägen 8, SE-22736 Lund, Sweden Tel : +46-8-625-10-00
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
Turkey	MITSUBISHI ELECTRIC TURKEY A.Ş Ümraniye Branch Serifali Mahallesi Nutuk Sokak No:5, TR-34775 Umraniye/Istanbul, Turkey Tel : +90-216-526-3990
UAE	MITSUBISHI ELECTRIC EUROPE B.V. Dubai Branch Dubai Silicon Oasis, P.O.BOX 341241, Dubai, U.A.E. Tel : +971-4-3724716
South Africa	ADROIT TECHNOLOGIES 20 Waterford Office Park, 189 Witkoppen Road, Fourways, South Africa Tel : +27-11-658-8100
China	MITSUBISHI ELECTRIC AUTOMATION (CHINA) LTD. No.1386 Hongqiao Road, Mitsubishi Electric Automation Center, Shanghai, China Tel : +86-21-2322-3030
Taiwan	SETSUYO ENTERPRISE CO., LTD. 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan Tel : +886-2-2299-2499
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
Singapore	MITSUBISHI ELECTRIC ASIA PTE. LTD. 307, Alexandra Road, Mitsubishi Electric Building, Singapore 159943 Tel : +65-6473-2308
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 Bangpongpang, Khet Yannawa, Bangkok 10120, Thailand Tel : +66-2682-6522
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
Indonesia	PT. MITSUBISHI ELECTRIC INDONESIA Gedung Jaya 11th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia Tel : +62-21-3192-6461
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
Australia	MITSUBISHI ELECTRIC AUSTRALIA PTY. LTD. 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W 2116, Australia Tel : +61-2-9684-7777

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.