

BCN-PS999-0854-C(2002)MEE

NZ2MFB1-32TE1

Before Using the Product

Please read this document before use. Keep the document in a safe place for future reference. Make sure that the end users read the document.

SAFETY PRECAUTIONS

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly. The precautions given in this manual are concerned with this product only. For the safety precautions of the programmable controller system, refer to the user's manual for the CPU module used. In this manual, the safety precautions are classified into two levels: "▲ WARNING" and "▲ CAUTION".

▲ WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
▲ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "▲ CAUTION" may lead to serious consequences. Observe the precautions of both levels because they are important for personal and system safety. Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

▲ WARNING

- When a communication failure occurs in the network, data in the CPU module on the master station are held. Check the data link status of each station stored in the special register (SD) and configure an interlock circuit in the program to ensure that the entire system will operate safely.
- When the module is disconnected due to a communication failure in the network or the CPU module is in the STOP state, all outputs are held or turned off according to the function setting switch setting. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even in such a case. If not, an accident may occur due to an incorrect output or malfunction.
- Outputs may remain on or off due to a failure of the module. Configure an external circuit for monitoring output signals that could cause a serious accident.
- Do not use any "use prohibited" signals as a remote input or output signal. These signals are reserved for system use. Do not write any data to the "use prohibited" area in the remote register. If these operations are performed, an accident may occur due to an incorrect output or malfunction.
- To maintain the safety of the programmable controller system against unauthorized access from external devices via the network, take appropriate measures. To maintain the safety against unauthorized access via the Internet, take measures such as installing a firewall.

[Design Precautions]

▲ CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- During control of an inductive load such as a lamp, heater, or solenoid valve, a large current (approximately ten times greater than normal) may flow when the output is turned from off to on. Therefore, use a module that has a sufficient current rating.

[Installation Precautions]

▲ WARNING

- Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may result in electric shock or cause the module to fail or malfunction.

[Installation Precautions]

▲ CAUTION

- Use the module in an environment that meets the general specifications in the user's manual for the module. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- Do not directly touch any conductive parts and electronic components of the module. Doing so can cause malfunction or failure of the module.
- Securely connect the cable connectors. Poor contact may cause malfunction.

[Wiring Precautions]

▲ WARNING

- Shut off the external power supply (all phases) used in the system before wiring. Failure to do so may result in electric shock or cause the module to fail or malfunction.

[Wiring Precautions]

▲ CAUTION

- Individually ground the FG terminal of the programmable controller with a ground resistance of 100W or less. Failure to do so may result in electric shock or malfunction.
- Tighten any unused terminal screws within the specified torque range. Underlightening may cause a short circuit due to contact with a solderless terminal.
- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when a terminal block screw comes loose, resulting in failure.
- Check the rated voltage and terminal layout before wiring to the module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
- Tighten the terminal block screws within the specified torque range. Underlightening can cause short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.
- Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.
- Place the cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
- When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- When an overcurrent caused by an error of an external device or a failure of the programmable controller flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.
- Mitsubishi programmable controllers must be installed in control panels. Wiring and replacement of a module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring methods, refer to "INSTALLATION AND WIRING" in the user's manual for the module.

[Startup and Maintenance Precautions]

▲ WARNING

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
 - Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal block screws and connector screws. Failure to do so may cause the module to fail or malfunction.
- [Startup and Maintenance Precautions]**
- ▲ CAUTION**
- Do not disassemble or modify the module. Doing so may cause failure, malfunction, injury, or a fire.
 - Do not drop or apply strong shock to the module. Doing so may damage the module.
 - Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may cause the module to fail or malfunction.
 - After the first use of the product, do not connect/remove the terminal block more than 50 times (IEC 61131-2 compliant). Exceeding the limit may cause malfunction.
 - Before handling the module or the cable to be connected to 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.
 - Startup and maintenance of a control panel must be performed by qualified maintenance personnel with knowledge of protection against electric shock. Lock the control panel so that only qualified maintenance personnel can operate it.

[Disposal Precautions]

▲ CAUTION

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

SAFETY PRECAUTIONS

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.

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

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

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

[Précautions lors de la conception]

▲ AVERTISSEMENT

- En cas de mauvaise communication dans le réseau, les données dans le module CPU sont gardées en mémoire par la station maître. Vérifier l'état de la liaison en données sur chaque station enregistrées dans le registre spécial (SD) et constituer un circuit de verrouillage dans le programme pour garantir la sécurité de fonctionnement de l'ensemble du système.**
- Quand le module se trouve déconnecté suite à un problème de communication dans le réseau ou quand le module CPU/entre à l'état STOP, toutes les sorties peuvent être maintenues ou désactivées, ce qui dépend du paramétrage de commutateur de réglage de foncton. Constituer un circuit de verrouillage dans le programme pour garantir toujours la sécurité de fonctionnement de l'ensemble du système même dans ce cas. Faute de quoi, une sortie erronée ou un dysfonctionnement pourrait être à l'origine d'un accident.**
- Selon la nature de la panne du module, les sorties peuvent rester activées ou désactivées. Contre des mesures de surveillance sur l'état STOP, toutes les sorties signales de sortie susceptibles de provoquer un accident grave.**
- Comme signal d'entrée ou de sortie distante, il ne faut utiliser aucun des signaux dont l'usage est interdit ("use prohibited"). L'usage de ces signaux est réservé au système. N'inscrire aucune données dans les zones du registre distant marquées "use prohibited". Si ces opérations sont effectuées, une sortie erronée ou un dysfonctionnement pourrait être à l'origine d'un accident.**
- Prendre les mesures appropriées pour maintenir la sécurité sur le système de l'automate programmable en cas d'accès non autorisé d'un dispositif externe via le réseau. Pour maintenir la sécurité en cas d'accès via Internet, prendre des mesures adéquates du genre coupe-feu.**

[Précautions lors de la conception]

▲ ATTENTION

- Ne pas entremêler les lignes de commandes ou câbles de communication avec les lignes des circuits principaux ou les câbles d'alimentation. Les installer en maintenant entre eux une distance minimum de 100mm. Faute de quoi, il y a risque de dysfonctionnement par un bruit.**
 - À la commande d'une charge inductive comme une lampe, un réchauffeur ou une électrovanne, un fort courant (jusqu'à 10 fois l'intensité normale) traverse la sortie quand celle-ci passe de OFF à ON. Il faut donc que le module utilisé ait une capacité de courant suffisante.**
- [Précautions d'installation]**
- ▲ AVERTISSEMENT**
- Couper l'alimentation externe du système (sur toutes les phases) avant de mettre en place ou de retirer un module. Faute de quoi, il y a risque d'électrocution et le module risque de tomber en panne ou de mal fonctionner.**
- [Précautions d'installation]**
- ▲ ATTENTION**
- Utiliser le module dans un environnement en conformité avec les spécifications générales que présente son Manuel de survelliance sur. Faute de quoi, il a risque d'électrocution, de départ de feu, de dysfonctionnement, d'endommagement ou de détérioration du produit.**
 - Éviter tout contact direct avec les parties conductrices et les composants électroniques du module. Une manipulation incorrecte peut être à l'origine de dysfonctionnements ou de pannes du module.**
 - Raccorder fermement les connecteurs des câbles. Tout mauvais contact peut être source de dysfonctionnements.**

[Précautions de câblage]

▲ AVERTISSEMENT

- Avant le câblage, couper l'alimentation externe du système (sur toutes les phases). Faute de quoi, il y a risque d'électrocution et le module risque de tomber en panne ou de mal fonctionner.

CONDITIONS OF USE FOR THE PRODUCT

- 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.
- 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.

1. Relevant manuals

Details of the product are also described in the manual shown below (sold separately). Please read the manual and understand the functions and performance of the product to use it correctly.

- CC-Link IE Field Network Basic Remote I/O Module User's Manual SH-081763ENG (13JX73)

2. Packing list

Check that the following items are included in the package.

Item	Quantity
Module	1
"Before Using the Product" (this document)	1

3. Operating ambient temperature

Use the module in the ambient temperatures of 0 to 55°C.

3. Température ambiante de fonctionnement

Utiliser le module avec une température ambiante entre 0 et 55°C.

4. Wiring

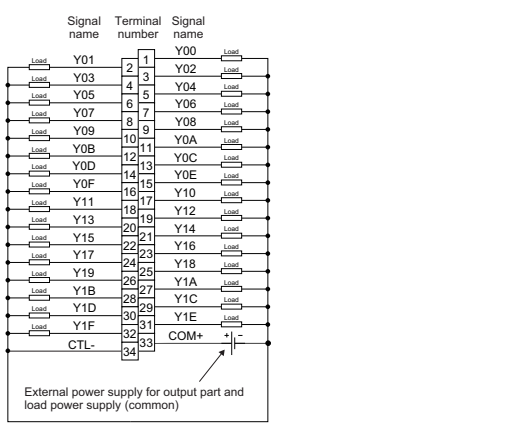
Câblage

4.1 Wiring diagrams

Schémas de câblage

Wiring to an output terminal block

Câblage à une plaque à bornes de sortie



English	French
Signal name	<i>Nom de signal</i>
Terminal number	<i>Borne N°</i>
External power supply for output part and load power supply (common)	<i>Alimentation externe pour section sortie et alimentation de charge (communes)</i>

Wiring to a module power supply

Câblage à l'alimentation du module



4.2 Wiring products

Produits pour câblage

Wiring of Ethernet cables

For the cables to be connected to the Ethernet ports, refer to the manual described in 1. Relevant manuals.

Câblage pour câbles Ethernet

À propos des câbles de raccordement aux ports Ethernet, voir le manuel indiqué en section 1. Manuels correspondants.

Wiring to an output terminal block

The table below shows applicable solderless terminals connected to the terminal block. When wiring, use applicable wires and an appropriate tightening torque. Use UL listed solderless terminals and, for processing, use a tool recommended by their manufacturer.

Solderless terminal	Wire	Diameter	Type	Material	Temperature rating
RAV1-2S-3	0.59 to 0.88N·m	22 to 14 AWG	Stranded	Copper	75°C or more
V2-MS3					
RAP2-3SL					
TGV2-3N					

Câblage à une plaque à bornes de sortie

Le tableau ci-dessous indique quelles bornes sans soudure on doit utiliser pour les raccordements sur la plaque à bornes. Pour le câblage, utiliser les fils et couples de serrage prescrits. Utiliser les bornes sans soudure répertoriées par UL et, pour le montage, utiliser l'outil recommandé par le fabricant de ces bornes.

Borne sans soudure	Fil	Diamètre	Type	Matériau	Gamme de température
RAV1-2S-3	0.59 à 0.88N·m	22 à 14 AWG	Torsadé	Cuivre	75°C ou plus
V2-MS3					
RAP2-3SL					
TGV2-3N					

Wiring to a module power supply

The table below shows applicable bar solderless terminals connected to the terminal block. When wiring, use applicable wires. Use UL listed bar solderless terminals and, for processing, use a tool recommended by their manufacturer.

Solderless terminal	Wire	Diameter	Type	Material	Temperature rating
TE 0.5-8, TE 0.5-10		22 to 16 AWG	Stranded	Copper	75°C or more