NZ2GFCE3-32T

BCN-P5999-0478-A(1504)MEE

Before Using the Product

●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.

⚠ 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.*

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

[Design Precautions]

⚠ WARNING

- In the case of a communication failure in the network, data in the master module are held. Check Data link status (each station) (SW00B0 to SW00B7) 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 status, all outputs are held or turned off according to the parameter 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, correct operation of the module cannot be guaranteed.

⚠ 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.

⚠ 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 fix the module with a DIN rail.
- After the first use of the product (extension module), the number of connections/disconnections is limited to 50 times (IEC 61131-2 compliant).
- To connect an extension module to a main module, engage the respective connectors and securely lock the module joint levers. Incorrect connection may cause malfunction, failure, or drop of the module.
- Securely connect the cable connectors. Poor contact may cause malfunction.
- After the first use of the product (connector), the number of connections/disconnections is limited to 50 times (IEC 61131-2 compliant).

[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.

⚠ CAUTION

- Individually ground the FG terminal of the programmable controller with a ground resistance of 100Ω or less. Failure to do so may result in electric shock or malfunction.

⚠ CAUTION

- 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.
- 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

- 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.

⚠ 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 (connector), the number of connections/disconnections is limited to 50 times (IEC 61131-2 compliant).
- 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.

[Précautions lors de la conception]

⚠ AVERTISSEMENT

- *En cas de problème de communication dans le réseau, les données sont gardées en mémoire du module maître. Vérifier l'état de la liaison de données (sur chaque station) (SW00B0 à SW00B7) et constituer dans le programme séquentiel un circuit de verrouillage permettant de 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 entrées peuvent être maintenues ou désactivées, ce qui dépend du paramétrage. Pour cette éventualité, constituer dans le programme un circuit de verrouillage permettant de garantir la sécurité de fonctionnement de l'ensemble du système. Faute de quoi, un 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. Configurer un circuit de surveillance externe pour le suivi des signaux 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 restrictions ne sont pas respectées, le bon fonctionnement du module ne peut être garanti.*

⚠ 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 le 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.*

⚠ ATTENTION

- *Utiliser le module dans un environnement en conformité avec les spécifications générales que présente son Manuel de l'utilisateur. 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.*

⚠ ATTENTION

- *Fixer fermement le module sur un rail DIN.*
- *Après la première mise en service du produit, le nombre maximum admissible d'opérations de connexion/déconnexion est de 50 (selon IEC 61131-2).*
- *Pour raccorder un module d'extension au module principal, enficher les connecteurs respectifs et engager les loquets de module jusqu'à encliquètement. Une fixation imparfaite peut être à l'origine de dysfonctionnements ou pannes et de chute du module.*
- *Raccorder fermement les connecteurs des câbles. Tout mauvais contact peut être source de dysfonctionnements.*
- *Après la première mise en service du produit (connecteur), le nombre maximum admissible d'opérations de connexion/déconnexion est de 50 (selon IEC 61131-2).*

[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.*

⚠ ATTENTION

- *Mettre à la terre individuellement la borne FG de l'automate programmable avec une résistance de terre inférieure à 100Ω. Faute de quoi, il y a risque d'électrocution et de dysfonctionnement.*
- *Vérifier la tension nominale et l'affectation des bornes avant le câblage du module et raccorder les câbles correctement. Le raccordement d'une alimentation d'une tension autre que la tension nominale ou une erreur de câblage peut être à l'origine d'un départ de feu ou d'une panne.*
- *Veiller à ne pas laisser la poussière, les copeaux métalliques ou d'autres corps étrangers pénétrer dans le module. De telles corps étrangers peuvent être à l'origine d'un départ de feu, d'une panne ou d'un dysfonctionnement.*
- *Les câbles doivent être placés dans un conduit de câbles ou doivent être attachés. Faute de quoi, le ballottement ou le déplacement des câbles pourrait endommager le module ou les câbles et être à l'origine de dysfonctionnements par mauvais contact.*
- *Ne pas entremêler les lignes de commandes ou câbles de communication avec les lignes des circuits principaux ou les câbles d'alimentation. Les installer en maintenant entre eux une distance minimum de 100mm. Faute de quoi, il y a risque de dysfonctionnement par le bruit.*
- *Pour débrancher le câble du module, ne tirer directement sur le câble proprement dit. Pour les câbles avec connecteur, saisir le câble par le connecteur. Pour un câble raccordé sur une plaque à bornes, desserrer la vis de la borne. Tirer sur un câble raccordé au module peut endommager le câble ou le module et être à l'origine de dysfonctionnements.*
- *Une surintensité produite par une erreur dans un dispositif externe ou suite à une panne d'automate programmable peut, si elle se prolonge, être à l'origine d'un dégagement de fumée ou d'un départ de feu. Pour éviter cela, il faut configurer un circuit de sécurité, avec un fusible par exemple.*
- *Les automates programmable Mitsubishi doivent être installés en tableau ou armoire de commande. Le câblage et le remplacement doivent être effectués par un personnel d'entretien qualifié et formé à la protection contre les risques d'électrocution. Pour les méthodes de câblage, voir "INSTALLATION ET CÂBLAGE" dans le manuel de l'utilisateur du module.*

[Précautions de mise en service et de maintenance]

⚠ AVERTISSEMENT

- *Couper l'alimentation externe (sur toutes phases) utilisée par le système avant le nettoyage du module ou le resserrage des vis des bornes et des vis des connecteurs. Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.*

⚠ ATTENTION

- *Ne pas démonter ni modifier le module. Cela pourrait entraîner des pannes ou dysfonctionnements et être à l'origine de blessures ou de départs de feu.*
- *Ne pas faire tomber le module et ne pas le soumettre à des chocs. Cela risquerait d'endommager le module.*
- *Couper l'alimentation externe du système (sur toutes les phases) avant de mettre en place ou de retirer un module. Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.*
- *Après la première mise en service du produit (connecteur), le nombre maximum admissible d'opérations de connexion/déconnexion est de 50 (selon IEC 61131-2).*
- *Avant de manipuler le module ou le câble à raccorder au module, se débarrasser de la charge électrostatique qu'accumule le corps humain en touchant un objet conducteur comme une barre de mise à la terre. Le non-respect de cette précaution peut être à l'origine de pannes ou de dysfonctionnements du module.*
- *La mise en service et la maintenance des tableaux de commande doivent être effectuées par un personnel de maintenance qualifié et formé à la protection contre les chocs électriques. Les tableaux de commande doivent être fermés à clef pour n'être accessibles qu'à un personnel de maintenance qualifié.*

[Précautions de mise au rebut]

⚠ ATTENTION

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

●CONDITIONS OF USE FOR THE PRODUCT●

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
 i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
 ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.
(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application") Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

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

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 Remote I/O Module User's Manual SH-081114ENG (13JZ82)

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.

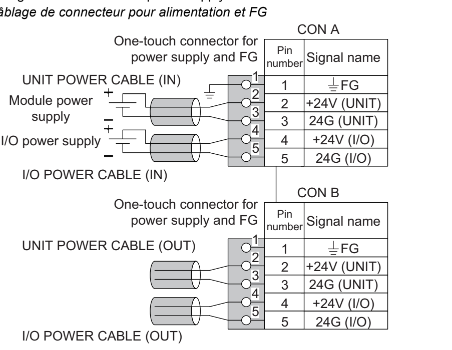
4. Wiring

Câblage

4.1 Wiring diagrams

Schémas de câblage

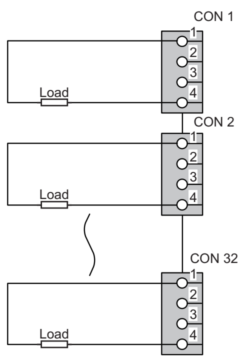
(1) Wiring of the connector for power supply and FG
Câblage de connecteur pour alimentation et FG



English	*French*
One-touch connector for power supply and FG	*Connecteur instantané pour alimentation et FG*
UNIT POWER CABLE (IN)	*CÂBLE D'ALIMENTATION D'UNITÉ (IN)*
Module power supply	*Alimentation de module*
I/O power supply	*Alimentation des entrées/sorties*
I/O POWER CABLE (IN)	*CÂBLE D'ALIMENTATION DES ENTRÉES/SORTIES (IN)*
Pin number	*Broche N°*
Signal name	*Nom de signal*

(2) Wiring of the connector for output
Câblage du connecteur pour sorties

English	*French*
Load	*Charge*



Pin No.		Signal name	Pin No.		Signal name	Pin No.		Signal name	Pin No.		Signal name	Pin No.		Signal name
CON 1 (Y0)	1	+24V	CON 8 (Y7)	1	+24V	CON 15 (YE)	1	+24V	CON 22 (Y15)	1	+24V	CON 29 (Y1C)	1	+24V
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		2	NC*1
	3	24G		3	24G		3	24G		3	24G		3	24G
	4	Y0		4	Y7		4	YE		4	Y15		4	Y1C
CON 2 (Y1)	1	+24V	CON 9 (Y8)	1	+24V	CON 16 (YF)	1	+24V	CON 23 (Y16)	1	+24V	CON 30 (Y1D)	1	+24V
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		2	NC*1
	3	24G		3	24G		3	24G		3	24G		3	24G
	4	Y1		4	Y8		4	YF		4	Y16		4	Y1D
CON 3 (Y2)	1	+24V	CON 10 (Y9)	1	+24V	CON 17 (Y10)	1	+24V	CON 24 (Y17)	1	+24V	CON 31 (Y1E)	1	+24V
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		2	NC*1
	3	24G		3	24G		3	24G		3	24G		3	24G
	4	Y2		4	Y9		4	Y10		4	Y17		4	Y1E
CON 4 (Y3)	1	+24V	CON 11 (YA)	1	+24V	CON 18 (Y11)	1	+24V	CON 25 (Y18)	1	+24V	CON 32 (Y1F)	1	+24V
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		2	NC*1
	3	24G		3	24G		3	24G		3	24G		3	24G
	4	Y3		4	YA		4	Y11		4	Y18		4	Y1F
CON 5 (Y4)	1	+24V	CON 12 (YB)	1	+24V	CON 19 (Y12)	1	+24V	CON 26 (Y19)	1	+24V	-	-	-
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		-	-
	3	24G		3	24G		3	24G		3	24G		-	-
	4	Y4		4	YB		4	Y12		4	Y19		-	-
CON 6 (Y5)	1	+24V	CON 13 (YC)	1	+24V	CON 20 (Y13)	1	+24V	CON 27 (Y1A)	1	+24V	-	-	-
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		-	-
	3	24G		3	24G		3	24G		3	24G		-	-
	4	Y5		4	YC		4	Y13		4	Y1A		-	-
CON 7 (Y6)	1	+24V	CON 14 (YD)	1	+24V	CON 21 (Y14)	1	+24V	CON 28 (Y1B)	1	+24V	-	-	-
	2	NC*1		2	NC*1		2	NC*1		2	NC*1		-	-
	3	24G		3	24G		3	24G		3	24G		-	-
	4	Y6		4	YD		4	Y14		4	Y1B		-	-

English	*French*	English	*French*
Pin No.	*Broche N°*	Signal name	*Nom de signal*

*1 All the pin 2 of CON 1 to CON 32 cannot be used because they are internally connected.
**1 Aucune des broches 2 de CON 1 à CON 32 ne peut être utilisée car elles sont toutes connectées à l'intérieur.*

4.2 Wiring products

Produits pour câblage

(1) CC-Link IE Field Network
Réseau de terrain CC-Link IE

The following table shows applicable cables to connect to the CC-Link IE Field Network port. Use the cables that meet the standards of IEEE 802.3 1000BASE-T.
Le tableau ci-dessous indique quels câbles peuvent être utilisés pour le raccordement au port du réseau de terrain CC-Link IE. Utiliser des câbles conformes aux normes IEEE 802.3 1000BASE-T.

Name *Nom*	Connector *Connecteur*	Cable *Câble*	Category *Catégorie*
1000BASE-T *1000BASE-T*	RJ45 *RJ45*	Straight cable (Double shielded/STP) *Câble simple (Double blindé/STP)*	5e or higher *5e ou plus*

(2) Wiring of the connector for power supply and FG
Câblage de connecteur pour alimentation et FG
The following table lists applicable connectors for power supply and FG. When wiring, use applicable wires.
Le tableau ci-dessous indique quels connecteurs peuvent être utilisés pour alimentation et FG. Pour le câblage, utiliser les fils prescrits.

Model *Modèle*	Applicable cable *Câbles à utiliser*				
	Core size *Taille d'âme*	Diameter *Diamètre*	Type *Type*	Material *Matériau*	Temperature rating *Gamme de température*
A6CON-PW5P *A6CON-PW5P*	18 AWG *18 AWG*	Φ 2.2 to 3.0 *Φ 2,2 à 3,0*	Stranded *Torsadé*	Copper *Cuivre*	75°C or more *75°C ou plus*
A6CON-PW5P-SOD *A6CON-PW5P-SOD*	18 AWG *18 AWG*	Φ 2.0 to 2.3 *Φ 2,0 à 2,3*	Stranded *Torsadé*	Copper *Cuivre*	75°C or more *75°C ou plus*

(3) Wiring of the connector for output
A sensor connector (e-CON) is adopted for the connector for output. Use the applicable connector plug and wires for the sensor connector (e-CON). For the recommended products, refer to the manual listed in "Relevant manuals".

(3) Câblage du connecteur pour sorties
Comme connecteur d'entrée, on a adopté un connecteur de capteur (e-CON). Utiliser la prise de connecteur et les fils prescrits pour connecteur de capteur (e-CON). Pour les produits recommandés, se reporter au manuel cité à la rubriques "Relevant manuals" (Manuels correspondants).

5. EMC and Low Voltage Directives

Compliance to the EMC Directive, which is one of the EU Directives, has been a legal obligation for the products sold in European countries since 1996 as well as the Low Voltage Directive since 1997.

Manufacturers who recognize their products are compliant to the EMC and Low Voltage Directives are required to attach a "CE mark" on their products.

(1) Sales representative in EU member states
Authorized representative in EU member states is shown below.
Name: Mitsubishi Electric Europe BV
Address: Gothaer Strasse 8, 40880 Ratingen, Germany

5.1 Measures to Comply with the EMC Directive

The EMC Directive specifies that "products placed on the market must be so constructed that they do not cause excessive electromagnetic interference (emissions) and are not unduly affected by electromagnetic interference (immunity)". This section summarizes the precautions on compliance with the EMC Directive of the machinery constructed with the module.

These precautions are based on the requirements and the standards of the regulation, however, it does not guarantee that the entire machinery constructed according to the descriptions will comply with abovementioned directives.

The method and judgement for complying with the EMC Directive must be determined by the person who constructs the entire machinery.

(1) EMC Directive related standards
(a) Emission requirements

Specification	Test item	Test details	Standard value
EN61131-2: 2007	CISPR16-2-3 Radiated emission*2	Radio waves from the product are measured.	• 30M-230MHz QP: 40dBμV/m (10m in measurement range)*1 • 230M-1000MHz QP: 47dBμV/m (10m in measurement range)
	CISPR16-2-1, CISPR16-1-2 Conducted emission*2	Noise from the product to the power line is measured.	• 150k-500kHz QP: 79dB, Mean: 66dB*1 • 500k-30MHz QP: 73dB, Mean: 60dB

*1 QP: Quasi-peak value, Mean: Average value
*2 The module is an open type device (a device designed to be housed in other equipment) and must be installed inside a conductive control panel. The tests were conducted with the module installed in a control panel.

(b) Immunity requirements

Specification	Test item	Test details	Standard value
EN61131-2: 2007	EN61000-4-2 Electrostatic discharge immunity*1	Immunity test in which electrostatic is applied to the cabinet of the equipment.	• 8kV Air discharge • 4kV Contact discharge
	EN61000-4-3 Radiated, radio-frequency, electromagnetic field immunity*1	Immunity test in which electric fields are irradiated to the product.	80% AM modulation@1kHz • 80M-1000MHz: 10V/m • 1.4G-2.0GHz: 3V/m • 2.0G-2.7GHz: 1V/m
	EN61000-4-4 Electrical fast transient/burst immunity*1	Immunity test in which burst noise is applied to the power line and signal line.	• AC/DC main power, I/O power, AC I/O (unshielded): 2kV • DC I/O, analog, communication: 1kV
	EN61000-4-5 Surge immunity*1	Immunity test in which lightning surge is applied to the power line and signal line.	• AC power line, AC I/O power, AC I/O (unshielded): 2kV CM, 1kV DM • DC power line, DC I/O power: 0.5kV CM, DM • DC I/O, AC I/O (shielded), analog*2, communication: 1kV CM
	EN61000-4-6 Immunity to conducted disturbances, induced by radio-frequency fields*1	Immunity test in which high frequency noise is applied to the power line and signal line	0.15M-80MHz, 80% AM modulation @1kHz, 10Vrms
	EN61000-4-8 Power-frequency magnetic field immunity*1	Immunity test in which the product is installed in inductive magnetic field	50Hz/60Hz, 30A/m
EN61131-2: 2007	EN61000-4-11 Voltage dips and interruption immunity*1	Immunity test in which power supply voltage is momentarily interrupted	• Apply at 0%, 0.5 cycles and zero-cross point • 0%, 250/300 cycles (50/60Hz) • 40%, 10/12 cycles (50/60Hz) • 70%, 25/30 cycles (50/60Hz)

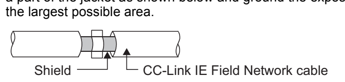
*1 The module is an open type device (a device designed to be housed in other equipment) and must be installed inside a conductive control panel. The tests were conducted with the programmable controller installed in a control panel.
*2 The accuracy of an analog-digital converter module may temporarily vary within ±10%.

(2) Installation in a control panel
The module is open type devices and must be installed inside a control panel. This ensures safety as well as effective shielding of programmable controller-generated electromagnetic noise.
(a) Control panel
- Use a conductive control panel.
- When securing the top or bottom plate using bolts, cover the grounding part on the control panel so that the part will not be painted.
- To ensure electrical contact between the inner plate and control panel, take measures such as covering the bolts so that conductivity can be ensured in the largest possible area.
- Ground the control panel with a thick ground cable so that low impedance can be ensured even at high frequencies.
- Holes in the control panel must be 10cm diameter or less. If the holes are larger than 10cm, radio wave may be emitted. In addition, because radio waves leak through a clearance between the control panel and its door, reduce the clearance as much as possible. The leakage of radio waves can be suppressed by the direct application of an EMI gasket on the paint surface.

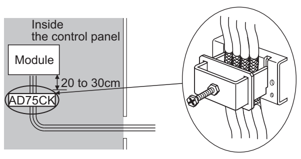
Our tests have been carried out on a panel having the attenuation characteristics of 37 dB (max.) and 30 dB (mean) (measured by 3m method, 30 to 300MHz).

(b) Wiring of power cables and ground cables
Near the power supply part, provide a ground point to the control panel. Ground the FG terminal with the thickest and shortest possible ground cable (30cm or shorter).

(3) Cables
Use shielded cables for the cables which are connected to the module and run out from the control panel. If a shielded cable is not used or not grounded correctly, the noise immunity will not meet the specified value.
(a) Cables for the CC-Link IE Field Network
The precautions for using CC-Link IE Field Network cables are described below.
- Shielded cables should be used for the CC-Link IE Field Network. Strip a part of the jacket as shown below and ground the exposed shield in the largest possible area.



(b) Grounding the cable clamp
Use shielded cables for external wiring and ground the shields of the external wiring cables to the control panel with the AD75CK-type cable clamp (Mitsubishi). (Ground the shield section 20 to 30cm away from the module.)

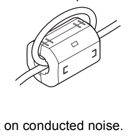


For details of the AD75CK, refer to the following.
- AD75CK-type Cable Clamping Instruction Manual

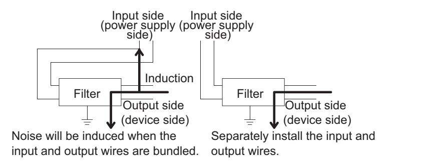
(4) External power supply
- Use a CE-marked product for an external power supply and always ground the FG terminal. (External power supply used for the tests conducted by Mitsubishi: TDK-Lambda DLP-120-24-1, IDEC PS5R-SF24, PS5R-F24)
- Use a power cable of 10m or shorter when connecting it to the module power supply terminal.

(5) Others
(a) Ferrite core
A ferrite core has the effect of reducing radiated noise in the 30MHz to 100MHz band. It is recommended to attach ferrite cores if shield cables coming out of the control panel do not provide sufficient shielding effects.
Note that the ferrite cores must be attached at the position closest to the cable hole inside the control panel. If attached at an improper position, the ferrite core will not produce any effect.
For the FG terminal on a main module that is connected to the external power supply, the external power supply of an extension module, and CC-Link IE Field Network cables, attach a ferrite core 4cm away from the module. (Ferrite core used for the tests conducted by Mitsubishi: NEC TOKIN ESD-SR-250, TDK ZCAT3035-1330)

Example



(b) Noise filter (power supply line filter)
A noise filter is a component which has an effect on conducted noise. Attaching the filter can suppress more noise. (The noise filter has the effect of reducing conducted noise of 10 MHz or less.)
Connect a noise filter to the external power supply of a main module and the external power supply of an extension module. Use a noise filter with the damping characteristics equivalent to those of MA1206 (manufactured by TDK-Lambda Corporation). Note that a noise filter is not required if the module is used in Zone A defined in EN61131-2.
The precautions for attaching a noise filter are described below.
- Do not bundle the cables on the input side and output side of the noise filter. If bundled, the output side noise will be induced into the input side cables from which the noise was filtered.



Noise will be induced when the input and output wires are bundled. Separately install the input and output wires.

- Ground the noise filter grounding terminal to the control panel with the shortest cable possible (approx. 10cm).

5.2 Requirements to Compliance with the Low Voltage Directive

The module operates at the rated voltage of 24VDC. The Low Voltage Directive is not applied to the modules that operate at the rated voltage of less than 50VAC and 75VDC.

6. Information and services

For further information and services, please consult your local Mitsubishi representative.

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.
However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.
[Gratis Warranty Term]
The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.
Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.
[Gratis Warranty Range]
(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued.
Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation of damages caused by any cause found not to be the responsibility of Mitsubishi, loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products, special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products, replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.