



**MITSUBISHI
ELECTRIC**

Analog-Digital Converter Module

User's Manual
(Hardware)

CL2AD4-B

Thank you for purchasing this product.

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

CC-Link/LT

MODEL	CL2AD-U-HW
MODEL CODE	13JP60
IB(NA)-0800289-G(1803)MEE	

● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

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

These precautions apply only to this product. Refer to the user's manual of the CPU module used for a description of the PLC system safety precautions.

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

"⚠ WARNING" and "⚠ CAUTION".



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



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

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

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 there are communication problems with the data link, the data for the master module will be held.
Configure an interlocking circuit in a sequence program so that the safety of the overall system is always maintained.

CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables.
Keep a distance of 100mm (3.94 inches) or more between them.
Failure to do so may result in malfunction due to noise.

[Installation Precautions]

CAUTION

- Use the programmable controller in the environment that meets the general specifications contained in this Manual.
Using the programmable controller outside the range of the general specifications may result in electric shock, fire or malfunction, or may damage or degrade the module.
- Do not directly touch any conductive part of the module.
Doing so can cause malfunction or failure of the module.
- Securely fix the module to a DIN rail or with mounting screws, and securely tighten the mounting screws within the specified torque range.
Undertightening can cause a drop or malfunction.
Overtightening can cause a drop or malfunction due to damage of the screws or module.

[Wiring Precautions]

WARNING

- Shut off the external power supply for the system in all phases before wiring.
Failure to do so may result in electric shock or damage to the product.

CAUTION

- Terminal screws which are not to be used must be tightened always.
Otherwise there will be a danger of short circuit against the bare solderless terminals.
- Wire the module correctly after confirming the rated voltage and terminal layout of the product.
Not doing so can cause a fire or failure.
- Tighten the terminal screws within the specified torque range.
Undertightening can cause a short circuit or malfunction.
Overtightening can cause a short circuit or malfunction due to damage of the screws or module.
- Ensure that no foreign matter such as chips and wire-offcuts enter the module.
Foreign matter can cause a fire, failure or malfunction.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Failure to do so may result in malfunction due to noise.

[Starting and Maintenance Precautions]

WARNING

- Do not touch the terminals before shutting off the external power supply for the system in all phases.
Doing so may cause malfunction.
- Be sure to shut off all phases of the external power supply used by the system before cleaning or retightening the terminal screws.
Not doing so can cause the module to fail or malfunction.

CAUTION

- Do not disassemble or modify the modules.
Doing so may cause failure, malfunction, injury, or a fire.
- Do not drop or apply strong shock to the module.
Doing so may damage the module.
- Be sure to shut off all phases of the external power supply used by the system before mounting or dismounting the module to or from the panel.
Not doing so can cause the module to fail or malfunction.
- After the first use of the product, do not mount/remove the terminal block to/from the module more than 50 times. (IEC 61131-2 compliant)
- Before handling the module, always touch grounded metal, etc. to discharge static electricity from the human body.
Failure to do so can cause the module to fail or malfunction.

[Disposal Precautions]

CAUTION

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

● PRÉCAUTIONS DE SÉCURITÉ ●

(Lire ces précautions avant toute utilisation du produit.)

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

Ces précautions ne concernent que ce produit. Pour les précautions à observer concernant le système du PLC, se reporter au de l'utilisateur du module CPU.

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

AVERTISSEMENT

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

ATTENTION

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

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

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

[Précautions lors de la conception]

AVERTISSEMENT

- En cas de problème de communication sur la liaison de données, les données du module maître sont maintenues.
Prévoir dans le programme séquentiel un circuit de verrouillage permettant de garantir la sécurité de l'ensemble du système en tous temps.

ATTENTION

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

[Précautions d'installation]

ATTENTION

- *Utiliser l'automate programmable dans un environnement en conformité avec les spécifications générales que présente ce manuel.
L'utilisation de l'automate programmable hors des conditions prévues 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 l'appareil.*
- *Éviter tout contact direct avec les parties conductrices du module.
Une manipulation incorrecte peut être à l'origine de dysfonctionnements ou de pannes du module.*
- *Fixer fermement le module sur un rail DIN, ou avec des vis en serrant les vis de fixation dans le limites du couple prescrit.
Un serrage insuffisant peut être à l'origine d'une chute ou d'un dysfonctionnement.
Un serrage excessif peut endommager les vis ou le module et entraîner des dysfonctionnements en cas de chute.*

[Précautions de câblage]

AVERTISSEMENT

- *Couper l'alimentation externe du système sur toutes les phases avant de commencer à câbler. Faute de quoi, il y a risque d'électrocution et d'endommagement du produit.*

 **ATTENTION**

- *Les vis des bornes qui restent inutilisées doivent toujours être serrées. Faute de quoi, il y a danger de court-circuit par contact avec les bornes-barres sans soudure.*
- *Câbler le module correctement après vérification de la tension nominale et de l'affectation des bornes de ce produit. Faute de quoi, il y a risque de départ de feu ou de panne.*
- *Serrer les vis de borne dans les limites du couple de serrage prescrit. Un serrage insuffisant peut être à l'origine d'un court-circuit ou d'un dysfonctionnement. Un serrage excessif peut endommager les vis ou le module et être à l'origine de court-circuits ou de dysfonctionnements.*
- *Faire en sorte que les copeaux, bouts de fil et autres corps étrangers ne pénètrent pas dans le module. Tout corps étranger peut être à l'origine d'un départ de feu, d'une panne ou d'un dysfonctionnement.*
- *Ne pas entremêler les lignes de commandes ou câbles de communication avec les lignes des circuits principaux ou les câbles d'alimentation. Faute de quoi, il y a risque de dysfonctionnement par un bruit.*

[Précautions de démarrage et de maintenance]



AVERTISSEMENT

- *Ne pas toucher aux bornes avant d'avoir coupé l'alimentation externe du système sur toutes les phases.
Cela pourrait être à l'origine de dysfonctionnements.*
- *Ne pas oublier de couper toutes les phases de l'alimentation externe utilisée par le système avant le nettoyage ou le resserrage des vis de bornes.
Faute de quoi, il y a risque de panne ou de dysfonctionnement du module.*



ATTENTION

- *Ne pas démonter ni modifier les modules.
Cela pourrait entraîner des pannes ou dysfonctionnements et être à l'origine de blessures ou de départs de feu.*
- *Ne pas faire tomber le module et ne pas le soumettre à des chocs.
Cela risquerait d'endommager le module.*
- *Ne pas oublier de couper toutes les phases de l'alimentation externe utilisée par le système avant de mettre le module en place dans le tableau ou de l'en retirer.
Faute de quoi, il y a risque de panne ou de dysfonctionnement du module.*
- *Après mise en service du produit, ne pas installer/retirer le bornier du module plus de 50 fois. (selon IEC 61131-2)*
- *Avant de manipuler un module, se débarrasser de la charge électrostatique qu'accumule le corps humain en touchant un objet métallique raccordé à la terre.
Faute de quoi, il y a risque de panne ou de dysfonctionnement du module.*

[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
Nov., 2004	IB(NA)-0800289-A	First edition
Sep., 2010	IB(NA)-0800289-B	Correction "PLC" was changed to "programmable controller", SAFETY PRECAUTIONS, Compliance with the EMC and Low Voltage Directives, Section 2.1, 4.1, 6.2 Addition CONDITIONS OF USE FOR THE PRODUCT
Dec., 2011	IB(NA)-0800289-C	Addition SAFETY PRECAUTIONS (Chinese)
Jun., 2014	IB(NA)-0800289-D	Correction Section 2.1, 4.1, 6.2 Addition SAFETY PRECAUTIONS (French)
Oct., 2014	IB(NA)-0800289-E	Correction ABOUT THE MANUALS, Section 2.1
Sep., 2015	IB(NA)-0800289-F	Correction Chapter 3
Mar., 2018	IB(NA)-0800289-G	Correction Chapter 3, 5, 7

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ABOUT THE MANUALS

The following manuals are also related to this product.
Order them if necessary.

Detailed Manual

Manual name	Manual No. (Model code)
Analog-Digital Converter Module User's Manual CL2AD4-B	SH-080417E (13JP30)

Related Manual

Manual name	Manual No. (Model code)
CC-Link/LT Master Module User's Manual QJ61CL12	SH-080351E (13JR62)
MELSEC-L CC-Link/LT Master Module User's Manual	SH-081012ENG (13JZ65)
CC-Link - CC-Link/LT Bridge Module type AJ65SBT-CLB User's Manual	SH-080362E (13JR63)
CL2TE-5 Common Terminal Block User's Manual	IB-0800264 (13JP32)

COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES

(1) Method of ensuring compliance

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

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

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

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

(2) Additional measures

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

1. Overview

This user's manual explains the specifications, names and setting of parts, wiring and others of the CL2AD4-B analog-digital converter module (hereafter abbreviated to the "CL2AD4-B"), which is used as a remote device station in the CC-Link/LT system.

Confirm if the following is included in the package after unpacking.

Item name	Quantity
Analog-Digital Converter Module type CL2AD4-B	1

2. Specifications

2.1 Performance Specifications

The performance specifications of the CL2AD4-B are shown below.
For general specifications, refer to the detailed manual.

Item		Specifications						
Analog input	Voltage	-10 to 10V DC (input resistance 1M Ω)						
	Current	0 to 20mA DC (input resistance 250 Ω)						
Digital output		15-bit signed binary (-4096 to 4095)						
I/O characteristics, maximum resolution, accuracy(accuracy relative to maximum digital output value)		Analog input range	Digital output	Accuracy			Max. Resolution	
				Ambient temperature 25 \pm 5 $^{\circ}$ C ^{*1}	Ambient temperature 0 to 55 $^{\circ}$ C	Temperature coefficient ^{*3}		
		Voltage	-10 to 10V	-4000 to 4000	\pm 0.2% (\pm 8digit ^{*2})	\pm 0.4% (\pm 16digit ^{*2})	\pm 80ppm/ $^{\circ}$ C (\pm 0.0080%/ $^{\circ}$ C)	2.5mV
			0 to 10V	0 to 4000				1.25mV
			0 to 5V					1.0mV
		Current	1 to 5V	0 to 4000	\pm 0.2% (\pm 8digit ^{*2})	\pm 0.4% (\pm 16digit ^{*2})	\pm 80ppm/ $^{\circ}$ C (\pm 0.0080%/ $^{\circ}$ C)	5 μ A
0 to 20mA	4 μ A							
Conversion speed		200 μ s / 4 channels ^{*4}						
Absolute maximum input		Voltage: \pm 15 V, Current: \pm 30mA ^{*5}						
Number of analog input channels		4 channels / 1 module						
CC-Link / LT station type		Remote device station						

Item	Specifications														
Number of occupied stations	4 stations in 16-point mode*6														
Insulation	<table border="1"> <thead> <tr> <th>Insulated area</th> <th>Insulation method</th> <th>Dielectric withstand voltage</th> <th>Insulation resistance</th> </tr> </thead> <tbody> <tr> <td>Across communication system and analog input</td> <td rowspan="3">Photocoupler Transformer</td> <td rowspan="3">500VAC for 1 minute</td> <td rowspan="3">500VDC 10MΩ</td> </tr> <tr> <td>Across power supply system and analog input</td> </tr> <tr> <td>Between communication system and power supply system</td> </tr> <tr> <td>Between channels</td> <td>Non-insulation</td> <td>–</td> <td>–</td> </tr> </tbody> </table>	Insulated area	Insulation method	Dielectric withstand voltage	Insulation resistance	Across communication system and analog input	Photocoupler Transformer	500VAC for 1 minute	500VDC 10MΩ	Across power supply system and analog input	Between communication system and power supply system	Between channels	Non-insulation	–	–
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	Across communication system and analog input	Photocoupler Transformer	500VAC for 1 minute	500VDC 10MΩ											
	Across power supply system and analog input														
	Between communication system and power supply system														
Between channels	Non-insulation	–	–												
External interface <i>Plaque à bornes</i>	Direct type 14-point terminal block (M3 screw) <i>Bornier 14-points type direct (vis M3)</i>														
Applicable wire size <i>Taille du fil à utiliser</i>	0.3 to 1.25mm ² <i>0,3 à 1,25 mm²</i>														
Applicable crimping terminal <i>Cosse à sertir à utiliser</i>	RAV1.25-3 (in conformance with JIS C 2805), V1.25-3 (Japan Solderless Terminal Mfg. Co., Ltd.), 1.25-3, TG1.25-3 (NICHIFU TERMINAL INDUSTRIES Co., Ltd.) <i>RAV1.25-3 (selon norme JIS C 2805), V1.25-3 (Japan Solderless Terminal Mfg. Co., Ltd.), 1.25-3, TG1.25-3 (NICHIFU TERMINAL INDUSTRIES Co., Ltd.)</i>														
Module installation method	DIN rail installation, mounted by screws of type M4 × 0.7mm × 16mm or larger, Can be installed in six orientations.														
Applicable DIN rail	TH35-7.5Fe, TH35-7.5Al (in conformance with IEC 60715)														
Module power supply*7	Voltage	24VDC (20.4VDC to 28.8VDC, ripple ratio: within 5%)													
	Current consumption	70mA													
	Current on startup	570mA													
Protection class	IP2X														
Weight	0.15kg														

*1 Reference accuracy.

*2 “digit” indicates a digital output value.

*3 Accuracy per temperature change of 1°C.

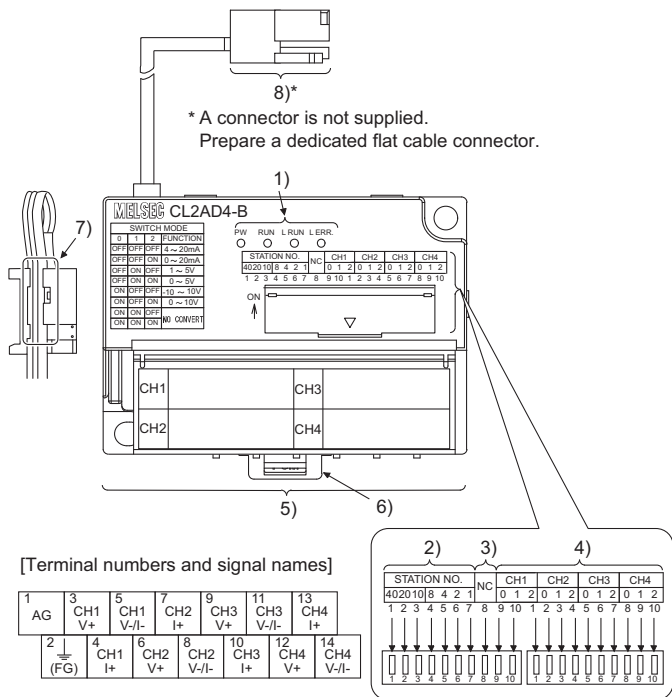
*4 When using the primary delay filter, the conversion speed for the primary delay filter channel is 400μs.

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

- *6 No. of occupied I/O points (No. of occupied stations) differs depending on the last conversion-enabled channel.
- *7 Module power is supplied via the dedicated power supply/power supply adapter.
Use the dedicated power supply (CL1PSU-2A) or power supply adapter (CL1PAD1).

3. Names and Setting of Parts

The part names and descriptions of the CL2AD4-B are provided in this section.



No.	Name	Description	
1)	Operation status display LED	PW LED	ON :Power supply on OFF:The power supply is turned off The voltage drop is too large.
		RUN LED	ON:Normal operation Flickering:The analog input setting switches for all channels are set to be conversion-disabled. Any of the analog input setting switches was changed during operation. The NC switch is ON. OFF:Watchdog timer error Fault in hardware
		L RUN LED	ON:Normal communication OFF:Communication cutoff (timeout error)
		L ERR. LED	ON:Communication data error The station number setting switch is set outside the allowable range. A mode other than 16-point mode has been selected. Communication cutoff (timeout error) The analog input setting switches for all channels are set to be conversion-disabled. Flickering at regular intervals (0.4s):The station number setting switch was changed after power-on. Flickering at irregular intervals:The terminating resistor has not been attached yet. The module and/or connection cable are affected by noise. OFF:Normal communication

No.	Name	Description																																																																																																														
2)	Station number setting switch	<p>With "10", "20" and "40", set the ten's place of the station number. With "1", "2", "4" and "8", set the one's place of the station number. Always set the station number within the range of 1 to 64. Setting a number other than 1 to 64 generates an error and "L ERR." LED turns on. Duplication of the station number is not allowed. (Factory default: All OFF)</p> <table border="1" data-bbox="322 295 925 714"> <thead> <tr> <th rowspan="2">Station number</th> <th colspan="3">Ten's place</th> <th colspan="4">One's place</th> </tr> <tr> <th>40</th> <th>20</th> <th>10</th> <th>8</th> <th>4</th> <th>2</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>2</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> </tr> <tr> <td>3</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>ON</td> </tr> <tr> <td>4</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> </tr> <tr> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> </tr> <tr> <td>10</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> </tr> <tr> <td>11</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> </tr> <tr> <td>64</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> <p>(Example) Set the switches as below when setting the station number to 32:</p> <table border="1" data-bbox="322 802 925 915"> <thead> <tr> <th rowspan="2">Station number</th> <th colspan="3">Ten's place</th> <th colspan="4">One's place</th> </tr> <tr> <th>40</th> <th>20</th> <th>10</th> <th>8</th> <th>4</th> <th>2</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>32</td> <td>OFF</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> </tr> </tbody> </table>	Station number	Ten's place			One's place				40	20	10	8	4	2	1	1	OFF	OFF	OFF	OFF	OFF	OFF	ON	2	OFF	OFF	OFF	OFF	OFF	ON	OFF	3	OFF	OFF	OFF	OFF	OFF	ON	ON	4	OFF	OFF	OFF	OFF	ON	OFF	OFF	:	:	:	:	:	:	:	:	10	OFF	OFF	ON	OFF	OFF	OFF	OFF	11	OFF	OFF	ON	OFF	OFF	OFF	ON	:	:	:	:	:	:	:	:	64	ON	ON	OFF	OFF	ON	OFF	OFF	Station number	Ten's place			One's place				40	20	10	8	4	2	1	32	OFF	ON	ON	OFF	OFF	ON	OFF
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3)	NC	Use prohibited (Not available as the system uses it. Keep it to OFF. If turned ON, the RUN LED will flash.)																																																																																																														

No.	Name	Description																																									
4)	Analog input setting switch	<p>Set the A/D conversion enable/disable selection and the input range for each channel. Set unused channels to be conversion-disabled.</p> <table border="1" data-bbox="363 200 954 579"> <thead> <tr> <th colspan="2" data-bbox="363 200 629 237" rowspan="2">Input range</th> <th colspan="3" data-bbox="629 200 954 237">Setting switches</th> </tr> <tr> <th data-bbox="629 237 736 273">0</th> <th data-bbox="736 237 843 273">1</th> <th data-bbox="843 237 954 273">2</th> </tr> </thead> <tbody> <tr> <td data-bbox="363 273 500 506" rowspan="6">Conversion enable</td> <td data-bbox="500 273 629 310">4 to 20mA</td> <td data-bbox="629 273 736 310">OFF</td> <td data-bbox="736 273 843 310">OFF</td> <td data-bbox="843 273 954 310">OFF</td> </tr> <tr> <td data-bbox="500 310 629 346">0 to 20mA</td> <td data-bbox="629 310 736 346">OFF</td> <td data-bbox="736 310 843 346">OFF</td> <td data-bbox="843 310 954 346">ON</td> </tr> <tr> <td data-bbox="500 346 629 382">1 to 5V</td> <td data-bbox="629 346 736 382">OFF</td> <td data-bbox="736 346 843 382">ON</td> <td data-bbox="843 346 954 382">OFF</td> </tr> <tr> <td data-bbox="500 382 629 419">0 to 5V</td> <td data-bbox="629 382 736 419">OFF</td> <td data-bbox="736 382 843 419">ON</td> <td data-bbox="843 382 954 419">ON</td> </tr> <tr> <td data-bbox="500 419 629 455">-10 to 10V</td> <td data-bbox="629 419 736 455">ON</td> <td data-bbox="736 419 843 455">OFF</td> <td data-bbox="843 419 954 455">OFF</td> </tr> <tr> <td data-bbox="500 455 629 506">0 to 10V</td> <td data-bbox="629 455 736 506">ON</td> <td data-bbox="736 455 843 506">OFF</td> <td data-bbox="843 455 954 506">ON</td> </tr> <tr> <td colspan="2" data-bbox="363 506 629 543" rowspan="2">Conversion disable</td> <td data-bbox="629 506 736 543">ON</td> <td data-bbox="736 506 843 543">ON</td> <td data-bbox="843 506 954 543">OFF</td> </tr> <tr> <td data-bbox="629 543 736 579">ON</td> <td data-bbox="736 543 843 579">ON</td> <td data-bbox="843 543 954 579">ON</td> </tr> </tbody> </table> <p data-bbox="363 579 712 608">(Factory default: All OFF (4 to 20mA))</p>	Input range		Setting switches			0	1	2	Conversion enable	4 to 20mA	OFF	OFF	OFF	0 to 20mA	OFF	OFF	ON	1 to 5V	OFF	ON	OFF	0 to 5V	OFF	ON	ON	-10 to 10V	ON	OFF	OFF	0 to 10V	ON	OFF	ON	Conversion disable		ON	ON	OFF	ON	ON	ON
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5)	Terminal block	Terminal block for I/O signal connections																																									
6)	DIN rail hook	Used to mount the module to the DIN rail.																																									
7)	Cable guide	A guide used for turning the CC-link/LT flat cable for the CL2AD4-B downward.																																									
8)	CC-Link /LT interface connector	Connector for connection of the CC-Link/LT communication line or module power (Sold separately)																																									

4. Loading and Installation

4.1 Handling Precautions

The following is handling precautions for the module.

- (1) Tighten the screws such as module fixing screws within the following ranges.

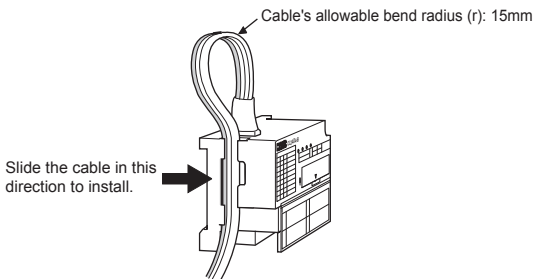
Screw location	Tightening torque range
Module mounting screw (M4 screw)	0.78 to 1.08N•m
Terminal block terminal screw (M3 screw) <i>Vis de fixation de bornier (vis M3)</i>	0.42 to 0.58N•m <i>0,42 à 0,58 N•m</i>

- (2) When using a DIN rail, attach the DIN rail taking the following items into consideration:
 - (a) Applicable DIN rail types (conform to IEC 60715)
TH35-7.5Fe
TH35-7.5Al
 - (b) Interval between the DIN rail's installation screws
Tighten the screws using a pitch of 200mm (7.87in.) or less when attaching a DIN rail.
- (3) To attach the CL2AD4-B to the DIN rail, press the centerline area of the DIN rail hook beneath the module until a click is heard.
- (4) Maintain some distance between the module and other structures or parts, at least 10mm (0.39in.) from the top and 60mm (2.62in.) from the bottom of the module, in order to ensure ventilation and to make replacement of the module easy if the CL2AD4-B is installed to a panel.
- (5) Install the CL2AD4-B on a level surface.
If the surface is uneven, unnecessary force is applied to the printed circuit board, causing malfunctions.

5. Connection Cable Wiring

For wiring of the cable to be connected between the CL2AD4-B and the CC-Link/LT master module or the AJ65SBT-CLB, refer to the User's Manual of the CC-Link/LT master module or the AJ65SBT-CLB.

- (1) To connect the CL2AD4-B to a VCTF or high flexible cable drop line, the CC-Link/LT flat cable of the CL2AD4-B must be processed to the length of 20cm (7.87in.) or less.
- (2) The CC-Link/LT flat cable of the CL2AD4-B can be wired downward using a cable guide. The minimum allowable bend radius (r) is 15mm (0.59in.).



6. Wiring

6.1 Wiring Precautions

To obtain maximum performance from the functions of CL2AD4-B and improve the system reliability, an external wiring with high protection against noise is required.

The precautions when performing external wiring are as follows:

- (1) Use separate cables for the AC and CL2AD4-B external input signals, in order to prevent the AC side surge or induction.
- (2) Do not install cables together the main circuit line, high voltage cables and/or those connected to other than the programmable controller.

Noises, surges, or induction may affect the system.

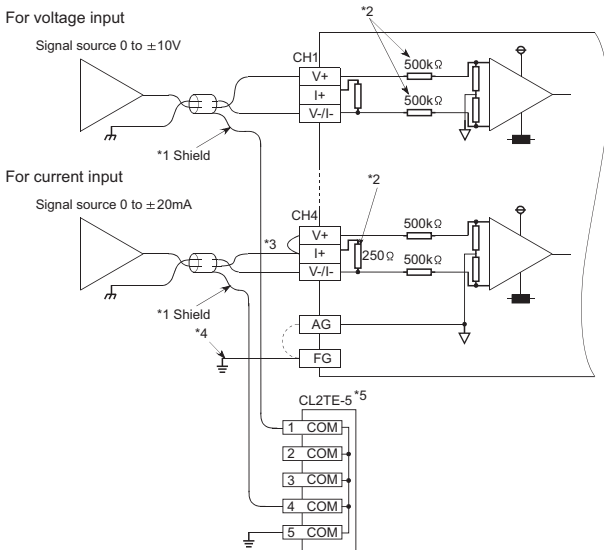
- (3) Ground the shield wire or shielded cable at one end on the module side. It is recommended to use the CL2TE-5 common terminal block that is available separately.

For details of the CL2TE-5, refer to the CL2TE-5 Common Terminal Block User's Manual.

6.2 Wiring of Module with External Equipment

Câblage d'un module équipé Ethernet

- (1) When using the CL2TE-5 common terminal block
Si on utilise le bornier commun CL2TE-5

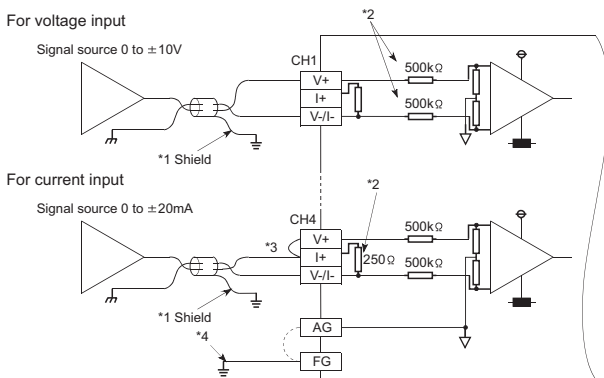


English	French	English	French
For voltage input	<i>Pour entrée de tension</i>	For current input	<i>Pour entrée de courant</i>
Signal source 0 to ±10V	<i>Source de signal 0 à ±10V</i>	Signal source 0 to ±20mA	<i>Source de signal 0 à ±20mA</i>
Shield	<i>Blindage</i>		

- *1 Use a two-core twisted shield line for the power cable.
 *2 Indicates the CL2AD4-B input resistor.
 *3 For the current input, be sure to connect the (V+) and (I+) terminals.
 *4 Always connect FG to the ground. When there is a lot of noise, it may be better ground AG as well.

- *5 Using the CL2TE-5 allows grounding of the shield wires all at once.
- *1 *Comme câble d'alimentation, utiliser une ligne blindée de fil torsadé à deux âmes.*
- *2 *Figure la résistance d'entrée CL2ADA-B.*
- *3 *Pour l'entrée de courant, il est indispensable de raccorder les bornes (V+) et (I+).*
- *4 *Toujours raccorder FG à la masse. S'il y a un très fort bruit, il peut être préférable de mettre aussi AG à la terre.*
- *5 *L'usage du CL2TE-5 permet une mise à la terre groupée des fils de blindage.*

(2) When not using the CL2TE-5 common terminal block
Si on n'utilise pas le bornier commun CL2TE-5



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

- *1 Use a two-core twisted shield line for the power cable.
- *2 Indicates the CL2AD4-B input resistor.
- *3 For the current input, be sure to connect the (V+) and (I+) terminals.
- *4 Always connect FG to the ground. When there is a lot of noise, it may be better ground AG as well.

*1 *Comme câble d'alimentation, utiliser une ligne blindée de fil torsadé à deux âmes.*

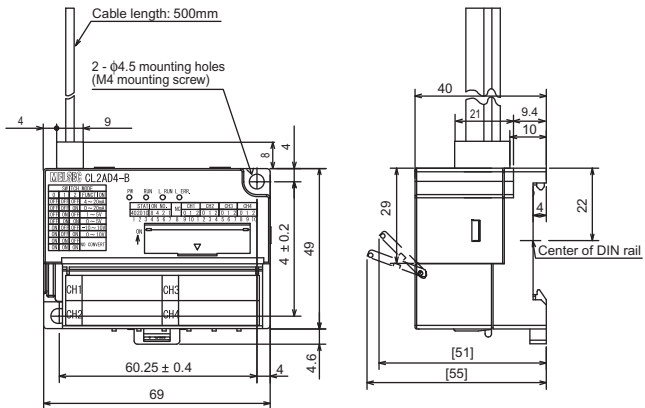
*2 *Figure la résistance d'entrée CL2ADA-B.*

*3 *Pour l'entrée de courant, il est indispensable de raccorder les bornes (V+) et (I+).*

*4 *Toujours raccorder FG à la masse. S'il y a un très fort bruit, il peut être préférable de mettre aussi AG à la terre.*

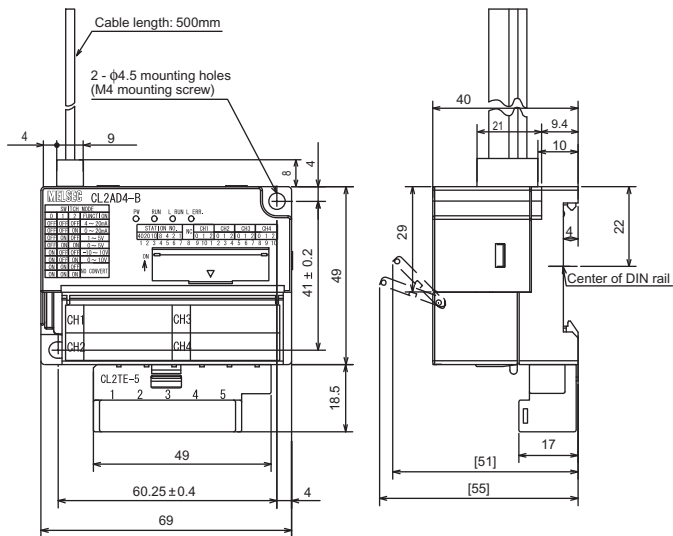
7. External Dimensions

(1) Standard



unit: mm

(2) When using the CL2TE-5 common terminal block



WARRANTY

Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; machine damage or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

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