SUBISHI

Q64AD-GH Channel Isolated High Resolution le

Analog-Digital Converter Module					
Thank you for buying the Mitsubishi programmable controller MELSEC Q Series.					
	Prior to use, please read both this manual and detailed manual thoroughly and familiarize yourself with the product.				
MELSEC-Q		User's Manual (Hardware)			
Mitaubiahi Brogrammahla	MODEL	Q-A/D-GH-U-HW			
Mitsubishi Programmable Controller	MODEL Code	13JT82			
		IB-0800223-D (0810) MEE			

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● SAFETY PRECAUTIONS ●

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the related manuals introduced in the manual. Also pay careful attention to safety and handle the module correctly

These precautions apply only to this product. Refer to the user's manual of the CPU module to use for the programmable entroller system safety precautions. These SAFETY PRECAUTIONS Classify the safety precautions into two categories: "DANGER" and "CALITION"

Diato Entrana o	
	Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out correctly.
	Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out correctly.

_____ Depending on circumstances, procedures indicated by ACAUTION may also cause serious accidents

In any case, it is important to follow the directions for usage,

Store this manual in a safe place and read it whenever necessary. Always forward it to the end use

[DESIGN PRECAUTIONS]

- Do not bunch the control wires or communication cables with the main circuit or power wires, or They should be installed 100 mm (3.94 inch) or more from each other. Otherwise, noise may occur and result in malfunction.

[INSTALLATION PRECAUTIONS]

- Use the programmable controller in an environment that meets the general specifications given in the User's Manual of the CPU module being used. Using this programmable controller in an environment outside the range of the general specifications may cause electric shock, fire, malfunction, and damage to or deterioration of the product. To mount the module, while pressing the module mounting lever located in the lower part of the module, fully insert the module, first projection(s) into the hole(s) in the base unit and press the module until it snaps into place. Incorrect mounting may cause malfunction, failure or drop of the module with a screw.
- module with a screw. If the screws are loose, it may cause the module to fallout, short circuits, or malfunction. If the screws are tightened too much, it may cause damage to the screw and/or the module, resulting in fallout, short circuits or malfunction. Switch all phases of the external power supply off when mounting or removing the module. Otherwise, the module may be damaged. Do not directly touch the conductive area or electronic components of the module. Otherwise, the module may malfunction or go down.

WIRING PRECAUTIONS

When turning on the power and operating the module after wiring is completed, always attach the terminal cover included with the product. There is a risk of electric shock if the terminal cover is not attached. Tighten the terminal screws within the range of specified torque. If the terminal screws are loose, it may result in short circuits or malfunction. If the terminal screws are tightened too much, it may cause damage to the screw and/or the module, resulting in short circuits or malfunction.

- Incourse, resulting in short circuits or malfunction. Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure. Be careful not to let foreign matters such as sawdust or wire chips get inside the module. These may cause fires, failure or malfunction. The top surface of the module is covered with protoching fire to execute t
- The top surface of the module is covered with protective film to prevent foreign objects such as
- The operation of the induction is overled with proceeding of the provide adequate heat ventilation. Do not remove this film until the wiring is complete. Before operating the system, be sure to remove the film to provide adequate heat ventilation.

ABOUT MANUAL

The following manual is also related to this product. If necessary, order it by quoting the details in the table below.

Related Manual	

Manual name	Manual No. (Model code)	
Channel Isolated High Resolution Analog-Digital Converter Module/Channel Isolated High Resolution Analog-Digital Converter Module (with signal conditioning function) User's Manual	SH-080277 (13JR51)	
Compliance with the EMC and Low Voltage Directives		

nce with the EMC and Low Voltage D (1) For programmable controller system

To configure a system meeting the requirements of the EMC and Low Voltage Directives when incorporating the Mitsubishi programmable controller (EMC and Low Voltage Directives compliant) into other machinery or equipment, refer to Chapter 9 "EMC AND LOW VOLTAGE DIRECTIVES" of the QCPU User's Manual (Hardware Design, Maintenance and Inspection). The CE mark, indicating compliance with the EMC and Low Voltage Directives, is printed or

the rating plate of the programmable controller (2) For the product No additional measures are necessary for the compliance of this product with the EMC and

Low Voltage Directives.

1. Overview

This manual describes the specifications and part names for the type Q64AD-GH channel isolated high resolution analog-digital converter module (hereinafter Q64AD-GH) to be used in combination with the MELSEC-Q Series CPU module

2. Specifications

The specifications for the Q64AD-GH are shown in the following table. For general specifications for the Q64AD-GH, refer to the operation manual for the CPU module heing used

	ng used. Model name						
Item	Model name			Q64/	AD-GH		
Number of a points	analog input	4 points (4 channels))			
Analog	Voltage	-10 to 10VDC (Input resistance 1 M Ω)					
input -	Current	0 to 20mADC (Input resistance 250 Ω)					
Digital outpu	ut	16-bit signed binary (-32768 to 32767) 32-bit signed binary (-65536 to 65535)					
		Input	Analog input range	Maximum 32-bit	resolution 16-bit	Digital output value (32-bit)	Digital output value (16-bit)
			0 to 10V	156.3µV	312.6µV		
			0 to 5V	78.2µV	156.4µV	0 to 64000	0 to 32000
			1 to 5V	62.5µV	125.0µV		
		Voltage	1 to 5V (Expanded mod	e) 62.5µV	-	-16000 to 72000	-
I/O characte		voltage	Users input rang (Uni-polar)	ge 47.4μV	94.8μV	0 to 64000	0 to 32000
maximum re	esolution		-10 to 10V	156.3µV	312.6µV	-64000 to	-32000 to
			Users input rang (Bi-polar)	ge 47.4μV	94.8μV	64000	32000 10
			0 to 20mA	312.5nA	625.0μV	0 to 64000	0 to 32000
			4 to 20mA	250.0nA	500.0μV		0 10 32000
		Current	4 to 20mA (Expanded mod		-	-16000 to 72000	-
			Users input ranç (Uni-polar)	ge 151.6nA	303.2µV	0 to 64000	0 to 32000
Accuracy	Reference	±0.05%					
(Accuracy relative to	accuracy 1	Digital output value (32-bit) : ±32digit ^{'2} Digital output value (16-bit) : ±16digit ^{'2}					
digital output value)	Temperature coefficient *3	±71.4ppm/°C (0.00714%/°C)					
Common m		Common mode voltage Input-Common ground (input voltage 0V): 1780VAC Common mode voltage rejection ratio (VCM < 1780V): 60Hz 105dB, 50Hz 107d					
characterist	-	Common	mode voltage rej			0V): 60Hz 105	dB, 50Hz 1070
Conversion					channels		
Absolute ma	aximum input		Vol	tage: ± 15V	Current: ±	30mA *	
		Specific isolated area		Isolation method	Diele	Dielectric withstand voltage	
1 1 - 1			en I/O terminal	Photocouple	Photocoupler		
Isolation spe	ecilications		rogrammable er power supply		insulation 1780VA		s 500VDC 10MQ or
			er power supply en analog input	Transforme	Transformer (elev		more
		channels		isolation		linore	
for E ² PROM		Maximum 100,000					
Number of I/ points	•	16 points (I/O assignment: Intelligent 16 points)					
Connected t		18 points terminal block					
Applicable v			-	0.3 to 0).75mm ²		
Applicable s terminals		R1.25 - 3 (Solderless terminals with sleeves are not applicable)					
(5VDC)	ent consumption	0.89A					
Weight				0.2	20kg		

*1: Accuracy of offset/gain setting at ambient temperature *2; "digit" indicates a digital output value. *3: Accuracy per temperature change of 1 °C Example: Accuracy when temperature changes from 25 to 30 °C

0.05% (reference accuracy) + 0.00714 %/°C (temperature coefficient) x 5 °C (temperature change nce) = 0.0857%

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

3. Part Identification Nomenclature

This section explains the part names for the Q64AD-GH.



')	Renzeb	Solution of the control of the
2)		Displays the error status of the Q64AD-GH. On : Error (A/D conversion continues.) Flickering : Error (A/D conversion stops.) Off : Normal operation
3)	ALM LED	Displays the warning status of the Q64AD-GH. On : An alarm (process alarm, rate alarm) is being generated. Flickering : An input signal error is being generated.

4. Precautions for Use

- (1) Do not drop or apply strong shock to the module. (2) Do not remove the PCB of the module from its case.
- Doing so may cause the module to fail.
- (3) Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.
- (4) A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring.
- Remove it for heat dissipation before system operation. (5) Before touching the module, always touch grounded metal, etc. to discharge static
- electricity from human body, etc. Not doing so can cause the module to fail or malfunction.
- (6) Tighten the terminal screws using torque within the following ranges. Loose screws may cause short circuits, mechanical failures or malfunctions.

Screw location	Tightening torque range		
Module fixing screw (M3 screw)	0.36 to 0.48 N · m		
Terminal block terminal screw (M3 screw)	0.42 to 0.58 N · m		
Terminal block mounting screw (M3.5 screw)	0.66 to 0.89 N · m		

5. Wiring

5.1 Wiring precautions

- (1) Use separate cables for the AC control circuit and the external input signals of the Q64AD-GH to avoid the influence of the AC side surges and inductions
- (2) Perform an one-point grounding for shielded lines and the shields of sealed cables. (3) Do not mount the cables close to or bundle them with the main circuit line, a highvoltage cable or a load cable from other than the programmable controller. This
- may increase the effects of noise, surges and induction. (4) Perform an one-point grounding for shielded lines and the shields of sealed cables.
- (5) A solderless terminal with insulating sleeve cannot be used for the terminal block. Covering the cable-connection portion of the solderless terminal with a marked tube or an insulation tube is recommended

5.2 External wiring





(2) For current input



- Use a 2-core twisted shielded wire for the power wire
- Shows input resistance. For current input, be sure to connect to (V+) and (I+) terminals.
- Be sure to ground the shield wire of each channel.
- The SLD terminal can be used when grounding, however it has not been wired inside the board. Ground it as chown in the diagram shown above or below

It as shown in the diag	grann Shown abov	e or delow.
In addition, ground the	FG of the power	supply mod



5.3 Switch setting for intelligent functional module

The settings for the intelligent function module are performed using the I/O

assignment settings for the GX Developer. It can be easy to set by inputting in hexadecimal-4 digits.





unit (mm (in.))

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A For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi.
 This product has been manufactured under strict quality control. However, when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

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