MITSUBISHI

Channel Isolated Digital-Analog Converter Module

Thank you for buying the Mitsubishi general-purpose programmable logic controller MELSEC Q Series.

Prior to use, please read both this manual and detailed manual thoroughly and familiarize yourself with the product.

User's Manual (Hardware)



Logic Controller

	MODEL	Q-D/A-FG-U-HW
ble	MODEL Number	13JT91
		IB-0800277-C (0706)

-0800277-C (0706) MEE

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SAFETY PRECAUTIONS

(Read these precautions before using.)

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

These precautions apply only to Mitsubishi equipment. Refer to the user's manual of the CPU module to use for a description of the PLC system safety precautions.

These ● SAFETY PRECAUTIONS ● classify the safety precautions into two categories: "DANGER" and "CAUTION".

:	DANGER
•	
:	∴ CAUTION

Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly. Procedures which may lead to a dangerous condition and

cause superficial to medium injury, or physical damage only, if not carried out properly.

Depending on circumstances, procedures indicated by **ACAUTION** may also be linked

In any case, it is important to follow the directions for usage. Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[DESIGN PRECAUTIONS]

⚠ CAUTION

- n cables with the main circuit or nower wire
- Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other.

 They should be installed 100 mm (3.94 inch) or more from each other.

 Not doing so could result in noise that may cause malfunction.

 At power ON/OFF, voltage or current may instantaneously be output from the output terminal of this module. In such case, wait until the analog output becomes stable to start controlling the overant device.
- [INSTALLATION PRECAUTIONS]

⚠CAUTION

- Use the PLC in an environment that meets the general specifications given in the User's Manual of the CPU module being used.

 Using this PLC in an environment outside the range of the general specifications may cause electric shock, fire, malfunction, and damage to or deterioration of the product.

 While pressing the installation lever located at the bottom of module, insert the module fixing tab into the fixing hole in the base unit until it stops. Improper installation may result in malfunction, breakdown or the module coming loose and dropping. Securely fix the module with screws if it is subject to vibration during use. Tighten the screws within the range of specified torque. If the screws are loose, it may cause the module to fallout, short circuits, or malfunction. If the screws are lightened too much, it may cause damage to the screw and/or the module, resulting in fallout, short circuits or malfunction.

 Be sure to shut off all phases of the external power supply used by the system before mounting or removing the module.

- removing the module.

 Not doing so may cause damage to the module.

 Do not directly touch the conductive area or electronic components of the module.

 Doing so may cause malfunction or failure in the module.

WIRING PRECAUTIONS

- ⚠CAUTION
 vays ground the FG terminal for the PLC. There is a risk of electric shock or malfunction When turning on the power and operating the module after wiring is completed, always attach the terminal cover that comes with the product.
- There is a risk of electric shock if the terminal cover is not attached Use applicable solderless terminals and tighten them with the specified torque. If any solderless
- e terminal is used, it may be disconnected when the terminal screw comes loose, resulting ir
- tailure.

 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.

 Be careful not to let foreign matters such as sawdust or wire chips get inside the module.

 These may cause fires, failure or malfunction.
- nese may cause tres, railure or maltunction.

 The top surface of the module is covered with protective film to prevent foreign objects such as cable offcuts from entering the module when wiring.

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

Re	lated	Manual	

Manual Name	Manual No. (Model code)
Channel Isolated Digital-Analog Converter Module User's Manual	SH-080281E(13JR52)

Conformance to the EMC Directive/Low Voltage Directive
When incorporating the Mitsubishi PLC into other machinery or equipment and keeping
compliance with the EMC and low voltage directives, refer to Chapter 3, "EMC Directives and
Low Voltage Directives" of the User's Manual (Hardware) included with the CPU module or base

Low Voltage Directives of the Oscion and American Unit used.

The CE logo is printed on the rating plate on the main body of the PLC that conforms to the EMC directive and low voltage instruction.

By making this product conform to the EMC directive and low voltage instruction, it is not necessary to make those steps individually.

1. Overview

This manual explains specifications and the names of the components for the type Q62DA-FG channel isolated digital-analog converter module (hereafter Q62DA-FG) which are used in combination with the MELSEC-Q Series CPU

Specifications

The specifications for the Q62DA-FG are shown in the following table. For general specifications, refer to the operation manual for the CPU module being

usea.									
Item	Туре	Q62DA-FG							
Number of analog outputs		2 points (2 channels)							
Digital input		16-bit signed binary (-12288 to 12287, -16384 to 16383)							
3	Voltage		-12 to 12VDC (I						_
Analog output	Current		0 to 20mADC (External load resistance: 0 to 600 Ω) 0 to 22mADC (Please refer to Note 3)						
		Ana	Analog output range Digital input value Maximum resolution						
		0 to 5\/					0.416mV		
			1 to 5V		0 to 12000		0.333mV		1
		Voltage			-16000 to	16000	0.62		1
I/ O characteristics		Ů	User range setti	na 2	400001	40000	0.36	6mV	1
maximum resolution	on		User range setti		-12000 to	12000	0.18	3mV	1
			0 to 20mA		04-40	000	1.66	βμΑ	1
		Current	4 to 20mA		0 to 12	0 to 12000		βμΑ	1
			User range setti	ng 1	-12000 to	12000	0.67	1 μΑ	1
Accuracy (Accuracy relative	Reference accuracy *1		Within ± 0.1%	(Volta	age: ± 10m	V, Curre	nt: ± 20 μA)		_
to maximum analog output value)	Temperature coefficient *2	± 80ppm/ °C (0.008%/ °C)							
Conversion speed	l	10ms/2 channels							
Absolute	Voltage	± 13V							
maximum output	Current	23mA							
	Resolution	12bit							
Output monitor	Reference accuracy *1	± 0.2%							
	Temperature coefficient *2	± 160ppm/ °C (0.016%/ °C)							
Maximum number E ² PROM	of writes for	100,000							
Output short-circuit protection		Available					_		
		Specific	isolated area	Isola meth		Dielect	ric nd voltage	Insulation resistance	Ī
			the I/O terminal power supply	Phot	tocoupler tion				
Isolation specificat	tions	Between analog output channels		Tran isola	sformer tion	1780VAC rms/3 cycles		500VDC $10M \Omega$ or	ĺ
			n external supply nd analog output	Tran isola	sformer tion	(elevati	on 2000m)	more	

Type Item	Q62DA-FG		
Number of I/O occupied points	16 points		
Connected terminal	18 points terminal block		
Applicable wire size	0.3 to 0.75mm ²		
Applicable solderless terminals	R 1.25-3 (Solderless terminals with sleeves are not applicable)		
	24VDC, +20%, -15%		
External supply power	Ripple, spike within 500 mV p-p		
External supply power	Inrush current: 5.2A, within 300 μs		
	0.3A		
Internal current consumption (5 VDC)	0.37A		
Weight	0.20kg		

- *1: Accuracy of offset/gain setting at ambient temperature
- Q62DA-FG needs to be powered on 30 minutes prior to operation for compliance to the specification
- (accuracy).

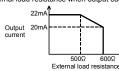
 *2: Accuracy per temperature change of 1 °C

 Example: Accuracy when temperature changes from 25 to 30 °C

 0.1% (Reference accuracy) + 0.008% °C (temperature coefficient)

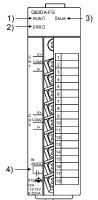
 × 5 °C (temperature change difference) = 0.14%

 *3: The following indicates the external load resistance when output current is 20mA or more.



Part Names

This section explains the names of the components for the Q62DA-FG.



Terminal number	Signal name			
1		V+		
2	CH1	COM1		
3		l+		
4	Vac	ant		
5	Vac	ant		
6	Vac	ant		
7	Vac	ant		
8	Vacant			
9		V+		
10	CH2	COM2		
11		I+		
12	Vac	ant		
13	Vacant			
14	Vacant			
15	Vacant			
16	24 V			
17	24 G			
18	FG			

Number	Name	Description		
1)	RUN LED	Displays the operating status of the Q62DA-FG.		
		On : Normal operation		
		Flashing : During offset/gain setting mode		
		Off : 5V power supply interrupted, watch dog timer		
		error, 5V power switched off, watchdog timer error occurred, or online module change enabled.		
2)	ERR. LED	Displays the error status of the Q62DA-FG.		
		On : Error		
		Flashing : Error in switch settings		
		Switch No. 5 of the intelligent function module has been set to a value other than zero "0".		
		Off : Normal operation		
3)	ALM LED	Indicates the warning status of the Q62DA-FG.		
		On : During warning output occurrence		
		Flashing : During disconnection detection		
		Off : Normal operation		
4)	External power supply terminal	This is the terminal for connecting the 24 V DC external power supply.		

4. Handling Precautions

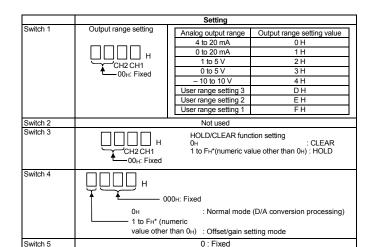
- (1) Do not drop the module or cause it to receive strong impact.
- (2) Tighten the terminal screws for the module to the specified torque shown below. Insufficient tightening torque could result in shorts, failures or malfunction.

Screw location	Tightening torque (M3 screw)
Module mounting 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

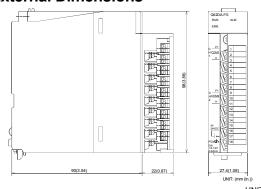
- (1) Use separate cables for the AC control circuit and the external input signals of the Q62DA-FG to avoid the influence of the AC side surges and inductions.
- (2) Ground one point of the shield for shielded wires or shielded cables.



Setting any value within the setting range will provide the same operation.

When the setting range is 1 to FH, set 1 for example.

6. External Dimensions

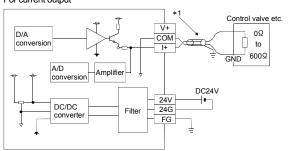


UNIT:(mm(in.))

5.2 External wiring

(1) For voltage output Control valve etc. 1kΩ СОМ Amplifier DC24V DC/DC 24G converter

(2) For current output



*1 Use a twisted two core shielded wire for the power wire.

IMPORTANT
Q62DA-FG needs to be powered on 30 minutes prior to operation for compliance to the specification (accuracy).

5.3 Switch setting for intelligent functional module

The settings for the intelligent function module are performed using the I/O allocation settings for the GX Developer. It can be easy to set by inputting using hexadecimal-4 digits.

Misubishi Electric shall not be liable for any loss caused by reasons for which Mitsubishi is not held accountable, lost business opportunities or unrealized gain on the customer's side resulting from failure of the product, or any other damage, secondary disaster, accident, damage to equipment other than the product or disruption of other business operations arising out of special circumstances which may or may not have been predicted at Mitsubishi.

!\text{ For safe use of the product

- This product is manufactured as a general-purpose product intended for general industrial use only. It is not designed nor manufactured for use in an equipment or system affecting human lives.

 If you are considering to use this product in equipment or systems for nuclear power generation, power generation, aerospace, medical or passenger transport applications, consult our sales representatives.

 This product is manufactured under our strict quality control system. However, if the product is used in the intended facility in such a way that a failure of the product may lead to serious accident or loss, incorporate backup or fail-safe functions into the system design.

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When exported from Japan, this manual does not require application to the Ministry