MITSUBISHI

Q62DA-FG

Channel Isolated Digital-Analog Converter Module

Thank you for buying the M controller MELSEC Q Serie		ourpose programmable logic
Prior to use, please read bo and familiarize yourself with		etailed manual thoroughly
		User's Manual (Hardware)
MELDEG-Q	MODEL	Q-D/A-FG-U-HW

Mitsubishi Programmable	MODEL Number	13JT91	
Logic Controller		IB-0800277-C (0706) MEE	
©2002 MITSUBISHI ELECTRIC CORPORATION			

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 "C	AUTION".
	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.

not carried out properly.
Depending on circumstances, procedures indicated by <u>A</u>CAUTION may also be linked to serious results.

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]

nication cables with the main circuit or power wires Do not bunch the con

- Do not build 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 external 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 malfunction, is beakdown or the module coming loose and
 dropping. Securely fix the module with screws if it is subject to vibration during use.
 If the screws are tophened too much, it may cause the module to fallout, short circuits, or malfunction.
 If the screws are topose, it may cause the module to fallout, short circuits, 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 ways 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 a pplicable solderless terminals and tighten them with the specified torque. If any solderless spade terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.

- tature. 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. The two under of the module is or malfunction.
- I hese may cause hres, failure or malfunction. 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.

Related Manual

Manual Name	Manual No. (Model code)
Channel Isolated Digital-Analog Converter Module User's Manual	SH-080281E(13JR52)
Conformance to the FMC Directive/Levy/Altere Directive	

- 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 own of the name of the number 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 module

2. 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 heau

usea.	Туре							
Item		Q62DA-FG						
Number of analog outputs		2 points (2 channels)						
Digital input		16-bit signed binary (-12288 to 12287, -16384 to 16383)						
	Voltage		-12 to 12VDC (
Analog output	Current	0 to 20mADC (External load resistance: 0 to 600 Ω) 0 to 22mADC (Please refer to Note 3))		
		Ana	log output range		Digital inp	ut value	Maximum	resolution
			0 to 5V				0.41	
			1 to 5V		0 to 12000		0.33	3mV
		Voltage	-10 to 10V		-16000 to	16000	0.62	5mV
I/ O characteristics maximum resolution			User range setti	ng 2	-12000 to	12000	0.36	6mV
maximum resoluti			User range setti	ng 3	- 12000 to	12000	0.18	3mV
			0 to 20mA		0 to 12	000	1.66	βμΑ
		Current	4 to 20mA		0 to 12	:000	1.33	βµA
			User range setti	ng 1	-12000 to	12000	0.67	1 μA
Accuracy Reference (Accuracy relative 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	1	10ms/2 channels						
Absolute	Voltage				± 13V			
maximum output					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						
Isolation specifications		Specific	isolated area	Isola meth		Dielecti withsta	ric nd voltage	Insulation
		and PLC	the I/O terminal power supply analog output	Phot isolat	tion tion	1780V/	AC rms/3	500VDC 10M Ω or
			external supply and analog output	Tran isolat	sformer tion	(elevati	on 2000m)	more

Number Name Description plays the operating status of the Q62DA-FG. RUNTED Normal operation Flashing : During offset/gain setting mode 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 Flashing : Error in switch settings Switch No. 5 of the intelligent function module has been set to a value other than zero "0". Normal operation Indicates the warning status of the Q62DA-FG. ALM LED 3) n : During warning output occurrence ashing : During disconnection detection Normal operation 4) External power supply terminal This is the terr ninal 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.

Tightening torque (M3 screw)	
0.36 to 0.48 N · m	
0.42 to 0.58 N · m	
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.



(2) For current output



efore, power on 30 minutes prior to offset/gain setting or after online module replace

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.

3. Part Names

4)-

This se

A-FG	Terminal number	Signal	name	
0 0alm ← 3)	1		V+	
2	2	CH1	COM1	
	3		+	
ال <u>ا</u> ليا	4	Vaca	ant	
	5	Vaca	ant	
	6	Vaca	ant	
	7	Vaca	ant	
10 0	8	Vacant		
	9		V+	
	10	CH2	COM2	
10	11		+	
11	12	Vacant		
13	13	Vacant		
B 14	14	Vacant		
10	15	Vacant		
V5 18	16	24 V		
	17	24 G		
<u> </u>	18	FG		

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 settin Q62DA-FG needs to be powered (accuracy).	g at ambient temperature on 30 minutes prior to operation for compliance to the specification		

Q62DA-FG

16 points

*2: Accuracy per temperature change of 1 °C

Number of I/O occupied points

Accuracy per temperature changes from 10 °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.



amon of the companyon for the OG2DA EC

5.2 External wiring



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

6. External Dimensions



UNIT:(mm(in.))

Warranty

Misubishi Electric shall not be liable for any loss caused by reasons for which Mitsubishi is not held accountable, bst 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.

Nor 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.

Country/Region	Sales office/Tel		Sales office/Tel
U.S.A	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway Vernon Hills, IL 60061	Hong Kong	Ryoden Automation Ltd. 10th Floor, Manulife Tower, 169 Electric Road, North Point, HongKong
Brazil	Tel : +1-847-478-2100 MELCO-TEC Rep. Com.e Assessoria Tecnica Ltda. Rua Correia Dias, 184,	China	Tel:+852-2887-8870 Ryoden Automation Shanghai Ltd. 3F Block5 Building Automation Instrumentation Plaza 103 Cao Bao Rd
Germany	Edificio Paraiso Trade Center-8 andar Paraiso, Sao Paulo, SP Brazil Tel : +55-11-5908-8331 Mitsubishi Electric Europe B.V. German	Taiwan	Shanghai 200233 China Tel : +86-21-6120-0808 Setsuyo Enterprise Co., Ltd. 6F., No.105 Wu-Kung 3rd.RD, Wu-Ku
	Branch Gothaer Strasse 8 D-40880 Ratingen, GERMANY Tel: +49-2102-486-0	Korea	Hsiang, Taipei Hsine, Taiwan Tel: +886-2-229-2499 HAN NEUNG TECHNO CO.,LTD. 1F Dong Seo Game Channel Bldg., 660-11, Deungchon-dong Kangsec-ku,
U.K	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Herts., AL10 8XB,UK Tel : +44-1707-276100	Singapore	Seoul, Korea Tel : +82-2-3660-9552 Mitsubishi Electric Asia Pte, Ltd. 307 Alexandra Road #05-01/02,
Italy	Mitsubish Electric Europe B.V. Italian Branch Centro Dir. Colleoni, Pal. Perseo-Ingr.2 Via Paracelso 12, 20041 Agrate B., Milano, Italy Tel: + 39-039-6053344	Thailand	Mitsubishi Electric Building Singapore 159943 Tel : +65-6473-2308 F. A. Tech Co.,Ltd. 898/28,29,30 S.V.City Building,Office Tower 2. Floor 17-18 Rama 3 Road.
Spain	Mitsubishi Electric Europe B.V. Spanish Branch Carretera de Rubi 76-80 08190 Sant Cugat del Valles, Barcelona, Spain Tel : +34-93-565-3131	Indonesia	Bangkpongpang, Yannawa, Bangkok 10120 Tel: + +66-2-682-6522 P.T. Autoteknindo SUMBER MAKMUR JI. Muara Karang Selatan Block a Utarr No.1 Kav. No.11 Kawasan Industri/
France	Mitsubishi Electric Europe B.V. French Branch 25 Boulevard des Bouvets, F-92741	India	Pergudangan Jakarta - Utara 14440 Tel : +62-21-663-0833 Messung Systems Put,Ltd.
	Nanterre Cedex, France TEL: +33-1-5568-5568		Electronic Sadan NO:111 Unit No15, M.I.D.C BHOSARI,PUNE-411026, India Tel : +91-20-712-2807
South Africa	Circuit Breaker Industries LTD. Tripswitch Drive, Elandsfontein Gauteng, South Africa Tel: +27-11-928-2000	Australia	Mitsubishi Electric Australia Pty. Ltd. 348 Victoria Road, PostalBag, No 2, Rydalmere, N.S.W 2116, Australia Tel : +61-2-9684-7777

When exported from Japan, this manual does not require application to the Ministry of Econ ny, Trade and Industry for service transaction per

> ns subject to change without noti rinted in Japan on recycled pap