Channel Isolated Digital-Analog Converter Module

User's Manual





Mitsubishi Programmable Controller



Q62DA-FG GX Configurator-DA (SW2D5C-QDAU-E)

SAFETY PRECAUTIONS •

(Always read these instructions before using this equipment.)

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

The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the user's manual of the CPU module to use. In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".



Note that the \triangle CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[DESIGN PRECAUTION]

 Do not write data into the "system area" of the buffer memory of intelligent function modules. Also, do not use any "prohibited to use" signals as an output signal to an intelligent function module from the programmable controller CPU.
 Writing data into the "system area" or outputting a signal for "prohibited to use" may cause a programmable controller system malfunction.

• 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 100mm(3.9inch) 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]

 Use the programmable controller in an environment that meets the general specifications contained in the user's manual of the CPU module to use. 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. 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 tightened 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. Not doing so may cause damage to the module. In the system where a CPU module supporting the online module change is used and on the MELSECNET/H remote I/O stations, modules can be replaced online (during energizing). However, there are some restrictions on replaceable modules and the replacement procedures are predetermined for each module.
 For details, refer to the chapter of the online module change in this manual. 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]

 Always ground the FG terminal for the programmable controller. 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 spade terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
 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 matter such as sawdust or wire chips get inside the module. They may cause fires, 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 ventilation.

[STARTING AND MAINTENANCE PRECAUTIONS]

	not disassemble or modify the modules. ng so could cause failure, malfunction injury or fire.
Be	sure to shut off all phases of the external power supply used by the system before mounting emoving the module.
	doing so may cause failure or malfunction of the module.
In tl	he system where a CPU module supporting the online module change is used and on the
Ho	LSECNET/H remote I/O stations, modules can be replaced online (during energizing). wever, there are some restrictions on replaceable modules and the replacement procedures predetermined for each module.
For	details, refer to the chapter of the online module change in this manual.
mo	not install/remove the module to/from the base unit, or the terminal block to/from the module re than 50 times after the first use of the product. (IEC 61131-2 compliant) lure to do so may cause malfunction.
	not touch the connector while the power is on. ng so may cause malfunction.
	tch off all phases of the externally supplied power used in the system when cleaning the dule or retightening the terminal or module fixing screws.
Not	doing so may cause failure or malfunction of the module.
lf th	e screws are loose, it may cause the module to fallout, short circuits, or malfunction.
	e screws are tightened too much, it may cause damages to the screws and/or the module, ulting in the module falling out, short circuits or malfunction.
	ays make sure to touch the grounded metal to discharge the electricity charged in the body, , before touching the module.
Fail	lure to do so may cause a failure or malfunctions of the module.

[DISPOSAL PRECAUTIONS]

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

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INTRODUCTION

Thank you for purchasing the MELSEC-Q series programmable controller. Before using the equipment, please read this manual carefully to develop full familiarity with the functions and performance of the Q series programmable controller you have purchased, so as to ensure correct use. Please forward a copy of this manual to the end user.

CONTENTS

SAFETY PRECAUTIONS	Λ 1	
REVISIONS		
CONTENTS		
About Manuals	A- 8	5
Compliance with the EMC and Low Voltage Directives	A- 9)
About the Generic Terms and Abbreviations	A- 9)
Product Structure	A-10)
1 OVERVIEW	1- 1 to 1- 3	;
1.1 Features		
2 SYSTEM CONFIGURATION	2- 1 to 2- 6	;
2.1 Applicable Systems		
2.2 Precautions on System Configuration		
2.3 How to Check the Function Version and Software Version		
		'
3 SPECIFICATIONS	3- 1 to 3-31	
3.1 Performance Specifications	2 1	
3.1.1 Performance specifications list		
3.1.2 I/O conversion characteristics		
3.1.3 Accuracy		
3.2 Function List		
3.2.1 Analog output HOLD/CLEAR function		
3.2.2 Analog output test during programmable controller CPU STOP		
3.2.3 Output monitor function		
3.2.4 Warning output function		
3.2.5 Rate control function		
3.2.6 Disconnection detection function		
3.3 I/O Signals for the Programmable Controller CPU		
3.3.1 List of I/O signals		
3.3.2 Details of I/O signals		
3.4 Buffer Memory		
3.4.1 Buffer memory assignment		
3.4.2 D/A conversion enable/disable setting (buffer memory address 0: Un\G0)		
3.4.3 CH digital values (buffer memory addresses 1, 2: Un\G1, Un\G2)		
3.4.4 CH□ set value check codes (buffer memory addresses 1, 2. Oh(G1, Oh(G2)		
3.4.5 Error codes (buffer memory address 19: Un/G19)		
3.4.6 Setting range (buffer memory address 20: Un\G20)		
0.7.0 Octing range (build memory address 20. OMO20)		,

5 UTILITY PACKAGE (GX Configurator-DA)	5- 1 to 5-31
5.1 Utility Package Functions	
5.2 Installing and Uninstalling the Utility Package	
5.2.1 Handling precautions	
5.2.2 Operating environment	
5.3 Utility Package Operation	
5.3.1 Common utility package operations	
5.3.2 Operation overview	
5.3.3 Starting the intelligent function module utility	5-11
5.4 Initial Setting	5-14
5.5 Auto Refresh Setting	5-15
5.6 Monitor/Test	5-17
5.6.1 Monitor/test screen	5-17
5.6.2 Offset/gain setting operation	
5.6.3 Confirmation of Conversion Characteristic	
5.6.4 Pass data	
5.7 FB Conversion of Initial Setting/Auto Refresh Setting	
5.8 Usage of FB	
5.8.1 Outline	
5.8.2 Paste an FB to a Sequence Program	
5.8.3 Convert (Compile) a Sequence Program	

3.4.10 CH output monitor value (buffer memory addresses 38, 39: Un\G38, Un\G39)	3-26
3.4.11 Rate control enable/disable setting (buffer memory address 46: Un\G46)	3-26
3.4.12 Disconnection detection/warning output setting (buffer memory address 47: Un\G47)	3-27
3.4.13 Warning output flag (buffer memory address 48: Un\G48)	3-27
3.4.14 Disconnection detection flag (buffer memory address 49: Un\G49)	3-28
3.4.15 CH□ increase/decrease digital limit values (buffer memory addresses 70 to 73:	
Un\G70 to Un\G73)	3-28
3.4.16 CH ^I warning output upper limit value/lower limit value (buffer memory addresses 86 to 89:	
Un\G86 to Un\G89)	3-28
3.4.17 Mode switching setting (buffer memory addresses 158, 159: Un\G158, Un\G159)	3-29
3.4.18 Pass data classification setting (buffer memory addresses 200: Un\G200)	3-29
3.4.19 Industrial shipment settings and user range settings offset/gain values	
(buffer memory addresses 202 to 217: Un\G202 to Un\G217)	3-30

4 SETUP AND PROCEDURES BEFORE OPERATION

3.4.7 Offset/gain setting mode and offset/gain specification (buffer memory addresses 22, 23:

A - 6

4- 1 to 4-15

6 PROGRAMMING	6- 1 to 6-14
6.1 Programming Procedure	6- 1
6.2 For Use in Normal System Configuration	
6.2.1 Program example using the utility package	
6.2.2 Programming example without using the utility package	
6.3 For Use on Remote I/O Network	
6.3.1 Program example using the utility package	
6.3.2 Program example without using the utility package	6-11

7 ONLINE MODULE CHANGE

7.1 Online Module Change Conditions
7.2 Online Module Change Operations
7.3 Online Module Change Procedure
7.3.1 When industrial shipment setting is used and initial setting was made with GX Configurator-DA. 7-4
7.3.2 When industrial shipment setting is used and initial setting was made with sequence program 7-8
7.3.3 When user range setting is used and initial setting was made with GX Configurator-DA
(other system is available)
7.3.4 When user range setting is used and initial setting was made with GX Configurator-DA
(other system is unavailable)7-16
7.3.5 When user range setting is used and initial setting was made with sequence program
(other system is available)
7.3.6 When user range setting is used and initial setting was made with sequence program
(other system is unavailable)7-26
7.4 Range Reference Table
7.5 Precautions for Online Module Change

8 TROUBLESHOOTING

3.1 Error Code List	3-	1
3.2 Troubleshooting	3-	3
8.2.1 When the "RUN" LED is flashing or turned off	3-	3
8.2.2 When the "ERR." LED is on or flashing	3-	3
8.2.3 When the "ALM" LED is turned on or flashing	3-	3
8.2.4 When an analog output value is not output	3	4
8.2.5 When analog output value is not held	3-	5
8.2.6 Checking the Q62DA-FG status using GX Developer system monitor	3-	5

APPENDIX

Appendix 1 Dedicated Instruction List and Available Device	App- 1
Appendix 1.1 G(P).OFFGAN	App- 2
Appendix 1.2 G(P).OGLOAD	Арр- 4
Appendix 1.3 G(P).OGSTOR	App- 7
Appendix 2 Performance Comparison between Q62DA-FG and Q62DA	App-10
Appendix 3 External Dimension Diagram	App-11
INDEX	Index- 1 to Index- 2

App-1 to App-11

8- 1 to 8- 6

7- 1 to 7-31

About Manuals

The following manuals are also related to this product.

If necessary, order them by quoting the details in the tables below.

Related Manuals

Manual Name	Manual Number (Model Code)
GX Developer Version 8 Operating Manual Describes the methods of using GX Developer to create a program and print out, monitor, and debug the program. (Sold separately)	SH-080373E (13JU41)
GX Developer Version 8 Operating Manual (Function Block) Describes the methods of using GX Developer to create a function block and print out the function block. (Sold separately)	SH-080376E (13JU44)

REMARK

If you would like to obtain a manual individually, printed matters are available separately. Order the manual by quoting the manual number on the table above (model code).

Compliance with the EMC and Low Voltage Directives

- (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 on 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.

About the Generic Terms and Abbreviations

Abbreviation/general terms	Description of the abbreviation/general terms			
DOS/V personal computer	IBM PC/AT [®] or compatible computer with DOS/V.			
	Generic product name for the SWnD5C-GPPW-E, SWnD5C-GPPW-EA, SWnD5C-			
GX Developer	GPPW-EV and SWnD5C-GPPW-EVA. ("n" is 4 or greater.)			
	"-A" and "-V" denote volume license product and upgraded product respectively.			
GX Configurator-DA	Generic term for digital-analog conversion module setting and monitor tool GX			
GX Configurator-DA	Configurator-DA (SW2D5C-QDAU-E).			
	Generic term for the Q00JCPU, Q00CPU, Q01CPU, Q02CPU, Q02HCPU, Q06HCPU,			
	Q12HCPU, Q25HCPU, Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU,			
QCPU (Q mode)	Q12PRHCPU, Q25PRHCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU,			
	Q06UDHCPU, Q13UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU,			
	Q06UDEHCPU, Q13UDEHCPU, and Q26UDEHCPU			
Process CPU	Generic term for Q02PHCPU, Q06PHCPU, Q12PHCPU and Q25PHCPU.			
Personal computer	Generic term for DOS/V personal computer.			
Industrial shipment setting	Generic term for analog input ranges 0 to 5V, 1 to 5V, -10 to 10V, 0 to 20mA and 4 to 20mA.			
FB	Abbreviation of function block.			
	Generic term for the following:			
	Microsoft [®] Windows Vista [®] Home Basic Operating System,			
NAVE A NOT A R	Microsoft [®] Windows Vista [®] Home Premium Operating System,			
Windows Vista®	Microsoft [®] Windows Vista [®] Business Operating System,			
	Microsoft [®] Windows Vista [®] Ultimate Operating System,			
	Microsoft [®] Windows Vista [®] Enterprise Operating System			
	Generic term for the following:			
Windows [®] XP	Microsoft [®] Windows [®] XP Professional Operating System,			
	Microsoft [®] Windows [®] XP Home Edition Operating System			

Unless otherwise specified, this manual uses the following generic terms and abbreviations.

Product Structure

The product structure of this product is given in the table below.

Manual Name	Product name	Quantity	
Q62DA-FG	Q62DA-FG Model Channel Isolated Digital-Analog Conve	1	
SW2D5C-QDAU-E	GX Configurator-DA Version 2(1-license product) (CD-ROM)		1
SW2D5C-QDAU-EA	GX Configurator-DA Version 2(Multiple-license product)	(CD-ROM)	1

1 OVERVIEW

This User's Manual describes the specifications, handling and programming methods for the Q62DA-FG type channel isolated digital-analog converter module (hereinafter referred to as the Q62DA-FG) which are used in conjunction with MELSEC-Q series CPU module (hereinafter referred to as the programmable controller CPU).

1.1 Features

(1) Channel isolated

The module is isolated between the channels and between the external supply power and channels.

(2) High accuracy

The reference accuracy *1 is as high as \pm 0.1% and the temperature coefficient *2 is as high as \pm 80ppm/°C.

- *1: Accuracy attained at the ambient temperature when offset/gain setting has been made
- *2: Accuracy per temperature change of 1°C
 - Example) Accuracy when the ambient temperature varies from 25°C to 30°C 0.1% (reference accuracy) + 0.008%/°C (temperature coefficient)
 - imes 5°C (temperature variation difference) = 0.14%

(3) Output range switching

The output range *1 switching can be set easily from GX Developer.

- *1: The output range indicates the offset/gain setting type. Besides the generally often used output ranges available as defaults, the user can make offset/gain settings and use the values.
- (4) Analog output hold/clear function This function is used to set whether the analog output value will be held or cleared when the CPU module is in a STOP status or when a stop error occurs.
- (5) Output monitor function

The analog output value output by D/A conversion is reconverted into a digital value within the Q62DA-FG and the result is stored into the buffer memory as an output monitor value.

- (6) Warning output function A warning is output if a digital input value falls outside the setting range.
- (7) Rate control function The increment and decrement of the analog output value per conversion cycle can be restricted.
- (8) Disconnection detection function When the analog output range is 4 to 20mA or user range setting 1, the output monitor value is watched to detect disconnection.

(9) Online module change

The module can be changed without the system being stopped. Further, the dedicated instruction (G(P). OGLOAD, G(P). OGSTOR), write to the buffer memory, or turning ON the Y signal enables "inheritance of offset/gain settings to the new Q62DA-FG replacing the old one changed online" and "transfer of offset/gain settings to the other Q62DA-FG mounted on the other slot". (These apply to the modules of the same model.)

(10) Offset/gain setting

GX Configurator-DA, dedicated instruction (G(P). OFFGAN) or mode switching setting allows a shift to the offset/gain setting mode easily.

(11) Easy settings using the utility package

A utility package is sold separately (GX Configurator-DA). The utility package is not a required item, however, it is useful for on-screen setting of the intelligent function module parameters (initial setting/auto refresh setting). In addition, FB ^{* 1} can be generated automatically from the intelligent function module parameters that have been set up and used in a sequence program.

 *1: FB is the function for making a circuit block used in a sequence program repeatedly a part (FB) to use it in the sequence program. This function can improve the efficiency of program development and minimize program bugs to improve program qualities.

For the details of FB, refer to "GX Developer Version 8 Operating Manual (Function Block)."

MEMO

2 SYSTEM CONFIGURATION

This chapter explains the system configuration of the Q62DA-FG.

2.1 Applicable Systems

This section describes the applicable systems.

- (1) Applicable modules and base units, and No. of modules
 - (a) When mounted with a CPU module
 The table below shows the CPU modules and base units applicable to the
 Q62DA-FG and quantities for each CPU model.

 Depending on the combination with other modules or the number of
 mounted modules, power supply capacity may be insufficient.
 Pay attention to the power supply capacity before mounting modules, and if
 the power supply capacity is insufficient, change the combination of the
 modules.

Applicable CPU module		No. of modules * ¹	Base	unit * ²		
CPI	J type	CPU model	No. of modules	Main base unit	Extension base unit	
	De sie weedel		Up to 16			
	Basic model QCPU	Q00CPU	l In to 24	0	0	
	QCFU	Q01CPU	Up to 24			
		Q02CPU				
	High	Q02HCPU				
	Performance	Q06HCPU	Up to 64	0	0	
	model QCPU	Q12HCPU	_			
		Q25HCPU				
		Q02PHCPU	-			
	Process CPU	Q06PHCPU	Up to 64	0	0	
		Q12PHCPU		\bigcirc		
		Q25PHCPU				
Programmable	Redundant CPU	Q12PRHCPU	CPU Up to 53	×	0	
controller CPU		Q25PRHCPU		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
		Q02UCPU	Up to 36			
		Q03UDCPU				
		Q04UDHCPU	-			
		Q06UDHCPU	-			
	Universal model	Q13UDHCPU	-			
	QCPU	Q26UDHCPU	Up to 64	0	0	
		Q03UDECPU	-			
		Q04UDEHCPU				
	T T	Q06UDEHCPU	-			
		Q13UDEHCPU				
		Q26UDEHCPU				
	Safety CPU	QS001CPU	N/A	×	×	

Applicable CPU module		No. of modules * 1	Base unit * ²		
CPU type CPU model		No. of modules	Main base unit	Extension base unit	
	Q06CCPU-V		0	0	
C Controller module	Q06CCPU-V-B	Up to 64	0	0	

○: Applicable, ×: N/A

*1: Limited within the range of I/O points for the CPU module.

- *2: Can be installed to any I/O slot of a base unit.
- (b) Mounting to a MELSECNET/H remote I/O station
- The table below shows the network modules and base units applicable to the Q62DA-FG and quantities for each network module model.
 Depending on the combination with other modules or the number of mounted modules, power supply capacity may be insufficient.
 Pay attention to the power supply capacity before mounting modules, and if the power supply capacity is insufficient, change the combination of the modules.

Anniachte network		Base unit * ²		
Applicable network module	No. of modules * ¹	Main base unit of remote I/O station	Extension base unit of remote I/O station	
QJ72LP25-25				
QJ72LP25G	Lip to 64	0		
QJ72LP25GE	Up to 64	0	0	
QJ72BR15				

 \bigcirc : Applicable, \times : N/A

- *1: Limited within the range of I/O points for the network module.
- *2: Can be installed to any I/O slot of a base unit.

REMARK

The Basic model QCPU or C Controller module cannot create the MELSECNET/H remote I/O network.

(2) Compatibility with a multiple CPU system When using the Q62DA-FG in a multiple CPU system, refer to the following manual first.

• QCPU User's Manual (Multiple CPU System)

- (a) Compatible Q62DA-FG
 Use a Q62DA-FG with function version C or higher if using the module in a multiple CPU system.
- (b) Intelligent function module parameters Write intelligent function module parameters to only the control CPU of the Q62DA-FG.
- (3) Compatibility with online module change To make an online module change, use the module of function version C or later.

(4) Supported software packages

Relation between the system containing the Q62DA-FG and software package is shown in the following table.

GX Developer is necessary when using the Q62DA-FG.

		Software	e Version	
		GX Developer	GX Configurator-DA	
Q00J/Q00/Q01CPU	Single CPU system	Version 7 or later		
	Multiple CPU system	Version 8 or later		
Q02/Q02H/Q06H/	Single CPU system	Version 4 or later		
Q12H/Q25HCPU	Multiple CPU system	Version 6 or later	Version 1.14Q or later	
	Single CPU system	Version 8.68W or later	Version 1.14Q of later	
Q02PH/Q06PHCPU	Multiple CPU system	version 8.6800 of later		
	Single CPU system	Version 7 40L er leter		
Q12PH/Q25PHCPU	Multiple CPU system	Version 7.10L or later		
Q12PRH/	Redundant CPU	Version 8.45X or later	Version 1.15R or later	
Q25PRHCPU	system			
Q02U/Q03UD/ Q04UDH/ Q06UDHCPU	Single CPU system Multiple CPU system	Version 8.48A or later		
Q13UDH/	Single CPU system	Version 8.62Q or later	Version 2.06G or later	
Q26UDHCPU	Multiple CPU system			
Q03UDE/Q04UDEH/ Q06UDEH/Q13UDEH/	Single CPU system	Version 8.68W or later		
Q26UDEHCPU	Multiple CPU system			
If installed in a MELSEC station	CNET/H remote I/O	Version 6 or later	Version 1.14Q or later	

2.2 Precautions on System Configuration

(1) For Use with Q12PRH/Q25PRHCPU

- (a) Dedicated instruction The dedicated instruction cannot be used.
- (b) GX Configurator-DA connection GX Configurator-DA cannot be used when accessing the Q12PRH/Q25PRHCPU via an intelligent function module on an extension base unit from GX Developer. Connect a personal computer with a communication path indicated below.



Connection through an intelligent function module on the main base unit (Through Ethernet module, MELSECNET/H module, or CC-Link module)

2.3 How to Check the Function Version and Software Version

This section describes how to check the function version of the Q62DA-FG and the GX Configuration-DA software version.

- (1) Checking the function version of the Q62DA-FG
 - (a) Checking at "the SERIAL field of the rating plate" located on the side of the module

	MELSEC-Q	
MITSUBISHI	PASSED	
MODEL		
		Function version
SERIAL 051217000000	<u>0000(-C)</u>	
	•	Relevant regulation standards
	MADE IN JAPAN	

- (b) To check the version using the GX Developer See Section 8.2.6 of this manual.
- (2) Checking the software version of GX Configurator-DA The software version of GX Configuration-DA can be checked in GX Developer's "Product information" screen.

[Operating procedure]

 $\mathsf{GX} \ \mathsf{Developer} \to [\mathsf{Help}] \to [\mathsf{Product} \ \mathsf{information}]$

Product information	
Programming and Maintenance tool GX Developer Version 7.13P (SW7D5C-GPPW-E)	
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(In the case of GX Developer Version 7)

REMARK

The version indication for the GX Configurator-DA has been changed as shown below from the SW0D5C-QDAU-E 60G upgrade product.

Previous product

Upgrade and subsequent versions SW0D5C-QDAU-E 60G \rightarrow GX Configurator-DA Version 1.10L

3 SPECIFICATIONS

3.1 Performance Specifications

3.1.1 Performance specifications list

Table 3.1 Performance sp	ecifications list
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literee	Туре			Q62DA-I	−G		
Item	touto						
Number of analog outputs Digital input		2 points (2 channels) 16-bit signed binary (-12288 to 12287, -16384 to 16383)					
Digital iliput	Voltage			VDC (External load i			
Analog output	vollage						
Current		0 to 20mADC (External load resistance: 0 to 600 Ω) 0 to 22mADC (Please refer to Note 3)					
		An	alog output range	Digita	l input value	Maxi	mum resolution
			0 to 5V 1 to 5V	01	o 12000		0.416mV 0.333mV
V O share stariation		Voltage	-10 to 10V	-1600	00 to 16000	o 16000	
I/ O characteristics maximum resolution			User range settir	ng 2 1200	0 to 12000		0.366mV
Inaximum resolution			User range settir		00 to 12000		0.183mV
			0 to 20mA	0.1	- 12000		1.66 µA
		Current	4 to 20mA		o 12000		1.33 µA
			User range settir	ng 1 -1200	00 to 12000		0.671 µA
Accuracy (Accuracy relative to maximum	Reference accuracy * ¹		Within ±	0.1% (Voltage: ± 10	mV, Current: \pm 20	μA)	
analog output value)	Temperature coefficient*2			± 80ppm/ °C (0.	008%/ °C)		
Conversion speed	•			10ms/2 cha	nnels		
Absolute maximum	Voltage		±13V				
output	Current			23mA			
	Resolution			12bit			
	Reference	± 0.2%					
Output monitor	accuracy*1	工 0.2%					
	Temperature coefficient*2	± 160ppm/ °C (0.016%/ °C)					
Maximum number of E ² PROM	writes for	100,000					
Output short-circuit pr	rotection		Available				
		Specifi	c isolated area	Isolation method	Dielectric wi		Insulation
					voltag	е	resistance
Isolation specification	s	Between the I/O terminal and programmable controller power supply		Photocoupler isolati			
•		Between an channels	alog output	Transformer isolatic		1780VAC rms/3 cycles { (elevation 2000m)	
			ternal supply power output cannel	Transformer isolatio	isolation		
Number of I/O occupi	ed points		16 poi	nts (I/O assignment:	Intelligent 16 point	s)	
Connected terminal			10 001	18 points termi		/	
Applicable wire size		0.3 to 0.75mm ²					
Applicable solderless terminals R 1.25-3 (Solderless terminals with sleeves are not applicable))			
External supply power			, , , , , , , , , , , , , , , , , , , ,	24VDC, +20%			
		Ripple, spike within 500 mV p-p					
		Inrush current: 5.2A, within 300 μ s					
		0.3A					
Internal current consu (5 VDC)	umption	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 $^\circ\text{C}$

0.1% (Reference accuracy) + 0.008%/ °C (temperature coefficient) \times 5 °C (temperature change difference) = 0.14% *3: The following indicates the external load resistance when output current is 20mA or more.





See the user's manual for the CPU module being used for the general specifications for the Q62DA-FG.

3.1.2 I/O conversion characteristics

I/O conversion characteristics are used for converting the digital value written from the programmable controller CPU to an analog output value (voltage or current output), and represented by inclined straight lines when offset and gain values are included.

Offset value

The offset value is the analog output value (voltage or current) when the digital input value set from the programmable controller CPU is 0.

Gain value

The gain value denotes the analog output value (voltage or current) when the digital input value set from the programmable controller CPU is

12000 (when 1 to 5V, 0 to 5V, 4 to 20 mA, 0 to 20 mA or the user range setting1 to 3 is selected),

16000 (when -10 to 10V is selected).



(1) Voltage output characteristic

Figure 3.1 shows a graph of the voltage output characteristic.

Figure 3.1 Voltage output characteristic

POINT

(1)	Set within the digital input range and analog output range for each output
	range.

If these ranges are exceeded, the maximum resolution and accuracy may not fall within the performance specifications. (Avoid using the dotted line area shown in Figures 3.1.)

- (2) Set the offset/gain values for the user range setting2 *1 within a range in which the following conditions are satisfied.
 - (a) Setting range is from -12 to 12 V.
 - (b) { (Gain value) (Offset value) } > 4.5A
- (3) Set the offset/gain values for the user range setting3 *2 within a range in which the following conditions are satisfied.
 - (a) Setting range is from 0.5 to 6 V.
 - (b) { (Gain value) (Offset value) } > 3A



(2) Current output characteristic

Figure 3.2 shows a graph of the current output characteristic.

Figure 3.2 Current output characteristic

POINT

(1) Set within the digital input range and analog output range for each output range.

If these ranges are exceeded, the maximum resolution and accuracy may not fall within the performance specifications. (Avoid using the dotted line area shown in Figures 3.2.)

- (2) Set the offset/gain values for the user range setting1 *1 within a range in which the following conditions are satisfied.
 - (a) Setting range is from 0 to 22 mA
 - (b) { (Gain value) (Offset value) } > 10mA

3.1.3 Accuracy

The reference accuracy is the accuracy at the ambient temperature for offset/gain setting.

The temperature coefficient is the accuracy per temperature variation of 1°C.

The reference accuracy is the accuracy relative to the maximum value of the analog output value.

Even if the offset/gain setting or analog output range is changed to change the output characteristic, the reference accuracy and temperature coefficient do not vary and are kept within the ranges given in the performance specifications.

Example) Accuracy when the temperature varies from 25°C to 30°C

0.1% (reference accuracy) + 0.008%/°C (temperature coefficient) \times 5°C (difference in temperature variation) = 0.14%

3.2 Function List

Table 3.2 shows the function of the Q62DA-FG.

Table 3.2 Function list

Item	Function	Reference section	
D/A conversion enable/disable function	• The conversion speed is 10ms regardless of the number of conversion		
D/A output enable/disable function			
Analog output HOLD/CLEAR function			
Analog output test during programmable controller CPU STOP	 When the CH[□] output enable/disable flag is forced ON during programmable controller CPU STOP, the D/A converted analog value is output. 	Section 3.2.2	
Output monitor function	• The analog output value output by D/A conversion is reconverted into a digital value within the Q62DA-FG and the result is stored into the buffer memory as an output monitor value.	Section 3.2.3	
Warning output function	• A warning is output if a digital input value falls outside the setting range.	Section 3.2.4	
Rate control function	ate control function • The increment and decrement of the analog output value per conversion cycle can be restricted.		
Disconnection detection function	 When the output range is 4 to 20mA or user range setting 1, the output monitor value is watched to detect disconnection. 	Section 3.2.6	
Online module change	The module can be changed without the system being stopped.	Chapter 7	

3.2.1 Analog output HOLD/CLEAR function

- (1) For the case where the programmable controller CPU is placed in STOP or in a stop error status, whether to hold (HOLD) or clear (CLEAR) the analog output value can be set.
- (2) Make the setting in the HOLD/CLEAR setting (Refer to Section 4.5(1)). of the intelligent function modulemodule switchswitch.
- (3) Depending on combinations of the HOLD/CLEAR setting, D/A conversion enable/disable setting (Un\G0), and CH output enable/disable flag (Y1, Y2), the analog out-put status varies as shown in Table 3.3.

Setting	D/A conversion enable/disable Setting (buffer memory address 0: Un\G0)	Enable			Disable
combination execution status	CH□ output enable/disable flags (Y1, Y2)	Enable		Disable	Enable or disable
Sialus	HOLD/CLEAR setting	HOLD	CLEAR	HOLD or CLEAR	HOLD or CLEAR
Analog outpu CPU is RUN	Analog output status when programmable controller CPU is RUN		Outputs the analog value of the D/A converted digital value. *2		0 V/0 mA
Analog outpu CPU is STOF	t status when programmable controller	Hold	Offset	Offset	0 V/0 mA
Analog output status when a programmable controller CPU stop error occurs		Hold	Offset	Offset	0 V/0 mA
Analog output status when a watchdog timer error *1 occurs in Q62DA-FG		0 V/0 mA	0 V/0 mA	0 V/0 mA	0 V/0 mA

Table 3.3 Analog output status combination list

*1 This occurs when program operations are not completed within the scheduled time due to a hardware problem of the Q62DA-FG. When a watchdog timer error occurs, module ready (X0) turns OFF and the Q62DA-FG RUN LED turns off.

*2 The rate control function is activated.

POINT

The following conditions should be satisfied when the analog output HOLD/CLEAR function is used on a MELSECNET/H remote I/O station.

- The master module of function version D or later and the remote I/O module of function version D or later are required.
- Validate the station unit block guarantee of the send side cyclic data.
- The setting for holding the Q62DA-FG output in the case of a link error must be made in the "Error time output mode in the I/O assignment setting". (Refer to Section 4.5 (2).) The HOLD/CLEAR setting by the intelligent function module switch is invalid.

This setting is validated on a per-module basis, and is not made on a per-channel basis. Therefore, to make the output status at a stop error or STOP of the programmable controller CPU matched with the output status at a link error, set the same .HOLD/CLEAR setting to all channels. (Refer to the table below.)

	Error time output mode	HOLD/CLEAR setting (Same setting to all channels)
Hold analog output	Hold	HOLD
Clear analog output (Output offset value)	Clear	CLEAR

For the station unit block guarantee of the cyclic data, refer to the Q Corresponding MELSECNET/H

Network System Reference Manual (Remote I/O Network).

3.2.2 Analog output test during programmable controller CPU STOP

- (1) During the programmable controller CPU STOP, an analog output test as shown in Table 3.4 can be performed.
- (2) The analog output test performs the following operations in GX Developer device testing or GX Configurator-DA selection testing described in Section 5.6.1.
 - (a) Set D/A conversion enable/disable setting (buffer memory address 0: Un\G0) of the channel to be tested to enable.
 - (b) Switch the operating condition setting request (Y9) from OFF to ON to OFF. (Refer to Section 3.3.2.)
 - (c) Sets the output enable/disable flag (Y1, Y2) for the channel to be tested to enable (OFF \rightarrow ON).
 - (d) Writes a digital value equivalent to the analog value to be output in CH□ digital value (see Table 3.6 in Section 3.4.1) in the buffer memory.

Setting combination	D/A conversion enable/ disable setting (buffer memory address 0: Un\G0)	Enable		Disable	
	CH□ output enable/ disable flags (Y1, Y2)	Enable	Disable	Enable	disable
Analog output test		Allowed	Not allowed	Not allowed * 1	

Table 3.4 List of analog output test

*1 Perform the analog output test after changing the D/A conversion enable/disable setting (buffer memory address 0: Un\G0) to enable.

POINT

When the digital value storage device has been set in the automatic refresh setting of GX Configurator-DA, the buffer memory is overwritten since automatic refresh is performed if the programmable controller CPU is during STOP.

In this case, write a digital value to the digital value storage device instead of the buffer memory.

3.2.3 Output monitor function

To check the actually output analog value, the analog output value is converted into a digital value within the Q62DA-FG and the result is stored at the buffer memory addresses 38,39 (Un\G38, Un\G39) as an output monitor value.

The monitor start flag (X8) is turned ON when the A/D conversion of the analog output value is completed.

A/D conversion is performed on the D/A conversion-enabled channel to update the output monitor value.



POINT

The output monitor value is stored into the buffer memory a maximum of two conversion cycles (20ms) after the digital input value has been written. Hence, the digital input value and output monitor value compared immediately after write will not be the same.



3.2.4 Warning output function

- (1) If the digital value written to the buffer memory is equal to or greater than the warning output upper limit value is equal to or less than the warning output lower limit value, the warning output flag (buffer memory address 48: Un\G48) and warning output signal (XE) turn ON to give a warning. The warning is output for the D/A conversion enabled channel only.
- (2) At occurrence of the warning, the analog output value is converted from the digital value at the warning output upper limit value or warning output lower limit value.
- (3) The warning output flag (buffer memory address 48: Un\G48) and warning output signal (XE) turn OFF when the operating condition setting request (Y9) or warning output clear request (YE) turns ON.
- (4) For the warning output function, the disconnection detection/warning output setting (buffer memory address 47: Un\G47) allows enable/disable of the warning output to be specified for each channel. To enable the warning output, write "0" to the bit position corresponding to the channel number and turn ON the operating condition setting request (Y9). The default is all-channel disable.



(5) Set the warning output upper and lower limit values to the buffer memory addresses 86 to 89 (Un\G86 to Un\G89).

- (1) If the warning is output immediately after D/A conversion is enabled, make a warning output clear request after writing the digital value that is less than the warning output upper limit value and is greater than the warning output lower limit value.
- (2) During an analog output test, the warning output function is invalid.

3.2.5 Rate control function

- (1) The increment and decrement of the analog output value per conversion cycle are restricted to prevent a sudden change of the analog output value.
- (2) For the rate control function, the rate control enable/disable setting (buffer memory address 46: Un\G46) allows enable/disable of the rate control to be specified for each channel.

To enable the rate control, write "0" to the bit position corresponding to the channel number and turn ON the operating condition setting request (Y9). The default is all-channel disable.

(3) Set the increase digital limit value and decrease digital limit value (buffer memory addresses 70 to 73: Un\G70 to Un\G73).

Example) The control example in the following case is indicated below. Output range: -10 to 10V

Increase digital limit value: 100 Decrease digital limit value: 100



- (4) If the operation of the programmable controller CPU varies at the setting of D/A conversion enable, D/A output enable and analog output clear, the rate control functions as indicated below.
 - If the programmable controller CPU has switched from RUN to STOP (error): Rate control does not function.
 - If the programmable controller CPU has switched from STOP (error) to RUN: Rate control functions.



3.2.6 Disconnection detection function

- (1) When the analog output value falls to or below 1ma ± accuracy (1.0%) in the output range of 4 to 20mA or user range setting 1, the disconnection detection flag (buffer memory address 49: Un\G49) and disconnection detection signal (XD) turn ON and disconnection is detected.
 Disconnection is detected only on the channel set for D/A conversion enable and D/A output enable.
- (2) The disconnection detection flag (buffer memory address 49: Un\G49) and disconnection detection signal (XD) turn OFF when the operating condition setting request (Y9) or disconnection detection clear request (YD) turns ON.
- (3) For the disconnection detection function, the disconnection detection/warning output setting (buffer memory address 47: Un\G47) allows enable/disable of the disconnection detection to be specified for each channel. To enable the disconnection detection, write "0" to the bit position corresponding to the channel number and turn ON the operating condition setting request (Y9). The default is all-channel disable.



POINT

If the analog output value is 1mA or less at the user range setting 1, disconnection is detected if disconnection has not occurred actually.

When the analog output value is 1mA or less, disable the disconnection detection function.

3.3 I/O Signals for the Programmable Controller CPU

3.3.1 List of I/O signals

Table 3.5 shows a list of the I/O signals for the Q62DA-FG. Note that I/O numbers (X/Y) shown in this chapter and thereafter are the values when the start I/O number for the Q62DA-FG is set to 0.

Signal direction	Q62DA-FG \rightarrow CPU module	Signal direction	CPU module ← Q62DA-FG	
Device No	Signal name	Device No.	Signal name	
X0	Module ready	Y0	Use prohibited * ¹	
X1		Y1	CH1 Output enable/disable flag	
X2		Y2	CH2 Output enable/disable flag	
X3		Y3		
X4	Use prohibited *1	Y4		
X5		Y5	Use prohibited *1 Operating condition setting request	
X6		Y6		
X7		Y7		
X8	Monitor start flag	Y8		
Х9	Operating condition setting completed flag	Y9		
XA	Offset/gain setting mode flag	YA	User range writing request	
ХВ	Channel change completed flag	YB	Channel change request	
XC	Set value change completed flag	YC	Set value change request	
XD	Disconnection detection signal	YD	Disconnection detection clear request	
XE	Warning output signal	YE	Warning output clear request	
XF	Error flag	YF	Error clear request	

POINT

*1 These signals cannot be used by the user since they are used by the system. If these are turned ON/OFF by the sequence program, the functioning of the Q62DA-FG cannot be guaranteed.
3.3.2 Details of I/O signals

I/O signals for the Q62DA-FG are explained in detail below.

(1)	Input signals
· · /	in par orginalo

Device No.	Signal name	Description
X0	Module ready	 When the programmable controller CPU is powered on or reset, this signal turns on once the preparation for D/A conversion has been completed, and D/A conversion processing is then performed. When the Module ready (X0) signal is off, D/A conversion processing is not performed. Module ready (X0) turns off in the following situations: During offset/gain setting mode When the Q62DA-FG has a watchdog timer error
X8	Monitor start flag	 This flag turns ON at completion of the A/D conversion of the output analog value, and the output monitor value is stored. The monitor start flag turns OFF when the operating condition setting request (Y9) turns ON.
Х9	Operating condition setting completed flag	 (1) This is used as an interlock condition for turning ON/OFF the operating condition setting request (Y9) when any of the following settings is changed. D/A conversion enable/disable setting (buffer memory address 0: Un\G0) Rate control enable/disable setting (buffer memory address 46: Un\G46) Disconnection detection/warning output setting (buffer memory address 47: Un\G47) Increase/decrease digital limit value (buffer memory addresses 70 to 73: Un\G70 to 73) (2) Under the following conditions, the operating condition setting completed flag (X9) turns OFF. When operating condition setting request (Y9) is ON → Performed by the Q62DA-FG → Performed by the sequence program Module ready (X0) // Operating condition setting (X9) Operating condition setting (X9)

3 SPECIFICATIONS

Device No.	Signal name	Description
ХА	Offset/gain setting mode flag	[In offset/gain setting mode] (1) This is used as an interlock condition for setting the user range write request (YA) to ON/OFF when registering the value after adjustment of the offset/gain settings have been completed. (2) See Section 4.6 regarding the offset/gain settings. ———— Performed by the Q62DA-FG ———— Performed by the sequence program Module ready (X0) Offset/gain setting mode flag (XA) User range write request (YA) (In normal mode] (1) This is signal is used as an interlock condition to run ON/OFF the User range writing request (YA) when the user range is restored. (2) See Chapter 7 regarding the user range restoration. ———— Performed by the Q62DA-FG ———— Performed by the Sequence program Module ready (X0) Offset/gain setting mode flag (XA) ————— Performed by the sequence program Module ready (X0) Offset/gain setting mode flag (XA)
ХВ	Channel change completed flag	 (1) This is used as an interlock condition for turning ON/OFF the channel change request (YB) when changing the channel where offset/gain settings will be performed or changing the offset/gain range settings. (2) See Section 4.6 regarding the offset/gain settings. → Performed by the Q62DA-FG → Performed by the sequence program Offset/gain setting mode Offset/gain specifications (buffer memory addresses 22 and 23: Un\G23) Offset/gain range setting (buffer memory addresses 25: Un\G25) Channel change completed flag (XB) Channel change request (YB)

3 SPECIFICATIONS

Device No.	Signal name	Description
ХС	Set value change completed flag	 (1) This is used as an interlock condition for setting the set value change request (YC) to ON/OFF when adjusting the offset/gain settings. (2) See Section 4.6 regarding the offset and gain settings. → Performed by the Q62DA-FG → Performed by the sequence program Set value change completed flag (XC) Set value change request (YC)
XD	Disconnection detection signal	 (1) This turns ON if disconnection is detected on any one channel at 4 to 20mA or user range setting 1. (2) Turning ON the disconnection detection clear request (YD) or operating condition setting request (Y9) turns OFF the disconnection detection signal (XD). → Performed by the Q62DA-FG → Performed by the sequence program Disconnection detection Disconnection detection
XE	Warning output signal	clear request (YD) (1) This turns ON if the digital input value on any of the channels enabled for D/A conversion rises to or above the warning output upper limit value or falls below the warning output lower limit value. (2) Turning ON the warning output clear request (YE) or operating condition setting request (Y9) turns OFF the warning output signal (XE).
XF	Error flag	 (1) The error flag turns ON when a write error occurs. (2) To turn the error flag (XF) OFF, remove the cause of the error and set the error clear request (YF) to ON. The error code (buffer memory address 19: Un\G19) changes to 0 and the ERR. LED turns off. > Performed by the Q62DA-FG > Performed by the sequence program Error flag (XF) Error clear request (YF) Error clear request (YF)

3 SPECIFICATIONS

(2)	Output	signals
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Device No.	Signal name	Description
Y1 to Y2	CH⊡ output enable/disable flag	 Specifies whether to output the D/A converted value or offset value for each channel. ON: D/A converted value OFF: Offset value The D/A conversion speed is constant regardless of whether the output enable/disable flag is ON or OFF.
Y9	Operating condition setting request	 (1) Turn ON this signal when changing any of the following settings and making the setting valid. D/A conversion enable/disable setting (buffer memory address 0: Un\G0) Rate control enable/disable setting (buffer memory address 46: Un\G46) Disconnection detection/warning output setting (buffer memory address 47: Un\G47) Increase/decrease digital limit value (buffer memory addresses 70 to 73: Un\G70 to 73) (2) See the X9 column for the ON/OFF timing.
YA	User range write request	 [In offset/gain setting mode] (1) This turns ON when the values for the adjusted offset/gain settings are registered in the Q62DA-FG. (2) See the XA column for ON/OFF timing. See Section 4.6 for offset/gain settings. [In normal mode] (1) Turn ON this signal when restoring the user range. (2) See the XA column for the ON/OFF timing. See Chapter 7 for the user range restoration.
YB	Channel change request	 Turn ON this signal when changing the channel where the offset/gain settings will be performed or changing the offset/gain range settings. See the XB column for the ON/OFF timing.
YC	Set value change request	 This turns ON/OFF when increasing or decreasing the analog output value during adjustment of the offset/gain settings. The analog output is incremented or decremented depending on the value set to the offset/gain adjustment value specification (buffer memory address 24: Un\G24).
YD	Disconnection detection clear request	(1) Turn ON this signal when clearing the disconnection detection.(2) See the XD column for the ON/OFF timing.
YE	Warning output clear request	(1) Turn ON this signal when clearing the warning output.(2) See the XE column for the ON/OFF timing.
YF	Error clear request	 (1) This turns ON when a write error is cleared. (2) See the XF column for ON/OFF timing.



3.4 Buffer Memory

3.4.1 Buffer memory assignment

Table 3.6 indicates the buffer memory assignment of the Q62DA-FG.

POINT

Do not write data from system area or sequence program to the buffer memory area where writing is disabled. Doing so may cause malfunction.

Address		Description	Default * 1	Read/write * 2
Hexadecimal	Decimal	Description	Delault	Read/white
0н	0	D/A conversion enable/disable setting	0003н	R/W
1н	1	CH1 Digital value	0	R/W
2н	2	CH2 Digital value	0	R/W
3н	3			
to	to	System area	_	_
Ан	10			
Вн	11	CH1 Set value check code	0	R
Сн	12	CH2 Set value check code	0	R
Dн	13			
to	to	System area	_	_
12н	18			
13н	19	Error code	0	R
14н	20	Setting range (CH1, CH2)	0	R
15н	21	System area	—	—
16н	22	Offset/gain setting mode	0	R/W
		Offset specification		
17н	23	Offset/gain setting mode	0	R/W
10	0.1	÷	Gain specification	
18H	24	Offset/gain adjustment value specification	0	R/W
19H	25	Offset/gain range setting	0	R/W
1Ан	26	Queters and		
to	to	System area	_	—
25н 20н	37 38			
26н		CH1 Output monitor value	0	R
27H	39	CH2 Output monitor value	0	R
28н	40	Contract and		
to 2Dн	to	System area	_	_
2Dн 2Eн	45 46	Poto control cochic/dicable cotting	0003н	R/W
2Ен 2Fн	40	Rate control enable/disable setting		
		Disconnection detection/Warning output setting	3003н	R/W
<u>30н</u>	48	Warning output flag	0	R
31H	49	Disconnection detection flag	0	R
32н	50	Queters and		
to	to	System area	—	—
45н	69			

Table 3.6 Buffer memory assignment (1/2)

*1 This is the initial value set after the power is turned on or the programmable controller CPU is reset.

 ± 2 Indicates whether reading from and writing to a sequence program are enabled.

R : Reading enabled W : Writing enabled

Addr	ress	Description	Default * 1	Read/write *2	
Hexadecimal	Decimal	- Description	Delault	Reau/wille	
46н	70	CH1 Increase digital limit value	32000	R/W	
47 H	71	CH1 Decrease digital limit value	32000	R/W	
48H	72	CH2 Increase digital limit value	32000	R/W	
49н	73	CH2 Decrease digital limit value	32000	R/W	
4Ан	74				
to	to	System area	—	—	
55H	85			DAA	
56H	86	CH1 Warning output upper limit value	0	R/W	
57н 58н	87 88	CH1 Warning output lower limit value	0	R/W R/W	
50н 59н	89	CH2 Warning output upper limit value CH2 Warning output lower limit value	0	R/W	
59н 5Ан	90		0		
to	to	System area	_	_	
9Dн	157				
9Ен	158		0	R/W	
9 F н	159	Mode switching setting	0	R/W	
АОн	160				
to	to	System area	—	—	
С7н	199				
С8н	200	Pass data classification setting * ³	0	R/W	
С9н	201	System area	_	—	
САн	202	CH1 Industrial shipment settings offset value (used for D/A) *3	0	R/W	
СВн	203	CH1 Industrial shipment settings gain value (used for D/A) *3	0	R/W	
ССн	204	CH2 Industrial shipment settings offset value (used for D/A) * ³	0	R/W	
СDн	205	CH2 Industrial shipment settings gain value (used for D/A) * 3	0	R/W	
СЕн	206	CH1 Industrial shipment settings offset value (used for monitor output) ^{*3}	0	R/W	
СҒн	207	CH1 Industrial shipment settings gain value (used for monitor output) * ³	0	R/W	
D0н	208	CH2 Industrial shipment settings offset value (used for monitor output) * ³	0	R/W	
D1н	209	CH2 Industrial shipment settings gain value (used for monitor output) ^{*3}	0	R/W	
D2H	210	CH1 User range settings offset value (used for D/A) * 3	0	R/W	
D3н	211	CH1 User range settings gain value (used for D/A) * ³	0	R/W	
D4н	212	CH2 User range settings offset value (used for D/A) $*^3$	0	R/W	
D4H D5H	212	CH2 User range settings gain value (used for D/A) * ³	0	R/W	
		CH1 User range settings offset value (used for monitor output) *3			
D6н	214		0	R/W	
D7н	215	CH1 User range settings gain value (used for monitor output) *3	0	R/W	
D8H	216	CH2 User range settings offset value (used for monitor output) *3	0	R/W	
D9н	217	CH2 User range settings gain value (used for monitor output) *3	0	R/W	

*1 This is the initial value set after the power is turned on or the programmable controller CPU is reset.
*2 Indicates whether reading from and writing to a sequence program are enabled.
R : Reading enabled W : Writing enabled
*3 Areas used to restore the user range settings offset/gain values when online module change is made. Refer to chapter 7 for details of online module change.

3.4.2 D/A conversion enable/disable setting (buffer memory address 0: Un\G0)

- (1) Set whether D/A conversion is enabled or disabled for each channel.
- (2) It is necessary to set the operating condition setting request (Y9) to ON/OFF to validate the D/A conversion enable/disable setting. (See Section 3.3.2.)
- (3) By default, all channels are set to D/A conversion disabled.

Un\G0

h

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	CH 2	CH 1	

b2 to b15 information is fixed at 0.

1: D/A conversion disabled 0: D/A conversion enabled

POINT

Design the system so that the D/A conversion enable/disable setting (buffer memory address 0 : Un\G0) changes to "Enable" after the external power (see Section 4.3) is supplied. Analog output may not properly be performed if the external power is not at the

Analog output may not properly be performed if the external power is not a specified voltage.

3.4.3 CH□ digital values (buffer memory addresses 1, 2: Un\G1, Un\G2)

- (1) This area is used to write digital values for performing D/A conversion from the programmable controller CPU as 16-bit signed binary code.
- (2) If a value outside the settable range is written, the upper or lower limit value of the range is used for D/A conversion. (Refer to Table 3.7.) Also, if this happens, a check code and an error code will be stored in the Set value check code (Un\G11 Un\G12) and Error code (Un \G19) respectively.

Output range setting	Valid range (practical range)	Digital value that is set when a value outside the valid range is written		
0: 4 to 20 mA 1: 0 to 20 mA 2: 1 to 5 V 3: 0 to 5 V	0 to 12287 (Practical range: 0 to 12000)	12288 or larger: 12287 –1 or smaller: 0		
4: –10 to 10 V	-16384 to 16383 (Practical range: -16000 to 16000)	16384 or larger: 16383 –16385 or smaller: 16384		
D: User range setting3 E: User range setting2 F: User range setting1	-12288 to 12287 (Practical range: -12000 to 12000)	12288 or larger: 12287 –12289 or smaller: –12288		

	Table 3.7	Output rang	e settings	and valid	range
--	-----------	-------------	------------	-----------	-------

3.4.4 CH□ set value check codes (buffer memory addresses 11, 12: Un\G11, Un\G12)

- (1) This area stores the result of checking whether a digital value that was set is within or outside the valid range.
- (2) When a digital value outside the valid range (see Table 3.7) is written, one of the check codes listed in Table 3.8 is stored.

Check code	Description
000Fн	A digital value exceeding the valid range was written.
00F0 н	A digital value that falls short of the valid range was written.
	A digital value that either falls short or exceeds the valid range was written.
00FFH	For example, the 00FF⊣ check code is stored if a digital value exceeding the valid range is written, and then, without the check code being reset, a digital value that falls short of the valid range is written.

Table 3.8 Check code list

- (3) Once a check code is stored, it will not be reset even if the digital value is within the valid range.
- (4) To reset the CH□ set value check code, set the error clear request (YF) to ON after rewriting the digital value so that it is within the valid range.

3.4.5 Error codes (buffer memory address 19: Un\G19)

- (1) The error codes detected by the Q62DA-FG are stored.
- (2) See Section 8.1 for more details of the error codes.

3.4.6 Setting range (buffer memory address 20: Un\G20)

(1) This area is used to confirm the setting range of the Q62DA-FG.

	b15	to	b12	b11	to	b8	b7	to	b4	b3	to	b0
Un\G20 (setting range CH1, CH2)		0н			0н			CH2			CH1	
							,					

b8 to b15 information is fixed at 0.

Output range	Setting value
4 to 20 (mA)	Он
0 to 20 (mA)	1н
1 to 5 (V)	2н
0 to 5 (V)	3н
-10 to 10 (V)	4н
User range setting3	Dн
User range setting2	Ен
User range setting1	Fн

3.4.7 Offset/gain setting mode and offset/gain specification (buffer memory addresses 22, 23: Un\G22, Un\G23)

- (1) Specifies the channel to be adjusted for the offset/gain settings.
- (2) The channel change request (YB) must be turned ON/OFF to validate the offset/gain setting offset specification or gain specification. (Refer to Section 3.3.2.)
- (3) Specification can be made for 1 channel only. If setting is made for two or more channels simultaneously, an error occurs and the corresponding error code (buffer memory address 19: Un\G19) is stored.
- (4) See Section 4.6 for the details of the offset/gain settings.

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Un\G22 (Offset specification)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CH2	CH1
Un\G23 (Gain specification)		0	0	0	0	0	0	0	0	0	0	0	0	0	CH2	CH1
	<u> </u>														,	

b2 to b15 information is fixed at 0.

1: Channel to be set 0: Invalid

3.4.8 Offset/gain adjustment value specification (buffer memory address 24: Un\G24)

- (1) This area is used to set the amount of adjustment for analog output values in the offset/gain setting mode.
- (2) Turning the set value change request (YC) from OFF to ON increments or decrements the analog output value by the adjustment value.
- (3) The valid input range is from –3000 to 3000. When the input value is 1000, the analog output values can be adjusted by about 0.33 V (user range setting2) and about 0.18 V (user range setting3) for voltage output and about 0.67 mA for current output.
- (4) See Section 4.6 for the details of the offset/gain settings.

3.4.9 Offset/gain range setting (buffer memory address 25: Un\G25)

(1) This area is used to change the output range in the offset/gain setting mode. Turning ON the channel change request (YB) changes the output range into the set one.

If any value outside the setting range is set, an error occurs and the corresponding error code (buffer memory address 19: Un\G19) is stored.

Output range	Set value
User range setting 1	000Fн
User range setting 2	000Ен
User range setting 3	000Dн

- (2) The channel change request (YB) must be turned ON/OFF to validate the offset/gain range setting. (Refer to Section 3.3.2.)
- (3) Refer to Section 4.6 for details of offset/gain setting.

3.4.10 CH output monitor value (buffer memory addresses 38, 39: Un\G38, Un\G39)

(1) The analog value being output is always reconverted into a digital value within the Q62DA-FG and the result is stored. (Refer to Section 3.2.3.)

Output range setting	Output monitor value					
0 to 20 mA						
4 to 20 mA						
User range setting 1	0 to 12000					
1 to 5 V						
0 to 5 V						
-10 to 10 V	-16000 to 16000					
User range setting 2	-12000 to 12000					
User range setting 3	0 to 12000					

(2) Turning ON the operating condition setting request (Y9) clears the output monitor value.

3.4.11 Rate control enable/disable setting (buffer memory address 46: Un\G46)

- (1) Set whether to enable or disable the rate control on each channel. (Refer to Section 3.2.5.)
- (2) The operating condition setting request (Y9) must be turned ON/OFF to validate the rate control enable/disable setting. (Refer to Section 3.3.2.)
- (3) The default setting is all-channel rate control disable.



b2 to b15 information is fixed at 0.

1: Rate control disable 0: Rate control enable 3.4.12 Disconnection detection/warning output setting (buffer memory address 47: Un\G47)

- (1) Set whether to enable or disable the disconnection detection and warning output on each channel. (Refer to Section 3.2.4 and Section 3.2.6.)
- (2) The operating condition setting request (Y9) must be turned ON/OFF to validate the disconnection detection/warning output setting. (Refer to Section 3.3.2.)
- (3) The default setting is all-channel disconnection detection/warning output disable.



3.4.13 Warning output flag (buffer memory address 48: Un\G48)

- (1) When the digital input value falls outside the CH□ warning output upper limit value/lower limit value (buffer memory addresses 86 to 89: Un\G86 to Un\G89) range, the bit corresponding to the channel turns to "1". (Refer to Section 3.2.4.)
- (2) Whether the warning is the upper or lower limit value warning can be checked on each channel.
- (3) If the warning is detected on any of the channels enabled for conversion, the warning output signal (XE) also turns ON.
- (4) Turning ON the operating condition setting request (Y9) or warning output clear request (YE) clears the warning output flag.

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Un\G48	0	0	0	0	0	0	0	0	0	0	0	0	CH2 lower limit value	limit	limit	CH1 upper limit value
													, 1	·Wor	ning	

b4 to b15 information is fixed at 0.

1: Warning output 0: Normal

0: Normal

3.4.14 Disconnection detection flag (buffer memory address 49: Un\G49)

- (1) If disconnection occurs in the output range of 4 to 20mA or user range setting 1, the bit corresponding to the channel turns to "1". (Refer to Section 3.2.6.)
- (2) If disconnection is detected on any one channel, the disconnection detection signal (XD) also turns ON.
- (3) Turning ON the operating condition setting request (Y9) or disconnection detection clear request (YD) clears the disconnection detection flag.

	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
Un\G49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CH2	CH1
					b2 to	b15 ir	nforma	ation i	s fixe	d at 0				1: Dis		ection

3.4.15 CH□ increase/decrease digital limit values (buffer memory addresses 70 to 73: Un\G70 to Un\G73)

- (1) For rate control, set the range where the digital value can be incremented and decremented in a single conversion cycle (10ms). (Refer to Section 3.2.5.)
- (2) The setting range is 0 to 32000. If any value outside the setting range is set, an error occurs and the corresponding error code (buffer memory address 19: Un\G19) is stored.
- (3) The operating condition setting request (Y9) must be turned ON/OFF to validate the increase digital limit values and decrease digital limit values. (Refer to Section 3.3.2.)
- 3.4.16 CH□ warning output upper limit value/lower limit value (buffer memory addresses 86 to 89: Un\G86 to Un\G89)
 - (1) Set the upper and lower limit values of the digital input value for providing the warning output. (Refer to Section 3.2.4.)
 - (2) The setting range is -16384 to 16383. Make setting so that the upper limit value is greater than the lower limit value. If any value outside the setting range is set, an error occurs and the corresponding error code (buffer memory address 19: Un\G19) is stored.
 - (3) The operating condition setting request (Y9) must be turned ON/OFF to validate the warning output upper and lower limit values. (Refer to Section 3.3.2.)

3.4.17 Mode switching setting (buffer memory addresses 158, 159: Un\G158, Un\G159)

- (1) Set the values of the mode to which you want to switch.
- (2) After setting the values, turning the operation condition setting request (Y9) from OFF to ON switches to that mode.
- When mode switching is performed, this area is cleared to zero and the operating condition setting completed flag (X9) turns OFF.
 After confirming that the operating condition setting completed flag (X9) has turned OFF, turn OFF the operation condition setting request (Y9).

Mada to be switched to	Set values								
Mode to be switched to	Buffer memory address 158	Buffer memory address 15							
Normal mode	0964н	4144н							
Offset/gain setting mode	4144н	0964н							

POINT
If the values written are other than the above, mode switching is not performed and
only the operating condition is changed.

3.4.18 Pass data classification setting (buffer memory addresses 200: Un\G200)

 Areas used to restore the user range settings offset/gain values when online module change is made.

Refer to chapter 7 for details of online module change.

(2) Specify the user range setting to be saved/restored when saving/restoring the offset/gain values of any of the user range settings 1 to 3.

b15	to	b12	b11	to	b8	b7	to	b4	b3	to	b0
	0н			0н			CH2			CH1	
b	3 to b15	inform	ation is	fixed at	0.	1:	User ran User ran User ran	ge sett	ing 2 s	pecificatio	on

POINT	
Refer to Section	on 4.6 for the offset/gain value setting method.

3.4.19 Industrial shipment settings and user range settings offset/gain values (buffer memory addresses 202 to 217: Un\G202 to Un\G217)

- Areas used to restore the user range settings offset/gain values when online module change is made.
 Refer to chapter 7 for details of online module change.
- (2) When the offset/gain values of the user range setting are restored, the used data are stored.

The data are stored (saved) when:

- Initial setting write is performed by the utility;
- \bullet The operating condition is set (Y9 turns from OFF to ON *); or
- The offset/gain values are written in the offset/gain setting mode (YA turns from OFF to ON).
 - *: The data are not saved when values have been written to the mode switching setting area (buffer memory addresses 158, 159: Un\G158, Un\G159).
- (3) When restoring the offset/gain values of the user range setting, set the data saved here similarly into the corresponding area of the module where the data will be restored.
- (4) Buffer memory saving recording procedure for online module change
 - 1) Set the pass data classification setting (buffer memory addresses 200: Un\G200).
 - 2) Turn the operation condition setting request (Y9) from OFF to ON.
 - 3) Compare the offset/gain values of the industrial shipment settings and user range settings (buffer memory addresses 202 to 217: Un\G202 to Un\G217) with the range reference values. Refer to Section 7.4 for the range reference values.
 - 4) If the values are proper, record the offset/gain values of the pass data classification setting, industrial shipment settings and user range settings.

POINT

Refer to Section 4.6 for the offset/gain value setting method.

MEMO

4 SETUP AND PROCEDURES BEFORE OPERATION

4.1 Handling Precautions

- (1) Do not drop the module case or subject it to heavy impact.
- (2) Do not remove the PCB of the module from its case. Doing so may cause the module to fail.
- (3) Be careful not to let foreign particles such as swarf or wire chips enter the module. They may cause a fire, mechanical failure or malfunction.
- (4) The top surface of the module is covered with a protective film to prevent foreign objects such as wire burrs from entering the module during 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.
- (5) Tighten the screws such as module fixing screws within the following ranges. Loose screws may cause short circuits, failures, or malfunctions.

Screw location	Tightening torque range
Module fixing screw (M3 screw) * ¹	0.36 to 0.48 N · m
Terminal block screw (M3 screw)	0.42 to 0.58 N · m
Terminal block mounting screw (M3.5 screw)	0.66 to 0.89 N · m

*1: The module can be easily fixed onto the base unit using the hook at the top of the module.

However, it is recommended to secure the module with the module fixing screw if the module is subject to significant vibration.

(6) To mount the module on the base unit, fully insert the module fixing latch into the fixing hole in the base unit and press the module using the hole as a fulcrum. Improper installation may result in a module malfunction, or may cause the module to fall off.

4.2 Setup and Procedures before Operation



4.3 Part Identification Nomenclature

The name of each part in the Q62DA-FG is listed below.



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.

* Check the error code for details.

POINT When two or more errors have occurred, the latest error found by the Q62DA-FG is displayed on the LED.

Terminal number	Signal name				
1		V +			
2	CH1	COM1			
3	1+				
4	Vac	acant			
5	Vac	cant			
6	Vacant				
7	Vacant				
8	Vac	cant			
9		V +			
10	CH2	COM2			
11		+			
12	Vac	cant			
13	Vac	cant			
14	Vac	cant			
15	Vac	cant			
16	24	٩V			
17	24	IG			
18	F	G			

4.4 Wiring

The wiring precautions and examples of module connection are provided below.

4.4.1 Wiring precautions

In order to optimize the functions of the Q62DA-FG and ensure system reliability, external wiring that is protected from noise is required. Please observe the following precautions for external wiring:

- Use separate cables for the alternating-current control circuit and the external output signals and external supply power of the Q62DA-FG in order to avoid AC surges and induction effects.
- (2) Do not mount the cables close to or bundle them with the main circuit line, a high-voltage cable or a load cable from other than the programmable controller. This may increase the effects of noise, surges and induction.
- (3) Perform a one-point grounding for shielded lines and the shields of sealed cables.
- (4) 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.

4.4.2 External wiring



(1) For voltage output

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

(2) For current output



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

POINT

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

Therefore, power on 30 minutes prior to offset/gain setting or after online module replacement.

MELSEC-Q

4.5 Switch Setting for Intelligent Function Module

The settings for the intelligent function module are performed using the I/O assignment settings of GX Developer.

(1) Setting item

The intelligent function module switches consist of switches 1 to 5 and are set using 16 bit data. When the intelligent function module switches are not set, the default value for switches 1 to 5 is 0.



Table 4.1 Switch setting item for intelligent function module

* Setting any value within the setting range will provide the same operation. When the setting range is 1 to FH, set 1 for example.

(2) Operating procedure

Start the settings with GX Developer I/O assignment setting screen.

	Slot	Тур	e	Model name	Points	Start	
0	PLC	PLC			- Onites	-	Switch sett
1	0(*-0)	Intelli.	-	Q62DA-FG	1	-	-
2	1(*-1)		-		-	-	Detailed set
3	2(*-2)		-			-	
4	3(*-3)		-			-	-
5	4(*-4)		-			-	
6	5(*·5)		-			-	
7	6(*·6)		-			-	*
	is not poss	ble to check		ut, the PLC assigns t ectly, when there is a) on the wa	ay.
	is not poss andard setti	ble to check ng(*)	k corre	ectly, when there is a	slot of the unsetting	T T	ay. Base mode
	is not poss andard setti	ble to check	k corre			on the wa	-
Sta	is not poss andard setti	ble to check ng(*)	k corre	ectly, when there is a	slot of the unsetting	T T	Base mode
Sta Inc	is not poss andard setti B Main crease1	ble to check ng(*)	k corre	ectly, when there is a	slot of the unsetting	T T	Base mode
Sta Inc	is not poss andard setti Main crease1 crease2	ble to check ng(*)	k corre	ectly, when there is a	slot of the unsetting	Points	Base mode Auto C Detail
Sta Inc Inc	is not poss andard setti Main prease1 prease2 prease3	ble to check ng(*)	k corre	ectly, when there is a	slot of the unsetting	Points	Base mode
Sta Inc Inc Inc	is not poss andard setti Main crease1 crease2	ble to check ng(*)	k corre	ectly, when there is a	slot of the unsetting	Points	Base mode Auto C Detail

(a) I/O assignment setting screen

Set the following for the slot in which the D/A converter module is mounted. The type setting is required; set other items as needed.

Type : Select "intelli."

Model name : Enter the module model name.

Points : Select 16 points.

Start XY : Enter the start I/O number for the Q62DA-FG.

Detailed setting:

- When using in the standard system configuration (on the main or extension base), specify the control CPU of the Q62DA-FG.
 It is unnecessary to set the "Error time output mode" or "H/W error time PLC operation mode" since these settings are invalid for the Q62DA-FG.
- 2) When using on a remote I/O station, if the analog output is to be held in the case of a link error, "Error time output mode" must be set to "Hold".

Inte	elligent fui	nction mod	ule detailed settin	Ig				×
	Slot	Туре	Model name	Error tin outpu mode	ıt	1/O response time	•	
0	Remote I/O	Remote I/O			-			
1	0(*-0)	Intelli.	Q62DA-FG	Hold	-	-]	
2	1(×-1)				•	-		
3	2(*-2)				•	-		
4	3(*-3)				•	-		
5	4(*-4)				•	-		
6	5(*-5)				•	-		
7	6(*-6)				•	-		
8	7(*-7)				•	-		
9	8(*-8)				•	-		
10	9(*-9)				•	-		
11	10(*-10)				•	-		
12	11(*-11)				•			
13	12(*-12)				•	-		
14	13(*-13)				•			
15	14(*-14)				•	•	•	
					Ľ	End	Ľ	Cancel

(b) Switch setting for intelligent function module screen

Click on [Switch setting] on the I/O assignment setting screen to display the screen shown at the under, then set switches 1 to 5.

The switches can easily be set if values are entered in hexadecimal.

Change the entry format to hexadecimal and then enter the values.



4.6 Offset/Gain Settings

When the user range setting is used, perform the offset and gain settings according to the following procedure.

When the industrial shipment setting is used, offset/gain setting is not necessary. If the utility package is installed, perform the offset/gain settings according to the procedure described in Section 5.6.2.

(1) Offset/gain setting procedure



- *1 The mode switching (normal mode to offset/gain setting mode to normal mode) method is given below.
 - Dedicated instruction (G(P).OFFGAN) Refer to Section 4.6 (2), (a)

 - Intelligent function module switch setting Refer to Section 4.5, Section 4.6 (2), (c) (After intelligent function module switch setting, reset the programmable controller CPU or switch power OFF, then ON.)

POINT

- Perform the offset/gain settings in the range that satisfies the conditions specified in Section 3.1.2, (1) and (2).
 When the setting exceeds this range, the maximum resolution or total accuracy may not be within the range indicated in the performance specification.
- (2) Perform the offset/gain settings separately for each channel. If channels are set in buffer memory addresses 22 (Un\G22) and 23 (Un\G23) at the same time, an error will occur and the ERR. LED will be lit.
- (3) After the offset and gain settings are completed, verify that the offset and gain values have been set correctly under actual usage conditions.
- (4) The offset and gain values are stored into the E²PROM and are not erased at power-off.
- (5) At the time of offset/gain setting, turn ON the user range write request (YA) to write the values to the E²PROM.
 Data can be written to the E²PROM up to 100 thousand times.
 To prevent accidental write to the E²PROM, an error will occur and the error code (buffer memory address 19: Un\G19) will be stored if write is performed 26 consecutive times.
- (6) If an error (error code: 40 □ * ¹) occurs during offset/gain setting, re-set the correct offset/gain value.
 The offset/gain value of the channel where the error has occurred is not written to the Q62DA-FG. (*1: □ indicates the corresponding channel number.)
- Module Ready (X0) turns from OFF to ON when the offset/gain setting mode switches to the normal mode by the dedicated instruction (G(P).OFFGAN) or the setting of the mode switching setting (buffer memory addresses 158, 159: Un\G158, Un\G159).
 Note that initial setting processing will be executed if there is a sequence program that makes initial setting when Module Ready (X0) turns ON.
- (8) D/A conversion is discontinued if the mode is switched (from the normal mode to the offset/gain setting mode or from the offset/gain setting mode to the normal mode) by the dedicated instruction (G(P).OFFGAN) or the setting of the mode switching setting (buffer memory addresses 158, 159: Un\G158, Un\G159).
- (9) Buffer memory addresses 200 (Un\G200), 202 to 217 (Un\G202 to Un\G217) are the areas used to restore the user range settings offset/gain values when online module change is made. Refer to chapter 7 for details of online module change.

(2)	Program examples The program in the dotted area of (a) is common to (a), (b) and (c). In this example, the I/O signals for the Q62DA-FG are X/Y0 to X/YF.	
	Channel selection	M0
	Offset/gain range setting	M1
	Offset setting	M2
	Gain setting ·····	M3
	Channel change command ······	M4
	Writing the adjustment amount	M5
	Analog output value adjust command	M6
	Offset/gain setting value write command to the module	M7
	Mode switching	M8
	Normal mode checking signal	M50
	Channel designation storage device	D0
	Dedicated instruction (G(P).OFFGAN) setting storage device	D2
	Offset/gain adjustment storage device	D1

(a) When switching the mode using the dedicated instruction (G(P).OFFGAN) The following sample program switches to the offset/gain setting mode with the dedicated instruction (G(P).OFFGAN), changes the channel where offset/gain setting will be made, adjusts the offset/gain values, and writes the offset/gain values to the Q62DA-FG.

Switch		et/gain setting m	ode				
	M8 ↑			[MOVP	K 1	D2	Stores setting of dedicated instruction (G.OFFGAN) into D2.
				[G. OFFGAN	UO	D2	Dedicated instruction (G.OFFGAN)
*1 Switch			et/gain settings will be performed				
	MO ↑			[MOV	H1	DO	Stores channel where offset/ gain setting will be made into D0.
				Смоч	HOE	UON G25] Offset/gain range setting.
	M2	M3 XOA		Емоу	DO	UO\ G22] Specifies offset setting channel.
				Емоу	KO	UO\ G23	Sets 0 to buffer memory address 23.
		M3 XOA ──┤		[NOV	KO	U0\ G22	Sets 0 to buffer memory address 22.
				[NOV	DO	UO\ G23] Specifies gain setting channel.
	M4 ↑	X0A 			[SET	YOB	Turns ON channel change request (YB).
	хов				[rst	YOB	Turns OFF channel change request (YB).
Set the	e amount o	of each change	within the range from –3000 to 3000 during adju	stment			
	M5 ↑			[MOV	K100	D1] Set offset value adjustment to D1.
				Моу	D1	UO\ G24	Set D1 to buffer memory address 24.
Adjust		g output value					
	M6 ↑				[set	YOC	Jurn ON Set value change request (YC).
					[rst	YOC	Turn OFF Set value change request (YC).
Regist	er the resu	X04	settings in the module		[SET	YOA	Turns ON user range change request (YA).
					[rst	YOA	Turns OFF user range change request (YA).
Switch	les to norn						
	 ↓			[MOVP	KO	D2	Stores setting of dedicated instruction (G.OFFGAN) into D2.
				[G. OFFGAN	UO	D2] Dedicated instruction (G.OFFGAN)
	XOA			Process	sing in no	ormal mod	e]
						[END	Э

*1 The program in the dotted area is a common program.

(b) When switching the mode using the setting of the mode switching setting (buffer memory addresses 158, 159: Un\G158, Un\G159) and operation condition setting request (Y9)

ain setting	151 7 mod	⊻9 —	×9 	- *3 Adding initial setting	g items	¥9	Turns ON operation condition
ain setting	y mod	¥9 	×9		SET	Ү9	
ain setting	y mod	19 	×9 				setting request (Y9).
		le			RST	¥9	Turns OFF operation condition setting request (Y9)
11 4				Гмоу	H4144	U0\ G158	Sets 4144⊣ to buffer memory
				[Mov	Н964	U0\ G159	address 158. Sets 964⊢ to buffer memory
				Luov			⁻ address 159. Turns ON operation condition
					2		setting request (Y9).
м50	Y9	X9			L		Turns OFF operation conditio
1 1		_//			RST	¥9	setting request (Y9)
			(mmon program			_
mode	κo						Sata 064ta huffar mamaru
- ;				MOV	H964	G158	Control Sets 964H to buffer memory address 158.
	ŀ			[MOV	H4144	G159	Sets 4144⊢ to buffer memory address 159.
	-				SET	¥9	Turns ON operation condition setting request (Y9).
	-				SET	M51	Э
					RST	M50	F
M51 7	¥9				RST	¥9	Turns OFF operation condition setting request (Y9)
						—(то К10	> 1-second timer
м51 					RST	M51	3
							7
						-	1
	mode x0A 2 1	M51 Y9 1 - Y9			M50 Y9 X9 Common program mode NOA X0 I I I I I I I I I I I I I I I I I I I	M50 Y9 X9 (RST Common program MODE X0A X0 1 (MOV H964 (MOV H964 (MOV H4144 (SET (S	M50 Y9 X9 M50 Y9 X9 Common program (RST Y9 MODE (MOV H964 G158 M0V H4144 G159 (SET Y9 (SET W51 (TO (RST (TO (RST (TO (RST (TO (RST (SET W51 (TO (RST (TO (RST (TO (RST

setting

Only the common program is necessary.

MEMO

5 UTILITY PACKAGE (GX Configurator-DA)

5.1 Utility Package Functions

Table 5.1 shows an overview of the utility package functions.

Item	Description	Reference section			
Item	 (1) Set the following items that require initial setting. D/A conversion enable/disable setting Rate control enable/disable setting Increase/decrease digital limit values Disconnection detection setting Warning output setting Warning output setting Warning output upper limit value/lower limit value (2) The data for which initial setting has been completed is registered in the parameters for the programmable controller CPU, and automatically written to the Q62DA-FG when the programmable 	Section 5.4			
Auto refresh setting ^{* 1}	 controller CPU changes to RUN status. (1) Sets automatic refresh for the Q62DA-FG buffer memory. (2) The buffer memory that use set for submatic refresh in 				
Monitor/Test	 (1) Monitor/Test The buffer memory and I/O signals for the Q62DA-FG are monitored and tested. (2) Operating condition setting Changes the D/A conversion enable/disable during operation. (3) Offset/gain setting When setting the offset/gain to a value selected by the user (when the analog output range setting is user range setting), the offset and gain can be easily set while viewing the screen. (4) Pass data The pass data (pass data classification setting, industrial shipment settings offset/gain values, user range settings offset/gain values) can be monitored and set. 	Section 5.6			
FB conversion	Generates FB automatically from the intelligent function module parameter (initial setting/auto refresh setting).	Section 5.7			

POINT						
*1 If initial setting and automatic refresh setting are performed, the intelligent						
function m	nodule parameters require a maximum of 24 bytes per module.					

5.2 Installing and Uninstalling the Utility Package

For how to install or uninstall the utility package, refer to "Method of installing the MELSOFT Series" included in the utility package.

5.2.1 Handling precautions

The following explains the precautions on using the GX Configurator-DA.

(1) For safety

Since GX Configurator-DA is add-in software for GX Developer, read "Safety Precautions" and the basic operating procedures in the GX Developer Operating Manual.

(2) About installation

GX Configurator-DA is add-in software for GX Developer Version 4 or later. Therefore, GX Configurator-DA must be installed on the personal computer that has already GX Developer Version 4 or later installed.

(3) Screen error of Intelligent function module utility

Insufficient system resource may cause the screen to be displayed inappropriately while using the Intelligent function module utility. If this occurs, close the Intelligent function module utility, GX Developer (program, comments, etc.), and other applications, and then start GX Developer and Intelligent function module utility again.

(4) To start the Intelligent function module utility

(a) In GX Developer, select "QCPU (Q mode)" for PLC series and specify a project.
 If any PLC series other than "QCPU (Q mode)" is selected, or if no project is

specified, the Intelligent function module utility will not start.

- (b) Multiple Intelligent function module utilities can be started. However, [Open parameters] and [Save parameters] operations under [Intelligent function module parameter] are allowed for one Intelligent function module utility only. Only the [Monitor/test] operation is allowed for the other utilities.
- (5) Switching between two or more Intelligent function module utilities When two or more Intelligent function module utility screens cannot be displayed side by side, select a screen to be displayed on the top of others using the task bar.

😹 Start 🛛 🎼 MELSOFT series GX Deve... 🜌 Intelligent function Module ... 🜌 Intelligent function M...

(6) Number of parameters that can be set in GX Configurator-DA When multiple intelligent function modules are mounted, the number of parameter setting must not exceed the following limit.

When intelligent function modules are installed to:	Maximum number of parameter settings				
When intelligent function modules are installed to:	Initial setting	Auto refresh setting			
Q00J/Q00/Q01CPU	512	256			
Q02/Q02H/Q06H/Q12H/Q25HCPU	512	256			
Q02PH/Q06PH/Q12PH/Q25PHCPU	512	256			
Q12PRH/Q25PRHCPU	512	256			
Q02UCPU	2048	1024			
Q03UD/Q04UDH/Q06UDH/Q13UDH/Q26UDH/					
Q03UDE/Q04UDEH/Q06UDEH/Q13UDEH/	4096	2048			
Q26UDEHCPU					
MELSECNET/H remote I/O station	512	256			

For example, if multiple intelligent function modules are installed to the MELSECNET/H remote I/O station, configure the settings in GX Configurator so that the number of parameter settings for all the intelligent function modules does not exceed the limit of the MELSECNET/H remote I/O station.

Calculate the total number of parameter settings separately for the initial setting and for the auto refresh setting.

The number of parameters that can be set for one module in GX Configurator-DA is as shown below.

Target module	Initial setting	Auto refresh setting		
Q62DA-FG	4 (Fixed)	9 (Max.)		

Example) Counting the number of parameter settings in Auto refresh setting

Auto refresh setting	g					_		1	
Module information	1								
Module type: D/	/A Conversion Module	S	tart I/O No.:	0000					
Module model name	Module model name: Q62DA-FG								
		Module side	Module side			PLC side			
S	Setting item	Buffer size	Transfer word count		Transfer direction	Device			
CH1 Digital value		1	1		<-	D1			
CH2 Digital value		1	1		<-	D2			
CH1 Set value chec	ok code	1	1		->	D3]):	◀—	 This one row is counted as one setting.
CH2 Set value chec	x code	1	1		->	D4	ť		Blank rows are not counted.
CH1 Output monitor	value	1	1		->	D5			Count up all the setting items on this screen, and
CH2 Output monitor	value	1	1		->	D6			add the total to the number of settings for other
Warning output flag		1	1		->	D7			intelligent function modules to get a grand total.
Disconnection detec	ction flag	1	1		->	D8			
Error code		1	1		->	D9	Ŧ		
							_		
Make text file		End setu	(P)			Cancel			

5.2.2 Operating environment

This section explains the operating environment of the personal computer that runs GX Configurator-DA.

1 Add-in to GX Developer Version 4 (English version) or later *2 Personal computer on which Windows® operates. Refer to the following table "Used operating system and performance required for mory personal computer". n 65 MB or more 20 MB or more 800 × 600 dots or more resolution *4 Microsoft® Windows® 95 Operating System (English version) Microsoft® Windows® 98 Operating System (English version)
Refer to the following table "Used operating system and performance required for mory personal computer". n 65 MB or more 20 MB or more 800 \times 600 dots or more resolution * ⁴ Microsoft® Windows® 95 Operating System (English version)
mory personal computer". n 65 MB or more 20 MB or more 800 × 600 dots or more resolution * ⁴ Microsoft® Windows® 95 Operating System (English version)
n 65 MB or more 20 MB or more 800 × 600 dots or more resolution * ⁴ Microsoft [®] Windows [®] 95 Operating System (English version)
20 MB or more 800 × 600 dots or more resolution * ⁴ Microsoft® Windows® 95 Operating System (English version)
$\frac{800 \times 600 \text{ dots or more resolution } *^{4}}{\text{Microsoft}^{\text{\tiny ®}} \text{ Windows}^{\text{\tiny ®}} 95 \text{ Operating System (English version)}}$
Microsoft [®] Windows [®] 95 Operating System (English version)
Microsoft® Windows® Millennium Edition Operating System (English version) Microsoft® Windows® Millennium Edition Operating System (English version) Microsoft® Windows® 2000 Professional Operating System (English version) Microsoft® Windows® XP Professional Operating System (English version) Microsoft® Windows® XP Home Edition Operating System (English version) Microsoft® Windows® XP Home Edition Operating System (English version) Microsoft® Windows Vista® Home Basic Operating System (English version) Microsoft® Windows Vista® Home Premium Operating System (English version) Microsoft® Windows Vista® Business Operating System (English version) Microsoft® Windows Vista® Business Operating System (English version) Microsoft® Windows Vista® Ultimate Operating System (English version)

*1: Install GX Configurator-DA in GX Developer Version 4 or higher in the same language. GX Developer (English version) and GX Configurator-DA (Japanese version) cannot be used in combination, and GX Developer (Japanese version) and GX Configurator-DA (English version) cannot be used in combination.

*2: GX Configurator-DA is not applicable to GX Developer Version 3 or earlier.

In addition, GX Developer Version 8 or later is necessary to use the FB conversion function.

*3: At least 15GB is required for Windows Vista[®] .

*4: Resolution of 1024 \times 768 dots or more is recommended for Windows Vista $^{\scriptscriptstyle \otimes}$.

Operating system	Performance required for personal computer				
Operating system	CPU	Memory			
Windows® 95	Pentium [®] 133MHz or more	32MB or more			
Windows® 98	Pentium [®] 133MHz or more	32MB or more			
Windows [®] Me	Pentium [®] 150MHz or more	32MB or more			
Windows NT [®] Workstation 4.0	Pentium [®] 133MHz or more	32MB or more			
Windows [®] 2000 Professional	Pentium [®] 133MHz or more	64MB or more			
Windows [®] XP Professional (Service Pack 1 or more)	Pentium [®] 300MHz or more	128MB or more			
Windows [®] XP Home Edition (Service Pack 1 or more)	Pentium [®] 300MHz or more	128MB or more			
Windows Vista [®] Home Basic	Pentium [®] 1GHz or more	1GB or more			
Windows Vista [®] Home Premium	Pentium [®] 1GHz or more	1GB or more			
Windows Vista [®] Business	Pentium [®] 1GHz or more	1GB or more			
Windows Vista [®] Ultimate	Pentium [®] 1GHz or more	1GB or more			
Windows Vista [®] Enterprise	Pentium [®] 1GHz or more	1GB or more			

Operating system and performance required for personal computer

POINT	
-------	--

(1) The functions shown below are not available for Windows[®] XP and Windows Vista[®].
 If any of the following functions is attempted, this product may not operate normally.
 Start of application in Windows[®] compatible mode Fast user switching Remote desktop

Large fonts (Details setting of Display Properties)

Also, 64-bit version Windows[®] XP and Windows Vista[®] are not supported.

(2) Use a USER authorization or higher in Windows Vista®.
5.3 Utility Package Operation

5.3.1 Common utility package operations

(1) Control keys

Special keys that can be used for operation of the utility package and their applications are shown in the table below.

Key	Application
Esc	Cancels the current entry in a cell. Closes the window.
Tab	Moves between controls in the window.
Ctrl	Used in combination with the mouse operation to select multiple cells for test execution.
Delete	Deletes the character where the cursor is positioned. When a cell is selected, clears all of the setting contents in the cell.
Back Space	Deletes the character where the cursor is positioned.
$ \ \ \ \ \ \ \ \ \ \ \ \ \ $	Moves the cursor.
Page Up	Moves the cursor one page up.
Page Down	Moves the cursor one page down.
Enter	Completes the entry in the cell.

(2) Data created with the utility package

The following data or files that are created with the utility package can be also handled in GX Developer. Figure 5.1 shows respective data or files are handled in which operation.

<Intelligent function module parameter>

(a) This represents the data created in Auto refresh setting, and they are stored in an intelligent function module parameter file in a project created by GX Developer.

Pro <u></u>	ect
	Program
	—Parameters
	PLC Parameters
	Network Parameters
	Intelligent Function Module Parameters

- (b) Steps 1) to 3) shown in Figure 5.1 are performed as follows:
 - From GX Developer, select: [Project] → [Open project] / [Save]/ [Save as]
 - On the intelligent function module selection screen of the utility, select: [Intelligent function module parameter] → [Open parameters] / [Save parameters]
 - From GX Developer, select:
 [Online] → [Read from PLC] / [Write to PLC] → "Intelligent function module parameters"
 Alternatively, from the intelligent function module selection screen of the intelligent function."

Alternatively, from the intelligent function module selection screen of the utility, select:

 $[\text{Online}] \rightarrow [\text{Read from PLC}] \ / \ [\text{Write to PLC}]$

<Text files>

(a) A text file can be created by clicking the Make text file button on the initial

setting, Auto refresh setting, or Monitor/Test screen. The text files can be utilized to create user documents.



Figure 5.1 Correlation chart for data created with the utility package

5.3.2 Operation overview

GX Developer screen	
t mode) MAIN 124 Step] Tools Window Help	
Check program Confirm project memory size Merge data Check parameter Transfer ROM Delete unused comments	
Clear all parameters IC memory card Start ladder logic test	-
Set TEL data	
Intelligent function utility	Utility list
Customize keys Change display color Options	Start
Create start-up setting file	

[Tools] – [Intelligent function utility] – [Start]



Refer to Section 5.3.3.

Enter "Start I/O No.", and select "Module type" and "Module model name".

Initial setting

Initial	setting	screen
muuu	ocung	0010011

↓ Auto refresh setting screen

→ 1)

Auto refresh

g			Auto refresh setting					
inforamation lype: D/A.Conversion Module model name: Q62DA-FG	Start I/D No.: 0000		Module information Module type: D/A Conversion Module	S	itart 1/0 No.:	0000		
Setting item	Setting value	_	Module model name: Q62DA-FG					
/A conversion enable/disable setting	Disable	•						
0/A conversion enable/disable setting Rate control enable/disable setting	Disable Disable		Setting item	Module side Buffer size	Module side Transfer word count		Transfer direction	PL D
ate control enable/disable setting	Disable	-	CH1 Digital value	1	1		<-	D1
crease digital limit value		32000	CH2 Digital value	1	1		<-	D2
ecrease digital limit value		32000	CH1 Set value check code	1	1		->	D3
ncrease digital limit value		32000 👻	CH2 Set value check code	1	1		->	D4
			CH1 Output monitor value	1	1		->	D5
			CH2 Output monitor value	1	1		->	D6
- Details			Warning output flag	1	1		->	D7
Select			Disconnection detection flag	1	1		->	D8
Set	ing range		Error code	1	1		->	D9
Disa		Cancel	Make text file	End set	up]			

Refer to Section 5.4.

Refer to Section 5.5.

1)		7
[Online] – [Mon	itor/Testl	< <fb parameter="" support="">> tab – FB conversion</fb>
	lion resij	
↓ 	50	¥ .
Selecting monitor/test module scree		version screen
Select monitor/test module	X FB conversion	×
Select monitor/test module Start I/O No. Module type	FB program is generated from the following	contents.
0000 D/A Conversion Module		Close
, Module model name	Start I/O Module model Initial	Auto Auto FB program name Title
Q62DA-FG	No. name setting 0000H Q62DA-FG	
Module implementation status		
Start I/O No. Module model name 00000 Q62DA-FG	-	
	Refer to	o Section 5.7.
	-	
Monitor/test Exit	1	
Select a module	e to be monitored/tested.	
Monitor/Test		
Monitor/Test		
Module information		
Module type: D/A Conversion Module Start I/O No.: 0000		
Module model name: Q62DA-FG		
Setting item Current value	Setting value	
CH2 Disconnection detection flag Normal CH1 Warning output flag upper limit value Normal		
CH1 Warning output flag lower limit value Normal CH2 Warning output flag upper limit value Normal		
CH2 Warning output flag lower limit value Normal Error code 0		
Setting range CH1-CH2 0000	MM market had	
X/Y monitor/test Descring condition setting Control of the setting Control	X/Y monitor/test Operating setting	
Offset/gain setting Pass data	Offset/gain setting Pass data	
Flash ROM setting	Monitoring	
module display Decimal input		
Read from Load file Make text file 0-12000		
1		
Start monitor Stop monitor Execute jest	Close	

Refer to Section 5.6.

5.3.3 Starting the intelligent function module utility

[Operating procedure]

Intelligent function module utility is started from GX Developer. [Tools] \rightarrow [Intelligent function utility] \rightarrow [Start]

[Setting screen]

Display when the <<FB support parameter>> tab is selected

C Intelligent function module utility C:\MELSEC\GPPW\DA
Intelligent function module parameter Online Tools Help
Select a target intelligent function module.
Start I/O No. Module type
0000 D/A Conversion Module
Module model name
Q62DA-FG
Parameter setting module Intelligent function module parameter FB Support Parameter
Start I/O No. Module model name Initial setting Auto refresh
0000 062DA-FG Available Available
Initial setting Auto refresh Delete Exit

[Explanation of items]

(1) Activation of other screens

Following screens can be displayed from the intelligent function module utility screen.

Common operations to the <<Intelligent function module parameter>> tab and <<FB support parameter>> tab

- (a) Initial setting screen "Start I/O No.*1" \rightarrow "Module type" \rightarrow "Module model name" \rightarrow Initial setting
- (b) Auto refresh setting screen "Start I/O No. $*^1$ " \rightarrow "Module type" \rightarrow "Module model name" \rightarrow Auto refresh
- (c) Select monitor/test module screen
 [Online] → [Monitor/Test]
 *1 Enter the start I/O No. in hexadecimal.

On the <<FB support parameter>> tab

(a) FB conversion screen

<<FB support parameter>> tab \rightarrow FB conversion

For details, refer to section 5.7.

```
POINT
```

The <<FB support parameter>> tab is displayed when the project which is being edited is a label project.

(2) Command buttons

Common operations to the <<Intelligent function module parameter>> tab and <<FB support parameter>> tab

Delete Deletes the initial setting and auto refresh setting of the selected module.

However, if initial setting and auto refresh setting have been prepared and the cell of initial setting or auto refresh setting is selected and executed, only the setting of the selected cell is deleted.

Exit

Closes this screen.

When the <<FB support parameter>> tab is selected

<<Parameter

Moves the setting of the selected line to the <<Intelligent function module parameter>> tab.

When the <<Intelligent function module parameter>> tab is selected

FB parameter>>

- Moves the setting of the selected line to the <<FB support parameter>> tab.
- (3) Menu bar
 - (a) File menu Intelligent function module parameters of the project opened by GX
 Developer are handled

			Developer are nandi	ea.	
function module uti			[Open parameters]:		Reads a parameter file.
eters (eters eters (meters	Online To Ctrl+O Ctrl+S		[Close parameters]:		Closes the parameter file. If any data are modified, a dialog asking for file saving will appear.
oport parameters	-		[Save parameters]: [Delete parameters]: [Open FB support pa [Save as FB support [Exit]:	arameters]:	Saves the parameter file. Deletes the parameter file. Opens the FB support parameter file. Saves the FB support parameter file. Closes this screen.
tion module utility C:\ nodule parameter <u>Online</u>	-	(b)	Online menu [Monitor/Test]: [Read from PLC]:		Select monitor/test module screen. gent function module parameters from the

\mathscr{O} Intelligent function modu	ıle util	ity C:\N	1ELSEC	\GPPW
Intelligent function module para	meter	Online	Tools	Help
Intelligent function module pa		tor/test d from P		
Start I/O No.	Write	e to PLC	:	
0000	D7	A Conve	rsion M	odule

Online menu	
[Monitor/Test]:	Activates the Select monitor/test module screen.
[Read from PLC]:	Reads intelligent function module parameters from the CPU module.
[Write to PLC]:	Writes intelligent function module parameters to the
	CPU module.

Intelligent Intelligent functi Open parame Close parame Save parame Delete param

Exit

(1)	Since in project s	ntelligent function module parameters in a file telligent function module parameters cannot be saved in a file by the saving operation of GX Developer, save them on the shown module n screen for intelligent function module parameter setting.
(2)	-	/writing intelligent function module parameters from/to a mable controller CPU using GX Developer
	· ·	Iligent function module parameters can be read from and written into a grammable controller after having been saved in a file.
		a target programmable controller CPU in GX Developer: [Online] $ ightarrow$ ansfer setup].
	• •	en the Q62DA-FG is installed to the remote I/O station, use "Read n PLC" and "Write to PLC".
(3)	Checkin	g the required utility
		e start I/O is displayed on the Intelligent function module utility setting "*" may be displayed for the model name.
		ans that the required utility has not been installed or the utility cannot
	be starte	ed from GX Developer.
		ne required utility, selecting [Tools] - [Intelligent function utility] - [Utility
	list] in	GX Developer.

5.4 Initial Setting

[Purpose]

Set the following items in the initial setting parameters.

- D/A conversion enable/disable setting
- Rate control enable/disable setting
- Increase/decrease digital limit values
- Disconnection detection setting
- Warning output setting
- Warning output upper limit value/lower limit value

This initial setting makes sequence program setting unnecessary.

[Operating procedure]

"Start I/O No.*" \rightarrow "Module type" \rightarrow "Module model name" \rightarrow Initial setting

* Enter the start I/O No. in hexadecimal.

[Setting screen]

Module inforamation Module type: D/A Conversion Module Module model name: Q62DA-FG	Start I/O No.: 0000
Setting item	Setting value
CH1 D/A conversion enable/disable setting	Disable 🗸
CH2 D/A conversion enable/disable setting	Disable 🗸
CH1 Rate control enable/disable setting	Disable 🗸
CH2 Rate control enable/disable setting	Disable 🗸
CH1 Increase digital limit value	32000
CH1 Decrease digital limit value	32000
CH2 Increase digital limit value	32000
Details Select i Sett Enai Disa	input ing range
Make text file	nd setup Cancel

- [Explanation of items]
- (1) Setting contents

Set the D/A conversion enable/disable setting, rate control enable/disable setting and others for each channel.

(2) Command button

Make text file	Creates a file containing the screen data in text file format.
End setup	Saves the set data and ends the operation.

Cancel Cancels the setting and ends the operation.

POINT

Initial settings are stored in an intelligent function module parameter file. After being written to the CPU module, the initial setting is made effective by either (1) or (2).

- (1) Cycle the RUN/STOP switch of the CPU module: STOP \rightarrow RUN \rightarrow STOP \rightarrow RUN.
- (2) With the RUN/STOP switch set to RUN, turn off and then on the power or reset the CPU module.

When using a sequencer program to write the initial settings, when the CPU is switched from STOP to RUN the initial settings will be written, So ensures that programming is carried out to re-execute the initial settings.

5.5 Auto Refresh Setting

[Purpose]

Configure the Q62DA-FG buffer memory for automatic refresh.

[Operating procedure]

 $\texttt{"Start I/O No.*"} \rightarrow \texttt{"Module type"} \rightarrow \texttt{"Module model name"} \rightarrow \fbox{Auto refresh}$

* Enter the start I/O No. in hexadecimal.

[Setting screen]

Module information Module type: D/A Conversion Module Module model name: Q62DA-FG	s	tart I/O No.:	0000			
Setting item	Module side Buffer size	Module side Transfer word count		Transfer direction	PLC side Device	
CH1 Digital value	1	1		<٠	D1	
CH2 Digital value	1	1		<٠	D2	
CH1 Set value check code	1	1		->	D3	
CH2 Set value check code	1	1		->	D4	
CH1 Output monitor value	1	1		->	D5	
CH2 Output monitor value	1	1		->	D6	
Warning output flag	1	1		->	D7	
Disconnection detection flag	1	1		->	D8	-1
Error code	1	1		->	D9	1-

[Items]

lice	10]		
(1)	Contents of the screen displ	a	y
	Module side Buffer size	:	Displays the buffer memory size of the
			setting item. (fixed at one word).
	Module side Transfer word count	:	Displays the number of words to be
			transferred to the CPU devices from the
			designated address (fixed at one word).
	Transfer direction	:	"←" indicates that data are written from the
			device to the buffer memory.
			" \rightarrow " indicates that data are loaded from the
			buffer memory to the device.
	PLC side Device	:	Enter a CPU module side device that is to be
			automatically refreshed.
			Applicable devices are X, Y, M, L, B, T, C,
			ST, D, W, R and ZR.
			When using bit devices X, Y, M, L or B, set a
			number that can be divided by 16 points
			(examples: X10, Y120, M16, etc.)
			Also, buffer memory data are stored in a 16-
			point area, starting from the specified device
			number.
			For example, if X10 is entered, data are
			stored in X10 to X1F.

(2) Command button

Make text file	Creates a file containing the screen data in text file format.
End setup	Saves the set data and ends the operation.
Cancel	Cancels the setting and ends the operation.

POINT

The auto refresh settings are stored in an intelligent function module parameter file. The auto refresh settings become effective by performing STOP \rightarrow RUN \rightarrow STOP \rightarrow RUN operations for the CPU module, turning the power OFF and then ON or resetting the CPU module after writing the intelligent function module parameters to the CPU module.

The auto refresh settings cannot be changed from sequence programs.

However, processing equivalent to auto refresh can be added using the FROM/TO instruction in the sequence program.

5.6 Monitor/Test

5.6.1 Monitor/test screen

Monitor/Test

[Purpose]

Start buffer memory monitoring/testing and I/O signal monitoring/testing, operating condition setting, offset/gain settings (refer to Section 5.6.2), pass data (refer to Section 5.6.4)from this screen.

[Operating procedure]

Select monitor/test module screen \rightarrow "Start I/O No.*" \rightarrow "Module type" \rightarrow "Module model name" \rightarrow [Monitor/test]

 Enter the start I/O No. in hexadecimal.
 The screen can also be started from System monitor of GX Developer Version 6 or later.

Refer to the GX Developer Operating Manual for details.

_ _ X

[Setting screen]

Module type: D/A Conversion Module					
	Start I/O No.: 0000				
Module model name: Q62DA-FG					
Setting item	Current value	Setting value			
CH2 Disconnection detection flag	Normal				
CH1 Warning output flag upper limit value	Normal				
CH1 Warning output flag lower limit value	Normal				
CH2 Warning output flag upper limit value	Normal				
CH2 Warning output flag lower limit value	Normal				
Firor code	0000				
Setting range CH1-CH2 K/Y monitor/test	000	X/Y monitor/test			
Operating condition setting		Operating setting			
Difset/gain setting		Offset/gain setting			
Pass data		Pass data 💌			
Flash RDM setting	Details				
	Details	Monitoring			
Write to Save file Current value display		Monitoling			
	Decimal input				
Read from Load file Make text file	Setting range				
	0 - 12000				
	· · · · · · · · · · · · · · · · · · ·				
Start monitor Stop monitor E	Execute test	Close			
	Execute Jean				
					•
		monitor/test		Operati	ing setting
	X/Y	monitor/test		Operati	ing setting
	X/Y	monitor/test		Operati	ing setting
	X/Y	monitor/test		Operati	ing setting
		monitor/test		Operati	ing setting
monitor/test			Operation condition setting	Operati	
f monitor/test		monitor/test	Operating condition setting	_ Operati	ing setting
/ monitor/test Module information			Operating condition setting Module information	_ Operati	
Module information	<u> </u>		- Module information		
Module information Module type: D/A Conversion Module	<u> </u>		 Module information Module type: D/A Conversion Module 	Start 1/0 No.: 0000	
Module information	<u> </u>		- Module information		
Module information Module type: D/A Conversion Module	<u> </u>		 Module information Module type: D/A Conversion Module 		
Module information Module type: D/A Conversion Module Module model name: Q62DA+FG	Start I/D No.: 0000	X	Module information Module type: D/A Conversion Module Module model name: Q62DA-F6	Start 1/0 No.: 0000	
Module information Module type: D/A Convertion Module Module model name: Q62DA-FG Setting item	Start I/O No.: 0000	X	- Module information Module type: D/A Conversion Module Module model name: Q&20A-FG Setting Item	Start I/O No: 0000	/ >
Module information Module type: D/A Convention Module Module model name: D62DA-FG Setting kem 903Module ready	Start I/D No.: 0000	X	Module information Module type: D/A Conversion Module Module model name: Q62DAFD Setting item CH1 D/A conversion enablish/disable setting	Start I/O No.: 0000	Setting value
Module information Module type: D/A Conversion Module Module model name: QE2DA FG Setting Item 200 Module ready 000 Module ready	Start I/D No.: 0000 Current value ON-Roady. OV-FMonket atap	X	Module information Module type: D/A Conversion Module Module model name: QE20AFG Setting item GH1D /A convenion mathibitidiable reting GH2 /A convenion mathibitidiable reting	Start J/O No.: 0000	Setting value
Nodule information Module type: D/A Conversion Module Module model name: DECDA FG Setting Item Setting Item 080 Module ready 080 Module ready 080 Module ready	Start I/D No.: 0000 Current value OFF-Monite stop OFNNore stop ONNo regent	X	Module information Module information Module Module model name: DEA Conversion Module Module model name: DE2DAFG DE10 AC conversion math/directable retring DE12 DA conversion math/directable retring DE12 DA conversion math/directable retring DE13 DA conversion math/directable retring	Start //0 No.: 0000	Setting value Dinable Dinable V
Module information Module type: D/A Conversion Module Module model name: QE2DA FG Setting Item 200 Module ready 000 Module ready	Start I/D No.: 0000 Current value ON-Roady. OV-FMonket atap	X	Module information Module information Module type: D/A Conversion Module Module model name: QE20AFG Setting item GH1 D/A convenion mathibitidiable reting GH1 Rate control enablicitidiable reting GH1 Rate control enablicitidiable reting	Start J/O No.: 0000	Setting value A Disable V Disable V Disable V Disable V
Module information	Start I/D No.: 0000 Current Value OH Roydy OH Roydy OH Roygeat OH Roygeat OH Roygeat OH Roygeat	X	Module information Module information Module information Module model name: DECDAFG Setting Rem DH D/A convension math/distabilite sating DH D/A convension math/distabilite sating DH D/A convension math/distabilite sating OH Drace control anabol/distabilite sating OH Drace control anabol/distability	Start //0 No.: 0000 Current value Disable Disable Disable 2000	Setting value Disable Disable V Disable V Disable V Disable V Disable V Disable V Disable V Disable V Disable V Disable V Disable V V Disable V V Disable V V Disable V V Disable V V Disable V V V Disable V V V V V V V V V V V V V
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting Item 308 Montos tapf Tag 309 Queening condition setting completed Tag 900 Queening condition setting completed Tag 900 Queening completed Tag	Start I/D No.: 0000 Current value OFF-Moniformation OFF-Moniformation OFF-Moniformation OFF-Noniformation OFF-Noniformat	X	Module information Module information Module type: D/A Conversion Module Module model name: QE20AFB Setting item GH1 D/A conversion mathib/disable reting GH1 Rate control enablib/disable reting GH1 Rate control enablib/disable reting GH1 Rates control enablib/disable reting GH1 Rates control enablib/disable reting GH1 Increase digital limi value	Start I/O No.: 0000	Setting value A Distable A Distab
Module information Module information Module model name: QEDA FG Setting Item Software ready Software ready Software information setting completed flag SoftTaretgian endition SoftTaretgian endition SoftTaretgian endition SoftTaretgian endition SoftTaretgian	Start I/O No.: 0000 Current value ONF Reads OFF Nonseard OFF Reads age OFF Non seard OFF Reads age OFF Non seard OFF Reads age operation OFF Reads age operation OFF Reads age operation	X	Module information Module information Module type: D/A Conversion Module Module model name: QE20AFE Setting item GH1 Dr/A convenion mathib/disable reting GH1 Dr/A convenion mathib/disable reting GH1 Research and addr/disable reting GH1 Research gH1 information gH2 infor	Start //0 No.: 0000 Current value Disable Disable Disable 2000	Setting value Dinable Dinable V V Dinable V V Dinable V V V V V V V V V
Nodule information Module information Module model name: (BCDAFG Setting Iken 300 Module radie) 300 Module radie 300 Module radie 300 Module radie 300 Module radie 300 Oneshing completed Rag 300 Oneshing completed Rag 300 Disconrection duration and Rag 300 Disconrection duration duration duratio	Start I/D No.: 0000 Current value OFM nories stop OFM nories stop OFFN no regard OFFN no regard OFFN no regard OFFN no regard OFFN pagia genetion OFFR Regia genetion OFFN Regia genetion	Setting value	Module information Module information Module information Module information Module model name: QE20xFG Setting tem Det 0 An convention enable disable setting	Start I/O No.: 0000 Current value Disable Dis	Setting value Dinable Dinable V V Dinable V V Dinable V V V V V V V V V
Module information Module information Module model name: QEDA FG Setting Item Software ready Software ready Software information setting completed flag Software information model ing Software information Software	Start I/O No.: 0000 Current value OH Readur also OF Router also OF Rouge and OF Readur action OF Rouge and OF Readur action OF Rouge and OF Readur action OF Rouge action OF R	Setting value	Module information Module information Module information Module information Module model name: QE20xFG Setting tem Det 0 An convention enable disable setting	Start I/O No.: 0000 Current value Disable Dis	Setting value Classico V Classico
Nodule information Module information Module model name: (BCDAFG Setting Item 300 Module read) 300 Module read) 300 Module read) 300 Module read) 300 Module read) 300 Setting and Iting 300 Setting and Iting 300 Setting and Iting 300 Set Value change completed Iting	Start I/D No.: 0000 Current value OFM nories stop OFM nories stop OFFN no regard OFFN no regard OFFN no regard OFFN no regard OFFN pagia genetion OFFR Regia genetion OFFN Regia genetion	Setting value	Module information Module information Module type: D/A Conversion Module Module model name: QE20AFE Setting item GH1 Dr/A convenion mathib/disable reting GH1 Dr/A convenion mathib/disable reting GH1 Research and addr/disable reting GH1 Research gH1 information gH2 infor	Start I/O No.: 0000 Current value Disable Disable Disable Disable 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Setting value
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting hem 309 Moritol range 309 Moritol range 309 Moritol range 309 Moritol range 300 Moritol	Start J/D No: 0000 Current Value OFF Monitor atop OFF Monitor atop OFF Nonequet OFF Nonequet OFF Nonequet OFF Nonequet OFF Rogular operation OFF Regular o	Setting value	Module information Module information Module information Module model name: DEX.DerG Module model name: DEX.DerG	Start I/O No.: 0000 Current value	Setting value Oristådo V
Nodule information Module information Module model name: 0620AFG Setting ken 000 Module randit 000 Monitor randition 000 Monitor randition 000 Monitor randition 000 Monitor randition 000 Set variage antering 000 Set varia	Start I/O No.: 0000 Current value OH Readur also OF Router also OF Rouge and OF Readur action OF Rouge and OF Readur action OF Rouge and OF Readur action OF Rouge action OF R	Setting value	Module information Module information Module information Module incodel name: QE2DxFG Setting term Off 10 Accompanies methodocal and setting Off 10 Accompanies methodocal and setting Off 10 Accompanies methodocal and setting Off Charac conteil methodocal adds setting Off Charac conteil methodocal adds setting Off Charac conteil methodocal and setting Off Charace digital limit value Off Charace digital limit value Off Characeace digital limit value Off Characeaceace digital limit value Off Characeaceaceaceaceaceaceaceaceaceaceaceacea	Start I/O No.: 0000 Current value Disable Dis	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting hem 309 Moritol range 309 Moritol range 309 Moritol range 309 Moritol range 300 Moritol	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module model name: DECD+FG	Start I/O No.: 0000 Current value	Setting value Oristådo V
Nodule information Module information Module model name: GEDAFG Setting term Settin	Start J/D No: 0000 Current Value OFF Monitor atop OFF Monitor atop OFF Nonequet OFF Nonequet OFF Nonequet OFF Nonequet OFF Rogular operation OFF Regular o	Setting value	Module information Module injone DA Conversion Module Module model name QE20xFB Setting tem Entropy tem CH1 D/A conversion module diable setting CH2 D/A conversion module diable setting CH2 D/A conversion module diable setting CH2 D/A conversion module diable setting CH1 D/A conversion module diable setting CH1 D/A conversion diable diable setting CH1 Decrease digital imit value CH1 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value CH2 Decrease digital imit value Chance distribute	Start I/O No.: 0000 Current value	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting tem Setting t	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module information Module model name: QE2DAFG General control information General Control Genereal Control Generea Control Gener	Start I/O No.: 0000 Current value Disable Start Select input	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Nodule information Module information Module model name: GEDAFG Setting term Settin	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module incodel name: DECOVFG Setting term Get20vFG Setting term Get20vFG Get20version enablic/disable setting Get20version edgla1 limit value Get20version edgla1 limit value Get20version default intervalue	Start J/D No: 0000	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting tem Setting t	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module information Module model name: QE2DAFG General control information General Control Genereal Control Generea Control Gener	Start I/O No.: 0000 Current value Disable Start Select input	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting tem Setting t	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module information Module model name: QE2DAFG General control information General Control Genereal Control Generea Control Gener	Start J/D No: 0000 Start J/D No: 0000 Current value Disable	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Nodule information Module type: D/A Conversion Module Module model name: QECDAFG Setting tem Setting t	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module information Module model name: QE2DAFG General control information General Control Genereal Control Generea Control Gener	Start J/D No: 0000 Start J/D No: 0000 Current value Disable	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable
Module information Module information Module model name:	Start I/O No: 0000 Current value OH Ready OH Ready OH Ready OH Ready OH Ready OH Ready OH Reader OH Reader action OH Reader a	Setting value	Module information Module information Module information Module information Module model name: QE2DAFG General control information General Control Genereal Control Generea Control Gener	Start J/D No: 0000 Start J/D No: 0000 Current value Disable	Setting value Ditable Ditable Ditable Ditable Ditable 32000 Ditable

5 UTILITY PACKAGE (GX Configurator-DA)

MEI	SEC-Q
	-วีนบ-น

Offset/gain	setting		Pass da	ta
ffset/Gain setting	x	Pass data	•	_ _ _
	~	Module information		
Offset/gain settings is performed.			Start 1/0 No.: 0000	
Target module Q62DA-FG:0000H Error code		Module type: D/A Conversion Module Module model name: Q62DA-FG	Start I/O No.: UUUU	
	Error clear			
Offset/Gain setting	Registration	Setting item	Current value	Setting value
 Offset setting Gain setting 	registreton	CH1 Pass data classification setting CH2 Pass data classification setting	User range1 User range1	User range1 Vser range1
	Conversion	CH1 Industrial shipment settings offset value (used for D/A)	0000	0000
Channel No. CH1 💌 Adjustment 1 💌 + ·	characteristic	CH1 Industrial shipment settings gain value (used for D/A)	0000	0000
value		CH2 Industrial shipment settings offset value (used for D/A)	0000	0000
For the adjustment value 1000, the Analog value adjustment of Voltage during output: about 0.33V(User range setting 2), about 0.18V(User range		(used for D/A)	0000	0000
ouring output: about 0.33V(User range serting 2), about 0.18V(User range setting 3), Current during output: about 0.65mA is possible.		CH2 Industrial shipment settings gain value (used for D/A)		
Current during output: about 0.65mA is possible.		CH1 Industrial shipment settings offset value	0000	0000
		Flash ROM setting	Details	
Setting state	1	Write to module Save file Current value display		Monitoring
Channel No. User range setting Offset setting Gain setting			Select input	
CH1	_	Head from Load file Make text file	Setting range User range1	
CH2			User range2 User range3	
		Start monitor Stop monitor	Execute test	Close
		State manual	ENDORG (DOI	
↓	n characteristic	_		
ion characteristic		×		
	Analog/Range setting Analog			

[Explanation of items]

(1) Items

Setting item	: Displays buffer memory names.
Current value	: Monitors the present buffer memory values.
Setting value	: Enter or select values to be written into the buffer memory for
	test operation.

(2) Command button

Current value	Displays the current value of the item selected. (This is used to check the text that cannot be displayed in the current value field. However, in this utility package, all items can be displayed in the display fields).
Make text file	Creates a file containing the screen data in text file format.
Start monitor /	Selects whether or not to monitor current values.
Stop monitor	
Execute test	Performs a test on the selected items. To select more than one item, select them while holding down the <u>Ctrl</u> key.
Close	Closes the currently open screen and returns to the previous screen.

POINT

(1) Turning the output enable/disable flag ON/OFF or writing the CH□ digital value during test operation changes the analog output, so perform these after taking ample safety precautions.

REMARK

The selection test operation is explained below using the CH1 digital value writing as an example.

(1) Change the setting value field for "Y01: CH1 output enable/disable flag" to "ON: enable."

Nothing is written to the D/A converter module at this point.

- (2) Click and select the setting value field to be written in the Q62DA-FG. To write more than one setting item at the same time, select the items while holding down the Ctrl key.
- (3) Click the Execute test to execute the write operation.

Once writing has been completed, the value that was written will be displayed in the present value field.

5.6.2 Offset/gain setting operation

Perform the offset/gain setting operation in the following sequence.

- (1) Switch to the offset/gain setting screen
 - Perform the operation in Screen 5.6.1 to display the offset/gain setting screen. At this point, a dialog box to confirm the transition of Q62DA-FG's operation mode (normal mode -> offset/gain setting mode) is displayed. Click the Yes

Target module	Q62DA-FG:0	0000H	Error code	Error clear
Offset/Gain settir	-			Registration
Channel No.	CH1 💌			Conversion characterist
during output: a setting 3),	nent value 1000, the Analog v about 0.33V(User range settir output: about 0.65mA is poss	ng 2), about 0.18V(U		
value For the adjustm during output: a setting 3), Current during a	nent value 1000, the Analog v about 0.33V(User range settir output: about 0.65mA is poss	value adjustment of ng 2), about 0.18V(U	ser range	
value For the adjustm during output: a setting 3),	nent value 1000, the Analog v about 0.33V(User range settin	value adjustment of V ng 2), about 0.18V(U ible.	ser range	
value For the adjustm during output: a setting 3), Current during a	nent value 1000, the Analog v about 0.33V(User range settir output: about 0.65mA is poss	value adjustment of V ng 2), about 0.18V(U ible. Setting	ser range I state	
value For the adjustrr during output: a setting 3), Current during of Channel No.	nent value 1000, the Analog v about 0.33V(User range settir output: about 0.65mA is poss	value adjustment of V ng 2), about 0.18V(U ible. Setting	ser range I state	
value For the adjustrr during output: s setting 3). Current during of Channel No. CH1	nent value 1000, the Analog v about 0.33V(User range settir output: about 0.65mA is poss	value adjustment of V ng 2), about 0.18V(U ible. Setting	ser range I state	
value For the adjustrr during output: s setting 3). Current during of Channel No. CH1	nent value 1000, the Analog v about 0.33V(User range settir output: about 0.65mA is poss	value adjustment of V ng 2), about 0.18V(U ible. Setting	ser range I state	

button to transit to the offset/gain setting mode.

(2) Specify a channel

Specify the target channel of offset setting or gain setting on the channel No. combo box.

- (3) Specify offset/gain setting Specify either offset setting or gain setting on the channel specified on the channel No. combo box using the radio button.
- (4) Specify the user range setting Specify a user range used for the offset/gain setting of each channel on the combo box.
- (5) Set up adjustment values
 Set up an adjustment value of the offset value or gain value. Select "1," "10,"
 "100," or "1000" on the combo box, however, you can also set up adjustment values by entering a number (1 to 3000).

(6) Fine adjustment of voltage output or current output By clicking the + button or - button, the value of voltage output or current output for the prepared adjustment value is finely adjusted.

(7) Write settings into Q62DA-FG Write the content set up by operations (2) to (6) into Q62DA-FG by clicking the Registration button.

(8) Switch to the normal mode

When the offset/gain setting screen is closed by clicking the Close button after the setting operation has finished, Q62DA-FG's operation mode transits to the normal mode.

POINT

If an error code is displayed while performing the setting operation, the details and measure of the error can be confirmed by clicking the _____ button to the right of the error code display area. In addition, the error code can be cleared by clicking the _____ Error clear____ button.

5.6.3 Confirmation of Conversion Characteristic

[Purpose]

The converted value of digital-analog conversion can be confirmed according to the tilt of the graph, based on the offset/gain setting.

[Operating procedure]



[Setting screen]



[Explanation of items]

(1) Items

I/O characteristic diagram: Displays the I/O conversion characteristic to the prepared offset/gain setting.

(2) Setting details

Analog/Range setting

Analog:	Select the output (voltage/current) when a digital value is
	converted to an analog value.
Range setting:	Select either "User range setting 2" or "User range setting
	3. "However, if "Current" is selected for the "Analog" item,
	only "User range setting 1" can be selected.
Offset/Gain setting	
Offset value:	Enter an offset value to display the I/O characteristic
	diagram.
Gain value:	Enter a gain value to display the I/O characteristic diagram.

Analog/Digital conversion: Select a conversion type shown below for confirming the correspondence between an analog value and a digital value caused by the conversion characteristic. Digital → Analog • Analog \rightarrow Digital Analog value: < When converted to a digital value> Enter an analog value to be converted to a digital value <When converted to an analog value> The analog value converted from a digital value is displayed. Digital value: < When converted to a digital value> The digital value corresponding to an entered analog value is displayed. <When converted to an analog value> Enter a digital value to be converted to an analog value. POINT • The offset value is the analog output value (voltage or current) when a digital entry value of 0 is set from the programmable controller CPU. • The gain value is the analog value (voltage or current) output when the digital input value set from the programmable controller CPU is as follows: 12000 (When User range setting 1 to 3 are selected)

(3) Explanation of screen command buttons

Range settingThe entered offset/gain value is determined, and the I/Ocharacteristic diagram is updated.

Conversion

Conversion for the entered value is performed.

5.6.4 Pass data

Perform operation in the following sequence to save/restore the user range.

(1) Switch to the pass data screen

Perform the operation in Section 5.6.1 to display the Pass data screen.

Pass data			_ = ×
Module information Module type: D/A Conversion Module Module model name: Q62DA-FG	Start I/O No.: 0000		
Setting item	Current value	Setting value	_
CH1 Pass data classification setting	User range1	User range1	•
CH2 Pass data classification setting	User range1	User range1	•
CH1 Industrial shipment settings offset value (used for D/A)	0000		0000
CH1 Industrial shipment settings gain value (used for D/A)	0000		0000
CH2 Industrial shipment settings offset value (used for D/A)	0000		0000
CH2 Industrial shipment settings gain value (used for D/A)	0000		0000
CH1 Industrial shipment settings offset value	0000		• 0000
Flash RDM setting Write to module Save file Reed from module Loed file	Details Select input Setting range User range? User range? User range?		Monitoring
Start monitor Stop monitor Es	xecute <u>t</u> est		Close

(2) User range saving

(a) Set the user range to be used in the Setting value field of CH□ Pass data classification setting, and click the Execute test button.

When the user range setting is completed, the set user range is displayed in the Current value field of CH \Box Pass data classification setting.

(b) Change the Setting value field of Pass data read request to "Request", and click the Execute test button.

When read is completed, the values are displayed in the Current value fields of CH[□] Industrial shipment settings offset/gain values/CH[□] User range settings offset/gain values.

 (c) Compare the values with those in the range reference table, and record them if they are correct.
 Defer to Section 7.4 for the range reference table.

Refer to Section 7.4 for the range reference table.

(3) User range restoration

(a) Set the user range to be used in the Setting value field of CH□ Pass data classification setting, and click the Execute test button.

When the user range setting is completed, the set user range is displayed in the Current value field of CH \Box Pass data classification setting.

- (b) Set the recorded values in the Setting value fields of CH□ Industrial shipment settings offset/gain values/user range settings offset/gain values.
- (c) Select all the Setting value fields of CH□ Industrial shipment settings offset/gain values/user range settings offset/gain values, and click the Execute test button.

When write is completed, the set values are displayed in the Current value fields of CH[□] Industrial shipment settings offset/gain values/CH[□] User range settings offset/gain values.

(d) Change the Setting value field of Pass data write request to "Request", and click the Execute test button.

Make sure that the indication in the Current value field of Pass data write request changes from "Request" to "OFF" on completion of write.

5.7 FB Conversion of Initial Setting/Auto Refresh Setting

[Purpose]

FB is generated automatically from the intelligent function module parameter (initial setting/auto refresh setting).

[Operating procedure]

Intelligent Function Module Parameter Setting Module Selection Screen \rightarrow

<<FB Support Parameter>> \rightarrow FB conversion

[Setting screen]

🖉 FB conv	ersion				×
FB program	n is generated from	the following	g contents.		Conversion Close
Start I/O No.	Module model name	Initial setting	Auto refresh	FB program name	Title
0000H	Q62DA-FG				

[Explanation of items]

- (1) Items
 - Start I/O No.:

The start I/O No. of the information which is set up on the currently open intelligent function module parameter is displayed.

Module model name:

The module model name of the information which is set up on the currently open intelligent function module parameter is displayed.

Initial setting:

Set up whether to apply FB conversion to the parameter or not.

Check if you apply FB conversion to the parameter.

Auto refresh:

Set up whether to apply FB conversion to the parameter or not.

Check if you apply FB conversion to the parameter.

FB program name:

Set up the name of the converted FB program.

Up to six single-byte characters can be set up as an FB program name. However, the characters and terms shown below cannot be set up as FB program name.

Character: \, /, :, ;, *, ?, ", <, >, |, ,

Term: COM1 to COM9, LPT1 to LPT9, AUX, PRN, CON, NUL, CLOCK\$

In addition, I- is added for initial setting and A- is added for auto refresh setting respectively to the top of the FB name setting to be registered in GX Developer after FB conversion is performed.

Ex.: If the FB program name is "ABCDE, " the initial setting is "I-ABCDE" and the auto refresh setting is "A-ABCDE. "

- Title: Set up a title on a converted FB program. Up to 32 single-byte characters can be set up as a title.
- (2) Command buttons

Conversion FB conversion is performed for the checked columns of initial setting and auto refresh setting.

5.8 Usage of FB

This section describes the procedure for using FB with GX Developer. Refer to the "GX Developer Version 8 Operating Manual (Function Block)" for details.

5.8.1 Outline

The procedure for creating FB is shown below.

- (1) Set up the intelligent function module parameter (initial setting/auto refresh setting).
- (2) Convert the intelligent function module parameter into FB.
- (3) Paste the FB to a sequence program.
- (4) Convert (compile) the sequence program.

Next, a flowchart of procedures (1) to (4) is shown below.



POINT

The initial setting/auto refresh setting of the intelligent function module can be performed by each of the following methods.

- (1) Set intelligent function parameters (Initial setting/Auto refresh setting) and write them to the programmable controller CPU.
- (2) Create an FB of the intelligent function module parameter (initial setting/auto refresh setting) and paste it to the sequence program.

In accordance with the specification of the system, perform the initial setting/auto refresh setting of the intelligent function module by one of the methods above. *1

- *1: The following explains the case in which both of (1) and (2) are performed.
 - (a) Initial setting
 - FB setting given in (2) is valid.
 - (b) Auto refresh setting
 - Both (1) and (2) are valid.
 - At the time of FB execution and in the END processing of the sequence program, automatic refresh is performed.

Therefore, an analog value corresponding to the specified digital value is output at each auto refresh time.

[Purpose of operation]

Paste an FB in order to use it with a sequence program.

[Operation procedure]

Switch the <<Project>> tab into the <<FB>> tab on GX Developer, and drag & drop the FB to be used onto the sequence program.

Before pasting

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5.8.3 Convert (Compile) a Sequence Program

[Purpose of operation] Convert (compile) the sequence program to which an FB was pasted so that it can be executed.



[Operation procedure]

Click the [Convert] menu \rightarrow [Convert/Compile] menu of GX Developer.

MEMO

MEMO		

6 PROGRAMMING

This chapter describes the programs of the Q62DA-FG.

When applying any of the program examples introduced in this chapter to the actual system, verify the applicability and confirm that no problems will occur in the system control.

6.1 Programming Procedure

Create the program that will execute the digital-analog conversion of the Q62DA-FG in the following procedure.



6.2 For Use in Normal System Configuration

System configuration used in the program explanation

(1) System configuration



Perform the following intelligent function module switch settings in advance.

- Switch 1 0030H (CH1: 4 to 20mA, CH2: 0 to 5V)
- Switch 2 Empty
- Switch 3 0000H (CH1, CH2: Clear)
- Switch 4 0000H (Normal mode (D/A conversion processing))
- Switch 5 0000н (0: Fixed)

(2) Program conditions

The digital values of CH1 and CH2 are written and their output monitor values are read.

If a digital value write error occurs, the corresponding error code is displayed in BCD.

- (a) Initial settings
 - Analog output enabled channel.....CH1, CH2
 - Rate control enabled channel..... CH1 (increase digital limit
 - value: 100, decrease digital
 - limit value: 30)
 - Disconnection detection enabled channel ... CH1
 - Warning output enabled channel..... CH2 (warning output upper
 - limit value: 10000, warning output lower limit value: 3000)

(b) Devices used by user

Output enable		X11
 Digital value writ 	te signal	X12
Disconnection d	etection reset signal	X13
 Warning output 	reset signal	X14
	signal	
		Y20 to Y2B
CH1 digital value	e	D11
	e	
	nitor value	
	nitor value	
	etection flag	
	flag	
	etection channel flag	
		, M22, M23
5 1	0	,

6

6.2.1 Program example using the utility package

- (1) Operation of utility package
 - (a) Initial settings (Refer to Section 5.4)
 CH1, CH2 D/A conversion enable/disable setting"Enable"
 CH1 rate control enable/disable setting......"Enable"
 CH1 increase digital limit value......"100"
 CH1 decrease digital limit value"30"
 CH1 disconnection detection setting"Enable"
 CH2 warning output setting......"Enable"
 CH2 warning output upper limit value"1000"
 CH2 warning output lower limit value"300"

Module inforamation	
Module type: D/A Conversion Module	Start I/O No.: 0000
Module model name: Q62DA-FG	
Setting item	Setting value
CH1 D/A conversion enable/disable setting	Enable 👻
CH2 D/A conversion enable/disable setting	Enable 🗸
CH1 Rate control enable/disable setting	Enable 🗸
CH2 Rate control enable/disable setting	Disable 🗸
CH1 Increase digital limit value	100
CH1 Decrease digital limit value	30
CH2 Increase digital limit value	32000
	stails lect input
	Setting range
	Enable Disable

(b) Automatic refresh setting (Refer to Section 5.5)

CH1, CH2 digital values	.D11, D12
CH1, CH2 output monitor values	.D13, D14
Disconnection detection	.D15
Warning output	.D16
Error code	.D17

Auto refresh setting					_	
Module information						
Module type: D/A Conversion Module	9	itart I/O No.:	0000			
Module model name: Q62DA-FG						
Setting item	Module side Buffer size	Module side Transfer word count		Transfer direction	PLC side Device	
CH1 Digital value	1	1		<-	D11	
CH2 Digital value	1	1		<-	D12	
CH1 Set value check code	1	1		->		
CH2 Set value check code	1	1		->		
CH1 Output monitor value	1	1		->	D13	
CH2 Output monitor value	1	1		->	D14	
Warning output flag	1	1		->	D15	
Disconnection detection flag	1	1		->	D16	
Error code	1	1		->	D17	-
Make text file	End set	up		[Cancel	

(c) Write of intelligent function module parameters (Refer to Section 5.3.3)
 Write the intelligent function module parameters to the CPU module.
 Perform this operation on the parameter setting module selection screen.

Write digi	ital values				
		[MOV	K2000	D11	CH1 digital value setting
		[MOV	K4000	D12	CH2 digital value setting
Set analo	g output enable				
				(Y1	CH1 output enable
				(¥2	CH2 output enable
Read dis	connection detection flag xoD ∱	[MOV	D15	K1M10	Disconnection detection channel check
	м10 	[Processi	ng for disconr	ection detection	Processing for CH1 disconnection detection
	x13 x0D		-SET	YOD	Disconnection detection clear request (YD) ON
·			RST	YOD	Disconnection detection clear request (YD) OFF
Read wa	rning output flag				
·		MOV	D16	K1M20] Warning output channel check
·	x22 	[Proces	sing for wa	rning output	CH2 warning output (upper limit value) processing
	x23	[Proces	sing for wa	ming output	CH2 warning output (lower limit value) processing
	X14 XOE In I		SET	YOE	Warning output clear request (YE) ON
			RST	YOE	Warning output clear request (YE) OFF
Error cod	e display and reset processing x15 x0F	— БСД	D17	K3Y20	Error code output in BCD
		-		YOF	Error clear request (YF) ON
	VOR VOR		L		
			RST	YOF	Error clear request (YF) OFF
				-[END	E

(2) Program example

Initial setting

D/A conversion

U0∖ G0 MOV НO enable/disable setting U0\ Rate control enable/disable MOV Н2 G46 setting U0\ G70 MOV K100 CH1 increase digital limit value U0\ MOV K30 G71 CH1 decrease digital limit value U0\ Disconnection detection/warning MOV H2001 G47 output setting U0\ CH2 warning output upper limit MOV K10000 G88 value setting U0\ CH2 warning output lower limit MOV K3000 G89 value setting Operating condition setting SET Υ9 request (Y9) ON Operating condition setting х9 -И-¥9 -| |-RST Y9 request (Y9) OFF Read output monitor values U0\ G38 хо - Г Г-Å Å CH1 output enable MOV D113 U0∖ G39 CH2 output enable -Mov D114 Write digital values U0∖ G1 хо | | -[MOV K2000 CH1 digital value setting U0\ MOV K4000 CH2 digital value setting G2 Set analog output enable ×11 ||-**(**Y1 CH1 output monitor **-**Y2 CH2 output monitor Read disconnection detection flag U0∖ G49 XOD Disconnection detection MOV K1M10 channel check M10 Processing for CH1 disconnection detection x13 Disconnection detection clear -set YOD request (YD) ON YOD Disconnection detection clear RST YOD request (YD) OFF Read warning output flag XOE U0\] Warning output channel check K1M20 -[MOV G48 м22 - **М** CH2 warning output (upper - Processing for warning output limit value) processing M23 CH2 warning output (lower -[Processing for warning output limit value) processing X14 Warning output clear request YOE SET (YE) ON

6.2.2 Programming example without using the utility package

6 PROGRAMMING

MELSEC-Q



6.3 For Use on Remote I/O Network

S	/stem	config	uratio	on use	d in th	ne pro	gram e	explana	tion					
(1)				igura										
. ,				station		ork No.1	1)		Remo	ote I/O s	tation (Station	No.1)	
	Power supply module	Q n C P U	Q J 7 1 L P 2 1	Q X 1 0	Q Y 1 0			Power supply module	Q J 7 1 L P 2 5	Q X 1 0	Q Y 1 0	Q 6 2 D A - F G		
										to	to	0 X/Y 120 to = X/Y 121		
	• Sv • Sv • Sv • Sv	form tl vitch 1 vitch 2 vitch 3 vitch 4 vitch 5	00 2 Er 3 00 4 00	30н (С npty 00н (С	CH1: 4 CH1, C Norma	to 20 CH2: C I mode	mA, C Clear)	n modul H2: 0 to conver	o 5V)		-		vance.	
(2)	The mor mas If a BCI	digita nitor va ster sta digital D. Initial • Ana	Il valu alues ation. value l settin alog o	are re e write ngs utput e	CH1 a ad to error enable	the pro occurs ed cha	ogram s, the o nnel	ne Q62I mable c correspo	contro ondin C C	oller C ng erro H1, C	PU of r code H2 creas	the re e is dis e digit	emote splaye al limi	d in t
								channe	lii C C S lii	mit val ∺H1	lue: 30 arning lue: 10	D) g outpi 2000, ^s	ut upp warnir	er ng
	(b)	 Initia Out Diso Diso Wai Error CH² CH	al set put en ital va conne rning or coc or coc or coc or coc or coc rning or coc conne conne conne	nable. Ilue wr ection o output le rese le disp tal valu tal valu but mo output le ection o	quest ite sig detect t reset st sign lay (B Je Je nitor v nitor v detect t flag detect	ion re signa al CD 3 /alue. /alue. /alue. ion fla	set sig ldigits) g	nal flag		X X X X X X X X X X V V V V V V V V V V	(21 (22 (23 (24 (25 (30 to (30 to (111 V112 V113 V114 V115 V116 V117 /10		6 -	7
													0-	I

6.3.1 Program example using the utility package

- (1) Operating GX Developer
 - (a) Network parameter setting
 - Network type
- : MNET/H (remote master)
- Head I/O No. : 0000н
- Network No.
- : 1

: Online

- Total number of (slave) stations : 1
- Mode
- Network range assignment

			M station	-> R statio	n				M station	<- R static	n		
StationNo.		Y			Y			X			Х		
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End	
1	256	0100	01FF	256	0000	OOFF	256	0100	01FF	256	0000	OOFF	•
	M stati	on -> R sta	ation	M stati	ion <-R sta	ation	M stati	on -> R sta	ation	M stati	on <-R st	ation	*
StationNo.		В			В			W			W		
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End	
_ 1							256	0000	OOFF	256	0100	01FF	-

:

:

Refresh parameters

				Link side						PLC side	
	Dev. r	name	Points	Start	End		Dev.	name	Points	Start	End
Transfer SB	SB		512	0000	01FF	+	SB		512	0000	01FF
Transfer SW	SW		512	0000	01FF		S₩		512	0000	01FF
Random cyclic	LB							-			
Random cyclic	LW							-			
Transfer1	LB	•	8192	0000	1FFF		В	-	8192	0000	1FFF
Transfer2	LW	-	8192	0000	1FFF		W	•	8192	0000	1FFF
Transfer3	LX	-	512	0000	01FF		Х	-	512	0000	01FF
Transfer4	LY	-	512	0000	01FF		Y	-	512	0000	01FF
Transfer5		-				+		•			
Transfer6		-						-			

POINT

For details on the MELSECNET/H remote I/O network, refer to the Q Corresponding MELSECNET/H Network System Reference Manual (Remote I/O Network). (2)

Op	erating the utility package			
(a)		."30" ."Enable" ."Enable" ."10000"		
	CH2 warning output lower limit	t value		
	Initial setting			
	Module type: D/A Conversion Module Module type: Q62DA-FG	Start I/O No.:	0020	
	Setting item	Settin	g value	_
	CH1 D/A conversion enable/disable setting	Enable		-
	CH2 D/A conversion enable/disable setting	Enable		

CH2 D/A conversion enable/disable setting	Enable	•
CH1 Rate control enable/disable setting	Enable	•
CH2 Rate control enable/disable setting	Disable	•
CH1 Increase digital limit value		100
CH1 Decrease digital limit value		30
CH2 Increase digital limit value		32000 🗸
unz increase digitar ilinik value		32000
- Det-	alla	

	Details Select input	
	Setting range Enable Disable	
Make text file	End setup	Cancel

(b) Auto refresh setting (see Section 5.5)

CH1, CH2 digital values	.W11, W12
CH1, CH2 output monitor values	.W113, W114
Disconnection detection	.W115
Warning output	.W116
Error code	.W117

uto refresh setting Module information Module type: D/A Conversion Module		itart I/O No.:	0020			
Module model name: Q62DA-FG						
Setting item	Module side Buffer size	Module side Transfer word count		Transfer direction	PLC side Device	•
CH1 Digital value	1	1		<-	W11	
CH2 Digital value	1	1		<-	W12	
CH1 Set value check code	1	1		->		
CH2 Set value check code	1	1		->		
CH1 Output monitor value	1	1		->	W113	
CH2 Output monitor value	1	1		->	W114	
Warning output flag	1	1		->	W116	
Disconnection detection flag	1	1		->	W115	
Error code	1	1		->	W117	Ţ
Make text file	End set	up			Cancel	

(c) Write of intelligent function module parameters (Refer to Section 5.3.3) The intelligent function module parameters are written to the remote I/O station.

Perform this operation on the parameter setting module selection screen.

(3) Programming example

Write digital values				
	MOV	K2000	D11	CH1 digital value setting
	MOV	K4000	D12] CH2 digital value setting
Set analog output enable				
			(Y121	CH1 output enable
			(¥122) CH2 output enable
Read disconnection detection flag				
	MOVP	W115	K1M10	Disconnection detection channel check
	-[Processing for disc	connection of	detection	Processing for CH1 disconnection detection
		SET	Y12D	Disconnection detection clear request (YD) ON
x12D Y12D		RST	Y12D	Disconnection detection clear request (YD) OFF
Read warning output flag				
	MOV	W116	K1M20] Warning output channel check
x22	-[Processing for war	ning output		CH2 warning output (upper limit value) processing
x23	Processing for war	ning output		CH2 warning output (lower limit value) processing
		[SET	Y12E	Warning output clear request (YE) ON
x12E Y12E		-[RST	Y12E	Warning output clear request (YE) OFF
Error code display and reset processing				
	BCD	W117	K3Y30	Error code output in BCD
		SET	Y12F	Error clear request (YF) ON
Y12F X12F		RST	Y12F	} Error clear request (YF) OFF
			END	3
1				Ι
POINT				
			4 4 1	torrest remain 1/0
To write the intelligent function m				target remote I/O
station from [Online] - [Transfer s	setup] on GX	Develo	per.	

They can be written by:

- Directly connecting GX Developer to the remote I/O station.
- Connecting GX Developer to another device such as a CPU module and passing through the network.
6.3.2 Program example without using the utility package

- (1) Operation of GX Developer (Network parameter setting)
 - Network typeHead I/O No.
- : MNET/H (remote master) : 0000⊦

- Network No.
- :1 s :1

:

: Online

- Total number of (slave) stations
- Mode

•	Network r	ange	assi	gnm	ent	:											
				M station	-> R static	n			M station <- R station 🔺								
	StationNo.		Y			Y			Х			Х					
		Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End				
	1	256	0100	01FF	256	0000	OOFF	256	0100	01FF	256	0000	OOFF	-			
	-																

Refresh parameters

				Link side					PLC side			
	Dev. n	ame	Points	Start	End		Dev.	name	Points	Start	End	
Transfer SB	SB		512	0000	01FF	ŧ	SB		512	0000	01FF	
Transfer SW	SW		512	0000	01FF	₩.	S₩		512	0000	01FF	
Random cyclic	LB					+		•				
Random cyclic	LW					+		-				
Transfer1	LB	Ŧ	8192	0000	1FFF	+	В	-	8192	0000	1FFF	
Transfer2	LW	-	8192	0000	1FFF	₩.	W	-	8192	0000	1FFF	
Transfer3	LX	-	512	0000	01FF	₩.	Х	-	512	0000	01FF	
Transfer4	LY	-	512	0000	01FF	₩.	Y	-	512	0000	01FF	
Transfer5		-				₩.		-				
Transfer6		-				₩.		-				

(2) Programming example



6 PROGRAMMING

F	M102	X129	¥129									—ко	\rightarrow	
				м200								—K1	\rightarrow	
				M210										
				 - M220								—К2	\rightarrow	
				—								—КЗ	\rightarrow	
				M230								—K4	\rightarrow	
				M240							SET	Y129	3	Operating condition setting request (Y9) ON
-1	ко →		-[ZP.REMT	0	"j1"	K1	K1	H2	K0	D100	Kl	M200	3	
-1	кі →		-[ZP.REMT	0	"j1"	K1	Kl	H2	K46	D101	Kl	M210	3	
-1	к2 →		[ZP.REMT	0	"jl"	Kl	Kl	H2	K70	D102	K2	M220	3	➤ Write to buffer memory
-1	кз →		-ZP.REMT	0	"jl"	Kl	K1	H2	K47	D104	Kl	M230	3	
-1	ка →		-[ZP.REMT	0	"j1"	K1	K1	H2	K88	D105	K2	M240	3	
-	м102 —	x129	¥129								[RST	Y129	3	Operating condition setting request (Y9) OFF
			l								RST	M102	3	
	X120	X129	X128	Z.REMF	R"j1"	K2	K1	H2	K38	W13	K2	M250	3	Output monitor value read
	yital values x120 →	x22								[MOV	K2000	W11	3	CH1 digital value setting
										[MOV	K4000	W12	3	CH2 digital value setting
			[ZP.REMT	0	"j1"	K3	K1	H2	K1	W11	K2	M310	3	Write to buffer memory
Set analo	$\xrightarrow{X21}$	enable										(Y121)	CH1 output enable
												(Y122	>	CH2 output enable
	x12D		-										_	
F		M330	ZP.REMF	R	"j1"	K4	K1	H2	K49	W115	K1	M330	ľ	Disconnection detection flag read
	MIC	-11								MOV	W115	K1M10	J	channel check
ŀ	м10 ↑ 								[Process	sing for disc	connection o	letection	3	Processing for CH1 disconnection detection
-	x23 ∱ 	X12D									SET	Y12D	3	Disconnection detection clear request (YD) ON
-	X12D	Y12D									RST	Y12D	3	Disconnection detection clear request (YD) OFF

Read warning output flag X12E ZP.REMFR "ј1" К5 К1 Н2 K48 W116 К1 M350] Warning output flag read мз50 M351 -[MOV W116 K1M20] Warning output channel check м22 CH2 warning output (upper -Processing for warning output limit value) processing CH2 warning output (lower -Processing for warning output limit value) processing X24 X12E Warning output clear request SET Y12E (YE) ON X12E Y12E Warning output clear request RST Y12E (YE) OFF Error code display and reset processing X12F _____ZP.REMFR "j1" K6 H2 K19 W117 M370 Error code read K1 K1 M370 M371 -BCD Error code output in BCD W117 K3Y30 X12F x25 -SET Y12F Error clear request (YF) ON X12F 2F -[RST Y12F Error clear request (YF) OFF MCR NO] END }

7 ONLINE MODULE CHANGE

This chapter describes the specifications of an online module change.

- (1) Perform an online module change by operating GX Developer.
- (2) To ensure ease of offset/gain re-setting, there is a user range save/restoration function that is performed by executing the dedicated instruction or read/write from/to buffer memory.

POINT

- (1) Perform an online module change after making sure that the system outside the programmable controller will not malfunction.
- (2) To prevent an electric shock and malfunction of operating modules, provide means such as switches for powering off each of the external power supply and external devices connected to the module to be replaced online.
- (3) After the module has failed, data may not be saved properly. Referring to Section 3.4.18, therefore, prerecord the data to be saved (offset/gain values of the industrial shipment settings and user range settings in the buffer memory).
- (4) It is recommended to perform an online module change in the actual system in advance to ensure that it would not affect the other modules by checking the following:
 - Means of cutting off the connection to external devices and its configuration are correct.
 - Switching ON/OFF does not bring any undesirable effect.
- (5) Do not install/remove the module to/from the base unit, or the terminal block to/from the module more than 50 times after the first use of the product. (IEC 61131-2 compliant)
 - Failure to do so may cause malfunction.

(Note)

The dedicated instruction cannot be executed during an online module change. When using the dedicated instruction to execute save/restoration, therefore, execute save/restoration in the other system *.

If the other system is unavailable, execute restoration by performing write to the buffer memory.

* : If the module is mounted on the remote I/O station, execute save/restoration in the other system mounted on the main base unit. (Save/restoration cannot be executed in the other system mounted on the remote I/O station.)

7.1 Online Module Change Conditions

The CPU, MELSECNET/H remote I/O module, Q62DA-FG, GX Developer and base unit given below are needed to perform an online module change.

(1) CPU

The Process CPU is required. For precautions for multiple CPU system configuration, refer to the QCPU User's Manual (Multiple CPU System).

- (2) MELSECNET/H remote I/O module The module of function version D or later is necessary.
- (3) Q62DA-FG

The module of function version C or later is necessary.

(4) GX Developer

GX Developer of Version 7.10L or later is necessary. GX Developer of Version 8.18U or later is required to perform an online module change on the remote I/O station.

- (5) Base unit
 - 1) When the slim type main base unit (Q3 SB) is used, an online module change cannot be performed.
 - When the power supply module unnecessary type extension base unit (Q5_B) is used, online module change cannot be performed for the modules on all the base units connected.

7.2 Online Module Change Operations

	CPU operat	ion O:Exe	cuted X:N	Not executed	ł								
	FROM/TO			GX Con	figurator	(Intelligent function module							
X/Y refresh	instruction * 1	Dedicated instruction	Device test	Initial setting parameter	Monitor/ test	(User operation) operation)							
0	0	0	0	×	0	 (1) Conversion disable Turn OFF all Y signals that were turned ON by a sequence program. *2 (2) Dismounting of module Operate GX Developer to start an online module change. Module stops operating. • RUN LED turns off. • Conversion disabled. • Analog output is 0V/0mA. 							
×	×	×	×	×	×	Click the [Execution] button of GX Developer to make the module dismountable. Dismount the corresponding module. (3) Mounting of new module Mount a new module.							
0	×	×	×	0	×	After mounting the module, click the [Execution] button of GX Developer. Operation check before control start							
0	×	×	0	×	0	 (4) Operation check Click the [Cancel] button of GX Developer to leave the online mode. Conduct an operation test on the new module using "Device test" of GX Developer or "Monitor/test" of GX Configurator. Perform user range restoration processing by write to buffer memory at this point. Operation check completed (5) Resumption of control 							
0	0	0	0	×	0	Operate GX Developer to resume the online module change mode, and click the [Execution] button to resume control. X0 (Module Ready) turns ON. Yumper to resume the online module change mode, and click the [Execution] button to resume control. Start is made when X0 turns from OFF to ON. Operation is performed according to the initial setting sequence.*4							

The following gives the operations performed for an online module change.

 \ast 1: Access to the intelligent function module device (U[]\G[) is included.

* 2: Operating the intelligent function module switches (* 3) starts the module and resumes X/Y refresh. When there are initial setting parameters, operation is performed according to the initial setting parameters.

Hence, if the Y signals are not turned OFF, analog outputs will be provided at this point. Therefore, always turn OFF the Y signals that were turned ON by the sequence program.

*4: In the absence of the operation marked *4, the operation of the intelligent function module is the operation performed prior to that.

7.3 Online Module Change Procedure

There are the following online module change procedures depending on whether the user range setting has been made or not, whether the initial setting of GX Configurator-DA has been made or not, and whether the other system exists or not.

Range setting	Initial setting	Other system	Reference section
Industrial shipment setting	GX Configurator-DA		Section 7.3.1
Industrial shipment setting	Sequence program		Section 7.3.2
User range setting	GX Configurator-DA	Present	Section 7.3.3
User range setting	GX Configurator-DA	Absent	Section 7.3.4
User range setting	Sequence program	Present	Section 7.3.5
User range setting	Sequence program	Absent	Section 7.3.6

7.3.1 When industrial shipment setting is used and initial setting was made with GX Configurator-DA

- (1) Conversion disable
 - (a) Set D/A Conversion enable/disable setting (buffer memory address 0: Un\G0) for all channel conversion disable and turn Operating condition setting request (Y9) from OFF to ON to stop conversion. After confirming that conversion has stopped with the actual analog output value, turn OFF Operating condition setting request (Y9).

evice test Bit device		1
Device		Close
Y9	-	
FORCE ON FORCE OF	F Toggle force	Hide histo
Word device/buffer memory—		
C Device		Ŧ
Buffer memory Module star	t1/00 🔽 (Hex)	
Address	0 V DEC	-
Setting value		
	X 💌 16 bit integer	▼ Set
Program Label reference program	MAIN	-
Execution history		
Device	Setting condition	Find
Y9 Module start:0 Address:0(D)	Force ON 3(H)	Find next
Y9	Force OFF	
1		Re-setting
1		

(2) Dismounting of module

(a) After choosing [Diagnosis] - [Online module change] on GX Developer to enter the "Online module change" mode, double-click the module to be changed online to display the "Online module change" screen.

System Monita	r																		>	×
- Installed status-															Bas					-
	0	1	2	з	4	5	6	7						E	lase	Mo				
MasterPLC->	-	-	-	-	-	-	-	-										/lain b/		
Q12PHCPU		unti	Unno unti ng	unti	unti	unti	unti											xpans ase 1 xpans ase 2 xpans ase 3 xpans ase 4 xpans ase 5 xpans ase 6	ion ion ion	
																	n B	xpans	ion	
– Parameter statu	。														Moc	le —				
I/O Address		10	20	30	40	50	60	70	-			Т		C System monitor						
	0	1	2	3	4	5	6	7				1		il (dule c	hang	e
Q12PHCPU	-	None	None	None	None	None	None	None 16pt								Mc	dule	nostic: 's Det ition		
														1		Ba	se Ir	nformal	ion	
Module system error Module error Module warning Module change													art mor			Pr		x Inf. L Close	.ist]

(b) Click the "Execution" button to enable a module change.

Online module change	×
_ Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module selection completed
- Status/Guidance	
Please turn off Y signal of the ch intelligent function module.	nanged module when you change the
Execution	Cancel

If the following error screen appears, click the [OK] button, dismount the module as-is, and mount a new module.

MELSOFT series GX Developer									
٩	The target module didn't respond. The task is advanced to the installation confirmation.								
	(OK)								

(c) After confirming that the "RUN" LED of the module has turned off, remove the terminal block and dismount the module.

POINT

Always dismount the module. If mounting confirmation is made without the module being dismounted, the module will not start properly and the "RUN" LED will not be lit.

(3) Mounting of new module

- (a) Mount a new module to the same slot and install the terminal block.
- (b) After mounting the module, click the [Execution] button and make sure that the "RUN" LED is lit. Module Ready (X0) remains OFF.

Online module change	×
_ Operation	Target module
Module change execution Installation confirmation Module control restart	I/O address 000H Module name Q62DA-FG Status Changing module
⊂ Status/Guidance The module can be exchanged. Please execute after installing a	new module.
Execution	Cancel

(4) Operation check

(a) To make an operation check, click the [Cancel] button to cancel control resumption.

Online module change	×									
_ Operation	Target module									
Module change execution	I/O address 000H Module name 062DA-FG									
Installation confirmation										
 Module control restart 	Change module installation completion									
Status/Guidance										
The controls such as I/O, FROM and automatic refresh for the ins										
Please confirm the parameter se	tting and wiring, etc. and execute.									
Execution	Cancel									

(b) Click the [OK] button to leave the "Online module change" mode.

MELSOF	T series GX Developer 🛛 🔀	
٩	The online module change mode is stopped. Even if the stop is executed, the online module change mode on the PLC side is not cancelled. Please execute the online module change and restart the control of the module again.	
	<u>(ОК</u>]	

System Monito	ī														×
Installed status-														Bas	
	0	1	2	з	4	5	6	7						Base	e Module ∏ í € Main base
MasterPLC->	-	-	-	-	-	-	-	-							
Q12PHCPU	l6pt	unti	Unmo unti ng	unti		unti									C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 5 C Expansion base 6
															DC Expansion base 7
Parameter statu													_	- Mo	
I/O Address	0	10	20	30	40	50	60	70							System monitor
	0	1	2	з	4	5	6	7						θ	Online module change
Q12PHCPU	Inte llig ent l6pt	16pt						None 16pt							Diagnostics Module's Detailed Information
															Base Information
Status								— 14			_ [Start n	noni	or	Product Inf. List
Module system	em erro	or 🛄 M	nodule	error	М	odule v	varning	M	aule c	:hange		Stop n	noni	or	Close

(c) Click the [Close] button to close the System monitor screen.

- (d) Set digital values to the digital values (buffer memory addresses 1, 2: Un\G1, 2) and turn Operating condition setting request (Y9) from OFF to ON. Turn ON the output enable/disable flag (Y1, Y2) of the used channel to check whether proper conversion has been made or not. (Be careful since analog outputs are provided actually.)
- (5) Resumption of control
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to redisplay the "Online module change" screen, click the [Execution] button to resume control. The FROM/TO instruction for the module resumes.

Online module change	×
_ Operation	Target module
Module change execution	I/O address 000H Module name Q62DA-FG
Module control restart	Status Change module installation completion
- Status/Guidance The controls such as I/O, FROM and automatic refresh for the ins Please confirm the parameter se	
Execution	Cancel

(b) The "Online module change completed" screen appears.



- 7.3.2 When industrial shipment setting is used and initial setting was made with sequence program
 - (1) Conversion disable
 - (a) Set D/A Conversion enable/disable setting (buffer memory address 0: Un\G0) for all channel conversion disable and turn Operating condition setting request (Y9) from OFF to ON to stop conversion. After confirming that conversion has stopped with the actual analog output value, turn OFF Operating condition setting request (Y9).

,											
Device test		×									
Bit device		1									
Device		Close									
Y9	-										
		Hide history									
FORCE ON FORCE OF	F Toggle force										
Word device/buffer memory-											
C Device		T									
Buffer memory Module start	Buffer memory Module start I/0 0 (Hex)										
		_									
Address	0 🔽 DEC	-									
Setting value											
	<	▼ Set									
		<u> </u>									
Program-											
Label reference program	IAN	~									
Execution history											
-											
Device	Setting condition	Find									
Y9 Module start:0 Address:0(D)	Force ON 3(H)	Find next									
Y9	Force OFF										
		Re-setting									
		Clear									
1											

- (2) Dismounting of module
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to enter the "Online module change" mode, double-click the module to be changed online to display the "Online module change" screen.

				-	-							-		
System Monito														×
Installed status-													- Ba	se
	0	1	2	з	4	5	6	7				Τ	Bas	e Module
MasterPLC->	-	-	-	-	-	-	-	-						🗌 💽 Main base
Q12PHCPU		unti			unti	unti	Unno unti ng							C Expansion base 1 Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion base 6
Parameter statu:	s) _ c Expansion base 7
I/O Address	0	10	20	30	40	50	60	70]∥⊙	System monitor
	0	1	2	3	4	5	6	7			1		j 🖸	Online module change
Q12PHCPU	Inte llig ent l6pt	16pt						None 16pt						Diagnostics Module's Detailed Information
]	Base Information
Status Module syste	em erro	or E	4odule	error	Пм	odule v	varning	Mc	dule c	hange		Start mo	nitor	Product Inf. List
module syst	on on	/ []		onor		Saulo V	-aning			nange		Stop mo	nitor	Close

(b) Click the "Execution" button to enable a module change.

Online module change	X
C Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module selection completed
Status/Guidance	
Please turn off Y signal of the ch intelligent function module.	hanged module when you change the
[Execution]	Cancel

If the following error screen appears, click the [OK] button, dismount the module as-is, and mount a new module.

MELSOF	T series GX Developer 🛛 🔀
٩	The target module didn't respond. The task is advanced to the installation confirmation.
	<u> </u>

(c) After confirming that the "RUN" LED of the module has turned off, remove the terminal block and dismount the module.

POINT

Always dismount the module. If mounting confirmation is made without the module being dismounted, the module will not start properly and the "RUN" LED will not be lit.

(3) Mounting of new module

- (a) Mount a new module to the same slot and install the terminal block.
- (b) After mounting the module, click the [Execution] button and make sure that the "RUN" LED is lit. Module Ready (X0) remains OFF.

Online module change	×
_ Operation	Target module
Module change execution for Installation confirmation Module control restart	I/O address 000H Module name Q62DA-FG
Status/Guidance The module can be exchanged. Please execute after installing a	Changing module
Execution	Cancel

(4) Operation check

(a) To make an operation check, click the [Cancel] button to cancel control resumption.

Online module change	×
Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module installation completion
Status/Guidance	
The controls such as I/O, FRO and automatic refresh for the ins Please confirm the parameter se	
[Execution]	Cancel

(b) Click the [OK] button to leave the "Online module change" mode.



(c) Click the [Close] button to close the System monitor screen.

System Monito	1												×
-Installed status-													
	0	1	2	з	4	5	6	7				Base	e Module
MasterPLC->	-	-	-	-	-	-	-	-					Main base
Q12PHCPU		unti	Unno unti ng	unti	unti	unti	unti						C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion C Expansion base 6
													□C Expansion base 7
Parameter statu:	s											л Мо	de
I/O Address	0	10	20	30	40	50	60	70					System monitor
	0	1	2	3	4	5	6	7				•	Online module change
Q12PHCPU	Inte llig ent l6pt	16pt	None 16pt										Diagnostics Module's Detailed Information
													Base Information
- Status-	em erro	or M	/odule	error	M	odule v	varning	M	odule c	:hange	itart moi	nitor	Product Inf. List
											itop moi	nitor	Close

- (d) Referring to (1), enable the conversion of the channels to be used, set digital values to the digital values (buffer memory addresses 1, 2: Un\G1, 2), and turn Operating condition setting request (Y9) from OFF to ON. Turn ON the output enable/disable flag (Y1, Y2) of the used channel to check whether proper conversion has been made or not. (Be careful since analog outputs are provided actually.)
- (e) Since the new module is in a default status, it must be initialized by a sequence program after control resumption.
 Before performing initialization, check whether the contents of the initialization program are correct or not.
 - Normal system configuration The sequence program should perform initialization on the leading edge of Module READY (X9) of the Q62DA-FG. When control resumption is executed, Module READY (X0) turns ON and initialization is performed. (If the sequence program performs initialization only one scan after RUN, initialization is not performed.)
 - 2) When used on remote I/O network Insert a user device that will execute initialization at any timing (initialization request signal) into the sequence program. After control resumption, turn ON the initialization request signal to perform initialization. (If the sequence program performs initialization only one scan after a data link start of the remote I/O network, initialization is not performed.)
- (5) Resumption of control
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to redisplay the "Online module change" screen, click the [Execution] button to resume control. The FROM/TO instruction for the module resumes.

Online module change	×										
Operation	Target module										
Module change execution	I/O address 000H Module name 062DA-FG										
Installation confirmation	Module name Q62DA-FG										
Module control restart	Status Change module installation completion										
_ Status/Guidance											
The controls such as I/O, FROM and automatic refresh for the ins											
Please confirm the parameter se	tting and wiring, etc. and execute.										
Execution	Cancel										

(b) The "Online module change completed" screen appears.



- 7.3.3 When user range setting is used and initial setting was made with GX Configurator-DA (other system is available)
 - (1) Conversion disable
 - (a) Set D/A Conversion enable/disable setting (buffer memory address 0: Un\G0) for all channel conversion disable and turn Operating condition setting request (Y9) from OFF to ON to stop conversion.
 After confirming that conversion has stopped with the actual analog output

Device Image: Close Bit device Close Device Close Y3 Image: Close FDRCE DN FORCE OFF Toggle force Hide history Word device/buffer memory Image: Close C Device Image: Close Image: Close Image: Close Image: Clos	value, turn OFF Operating condition setting request (Y9)
Device Close Y3 Image: Close FORCE ON FORCE OFF Toggle force Image: Hide history Image: Close Image: Close Image: Close	Device test
Y3 Image: Setting condition FORCE ON FORCE OFF Toggle force Word device/buffer memory Image: Setting condition Image: Setting condition C Device Image: Setting condition Image: Setting condition Setting reference program Image: Setting condition Find Program Execution history Force ON Module start: 0 Address: 0(D) 3(H) Force OFF Y3 Force OFF Find next Y3 Force OFF Re-setting	Bit device
FORCE ON FORCE OFF Toggle force Hide history Word device/buffer memory C Device ✓ Address ✓ DEC ▼ Setting value ③ HEX ▼ 16 bit integer ▼ Set Program ✓ Setting condition Find Label reference program MAIN ▼ Execution history Force ON Find Y9 Force OFF Find next Y9 Force OFF Re-setting Image: Program Force OFF Force OFF	Device Close
FORCE ON FORCE OFF Toggle force Word device/buffer memory C Device Image: Setting value 3 HEX Image: Setting value 3 HEX Image: Setting value Image: Setting condition Image: Setting condition <td>Y9</td>	Y9
C Device Buffer memory Module start I/0 Address 0 JEC Setting value 3 HEX HEX 16 bit integer Set Program Label reference program MAIN Execution history Force OFF Find next Y9 Force OFF Find next Re-setting Find next Re-setting Find next Force OFF Find next Find next Find next Find next Find next Force OFF Find next Find next F	FORCE ON FORCE OFF Toggle force Hide history
Image: Setting value Setting value 3 HEX ▼ HEX ▼ 16 bit integer ▼ Setting value 3 HEX ▼ Image: Setting value Buffer memory Module start I/0 □ ▼ Image: Setting value Image: Settin	Word device/buffer memory
Address O DEC Setting value 3 HEX 16 bit integer Set Program Label reference program MAIN Image: Constraint of the set Execution history Setting condition Find Device Setting condition Find Y9 Force ON Find next Y9 Force OFF Re-setting	
Address O DEC Setting value 3 HEX 16 bit integer Set Program Label reference program MAIN Image: Constraint of the set	Buffer memory Module start I/0 T (Hev)
Setting value 3 HEX 16 bit integer Set Program Label reference program MAIN Image: Constraint of the set of t	
3 HEX 16 bit integer Set Program Label reference program MAIN Image: Constraint of the set of the	Address U I DEC I
3 HEX 16 bit integer Set Program Label reference program MAIN Image: Constraint of the set of the	Setting value
Label reference program MAIN Execution history Device Setting condition Y9 Module start: 0 Address: 0(D) 3(H) Y9 Force 0FF Re-setting	
Execution history Device Setting condition Y9 Force 0N Module start: 0 Address: 0(D) 3(H) Y9 Force 0FF Re-setting	Program-
Device Setting condition Find Y9 Force 0N Find next Module start:0 Address:0(D) 3(H) Find next Y9 Force 0FF Re-setting	Label reference program MAIN 💌
Y9 Force ON Module start: 0 Address: 0(D) 3(H) Y9 Force OFF Re-setting	Execution history
Y9 Force ON Module start:0 Address:0(D) 3(H) Find next Y9 Force OFF Re-setting	Device Setting condition Find
Y9 Force OFF Re-setting	Y9 Force ON
Re-setting	(include characteridation of a) of (in)
Clear	Re-setting

- (2) Dismounting of module
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to enter the "Online module change" mode, double-click the module to be changed online to display the "Online module change" screen.

					-	-							-		
Syste	em Monito														×
Insta	led status-													Bas	e
		0	1	2	3	4	5	6	7					Base	Module
Mast	terPLC->	-	-	-	-	-	-	-	-						🗌 💽 Main base
Q1			unti	unti	unti	unti	unti	Unno unti ng							C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion base 6
															□c Expansion base 7
Para	meter statu:	s												Mo	de
I/0	Address	0	10	20	30	40	50	60	70				1		System monitor
		0	1	2	3	4	5	6	7				1	j 💿 (Online module change
Q1	2рнсри	Inte llig ent l6pt	None 16pt					None 16pt	None 16pt						Diagnostics Module's Detailed Information
]	Base Information
	Status Module system error Module error Module warning Module change											nitor	Product Inf. List		
	Module system error Module error Module warning Module change												itop mo	nitor	Close

(b) Click the "Execution" button to enable a module change.

Online module change	×
Operation	Target module
 Module change execution Installation confirmation 	1/O address 000H Module name Q62DA-FG
Module control restart	Status Change module selection completed
Status/Guidance Please turn off Y signal of the ch intelligent function module.	nanged module when you change the
intelligent terreterin modelle.	
Execution	Cancel

If the following error screen appears, the user range cannot be saved. Click the [OK] button, and perform the operation in Section 7.3.4 (2)(c) and later.

MELSOF	T series GX Developer 🛛 🔀
¢	The target module didn't respond. The task is advanced to the installation confirmation.
	(OK)

(c) After confirming that the "RUN" LED of the module has turned off, remove the terminal block and dismount the module.

POINT

Always dismount the module. If mounting confirmation is made without the module being dismounted, the module will not start properly and the "RUN" LED will not be lit.

(3) Mounting of new module

- (a) Mount the dismounted module and new module to the other system.
- (b) Using the G(P).OGLOAD instruction, save the user set values to the CPU device. Refer to Appendix 1.2 for the G(P).OGLOAD instruction.
- (c) Using the G(P).OGSTOR instruction, restore the user set values to the module. Refer to Appendix 1.3 for the G(P).OGSTOR instruction.
- (d) Dismount the new module from the other system, mount it to the slot from where the old module was dismounted in the original system, and install the terminal block.

(e) After mounting the module, click the [Execution] button and make sure that the "RUN" LED is lit. Module Ready (X0) remains OFF.

Online module change	×
C Operation	Target module
Module change execution Installation confirmation Module control restart	I/O address 000H Module name Q62DA-FG Status Changing module
Status/Guidance The module can be exchanged. Please execute after installing a	new module.
Execution	Cancel

- (4) Operation check
 - (a) To make an operation check, click the [Cancel] button to cancel control resumption.

Online module change	x
- Operation	Target module
Module change execution	I/O address 000H Module name 062DA-FG
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module installation completion
_ Status/Guidance	
The controls such as I/O, FROM and automatic refresh for the ins Please confirm the parameter se	
Execution	Cancel

(b) Click the [OK] button to leave the "Online module change" mode.



System Monito	ſ													
Installed status-										 			Base	
	0	1	2	з	4	5	6	7				1	dase	Module Moin base
MasterPLC->	-	-	-	-	-	-	-	-					Ш	
Q12PHCPU	16pt	unti	unti	unti		unti								C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion base 6
														□c Expansion base 7
Parameter statu												7	Mod	
I/O Address	-	10	20	30	40	50	60	70			_			ystem monitor
	0	1	2	3	4	5	6	7			_		u u	Inline module chang
Q12PHCPU	Inte 11ig ent 16pt	16pt						None 16pt						Diagnostics Module's Detailed Information
														Base Information
Status	Status									Product Inf. List				
Module system error Module error Module warning Module change Stop monitor														

(c) Click the [Close] button to close the System monitor screen.

- (d) Set digital values to the digital values (buffer memory addresses 1, 2: Un\G1, 2) and turn Operating condition setting request (Y9) from OFF to ON. Turn ON the output enable/disable flag (Y1, Y2) of the used channel to check whether proper conversion has been made or not. (Be careful since analog outputs are provided actually.)
- (5) Resumption of control
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to redisplay the "Online module change" screen, click the [Execution] button to resume control. The FROM/TO instruction for the module resumes.

Online module change	×
_ Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module installation completion
_ Status/Guidance	
The controls such as I/O, FROM and automatic refresh for the ins Please confirm the parameter se	
Execution	Cancel

(b) The "Online module change completed" screen appears.



- 7.3.4 When user range setting is used and initial setting was made with GX Configurator-DA (other system is unavailable)
 - (1) Conversion disable
 - (a) On the Operating condition setting screen of GX Configurator-DA, set "Disable" in the Setting value field of CH D/A conversion enable/disable setting, and click the [Execute test] button.

Operating condition setting		
Module information		
Module type: D/A Conversion Module	Start I/O No.: 00	00
Module model name: Q62DA-FG		
Setting item	Current value	Setting value
CH1 D/A conversion enable/disable setting	Enable	Disable 🔻
CH2 D/A conversion enable/disable setting	Enable	Disable 🔽
CH1 Rate control enable/disable setting	Disable	Disable 🔻
CH2 Rate control enable/disable setting	Disable	Disable 🔻
CH1 Increase digital limit value	100	32000
CH1 Decrease digital limit value	30	32000
CH2 Increase digital limit value	32000	32000
CH2 Decrease digital limit value	32000	32000
CH1 Disconnection detection setting	Enable	Disable 💌
CH2 Disconnection detection setting	Disable	Disable 💌
CH1 Warning output setting	Disable	Disable 🔹 👻
Flash ROM setting Write to module File save Read from module File read	Details Select input Setting range Enable Disable	Monitoring
Start monitor Stop monitor	Execute test	Close

(b) After making sure that the indication in the Current value field of CH D/A conversion enable/disable setting is "Disable", change the Setting value field of Operating condition setting request to "Setting request", and click the [Execute test] button to stop conversion.

Confirm that conversion has stopped with the actual analog output value.

Operating condition setting		_ 🗆 🗙
Module information		
Module type: D/A Conversion Module	Start I/O No.: 00	00
Module model name: Q62DA-FG		
Setting item	Current value	Setting value 🔺
CH2 Disconnection detection setting	Disable	Disable 🔻
CH1 Warning output setting	Enable	Disable 💌
CH2 Warning output setting	Disable	Disable 💌
Please set the Warning output setting value so that it becomes as below. Iower limit value≺upper limit value		
CH1 Warning output upper limit value	0	0
CH1 Warning output lower limit value	0	0
CH2 Warning output upper limit value	10000	0
CH2 Warning output lower limit value	3000	0
Operating condition setting request	No request	Setting request
Flash ROM setting Write to module File save Read from module File read Make text file	Details Select input Setting range No request Setting request	Monitoring
Start monitor Stop monitor	Execute test	Close

- (c) If the saved buffer memory contents are not yet prerecorded, record them in the following procedure.
 - 1) Display the pass data screen of GX Configurator-DA.
 - 2) Select the user range used for pass data classification setting, and make a pass data read request. (Refer to Section 5.6.3.)
 - Compare the current values of the industrial shipment settings and user range settings offset/gain values with those of the range reference table. Refer to Section 7.4 for the range reference table.
 - If the values are proper, record the offset/gain values of the pass data classification setting, industrial shipment settings and user range settings.

POINT

If the buffer memory values compared with the reference table are not proper, save and restoration of the user range cannot be executed.

Before executing module control resumption, make offset/gain setting in the GX Configurator-DA. (see Section 5.6.2)

Note that if module control is resumed without offset/gain setting being made, operation will be performed with the default values.

- (2) Dismounting of module
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to enter the "Online module change" mode, double-click the module to be changed online to display the "Online module change" screen.

System Monito	1												×
- Installed status-												Bas	
	0	1	2	3	4	5	6	7			B	ase	Module
MasterPLC->	-	-	-	-	-	-	-	-					• Main base
Q12PHCPU		unti	Unmo unti ng	unti	unti								C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion base 6
] [□C Expansion base 7
– Parameter statu:	·											Мос	le
I/O Address		10	20	30	40	50	60	70		1			System monitor
	0	1	2	3	4	5	6	7			÷ ۲		Inline module change
Q12РНСРU	Inte 11ig ent 16pt	None 16pt						None 16pt					Diagnostics Module's Detailed Information
													Base Information
Status Start monitor										Product Inf. List			
Module system error Module error Module warning Module change Stop monitor Close									Close				

(b) Click the "Execution" button to enable a module change.

Online module change	×
Operation	Target module
 Module change execution Installation confirmation Module control restart 	I/O address 000H Module name Q62DA-FG Status Change module selection completed
Catus/Guidance	hanged module when you change the
Execution	Cancel

If the following error screen appears, the user range cannot be saved. Click the [OK] button, and perform the operation in Section (2)(c) and later.

MELSOFT series GX Developer							
(\mathbf{i})	The target module didn't respond. The task is advanced to the installation confirmation.						
	(OK)						

(c) After confirming that the "RUN" LED of the module has turned off, remove the terminal block and dismount the module.

POINT

Always dismount the module. If mounting confirmation is made without the module being dismounted, the module will not start properly and the "RUN" LED will not be lit.

- (3) Mounting of new module
 - (a) Mount a new module to the same slot and install the terminal block.
 - (b) After mounting the module, click the [Execution] button and make sure that the "RUN" LED is lit. Module Ready (X0) remains OFF.

Online module change	×
- Operation	Target module
Module change execution Installation confirmation Module control restart Status/Guidance	I/D address 000H Module name Q62DA-FG Status Changing module
The module can be exchanged. Please execute after installing a	new module.
Execution	Cancel

(4) Operation check

(a) To make an operation check, click the [Cancel] button to cancel control resumption.

Online module change	×
C Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module installation completion
_ Status/Guidance	
The controls such as I/O, FROM and automatic refresh for the ins Please confirm the parameter se	
Execution	Cancel

(b) Click the [OK] button to leave the "Online module change" mode.



(c) Click the [Close] button to close the System monitor screen.

System Monito	r													x
- Installed status -													Bas	
	0	1	2	з	4	5	6	7					Base	Module
MasterPLC->	-	-	-	-	-	-	-	-						• Main base
Q12PHCPU		unti	Unno unti ng	unti	unti	unti	unti							C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion base 6
- Parameter statu:		<u> </u>												Expansion base 7
I/O Address	-	10	20	30	40	50	60	70			1	1		System monitor
1,0 nddre55		1	2	3	4	5	6	7				-		Inline module change
Q12PHCPU	_	None 16pt	None	None	None	None	None	None 16pt						Diagnostics Module's Detailed Information
													1	Base Information
- Status- Module syste	em erro	or Ellin	4odule	error	Пм	odule v	varning	Шм	odule c	:hange		itart mor	nitor	Product Inf. List
module syste	enrenu		nodule	CITOL			van ing		Juule C	nanye		itop moi	nitor	Close

- (d) On the pass data screen of GX Configurator-DA, set the prerecorded values and make a pass data write request. (Refer to Section 5.6.3.)
- (e) Referring to (1), change the D/A conversion enable/disable setting of the used channel to conversion enable.

(f) On the monitor/test screen of GX Configurator-DA, set a value in the Setting value field of CH digital value of the used channel, and click the [Execute test] button.

Monitor/Test		
Module information Module type: D/A Conversion Module Module model name: Q62DA-FG	Start 1/0 No.: 000)
Setting item	Current value	Setting value
CH1 Digital value CH2 Digital value CH2 Digital value CH3 Set value check code CH3 Set value check code CH4 Dutput monitor value CH4 Dutput monitor value CH1 Disconnection detection flag CH2 Disconnection detection flag CH1 Warning output flag upper limit value CH1 Warning output flag upper limit value CH2 Warning output flag upper limit value CH2 Warning output flag upper limit value	0 00000 00000 0 0 Normal Normal Normal Normal	2000 0
Flash ROM setting Write to module Read from module File save Make text file Stat monitor	Details Decimal input Setting range 0 · 12000 Execute test	Monitoring

- (g) Turn ON the output enable/disable flag (Y1, Y2) of the used channel and check whether proper conversion has been made or not.
 (Be careful since analog outputs are provided actually)
- (5) Resumption of control
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to redisplay the "Online module change" screen, click the [Execution] button to resume control. The FROM/TO instruction for the module resumes.

Online module change	×
Operation	Target module
Module change execution Installation confirmation Module control restart	I/O address 000H Module name Q62DA-FG Status Change module installation completion
Status/Guidance The controls such as I/O, FRO and automatic refresh for the ins Please confirm the parameter se	
Execution	Cancel

(b) The "Online module change completed" screen appears.



- 7.3.5 When user range setting is used and initial setting was made with sequence program (other system is available)
 - (1) Conversion disable
 - (a) Set D/A Conversion enable/disable setting (buffer memory address 0: Un\G0) for all channel conversion disable and turn Operating condition setting request (Y9) from OFF to ON to stop conversion.
 After confirming that conversion has stopped with the actual analog output

value, turn OFF Operating con	dition se	tting request (Y9).
Device test	×	
Bit device	1	
Device	Close	
Y9 🗸		
FORCE ON FORCE OFF Toggle force	Hide history	
Word device/buffer memory		
C Device	-	
Buffer memory Module start I/0 0 (Hex)		
Address 0 🔽 DEC	•	
Setting value 3 HEX I6 bit integer	▼ Set	
Program Label reference program MAIN	-	
Execution history		
Device Setting condition Y9 Force 0N Module start:0 Address:0(D) 3(H) Y9 Force 0FF	Find Find next Re-setting	
	Clear	

- (2) Dismounting of module
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to enter the "Online module change" mode, double-click the module to be changed online to display the "Online module change" screen.

System Monitor 🛛 🔀														
Installed status													Bas	
	0	1	2	з	4	5	6	7					Base	Module
MasterPLC->	-	-	-	-	-	-	1	1						I ● Main base
Q12PHCPU		unti	unti	unti	Unmo unti ng	unti	unti							C Expansion base 1 C Expansion base 2 C Expansion base 3 C Expansion base 4 C Expansion base 5 C Expansion base 6
														□C Expansion base 7
- Parameter statu	s												JL Hore More	de
I/O Address	0	10	20	30	40	50	60	70				1		System monitor
	0	1	2	3	4	5	6	7		1		1	j 💿 (Online module change
Q12PHCPU	Inte 11ig ent 16pt	16pt			None 16pt									Diagnostics Module's Detailed Information
														Base Information
- Status- Module syst												itart moi	nitor	Product Inf. List
	Module system error Module error Module warning Module change											itop moi	nitor	Close

(b) Click the "Execution" button to enable a module change.

Online module change	×
Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module selection completed
- Status/Guidance	
Please turn off Y signal of the ch intelligent function module.	nanged module when you change the
Execution	Cancel

If the following error screen appears, the user range cannot be saved. Click the [OK] button, and perform the operation in Section 7.3.6 (2)(c) and later.

MELSOF	T series GX Developer 🛛 🔀
¢	The target module didn't respond. The task is advanced to the installation confirmation.
	(OK)

(c) After confirming that the "RUN" LED of the module has turned off, remove the terminal block and dismount the module.

POINT

Always dismount the module. If mounting confirmation is made without the module being dismounted, the module will not start properly and the "RUN" LED will not be lit.

(3) Mounting of new module

- (a) Mount the dismounted module and new module to the other system.
- (b) Using the G(P).OGLOAD instruction, save the user set values to the CPU device. Refer to Appendix 1.2 for the G(P).OGLOAD instruction.
- (c) Using the G(P).OGSTOR instruction, restore the user set values to the module. Refer to Appendix 1.3 for the G(P).OGSTOR instruction.
- (d) Dismount the new module from the other system, mount it to the slot from where the old module was dismounted in the original system, and install the terminal block.

(e) After mounting the module, click the [Execution] button and make sure that the "RUN" LED is lit. Module Ready (X0) remains OFF.

Online module change	×
C Operation	Target module
Module change execution Installation confirmation Module control restart Status/Guidance	I/D address 000H Module name Q62DA-FG Status Changing module
The module can be exchanged.	
Please execute after installing a	new module.
Execution	Cancel

- (4) Operation check
 - (a) To make an operation check, click the [Cancel] button to cancel control resumption.

Online module change	X								
Operation-	Target module								
Module change execution	I/O address 000H								
Installation confirmation	Module name Q62DA-FG								
Module control restart	Status Change module installation completion								
Status/Guidance									
The controls such as I/O, FROM/TO instruction executions, and automatic refresh for the installed module are restarted. Please confirm the parameter setting and wiring, etc. and execute.									
Execution	Cancel								

(b) Click the [OK] button to leave the "Online module change" mode.



	0	1	2	з	4	5	6	7				Base	e Module
fasterPLC->		-	-	-	-	-	-	-					🗌 💿 Main base
Q12PHCPU		unti	Unno unti ng	unti	unti	unti	unti	Unno unti ng					C Expansion base 1 Expansion base 2 Expansion base 3 Expansion base 4 C Expansion base 5 C Expansion base 5
		10	20	30	40	50	60	70	I T	1		-Mo	
	0	10	20	30	40	50	60	70				0	base 7
^D arameter statu [/O_Address Q12PHCPU	0	1 None 16pt	2	3 None	4 None	5 None	6 None	7 None				0	de base 7
/O Address	0 0 Inte 1lig ent	1 None 16pt	2 None	3 None	4 None	5 None	6 None	7 None				0	base 7 de System monitor Online module char Diagnostics Module's Detaile

(c) Click the [Close] button to close the System monitor screen.

(d) Referring to (1), enable the conversion of the channels to be used, set digital values to the digital values (buffer memory addresses 1, 2: Un\G1, 2), and turn Operating condition setting request (Y9) from OFF to ON. Turn ON the output enable/disable flag (Y1, Y2) of the used channel to check whether proper conversion has been made or not. (Be careful since analog outputs are provided actually.)

(e) Since the new module is in a default status, it must be initialized by a

sequence program after control resumption. Before performing initialization, check whether the contents of the

initialization program are correct or not.

- Normal system configuration The sequence program should perform initialization on the leading edge of Module READY (X9) of the Q62DA-FG. When control resumption is executed, Module READY (X0) turns ON and initialization is performed. (If the sequence program performs initialization only one scan after RUN, initialization is not performed.)
- 2) When used on remote I/O network Insert a user device that will execute initialization at any timing (initialization request signal) into the sequence program. After control resumption, turn ON the initialization request signal to perform initialization. (If the sequence program performs initialization only one scan after a data link start of the remote I/O network, initialization is not performed.)

(5) Resumption of control

(a) After choosing [Diagnosis] - [Online module change] on GX Developer to redisplay the "Online module change" screen, click the [Execution] button to resume control. The FROM/TO instruction for the module resumes.



(b) The "Online module change completed" screen appears.



- 7.3.6 When user range setting is used and initial setting was made with sequence program (other system is unavailable)
 - (1) Conversion disable
 - (a) Set D/A Conversion enable/disable setting (buffer memory address 0: Un\G0) for all channel conversion disable and turn Operating condition setting request (Y9) from OFF to ON to stop conversion. After confirming that conversion has stopped with the actual analog output value, turn OFF Operating condition setting request (Y9).

Device test		×							
Bit device		1							
Device		Close							
Y9	•								
		Hide history							
FORCE ON FORCE OF									
Word device/buffer memory									
C Device		Ŧ							
 Buffer memory Module start 	1/00 🔻 (Hex)								
		_							
Address	0 🔽 DEC	-							
Setting value									
3 HE>	< 💌 16 bit integer	▼ Set							
- Program-									
	MAIN	-							
Execution history									
Device	Setting condition	Find							
Y9	Force ON								
Module start:0 Address:0(D)	3(H)	Find next							
Y9	Force OFF	Re-setting							
		Clear							

- (b) If the saved buffer memory contents are not yet prerecorded, record them in the following procedure.
 - Make the pass data classification setting (buffer memory address 200: Un\G200).
 - 2) Turn Operation Condition Setting Request (Y9) from OFF to ON.
 - Compare the offset/gain values of the industrial shipment settings and user range settings (buffer memory addresses 202 to 217: Un\G202 to Un\G217) with the range reference table. Refer to Section 7.4 for the range reference table.
 - If the values are proper, record the offset/gain values of the pass data classification setting, industrial shipment settings and user range settings.

POINT

If the buffer memory values compared with the reference table are not proper, save and restoration of the user range cannot be executed.

Before executing module control resumption, follow the flowchart in Section 4.6 and make offset/gain setting in the device test of GX Developer.

Perform mode switching by making the setting of the mode switching setting (buffer memory addresses 158, 159: Un\G158, Un\G159) and turning Operation Condition Setting Request (Y9) from OFF to ON.

Note that if module control is resumed without offset/gain setting being made, operation will be performed with the default values.

(2) Dismounting of module

(a) After choosing [Diagnosis] - [Online module change] on GX Developer to enter the "Online module change" mode, double-click the module to be changed online to display the "Online module change" screen.



(b) Click the "Execution" button to enable a module change.

Online module change	×
Operation	Target module
 Module change execution Installation confirmation Module control restart 	I/O address 000H Module name Q62DA-FG Status Change module selection completed
Status/Guidance Please turn off Y signal of the ch intelligent function module.	nanged module when you change the
Execution	Cancel

If the following error screen appears, the user range cannot be saved. Click the [OK] button, and perform the operation in Section (2)(c) and later.

MELSOFT series GX Developer 🛛 🛛 🔀						
٩	The target module didn't respond. The task is advanced to the installation confirmation.					
	(OK)					

(c) After confirming that the "RUN" LED of the module has turned off, remove the terminal block and dismount the module.

POINT

Always dismount the module. If mounting confirmation is made without the module being dismounted, the module will not start properly and the "RUN" LED will not be lit.

(3) Mounting of new module

- (a) Mount a new module to the same slot and install the terminal block.
- (b) After mounting the module, click the [Execution] button and make sure that the "RUN" LED is lit. Module Ready (X0) remains OFF.

Online module change		x
_ Operation	Target module-	
Module change execution	1/O address	000H
Installation confirmation	Module name	Q62DA-FG
Module control restart	- Status	,
Status/Guidance		
The module can be exchanged.		
Please execute after installing a	new module.	
Execution	Can	cel

(4) Operation check

(a) To make an operation check, click the [Cancel] button to cancel control resumption.

Online module change	×
C Operation	Target module
Module change execution	I/O address 000H
Installation confirmation	Module name Q62DA-FG
Module control restart	Status Change module installation completion
_ Status/Guidance	
The controls such as I/O, FROM and automatic refresh for the ins Please confirm the parameter se	
Execution	Cancel

(b) Click the [OK] button to leave the "Online module change" mode.

MELSOF	f series GX Developer	X
i)	The online module change mode is stopped. Even if the stop is executed, the online module change mode on the PLC side is not cancelled. Please execute the online module change and restart the control of the module agai	n
	[[0K]]	

(c) Click the [Close] button to close the System monitor screen.

System Monito	or													×			
Installed status													ır-Ba	ase			
	0	1	2	3	4	5	6	7			Т		Bas	e Module			
MasterPLC->	-	-	-	-	-	-	-	-					L] 🖸 💿 Main base			
Q12PHCPU	l6pt	unti	Unno unti ng	unti	unti	unti	unti							C Expansion C Expansion D C Expansion base 2 C Expansion base 3 C D C Expansion base 4 D C Expansion base 4 D C Expansion base 5 D C Expansion base 6			
] 🗌 o Expansion base 7			
										_							
Parameter statu I/0 Address		10	20	30	40	50	60	70		1				ode System monitor			
1/U Address	-	-		-	-	-	-				_		ē	Online module change			
Q12PHCPU	0 Inte llig ent l6pt	16pt	2 None 16pt											Diagnostics Module's Detailed Information			
														Base Information			
Status Module syst	Status Start monitor Start monitor Start monitor Product Inf. List								Product Inf. List								
								_		Stop monitor Close							

- (d) Choose [Online] [Debug] [Device test] on GX Developer and set the values prerecorded in Section (2) to the buffer memory.
- (e) Turn the user range write request (YA) from OFF to ON to restore the user set values to the module.
 After confirming that the offset/gain setting mode status flag (XA) is ON, turn OFF the user range write request (YA).

- (f) Referring to (1), enable the conversion of the channels to be used, set digital values to the digital values (buffer memory addresses 1, 2: Un\G1, 2), and turn Operating condition setting request (Y9) from OFF to ON. Turn ON the output enable/disable flag (Y1, Y2) of the used channel to check whether proper conversion has been made or not.
 (Be careful since analog outputs are provided actually.)
- (g) Since the new module is in a default status, it must be initialized by a sequence program after control resumption.
 Before performing initialization, check whether the contents of the initialization program are correct or not.
 - Normal system configuration The sequence program should perform initialization on the leading edge of Module READY (X9) of the Q62DA-FG. When control resumption is executed, Module READY (X0) turns ON and initialization is performed. (If the sequence program performs initialization only one scan after RUN, initialization is not performed.)
 - 2) When used on remote I/O network Insert a user device that will execute initialization at any timing (initialization request signal) into the sequence program. After control resumption, turn ON the initialization request signal to perform initialization. (If the sequence program performs initialization only one scan after a data link start of the remote I/O network, initialization is not performed.)
- (5) Resumption of control
 - (a) After choosing [Diagnosis] [Online module change] on GX Developer to redisplay the "Online module change" screen, click the [Execution] button to resume control. The FROM/TO instruction for the module resumes.



(b) The "Online module change completed" screen appears.



7.4 Range Reference Table

The range reference tables are given below.

(1) Reference table for offset/gain values of industrial shipment settings (buffer memory addresses 202 to 209: Un\G202 to 209) The reference values change depending on the setting of the pass data classification setting (buffer memory address 200: Un\G200).

Address CH1	(Decimal) CH2	Description	Pass data classification setting	Reference value (Hexadecimal)
		Industrial chipmont pattings offect	User range setting 1	Approx. 7FC0н
202	204	Industrial shipment settings offset value (used for D/A)	User range setting 2	Approx. 7FC0н
			User range setting 3	Approx. 14EAH
		Industrial shipment settings gain value	User range setting 1	Approx. F310н
203	203 205	(used for D/A)	User range setting 2	Approx. E830н
			User range setting 3	Арргох. 6895 н
	206 208	Industrial shipment settings offset	User range setting 1	Арргох. 0005 н
206		value (used for monitor output)	User range setting 2	Арргох. 0920 н
			User range setting 3	Арргох. 1060 н
		Industrial chipmont pattings gain value	User range setting 1	Арргох. 6665 н
207	209	Industrial shipment settings gain value	User range setting 2	Approx. 519Вн
		(used for monitor output)	User range setting 3	Approx. 2D50н

(2) Reference table for user range settings offset/gain values (buffer memory addresses 210 to 217: Un\G210 to 217)

- Example: When the offset value of channel 1 is 4mA and its gain value is 18mA in user range settings 1, the user range settings offset/gain values are as indicated below.
- CH1 user range settings offset value (for D/A conversion) : Approx. 96D0H (Buffer memory address 210: Un\G210)
- CH1 user range settings gain value (for D/A conversion) : Approx. E788H (Buffer memory address 211: Un\G211)
- CH1 user range settings offset value (for monitor output) : Approx. 147EH (Buffer memory address 214: Un\G214)
- CH1 user range settings gain value (for monitor output) : Approx. 5C29H (Buffer memory address 215: Un\G215)

Offset/gain value		Reference value for D/A conversion (Hexadecimal)	Reference value for monitor output (Hexadecimal)		
User range	0mA	Арргох. 7FC0н	Арргох. 0005н		
setting 1	4mA	Approx. 96D0н	Approx. 147Ен		
20mA		Approx. F310н	Арргох. 6665 н		
Lloor rongo	-10V	Арргох. 6870 н	Approx. C0A5н		
User range setting 2	0V	Approx. 7FC0н	Арргох. 0920н		
Setting 2	10V	Approx. E830н	Approx. 519Вн		
User range	1V	Approx. 14EAн	Арргох. 01060 н		
setting 3	5V	Арргох. 6895 н	Approx. 2D50н		

7.5 Precautions for Online Module Change

The following are the precautions for online module change.

- (1) Always perform an online module change in the correct procedure. A failure to do so can cause a malfunction or failure.
- (2) If an online module change is made with the user range setting, the accuracy after that will fall to about less than three times of the accuracy before that. Re-set the offset/gain values as necessary.

8 TROUBLESHOOTING

This chapter explains the types of errors that may occur when the Q62DA-FG is used, and how to troubleshoot such errors.

8.1 Error Code List

If an error occurs in Q62DA-FG while writing to or reading data from the programmable controller CPU, the applicable error code is written to buffer memory address 19 (Un\G19).

Error code (decimal)	Error description	Processing		
10□	The setting is outside the output range setting that can be made by the intelligent function module switch of the GX Developer. indicates the incorrectly specified channel number.	Reset to the correct parameter with GX Developer parameter setting. (See Section 4.5.)		
111	Module error at startup.	Turn the power ON and OFF again. If the error occurs again, the module may be malfunctioning. Contact the nearest distributor or branch office with a description of the problem.		
112	The value set to the intelligent function switch 5 is other than 0.	Re-set the correct parameter value in the parameter setting of GX Developer. (Refer to Section 4.5.)		
161 ^{* 3}	The G(P).OGSTOR instruction was executed in the offset/gain setting mode.	Do not execute the G(P).OGSTOR instruction in the offset/gain setting mode.		
162 ^{* 1}	 The G(P).OGSTOR instruction was executed consecutively. At the time of offset/gain setting, a set value was written to the E²PROM 26 or more times. 	 Execute the G(P).OGSTOR instruction only once for one module. At the time of offset/gain setting, write a set value only once at one time. 		
163 ^{* 1}	The G(P).OGSTOR instruction was executed for the model that differs from the model for which the G(P).OGLOAD instruction had been executed.	Execute the G(P).OGLOAD and G(P).OGSTOR instructions for the same model.		
164	The value set to the G(P).OGLOAD instruction, G(P).OGSTOR instruction or pass data classification setting (buffer memory address 200: Un\G200) is outside the range.	Set the value within the range.		
40□ ^{* 1}	The offset value is equal to or larger than the gain value. □ indicates the channel number causing the error.	Reset so that the offset value becomes smaller than the gain value.		
500 ^{* 1}	More than one channel was set at the same time during offset/gain settings.	Set the correct value in buffer memory addresses 22 and 23 (Un\G22 and Un\G23).		
60□ ^{*2}	The specified digital value is outside the valid range. indicates the channel number where the error occurred.	Set a value that is within the valid range.		
61□ ^{*1}	The warning output upper/lower limit value setting is outside the range -16384 to 16383. □ indicates the channel number incorrectly set.	Correct the contents of the buffer memory addresses 86 to 89 (Un\G86 to 89) to within the range -16384 to 16383.		

Table 8.1 Error code list (1/2)
Error code (decimal)	Error description	Processing
62□ ^{* 1}	The warning output lower limit value is equal to or greater than the warning output upper limit value. □ indicates the channel number incorrectly set.	Make setting so that the warning output upper limit value is greater than the warning output lower limit value.
700 * ¹	The analog adjustment output in the offset/gain setting mode is outside the specified value range.	Change the contents of buffer memory address 24 (Un\G24) so that it is within the range from –3000 to 3000.
71□ ^{*1}	The offset/gain range setting is outside the range Dн to Fн.	Correct the contents of the buffer memory address 25 (Un\G25) to within the range Dн to Fн.
80□ ^{*1}	The increase/decrease digital limit value setting is outside the range 0 to 32000. □ indicates the channel number incorrectly set.	Correct the contents of the buffer memory addresses 70 to 73 (Un\G70 to 73) to within the range 0 to 32000.

Table 8.1 Error code list (2/2)

POINT

- (1) When two or more errors occur, the latest error code is stored.
- (2) The error described with *1 can be cleared by setting the error clear request (YF) to ON.
- (3) If the error marked *2 occurs continuously, it is added to the error history of GX Developer in each conversion cycle.
- (4) Error code161 maked *3 is not stored in the Error code(Un\G19). It is writen to the Completion status area, (S) + 1, of the G(P).OGSTOR instruction.

8.2 Troubleshooting

8.2.1 When the "RUN" LED is flashing or turned off

(1) When flashing

Check item	Corrective action
	Reset switch 4 of the intelligent function module switch setting for GX Developer to the normal mode (see Section 4.5).

(2) When off

Check item	Corrective action	
Is power being supplied?	Confirm that the supply voltage for the power supply module is within the rated range.	
Is the capacity of the power supply module adequate?	Calculate the current consumption of the CPU module, I/O module and intelligent function module mounted on the base unit to see if the power supply capacity is adequate.	
Has a watchdog timer error occurred?	Reset the programmable controller CPU and verify that it is lit. If the RUN LED does not light even after doing this, the module may be malfunctioning. Contact the nearest distributor or branch office with a description of the problem.	
Is the module correctly mounted on the base unit?	Check the mounting condition of the module.	
Is a module change enabled during an online module change?	Refer to Chapter 7 and take corrective action.	

8.2.2 When the "ERR." LED is on or flashing

(1) When on

Check item	Corrective action	
Is an error being generated?	Confirm the error code and take corrective action described in Section 8.1.	

(2) When flashing

Check item	Corrective action	
Is intelligent function module setting switch 5 set to "other	Using GX Developer parameter setting, set intelligent	
than 0"?	function module setting switch 5 to "0" (see Section 4.5).	

8.2.3 When the "ALM" LED is turned on or flashing

(1) When on

Check item	Corrective action	
Has the warning output occurred?	Check the warning output flag (buffer memory address 48, Un\G48).	

(2) When flashing

Check item	Corrective action	
IHAS disconnection occurred?	Check the disconnection detection flag (buffer memory address 49, Un\G49).	

8.2.4 When an analog output value is not output

Check item	Action to be taken	
Is 24VDC external power supply being supplied?	Verify that 24VDC voltage is being supplied to the external power supply terminals (terminal numbers 16, 17).	
Is there any fault with the analog signal lines such as broken	Check for any abnormality on the signal lines by doing a	
or disconnected line?	visual check and performing a continuity check.	
Is the CPU module in the STOP status?	Set the CPU module to the RUN status.	
	Verify that the offset/gain settings are correct (see sections 4.6 and 5.6.2).	
Are the offset/gain settings correct?	If the user range setting is being used, switch to a different	
Are the onsergan settings concer:	default input range and check if D/A conversion is correctly	
	performed. If it is correctly performed, redo the offset/gain	
	settings.	
	Verify buffer memory address 20 (Un\G20) in GX Developer	
le the output acting range correct?	monitor. If the output range setting is incorrect, redo GX	
Is the output setting range correct?	Developer intelligent function module switch settings (see	
	Section 4.5).	
	Check the D/A conversion enable/disable setting using	
Is the D/A conversion enable/disable setting for the channel	buffer memory 0 (Un\G0) in GX Developer monitor and set it	
to be output set to Disable?	to Enable using the sequence program or utility package	
	(see Section 3.4).	
	Verify ON/OFF for the output enable/disable flags (Y1, 2) in	
	GX Developer monitor.	
Is the D/A output enable/disable setting for the channel to be	If the output enable/disable flags are OFF, review the initial	
output set to Disable?	setting for the sequence program or utility package (see	
	Section 3.3).	
	Verify buffer memory addresses 1, 2 (Un\G1, Un\G2) in GX	
Is the digital value being written to the channel to be output?	Developer monitor (see Section 3.4).	
	Set the operating condition setting request (Y9) from ON to	
	OFF from GX Developer and check to see if the analog	
Has the operating condition setting request (Y9) been	output is normal.	
executed?	If normal analog output is obtained, review the initial setting	
	for the sequence program or utility package (see Section	
	3.3).	

POINT

If the analog output value is not output after the proper corrective action is taken in accordance with the above check item, the possible cause is a module failure. Consult the nearest sales representative or branch.

8.2.5 When analog output value is not held

Check item	Action to be taken	
Is the HOLD/CLEAR setting correct?	Check the Switch 3 setting of the intelligent function module switch setting on GX Developer.	
Is the Q62DA-FG used on a MELSECNET/H remote I/O station?	Take action, referring to POINT (2) in Section 3.2.1.	

8.2.6 Checking the Q62DA-FG status using GX Developer system monitor

When the Q62DA-FG detail information is selected in GX Developer system monitor, function version, error code, LED ON status and status of the intelligent function module switch setting can be checked.

- (1) Operating the GX Developer [Diagnostics] \rightarrow [System monitor] \rightarrow "Select Q62DA-FG" \rightarrow [Module's Detailed Information]
- (2) Module Detailed Information
 - (a) Checking the function version The function version of the Q62DA-FG is displayed in the product information field.
 - (b) Checking the error code The error code stored in buffer memory address 19 (Un\G19) of the Q62DA-FG is displayed in the Present Error field.

(When the Error History button is pressed, the contents displayed in the

Present Error field are displayed in the No.1 field.)

				1
Module's Detailed Informa	ation		×	
	62DA-FG	Product information 0404		Function versior
I/O Address 0	62DA-FG	Floudet montation 0404		
Implementation Position M	ain Base USlot			
Module Information				
Module access	Possible	I/O Clear / Hold Settings		
Status of External Power S	upply	Noise Filter Setting		
Fuse Status		Input Type		
Status of I/O Address Verify	y Agree	Remote password setting		
Error Display				
No. Error	Present Error	lo Error	Display format	
			• HEX	
	Error History		O DEC	
		quence of the error history is it error is displayed in the line		
H/W Information	Start monitor	[Stop monitor]	Close	

(3) H/W information

(a) H/W LED information

The LED status is displayed.

No.	LED name	Status
1)	RUN LED	
2)	ERR. LED	0000ਮ : Indicates that LED is unlit. 0001ਮ : Indicates that LED is lit
3)	ALM LED	

(b) H/W SW information

The status of the intelligent function module switch setting is displayed.

No.	Switch setting for intelligent function module	
1	Switch 1	
2	Switch 2	
3	Switch 3	
4	Switch 4	
5	Switch 5	

1 0001 1 0000 3 1 0 2 0000 2 0000 3 0 2 0 0 3 0 3 0 3 0 3 0 0 3 0 0 3 0 0 3 0 0 3 0 0 3 0	Module Name	e Q62DA-FG	F	Product informati	on 0404100000	00000 · C	• HEX	0
1 0001 1 0000 3 1 0 2 0000 2 0000 3 0 3 3 1 0 3 0000 3 0000 3 0000 3 0 3 0 3 0 3 0 3 0 0 3 0 0 3 0 0 3 0 0 3 0 0 3 0 0 3 0 0 0 3 0	H/W LED Inf	ormation			H/W SW Info	rmation		
2 0000 2 0000 3 0000 3 0000 3 0000 4 000 4 000 4 000 4 000 4 000 5 0000 5 0000 5 0000 5 0000 6 0000 6 0000 6 0000 9 0000 9 0000 10 0000 10 10 0000 11 0000 11 0000 12 0000 13 0000 14 0000 15 0000 15 0000 15 0000 15 0000 15 0000 10 10 0000 10<	No.	Value	No.	Value		Value	No.	V
3 0000 3 0000 4 0000 4 0000 4 0 4 0 6 0 5 0 5 0 5 0 5 0 5 0 5 0 6 0 5 0 6 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 7 0 0 1 0 0 1 0 1 0 1 0 1 0 1 0 1 1 0 1 <	▶ 1	0001	1	0000	H= 3)		1	00
4 0000 4 0000 5 0000 5 0000 5 0000 5 0000 6 0000 6 0000 7 0000 7 0000 7 0000 9 0000 9 0000 10 0000 10 10 10 10 11 0000 11 0000 13 0000 13 0000 14 0000 15 0000 15 0000 10	2	0000	2	0000			2	01
S 0000 S 0000 S 0000 6 0000 6 0000 5 0	3	0000	3	0000			3	01
6 0000 6 0000 7 0000 7 0000 8 0000 8 0000 9 0000 9 0000 9 0000 9 0000 9 0000 10 10 10 11 0000 11 0000 11 0000 12 0000 13 0000 13 0000 14 0000 15 0000 15 0000 15 0000 10	4	0000	4	0000			4	01
7 0000 7 0000 8 0000 9 0000 9 0000 9 0000 9 0000 10 10 10 10 10 11 0000 11 0000 11 0000 11 0000 13 0000 13 0000 13 0000 14 0000 15 0000 15 0000 15 0000 15 0000 15 0000 10	5	0000	5	0000			5	01
8 0000 8 0000 9 0000 9 0000 10 0000 10 <th10< th=""> 10 <!--</td--><td>6</td><td>0000</td><td>6</td><td>0000</td><td></td><td></td><td></td><td></td></th10<>	6	0000	6	0000				
9 0000 9 0000 10 0000 10 0000 11 0000 11 0000 12 0000 12 0000 13 0000 14 0000 15 0000 15 0000	7	0000	7	0000				
10 0000 10 0000 1 11 0000 11 0000 1 1 0 1	8	0000	8	0000				
11 0000 11 0000 12 0000 12 0000 13 0000 13 0000 14 0000 15 0000	9	0000	9	0000				
12 0000 12 0000 13 0000 13 0000 14 0000 14 0000 15 0000 15 0000	10	0000	10	0000				
13 0000 13 0000 14 0000 14 0000 15 0000 15 0000	11	0000	11	0000				
14 0000 14 0000 15 0000 15 0000	12	0000	12	0000				
15 0000 15 0000	13	0000	13	0000				
	14	0000	14	0000				
16 0000 16 0000	15	0000	15	0000				
	16	0000	16	0000				

(In the case of GX Developer Version 7.13P)

APPENDIX

Appendix 1 Dedicated Instruction List and Available Devices

(1) Dedicated instruction list

The following table lists the dedicated instructions that can be used with the Q62DA-FG.

Instruction	Description	Reference section
G(P).OFFGAN	Switches to the offset/gain setting mode. Switches to the normal mode.	Appendix 1.1
G(P).OGLOAD	Reads the offset/gain values of the user range setting to the CPU.	Appendix 1.2
G(P) OGSTOR	Restores the offset/gain values of the user range setting stored in the CPU to the Q62DA-FG.	Appendix 1.3

POINT When the module is mounted to a MELSECNET/H remote station, the dedicated instructions cannot be used.

(2) Available devices

The following devices are available for the dedicated instructions:

Internal	devices	Filo rogistor	Constant * 2
Bit ^{*1}	Word	File register	Constant
X, Y, M, L, F, V, B	T, ST, C, D, W	R, ZR	K, H

*1 Word device bit designation can be used as bit data.

Word device bit designation is done by designating Word device . Bit No... (Designation of bit numbers is done in hexadecimal.)

For example, bit 10 of D0 is designated as D0.A.

However, there can be no bit designation for timers (T), retentive timers (ST) and counters (C).

*2 Available devices are given in each of the Constant field.

Appendix 1.1 G(P).OFFGAN

		offset	/gain settin	ig mode to	normal m	node)						
		Usable devices										
Set data	Internal device (System, user)		File	Link direct		Intelligent function	Index	Constant				
	Bit	Word	register	Bit	Word	module U⊡∖G⊟	register Z□	К, Н	\$	Other		
(S)		(\bigcirc		-				_			
-	[Instruction [Execution symbol] condition] Command											
G.OFFGA	AN		├ ──┤				G.OFFGAN	Un	(S)			
GP.OFF0	GAN		Commar	nd			GP.OFFGAN	N Un	(S)			

Switches the mode of the Q62DA-FG. (Normal mode to offset/gain setting mode,

Set data

Device	Description	Setting range	Data type
Un	Start I/O number of the module	0 to FEн	Binary 16 bits
	Mode switching		
	0: Switching to normal mode		
(S)	1: Switching to offset/gain setting mode	0 ,1	Binary 16 bits
	The setting of any other value results in "switching to		
	offset/gain setting mode"		

(1) Function

Switches the mode of the Q62DA-FG.

- Normal mode to offset/gain setting mode (the offset/gain setting mode status flag (XA) turns ON)
- Offset/gain setting mode to normal mode (the offset/gain setting mode status flag (XA) turns OFF)

POINT

 (1) When the offset/gain setting mode is switched to the normal mode, Module Ready (X0) turns from OFF to ON.
 Note that initial setting processing will be executed if there is a sequence

program that makes initial setting when Module Ready (X0) turns ON.

(2) D/A conversion is discontinued if the mode is switched (from the normal mode to the offset/gain setting mode or from the offset/gain setting mode to the normal mode).
To recurse D/A conversion, switch to the normal mode and then turn ON.

To resume D/A conversion, switch to the normal mode and then turn ON Operating condition setting request (Y9).

(2) Operation error No errors.

(3) Program example

The following program is designed to switch the Q62DA-FG mounted in the position of I/O number X/Y0 to X/YF to the offset/gain setting mode when M10 is turned ON, and to return it to the normal mode when M10 is turned OFF.

Switche	s to offse	et/gain setting mode					
	м10 - М			[MOVP	K1	D1	Stores setting of dedicated instruction (G.OFFGAN) into D1.
				-[G.OFFGAN	UO	D1	Dedicated instruction (G.OFFGAN)
	XOA H		[Perform	ns processing fo	r offset/	gain setting	
Switche		nal mode					
	м10 			[MOVP	KO	D1	Stores setting of dedicated instruction (G.OFFGAN) into D1.
				-[G.OFFGAN	UO	D1	Dedicated instruction (G.OFFGAN)
	XOA VI		[Perform	ns processing fo	r norma	mode	
-						-END	

Appendix 1.2 G(P).OGLOAD

Usable devices Internal device Link direct device Intelligent Index Constant Set data J□\□ (System, user) File function register Other register module ZΠ Bit Word Bit Word K, H \$ U□\G□ \bigcirc (S) 0 (D) [Instruction [Execution symbol] condition] Command G.OGLOAD G.OGLOAD Un (S) (D) Command GP.OGLOAD GP.OGLOAD Un (S) (D)

Reads the offset/gain values of the user range setting of the Q62DA-FG to the CPU.

Set data

Device	Description	Setting range	Data type
Un	Start I/O number of the module	0 to FEн	Binary 16 bits
(S)	Start number of the device in which control data is stored.	Within the range of the specified device	Device name
(D)	Device that is turned ON 1 scan on completion of dedicated instruction processing. (D) + 1 also turns ON at an abnormal completion.	Within the range of the specified device	Bit

Control data * 1 (1/2)

Device	Item	Set data	Setting range	Set by
(S)	System area	_	_	_
(S) + 1	Completion status	Stores the status when the instruction is complete. 0 : Normal completion Other than 0: Abnormal completion	_	System
(S) + 2	Pass data classification setting	Specify the user range setting where offset/gain values will be read. OH: Use range setting 1 specified 1H: Use range setting 2 specified 2H: Use range setting 3 specified b15tob12b11 to b8b7 to b4b3 to b0 OH OH CH2 CH1	_	User
(S) + 3	System area	—		—
(S) + 4	CH1 Industrial shipment settings offset value (used for D/A)	—		System
(S) + 5	CH1 Industrial shipment settings gain value (used for D/A)	—		System
(S) + 6	CH2 Industrial shipment settings offset value (used for D/A)	—	—	System
(S) + 7	CH2 Industrial shipment settings gain value (used for D/A)	—	—	System
(S) + 8	CH1 Industrial shipment settings offset value (used for monitor output)	—	—	System
(S) + 9	CH1 Industrial shipment settings gain value (used for monitor output)	_	_	System

*1 Set only the pass data classification setting (S)+2. If data is written to the area set by the system, the offset/gain values will not be read properly.

Device	Item	Set data	Setting range	Set by
(S) + 10	CH2 Industrial shipment settings offset value (used for monitor output)		_	System
(S) + 11	CH2 Industrial shipment settings gain value (used for monitor output)		_	System
(S) + 12	CH1 User range settings offset value (used for D/A)		_	System
(S) + 13	CH1 User range settings gain value (used for D/A)			System
(S) + 14	CH2 User range settings offset value (used for D/A)		_	System
(S) + 15	CH2 User range settings gain value (used for D/A)	—	—	System
(S) + 16	CH1 User range settings offset value (used for monitor output)		_	System
(S) + 17	CH1 User range settings gain value (used for monitor output)	_	_	System
(S) + 18	CH2 User range settings offset value (used for monitor output)	_	_	System
(S) + 19	CH2 User range settings gain value (used for monitor output)	_		System

Control data $*^{1}$ (2/2)

*1 Set only the pass data classification setting (S)+2. If data is written to the area set by the system, the offset/gain values will not be read properly.

(1) Functions

- (a) Reads the offset/gain values of the user range setting of the Q62DA-FG to the CPU.
- (b) There are two types of interlock signals for the G(P).OGLOAD instruction: the completion device (D) and the status display device at completion (D) +
 - 1.
 - 1) Completion device

Turns ON in the END processing of the scan where the G(P).OGLOAD instruction is completed, and turns OFF in the next END processing.

 Status display device at completion Turns ON and OFF depending on the completion status of the G(P).OGLOAD instruction.

Normal completion : Stays OFF and does not change.

Abnormal completion: Turns ON in the END processing of the scan where the G(P).OGLOAD instruction is completed, and turns OFF in the next END processing.



(2) Operation error

In the following case, an error occurs and the corresponding error code is stored into the completion status area (S)+1.

Error code	Case resulting in operation error
164	The value set to the pass data classification setting (S)+2 is
104	outside the range.

(3) Program example

The following program is designed to read the offset/gain values of the Q62DA-FG mounted in the position of I/O number X/Y0 to X/YF when M11 is turned ON.



Appendix 1.3 G(P).OGSTOR

Restores the offset/gain values of the user range setting stored in the CPU to the Q62DA-FG.

					Usable	devices					
Set data	Internal device (System, user)		File	Link direct device J⊡∖⊡		Intelligent function		Constant		Other	
	Bit	Word	register	Bit	Word	module U⊡\G□	register Z□	К, Н	\$	Other	
(S)		()		-				—	—	
(D)		0			_	_		_		_	
-	[Instruction [Execution symbol] condition] Command										
G.OGST	DR		-		[G.OGSTOR	Un	(S)	(D)		
	Ā		Commar	nd	_						
GP.OGS					[GP.OGSTO	R Un	(S)	(D)		

Set data

Device	Description	Setting range	Data type
Un	Start I/O number of the module	0 to FEн	Binary 16 bits
(S) * ¹	Start number of the device in which control data is stored.	Within the range of the specified device	Device name
(D)	Device that is turned ON 1 scan on completion of dedicated instruction processing. (D) + 1 also turns ON at an abnormal completion.	Within the range of the specified device	Bit

*1 When executing the G(P).OGLOAD instruction, specify the device designated in (S). Do not change the data read with the G(P).OGLOAD instruction.

If it is changed, normal operation cannot be guaranteed.

Control data * 1 (1/2)

Device	Item	Set data	Setting range	Set by
(S)	System area	—	_	_
(S) + 1	Completion status	Stores the status when the instruction is complete. 0 : Normal completion Other than 0: Abnormal completion (error code)	_	System
(S) + 2	Pass data classification setting	The value set to pass data classification setting (S)+2 using the G(P).OGLOAD instruction is stored. 0H: Use range setting 1 specified 1H: Use range setting 2 specified 2H: Use range setting 3 specified b15tob12b11 to b8b7 to b4b3 to b0 0H 0H CH2 CH1	_	User
(S) + 3	System area		—	
(S) + 4	CH1 Industrial shipment settings offset value (used for D/A)	_	_	System
(S) + 5	CH1 Industrial shipment settings gain value (used for D/A)	—	_	System
(S) + 6	CH2 Industrial shipment settings offset value (used for D/A)	_	_	System
(S) + 7	CH2 Industrial shipment settings gain value (used for D/A)	—		System

Device	Item	Set data	Setting range	Set by
(S) + 8	CH1 Industrial shipment settings offset value (used for monitor output)	—	—	System
(S) + 9	CH1 Industrial shipment settings gain value (used for monitor output)	—	—	System
(S) + 10	CH2 Industrial shipment settings offset value (used for monitor output)	—	—	System
(S) + 11	CH2 Industrial shipment settings gain value (used for monitor output)	—	—	System
(S) + 12	CH1 User range settings offset value (used for D/A)	—	—	System
(S) + 13	CH1 User range settings gain value (used for D/A)	—	—	System
(S) + 14	CH2 User range settings offset value (used for D/A)	—	—	System
(S) + 15	CH2 User range settings gain value (used for D/A)	—	—	System
(S) + 16	CH1 User range settings offset value (used for monitor output)	—	—	System
(S) + 17	CH1 User range settings gain value (used for monitor output)	_		System
(S) + 18	CH2 User range settings offset value (used for monitor output)	_	_	System
(S) + 19	CH2 User range settings gain value (used for monitor output)	—	_	System

Control data *1 (2/2)

- (1) Functions
 - (a) Restores the offset/gain values of the user range setting stored in the CPU to the Q62DA-FG.
 - (b) There are two types of interlock signals for the G(P).OGSTOR instruction: the completion device (D) and the status display device at completion (D) + 1.
 - Completion device Turns ON in the END processing of the scan where the G(P).OGSTOR instruction is completed, and turns OFF in the next END processing.
 - Status display device at completion Turns ON and OFF depending on the completion status of the G(P).OGSTOR instruction.

Normal completion : Stays OFF and does not change.

Abnormal completion: Turns ON in the END processing of the scan where the G(P).OGSTOR instruction is completed, and turns OFF in the next END processing.



(c) When the offset/gain values are restored, the reference accuracy falls to about less than three times of the accuracy before that.

(2) Operation error

In any of the following cases, an error occurs and the corresponding error code is stored into the completion status area (S)+1.

Error code	Case resulting in operation error		
161	The G(P).OGSTOR instruction was executed in the offset/gain setting mode.		
162	The G(P).OGSTOR instruction was executed consecutively.		
163	The G(P).OGSTOR instruction was executed for the model that differs from the model for which the G(P).OGLOAD instruction had been executed.		
164	The value set to the pass data classification setting (S)+2 is outside the range.		

(3) Program example

The following program is designed to read the offset/gain values of the Q62DA-FG mounted in the position of I/O number X/Y0 to X/YF when M11 is turned ON.



Appendix 2 Performance Comparison between Q62DA-FG and Q62DA

The following table indicates performance comparison between the Q62DA-FG and Q62DA.

Table Appendix. 1 Performance Comparison Table

Itom	Туре				DA-FG						62DA		
Item Number of analog							2 noints	(2 c	hannels)				
outputs		2 points (2 16-bit signed binary (-12288 to 12287, -16384 to 16383)					(2 (,	gned binary (normal	resolution mode: -4	096 to 4095,		
Digital inpu				o 12VDC (External lo						esolution mode: -122 V DC (External load			
Analog	Voltage			20mADC (External lo			/		-10 10 10		0 mA DC		
output	Current				2mADC		,			(External load resista	nce value: 0Ω to 60	0Ω)	
			Anal	log output range	Digital ir	nput value	Maximum resolution		Ana	og output range	Digital input value	Maximum * resolution	
				0 to 5V	0 to	12000	0.416mV			0 to 5V	0 to 4000	1.25mV (0.416mV)	
			Voltage	1 to 5V	0	12000	0.333mV		Voltage	1 to 5V	(0 to 12000)	1.0mV (0.333mV)	
I/ O charac	teristics		voltage	-10 to 10V	-16000	to 16000	0.625mV		voltage	-10 to 10V	-4000 to 4000 (-16000 to 16000)	2.5mV (0.625mV)	
maximum r	resolution			User range setting 2 User range setting 3	-12000	to 12000	0.366mV 0.183mV			User range setting	-4000 to 4000 (-12000 to 12000)	0.75mV (0.333mV)	
				0 to 20mA	0 to	12000	1.66 µA			0 to 20mA	0 to 4000	5µA (1.66µA)	
			Current	4 to 20mA	0	12000	1.33 µA		Current	4 to 20mA	(0 to 12000)	4µA (1.33µA)	
l				User range setting 1	-12000	to 12000	0.671 µA			User range setting	-4000 to 4000 (-12000 to 12000)	1.5μA (0.83μA)	
Accuracy (A relative to n analog outp	maximum	Reference accuracy: Within ± 0.1% (Voltage: ± 10mV, Current: ± 20 , ∠A) Temperature coefficient: ± 80ppm/ °C (0.008%/ °C)						Ambient temperature 25 \pm 5 °C: Within \pm 0.1 % (Voltage: \pm 10 mV, Current: \pm 20 μ A) Ambient temperature 0 to 55 °C: Within \pm 0.3 % (Voltage: \pm 30 mV, Current: \pm 60 μ A)					
Conversion	n speed		10ms/2 channels						80 µs/channel				
Absolute maximum	Voltage	± 13V					± 12 V						
output	Current		23mA						21 mA				
	Resolution Reference			12	2bit			_	-				
Output monitor	accuracy			± 0.2%				—					
	Temperature coefficient		± 160ppm/ °C (0.016%/ °C)										
Maximum r writes for E			Max. 100 thousand times										
Output sho protection		Available											
			•	n isolated area	olation lethod	Dielectric withstand voltage	Insulation resistance			c isolated area r	nethod Dielectri withstan voltage	d resistance	
Isolation sp	n specifications		rammable power supply	rms/3 500VDC		500VDC 10MΩ or		Between the I/O terminal and programmable controller power supply Between analog output No insulation			500VDC 20M Ω or more		
			Between analog output Transformer isolation cycles 10M Ω or more Between external supply power and analog output cannel Transformer isolation 2000m)				channels Ito insulation						
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)											
						r	,	+20%, -15%					
External su	pply power	┢	Ripple, spike v Inrush current: 5.2A, within 300 µs				witt	Inrush current: 1.9A, within 300 µs					
			0.3A						0.12A				
Internal cur consumptio		0.37A						0.33A					
consumption (5 VDC) Weight		0.20kg					+	0.19kg					

*: The values in parentheses are those in the high resolution mode.

Appendix 3 External Dimension Diagram



Unit : mm (inch)

INDEX

[A]

'	'	
	Absolute maximum output	3-1
	Accuracy	3-1, 3-6
	ALM LED	4-3
	Analog output	3-1
	Analog output HOLD/CLEAR function	3-8
	Analog output test during programmable of	controller
	CPU STOP	3-10
	Applicable modules	2-1
	Automatic Refresh Setting	5-15

[B]

Buffer memory	3-21
---------------	------

[C]

Channel change completed flag 3	-17
Channel change request	-19
CH digital values 3	-23
CH□ output enable/disable flag 3	-19
CH□ set value check codes 3	-24
Close parameter	-12
Confirmation of conversion characteristic 5	-22
Conversion speed	3-1
Current output characteristic	3-5

[D]

D/A conversion enable/disable function	3-7
D/A conversion enable/disable setting	3-23
D/A output enable/disable function	3-7
Decrease digital limit value	3-28
Dedicated instruction	App-1
Delete parameter	5-12
Digital input	3-1
Disconnection detection clear request	3-19
Disconnection detection flag	3-28
Disconnection detection function	3-14
Disconnection detection signal	3-18
Disconnection detection/warning output s	etting
	3-27

[E]

A-9
4-3
3-19
8-1

Error codes	3-24
Error flag	3-18
External Dimension Diagram	App-11
External supply power	3-1

[F]

FB conversion	5-26
Function version	2-5

[G]

Gain value	3-2
G(P).OFFGAN	Арр-2
G(P).OGLOAD	Арр-4
G(P).OGSTOR	Арр-7
GX Configurator-DA	2-3
GX Configurator-DA software Version	
	2-5
GX Developer	. A-9, 2-3

[H]

Handling precautions	4-1
----------------------	-----

[1]

I/O assignment setting	
Increase digital limit value	3-28
Industrial shipment settings offset/gain va	lue
	5-1
Initial settings	5-14
Installing	5-2
Insulation method	3-1
Intelligent function module parameter	5-7
Intelligent function module parameter sett	ing
module select screen	5-9
Internal current consumption	3-1

[L]

List of I/O signals	 15

[M]

Maximum resolution	3-1
Mode switching setting	3-29
Module ready	3-16
Monitor/test	5-17
Multiple CPU system	2-3

Ind

Ind

[0]
Offset value
Offset/gain adjustment value specification 3-25
Offset/gain setting mode flag 3-17
Offset/gain setting mode 3-25
Offset/gain setting4-6, 5-20, 5-21
Online module change7-1
Open parameter 5-12
Operating condition setting completed flag 3-16
Operating condition setting request
Operating environment5-4
Operating setting 5-17
Output range 3-25
Output monitor function 3-11
Output monitor value 3-26
Output short circuit protection 3-1

[P]

Part identification nomenclature	4-3
Pass data	5-24
Pass data classification setting	3-29
Programming	6-1

[Q]

QCPU (Q mode)	.A-9

[R]

Rate control function	3-13
Rate control enable/disable setting	3-26
Read from PLC	5-12
RUN LED	4-3

[S]

Save parameter5-1	12
Set value change completed flag 3-1	18
Set value change request	19
Setting range	25
Setup and procedures before operation 4	-2

[T]

Text file	5-8
Transfer setup	5-13
Troubleshooting	8-1

[U]

Uninstalling	-2
User range settings offset/gain value 3-3	30
User range writing request	9

Utility package5-1	
--------------------	--

[V]

Voltage output characteristic	3-3
-------------------------------	-----

[W]

-	
Warning output clear request	3-19
Warning output flag	3-27
Warning output function	3-12
Warning output lower limit value	3-22
Warning output signal	3-18
Warning output upper limit value	3-28
Weight	3-1
Write to PLC	5-12

[X]

X/Y monitor/test5-17	7
----------------------	---

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 onsite 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.

6. Product application

- (1) In using the Mitsubishi MELSEC programmable controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
- (2) The Mitsubishi programmable controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or Public service purposes shall be excluded from the programmable controller applications.

In addition, applications in which human life or property that could be greatly affected, such as in aircraft, medical applications, incineration and fuel devices, manned transportation, equipment for recreation and amusement, and safety devices, shall also be excluded from the programmable controller range of applications.

However, in certain cases, some applications may be possible, providing the user consults their local Mitsubishi representative outlining the special requirements of the project, and providing that all parties concerned agree to the special circumstances, solely at the users discretion.

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Channel Isolated Digital-Analog Converter Module

User's Manual

MODEL Q-D/A-FG-U-SY-E

MODEL CODE

13JR52

SH(NA)-080281E-K(0805)MEE

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