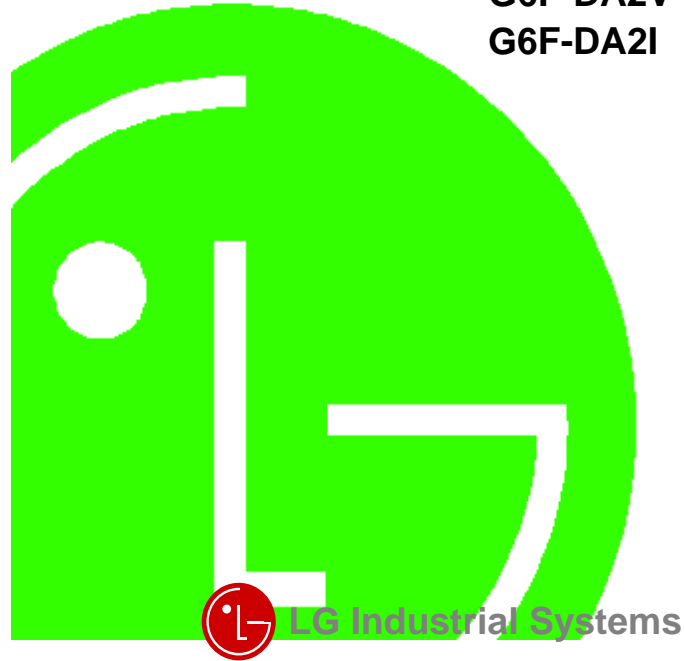


**LG Programmable Logic Controller
Digital to Analog Conversion Module
G6F-DA2V
G6F-DA2I**



- When using LGIS equipment, thoroughly read this datasheet and associated manuals introduced in this datasheet. Also pay careful attention to safety and handle the module properly.
- Store this datasheet in a safe place so that you can take it out and read it whenever necessary.

o Safety Precautions

- ▶ Safety Precautions is for using the product safe and correct in order to prevent the accidents and danger, so please go by them.
- ▶ The precautions explained here only apply to the G6F-DA2V/G6F-DA2I unit. For safety precautions on the PLC system, refer to the GLOFA-GM6 or MASTER-K200S User's manual.
- ▶ The precautions are divided into 2 sections, 'Warning' and 'Caution'. Each of the meanings is represented as follows.

⚠ Warning If violated instructions, it can cause death, fatal injury or considerable loss of property.

⚠ Caution If violated instructions, it can cause a slight injury or slight loss of products

- ▶ The symbols which are indicated in the PLC and User's Manual mean as follows
- ⚠ This symbol means paying attention because of danger of injury, fire, or malfunction.
- ⚡ This symbol means paying attention because of danger of electrical shock.
- ▶ Store this datasheet in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

⚠ Warning

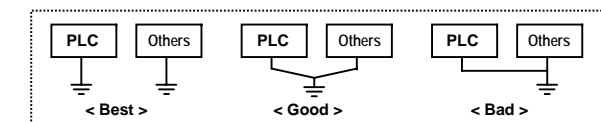
- ▶ Do not contact the terminals while the power is applied.
Risk of electric shock and malfunction
- ▶ Protect the product from being gone into by foreign metallic matter.
Risk of fire, electric shock and malfunction.

⚠ Caution

- ▶ Be sure to check the rated voltage and terminal arrangement for the module before wiring work.
Risk of electric shock, fire and malfunction
- ▶ Tighten the screw of terminal block with the specified torque range.
If the terminal screw looses, it can cause fire and electric shock.
- ▶ Use the PLC in an environment that meets the general specifications contained in this datasheet.
Risk of electrical shock, fire, erroneous operation and deterioration of the PLC.
- ▶ Be sure that external load does not exceed the rating of output module.
Risk of fire and erroneous operation.
- ▶ Do not use the PLC in the environment of direct vibration
Risk of electrical shock, fire and erroneous operation.
- ▶ Do not disassemble, repair or modify the PLC.
Risk of electrical shock, fire and erroneous operation.
- ▶ When disposing of PLC and battery, treat it as industrial waste.
Risk of poisonous pollution or explosion.

Precautions for use

- ▶ Do not Install other places except PLC controlled place.
- ▶ Make sure that the FG terminal is grounded with class 3 grounding which is dedicated to the PLC. Otherwise, it can cause disorder or malfunction of PLC



- ▶ Connect expansion connector correctly when expansion module are needed,
- ▶ Do not detach PCB from the case of the module and do not modify the module.
- ▶ Turn off power when attaching or detaching module.
- ▶ Cellular phone or walkie-talkie should be farther than 30cm from the PLC
- ▶ Input signal and communication line should be farther than minimum 100mm from a high-tension line and a power line in order not to be affected by noise and magnetic field.

Before handling the product

Before using the product, read the datasheet and the User's manual through to the end carefully in order to use the product efficiently.

Materials for GLOFA-GM

Name	Code
GMWIN (Programming software)	10310000376
GLOFA-GM (Instruction & Programming)	10310000377
GLOFA-GM6 User's manual	10310000344

Materials for MASTER-K

Name	Code
KGL-WIN (Programming software)	10310000345
MASTER-K (Instruction & Programming)	10310000346
MASTER-K200/300/1000S User's manual	10310000347

1. Introduction

The G6F-DA2V/G6F-DA2I is digital/analog conversion module for use with the GLOFA PLC GM6 series CPU modules and MASTER-K200S series CPU module. The D/A conversion module is to convert a 12-bit signed binary digital value to an analog output signal(Voltage or Current).

2. General Specifications

No	Item	Specifications	Standard				
1	Operating temperature	0 ~ 55 °C					
2	Storage temperature	-25 ~ 70 °C					
3	Operating Humidity	5 ~ 95%RH, non-condensing					
4	Storage humidity	5 ~ 95%RH, non-condensing					
5	Vibration	Occasional vibration		10 times in each direction for X, Y, Z	IEC61131-2		
		Frequency	Acceleration			Amplitude	Sweep count
		10 ≤ f ≤ 57 Hz	-			0.075 mm	-
		57 ≤ f ≤ 150 Hz	9.8m/s² (1G)			-	-
		Continuous vibration					
		Frequency	Acceleration			Amplitude	
10 ≤ f ≤ 57 Hz	-	0.035 mm	-				
57 ≤ f ≤ 150 Hz	4.9m/s² (0.5G)	-	-				
6	Shocks	*Maximum shock acceleration: 147m/s² (15G) *Duration time :11 ms *Pulse wave: half sine wave pulse(3 times in each of X, Y and Z directions)	IEC61131-2				
7	Noise immunity	Square wave impulse noise	± 1,500 V	LGIS Standard			
		Electrostatic discharge	Voltage :4kV(contact discharge)	IEC61131-2 IEC1000-4-2			
		Radiated electromagnetic field	27 ~ 500 MHz, 10 V/m	IEC61131-2 IEC1000-4-3			
		Fast transient & burst noise	Severity Level All power modules Digital I/Os (Ue ≥ 24 V) Digital I/Os (Ue < 24 V) Analog I/Os communication I/Os	IEC61131-2 IEC1000-4-4			
		Voltage	2 kV	1 kV	0.25 kV		
8	Atmosphere	Free from corrosive gases and excessive dust					
9	Altitude for use	Up to 2,000m					
10	Pollution degree	2 or lower					
11	Cooling method	Self-cooling					

LG constantly endeavors to improve our products so that information in this datasheet is subjected to change without notice.

3. Performance Specifications

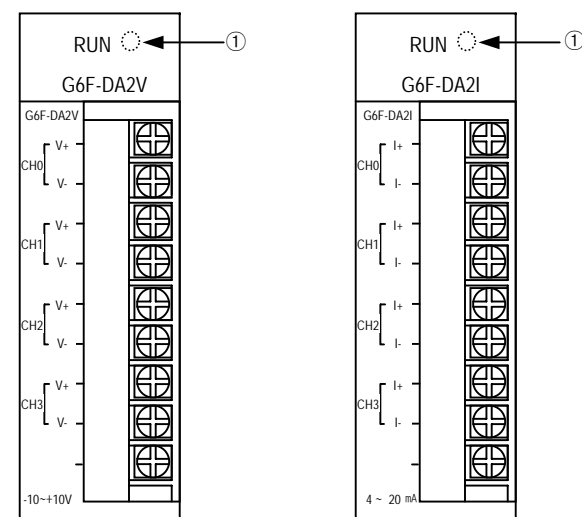
Items	Specifications	
	G6F-DA2V	G6F-DA2I
Digital input	12bit signed binary(-48 ~ 4047)	
Analog output	-10 ~ 10VDC (External load resistance : 2kΩ ~ 1MΩ)	DC 4 ~ 20mA (External load resistance : less than 510Ω)
Max. resolution	5 mV (1/4000)	4μA (1/4000)
Accuracy	± 0.5% [Full Scale]	
Max. conversion speed (ms/channel)	10ms/4 channels	
Max. absolute output	15VDC	DC 25 mA
Analog output points	4channels/1module	
Isolation	Between input terminals and the PLC: Photo-coupler isolation (Between channels : Non-isolated)	
Terminals connected consumption	9-point terminal block	
Internal current consumption	DC+5V	40mA
	DC+15V	80mA
	DC-15V	60mA
Weight	200g	200g

Caution

The adjusted value of D/A conversion module at manufacturer has been in the range of from -10 to 10 VDC or 4 ~ 20mA, and in accordance with it, offset / gain values is fixed .

4. Parts Name and Functions

This following shows the names of parts and functions of G6F-DA2V and G6F-DA2I module.



No.	Descriptions
①	RUN LED Indicates the operating status the G6F-DA2V/G6F-DA2I *Normal mode -On: Normal operation -Off: 5 VDC power off or the G6F-DA2V/G6F-DA2I module fault.

5. Handling Precautions

From unpacking to installation, be sure to check the following:

- Do not drop it off, and make sure that strong impacts should not be applied.
- Do not dismount printed circuit boards from the case. It can cause malfunctions.
- During wiring, be sure to check any foreign matter like wire scraps should not enter into the upper side of the PLC, and in the event that foreign matter entered into it, always eliminate it.
- Be sure to disconnect electrical power before mounting or dismounting the module.

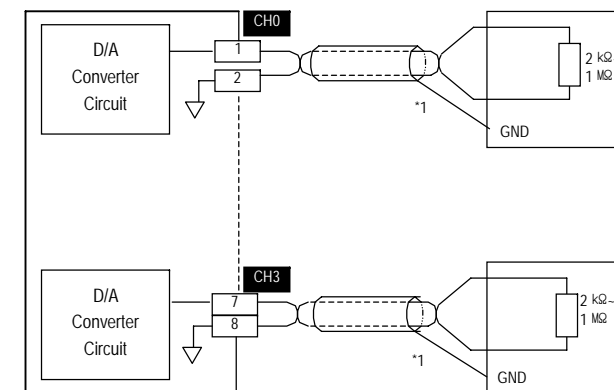
6. Wiring

6.1 Wiring Precaution

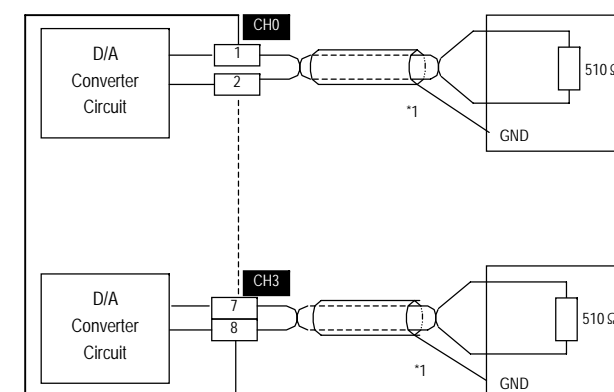
- Separate AC and output signal of D/A conversion module wiring not to be affected by surge or induced noise of the AC.
- External wiring has to be at least AWG22(0.3 mm²) and be selected in consideration of operating ambience and/or allowable current.
- Separate wiring from devices and/or substances generating intense heat, and oil not to make short-circuit which leads to damage and/or mis-operation.
- Identify the polarity of terminal block before external power supply is made connected.
- Separate external wiring sufficiently from high voltage and power supply cable not to cause induced failure and/or malfunction.

6.2 Wiring example

1)G6F-DA2V



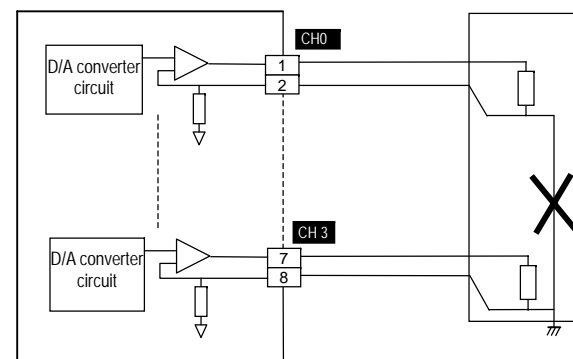
2)G6F-DA2I



*1 For the cable, use a two-core twisted shielded wire

Caution

Current output module(G6F-DA2I) cannot be connected with device which is grounded with common line. Because it is not normal current output.



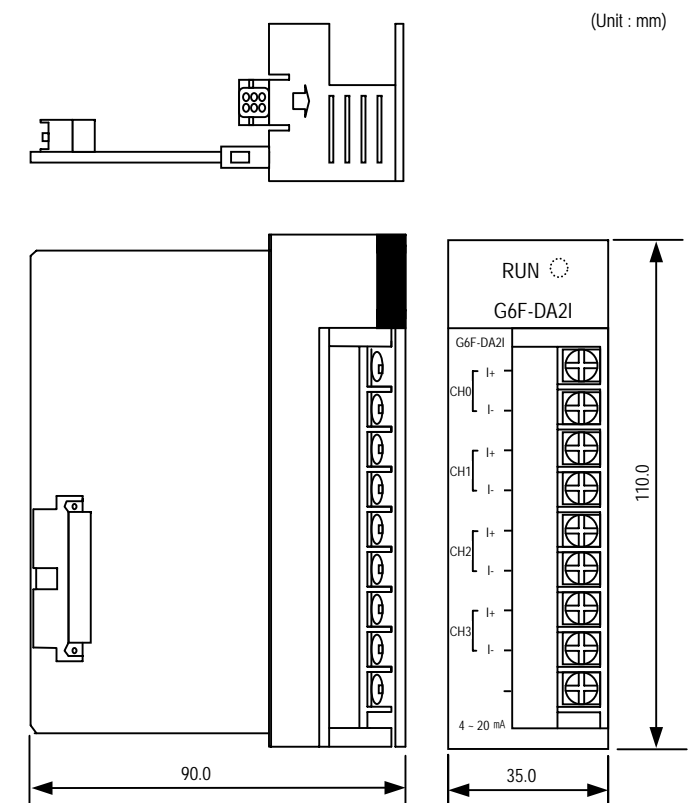
7. Function Block (only GLOFA series)

Function Block		Function
Local	Remote	
DA2AWR	DAR62WR	Write conversion value(array type)
DA2WR	-	Write conversion value(single type)

8. Buffer memory (only MASTER-K series)

Address (decimal)	Name	Detail descriptions
0	Digital input value Ch0	Specify digital data for D/A conversion of Ch0 (-48-4047)
1	Digital input value Ch1	Specify digital data for D/A conversion of Ch1 (-48-4047)
2	Digital input value Ch2	Specify digital data for D/A conversion of Ch2 (-48-4047)
3	Digital input value Ch3	Specify digital data for D/A conversion of Ch3 (-48-4047)

9. Dimension



10. Warranty

- Warranty period
LGIS provides an 18-month-warranty from the date of the production.
- Warranty conditions
For troubles within the warranty period, LGIS will replace the entire PLC or repair the troubled parts free of charge except the following cases.
 - The troubles caused by improper condition, environment or treatment except the instructions of LGIS.
 - The troubles caused by external devices.
 - The troubles caused by remodeling or repairing based on the user's own discretion.
 - The troubles caused by improper usage of the product.
 - The troubles caused by the reason which exceeded the expectation from science and technology level when LGIS manufactured the product.
 - The troubles caused by natural disaster.
- This warranty is limited to the PLC itself only. It is not valid for the whole system which the PLC is attached to.