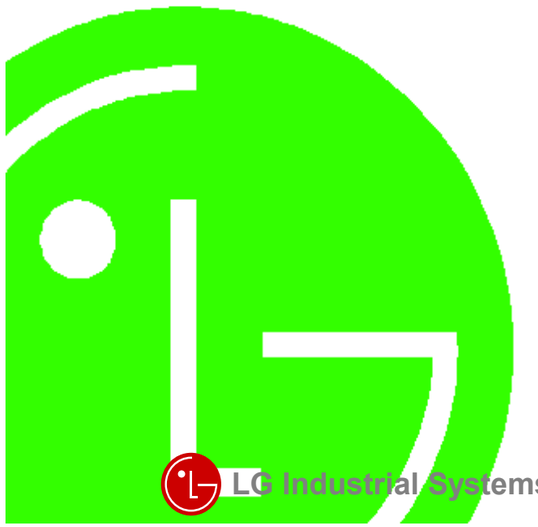
DATA SHEET

LG Programmable Logic Controller
PID Conversion Module
GLOFA G3F-PIDA
G4F-PIDA



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702005310

Before handling the product

Read this data sheet carefully prior to any operation, mounting, installation or start-up of the product.

Materials for GLOFA GM

Name	Code
GLOFA GMWIN (Programming Software)	702005047
GLOFA GM (Instruction & programming	702005058
GLOFA-GM3/4	702004919
GLOFA G3F-PIDA / G4F-PIDA	702004873

❑ Safety Precautions

Be sure to read carefully the safety precautions given in data sheet and user's manual before operating the module and follow them.
The precautions explained here only apply to the G3F-PIDA and G4F-PIDA.
For safety precautions on the PLC system, see the GLOFA GM3/4 and GK3/4 User's Manuals.
A precaution is given with a hazard alert triangular symbol to call your attention, and precautions are represented as follows according to the degree of hazard.

WARNING ⇨ If not provided with proper prevention, it can cause death, fatal injury or considerable loss of property.

CAUTION ⇨ If not properly observed, it can cause a hazard situation to result in severe or slight injury or a loss of property.

However, a precaution followed with **CAUTION** can also result in serious conditions.
Both of two symbols indicate that an important content is mentioned, therefore, be sure to observe it.
Keep this manual handy for your quick reference in necessary.

❑ Design Precautions

CAUTION

▶ Do not run I/O signal lines near to high voltage line or power line.
Separate them as 100 mm or more as possible. Otherwise, noise can cause module malfunction.

❑ Installation Precautions

CAUTION

▶ Operate the PLC in the environment conditions given in the general specifications.
▶ If operated in other environment not specified in the general specifications, it can cause an electric shock, a fire, malfunction or damage or degradation of the module.
▶ Make sure the module fixing projections is inserted into the module fixing hole and fixed.
▶ Improper installation of the module can cause malfunction, disorder or falling.

❑ Wiring Precautions

CAUTION

▶ When grounding a FG terminal, be sure to provide class 3 grounding which is dedicated to the PLC.
▶ Before the PLC wiring, be sure to check the rated voltage and terminal arrangement for the module and observe them correctly.
If a different power, not of the rated voltage, is applied or wrong wiring is provided, it can cause a fire or disorder of the nodule.
▶ Drive the terminal screws firmly to the defined torque.
If loosely driven, it can cause short circuit, a fire or malfunction.
▶ Be careful that any foreign matter like wire scraps should not enter into the module. It can cause a fire, disorder or malfunction.

❑ Test RUN and Maintenance Precautions

CAUTION

▶ Do not contact the terminals while the power is applied. It can cause malfunction.
▶ When cleaning or driving a terminal screw, perform them after the power has been turned off.
▶ Do not perform works while the power is applied, which can cause disorder or malfunction.

CAUTION

▶ Do not separate the module from the printed circuit board(PCB), or do not remodel the module.
They can cause disorder, malfunction, damage of the module or a fire.
When mounting or dismounting the module, perform them after the power has been turned off.
▶ Do not perform works while the power is applied, which can cause disorder or malfunction.

❑ Waste Disposal Precautions

CAUTION

▶ When disposing the module, do it as an industrial waste.

1. Introduction

These two modules are called G3F-PIDA and G4F-PIDA. The G3F-PIDA is used in combination with the CPU of GLOFA PLC GM1.2.3 and GM3 series, and the G4F-PIDA is used in combination with the CPU of GM4 and GK4 series. Hereafter, the two modules will be commonly called the PID control module.

PID control means a control action that in order to keep the object at a value set beforehand (SV), it compares the SV with a sensor-measured value (PV) and when a difference between them is detected the controller makes PV come to be SV by adjusting output to eliminate the difference. The PID control is composed of combinations of Proportional (P), Integral (I) and Derivative (D) actions.

2. General Specifications

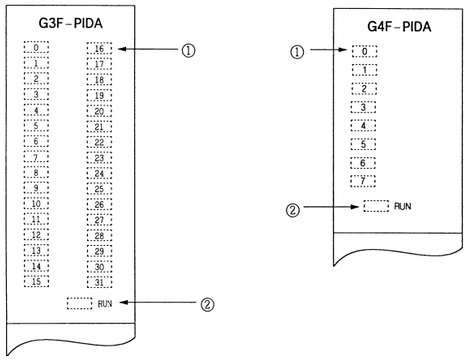
No	Item	Specifications				Standard
1	Operating temperature	0 ~ 55℃				
2	Storage temperature	-25 ~ 70℃				
3	Operating Humidity	5 ~ 95%RH, non-condensing				
4	Storage humidity	5 ~ 95%RH, non-condensing				
5	Vibration	Occasional vibration				IEC 1131-2
		Frequency	Acceleration	Amplitude	Sweep count	
		10≤ f＜ 57 Hz	-	0.075 mm	10 times in each direction for X, Y, Z	
		57 ≤ f≤ 150 Hz	9.8㎨ {1G}	-		
		Continuos vibration				
		Frequency	Acceleration	Amplitude		
		10≤ f＜ 57 Hz	-	0.035 mm		
		57≤ f≤ 150 Hz	4.9㎨ {0.5G}	-		
6	Shocks	*Maximum shock acceleration: 147㎨ {15G} *Duration time :11 ms *Pulse wave: half sine wave pulse(3 times in each of X, Y and Z directions)				IEC 1131-2
7	Noise immunity	Square wave impulse noise	± 1,500 V			
		Electrostatic discharge	Voltage :4kV(contact discharge)			IEC 1131-2 IEC 801-2
		Radiated electromagnetic field	27 ~ 500 MHz, 10 V/m			IEC 1131-2 IEC 801-3
		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
			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				

3. Performance Specifications

Items		Specifications	
		G3F-PIDA	G4F-PIDA
Setting range of PID constants	Proportional constant (P)	0.01 ~ 100.00 (When integral and derivative constants are set to 0.0 sec, proportional action is applied.)	
	Integral constant (I)	0.0 ~ 3000.0 sec (When integral constant is set to 0.0 sec, integral action shall not be applied.)	
	Derivative constant (D)	0.0 ~ 3000.0 sec (When derivative constant is set to 0.0 sec, derivative action shall not be applied.)	
Setting range : SV (Set Value)		0 ~ 16,000	
Input range : PV (Process Value)		0 ~ 16,000	
Output range : MV (Manipulated Value)		0 ~ 16,000	
Setting range : M_MV (Manually Manipulated Value)		0 ~ 16,000	
LED	RUN / STOP	RUN : The run LED of corresponding loops ON STOP : The run LED of corresponding loops OFF	
	NORMAL/ERROR	Normal : RUN LED ON Error : RUN LED flickering	
Number of PID control loops		32 loops	8 loops
Control action		Forward/Reverse action control is available.	
Control cycle		0.1 sec	
Processing type		Measured value derivative type (Pre-derivative type)	
Internal current consumption		0.3 A	0.2 A
Weight		370 g	190 g

4. Parts Name and Functions

This following shows the names of parts and functions of G3F-PIDA and G4F-PIDA.



No.	Descriptions
①	Loop Run LED It shows the PID control module run status. ON : The corresponding loop is running. OFF : The corresponding loop is running. Flickering : Error status. Error Value is displayed.
②	RUN LED It shows the PID module Operating status. ON: Normal Flickering : Error

5. Handling Precautions

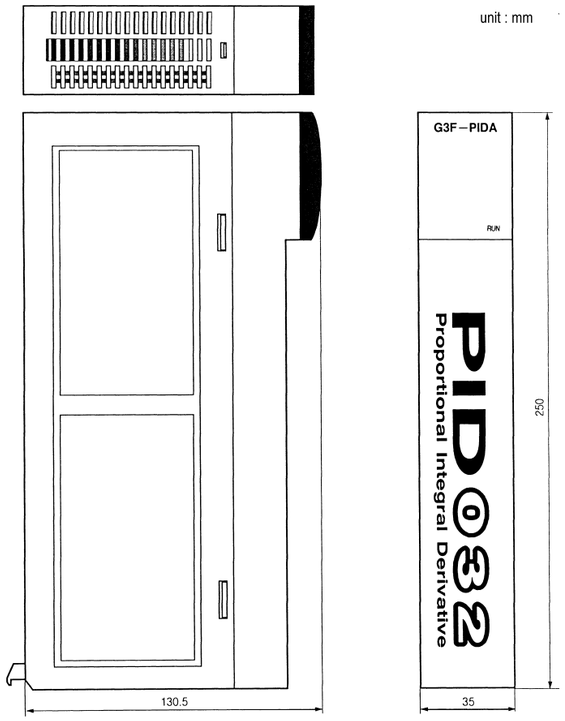
From unpacking to installation, be sure to check the following:

1) Do not drop it off, and make sure that strong impacts should not be applied.
2) Do not dismount printed circuit boards from the case. It can cause malfunctions.
3) 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.
4) Be sure to disconnect electrical power before mounting or dismounting the module.

6. Dimension

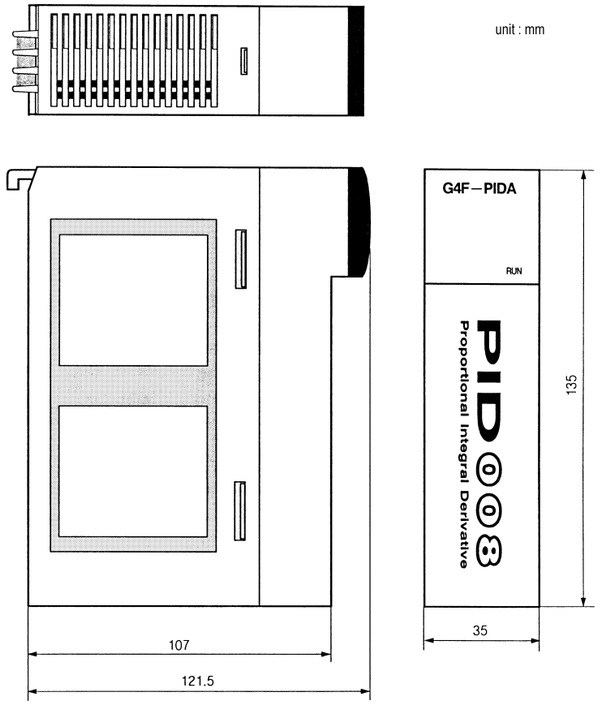
6.1 G3F-PIDA

unit : mm



6.2 G4F-PIDA

unit : mm



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