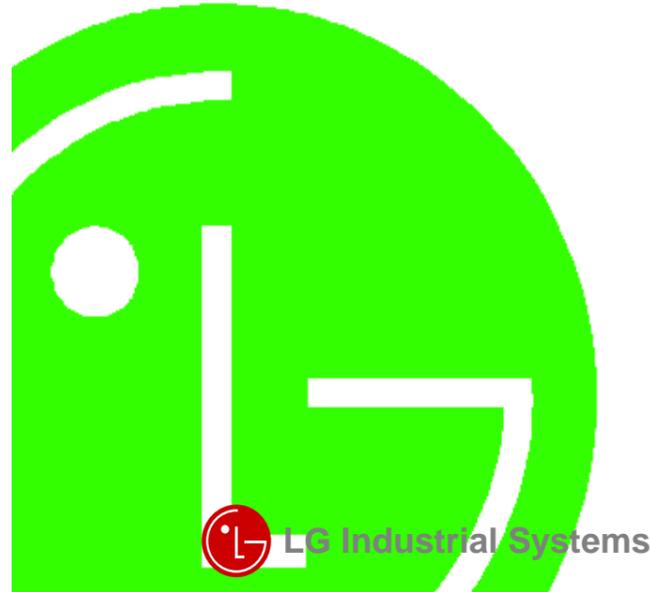


DATA SHEET

LG Programmable Logic Controller Analog Timer Module G7F-AT2A



- 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.

◦ 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 G7F-AT2A unit. For safety precautions on the PLC system, refer to the GLOFA-GM7 or MASTER-K80S 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

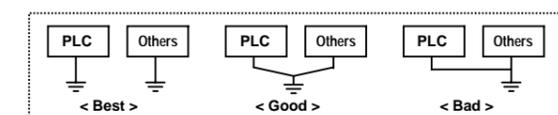
- ▶ Do not contact the terminals while the power is applied.
Risk of electric shock and malfunction
- ▶ Protect the product from being gone into by foreign metallic matter.
Risk of fire, electric shock and malfunction.

⚠ 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

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

Materials for GLOFA-GM

Name	Code
GMWIN(Programming software)	10310000376
GLOFA-GM (Instruction & programming)	10310000377
GLOFA-GM7 User's manual	10310000374

Materials for MASTER-K

Name	Code
KGLWIN (Programming software)	10310000345
MASTER-K (Instruction & programming)	10310000347
MASTER-K80S User's manual	10310000373

1. Introduction

The G7F-AT2A is used with the CPU of GLOFA PLC GM7series and MASTER-K80S series. Hereafter, they are called Analog Timer Module(A/T module). The A/T module performs on-delay operation for a setting time.

2. General Specifications

No	Item	Specifications	Standard				
1	Operating temperature	0 ~ 55℃					
2	Storage temperature	-25 ~ 75℃					
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	IEC 61131-2		
		Frequency	Acceleration			Amplitude	Sweep count
		10 ≤ f ≤ 57 Hz	-			0.075 mm	-
		57 ≤ f ≤ 150 Hz	9.8 ^{m/s²} (1G)			-	-
		Continuous vibration					
		Frequency	Acceleration	Amplitude			
		10 ≤ f ≤ 57 Hz	-	0.035 mm			
		57 ≤ f ≤ 150 Hz	4.9 ^{m/s²} (0.5G)	-			
6	Shocks	*Maximum shock acceleration: 147 ^{m/s²} (15G)		IEC 61131-2			
		*Duration time :11 ms					
7	Noise immunity	*Pulse wave: half sine wave pulse(3 times in each of X, Y and Z		IEC 61131-2 IEC 1000-4-2 IEC 61131-2 IEC 1000-4-3 IEC 61131-2 IEC 1000-4-4			
		Square wave impulse	± 1,500 V				
		Electrostatic discharge	Voltage :4kV(contact discharge)				
		Radiated electromagnetic field	27 ~ 500 MHz, 10 V/m				
	Fast transient burst noise	Severity Level	All power modules	Digital I/Os (Ue < 24 V)	Digital I/Os (Ue < 24 V)		
		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					

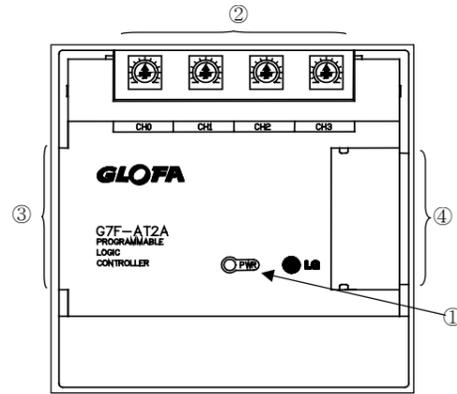
3. Performance Specifications

Item	Specification
Number of channels	4
Output value range	8 Bit (Digital output range: 0 ~ 200)
Setting type	Setting by variable resistance
Accuracy of timer	± 2.0% (Accuracy about max. value)
Operation method	Reading by means of using executive function block (AT2RD)
Internal current consumption	50 mA
Number of module installment	Max 3 modules
Weight	200g

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

4. Names of parts and functions



No.	Name	Contents
①	RUN LED	Indicate the operating status the G7F-AT2A. On: normal operating Off: DC 5V power off or the A/T module fault
②	Channel	Setting up the length of timer through variable resistance to every channel.
③	Extension cable	
④	Extension cable connection terminal	

5. Function Block (only GLOFA series)

5.1 Function of the function block

Function block type	Classification	Variable	Data type	Contents
AT2RD	Input	REQ	BOOL	Executing request region of function block. • If condition, which is connected this region, is completed, then 0 becomes 1 and function block gets executed.
		SLOT	USINT	location number of slot • Region to write slot no. which A/T module is installed. • Setting range: 1 to 3.
		CH	USINT	Designating region of using channel • Designating region for no. of using timer. • Setting range: 0 to 3
	Output	DONE	BOOL	Complete status of function block execution. • When input condition of function block is 1, if it is completed to execute, then '0→1' is output. But when input condition is 0 and output changes to '1→0,' then related timer becomes operating stop status.
		STAT	USINT	Indication region of error status • Region for output of error no. when error occurs while function block execution.
		DATA	USINT	Digital value output of timer. • Output range: 0 to 200.

5.2 Error list, which is occurred on, output variable STAT

No.	Contents	Remedy
3	Setting range excess of slot location no.	Designate right slot no. which is installed with A/T module.
4	Empty A/T module of designated slot.	Installing A/T module to designated slot.
5	Another module is installed which is different from analog timer module.	Installing A/T module to designated slot.
6	Setting region excess of channel	Correct using channel no. designation.

6. Variable resistance handling (only GLOFA series)

- 1) Set up extension G7F-AT2A to CPU module and allow power supply then make program by means of A/T module executive function block AT2RD, after that download it to CPU module.
- 2) Change CPU module to RUN mode and monitor output variable DATA value of function block AT2RD then control variable resistance of channel which is set up on function block of G7F-AT2A.
- 3) Then output value becomes small if variable resistance turns left. And value of DATA becomes big, if it turns right.
- 4) When expected timer value is output as data, stops controlling variable resistance.

7. Special data register (only MASTER-K series)

A/T conversion value stores special data register as following.

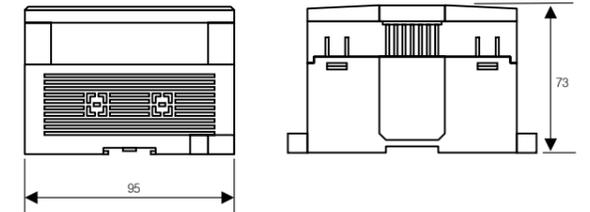
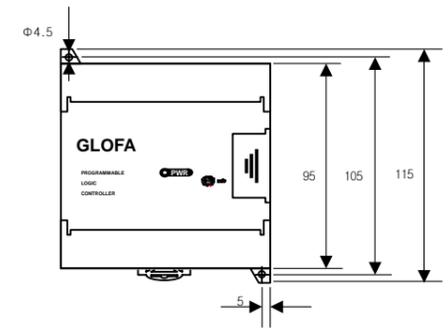
Special data register	Explanation	remark
D4966	A/T conversion value of channel 1 stores	Expansion A/T module #1
D4967	A/T conversion value of channel 2 stores	
D4968	A/T conversion value of channel 3 stores	
D4969	A/T conversion value of channel 4 stores	
D4970	A/T conversion value of channel 1 stores	Expansion A/T module #2
D4971	A/T conversion value of channel 2 stores	
D4972	A/T conversion value of channel 3 stores	
D4973	A/T conversion value of channel 4 stores	Expansion A/T module #3
D4974	A/T conversion value of channel 1 stores	
D4975	A/T conversion value of channel 2 stores	
D4976	A/T conversion value of channel 3 stores	
D4977	A/T conversion value of channel 4 stores	

8. 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.

9. Dimension (unit : mm)



10. Warranty

1. Warranty period
LGIS provides an 18-month-warranty from the date of the production.
2. 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.
 - (1) The troubles caused by improper condition, environment or treatment except the instructions of LGIS.
 - (2) The troubles caused by external devices.
 - (3) The troubles caused by remodeling or repairing based on the user's own discretion.
 - (4) The troubles caused by improper usage of the product.
 - (5) The troubles caused by the reason which exceeded the expectation from science and technology level when LGIS manufactured the product.
 - (6) The troubles caused by natural disaster.
3. This warranty is limited to the PLC itself only. It is not valid for the whole system which the PLC is attached to.