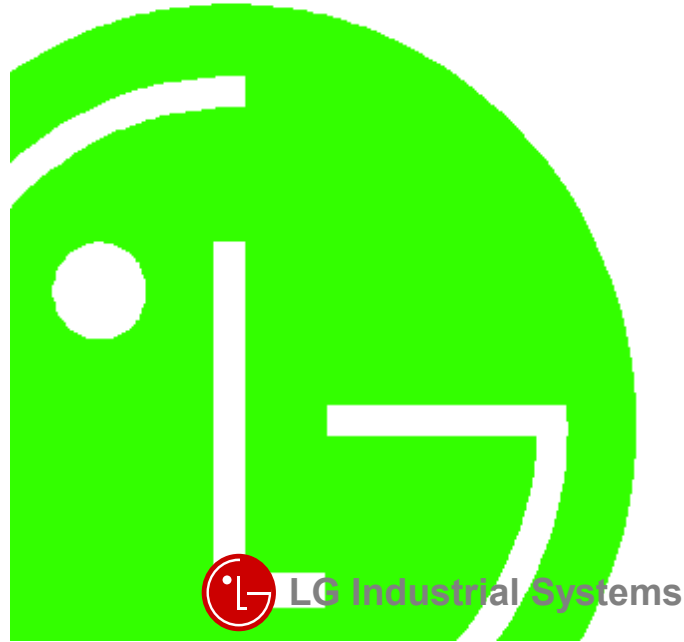


DATA SHEET

LG Programmable Logic Controller PID Conversion Module MASTER-K K7F-PIDA K4F-PIDA



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702006357

Before handling the product

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

Materials for MASTER-K

Name	Code
MASTER-K KGL-WIN (Programming Software)	702005036
MASTER-K (Instructions & programming)	702006539
MASTER-K CPU User's Manual	702006391
MASTER-K K4F-PIDA / K7F-PIDA Manual	702006517

Name	Code
MASTER-K K4F-PIDA / K7F-PIDA Data Sheet	702006357

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 module.
- ▶ 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.

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 K4F-PIDA and K7F-PIDA.

For safety precautions on the PLC system, see the MASTER-K CPU User's manual.

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.

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 dismantling 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 K7F-PIDA and K4F-PIDA. The K7F-PIDA is used in combination with the CPU of MASTER-K PLC K1000S series, and the K4F-PIDA is used in combination with the CPU of K300S 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

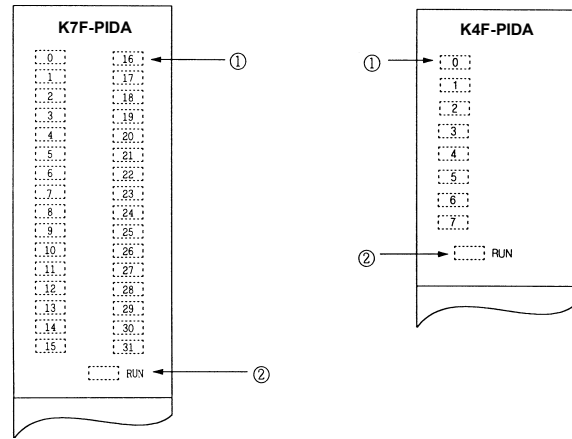
No	Item	Specifications	Standard		
1	Operating temperature	0 ~ 55 °C			
2	Storage temperature	-25 ~ 70 °C			
3	Operating Humidity	5 ~ 95%RH, non-condensing			
4	Storage humidity	5 ~ 95%RH, non-condensing			
5	Vibration	Occasional vibration		10 times in each direction for X, Y, Z IEC 1131-2	
		Frequency	Acceleration		Amplitude
		10 ≤ f < 57 Hz	-		0.075 mm
		57 ≤ f ≤ 150 Hz	9.8m/s ² (1G)		-
		Continuous vibration			
	Frequency	Acceleration	Amplitude		
	10 ≤ f < 57 Hz	-	0.035 mm		
	57 ≤ f ≤ 150 Hz	4.9m/s ² (0.5G)	-		
6	Shocks	*Maximum shock acceleration: 147m/s ² (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	IEC 1131-2 IEC 801-2	
		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 Voltage	All power modules (Ue ≥ 24 V) 1 kV	Digital I/Os (Ue < 24 V) Analog I/Os communication I/Os 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	
	K7F-PIDA	K4F-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 K7F-PIDA and K4F-PIDA.



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

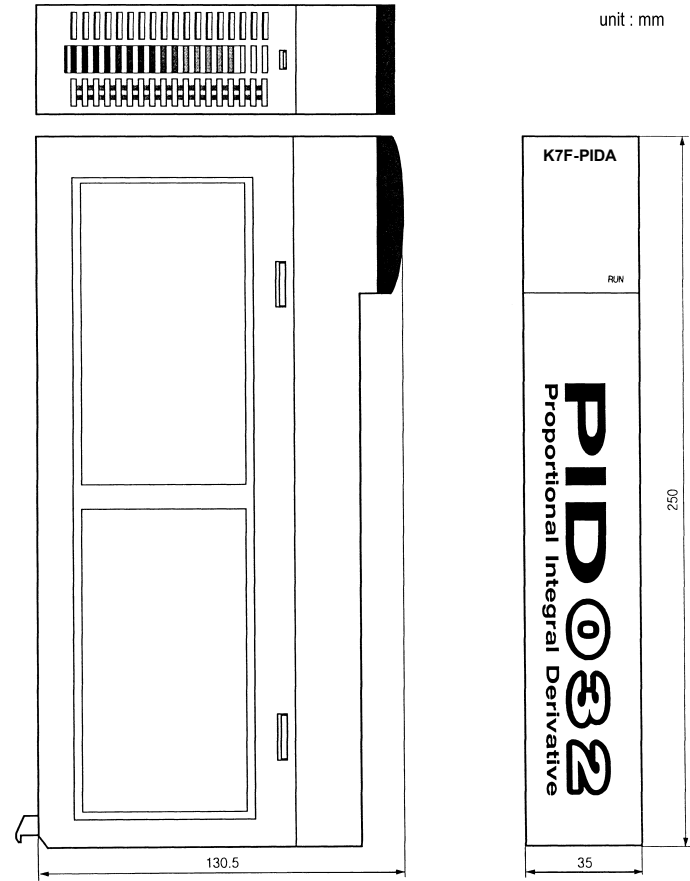
5. Handling Precautions

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 K7F-PIDA



6.2 K4F-PIDA

