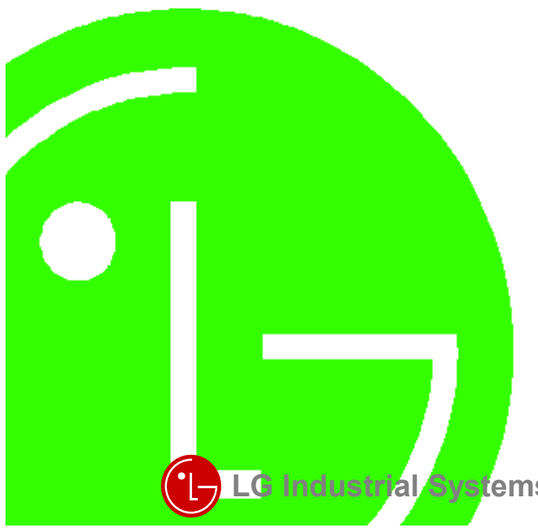
DATA SHEET

LG Programmable Logic Controller
RTD Conversion Module
GLOFA G3F-RD3A
G4F-RD2A



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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-RD3A / G4F-RD2A	702004895

❑ 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-RD3A and G4F-RD2A.
For safety precautions on the PLC system, see the GLOFA GM3/4 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

The G3F-RD3A is a Pt input module for use with the GLOFA PLC GM1/2/3 series CPU module, and the G4F-RD2A is for use with the GM4 series CPU module.
The RTD input module is a module that converts the temperature data(℃) input by the Pt (Pt100 or JPt100) into a signed 16 bit digital binary data and outputs it.

2. General Specifications

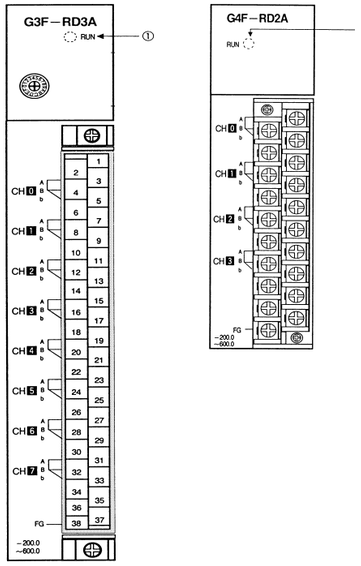
No	Item	Specifications				Standard
1	Operating temperature	0 ~ 55℃				
2	Storage temperature	-25 ~ 70℃				
3	Operating Humidity	5 ~ 95%RH, non-condensing				
4	Storage humidity	5 ~ 95%RH, non-condensing				
5	Vibration	Occasional vibration				IEC 1131-2
		Frequency	Acceleration	Amplitude	Sweep count	
		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	IEC 1131-2 IEC 801-4
			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				

3. Performance Specifications

Item	Specifications	
	G3F-RD3A	G4F-RD2A
Connectable RTD	Pt 100 (JIS C1640-1989, DIN 43760-1980) JPt100 (KS C1603-1991, JIS C1604-1981)	
Temperature input range	Pt100 : -200.0°C to 600°C (18.48 to 313.59Ω) JPt100 : -200.0°C to 600°C (17.14 to 317.28Ω)	
Digital output	Digital conversion value : 0 to 16,000 Detected temperature value : -2000 to 6000 (one digit after point × 10)	
Buffer memory	Each of three wires at every channel has detection function.	
Accuracy	±0.5 %(full scale)	
Maximum conversion speed	50ms per channel	
Number of temperature input device points	8 channels per module	4 channels per module
Insulation method	Photo-coupler insulation between the input terminal and the PLC power supply (non-insulation between channels)	
Connection terminal block	38-point terminal block	20-point terminal block
Internal current consumption	0.5 A	0.45A
Weight	630 g	350 g

4. Parts Name and Functions

This following shows the names of parts and functions of G3F-RD3A and G4F-RD2A.



No.	Descriptions
①	RUN LED It displays the operating status of the RTD input module (1) On : Normal Operation (2) Flickering : Error occurred (3) Off : DC 5V disconnection or the RTD input module 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. Wiring

6.1 Wiring Precaution

1) Separate AC and external input signal of RTD module wiring not to be affected by surge or induced noise in the AC.
2) External wiring has to be at least AWG22(0.3 ㎟) and be selected in consideration of operating ambiance and/or allowable current.
3) 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.
4) Identify the polarity of terminal block before external power supply is made connected.
5) Separate external wiring sufficiently from high voltage and power supply cable not to cause induced failure and/or malfunction.
6) Don't put the power cable in front of the LED display
   (In order to read the digital value on the LED correctly)

6.2 Wiring example

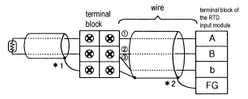
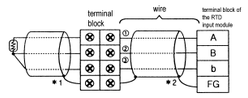
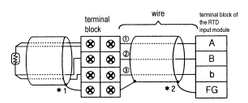
Number of method of connection between Pt and RTD input module are three, that is, 2-wired type, 3-wired type and 4-wired type.

The resistance of the wires used to connect Pt to RTD input module should be 10 Ω or less per wire.

The same wire (in thickness, length, and kind, etc.) should be used for each channel.

REMARK

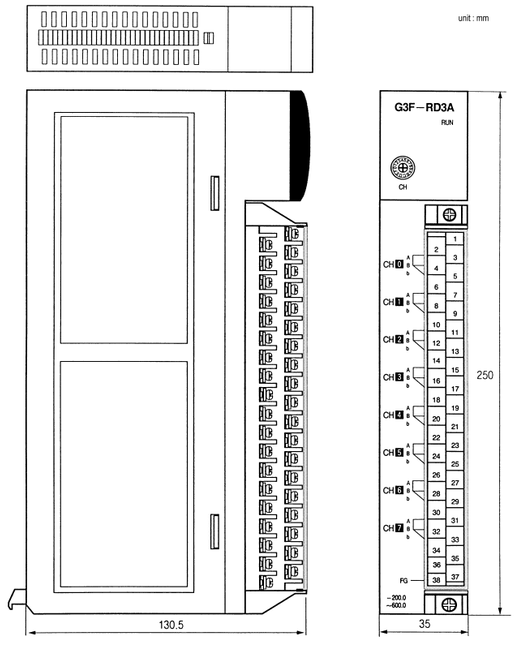
✳ The difference between the resistance values of the wires used should be 1 Ω or less, or the accuracy could not be satisfied.

Connection Method	Connection Example	Wire Conditions
2-wired type		① wire resistance≤ 10Ω ② wire resistance≤ 10Ω ③ wire resistance≤ 10Ω
3-wired type		The difference between the resistance values of the wires ① and ② : 1Ω or less The difference between the resistance values of the wires ② and ③ : 1Ω or less The difference between the resistance values of the wires ③ and ① : 1Ω or less
4-wired type		

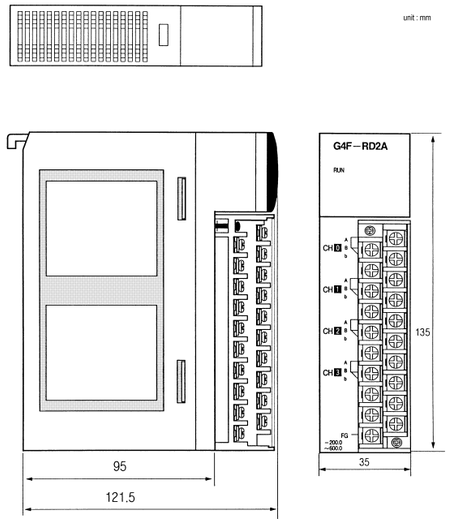
*1: RTD (Pt100 or JPt1000)
*2: Shielded wire
The shields of the RTD and shields of wire should be connected to the FG of the RTD input module.

7. Dimensions

7.1 G3F-RD3A



7.2 G4F-RD2A



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