GC-3624

4-channel analog input module(-10V~+10V)

User manual
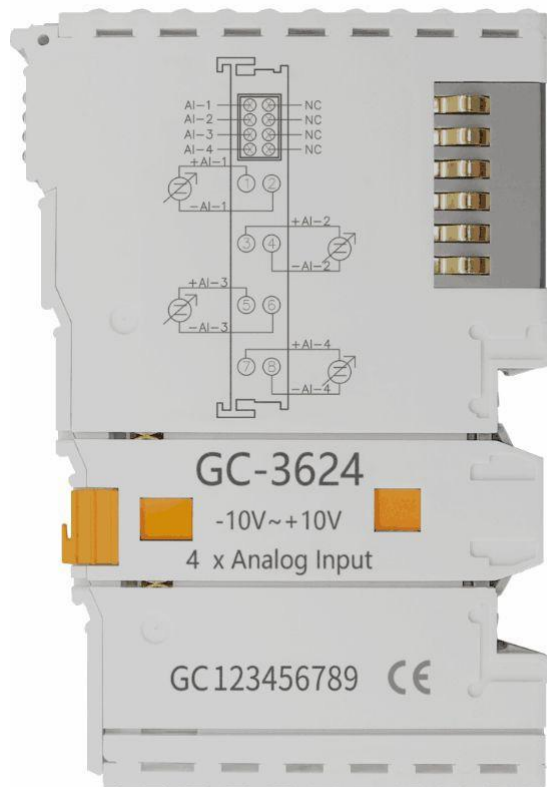
Revision History

Version	Date	Reason
V1.00	2017/05/16	Create document
V2.01	2018/01/07	Modify device parameters
V3.01	2020/10/07	Correct the device pin definition

Contents

1. Introduction

1.1 Overview

The GC-3624 module has integrated 4 analog input -10V~+10V channels, which acquires analog signals in real time and transmits them to the GCAN-PLC coupler. This module can be used with any other GC Series IO module to capture and process analog data in industrial automation or distributed control systems.

1.2 Properties at a glance

● 4 input channels

● Acquisition voltage range:-10V~+10V

● Internal resistance: 100kΩ

● Signal form: differential signal

● Resolution: 16bits

● Conversion time:<300ms

● Electric isolation:500Vrms

● Power Supply by GCAN-PLC-400 orGCAN-IO-8000

● Current consumption:130mA

● The bit width input in the process image is 4*2bytes

● No address setting, configuration via bus coupler or controller

● Operating temperature: -40°C~+85°C

● Dimension:100mm*69mm*12mm

1.3 Typical application

● Acquisition of analog signals

● Access bus coupler or controller for analog signal transmission

2. Installation and use

This chapter will describe the installation method, wiring method, meaning of the indicator and meaning of the interface of the GC-3624 module.

2.1 Module fixing

The installation method of GC-3624 module as shown in Figure 2.1 and a flat-blade screwdriver is needed for auxiliary installation.
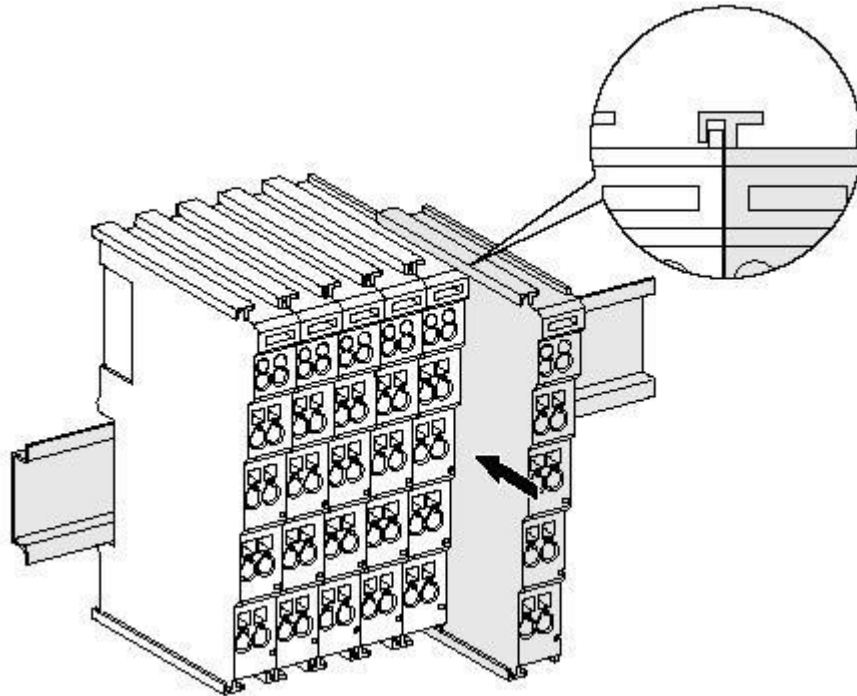

Figure 2.1 Installation of GC-3624 module

First the user need to install the GCAN-PLC on the guide rail and plug the GC-3624 along GCAN-PLC's right side until the lock is stuck.

The GC-3624 module needs to be used with a GCAN-PLC-400 or GCAN-8000/8100 series coupler, and can be powered directly through the coupler, so there is no need for a separate additional power supply.

2.2 Wiring method

The power wiring as shown in figure 2.2. First, use a flat-blade screwdriver to insert into the square hole, hold the top edge of the metal sheet in the square hole, and press toward the hole. Then, insert the wire into the hole. After plugging in, pull out the screwdriver and the wire can be firmly locked in the hole.
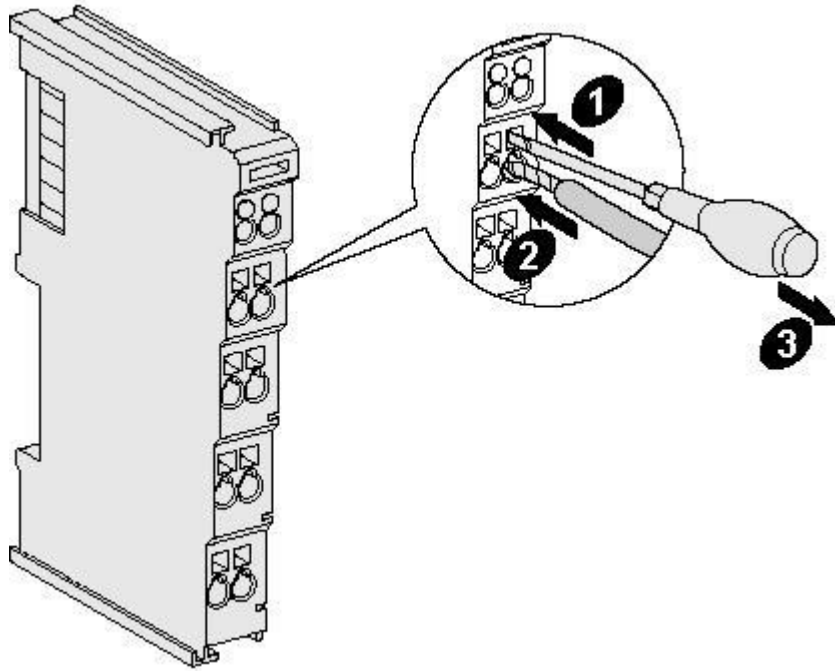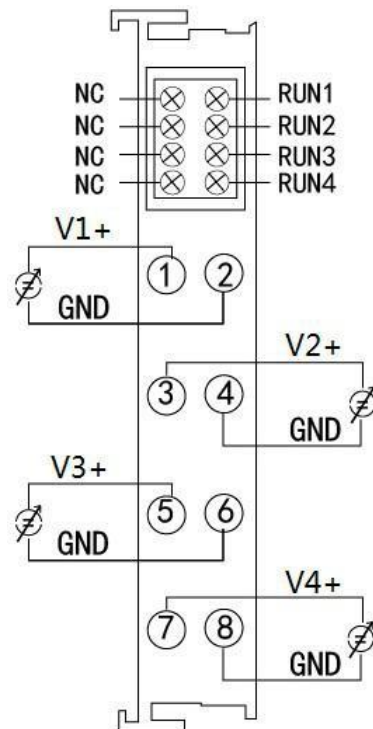
Figure 2.2 Wiring method of GC-3624 module

Figure 2.3 GC-3624 module terminal definition

Terminal	No.	Definition
+AI_1	1	NO.1 signal +
-AI_1	2	NO.1 signal -
+AI_2	3	NO.2 signalvoltage+
-AI_2	4	NO.2 signal -
+AI_3	5	NO.3 signalvoltage+
-AI_3	6	NO.3 signal +
+AI_4	7	NO.4 signalvoltage+
-AI_4	8	NO.4 signal +

Table 2.1 GC-3624 module indicator

2.3 System status indicator

The GC-3624 module has 4 run indicators that indicate the operating status of the device. The specific indication function of the indicator light is shown in Table 2.2. When the indicator is lit, the status of the GC-3624 module is shown in Table 2.3.

Indicator	Color	Indication status
RUN	Green	Operating

Table 2.2 Indicator of GC-3624 module

When the input signal of the GC-3624 module is connected normally and the current is more than 0, the running indicator will light up.

Indicator	Status	Indication status
RUN	on	Connection correct and current value more than 0
	off	Connection error or current value is 0

Table 2.3 Indicator status of GC-3624module

2.4 combination with PLC400/510 series

GCAN-PLC-400/510 supports programming in five languages. The following uses ST language as an example to introduce how to use GCAN-PLC-400 to program and read the status of the analog input of the GC-3624 module.

When the GC-3624 module performs ST programming definition, it is

necessary to define the variable type, input signal position, start character, separator, etc. For example: "AI0 AT%I0.0:INT;", where "0.0" represents the starting address of the first channel, each channel occupies 2 bytes, -10V~+10V corresponds to -32768~+32767, so the second The starting address of each channel is I2.0. When the user uses more than one GC-3624 module, the second GC-3624 needs to be defined from "I8.0", because each 3624 has 4 channels; "%" (percent sign) is the direct variable start symbol : ":" (semicolon) is a variable or type separator. Use the symbol variable AI0 to read the signed integer from the %I0.0 address. AT stands for the address of variable access and the additional attributes of the variable (see page 46 of the e-book for details).

(Note: Input only affects input, output only affects output, output and input do not affect each other. That is, if there is and only output module in front of the input module, then no matter how many output modules there are in front, the address of the first input module is still I0 .0.)

2.5 Combination with GCAN-IO-8000 series equipment

The state of the analog input is represented by two bytes.

For example: GCAN-IO-8000 module node number is 1, the input state of channel 1 of the first GC-3624 module is +5V, and the input state of other channels is 0V, then the CAN data frame ID sent by the GCAN-IO-8000 module is 0x181, the data length (DLC) is 8, and the frame data is 0xFF, 0x7F, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00. The following table lists a common AI state and its corresponding state data.

AI Status								
channel	1		2		3		4	
status	+5V		0V		0V		0V	
CAN data	FF	3F	00	00	00	00	00	00

Table 2.4

3. Technical Specifications

Interface characteristics	
Number of inputs	4
Acquisition voltage range	-10V-+10V
Resolution	16 bite
Conversion time	<300ms
Measuring error	< ±0.5%
Electrical isolation	500 V(GC-bus/ Signal voltage)
Bit width in the process image	4*2 input bytes
Installation position	In sequential order
Power supply	Powered by GCAN-PLC-400 or GCAN-IO-8000, current consumption 100mA
Environmental testing	
Operating temperature	-40℃~+85℃
Permissible relative humidity	95%RH，no condensation
EMC test	EN 55024:2011-09 EN 55022:2011-12
Vibration/shock resistance	EN 60068-2-6/EN 60068-2-27/29
EMC resistance burst/ESD	EN 61000-6-2 /EN 61000-6-4
Protection class	IP 20
Basic information	
Dimensions	100mm *69mm *12mm
Weight	50g

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5. Module selection table

GCAN-PLC-400 series products consist of a programmable main control module, several GC series IO modules and a terminal resistance module. GC series IO modules currently include five categories: digital input, digital output, analog input, analog output, and communication extension. The specific selection table is shown in Table 5.1.

I/O	Type	Characteristic	Signal	Channel
PLC Control module	GCAN-PLC-400	CPU:168M	-	-
	GCAN-PLC-510	CPU:400M	-	-
	GCAN-PLC-511	CPU:400M (2CAN)	-	-
Digital input	GC-1008	Digital input (PNP)	24V DC	8-channel
	GC-1018	Digital input (NPN)	24V DC	8-channel
	GC-1502	Counter（200kHz max）	-	2-channel
Digital output	GC-2008	Digital output (PNP)	24V DC	8-channel
	GC-2018	Digital output (NPN)	24V DC	8-channel
	GC-2204	relay output	-	4-channel
	GC-2302	PWM （20Hz~200kHz）	-	2-channel
Analog input	GC-3604	Voltage input, 16 bits	-5~+5V	4-channel
	GC-3624	Voltage input, 16 bits	10V~+10V	4-channel
	GC-3644	Current input, 16 bits	0-20mA	4-channel
	GC-3654	Current input, 16 bits	4-20mA	4-channel
	GC-3664	Voltage input, 16 bits	0~+5V	4-channel
	GC-3674	Voltage input, 16 bits	0~+10V	4-channel
	GC-3804	2-wire PT100, 16 bits	Thermal resistance	4-channel
	GC-3822	3-wire PT100, 16 bits	Thermal resistance	2-channel

	GC-3844/3854/3864	K type / S type / T type thermocouple	Thermocouple	4-channel
Analog output	GC-4602	Voltage output, 16 bits	-5V~+5V	2-channel
	GC-4622	Voltage output, 16 bits	-10V~+10V	2-channel
	GC-4642	Current output, 16 bits	0-20mA	2-channel
	GC-4652	Current output, 16 bits	4-20mA	2-channel
	GC-4662	Voltage output, 16 bits	0~5V	2-channel
	GC-4672	Voltage output, 16 bits	0~10V	2-channel
	GC-4674	Voltage output, 12 bits	0~10V	4-channel
Special module	GC-6101	RS232/RS485 extension	-	-
	GC-6201	GPRS extension	-	-
	GC-6221	4G extension	-	-
	GC-6501	WiFi extension	-	-

Table 5.1 Selection table

Sales and service

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