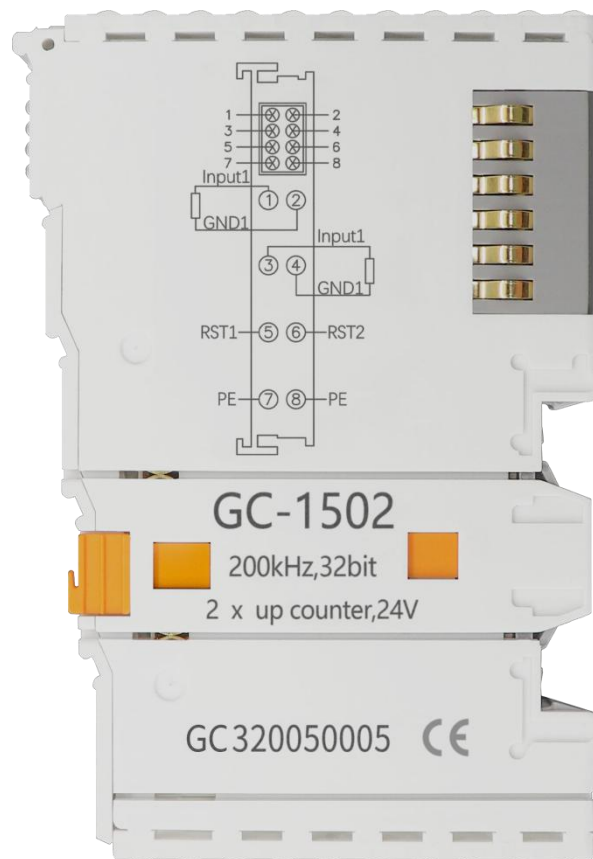


# GC-1502

2-channel high speed counter module

User manual



**Revision History**

<b>Version</b>	<b>Date</b>	<b>Reason</b>
V1.00	2015/09/16	Create
V2.01	2015/12/20	Modify device parameters
V3.01	2017/10/22	Add parameters
V3.02	2019/9/29	Reset function upgrade
V3.03	2020/10/27	Modify product picture
V3.04	2021/3/17	Modify the document format

## Contents

1. Introduction .....	4
1.1 Overview .....	4
1.2 Properties at a glance .....	4
1.3 Typical application .....	4
2. Installation .....	5
2.1 Module fixing .....	5
2.2 Wiring method .....	5
2.3 System status indicator .....	7
2.4 Method of use .....	7
2.5 Combined with GCAN- 8000series .....	8
3. Technical Specifications .....	9
4. Disclaimer .....	10
5. Module selection table .....	11
Sales and service .....	13

# 1. Introduction

## 1.1 Overview

The GC-1502 module has integrated 2 counter digital input channels, which acquires digital 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 digital data in industrial automation or distributed control systems.

## 1.2 Properties at a glance

- 2 high speed input channels
- Input pulse voltage:5~30V
- Maximum input current:3mA
- Electrical isolation: 500 V(GC-bus)
- Current consumption:50mA
- 32-bitcounter
- No address setting, configuration via bus coupler or controller
- Operating temperature: -40°C ~+85°C
- Size: 100mm\*69mm\*12mm

## 1.3 Typical application

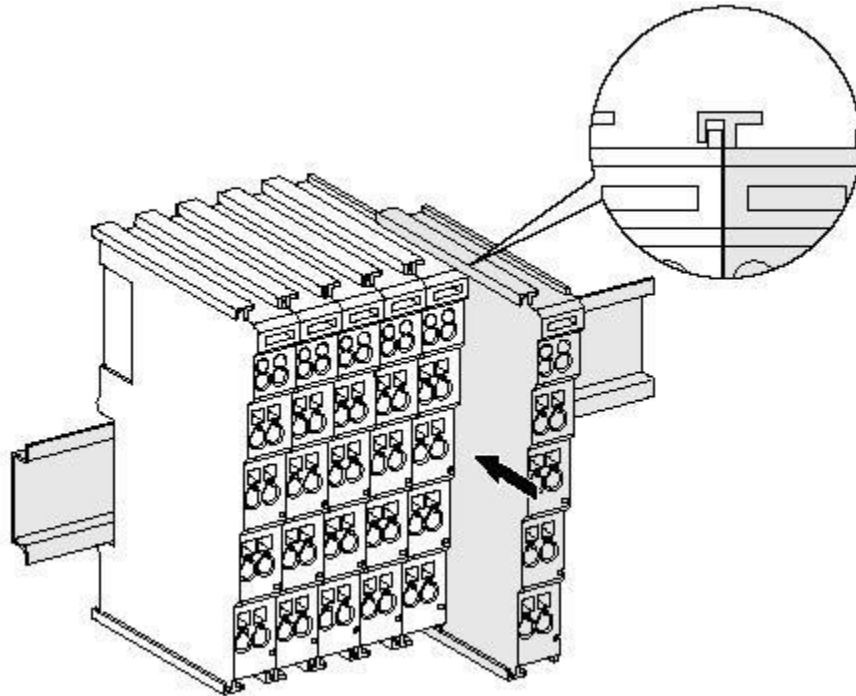
- Distributed acquisition system collects digital quantity
- Industrial field acquisition switch quantity

## 2. Installation

This chapter will describe the installation method, wiring method, meaning of the indicator and meaning of the interface of the GC-1502 module.

### 2.1 Module fixing

The installation method of GC-1502 module as shown in **Figure 2.1** and a flat-blade screwdriver is needed for auxiliary installation.



**Figure 2.1** Installation of GC-1502 module

First install the GCAN-PLC on the guide rail and plug the GC-1502 along GCAN-PLC's right side until the lock is stuck. When remove the GC-1502, the user need to release the self-locking mechanism by pulling out the orange label. **The GC-1502 module needs to be used with GCAN-PLC-400/510 or GCAN-8000/8100 series couplers, 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.

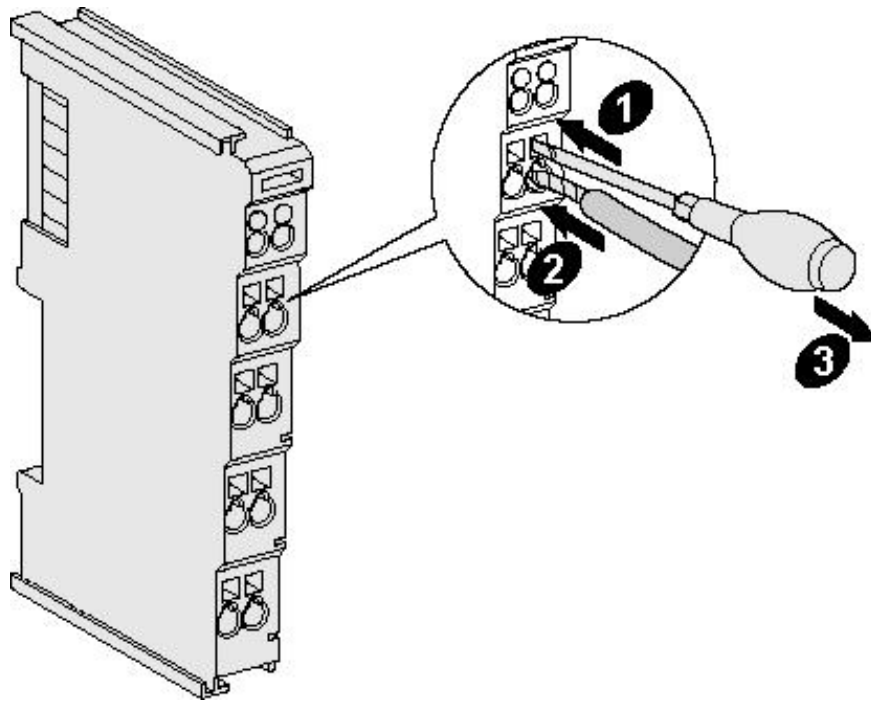


Figure 2.2 Wiring method of GC-1502 module

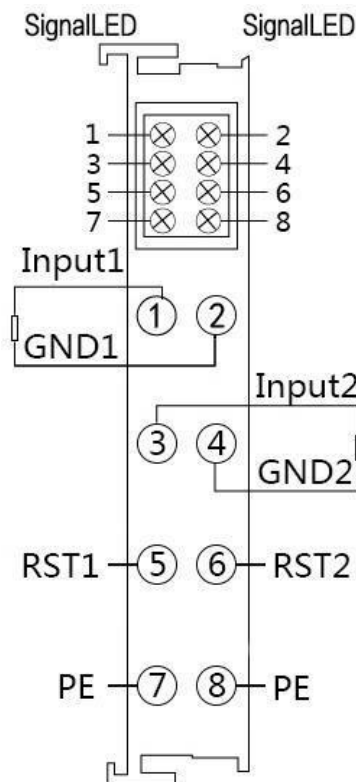


Figure 2.3 GC-1502 module terminal definition

The wiring terminal block of GC-1502 module is shown in Figure 2.3. GC-1502 contains 2 groups of pulse inputs, and can connect to 2 pulse signals at most. The corresponding serial numbers and definitions of each indicator are shown in Table 2.1

No.	Definition
1	Pulse signal 1
2	NC
3	Pulse signal 2
4	NC
5	Signal 1 RST
6	Signal 2 RST
7	NC
8	NC

**Table 2.1** GC-1502 module indicator

## 2.3 System status indicator

GC-1502 module has no error indicator light. Please judge the status of GC-1502 module by "IORUN" and "IOERR" indicator lights of the GCAN-8000 series coupler. If the "IO ERR" indicator of the GCAN-8000 series coupler is on, please check the installation of the module.

No.	Definition
1	Module power indicator green light always on means the module power supply is normal, if it is not on, the power supply is abnormal
2	Unused
3	Module power indicator green light always on means the module power supply is normal, if it is not on, the power supply is abnormal
4	Unused
5	Blinking means that channel 1 has pulse input, and no light means no input
6	Unused
7	Blinking means that channel 1 has pulse input, and no light means no input
8	Unused

**Table 2.2**

## 2.4 Method of use

The counter states of the -1502 module are all represented by 4 bytes, and the total number of bytes is represented by the total number of 4 states, which are channel 1, count, channel 2 count, channel 1 frequency and channel 2 respectively

For example, when GC-1502 module is connected to PLC-400, four states can be used as four IO variables and represented by four UDINTs.

Channel1Cnt AT % I0.0: UDINT; Channel2Cnt AT % I4.0: UDINT;

Channel1Fre AT % I8.0: UDINT; Channel2Fre AT % I12.0: UDINT;  
 Gc-1502 has two counter channels, INPUT1 and GND1 for the first group,  
 INPUT2 and GND2 for the second group.

When the pins of RST1 and RST2 of gc-1502 are connected to the high current, the corresponding counter channel's count value and frequency can be cleared.

## 2.5 Combined with GCAN- 8000series

The state of the digital input is represented by two byte  
 For example: the GCAN-IO-8000 module node number is 1, the channel 1 of the first GC-1502 module count 28685, and the frequency is 56849Hz, then the CAN data frame ID sent by the GCAN-IO-8000 module is 0x181, and the data length ( DLC) is 8. The frame data is 0x0D, 0x70, 0x00, 0x00, 0x11, 0xDE, 0x00, 0x00. The following table lists a common counter status and its corresponding status data.

GC-1502 status								
Channel	1							
Status	count				frequency			
CAN bus data	0D	70	00	00	11	DE	00	00

Table 2.3



### 3. Technical Specifications

<b>Interface characteristics</b>	
Number of inputs	2
Pulse voltage	5~30V
Input current (Max.)	3mA
Electrical isolation	500 V (GC-bus/ Signal voltage)
Counter bit	32-bit
Installation position	In sequential order
Power supply	Powered by GCAN-PLC series, current consumption 50mA
<b>Environmental testing</b>	
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
<b>Basic information</b>	
Dimensions	100mm *69mm *12mm
Weight	50g

## 4. Disclaimer

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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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