GC-1008

8-channel digital input module

User manual

Document version 3.01　（2017/10/22）
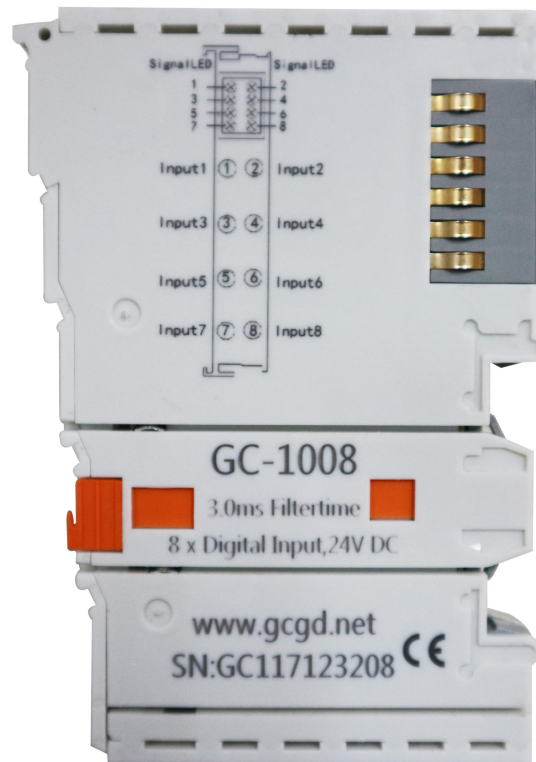
Revision History

Version	Date	Reason
V1.00	2015/09/16	Create document
V2.01	2015/12/20	Modify device parameters
V3.01	2017/10/22	Add some parameters

Contents

1 Introduction

1.1 Overview

The GC-1008 module has integrated 8 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

- 8 input channels

- Nominal voltage: 24V DC (±20%)

- Signal voltage "1": 11~30V

- Signal voltage "0": -3~+5V

- Maximum input current: 3mA

- Electrical isolation: 500 V (GC-bus)

- Current consumption: 100mA

- The bit width input in the process image is 1 byte

- 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-1008 module.

2.1 Module fixing

The installation method of GC-1008 module as shown in Figure 2.1 and a flat-blade screwdriver is needed for auxiliary installation.
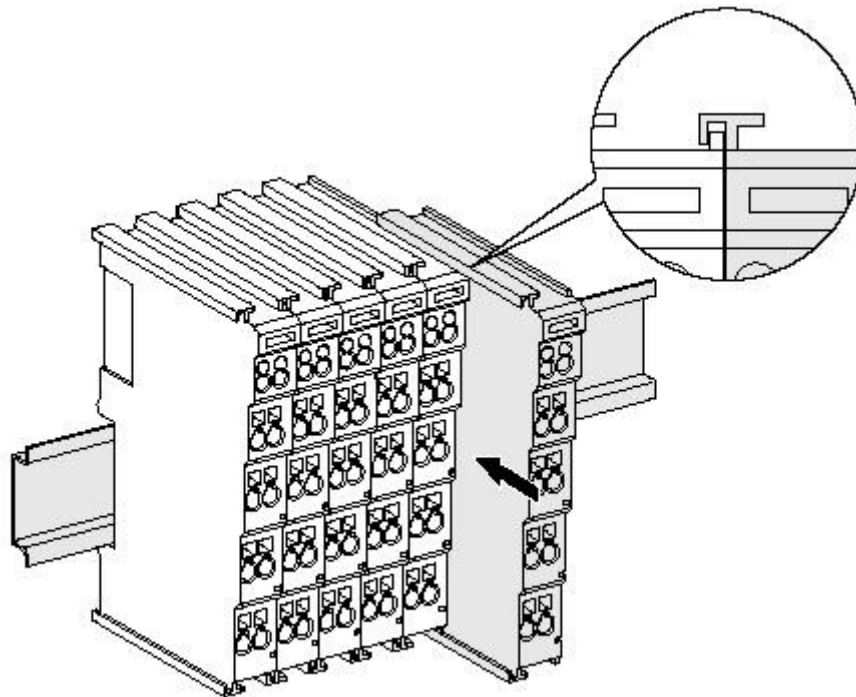

Figure 2.1 Installation of GC-1008 module

First install the GCAN-PLC on the guide rail and plug the GC-1008 along GCAN-PLC's right side until the lock is stuck. When remove the GC-1008, the user need to release the self-locking mechanism by pulling out the orange label.

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.
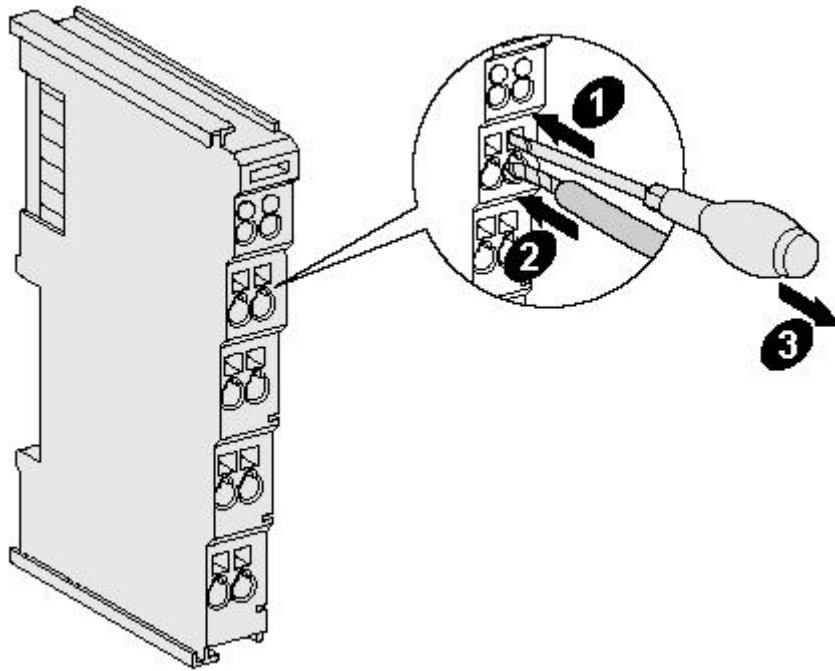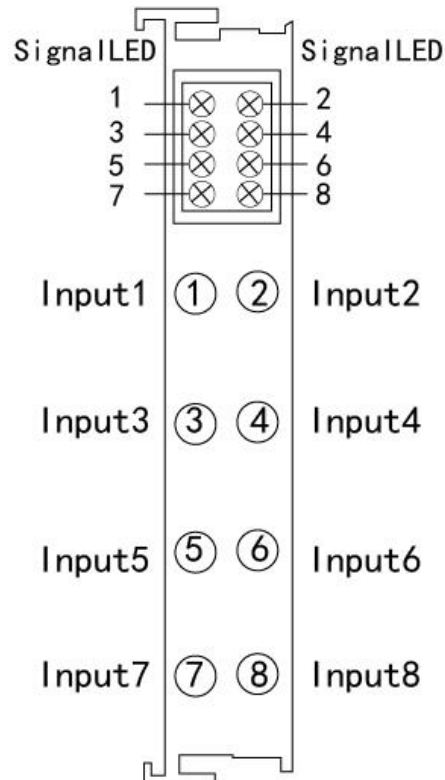
Figure 2.2 Wiring method of GC-1008 module

Figure 2.3 GC-1008 module terminal definition

Terminal	No.	Definition
Input1	1	Digital input 1
Input2	2	Digital input 2
Input3	3	Digital input 3
Input4	4	Digital input 4
Input5	5	Digital input 5
Input6	6	Digital input 6
Input7	7	Digital input 7
Input8	8	Digital input 8

Table 2.1 GC-1008 module indicator

When using, please connect digital input signal to the terminal of GC-1008 and connect the reference ground to the negative power supply of GCAN-PLC-400 or GCAN-IO-8000 modules (corresponding to pins 5 and 6).

2.3 System status indicator

The GC-1008 module has no error indicator. The user can determine the status through the "IO RUN" and "IO ERR" indicators of the GCAN-PLC. If the "IO ERR" indicator of the GCAN-PLC lights up, it indicates that the IO module is not working properly. Please check the module installation.

When there's signal through the input points, the corresponding signal LED is on.

2.4 Combined with GCAN-PLC-400 series

When using with GCAN-PLC-400, GC series IO modules shall be configured in the order of DI, DO, AI and AO, and the same type of modules shall be put together. GCAN-PLC-400 supports programming in five languages. The following is an example of ST language showing how to program GCAN-PLC-400 to read the state of digital input of GC-1008 module.

In the process of ST programming definition, gc-1008 module needs to define variable type, input signal position, start character, delimiter and so on.

For example: "DI0 AT%I0.0:BOOL;"

"0.0" represents the position of the input point, and "0.0" ~ "0.7" respectively define the 1-8 input points in the first GC-1008 module. When the user uses more than one gc-1008 module, the second gc-1008 shall be defined from "1.0" to "1.7", and so on.

"%" (percent sign) is the direct variable starter;

":" (colon) is the variable or type separator.

The Boolean is read from the %I0.0 address using the symbol variable DI0. AT represents the address of the variable access and the additional attribute of the variable.

2.5 Combined with GCAN- 8000 series

The state of the digital input is represented by one byte, with channel 8 in the high and channel 1 in the low.

For example, when GCAN -8000 module node number is 1, the input state of channel 8 and channel 4 of the first GC-1008 module is logic "1", and the input state of other channels is logic "0", 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 0x88, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00. Please note that when only one GCAN-1008 module is inserted, only the first byte of the frame data is valid. The table below lists two common DI states and their corresponding status data.

DI status								
Channel	8	7	6	5	4	3	2	1
Status	1	0	0	0	1	0	0	0
CAN bus data	88							

DI status								
Channel	8	7	6	5	4	3	2	1
Status	0	1	0	1	1	0	1	0
CAN bus data	5A							

3 Technical Specifications

Interface characteristics	
Number of inputs	8
Signal voltage "1"	11~30V
Signal voltage "0"	-3~+5V
Input current (Max.)	3mA
Electrical isolation	500 V（GC-bus/ Signal voltage）
Bit width in the process image	Input 1 byte
Installation position	In sequential order
Power supply	Powered by GCAN-PLC-400 or GCAN-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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