GC-2008

8-channel digital output module

User manual

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-2008 IO module has integrated 8 digital output channels, which receive digital signals from the GCAN-PLC coupler and transmits them out. 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 digital output channels

- Nominal voltage: 24V DC ($\pm$20%)

- Load type is resistive load, inductive load, lamp load

- Maximum output current: 500mA

- Electrical isolation: 500 V (GC-bus)

- Current consumption: 120mA

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

- No address setting, configuration via bus coupler or controller

- Suitable for all GCAN-IO-8000 series bus terminal modules

- Operating temperature: -40°C ~+85°C

- Size: 100mm*69mm*12mm

1.3 Typical application

- Output digital signal according to bus coupler or controller

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-2008 module.

2.1 Module fixing

The installation method of GC-2008 module as shown in Figure 2.1 and a flat-blade screwdriver is needed for auxiliary installation.
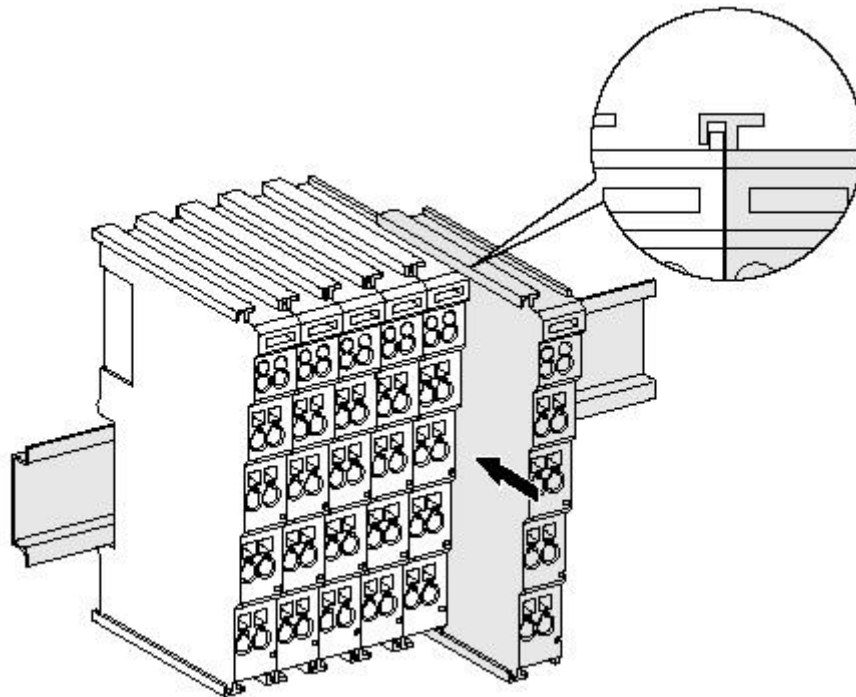

Figure 2.1 Installation of GC-2008 module

First the user need to install the GCAN-PLC on the guide rail and plug the GC-2008 along GCAN-PLC's right side until the lock is stuck. When remove the GC-2008, 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.
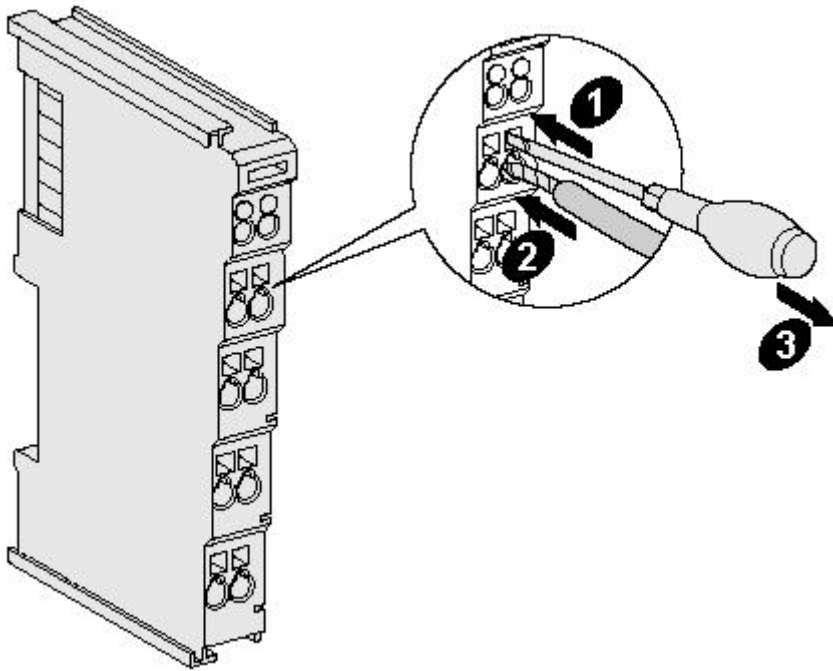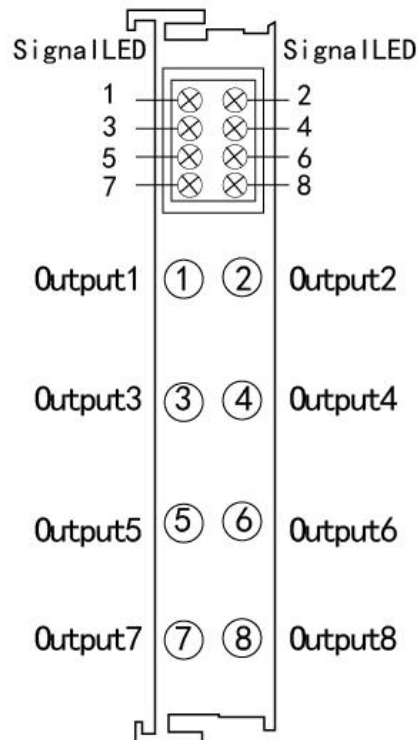
Figure 2.2 Wiring method of GC-2008 module

Figure 2.3 GC-2008 module terminal definition

Terminal	No	Definition
Output1	1	Digital output 1
Output2	2	Digital output 2
Output3	3	Digital output 3
Output4	4	Digital output 4
Output5	5	Digital output 5
Output6	6	Digital output 6
Output7	7	Digital output 7
Output8	8	Digital output 8

Table 2.1 GC-2008 module indicator

When using, please connect digital input signal to the terminal of GC-2008 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-2008 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

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-IO-8000 module node number is 1, the input state of channel 8 and channel 4 of the first GC-2008 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 0x201, 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 GC-2008 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							

2.5 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-2008 module.

In the process of ST programming definition, gc-2008 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-2008 module. When the user uses more than one gc-2008 module, the second gc-2008 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.

3 Technical Specifications

Interface characteristics	
Number of inputs	8
Load type	resistive load, inductive load, lamp load
Nominal voltage of outputs	24V DC （±20%）
Output current (Max.)	500mA
Electrical isolation	500 V (GC-bus/Signal voltage)
GC-bus current consumption	120mA
Bit width in the process image	Output 1 byte
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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