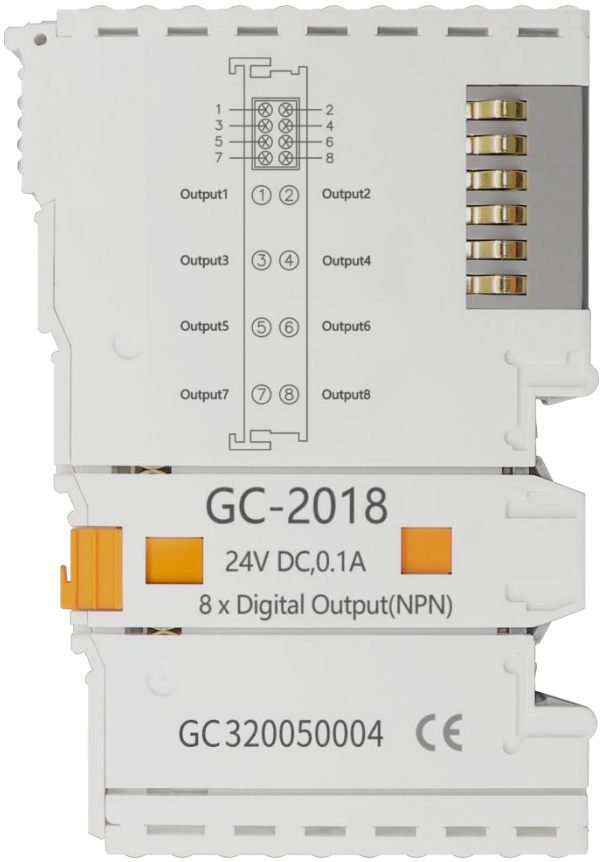
GC-2018

8-channel digital output module (NPN)

User manual



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Revision History

Version	Date	Reason
V1.00	2015/09/16	Create
V2.01	2015/12/20	Modify device parameters
V3.01	2017/10/22	Add parameters
V3.02	2020/10/27	Modify device appearance picture

Contents

1. Introduction

1.1 Overview

The GC-2018 module has integrated 8 digital output 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 output channels
- Nominal voltage: 24V DC(±20%)
- Load types are resistive load, inductive load, lamp load;
- Maximum output current:500mA
- Electrical isolation: 500 V(GC-bus)
- Current consumption:120mA
- The bit width output in the process image is 1byte
- No address setting, configuration via bus coupler or controller
- Operating temperature: -40°C ~+85°C
- Size: 100mm*69mm*12mm

1.3 Typical application

According to the bus coupler or controller output digital signal.

2. Installation

This chapter will describe the installation method, wiring method, meaning of the indicator and meaning of the interface of the GC-2018 module.

2.1 Module fixing

The installation method of GC-2018 module as shown in Figure 2.1 and a flat-blade screwdriver is needed for auxiliary installation.

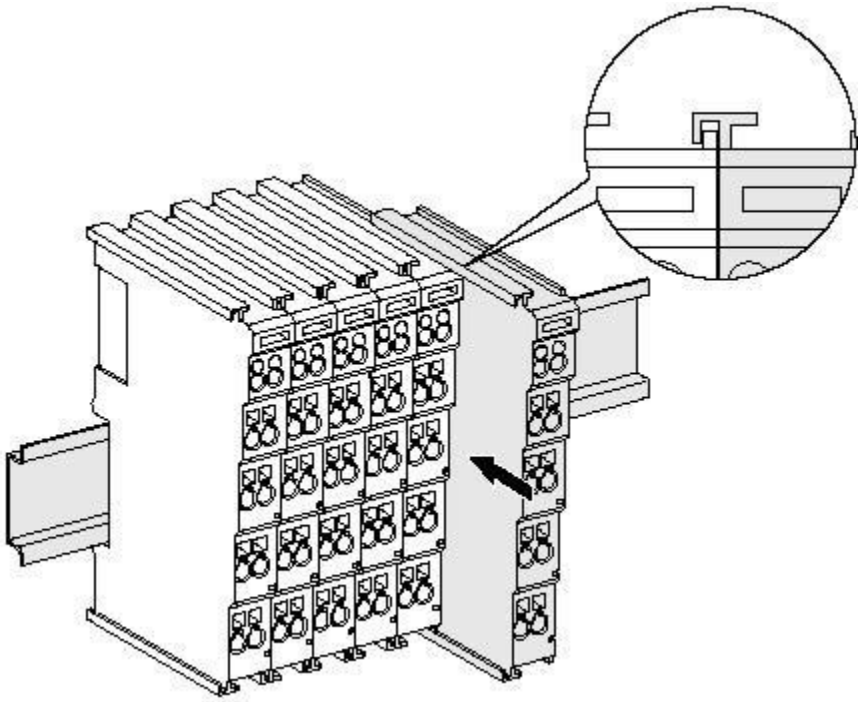

Figure 2.1 Installation of GC-2018 module

First install the GCAN-PLC on the guide rail and plug the GC-2018 along GCAN-PLC's right side until the lock is stuck. When remove the GC-2018, 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.

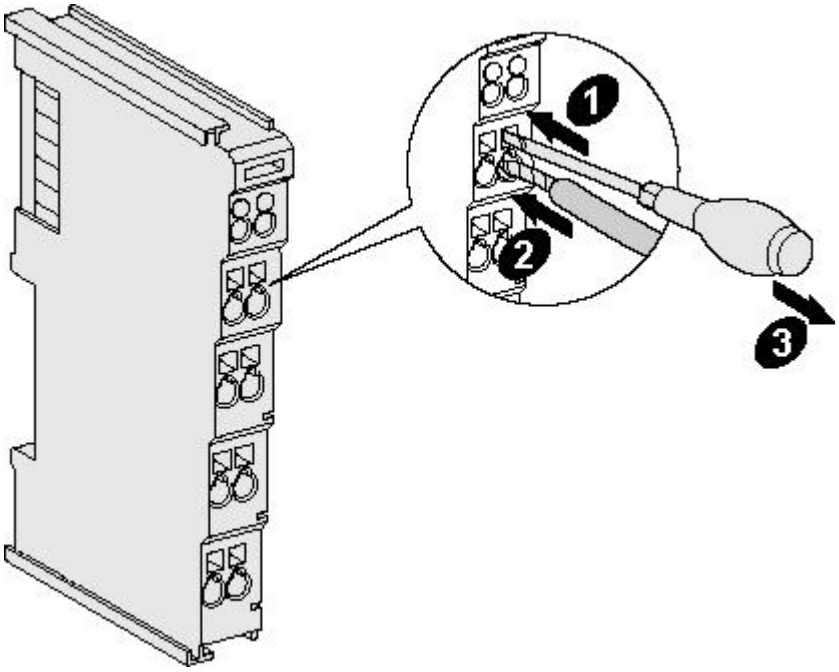

Figure 2.2 Wiring method of GC-2018 module

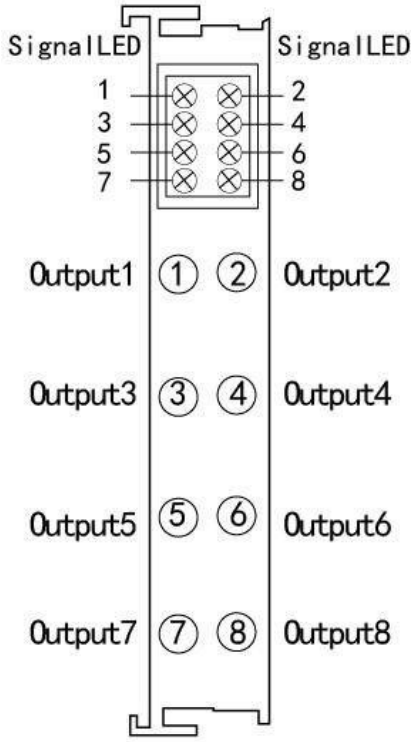

Figure 2.3 GC-2018 module terminal definition

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-2018 module indicator

Note: When using, please connect digital output signal to the terminal of GC-2018 and connect the reference ground to the negative power supply of GCAN-PLC-400 or GCAN-IO-8000/8100 modules (corresponding to pins 5 and 6).

2.3 System statusindicator

The GC-2018 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.

2.4 Combined with GCAN-PLC-400/510series

When using with GCAN-PLC-400/510, 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-400/510 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 output of GC-2018 module.

In the process of ST programming definition, gc-2018 module needs to define variable type, output signal position, start character, delimiter and so on. For example: "DI0 AT%I0.0:BOOL;"
"0.0"represents the position of the output point, and "0.0"~"0.7" respectively define the 1-8 output points in the first GC-2018 module. When the user uses more than one gc-2018 module, the second gc-2018 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- 8000series

The state of the digital output 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 is1,the output state of channel 8 and channel 4 of the first GC-2018 module is logic "1", and the output 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-2018module is inserted,only the first by teof the frame datais valid.The table below lists two common DIstatesand 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							

Table 2.2

3. Technical Specifications

Interface characteristics	
Number of outputs	8
Load types	resistive load, inductive load, lamp load;
Nominal voltage	24V DC(±20%)
output current (Max.)	500mA
Electrical isolation	500 V（GC-bus/ Signal voltage）
Current consumption	120mA
Bit width in the process image	output 1 byte
Installation position	In sequential order
Power supply	Powered by GCAN-PLC, 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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