GCAN-208-1/-2

Fiber-CAN converter

User Manual

Contents

1 Introduction

1.1 Overview

The GCAN-208-1/-2 converter has integrated two/one standard CAN-Bus interface, one/two fiber interface (Single mode or multi mode or SC or ST). GCAN-208 series converter can build a connection between Fiber Bus and CAN-Bus. With this converter in pairs, users can easily extend the distance of CAN-Bus and eliminate the interference effectively. It can also prevent the bus from electromagnetic interference, ground loop interference and lightning strike.

1.2 Properties at a glance

- Power supply: 9~30V(50mA, 24V DC)
- Surge immunity level: ±1KV
- Working temperature range from -40 to 85 ℃
- Operating humidity range: 5% to 95% RH no condensation
- Integrated one or two CAN-Bus interface with terminal (Depending on the model)
- CAN-Bus signals include: CAN_H, CAN_L, CAN_GND
- CAN-Bus supports CAN2.0A and CAN2.0B frame format, conform to ISO/DIS 11898 standards
- CAN-Bus baud rates range from 5Kbps to 1Mbps, configured by DIP switch
- CAN-Bus isolation converter insulation voltage: DC 1500V
- Fiber interface: SC, ST optional
- Fiber transmission mode: single mode, multi mode optional
- Size: (L)121mm * (W)93mm * (H)22mm

2 Converter installation

2.1 Converter fixation

GCAN-208 series converter can be fixed on the inside of the rack or added DIN rail attachment.

GCAN-208 series converter's interface specifications are shown in figure 2.1 and 2.2. After power up the converter, it will be work in the working state.

Figure 2.1 GCAN-208-1 dimensions　　　Figure 2.2 GCAN-208-2 dimensions

Power interface	Description
9-30V	9-30V DC+
EARTH	Earth
GND	9-30V DC-
CAN-Bus interface	**Description**
CAN1-H	CAN1 channel CAN_H
CAN1-G	CAN1 channel CAN_G
CAN1-L	CAN1 channel CAN_L
CAN2-H	CAN2 channel CAN_H
CAN2-G	CAN2channel CAN_G
CAN2-L	CAN2channel CAN_L
Fiber interface	**Description**

Product data sheet

TX	Fiber transmit interface
RX	Fiber receive interface

Table 2.1 Interface definition

3 Connection and use

3.1 CAN-Bus configuration

Before using the GCAN-208 series converter, users have to configure the parameter of the CAN-Bus.

3.1.1 Configure CAN-Bus baud rate

The baud rate of CAN-Bus range from 5K to 1000K, configured by DIP switch.

Before power on the converter, open the shell of the converter. The baud rate can be configured by DIP switch. "1、2、3、4" are used to configure CAN1. "5、6、7、8" are used to configure CAN2. Table 3.1 is the example of the baud rate of CAN1.

Graphics	Definition	Baud rate	Graphics	Definition	Baud rate
	0000	1000k		0001	800k
	0010	666k		0011	500k
	0100	400k		0101	250k
	0110	200k		0111	125k
	1000	100k		1001	80k
	1010	50k		1011	40k
	1100	20k		1111	13.33k
	1101	10k		1110	5k

Table 3.1 Baud rate of GCAN-208 series

3.1.2 Configure CAN-Bus termination

Two CAN channels of GCAN-208 converter have already integrated 120Ω termination by DIP switch.

3.2 Connect to Fiber

The two fiber interface of GCAN-208 converter is SC or ST. The fiber transmission mode is single mode or multi mode.
NOTE: When connecting the fiber, the RX should be connected to TX, TX to RX.

3.3 Connect to CAN-Bus

In practical use, users only need to connect the CAN_H to CAN_H and CAN_L to CAN_L, then communication can be realized.
The CAN-Bus network adopts topological structure, only the two furthest terminal need to connect 120Ω terminal resistance between CAN_H and CAN_L. For branch connection, its length should not be more than 3 meters. CAN-Bus nodes connection as shown in figure 3.1.
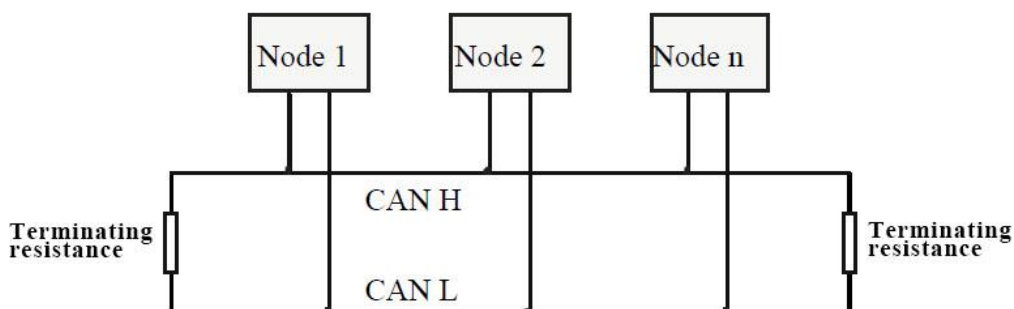

Figure 3.1 CAN-Bus network

Note: CAN-Bus using ordinary twisted pair. The relationship between the bus length and baud rate is shown in Table 3.2.

Baud rate	Bus length
1 Mbit/s	40m
500 kbit/s	110m
250 kbit/s	240m
125 kbit/s	500m
50 kbit/s	1.3km
20 kbit/s	3.3km
10 kbit/s	6.6km
5 kbit/s	13km

Table 3.2 Baud rate and maximum bus length reference table

3.4 System LED

The GCAN-208 series converter has integrated one POWER indicator, one SYS indicator, one or two Fiber indicator and two or one CAN indicators. More functions are shown in table 3.3 and 3.4.

Indicator light	Color	Indicates the state
POWER	Green	System power supply indication
SYS	Green	System operation indication
Fiber	Green	Fiber communication indication
CAN1	Red/green	CAN1 communication status indication
CAN2	Red/green	CAN2 communication status indication

Table 3.3 Indicator of GCAN-208 series

After power on the converter, the POWER and SYS indicator lights indicate that power is being supplied and the system is initializing. Otherwise, it indicates power failure or an error occurred.

After the connection of Fiber Bus and CAN-Bus, when the bus has data transmission, corresponding Fiber and CAN indicators will flash.

Indicator light	Status	Indicates the state
POWER	ON	Power supply normal
	OFF	Power supply error
SYS	OFF	System error
	ON	System initialization failed
	Blinking	System initialization pass
Fiber	OFF	Fiber data transmission or no data
	Blinking	Fiber data reception
CAN1/CAN2	OFF	CAN-Bus no data
	Green blinking	CAN-Bus data transmission
	Red	CAN-bus error

Table 3.4 Indicator light Status of GCAN-208 series

4 Technical specifications

Connection	
Fiber	SC, ST optional
CAN	OPEN3 terminal blocks
Interface characteristics	
Fiber transmission mode	Single mode, multi mode optional
CAN interface	ISO 11898 standard, CAN2.0A/B
CAN baud rate	5Kbit/s~1Mbit/s, configured by DIP switch
Electrical isolation	1500V, DC-DC
CAN termination resistor	Integrated, through the DIP switch to enable
Power supply	
Power supply voltage	+9~30V DC
Power supply current	Maximum 50mA (24V DC)
Environmental testing	
Working temperature	-40℃~+85℃
Working humidity	15%~90%RH, no condensation
EMC test	EN 55024:2011-09　　EN 55022:2011-12
Protection grade	IP 20
The basic information	
Outline size	121mm *93mm *22mm
Weight	230g

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