User Manual

CANHub-AS8

High-Performance 8-Channel CAN Hub

UM01010101 V1.02 Date: 2019/03/21 **Product User Manual**

Category	Contents
Key	CAN-bus hub frame mapping RS232 USB
Description	This product realizes the function of 8-channel CAN hub, and realizes the functions of 8-channel CAN frame reception, buffering, frame mapping, and frame forwarding.

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Revision History

Version	Date	Description
V0.90	September 26, 2017	Created
V1.01	January 29, 2019	Modified the frame mapping rules
V1.02	March 21, 2019	Updated the document header and footer and "Sales and Service Network" content, and added the "Disclaimer" content

Contents

1. Functions

1.1 Product Overview

This product realizes the function of 8-channel CAN hub, and realizes the functions of 8-channel CAN frame reception, buffering, frame mapping, and frame forwarding. It communicates with the host computer through UART (USB or RS232) using a similar Modbus protocol, which realizes the functional configuration of CANHub-AS8.

CANhub-AS8 realizes the transparent connection of multiple CANs, and realizes multi-point connection of complex structure at the bus level; CANhub-AS8 makes the backbone network have no branch line length limit, and any two nodes in the network can reach the protocol distance. The device has eight communication ports, each with an independent CAN transceiver, which doubles the number of nodes. Therefore, while providing free wiring, it removes the drive limit on the maximum number of nodes of CAN transceivers on the system bus. Each port also provides an indicator for detecting bus activity and bus failure, which helps observe the working status of the CAN bus network. CANhub-AS8 can be used in CAN network with baud rate up to 1 Mbps. All channels can work at different baud rates, which conform to CAN specifications 2.0A (11-bit CAN identifier) and 2.0B (29-bit CAN identifier). Transparent, protocol-independent CAN message transmission makes it suitable for a variety of applications. In addition, it can be used for various high-level CAN protocols (CANOpen, SDS, J1939, DeviceNet or other customized protocols).

CANhub-AS8 can be configured with corresponding CAN message filters, which ensures that only the required data is transmitted to other CAN networks through the repeater. In addition, the product has the function of data routing, which can selectively forward CAN messages received by one channel to another channel. Therefore, the device can effectively reduce the network load. CANHub-AS8 can be configured by connecting to the PC over the asynchronous serial communication interface or USB interface, and provides configuration software on Windows. It is easy to use, and supports the configuration to take effect immediately. After the device is configured, it can work without any operation.

Figure 1.1 Product

1.2 Features

- Eight channels, each of which can buffer 1 M (=1024*1024) frame data;
- Eight channels, each of which supports frame mapping rules 0-64;
- Route forwarding supports forwarding to any other channel or channel;
- USB and RS232 automatically detect and switch communication methods (USB is used when USB is inserted; otherwise, RS232 is used);
- Support firmware update. The factory firmware will be used automatically if the update fails;
- Support firmware encryption;
- CAN interface with 8-channel electrical isolation. The isolation voltage is 2,500 V DC
- You can configure the communication baud rate over the RS232 port or USB port:
- Powerful CAN message filtering function, which effectively prevents unnecessary messages from being forwarded
- Operating voltage: 9-48 V DC

1.3 Specifications

1.3.1 Electrical Parameters

Unless otherwise specified, the listed parameters refer to the values when T_{amb} =

25°C, as shown in Table 1.1.

Table 1.1 Electrical parameters

Parameter Name	Conditions	Rating			Unit
		Minimum	Typical value	Maximum	
Operating voltage	DC	9	12	48	V
Operating current 1	12 V operating voltage, and eight CANs not enabled	--	350	--	mA
Operating current 2	12 V operating voltage, and eight CANs full-speed sending/receiving	--	400	--	mA

1.3.2 Operating Temperature

Table 1.2 Operating temperature

Parameter Name	Conditions	Rating			Unit
		Minimum	Typical value	Maximum	
Operating ambient temperature	Humidity 95%	0	--	85	℃
Storage temperature	Humidity 95%	0	--	85	℃

1.3.3 Protection Level

Table 1.3 Protection level

Interface	Test items	Testing standards	Test voltage	Test Result	Remarks
Power Interface	Electrostatic test	IEC61000-4-2	±6kV	A	Contact discharge
			±8kV		Air discharge
	Group pulse test	IEC61000-4-4	±2kV	A	Capacitive coupling
	Surge test	IEC61000-4-5	±1kV	A	Differential mode
			±2kV	A	Common mode
USB (RS232) interface	Electrostatic test	IEC61000-4-2	±6kV	A	Contact discharge
			±8kV		Air discharge
CAN interface	Electrostatic test	IEC61000-4-2	±6kV	A	Contact discharge
			±8kV		Air discharge
	Group pulse test	IEC61000-4-4	±2kV	A	Capacitive coupling clip
	Surge test	IEC61000-4-5	±2kV	A	Common mode
Buttons, Indicators	Electrostatic test	IEC61000-4-2	±8kV	A	Air discharge

1.4 Mechanical Installation Dimensions

To install the CANHub-AS8, refer to the external mechanical dimensions (unit: mm) provided in Figure 1.2. The figure specifies the length, width and height of the product, as well as part of the installation mechanical structure.

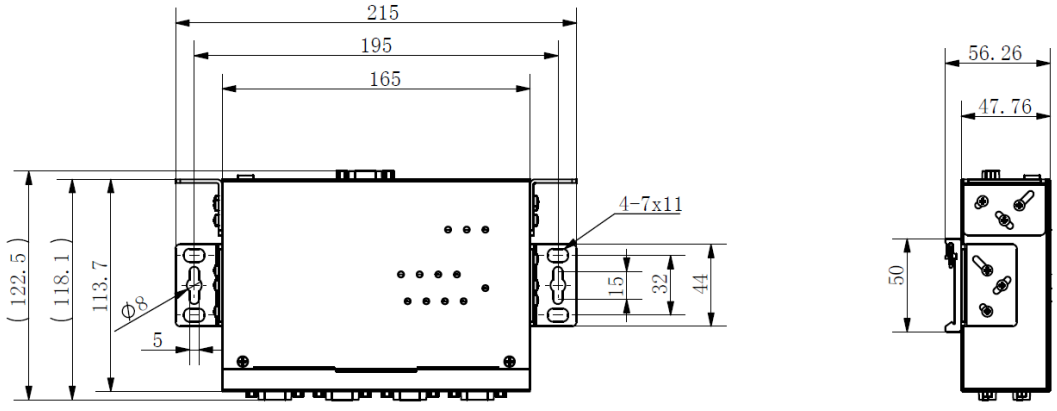


Figure 1.2 CANHub-AS8 installation mechanical dimensions

1.5 Typical Applications

- CAN-bus network diagnosis and test

- Automotive electronics applications
- Electric power communication network
- Industrial control equipment
- New energy battery test
- High-speed, large data volume communication

2. Hardware Interfaces

2.1 Power Cable Connection

DC power supply: 9-48 V, keep the voltage fluctuation (3%) within the specified range;

Power supply: The power is 4.8 W when all channels of CANHub-AS8 receive and transmit at full speed;

Terminals: CANHub-AS8 provides two power input terminals, 3Pin AWG 14-22 plug-in terminals and DC JACK sockets. The power cable can be connected to either terminal, but not both power terminals at the same time. AWG 14-22 plug-in terminals are M3.5 terminal screws. Use crimp terminals for wiring, or connect bare stranded wires directly to the terminals, and use a screwdriver to tighten the screws on the terminal block. If the power is fully on, the "PWR" indicator will be solid green. The power port of CANHub-AS8 also has a ground terminal, which is used to connect to the ground for easy discharge of static electricity or surge.

2.2 Terminal Resistance DIP Switch

To enhance the reliability of CAN communication, the two endpoints of the CAN bus network usually need to be equipped with terminal matching resistors. The value of the termination matching resistor is determined by the characteristic impedance of the transmission cable. For example, if the characteristic impedance of the twisted pair is 120 ohm, the two endpoints on the bus should also integrate 120-ohm termination resistors. The CANHub-AS8 interface card adopts CTM8251KT transceiver. If other nodes on the network use different transceivers, the terminating resistor must be calculated separately.

The function of the CAN bus terminal resistor:

(1) Improve the anti-interference ability to ensure that the bus quickly enters the recessive state;

(2) Improve signal quality.

The CANHub-AS8 uses a mechanical switch to select the terminal resistance. The DIP switch is at the bottom of the device. As shown in Table 2.1, the device's DIP switch is set to "ON" before delivery; that is, the default terminal resistance is 120 ohm.

Table 2.1 CANHub-AS8 terminal resistor DIP switch

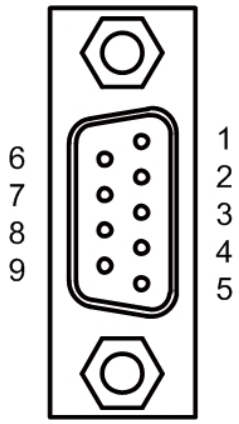
Description	DIP switch
The corresponding CAN channel connects to 120 ohm	

The corresponding CAN channel has no access resistance	

2.3 CAN Communication Interface

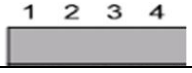
The commonly used electrical connectors for CAN-bus communication interface are: DB9 socket, OPEN5 socket, OPEN3 socket, etc. The CANHub-AS8 interface card integrates one to eight CAN channels. It can connect to the CAN-bus network or a device equipped with a CAN-bus interface. The CAN-bus channel of CANHub-AS8 is routed out by using a standard male DB9 socket. Table 2.2 shows the DB9 pin definitions.

Table 2.2 CANHub-AS8 DB9 pin socket pin signal definition

Pin	Signal	Description	Function
1	NC	Unused	
2	CAN_L	CAN_L signal cable	
3	CGND	Reference ground	
4	NC	Unused	
5	NC	Unused	
6	CGND	Reference ground	
7	CAN_H	CAN_H signal cable	
8	NC	Unused	
9	NC	Unused	

In some applications, some CAN-bus interfaces are OPEN-4 interfaces, and the CANHub-AS8 comes standard with eight DB9-to-OPEN4 connectors. Table 2.3 shows the signal definitions of the OPEN4 socket.

Table 2.3 Accessory DB9 to OPEN4 signal definition

Pin	Signal	Description	Picture
1	CGND	Reference	

		ground	
2	CANL	CAN_L signal cable	
3	FG	Shielded cable	
4	CANH	CAN_H signal cable	

2.4 Signal Indicators

The CANHub-AS8 interface card has one power indicator PWR, one SYS indicator, and one USB port status indicator. Each corresponding channel has two CAN interface status indicators to indicate the operating status of the channel. Table 2.4 lists the indicator functions.

Table 2.4 Indicators of the CANHub-AS8 interface card

Indicator	Status	Description
PWR	Green	Power on equipment
SYS	Off	The device cannot start
	Flashing green (double flashing)	The device is initialized and running properly
USB	Off	USB not inserted
	On	Insert the USB and use the USB to communicate with the host computer software
RS232	Off	USB inserted, not using RS232
	On	USB not inserted, using RS232
STA	Off	The corresponding channel is closed (system initialization failed)
	Green normally on	The corresponding channel is normal and can transmit packets
	Red indicator flashing	There is an error in the corresponding channel bus
	Orange flashing (red and green)	The corresponding channel CAN bus has message receiving or sending

2.5 System Connections

When the CANhub-AS8 interface is connected to the CAN-bus bus, you only need to connect CAN_L to CAN_L, and CAN_H to CAN_H signal.

The CAN-bus network adopts a linear topology, and the two terminals of the bus need to be installed with 120 ohm terminal resistors; if the number of nodes is greater than 2, the intermediate nodes do not need to install 120 ohm terminal resistors. For branch connections, the length should not exceed 3 meters. Figure 2.1 shows the CAN-bus connection.

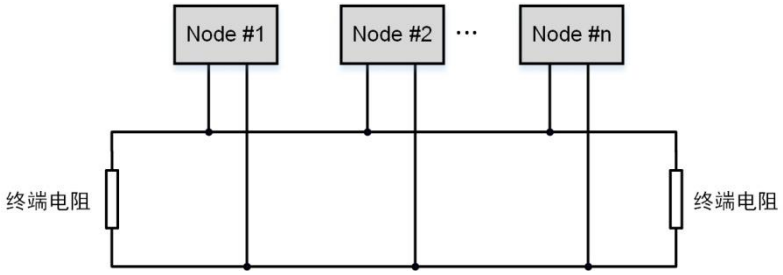


Figure 2.1 CAN-bus network topology

Note: The CAN-bus cable can use ordinary twisted pair and shielded twisted pair. If the communication distance exceeds 1 km, ensure that the cross-sectional area of the cable is greater than Φ1.0 mm^2. The specifications should be determined according to the distance. Conventionally, it should be appropriately increased with the distance.

Table 2.5 lists the relationship (theoretical value) between CAN bus transmission rate and transmission distance. The actual transmission distance is also related to the on-site networking method (baud rate, cable specification, wiring environment, cable laying method, etc.).

Table 2.5 Relationship between CAN bus transmission rate and transmission distance (theoretical value)

Baud rate	Communication length
1Mbit/s	< 40m
500kbit/s	< 100m
250 kbit/s	< 250m
125 kbit/s	< 500m
50 kbit/s	< 1000m
20 kbit/s	< 2500m
10 kbit/s	< 5000m

3. Driver Installation

CANCfg software is dedicated configuration software for CANHub device running on Windows. It helps you obtain and change configuration parameters of CANHub devices and upgrade device firmware.

3.1 Installing the Configuration Software

Search for "CANCfg" at the ZLG Electronics official website www.zlg.cn to download the latest version.

Double-click the unzipped EXE file. The welcome window shown in Figure 3.1 appears. Click [Next].

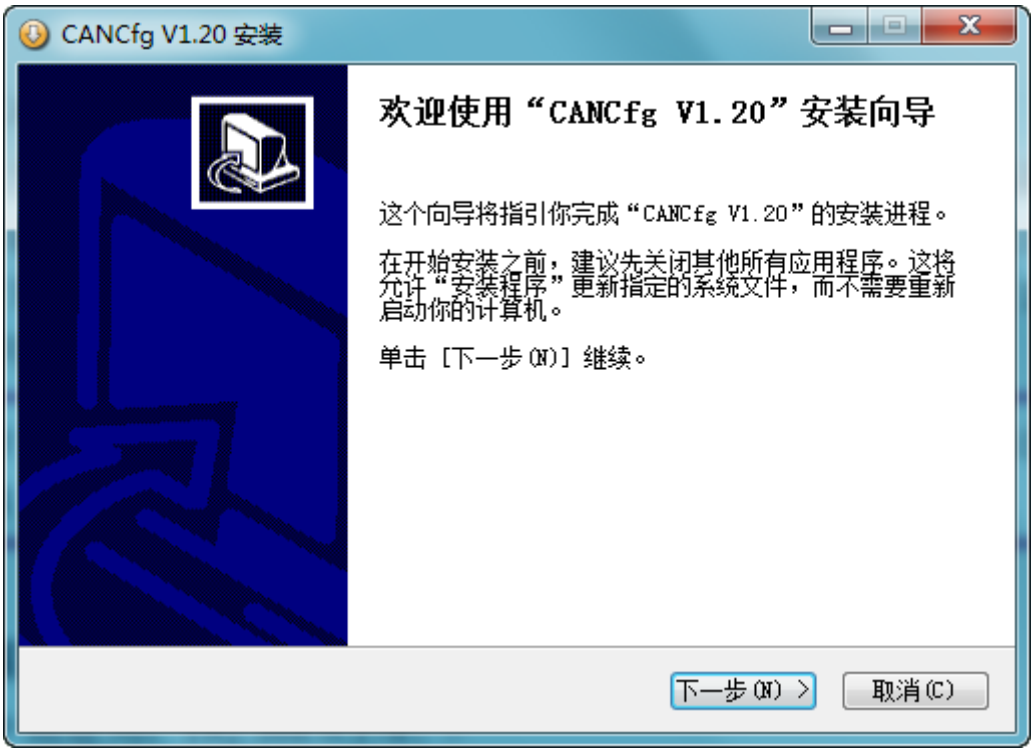


Figure 3.1 Welcome interface

As shown in Figure 3.2, a window appears asking you which directory to install (the default directory is C:\Program Files (x86)\CANCfg directory). To change the installation directory, click [Browse].

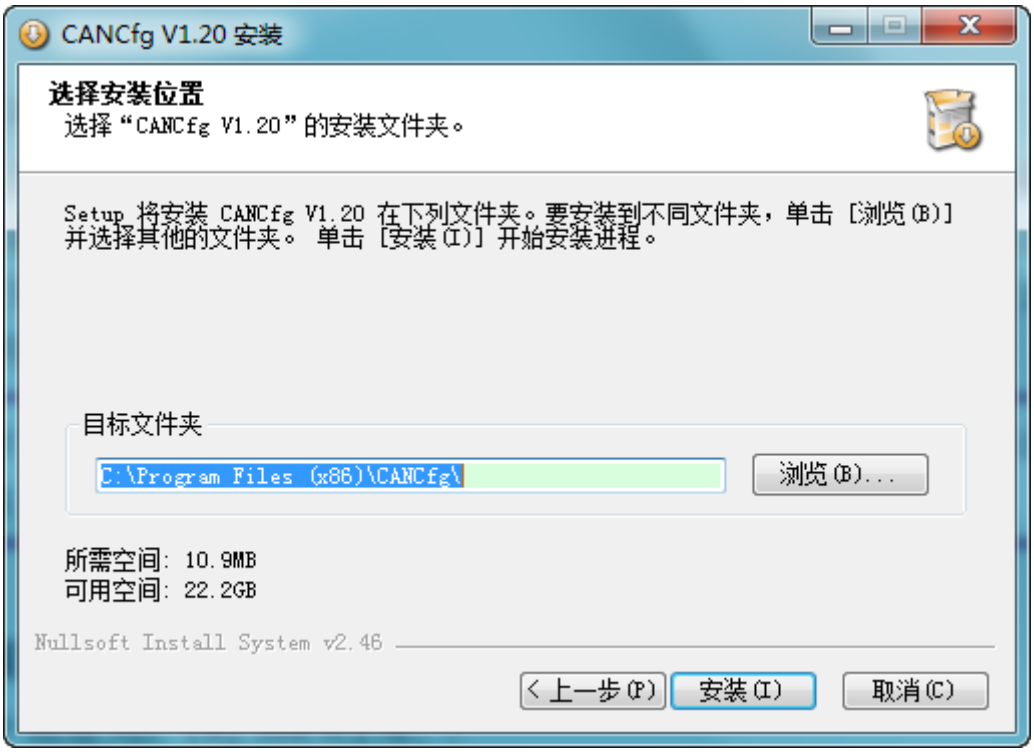


Figure 3.2 Selecting an installation path

Click [Install] to copy the files to the installation directory. After the installation is complete, the prompt window for successful installation as shown in Figure 3.3 appears. Click [Finish] to exit the installation software.

Figure 3.3 Installation complete

At this time, the installation of the configuration software is completed. Check whether the CANHub device and the PC have been connected by USB or RS232.

4. Quick Instructions

4.1 Obtaining Basic Device Information

Figure 4.1 shows the CANCfg software running.

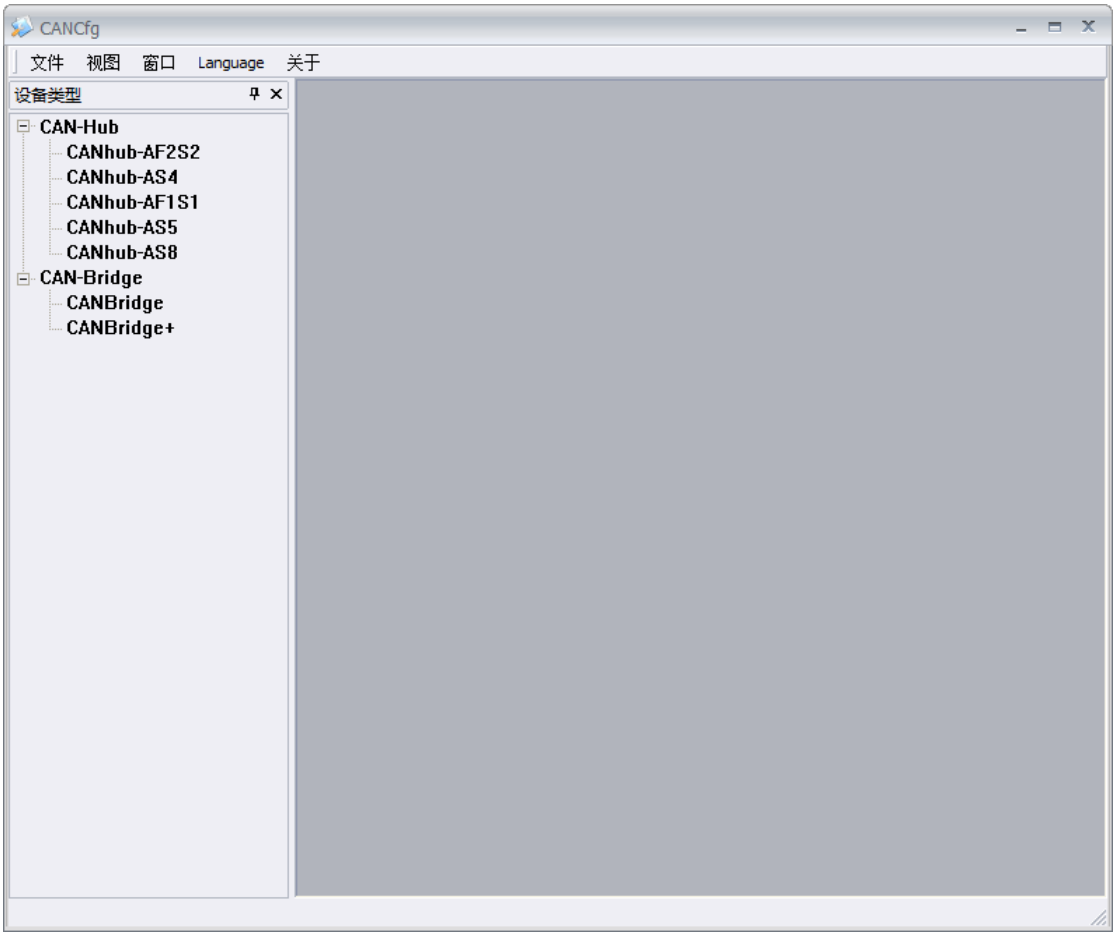


Figure 4.1 CANCfg running

Select (Click) the device CANHub-AS8 to be used in the device type on the left. The CANHub-AS8 interface appears, as shown in Figure 4.2;

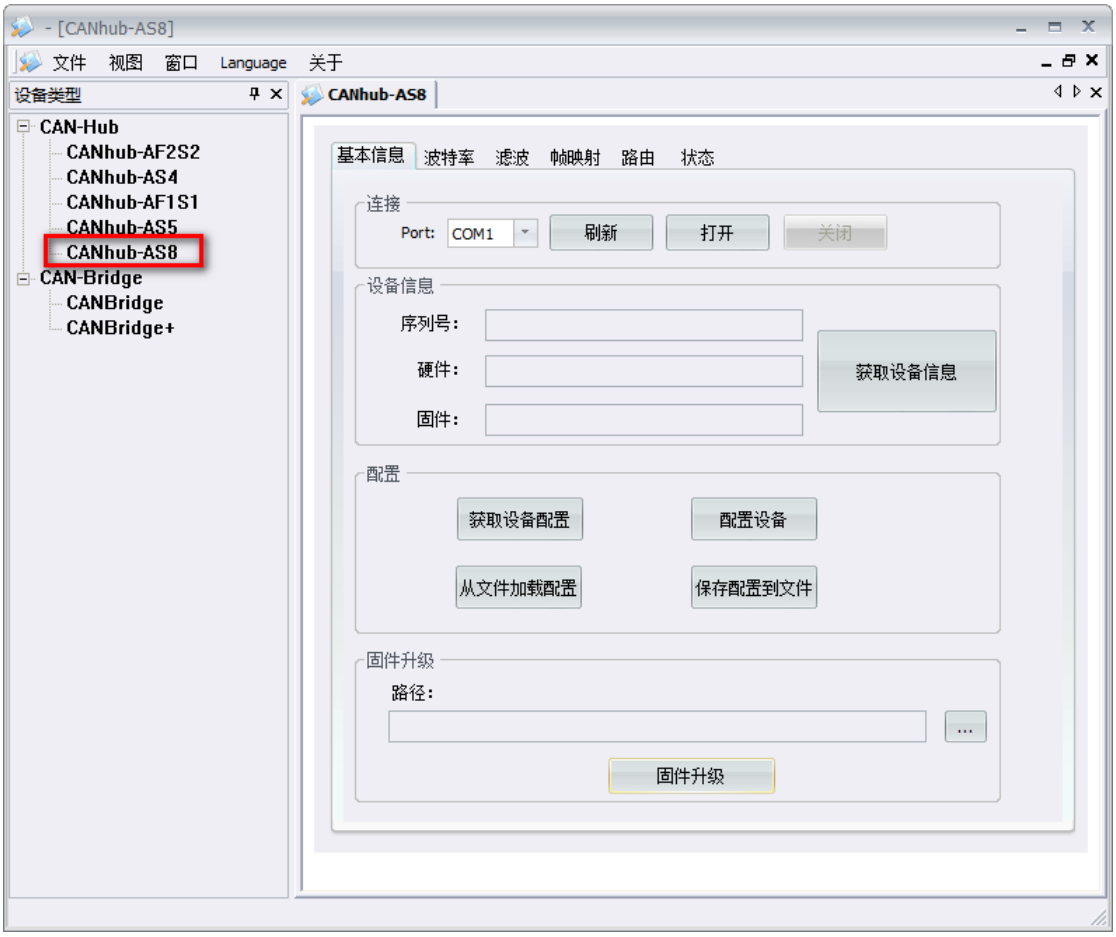


Figure 4.2 CANHub-AS8 basic information

Any operation on the CANHub-AS8 device can only be carried out on the premise that the device is connected over the serial port (USB or RS232). On the CANHub-AS8 basic information interface, select the COM port of the device from the port drop-down box. If you use the USB connection method, you can view the basic information in the Windows Device Manager (Computer--Right-click-->Management-->Device Manager), as shown in Figure 4.3 (If the corresponding COM port is not found on this interface, determine whether the USB driver has been installed or whether the device is correctly connected to the computer). The COM port where the device is located this time is COM5, so select COM5 from the port drop-down box this time, and click 

to connect the device (if it fails to open, check whether other software has enabled the secondary COM port); if there is no required COM port in the port drop-down box, click 

and try again.

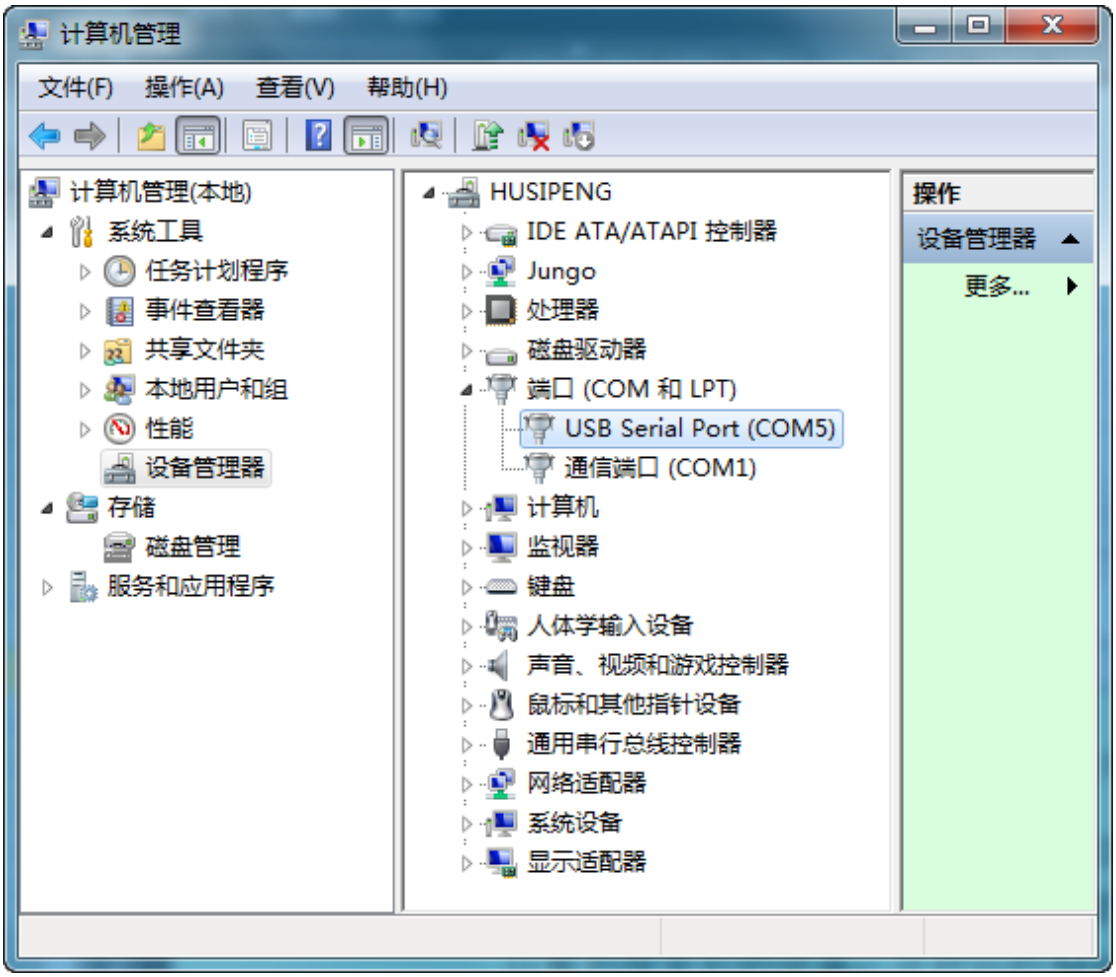
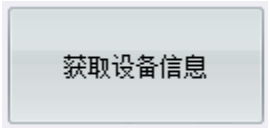


Figure 4.3 Viewing the COM port where the USB is located in Device Manager

After connecting the device, click 

to obtain the device information. The information obtained by using the device this time is shown in Figure 4.4. If the serial number is all 0, the device encryption verification fails.

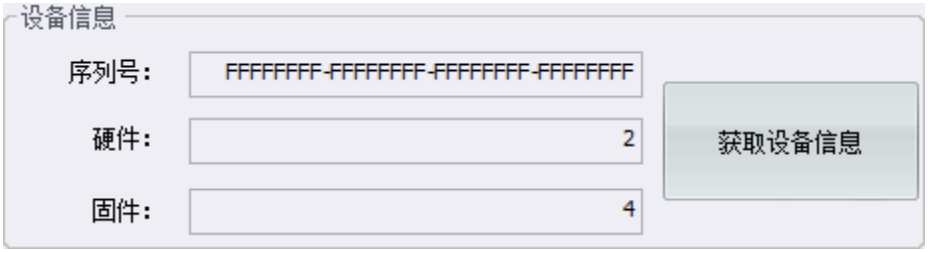


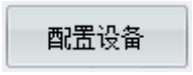
Figure 4.4 Obtaining CANET device configuration properties

4.2 Managing Device Configurations

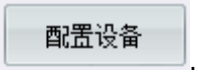
On the CANHub-AS8 basic information interface, the four buttons in the configuration

part indicate:

obtains the device configuration information (including sja1000 configuration and frame map forwarding configuration) from the current device. Click this button to fill the current device configurations in the Baud Rate, Filtering, Frame Mapping and Routing windows.



writes the information in the Baud Rate, Filtering, Frame Mapping and Routing windows to the device. The configuration takes effect immediately after writing.

loads the configuration information from a previously saved configuration file into the Baud Rate, Filtering, Frame Mapping and Routing windows. To configure to the device, click 

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Saves the configurations in the current Baud Rate, Filtering, Frame Mapping and Routing Windows to a file, which facilitates next use or use by other devices.

4.3 Configuring Parameters

The information in the Baud Rate, Filtering, Frame Mapping and Routing windows in the CANCfg software is the configuration information for each channel. The Baud Rate and Filtering windows are the sja1000 configuration information windows; the frame mapping and routing windows show the frame map routing configuration information.

4.3.1 Baud Rate

The Baud Rate window is used to configure the baud rate of each channel sja1000, as shown in Figure 4.5. Each row corresponds to the baud rate configuration of a channel.

Figure 4.5 Baud Rate window

You can directly select a predefined baud rate from the baud rate drop-down box. The commonly used baud rate is 5-1,000 kbps, as shown in Figure 4.6.

Figure 4.6 Predefined baud rate

Of course, custom baud rates are also supported. As long as the custom selection box in a channel is selected, the values of BRT0 and BTR1 can be set later, in hexadecimal. For its specific meaning, see the sja1000 data document (corresponding to register addresses 0x06 and 0x07).

4.3.2 Filtering

The filter window is used to configure the filter information in each channel sja1000, as shown in Figure 4.7. Each row corresponds to the filter configuration for one channel.

Figure 4.7 Filtering window

Select the filter mode in the first drop-down box in the configuration row of each channel, as shown in Figure 4.8, double filter or single filter (corresponding to whether the 3rd bit in the sja1000 configuration register 0x00 is 0 or 1).

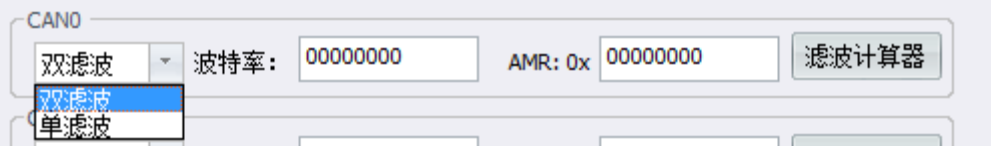


Figure 4.8 Filter mode

Configuration values can be filled in ACR and AMR, hexadecimal. ACR corresponds to the value of sja1000 register address 0x10-0x13 (big endian mode), and AMR corresponds to the value of sja1000 register address 0x14-0x17 (big endian mode). Of course, it is recommended to use the filter calculator to configure the values of these registers. Click the last button "Filter calculator" to run the filter calculator, as shown in Figure 4.9. For details about how to use the filter calculator, see the corresponding document.

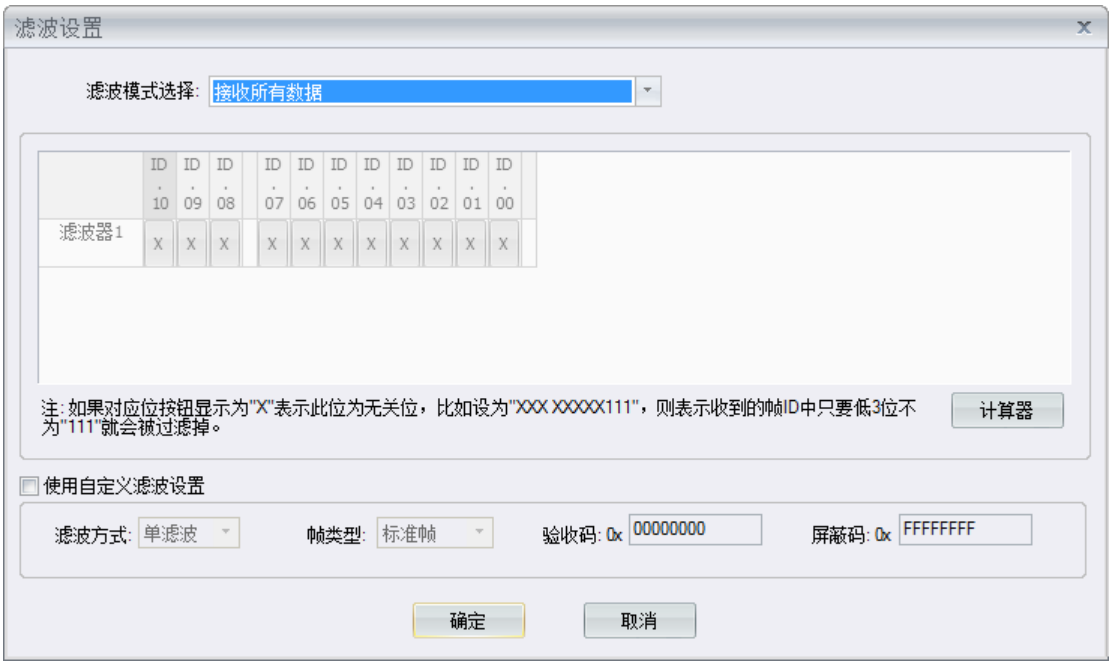


Figure 4.9 Filter calculator

4.3.3 Frame Mapping

The frame mapping window is used to set the frame mapping rules for each channel, as shown in Figure 4.10. The frame mapping configuration for one channel is displayed in the table at the bottom. The currently displayed and configured channel can be selected from the channel drop-down box, as shown in Figure 4.11.

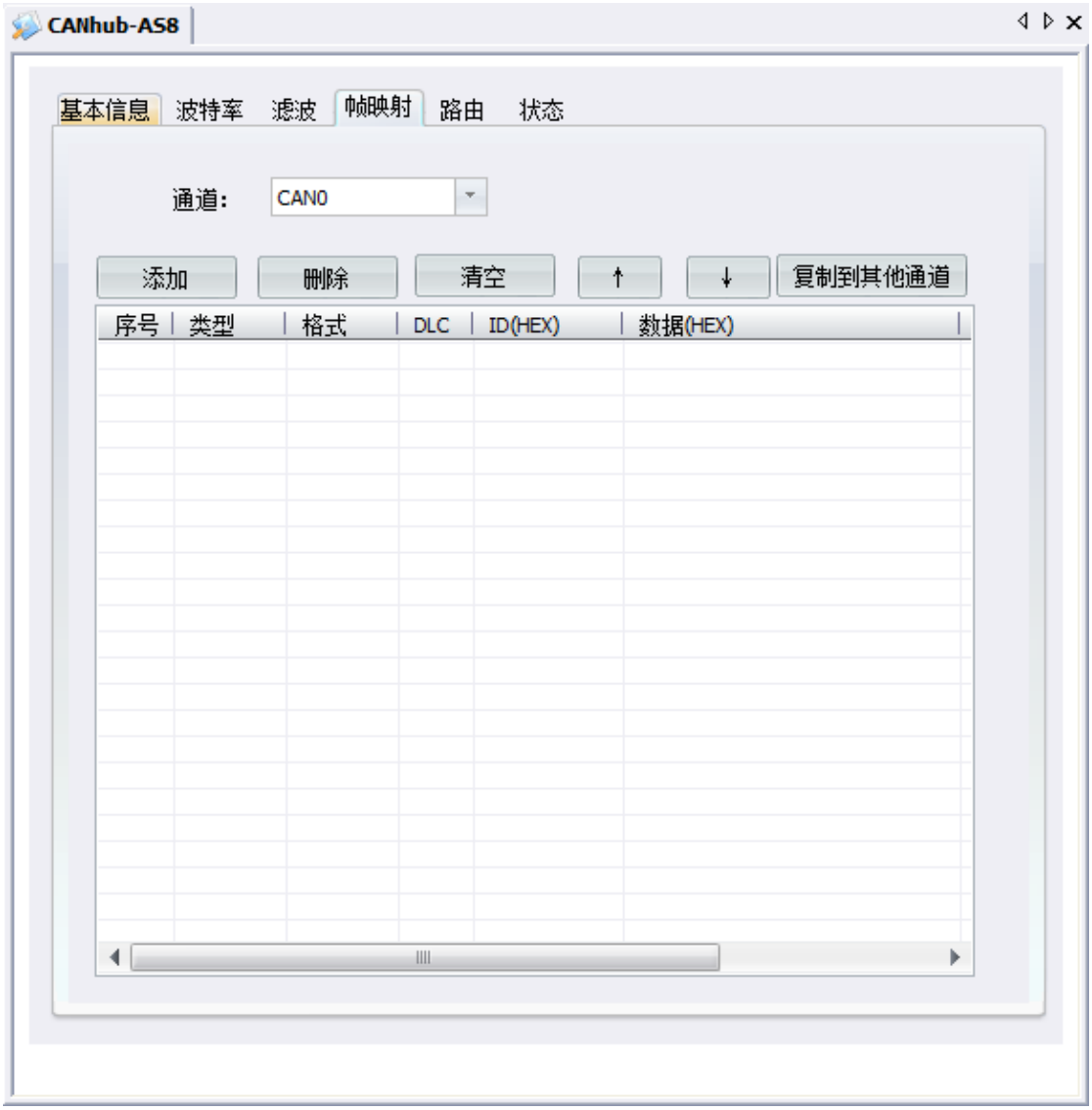


Figure 4.10 Frame Mapping window

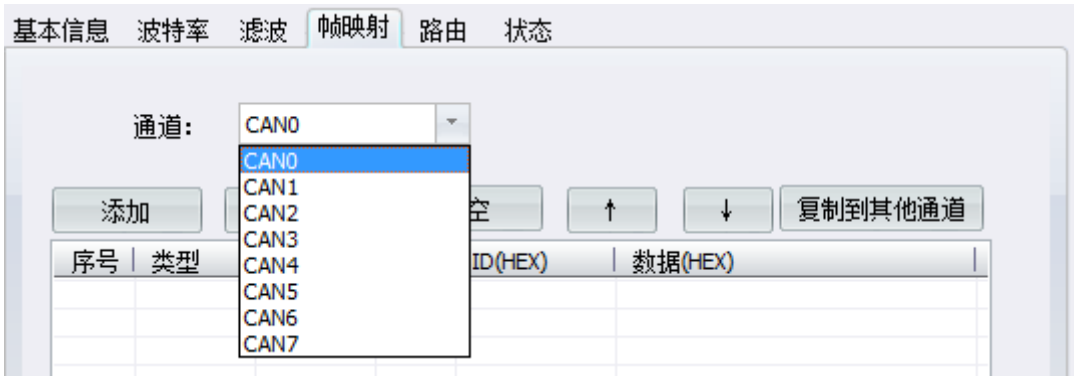


Figure 4.11 Frame mapping channel selection

Click 添加 to add frame mapping rules. The window shown in Figure 4.12 appears. The source part is used to configure the matching of received frames. The frame

type is standard frame or extended frame; the format is data frame or remote frame; the length is 0 to 8; the ID and data parts can be hexadecimal frame ID and data. The checkbox next to each item of the source controls whether this item participates in the comparison and match with the received frame. If the option is selected, match is performed; if the option is not selected, the corresponding item of the received frame is not used as a comparison and matching condition. The target part is used to configure how the data will be mapped when the received data frame satisfies the source matching rule in the mapping rule. The target part configures the same item as the source section. The check box next to the target item controls this part of the mapping. If this option is selected, the target frame configuration is adopted; if it is not selected, this item is the same as the source frame part, with no conversion. Frame mapping settings support a single mapping rule to specify different mapping rules for different target channels. If you need this function, select the "Target Channel Independent Configuration" check box, and double-click the corresponding channel in the list below to configure the mapping rule for the specified channel. Figure 4.13 shows the channel-independent mapping rules.

The detailed mapping rule matching process of frame mapping is as follows:

1. When the device receives a frame of data, it takes out the first mapping rule from the mapping list, and uses each part of the received frame to match the selected part of the source data in the mapping rule. If multiple items are selected at the same time, multiple conditions need to be met at the same time. For example, in the source frame, select the check box of frame type and frame format, without selecting all other check boxes, which means that if the frame type and frame format of the received frame are the same as the configured source frame. The match is successful.

2. When the match is successful, the mapping is performed according to the configuration rules of the target frame. The specific mapping rule is to determine the check status of each part of the target frame. If frame type and frame format are selected, modify the frame type and frame format of the received frame to the configuration in the target frame. Other deselected items will not be converted and remain the same as the received frame. The mapped frame will be sent from each destination port (it will not be sent if there is no route to this channel in the routing configuration).

3. If the source frame part does not match, the next mapping rule is matched based on the order of the mapping table. If the match is successful, the mapping is performed. Jump out of the mapping process and proceed to the next frame processing. If no mapping rule is matched, frame mapping will not be performed. The device forwards the corresponding frames according to the routing rules.

Figure 4.12 Adding frame mapping

Figure 4.13 Independent settings for target channel mapping

删除 means to delete the currently selected mapping rule.

清空 means to clear all mapping rules in the current channel.

↑ ↓ means to move the currently selected mapping rule up and down. The smaller the sequence number of the mapping rule, the higher the priority. That is, once a frame satisfies one mapping rule, it will not continue to check other mapping rules.

复制到其他通道 means to copy all the frame mapping rules of the current channel to other channels.

4.3.4 Routing

The routing window is used to configure the frame forwarding function of each receiving channel, as shown in Figure 4.14. Each row corresponds to a receive channel. Selecting a check box indicates that the receive channel forwards the received frame to the selected channel. You can select 0 or more channels in each row. The Select All checkbox at the bottom is used to select or deselect all.

Figure 4.14 Routing window

Note: After the preceding configuration (baud rate, filtering, frame mapping and routing) is modified, click 配置设备 on the CANHub-AS8 basic information interface to make the configuration take effect on the device.

4.4 Viewing the Status of Each Channel

The CANHub-AS8 status interface lists the status information and the error counter values for receiving and sending of each channel sja1000 respectively. Click 刷新 to obtain the status information from each channel sja1000 again. The red in the status part indicates that the corresponding bit of the sja1000 status register is 1,

and the blue indicates 0.

Figure 4.15 Status of each channel

4.5 Firmware Upgrade

The CANHub-AS8 device supports local firmware upgrade. The firmware upgrade steps are as follows:

Figure 4.16 shows the firmware upgrade part of the CANHub-AS8 basic information interface.

Figure 4.16 Firmware upgrade

Click  to select the firmware upgrade file (*.bin), as shown in Figure 4.17. Select the correct firmware file and click Open to return to the CANHub-AS8 basic information interface. The path where the firmware file is located appears in the path text box.

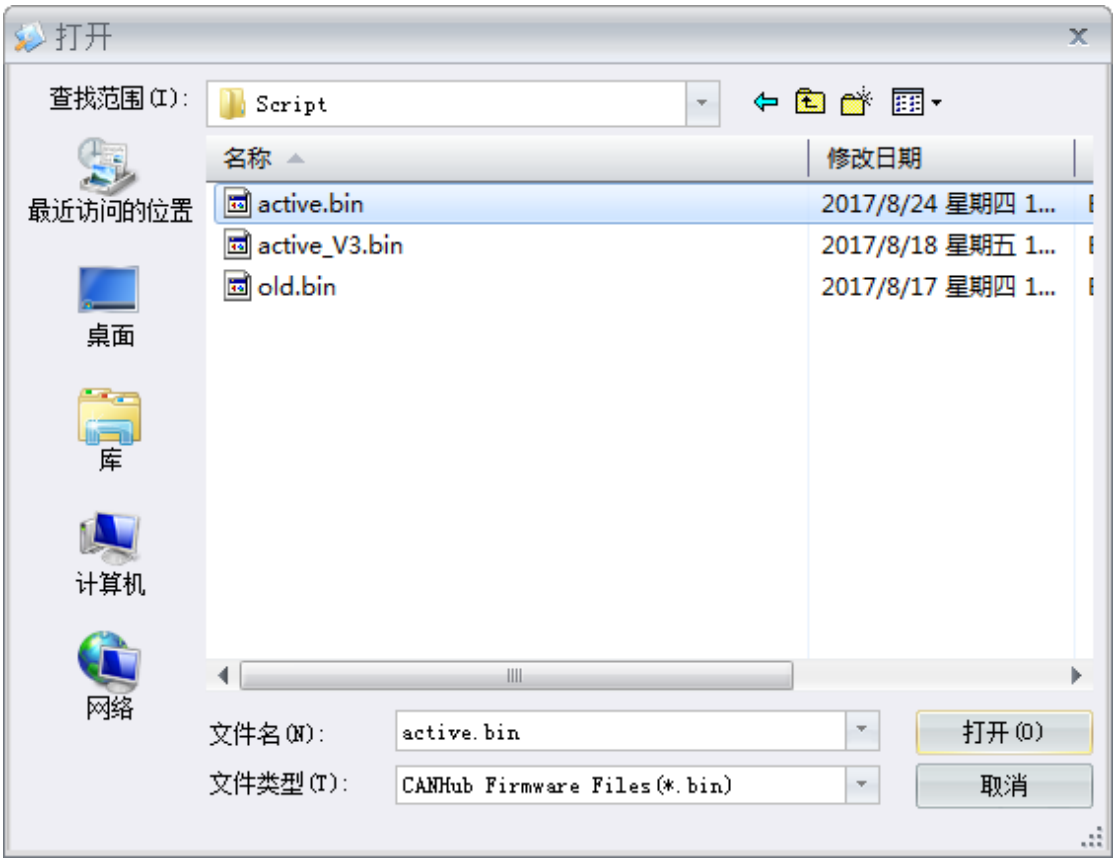
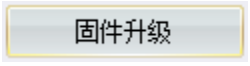


Figure 4.17 Selecting an upgrade firmware file

Click  to start the firmware upgrade. The firmware upgrade progress interface appears as shown in Figure 4.18. Never disconnect the device during firmware upgrade; otherwise, the device may fail permanently.

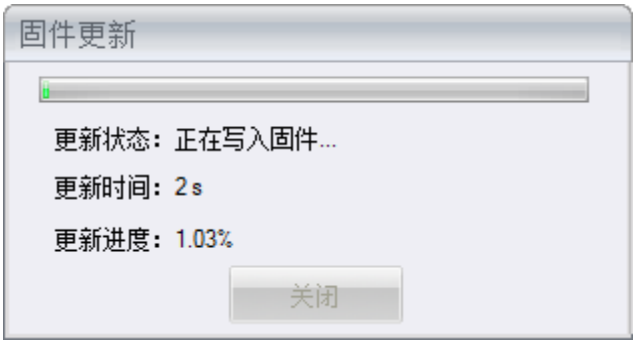


Figure 4.18 Firmware upgrade progress

The firmware can be upgraded after about 200 seconds, as shown in Figure 4.19. Click "Yes" to restart immediately and use the new firmware (startup time is less than 1 second); if you click "No", the new firmware will take effect after the next power-on.

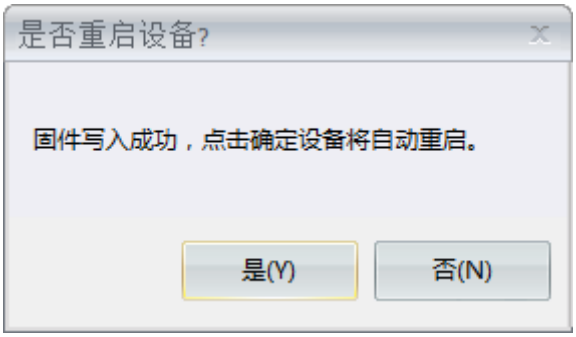


Figure 4.19 Firmware upgraded

If you use USB to connect the device, if the firmware upgrade is slow, you can double-click the COM port device where the device is located in the Windows Device Manager (Computer--Right-click->Management->Device Manager) (Figure 4.3), and open the COM port In the Port Properties window, click the Port Settings tab, as shown in Figure 4.20. Click the "Advanced" button to open the COM port advanced settings, as shown in Figure 4.21.

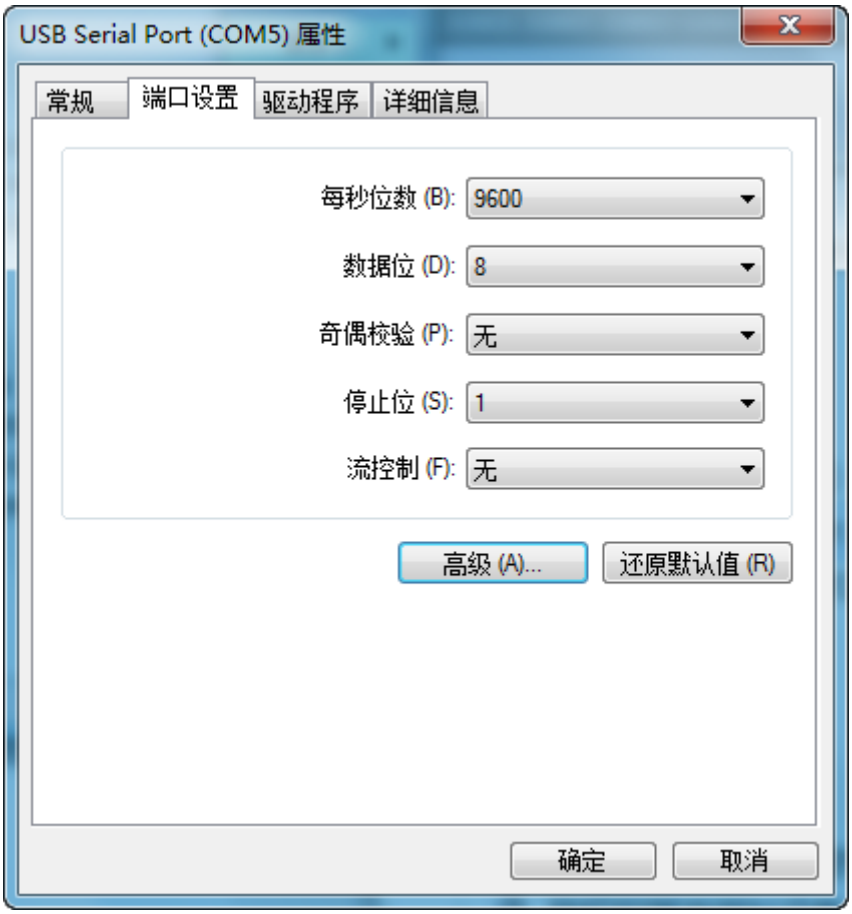


Figure 4.20 COM Port Properties interface

In Figure 4.21, select the minimum 1 ms for "Delay Counter (milliseconds)" in "BM Options", and click OK. The COM port setting takes effect only after CANCfg does not open or close the corresponding COM port.

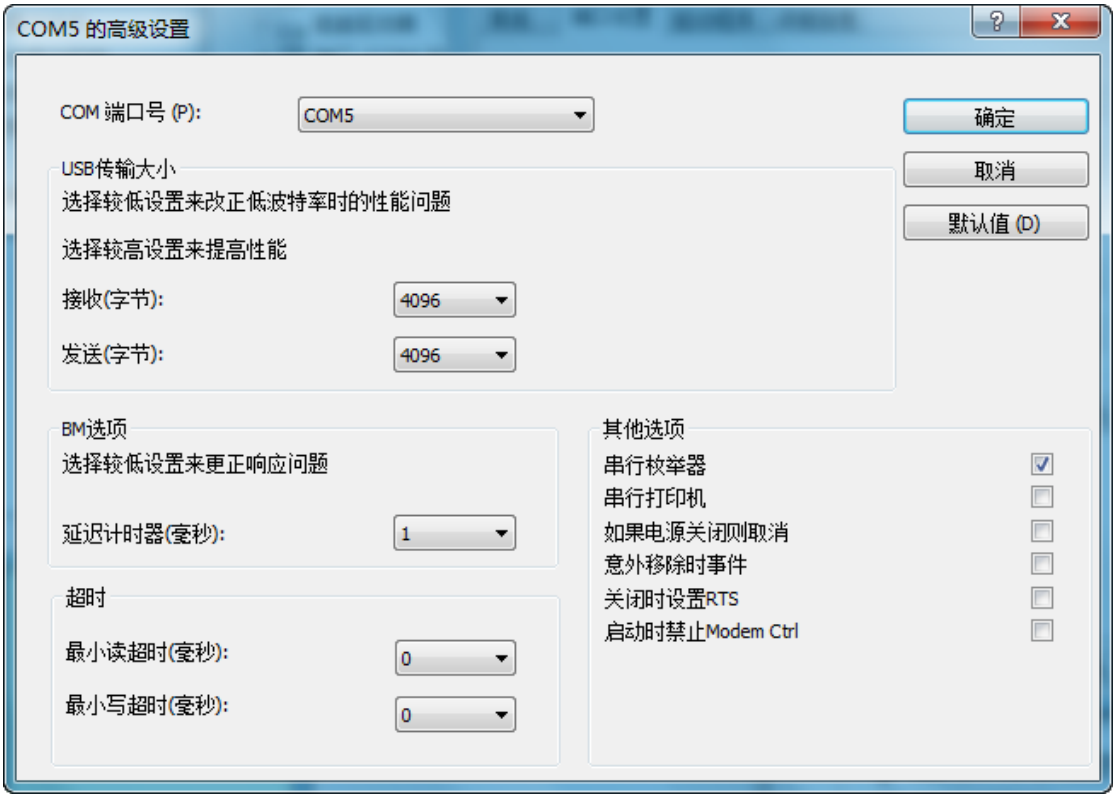


Figure 4.21 COM port advanced settings

5. Inspection and Maintenance

The main electrical components of the CANHub-AS8 interface card are all semiconductor components. Despite their long service life, ageing may also be accelerated under incorrect conditions. Periodic inspections should be carried out to ensure that the required conditions are maintained. It is recommended to check at least once every 6 months to a year. Under unfavorable environmental conditions, more frequent inspections should be carried out.

If you encounter a problem during the maintenance, see Table 7.1 to identify the fault cause. If the fault persists, contact Guangzhou ZLG Electronics Co., Ltd.

Table 5.1 Inspection content

No.	Item	Inspection	Standard	Action
1	Power supply	Check for voltage fluctuations at the power supply side	Power 9-48V DC	Check the voltage at power input using a voltmeter
2	Surrounding environment	Check the ambient temperature (including the internal temperature of the enclosed environment)	0°C to 85°C	Use a thermometer to check the temperature and ensure that the ambient temperature is kept within the allowable range
		Check the ambient humidity (including the internal humidity of the enclosed environment)	The humidity must be between 10% and 90% RH when there is no air conditioner	Use a hygrometer to check the humidity and ensure that the ambient humidity is kept within the allowable range
		Check for dust, powder, salt, metal chips	No accumulation	Clean and protect the equipment

		Check that water, oil or chemical spray should not touch the equipment	No spray touches the device	To clean and protect the equipment
		Check for corrosive or flammable gases in the equipment area	No corrosive or flammable gas	Check by smelling or using a sensor
		Check vibration and shock levels	Vibration and shock are within the specified range	If necessary, install gaskets or other shock absorbers
		Check the noise source near the equipment	No significant noise signal source	Isolate the device from the noise source or protect the device
3	Installation and Wiring	Check that each unit is securely connected and has been safely locked with the next unit	No looseness	Press the connectors together completely and lock them with the slider

Continued

No.	Item	Inspection	Standard	Action
3	Installation and Wiring	Check that the cable connector is fully inserted and locked	No looseness	Correct any incorrectly installed connectors
		Check for loose screws in external wiring	No looseness	Tighten the screws with a screwdriver
		Check crimp connectors in external wiring	Leave enough space between connectors	Visual inspection. Adjust if necessary
		Check for damage to external cables	No damage	Visual inspection. Replace the cable if necessary

6. Packing List

Table 6.1 Packing list

No.	Name	Quantity	Unit	Remarks
1	CANHub-AS8 device	1	Piece	
2	Guide rail	1	Piece	
3	USB communication cable, 1.5 m	1	Piece	
4	5.08 with a locking terminal	1	Piece	
5	DB9 adapter	8	Piece	
6	Mounting ears	2	Piece	
7	Power adapter	1	Piece	
8	Product CD-ROM	1	Piece	
9	After-sales Service Guide	1	Current	
10	Certificate of Conformity	1	Piece	

7. Disclaimer

Based on the principle of providing better service for users, Guangzhou ZLG Electronics Co., Ltd. ("ZLG Electronics") will try to present detailed and accurate product information in this manual. However, due to the effectiveness of this manual within a particular period of time, ZLG Electronics does not guarantee the applicability of this document at any time. ZLG Electronics shall reserve the right to update this manual without prior notice. To get the latest version, please visit the official website of ZLG Electronics regularly or contact ZLG Electronics. Thank you!

Stay Truthful for Win-win Results, Continuous Learning, Customer Oriented, Professional and Concentrated, Always be the No. 1