Category	Contents
Keywords	CAN-Bus message logging, Ethernet
Description	Product User Guide

Revision History

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V1.00	May 5, 2019	Created
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Contents

1. Product Introduction

1.1   Product Overview

It mainly includes: product introduction (overview), product pictures (function instructions may not be provided), and a detailed list of functions.

In the CAN bus troubleshooting, the biggest difficulty is occasional faults. This makes engineers or even CAN experts unable to accurately identify the fault cause. For example, the pitch system of the wind turbine had a CAN data transmission interruption in 72 hours; the dashboard of a new energy vehicle appeared "blank" once during a 10,000 km drive, but this could not reoccur; the high-speed train experienced an emergency deceleration due to abnormal CAN communication during a 2,000 km journey. These occasional CANFD communication exceptions have frightened engineers like time bombs. If one CAN bus data recorder is installed on an occasion prone to faults, it is equivalent to a "black box" to record CAN data, which helps analyze the fault cause.

Guangzhou ZLG Electronics Co., Ltd., as a leading manufacturer of the domestic CAN bus, has developed CANDTU series products for troubleshooting CAN buses, which can record CAN messages offline. It can easily complete the message recording and on-site monitoring of applications such as vehicles, ships, elevators, wind turbines, and construction machinery.

CANDTU-400ER series products are 4-channel CAN bus data recorders with storage, which can run independently from PC and store CAN message data for a long time, which helps users analyze and troubleshoot. The recorder can transfer the recorded data to a PC via an SD memory card on the Ethernet. After format conversion of the raw data, users can carry out offline analysis and evaluation of the recorded data by using CANoe and CANScope.

Figure 1.1 Overall product rendering

ZLG

1.2　Features

Table 1.1 Product features

CAN channel	Number of channels: four user-configurable CAN channels
	Interface type: high-speed CAN
	Baud rate: arbitrarily programmable between 5 Kbps and 1 Mbps
	Maximum receive data flow: 4,500 frames/s
	Surge protection: 1 kV (Class A)
	Electromagnetic isolation: 3.5 kV
PC interface	100M/1000M Ethernet;
Message recording and storage	Storage capacity: SD memory card of a maximum of 256 GB
	Storage mode: all storage, timing storage
	Full mode: rolling record, full stop
	Trigger mode: conditional trigger, external trigger
	Find and location: Manual time stamping
	Data export: ASC, CSV, or CAN data for CANoe, CANScope analysis
Real-time clock	Built-in rechargeable lithium battery
Software resources	Supports the general configuration function library, which helps users develop application programs with VC, VB, Delphi and C++ Builder
	Supports the configuration tool CANDTU
Power supply voltage	DC 9 ~ 48V
Power consumption	2.5W
Range of temperature	Operating temperature: -40℃ to +85℃
	Storage temperature: -40℃ to +85℃
External dimension	179mm×131.5mm×50.4mm

1.3　Typical Applications

● High-speed train operation fault detection and troubleshooting

● Subway train running fault detection and troubleshooting

● Train control system operation fault detection and troubleshooting

● Wind turbine CAN communication fault detection

● Multi-channel CAN communication records and fault analysis for traditional vehicles and new energy vehicles

● Ship CANFD communication fault detection and troubleshooting

● Coal mine CAN communication fault analysis

● Elevator operation fault detection and troubleshooting

● Construction machinery operation fault detection and troubleshooting

● Operation detection and troubleshooting of aerospace vehicles and ancillary equipment

2. Product Specifications

2.1   Electrical Parameters

Table 2.1 Electrical parameters

Parameter Name	Conditions	Rating			Unit
		Minimum	Typical Value	Maximum	
Operating voltage	DC	9		48	V
Power consumption			2.5		W

2.2   Operating Temperature

Table 2.2 Operating temperature

Parameter Name	Conditions	Rating			Unit
		Minimum	Typical Value	Maximum	
Operating temperature	SD card not included	-40	-	85	℃
Storage temperature	SD card not included	-40	-	85	℃

Note: The operating temperature of the device depends on the SD card. The specifications are as follows:

SD card specifications: -25°C to +85°C (operating temperature), -40°C to +85°C (storage temperature).

2.3   Protection Level

Table . 3 Protection level-electrostatic discharge immunity test (IEC61000-4-2)

Interface	Conditions	Test Level	Test Voltage (kV)	Test Result	Remarks
Power supply		Level 4	8	Class A	Contact discharge
CAN bus		Level 4	8	Class A	Contact discharge
Ethernet		Level 4	8	Class A	Contact discharge
Buttons, Indicators		Level 4	15	Class A	Air discharge

Table . 4 Protection level-electrical fast transient pulse group immunity test (IEC61000-4-4)

Interface	Conditions	Test Level	Test Voltage (kV)	Test Result	Remarks
Power supply		Level 3	2	Class A	Capacitive coupling

| CAN bus | | Level 3 | 1 | Class B | Capacitive coupling |
| Ethernet | | Level 3 | 2 | Class A | Capacitive coupling |

Table . 5 Protection level-surge (impact) test (IEC61000-4-5)

Interface	Conditions	Test level	Test Voltage (kV)	Test Result	Remarks
Power supply		Level 3	1	Class A	Line-line
		Level 3	2	Class A	Line-ground
CAN bus		Level 3	1	Class B	Line-line
		Level 3	2	Class B	Line-ground
Ethernet		Level 3	1	Class A	Line-line
		Level 3	2	Class A	Line-ground

Note: For details, see the attachment *Electromagnetic Compatibility Test Report.pdf*

2.4   Shock and Vibration Level

Withstands the vibration and shock of grade 1 class B vehicle body installation specified in GB/T 21563 without damage and failure

For details, see the attached certification report

2.5   Mechanical Dimensions

The following figures shows the mechanical dimensions (unit: mm)
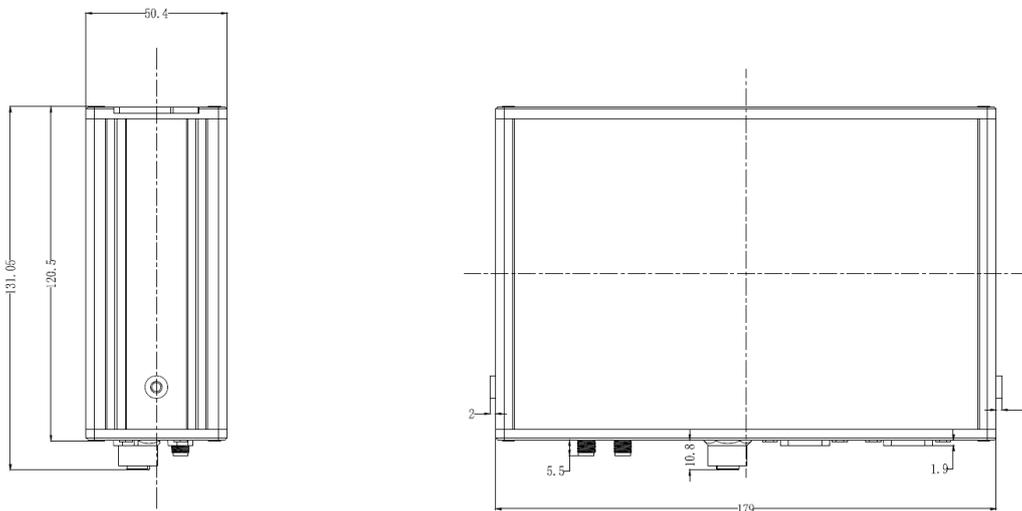
Figure 2.1 Mainframe dimensions
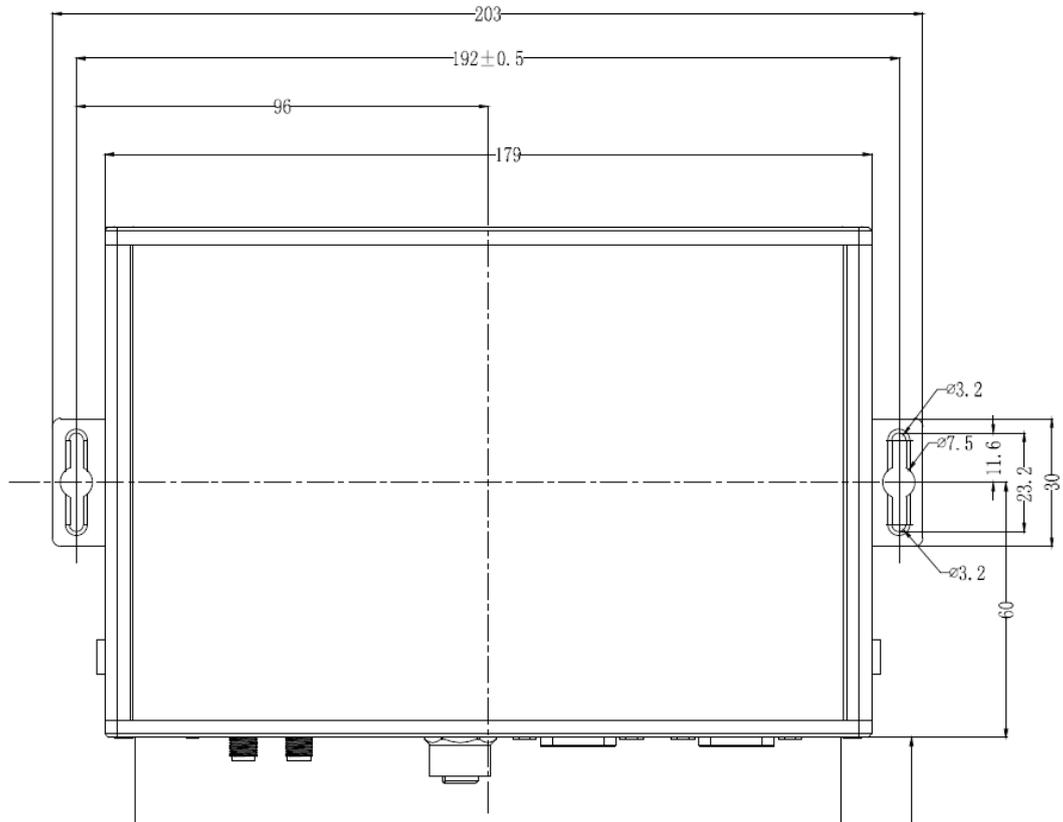
Figure 2.2 Installation method 1
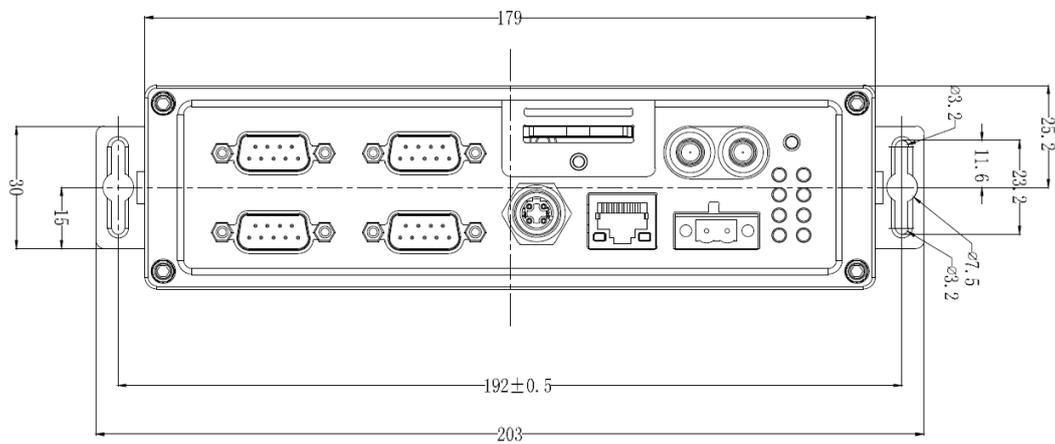
Figure 2.3 Installation method 2

3. Hardware Interfaces

This section describes the hardware interfaces of the CANDTU-400ER device.

3.1　Panel Layout

Figure 3.1 shows the device panel layout.

Figure 3.1 Panel layout

3.2　Indicators

Table 3. 1 LED indicators

Identification	Function	STATUS	Description
PWR	Power indicator	The indicator is on	The device is powered on properly
		The indicator is off	The device is powered off, or the power supply is abnormal
SYS	System running status indicator	Green flashing light	The device is normal
		The red indicator flashes slowly	SD card abnormal
		The red indicator flashes quickly	Device power-off state
SD	SD card status light	Normally on	The SD card is ready
		The green light flashes quickly	SD card ready status
		The green light flashes slowly	SD card write status
		The red indicator flashes slowly	The SD card writes data, and there is insufficient channel space
		The indicator is off	The SD card has not started
ENT	Indicates the Ethernet status	Green flashing light	Ethernet data transmission
		The indicator is off	Ethernet has no data transmission or is not connected
CAN0、1	CAN channel	The indicator is off	The CAN channel is not

CAN2、3	transceiver status indicator		activated
		Green flashing light	The CAN channel receives data properly
		The red indicator is on	The CAN channel received an error frame

3.3 Button

The device provides a trigger button. The shell is identified as "Trigger". Its function is to mark the CAN message data, so that you can locate the data recorded in the SD card. In addition, this button can be used for firmware upgrade.

Table 3.1 Button functions

Operation	Function	Conditions	Manipulation	Symptom
Stop recording	Stop storing CAN message data	Normal recording, or resumed recording	Hold down the button for more than 3 seconds and less than 10 seconds to stop recording. Then you can safely eject the SD card	The buzzer beeps
Recover records	Recover storage CAN message data	Recording has stopped, and the card exists	Short-press the button to resume recording	Return to the state before the stop; The buzzer beeps twice
			Once the configuration is downloaded, the recording can be resumed	
		Recording has stopped but the card does not exist	Reinsert the card to resume recording	
User tag	Mark CAN message data	Normal record	Press the button for more than 200 ms and no more than 2s to mark the data.	The REC indicator flashes once; The buzzer beeps briefly.
User upgrade	Upgrade device firmware	Power-on process	Insert the SD card, press and hold the button, and power on the device; Release the button after three short buzzer beeps	The buzzer makes three short beeps
Restore network parameters	Restore default network parameters	Device running process	Hold down the button for more than 10s, and release the button	The buzzer beeps long while the button is pressed When the button is released, the buzzer beeps four times in a row

3.4 Power Interface

The rated voltage of the power input of the equipment is DC 9-48 V, and the casing is marked as "DC 9-48V". The physical form of the interface is a 5.08 terminal. 错误!未找到引用源。，错误!未找到引用源。and 错误!未找到引用源。list the interface diagram, signal definition, and interface specifications.

Table 3.2 Power interface

Type	Schematic Diagram
5.08 terminal	
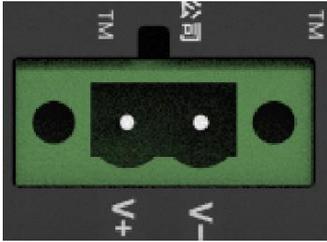
Table 3.4 Terminal signal definitions

Function Interface	Signal Definition	Signal Description	Interface Type 5.08 interface
Power supply	V+	positive electrode of power	√
	V-	negative electrode of power	√

Table 3.3 Power interface specifications

Parameter Name	Conditions	Rating			Unit
		Minimum	Typical Value	Maximum	
Working voltage	DC	9		48	V
Power consumption			2.5		W

3.5   CAN-bus Interface

The device provides four isolated CAN-Bus interfaces. The shell identification is "CAN0", "CAN1", "CAN2", and "CAN3". The physical form of the interface is a DB9 terminal. 错误!未找到引用源。，错误!未找到引用源。 and 错误!未找到引用源。 list the interface diagram, signal definition, and interface specifications.

Table 3.4 Pin definitions

Type	Schematic Diagram
DB9 terminal	
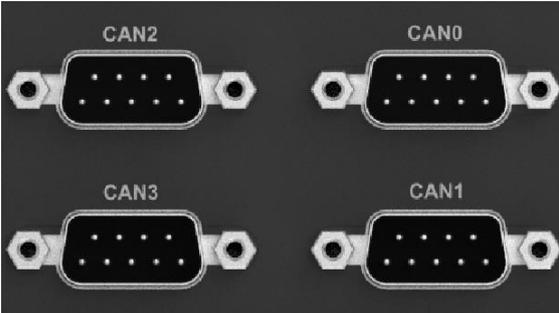
Pin definitions	

Table 3.5 Signal definitions

Function Interface	Signal Definition	Signal Description	Pin Number
CAN0~CAN3	CAN0_L	CAN0 data transceiver differential inverted signal	2
	CAN0_GND	CAN0 isolated ground	3、6
	CAN0_H	CAN0 data transceiver differential positive phase signal	7
	CAN_FG	Shielding ground	5
	NC	Not connected	1、4、8、9

Table . 8 CAN-Bus interface specifications

Parameter		Minimum	Typical Value	Maximum	Unit
Communication baud rate		5k		1M	bps
Number of nodes				110	pcs
Dominant level (logic 0)	CANH	2.75	3.5	4.5	V
	CANL	0.5	1.5	2	
Recessive level (logic 1)	CANH	2	2.5	3	
	CANL	2	2.5	3	
Differential level	Dominant (logic 0)	1.2	2	3.1	
	Recessive (logic 1)	-0.5	0	0.05	
Maximum withstand voltage of the bus pin		-18		18	
Instantaneous voltage of the bus		-100		+100	
Isolation voltage (DC)		3500			V
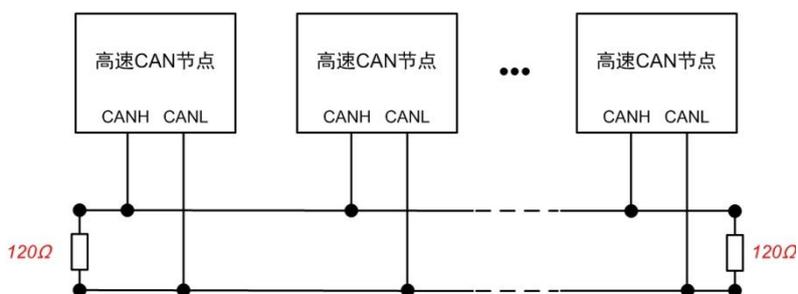
Figure 3.2 Typical high-speed CAN network connection

The CAN bus adopts balanced transmission. ISO11898-2 stipulates: In the

high-speed CAN, a 120 ohm terminal resistor needs to be connected to the network terminal node to eliminate signal reflection on the bus and avoid signal distortion. Figure 3.2 shows the high-speed CAN network topology.

The device has a built-in 120 ohm terminal resistance, which can be configured to turn on or off by using the configuration tool CANDTU. For operation details, see 4.3.1.

Note: The bus communication distance and communication rate are related to the field application and can be designed according to the actual application and related standards. The CAN-Bus cable can use ordinary twisted pair, shielded twisted pair or standard bus communication cable. In long-distance communication, the terminal resistance value needs to be selected according to the communication distance, cable impedance and number of nodes.

3.6 Ethernet Interface

The device provides one Ethernet interface. The physical form of the interface is RJ45, which realizes the communication between the device and the PC. The interface 100/1000M specification, interface schematic diagram and signal definition are shown in Table 3.9.

Table 3.9 Ethernet interface

Type	Schematic Diagram
RJ45 terminal	
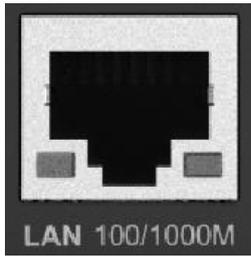
3.7 SD Card Interface

The device provides one SD card interface, which supports a maximum of 256 GB SD memory card for storing CAN bus message data. The interface adopts a self-locking card slot, and the SD card can be locked after the card is inserted according to the direction of the casing logo to prevent accidental falling off during use. When pulling out the card, just push it inwards to eject the SD card.

The SD card uses the EXT4 file system. Connecting the SD card through a card reader cannot directly view the SD card data in the Windows system. You need to install a tool plug-in that supports the EXT file system (for example, Ext2Fsd).

The device data can be obtained directly in the window by using the method in section 4.3.5.

Note: Do not forcibly pull out the card during the device operation; otherwise, it may cause data loss or damage to the memory card and device exceptions! If necessary, after powering off the device, open the SD card slot cover, push in gently and eject the SD card.

4. Configuration Tool Installation and Introduction

4.1   Software Installation

Double-click the software installation package to install the software, and select the installation path.

4.2   Device Connection

4.2.1 Device Selection
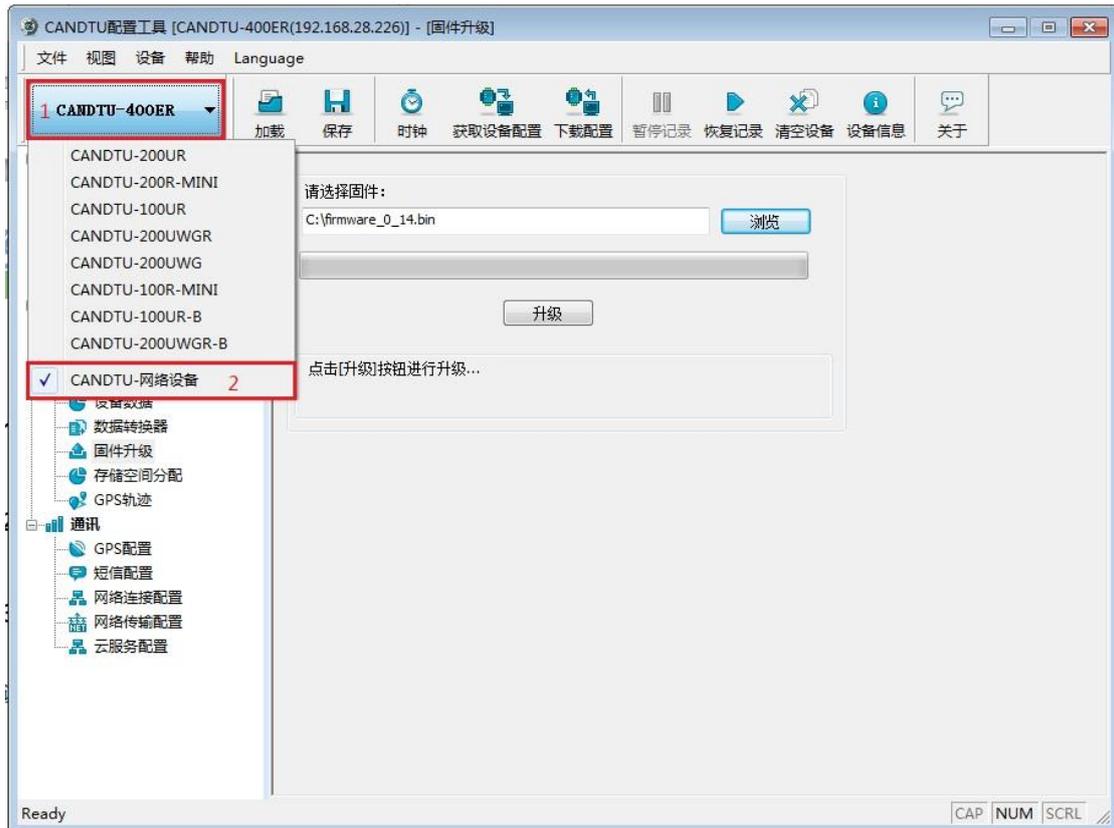
Figure 4.1 Selecting a device

Figure 4.2 Searching a device

1) As shown in Figure 4.1, select a device model. The device search interface is displayed, as shown in Figure 4.2;

2) Click the "Search Device" button on the device search interface. The device list displays the search results;

3) Select a device and click the "OK" button to connect the device.

4.2.2 Network Configuration

Figure 4.3 Device network configuration 1

Figure 4.4 Device network configuration 2

After searching for the device, select the device, as shown in Figure 4.3. Click the "Modify"

button to display the "Device Information" interface, as shown in Figure 4.4.

IP address configuration: automatic acquisition (DHCP) and manual setting.

*The CANDTU-400ER model does not have WiFi and LTE functions.

4.3   Function Description
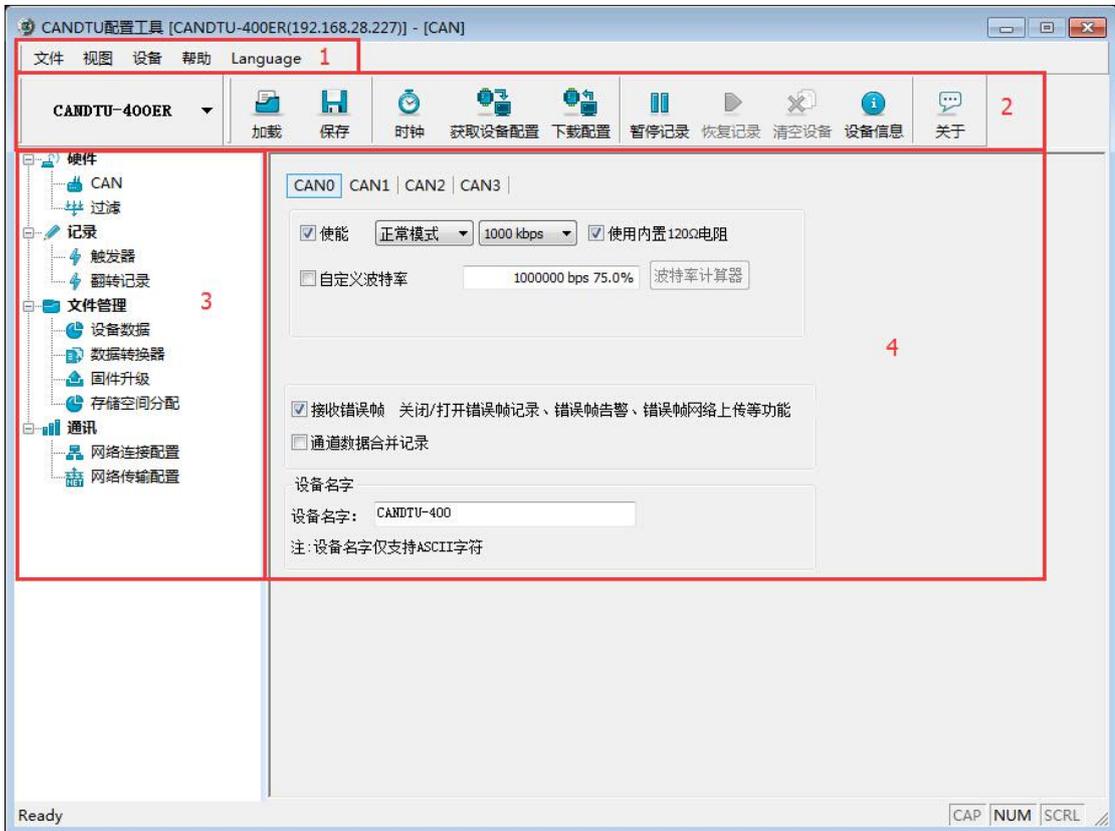
Figure 4.5 Main interface of the tool

After the program is installed, there will be shortcuts to the configuration tool on the desktop and start menu. After double-clicking the desktop icon to start the program, the CAN configuration page is displayed by default, as shown in Figure 4.5. The configuration tool interface is divided into four parts:

1)   Menu bar:

Provide all operation commands of the configuration tool, including common operation commands in the shortcut toolbar, restore factory settings, etc.;

2)   Shortcut Toolbar

Provide common operation buttons of the configuration tool to complete the quick operation of commands;

3)   Side navigation bar

Provide multiple categories of information tabs to quickly switch tabs;

4)   Information settings bar

Operate the specific configuration information based on the options in the left

navigation bar.

The following describes the function and meaning of each configuration parameter of the configuration tool.

4.3.1 CAN Configuration
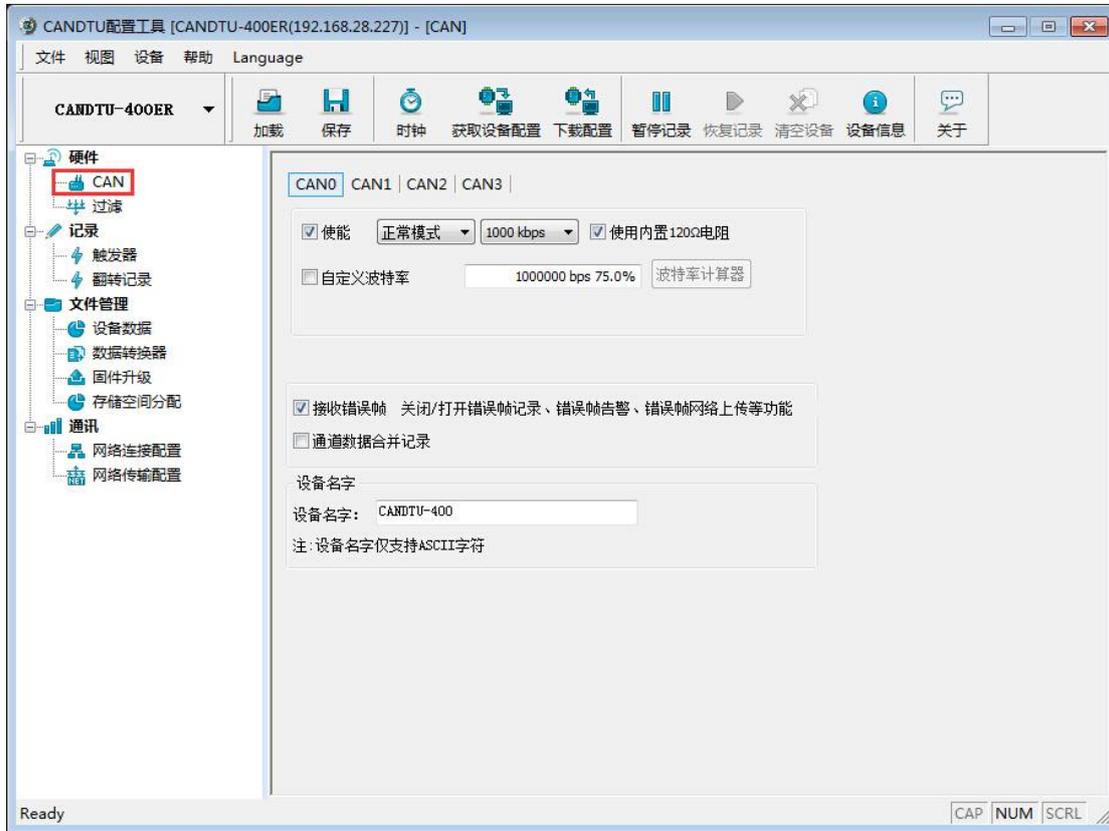
Figure 4.6 AN configuration tab

The CAN Configuration tab contains the following parameters:

1) Channel selection

   Selected: Enable the corresponding CAN channel.

   Deselected: Disable the corresponding CAN channel.

2) Communication mode

   Normal mode:

   Listen only mode:

3) Communication baud rate

   Provides commonly used CAN communication baud rates.

4) Use a built-in 120-ohm resistor (connected by default)

   Selected: Connect the built-in 120-ohm resistor termination resistor corresponding to the CAN channel.

   Deselected: Disconnect the built-in 120-ohm resistor termination resistor of the

corresponding CAN channel.

5) Custom baud rate

If the provided common CAN communication baud rate cannot meet the requirements, select the custom baud rate check box and enter the baud rate.

6) Record error frames

Selected: Record CAN error frames.

Deselected: CAN error frames will not be recorded.

4.3.2 Filtering
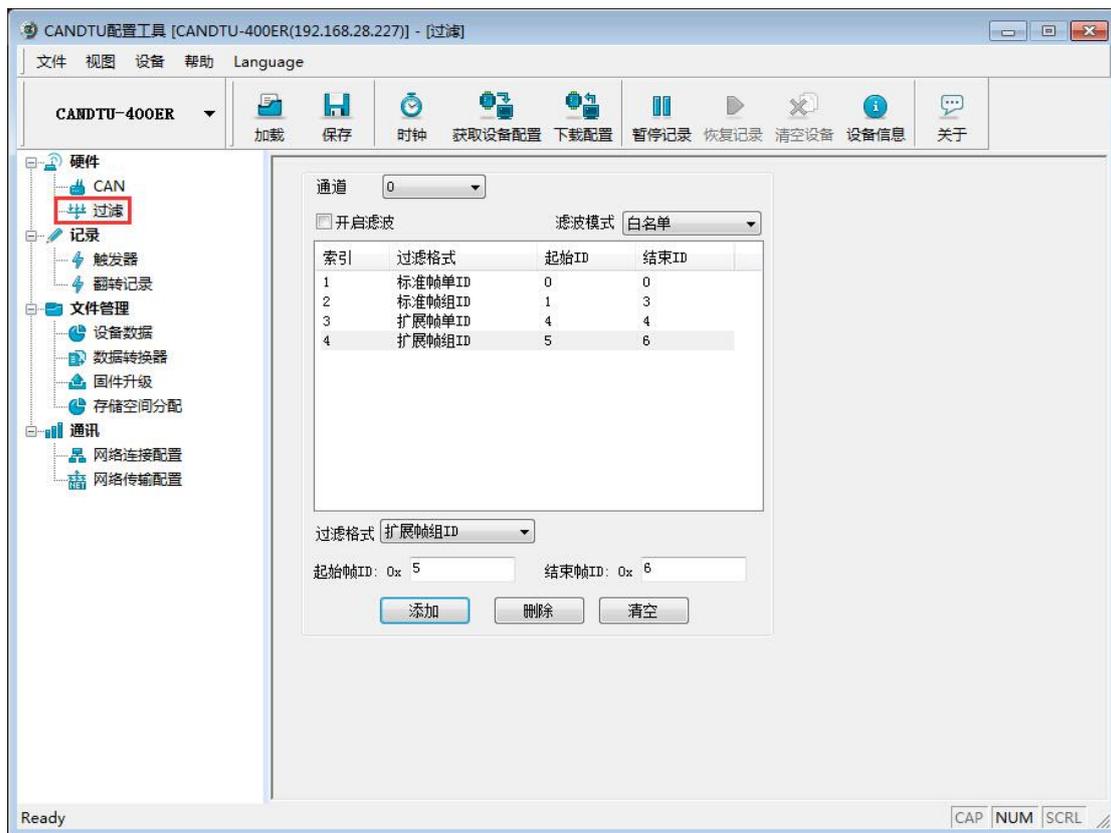
Figure 4.7 Filter Settings Tab

The configuration tool supports a maximum of 64 filtering rules per channel. Filter configurations based on the ID. Support channel independent enable filter and filter mode.

When the blacklist is selected, the device does not receive the ID packets added in the list. When the whitelist is selected, the device only receives ID packets added in the list.

The Filter tab contains the following parameters:

● Filter modes: blacklist, whitelist

● Start and end frame IDs

● Mode selection: standard frame single ID, standard frame group ID, extended

frame single ID, extended frame group ID

4.3.3 Triggering

Triggering means triggering the device to start recording data. This function is designed for all data of the device, instead of the independent triggering of individual channels.

Figure 4.8 Storage configuration

The SD card full processing method supports "loop recording" and "full stop":

- Circular recording: In this mode, when the SD card is full, the device deletes the old data and records the latest data cyclically.

- Full stop: In this mode, when the SD card is full, the device stops recording. Users need to replace the SD card before recording.

Set the record file size. After device configuration, the record file will be divided into files with the preset size. The file size of a single record does not exceed the preset value.

The configuration tool supports five different recording modes:

1. Long-time record
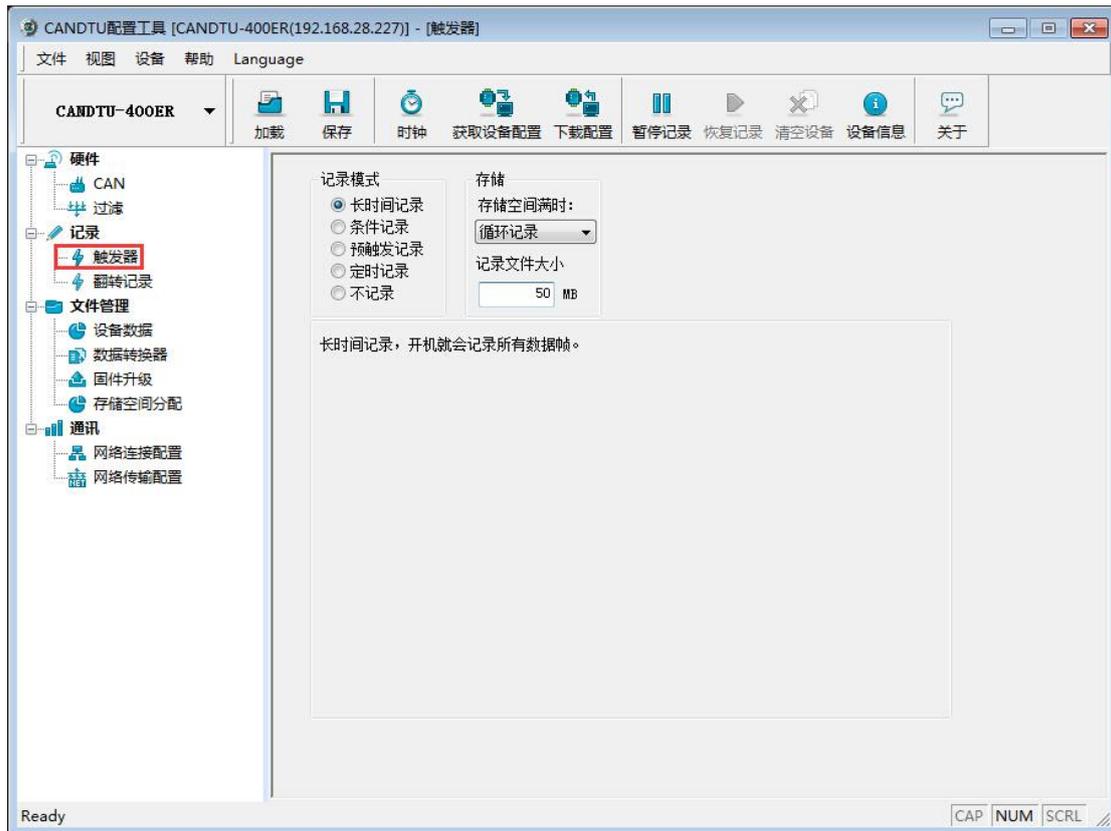
Figure 4.9 Long-time Recording tab

In this mode, the configuration information is recorded after the device is powered on. Figure 4.9 shows the configuration interface.

2. Condition record
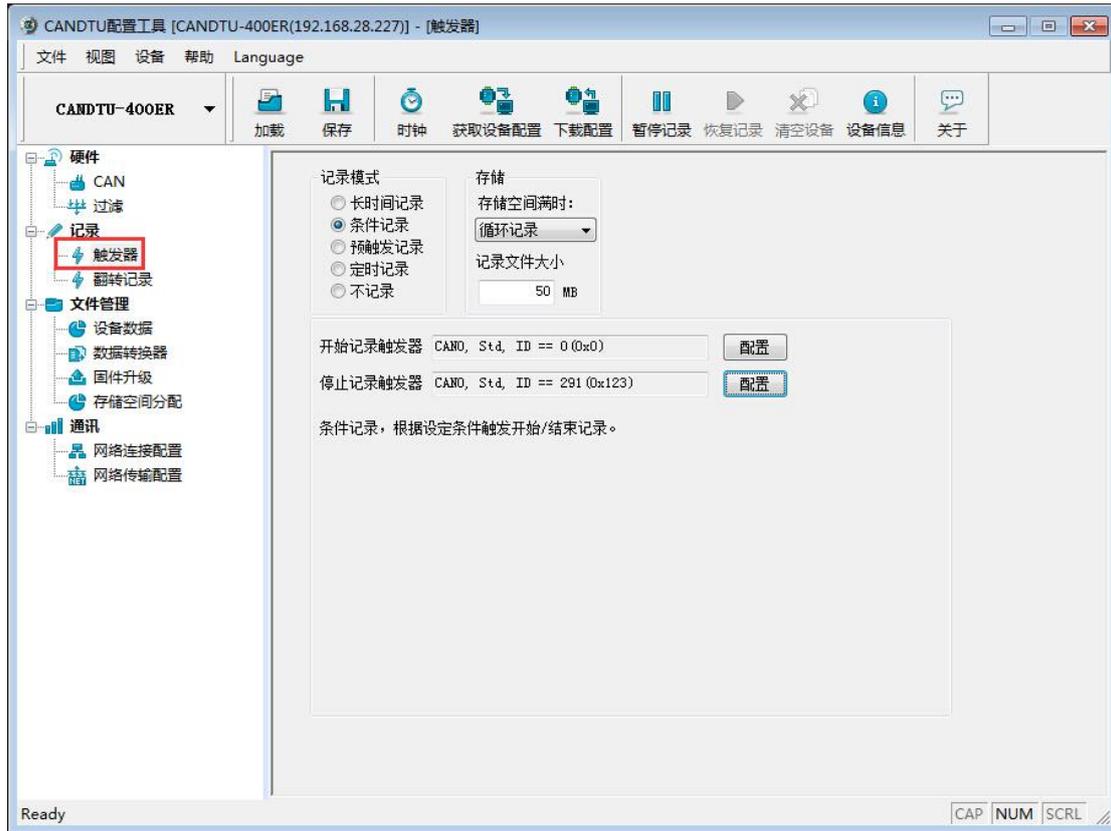
Figure 4.10 Conditional Records tab

Figure 4.11 Conditional record ID configuration options

The trigger conditions can be configured for both the start recording trigger and the stop recording trigger. Figure 4.11 shows the condition recording ID configuration dialog box.

3. Pre-trigger recording
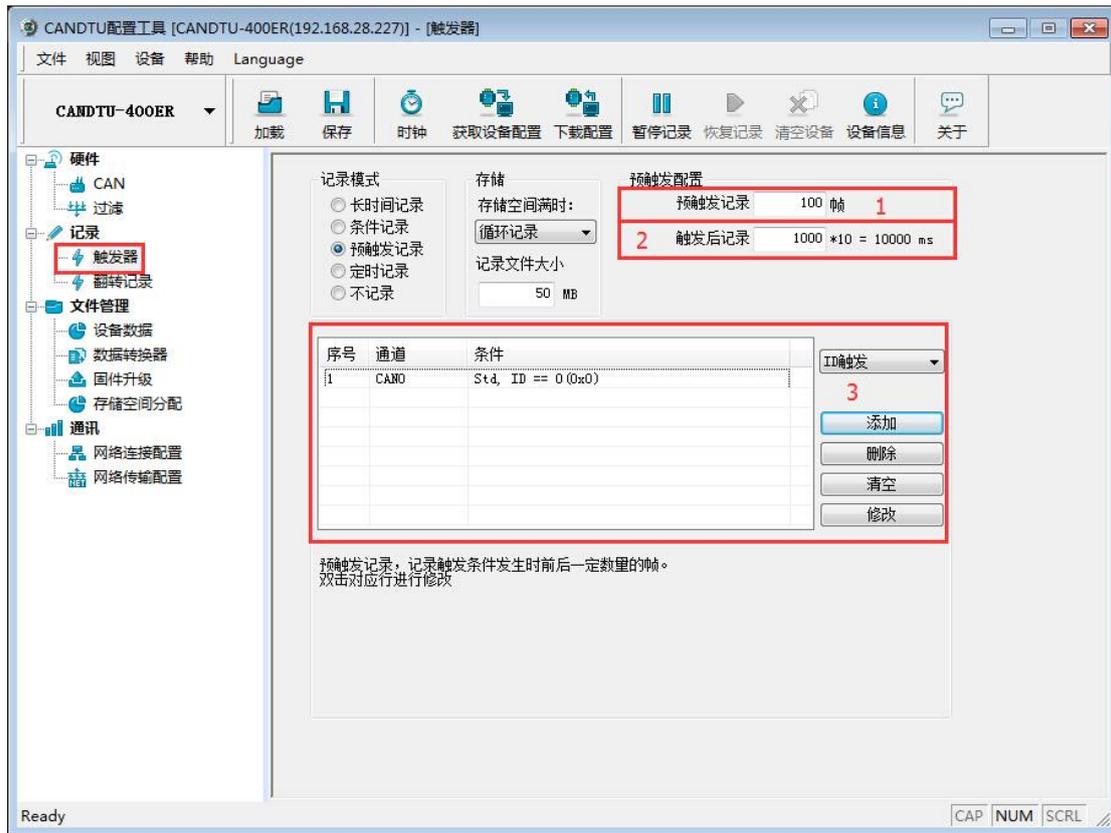
Figure 4.12 Pre-trigger Recording tab

In this mode, the device will cache a certain amount of data frames. When the conditions set by the pre-trigger are met, the cached data will be written to the SD card and the frames within a period of time after the triggering will be recorded. The amount of data recorded before and after the trigger is set by the pre-trigger record item and the post-trigger record item. Figure 4.12 shows the configuration interface.

The following describes each functional area. The numbers correspond to the numbers in the Pre-trigger Recording tab in Figure 4.12:

1) Pre-trigger recording

Set the number of frames to pre-record before triggering.

2) Record after triggering

Set the time to keep recording after the triggering.

3) Add triggering conditions

● ID trigger

Figure 4.13 Pre-trigger ID configuration

Figure 4.13 shows the conditions for setting ID trigger. When the preset pre-trigger ID conditions are met, the device saves the pre-recorded data and continuously records the bus data based on the preset time.

- Error frame trigger

When this condition is added, when an error message occurs on the specified channel, the device saves the pre-recorded data and continuously records the bus data based on the preset time.

- Button trigger

When the condition is added, press the button. The device saves the pre-recorded data and continuously records the bus data based on the preset time.

4. Timing record

CANDTU-400ER

CAN Bus Message Recording and Wireless Data Transmission Equipment User Manual   User Manual
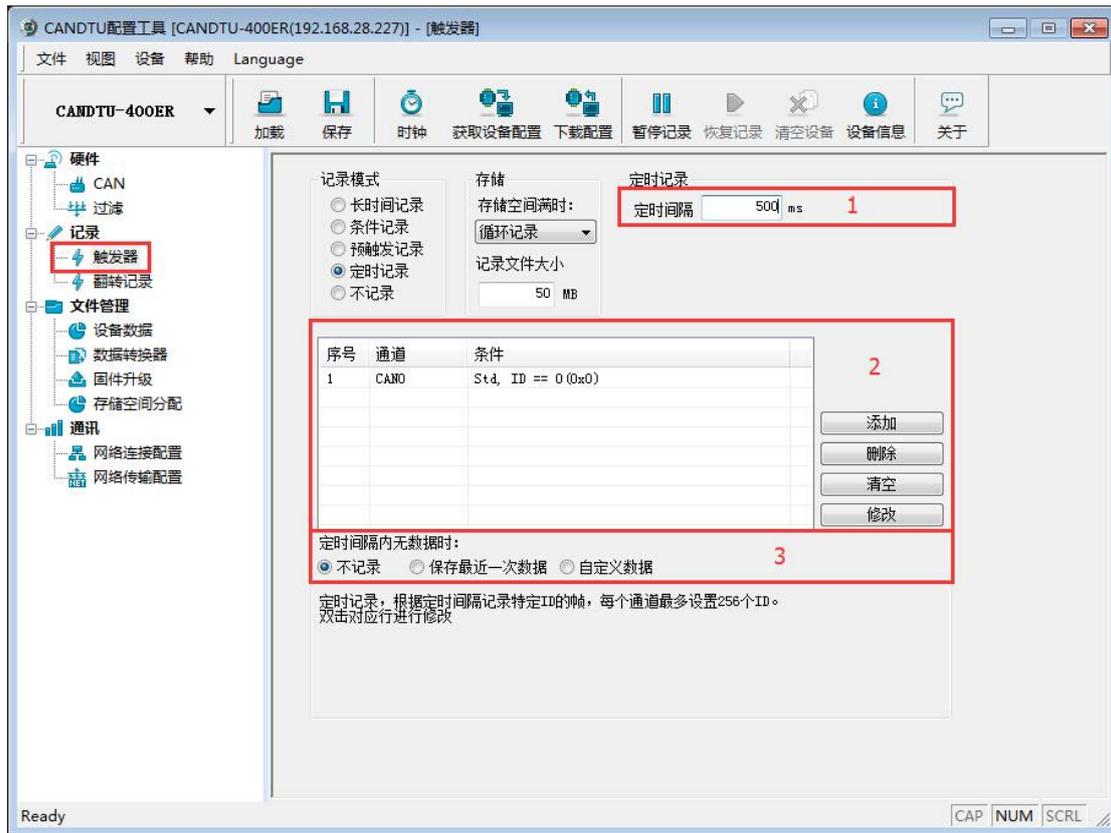
Figure 4.14 Timed Recording tab

Figure 4.15 Timing record ID configuration

In this mode, the device records the configured ID. The timing interval is in ms, and the minimum value can be 50 ms. The configured ID is recorded at the specified time interval. Three timing recording modes are available based on user configurations when the timing interval expires and no data is received. Figure 4.14 shows the configuration interface.

Each functional area is described below. The numbers correspond to the numbers in

Figure 4.14:

1) Timing interval

In the preset time interval, record the last message of a specific ID. If no data is received, it will be filled or not recorded according to the settings.

2) Add frame recording conditions

Click the "Add" button to display the timing record ID configuration dialog box. Add record conditions in this dialog box, as shown in Figure 4.15.

3) When there is no data in the timing interval

If no data is received for the specified ID within the preset period, it will be processed according to the following options

- Not recorded
- Record with last received data
- Fill in the records with custom data

5. Not recorded

In this mode, data will not be recorded during normal device operation .

4.3.4 Flipping the Recorder

After the flip recorder is enabled, if the message received by the ID in the rule is the same as the message recorded last time, the message will not be recorded. When the device receives the ID packet in the rule, it judges the data content of the packet. If the data segment is the same as the last recorded message data segment, the device does not record this frame of data until the received message data segment is different.
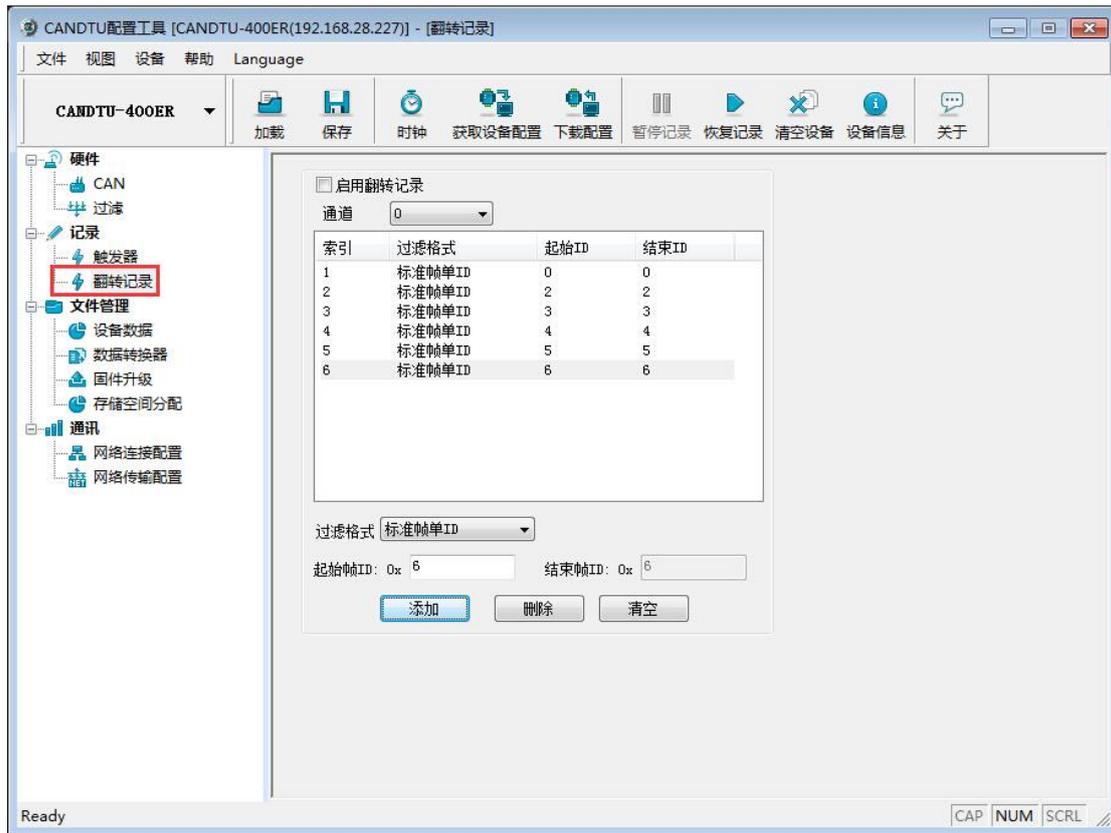
Figure 4.16 Flip Recorder tab

4.3.5   Equipment Data

The device supports FTP file transfer. Click the "Device Data" tab. Click "Open Explorer" to automatically connect the device's FTP. View the files recorded in the device SD card in Explorer. Supports FTP tools for file transfer, such as FileZilla. Enter the device's IP address, port number, and account password when logging in. The port number is 21, the account name is candtu, and the password is candtupasswd.

When copying a large amount of data through FTP, you are advised to click "Pause Recording" on the host computer to stop the device recording. Copying a large amount of data in the process of recording data on the device may easily lead to copy failure.
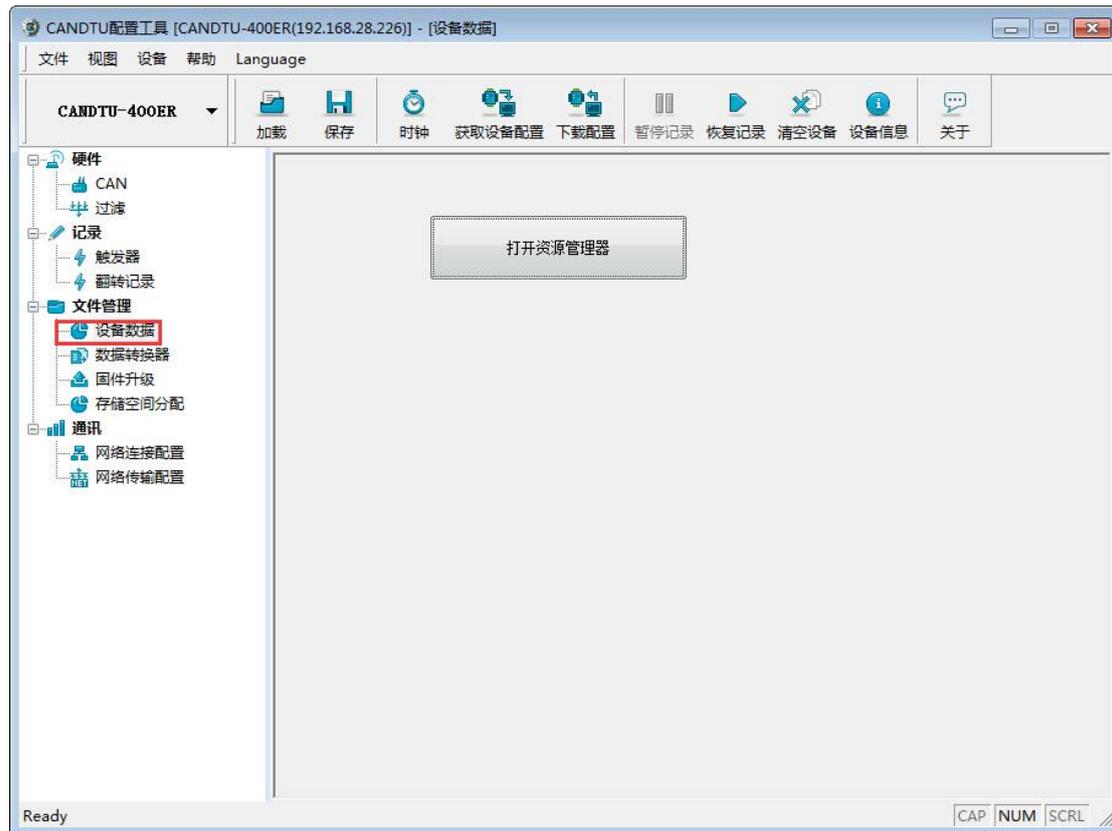
Figure 4.17 Device Data tab

4.3.6   Firmware Upgrade

The device supports online upgrade of device firmware by using the configuration tool. Figure 4.18 shows the Firmware Upgrade tab. Select the device firmware file by clicking "Browse", and click the "Upgrade" button. After the file transfer is complete, the device restarts automatically for firmware upgrade. The upgrade process takes about 2 minutes. After the upgrade is complete, the device starts automatically.
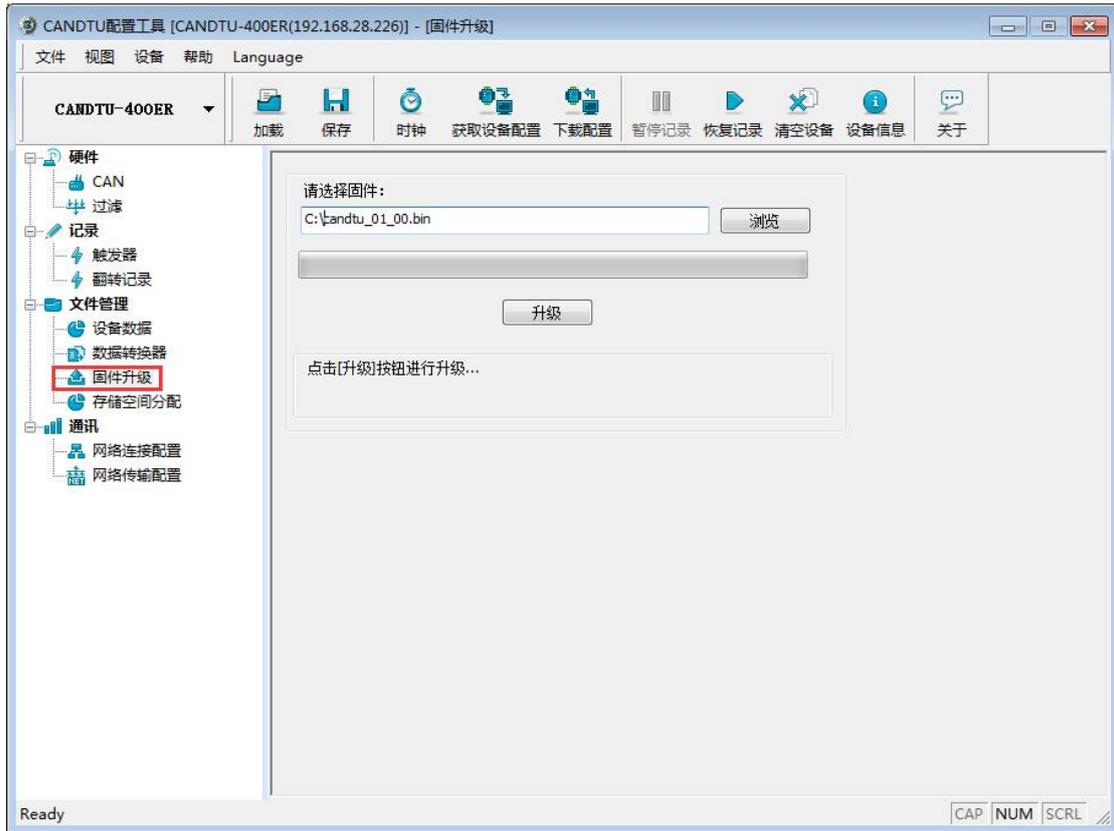
Figure 4.18 Firmware Upgrade tab

4.3.7   Data Converter

The data converter converts the raw data recorded by the device into data in a specific target format, including frame, txt, xls, and etc., so that users can analyze and evaluate the recorded data offline by using CANoe and CANScope.

Note: At present, the device does not support the PC directly connecting the device to read data for conversion. The SD card data can be read for conversion by reading the card. For details about the latest functions, contact our sales or technical support personnel.

As shown in Figure 4.19 and Figure 4.20, select the original data for data conversion.
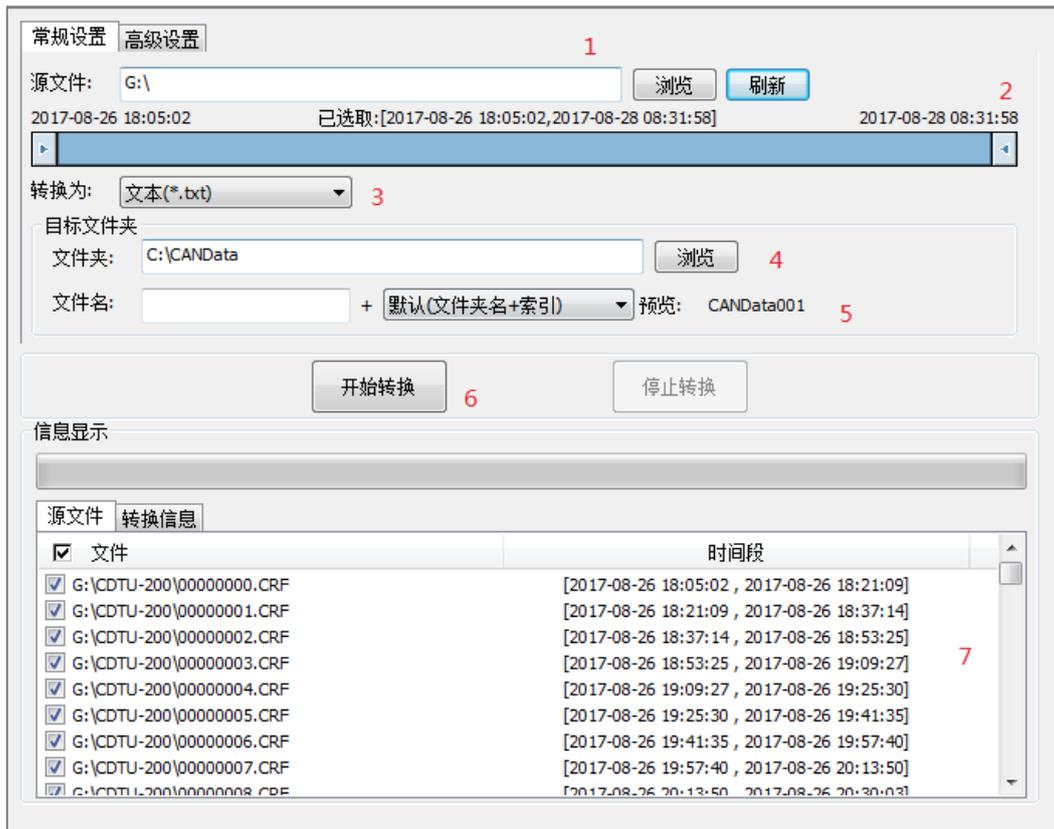
Figure 4.19 Data Converter - General Settings

1) Select the original data path and click the Refresh button. The information list will list all data files;

2) By dragging the time bar, select the data of the time range to be converted;

3) Select the output file format. Currently, the following formats are supported:

   ● CANScope(*.frame) for parsing in the CANScope software

   ● CANRec(*.frame) for parsing in the CANRec software

   ● Timed record (multi-column) (*.csv) can be opened in Excel. The premise for selecting this format is that the source file is recorded by the device working in the timed storage mode.

   ● Timing record (single column) (*.csv), similar to multiple columns, data of multiple columns integrated into one column

   ● 792Text (*.txt), can be opened in Excel or Notepad

   ● ASCII logging file(*.asc) for opening in the CANoe software

   ● CANPro(*.can) for opening in the CANPro software

   ● CSV (*.csv), open with Excel software;

4) Set the output file storage path

5) Set output filename rules. A preview of the filename of the current rule is displayed on the right. There are currently the following rules:

   ● Folder Name + Index: Default. The file name is determined based on the

selected target directory. If the directory is Data, the file names are Data1, Data2...

- Index: pure index named filename, such as 1, 2...
- Date and time: Name the file based on the timestamp of the first frame in the file, such as 2015-10-10_09-34-23

6) Operation button;
- Start conversion
- Stop conversion. The converted data is retained

7) Information list
- Source file. List all *.CRF files in the selected removable disk
- Conversion information. List reads and writes, error messages, etc.

Figure 4.20 Data Converter - Advanced Settings

8) Set the size of the output file, which can be set based on the number of frames and the number of bytes;

9) Time stamp display method
- Relative time
- Absolute time

10) Table 4.1 lists message error codes

Table 4.1 Error codes

Data area	Error code meanings
DATA0	E1: bus error
	E2: bus warning
	E3: bus negative
	E4: bus off
	E5: bus overload

DATA1	bit7: send buffer error
	bit6: receive buffer error
	bit5: overload error
	bit4: padding error
	bit3: format error
	bit2: CRC error
	bit1: response error
	bit0: bit error

4.3.8   Storage Space Allocation

As shown in Figure 4.21, you can freely allocate memory for each active recording channel.
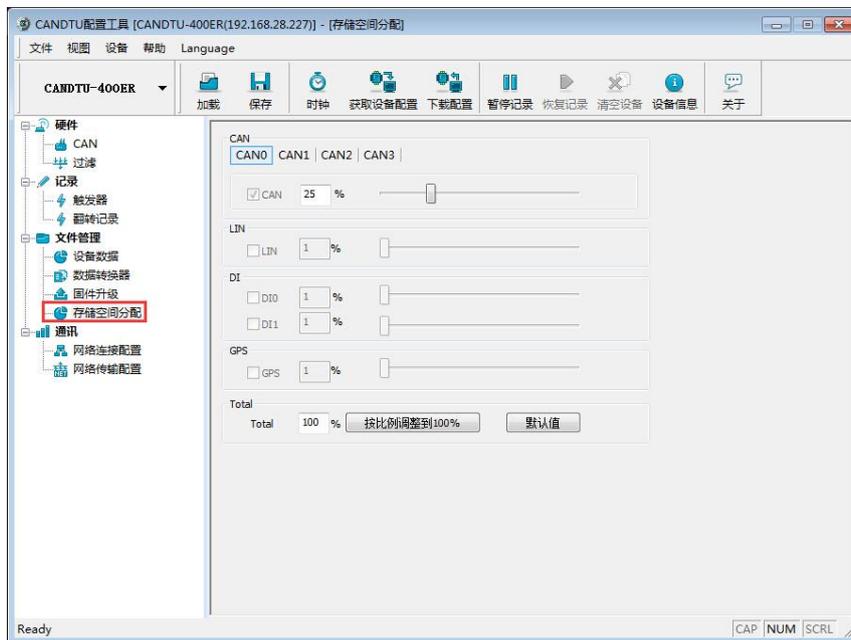
Figure 4.21 Storage space allocation

In loop recording mode, if the channel space is insufficient, the earliest recording file generated by the channel will be automatically deleted.

4.3.9   Network Connection Configuration

Figure 4.22 shows the network configuration items. You can set three remote addresses (domain name input not supported)
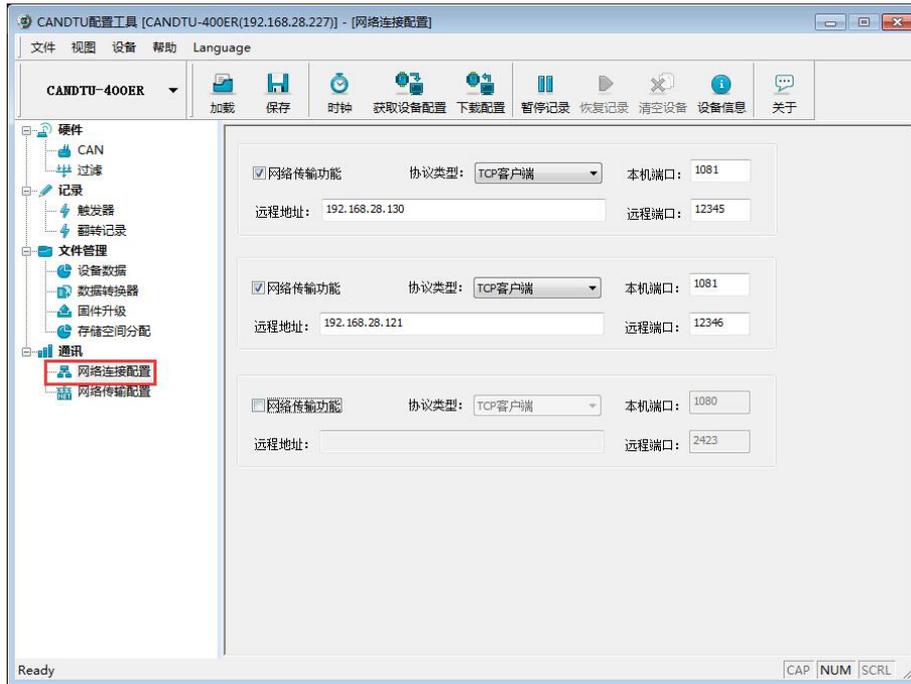
Figure 4.22 Network configuration

1) Function enable

   ● If this option is selected, the network function is enabled, and the data is sent and received remotely;

   ● If this option is not selected, the network function is disabled, and the data is sent and received remotely;

2) Protocol type

   TCP client. Set the device as a TCP client (currently only this configuration is supported).

3) Local port

   Set the local TCP client port number.

4) Remote address

   Set the remote server address to an IP address or domain name.

5) Remote port

   Set the communication port number of the remote server.

4.3.10 Network Transmission Filtering

The CANDTU supports network transmission filtering. By configuring the software, transmit only the CAN ID messages in the filter, which reduces unnecessary network traffic.
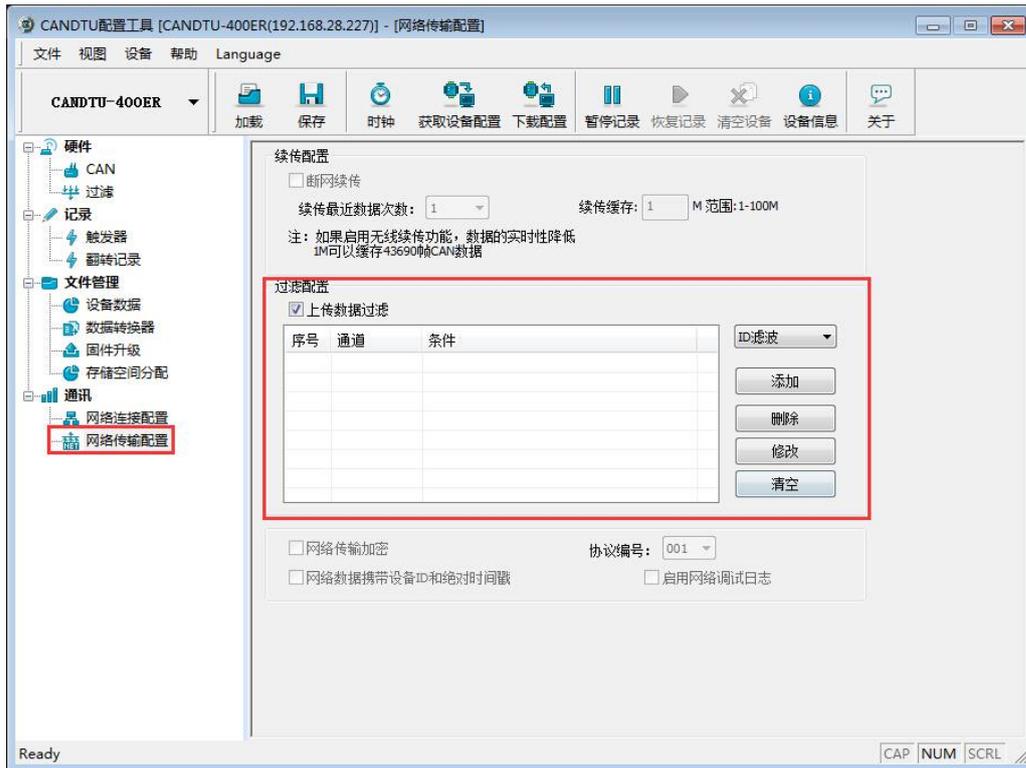
Figure 4.23 Network transmission filter

*The gray functional area has not yet been developed and used

The filtering methods mainly include ID filtering and time segment filtering.

ID filtering:

● Three filter ID setting methods: single ID, group ID and ID segment

● Supports eight filter condition settings
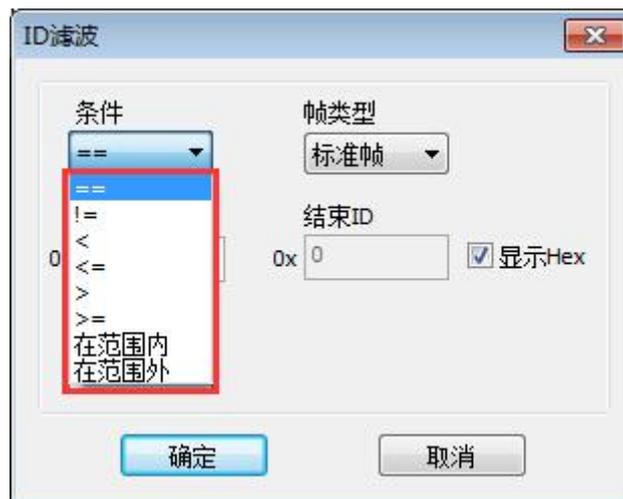
Figure 4.24 ID filter conditions

● Standard and extended frames

● Filter condition channel independent

Time segment filtering:

- Supports in-time and out-of-time filter conditions

- The filter time range is 00:00-23:59

- Channel independent. The minimum filter precision is "minute"

The filtering time of the time period is based on the device clock. Before using the device, make sure that the device clock is the current time. For the device clock setting method, see section 错误!未找到引用源。.

4.3.11 Network Frame Format

Figure 4.25 shows the network message communication protocol format. Special attention: All network packet data are sent and received in big-endian mode.
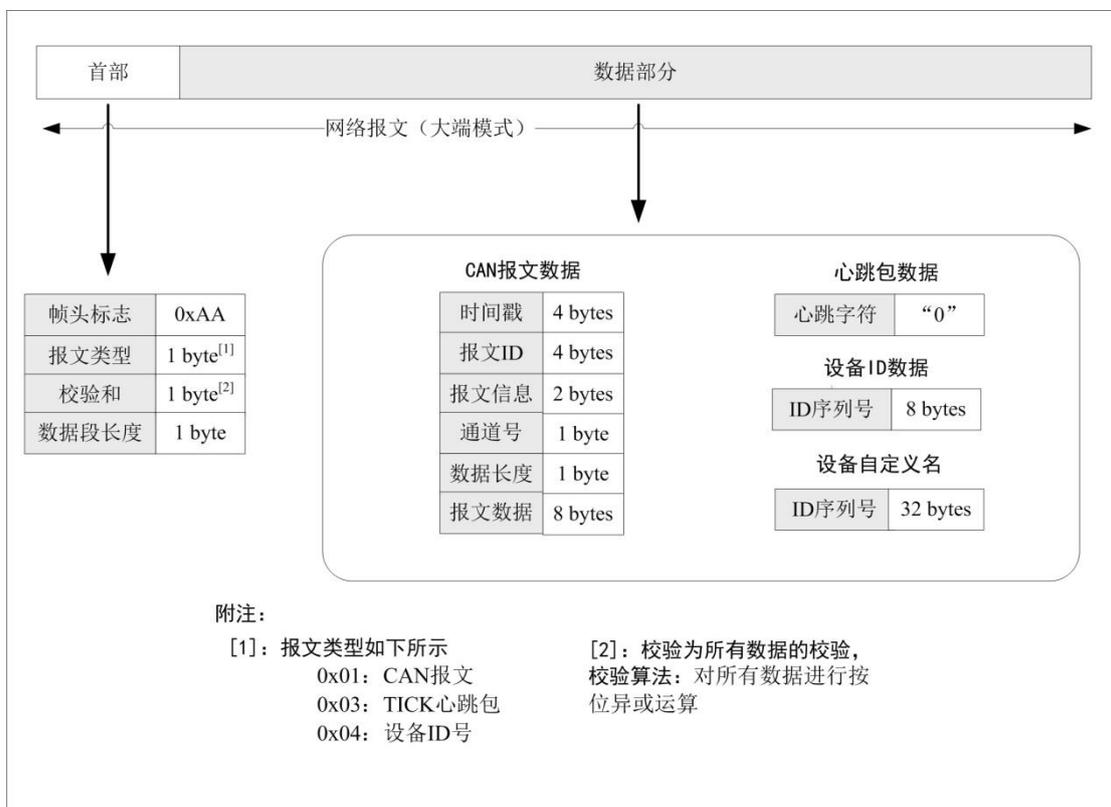
Figure 4.25 Network frame protocol format

4.3.12 Network Server Settings

1) Start the ZCANPRO host computer software, and select the "CANDTU-NET-400" item, as shown in Figure 4.26.
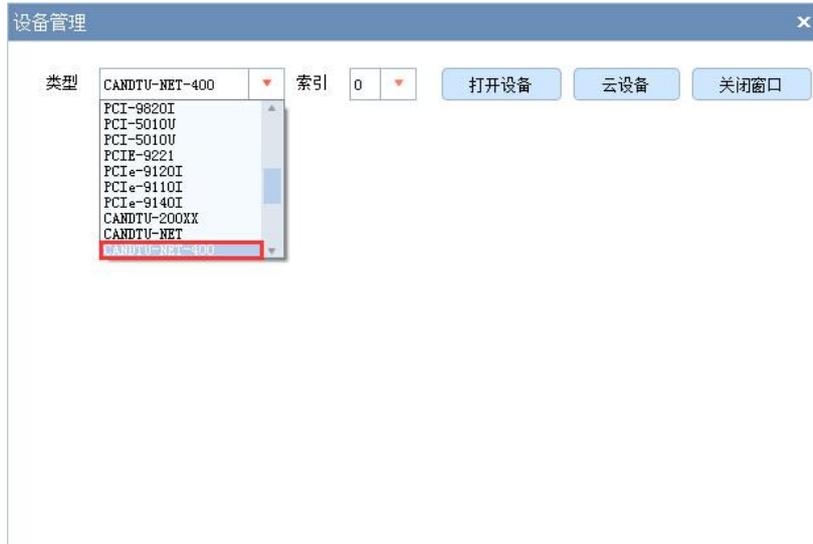
Figure 4.26 Device selection

2) Configure the server, as shown in Figure 4.27.

   ● Set "Device Index Number" and "Channel Number"

   ● Select "Server" as the work mode.

   ● Set the local port to be the same as "Remote Port" under "Network Configuration" of the CANDTU configuration software

   ● Click "OK" to start the web server
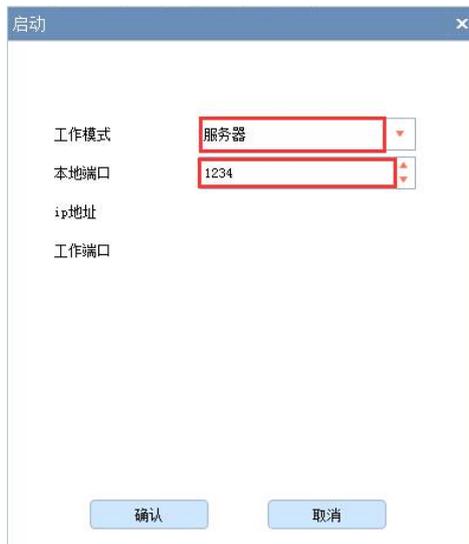
Figure 4.27 Configuration interface

3) Wait until the device is connected. Open "Device Information" under "Device Management" to view the information of the currently connected device, as shown in Figure 4.28.
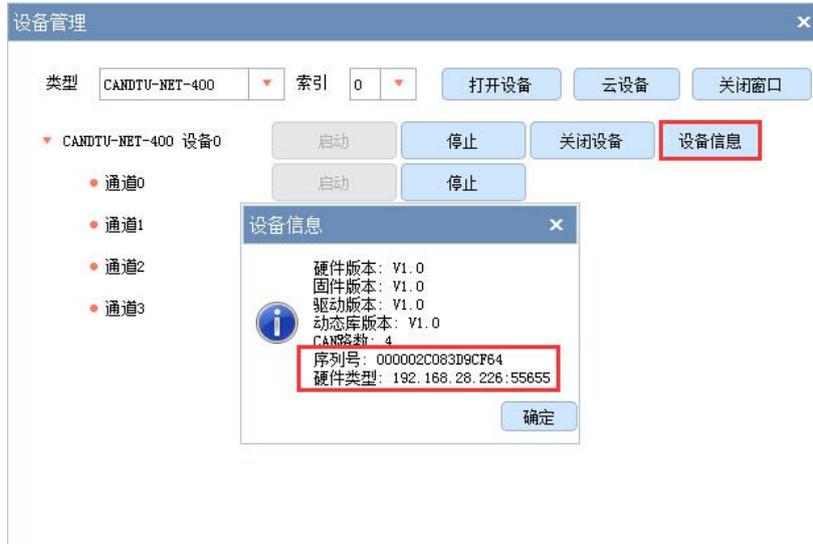
Figure 4.28 Device information selection

Figure 4.29 shows no device connected.
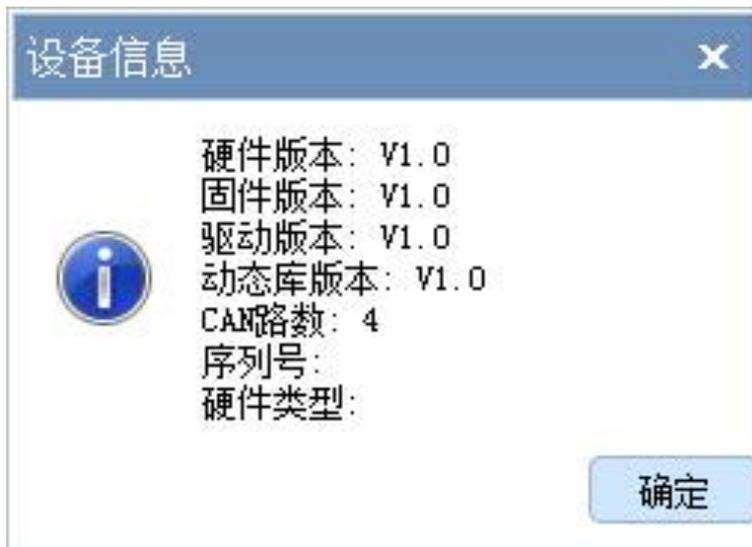
Figure 4.29 Device information

4)   After the device is connected, the data display area displays the sent and received data.

4.3.13 Menu Operation

1)   File menu
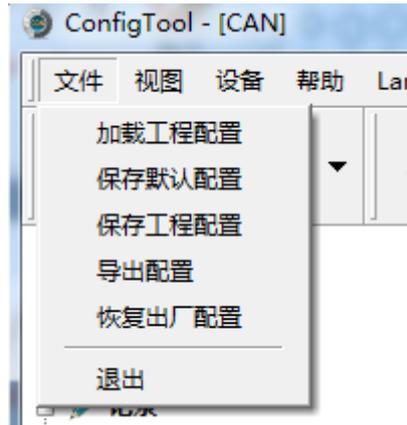
Figure 4.30 File menu

- Load project configuration: Load configuration information from the saved configuration file.

- Save default configuration: Manually save the current configuration in the program installation directory. It is automatically loaded when the program starts and automatically saved when the program stops.

- Save project configuration: Save the current configuration in another copy, so that it can be loaded and used again later.

- Export configuration: Save another copy of the current configuration, so that it can be loaded and used again in the future.

- Restore factory configuration: Restore the current configuration to the default value of the program. If a device is connected to the computer via USB, the device configuration will be restored to the default state.

Note: When restoring the factory configuration, if there is a device connected, restore the device to the default settings at the same time!

2) Device menu

The Device menu provides configuration tools for interacting with the device. The options in this menu can be found in the Shortcut Bar.

Figure 4.31 Device menu

4.3.14 Setting and Getting the Device Clock

Click "Set Real-Time Clock" in the device menu (or the corresponding button in the toolbar). The dialog box shown in 错误!未找到引用源。 is displayed.

1) Click "Set Time". The program will set it to the device based on the time combination set in the date and time selection box selected by the calendar on the left.

2) Click "Set device time to current time". The program will set the current system time to the device.

3) Click "Get Device Time". The program obtains and displays the RTC clock of the device over the network.

4) Select the "Automatically obtain device time" checkbox. The program will periodically obtain the device time and display it.

If the time setting fails, a failure message appears. Reconnect the device and try again.
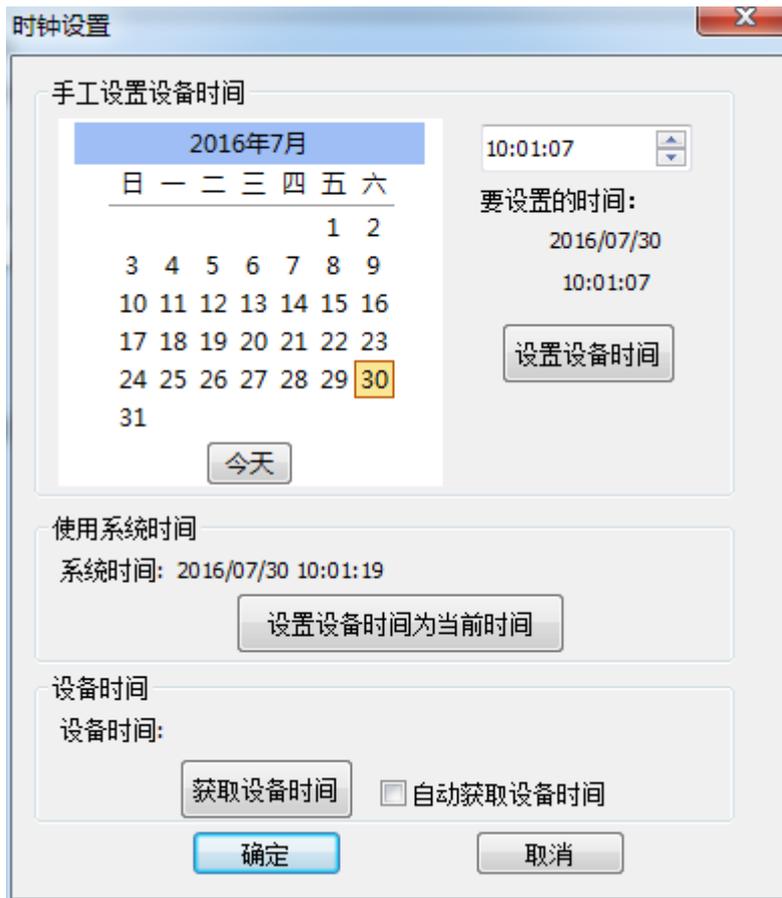
Figure 4.32 Setting the real-time clock

4.3.15 Downloading and Obtaining Device Configurations

1)   Download configurations to the device

After clicking "Download Configuration" from the device menu (or the corresponding button in the toolbar), the program will download the current configuration information on each device page to the device. After the configuration is downloaded successfully, the device will be in the configuration stage for a short time. No other device operations can be performed at this time.

2)   Obtain device configurations

After clicking "Get Device Configuration" (or the corresponding button in the toolbar) from the device menu, the program will obtain the current configuration information of the device and display the information on each configuration page.

4.3.16 Pausing and Resuming Records

When the device is connected to the computer, the program can control whether the current device records data.

4.3.17 Clearing Device Storage

After clicking "Clear Device Storage" from the device menu (or the corresponding button in the toolbar), a dialog box appears, indicating that data is being cleared. When the data is cleared, the dialog will close automatically. This function helps users directly clear the previously recorded data when the device is connected to the computer.

4.3.18 Device Information

Device information is used to display the firmware version, hardware version, serial number, current recording status of the device, SD card status and other device information. Figure 4.33 shows the device information.

Figure 4.33 Device Information

5. Product Fault Report Form

Customer name:	
Company:	
Tel:	Fax:
Email:	Purchasing date:
Distributor:	
Product name:	S/N:

Symptom: (Describe the fault in detail, and list all error messages in detail)

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6. Product Return Procedure

1. Provide proof of purchase.
2. Obtain a return authorization from a dealer or branch.
3. Fill in the product fault report form, and state the reasons for the repair and the symptom in detail, so as to minimize the repair time. Carefully package the product and send it to maintenance department with a fault report form attached.

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!

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