Tlog1038 Product Manual

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tosunai.com

Copyright Information

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What Are the Advantages of the Tlog1038 ?

- **Multi-bus Technology:** The Tlog1038 can simultaneously support CAN/CAN FD, LIN, FlexRay, and Ethernet bus technologies. In a complex bus network environment, only one Tlog1038 device is required to communicate with multiple ECU nodes across different bus technologies.

- **Multi-channel:** The Tlog1038 offers a rich set of bus channels, supporting up to 12 CAN/CAN FD channels, 10 LIN channels, 2 FlexRay channels, and 4 Ethernet channels (switch functionality). This allows it to easily handle the multi-channel demands in various use cases.

- **High Performance:** With high-performance hardware, the Tlog1038 ensures excellent data processing capabilities in complex networks. Connecting via Ethernet ensures a fast and stable data interaction rate with the PC.

- **Wireless Access:** Integrated with 4G, Bluetooth, Wi-Fi, and other wireless technologies, Tlog1038 allows for easy wireless access to the device through various methods.

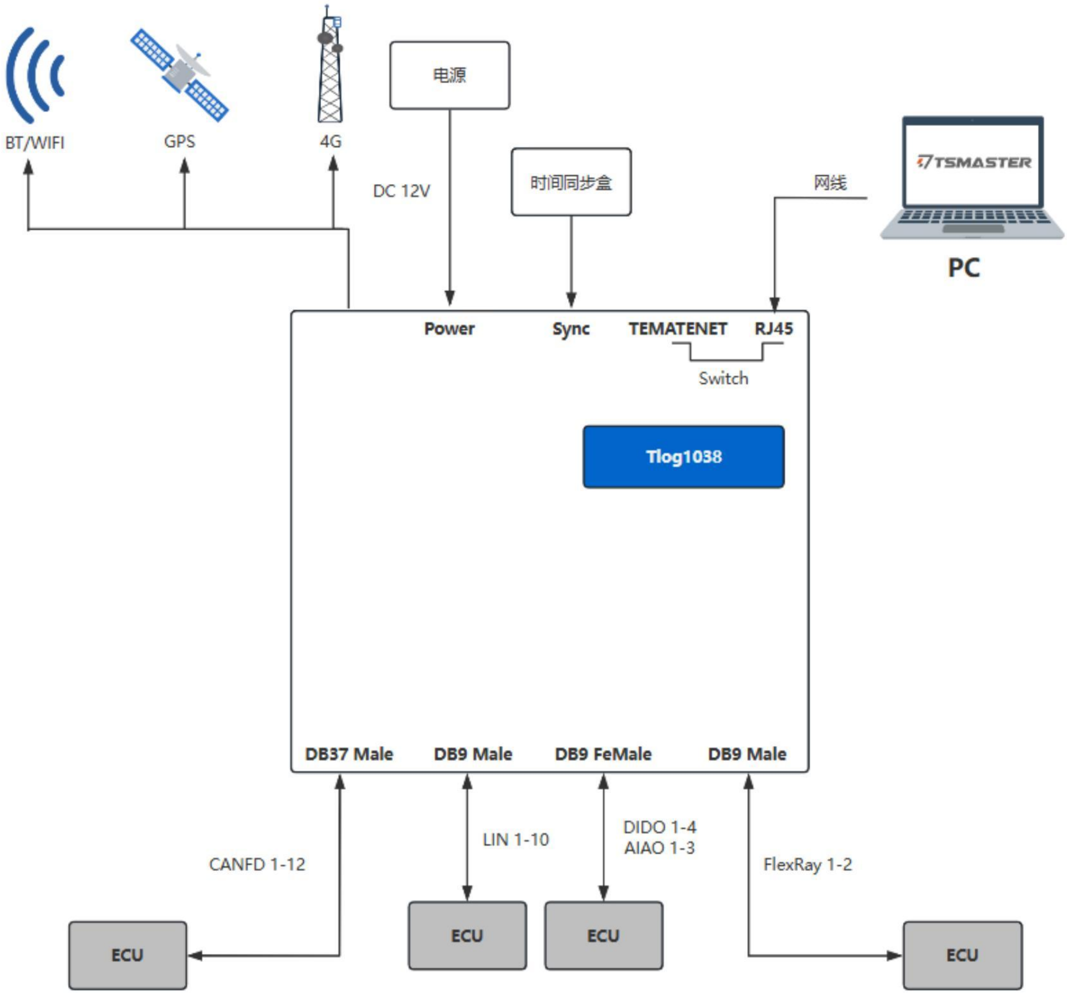
- **Cost Efficiency:** By integrating multiple bus technologies, the Tlog1038 reduces the need for separate communication modules in the bus network, thus lowering hardware costs and simplifying wiring complexity.

- **Highly Compatible Software:** The Tlog1038 is highly compatible with the TOSUN TSMaster software. When used together, it makes it easy to monitor, analyze, and simulate various bus data, as well as perform functions such as UDS diagnostics, ECU flashing, CCP/XCP calibration, etc.

What Can It Do?

- CAN/CAN FD bus data monitoring, collection, and analysis
- LIN bus data monitoring, collection, and analysis
- FlexRay data monitoring, collection, and analysis
- Ethernet switch functionality
- DIDO (Digital Input/Output),AIAO (Analog Input/Output)
- Bus data recording, storage, and export
- ECU flashing
- ECU-level and system-level automated testing
- ...

How to Use the Tlog1038 Device?


BT/WIFI
GPS
4G
电源
DC 12V
时间同步盒
网线
PC
Power
Sync
TEMATENET
RJ45
Switch
Tlog1038
DB37 Male
DB9 Male
DB9 FeMale
DB9 Male
CANFD 1-12
LIN 1-10
DIDO 1-4
AIAO 1-3
FlexRay 1-2
ECU
ECU
ECU
ECU

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1. About this User Manual

1.1 Warranty

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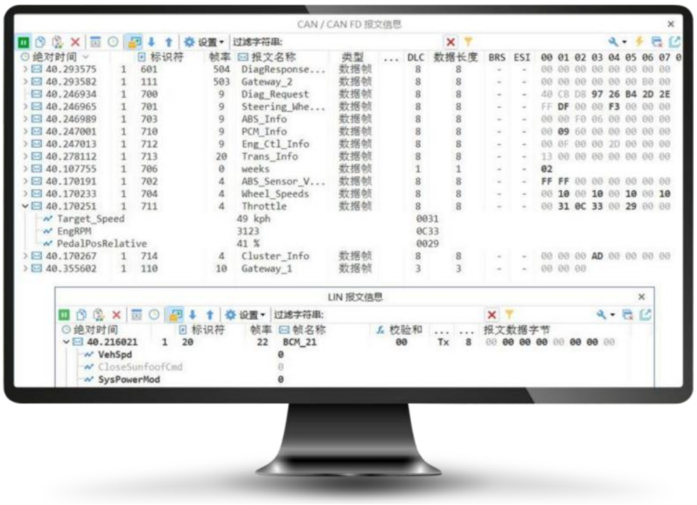
2. General Information

2.1 Bus Data Collection and Analysis



```
绝对时间            标识符    帧率  报文名称           类型    ...  DLC  数据长度  BRS  ESI  00 01 02 03 04 05 06 07 0
> 40.293575   1   601      504  DiagResponse...   数据帧        8     8       -    -   00 00 00 00 00 00 00 00
> 40.293582   1   111      503  Gateway_2         数据帧        8     8       -    -   00 00 00 00 00 00 B0 00
  40.246934   1   700        9  Diag_Request      数据帧        8     8       -    -   40 CB D8 97 26 B4 2D 2E
> 40.246965   1   701        9  Steering_Whe...   数据帧        8     8       -    -   FF DF 00 00 F3 00 00 00
> 40.246989   1   703        9  ABS_Info          数据帧        8     8       -    -   00 00 F0 06 00 00 00 00
> 40.247001   1   710        9  PCM_Info          数据帧        8     8       -    -   00 09 60 00 00 00 00 00
> 40.247013   1   712        9  Eng_Ctl_Info      数据帧        8     8       -    -   00 0F 00 00 2D 00 00 00
> 40.278112   1   713       20  Trans_Info        数据帧        8     8       -    -   13 00 00 00 00 00 00 00
> 40.107755   1   706        0  weeks             数据帧        1     1       -    -   02
> 40.170191   1   702        4  ABS_Sensor_V...   数据帧        8     8       -    -   FF FF 00 00 00 00 00 00
> 40.170233   1   704        4  Wheel_Speeds      数据帧        8     8       -    -   00 10 00 10 00 10 00 10
v 40.170251   1   711        4  Throttle          数据帧        8     8       -    -   00 31 0C 33 00 29 00 00
    Target_Speed                 49 kph                        0031
    EngRPM                       3123                          0C33
    PedalPosRelative             41 %                          0029
> 40.170267   1   714        4  Cluster_Info      数据帧        8     8       -    -   00 00 00 AD 00 00 00 00
> 40.355602   1   110       10  Gateway_1         数据帧        3     3       -    -   00 00 00
```

```
绝对时间          标识符   帧率  帧名称      校验和  ...  ...  报文数据字节
v 40.216021   1   20       22   BCM_21        00      Tx   8   00 00 00 00 00 00 00 00
    VehSpd                      0
    CloseSunfoofCmd             0
    SysPowerMod                 0
```

With the TSMaster software, functions such as message sending/monitoring/replay, bus statistics/logging, digital data/graphic form display and analysis, and so on can be achieved.

- Bus Statistics

Bus statistics include: bus load rate, peak load rate, data frame rate, data frame count, error frame rate, error frame count, controller status, and send error count.

- Database

Supports loading databases in formats such as DBC, LDF, XML, ARXML, and can display database structure views, signal communication matrix views, and message communication matrix views.

- Message Replay

Supports offline and online replay of recorded files in formats such as BLF and ASC.

- Message Transmission

Supports manual sending, hotkey sending, and periodic sending. It also supports signal generators and allows for the creation of customized messages and database-based messages.

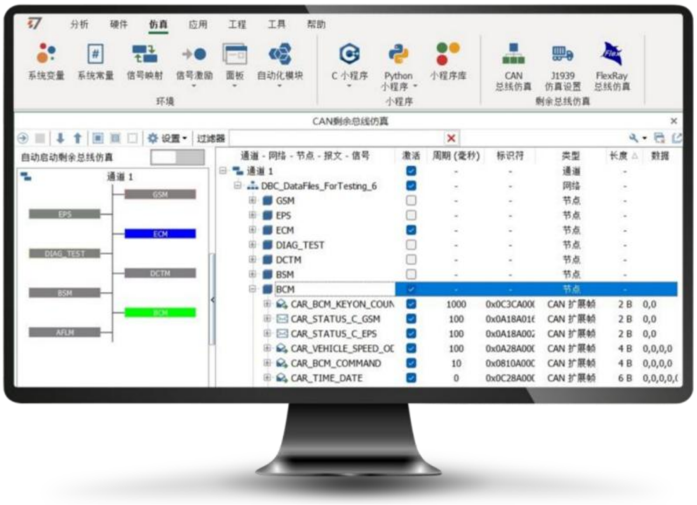
- Message Monitoring

Supports multiple display modes, DBC parsing to view signal values, channel filtering, and ID filtering.

- Graphical Value Display

The signal's Y-axis is flexible and configurable, supporting multi-axis mode and separated display mode, with the option to precisely display data points, which facilitates data analysis for users.

2.2 Bus Simulation


分析
硬件
仿真
应用
工程
工具
帮助
系统变量
系统常量
信号映射
信号激励
面板
自动化模块
环境
C 小程序
Python 小程序
小程序库
小程序
CAN 总线仿真
J1939 仿真设置
FlexRay 总线仿真
剩余总线仿真
CAN剩余总线仿真
设置
过滤器
自动启动剩余总线仿真
通道 1
GSM
EPS
ECM
DIAG_TEST
DCTM
BSM
BCM
AFLM

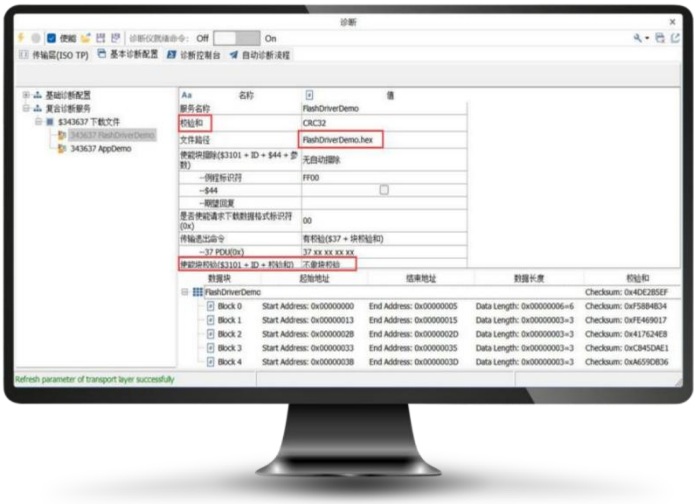
通道 - 网络 - 节点 - 报文 - 信号	激活	周期 (毫秒)	标识符	类型	长度	数据
通道 1	☑	-	-	通道	-	
DBC_DataFiles_ForTesting_6	☑	-	-	网络	-	
GSM	☐	-	-	节点	-	
EPS	☐	-	-	节点	-	
ECM	☑	-	-	节点	-	
DIAG_TEST	☐	-	-	节点	-	
DCTM	☐	-	-	节点	-	
BSM	☐	-	-	节点	-	
BCM	☑	-	-	节点	-	
CAR_BCM_KEYON_COUN	☑	1000	0x0C3CA00(	CAN 扩展帧	2 B	0,0
CAR_STATUS_C_GSM	☑	100	0x0A18A01(	CAN 扩展帧	2 B	0,0
CAR_STATUS_C_EPS	☑	100	0x0A18A00:	CAN 扩展帧	2 B	0,0
CAR_VEHICLE_SPEED_OC	☑	100	0x0A28A00(	CAN 扩展帧	4 B	0,0,0,0
CAR_BCM_COMMAND	☑	10	0x0810A00C	CAN 扩展帧	4 B	0,0,0,0
CAR_TIME_DATE	☑	0	0x0C28A00(	CAN 扩展帧	6 B	0,0,0,0,(

With the TSMaster software, it is possible to achieve multiple buses simulation such as CAN, LIN, and FlexRay. ECU code simulation can also be achieved through soft HIL. The Panel feature built into TSMaster allows bus signals association in the panel to achieve graphical display.

- Supports CAN bus simulation
- Supports LIN bus simulation

- Supports J1939 bus simulation
- Supports FlexRay bus simulation

2.3 Diagnostic



名称	值
服务名称	FlashDriverDemo
校验和	CRC32
文件路径	FlashDriverDemo.hex
使能块擦除($3101 + ID + $44 + 参数)	无自动擦除
—例程标识符	FF00
—$44	☐
—期望回复	
是否使能请求下载数据格式标识符(0x)	00
传输退出命令	有校验($37 + 块校验和)
—37 PDU(0x)	37 xx xx xx xx
使能块校验($3101 + ID + 校验和)	不做块校验

数据块	起始地址	结束地址	数据长度	校验和
FlashDriverDemo				Checksum: 0x4DE2B5EF
Block 0	Start Address: 0x00000000	End Address: 0x00000005	Data Length: 0x00000006=6	Checksum: 0xF5B84B34
Block 1	Start Address: 0x00000013	End Address: 0x00000015	Data Length: 0x00000003=3	Checksum: 0xFE469017
Block 2	Start Address: 0x0000002B	End Address: 0x0000002D	Data Length: 0x00000003=3	Checksum: 0x417624E8
Block 3	Start Address: 0x00000033	End Address: 0x00000035	Data Length: 0x00000003=3	Checksum: 0xC845DAE1
Block 4	Start Address: 0x0000003B	End Address: 0x0000003D	Data Length: 0x00000003=3	Checksum: 0xA659D836

Refresh parameter of transport layer successfully

Diagnostic is an important function of automotive ECUs. When the vehicle is in operation, sensors distributed throughout the vehicle can track various potential faults that may occur at any time in the vehicle's electrical or electronic systems. The TOSUN toolchain assists users in conveniently developing and verifying fault diagnosis-related functions, and performing flashing based on the UDS protocol.

- Diagnostic Parameter Configuration

The configuration includes timeout parameter configuration, TesterPresent configuration, and SeedKey DLL configuration. With a built-in SeedKey algorithm editor, users can implement SeedKey algorithms directly without the need for external development tools.

- Basic Diagnostic Configuration

Users can edit the diagnostic database by themselves, including: the settings for various services, the parameters related to requests and responses and so on.

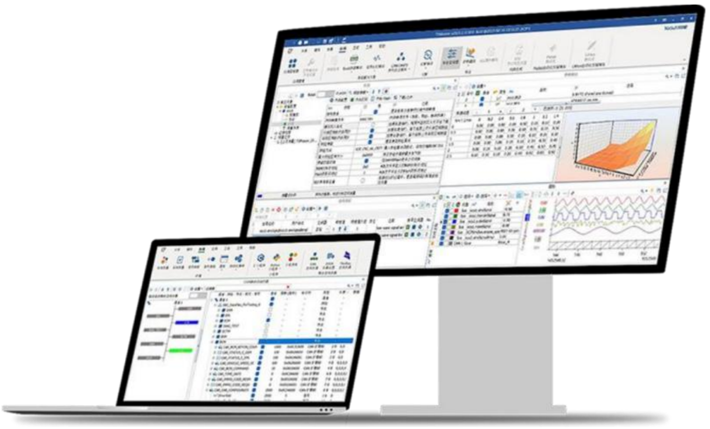
- Diagnostic Console

Execute the configured diagnostic services, and user can set up automatic comparison to check ifthe response results are correct.

- Automated Diagnostic Process

Customize diagnostic processes and diagnostic services to facilitate the creation of various Flash Bootloader flashing processes.

2.4 Calibration

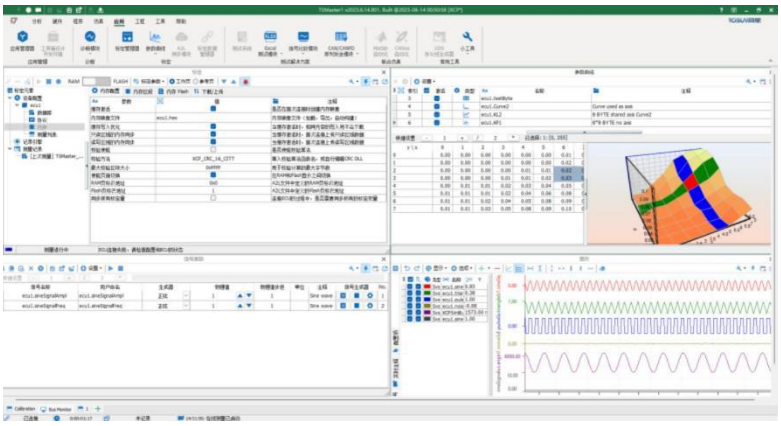


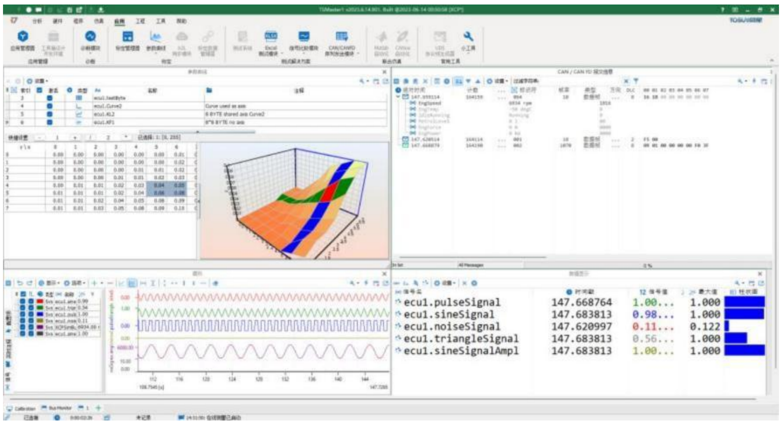
CCP: It is a communication protocol based on CAN (Controller Area Network), mainly used for the calibration and parameter settings of ECUs. It provides the ability to read and write ECU, allowing engineers to read the current parameter values, set new parameter values, and perform real-time testing and adjustments.

XCP: It is a universal measurement and calibration protocol applicable to various communication interfaces such as CAN and Ethernet. It offers higher transmission rates and more robust capabilities, allowing engineers to quickly read and write large volumes of data in a short period and perform advanced diagnostics and debugging operations.

Automotive calibration is a technique used in the development and diagnostics of automotive ECUs, which involves adjusting the parameters and calibration values of the ECU to optimize the vehicle's performance and functionality. CCP and XCP are common communication protocols used for communication with the ECU, and reading and modifying parameters. These technologies and tools enable vehicle manufacturers and engineers to better perform vehicle tuning and calibration work.

- Supports importing A2L files
- Supports DAQ/Polling measurement
- Memory settings, capable of loading images and configuring verification methods, etc.
- Supports characteristic parameter curves, MAP diagrams, etc.
- Supports MDF/MF4 file storage and playback
- Supports graphical display of variable curves
- Supports calibration parameter management in par or hex format
- Built-in message information analysis, diagnostics, calibration, and system variable data are integrated into one, which facilitates a streamlined process of data analysis
- Automated calibration functions can also be achieved by calling system variables
- Supports single and multiple file downloads





ecu1.pulseSignal	147.668764	1.00...	1.000
ecu1.sineSignal	147.683813	0.98...	1.000
ecu1.noiseSignal	147.620997	0.11...	0.122
ecu1.triangleSignal	147.683813	0.56...	1.000
ecu1.sineSignalAmpl	147.683813	1.00...	1.000

3. Tlog1038

3.1 Overview

The Tlog1038 is a multi-bus simulation testing and logger tool launched by TOSUN, which supports CAN/CAN FD, LIN, and FlexRay buses. It features 12 channels for CAN/CAN FD, with adjustable baud rates from 125 Kbps to 1 Mbps for CAN protocol and up to 8 Mbps for CAN FD protocol. There are 10 LIN channels, with baud rates supporting from 0 to 20 Kbps, and the master/slave mode can be software-configured. Additionally, the device supports 2 FlexRay channels with dual-line redundancy for data transmission, offering low latency and flexible bandwidth allocation mechanisms. It supports various data types and rich topological structures. It also includes multiple digital and analog I/O interfaces for convenient signal measurement and system integration.

The Tlog1038 connects to a PC via Ethernet, ensuring high data transfer rates. This prevents communication bottlenecks with the PC when processing large amounts of bus data. It also supports wireless access through 4G, Bluetooth, Wi-Fi, and other methods.

With the powerful TSMaster software, it supports loading DBC, LDF, XML, ARXML, etc. database files, making it very convenient to monitor, analyze, and simulate various types of bus data, and it also supports functions such as UDS diagnostics, ECU flashing, CCP/XCP calibration, etc.

TOSUN
Tlog 1038
ETH 1
ETH 2
ETH 3
Sync
DC 9-28V
CANFD 1-12
LIN 1-5
LIN 6-10
I/O
FlexRay 1/2

3.2 Features

- ✓ us (microsecond) level hardware message timestamps to meet advanced requirements
- ✓ Driverless design for Windows system
- ✓ 12 CAN/CAN FD channels, 10 LIN channels, 2 FlexRay channels, and 4 Ethernet channels (switch functionality)
- ✓ Supports DIDO *4 and AIAO *3
- ✓ CAN channel baud rate adjustable from 125Kbps-1Mbps, and CAN FD supports a maximum

of 8Mbps

- ✓ LIN bus master/slave mode configurable via software
- ✓ Built-in 120-ohm terminal resistor for CAN, with the resistance value configurable through software
- ✓ CAN supports Self-ACK self-acknowledgment configuration
- ✓ Built-in 100-ohm terminal resistor for FlexRay, with the resistance value configurable through software
- ✓ Auxiliary communication controller, eliminating the need to add extra nodes during cold starts
- ✓ Supports blf and asc format data recording and offline/online playback
- ✓ Supports hardware time synchronization across multiple device
- ✓ Supports GPS function
- ✓ Built-in 256G eMMC storage
- ✓ Provides API-based sample projects for easy secondary development

3.3 Technical Data

Channel	12* CAN FD 10* LIN 2* FlexRay 4* DIDO 3* AIAO 4* ETH (RJ45 + 3* TEMATENET for switch functionality)
PC Interface	RJ45 Ethernet
CAN Interface	DB37 Male
LIN Interface	DB9 Male
FlexRay Interface	DB9 Male
I/O Interface	DB9 Female
Driver	Driverless design for Windows system
Cache	Hardware cache to ensure no frame loss
CAN	Supports CAN 2.0 A and B protocols, compliant with the ISO 11898-1 standard, with baud rates from 125Kbps to 1Mbps
CAN FD	Supports CAN FD that complies with both ISO and non-ISO standards, with baud rates from 125Kbps to 8Mbps
LIN	Supports LIN 1.3 and LIN 2.x, with baud rates from 0 to 20Kbps

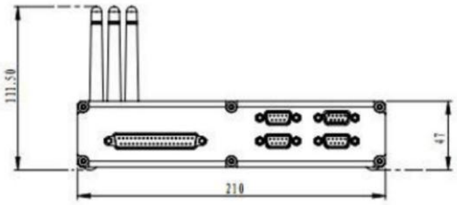
FlexRay	FlexRay channel (Aand B)
Cold Start	Supported
Timestamp Accuracy	1 us, hardware message timestamp, can meet advanced requirements
CAN Terminal Resistor	Built-in 120-ohm terminal resistor, with the resistance value configurable through software
FlexRay Terminal Resistor	Built-in 100-ohm terminal resistor, with the resistance value configurable through software
Galvanic Isolation	CAN/FlexRay channel DC2500V isolation
DIDO	DI: 0-40V Vref: 0-3.3V, Threshold range: VAH=(330+499*Vref)/1098; Val=0.455*Vref DO: Low level 0V, high level 5V/12V (use with load unsupported)
AIAO	AI: 0-39VAO: 0-30V
Power Supply	DC power supply
Power Consumption	10W
Case Material	Metal
Dimension	215*210*47mm
Weight	1500g
Operating Temperature	-40℃~80℃
Operating Humidity	10% ～ 90% (non-condensing)
Operating Environment	Keep away from corrosive gases

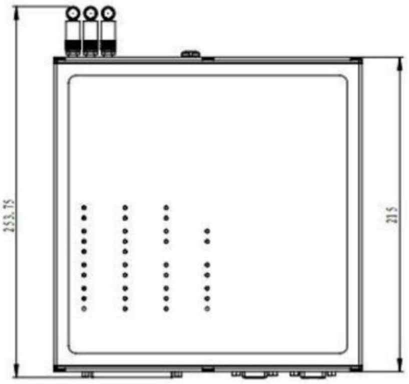
3.4 Electrical Data

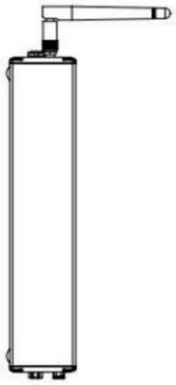
Parameter		Test Condition	Minimum Value	Typical Value	Maximum Value	Unit
Operating Voltage	DC power supply	12-channel CAN transmission, 10-channel LIN transmission	9	12	28	V
Operating Current	DC power supply	12-channel CAN transmission, 10-channel LIN transmission	--	0.525	--	A
Power Consumption	DC power supply	12-channel CAN transmission,	--	6.3	--	W

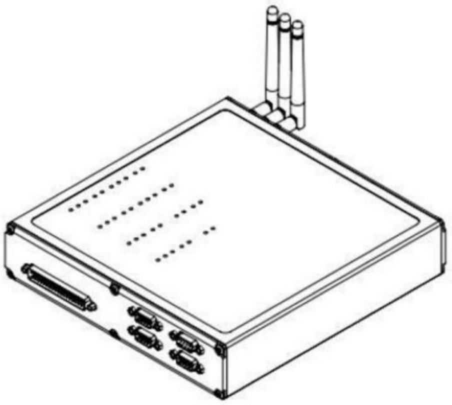
		10-channel LIN transmission				
CAN Interface	Bus pin voltage resistance	CANH、CAHL	-58	--	58	V
	Terminal resistor	Terminal resistor enabled	--	120	--	Ω
	Isolation withstand voltage	Leakage current less than 1mA	2500	--	--	VDC
LIN Interface	Bus pin voltage resistance	LIN1，LIN2	-40	--	40	V
FlexRay Interface	Bus pin voltage resistance	FlexRay_BM、FlexRay_BP	-60	--	60	V
	Terminal resistor	Terminal resistor enabled	--	100	--	Ω
	Isolation withstand voltage	Leakage current less than 1mA	2500	--	--	VDC
EMC Compatibility	EFT	IEC61000-4-4 standard	2	--	--	kV

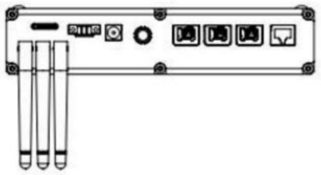
3.5 Mechanical Data


111.50
47
210



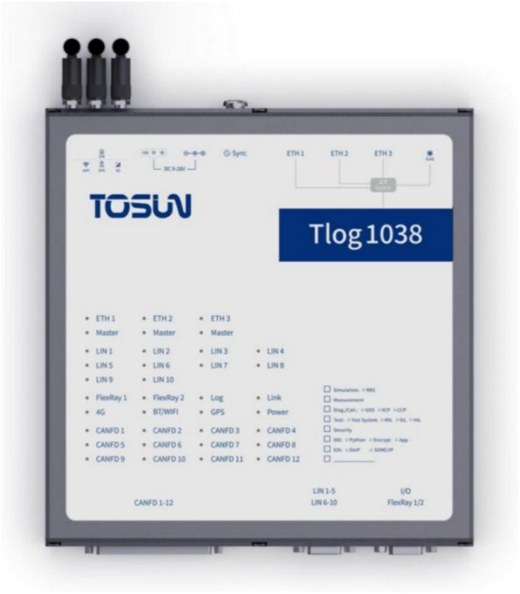






3.6 Scope of Delivery

✓ Main device: Tlog1038


TOSUN
Tlog 1038
Sync
ETH 1
ETH 2
ETH 3
ETH 1
Master
ETH 2
Master
ETH 3
Master
LIN 1
LIN 2
LIN 3
LIN 4
LIN 5
LIN 6
LIN 7
LIN 8
LIN 9
LIN 10
FlexRay 1
FlexRay 2
Log
Link
4G
BT/WIFI
GPS
Power
CANFD 1
CANFD 2
CANFD 3
CANFD 4
CANFD 5
CANFD 6
CANFD 7
CANFD 8
CANFD 9
CANFD 10
CANFD 11
CANFD 12
CANFD 1-12
LIN 1-5
LIN 6-10
I/O
FlexRay 1/2

✓ 12V2Apower adapter

✓ Cat 6 Gigabit Ethernet cable

✓ DB37 female to 12-way DB9 signal cable

- ✓ DB9 female to two male signal cable (FlexRay)

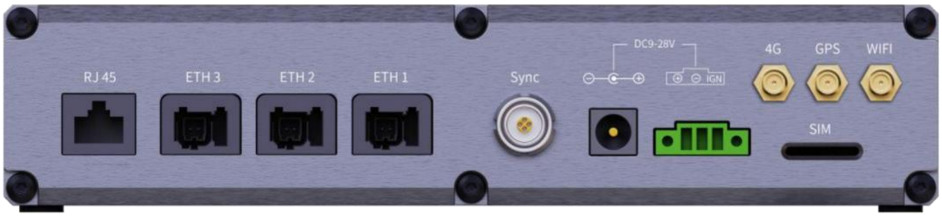
- ✓ DB9 to eight banana LIN cable *2

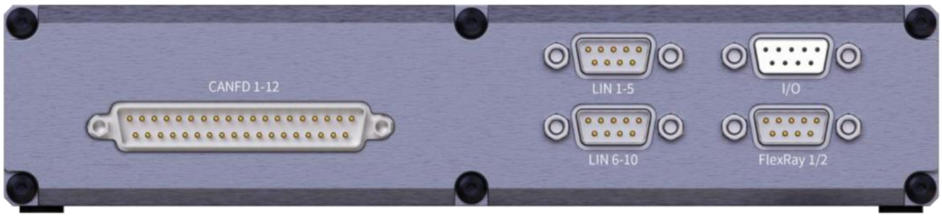
- ✓ DB9 mail

- ✓ GPS antenna

- ✓ SMA antenna

3.7 Hardware Interface


RJ 45
ETH 3
ETH 2
ETH 1
Sync
DC9-28V
IGN
4G
GPS
WIFI
SIM


CANFD 1-12
LIN 1-5
I/O
LIN 6-10
FlexRay 1/2

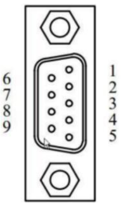
- 1000Base-T interface (RJ45)
- TEMATENET Ethernet interface
- Time synchronization interface
- Power interface (round adapter port)
- Power interface (phoenix terminal)
- SMA antenna interface (4G)
- GPS antenna interface
- SMA antenna interface (WIFI)
- DB37 Male (CAN/CAN FD)

PIN Number	Definition	PIN Number	Definition

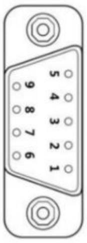
PIN20	CAN FD1_HIGH	PIN1	CAN FD1_LOW
PIN21	CAN FD_SHIELD	PIN2	CAN FD_GND
PIN22	CAN FD2_HIGH	PIN3	CAN FD2_LOW
PIN23	CAN FD3_HIGH	PIN4	CAN FD3_LOW
PIN24	CAN FD_SHIELD	PIN5	CAN FD_GND
PIN25	CAN FD4_HIGH	PIN6	CAN FD4_LOW
PIN26	CAN FD5_HIGH	PIN7	CAN FD5_LOW
PIN27	CAN FD_SHIELD	PIN8	CAN FD_GND
PIN28	CAN FD6_HIGH	PIN9	CAN FD6_LOW
PIN29	CAN FD7_HIGH	PIN10	CAN FD7_LOW
PIN30	CAN FD_SHIELD	PIN11	CAN FD_GND
PIN31	CAN FD8_HIGH	PIN12	CAN FD8_LOW
PIN32	CAN FD9_HIGH	PIN13	CAN FD9_LOW
PIN33	CAN FD_SHIELD	PIN14	CAN FD_GND
PIN34	CAN FD10_HIGH	PIN15	CAN FD10_LOW
PIN35	CAN FD11_HIGH	PIN16	CAN FD11_LOW
PIN36	CAN FD_SHIELD	PIN17	CAN FD_GND

PIN37	CAN FD12_HIGH	PIN18	CAN FD12_LOW
		PIN19	CAN FD_GND

- DB9 Male interface (LIN):

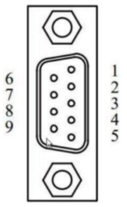
DB9 Pin	**Channel**	**PIN Number**	**Definition**	**Channel**	**PIN Number**	**Definition**
	LIN 1-5	PIN1	LIN1	LIN 6-10	PIN1	LIN6
		PIN2	V_Bat		PIN2	V_Bat
		PIN3	LIN2		PIN3	LIN7
		PIN4	GND		PIN4	GND
		PIN5	LIN3		PIN5	LIN8
		PIN6	LIN4		PIN6	LIN9
		PIN7	LIN5		PIN7	LIN10
		PIN8	GND		PIN8	GND

- DB9 Female (I/O):

DB9 Pin	**Channel**	**PIN Number**	**Definition**
	I/O	PIN1	DIDO1
		PIN2	DIDO3
		PIN3	DGND
		PIN4	AIAO1
		PIN5	AIAO3
		PIN6	DIDO2
		PIN7	DIDO4
		PIN8	AGND
		PIN9	AIAO2

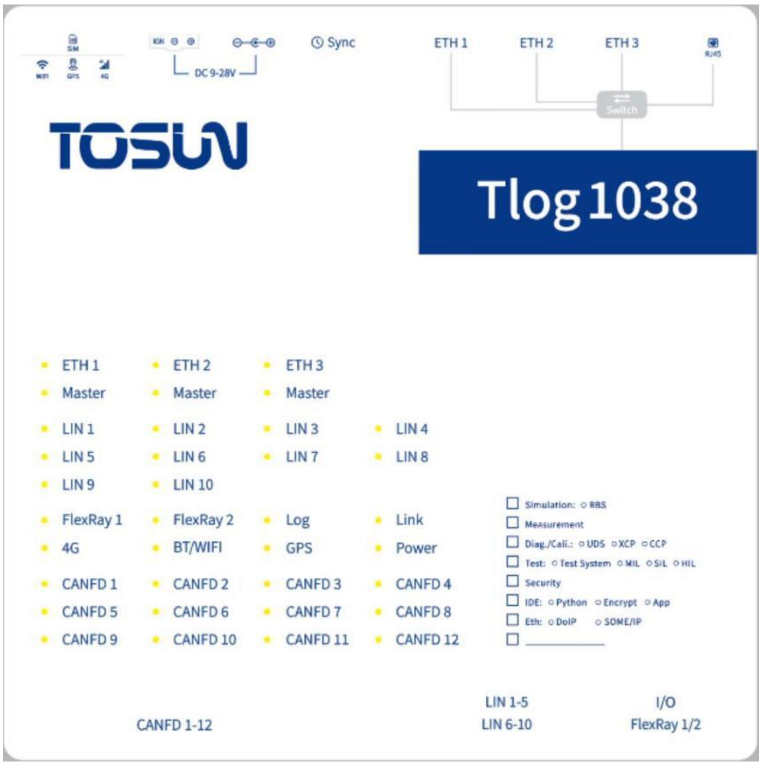
- DB9 Male interface (FlexRay) :

DB9 Pin	**Channel**	**PIN Number**	**Definition**
		PIN1	Flexray_BM2

	Flexray 1/2	PIN2	Flexray_BM1
		PIN3	Flexray_GND
		PIN4	Flexray_BM3
		PIN5	Flexray_BM4
		PIN6	Flexray_BP2
		PIN7	Flexray_BP1
		PIN8	Flexray_BP3
		PIN9	Flexray_BP4

3.8 LED

Diagram of LED indicator:


SIM
WIFI
GPS
4G
IGN
DC 9-28V
Sync
ETH 1
ETH 2
ETH 3
RJ45
Switch
TOSUN
Tlog 1038
ETH 1
ETH 2
ETH 3
Master
Master
Master
LIN 1
LIN 2
LIN 3
LIN 4
LIN 5
LIN 6
LIN 7
LIN 8
LIN 9
LIN 10
FlexRay 1
FlexRay 2
Log
Link
4G
BT/WIFI
GPS
Power
CANFD 1
CANFD 2
CANFD 3
CANFD 4
CANFD 5
CANFD 6
CANFD 7
CANFD 8
CANFD 9
CANFD 10
CANFD 11
CANFD 12
☐ Simulation: ○ RBS
☐ Measurement
☐ Diag./Cali.: ○ UDS ○ XCP ○ CCP
☐ Test: ○ Test System ○ MIL ○ SIL ○ HIL
☐ Security
☐ IDE: ○ Python ○ Encrypt ○ App
☐ Eth: ○ DoIP ○ SOME/IP
☐ ____________
CANFD 1-12
LIN 1-5
LIN 6-10
I/O
FlexRay 1/2

Description of indicator:

Indicator	**Definition**
ETH 1-3	Indicator for Ethernet channel
Master	Indicator for master/slave mode

LIN 1-10	Indicator for LIN channel
FlexRay 1-2	Indicator for FlexRay channel
CAN FD 1-12	Indicator for CAN FD channel
Log	Indicator for bus logging
Link	Indicator for connection
4G	Indicator for 4G
BT/WIFI	Indicator for Bluetooth/WIFI
GPS	Indicator for GPS
Power	Indicator for power

Description of LED color/status:

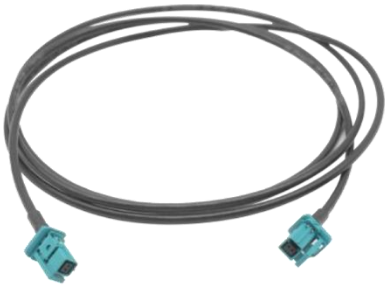
Color/Status	**Description**
ETH Yellow Blinking	ETH operates in 100Mbps mode
ETH Green Blinking	ETH operates in 1Gbps mode
Master Green Stays On	ETH is the master node
LIN Green Blinking	LIN channel data frame is sent or received correctly
LIN Red Blinking	LIN channel sends or receives error frames, indicating a configuration, protocol, or wiring error
FlexRay Green Blinking	FlexRay channel data frame is sent or received correctly
FlexRay Red Blinking	FlexRay channel sends or receives error frames, indicating a configuration, protocol, or wiring error
CAN FD Green Blinking	CAN FD channel data frame is sent or received correctly
CAN FD Red Blinking	CAN FD channel sends or receives error frames, indicating a configuration, protocol, or wiring error
Log Green Stays On	Device entered logger mode
Log Green Blinking	Device is logging data
Log Green Stays On	Storage space full
Link Green Stays On	ETH device access is normal
4G Green Blinking (Slow)	4G module started normally
4G Green Blinking (Fast)	4G module transmitting data
BT/WIFI Green Blinking	BT/WIFI module started normally

GPS Green	GPS signal is normal
Power	Device is powered on normally

3.9 Optional Accessories

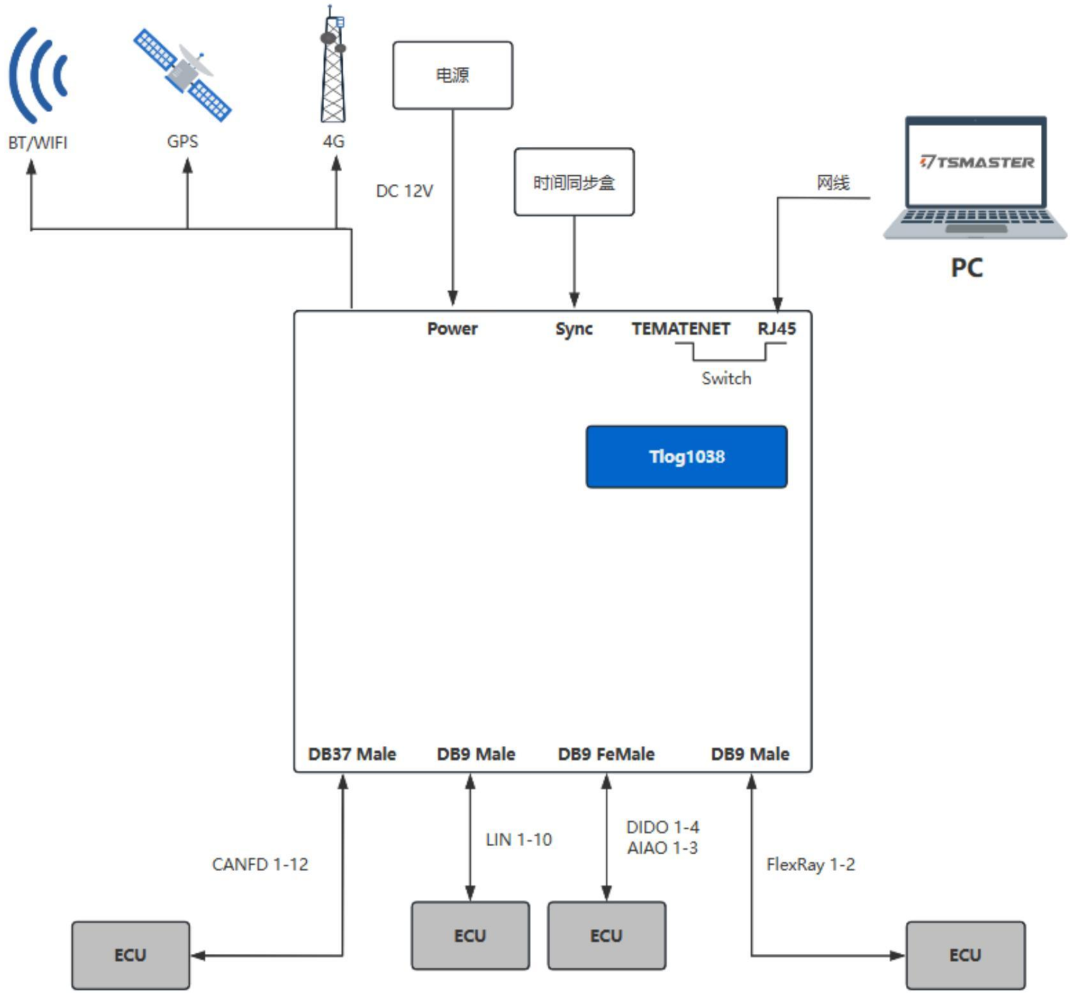
1. Mounting bracket

2. TEMATENET ethernet cable



4. Quick Start

4.1 System Connection


BT/WIFI
GPS
4G
电源
DC 12V
时间同步盒
网线
TSMASTER
PC
Power
Sync
TEMATENET
RJ45
Switch
Tlog1038
DB37 Male
DB9 Male
DB9 FeMale
DB9 Male
CANFD 1-12
LIN 1-10
DIDO 1-4
AIAO 1-3
FlexRay 1-2
ECU
ECU
ECU
ECU

Power the Tlog1038 via the power adapter interface or Phoenix terminal interface with DC 12V, and connect the device's RJ45 Ethernet port to the PC. Based on users' requirements, connect the corresponding CAN/CAN FD, LIN, FlexRay, DIDO, and AIAO interfaces to the ECU. The Tlog1038 can then be controlled via the TSMaster software on the PC to communicate with the ECU.

4.2 Driver Installation

Driverless design for Windows, offering excellent system compatibility.

4.3 Software Overview

TSMaster is a powerful and comprehensive tool that can connect, configure, and control all TOSUN hardware tools and devices, enabling functions such as automotive bus embedded code generation, monitoring, simulation, development, UDS diagnostics, CCP/XCP calibration, ECU flashing, I/O control, test measurement, and so on.

TSMaster supports Matlab Simulink co-simulation and CarSim dynamic model ECU algorithm simulation testing (soft real-time HIL). It provides users with a series of convenient functions and editors, allowing them to directly execute ECU code within TSMaster and supports C script and Python script editing. At the same time, TSMaster also offers a mini-program function, enabling users to customize the simulation test panel, test process, test logic, and even the entire test system, and automatically generate reports. The code written by users based on TSMaster is hardware-independent, and can be easily shared, referenced, and used on different hardware platforms.

TSMaster supports multiple commonly used bus tool brands, including Vector, Kvaser, PEAK, IXXAT, as well as mainstream instruments in the market (such as oscilloscopes, waveform generators, and digital multimeters) and boards (such as AI, DI, DO, etc.). Its design concept is to perfectly integrate with the test system to achieve joint simulation and testing of multiple hardware and multiple channels. This enables TSMaster to meet the PV/DV test verification needs for various automotive electronic components and assemblies, as well as the inspection requirements for the production line.

4.4 Software Installation

TSMaster software download link:

https://www.tosunai.com/downloads/

If the link is not accessible, you can contact the corresponding sales personnel or visit the official TOSUN website to obtain the software. Meanwhile, you can scan the QR code to follow the TOSUN official account to get the download link.

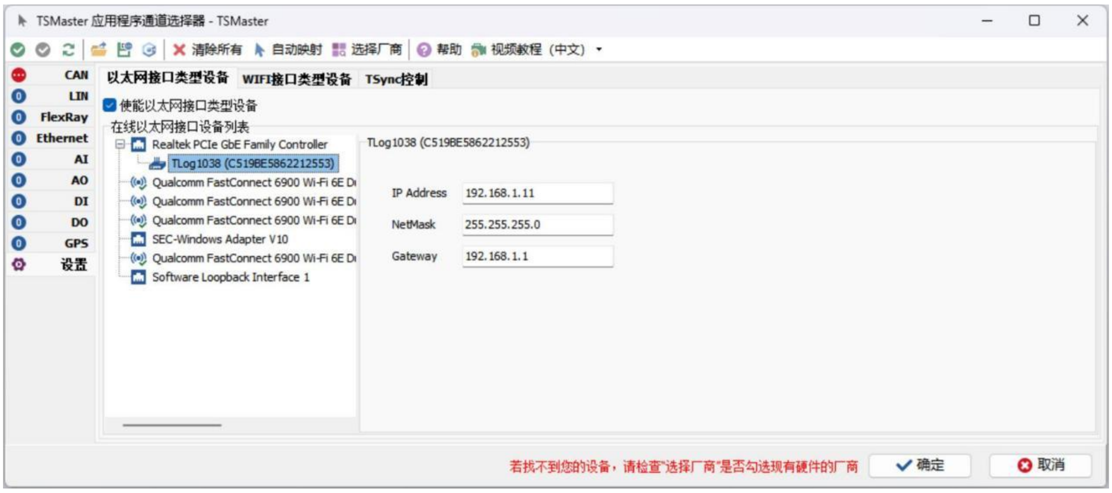
After the installation, you can see the following software on the PC.

4.5 Use TSMaster with the Hardware

Set the PC's Ethernet IP address to 192.168.1.x (to ensure it is on the same subnet as the Tlog1038).

In TSMaster, click Hardware->Channel Selection, in the channel selection GUI, click

Settings on the left sidebar, and check “Enable Ethernet Interface Device”, then the Tlog1038 device will be shown.


TSMaster 应用程序通道选择器 - TSMaster
清除所有
自动映射
选择厂商
帮助
视频教程 (中文)
CAN
LIN
FlexRay
Ethernet
AI
AO
DI
DO
GPS
设置
以太网接口类型设备
WIFI接口类型设备
TSync控制
确定
取消

☑ 使能以太网接口类型设备

在线以太网接口设备列表

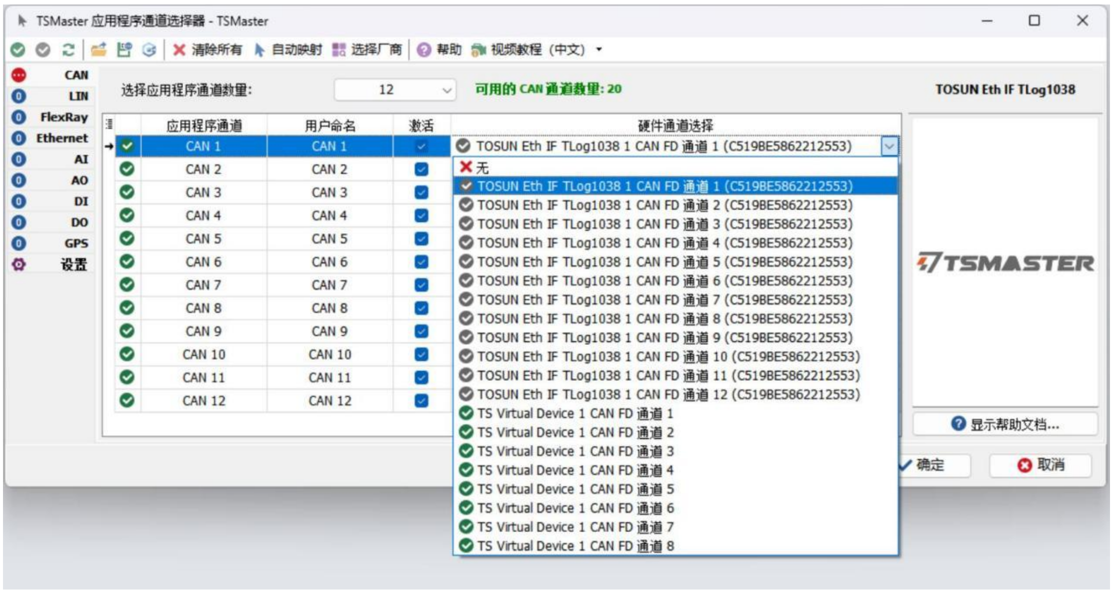
- Realtek PCIe GbE Family Controller
  - TLog1038 (C519BE5862212553)
- Qualcomm FastConnect 6900 Wi-Fi 6E D
- Qualcomm FastConnect 6900 Wi-Fi 6E D
- Qualcomm FastConnect 6900 Wi-Fi 6E D
- SEC-Windows Adapter V10
- Qualcomm FastConnect 6900 Wi-Fi 6E D
- Software Loopback Interface 1

TLog1038 (C519BE5862212553)

IP Address: 192.168.1.11
NetMask: 255.255.255.0
Gateway: 192.168.1.1

若找不到您的设备，请检查"选择厂商"是否勾选现有硬件的厂商

In the "Channel Selection" interface, select the type of bus technology in the left sidebar and configure the application channel count.


TSMaster 应用程序通道选择器 - TSMaster
清除所有
自动映射
选择厂商
帮助
视频教程 (中文)
CAN
LIN
FlexRay
Ethernet
AI
AO
DI
DO
GPS
设置
TOSUN Eth IF TLog1038
TSMASTER
显示帮助文档...
确定
取消

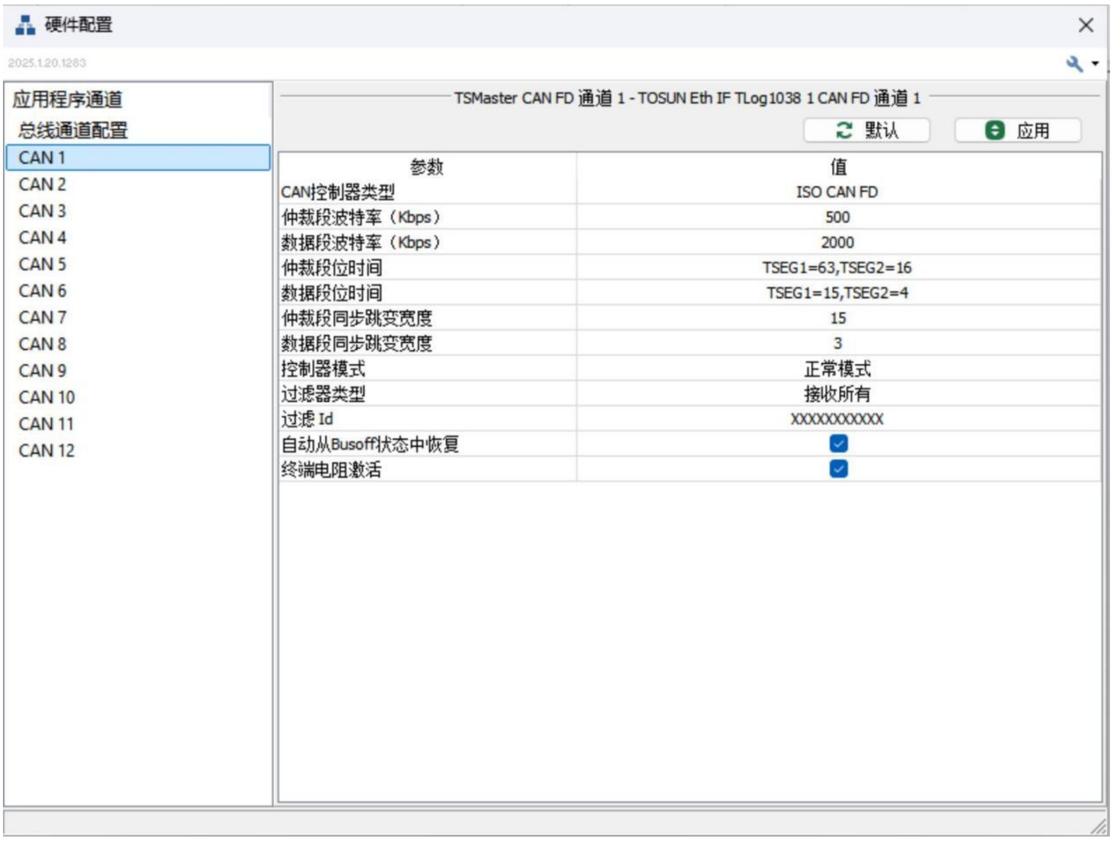
选择应用程序通道数量: 12

可用的 CAN 通道数量: 20

应用程序通道	用户命名	激活	硬件通道选择
CAN 1	CAN 1	☑	TOSUN Eth IF TLog1038 1 CAN FD 通道 1 (C519BE5862212553)
CAN 2	CAN 2	☑	
CAN 3	CAN 3	☑	
CAN 4	CAN 4	☑	
CAN 5	CAN 5	☑	
CAN 6	CAN 6	☑	
CAN 7	CAN 7	☑	
CAN 8	CAN 8	☑	
CAN 9	CAN 9	☑	
CAN 10	CAN 10	☑	
CAN 11	CAN 11	☑	
CAN 12	CAN 12	☑	

无
TOSUN Eth IF TLog1038 1 CAN FD 通道 1 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 2 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 3 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 4 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 5 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 6 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 7 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 8 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 9 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 10 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 11 (C519BE5862212553)
TOSUN Eth IF TLog1038 1 CAN FD 通道 12 (C519BE5862212553)
TS Virtual Device 1 CAN FD 通道 1
TS Virtual Device 1 CAN FD 通道 2
TS Virtual Device 1 CAN FD 通道 3
TS Virtual Device 1 CAN FD 通道 4
TS Virtual Device 1 CAN FD 通道 5
TS Virtual Device 1 CAN FD 通道 6
TS Virtual Device 1 CAN FD 通道 7
TS Virtual Device 1 CAN FD 通道 8

In Network Hardware, a series of controller parameters can be configured, such as protocol, baud rate, controller mode, and whether to enable the terminal resistor.



TSMaster CAN FD 通道 1 - TOSUN Eth IF TLog1038 1 CAN FD 通道 1

参数	值
CAN控制器类型	ISO CAN FD
仲裁段波特率（Kbps）	500
数据段波特率（Kbps）	2000
仲裁段位时间	TSEG1=63,TSEG2=16
数据段位时间	TSEG1=15,TSEG2=4
仲裁段同步跳变宽度	15
数据段同步跳变宽度	3
控制器模式	正常模式
过滤器类型	接收所有
过滤 Id	XXXXXXXXXXX
自动从Busoff状态中恢复	☑
终端电阻激活	☑

After the configuration, click Analysis->Start and connect the hardware to efficiently carry out works such as bus development, testing, ECU production line, etc. with the powerful TSMaster software. For more detailed instructions on using the TSMaster software, please refer to the TSMaster software manual and the quick start guide.

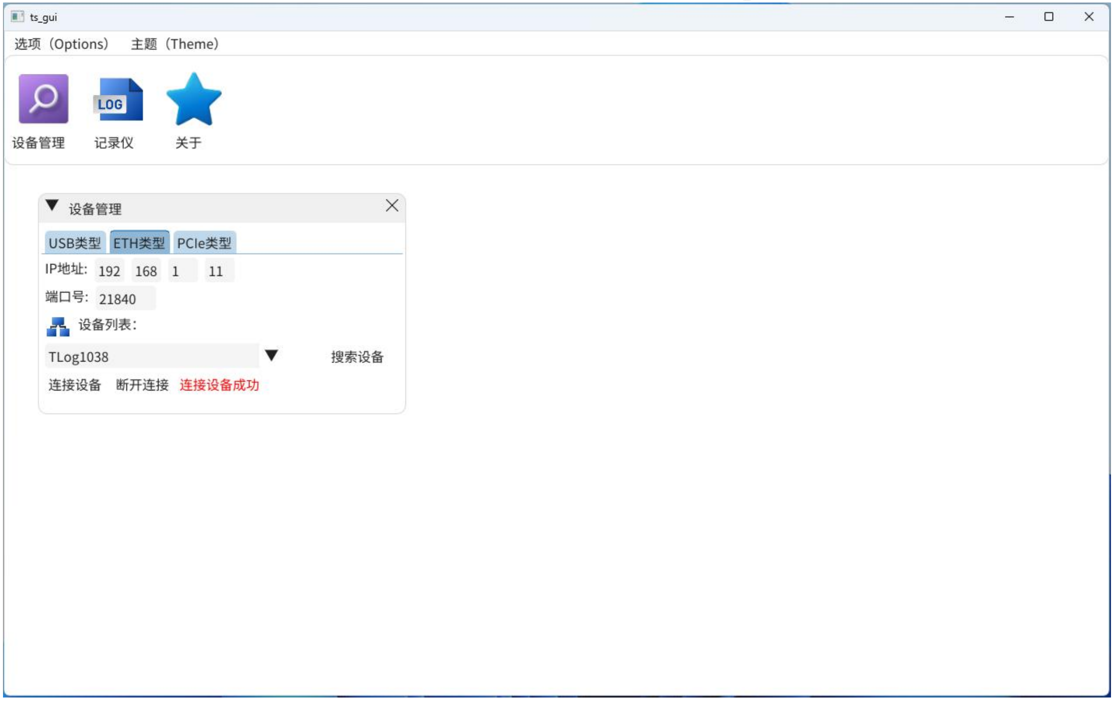
4.6 Logger Usage Instructions

When Tlog1038 device is powered on, it defaults to logger mode. In this mode, connect the CAN, LIN, and FlexRay channels to the ECU to perform message logging (for the first power-on, use TSMaster to configure controller parameters, such as communication baud rate).

The logger module comes with dedicated software that supports the following functions: enabling/disabling the logger, offline playback, BLF file export, GPS configuration, and RTC time calibration. The usage instructions are as follows:

(1) Connecting to the device

Power on the Tlog1038 and connect it to the PC via cables. Set the PC’s Ethernet IP address to 192.168.1.x (ensuring it is on the same network segment as the Tlog1038). Open the “Device Management” window, select ETH type, and enter the Tlog1038’s IP address (default: 192.168.1.11:21840). Click “Search Device”, and after the Tlog1038 is detected, click “Connect Device”. Wait for the prompt confirming a successful connection.


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
设备管理
USB类型
ETH类型
PCIe类型
设备列表：
搜索设备
连接设备
断开连接

IP地址：192 168 1 11

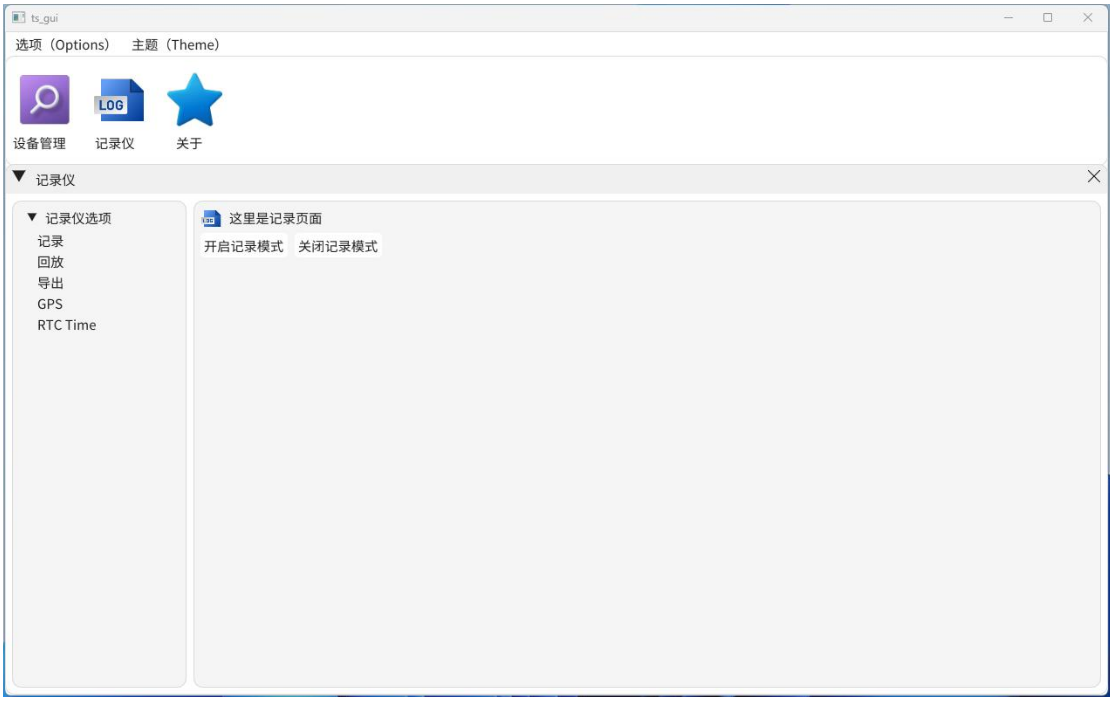
端口号：21840

TLog1038

连接设备成功

(2) Enabling/disabling the logger

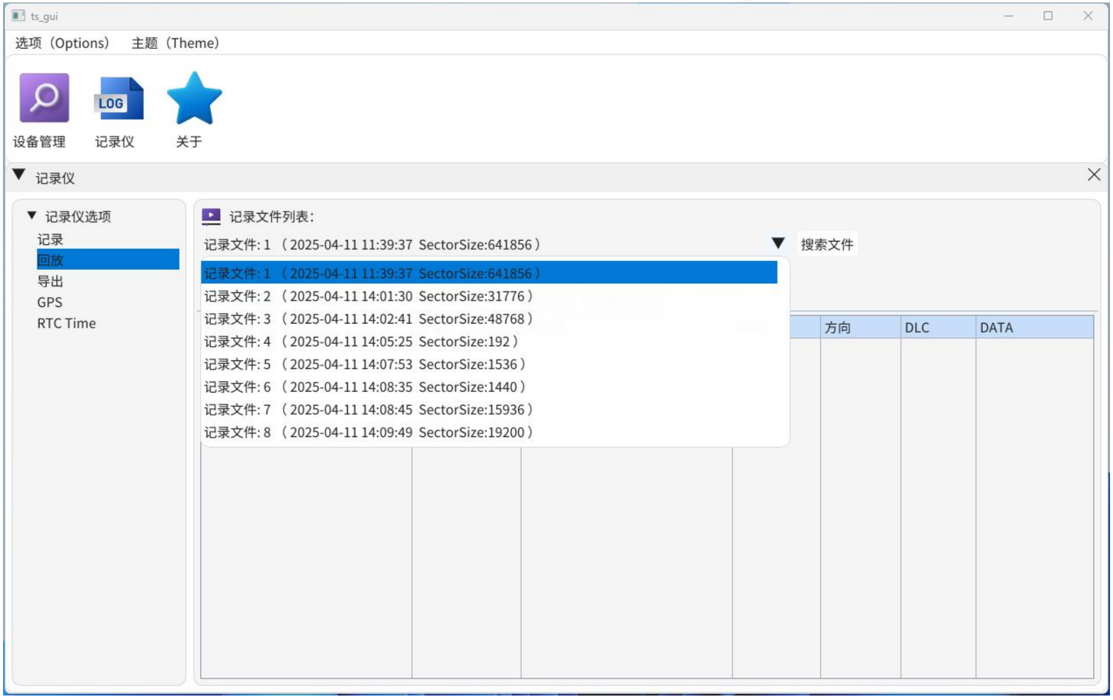
Open the “Logger” window, select “Record” in the logger options, and click “Start Recording Mode” to enable logger mode (the Log LED on the device turns on). To disable logger mode, click “Stop Recording Mode” (the Log LED turns off).


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
开启记录模式
关闭记录模式

这里是记录页面

(3) Offline playback

Open the “Logger” window, select “Playback” in the logger options. This function allows offline playback of bus messages stored in the Tlog1038’s memory. Click “Search File” and select the desired playback file from the dropdown list.

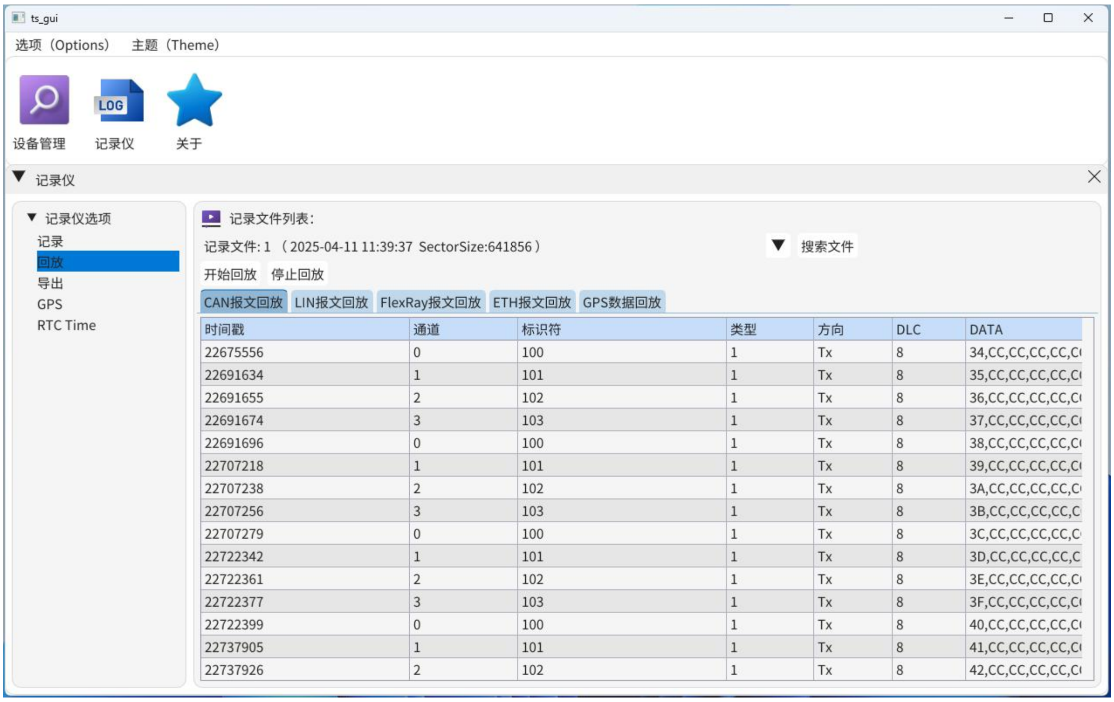

ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
搜索文件
方向
DLC
DATA

记录文件列表：

记录文件: 1 （2025-04-11 11:39:37 SectorSize:641856）

记录文件: 1 （2025-04-11 11:39:37 SectorSize:641856）
记录文件: 2 （2025-04-11 14:01:30 SectorSize:31776）
记录文件: 3 （2025-04-11 14:02:41 SectorSize:48768）
记录文件: 4 （2025-04-11 14:05:25 SectorSize:192）
记录文件: 5 （2025-04-11 14:07:53 SectorSize:1536）
记录文件: 6 （2025-04-11 14:08:35 SectorSize:1440）
记录文件: 7 （2025-04-11 14:08:45 SectorSize:15936）
记录文件: 8 （2025-04-11 14:09:49 SectorSize:19200）

Click “Start Playback” to replay all CAN, LIN, FlexRay, Ethernet, and GPS data from the file in the window.


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
搜索文件
开始回放
停止回放
CAN报文回放
LIN报文回放
FlexRay报文回放
ETH报文回放
GPS数据回放

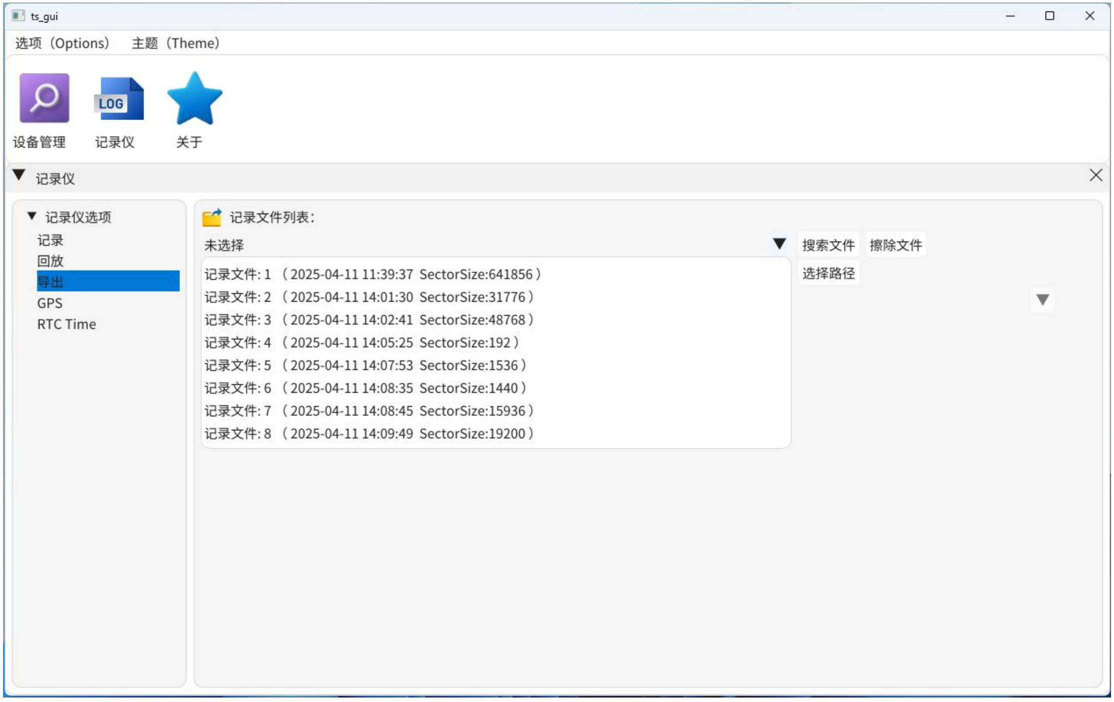
记录文件列表：

记录文件: 1 （2025-04-11 11:39:37 SectorSize:641856）

时间戳	通道	标识符	类型	方向	DLC	DATA
22675556	0	100	1	Tx	8	34,CC,CC,CC,CC,C
22691634	1	101	1	Tx	8	35,CC,CC,CC,CC,C
22691655	2	102	1	Tx	8	36,CC,CC,CC,CC,C
22691674	3	103	1	Tx	8	37,CC,CC,CC,CC,C
22691696	0	100	1	Tx	8	38,CC,CC,CC,CC,C
22707218	1	101	1	Tx	8	39,CC,CC,CC,CC,C
22707238	2	102	1	Tx	8	3A,CC,CC,CC,CC,C
22707256	3	103	1	Tx	8	3B,CC,CC,CC,CC,C
22707279	0	100	1	Tx	8	3C,CC,CC,CC,CC,C
22722342	1	101	1	Tx	8	3D,CC,CC,CC,CC,C
22722361	2	102	1	Tx	8	3E,CC,CC,CC,CC,C
22722377	3	103	1	Tx	8	3F,CC,CC,CC,CC,C
22722399	0	100	1	Tx	8	40,CC,CC,CC,CC,C
22737905	1	101	1	Tx	8	41,CC,CC,CC,CC,C
22737926	2	102	1	Tx	8	42,CC,CC,CC,CC,C

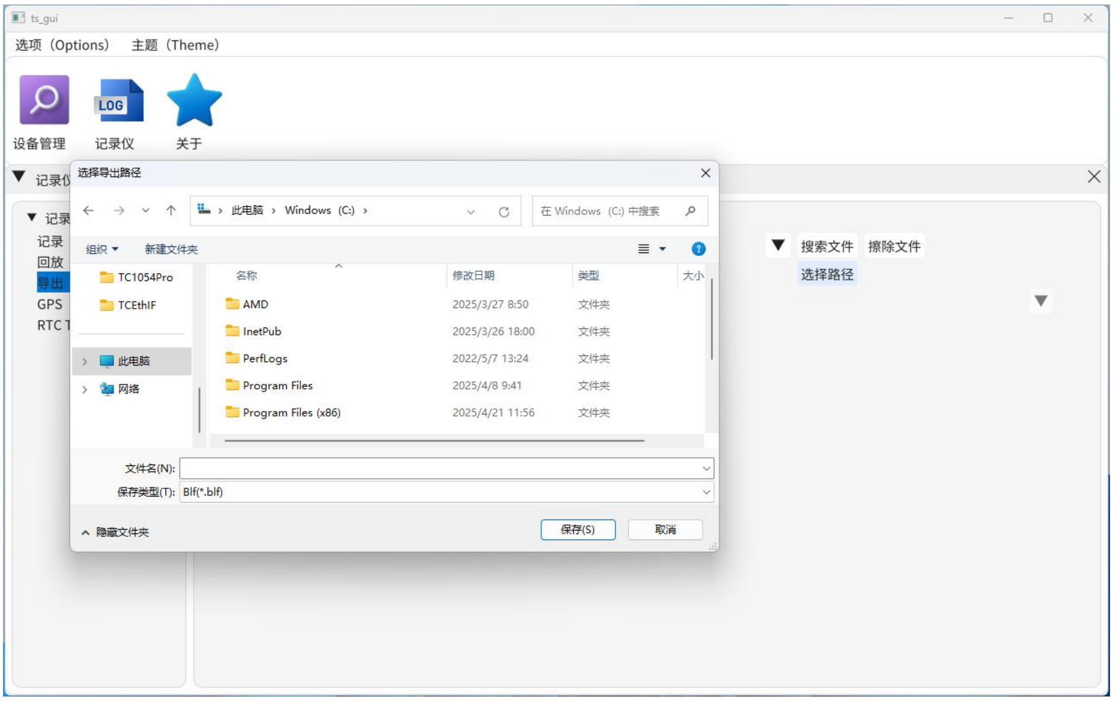
(4) BLF file export

Open the “Logger” window, select “Export” in the logger options. This function exports recorded files from the Tlog1038’s memory in BLF format. Click “Search File” and select the file to export from the dropdown list.


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
记录文件列表：
未选择
搜索文件
擦除文件
选择路径

记录文件: 1 （2025-04-11 11:39:37 SectorSize:641856）
记录文件: 2 （2025-04-11 14:01:30 SectorSize:31776）
记录文件: 3 （2025-04-11 14:02:41 SectorSize:48768）
记录文件: 4 （2025-04-11 14:05:25 SectorSize:192）
记录文件: 5 （2025-04-11 14:07:53 SectorSize:1536）
记录文件: 6 （2025-04-11 14:08:35 SectorSize:1440）
记录文件: 7 （2025-04-11 14:08:45 SectorSize:15936）
记录文件: 8 （2025-04-11 14:09:49 SectorSize:19200）

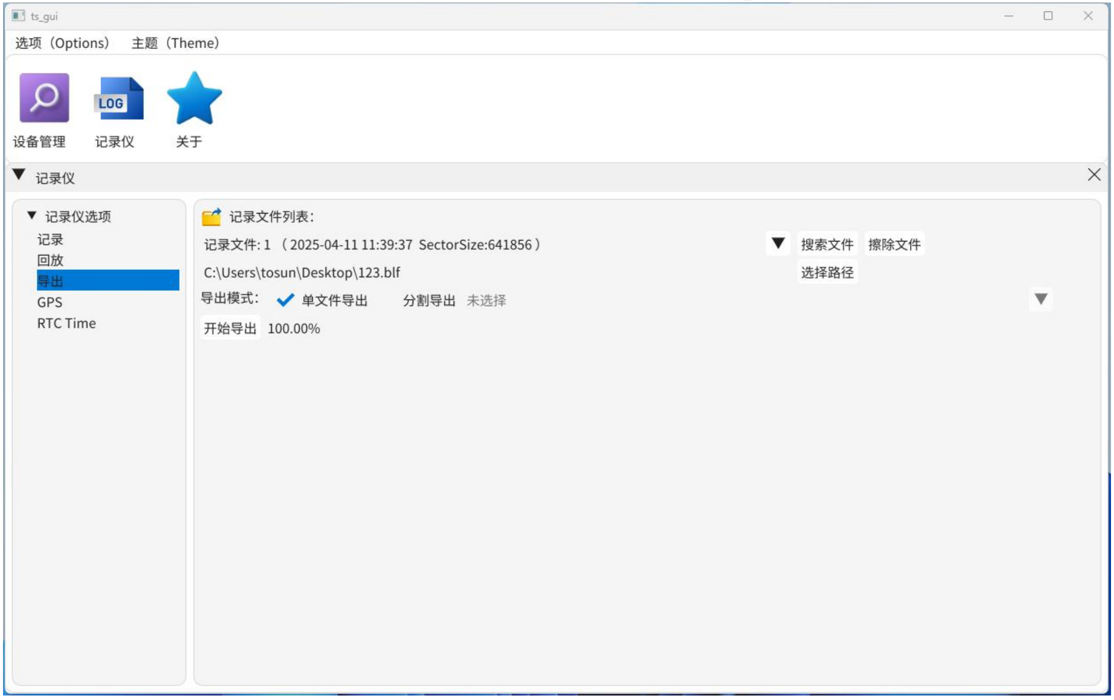
Click “Select Path”, choose the destination folder for the BLF file, and name the file.


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
选择导出路径
此电脑 › Windows (C:) ›
在 Windows (C:) 中搜索
组织
新建文件夹
TC1054Pro
TCEthIF
此电脑
网络
搜索文件
擦除文件
选择路径
保存(S)
取消
隐藏文件夹

名称	修改日期	类型	大小
AMD	2025/3/27 8:50	文件夹	
InetPub	2025/3/26 18:00	文件夹	
PerfLogs	2022/5/7 13:24	文件夹	
Program Files	2025/4/8 9:41	文件夹	
Program Files (x86)	2025/4/21 11:56	文件夹	

文件名(N):
保存类型(T): Blf(*.blf)

Click “Start Export” and wait until the progress bar reaches 100% to complete the export.


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
记录文件列表:
搜索文件
擦除文件
选择路径

记录文件: 1 （2025-04-11 11:39:37 SectorSize:641856）

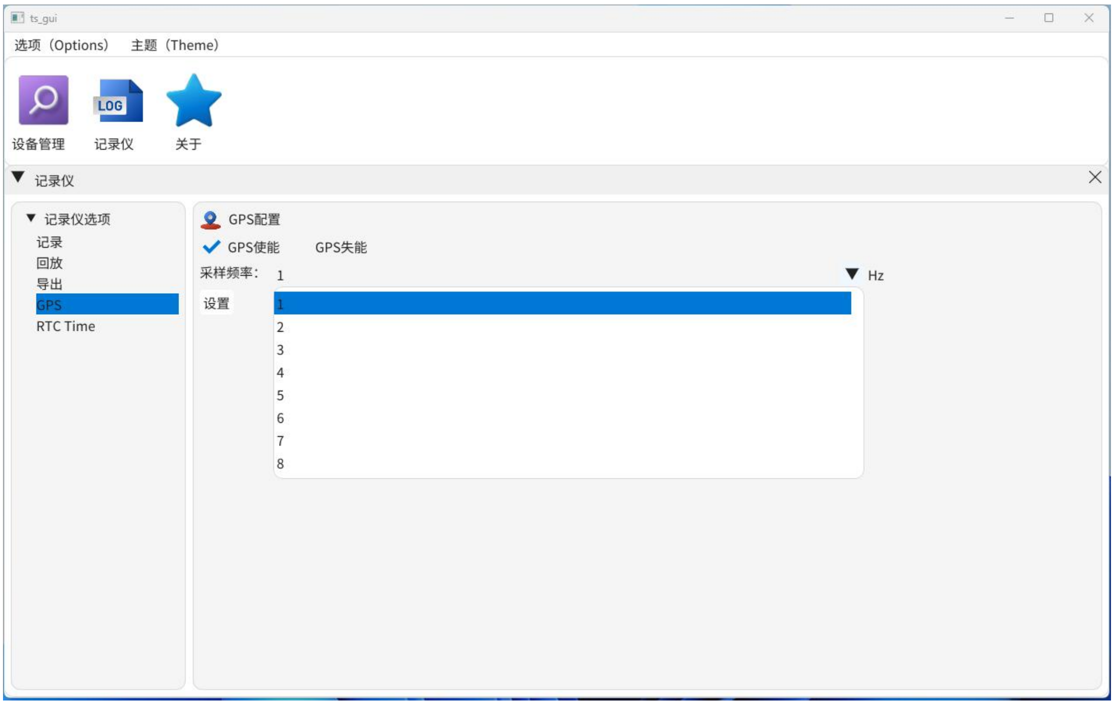
C:\Users\tosun\Desktop\123.blf

导出模式: ✓ 单文件导出 分割导出 未选择

开始导出 100.00%

(5) GPS configuration

Open the “Logger” window, select “GPS” in the logger options. This function enables/disables GPS functionality and configures the GPS sampling frequency.

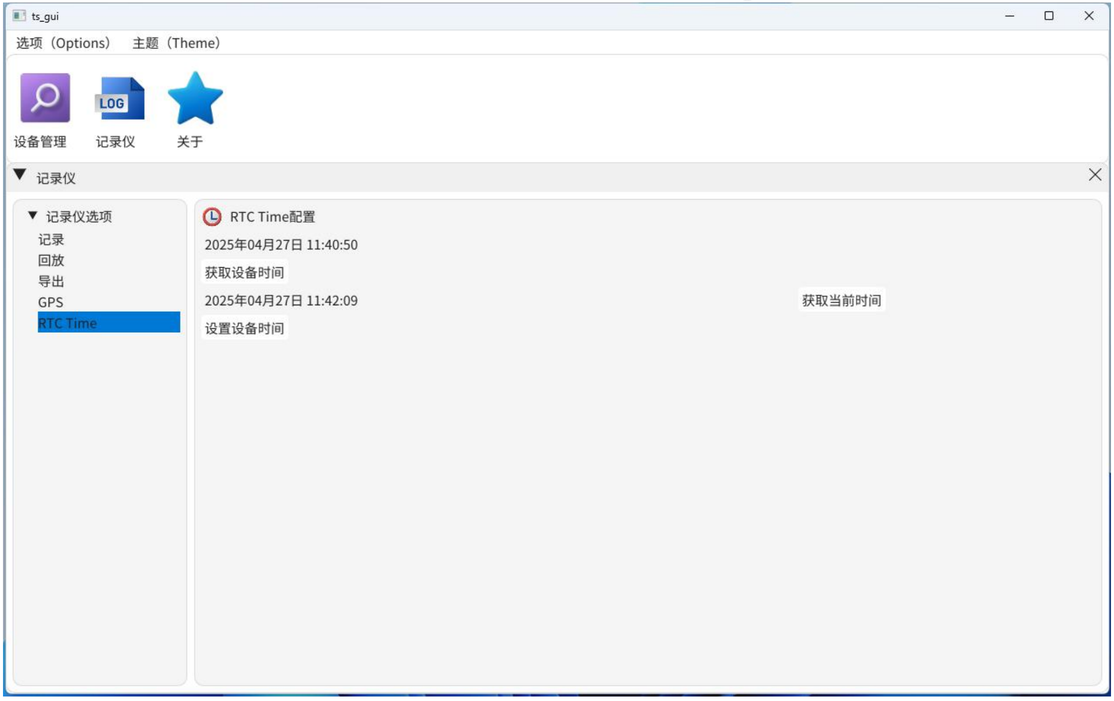

ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
GPS配置
设置
1
2
3
4
5
6
7
8

✓ GPS使能 GPS失能

采样频率: 1 Hz

(6) RTC time calibration

Open the “Logger” window, select “RTC Time” in the logger options. This function retrieves/calibrates the RTC time in the Tlog1038 device. Click “Get Device Time” to retrieve the current time from the Tlog1038; Click “Get System Time” to fetch the current PC time; Click “Set Time” to synchronize the Tlog1038’s RTC time with the system time.


ts_gui
选项（Options）
主题（Theme）
设备管理
记录仪
关于
记录仪
记录仪选项
记录
回放
导出
GPS
RTC Time
RTC Time配置

2025年04月27日 11:40:50

获取设备时间

2025年04月27日 11:42:09

获取当前时间
设置设备时间

5. Inspection and Maintenance

The main electrical components of the Tlog1038 device are semiconductor components. Although the equipment has a long service life, they may also accelerate aging and significantly reduce their service life under an incorrect environment. Therefore, during the use of the equipment, periodic inspection should be carried out to ensure that the use environment maintains the required conditions.

It is recommended to conduct inspections at least once every 6 months to 1 year. Under improper environmental, more frequent inspections should be conducted. As shown in the table below, if you encounter problems during maintenance, please read the following content to find the possible causes of the problem. If the problem still cannot be solved, please contact Shanghai TOSUN Technology Ltd.

Item	Inspection	Standard	Action
Power Supply	Inspect for voltage fluctuations at the power supply end	Power supply port +12V DC	Use a voltage meter to check the power input end. Take necessary actions to keep the voltage fluctuations within the acceptable range.
Surrounding Environment	Check the ambient temperature of the surrounding environment. (Including the internal temperature of enclosed environments)	-40℃~+80℃	Use a thermometer to check the temperature and ensure that the ambient temperature within in the acceptable range.
	Check the ambient humidity. (Including the internal humidity of enclosed environments)	The relative humidity must be within the range of 10% to 90%	Use a hygrometer to check the humidity and ensure that the ambient humidity within the acceptable range.
	Check for the accumulation of dust, powder, salt, and metal shavings	No accumulation	Clean and protect the equipment.
	Check for any contact with water, oil, or chemical sprays on the equipment	No contact	Clean and protect the equipment if necessary.
	Check for the presence of corrosive or flammable gases in the equipment area	No presence	Inspect by the smell, or using a sensor.
	Check for levels of vibration and shock	Vibration and shock are within the acceptable range	Install padding or other shock-absorbing devices if necessary.
	Check for noise sources	No significant	Isolate the equipment from

	near the equipment	noise source	noise sources or protect the equipment.
Wiring Installation	Check the crimped connectors in the external wiring	Ensure enough space between the connectors	Visually inspect and adjust if necessary.
	Check for damage in the external wiring	No damage	Visually inspect and replace the wiring if necessary.

6. Appendix

(1) Thanks to the advantages of the Ethernet interface, the Tlog1038 supports remote access. For details, please refer to the technical document：

Remote Access User Guide V1.0

(2) The Tlog1038 provides cross-platform secondary development interface support for customers. For more information, please visit the Gitee repository:

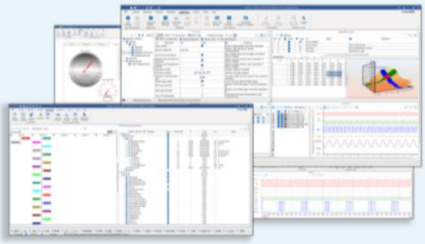
https://gitee.com/xujinpeng120/libTSDevBase

TOSUN

Engineer Everything !

Software

Support CAN(FD)/LIN/FlexRay/SOME/IP and DoIP
UDS diagnostics/ECU flashing/CCP/XCP calibration
Embedded code generation/Application builder
Encrypted release/Logging and bus replay
Graphical programming/Residual bus simulation
C and Python scripting
Bus monitoring/Transmiting/Automated testing

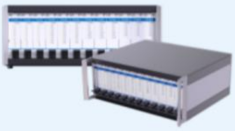


TSMASTER

Hardware

1/2/4/8/12-channel CAN FD/CAN to USB/PCIe device
1/2/6-channel LIN to USB/PCIe device
Multi channel FlexRay/CAN FD to USB/PCIe device
Multi channel automotive Ethernet/CAN FD to USB/PCIe device
Automotive Ethernet media conversion device (T1 to Tx)
Multi-channel CAN FD/Ethernet/LIN datalogger

TTS test systems
-CAN FD/CAN/FlexRay/LIN communication boards
-Relay and fault injection boards
-Resistors for sensor simulation
-Digital I/O, Analog I/O boards available



CAN CAN FD lin FlexRay OPEN ALLIANCE

Solutions

- Bus Conformance
- Network Automation Testing System
- Charging Testing System
- EMB Calibration Testing Equipment
- Information Security Solutions
- Steer-by-Wire Chassis Testing Solutions
- EOL Testing Equipment
- Motor Performance
- Durability Testing Solutions
- FCT

About TOSUN

The core product, TSMaster, is a comprehensive tool for automotive R&D, testing, production, and after-sales. It integrates essential functions with hardware support to streamline processes and ensure precision, making it ideal for automotive professionals.

International Organization
ASAM CiA

Quality Assurance
ISO9001:2015

CE Certification
CE

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