

Hardware IFU-TE1105

Version: V1.00 | English

Document Revision History:

Documentation Edition	date	Update content	remarks
V1.00	2023.12.01	Create a document	

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1. Product profile

1.1 Product Overview

TE1105 is a 5-way Ethernet switch launched by Star Intelligence, which can realize the selection of any port in the standard Ethernet 100Base-Tx / 1000Base-T or the vehicle Ethernet 100 / 1000Base-T1 with the terminal network and monitor monitoring.

Support IEEE 802.1q (VLAN) mode, support MAC filtering, IEEE802.1Qav AVB flow Plastic surgery, IEEE802.1Qat time-sharing scheduling.

Select the normal mode or the user customization mode by pressing the button. Primary or slave mode is switched and Ethernet data will be converted lossless between vehicle Ethernet and 100 / 1000Base-TX Ethernet communication. TE1105 Will be the ideal low-cost converter tool between the 100 / 1000Base-T1 Automotive Ethernet and PC systems.

Suitable for R & D personnel, ECU production line, test engineers, after-sales engineers, etc.

1.2 Typical applications

- ✓ Car Ethernet message is forwarded
- ✓ Vehicle Ethernet data monitoring and analysis
- ✓ Vehicle-mounted Ethernet communication test
- ✓ Various test stands

1.3 Functions and parameters

1.3.1 Main functions

- ✓ 5-way 100Base-Tx / 1000Base-T and 100 / 1000Base-T1, which can be switched at any time through the software
- ✓ Vehicle Ethernet interface form: TE MATEnet and Rosenberg H-MTD
- ✓ Support the Ethernet message forwarding and listening mode
- ✓ Support 2 custom configurations, can define VLAN, TSN time-sharing scheduling, AVB flow shaping, port filtering gauge
Wait (need to communicate with the same customized)
- ✓ Mirror Function: Two channels of the vehicle Ethernet can realize the message mirror function
- ✓ Transmission function: the vehicle Ethernet transmits the message to the PC directly through

the RJ 45

- ✓ The LED displays the vehicle / standard Ethernet working status
- ✓ Master / slave mode, rate, can be configured by dialing and displayed by LED status
- ✓ Custom-made, high-quality cable

1.3.2 Technical parameters

channel	5-way 100Base-Tx / 1000Base-T and 100 / 1000Base-T1
Ethernet interface	RJ 45 + TE MATEnet or Rosenberg H-MTD
supply electricity	DC 9-32V
working temperature	-40°C~80°C
sheathing material	aluminium product
size	300×120×30 mm

1.4 Shipping list

- ✓ TE1105 Host machine
- ✓ USB line
- ✓ DC 12V Power supply adapter
- ✓ TE MATEnet Or Rosenberg H-MTD cable (not standard, be ordered separately)



2. Hardware appearance and interface

2.1 Hardware appearance



2.2 Hardware interface and indicator light

2.2.1 Power supply interface



Support 9-32V power supply, support two power supply modes, the default factory provides 12V power supply;

Mode 1: Phoenix terminal power supply, 9-32V power supply, the left is the positive, the right is the negative.

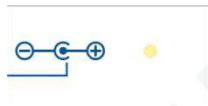

Method 2: 12V supporting power supply supply.

Note: USB ports are only used for communication and do not provide power.

2.2.2 LED indicator lamp



Instructions for indicator light:

pilot lamp	definition	explain
	power light	Electricity is often bright
	Usb pilot lamp	The connecting usb line is always bright
User mode1	Mode indicator light-User Customizing mode 1	Mode selection is often bright
User model2	Mode indicator light-User customization mode 2	Mode selection is often bright
Nomal	Regular switch mode	Mode selection is often bright
Port mirroing	Mirror message monitoring mode	Mode selection is often bright
Master	Primary and slave mode switching indicator light	Host mode is always on / slave mode is off
1000	The 100M / 1000M switch indicator light	1000M mode always on / 100M mode off
T1_Link	The T1 port link Link indicator light	The T1 port selection is often bright
T(X)_Link	T (X) port link Link indicator light	The T (X) port selection is often bright

2.3 Equipment mode



The device switches the working mode through the mode key and supports four working modes: Normal, Port mirroring, User mode1 and User mode2;

➤ **The device comes with two default modes:**

Normal: General switch mode

Port mirroring: Mirror message monitoring mode.

Conventional switch mode: ports 2 and 3 are grouped together, ports 4 and 5 are grouped together, and port 1 can monitor and capture packets from other ports.

Mirror message monitoring mode: Port 1 and Port 2 are grouped together, Port 3 and Port 4 are grouped together, and Port 5 can monitor and capture packets from other ports.

➤ **Two user customization modes are supported:**

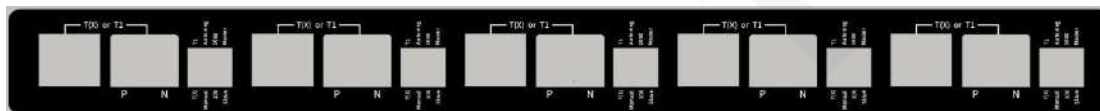
User mode1: User customization is required, defining VLAN, TSN time-sharing scheduling, AVB flow shaping, port filtering rules, etc

User mode2: User customization is required, defining VLAN, TSN time-sharing scheduling, AVB flow shaping, port filtering rules, etc

2.4 Port mode settings

2.4.1 Introduction of the port mode

All 5-way ports support T1 and T (X) Ethernet port switching, 1000M and 100M rate switching, master-slave mode switching; all 5-way ports support self-negotiation function;



2.4.2 Port mode switching

Code switch: used to switch the port mode



Dial-up code 1: T (X) and T1 port type switch;

Dial code 2: port self-negotiation and manual configuration mode switch;

Dial code 3:1000M and 100M rate switch;

Dial code 4: master and slave mode switching;

3. TE1105 hardware use

3.1 Example of the use of the device

Objective: The device acts as a regular switch to make two PCs communicate through ports 1 and 2; The steps are as follows:

3.1.1 Power-up

Make sure that the power supply indicator light is always on;



3.1.2 Select the working mode of the equipment

Make the device work in the Normal switch mode, and the Mode button can switch the device mode to ensure that the device mode indicator light is always on;



(Note: Device mode indicator is not on please restart the device!!!)

3.1.3 Select the port working mode

- Set port 1: Use regular Ethernet port with self-negotiation configuration (self-negotiation mode will ignore rate and master settings); as shown in the figure:



- Set port 2: using the conventional Ethernet port, using manual configuration, setting rate to 1000M, host mode; as shown in the figure:

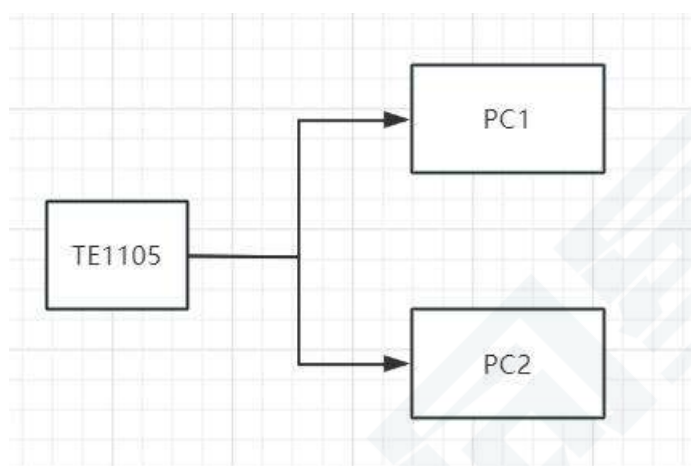


3.1.4 Network cable port configuration

Insert one network cable RJ 45 into the port of the PC 1 and the other network cable RJ 45 into the port of PC 2 as shown in the figure below; ensure that two computers are under the same LAN, set static IP of PC 1:192.168.0.30, and static IP of PC 2:192.168.0.11;



Connection Block Diagram:



PC machine 1:



PC machine 2:



3.1.5 Send the data

Cmd enters the command window and two computers call the following two commands to send ICMP request:

1-PC input: ping 192.168.0.11-t

```
C:\Users\seven>ping 192.168.0.11 -t
正在 Ping 192.168.0.11 具有 32 字节的数据:
来自 192.168.0.11 的回复: 字节=32 时间=1ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
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来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
来自 192.168.0.11 的回复: 字节=32 时间=2ms TTL=64
```

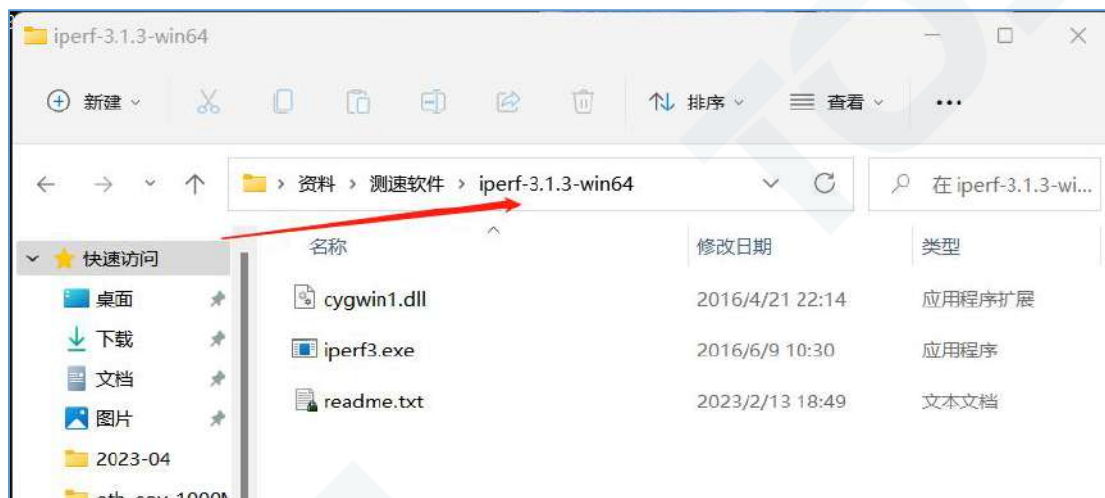
2. PC input: ping 192.168.0.30-t

Two PCs can communicate with each other, as shown in the figure:

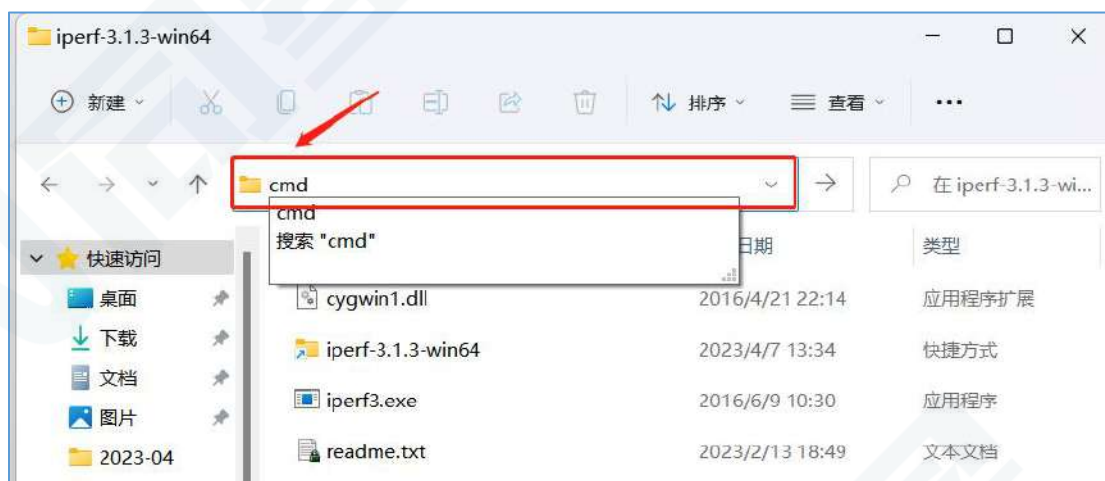
```
C:\Users\ZHANGLIANG>ping 192.168.0.30 -t
正在 Ping 192.168.0.30 具有 32 字节的数据:
来自 192.168.0.30 的回复: 字节=32 时间=2ms TTL=128
来自 192.168.0.30 的回复: 字节=32 时间=2ms TTL=128
来自 192.168.0.30 的回复: 字节=32 时间=2ms TTL=128
来自 192.168.0.30 的回复: 字节=32 时间=2ms TTL=128
来自 192.168.0.30 的回复: 字节=32 时间=2ms TTL=128
来自 192.168.0.30 的回复: 字节=32 时间=2ms TTL=128
```

3.1.6 Iperf3 Test Bandwidth:

Step 1: Open the installation path of the iperf3



Step 2: input: cmd, enter the windows terminal command window; both PC 1 and PC 2 need to perform this operation;



Step 3:1000M test

PC 1 as a client, input the following instructions: iperf3.exe-s

```
Microsoft Windows [版本 10.0.19045.3693]
(c) Microsoft Corporation。保留所有权利。

C:\Users\seven\Desktop\iperf-3.1.3-win64>iperf3.exe -s

-----
Server listening on 5201
-----
```

For PC 2 as the client, enter the following instructions: iperf3.exe-c 192.168.0.30-u-b 930M-f M-i 3 -w 128M -t 6000

```
C:\Users\ZHANGLIANG\Desktop>iperf3-3.1.3-win64>iperf3.exe -c 192.168.0.30 -u -b 930M -f M -i 3 -w 128M -t 6000
Connecting to host 192.168.0.30, port 5201
[ 4] local 192.168.0.11 port 57865 connected to 192.168.0.30 port 5201
[ ID] Interval           Transfer     Bandwidth   Total Datagrams
[ 4]  0.00-3.00  sec    327 MBytes  109 MBytes/sec  41838
[ 4]  3.00-6.00  sec    332 MBytes  111 MBytes/sec  42488
[ 4]  6.00-9.01  sec    328 MBytes  109 MBytes/sec  42017
[ 4]  9.01-12.00 sec    340 MBytes  114 MBytes/sec  43567
[ 4] 12.00-15.00 sec    334 MBytes  111 MBytes/sec  42743
[ 4] 15.00-18.00 sec    327 MBytes  109 MBytes/sec  41837
[ 4] 18.00-21.01 sec    337 MBytes  112 MBytes/sec  43080
[ 4] 21.01-24.00 sec    334 MBytes  112 MBytes/sec  42811
[ 4] 24.00-27.00 sec    330 MBytes  110 MBytes/sec  42245
[ 4] 27.00-30.01 sec    333 MBytes  110 MBytes/sec  42602
[ 4] 30.01-33.01 sec    328 MBytes  109 MBytes/sec  42032
```

At this time, the client of the PC 1 will receive the data, as shown:

```
5] 84.00-85.00 sec    122 MBytes  1.02 Gbits/sec  0.068 ms  0/15580 (0%)
5] 85.00-86.00 sec    108 MBytes  902 Mbits/sec  0.069 ms  0/13761 (0%)
5] 86.00-87.00 sec    114 MBytes  954 Mbits/sec  0.074 ms  0/14562 (0%)
5] 87.00-88.00 sec    111 MBytes  933 Mbits/sec  0.064 ms  0/14233 (0%)
5] 88.00-89.00 sec    111 MBytes  930 Mbits/sec  0.067 ms  0/14198 (0%)
5] 89.00-90.00 sec    109 MBytes  911 Mbits/sec  0.063 ms  0/13902 (0%)
5] 90.00-91.00 sec    112 MBytes  938 Mbits/sec  0.065 ms  0/14310 (0%)
5] 91.00-92.00 sec    112 MBytes  939 Mbits/sec  0.052 ms  0/14321 (0%)
5] 92.00-93.00 sec    111 MBytes  931 Mbits/sec  0.065 ms  0/14203 (0%)
5] 93.00-94.00 sec    109 MBytes  915 Mbits/sec  0.069 ms  0/13963 (0%)
5] 94.00-95.00 sec    111 MBytes  934 Mbits/sec  0.067 ms  0/14249 (0%)
5] 95.00-96.00 sec    112 MBytes  941 Mbits/sec  0.123 ms  0/14350 (0%)
5] 96.00-97.00 sec    111 MBytes  928 Mbits/sec  0.059 ms  0/14166 (0%)
5] 97.00-98.00 sec    110 MBytes  925 Mbits/sec  0.053 ms  0/14115 (0%)
5] 98.00-99.00 sec    110 MBytes  926 Mbits/sec  0.073 ms  0/14138 (0%)
5] 99.00-100.00 sec    111 MBytes  932 Mbits/sec  0.075 ms  0/14221 (0%)
5] 100.00-101.00 sec    111 MBytes  931 Mbits/sec  0.057 ms  0/14199 (0%)
5] 101.00-102.00 sec    109 MBytes  917 Mbits/sec  0.052 ms  0/14000 (0%)
5] 102.00-103.00 sec    114 MBytes  958 Mbits/sec  0.064 ms  0/14623 (0%)
5] 103.00-104.00 sec    109 MBytes  916 Mbits/sec  0.061 ms  0/13976 (0%)
```

Conclusion: The running results show no disorder, no packet loss, and a bandwidth of 1000M is above 900M. The test is passed.

Step 4: 100M test

Both PC 1 and PC 2 are fixed to 100M full duplex, as shown:



For PC 2 as the client, enter the following instructions: iperf3.exe-c 192.168.0.30-u-b 95M-fM-i 3-w 128M-t 6000

```
C:\Users\ZHANGLIANG\Desktop>iperf-3.1.3-win64>iperf3.exe -c 192.168.0.30 -u -b 930M -f M -i 3 -w 128M -t 6000
Connecting to host 192.168.0.30, port 5201
[ 4] local 192.168.0.11 port 57865 connected to 192.168.0.30 port 5201
[ ID] Interval      Transfer      Bandwidth      Total Datagrams
[ 4] 0.00-3.00    sec  327 MBytes   109 MBytes/sec  41838
[ 4] 3.00-6.00    sec  332 MBytes   111 MBytes/sec  42488
[ 4] 6.00-9.01    sec  328 MBytes   109 MBytes/sec  42017
[ 4] 9.01-12.00   sec  340 MBytes   114 MBytes/sec  43567
[ 4] 12.00-15.00  sec  334 MBytes   111 MBytes/sec  42743
[ 4] 15.00-18.00  sec  327 MBytes   109 MBytes/sec  41837
[ 4] 18.00-21.01  sec  337 MBytes   112 MBytes/sec  43080
[ 4] 21.01-24.00  sec  334 MBytes   112 MBytes/sec  42811
[ 4] 24.00-27.00  sec  330 MBytes   110 MBytes/sec  42245
[ 4] 27.00-30.01  sec  333 MBytes   110 MBytes/sec  42602
[ 4] 30.01-33.01  sec  328 MBytes   109 MBytes/sec  42032
```

At this time, the client of the PC 1 will receive the data, as shown:

```
Server listening on 5201
-----
Accepted connection from 192.168.0.11, port 59733
[ 5] local 192.168.0.30 port 5201 connected to 192.168.0.11 port 56893
[ ID] Interval      Transfer      Bandwidth      Jitter      Lost/Total Datagrams
[ 5] 0.00-1.00    sec  9.71 MBytes   81.4 Mbits/sec  0.833 ms    0/1243 (0%)
[ 5] 1.00-2.00    sec  11.3 MBytes   95.0 Mbits/sec  0.799 ms    0/1450 (0%)
[ 5] 2.00-3.00    sec  11.3 MBytes   95.1 Mbits/sec  0.777 ms    0/1451 (0%)
[ 5] 3.00-4.00    sec  11.3 MBytes   94.8 Mbits/sec  0.814 ms    0/1446 (0%)
[ 5] 4.00-5.00    sec  11.4 MBytes   95.2 Mbits/sec  0.740 ms    0/1454 (0%)
[ 5] 5.00-6.00    sec  11.3 MBytes   95.0 Mbits/sec  0.714 ms    0/1449 (0%)
[ 5] 6.00-7.00    sec  11.3 MBytes   94.7 Mbits/sec  0.703 ms    0/1446 (0%)
[ 5] 7.00-8.00    sec  11.4 MBytes   95.4 Mbits/sec  0.784 ms    0/1456 (0%)
[ 5] 8.00-9.00    sec  11.3 MBytes   94.8 Mbits/sec  0.685 ms    0/1447 (0%)
[ 5] 9.00-10.00   sec  11.3 MBytes   94.8 Mbits/sec  0.700 ms    0/1447 (0%)
[ 5] 10.00-11.00  sec  11.3 MBytes   94.9 Mbits/sec  0.722 ms    0/1447 (0%)
[ 5] 11.00-12.00  sec  11.4 MBytes   95.3 Mbits/sec  0.697 ms    0/1454 (0%)
[ 5] 12.00-13.00  sec  11.3 MBytes   94.9 Mbits/sec  0.703 ms    0/1449 (0%)
[ 5] 13.00-14.00  sec  11.3 MBytes   95.1 Mbits/sec  0.747 ms    0/1450 (0%)
[ 5] 14.00-15.00  sec  11.3 MBytes   95.1 Mbits/sec  0.696 ms    0/1451 (0%)
[ 5] 15.00-16.00  sec  11.3 MBytes   94.7 Mbits/sec  0.709 ms    0/1445 (0%)
[ 5] 16.00-17.00  sec  11.3 MBytes   95.1 Mbits/sec  0.714 ms    0/1450 (0%)
```

Conclusion: The running results show no disorder, no packet loss, and a bandwidth of 100M is above 90M. The test is passed.

3.2 The TE1105 is used together with the TE1051

TE1105 It can be used with the single Ethernet converter TE1051 launched by same Star, realizing real-time observation of message information and recording message information in TSMaster software. The use steps are as follows:

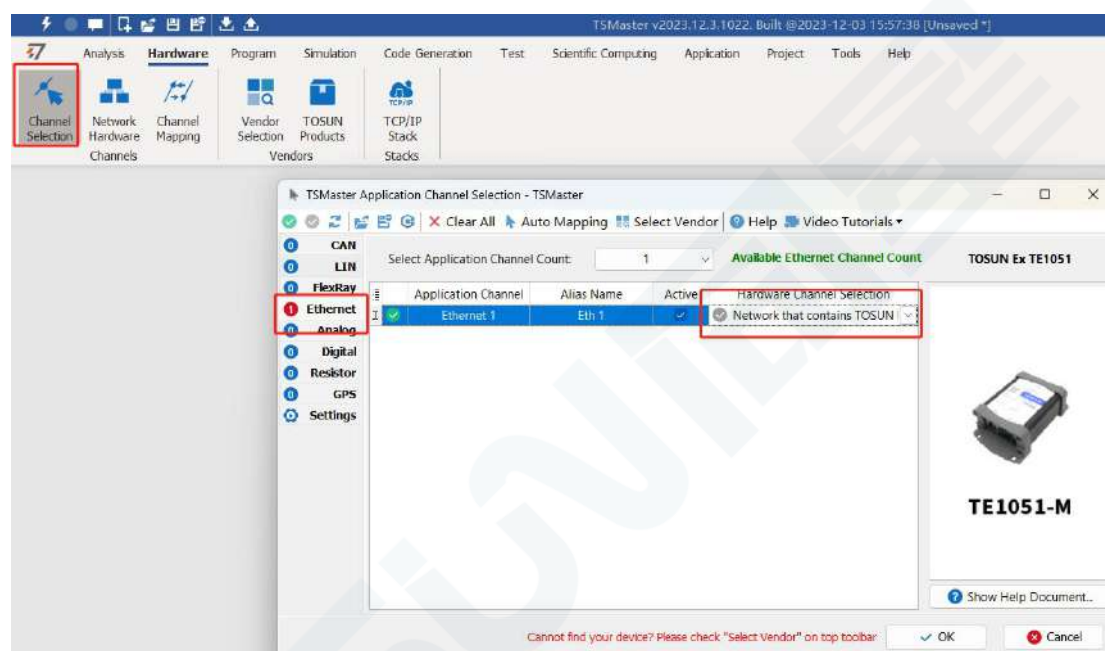
3.2.1 Hardware Connection

TE1105 With TE1051 through the RJ-45 crystal head interface cable or MATENET Ethernet interface cable TE1051.



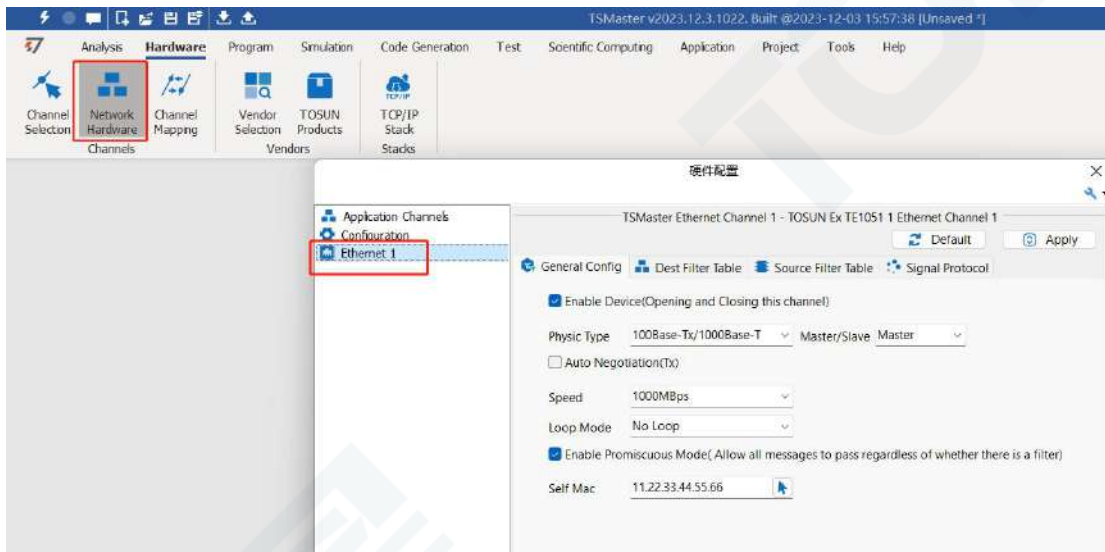
3.2.2 Software configuration

Channel selection-Ethernet-select the hardware TE1051



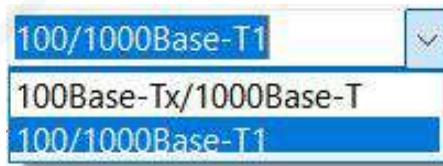
3.2.3 Hardware configuration

Bus Hardware-Ethernet1-Universal configuration



Enabling device: Use the hardware channel

Physical interface type: T1 port or T (X) port

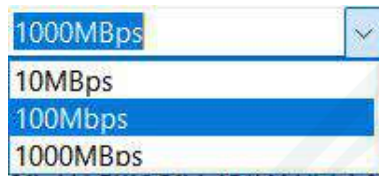


Master / slave: Master-slave mode selection



T (X) port self-negotiation mode: check the use of self-negotiation mode

Speed: 100M or 1000M mode

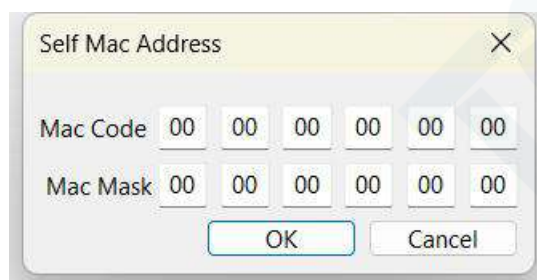


Cycle mode:

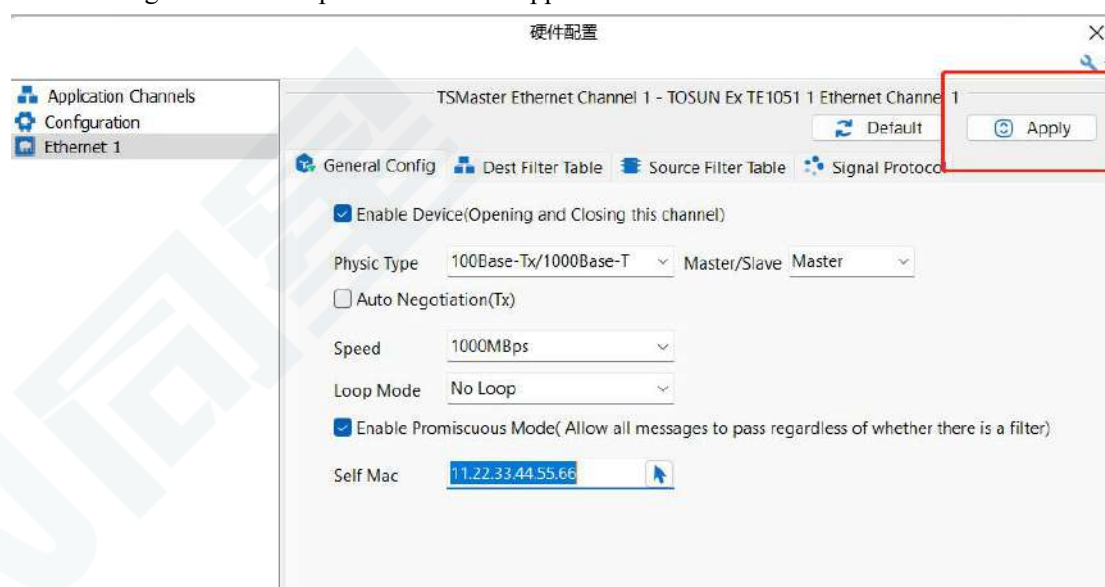


Enouncing mode (checked by default): allow all packets to pass in this mode

Self-contained Mac address: It can be manually configured



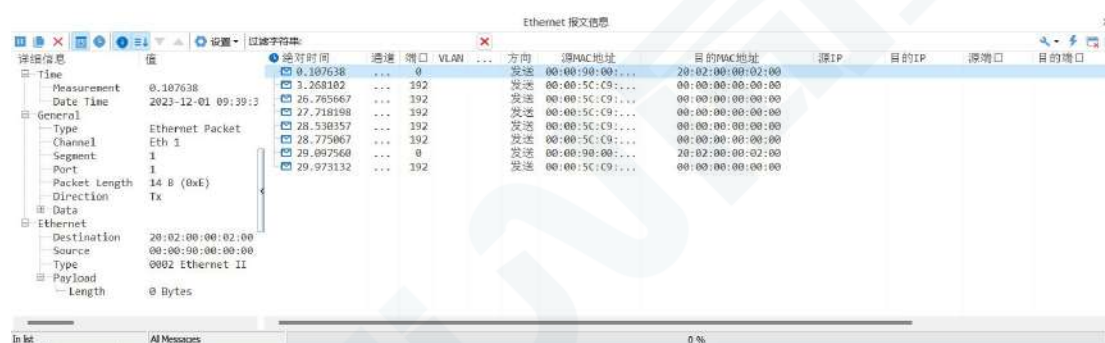
Configuration is complete click on the app:



Note: The TE1051 software configuration is completed, and the interface indicator of TE1105 will be on after starting the project.

3.2.4 Message information

Start the project-View Ethernet message messages

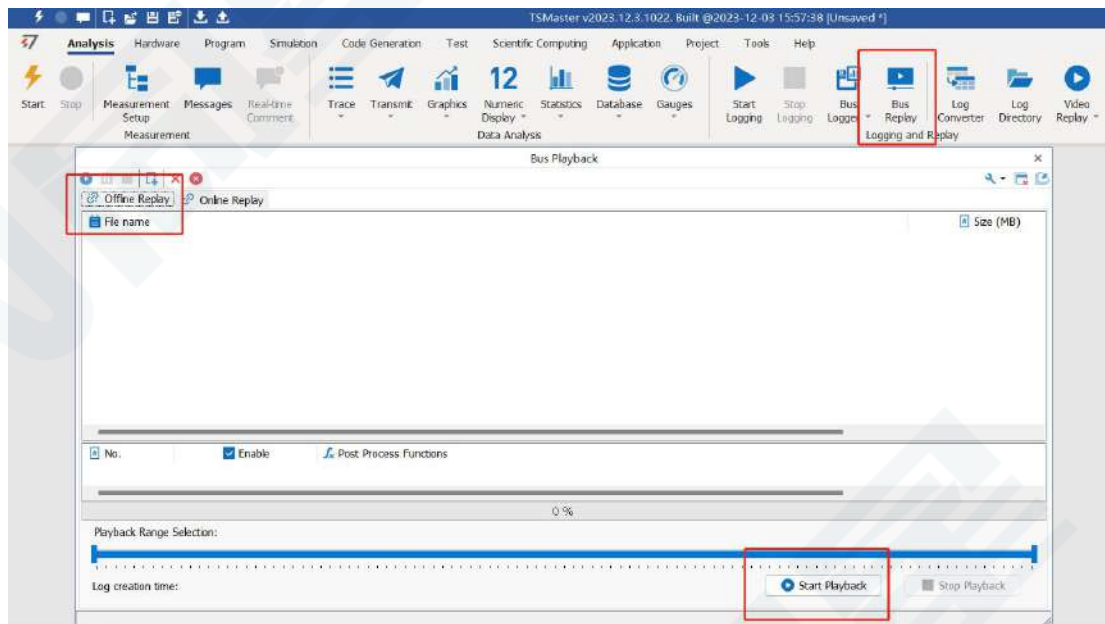


3.2.5 Bus record

Bus record, can set the record file name, record file size, etc.



3.2.6 Bus playback



Both the offline playback and the online playback modes.

Offline playback: only view the message data, load the playback file, and start the playback.

Online playback: the channel needs to be connected and can be simulated during playback.

4. Inspection and maintenance

TE1105 The main electrical component is the semiconductor component, although it has a long life, it may accelerate aging in the incorrect environment, greatly reducing the life. Therefore, regular inspections should be conducted during the use of the equipment to ensure that the use environment maintains the required conditions. It is recommended to check it up at least once every 6 months to a year. Under adverse environmental conditions, more frequent examinations should be performed. In the table below, if you encounter problems during maintenance, read below to find the possible cause of the problem. If the problem is still not solved, please contact Shanghai TOSUN Technology LTD.

project	check up	standard	move about
surrounding environment	Check the ambient temperature (Including the internal temperature of the enclosed environment)	-40℃~+80℃	Use the thermometer to check the temperature and ensure that the ambient temperature remains within the allowable range
	Check ambient humidity (Including the internal humidity in the closed environment)	Without air conditioning, the relative humidity must be at 10%~90%	Use a humidity meter to check the humidity and ensure that the ambient humidity remains within the allowable range
	Check for the accumulation of dust, powder, salt, and metal debris	No accumulation	Clean and protect the equipment
	Check water, oil, or chemical spray collision into the device	No spray touched the device	If the cleaning and protection equipment is required
	Check for corrosive or flammable gases in the equipment area	No easily corrosive or flammable gases	Check by smelling or using a sensor
	Check the vibration and shock levels	The vibration and shock are within the specified	Install the liner or other shock absorber, if required

		limits	
	Check the noise sources near the equipment	There are no significant noise signal source	Isolation equipment and noise sources or protection equipment
Install wiring	Check the crimp connectors in the external wiring	There is sufficient space between the connectors	Visual scopic inspection adjust if necessary
	Check for the damage to the external wiring	No damage	Visual inspection and replace wiring if necessary

5. Precautions

- ① Connecting the circuit to avoid a short circuit.
- ② Before using the equipment, please carefully consult the pin information in the product use manual.
- ③ During the operation of the equipment, be careful to properly connect the power cord and avoid plugging and unplugging.
- ④ pay attention to! Damage caused by electrostatic discharge (ESD).

6. Disclaimer

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汽车电子工具链，国产领导品牌

同星智能成立于2017年，一直专注于研发国产自主可控的汽车电子基础工具链产品，也是该领域国产领导品牌。

同星智能的核心软件TSMaster及配套硬件设备，具备嵌入式代码生成、汽车总线分析、仿真、测试及诊断、标定等核心功能，覆盖了汽车整车及零部件研发、测试、生产、试验、售后全流程。

全球企业用户超4000家，用户覆盖：汽车整车厂、零部件供应商、芯片厂商、设备/服务供应商、工程机械、航空航天及舰船军工等领域。



扫码关注
获取软件下载链接

软件

- UDS诊断
- ECU刷写
- CCP/XCP标定
- 嵌入式代码生成
- 应用发布/加密发布
- 记录与回放
- 图形化编程
- 剩余总线仿真
- C/Python脚本
- 总线监控/发送
- SOMEIP和DoIP

硬件

- 1/2/4/8/12通道CAN FD/CAN转USB工具
- 1/2/6通道LIN转USB工具
- 10通道CAN FD/CAN转以太网工具
- 多通道Flexray/CAN FD转USB工具
- 多通道车载以太网/CAN FD转USB工具
- 车载以太网介质转换工具(T1转Tx)
- 多通道CAN FD/Ethernet/LIN记录仪



解决方案

- EOL测试设备
- FCT测试设备
- 汽车“四门两盖”试验解决方案
- 线控底盘测试解决方案
- 电机性能/耐久试验解决方案
- 新能源产线设备解决方案
- 总线一致性测试解决方案
- 信息安全解决方案