分類/Classification	☑tDS/tGW/ tSH	☐ PETL/tET/tPET	☐ DS/PDS/PPDS	☐ tM-752N
	☐ I/O Card	☐ VXC Card	☐ VxComm	☐ Other (TouchPAD)

作者/Author	Albert	日期/Date	2024-12-08	編號/NO.	FAQ057

Q：How to analyze the communication status from the tSH Monitor page.

A：The Monitor page provides detailed communication status for each serial port. Users can use this information to analyze whether the communication is normal.

Normal: If the values for Remove PE/FE/BE and Errors are both 0, it means that the communication is normal.

Port Number	Port 1	Port 2	Port 3
Last Received Bytes	0	0	0
Last Sent Bytes	0	0	0
Total Received Bytes	8	7	0
Total Sent Bytes	7	8	0
Remove PE/FE/BE (bytes)	0	0	0
Modbus	Port 1	Port 2	Port 3
Device(s)	Master	Slave	Master
Sent Packets	1	1	0
Received Packets	1	1	0
Read Requests	1	1	0
Cache Hits	0%	-	0%
Cache Force Recycle	0	-	0
Last Sent	7 bytes (01 03 02 00 00 B8 44)	8 bytes (01 03 00 00 00 01 84 0A)	-
Last Received	8 bytes (01 03 00 00 00 01 84 0A)	7 bytes (01 03 02 00 00 B8 44)	-
Errors	Port 1	Port 2	Port 3
ID Filters	0	-	0
Busy Exceptions	0	0	0
(Slave Idle) Drop Packets	-	0	-
(No Response) Timeouts	0	0	0
(Receiving) Timeouts	0	0	0
Other Errors	0	0	0
First Error Code Data (hex)	-	-	-
Last Error	-	-	-

Multiple exception types can occur simultaneously. It is recommended to first confirm the stability of the RS-232/485 signal (the Remove PE/FE/BE values are fixed and will not change), and then look for other causes. Below are common error messages that may appear during abnormal communication, along with suggested solutions.

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- **Remove PE/FE/BE value is not 0**

Problem: If this value remains fixed, it means that an error has occurred. If this value continues to increase, it means that the RS-232/485 signal is still unstable. This will cause the module to receive a wrong checksum or wrong data format, commonly resulting in error code 43 (hex).

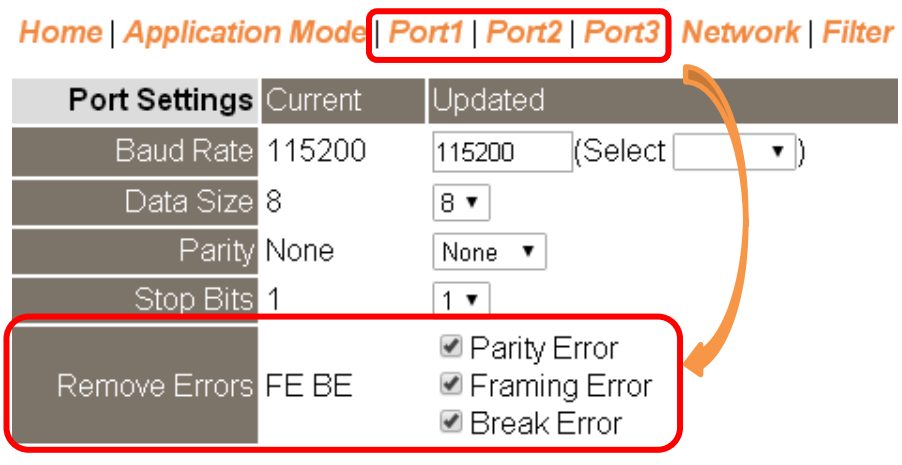
Solution: The hardware issue may be caused by wiring errors or signal interference. Please check whether the wiring is correct, ensure there are no loose connections, or add termination resistors (120 Ohm) on both sides of the RS-485.

For the software part, please check whether the baud rate, data format and other communication formats are correct, or reduce the baud rate to improve communication stability.

Port Number	Port 1	Port 2	Port 3
Last Received Bytes	0	0	0
Last Sent Bytes	0	0	0
Total Received Bytes	3	0	0
Total Sent Bytes	0	0	0
Remove PE/FE/BE (bytes)	10	0	0
Errors	Port 1	Port 2	Port 3
ID Filters	0	-	0
Busy Exceptions	0	0	0
(Slave Idle) Drop Packets	-	0	-
(No Response) Timeouts	0	0	0
(Receiving) Timeouts	0	0	0
Other Errors	1	0	0
First Error Code Data (hex)	43 (E0 98 80)	-	-
Last Error	43 (E0 98 80)	-	-

The values for Remove PE/FE/BE must remain fixed and unchanged to represent signal stability.

Before troubleshooting, please enable all Remove Errors options of each Port.



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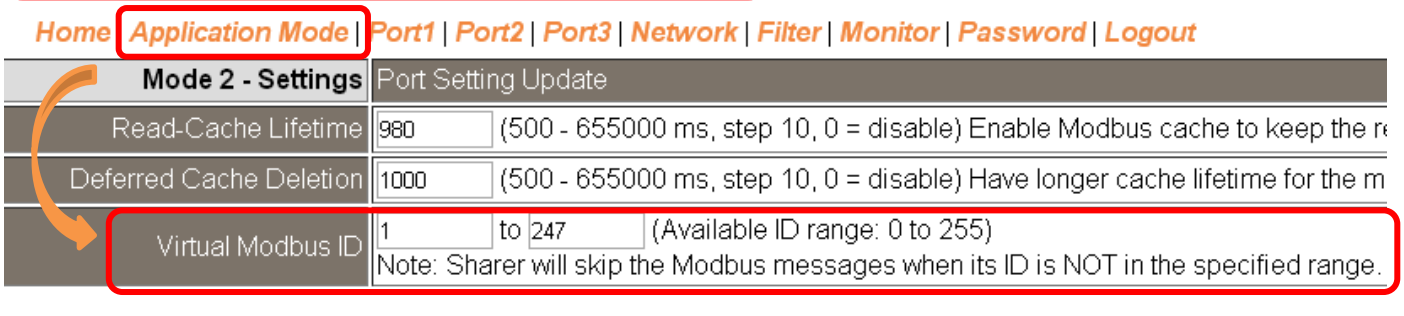
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- **ID Filters value is not 0**

Problem: The module receives an ID that exceeds the configured range. Error code 22.

Solution: Check the Virtual Modbus ID setting in the Application Mode.

Errors	Port 1
ID Filters	1
Busy Exceptions	0
(Slave Idle) Drop Packets	-
(No Response) Timeouts	0
(Receiving) Timeouts	0
Other Errors	0
First Error Code Data (hex)	22 (FE 03 00 00 00 01 90 05)
Last Error	22 (FE 03 00 00 00 01 90 05)



- **Busy Exceptions value is not 0**

Problem: The master device is sending commands too quickly, and the slave device is unable to process them in time. Error code 06.

Solution: Reduce the command sending frequency of the master device. Modbus uses a request-response mechanism, so please make sure that both the host computer and the tSH-700 module have appropriate timeout settings, otherwise timeout and busy exceptions may occur at the same time.

Errors	Port 1
ID Filters	0
Busy Exceptions	16
(Slave Idle) Drop Packets	-
(No Response) Timeouts	3
(Receiving) Timeouts	0
Other Errors	0
First Error Code Data (hex)	06 (01 03 00 0F 00 01 B4 09)
Last Error	06 (01 03 00 0F 00 01 B4 09)

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- **Timeouts value is not 0**

Problem: The module sends a command to the slave device but does not receive a response. Error code 0B.

Solution: Case 1, the module received the return value but timeout still occurred. This may be due to the slave device responding too late. It is recommended to increase the slave timeout setting on the module.

Case 2, the module did not receive the return value. In addition to increasing the slave timeout setting of the module, please also check whether the hardware wiring and software settings are correct.

Modbus	Port 1	Port 2	Port 2
Device(s)	Master	Slave	Slave
Sent Packets	0	1	1
Received Packets	1	0	0
Read Requests	1	1	1
Cache Hits	0%	-	-
Cache Force Recycle	0	-	-
Last Sent	-	8 bytes (01 03 00 00 00 01 84 0A)	8 bytes (01 03 00 00 00 01 84 0A)
Last Received	8 bytes (01 03 00 00 00 01 84 0A)	7 bytes (01 03 02 00 00 B8 44)	-
Errors	Port 1	Port 2	
ID Filters	0	-	
Busy Exceptions	0	0	
(Slave Idle) Drop Packets	-	1	
(No Response) Timeouts	1	1	
(Receiving) Timeouts	0	0	
Other Errors	0	0	
First Error Code Data (hex)	0B (01 03 00 00 00 01 84 0A)	0B (01 03 00 00 00 01 84 0A)	
Last Error	0B (01 03 00 00 00 01 84 0A)	23 (01 03 02 00 00 B8 44)	

Case 1

Case 2

Please refer to the FAQ: How to set the Timeout Value in tSH-700?

https://www.icpdas.com/web/product/download/industrial_communication/uart/tiny_series_faq/faq_sw_en_30.pdf

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