IOT Device Series Product

Software Function

This document is applicable for the following products.







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1. FUNCTIONAL DESCRIPTION

The IOT device series products has the following appllication, The following just take Elfin-EE10 for example. See test manual of specific product for detail usage:

- > Connect customer's device with PC or server via TCP/UDP/Telnet.
- Contain a HTTP web server allow user to configure through browser with PC or phone.

1.1. Basic Network Protocol

The IOT device series products uses the IP address for network communications. If uses the TCP to ensure that no data is lost or duplicated. If use UDP to assure that data can be fast and effective to DES3tination address.

Supported protocols include:

- > ARP, UDP, TCP, ICMP, DHCP, Telnet, DHCP, HTTP Server/Client
- > Telnet command configuration. Webpage configuration
- Security Protocol: TLS, AES, DES3 encryption

IOT Device Series Products						
	Prote	ocols	Security	Configuration		
Application Programming	DHCP IGMP	DNS/DDNS TCP/IP HTTP	TLS AES DES	Web IOTService CLI Telnet		
Interface	TCP/UDP					
	IP/ICMP					
		Ethernet/Wi-Fi				
FreeRTOS/mbed/Linux OS Drivers						
MCU						

Figure 1. Software Protocol Structure

1.2. Ethernet Interface Function



Figure 2. Ethernet Interface Function

The product Ethernet interface work in WAN function by default. When connect to router, it will get IP address from router(as picture 192.168.1.100). Then the procut and the PC1 are in the same local area network(LAN) for network communication, The data of communication finally pass from RS232 to network to control or collect PLC device.

Notes:

Different procut support UART of RS232/RS422/RS485/TTL interface. See product user manual.

1.3. Typical Network Architecture

As the following picture, Products and mobile device all connect to the same Router AP. At the same time, Products connect to user equipment by RS232 interface(RS485 function can be customized to support, still need additional 485 chip). The whole wireless network is easily to extend in this kind of network structure.







1.4. Working Mode

1.4.1. Transparent Transmission Mode

Product support transparent transmission mode for UART to netowork. In this mode, User only need to set some necessary parameter (Network communication parameter). After power on, the device can auto connect to default destination address (TCP/UDP). Use web page or PC IOTService software to set commucation parameter.

✗ TCP&UDP测试工具 - [192.168.0	0.101:8899]		- 🗆 X
Operate(<u>O</u>) View(<u>V</u>) Window	vs(<u>W</u>) Help(<u>H</u>) Langu	age	×
🗄 🔄 CreateConnn 🔇 CreateServe	r 🎉 StartServer 潴 🕻	🕽 😤 Connect 🗝 🝣 DisconnAll 💥 DeleteConn 💸 🕻	0 😹 🍦
Properties 🛛 🖣 🗙	192.168.0.101:88	899	4 b x
Client Mode 192.168.0.101:8899 Server Mode Server Mode	DestIP: 192.168.0.101 DestFort: 8899 LocalPort 4001 Type TCP - AttoConn Eve 0 5 AutoSend Eve 0 s Disconnect Count Send 8 Recv 6 Clear	Send AtusSend Eve 100 ms Send Send Kex Send File Send Received Clear C dddddddd Rec StopShow Clear Save Option ShowHer Save(In Time) PPPPP	Stop ption BroadDption Image: Serial-COM5 - SecureCRT - - File Edit View Options Iransfer Script Tools Help Statistical Comp Image: Serial Comp I Serial-COM5 Image: Serial Comp I Serial-Comp Image: Serial Comp I Ser
	Send Spe	eed(B/S): 0 Receive Speed(B/S): 0	Keady Serial: COM5 1, 9 12 Rows, 55 Cols VT100

Figure 4. Transparent Data Transmission Example

1.4.2. TCP Server

Transparent transmission mode support TCP Server、TCP Client、UDP Server、UDP Client communication application. UDP Server is special function which will be described in Cli command. There is a default tcp server socket(netp) created. The Socket can be modified to work at one of the above working mode. When Socket works as TCP server. It will allow multiple TCP client connection (max 5). Multiple TCP connection will work in below structure:

Upload data flow: All the different TCP connection or the Client's data will be continuously transmitter to UART.

Download data flow: All data received from UART will be copied and broadcast to every TCP client. Detailed multiple TCP connection structure drawn as below:





Figure 5. TCP Server Data Transmission Example

1.4.3. Multiple Socket

aunication Cattings

The device support max 5 Socket channel, each socket can work individually at TCP/UDP. Multi Socket simultaneous communication of data stream is as following.



Figure 6. Multi Socket Data Transmission Example

Multi Socket can be created through software configure or webpage configure. The below set up 3 socket channel.

change the device socket settings								
		Socket3 Socket2	netp +Add					
Basic Settings								
Name	Socket2							
Local Port	10001							
Buffer Size	512							
Kcep Alive (s)	60							
Timcout (s)	60							
Protocol Settings								
Protocol	Tcp Server		T					

Figure 7. Webpage Set Multi Socket

1.4.4. HTTP Mode

Sending data in HTTP format to HTTP server (Set product socket to HTTP by IOTService software or webpage). When device socket works in HTTP mode. All received UART data will automaticly



transform to HTTP format (add HTTP header) and send to HTTP server. For the received HTTP data from HTTP server, it will automatically remove HTTP header and only output the data packet to UART.



Figure 8. HTTP Request

5			
System		SOCKET	
User:	admin	SOCKET Name:	netp 💌
Password:	admin	Protocol: 🥖	НТТР
Http Setup	E UESAAD	×	192.168.83.107
-			8899
Type: GET	Version: 1.		0
Path: /1111			60
Host:192.168.83.107			0
		I	0
			uart 🔻
			512
			SOCKET Del
	Con	firm Cancel	
Stop Bits:	1	Confirm	Cancel
Parity:	NONE	Export	VirPath
Flow Control:	Half-Duplex 💌	Import	Detail
			E Set Clear

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Figure 9. IOTService Configure

Protocol Settings							
Protocol	Http						
Local Port	0						
Server	192.168.83.107						
Server Port	8899						
Connect Mode	Always						
Method	GET						
Version	HTTP/1.1 •						
Path	/1111						
	Headers						
Host	192.168.83.107						

Figure 10. Webpage Configure

For GET request, the received UART packet AAA will put after the HTTP path (auto add "?" between path and parameters), for POST request, packet is put in the content (auto add Content-Length header information).

Product will send the below data to HTTP Server when UART receive "pppp" data for GET request. GET /1111?pppp HTTP/1.1



Host: 192.168.83.107

Product will output "DDDDD" when get response from the HTTP server.

HTTP/1.1 200 OK Server: nginx Content-Length: 5

DDDDD

🔀 TCP&UDP	则试工具 -	192.168.83.100	:3816]				_		\times
Operate(<u>O</u>)	View(V)	Windows(<u>W</u>)	Help(<u>H</u>)	Language					
CreateCo	🗄 🚰 CreateConnn 🚳 CreateServer 🐰 StartServer 🛞 😡 😪 Connect 🐲 🗟 DisconnAll 💥 DeleteConn 🎇 🔟 🍃 💂								
Properties	ada		Ψ×	¥ 192.168.83.100:	3816				4 ⊳
Server N	Aode ((192.168.8 92.168.83.1	3.107):8899 00:3816		DestIP: 192.168.83.100 DestPort: 3816 S8899 Type TCP V AtuoConn Eve 0 s AutoSend Eve 42672544 ms Count Send 39 Reov 45 Clear	Send AtuoSend Eve 100 Send Mex Send File Send HTTP/1.1 200 OK Server: nginx Content-Length: 5 DDDDDD DDDDD Serve: (In Time) Rec StopShow Clear S Save(In Time) GET /1111pppp HTTP/1.1 Host: 192.168.83.107	ms 文件(E) 公子(F) I Serial-COI DDDDD	Send COM4 - 编辑(E)] ③ 》 ***********************************	1 Stop	

Figure 11. HTTP GET Request Example

Product will send the below data to HTTP Server when UART receive "pppp" data for POST request.

POST /1111 HTTP/1.1 Host: 192.168.83.107 Content-Length:4

pppp Product will output "DDDD" when get response from the HTTP server. HTTP/1.1 200 OK Content-Length: 4 Connection: close

DDDD

🎾 TCP&UDP测试工具 - [192.168.83.100:2	2381]		- □ >
Operate(<u>O</u>) View(<u>V</u>) Windows(<u>W</u>)	Help(<u>H</u>) Language		
🔄 🚰 CreateConnn 🛸 CreateServer 😹 Si	StartServer 🔏 🙆 😪 Connect	🗝 🏽 👻 DisconnAll 🛛 💥 DeleteCon	n 🗞 🖸 🌫 💂
Properties		2381	1 0
Client Mode Server Mode Local(192.168.83.107):8899 192.168.83.100:2381	DestIP: 192.168.83.100 DestFort: 2381 JocalPort 8899 Type TCP V AtuoConn Eve 0 s AtuoCond Eve 42672544 ms Count Send 122 Recv 67 Clear	Send AtuoSend Eve 100 Send Hex Send File Send HTTP/1.1 200 OK Content-Length: 4 Connection: close DDDD Rec StopShow C Save(In Time) POST /1111 HTTP/1.1 Host: 192.168.83.107 Content-Length: 4 PPPP PPP PPP Receive Speed(B	ms Send Stop Received Clear Option I-COM4 - SecureCRT 编辑(E) 查看(M) 选项(O) D 公 说 论 论 化 · · · · · · · · · · · · · · · · ·

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Figure 12. HTTP POST Request Example

1.4.5. Telnetd Mode

When device work in Telnetd mode, UART port can connect to user device console port(some gateway and switch device may have this console port to set parameters of its working mode). May use Products to config user device via Telnetd mode.

🗄 Setup			×
System		SOCK	
User:	admin	SOCK Name:	netp
Password:	admin	Protocol:	нттр
HostName:	EP-10	Server Addr:	TCP-SERVER TCP-CLIENT
DHCP:	Enable 💌	Server Port:	UDP-SERVER
IP Address:		Local Port:	UDP-CLIENT HTTP
Gate Way:		Keep Alive:	TELNETD
DNS:	10.10.100.254	Time Out:	300
UART		Rout:	uart 💌
Baudrate:	115200 💌	Buffer Size:	512
Data Bits:	8 💌	New SOCK	SOCK Delete
Stop Bits:	1 💌		
Parity:	NONE	Confirm	Cancel
Flow Control:	Disable 💌	Export	VCOM
Buffer Size:	512	Import	Detail

Figure 13. IOTService Software Configure Protocol





Protocol Settings		
Protocol	Tcp Server	•
	Tcp Server	
Security Settings	Tcp Client	
Security Securitys	Udp Server	
	Udp Client	
Security	Http	
	Telnetd	

Figure 14. Web page configure protocol

Connect device UART to user device console port(The example use NC916) and create Telnet connection. Then It can directly configure user device.



Figure 15. Telnet details example

1.4.6. WebSocket Mode

Device support WebSocket Client send data to WebSocket Server. (Use IOTService or Webpage to config). When in WebSocket Mode, device side will auto add WebSocket protocol header to server when receive UART data. And remove the protocol header and send the content to UART.

More WebSocket Case refer to following link.

http://www.hi-flying.com/download-center-1/application-notes-1/download-item-industry-productsapplication-manual-20180415







🔝 Device Status				×	🔝 Device Set	ting		×
System	Network HostName:	Eport-HF5111B	SOCKET SOCKET Name:	netp	System User:	admin	SOCKET SOCKET Name:	netp 💌
Product ID: HF5111B Software Version: 1.34.3 RTC Time: NTP Disabled Up Time: 0-Day 0:14.4 Total Free Memory: 22996 Max Block Size: 21484	DHCP: IP Address: Mask: Gate Way: MAC Address: UART UART UART No: Config: 115200,8,1,NONE Recv Bytes: 0 Send Bytes: 0 Fail Bytes: 0	Enable 192.168.83.106 255.255.255.0 192.168.83.1 98D86330A0F5	Protocol: Status: Client IP: Recv Bytes: 0 Send Bytes: 0 Fail Bytes: 0 Reload Restart	TCP-SERVER Server Created Recv Frames: 0 Fail Frames: 0 Fail Frames: 0 Edit	Password: HostName: DHCP: IP Address: Mask: Gate Way: DNS: UART UART No:	admin Eport-HF5111B Enable • 192108.83.107 25.00 192.108.85.10 192.208.10 192.208.1008.10000000000000000000000000000	Protocol: Server Addr: Server Port: Local Port: Keep Alive: Time Out: Rout: Buffer Size:	(WEBSOCKET 0.0.0) 0) 8899 60) 0) uart 1400
		 Websocket Edit Ping Time: Path: Protocol: 	60	Confirm Cancel	Baudrate: Data Bits: Stop Bits: Parity: Flow Contr Buffer Size	115200 • 8 • 1 • NONE • col: Half-Duplex • s: 512	Confirm Export Import F-Set Update	Cancel VirPath Detail F-Set Clear

Figure 17. IOTService Tools Config

☆ status	Communication Settings			
SYSTEM SETTINGS			netp +Add	Helper
>- SERIAL PORT SETTINGS	Basic Settings			Basic Settings
SOCKET SETTINGS	Name	netp		
↔ ADVANCED SETTINGS 4	Protocol	WebSocket	•	
A OTHERS	Socket Settings			
•	Server	121.40.165.18		
	Server Port	8600		
	Local Port	8899		
	Buffer Size	1400		
	Keep Alive(s)	60		
	Timeout(s)	0		
	Protocol Settings			
	Path	1		
	Protocol	ws		
	Ping Period(s)	60		
	More Settings			

Figure 18. Webpage Config

1.4.7. MQTT Mode

Device support MQTT Client send data to MQTT Server. (Use IOTService or Webpage to config).

More MQTT Case refer to following link.

http://www.hi-flying.com/download-center-1/application-notes-1/download-item-industry-productsapplication-manual-20180415





🔛 Device Setting				>
System User: Password: HostName: Eport-H	sOCKET N admin SOCKET N admin Protocol:	lame: netp 💌	WiFi Mode: AP SSID: AP Key:	AP ▼ HF2211_6CF8 Hide
DHCP: Enable IP Address: 192.168.8 Mack: 255.255	MQTT Edit	4	×	AUTO V
Gate Way: 192.16 DNS: 10.10.10	Ping Time: Client ID:	60 F0FE6B536CF8		Scan
Network Mode: Router	User: Password:	FOFE6B536CF8 FOFE6B536CF8		
UART UART 1	Subscribe Topic: Subscribe Qos:	down/F0FE6B536CF8		
Baudrate: 115200 Data Bits: 8	Public Topic: Public Qos:	up/F0FE6B536CF8 0		
Stop Bits: 1 Parity: NONE Flow Control: Half-Dup	ex 💌 Eth Wan:	Confirm Enable	n Cancel	Cancel Detail
Buffer Size:	1024	LAN Separate	F-Set Upd	F-Set Clear VirPath

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← → C ① 不安全 192.168.83.118/socket.html						
🔡 应用 📙 汉枫 📃 工作 🔜 购物 🧮 有人科技 😤 百度 🌻 百度地	圆 🗋 2110电	子网 🗋 谷歌邮箱 🚺 人人网				
合 当MKS	通讯设					
🔔 系统设置				netp	+添加	帮助
▶ 串口设置	基本设置					修改话
L SOCKETi设置		名称	netp			
		协议	MQTT	٣		
VV PIZARE	Socketi	置				
日本		服务器地址	112.124.43.15			
		服务器端口号	1883			
		本地端口号	0			
		缓存大小	1024			
		心跳时间(s)	60			
		超时时间(s)	0			
	协议设置					
		MQTT版本	4	•		
		MQTT客户端ID	F0FE6B536CF8			
		MQTT账号	F0FE6B536CF8			
		MQTT密码			Ð	
		订阅主题	F0FE6B536CF8			
		订间QoS	0	•		

Figure 21. Webpage Config

1.5. AES/DES3 /TLS Data Encryption

To improve device security and ensure the data won't be cracked and illegal used. The Products device can do encryption to UART data before transmit to network.AES use CBC method and the key is 16 characters length. TLS use no certificate method. DES3 is 24 characters length.

🔝 Setup Detail	×
System	UART
Telnet: Enable 💌	UART Protocol: NONE
Telnet Port: 23	Frame Lengt 50
Telnet Echo: Enable 💌	Frame Time: 100
Embedded We Enable 💌	Tag Enable:
Web Port: 80	Tag Start: 0
	Tag Enable: 0
	SW Flow Contr Disable 🔻
	Xor: 55
Security: AES	Voff.
Security Key:	Xon:
0123456789abcdef	Cli GetIn: Serial-String 💌
Connect Model: Always 💌	Serial-String: +++
Stop Serial:	Cli Wait Time: 300
	Confirm Cancel

Figure 22. IOTService Software Configure Encryption

Security Settings		
Security	AES	
Security Key	0123456789abcdef	

Figure 23. Webpage Configure Encryption

1.6. TCP Keepalive

When TCP connection between device and server became abnormal. The device will check the obnormal status and reconnect to server (When the device working in TCP Client Mode), When the device working in TCP Server, It will break the TCP client and wait for next connection.



Communication Settings

change the device socket settings

		S	ocket3	Socket2	netp	+Add	1
Basic Settings							
Name	netp						
Local Port	8899						
Buffer Size	512						
Keep Alive (s)	10						
Timcout (s)	300						

Figure 24. Webpage Config Keepalive

1.7. Timeout

The device will break the TCP connection after some time (default is 300 seconds and it can be modified to other value) if there is no data packet received from TCP target. It will reconnect to server (When device works in TCP Client mode). When device working in TCP Server, it will disconnect with TCP Client. This mechanism can effectively restore TCP abnormal connection. If set it to "0", this function will be disabled.

Basic Settings	
Name	netp
Local Port	8899
Buffer Size	512
Keep Alive (s)	10
Timcout (s)	300

Figure 25. Webpage Configure Timeout

1.8. Route Setup

The data received from Socket channel can be set to another socket channel. (Default: socket DES3tination channel is UART. It also can be other Socket channel, or take the Socket as log print usage)

The below example shows the default netp Socket channel route setting to Socket1, Socket1 configure as TCP Server mode and route setting to UART. After these setting the netp Socket channel received UART data will output to Socket1, and Socket1 channel will output to serial output.



	IF 物耳	美・改变生活	£
Socket1	netp	+Add	

Basic Settings	
Name	netp
Local Port	8899
Buffer Size	512
Kcep Alive (s)	10
Timcout (s)	300
Protocol Settings	
Protocol	Tcp Server
Security Settings	
Security	Disable
Route Settings	
Route	Socket1

Figure 26. Route function setup example



Figure 27. Route Function Data Flow Example

1.9. UART Frame Scheme

1.9.1. UART Free-Frame

Product support UART Free-Frame function, it will check the intervals between any two bytes when receiving UART data, If the interval time exceed the setting value, It will think it as the end of one frame, or it will receive data utill greater than internal buffer bytes(Default: 512, the largest 1400 bytes), then transfer to Socket Channel.

Module default UART Free-Frame interval time is 50ms, it will package into another frame if received UART data interval time is greater than 50ms. User also can set this interval time to minimum 10ms through Cli command and webpage.

If interval time is set to 10ms and customer MCU cann't send next byte within 10ms, the serial data will be break into two frame.



Buffer Size 512	Buffer Settin	ngs		
		Buffer Size	512	
Gap Time 50		Gap Time	50	\$

Figure 28. UART free-frame function

1.9.2. UART Auto-Frame

Products support UART Auto-Frame function, If user select to open this function, setting frame tigger length and auto frame trigger time parameters, Then the product will auto framing the data which received from UART port and transmitting to the network as pre-defined data structure.

Auto-Frame trigger length: The fixed data length that product used to transmitting to the network.

Auto-Frame trigger time: After the trigger time, If UART port received data cann't reach auto-frame trigger length, Then product will transmitting available data to network and bypass the auto-frame trigger length condition.



Figure 29. UART Auto-Frame Function

Protocol Settings				
	Protocol	Frame		
	Frame Length	50		
	Frame Time (ms)	100)	
	Tag	ON		
	Tag Hcad	00		
	Tag Tail	00		

Figure 30. UART Auto-Frame Function

1.9.3. Tag Function

Eport E10 support lable function, if user select to open this function, The UART port will send all suitable one frame data to network.





Protocol Settings				
Protocol	Frame	T		
Frame Length	50			
Frame Time (ms)	100	\$		
Tag	ON			
Tag Head	00			
Tag Tail	00			

Figure 31. UART Auto-Frame Tag Function

1.10. Modbus Protocol

Products support ModbusRTU to ModbusTCP and ModbusTCP to ModbusRTU. It's very convenient to connect with Modbus device. Modbus protocol setting as below:

Protocol Settings		
Protocol	Modbus	¥

Figure 32. UART Modbus Function

1.11. Cli Command

Cli command is used for setting module configure parameters. Detailed command function and setting is in next chapter, Cli command can be set through UART port or Telnet function (Appendix C), The waiting time of below picture means use timeout time. If it exceeds default 300s when no Cli command is input, it will exit Cli command mode. When the Products receive continuous UART data of "+++", it will enter in Cli command. (The device working in transparent transmission mode by default) May also set the device working in Cli command mode by default or disable this function.

Cli Settings		
Cli	Serial String	Ţ
Scrial String	+++	
Waiting Time	300	\$



Figure 33. Cli Command Setting

1.12. UART Flow Control

Products support software and hardware UART flow control. If use hardware follow control, CTS/RTS Pins are used to control UART data. If use software follow control, then It allowed the device output UART data after receive single UART 0x11 data (Default: value can be modified). It will stop output UART data after receive single UART 0x13 data (Default: value can be modified).

Follow Control Settings			
Follow Control	ON		
Software Follow Control	ON		
Xon	55		
Xoff	AA		

Figure 34. UART Flow Control

If set Flow Control to Half Duplex, it means enable the RS485 function. This is the default value. RS232 can also use this half duplex mode, just the data rate will be slowed down.

Flow Control Settings			
Flow Control	Half Duplex	T	

Figure 35. RS485 Function

1.13. Firmware Upgrade

Products support OTA (over the air) firmware upgrade. User can use webpage to upgrade its firmware, whether external or internal webpage (IP/hide such as 10.10.100.254/hide. Internal webpage can be also used for upgrade external webpage). Please check below example. IP address is assigned by router.



🕒 I.O.T Workshop DTU 🛛 🗙					
← → C ① 192.168.0.101/others.html					
当前状态	其他				
系统设置	备份/恢复所有设置				
串口 设置	备份	备份			
通讯设置	恢复	+ 选择文件			
其他	固件升级				
上传固件 + 选择文件					
Figure 36. External Webpage					
192.168.0.101/hide ×					
$\leftarrow \rightarrow \mathbf{C}$ (1) 192.168.0.	101/hide				
Upgrade application					
选择文件 未选择任何文件					
Upload					

Upgrade customized webpage

选择文件 未选择任何文件

Figure 37. Internal Webpage

1.14. Webpage Function

Webpage function itself can be enabled or disabled.

Web		
Enable	ON	
Web Port	80	

Figure 38. Web Page Function Setting

1.15. Auto-IP Function

Auto-IP is used for local area when there is no DHCP server exist, devices will use the Class B 169.254 for communication. Connect device Ethernet with PC, the device will use default auto IP(Elfin series use 169.254.1.1, others use 169.254.173.207). The PC may use this IP to config the device or transfer data. As the following example.







Figure 39. AUTO-IP Connection

The following use 169.254.173.207 to login HF5111B device webpage for config.

🕒 HF5111B 🛛 🗙			– (з ×	
← → C ① 169.254.173.207/index.html			<u>م</u>	ē 🖈 🕻	>
				ıglish ∨	
STATUS	Status System running status overview				
SYSTEM SETTINGS	System State		Helper		
SERIAL PORT SETTINGS	Product Name HF5111B	MAC F0FE6B1C3D35	System running status overview		
COMMUNICATION SETTINGS	DHCP	IP			
CUSTOM SETTINGS	Enable	169.254.173.207			l
OTHERS	Gateway 0.0.0.0	DNS 10.10.100.254			



EPORT>Show	
===System State=== Product ID:HF5111B Software Version:V1.07c Config Protected:OFF System time:NTP Disabled Up Time: 0-Day 0:1:36 Total Free Memory: 40320 MAX Block Size:38568	
===NETWORK=== MAC:F0FE6B1C3D35 Ip Address:169.254.173.207 GateWay:0.0.0.0	



1.16. NTP Function

NTP function is by default disabled. It can be enabled when set NTP server, port, timezone. More NTP function application can be seen for UART Fast Config document. (cn.ntp.org.cn is a public NTP server).

🔛 Setup Detail						×
System		UART		SOCKET		
Telnet:	Enable 💌	UART No:	UART 1 💌	SOCKET Name:	netp 💌	
Telnet Port:	23	UART Protocol:	NONE	Security:	AES 💌	
Telnet Echo:	Enable 💌	Frame Length:		Security Key:	5450500500704 40	
Embedded Web:	Enable 💌	Frame Time:			5463698532784e42	
		Tag Enable:	Disable 💌	Connect Mode:	Always 💌	
Web Port:	08	Tao Start:		Stop Serial:		
NTP:	Enable 💌	I		HeartBeat:	Disable 🔻	
NTP Server:	cn.ntp.org.cn	Tag End:		HeartBeat Time:		
NTP Port:	123	SW Flow Control:	Disable 🔻	HeartBeat Serial:		
NTP GMT:	8 💌	Xon:		Regist Mode:	Disable 💌	
		Xoff:		Regist Code:		
WiFi Roaming		Cli GetIn:	Serial-String	Max Client NumMax		
WiFi Roaming:	Disable 🔻	Serial-String:	+++			
Scan RSSI Threshold:		Cli Wait Time:	300			
Connect BCCI Threshold		Gap Time:	50			
Connect RSSI Threshold:			,			
E l'a l'a						
Edit Script	Confirm		Cancel			

Figure 42. NTP Setting.

🔛 Device Status				×
System	Network HostName: DHCP: IP Address: Mask: Gate Way: MAC Address:	Eport-HF5111B Enable 192.168.83.100 255.255.255.0 192.168.83.1 E0EE6B3DDB3E	SOCKET SOCKET Name: Protocol: Status: Server IP: Recv Bytes: 28 Send Bytes: 2760	netp ▼ TCP-CLIENT Connected 192.168.83.107 Recv Frames: 6 Send Frames: 40
Product ID: HF5111B Software Version: 1.32.4 RTC Time: 2018-7-31 19:4:47 Tues	UART VART No: Config: 115200,8,1,NON	UART 1 👻	Fail Bytes: 0	Fail Frames: 0
Up Time: 0-Day 3:10:51 Total Free Memory: 25616 Max Block Size: 24132	Recv Bytes: 949 Send Bytes: 28 Fail Bytes: 0	Recv Frames: 41 Send Frames: 6 Fail Frames: 0	Reload Restart	Edit

Figure 43. RTC Time

1.17. Register Function

Register function can be enabled in TCP Client transparent transmission mode. The device will add head data when connection is established or for each packet received from UART. Register packet support wildcard(%) character for special data such as MAC, VER. See detailed in IOTService tools.



Figure 44. Register Function

Register function support link(means connection established send head), data(means add header for each received UART data) or both(link and data all enabled). For the wildcard example such as %MAC, the header is the real device MAC address in ASCII format. Another example is %VER, it means the software version in HEX format.

- %MAC: MAC, ASCII format, Ex: ACCF23208888
- %HMAC: MAC, HEXformat, Ex: F0 FE 6B 88 90 90
- %GPS: location information upload, ASCII format, Ex: 21.623046,31.221429。
- %VER: Software version, 3 bytes, HEX format, Ex: 01 00 03 (stands for 1.0.03)
- %DATE: year, month, day time, YYYYMMDD, ASCII format, Ex: 20190211
- %TIME: Hour, minute, and second time. HHMMSS, range : 000000~235959, ASCII format, Ex: 165036
- %HOST: Hostname, set by AT+HOST, ASCII format, Ex: Eport-HF2411

Register example is as following. Set it to both and the content set with the user defined data of HF5111B with the wildcard MAC and VER



🔝 Setup Detail					
System		UART		SOCKET	
Telnet:	Enable 💌	UART No:	UART 1 💌	SOCKET Name:	netp 💌
Telnet Port:	23	UART Protocol:	NONE 🔻	Security:	AES 💌
Telnet Echo:	Enable 🔻	Frame Length:		Security Key:	
Embedded Web:	Enable	Frame Time:			5463698532784e42
Web Dest	200	Tag Enable:	Disable 💌	Connect Mode:	Always
web Port:		Tag Start:		Stop Serial:	
NTP:	Enable	Tag End:		HeartBeat:	Disable
NTP Server:	cn.ntp.org.cn			HeartBeat Time:	
NTP Port:	123	SW Flow Control:	Disable	HeartBeat Serial:	
NTP GMT:	8 🔻	Xon:		Regist Mode:	Data 🔻
		Xoff:		Regist Code:	HF5111B%VER%MAC
WiFi Roaming		Cli GetIn:	Serial-String 💌	Max Client NumMax	
WiFi Roaming:	Disable ▼	Serial-String:	+++		
Scan RSSI Threshold:	50	Cli Wait Time:	300		
Connect RSSI Threshold:	70	Gap Time:	50		
Edit Script	Confirm	n	Cancel		

Figure 45. Register Function Example

Product UART receive a single byte "P", it will send to server the following data in hex format: 48 46 35 31 31 31 42 【HF5111B】 01 20 04 【software version 1.32.4】 46 30 46 45 36 42 33 44 44 42 33 46 【MAC address F0FE6B3DDB3F】 50 【P】.

🎾 TCP&UDP测试工具 - [192.168.83.100:2938]			- 1	o x
Operate(O) View(V) Windows(W) Help(H	er 🐮 🐼 😤 Connec	💱 🍣 DisconnAll 🔀 DeleteConn 🎇 🔯	æ _	×
Properties 4 ×	192.168.83.100	2938		4 Þ x
 ☐ Client Mode ☐ Server Mode ☐ Local(192.168.83.107):8899 ☐ 192.168.83.100:2938 	DestIP: 192.168.83.100 DestPort: 2938 LocalPort 8899 Type TCP AtuoConn Eve 0 5 AtuoSend Eve 0 ms Count Send 0 Recv 23 Clear	Send AtuoSend Eve 100 ms Send Hex Send File Send Received Rec StopShow Clear Save Option Save(In Time) 48 46 35 31 31 31 42 01 20 04 46 30 46 45 36	Send Stop Clear Option	BrosdOpti 46 50





1.18. Heartbeat Function

Heartbeat function can be enabled in TCP Client mode. Product will send heartbeat data for heartbeat time. It is very useful for server side to judge that the client is still alive.

Heartbeat data also support wildcard just like the register function.



Figure 47. Heartbeat Function

🎾 TCP&UDP测试工具 - [192.168.3.196:402	4]		— C	x c		×
CreateConnn ScreateServer 28 Sta	artServer 🔏 🐼 🔶 Con	nect 🗝 👻 DisconnAll 💥 De	eleteConn 🞇 🖸 🕏 💂	×	SOCKET SOCKET Name:	netp
Operate(2) View(V) Windows(W) Properties # × □ Client Mode	ielp(H) Language Image: Image and the	4 Send AtusSend Eve 100 Send Hex Send File Send Rec StopShow Clear S	az <u>Send Stop</u> d Received <u>Clear</u> Option	X 4 b X BroadD	Socker Name. Security: Security Key: Connect Mode: Stop Serial: HeartBeat: HeartBeat: HeartBeat Serial: Regist Mode: Regist Code: Max Client NumMax	Interp Disable ↓ Always ↓ Enable ↓ 10 %HMAC_%MAC Disable ↓ 32
	Send 0 Reov 60 Clear Send Speed(B/S): C	00 fe 6b 53 6o f8 pf 5f 46 30 46 %HMAC 9 Receive Speed(B/S) 5 <t< td=""><td>5 45 36 42 35 33 36 43 46 38 %MAC);9</td><td></td><td></td><td></td></t<>	5 45 36 42 35 33 36 43 46 38 %MAC);9			

Figure 48. Heartbeat Function Setting

1.19. UART Fast Config

Products support not only UART CLI command for setting, but also special HEX format UART data to change part common parameters. See UART Fast Config document for detail.

http://www.hi-flying.com/download-center-1/application-notes-1/download-item-industry-productsapplication-manual-20180415

♣ HF 物联·改变生活

1.20. IOTService

IOTService tools is not only for local product management and config, but also used for remote management, firmware upgrade, virtual path, virtual com and D2D(device to device) communication via IOTBridge cloud we provide. See detail in IOTService tools document.

1	Begin	💥 Stop 🤇	💮 Config 🤇	🔪 Status 🖤	VirPa	th			Connecte
SN	DevType	MAC Address	HostName	IP	P	osition	VirPath	State	SW Ver
1	HF5111B	FOFE6B3DDB3F	Eport-HF5111B	192.168.83.100	Loca	1		Online	1.32.4
P	HF2421	F0FE6BC646CC	Eport-HF2421	117.61.29.53	China	a.Nanjing		Online	1.30.9
3	HF2421	FOFE6BC64810	Eport-HF2421	117.61.195.13	Rem	ote		Online	1.30.9
1	HF2421	FOFE6BC64648	SKANMY1AA	117.61.140.23	Rem	ote		Online	1.30.9
5	HF2421	F0FE6BC6465C	Eport-HF2421	117.61.144.236	Chin	Copy Devic	e MAC	Online	1.30.9
5	HF2421	F0FE6BC646A0	Eport-HF2421	117.61.23.129	Chin	Device Tab	le Filter	Online	1.30.9
+	HF2421	POPEOBC04330	Epon-HP2421	117.01.14.131	Chin	Ketresh		Online	1.50.9
8	HF2421	FOFE6BC64780	Eport-HF2421	117.61.195.84	Rem	Delete Sele	inted Daving	Online	1.30.9
9	HF2421	FOFE6BC646B8	Eport-HF2421	117.61.194.67	Rem	Delete Sele	cted Device	Online	1.30.9
10	E10	FOFE6B3A4418	Eport-E10	116.231.151.15	Rem	Upgrade Fi	irmware Selected	Offline	1.10
11	E10	FOFE6B3A4416	Eport-E10	116.231.151.15	Rem	Upgrade Fi	irmware All	Offline	1.32.1
-	UE2211	ENELEPSDOE14	Enort HE2211	101 01 247 142	Pan			Offline	1 21

Figure 49. IOTService

1.21. Virtual Path

Virtual Path is used for virtual socket, virtual com, D2D communication either locally and remotely via IOTBridge cloud. See more in IOTService document.

	System		SOCKET		VIrPath List	×
	User:	admin	SOCKET Name:	netp 💌		A
	Password:	admin	Protocol:	TCP-CLIENT	🔅 VicDath Edit	~
	HostName:	Eport-HF5111B	Server Addr:	192.168.83.107	Vircom VirThrough VPath D2D	
	DHCP:	Enable	Server Port:	8899		
1	IP Address:		Local Port:	0	VCOM Name:	
	Mask:		Keep Alive:	60	Serial Port: COM2 🔫	1
	Gate Way:					
+	DNS:	223.5.5.5	Time Out:	0	Rout:	
			Rout:	uart 💌		
ł	UART No:	UART 1	Buffer Size:	512		
	Baudrate:	115200 💌	New SOCKET	SOCKET Del	Confirm Cancel	
L	Data Bits:	8 💌	[]			
	Stop Bits:	1 💌	Confirm	Cancel		_
	Parity:	NONE 💌	Export	VirPath		
	Flow Control:	Half-Duplex 💌	Import	Detail	Add VPat	h Close

Figure 50. IOTService Virtual Path

1.22. Config Save

The product parameters can be exported and imported into other product. And the setting parameters can be saved as factory setting. Prevent the accident operation of restore to factory causing parameter lost



IOT Device Series Software Function

☆ STATUS	Others change the device other settings		
SYSTEM SETTINGS	Backup/Restore Configuration		Helper
>- SERIAL PORT SETTINGS	Backup	Backup	Backup/Restore Configuration
COMMUNICATION SETTINGS	Restore	+ Choose File	
	Upgrade		
	Firmware	+ Choose File	
-	Factory Settings		
	Set	Set	
	Clear	Clear	
	Reload/Restart		
	Reload Options	SYS UART SOCK	
	Restart	Restart	

Figure 51. Import and Export Parameter

☆ status	Others change the device other settings		
SYSTEM SETTINGS	Backup/Restore Configuration		Helper
SERIAL PORT SETTINGS	Backup	Backup	System settings
COMMUNICATION SETTINGS	Restore	+ Choose File	
	Upgrade		
OTHERS	Firmware	+ Choose File	
	Factory Settings	actory Settings	
	Set	Set	
	Clear	Clear	
	Reload/Restart		
	Reload Options	SYS UART SOCK	
	Restart	Restart	

Figure 52. Save Current for Factory Default Parameter

1.23. HIS Script Funciton(Only 4G Product Support)

Hi-flying I.O.T script(HF IOT Script, short fot HIS). It is used for data transfer of IOT industrial device. When download the script in to the industrial device, the following functions can be achieved.

- Automatically send data to UART or Socket at regular time, which can be recognized as Modbus primary station.
- After receive data from UART or Socket, data will transferred based on script.

See following link for more about HIS Script.

http://www.hi-flying.com/download-center-1/application-notes-1/download-item-his-script

1.24. Modbus Master Function

Modbus Master is for query modbus slave, send the response packet to server.



1	🕈 Device Setting				×		
	System		SOCKET				
	Welcome:	Gport-EG11	SOCKET Nam	e: A	•		
	HostName:	Gport-EG11	Protocol:		-		
1 0T	Longitude:	0.0	Server Addr:		112.124.43.15	×	
Device Stat	Latitude:	0.0	Server Port:		1883		
System	IOT Time:	0: 0 ~ 23: 59	Connect N	Edit Script			X
	UART UART No:	UART 1	Rout:	HFScriptFunction	NUM 🔽 1		Import Script
Elfin-EG11 Refes	Baudrate:	115200 💌	HeartBeat	QueryInterval(ms)	NUM 💌 1	000	Export Script
GPRS	Data Bits:	8	Regist Mc	UploadInterval(s)	NUM 🔫 1	0	Delete Script
Product ID:	Stop Bits:	1	Regist Co	UploadMethod	NUM 🔻 0		
Software Ve	Parity:	NONE	Data Tag	UploadJson	NUM 🔻 1		Read Script Para
RTC Time:	Flow Control:	Disable 💌	Security:	JsonName	STRSTR 🖵 te	estname1 testname2	Add Script Para
Up Time:	UART Protocol:	NONE	Security K				raa oonperana
Longitude:	HeartBeat Time:	0	Network	QueryCommand1	STRHEX V	1 03 00 00 00 01 84 01	Confirm
Lautude.	HeartBeat Serial:	IOTWORKSHOP	APN:	QueryCommand2	STRHEX	1 03 00 01 00 01 D5 CA	Close
22 HF2			APN Use		- V		
	Confirm	Cancel	APN Passwe	d:			
	Import	VirPath	SMS ID:		#SMS#		
	Export	Script	SMS Phone:	-			
			SMS Status:	U	•		

See detail in following link

http://www.hi-flying.com/download-center-1/application-notes-1/download-item-industry-products-application-manual

2. CLI COMMAND NOTES

2.1. Working Mode

The device will enter default transparent transmission mode after powered on. User can switch to Cli command mode through special UART data. Module default UART parameters are as below:

Quick Connect		×	
<u>P</u> rotocol: P <u>o</u> rt: <u>B</u> aud rate: <u>D</u> ata bits: P <u>a</u> rity: <u>S</u> top bits:	Serial ~ COM5 ~ 115200 ~ 8 ~ None ~ 1 ~	Flow Control DTR/DSR RTS/CTS XON/XOFF	
∏Sho <u>w</u> quick	connect on star	✓Save session □Open in a tab Connect Cancel	

Figure 53. Products Default: UART Parameters

In Cli Command mode, User can use UART to set parameters.

Notes:

We recommend to use SecureCRT for UART debug tools.

2.1.1. Switch Transparent Transmission Mode to Cli Command Mode

Steps:

Input "+++" via UART tools, the device will output "EPORT>" after received"+++". Then the device already enters into Cli command mode.

Notes:

"+++" should be in one frame. Other data is not allowed before or after "+++"



🐻 Serial-COM5 (2) - SecureCRT	-		×
<u>File Edit View Options Transfer Script Tools</u> <u>Help</u>			
1 X G 4 X 4 6 4 4 G 5 6 6 6 1 8 X 1 9 2			
Serial-COMM5 (2)			×
EPORT>			^
			¥
+++			\sim
			¥
Ready Serial: COM5 1, 7 24 Rows, 80 Cols VT100		N	IUM .

Figure 54. Switch Transparent Transmission Mode to Cli Command Mode

<Notes>:

In Cli command mode, users can set or query parameters. Cli command details see next chapter

2.2. Cli Command Overview

Cli command can be input through terminal (SecureCRT or other UART tools) or by user device MCU programming. As below picture, we use SecureCRT tool. Press "Tab" key, it will list current available Cli command or directory. If intput first character and then press "Tab" key, it will show the Cli command fit with the first character

	naraotoni				
🕞 Serial-COM4 - SecureCRT				_	\times
<u>File Edit View Options Tr</u>	ansfer <u>S</u> cript Too <u>l</u> s <u>H</u> elp	1			
\$\$ \$\$ C \$ X h f	2 5 5 5 6 6 % 1	8 🔤			
Serial-COM4					×
Show SYS Restart Reload ScriptCrc Exit EPORT>	UART FwUpgrade	SOCK Debug	DATA CfgVer		~

Figure 55. Cli Command Root Directory

2.2.1. Cli Command Format

Cli command is in ASCII format. The usage is similar to Linux terminal. Command format as following:

- Format Notes
 - < >: Cli command name or directory.
 - []: Cli command parameters.
- Command Message



<CMD> [para-2 para-3 para-4…]<CR>

- CMD>: Main directory or command name;
- [para-n]: command parameters. If have multiple directory, it can also can be the son directory. As below example;

EPORT>SYS Auth		
User	Passwrod	Quit

<CR>: Command Terminator, "Enter" key, HEX data: 0x0a or 0x0d

<Notes>

If the input command does not exist, UART will output again "EPORT>" to allow next command input. The Cli command is case sensitive.

EPORT>sys	
EPORT>SYS	
EPORT/SYS>	

If need enter son directory, press "space" key between the directorys.

EPORT>SYS	Auth
EPORT/SYS/	/Auth>

If need to display all the directory or commands in the current directory, press "Tab" key to query.

EPORT/SYS>				
Auth	Network	Telnet	Web	IDV6
MAC	JCMD	Quit		-

If need to display current command parameter, press Tab key to query after command.

EPORT/	'SYS/	Networ	k>DHCP
Enable	Di	sable	

2.2.2. Show Command

- Function: Show all system information, including the system running status, Network status, UART status and socket status.
- Format:
 - Query

Show [SYS/UART/SOCK]

Parameter:

Show all information if no parameters. Parameter can be one of the following:

- SYS: System running status
- UART: UART status
- SOCK: Socket status

EPORT>Show	
===System State: Product ID:E-10 Software Version Up Time: O-Day (Total Free Memon MAX Block Size:4	=== h:V1.04 D:21:39 ry: 48400 46816
===NETWORK=== MAC:ACCF23FF477 Ip Address:192.3 GateWay:192.168	L L68.0.106 .0.1
===UART Status= Config:115200,8 State:In CLI Recv Bytes:26 Send Bytes:0 Failed Bytes:0	== ,1,NONE,NONE Recv Frames:24 Send Frames:0 Failed Frames:(
===SOCK Status= SOCK Name:netp State:Server Cro Client IP: Recv Bytes:0 Send Bytes:0 Failed Bytes:0	== eated Recv Frames:0 Send Frames:0 Failed Frames:(

2.2.3. SYS Directory

- Function: Display/Set all system related information
- Format:
 - Tab Query

EPORT/SYS> Version NTP	Auth MAC	Network JCMD	Telnet NAT	Web Ping
ProductID	CustomerID	UserID	CfgProtect	FactoryCfg
Script	XmlLoad	Language	Quit	

2.2.4. SYS/Version Command

- Function: Display software version
- Format:
 - ♦ Query

<Version>



2.2.5. SYS/Auth Directory

- Function: Display/Set web or Telnet Cli command login directory. (see appendix for detail)
- Format:
 - Tab Query



2.2.6. SYS/Auth/User Command

- Function: Display/Set web or Telnet Cli command login user name. (function see appendix)
- Format:
 - Query

<User>

Set

<User> [value]

- Parameter:
 - Login user. Default: admin. Setting is valid immediately,
 - ◆ value: set value. Length range 1~29 characters

```
EPORT/SYS/Auth>User
admin
```

2.2.7. SYS/Auth/Password Command

- Function: Display/Set web or Telnet Cli command login password(function see appendix)
- Format:
 - Query

<Password>



Set

<Password> [value]

Parameter:

Login password. Default: admin . Setting is valid immediately

♦ value: set value. Length range 1~29 characters



2.2.8. SYS/Network Directory

- Function: Display/Set network information.
- Format:
 - ♦ Tab Query

EPORT/SYS/	/Network>			
Show	DHCP EthMode	DNS	HostName	Lan
Houre	E CHINOGE	Quite		

2.2.9. SYS/Network/Show Command

- Function: Display network related information
- Format:
 - Query

<Show>

2.2.10. SYS/Network/DHCP Command

- Function: Display/Set DHCP Client function
 - Format:
 - Query

<DHCP>

Set

<DHCP> [Enable/Disable]

Parameter:

Setting is valid after reboot.

- Enable: Enable DHCP function. The device will get DHCP IP from router when Ethernet port is connected to router LANN port. Default: Enable.
- Disable: Disable DHCP function. Allocate device static IP address according to the hit of intputting IP and gateway address.

2.2.11. SYS/Network/DNS Command

- Command: Display/Set DNS IP address.
- Format:

Query

<DNS>

Set

- <DNS> [IP]
- Parameter:

When DHCP function is Disabled, this setting is valid. Setting is valid after reboot.



• IP Address: DNS server address. Default: **223.5.5.5**.

2.2.12. SYS/Network/Hostname Instruction

- Function: Display/Set Hostname.
- Format:
 - Query
 - <Hostname>

Set

<Hostname> [name]

Parameter:

Hostname is the name which show in router DHCP client list. Setting is valid immediately.

• Name Address: Hostname, length range: 1~29 characters.

2.2.13. SYS/Network/Lan Instruction

- Function: Display/Set Lan parameter. Only Wi-Fi product support this.
- Format:
 - Query

<Lan>

Set

<Lan> [ip mask Enable/Disable]

Parameter:

Set LAN parameters. Setting is valid after reboot.

- ip: LAN IP
- mask: LAN submask.
- Enable/Disable: Enable/Disable LAN DHCP Server function.

```
EPORT/SYS/Network>Lan 1.1.1.1 255.255.255.0 Enable
SET-OK
EPORT/SYS/Network>Lan
Dhcpd:Enable
Ip:1.1.1.1
Mask:255.255.255.0
```

2.2.14. SYS/Network/Mode Instruction

- Function: Display/Set network working mode parameter. Only HF2211/HF2221 support this.
- Format:
 - Query

<Mode>

Set

<Mode> [Router/Bridge]

- Parameter:
 - Set product works in router or bridge mode. Setting is valid after reboot.
 - Router: Router mode, default value.
 - Bridge: Bridge mode

2.2.15. SYS/Network/EthMode Instruction

- Function: Display/Set Ethernet working mode parameter. Only HF2211/HF2221 support this.
- Format:
 - Query

<EthMode>

Set

<EthMode> [WAN/LAN]

Parameter:

Set Ethernet working mode. Setting is valid after reboot.

- WAN: Ethernet works in WAN mode. Default value. When Wi-Fi is working in STA mode, Ethernet is by changed to LAN mode.
- LAN: Ethernet works in LAN mode.

2.2.16. SYS/Telnet Instruction

- Function: Display/Set Telnet function.
- Format:

Query

<Telnet>

Set

<Telnet> [Enable/Disable]

Parameter:

See appendix for detailed Telnet function usage. Telnet is used for remote send Cli command or transmit data, Setting is valid after reboot.

- Enable: Enable Telnet function. Default: **Enable**.
 - Input Port Numbver: Telnet Port Number. Default: 23
- Input Echo Mode: Enable/Disable Cli command echo function. Default: Enable
- Disable: Disable Telnet function.

2.2.17. SYS/Web Instruction

- Function: Display/Set Web config function.
- Format:
 - Query

<Web>

♦ Set

<Web> [Enable/Disable]

Parameter:

Webpage is used for config module working parameters. Setting is valid after reboot.

- Enable: Enable Web config function. Default: **Enable**.
 - Input Port Number: Web Port Number. Default: 80
- Disable: Disable Web config function

2.2.18. SYS/NTP Instruction

■ Function: Display/Set NTP function.



Format:

Query

<NTP>

Set

<NTP> [Enable/Disable]

Parameter:

Setting is valid immediately

- Enable: Enable NTP function. Input NTP server, port and timezone according to command line.
 - NTP Server Address: domain name or IP address.
 - NTP Server Port: 0~127
 - GMT: range -12~14.
- Disable: Disable NTP function. Default value.

```
EPORT/SYS>NTP Enable
Input NTP Server Address:1.1.1.1
Input NTP Server port[123]:123
Input GMT[8]:8
SET-OK
Try to connect NTP...
```

2.2.19. SYS/MAC Instruction

- Function: Display/Set MAC address.
- Format:
 - ♦ Query

<MAC>

♦ Set

<MAC> [8888 value]

Parameter:

Global unique MAC Address. It is not allowed to modify it.

• value: MAC address value.

2.2.20. SYS/JCMD Instruction

- Function: Display/Set Jason command function.
- Format:

Query

<JCMD>

Set

<JCMD> [Enable/Disable]

Parameter:

Json command is used for config module. IOTService software use this mechanism. If disable JCMD function, IOTService is no longer valid. Setting is valid after reboot.

- Enable: Enable JCMD function. Default: **Enable**.
- Disable: Disable JCMD function.

2.2.21. SYS/NAT Instruction

- Function: Display/Set IOTBridge function.
- Format:
 - Query

<NAT>

Set

<NAT> [Enable/Disable]

Parameter:

IOTBridge is our cloud server provided for remote management. Setting is valid after reboot.

- Enable: Enable NAT function. Default: **Enable**.
- Disable: Disable NATfunction.

EPORT/SYS>NAT
Enable
Server:bridge.iotworkshop.com
Port:48899

2.2.22. SYS/Ping Instruction

- Function: Ping Command.
- Format:
 - ♦ Query

<Ping> [address]

- Parameter:
 - address: IP address or domain name.
 - Timeout: Destination is not available.
 - Success: Destinatioin is available.

EPORT/SYS>Ping	www.baidu.com
Success	

2.2.23. SYS/ProductID Instruction

- Function: Show product ID, it is used for product distinguish in IOTService or webpage.
- Format:
 - ♦ Query

<ProductID>

- Parameter:
 - Show product ID value.

EPORT/SYS>ProductID
HF2211

2.2.24. SYS/CustomerID Instruction

- Function: Show customer ID, it is used for product name shown in IOTService or webpage.
- Format:
 - ♦ Query
 - <CustomerID>



♦ Set
<CustomerID> [data]

- Parameter:
 - ♦ data: Customer ID value, default is same as ProductID.

EPORT/SYS>CustomerID aaaa SET-OK EPORT/SYS>CustomerID aaaa							
😫 I.O.T Service					\square \times		
Management (M) Setting (C) Tools (T)	Help (H)						
Begin 💥 Stop 💮 Config	Status 🐺 Virf	Path			Connected		
SN DevType MAC Address HostNa	ime IP	Position	VirPath	State	SW Ver		
1 aaaa OFE6B536970 dddddddd	ldddd 192.168.83.127	Local		Online '	1.31		
	21HE2A21_IE0EE68C646CC/Eports-HE2A21117_61_33_126China_Napiing ↓Online11_30.0 ● - □ × × C3 智能生: × C3 智能生: × C3 工単系: × ▲ IOT D∈ × 介 定制 #: × 合 aaaa ×						
าไ					☆ 🖸		
					English ∨		
Status							
System running status overview							
System State Helper							
Product Name aaaa	MAC F0FE6B536970		Communicatio	on settings			

2.2.25. SYS/UserID Instruction

- Function: Show user ID, it is used in IOTBridge for bound device to IOTBridge account.
- Format:
 - ♦ Query

<UserID>

♦ Set

<UserID> [data]

- Parameter:
 - data: User ID value, default is blank.

2.2.26. SYS/Cfgprotect Instruction

- Function: Show Protect switch status. It is not allowed to change prameters when Protect is ON.
- Format:
 - Query

<Cfgprotect>

- Parameter:
 - OFF: Protect is off. Parameters are allowed to modify.
 - ON: Protect is on. Parameters are not allowed to modify.

2.2.27. SYS/FactoryCfg Instruction

- Function: Save or Clear user parameters to factory default.
- Format:
 - ♦ Query

<FactoryCfg>

Set

<Factory Cfg> [Enable/Disable]

- Parameter:
 - Enable: Save user current parameters to factory setting. When do restore to factory operation, it will restore to this saved user value.
 - Disable: Clear saved factory setting. When do restore to factory operation, it will restore to the orginal factory value..

2.2.28. SYS/Script Instruction

- Function: Show script function. See script document for detailed usage.
- Format:

Query

<Script>

2.2.29. UART Directory

- Function: Display/Set UART information directory.
- Format:
 - Tab key query

| EPORT/UART> | | | | |
|-------------|----------|------------|-----------|--------------|
| Show | Baudrate | Databits | Stopbits | Parity |
| Buf | FlowCtrl | SWFlowCtrl | Cli-Getin | Cli-WaitTime |
| Proto | Frame | Edit | Clean | Quit |

2.2.30. UART/Show Instruction

- Function: Display UART information function.
- Format:
 - Query

<Show>

2.2.31. UART/Baudrate Instruction

- Function: Display/Set UART baud rate function.
- Format:
 - ♦ Query

<Baudrate>

Set

<Baudrate> [value]

Parameter:

Setting is valid immediately.

Value: Default: 115200. Can choose 300, 600, 1200, 2400, 4800, 9600, 38400, 57600, 115200, 230400, 460800. Different product may support different range.

2.2.32. UART/Databits Instruction

- Function: Display/Set UART data bits function.
- Format:
 - ♦ Query

<Databits>

Set

<Databits> [value]

- Parameter:
 - Setting is valid immediately.
 - Value: Default: 8bits. Can choose 5, 6, 7, 8. Different product may support different range.

2.2.33. UART/Stopbits Instruction

- Function: Display/Set UART stop bits function.
- Format:
 - Query
 - <Stopbits>

♦ Set

<Stopbits> [value]

Parameter:

Setting is valid immediately.

 Value: Default: 1bits. Can choose 1, 2. Different product may support different range.

2.2.34. UART/Parity Instruction

- Function: Display/Set UART parity function.
- Format:
 - Query

<Parity>

Set

<Parity> [value]

Parameter:

Setting is valid immediately.

 Value: Default: None. Can choose NONE, EVEN, ODD. Different product may support different range.

2.2.35. UART/Buf Directory

- Function: Display/Set UART Buffer directory.
- Format:
 - Tab key query

EPORT/UART/Buf> BufSize GapTime_Quit

2.2.36. UART/Buf/Bufsize Instruction

- Function: Display/Set UART buffer size function.
- Format:
 - Query

<Bufsize>

Set

<Bufsize> [value]

Parameter:

Buffer is used for cache UART received data. If the received data of one frame is larger than buffer size. The data frame will be break into two packets send to network. Setting is valid immediately.

 Value: Default: 512. Length range: 32~8192 bytes. Different product may support different range.

2.2.37. UART/Buf/GapTime Instruction

- Function: Display/Set UART free frame gap time.
- Format:
 - ♦ Query

<GapTime>

Set

<GapTime> [value]

Parameter:

GapTime is used for setting UART free frame time gap. If the received data gap time is more than setting value, the data packet will be breaked into two frames.

♦ Value: Default: **50ms**. Length Range: 10~1000ms.

2.2.38. UART/Buf/FlowCtrl Command

- Function: Display/Set UART flow control function.
- Format:
 - ♦ Query

<FlowCtrl>

Set

<FlowCtrl> [Enable/Disable]

Parameter:

Flow control includes software flow control and hardware flow control. Software flow control priority is higher than hardware. If enable software flow control, the hardware flow control pin (CTS/RTS) will be useless. Software flow control use special UART data for control. Hardware flow control use CTS/RTS pin control. Setting is valid immediately.

- Enable: Flow control function.
- Half-Duplex: Enable RS485 half-duplex mode, UART0_RTS is used for RS485 control pin. Default value.
- Disable: Disable Flow control function. .

2.2.39. UART/Buf/SWFlowCtrl Command

- Function: Display/Set UART software flow control function.
- Format:
 - Query

<SWFlowCtrl>

Set

<SWFlowCtrl> [Enable/Disable]

Parameter:

Enable software flow control function. The device UART can output data After UART received Xon single-byte enable data. When UART received Xoff single-byte disable data. It will disable the device UART output data.

- Enable: Enable software flow control function, When in enable status, it allow UART data output when bootup by default.
 - Xon: Enable UART output data. Default: **0x11**.
 - Xoff: Disable UART output data. Default: **0x13**.
- Disable: disable software flow control function. Default: **Disable**.

2.2.40. UART/Cli-Getin Command

- Function: Display/Set Cli command function
- Format:
 - ♦ Query

<Cli-Getin>

Set

<Cli-Getin> [Serial-String/Always/Disable]

Parameter:

Set Cli command parameters. Setting is valid immediately.

- Serial-String: Enable specific data to enter into Cli command mode.
 - [Input Serail String]: Default: +++, Range1~10 bytes. Also can input hex format data. The HEX data are separated by Spaces, Like 【30 31 32 33 34】, When it recieved string data "01234", then It can enter into Cli command.
- Always: Always work in Cli command mode when device power on.
- Disable: Disable Cli command mode. UART and Telnet both can't use Cli Command.

2.2.41. UART/Cli-WaitTime Command

- Function: Display/Set Cli command wait time
 - Format

<Cli-WaitTime>

Set

<Cli-WaitTime> [timeout]

Parameter:

Set Cli command mode timeout exit time. If there is no Cli command sent for the waitfime, It will exit Cli command mode to transparent transmission, Setting is valid immediately.



timeout: Default: **300s**, Range 0: Disable WaitTime function, 1~300s.

2.2.42. UART/Proto command

- Function: Display/Set UART protocol function
- Format:
 - ♦ Query

<Proto>

Set

<Proto> [NONE/Modbus/Frame]

Parameter:

Setting is valid immediately.

- NONE: Default: None, transparent transmission, the received UART data will be directly sent to network.
- Modbus: Modbus RTU to Modbus TCP.
- Frame: Enable auto-frame function. Relevant parameters are set in Frame command.

2.2.43. UART/Frame Directory

- Function: Display/Set UART frame directory.
- Format:
 - Tab key query

| EPORT/UART/Frame> | | | | | |
|-------------------|-----------|-----|------|--|--|
| FrameLen | FrameTime | тад | Quit | | |

2.2.44. UART/Frame/FrameLen Command

- Function: Display/Set UART auto-frame frame length
- Format:
 - Query

<FrameLen>

Set

<FrameLen> [value]

Parameter:

Set UART auto-frame length, Setting is valid immediately.

◆ value: Default: 8, Range: 8~1400.

2.2.45. UART/Frame/FrameTime Command

- Function: Display/Set UART auto-frame time
- Format:

Query

<FrameTime>

♦ Set

<FrameTime> [value]

Parameter:

Set UART auto-frame time, Setting is valid immediately.



◆ value: Default: **100ms**, Range: 100~10000.

2.2.46. UART/Frame/Tag Command

- Function: Display/Set UART auto-frame Tag
- Format:
 - Query

<Tag>

♦ Set

<Tag> [Enable/Disable]

Parameter:

Set UART auto-frame tag. Only transmit data from tag head to tag tail. Filter the other datas. Setting is valid immediately.

- Enable: Enable auto-frame tag function.
 - TagHead: LabelHead. Default: **0x55**, Single byte data.
 - TagTail: LabelTail. Default: **0xAA**, Single byte data.
- Disable: Default: Value.

2.2.47. UART/Edit Command

- Function: Set UART parameter
- Format:
 - Set

<Edit> [baudrate databits stopbits parity]

Parameter:

Set all UART communication parameter including baud rate, data bit, stop bit and parity.

2.2.48. UART/Clean Command

- Function: Clear UART transmit-receive data information
 - Format:
 - ♦ Set

<Clean>

Parameter:

Clear the UART data count (Data packet/Frame/Error packet and so on) shown in webpage.

2.2.49. SOCK Directory

- Function: Display/Set Socket channel directory.
- Format:
 - Tab key query



Netp and UDP are created socket channel. Itsupport maximum 5 Sockets.

2.2.50. SOCK/Show Command

Function: Display Socket information function.



Format:

Query

<Show>

2.2.51. SOCK/New Command

- Function: Set new Socket information
 - Format:

♦ Set

<New> [name]

Parameter:

There is a default socket created(netp). It supports max 5 socket channel. Every channel can be set as TCP/UDP/HTTP and so on. Setting is valid immediately.

- ♦ Name: Socket name. Range 1~19 characters.
 - Input Sock Proto: Choose one communication method of the following.
 - TCP-SERVER: TCP Server Mode. It supports max 5 TCP Client connection.
 - TCP-CLIENT: TCP Client Mode. It is used for connecting server.
 - UDP-SERVER: UDP Server Mode. Special function. Product will record the last received UDP package source IP and Port information. The received UART data will be send to this IP and port, not the setting destination.
 - UDP-CLIENT: UDP Client Mode.
 - HTTP: HTTP Protocol transmission. The received UART data will transform to HTTP format and it will remove the HTTP header information and only output the HTTP data to UART.
 - TELNETD: Telnetd Mode. Use Telnet to config the UART Console equipment.

TCP Server Mode:

- Input Local Port[0]: Set local port, Range 1~65535, 0 is random port. For TCP Server and UDP application, set it to a fixed 1~65535(TCP port 80 is used for its webpage). For TCP Client application, usually set it to 0.
- Input Buffer size[512]: Set Buffer size. Default: 512 bytes, Range:1~1400.
- Input KeepAlive[60]: Set TCP keepalive, Heartbeat time, Defalut 60s, Range: >=0.
- Input Timeout[300]: Set TCP timeout, If exceed setted time and don't received any network data package, It will break TCP connection. If working in TCP client mode, it will reconnect immediately. If it work in TCP server mode, the TCP client need to create the connction. Set this value to 0 is to close the function. The function is used for TCP to restore abnormal connection. Recommend to enable. Default: 300s, Range 0~600.
- Input Sock Security[Disable]: Security options, Used for data special encryption. Default: disable no encryption.
 - Disable: No encryption



- TLS: TLS1.2 encryption, We use no certificate method. Only support in TCP client mode.
- AES: AES encryption, CBC method, TCP/UDP all support this.
- DES3: DES3 encryption, TCP/UDP all support this.
 - Input key: AES or DES3 key. For AES encryptiont, the key is fixed 16 bytes length, the IV value is the same as key. For DES3 encryption, the key is fixed 24 bytes length, the IV value the first 8 Bytes of key. The key can be ASCII or Hex format data. Hex format data need to use "space" character as separator, ex, "01 02 03..."
- Input Rout[uart]: Set the Socket channel output. Can choose UART and other created Socket or use as Log print using.

TCP Client Mode (Only list out difference)

- Input Server Address: Set server IPv4 address or domain name.
- Input Server Port: Set server port
- Input Local Port[0]: Same as above
- Input Buffer size[512]: Same as above
- Input KeepAlive[60]: Same as above
- Input Timeout[300]: Same as above.
- Input Sock Security[Disable]: Same as above
- Input Connect Mode[Always]: Set TCP Client connection mode
 - Always: TCP persistent connection. If TCP break, it will reconnect immediately.
 - Burst: It will establish connection once UART received data. If set stop function, It will disconnect after network received stop data.
 - Input Stop Serial: Set Burst Mode Stop bits. It can be ASCII or Hex format data, Hex format data need use space as separator, 1~10 bytes.
- Input Rout[uart]: Same as above

UDP Server/ UDP Client

HTTP Mode

- Input HTTP type[POST]: HTTP request type. Default: POST. Can choose POST or GET.
- Input HTTP path[/]: HTTP request path, Need start by"/". The longest byte is 64 bytes.
- Input HTTP version[1.0]: HTTP Protocol Version. Default: 1.0, Can choose 1.0 or 1.1
- Input HTTP parameters: Add HTTP head information, end by "Enter" key.lf want to end the input, direct input "Enter" key. All HTTP header data length should be less than 250 bytes.

2.2.52. SOCK/netp directory

- Function: Display/Set Socket netp channel directory.
- Format:
 - Tab key query



| EPORT/SOCK/net | p> | | | |
|----------------|-------------|-----------|---------|------------|
| Show | Name | Proto | Server | ServerPort |
| LocalPort | BufSize | KeepAlive | Timeout | Security |
| HeartBeat | ConnectMode | MaxAccept | Rout | Save |
| Clean | Del | Quit | | |
| | | • | | |

Every created Socket channel can be modified through name. The above command function is the same as New Socket command description

2.2.53. SOCK/netp/MaxAccept Command

- Function: Display/Set socket accep number when works in TCP server mode.
- Format:
 - Query

<MaxAccept>

Set

< MaxAccept > [number]

Parameter:

Set max socket accept number. Default is 5 or 20, range 1~5 or 1~20 depends on different product. If set to 1, the data will be output according to the sequence connection established. Only after the queue in the front break then output the data of the next connection in the queue. Setting is valid after reboot..

2.2.54. SOCK/netp/clean Command

- Function: Clear netp channel data packets information
 - Format:
 - ♦ Set

- <Clean>
- Parameter:

The network data packets information can be checked from webpage. The command will reset the data count.

2.2.55. SOCK/netp/save Command

- Function: Save socket setting. Only after the save command will the parameters setting be saved into flash. Otherwise it will loose after reboot.
 - Format:

Set

<Save>

2.2.56. DATA Directory

- Function: Display/Set Cli command mode communication
- Format:
 - Tab Query



Default: data sent in ASCII format. Also can change to send by HEX, The command is used for Cli command mode to transfer data.



2.2.57. Restart Command

- Function: Restart instruction.
- Format:
 - Set

<Restart>

2.2.58. Reload Instruction

- Function: Restore Factory setting instruction.
 - Format:
 - ♦ Set

Reload [SYS/UART/SOCK]

Parameter:

Reload to factory setting, if add the following parameters, it will only restore corresponding parameters. Parameter can include one of the below three:

- SYS: Restore system setting relevant paramter
- UART: Restore UART setting relevant paramter
- SOCK: Restore Socket relevant paramter

2.2.59. WIFI Directory

- Function: Display/Set Wi-Fi Function
- Format:
 - ♦ Tab Query

| EPORT/WIFI> | | | | |
|-------------|----------|--------|------|------|
| show | Mode | Status | Scan | Rssi |
| Roaming | HideSSID | Quit | | |

2.2.60. WIFI/Show Instruction

- Function: Show Wi-Fi status
- Format:
 - Set

<Show>

| EPORT/WIFI>Show |
|---|
| ===WIFI Status===
Mode:AP
AP SSID:DDDD
Connected |
| STA SSID:Sam401
Disconnected |

2.2.61. WIFI/Mode Command

- Function: Display/Set Wi-Fi working mode.
- Format:
 - ♦ Query
 - <Mode>



Set

<Mode> [AP/STA/APSTA]

Parameter:

Set Wi-Fi working mode. Setting is valid after reboot..

- AP: Default value
 - Input AP SSID: Input AP SSID,1~31 characters.
 - Input AP Key: Input AP key, 8~63 characters
- STA: STA mode
 - Input STA SSID: Input STA SSID,1~31 characters.
 - Input STA Key: Input STA key
- APSTA: AP+STA mode, only HF2211/HF2221 support..

2.2.62. WIFI/Status Instruction

■ Function: Show Wi-Fi status, same as Show command

2.2.63. WIFI/Scan Command

- Function: Display Wi-Fi scan result.
- Format:
 - Query

<Scan>

```
EPORT/WIFI>Scan
CH,SSID,BSSID,RSSI
11,Caoyu,78:96:82:A2:C6:A2,10
11,Sam401,D4:EE:07:2D:14:1E,100
11,UPGRADE-AP,20:DC:E6:48:35:9E,39
10,ChinaNet-yRMx,38:E3:C5:A2:87:D5,100
6,xiaoheizi,B0:95:8E:06:CB:16,34
6,Caoyu,AA:25:93:B8:45:E2,5
6,Caoyu,D0:C7:C0:24:6C:40,20
1,TP-LINK_FF03AA,78:A1:06:FF:03:AA,15
```

2.2.64. WIFI/Rssi Command

- Function: Display Wi-Fi STA signal strength.
- Format:

Query

<Rssi>

Signal strength, range: 0~100%

```
EPORT/WIFI>Rssi
0
```

2.2.65. WIFI/Roaming Command

- Function: Display/Set Wi-Fi STA auto switch function.
- Format:
 - Query
 - <Roaming>
 - ♦ Set

<Roaming> [Enable/Disable]



Parameter:

Set Wi-Fi auto switch, need to use IOTService to config..

- ScanRssi: Start to find same SSID with stronger signal strength when the currect AP signal strength weaken to this setting value.
- ScanInterval: scan interval in seconds.
- ReconnectRssi: Connect to same SSID with stronger signal strength higher than this value.

| EPORT/WIFI>Roaming |
|--------------------|
| Roaming:Disable |
| ScanRssi:0 |
| ScanInterval:0 |
| ReconnectRssi:0 |
| |

2.2.66. WIFI/HideSSID Command

- Function: Display/Set Wi-Fi AP SSID hide function.
- Format:

Query

<HideSSID>

Set

<HideSSID> [On/Off]

2.2.67. Exit Command

- Function: Exit Cli Command mode instruction
 - Format:
 - ♦ Set

<Exit>

2.2.68. Quit Command

- Function: Quit the current and go the father Cli command directory.
- Format:

Set

<Quit>

2.2.69. WIFI/FwUpgrade Command

- Function: Do upgrade function.
- Format:

Set

<FwUpgrade> [url]

Parameter:

Upgrade firmware according to this setting. If download OK, it will response with "Upgrade OK!", if download fail, it response with "Upgrade FAIL". Run new firmware after reboot.

• url: url resource, ex: http://192.168.0.101/mfw.bin



APPENDIX A:REFERENCES

A.1. Test Tools

IOTService, UART, Network test tools:

Download Address: http://www.hi-flying.com/index.php?route=download/category&path=1_4

APPENDIX B:TELNET COMMUNICATION FUNCTION

B.1. Telnet Use Scene:

- a) Remote management device
- b) Remote management uart equipment

B.2. Telnet Features:

- a) Telnet support echo mode,
- b) Telnet only support one Client port.
- c) Telnet port number is 23
- d) Telnet connected with TCP, If Client port don't transmit data in 300s, It will auto

disconnect.

B.3. Telnet Usage:

Telnet function default as ON, If can't connect, PIs use webpage or configuration to check the function is on or off.

| Telnet | | |
|-------------|----|--|
| Enable | ON | |
| Telnet Port | 23 | |
| Echo | ON | |

 a) Configure Secure CRT module and connect parameter, Equipment need to connect with LAN, Can use equipment LAN IP to access, If need remote to access the equipment, It need router have public IP address as port and mapped to internal website, Then can remote access equipment.



| Quick Connect | > | < |
|----------------------|---|---|
| <u>P</u> rotocol: | Telnet \checkmark | |
| <u>H</u> ostname: | 192. 168. 199. 143 | |
| P <u>o</u> rt | 23 Firewall None ~ | |
| | | |
| | | |
| | | |
| | | |
| | | |
| 🗌 Sho <u>w</u> quick | connect on star 🗹 Sa <u>v</u> e session | |
| | 🗌 Open in a <u>t</u> ab | |
| | Connect Cancel | |

 $b\,)\,$ Use webpage account and password login in module, Then interface will show

"EPORT>" .

| III 192.168.199.143 - SecureCRT | _ | | \times |
|---|---|---|----------|
| File Edit View Options Transfer Script Tools Help | | | |
| 13 3 G 1 1 X = 6 Q G 5 4 4 K 1 ? Z | | | |
| 192.168.199.143 | | | × |
| login:admin
login:admin
password:
EPORT> | | | ^ |
| | | | |
| | | | 5 |
| | | | •
^ |
| | | | |
| | | | \sim |
| Ready Telnet 5, 7 24 Rows, 80 Cols VT100 | | N | UM |

c) Later use are same as UART cli command, And can realise Telnet data with UART $% \left({{\mathbf{T}_{\mathrm{A}}} \right)$

data transparent transmission application.,



| 🕞 192.168.199.143 - SecureCRT – 🗆 🗙 | Serial-COM5 - SecureCRT - | × |
|--|---|----|
| File Edit View Options Transfer Script Tools Help | File Edit View Options Transfer Script Tools Help | |
| 17 7 7 7 7 7 7 7 7 8 1 1 1 1 1 1 1 1 1 1 | 1 X C X n n Q 7 S S A 1 ? 3 | |
| 192.168.199.143 | Serial-COM5 | × |
| login:admin
password:
EPORT>
Show SYS UART SOCK DATA
Restart Reload Exit
EPORTATA-Str>
Hex Quit
EPORT/DATA-Str>/da====='
EPORT/DATA-Str>aaaaaaaaaa
EPORT/DATA-Str>+++ | aaaaccccc+++ | ^ |
| Y | | ~ |
| ^ | *** | Ô |
| Ready Telnet 12, 16 24 Rows, 50 Cols VT10 | Ready Serial: COM5 1, 1 24 Rows, 56 Cols VT100 | .: |

Telnet Software implementation principle:

Step 1 Establish TCP connection with module

Step 2 Module send "login", Client port send user name(need end with Enter key, Tools

|)送 TCP&UDP测试工具 - [192.168.1 | 199.143:23] | | - | | × |
|-------------------------------|--|--|---------------------------|----------|-------|
| Operate(Q) View(V) Window | vs(<u>W)</u> Help(<u>H</u>) Langu | age | | | × |
| 🗄 🔄 CreateConnn 🔕 CreateServe | r 😹 StartServer 😹 🕻 | 🕽 😤 Connect 🞯 📽 DisconnAll 💥 DeleteCo | onn 💐 🔯 🛛 🥫 | | |
| Properties # × | 192.168.199.143 | :23 | | - | 4 Þ 🗙 |
| Client Mode | DestIF: 192.168.199.143 DestFort: 23 LocalPort 4001 Type TCP AtsoConn Eve Disconnect Count Send Recv 143 Clear | Send AtuoSend Eve 100 ns
Send Hex Send File Send Received
Rec StopShow Clear Save Option
Save(In Time)
ff fb 01 ff fb 03 ff fb 00 ff fe 01 ff fd >0
ff fb 01 ff fb 03 ff fb 00 ff fe 01 ff fd >0
eed(B/S): 0 Receive Speed(B/S): 0 | Send Stop
Clear Option | BroadOpt | ion |
| | sena sp | receive speed(b)s). o | | | |

can type Ctrl+Enter)

Step 3 Module send 0xFF 0xFB 0x01 Close telnet input display.

Step 4 Module send password, Client port send login password

| ➢ TCP&UDP测试工具 - [192.168.1 | 99.143:23] | | - | | |
|--|---|--|---------------------------|-------------|----|
| Operate(Q) View(V) Window | s(<u>W)</u> Help(<u>H</u>) Langu | age | | | × |
| 🗄 🛄 CreateConnn 🔕 CreateServer | 🎉 StartServer 🔏 🕻 | 🕽 😤 Connect 🕱 🍣 DisconnAll 💥 DeleteCor | nn 💸 🔯 🍃 🥊 | | |
| Properties 4 × | 192.168.199.143 | :23 | | 4 Þ | × |
| Client Mode
192.168.199.143:23
Server Mode | DestIP: 192.168.199.143 DestPort: 23 LocalPort 4001 Type TCP AtusConn Eve 0 send 14 Recv 45 Clear | Send AtuoSend Eve 100 ns
Send Hex Send File Send Received
admin
Rec StopShow Clear Save Option F
Save(In Time)
admin
password:
EFORT> | Send Stop
Clear Option | BroadOption | 1 |
| | Send Sp | eed(B/S): 0 Receive Speed(B/S): 5 | | | .1 |

Step 5 Module send 0xFF 0xFC 0x01 Open telnet input display

Step 6 It can send and receive Cli command After Enter into Cli command mode.