

Serial to Ethernet User Manual

USR-TCP232-302/304/306



V2.0

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1. Introduction

1.1. Overview

USR-TCP232-302, USR-TCP232-304 and USR-TCP232-306 are cost-effective serial to Ethernet converter. They adopt Cortex-M0 solution, which has a main frequency up to 48MHz, providing fast transmission speed. Equipped with RS232/RS485/RS422 serial port and 10/100M Ethernet port, those products can connect to variety of serial devices to achieve transparent transmission via simple configuration to save manpower and shorten the development cycle. These products are widely used in smart traffic, unattended Weighing, manufacturing industry etc.

USR-TCP232-302, 304 and 306 are identical in software features, they both support transparent data transmission, Modbus gateway, user-defined webpage, heartbeat packet, registration packet, index function etc.

In hardware, TCP232-302 is RS232 to Ethernet converter, TCP232-304 is RS485 to Ethernet, TCP232-306 supports RS485/RS232/RS422, but RS485/RS232/RS422 can't work at the same time.

Model	Description
USR-TCP232-302	1 x RS232, DB9 female, DC 5.5*2.1 power supply: 5~7 V
USR-TCP232-304	1 x RS485, 3P connector, DC 5.5*2.1 power supply: 5~7 V
USR-TCP232-306	1 x RS232/485/422, 4P connector + DB9 male, DC 5.5*2.1 & block terminal power
	supply:5 ~ 36V

Table 1. Ordering Guide

1.2. Features

- ARM core, Cortex-M0 solution, equipped with deeply optimized TCP/IP protocol stack. It has low latency and strong scalability, stable and reliable.
- Supports custom webpage function to help users improve brand influence.
- 1.5KV built-in network Magnetic Isolation.
- Wide baud rate: 600~460.8 Kbps, multiple parity bit: NONE, Odd, Even, Space, Mark
- Supports Modbus RTU to Modbus TCP protocol conversion and multi-host polling.
- Supports keepalive mechanism to quickly detect the dead connections and reconnect.
- Supports hardware and software watchdog, automatically restarts when the device goes down.
- 10/100Mbps Ethernet port and support Auto MDI/MDIX.
- Supports a wide industrial operating temperature, -25°C~75°C.
- Versatile operation modes: TCP Server, TCP Client, UDP, HTTP client.
- Support virtual COM, COM Port Redirector USR-VCOM (windows).



• Easy to config: built-in webpage and AT command to set parameters.

2. Get Started

2.1. Hardware interface introduction

2.1.1. Power supply

The USR-TCP232-302 and USR-TCP232-304 provide DC jack power supply interface. Power supply range: 5~7V DC.



Figure 1. TCP232-302/304 DC power supply

The USR-TCP232-306 provides 2-pin power supply terminal blocks and DC jack. The power supply support anti-reverse protection. Power supply range: 5~36V DC.



Figure 2. TCP232-306 power supply



2.1.2. Serial port

Model		Туре	Description
USR-TCP232-302	5 0 0 1 6 9 DE-09S (Female Socket Front View)	RS232, DB9 female	2: RxD 3: TxD 5: GND
USR-TCP232-304	RS485 G B A	RS485	A: Data+ B: Data-
	1 6 ••••• DE-09P (Male Plug Front View)	RS232, DB9 male	2: TxD 3: RxD 5: GND
USR-TCP232-306	RS422/RS485 • • • • T+(A) T-(B) R+ R-	RS485/RS422	For RS485 A: Data+ B: Data- For RS422 T+: Transmit data (+) T-: Transmit data (-) R+: Receive data (+) R-: Receive data (-)

Table 2. Serial port pin description

2.1.3. Ethernet port

USR-TCP232-30x series adopt 10Base-T/100Base-TX adaptive Ethernet RJ45 interface which supports automatic MDI/MDIX connection.



Figure 3. RJ45 with light



Pin number	Signal name
1	Send data+(TD+)
2	Send data-(TD-)
3	Receive data+(RD+)
6	Receive data-(RD-)
4, 5, 7, 8	Unused

Table 3. Ethernet pin assignment

2.1.4. LED indicators

In USR-TCP232-30x series, only USR-TCP232-306 has LED indicators. The LED indicators description is in the following table.

LED name	Status	Description
Dowor	ON	Power supply is normal
	OFF	No power supply or abnormal power supply
Work	Blinking	System is booted up and running
Link	ON	TCP connection is established, or the device works
		in UDP mode
TX	Blinking	Serial port is transmitting data
RX	Blinking	Serial port is receiving data

Table 4. LED indicators description

2.1.5. Reload button

After the USR-TCP232-30x is powered on, keep pressing the reload button for 3~15 seconds and then release to restore the 30x device to the factory default settings.





Figure 4. Reload button

2.1.6. Factory default setting

The USR-TCP232-30x serial device server comes with the following default setting.

Parameter	Default Values
Username	admin
Password	admin
Device IP	192.168.0.7
Subnet Mask	255.255.255.0
Gateway IP	192.168.0.1
COM port	115200, N, 8, 1
COM operation mode	TCP client

Table 5. Default parameter

2.2. Quick test

USR-TCP232-30x series serial server has a built-in Web server, which provides a convenient way to access and configure the serial server. Users can use Edge, Firefox or Google browser to access it. This chapter is a quick introduction to the USR-TCP232-30x series of serial server products. It is recommended that users read this chapter and follow the instructions once for the system, and you will have a basic understanding of the product. For specific function details and instructions, please refer to the subsequent chapters.

2.2.1. Download software

Download the software from PUSR's website:

Config software: 插入设置软件下载链接

Test software: https://www.pusr.com/support/download/usr-tcp232-test-V13.html

After downloading, run the config software. It is strongly recommended for the users to set the Network Parameters through configuration tool first. Other device-specific configurations can later be carried out via user-friendly Web-Interface.



🔮 USR-M0 V2.2.6.1	-	×
File Language Help		
Operate Via LAN Operate Via COM	Base Param (which is without *,usually keep default)	^
	IP Type * DHCP/Auto IP V HTTP Port 80	
Device IP Device Name MAC Ver	ModuleStaticIP * 192.168.0.7 User Name admin	
192.168.0.7 USR-TCP232-306 D8 B0 4C B4 B1 94 4020	SubnetMask * 255.255.255.0 Password admin	
	Gateway * 192.168.0.1 Device Name USB-TCP	
	DNS Address 208.67.222.222	
	Reset Timeout(s) 3600	
	🗌 Clear Buffer Data Before Connected 🛛 🗹 Link	
	UART Set Parameter	
	Port Param	
	Parity/Data/Stop NOt V 8 V 1 V Baudrate 11520 V	
🔍 Search Device	Module work mode TCP Client V Local Port 0	
	RemotelP 192.168.0.201 Remote Port 8234	
	Short Connection time 3 Tcp connect num 4 ~	
Data has been sent	PackTime 0 PackLen 0	
Click device can read the parameters, right-click Device list show	Short Connection	
Read [Mac : D8 B0 4C B4 B1 94]	TCP Server-kick off old connection	
Data has been sent	UDP data source judgment	
Read OK		
	Heartbeat	
	Heartbeat Packet Type None ~	
		1
Operation Log Hex Streams	✓ Save Config DataDebug	

Figure 5. Config software

🔮 USR-TCP232-Test RS23	2 to Ethernet Convert tester				– 🗆 X	
File(F) Options(O) Help	(H)					
COMSettings	COM port data receive		Network data receive		NetSettings	
PortNum COM4 -					(1) Protocol	
BaudB 115200 ▼					TCP Server 💌	
					(2) Local host IP	
					172.16.10.31	
DataB 8 bit 💌					(3) Local host port	
StopB 1 bit					8234	
🔘 Open					Listening	
-Room Ontions					-Rear Ontions	
Depirons					Departments C'l	
Keceive to file					Keceive to file	
✔ Add line return					✓ Add line return	
Receive As HEX					Receive As HEX	
🔲 Receive Pause					🔲 Receive Pause	
<u>Save</u> <u>Clear</u>					Save Clear	
Send Options					Send Options	7
🔲 Data from file					🗌 Data from file	
🔲 Auto Checksum					🔲 Auto Checksum	
🗍 Auto Clear Input					🔲 Auto Clear Input	
🗍 Send As Hex					🔲 Send As Hex	
🗍 Send Recycle					🔲 Send Recycle	
Interval 1000 ms	Jinan USR Technology Co., I+d	Send	http://en.usr.on	Send	Interval 1000 ms	
Load Clear					Load Clear	
💣 Ready!	Send:0 Recv:0	Reset	💣 Ready!	Send: 0	Recv:0 Reset	t

Figure 6. Test software



2.2.2. Hardware connection

For fast networking of USR-TCP232-30x series serial server, you need to prepare a PC, a router, a serial server, a network cable, a serial cable, and a DC5V/1A power supply. The hardware connection is shown in following figure. To establish a TCP / IP network all devices must be connected to the same network either locally or via gateway connections.



Figure 7. Hardware connection

2.2.3. Parameter configuration

Using the config software,

- 1. Users can search out the 30x device,
- 2. Set the IP type as DHCP/Auto IP,
- 3. Save config,
- 4. Search the device again,
- 5. Open the webpage, the user will be navigated to the login page, the username and password are both "admin".



File Language Help		File Language Help	
Operate Via LAN Operate Via COM	Base Param (which is without *, usually keep default)	Operate Via LAN Operate Via COM	Base Param (which is without *,usually keep default)
Click device can rea	d the parameters, Type + DHCP/Auto IP 2. HTTP Port 80		IP Type * DHCP/Auto IP V HTTP Port 80
Device IP Device Name MAC right-click Device list	st show more aticIP + 192.168.0.7 User Name admin	Device IP Device Name MAC Ver	ModuleStaticIP * 192.168.0.7 User Name admin
192.168.0.7 USR-TCP232-306 D4 AD 20 61 D4 4300	SubnetMask* 255.255.0 Password admin	172.16.10.189 USR-TCP232-306 D4 AD 20 61 DC 4300	SubnetMask* 255.255.25 Password admin
1.	Gateway * 192.168.0.1 Device Name USR-TCP:	5. OpenWeb	Gateway* 192.168.0.1 Device Name 132-3060
	DNS Address 208.67.222.222	Eirmusre ungrade	DNS Address 208.67.222.222
	Reset Timeout(s) 3600	innivere opgisoe	Reset Timeout(s) 3600
	Clear Buffer Data Before Connected 🛛 Link	Reset	Clear Buffer Data Before Connected 🛛 Link
	UART Set Parameter RFC2217	Copy The Mac	UART Set Parameter RFC2217
	Port Param	Cope All Mac	Port Param
	Parity/Data/Stop NON × 8 × 1 × Baudrate 11520 ×		Parity/Data/Stop NOP × 8 × 1 × Baudrate 11520 ×
🔍 Search Device	Module work mode TCP Client V Local Port 20108	4. Search Device	Module work mode TCP Client V Local Port 20108
	RemoteIP 192.168.0.201 Remote Port 8234		RemotelP 192.168.0.201 Remote Port 8234
	Short Connection time 3 Tcp connect num 4 v		Short Connection time 3 Tcp connect num 4 V
Data has been sent	PackTime 0 PackLen 400	Data has been sent	PackTime 0 PackLen 400
Click device can read the parameters, right-click Device list show	Short Connection	Click device can read the parameters, right-click Device list show	Short Connection
Read [Mac : D4 AD 20 61 DC DC]	TCP Server-kick off old connection	Read [Mac : D4 AD 20 61 DC DC]	TCP Server-kick off old connection
Data has been sent		Data has been sent	
Read OK		Read OK	
new or	Heartbeat	Read [Mag: D/ AD 20.61 DC DC]	Heartbeat
	Heartbeat Packet Type None ~	Read [Mac . D4 AD 20 01 DC DC]	Heartbeat Packet Type None 🗸
	v	Develop V	· · · · · · · · · · · · · · · · · · ·
		(Nauri I)	
Operation Log Hex Streams	 ✓ Save Config 	Operation Log Hex Streams	V Save Config DataDebug

Figure 8. Search and basic settings

After entering the username and password, click "OK" and the server will authenticate. After success, you will enter the main page of the Web server, as shown in the following figure.



Figure 9. Current status

In serial port page, set the remote IP to 172.16.11.31, then save parameters and restart the module.



-IOT Experts-
Local IP Config Baud Rate: [15200] bps • UDP multicast: Serial Port Data Size: 8 v bit mode, the address Expand Function Parity: None v range of remote Misc Config Local Port Number: 0 (0-65335) wmbr remote
Reboot Remote Port Number: 8234 (1~65535) HITPD URL: Work Mode: TCP Dist Hittin Hittin Remote Server Addr. [192.168.0.201] automatically automatically LINK: 2 ESET: setting. HitTPD URL: Hitting. INDEX: INDEX: Hitting. Hitting. Hitting. Hitting. Similar RFC2217: C setting. setting. setting. setting. Similar RFC2217: C setting. setting. setting. setting. Similar RFC2217: C Sever Cancel Sever Cancel setting. setting.
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Figure 10. Serial port parameters

After restarting, check the parameters via the config software. Form the picture, we can see the parameters has already taken effect.

ile Language	Help			
Operate	e Via LAN	Oper	ate Via COM	Base Param (which is without *,usually keep default)
		oper		IP Type * DHCP/Auto IP V HTTP Port 80
Device IP	Device Name	MAC	Ver	ModuleStaticIP * 192.168.0.7 User Name admin
172.16.11.102	USR-TCP232-3	D8 B0 4C B4	B1 94 4020	SubnetMask* 255.255.0 Password admin
				Gateway * 192.168.0.1 Device Name USB-TCP:
				DNS Address 208.67.222.222
				Reset Timeout(s) 3600
				Clear Buffer Data Before Connected
				UART Set Parameter
				Port Param
				Parity/Data/Stop NON 8 × 1 × Baudrate 11520 ×
	🔍 Search	Device		Module work mode TCP Client V Local Port 0
				RemotelP 172.16.11.31 Remote Port 8234
				Short Connection time 3 Tcp connect num 4 V
Data has been	sent			PackTime 0 PackLen 0
Click device car more	read the parameter	rs, right-click De	evice list show	Short Connection
Read [Mac : D8	3 BO 4C B4 B1 94]			✓ TCP Server-kick off old connection
Data has been	sent			UDP data source judgment
Read OK				Heartbeat Heartbeat Packet Type None V
Opera	tion Log	He	ex Streams	Save Config DataDebug

Figure 11. Parameters checking via config software

The IP address of the PC must be modified to ensure that it is in the same local area network as the IP of the serial server if you want to connect 30x to PC directly via a net cable. The default IP address of serial server is: 192.168.0.7. Set the PC's IP address as: 192.168.0.X (X is any valid value from 2 to 253 except 7). The specific



Windows system operation page is shown in the following figure. you can access the Web page of the USR-TCP232-30X series serial server through browser as mentioned above.

itomatically if your network supports d to ask your network administrator	
ically	
192 . 168 . 0 . 100	
255 . 255 . 255 . 0	
192.168.0.1	
tomatically	
addresses:	
192.168.0.1	
114 . 114 . 114 . 114	
Advanced	
	tomatically if your network supports d to ask your network administrator ically 192 . 168 . 0 . 100 255 . 255 . 255 . 0 192 . 168 . 0 . 1 tomatically addresses: 192 . 168 . 0 . 1 114 . 114 . 114 . 114 Advanced

Figure 12. IP setting of PC

2.2.4. Data transmission test

Run the test software on the PC, set the protocol as TCP Server, local IP keep the same with the remote IP of 30x device, local host port keeps the same with the remote port of 30x device. After the TCP connection is established, users can check the link indicator, it will keep steady on.

In this test, we use the default serial port parameters (115200, N, 8, 1) to test. Users can also to modify the baud rate, data bit and other parameters of the serial port via webpage or config software as needed.

The following picture shows an example of parameters setting to test transparent transmission.



🔮 USR-TCP232-Test RS23	2 to Ethernet Convert tester		– 🗆 X
File(F) Options(O) Help	H)		
COMSettings	COM port data receive	Network data receive	NetSettings
PortNum COM4 -	http://en.usr.cn	[Receive from 172.16.11.102 : 4963] :	(1) Protocol
BaudR 115200 -	http://en.usr.cn	Jinan USR Technology Co., Ltd.	TCP Server
		Jinan osk rechnology co., Etu.	(2) Local host IP
			172.16.11.31
DataB 8 Dit •			(3) Local host port
StopB 1 bit			8234
Close			🔆 Disconnect
Recv Options			Recv Options
Receive to file			Receive to file
🔽 Add line return			🔽 Add line return
🔲 Receive As HEX			🗌 Receive As HEX
Receive Pause			🦳 Receive Pause
<u>Save</u> <u>Clear</u>			<u>Save</u> <u>Clear</u>
Send Options			Send Options
🗖 Data from file			🔲 Data from file
🗖 Auto Checksum			🔲 Auto Checksum
🗌 Auto Clear Input			🦳 Auto Clear Input
🔲 Send As Hex		Pears: 172 16 11 102 4963	🗌 Send As Hex
Send Recycle			Send Recycle
Interval 1000 ms	Jinan USR Technology Co.,	http://en.usr.cn	Interval 1000 ms
Load Clear		Jeiu	Load Clear
💣 Ready!	Send: 60 Recv: 32 Reset	💣 Ready! Send: 32	Recv: 60 Reset

Figure 13. Data transmission test

2.2.5. Technical support and assistance

Please visit the USR IoT website: https://www.pusr.com where you can find the latest information about the product. Contact your distributor, sales representative, or PUSR's support center:

http://h.usriot.com/index.php?c=frontTicket&m=sign for technical support if you need additional assistance.

Please have the following information ready before you submit a ticket:

- Product model
- Description of your peripheral attachments
- Description of your software (firmware version, application, function description, etc.) A complete description of the issue and steps to reproduce

3. Configuration and parameter details

3.1. Web interface

Every USR-TCP232-30X Industrial Serial Device Server is equipped with a built-in web server in the firmware. Therefore, the device can be accessed by using a web browser for configuring by entering the device's IP address in the URL field of your web browser. An authentication will be required and you will have to enter the username (Default value is "admin") and password (Default value is "admin") for accessing the web interface as shown



in Figure 14. This approach (web interface) for configuring your device is the most user-friendly. It is the most recommended and the most common method used for USR-TCP232-30X Serial Device Server Series. Please go to its corresponding section for a detailed explanation

← C (i) 172.16.11.102		A»	☆	C)	£'≡	Œ	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0	
	Sign in to access this site Authorization required by http://172.16.11.102 Your connection to this site is not secure Username Password								
	Sign in Cancel								



Figure 14. Login page

3.1.1. Status

After entering the correct username and password and the authentication is successful, you will enter the main page of the Web, as shown in figure 15. The main page can be roughly divided into three areas. The upper area displays the logo, the lower left area is the function menu area, the middle area is the main function display area, and the lower right area is the help document area. Figure 15 illustrates the status page of the web interface.





Figure 15. Current status

The function of the device status part is to display some specific information of the current device, including module name, IP address, MAC address, etc.

Parameter Item	Description
Module name	The name of the serial server, which can be customized by the user on the "Miscellaneous
	settings" page.
IP address	The IP address of the serial server.
MAC address	The MAC address of the serial server.
Remote IP/TX/RX	IP: The IP of remote host, it displayed once the TCP connection is established,
	Tx: The data count from serial to network
	Rx: The data count from network to serial
	When the TCO232-30X work in TCP server mode, the page can display up to 5 connection
	information.

Table 6. Description of Current status



3.1.2. IP settings

You must assign a valid IP address to the USR-TCP232-30x before it will work in your network environment. The IP address must be unique within the network. If the device is connected to the Internet and should connect to other servers over the Internet to get some services such as Network Time Protocol (NTP) server, you will need to configure the DNS server to be able to resolve the host name of the NTP server. The detailed description of the configuration parameters on this interface is shown in Table 7.

Firmware Version:	V4020					中文
^۲	USR -IOT Experts-				Be Hone	st, Do Best!
Current Status		pa	arameter			Help 🄶
Local IP Config	IP type:	DHCP 🗸				• IP type:
Serial Port	Static IP:	192 . 1	68 . 0	. 7		StaticIP or DHCP
Expand Function	Submask:	255 . 2	55 . 255	. 0		 StaticIP: Module's static ip
Misc Config	Gateway:	192 . 1	68 . 0	• 1		Submask: usually
Reboot	DNS Server:	208 . 6	7 . 222	. 222		255.255.255.0
		Save	a Cancel			 Gateway: Usually router's ip address DNS IP: DNS gateway or Router's IP
Copyright © Jinan (USR IOT Technology Limited	1. All Rights Re	served			website: <u>www.pusr.com</u>

Figure 16. IP settings

Parameter Item	Description
IP type	DHCP: To obtain required TCP/IP configuration information from router.
	Static IP: User need to set the IP information manually.
IP address	IP address is a 32-bit address assigned to devices connected to the Internet. The IP
	address consists of two fields: the network number field (Net-id) and host number field
	(host-id). In order to facilitate the management of IP addresses, IP addresses are
	divided into five categories: Class A, B, and C addresses are unicast addresses, Class D
	addresses are multicast addresses, Class E addresses are reserved addresses for future
	special purposes. The IP addresses currently in large numbers belong to three types of
	addresses: A, B, and C.



Subnet mask	The mask is a 32-bit number corresponding to an IP address. Some of these numbers						
	are 1, and the others are 0. The mask can divide the IP address into two parts: the						
	ubnet address and the host address. The part of the IP address corresponding to the 1						
	pit in the mask is the subnet address, and the other bits are the host address. The mask						
	for class A addresses is 255.0.0.0, the mask for class B addresses is 255.255.0.0, the						
	mask for class C addresses is 255.255.255.0.						
Default gateway	The default gateway in the host is usually called the default route. The default route						
	(Default route) is the route chosen by the router when no other route exists for the						
	destination address in the IP packet. All packets whose destination is not in the router's						
	routing table will use the default route.						
DNS	The IP address of the DNS server.						
	When users need to access information online through domain name, like						
	www.pusr.com. DNS translates domain names to IP so browsers can load Internet						
	resources.						

3.1.3. Serial port settings

The main function of the serial device server is to carry out two-way transparent transmission of standard serial bus data (RS-232, RS-485, RS-422) and standard Ethernet data supporting TCP/IP protocol to solve common serial equipment Networking problems on the Internet. The Port configuration page can configure the parameters of the serial port and socket, as shown in following picture.



Firmware Version: \	V4020		中文
	USR -IOT Experts-	Be Hon	est, Do Best!
Current Status		parameter	Help
Local IP Config	Baud Rate:	115200 bps	• UDP multicast:
Serial Port	Data Size:	8 🗸 bit	In UDP Client mode, the address
Expand Function	Parity:	None V	range of remote
Misc Config	Stop Bits:	1 v bit	- 239.255.255.255,
Reboot	Local Port Number:	0 (0~65535)	modified manually
	Remote Port Number:	8234 (1~65535)	HTTPD URL: Module add
	Work Mode:	172 16 11 31	GET/POST and HTTP/1.1 in URL
	Remote Server Addr:	[172.16.11.31]	automatically
	RESET:		setting.
	LINK:		 • HTTPD Packet Header:
	INDEX:		Module add HOST automatically
	Similar RFC2217:		according to user's setting.Add"Content
			Length"automaticall
		Save	
Copyright © Jinan L	JSR IOT Technology Limited. All Rights	Reserved	website: <u>www.pusr.com</u>

Figure 17. Settings of serial port

Details on work mode connectivity protocols and its settings of TCP232-30X series are given in **Chapter 4** Operation modes, this section will only focus on the part of parameter description. The description of the configuration parameters on this interface is shown in Table 8.

Parameter Item	Description
Baud rate	This sets the port's data transfer speed. Choices are from 600–230400. Set this to
	match the baud rate setting of the connected device. Default is 115200.
Data size	This sets the number of bits used to transmit one character of data. Choices are: 7 and
	8. Set this to match the data bit setting of the connected device. Default is 8 (which is
	the default for the majority of serial devices).
Parity bits	This bit checks the integrity of the transmitted data. Choices are: None, Odd, Even. Set
	this to match the parity setting of the connected device. Default is None (which is the
	default for the majority of serial devices).
Stop bits	This indicates that a character has been transmitted. Set this to match the stop bit

Table 8. Detail description of serial port



	setting of the connected device. Choices are: 1 and 2. Default is 1 (which is the default
	for the majority of serial devices).
Local Port Number	When TCP232-30X work in TCP server mode, the local port is the listening port.
Remote Port Number	When TCP232-30X work in TCP client mode, the remote port is the target port to
	connect to.
Work mode	Please to check Chapter4 for more information.
Remote Server Addr	When TCP232-30X work in TCP client mode, the remote server address is the target
	address to connect to.
RESET	This function is available in TCP client mode. The 30X device connect to TCP server
	actively when works as TCP client. The 30X device will restart if the TCP connection
	is not established after 30 attempts.
	The Reset function is mainly used to initialize the 30X device by restarting when
	the 30X program runs out or crashes and counter abnormal TCP connection. Then
	to restore the 30X to normal operation under certain conditions.
LINK	The LINK indicator works only after the LINK function is enabled.
INDEX	See more information in chapter 6.1.1.
Similar RFC2217	Enabling this function allows users to use customized RFC2217 commands on the
	network to dynamically modify the serial port's baud rate, data bits, stop bits, and
	parity bits. This function is only allowed when the working mode is TCP Server and
	TCP Client. Note that this protocol is used to change the serial port parameters of
	TCP232-30X.
Tcp Quick Ack	

3.1.4. Expand function settings

USR-TCP232-30X series provide rich additional function which is displayed in this function tab page. The function detail information will be described in the following table, some more important function is introduced in relevant chapters.



Firmware Version:	V4020		中文
	USR -IOT Experts-	Be Hone	st, Do Best!
Current Status	parameter		Help
Local IP Config	Heartbeat Packet Type: N	lone 🗸 ASCII 🗸	Custom
Serial Port	Register Packet Type: N	lone 🗸	Heartbeat Packet:
Expand Function	impersistent connection:	<u>ן</u>	this function is not
Misc Config	TCP Server-kick off old connection :	2	support the
Rebect	Buffer Data Before Connected:		Chinese , and 40 bytes in length
	Modbus Type: 🛛 Modbus abnormal response: 🗌	10dbus Multi-Master →	Custom Register Packet:
	Modbus polling timeout: 20	.00 (ms)(10~9999)	this function is not open,not do
	Modbus polling interval: 10	00 (ms)(0~9999)	support the Chinese , and 40
	Save	cel	bytes in length TCP Server-kick off old connection : TCP Server mode, a new connection

Figure 18. Settings of expand function

	Table 9.	Detail d	escription	of expan	d function
--	----------	----------	------------	----------	------------

Parameter Item	Description
Heartbeat Packet	UART Heartbeat: TCP232-30X sends heartbeat packet to serial device at preset interval,
	the content of the packet can be either hex or string. Users can use UART heartbeat to
	query serial device to reduce communication pressure on server.
	Net heartbeat: It's available in TCP client and UDP client mode. TCP232-30X sends a
	heartbeat packet data to inform the server that it is still online, when it fails to
	receive data from the serial device within the set time.
Register Packet	It's available in TCP client and UDP client mode. Users can identify different
	MAC: The content of the register packet is the MAC address of TCP232-30X,
	User-defined: User can define the content of the register packet by themselves,
	USR Cloud: This is used for registering to USR cloud.
Registered Direction	Connect with: TCP232-30X sends register packet only once when the network
	connection is established.
	Data with: TCP232-30X add register packet in front of each packet of data sent by the
	serial port device.
	Both of above:
Impersistent connection	This function is available in TCP client mode. If the serial port or network port receives



	no data within the setting time, the connection will be automatically disconnected to
	save server resources.
	The default time is 3 seconds. Range: 2~255 s.
TCP Server-kick off	When the connection exceeds the maximum number (default is 4), actively kick out
	the oldest connection (first in first kick out).
Buffer Data Before	Click the option to enable serial buffer. By default, TCP232-30X will empty its serial
Connected	buffer when a new TCP connection is established. This means that the TCP application
	will not receive buffered serial data during a TCP link breakage. To keep the serial data
	when there is no TCP connection and send out the buffered serial data immediately
	after a TCP connection is established, you can disable this option.
Modbus	See more information in Chapter 5

3.1.5. Miscellaneous settings

This configuration tab includes several system level settings, such as device name, system log, username, and password. Most of these settings are optional.

Firmware Version: \	/4020		中文
^م ر	USR -IOT Experts-	Be Hone	est, Do Best!
Current Status	para	meter	Help
Local IP Config	Module Name:	USR-TCP232-306	• Max Clients
Serial Port	Webserver Port:	80	Connect To TCP Server:
Expand Function	Username:	admin	when Module is TCP Server, the
Misc Config	Password:	admin	max number of TCP client allowed to
Reboot	Max Clients Connect To TCP Server:	4 (1~16)	connect
	Reset Timeout:	3600 (s)(0,60~65535s)	Time:
	Save	Cancel	port without data,
			set to 0s, function

Figure 19. Settings of miscellaneous function

Parameter Item	Description
Module name	The name of the device, up to 5 characters, can't be null
Webserver port	Webserver listen port NO. The default is 80. Range 1-65535
Username	The username of web console and can be modified. up to 5 characters, can' t be

Table 10. Detail description of miscellaneous function



	NULL
Password	The password of web console and can be modified. up to 5 characters, can be NULL
Max Clients	This option specifies the maximum number of remote devices/clients (with maximum
	of 16 clients), that can be connected to the serial device.
Reset timeout	This function is used for the serial device server without any data transmission or
	reception for a long time, and the serial server automatically restarts. If the restart
	time is set between 0 and 59 seconds, this function does not take effect. Only when
	the time is set to be greater than or equal to 60 seconds, the restart function of the
	device without data will take effect.

3.2. Configuration software

The parameters are also can be configured by config software. The parameter function is already introduced in Chapter 3.1. In this chapter, we how to config the parameters via config software.

3.2.1. Search device

Run the config software, if the USR-TCP232-30X Serial Device Server is already connected to the same gateway as your PC, the device can be accessed via broadcast packets. Users can search all the TCP232-30X Series device servers on the network and show them on the Serial Device Server List Area of the utility.

File Language H	lelp							
Operate	Via LAN	Operate Via C	ОМ	Parity/Data/Stop		Baudrate	11520 ~	^
				Module work mode		Local Port	602	
172 16 11 102	USP_TCP222_206	DS R0 4C R4 R1 94	4020	RemotelD	172 16 11 31	Remote Port	240	
172.10.11.102	U3K-TCP252-500	D8 60 4C 64 61 94	4020	Remoteir	E	Ten connect num	4	
2.				Short Connection time		Parki an	<u>+ </u>	
				PackTime		PackLen	,	
				Short Con	nection			
				TCP Serve	er-kick off old connection	on		
				UDP data	source judgment			
				Heartbeat				
	1. 🔍 Search D	evice		Heartbeat Packet T	ype None	~		
Data has been se	ent							
Data has been se	ent			Register				
Click device can r	ead the parameters,	right-click Device list s	how	Register Packet T	Vpe None	~		
Read [Mac : D8]	B0 4C B4 B1 94 1							
Data has been se	ent							
Read OK								
								~
	_				Save	Config	DataD	ahua
Operatio	on Log	Hex Stream	IS		•		DataD	ebug

Figure 20. Search device



3.2.2. Parameter settings

Users can modify the parameters as needed, and the click "Save Config" to make the parameters take effect. More parameters can be checked by scrolling down or up.

USR-M0 V2.2.6.1								-	
le Language Help	p								
Operate Via	a LAN	Operate Via (OM	Base Param (which is	without *,usually keep o	lefault)			
				IP Type *	DHCP/Auto IP V	HTTP Port	80		
Device IP [Device Name	MAC	Ver	ModuleStaticIP *	192.168.0.7	User Name	admin		
172.16.11.102 U	JSR-TCP232-306	D8 B0 4C B4 B1 94	4020	SubnetMask*	255.255.255.0	Password			
				Gateway *	192.168.0.1	Device Norma			
				DNS Address	208.67.222.222	Device Name			
				Reset Timeout(s)	3600		Recet		
				Clear Buffe	er Data Before Connect	ed			
				UART Set	Parameter				
				Port Param					
				Parity/Data/Stop	NON ~ 8 ~ 1 ~	Baudra	te 11520 ~		
	🔍 Search Device				TCP Server ~	Local Po	ort 502		
				RemotelP	172.16.11.31	Remote Po	ort 8240		
				Short Connection time	5	Tcp connect nu	m 4 ~		
Data has been sent	t			PackTime	0	PackLe	en 0		
Data has been sent	:				L]				
Click device can rea	d the parameters,	right-click Device list	show	Short Con	nection				
more				TCP Server-kick off old connection					
Read [Mac : D8 B0	4C B4 B1 94]			UDP data	source judgment				
Data has been sent	t i i i i i i i i i i i i i i i i i i i			11 - d - d					
Read OK				Heartbeat Heartbeat Packet Ty	/pe None	~			
					40.00				
Operation	Log	Hex Stream	ns		V Save C	onfig			

Figure 21. Parameters configuration via config sofrware

3.2.3. Open web server

Users can visit the web server of serial device server conveniently with configuration tool. Select the device you want to visit and right click, then click External web config ,you will open the web server with default browser such as Google Chrome.

- 1. Right-click a desired device to display the settings menu,
- 2. Select OpenWeb



🔮 USR-M0 V2.2.6.1								
File Language Help								
Operate Via LAN	Operate V	ia COM	Base Param (which is v	Base Param (which is without *,usually keep default)				
	IP Type *	DHCP/Auto IP V	HTTP Port	80				
Device IP Device Name	Device IP Device Name MAC Ver				User Name	admin		
172.16 OpenWeb	D8 B0 4C B4 B1	94 4020	SubnetMask *	255.255.255.0	Password			
Restart			Gateway *	192.168.0.1	Device Name	USR-TCP2		
Firmware upgrade			DNS Address	208.67.222.222		Index		
Reset			Reset Timeout(s)	3600		Reset		
Came The Mas			Clear Buffer Data Before Connected					
Cope All Mac			UART Set F	Parameter		RFC2217		
Coperande			Port Param					
					Baudra	te 11520 ~		
🔍 Search	Device		Module work mode	TCP Server 🗸	Local Po	ort 502		
			RemotelP	172.16.11.31	Remote Po	ort 8240		
			Short Connection time	5	Tcp connect nu	m 4 ~		
Data has been sent		^	PackTime	0	PackLe	en 0		
Data has been sent				L				
Click device can read the parameter	s, right-click Device	list show	Short Conr	nection				
more			✓ TCP Server-kick off old connection					
Read [Mac : D8 B0 4C B4 B1 94]	Read [Mac : D8 B0 4C B4 B1 94]			UDP data source judgment				
Data has been sent	11 11 1							
Read OK			Heartbeat	De Nere				
Read [Mac : D8 B0 4C B4 B1 94]			The artise at Packet Ty	Pe	~			
Nata has haan sant		¥						Ť
Operation Log		V Save 🤇	Config					

Figure 22. Open web server via config software

3.2.4. Firmware upgrade

USR IoT continually upgrades its firmware to add new features and optimize performance. Please contact the sales to obtain the latest version of the firmware. Users can upgrade the firmware by themselves. When upgrading firmware, the 30X device must be in the same LAN network with PC.

- 3. Right-click a desired device to display the settings menu,
- 4. Select Firmware upgrade

🔮 USR-M0 V	2.2.6.1									
File Languag	ge Help									
Ope	erate Via LAN	te Via COM	Base Param (which is without *,usually keep default)						^	
	L			IP Type *	DHCP/Auto IP ~	HTTP Port	80			
Device IP	Device Name	MAC	Ver	ModuleStaticIP *	192.168.0.7	User Name	admin			
172.16.11.	102 USR-TCP232-306	D8 B0 4C B4	4 B1 94 4020	SubnetMask *	255.255.255.0	Password				
	OpenWeb			Gateway *	192.168.0.1	Device Norma				
	Restart			DNS Address	208.67.222.222	Device Name				
	Firmware upgrade			Reset Timeout(s)	3600		Reset			
	Reset			Clear Buffe	er Data Before Connec	ted				
	Copy The Mac			UART Set Parameter						
	Cope All Mac			Port Param						
				Parity/Data/Stop	NO1 ~ 8 ~ 1 ~	Baudra	te 11520 ~			
	🔍 Search	Device		Module work mode	TCP Server ~	Local Po	ort 502			
				RemotelP	172.16.11.31	Remote Po	ort 8240	Ī		
				Short Connection time	5	Tcp connect nu	m 4	~		
Data has b	een sent		^	PackTime	0	PackLe	en 0	7		
Data has b	een sent					I				
Click device	can read the parameter	s, right-click Dev	vice list show	Short Con	nection					
more				TCP Server	r-kick off old connection	on				
Read [Mac	:: D8 B0 4C B4 B1 94]			UDP data	source judgment					
Data has b	een sent									
Read OK				Heartbeat						
Read [Mac	: D8 B0 4C B4 B1 94]			Heartbeat Packet Iy	/pe None	~				
Data has h	aan cant		~							~
					V Save	Config				
Op	peration Log	Hex	Streams			-				

Figure 23. Firmware upgrade



3.2.5. Restart the device

This function is available to allow you to reset the serial device server. The function disconnects both the ethernet and serial connections. The function also allows the serial device server to save new configuration settings to flash memory. To reset the device:

- 5. Right-click a desired device to display the settings menu,
- 6. Select Restart

🙆 USR-M0 V2.2.6.	1							—		×
File Language H	lelp			-						
Operate	Via LAN	Operate Via C	OM	Base Param (wh	ich is v	vithout *,usually keep o	default)			^
					vpe *	DHCP/Auto IP V	HTTP Port	80		
Device IP	Device Name	MAC	Ver	ModuleSta	ticlP *	192.168.0.7	User Name	admin		
172.16.11.102	USR-TCP232-306	D8 B0 4C B4 B1 94	4020	SubnetA	4ask *	255.255.255.0	Password			
			OpenWe	2b	vav *	192.168.0.1				
			Restart			208.67.222.222	Device Name	USR-TCP2		
			Firmwar	e upgrade	1035	2600		Index		
Reset					out(s)	3000		Reset		
					Butte	r Data Before Connect	ed	🗌 Link		
	Copy Ine			e Mac	Set F	arameter		RFC2217		
	Cope All									
						NON ~ 8 ~ 1 ~	Baudrat	te 11520 ~		
	🔍 🛛 Search D	evice		Module work r	node	TCP Server 🗸	Local Po	rt 502		
-				Rem	otelP	172.16.11.31	Remote Po	rt 8240		
				Short Connection	n time	5	Tcp connect nu	m 4 ~		
Data has been s	ent		^	Pack	Time	0	PackLe	en 0		
Data has been s	ent				_					
Click device can	read the parameters,	right-click Device list s	how	✓ Shor	t Conr	nection				
more				TCP	Server	-kick off old connectio	n			
Read [Mac : D8	B0 4C B4 B1 94]			UDP	data s	ource judgment				
Data has been s	ent			Heartheat						
Read OK				Heartbeat Pag	ket Tv	ne None				
Read [Mac : D8	B0 4C B4 B1 94]					P NONE	Ť			
Data has hean s	ant		1							
Operati	on Log	Hex Stream	ıs			V Save 🤇	Config	Data	Debug	

Figure 24. Restart the device

3.2.6. Restore to factory default settings

The configuration utility provides the function to restore the serial device server to factory default settings. If you really want to restore the serial device sever to factory default settings, please click reset button to continue.

- 1. Right-click a desired device to display the settings menu,
- 2. Select Reset



۲	USR-M0 V2.2.6.1									
File	e Language H	lelp								
	Operate Via LAN Operate Via COM				Base Param (which is without *,usually keep default)					^
					IP Type *	DHCP/Auto IP V	HTTP Port	80		
	Device IP	Device Name	MAC	Ver	ModuleStaticIP *	192.168.0.7	User Name	admin		
	172.16.11.102	USR-TCP232	OpenWeb	4000	SubnetMask *	255.255.255.0	Password			
			Restart		Gateway *	192.168.0.1	Device Name	USR-TCP(
			Firmware upgrade		DNS Address	208.67.222.222		Index		
		Г	Reset		Reset Timeout(s)	3600		Reset		
		L	6 T 14		Clear Buffe	er Data Before Connecte	ed	Link		
			Copy The Mac		UART Set F	Parameter		RFC2217		
			Соре Ан Мас		Port Param					
	🔍 Search Device				Parity/Data/Stop	NO1 ~ 8 ~ 1 ~	Baudrat	te 11520 ~		
					Module work mode	TCP Server ~	Local Po	ort 502		
					RemotelP	172.16.11.31	Remote Po	rt 8240		
					Short Connection time	5	Tcp connect nu	m 4 ~		
1	Data has been se	ent		^	PackTime	0	PackLe	en 0		
1	Data has been se	ent								
0	lick device can r	ead the parameter	rs, right-click Device	e list show	Short Conr	nection				
n	nore				✓ TCP Server-kick off old connection					
F	Read [Mac : D8 B0 4C B4 B1 94]				UDP data source judgment					
	Data has been sent				Heartheat					
F	Read OK				Heartbeat Packet Tu	/pe None				
F	Read [Mac : D8 B0 4C B4 B1 94]						~			
1	Nata has heen se	ant		~						Ŷ
	Operatio	on Log	Hex St	treams	j L	🗸 Save C	Config	Data	Debug	

Figure 25. Restore to factory default settings

4. Operation mode

4.1. TCP server

In TCP server mode, the TCP connection is initiated from the host (TCP client) to the USR-N5X0 Series device server. This operation mode supports a maximum of 16 simultaneous connections. Once the connection is established between the 30x series and the remote host computer (remote TCP client), data can be transmitted in both directions. The work mode can be set in "serial port" tab.



Figure 26. TCP server mode

When the device work as TCP server, it allows up to 16 clients to access. The default is 4. We can test it with test software. Setting of the software is shown in the following picture. Once the TCP connection is established, the



link indicator will turn on.

Protocol: TCP Client

Remote Host Address: 172.16.11.102 (the IP of USR-TCP232-306)

Remote Host Port: 503 (the local port of USR-TCP232-306)

The data transmission is shown in Figure 28.



Figure 27. Setting of USR device and test software



Figure 28. Test of TCP server

4.2. TCP client

When the work mode is TCP client, the remote device must work in TCP server mode. The USR-TCP232-30x will initiate the TCP connection and the remote server IP and port should be configured.



Firmware Version: N	/4020	中文
<u>_</u>	USR -IOT Experts-	Be Honest, Do Best!
Current Status	parametr	er Help
Local IP Config	Baud Rate: 115200	bps • UDP multicast:
Serial Port	Data Size: 8 ∽ bit	In UDP Client
Expand Function	Parity: None 🗸	range of remote
Misc Config	Stop Bits: 1 v bit Local Port Number: 8899	- 239.255.255.255, (0~65535) which needs to be
Reboot	Remote Port Number: 8234	(1~65535) HTTPD UPL:
	Work Mode: TCP Clie	Module add
	Remote Server Addr: [172.16.1 [172.16.1	HTTP/1.1 in URL automatically according to user's
	RESET:	setting.
		Header:
	Similar REC2217:	Module add HOST automatically
		according to user's setting.Add"Content
	Save	Length"automaticall in POST mode.

Figure 29. TCP client mode

To test this mode, the test software needs to be TCP server, and the local port should be the same with the remote port of USR-TCP232-306. After the connection is established, we can see the IP and port of USR-TCP232-306, as shown in the red box of the following picture.

Firmware Version: \	Firmware Version: V4020					
و یگر	USR -IOT Experts-		Settings (1) Protocol TCP Server	Data log [2023-06-28 19:57:32.086]# RECV ASCII> lof Expert		
Current Status		parameter	172.16.11.31	[2023-06-28 19:57:32.789]# RECV ASCII> IoT Expert		
Local IP Config	Baud Rate:	115200 bps	13) Local Host Port 8234	[2023-06-28 19:57:33.854]# SEND ASCII>		
Expand Function	Parity:		Close	[2023-06-28 19:57:34.454]# SEND ASCII> www.pust.com		
Misc Config	Local Port Number:	1 v bit 8899 (8~65575)	Recv Options	[2023-06-28 20:14:19.300]# Client 172.16.11.102:8899 gets online.		
Rebot	Remote Port Number: Work Mode: Remote Server Addr: RESET: LINK: INDEX: Similar RFC2217: Tcp Quick Ack: Sa	B234 (1-65635) TCP Client ▼ 172.16.11.31 272.66.11.33 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Ascur C HEX Go Dingley Mode F Log Dingley Mode Auto Linefeed Hide Received Data Save Recv to File AstoScroll Clear Geodologies Geodologies Geodologies Code Chargo Code Tobo Rote Chargo Shortest Kistery	Data Send Clents: Al Connections (1) Www.putr.com Al Connections (1) YVWw.putr.com		
			l∰r Readv!	6/6 FK:40		

Figure 30. Setting of USR device and test software

🖷 • Uart Assistant		1 the •			
COM Configs	Data log	Settings	Data log NetAssi		
Baudrate 115200 -	[2023-06-28 19:57:32.078]# SEND ASCII> IoT Expert	TCP Server	[2023-06-28 19:57:32.086]# RECV ASCII>		
Paritybits NONE - Databits 8 -	[2023-06-28 19:57:32.778]# SEND ASCII>	[2] Local Host Addr 172.16.11.31	[2023:6-28 19:57:32.789]# RECV ASCII>		
Stopbits 1	[2023-06-28 19:57:33.925]# RECV ASCII> www.pusr.com	13) Local Host Port 8234	[2023-06-28 19:57:33.854]# SEND ASCII>		
Close	[2023-06-28 19:57:34:520]# RECV ASCII> www.putr.com	🔶 Close	[2023:06-28 19:57:34:454]# SEND ASCII> www.pust.com		
Recv Options	[2023-06-28 20:17:25.803]# SEND ASCI> Serial data	Recv Options] [2023-06-28 20:14:19.300]# Client 172.16.11.102:8899 gets online.		
ASUI C HEX Log Display Mode	< [2023-06-28 20:17:27.634]# RECV ASCII> 306 Work As TCP client	 ASCII ○ HEX I Log Display Mode 	(2023-06-28 20:17:25.806)# RECV ASCII FROM 172:16.11.102:8899> Senial data		
 Auto Linefeed Hide Received Data 	[2023-06-28 20:17:35.772]# RECV ASCII> 306 Work As TCP client	Auto Linefeed Hide Received Data	[2023-06-28 20.17:27.624]# SEND ASCII TO ALL> 306 Work As TCP client		
Save Recv to File AutoScroll Clear	[2023-06-28 20:17:37.230]# SEND > SCI)> Serial data	Save Recv to File	[2023-06-28 20:17:35.715]# SEND ASCII TO ALL> 306 Work As TCP client		
Send Options		Send Options	[2023-06-28 20:17:37.236]# RECV ASCII FROM 172.16.11.102:8899> Serial data		
		ASSH C HEX Use Escape Chars()			
Auto Append Bytes Send from File Cycle 50000 ms	Data Send 1. BCD 2. RED 3. PKD 4. DTK 5. GRD 6 Senial data	Auto Append Bytes	Data Send Clients: All Connections (1) All Connections (1)		
Shortout History		<u>Shortcut</u> <u>History</u>			



Figure 31. Test result of TCP client

4.3. UDP server

UDP is a faster and more efficient transport protocol than TCP, but it is a connectionless transport protocol. When the USR-TCP232-306 works as UDP server, it doesn't verify the source address. After receiving a UDP data packet, the destination IP and port are changed to the one which send the UDP data to USR-TCP232-306.

Firmware Version: V4		
	USR -IOT Experts-	Be Honest, Do Best!
Current Status	parameter	Help
Local IP Config	Baud Rate: 115200 bps	• UDP multicast:
Serial Port	Data Size: 8 🗸 bit	In UDP Client mode, the address
Expand Function	Parity: None 🗸	range of remote
Misc Config	Stop Bits: 1 v bit	- 239.255.255,
Paboot	Local Port Number: 8899 (0~65535)	modified manually
Rebool	Remote Port Number: 8234 (1~65535)	• HTTPD URL:
	Work Mode: UDP Server V	Module add GET/POST and
	Remote Server Addr: [172.16.11.31 [172.16.11.31]	HTTP/1.1 in URL automatically
	RESET:	setting.
	LINK:	HTTPD Packet
	INDEX:	Header: Module add HOST
	Similar RFC2217: 🛛	automatically according to user's
	Tcp Quick Ack:	setting.Add"Content
	Save	in POST mode.

Figure 32. UDP server mode

For test software,

- 1. The local host port is the same with the remote port of the USR-TCP232-306,
- 2. The remote host IP is IP address of USR-TCP232-306, and the remote port is local port of USR-TCP232-306,
- 3. Then serial device and network device can transmit data bidirectionally.

Firmware Version:	V4020	Network Assistant
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	USR -IOT Experts-	Settings Data log Data log UDP
Current Status	parameter	121 Local Host Addr 172:16.11.31
Local IP Config	Baud Rate: 115200 bps	[3] Local Host Port
Serial Port	Data Size: 8 🗸 bit	
Expand Function	Parity: None 🗸	· Close
Misc Config	Stop Bits: 1 🗸 bit	
	Local Port Number: 8899 (0~65535)	
Reboot	Remote Port Number: 8236 (1~65535)	C Log Display Mode
	Work Mode: UDP Server 🗸	Auto Linefeed
	Remote Server Addr: [172.16.11.31 [172.16.11.31]	Save Recy to File
	RESET:	AutoScroll Clear
	LINK: 🗹	Send Options
	INDEX:	ASCIL C HEX
	Similar RFC2217: 🛛 🔽	
	Tcp Quick Ack: 🗹	Send from File Data Send   Remote: 172.16.11.102:8899
	Save	Cycle 1000 ms network test





Figure 33. Settings of device and test software

Figure 34. Test result

There is another condition, the local host port is not the same with the remote port of the USR-TCP232-306. If

so, the network test software must send the first data packet to USR-TCP232-306(work as UDP server).

Firmware Version: V	/4020	E I	Q _{主文}
			Network Assist
<u> </u>	USR	Settings (1) Protocol	Data log
	-IOT Experts-	UDP	[2023-06-29 14:39:58.990]# RECV ASCII F
Current Status	parameter	(2) Local Host Addr	12023-06-29 14:40:01 4551# SEND ASCILT
Local IP Config	Baud Rate: 115200	pps (2) lead Heat Part	network test
Serial Port	Data Size: 8 🗸 bit	8239	[2023-06-29 14:40:04.228]# RECV ASCII F Serial data
Expand Function	Parity: None 🗸	- Close	[2023-06-29 14:40:06.370]# SEND ASCII T
Misc Config	Stop Bits: 1 v bit		network test
Debeet	Local Port Number: 8899 (0~	-65535) Recv Options	
KEDOOL	Remote Port Number: 8236 (1~	-65535)	
	Work Mode: UDP Server 🗸	Auto Linefeed	
	Remote Server Addr: [172.16.11.31	Hide Received Data	
	RESET:	AutoScroll Clear	
	LINK: 🗹	Cand Oalian	
	INDEX:	ASCII C HEX	
	Similar RFC2217: 🗹	🔲 Use Escape Chars 🕡	
	Tcp Quick Ack: 🗹	Auto Append Bytes	Data Send Remote: 172.16.11.102
	Save Cancel	Cycle 1000 ms	network test
		<u>Shortout</u> <u>History</u>	
		Paradal	EE

Figure 35. Different UDP port

If we send the first data packet from serial to network, the data isn't transmitted successfully, the test result can be seen in the following picture.



•	Uart Assistant	a - □ ×	1 ·	Network Assistant
COM Configs	Data log	UartAssist V5.0.2 🗇 📿	Settings	Data log
Channel COM4 #03 V Baudrate 115200 V Paritybits NONE V	[2023-06-29 14:39:58.981]# SEND ASCII> Senial data [2023-06-29 14:40:01.523]# RECV ASCII>	^	(2) Local Host Addr	[2023-06-29 14:39:58:990]# RECV ASCII FROM 1 Serial data [2023-06-29 14:40:01.455]# SEND ASCII TO 172
Stopbits 1 V	network test [2023-06-29 14:40:04.226]# SEND ASCII> Serial data		(3) Local Host Port 8239	network test [2023-06-29 14:40:04.228]# RECV ASCII FROM 1 Serial data
Recv Options	[2023-06-29 14:40:06.443]# RECV ASCII> network test [2023-06-29 14:46:56.473]# SEND ASCII> Serial data		Recy Options	[2023-06-29 14:40:06.370]# SEND ASCII TO 172 network test
<ul> <li>✓ Log Display Mode</li> <li>✓ Auto Linefeed</li> <li>✓ Hide Received Data</li> </ul>	(2023-06-29 14:48:52.217)# SEND ASCI> 111111111111		Log Display Mode     Auto Linefeed     Hide Received Data	< compared with the second sec
Save Hecv to File <u>AutoScroll Clear</u> Send Options			AutoSoroll Clear Send Options	
ASCII C HEX     Use Escape Chars ③     Auto Append Bytes     Send from File     Cycle 50000 ms     Sherteut History	Data Send 1. DCD • 2. #XD • 3. TXD • 4. DTR •	5. GKD    6. DSR    F Clear    Clear Send	ASCII C HEX     Use Escape Chars(i)     Auto Append Bytes     Send from File     Cycle 1000 ms     Shortcut History	Data Send         Remote:         172.16.11.102.8899           2222222222

Figure 36. Test result with no data

If we send the first data packet from network to serial successfully, then we can also send the data from serial to network successfully.

•	Uart Assistant	4 - O ×	•••	Network Assistant
COM Configs	D ata log	UartAssist V5.0.2 🗇 🗘	Settings (1) Protocol	Data log
Baudrate 115200	[2023-06-29 14:39:58.981]# SEND ASCII> Serial data	^	UDP	[2023-06-29 14:39:58.990]# RECV ASCII FROM 172 Serial data
Paritybits NONE  Databits 8	[2023-06-29 14:40:01.523]# RECV ASCII> network test		172.16.11.31	[2023-06-29 14:40:01.455]# SEND ASCII TO 172.16
Stopbits 1	[2023-06-29 14:40:04.226]# SEND ASCII> Serial data		(3) Local Host Port 8239	[2023-06-29 14:40:04.228]# RECV ASCII FROM 172 Serial data
· Close	[2023-06-29 14:40:06.443]# RECV ASCII> network test		Close	[2023-06-29 14:40:06:370]# SEND ASCII TO 172:16
Recy Options	[2023-06-29 14:46:56.473]# SEND ASCII> Serial data		Recv Options	[2023-06-29 14:52:27.218]# SEND ASCII TO 172.16
	(2023-06-29 14:48:52.217)# SEND ASCII>		I ASCII C HEX I Log Display Mode	[2023-06-29 14:53:28.375]# RECV ASCII FROM 172
Auto Linefeed     Hide Received Data	[2023-06-29 14:52:27.289]# RECV ASCII> 2222222222		Hide Received Data	
Save Recv to File AutoScroll Clear	[2023-06-29 14:53:28.372]# SENS (SLI)		Save Recv to File AutoScroll Clear	
Send Options			Send Options	
✓ Use Escape Chars ④			Use Escape Chars ()	
Auto Append Bytes     Send from File	Data Send 1. DCD • 2. RXD • 3. TXD • 4. DTR • 5. GND	● 6. DSR ● 두 Clear 🛧 Clear	Auto Append Bytes	Data Send Remote: 172.16.11.102:8899
Cycle 50000 ms	1111111111	Send	Cycle 1000 ms	2222222222
Shortcut History		Send	Shortcut History	

Figure 37. Test result with data transmission

#### 4.4. UDP client

#### 4.4.1. Transparent data transmission

In UDP client mode, TCP232-306 will only communicate with target IP/Port. If data is not from target IP/Port, it won't be received by TCP232-306.



Firmware Version: \	/4020		中文
8			Network Assistant
5	USR	Settings Data log	
$\sim$	-IOT Experts-	UDP	
Current Status		(2) Local Host Addr	
	parameter	172.16.11.31 💌	
Local IP Config	Baud Rate: 115200 bps	3) Local Host Port	
Serial Port	Data Size: 8 🗸 bit	8240	
Expand Function	Parity: None 🗸	- Close	
Mice Config	Stop Bits: 1 🗸 bit		
	Local Port Number: 8899	Recy Options	
Reboot	Remote Port Number: 8240 (1-65535)	ASCII C HEX	
	Work Mode: UDP Client V None	IV Log Display Mode <	
	Presete Comun Adda [172.16.11.31]	Hide Received Data	
	[172.16.11.31]	Save Recv to File	
	RESET:	<u>AutoScroll</u> <u>Clear</u>	
	LINK: 🗹	Send Options	
	INDEX:	C ASCII C HEX	
	Similar RFC2217: 🗹	🔲 Use Escape Chars (i)	
	Tcp Quick Ack: 🗹	Auto Append Bytes Data Send	Remote: 172.16.11.102:8899
	Save	Send from File	144
	Gave	Shortcut History	
		🕼 Ready!	8/10 🗎 📸

Figure 38. UDP client



Figure 39. Test result of UDP client

#### 4.4.2. Broadcast

If the remote IP of TCP232-306 is set to 255.255.255, TCP232-306 can broadcast to entire network segment and receive broadcast data.



Firmware Version: V4020 中文						
, <mark>e</mark> [®]	USR		<u>*</u> · /		<u>.</u>	
~~~`	-IOT Experts-		Settings (1) Protocol	Da	Settings (1) Protocol	Data log
Current Status		parameter	UDP	Ш	(2) Local Host Addr	
Local IP Config	Baud Rate:	115200 bps	172.16.11.31	Ш	172.16.10.155 👻	
Serial Port	Data Size:	8 V bit	(3) Local Host Port	Ш	(3) Local Host Port 8240	
Expand Function	Parity: Stop Bits:	None v	8240	Η	Close	
Misc Config	Local Port Number:	8899 0~6553	· Citose	Ш		
Reboot	Remote Port Number:	8240 (1~6553	Recy Options		Recv Options ← ASCII ← HEX	
	Work Mode:	UDP Client V None	✓ Log Display Mode		Cog Display Mode	
	Remote Server Addr:	255.255.255.255	Auto Linefeed		✓ Auto Linefeed ✓ Hide Received Data	
	RESET:		Save Recv to File		Save Recv to File	
	LINK:		AutoScroll Clear	Ш	AutoScroll Clear	
	INDEX:		Send Options	Ш	Send Options ASCII C HEX	
	Similar RFC2217: Tcp Quick Ack:				Use Escape Chars 🛈	
		Save Cancel	Auto Append Bytes Send from File Cycle 1000 ms Shortcut Kistory	Da 444	Auto Append Bytes Send from File Cycle 1000 ms <u>Shortcut</u> <u>History</u>	Data Send F Remote access

Figure 40. Settings of UDP broadcast



Figure 41. Result of UDP broadcast

4.4.3. Multicast

In UDP client mode, it also supports multicast. Multicast can be used to realize the one-to-multipoint connection between the data sender and receiver. Multiple receivers join the same multicast group, share the same IP address, and join the multicast group at the same time.

Members of the multicast group are dynamic, and the entry and exit of a member does not affect the original multicast group. The valid address range of a multicast group is 224.0.0.2 to 239.255.255.255.



Firmware Version: \	/4020		中文
۲ ۲	USR -IOT Experts-	Be Hone	st, Do Best!
Current Status		parameter	Help
Local IP Config	Baud Rate:	115200 bps	• UDP multicast:
Serial Port	Data Size:	8 V bit	In UDP Client mode, the address
Expand Function	Parity:	None V	range of remote server is 224.0.0.2
Misc Config	Stop Bits:	1 v bit	- 239.255.255.255, which needs to be
Reboot	Local Port Number:	8899 (0~65535)	modified manually
	Remote Port Number: Work Mode:	UDP Client V Multicast V	HTTPD URL: Module add GET/POST and
	Remote Server Addr:	224.0.0.2	HTTP/1.1 in URL automatically
	RESET:		setting.
	LINK:		 • HTTPD Packet Header:
	INDEX:		Module add HOST
	Similar RFC2217:		according to user's
	Tcp Quick Ack:		setting.Add"Content Length"automaticall
	S	ave	in POST mode.

Figure 42. Multicast settings

4.5. HTTP client

In HTTPD Client mode, TCP232-304 can achieve data transmission between serial port device and HTTP server. User just need set TCP232-306 in HTTP client and set the HTTPD header and HTTP URL and some other related parameters, then the data can be transmitted between serial device and http server.

The http connection of TCP232-30X is short connection, if the device does not receive the data sent by the serial port device after waiting for the pre-set time, it will actively disconnect. The default pre-set time is 3 second.





Figure 43. Settings of Httpd client

••	Uart Assistant	₩ - □ ×
COM Configs	Data log	UartAssist V5.0.2 🗇 🗘
Channel COM4 #US Baudrate 115200 Paritybits NONE Databits 8 Stopbits 1 Flowetri NONE Close	[2023-06-29 16:47:46.413]# SEND ASCII> data=httpdatatest [2023-06-29 16:47:47.818]# RECV ASCII> HTTP/1.1 200 0K Date: Thu, 29 Jun 2023 08:47:03 GMT Server: Apache/2.4.43 (Win64) OpenSSL/1.1.1g PHP/7.4.5 X-Powered By: PHP/7.4.5 Content-Length: 12 Content-Length: 12 Content-Type: text/html; charset=UTF-8	^
	httpdatatest	
Recv Options	[2023-06-29 16:47:56.150]# SEND ASCII> data=123456	
Log Display Mode Auto Linefeed Hide Received Data Save Recv to File AutoScroll Clear	[2023-06-29 16:47:57.543]# RECV ASCII> HTTP/1.1 200 0K Date: Thu, 29 Jun 2023 08:47:13 GMT Server: Apacher/2.4.43 (Win64) OpenSSL/1.1.1g PHP/7.4.5 X-Powered-By: PHP/7.4.5 Content-Length: 6 Content-Length: 6 Content-Type: text/html; charset=UTF-8	
Send Options	123456	
ASCII C HEX Use Escape Chars Auto Append Bytes Send from File Cycle 50000 ms	Data Send 1. DCD ◆ 2. RXD ◆ 3. TXD ◆ <u>4. DTR</u> ◆ 5. GND ◆ data=123456	6. DSR • F Clear Clear
Shortcut <u>History</u>]	
🝠 Ready!	47/53 RX:18066	TX:758 Reset

Figure 44. Test result of httpd client

5. Modbus Gateway

5.1. Modbus RTU to Modbus TCP

The USR-TCP232-30x series support Modbus protocol conversion. Users can enable this function in "Expand

Function" tab.



Firmware Version: V4	1020	中文
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	USR Be Ho -IOT Experts-	onest, Do Best!
Current Status	parameter	Help
Local IP Config	Heartbeat Packet Type: None 🗸 ASCII 🗸	Custom
Serial Port	Register Packet Type: None 🗸	Heartbeat Packet:
Expand Function	impersistent connection:	this function is not
Misc Config	TCP Server-kick off old connection:	support the Chinese , and 40
Reboot	Modbus Type: Modbus TCP/RTU 🗸	bytes in length
	Save Cancel	Packet: this function is not open,not do support the Chinese, and 40 bytes in length
		TCP Server-kick off old connection :

Figure 45. Modbus RTU to Modbus TCP

When users use the Modbus protocol conversion, there are two different conditions: Ethernet device works as Modbus master or serial device works as Modbus master, we will introduce the setting of these two conditions in the following chapter.

We will test this feature with Modbus Poll and Modbus slave tool which can be downloaded by Google or other search engines. You can download the Modbus tool by yourselves.

#### 5.1.1. Ethernet master with serial slave

In this condition, USR-TCP232-30x should work as TCP server and local port can't be 0 and 80 etc. that maybe occupied by the other functions.

Firmware Version: V4	4020		<u>中文</u>
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	USR -IOT Experts-		Be Honest, Do Best!
Current Status		parameter	Help
Local IP Config	Baud Rate:	115200 bps	• UDP multicast:
Serial Port	Data Size:	8∨ bit	In UDP Client mode, the address
Expand Function	Parity:	None V	range of remote server is 224.0.0.2
Misc Config	Stop Bits:	1 v bit	- 239.255.255.255, which needs to be
Reboot	Local Port Number:	502 (0~65535) 8024 (1~65535)	modified manually
	Remote Port Number:	17CP Server x	HTTPD URL: Module add
	Remote Server Addr:	172.16.11.31 [172.16.11.31]	GET/POST and HTTP/1.1 in URL automatically according to user's
	RESET:		setting.
	LINK:	\checkmark	 HTTPD Packet Header:
	INDEX:		Module add HOST
	Similar RFC2217:		automatically according to user's
	Tcp Quick Ack:		setting.Add"Content Length"automaticall
	5	Save Cancel	in POST mode.

Figure 46. Ethernet master with serial slave



Settings of Modbus poll and Modbus slave and the test result. The serial parameters of the Modbus slave like baud rate, data bits and so on should keep same with the 30x'.

Image: Second	Serial Settinos Cancel Alias 00000 12 1 15 00 3 0 0 4 0 0 5 00 0 6 00 1 7 0 1 8 00 1
3. Server Port Connect Timeout OIPv4 502 3000 [ms] OIPv6	9 0 VAry Address IPv4

Figure 47. Settings of Modbus poll/slave

ប្បី Modbus Poll - Mbpoll1]] Modbus Slave - [Mbslave1]			
File Edit Connection Setup Functions Display View Window Help	🗒 Eile Edit Connection Setup Display View Window Helt			
🗋 🚅 🔚 🎒 🗙 🛅 🗒 🚊 🕕 05 06 15 16 17 22 23 TC 🖳 🦓 📢	🗅 🗃 🖶 🎒 🛅 🗏 👜 🤋 📢			
Mbpoll1	D = 1: F = 03			
Tx = 1803: Err = 1799: ID = 1: F = 03: SR = 1000ms	Alias 00000			
Alias 00000	0 12			
0 12	1 15			
1 15	2 0			
2 0	3 0			
3	4 0			
4	5 0			
5	6 0			
	7 0			
	8 0			
	9 0			

Figure 48. Test result

5.1.2. Serial master with Ethernet slave

In this condition, USR-TCP232-30x should work as TCP client and the remote port keep the same with the listening port of the Modbus slave.



Firmware Version: V4	020		中文
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	USR -IOT Experts-		Be Honest, Do Best!
Current Status		parameter	Help
Local IP Config Serial Port	Baud Rate: Data Size:	115200 bps	• UDP multicast: In UDP Client
Expand Function	Parity: Stop Bits:	None V	mode, the address range of remote server is 224.0.0.2
Misc Config	Local Port Number:	502 (0~65535)	- 239.255.255.255, which needs to be modified manually
	Remote Port Number: Work Mode:	8234 (1~65535)	HTTPD URL: Module add GET/POST and
	Remote Server Addr:	172.16.11.31 [172.16.11.31]	HTTP/1.1 in URL automatically according to user's
	RESET:		setting.
	LINK:	$\checkmark$	HTTPD Packet     Header:
	INDEX:		Module add HOST
	Similar RFC2217: Tcp Quick Ack:		automatically according to user's setting.Add"Content
	5	Save Cancel	Length"automaticall in POST mode.

Figure 49. Serial master with Ethernet slave

Settings of Modbus poll and Modbus slave and the test result. The serial parameters of the Modbus poll like baud

rate, data bits and so on should keep same with the 30x'.

Image: Modbus Poll - Mbpoll1         File       Edit       Connection       Setup         Image: Image: Market State S	Functions Display View Window Help	Image: State - [Mbslave1]         Image: State - [Mbslave1]         Image: State -
Allas         Allas           0         1           2         3           4         4	Connection OK Serial Port OK USB Serial Port (COM4) OB 115200 Baud O 8 Data bits OK None Panty OK Delay Between Po	No connection         Connection           Alias         00           Alias         00           Serial Settings         Cancel           1         USB Serial Port (COM4)           3         0           1         ISB Serial Port (COM4)           1         Prove Control           5         Prove Control           5         ISB Parts bits           Vote         6
5	1 Stop Bit         Advanced.         20         Im           Remote Mode same           IP Address or Node Name         1121611102           Server Port         Connect Timeout         0.18v4           502         9000         [ms]         1Pv6	No.     T     I Stop. Bit     Implify in Stable dealy       8     TCP/P Server     Port       9     IP Address     Port       127:00.1     (8234)       Ingrere Unit ID     IPA6

Figure 50. Settings of Modbus poll/slave

친길	Modbus Poll - Mbj	poll1					à	Modbus Slave	- [Mbslave1]		
File	File Edit Connection Setup Functions Display View Window Help				P	<u>File</u> <u>E</u> dit <u>C</u> onn	ection <u>S</u> etup <u>D</u> is	play <u>V</u> iew <u>W</u> indow <u>H</u> elp			
D	🗋 🚔 🔚 🎒 🗙 🛅 🗒 🚊 🕕 05 06 15 16 17 22 23 TO				С	) 🖻 🖬 🎒		? №?			
2	Mbpoll1					ID	= 1: F = 03				
Тх	= 2110: Err = 1	811: ID = 1: F	= 03: SR = 100	00ms				Alias	00000		
	Alias	00000					0		22		
0		22					1		28		
1		28					2		0		
2		0					3		0		
3							4		0		
4							5		0		
5							6		0		
							7		0		
							8		0		
							9		0		

Figure 51. Test result



#### 5.2. Multi-host Modbus polling

In practice, users need multiple hosts to monitor multiple 485 devices, such as requiring two computers to monitor the same RS485 device. The USR-TCP232-30x can solve this problem with multi-host Modbus polling. This feature can be enabled in "Expand Function" tab. In this work mode, the polling timeout is larger than polling interval.

*Note: Once this feature is enabled, the Modbus master must be network device and the serial device must be Modbus slave.* 

Firmware Version: \	/4020	中文
۲ ۲	USR Be Hone	est, Do Best!
Current Status	parameter	Help
Local IP Config Serial Port Expand Function Misc Config Reboot	Heartbeat Packet Type: None ASCII  Register Packet Type: None  Impersistent connection:  TCP Server-kick off old connection:  Buffer Data Before Connected:  Modbus Type: Modbus Multi-Master  Modbus abnormal response:  Modbus polling timeout: 200 (ms)(10~9999) Modbus polling interval: 100 (ms)(0~9999)	Custom Heartbeat Packet: this function is not open,not do support the Chinese , and 40 bytes in length Custom Register Packet: this function is not open,not do support the Chinese , and 40 bytes in length
	Save Cancel	TCP Server-kick off old connection : TCP Server mode, a new connection whether to kick off

Figure 52. Settings of Modbus multi-host polling



#### Figure 53. Test result of Modbus multi-host polling



## 6. Additional features

#### 6.1. Built-in webpage

PUSR opens the source code of the built-in webpage to users. Users can modify it according to their own needs, which helps customers fully develop the products.

#### 6.1.1. Edit webpage file

Users can download the built-in webpage package first: The file in usr_web folder can be edited as user needed.

		~			
🕹 Quick access		Name	Date modified	Туре	Size
		💽 404.html	12/6/2022 9:47 AM	QQBrowser HTML D	1 KB
	~	🐒 cfg.js	5/12/2023 5:28 PM	JavaScript File	9 KB
Documents	Я.	ᄎ favicon.ico	12/6/2022 9:47 AM	lcon	5 KB
🔸 Downloads	*	📀 index.shtml	5/25/2023 5:17 PM	QQBrowser HTML D	3 KB
Nictures	*	📀 indexcn.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	3 KB
SThis PC		📀 initialcn.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	4 KB
···		📀 initialen.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	3 KB
		📀 ipconfigcn.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	7 KB
■》 \$\$\$14 (D:)		📀 ipconfigen.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	6 KB
🔮 Network		📀 login.html	12/6/2022 9:47 AM	QQBrowser HTML D	1 KB
<b>A</b>		logo.png	12/6/2022 9:47 AM	PNG File	6 KB
🚺 Linux		🔿 manage.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	2 KB
		📀 managecn.shtml	12/6/2022 9:47 AM	QQBrowser HTML D	2 KB
		💽 misc.shtml	4/17/2023 3:52 PM	QQBrowser HTML D	3 KB
		📀 misccn.shtml	4/17/2023 3:51 PM	QQBrowser HTML D	3 KB
		📀 sernet1.shtml	5/12/2023 5:27 PM	QQBrowser HTML D	8 KB
		📀 sernet1cn.shtml	5/12/2023 5:28 PM	QQBrowser HTML D	8 KB
		📀 sernet2.shtml	4/28/2023 9:48 AM	QQBrowser HTML D	8 KB
		💽 sernet2cn.shtml	4/28/2023 9:51 AM	QQBrowser HTML D	8 KB
		🛐 style.css	12/6/2022 9:47 AM	Cascading Style Shee	3 KB
		style2.css	12/6/2022 9:47 AM	Cascading Style Shee	2 KB
21 items					

#### Figure 54. Built-in webpage file

#### 6.1.2. Upgrade the webpage file

User need download the upgrade tool first,

Download address:

- Destination IP: Enter the IP address of TCP232-30X device,
- Port: Fixed 1501,
- Start Address: 08020000(Fixed),
- MaxSize: 1C000(Fixed),
- Select Path: Select the webpage file folder,
- Upgrade.



🤺 ι	JSR Upgrade Ht	ml For Test V1.1.0 -	-	×
<u>C</u> hi	nese			
			_	
	Destination IP	172.16.11.102 Port 1501	-	
	Start Address	08020000		
	MaxSize	1C000		
	Select Path	It-in webpage source code(V4020)\fs		
		Upgrade		]
Bin s	ave finished	Not Connected		

Figure 55. Upgrade webpage file

#### 6.2. Index function

The Index function is mainly to solve the problem that in the TCP Server mode, when the user has multiple clients connected to the 30X and sends and receives data at the same time, the data source cannot be distinguished or cannot be sent to a specific client.

🗟 USR-M0 V2.2.6.1	- D X			
File Language Help	Para Davar (which is without + usually base default)			
Operate Via LAN Operate Via COM	base Param (which is without ",usually keep default)			
Device IP Device Name MAC Ver	ModuleStaticIP* 192.168.0.7 User Name admin			
172.16.11.102 USR-TCP232-3 D8 B0 4C B4 B1 94 4020	SubnetMask* 255.255.0 Password admin			
	Gateway * 192.168.0.1 Device Name USB-TCP/			
	DNS Address 208.67.222.222			
	Reset Timeout(s) 3600			
	Clear Buffer Data Before Connected			
	UART Set Parameter			
	Port Param			
	Parity/Data/Stop NON × 8 × 1 × Baudrate 11520 ×			
🔍 Search Device	Module work mode TCP Server V Local Port 8899			
	RemoteIP 192.168.0.201 Remote Port 8234			
	Short Connection time 3 Tcp connect num 4 ~			
Data has been sent	PackTime 0 PackLen 0			
Data has been sent				
Click device can read the parameters, right-click Device list show				
more	✓ ICP Server-kick off old connection			
Read [Mac : D8 B0 4C B4 B1 94 ]	UDP data source judgment			
Pood OK	Heartbeat			
Read OK	Heartbeat Packet Type None 🗸			
	Save Config DataDebug			
Operation Log Hex Streams				

Figure 56. Settings of index function

When the TCP connection is established, the serial will out put the connection order showing in the red



rectangle. And when the clients send data to serial device, the TCP232-30X will prefixes the data with a serial number like I1, I2.

When the serial device needs to send data to a specific client, such as sending data to the first client, you can add O1 in front of the data, such as we send O1www.usr.cn meaning sending www.pusr.com to the first clients. We can see the result in the following picture, the data is send to the first client only as indicated by the blue arrow.



Figure 57. Test result of index function

## 7. Warranty

## 8. Contact Us

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Email : sales@usriot.com

Tel:+86-531-88826739

Fax: +86-531-88826739-808



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