

USR-K2 User Manual



www.usriot.com

# USR-K2 Super Port

File version: V1.0.0



USR-K2 is the high performance-cost version of Super Port .It is an embedded serial networking module, whose function is to realize bidirectional transparent transmission between UART TTL and Ethernet .The amazing part of K2 lies in its Ethernet port integration design .You can apply K2 to your products to realize networking communication .User can directly process data interaction through network and device to realize remote data acquisition, remote control and management.

USR-K2, Using core M0 series the parameters is close to K1, ] function than K1 more, on the basis of K1 increased upgrade firmware via network, DHCP, DNS, WEBSET.





### Content

1.	Pro	duct Introduction	4
1	.1.	Brief Intro	4
1	.2.	Function Features	4
1	.3.	Product Characteristics	4
1	.4.	Order Symbol	5
1	.5.	Electrical Characteristics	5
2.	Мо	dule Test	6
2	2.1.	Hardware Connection	6
2	2.2.	Default parameter test	6
3.	Мо	dule Work Mode	10
3	8.1.	Structure Chart	10
З	3.2.	UDP Mode	10
Э	3.3.	TCP Client	11
3	3.4.	Server Mode	12
Э	3.5.	TCP Server Mode	13
3	8.6.	Virtual COM Mode	13
4.	Par	amters configuration	15
4	l.1.	Web page	15
4	I.2.	Network command(setup software)	18
4	1.3.	Firmware Upgrade	18
5.	Har	dware Description	21
5	5.1.	Technical Specifications	21
5	5.2.	Hardware Description	22
5	5.3.	Hardware to RJ45 Light	23
5	5.4.	Size	24
6.	Exp	oand Functions	25
6	6.1.	RS485	25
6	6.2.	Link	25
6	6.3.	Reset	25
6	6.4.	ID	25
6	6.5.		27
6	6.6.	RFC2217	27
7.	Cor	mmon Questions	30
7	<b>'</b> .1.	Work Across Network Segment	30
7	7.2.	More Network Cards	30
7	7.3.	Every Period of Time, Module Dropped	30



USR-K2 User Manual

7	<b>7</b> .4.	Search Device Failure, Port Occupied	30
8.	Мо	dified history	31
9.	Со	ntact Us	32



# 1. Product Introduction

### 1.1. Brief Intro

USR-K2 is the high performance-cost version of Super Port. It is an embedded serial networking module, whose function is to realize bidirectional transparent transmission between TTL and Ethernet. The amazing part of K2ies in its Ethernet port integration design .You can apply K2 to your products to realize networking communication .User can directly process data interaction through network and device to realize remote data acquisition, remote control and management.

K2 is compatible with the of protocol K1, you can use it as K1.Its protocol is similar to K3. K3 protocol can be used to make a little change.

### 1.2. Function Features

- Support DHCP, Dynamic Host Configuration Protocol.
- Support DNS, Domain Name System;
- WEBSET: Setting parameters through web ;
- 10/100M auto detect interface;
- Support AUTO MDI/MDIX, Can use a crossover cable or parallel cable connection;
- Serial com port bound rate can set up from 300 to 961200,and None,Odd,Even,Mark,Space five check bits;
- Work mode TCP Server, TCP Client, UDP, UDP Server;
- Working model related parameters can be set via a serial port or network;
- 3.3 V TTL level compatible;
- Small Size
- Virtual serial port supported;
- Unique heartbeat package mechanism to ensure that the connection is reliable, put an end to connect feign death;
- Under UDP mode, Packet Broadcast is prohibited, with stronger anti-interference ability;
- Across the gateway, across switches, routers;
- Can work in LAN, also can work on the Internet (external network);
- upgrade firmware via network.

### 1.3. Product Characteristics

- > 32 bits ARM CPU inside;
- LAN : 10/100Mbps; protect: Built-2KV isolated electromagnetic;
- Serial port baud rate: from 600 to 961.2 KBPS can be set up;
- Network protocol: ETHERNET ARP IP UDP TCP ICMP, DNS, DHCP;
- Software tool: configuration software, TCP/UDP test soft, RS232 debug soft;
- Configuration method: serial com port or via Ethernet, free software available;



- Operating temperature: -25~75°C;
- Storage environment: -40~85°C, 5~95%RH.
- Compact type

## 1.4. Order Symbol

Name	Part Numbers	Description Remarks
Super Port	USR-K2	

Diagram 1-1 order symbol

### 1.5. Electrical Characteristics

Model Number	Power Supply DC	Current
USR-K2	3.3V	140mA

Diagram 1-2 Electrical Characteristics





# 2. Module Test

If you have any question, please contact us the in the client support center: http://h.usriot.com/index.php?c=frontTicket&m=sign

### 2.1. Hardware Connection

1. You can using" USR-TCP232-EVB V2.0". It's easier to test. USR-TCP232-EVB is power for DC 5V@200mA.



Diagram 2-1 USR-K2 Connection diagram

2. If you don't have "USR-TCP232-EVB", please refer to 5.4

### 2.2. Test With Default Parameter

1. Keep default parameter set up your pc.





Public



Diagram 2-2pc parameter

#### 2. Default Parameter List

Classes	Details
IP Address	192.168.0.7
Subnet Mask	255.255.255.0
The Default Gateway	192.168.0.1
Baudrate	115200
Parity/Data/Stop	None, 8, 1
Local Port	20108
Remote IP	192.168.0.201
Remote Port	8234
User Name	admin
Password	admin

Diagram 2-3 pc parameter

3. Open a browser, type and Login above IP address http://192.168.0.7, you will enter module's setup webpages. There will be a windows login verify dialog.

User name and password are both "admin", this can be modified after login into the system.

After you login, you can see webpage as follow,



Public

					8.0
	^				
∈ ⇒ G	192.168.0.7/ind	lex.shtml?english			10 X3
i 应用 🏈 At	mel评估套件专区 译	百度翻译 📌 WIFI模块,串口服务 🔣 hao123_上网从这	📌 济南有人物联网技…	🔞 写给过去的自己-No.	🗋 打开新的标签页
	firmware revision:	v1		中文	<u>loqout</u>
	<u>_</u>	USR -IOT Experts-	Be H	lonest, Do Be	est!
	Local IP Config	paramatar			<u>^</u>
	RS232	ID type: Static ID			
	Misc Config	Static IP: 192 . 168 . 0	. 7		
	Reboot	Submack: 255 255 255			
		Subinask, 235 - 235 - 235			
		Gateway: 192 . 168 . 0	. 201		
		Module Name: USR-K2			
		Current IP Address: 192.168.0.7			
		MAC Address: 00-/1-//-/c-45-04			
		Save Cancel			
					<b>-</b>
	Copyright © 2009 -	· 2015 · JiNan Usr IOT Technology Limited		website: <u>www.us</u>	riot.com

Diagram 2-4 USR-TCP232-Test Parameter

- Local IP Config: the module's ip address, submask and gateway parameter
- RS232: the module's serial to ethernet parameter
- Web to Serial: web to serial data transparent
- Misc Config: some parameter such as user name and password parameter
- Reboot: user can reboot/restart module from here

#### 4. Received and transmited

To test briefly in default working mode, on the foundation of the hardware connection, use the matched software USR-TCP232-Test to make transmitting and receiving test. The left side is serial port, use software default settings, the right side is the network part, set to TCP Client and server to be IP 192.168.0.7, port 20108.

This illustration shows the 10 ms two-way simultaneous automatically transmit screenshots. As the allocated memory of the display control is limited, in order to test large amount of data transceiver, here will suspend the receive display, only statistical data. Below is the effect after testing for a few hours, and transmitting millions of bytes. Stable and reliable, without a byte loss.







Diagram 2-4 USR-TCP232-Test Parameter





## 3. Module Work Mode

### 3.1. Structure Chart



#### Diagram 3-1 structure chart

### 3.2. UDP Mode

optitute	Via LAN	Operate Via	COM	Base Param (which is	s without 🗙, usually	keep default)	
Device IP	Device Name	MAC	Ve	TP T	Statia TP -	UTTO P	80
92.168.0.17	K1	00 71 77 7C 44 14	0.1	II Iype 🗶	Static II 🔹	, min for c	00
92.168.0.17	USR-K2	00 71 77 7C 44 14	3073	ModuleStaticIP ★	192.168.0.17	User Name	admin
92. 168. 0. 107	wp3−绂佹㥄鐣嶄綔	D8 B0 4C F4 46 8C	516	SubnetMask ★	255.255.255.0	Password	admin
				Gateway ★	192. 168. 0. 201	Device Name	USR-K2
				<b>R</b> S422	V RS485	Device ID	122
				Index	👿 Link 🛛 👽 Se	nd device ID when c	onnected
	0			Prest	- PEC2217 - C.		тп
				Port Param			
Data has been	sent			Port Param Parity/Data/Stop	NONE V 8 V 1 V	Baudrat	≥ 230400 ▼
Data has been Data has been Data has been	sent sent sent			Port Param Parity/Data/Stop Module work mode		Baudrat, Local For	≥ 230400 <del>↓</del> £ 20108
Data has been Data has been Data has been Click device ca	sent sent sent an read the paramete	rrs, right-click Dev	ice list	Port Param Parity/Data/Stop Module work mode	NONE • 8 • 1 •	Baudrate Local Por	<ul> <li>230400 ▼</li> <li>20108</li> <li>8234</li> </ul>
Data has been Data has been Data has been Llick device co show more Bead [ Mac : OC Data has been Read OK	sent sent sent un read the paramete ) 71 77 7C 44 14 ] sent	rs, right-click Dev	ice list	Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • 1 • 192. 168. 0. 11	Baudrat, Local Por Remote Por	e 230400 ▼ t 20108 t 8234
Data has been Data has been Data has been Lick device co thow more Lead [ Mac : OU Data has been Lead OK	sent sent un read the paramete 0 71 77 7C 44 14 ] sent	ars, right-click Dev	ice list	Port Param Parity/Data/Stop Module work mode RemoteIP	NONE + 8 + 1 + IDP 192. 166. 0. 11	Baudrate Local Por Remote Por nfig	≥ 230400 ♥ 20108 28234

#### Diagram 3-2 UDP Mode

In UDP mode, after the module is powered on, module listen on specific port, not take the initiative to establish a connection, when module receive data from net ,send to the serial port, when a serial port receives the data sent over the network to the IP and port module Settings.





### 3.3. TCP Client

Operate	Via LAN	Onerste Vis (	COM					
-,		optiate ria e		Base Param (which is	without 🚖, usu	ually keep	default)	
)evice IP	Device Name	MAC	Ve	TP Trme 🛨	Static TP	_	WTTP Post	80
92.168.0.17	K1	00 71 77 7C 44 14	0.1	II Type 🗶		•		
.92.168.0.17 92.168.0.107	USR-K2 wn3-编倍棱镎嵌篯	00 71 77 7C 44 14 D8 B0 4C F4 46 8C	3073 516	ModuleStaticIP 🗙	192.168.0.17		User Name	admin
	"P" 30000 (x)P+40134			SubnetMask ★	255.255.255.0		Password	admin
				Gateway ★	192. 168. 0. 201		Device Name	USR-K2
				<b>W</b> RS422	V RS485		Device ID	122
				Index [	📝 Link	👿 Send de	evice ID when co	nnected
								TD
	🔍 Search	Device		V Reset	V RFC2217	👿 Send da	ata with device	10
	🔍 Search	Device		₩ Reset	▼ RFC2217	V Send da	ata with device	
Data has been	Search sent	Device		Port Param Parity/Data/Stop	NONE - 8 -	✓ Send da 1 ▼	ata with device Baudrate	230400 🗸
Data has been Data has been Data has been	Search sent sent	Device		Port Param Parity/Data/Stop Module work mode	<pre>NONE    8 TCP Client</pre>	Send da	ata with device Baudrate Local Port	11) 230400 ↓ 20108
Data has been Data has been Data has been Lick device ca Licw more	Search sent sent sent n read the parameter	Device	ice list	Port Param Parity/Data/Stop Module work mode RemoteIP	<pre>NONE    8 TCP Client 192.168.0.11</pre>	✓ Send da	ata with device Baudrate Local Port Remote Port	230400 - 20108 8234

Diagram 3-3 TCP Client

In TCP client mode, after power on module according to their own Settings active TCP server to connect to the server, and then establish a long connection, data transparent transmission on this mode.





### 3.4. UDP Server Mode

Operate	Via LAN	Operate Via	COM					
				Base Param (which is	without 🗙, u	sually ke	ep default)	
)evice IP	Device Name	MAC	Ve	IP Type 🛨	Static IP	•	HTTP Port	80
.92. 168. 0. 17	K1	00 71 77 7C 44 14	0.1					
.92. 168. 0. 17	USR-K2	00 71 77 7C 44 14	3073	ModuleStaticIP 🗙	192.168.0.17		User Name	admin
.92. 168. U. 107	wp3=301厄1敘譯斯希利	D8 BU 4C F4 46 8C	516	SubnetMask ★	255. 255. 255.	0	Password	admin
				Gateway ★	192.168.0.20	1	Device Name	USR-K2
				📝 RS422	V RS485		Device ID	122
				Index	📝 Link	📝 Send	device ID when c	onnected
	🔍 Search	Device		📝 Reset	V RFC2217	📝 Send	data with device	ID
				Port Param				
)ata has been	sent			Parity/Data/Stop	NONE 🗸 8	• 1 •	Baudrat	e 230400 👻
)ata has been	sent			<b>U</b> . <b>J</b> . <b>U</b> . <b>J</b> .			T] P	20108
)ata has been	sent			module work mode	UDP Server		Local for	1 20100
LICK device ca now more	n read the paramete	rs, right-click Dev	ice list	RemoteIP	192.168.0.11		Remote Por	t 8234
ead [ Mac : 00	71 77 7C 44 14 ]							
)ata has been	sent							
ead OK								
					🗸 S	Save Confi	ig	

Diagram 3-4 UDP Server Mode

UDP server refers to the normal UDP are not validated on the basis of the source IP address, destination IP instead of the UDP packets are received data source IP, similar to TCP server functionality.

In this mode, the module by default record a destination IP and destination port, when a serial port data, to record the IP to send data, at the same time, the module at the server status, to accept the network packets sent to module, and adjust the target IP IP for the data source, suitable for multiple IP working mode for the module.

Use computer end program and UDP mode is exactly the same, no need to change.

**Note:**UDP mode, UDP server mode with a single maximum length of 1472 bytes should be controlled at or below.





### 3.5. TCP Server Mode

	11: T 13						
Uperate	VIA LAN	Uperate Via (	COM	Base Param (which is	without 🛨 usua	llv keep default)	
Device IP	Device Name	MAC	Ve	IP Type 🛨	Static IP	▼ HTTP Port	80
192.168.0.17	K1	00 71 77 7C 44 14	0.1				
192, 168, 0, 17	USR-K2	00 71 77 70 44 14	3073	ModuleStaticIP ★	192.168.0.17	User Name	admin
192.168.0.107	wp3-缬恑饺猂斬綔	D8 B0 4C F4 46 8C	516	SubnetMask 🛨	255 255 255 0	Password	admin
				· · · · · · · · · · · · · · · · · · ·	200.200.200.0		
				Gateway 🗙	192.168.0.201	Device Name	USR-K2
				<b>W</b> RS422	📝 RS485	Device ID	122
				Index	👽 Link 👿	7 Send device ID when c	onnected
	0				DECOOLT		TD
	Search	Device		V Keset	V Artzzii	Jena data with device	10
Data has been	Search	Device		Port Param Parity/Data/Stop	NONE + 8 + 3	j send data with device	e 230400 →
Data has been Read OK	Search	Device		Port Param Parity/Data/Stop Modulo work		] Send data with device 1 → Baudrat Long Per	e 230400 ▼ + 20108
Data has been Read OK Data has been	sent	Device		Port Param Parity/Data/Stop Module work mode	NONE - 8 - 1 TCP Server	Jend data with device Baudrat Local Por	e 230400 ↓ t 20108
Data has been Read OK Data has been Data has been Data has been	Search sent sent	Device		Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • : TCP Server 192.168.0.11	1 → Baudrat ↓ Local For Remote For	e 230400 ↓ t 20108 t 8234
Data has been Read OK Data has been Data has been Data has been ArK	Search sent sent sent	Device		Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • : TCP Server 192.168.0.11	1 → Baudrat → Local Por Remote Por	e 230400 ↓ t 20108 t 8234
Data has been Read OK Data has been Data has been ACK. ACK.	sent sent sent sent	Device		Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • 3 TCP Server 192.168.0.11	1 → Baudrat → Local Por Remote Por	e 230400 ↓ t 20108 t 8234
Data has been Read OK Data has been Data has been ACK. ACK.	sent sent sent sent	Device	A E	Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • 1 TCP Server 192.168.0.11	] Send data with device 1	e 230400 ↓ t 20108 t 8234
Data has been Read OK Data has been Data has been ACK. ACK. ACK.	sent sent sent sent	Device	E	Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • 1 TCP Server 192.168.0.11	<ul> <li>Jend data with device</li> <li>Baudrat</li> <li>Local Por</li> <li>Remote Por</li> </ul>	e 230400 ↓ t 20108 t 8234
Data has been Read OK Data has been Data has been ACK. ACK. ACK.	sent sent sent	Device		Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • 1 TCP Server 192.168.0.11	John data with device Baudrat Local Por Remote Por	e 230400 ↓ t 20108 t 8234
Data has been Read OK Data has been Data has been Data has been ACK. ACK. ACK.	sent sent sent sent	Device		Port Param Parity/Data/Stop Module work mode RemoteIP	NONE • 8 • : TCP Server 192.168.0.11	] Send data with device 1 → Baudrat ↓ Local Por Remote Por e Config	e 230400 ↓ t 20108 t 8234

#### Diagram 3-5 TCP Server Mode

In TCP Server mode, module and gateway trying to communication first, and then monitor set up local port, there is connection request response and create a connection, can exist at the same time up to 4 links, a serial port after receipt of the data will be sent to all at the same time of establishing links with network module device.

USR-TCP232-SETUP software, set the Index function can be achieved when to establish a multi-channel connection, the module can identify communications equipment, and with the specified device to communicate.

#### 3.6. Virtual COM Mode

Virtual COM means to convent data TCP connected to data of a COM within PC for transparent transmission. Take TCP Client mode for example:

Loading http://www.usriot.com/Download/31.html

- 1. Disable firewall and antivirus program
- 2. Install Virtual COM
- 3. Setting TCP Server



USR-K2 User Manual



SR-VCOM Virtual Serial Port Server V3.6.0.975	🙊 USR-TCP232	2-T24 series add virtual	serial port Comp	liant:USR-TCP	232-T24 series	🧠 Set De	levice			<b>—</b>
Device(D) Tools(T) Options(O) 中文 Help(H)	Device IP	MAC	Remote IP	Remote Port	Device Port		40	00.04.04.05.45.45		
Image: Constant in the sector in th	192.168.0.7	00 64 04 CD 45 A8	192.168.0.201	8234	20108	De Ne Su	evice IP et Protocol ubnet Mask	192.168.0.7 TCP Server	COM Paramete Device Port Remote IP	PT NONE ¥ 8 ¥ 1 ¥ 20108 192.168.0.201
COM1 Not used TCP Clien USR-TCP232-E45						Ga	ateway	192.168.0.201	Remote Port	8234
USR-WIFI232-X				$\backslash$		Ba	audRate	115200	ID	0000 🔽 HEX
				$\mathbf{X}$		Sp	pecal functio	n		
						Г	Concect	□ Data 🔽 RS485	□ R\$422	
						Г	Reet	🗆 Link 🦳 Index	▼ RFC2217	
					$\backslash$			ОК	8	Cancel
		🔍 Search	h Device	Connect V	/itual COM		y Set Devio	e 💽 Cléar	<b>4</b> 0	ose

Diagram 3-6 Virtual COM

#### 4. Connect a com

🔍 USR-TCP232	-T24 series add virtual	🔍 Add Virtual Serial I	Port		×						
Device IP	MAC					Net Protocol	BaudRate	COM Parame	ID	Subnet Mask	Version
192.168.0.7	00 6A 0A CD 45 AB	Virtual COM:	COM6	-	<b>D1</b>	TCP Server	115200	NONE/8/1	00 00 84	255.255.255.0	5.8
		Net Protocol: Remote IP/addr Remote Port:	TCP Client 192.168.0.7 20108		`a fre	e com					
		Losal Port: Ri marks:	8234		-1						
		OK -	Cancel	Advinced ≷	/						
				$\checkmark$							
	🔍 Search	Device	Connect Virtua	ы сом	0.00	Device	💽 Cle	ar	📲 Clos	e	
🔍 USR-VCOM	/irtual Serial Port Serve	r V3.6.0.975								[	
Device(D) Too	ols(T) Options(O) F	中文 Help(H)									
Add COM	Del COM	Reset Count	onitor S	earch - (	art VCOM	Quit					
Remarks	COM Name   Parameter:	s COM State N	let Protocol	Remote IP	Rer	note Port   Local F	Port COI	M Received Ne	et Receives	Net State	RegID

#### Diagram 3-7 Virtual COM





# 4. Paramters configuration

### 4.1. Web Page

Usually, this module is configured through web pages.

 Open a browser, type and Login above IP address http://192.168.0.7, you will enter module's setup web pages. There will be a windows login verify dialog.

📌 USR-K2	×	目录样式 英文 全大写_百 🛛 🗙 🧲 Word2007 生成目录英文 🗙			
← → C	192.168.0.7				ほ 会 〓
🔢 应用 🌘 Atr	mel评估套件专区 📱	百度翻译 📌 WIFI模块,串口服务 😹 hao123_上网从这	📌 济南有人物联网技	🙆 写给过去的自己-1	No ] 打开新的标签页 »
	firmware revision:	v1		虫	<u> </u>
		USR -IOT Experts-	Be H	lonest, Do l	Best!
	Local IP Config	parameter			<u> </u>
	RS232	IP type: Static IP V			
	Misc Config	Static IP: 192 . 168 . 0	. 7		
	Reboot	Submask: 255 . 255 . 255	. 0		
		Gateway:         192         , 168         , 0           Module Name:         USR-K2           Current IP Address:         192.168.0.7           MAC Address:         00-71-77-7c-44-14             Save         Cancel	. 201		
	Copyright © 2009	- 2015 · JiNan Usr IOT Technology Limited		website: <u>www</u>	.usriot.com
4					

Diagram 4-1 Web--IP

(2) Setting IP Congfig, input your parameters and click "Save", click "Reset moudle" or click "RS232" continue to Setting



Public

firmware revision:	/1			<u>中文</u> logout
	USR -IOT Experts-	Ве	Honest,	Do Best!
Local IP Config	Reboot/Reset			<u>^</u>
RS232	Rebot/Reset Module	Reset Module		
Misc Config				
Reboot				
				-
Copyright © 2009 -	2015 · JiNan Usr IOT Technology Limited		webs	site: <u>www.usriot.com</u>

Diagram 4-2 Web--reset

(3) Setting RS232 click RS232

firmware revision:	v1			<u>中文</u> logout
	USR -IOT Experts-		Be Honest,	, Do Best!
Local IP Config	р	arameter		
RS232	Baud Rate: 2	30400 bps		
Misc Config	Data Size: 8	3 ▼ bit		
Reboot	Parity: N	None 🔻		
	Stop Bits: 1	▼ bit		
	Local Port Number: 2	0108 (1~65535)		
	Remote Port Number: 8	234 (1~65535)		
	Work Mode: T	CP Server V		
	Remote Server Addr: 1	92.168.0.11		
	RS485: 🗑			
	RESET: 🖉			
	LINK 🖲			
	INDEX:			
	Sync Baudrate(RF2217 similar): 🖳			
	Send device ID when connected: 🖉			
	Send data with device ID: 🖉			
	Sav	e Cancel		
Copyright © 2009	- 2015 · JiNan Usr IOT Technology Limited		we	bsite: <u>www.usriot.com</u>

Diagram 4-3 Web-RS232





#### (4) Setting Misc Congfig

firmware revision:	v1		<u>中文</u> logout
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	USR -IOT Experts-	Be Honest,	Do Best!
Local IP Config	parameter		^ _
RS232	Module Name: USR-K2		
Misc Config	weberver port number: 80		
Reboot	Module Id(use for indentify modue): 122 (1~65535)		
	extended function: 191		
	User name: admin		
	Pass word: admin		
	Save		
Copyright © 2009 ·	2015 - JiNan Usr IOT Technology Limited	web	site: <u>www.usriot.com</u>

#### Diagram 4-4 Web--Misc

#### (5) Reset



#### Diagram 4-5 Web--Reboot





### 4.2. Network command(setup software)

- 1. through software USR-Kx;
- 2. Network command(need to ask for protocol).
- 3. Down below is the Setup, http://www.usriot.com/Download/237.html

Operate	Via LAN	Operate Via	COM				
		-		Dase faram (Which is	without 🗶, usu	анту кеер дегадит)	
Device IP	Device Name	MAC	Ve	IP Type 🛨	Static IP	▼ HTTP Port	80
92.168.0.17	K1	00 71 77 7C 44 14	0.1				
92.168.0.125	K1	00 6A 0A CD 45 AH	3 5.8	ModuleStaticIP ★	192.168.0.17	User Name	admin
192.168.0.124 192.168.0.17	KI 115R-142 (2)	00 12 EF BB 57 21	3073	SubnetMask ★	255.255.255.0	Password	admin
192.168.0.107	wp3-绂伲惊望嶄發	D8 B0 4C F4 46 80	516	C		Denies North	USR-K2
				(3)	192.168.0.201	Device Name	oon ne
				V RS422	🔽 RS485	Device ID	122
	(1)			Index 📃	🕡 Link 🛛	🗸 Send device ID when d	connected
	V Search	Device		💟 Reset	▼ RFC2217	🗸 Send data with device	ID
	Search	Device		📝 Reset Port Param	₩ RFC2217	☑ Send data with device	: ID
Data has been	sent	Device		₩ Reset Port Param Parity/Data/Stop	NONE V 8 V	Send data with device           1         Baudrat	: ID :e 230400 -
Data has been Data has been	sent	Jevice		♥ Reset Port Param Parity/Data/Stop	NONE V 8 V	✓ Send data with device 1    Baudrat	e ID e 230400 ↓ e 20108
Data has been Data has been Data has been	sent sent	Jevice		♥ Reset Port Param Parity/Data/Stop Module work mode	NONE V 8 V	✓ Send data with device 1 → Baudrat Local For	e ID e 230400 ↓ •t 20108
Data has been Data has been Data has been Lick device ca how more	Search sent sent n read the paramete	Device	vice list	♥ Reset Port Param Parity/Data/Stop Module work mode RemoteIP	<ul> <li>▼ RFC2217</li> <li>■ NONE ▼ 8 ▼</li> <li>■ TCP Server</li> <li>192, 168, 0, 11</li> </ul>	✓ Send data with device       1     →     Baudrat       →     Local For       →     Remote For	e ID e 230400 ↓ e 20108 e 6234
Data has been Data has been Data has been Lick device ca how more ead [ Mac : 00	sent sent sent n read the paramete 71 77 7C 44 14 ]	Device	vice list	Port Param Parity/Data/Stop Module work mode RemoteIP	NONE         8           TCP         Server           192, 168, 0, 11	✓ Send data with device <ol> <li>Baudrat</li> <li>Local For</li> <li>Remote For</li> </ol>	230400 ▼ + 20108 + 8234
Data has been Data has been Data has been lick device ca how more ead [ Mac : 00 Data has been	Sent Sent sent n read the paramete 71 77 7C 44 14 ] Sent	Device	vice list	Port Param Parity/Data/Stop Module work mode RemoteIP (4)	NONE         8           TCP Server           192.168.0.11	<ul> <li>✓ Send data with device</li> <li>1    Baudrat</li> <li>Local Por</li> <li>Remote Por</li> </ul>	e ID e 230400 ↓ e 20108 e 8234
Data has been Data has been Data has been Lick device ca how more aad [ Mac : OO Jata has been aad OK	Search Sent Sent n read the paramete 71 77 7C 44 14 ] Sent	Device	vice list	Port Param Parity/Data/Stop Module work mode RemoteIP (4)	NONE         8           TCP Server           192.168.0.11	✓ Send data with device <ol> <li>Baudrat</li> <li>Local For</li> <li>Remote For</li> </ol>	e 230400 ▼ t 20108 t 8234
Data has been Data has been Data has been Lick device ca how more ead [ Mac : OO Data has been ead OK	Search sent sent n read the paramete 71 77 7C 44 14 ] sent	Device	vice list	Port Param Parity/Data/Stop Module work mode RemoteIP (4)	▼         RFC2217           NONE         8           ▼         TCP Server           192, 168, 0, 11	✓ Send data with device <ol> <li>Baudrat</li> <li>Local For</li> <li>Remote For</li> </ol>	e 230400 ↓ e 230400 ↓ e 20108 e 8234
Data has been Data has been Data has been Lick device ca how more ead [ Mac : OO Data has been ead OK	Search sent sent n read the paramete 71 77 7C 44 14 ] sent	Device ers, right-click De	vice list	Port Param Parity/Data/Stop Module work mode RemoteIP (4)	▼ RFC2217       NONE     8       TCP Server       192.168.0.11	Send data with device       1     Baudrat       Local For       Remote For	e 230400 ↓ e 230400 ↓ e 20108 e 8234

Diagram4-9 Setting Software

- (1) 1Click 'Search Device';
- (2) Select device in search list;
- (3) Setting Base paramters
- (4) Setting Port paramters
- (5) Click 'Save Config', the paramters will take effect;

### 4.3. Firmware Upgrade

(1) right clicking module's IP, click" Firmware Upgrade"



Public

Operate 1	/ia LAN	Operate Via	COM	Base Param (which is	without ★, u	sually keep (	lefault)	
wice IP	Device Name	MAC	Ve	IP Type ★	Static IP	•	HTTP Port	80
2. 168. U. 7 2. 168. 0. 123	K1 K1	00 90 E8 D2 40 2B	0.1 5.3	ModuleStaticIP ★	192.168.0.7		User Name	admin
2. 168. 0. 123	KI KI	00 0K 0K CD 43 KD 00 12 EF BB 57 21	5.8	SubnetMask ★	255. 255. 255.	0	Password	admin
2.168.0.7 2.168.0.10	OpenWe	b BF	3073 3006	Gateway ★	192.168.0.20	1	Device Name	USR-K2
2.168.0.107	Restart	BC	516	📝 RS422	📝 RS485		Device ID	122
2.100.0.109	Firmware	upgrade	1	Index	🔽 Link	📝 Send dev	rice ID when co	nnected
	Copy The	Mac		📝 Reset	V RFC2217	👿 Send dat	a with device	ID
	Cope All	Mac		Port Param				
.ck device ca	n read the parame	ters, right-click Dev	rice 🔺	Parity/Data/Stop	NONE - 8	• 1 •	Baudrate	230400 👻
st show more	71 77 70 44 14 1			Module work mode	TCP Server	-	Local Port	20108
ata has been : ad OK ad [ Mac : OO ata has been :	sent 71 77 7C 44 14 ] sent		E	RemoteIP	192.168.0.11		Remote Port	8234
.d OK			-					

Diagram4-9 Setting Software

#### (2) Add document

Operate	Via LAN	Operate Via	COM	Ba	se Param (which	is without ★, usually keep	default)	
Device IP	Device Name	MAC	Ve.					
192.168.0.7	K1	00 71 77 7C 44 14	0.1	🎡 Open				
192.168.0.7 192.168.0.10	USR-K2 USR-TCP232-410	00 71 77 7C 44 14 D8 B0 4C 00 5D BF	301 300	Look in:	)) Objects		• 🗿 🌶 📂 🛄 •	
192.166.0.101	wp5-5次1101%3字里hfs/	DO DO 40 F4 40 OC	210	(Arres	Name	*	Date modified	Type
Select Client				Recent Places	K1_DEMO_2	0150710202130.bin 0150710203609.bin	2015/7/10 20:21 2015/7/10 20:36	BIN F
Client If	P Address: 192.168	0.7			K1_DEMO_2	0150710203958.bin 0150712133547.bin	2015/7/10 20:40 2015/7/12 13:35	BIN F
Client M	IAC Address: 0071777	'C4414	-	Desktop	K1_DEMO_2	0150712134452.bin 0150712143048.bin	2015/7/12 13:44 2015/7/12 14:30	BIN F
Select .bin file			-	Libraries	K1_DEMO_2	0150713084605.bin 0150713094422.bin	2015/7/13 8:46 2015/7/13 9:44	BIN F
			-		K1_DEMO_2	0150713142640.bin 0150713144306.bin	2015/7/13 14:26 2015/7/13 14:43	BIN F
F	Program	📲 Exit		Computer	K1_DEMO_2	0150713144534.bin 0150712173457.bin	2015/7/13 14:45 2015/7/13 17:34	BIN F
Kead [ Mac : UU	TI TT TC 44 14 J			Network	•	m		Þ
Data has been Read OK	sent				File <u>n</u> ame:	K1_DEMO_20150713173457.	in 🔹	<u>O</u> pen
					Files of type:	*.bin	<b></b>	Cance
						V Save config		

Diagram4-10 Firmware Upgrade

#### (3) Click program



Public

	Via LAN	Operate Via	COM	Base Param (which is	without 🚖 usually	keep default)	
evice TP	Device Name	MAC	Ve				
92 168 0 7	K1	00 71 77 70 44 14	0.1	IP Type ★	Static IP 👻	HTTP Port	80
92.168.0.7	USR-K2	00 71 77 7C 44 14	3073	ModuleStaticIP ★	192.168.0.7	User Name	admin
92.168.0.10 92.168.0.107	USR-TCP232-410 wp3-結份は寝厳報	D8 B0 4C 00 5D BF D8 B0 4C F4 46 8C	3006 516	SubnetMask ★	255. 255. 255. 0	Password	admin
ware Upgrade	**************************************			Gateway ★	192. 168. 0. 201	Device Name	USR-K2
Select Client				📝 RS422	📝 RS485	Device ID	122
Client IF	Address: 192.168	.0.7		Index	👿 Link 👿 Ser	nd device ID when c	onnected
Client M	AC Address: 007177	7C4414		🔽 Reset	📝 RFC2217 🛛 📝 Ser	nd data with device	ID
Colorado bio Che				Point Poince			
Select.bin file E:\atmel_K1\ prade progress2 ad t Mac ? out at a has been ad OK	CDDEVK1_DEMO_ping Program	Exit		Port Paran Parity/Data/Stop Module work mode RemoteIP	NOME • 8 • 1 • TCP Server • 192.168.0.11	Baudrat Local Por Remote Por	230400 ▼ 20108 8234

Diagram4-11 Firmware Upgrade

- (4) Successful and click "Exit"
- (5) If failed reset and again





# 5. Hardware Description



Diagram 5-1 USR-K2

# 5.1. Technical Specifications

Major	Parameter
characteristic	
Name	USR-K2
CPU	32bit 48MHz (Cortex-M0)
Flash	128KBit
RJ45	
Socket	1
Speed	10/100M MDI/MDIX
Net protocol	IP, TCP, UDP, ARP, ICMP
Buffer	send: 4K bytes, receive: 2K bytes
Network interface	8 pin RJ45
Serial	
Port Number	1
Interface Standard	3.3V TTL: pin type
Data Bits	5, 6, 7, 8
Stop Bit	1, 2
Check Bit	None, Even, Odd, Space, Mark
Baud Rate	600 bps ~ 921.6 Kbps
Flow Control	null
Buffer	receive: 800 bytes
RS-485 Pull-up and	null, reserved 485 send-receive control pin
Pull-Down Resistor	



USR-K2 User Manual



www.usriot.com

Parameter specification	on
Physical Size:	PCB size: 21.6*13.5*32.6MM (L*H*W)
Temperature and humidity range	Operating temperature: -25 to 75 ° C Storage temperature: -40 to 80 ° C Storage humidity: 5% to 95% RH

Diagram 5-2 Technical Specifications

# 5.2. Hardware Description



Diagram 4-3 Technical Specifications

No.	Pin	Function	Descriptions
1	N/C	N/C	N/C
2	N/C	N/C	N/C
3	LINK		Can be used as a network connection status indicator pin
			Pin received 200ms low to reset the whole module.
4	RST	RESET	If you do not use, Must be suspended.
			Note: The module is powered automatic reset, it is



USR-K2 User Manual

www.usriot.com

Public

			recommended that connect the MCU IO port, reset the MCU control module in a particular case.
5	485 EN	485 enable	Can be used as RS485 enable pin
6	CFG	Serial ports Configuration pins	Low, you can use the serial port module configuration. Normal working hours left floating or tied HIGH. Note: give the power module, and then pulled down the CFG pin to enter the serial configuration state.
7	LED2	Network data instructions	Connect to 13
8	RXD	Module data is received	Data receiving end of the module, TTL 3.3V microcontroller
9	TXD	Module data transmission	Data transmission end of the module, TTL level can be connected to 5V or 3.3V microcontroller
10	GND	Signal ground	GND
11	VCC	Power supply	Power supply: 3.3V @ 200mA
12	LED1	Network connection status indicator	Connect to 16
13	LED2	Network data instructions	Connect to 7
14	LED_3.3	Network led power	Power 3.3V
15	LED_3.3	Network led power	Power 3.3V
16	LED1	Network connection status indicator	Connect to 12

Diagram 5-3 I/O introduce

# 5.3. Hardware to RJ45 Light





Diagram 5-4 Hardware to RJ45 light

### 5.4. Size









## 6. Expand Functions

RS422	📝 RS485	Device ID 1
📄 Index	📃 Link	🦳 Send device ID when connected
📄 Reset	📝 RFC2217	🥅 Send data with device ID

Diagram 6-1 Expand function

### 6.1. RS485

The "485\_en" for the module to enable RS485 "485\_en" for RS485, external enable control pin. Select it by default

#### 6.2. Link

The" Link" for the module to establish a communication connection status indicates pin, establish the communication Link pin will output low level, no connection is established, output high level. "Link" for external Link instructions .Don't select it by default

#### 6.3. Reset

When the module as a TCP Client-side, the module will take the initiative to connect TCP SERVER. When the Reset function, the module tries to connect to TCP Server-side 30 times, still unable to establish a connection, the module will automatically restart. Don't select it by default

#### 6.4. ID

Module as TCP Client-side ID function for TCP Server-side distinguish between data sources, to achieve the establishment of the connection or data communication process device ID will also be sent, the module ID number is set to decimal, range 0 - 65535, requires the receiving end HEX format.

- 1. Select "Connect" to establish a communication connection, TCP Server-side will receive the corresponding TCP Client-side ID (ID Description: The first four shows for the ID number, the last four digits of the display ID negated to authentication).
- 2. The following picture shows the module do TCP CLINENT establish a communication connection ID feature is enabled, the setup interface module ID number 12

#### Don't select it by default

The figure below shows establish a communication connection ID function, the device through the serial communication interface to the TCP Server-side:



USR-K2 User Manual



Public

😔 USR-ICP232-Test RS23	2 to Ethernet Convert	tester		
♥ USR-ICP232-Test       RS233         File (P) Options (Q) Help (H)       COM         COMSettings       COM         PortNum       COM         PortNum       COM         DPaity       NONE         DataB       Bbit         StopB       1bit         ✓       Close         Receive to file       ✓         ✓ Add line return       ✓         ✓ Receive As HEX       Receive Pause         Save       Clear         Send Options       □         □ Auto Checksum       □         □ Auto Clear Input       □         ○ Send Recycle       □         □ Interval 100 ms       □	2 to Ethernet Convert pot data receive	tester	Network data receive	<ul> <li>NetSettings</li> <li>(1) Protocol</li> <li>(2) Local host IP</li> <li>192,168, 0 (201</li> <li>68</li> <li>(3) Local host pott</li> <li>8234</li> <li>(3) Local host pott</li> <li>192,168, 0 (201</li> <li>(3) Local host pott</li> <li>192,168, 0 (201</li> <li>(3) Local host pott</li> <li>192,168, 0 (201</li> <li>(4) Local host pott</li> <li>8234</li> <li>(5) Disconnect</li> <li>Receive to file</li> <li>Add line return</li> <li>Add line return</li> <li>Receive As HEX</li> <li>Receive Pause</li> <li>Save Clear</li> <li>Send Options</li> <li>Send As Hex</li> <li>Send Keycle</li> <li>Interval 100 ms</li> </ul>
Load Clear	Send: 90 Becv: 0	Send	Send O	d Load Clear
Ly heady!	1166V.0		teady: Seriu. 0	Hecv. 34 Heset

Diagram 6-2 ID

3. Select data during each data transfer, TCP Server-side will receive the corresponding TCP Client-side ID (ID Description: ID before data transmitted only display four-digit ID number).

The following picture shows the module do the TCP CLINENT ID feature is enabled, data transmission module ID number 12 setting interface:



Diagram6-3 USR-TCP232-Test ID

The figure below shows the data communication ID function, the device through the serial port to TCP Server





communication interface:

#### 6.5. Index

When module as TCP SERVER and establish four connections at most, server-side at the same time send data to four CLIENT and SERVER the receiving Client-side data can not distinguish between sources of data, the Index function can send and receive data source selection.

Index function is enabled, communication data is displayed corresponding Client side device number, specific parameters are described below:

- When receive data from Ethernet, module will send data to serial port with head 49 N ,followed by data.
   49 represent incoming data, N represent client index.
- 2. When user MCU want send data to module serial port, start with head 4F N data... 4F represent send out, N represent which client.
- 3. When new TCP connection incoming, module will send 43 N M to serial port, indicating that there is current link N accessed, total link number M.
- 4. When link number have exceed maximum, new link requirement will lead to message 46 46.
- 5. When disconnect, module will send 44 N M, represent current link N is delete, left link M.

Note: The above values set are HEX format.

Don't select it by default

	🗖 🔀 🏟 USR-TCP232-Test			
	File(F) Options(0) H	(d) (H)		
Network data receive Network data receive NetSettings (1) Protocol (2) Server IP (192)168; 0 (2) Server Pot 20108 Disconr Recv Options Recv Options Recvive A Fat Server, Class Server, Se	COMSettings Potthum COMI V BaudR 115200 V DPaiy NONE V DataB 8bh V StopB 1bh V Ecct Close Recv Options Receive to file V Add line return V Receive As J02 Second Options e Pata Atto Checksum put V Send As Hex	COM port data receive 43 01 020 43 01 020 44 00 020 45 01 020	Network doareceive 4A 69 62 61 62 20 55 53 52 20 54 65 63 66 62 67 62 67 67 19 20 43 67 22 20 24 65 63 66 64 22 4A 69 62 61 62 20 55 53 52 20 54 65 63 66 62 67 62 67 67 79 20 43 67 22 20 40 74 64 22 Local Mart 102 168 0 201 Part 1430	NetSettings (1) Protocol (2) Server IP 1921683 0 7 (2) Server Port 20108 Disconnect Recv Options Receive to file Add Line return Receive As NEX Receive Pause Save Clear Send Options Data from file Auto Checksum Auto Checksum Auto Checksum Auto Checksum
http://en.usr.cn Send Interval 100 Load Cless	ns Interval 100 ms	47 01 4A 69 6E 61 6E 20 55 ▲ 53 52 20 54 65 63 66 6E 67 ▲ 6C 6F 67 79 20 43 6F 2E 2C ▲	http://en.usr.cn Send	Interval 100 ms Load <u>Clear</u>
If Ready! Send: 32 Recv: 0	eset 📔 💓 Ready!	Send: 154 Recv: 69 Reset	💕 Ready! Send: 16	Recv: 159 Reset

Diagram6-4 the test of index

### 6.6. RFC2217

RFC2217 is an agreement for setup com port settings via Ethernet by socket, Our product support an agreement like that, but not standard RFC2217, it is more sample and easy than RFC2217.

- 1. When module receive setup command, if is a valid command(right packet head and right checksum), the module will change self setting and answer nothing, else the data bits would be sent out at com port.
- 2. TCP Client, TCP Server, UDP Client, UDP Server, UDP broadcast support this function.
- 3. All changes will work at once, but not save to module, when power off will lose the settings.



#### Select it by default

The command length is 8 bits, detail as follow table. The demo bytes are in hex mode:

Name	Packet header	Band rate	UART bits setting	Check sum
Bytes	3	3	1	1
Description	Three bytee	Band rate in hex	Parity/data/stop settings,	Check sum of
	Three bytes	mode, High byte first.	see follow table.	last 4 bytes
For example	55 4 4 55	01 C2 00	83	83
(115200,N,8,1)	55 AA 55	01 02 00	00	00
For example	55 \ \ 55	00.25.80	83	62
(9600,N,8,1)	JJ AA JJ	00 23 00		00

Diagram6-5 RFC2217 introduce

#### Appendix: UART bits setting detail.

Bit	Description	Value	Description
1:0	Data bits	00	5 bits
		01	6 bits
		10	7 bits
		11	8 bits
2	Stop bits	0	1 bits
		1	2 bits
3	Parity enable	0	Not enable Parity
		1	Enable Parity
5:4	Parity type	00	ODD
		01	EVEN
		10	Mark
		11	Clear
8:6	Not used	000	Please fill 0

Diagram6-6 UART bits setting detail

#### Test bits

55AA5501C2008346 For 115200 N,8,1

55AA550025808328 For 9600 N,8,1

Those two data is not transferred to serial, but the packet not conform will be transferred and revealed.



💮 USR-ICP232-Test 串口转网络调试助手					
文件(E) 选项(D) 帮助(H)					
串口设置	串口数据接收	网络数据接收	网络设置		
串口号 COM3 ▼	55 AA 55 00 25 80 83 27	[Receive from 192.168.0.7 : 20108] :	(1)协议类型		
	55 AA 55 00 25 80 83 28 89	55 AA 55	TCP Server 💌		
波特率 5600 工	55 AA 55 00 25 80 83 28 89	55 AA 55			
校验位 NONE ▼	55 AA 55 00 25 80 83 28		(2) 本地旧地址		
	89		192,168, 0 ,201		
数据位 ○ □ 11	55 AA 55 00 25 80 83 28 89		(3) 本地端口号		
停止位 1 bit ▼	55 AA 55 00 25 80 83 28 89		8234		
1	55 AA 55 00 25 80 83 28				
	89		· ● 新 <del>开</del>		
	55 AA 55 00 25 80 83 28 89				
接收区设置	55 AA 55 UU 25 80 83 27		接收区设置		
F 接收转向文件	55 AA 55 UI L2 UU 83 47		F 接收转向文件		
应 自动协会目去	55 AA 55 01 C2 00 63 41		反自动协行具关		
	55 AA 55 00 25 80 83 26				
▶ 十八进制显示			▶ 十八进制显示		
□ 「 暂停接收显示			□ 暂停接收显示		
保存数据 清除显示			保存数据 清除显示		
发送区设置			发送区设置		
匚 白田立供数据源			匚 自用文件数据源		
日 日 初 友 1 达 PH J J I I I					
发送完日动清空			友达元日初清全		
▼ 按十六进制发送			▼ 按十六进制发送		
□ 数据流循环发送		连接对象: 192.168.0.7:20108 ▼	□ 数据流循环发送		
发送间隔 50 高秋		55 44 55 00 25 80 83 28	发送间隔 50 亭秋		
	发出	<u>生</u> 发送			
又住载人 清除输人			又任私人 道際輸入		
J 就绪!	发送:6 接收:111 复化	正计数 i	接收:6 复位计数		

Diagram6-7 RFC2217 for test

Open this function then open RFC2217 via USR-VCOM so serial port baud rate of PC application software

serial server device can be matched automatically.





# 7. Common Questions

### 7.1. Work Across Network Segment

If your USR-K2 device's IP is 192.168.0.7, and remote PC's IP is 192.168.1.7, we need to config. Subnet mask of USR-K2 device, PC, and router to 255.255.0.0, if not, USR-K2 module will not communicate normally.

### 7.2. More Network Cards

Control Banal & Naturet and Internet & Naturet Connections	- fa Search Network Connections	×
Organize   Enable this network device Diagnose this connection Rename this connection Change settings of this connection		0
本地注接 网络 3 Realtek PCIe GBE Family Controller WWN 原型原LL (PPPOE) 元式研究法律 Usabled Jun Realtek RTL8188CE Wireless LAN		
only one network cards		

Diagram 7-1 pc

### 7.3. Every Period of Time, Module Dropped

- 1. Firewall is no disable and antivirus software isn't off.
- 2. The IP address conflict.
- 3. More network cards is open.
- 4. A power shortage or oversize ripple voltage.

### 7.4. Search Device Failure, Port Occupied

Open more one setup software ,close it.





# 8. Modified history

Revison history V1.0.0 New USR-K2 User Manual



USR-K2 User Manual



# 9. Contact Us

Company:Jinan USR IOT Technology LimitedAddress:11th Floor,No.1 Building, Aosheng Square,No.1166 Xinluo Street, Jinan,ChinaTel:86-531-55507297, 86-531-88826739Web:http://www.usriot.comSupport :http://h.usriot.comEmail:sales@usr.cn