

# Setup for USB2RJ45 of TSA USB Adapter

# 1: Introduction:

The USB2RJ45 is an adaptor that allows TSA USB mini spectrum analyzer to setup remote control via internet.



The TSA USB mini spectrum will connect to the USB2RJ45, USB2RJ45 will connect to Router. 5V power supply connects to the USB2RJ45 to provide power.

PC will be located far end to remote control the TSAUSB mini spectrum analyzer. TSA series of Spectrum Analyzers software must have be updated to at least v1.4 to use the remote control functions.

The remote PC needs to install the VCOM and TSA program

VCOM is provided from USR (http://en.usr.cn/) which convert the TCP/IP port to COM port.

TSA program will get data from COM port to setup connection with far end TSA USB mini spectrum analyzer.



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# 2: USB2RJ45 configuration:

The USB2RJ45 consist of two sections: USB2UART and TCP/IP COM port module.



USB2UART is implemented by MCU which is K20 from Freescale. USB2UART will implement four functions:

- USB host, setup communicates with TSA USB mini spectrum analyzer.
- Implement the calibration calculation and store the calibration the file.
- Simplify the command set; end user will only be using two commands to control the TSA product: Start and Stop. Please check the document "Interface Control Document for TSA5G35 USB2UART Adapter" for detail command set.
- Setup COM port (UART) as new interface for end customer to use.

So that USB2UART is real converter which is converting from USB port to UART port.



The TCP/IP to COM port module will convert COM data into TCP/IP port. In this way, USB2RJ45 can directly connect with router without PC. The module is made by USR technology (<u>http://en.usr.cn/</u>)

The module models are USR-TCP232-E45 and USR-TCP232-T12.

E45 model support both static IP and DHCP/Auto IP connection. But T12 only support static IP connection.

#### 3: USB2RJ45 setup.

USB2RJ45 will have USB2UART converter and TCP/IC to COM port convert module USR-TCP232-E45.

First we need to setup USR-TCP-E45.

Your PC need to install the VCOM, please go into the web <u>http://en.usr.cn/USR-Software</u>, find USR software link, you can download VCOM software.

Plug 5V power to USB2RJ45, and using cable to connect USB2RJ45 into router.

Turn on the VCOM on the PC, and make sure your PC is linked with your LAN, (by Wifi or RJ45).



Look for Search item, you will find USR-TCP232-E45, click it, then go into:

🛇 USR-TCP232-E45 series ad	dd virtual serial port Compliant:	:USR-TCP232-E/400/500
Device(D)		
Search List           Device IP         Device Name         MAC           19915917         USB-TCP232545         A8.39.44 AEC	Version Port0 Port1	Port2
1921681.7       USR-TCP232E45       A8 39 44 AF 8         Image: Search Device       Image: Search Device         Image: Device Reset       Image: Read Config         Image: Device Reset       Image: Save Config         Image: Device ID       Image: Save Config	52 49       2011         Baudrate:       Parity/Dat.         Parity/Dat.       FlowControl         Local Port:       Remote Pol         Work Mod       Server cor         Default Config       CP Server         USR-TCP232-E45       PackTime:         A8 39 44 AF 62 49       PackLen:         Static IP       ✓         192.168.1.7       192.168.1.254         255.255.255.0       ✓	115200         a/Stop:         NDNE         a/Stop:         None         al:         6666         art:         6666         art:         6666         art:         6666         art:         10         rstyle:         1192.168.1.70         :         10         ms (<256, 0 for no uses)
Base Save		
Data has been read.	On-line Device NUM:1 Se	arch Port:1901



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Click on "Search Device", you will find USR-TCP232-E45 information in the search list if you attached the USB2RJ45 into the router.

Looking for the IP address of your LAN, open the DOS command ICON and go into DOS command window.

Input DOS command: ipconfig/all

Your LAN IP information will be shown to you:

Please find IP address of Gateway and SubnetMask, in this demo, they will be:

Command Prompt	- • ×
Wireless LAN adapter Wireless Network Connection:	*
Connection-specific DNS Suffix . :	
Description : Intel(R) WiFi Link 1000 BGN	
Physical Address 8C-A9-82-71-EA-54	
DHCP Enabled : Yes	
Autoconfiguration Enabled : Yes	
Link-local IPv6 Address : fe80::5061:944d:b516:c866×11(P	referred)
IPv4 Address	
Subnet Mask : 255.255.255.0	
Lease Obtained : May-16-14 9:27:04 AM	
Lease Expires	
Default Gateway	
DHCP Server	
DHCPu6 IAID = 352331463	
DHCPu6 Client DHLD = 00-01-00-01-15-3F-C0-90-F0-FF-	97-19-3E-CD
	- 17 JL GD

Gateway: 192.168.1.254

SubnetMask: 255.255.255.0

Input Gateway IP address and SubnetMask which is from DOS command window into VCOM Base Save area.

You also need to input your device IP address; it can be assigned by yourself.

It shall be 192.168.1.xxx in this case. You shall choice xxx as special digital which is not used by other device in your LAN. In this demo, we will choose xxx as 7, so that USB2RJ45 local IP address will be 192.168.1.7

Click Base Save, and then click Save Config to save the update

port0 setting:

The COM will be set to 115.2 Kb/s, 8N1, no hard flow control.

Remote port or local port of IP can be any value, in this demo, we will set them into both 6666.

The work mode will be TCP sever.

Server connect count can be 4~8.



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TCP server style will be transparent transmission.

Modbus TCP will be None

Follow demo setting to change some item in the block, after you modify, you shall Click "Save COM0" and "Save Config" to save the update.

# 4: VCOM setup

You can Add COM port in the VCOM, the settings will be:

Virtual COM: COM1 (you can choice any other com port number)

Net Protocol: TCP Client

Remote IP/addr: 192.168.1.7

Remote Port:6666

۰	USR-VCOM Virtua	l Serial Por
Device(D) Tools(T) O	ptions(O) 中文 Help(H)	
	Add Virtual Serial Port	6mart VCDM
Remarks COM Name COM2 COM1 COM3	Virtual COM:       COM1         Net Protocol:       ICP Client         Remote IP/add:       192.168.1.7         Remote Port:       6666         Local Port:       8233         Remarks:          OK       Xancel         Advanced ≫	Remc 0 6666 7 6666 8.239 6666

Click OK to add the TCP link. You will see the COM1 will setup at your VCOM, if USB2RJ45 is connect to the router and setting well, the TCP link will be setup, the Net state will shown the connected.



Reference de la construcción de				USR-V0	COM Virtu	ual Serial P	ort Serv	ver V3.4	.1.0				×	
Device(D)	Tools(T) O	ptions(O)	中文 Help(H)											
Add COM	Del COM	Connect	Reset Count	Monitor	Search	- Smart VCOM		Juit						
Remarks	COM Name	Parameters	COM State	Net Protoco	l Remote	IP Re	emote Port	Local Po	rt COM Rec	eived Net Receiv	/ed Net State	1	Reg ID	Γ
	COM1	115200,N,8	,1 Open	TCP Client	192.168	3.1.7 66	66		0	0	Connected		)	]

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# 5: Setup TSA

Turn on the TSA v1.6 on your PC. Tick local block, it will change to Remote. And Remote setting window will pop up.



Select the COM port same as VCOM setting; it will be COM1 in the demo.

Click the Cal File; if the USB2RJ45 is first time to use, you need to download the calibration file from your PC into the USB2RJ45 converter. But you need make sure your PC has already installed the calibration file which is matching with the dongle on the USB2RJ45.

If your PC have calibration file in the TSA program is not match with dongle which you want to test, it may cause errors.



You may plug TSA dongle device into PC first, make sure it is working well, and then plug dongle in the USB2RJ45 adapter.

After click the Cal File, the calibration file on your PC will transfer into the USB2RJ45 adapter.

COM Port 1	•	COM Port	. 💌
Sendin	g 56.4% ∦€	Check o	
Cal File	Get SN	Cal File	Get SN
Reset	Close	Rorot	Close

After transfer the calibration file, you can click the Get SN. It means to setup connection with far end TSA dongle. If the communication is successful, the TSA program will shown Device Model TSA6G1 name and Remote connect

Average	Max	Density	USB Mini Sp	ectrum	Analyzer Devi		
			Device Mo	odel	TSA6G1		
			Device S/	'n	CN6180000		
			USB Messa	ages	Remote Co		
			- - Parameter S	etting-			
			Center Fr	eq(MHz)		1000	Δf
			Span (MHz)			5	BW Auto
			Amplitude		0	•	dBm
					Ant f	actor	
	J				Ánt	Gain	
					🗾 30 dB 1	XT ATT	<u> </u>
			Sweep Tin		×1		(CW Mo
	COM Port	1 💌	Manual Ca	librati	ion _	0	🗾 S:
			Waveform Me	asureme			
	Cal Fil	e Get SN	Marker1	OFF	MKR>Peak	Manual	Mou
	Reset	Close	Marker2	OFF	MKR>Peak	Manual	Mous
			Marker3	OFF	MKR>Peak	Manual	Mous
			n.1+. w	1	077	111	

Then click the close to turn off the remote setup window.

You can input parameter of frequency, scan .... click Enter to start the measurement.





# 6: Port forward setting

Above setting is only lfor ocal area netwrok, it you want to setup remote control over different city or conutry, you shall setup TCP/IP link over internet, it just need setup port forward at your router.

It will setup mapping from external IP address to your internal IP address.

Firewall	Port Forwarding
IPv6 Firewall Port Forwarding	Enter ports or port ranges required to forward Internet applications to a LAN device below.
Applications DMZ Hosting	1. Set the LAN/WAN port and IP information.
Pv6 DMZ Hosting	Select LAN Device: Manually enter the IP address
UPnP	LAN IP Address: 192.168.1.11
	External (WAN) Start Port: 6666
	External (WAN) End Port: 6666
	Internal (LAN) Start Port: 6666
	Internal (LAN) End Port: 6666
	Protocol: TCP -
	2. Click Apply to save changes.           Apply         Apply           Apply         Applied Port Forwarding Rules
	LAN START/ END PROTOCOL LAN IP WAN START/END MODIFY REMOVE PORT PORT



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Go into your router setup web, find port forwarding item in the firewall, input Local IP address and port number, the protocol shall be TCP.

After port forwarding setting, you can control TSA device over internet.