## **TRENDNET**<sup>®</sup> User's Guide

DAET

### 1-Port Serial to IP Ethernet Converter

TU-S9E

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#### 1 Overview

Easily connect TU-S9E devices using the 9 pin interface to your network which can be conveniently placed next to your serial equipment. This device server supports maximum 921.6Kbps for the RS232 serial interface. Provided for remote control, monitoring and data communication. It is ideal for POS, factory automation and building automation field.

#### 2 Features

- Remotely connect and configure your serial device over the network
- Easy setup with software or web browser
- Works as virtual serial port, DHCP and TFTP server
- Rugged metal housing
- Software utility included

#### 3 Usage

#### 3.1 Product Interface and Pinout Definition

RS232/M(DB9 Male)	Pin2	Pin3	Pin5
Signal Name	RX	ТХ	GND



#### 3.2 Software

The AXR2E Configuration Utility is a Windows program. It consists of necessary tools that you can use to help manage your TU-S9E application products.

The AXR2E Configuration Utility contains the following tools:

- (1) Device Management tool: enable you to remotely manage TU-S9E device servers.
- (2) Virtual Serial Port tool: enable you to manage virtual serial ports on the host PC.
- (3) Device Monitor tool: enable you to monitor the status of TU-S9E device servers.
- (4) DHCP Server tool: enable a TU-S9E device server to get a dynamic IP address when operating at the DHCP-enabled mode.
- (5) TFTP Server tool: enable a TU-S9E device server to download the new firmware from the TFTP server.
- (6) COM Port Terminal tool: supports two RS-232 port terminals to make it easier for you to develop or test your TU-S9E application products.

#### 3.2.1 Install AXR2E Configuration Utility

- Step 1: On the 32-bit Windows environment, run AXR2E\_x86.exe, and then the main window will appear as the following figure. (Note: on a 64-bit Windows environment, you should run AXR2E\_x64.exe).
- Step 2: If there are more than one network interface (multiple IP addresses), AXR2E configuration utility will pop up a dialog as below and request you to choose one IP address to be used for management.

Selecting a network interface							
Multiple network interfaces are detected! Please select a network interface properly:							
Network Interface	•						
	Continue						

#### 3.2.2 Software Interface

<u>F</u> ile <u>V</u> iew <u>H</u> elp									
<u>21</u> 20 🔋 🖬 👻									
Device Management	System	Search	Device Setup	Reboo	ot	Firmware	Use External Browser		
Virtual Serial Port	Setting	IP Search	Web Browser	Restor	re	Upgrade	🗆 Search A	After Appli	cation Start
M Device Monitor	Status h	dle							
DHCP Server	Devices List								
TFTP Server	NO.	Device Name	MAC Add	ress	DHCP	IP	Port	Mode	Status
COM Port Terminal									
Virtual COM Ports		•							
		-							
l T									
<	<			1111					
System Log									
No Time	Message								
1 2011-3-39-50-28	Application	starts successf	ully.						
2 2011-3-39-50-28	Selected ne	etwork interface:	10.1.2.23						
							T		
Ready								N	им 📃
Menu Window		Function V	Window			System	l Log Wind	o₩	

The main window divides the display into three functional areas: Menu Window, Function Window and System Log Window.

- (1) Menu Window: displays supported tools and existed VSP Ports list.
- (2) Function Window: displays supported functions of a selected tool.
- (3) System Log Window: mainly displays system log messages. It is also as the function window of COM Port Terminal tool and as the internal web browser of Device Management tool.

#### 3.3 Device Management

System Setting		Search	Search Device Setup Reboot Firmwar		Firmware	Use External Browser				
		IP Search	Web Browser	Restore	re Upgrade 🗆 Searc			ch After Application Start		
Stat	us	Idle								
Prog	gress									
Dev	ices Li:	st								
	NO.	Device Name	MAC Address	DHCP	IP	Port	Mode	Status		
	1	DSM1	00-0E-C6-00-00	Enable	10.1.2.10	5000	Server	Idle		

The main window provides eight functions,

- (1) System Setting: configures the Search, Restore, Reboot period.
- (2) Search: searches available device servers on the LAN.
- (3) IP Search: searches the device server with specified IP address.
- (4) **Device Setup:** configures the settings of a selected device server.
- (5) Web Browser: configures the settings of a selected device server via web browser.
- (6) **Restore**: restores the selected device server back to factory default settings.
- (7) **Reboot:** restarts the selected device server.
- (8) Firmware Upgrade: upgrades the firmware code of the selected device server.

The main window supports two parameters that you can configure:

Parameter	Description
Use External Browser	Enable / disable using the external browser to access the device server's web pages
Search After Application Start	Enable / disable executing the search operation automatically after application start

After executing the [Search] function, if any device servers are found, they will be added in the Devices List and the following information is displayed:

Category	Description				
NO	Device server index in the list				
Device Name Device server name, 16 bytes maximum string					
MAC Address Device server MAC address					
DHCP	Enable or disable				
IP	- If DHCP is enabled, dynamic IP is acquired from the DHCP server,				
	- Or, static IP is assigned as dynamic IP.				
Port	- Server mode: data packet listening port				
	- Client mode: destination port				
Mode	Client or Server				
Status	- Idle: the device server has no TCP or UDP connection.				
	- Connected: the device server has a TCP or UDP connection.				

If a device server shows "Connected" status, it indicates that data transmission task is in progress. To avoid any unexpected interrupts during data transmission, the Device Management tool prohibits users from operations including device setup, reset, reboot and upgrade for those device servers which status are "Connected".

#### 3.3.1 System Setting

When click the [System Setting] button, the Setting dialog will appear,

i imer Settii	ng	OK
Search per	iod	Cancel
33	(100ms)	
Restore pe	riod	
15	(100ms)	
Reboot per	iod	
45		

The Setting dialog provides two functions,

- (1) **OK**: enables the new period setting.
- (2) Cancel: cancels the new period setting.

The Setting dialog provides following parameters,

Parameter	Description
Search period (100ms)	Set the search timeout period
Reset period (100ms)	Set the reset timeout period
Reboot period (sec / unit)	Set the reboot timeout period

#### 3.3.2 Search

 Devices Searching

 C
 Multicast

 IP
 IP

 225.1.2.3
 255.255.255

 TTL

 1
 IP

 Loopback

When click the [Search] button, the Devices Searching dialog will appear,

The Devices Searching dialog provides two functions,

- (1) Search: starts the search operation
- (2) Cancel: cancels the search operation.

The Devices Searching dialog provides following parameters,

Parameter	Description
Multicast	Search via UDP multicast packet
IP	Multicast IP address
TTL	Time to live
Loopback	Enable/Disable loopback of outgoing multicast packets
Broadcast	Search via UDP broadcast packet
IP	Broadcast IP address

**Note:** The default Multicast IP address is 225.1.2.3 in the RS-232 to Ethernet Converter demo firmware.

Step 1: In Menu Window, select Device Management tool.

- Step 2: Click the [Search] button to search available device servers on the LAN. Below figure shows an example that one device server is found.
- Step 3: The found device servers will be showed in Devices List. On the list you can acquire the device server's settings including connection type, IP address, and port number, and so on.

File Yiew Help									
<u>21</u> 20 9 🖬 🛳									
Device Management	System	Search	Device Setup Reb	oot	Firmware	Use Ext	ernal Brow	/ser	
Virtual Serial Port	Setting	IP Search	Web Browser Rest	tore	Upgrade [	Search /	After Appli	cation Start	
M Device Monitor	Status I	dle							
DS DHCP Server	Progress								
TS TFTP Server	NO	Davias Nama	MAC Address	DHCD	ID	Dort	Mada	Statua	-
	□ 1	Device Name DSM1	00-0E-C6-00-0B-6E	Enable	10.1.2.22	5000	Server	Idle	
COM Port Terminal									
Virtual COM Ports									-
									-11
									-
									=
System Log	System Log								
No Time	No Time Message								
2011-3-3-9-50-28	Application Selected ne	starts successfull work interface: 10	y. 11223						
2011-3-3-30-20		awork intellace. It							

#### 3.3.3 IP Search

When click the [IP Search] button on main window, the IP Search dialog will appear

IP Searching	
IP	Search
192.9.200.101	Cancel

The IP Search dialog provides two functions,

- (1) Search: starts the search operation
- (2) Cancel: cancels the search operation.

The IP Search dialog provides following parameters,

Parameter	Description
IP	The device server's IP address

#### 3.3.4 Device Setup

When click the [Device Setup] button on main window, the Device Setup dialog will appear,

evice Setup			Device Seinp			
Network Setting Serial I	out Setting ]		Network Setting Set	iel Fort Setting		
Device Name MAC Address DHCP © Staver Static IP Data Listening Port	DSMI  D-0E-C0-00-00-00  Enable  10.1.2.10  5000	Deta Packet Type	Band Rate Data Bits Panity Stog Bits	115200  8  Vicme  1	•	
C Client Destination Port	<b>[</b> 5000	F Bacedeast Multicest	Flow Control	Nome	•	
Hostnamed P (1940) Netmask Gotevery DN3 Server Izenavail Liner SMTP Configuration 1 Domein Nence acid Brown Address 1 To Address 1 To Address 2 To Address 3 Trai Dvan Encologicalisation Promp Server Swart Encologicalisation D Change	255 255 255 0 192 168 0.1 168 95 1.1 100 Peranastero com. tw abitmm@axix.com.tw abit1@axix.com.tw abit2@axix.com.tw abit2@axix.com.tw abit2@axix.com.tw abit2@axix.com.tw	Accessible IP Addusses Exable IP 1 00.0.0 IP 2 00.0.0 IP 3 00.0.0 IP 4 00.0.0 IP 4 00.0.0 Start Disable T	RS-485 Made G:Shep 1: Single Iwisted 2: Single Iwisted Darable Twisted 3: Double Twisted 3: Double Twisted	0  ?eir Half-Duplex ?eir Half-Duplex er ir Fall-Duplex (Slave) Peir Fall-Duplex (Master)	1	
Authentication Fail	Disable					

The Device Setup dialog provides three functions,

- (1) Save: saves the settings to a file.
- (2) Load: reads a set of settings from a file.
- (3) Submit: submits new settings.

The Device Setup dialog consists of two tabs: [Network Setting] and [Serial Port Setting].

#### 3.3.4.1 Network Setting

The [Network Setting] tab provides following parameters,

Parameter	Description
Device Name	Device identification string
MAC Address	Multicast IP address
DHCP	Enable / disable DHCP client function
Server	Enable Server mode
Listening IP	Search via UDP broadcast packet
Data Listening Port	Server data packet listening port
Client	Enable Client mode
Destination IP	Remote host IP address
Destination Port	Remote host listening port
ТСР	Transmit serial data via TCP packet
UDP	Transmit serial data via UDP packet
Multicast	Transmit management data via multicast packet
Broadcast	Transmit management data via broadcast packet
Netmask	Subnet mask
Gateway	Gateway IP address
DNS Server	DNS server IP address
Transmit Timer	Time interval to send out serial data packet
Accessible IP Addresses Con-	figuration Parameters

Enable	Enable / disable accessible IP addresses
IP 1	Accessible IP address 1
IP 2	Accessible IP address 2
IP 3	Accessible IP address 3
IP 4	Accessible IP address 4
SMTP Configuration Parame	ters
Domain Name	The SMTP client's domain name.
From Address	The sender's IP address.
To Address 1	The 1st recipient's IP address
To Address 2	The 2nd recipient's IP address
To Address 3	The 3rd recipient's IP address
IP Change	Enable / disable the IP Change event.
Password Change	Enable / disable the Password Change event.
Authentication Fail	Enable / disable the Authentication Fail event.
Cold Start	Enable / disable the Cold Start event.

#### 3.3.4.2 Serial Port Setting

The [Serial Port Setting] tab provides following parameters

Parameter	Description
Baud rate	Data transfer rate per second
Data bits	Data bits
Parity	Parity check
Stop bits	Stop bits
Flow control	Flow control
RS-485 Mode	RS-485 mode

#### 3.3.5 Web Browser

There are two methods to open the web page of a device server.

Method 1: On either the AXR2E Configuration Utility, you can select the target device server and then click the [Web Browser] button.

The tool will open a browser and connect automatically to the web server of the target device server, the Login web page will appear.

Method 2: You can manually open a web browser and connect to http:://xxx.xxx.xxx (e.g. <u>http://192.168.0.3</u>), the Login web page will appear.

ASIX ELECTRONICS CORPORATION AX110xx RS-232 to Etherned Login	ASIX ELECTRONICS CORPORATION AX110xx RS-232 to Ethernet	ASIX ELECTRONICS CORPORATION	AX110xx RS-232 to Ethernet
Login Username admin	in Username admin Password •••••		
Login Username admin	in Username admin Password •••••		
Username admin	Username admin Password •••••	Login	
	Password •••••	Username admin	
Password •••••		Password •••••	

You must enter username and password first and then click the [Login] button. The default username is "admin" and default password is "admin". The HTTP server will redirect to the Basic web page if the authentication completed successfully.

#### 3.3.5.1 Basic

Basic Advance	Logo
Serial Settings	occurry
Serial Sectarys	
Data Baud Rate	115200
Data Bits	8
Data Parity	None
Stop Bits	1
Flow Control	None
Rs485	Sleep
Network Settings	
DHCP Client	Disable
Static IP Address	192.168.0.101
Static Subnet Mask	255.255.255.0
Static Default Gateway	192.168.0.1
Static DNS Server	168.95.1.1
Connection Type	TCP
Transmit Timer	100
	Please enter an integer between 10~65535 ms
Server/Client Mode	Server 💌
Server Listening Port	5000 Blasse enter an integer between 1024, 65525
Client Destination Host Name/IP	asix.com.tw Please enter host name or IP address(e.g. asix.com.tw or 10.4.1.100)
Client Destination Port	5000 Please enter an integer between 1024~65535

In this web page, the Client Destination Host Name/IP field can accept either host name or IP address format; for example, you can enter "asix.com.tw" or "10.1.4.100" in this field.

This page supports four button commands:

- (1) Apply: submits this page's settings to the device server.
- (2) Cancel: cancels the changed settings on this page.
- (3) Restore default: restores the selected device server back to factory default settings.

(4) **Reboot:** restarts the selected device server.

When click the [Restore default] button, a warning dialog will appear. You can press the [OK] button to continue the operation, or press the [Cancel] button to cancel the operation.

When click the [Apply] or [Reboot] button, the confirmation window will appear. You can click the [OK] button to continue the operation, or click the [Cancel] button to cancel the operation.

#### 3.3.5.2 Advance

	AATTOAA RG-232 to Etherhet
Basic Advanc	ce Security
Firmware Upgrade Set	ttings
TFTP Server IP	192.168.0.80
File Name	ax.bin
E-mail Settings E-mail Server Address/IP	10.1.4.1
E-mail Server Address/IP	10.1.4.1
	Please enter host name or IP address(e.g. asix.com.tw or 10.4.1.100)
From E-mail Address	fromdsm@asix.com.tw
To E-mail Address 1	tomailbox1@asix.com.tw
To E-mail Address 2	tomailbox2@asix.com.tw
To E-mail Address 3	tomailbox3@asix.com.tw
	Settings
Auto Warning Report S	
Auto Warning Report S Cold Start	Enable
Auto Warning Report S Cold Start Authentication Failure	Enable •
Auto Warning Report S Cold Start Authentication Failure Local IP Address Changed	Enable • Enable •

In this page, the E-mail Server Address/IP field can accept host name or IP address format, for example, you can enter "asix.com.tw" or "10.1.4.100" in this field.

There is a [FirmwareUpgrade] button in this page, it is used to upgrade the firmware of a target device, you need to make sure to enter correct TFTP Server IP and the firmware file name for upgrade before click this button.

When click the [Apply] or [FirmwareUpgrade] button, the confirmation window will appear. You can press the [OK] button to continue the operation, or press the [Cancel] button to cancel the operation.

#### 3.3.5.3 Security

Dasic	Advance	Security		
Change Userr	name Setting	-		
New Username				
		Apply	Cancel	
Change Pass	vord Setting			 
Old Password				
New Password				
Confirm Password				
		Apply	Cancel	
Accessible IP	Setting			 
IP #1	0.0	.0.0		
IP #2	0.0	.0.0		
	0.0	.0.0		
IP #3		.0.0		
IP #3 IP #4	0.0			

In this page, the Accessible IP Setting group must be careful in using. You need to make sure to enter correct accessible IP address(s) after enable this function; the new configuration will take effect after the device server reboot.

When click the [Apply] button, the confirmation window will appear. You can press the [OK] button to continue the operation, or press the [Cancel] button to cancel the operation.=

When click the Logout link at the top right side of the page, the system will logout and redirect to the authentication page.

#### 3.3.6 Firmware Upgrade Dialog

- (1) Select the AX110xx RS-232 target board from the Devices List in the Function Window of Device Management tool.
- (2) Click the [Firmware Upgrade] button to pop up the Firmware Upgrade dialog.
- (3) Input a correct AX110xx RS-232 firmware file.
- (4) Click the [Upgrade Firmware] button to start upgrading the new AX110xx RS-232 firmware code.

Device Management	System	Search	Device Setup	Reboot	Firmware		se Externa	al Browser
Virtual Serial Port	Setting	IP Search	Web Browser	Restore	Upgrade	_ s	earch Afte	r Application S
M Device Monitor	Status Progress Devices List	ldle						
TFTP Server	NO.	Device Name	MAC Address	DHCP	IP	Port	Mode	Status
COM Port Terminal	1	DSM1	00-0E-C6-D0-00	Enable	10.1.2.10	5000	Server	Idle
COM2 COM4			FTP Server IP Addre	ss - 1	Timer Upgrade Per 10	iod (sec / de	evice)	Upgrade Firmware 4
rstem Log			roduction Firmware	Name		-		Cancel
lo Time 2010-11-111-18-	Мевзас 58 Applicat	ion starts s	You r corre	need to r ct AX11	nake sure 0xx firmwa	to inpu re nan	ita ne!	

#### 3.4 Virtual Serial Port

Step 1: In Menu Window, select Virtual Serial Port

- Step 2: Click the [Add] button to add a virtual serial port. The COM Port Configuration dialog will appear.
- Step 3: On the COM Port Configuration dialog, select an unused port number to be assigned to the virtual serial port. Then click the [OK] button to complete the add operation

<u>F</u> ile <u>V</u> iew <u>H</u> elp			
<u>21</u> 20 9 🖬 👻			
Device Management	Virtual Port Network	Virtual Port / Network Configuration Connection Protocol — Remote Host IP	Remote Host Port
Virtual Serial Port	Add Connect	C TCP © UDP 192 . 168 . 0 . 100	5000
M Device Monitor	Remove Close	© Client  ☐ Enable Flow Control Packet ☐ Connect at Windows Start	
DHCP Server	Setting	Listen Port	
TS TFTP Server		COM Port Configuration	
COM Port Terminal	Status VSP removed successful Virtual Serial Ports List	COM Port Number	
- Virtual COM Ports	Port ID Port Name	COM1     ▼     OK       COM2     CoM2     Cancel       COM4 (in used)     COM5 (in used)       COM5 (in used)     COM6       COM7 (in used)     COM8	
System Log		COM9	
No Time	Message	COM10 COM11	
1 2011-3-39-50-28 2 2011-3-39-50-28	Application starts successfully. Selected network interface: 10.1.2	.23	
Ready			NUM

Step 4: Click the [Setting] button to configure settings of the connection type, IP address, and listening port according to configuration of the targeted device. Here assumes the settings are as follows:

Parameter	Setting
Connection Protocol	ТСР
Remote Host IP	10.1.2.22
Remote Host Port	5000

Enable Flow Control Packet	Disabled
Connect at Windows Start	Disabled
Mode	Client

Step 5: Click the [OK] button to complete the setting operation.

<u>File V</u> iew <u>H</u> elp						
21 20 % 🖬 📽						
Device Management	Virtual Port	Network Connect	-Virtual Port / Netv - Connection Proto	vork Configuration	t IP	Remote Host Port
M Device Monitor	Remove	Close	Mode Client	Enable Fi	ow Control Packe at Windows Start	et la
DHCP Server		Setting	Listen Port			
TS TFTP Server		L				
COM Port Terminal	Status Added a Virtual Serial Ports	virtual serial port s List	: failed			
⊡-Virtual COM Ports	Port ID Port Na	ame	Status	Remote IP	Remote Port	
L-COM1	1 COM1		Idle			
<u> </u>						
System Log						
No Time	Message					
1 2011-3-39-50-28	Application star	ts successfully.				
2 2011-3-39-50-28	Selected networ	rk interface: 10.1	.2.23			
0						
Ready						NUM

<u>File V</u> iew <u>H</u> elp				
<u>21</u> 20 9 🗐 🗃				
D Device Management	Virtual Port Network	Virtual Port / Network	Configuration	Remote Host Port
Virtual Serial Port	Add Connect			25000
M Device Monitor	Remove Close	Client	Enable Flow Control Pac	ket
DHCP Server	ок	Listen Port		111
TFTP Server				
C COM Port Terminal	Status Added a virtual seria Virtual Serial Ports List	al port failed		
	Port ID Port Name	Status Rei	mote IP Remote Port	
System Log				
No Time	Message			
1 2011-3-39-50-28	Application starts success	fully.		
2 2011-3-3-9-50-28	Selected network interface:	10.1.2.23		
Ready				NUM

Step 6: Click the [Connect] button to make a TCP connection with the remote device server.

You will see the update of the virtual serial port's status in both the Function Window and the Menu Window.

<u>File View H</u> elp							
S TFTP Server	-Virtual Port Add Remove	Network Connect Close Setting	Virtual Port / N Connection Pr TCP Mode C Client C Server Listen Port	etwork Co btocol	nfiguration Remote Ho 10 Enable F Connect	st IP 2.22 ilow Control Packet at Windows Start	Remote Host Port
COM Port Terminal	Status Conne Virtual Serial Po	cted to remote h rts List	ost 10.1.2.22@50	00			
© Virtual COM Ports COM1 (10.1.2.22)	Port ID Port I 1 COM	Name 1	Status Connected	Remo	te IP .22	Remote Port	
System Log							
No         Time           1         2011-3:3-9:50-28           2         2011-3:3-9:50-28	Message Application st Selected netw	arts successfully vork interface: 10.	1.2.23				
Ready							NUM

Note: When you click the [Add] button to add a Virtual Serial Port, if a warning message appears as in below figure, you need to enable the administrator authority. Below shows how:

- 1. Select the AXR2E\_x86.exe or AXR2E\_x64 icon on your desktop.
- 2. Right-click on the file and select Properties.
- 3. Check the "Run this program as an administrator" checkbox from Compatibility page.

	I AXR2E_x86 Properties
	General Compatibility Security Details Previous Versions
AXR2E Copend COM DB failed.	If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version. <u>Help me choose the settings</u> Compatibility mode Run this program in compatibility mode for Windows XP (Service Pack 3)
ОК	Settings  Run in 256 colors  Run in 640 x 480 screen resolution  Disable visual themes  Disable desktop composition  Cathol desktop composition
	Privilege Level
	OK Cancel Apply

#### 3.5 Device Monitor

The main window of Device Monitor tool is shown below.

S Device	Start Mo	nitor Time Interval	3 ( 3 ~ 3)	500 seconds)			
NO.	Query Status	Device Name	IP	Modem Status (Hex)	Firmware Version	Serial Port TX Count	Serial Port RX Count
0	Idle	DSM1	10.1.2.10				

(1) Start: starts / stops to monitor the selected device server(s). Before start the monitor function, you need to select at least one device server from the Devices List in the Function Window of Device Management tool.

The main window supports one parameter that you can configure:

Parameter	Description
Monitor Time Interval	Set the monitor frequency.

When a device server is selected from the Devices List in the Function Window of Device Management tool, it will be added in the Devices List and the following information is displayed:

Category	Description
NO	Device server index in the list
Query Status	The device server's query status
Device Name	Device server name
IP	Device server IP address
Modem Status	The value of device server UART2's Modem Status register
Firmware Version	Production firmware version
Serial Port TX Count	Device server UART2's TX count in unit of bytes
Serial Port RX Count	Device server UART2's RX count in unit of bytes

(1) Start: starts / stops to monitor the selected device server(s). Before start the monitor function, you need to select at least one device server from the Devices List in the Function Window of Device Management tool.

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Query Status	The device server's query status
Device Name	Device server name
IP	Device server IP address
Modem Status	The value of device server UART2's Modem Status register
Firmware Version	Production firmware version
Serial Port TX Count	Device server UART2's TX count in unit of bytes
Serial Port RX Count	Device server UART2's RX count in unit of bytes

#### 3.6 DHCP Server

Start IP Address	192 . 168 .	0.100	Gateway (Router)	192	. 168	- 22	0	8	1
End IP Address	192 . 168 .	0 . 200	Subnet Mask	255	. 255	÷	255	88	0
Server IP Address	192 . 168 .	0.21	Domain Name Server	168	. 95	20	1	32	1
Boot File	ax.bin								
Start									
MAC to IP Addre	ss Mapping List	Log							1.0
Delete	Delete All								-
IP Address	MAC Address								

The main window provides three functions,

- (1) **Start**: starts / stops the DHCP server function.
- (2) Delete: deletes a MAC to IP address mapping record.
- (3) Delete All: delete all MAC to IP address mapping records.

Parameter	Description
Start IP Address	The first available IP address for clients
End IP Address	The end available IP address for clients
Gateway (Router)	The network gateway's IP address
Subnet Mask	The subnet mask
Domain Name Server	The domain name server's IP address
Server IP Address	The TFTP server's IP address
Boot File	The boot file name on the TFTP server

- (1) Start: starts / stops the TFTP server function.
- (2) Folder Browser: opens a folder browse dialog for file path setting.

Parameter	Description
File Path	The file path for TFTP file read requests

#### 3.7 TFTP Server

R AXR2E Configuration Utility v1	.6.0	-		×
<u>F</u> ile <u>V</u> iew <u>H</u> elp				
<u>21</u> 20 🖇 🖬 🛳				
Device Management	Start File Path C:\	Ē		
Virtual Serial Port				
M Device Monitor	Log			
DHCP Server	TFTP server @ 192.168.1.41 is running on UDP port 69 successfully.			^
13 TFTP Server	TFTP server stoped.			
COM Port Terminal				
⊡-Virtual COM Ports └─COM1				
				~
System Log				
No Time	Message			
1 2021-1-1916-52-3 . 2 2021-1-1916-52-3 . 3 2021-1-2011-29-20 4 2021-1-2011-29-23	Application starts successfully.     Selected network interface: 192.168.1.41     TFTP server @ 192.168.1.41 is running on UDP port 69 successfully.     TFTP server chonged			
			NUM	1

#### 3.8 COM Port Terminal

This section describes the detailed functions of COM Port Terminal tool. This tool supports two terminals. Each terminal supports a simple test function to ease you to develop and test TU-S9E solution for your target application.

-COM Termin	al 1	30	C TRANK	
Port	COM2	•	Auto Test	E Echo
Baud Rate	1200	•		, Lono
Data Bits	8	-	TX Interval (m	ns) 1000
Parity Check	None	•	TX Data Leng	th 10
Stop Bits	1	•	Open	Clear
Flow Control	None	-	Close	Purge
COM Termin	al 2		<b>T</b> .	
Port	COM2	•	Auto Test	E Echo
Baud Rate	1200	-		
Data Bits	8	-	TX Interval (m	ns) 1000
Parity Check	None	-	TX Data Leng	gth  10
Stop Bits	1	•	Open	Clear
Flow Control	None	•	Close	Purge

The main window of COM Port Terminal tool is shown below.

The main window contains two terminals. Each terminal provides below the same four functions,

- (1) **Open:** opens the selected COM port.
- (2) Close: closes the selected COM port.
- (3) Clear: clears the console data.
- (4) **Purge**: clears the data stored in COM port buffer.

Each terminal supports six general COM port parameters that you can configure:

Parameter	Description
Port	COM Port number
Baud Rate	Baud rate
Data Bits	Data bits
Parity Check	Parity check type
Stop Bits	Stop bits
Flow Control	Flow control type

Parameter	Description
Auto Test	Enable / disable sending test data
Echo	Enable / disable echoing back received test data
TX Interval (ms)	The time interval to send out a test data
TX Data Length	The test data's length

Each terminal supports four additional parameters for test function that you can configure:

- Note: The following example operation assumes the AX110xx device server's UART2 port is connected to the COM7 port on PC1. And this device server has established a TCP connection with the Virtual Serial Port COM1 on PC1.
- Step 1: In Menu Window, select COM Port Terminal tool. You will see the System Log Window being switched to the Function Window of COM Port Terminal tool.

<u>File V</u> iew <u>H</u> elp	)						
20 % 🗐 👻	<u>15</u>						
D Device N	/lanagement	-Virtual Port-	Network	Virtual Port / Netv - Connection Proto	vork Configuration	l Host IP	Remote Host Port
🕜 Virtual S	Serial Port	Add	Connect	© TCP C		1 . 2 . 22	5000
Dudes N	Annikan	Remove	Close	Mode	Enable	- Elow Control Packet	,
Device iv	viornitor			C Server	Conne	ct at Windows Start	
OS) DHCP S	Server		Setting	Listen Port			
TS TFTP Se	erver						
C COM Po	ort Terminal	Status Conne Virtual Serial Po	cted to remote hos rts List	10.1.2.22@5000			
⊡-Virtual CON	v1 Ports	Port ID Port	Name	Status	Remote IP	Remote Port	
COM1 (	10.1.2.22)	1 COM	1	Connected	10.1.2.22	5000	
-COM Termina	al 1						^
Port	COM1 🚽	Test 🗖 E	cho				
Baud Rate	1200 🔻		0.110				
Data Bits	8 🔽 T,	X Interval (ms) 100	00				
Parity Check	None 🖵 T	X Data Length 10					
Stop Bits	1 • 0	Open Port Clear	Log				
Flow Control	None 🔻 🖸	Close Port Purge	Buffer				
-COM Termina	al 2						
Port	сом1 🚽 📘	Test	cha				
Baud Rate	1200 👻	Auto rest   E	chu				
Data Bits	8 🖵 T.	X Interval (ms) 100	00				
Parity Check	None 🖵 T	X Data Length 10					
Stop Bits	1 🗸 (	Open Port Clear	Log				
Flow Control	None 🗸 🕜	Close Port Purge	Buffer				
							~
Ready							NUM

Step 2: Use COM Terminal 1 to open the COM1 and use COM Terminal 2 to open COM7. Here assumes the AX110xx device server's serial port settings are 115200 baud rate, 8 data bits, no parity check, 1 stop bit and no flow control.

COM Termin	al 1			
Port	COM1 👻	Flest	Open COM1	Successfully!
Baud Rate	115200 🝷	Non-printable Chars		
Data Bits	8 💻	Tick(ms) 1000		
Parity Check	None 💌	Length 10		
Stop Bits	1 💌	Open Clear		
Flow Control	None 🔄	Close Purge		
COM Termin	al 2			
Port	СОМ7 💽	Test	Open COM7	Successfully!
Port Baud Rate	COM7 - 115200 -	Test ☐ Auto Test ☐ Echo ☐ Non-printable Chars	Open COM7	Successfully!
Port Baud Rate Data Bits	COM7 • 115200 • 8 •	Test Auto Test Echo Non-printable Chars Tick(ms)	Open COM7	Successfully!
Port Baud Rate Data Bits Parity Check	COM7 • 115200 • 8 • None •	Test Auto Test Echo Non-printable Chars Tick(ms) 100000 Length 1472	Open COM7	Successfully!
Port Baud Rate Data Bits Parity Check Stop Bits	COM7 115200 8 None 1 •	Test T Auto Test T Echo Non-printable Chars Tick(ms) 100000 Length 1472 Open Clear	Open COM7	Successfully!

- Step 3: Input some text data (e.g., "11111") in the console of COM Terminal 1, and then you should see the data appear in the console of COM Terminal 2.
- Step 4: Input some text data (e.g., "22222") in the console of COM Terminal 2, and then you should see the data appear in the console of COM Terminal 1.

-COM Termin	al 1				
Port	COM1	•	- Test	st Echo	22222
Baud Rate	115200	•	□ Non-prin	table Chars	
Data Bits	8	•	Tick(ms)	1000	
Parity Check	None	-	Length	10	
Stop Bits	1	•	Open	Clear	
Flow Control	None	•	Close	Purge	
COM Termin	al 2		+ .		
Port	COM7	•	- Test	st Echo	11111
Baud Rate	115200	-	□ Non-prin	table Chars	
Data Bits	8	•	Tick(ms)	100000	
Parity Check	None	-	Length	1472	
Stop Bits	1	•	Open	Clear	
Flow Control	None	•	Close	Purge	

Step 5: Click the [Close] buttons of COM Terminal 1 and COM Terminal 2 to close COM1 and

#### COM7 ports

COM Termin	al 1		Teet	
Port	COM1	-	- Auto Te	est Echo
Baud Rate	115200	•	□ Non-pri	ntable Chars
Data Bits	8	-	Tick(ms)	1000
Parity Check	None	•	Length	10
Stop Bits	1	•	Open	Clear
Flow Control	None	-	Close	Purge
COM Termin	al 2		÷	
Port	COM7	•	Lest	est Echo
Baud Rate	115200	•	□ Non-pri	ntable Chars
Data Bits	8	•	Tick(ms)	100000
Parity Check	None	•	Length	1472
Stop Bits	1	-	Open	Clear
Flow Control	None	-	Close	Purge

Step 6: In Menu Window, select Virtual Serial Port tool. Select the virtual serial port COM1 from the Virtual Serial Ports List and then click the [Close] button to close the connection between the virtual serial port driver and the AX110xx device server.

Step 7: Click the [Remove] button to remove the virtual serial port driver from PC1.

File View Help						
Device Management	Virtual Port	Network Connect Close	Virtual Port / Netw Connection Proto © TCP © Mode © Client	vork Configuration col Remote Hos UDP 10 . 1 Enable Fl	t IP 2 22	Remote Host Port
DS DHCP Server		Setting	C Server	Connect :	at Windows Start	
C COM Port Terminal	Status Conne Virtual Serial Po	ected to remote host orts List	: 10.1.2.22@5000			
- Virtual COM Ports - COM1 (10.1.2.22)	Port ID Port	Name 11	Status Connected	Remote IP 10.1.2.22	Remote Port	

#### 4. TCP Test Tool



- (1) Double-click TCP Test Tool\_2.3 to install.
- (2) If the following problems occur during the installation process, we need to set up the program and reinstall it again.

🕞 Error		×
8	Cannot register "C:\Windows\system32\StdOle2.tlb".	
	ОК	]

(3) Right-click the TCP Test Tool\_2.3 program, and then click to enter the property interface.

TCPTestTool_2.3		
	Restore previous versions	
	Send to	>
	Cut	
	Сору	
	Create shortcut	
	Delete	
	Rename	
	Properties	

(4) Click compatibility, check Windows 7 running program in compatible mode, check

running program as administrator, click OK after setting, and then reinstall the program.

-					
🛃 ТСРТ	estTool_V2.3.e	xe Prope	rties		)
General	Compatibility	Security	Details	Previous Versions	
If this p	rogram isn't wor	king corre	ctly on thi	s version of Windov	vs,
try runn	ing the compatil	bility troub	leshooter.		
Run	compatibility tro	ubleshoo	ter		
How do	I choose comp	atibility se	ttings mar	nually?	
Comp	atibility mode				
Run this program in compatibility mode for:					
Windows 7 🗸					
	-				
Settin	gs duood oolor m	da			
		Jue			
JIC-6	(206) Color	~			
	un in 640 x 480	screen re	solution		
	sable fullscreen	optimizati	ons		
R	un this program	as an adn	ninistrator	3	
	Change high D	PI setting	8		
- <b>Q</b>	Change settings	for all use	ers		
	_				
		ОК		Cancel A	oply

#### 4.1 Configuration

TCP Test Tool has a simple and intuitive user interface. There is no real configuration or 'setup' that needs to be done, as the main screen/desktop puts all the settings at your fingertips.

Using the software...

The application software involves only one screen, which is broken down into (2) sections:

1. The REMOTE COMMUNICATIONS section

This 'section' is the TCP SESSION INITIATOR (sender) tool.

It is used for sending data to any remote IP address and definable TCP port

#### 2. The HOST/LOCAL COMMUNICATIONS section

This 'section' is the TCP SESSION INITIATOR (receiver) tool.

It is used for answering TCP sessions from a remote device on a user definable TCP port

TCP Test Tool view broken down into (2) sections

Remote Communications (Transmit)

Host/Local Communications (Receive)

Image: Second Status         Image: Second Status	Server Current connections 1/250 Listening on 192.168.1.103/1234 Set Listening Pot Edit/Send Data Return data Edit/Send Data Return data Edit/Data Log Return data Display data as: ⓒ ASCII ⓒ Binary ⓒ Decimal ⓒ Hex HEX Data Log << (127.0.0.1/3902, 8.02:33 PM, 9:25:03) 45 6E 74 65 72 20 <>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>		
This part is for initiating data streams to a remote IP and	This part is for receiving sessions on any desired TCP port.		
TCP port. You can initiate it using an IP or a hostname.	Data is displayed in ASCII or HEX formats. You can log and		
Data can be in ASCII or HEX format.	edit the data adding Date and/or Time stamps if needed.		

#### 4.2 TCP Client Communications (Initiator)

Initiating data sessions to a remote location and TCP port is easy.

- 1. Enter the Remote IP or HOSTNAME and the desired destination TCP port. Since this is where you want the data to be sent, it assumes that there must be something listening for the packet at that location. The default is 'localhost' meaning it will send data to itself.
- 2. Enter the Data to be sent. Type into the box or paste text from another application.
- 3. Select the required data format and framing type. Most text will be ASCII. Most machine or coded data will be in HEX format. Add Line Feeds and/or Carriage Returns as needed.
- 4. Hit the Connect button to start the session. To send a single packet, hit the Send button. If you want to send the packet on a recurring basis, select Auto Send and enter the time interval. The application will send the data stream every x seconds until you stop the software or de-select the Auto Send button. (Default is every 1 second).
- 5. Data will be displayed in the Sent Data Log. You can change the display format to either ASCII or HEX, as well as choose to append a Time and/or Date to each data stream.
- 6. Data totals in bytes are displayed in the bottom status tray.



#### 4.3 TCP Server Communications (Receiver)

Receiving data on a TCP port is just as easy.

- Enter the TCP 'listening' port on which you intend to be receiving data and select <u>Bind</u> To stop listening for data on that port, or to release the port for another application, simply change the port number and select the <u>Bind</u> button again, or exit the software application completely. (There is no 'Un-Bind' control button).
- 2. Enter the Data to be sent back to the TCP session originator (client), select the required data format (ASCII or HEX) and add Line Feeds and/or Carriage Returns as needed.
- 3. To send data back to the TCP originator, just hit the Send button. If you want to send the packet on a recurring basis, select Auto Send and enter the time interval. The application will send the data stream every x seconds until you stop the software or deselect the Auto Send button. (Default is every 1 second).

- 4. Data will be displayed in the Sent Data Log. You can change the display format to either ASCII or HEX, as well as choose to append a Time and/or Date to each data stream.
- 5. Data totals in bytes are displayed in the bottom status tray.



#### 5. Restore factory settings

Hold the restore switch for 7-10 seconds, do not loosen in the middle. When two LED lights of the product are out at the same time, the yellow and green LED lights are turned on again and work normally, it can be determined that the factory settings are successfully restored. (Green LED lights are always on and yellow LED lights are flashing when working normally)

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