HOME AUTOMATION, INC.

Model 93A00-1

Serial Server

User's Manual

Document Number 93I00-1 Rev. A
December, 2009

Introduction

The 93A00-1 is a RS232/RS485 to TCP/IP converter integrated with a robust system and network management features designed for serial equipment to be accessed and controlled via Intranet or Internet. The 93A00-1 has a RTOS (Real Time Operating System) and complete TCP/IP protocol stack. The 93A00-1 web interface is a breeze to operate and is totally independent from the operating system platform you use.

Features

- **TCP/UDP server/client support**

  The 93A00-1 supports four types of connection: TCP server, UDP server, TCP client, and UDP client.

- **DHCP Client**

  The DHCP (Dynamic Host Configuration Protocol) client obtains the TCP/IP configuration at start-up from a centralized DHCP server, which means it can get the IP address, IP default gateway, and DNS server from the router.

- **PPPoE Over Ethernet**

  PPPoE is a protocol for connecting remote hosts to the Internet over DSL connection by simulating dial-up connection.

- **Dynamic DNS**

  With dynamic DNS support, you can have a static hostname alias for a dynamic IP address, allowing the host to be more easily accessible from various locations on the Internet.

- **Auto-negotiating 10/100Mbps Ethernet**

  The Ethernet interface automatically detects if it is on a 10 or a 100 Mbps Ethernet.

- **Full Network Management via Web Interface**

  This feature allows you to access or manage device through IE or Netscape on any platform. The firmware also can be upgraded via Web browser.

- **Backup and Restore configuration**

  This feature allows you to backup system configuration to a file and restores it, for the security issue, the file which backup from system is an encryption format.

Hardware Installation & Initial Setup

RS-232 Pin out: (DB9 Male)

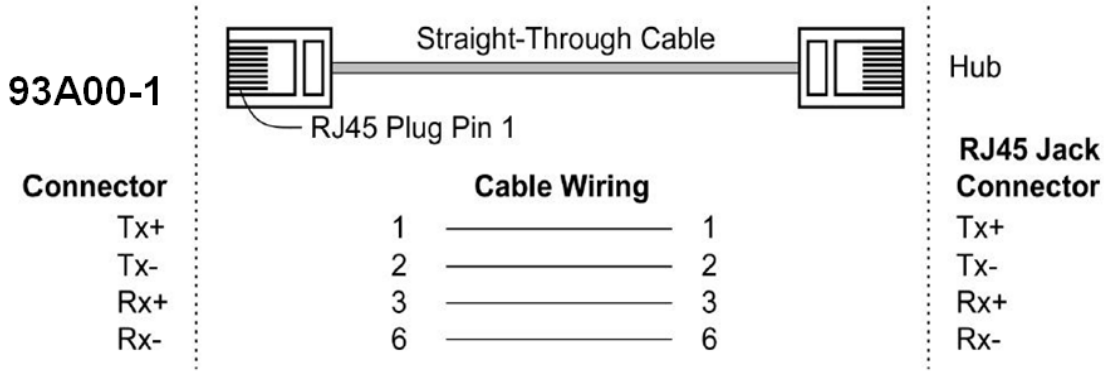
(DB-9 Male)	Signal	I/O
PIN1	DCD	IN
PIN2	RXD	IN
PIN3	TXD	OUT
PIN4	DTR	OUT
PIN5	GND	-
PIN6	DSR	IN
PIN7	RTS	OUT
PIN8	CTS	IN
PIN9	RI	IN

RS-422/485 Pin out: (6th terminal from left)

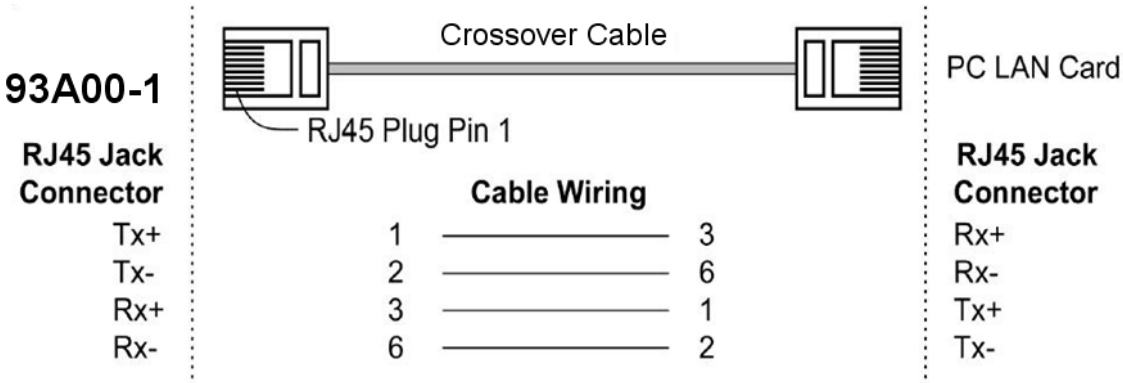
Terminal	1	2	3	4	5	6
RS-422	T+	T-	R+	R-	VIN	GND
RS-485	485+	485-	-	-	VIN	GND

Connect to 10/100

Connect the 10/100/M Port on the 93A00-1 to a router, hub, or switch using a straight-through network cable.



Connect the 10/100 Port on the 93A00-1 to an Ethernet card using a crossover network cable.



LED Indicators

LINK - Ethernet Link: Green with Ethernet Link established
10M/100M - Link speed: Green when 100M Ethernet
ACT - Data Send/Receive between Serial and the Ethernet
PWR - Power Indicator

Configure the 93A00-1

Open the web browser on your PC and type the following IP address in the Address Bar: **http://192.168.0.102**. This address is the factory configured IP Address of the 93A00-1.

- Press "**Enter**".

The **"Username and Password"** dialog box will appear.

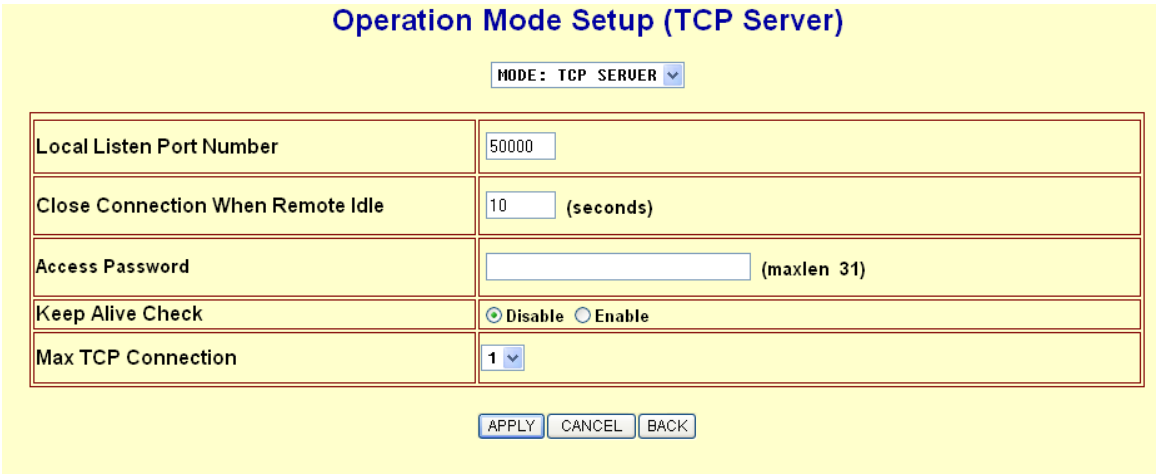
- Type "**admin**" (default username) in the Username box
- Type **"admin"** (default password) in the Password box
- Click "**OK**". The setup screen will then appear

Operation Modes

The 93A00-1 support four operation modes: TCP Server, TCP Client, UDP Server, and UDP Client. These modes are listed in the drop-down menu for the Operation Mode Setup. Each setup screen and available features will differ depending on what kind of operation mode you select. The default mode is TCP Server.

TCP Server

TCP Server is used when the connected device is passive and will accept commands from the remote device.



Listen Port Number: default **50000**, range **0** to **65535**

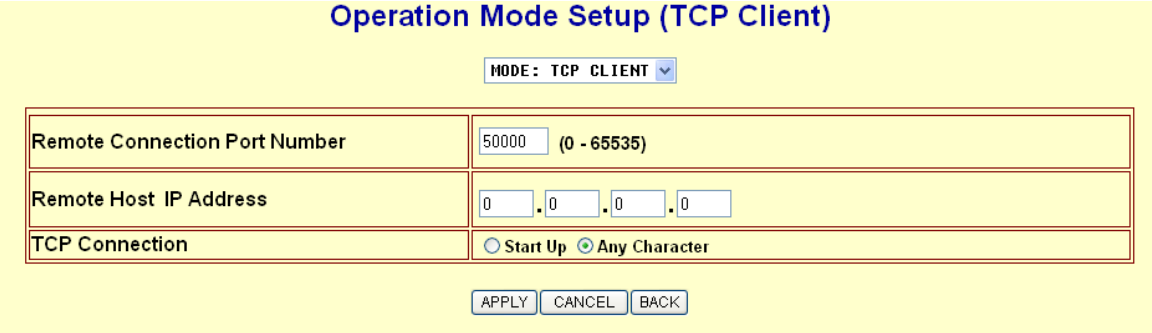
The value of **Listen Port Number** must be the same as your remote device.

Close Connection When Remote Idle (seconds): default **300**, range **0** to **32768**

If you want to keep the connection between the 93A00-1 and your remote device always on, then set the value of **Close Connection When Remote Idle** to 0; otherwise, when the remote device is idle for the time specified, the 93A00-1 will terminate this connection.

TCP Client

TCP Client is used when the connected device is active to report real-time status to the remote device.



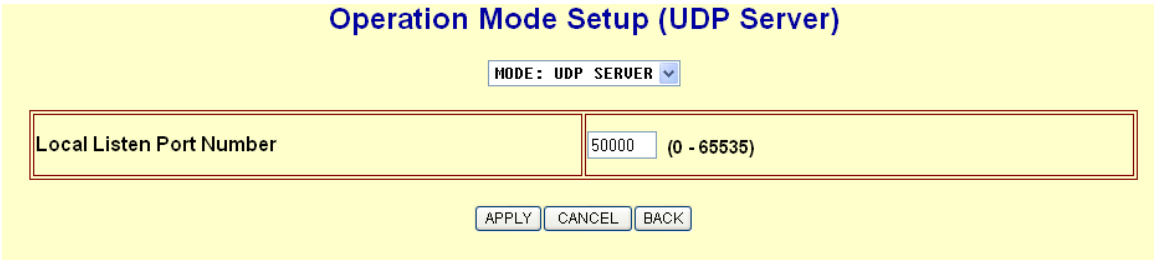
Remote Connection Port Number: default **50000**, range **0** to **65535**

Remote Host IP Address: default **0.0.0.0**

Be sure that the value of **Remote Connection Port Number** is the same as your remote device and set the correct value for the **Remote Host IP Address**.

UDP Server

UPD Server is used when the connected device is passive and will accept commands from the remote device.

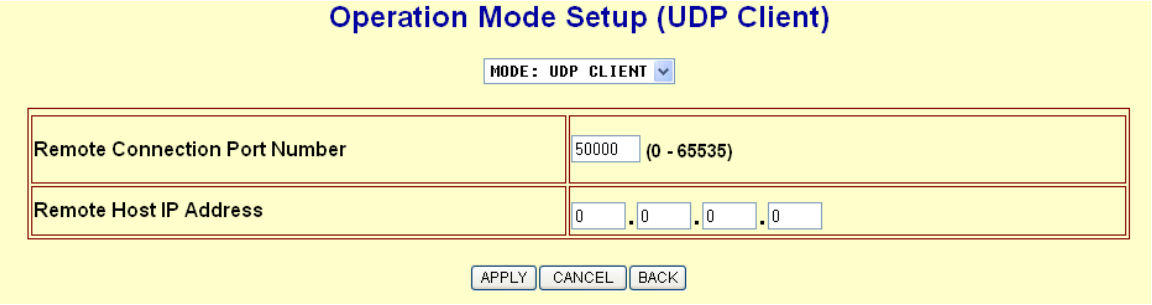


Listen Port Number: default **50000**, range **0** to **65535**

The value of **Listen Port Number** must be the same as your remote device.

UDP Client

UDP Client is used when the connected device is active to report real-time status to the remote device.



Remote Connection Port Number: default **50000**, range **0** to **65535**

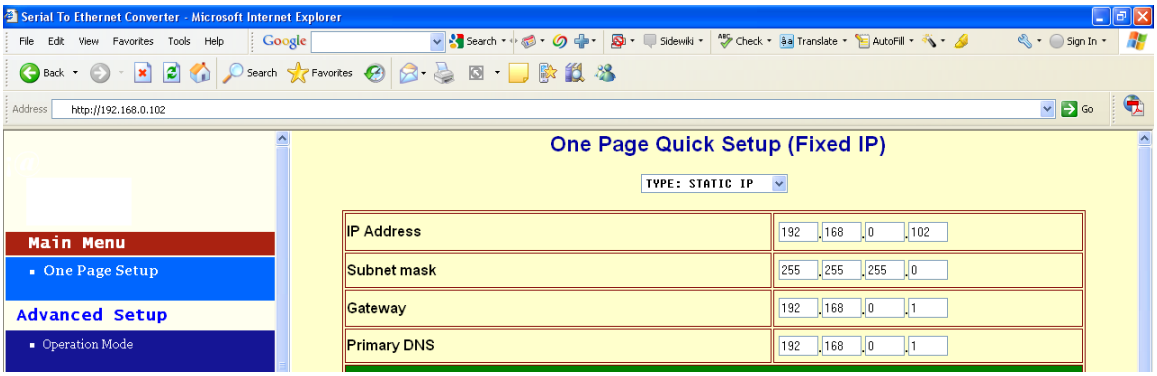
Remote Host IP Address: default **0.0.0.0**

Be sure that the value of **Remote Connection Port Number** is the same as your remote device and set the correct value for the **Remote Host IP Address**.

IP Configuration

The 93A00-1 supports three IP connection types: Static IP, DHCP and PPPoE. These types are listed in the drop-down menu under the IP Configuration setting. Each setup screen and available features will differ depending on what kind of IP connection type you select. Default is Static IP

Static (or Fixed) IP



IP Address: default **192.168.0.102**

Subnet mask: default **255.255.255.0**

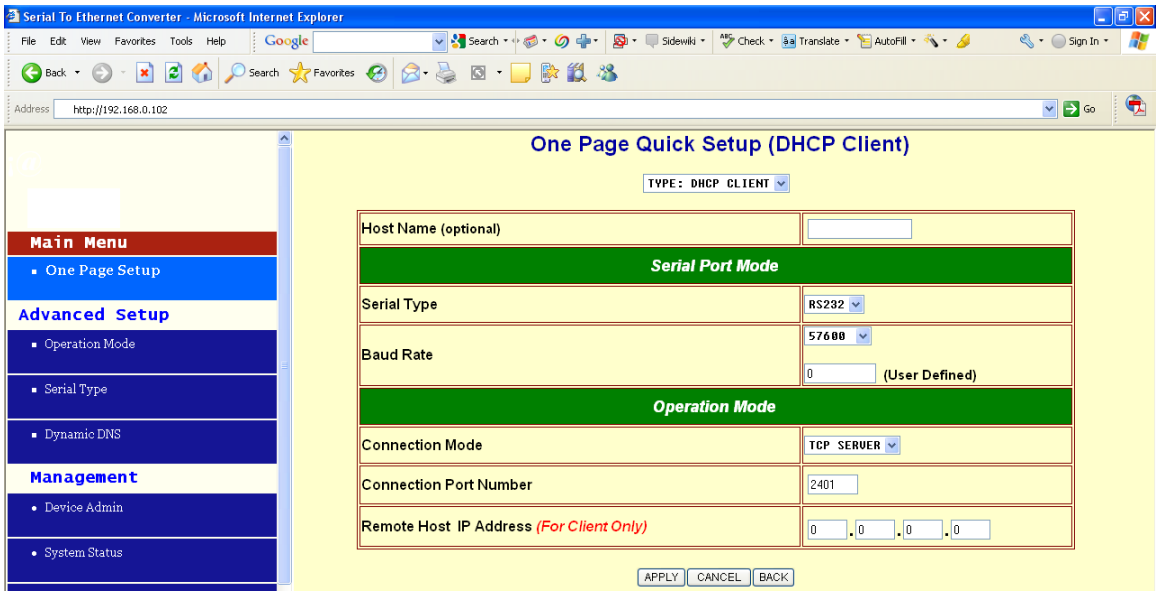
Gateway: default **192.168.0.1**

Primary DNS: default **192.168.0.1**

If you are connecting through a static or fixed IP from your network environment, perform these steps:

Step 1: Enter IP address
Step 2: Enter Subnet mask
Step 3: Enter Gateway IP address
Step 4: Enter Primary DNS IP address
Step 5: Click the **Apply** button

DHCP



Host Name (Optional): maximum length **15** characters

If there is a DHCP Server on your network or you subscribe a service from your ISP, you can set the IP configuration to DHCP to get a Dynamic IP address. The **Host Name** is an *optional* item, depending on your DHCP Server setting.

Serial Type

The 93A00-1 supports three serial types: RS232, RS422, and RS485. These types are listed in the drop-down menu for the Serial Type setting. Each setup screen and available features will differ depending on what kind of Serial Type you select. The default setting is **RS232**

Baud Rate: default **115200**, range 1200bps to 230.4Kbps

Data Bits: 5, 6, 7, **8** (default)

Parity Check: None (default), even, odd

Stop Bits: 1 (default), 2

Flow Control: None (default), CTS/RTS (or Hardware), XON/XOFF (or Software)

Force Packet Transmit Time (ms): default **40**, range **20** to **65535**

In order to get the entire data packet, the timing of transmitting an Ethernet packet can be tuned using this setting. Enter the value of the data length for the transmitting device.

RS422

These settings are similar to RS232.

RS485

RS485 Transmission Delay Time (ms): default **0**, range **0** to **65535**

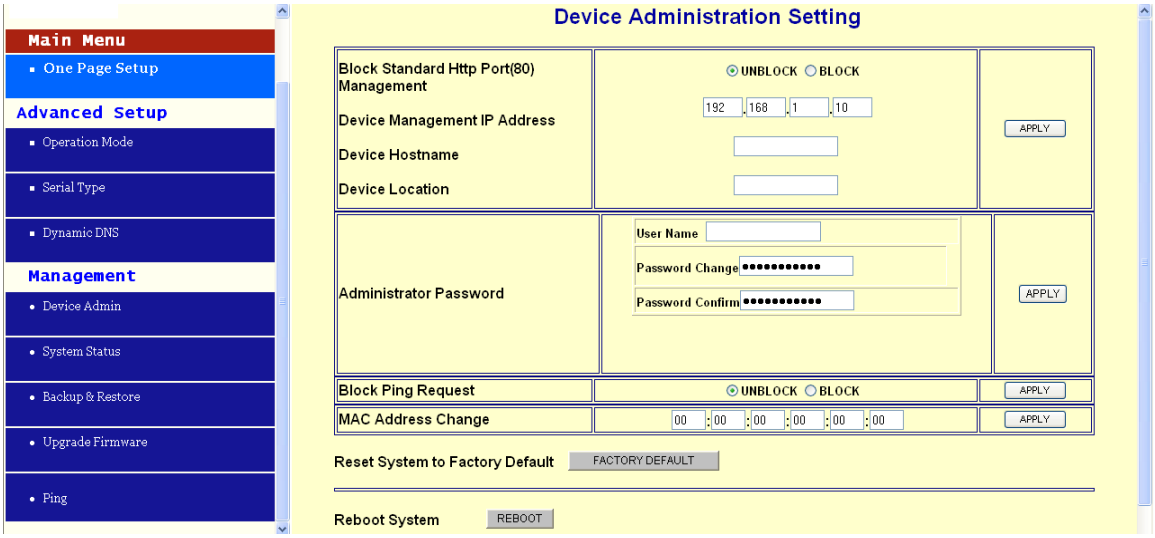
Since different devices have different capability in handling data received from serial port, you can tune this setting to slow down the speed of 92A00-1 to fit the speed of your device.

Once the 92A00-1 receives 1 delimiter through its serial port, it immediately packs all data currently in its buffer and sends it to the 93A00-1 Ethernet port.

Management Setup

This section describes how to manage the access setting, as well as configure E-mail alert, and firmware upgrade on the 93A00-1.

Device Admin



Block Standard HTTP Port(80) Management: default **UNBLOCK**

If for some reason, the HTTP (80) service is blocked and results in failure to configure or manage the 93A00-1, then you select **BLOCK** this function using port **8080**, instead of standard port 80. So you should enter: http://192.168.0.102:8080 in your browser.

Device Management IP Address: default **192.168.1.10**

In case, you forget the IP address of the 93A00-1, you can use this to connect to the 93A00-1 to get the current IP addressd.

If you set the IP Configuration as DHCP or PPPoE which will assign dynamic IP address to 93A00-1, you also can use this to get the current working IP address on the Intranet.

Device Hostname: maximum length **15** characters

To describe the name of the 93A00-1 for manage purpose.

Device Location: maximum length **15** characters

To describe the location of 93A00-1 for manage purpose.

Administrator Password

User Name: default **admin**
Password: default **admin**

To ensure security on the 93A00-1, you will be asked for your password when you access the web interface.

User Name: Enter the desired user name.
Password: It is recommended that you change the default password.
Password Confirm: Re-enter the new password to confirm it.

Block Ping Request: default **UNBOCK**

To prevent hackers from intruding into your network, check the **BLOCK** option to reject the PING requests from the Internet.

MAC Address Change

The MAC address can be changed from the original values if necessary. Some ISPs require users to change the MAC address to a registered one when users change their access equipment. (Detail sees Appendix B)

Reset System to Factory Default
Click **"Apply",** if you want to return all the current settings of the 93A00-1 to their factory defaults.

Note: do not restore the factory defaults unless it is absolutely necessary.

Reboot System

Click **"Apply",** if you want to clear a connection, reboot, and re-initialize the unit without affecting any of your configuration setting.

System Status

This screen shows the current status of the 93A00-1. All of the information provided is read-only.

Product Name: the product model name of the unit.

Firmware Version: the installed version of the firmware.

System up Time: the time of system from start up to current.

Management IP Address: the current setting of management IP.

Ethernet Status: the IP Configuration, MAC address, IP address, subnet mask, default gateway IP address, primary DNS IP address, and current connection status of the 93A00-1.

Serial Status: the current serial type setting.

Statistic: the transmission and receive byte and packet count in Ethernet and Serial port, separately.

Backup and Restore

This function allows you to save configuration of the 93A00-1 as a backup, or retrieve the configuration file that you previously saved.

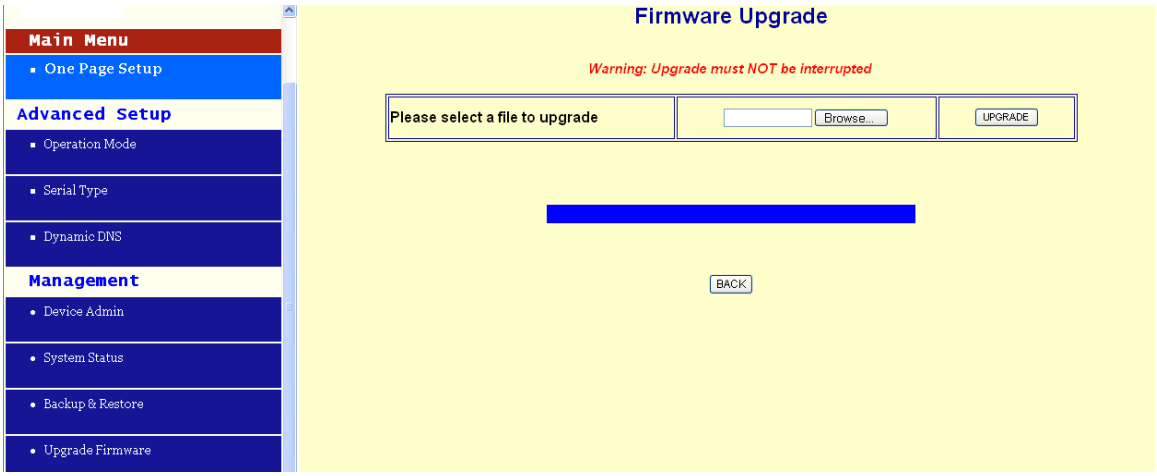
Backup: Click the "**Backup**" button save the current configuration as a backup file.

Restore: Enter the path of the configuration file you saved on the PC. You can click "**Browse**" to view the folders and select the file. Click "**Restore**" to retrieve it.

Note: the extension of the file you retrieve must be ".cfg"

Upgrade Firmware

This function allows you to upgrade to the latest version firmware. Before you upgrade the firmware, you have to have the latest firmware saved on the PC that you use to configure the 93A00-1.



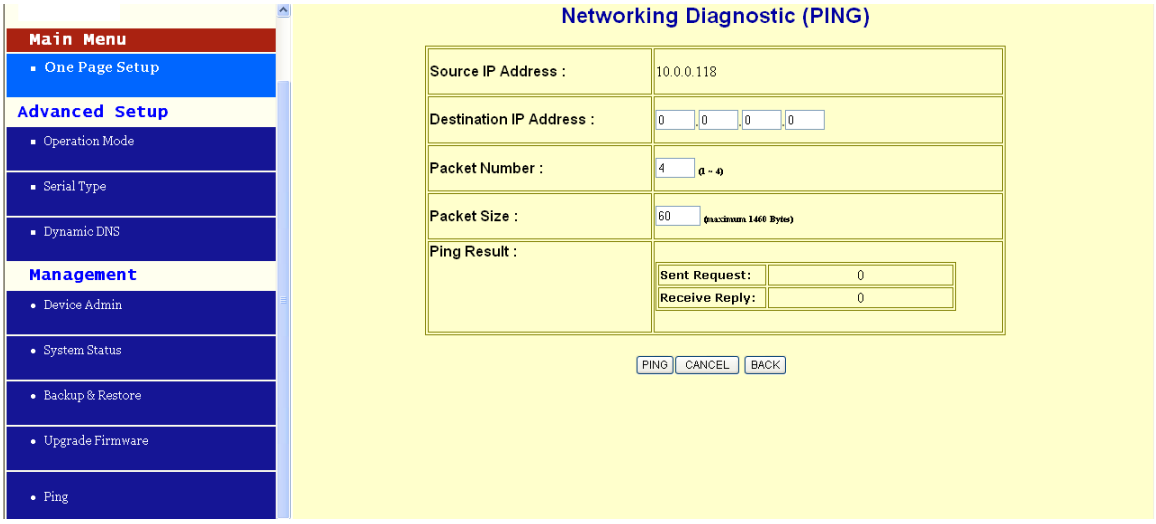
Browse: To select a file to upgrade, enter the path of the latest firmware you saved on the PC. You can choose "**Browse**" to view the folders and select the firmware.

Upgrade: After you enter or select the path, click "**Upgrade**" to start the firmware upgrade process.

Note: Don't cycle power to the router during the firmware upgrade process; otherwise the serious damage to the integrity of the firmware may occur.

Ping

This function allows you to test the connection between 93A00-1 and the LAN, or between the 93A00-1 and the Internet.



Source IP Address: the current IP address of the 93A00-1 (read-only).

Destination IP Address: the IP Address of destination device you want to ping.

Packet Number: the packet numbers you wish to use to ping the destination device. The maximum number is **4**.

Packet Size: the numbers of bytes in the packet you wish to use to ping the destination device. The maximum packet size is **1400** bytes.

Ping Result: The result will show the numbers of sent packet, numbers of packet received.

Troubleshooting

PROBLEM	CORRECTIVE ACTION
None of the LED Indicators are illuminated when the unit is powered	Make sure that you have correct power connected to 93A00-1 and plugged in to an appropriate power source. Check all cables connections. If the LED Indicators still do not turn on, you may have a hardware problem. In this case, you should contact your local vendor.
Can not access the 93A00-1 from the Ethernet	Check cable connection between the 93A00-1 and computer or switch/hub/router. Ping the 93A00-1 from computer on the network. Make sure your computer's Ethernet card is installed and functioning properly.
Can not ping any computer on the LAN	If the 10/100M LED is off, check the cable connection between 93A00-1 and your computer. Verify that the IP address and subnet mask of the 93A00-1 and computer are in the same IP address range.
Can not access 93A00-1 from the serial device	Check the Serial cable connection between 93A00-1 and your device. Verify that the 93A00-1 settings for the Serial Type are same as your device, and make sure the hardware jumper is in the correction position.