ATS USER MANUAL

ATS (Automatic Transfer Switch) User Manual

19.07.3415

Content

Ⅰ ATS Overview

Automatic Transfer Switch; ATS for short;

Automatic Transfer Switch is a high reliable switch that provides redundant power to connected equipments. If the primary power source becomes unavailable, the ATS will seamlessly switch to the secondary power source automatically. ATS are divided to basic and intelligent two types, user can upgrade the basic ATS to an intelligent one easily by inserting a hot-swappable Network Management Card, which enable user to monitor and manage the ATS with web interface or SNMP platform.

Ⅱ Function Description

1. Switching: Switch over between Source A and Source B automatically, transfer time 10~16ms

2. Monitoring: total load current; input and output voltage;

   Source A and Source B power input; ATS operation status

3. Remote controlling: switch over between Source A and Source B

   Set the threshold for the total load current and input voltage

4. Automatic alarming: automatically alarm when threshold is exceeded

5. System default alarming: When total load current/voltage exceed the threshold

     When there is only one power source available

     When automatical switching occur

6. Alarming method: Buzzer beeping and display flashing

    E-mail alarming (only intelligent type)

7. Log recording: record and save the log of the device running and alarming information

    User can view and export the logs

8. System support: support single user only, support remote firmware upgrade (intelligent type only)

9. User management: set the authorization of the account. User create, modify, delete operation.

10. Access method: Ethernet connection, web interface through IE browser

   SNMP(V1/V2c/V3), access and control through standard simple network management protocol

   Serial Connection RS232 (Hyper-terminal Protocol by defaulted)

11. System setting: system time setting.

    Lock controller panel

    Voltage/current threshold setting

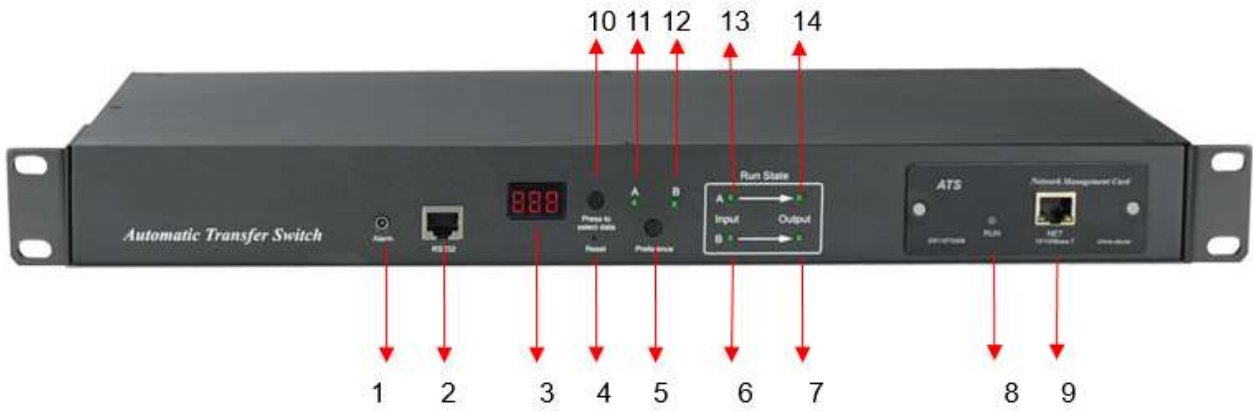   Automatic reverse-switch time setting.
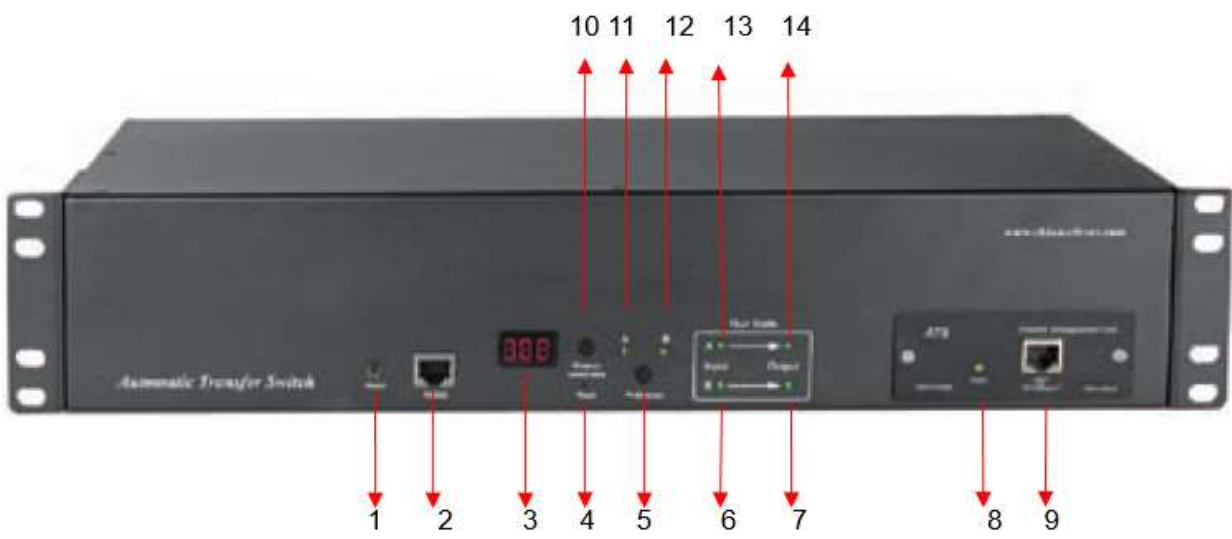
Buzzer switch setting;

Ⅲ **Application**

1. ATS products are applicable for all kinds of server racks and network cabinets.

2. ATS products are in accordance with the regulation of RoHS.

Ⅳ **Product Schematic**

Basic ATS (1U)

Basic ATS (2U)
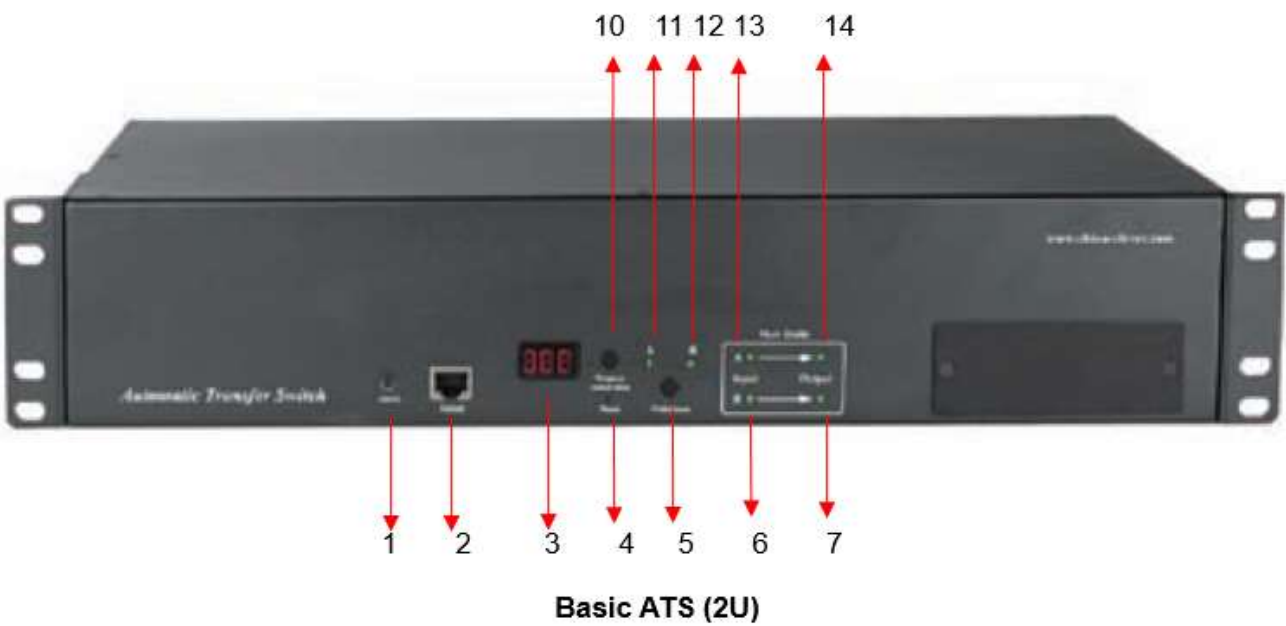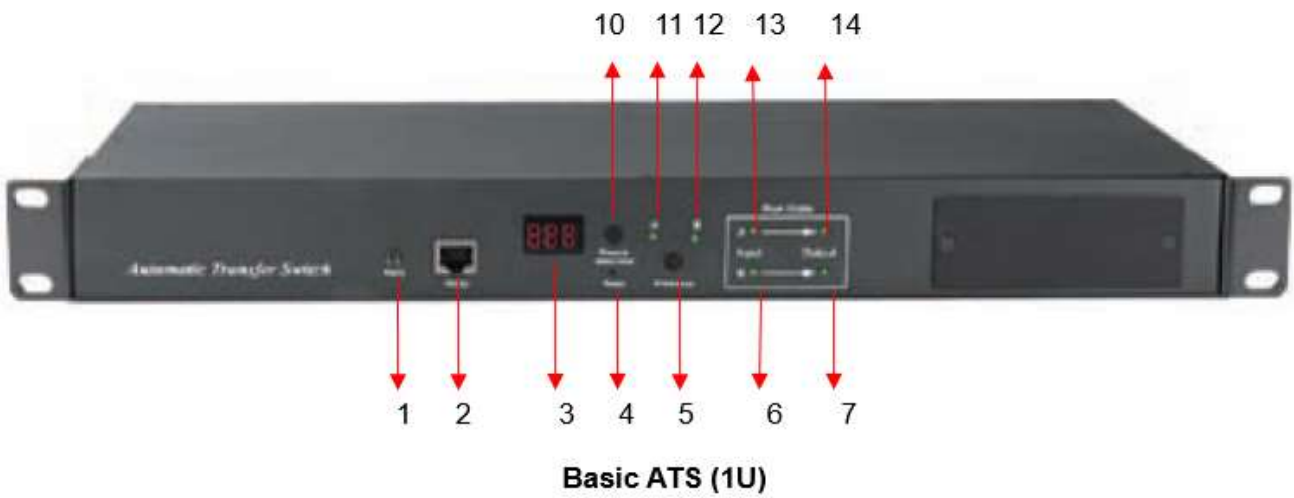
Intelligent ATS (1U)

Intelligent ATS (2U)

Ⅴ Installation

Horizontal rack mounting

Ⅵ Hardware Introduction

1. Power on self check

The buzzer beeps once when power is on, the LED indicator is always on, digital screen display load current after self-checking **8.8.8.**

2. Operation status viewing

Through "press to select data" button, user can view the voltage; IP address (only intelligent type) , device version number and load current.

3. Select the preferred power source

Use "Preference" button to select the primary power source, three options user can have: set the source A as the preferred power source; set the source B as the preferred power source; or user can leave this open. The corresponding indicator will always light on if a choice was made. If not, the two indicators will stay the off status. Please be noted that the intelligent ATS has the Lock function, if user can not do the setting above, it is probably because the controller panel is locked in the firmware and please log on to the Web interface to unlock.

4. Reset operation

If you want to manually reset the ATS, Single press the Reset button to reset the ATS without affecting the outlet power status.

5. Restore to factory settings

After long pressing the 'press to select data' key, the digital screen displays "Po" after releasing the key, and the device IP is restored to the system default IP: 192.168.1.163. Enter the web page to reset the account password, which includes uppercase letters and lowercase letters plus numbers. Onnotation: Press and hold the 'press to select data' key for more than 6 seconds, and the value displayed on the LED screen is subject to the third digit of the current LED screen.

For example, 1: press the 'press to select data' key to switch to voltage, and the value displayed is 226. Then press and hold the 'press to select data' key for more than 6 seconds, and the LED screen displays p6

For example, 2: press the 'press to select data' key to switch to the MCU version number, which displays V9, and then long press the 'press to select data' key for more than 6 seconds, and the LED screen displays P9

The P6 and P9 shown above display is to restore factory operation

Note: The operation of restoring factory settings does not affect the output and power supply of the ATS, but the network configuration and device IP are restored to the system default configuration.

6. Serial connection

Use the supplied serial cable, insert the RJ45 connector to RS232 communication port and connect the other end to the serial port of local PC or serial server.

7. External audible and visual alarm

Use the supplied 3.5mm port to connect the alarm, the port allows maximum voltage of 50VDC and load current of 5A

8. Network connection (only intelligent type)

Use supplied network cable, connect one side to the NET port of device and the other end to network switch.

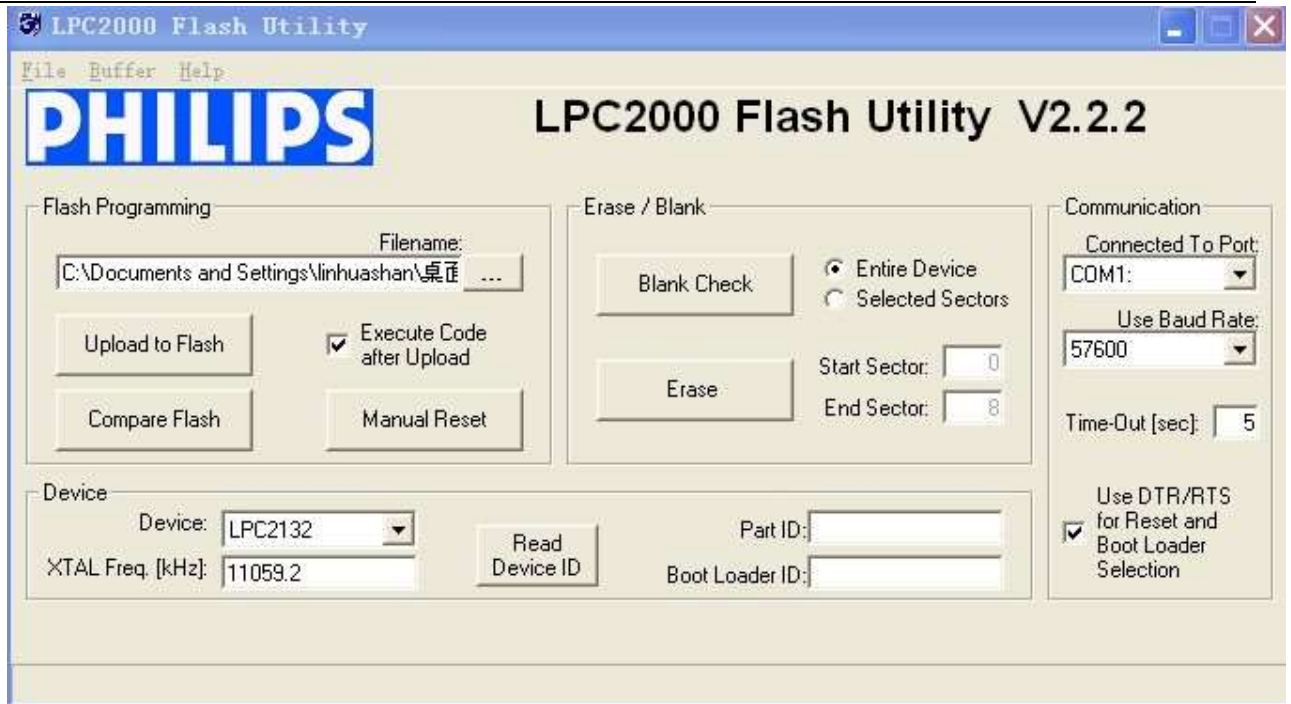## 9. Intelligent ATS firmware upgrade

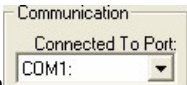9.1 Save the software update file provided by supplier to the local PC.

9.2. Open the the software upgrade tool , double-click the setup.exe file to install

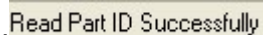9.3. Running the software as below when installation finished

9.4. Insert the RJ45 connector of the supplied serial cable into the RS232 port of the ATS front panel, connect the other end to the port COM1 of local PC
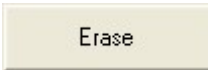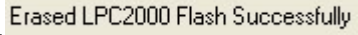
9.5. Select the serial port from this column [COM1 dropdown], other items please refer to the above screenshot
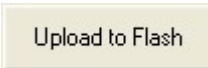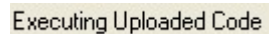
9.6. Click the button [...] from this column [Flash Programming Filename field] and load the ATS firmware file [ATS hex] to the frame

9.7. Power on the ATS.

9.8. Click the button [Read Device ID], Read Part ID Successfully this will be displayed on the interface if read success, if not, please double-check the cable connection and communication port.

9.9. Click button [Erase], Erased LPC2000 Flash Successfully this will be displayed on the interface if erase success, if not, please double-check the cable connection and communication port

9.10. Click button [Upload to Flash], Executing Uploaded Code this will be displayed on the interface if loading success, if not, please double check the cable and communication port

9.11. Power off the ATS.

9.1. Power on on the ATS, local digital screen will display the new hardware version number, it can

perform normal communication after successful software update.

VII **Hyper Terminal user guide**

1. Use the supplied serial cable, connect one end to the RS232 port and the other end to serial port of local PC. Running the Hyper terminal program (like Windows Hyper terminal), Here we take the Windows Hyper Terminal for example. Click Start→ Programs→ accessories→ communication→ Hyper terminal

2. Dialog box as below will pop up if it is the first time that the PC runs the Hyper Terminal
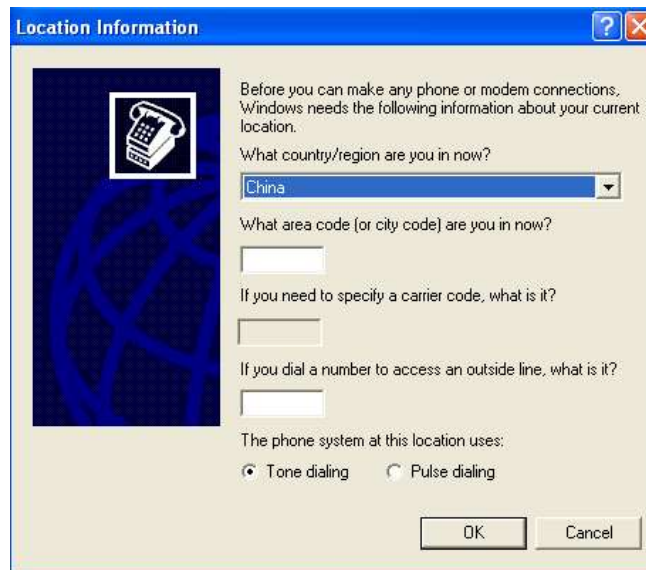
3. Enter one or several numbers at random when it require your area code, for instance 0755 and click OK
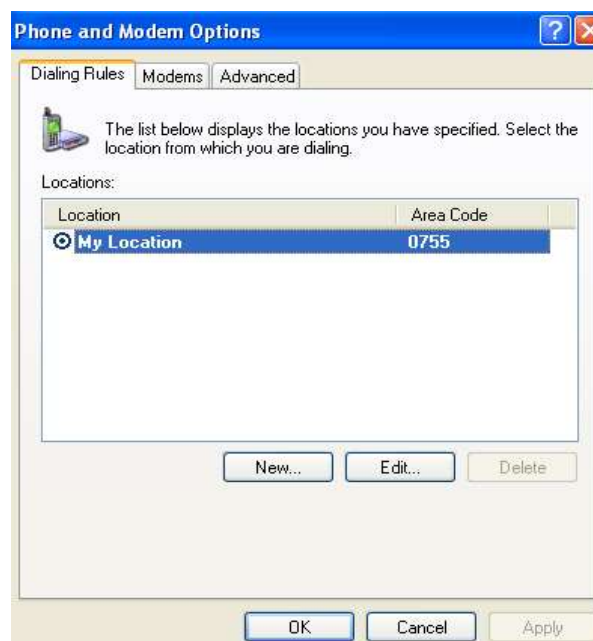
4. Click OK, it pop-up the link description window as below:

5. Enter a Name like ATS and click OK

6. Select the COM port that is occupied and click OK

7. Set the baud rate of ATS as 19200 and enter configuration information for data bits, parity and

flow control as provided below, then click OK

8. If it is not the first time that the PC runs the Hyper Terminal, it will goes directly to the window as the 4th item of this chapter, then follow up the instruction from the 4th to 7th and enter the Hyper Terminal monitoring interface as below:
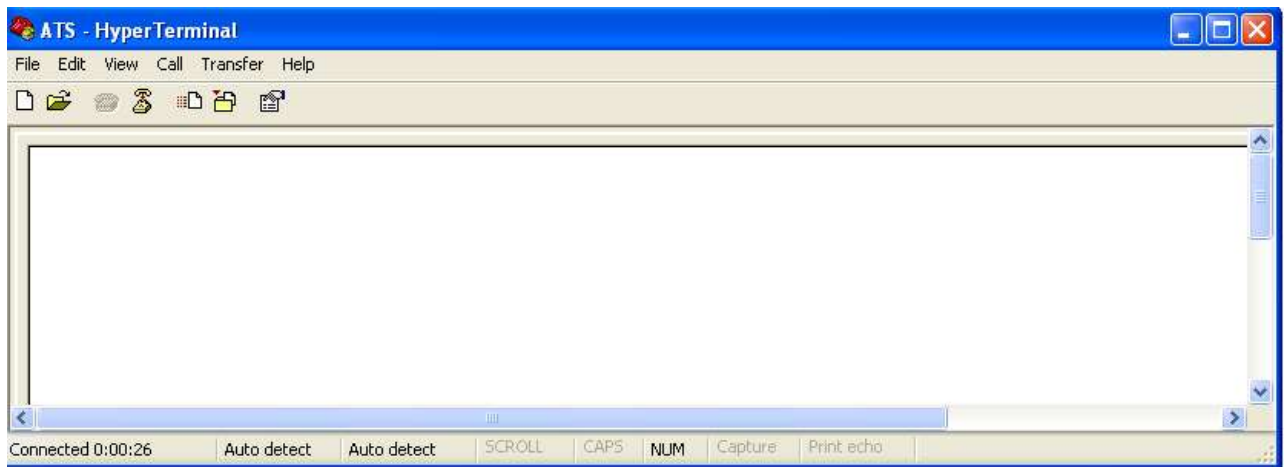
10. Setup ASCII code

10.1. Click the file in the main menu and select "property" or click on the icon directly
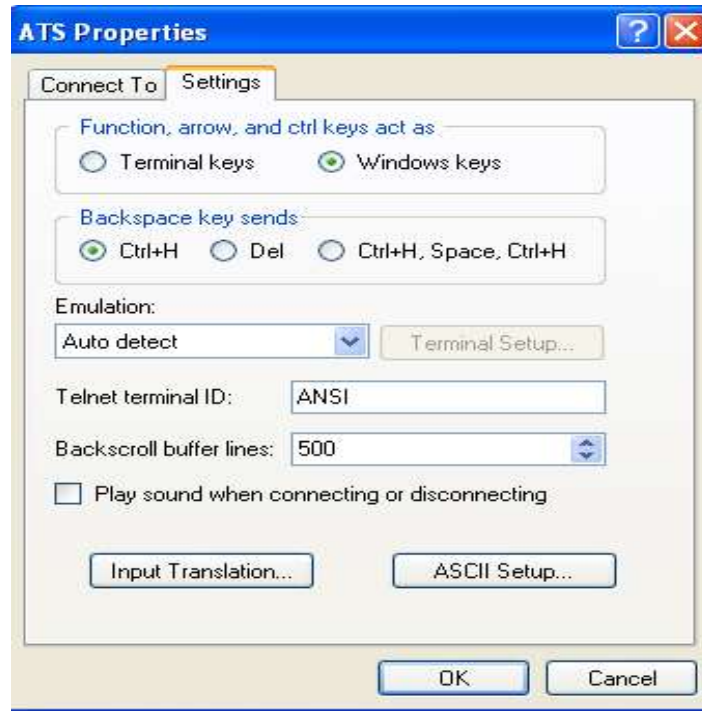
10.2. Click on ASCII Setup, pop-up window as below:
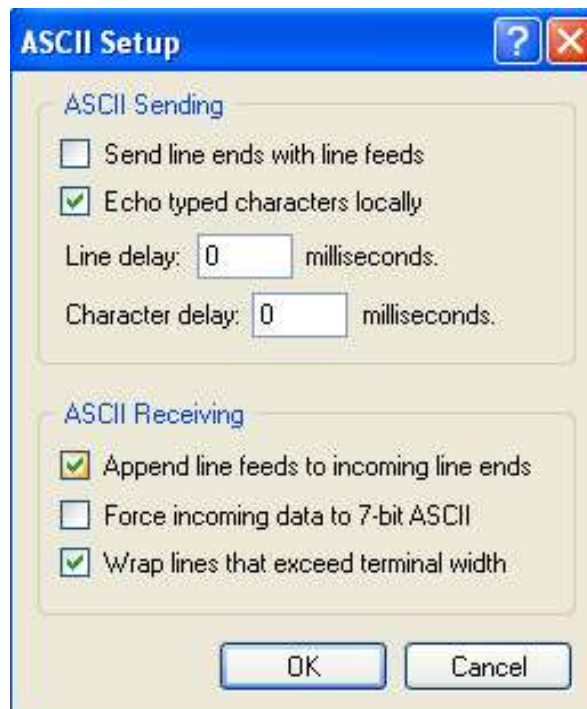
10.3. Tick off the boxes as window above, then click the OK button and return to the monitoring

interface
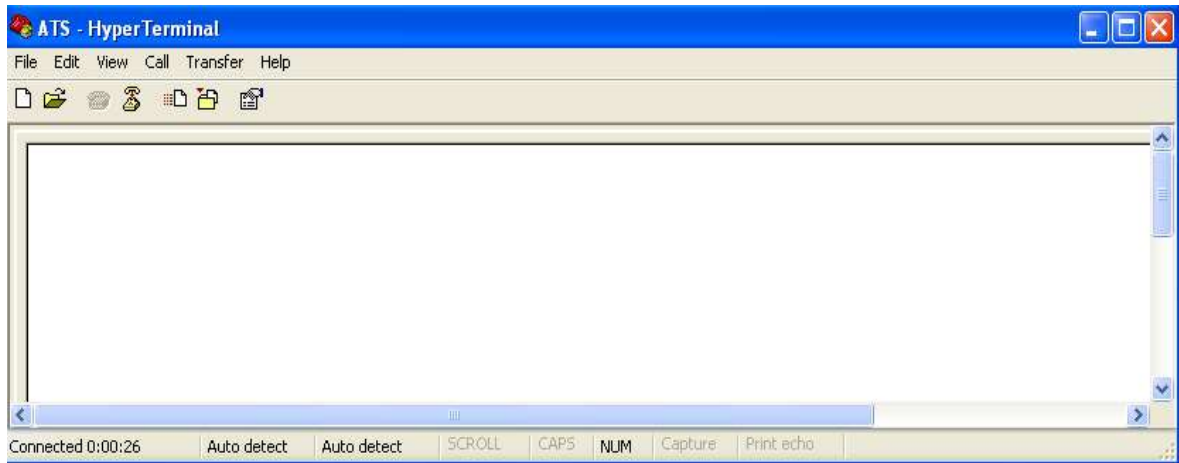
11.Press Enter, following message will be displayed in the interface if setting success.
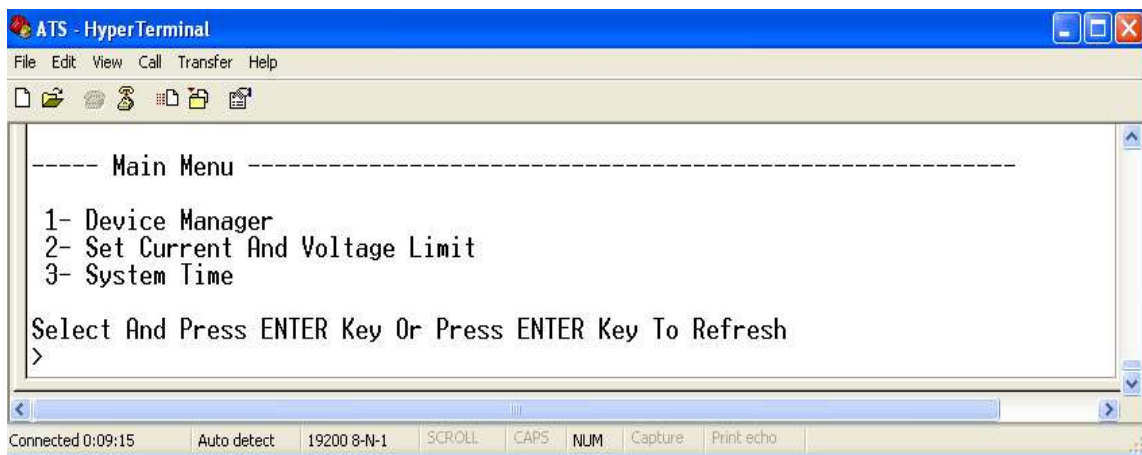
Main Menu

1-Device Manager

2-Set Current And Voltage Limit

3-System Time

12. View the ATS status

Type 1 and press Enter, the ATS status will be displayed in the interface as below:
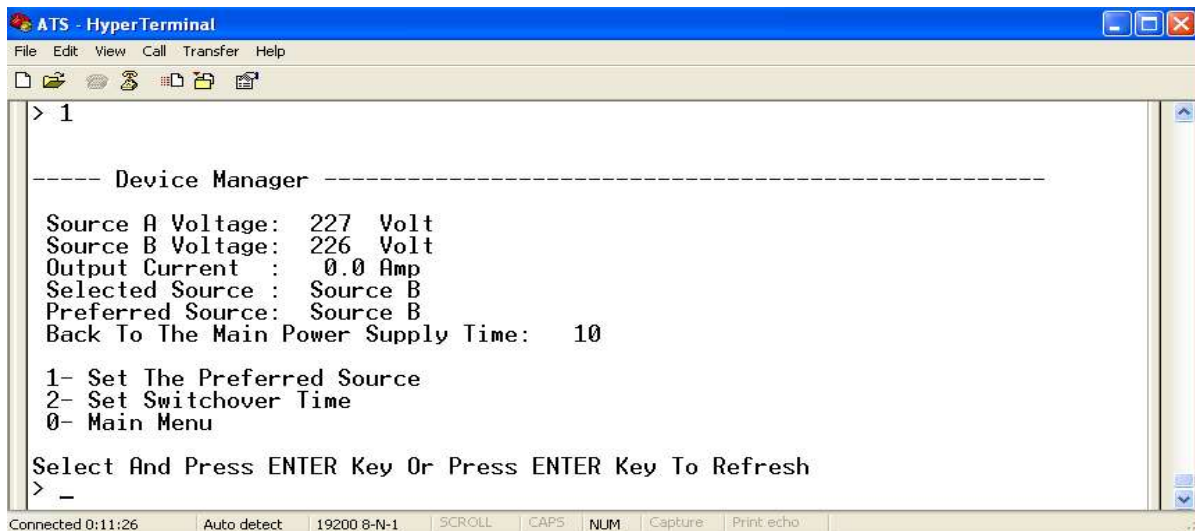
Device Manager: Device manager

Source A Voltage: The voltage of the source A

Source B Voltage: The voltage of the source B

Output Current : The output current of the ATS

Selected Source: The current input power is source B

Preferred Source: The preferred input power is source A

Back To The Main Power Supply Time: Reverse-switch time is 10 seconds

1- Set The Preferred Source: Type 1 then press Enter to set the primary power source

2- Set Switchover Time: Type 2 then press Enter to set the reverse-switch time

0- Main Menu: Type 0 then press Enter to return to main menu

13. Set the preferred power input, follow up the path step by step: Main Menu=>1 Device

Manager=>1 Set The Preferred Source, it will end up with the following window
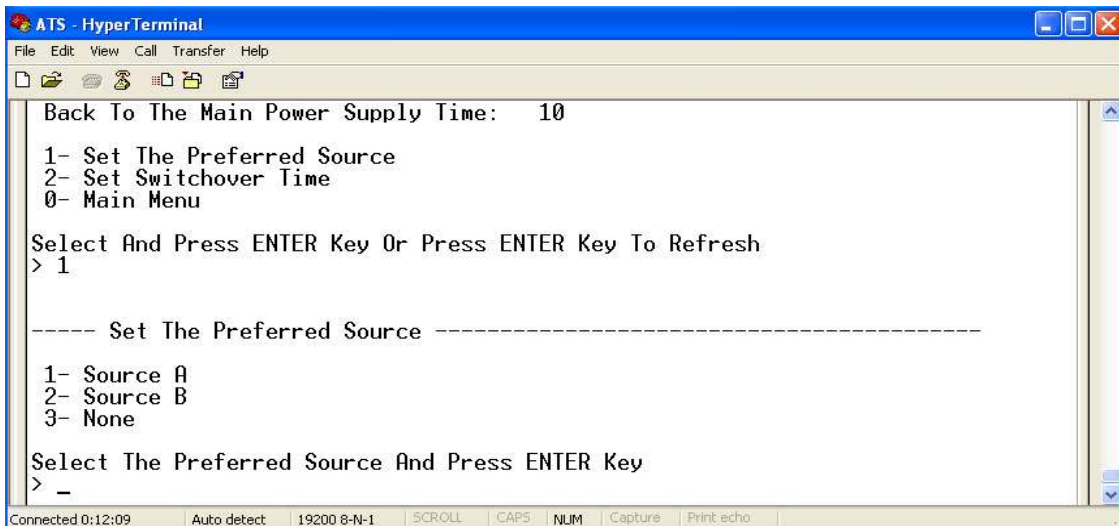
13.1, Enter the corresponding code, for instance: Enter 1 then press Enter to select input A as the

preferred power input. The interface will return to Device Manager interface. See the below window:

Preferred Source: Source A means that input A was selected as the primary power source
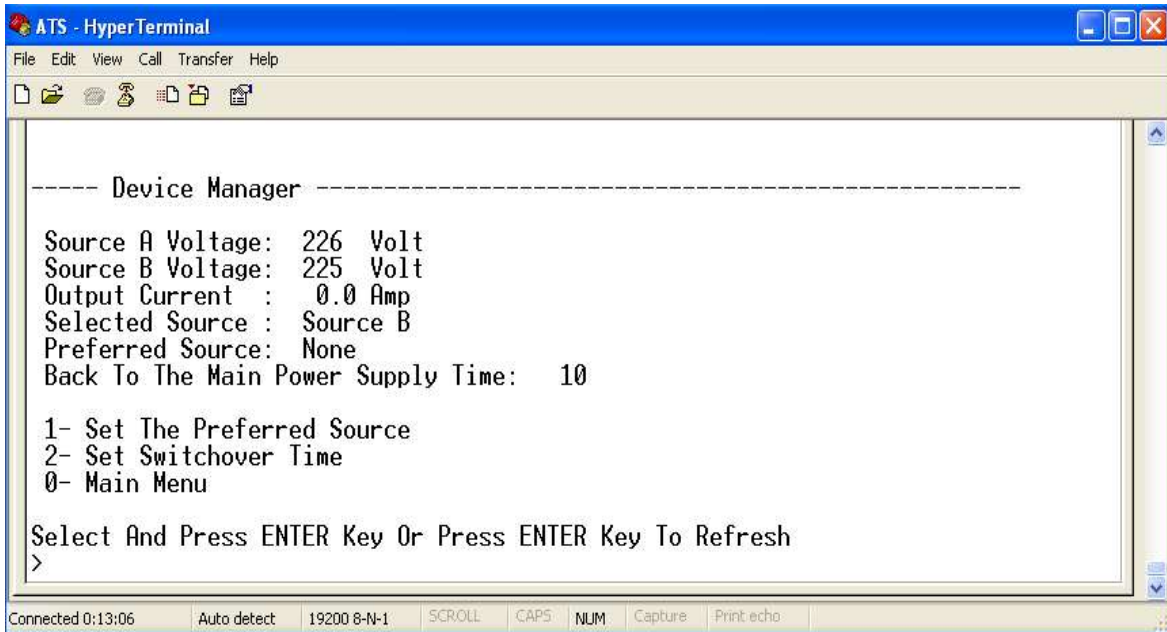
14, Set the reverse-switch time, the path are as below: Main Menu=>1（ Device Manager）=>2（Set Switchover Time） enter the value preferred then press Enter. The reverse-switch time ranges from 10 to 60 seconds. The ATS will transfer to the preferred input power after defined time when user give the order to transfer or the preferred input line recover from power failure
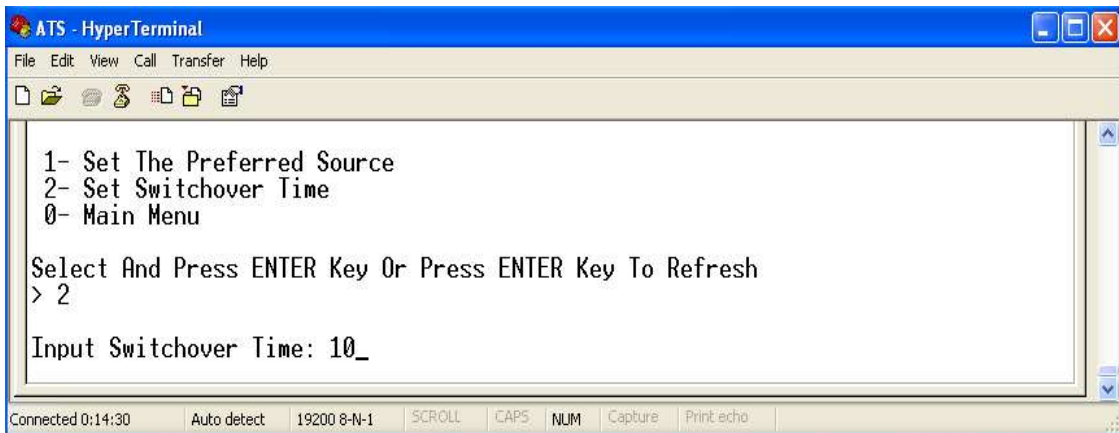
15. Define the threshold of voltage and current. The Path is Main Menu=>2（- Set Current And Voltage Limit）
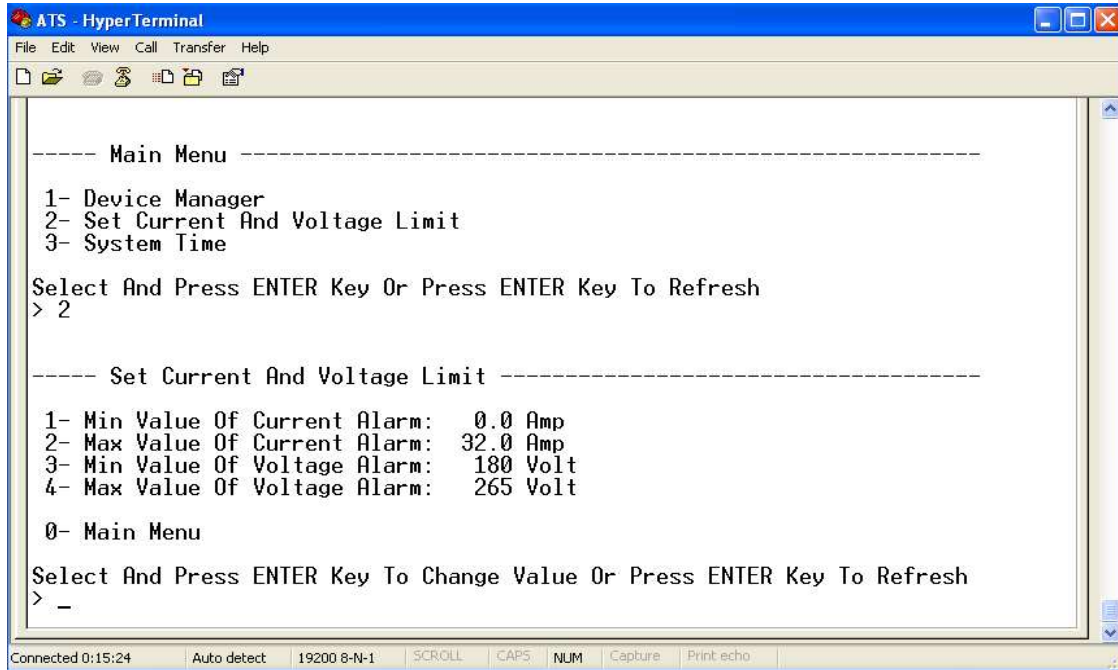
Enter corresponding number to Re-define the item that user want to change, select 1 to set the minimum value of current to alarm; select 2 to set the maximum value of current to alarm; select 3 to set the minimum value of voltage to alarm; select 4 to set the maximum value of voltage to alarm.

For instance, If user want to change the value of the minimum current to alarm, enter 1 then press Enter to enter the interface as below:
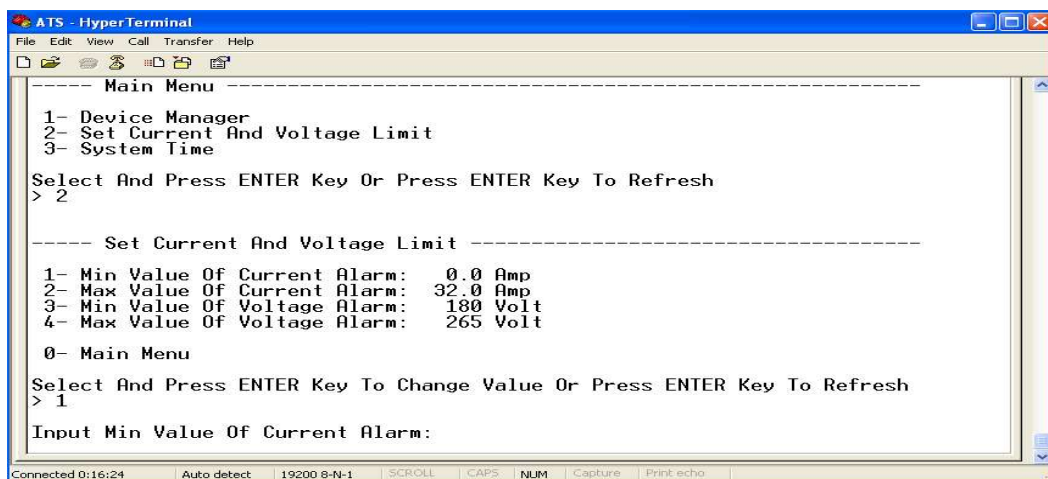
Enter the value you want to set, then press Enter. Return to Set Current and Voltage Limit interface, user can view the re-defined value.

16. Setup the system time of ATS; the path is: Main Menu=>3（ System Time）

ATS - HyperTerminal

File Edit View Call Transfer Help

```
----- Main Menu ---------------------------------------------------

  1- Device Manager
  2- Set Current And Voltage Limit
  3- System Time

Select And Press ENTER Key Or Press ENTER Key To Refresh
> 3


----- System Time ---------------------------------------------------

  1- System Date(yyyy/mm/dd):  2010/12/29
  2- System Time(hh:mm:ss) :   9:37: 5

  0- Main Menu

Select And Press ENTER Key To Change Time Or Press ENTER Key To Refresh
> _
```

Connected 0:17:31   Auto detect   19200 8-N-1   SCROLL CAPS NUM Capture Print echo

16.1. Select 1 to modify date; the path is: Main Menu=>3（ System Time）=》1

ATS - HyperTerminal

File Edit View Call Transfer Help

```
----- Main Menu ---------------------------------------------------

  1- Device Manager
  2- Set Current And Voltage Limit
  3- System Time

Select And Press ENTER Key Or Press ENTER Key To Refresh
> 3


----- System Time ---------------------------------------------------

  1- System Date(yyyy/mm/dd):  2010/12/29
  2- System Time(hh:mm:ss) :   9:37: 5

  0- Main Menu

Select And Press ENTER Key To Change Time Or Press ENTER Key To Refresh
> 1

Input The Date(yyyy/mm/dd):
```

Connected 0:18:02   Auto detect   19200 8-N-1   SCROLL CAPS NUM Capture Print echo

Enter the correct date format in the window. For instance 2010/07/22

ATS - HyperTerminal

File Edit View Call Transfer Help

```
  1- System Date(yyyy/mm/dd):  2010/12/29
  2- System Time(hh:mm:ss) :   9:37: 5

  0- Main Menu

Select And Press ENTER Key To Change Time Or Press ENTER Key To Refresh
> 1

Input The Date(yyyy/mm/dd): 2010/07/22


----- System Time ---------------------------------------------------

  1- System Date(yyyy/mm/dd):  2010/ 7/22
  2- System Time(hh:mm:ss) :   9:38:47

  0- Main Menu

Select And Press ENTER Key To Change Time Or Press ENTER Key To Refresh
> _
```

Connected 0:19:20   Auto detect   19200 8-N-1   SCROLL CAPS NUM Capture Print echo

The above window shows that the setting is successful.

16.2. Timing re-defining, the path is Main Menu=>3（ System Time）=>2

18
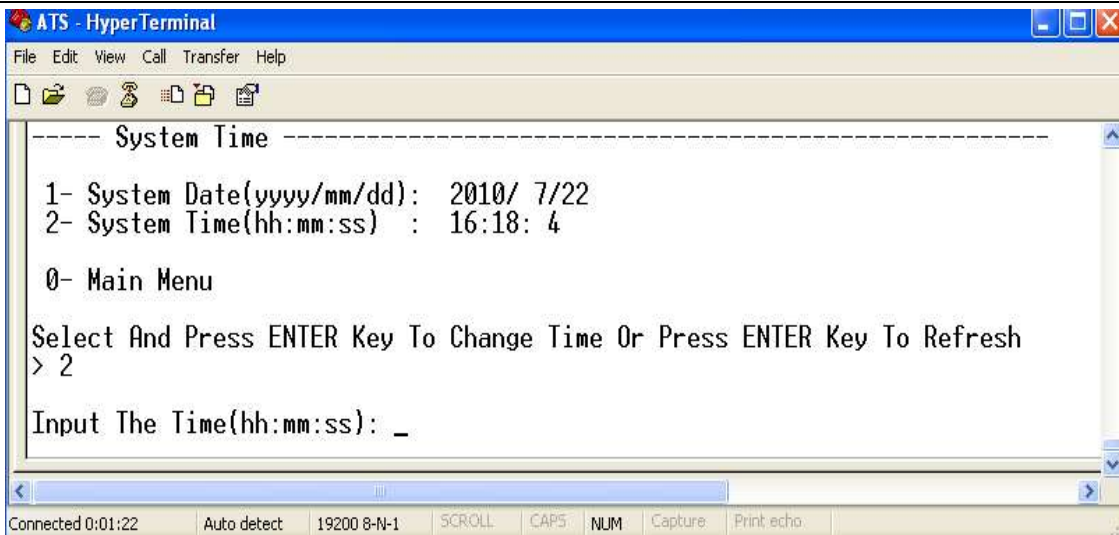
Enter the correct time format in the window; for instance 11:15:23

The above window show that the setting is successful.

VIII Software user guide

1. Software Introduction

ATS monitoring and management software is an embedded Web Server system, it supports HTTPS and SNMP protocol and helps to monitor the total load current; input/output voltage of the ATS timely so that the user can manually or automatically switch the input power between source A and source B to ensure uninterrupted power supply of the critical IT equipments. When abnormality detected, the software will send E-mail/TRAP message to administrator. In addition, the system supports query and export of equipment operation logs and exception log records. This software supports multiple operating systems and multiple user logins.

2. Software configuration

2.1. Device default settings

Device default IP address: 192.168.1.163

Default user name: admin

Default password: admin

Note: Both the default user name and password are in lowercase, user can't login to the web system with capital letters.

2.2. Device configuration when first log in

➢ Connect the ATS to PC directly

➢ Change the network configuration of PC, make sure the PC IP address and the the ATS IP address are in the same network segment, the ATS default IP address is 192.168.1.163; Default subnet Mask is 255.255.255.0; Default gateway is 192.168.1.1. For instance, change the network configuration of the PC to IP: 192.168.1.145; log on to the management interface.

➢ Open the browser and enter the default device IP, enter the registration page for the first time, enter the user name, password, and confirm the password in turn, and click Register; then it will automatically jump to the login interface, enter the registered user name and password, and click Login to enter the main page. (See 3.1web for graphic steps)

➢ Click the "Network Config" on the navigation bar to change the IP of the ATS, see the below interface, change the IP address of the ATS and make sure it is in the same segment as the PC;

➢ Restore the PC network configuration, log in to the management interface with the changed IP address of ATS.
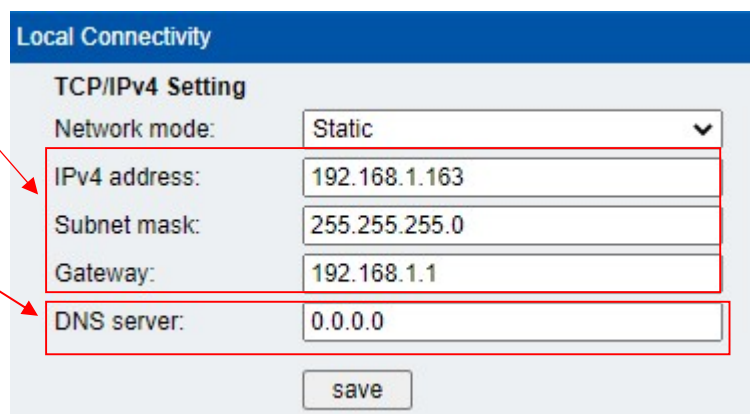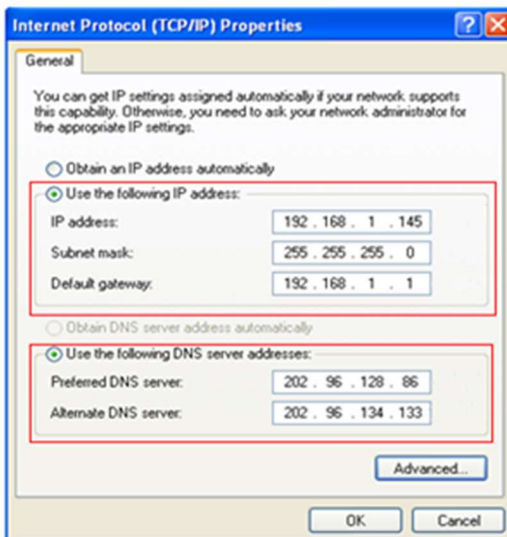
3. Access method

Connect the device to LAN or WAN, user can access and manage the device through Web or SNMP, please see detail information as below.

3.1 Web

Device supports HTTPs protocol, we recommend user to access through IE10 IE 11 or newer version and Google chrome, the Web access method are as below:

➢ Open the browser

➢ Enter "https://192.168.1.163" in the address input box

Note: The first entry may be blocked because there is no certificate. Please click the [Advanced] button in the first step, and click the [Continue to] link in the second step. (Each browser page may be different, take Google chrome browser as an example)

➢ On the user registration page, enter the user name, password, and confirm password in sequence. After registration, enter the login interface:

Note: The user name only supports numbers, letters, underscores and underscores, and the maximum length is limited to 10 characters;

The password complexity requires both uppercase letters, lowercase letters and numbers, no special characters, and a length limit of 6-15 characters;

➢ Enter the user name and password just registered in the user login interface;

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Note: When the user name and password verification fails for 5 consecutive times, the system will be locked and cannot continue to log in. You need to "restore factory settings" or "1 hour" before you can log in again for verification.
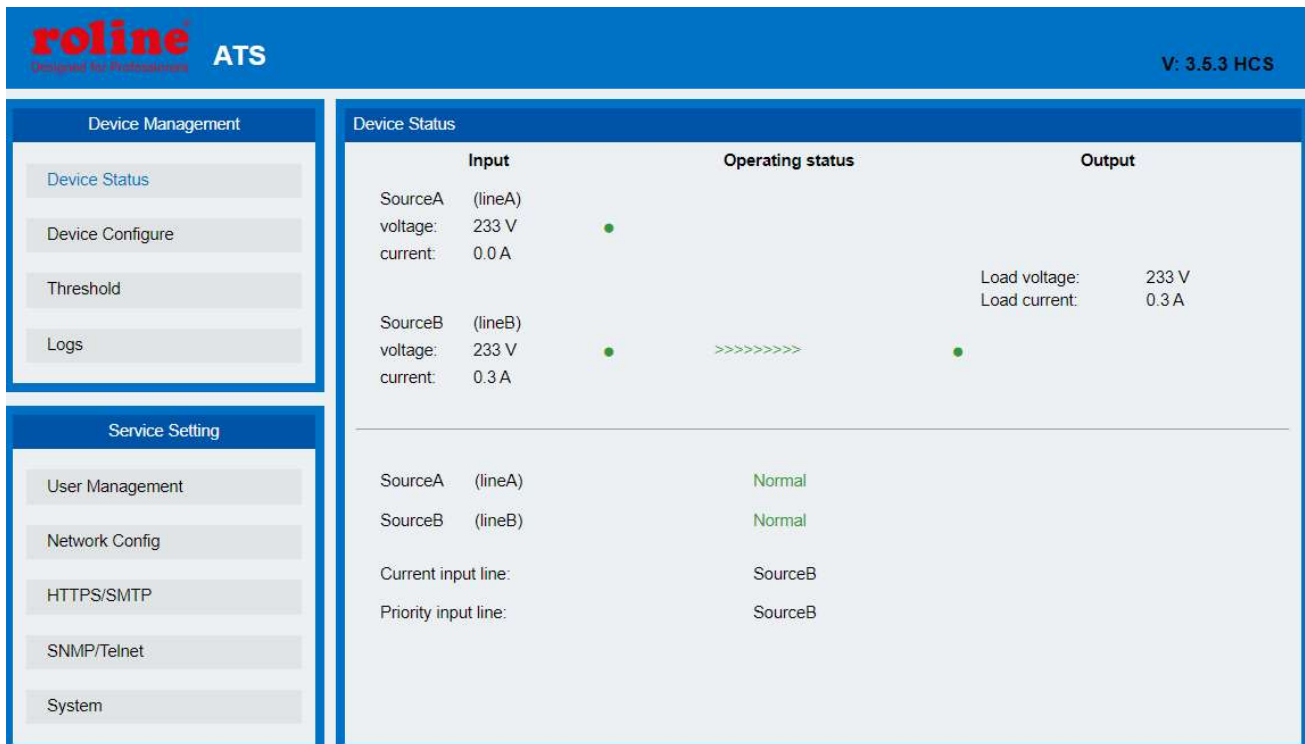
Figure 1 Device Status

3.1.1 Device Status

Device Status interface shows the status of the power input as well as the current & voltage status of the Device.

1) The "Operating Status" section shows the current operating status of ATS: Green means OK; Red means abnormality or power failure

2) The Input section shows the voltage of source A and Source B, when voltage abnormality detected, the value of the voltage displayed in the interface will turn to red.

3) The Output section shows the value of the output current and voltage, when current abnormality detected, the value of the current will turn to red.

4) The interface "Operating status" shows in real-time which input power source is the main power source;

5) The interface "Current input line" displays the real-time power source of the device;

6) The interface "Priority input line" displays the power input priority of the device.

3.1.2 **Device Config**

Device Config shows the preferred power source, reverse-switch time, buzzer mute, hardware lock and source name.
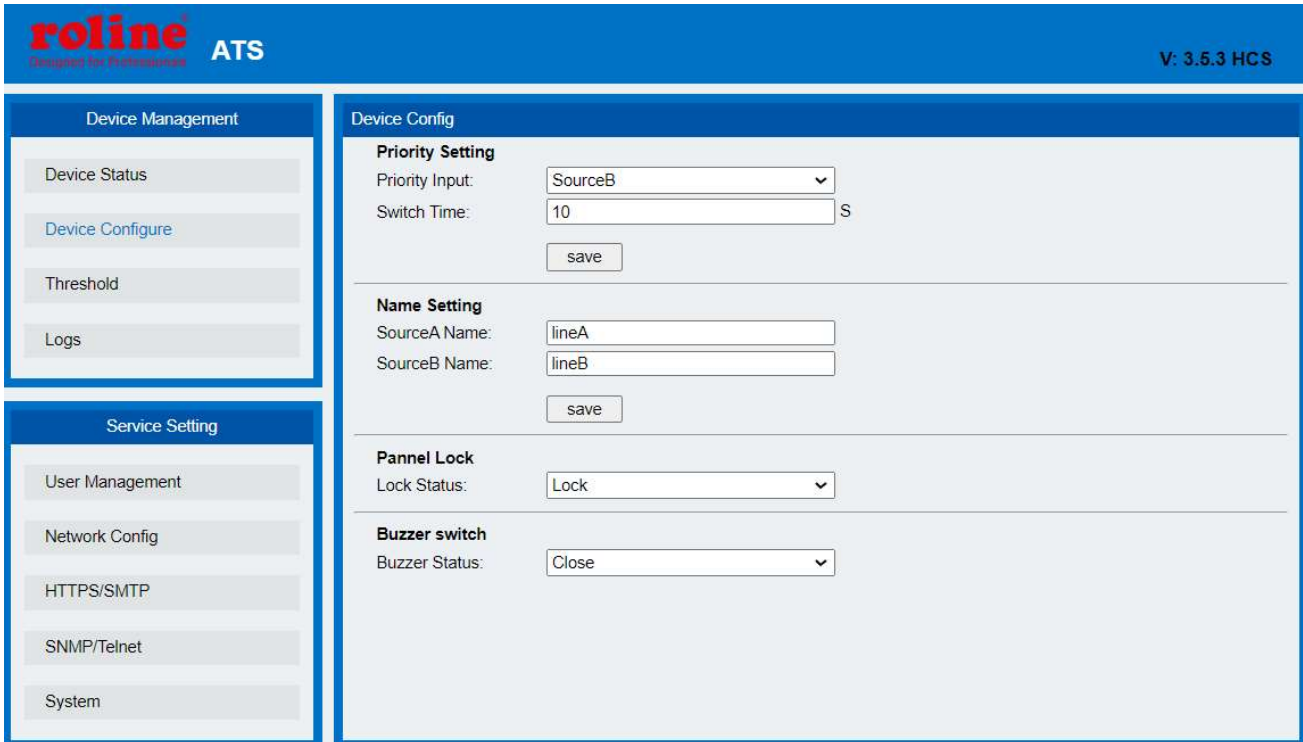
Figure 2 Device Config

1) Priority Setting: To Select preferred power source from the drop-down list of main Input;

2) Switch Time: To define the reverse-switch time between 10 to 60 seconds.

3) Name Setting: To name the power source, only allow 15 characters of letters, numbers, '-' and '_'.

4) Buzzer switch: Set to "off" to silence the device alarm; set to "on" to activate the buzzer.

5) Pannel lock: View the current device control panel lock status, click the drop-down box, and select lock / unlock to switch the panel lock status.

3.1.3 **Threshold Setting**

Threshold interface display user-defined minimum and maximum of current and voltage
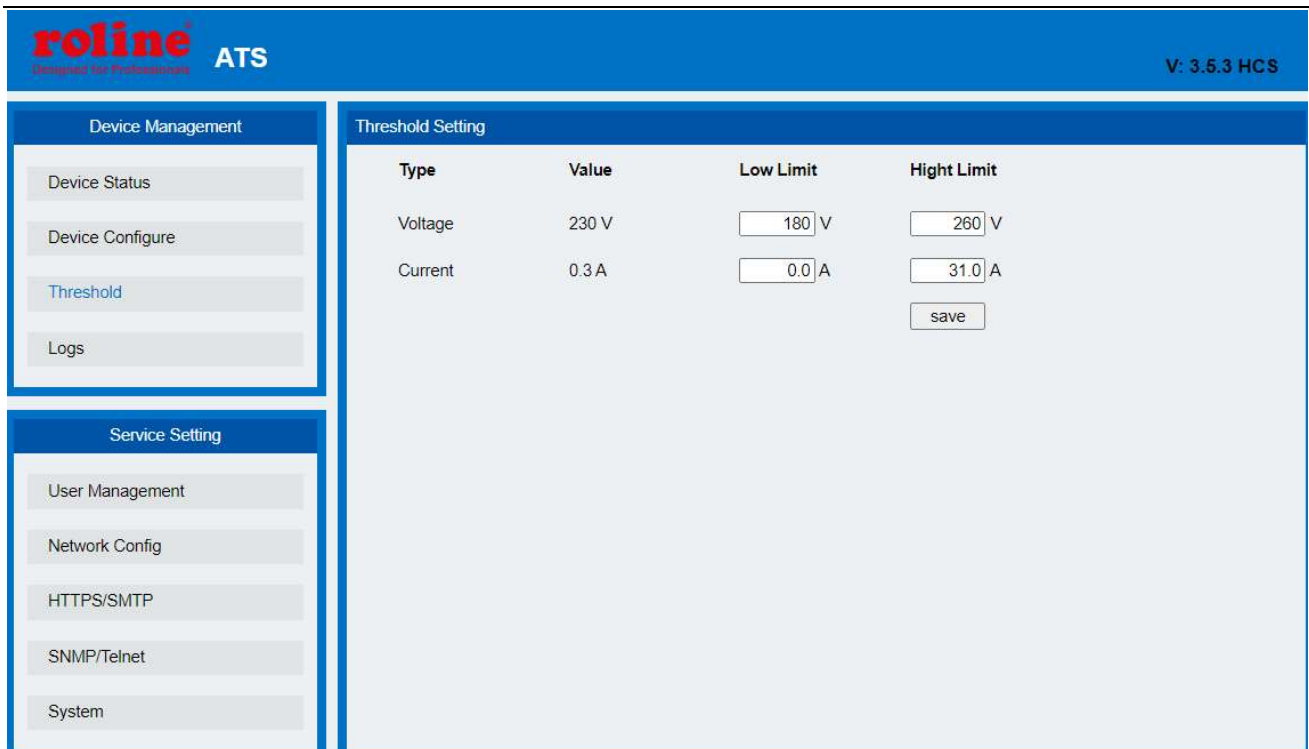
Figure 3 Threshold interface

1) The default acceptable current range is between 0A to 32A, If the current is not within this range, device will alarm.

2) The default acceptable voltage range is between 180V to 260V, If the voltage is not within this range, device will alarm.

3.1.4 **Event logs**

User can adjust the system time and record, view and export event logs. There are alarm events and operation events, the details are as below:
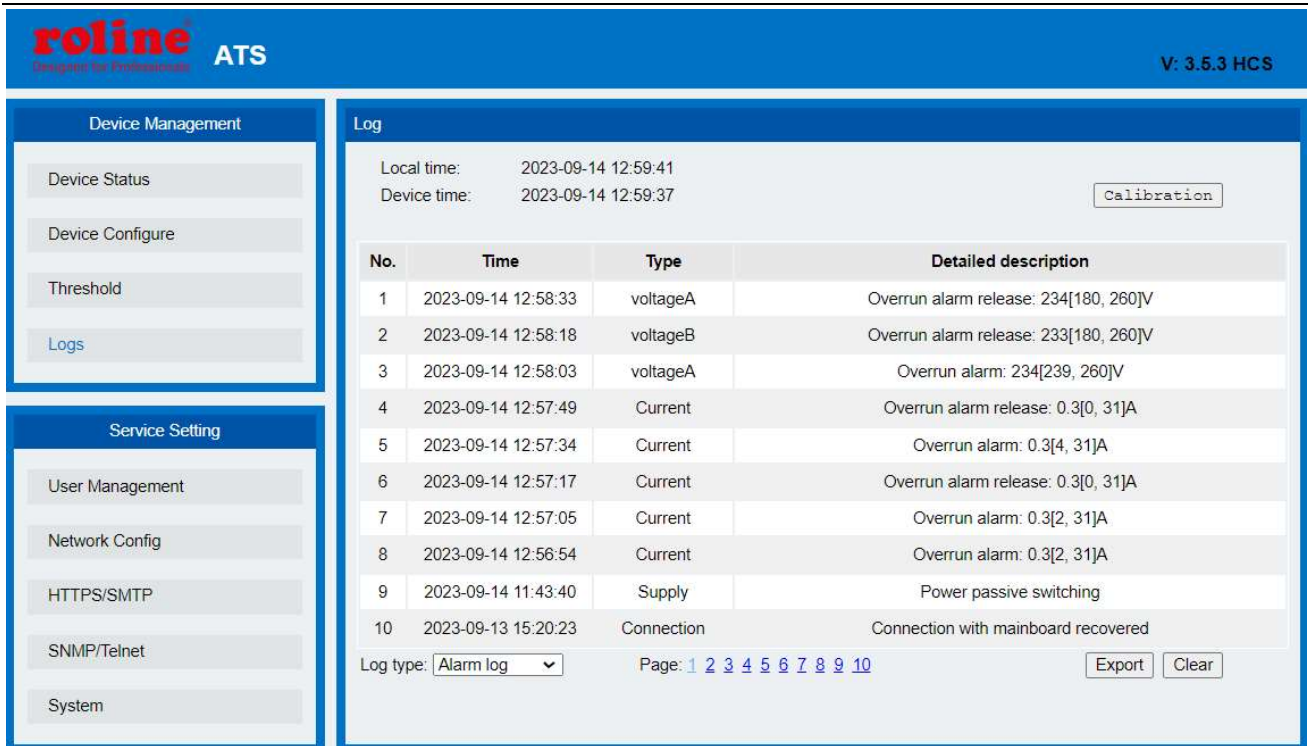
Figure 4 Events logs interface

(1) Click the "calibration" button to calibrate the equipment time. After calibration, the equipment time is consistent with the PC time;

(2) Select the "Alarm Log" item in the "Log Type" drop-down menu to view the alarm log information. When the main input power supply is inconsistent with the priority power supply, the alarm log will be generated when the current and voltage exceed the limit. Click the page number below to view each page Alarm log information, storing up to 100 records;

(3) Select the "Operation Log" item in the "Log Type" drop-down menu to view the operation log information. Set the power priority, switching time, and current/voltage threshold settings to generate an operation log. Click the page number below to view the operation of each page Log, store up to 100 records;

(4) Click the "Export" button to export the log information of the current page to an excel file;

(5) Click the "Clear" button to clear all the alarm log records or operation log records of the device.

Note: 1. Each page of the log record can display up to 10 entries, a total of 10 pages. When the alarm log is full of 100 entries and the operation log entry is full of 100 entries, when a new log entry is generated, the last entry will be automatically deleted.

2. When the export log pops up "Insufficient permissions! Please add this site to the list of trusted sites, and adjust the security level of trusted sites to the lowest." dialog box, please follow the steps below to lower the security level of IE, and click "Export log" can export the log records of the current

page:

3. Click on the browser menu "Tools" -> click on "Internet Options" -> click on the "Security" tab -> click on the "Custom Level" button -> initialize the "right" as ActiveX controls marked as safe to execute scripts and "Execute script" item is set to "Enable (unsafe)" —> OK —> OK

3.1.5 User Management

User management interface display the account information, the user name and password can be changed in this page. You can also add or delete users.

"User rights" are divided into administrators and ordinary users. Administrators have the right to view and modify device information. Ordinary users can only view device-related information, but do not have the right to modify. The default administrator user cannot be modified or deleted.

"Email address" is the email address for the user to receive alarm emails.
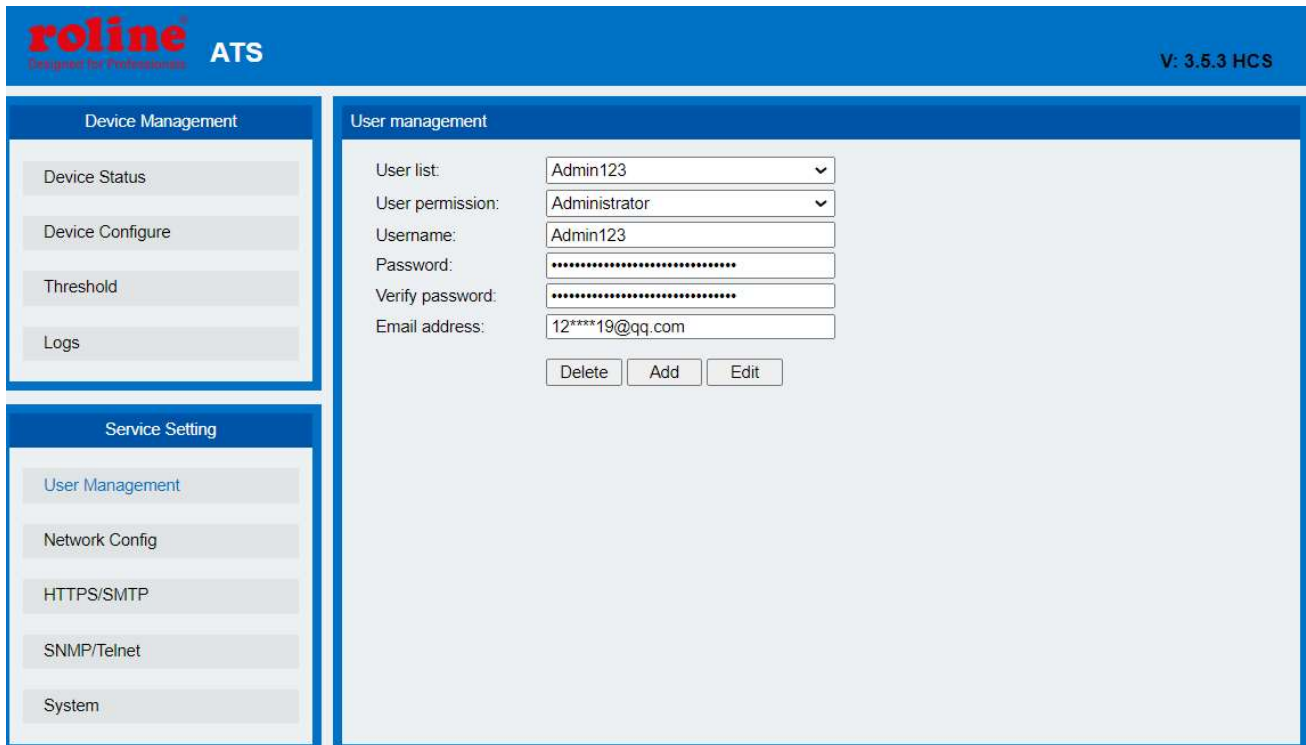
Figure 5 User Manager

(1) New user: click user management, type in user name and password, confirm password, and click "Add". support adding 3 users at most.

(2) Modify user: click user management, input the user name and password to be modified in the corresponding box on the right of "user name" and "user password", confirm new password, and then click "Modify".

(3) Delete user: click user management, select the user name to be deleted in the drop-down box on the right of "User List", and then click "Delete".

Note: The user name only supports numbers, letters, underscores and underscores, and the

maximum length is limited to 10 characters.

The password complexity requires both uppercase letters, lowercase letters and numbers, no special characters, and a length limit of 6-15 characters.

3.1.6 Network Config

To configure the network such as IPv4 address, subnet mask, default gateway, DNS.
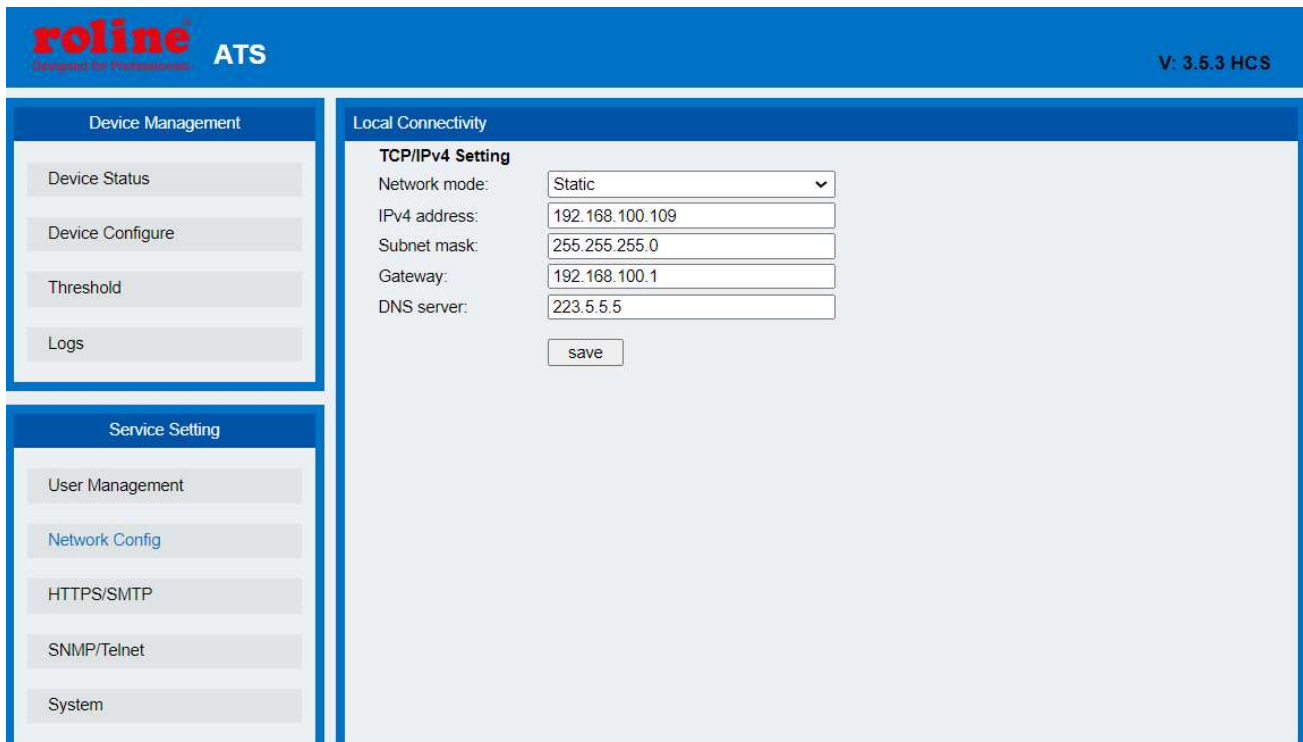
Figure 6 Network config

（1） Network mode: select the network mode as "static" or "DHCP"

（2） IPv4 Address: default address is 192.168.1.163

（3） Subnet Mask: default address is 255.255.255.0

（4） Gateway: Default gateway is 192.168.1.1

（5） DNS: Default DNS is 202.96.134.133, Resolve the normal DNS address of the domain name to ensure the normal delivery of mail;

Note: Network configuration will take effect after restart. The set IP address can not be the same as other devices to avoid IP conflict and must be in the same segment with the PC.

3.1.7 HTTP/SMTP

a. The "HTTPS" interface setting port number

b. The "SMTP" interface sets the email alarm mode. When the current threshold is exceeded or

voltage threshold is exceeded or ATS failure occur, the alarm information will be notified to the

administrator by email.
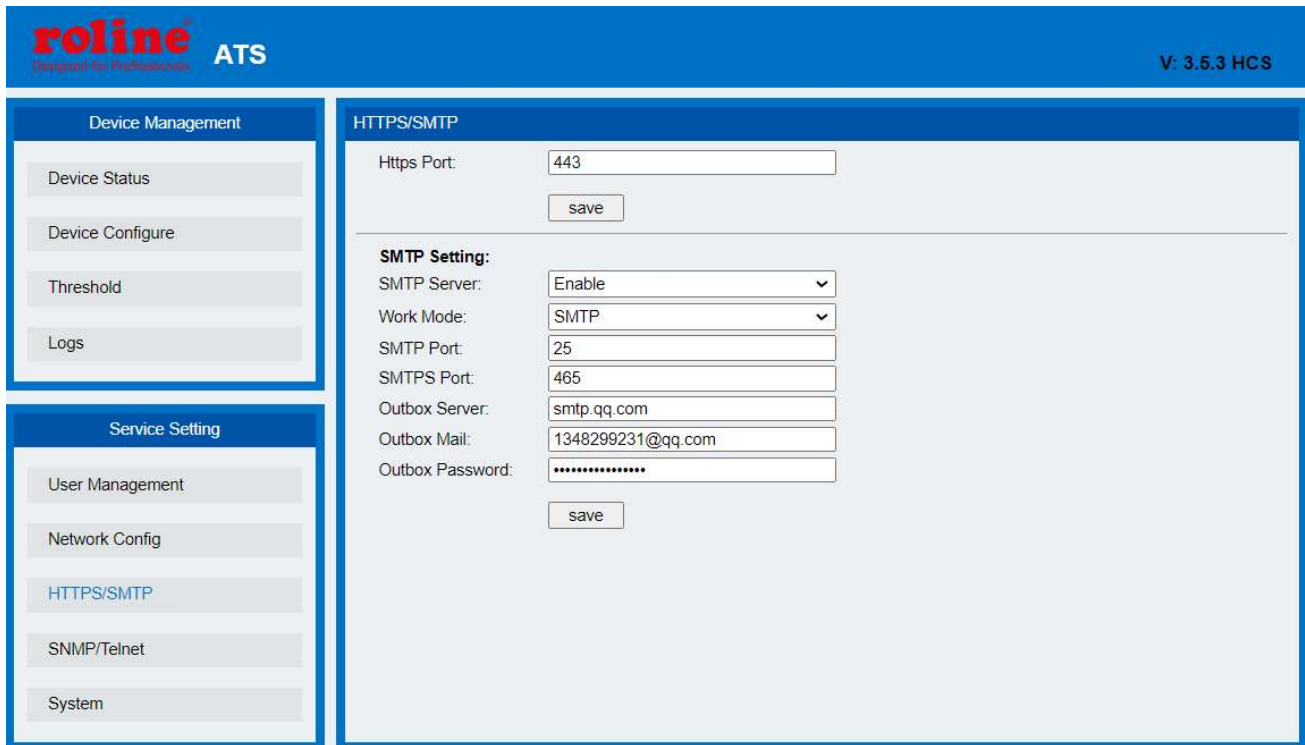
Figure 7   HTTP/SMTP config

a. HTTP settings

(1) Supports custom HTTPS port

b. SMTP settings

(1) Select disable and enable to disable and enable the SMTP service

(2) Work Mode: select the service mode as SMTP or SMTPS

(3) Support custom port of SMTP and port of SMTPS

(4) Outbox Server: address of sending mail server, such as Sina SMTP address: smtp.sina.com

(5) Outbox Mail: the sender's email address and the email server address should correspond to the

SMTP address;

(6) Outbox Password: it is required to fill in the sender's email password, which corresponds to the

sender's email;

Note: Check whether the DNS address in the network setting page can resolve the domain name

normally. Set the correct DNS address to ensure that the mail can be sent normally. See "network

config" network settings for details.

In the text box, you can input English and numbers, but not Chinese, spaces and special symbols.

3.1.8　SNMP/Telnet

The interface configures the SNMP / telnet access mode of the device, which can set the set/get community name and tarp of SNMP, and the security level, account number, password and key of SNMPv3. There are also enable and disable operations for telnet service. The specific operation is as follows:

Note: Restore factory settings by default enable SNMP V3 mode, disable SNMP V1/V2c mode, and disable Telnet.
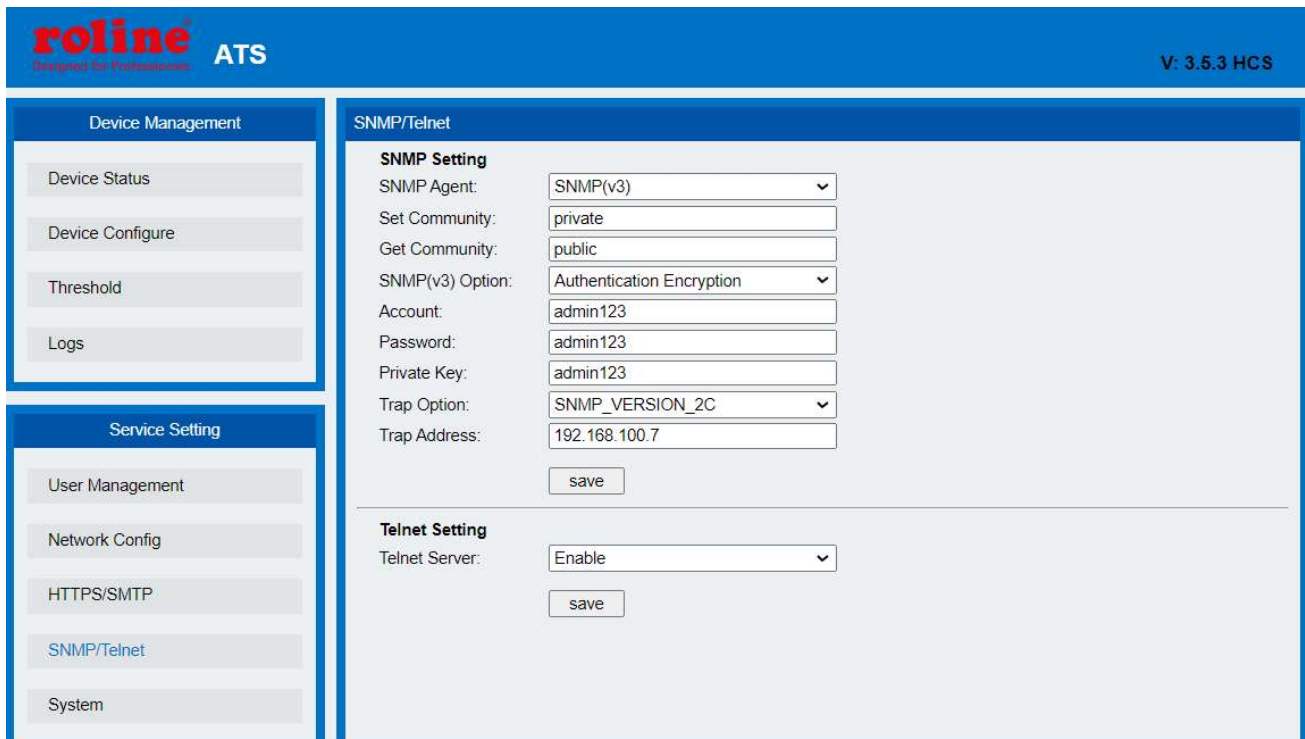
Figure 8　SNMP/Telnet interface

(1) SNMP Agent: select the version of SNMP access

(2) The Set Community and the Get Community respectively set the "set" and "get" strings. The Get community provides the read-only channel identifier for the object accessing MIB, and the Set community provides the read-write channel identifier for the object accessing MIB. The two items are public and private by default, and the maximum length of the community string is limited to 8 characters;

(3) SNMP (V3) option: select SNMP V3 access mode Encryption type: none, authentication no encryption, authentication encryption;

(4) Account, Password and Private Key: set the Account, Password and Private Key of SNMPv3

(5) Trap option: select which version of SNMP is used to send trap information

(6) TRAP address: IP address of SNMP server management platform is configured, and TRAP information will be automatically sent to the corresponding address;

Note: SNMP configuration will take effect after restart.

The Text box to enter letters, numbers, not allowed to enter space, special symbols.

Telnet Settins : The factory default is "disabled",select "Enable" or "Disable" and save, make sure to restart the software after modification.

3.1.9 **Restart**

(1) Display MAC address code of the current device;

(2) "Log out" option is to log out the web system and return to the login interface

(3) "Restart" option is to restart the device by software. This restart function will not affect the normal power supply of the device and the device will not be cut off.

(4) "Restore to factory Settings" is to restore to default configuration when ATS was built in the factory.
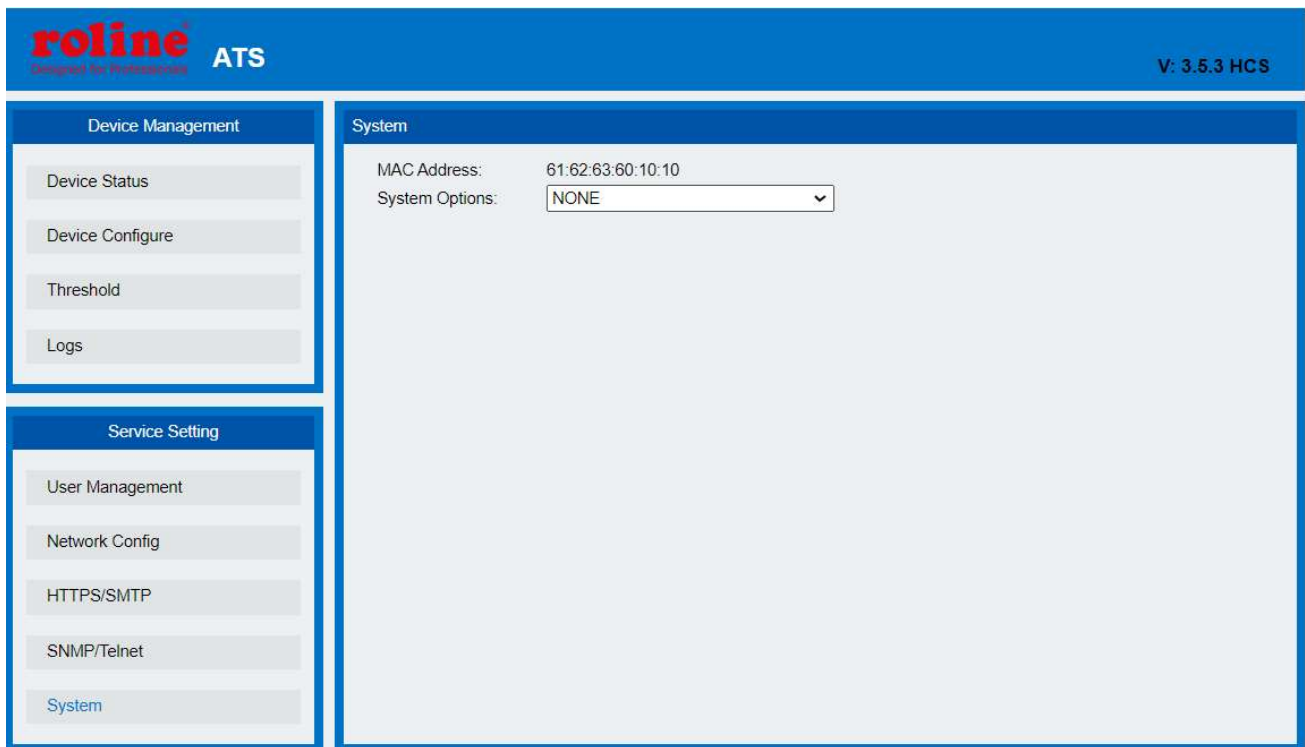
Note: Make sure there is no power failure, no internet disconnection, and no operation on the web interface during restart, If the device is directly connected to PC, the local connection will disconnected and connected automatically.

3.1 **SNMP**

SNMP(Simple Network Management Protocol), the device software support V1/V2c/V3 version of SNMP, A MIB file which contain an enterprise number will be attached to the software, network management system offer network management of device through SNMP and the user can change the output port name, view the device status, receive alarm information through SNMP approach.

The user has to enable the SNMP function through IE browser , please refer to the 8th item of IE access method SNMP introduction. Install corresponding SNMP management software after completing the SNMP start setting, set up the configuration according to the software menu provided by SNMP software company, leading-in MIB file on the SNMP management platform, user can monitor and manage the device status information and alarm Trap information after translating and editing successfully, the detailed information of device status are as in figure 2-1:

1) SNMP software display the device information, power input information, status of the current /voltage and threshold information through mib description table format as below:

Name	Description	OID
sourceAname	The name of power source A	1.3.6.1.4.1.30966.10.1.1.1
sourceBname	The name of power source A	1.3.6.1.4.1.30966.10.1.1.2
prioritySource	The preferred power source	1.3.6.1.4.1.30966.10.1.1.3
supplySourceName	The current power supply	1.3.6.1.4.1.30966.10.1.1.4
switchTime	Switch time	1.3.6.1.4.1.30966.10.1.1.5
AsourceVol	The voltage of power source A	1.3.6.1.4.1.30966.10.1.1.6
BsourceVol	The voltage of power source B	1.3.6.1.4.1.30966.10.1.1.7
outputVol	The current voltage	1.3.6.1.4.1.30966.10.1.1.8
AsourceCur	The current load of power source A	1.3.6.1.4.1.30966.10.1.1.9
BsourceCur	The current load of power source B	1.3.6.1.4.1.30966.10.1.1.10
outputCur	The current output load	1.3.6.1.4.1.30966.10.1.1.11
voltageMin	The minimum value of voltage	1.3.6.1.4.1.30966.10.1.1.12
voltageMax	The maximum value of voltage	1.3.6.1.4.1.30966.10.1.1.13
currentMin	The minimum value of load	1.3.6.1.4.1.30966.10.1.1.14
currentMax	The maximum value of load	1.3.6.1.4.1.30966.10.1.1.15
sourceAstatus	A power status	1.3.6.1.4.1.30966.10.1.1.16
sourceBstatus	B power status	1.3.6.1.4.1.30966.10.1.1.17
buzz	Buzzer switch and status	1.3.6.1.4.1.30966.10.1.1.18
keyLock	Panel key lock status	1.3.6.1.4.1.30966.10.1.1.19
deviceName	Device name	1.3.6.1.4.1.30966.10.1.1.20

Figure 2-1 ATS MIB Description information table

Note: Considering the decimal value of load is not allowed when the load current of both power source,

current output load, the maximum/minimum value is bing monitored by SNMP， the value of curentMin、curentMax、AsourceCur、BsourceCur、outputCur is 10 times larger than the actual value.

The setting range of switching time is [10,60]; the setting range of current is [0,320]; the setting range of voltage is [80,260].

    2) TRAP information will be sent to the Trap Destination according to the SNMP settings in the IE browser, TRAP information includes the alarming time, device name, alarm types and status, TRAP information as below:

       Minor 04/14/2021 14:30:29   ATS

       snmpTraps.4.0 [1] outputCur.0 (Integer): 0 [2] snmpTrapEnterprise.0 (Object ID): ats

3.2 **Telnet access**

The application of Telnet enables the user to remotely manage the ATS easily. The user can monitor and manage the device by entry the command line from the Telnet program. Telnet requires the customer terminal from the PC and there is free software like PUTTY available. The main command line is as following: status, set, reboot, reset

Note: This service is an insecure protocol. The Telnet service is disabled by default after the device leaves the factory. Please enable the service on the Web before using it.

Note: telnet login, when the user name and password verification fails 5 times in a row, the system will be locked and cannot continue to log in. You need to perform "factory reset" or "1 hour" before re-login verification.

A."status" command

"Status" command can view information: current input voltage, minimum voltage, minimum current;

Current load total current, total current minimum value, total current maximum value;

Current input power supply, priority input power supply;

Reverse-switch time, hardware panel key lock state, buzzer , switch state.

Command line input format: status

B. "set" command

1）set priority none/sourceA/sourceB :Set Priority Power to None or Current A or Power B

2）set switchTime number(10~60):Set the current switchover Time (range 10-60 seconds)

3) set buzz open/close :Set the buzzer to on or off

4） set lock unlock/lock :Set the key lock state of the panel to unlock or lock

5) set threshold Vol[Min, Max] Cur[Min, Max] :Set threshold Vol[Min, Max] Cur[Min, Max]: Set minimum

and maximum thresholds for voltage, and minimum and maximum thresholds for current

C. " reboot " command

Entry reboot command line to restart the device.

D. " reset " command

Entry reset command line to restore to factory settings.

Ⅸ **Performance parameters**

Function	ITEM			performance parameters		
Input	mains input			A/B two-way power supply		
	Rating voltage			230VAC		
	Voltage range			180VAC~260VAC		
	Rated Frequency			50HZ		
	Frequency range			±5HZ		
	Overload & breaker			Optional,		
	Surge protector					
	Max load current			16A		
	1U cabinet	Power input method		Plug		Load current
		1	IEC 320 C20 x 2	N/A		16A
		2	cable	IEC60309×2		16A
	2U	1	cable	IEC60309×2		32A
Output	1U cabinet	Power output	connector	Output socket		Outlet quantity
		1	Socket		IEC320 C13	6
					IEC320 C19	2
		2	cable	IEC60309		1
	2U cabinet	1	Socket		IEC320 C13	12
					IEC320 C19	4
		2	Cable	IEC60309		1
	Max load current			16A		
Communication/ alarming port	Logic port			3.5mm headphone port for external alarm		
	Network port			RJ45,1（intelligent）		
	Serial communication port			RJ45,1		
	phone alarming port			RJ11,1（intelligent ATS）		
Transfer	Transfer polarity			L, N（double polarity）		
	Transfer time			10~16ms		
				Digital display		LED tub, three digits, red

Display	Output current	Display resolution	100mA ±1%+1D
	Output voltage	Digital display	LED tube, three digit, red
		Display resolution	1V ±1%+3D
	IP address	Left circulation display（intelligent ATS）	
Mounting method	Horizontal rack mount	Occupy 1U or 2 U	
Case colour	colour	black	
Working temperature	0~45℃		
Storage temperature	-20~70℃		
Working humidity	5%~95%		

Ⅹ Quality guarantee

The product is guaranteed for two years from the date of purchase. The Company will repair or replace the defective products covered by this warranty. If product has already exceeded the warranty period or the problem are caused because of illegal operation, a corresponding fee will be charged.

The below cases are not covered by the warranty:

1. Problem caused because of improper maintenance

2. Problem caused because of unauthorized change, modify or improper use

3. The device has not to be used in the stipulate physical environment

Repair notice:

1. Please make sure to use protective hard carton when arrange the shipment to repair, the problem occurred in the shipment is not covered by the warranty.

2. Please make a short note about the problem and the operation process

3. Please pay for the shipping cost as well as the customs duty

4. Please list your name, address as well as phone number so that we can contact you in a timely manner.