
# TDS-5041-I-M12

## EN50155 Industrial Device Server

# User's Manual

**Version 1.0**

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www.oring-networking.com

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# Getting to Know Your Device Server

## 1.1 About the TDS-5041-I-M12 Serial Device Server


TDS-5041-I-M12 is an innovative 4 ports RS-422 /485 with isolation to 1 ports LAN device server. Users are able to configure TDS-5041-I-M12 by DS-Tool via LAN port. TDS-5041-I-M12

The TDS-5041-I-M12 can simultaneously transfer data into 5 host PCs. This feature can assure all critical data that saved in different host PCs to avoid Ethernet break or host PCs failure.

TDS-5041-I-M12 also provides NAT pass through function so that users are able to manage TDS-5041-I-M12 inside or outside the NAT router. It is easy for different IP domain users to use TDS-5041-I-M12. Therefore, TDS-5041-I-M12 is the best communication redundant solution for current application of serial devices.

## 1.2 Software Features

- NAT-pass through: User can manage TDS-5041-I-M12 through NAT router.
- Operating Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- Redundant multiple host devices:
- 5 host devices: Virtual COM, TCP Server, TCP Client mode;
- 4 IP ranges: UDP
- NAT-pass through: user can manage TDS-5041-I-M12 through NAT router
- Security: SSL data encryption; secured management by HTTPS and SSH: IP Access: IP

White List

- Internet Communication: PPPoE
- Update DNS Hostname: DDNS
- Event Warning by Syslog, Email, SNMP trap, Relay and Beeper
- Configurable by Web-based and Windows utility (DS-Tool)
- Various Windows O.S. supported: Windows NT/2000/ XP/ 2003/VISTA(32/64bit)/ Windows 7(32/64bit) /Windows 8 (32/64bit)

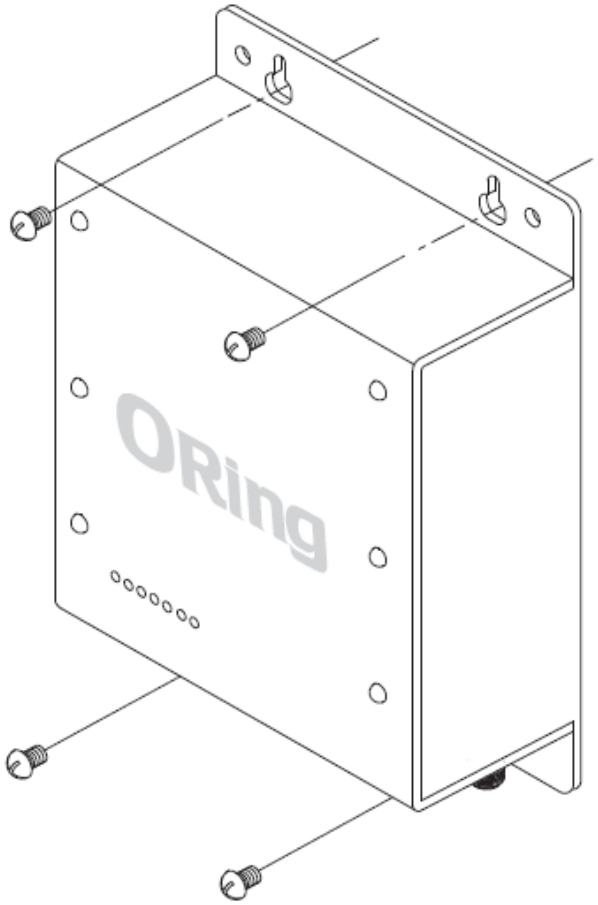
## 1.3 Hardware Features

- Redundant Power Inputs: 12~48 VDC on terminal block and power jack
- Operating Temperature: -40 to 70$^{o}$C
- Storage Temperature: -40 to 85$^{o}$C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-40
- 1 10/100Base-T(X) Ethernet port
- 4 isolated serial port
- Dimensions(W x D x H) : 170(W) x 65 (D) x 195(H) mm (6.69 x2.55x7.7.67 inch.)

# Hardware Installation

## 2.1 Wall Mounting Installation

Each TDS-5041-I-M12 has another installation method for you. A wall mount panel can be found in the package. The following steps show how to mount the TDS-5041-I-M12 on the wall:



# Hardware Overview

## 3.1 Front Panel

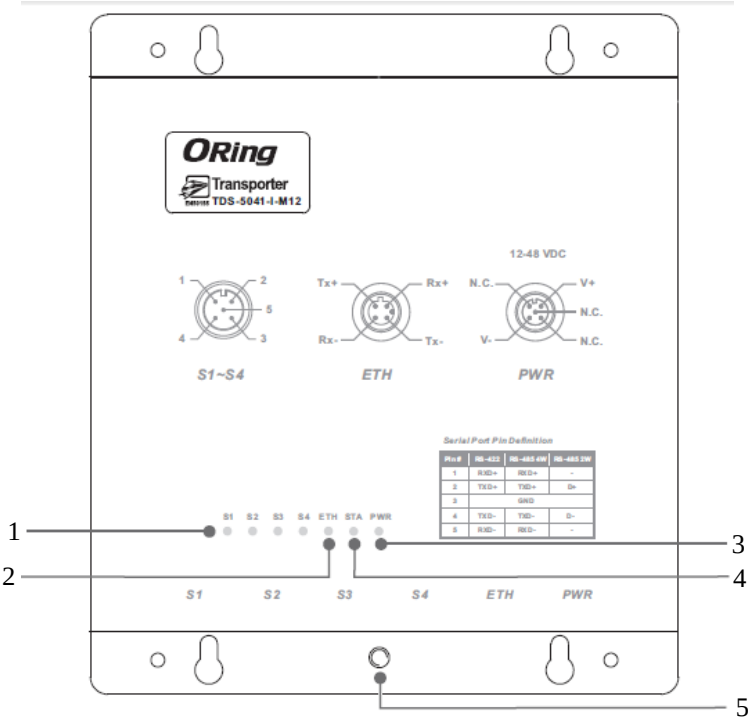



*Figure 3-1*

1. Serial port LED
2. 10/100M LAN port Indicator
3. Power Indicator.
4. Status LED
5. Ground

## 3.2 Front Panel LEDS

The following table describes the labels that stick on the TDS-5041-I-M12.

| LED | Color | Status | Description |
|---|---|---|---|
| PWR | Green/Red | On | DC power activated. |
| S1 ~ S4 | Green | Blinking | Serial port is transmitting data |
| | Red | Blinking | Serial port is receiving data |
| ETH | Green/Amber | Green On/Blinking | 100Mbps LNK/ACT |
| | | Amber On/Blinking | 10Mbps LNK/ACT |

*Table 3-1 Front panel LEDs*

## 3.3 Serial Ports

There 4 serial ports on the front panel of TDS-5041-I-M12 showed as below:


| Pin # | RS 422 | RS 485 ( 4 wire ) | RS 485 ( 2 wire ) |
|---|---|---|---|
| 1 | RXD + | RXD + | - |
| 2 | TXD + | TXD + | D+ |
| 3 | GND | | |
| 4 | TXD - | TXD - | D - |
| 5 | RXD - | RXD - | - |

*Table 3-2 Pin assignment*

## 3.4 Bottom Panel

The bottom panel components of TDS-5041-I-M12/42+/42-I+ are shown as below:

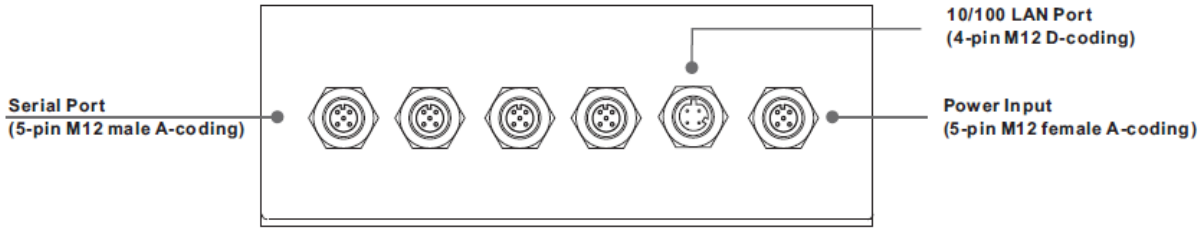



*Figure 3-2 Bottom Panel*

# Cables

## 4.1 Ethernet Cables

The TDS-5041-I-M12 has standard Ethernet ports. According to the link type, the TDS-5041-I-M12 use CAT 3, 4, 5,5e UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

| Cable | Type | Max. Length | Connector |
|---|---|---|---|
| 10BASE-T | Cat. 3, 4, 5 100-ohm | UTP 100 m (328 ft) | M12 (D-Coding) |
| 100BASE-TX | Cat. 5 100-ohm UTP | UTP 100 m (328 ft) | M12 (D-Coding) |

*Table 4-1 Cable Types and Specifications*

### 100BASE-TX/10BASE-T Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.


| Pin Number | Assignment |
|---|---|
| 1 | TX + |
| 2 | RX + |
| 3 | RX - |

| | |
|---|---|
| 4 | TX - |

*Table 4-2 ETH Pin Assignments*

The TDS-5041-I-M12 supports auto MDI/MDI-X operation. You can use a straight- through cable to connect PC to TDS-5041-I-M12. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

| Pin Number | MDI port | MDI-X port |
|---|---|---|
| 1 | TD+(transmit) | RD+(receive) |
| 2 | RD+(receive) | TD+(transmit) |
| 3 | RD-(receive) | TD-(transmit) |
| 4 | TD-(transmit) | RD-(receive) |

*Table 4-2 MDI / MDI-X pins assignment*

***Note:*** *"**+**" and "**-**" signs represent the polarity of the wires that make up each wire pair.*

# Management Interface

## 5.1 DS-Tool

DS-Tool is a powerful Windows utility for DS series. It supports device discovery, device configuration, group setup, group firmware update, monitoring functions...etc. It is easy for you to install and configure devices over the network.

### 5.1.1 Install IDS-Tool

Step 1: Execute the Setup program, click "**start**" after selecting the folder for DS-Tool.

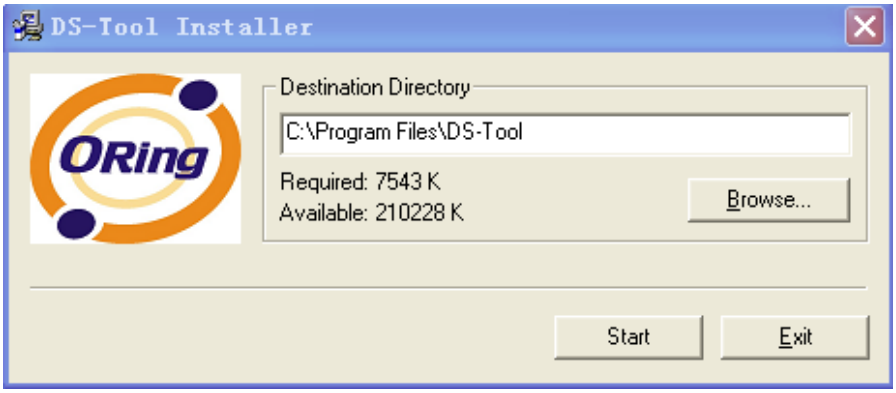



*Figure 5-1*

Step 2: When installation complete successfully, then click "OK".

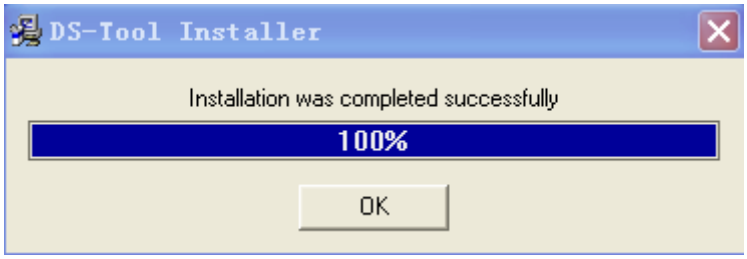



*Figure 5-2*

Step 3: Check for your selection.


*Figure 5-3*

## 5.1.2 Using DS-Tool

### 5.1.2.1 Explore device servers

DS-Tool will broadcast to the network and search all available DS devices in the network. The default IP address of device is "**192.168.10.2**", and selects the searching device you wish to use and press "**Add**" button.

You can set static IP address or in DHCP client mode to get IP address automatically. Finally, click "**OK** "button to add the device.

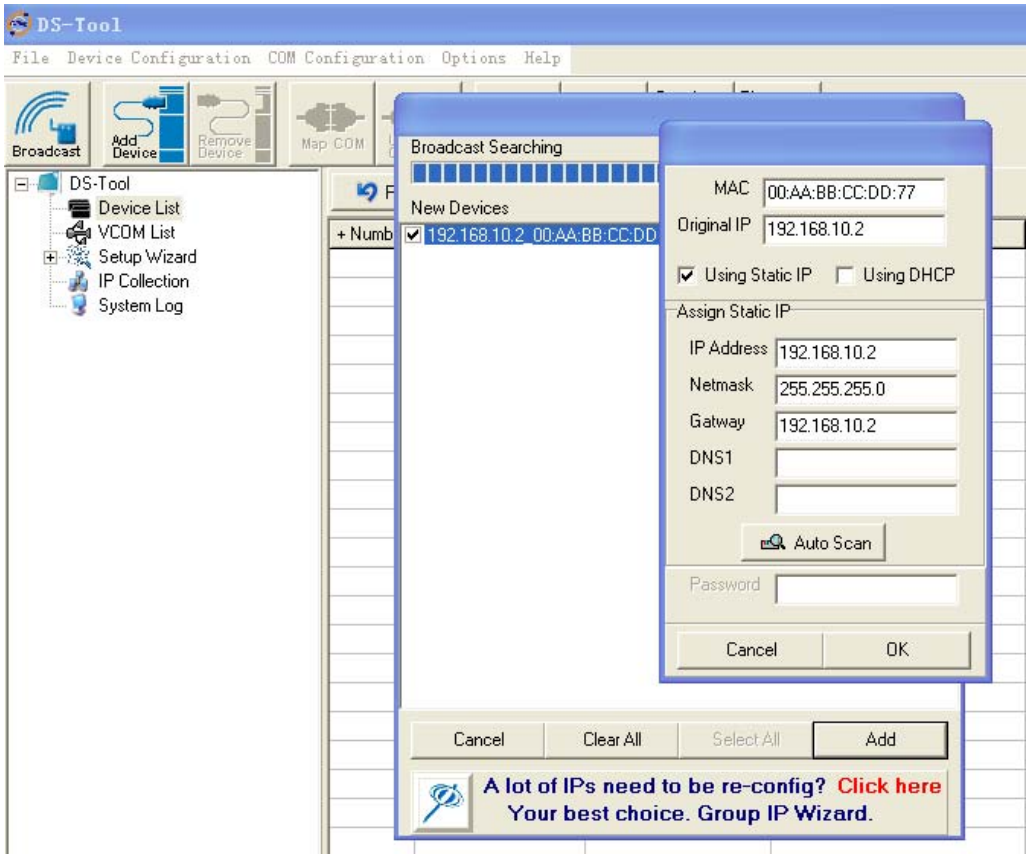



*Figure 5-4*

## 5.1.2.2 Configure device servers

### General settings

This page includes the setting of device name, SNTP server and Auto IP Report.

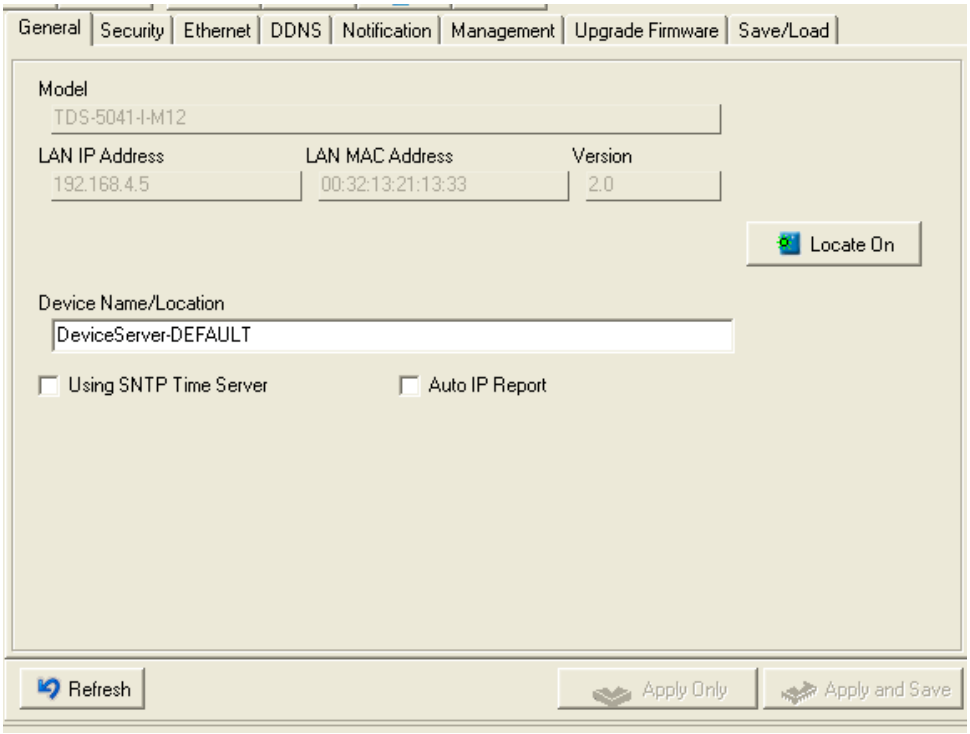



*Figure 5-5 General settings*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Device Name/location | You can set the device name or related information. By clicking "Locate On" button you can locate the serial server's position. |
| Set SNTP | Input the SNTP server domain name or IP address, port and select the Time zone. |

| | |
|---|---|
| Set Auto IP Report | By Clicking the "**Get current Host**" button you will get your local IP, and then set the Report interval time. The device server will report its status periodically. |

*Table 5-1 General settings*

At IP collection option show the device server status. The report interval is 0 indicate disable this setting (default). But you can set the other IP or Port.

## Security

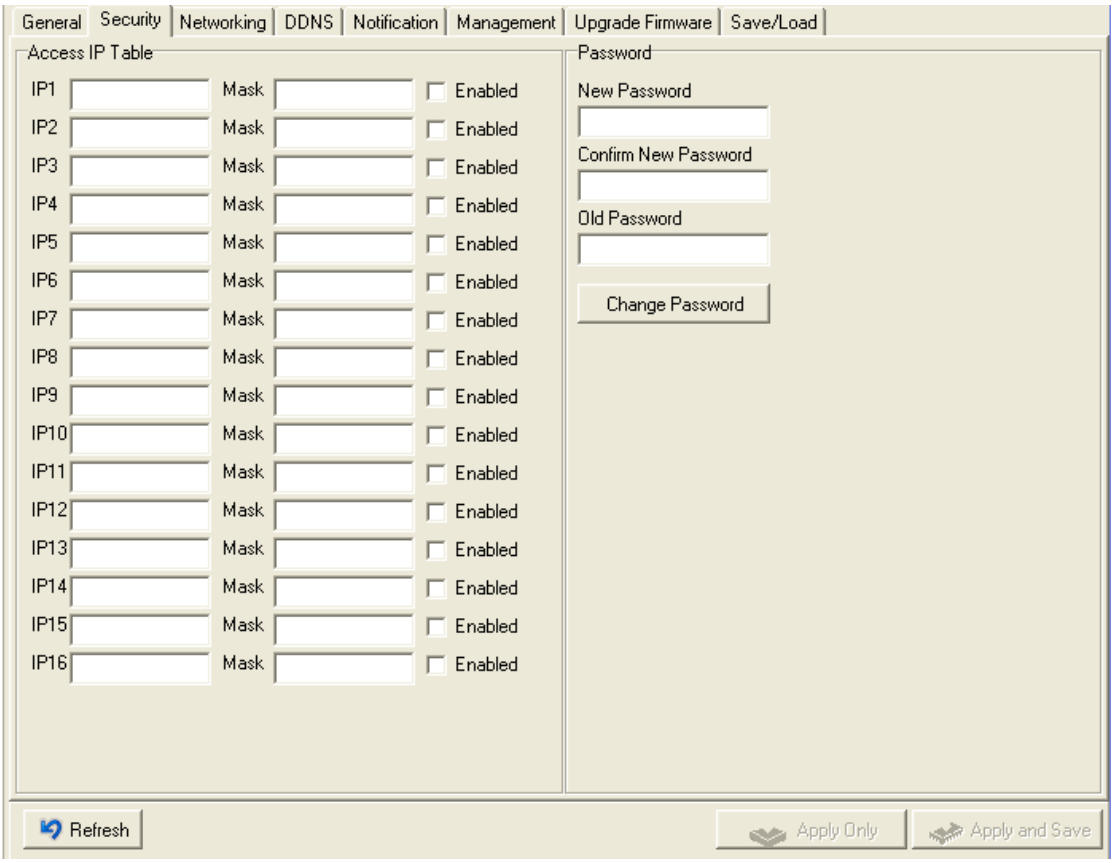



*Figure 5-6 Security*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Accessible IP Setting | To prevent unauthorized access by setting host IP addresses and network masks. |

| | |
|---|---|
| Password setting | You can set the password to prevent unauthorized access from your server. Factory default is no password. |

*Table 5-2 Security*

## Network Setting

Device can connect the Network by wire. You must assign a valid IP address for DS before attached in your network environment. Your network administrator should provide you the IP address and related settings. The IP address must be unique within the network (otherwise, DS will not have a valid connection to the network). You can choose from three possible "**IP configuration**" modes: Static, DHCP/BOOTP. The Factory Default IP address is "**192.168.10.2**"

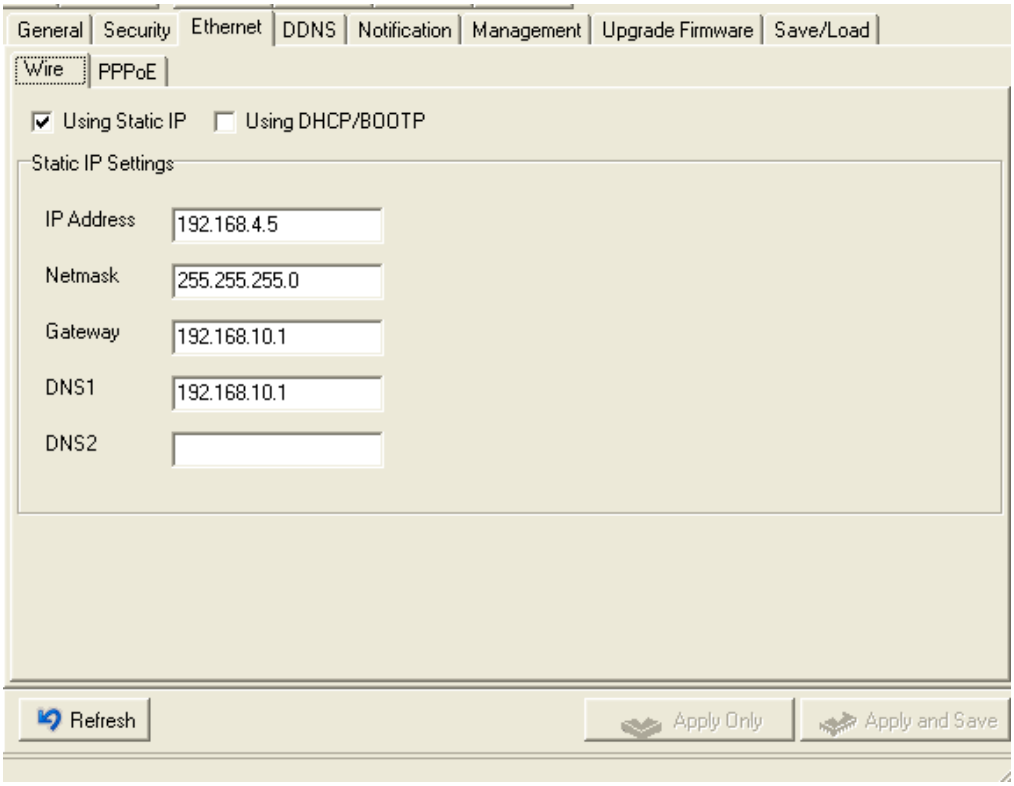



*Figure 5-7 Network Setting*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Using DHCP/BOOTP | IP Address automatically assigned by a DHCP server in your network. |
| Static IP Address | Manually assigning an IP address. |
| Subnet Mask | All devices on the network must have the same subnet mask to communicate on the network. |
| Gateway | Enter the IP address of the router in you network. |
| DNS Server | Enter the IP address of the DNS server, The DNS server translates domain names into IP address. |

*Table 5-3 Network setting*

### PPPoE

PPPoE (Point-to-Point Protocol over Ethernet), Device can use PPPoE mode to connect the Network. Input the **"username**" and "**Password**", then click "**Connect**" button. If the device has been connected, the **"Link Status**" will become the "Link up" and device will get an IP address from PPPoE server。Click "**Disconnect**" button to disconnect the PPPoE connection.

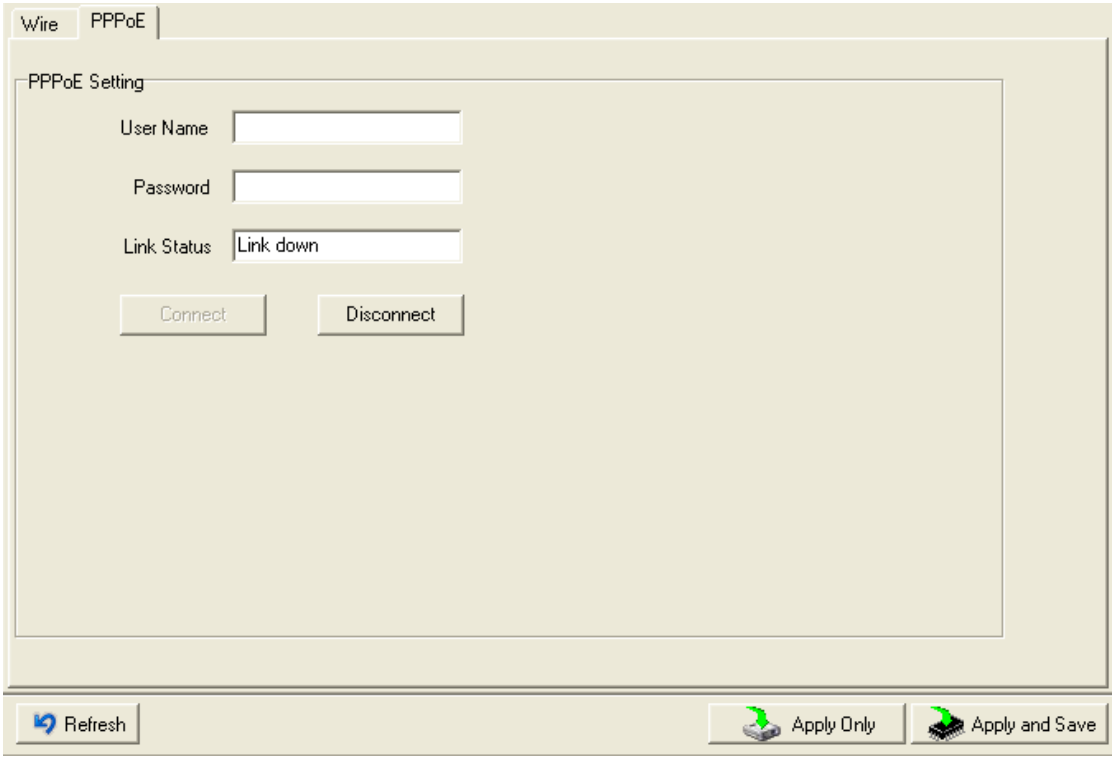



*Figure 5-8 PPPoE Setting*

### DDNS

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname, allowing your computer to be more easily accessed from various locations on the Internet.

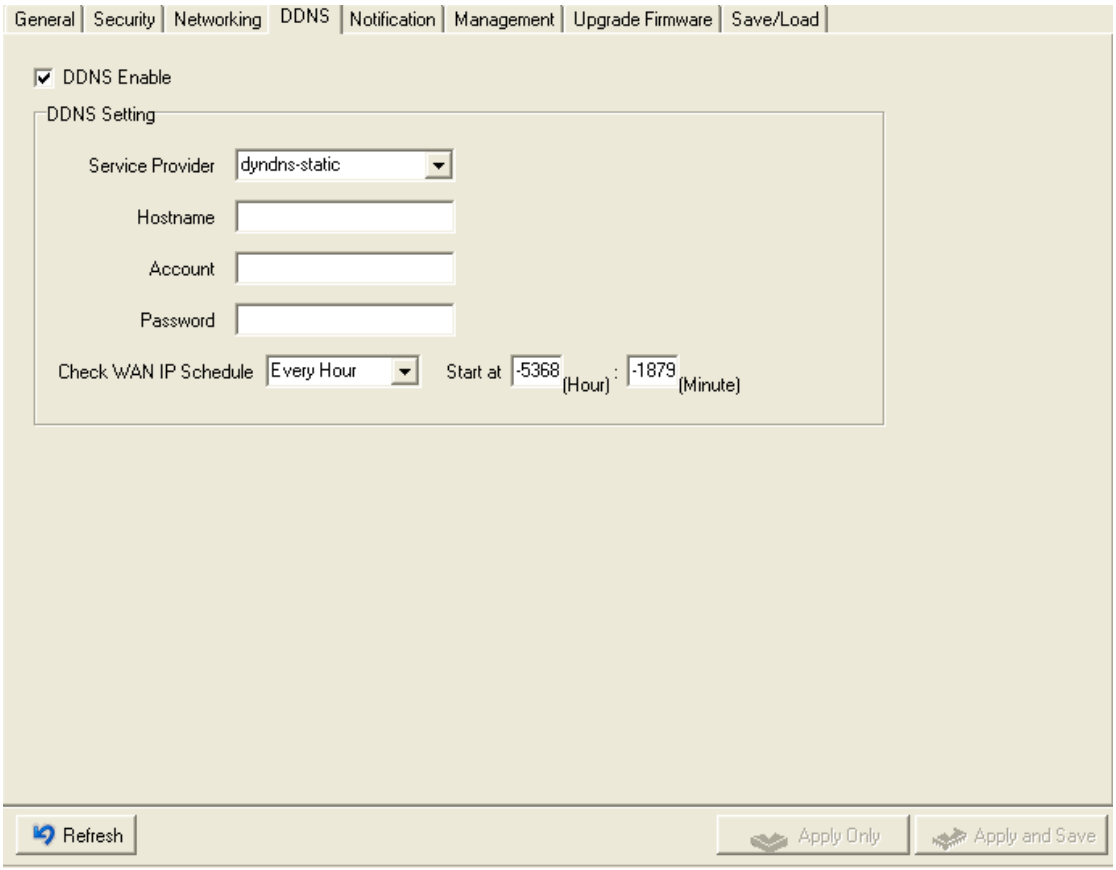



*Figure 5-9 DDNS Setting*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Service Provider | Choose the DDNS service Provider |
| Hostname | You must first apply an account from the DDNS service Provider such as www.dyndns.org, then register with the dynamic DNS service. Input the fixed hostname you got from the DDNS service. |
| Account mand Password | Input the Account and Password you have registered from the DDNS service Provider. |
| Check WAN IP Schedule | Device will check the IP address Status at interval time you set. |

*Table 5-4 DDNS setting*

## Notification

Specify the events that should be notified to the administrator. The events can be alarmed by E-mail, SNMP trap, or system log.

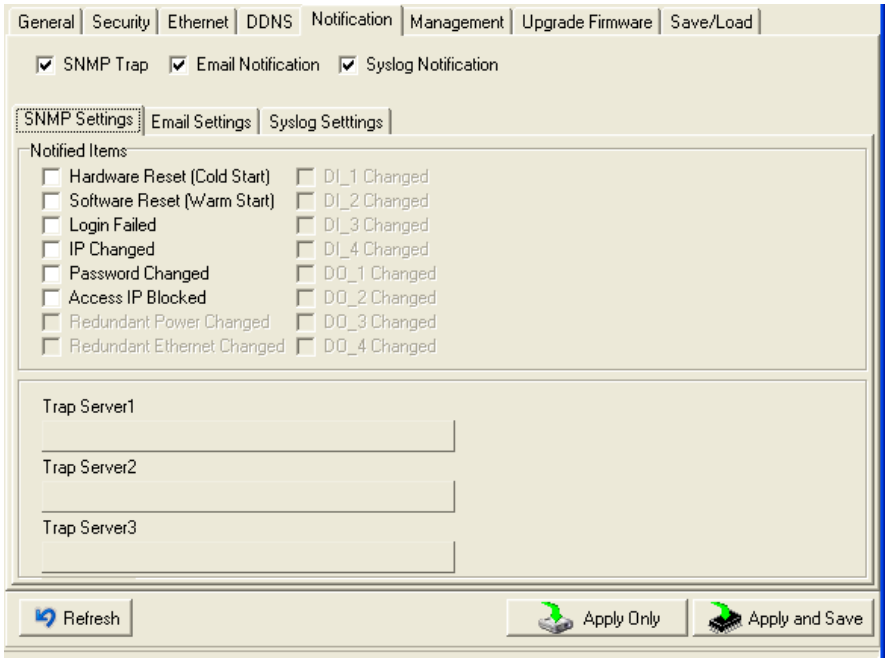



*Figure 5-10 Notification*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| SNMP Trap | To notify events by SNMP trap. |
| Email Notification | To notify events by Email. |
| Syslog Notification | To notify events by Syslog. |
| Notify items | Events to be notified. |
| Apply | Apply current setting. |
| Apply and Save | Apply and save current setting. |

*Table 5-5 Notification*

## Management

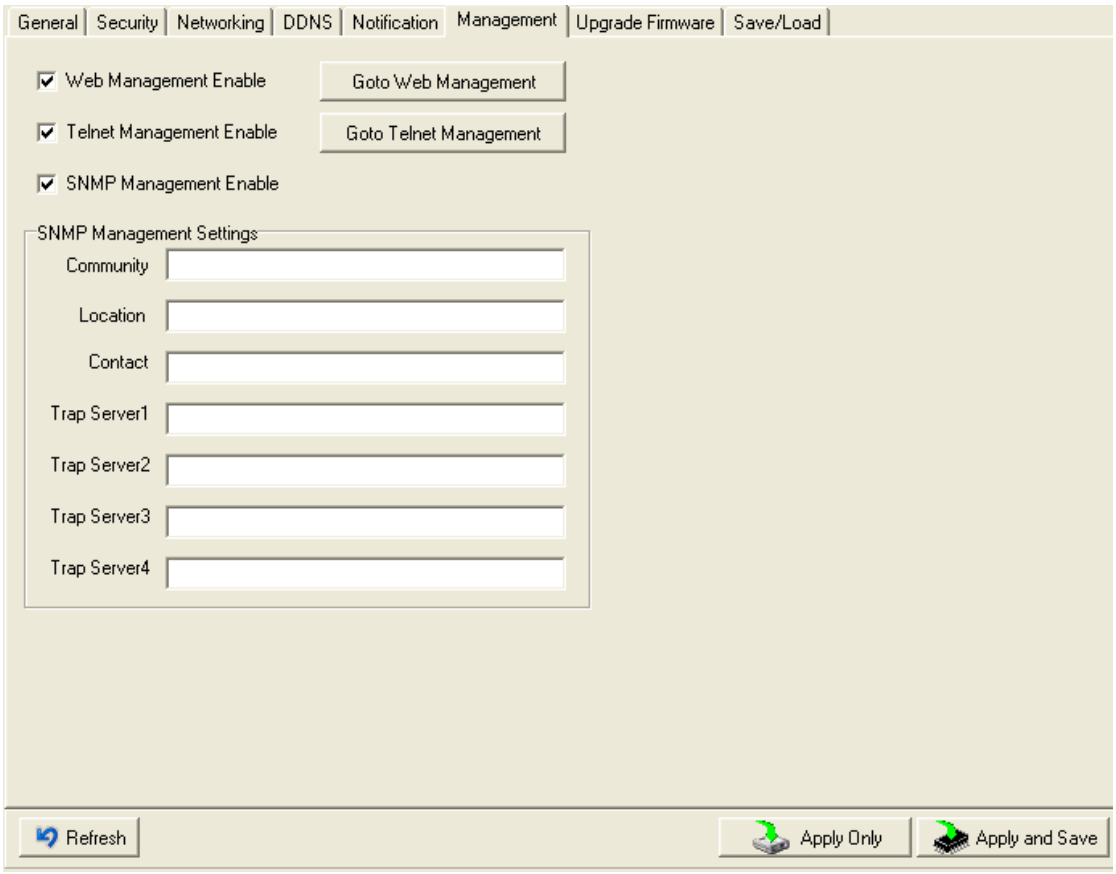



*Figure 5-11 Management*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Web Management Enable | To enable management from Web. Click "**Goto Web Management**" button to access web. |
| Telnet Management Enable | To enable management by Telnet. Click "**Goto Telnet Management**" button to execute Telnet command. |
| SNMP Management Enable | To enable management by SNMP. |
| SNMP Management Settings | To configure SNMP related settings. |

*Table 5-6 Management*

### Upgrade Firmware

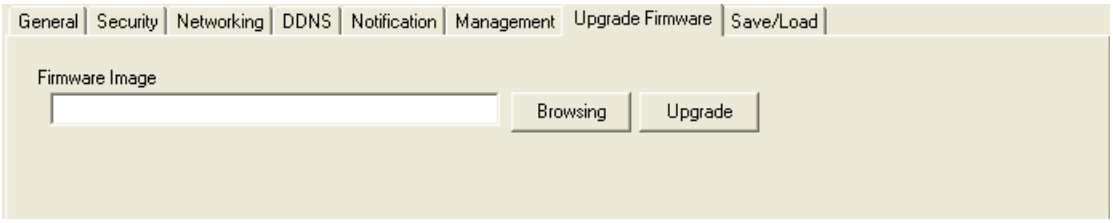



*Figure 5-12 Upgrade Firmware*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Browsing | Browse the file and upgrade |
| Upgrade | Enable the firmware upgrade. |

*Table 5-7Upgrade Firmware*

### Save/Load

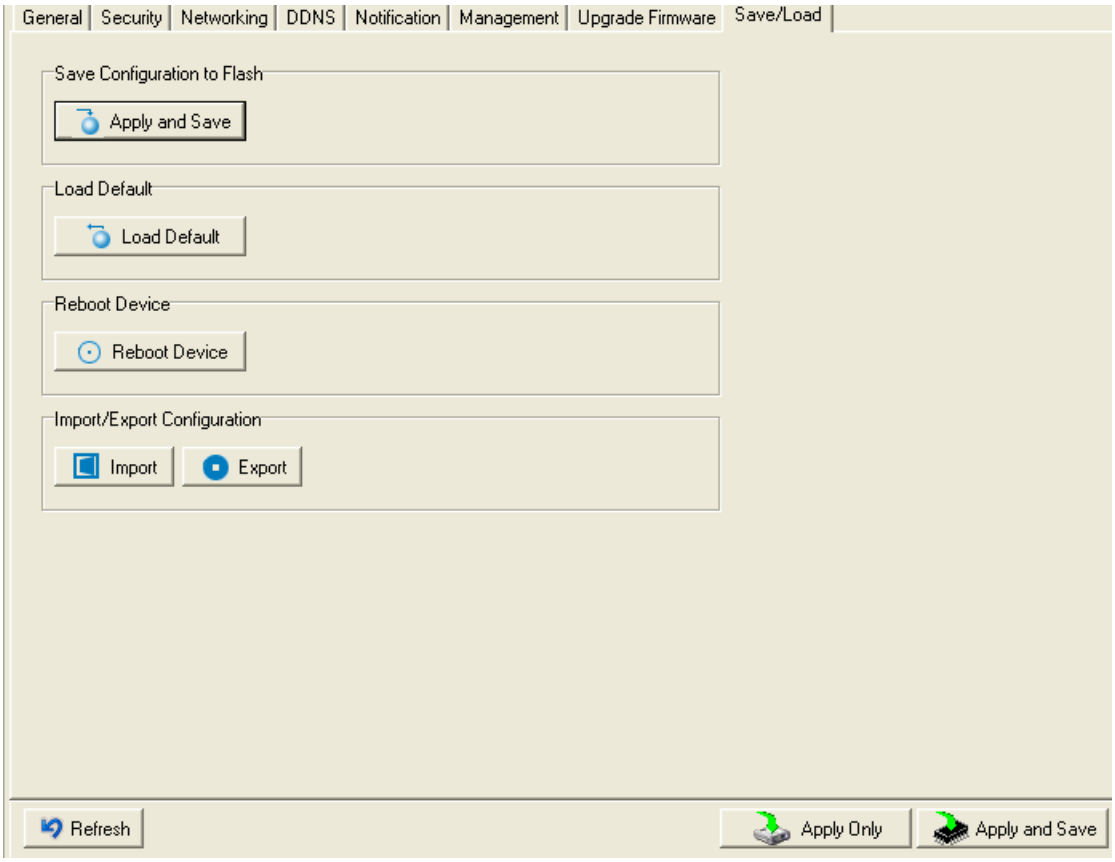



*Figure 5-13 Save / Load*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Save Configuration to Flash | Save current configuration into flash memory. |
| Load Default | Load default configuration except the network settings. If you want to load all factory default, you need to press "**Reset**" button on the device (Hardware restore). |
| Reboot Device | Reboot the device server (warm start). |
| Import Configuration | Restore the previous exported configuration. |

| | |
|---|---|
| Export Configuration | Exported current configuration to a file to backup the configuration. |

*Table 5-8 Save / Load*

### 5.1.2.3 Configure serial port

#### Serial Settings

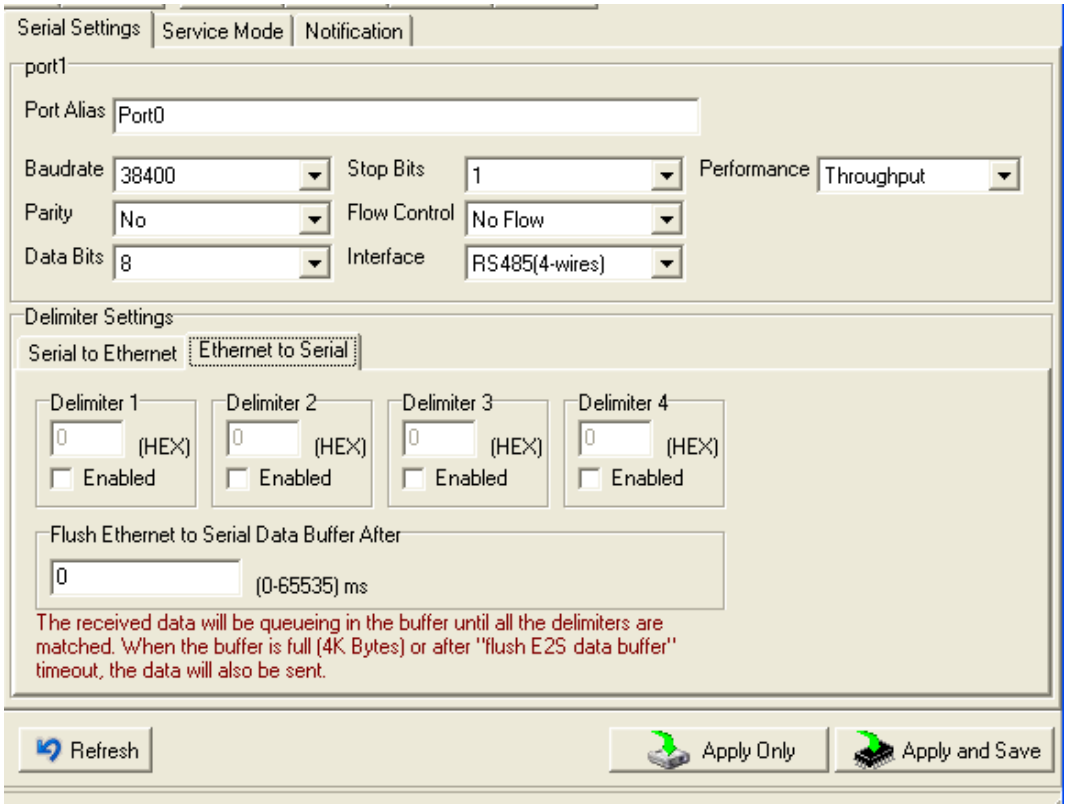



*Figure 5-14Serial Settings*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Port Alias | Remark the port to hint the connected device. |
| Interface | RS422 / RS485(2-wires) / RS485(4-wires) |
| Baud rate | 110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps/460800bps |
| Data Bits | 5, 6, 7, 8 |
| Stop Bits | 1, 2 (1.5) |
| Parity | No, Even, Odd, Mark, Space |
| Flow Control | No, XON/XOFF, RTS/CTS, DTR/DSR |
| Performance | Throughput: This mode optimized for highest transmission speed.<br>Latency: This mode optimized for shortest response time. |
| Serial to Ethernet | **Delimiter:**<br>You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0.<br><br>**Flush Data Buffer After:**<br>The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout the data will also be sent. You can set the time from 0 to 65535 seconds. |
| Ethernet to Serial | **Delimiter:**<br>You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0.<br><br>**Flush Data Buffer After:**<br>The received data will be queuing in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flushE2S data buffer**" timeout the data will also be sent. You can set the time from 0 to 65535 seconds. |

| | |
|---|---|
| Force TX Interval Time | Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. 0 means disable. Factory default value is 0. |

*Table 5-9 Serial settings*

## Service Mode – Virtual COM Mode

In Virtual COM Mode, The driver establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.

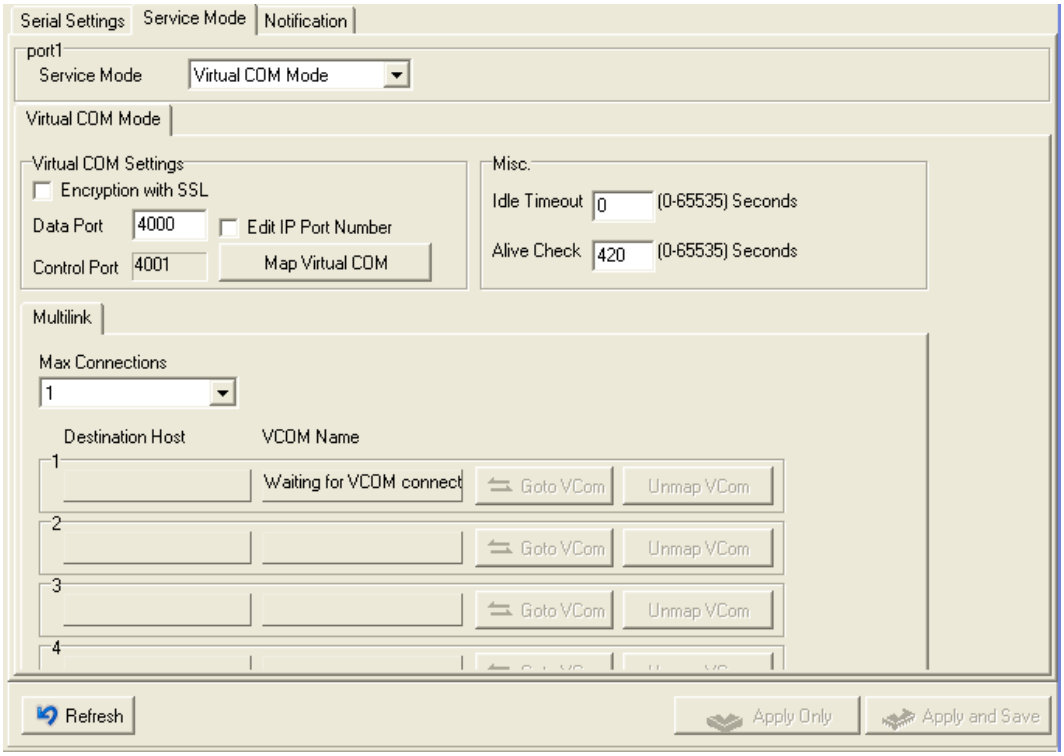



*Figure 5-15 Virtual COM*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Encryption with SSL | Use SSL to encrypt data. |
| Map Virtual COM | Select a Virtual COM Name to map on. |
| Max Connection | The number of Max connection can support simultaneous connections are 5, default values is 1. |
| Idle Timeout | When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting. |
| Alive Check | The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0. |

*Table 5-10 Virtual COM*

***Not allowed to mapping Virtual COM from web*

## Service Mode – TCP Server Mode

In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After a connection is established, it can then proceed with data transmission. TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.

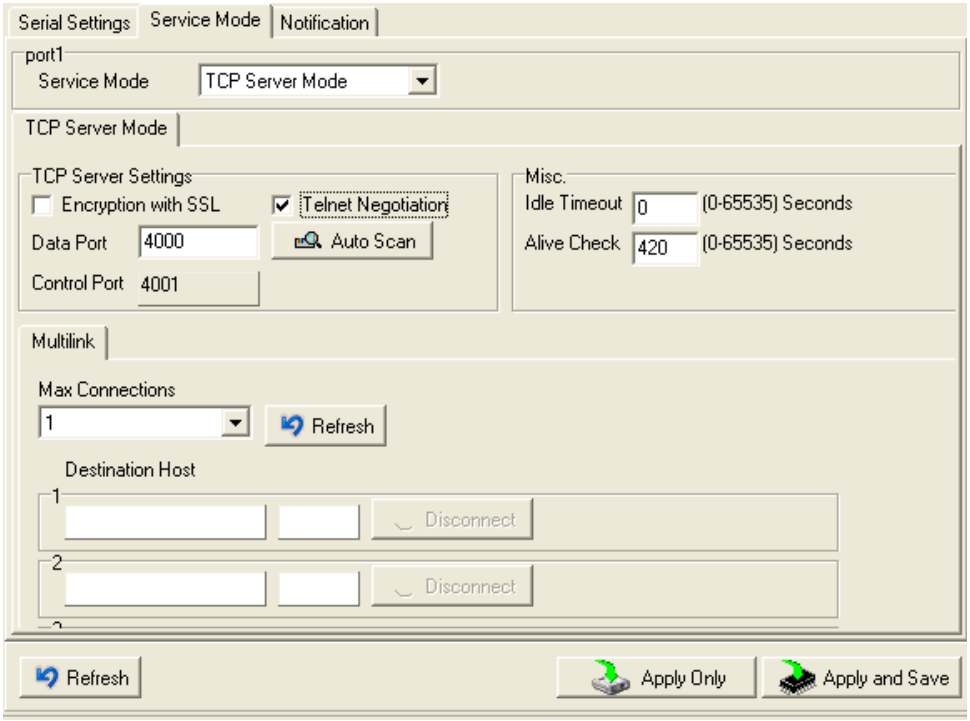



*Figure 5-16 TCP Server mode*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Encryption with SSL | Use SSL to encrypt data. |
| Data Port | Set the port number for data transmission. |
| Telnet Negotiation | Full Telnet command / symbol compatible |
| Auto Scan | Scan the data port automatically. |
| Idle Timeout | When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting. |
| Alive Check | The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0. |
| Max Connection | The number of Max connection can support simultaneous connections are 5, default |

| | |
|---|---|
| | values is 1. |

*Table 5-11 TCP Server mode*

### Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with server by the method you have settled (Startup or any character). After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or Idle time settings.

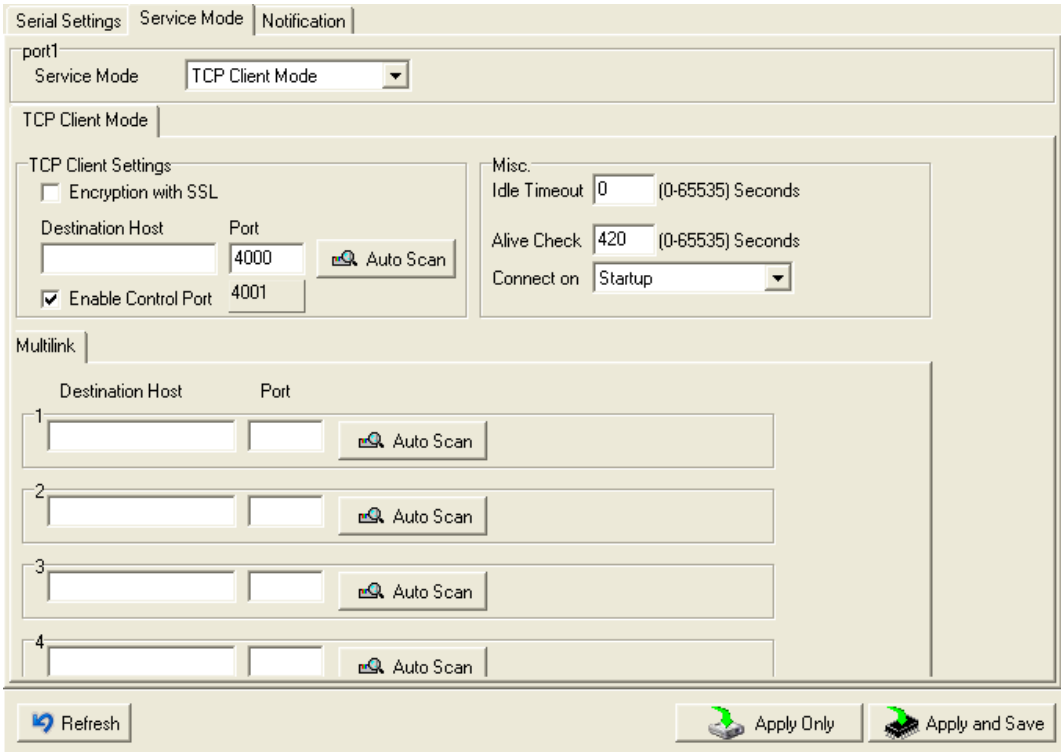



*Figure 5-17 TCP Client Mode*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Encryption with SSL | Use SSL to encrypt data. |
| Destination Host | Set the IP address of host. |

| | |
|---|---|
| Port | Set the port number of data port. |
| Idle Timeout | When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting. |
| Alive Check | The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0. |
| Connect on Startup | The TCP Client will build TCP connection once the connected serial device is started. |
| Connect on Any Character | The TCP Client will build TCP connection once the connected serial device starts to send data. |

*Table 5-12TCP Client mode*

### Service Mode – UDP Mode

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host

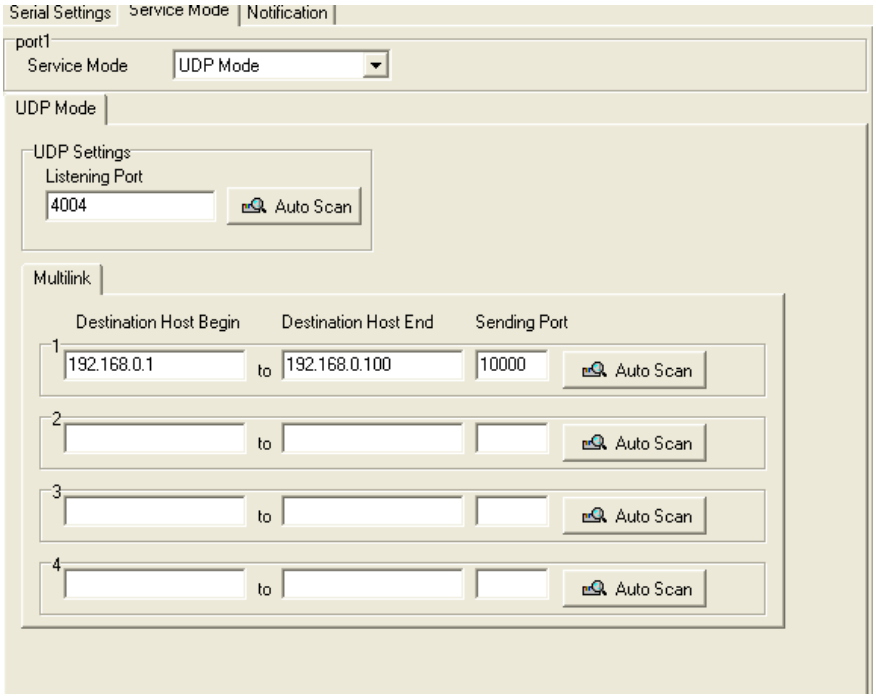



*Figure 5-18 UDP mode*

## Notification

Specify the events that should be noticed. The events can be noticed by E-mail, SNMP trap or system log.

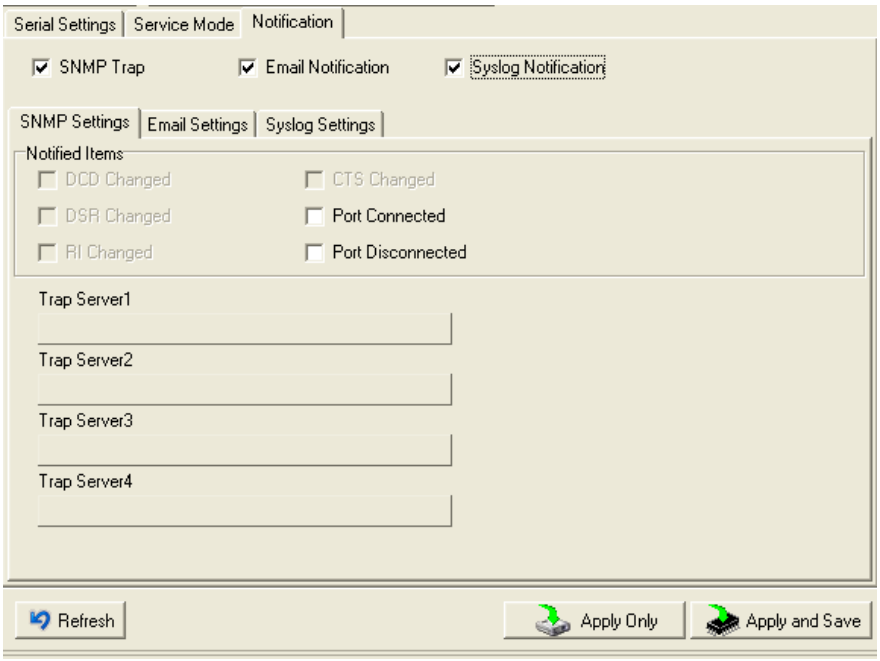



*Figure 5-19 Notification*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Port connected | In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be trigger. In TCP Client Mode, when the device has connected to the remote host, this event will be trigger. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent. |
| Port disconnected | In TCP Server/Client Mode, when the device lost the TCP link, this event will be trigger. In Virtual COM Mode, When Virtual COM is not available, this event will be trigger. A notification will be sent. |

*Table 5-13 Notification*

## 5.2 Configuration by Web Browser

### 5.2.1 CONNECT TO THE WEB PAGE

Step 1: Input the IP address of DS with "**https://192.168.10.2**" in the Address input box of

IE.

Step 2: Click "**Yes**" button on the dialog box.

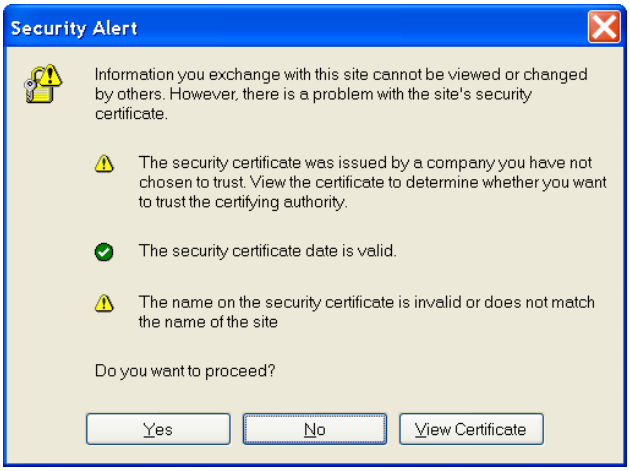



*Figure 5-20 Certificate*

Step 3: Input the name and password, then click "**OK**".

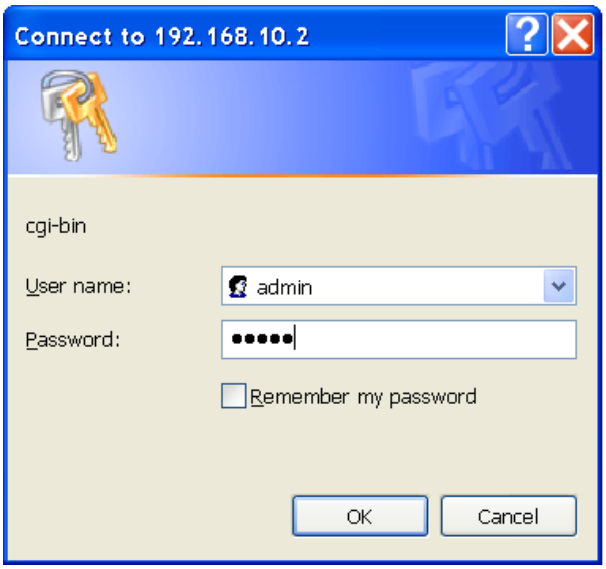



*Figure 5-21 Certificate*

**Only if password is set.*

Step 4: The system information will be shown as below.


*Figure 5-21 System information*

### 5.2.1.1 System

#### Time (SNTP)


*Figure 5-22 Time (SNTP)*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Name | You can set the name of DS. |
| SNTP | Enable the SNTP server. |
| Time zone | After you set the SNTP enable, select the time zone you located. |
| Time server | Input SNTP server domain name or IP address and Port. |
| Console | Telnet Console (SSH) is included for security reasons. In some cases, you may need to disable this function to prevent unauthorized access from internet. The factory default is enable. |

*Table 5-14 Time (SNTP)*

#### IP Configuration

You must assign a valid IP address for DS before attached in your network environment. Your network administrator should provide you with the IP address and related settings. The IP address must be unique and within the network (otherwise, DS will not have a valid connection to the network). You can choose from three possible "**IP configuration**" modes: Static, DHCP/BOOTP. The Factory Default IP address is "**192.168.10.2**"


*Figure 5-23 IP configuration*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| DHCP/BOOTP | Obtain the IP address automatically from DHCP server. |
| Static IP Address | Assigning an IP address manually. |
| Subnet Mask | Set the subnet mask to communicate on the network. |
| Gateway | Enter the IP address of the router in you network. |
| DNS Server | Enter the IP address of the DNS server to translate domain names into IP address. |
| Auto IP Report | The device server will report its status periodically. At DS-Tool->IP collection option show the device server status. The report interval is 0 indicate disable this setting (default). But you can set the other IP or Port. |

*Table 5-15 IP configuration*

## PPPoE setting

PPPoE (Point-to-Point Protocol over Ethernet), Device can use PPPoE mode to connect the Network. Input the **"username"** and "Password", then click **"Connect"** button. If the device has been connected, the **"Status"** will become the **"Link up"** and device will get an IP address from PPPoE server. Click "Return" button, return the **"IP Configuration"** default page.


*Figure 5-24 PPPoE setting.*

## DDNS Configuration

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname, allowing your computer to be more easily accessed from various locations on the Internet.


*Figure 5-26 DDNS setting*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Service Provider | Choose the DDNS service Provider |
| Hostname | You must first apply an account from the DDNS service Provider such as www.dyndns.org, then register with the dynamic DNS service. Input the fixed hostname you got from the DDNS service. |
| Account and Password | Input the Account and Password you have registered from the DDNS service Provider. |
| Check WAN IP Schedule | Device will check the IP address Status at interval time you set. |

*Table 5-16 DDNS Setting*

## Authentication

You can set the password to prevent unauthorized access from network. Input the "**Old password**" and "**New password**" to change the password. Factory default is no password.


*Figure 5-27Authentication*

### 5.2.1.2 Port serial setting

#### Serial configuration


*Figure 5-28 Serial configuration*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Port Alias | Remark the port to hint the connected device. |
| Interface | RS422 / RS485(2-wires) / RS485(4-wires) |
| Baud rate | 110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/<br>38400bps/57600bps/115200bps/230400bps/460800bps |
| Data Bits | 5, 6, 7, 8 |
| Stop Bits | 1, 2 (1.5) |
| Parity | No, Even, Odd, Mark, Space |

| | |
|---|---|
| Flow Control | No, XON/XOFF, RTS/CTS, DTR/DSR |
| Force TX Interval Time | Force TX interval time is to specify the timeout when no data has been transmitted.<br>When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent.<br>0 means disable. Factory default value is 0. |
| Performance | Throughput: This mode optimized for highest transmission speed.<br>Latency: This mode optimized for shortest response time. |
| Apply | Activate settings on this page. |

*Table 5-18 Serial configuration*

### Port Profile

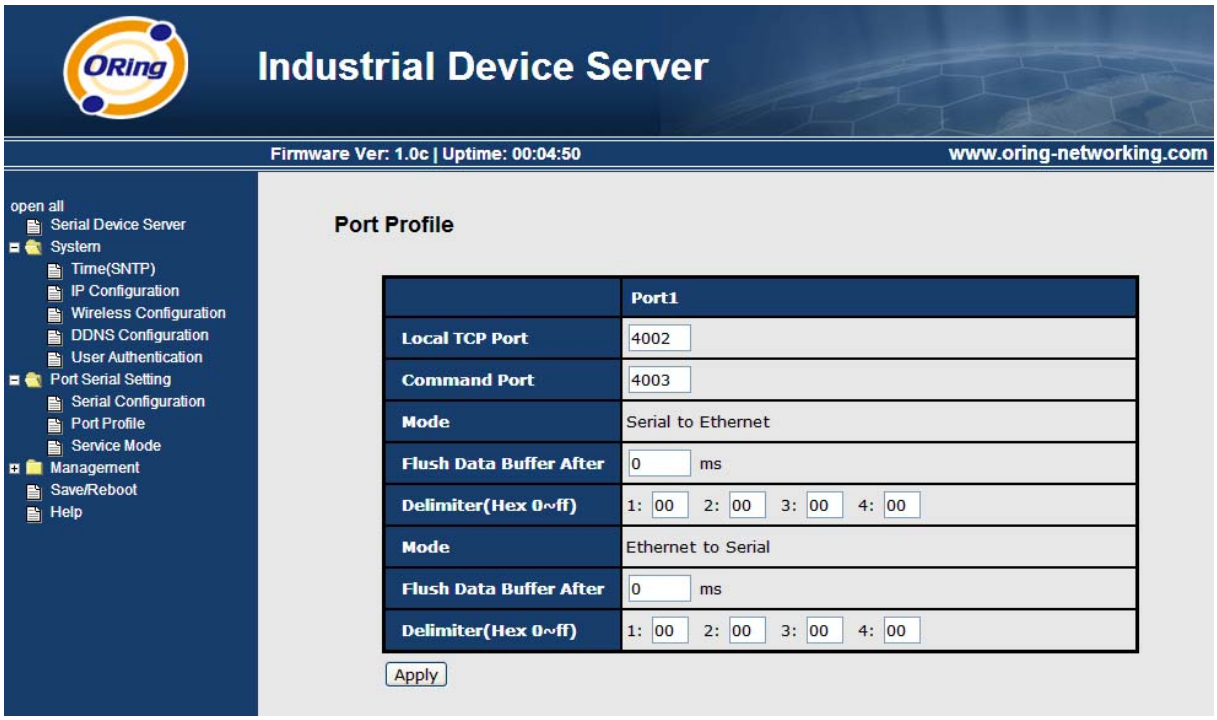



*Figure 5-29 Port Profile*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Serial to Ethernet | **Flush Data Buffer After:**<br>The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds.<br><br>**Delimiter:**<br>You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0 |
| Ethernet to serial | **Flush Data Buffer After:**<br>The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush E2S data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds.<br><br>**Delimiter:**<br>You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0 |

*Table 5-18 Port Profile*

## Service Mode – Virtual COM Mode

In Virtual COM Mode, the driver establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.


*Figure 5-30 Virtual COM mode*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Data Encryption | Use SSL to encrypt data. |
| Idle Timeout | When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting. |

| | |
|---|---|
| Alive Check | The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0. |
| Max Connection | The number of Max connection can support simultaneous connections are 5, default values is 1. |

*Table 5-19 Virtual COM mode*

**Not allowed to mapping Virtual COM from web*

## Service Mode – TCP Server Mode

In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After the device establishes a connection with the serial device, it can then proceed with data transmission. TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.


*Figure 5-31 TCP Server Mode*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Data Encryption | Use SSL to encrypt data. |
| Telnet Negotiation | Full Telnet command / symbol compatible |
| TCP Server Port | Set the port number for data transmission. |
| Idle Timeout | When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting. |
| Alive Check | The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0. |
| Max Connection | The number of Max connection can support simultaneous connections are 5, default values is 1. |

*Table 5-20 TCP server mode*

## Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with server by the method you set (Startup or any character). After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or Idle timeout settings.


*Figure 5-32 TCP client mode*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Data Encryption | Use SSL to encrypt data. |
| Destination Host | Set the IP address of host and the port number of data port. . |
| Idle Timeout | When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting. |
| Alive Check | The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0. |

| | |
|---|---|
| Connect on Startup | The TCP Client will build TCP connection once the connected serial device is started. |
| Connect on Any Character | The TCP Client will build TCP connection once the connected serial device starts to send data. |

*Table 5-21 TCP client mode*

## Service Mode – UDP Client Mode

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host

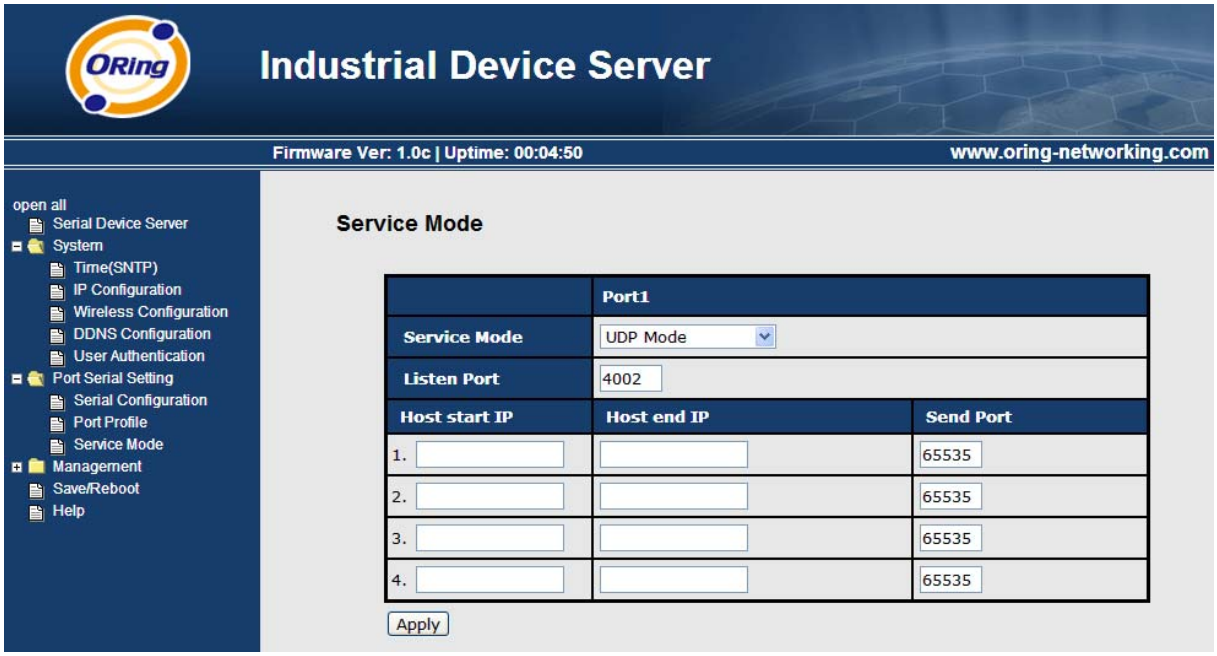



*Figure 5-33 UDP client mode*

### 5.2.1.3 Management

#### Access IP Control

Access IP Control Settings allow you to add or block the remote host IP addresses to prevent unauthorized access. If host's IP address is in the accessible IP table, then the host will be allowed to access the DS. You can choose one of the following cases by setting the parameter.

1. Only one host with a special IP address can access the device server, "**IP address /255.255.255.255**" (e.g., "**192.168.0.1/255.255.255.255**").

2. Hosts on a specific subnet can access the device server. "**IP address/255.255.255.0**" (e.g., "**192.168.0.2/255.255.255.0**")

3. Any host can access the device server. Disable this function by un-checking the "**Enable IP Filter**" checkbox

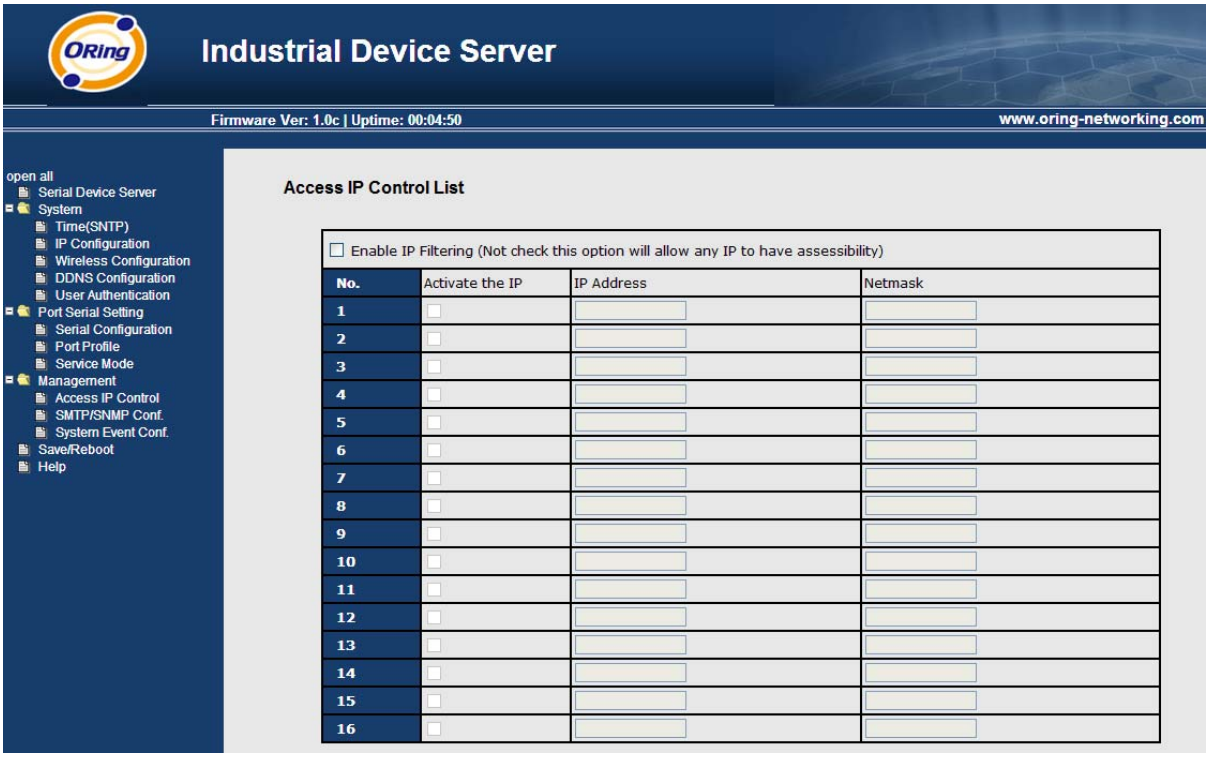



*Figure 5-34 Access IP*

## SMTP/SNMP Conf

Email Server configuration includes the mail server's IP address or domain. If the authentication is required, specify your name and password. There are 4 Email addresses that you can specify to receive the notification.

SNMP Server configuration includes the SNMP Trap Server IP address, Community, Location and Contact. There are 4 SNMP addresses you can specify to receive the notification.

SysLog server configuration includes the server IP and server Port. This option need to use with DS-Tool.


*Figure 5-35 SMTP / SNMP conf*

## System Event Conf

Specify the events that should be notified to the administrator. The events can be alarmed by E-mail, SNMP trap, or system log.

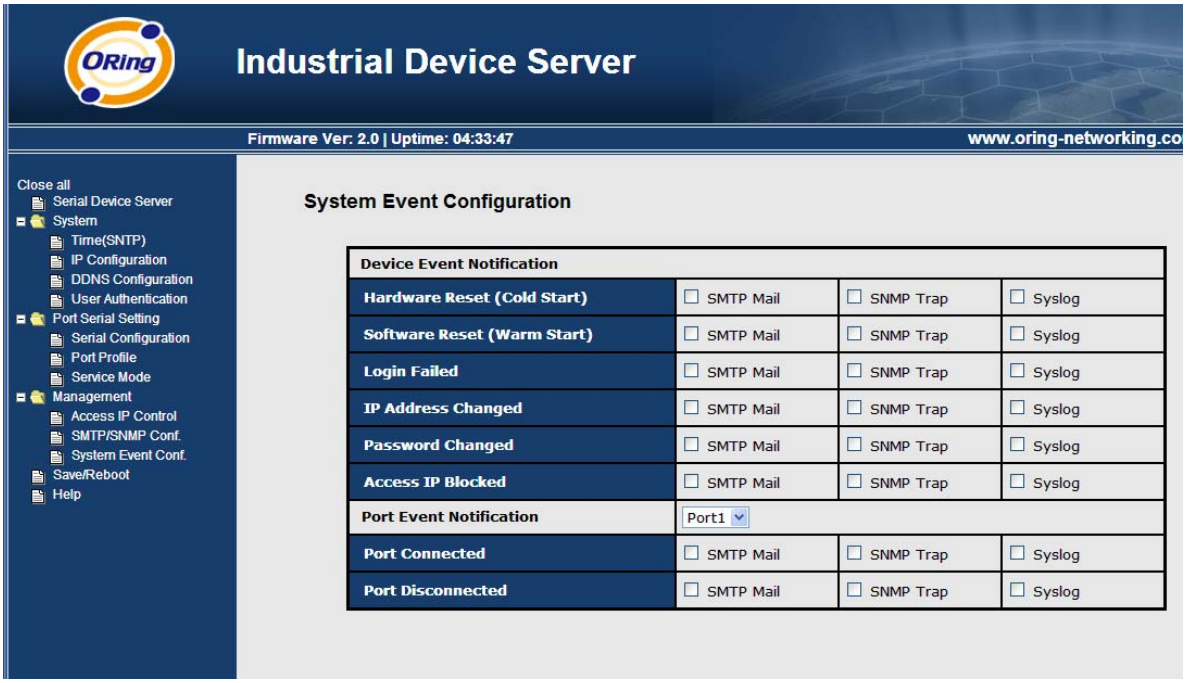



*Figure 5-36 SMTP / SNMP conf*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Hardware Reset (Cold Start) | This refers to starting the system from power off (contrast this with warm start). When performing a cold start, DS will automatically issue an Auto warning message by sending E-mail, log information or an SNMP trap after booting. |
| Software Reset (Warm Start) | This refers to restart the computer without turning the power off. When performing a warm start, DS will automatically send an E-mail, log information or SNMP trap after reboot. |
| Login Failed | When an unauthorized access from the Console or Web interface, a notification will be |

| | |
|---|---|
| | sent. |
| IP Address Changed | When IP address of device changed, a notification will be sent. |
| Password Changed | When password of device changed, a notification will be sent. |
| Access IP Blocked | When the host accesses the device with blocked IP addresses, a notification will be sent. |
| Port connected | In TCP Server Mode, when the device accepts an incoming TCP connection, this event will be trigger. In TCP Client Mode, when the device has connected to the remote host, this event will be trigger. In Virtual COM Mode, Virtual COM is ready to use. A notification will be sent. |
| Port disconnected | In TCP Server/Client Mode, when the device lost the TCP link, this event will be trigger. In Virtual COM Mode, When Virtual COM is not available, this event will be trigger. A notification will be sent. |
| Power 1 Fault | When Power 1 Fault, a notification will be sent and the Fault LED will be turned on. |
| Power 2 Fault | When Power 2 Fault, a notification will be sent and Fault LED will be turned on. |
| Eth1 link down | When Eth1 link down, a notification will be sent and Fault LED will be turned on. |
| Eth2 link down | When Eth2 link down, a notification will be sent and Fault LED will be turned on. |

*Table 5-22 System event conf*

#### 5.2.1.4 Save/Reboot


*Figure 5-37 Save / Reboot*

The following table describes the labels in this screen.

| Label | Description |
|---|---|
| Factory Default | Load default configuration except settings of Network. If you want load all factory default, you should press "**Reset**" button about the five seconds on the device (Hardware restore). |
| Restore Configuration | Restore the previous exported configuration. |
| Backup Configuration | Export the current configuration to a file. |
| Upgrade Firmware | Upgrade to a new firmware with specified file. |
| Reboot Device | Reboot the device server (warm start). |

*Table 5-23 Save / Reboot*

## 5.3 Configuration by SSH Console

### 5.3.1 Connect to DS

You can use SSH Tool (e.g., PUTTY) to access SSH console of DS. The SSH console interface is

shown below.

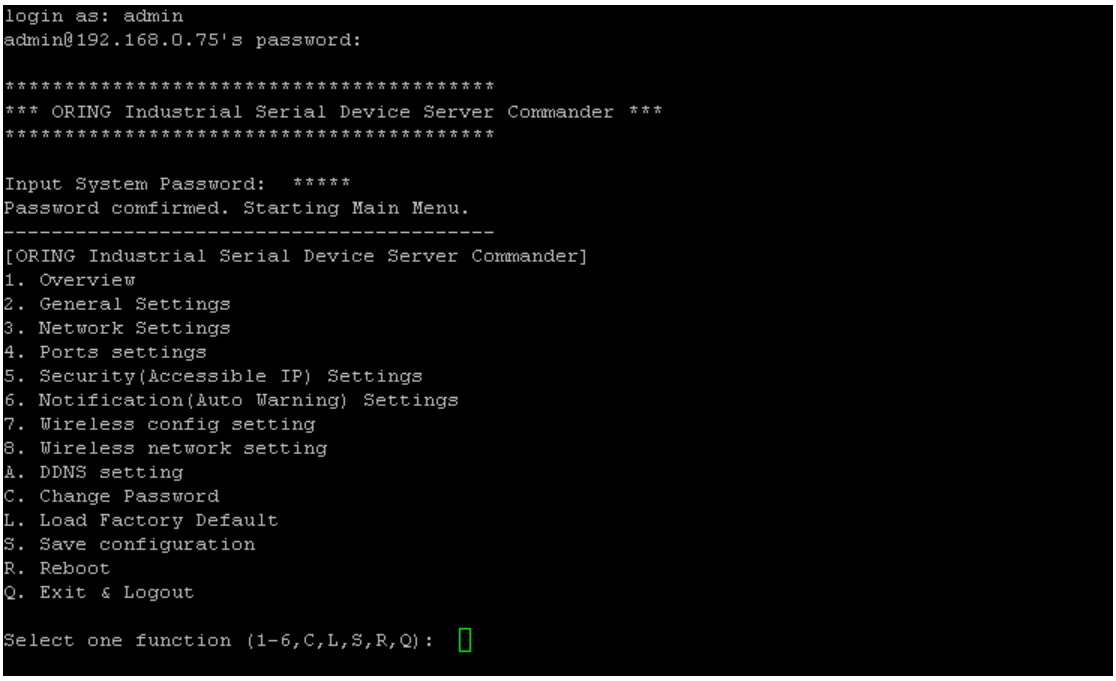



*Figure 5-38 SSH*

# Technical Specifications

| ORing Device Server Model | TDS-5041-I-M12 |
|---|---|
| **Physical Ports** | |
| 10/100 Base-T(X) Ports in M12<br>Auto MDI/MDIX | **1 (4-pin D-Coding in female connector)** |
| **Serial Ports** | |
| Connector | M12 x 4 (5-pin A-coding in male connector) |
| Operation Mode | RS-422 / 4(2)-Wire RS-485. Which can be configured by DS-Tool |
| Serial Baud Rate | 110 bps to 460.8 Kbps |
| Data Bits | 5, 6, 7, 8 |
| Parity | odd, even, none, mark, space |
| Stop Bits | 1, 1.5, 2 |
| RS-232 | TxD, RxD, GND |
| RS-485 (2-wire) | Data+, Data-,GND |
| Flow Control | XON/XOFF |
| Isolation | 2KVDC |
| **Network Protocol** | |
| Protocol | ICMP, IP, TCP, UDP, DHCP, BOOTP, SSH, DNS, SNMP V1/V2c, HTTPS, SMTP, DDNS, PPPoE |
| **LED Indicators** | |
| Power Indicator | Red On: Power is on and booting up.<br>Red Blinking: Indicates an IP conflict, or DHCP or BOOTP server did not respond properly.<br>Green On: Power is on and functioning Normally.<br>Green Blinking: Located by Administrator. |
| 10/100TX Port indicator | Green for port Link/Act at 100Mbps. Amber for port Link/Act at 10Mbps. |
| Serial TX / RX LEDs: | Red: Serial port is receiving data<br>Green: Serial port is transmitting data |
| **Power** | |
| Input Power | Power Inputs. 12-48VDC x 1(5-pin M12 female in A-coding) |
| Power consumption (Typ.) | 5.5 |
| Overload current protection | Present |
| **Physical Characteristic** | |
| Enclosure | IP-40 |
| Dimension (W x D x H) | 170(W) x 65 (D) x 195(H) mm (6.69 x2.55x7.7.67 inch.) |
| Weight (g) | 950g |
| **Environmental** | |

| | |
|---|---|
| Storage Temperature | -40 to 85°C (-40 to 185°F) |
| Operating Temperature | -40 to 70°C (-40 to 158°F) |
| Operating Humidity | 5% to 95% Non-condensing |
| **Regulatory Approvals** | |
| EMI | FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2) |
| EMS | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11 |
| Shock | IEC60068-2-27, EN61373 |
| Free Fall | IEC60068-2-32 |
| Vibration | IEC60068-2-6, EN61373 |
| **Warranty** | 5 years |