

## iDS6-P User's Manual

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Industrial 4 Port RS422/485 to 2 Port  
Ethernet Serial Device Server with PoE



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This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can generate, use, and radiate radio frequency energy. If not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will at his/her own expense, be required to correct the interference.

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# Introduction

## 1.1 About the iDS6 Serial Device Server

The iDS6 series is an industrial grade serial server with 4 ports RS232/422/485 and 2 LAN ports with optional isolation form RS-422/485 serial ports and one P.O.E PD Ethernet port. Users are able to configure the iDS6 using a web browser via one of the LAN ports on the iDS6. The iDS6 series offers many powerful features for HW & SW redundant functions.

When the connection between master-link and LAN fails, if setup in Redundant mode the iDS6 can automatically switch to the other LAN port within 10m, and thus guarantee a non-stop connection. The iDS6 series also supports Switch mode, allowing users to Daisy Chain several serial servers to reduce the usage of Ethernet switch ports. Also, the iDS6 can simultaneously transfer data into 5 host PCs. This feature can assure all critical data is saved in different host PCs to avoid Ethernet break or host PCs failure.

Additionally, the iDS6 series provides dual redundant power inputs on a terminal block connection. The iDS6 series provides NAT pass through function so that users are able to manage iDS6 inside or outside the NAT router.

## 1.2 Software Features

- ✦ Redundant Dual Ethernet Ports: Recovery time < 10ms.
- ✦ Switch Mode Supported: Daisy Chain support to reduce usage of switch ports.
- ✦ NAT-pass through: User can manage iDS6 through NAT router.
- ✦ Redundant multiple host devices: 5 simultaneous in Virtual COM, TCP Server, TCP Client mode, UDP.
- ✦ Secured Management by HTTPS and SSH.
- ✦ Versatile Mode: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- ✦ Event Warning by Syslog, Email, SNMP trap, Relay and Beeper
- ✦ Various Windows O.S. supported: Windows NT/2000/ XP/ 2003/VISTA 32bits

## 1.3 Hardware Features

- ✦ 2 x 10/100Base-T(X) Ethernet port
- ✦ 1 optional PoE PD port (IEEE 802.3af compliant)
- ✦ 4 x isolated serial port (DB9 or 5 pin terminal block)
- ✦ Dual Power Input low-voltage (LV) DC (10-48VDC)
- ✦ Dual Power Input medium-voltage (MV) DC (36-75VDC)
- ✦ Single Input Hi-voltage (HV) AC/DC input (85-264VAC, 880-300VDC) with Single (10-48VDC) backup
- ✦ Wide Operating Temperature: -40 to 85°C
- ✦ Storage Temperature: -40 to 85°C
- ✦ Operating Humidity: 5% to 95%, non-condensing
- ✦ Chassis: IP-40 Galvanized Steel
- ✦ Dimensions: 52 mm(W)x 106.1 mm( D )x 144.3 mm(H)

# **Hardware Installation**

## **2.1 Installing the Server on a DIN-Rail**

Each server has a DIN-Rail bracket on the rear panel. The DIN-Rail bracket secures the server onto the DIN-Rail.

### **Mounting the iDS6 Series on a DIN-Rail**

Step 1: Slant the server and hook the metal bracket on to the top of the DIN-Rail.



DIN-Rail  
Bracket

Step 2: Push the bottom of the server toward the DIN-Rail until the bracket snaps in place.



## 2.2 Panel or Wall Mount Installation

The server can also be panel or wall mounted. The following steps show how to mount the server on a panel or wall.

### Mounting the iDS6 Series on a Panel or Wall

Option 1: Fix mounting brackets to the side of server using the 4 screws included in the package.



Option 2: Fix mounting brackets to the back of server using 4 screws included in the package.

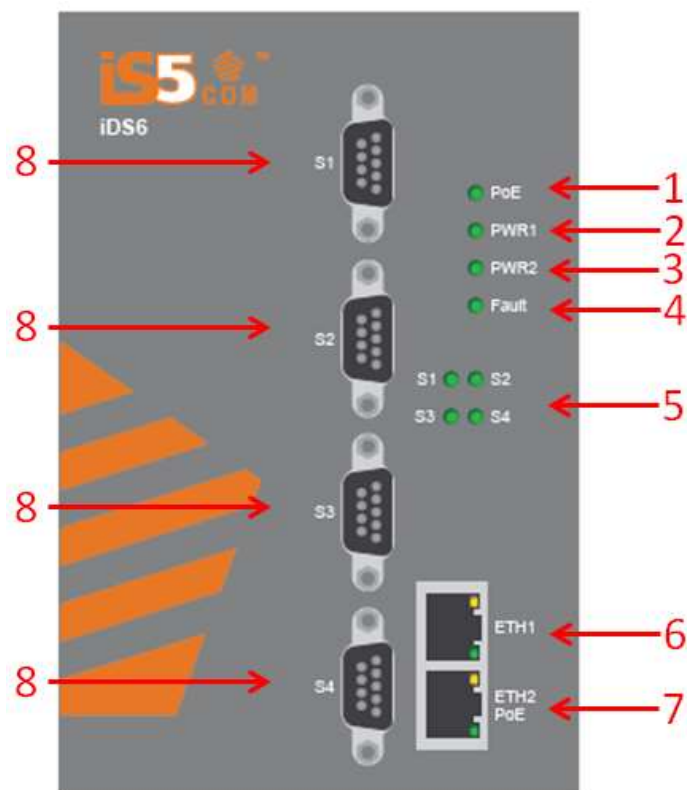




Note: To avoid damage to the unit please use the screws provided to mount the panel mount brackets to the unit.

## Hardware Overview

### 3.1 iDS6 Front Panel



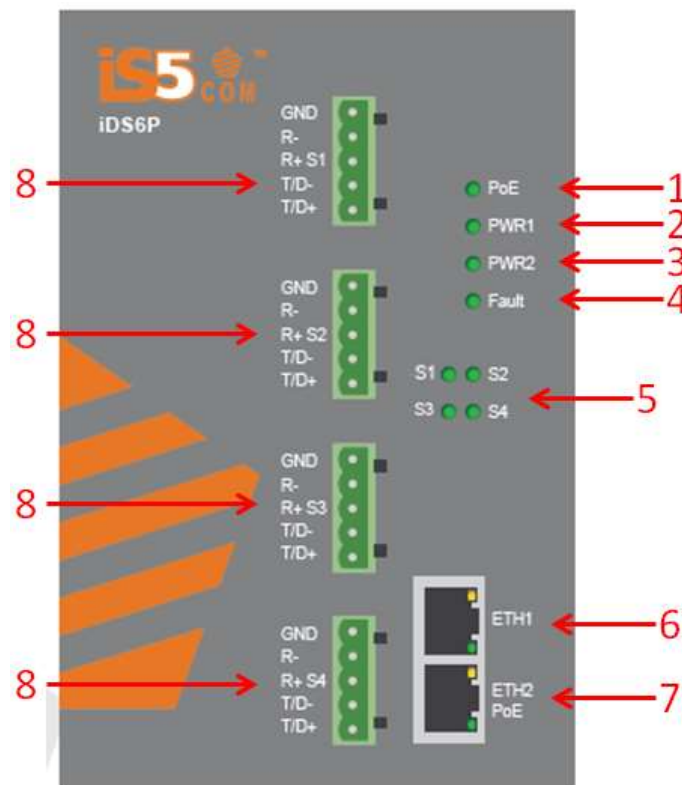
iSD6 Front Panel illustration

iDS6 Front Panel Item Descriptions:

1. PoE and system status LED (optional).

2. PWR1 and system status LED.
3. PWR2 and system status LED.
4. Fault indicator LED.
5. Status LEDs for the 4 Serial ports.
6. 10/100Base-T(X) Ethernet port and Ethernet status LEDs.
7. 10/100Base-T(X) Ethernet port (optional PoE PD port) and Ethernet status LEDs.
8. 4x RS-232/422/485 serial ports.

### 3.2 iDS6P Front Panel



iDS6P Front Panel illustration

iDS6P Front Panel Item Descriptions:

1. PoE and system status LED.

2. PWR1 and system status LED.
3. PWR2 and system status LED.
4. Fault indicator LED.
5. Status LEDs for the 4 Serial ports.
6. 10/100Base-T(X) Ethernet port and Ethernet status LEDs.
7. 10/100Base-T(X) Ethernet port (PoE PD port) and Ethernet status LEDs.
8. 4x RS-422/485 serial ports with 2KV isolation.

### 3.3 Front Panel LEDS

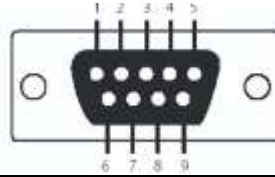
The following table describes the LED status for the iDS6/iDS6P.

LED	Color	Status	Description
<b>P.O.E</b> (iDS6 Optional)	Green / Red	On	Power supplied over Ethernet Cable
		Red Blinking	Indicates and IP conflict, or DHCP or BOOTP server did not respond properly
<b>PWR1</b>	Green/Red	On	AC/DC power 1 activated.
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
<b>PWR2</b>	Green/Red	On	DC power 2 activated.
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
<b>Fault</b>	Red	On	Fault event occurred.
<b>S1 ~ S4</b>	Green	Blinking	Serial port is transmitting data
	Red	Blinking	Serial port is receiving data
<b>ETH1</b>	Green/Amber	Green On/Blinking	100Mbps LNK/ACT
		Amber On/Blinking	10Mbps LNK/ACT
<b>ETH2</b>	Green/Amber	Green On/Blinking	100Mbps LNK/ACT
		Amber On/Blinking	10Mbps LNK/ACT

### 3.4 DB9 Serial Ports

There are 4 DB9 serial ports on the front panel of iDS6. The pin out is shown as below:

**DB9 Connector (iDS6)**

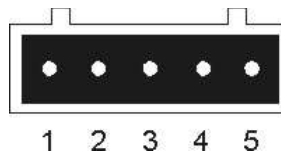


Pin #	RS 232	RS 422	RS 485 ( 4 wire )	RS 485 ( 2 wire )
1	DCD	RXD -	RXD -	
2	RXD	RXD +	RXD +	
3	TXD	TXD +	TXD +	DATA +
4	DTR	TXD -	TXD -	DATA -
5	GND	GND	GND	GND
6	DSR			
7	RTS			
8	CTS			
9	RI			
RS 232 mode will act as DTE				

### 3.5 Terminal Block Serial Ports (5 Pin)

There are 4, 5 Pin Terminal Block serial ports on the front panel of iDS6P. The pin out is shown as below:

**5 Pin Terminal Block Connector (iDS6P)**



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

### 3.6 Power Supply Connections

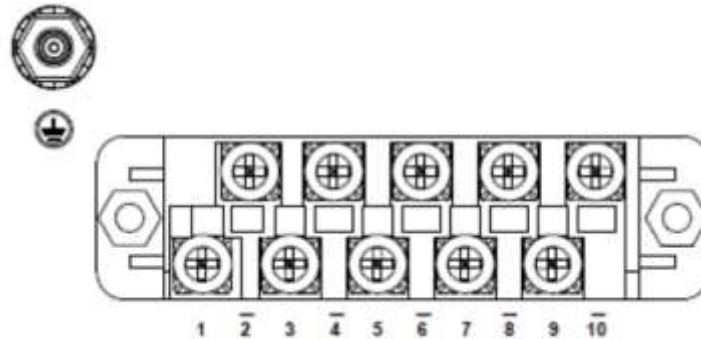
The Phillips Screw Terminal Block, located on the bottom of the unit, has Phillips screws with compression plates, allowing either bare wire connections or crimped terminal lugs. The use of #6 size ring lugs is recommended to ensure secure and reliable connections under severe shock or vibration. The terminal block comes with a safety cover which must be removed before connecting any wires. This

cover must be re-attached after wiring to ensure personnel safety.

The iDS6 series supports dual redundant power supplies (PWR1 and PWR2). There are 3 options:

1. LV: Dual Input 10-48VDC
2. MV: Dual Input 36-75VDC
3. HV: Single Input 88-300VDC or 85-264VAC with a Single 10-48VDC backup.

There are also connections for the Failsafe Relay. Connections to the Terminal block are listed in the table below.



**Terminal Block**

<i>Terminal Number</i>	<b>Description</b>	<b>Connection</b>
1	PWR1 (L) – Live	Connect to the (Live) of DC power supply 1 or (Live) terminal of an AC power source.
2	PWR1 (G) – Ground	DC Power supply 1 ground connection or AC power round connection.
3	PWR1 (N) – Neutral	Connect to the Neutral of the DC power supply 1 or (Neutral) terminal of an AC power source.
4	G – Chassis Ground	Connected to the ground bus for DC inputs or Safety Ground terminal for AC Units. Chassis Ground connects to both power supply surge grounds via a removable jumper.
5	PWR2 (L) – Live	Connect to the (Live) terminal of Power supply 2 or backup DC power source for HV.
6	PWR2 (G) – Ground	Power supply 2 or backup DC power source ground connection.
7	PWR2 (N) – Neutral	Connect to the (Neutral) terminal of Power supply 2 the second or backup DC power source for HV.
8	RLY NO	Failsafe Relay, (Normally Open) contact.
9	RLY CM	Failsafe Relay (Common) contact.
10		No Connection



- 100-240VAC rated equipment: A 250VAC appropriately rated circuit breaker must be installed.
- Equipment must be installed according to the applicable country wiring codes.
- When equipped with a HI voltage power supply and DC backup,



- 88-300VDC rated equipment: A 300VDC appropriately rated circuit breaker must be installed.
- A circuit breaker is not required for DC power supply voltages of 10-48VDC.
- For Dual DC power supplies, separate circuit breakers must be installed and separately identified.
- Equipment must be installed according to the applicable country wiring

### 3.7 Chassis Ground Connection

The iDS6/iDS6P chassis ground connection, located next to the terminal block, uses a #6-32 Screw. We recommend terminating the ground connection using a #6 ring lug, and a torque setting of 15 in.lbs (1.7Nm).

# Cables

## 4.1 Ethernet Cables

The iDS6 series has standard Ethernet ports. According to the link type, the Device Server can 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)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

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	TD+
2	TD-
3	RD+
4	PoE. power input +
5	PoE. power input +
6	RD-
7	PoE. power input -
8	PoE. power input -

RJ-45 Pin Assignments

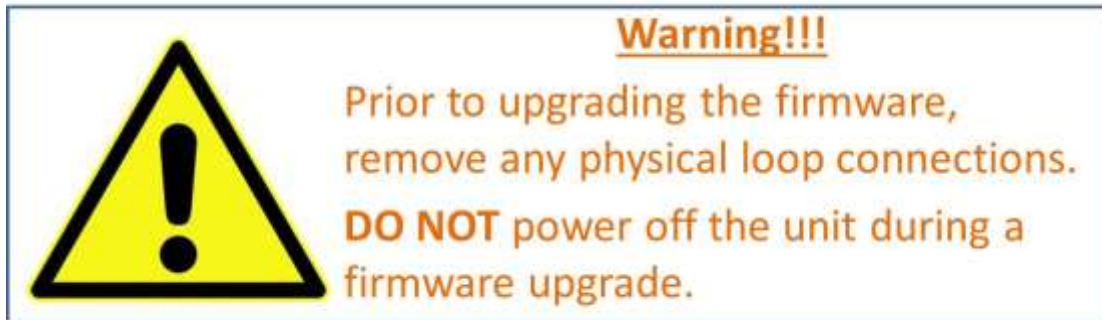
The iDS6 Series supports auto MDI/MDI-X operation. You can use a straight-through cable to connect a PC to the iDS6. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	PoE. power input +
5	Not used	PoE. power input +
6	RD-(receive)	TD-(transmit)
7	Not used	PoE. power input -
8	Not used	PoE. power input -

MDI / MDI-X pins assignment

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

# Management Interface



## 5.1 Configuration by Web Browser

This section introduces the configuration by Web browser.

### 5.1.1 About Web-based Management

An embedded HTML web site resides in the flash memory of the CPU board. It contains advanced management features which allow you to manage the Device server from anywhere on the network via a standard web browser such as Microsoft Internet Explorer.

The Web-Based Management function supports Internet Explorer 5.0 or later. It is based on Java Applets with an aim at reducing network bandwidth consumption and enhances access speed in a viewing screen.

**Note:** By default, IE5.0 or later versions do not allow Java Applets to open sockets. The browser settings need to be explicitly modified in order to enable Java Applets to use the network ports.

#### **Preparing for Web Management**

The default values are below:

IP Address: **192.168.10.2**

Subnet Mask: **255.255.255.0**

Default Gateway: **192.168.10.254**

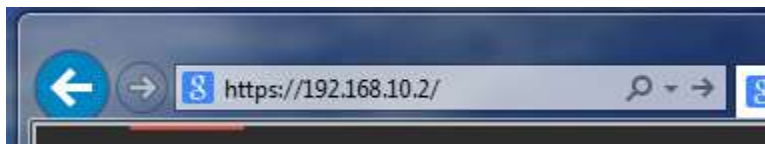
User Name: **admin**

Password: **admin**

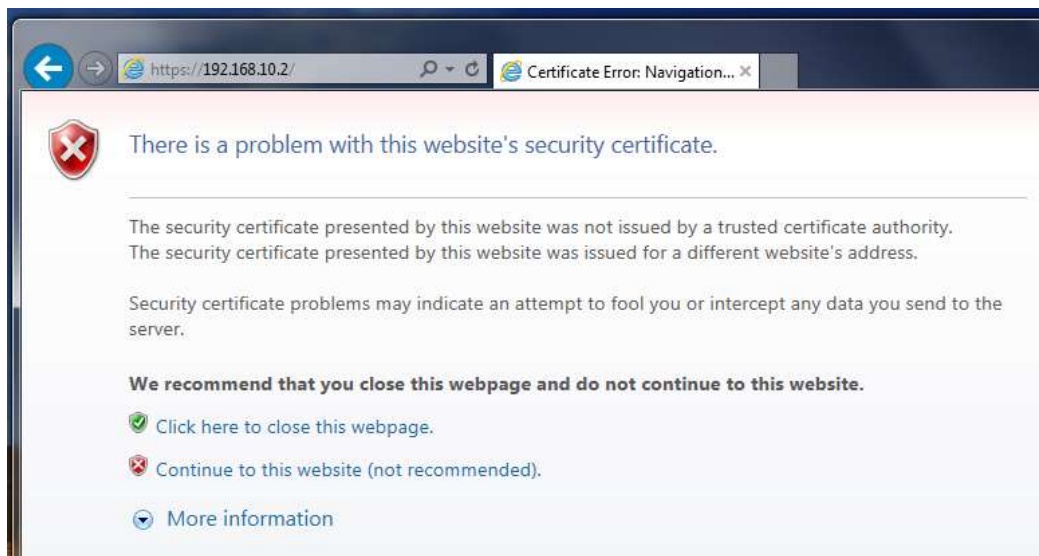
#### **System Login**

1. Launch Internet Explorer.
2. Type `https://` and the switches IP address. Press "**Enter**".





3. When the following screen appears, select *"Continue to this website"*.



4. The login screen appears.



Login screen

5. Key in the username and password. The default username and password are **"admin"**.

6. Press **“Enter”** or click the **“OK”** button. The main interface of the Web-based management appears.



System Information

## 5.1.2 System Setting

### 5.1.2.1 System Information

Displays System Information of the Device Server.

System Information	
IP Address	192.168.10.2
MAC Address	E8-E8-75-00-00-02
Firmware Version	1.0

System Information interface

The following table describes the System Information interface page.

Label	Description
<b>IP Address</b>	Displays the IP address assigned to the Device Server.
<b>MAC Address</b>	Displays the unique hardware address (MAC) assigned by manufacturer.
<b>Firmware Version</b>	Displays the switch's firmware version.

### 5.1.2.2 SNTP Configuration

The SNTP (Simple Network Time Protocol) settings allow the Device Server clock to be synchronized the Internet.

SNTP Configuration interface

The following table describes the SNTP Configuration interface page.

Label	Description
<b>Name</b>	Sets the name of the Device Server.
<b>SNTP Client</b>	Enables or disables the SNTP function to get the time from a SNTP server.
<b>Time zone</b>	Sets the time zone based on the Device Server location. The table below lists the different time zones for reference.
<b>Local Time</b>	Displays the current time of the Device Server.
<b>Time Server</b>	Input the SNTP server domain name or IP address and Port.
<b>Telnet Console</b>	Enables or Disables the option to allow a Telnet Console (SSH) connection. In some cases, you may need to disable this function to prevent unauthorized access from internet. The factory default is Enable.
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.2.3 IP Configuration

This screen allows the IP and Auto Report settings to be configured. A valid IP address should be assigned to the DS before adding it to an existing network. 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, and PPPoE. The Factory Default is a static IP address and is "**192.168.10.2**"

**IP Configuration**

IP Configuration	Static ▼
IP Address	192.168.10.2
Netmask	255.255.255.0
Gateway	192.168.10.1
DNS Server 1	192.168.10.1
DNS Server 2	
<b>Auto IP Report</b>	
Auto Report to IP	
Auto Report to TCP Port	0
Auto Report Interval	0 seconds
<b>Ethernet Mode</b>	
Ethernet Mode	<input checked="" type="radio"/> Redundant <input type="radio"/> Switch

IP Configuration interface

The following table describes the labels in IP configuration interface page.

Label	Description
<b>IP Configuration</b>	Select from the following type of IP: <ul style="list-style-type: none"> <li>Static</li> <li>DHCP/BOOTP</li> <li>PPPoE</li> </ul>
<b>IP Address</b>	Assign the IP address that the network is using. If DHCP client function is enabled, there is no need to assign an IP address. The network DHCP server will assign the IP address for the switch and it will be displayed in this column. The default IP address is 192.168.10.2.
<b>Netmask</b>	Set the subnet mask to communicate on the network. If the DHCP client function is enabled, a Netmask is not needed.
<b>Gateway</b>	Assign the network gateway for the switch. The default gateway is 192.168.10.254. If the DHCP client function is enabled, a Gateway is not needed.
<b>DNS1</b>	Assign the primary DNS IP address. If the DHCP client function is enabled, a DNS is not needed.
<b>DNS2</b>	Assign the secondary DNS IP address. If the DHCP client function is enabled, a DNS is not needed.
<b>Auto Report to IP</b>	The Device Server will report its status periodically. Enter the IP address where the report is to be sent.
<b>Auto Report to TCP Port</b>	The Device Server will report its status periodically. Enter the TCP Port where the report is to be sent.

<b>Auto Report Interval</b>	Set the report interval to the number of seconds between each report. The default setting is 0 which indicates that the Auto Report is disabled.
<b>Ethernet Mode</b>	Select one of the two Ethernet Modes: <b>Redundant:</b> When the connection between master-link and LAN fails, the Device Server will automatically switch to another LAN port within 10mS, and still guarantees a non-stop connection.  <b>Switch:</b> Daisy Chain support to reduce usage of switch ports.
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.2.4 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.

DDNS Configuration interface

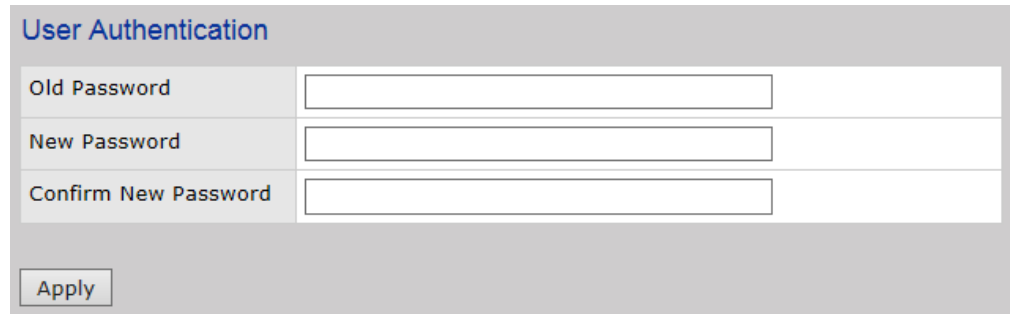
The following table describes the labels in DDNS configuration interface page.

Label	Description
<b>DDNS</b>	Enable or Disable DDNS.
<b>Service Provider</b>	Choose the DDNS service provider.
<b>Host Name</b>	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.
<b>Account</b>	Input the Account you have registered with the DDNS service Provider.
<b>Password</b>	Input the Password for the account you have registered with the DDNS service Provider.

<b>Check WAN IP Schedule</b>	Device Server will check the IP address Status at the interval time you set.
<b>Apply</b>	Click "Apply" to activate the configurations.

### 5.1.2.5 User Authentication

User Authentication allows the web management password to be changed.



The screenshot shows a web interface titled "User Authentication". It contains three input fields: "Old Password", "New Password", and "Confirm New Password". Below these fields is an "Apply" button.

User Authentication interface

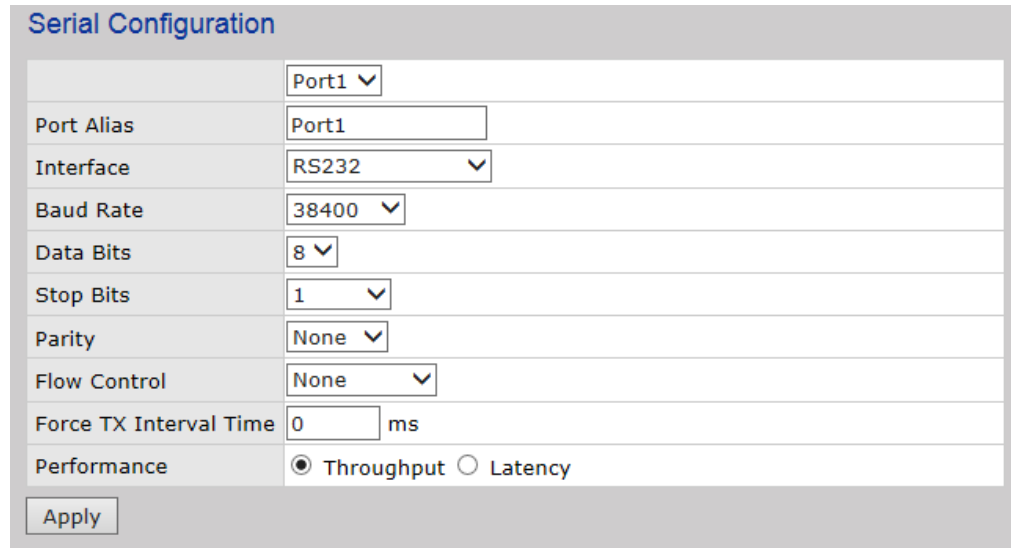
The following table describes the User Authentication interface page.

Label	Description
<b>Old Password</b>	Key in the old password (The default is "admin").
<b>New Password</b>	Key in the new password.
<b>Confirm password</b>	Re-type the new password.
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

## 5.1.3 Port Serial Setting

### 5.1.3.1 Serial Configuration

Each of the 4 serial ports can be configured by selecting the port number from the drop down menu, editing the parameters, and clicking "Apply".



The screenshot shows the 'Serial Configuration' interface. It features a series of configuration fields: 'Port' (dropdown menu showing 'Port1'), 'Port Alias' (text input with 'Port1'), 'Interface' (dropdown menu showing 'RS232'), 'Baud Rate' (dropdown menu showing '38400'), 'Data Bits' (dropdown menu showing '8'), 'Stop Bits' (dropdown menu showing '1'), 'Parity' (dropdown menu showing 'None'), 'Flow Control' (dropdown menu showing 'None'), 'Force TX Interval Time' (text input with '0' and a unit 'ms'), and 'Performance' (radio buttons for 'Throughput' and 'Latency', with 'Throughput' selected). An 'Apply' button is located at the bottom left of the configuration area.

Serial Configuration interface

The following table describes the Serial Configuration interface page.

Label	Description
<b>Port</b>	Select a port (1-4) to see the settings.
<b>Port Alias</b>	Each port can be given a name (Defaults are: Port1, Port2, Port3, Port4). This allows the port to indicate the connected device.
<b>Interface</b>	Select the interface (RS232, RS422, RS485 2 wire, or RS485 4 wire). The default is RS232.
<b>Baud Rate</b>	The Baud rate can be set to: 110, 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, or 460800 bps. The default is 38400 bps.
<b>Data Bits</b>	Data Bits can be set to: 5, 6, 7, or 8. The default is 8.
<b>Stop Bits</b>	Stop Bits can be set to: 1 or 2(1.5). The default is 1.
<b>Parity</b>	Parity can be set to: None, Odd, Even, Mark, or Space. The default is None.
<b>Flow Control</b>	Flow control can be set to: None, XON/XOFF, RTS/CTS, DTR/DSR. The default is None
<b>Force TX Interval Time</b>	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or the TX buffer is full (4K Bytes), the queued data will be sent. When set to 0, this function is disabled. Factory default value is 0.
<b>Performance</b>	Select one of the two Performance Modes: <b>Throughput</b> provides optimization for highest transmission speed. <b>Latency</b> provides optimization for shortest response time.
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.3.2 Port Profile

Port Profile

	Port1 ▼
Local TCP Port	4000
Command Port	4001
Mode	Serial to Ethernet
Flush Data Buffer After	0 ms
Delimiter(Hex 0~ff)	1: 00 2: 00 3: 00 4: 00
Mode	Ethernet to Serial
Flush Data Buffer After	0 ms
Delimiter(Hex 0~ff)	1: 00 2: 00 3: 00 4: 00

Apply

Port Profile interface

The following table describes the Port Profile interface page.

Label	Description
<b>Port</b>	Select a port (1-4) to see the settings.
<b>Local TCP Port</b>	Enter the Local TCP Port.
<b>Command Port</b>	Enter the Command Port.
<b>Flush Data Buffer After</b>	Enter the amount of time that the received data will be queued in the buffer. If the buffer is full (4K Bytes) or if all Delimiters are reached before the time specified the data will be sent. The time can be set from 0 to 65535 seconds.
<b>Delimiter(Hex 0~ff)</b>	The received data will be queued in the buffer until all the delimiters are reached. Up to 4 delimiters (00-FF, Hex) can be set. If the buffer is full (4K Bytes) or if "Flush Data Buffer After" timeout is reached before the Delimiters are met, the data will be sent.
<b>Apply</b>	Click "Apply" to activate the configurations.



### 5.1.3.3 Service Mode – Virtual COM

In Virtual COM Mode, the driver establishes a transparent connection between host and serial device by mapping the Port of the Device 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.

Service Mode –Virtual COM interface

The following table describes the Service Mode – Virtual COM interface page.

Label	Description
<b>Port</b>	Select a port (1-4) to see the settings.
<b>Data Encryption</b>	Can be enabled or disabled. SSL data encryption is used.
<b>Service Mode</b>	Select Virtual COM Mode. The default is Virtual COM Mode.
<b>Idle Timeout</b>	When the serial port stops data transmission for a defined period of time (Idle Timeout between 0 and 65535 seconds), the connection will be closed and the port will be available to connect with other hosts. When set to 0 this function is disabled. The factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
<b>Alive Check</b>	The serial device will send TCP alive-check packet in each Alive Check defined time interval (0 to 65535 seconds) to the remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will become available. When set to 0 this function is disabled. The factory default value is 40.
<b>Max Connection</b>	Select the max number of simultaneous connections between 1 and 5. The default is 1.
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.3.4 Service Mode – TCP Server

In TCP Server Mode, the Device Server is configured with a unique Port combination on a TCP/IP network. In this case, the Device Server 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 supports up to 5 simultaneous connections, so that multiple devices can receive data from the same serial device at the same time.

Service Mode – TCP Server interface

The following table describes the Service Mode – TCP Server interface page.

Label	Description
<b>Port</b>	Select a port (1-4) to see the settings.
<b>Data Encryption</b>	Can be enabled or disabled. SSL data encryption is used.
<b>Service Mode</b>	Select TCP Server Mode. The default is Virtual COM Mode.
<b>TCP Server Port</b>	Set the Port number for data transmission.
<b>Idle Timeout</b>	When the serial port stops data transmission for a defined period of time (Idle Timeout between 0 and 65535 seconds), the connection will be closed and the port will be available to connect with other hosts. When set to 0 this function is disabled. The factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
<b>Alive Check</b>	The serial device will send TCP alive-check packet in each Alive Check defined time interval (0 to 65535 seconds) to the remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will become available. When set to 0 this function is disabled. The factory default value is 40.
<b>Max Connection</b>	Select the max number of simultaneous connections between 1 and 5. The default is 1.
<b>Apply</b>	Click “ <b>Apply</b> ” to activate the configurations.

### 5.1.3.5 Service Mode – TCP Client

In TCP Client Mode, the Device Server can establish a TCP connection with a server by the method you set (Startup or any character). After the data has been transferred, the Device Server can disconnect automatically from the server by using the TCP Alive Check time or Idle Timeout settings.

Service Mode

Port1 ▾

Data Encryption

☐ Enable
 ☒ Disable

Service Mode

TCP Client Mode ▾

Destination Host

:

Idle Timeout

(0~65535)seconds

Alive Check

(0~65535)seconds

Connect on

☒ Startup
 ☐ Any Character

Destination Host

Port

1.

2.

3.

4.

Apply

Service Mode – TCP Client interface

The following table describes the Service Mode – TCP Client interface page.

Label	Description
<b>Port</b>	Select a port (1-4) to see the settings.
<b>Data Encryption</b>	Can be enabled or disabled. SSL data encryption is used.
<b>Service Mode</b>	Select TCP Client Mode. The default is Virtual COM Mode.
<b>Destination Host</b>	Set the IP address of host and the port number of the data port.
<b>Idle Timeout</b>	When the serial port stops data transmission for a defined period of time (Idle Timeout between 0 and 65535 seconds), the connection will be closed and the port will be available to connect with other hosts. When set to 0 this function is disabled. The factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
<b>Alive Check</b>	The serial device will send TCP alive-check packet in each Alive Check defined time interval (0 to 65535 seconds) to the remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will become available. When set to 0 this function is disabled. The factory default value is 40.
<b>Connect On</b>	Select when the Device Server will connect. Select between: <b>Startup</b> : the TCP Client will make a TCP connection once the connected serial device is started. <b>Any Character</b> : the TCP Client will make a TCP connection once the connected serial device starts to send data.

<b>Destination Host</b>	
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.3.6 Service Mode – UDP

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

Service Mode – UDP interface

The following table describes the Service Mode – UDP interface page.

Label	Description
<b>Port</b>	Select a port (1-4) to see the settings.
<b>Data Encryption</b>	Can be enabled or disabled. SSL data encryption is used.
<b>Service Mode</b>	Select TCP Client Mode. The default is Virtual COM Mode.
<b>Listen Port</b>	Set the Listen Port.
<b>Host Start IP</b>	First Host IP address.
<b>Host End IP</b>	Last Host IP address.
<b>Send Port</b>	Set the Send Port
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.3.7 Modbus RTU Slave Mode

The Modbus RTU Slave mode allows communications between a host computer and a slave device. After a host computer sends a command, the slave device processes the command and returns a response to the host computer. This process is repeated, allowing the host computer to monitor and control controller operation.

Serial Setting --> Service Mode

	Port1 ▼
Service Mode	Modbus RTU Slave Mode ▼
TCP Server Port	502
Max Connection	10 (1~128)Connection
Max Try Time	5 (0~15)Try Times
Request Pause	100 (1~10000) msec
Response Wait	100 (1~10000) msec
Idle Timeout	10 (1~10000)seconds

Apply Refresh

Label	Description
<b>Port</b>	Select the port that the configuration is applied to.
<b>TCP Server Port</b>	Indicates the port used for the Modbus/TCP communication
<b>Max Connection</b>	The total number of remote TCP/IP clients allowed to connect to this server.
<b>Max Try Time</b>	The maximum number of request retries performed serially.
<b>Request Pause</b>	The delay between serial requests in milliseconds
<b>Response Wait</b>	The serial response timeout in milliseconds
<b>Idle Timeout</b>	Enter a TCP connection timeout in seconds. When no Modbus/TCP data is received within this timeout, the TCP connection will be dropped.
<b>Apply</b>	Click <b>"Apply"</b> to activate the configuration
<b>Refresh</b>	Click <b>"Refresh"</b> to refresh the port configuration

### 5.1.3.8 Modbus RTU Master Mode

The Modbus RTU Master mode is used to connect to the serial device which runs as RTU slave. Serial port server will connect to the remote TCP Server, which is also called Modbus TCP Slave.

Serial Setting --> Service Mode

	Port1 ▼
Service Mode	Modbus RTU Master Mode ▼
Destination Host	<input type="text"/> : 502
Idle Timeout	<input type="text"/> 0 (0~65535)seconds
Alive Check	<input type="text"/> 0 (0~65535)seconds

Apply

Label	Description
Port	Select the port that the configuration is applied to.
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, the connection will be closed and the port will be freed and try to connect with other hosts. <b>0</b> indicate disable this function and is also the factory default value. If multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check packages in each defined time interval 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. <b>0</b> indicate disable this function. Factory default is <b>0</b> .
Apply	Click " <b>Apply</b> " to activate the configuration

### 5.1.3.9 Modbus ASCII Slave Mode

Modbus ASCII Slave mode works the same as Modbus/RTU Slave mode, except that the data format is Modbus/ASCII.

Serial Setting --> Service Mode

	Port1 ▼
Service Mode	Modbus ASCII Slave Mode ▼
TCP Server Port	502
Max Connection	10 (1~128)Connection
Max Try Time	5 (0~15)Try Times
Request Pause	100 (1~10000) msec
Response Wait	100 (1~10000) msec
Idle Timeout	10 (1~10000)seconds

Apply Refresh

Label	Description
Port	Select the port that the configuration is applied to.
TCP Server Port	Indicates the port used for the Modbus/TCP communication
Max Connection	The total number of remote TCP/IP clients allowed to connect to this server.
Max Try Time	The maximum number of request retries performed serially.
Request Pause	The delay between serial requests in milliseconds
Response Wait	The serial response timeout in milliseconds
Idle Timeout	Enter a TCP connection timeout in seconds. When no Modbus/TCP data is received within this timeout, the TCP connection will be dropped.
Apply	Click <b>"Apply"</b> to activate the configuration
Refresh	Click <b>"Refresh"</b> to refresh the port configuration

### 5.1.3.10 Modbus ASCII Master Mode

Serial Setting --> Service Mode

	Port1 ▼
Service Mode	Modbus ASCII Master Mode ▼
Destination Host	<input type="text"/> : <input type="text" value="502"/>
Idle Timeout	<input type="text" value="0"/> (0~65535)seconds
Alive Check	<input type="text" value="0"/> (0~65535)seconds
<input type="button" value="Apply"/>	

Label	Description
<b>Port</b>	Select the port that the configuration is applied to.
<b>Destination Host</b>	Set the IP address of host and the port number of data port.
<b>Idle Timeout</b>	When serial port stops data transmission for a defined period of time, the connection will be closed and the port will be freed and try to connect with other hosts. <b>0</b> indicate disable this function. Factory default value is <b>0</b> . If Multilink is configured, only the first host connection is effective for this setting.
<b>Alive Check</b>	The serial device will send TCP alive-check packages in each defined time interval 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. <b>0</b> indicate disable this function. Factory default is <b>0</b> .
<b>Apply</b>	Click " <b>Apply</b> " to activate the configuration



## 5.1.4 Device Server Management

### 5.1.4.1 Access IP Control List

With the Access IP Control List you can allow only specific remote host IP addresses to prevent unauthorized access. If a host's IP address is in the accessible IP table and Activated, then the host will be allowed to access the Device Server.

**Access IP Control List**

☐ Enable IP Filtering (Not check this option will allow any IP to have assessability)

No.	Activate the IP	IP Address	Netmask
1	<input type="checkbox"/>		
2	<input type="checkbox"/>		
3	<input type="checkbox"/>		
4	<input type="checkbox"/>		
5	<input type="checkbox"/>		
6	<input type="checkbox"/>		
7	<input type="checkbox"/>		
8	<input type="checkbox"/>		
9	<input type="checkbox"/>		
10	<input type="checkbox"/>		
11	<input type="checkbox"/>		
12	<input type="checkbox"/>		
13	<input type="checkbox"/>		
14	<input type="checkbox"/>		
15	<input type="checkbox"/>		
16	<input type="checkbox"/>		

Access IP Control List interface

The following table describes the Access Control List interface page.

Label	Description
<b>Enable IP Filtering</b>	When this box is checked IP Filtering is enabled. If it is left unchecked IP Filtering is disabled and any host can access the Device Server.
<b>Activate the IP</b>	When any of these lines is checked that line will be used to filter the allowed IP Addresses.
<b>IP Address</b>	Enter the IP Address or the IP Subnet to be allowed.
<b>Netmask</b>	Enter 255.255.255.255 to allow only a specific IP Address or enter the Subnet Mask of the Subnet (eg. 255.255.255.0) to allow all IP addresses on that subnet.
<b>Apply</b>	Click " <b>Apply</b> " to activate the configurations.

### 5.1.4.2 SMTP/SNMP Configuration

With the SMTP/SNMP Configuration interface you can setup E-mail settings, SNMP Trap server and Syslog settings. For E-mail notification up to 4 E-mail addresses can be specified. For SNMP Trap server settings up to 4 SNMP addresses can be specified.

**SMTP/SNMP Configuration**

**E-mail Settings**

SMTP Server  Port

☐ My server requires authentication

User Name

Password

E-mail Sender

E-mail Address 1

E-mail Address 2

E-mail Address 3

E-mail Address 4

**SNMP Trap Server**

SNMP Server 1

SNMP Server 2

SNMP Server 3

SNMP Server 4

Community

Location

Contact

**Syslog Server**

Syslog Server IP

Syslog Server Port

SMTP/SNMP Configuration interface

The following table describes the SMTP/SNMP Configuration interface page.

Label	Description
<b>SMTP Server and Port</b>	Enter the SMTP Server IP Address and Port
<b>Authentication</b>	If your server requires authentication, check the "My server requires authentication" box and enter the User Name and Password.

<b>E-mail Sender</b>	Enter the E-mail address that the message will be sent from.
<b>E-mail Address</b>	Enter up to 4 E-mail addresses to receive notification.
<b>SNMP Server</b>	Enter up to 4 server addresses to receive notification.
<b>Community</b>	Enter the server community.
<b>Location</b>	Enter the location of the server.
<b>Contact</b>	Enter the name of the server administrator.
<b>Syslog Server IP</b>	Enter the IP Address of the Syslog Server.
<b>Syslog Server Port</b>	Enter the Port of the Syslog Server.
<b>Apply</b>	Click <b>"Apply"</b> to activate the configurations.

### 5.1.4.3 System Event Configuration

Specify the events that should be notified to the administrator. The events can be alarmed by E-mail, SNMP trap, or system log. For the Port Event Notifications, first select the specific Port you would like to set.

System Event Configuration

Device Event Notification

Hardware Reset (Cold Start)	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Software Reset (Warm Start)	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Login Failed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
IP Address Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Password Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Access IP Blocked	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Redundant Power Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Redundant Ethernet Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog

Port Event Notification

Port1 ▼

DCD Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
DSR Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
RI Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
CTS Changed	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Port Connected	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog
Port Disconnected	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog

Fault Event Notification and Fault LED/Relay

Power 1 Fault	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog	<input type="checkbox"/> Fault LED/Relay
Power 2 Fault	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog	<input type="checkbox"/> Fault LED/Relay
Eth1 Link Down	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog	<input type="checkbox"/> Fault LED/Relay
Eth2 Link Down	<input type="checkbox"/> SMTP Mail	<input type="checkbox"/> SNMP Trap	<input type="checkbox"/> Syslog	<input type="checkbox"/> Fault LED/Relay

Apply

System Event Configuration interface

The following table describes the System Event Configuration interface page.

Label	Description
<b>Hardware Reset (Cold Start)</b>	This refers to starting the system from power off (contrast this with warm start). When performing a cold start, the Device Server will automatically issue an Auto warning message by sending E-mail, log information or an SNMP trap after booting.
<b>Software Reset (Warm Start)</b>	This refers to restarting the system without turning the power off. When performing a warm start, the Device Server will automatically send an E-mail, log information or SNMP trap after reboot.
<b>Login Failed</b>	When an unauthorized access from the Console or Web interface is detected, a notification will be sent via the selected method.
<b>IP Address Changed</b>	When the IP address of the Device Server is changed, a notification will be sent via the selected method.
<b>Password Changed</b>	When the password of the Device Server is changed, a notification will be sent via the selected method.
<b>Access IP Blocked</b>	When a host with a blocked IP address tries to access the device, a notification will be sent via the selected method.
<b>Redundant Power Change</b>	When there is a change to the status of power, a notification will be sent via the selected method.
<b>Redundant Ethernet Change</b>	When there is a change to the status of an Ethernet port, a notification will be sent via the selected method.
<b>DCD changed</b>	When the DCD (Data Carrier Detect) signal changes, indicating that the modem connection status has been changed, a notification will be sent via the selected method.
<b>DSR changed</b>	When the DSR (Data Set Ready) signal changes, indicating that the data communication equipment is powered off, a notification will be sent via the selected method.
<b>RI changed</b>	When the RI (Ring Indicator) signal changes, indicating an incoming call, a notification will be sent via the selected method.
<b>CTS changed</b>	When the CTS (Clear To Send) signal changes, indicating that the transmission between computer and DCE can proceed, a notification will be sent via the selected method.
<b>Port connected</b>	In the TCP Server Mode, when the device accepts an incoming TCP connection, this event will be triggered. In TCP Client Mode, when the device has connected to the remote host, this event will be triggered. In Virtual COM Mode, when the Virtual COM is ready to use, this event will be triggered. When the Port connected is triggered the Device Server will automatically issue an Auto warning message by sending E-mail, log information or an SNMP trap.
<b>Port disconnected</b>	In TCP Server/Client Mode, when the device loses the TCP link, this event will be triggered. In Virtual COM Mode, when the Virtual COM is not available, this event will be triggered. When the Port disconnected is triggered the Device Server will automatically issue an Auto warning message by sending E-mail, log information or an SNMP trap.
<b>Power 1 Fault</b>	When a Power 1 Fault occurs, a notification will be sent and the Fault LED will be on.
<b>Power 2 Fault</b>	When a Power 2 Fault occurs, a notification will be sent and Fault

	LED will be on.
<b>Eth1 link down</b>	When Eth1 link goes down, a notification will be sent and Fault LED will be on.
<b>Eth2 link down</b>	When Eth2 link goes down, a notification will be sent and Fault LED will be on.
<b>Apply</b>	Click "Apply" to activate the configurations.

**Note:** When Fault LED/Relay checkbox is marked and Fault Alarm is happened the Contact Closure that is located on the terminal block (section 3.6) the pin 8 is shorted to the pin 9. When no Fault Alarm is happened the pin 8 and pin 9 are opened.

### 5.1.5 Save/Reboot

The Save/Reboot allows the user to backup or restore a configuration. As well as return to the factory settings, upgrade the Firmware or Reboot the server.

The screenshot displays the 'Save/Reboot' interface with the following sections:

- Factory Default:** Includes instructions to 'Reset to default configuration' and 'Click Reset button to reset all configurations to the default value.' with a 'Reset' button.
- Restore Configuration:** Includes instructions to 'You can restore the previous saved configuration to Device Server.' with a 'File to restore:' text box, a 'Browse...' button, and a 'Restore' button.
- Backup Configuration:** Includes instructions to 'You can save current EEPROM value from the Device Server as a backup file of configuration.' with a 'Backup' button.
- Upgrade Firmware:** Includes instructions to 'Specify the firmware image to upgrade.' and a note: 'Note: Please DO NOT power off this device while upgrading firmware.' with a 'Firmware:' text box, a 'Browse...' button, and an 'Upgrade' button.
- Reboot Device:** Includes instructions to 'Please click [Reboot] button to restart device.' with a 'Reboot' button.

Save/Reboot interface

The following table describes the Save/Reboot interface page.

Label	Description
<b>Factory Default</b>	Click the "Reset" button to restore the Device server to the factory defaults.
<b>Restore</b>	Restore a saved configuration by selecting the file through the browse button and clicking "Restore".

<b>Configuration</b>	
<b>Backup Configuration</b>	Click "Backup" to save the current configuration to a file.
<b>Upgrade Firmware</b>	To upgrade the Device sever firmware select the file through the browse button and clicking "Upgrade". Note: Do NOT power of the Device server while upgrading the firmware.
<b>Reboot Device</b>	Click "Reboot" to perform a software reset.

### 5.1.6 Device Server Help

#### Welcome to Device Server help

SNTP Configuration	Server name, date and time , time server IP address, and Web console, Telnet console Enable, Disable function.
IP Configuration	Lan static IP ,dynamic IP setting, Autoip report Setting.
User Authentication	Assign a password to provide security during remote management.
Return to Default	Reset to Factory Default settings.
Serial Configuration	Operation mode, TCP alive check, inactivity, delimiters, force transmit timeout.
Port Profile	Operation mode, TCP alive check, inactivity, delimiters, force transmit timeout.
Access IP Control List	Set up an IP address table for access permission.
SMTP/SNMP Conf.	Auto warning E-mail and SNMP Trap settings.
System Event Conf.	Set up pre-defined events that will trigger the auto warning alarm.

# Technical Specifications

Physical Ports			
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	2		
P.O.E. Feature (optional on iDS6)	P.O.E.Present on ETH2 Power Device (IEEE 802.3af): IEEE 802.3af compliant input interface, Power consumption: 8 Watts max., Over load & short circuit protection, Isolation Voltage: 1000 VDC min., Isolation Resistance : 108 ohms min		
Serial Ports			
Connector	iDS6: 4x RS232 / RS422 / 2-wire RS485 / 4-wire RS485 iDS6P: 4x RS422 / 2-wire RS485 / 4-wire RS485		
Connector	iDS6: Male DB9 iDS6P: 5 pin terminal block		
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 signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND (iDS6 only)		
RS-422 signals	Tx+,Tx-, Rx+, Rx-,GND		
RS-485 (4 wire) signals	Tx+,Tx-, Rx+, Rx-,GND		
RS-485 (2 wire) signals	Data+, Data-,GND		
Flow control	XON/XOFF, RTS/CTS, DTR/DSR		
Serial Line Protection	Built-in15KV ESD protection 2KV DC isolation for each port (iDS6P only)		
LED Indicators			
PWR PoE	Green: Normal operation, Red: Booting, Blinking Red: IP conflict, or DHCP or BOOTP server did not respond properly		
PWR 1	Green: Normal operation, Red: Booting, Blinking Red: IP conflict, or DHCP or BOOTP server did not respond properly		
PWR 2	Green: Normal operation, Red: Booting, Blinking Red: IP conflict, or DHCP or BOOTP server did not respond properly		
Fault	Red: Fault occurred		
S1, S2, S3, S4	Blinking Green: Tx Data, Blinking Red: Rx Data		
Eth 1 (Link and Act)	Green On/Blinking: 100Mbps LNK/ACT Amber On/Blinking: 10Mbps LNK/ACT		
Eth 2 (Link and Act)	Green On/Blinking: 100Mbps LNK/ACT		
Power Requirements			
Power Input	LV: Dual 10-48VDC input	MV: Dual 36-75VDC input	HV: Single Input 88-300VDC or 85-264VAC with a Single 10-48VDC backup
Overload Current Protection	Present		
Reverse Polarity Protection	Internal		
Power Consumption	7 Watts typical, 15 Watts MAX (7 Watts typical and 8 Watts PoE)		

<b>Software Utility</b>	
Serial Mode	Virtual Com / TCP Server / TCP Client / UDP /Serial Tunnel TCP Alive Check Timeout Inactivity Timeout Delimiter for Data Packing Force TX Timeout for Data Packing
Multiple Link	5 Hosts simultaneous connection: Virtual Com / TCP server / TCP Client / UDP
VCOM Driver	Windows NT/2000/XP/2003/VISTA
Configuration	Web HTTPS console, SSH console, Console Command
<b>Environmental</b>	
Storage Temperature	-40 to +85°C (-40 to 185°F)
Operating Temperature	-40 to +85°C (-40 to +185°F)
Operating Humidity	5% to 95%(Non-condensing)
<b>Physical Characteristic</b>	
Enclosure	IP-40 Galvanized Steel Housing
Dimensions(W x D x H)	52(W) x 106(D) x 144(H) mm (2.05 x 4.18 x 5.68 inch)
Weight (g)	678 g
<b>Regulatory Approvals</b>	
EMI	FCC Part 15, CISPR (EN55022) class A
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	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Safety	EN60950
<b>Warranty</b>	
Warranty	5 years