User's Manual

iDS3-S

**Industrial Single Port RS232/422/485
to Dual Port LAN Ethernet Serial Device Server**

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Table of Contents

1. GETTING STARTED

1.1 About iDS3-S

The iDS3-S is an Industrial Single Port RS-232/422/485 to 2 Port LAN Ethernet serial device server. It comes with standard features such as a TCP/IP interface with versatile operational modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP, RTU / ASCII Master, and RTU / ASCII Slave. Using the Windows utility iDS Manager, the iDS3-S can easily be used to configure multiple devices and set up the mappings of Virtual Com. Administrators will also find it convenient to configure the iDS3-S using either the NAT-router, IP domains, or via the internet remotely. The iDS3-S can simultaneously transfer data to up to 5 redundant host PC's to avoid an Ethernet connection breakdown or failure of any host PC. The iDS3-S features HTTPS, SSH, and SSL encryptions to assure secure transmission of critical data.

1.2 Software Features

- Supports five host devices including Virtual COM, TCP Server, TCP Client modes and four IP ranges
- Supports operating modes such as Virtual Com, TCP Server, TCP Client, UDP, RTU / ASCII Master, and RTU / ASCII Slave
- NAT-pass through support for users to manage iDS3-S through NAT router
- Ensure high levels of security with SSL data encryption, HTTPS/SSH, IP access control and IP white list
- Event warning by Syslog, Email, SNMP trap
- Configurable by Web Interface
- Configurable by Windows utility (iDS Manager)
- Supports Windows NT/2000/XP/2003/VISTA/Windows 7(32/64bit)/Windows 10 (32/64bit) OS

1.3 Hardware Specifications

- 1 x RS-232/422/485 serial ports
- 2 x 10/100Base-T(X) Ethernet ports
- DIN-rail and wall-mount enabled
- Redundant DC power inputs
- Operating Temperature: -40°C to 85°C
- Storage Temperature: -40°C to 85°C
- Operating Humidity: 5% to 95%, non-condensing
- Casing: IP-40 Galvanized steel
- Dimensions: 26 (W) x 81 (D) x 121 (H) mm (1.0 x 3.2 x 4.8 inches)
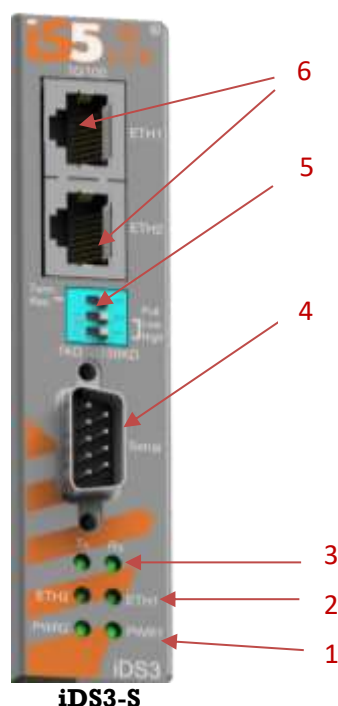- .

2. HARDWARE OVERVIEW

2.1 Front Panel

2.1.1 Ports and Connectors

The device provides the following ports on the top panel. The Ethernet port on the device use RJ-45 connectors.

Port	Description
Copper port	2 x 10/100Base-T(X) port (one is PoE-enabled)
Serial port	1 x DB9 serial ports

iDS3-S

1. Power status indicators
2. LAN port connection indicators
3. Serial signal reception status indicator (Tx/Rx)
4. DB9 serial port

5. RS 422/ 232/485 Termination
6. Ethernet ports

2.1.2 LED

LED	Color	Status	Description
Power 1/2	Green	On	Power is on and function normally
ETH 1/2	Green	On	Ethernet port link up
TX / RX	Red	On	Receiving data
	Green	On	Transmitting data

2.1.3 DIP Switches

The serial port settings are changed by DIP (Dual Inline Package) switches located on the front panel. The DIP switches 1, 2, and 3 have different functionality and are activated manually. For a DIP switch fully OFF, the pins should be at 150 KΩ and terminal resistor should be OFF.

Figure 1: DIP Switches

Table 1: DIP Switches

Switch No	Description	OFF	ON
SW 1	Pull High Resistor Value	150 KΩ	1 KΩ
SW 2	Pull Low Resistor Value	150 KΩ	1 KΩ
SW 3	Terminal Resistor	Termination Resistor disabled	Termination Resistor enabled

So, as per the table shown above, we need:

- To enable 150 KΩ:
    - Set SW 1 to OFF
    - Set SW 2 to OFF

- To enable 1 KΩ:
    - Set SW 1 to ON
    - Set SW 2 to ON

- To enable the Termination resistor:

    Set SW 3 to ON

- To disable the Termination resistor

    Set SW 3 to OFF

The DIP switches 1 and 2 are OFF by default.
When there are more than 6 serial devices are connected to an IDS3, it's suggested to turn off both DIP switches 1 &2.
When there are less than 6 serial devices connected to an IDS3, turn on both DIP 1 &2.

The DIP switch 3 is OFF by default
When it is used for long distance transmission of more than 600 meters, it's suggested to turn on DIP switch 3 (120 Ω).
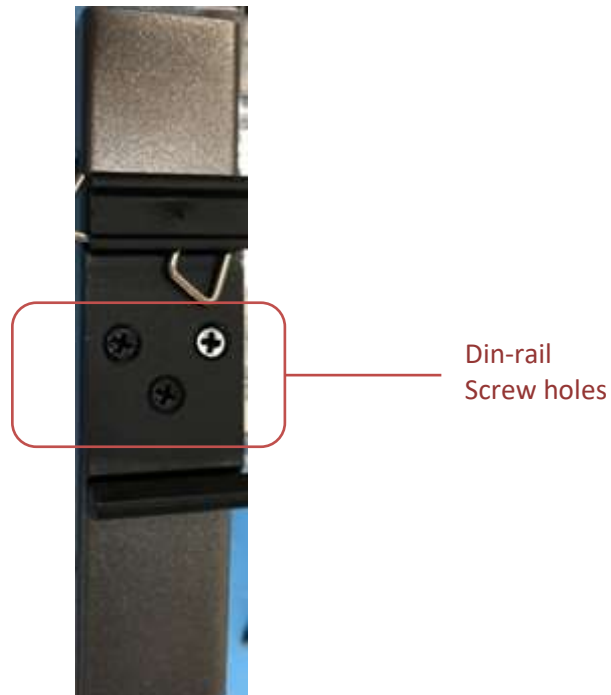
2.2 Top Panel

Below are the top panel components of the device:

1. Ground wire. For more information on how to ground the switch, please refer to Section 3.3.1 *Grounding*
2. Terminal blocks: PWR1, PWR2
3. Reset default button (press 10 seconds for factory reset)


2.3 Rear Panel
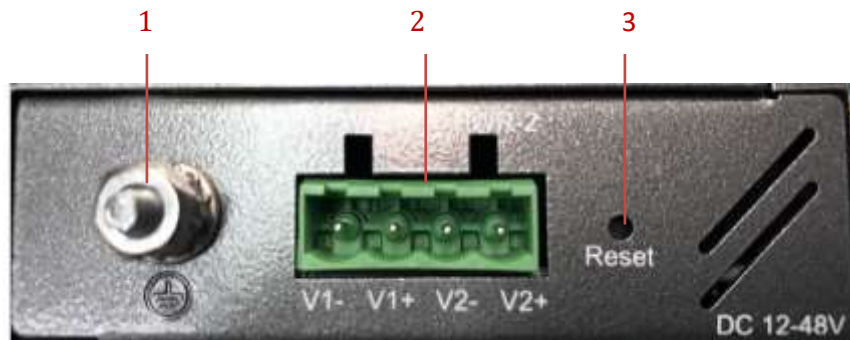
Din-rail
Screw holes

3. HARDWARE INSTALLATION

3.1 DIN-rail Installation

The device comes with a DIN-rail kit to allow you to fasten the device to a DIN-rail in any environment.

Installing the device on the DIN-rail is easy. First, screw the Din-rail kit onto the back of the device, right in the middle of the back panel. Then slide the device onto a DIN-rail from the Din-rail kit and make sure the device clicks into the rail firmly.
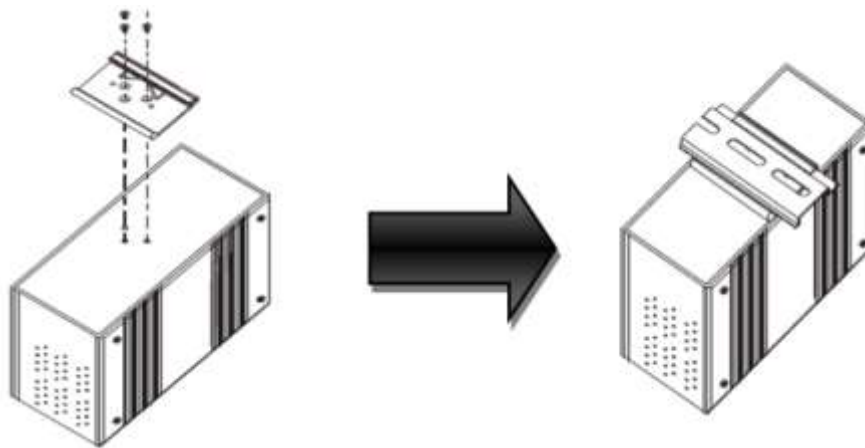
3.3 Wiring

WARNING
Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The devices may only be connected to the supply voltage shown on the type plate.

ATTENTION
1. Be sure to disconnect the power cord before installing and/or wiring your devices.
2. Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.
3. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.
4. Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
5. Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
6. You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring sharing similar electrical characteristics can be bundled together
7. You should separate input wiring from output wiring
8. It is advised to label the wiring to all devices in the system

3.3.1 Grounding

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground pin on the power module to the grounding surface prior to connecting devices.

3.3.2 Redundant Power Inputs

The device has two sets of DC power inputs on a 4-pin terminal block located on top of the device. Follow the steps below to wire the power input on the terminal block.

Step 1: insert the negative/positive wires into the V-/V+ terminals, respectively.

Step 2: to keep the wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

3.4 Connection

3.4.1 Cables

10/100BASE-T(X) Pin Assignments

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

Cable Types and 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

With 10/100Base-T(X) cables, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.

10/100 Base-T(X) RJ-45 Pin Assignments

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

The device also supports auto MDI/MDI-X operation. You can use a cable to connect the device to a PC. The table below shows the 10/100Base-T(X) MDI and MDI-X port pin outs.

10/100 Base-T(X) MDI/MDI-X Pin Assignments

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	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

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

DB9 console port wiring

The serial ports can be connected using a DB9 cable. The DB9 connector supports RS232 / RS422 / RS485 operation modes. Please refer to the following table for the pin assignments of the DB9 connector.

DB9 connector
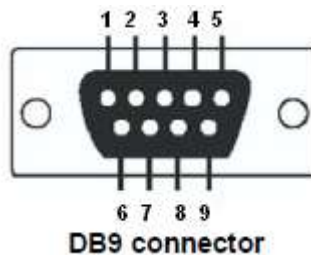
Pin #	RS-232	RS-422	RS-485 (4 wire)	RS-485 (2 wire)
1	DCD	TX-	TX-	
2	RXD	TX+	TX+	
3	TXD	RX+	RX+	DATA +
4	DTR	RX-	RX-	DATA -
5	GND			
6	DSR			
7	RTS			
8	CTS			

4.   Management via a Web Browser

Follow the steps below to manage your device via a Web browser

4.1 System Login

1.   Launch an Internet Explorer session.

2.   Type http:// and the IP address of the device. Press **Enter**.

3.   A login screen appears.

4.   Type in the User name and Password. The default username and password is **admin**.

5.   Press **Enter** or click **OK**; the management page appears.

Note: you can use the following default values:
IP Address: **192.168.10.2**
Subnet Mask: **255.255.255.0**
Default Gateway: **192.168.10.254**
User Name: **admin**
Password: **admin**

After logging in, you will see the information of the device as shown below.

On the left-hand side of the management interface links to various settings are shown. Clicking on the links will bring you to individual configuration pages.

4.1.1 Settings

4.1.1.1 System

a. Time (SNTP)

SNTP (Simple Network Time Protocol) is a protocol able to synchronize the time on your system to the clock on the Internet. It will synchronize your computer system time with a server that has already been synchronized by a source such as a radio, satellite receiver or modem.

Label	Description
Name	Enter the model name of the device
SNTP	Enable or disable SNTP function
Time Zone	Choose the time zone according to the location of the device
Local Time	Set up the local time
Time Server	Enter the address of the time server
Telnet Console	Click to enable or disable Telnet console function.

For reference, the following table lists different location time zones.

Local Time Zone	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11 am
Oscar Time Zone	-2 hours	10 am
ADT - Atlantic Daylight	-3 hours	9 am
AST - Atlantic Standard EDT - Eastern Daylight	-4 hours	8 am
EST - Eastern Standard CDT - Central Daylight	-5 hours	7 am
CST - Central Standard MDT - Mountain Daylight	-6 hours	6 am
MST - Mountain Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am
ALA - Alaskan Standard	-9 hours	3 am
HAW - Hawaiian Standard	-10 hours	2 am
Nome, Alaska	-11 hours	1 am
CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter SWT - Swedish Winter	+1 hour	1 pm
EET - Eastern European, USSR Zone 1	+2 hours	2 pm
BT - Baghdad, USSR Zone 2	+3 hours	3 pm
ZP4 - USSR Zone 3	+4 hours	4 pm
ZP5 - USSR Zone 4	+5 hours	5 pm
ZP6 - USSR Zone 5	+6 hours	6 pm
WAST - West Australian Standard	+7 hours	7 pm
CCT - China Coast, Zone 7	+8 hours	8 pm
JST - Japan Standard, Zone 8	+9 hours	9 pm
EAST - East Australian	+10 hours	10 pm
Standard GST Guam Standard, Zone 9	+11 hours	11 pm
IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand	+12 hours	Midnight

4.1.1.2 IP Configuration

This page allows you to configure IP settings for the device. An IP address can be assigned manually or left to DHCP/BOOTP servers which will reply with an automatically generated IP address and subnet mask for the device when they receive the request. The IP address must be unique and within the network; otherwise, the device will not have a valid connection to the network. Select **Static IP** if using a fixed IP address. Click **Apply** after completing configuration.

Label	Description
IP Configuration	Choose to use a static or DHCP-assigned IP. If you choose DHCP, the following fields will gray out. **Static**: Input an IP address for the device. **DHCP/BOOTP**: allows the IP address of the device to be automatically assigned by a configuration server. **PPPoE**: select this option if your ISP requires you to use a PPPoE connection which is typically used by DSL providers. Enter the PPPoE login user name and password which should have been provided to you by your ISP.
IP Address	Enter the IP address that identifies the server on the TCP/IP network
Netmask	Enter a subnet mask for the device.
Gateway	Enter the IP address of the router that provides network access outside the server's LAN
DNS Server 1/2	Enter the IP address of the primary and secondary domain name server
Auto Report to IP	Specify an IP address for reports generated by the Auto report function to be automatically sent to.
Auto Report to TCP Port	Specify a TCP Port for reports generated by the Auto report function to be automatically sent to.
Auto Report Interval	Specify a time interval for which reports will be delivered.

4.1.1.3 User Authentication

This page allows you to set up login account and password. You can also change your password in this page. Click **Apply** after a change of password.

Label	Description
Old Password	Enter the existing password that is used to log in
New Password	Enter a new password that will be used to log in
Confirm New Password	Retype the new password to confirm

4.1.1.4 Port Serial Setting

a. Serial Configuration

This page allows you to configure serial port parameters.

Label	Description
Port Alias	Enter the COM port number that modem is connected to
Interface	Choose an interface for your serial device. Available interfaces include **RS-232, RS-422, RS-485(2-wires), and RS-485(4-wires),**
Baud Rate	Choose a baud rate in the range between 1200 bps and 460800 bps.
Data Bits	Choose the number of data bits to transmit. You can configure data bits to be 7 or 8.
Stop Bits	Choose the number of bits used to indicate the end of a byte. You can

Label	Description
	configure stop bits to be 1 or 2(1.5). If Stop Bits is 1.5, the stop bit is transferred for 150% of the normal time used to transfer one bit. Both the computer and the peripheral device must be configured to transmit the same number of stop bits.
Parity	Chose the method of detecting errors in transmission. Parity control bit modes include None, Odd, Even, Mark, and Space. **None**: parity checking is not performed and the parity bit is not transmitted. **Odd**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits. **Even**: the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an even number of mark bits. **Mark**: the parity bit is always set to the mark signal condition (logical 1) **Space**: the last transmitted data bit will always be a logical 0
Flow Control	Serial communication consists of hardware flow control and software flow control, so called as the control is handled by software or hardware. **XOFF** and **OXN** is software flow control, while **RTS/CTS or DTR/DSR** is hardware flow control, **None** is for no control. Choose **XOFF** to tell the computer to stop sending data; then the receiving side will send an XOFF character over its Tx line to tell the transmitting side to stop transmitting. Choose **XON** to tell the computer to begin sending data again; then the receiving side will send an XON character over its Tx line to tell the transmitting side to resume transmitting. In hardware flow control mode, when the device is ready to receive data, it sends a CTS (Clear To Send) signal to the device on the other end. When a device has something it wants to send, it will send a RTS (Ready To Send) signal and waits for a CTS signal to come back its way. These signals are sent apart from the data itself on separate wires.
ForceTX 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**.
Performance	**Throughput**: This mode optimized for highest transmission speed. **Latency**: This mode optimized for shortest response time.

b. Port Profile

Label	Description
Local TCP Port	The TCP port the device uses to listen to connections, and that other devices must use to contact the device. To avoid conflicts with well-known TCP ports, the default is set to 4000.
Flush Data Buffer After	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.
Delimiter	For advanced data packing options, you can specify delimiters for **Serial to Ethernet** and / or **Ethernet to Serial** communications. 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**.

c. Service Mode - Virtual COM Mode

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

Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
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. 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 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. **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**.

Not allowed to map Virtual COM from web

d. 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.

MENU

Serial Device Server
- System
  - System Information
  - SNTP
  - IP Configuration
  - User Authentication
- Port Serial Setting
  - Serial Configuration
  - Port Profile
  - Service Mode
- Management
- Save/Reboot
- Help

Service Mode

	Port1
Data Encryption	○ Enable ● Disable
Service Mode	TCP Server Mode ∨
TCP Server Port	4002
Idle Timeout	0 (0~65535)seconds
Alive Check	40 (0~65535)seconds
Max Connection	1 ∨ max. connection(1~5)

Apply

Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
TCP Server Port	Enter the TCP server port number
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. 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 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. 0 indicate disable this function. Factory default is 0.

e. Service Mode – TCP Client Mode

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

Label	Description
Data Encryption	Click on the radio button to enable or disable data encryption
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. 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 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. **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.

f. Service Mode – UDP Mode

Compared to TCP communications, 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.

Label	Description
Listen Port	Allows the user to set a new TCP port number to listen on rather than the default value of the device
Host start IP/end IP	If there are more than one destination hosts, specify the IP address range by inputting a value in **Host Start** / **End IP**. You can also auto scan the sending port number of the device
Send Port	Set the send port number.

Other available Service Modes are as shown below.

g. Service Mode – Modbus RTU Slave Mode

Label	Description
MODBUS RTU Slave Mode	Select MODBUS RTU Slave Mode.
TCP Server Port	Indicates the port used for the 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 **Apply** to activate the configuration

h. Service Mode – Modbus RTU Master Mode

Label	Description
MODBUS RTU Master Mode	Select MODBUS RTU Master Mode.
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. **0** 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. **0** indicate disable this function. Factory default is **0**.
Apply	Click **Apply** to activate the configuration

i. Service Mode – Modbus ASCII Slave Mode

Label	Description
MODBUS ASCII Slave Mode	Select MODBUS ASCII Slave Mode.
TCP Server Port	Indicates the port used for the 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 **Apply** to activate the configuration

j. Service Mode – Modbus ASCII Master Mode

Label	Description
MODBUS ASCII Master Mode	Select MODBUS ASCII Master Mode.
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. **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 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. **0** indicate disable this function. Factory default is **0**.
Apply	Click **Apply** to activate the configuration

4.1.2 Management

4.1.2.1 Access IP Control

Access IP Control List allows you to add or block remote host IP addresses to prevent unauthorized access. If a host's IP address is in the accessible IP table, the host will be allowed to access the DS. You can check

Label	Description
Enable IP Filtering	Leaving the box unchecked means any host can access the device server.
Activate the IP	Check the box to activate the IP address
IP Address	Only the host with the specified IP address can access the device server. The format should be IP address /255.255.255.255 (e.g., "192.168.0.1/255.255.255.255").
Netmask	Only the host on the specified subnet can access the device server. The format should be IP address /255.255.255.0 (e.g., "192.168.0.1/255.255.255.0").

4.1.2.2 SMTP/SNMP Configuration

Email server configurations include the mail server's IP address or domain. If authentication is required, specify your username and password. You can set up to four email addresses for receiving notifications.

SNMP server configurations include the SNMP trap server IP address, community, location, and contact. You can set up to four SNMP addresses for receiving notifications.

4.1.2.3 System Event Conf.

Specify the events that will be reported to the administrator. The notifications of the events can be done via e-mail, SNMP trap, or system log.

Label	Description
Hardware Reset (Cold Start)	This refers to starting the system from power off (in contrast with warm start). When performing a cold start, DS will automatically issue an auto warning message via e-mail, logs, or SNMP trap after booting.
Software Reset (Warm Start)	This refers to restarting the computer without turning the power off. When performing a warm start, DS will automatically send an e-mail, log or SNMP trap after rebooting.
Login Failed	When unauthorized access from the console or Web interface occurs, a notification will be sent.
IP Address Changed	When the IP address of the device is changed, a notification will be sent.
Password Changed	When the password of the device is changed, a notification will be sent.
Access IP Blocked	When the host accesses the device with a blocked IP address, a notification will be sent.
DCD Changed	When a DCD (Data Carrier Detect) signal changes, indicating modem connection status has been changed, a notification will be sent.
DSR Changed	When a DSR (Data Set Ready) signal changes, indicating data communication equipment is powered off, a notification will be sent.
RI Changed	When a RI (Ring Indicator) signal changes, indicating there is an incoming call, a notification will be sent.
CTS Changed	When a CTS (Clear To Send) signal changes, indicating transmission between computer and DCE can proceed, a notification will be sent.
Port Connected	In 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, the event will be triggered. In Virtual COM Mode, when Virtual COM is ready to use, this event will be triggered. A notification will be sent when an event is triggered.
Port Disconnected	In TCP Server/Client Mode, when the device loses the TCP link, this event will be triggered. In Virtual COM Mode, when Virtual COM is not available, this event will be triggered. A notification will be sent when an event is triggered.

4.1.2.4 Save/Reboot

You can save current values from the device as a backup file or restore the device to previous settings by downloading a configuration file. Simply browse to the configuration file you want to use and click **Restore**.

Label	Description
Factory Default	Press **Reset** button for ten (10) seconds (Hardware restore) and wait a few seconds. It will load default configurations to the system including the network settings
Restore Configuration	Restore to previous settings using previously exported configurations.
Backup Configuration	Export the current configuration to a file.
Upgrade Firmware	Upgrade to a new firmware by browsing to a specific folder.
Reboot Device	Reboot the device server (warm start).

4.2 Configuration by SSH Console

4.2.1 Connecting to DS

You can use SSH Tool (e.g., PUTTY) to access the SSH console of the device. The SSH console interface is shown below.

```
login as: admin
admin@192.168.0.39.'s password:

*****************************************
*** ORING Industrial Serial Device Server Commander ***
*****************************************
-----------------------------------------
[ORING Industrial Serial Device Server Commander]
1. Overview
2. General Settings
3. Network Settings
4. Ports settings
5. Security(Accessible IP) Settings
6. Notification(Auto Warning) Settings
C. Change Password
L. Load Factory Default
S. Save configuration
R. Reboot
Q. Exit & Logout

Select one function (1-6,C,L,S,R,Q): 
```