



User's Manual

RS232/RS422/RS485

Industrial IoT Serial Device Server

- ▶ ICS-3100T / ICS-3105AT
ICS-3200T / ICS-3400T



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FCC Warning

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 generates, uses, and can radiate radio frequency energy and, 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 be required to correct the interference at his own expense.

Warning: This device must be earthed.

CE Mark Warning

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

Energy Saving Note of the Device

This power required device does not support Standby mode operation. For energy saving, please remove the power cable to disconnect the device from the power circuit. In view of saving the energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

PLANET ICS-3X00T Series User's Manual

Model: ICS-2300T / ICS-3105AT / ICS-3200T / ICS-3400T

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1 INTRODUCTION

Thank you for purchasing PLANET ICS-2100T Industrial Serial Device Server series. “**Industrial Serial Server**” is used as an alternative name in this Quick Installation Guide.

ICS-3100T	IP30 Industrial 1-Port RS232/RS422/RS485 Serial Device Server
ICS-3105AT	IP30 Industrial 1-Port RS232/RS422/RS485 Serial Device Server with 1-Port 100FX SFP
ICS-3200T	IP30 Industrial 2-Port RS232/RS422/RS485 Serial Device Server
ICS-3400T	IP30 Industrial 4-Port RS232/RS422/RS485 Serial Device Server

“**Industrial Serial Server**” mentioned in this Guide refers to the above models

1.1 Packet Contents

Open the box of the Industrial Serial Server and carefully unpack it. The box should contain the following items:

Model Name Packaged Item	ICS-3100T	ICS-3105AT	ICS-3200T	ICS-3400T
The Industrial Serial Server	■	■	■	■
QR Code Sheet	■	■	■	■
CloudNMS Quick Guide	■	■	■	■
Wall-mounting Kit	■	■	■	■
RJ45 Dust Caps	1	-	2	2
SFP Dust Caps	-	1	-	-

If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

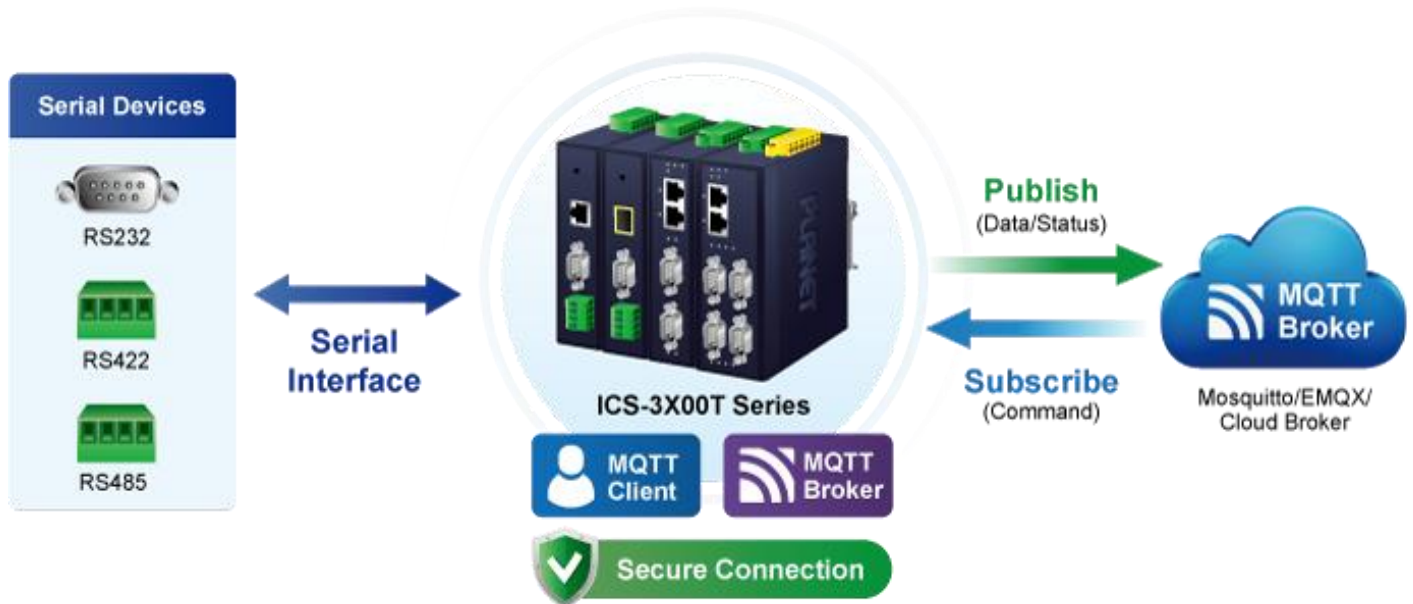
1.2 Product Description

Industrial Serial-to-Ethernet Gateway for Modern IIoT Connectivity

The ICS-3X00T Series is designed to bridge legacy **RS-232**, **RS-422** and **RS-485** devices with modern Industrial Ethernet and IIoT infrastructures. In addition to traditional Serial-to-Ethernet communication, the ICS-3X00T enables seamless integration between field devices and IP-based networks, helping users extend communication distances while preserving existing serial equipment investments. It provides an efficient migration path for factories, transportation systems, utilities and building automation applications to connect legacy assets into digitalized industrial environments without replacing existing devices or software systems.

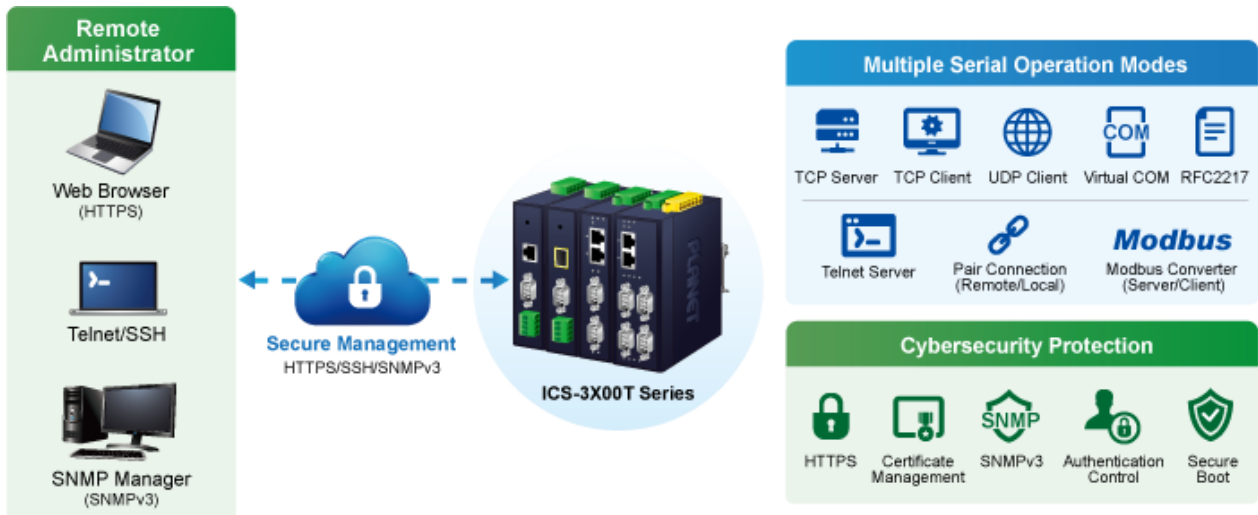
MQTT Edge Gateway for Data Aggregation and Distribution

The ICS-3X00T Series expands traditional serial gateway functionality by supporting both **MQTT Client** and built-in **MQTT Broker** capabilities. It can collect data from PLCs, RTUs, sensors and industrial controllers through RS-232, RS-422 or RS-485 interfaces, convert the information into MQTT messages and publish them to SCADA systems, MES platforms, cloud services or third-party MQTT servers. The embedded MQTT Broker also enables local data exchange among connected devices without requiring an external broker, simplifying system deployment and providing an efficient solution for Industrial IoT and edge computing applications.



Flexible Serial Operation Modes

The ICS-3X00T Series supports multiple serial operation modes, including **TCP Server**, **TCP Client**, **UDP Client**, **Virtual COM**, **RFC2217**, **Telnet Server**, **Pair Connection** and **Modbus Converter Server/Client** modes. These operation modes provide **flexible connectivity** for industrial communication applications and enable **legacy serial devices** to be integrated into **Ethernet networks** for **remote access**, **monitoring**, **configuration** and **management**.



Secure Remote Management and Cybersecurity

The ICS-3X00T Series provides **remote management** through **web-based interfaces**, **SNMP** and **Windows-based VCOM Utility**, allowing administrators to **monitor, configure and maintain** devices efficiently. To enhance network security, it supports **HTTPS encrypted access**, **certificate management**, **SNMPv3**, **IEEE 802.1X authentication**, **RADIUS/TACACS+ user authentication**, and **Secure Boot** technology, helping protect systems against **unauthorized access** and **firmware tampering**. **Event Log**, **Syslog**, **SNMP Trap** and **Relay Alarm** functions further simplify device maintenance and improve network reliability.

Stable Performance under Harsh Industrial Environments

Designed for demanding industrial applications, the ICS-3X00T Series provides excellent immunity against electromagnetic interference, electrostatic discharge and power fluctuations commonly found in industrial environments. With an operating temperature range of -40 to 75 degrees C and a rugged IP30-rated metal enclosure, the devices ensure reliable communication in harsh conditions. Support for DIN-rail and wall mounting also offers flexible installation and efficient cabinet space utilization.



Dual Power Input for High Availability Network Systems

The ICS-3X00T Series features a redundant dual power input design supporting 9V to 48V DC operation for enhanced system reliability. When the primary power source fails, the built-in hardware failover mechanism automatically switches to the backup supply, ensuring uninterrupted communications and continuous operation. This high-availability design is especially suitable for remote sites, process control systems and mission-critical industrial applications where maintaining network uptime is essential.



Digital Input and Digital Output for External Alarm (ICS-3400T only)

With digital input and digital output on its front panel, an external alarm can help users via the digital input to detect and log external device status (such as door intrusion detector), and then immediately send an event alarm to the administrator. The digital output can be used to alarm the administrator if the ICS-3400T serial port shows DCD, changed DSR or power failure.

PLANET CloudNMS – Cloud-Based Universal Network Management

PLANET's **CloudNMS** platform and mobile app empower IT staff to remotely manage all network devices and Powered Devices (PDs) in real time. Designed for enterprises and industries, CloudNMS minimizes the need for on-site troubleshooting by providing centralized monitoring, fault detection, and instant alerts.

With **CloudNMS**, businesses can manage diverse network deployments more **efficiently, securely, and intelligently**—all from a single cloud-based platform.



1.3 How to Use This Manual

This User's Manual is structured as follows:

Section 2, INSTALLATION

It explains the functions of the ICS-3X00T and how to physically install the ICS-3X00T.

Section 3, INDUSTRIAL SERIAL SERVER MANAGEMENT

The chapter explains how to manage the ICS-3X00T in different ways.

Section 4, WEB CONFIGURATION

It describes how to configure by web interface.

Section 5, SOFTWARE VCOM UTILITY

It describes how to use software VCOM in the Virtual COM mode.

1.4 Product Features

➤ Physical Port

ICS-3100T

- 1 10/100BASE-TX Fast Ethernet RJ45 port
- One DB9 interface that support RS-232
- One terminal block interface that supports 2-wire RS-485 and 4-wire RS-422/RS-485 standards
- Asynchronous serial data rates up to 921600bps

ICS-3105AT

- 1 100BASE-FX SFP slot
- One DB9 interface that support RS-232
- One terminal block interface that supports 2-wire RS-485 and 4-wire RS-422/RS-485 standards
- Asynchronous serial data rates up to 921600bps

ICS-3200T

- 2 10/100BASE-TX Ethernet RJ45 ports
- Two software-selectable DB9 serial interfaces supporting RS-232, RS-422 and RS-485
- Asynchronous serial data rates up to 921600bps

ICS-3400T

- 2 10/100BASE-TX Ethernet RJ45 ports
- Four software-selectable DB9 serial interfaces supporting RS-232, RS-422 and RS-485
- Asynchronous serial data rates up to 921600bps

➤ Digital Input and Digital Output (ICS-3400T only)

- 2 digital input (DI)
- 2 digital output (DO)
- Integrate sensors into auto alarm system
- Transfer alarms to IP networks via SNMP Trap

➤ Serial Interface & Operation Modes

High-Speed Transmission

- Supports asynchronous serial data rates up to 921600bps

Versatile Serial Operation Modes

- Supports Virtual COM mode via Windows-based VCOM Utility
- Supports TCP Server, TCP Client and UDP Client modes
- Supports RFC2217 and Telnet Server modes
- Supports Pair Connection mode for transparent serial cable replacement

Industrial Protocol Conversion

- Supports Modbus Converter Server and Modbus Converter Client modes for Modbus TCP and Modbus RTU/ASCII integration

Multi-Host Connectivity

- Allows a maximum of 4 hosts to access the same serial device simultaneously in TCP Client mode

Industrial IoT Integration (MQTT)

- Supports MQTT Client and built-in MQTT Broker functions
- Supports Transparent Publish, Topic Distribution and Transparent Subscribe mechanisms
- Supports Internal and External MQTT Broker connections
- Supports QoS 0/1/2, TLS encryption and Username/Password authentication

➤ **Management & Security**

Network Management

- Supports IPv4 and IPv6 dual stack management
- Supports ARP, ICMP, TCP/IP, UDP, HTTP/HTTPS server, DHCP client and SNMP v1/v2c/v3
- Supports LLDP protocol
- Supports IP NTP (Network Time Protocol) and DNS management

Secure Management

- Supports HTTPS encrypted management
- Supports Certificate Management
- Supports SNMP v3
- Supports RADIUS/TACACS+ user authentication
- Supports Secure Boot technology for system integrity protection

Configuration & Maintenance

- Supports firmware upgrade
- Supports configuration backup and restore
- Supports HTTP/HTTPS Web management
- Supports Windows-based VCOM Utility
- Supports PLANET Smart Discovery Utility
- Supports PLANET NMS System and CloudNMS

➤ **Intelligent Event Notification**

Rugged Industrial Design

- IP30 rugged metal enclosure
- DIN-rail and wall-mount installation
- Operating temperature from -40 to 75°C
- Free fall, shock and vibration resistance for industrial environments

Redundant Power Design

- Dual redundant power input supporting 9~48V DC and 24V AC
- Reverse polarity protection
- Supports hardware automatic failover mechanism for uninterrupted operation

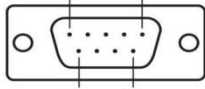
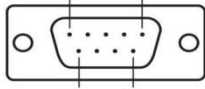
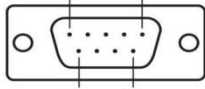
Electrical Protection

- Supports 6000V DC Ethernet ESD protection
- Supports 2KV surge protection

Diagnostics & Hardware Control

- Extensive LED indicators for network and serial status diagnosis
- Reset button for system reboot and factory default restoration
- Buzzer reset button for muting the alarm buzzer (ICS-3200T & ICS-3400T only)

1.5 Product Specifications

Product	ICS-3100T	ICS-3105AT	ICS-3200T	ICS-3400T																																										
Serial Interface																																														
Serial Ports	1 x DB9 male for RS-232 1 x 4-Pin Terminal block for RS-422 / RS-485		2 x DB9 male for RS-232/RS-422/RS-485	4 x DB9 male for RS-232/RS-422/RS-485																																										
Serial Standards	RS-232 / 4-wire RS-422 or RS-485 / 2-wire RS-485																																													
Baud Rate (Data Rate)	50bps to 921Kbps																																													
Data Bits	5, 6, 7, 8																																													
Parity Type	Odd, Even, None, Space, Mark																																													
Stop Bit	1, 1.5, 2																																													
Flow Control	RTS/CTS and DTR/DSR (RS-232 only) XON/XOFF																																													
Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: Tx+, Tx-, Rx+, Rx-, GND 4-wire RS-485: Tx+, Tx-, Rx+, Rx-, GND 2-wire RS-485: Data A (+), Data B (-), GND																																													
Pin Assignment	<table><tr><th>Male DB9</th><th>Pin</th><th>RS232</th><th>RS422 RS485-4W</th><th>RS485-2W</th></tr><tr><td rowspan="9"></td><td>1</td><td>DCD</td><td>TxD+</td><td>--</td></tr><tr><td>2</td><td>RxD</td><td>TxD-</td><td>--</td></tr><tr><td>3</td><td>TxD</td><td>RxD-</td><td>Data-</td></tr><tr><td>4</td><td>DTR</td><td>RxD+</td><td>Data+</td></tr><tr><td>5</td><td>GND</td><td>GND</td><td>GND</td></tr><tr><td>6</td><td>DSR</td><td>--</td><td>--</td></tr><tr><td>7</td><td>RTS</td><td>--</td><td>--</td></tr><tr><td>8</td><td>CTS</td><td>--</td><td>--</td></tr><tr><td>9</td><td>--</td><td>--</td><td>--</td></tr></table>				Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W		1	DCD	TxD+	--	2	RxD	TxD-	--	3	TxD	RxD-	Data-	4	DTR	RxD+	Data+	5	GND	GND	GND	6	DSR	--	--	7	RTS	--	--	8	CTS	--	--	9	--	--	--
Male DB9	Pin	RS232	RS422 RS485-4W	RS485-2W																																										
	1	DCD	TxD+	--																																										
	2	RxD	TxD-	--																																										
	3	TxD	RxD-	Data-																																										
	4	DTR	RxD+	Data+																																										
	5	GND	GND	GND																																										
	6	DSR	--	--																																										
	7	RTS	--	--																																										
	8	CTS	--	--																																										
	9	--	--	--																																										
Serial Line Protection	-	-	2KV isolation protection 1KV (level 2) surge protection 15KV ESD protection																																											
Operation Mode	TCP Server TCP Client UDP Client Virtual COM RFC2217 Telnet Server Pair Connection – Remote (Slave) Pair Connection – Local (Master) Modbus converter server Modbus converter client MQTT																																													
Ethernet Interface																																														
Ethernet Ports	1 x RJ45	1 x SFP	2 x RJ45																																											
Standard	10/100BASE-TX	100BASE-FX	10/100BASE-TX																																											
Distance	100m	2 km to 120 km	100m																																											

		(depending on SFP module)		
Hardware Specifications				
Installation	DIN-rail kit and wall-mount ear			
Enclosure	IP 30 metal			
Dimensions (W x D x H)	32 x 87.8 x 135 mm			50 x 87 x 135 mm
Weight	392g		477g	625g
LED Indicators	System: PWR1 (Green) PWR2 (Green) Alarm (Red)		System: PWR1 (Green) PWR2 (Green) Alarm (Red) SYS (Green)	System: PWR1 (Green) PWR2 (Green) Alarm (Red) SYS (Green)
	Port Interfaces : LNK/ACT (Green) RX (Amber) TX (Green)		Port Interfaces : LNK/ACT (Green) RX (Amber) TX (Green)	Port Interfaces : LNK/ACT (Green) RX (Amber) TX (Green)
Power Requirements	9~48V DC, redundant power with reverse polarity protection 24V AC			
Power Consumption	Max. 2.4 watts/8.19BTU (Power on without any connection)	Max. 2.88 watts/9.83BTU (Power on without any connection)	Max. 3.24 watts/11.05BTU (Power on without any connection)	Max. 4.48 watts/15.28BTU (Power on without any connection)
	Max. 2.52 watts/8.6BTU (Full loading)	Max. 2.88 watts/9.83BTU (Full loading)	Max. 4.32 watts/14.74BTU (Full loading)	Max. 4.51 watts/15.39BTU (Full loading)
Connector	Removable 6-pin terminal block for power input Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin 5/6 for Power 2 Removable 6-pin terminal block for DI/DO interface (ICS-3400T only) Pin 1/2 for DI 1 & 2, Pin 3/4 for DO 1 & 2, Pin 5/6 for GND			
Alarm	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V DC			
DI, DO	-	-	-	2 digital input (DI) Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Input load to 24V DC, 10mA max. 2 digital output (DO): Open collector to 24V DC, 100mA

				max.
ESD Protection	6KV			
Surge Protection	2KV			
Reset Button	< 5 sec: System reboot > 5 sec: Factory default			
Buzzer Reset	-	-	Push Button for Buzzer Muting	
Management				
Management Interfaces	HTTP Web management HTTPS Web management Windows-based VCOM Utility management SNMPv1, v2c and v3 PLANET Smart Discovery Utility PLANET on-promise NMS System and cloud-based CloudNMS			
IP Protocol	IPv4 / IPv6			
Time Management	NTP Client			
Name Service	DNS Client			
Network Protocol	LLDP			
System Maintenance	Firmware Upgrade Configuration Backup / Restore			
Diagnostic	Event Log Syslog			
Event Notification	SNMP Trap Relay Alarm			
Virtual COM Utility Platform Supports	Windows-based Only: Windows 10 Windows 11 Windows Server 2016 Windows Server 2019 Windows Server 2022			
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 2737 Entity MIB (Version 2) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like MIB			
Security				
Hardware Security	Hardware-based Secure Boot Arm® TrustZone® Technology Hardware True Random Number Generator (TRNG) Hardware-accelerated AES, SHA, ECC and RSA Cryptographic Operations Hardware Key Store and OTP Protection for Secure Boot Keys			
System Security	HTTPS Secure Web Management HTTP-to-HTTPS Redirection Certificate Management IP-based Management Access Control			

	TLS 1.2 / TLS 1.3 SNMP v3 Authentication and Encryption
MQTT	
MQTT Operation Modes	MQTT Client Built-in MQTT Broker
MQTT Messaging	Retained Messages Last Will and Testament (LWT)
Publish Methods	Transparent Serial Data Publishing Data Mapping-based Publishing
Subscribe Methods	Transparent MQTT-to-Serial Data Forwarding
Quality of Service	MQTT QoS Level 0,1 and 2
Authentication	Username and Password
Transport Security	MQTT over TLS 1.2
Broker Connectivity	Built-in or External MQTT Broker
Standards Conformances	
Regulatory Compliance	FCC Part 15 Class A, CE Certification Class A
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Standards	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX RFC 768 UDP RFC 793 TCP RFC 791 IP RFC 792 ICMP RFC 854 Telnet RFC 5905 NTPv4 RFC 1591 DNS (client only) RFC 1908 SNMPv2c RFC 2616 HTTP/1.1 RFC 2131 DHCP Client RFC 2732 Format for Literal IPv6 Addresses in URL's RFC 3315 DHCPv6 Client RFC 3513 IPv6 Addressing Architecture RFC 3596 DNSv6 RFC 4443 ICMPv6 EIA/TIA RS-232/422/485
Regulatory Approval	RoHS
Environment	
Operating Temperature	-40 ~ 75 degrees C
Storage Temperature	-40 ~ 85 degrees C
Humidity	5 ~ 95% (non-condensing)

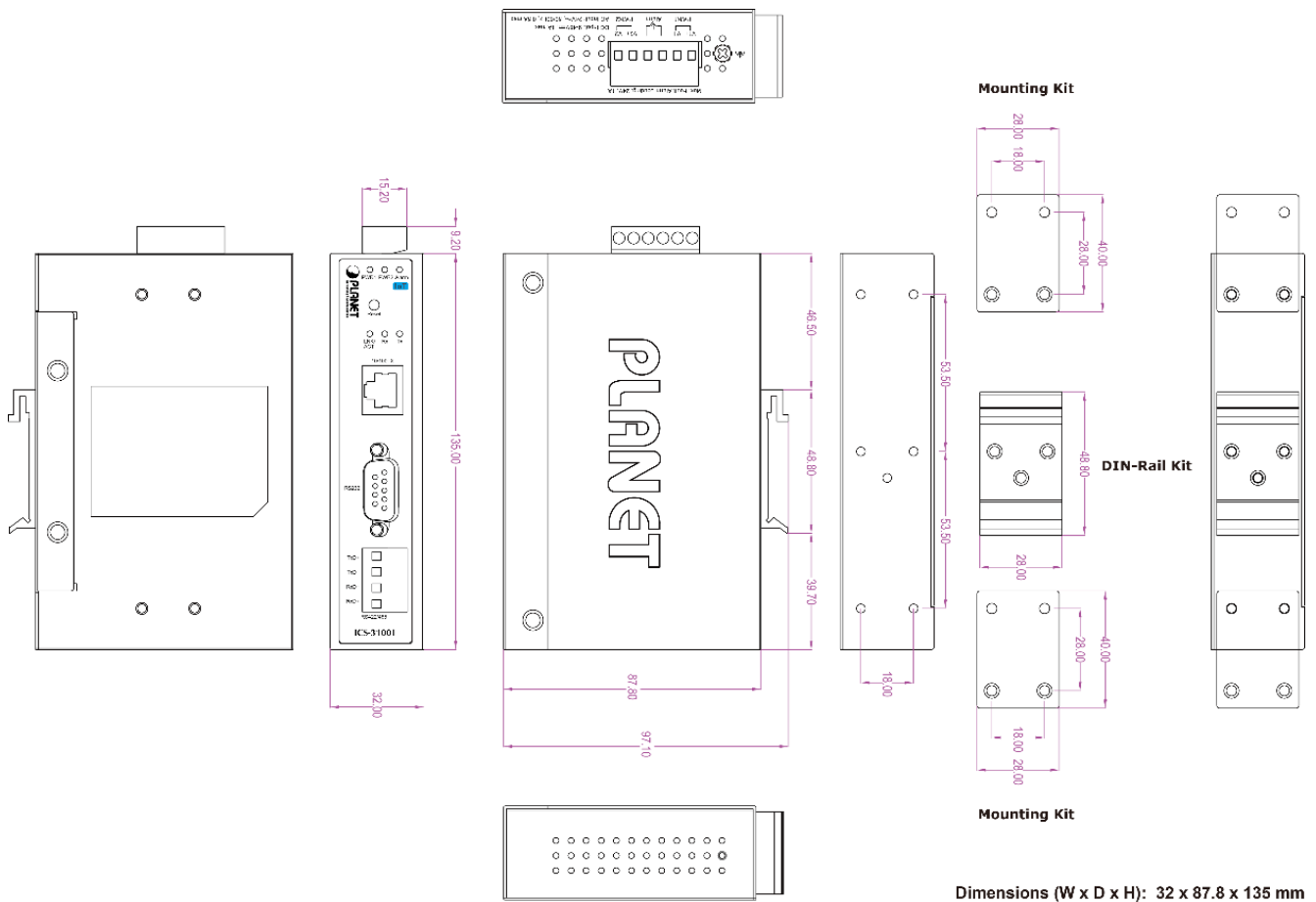
2 INSTALLATION

This section describes the hardware features and installation of the Industrial Serial Servers' components on the desktop or rack. For easier management and control of the Industrial Serial Servers, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the LED indicators. Before connecting any network device to the Industrial Serial Servers, please read this chapter completely.

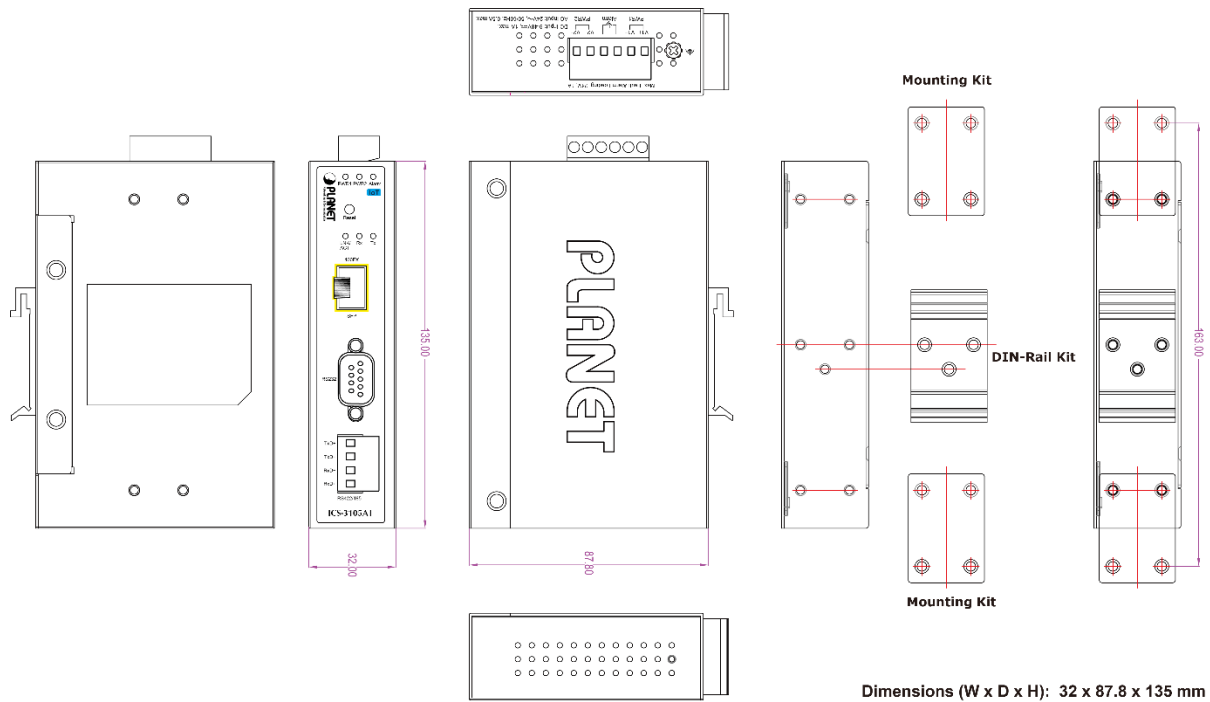
2.1 Hardware Description

2.1.1 Physical Dimensions

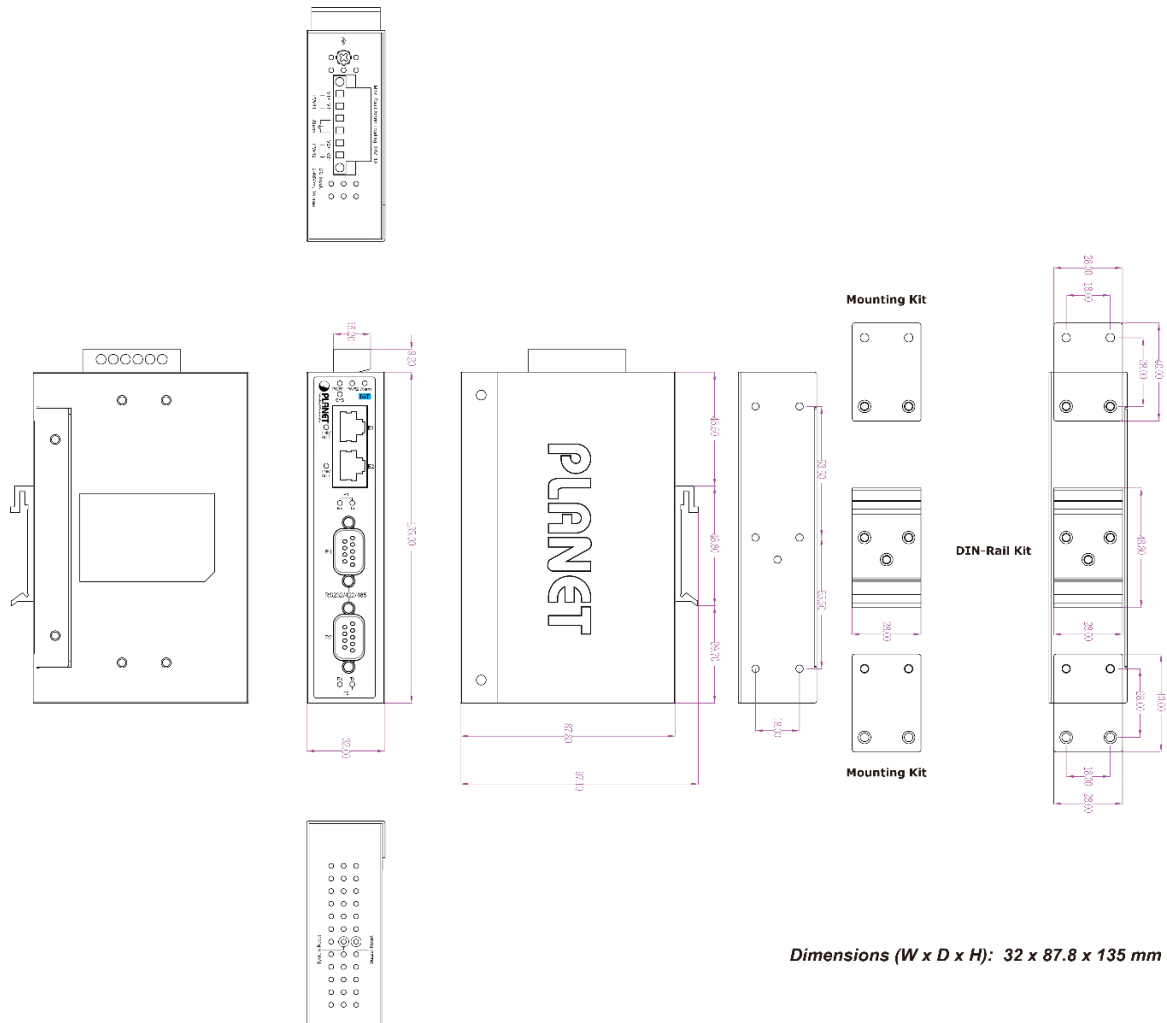
- **ICS-3100T** Dimensions (W x D x H) : 32 x 87.8 x 135 mm



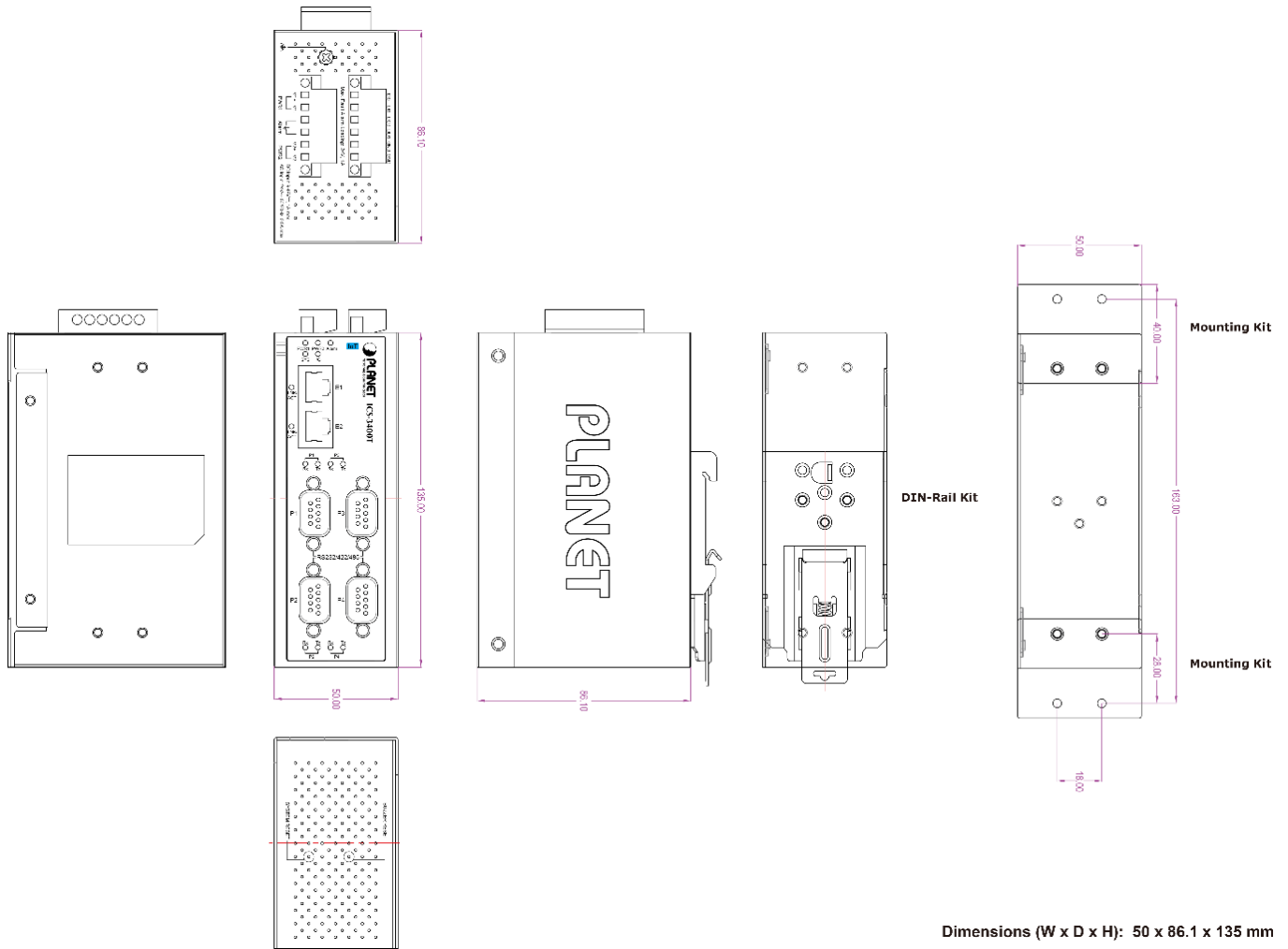
■ **ICS-3105AT** Dimensions (W x D x H) : 32 x 87.8 x 135 mm



■ **ICS-3200T** Dimensions (W x D x H) : 32 x 87.8 x 135 mm



■ **ICS-3400T** Dimensions (W x D x H) : 50 x 87 x 135 mm



2.1.2 Front Panel

The front panels of the Industrial Serial Servers are shown in Figure 2-1-1.

Front Panels

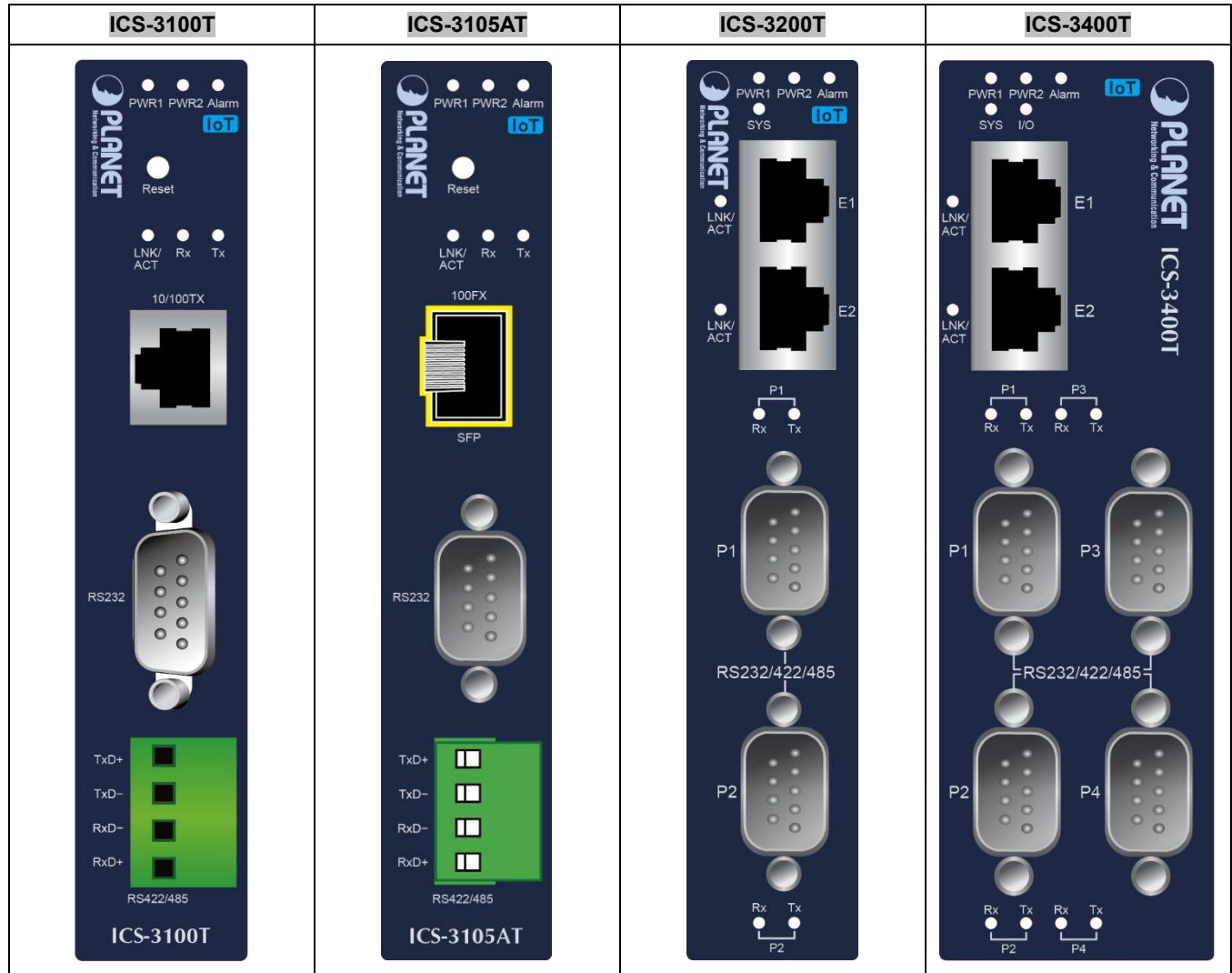


Figure 2-1-1: Front Panels of Industrial Serial Servers

■ Fast TP/ SFP interface

10/100BASE-TX copper, RJ45 twisted-pair: Up to 100 meters.

100BASE-FX SFP interface, Up to 2km~120km, vary on SFP modules.

■ Serial Interface

Supports RS-232, RS-422, RS-485 2-wire and RS485 4-wire.

2.1.3 Front Panel

The Reset Buttons of the Industrial Serial Servers are shown in Figure 2-1-2.

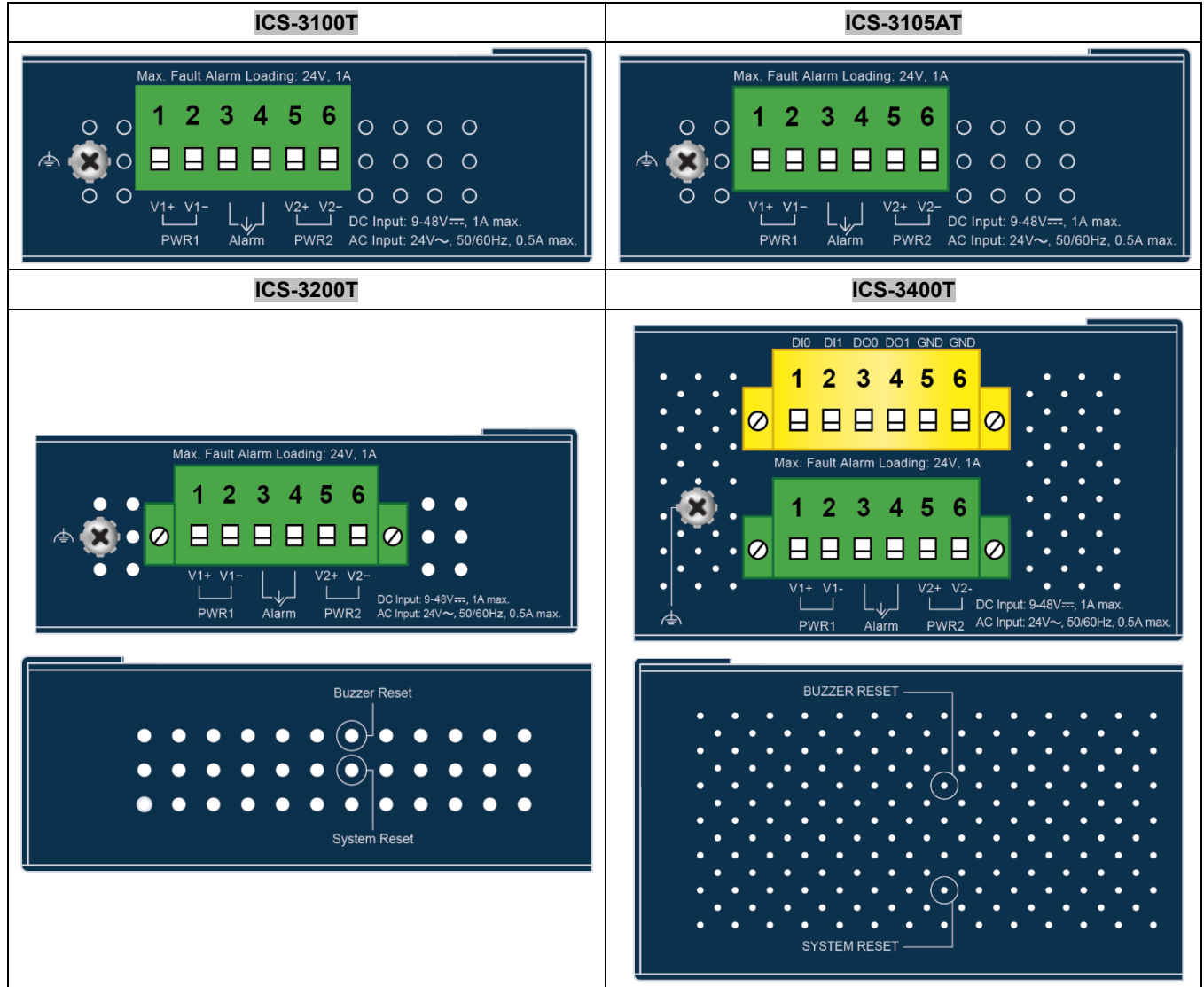


Figure 2-1-2: Reset Button of Industrial Serial Servers

■ Reset button

On the bottom panel, the reset button is designed for rebooting the system and stopping the buzzer. The following is the summary table of the reset button functions:

Reset Button	Reset Button Pressed and Released	Function
System Reset	< 5 sec: System reboot	Reboot the Industrial Serial Server
	> 5 sec: Factory default	Reset the Industrial Serial Server to Factory Default configuration. The Industrial Serial Server will then reboot and load the default settings as shown below: ◦ Default Username: admin ◦ Default Password: cs + the last 6 characters of the MAC ID in lowercase ◦ Default IP address: 192.168.0.100 ◦ Subnet mask: 255.255.255.0 ◦ Default Gateway: 192.168.0.254
Buzzer Reset	>1 sec	Stop the buzzer

2.1.4 LED Indications

The front panel LEDs indicate instant status of power and system status, fan status, port links and data activity; they help monitor and troubleshoot when needed.

LED indication

ICS-3100T

• System

LED	Color	Function	
PWR1	Green	Lights	Lights to indicate that the Switch has power.
PWR2	Green	Lights	Lights to indicate that the Switch has power.
Alarm	RED	Lights	Lights to indicate that the system defined alarm events
10/100 LNK/ACT	Green	Lights	To indicate the port is running in 10/100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	Amber	Blink	To indicate that the device is actively receiving serial data.
Tx	Green	Blink	To indicate that the device is transmitting serial data.

ICS-3105AT

- System

LED	Color	Function	
PWR1	Green	Lights	Lights to indicate that the Switch has power.
PWR2	Green	Lights	Lights to indicate that the Switch has power.
Alarm	RED	Lights	Lights to indicate that the system defined alarm events
100 LNK/ACT	Green	Lights	To indicate the port is running in 100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	Amber	Blink	To indicate that the device is actively receiving serial data.
Tx	Green	Blink	To indicate that the device is transmitting serial data.

ICS-3200T

- System

LED	Color	Function	
PWR1	Green	Lights	Lights to indicate that the Switch has power.
PWR2	Green	Lights	Lights to indicate that the Switch has power.
Alarm	RED	Lights	Lights to indicate that the system defined alarm events
SYS	Green	Lights	To indicate that the system has started successfully and is operating normally.
10/100 LNK/ACT	Green	Lights	To indicate the port is running in 10/100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	Amber	Blink	To indicate that the device is actively receiving serial data.
Tx	Green	Blink	To indicate that the device is transmitting serial data.

ICS-3400T

- System

LED	Color	Function	
PWR1	Green	Lights	Lights to indicate that the Switch has power.
PWR2	Green	Lights	Lights to indicate that the Switch has power.
Alarm	RED	Lights	Lights to indicate that the system defined alarm events
SYS	Green	Lights	To indicate that the system has started successfully and is operating normally.
I/O	RED	Lights	Lights to indicate that Switch input power or port has failed or DI has event.
10/100 LNK/ACT	Green	Lights	To indicate the port is running in 10/100Mbps speed and successfully established.
		Blink	To indicate that the device is actively sending or receiving data over that port.
Rx	Amber	Blink	To indicate that the device is actively receiving serial data.
Tx	Green	Blink	To indicate that the device is transmitting serial data.

2.1.5 Wiring the Power Inputs

The upper panel of the Industrial Serial Server indicates a DC inlet power socket and consists of one terminal block connector within 6 contacts. Please follow the steps below to insert the power wire.

1. Insert positive/negative DC power wires into **Contacts 1 and 2** for **Power 1**, or **Contacts 5 and 6** for **Power 2**. Figure 2-1-3 to 2-1-5 show PWR1 and PWR2 of the Industrial Serial Server.

■ ICS-3100T/ICS-3105AT: 9~48V DC or 24V AC

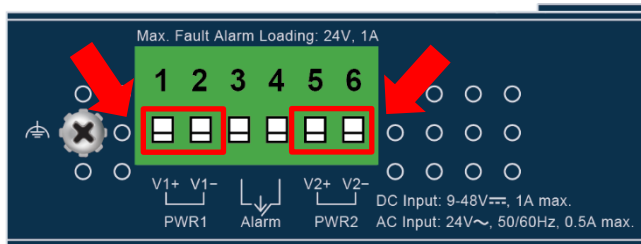


Figure 2-1-3 ICS-3100T/ICS-3105AT Upper Panel

■ ICS-3200T: 9~48V DC or 24V AC

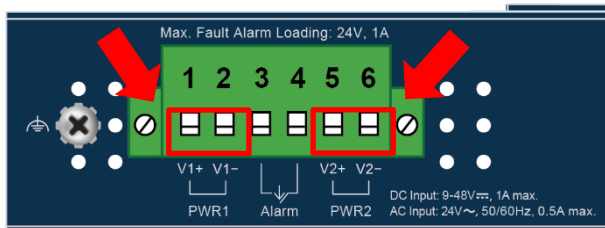


Figure 2-1-4 ICS-3200T Upper Panel

■ ICS-3400T: 9~48V DC or 24V AC

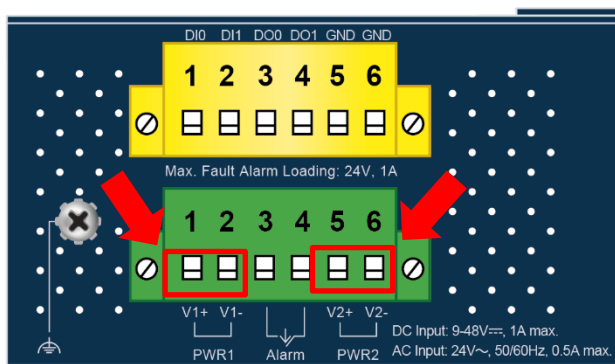


Figure 2-1-5 ICS-3400T Upper Panel

- Tighten the wire-clamp screws for preventing the wires from loosening.



1 2 3 4 5 6

V1+ V1- V2+ V2-

Power 1 Fault Power 2

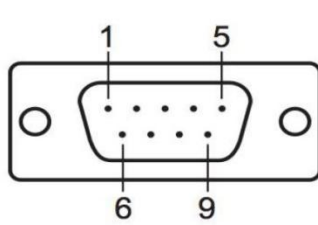
Figure 3-3 PWR1 & PWR2 pina of terminal block.



The wire gauge for the terminal block should be in the range from 12 to 24 AWG.

2.1.6 Serial Port Pin Define

<i>Terminal Block</i>	<i>Pin</i>	<i>RS-422 RS-485-4W</i>	<i>RS-485-2W</i>
☐ 1 ☐ 2 ☐ 3 ☐ 4	1	TxD+(A)	--
	2	TxD-(B)	--
	3	RxD-(B)	Data-(B)
	4	RxD+(A)	Data+(A)

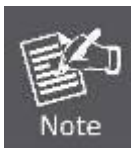
<i>Male DB9</i>	<i>Pin</i>	<i>RS232</i>	<i>RS422 RS485-4W</i>	<i>RS485-2W</i>
	1	DCD	TxD+	--
	2	RxD	TxD-	--
	3	TxD	RxD-	Data-
	4	DTR	RxD+	Data+
	5	GND	GND	GND
	6	DSR	--	--
	7	RTS	--	--
	8	CTS	--	--
	9	--	--	--

2.2 Installing the Industrial Serial Server

This section describes how to install your Industrial Serial Server and make connections to the Industrial Serial Server. Please read the following section and perform the procedure in the order being presented. To install your Industrial Serial Server on a desktop or rack, simply complete the following steps.

2.2.1 Installation Steps

1. **Unpack the Industrial Serial Server**
2. **Check if the DIN-rail bracket is screwed on the Industrial Serial Server or not.** If the DIN-rail bracket is not screwed on the **Industrial Serial Server**, please refer to **DIN-rail Mounting** section for DIN-rail installation. If users want to wall-mount the **Industrial Serial Server**, please refer to the **Wall Mount Plate Mounting** section for wall-mount plate installation.
3. **To hang the Industrial Serial Server on the DIN-rail track or wall.**
4. **Power on the Industrial Serial Server.** Please refer to the **Wiring the Power Inputs** section for knowing the information about how to wire the power. The power LED on the **Industrial Serial Server** will light up. Please refer to the **LED Indicators** section for indication of LED lights.
5. **Prepare Network cables for Ethernet connection.**
 - Use standard network (UTP) cables with RJ45
 - Use Multi-mode or Single-mode fiber patch cord with LC connector and 100BASE-FX SFP transceiver (ICS-3105AT only).
6. **Insert one side of RJ45 cable (category 5) or Fiber cable into the Industrial Serial Server Ethernet port** (RJ45/SFP port) while the other side to the network device's Ethernet port (RJ45/SFP port), e.g., Switch PC or Server. The **"LNK/ACT"** LED on the **Industrial Serial Server** will light up when the cable is connected with the network device. Please refer to the **LED Indicators** section for LED light indication.



Make sure that the connected network devices support MDI/MDI-X. If it does not support, use the crossover Category 5 cable.

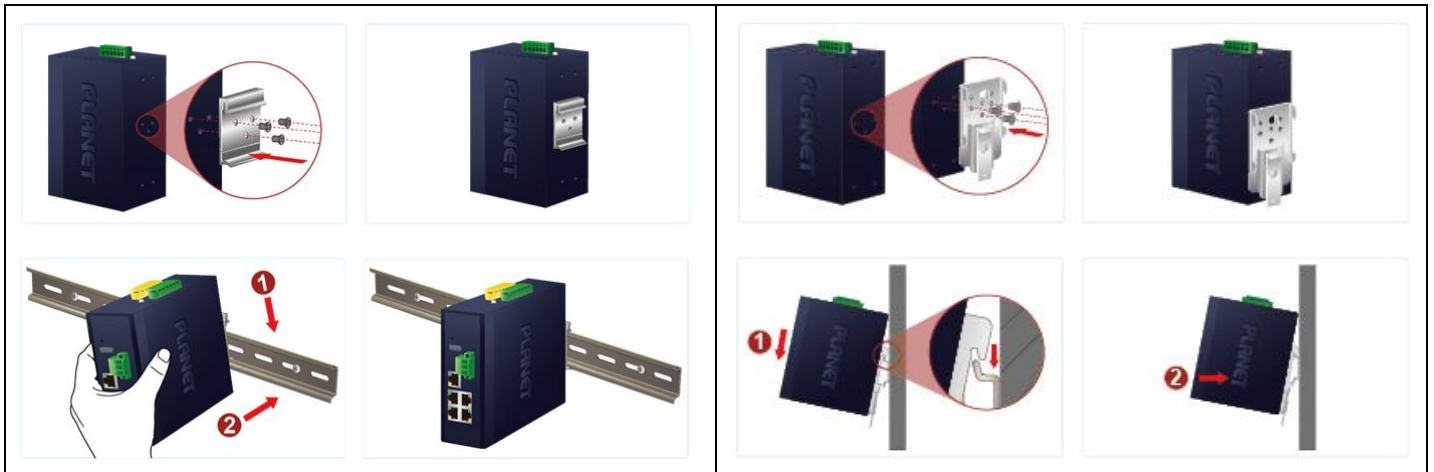
7. **When all connections are set and all LED lights show normal, the installation is completed.**

2.2.2 DIN-rail Mounting

This section describes how to install the **Industrial Serial Server**. There are two methods to install the **Industrial Serial Server** -- DIN-rail mounting and wall-mount plate mounting. Please read the following section and perform the procedure in the order being presented.



Follow all the DIN-rail installation steps as shown in the example.



*For ICS-3100T, ICS-3150AT, ICS-3200T

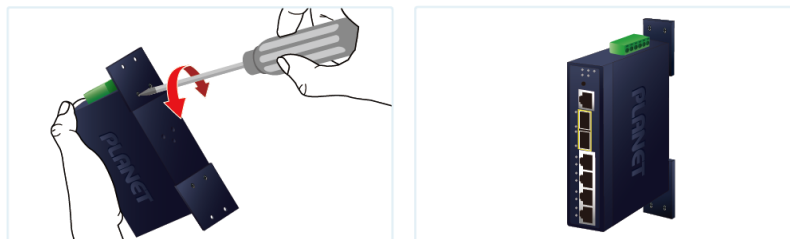
*For ICS-3400T

Place the bracket on the back of the device and with the given 3 screws, tighten them. Slide the device with the bracket mounted through the DIN-rail to finish the installation.

To install the **Industrial Serial Server** on the wall, please follow the instructions below.



Follow all the DIN-rail installation steps as shown in the example.



Place mounting plates on the back of the device, and tighten them with the given screws. Then put the device with the plates mounted on the wall, and screw them of finish the installation.

3 INDUSTRIAL SERIAL SERVER MANAGEMENT

This chapter covers the following topics as to how to manage the Industrial Serial Server:

- Requirements
- Web Management
- Remote Management
- PLANET Smart Discovery Utility

3.1 Requirements

- The Industrial Serial Server provides local and remote login interface for management purposes. The following equipment is necessary for further management:
- Workstations running Windows 7/8/10/11, macOS 10.12 or later, Linux Kernel 2.6.18 or later, or other modern operating systems are compatible with TCP/IP Protocols.
- Workstations are installed with Ethernet NIC (Network Interface Card)
- Ethernet Port Connection
 - **Network cables :**
 - Use standard network (UTP) cables with RJ45 connectors.
 - Use Multi-mode or Single-mode fiber patch cord with LC connector and 100BASE-FX SFP transceiver (ICS-3105AT only).
 - The above PC is installed with Web browser.



It is recommended to use Google Chrome, Microsoft Edge or Firefox to access The Industrial Serial Server. If the Web interface of The Industrial Serial Server is not accessible, please turn off the anti-virus software or firewall and then try it again.

3.2 Web Management

The Industrial Serial Server offers management features that allow users to manage the Industrial Serial Server from anywhere on the network through a standard browser such as Microsoft Internet Explorer. After you set up your IP address for the switch, you can access the Industrial Serial Server's Web interface applications directly in your Web browser by entering the IP address of the Industrial Serial Server.

For example, the default IP address of the Industrial Serial Server is **192.168.0.100**, then the manager PC should be set to **192.168.0.x** (where x is a number between 1 and 254, except 100), and the default subnet mask is 255.255.255.0.

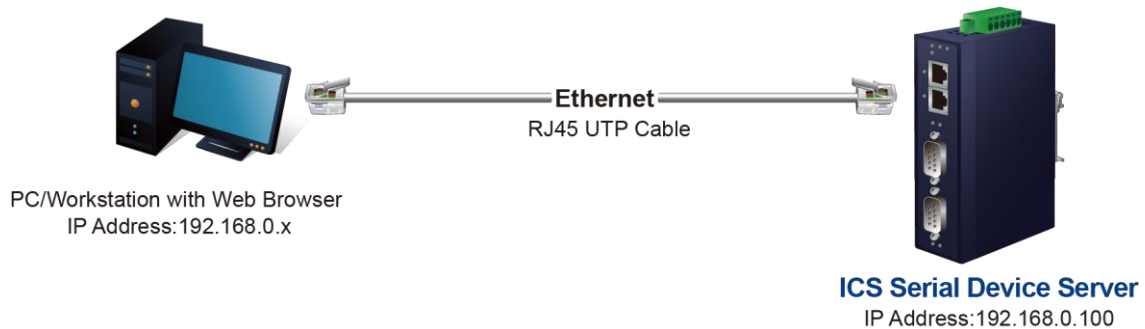


Figure 3-2-1: Web Management

You can then use your Web browser to list and manage the Industrial Serial Server configuration parameters from one central location, just as if you were directly connected to the Industrial Serial Server's console port. Web Management requires either **Microsoft Internet Explorer 7.0** or later, **Safari** or **Mozilla Firefox 1.5** or later.

3.2.1 Logging in to the Industrial Serial Server

1. When the following dialog box appears, please enter the default user name "**admin**" and password. Refer to **Section 3-2-1** to determine your initial login password.

Default IP Address: **192.168.0.100**

Default User Name: **admin**

Default Password: **cs + the last 6 characters of the MAC ID in lowercase**

2. Find the MAC ID on your device label. The default password is "cg" followed by the last six lowercase characters of the

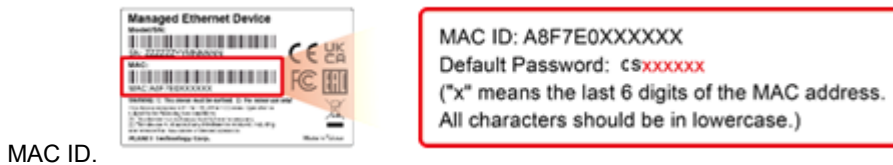


Figure 3-2-2: Industrial Serial Server MAC ID Label

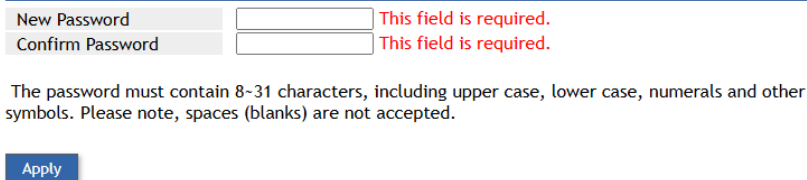


The login screen features the PLANET logo at the top. Below it, there are two input fields: one for 'User' and one for 'Password'. A 'Login' button is positioned below the password field.

Figure 3-2-3: Login Screen

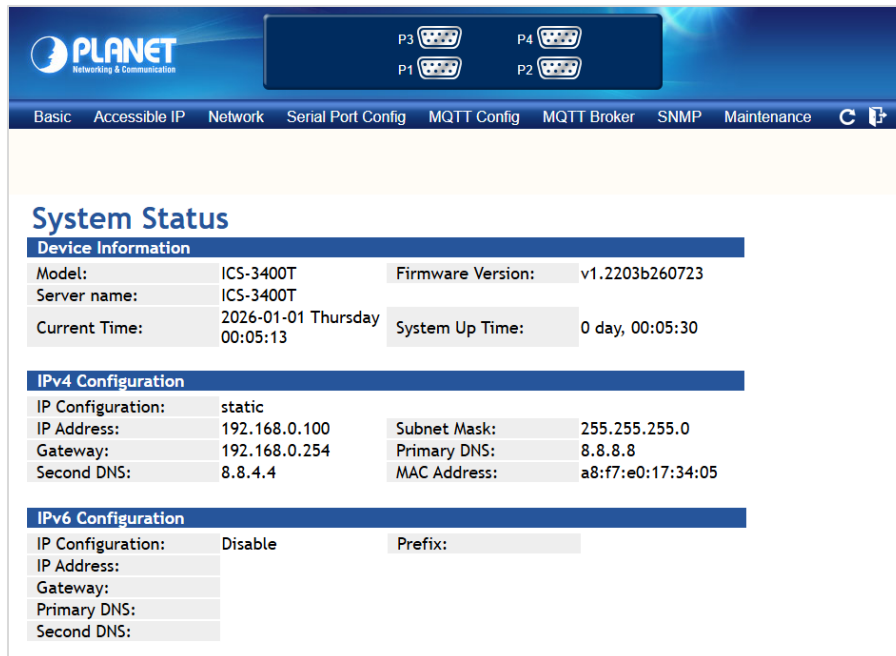
- After logging in, you will be prompted to change the initial password to a permanent one.

Change Password



The 'Change Password' form includes two input fields: 'New Password' and 'Confirm Password'. Both fields have a red error message: 'This field is required.' Below the fields, a text block states: 'The password must contain 8-31 characters, including upper case, lower case, numerals and other symbols. Please note, spaces (blanks) are not accepted.' An 'Apply' button is located at the bottom.

Figure 3-2-4: Create a New Password



The web main screen displays the PLANET logo and a navigation menu with options: Basic, Accessible IP, Network, Serial Port Config, MQTT Config, MQTT Broker, SNMP, and Maintenance. The main content area is titled 'System Status' and contains three sections: 'Device Information', 'IPv4 Configuration', and 'IPv6 Configuration'.

Device Information			
Model:	ICS-3400T	Firmware Version:	v1.2203b260723
Server name:	ICS-3400T		
Current Time:	2026-01-01 Thursday 00:05:13	System Up Time:	0 day, 00:05:30

IPv4 Configuration			
IP Configuration:	static		
IP Address:	192.168.0.100	Subnet Mask:	255.255.255.0
Gateway:	192.168.0.254	Primary DNS:	8.8.8.8
Second DNS:	8.8.4.4	MAC Address:	a8:f7:e0:17:34:05

IPv6 Configuration	
IP Configuration:	Disable
IP Address:	
Gateway:	
Primary DNS:	
Second DNS:	

Figure 3-2-5: Web Main Screen of Serial Device Sever

3.3 PLANET Smart Discovery Utility

For easily listing the Industrial Serial Server in your Ethernet environment, the Planet Smart Discovery Utility is an ideal solution. The following installation instructions are to guide you to running the Planet Smart Discovery Utility.

1. Download the Planet Smart Discovery Utility from the administrator PC.
2. Run this utility as the following screen appears.

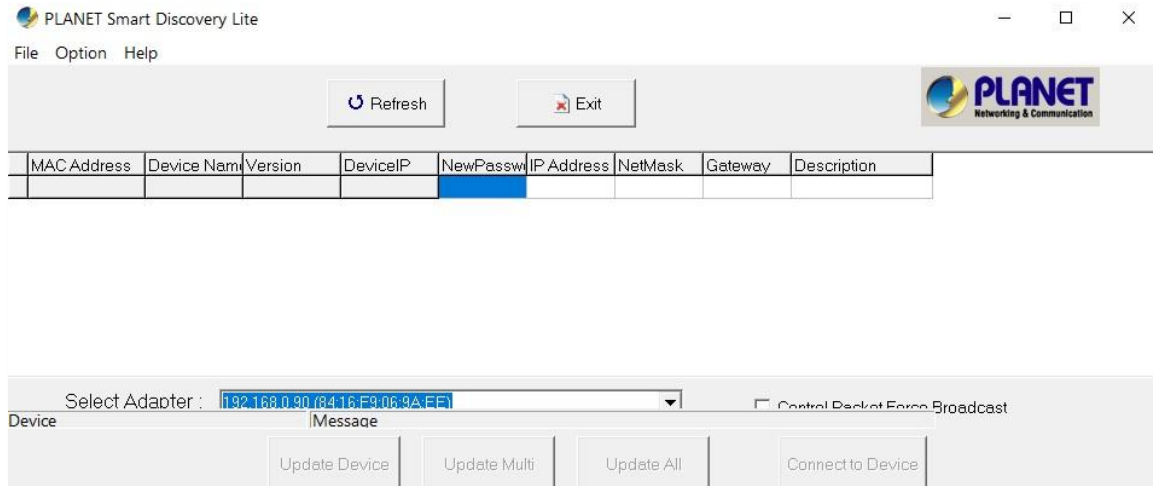


Figure 3-3-1: Planet Smart Discovery Utility Screen



If there are two LAN cards or above in the same administrator PC, choose a different LAN card by using the “**Select Adapter**” tool.

3. Press the “**Refresh**” button for the currently connected devices in the discovery list as shown in Figure 3-3-2.:

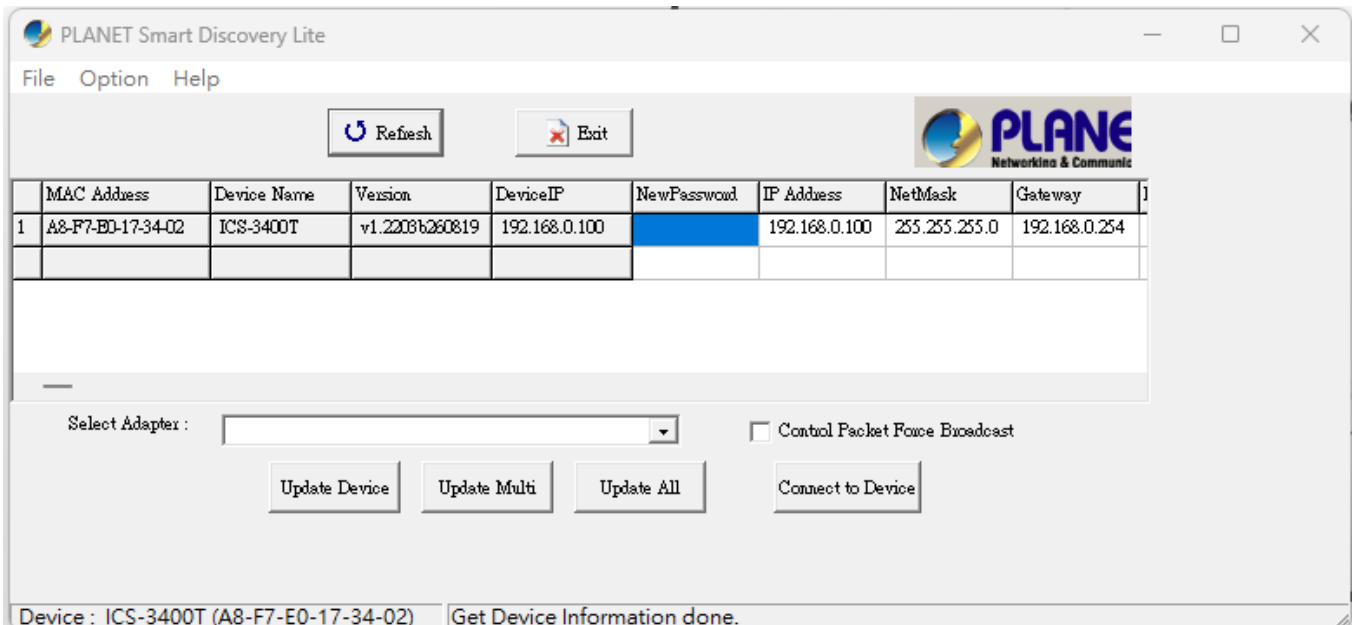


Figure 3-3-2: Planet Smart Discovery Utility Screen

1. This utility shows all the necessary information from the devices, such as MAC address, device name, firmware version, and device IP subnet address. It can also assign new password, IP subnet address and description to the devices.
2. After setup is completed, press the **"Update Device"**, **"Update Multi"** or **"Update All"** button to take effect. The functions of the 3 buttons above are shown below:

- **Update Device:** Use current setting on one single device.
- **Update Multi:** Use current setting on multi-devices.
- **Update All:** Use current setting on whole devices in the list.

The same functions mentioned above also can be found in **"Option"** tools bar.

3. To click the **"Control Packet Force Broadcast"** function, it allows you to assign a new setting value to the Web Smart Switch under a different IP subnet address.
4. Press the **"Connect to Device"** button and the Web login screen appears as shown in [Figure 3-3-2](#).
5. Press the **"Exit"** button to shut down the Planet Smart Discovery Utility.

4 Web-based Management

4.1 Introduction

The device can be configured with your Web browser. Before configuring, please make sure your PC is under the same IP segment with the device.

4.2 Logging in to the Industrial Serial Server

This section introduces the configuration and functions of the Web-based management from Industrial Serial Server.

About Web-based Management

The Industrial Serial Server offers management features that allow users to manage the Industrial Serial Server from anywhere on the network through a standard browser such as Microsoft Internet Explorer.



It is recommended to use Google Chrome, Microsoft Edge or Firefox to access The Industrial Serial Server. If the Web interface of The Industrial Serial Server is not accessible, please turn off the anti-virus software or firewall and then try it again.

1. When the following dialog box appears, please enter the default user name "**admin**" and password. Refer to **Section 4-2-1** to determine your initial login password.

Default IP Address: **192.168.0.100**

Default User Name: **admin**

Default Password: **cs + the last 6 characters of the MAC ID in lowercase**

2. Find the MAC ID on your device label. The default password is "cg" followed by the last six lowercase characters of the

MAC ID.



MAC ID: A8F7E0XXXXXX
Default Password: csxxxxxx
("x" means the last 6 digits of the MAC address.
All characters should be in lowercase.)

Figure 4-2-1: Industrial Serial Server MAC ID Label

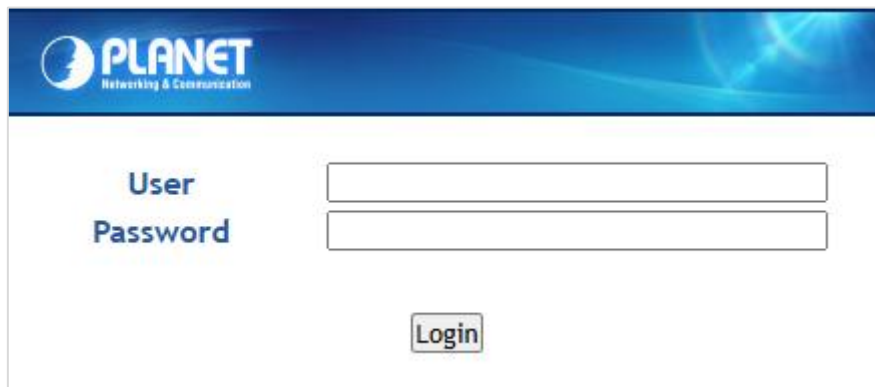


Figure 4-2-2: Login Screen

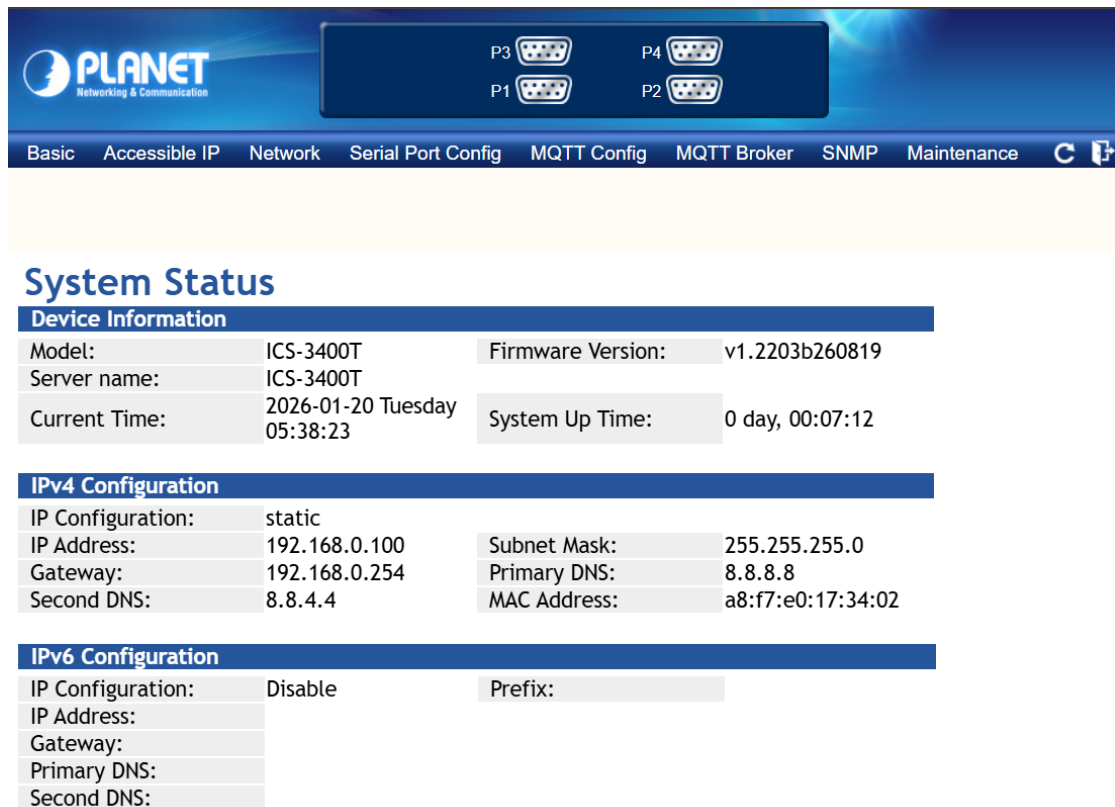
- After logging in, you will be prompted to change the initial password to a permanent one.

Change Password

New Password		This field is required.
Confirm Password		This field is required.

The password must contain 8-31 characters, including upper case, lower case, numerals and other symbols. Please note, spaces (blanks) are not accepted.

Figure 4-2-3: Create a New Password



The screenshot shows the Planet ICS-3400T web interface. At the top, there's a header with the Planet logo and a navigation bar with tabs: Basic, Accessible IP, Network, Serial Port Config, MQTT Config, MQTT Broker, SNMP, and Maintenance. Below the navigation bar, the 'System Status' section is visible. It contains three sub-sections: Device Information, IPv4 Configuration, and IPv6 Configuration.

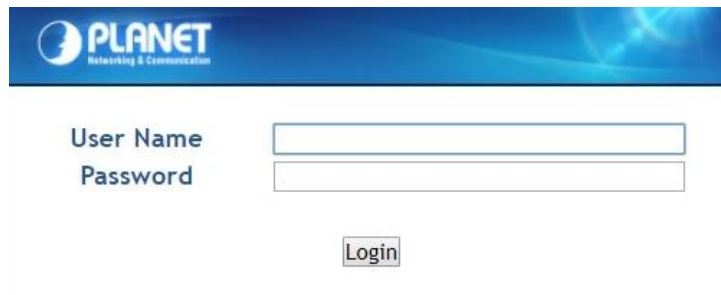
Device Information			
Model:	ICS-3400T	Firmware Version:	v1.2203b260819
Server name:	ICS-3400T		
Current Time:	2026-01-20 Tuesday 05:38:23	System Up Time:	0 day, 00:07:12

IPv4 Configuration			
IP Configuration:	static		
IP Address:	192.168.0.100	Subnet Mask:	255.255.255.0
Gateway:	192.168.0.254	Primary DNS:	8.8.8.8
Second DNS:	8.8.4.4	MAC Address:	a8:f7:e0:17:34:02

IPv6 Configuration			
IP Configuration:	Disable	Prefix:	
IP Address:			
Gateway:			
Primary DNS:			
Second DNS:			

Figure 4-2-4: Web Main Screen of Serial Device Sever

- When the following login screen appears, please enter the default username **"admin"** with password **"admin"** (or the username/password you have changed via console) to log in the main screen of **Industrial Industrial Serial Server**. The login screen in Figure 4-1-5 appears.



The screenshot shows the Planet login screen. It features the Planet logo at the top. Below the logo, there are two input fields: 'User Name' and 'Password'. A 'Login' button is positioned below the password field.

Figure 4-2-5: Login Screen

The Industrial Serial Server Menu on the top of the Web page lets you access all the commands and statistics The Industrial Serial Server provides. The Switch Menu always contains one or more buttons, such as “**Basic**”, “**Accessible IP**”, “**Serial Port Config**”, “**MQTT Config**” “**MQTT Broker**” “**SNMP**” and “**Maintenance**”.

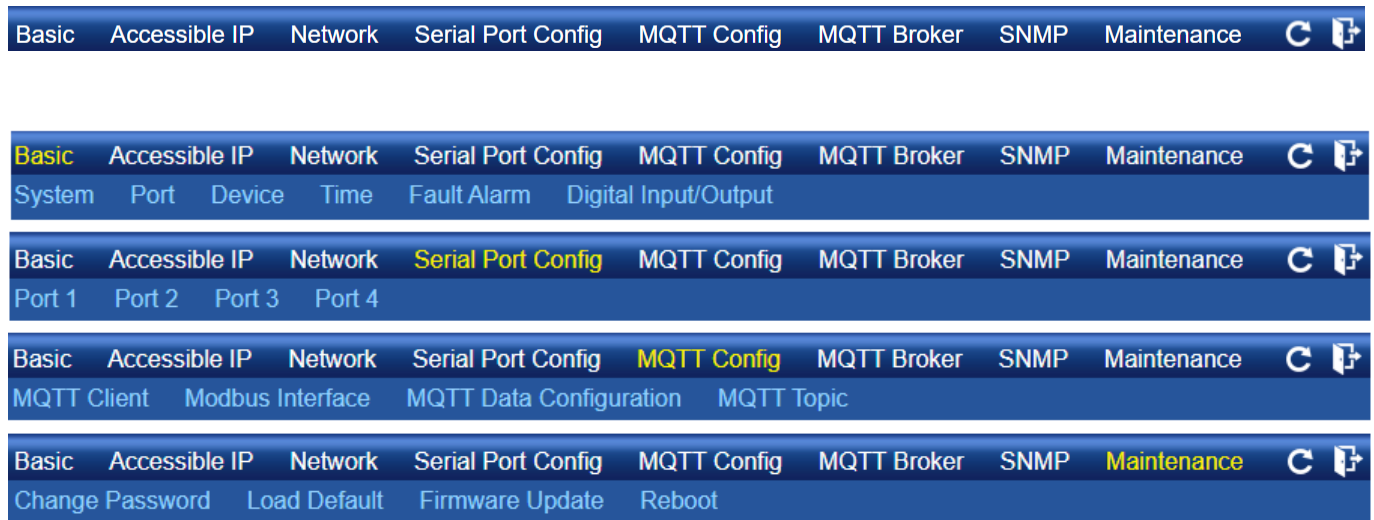


Figure 4-2-6: Industrial Serial Server Menu

Now, you can use the Web management interface to continue the Switch management. Please refer to the user's manual for more.

4.3 Main Web Page

The Industrial Serial Server provides a Web-based browser interface for configuring and managing it. This interface allows you to access the Industrial Serial Server using the Web browser of your choice. The main web page is shown in [Figure 4-3-1](#)

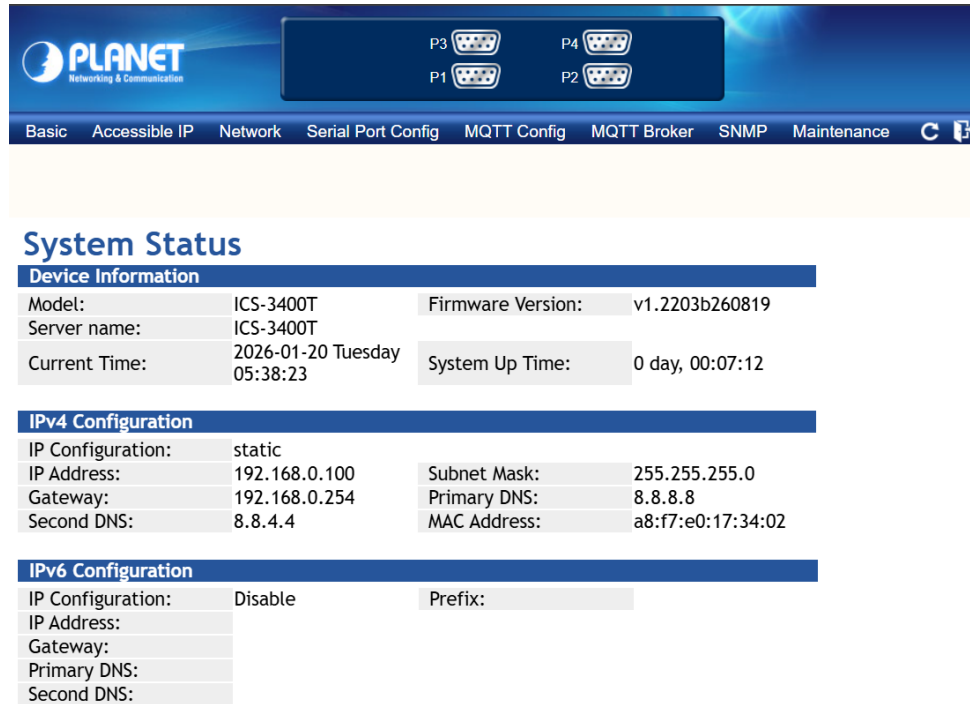


Figure 4-3-1: Web Main Page

Main Menu

Via the Web Management, the administrator can set up the Industrial Serial Server by selecting the functions that are listed in the Main Function. The screen in [Figure 4-3-2](#) appears.



Figure 4-3-2: Industrial Serial Server Main Functions Menu

Object	Description
• Basic	The essential device information of Industrial Serial Server.
• Accessible IP	To configure IP address lists to prevent unauthorized access.
• Network	To configure IP address information of Industrial Serial Server.
• Serial Port Config	Configures the serial port parameters and operation modes.
• MQTT Config	Configures MQTT client connections and data transmission settings.
• MQTT Broker	Configures the built-in MQTT Broker settings.
• SNMP	To configure SNMP information of Industrial Serial Server.
• Maintenance	The management of Industrial Serial Server.
• 	Refresh the page
• 	Log out the Industrial Serial Server.

4.4 Basic

Use the System menu items to display and configure basic administrative details of the Industrial Serial Server. Under the Basic, the following topics are provided to configure and view the system information. This section has the following items:



4.4.1 System

The System page provides basic information for the current device. System page helps an administrator to identify software version, system uptime and IP address information. The screen in [Figure 4-4-1](#) appears.

System Status

Device Information			
Model:	ICS-3400T	Firmware Version:	v1.2203b260819
Server name:	ICS-3400T		
Current Time:	2026-01-20 Tuesday 06:36:15	System Up Time:	0 day, 01:05:04
IPv4 Configuration			
IP Configuration:	static		
IP Address:	192.168.0.100	Subnet Mask:	255.255.255.0
Gateway:	192.168.0.254	Primary DNS:	8.8.8.8
Second DNS:	8.8.4.4	MAC Address:	a8:f7:e0:17:34:02
IPv6 Configuration			
IP Configuration:	Disable	Prefix:	
IP Address:			
Gateway:			
Primary DNS:			
Second DNS:			

Figure 4-4-1: System Status Page Screenshot

The page includes the following fields:

Device Information

Object	Description
• Model	Specifies the device model name.
• Firmware Version	The firmware version of industrial serial server.
• Server Name	The system name configured in Basic/Device Name.
• Current Time	The current (GMT) system time and date.
• System Up Time	The period of time the device has been operational.

IPv4 Configuration

Object	Description
• IP Configuration	The status of IPv4 configuration.
• IP Address	The current IPv4 address of the device.
• Subnet Mask	The current IPv4 subnet mask of the device.
• Gateway	The current IPv4 gateway of the device.
• Primary DNS	The current first DNS server of the device.
• Second DNS	The current second DNS server of the device.
• MAC Address	Specifies the device MAC address.

IPv6 Configuration

Object	Description
• IP Configuration	The status of IPv6 configuration.
• IP Address	The current IPv6 address of the device.
• Prefix	The IPv6 network mask, in number of bits (prefix length).
• Gateway	The current gateway for the IPv6 interface.
• Primary DNS	The current first DNS server of the device.
• Second DNS	The current second DNS server of the device.

4.4.2 Port

This Port page displays the status of each port, including operation mode and serial settings. The screen in [Figure 4-4-2](#) appears.

Port Status

Index	Operation Mode	Baud Rate	Stop Bits	Data Bits	Parity	Interface	Flow Control
1	MQTT	115200	1	8	None	RS-232	None
2	TCP Server Mode	115200	1	8	None	RS-232	None
3	Serial Telnet Mode	115200	1	8	None	RS-232	None
4	TCP Server Mode	115200	1	8	None	RS-232	None

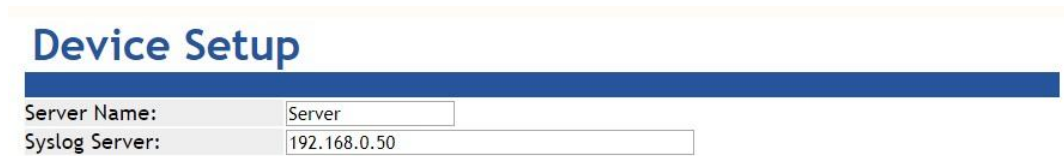
Figure 4-4-2: Port Status Page Screenshot

The following column shows the Port statuses:

Object	Description
• Index.	The serial number (No.) indicates port number. It can be directly linked to the corresponding page settings.
• Operation Mode	The current operation mode of industrial serial server.
• Baud Rate	The rate of data transmission to and from the attached serial device.
• Stop Bits	The stop bit follows the data and parity bits in serial communication. It indicates the end of transmission. The default is 1 .
• Data Bits	Indicates the number of the bits in a transmitted data package. The default is 8 .
• Parity	Checks for the parity type. The default value is none .
• Interface	The industrial device server supports three interfaces. The default value is RS-232 . ■ RS-232 ■ RS-422 ■ RS-485 2-Wire ■ RS-485 4-Wire
• Flow Control	The method is used to suspend and resume data transmission to ensure that data is not lost. The default value is none .

4.4.3 Device

This page provides configuration of device name and syslog server. The screen in [Figure 4-4-3](#) appears.



The screenshot shows the 'Device Setup' page. It has a title bar 'Device Setup' in blue. Below it, there are two input fields: 'Server Name' with the value 'Server' and 'Syslog Server' with the value '192.168.0.50'.

Figure 4-4-3: Device Setup Page Screenshot

The page includes the following fields:

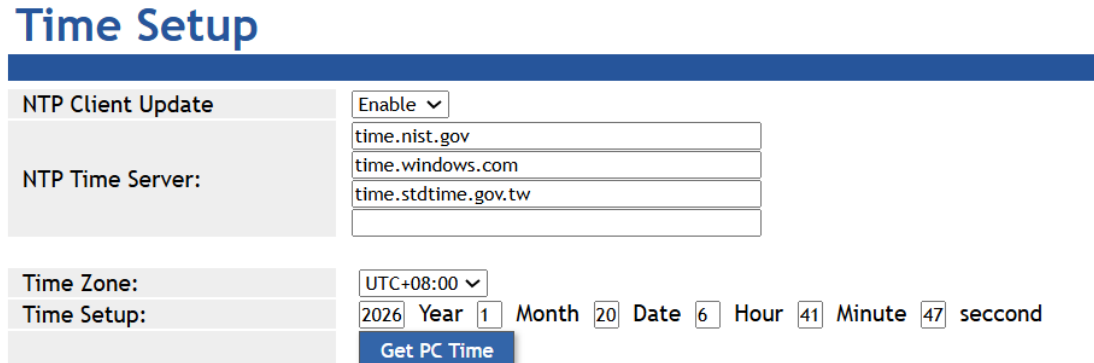
Object	Description
• Server Name	To configure the name of server. The default value is Server .
• Syslog Server	To configure IP address of syslog server.



When applying any configuration changes of industrial serial server, it's required to **save changed configuration and reboot system**. Therefore the new configuration will be applied after rebooting.

4.4.4 Time

This page provides configuration of NTP server and Time modification. The screen in [Figure 4-4-4](#) appears.



The screenshot shows the 'Time Setup' page. It has a title bar 'Time Setup' in blue. Below it, there are several configuration options: 'NTP Client Update' with a dropdown menu set to 'Enable', 'NTP Time Server' with a list of servers (time.nist.gov, time.windows.com, time.stdtime.gov.tw), 'Time Zone' with a dropdown menu set to 'UTC+08:00', and 'Time Setup' with fields for Year (2026), Month (1), Date (20), Hour (6), Minute (41), and second (47). There is also a 'Get PC Time' button.

Figure 4-4-4: Time Setup Page Screenshot

The page includes the following fields:

Object	Description
• NTP Client Update	Enables or disables automatic time synchronization with the configured NTP servers.
• NTP Time Server	Specifies the NTP server addresses used for automatic time synchronization. Up to four NTP servers can be configured.
• Time Zone	Selects the time zone for the device.
• Time Setup	Manually configures the system date and time.
• Get PC Time	Synchronizes the device date and time with the connected computer.

4.4.5 Fault Alarm

This page provides configuration for fault alarm. The screen in [Figure 4-4-5](#) appears.

Fault Alarm Control Configuration	
Enable	☐ Enable
Buzzer	☐ Enable
Record	☐ System Log ☐ SNMP Trap
Event	☐ Power Fail ☐ DCD Changed ☐ DSR Changed
Power Alarm	☐ PWR 1 ☐ PWR 2
Monitoring of DCD Change	☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4
Monitoring of DSR Change	☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4

Figure 4-4-5: Fault Alarm Control Page Screenshot

The page includes the following fields:

Object	Description
• Enable	Enables or disables the fault alarm output function.
• Buzzer	To check whether Buzzer is enabled on this switch.
• Record	To check whether Record is sending System log or SNMP Trap or both.
• Event	To check whether Power, Connection, etc. are working or not.
• Power Alarm	PWR1 or PWR2 or both have faulted..
• Monitoring of DCD Change	Monitor which Port or all for DCD signal that has changed.
• Monitoring of DSR Change	Monitor which Port or all for DSR signal that has changed.

4.4.6 Digital Input and Output (ICS-3400T only)

Digital Input allows user to log external device (such as industrial cooler). System will log a user customized message into system log and issue SNMP trap.

Digital Output allows user to monitor whether the power or DCD/DSR signal has changed, and let system issue a high or low signal to an external device (such as alarm) when power fails. The Configuration screen in [Figure 4-4-6](#) appears.

Digital Input/Output Control Configuration

Digital Input 0		Digital Input 1	
Enable	☐ Enable	Enable	☐ Enable
DI Condition	High to Low ▾	DI Condition	High to Low ▾
Event Description		Event Description	
Action	☐ System Log ☐ SNMP	Action	☐ System Log ☐ SNMP

Digital Output 0		Digital Output 1	
Enable	☐ Enable	Enable	☐ Enable
Event	☐ Power Fail ☐ DCD Changed ☐ DSR Changed ☐ DI 0 ☐ DI 1	Event	☐ Power Fail ☐ DCD Changed ☐ DSR Changed ☐ DI 0 ☐ DI 1
DO Condition	High to Low ▾	DO Condition	High to Low ▾
Power Alarm	☐ PWR 1 ☐ PWR 2 ☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4	Power Alarm	☐ PWR 1 ☐ PWR 2 ☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4
Monitoring of DCD Change	☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4	Monitoring of DCD Change	☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4
Monitoring of DSR Change	☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4	Monitoring of DSR Change	☐ Port1 ☐ Port2 ☐ Port3 ☐ Port4

Figure 4-4-6: Time Configuration Page Screenshot

The page includes the following fields:

Object	Description
• Enable	Check the Enable checkbox to enable Digital Input / output function. Uncheck the Enable checkbox to disable Digital input / output function.
• DI Condition	Allows user to select High to Low or Low to High. This means a signal received by system is from High to Low or from Low to High. It will trigger an action that logs a customized message or issue the message from the switch.
• Event Description	Allows user to set a customized message for Digital Input function alarm.
• Action	Allows user to record alarm message to System log, or issues out via SNMP trap. As default SNMP trap is disabled, please enable them first if you want to issue alarm message via them.
• Event	Alarm will sound when power and connection fails;Digital Input 0 (DI 0) and Digital Input 1(DI 1) means Digital Output has detected these events. Then Digital Output would be triggered according to the settings of the condition.
• Power Alarm	Allows user to choose which power module that needs to be monitored.
• Monitoring of DCD Change	Allows user to choose which port that needs to be monitored when DCD signal changes
• Monitoring of DSR Change	Allows user to choose which port that needs to be monitored when DSR signal changes.

4.5 Accessible IP

This page provides the specified IP address to connect with industrial serial server. When the list of accessible IP is enabled, only IP address in the list can connect to device. When the function is disabled, there is no such restriction. List allows user to configure up to four IP groups. The accessible IP setup screen in [Figure 4-5-1](#) appears.

Accessible IP Setup

Active:

Active No.1:

Start IP Address:

End IP Address N:

Active No.2:

Start IP Address:

End IP Address N:

Active No.3:

Start IP Address:

End IP Address N:

Active No.4:

Start IP Address:

End IP Address N:

Figure 4-5-1: Accessible IP Setup Page Screenshot

The page includes the following fields:

Object	Description
• Active	Configure the accessible IP list. Possible modes are: Disabled: Disable accessible IP lists. Enabled: Enable accessible IP lists.
• Activate NO	Enable or disable activated IP groups.
• Start IP Address	Enter the IP address for starting.
• End IP Address N	Enter the IP address for ending

Example

Allowed hosts	Start: IP Address setting	End: IP Address N
• Any host	disable	disable
• 192.168.0.120	192.168.0.120	
• 192.168.0.1 to 192.168.0.254	192.168.0.1	192.168.0.254

4.6 Network

This page allows the user to configure IPv4 or IPv6 address. The IP configuration screen in [Figure 4-6-1](#) appears.

IP Configuration

IPv4 Configuration	
IP Configuration:	Static ▾
DHCP Fallback:	☐ Enable ☒ Disable
Fallback Seconds:	60 (30~300)
IP Address:	192.168.0.100
Subnet Mask:	255.255.255.0
Gateway:	192.168.0.254
Primary DNS:	8.8.8.8
Second DNS:	8.8.4.4

IPv6 Configuration	
IP Configuration:	Disable ▾
IP Address:	[Example] Global 2000::/3,ULA fd00::/7
Prefix:	64
Gateway:	
Primary DNS:	
Second DNS:	

Figure 4-6-1: IP Configuration Page Screenshot

The page includes the following fields:

IPv4

Object	Description
• IP Configuration	Configure static or DHCP to get IPv4 address. The default value is static . ■ static: Set a fixed IPv4 address that was manually configured for a device ■ DHCP: Set IPv4 address automatically assigned from a DHCP server.
• DHCP Fallback	Enables or disables the use of the configured static IPv4 address when the DHCP server does not respond.
• Fallback Seconds	Specifies how long the device waits for a DHCP response before switching to the fallback IPv4 settings. The available range is 30–300 seconds.
• IP Address	The current IPv4 Address of the device. The IP Address could be manually assigned. The default value is 192.168.0.100 .
• Subnet Mask	The current IP subnet mask of the device. The default value is 255.255.255.0 .
• Gateway	The default gateway for the IP interface. The default value is 192.168.0.254 .
• Primary DNS	Configure the first DNS server.
• Second DNS	Configure the second DNS server.

IPv6

Object	Description
• IP Configuration	Configure static , SLAAC/DHCP and disable for IPv6 address. The default value is disable . ■ Static: Set a fixed IPv6 address that was manually configured for a device ■ SLAAC/DHCP: Set IPv6 address automatically assigned from a DHCPv6 server. ■ Disable: Disable IPv6 protocol.
• IP Address	The current IPv6 Address of the device.
• Prefix	The IPv6 network mask, in number of bits (prefix length). The default value is 64 .
• Gateway	The default gateway for the IPv6 interface.
• Primary DNS	Configure the first DNS server.
• Second DNS	Configure the second DNS server.

4.7 Serial Port Config

The following figure shows port settings. Note that these settings need to match the parameters on serial port of the serial device. Each parameter is described in details in the following section. The port configuration screen in [Figure 4-7-1](#) appears.

Port 1 Setup

Description:		Baud Rate: 921600
Data Bits: 8	Any Baud Rate: 50 (50 - 921600)	
Stop Bits: 1	Parity: None	
Interface: RS-232	FlowControl: None	

Operation Mode: TCP Server Mode	
TCP Keep-alive Interval: 0 (min)	
Quiescent Time: 0 (0 - 65535 ms)	
Max Connection: 1	
Local TCP Port: 5004	
Frame Length: 0 (0 - 1300)	
Separator: 00 (HEX)	Enable: ☐
Separator Process: Do Nothing	
Separator Time Out: 0 (0 - 65535 ms)	

Apply to all serial ports: ☐

Figure 4-7-1: Port Setup Page Screenshot

4.7.1 Serial setup

The serial setup screen is shown in [Figure 4-7-2](#).

Description:		Baud Rate:	921600 ▼
Data Bits:	8 ▼	Any Baud Rate:	50 (50 - 921600)
Stop Bits:	1 ▼	Parity:	None ▼
Interface:	RS-232 ▼	FlowControl:	None ▼

Figure 4-7-2: Serial Setup Page Screenshot

Object	Description
• Description	Used to distinguish the name of each serial port. It allows 1 to 15 characters (e.g. A-Z, a-z, 0-9)
• Baud Rate	The rate of data transmission to and from the attached serial device. It allows 50 bps to 921600 bps. The default is 921600 bps .
• Stop Bits	The stop bit follows the data and parity bits in serial communication. It indicates the end of transmission. The default is 1 .
• Data Bits	Indicates the number of the bits in a transmitted data package. The allowed value is 5,6,7,8 and default value is 8 .
• Parity	This parameter controls the error checking mode. It support five modes and default value is none. ■ Even ■ Odd ■ None ■ Space ■ Mark
• Interface	The industrial device server supports three interfaces. The default value is RS-232. ■ RS-232 ■ RS-422 ■ RS-485 2-Wire ■ RS-485 4-Wire
• Flow Control	The method is used to suspend and resume data transmission to ensure that data is not lost. It supports four methods and default value is none. ■ None ■ RTS/CTS ■ Xon/Xoff ■ DTR/DSR

4.7.2 Operation mode

The industrial serial server makes connected Serial equipment become IP-based. That also makes them able to connect to a TCP/IP networking immediately. The industrial serial server allows traditional Computer/Client COM ports access to a serial equipment anywhere on the Ethernet LAN network.

This operation mode can be set up as **Disable**, **Remote Pair Master/Slave**, **RF2217**, **Serial Telnet**, **TCP Server**, **TCP Client**, **UDP**, **Virtual COM** and **Modbus Converter Server/Client**. The operation mode screen in [Figure 4-7-3](#) appears.

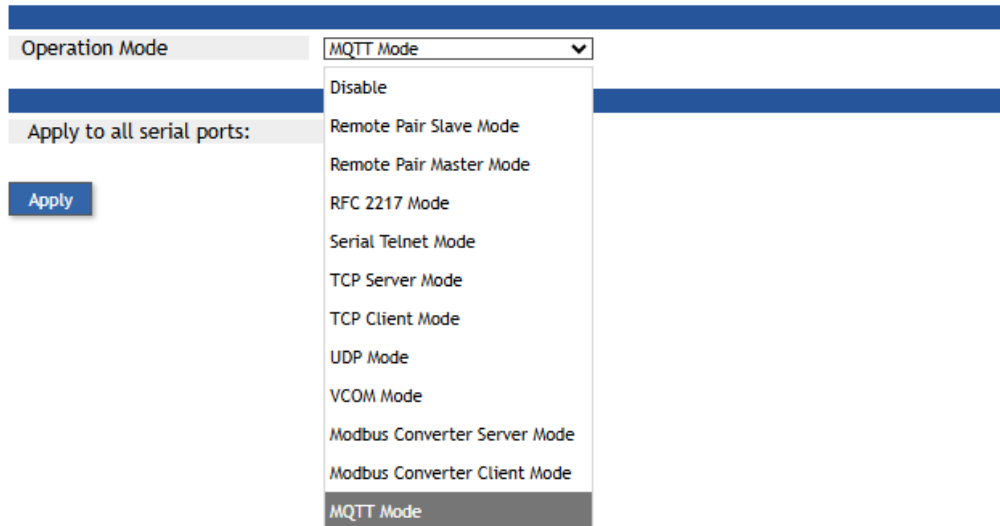


Figure 4-7-3: Operation Mode Screenshot

4.7.3 Disable mode

When selecting disabled operation mode, the device port can be disabled. The disable mode screen in [Figure 4-7-4](#) appears.



Figure 4-7-4: Disable Mode Screenshot

Object	Description
• Apply to all serial ports	To apply this configuration to all serial ports.

Buttons

Apply: Click to apply port config changes.



When applying any configuration changes of industrial serial server, it's required to **save changed configuration and reboot system**. Therefore the new configuration will be applied after rebooting.

4.7.4 Remote Pair Master/Slave mode

When a device connected to an industrial serial server can be transparently connected to another device on industrial serial server; data and modem control signals are exchanged. This protocol can overcome the limitations of traditional serial communication distances and introduce many new usability and feasibility for serial device control. In short, Remote Pair-Master/Slave mode provides tunnel-like functionality over the network. Only one Remote Pair-Slave can be connected to a remote pairing host. The remote pair master/slave topology in [Figure 4-7-5](#) appears.

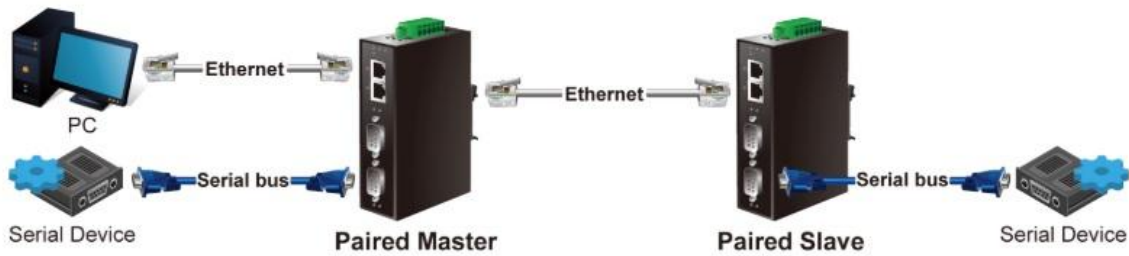


Figure 4-7-5: Remote Pair Master/Slave Topology

The remote pair master mode screenshot in [Figure 4-7-6](#) appears.

Operation Mode:	Remote Pair Master Mode ▼
TCP Keep-alive Interval:	0 (min)
Target IP address:	: 5004

Figure 4-7-6: Remote Pair Master Mode Screenshot

The page includes the following fields:

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection.
• Target IP address	The Target IP address is the receiver of the message.

The remote pair slave mode screenshot in [Figure 4-7-7](#) appears.

Operation Mode:	Remote Pair Slave Mode ▼
TCP Keep-alive Interval:	0 (min)
Local TCP Port:	5004

Figure 4-7-7: Remote Pair Slave Mode Screenshot

The page includes the following fields:

Object	Description
TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
Local TCP port	This parameter describes the TCP port that communicates with the connected device. The setting slave and master destination IP parameters must use the same value to achieve communication. The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and 5007 for port 4

Using Remote Pair Connection mode for two RS-232 services for distance extension, the DB9/RS-232 cables are very important in this application. There are many different kinds of RS-232 cables, such as **straight cable** (standard) and **Null-Modem cable**. Please make sure the DB9/RS-232 cables match the following:

- **Serial Device to ICS-2X00/Remote (Slave)** – Use the original RS-232 serial cable attached in the serial device package.
- **Host / Client to ICS-2X00/Local (Master)** – It has to use the **Null-Modem cable**!

Users can use the Null-Modem cable to directly connect to the ICS-2X00 (Master), or use the Null-Modem DB9 connector, as the picture shows:



Once the Pair Connection mode of the ICS-2X00 is correctly configured but the link is still not connected, check the RS-232 cables.

4.7.5 RF2217 mode

RS232 to Ethernet Connector allows to choose the transmission protocol, supporting connections using either the RAW data transmission algorithm or the Telnet (RFC 2217) protocol. Therefore, Telnet can act as an interface to a network device server connected to a remote serial device. The RF2217 mode screenshot in [Figure 4-7-8](#) appears.

Operation Mode:	RFC 2217 Mode ▼	
TCP Keep-alive Interval:	0	(min)
Local TCP Port:	5004	
Frame Length:	0	(0 - 1300)
Separator:	00	(HEX)
Separator Process:	Do Nothing ▼	
Separator Time Out:	0	(0 - 65535 ms)
	Enable:	☐

Figure 4-7-8: RF2217 Mode Screenshot

The page includes the following fields:

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
• Local TCP port	This parameter describes the TCP port that communicates with the connected device. The setting slave and master destination IP parameters must use the same value to achieve communication. The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4
• Frame Length	This parameter can be used to control the data packet. When the device port is in the buffer until the specified data is accumulated, the data will be packed and transmitted by the network. This parameter is 0 to indicate that the data will not be packed until the buffer is full. The range of value is from 0 to 1024. The default is 0 .
• Separator	If the Separator is enabled, the serial receive character port will be discarded until the start separator is detected on the serial port. When the end separator is received, the buffered characters, including the start and end separators, are sent to the network. The range of value is from 0 to FF. The default is disable .
• Separator Process	Separators are ASCII characters specified by the user when configuring the serial serve. This parameter describes how to control characters received on a serial port are sent across the network. The default is Do nothing . ■ Do nothing: it will pack the accumulated data including Separators. ■ Strip Separator: it controls striping of Separator from the received characters before the received characters are sent to the network.
• Separator Time Out	Separator timeout controls the maximum amount of time that can be used to buffer characters before the characters are sent to the network. A smaller values will increase the number of network packets, but reduce the amount of time to receive characters, on the contrary, Larger values reduce the number of network packets, but increase the amount of time to receive characters. The range of value is from 0 to 65535. The default is 0 ms .

4.7.6 Serial Telnet mode

Telnet (TELEcommunication NETwork) is a network protocol used on the Internet or local area network (LAN) connections. The Telnet protocol type is the correct setting for most servers and serial devices, such as Managed Ethernet switches or Gateways. In the case of a Telnet session, the process is reversed, where the connected server reads and writes data to RS-232 serial port. Once the serial Telnet application is enabled, the industrial serial server will interact with these special CR/LF commands. The serial telnet mode topology in [Figure 4-7-9](#) appears.

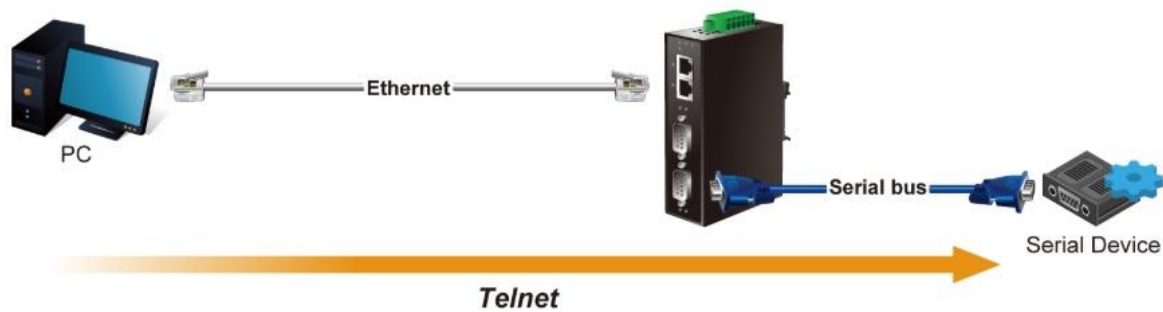


Figure 4-7-9: Serial Telnet Mode Topology

The serial Telnet mode screenshot in [Figure 4-7-10](#) appears.

Operation Mode:	Serial Telnet Mode ▼
TCP Keep-alive Interval:	0 (min)
Quiescent Time:	0 (0 - 65535 ms)
Local TCP Port:	5004
Translate CR-LF:	CR-LF ▼

Figure 4-7-10: Serial Telnet Mode Screenshot

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
• Quiescent Time	When the network connection is determined to be idle, the duration of the control network inactivity will cause the connection to be forced closed. The range of value is from 1 to 65535 ms. The default is 0 ms
• Local TCP port	This parameter describes the TCP port that communicates with the connected device. The setting slave and master destination IP parameters must use the same value to achieve communication. The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4
• Translate CR-LF	Enter CR-LF characters can be processed after industrial serial server. Just send CR, or LF, or do not modify CR-LF character. The default is CR-LF . ■ CR-LF ■ CR ■ LF

Example: Use Putty TCP/IP Winsock mode

PuTTY is a free implementation of Telnet and SSH for Win32 and Unix platforms, along with an xterm terminal emulator. In this case we use PuTTY to connect GS-5220-24P4XV managed switch via ICS-3400T.

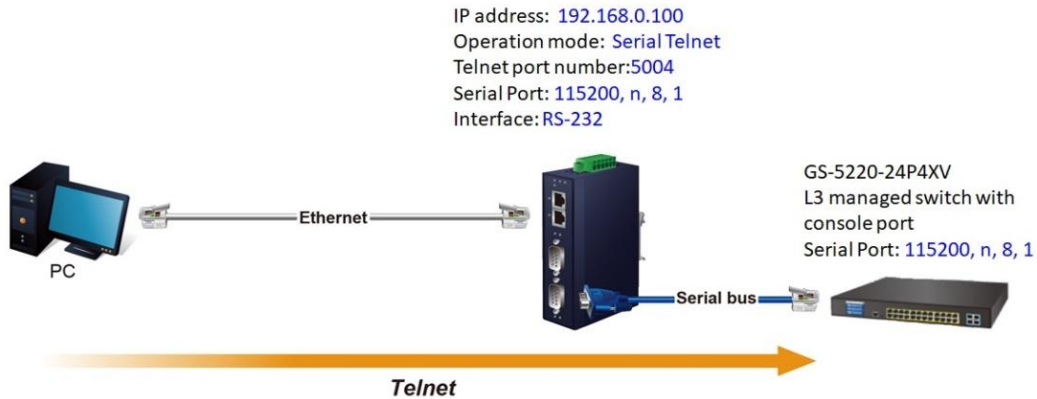


Figure 4-7-11: Serial Telnet Mode Application

ICS-3400T

1. Set Port Configuration as shown below.

Description:		Baud Rate:	115200
Data Bits:	8	Any Baud Rate:	50 (50 - 921600)
Stop Bits:	1	Parity:	None
Interface:	RS-232	FlowControl:	None

Figure 4-7-12: Port Configuration

2. Set operation mode as **Serial Telnet mode**.
3. Run the Telnet software like "PuTTY" and set parameters as shown below:
- 4.

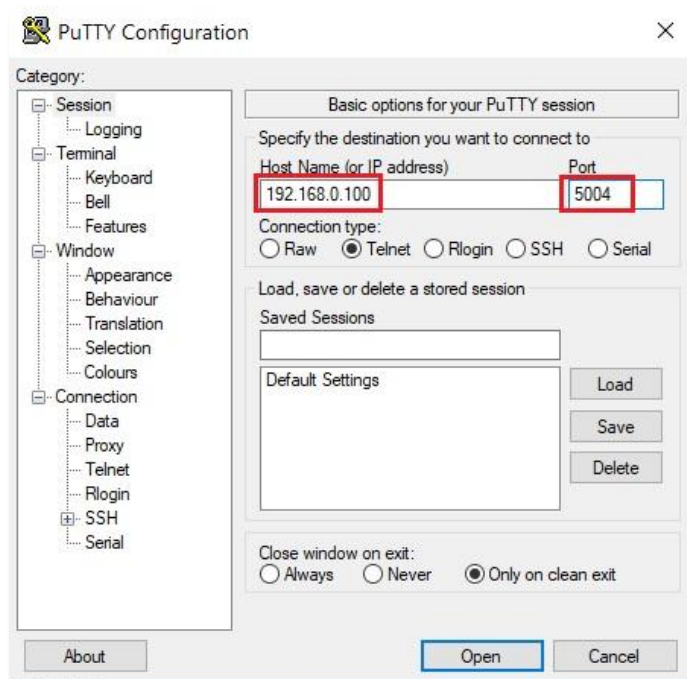


Figure 4-7-13: Putty Configuration

5. Then it can connect to switch successfully.

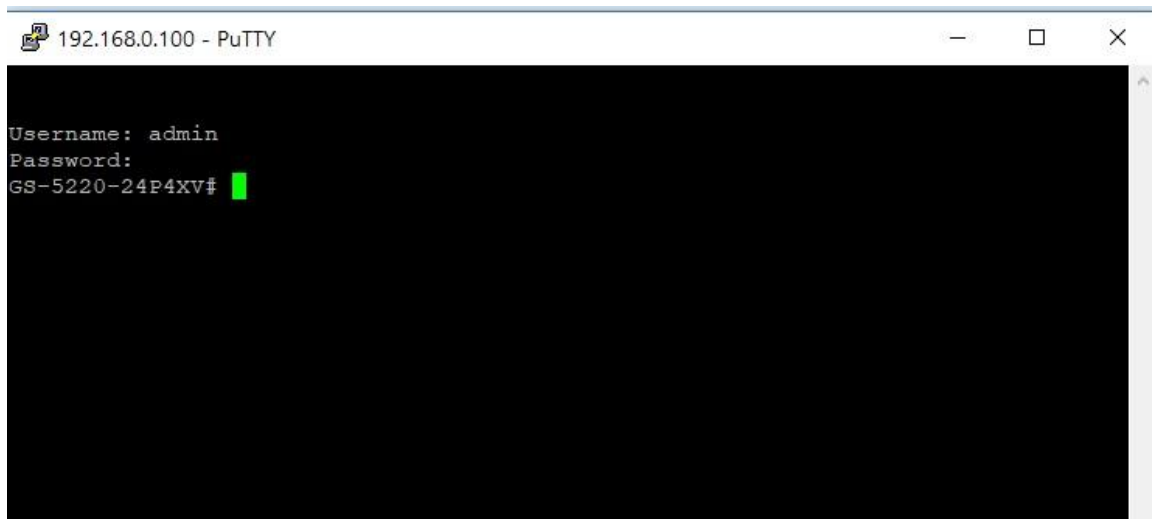


Figure 4-7-14: Putty Connection

4.7.7 TCP Server mode

When the serial server is configured as a TCP server, it waits for a connection initiated by another network device. User must set the local TCP port number for which it will listen for the connection, and the industrial serial server provides the maximum number of two concurrent connections. Incidentally, industrial serial server can be configured as a client or server. The TCP server mode topology in [Figure 4-7-15](#) appears.

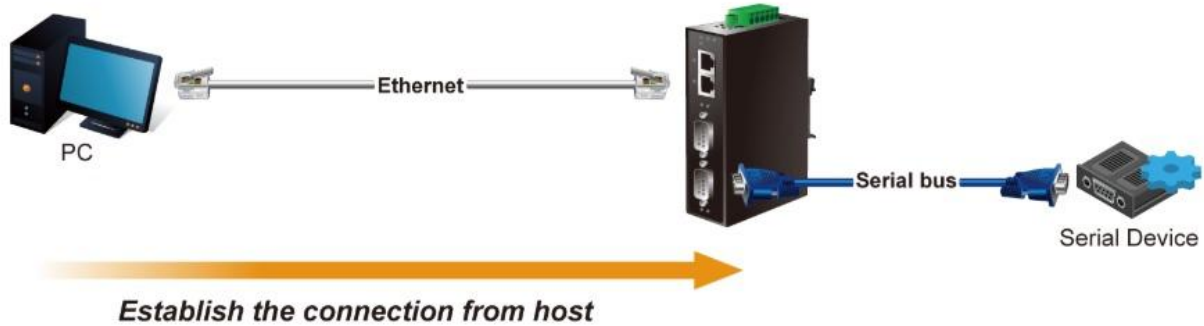


Figure 4-7-15: TCP Server Mode Topology

The TCP server mode screenshot in [Figure 4-7-16](#) appears.

Operation Mode:	TCP Server Mode	
TCP Keep-alive Interval:	0	(min)
Quiescent Time:	0	(0 - 65535 ms)
Max Connection:	1	
Local TCP Port:	5004	
Frame Length:	0	(0 - 1300)
Separator:	00	(HEX)
Separator Process:	Do Nothing	
Separator Time Out:	0	(0 - 65535 ms)
Enable:	☐	

Figure 4-7-16: TCP Server Mode Screenshot

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
• Quiescent Time	When the network connection is determined to be idle, the duration of the control network inactivity will cause the connection to be forcibly closed. The range of value is from 1 to 65535 ms. The default is 0 ms
• Max connection	This parameter set the TCP port number on which it will listen for the connection and set the maximum (up to two) acceptable number of connections. The range of value is from 1 to 4. The default is 1 .
• Local TCP port	This parameter describes the TCP port that communicates with the connected device. The setting slave and master destination IP parameters must use the same value to achieve communication. The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4

• Frame Length	This parameter can be used to control the data packet. When the device port is in the buffer until the specified data is accumulated, the data will be packed and transmitted by the network. This parameter is 0 to indicate that the data will not be packed until the buffer is full. The range of value is from 0 to 1024. The default is 0.
• Separator	If the Separator is enabled, the serial receive character port will be discarded until the start separator is detected on the serial port. When the end separator is received, the buffered characters, including the start and end separators, are sent to the network. The range of value is from 0 to FF. The default is disable.
• Separator Process	Separators are ASCII characters specified by the user when configuring the serial serve. This parameter describes how to control characters received on a serial port are sent across the network. The default is Do nothing. ■ Do nothing: it will pack the accumulated data including Separators. ■ Strip Separator: it controls striping of Separator from the received characters before the received characters are sent to the network.
• Separator Time Out	Separator timeout controls the maximum amount of time that can be used to buffer characters before the characters are sent to the network. A smaller values will increase the number of network packets, but reduce the amount of time to receive characters, on the contrary, Larger values reduce the number of network packets, but increase the amount of time to receive characters. The range of value is from 0 to 65535. The default is 0 ms.

Example: Connect to Modbus sensor via TCP server mode

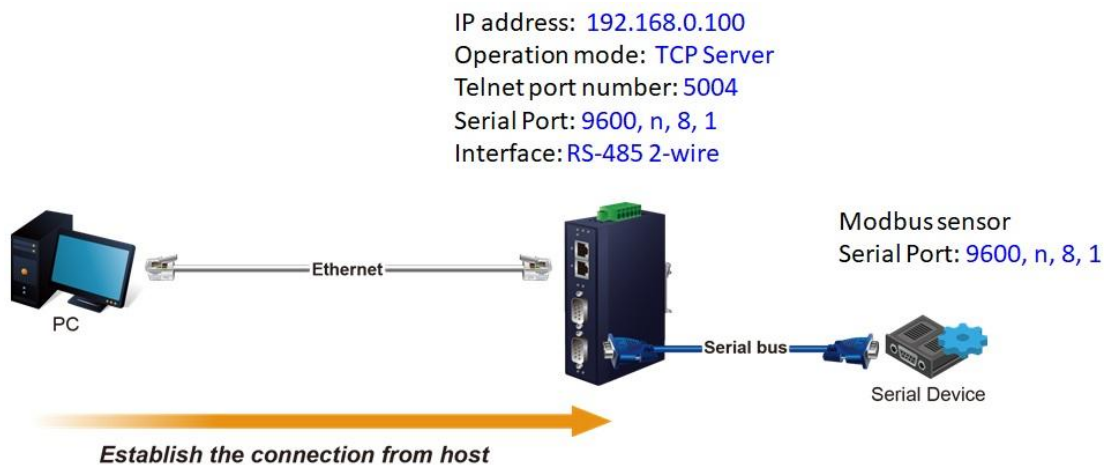


Figure 4-7-17: TCP Server Mode Application

ICS-3400T

1. Set Port Configuration as shown below.

Description:		Baud Rate:	9600 ▼
Data Bits:	8 ▼	Any Baud Rate:	50 (50 - 921600)
Stop Bits:	1 ▼	Parity:	None ▼
Interface:	RS-485 2-Wire ▼	FlowControl:	None ▼

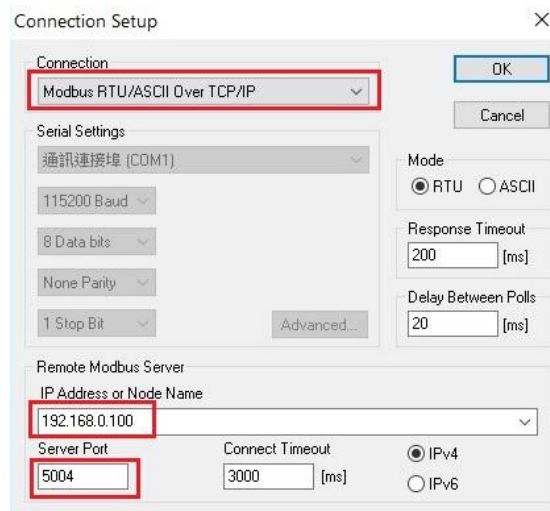
Figure 4-7-18: Port Configuration

- Set operation mode as **Telnet Server mode**.

Operation Mode:	TCP Server Mode	
TCP Keep-alive Interval:	0	(min)
Quiescent Time:	0	(0 - 65535 ms)
Max Connection:	1	
Local TCP Port:	5004	
Frame Length:	0	(0 - 1300)
Separator:	00	(HEX)
Separator Process:	Do Nothing	
Separator Time Out:	0	(0 - 65535 ms)
Enable:	☐	

Figure 4-7-19: TCP Server Mode Configuration

- Run the modbus master application (e.g. Modbus Poll) and set parameters as shown below.

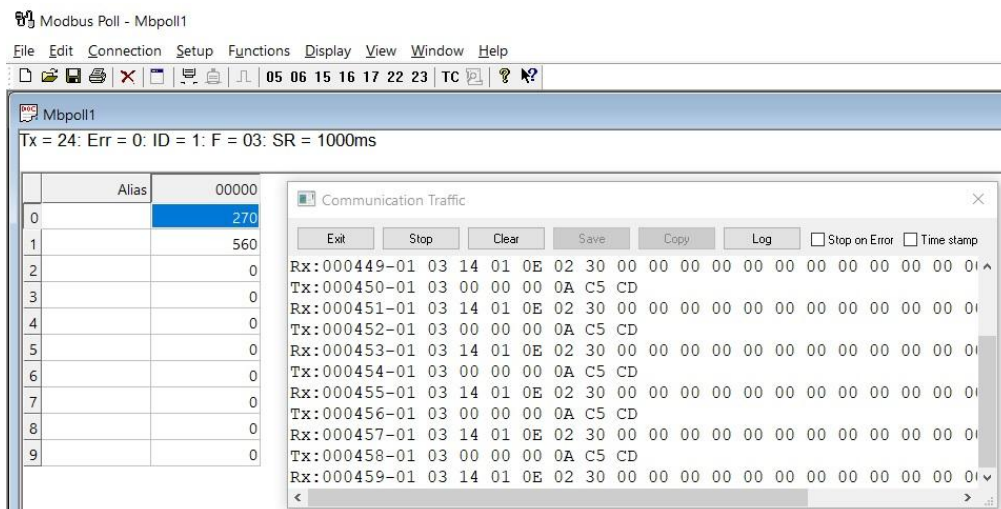


The dialog box shows the following configuration:

- Connection:** Modbus RTU/ASCII Over TCP/IP
- Serial Settings:** 115200 Baud, 8 Data bits, None Parity, 1 Stop Bit
- Mode:** RTU
- Response Timeout:** 200 [ms]
- Delay Between Polls:** 20 [ms]
- Remote Modbus Server:** IP Address or Node Name: 192.168.0.100
- Server Port:** 5004
- Connect Timeout:** 3000 [ms]
- Protocol:** IPv4

Figure 4-7-20: Modbus application Configuration

- Modbus master application (e.g. Modbus Poll) reads data from modbus sensor successfully.



The application window shows the following data:

Alias	00000
0	270
1	560
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0

Communication Traffic window shows the following data:

```

Tx: 000449-01 03 14 01 0E 02 30 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Rx: 000450-01 03 00 00 00 0A C5 CD
Tx: 000451-01 03 14 01 0E 02 30 00 00 00 00 00 00 00 00 00 00 00 00 00
Rx: 000452-01 03 00 00 00 0A C5 CD
Tx: 000453-01 03 14 01 0E 02 30 00 00 00 00 00 00 00 00 00 00 00 00 00
Rx: 000454-01 03 00 00 00 0A C5 CD
Tx: 000455-01 03 14 01 0E 02 30 00 00 00 00 00 00 00 00 00 00 00 00 00
Rx: 000456-01 03 00 00 00 0A C5 CD
Tx: 000457-01 03 14 01 0E 02 30 00 00 00 00 00 00 00 00 00 00 00 00 00
Rx: 000458-01 03 00 00 00 0A C5 CD
Tx: 000459-01 03 14 01 0E 02 30 00 00 00 00 00 00 00 00 00 00 00 00 00
  
```

Figure 4-7-21: Modbus Connection

4.7.8 TCP Client mode

The TCP client initiates a connection to the server on the network. You must set up the target IP address and assigned local port number of server that you want the client to communicate with. In the data transmission phase, the data is transmitted to the destination in the order to which they are sent. INDUSTRIAL SERIAL SERVER device supports four sets of sequential connections. The TCP client mode topology in [Figure 4-7-22](#) appears.

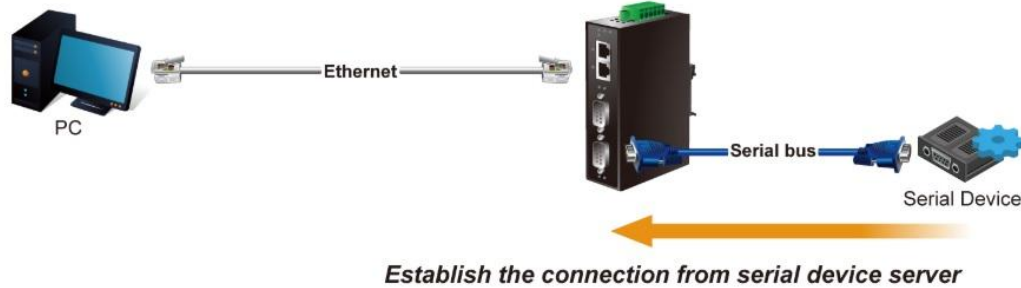


Figure 4-7-22: TCP Client Mode Topology

The TCP client mode screenshot in [Figure 4-7-23](#) appears.

Operation Mode:	TCP Client Mode		
TCP Keep-alive Interval:	0	(min)	
Quiescent Time:	0	(0 - 65535 ms)	
Frame Length:	0	(0 - 1300)	
Separator:	00	(HEX)	Enable ☐
Separator Process:	Do Nothing		
Separator Time Out:	0	(0 - 65535 ms)	

Connection Target IP Address		
Target IP 1:		: 5004
Target IP 2:		: 5004
Target IP 3:		: 5004
Target IP 4:		: 5004

Assigned Local Port (0 - 65535)			
Port 1:	5004	Port 2:	5004
Port 3:	5004	Port 4:	5004
Connection Control:	Startup/None (Connect on/Disconnect by)		

Figure 4-7-23: TCP Client Mode Screenshot

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
• Quiescent Time	When the network connection is determined to be idle, the duration of the control network inactivity will cause the connection to be forced closed. The range of value is from 1 to 65535 ms. The default is 0 ms
• Max connection	This parameter set the TCP port number on which it will listen for the connection and set the maximum (up to two) acceptable number of connections. The range of value is from 1 to 4. The default is 1 .
• Local TCP port	This parameter describes the TCP port that communicates with the connected device. The

	setting slave and master destination IP parameters must use the same value to achieve communication. The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4.
• Frame Length	This parameter can be used to control the data packet. When the device port is in the buffer until the specified data is accumulated, the data will be packed and transmitted by the network. This parameter is 0 to indicate that the data will not be packed until the buffer is full. The range of value is from 0 to 1024. The default is 0 .
• Separator	If the Separator is enabled, the serial receive character port will be discarded until the start separator is detected on the serial port. When the end separator is received, the buffered characters, including the start and end separators, are sent to the network. The range of value is from 0 to FF. The default is disable .
• Separator Process	Separators are ASCII characters specified by the user when configuring the serial serve. This parameter describes how to control characters received on a serial port are sent across the network. The default is Do nothing . ■ Do nothing: it will pack the accumulated data including Separators. ■ Strip Separator: it controls striping of Separator from the received characters before the received characters are sent to the network.
• Separator Time Out	Separator timeout controls the maximum amount of time that can be used to buffer characters before the characters are sent to the network. A smaller values will increase the number of network packets, but reduce the amount of time to receive characters, on the contrary, Larger values reduce the number of network packets, but increase the amount of time to receive characters. The range of value is from 0 to 65535. The default is 0 ms .

Connection Target IP address

Object	Description
• Target IP address 1 through 4	IP addresses are used to deliver packets of data across a network and have what is termed end-to-end significance. The network data is sent to the device in a first-in, first-out (FIFO) method. During data transfer phase, data is transmitted sequentially through established path-arriving at the destination in the order in which it was sent.

Assign Local Port

Object	Description
• Local listen port	The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4.
• Connection control	The default is Startup/None . ■ Startup/None ■ Any Character/None ■ Any Character/Quiescent time ■ DCD On/DCD Off ■ DCD On/None ■ DSR On/DSR Off ■ DSR On/None

4.7.9 UDP mode

UDP is a Connectionless of the non-reliable transmission protocol; it does not need to verify information and does not guarantee correctness for some of the larger amount of information. The reliability is greater than the reliability of transmission which is a good choice. UDP mode can allocate up to four ranges of IP. Each network output data is copied and sent to each IP for each range. The UDP mode topology in [Figure 4-7-24](#) appears.

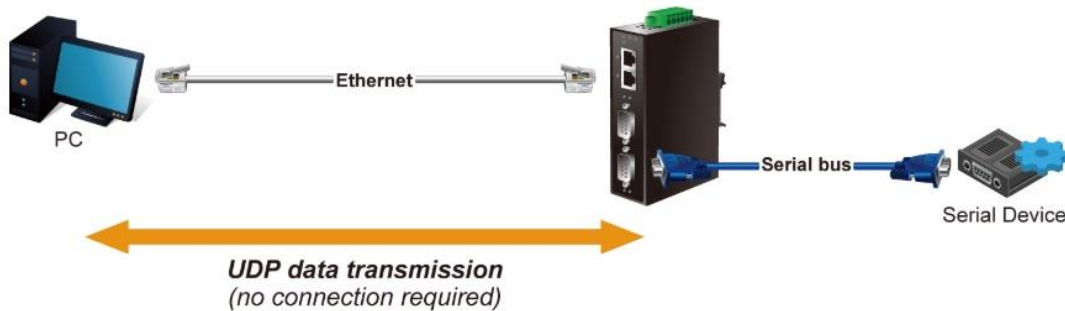


Figure 4-7-24: UDP Mode Topology

The UDP mode screenshot in [Figure 4-7-25](#) appears.

Operation Mode:	UDP Mode		
Local Listen Port:	5004		
Frame Length:	0	(0 - 1300)	
Separator:	00	(HEX)	Enable: ☐
Separator Process:	Do Nothing		
Separator Time Out:	0	(0 - 65535 ms)	

Connection Target IP Address			
Target IP 1:		:	5004 (0=Learning)
Target IP 2:		:	5004 (0=Learning)
Target IP 3:		:	5004 (0=Learning)
Target IP 4:		:	5004 (0=Learning)

Figure 4-7-25: UDP Mode Screenshot

Object	Description
TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
Local listen port	The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4.
Frame Length	This parameter can be used to control the data packet. When the device port is in the buffer until the specified data is accumulated, the data will be packed and transmitted by the network. This parameter is 0 to indicate that the data will not be packed until the buffer is full. The range of value is from 0 to 1024. The default is 0 .
Separator	If the Separator is enabled, the serial receive character port will be discarded until the start separator is detected on the serial port. When the end separator is received, the

	buffered characters, including the start and end separators, are sent to the network. The range of value is from 0 to FF. The default is disable .
• Separator Process	Separators are ASCII characters specified by the user when configuring the serial serve. This parameter describes how to control characters received on a serial port are sent across the network. The default is Do nothing. ■ Do nothing: it will pack the accumulated data including Separators. ■ Strip Separator: it controls striping of Separator from the received characters before the received characters are sent to the network.
• Separator Time Out	Separator timeout controls the maximum amount of time that can be used to buffer characters before the characters are sent to the network. A smaller values will increase the number of network packets, but reduce the amount of time to receive characters, on the contrary, Larger values reduce the number of network packets, but increase the amount of time to receive characters. The range of value is from 0 to 65535 ms. The default is 0 ms.

Connection Target IP address

Object	Description
• Target IP address 1 through 4	IP addresses are used to deliver packets of data across a network and have what is termed end-to-end significance. The network data is sent to the device in a first-in, first-out (FIFO) method. During data transfer phase, data is transmitted sequentially through established path-arriving at the destination in the order in which it was sent.

4.7.10 Virtual COM mode

VCOM mode functionality provides a virtual-local COM port for Windows systems. The VCOM driver should be installed on the PC through the VCOM Administration Utility. The driver establishes a TCP connection to the connected serial device by mapping the local serial port to the IP port of the device port. VCOM mode also supports up to 256 mirroring ports at the same time, but must be in accordance with the computer resources. The Virtual COM mode topology in [Figure 4-7-26](#) appears.



Figure 4-7-26: Virtual COM Mode Topology

The Virtual COM mode screenshot in [Figure 4-7-27](#) appears.

Operation Mode:	VCOM Mode	
TCP Keep-alive Interval:	0 (min)	
Max Connection:	1	
Frame Length:	0 (0 - 1300)	
Separator:	00 (HEX)	Enable: ☐
Separator Process:	Do Nothing	
Separator Time Out:	0 (0 - 65535 ms)	

Figure 4-7-27: Virtual COM Mode Screenshot

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
• Max connection	This parameter set the TCP port number on which it will listen for the connection and set the maximum (up to two) acceptable number of connections. The range of value is from 1 to 4. The default is 1.
• Frame Length	This parameter can be used to control the data packet. When the device port is in the buffer until the specified data is accumulated, the data will be packed and transmitted by the network. This parameter is 0 to indicate that the data will not be packed until the buffer is full. The range of value is from 0 to 1024. The default is 0.
• Separator	If the Separator is enabled, the serial receive character port will be discarded until the start separator is detected on the serial port. When the end separator is received, the buffered characters, including the start and end separators, are sent to the network. The range of value is from 0 to FF. The default is disable .
• Separator Process	Separators are ASCII characters specified by the user when configuring the serial serve. This parameter describes how to control characters received on a serial port are

	sent across the network. The default is Do nothing. ■ Do nothing: it will pack the accumulated data including Separators. ■ Strip Separator: it controls striping of Separator from the received characters before the received characters are sent to the network.
• Separator Time Out	Separator timeout controls the maximum amount of time that can be used to buffer characters before the characters are sent to the network. A smaller values will increase the number of network packets, but reduce the amount of time to receive characters, on the contrary, Larger values reduce the number of network packets, but increase the amount of time to receive characters. The range of value is from 0 to 65535. The default is 0 ms.

Example: Connect to Modbus sensor via Virtual COM mode

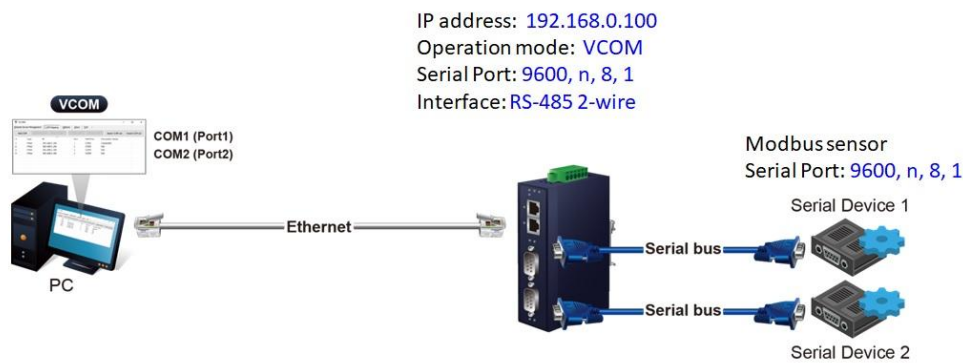


Figure 4-7-28: Virtual COM Mode Application

ICS-2400T

1. Set Port Configuration as shown below.

Description:		Baud Rate:	9600
Data Bits:	8	Any Baud Rate:	50 (50 - 921600)
Stop Bits:	1	Parity:	None
Interface:	RS-485 2-Wire	FlowControl:	None

Figure 4-7-29: Port Configuration

2. Set operation mode as **VCOM mode**.

Operation Mode:	VCOM Mode
TCP Keep-alive Interval:	0 (min)
Max Connection:	1
Frame Length:	0 (0 - 1300)
Separator:	00 (HEX)
Separator Process:	Do Nothing
Separator Time Out:	0 (0 - 65535 ms)
Enable:	☐

Figure 4-7-30: VCOM Mode Configuration

- Run VCOM software to set port mapping. Port 1 is related to COM4 port.

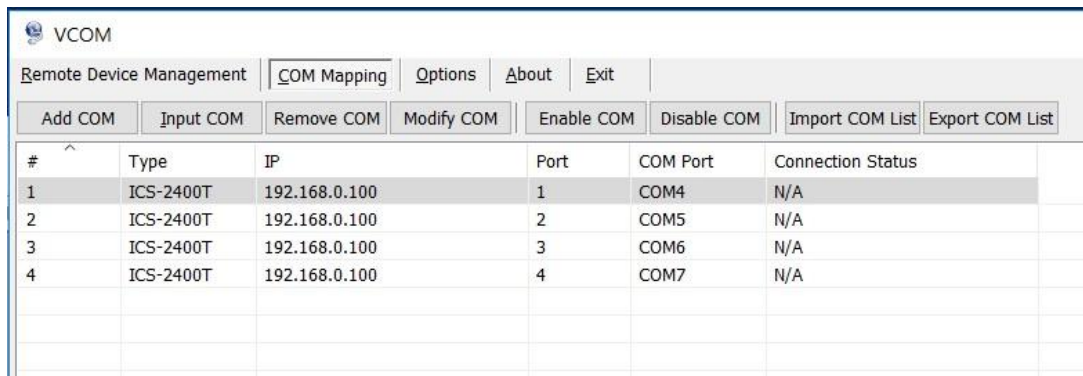


Figure 4-7-31: VCOM Software

- Run the modbus master application (e.g. Modbus Poll) and set parameters as shown below.

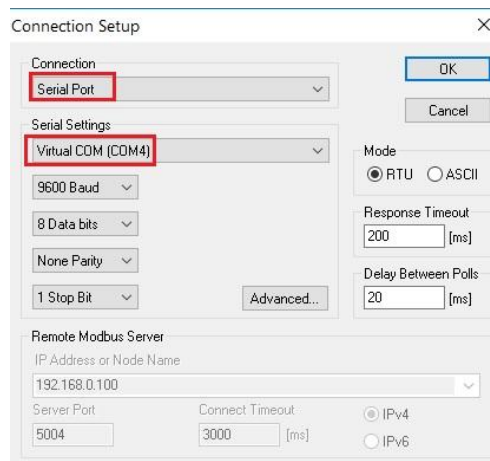


Figure 4-7-32: Modbus application Configuration

- Modbus master application (e.g. Modbus Poll) reads data from modbus sensor successfully.

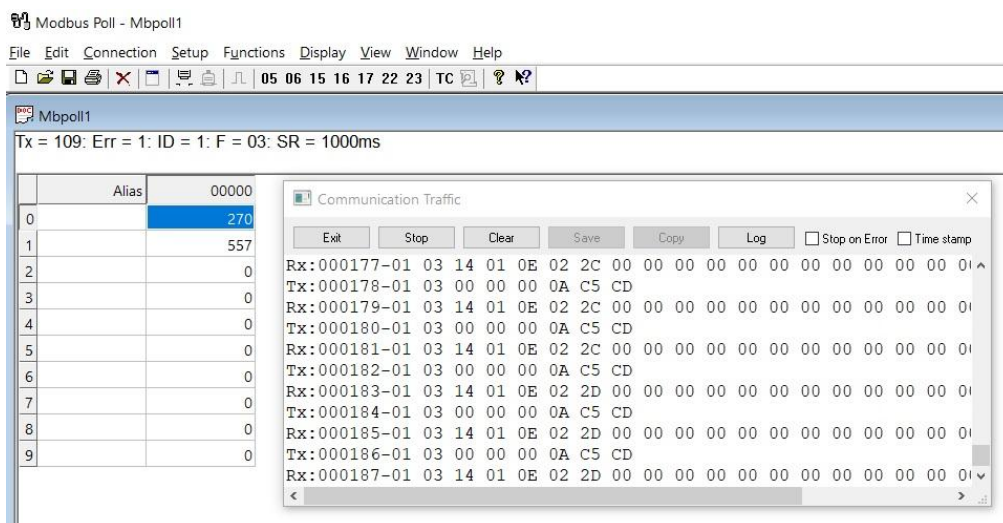


Figure 4-7-33: Modbus Poll Connection

4.7.11 Modbus Converter Server mode

The ICS Serial devices support standard Modbus protocol and various hardware interfaces (serial and Ethernet). Modbus TCP and RTU can be used to convert the Modbus protocol. The Modbus master can communicate with the serial network of devices connected to the serial port of the server converter via a server converter.

The meter receives Modbus TCP / IP data on TCP port 502, translates it to a Modbus RTU, and then forwards it to the addressed slave device.

Functionally allows monitoring software to access information from slaves for trend analysis, data collection, alarm/event management, maintenance and other functions. The Modbus Converter Server mode topology in [Figure 4-7-34](#) appears.

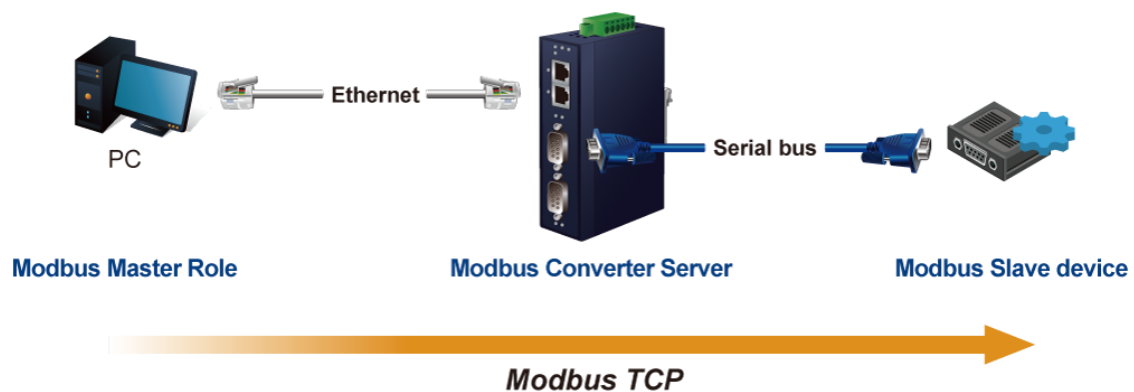


Figure 4-7-34: Modbus Converter Server mode Topology

The Modbus Converter Server mode screenshot in [Figure 4-7-35](#) appears.

Operation Mode:	Modbus Converter Server Mode ▼
TCP Keep-alive Interval:	0 (min)
Quiescent Time:	0 (0 - 65535 ms)
Max Connection:	1 ▼
Local TCP Port:	5004

Figure 4-7-35: Modbus Converter Server mode Screenshot

Object	Description
• TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
• Quiescent Time	When the network connection is determined to be idle, the duration of the control network inactivity will cause the connection to be forced closed. The default value is 0.
• Max connection	This parameter set the TCP port number on which it will listen for the connection and set the maximum (up to two) acceptable number of connections. The range of value is from 1 to 4. The default is 1.
• Local TCP Port	Scope: 1 to 65535. Default: 5004 for port 1, 5005 for port 2 and so forth. This parameter is described the TCP port that communicates with the connected device. The setting slave and master destination IP parameters must use the same value to achieve communication.

4.7.12 Modbus Converter Client mode

The ICS Serial devices support standard Modbus protocol and various hardware interfaces (serial and Ethernet). Modbus TCP and RTU can be used to convert the Modbus protocol. The Modbus master can communicate with the serial network of devices connected to the serial port of the server converter via a server converter.

The meter receives Modbus TCP / IP data on TCP port 502, translates it to a Modbus RTU, and then forwards it to the addressed slave device.

Functionally allows monitoring software to access information from slaves for trend analysis, data collection, alarm/event management, maintenance and other functions. The Modbus Converter Client topology in [Figure 4-7-36](#) appears.

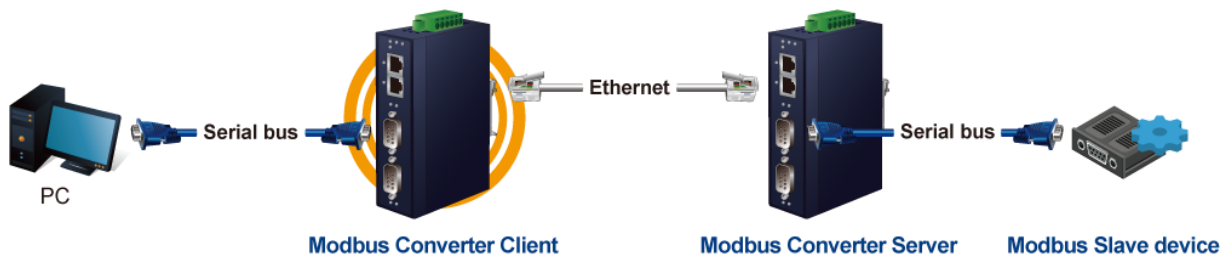


Figure 4-7-36: Modbus Converter Client mode Topology

The Modbus Converter Client mode screenshot in [Figure 4-7-37](#) appears.

Operation Mode:

TCP Keep-alive Interval: (min)

Quiescent Time: (0 - 65535 ms)

Connection Target IP Address	
Target IP 1:	5004
Target IP 2:	5004
Target IP 3:	5004
Target IP 4:	5004

Assigned Local Port (0 - 65535)	
Port 1:	5004
Port 2:	5004
Connection Control:	Startup/None (Connect on/Disconnect by)

Figure 4-7-37: Modbus Converter Client mode Screenshot

Object	Description
TCP Keep-alive Interval	TCP keep alive interval shows how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it will drop that connection. The default is 0 minute.
Quiescent Time	When the network connection is determined to be idle, the duration of the control network inactivity will cause the connection to be forced closed. The default value is 0.

Connection Target IP address

Object	Description
Target IP address 1 through 4	IP addresses are used to deliver packets of data across a network and have what is termed end-to-end significance. The network data is sent to the device in a first-in, first-out (FIFO) method. During data transfer phase, data is transmitted sequentially through established path-arriving at the destination in the order in which it was sent.

Assign Local Port

Object	Description
Local listen port	The range of value is from 1 to 65535. The default is 5004 for port 1, 5005 for port 2, 5006 for port 3 and , 5007 for port 4.
Connection control	The default is Startup/None. ■ Startup/None ■ Any Character/None ■ Any Character/Quiescent time ■ DCD On/DCD Off ■ DCD On/None ■ DSR On/DSR Off ■ DSR On/None

4.7.13 MQTT

Enables the serial port to exchange data with an MQTT Broker, allowing serial device data to be published or received through MQTT topics. MQTT connection and topic settings are configured on the **MQTT Config** page.

4.8 MQTT Config

Use the MQTT Config menu items to configure MQTT communication and data transmission settings of the Industrial Serial Server. Under MQTT Config, the following topics are provided to configure the MQTT client connection, Modbus interface, data collection and MQTT topic settings. This section has the following items:

MQTT Client Modbus Interface MQTT Data Configuration MQTT Topic

4.8.1 MQTT Client

This page allows users to configure the MQTT client connection, authentication and advanced communication settings of the Industrial Serial Server. When the MQTT client is enabled, the device can connect to the specified MQTT Broker to publish or receive serial and Modbus data. Users can also configure connection maintenance, automatic reconnection, Clean Session and Last Will settings. The MQTT Client Settings page is shown in [Figure 4-8-1](#).

MQTT Client Settings

Basic Configuration

Enable MQTT	☐ Enable ☒ Disable
MQTT Version	MQTT 3.1 ▼
Broker Address	192.168.0.100
Broker Port	1883
Client ID	

Authentication

Auth Method	Anonymous (No Authentication) ▼
-------------	---------------------------------

Advanced Settings

Keep Alive (seconds)	60
No Topic Timeout (seconds)	0
Reconnect Interval (seconds)	5
Clean Session	☒ Enable ☐ Disable
Enable Last Will	☐ Enable ☒ Disable
Last Will Topic	iot_gateway
Last Will Message	off-line
Last Will QoS	0 - At most once ▼
Last Will Retained	☒ Enable ☐ Disable

Figure 4-8-1: MQTT Client Settings Page Screenshot

Basic Configuration

Object	Description
Enable MQTT	Enable or disable the MQTT client function. Possible modes are: Enable: Enable the MQTT client function. Disable: Disable the MQTT client function.
MQTT Version	Select the MQTT protocol version used to communicate with the MQTT Broker.
Broker Address	Enter the IP address or domain name of the MQTT Broker.
Broker Port	Enter the communication port number of the MQTT Broker. The default MQTT port is 1883.

• Client ID	Enter the unique client identifier used when connecting to the MQTT Broker.
• Auth Method	Select the authentication method used to connect to the MQTT Broker, such as anonymous or username/password authentication.
• Keep Alive (seconds)	Specify the interval at which the MQTT client maintains its connection with the MQTT Broker.
• No Topic Timeout (seconds)	Specify the timeout period when no MQTT topic communication is detected. A value of 0 disables the timeout function.
• Reconnect Interval (seconds)	Specify the interval before attempting to reconnect after the MQTT Broker connection is interrupted.
• Clean Session	Enable or disable the MQTT Clean Session function. Possible modes are: Enable: Start a new session without restoring the previous session information. Disable: Allow the Broker to retain the client session information.
• Enable Last Will	Enable or disable the MQTT Last Will and Testament function.
• Last Will Topic	Enter the MQTT topic used to publish the Last Will message.
• Last Will Message	Enter the message published by the MQTT Broker when the client disconnects unexpectedly.
• Last Will QoS	Select the Quality of Service level for the Last Will message.
• Last Will Retained	Enable or disable the Retain flag for the Last Will message.

4.8.2 Modbus Interface

This page allows users to configure the Modbus communication interfaces used for data collection. The Industrial Serial Server supports both Modbus TCP and Modbus RTU/ASCII interfaces. Users can add, edit or delete Modbus TCP interfaces and configure the Modbus RTU/ASCII interface associated with each serial port. The Modbus Interfaces page is shown in [Figure 4-8-2](#).

Modbus Interfaces

Modbus TCP Interfaces

TCP

192.168.0.22 : 502

Timeout: 1000 (ms)

Edit

Delete

+ Add TCP Interface

Modbus RTU/ASCII Interfaces

RTU

port1

115200 baud, | Timeout: 1000 (ms)

Edit

Figure 4-8-2: Modbus Interfaces Page Screenshot

Object	Description
• Modbus TCP Interfaces	Displays the configured Modbus TCP interfaces and their connection information.
• Add TCP Interface	Adds a new Modbus TCP interface.
• Edit	Modifies the settings of the selected Modbus interface.
• Delete	Deletes the selected Modbus TCP interface.
• Modbus RTU/ASCII Interfaces	Displays the Modbus RTU/ASCII interfaces configured for the serial ports.
• Edit	Modifies the settings of the selected Modbus interface.

4.8.3 MQTT Data Configuration

This page allows users to configure the Modbus data sources to be collected and transmitted through MQTT. Each data source defines the Modbus interface, Unit ID, function code, starting address and quantity of data to be read. Users can add, edit or delete data sources according to the connected Modbus devices. The MQTT Data Configuration page is shown in [Figure 4-8-3](#).

MQTT Data Configuration

Source Name	Interface	Unit ID	Function	Address	Quantity	Status	Actions
test	port1(RTU)	0001	01 - Read Coils	0000	000A		Edit Delete

[+ Add Data Source](#)

Figure 4-8-3: MQTT Data Configuration Page Screenshot

Object	Description
• Source Name	Displays the user-defined name of the Modbus data source.
• Interface	Displays the Modbus TCP or Modbus RTU/ASCII interface used to collect data.
• Unit ID	Displays the Unit ID of the target Modbus device.
• Function	Displays the Modbus function code used to read data from the target device.
• Address	Displays the starting Modbus address from which data is read.
• Quantity	Displays the number of coils or registers to be read.
• Status	Displays whether the configured data source is enabled or disabled.
• Actions	Provides options to edit or delete the configured data source.
• Edit	Modifies the selected data source configuration.
• Delete	Deletes the selected data source configuration.
• Add Data Source	Adds a new Modbus data source for MQTT data collection.

When the **Add Data Source** or **Edit** button is clicked, the Add/Edit Data Source window appears. This window allows users to define the target Modbus device, communication interface, function code and data range to be collected. The Add/Edit Data Source window is shown in [Figure 4-8-4](#).

×

Add/Edit Data Source

Source Name	test
Select Interface	port1 (RTU)
Slave/Unit ID (Hex)	0001
Function Code	01 - Read Coils
Start Address (Hex)	0000
Quantity (Hex)	000A

Figure 4-8-4: Add/Edit Data Source Window Screenshot

Object	Description
• Source Name	Enter a user-defined name for identifying the Modbus data source.
• Select Interface	Select the configured Modbus TCP or Modbus RTU/ASCII interface used to collect data.
• Slave/Unit ID (Hex)	Enter the Modbus Slave ID or Unit ID of the target device in hexadecimal format.
• Function Code	Select the Modbus function code used to read the required coils, inputs or registers.
• Start Address (Hex)	Enter the starting Modbus address to be read in hexadecimal format.
• Quantity (Hex)	Enter the number of coils, inputs or registers to be read in hexadecimal format.
• Apply	Saves and applies the data source configuration.
• Cancel	Closes the window without saving the changes.

4.8.4 MQTT Topic

This page allows users to configure the MQTT topics used for data publishing or subscription. Each topic configuration defines the topic name, transmission type, associated data, Quality of Service level and publishing interval. Users can add, edit or delete MQTT topics according to the application requirements. The MQTT Topic Configuration page is shown in [Figure 4-8-5](#).

MQTT Topic Configuration

Topic Name	Type	Configuration	QoS	Interval	Actions
Test	JSON Publish	Data: t123	0	10 s	Edit Delete
+ Add Topic					

Figure 4-8-5: MQTT Topic Configuration Page Screenshot

Object	Description
• Topic Name	Displays the user-defined name used to identify the MQTT topic configuration.
• Type	Displays the MQTT transmission type configured for the topic, such as JSON Publish.
• Configuration	Displays the data source or communication settings associated with the MQTT topic.
• QoS	Displays the Quality of Service level used for MQTT message transmission.
• Interval	Displays the interval at which MQTT data is published.
• Actions	Provides options to edit or delete the configured MQTT topic.
• Edit	Modifies the selected MQTT topic configuration.
• Delete	Deletes the selected MQTT topic configuration.
• Add Topic	Adds a new MQTT topic configuration.

When the **Add Topic** or **Edit** button is clicked, the Add/Edit Topic window appears. This window allows users to configure the MQTT topic, transmission parameters and data nodes included in the published message. The Add/Edit Topic window is shown in [Figure 4-8-6](#).

×

Add/Edit Topic

Topic Name

Topic Type JSON Publish ▼

QoS Level 0 - At most once ▼

Publish Interval (seconds)

Retained Message Disabled ▼

Publish Condition Anyway ▼

Data Nodes

Data Name	Data Source	Offset	Data Type	Decimal	Action
t123	test ▼	0	Uint16 ▼	0	Remove

+ Add Data Node

Cancel
Apply

Figure 4-8-6: Add/Edit Topic Window Screenshot

Object	Description
• Topic Name	Enter the MQTT topic name used for message transmission.
• Topic Type	Select the MQTT transmission type, such as JSON Publish.
• QoS Level	Select the Quality of Service level used for MQTT message delivery.
• Publish Interval (seconds)	Specify the interval at which MQTT messages are published.
• Retained Message	Enable or disable the MQTT Retain function. When enabled, the Broker retains the latest message published to the topic.
• Publish Condition	Select the condition that triggers MQTT message publishing.
• Data Nodes	Configure the data items included in the MQTT message.
• Data Name	Enter the name used to identify the data node in the published message.
• Data Source	Select a data source configured on the MQTT Data Configuration page.
• Offset	Specify the data position offset within the selected data source.
• Data Type	Select the format used to interpret the collected Modbus data, such as Uint16.
• Decimal	Specify the number of decimal places applied to the data value.
• Remove	Removes the selected data node from the topic configuration.
• Add Data Node	Adds another data node to the MQTT topic.
• Apply	Saves and applies the MQTT topic configuration.
• Cancel	Closes the Add/Edit Topic window without applying the changes.

4.9 MQTT Broker

This page allows users to configure the built-in MQTT Broker of the Industrial Serial Server. When enabled, MQTT clients can connect directly to the device for local message publishing and subscription without requiring an external MQTT Broker. Users can configure the Broker port and MQTT authentication method. The MQTT Broker Configuration page is shown in [Figure 4-9-1](#).

MQTT Broker Configuration

Enable

☐ Enable
 ☒ Disable

Broker Port

1883

MQTT Authentication

Anonymous (No Authentication) ▼

Apply

Figure 4-9-1: MQTT Broker Configuration Page Screenshot

Object	Description
Enable	Enable or disable the built-in MQTT Broker. Possible modes are: Enable: Enable the built-in MQTT Broker service. Disable: Disable the built-in MQTT Broker service.
Broker Port	Specify the TCP port used by MQTT clients to connect to the built-in MQTT Broker. The default MQTT port is 1883.
MQTT Authentication	Select the authentication method used when MQTT clients connect to the built-in MQTT Broker.
Apply	Saves and applies the MQTT Broker configuration.

4.10SNMP Setup

Use the Port Menu to display or configure the Industrial Industrial Serial Server's ports. This section includes the page that displays current port configurations. Ports can also be configured here. The Port Configuration screen in [Figure 4-10-1](#) appears.

SNMP Setup

SNMP Active:	Disable ▾
Community:	public
Contact:	Default Contact
Location:	Default Location
Trap Server:	

Events:	
Cold Start Trap:	☐
Warm Start Trap:	☐
Authentication Failure Trap:	☐

Figure 4-10-1: SNMP Setup page Screenshot

The page includes the following fields:

Object	Description
• SNMP Active	Indicates the SNMP mode operation. Possible modes are: ■ Disable: Disable SNMP mode operation. ■ Enable: Enable SNMP mode operation.
• Community	Indicates the security name to map the community to the SNMP Groups configuration.
• Contact	The textual identification of the contact person for this managed node, together with information on how to contact this person.
• Location	The physical location of this node (e.g., telephone closet, 3rd floor).
• Trap Server	Indicates the SNMP trap destination address. It allows a valid IP address or domain name.

Events

Object	Description
• Cold Start Trap	This event is triggered when the power is interrupted and restarted.
• Warm Start Trap	This event occurs when the device is reset but does not turn off the power.
• Authentication Failure Trap	This event occurs when an incorrect or unauthorized password are entered.

4.11 Maintenance

Use the Port Menu to display or configure the Industrial Industrial Serial Server's ports. This section includes the page that displays current port configurations. Ports can also be configured here.

Change Password Load Default Firmware Update Reboot

4.11.1 Change Password

This page allows users to change the password used to access the Web management interface. The new password must contain 8–31 characters and include uppercase letters, lowercase letters, numerals and symbols. Spaces are not accepted. The Change Password page is shown in [Figure 4-11-1](#).

Change Password

New Password This field is required.
 Confirm Password This field is required.

The password must contain 8-31 characters, including upper case, lower case, numerals and other symbols. Please note, spaces (blanks) are not accepted.

Figure 4-11-1: Change Password Page Screenshot

The page includes the following fields:

Object	Description
• New Password	Enter the new login password. The password must contain 8–31 characters, including uppercase letters, lowercase letters, numerals and symbols. Spaces are not accepted.
• Confirm Password	Re-enter the new password for confirmation. It must match the password entered in the New Password field.

4.11.2 Load Default

A user can reset the configuration of the industrial serial server on this page. The new configuration will applied after restarting system. The Load Default screen in [Figure 4-11-2](#) appears.

Reset to Default

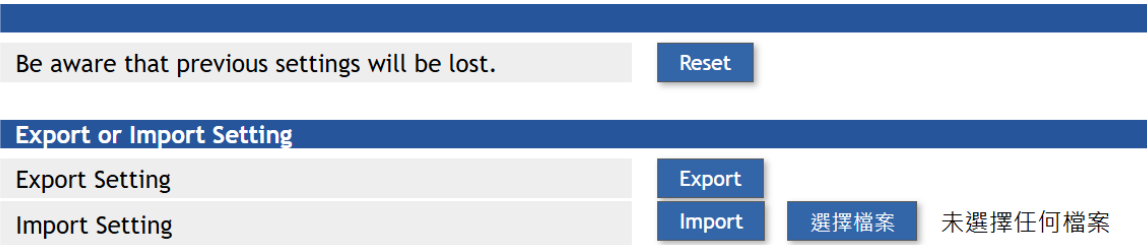


Figure 4-11-2: Reset to Default Page Screenshot

Object	Description
• Reset	Restores the device to its factory-default settings. All previous user configurations will be lost.
• Export	Downloads the current configuration file to the connected computer.
• Import	Uploads and applies the selected configuration file to the device.
• Choose File	Selects the configuration file to be imported.

4.11.3 Firmware Update

This page facilitates an update of the firmware controlling the switch. The Firmware Update screen in [Figure 4-11-3](#) appears.

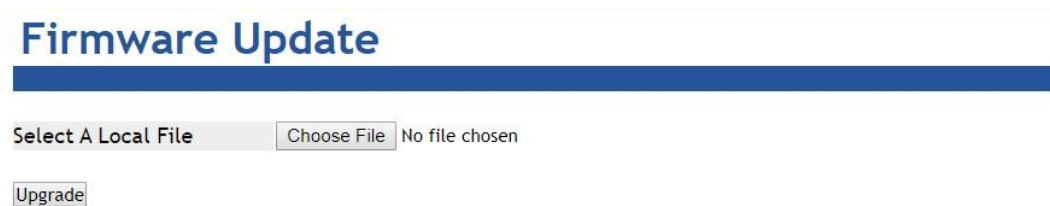


Figure 4-11-3: Firmware Update Page Screenshot

To open **Firmware Update** screen, perform the following:

1. Click **Maintenance -> Firmware Update**.
2. The Firmware Update screen is displayed as in [Figure 4-11-3](#).
3. Click the “**Choose File**” button of the Main page; the file selection menu pops up for you to choose firmware.
4. Select on the firmware, then click “**Upgrade**”; the **Software Upload Progress** would show the file with upload status.

4.11.4 Reboot

This page allows users to restart the Industrial Serial Server through the Web management interface. When the reboot function is executed, the current management session will automatically log out and the device will restart. The Reboot page is shown in **Figure 4-11-4**.

Reboot

Warning!! The system will automatically log out and reboot.

Reboot

Figure 4-11-4: Save and Restart Page Screenshot

Object	Description
• Reboot	Logs out of the Web management interface and restarts the device.

5 SOFTWARE VCOM UTILITY

The industrial serial server provides VCOM software to manage serial devices. With VCOM software, it's easy to install and configure industrial serial server over the network. It also supports central management to manage multiple serial servers from one site.

Two function groups are provided and they are easy to use for searching device and creating virtual COM to view via the console port. VCOM software can search ICS-3100T, ICS-3105AT, ICS-3200T and ICS-3400T devices; it will show information of the device. And user can use VCOM function to create virtual COM port for users. Users can send data via virtual COM port, and virtual COM port will transfer data to Ethernet by windows socket. When VCOM gets data from Ethernet, data will be transferred to virtual COM port by virtual COM component.

5.1 Installing the VCOM Utility

1. When you run VCOM installer, a welcome window will appear as shown in [Figure 5-1-1](#). Click Next to continue.

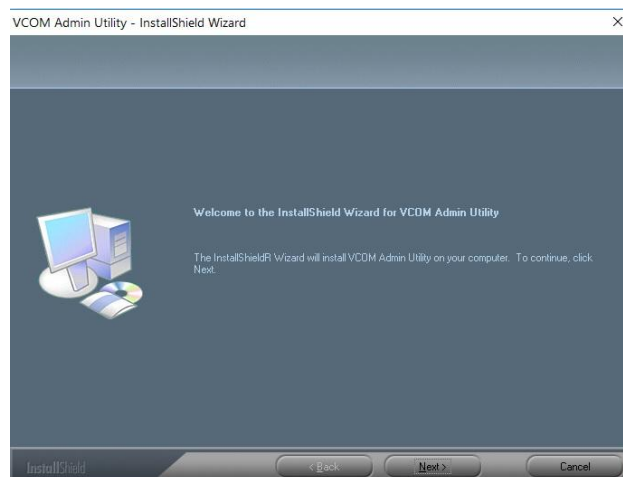


Figure 5-1-1: Installing the VCOM Utility

2. Click Next to accept suggested installation path, or click browse to select a different location as shown in [Figure 5-1-2](#).

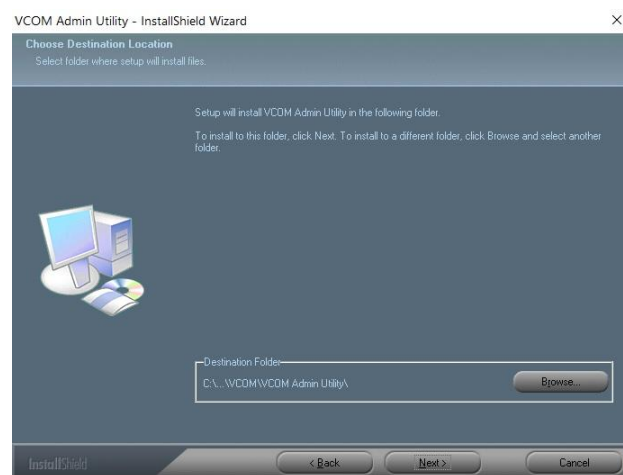


Figure 5-1-2: Installing location

3. The setup wizard will show the progress of the installation and status as shown in [Figure 5-1-3](#).

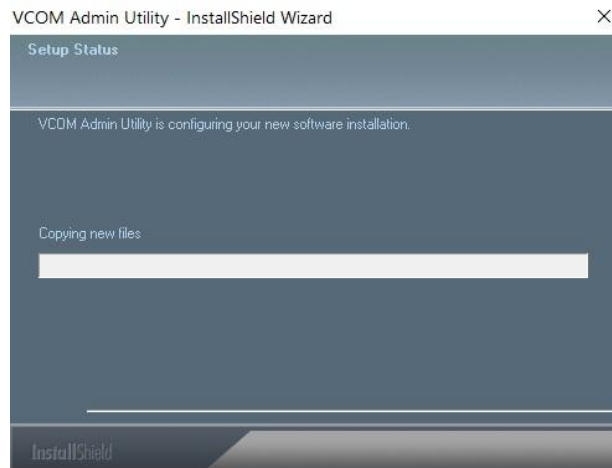


Figure 5-1-3: Installing Process

4. Click Finish to successfully complete installation of VCOM software.as shown in [Figure 5-1-4](#).

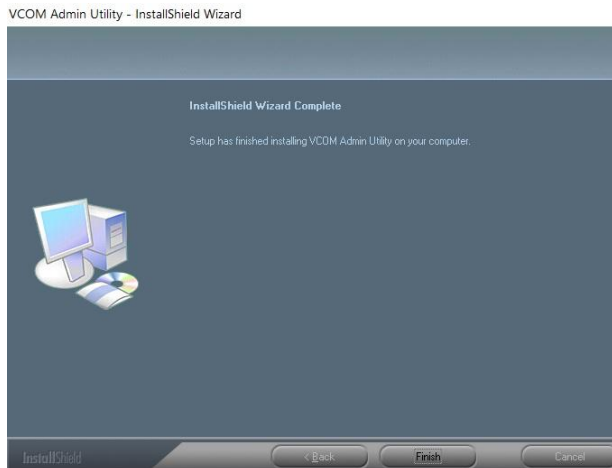


Figure 5-1-4: Installation Finished

5. Restart computer as shown in [Figure 5-1-5](#).

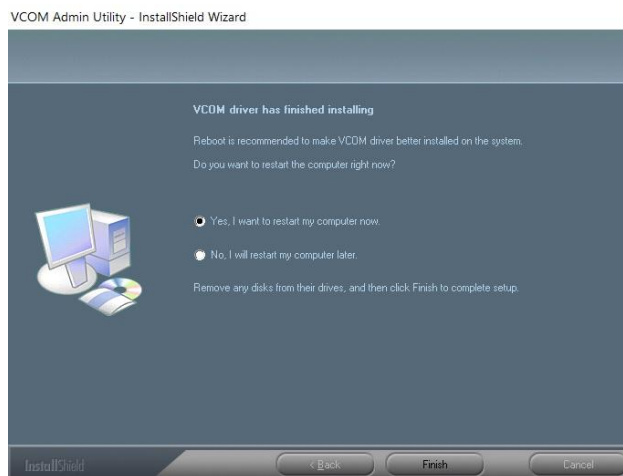


Figure 5-1-5: Restart System

5.2 Search Devices

1. First click "Add Device" and then click "Search", if device has access to network, as shown in [Figure 5-2-1](#).

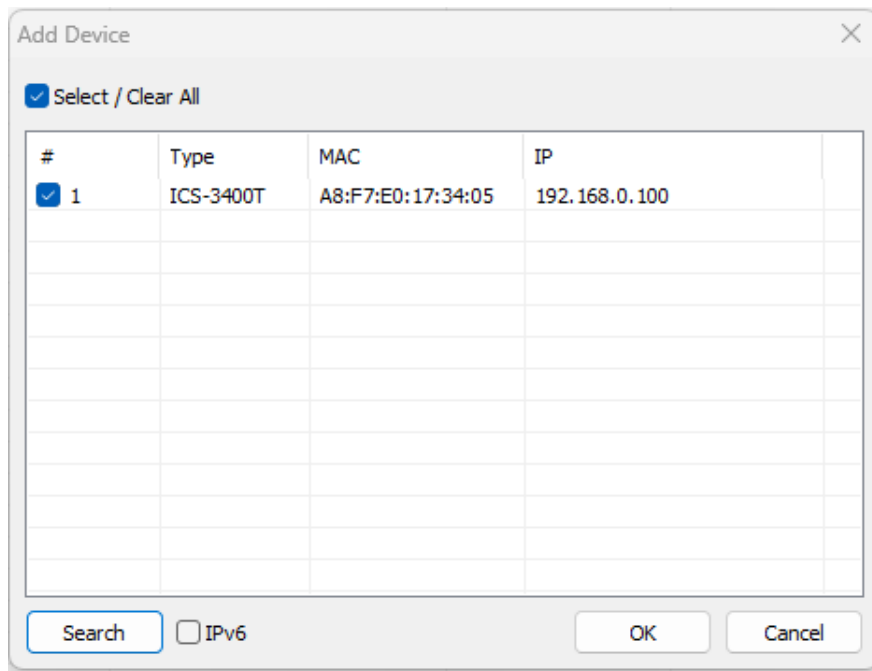


Figure 5-2-1: Searching Devices

2. After adding an ICS-3400T device as shown in [Figure 5-2-2](#).

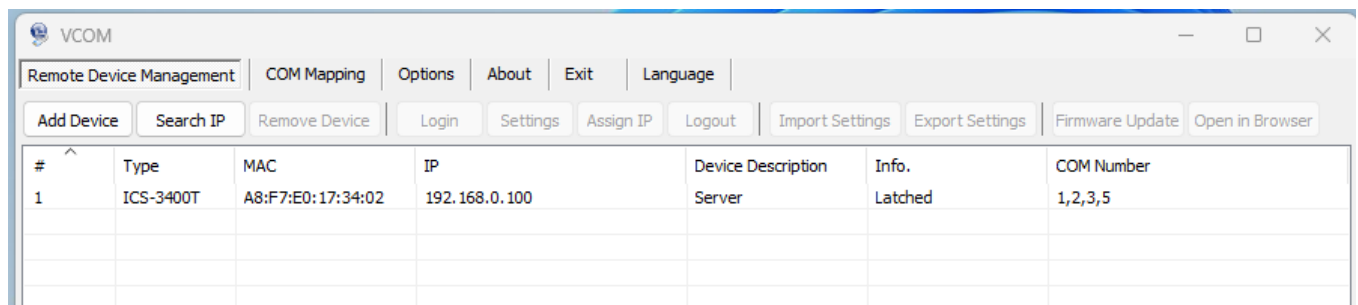


Figure 5-2-2: A device successfully added

5.3 Virtual COM

This function should be set as **VCOM mode** on the industrial serial server. VCOM software will create the corresponding virtual COM ports for com port mapping as shown in [Figure 5-3-1](#).

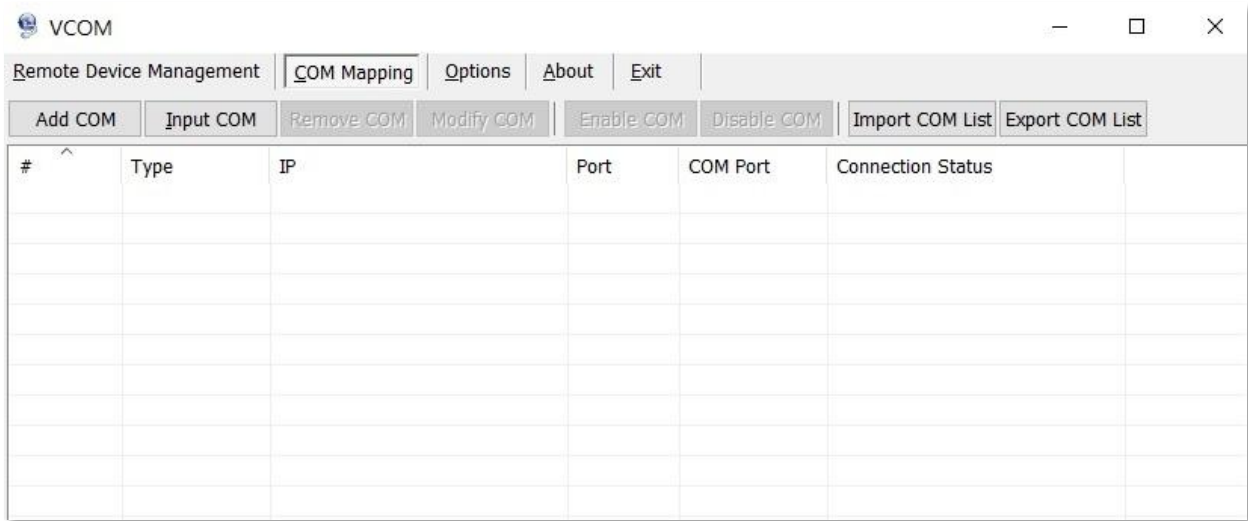


Figure 5-3-1: VCOM software

Add Virtual COM port

1. Click "Search" to search the network for industrial device servers.
2. Once a server has been found, select it to add it to the COM mapping list and Click "OK" to take effect as shown in [Figure 5-3-3](#).

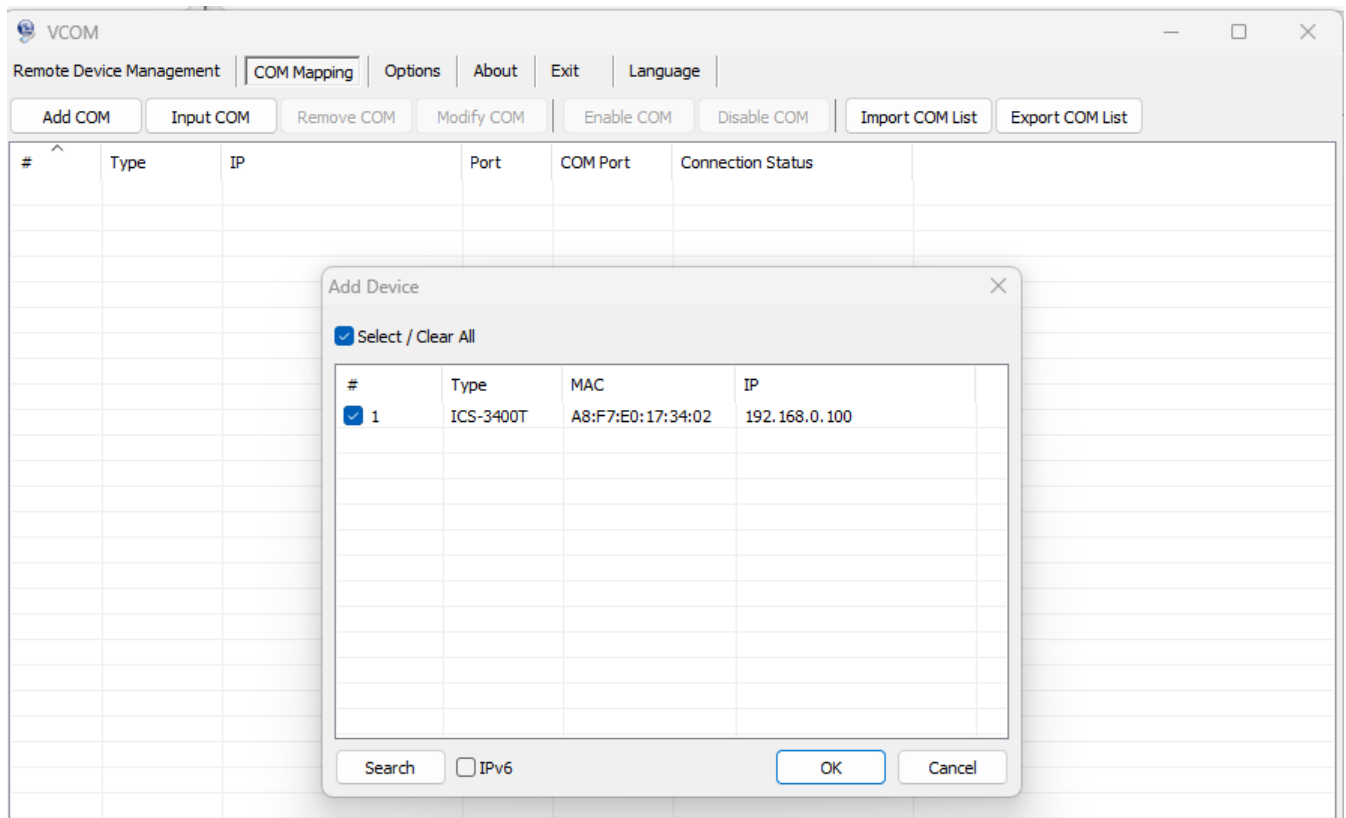
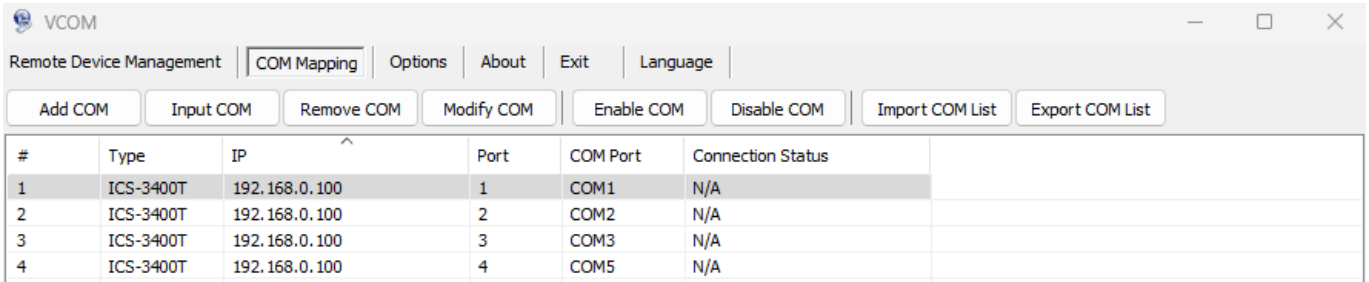


Figure 5-3-2: VCOM software

3. Virtual com ports are generated as shown in [Figure 5-3-3](#).



#	Type	IP	Port	COM Port	Connection Status
1	ICS-3400T	192.168.0.100	1	COM1	N/A
2	ICS-3400T	192.168.0.100	2	COM2	N/A
3	ICS-3400T	192.168.0.100	3	COM3	N/A
4	ICS-3400T	192.168.0.100	4	COM5	N/A

Figure 5-3-3: Virtual COM Ports

4. From the Windows Device Manager, four COM Ports are added to the device list as shown in [Figure 5-3-4](#).

5.

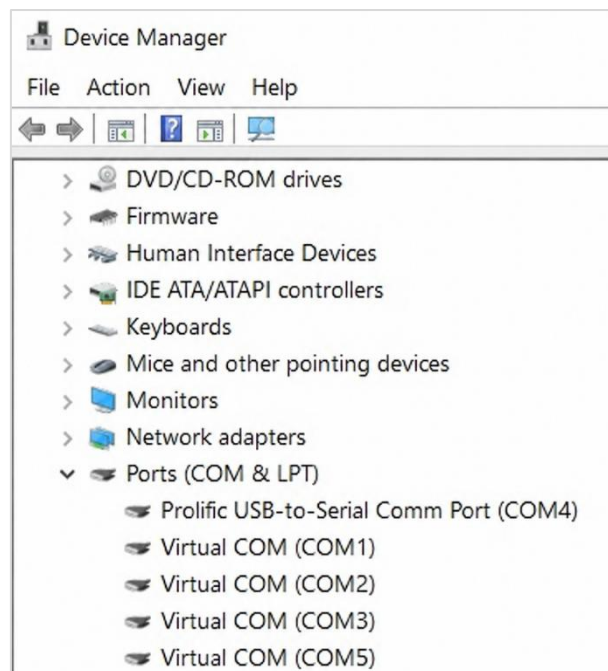


Figure 5-3-4: Virtual COM Ports