

sLAN/all-PoE

User Manual



Revision History

Revision Date	Document Ver.	Pages Revised	Revised/Added/Removed	Details of Revision
2021.03.04	1.0	All	-	New

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Please be sure to read this manual before using and use the product safely and accurately.

- Pictures and photos in the manual may be different from the physical, and the document is subject to change without notice to improve performance. For the last information, please visit our website (www.sysbas.com).
- To view frequently asked questions and answers, please visit our website and find Support –Technical Support –FAQ section.
- Documents can be downloaded from the product page or Download section.
- Sellers or users should be aware of the fact that this device is intended for industrial use(Class A), not for residential use.
- This device has a potential for radio interference during use and may receive harmful interference from other devices.
- Warranty policy is included in the product packaging.
- This product is domestic (Korea) and cannot be used overseas with different power/frequency.

1. Before Using

sLAN/all PoE is a small Ethernet converter which provides Ethernet wired communication and Power over Ethernet (PoE) for serial equipment supporting RS232/422/485. The communication standard supports IEEE 802.3 10/100 Base-TX, IEEE 802.3af. It is equipped with serial standard DB9 connector, providing easy-to-apply gateway function to RS232/422/485 compliant equipment. Maximum communication speed is 921.6Kbps for serial and 100Mbps for Ethernet.

sLAN/all-PoE is a device that connects various serial equipment to the network and remote controls, monitors over the network.

- Communication Speed up to 921.6Kbps
- RS/232/422/485 Serial 1 port
- 10/100Mbps Ethernet: 1port
- IEEE 802.3af PoE(Power over Ethernet)
- Industrial Grade Operating Temperature: -40 to 85°C(-40 to 185°F)
- Provides COM Port Redirector
- Provides Web Browser, SGConfig for Management
- ±15KV IEC ESD Protection

2. Components



Components	Ordering Information
sLAN/all-PoE, LAN Cable, Ejector Pin, Product Warranty & Download Guide	sLAN/all-PoE (Micro-USB B type)

3. Product



LED



	LED	State	Operation
1	RDY(Yellow)	Blink	Turns ON briefly and then OFF when Power ON. Flashes when Booting is complete.
2	TXD (Green)	Blink	Flashes when serial data is transmitted.
3	RXD (Red)	Blink	Flashes when serial data is received.

Connector



Front:

- Serial Port(DB9 Male): RS232/RS422/RS485 (Please refer to the APPENDIX for pin specifications)

Back:

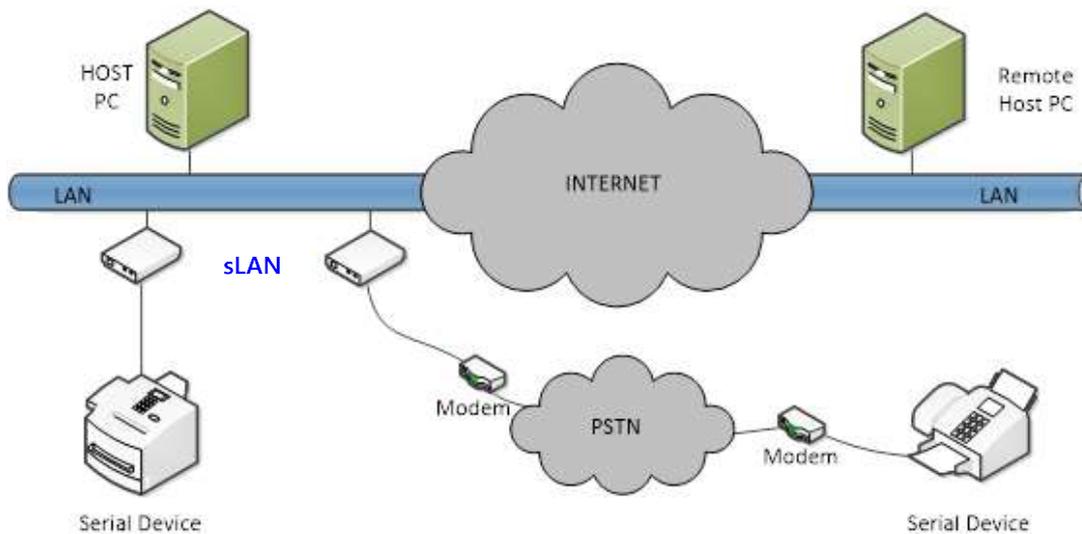
- PWR: Micro USB Type B
- LAN Port: This port(RJ45) is used to connect sLAN/all PoE to Ethernet card, hub, router and other wired network-connected equipment.
- RST: By pressing and releasing the button, sLAN/all PoE restarts.

4. How to Use

Please refer to "Chapter 6. Get Started" for instructions on how to set up.

① PC – Serial Equipment Connection

For the most common example, the PC and sLAN/all PoE are connected to the network, allowing the PC to use serial devices connected to the sLAN/all-PoE.



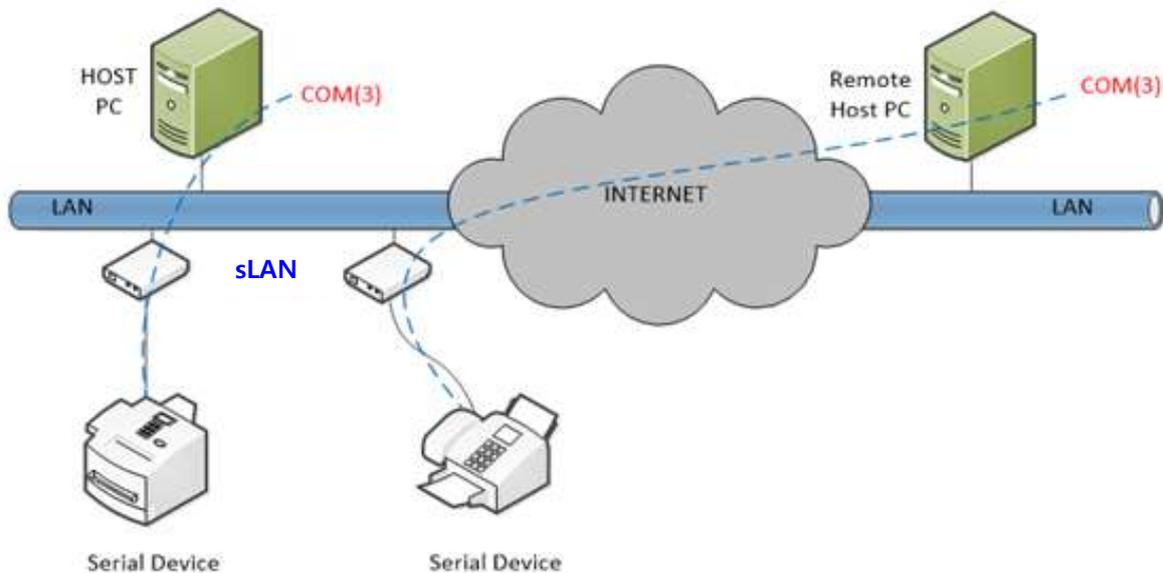
② Serial Communication Tunneling

By extending the serial cable between the PC and the serial equipment via the network, it can be used like a serial cable with no distance limit. To use this feature, set it to TCP Server – TCP Client mode or UDP Server – UDP Client mode (please refer to Chapter 7. Settings). For these two modes, only data can be sent and received.



③ COM Port Redirection

By using Redirection, users can use the serial port of sLAN/all PoE connected to the network as if it were a PC-mounted serial port.



Factory / Industrial Automation

PLC, Robot Arm, Human-Machine Interface, Logistics Warehouse Rail

Medical devices, Examination Equipment Controllers

Alarm Device

Home Appliances / Electronics

Power Management Devices, Game Consoles

Instruments, Gas Detectors, Water Quality and Pollution Measuring Instruments

Data Collection and Distribution Equipment

Finance / Building Automation

Card Reader, Barcode Scanner, Kiosk, POS related equipment

Serial Printers, ATMs, Credit Card Reader

Biometrics, Security Equipment

5. Get Started

An Ethernet port is required to connect sLAN/all PoE to the network. Ethernet supports 10Mbps and 100Mbps Ethernet connections. The LAN port on sLAN/all PoE supports MDIX feature, which automatically recognizes Cross Ethernet Cable and Direct Ethernet Cable, so it does not matter which cable users connect. Connect one end of the cable to the sLAN/all PoE and the other to the network equipment.

6. How to Connect

The following methods are used to connect sLAN/all-PoE to devices and networks:

Power On for the First Time

First, check if the input voltage supplied to sLAN/all PoE matches the specification of the model and supply the correct voltage. sLAN/all POE turns on and starts booting only when the power is normally supplied.

There are RDY, TXD/RXD LED for checking operation status.

(Please refer to Chapter 3. Product for LED status)

To access the web of sLAN/all PoE, an IP address is required. A static IP is assigned to the sLAN/all PoE as default. You can manually enter other IP address after the initial access, or set up sLAN/all PoE to automatically assign an IP address from DHCP server. This depends on your network environment or policy, but it is strongly recommended to assign your own static IP to sLAN/all PoE.

Access

To view or set up the environment of sLAN/all PoE, you should access to Web browser or use setup utility. This manual is based on how to set it up through the Web browser.

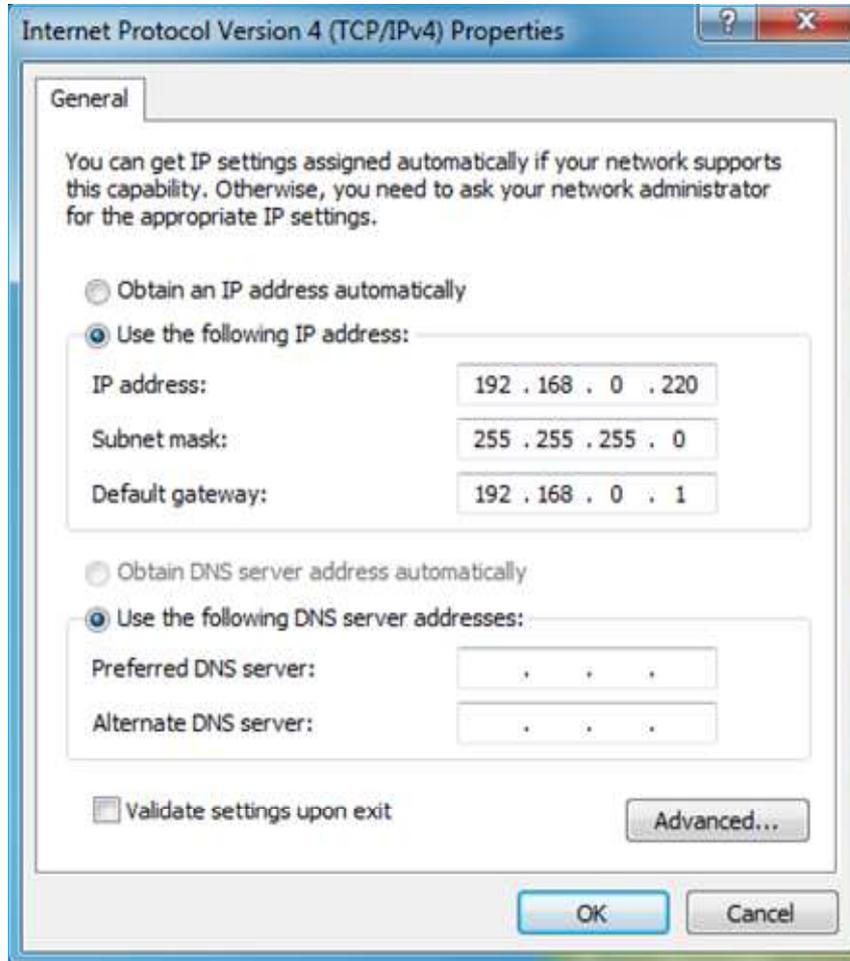
(Please refer to the SGConfig manual for instructions on how to use the setup utility)

You should first know the IP address, the network address where sLAN/all PoE is operating.

In case the LAN port of sLAN/all PoE is in use with an IP assigned by DHCP server, or it is set to a static IP address, or if you do not know the IP address, sLAN/all PoE provides the following methods:

Default IP Address: 192.168.0.223

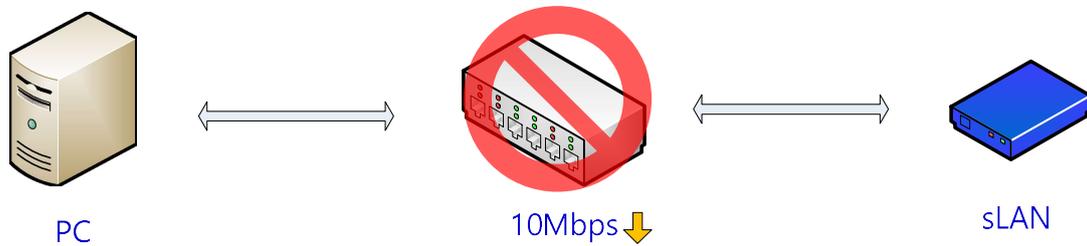
The default IP address of sLAN/all PoE is set to 192.168.0.223. To connect to this address, you should change your network settings so that your PC can access 192.168.0.223. Please refer to the following example for settings:



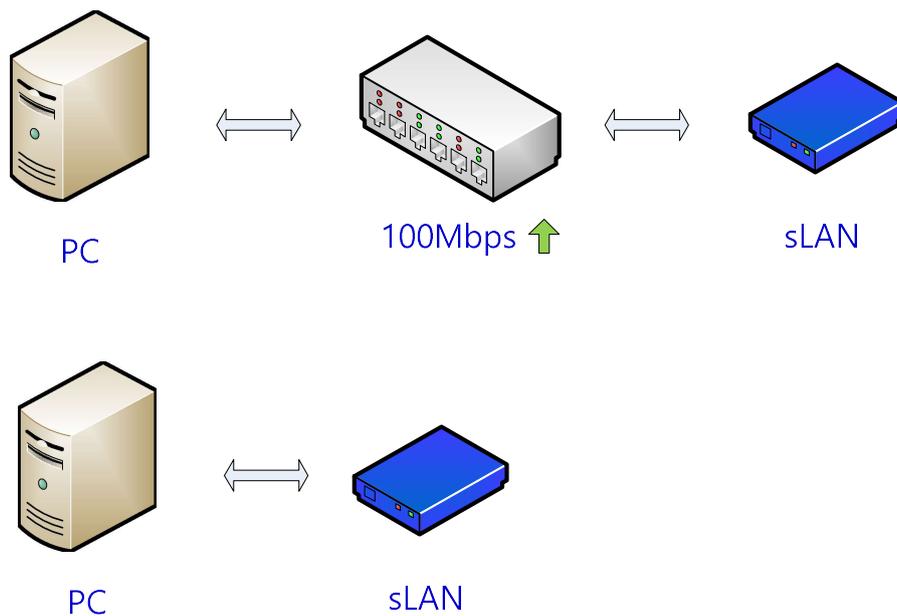
7. Settings

Precaution for Web Access

Web setting is not supported in the network environment below 10Mbps as shown below:



Therefore, if you use the Web to change the settings, you must be in 100Mbps network environment or connect the integrated device to a PC as shown below. If it is difficult to set the environment, please use the SGConfig utility to set up the device. Please refer to the 'Access' part of the previous page when directly connecting and setting with the PC.



Connection

When you open a Web browser and enter the IP address of sLAN/all PoE, an authentication window appears on first time connection. With the default ID "slan" and the password "99999999", the Web setting page appears.

Network Setting

Network Setting page will be displayed in the initial screen of the Web setting, which shows the Network information of the equipment as below:

The screenshot shows a web interface for network configuration. The main heading is 'sLAN/all'. Below it are five tabs: 'Network Setting', 'Operation Setting', 'Serial Setting', 'Change ID/PW', and 'Reboot'. The 'Network Setting' tab is active and contains the following configuration fields:

- Device Name: sLAN/all
- MAC Address: 00:E3:24:5D:CA:21
- Connection Type: Static
- IP Address: 192.168.0.223
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.0.254
- DNS: 168.126.63.1

At the bottom of the form are 'Submit' and 'Cancel' buttons.

You can set network environments and network management in the Networking Setting page. Once you have changed the settings, you must press the [Submit] button to save the changed value and restart it through the [Reboot] menu to apply them to actual equipment operation. If you exist without saving the changes, the changed value will be lost.

If you have not saved the modified value by the [Submit] button, you can return to the value before changing with the [Cancel] button.

The main features of Networking Setting page are as follows:

Menu	Default	Description
Device Name	sLAN/all	Set the name of the device
MAC Address	Own Address	Show MAC Address
Connection Type	Static	Select whether to use Static IP to use fixed IP or Dynamic IP to use assigned IP using DHCP
IP Address	192.168.0.223	Set the current IP address (If the Connection Type is Static IP, enter the IP address directly. If

		DHCP, the current IP is displayed and cannot be changed.)
Subnet Mask	255.255.255.0	Set the current Subnet Mask address (If the Connection Type is Static IP, enter the subnet mask address directly. If DHCP, the current subnet mask address is displayed and cannot be changed.)
Gateway	192.168.0.254	Set the current Gateway address (If the Connection Type is Static IP, enter the gateway address directly. If DHCP, the current gateway is displayed and cannot be changed.)
DNS	168.126.63.1	Set the IP address of the DNS(Domain Name Service)

Operation Setting

The screenshot shows the 'Operation Setting' page for 'sLAN/all'. It features five tabs: 'Network Setting', 'Operation Setting' (which is active), 'Serial Setting', 'Change ID/PW', and 'Reboot'. Under the 'Operation Setting' tab, there are several configuration options:

- Operation Mode:** A dropdown menu set to 'COM Redirector'.
- Local Port:** A text input field containing '4001'.
- Target IP:** A text input field containing '0.0.0.0'.
- Target Port:** A text input field containing '4001'.
- Latency Time (ms):** A text input field containing '0', with a range of '(0-999 ms)'.
- TCP Alive Check Time:** A text input field containing '60', with a range of '(0-65535 seconds)'.
- TCP No-delay:** A dropdown menu set to 'Disable'.

At the bottom of the form, there are two buttons: 'Submit' and 'Cancel'.

You can set the operating mode and network socket options in the Operation Settings page. Once you have changed the settings, you must press the [Submit] button to save the changed value and restart it through the [Reboot] menu to apply them to actual equipment operation. If you exist without saving the changes, the changed value will be lost.

If you have not saved the modified value by the [Submit] button, you can return to the value before changing with the [Cancel] button.

The main features of Setup Menu are as follows:

Menu	Default	Description
Operation Mode	COM Redirector	<p>Set the operation protocol to use on the serial port</p> <p>COM Redirector</p> <p>Enables the serial port of sLAN/all PoE to be used as a virtual COM port on a PC in Windows 7 or above OS environment. When this mode is selected, all settings in the serial follow the virtual COM Port settings.</p> <p>TCP Server</p> <p>sLAN/all PoE acts as a socket server and waits for connection from Client on the network. The socket number waiting for a connection is set at [Local Port]. When the socket connection is complete, sends the data that occurs between the socket and the serial port.</p> <p>TCP Client</p> <p>When a particular server on the network waits for a connection, sLAN/all PoE acts as a socket Client and attempts to connect to the IP address and socket number of the set server. When socket connection is complete, sends the data that occurs between the socket and the serial port. Set the IP and port number of the server which you want to request access at [Target IP/Port].</p> <p>UDP Server</p> <p>sLAN/all PoE acts as a UDP server and waits for UDP connection from Client on the network. Set the socket number that waits for a connection at [Local Port]. When UDP packets are received to the socket number waiting for a connection, data is sent to the serial port, and data entered into the serial port is made into UDP packets and sent to the Client.</p> <p>UDP Client</p> <p>When data is entered into the serial port, sends UDP packets to the IP and socket number of the set server. Set the IP and port number of the server to</p>

Menu	Default	Description
		which you want to request access at [Target IP/Port].
Local Port	4001	Specify the socket number assigned to the port. Use this port to wait for network socket connection in TCP Server and UDP Server mode.
Target IP	0.0.0.0	Specify the IP address of the destination to connect to in TCP Client and UDP Client mode.
Target Port	4001	Specify the port of the destination to connect to in TCP Client and UDP Client mode.
Latency Time	0	<p>Set if you want to send continuous incoming data from the serial port to the socket at once.</p> <p>For example, if a serial device sends 100 bytes of text and the socket is sent to the server via sLAN/all PoE, with this value set to 0, data entered in bytes at a time is immediately passed to the server via the socket. This guarantees real-time performance but causes a lot of traffic to the network, sending lots of packets to the server.</p> <p>If this value is set to a non-zero value, the data received several bytes at a time is buffered, waited for a set amount of time, and read again. If any data is received, it is re-buffered, otherwise it is considered all received and sent in batches to the socket. There are no traffic problems caused by many packets, but real-time performance is not guaranteed.</p>
TCP Alive Check Time	60	<p>After the socket connection is complete, check the network status at the set time interval to terminate or reset the socket connection if a network abnormality is determined.</p> <p>(If set to 0, this feature is not used. Value can be set from 0 to 65535 sec)</p> <p>If the initial value is set to 0, this feature is not performed and keep the socket connection.</p>
TCP No-delay	Disable	When TCP communication, it decides whether to collect the data sent and received over Ethernet fist and process it together or process it immediately.

Menu	Default	Description
		<p>When set to Disable, TCP send/receive data will be collected and processed, which results in a delay between Ethernet and serial transmission. But it is beneficial for high speed data transmission and packet-unit data transmission.</p> <p>When set to Enable, TCP send/receive data will be processed immediately. This minimizes the delay between Ethernet and serial transmissions, but disadvantages high speed communication and packet-unit data transmission.</p>

Serial Setting

You can set the operating environment for serial ports in the Serial Settings page. Once you have changed the settings, you must press the [Submit] button to save the changed value and restart it through the [Reboot] menu to apply them to actual equipment operation. If you exist without saving the changes, the changed value will be lost.

If you have not saved the modified value by the [Submit] button, you can return to the value before changing with the [Cancel] button.

If Operation Mode is COM Redirector in the Operation Settings, the current serial settings are ignored and changed to the settings when the virtual COM Port is connected.

The main features of the Setup Menu are as follows:

Menu	Default	Description
Interface	RS-232	Set the interface of the serial port(Option: RS-422/485)
Termination Register	Disable	Set the termination resistor when the serial is RS-422 or RS-485.
RS-422 Multi-Drop Mode	Master	Set the operation mode when serial communication is made in RS-422 interface. Set Master to Master, Slave to Slave in RS-422 Multi-Drop configuration. For 1:1 connection other than RS-422 Multi-Drop mode, set both connecting equipment to Master.
Baud Rate	9600 bps	Set the communication speed of the serial port (Option: 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600bps)
Data Bits	8	Set the number of bits which make up the byte (Option: 5, 6,7,8)
Stop Bits	1	Set the number of stop bit (Option: 1, 2)
Parity	No	Set the parity check method (Option: No, Odd, Even)
Flow Control	None	Set the flow control method When the RTS/CTS option is selected, the RTS signal line is automatically controlled according to the incoming serial data flow, and the serial data transmission is automatically controlled according to the CTS signal line status. This function only works in RS-232 interface. (Option: None, RTS/CTS).

Change ID/PW

An ID and password is required to access the Web settings page, which you can change on the screen below. Please note that the setting is applied simultaneously with saving without rebooting.



The screenshot shows the sLAN/all web interface with the 'Change ID/PW' tab selected. The interface includes a navigation bar with tabs for Network Setting, Operation Setting, Serial Setting, Change ID/PW, and Reboot. Below the navigation bar, there are three input fields for 'New ID', 'New Password', and 'Retype Password'. At the bottom of the form, there are 'Submit' and 'Cancel' buttons.

Reboot

The device will be restarted.

If you changed the settings and saved the setting values through [Submit] button, the changes will be reflected and the sLAN/all PoE will restarts.



The screenshot shows the sLAN/all web interface with the 'Reboot' tab selected. The interface includes a navigation bar with tabs for Network Setting, Operation Setting, Serial Setting, Change ID/PW, and Reboot. Below the navigation bar, there is a message: 'If you click the reboot button, SerialGate will be rebooting after a few seconds.' At the bottom of the form, there is a 'Reboot' button.

8. Settings Using Utility

Search

When you run SGConfig and click Search, it will discover the sLAN/all PoE connected to the network.

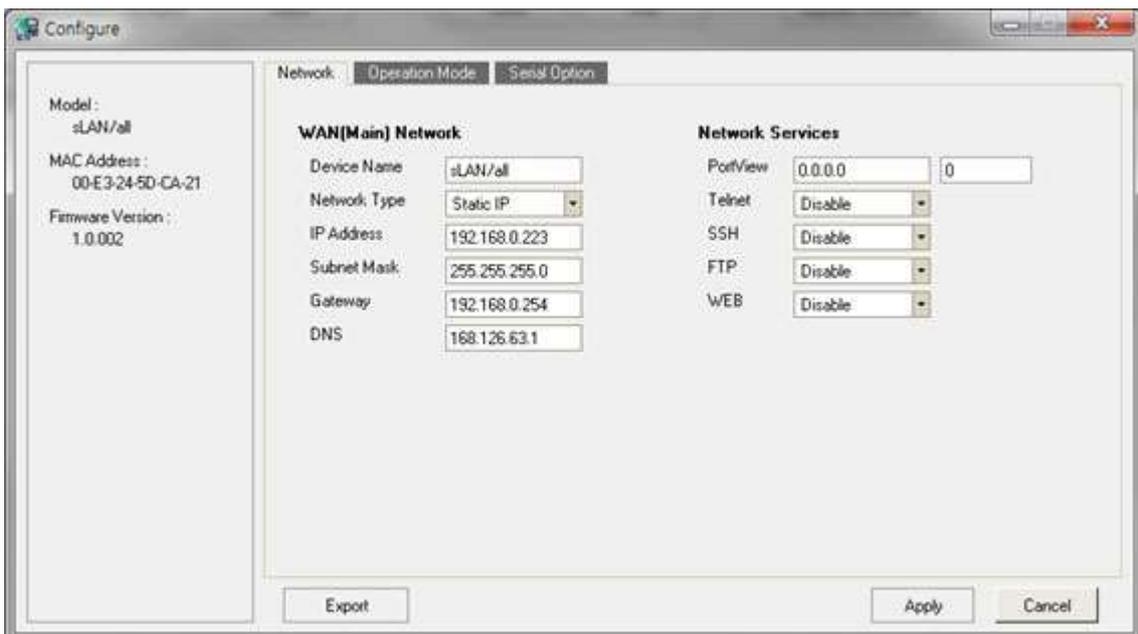


When you select the list of devices discovered in the list that you want to set up and click Configure, a window appears to set up sLAN/all-PoE as shown below.

Setting

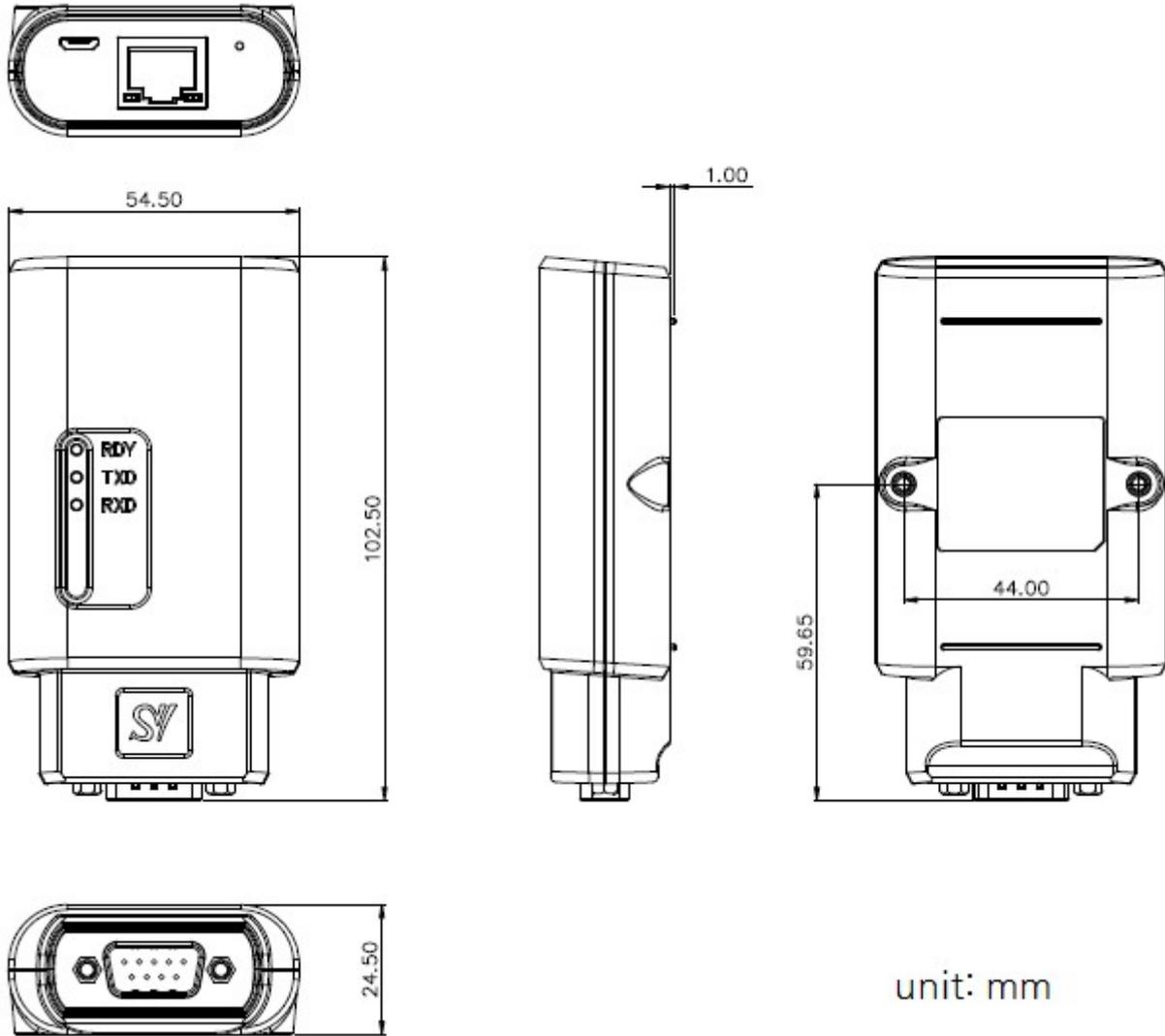
Select the device you want to set up among the discovered devices and click [Configure]. Then a window for sLAN/all PoE setting will appear as shown below:

(Please refer to SGConfig Manual for detailed options and setup methods)

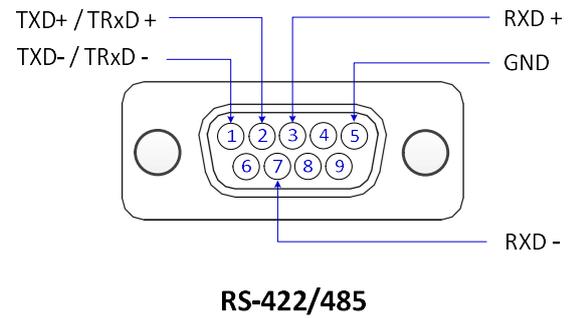
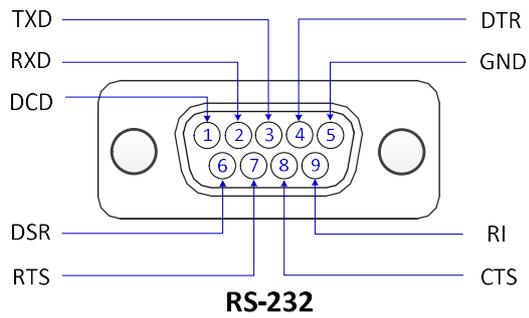


APPENDIX

1. Dimension

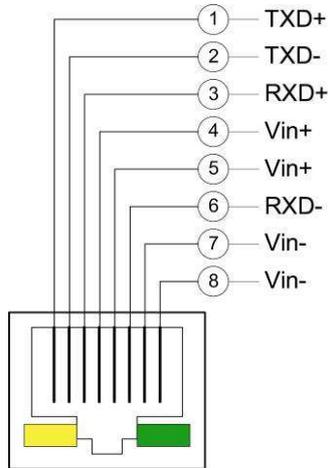


2. Serial Port Pin Assignment



Pin No.	RS-232	RS-422	RS-485
1	DCD	TXD-	TRXD-
2	RXD	TXD+	TRXD+
3	TXD	RXD+	-
4	DTR	-	-
5	GND	GND	GND
6	DSR	-	-
7	RTS	RXD-	-
8	CTS	-	-
9	RI	-	-

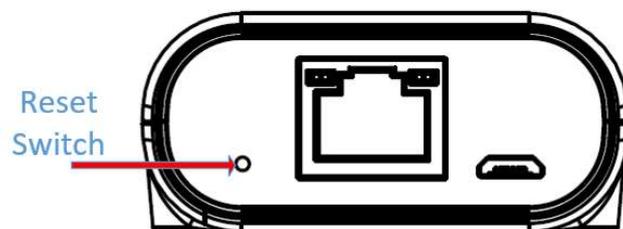
3. RJ-45 Port (w/PoE PD function)



Pin	Signal	Description
1	TXD+	Transmit Data +
2	TXD-	Transmit Data -
3	RXD+	Receive Data +
4	Vin+	Connect PSE +
5	Vin+	Connect PSE +
6	RXD-	Receive Data -
7	Vin-	Connect PSE -
8	Vin-	Connect PSE -

LED	Description
Left Yellow	Turns on when 100Base-TX links, Flashes when data is transmitted/received
Right Green	Turns on when 10Base-T links, Flashes when data is transmitted/received

5. Reset Switch (Tact)



Function	Operation	Result
Warm Booting	Press button less than 3 seconds	Restart sLAN/all PoE
Factory Default	Press button more than 3 seconds	Reset sLAN/all PoE settings

6. Specification

Ethernet	Ethernet	10/100Mbps RJ45 Port x 1
	LAN Port	Static IP, Dynamic IP
	Protocol	TCP, UDP, ICMP, DHCP, HTTP, IPv4
	Power over Ethernet(PD)	IEEE 802.3 10/100 Base-TX , IEEE 802.3af
Serial	Serial Port	1port DE-9 Male
	Interface	RS232/422/485
	Maximum Communication Speed	921.6Kbps
	Signal	RS232: TXD, RXD, RTS, CTS, DTR, DSR, DCD, RI
		RS422: TXD+, TXD-, RXD+, RXD-
		RS485: TRXD+, TRXD-
	Data Bit	5, 6, 7, 8
	Stop Bit	1, 2
	Parity	None, Even, Odd
Flow Control	RTS/CTS, XON/XOFF	
Software	OS	RTOS
	Operation Mode	COM Redirector, TCP Server,/Client, UDP Server/Client,
	Utility	Redirector, TestView, SGConfig
	Configuration & Management	Web, SGConfig
Hardware	LED	RDY(Yellow), TXD(Green), RXD(Red)
	Power	USB 5V Input, PoE 48V Input, Max 12.95W
	Power Connector	Micro USB B
	Dimension (W x L x H)	54.5 x 102.5 x 24.5mm (2.15 x 4.04 x 0.96in)
	Weight	79g (2.79oz)
	Operating Temperature	-40 ~ 85°C (-40 ~ 185°F)
	Operating Temperature (PoE)	-20 ~ 70°C (-4 ~ 158°F)
	Humidity	5 ~ 95% Non-condensing

	LED	RDY(Yellow), TXD(Green), RXD(Red)
Ordering Information		sLAN/all PoE

Package

sLAN/all(Micro-USB)	sLAN/all PoE, LAN cable, Ejector pin
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7. Trouble Shooting

This part suggests solutions to various problems that may arise when using the equipment.

Installation

- If you cannot access the equipment connected via sLAN/all PoE, it is recommended to check the network connection and cables first.
- Ensure all connections are properly made(Ethernet, DB9 connector, serial cable and so on).
- Check both the IP address and port number are entered correctly.
- If you are using a hub, try connecting the sLAN/all PoE to another port to verify that the hub's port is properly operating.

Network Settings

- When using TCP/IP, check that your computer and sLAN/all PoE is on the same network. Check connection status with sLAN/all PoE via ping command on PC. The IP address of sLAN/all PoE must exist on the same logical network as the host PC. For example, if PC has an IP address of 192.189.207.3 and the subnet mask is set to 255.255.255.0, the IP address of sLAN/all PoE must be set to 182.189.207.x (x is an integer from 1 to 254). Also, make sure that the default gateway address settings are also correct.
- If sLAN/all PoE is set to be automatically assigned an IP address through DHCP, the IP address of the sLAN/all PoE may not fixed and changed. If you set DHCP server to assign permanent IP to sLAN/all PoE or set static IP address assignment in sLAN/all PoE, the address will be fixed.
- Sometimes problem may occur due to incorrect or overlapping IPs. Check that the IP address is properly assigned to the sLAN/all PoE, and that no other equipment on the network has the IP assigned. IP conflict is the most common issue in TCP/IP connection problems. If the IP address is not correct, it is likely to be a problem with the connection of the equipment.
- Check that your computer and sLAN/all PoE use the same subnet mask. For example, if sLAN/all PoE uses a subnet mask of 255.255.255.0, your PC must use the same subnet mask. Or check that the default gateway is correctly set.

- If an invalid IP address is assigned, check if DHCP server has not assigned an invalid address to the sLAN/all PoE.

Windows O/S

- If the target equipment is not properly connected on Windows O/S, check the connection status via the command prompt with the command PING x.x.x.x (x.x.x.x. is the IP address of the sLAN/all PoE). If the ping is not working properly, you cannot access the serial equipment.
- If you encounter problems when using the COM Redirector(Emulator) function, check if the correct virtual port is being used when the application is running. Verify that you have correctly specified it as a virtual port in the COM port settings of application.

8. Certification

- **KC**

Number: R-R-STB-sLANallPoE

Test Item: KN 61000-4-2, KN 61000-4-3, KN 61000-4-4, KN 61000-4-5, KN 61000-4-6, KN 61000-4-11

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Email:

- Purchase/Quotation: overseas@sysbas.com
- Technical Support/RMA: tech@sysbas.com

www.sysbas.com

Tel: +82-2-855-0501

Working Hour

MON ~ FRI 9:00 ~ 18:00