

SerialGate

SG-3011PCL

Manual

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Chapter 1. Overview

This chapter covers related documents for the SG-3011PCL.

About this manual

This manual describes how to connect and configure settings for the SG-3011PCL.

To readers

This manual is written for SG-3011PCL users and administrators. It is recommended to read this manual thoroughly before using SG-3011PCL. This will provide users more understanding when connecting SG-3011PCL with other devices.

Organization of the manual

Chapter 1. General information and introduction.

Chapter 2. Features of SG-3011PCL

Chapter 3. Hardware Configuration, product images and specification.

Chapter 4. How to setup the device in the network and configuring and checking the status for the first time use.

Chapter 5. Menus in the web managers and their usage.

Chapter 6. Examples of various applied fields and the correct usage.

Chapter 7. Detailed specifications for the product and ordering information.

SG-3011PCL related documents

Documents	Description
User Manual	SG-3011PCL configuration, management, and usage
COM Port Redirector User Manual	COM Port Redirector usage and description
TestView User Manual	COM Port/TCP/UDP test program usage and description
SGconfig Quick Manual	SerialGate device configuration utility usage and description

To get more information about SG-3011PCL, please visit <http://www.solvline.com/>. The most recent SerialGate related documents, drivers, utilities and firmware will be available for download as well as FAQs to troubleshoot problems. Additionally, any inquiries or comments can be posted.

Documents	Description
SG-3011PCLSpecification Sheet	Specification of SG-3011PCL
SG-3011PCLWhite Paper	An overview of a SerialGate device server.

All documents in the technical support website is up to date. The contents of the documents may be modified and updated without prior notice.

Technical Support

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The customers can also leave feedback about the products.

1. Visit our technical support website at <http://www.solvline.com/>.

2. Contact us by email at tech@sysbas.com.

3. The customers can reach us directly by phone during our office hours.

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Office hours: Monday to Friday, 09:00 ~ 18:00 KST (Closed on national holidays in South Korea)

Chapter 2. Getting Started

This chapter describes the features of the SG-3011PCL.

Overview

The SG-3011PCL can connect to various types of device to the network whether it is a security equipment, communication peripheral, modem, data output device, industrial test or measuring equipment. The SG-3011PCL supports RS-232/422/485 or UART standard serial communication and provides programmable GPIOs along with 10/100 based TX fast Ethernet port to connect to the network.

Function

Basic Function

- Max. 230.4Kbps (for RS-232/422/485/UART TTL)
- RS-232 (Full Signal)
- RS-422/485
- Supports UART TTL
- Flow Control (RTS/CTS, DTR, DSR, Xon/Xoff)
- 6 Programmable GPIOs
- 1 x 10/100 Mbps(Auto MDIX) Ethernet port
- Supports COM Port Redirector
- Configure with web browser

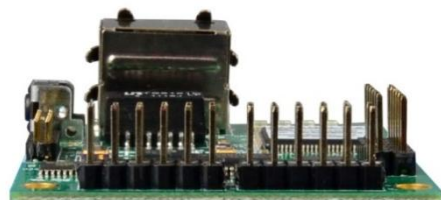
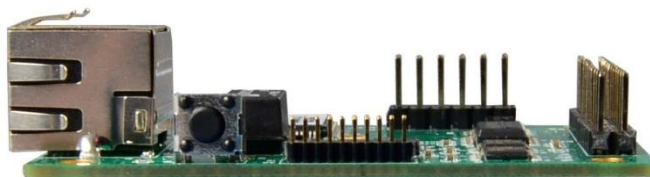
Package Content

The package only comes with one unit of SG-3011PCL.

Chapter 3. Hardware

In this chapter, the users can find the information regarding the pin specification, port, pin headers, LEDs and the reset button.

Product Images



SerialGate User Manual

- Serial/Power/GPIO Connector: 2.54mm pin header
- Reset Button: Restarts SG-3011PCL or load the factory default depending on the time it is pressed. (More information in the can be found below.)
- LED: Shows the status of the SG-3011PCL.
(More information can be found below.)
- LAN (Ethernet) Port: This port, 8-pin RJ-45, is used to connect the SG-3011PCL with the LAN/Ethernet port in the PC, hub, router, or other wired network device.

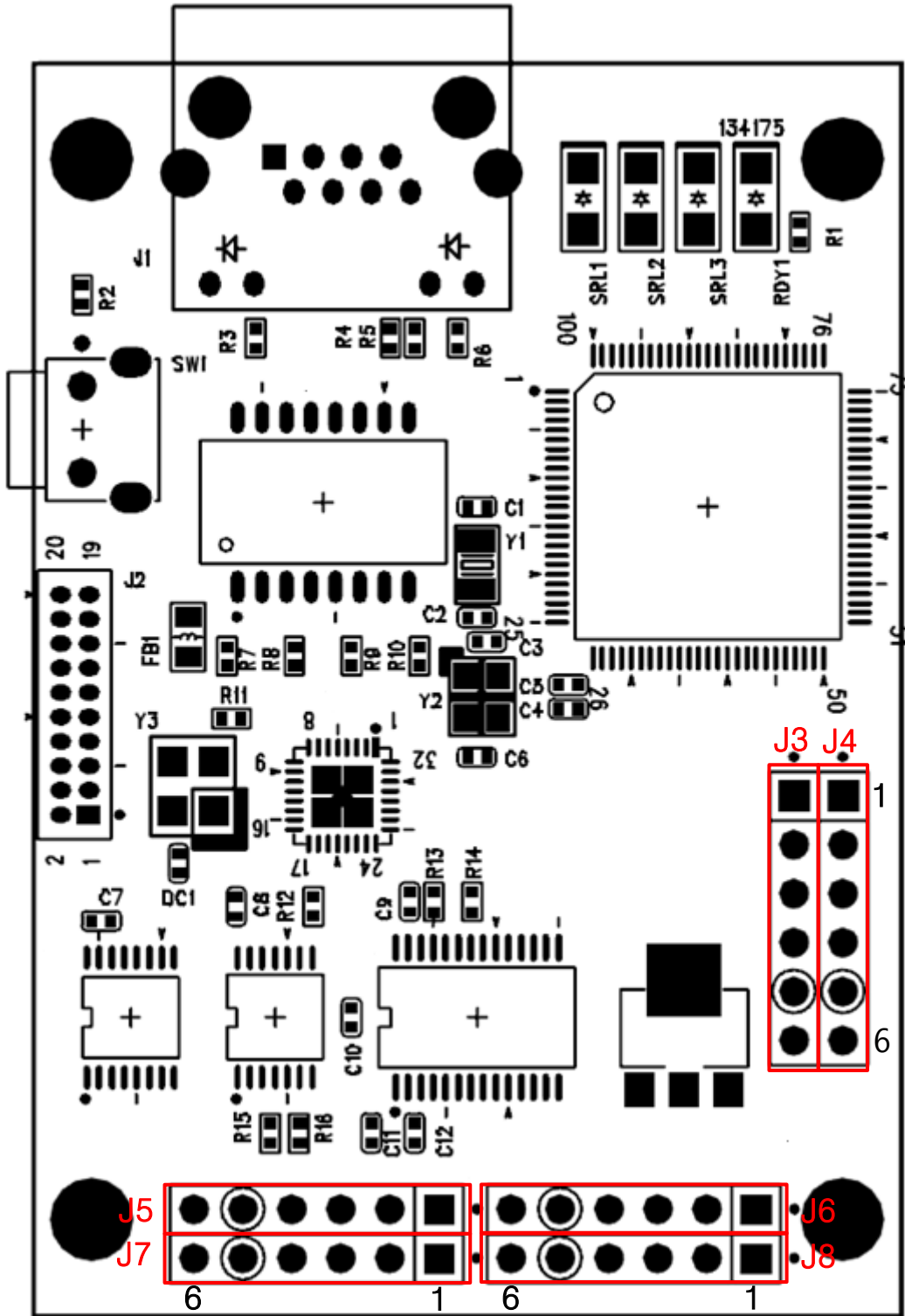
LEDs

	LED Name	State	Operation
1	RDY	Blink	When the device is powered, it will stay on for a while then start blinking when booting process is completed.
2	SRL (Red)	1	Blink Transmitting/Receiving data 1. RS-422/485 2. RS-232 3. TTL
		2	
		3	
3	LAN Port (Green on Left)	On	100 Base Tx Standard network enabled
		Off	10 Base Tx Standard network enabled
4	LAN Port (Yellow on Right)	On	Connected to the network
		Off	Network disconnected
		Blink	Transmitting/Receiving LAN data

Reset Switch

	Pressed for	Description
1	Less than 3 seconds	Restarts the SG-3011PCL
2	3 seconds or more	Reverts all settings to the factory default values.

Pin out



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The SG-3011PCL supports RS-232/422/485 speeds from 300bps to 230.4Kbps. For RS-232, it supports the full signal (TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI). The 4 wires are supported for RS-422/485 and 2 wires for RS-485 only.

The users can use the UART TTL in the SG-3011PCL. It provides six programmable GPIOs to control external devices, for monitoring or communicating purposes. The only on port of UART TTL or RS-232/422/485 can be used.

①. RS-232

For RS-232, J6 and J8 are used. The pin out information is show below.

J8

	Name	Function	Level
1	VCC	DC 5V Power Supply	5VDC \pm 5%
2	RXD	Receive Data	RS-232
3	TXD	Transmit Data	RS-232
4	GND	Ground	-
5	RTS	Request to Send	RS-232
6	CTS	Clear to Send	RS-232

J6

	Name	Function	Level
1	VCC	DC 5V Power Supply	5VDC \pm 5%
2	DTR	Data Terminal Ready	RS-232
3	DSR	Data Set Ready	RS-232
4	GND	Ground	-
5	DCD	Data Carrier Detect	RS-232
6	RI	Ring Indicator	RS-232

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②. RS-422/485

For RS-422/485, J5 and J7 are used. The pin out information is show below.

J5, J7

	Name	Function	Level
1	VCC	DC 5V Power Supply	5VDC \pm 5%
2	TX+/TRXD+	RS-422: Transmit Data +	RS-422
		RS-485: Data +	RS-485
3	TX-/TRXD-	RS-422: Transmit Data -	RS-422
		RS-485: Data -	RS-485
4	GND	Ground	-
5	RX+	RS-422: Receive Data +	RS-422
6	RX-	RS-422: Receive Data 1	RS-422

③. UART TTL

SG-3011PCL provides UART TTL pins. The pin out information is show below.

J4

	Name	Function	Level
1	VCC	DC 5V Power Supply	5VDC \pm 5%
2	RXD	Receive Data	3.3V TTL
3	TXD	Transmit Data	3.3V TTL
4	GND	Ground	-
5	RTS	Request to Send	3.3V TTL
6	CTS	Clear to Send	3.3V TTL

④. GPIO

SG-3011PCL provides GPIO pins. The pin out information is show below.

J3

	Name	Function	Level
1	PB5	GPIO	VIL: Vss - 0.3V (Min.) VIH: 2.0 ~ Vcc+0.3V VOL: Max.0.4V VOH: Min.2.4V
2	PB6	GPIO	
3	PB7	GPIO	
4	PB8	GPIO	
5	PB9	GPIO	
	PB14	GPIO	

Chapter 4. Setup

This chapter deals with connecting SG-3011PCL with other device using the Ethernet and RS-232/422/485 connection.

Before connecting to the network

The SG-3011PCL supports 10/100Mbps LAN/Ethernet and auto MDIX feature so that the users can use either cross or direct cable.

Running the SG-3011PCL for the First Time

First, check the input voltage to the SG-3011PCL. It is recommended to use 5 VDC. The device can handle up to 9 VDC. When the device boots, its RDY LED will stay on then starts blinking when booting process is completed.

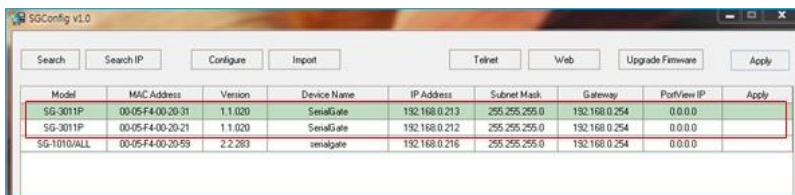
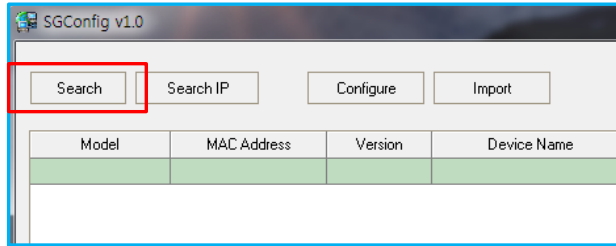
After the LEDs from the LAN port are blinking, the users can connect to the SG-3011PCL using any web browser.

Network Access

In order to enter the web manager, the users require the default IP address to connect to the SG-3011PCL which is 192.168.0.223. This initial static IP address can be changed from the web manager to be a different static IP or a dynamic IP. It is recommended to use a static IP.

When the IP addressing of the SG-3011PCL is set to the dynamic IP or the users forgot the static IP to connect to the web manager, the SGConfig utility can be used to retrieve the IP address of the SG-3011PCL as shown in the next page.

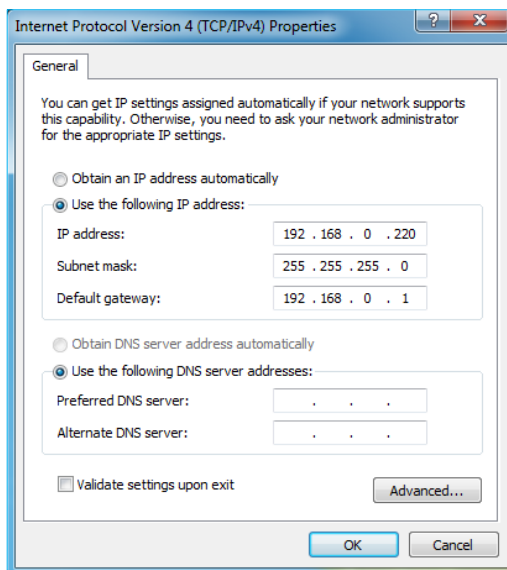
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If the SG-301PCL cannot be found with the “Search” button or uses the different group of IP address, try the instructions below to connect.

Default IP Address: 192.168.0.223

The IP address of the SG-3011PCL is set to 192.168.0.223 by default. Before the SerialGate is installed in the place where it would operate, the users should first configure the settings that suits its operating environment. However, if the PC have a different IP group, it may not be able to connect to the SerialGate even if the users entered the default IP address. In this case, please establish a connect to the SerialGate with the PC directly using the Ethernet cable and set the IP address of the PC to the same group that the SerialGate is set to. It is recommended to set the IP address of the PC as shown below when directly connected to the SerialGate.



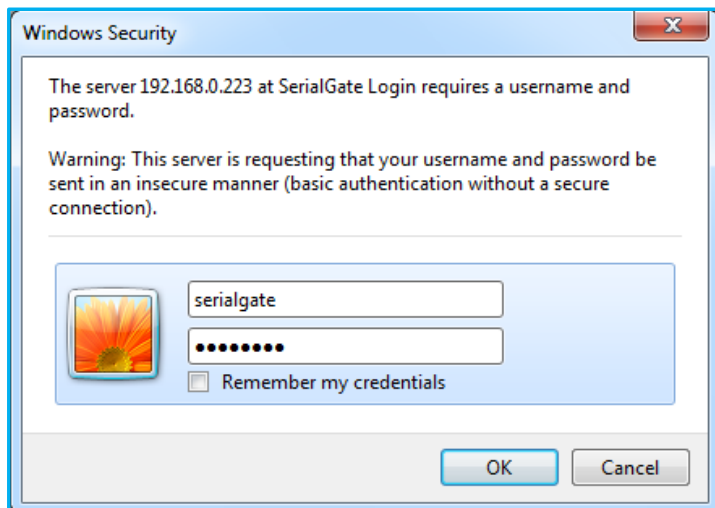
Chapter 5. Configure by Web Browser

This chapter will go over with configuring the SG-3011PCL using the web manager.

Setting with the SGConfig utility will be dealt from a separate quick manual.

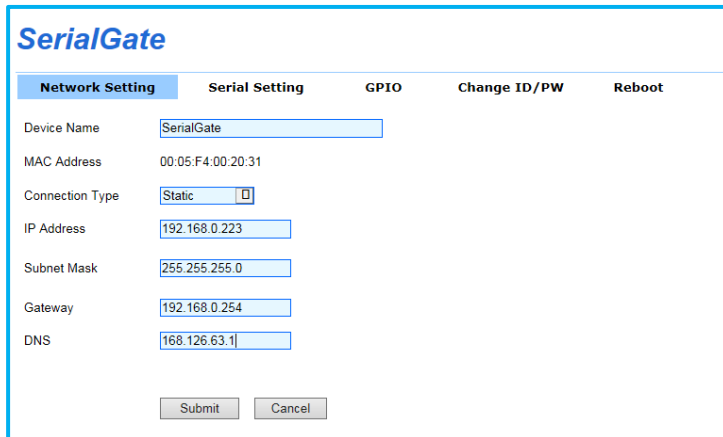
Connecting with Web Browser

Open a web browser and type the IP address of the SG-3011PCL. A login window, shown below, will appear. The initial ID and password are “serialgate” and “99999999” without quotes. The ID and password can be modified once logged in.



Network Setting

After logged in, the 'Network Setting' page will be displayed. Every values in here except the MAC address can be modified. The page is shown as below.



The 'Network Setting' display the operating environment for currently connected network. The 'Submit' button must be clicked in order to save the changes. To apply changed settings, the device must be rebooted. If the submit button is not clicked to save the changed settings, when the device boot next time, the changed value will not be applied.

The 'Cancel' button can be used to revert the settings back to the original state.

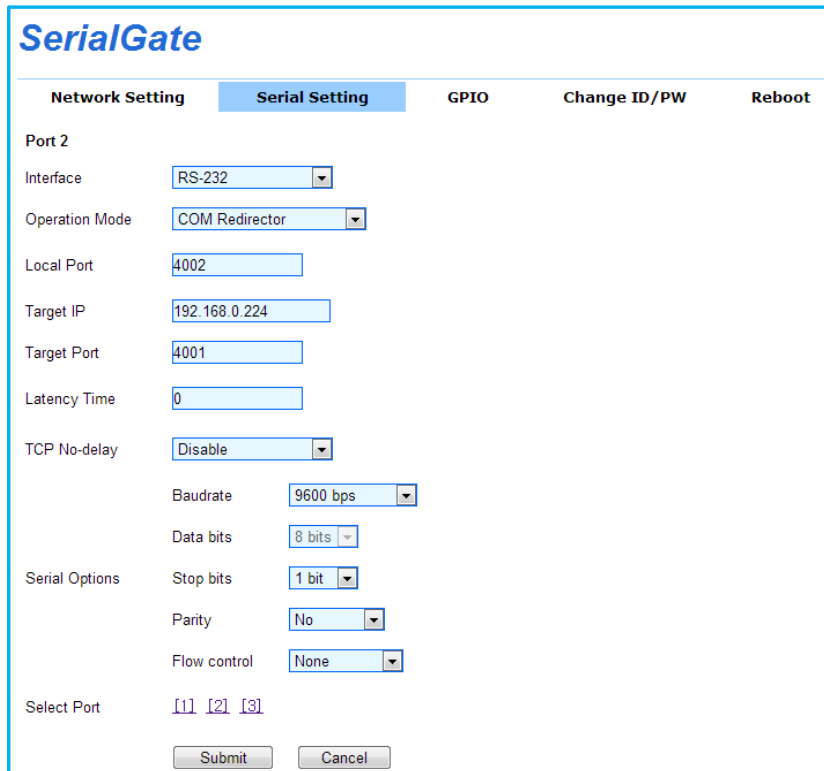
Information displayed in the 'Network Setting' page is show below.

Menu	Default	Description
Device Name	SerialGate	Displays the device name
MAC Address	(different among each devices)	Displays the MAC address (cannot be modified)
Connection Type	Static IP	Can be selected between DHCP (Dynamic IP) or Static IP
IP Address	192.168.0.223	The IP address of the current device. (If the 'Connection Type' is set to 'Static IP', enter the value manually, but if it is set to 'DHCP' IP address cannot be changed manually.)

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Subnet Mask	255.255.255.0	Configure current subnet mask. (If the 'Connection Type' is 'Static IP', enter the subnet mask manually. The dynamic IP does not require masking, thus, the value cannot be entered.)
Gateway	192.168.0.254	Configure current gateway address. (If the 'Connection Type' is 'Static IP', enter the gateway address manually. Dynamic IP does not require masking, thus, the value cannot be entered.)
DNS	168.126.63.1	Enter the address of the authoritative name server for DNS (Domain Name Service).

Serial Setting



The 'Serial Setting' display the operating environment for the RS-232/422/485 port. The 'Submit' button must be clicked in order to save the changes. To apply changed settings, the device must be rebooted. If the submit button is not clicked to save the changed settings, when the device boot next time, the changed value will not be applied.

The 'Cancel' button can be used to revert the settings back to the original state.

Information displayed in the 'Serial Setting' pages are show below.

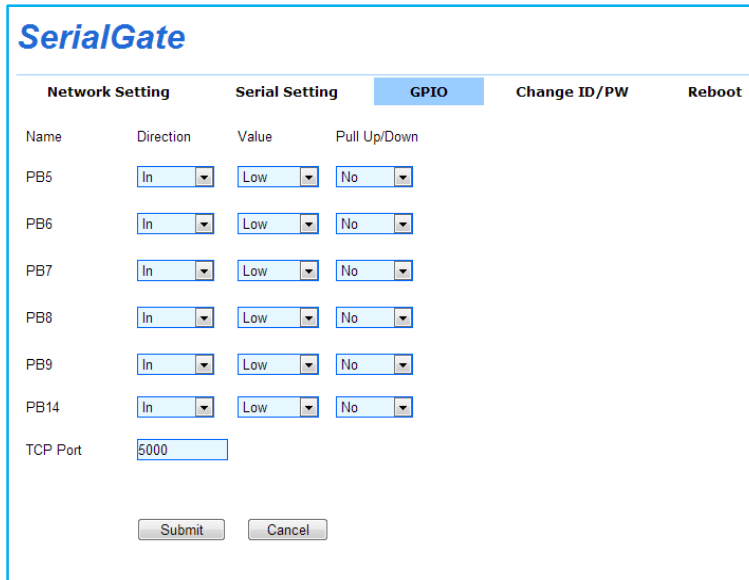
Menu	Default	Description
Operation Mode	COM Redirector	Select the operation protocol that will be applied in the serial port. COM Redirector Use the serial port of SerialGate as a virtual COM port in Windows 2000/XP/2003/Vista.

Menu	Default	Description
		<p>TCP Server SerialGate works as a socket server, waiting for the client connection on the network. Socket number for awaiting connections can be set in 'Local Port' field. After socket connection, data between socket and serial port will be transmitted.</p> <p>TCP Client SerialGate acts as a socket client in this mode. It tries to connect to the server IP address and the socket number assigned when a certain server waits for connection on the network. All data between the socket and the serial port is transferred untouched after the socket connection is established.</p> <p>UDP Server SerialGate works as a UDP server, waiting for UDP connection from the client on the network. Socket number for awaiting connections can be set in 'Local Port' field. Once a UDP packet is received to the socket that waits for the connection, the data is transmitted to the serial port. The data input from the serial port is put into UDP packets, which eventually are sent to the client.</p> <p>UDP Client When the data is input to the serial port, UDP packets are sent using the preset IP address and the socket number of the server.</p>
Interface	RS-232 RS-422 RS-485	Select the serial port interface.
Local Port	4001	Set the socket number for the port. TCP server and UDP server operation mode makes use of this port for awaiting network socket connections.
Target IP	192.168.0.224	Set the IP address of the target device used for TCP Client, UDP Client mode.
Target Port	4001	Set the port number of the target device used for TCP Client, UDP Client mode.

Menu	Default	Description
Latency Time	0	<p>This needs to be set when consecutive data from the given serial port needs to be transmitted to socket at once.</p> <p>For example, if 100 bytes of character string are to be transmitted from the serial device to a server through SerialGate, bypass is set to 0 for the latency time. Although it provides immediate sending through SerialGate, the server could be received a lot parts of divided packets.</p> <p>If the latency time is not 0, SerialGate will wait for the time and check new data. If there is new data, SerialGate repeatedly wait for the time. Otherwise, SerialGate will transfer the buffered data, but it could not run in real time.</p> <p>(Range: 0 ~ 999)</p>
Baud Rate	9600 bps	<p>Set the communication speed.</p> <p>(Options: 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 bps)</p>
Data Bits	8	Data bits are set to 8 and cannot be changed.
Stop Bits	1	Set the stop bit (Options: 1, 2)
Parity	No	Set the parity bit. (Options: No, Odd, Even)
Flow Control	None	<p>Enable hardware controlled flow control of the data</p> <p>(Option: None, RTS/CTS)</p>

GPIO Setting

From GPIO menu, GPIO related settings can be modified.

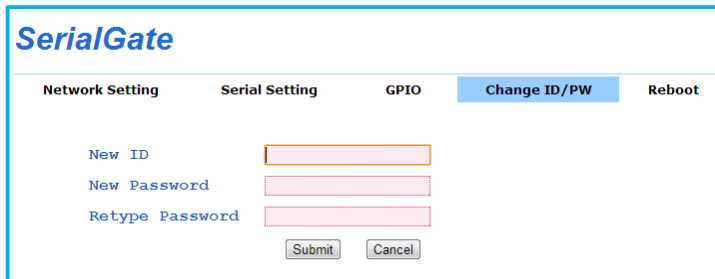


Information displayed in the 'GPIO' page is show below.

Menu	Default	Description
Direction	In	Set the direction of the GPIO. In: Set GPIO pin to receive only mode. Out: Set GPIO pin to send only mode.
Value	Low	Set the output value from the pin. Low (0): Set the output value to low (zero). High (1): Set the output value to high (one).
Pull Up / Pull Down	No	Enable using the terminating resistor. No: Disable use of the terminating resistor. Pull Up: Enable the pull up resistor. Pull Down: Enable the pull down resistor.
TCP Port	5000	By using TCP Client mode from other devices, the users can connect to SG-3011PCL and modify the configuration values or test the device. The port number to connect to this device is specified here. For more information about the commands, to modify the configuration values or testing the device, please refer to chapter 7.

Change ID/Password

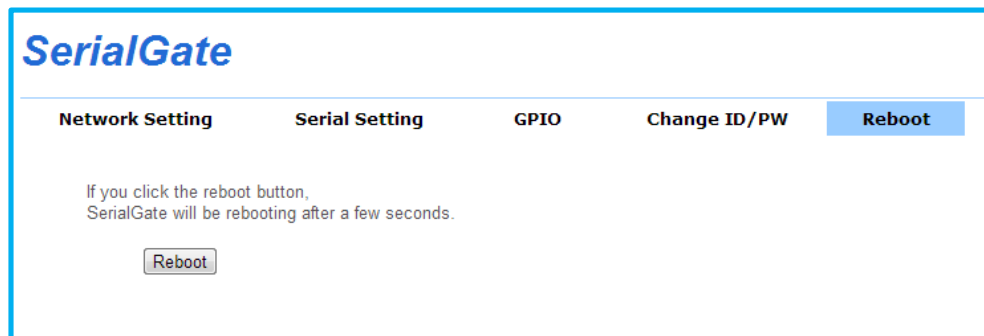
Current ID and password can be changed.



The screenshot shows the 'SerialGate' web interface with the 'Change ID/PW' tab selected. The interface includes a navigation bar with tabs for 'Network Setting', 'Serial Setting', 'GPIO', 'Change ID/PW', and 'Reboot'. The 'Change ID/PW' section contains three input fields: 'New ID' (orange border), 'New Password' (pink border), and 'Retype Password' (pink border). Below the input fields are 'Submit' and 'Cancel' buttons.

Reboot

The unit will restart. If any values are changed, click the submit button before rebooting.



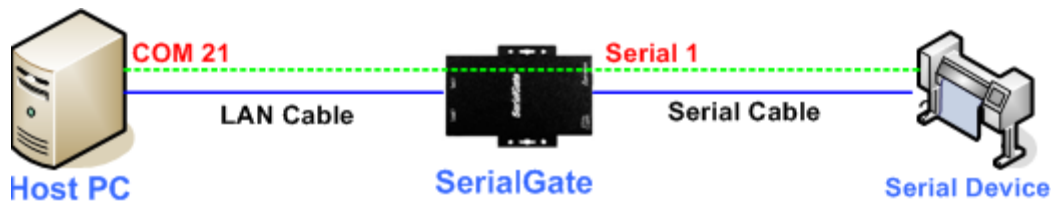
The screenshot shows the 'SerialGate' web interface with the 'Reboot' tab selected. The interface includes a navigation bar with tabs for 'Network Setting', 'Serial Setting', 'GPIO', 'Change ID/PW', and 'Reboot'. The 'Reboot' section contains a message: 'If you click the reboot button, SerialGate will be rebooting after a few seconds.' Below the message is a 'Reboot' button.

Chapter 6. Applied Examples

This chapter covers different modes commonly used in the SerialGate.

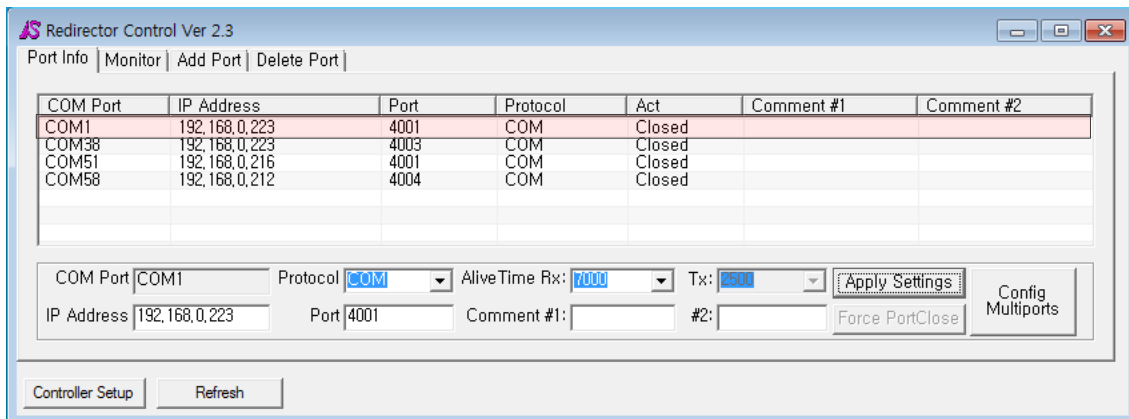
Com Port Redirector Mode

The users can use the COM port after registering the COM port in SerialGate as if it is attached directly in the PC.



Install the COM port Redirector and configure the settings as following. The COM Port Redirector can be installed from the included CD. Please refer to the manual for installing the COM Port Redirector.

In the example below, the IP address of the SerialGate is set to 192.168.0.223. It is using COM port number 1. The users can use the COM1 from the PC to access the COM port in the SerialGate.



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To use the COM port redirector installed in the PC with the SerialGate, set the operation mode to 'COM Redirector' as shown below. The local port can be different than the one shown below.

SerialGate

Network Setting **Serial Setting** **GPIO** **Change ID/PW** **Reboot**

Port 1

Interface:

Operation Mode:

Local Port:

Target IP:

Target Port:

Latency Time:

TCP No-delay:

Baudrate:

Data bits:

Serial Options: Stop bits:

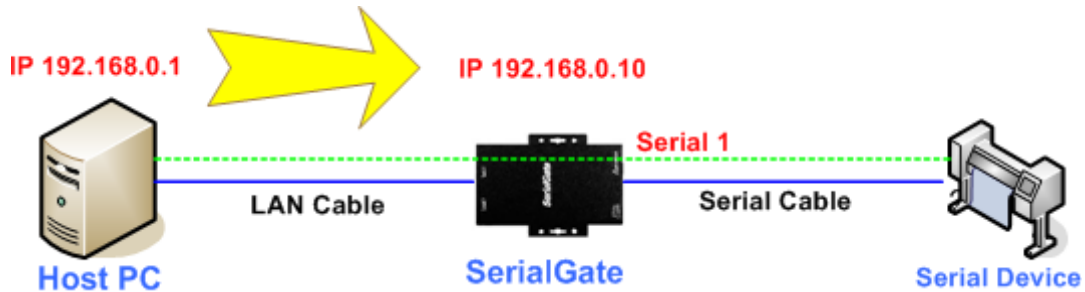
Parity:

Flow control:

Select Port: [\[1\]](#) [\[2\]](#) [\[3\]](#)

TCP_Server Mode (Connect from PC to SerialGate using TCP/IP)

From the client program in the PC, connect the first serial port of the SerialGate.



Try to connect to the SerialGate using the IP address and local port number, 4001, when connecting from a PC. As shown below, change the operation mode to 'TCP Server' and check the local port number.

Check the communication speed of a serial device to be connected to the serial port, and set the settings at the 'Serial Options' from the web manager.

SerialGate

Network Setting
Serial Setting
GPIO
Change ID/PW
Reboot

Port 1

Interface:

Operation Mode:

Local Port:

Target IP:

Target Port:

Latency Time:

TCP No-delay:

Baudrate:

Data bits:

Stop bits:

Parity:

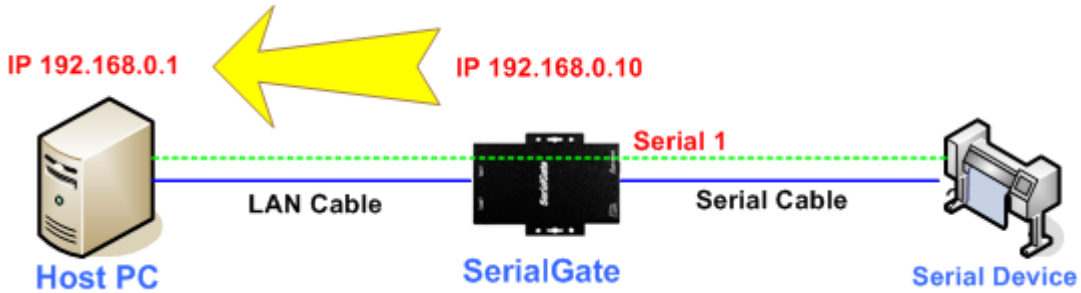
Flow control:

Serial Options

Select Port: [\[1\]](#) [\[2\]](#) [\[3\]](#)

TCP_Client Mode (Connect from SerialGate to PC using TCP/IP)

Connects SerialGate to the client program in the PC using TCP/IP methods.



Since the connection is done from the SerialGate to a PC, change the operation mode to TCP Client and register IP address and local port number of the PC that you want to connect.

Check the communication speed of the serial device connected to the serial port in the SerialGate, and set it in the “Serial Options”.

SerialGate

Network Setting
Serial Setting
GPIO
Change ID/PW
Reboot

Port 1

Interface:

Operation Mode:

Local Port:

Target IP:

Target Port:

Latency Time:

TCP No-delay:

Baudrate:

Data bits:

Stop bits:

Parity:

Flow control:

Serial Options

Select Port: [\[1\]](#) [\[2\]](#) [\[3\]](#)

Chapter 7. Appendix

Troubleshoot

In this chapter, the users can solve problems they encounter while using SG-3011PCL.

Installation problem

If the users cannot connect to the device using SG-3011PCL, check the network connection and the cable.

Check if all network cable and the RS-232/422/485 cable is connected correctly.

Check if the IP address and the port number are correct.

If the LAN port LEDs are not on or blinking as they are supposed to according to the page 11 of this manual, there may be a problem with the Ethernet cable or the port from the hub. Replace the Ethernet cable with different one. If there is a hub in the network, try connecting to different port in the hub or switch to a different hub.

Network Settings problem

When using TCP/IP connection type, check if the PC has same the IP address group as the SG-3011PCL. (Use the 'ping' command from the PC to check if it can reach the SG-3011PCL. Please refer to [Microsoft help page](#) regarding the 'ping' command.) The IP address of the SG-3011PCL must be in the same logical network as the PC. For example, the IP address of the PC is 192.189.207.3 and the sub network is 255.255.255.0. Then the IP address of the SerialGate needs to be 192.189.207.N (where N is from 1 to 254).

When SG-3011PCL is set to get the IP address from the DHCP server, the IP address may change. To avoid the problem caused from this issue, set the DHCP server to permanently issue an IP to the SG-3011PCL or set the SG-3011PCL to have a static IP address from the web manager.

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When there are IP conflict issue in the network, check if the IP address is correct in SG-3011PCL. Other device may use a same IP address.

Check if the PC and the SG-3011PCL are using the same subnet. (For example, if the subnet is set to 255.255.255.0 in SG-3011PCL, the PC should have the same value.)

If the wrong IP address is issued to the SG-3011PCL from the DHCP server, check the server side.

Windows (OS) problem

If the Windows cannot establish connection to the SerialGate, the serial device cannot be connected either. Check if the Windows can send ping to the SerialGate using the ['ping' command](#). (For example, "ping N.N.N.N" where N.N.N.N is the IP address of the SG-3011PCL).

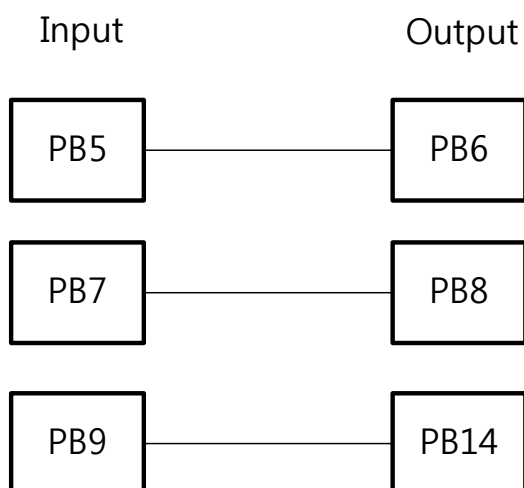
If there are any problem with the COM port Redirector installed in the PC, check if the virtual port is correctly used. The application should use the same port number as the one assigned by the Redirector.

GPIO Configuration

This section covers an example of how to connect SG-3011PCL using TCP client mode and setting GPIOs then read/write from them.

Name	Direction	Value	Pull Up/Down
PB5	In	Low	No
PB6	Out	High	No
PB7	In	Low	No
PB8	Out	High	No
PB9	In	Low	No
PB14	Out	Low	No
TCP Port	5000		

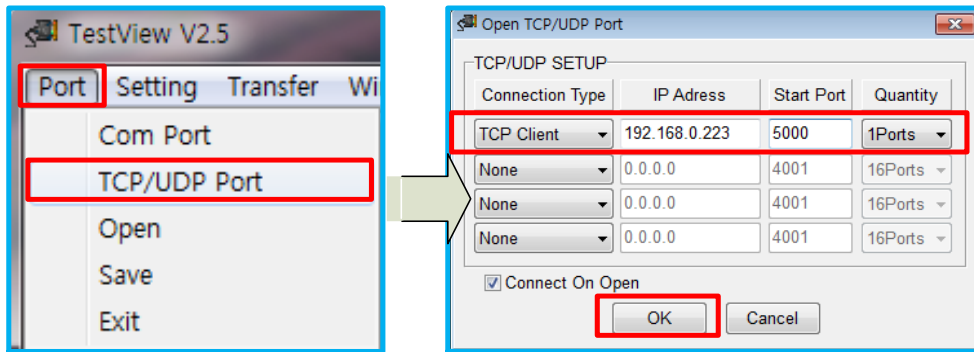
Assume that the users are using the GPIO pin as shown below. The PB5, PB7, and PB9 can be used to retrieve the output value from PB6, PB8, and PB14.



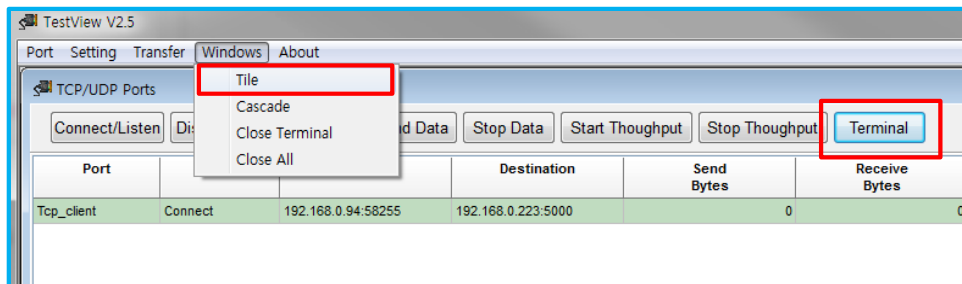
Install the TestView and run it. Select 'Port' from the menu, then click 'TCP/UDP Port'.

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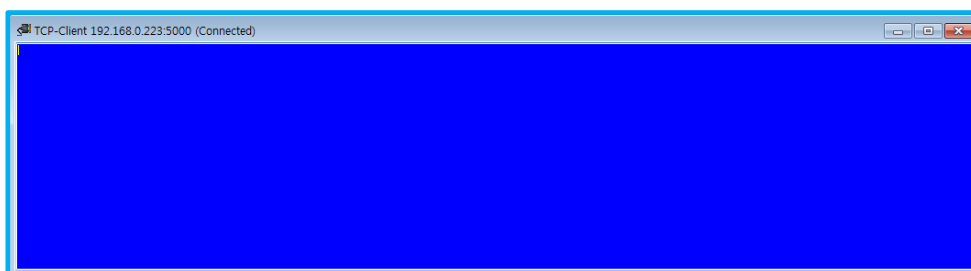
Select 'TCP Client' under connection type and enter the IP address and the port number for the SG-3011PCL as shown below. Since SG-3011PCL only have one port, select '1Ports'. (This, '1Ports', is a known typographical error which will be corrected later.)



Click the 'Terminal' button first, and click 'Windows' then 'Tile'.



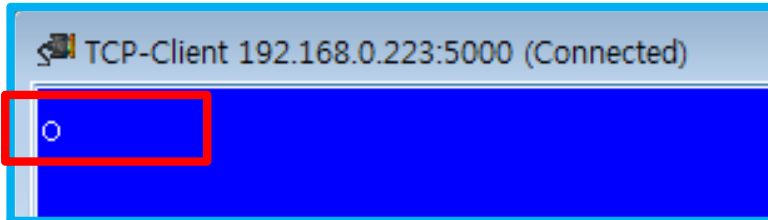
The users can enter the commands and get the values returned with the terminal window.



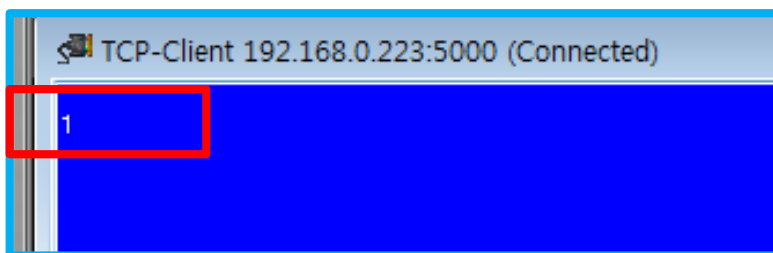
When using the commands to set the value and read from it, pin numbers are used. Each pin names corresponding to the pin numbers are as follows.

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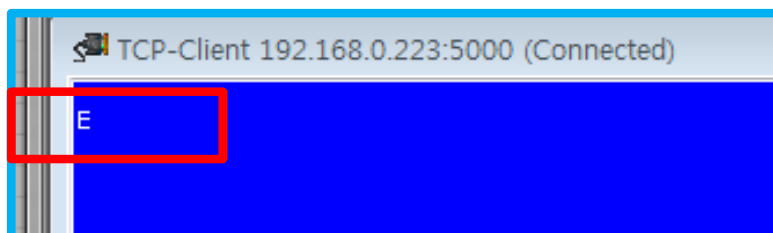
If the it need to be set as low for pin 1, use the '10.'. Command. If the above command is successfully processed, 'O' will be displayed to show OK. If the command returns an error, 'E' will be displayed.



Now that PB6 pin 1 value is set to 'high', PB5 pin 0 can output its value which is 1. When '0-' command is entered, the following value will be displayed.



If the command syntax is in wrong format, or the value is not correct, an 'E' will be displayed which stands for 'error'.

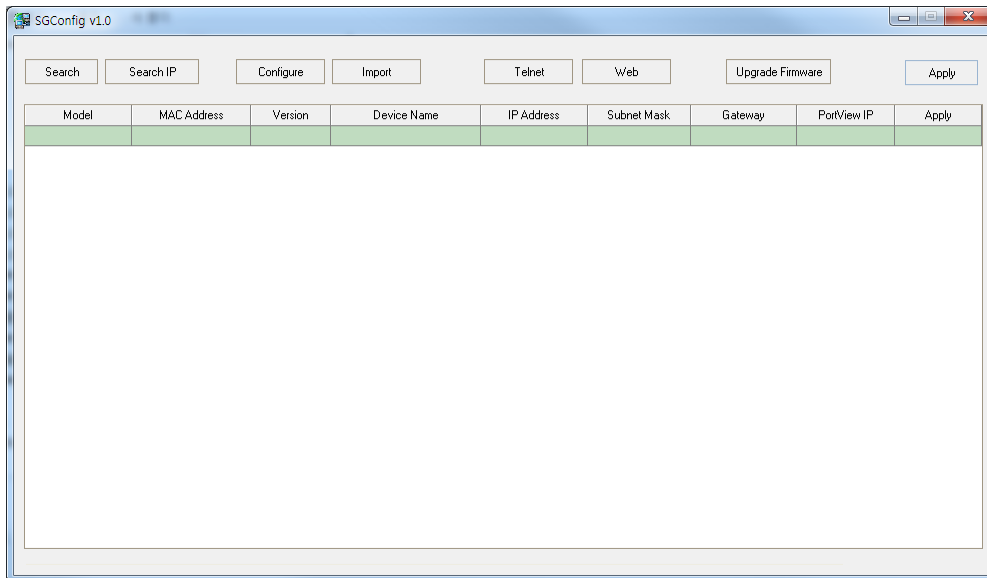


Upgrade

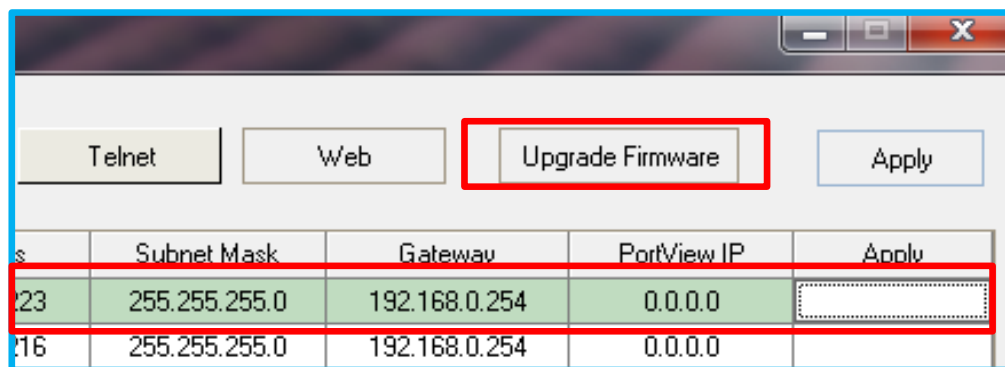
By using SGConfig utility, the users can update the firmware in the SG-3011PCL.

Please follow the instruction below to update the firmware.

1. Run SGConfig_v1.0.exe

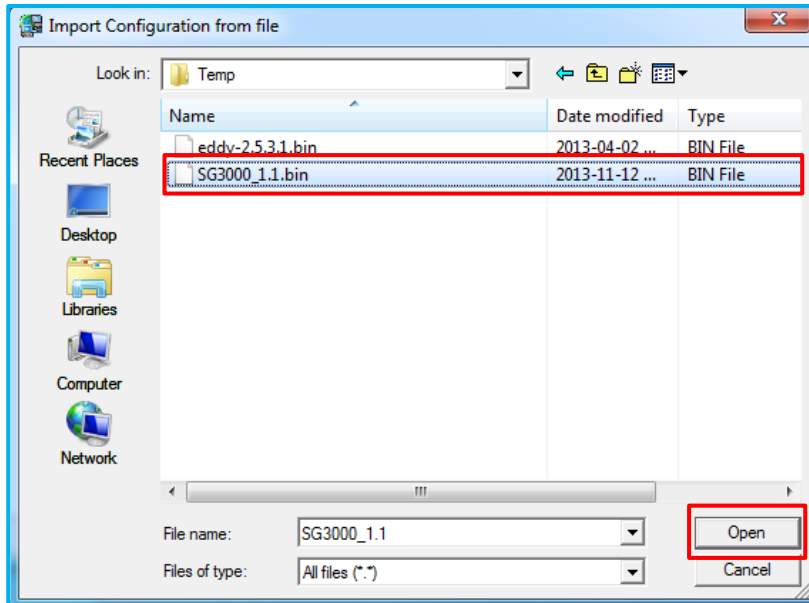


2. Click the 'Search' button and select the device you wish to update the firmware. Then, click the 'Upgrade Firmware' button.

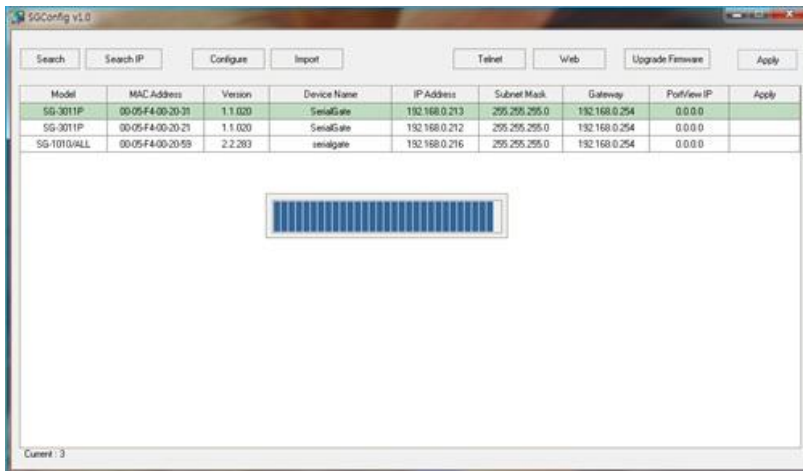


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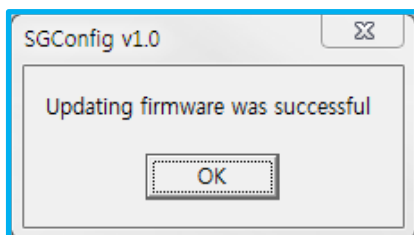
3. Browse through the directory and select the firmware file.



4. After clicking the 'Open' button, a progress bar will appear as shown below.



5. When updating process is complete, the following window will display.



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6. Press and hold the reset switch from the device for less than 3 seconds to restart the device.

7. Use the SGConfig utility and use the 'Search' button to check the information of the device. The firmware version will be displayed under the 'Version' column.

Model	MAC Address	Version	Device Name	IP Address	Subnet Mask	Gateway	PortView IP	Apply
SG-3011P	00-05-F4-00-20-31	1.1.020	SerialGate	192.168.0.213	255.255.255.0	192.168.0.254	0.0.0.0	
SG-3011P	00-05-F4-00-20-21	1.1.020	SerialGate	192.168.0.212	255.255.255.0	192.168.0.254	0.0.0.0	
SG-1010/ALL	00-05-F4-00-20-59	2.2.283	serialgate	192.168.0.216	255.255.255.0	192.168.0.254	0.0.0.0	

Product Specification

Communication (Ethernet)

Ethernet Port	1 port: 10/100Mbps RJ-45
Acquiring Network Address	Static IP, DHCP (Dynamic IP)

Communication (Serial)

Connector	Pitch 2.54mm Pin Header
Serial Interface	RS-232/422/485, UART TTL
Speed	Max 230.4kbps
Signals	RS-232 : TxD, RxD, DTR, DSR, CTS, RTS, DCD, RI RS-422 : TX+, TX-, RX+, RX- RS-485 : TRXD+, TRXD- UART TTL : TxD, RxD, RTS, CTS

Hardware (Electrical)

Power Supply	5 VDC Adapter Power Consumption 1.2 W
ESD Protection	± 15kV ESD (HBM) Protection
LED	Ready, Serial Communication Traffic Indicator RJ-45 Connector: Speed (Green), Link/Activity (Yellow)

Hardware (Physical)

Dimension	46(W) x 68(L) x 15(H) mm
Weight	20.7g
Operating Temperature	0 ~ 70°C / -40 ~ 85°C (depends on models)
Humidity	5 ~ 95% Non-Condensing

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Reset Button

Pressed for	Action	Result
Less than 3 seconds	Press and hold then release after required time period	Restarts the SerialGate
3 seconds or more		Reverts all settings to the factory default values.

Software

Protocol	TCP, UDP, ICMP, DHCP, HTTP
Utility	PortView
Configuration by	Web browser, SGConfig

Ordering Information

Model Name	Description
SG-1010/232-RJ	1 x Serial RJ-45 Port (RS232 only)
SG-1010/Combo-RJ	1 x Serial RJ-45 Port (RS422/RS485 selectable)
SG-1010/ALL	1 x Serial DE-9 or T/B Port (RS232/RS422/RS485 selectable)
SG-1010W/ALL	1 x Serial DE-9 or T/B Port (RS232/RS422/RS485 selectable) Ethernet or Wi-Fi selectable
SG-1020/232-RJ	2 x Serial RJ-45 Ports (RS232 only)
SG-1020/Combo-RJ	2 x Serial RJ-45 Ports (RS422/RS485 selectable)
SG-1020/ALL	2 x Serial DE-9 or T/B Ports (RS232/RS422/RS485 independently selectable by each ports)
SG-1020W/ALL	2 x Serial DE-9 or T/B Ports (RS232/RS422/RS485 independently selectable by each ports) Ethernet or Wi-Fi selectable
SG-1040/232 Series	4 x Serial RJ-45 Ports (RS232 only)
SG-1040/Combo Series	4 x Serial RJ-45 Ports (RS422/RS485 independently selectable by each ports)
SG-1080/232 Series	8 x Serial RJ-45 Ports (RS232 only)
SG-1080/Combo Series	8 x Serial RJ-45 Ports (RS422/RS485 independently selectable by each ports)
SG-1160/ALL	16 x Serial RJ-45 Ports (RS232/RS422/RS485 independently selectable by each ports)
SG-3011DCL/232	1 x Serial DE-9 Port (RS232 only)
SG-3011PCL	1 x Serial Pin Header (RS232/RS422/RS485/UART TTL selectable)