


Step 2: If the device is a network card and the switch is in the wiring closet, attach the other end of the cable segment to a modular wall outlet that is connected to the wiring closet. (See the section "Network Wiring Connections.") Otherwise, attach the other end to an available port on the switch.

Make sure each twisted pair cable does not exceed 100 meters (328 ft) in length.

 Avoid using flow control on a port connected to a hub unless it is actually required to solve a problem. Otherwise back pressure jamming signals may degrade overall performance for the segment attached to the hub.

Step 3: As each connection is made, the Link LED (on the switch) corresponding to each port will light green (1000 Mbps) or amber (100 Mbps) to indicate that the connection is valid.

#### NETWORK WIRING CONNECTIONS

Today, the patch-down block is an integral part of many of the newer equipment racks. It is actually part of the patch panel. Instructions for making connections in the wiring closet with this type of equipment follows.

Step 1: Attach one end of a patch cable to an available port on the switch, and the other end to the patch panel.

Step 2: If not already in place, attach one end of a cable segment to the back of the patch panel where the punch-down block is located, and the other end to a modular wall outlet.

Step 3: Label the cables to simplify future troubleshooting. See "Cable Labeling and Connection Records".

Figure 17: Network Wiring Connections


## 3 Configuration

This chapter describes all of the basic network configuration tasks which include the Ports, Layer 2 network protocol (e.g. VLANs, QoS, IGMP, ACLs, and PoE, etc.) and any setting of the Switch.

### 3.1 Port

The section describes how to configure the Port detail parameters of the switch. You can use the Port configuration to monitor, enable, or disable the ports of the switch.

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 The GS-2310P features SFP/RJ45 combo ports. Please note that SFP is always favored over RJ45. Hence, the RJ45 port is only available when there is no link on the corresponding SFP port.

#### 3.1.1 Configuration

This chapter describes how to view the current port configuration and how to configure ports to non-default settings, including

Linkup/Linkdown

Speed (Current and configured)

Flow Control (Current Rx, Current Tx and Configured)

Maximum Frame Size

Excessive Collision Mode

Power Control.

Web Interface

To configure a Port in the web interface:

1. Click Configuration, Port, then Configuration
2. Specify the Speed Configured, Flow Control, Maximum Frame size, Excessive Collision mode, and Power Control.
3. Click Apply.

Figure 3-1.1: The Port Configuration (GS-2310P)

Port Configuration <span style="float: right;">Refresh</span>									
Port	Link	Speed		Flow Control			Maximum Frame Size	Excessive Collision Mode	Power Control
		Current	Configured	Current Rx	Current Tx	Configured			
*			<>			<input type="checkbox"/>		<>	<>
1	<span style="color: green;">●</span> 1Gfdx	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
2	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
3	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
4	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
5	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
6	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
7	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
8	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
9A	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
10A	<span style="color: red;">●</span> Down	Auto	Auto	×	×	<input type="checkbox"/>	9600	Discard	Disabled
9B	<span style="color: red;">●</span> Down	Auto	Auto				9600		
10B	<span style="color: red;">●</span> Down	Auto	Auto				9600		

Apply    Reset

Parameter description:

Port:

The logical port number for this row.

Link:

The current link state is displayed graphically. Green indicates the link is up and red that it is down.

Current Link Speed:

Provides the current link speed of the port.

Configured Link Speed:

Select any available link speed for the given switch port.

Auto Speed selects the highest speed that is compatible with a link partner.

Disabled disables the switch port operation.

Flow Control:

When Auto Speed is selected on a port, this section indicates the flow control capability that is advertised to the link partner. When a fixed-speed setting is selected, that is what is used. The Current Rx column indicates whether pause frames on the port are obeyed, and the Current Tx column indicates whether pause frames on the port are transmitted. The Rx and Tx settings are determined by the result of the last Auto-Negotiation.

Check the configured column to use flow control. This setting is related to the setting for Configured Link Speed.

Maximum Frame Size:

Enter the maximum frame size allowed for the switch port, including FCS.

Excessive Collision Mode:

Configure port transmit collision behavior.

Discard: Discard frame after 16 collisions (default).

Restart: Restart backoff algorithm after 16 collisions.

Power Control:

The Usage column shows the current percentage of the power consumption per port. The Configured column allows for changing the power savings mode parameters per port.

## 3 Configuration

Disabled: All power savings mechanisms disabled.

ActiPHY: Link down power savings enabled.

PerfectReach: Link up power savings enabled.

Enabled: Both link up and link down power savings enabled.

Buttons:

Save – Click to save changes.

Reset – Click to undo any changes made locally and revert to previously saved values.

Refresh – Refresh the ports link status manually

### 3.1.2 Port Description

This section describes how to configure the port's alias or any descriptions for the ports identity. It provides user the option to enter an alphanumeric string describing the full name and/or additional information, eg the usage of the port.

Web Interface

To enter a Port Description in the web interface:

1. Click Configuration, Port, then Port Description
2. Specify the detail port alias or description.
3. Click Apply.

Figure 3-1.2: The Port Description (GS-2310P)

Port	Description
1	
2	
3	
4	
5	
6	
7	
8	
9A	
10A	
9B	
10B	

Apply Reset

Parameter description:

Port:

The logical port number for this row.

Description:

The description of device ports must not include " # % & ' + \.

Buttons

Apply – Click to save changes.

Reset – Click to undo any changes made locally and revert to previously saved values.

### 3.1.3 Traffic Overview

This section describes the port statistics information and provides an overview of general traffic statistics for all switch ports.

Web Interface

To display the Port Statistics Overview in the web interface:

1. Click Configuration, Port, then Traffic Overview
2. If you want to auto-refresh, you need to activate "Auto-refresh".
3. Click "Refresh" to refresh the port statistics or click "Clear" to clear all information.

Figure 3-1.3: The Port Statistics Overview

Port	Packets		Bytes		Errors		Drops		Filtered
	Received	Transmitted	Received	Transmitted	Received	Transmitted	Received	Transmitted	Received
1	4983	4107	983354	2622602	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0

Parameter description:

Port

The logical port for the settings contained in the same row.

Packets

The number of received and transmitted packets per port.

Bytes

The number of received and transmitted bytes per port.

Errors

The number of frames received in error and the number of incomplete transmissions per port.

Drops

The number of frames discarded due to ingress or egress congestion.

Filtered

The number of received frames filtered by the forwarding

Auto-refresh

Activate the auto-refresh to refresh the information automatically.

Refresh

Refresh the Port Statistics information.

Clear

Clean up all Port Statistics.

### 3.1.4 Detailed Statistics

The section describes how to provide detailed traffic statistics for a specific switch port. Use the port select box to select which switch port details to display.

The displayed counters are the totals for receive and transmit, the size counters for receive and transmit, and the error counters for receive and transmit.

Web Interface

To display the per Port detailed Statistics Overview in the web interface:

1. Click Configuration, Port, then Detailed Port Statistics
2. Scroll the Port Index to select which port you want to show the detailed Port statistics overview.
3. If you want to auto-refresh the information then you need to activate "Auto-refresh".
4. Click " Refresh" to refresh the port detailed statistics or click "Clear" to clear all information.

Figure 3-1.4: The Detailed Port Statistics

Detailed Port Statistics Port 1			
Port 1		Auto-refresh <input type="checkbox"/>	Refresh <input type="button" value="Refresh"/>
Clear <input type="button" value="Clear"/>			
Receive Total		Transmit Total	
Rx Packets	7637	Tx Packets	10688
Rx Octets	1518566	Tx Octets	3337459
Rx Unicast	7183	Tx Unicast	4974
Rx Multicast	29	Tx Multicast	5714
Rx Broadcast	425	Tx Broadcast	0
Rx Pause	0	Tx Pause	0
Receive Size Counters		Transmit Size Counters	
Rx 64 Bytes	4761	Tx 64 Bytes	72
Rx 65-127 Bytes	200	Tx 65-127 Bytes	5380
Rx 128-255 Bytes	86	Tx 128-255 Bytes	2866
Rx 256-511 Bytes	2588	Tx 256-511 Bytes	97
Rx 512-1023 Bytes	2	Tx 512-1023 Bytes	2139
Rx 1024-1526 Bytes	0	Tx 1024-1526 Bytes	134
Rx 1527- Bytes	0	Tx 1527- Bytes	0
Receive Queue Counters		Transmit Queue Counters	
Rx Q0	7637	Tx Q0	0
Rx Q1	0	Tx Q1	0
Rx Q2	0	Tx Q2	0
Rx Q3	0	Tx Q3	0
Rx Q4	0	Tx Q4	0
Rx Q5	0	Tx Q5	0
Rx Q6	0	Tx Q6	0
Rx Q7	0	Tx Q7	10688

Parameter description:

Auto-refresh:

To activate the auto-refresh to refresh the Port Statistics information automatically.

Upper left scroll bar:

To scroll which port to display the Port statistics with "Port-0", "Port-1"...

Receive Total and Transmit Total

Rx and Tx Packets:

The number of received and transmitted (good and bad) packets.

Rx and Tx Octets:

The number of received and transmitted (good and bad) bytes. Includes FCS, but excluding framing bits.

Rx and Tx Unicast

The number of received and transmitted (good and bad) unicast packets.

Rx and Tx Multicast:

The number of received and transmitted (good and bad) multicast packets.

Rx and Tx Broadcast:

The number of received and transmitted (good and bad) broadcast packets.

Rx and Tx Pause:

A count of the MAC Control frames received or transmitted on this port that have an opcode indicating a PAUSE operation.

Receive and Transmit Size Counters

The number of received and transmitted (good and bad) packets split into categories based on their respective frame sizes.

Receive and Transmit Queue Counters

The number of received and transmitted packets per input and output queue.

Receive Error Counters

Rx Drops:

The number of frames dropped due to lack of receive buffers or egress congestion.

Rx CRC/Alignment:

The number of frames received with CRC or alignment errors.

Rx Undersize:

The number of short 1 frames received with valid CRC.

Rx Oversize:

The number of long 2 frames received with valid CRC.

Rx Fragments:

The number of short 1 frames received with invalid CRC.

Rx Jabber:

The number of long 2 frames received with invalid CRC.

Rx Filtered:

The number of received frames filtered by the forwarding process.

Short frames are frames that are smaller than 64 bytes.

Long frames are frames that are longer than the configured maximum frame length for this port.

Transmit Error Counters

Tx Drops:

The number of frames dropped due to output buffer congestion.

Tx Late/Exc. Coll.:

The number of frames dropped due to excessive or late collisions.

Auto-refresh:

To activate the auto-refresh to refresh the Queuing Counters automatically.

Refresh

Refresh the detailed port statistics manually.

Clear

Clear the detailed port statistics manually.

### 3.1.5 QoS Statistics

The section describes that switch could display the QoS detailed Queuing counters for a specific switch port. for the different queues for all switch ports.

Web Interface

To display the Queuing Counters in the web interface:

1. Click Configuration, Port, then QoS Statistics
2. If you want to auto-refresh the information then you need to activate "Auto-refresh".
3. Click " Refresh" to refresh the Queuing Counters or click "Clear" to clear all information.

Figure 3-1.5: The Queuing Counters Overview

Port	Q0		Q1		Q2		Q3		Q4		Q5		Q6		Q7		
	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	
1	7243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6178	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Parameter description:

Port:

The logical port for the settings contained in the same row.

Qn:

Qn is the Queue number, QoS queues per port. Q0 is the lowest priority queue.

Rx/Tx:

The number of received and transmitted packets per queue.

Auto-refresh:

To activate the auto-refresh to refresh the Queuing Counters automatically.

Refresh

Refresh the Queuing Counters manually.

Clear

Clear the Queuing Counters manually.

### 3.1.6 EEE

EEE is a power saving option that reduces the power usage when there is very low traffic utilization (or no traffic).

EEE works by powering down circuits when there is no traffic. When a port gets data to be transmitted all circuits are powered up. The time it takes to power up the circuits is named wakeup time. The default wakeup time is 17 us for 1Gbit links and 30 us for other link speeds. EEE devices must agree upon the value of the wakeup time in order to make sure that both the receiving and transmitting device has all circuits powered up when traffic is transmitted. The devices can exchange information about the devices wakeup time using the LLDP protocol.

For maximizing the power saving, the circuit isn't started at once transmit data are ready for a port, but is instead queued until 3000 bytes of data are ready to be transmitted. For not introducing a large delay in case that data less than 3000 bytes shall be transmitted, data are always transmitted after 48 us, giving a maximum latency of 48 us + the wakeup time.



If desired it is possible to minimize the latency for specific frames, by mapping the frames to a specific queue (done with QOS), and then mark the queue as an urgent queue. When an urgent queue gets data to be transmitted, the circuits will be powered up at once and the latency will be reduced to the wakeup time.

#### Web Interface

To configure EEE in the web interface:

1. Click Configuration, Port, then EEE
2. To evoke which port wants to enable the EEE function.
3. EEE Urgent Queues level and the range from 1 to 8. the queue will postpone the transmission until 3000 bytes are ready to be transmitted.
4. Click Apply.

Figure: EEE Configuration

Port	EEE Enabled	EEE Urgent Queues							
		1	2	3	4	5	6	7	8
*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply Reset

Parameter description:

Port:

The switch port number of the logical EEE port.

EEE Enabled:

Controls if EEE is enabled for this switch port.

EEE Urgent Queues:

Queues set will activate transmission of frames as soon as any data is available. Otherwise the queue will postpone the transmission until 3000 bytes are ready to be transmitted.

Buttons:

Apply – Click to save changes.

Reset – Click to undo any changes made locally and revert to previously saved values.

### 3.1.7 SFP Information

The section describes the SFP module information which you will see when you connect an SFP module to the switch. The information includes: Connector type, Fiber type, wavelength, baud rate and Vendor OUI etc.

#### Web Interface

To display the SFP information in the web interface:

1. Click Configuration, Port, then SFP Information

Figure 3-1.6: The SFP Information Overview (GS-2310P)

## 3 Configuration

SFP Information for Port 9B	
Connector Type	none
Fiber Type	none
Tx Central Wavelength	none
Bit Rate	none
Vendor OUI	none
Vendor Name	none
Vendor P/N	none
Vendor Revision	none
Vendor Serial Number	none
Date Code	none
Temperature	none
Vcc	none
Mon1 (Bias)	none
Mon2 (TX PWR)	none
Mon3 (RX PWR)	none

Parameter description:

Connector Type:

Display the connector type, for instance, UTP, SC, ST, LC and so on.

Fiber Type:

Display the fiber mode, for instance, Multi-Mode, Single-Mode.

Tx Central Wavelength:

Display the fiber optical transmitting central wavelength, for instance, 850nm, 1310nm, 1550nm and so on.

Baud Rate:

Display the maximum baud rate of the fiber module supported, for instance, 10M, 100M, 1G and so on.

Vendor OUI:

Display the Manufacturer's OUI code which is assigned by IEEE.

Vendor Name:

Display the company name of the module manufacturer.

Vendor P/N:

Display the product name of the naming by module manufacturer.

Vendor Rev (Revision):

Display the module revision.

Vendor SN (Serial Number):

Show the serial number assigned by the manufacturer.

Date Code:

Show the date this SFP module was made.

Temperature:

Show the current temperature of SFP module.

Vcc:

Show the working DC voltage of SFP module.

Mon1(Bias) mA:

Show the Bias current of SFP module.

Mon2(TX PWR):