

24-PORT POE+ WEB-MANAGED GIGABIT ETHERNET SWITCH WITH 4 SFP COMBO PORTS **USER MANUAL**

Model 561372



INT-561372-01-UM-1013

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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1. Introduction

1.1 Product Overview

This switch is a 24-port 10/100/1000M PoE+ (with four Combo SFP ports) Rackmount Web- Smart Switch. It supports the IEEE 802.3at Power over Ethernet standard, with a maximum of 390 watts power consumption per system. The switch also provides exceptionally smart web management features, such as VLAN, QoS, RSTP, IGMP Snooping, LACP, IEEE 802.1X and Storm Control.

The switch is a standard 19" rackmount design to fit into the rack environment. With these features, the switch is a superb choice for a medium or large network environment to strengthen its network connection and efficiency.

1.2 General Features

- Provides power and data connection for up to 24 PoE network devices
- Save installation costs by delivering data and power over existing network cables
- 10/100/1000 Mbps auto-sensing ports automatically detect optimal network speeds
- Four small form-factor pluggable GBIC module slots (SFP)
- IEEE 802.3at/af-compliant RJ45 PoE/PoE+ output ports
- Power output up to 30 watts per port*
- PoE power budget of 430 watts
- Supports IEEE 802.3at and IEEE 802.3af-compliant PoE devices (wireless access points, VoIP phones, IP cameras)
- Supports IEEE 802.3at/af detection and short circuit, overload and high-voltage protection
- All RJ45 ports equipped with Auto-MDIX and auto-negotiation support
- Web-based configuration
- Supports SNMP management
- Supports VLAN (tag-based and port-based)
- Supports link aggregation (trunking)
- Supports bandwidth control per port
- Supports port mirroring
- Supports two types of QoS: IEEE 802.1p and DSCP
- Broadcast storm control with multicast packet rate settings
- Supports jumbo frames up to 9.6 kBytes
- Supports Rapid Spanning Tree/Spanning Tree Protocol

- Store and forward switching architecture
- Full/half duplex operation
- IEEE 802.3x flow control for full duplex
- Supports 8k MAC address entries
- 500 kBytes buffer memory
- LEDs for power, link/activity and PoE
- Two high-volume cooling fans ensure perfect ventilation
- Includes 19" rackmount brackets
- Three-Year Warranty

1.4 Package Contents

Before you start to install this switch, verify your package contains the following items:

- Switch
- Power cord
- User manual on CD
- Rackmount kit with 8 screws

2. Hardware Description

This section primarily presents the hardware of the switch, physical dimensions, appearance, front panel, rear panel and LED indicators.

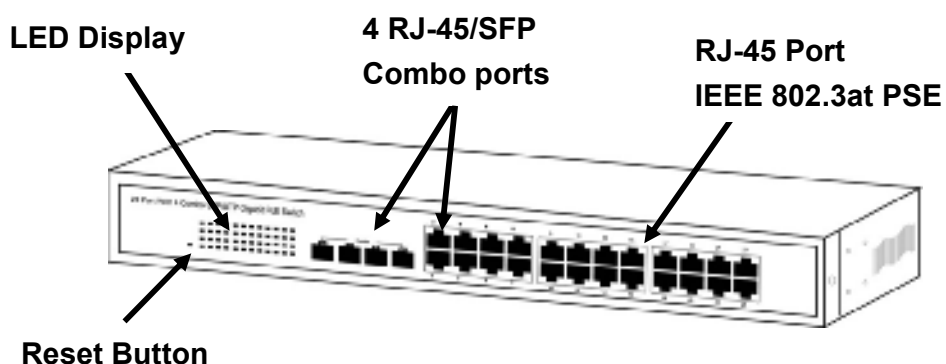
2.1 Dimensions

45 × 440 × 330 mm (H × W × D)

2.2 Appearance & Front Panel

The front panel of the switch consists of 24 gigabit RJ45 ports. Four of the gigabit RJ45 ports (Ports 1–4) are in combo with the four gigabit SFP open slots. The LED Indicators are also located on the front panel.

Appearance



Front Panel



Note 1: The SFP ports are shared with normal RJ45 ports 1, 2, 3 and 4. For example: The RJ45 Port 1 can not be used when SFP Port 1 is linked to a device.

Note 2: Press the Reset button for 5 seconds and the system configuration will be reset to the default settings.

2.3 LED Indicators

The LED Indicators present real-time information of systematic operation status. This table provides description of LED status and the meaning.

Table 1-1 LED Indicators

LED	Status	Description
Power	On	Power on
	Off	Switched to Off or disconnected from power source
Link / ACT	On	Link
	Flashing	Data activating
	Off	No device is attached
PoE	On	Port is linked to powered device
	Off	No powered device is connected

2.4 Rear Panel

The 3-pronged power plug is on the rear panel of the switch as shown as below. This is reserved for AC power input.



2.5 Hardware Installation

The switch is typically mounted in a 19" rack, installed in an IT room or other secured place. Make sure all the power cables, Ethernet cables, mounting screws and such are prepared and installed as described below, including clearance for adequate ventilation.

Ports 1–24 are copper ports, requiring UTP/STP cable. These ports are also PoE ports, requiring CAT 5/5e or above for the PoE application.

Ports 1–4 are also the combo SFP ports.

Ethernet cable requirements

The wiring cable types for data transmission are as below.

10 Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable, EIA/TIA-568 100-ohm (max. 100m)

100 Base-TX: 2-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (max. 100m)

1000 Base-T: 4-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (max. 100m)

The wiring cable types for data transmission and power delivery in any speed should be Cat5 or above.

SFP Installation

When using the SFP ports, make sure the SFP types are compatible in terms of transmission distance, wavelength and fiber cable can meet your request.

When connecting an SFP transceiver, plug in the SFP fiber transceiver first. The SFP transceiver has two plugs for fiber cable: one is TX (transmit); the other is RX (receive). Cross-connect the transmit channel at each end to the receive channel at the opposite end.

Rackmount Installation

Attach the brackets to the device using the screws provided in the rackmount kit.

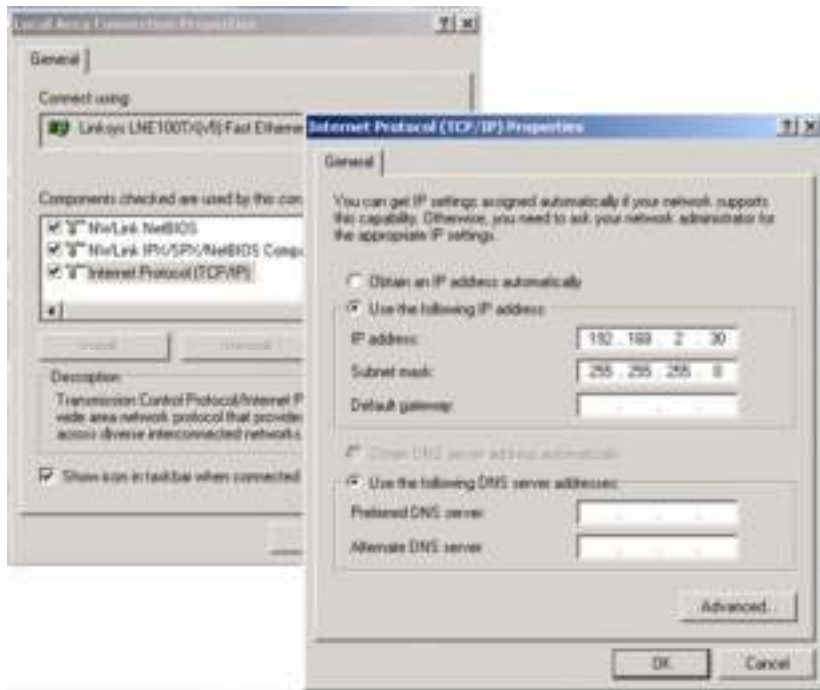
Mount the device in a 19" rack using four rackmounting screws provided by the rack manufacturer.

3. Preparation for Web Interface

The Web management page allows you to use a standard Web browser — such as Microsoft Internet Explorer, Google Chrome or Mozilla Firefox — to configure and interrogate the switch from anywhere on the network.

Before you attempt to use the Web user interface to manage switch operation, verify that your switch is properly installed on your network and that every PC on this network can access the switch via the Web browser.

1. Verify that your network interface card (NIC) is operational, and that your operating system supports the TCP/IP protocol.
2. Power on the switch and connect your computer to the switch.
3. The switch default IP address is 192.168.2.1. The switch and the connected PC(s) should locate within the same IP subnet.
4. Change your computer's IP address to 192.168.2.XX or another IP address that is located in the 192.168.2.x subnet. (For example: IP address = 192.168.2.30; subnet mask = 255.255.255.0)



Launch the Web browser and log in.

5. Launch the Web browser on the PC.
6. Enter "http://192.168.2.1" (or the IP address of the switch), then press <Enter>.
7. The login screen will appear next.
8. Key in the password. Default password is no password. Click **Apply**.

Login Screen

The factory default password is 1234: Just click **Apply** to log in directly.

Please enter password to login

Password:	<input type="password"/>
-----------	--------------------------



Once the login is complete, the interface displays "Password successfully entered."

Password Successfully Entered

Note: To help ensure your switch's security, go to the System Configuration page and set up a new password.

Below is the main screen. The left side shows the function list and the right side shows the configuration parameters.

**INTELLINET**
NETWORK SOLUTIONS

24-Port PoE+ Web-Managed Gigabit Ethernet
Switch with 4 SFP Combo Ports

Configuration
System
Configuration
Status
Backup
Factory & Reset
Power over Ethernet
Data Flow
Switch Control

Monitoring
Statistics Overview
Detailed Statistics
Port Status
Port P Status
ICMP Status
Security
Logs

Maintenance
Warm Restart
Factory Default
Reformat L2/L3
Configuration File Transfer
Logout

System Configuration

MAC Address	90-83-c6-13-15-5a
SW Version	024 V1.200.14
HW Version	1.0
Active IP Address	192.168.2.1
Active Subnet Mask	255.255.255.0
Active Gateway	192.168.2.254
DHCP Server	0.0.0.0
Leave Time Left	0 sec

DHCP Enabled

Fallback IP Address	192.168.2.1
Fallback Subnet Mask	255.255.255.0
Fallback Gateway	192.168.2.254
Management VLAN	1
Name	INTELLINET
Password	*****
Security Timeout (sec)	0
SNMP enabled	0
SNMP Trap destination	0.0.0.0
SNMP Read Community	public
SNMP Write Community	private
SNMP Trap Community	public

Troubleshooting

If you can't log in to the switch, the following steps can help you to identify the problem.

1. Switch to DOS command mode and enter "ipconfig" to check the NIC setting. Enter "ping 192.168.2.1" to verify a normal response time.
2. Check the security and firewall settings of your computer.
3. Try a different Web browser.

4. Web UI Configuration

This part instructs you how to set up and manage the switch through the Web user interface.

4.1 Configuration

This section shows how to configure the switch settings.

4.1.1 System Configuration

What follows is system configuration information.

System Configuration

MAC Address	00-03-ce-13-13-5e
S/W Version	G24 V120814
H/W Version	1.0
Active IP Address	192.168.2.1
Active Subnet Mask	255.255.255.0
Active Gateway	192.168.2.254
DHCP Server	0.0.0.0
Lease Time Left	0 secs

- MAC Address: Displays the unique hardware address assigned by the manufacturer (default).
- S/W Version: Displays the switch's firmware version.
- H/W Version: Displays the switch's hardware version.
- Active IP Address: The current active IP address of the switch.
- Active Subnet mask: The current active subnet mask of the IP address.
- Active Gateway: The current active gateway of the switch.
- DHCP Server: The IP of the DHCP server. Displays after DHCP Client is enabled.
- Lease Time Left: Display after DHCP Client is enabled.

DHCP Enabled	<input type="checkbox"/>
Fallback IP Address	192.168.2.1
Fallback Subnet Mask	255.255.255.0
Fallback Gateway	192.168.2.254
Management VLAN	1
Name	*****
Password	●●●●●●●●
Inactivity Time out (secs)	0
SNMP enabled	<input checked="" type="checkbox"/>
SNMP Trap destination	0.0.0.0
SNMP Read Community	public
SNMP Write Community	private
SNMP Trap Community	public

- DHCP Enabled: Click the box to enable DHCP Client mode.
- Fallback IP address: Manually assign the IP address that the network is using. The default IP is 192.168.2.1.
- Fallback Subnet Mask: Assign the subnet mask to the IP address.
- Fallback Gateway: Assign the network gateway for an industrial switch. The default gateway is 192.168.2.254.
- Management VLAN: ID of a configured VLAN (1-4094) through which you can manage the switch. By default, all ports on the switch are members of VLAN 1. However, if the management VLAN is changed, the management station must be attached to a port belonging to this VLAN.
- Name: Enter the new user name information.
- Password: Enter the new password (the default value is no password).
- SNMP Enabled: Enables or disables SNMP on the switch. Supports SNMP version 1 and 2c management clients.
- SNMP Trap Destination: IP address of the trap manager to receive notification messages from this switch. Traps indicating status changes are issued by the switch to specified trap managers. You must specify trap managers so that key events are reported by this switch to your management station.

- **SNMP Read Community:** A community string that acts like a password and permits access with Read privilege to the SNMP database on this switch. Authorized management stations are only able to retrieve MIB objects.
- **SNMP Write Community:** A community string that acts like a password and permits access with Write privilege to the SNMP database on this switch. Authorized management stations are able to modify the value of the MIB objects.
- **SNMP Trap Community:** A community string sent with the notification operation.

4.1.2 Ports

In Port Configuration, you can set and view the operation mode for each port.

- **Enable Jumbo Frames:** This switch provides more efficient throughput for large sequential data transfers by supporting jumbo frames on Gigabit Ethernet ports up to 9216 bytes. Compared to standard Ethernet frames that run only up to 1.5 KB, using jumbo frames significantly reduces the per-packet overhead required to process protocol encapsulation fields.
- **Power Saving Mode:** Adjusts the power provided to ports based on the length of the cable used to connect to other devices. Only sufficient power is used to maintain connection requirements.
- **Mode:** Allows user to manually set the port speed, such as Auto, 10 half, 10 Full, 100 Half, 100 Full, 1000 Full or Disabled. Click **Apply** to complete the configuration procedure.
- **Flow Control:** Allows you to manually enable or disable the Flow Control feature. Check the box of the specific ports you want, then click **Apply** to complete the configuration procedure.

Port Configuration

Enable Jumbo Frames ☐

PERFECT_REACH/Power Saving Mode: Disable ▾

Port	Link	Mode	Flow Control
1	Down	Auto Speed ▾	<input type="checkbox"/>
2	10GFDx	Auto Speed ▾	<input type="checkbox"/>
3	Down	Auto Speed ▾	<input type="checkbox"/>
4	Down	Auto Speed ▾	<input type="checkbox"/>
5	Down	Auto Speed ▾	<input type="checkbox"/>
6	Down	Auto Speed ▾	<input type="checkbox"/>
7	Down	Auto Speed ▾	<input type="checkbox"/>
8	Down	Auto Speed ▾	<input type="checkbox"/>
9	Down	Auto Speed ▾	<input type="checkbox"/>
10	Down	Auto Speed ▾	<input type="checkbox"/>
11	Down	Auto Speed ▾	<input type="checkbox"/>
12	Down	Auto Speed ▾	<input type="checkbox"/>
13	Down	Auto Speed ▾	<input type="checkbox"/>
14	Down	Auto Speed ▾	<input type="checkbox"/>
15	Down	Auto Speed ▾	<input type="checkbox"/>
16	Down	Auto Speed ▾	<input type="checkbox"/>
17	Down	Auto Speed ▾	<input type="checkbox"/>
18	Down	Auto Speed ▾	<input type="checkbox"/>
19	Down	Auto Speed ▾	<input type="checkbox"/>
20	Down	Auto Speed ▾	<input type="checkbox"/>
21	Down	Auto Speed ▾	<input type="checkbox"/>
22	Down	Auto Speed ▾	<input type="checkbox"/>
23	Down	Auto Speed ▾	<input type="checkbox"/>
24	Down	Auto Speed ▾	<input type="checkbox"/>

Drop frames after excessive collisions ☐

4.1.3 VLAN

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow you to isolate network traffic so only the members of the same VLAN will receive traffic from each other. Basically, creating a VLAN from a switch is logically the equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

Port Segmentation (VLAN) Configuration

The screenshot shows the 'Port Segmentation (VLAN) Configuration' web interface. It has a title 'Port Segmentation (VLAN) Configuration' and a sub-header 'Add a VLAN'. Below this is a 'VLAN ID' input field with a value of '1' and an 'Add' button. Underneath is a 'VLAN Configuration List' table with one row containing '1' and several empty cells. At the bottom are buttons for 'Modify', 'Delete', 'Refresh', and 'Port Config'.

- VLAN ID: ID of a configured VLAN (1-4094, no leading zeroes). Enter the new ID and click **Add**. The Web UI is directed to the VLAN Setup screen.
- VLAN Configuration List: Lists all the current VLAN groups created for this system (up to 16). VLAN groups can be defined. VLAN 1 is the default untagged VLAN.

VLAN Setup Configuration

This screen allows you to select the member ports of the VLAN you added. Select the ports and click **Apply** to activate.

VLAN Setup

VLAN ID: 2			
Port	Member	Port	Member
Port 1	<input checked="" type="checkbox"/>	Port 13	<input checked="" type="checkbox"/>
Port 2	<input checked="" type="checkbox"/>	Port 14	<input checked="" type="checkbox"/>
Port 3	<input checked="" type="checkbox"/>	Port 15	<input checked="" type="checkbox"/>
Port 4	<input checked="" type="checkbox"/>	Port 16	<input checked="" type="checkbox"/>
Port 5	<input type="checkbox"/>	Port 17	<input type="checkbox"/>
Port 6	<input type="checkbox"/>	Port 18	<input type="checkbox"/>

4.1.4 Aggregation

Port trunk allows multiple links to be bundled together and act as a single physical link for increased throughput. It provides load balancing and redundancy of links in a switched internetwork. Actually, the link does not have an inherent total bandwidth equal to the sum of its component physical links. Traffic in a trunk is distributed across an individual link within the trunk in a deterministic method called a hash algorithm. The hash algorithm automatically applies load balancing to the ports in the trunk. A port failure within the trunk group causes the network traffic to be directed to the remaining ports. Load balancing is maintained whenever a link in a trunk is lost or returned to service.

Aggregation / Trunking Configuration

To assign the ports to a trunk, click the required trunk number ports, then click **Apply**. The below example shows that Ports 3 and 4 are the member ports of Trunk Group 1.

Aggregation/Trunking Configuration

Group/Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Normal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Group 1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" 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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 4	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 5	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 6	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 7	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group 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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply Refresh

4.1.5 LACP

IEEE 802.3ad Link Aggregation Control Protocol (LACP) increases bandwidth by automatically aggregating several physical links together as a logical trunk and providing load balancing and fault tolerance for uplink connections. Once the port is configured as a Static Aggregation port, the area will become gray. It means a port can only be a member of the Aggregation or LACP.

LACP Port Configuration

- Port: The port ID.
- Protocol Enabled: Enables LACP Protocol on the associated port.
- Key Value: Configures a port's LACP administration key. The port administrative key must

be set to the same value for ports that belong to the same link aggregation group (LAG). If this administrative key is not set when an LAG is formed (i.e., it has the null value of 0), this key will automatically be set to the same value as that used by the LAG.

LACP Port Configuration

Port	Protocol Enabled	Key Value
1	<input type="checkbox"/>	auto
2	<input type="checkbox"/>	auto
3	<input type="checkbox"/>	auto
4	<input type="checkbox"/>	auto
5	<input type="checkbox"/>	auto
6	<input type="checkbox"/>	auto
7	<input type="checkbox"/>	auto
8	<input type="checkbox"/>	auto
9	<input type="checkbox"/>	auto
10	<input type="checkbox"/>	auto
11	<input type="checkbox"/>	auto
12	<input type="checkbox"/>	auto
13	<input type="checkbox"/>	auto
14	<input type="checkbox"/>	auto
15	<input type="checkbox"/>	auto
16	<input type="checkbox"/>	auto
17	<input type="checkbox"/>	auto
18	<input type="checkbox"/>	auto
19	<input type="checkbox"/>	auto
20	<input type="checkbox"/>	auto
21	<input type="checkbox"/>	auto
22	<input type="checkbox"/>	auto
23	<input type="checkbox"/>	auto
24	<input type="checkbox"/>	auto

4.1.6 RSTP

IEEE 802.1w Rapid Spanning tree protocol (LACP) provides a loop-free network and redundant links to the core network with rapid convergence to ensure faster recovery from failed links, enhancing overall network stability and reliability.

RSTP System Configuration

- **System Priority:** This parameter configures the spanning tree priority globally for this switch. The device with the highest priority becomes the STP root device. However, if all devices have the same priority, the device with the lowest MAC address will then become the root device. Number between 0 and 61440 in increments of 4096. Therefore, there are 16 distinct values.
- **Hello Time:** Interval (in seconds) at which the root device transmits a configuration message (BPDU frame). Number between 1 and 10 (default is 2).
- **Max Age:** The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. This also means the maximum lifetime for a BPDU frame. Number between 6 and 40 (default is 20).
- **Forward Delay:** The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). Number between 4 and 30 (default is 15).
- **Force Version:** Set and show the RSTP protocol to use. Normal - use RSTP; Compatible - compatible with STP.

RSTP System Configuration

System Priority	32768 ▾
Hello Time	2
Max Age	20
Forward Delay	15
Force version	Normal ▾

RSTP Port Configuration

- **Port:** The port ID. Aggregations mean any configured trunk group.
- **Protocol Enabled:** Select to enable/disable the RSTP protocol for the port.
- **Edge:** Expect the port to be an edge port (linking to an end station) or a link to another STP device.

- Path Cost: This parameter is used by the STP to determine the best path between devices. Therefore, lower values should be assigned to ports attached to faster media, and higher values assigned to ports with slower media. Set the RSTP path cost on the port. Number between 0 and 200000000. The default value is “auto,” meaning the system will automatically generate path cost.

RSTP Port Configuration

Port	Protocol Enabled	Edge	Path Cost
Aggregations	<input type="checkbox"/>	<input type="checkbox"/>	
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
12	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
13	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
15	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
16	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
17	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
18	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
19	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
20	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
21	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
22	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
23	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto

Apply Refresh

4.1.7 802.1X Configuration

IEEE802.1X provides a security standard for network access control, especially in Wi-Fi wireless networks. 802.1X holds a network port disconnected until authentication is completed. The switch uses Extensible Authentication Protocol over LANS to exchange authentication protocol client identity with the client, and forward it to another remote RADIUS authentication server to verify access rights. The EAP packet from the RADIUS server also contains the authentication method to be used. The client can reject the authentication method and request another, depending on the configuration of the client software and the RADIUS server. Depending on the authenticated results, the port is either made available to the user or the user is denied access to the network.

The RADIUS servers make the network a lot easier to manage for the administrator by gathering and storing the user lists.

802.1X Configuration

Mode:

RADIUS IP:

RADIUS UDP Port:

RADIUS Secret:

Port	Admin State	Port State			
1	Auto	Link Down	Go configuration	Link Maintenance	Statistics
2	Force Authorized	Authorized	Go configuration	Link Maintenance	Statistics
3	Force Authorized	Link Down	Go configuration	Link Maintenance	Statistics
4	Force Authorized	Link Down	Go configuration	Link Maintenance	Statistics

- Mode: By default, 802.1x is disabled. To use EAP for security, select enabled and set the 802.1X Global Settings for the Radius Server and applicable authentication information.
- RADIUS server IP: The IP Address of the external Radius Server, you need to specify an RADIUS server to enable 802.1X authentication.
- RADIUS UDP Port: The UDP port used for the communication between the switch and RADIUS server.
- RADIUS Secret: The Key used for the communication between the switch and RADIUS server.
- Port: The port ID.

- Admin State: There are 3 types: Auto, Force Authorized and Force Unauthorized.
 - Auto: Select Auto when you enabled the IEEE 802.1X. If the client is successfully authorized, the port is authorized to be used as well. Otherwise, the port can't be used.
 - Force Authorized: The default value. Whether the IEEE 802.1X is enabled or not, the port is always authorized to be used.
 - Force Unauthorized: Whether the IEEE 802.1X is enabled or not, the port is always unauthorized to be used.
- Port State: It indicates the status of the port. Authorized means the port is successfully authorized by the RADIUS server or the port is configured as "Force Authorized."
- Others: Re-authenticate allows restart the authentication process, Force Reinitialize reinitializes the process and Statistics displays the IEEE 802.1X counters and information of each port.

4.1.8 IGMP Snooping

IGMP Snooping is the process of listening to IGMP network traffic. IGMP Snooping, as implied by the name, is a feature that allows a Layer 2 switch to “listen in” on the IGMP conversation between hosts and routers by processing the Layer 3 IGMP packets sent in a multicast network. When IGMP Snooping is enabled in a switch, it analyzes all IGMP packets between hosts connected to the switch and multicast routers in the network. When a switch hears an IGMP report from a host for a given multicast group, the switch adds the host’s port number to the multicast list for that group. And, when the switch hears an IGMP Leave, it removes the host’s port from the table entry. It also prevents flooding of IP multicast traffic, and limits bandwidth-intensive video traffic to only the subscribers.

IGMP Configuration

IGMP Enabled ☐

Router Ports: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐
17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐

Unregistered IPMC Flooding enabled ☒

VLAN ID	IGMP Snooping Enabled	IGMP Querying Enabled
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Apply Refresh

IGMP Configuration

- IGMP Enabled: When this is enabled, the switch will monitor network traffic to determine which hosts want to receive multicast traffic.
- Router Ports: Set if ports are connecting to the IGMP administrative routers.
- Unregistered IPMC Flooding enabled: Set the forwarding mode for unregistered (not-joined) IP multicast traffic. The traffic will flood when enabled, and forward to router ports only when disabled.
- IGMP Snooping Enabled: When enabled, the port will monitor network traffic to determine which hosts want to receive the multicast traffic.
- IGMP Querying Enabled: When enabled, the port can serve as the Querier, which is responsible for asking hosts if they want to receive multicast traffic.

4.1.9 Mirroring

Port Mirroring is used on a network switch to send a copy of network packets seen on one switch port (or an entire VLAN) to a network monitoring connection on another switch port. This is commonly used for network appliances that require monitoring of network traffic, such as an intrusion-detection system.

Mirroring Configuration

- Port to Mirror to: The port that will “duplicate” or “mirror” the traffic on the source port. Only incoming packets can be mirrored. Packets will be dropped when the available egress bandwidth is less than ingress bandwidth.
- Ports to Mirror: Select the ports that you want to mirror from this section of the page. A port will be mirrored when the “Mirroring Enabled” option is selected.

Mirroring Configuration

Port	Mirror Source
1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>
6	<input type="checkbox"/>
7	<input type="checkbox"/>
8	<input type="checkbox"/>
9	<input type="checkbox"/>
10	<input type="checkbox"/>
11	<input type="checkbox"/>
12	<input type="checkbox"/>
13	<input type="checkbox"/>
14	<input type="checkbox"/>
15	<input type="checkbox"/>
16	<input type="checkbox"/>
17	<input type="checkbox"/>
18	<input type="checkbox"/>
19	<input type="checkbox"/>
20	<input type="checkbox"/>
21	<input type="checkbox"/>
22	<input type="checkbox"/>
23	<input type="checkbox"/>
24	<input type="checkbox"/>

Mirror Port:

4.1.10 QoS

In QoS Mode, select QoS Disabled, 802.1p or DSCP to configure the related parameters.

QoS Configuration

QoS Mode	QoS Disabled ▼
	QoS Disabled
	802.1p
	DSCP
APPLY CANCEL	

QoS Mode: QoS Disabled

When the QoS Mode is set to QoS Disabled, the QoS is disabled.

QoS Mode: 802.1p

Packets are prioritized using the 802.1p field in the VLAN tag. This field is three bits long, representing the values 0 - 7. When the QoS Mode is set to 802.1p, the 802.1p Configuration table appears, allowing you to map each of the eight 802.1p values to a local priority queue (low, normal, medium or high). The default settings are shown below.

When the QoS Mode is set to 802.1p, the 802.1p Configuration table is displayed as shown below. The Custom Prioritize Traffic is the default and suggested value.

QoS Configuration

QoS Mode	802.1p ▼						
Prioritize Traffic	All High Priority ▼						
	Custom						
	All Low Priority						
	All Normal Priority						
	All Medium Priority						
	All High Priority						
802.1p Configur							
802.1p Value	Priority	802.1p Value	Priority	802.1p Value	Priority	802.1p Value	Priority
0	high ▼	1	high ▼	2	high ▼	3	high ▼
4	high ▼	5	high ▼	6	high ▼	7	high ▼
APPLY CANCEL							

QoS Mode: DSCP

DSCP: Packets are prioritized using the DSCP (Differentiated Services Code Point) value. The DSCP is a six-bit field that is contained within an IP (TCP or UDP) header. The six bits allow the DSCP field to take any value in the range 0 - 63. When QoS Mode is set to DSCP, the DSCP Configuration table is displayed, allowing you to map each of the DSCP values to a hardware output queue (low, normal, medium or high). The default settings map all DSCP values to the high-priority egress queue.

User can use the Prioritize Traffic drop-down list to quickly set the values in the DSCP Configuration table to a common priority queue. Use Custom if you want to set each value individually.

When the QoS Mode is set to DSCP, the DSCP Configuration table is displayed as shown below. Enter the DSCP Value and Priority mapping in the fields on the bottom half.

QoS Configuration

QoS Mode	DSCP
Prioritize Traffic	All High Priority
	Custom
	All Low Priority
	All Normal Priority
	All Medium Priority
	All High Priority

DSCP Configuration	
DSCP Value(0..63)	Priority
	high
	high
	high
	high
	high
	high
	high
All others	high

APPLY CANCEL

Queue Mode:

- Strict: Services the egress queues in sequential order, transmitting all traffic in the higher-priority queues before servicing lower-priority queues.
- WRR: Weighted Round-Robin shares bandwidth at the egress ports by using scheduling weights with default values of 1, 2, 4, 8 for queues 0 through 7, respectively. (This is the default selection.)

* Note: WRR can only be selected if Jumbo Frame mode is disabled on the Port Configuration screen.

4.1.11 Filter Configuration

There are three modes that you can choose for filter configuration:

Disabled: When this mode is disabled, there is no protection here.

Static: The IP address you entered here can't access the switch.

DHCP: The IP address retrieved from the DHCP server can't access the switch.

Filter Configuration

Port	Source IP Filter			DHCP Server Allowed
	Mode	IP Address	IP Mask	
1	Static ▼	1902.168.2.10	255.255.255.0	<input type="checkbox"/>
2	Disabled ▼			<input checked="" type="checkbox"/>
3	Disabled ▼			<input checked="" type="checkbox"/>

4.1.12 PoE (Power over Ethernet) Configuration

PoE technology is a system to pass electrical power safely, along with data, on Ethernet cabling. Power is supplied in common mode over two or more of the differential pairs of wires found in the Ethernet cables and comes from a power supply within a PoE-enabled networking device (such as a switch) or can be injected into a cable run with a midspan power supply.

This screen shows the PoE status when connected or disconnected to the PD device.

- PoE Enabled: POE of the port is able to supply power to the attached PD (powered device).
- PD Class: Detect the class of PD.
- Delivering Power (W): Output power from the switch to the PD.
- Current (mA): The status of the port current.
- Power Budget [%] (Per 8 port total power = 130W): You can see the percentage change on this screen.

PoE (Power over Ethernet) Configuration

Port	PoE Enabled	PD Class	Delivering Power [W]	Current [mA]	Power Budget [%] (Per 8 port total power = 130W)
1		—	0	0	10.1
2		2	3.383	118.124	
3		—	0	0	
4		—	0	0	
5		—	0	0	
6		0	3.842	11.37	
7		—	0	0	
8		—	0	0	
9		—	0	0	0
10		—	0	0	
11		—	0	0	
12		—	0	0	
13		—	0	0	

The green shows the status of the connected PD. To protect the system and improve product life, lower than 80% Power Budget is suggested.

4.1.13 Rate Limit Configuration

Type of Port: You can define the certain port as Policer and Shaper before you set up the rate limit.

No Limit: This drop-down menu allows you to specify that the selected port will have no bandwidth limit.

Rate (kbps): This drop-down menu also allows you to select the data rate in kbits per second for the selected port. The value is between 128 kbps and 3968 kbps.

Rate Limit Configuration

Port	Policer	Shaper
1	No Limit ▼	No Limit ▼
2	1664 kbps	No Limit ▼
3	1792 kbps	No Limit ▼
4	1920 kbps	No Limit ▼
5	2048 kbps	No Limit ▼
6	2176 kbps	No Limit ▼
7	2304 kbps	No Limit ▼
8	2432 kbps	No Limit ▼
9	2560 kbps	No Limit ▼
10	2688 kbps	No Limit ▼
11	2816 kbps	No Limit ▼
12	2944 kbps	No Limit ▼
13	3072 kbps	No Limit ▼
14	3200 kbps	No Limit ▼
15	3328 kbps	No Limit ▼
	3456 kbps	No Limit ▼
	3584 kbps	No Limit ▼
	3712 kbps	No Limit ▼
	3840 kbps	No Limit ▼
	3968 kbps	No Limit ▼
	No Limit ▼	No Limit ▼

4.1.14 Storm Control

Broadcast storms may occur when a device on your network is malfunctioning, or if application programs are not well designed or properly configured. If there is too much broadcast traffic on your network, performance can be severely degraded or everything can come to complete halt.

You can protect your network from broadcast storms by setting a threshold for broadcast traffic for each port. Any broadcast packets exceeding the specified threshold will then be dropped.

Storm Control Configuration

There are three types of traffic which can be rate limited: broadcast, multicast and flooded Unicast.

Storm Control Configuration

Storm Control	
Number of frames per second	
ICMP Rate	<input type="checkbox"/> No Limit ▼
Learn Frames Rate	<input type="checkbox"/> 1k
Broadcast Rate	<input type="checkbox"/> 2k
Multicast Rate	<input type="checkbox"/> 4k
Flooded unicast Rate	<input type="checkbox"/> 8k
	<input type="checkbox"/> 16k
	<input type="checkbox"/> 32k
	<input type="checkbox"/> 64k
	<input type="checkbox"/> 128k
	<input type="checkbox"/> 256k
	<input type="checkbox"/> 512k
	<input type="checkbox"/> 1024k
	<input type="checkbox"/> 2048k
	<input type="checkbox"/> 4096k
	<input type="checkbox"/> 8192k
	<input type="checkbox"/> 16384k
	<input type="checkbox"/> 32768k
	<input checked="" type="checkbox"/> No Limit

- Enable Rate Limit: Click the check box and the rate to enable storm control.
- Rate (number of frames per second): The Rate field is set by a single drop-down list. The same threshold is applied to every port on the switch. When the threshold is exceeded,

packets are dropped, regardless of the flow-control settings.

- ICMP Rate: This can keep you from continuously pinging the switch and wasting the CPU resource.
- Learn Frame Rate: By default, the switch performs wire-speed learning on all ports. However, if some kind of unknown source MAC is classified as a “learn frame,” it is redirected to the CPU. These packets will be filtered after enabling this command.
- Broadcast: Broadcast traffic.
- Multicast: Unknown Multicast Traffic. Before IGMP Snooping is enabled, all the multicast is flooded and will be filtered by this command.
- Flooded Unicast Rate: Any source MAC not yet recognized by the switch is considered unknown unicast. This command can help limit such traffic.

4.2 Monitoring

4.2.1 Statistics Overview

Statistic Overview for all ports

You can mirror traffic from any source port to a target port for real-time analysis. The following figures show the Statistics Overview.

[Clear](#) [Refresh](#)

Port	To Device	To Channel	Port	To Device	To Channel	To Device	To Channel
1	100%	100%	2	100%	100%	3	100%
4	100%	100%	5	100%	100%	6	100%
7	100%	100%	8	100%	100%	9	100%
10	100%	100%	11	100%	100%	12	100%
13	100%	100%	14	100%	100%	15	100%
16	100%	100%	17	100%	100%	18	100%
19	100%	100%	20	100%	100%	21	100%
22	100%	100%	23	100%	100%	24	100%
25	100%	100%	26	100%	100%	27	100%
28	100%	100%	29	100%	100%	30	100%
31	100%	100%	32	100%	100%	33	100%
34	100%	100%	35	100%	100%	36	100%
37	100%	100%	38	100%	100%	39	100%
40	100%	100%	41	100%	100%	42	100%
43	100%	100%	44	100%	100%	45	100%
46	100%	100%	47	100%	100%	48	100%
49	100%	100%	50	100%	100%	51	100%
52	100%	100%	53	100%	100%	54	100%
55	100%	100%	56	100%	100%	57	100%
58	100%	100%	59	100%	100%	60	100%
61	100%	100%	62	100%	100%	63	100%
64	100%	100%	65	100%	100%	66	100%
67	100%	100%	68	100%	100%	69	100%
70	100%	100%	71	100%	100%	72	100%
73	100%	100%	74	100%	100%	75	100%
76	100%	100%	77	100%	100%	78	100%
79	100%	100%	80	100%	100%	81	100%
82	100%	100%	83	100%	100%	84	100%
85	100%	100%	86	100%	100%	87	100%
88	100%	100%	89	100%	100%	90	100%
91	100%	100%	92	100%	100%	93	100%
94	100%	100%	95	100%	100%	96	100%
97	100%	100%	98	100%	100%	99	100%
100	100%	100%	101	100%	100%	102	100%
103	100%	100%	104	100%	100%	105	100%
106	100%	100%	107	100%	100%	108	100%
109	100%	100%	110	100%	100%	111	100%
112	100%	100%	113	100%	100%	114	100%
116	100%	100%	117	100%	100%	118	100%
119	100%	100%	120	100%	100%	121	100%
122	100%	100%	123	100%	100%	124	100%
126	100%	100%	127	100%	100%	128	100%
129	100%	100%	130	100%	100%	131	100%
132	100%	100%	133	100%	100%	134	100%
136	100%	100%	137	100%	100%	138	100%
139	100%	100%	140	100%	100%	141	100%
142	100%	100%	143	100%	100%	144	100%
146	100%	100%	147	100%	100%	148	100%
149	100%	100%	150	100%	100%	151	100%
152	100%	100%	153	100%	100%	154	100%
156	100%	100%	157	100%	100%	158	100%
159	100%	100%	160	100%	100%	161	100%
162	100%	100%	163	100%	100%	164	100%
166	100%	100%	167	100%	100%	168	100%
169	100%	100%	170	100%	100%	171	100%
172	100%	100%	173	100%	100%	174	100%
176	100%	100%	177	100%	100%	178	100%
179	100%	100%	180	100%	100%	181	100%
182	100%	100%	183	100%	100%	184	100%
186	100%	100%	187	100%	100%	188	100%
189	100%	100%	190	100%	100%	191	100%
192	100%	100%	193	100%	100%	194	100%
196	100%	100%	197	100%	100%	198	100%
199	100%	100%	200	100%	100%	201	100%
202	100%	100%	203	100%	100%	204	100%
206	100%	100%	207	100%	100%	208	100%
209	100%	100%	210	100%	100%	211	100%
212	100%	100%	213	100%	100%	214	100%
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219	100%	100%	220	100%	100%	221	100%
222	100%	100%	223	100%	100%	224	100%
226	100%	100%	227	100%	100%	228	100%
229	100%	100%	230	100%	100%	231	100%
232	100%	100%	233	100%	100%	234	100%
236	100%	100%	237	100%	100%	238	100%
239	100%	100%	240	100%	100%	241	100%
242	100%	100%	243	100%	100%	244	100%
246	100%	100%	247	100%	100%	248	100%
249	100%	100%	250	100%	100%	251	100%
252	100%	100%	253	100%	100%	254	100%
256	100%	100%	257	100%	100%	258	100%
259	100%	100%	260	100%	100%	261	100%
262	100%	100%	263	100%	100%	264	100%
266	100%	100%	267	100%	100%	268	100%
269	100%	100%	270	100%	100%	271	100%
272	100%	100%	273	100%	100%	274	100%
276	100%	100%	277	100%	100%	278	100%
279	100%	100%	280	100%	100%	281	100%
282	100%	100%	283	100%	100%	284	100%
286	100%	100%	287	100%	100%	288	100%
289	100%	100%	290	100%	100%	291	100%
292	100%	100%	293	100%	100%	294	100%
296	100%	100%	297	100%	100%	298	100%
299	100%	100%	300	100%	100%	301	100%
302	100%	100%	303	100%	100%	304	100%
306	100%	100%	307	100%	100%	308	100%
309	100%	100%	310	100%	100%	311	100%
312	100%	100%	313	100%	100%	314	100%
316	100%	100%	317	100%	100%	318	100%
319	100%	100%	320	100%	100%	321	100%
322	100%	100%	323	100%	100%	324	100%
326	100%	100%	327	100%	100%	328	100%
329	100%	100%	330	100%	100%	331	100%
332	100%	100%	333	100%	100%	334	100%
336	100%	100%	337	100%	100%	338	100%
339	100%	100%	340	100%	100%	341	100%
342	100%	100%	343	100%	100%	344	100%
346	100%	100%	347	100%	100%	348	100%
349	100%	100%	350	100%	100%	351	100%
352	100%	100%	353	100%	100%	354	100%
356	100%	100%	357	100%	100%	358	100%
359	100%	100%	360	100%	100%	361	100%
362	100%	100%	363	100%	100%	364	100%
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396	100%	100%	397	100%	100%	398	100%
399	100%	100%	400	100%	100%	401	100%
402	100%	100%	403	100%	100%	404	100%
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409	100%	100%	410	100%	100%	411	100%
412	100%	100%	413	100%	100%	414	100%
416	100%	100%	417	100%	100%	418	100%
419	100%	100%	420	100%	100%	421	100%
422	100%	100%	423	100%	100%	424	100%
426	100%	100%	427	100%	100%	428	100%
429	100%	100%	430	100%	100%	431	100%
432	100%	100%	433	100%	100%	434	100%
436	100%	100%	437	100%	100%	438	100%
439	100%	100%	440	100%	100%	441	100%
442	100%	100%	443	100%	100%	444	100%
446	100%	100%	447	100%	100%	448	100%
449	100%	100%	450	100%	100%	451	100%
452	100%	100%	453	100%	100%	454	100%
456	100%	100%	457	100%	100%	458	100%
459	100%	100%	460	100%	100%	461	100%
462	100%	100%	463	100%	100%	464	100%
466	100%	100%	467	100%	100%	468	100%
469	100%	100%	470	100%	100%	471	100%
472	100%	100%	473	100%	100%	474	100%
476	100%	100%	477	100%	100%	478	100%
479	100%	100%	480	100%	100%	481	100%
482	100%	100%	483	100%	100%	484	100%
486	100%	100%	487	100%	100%	488	100%
489	100%	100%	490	100%	100%	491	100%
492	100%	100%	493	100%	100%	494	100%
496	100%	100%	497	100%	100%	498	100%
499	100%	100%	500	100%	100%	501	100%
502	100%	100%	503	100%	100%	504	100%
506	100%	100%	507	100%	100%	508	100%
509	100%	100%	510	100%	100%	511	100%
512	100%	100%	513	100%	100%	514	100%
516	100%	100%	517	100%	100%	518	100%
519	100%	100%	520	100%	100%	521	100%
522	100%	100%	523	100%	100%	524	100%
526	100%	100%	527	100%	100%	528	100%
529	100%	100%	530	100%	100%	531	100%
532	100%	100%	533	100%	100%	534	100%
536	100%	100%	537	100%	100%	538	100%
539	100%	100%	540	100%	100%	541	100%
542	100%	100%	543	100%	100%	544	100%
546	100%	100%	547	100%	100%	548	100%
549	100%	100%	550	100%	100%	551	100%
552	100%	100%	553	100%	100%	554	100%
556	100%	100%	557	100%	100%	558	100%
559	100%	100%	560	100%	100%	561	100%
562	100%	100%	563	100%	100%	564	100%
566	100%	100%	567	100%	100%	568	100%
569	1						

4.2.3 LACP Status

LACP Aggregation Overview

LACP allows for the automatic detection of links in a Port Trunking Group.

LACP Aggregation Overview

Group/Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Normal																								

Legend

	Down	Port link down
	Blocked	Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled
	Learning	Port Learning by RSTP
	Forwarding	Port link up and forwarding frames
	Forwarding	Port link up and forwarding by RSTP. Number is Partner port number if other switch has LACP enabled

Refresh

- Port: The port number.
- Port Active: Shows if the port is a member of an active LACP group.
- Partner Port Number: A list of the ports attached at the remote end of this LAG link member.
- Operational Port Key: Current operational value of the key used by this LAG.

LACP Port Status

Active LACP ports are capable of processing and sending LACP control frames. This allows LACP-compliant devices to negotiate the aggregated link so the group may be changed dynamically as needs require.

4.2.4 RSTP Status

RSTP VLAN Bridge Overview

RSTP VLAN Bridge Overview

VLAN Id	Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id
1	32769:00 03 ce 0b 49 8a	2	20	15	Steady	This switch is Root

Refresh

- Hello Time: Interval (in seconds) at which the root device transmits a configuration message.
- Max Age: The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. All device ports (except for designated ports) should receive configuration messages at regular intervals. Any port that ages out STA information (provided in the last configuration message) becomes the designated port for the attached LAN. If it is a root port, a new root port is selected from among the device ports attached to the network.
- Fwd Delay: The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). This delay is required because every device must receive information about topology changes before it starts to forward frames. In addition, each port needs time to listen for conflicting information that would make it return to a discarding state; otherwise, temporary data loops might result.
- Topology: Indicates if Spanning Tree topology is steady or undergoing reconfiguration. (The time required for reconfiguration is extremely short, so no values other than "steady" state are likely to be seen in this field.)
- Root ID: The priority and MAC address of the device in the Spanning Tree that this switch has accepted as the root device, and the port connected to the root device.

RSTP Port Status

- Port/Group: The number of a port or the ID of a static trunk.
- Path Cost: The cost for a packet to travel from this port to the root in the current Spanning Tree configuration. The slower the media, the higher the cost.
- Edge Port: Shows if this port is functioning as an edge port, either through manual selection (see the RSTP Port Configuration table) or auto-detection. Note that if the switch detects another bridge connected to this port, the manual setting for Edge Port will be overridden, and the port will instead function as a point-to-point connection.
- P2P Port: Shows if this port is functioning as a Point-to-Point connection to exactly one

other bridge. The switch can automatically determine if the interface is attached to a point-to-point link or to shared media. If shared media is detected, the switch will assume that it is connected to two or more bridges.

- Protocol: Shows the Spanning Tree protocol functioning on this port, either RSTP or STP (that is, STP-compatible mode).

4.2.4 IGMP Status

IGMP Status

IGMP Status shows the IGMP Snooping statistics for the whole switch.

- VLAN ID: VLAN ID number.
- Querier: Shows whether Querying is enabled.
- Queries transmitted: Shows the number of transmitted Query packets.
- Queries received: Shows the number of received Query packets.
- v1 Reports: Shows the number of received v1 Report packets.
- v2 Reports: Shows the number of received v2 Report packets.
- v3 Reports: Shows the number of received v2 Report packets.
- v3 Leave: Shows the number of v3 leave packets received.

IGMP Status

VLAN ID	Querier	Queries transmitted	Queries received	v1 Reports	v2 Reports	v3 Reports	v2 Leaves
1	Idle	0	0	0	0	0	0
2	Idle	0	0	0	0	0	0

Refresh

4.2.5 VeriPHY

VeriPHY Cable Diagnostics

You can perform cable diagnostics for all ports or selected ports to diagnose any cable faults (short, open etc.) and feedback a distance to the fault.

- Cable Diagnostics: Cable diagnostics is performed on a per-port basis. Select the port number from the drop-down list. Click **Apply** to start the test.
- Cable Status: Shows the cable length and operating conditions and isolates a variety of common faults that can occur on Cat5 twisted pair cabling.

VeriPHY Cable Diagnostics

Port	Port 1 ▾
Mode	Full ▾

Apply

Cable Status

Pair	Length [m]	Status
A	3	Proper
B	3	Proper
C	3	Proper
D	3	Proper

4.2.6 Ping

This command sends ICMP echo request packets to another node on the network.

Ping Parameters

- Target IP Address: IP address of the host.
- Count: Number of packets to send. (Range: 1-20)
- Time Out: Sets the time period the host will be pinged.

Use the ping command to see if another site on the network can be reached.

The following are some results of the ping command:

- Normal response: The normal response occurs in 1 to 10 seconds, depending on network traffic.
- Destination does not respond: If the host does not respond, a “timeout” appears in 10 seconds.
- Destination unreachable: The gateway for this destination indicates that the destination is unreachable.
- Network or host unreachable: The gateway found no corresponding entry in the route table.

Press <Esc> to stop pinging.

Ping Parameters

Target IP address	192.168.2.21
Count	5 ▾
Time Out (in secs)	1 ▾

Apply

Ping Results

Target IP address	192.168.2.22
Status	Test complete
Received replies	5
Request timeouts	0
Average Response Time (in ms)	5

Refresh

4.3 Maintenance

4.3.1 Warm Restart

Click **Yes** to restart the switch. The reset will be complete when the power lights stop blinking.

Warm Restart



4.3.2 Factory Default

Forces the switch to restore the original factory settings. To reset the switch, select "Reset to Factory Defaults" from the drop-down list and click **Apply**. The LAN IP Address, Subnet Mask and Gateway IP Address will be reset to their factory settings.

Factory Default



If you forget the password, you can press the Reset button on the front panel for 5 seconds. Then the system will be reset to the default configuration.

4.3.3 Software Upload

Select "Upgrade Firmware" from the Tools drop-down list then click on **Browse** to select the firmware file. Click **Apply** to upgrade the selected switch firmware file.

Figure: Browse and Upload new software.

Software Upload

Browse:

Upload

Software Upload Progress



The “Software successfully loaded” message allows you to activate the new software.

Software successfully loaded



After you click **Yes**, the following message displays.

System Reboot will take a couple of seconds...

Select another page.

4.3.4 Configuration File Transfer

Configuration File Transfer allows you to save the switch's current configuration or restore a previously saved configuration back to the device. Configuration files can be saved to any location on the Web management station. Click **Browse** to choose a file location on the Web management station or to find a saved configuration file. Click **Upload** to save a configuration or **Download** to restore a configuration.

Configuration Upload

No file selected

Configuration Download

4.3.5 Logout

The administrator has write access for all parameters governing the onboard agent. You should therefore assign a new administrator password as soon as possible, and store it in a safe place.

Please enter password to login

Password:

5. Specifications

Standards

- IEEE 802.1d (Spanning Tree Protocol)
- IEEE 802.1p (Traffic Prioritization)
- IEEE 802.1q (VLAN Tagging)
- IEEE 802.1w (Rapid Spanning Tree Protocol)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3 (10Base-T Ethernet)
- IEEE 802.3ab (Twisted Pair Gigabit Ethernet)
- IEEE 802.3ad (Link Aggregation Control Protocol LACP)
- IEEE 802.3af (Power over Ethernet 802.3at Type 1)
- IEEE 802.3at (Power over Ethernet 802.3at Type 2)
- IEEE 802.3u (100Base-TX Fast Ethernet)
- IEEE 802.3x (flow control, for full duplex mode)

General

- Packet filter/forwarding rate:
 - 1,488,000 pps (1000 Mbps)
 - 148,800 pps (100 Mbps)
 - 14,880 pps (10 Mbps)
- MAC address table: 8k
- Buffer memory: 500 kBytes
- Backplane speed / switch fabric: 48 Gbps
- Switch architecture: store and forward
- Configuration Options:
 - Port link speed: 10 Mbps, 100 Mbps, 1000 Mbps or auto-negotiation
 - PoE on/off per port
 - Flow control on/off per port
 - VLAN
 - Rate limiting (ingress rate and egress rate)
 - Port Mirroring
 - Port Aggregation / LACP: 8 groups
 - Broadcast Storm configuration with broadcast rate, multicast rate, and flooded unicast rate
 - IGMP Snooping
 - Quality of Service (QoS): IEEE 802.1p or DSCP

- Integrated VeriPHY cable diagnostics tool
- Integrated ICMP Ping client sends ping requests to other network nodes
- SNMPv1/v2c (Simple Network Management Protocol)
- LAN settings (IP address, Gateway, etc.)
- Certifications: FCC Class A, CE

LEDs

- PoE
- Power
- Link/activity

Power

- Input: 90 – 240 V AC, 50 – 60 Hz
- Power consumption: 500 watts (maximum)

Environmental

- Metal housing
- Dimensions: 440 (W) x 331 (L) x 44 (H) mm (17.3 x 13.0 x 1.7 in.)
- Weight: 4.7 kg (10.36 lbs.)
- Operating temperature: 0 – 40°C (32 – 104°F)
- Operating humidity: 10 – 90% RH, non-condensing
- Storage temperature: -20 – 85°C (-4 – 185°F)

Package Contents

- 24-Port Gigabit Ethernet PoE+ Web-Managed Switch with 4 SFP Combo Ports
- User manual
- Power cable

Note: Specifications are subject to change.

6. Warranty Information

Deutsch Garantieinformationen finden Sie hier unter intellinetnetwork.com/warranty.

English For warranty information, go to intellinetnetwork.com/warranty.

Español Si desea obtener información sobre la garantía, visite intellinetnetwork.com/warranty.

Français Pour consulter les informations sur la garantie, rendezvous à l'adresse intellinetnetwork.com/warranty.

Italiano Per informazioni sulla garanzia, accedere a intellinetnetwork.com/warranty.

Polski Informacje dotyczące gwarancji znajdują się na stronie intellinetnetwork.com/warranty.

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B. Garantizamos los demás productos por 5 años (productos sin partes móviles), bajo las siguientes condiciones:

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2. El comercializador no tiene talleres de servicio, debido a que los productos que se garantizan no cuentan con reparaciones, ni refacciones, ya que su garantía es de cambio físico.
3. La garantía cubre exclusivamente aquellas partes, equipos o sub-ensambles que hayan sido instaladas de fábrica y no incluye en ningún caso el equipo adicional o cualesquiera que hayan sido adicionados al mismo por el usuario o distribuidor.

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