# PSE-SW5FG

## 5 Port PoE Media Converter

## (PoE Extender and Endspan)

# USER'S MANUAL


MSTRONIC CO., LTD.

# 1. General Information

The PoE (Power Over Ethernet) Media Converter provide four 10M/100M/1000M TX ports with PoE PSE function plus one combo up-link port with PoE PD function (TP port). It allows to be powered from PoE power souring equipment (PSE) and deliver power to PoE powered device (PD), which are compliant with IEEE802.3af and IEEE802.3at standard to receive and deliver both Ethernet data and DC power through the traditional UTP or STP cable. The PoE Switch can extend Ethernet data and DC power up to 200 meters. It supports SNMP and WEB management interfaces. User can manage the device via SNMP manager or WEB browser. It also provides local and remote configure/monitor functions, which includes speed, full/half duplex setting, and alarm detection. Link Fault Pass thru and loopback test are also supported to fulfill the emerging deployment requirements for combo up-link networks. This manual will help you install and maintain the PoE switch. Installation of the PoE switch is very easy and you can start to use the product as soon as you are powered up.

## Features :

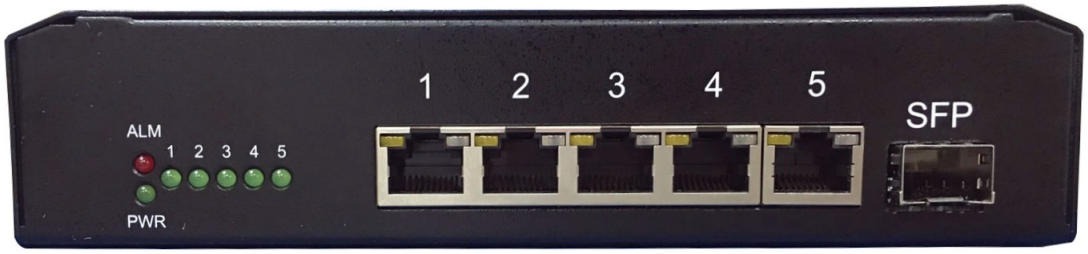
- Support 4 10/100/1000 Base-T and one combo(TP or SFP fiber) up-link
- Support SNMP and Web based management utility
- Support IEEE802.3af/at PoE function
- Support Link fault pass thru (LFP) function
- Support Auto MDI/MDI-X function
- Remote TP port status monitor/configuration
- Support Loopback Test
- LED: Power, Tx_speed/link+activity, Op_link+activity,PoE link
- Support Local/Remote TP reset
- Support Pause function
- Support SFP Fiber transceiver module
- Support jumbo frame (> 9K)
- Support RSTP Function
- Support firmware upgrade via SNMP manager or Web browser .
- Support In-band management(SNMP and Web)

# 2. Hardware Description

## *LED Indicator

There are 17 LEDs on the PoE switch to indicate the status of power and signal. The following section describes the functions of each LED indicator.

Front panel detail




*POWER LED

| LED | STATUS | Description |
|---|---|---|
| Power | Green | LED ON when power input (DC IN on rear panel or UPLINK on front panel) has valid power supplied. |
| | Red | LED ON when the following warning condition happens.<br>*Power input under voltage (Vin<46V)<br>*Power input over voltage (Vin>59V) |
| | Off | No power supplied. |

*PoE LED

| | | |
|---|---|---|
| P1~P4<br>PoE | Green | A valid Powered Device (PD) is detected and delivering power on this port. |
| | Off | No PD is detected on this port. |
| UPLINK (P5)<br>PoE | Green | Powered via all 4 data pairs. |
| | Green Blanking | Powered via 2 data pairs. (1,2,3,6 or 4,5,7,8 are all acceptable). |
| | Off | No power is detected on this port. |

*SWITCH LED

| LED | STATUS | Description |
|---|---|---|
| P1~P5<br>the right indicator on RJ45<br>1000M Link/Act | Green | A network device is detected (1000Mbps), but no communication activity is detected. |
| | Green Blinking | This port is transmitting to, or receiving package from another device at 1000Mbps. |
| P1~P5<br>the left indicator on RJ45<br>10/100M Link/Act | Yellow | A network device is detected (10Mbps or 100Mbps), but no communication activity is detected. |
| | Yellow Blinking | This port is transmitting to, or receiving package from another device at 10Mbps or 100Mbps. |
| | Off | No device is detected. |

Notice: The corresponding 1000M ACT/LNK LED (P5, the right indicator on RJ45) will be ON state when you made a fiber connection.

# *Power wiring

The PoE switch allow powered by another PoE source on port 5 (UPLINK, TP) as a PoE repeater or extender. For PoE operation, make sure your power supply may offer at least 75W for 4x 802.3af PoE port, or 150W for 4x 802.3at PoE port.

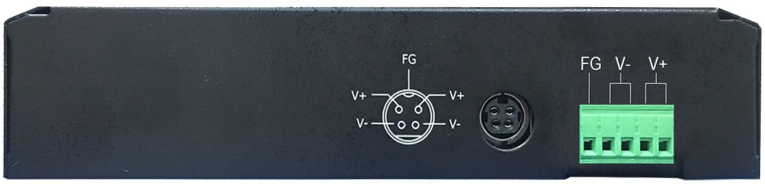
If powered via the rear terminal, please make sure the input current is not over 15A. (inner fuse limit) Please note green connector is capable of 12A max. If more current is required, use 4 pin DIN connector for up to 15A.

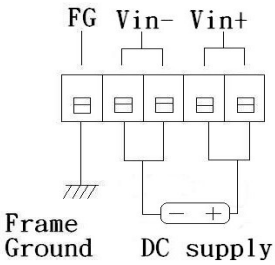
If powered on port 5, make sure the input current is not over 2Amp.

Ports 1~4 will deliver DC power over the Ethernet cable as detailed below:
Mode B:
* Data pair A on line 1 and 2
* Data pair B on line 3 and 6
* Data pair C plus V+ on line 4 and 5
* Data pair D plus V- on line 7 and 8

Port 5(TP only) may get DC power over the Ethernet cable, as detailed below:
* Data pair A plus V+ /V- on line 1 and 2
* Data pair B plus V-/V+ on line 3 and 6
* Data pair C plus V+/V- on line 4 and 5
* Data pair D plus V-/V+ on line 7 and 8

The terminal block on the rear panel should be wired as detailed below:




The DIN-4P connector on the rear panel also used for power input, you can use an AC/DC adapter with DIN-4P connector directly, recommends adaptor products is MS-180-56(56VDC/3.21A).

# *Ethernet Port Wiring

The PoE switch family supports one RJ-45 uplink (port 5 with PoE PD,TP only) and four RJ-45 ports (port 1~4 with PoE PSE) with automatic MDI/MDI-X crossover, auto-sense for speed and duplex for 10Base-T, 100Base-TX or 1000Base-T connection. Automatic MDI/MDI-X crossover allows you to connect to other devices (switches, hubs, or workstations etc.), without regard to using straight-through or crossover cabling.

Port 1 to 4 provides Power over Ethernet function that delivers DC power through the data pairs C & D (pair 4,5 and pair7,8) to the PD. Port 5(TP only) provides Power Device function that receive power from 4 pairs or 2 pairs Ethernet cable.

The following tables describe the wiring diagram of straight-through and crossover cabling. The crossover cables simply cross-connect the transmit lines at each end to the receive lines at the opposite end.

| Straight-through Cabling | |
|---|---|
| Pin 1 | Pin 1 |
| Pin 2 | Pin 2 |
| Pin 3 | Pin 3 |
| Pin 6 | Pin 6 |
| Pin 4 | Pin 4 |
| Pin 5 | Pin 5 |
| Pin 7 | Pin 7 |
| Pin 8 | Pin 8 |

| Cross-over Cabling | |
|---|---|
| Pin 1 | Pin 3 |
| Pin 2 | Pin 6 |
| Pin 3 | Pin 1 |
| Pin 6 | Pin 2 |
| Pin 4 | Pin 7 |
| Pin 5 | Pin 8 |
| Pin 7 | Pin 4 |
| Pin 8 | Pin 5 |

Connect an Ethernet cable into any switch port and connect the other side to your attached device. The Link/Act LED (green or yellow) will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator.
If a port LED is off, go back and check for connectivity problems between that port and the network device connected.

The maximum cable length for 10/100/1000BaseT with Cat 5 twisted pair cables is typically 100m (328 ft.).

## *PD Port Wiring

Port 1 to 4 provides PoE injection function with maximum 35W ability to power up the powered device using the straight-through or cross-over Ethernet cable.
The PoE switch follows the IEEE802.3af Alternative B mode connector assignment. The following table shows pin assignment of alternative A and B for the Power Source Equipment.

| Conductor | Alternative A (MDI-X) | Alternative A (MDI) | Alternative B (All) |
|---|---|---|---|
| 1 | Negative Vport | Positive Vport | |
| 2 | Negative Vport | Positive Vport | |
| 3 | Positive Vport | Negative port | |
| 4 | | | Positive Vport |
| 5 | | | Positive Vport |
| 6 | Positive Vport | NegativeVport | |
| 7 | | | Negative Vport |
| 8 | | | Negative Vport |

Be sure the twisted pair cable is bound with the standard RJ-45 pin, especially the pins 4, 5, 7 and 8. If the RJ-45 is bound with the wrong pin number, the PoE switch will not recognize the PD and won't deliver DC power to the PD. The green PoE LED will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator. If a port LED is off, go back and check for connectivity problems between that port and the network device connected.

## *Fiber Port Wiring

The PoE switch(fiber mode) has one 1000 Mbps multi-mode or single-mode fiber port. The maximum segment length is dependent upon the type of fiber optic transceiver installed in the switch. Refer to the technical specifications for details. Or contact a sales agent for the available fiber optic transceivers.

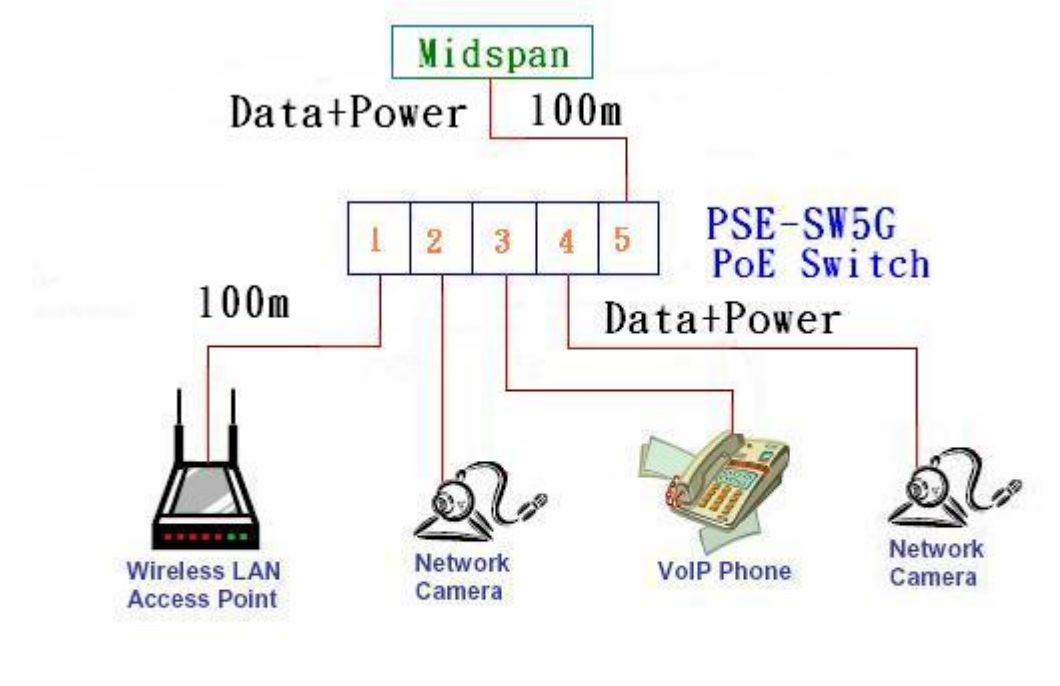
The automatic MDI/MDI-X crossover function does not apply to fiber connections. To connect the fiber optic port on one switch to the fiber optic port of another switch, simply cross-connect the transmitter at each end to the receiver at the opposite end.

The corresponding 1000M ACT/LNK LED (P5, the right indicator on RJ45) will be ON state when you have made a proper connection.

Please note If use SFP port, then Port 5 is no longer active for data, not both in the same time.

## *Network Application

The PoE Switch can receive power from a PoE midspan and provide power to the PD which follows the IEEE 802.3af/at standard in the network. The PoE Switch can be installed in a more appropriate position for better performance to extend Ethernet to 200 meters. The following figure is an example of a network application for the PoE Switch.




# 3. Web Interface

The PoE combo switch can remotely manage the PoE & switch via the network.
To manage PoE combo switch, you must to set the switch TCP/IP parameter.

The PoE combo switch allowed you to use a standard Web-browser such as Microsoft Internet Explorer or Mozila, to set the TCP/IP parameter.

Before you use the web interface to set the PoE combo switch TCP/IP, verify that PoE combo switch is properly installed on your network and PC on the network can access switch via the web-browser.

1. Verify that PC network interface card (NIC) is operational on the TCP/IP protocol.

2. Supply power to PoE combo switch.

3. Use RJ45 cable, connect PoE combo switch direct to your PC.

4. Make sure the PoE combo switch default IP is 192.168.1.10.

5. Set your PC IP to 192.168.1.2 or other IP address which is located in the 192.168.1.x subnet.

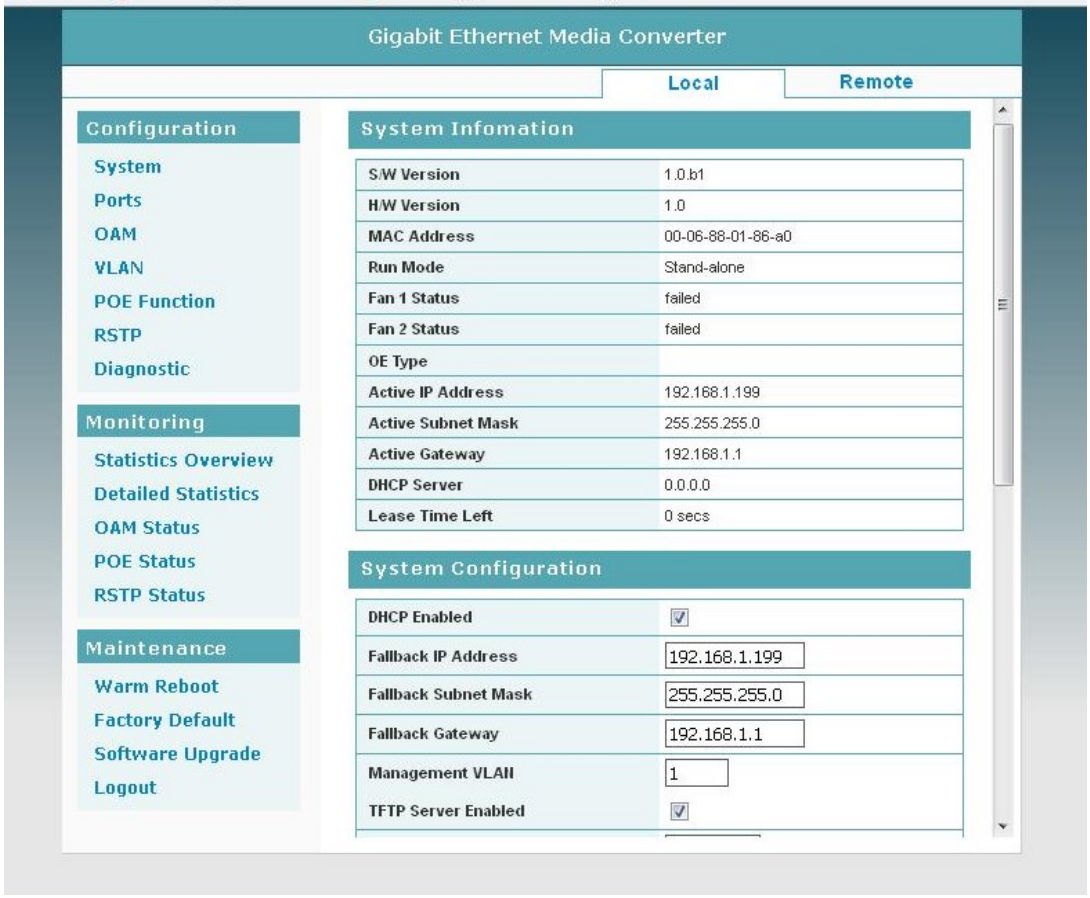
6. Make sure the connector is OK (Ping 192.168.1.10 on the DOS mode).

7 Start the web-browser and type http://192.168.1.10.

8. The login in screen will appear next.


9. Key in password to enter switch TCP/IP parameter setting.
   Default password is 1234.

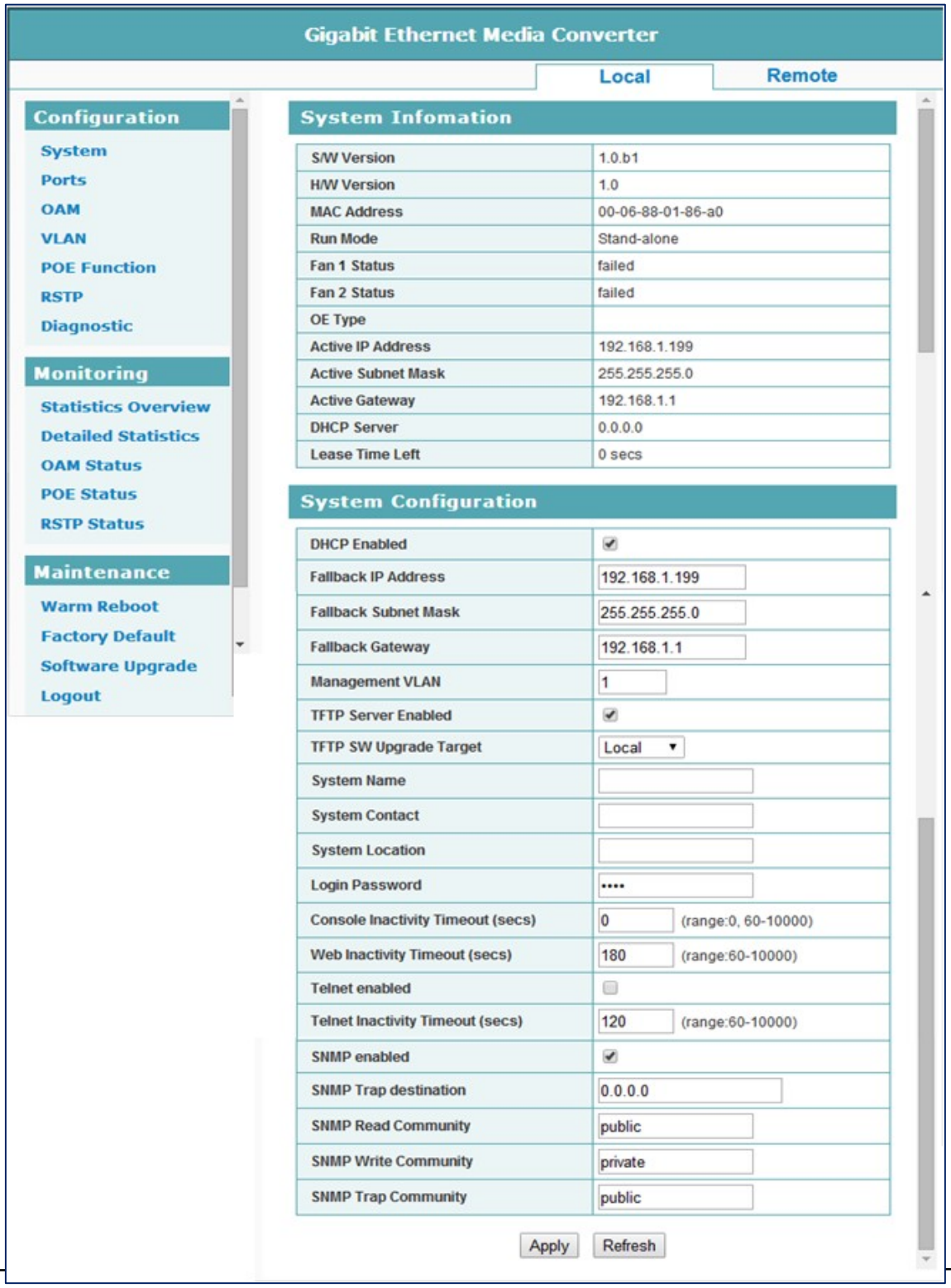
10. Into the web interface, the first page will show system information and the system configuration.



# 3-1. Configuration

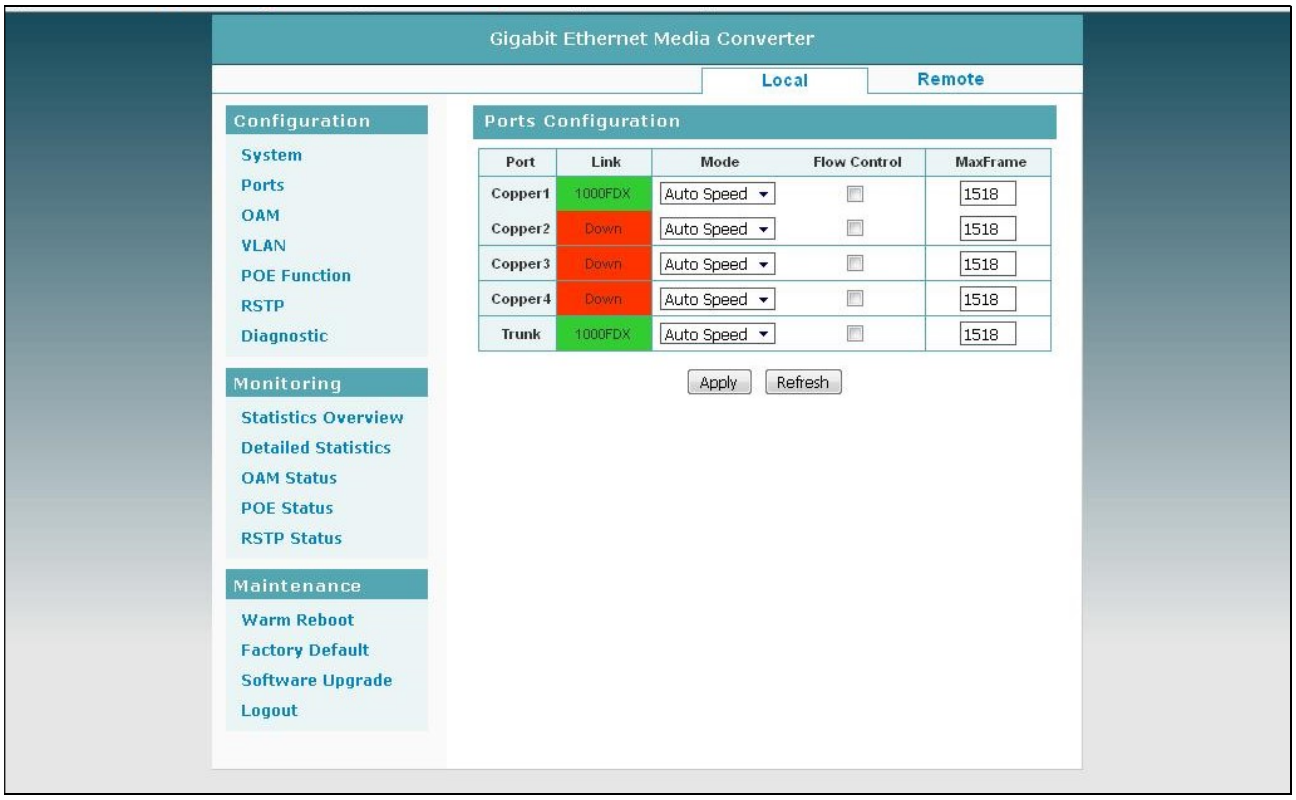
## *System configuration

Show system information (software version, hardware version, OE type and management MAC address) and set system configuration (TCP/IP, Telnet and SNMP parameter).



*Port configuration

Show the link status (current speed and duplex mode), and set LAN port parameter (mode, flow control and maximum frame size).




Mode: Port speed and duplex mode.

10hdx : 10 Mbit/s, half duplex.

10fdx : 10 Mbit/s, full duplex.

100hdx : 100 Mbit/s, half duplex.

100fdx : 100 Mbit/s, full duplex.

1000fdx: 1 Gbit/s, full duplex.

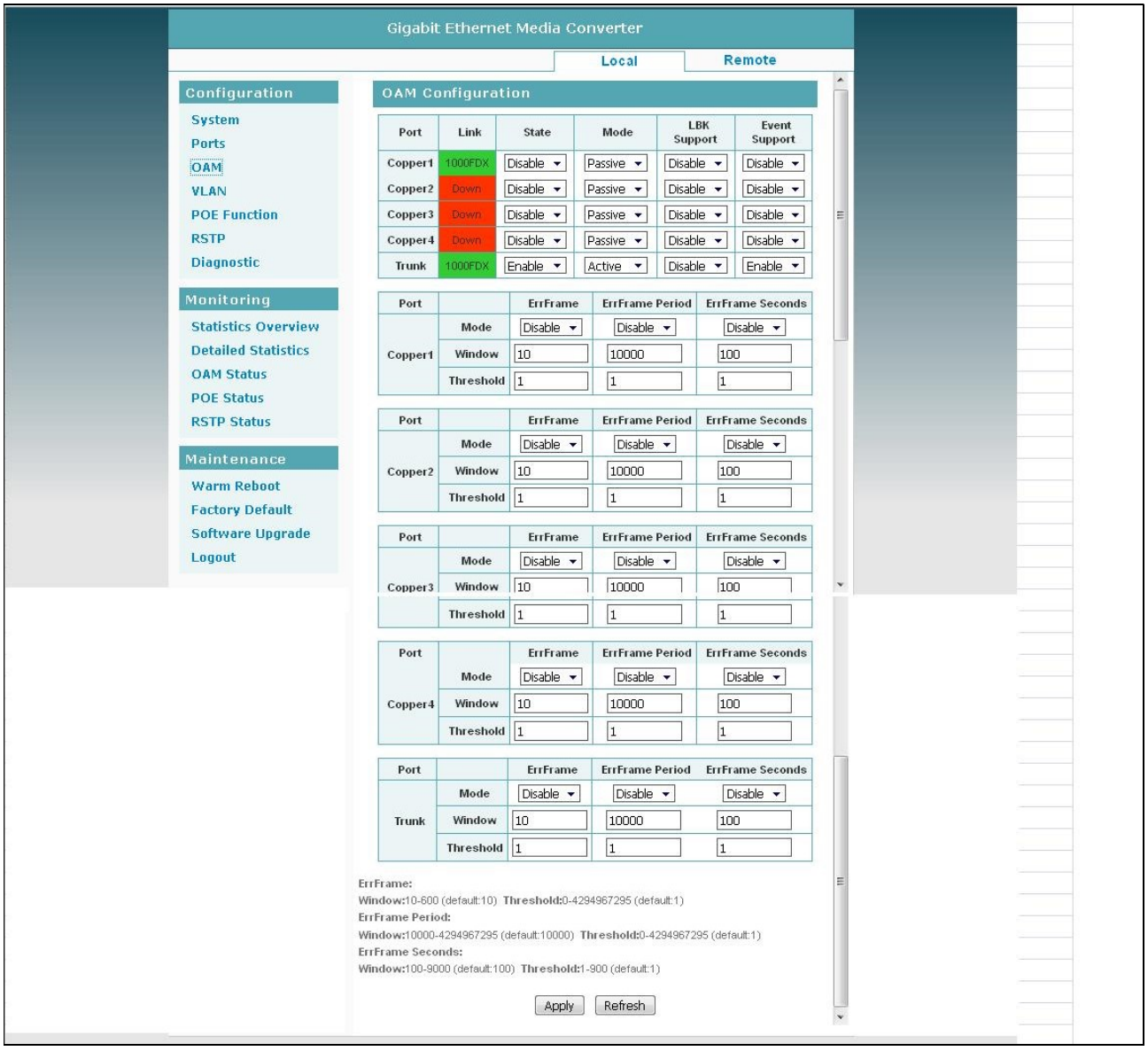
auto : Auto negotiation of speed and duplex

Flow control: Enable/disable flow control (default: disable).

MaxFrame: Maximum frame size [1518-9600]

## *OAM configuration

Set IEEE802.3ah OAM parameters.




State: Enable or disable OAM state on ports

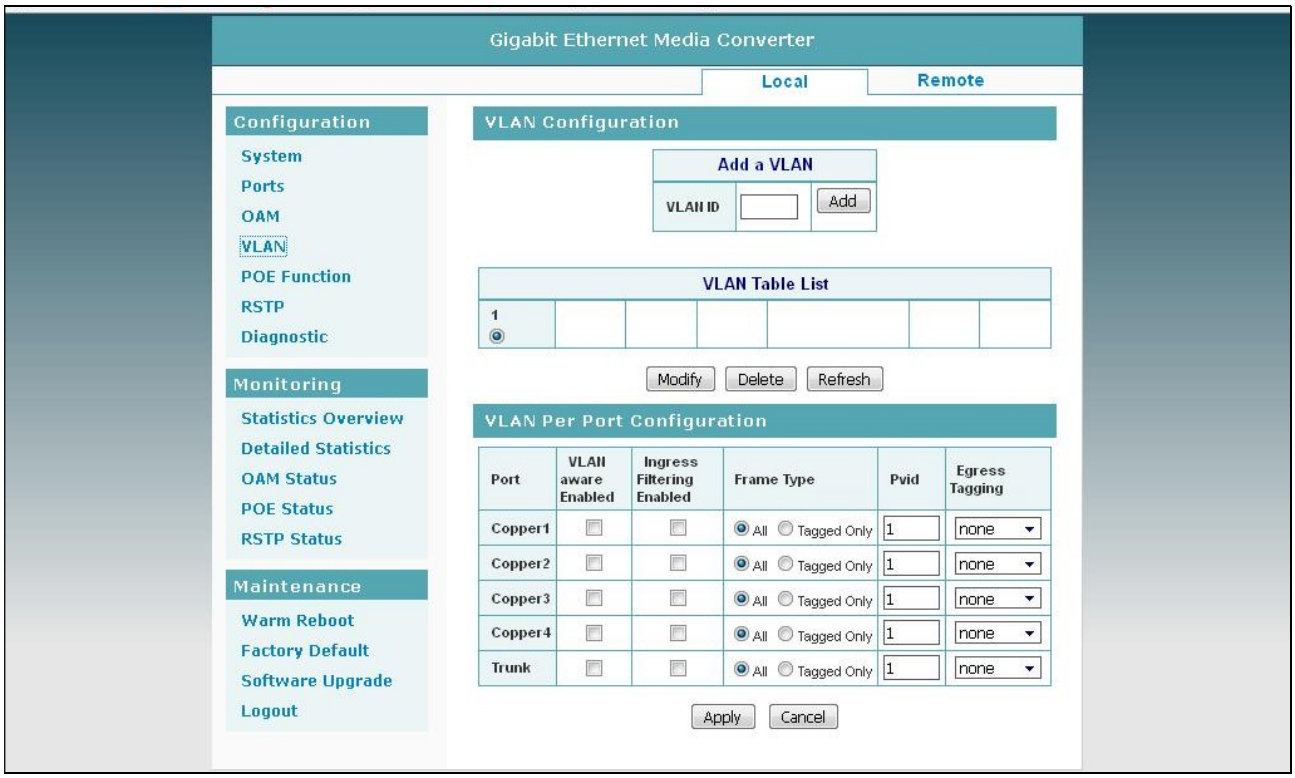
Mode: Set OAM mode on ports

LBP Support: Enable or disable OAM LBK support on the port

Event Support: Enable or disable Event support on the port

## *VLAN configuration

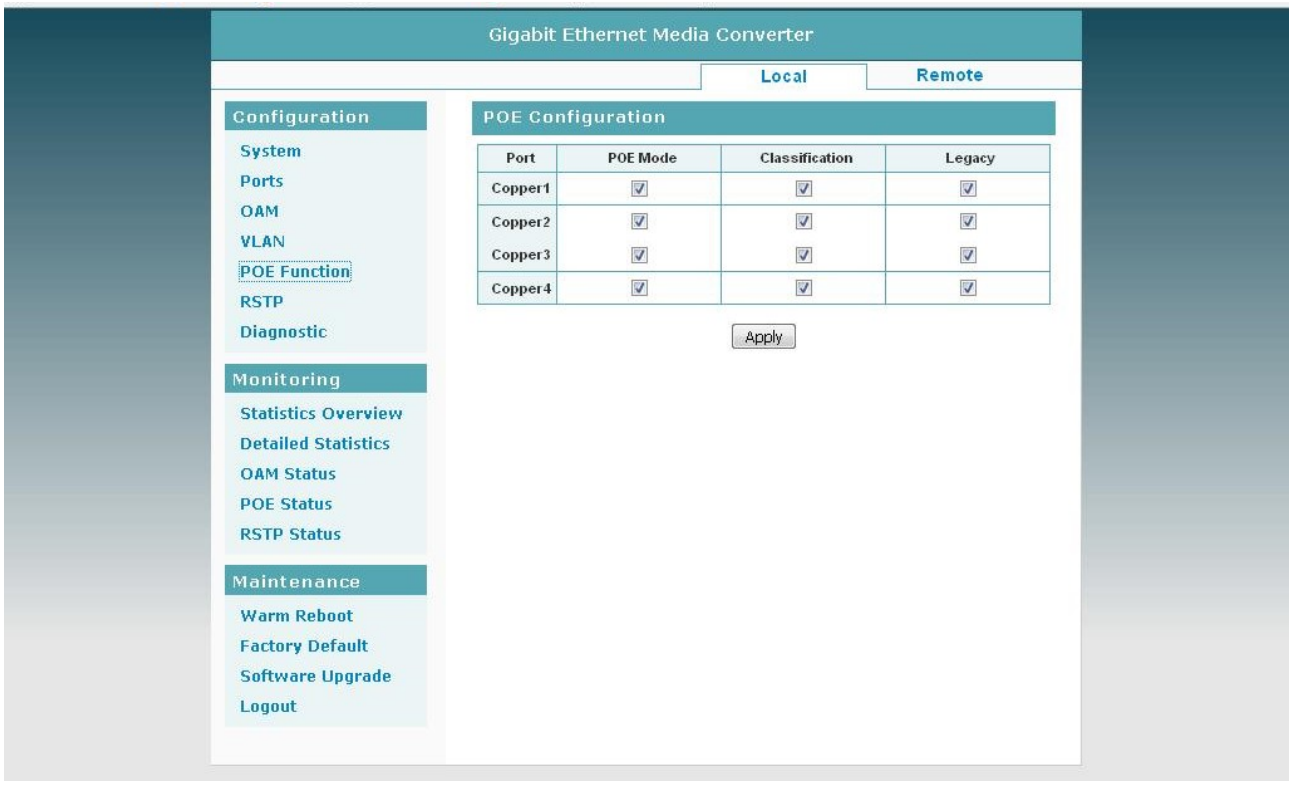
Enable VLAN group and display VLAN port status.




VLAN ID:Assign an ID number from 1 to 4094.

## *PoE Function

**Set PoE(Power on Ethernet) mode, classification & high capacitance legacy PD parameter.**



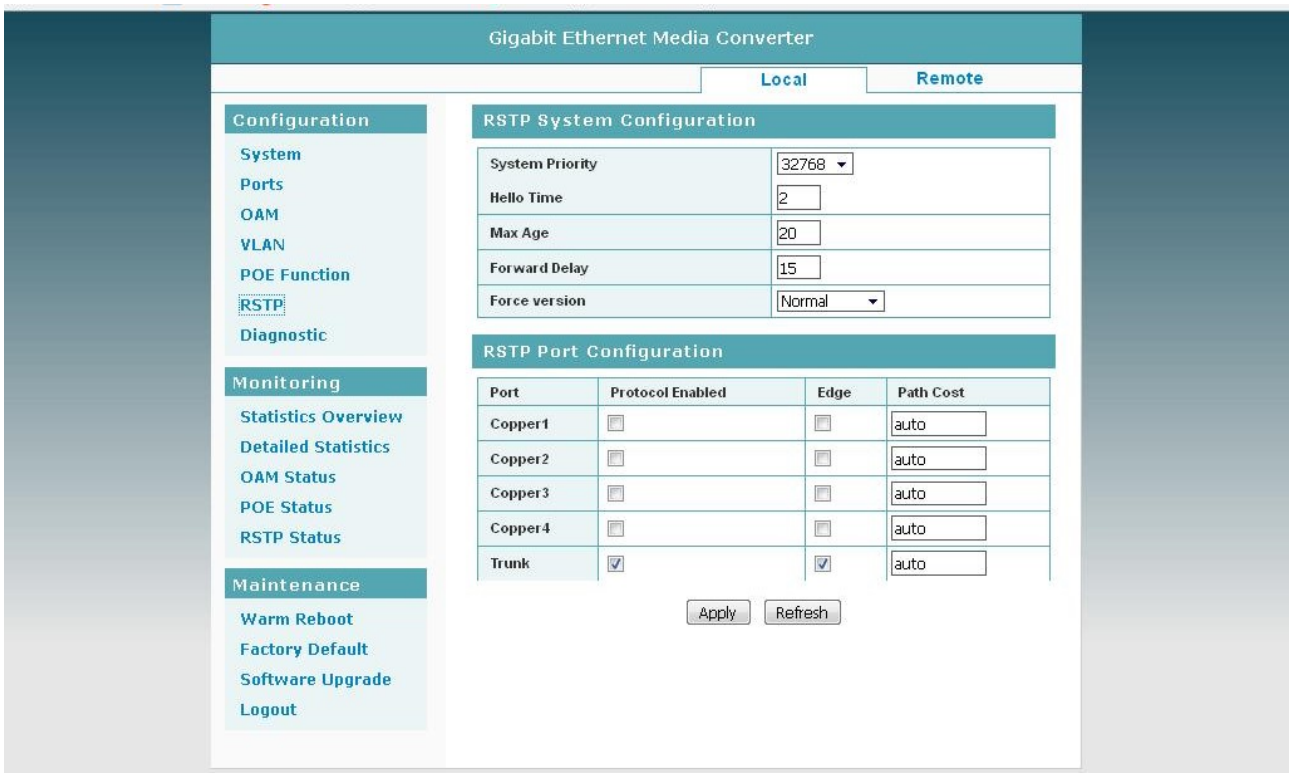

PoE Mode: Uncheck = PoE Off, no port power

Classification: Check = 802.3at, Uncheck = 802.3af

Legacy = Enable PD detection with higher capacitance range (C > 10uF).

## *RSTP configuration

**Set RSTP system and port configuration.**




**System Priority: set the RSTP system priority. Number between 0 -61440 in increment of 4096.**

**Hello Time: set the RSTP system hello time. Number between 1-10.**

**Max Age: set the RSTP system max age. Number between 6-40.**

**Forward Delay: set the RSTP system forward delay. Number between 4-30.**

**Force version: set the RSTP protocol version to use.**

**Normal – use RSTP, compat- compatible with old STP.**

**Protocol Enabled: enable or disable the RSTP protocol on port.**

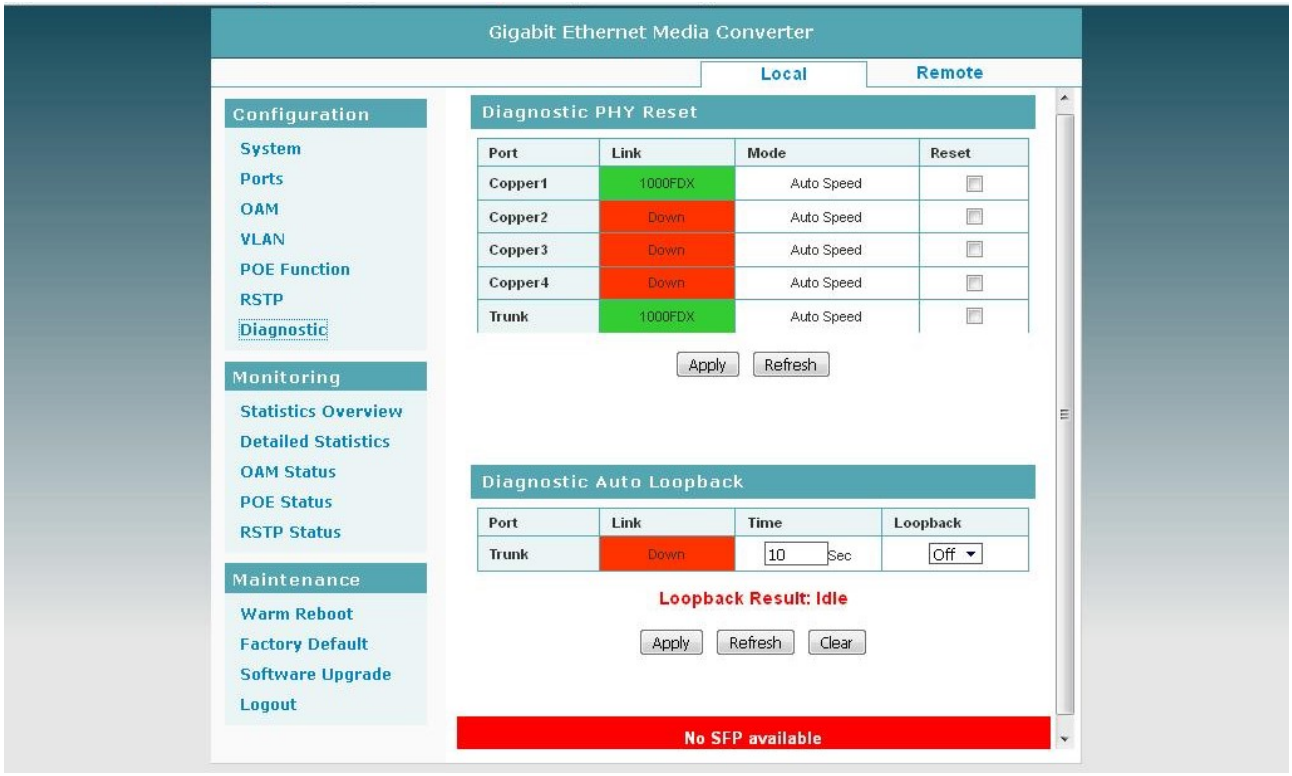
**Edge: expect the port to be an edge port(an end station) or a link to another STP device.**

**Path Cost: set the RSTP pathcost on port.**

**Auto – means auto generated pathcost, number between1-200000000 .**

## *Diagnostic configuration

**Show diagnostic configuration and set loopback parameter.**



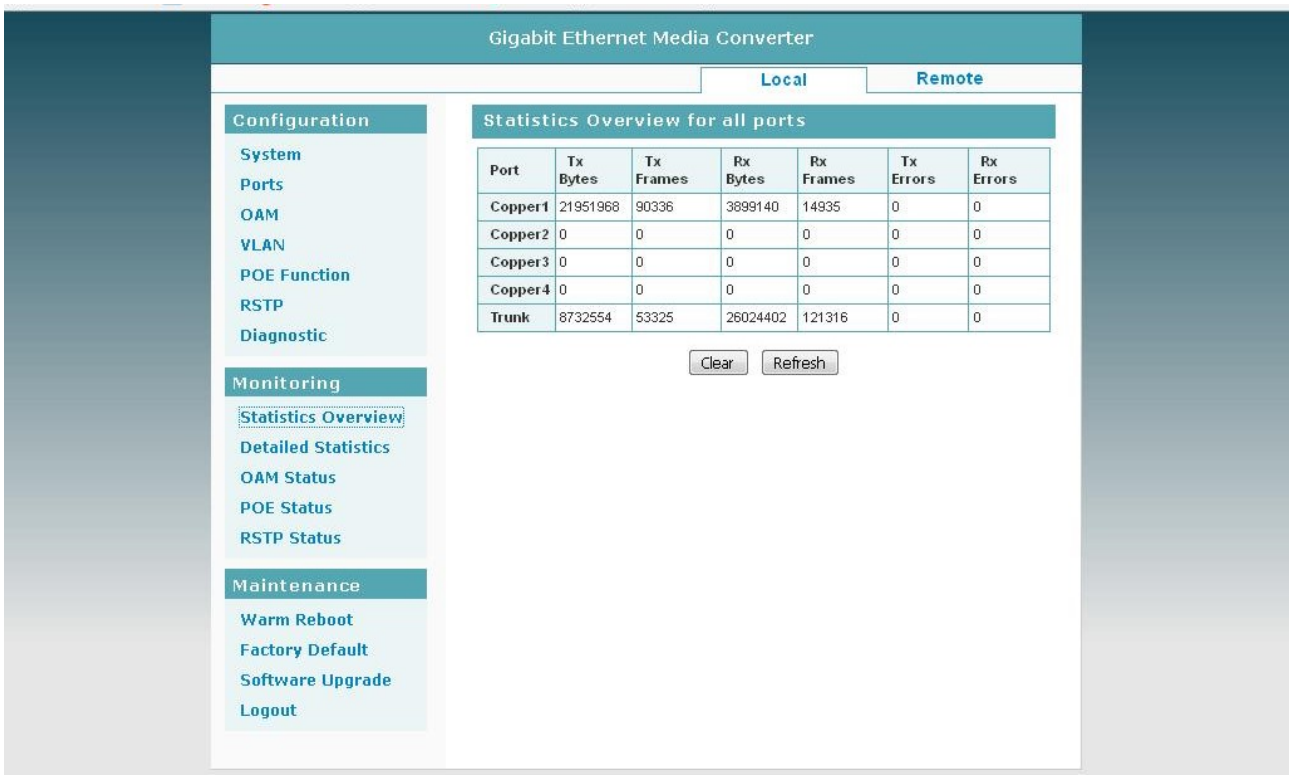

**Reset: reset the PHY on the port.**

**Loopback: active/deactive automatic loopback test on the remote site.**

# 3-2. Monitoring

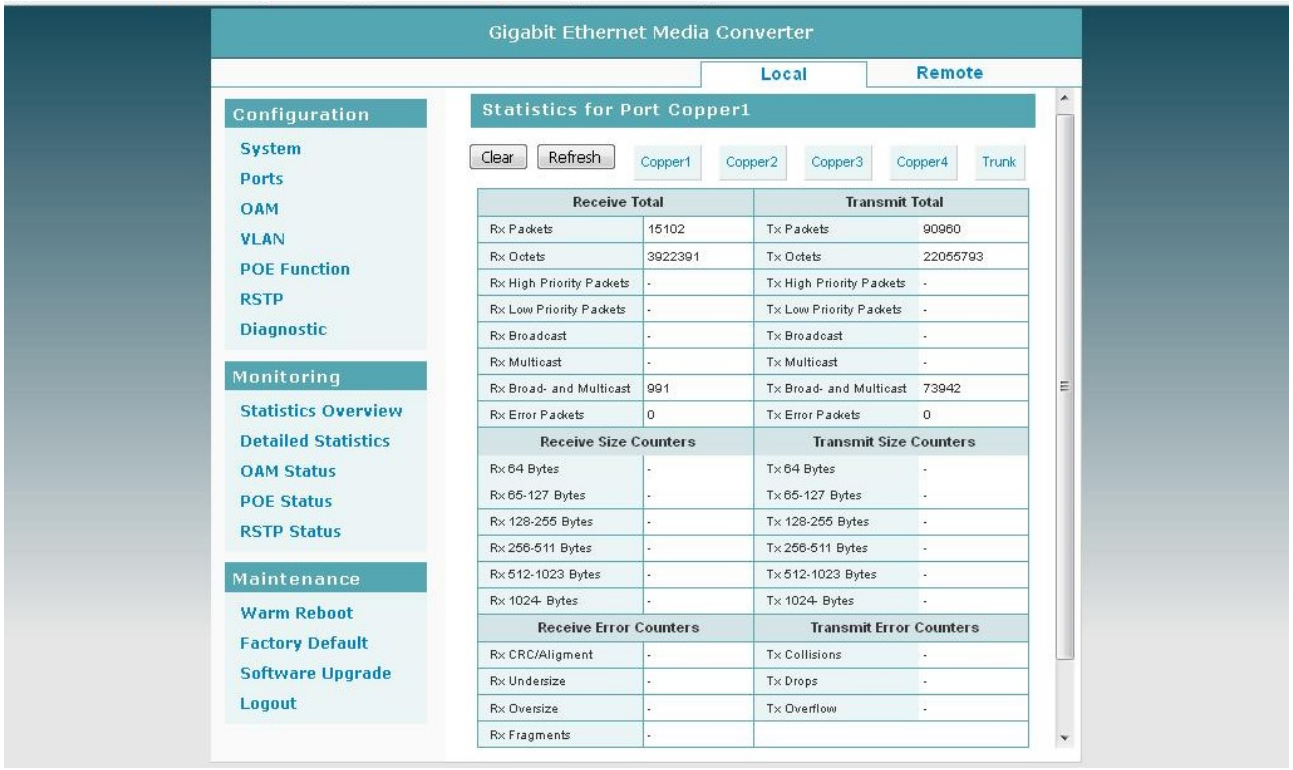
## *Statistics Overview

Show or clear statistics for all ports.



# *Detailed Statistics

**Show the detail statistics for the port.**

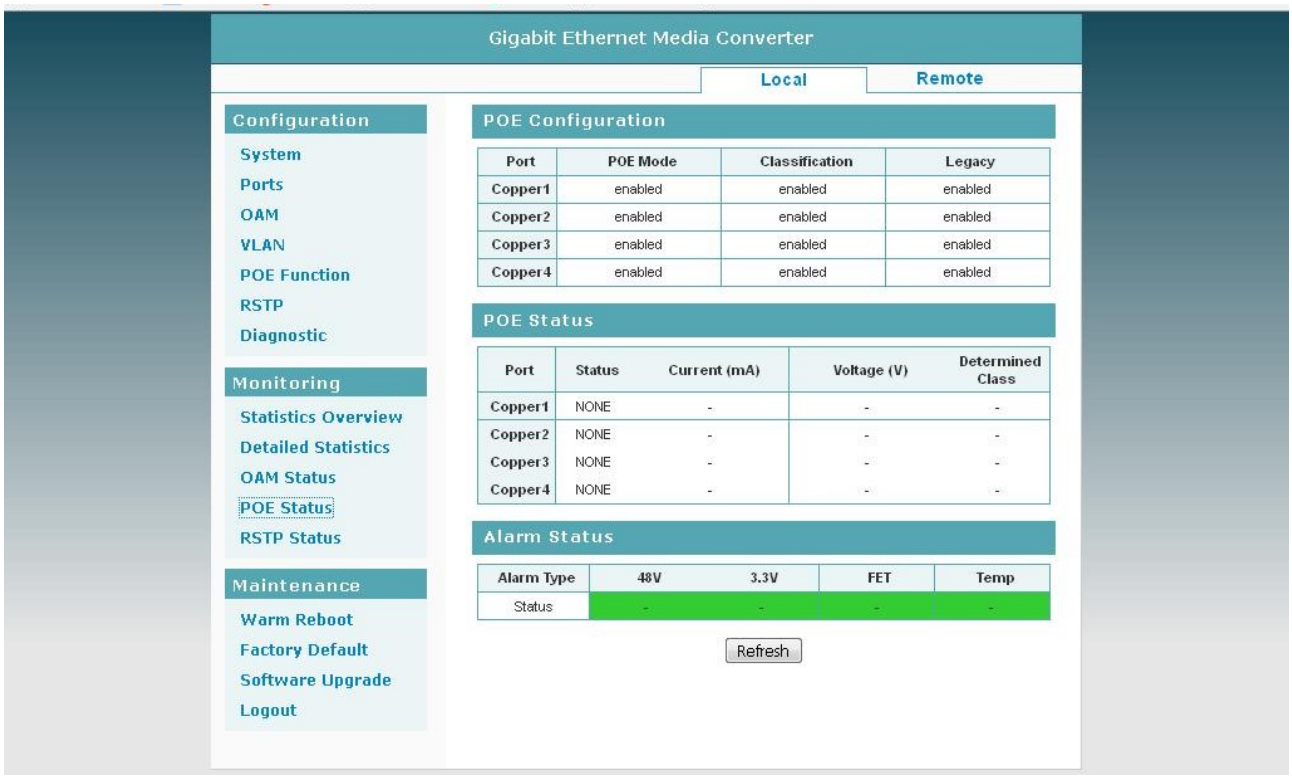


## *OAM status

**Show the OAM running status.**

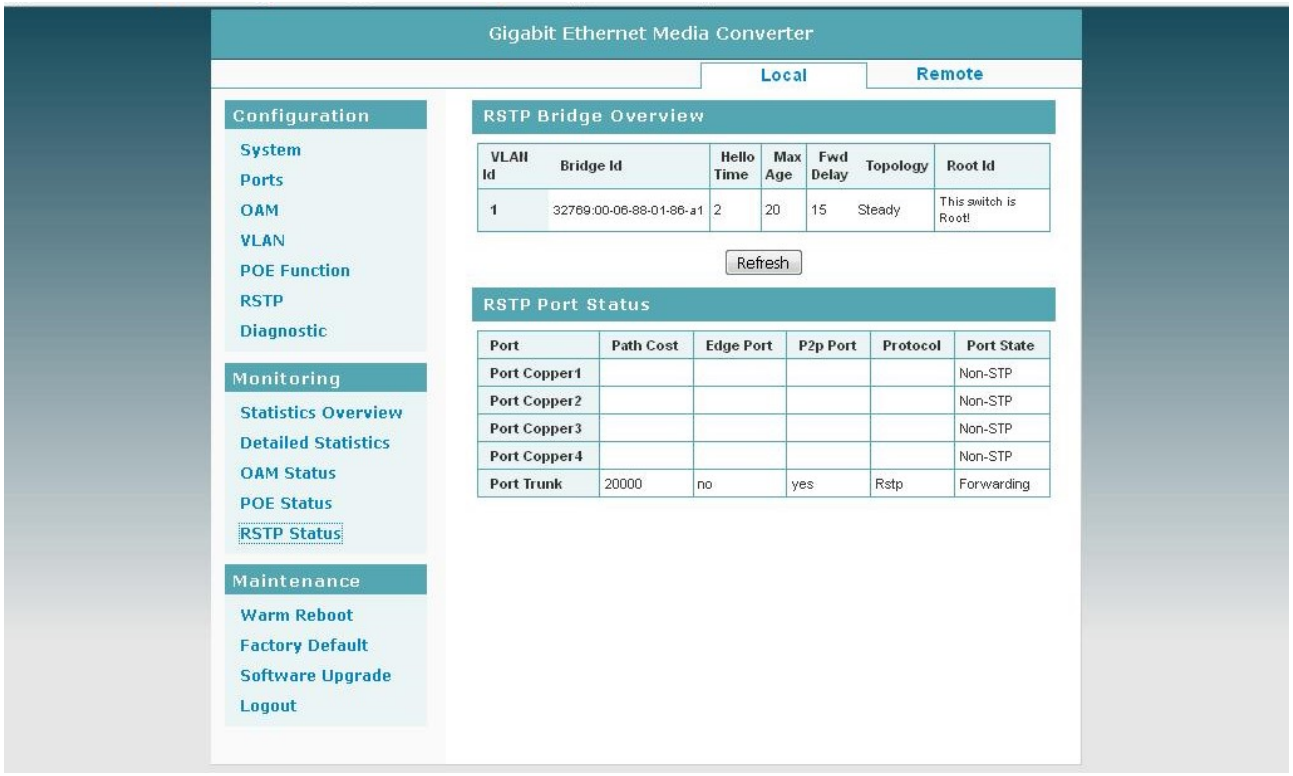
## *POE status

**Display PoE configuration, status and alarm status.**



## *RSTP status

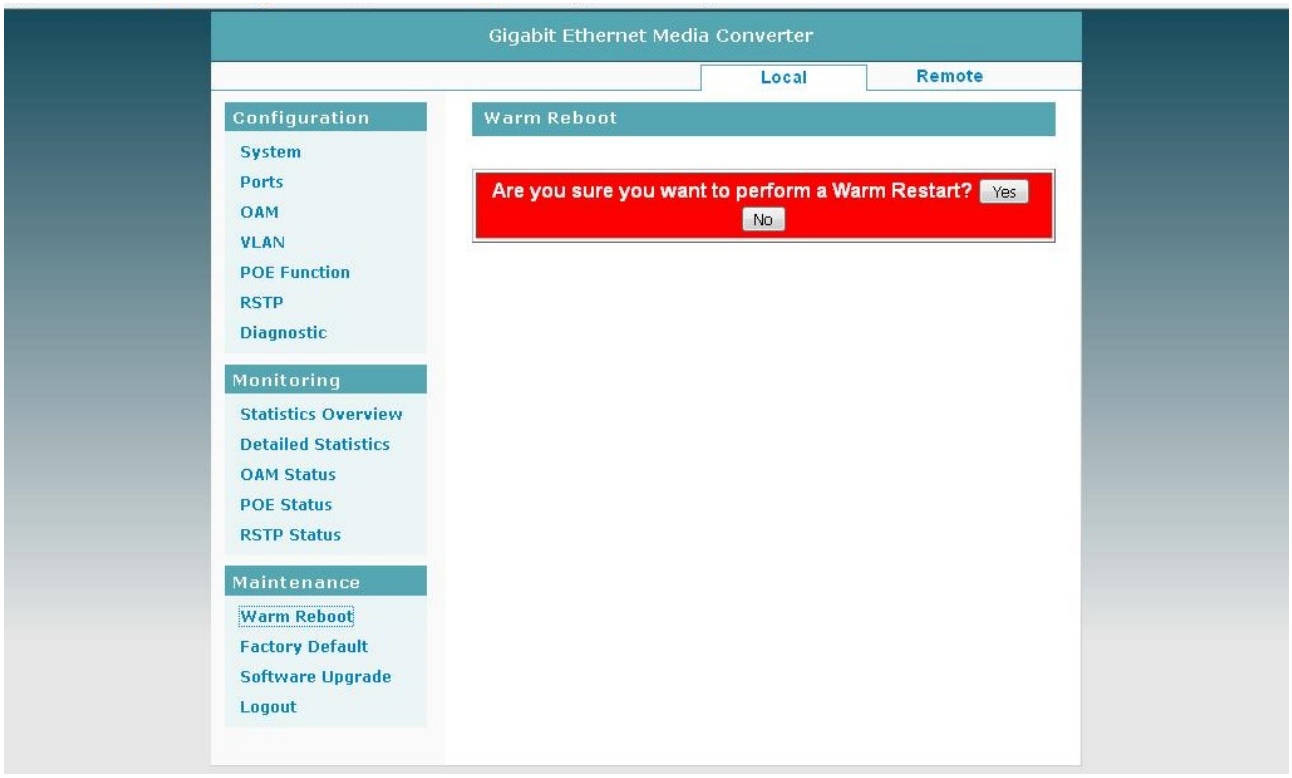
Show RSTP bridge instance and port statistics.



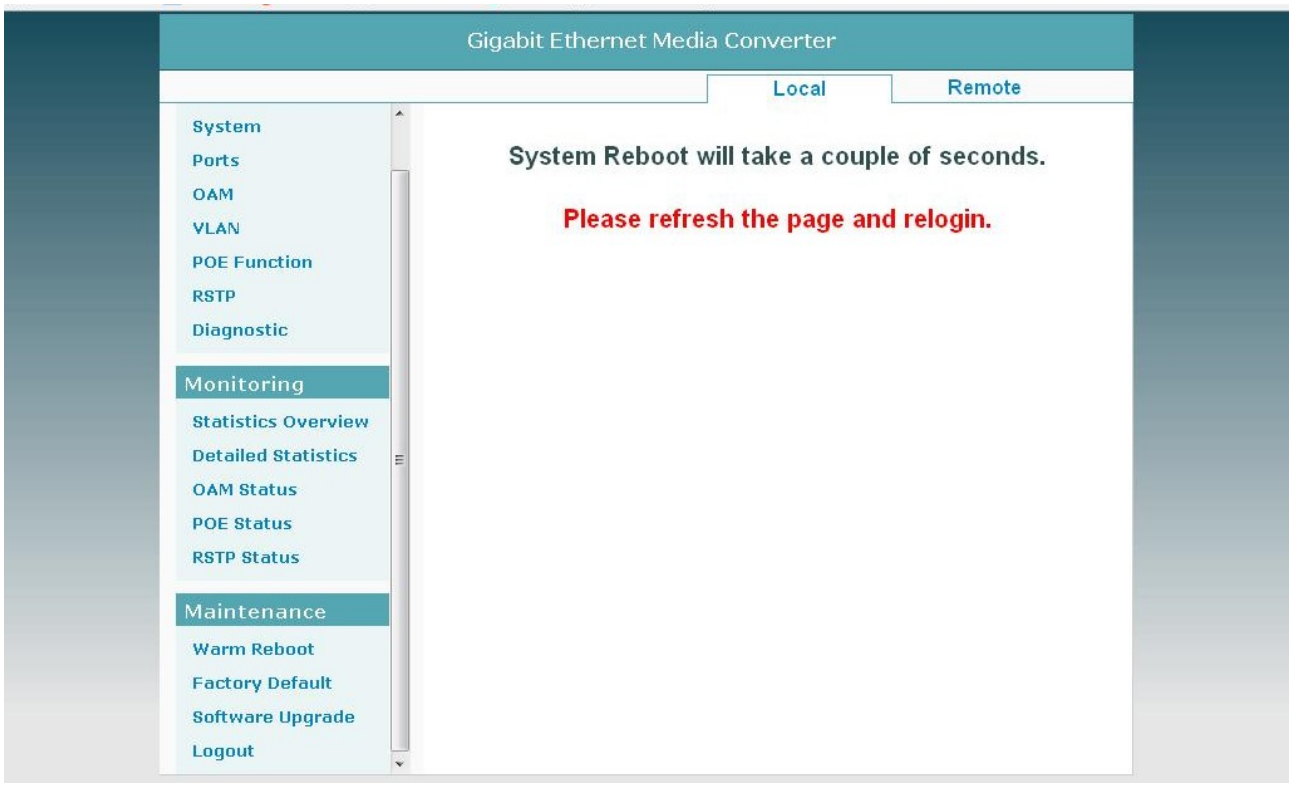
# 3-3. Maintenance

## *Warm Reboot

Below is warm reboot to request confirmation for the Switch. Click **Yes** to reboot the switch.

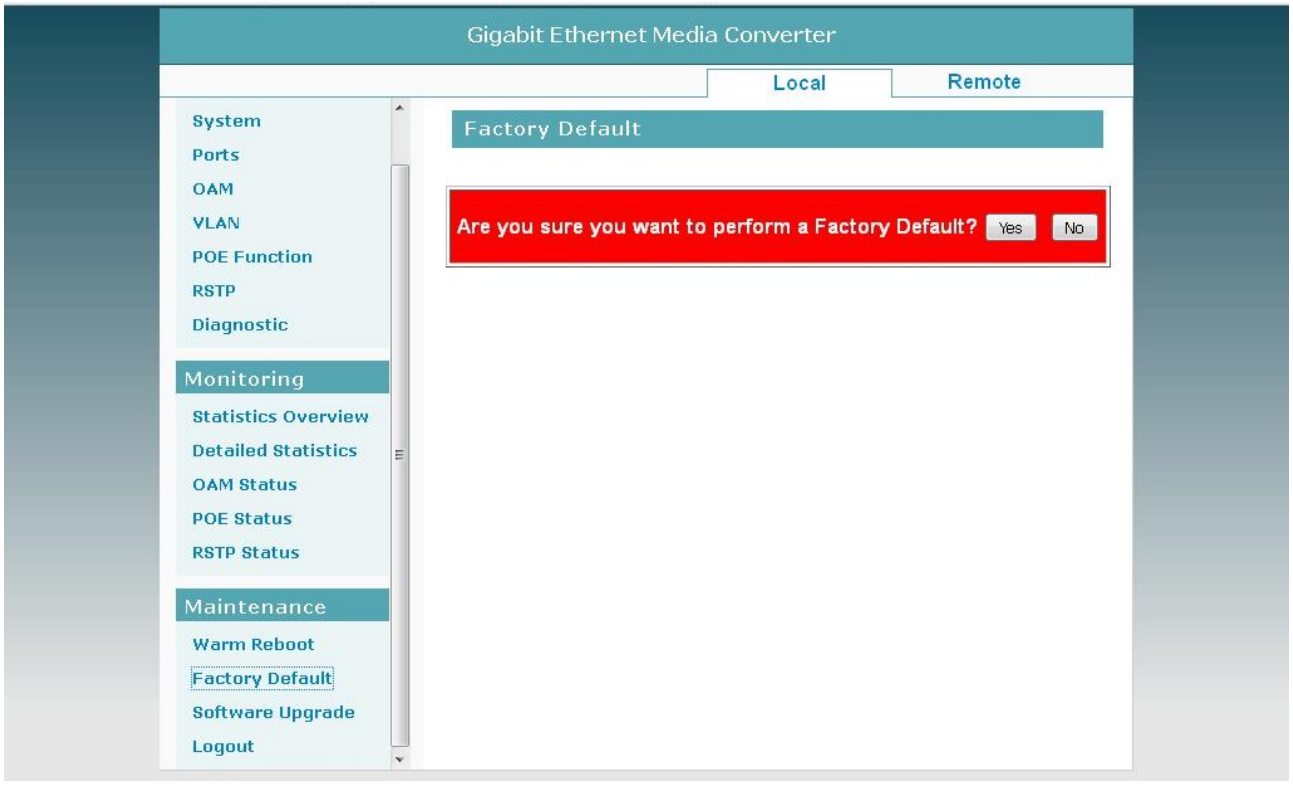


The message screen below appears when rebooting the switch.



## *Factory Default

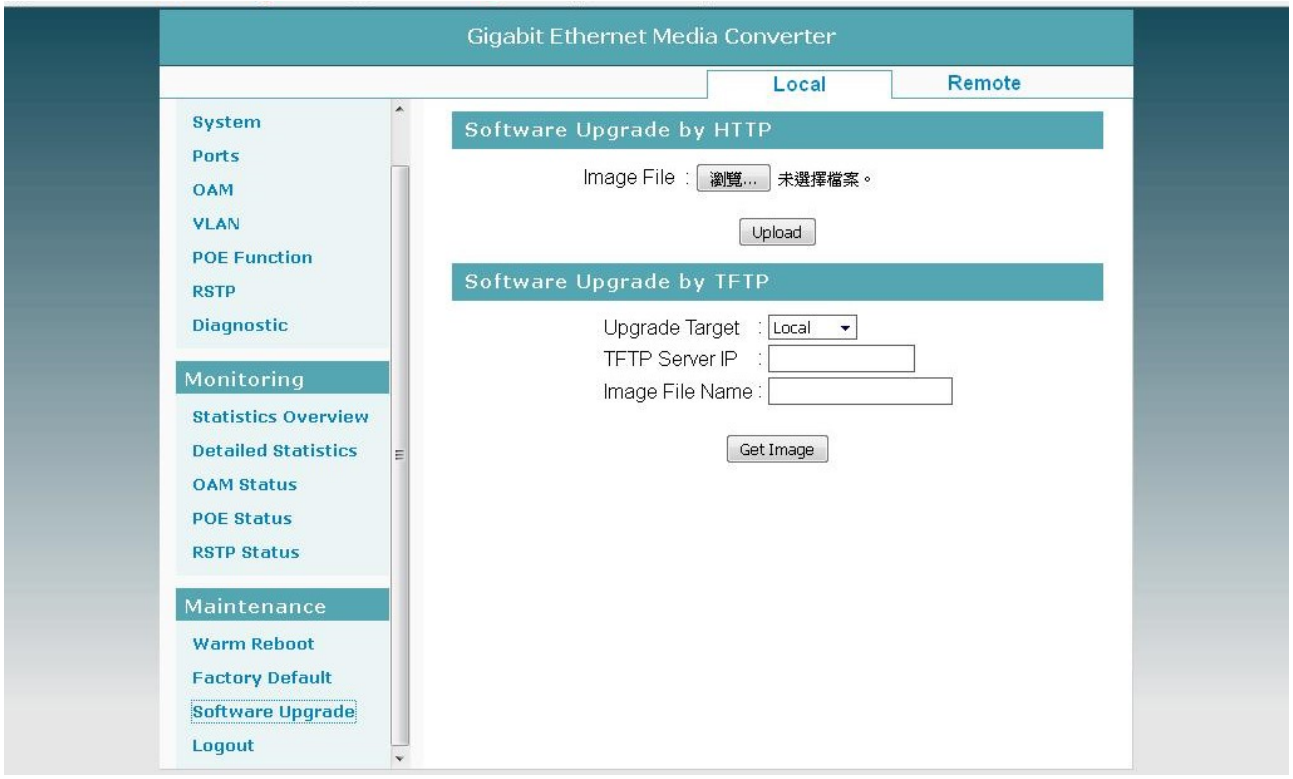
The following screen to confirm the factory default command. Click **Yes** to reset the system.



The following message screen to show you that the reset is complete.

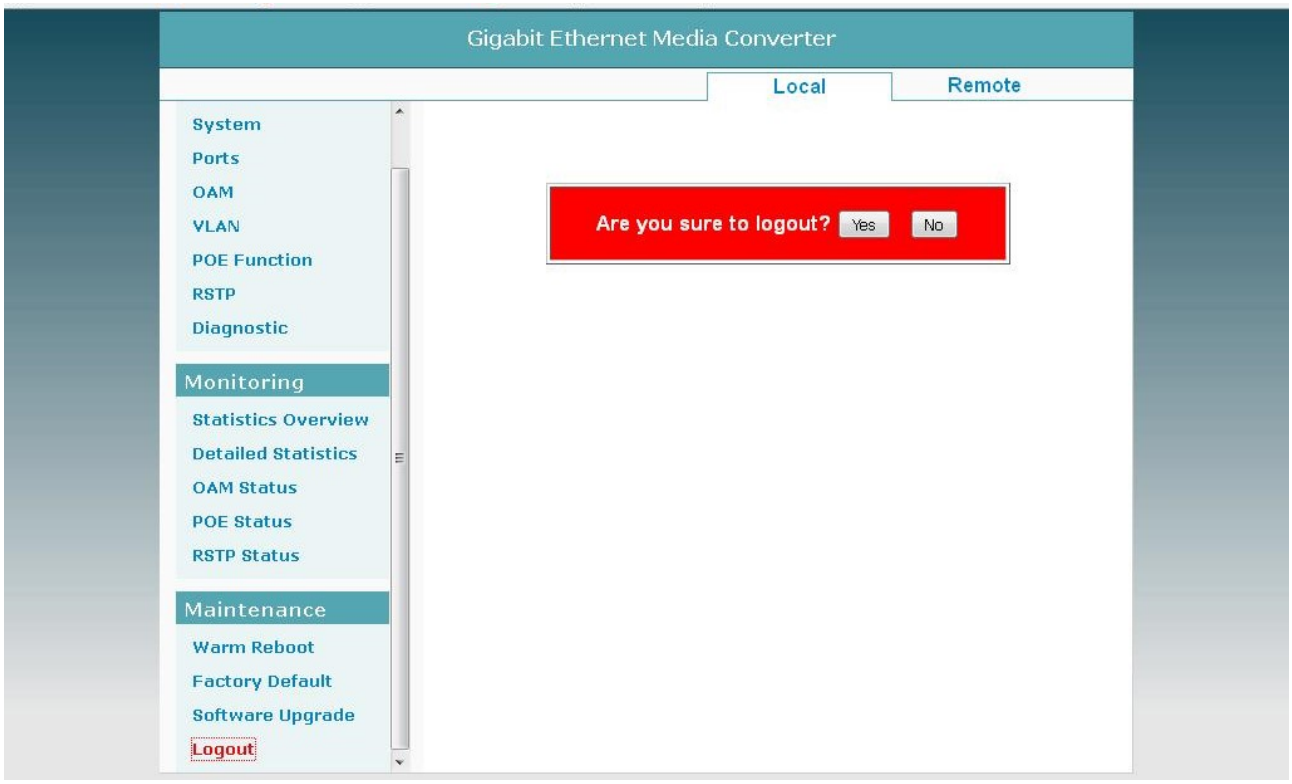
## *Software Upgrade

You can update the switch with the latest firmware. The following screen is for software upgrade.



## *Logout

The following screen to confirm the logout command. Click **Yes** to left the system.



# 4. Technical Specifications

| | |
|---|---|
| Standards | IEEE802.3/IEEE802.3u standards/IEEE802.3ab (10 base-T/100base-TX/1000base-T)/ IEEE802.3z (1000Base-SX/LX) |
| Ports | 4 ports with PoE PSE, support auto-crossover & auto-polarity<br>1 combo uplink port:<br>TP port with PoE PD, support auto-crossover & auto-polarity<br>Fiber port support 1000base-SX/LX |
| Transmission speed | 1000Mbps (1000base-T),100 Mbps (100base-TX), 10 Mbps(10base-T)<br>Auto-negotiation |
| Switch technology | store-and-forward |
| Protocols | CSMA/CD |
| Flow control | IEEE802.3x (full-duplex), back pressure (half-duplex) |
| Data transmission rate | 1488000pps for1000base-T, 148800pps for 100base-T, 14880pps for 10base-T |
| Address table | 8K MAC address table, self-learning |
| Memory buffer | 112K |
| Connect | RJ-45 x5 / SFP x 1 |
| Fiber Port | |
| Transmission speed | 1000Mbps (1000base-SX/LX) full duplex |
| Connect | SPF for LC type optic |
| Cable | 1000base-SX: 62.5um MMF or 50um MMF<br>1000base-LX: 62.5um MMF or 50um MMF or 10um SSF |
| PoE port | Port 1-4, PSE auto power management |

| | |
|---|---|
| | Pin assignment:<br>data pair A(1,2),<br>data pair B(3,6),<br>data pair C plus V+(4,5),<br>data pair D plus V-(7,8)<br><br>Port 5, 4 pairs PD |
| Maximum PoE power | Port 1-4: IEEE802.3af – 16.8W<br>IEEE802.3at – 35W<br>Port 5: 90W (802.3at 2 event classification) |
| PSE disconnect mode | DC disconnect |
| PoE auto detection | IEEE802.3af & IEEE802.3at (2 event classification signaling) |
| PoE protection | Over-temperature, over-current, over/under voltage |
| LEDs | *Link/Activity (Green ON/ Green Blinking @1000Mbps,<br>Yellow/Yellow Blinking @10M/100Mbps)<br>*PoE (Green) port 1-4 ON - PD detect<br>Port 5 ON – 4 pair power, Blinking-2 pair power<br>*POWER Green-normal, Red-alarm |
| Power input | DC power supply on the rear(@48V typical), or port 5 (UPLINK/TP)<br>from network switch or midspan |
| Power consumption | less than 5W when without PD loading |
| Operating temperature | -40℃~ +70℃ |
| Operation humidity | 90% relative humidity, non-condensing |
| Storage temperature | -40℃~+85℃ |
| Dimension | 40mm(H)x195mm(W)x130mm(D) |

Reference information of SFP transceivers:

*550m:CT-1250NSP-SB1L

*2km:CT-1250TSP-MB2L-E

*10km:CT-1250TSP-MB4L

*40km:CT-1250TSP-NB6L