

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 sourcing 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 .

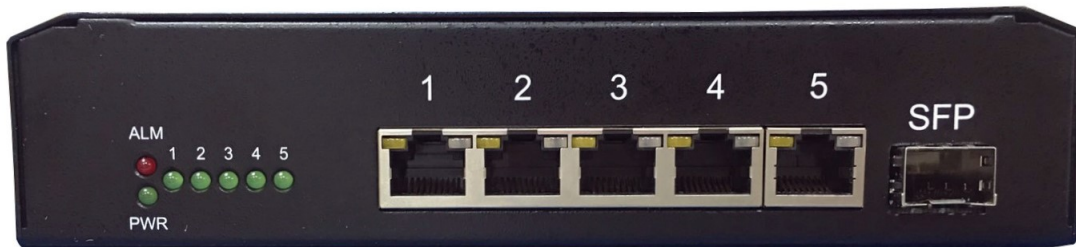
Support In-band management(SNMP and Web)

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. *Power input under voltage ($V_{in} < 46V$) *Power input over voltage ($V_{in} > 59V$)
	Off	No power supplied.

*PoE LED

P1~P4 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) 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 the right indicator on RJ45 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 the left indicator on RJ45 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:

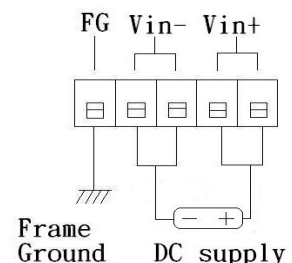
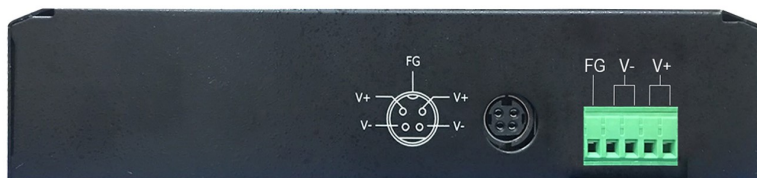
Mode B:

- * 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.

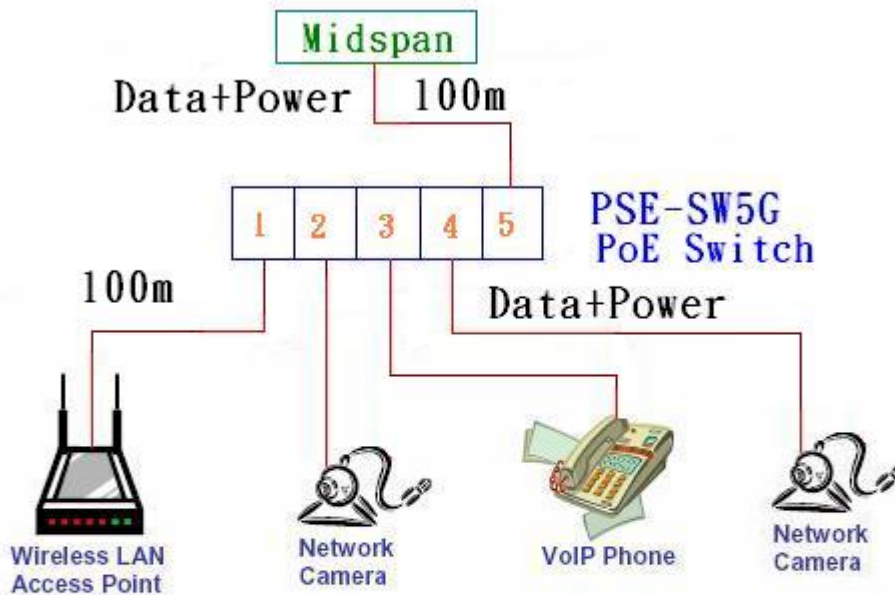
The automatic MDI/MDI-X crossover function does not apply to fiber connections. To connect the fiber optic port on one switch to the fiber optic port of another switch, simply cross-connect the transmitter at each end to the receiver at the opposite end.

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 Mozilla, 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.



Gigabit Ethernet Media Converter

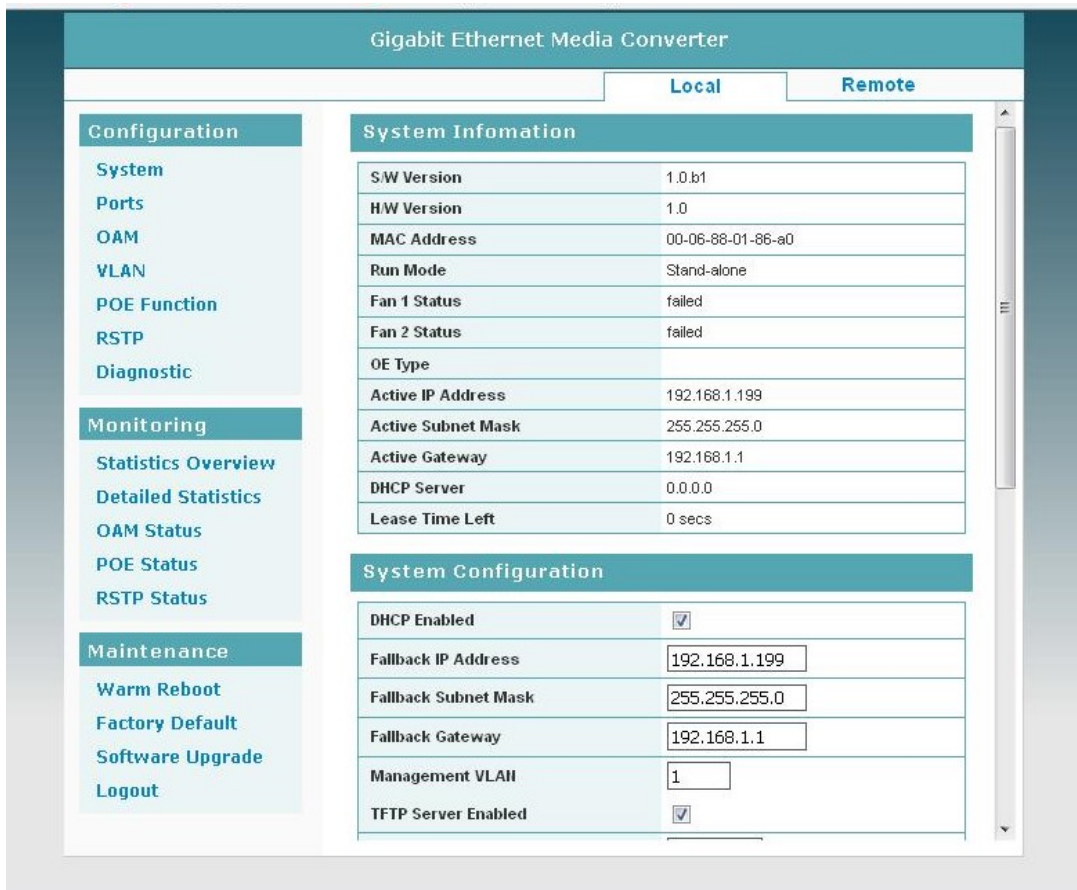
Please enter password to login

Password:

Login

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).

Gigabit Ethernet Media Converter

Local
Remote

Configuration

- System
- Ports
- OAM
- VLAN
- POE Function
- RSTP
- Diagnostic

Monitoring

- Statistics Overview
- Detailed Statistics
- OAM Status
- POE Status
- RSTP Status

Maintenance

- Warm Reboot
- Factory Default
- Software Upgrade
- Logout

System Infomation

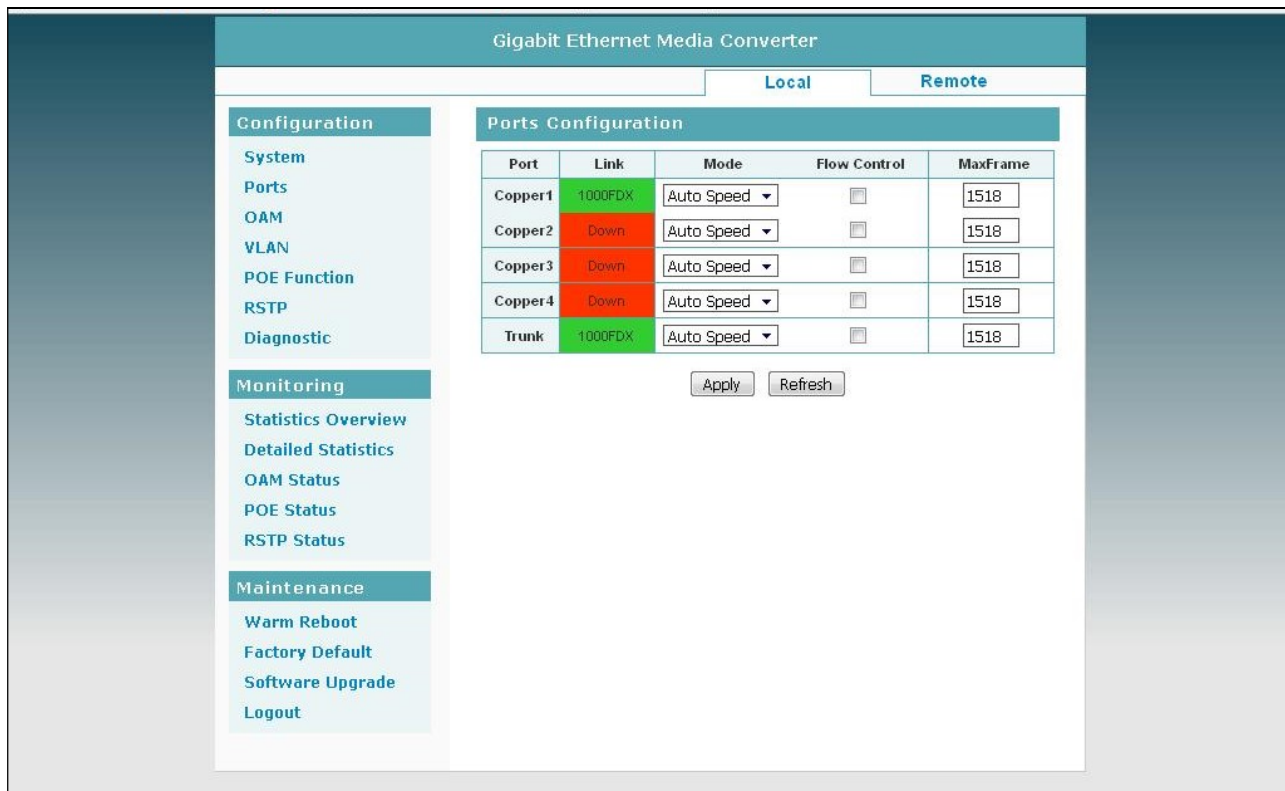
SW Version	1.0.b1
H/W Version	1.0
MAC Address	00-06-88-01-86-a0
Run Mode	Stand-alone
Fan 1 Status	failed
Fan 2 Status	failed
OE Type	
Active IP Address	192.168.1.199
Active Subnet Mask	255.255.255.0
Active Gateway	192.168.1.1
DHCP Server	0.0.0.0
Lease Time Left	0 secs

System Configuration

DHCP Enabled	<input checked="" type="checkbox"/>
Fallback IP Address	<input type="text" value="192.168.1.199"/>
Fallback Subnet Mask	<input type="text" value="255.255.255.0"/>
Fallback Gateway	<input type="text" value="192.168.1.1"/>
Management VLAN	<input type="text" value="1"/>
TFTP Server Enabled	<input checked="" type="checkbox"/>
TFTP SW Upgrade Target	Local ▾
System Name	<input type="text"/>
System Contact	<input type="text"/>
System Location	<input type="text"/>
Login Password	<input type="password" value="****"/>
Console Inactivity Timeout (secs)	<input type="text" value="0"/> (range:0, 60-10000)
Web Inactivity Timeout (secs)	<input type="text" value="180"/> (range:60-10000)
Telnet enabled	<input type="checkbox"/>
Telnet Inactivity Timeout (secs)	<input type="text" value="120"/> (range:60-10000)
SNMP enabled	<input checked="" type="checkbox"/>
SNMP Trap destination	<input type="text" value="0.0.0.0"/>
SNMP Read Community	<input type="text" value="public"/>
SNMP Write Community	<input type="text" value="private"/>
SNMP Trap Community	<input type="text" value="public"/>

***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.

OAM Configuration

Port	Link	State	Mode	LBK Support	Event Support
Copper1	1000FDX	Disable	Passive	Disable	Disable
Copper2	Down	Disable	Passive	Disable	Disable
Copper3	Down	Disable	Passive	Disable	Disable
Copper4	Down	Disable	Passive	Disable	Disable
Trunk	1000FDX	Enable	Active	Disable	Enable

Port	ErrFrame	ErrFrame Period	ErrFrame Seconds
Copper1	Mode	Disable	Disable
	Window	10	10000
	Threshold	1	1

Port	ErrFrame	ErrFrame Period	ErrFrame Seconds
Copper2	Mode	Disable	Disable
	Window	10	10000
	Threshold	1	1

Port	ErrFrame	ErrFrame Period	ErrFrame Seconds
Copper3	Mode	Disable	Disable
	Window	10	10000
	Threshold	1	1

Port	ErrFrame	ErrFrame Period	ErrFrame Seconds
Copper4	Mode	Disable	Disable
	Window	10	10000
	Threshold	1	1

Port	ErrFrame	ErrFrame Period	ErrFrame Seconds
Trunk	Mode	Disable	Disable
	Window	10	10000
	Threshold	1	1

ErrFrame:
Window:10-800 (default:10) Threshold:0-4294967295 (default:1)
ErrFrame Period:
Window:10000-4294967295 (default:10000) Threshold:0-4294967295 (default:1)
ErrFrame Seconds:
Window:100-9000 (default:100) Threshold:1-900 (default:1)

Apply Refresh

State: Enable or disable OAM state on ports

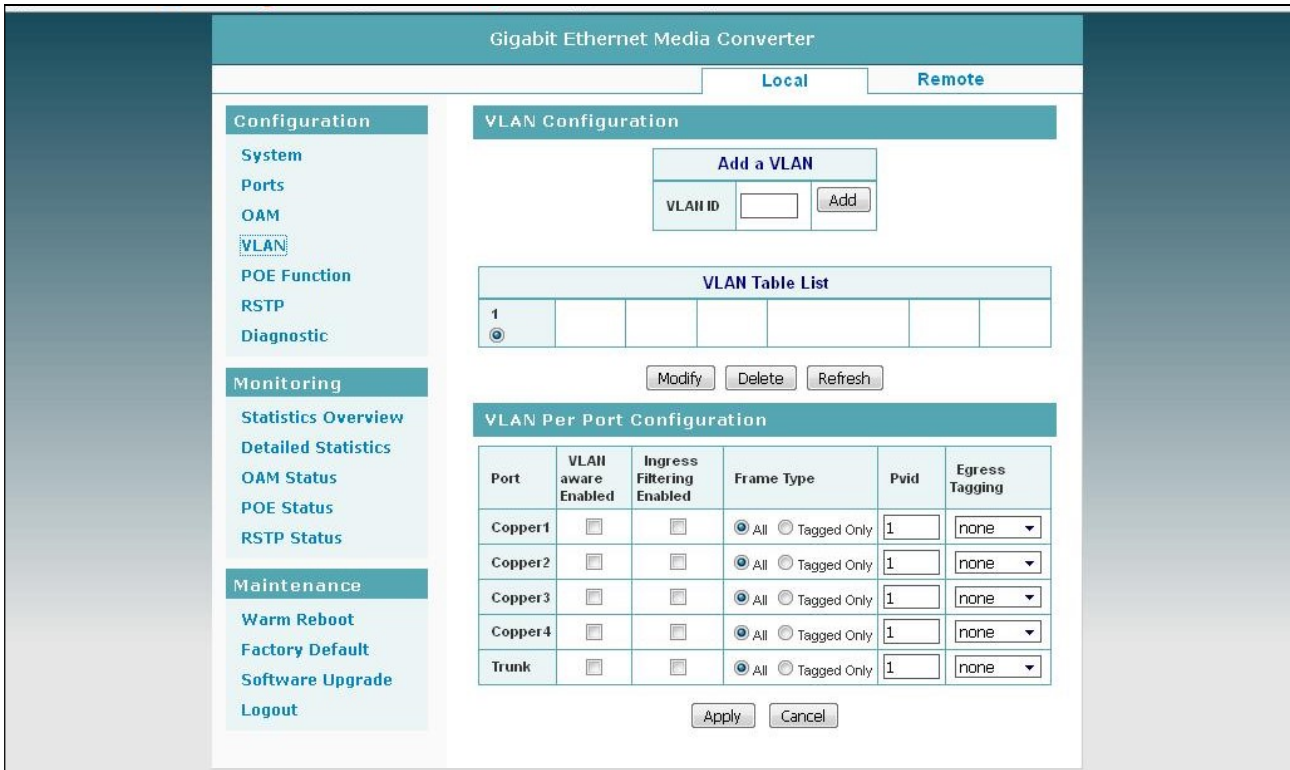
Mode: Set OAM mode on ports

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

Event Support: Enable or disable Event support on the port

*VLAN configuration

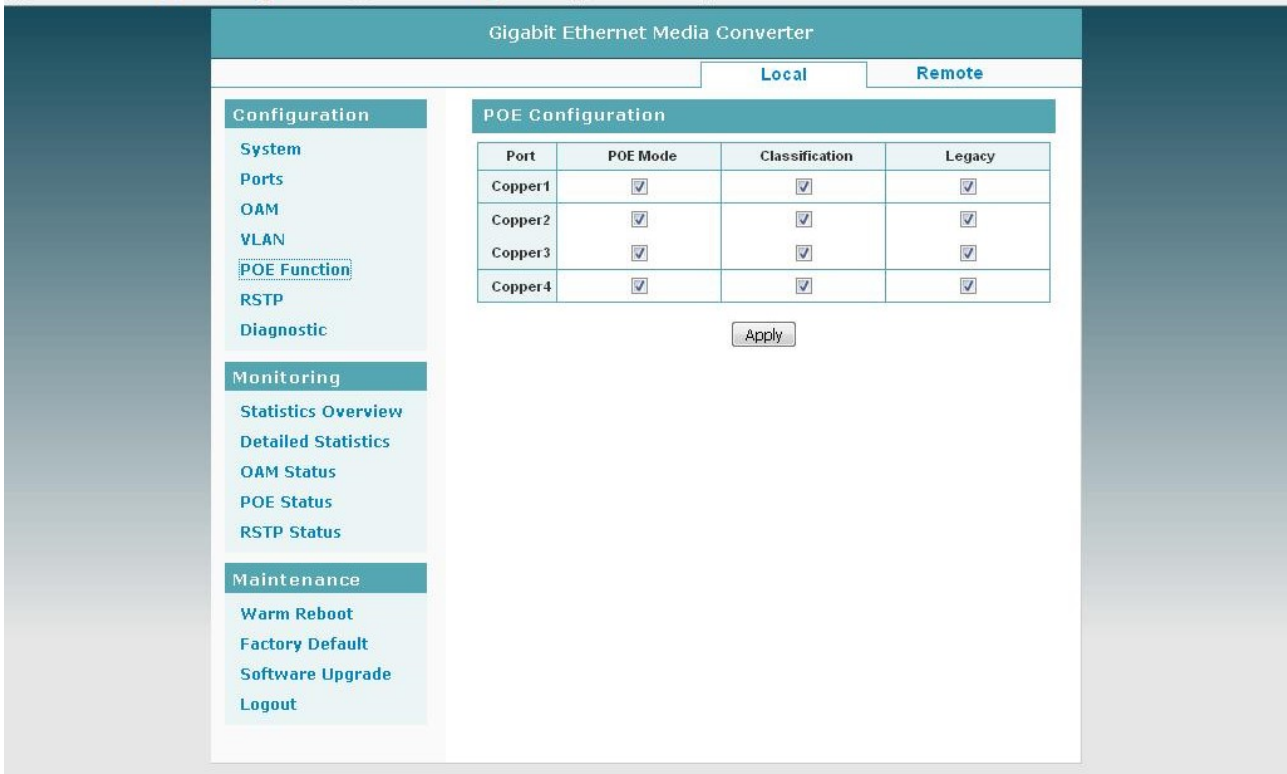
Enable VLAN group and display VLAN port status.



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

***PoE Function**

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



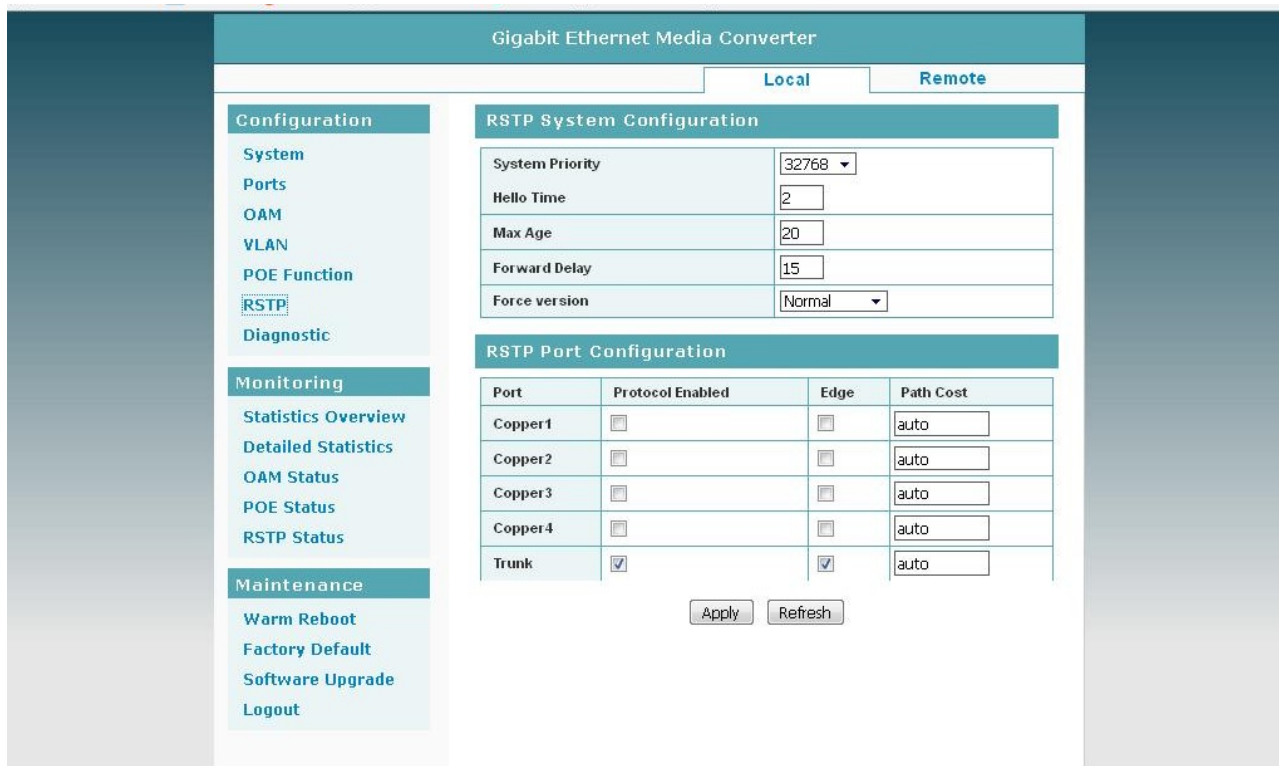
PoE Mode: Uncheck = PoE Off, no port power

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.

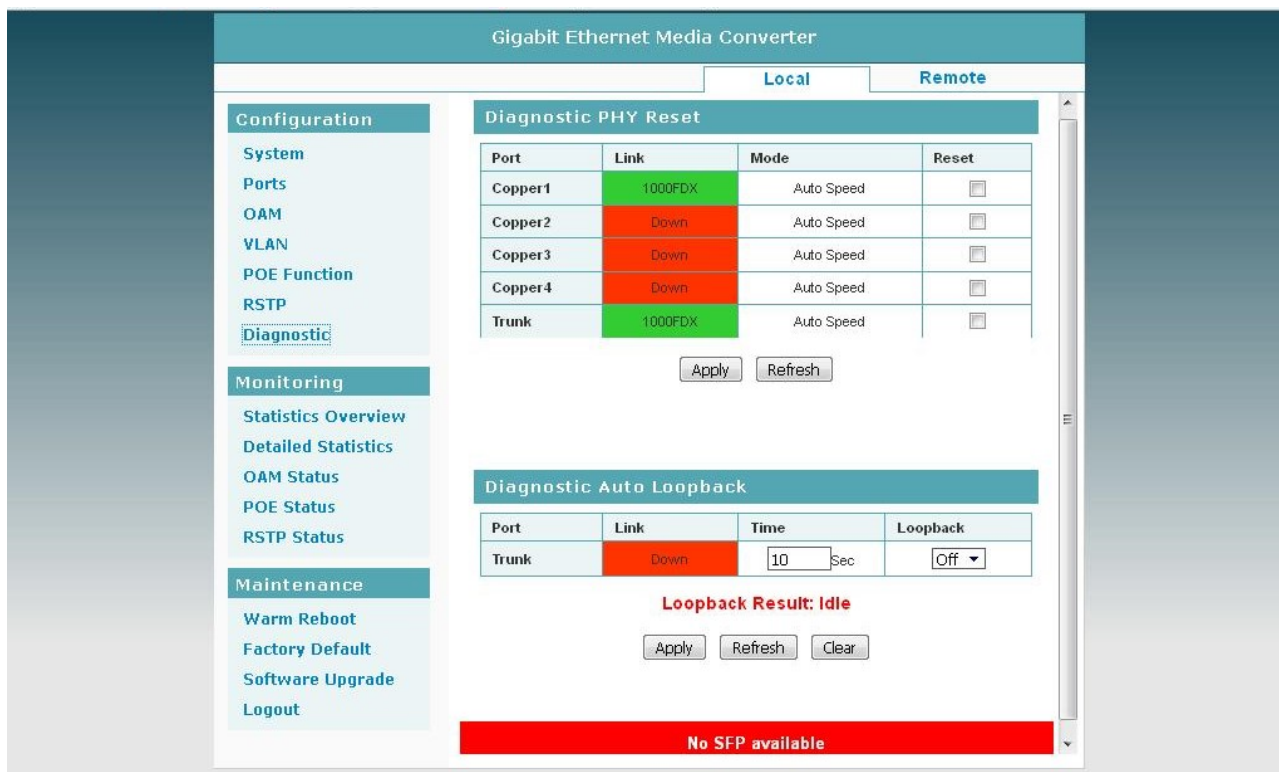
Edge: expect the port to be an edge port(an end station) or a link to another STP device.

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.

The screenshot shows the web interface for a Gigabit Ethernet Media Converter. The main title is "Gigabit Ethernet Media Converter". There are two tabs: "Local" and "Remote". The left sidebar contains a navigation menu with sections: Configuration (System, Ports, OAM, VLAN, POE Function, RSTP, Diagnostic), Monitoring (Statistics Overview, Detailed Statistics, OAM Status, POE Status, RSTP Status), and Maintenance (Warm Reboot, Factory Default, Software Upgrade, Logout). The "Statistics Overview for all ports" section displays a table with the following data:

Port	Tx Bytes	Tx Frames	Rx Bytes	Rx Frames	Tx Errors	Rx Errors
Copper1	21951968	90336	3699140	14935	0	0
Copper2	0	0	0	0	0	0
Copper3	0	0	0	0	0	0
Copper4	0	0	0	0	0	0
Trunk	8732554	53325	26024402	121316	0	0

Below the table are two buttons: "Clear" and "Refresh".

***Detailed Statistics**

Show the detail statistics for the port.

The screenshot shows the web interface for a Gigabit Ethernet Media Converter. The main content area is titled "Statistics for Port Copper1" and includes a table with the following data:

Receive Total		Transmit Total	
Rx Packets	15102	Tx Packets	90960
Rx Octets	3922391	Tx Octets	22055793
Rx High Priority Packets	-	Tx High Priority Packets	-
Rx Low Priority Packets	-	Tx Low Priority Packets	-
Rx Broadcast	-	Tx Broadcast	-
Rx Multicast	-	Tx Multicast	-
Rx Broad- and Multicast	991	Tx Broad- and Multicast	73942
Rx Error Packets	0	Tx Error Packets	0
Receive Size Counters		Transmit Size Counters	
Rx 64 Bytes	-	Tx 64 Bytes	-
Rx 65-127 Bytes	-	Tx 65-127 Bytes	-
Rx 128-255 Bytes	-	Tx 128-255 Bytes	-
Rx 256-511 Bytes	-	Tx 256-511 Bytes	-
Rx 512-1023 Bytes	-	Tx 512-1023 Bytes	-
Rx 1024+ Bytes	-	Tx 1024+ Bytes	-
Receive Error Counters		Transmit Error Counters	
Rx CRC/Alignment	-	Tx Collisions	-
Rx Undersize	-	Tx Drops	-
Rx Oversize	-	Tx Overflow	-
Rx Fragments	-		

***OAM status**

Show the OAM running status.



***POE status**

Display PoE configuration, status and alarm status.

Gigabit Ethernet Media Converter

Local
Remote

Configuration

System

Ports

OAM

VLAN

POE Function

RSTP

Diagnostic

Monitoring

Statistics Overview

Detailed Statistics

OAM Status

POE Status

RSTP Status

Maintenance

Warm Reboot

Factory Default

Software Upgrade

Logout

POE Configuration

Port	POE Mode	Classification	Legacy
Copper1	enabled	enabled	enabled
Copper2	enabled	enabled	enabled
Copper3	enabled	enabled	enabled
Copper4	enabled	enabled	enabled

POE Status

Port	Status	Current (mA)	Voltage (V)	Determined Class
Copper1	NONE	-	-	-
Copper2	NONE	-	-	-
Copper3	NONE	-	-	-
Copper4	NONE	-	-	-

Alarm Status

Alarm Type	48V	3.3V	FET	Temp
Status	-	-	-	-

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*RSTP status

Show RSTP bridge instance and port statistics.

The screenshot displays the web interface for a Gigabit Ethernet Media Converter. The page title is "Gigabit Ethernet Media Converter" and it has tabs for "Local" and "Remote". A left sidebar contains navigation menus for Configuration, Monitoring, and Maintenance. The main content area is divided into two sections: "RSTP Bridge Overview" and "RSTP Port Status".

RSTP Bridge Overview

VLAN Id	Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id
1	32769:00-06-88-01-86-a1	2	20	15	Steady	This switch is Root!

Refresh

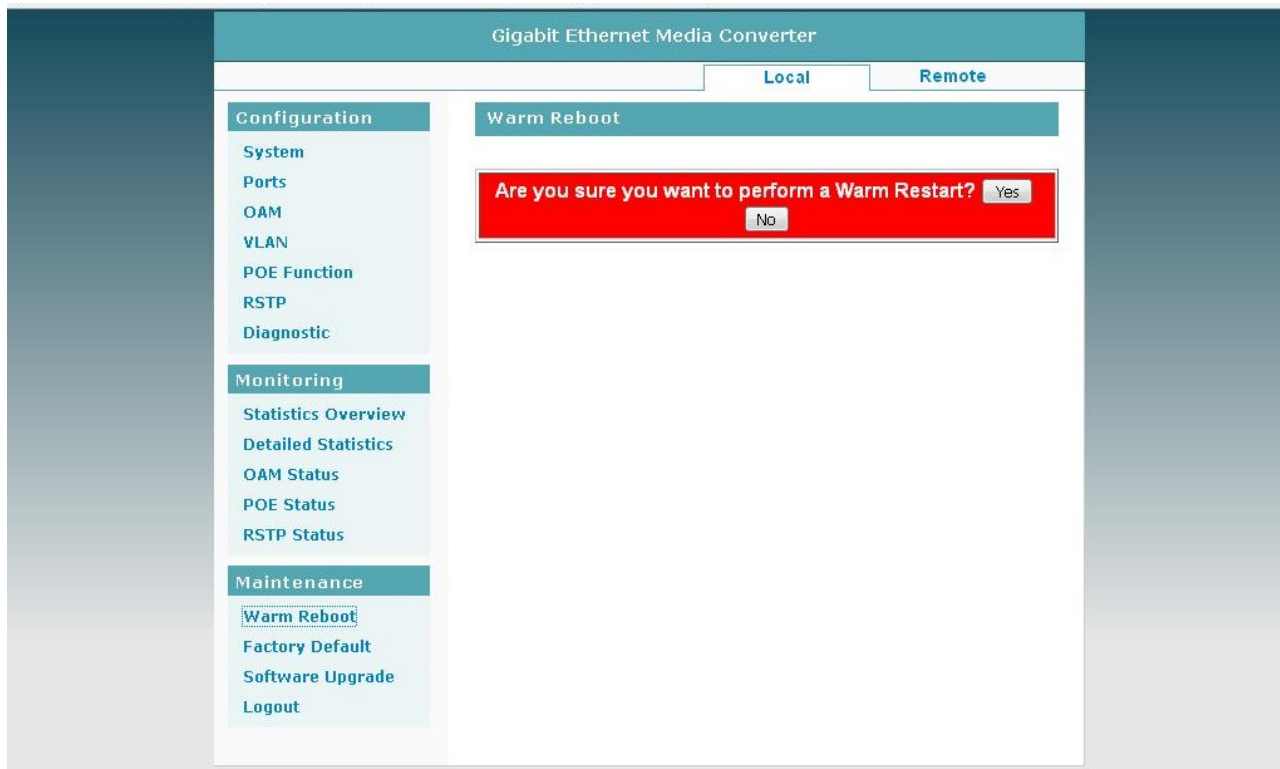
RSTP Port Status

Port	Path Cost	Edge Port	P2p Port	Protocol	Port State
Port Copper1					Non-STP
Port Copper2					Non-STP
Port Copper3					Non-STP
Port Copper4					Non-STP
Port Trunk	20000	no	yes	Rstp	Forwarding

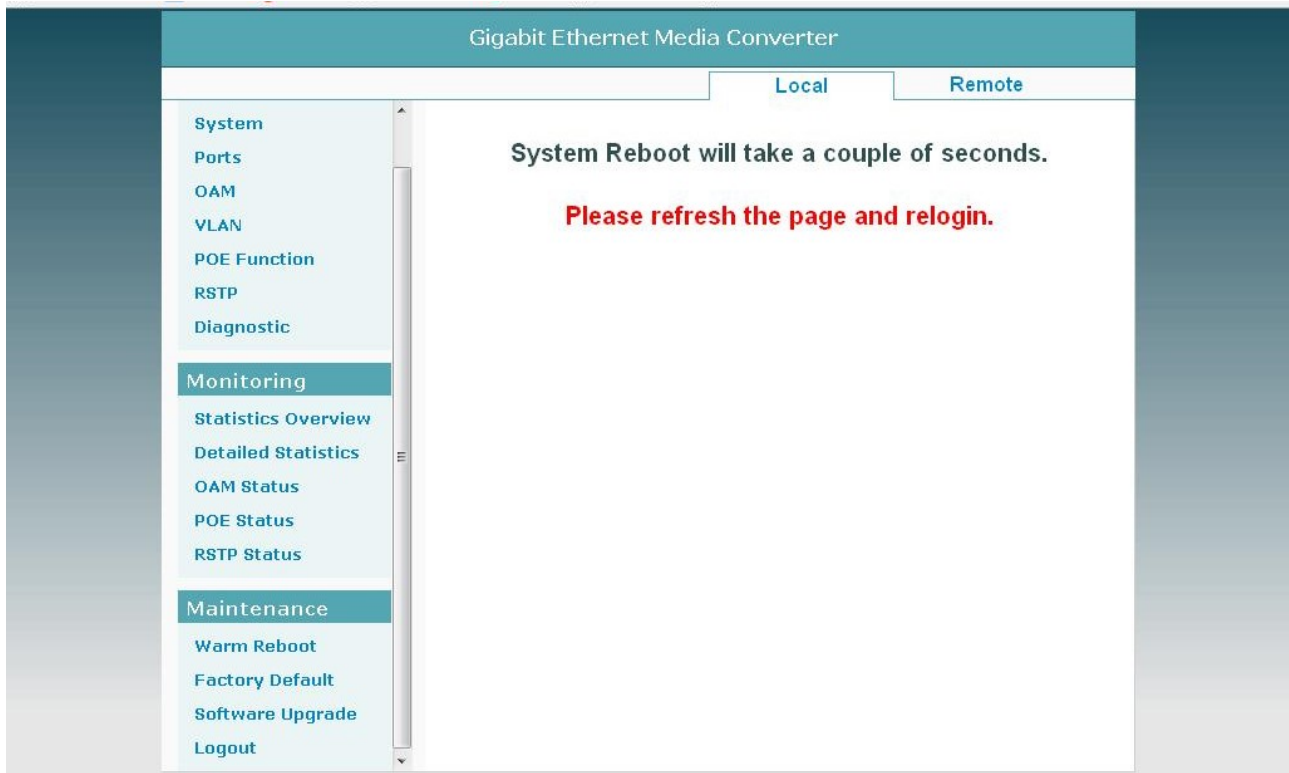
3-3. Maintenance

*Warm Reboot

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

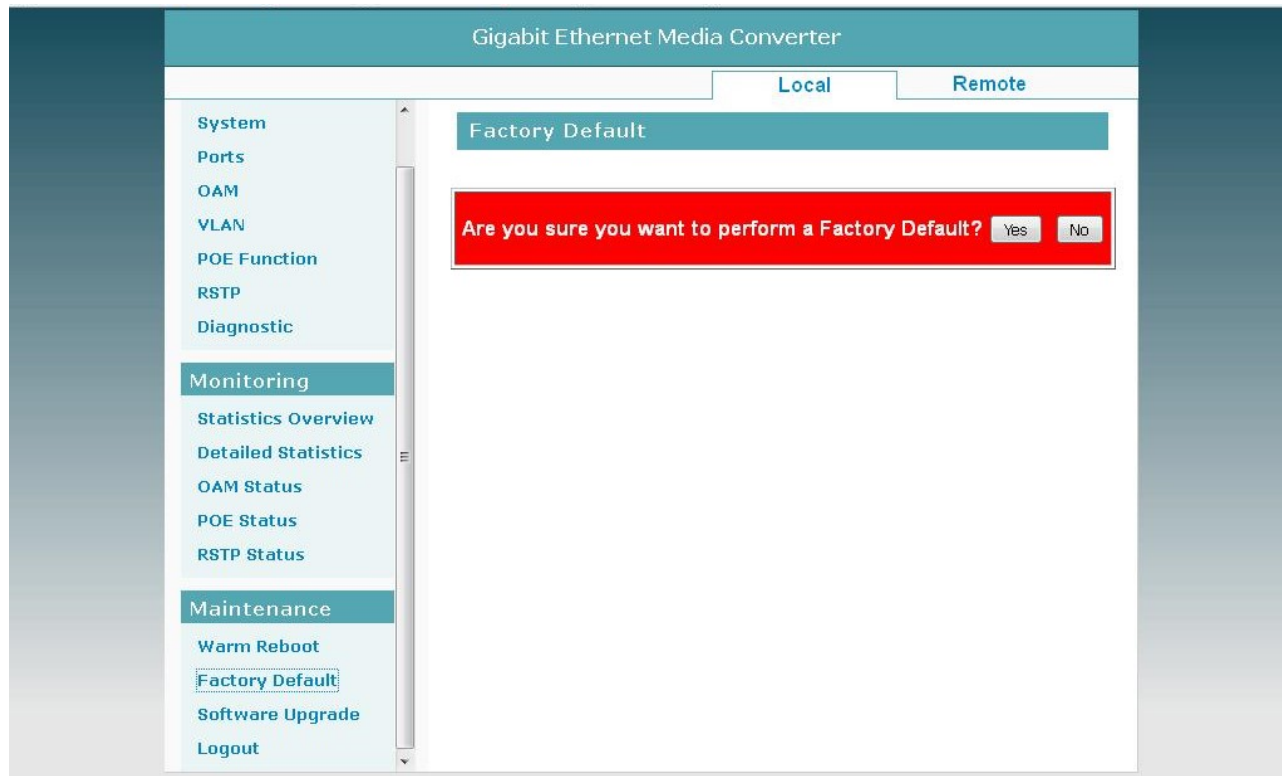


The message screen below appears when rebooting the switch.

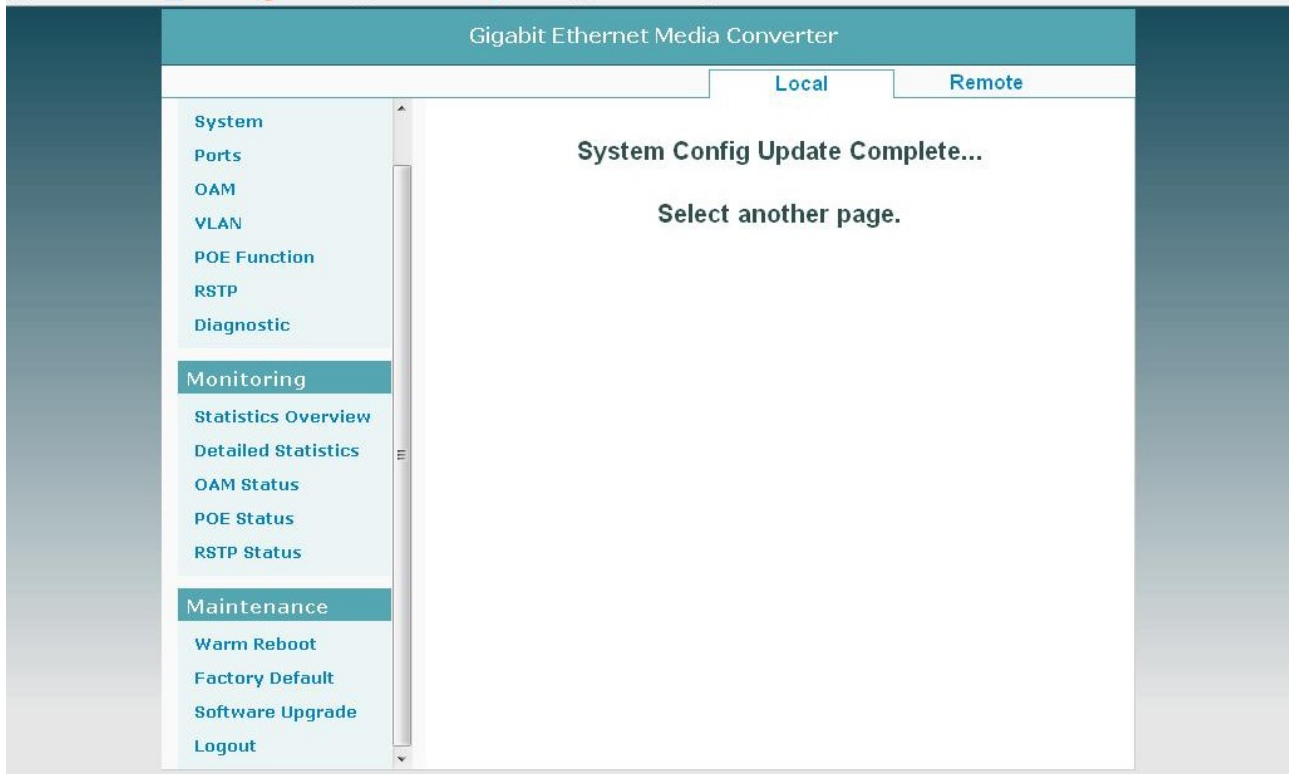


*Factory Default

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

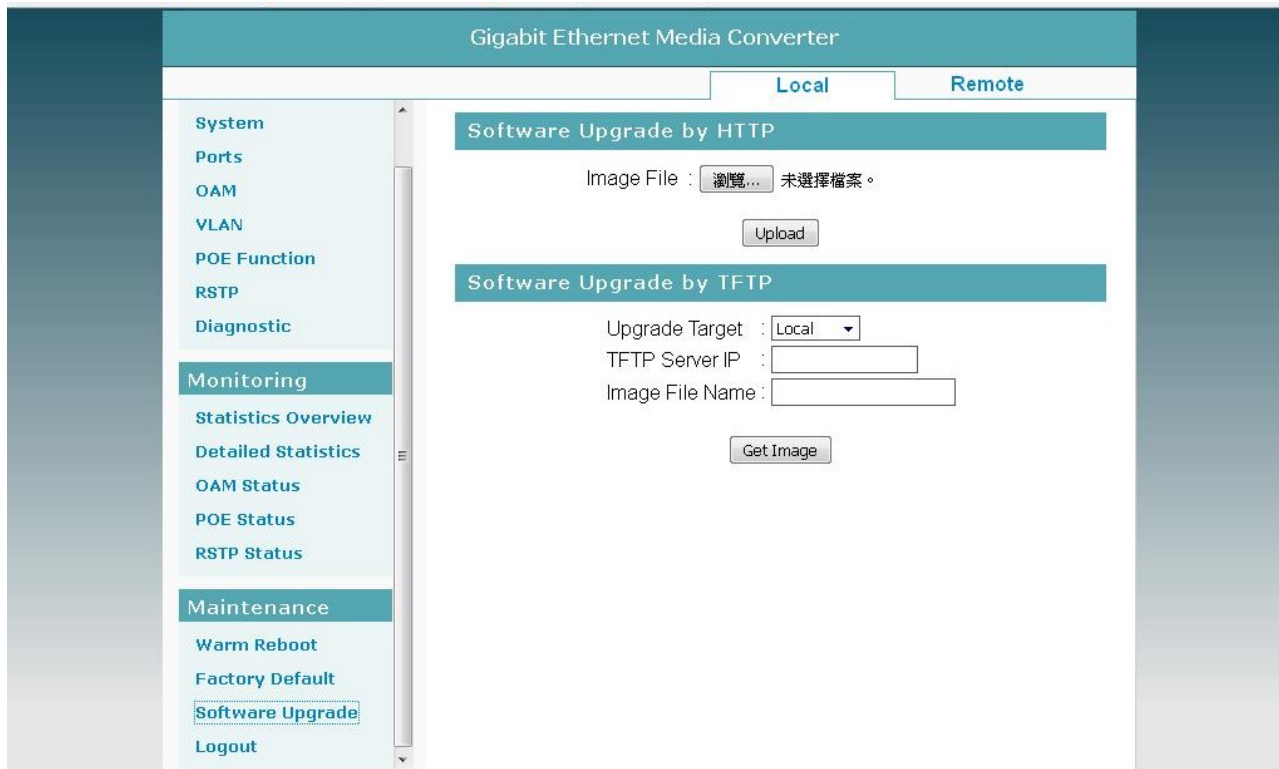


The following message screen to show you that the reset is complete.



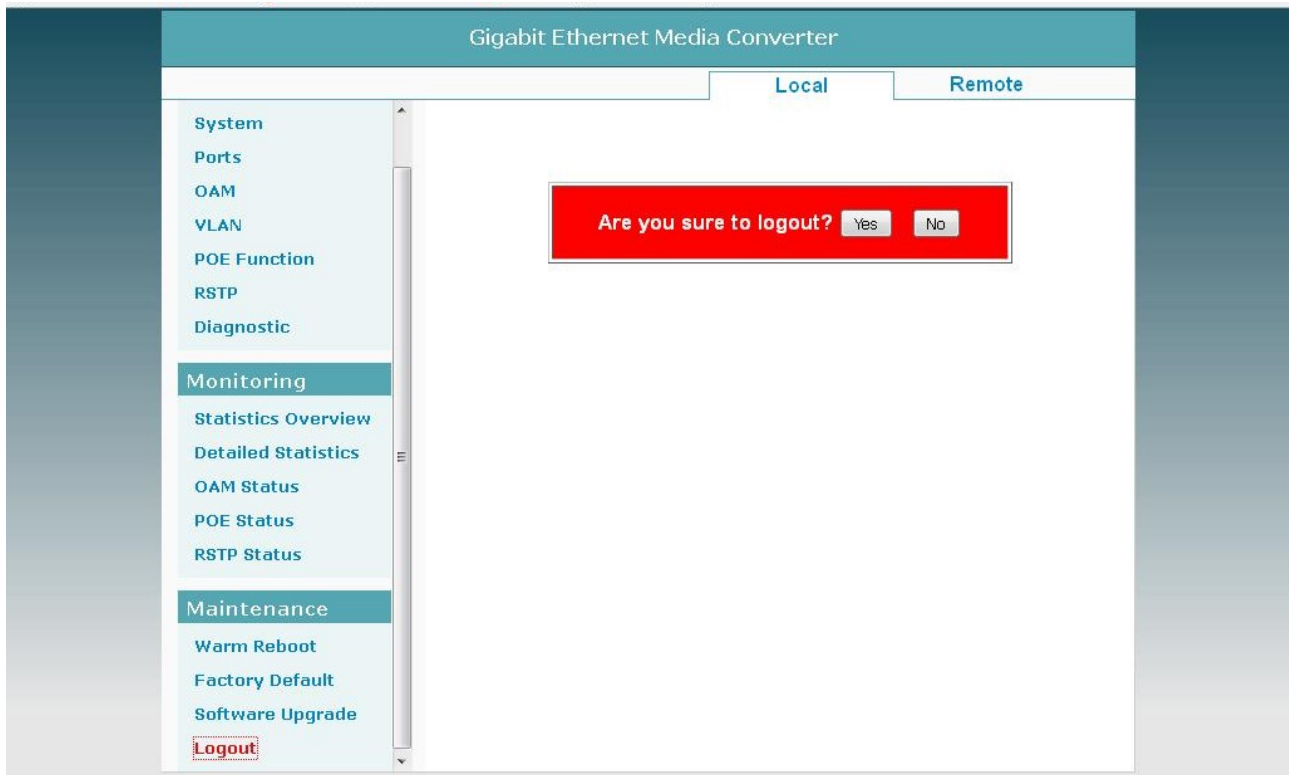
*Software Upgrade

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 1 combo uplink port: TP port with PoE PD, support auto-crossover & auto-polarity Fiber port support 1000base-SX/LX
Transmission speed	1000Mbps (1000base-T),100 Mbps (100base-TX), 10 Mbps(10base-T) 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 1000base-LX: 62.5um MMF or 50um MMF or 10um SSF
PoE port	Port 1-4, PSE auto power management

	<p>Pin assignment: data pair A(1,2), data pair B(3,6), data pair C plus V+(4,5), data pair D plus V-(7,8)</p> <p>Port 5, 4 pairs PD</p>
Maximum PoE power	Port 1-4: IEEE802.3af – 16.8W IEEE802.3at – 35W 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	<p>*Link/Activity (Green ON/ Green Blinking @1000Mbps, Yellow/Yellow Blinking @10M/100Mbps)</p> <p>*PoE (Green) port 1-4 ON - PD detect Port 5 ON – 4 pair power, Blinking-2 pair power</p> <p>*POWER Green-normal, Red-alarm</p>
Power input	DC power supply on the rear(@48V typical), or port 5 (UPLINK/TP) from network switch or midspan
Power consumption	less than 5W when without PD loading
Operating temperature	-40°C ~ +70°C
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-40°C ~ +85°C
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