



# **Ethernet Media Converter Web Smart Series**

## **User Manual**

v1.0  
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# **Ethernet Media Converter**

## **Web Smart Series**

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FVS-3800, 10/100BASE-TX to 100BASE-X SFP Converter

FVS-3200, 10/100BASE-TX to 100BASE-FX MMF SC Converter

FVS-3120, 10/100BASE-TX to 100BASE-LX SMF SC Converter

GVS-3800, 10/100/1000BASE-T to 1000BASE-X SFP Converter

GVS-3200, 10/100/1000BASE-T to 1000BASE-SX MMF SC Converter

GVS-3110, 10/100/1000BASE-T to 1000BASE-LX10 SMF SC Converter

CVH-3000, 12-Slot Media Converter Chassis

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## **Caution**

Circuit devices are sensitive to static electricity, which can damage their delicate electronics. Dry weather conditions or walking across a carpeted floor may cause you to acquire a static electrical charge.

To protect your device, always:

- Touch the metal chassis of your computer to ground the static electrical charge before you pick up the circuit device.
- Pick up the device by holding it on the left and right edges only.

## **Electronic Emission Notices**

### **Federal Communications Commission (FCC) Statement**

This equipment has been tested and found to comply with the limits for a class A computing device pursuant to Subpart J of part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

### **European Community (CE) Electromagnetic Compatibility Directive**

This equipment has been tested and found to comply with the protection requirements of European Emission Standard EN55022/EN60555-2 and the Generic European Immunity Standard EN50082-1.

EMC:	EN55022(1988) /CISPR-22(1985)	class A
	EN60555-2(1995)	class A
	EN60555-3	
	IEC1000-4-2(1995)	4K V CD, 8KV, AD
	IEC1000-4-3(1995)	3V/m
	IEC1000-4-4(1995)	1KV – (power line), 0.5KV – (signal line)



# About this user's manual

In this user's manual, it will not only tell you how to install and connect your network system but configure and monitor the Web Smart MEDIA CONVERTER through the built-in web by Ethernet ports step-by-step. Many explanations in detail of hardware and software functions are shown as well as the examples of the operation for web-based interface.

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## Overview of this user's manual

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- Chapter 1 "Introduction" describes the features of Web Smart MEDIA CONVERTER
- Chapter 2 "Installation"
- Chapter 3 "Operation of Web-based Management"
- Chapter 4 "Maintenance"
- Appendix A

# 1. Introduction

## 1-1. Overview

The LevelOne Media Converter-Web Smart Series is designed to make conversion between 10/100Base-TX and 100Base-FX or 10/100/1000Base-TX and 100/1000Base-FX Ethernet. With web-based management and Telnet text-based manual driven management, the network administrator can logon the remotely converter to monitor, configure and control the status of each unit. The overall network reliability is enhanced, and the network efficiency is also improved to accommodate and deliver high bandwidth applications.

The 19-inch Media Converter Rack, CVH-3000, is designed to accommodate 12 units of various type of web smart media converter at a central location for multiple segments cross connection. DC -48V power supply is used and provided by Telecom site. The Rack provides solutions for users to best manage media converters. Since converter is connected directly to the chassis main-board, no power cable or wire is required for connection. Moreover, a redundant power supply is offered in the power supply set to cope with any accidental breakdown of power supply.

## 1-2. Features

The Web Smart Media Converter provides the following features for users to perform system network administration.

### Management

- Supports Web UI for management
- Supports OAM for remote management via TS-1000
- Supports OAM for remote management via IEEE802.3ah
- Supports Ingress/Egress Rate Limitation
- Supports Link Loss Carry Forward Function
- Supports per Port MIB Counters
- Supports IEEE802.1Q VLAN
- Supports Q-in-Q (Double-Tag) VLAN
- Supports 802.3x flow control for full-duplex ports and backpressure for half-duplex ports
- Supports auto mode on the TP port
- Supports jumbo frame 9KB
- RoHS Compliance
- On-board firmware can be updated via HTTP web function.
- The converter allows administrator to reboot system from management station.
- Dying Gasp function can send out a signal when DC power down is detected.



### 1-3. Checklist

Before you start installing the converter, please verify that the package contains the following:

Web Smart Media Converters:

- Web Smart Media Converter
- AC-DC Power adapter
- This User's Manual (CD)

Web Smart Media Converters Chassis:

- The Media Converter Rack
- Mounting Accessory (for 19" Rack Shelf) and Rubber feet (if not using Rack Shelf)
- This User's Manual
- AC Power Cord

Please notify your sales representative immediately if any of the aforementioned items is missing or damaged.

Model Description

<b>Model</b>	<b>Description</b>
FVS-3800	10/100BASE-TX to 100BASE-X SFP Converter
FVS-3200	10/100BASE-TX to 100BASE-FX MMF SC Converter
FVS-3120	10/100BASE-TX to 100BASE-LX SMF SC Converter
GVS-3800	10/100/1000BASE-T to 1000BASE-X SFP Converter
GVS-3200	10/100/1000BASE-T to 1000BASE-SX MMF SC Converter
GVS-3110	10/100/1000BASE-T to 1000BASE-LX10 SMF SC Converter
CVH-3000	12-Slot Media Converter Chassis

## LED Indicators Description

LED	Color	Function
POWER	Green	Lit when +5V power is coming up
FX LINK/ACT	Green	Lit when fiber connection is good Blinks when any traffic is present
TP LINK/ACT	Green	Lit when TP connection is good Blinks when any traffic is present
TP 10/100	Amber	Lit when 100Base-TX is active Off when 10Base-T is active

Table 1-1

### Reset button:

Press this button over 5 seconds then

- (1) Restore to default
- (2) Reboot

# 2. Installation

## 2-1. Cable and Hardware Installation (Web Smart Media Converters)

- ⇒ Wear a grounding device for electrostatic discharge
- ⇒ Verify that the AC-DC adapter conforms to your country AC power requirement and then insert the power plug

### • TP Cable

- ⇒ Use Cat. 5 TP cable to connect server/host or workstation to TP port of the converter
- ⇒ TP port supports MDI/MDI-X auto-crossover, use:
  - straight-through cable (Cable pin-outs for RJ-45 jack 1, 2, 3, 6 to 1, 2, 3, 6) to cascade or up-link the converter to an upper layer L2/L3 switch or server/host/workstation
- ⇒ TP Cable Limitations: Cat. 5 and up to 100m

### • Fiber Cable


- ⇒ Use fiber cable to connect FX port of an upper layer converter
- ⇒ Fiber Cable Limitations:

SC Converter Models	
Multi-mode Half-duplex	412m
Multi-mode Full-duplex	2Km
Single-mode Half-duplex	412m
Single-mode Full-duplex	10/30/50Km

Table 2-1

Note: The other side of the fiber cable plugged into the converter's RX connector at the near end should plug into the FX device's TX connector at the far end, and vice versa.

## 2-2. Cable and Hardware Installation (Web Smart Media Converter Chassis)



2.5mm  
DC Receptacle 2.5mm  
1A@+5V for each slot

DC receptacle is 2.5mm wide that matches and conforms to the Media Converter 2.5mm DC jack's central post. Do not install any improper unit or model of the Media Converter.

- ⇒ The slide-in Media Converters and Converter Rack should be supplied only from the same source; both Media Converters and Rack are built to match each other at dimensions, DC power jack, DC receptacle and power safety.
- ⇒ Turn off the 19" converter rack power.
- ⇒ Verify the Media Converter is right for this Rack and locate +5VDC power jack on converter back, and carefully slide in and plug to match 19" rack slot +5VDC receptacle.

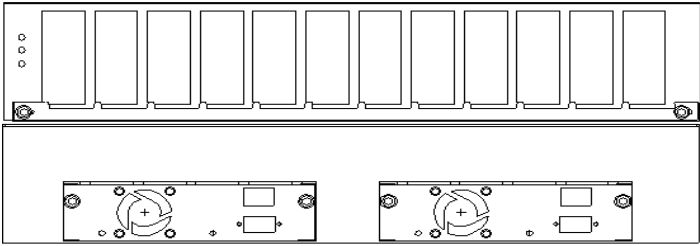


Fig. 1 Front/Rear View of 19-inch

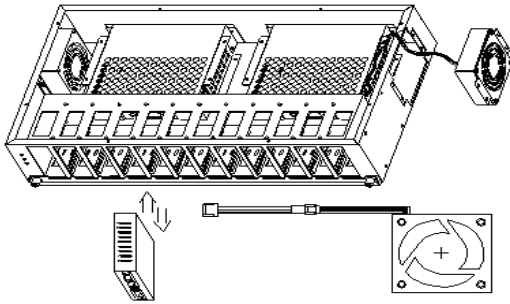


Fig. 2 The hot-swappable parts

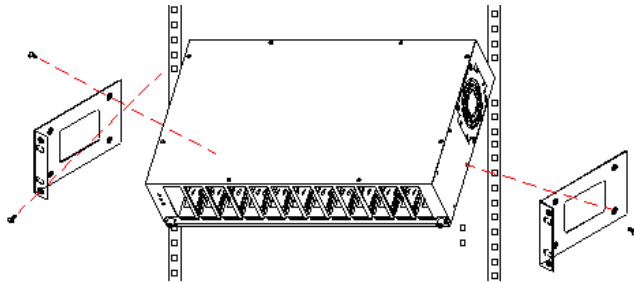


Fig. 3 Installing Rack

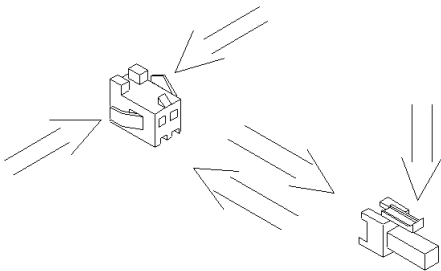


Fig. 4 Usage of 8cm FAN connector

## **Installing Media Converter Rack to a Wiring Closet Rack**

- ⇒ Wear a grounding device for electrostatic discharge
- ⇒ Install screws through mounting ears into each side
- ⇒ Locate Converter Rack at 19-inch mounting rails and screw up the front brackets
- ⇒ Set the Power Switch at "OFF" position before connecting with the power cord
- ⇒ Two power modules, 12 converter modules and two 8cm DC Fans are Hot-Swappable

# 3. Operation of Web-based Management

The converter provides a web function by Ethernet Port (Browser) to manage and monitor the port activity. For instance, http://192.168.1.1, then enter password and **CLICK** "Login" button.

The default values of Web Smart Media Converter are as follows:

IP Address	:192.168.1.1
Subnet Mask	:255.255.255.0
Default Gateway	:192.168.1.254
Password	:admin

**Please enter password to login**

Login

Fig. 3-1

### 3-1. Web Management Home Overview

Home Page and Main MENU will be shown up after you fill in “admin” to serve as password and click the **<Login>** button. The main functions will be listed on the left side of a browser. On the top is the front panel view of the converter. In the middle is the basic System Information. The main functions will be introduced in the following sections.

On the front panel, the LEDs will display the status color which is the same as physical hardware. The fiber and TP plug will display the status color as well. Green stands for “Link up” status.

The main functions are “Information”, “Local Setting”, “Remote Setting”, and “Tools”.

*Function name:*

System Information

*Function description:*

Show the local and remote device network information.

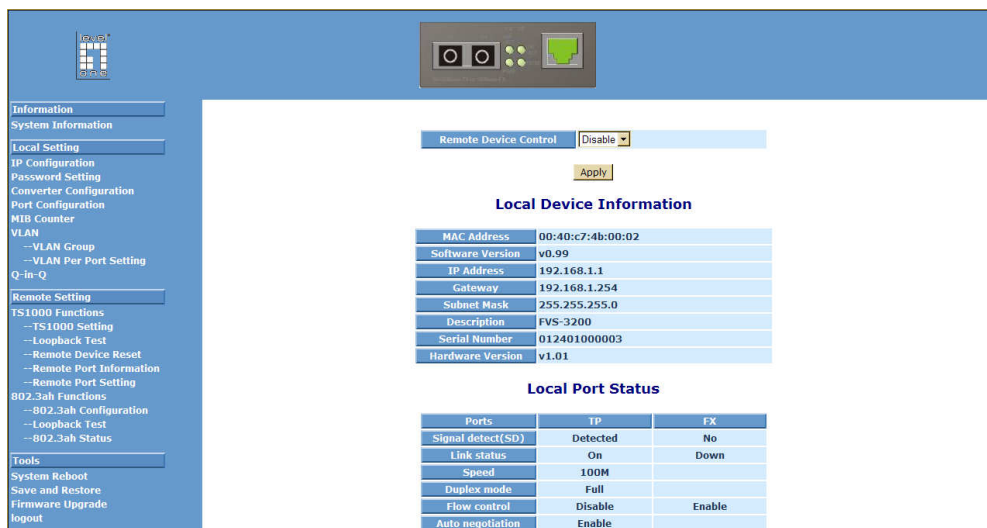


Fig. 3-2

*Parameter description:*

**Remote Device Control:**

Disable (Default):

When Remote Device Control is disabled, the remote device information will not be shown on the screen.

Enable:

When Remote Device Control is enabled, the remote device information will be shown on the screen.

**MAC address:**

It is the Ethernet MAC address of the management agent in this device.

*Software Version:*

It's a firmware version of this device.

*IP address/Gateway/Subnet Mask:*

It's an IP address of the device.

Default Setting:

IP Address: 192.168.1.1

Default Gateway: 192.168.1.254

Subnet Mask: 255.255.255.0

*Description:*

It is a field for model description.

*Serial number:*

It is a product serial number.

*Hardware Version:*

It is a hardware version of product.



## 3-2. The Function Tree in Web Management

For offering you a clear guide to use this Web Smart Media Converter, the following is the whole function tree of Web Smart Media Converter in web management. User can refer to the following sections based on the order of this function tree below for more details.

<b>Information</b>
System Information
<b>Local Setting</b>
IP Configuration
Password Setting
Converter Configuration
Port Configuration
MIB Counter
VLAN
--VLAN Group
--VLAN Per Port Setting
Q-in-Q
<b>Remote Setting</b>
TS1000 Functions
--TS1000 Setting
--Loopback Test
--Remote Device Reset
--Remote Port Information
--Remote Port Setting
802.3ah Functions
--802.3ah Configuration
--Loopback Test
--802.3ah Status
<b>Tools</b>
System Reboot
Save and Restore
Firmware Upgrade
logout

Fig. 3-3

### 3-3. Local Setting

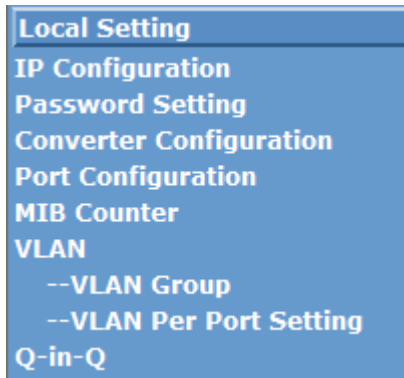


Fig. 3-4

#### 3-3-1. IP Configuration

IP configuration is one of the most important configurations in WEB SMART MEDIA CONVERTER. Without the proper setting, network manager will not be able to view the device. WEB SMART MEDIA CONVERTER supports both manual IP address setting and automatic IP address setting via DHCP server. When IP address is changed, you must reboot the converter to have the setting taken effect and use the new IP to browse for web management.

*Function name:*

IP Configuration

*Function description:*

Set IP address, subnet mask and default gateway for WEB SMART MEDIA CONVERTER.

### IP Configuration

DHCP Client	Disable
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	192.168.1.254
Description	FVS-3200

Fig. 3-5 IP Configuration

*Parameter description:*

*DHCP Client:*

WEB SMART MEDIA CONVERTER supports DHCP client used to get an IP address automatically if you set this function "Enable". WEB SMART MEDIA CONVERTER will find the DHCP server existed in the network to get an IP address. If this function is set "Disable", you have to input IP address manually.

Default: Disable

*IP address:*

Users can configure the IP settings and fill in new values if users set the DHCP function "Disable". Then, click **<Apply>** button to update it.

Default: 192.168.1.1

*Subnet mask:*

Set the subnet mask value which is the same as that of network it attaches. For more information, please also see the section "IP Address Assignment" in this manual.

Default: 255.255.255.0

*Default gateway:*

Set an IP address for a gateway to handle those packets that do not meet the rules predefined in a device. If a packet does not meet the criteria for other routers, then it must be sent to a default router. This means any packet with undefined TCP/IP information will be sent to this device unconditionally.

Default: 192.168.1.254

*Description:*

Input data or model name about this device then click **<Apply>** button.

### 3-3-2. Password Setting

*Function name:*

Password Setting

*Function description:*

The default user account is “admin” that can not be modified or deleted and is the only one user account. The password must be ‘a’-‘z’, ‘A’-‘Z’, ‘0’-‘9’ and ‘\_’. The max. length is 16 characters. After input the data as Fig. 3-6 click **<Apply>** button.

The default setting of user account is:

Username: admin

Password: admin

**Password Setting**

Login Name	admin	
Old Password		
New Password		
Confirm		

Fig. 3-6

*Parameter description:*

*Login Name:*

admin (can not be modified)

*Old Password:*

Input the old password

*New Password:*

Input new password

*Confirm:*

Input the new password again

### 3-3-3. Converter Configuration

*Function name:*

Converter Configuration

*Function description:*

This converter provides the following configurable parameters.

#### Converter Configuration

Jumbo Frame (9K)	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Link Transparent	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Remote Fault Detect	<input type="radio"/> Disable <input type="radio"/> Enable
Link Loss Carry Forward	<input type="radio"/> Disable <input type="radio"/> Enable
Forward CRC Error Frame	<input checked="" type="radio"/> Drop <input type="radio"/> Forward
Forward Pause Frame	<input checked="" type="radio"/> Drop <input type="radio"/> Forward
Management Packet High Priority (This function need reset to take effect!)	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Broadcast Storm Filter	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Multicast Storm Filter	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Unknown DA Unicast Storm Filter	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

Fig. 3-7 Converter Configuration

*Parameter description:*

*Jumbo Frame(9K):*

If enable this function, the media converter could pass the max. 9KB packets.

*Link Transparent:*

Only if link transparent is enabled, the Remote Fault Detect and Link Loss Carry Forward will take effect.

*Remote Fault Detect:*

If enable this function, when fiber port enable TS-1000 and receive OAM packet. This converter will set local UTP port link up or link down

according to remote device's UTP port link status. This function need enable link transparent first.

*Link Loss Carry Forward:*

If enable this function, when the UTP port link down, the fiber port will be forced link down. And the fiber will be resume when UTP port link up. This function need enable link transparent first.

*Notice :*

If local MC (Media Converter) enables TS1000 and is configured as Center Mode, when configuring Jumbo Frame and Link Transparent functions for local MC, the remote MC will be configured at the same time even if it is a dump MC. And the configuration of remote side is the same as local side.

*Forward CRC Error Frame:*

If enable this function, the CRC error packet will be pass, otherwise, the CRC error packets will be dropped.

*Forward Pause Frame:*

If this function was enabled, this MC will forward pause frame and regard it as a normal packet.

*Management Packet High Priority:*

If enable this function, this MC will enable QOS. We enable four queues, and set queue 3 as strict priority. All management packets, such as 802.3ah OAM packets will be in queue 3 to guarantee bandwidth.

*Broadcast Storm Filter, Multicast Storm Filter, Unknown DA Unicast Storm Filter:*

If enable this function, when too many broadcast/multicast/unknown DA unicast packets arrive in a period time, the packets will be dropped.

### 3-3-4. Port Configuration

*Function name:*

Port Configuration

*Function description:*

Change the state and configuration of each port. This page could set local device's port status, include work mode, flow control ability, ingress and egress rate limit.

**Port Configuration**

Port	Link	Mode	Flow Control	Ingress Rate Limit (kbps)	Egress Rate Limit (kbps)
TP	100F	Auto Speed	Enable	Not Limit 0	Not Limit 0
FX	Down	100 Full	Enable	Not Limit 0	Not Limit 0

Rate limit is 64kbps as a minimal step

Fig. 3-8 Port Configuration

*Parameter description:*

*Port:*

The TP Port is MEDIA CONVERTER's Ethernet UTP interface.

The FX Port is MEDIA CONVERTER's Ethernet Fiber interface.

*Link:*

Show port current link status:

100F = Speed 100M, Full Duplex Mode

100H = Speed 100M, Half Duplex Mode

10F = Speed 10M, Full Duplex Mode

10H = Speed 10M, Half Duplex Mode

Down = Link Down

*Mode:*

The Auto Speed algorithm to exchange the capability with the linked partner. When enabled, the speed, duplex mode and flow control mode may change. You must have both port configuration of local port and linked partner be the same. If their configuration is different, the link will not be set up successfully. In WEB SMART MEDIA CONVERTER, fiber port supports forced mode only.

Set the mode of speed and duplex. In speed, 10/100Mbps baud rate is

available for Fast Ethernet. If the media is fiber, it is always 100Mbps and the duplex is 100full/auto; if the media is TP, the Speed/Duplex is comprised of the combination of speed mode, 10/100Mbps, and duplex mode, full duplex and half duplex.

*Flow Control:*

There are two modes to choose in flow control, Enable and Disable. If flow control is set "Enable", both parties can send PAUSE frame to the transmitting device(s) while the receiving port is too busy to handle. When it is set "Disable", flow control will not exist in the port. It drops the packet if too much to handle.

Default: Enable

*Ingress Rate Limit and Egress Rate Limit:*

There are some predefined rate settings. If user needs some special usage, you could input the rate by yourself after "User Setting" has been selected from pull down list. Because the rate limit is 64kbps as a minimal step, the input rate limit, it should be divided exactly by 64. If the rate value can not be divided exactly by 64, for example 65, the program will be change the rate to 64 automatically.

Default: Not Limit



### 3-3-5. MIB Counter

*Function name:*

MIB Counter

*Function description:*

The page shows local device's MIB counters. If click the "clear" button, all MIB counters will be clear to zero. Click the "refresh" button, show the current MIB counters again.

#### MIB Counters

(The following counter means the port received number)

Port	TP	FX	CPU
Total Bytes	1479700	1151723	957090
Total Pkts	14956	10516	7992
Total Error Pkts	0	0	0
Unicast Pkts	13529	7154	4645
Multicast Pkts	2	3340	3341
Broadcast Pkts	1425	22	6
64	5802	5514	5180
65-127	7828	4274	2153
128-255	4	8	7
256-511	1200	3	4
512-1023	122	646	545
1024-1518	0	71	103
Undersize Pkts	0	0	0
Oversize Pkts	0	0	0
Fragments	0	0	0
CRC Errors	0	0	0
Jabbers	0	0	0
Drop Events	0	0	0
Pause Frames	0	0	0

Fig. 3-9

### 3-3-6. VLAN

The Converter supports Tag-based VLAN (802.1Q). VLAN configuration is used to partition your LAN into small ones as your demand. Properly configuring it, you can gain not only improving security and increasing performance but greatly reducing VLAN management.

#### 3-3-6-1. VLAN Group

**Function name:**

802.1Q VLAN Group

**Function description:**

If enable VLAN functions, user could set 16 VLAN entries. Each VLAN entry could set VID and member port. The VID should be 1~4094. Others when the member port is evoked, this port will belongs to this VLAN group.

**Notes and Scenario:**

VLAN Group 2 (VID: 2): TP, FX, CPU are members of this VLAN group. It's meaning that some Pkts (with tag 2) go into this converter; the Pkts can forward to TP, FX, and CPU. Another case: Vlan Group 3 (VID 3): TP, CPU are members of this VLAN group, So Pkts (with tag 3) go into this converter, the Pkts can forward to TP and CPU only.

#### 802.1Q VLAN Group

VLAN Mode  ▼

VLAN Group	VID	Member		
		TP	FX	CPU
0	<input type="text" value="1"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1	<input type="text" value="2"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="text" value="4094"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<input type="text" value="4"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="text" value="5"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	<input type="text" value="6"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	<input type="text" value="7"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7	<input type="text" value="8"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="text" value="9"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="text" value="10"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="text" value="11"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="text" value="12"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="text" value="13"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="text" value="14"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="text" value="15"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="text" value="16"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Warning: Web connection will lost if CPU port is not VLAN member

Fig. 3-10

***Parameter description:***

VLAN Group:

To display the VLAN Group Index. The maximum is 16 and the range is from 0 to 15.

VID:

VLAN identifier. Each tag-based VLAN group has a unique VID. It appears only in tag-based and Double-tag mode.

TP:

To evoke the TP (The converter's UTP port) to become a VLAN group member.

FX:

To evoke the FX (The converter's Fiber port) to become a VLAN group member.

CPU:

To evoke the CPU (The converter's CPU) to become a VLAN group member. It means that CPU needs to become a VLAN member for management purpose.

### 3-3-6-2. VLAN Per Port Setting

**Function name:**

802.1Q VLAN Per Port Setting

**Function description:**

In this page, we could set each port's PVID and egress tag behavior.

### 802.1Q VLAN Per Port Setting

Port	Egress Link Type	Port VLAN Entry
TP	Dont Touch Tag ▼	0 ▼
FX	Dont Touch Tag ▼	0 ▼
Ingress Filter		Disable ▼

**Warning: VLAN port setting may cause web disconnection**

Fig. 3-11

**Parameter description:**

Egress Link Type:

Replace Tag:

The switch will remove VLAN tags from packets then add new tags to them. The inserted tag is the ingress port's "Default tag", which is indexed by port "Port based VLAN index". This is a replacement processing for tagged packets and an insertion for untagged packets.

Remove Tag:

The switch will remove VLAN tags from packets, if they are tagged when these packets are output. The switch will not modify packets received without tags.

AddTag:

The switch will add VLAN tags to packets, if they are not tagged when these packets are output on this port. The switch will not add tags to packets already tagged. The inserted tag is the ingress port's Default tag, which is indexed by port's "Port based VLAN index".

Don't Touch Tag:

Do not insert or remove VLAN tags to/from packet which is output on this port.

Port VLAN Entry:

Select Port based VLAN index. The number means VLAN table entry index, not VID.

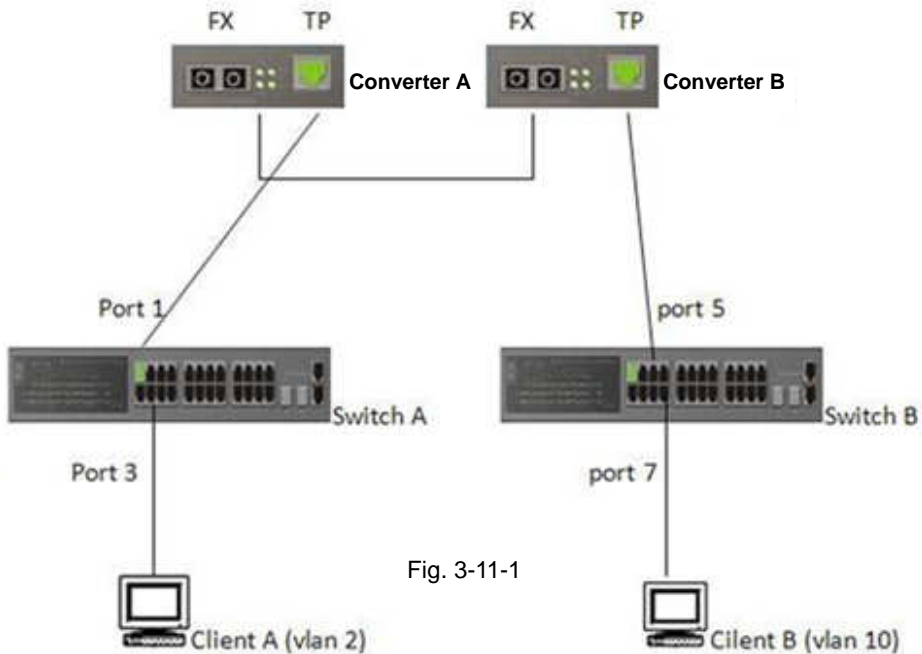
Ingress Filter:

Enable or Disable VLAN ingress filter.

**Application 1 description:**

Example for Replace Vlan description:

Topology:



**Application 1 Scenario explain:**

Switch A VLAN setting:

Port 1 ~ 4: members of VLAN 2 group (PVID: 2)

Port 1 is trunk mode, port 2~4 is access mode.

Switch B VLAN setting:

Port 5 ~ 8: members of VLAN 10 group (PVID: 10)

Port 5 is trunk mode .port 6~8 is access mode.

**Purpose:** Client A & B can communicate with each other (and don't changed original setting on Switch A & B)

**How to setting on Converter A & B?**

Step1.

Pls add VLAN 2 & 10 entry on the table, and confirm port members are selected.

(The same VLAN group setting on Converter A & B)

### 802.1Q VLAN Group

VLAN Mode Enable

VLAN Group	VID	Member		
		TP	FX	CPU
0	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12	13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Apply

Fig. 3-11-2

Step2.

Converter A VLAN per port setting:

### 802.1Q VLAN Per Port Setting

Port	Egress Link Type	Port VLAN Entry
TP	<span>Remove Tag</span>	<span>9</span>
FX	<span>Replace Tag</span>	<span>9</span>
Ingress Filter		<span>Disable</span>

Apply

Fig. 3-11-3

Warning: VLAN port setting may cause web disconnection

Step3.

Converter B VLAN per port setting:

### 802.1Q VLAN Per Port Setting

Port	Egress Link Type	Port VLAN Entry
TP	<span>Remove Tag</span>	<span>1</span>
FX	<span>Replace Tag</span>	<span>1</span>
Ingress Filter		<span>Disable</span>

Apply

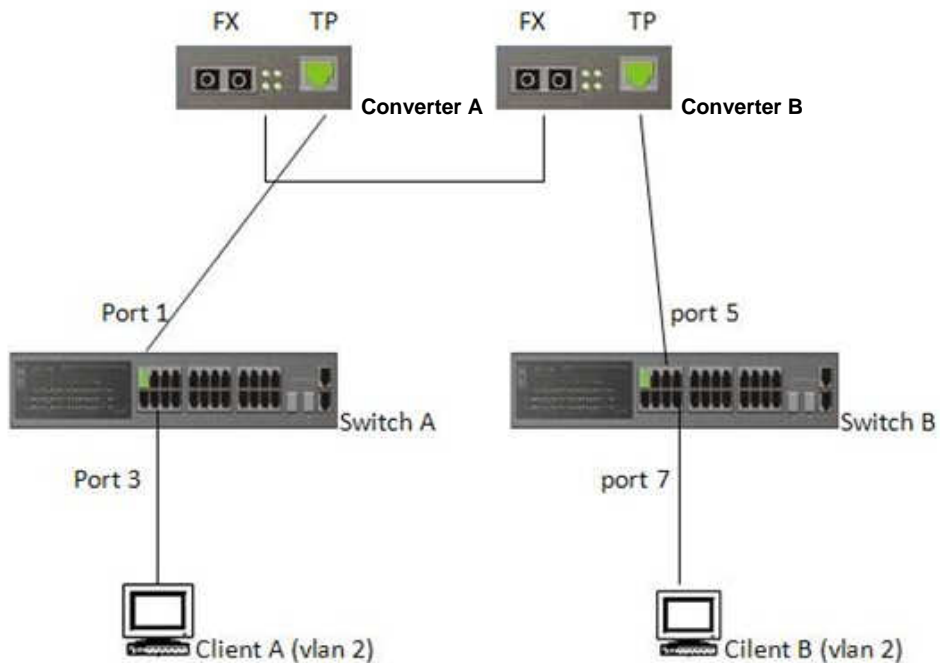
Fig. 3-11-4

Warning: VLAN port setting may cause web disconnection

Finish this setting above, client A & B can communicate with each other; and do not need to change original VLAN setting.

## **Application 2 description (same VLAN) :**

Example Topology:



### **Application 2 Scenario explain:**

Switch A VLAN setting:

Port 1 ~ 4: members of VLAN 2 group (PVID: 2)

Port 1 is trunk mode, port 2~4 is access mode.

Switch B VLAN setting:

Port 5 ~ 8: members of VLAN 2 group(PVID: 2)

Port 5 is trunk mode .port 6~8 is access mode.

**Purpose:** Client A & B can forwarding each other (and don't changed original setting of Switch A & B)

### **How to setting on Converter A & B?**

Step1.

.Pls add VLAN 2 entry on the table, and confirm port members are selected.

(The same VLAN group setting on Converter A & B)

## 802.1Q VLAN Group

VLAN Mode Enable

VLAN Group	VID	Member		
		TP	FX	CPU
0	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Fig. 3-11-5

Step2. Converter A VLAN per port setting:

## 802.1Q VLAN Per Port Setting

Port	Egress Link Type	Port VLAN Entry
TP	<span>Dont Touch Tag</span> <input type="button" value="v"/>	<span>0</span> <input type="button" value="v"/>
FX	<span>Dont Touch Tag</span> <input type="button" value="v"/>	<span>0</span> <input type="button" value="v"/>
Ingress Filter		<span>Disable</span> <input type="button" value="v"/>

Fig. 3-11-6

Warning: VLAN port setting may cause web disconnection

Step3. Converter B VLAN per port setting:

## 802.1Q VLAN Per Port Setting

Port	Egress Link Type	Port VLAN Entry
TP	<span>Dont Touch Tag</span> <input type="button" value="v"/>	<span>0</span> <input type="button" value="v"/>
FX	<span>Dont Touch Tag</span> <input type="button" value="v"/>	<span>0</span> <input type="button" value="v"/>
Ingress Filter		<span>Disable</span> <input type="button" value="v"/>

Fig. 3-11-7

Warning: VLAN port setting may cause web disconnection

Finish this setting above, client A & B can forwarding each other; and don't change original VLAN setting



### 3-3-7. Q-in-Q

**Function name:**

Q-in-Q

**Function description:**

This page could configure Q in Q function.

#### Q in Q Functions Configuration

Q in Q Enable	Disable ▾
Out Layer VLAN Tag EtherType (HEX)	0x8100
Out Layer VLAN VID (DEC)	0
VLAN Tag Priority Decision	Use Internal VLAN Tag Priority ▾
Q in Q direction	P0 Add QinQ Tag, P1 Remove Tag ▾

Apply

**Warning: IF enable Q-in-Q, web connection may be lost because of the VLAN tag**

Fig. 3-12

#### Q in Q Functions Configuration

Q in Q Enable	Disable ▾
Out Layer VLAN Tag EtherType (HEX)	0x8100
Out Layer VLAN VID (DEC)	0
VLAN Tag Priority Decision	Use Internal VLAN Tag Priority ▾
Q in Q direction	Use IP remarking Priority ▾

Apply

#### Q in Q Functions Configuration

Q in Q Enable	Disable ▾
Out Layer VLAN Tag EtherType (HEX)	0x8100
Out Layer VLAN VID (DEC)	0
VLAN Tag Priority Decision	Use Internal VLAN Tag Priority ▾
Q in Q direction	P0 Add QinQ Tag, P1 Remove Tag ▾

P0 Add QinQ Tag, P1 Remove Tag  
P1 Add QinQ Tag, P0 Remove Tag

Fig. 3-13

***Parameter description:***

Out Layer VLAN Tag:

User defined Q-in-Q out layer VLAN tag Ether type.

Out Layer VLAN VID:

User defined Q-in-Q out layer VLAN tag VID

VLAN Tag Priority Decision:

Decide out layer VLAN Tag's priority, use internal VLAN tag priority or use IP remarking priority.

Q in Q direction:

Select Q in Q direction, which port adds tag, and which port removes tag. "TP Port Add Q in Q Tag FX Port Remove Tag" or "FX Port Add Q in Q Tag TP Port Remove Tag".

### 3-4. Remote Setting

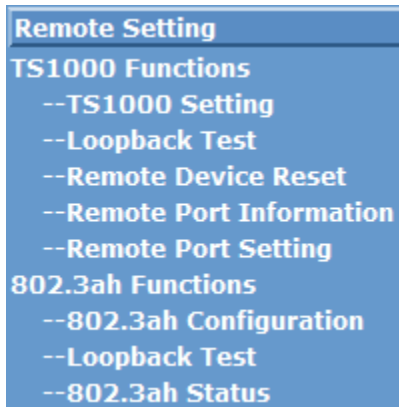


Fig. 3-14

#### 3-4-1. TS-1000 Functions

TS-1000 Functions include "TS1000 Setting", "Loopback Test", "Remote Device Reset", "Remote Port Information", "Remote Port Setting" five functions.

##### 3-4-1-1. TS-1000 Setting

*Function name:*

TS-1000 Setting

*Function description:*

This page could enable/disable TS1000 function, and set TS-1000 mode as terminal or center. If TS1000 is enabled, the TS1000 information will be displayed in the web. And if it's in center mode, and remote device is in terminal mode, remote TS1000 information will also be shown in the page.

#### Local Device TS1000 Function Setting

<b>TS1000 Ability</b>	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
<b>TS1000 Mode</b>	<input type="radio"/> Terminal	<input checked="" type="radio"/> Center
<input type="button" value="Apply"/>		

#### TS1000 Local Status

<b>TS1000 mode</b>	Center
<b>OpticalRxSigStats</b>	Abnormal
<b>NetlinkStatus</b>	UTP Established

## Local Device TS1000 Function Setting

<b>TS1000 Ability</b>	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
<b>TS1000 Mode</b>	<input checked="" type="radio"/> Terminal	<input type="radio"/> Center
<input type="button" value="Apply"/>		

## TS1000 Local Status

<b>TS1000 mode</b>	Terminal
<b>Power status</b>	Normal
<b>OpticalRxSigStats</b>	Abnormal
<b>NetlinkStatus</b>	UTP Established
<b>LossOpNotifWay</b>	with alarm FEFI
<b>Operation status</b>	under ordinary operation
<b>MCOptionB</b>	Support
<b>Terminal Link Rate</b>	100M
<b>Terminal Link Duplex</b>	Full
<b>Terminal Link Nway</b>	Enable
<b>NumPhyInterface</b>	One

Fig. 3-15

### 3-4-1-2. Loopback Test

*Function name:*

Loopback Test

*Function description:*

This page could start TS1000 loopback function. User could set TS1000 loopback packet number. After that click the **<Apply>** button, the loopback test result will be displayed in the web.

### Loop Back Test

Send Packet Number	<input style="width: 100px;" type="text" value="16"/> (1~255)
--------------------	---

### Loop Back Test Result

Result	Pass
Result Counter	16

### Loop Back Test Result

Result	TS1000 is not available
Result Counter	0

Fig. 3-16

*Parameter description:*

*Send packet number:*

After input the number between 1 and 255, click the "**<Apply>**" button.

*Result:*

Pass or not as Fig. 3-16

*Result Counter:*

Show packet number of pass or not

### 3-4-1-3. Remote Device Reset

*Function name:*

Remote Device Reset

*Function description:*

We could reset remote device through this function. Before that “TS1000 ability” should be enabled, local device should be set in center mode and remote device should be set in terminal mode.

**Reset Remote Device (Need Enable TS1000 Function and For Center Mode Only)**



**Reset Remote Device Success**

Fig. 3-17

*Parameter description:*

*Reset button:*

After click this button, if success shown as Fig. 3-17.

### 3-4-1-4. Remote Port Information

*Function name:*

Remote Port Information

*Function description:*

This page shows remote device port information.

**Remote Port Information**

Port Number	Port 0	Port 1
Media Type	TP	FX
Link Status	On	On
Speed	100Mbps	100Mbps
Duplex Mode	Full	Full
Flow Control	On	Off

Notice : The speed of fiber port is always 100Mbps.

Fig. 3-18

### 3-4-1-5. Remote Port Setting

*Function name:*

Remote Port Setting

*Function description:*

In this page, user could enable/disable remote device's UTP port, change remote device port's speed & duplex and flow control ability. Fiber port should not be disabled.

**Remote Port Setting**

Port Name	Enable	Speed & Duplex	Flow Control
TP	Enable <input type="button" value="v"/>	Auto Speed <input type="button" value="v"/>	Enable <input type="button" value="v"/>
FX	Enabled	100M Full <input type="button" value="v"/>	Disabled <input type="button" value="v"/>

Fig. 3-19

### 3-4-2. 802.3ah Function

This menu include “802.3ah Configuration”, “Loopback Test”, “802.3ah Status” three functions.

#### 3-4-2-1. 802.3ah Configuration

*Function name:*

802.3ah Configuration

*Function description:*

This page could set IEEE802.3ah OAM function. User could enable/disable 802.3ah function and set its mode as passive or active mode

### 802.3ah OAM Configuration

<b>802.3ah Function</b>	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
<b>802.3ah Mode</b>	<input checked="" type="radio"/> Passive	<input type="radio"/> Active
<b>Remote Loopback</b>	<input type="radio"/> Disable	<input checked="" type="radio"/> Enable
<input type="button" value="Apply"/>		

### 802.3ah Status

<b>Discovery Status</b>	FAULT
<b>Fiber Port Status</b>	FAULT
<input type="button" value="refresh"/>	

Fig. 3-20



### 3-4-2-2. Loopback Test

*Function description:*

This page could start 802.3ah loopback test. User could configure packet length and packet number. After that click the **<Apply>** button, the loopback test result will be displayed in the web pass or not as Fig. 3-21.

#### 802.3ah Loop Back Test

Send Packet Number	<input type="text" value="16"/> (1~255)
Packet Length(Not include CRC)	<input type="text" value="60"/> (60~1514)

Apply

#### Loop Back Test Result

Result	Pass
TX Counter	16
RX Counter	16
RX Error Counter	0

#### Loop Back Test Result

Result	Fail
--------	------

Fig. 3-21

### 3-4-2-3. 802.3ah Status

Function description:

This page shows 802.3ah state information.

## 802.3ah Status Information

### Global Config

Function Enable	ENABLED
Local DTE MAC	00-40-C7-27-00-01
Remote DTE MAC	00-40-C7-27-00-00

### Flags Field

	Local	Remote
Remote Stable	TRUE	TRUE
Remote Evaluating	FLASE	FLASE
Local Stable	TRUE	TRUE
Local Evaluating	FLASE	FLASE
Critical Event	FLASE	FLASE
Dying Gasp	FLASE	FLASE
Link Fault	FLASE	FLASE

### Discovery Information

Discovery State	SEND_ANY
Local PDU	ANY
Local Satisfied	TRUE
Remote State Valid	TRUE
Local Lost Link Timer Done	FALSE
Local Link Status	TRUE

### Information TLV

	Local	Remote
State Mux	FWD	FWD
State Par	FWD	FWD
Revision	0x0	0x2
Variable	FLASE	FLASE
Link Events	TRUE	TRUE
Loopback	TRUE	TRUE
Unidir	FLASE	FLASE
Mode	ACTIVE	PASSIVE

### Remote Dying Gasp

Remote Dying Gasp Count:	0
--------------------------	---

Fig. 3-22

### 3-5. Tools

This menu contains “System Reboot”, “Save and Restore”, “Firmware Upgrade” and “Logout” four functions.

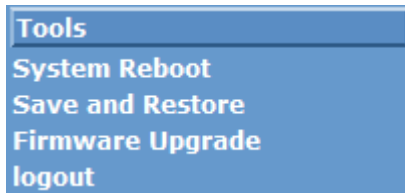


Fig. 3-23

#### 3-5-1. System Reboot

*Function name:*

System Reboot

*Function description:*

Click this function to reboot the device.



Fig. 3-24

*Parameter description:*

*OK:*

To restart the device.

*Cancel:*

To exit the function.

### 3-5-2. Save and Restore

*Function name:*

Save and Restore

*Function description:*

Backup: Save local configuration to flash.

Restore: Restore last saved configuration.

Factory: Factory default setting.

#### Configuration Setting

Press the **"SaveToFlash"** button, all current configuration will save to converter as backup.

SaveToFlash

Press the **"LoadFromFlash"** button, the Web Interface may be disconnected for restore to previous backup configuration.

LoadFromFlash

Press the **"ResetToFactory"** button, the Web Interface will be disconnected. After reset all configuration, the system will back to factory default mode. The default IP address is **192.168.1.1**.

ResetToFactory

Fig. 3-25

### 3-5-3. Firmware Upgrade

*Function description:*

Firmware Upgrade

*Function description:*

In this page, user could update the firmware by the web browser. User could click the browser button, select the new firmware image file, and then the new code image will be burned into the flash, and reset the device to use the new firmware.

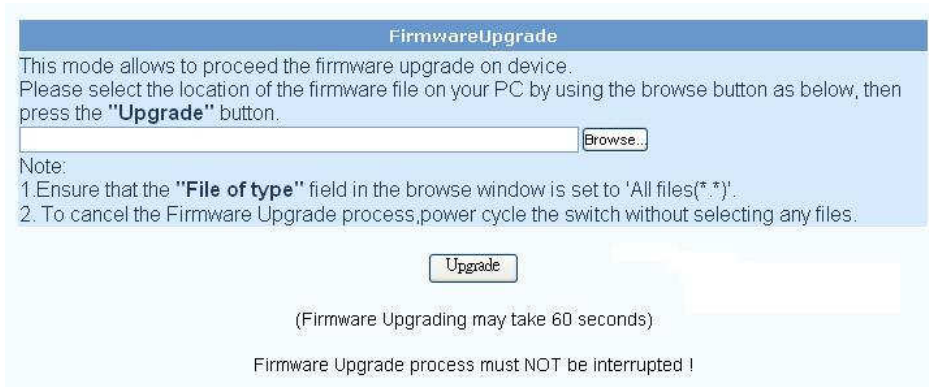


Fig. 3-26

*Parameter description:*

*Browse:*

To select the location of the firmware file.

*Upgrade:*

To execute "firmware upgrade" function.

### 3-5-4. Logout

*Function description:*

Click "OK" button to logout web management.



Fig. 3-27

# 4. Maintenance

## 4-1. Resolving No Link Conditions

The possible causes for a no link LED status are as follows:

- The attached device is not powered on
- The cable may not be the correct type or is faulty
- The installed building premise cable is faulty
- The port may be faulty

## 4-2. Q&A

1. Computer A can connect to Computer B, but cannot connect to Computer C through the WEB SMART MEDIA CONVERTER Converter.
  - ✓ The network device of Computer C may fail to work. Please check the link/act status of Computer C on the LED indicator. Try another network device on this connection.
  - ✓ The network configuration of Computer C may be something wrong. Please verify the network configuration on Computer C.
2. The uplink connection function fails to work.
  - ✓ The connection ports on another must be connection ports. Please check if connection ports are used on that converter.
  - ✓ Please check the uplink setup of the WEB SMART MEDIA CONVERTER to verify the uplink function is enabled.

# Appendix A

## Technical Specifications

### Hardware Specification (Web Smart Media Converter)

Feature	Detailed Description
Power requirement	5VDC
Power consumption	1.5 W
Ambient Temperature	0° to 50°C
Humidity	5% to 90%
Dimensions	70.3(W) x 26.2(H) x 94(D) mm
Weight	0.44kg
Safety	Comply with FCC Part 15 Class A & CE Mark Approval
Shock	IEC60068-2-27
Freefall	IEC60068-2-32
Vibration	IEC60068-2-6

### 19-inch Media Converter Rack Technical Specifications

- Slot Capacity: 12 slots for slide-in converter
- LED Indicator:

LED	Color	Function
Power A	Green	Lit when Power Module A +5V output is coming up
Power B	Green	Lit when Power Module B +5V output is coming up
Fan	Green	Lit when dual 8cm DC Fans are normal status Flickering while one of both-side Fans is malfunctioning (lower rotation) Off when any 8cm DC Fan is bad

- Power Requirement:

AC Power Input	
Voltage:	100/240VAC
Frequency:	50~60 Hz
Dissipation:	60W maximum

- **Ambient Temperature:**0° to 50°C
- **Storage Temperature:**-10° to 70°C
- **Humidity:**5% to 90%
- **Dimensions:**89(H) × 440(W) × 258.6(D) mm
- **Weight:**

<i>Item</i>	<i>Weight</i>
Chassis	4.25kg
AC Power	0.78kg

**Complies with FCC Part 15 Class A & CE Mark Approval**

Note: Any specification is subject to change without notice.