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USER'S MANUAL

Managed Ethernet NTU

ENTU 763C/S Series

Version: 1.3
Date: 2011/06/09
P/N: 0700800140

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About This Manual

This section guides users on how to use the manual effectively. The manual contains information needed to install, configure, and operate TAINET ENTU 763 Series. The summary of this manual is as follows:

Chapter 1: Introduction

This chapter gives the overview and specifications of TAINET ENTU 763 Series.

Chapter 2: Web Guide

This chapter describes how to configure TAINET ENTU 763 Series via web interface.

Chapter 3: Console Guide

This chapter describes how to configure TAINET ENTU 763 Series via console interface.

Symbols Used in This Manual

3 types of symbols may be used throughout this manual. These symbols are used to advise the users when a special condition arises, such as a safety or operational hazard, or to present extra information to the users. These symbols are explained below:

Warning:

This symbol and associated text are used when death or injury to the user may result if operating instructions are not followed properly.

Caution:

This symbol and associated text are used when damages to the equipment or impact to the operation may result if operating instructions are not followed properly.

Note:

This symbol and associated text are used to provide the users with extra information that may be helpful when following the main instructions in this manual.

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Chapter 1. Introduction

ENTU 763/GE is a Gigabit Ethernet Media Converters for twisted-pair to fiber-optic conversion. The new converters are fully compliant with IEEE802.3z and IEEE802.3ab standards for Gigabit Ethernet networking interoperability. These converters can be used as a standalone unit (763S GE/FE) or for installation on to an Ethernet converter chassis(763C GE/FE). With ENTU 763/GE new Gigabit copper to fiber converters, network managers can extend the distance of Copper Gigabit up to 500 meters with 1000Base-SX standard and 40km with 1000Base-LX standard.

ENTU 763/FE is a 10/100base-TX/FX Standalone Media Converter is designed for high speed and bandwidth demanding workgroups that require expansion of the Fast Ethernet network. It is used to extend the transmission distance between two Fast Ethernet Twisted-pair devices via fiber cable transparently with no performance degradation.

Front and rear views of ENTU 763C/S Series are shown in Figure 1-1 to 1-4.

Figure 1-1: ENTU 763S Front View

Figure 1-2: ENTU 763C Front View

Figure 1-3: ENTU 763S Rear View

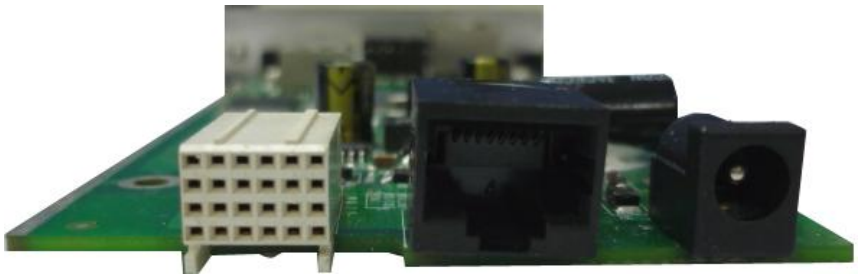


Figure 1-4: ENTUC 763 Rear View

1.1 Product Features

- ENTU 763G provides one channel media conversion between 1000Base-T and 1000Base-SX/LX
- ENTU 763F provides one channel media conversion between 100Base-T
- Fiber module uses LC connector
- Transparent Link Pass Through function
- Auto-negotiation of duplex mode on ETH and TX ports
- Auto MDI/MDI-X for TX port
- Front panel status LEDs
- Compact and standalone device
- Device management via web interface
- Support point-to-point applications

1.2 LED Indicators

On the front panel of ENTU 763, the users can see various LED indicators, the description and state of the indicators are discussed in Table 1-1 below.

Figure 1-5: ENTU 763 Front Panel LED Indicators

Table 1-1: The LED indicators of the ENTU 763 Series.

LED Indicator		State	Description
PWR		ON	Power is ON
		OFF	Power is OFF
ETH	**LINK**	ON	Link is up
		Flashing	Ethernet port is transmitting and/or receiving data
		OFF	Link is down
	FULL SPD	ON	ENTU 763G is running at 1 Gbps ENTU 763F is running at 100 Mbps
		OFF	Ethernet is not running full speed
LINK	**TP**	ON	Link Transparent is enabled
		OFF	Any other condition that does match the above state
	RF	ON	When link transparent, RFD and LLCF is enabled and device has lost ETH or OPT connection
		OFF	No loss of signal at Terminal side
OAM	**CO**	ON	802.3ah Mode is Active or TS1000 Mode is Center
		OFF	802.3ah Mode is Passive or TS1000 Mode is Terminal
	LBK	ON	802.3ah Loopback Test is running
		OFF	Not running 802.3ah Loopback Test
OPT	**LINK**	ON	Link is up
		Flashing	Optical fiber port is transmitting and/or receiving data
		OFF	Link is down

1.3 Specifications and the Interfaces

1. ENTU 763F:
   - IEEE 802.3/802.3u Auto-Negotiation function
   - IEEE 802.3x flow control
   - IEEE 802.3Q tag VLAN
   - Support Bandwidth control and Q-in-Q VLAN
   - Support 802.3ah OAM and TS1000 OAM
   - Ethernet transmit up to 100 meters using Cat-5 UTP cable
   - Ethernet transfer rate for 100Base-TX is at least 148800 packet per second

(pps)

- Ethernet transfer rate for 10Base-T is at least 14889 pps
- Automatic MDI-MDIX crossover
- Ethernet connector: RJ-45
- Uses 100Base-FX only
- Web management

2. ENTU 763G:
   - Support IEEE 802.3/802.3u Auto-Negotiation function
   - IEEE 802.3x flow control
   - IEEE 802.3Q tag VLAN
   - Support Bandwidth control and Q-in-Q VLAN
   - Support 802.3ah OAM and TS1000 OAM
   - Ethernet transmit up to 100 meters using Cat-5/Cat-6 UTP cable
   - Ethernet transfer rate for 1000Base-T is at least 1488000 pps
   - Ethernet transfer rate for 100Base-TX is at least 148800 pps
   - Ethernet transfer rate for 10Base-TX is at least 14889 pps
   - Automatic MDI-MDIX crossover
   - Ethernet connector: RJ-45
   - Uses 1000Base-FX only
   - Web management
3. 100Base-FX Interface:
   - SFP module
   - Data rate: 125 Mbps
   - Wavelength: 1310 nm
   - Connector type: LC
   - Receiver Sensitivity: -34 dBm
   - Output Power: -8 ~ -15 dBm
   - Maximum Range：20 km
   - Fiber Type：Single Mode
   - Line Code：NRZ
4. 1000Base-SX Interface:
   - SFP module
   - Data rate：1250Mbps
   - Wavelength：1310 nm

- Connector type：LC
- Receiver Sensitivity： -21 dBm
- Output Power：-9 ~ -3 dBm
- Maximum Range：10 km
- Fiber Type：Single Mode
- Line Code：NRZ

5. 1000Base-LX Interface:
   - Data rate：1250Mbps
   - Wavelength：1310 nm
   - Connector type：LC
   - Receiver Sensitivity： -23 dBm
   - Output Power：0 ~ -5 dBm
   - Maximum Range：20 km
   - Fiber Type：Single Mode
   - Line Code：NRZ
6. Dimension: W x L x H = 87 mm x 172 mm x 24 mm
7. Power Input = 12 VDC/0.5A
8. Power Consumption:
   - ENTU 763G: 3.3 W
   - ENTU 763F = 1.8 W
9. Environmental Requirements:
   - Operation: 0 ~ 50 ºC, 5 ~ 90 % RH (Relative Humidity)
   - Storage and Transportation: -20 ~ 70 ºC, 5 ~ 95 % (Relative Humidity)
10. One Reset Switch.
    - Press and hold the reset switch for 8 seconds. The device will restore to factory default settings. With default username/password: admin/admin and default IP: 192.168.0.1. The DHCP and TP functions will also be disabled after the reset.

1.4 Application Diagram

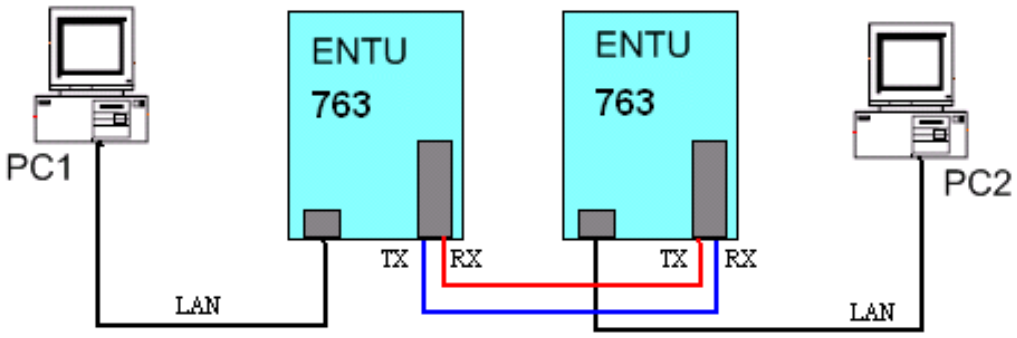


Figure 1-6: ENTU 763 Test Topology

The test environment is setup as in Figure 1-6. The two ENTU763 devices are connected by fiber and the ETH ports are connected to PCs. The PC operates the ENTU763 through the web Interface.

Chapter 2. Web Guide

ENTU 763 has an embedded web server, user can operate the device through the web interface. The default IP address is 192.168.0.1.

2.1 Main Page

This is the login page of the ENTU 763. When input IP address of the ENTU 763 device in the IE address bar, press ENTER, then the login page will appear.

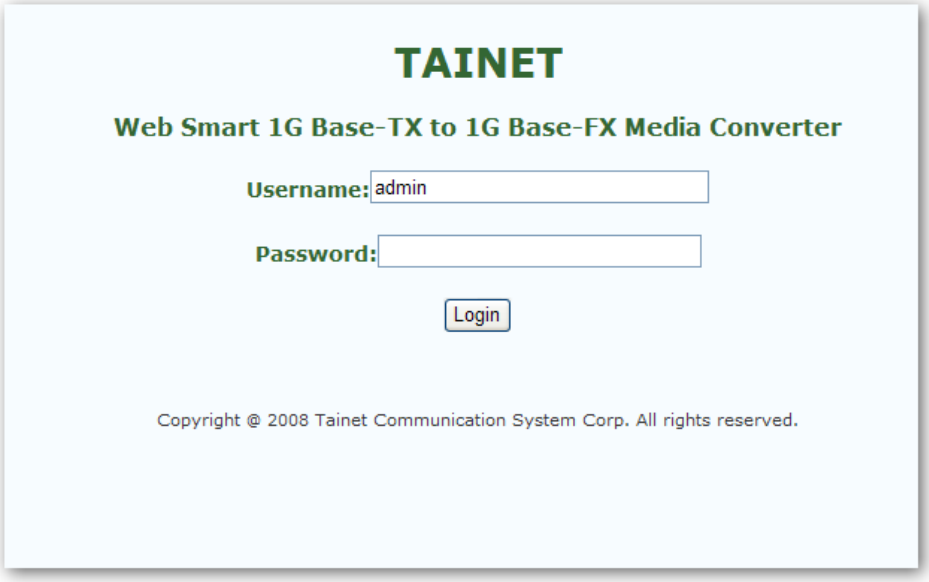


Figure 2-1: Login Page

The default password is admin. Enter the password to see the Main page.

Figure 2-2: Main Page

There are 4 main categories on the left hand side: Network Information, Local Setting, Remote Setting and Tools. Each of the categories will be discussed later in the manual

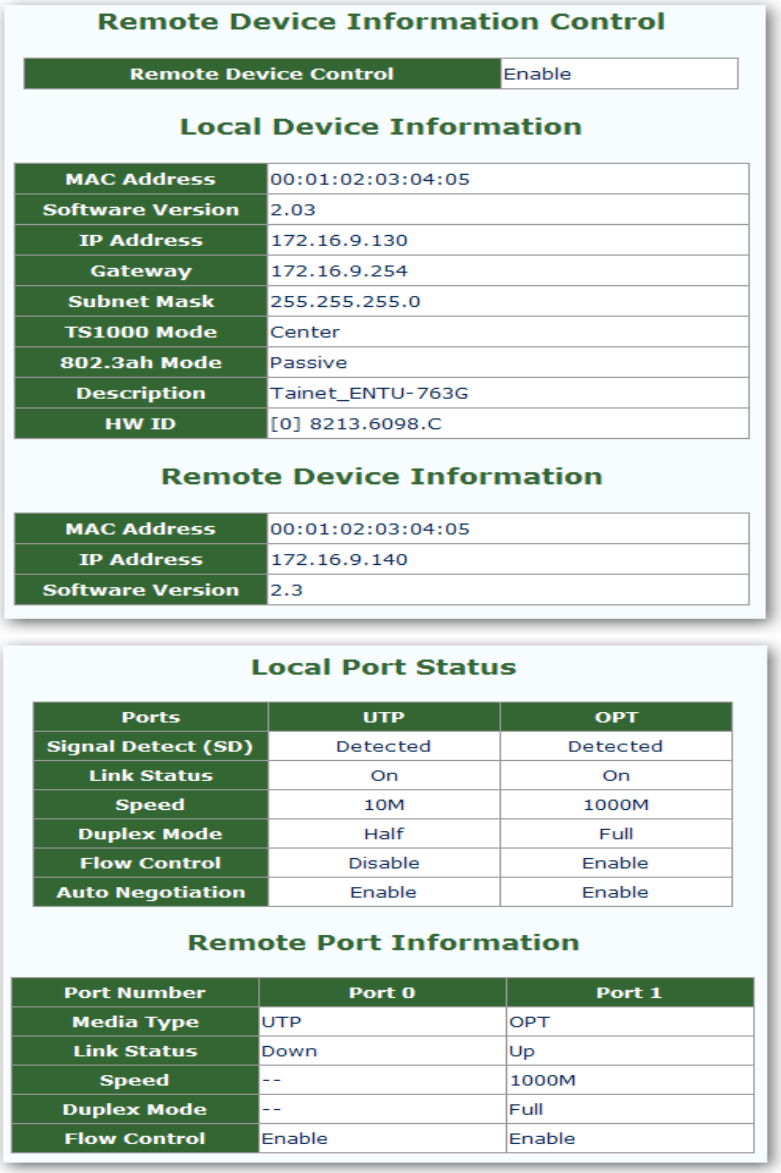
2.2 Network Information

The Network Information menu includes the following information:

- Remote Device Information Control
- Local Device Information
- Remote Device Information*
- Local Port Status
- Remote Port Information*

* Only when TS1000 Function is enabled, and with one device set to Center, the Remote status can be shown.

Essential device information can be found here, such as software version, local IP and MAC address, Ethernet and Optical port information, and status of TS1000 and 802.3ah functions.



Remote Device Information Control

Remote Device Control	Enable

Local Device Information

MAC Address	00:01:02:03:04:05
Software Version	2.03
IP Address	172.16.9.130
Gateway	172.16.9.254
Subnet Mask	255.255.255.0
TS1000 Mode	Center
802.3ah Mode	Passive
Description	Tainet_ENTU-763G
HW ID	[0] 8213.6098.C

Remote Device Information

MAC Address	00:01:02:03:04:05
IP Address	172.16.9.140
Software Version	2.3

Local Port Status

Ports	UTP	OPT
Signal Detect (SD)	Detected	Detected
Link Status	On	On
Speed	10M	1000M
Duplex Mode	Half	Full
Flow Control	Disable	Enable
Auto Negotiation	Enable	Enable

Remote Port Information

Port Number	Port 0	Port 1
Media Type	UTP	OPT
Link Status	Down	Up
Speed	--	1000M
Duplex Mode	--	Full
Flow Control	Enable	Enable

Figure 2-3: Network Information Page

2.3 Local Setting

2.3.1 IP Configuration

The user can enable/disable DHCP client; modify IP address, subnet mask and gateway in this section.

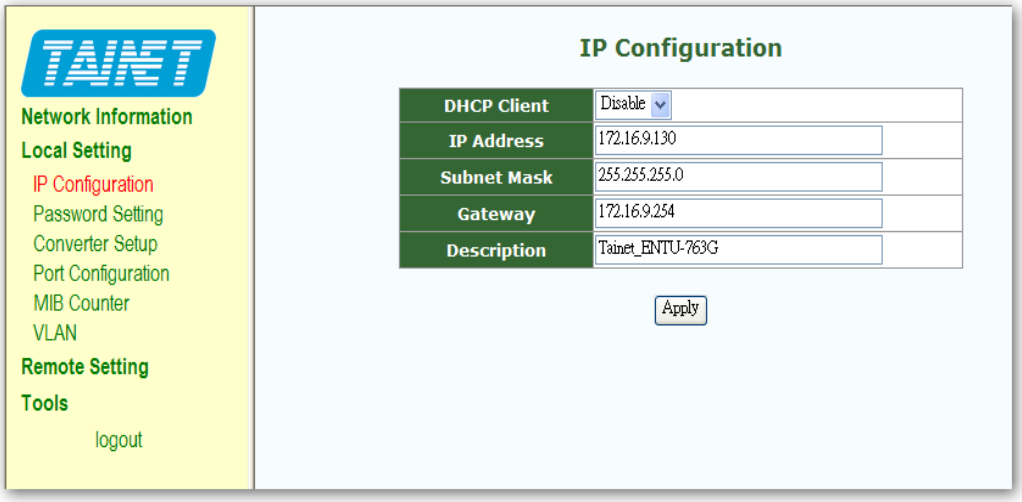


Figure 2-4: IP Configuration Page

After changing the IP/DHCP settings, the web may lose connection to the device. Please use new IP address in order to manage the device again.

If the device IP address is lost, the user may use the Reset switch to restore the device back to default settings, and access the device via default IP address (192.168.0.1).

2.3.2 Password Setting

The password can be changed in this section. However, there is only 1 set of username/password available for web management. If the password is lost, please use the Reset switch to restore back to default username/password (admin/admin).

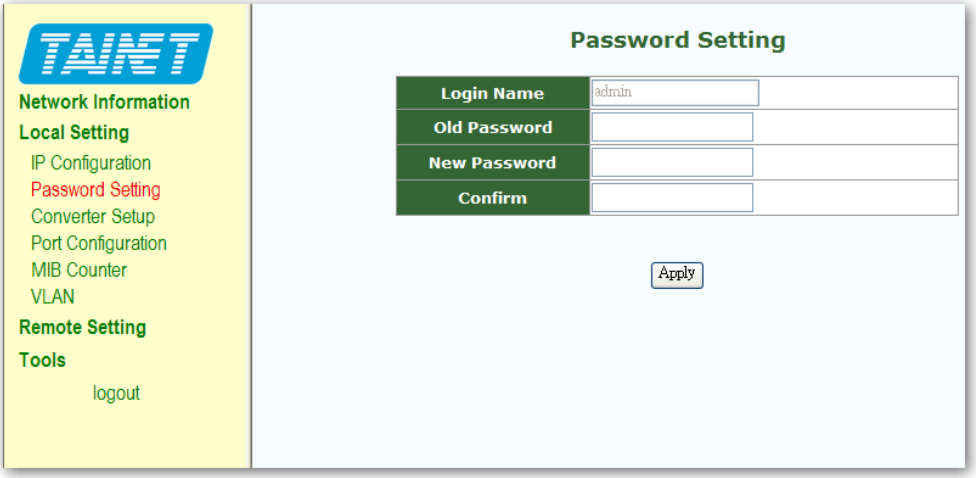


Figure 2-5: Password Setting Page

2.3.3 Converter Setup

The user can setup the converter to do the following:

1. Enable/Disable Jumbo Frames

- Packet length is 9k.

2. Enable/Disable Link Transparent:

- When Link Transparent is enabled, then Remote Fault Detect and Link Loss Carry Forward functions can be enabled
- Via Link Transparent, the device sends a link loss signal over fiber; instructing the remote device to shut down the ETH link thus notifying the end device, while maintaining the fiber link between the two converters.

3. Enable/Disable Remote Fault Detect

- By enabling Remote Fault Detect, the LED will be ON in the event of dying gasp, link fault, or other critical events.

4. Enable/Disable Link Loss Carry Forward

- By enabling Link Loss Carry Forward, the ports do not transmit a link signal until they receive a link signal from the opposite port.
- This means when the ETH link is down, the converter will force OPT to be link down, or when the OPT link is down, the ETH port will be forced to be link down. The far end device will be notified of the link loss, which prevents the loss of valuable data unknowingly transmitted over an invalid link.

5. Drop/Forward CRC Error Frame

6. Drop/Forward Pause Frame
7. Set OAM Packet Priority

- Enable/Disable various filters, including: Broadcast Storm Filter, Multicast Storm Filter and Unknown DA Unicast Storm Filter.

The Converter Setup page is shown in Figure 2-6.

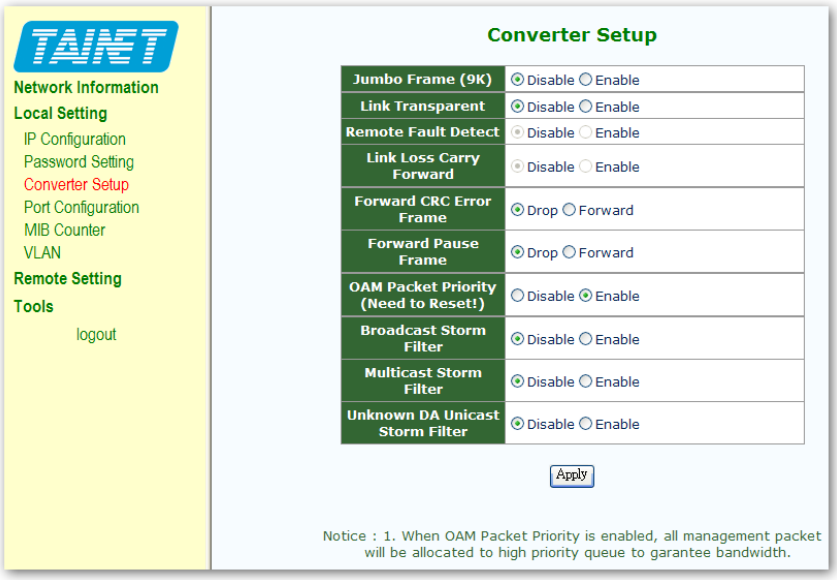


Figure 2-6: Converter Setup Page

2.3.4 Port Configuration

The user can configure local ETH and OPT ports with the following settings:

1. Select ETH Mode

■ Include the following selections: Auto Speed, 1000F(only available on ENTU 763G), 100Full/Half and 10Full/Half

2. Enable/Disable Flow Control (Ingress only)

■ When Flow Control is enabled, the user can specify the ingress rate limits for the ETH and OPT ports. The rate limit has an increment step of 64kbps.

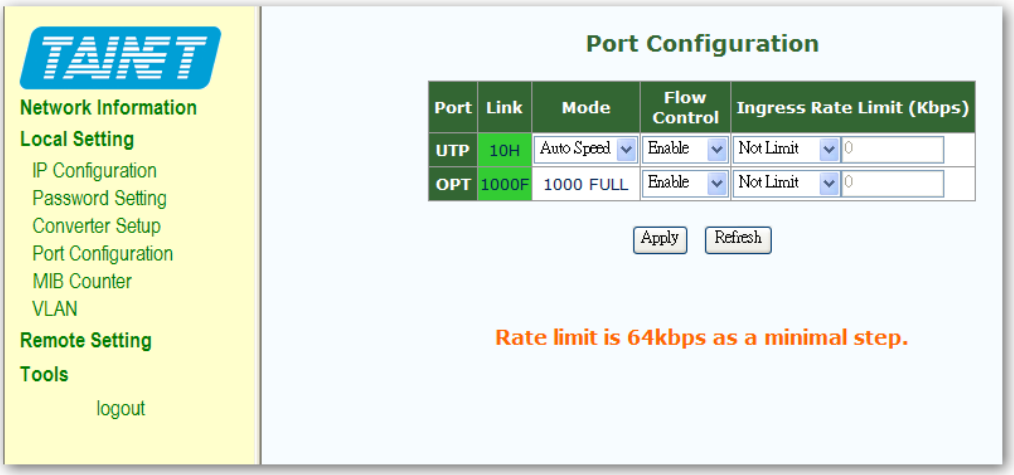


Figure 2-7: Port Configuration Page

2.3.5 MIB Counter

This page displays the detail packet information that the device receives.

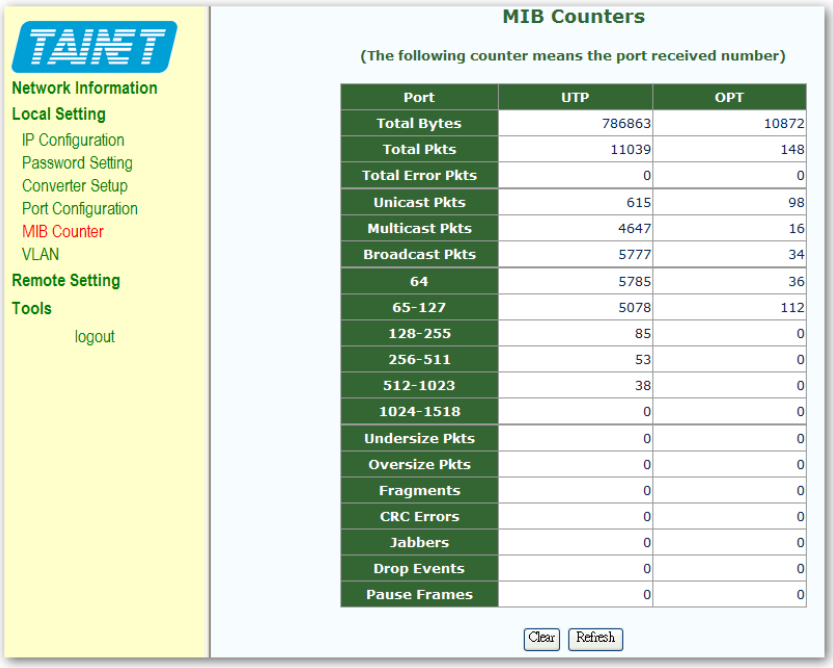


Figure 2-8: MIB Counter Page

2.3.6 VLAN

The user can setup the VLAN mode to be Disable, Port Base, Tag Base and Q-in-Q.

2.3.6.1 Port Base

In Port Base mode, user can select to replace, remove, add or don't touch the VLAN tag.
When "Replace Tag" is selected, the VLAN tag of packets will be replaced by defined PVID on egress port.
When "Remove Tag" is selected, all VLAN tag will be stripped and the outgoing packets will bring no VLAN tag.
When "Add Tag" is selected, ENTU 763 will add PVID as VLAN tag to all untagged packets.
As "Don't Touch Tag" option is selected, device will do nothing to the packets on egress port.

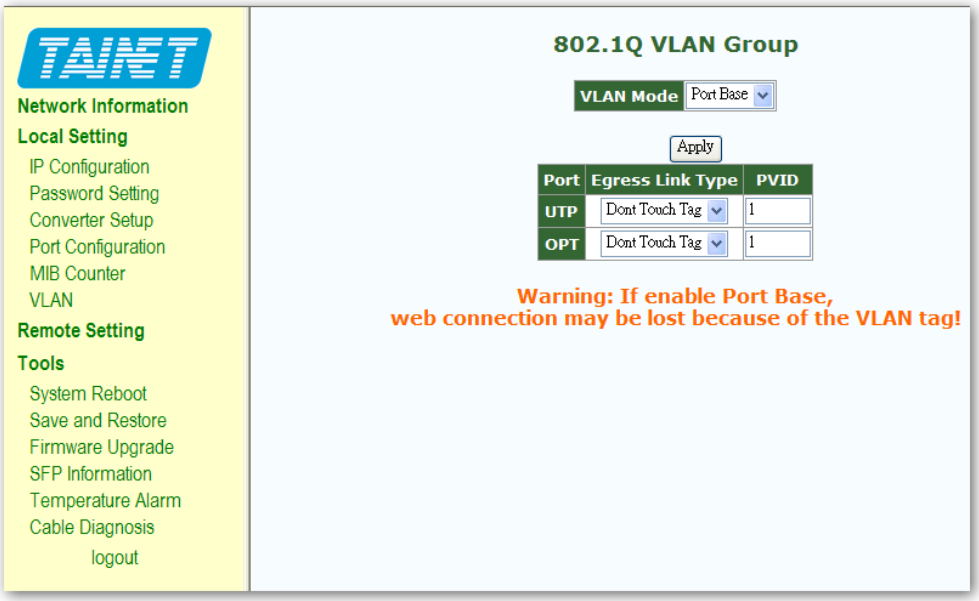


Figure 2-9: Port Base VLAN

2.3.6.2 Tag Base

In Tag Base mode, users are allowed to select Egress Link Type to be replace, remove, add or don't touch the VLAN tag with different VLAN entries (1 ~ 15). Users can also assign VIDs to the VLAN entries. Tagged packet will be dropped if its VLAN tag does not match with the defined VID.

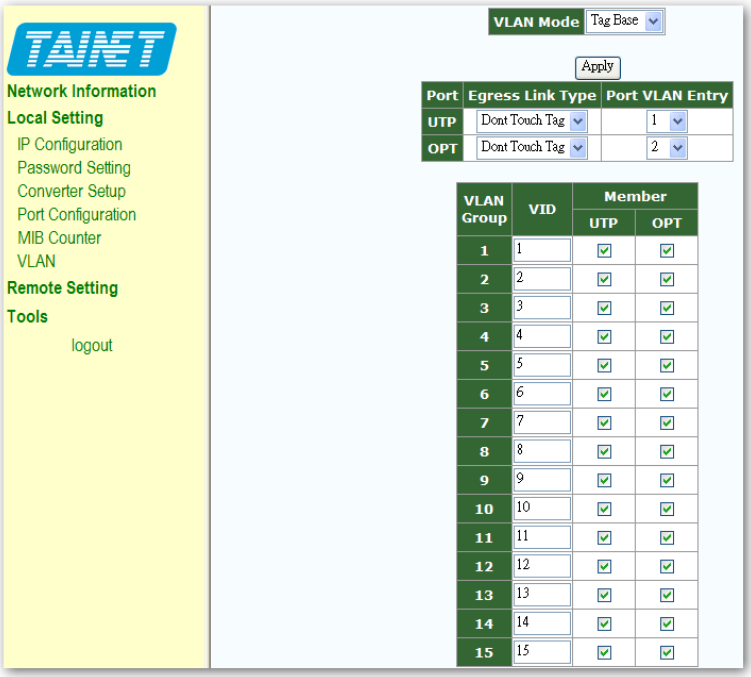


Figure 2-10: Tag Base VLAN

2.3.6.3 Q-in-Q

ENTU can generate VLAN tag on the OPT or ETH port. Please note when ETH port is assigned with a VLAN tag, the computer may not be able to access the device via web management.

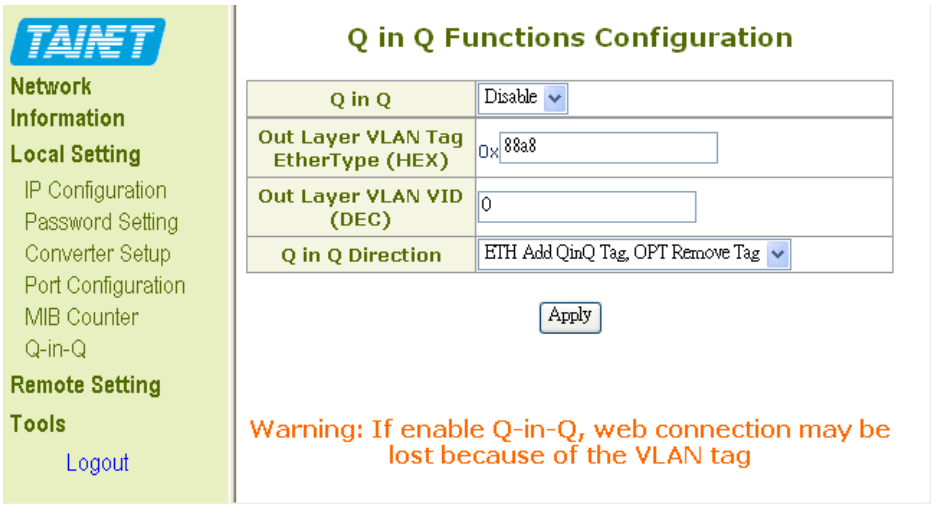


Figure 2-11: Q-in-Q Page

To configure Q-in-Q as the example shown in Figure 2-10, please follow the steps below.

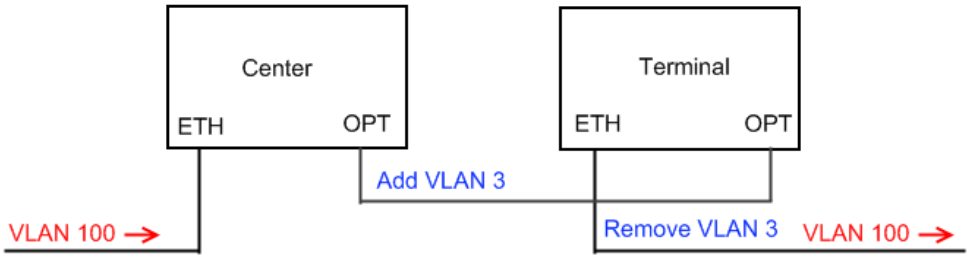


Figure 2-12: Q-in-Q Example

Configurations for ENTU 763 devices:
1. Configure ENTU 763 Center device.
2. The user will first input the Ethernet Type in HEX, the default Ethernet Type is 88a8.
3. Enter the Outgoing VLAN ID (VID): 3
4. Choose Q-in-Q Direction: OPT Add Q-in-Q Tag or ETH Remove Tag.
5. Enable Q-in-Q and press the Apply button.
6. Repeat Step 2 to 5 for the Terminal device.

Result:
1. The incoming packet contains VLAN ID 100.
2. Refer to Figure 2-10, as traffic enters ENTU 763, VLAN 3 is added on the OPT port of Center device, then VLAN 3 is to be removed by the ETH port of Terminal device.
3. The output packet only contains VLAN ID 100.

2.4 Remote Setting

2.4.1 TS1000 Functions

2.4.1.1 TS1000 Setting

TS1000 Function can be set in this page.
TS1000 function is set to Disable and Terminal mode by default (Figure 2-11).

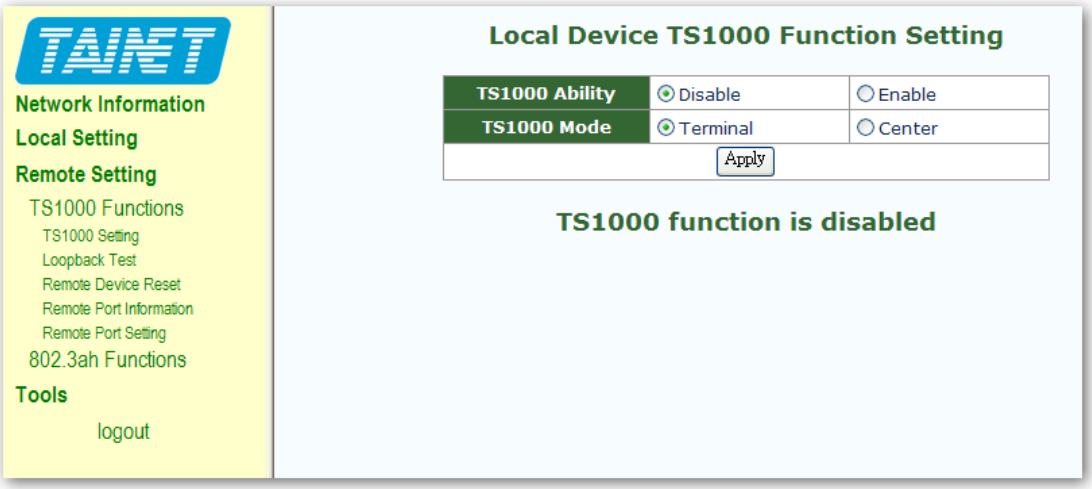


Figure 2-13: TS1000 Setting Page with TS1000 Disabled

When TS1000 function is enabled, and operates in Terminal mode. The TS1000 Local

Status will be displayed as shown in Figure 2-12.

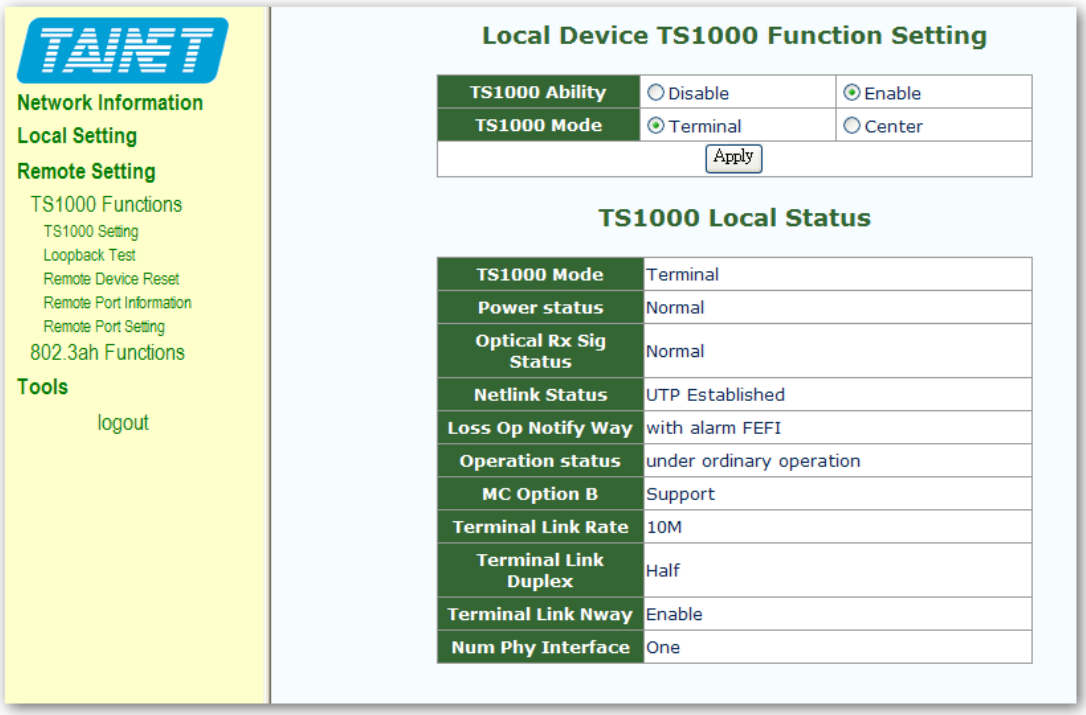


Figure 2-14: TS1000 Setting Page with TS1000 Enabled

Changing the operating mode to Center, the local device will be able to view the TS1000 Remote Status (Figure 2-13).

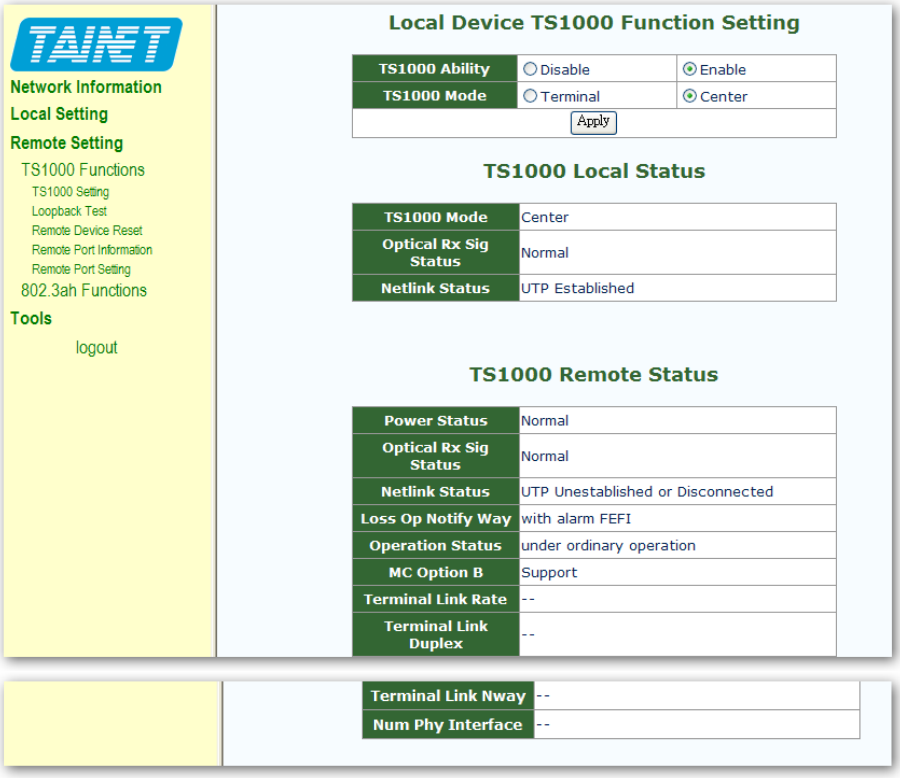


Figure 2-15: TS1000 Setting Page with TS1000 Enabled and in Center Mode

2.4.1.2 Loopback Test

The user can troubleshoot the network by performing loopback test on ENTU 763. Please note this function is only available when local device is running in Center mode and remote device in terminal mode.

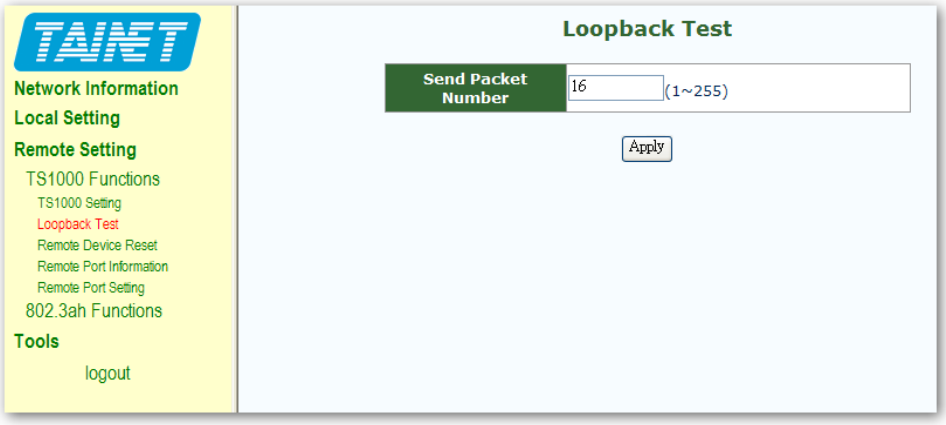


Figure 2-16: TS1000 Loopback Test Page

2.4.1.3 Remote Device Reset

The Center device can reboot the remote device. Please make sure the current settings have been saved before rebooting the device.

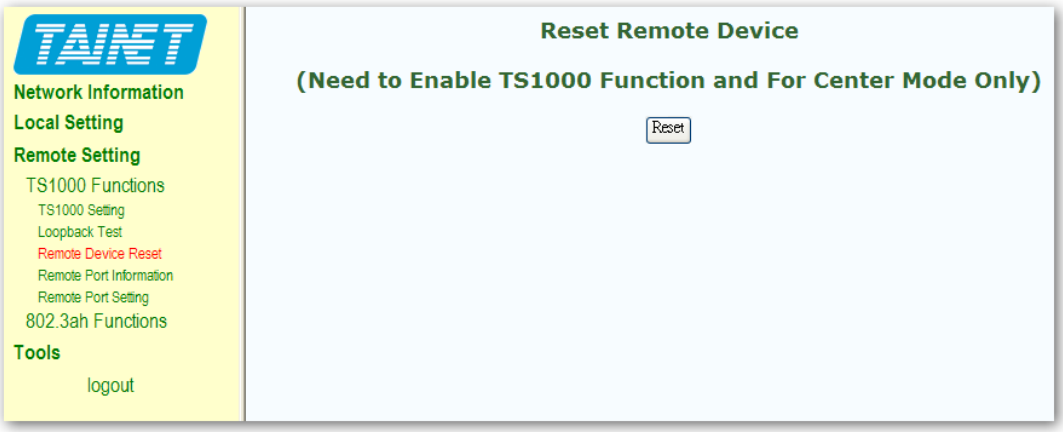


Figure 2-17: Remote Device Reset Page

2.4.1.4 Remote Port Information

The Remote port information is displayed here. The OPT speed is always 1000Mbps.

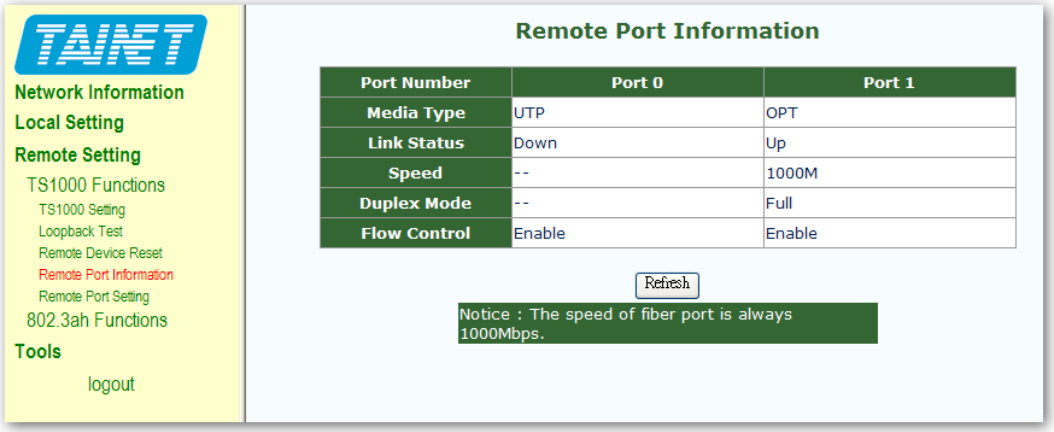


Figure 2-18: Remote Port Information Page

2.4.1.5 Remote Port Setting

When TS1000 function is operating in Terminal mode, Remote Port Setting will be unavailable (Figure 2-17).

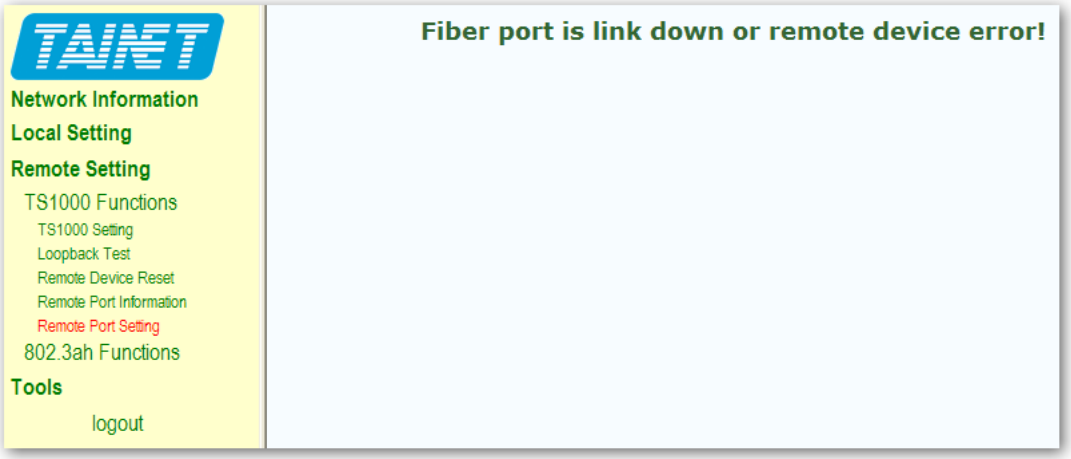


Figure 2-19: Remote Port Setting Page, Corresponding to Settings in Figure 2-11

When TS1000 function is enabled, and operating in Center mode, the local device can manage the remote port settings. The user can set the remote ETH speed, operating mode and flow control (Figure 2-18).

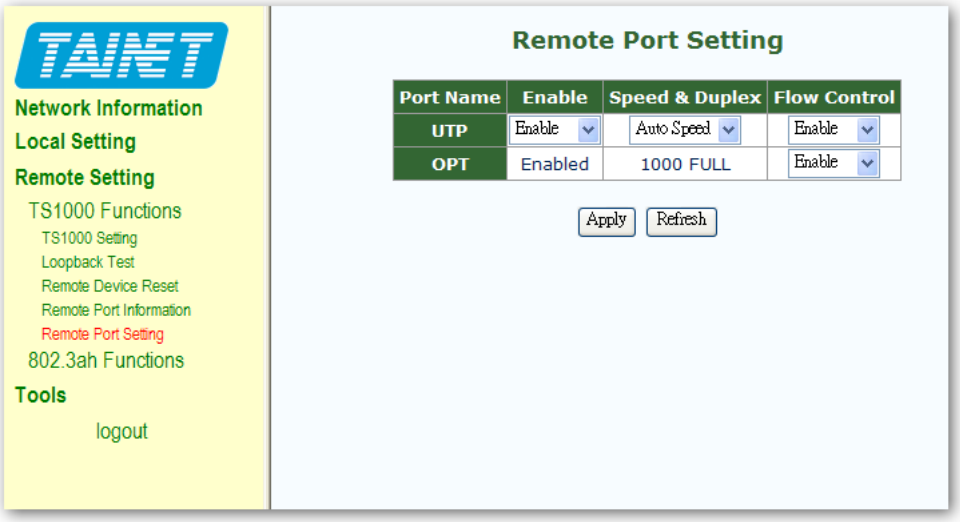


Figure 2-20: Remote Port Setting Page, Corresponding to Settings in Figure 2-13

2.4.2 802.3ah Functions

2.4.2.1 802.3ah Configuration

802.3ah Function is disabled and operating in passive mode by default.

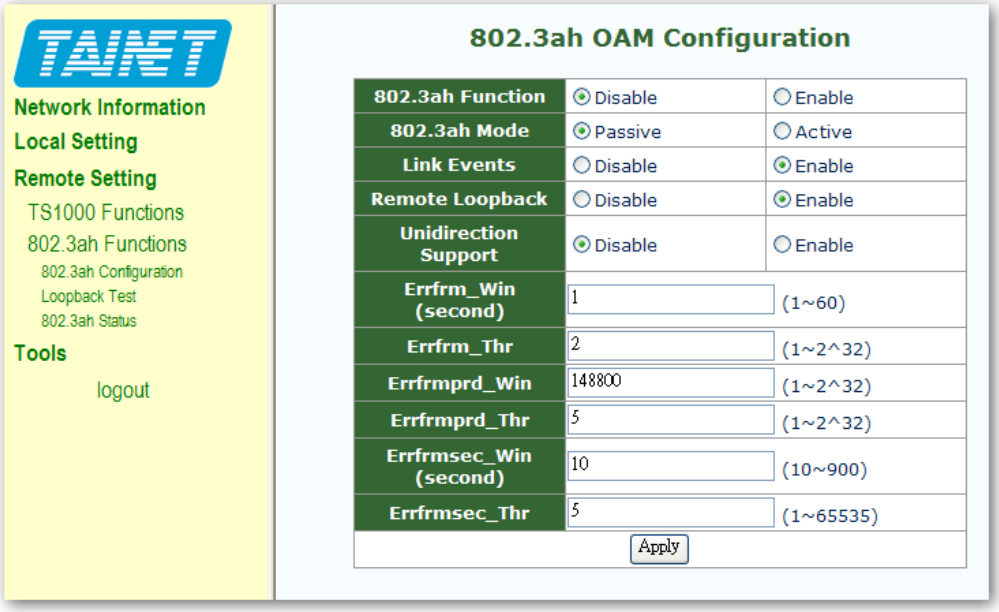


Figure 2-21: Case#1 802.3ah OAM Configuration

When 802.3ah function is enabled and operating in passive mode, the 802.3ah status will appear. Discovery status will have four states. First state is passive wait. Second state is sent local remote when ENTU 763 announces signal to the other device. Third state is sent local remote ok when ENTU 763 gets responds from the other device. Fourth state is sent any when ENTU 763 sends info to each other.

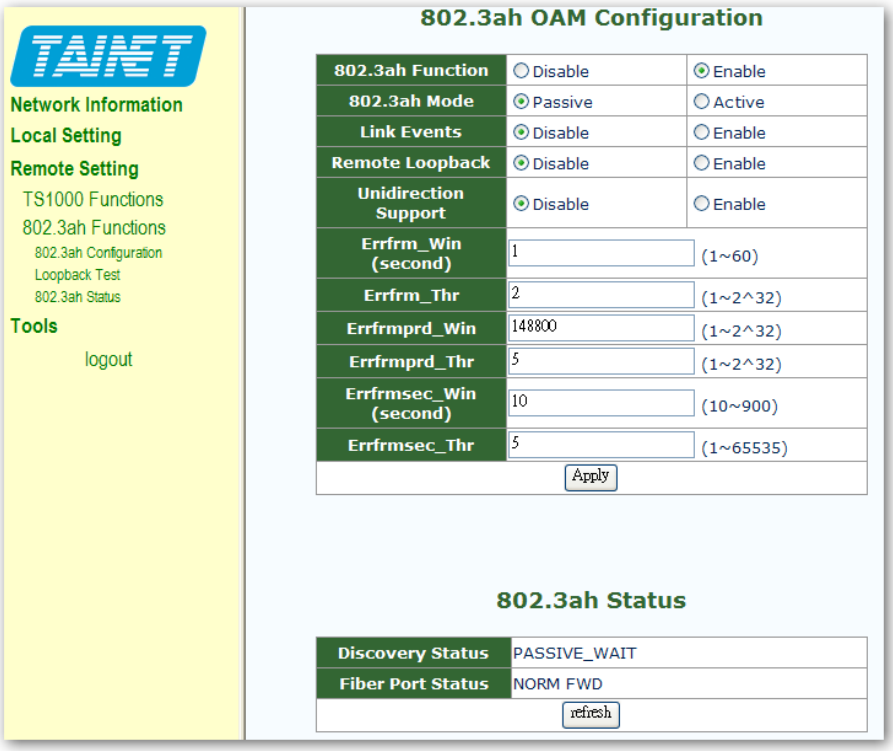


Figure 2-22: Case#2 802.3ah Passive Mode Discovery Status

When 802.3ah function is enabled and operating in active mode, the 802.3ah status will appear. Discovery status will have four states. First state is active send local. Second state is sent local remote when ENTU 763 announces signal to the other device. Third state is sent local remote ok when ENTU 763 gets responds from the other device. Fourth state is sent any when ENTU 763 sends info to each other.

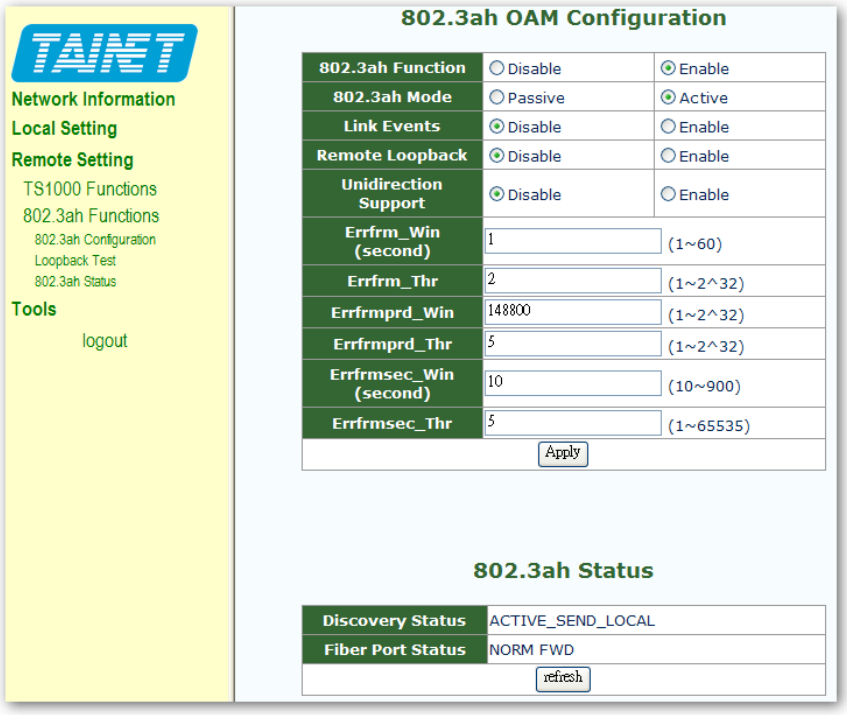


Figure 2-23: Case#3 802.3ah Active Mode Discovery State

After Remote Loopback option is enabled, the user can perform 802.3ah Loopback Test.

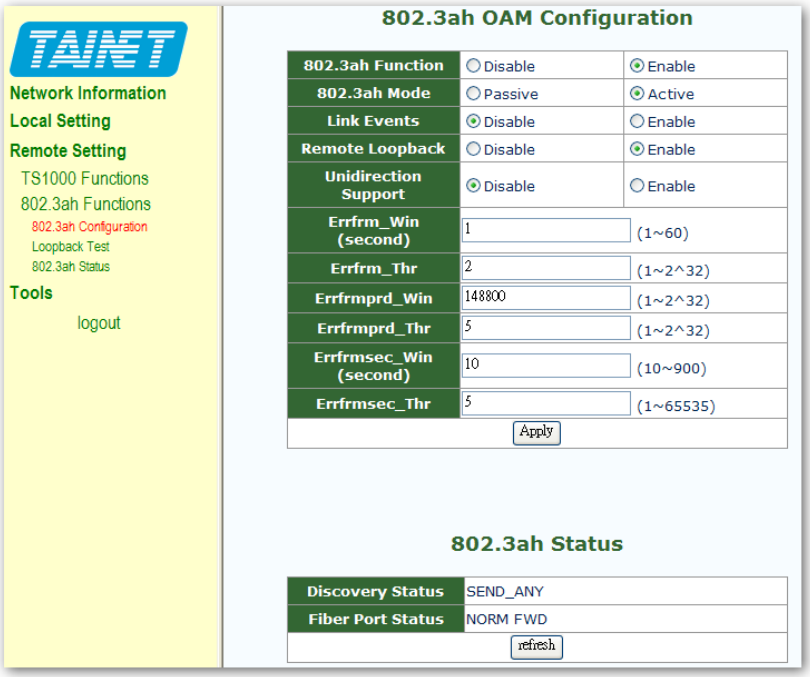


Figure 2-24: Case#4 802.3ah Remote Loopback Enabled

2.4.2.2 Loopback Test

The Loopback Test is only available under certain conditions, please see the illustrations below.

To enable the loopback test, 802.3ah function needs to be enabled and set to active.

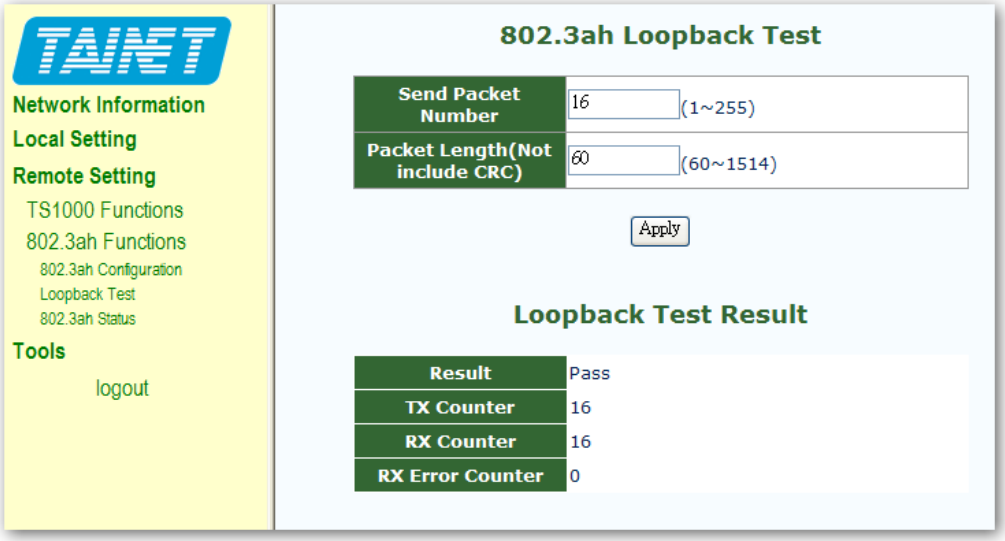


Figure 2-25: 802.3ah Loopback Test Page

2.4.2.3 802.3ah Status

802.3ah status shows current settings and information of local and remote devices.

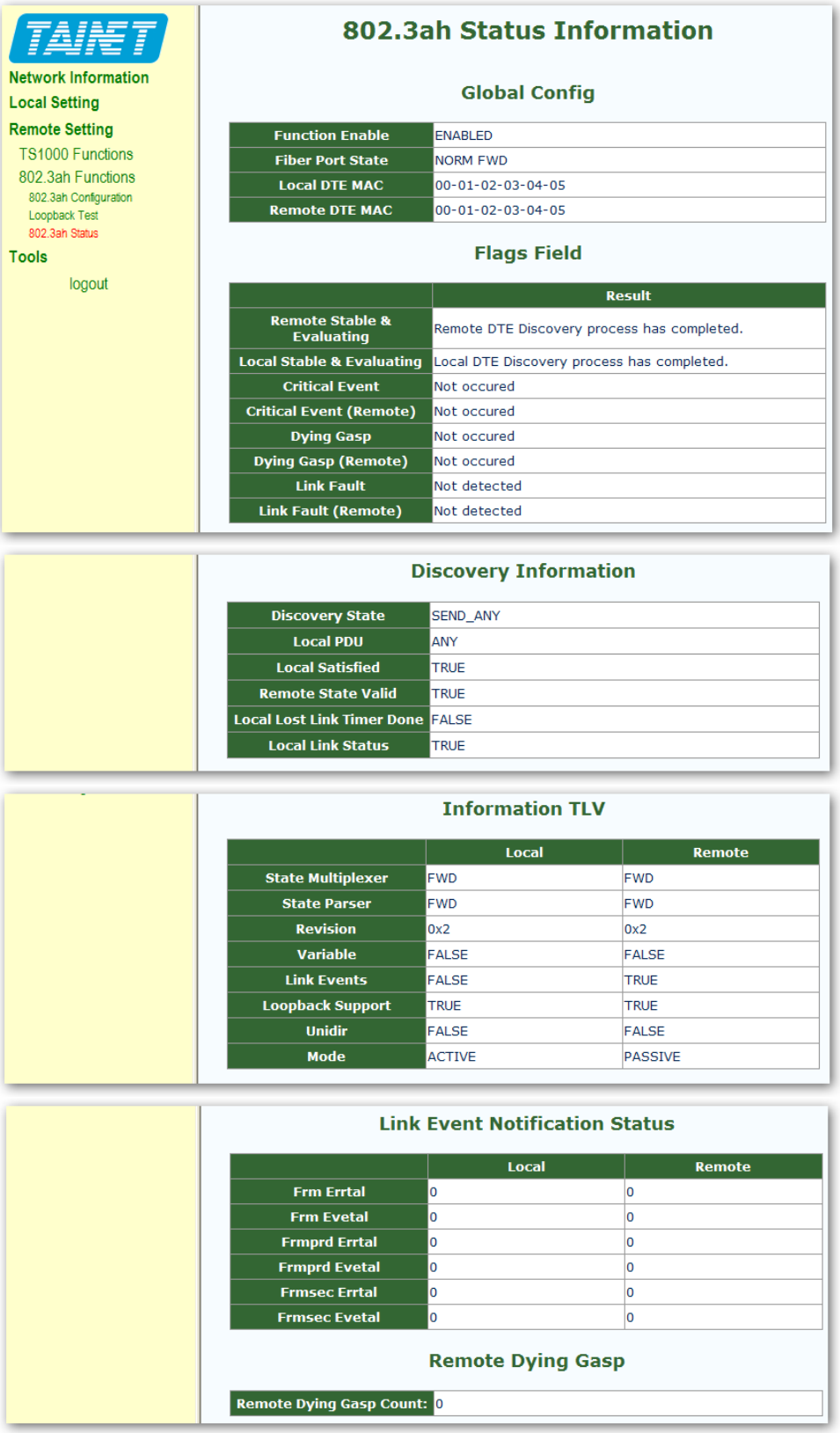


Figure 2-26: 802.3ah Status Information Page

2.5 Tools

2.5.1 System Reboot

The local device can be rebooted with System Reboot function.
Please make sure current configurations are saved before rebooting the device.

2.5.2 Save and Restore

The configurations settings can be saved to flash, load from flash, or reset to factory default.

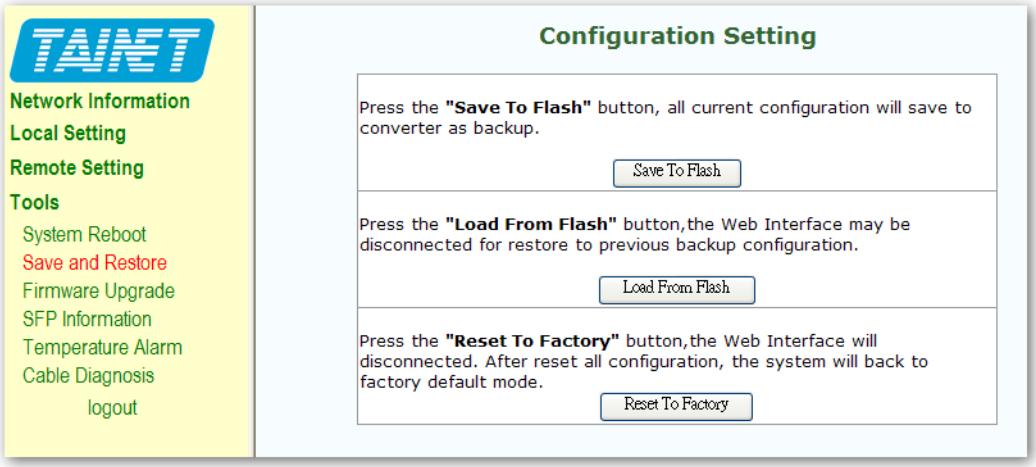


Figure 2-27: Save and Restore Page

2.5.3 Firmware Upgrade

The firmware can be upgraded by locating the firmware file (.bin). First locate the desired file, and then press Upgrade to execute the process.

After firmware upgrade the IP address will remain the same.

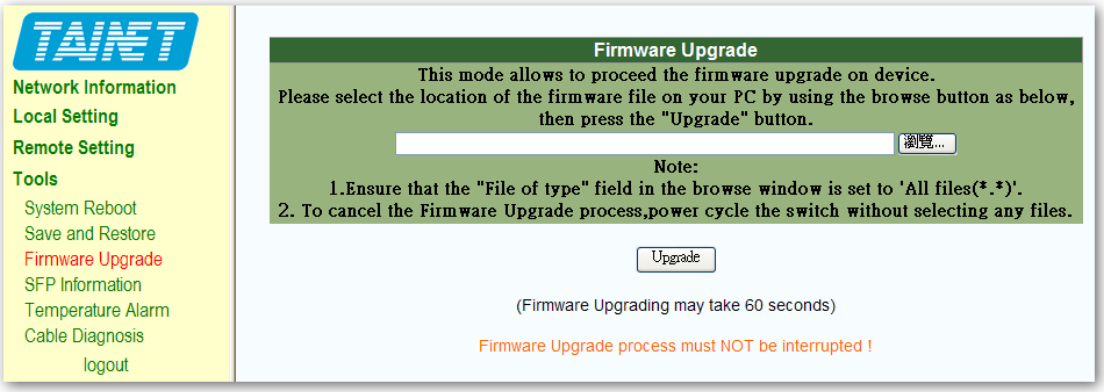


Figure 2-28: Firmware Upgrade Page

2.5.4 SFP Information

SFP Information shows the line status of the SFP modules between two ENTU devices.

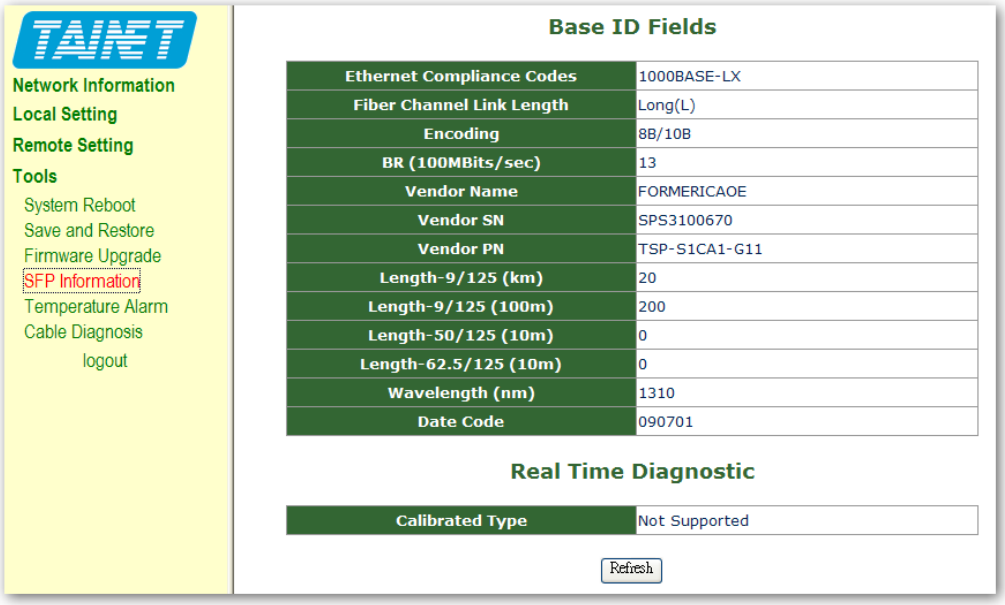


Figure 2-29: SFP Information

2.5.5 Temperature Alarm

Users can enable/disable the temperature alarm on the SFP modules, when the current temperature is over user defined threshold, there will be alarm shown in the web.

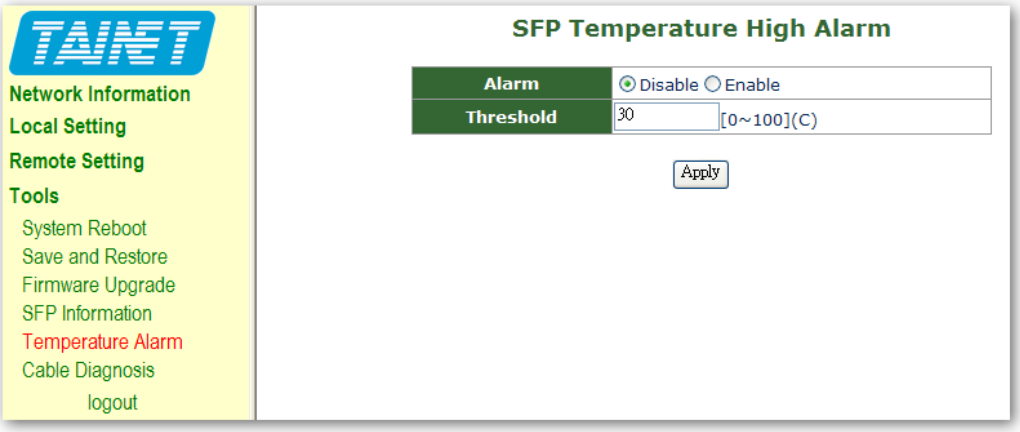


Figure 2-30: Temperature Alarm

Note: SFP module must support DDM function in order for this option to work.

2.5.6 Cable Diagnosis

Cable Diagnosis examines the connection status of local Ethernet port.

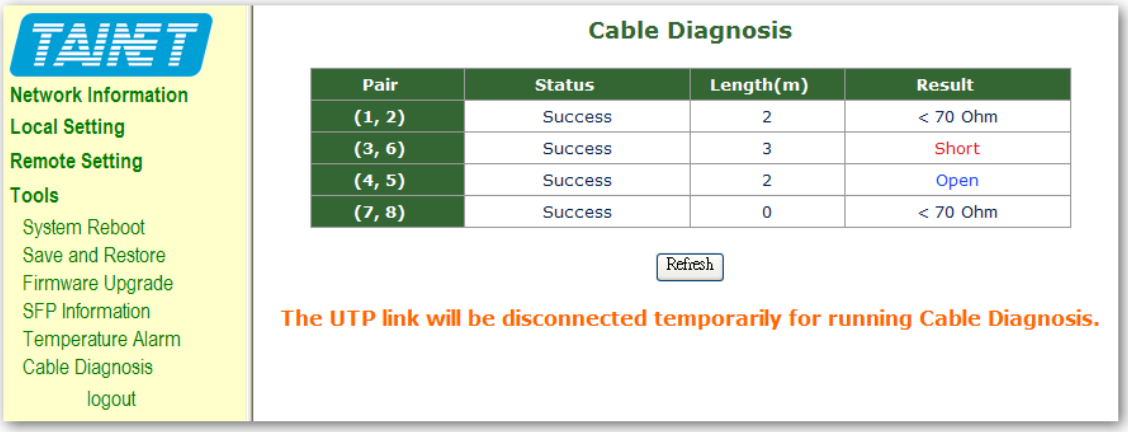


Figure 2-31 Cable Diagnosis

Chapter 3. Console Guide

ENTU763 has a console command which can be used for inband management. User can operate the console by using the Hyperterminal. The baud rate is 115200-8-N-1-N.

3.1 Console Menu Tree

As shown in the table below is the menu tree of the console.

Table 3-1: Console Guide Menu Tree

Menu	Sub-menu	Description
Link Status		Shows link status of Ethernet and Fiber.
Display Local Information		Display information of local device.
	Configure Local IP Address	Input local IP address
	Restore Factory Set	Restore to factory default configuration
	Save Configure	Saved current configurations
	Bandwidth Control	Ingress and egress rate limit settings
	Configure Local Port Loop/lock State	Local port loop and lock status settings
	Configure Local Port Workmode	Local port link settings
	Configure Converter	CRC Frame, Pause Frame, Multicast Storm Filter, Broadcast Storm Filter, Unknown DA Unicast Storm Filter, Jumbo Frame settings.
	Reset	Reset Media Converter
	Configure DHCP client	DHCP client settings
	Local Description Setting (Max=16)	Input the device description
TS1000 Functions	Configure TS1000	TS1000 settings
	Display Local TS1000 Status	Display Local TS1000 status
	Display Remote TS1000 Status (center only)	Display Remote TS1000 status
	Remote Auto Loopback (center only)	Remote side loopback test
	User Defined OAM (center only)	Get/Set Remote IP and MAC.

	Remote Read/Write	Reset Remote MC and other functions
	Link Transparent	Link Transparent settings
	Remote Bandwidth	Tx and Rx rate settings
802.3ah OAM Functions	Config OAM	OAM Active and Passive mode settings
	Start Loopback	Loopback testing
	Dump OAM Info	Dump global variable OAM parameters
	Configure Remote OAM	Remote OAM settings
	Get Dying Gasp Counter	Dying Gasp Counter
Q-in-Q Functions	Q-in-Q enable	Q-in-Q function settings
	Set Out Layer VLAN Tag Ether Type	Input out layer VLAN tag ether type
	Set Out Layer VLAN VID	Input out layer VLAN VID
	VLAN tag priority decide	Q-in-Q direction settings
MIB Counter	Set MIB	Release, start, stop and renew MIB.
	Dump MIB	MIB counter info
	Get Specific MIB	Input MIB address
Upgrade Firmware using UART		Firmware upgrade by Hyperterminal
SFP Information	Base ID Fields	Show SFP module basic information
	Real Time Diagnostic	Activate real time diagnostic
	Temperature Check	Enable/Disable Temperature Check
	Temperature Threshold	Temperature Threshold setup
Cable Diagnosis		Show UTP port information
Refresh menu		Refresh menu diagram

3.1 Main Page

When Esc is pressed, the main page will be display as shown below. Press 1 to 0 to select the desired functions.

```
>>
1.Link Status
2.Display local information
3.Configure local
4.Ts1000 functions
5.802.3ah OAM functions
6.Q-in-Q functions
7.MIB Counter
8.Upgrade firmware using Uart
9.SFP Information
a.Cable Diagnosis
0.Refresh menu
>>
```

3.1.1 Link Status

The local Fiber function is used to show the status of the local fiber connection and the Local UTP Ethernet connection of the Media Converter. Local Fiber can be OK or Link Down and Local UTP can be enabled or disabled. When 1 is pressed, the display will be shown below.

```
>>1
Port            Status          FlowControl
Local fiber:    OK               Enable
Local UTP:      Link Down       Enable
>>
```

3.1.2 Display Local Information

The display local information shows the basic information of the local device including software version, MAC address, IP address, Gateway, Netmask, TS1000 mode, 802.3ah mode, Device name and DHCP client mode. When 2 is pressed, the display will be shown below.

```
>>2
Local Infomation(software version 0.9.4):
mac 00:90:BB:01:02:03
ip 192.168.0.1
gateway 192.168.0.254
netmask 255.255.255.0
TS1000 Mode : Center
802.3ah Mode : Passive
Device name: Tainet_ENTU-763G
DHCP client is disabled
>>
```

3.1.3 Configure Local

The configure local function is for configuring local device such as MAC address, IP address, restore to factory default, save configuration, bandwidth control, port loop status, port link, converter, reset and DHCP client. When 3 is pressed, the display will be shown below

```
>>3
1.Configure local IP address
2.Restore Factory Set
3.Save Configure
4.Bandwidth Control
5.Configure local port loop/lock state
6.Configure Local port Workmode
7.Configure Converter
8.Reset
9.Configure DHCP client
a.Local Description Setting (Max=16)
0.Refresh menu,[ESC] above level menu
```

>>Configure local>>

3.1.3.1 Configure Local IP Address

The Configure Local IP Address function is used to set the local IP address of the Media Converter as shown below.

>>Configure local>>1
1.IP Address
2.Netmask
3.Gateway
>> Configure local> IPs>

3.1.3.2 Restore Factory Set

The restore factory set function is used to configure the Media Converter to default configuration. If yes, the restore factory set will be successful. If no, the operation will be cancelled. The display shows the factory set successful and operation cancelled.

>>Configure local>>2
Restore Factory Default Configure? (y or n) >>y
Restore Factory Set Success.
>>Configure local>>2
Restore Factory Default Configure? (y or n) >>n
Operation Cancelled.
>>Configure local>>

3.1.3.3 Save Configure

The save configure function is used to save the current configuration of the Media Converter as shown below.

>>Configure local>>3
The current configuration is saved.
>>Configure local>>

3.1.3.4 Bandwidth Control

The bandwidth control function is used to set the ingress rate limit and the egress rate limit of fiber and UTP as shown in the table below.

Table 3-2: Bandwidth Control

Items	Description
Ingress Rate Limit	Port 0 or 1. Port 0 is UTP and Port 1 is Fiber.
	0: disable 1: 64kb

	2: 512kb 3: 2Mb 4: 8Mb 5: 50Mb 6: 100Mb 7: 500Mb

The console display below shows the bandwidth control. Press 1 to configure the ingress rate limit and 2 to configure egress rate limit. To configure the ingress or egress rate limit, press 0 to 7 to different rate limit settings.

>>Configure local>>4
Current UTP Ingress Rate Limit: No Limit, 0
Port(0 or 1) Ingress Rate Limit (0:disable 1:64Kb 2:512Kb 3: 2Mb 4: 8Mb 5: 50Mb 6:100Mb 7:500Mb other: user setting(*64Kbps))
>>Configure local>>

3.1.3.5 Configure Local Port Loop/Lock State

The configure local port loop/lock state function is used to set the loop/lock operation and status of fiber and UTP.

Table 3-3: Configure Local Port Loop Status

Items	Description
Port	1: port 1 – Fiber port 0: port 0 – UTP port
Loop	1: loop – Loop condition 0: normal – Normal condition
Lock	1: lock 0: unlock

To configure local port loop/lock status, press 1 to port 1 or 0 to port 0, then press 1 to loop and 0 to normal and lastly 1 to lock port and 0 to unlock port. Example is as shown below.

>>Configure local>>5
Port(1:port 1 0:port0) Loop(1:loop 0:noraml) Lock(1:lock 0:unlock)
ENTU> Configure local> port lock,loop>>1 0 0
Set port1 loop:normal , lock:unlock
>> Configure local>

3.1.3.6 Configure Local Port Workmode

The configure local port workmode function is used to set the Ethernet port link rate and flow control of the Media Converter.

Table 3-4: Configure Local Port Link

Items	Description
Eth Port Link	0: Auto

	1: 1000F 2: 100F 3: 100H 4: 10F 5: 10H
FC	0: disable 1: enable

To configure local port workmode, press 0 to auto negotiation, 1 to 1000 full duplex, 2 to 100 full duplex, 3 to 100 half duplex, 4 to 10 full duplex and 5 to 10 half duplex. Then press 0 to disable and 1 to enable flow control as shown below.

```
>>Configure local>>6
Current UTP Speed Mode: Wrong
Current OPT Speed Mode: 1000 Full
Current UTP Flow Control: Enable
Current OPT Flow Control: Enable
ETH Port Link(0:Auto 1:1000F 2:100F 3:100H 4:10F 5:10H) FC(0:disable 1:enable)
>>Configure local>>workmode>>
```

3.1.3.7 Configure Converter

The configure converter function is used to configure forward CRC error frame, forward pause frame, management packet high priority, broadcast storm filter, multicast storm filter, unknown DA unicast storm filter and jumbo frame as shown below.

```
>>Configure local>>7

1.Forward CRC Error Frame
2.Forward Pause Frame
3.Management Packet High Priority (Need to Reset)
4.Broadcast Storm Filter
5.Multicast Storm Filter
6.Unknown DA Unicast Storm Filter
7.Configure Jumbo Frame (9k)
0.Refresh menu,[ESC] above level menu
>>Configure local>>Configure Converter>>
```

3.1.3.7.1 Forward CRC Error Frame

The forward CRC error frame function is used to set the CRC error frame to be dropped or forwarded. Press 0 to drop and 1 to forward CRC error frame as shown below.

```
>>Configure local>>Configure Converter>>1
Forward CRC Error Frame    (0:Drop 1:Forward)
>>Configure local>>Configure Converter>>1
Set CRC Error Frame to be forwarded
>>Configure local>>Configure Converter>>0
Set CRC Error Frame to be dropped
>>Configure local>>Configure Converter>>
```

3.1.3.7.2 Forward Pause Frame

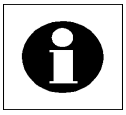
The forward pause frame function is used to set the pause frame to be dropped or forwarded. Press 0 to drop and 1 to forward pause frame as shown below.

```
>>Configure local>>Configure Converter>>2
Forward Pause Frame    (0:Drop 1:Forward)
>>Configure local>>Configure Converter >>1
Set Pause Frame to be forwarded
>>Configure local>>Configure Converter >>2
Forward Pause Frame    (0:Drop 1:Forward)
>>Configure local>>Configure Converter >>0
Set Pause Frame to be dropped
>>Configure local>>Configure Converter >>
```

3.1.3.7.3 Management Packet High Priority

The management packet high priority function is used to set the management packet high priority to be disabled or enabled. Note that after setting this function, the media converter must be reset. Press 0 to disable and 1 to enable management packet high priority as shown below.

```
>>Configure local>> Configure Converter >>3
Management Packet High Priority    (0:disable 1:enable)
>>Configure local>> Configure Converter >>1
Management Packet High Priority is enabled
>>Configure local>> Configure Converter >>3
Management Packet High Priority    (0:disable 1:enable)
>>Configure local>> Configure Converter >>0
Management Packet High Priority is disabled
>>Configure local>> Configure Converter >>
```



Note:

After setting this function, the Media Converter must be reset

3.1.3.7.4 Broadcast Storm Filter

The broadcast storm filter function is used to set the broadcast storm filter to be disabled or enabled. Press 0 to disable and 1 to enable broadcast storm filter as shown below.

```
>>Configure local>> Configure Converter >>4
Broadcast Storm Filter (0:disable 1:enable)
>>Configure local>> Configure Converter >>1
Broadcast Storm Filter is enabled
>>Configure local>> Configure Converter >>4
Broadcast Storm Filter (0:disable 1:enable)
>>Configure local>> Configure Converter >>0
Broadcast Storm Filter is disabled
```

>>Configure local>> Configure Converter >>

3.1.3.7.5 Multicast Storm Filter

The multicast storm filter function is used to set the multicast storm filter to be disabled or enabled. Press 0 to disable and 1 to enable multicast storm filter as shown below.

```
>>Configure local>> Configure Converter >>5
Multicast Storm Filter (0:disable 1:enable)
>>Configure local>> Configure Converter >>1
Multicast Storm Filter is enabled
>>Configure local>> Configure Converter >>5
Multicast Storm Filter (0:disable 1:enable)
>>Configure local>> Configure Converter >>0
Multicast Storm Filter is disabled
>>Configure local>> Configure Converter >>
```

3.1.3.7.6 Unknown DA Unicast Storm Filter

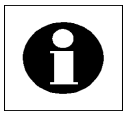
The unknown DA unicast storm filter function is used to set the unknown DA unicast storm filter to be disabled or enabled. Press 0 to disable and 1 to enable unknown DA unicast storm filter as shown below.

```
>>Configure local>> Configure Converter >>6
Unknown DA Unicast Storm Filter (0:disable 1:enable)
>>Configure local>> Configure Converter >>1
Unknown DA Unicast Storm Filter is enabled
>>Configure local>> Configure Converter >>6
Unknown DA Unicast Storm Filter (0:disable 1:enable)
>>Configure local>> Configure Converter >>0
Unknown DA Unicast Storm Filter is disabled
>>Configure local>> Configure Converter >>
```

3.1.3.7.7 Configure Jumbo Frame

The configure jumbo frame function is used to set the jumbo frame to be disabled or enabled. Press 0 to disable and 1 to enable jumbo frames as shown below.

```
>>Configure local>> Configure Converter >>7
Jumbo Frame (0:disable 1:enable)
>>Configure local>> Configure Converter >>1
Jumbo Frame is enabled
>>Configure local>> Configure Converter >>7
Jumbo Frame (0:disable 1:enable)
>>Configure local>> Configure Converter >>0
Jumbo Frame is disabled
>>Configure local>> Configure Converter >>
```



Note:

The Jumbo Frames for this function is 9kB.

3.1.3.8 Reset

The reset function is used to reboot the system of the Media Converter. After the device is successfully reset, the following figure will be shown in the console.

```
RTL8213M UART CONSOLE v2.03

1.Link Status
2.Display Local Information
3.Configure Local
4.TS1000 Functions
5.802.3ah OAM Functions
6.Q-in-Q Functions
7.MIB Counter
8.Upgrade Firmware Using UART (XModem)
9.SFP Information
a.Cable Diagnosis
0.Refresh Menu
>>
```

3.1.3.9 Configure DHCP Client

The configure DHCP client function is used to select the DHCP action to start, renew, release, stop or inform. Press 0 to start, 1 to renew, 2 to release, 3 to stop and 4 to inform as shown below.

```
>>Configure local>>9
Select dhcp action 0:start 1:renew 2:release 3:stop 4:inform
>>Configure local>> dhcp >>
```

3.1.3.10 Local Description Setting

The local description setting is used to modify current local description of ENTU 763. Enter a new description to replace the previous one as shown below.

```
>> Configure local>>a
Current Local Description: Tainet_ENTU-763G
Enter New Description >>Tainet
New Local Description: Tainet
>> Configure local>>
```

3.1.4 TS1000 Functions

TS-1000 is a technical specification for 100 Mb/s P2P optical Ethernet link, Optical Subscriber Line Interface – 100 Mbps Single-fiber Bi-directional Interface by WDM. The TS1000 functions is used to configure TS1000, user defined OAM, link transparent and remote bandwidth. It is also for displaying local TS1000 status, remote TS1000 status, link status and remote read/write as shown below.

```
>>4
1.Configure Ts1000
2.Display local ts1000 status
3.Display remote ts1000 status(center only)
4. Remote Auto Loopback(center only)
5.User Defined OAM(center only)
6.Remote Read/Write(center only)
7.Link Transparent
8.Remote Bandwidth
0.Refresh menu,[ESC] above level menu
>>Ts1000>>
```

3.1.4.1 Configure TS1000

The configure TS1000 functions is used to set TS1000 to be disabled or enabled. Press 1 to enable and 0 to disable TS1000 as shown below.

```
>>Ts1000>>1
Enable or disable TS1000. (1: enable, 2: disable)>>1
Set local TS1000 mode(1: center, 2:terminal)>>1
Set ts1000 on port 1 enable.
>>Ts1000>>1
Enable or disable TS1000. (1: enable, 2: disable)>>2
Set ts1000 on port 1 disabled.
>>Ts1000>>
```

3.1.4.2 Display Local TS1000 Status

The display local TS1000 status is used to display the local TS1000 mode, power status, optical receive signal stats, net link status, loss of optical notify way, operation status, Media Converter option B, terminal link rate, terminal link duplex, terminal link nway and number of physical interface.

Table 3-5: Display Local TS1000 Status

Items	Description
TS1000 Mode	Terminal or Center
Power Status	Normal or Abnormal
OpticalRXSigStats	Optical Receive Signal Status
NetlinkStatus	UTP Unestablished or disconnected
LossOpNotifWay	With alarm FEFI
Operation Status	Under ordinary operation
MCOptionB	Support
Terminal Line Rate:	10M or 100M
Terminal Line Duplex	Half or Full Duplex
Terminal Line Nway	Enable or Disable
NumPhyInterface	One

When TS1000 is enabled and in center mode. The display is as shown below.

```
>>Ts1000>>2
TS1000 function is enabled.
TS1000 mode:              Center
OpticalRxSigStats:        Normal
NetlinkStatus:            UTP Unestablished or disconnected
>>Ts1000>>
```

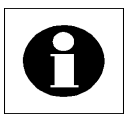
When TS1000 is enabled and in terminal mode. The display is as shown below.

```
>>Ts1000>>2
TS1000 function is enabled.
TS1000 mode:              terminal
Power status:             Power supply failure
OpticalRxSigStats:        Normal
NetlinkStatus:            UTP Unestablished or disconnected
LossOpNotifWay:           with alarm FEFI
Operation status:         under ordinary operation
MCOptionB:                Support
Terminal Link Rate:       10M
Terminal Link Duplex:     Half
Terminal Link Nway:       Enable
NumPhyInterface:          One
>>Ts1000>>
```

3.1.4.3 Display Remote TS1000 Status

The display remote TS1000 status function is used to display the remote TS1000 status on power status, optical receive signal stats, net link status, loss of optical notify way, operation status, Media Converter option B, terminal link rate, terminal link duplex, terminal link nway and number of physical interface. Note that this function will work only in center mode. The console display is as shown below.

```
>>Ts1000>>3
Remote TS1000 stauts:
Power status:             Normal
OpticalRxSigStats:        Normal
NetlinkStatus:            UTP Unestablished or disconnected
LossOpNotifWay:           with alarm FEFI
Operation status:         under ordinary operation
MCOptionB:                Support
Terminal Link Rate:       10M
Terminal Link Duplex:     Half
Terminal Link Nway:       Enable
NumPhyInterface:          One
>>Ts1000>>
```



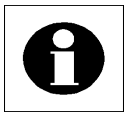
Note:

This function will only work in Center mode.

3.1.4.4 Remote Auto Loopback

The check link status function is used to check the fiber link connection. Note that this function will only work in center mode. The display is as shown below.

```
>>Ts1000>>4
Fiber Link Fail!
>>Ts1000>>
```



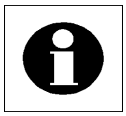
Note:

This function will only work in Center mode.

3.1.4.5 User Defined OAM

The user defined OAM function is used to get/set remote IP and MAC, set remote link, save remote configuration, restore remote to factory default, set remote port loop/lock state , set remote MIB, reset remote and set jumbo frames as shown below. Note that this function will only work in center mode.

```
>>Ts1000>>5
1.Get Remote IP
2.Get Remote MAC
3.Set Remote IP
4.Set Remote MAC
5.Set Remote Workmode
6.Remote Save Configure
7.Restore Remote factory default
8.Set Remote Port loop/lock state
9.Set Remote MIB
a.Reset remote
b.Set jumbo frame
c.Start loopback
0.Refresh menu,[ESC] above level menu
>>Ts1000>>User defined OAM>>
```



Note:

This function will only work in Center mode.

3.1.4.5.1 Get Remote IP

The get remote IP function is used to get the remote IP address as shown below.

```
>>Ts1000>>User defined OAM>>1
Remote IP Address: 192.168.0.1
>>Ts1000>>User defined OAM>>
```

3.1.4.5.2 Get Remote MAC

The get remote MAC function is used to get the remote MAC address as shown below.

```
>>Ts1000>>User defined OAM>>2
Remote MAC Address: 00:00:00:00:00:02
>>Ts1000>>User defined OAM>>
```

3.1.4.5.3 Set Remote IP

The set remote IP function is used to set the remote IP address as shown below.

```
>>Ts1000>>User defined OAM>>3
Input target IP address(x.x.x.x) >>172.16.9.200
Remote IP is set.
>>Ts1000>>User defined OAM>>
```

3.1.4.5.4 Set Remote MAC

The set remote MAC function is used to set the remote MAC address as shown below.

```
>>Ts1000>>User defined OAM>>4
Input target Mac address(XX:XX:XX:XX:XX:XX) >>00:00:00:00:00:02
Remote mac is set!
>>Ts1000>>User defined OAM>>
```

3.1.4.5.5 Set Remote Workmode

The set remote link function is used to set the Ethernet port link rate and flow control as shown in the table.

Table 3-6: Set Remote Link

Items	Description
Eth Port Link	0: Auto 1: 1000F 2: 100F 3: 100H 4: 10F 5: 10H
FC	Flow Control 0: disable 1: enable

To set the user defined OAM. Press 0 to auto negotiation, 1 to 1000 full duplex, 2 to 100 full duplex, 3 to 100 half duplex, 4 to 10 full duplex and 5 to 10 half duplex. Then press 0 to disable and 1 to enable flow control as shown below.

```
>>Ts1000>>User defined OAM>>5
Current UTP Remote Speed Mode: Wrong
Current OPT Remote Speed Mode: 1000 Full
Current UTP Remote Flow Control: Wrong
Current OPT Remote Flow Control: Wrong
Remote Port(0 or 1) Workmode(0:Auto 1:1000F 2:100F 3:100H 4:10F 5:10H)
>>Ts1000>>User defined OAM>>
```

3.1.4.5.6 Remote Save Configure

The remote save configure function is used to save the remote configuration as shown below.

```
>>Ts1000>>User defined OAM>>6
Remote saved configuration Succeed!
>>Ts1000>>User defined OAM>>
```

3.1.4.5.7 Restore Remote Factory Default

The restore remote factory default is used to restore the remote configuration to factory default as shown below.

```
>>Ts1000>>User defined OAM>>7
Restoring Remote factory default Succeed!
>>Ts1000>>User defined OAM>>
```

3.1.4.5.8 Set Remote Port Loop/Lock State

The set remote port loop/lock state function is used to set the loop and lock state of the remote ports. Loop can be set to normal or loop state. Lock can be set to lock or unlock state. Press 1 to Fiber port, 0 to UTP port, then press 1 to loop and 0 to normal, then lastly 1 to lock and 0 to unlock.

Table 3-7: Set Remote Port Loop/Lock State

Item	Description
Remote Port	1: port 1 – Fiber port 0: port 0 – UTP port
Loop	1: loop 0: normal
Lock	1: lock 0: unlock

To set the remote port loop/lock state, press 1 to Fiber port, 0 to UTP port, then press 1 to loop and 0 to normal, then lastly 1 to lock and 0 to unlock. For example, if you want to select fiber port, loop and unlock, then press 1 1 0.

```
>>Ts1000>>User defined OAM>>8
Remote Port(1:port 1 0:port0) Loop(1:loop 0:normal) Lock(1:lock 0:unlock)
>>Ts1000>>User defined OAM>>
```

3.1.4.5.9 Set Remote MIB

The set remote MIB function is used to set the remote MIB in TS1000 as shown below.

>>Ts1000>>User defined OAM>>9
Remote MIB 0:release 1:stop 2:reset
>>Ts1000>>User defined OAM>>

3.1.4.5.10 Reset Remote

The reset remote function is used to reset the remote in TS1000 as shown below.

>>Ts1000>>User defined OAM>>10
Reset remote succeed!

3.1.4.5.11 Set Jumbo Frame

The set jumbo frames function is used to set the jumbo frames mode in TS1000. Press 0 to disable and 1 to enable jumbo frames as shown below.

>>Ts1000>>User defined OAM>>11
Jumbo Frame 0:disable 1:enable
>>Ts1000>>User defined OAM>>

3.1.4.5.12 Start loopback

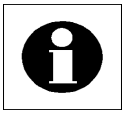
The Start loopback function is used to start TS1000 loopback test. Enter the desired packet number as shown below.

>> Ts1000> User defined OAM> Start loopback>1
Current Loopback Number[16]
Loopback Packet Numbet (1~255) >>20
New Loopback Number[20]
>> Ts1000> User defined OAM> Start loopback>

3.1.4.6 Remote Read/Write

The remote read/write function is used to enable read/write ability. Note that this function will only work in center mode. Press 1 to reset remote media converter as shown below.

>>Ts1000>>6
1.Reset Remote MC
2.Other functions...
0.Refresh menu,[ESC] above level menu
>>Ts1000>>Remote Read/Write>>



Note:

This function will only work in Center mode.

3.1.4.7 Link Transparent

The link transparent function is used to set the link transparent mode. Press 1 to enable

and 0 to disable link transparent.

```
>>Ts1000>>7
Enable or Disable Link Transparent(1:enable, 2:disable)>>
```

3.1.4.8 Remote Bandwidth

The remote bandwidth function is used to set the remote bandwidth direction and remote UTP port rate. Press 1 to Tx rate and 2 to Rx rate as shown below.

```
>>Ts1000>>8
Direction. (1:Tx rate, 2:Rx rate) >>1
Remote UTP Port Rate (*64Kbps), (1~16383), 0 Means Disable Rate Limit >>0
Disable remote UTP Port Tx Rate Limitation
>>Ts1000>>
```

3.1.5 802.3ah OAM Functions

IEEE802.3ah OAM is link level Ethernet OAM. The 802.3ah OAM function is used to set OAM and remote OAM, start loopback, dump OAM info and get dying gasp counter as shown below.

```
>>5
1.Config OAM
2.Start loopback
3.Dump OAM Info
4.Configure remote OAM
5.Get Dying Gasp Counter
0.Refresh menu,[ESC] above level menu
>>802.3ah OAM>>
```

3.1.5.1 Configure OAM

The configure OAM function is used to set the OAM active or passive mode as shown below.

```
>>802.3ah OAM>>1
Enable 802.3ah? (y or n)>>y
Select active mode or passive mode? (1: active, 2: passive)>>1
OAM init success.
>>
```

3.1.5.2 Start Loopback

The start loopback function is used to start remote loopback operation. In 802.3ah OAM loopback test, every frame received is transmitted back unchanged on the same port (except for OAMPDUs, which are needed to maintain the OAM session). This helps the administrator ensure the quality of links during installation or when troubleshooting. This feature can be configured such that the service provider device can put the customer device into loopback mode, but not conversely.

```
>>802.3ah OAM>>2
802.3ah OAM loopback start
Could not do remote loopback operation!
Loopback Init failed
>>802.3ah OAM>>
```

3.1.5.3 Dump OAM Info

The dump OAM info function is used to dump global variable OAM parameters as shown in the figure below.

```
>>802.3ah OAM>>3
[dump Global variable oamPara]

=Global Config=
OAM function is           ENABLED
Fiber port is             PORT1,NORM FWD
Local DTE MAC             00-90-BB-01-02-03
Remote DTE MAC            00-00-00-00-00-00

=FLAGS Field=
                          local          remote
Remote Stable             0              0
Remote Evaluating         0              0
Local Stable              0              0
Local Evaluating          0              0
Critical Event            0              0
Dying Gasp                0              0
Link Fault                1              0

=Discovery Info=
Discovery State            = FAULT
local_pdu                  = LF_INFO
local_satisfied            = FALSE
remote_state_valid         = FALSE
local_lost_link_timer_done = TRUE
local_link_status          = FALSE

=Information TLV=
             local         remote        local_pre
state_mux    FWD           FWD           FWD
state_par    FWD           FWD           FWD
Revision     0X0           0XF0F         0X0
variable     FALSE         FALSE         FALSE
link events  TRUE          FALSE         TRUE
loopback     TRUE          FALSE         TRUE
unidir       FALSE         FALSE         FALSE
mode         PASSIVE       PASSIVE       PASSIVE
pduconfig    0X5EE         0X0           0X5EE
oui          0X00E04C      0X000000      0X00E04C
vendspeci    0X00000000    0X00000C02    0X00000000
```

```
=Loopback Info=
start_loopback              FALSE
end_loopback                FALSE
lbrep_timeout               FALSE
lbrep_received              FALSE
roundtrip_timeout           FALSE
Loopback Test Frame info:
Test Frame Type:            FIX55
Test Frame Lenth            60
Test Frame Number           256
Test Frame Tx Number        0
Test Frame Rx Number        0
Test Frame Err Number       0
=Event Notification Info=
                local                   remote
seqnum          0X0000                  0X0000
timestamp       0X6DD8                  0X0000
frm_win         0X0014                  0X0000
frm_thr         0X00000001              0X00000000
frm_err         0X00000000              0X00000000
frm_errtal      0X00000000              0X00000000
                  00000000                00000000
frm_evetal      0X00000000              0X00000000
prd_win         0X00024540              0X00000000
prd_thr         0X00000005              0X00000000
prd_err         0X00000000              0X00000000
prd_errtal      0X00000000              0X00000000
                  00000000                00000000
prd_evetal      0X00000000              0X00000000
sec_win         0X0064                  0X0000
sec_thr         0X0005                  0X0000
sec_errs        0X0000                  0X0000
sec_errtal      0X00000000              0X00000000
sec_evetal      0X00000000              0X00000000
>>802.3ah OAM>>
```

Figure 3-1: Dump OAM Info

3.1.5.4 Configure Remote OAM

The configure remote OAM function is used to set the remote OAM enable or disable mode. Press 1 to enable and 0 to disable.

```
>>802.3ah OAM>>4
Enable or Disable Remote OAM(1:enable, 2:disable)>>1
Remote 802.3ah function is enabled
>>802.3ah OAM>>4
Enable or Disable Remote OAM(1:enable, 2:disable)>>2
Remote 802.3ah function is disabled
>>802.3ah OAM>>
```

3.1.5.5 Get Dying Gasp Counter

The get dying gasp counter function is used to show the dying gasp count.

```
Remote 802.3ah function is disabled
>>802.3ah OAM>>5
Dying Gasp Counter = 0
```

3.1.6 Q-in-Q Functions

The Q-in-Q function is used to set the Q-in-Q mode, out layer VLAN tag ether, out layer VLAN VID and Q-in-Q direction as shown below.

```
>>6
1.Q-in-Q enable
2.Set out layer VLAN tag ether type(default 0x88a8)
3.Set out layer VLAN vid(default 0)
4.VLAN tag priority decide
0.Refresh menu,[ESC] above level menu
>>Q-in-Q>>
```

3.1.6.1 Q-in-Q Enable

The Q-in-Q enable function is used to set the Q-in-Q enable or disable mode. Press y to enable and n to disable Q-in-Q.

```
>>Q-in-Q>>1
Enable Q-in-Q function? (y or n)>>
Q-in-Q is disabled
>>Q-in-Q>>
```

3.1.6.2 Set Out Layer VLAN Tag Ether Type

The set out layer VLAN tag ether type function is used to set the VLAN tag ether type as shown below. The default is 0x88a8.

```
>>Q-in-Q>>2
Input out layer VLAN tag's ether type (XXXX)(HEX): >>
```

3.1.6.3 Set Out Layer VLAN VID

The set out layer VLAN VID function is used to set the VLAN VID as shown below. The default is 0.

```
>>Q-in-Q>>3
Input out layer VLAN tag vid (0~4095)(DEC): >>
```

3.1.6.4 VLAN tag priority decide

The VLAN tag priority decide function is used to set the Q-in-Q direction in Eth add Q-in-Q tag, Opt remove tag or Opt add Q-in-Q tag. Press 0 to Eth add Q-in-Q Tag, Opt remove tag and 1 to Opt add Q-in-Q tag, Eth remove tag.

```
>>Q-in-Q>>4
Current QinQ Direction: OPT Add QinQ Tag, UTP Remove Tag
The QinQ direction is (0: UTP Add QinQ Tag, OPT Remove Tag, 1: OPT Add QinQ
Tag, UTP Remove Tag)
```

```
>>
```

3.1.7 MIB Counter

The MIB counter function is used to set, dump and get specific MIB as shown below.

```
>>7
1.Set MIB
2.Dump MIB
3.Get Specific MIB
0.Refresh menu,[ESC] above level menu
>>MIB>>
```

3.1.7.1 Set MIB

The set MIB function is used to set the MIB as reset, start, stop, or release.

```
>>MIB>>1
1.Reset and Start
2.Stop
3.Release
0.Refresh menu,[ESC] above level menu
>>MIB>>Set MIB>>
```

Press 1 to reset and start, 2 to stop and 3 to release MIB counter.

```
>>MIB>>Set MIB>>1
Start MIB Counter
>>MIB>>Set MIB>>2
Stop MIB Counter
>>MIB>>Set MIB>>3
Release MIB Counter
>>MIB>>Set MIB>>
```

3.1.7.2 Dump MIB

The dump MIB function is used to get MIB counter information as shown in the figure below.

```
>>MIB>>2
[MIB Counter Info]

                  Port0          Port1          Port2
ifInUcastPkts     0X00000000     0X00000000     0X00000000
UndersizePkts     0X00000000     0X00000000     0X00000000
Fragments         0X00000000     0X00000000     0X00000000
Pkts64            0X00000000     0X00000000     0X00000000
Pkts65to127       0X00000000     0X00000000     0X00000000
Pkts128to255      0X00000000     0X00000000     0X00000000
Pkts256to511      0X00000000     0X00000000     0X00000000
Pkts512to1023     0X00000000     0X00000000     0X00000000
Pkts1024to1518    0X00000000     0X00000000     0X00000000
OversizePkts      0X00000000     0X00000000     0X00000000
Jabbers           0X00000000     0X00000000     0X00000000
MulticastPkts     0X00000000     0X00000000     0X00000000
BroadcastPkts     0X00000000     0X00000000     0X00000000
DropEvents        0X00000000     0X00000000     0X00000000
PortInDiscards    0X00000000     0X00000000     0X00000000
FCSErrors         0X00000000     0X00000000     0X00000000
SymbolErrors      0X00000000     0X00000000     0X00000000
UnkownOpcodes     0X00000000     0X00000000     0X00000000
InPauseFrames     0X00000000     0X00000000     0X00000000
ifOutUcast        0X00000000     0X00000000     0X00000000
ifOutMulticast    0X00000000     0X00000000     0X00000000
ifOutBroadcast    0X00000000     0X00000000     0X00000000
SingleColli       0X00000000     0X00000000     0X00000000
MultiColli        0X00000000     0X00000000     0X00000000
DeferTrans        0X00000000     0X00000000     0X00000000
LateColli         0X00000000     0X00000000     0X00000000
ExcessColli       0X00000000     0X00000000     0X00000000
OutPauseFrames    0X00000000     0X00000000     0X00000000
StatusColli       0X00000000     0X00000000     0X00000000
>>MIB>>
```

Figure 3-2: Dump MIB

3.1.7.3 Get Specific MIB

The get specific MIB function is used to input MIB address to get a specific MIB as shown below.

```
>>MIB>>Set MIB>>3
Input MIB address:>>
```

3.1.8 Upgrade Firmware using UART

The upgrade firmware using UART function is used to upgrade the firmware by Hyperterminal. Press y to send image file by hyperterminal and n to cancelled operation as shown below.

```
>>
Upgrade Firmware? (y or n)>>y
Please send image file by Hyper Terminal !
Upgrade Firmware? (y or n)>>n
Operation Cancelled.
```

3.1.8.1.1 Upgrade Firmware in Emergency Mode

When firmware upgrade fails, it will be in emergency mode until the firmware is upgrade successfully as shown below.

```
Last update failed. We are in emergency mode!!

Do you want to use uart to update firmware?(y or n)>>y

Please use Hyper Terminal to send image file!
```

3.1.9 SFP Information

The SFP Information is used to show the basic information of current SFP module, enable/disable real time diagnostic and temperature check, also to setup temperature threshold to be checked.

```
>>9
1.Base ID Fields
2.Real Time Diagnostic
3.Temperature Check
4.Temperature Threshold
0.Refresh Menu, [ESC] Above Level Menu
>> SFP Information>>
```

3.1.10 Cable Diagnosis

The cable diagnosis function is used to check current UTP status.

```
>>a
Pair    Status      Length   Result
(1, 2)  Success       2m     < 70 Ohm
(3, 6)  Success       3m     Short
(4, 5)  Success       2m     Open
(7, 8)  Success       0m     < 70 Ohm
>>
```