



SHENZHEN MISENSE COMMUNICATION TECHNOLOGY CO., LTD.

User's Manual

For MS-E8221

Version: V1.0

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1. Product introduction

1.1 Product summarise

MS-E8221 is the Central Office mainfram box platform of GEAPON series products which is researched and developed by our company; it is Able to provide a variety of integrated services access, such as broadband, voice, IPTV, CATV.

It includes 2 independent fiber terminals (OLT) unit and 2 SFP GE uplink port, 1 console port, 1 Of-band management port, 1 RS485 port.

All the GEAPON series products of our company are using passive optical network (PON) technologies, which is better than traditional access products in cost performance, maintenance, expansibility and etc.

1.2 Functional features

1.2.1. EPON port Functional features

In GEAPON system, as the OLT unit, PON port is responsible for the register of ONU, transfers the Ethernet message received from network in the downlink to EPON optical signal, and sent it to ONU by passive network. In up link,

it receives EPON optical signal sent by ONU and transfer it to ethernet message then send to swich core equipment.

It includes 2 PON port of 1.25G; usually each PON port can access 32 pieces of ONU equipment in the transmission distance of 20kms.

The equipment is composed by high integrated OLT chips and independent control modules, offering reliable assurance for users in functions and performances.

The functional features of this board are summerized as follows:

- Support ONUs communicate under the same PON port
- Support 802.3 MPCP protocal
- Support 802.3 OAM and expand protocal(slave port), have abundant OAM function design, offer long-distance management through OLT
- Have double-channal independent OLT
- Support long-distance update for software
- High integration level and integration management, and have the function of double layer exchange
- Support data encrypt service in downlink, secure the data transition security for users
- Support ONU authentication, avert illegal ONU

accesss to network

- Support DBA dynamic bandwidth allocation
- Support IGMP Proxy
- Support ACL functions
- Support QOS functions
- Support 4K MAC address with single channal OLT
- Support VLAN divided by LLID
- Offer abundant statistical information
- Support hot plug by the board
- Offer 2G uplink
- The uplink is SFP, and could be configured as electrical port or optical port
- If configured as electrical port,it should work as the pattern of 1000M
- Support the VLAN division on the basis of port
- Support 4096 entries of VLAN
- The capacity of MAC address is 8K
- Uplink support port trunk, port monitoring and mirroring
- Offers 2 control interface, local and network
- Support 3 types of management CLI, TELNET and SNMP

- The net Work control supports in-band and out-band
Support read of SFP mode

1.2.2. Functional features of other ports

The sketch map of front panel is as follows:



Chart 1 Product appearance diagram

Descriptions of the interface

From left to right, the descriptions are as follows:

- The RS485 interface, use to transfer serial informations from ONU
- RST button, press this button to trigger the board restoration
- Console port, local management interface, RS232, connector type RJ45
- Manage port, out-band management interface, 10M/100M full or duplex ethernet interface, connector type: RJ45
- GE1&GE2 port, uplink, SFP mode, it can configured as

fiber or electrical mode

- PON1&PON2 port, downlink, SFP mode

Discriptions of indicator lights from the left to right and up to down

Indicator light		color	Definition
PWR		Green	Off: power is abnormal
			On: power is normal
SYS		Green	Off: abnormal system operation
			On: normal system operation
GE1	ACT1	Green	Flash: there are data passing from uplink port
			Off: there are no data passing from uplink port
	LINK1	Green	On: uplink port is connect
			Off: uplink port isn't connect
GE2	ACT2	Green	Flash: there are data passing from uplink port
			Off: there are no data passing from uplink port
	LINK2	Green	On: uplink port is connect
			Off: uplink port isn't connect

PON1	LINK1	Green	On: The first port connected to ONU
			Off: The first port not connected to ONU
PON1	LINK2	Green	On: The second port connected to ONU
			Off: The second port not connected to ONU

Table 1 the discription of indicator lights of panel

1.3 Size and weight

Size: 441mm*192mm*43mm

Weight: about 3kg

2 Equipment installations

2.1 Installation enviroment

Installed in the center room on the rack.

2.2 EPON Port connection

First install the OLT SFP optical module, and after installing the optical module, insert SC/PC fiber to SFP optical mode, and the process is completed.

Note: Keep the joint of fiber clean, and please preserve the cap of flange for later use.

2.3 Uplink SFP installation

The uplink port of the board is SFP interface, the default option of the board before leaving the factory is no SFP module, users could use proper SFP module according to his own situations.

SFP is standard parts, when you install it, directly inserting it to the SFP slot of the board. The board could identify that the module which the user insert is optical module or electrical module.

In default conditions, the board works in the normal exchange mode, in that mode, the 2 SFP interfaces of board are same, and the user could use any one of it. But in isolation and converge mode, user should choose the specific port

In isolation mode, the corresponding relations of up link ports and PON ports are as follows:

SFP uplink port	PON port
GE1	PON1
GE2	PON2

Table 2 the corresponding table of ports

2.4 Equipment electrify

SFP up link port: on the basis of different type of modules, use net cable or optical fiber to connect up link port and up-layer network equipment (such as switch, router).

CONSOLE port: use the DB9/RJ45 special connection cable which is the accessory of the equipment to connect CONSOLE port and DB9 interface of PC.

Manger port: use crossing-line or parallel line to connect this port with PC or HUB.

NOTE: The net cable or fiber is no available when the machine left the factory, and the user needs to prepare it.

2.5 Power requiement

The power of the board is supplied by common AC power range is from: AC100V~AC250V

Power consumption: < 15W

2.6 Equipment electrify

The board supports hot plug, and when the power is applied to it, you could judge if it works normally or not through the indicator light conditions. If the board has already connected with power or started to work, the conditions of

indicator lights should be like the follows:

- The power indicator light of the board is on
- At this time whether the EPON optical port is connected or not, the link light should be off temporarily
- The board's initialization is completed no more than 20 Second, and if the equipment has be connected with ONU equipment normally, the LINK indicator light of EPON port of OLT should be on, with means the ONU has connected to OLT normally.

3 Technology specifications

3.1 EPON optical port specification

Number of EPON optical port: 2

Parameter of EPON optical port:

Parameter	specification
Module type	1000Base-PX20 or 1000Base-PX10
Connection type	SC/PC
Extents of optical wavelength	Send : 1480nm~1500nm Receive: 1260nm~1360nm
Tansmission distance	According to the different optical module it could be 10km or 20km

Dispatch optical power	Refer to SFP optical module specification
Receive sensibility	Refer to SFP optical module specification
Saturation optical power	Refer to SFP optical module specification

Table 3 EPON Optical Port Parameters

3.2 Up link data port

Number of ports: 2

Form: SFP power supply

Voltage: 3.3V

Interior signal interface: SGMII

Supporting module: SFP optical module or SFP electrical module

Working speed:

Optical module: 1000M/ full duplex.

Electrical module: 1000M/full duplex

3.3 Console interface

Interface type: RJ45

Switch line: RJ45/DB9, use the special connection cable which is configured by the factory, signal level standard is RS232.

3.4 Out-band network management interface

Standard: IEEE802.3

Transmission speed: 10M/100M full or half duplex

Cable: RJ45 joint, CAT5 non-shield crossing-line, use crossing-line to connect PC, use parallel line to connect HUB.

Transmission distance: 100M

Number of port: 1

3.5 Management configuration:

You should conduct the local management through CONSOLE port, or connect remote management through out-band network management port or in-band management. Use EMS network management network to do the network management.

As to the installation and use methods of EMS, please refer to EMS User's Manual. This manual wouldn't introduce more.

3.6 Common fault analysis

If you meet the following problems when you install or use the equipment, please refer to below recommendations to solve the problem, any further problems, please contact the seller.

Common fault	Fault resolution recommendation
<p>CONSOLE Connection is not successful</p>	<p>Check whether the connection cable is proper or not, if the parameter of band rate is set correctly, please use the special connection cable which is offered by the factory, The work bandrate of CONSOLE port is 115200</p>
<p>When up link connect to SFP electrical module, it only works in 1000M</p>	<p>Check the connections on whether to support Gigabit, only each other to support gigabit mode to be able to connect</p>
<p>Could not be connected to the out-band network Management interface</p>	<p>Check the cable,use the crossing cable when connected to PC, use parallel to connected to HUB</p>
<p>Could not be connected when use SFP optical module</p>	<p>Check if the parameter of optical power parameter is matched the requests of module specification, if input optical power is more than module sensibility if it is less than the optical module saturation.</p> <p>In addition, it is possible that the SFP module has been damaged, so please</p>

	<p>ensure the SFP module could work normally. Absolve the problem still exist after replace the SFP module , if Still could not solve the problem please seek our technology supporter</p>
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Table 4 Common fault and resolution recommendation

Appendix A Security Prompt

- Please read this manual carefully, and install and use the equipment according to the discription of this manual
- Please don't install this product in an enviroment which is too moist (coagulate)
- Please don't touch optical dispatcher module with your hands, in case the static damages the optical parts
- After the EPON OLT gets power, do not looking at the optical outlet directly in case the eye get hurt
- Please don't curve optical fiber in random, and the curving radius of the fiber should be not less than 38mm
- Before connecting with the fiber, please don't pull out the hat of flange, in case the end surface of fiber is polluted.

Appendix B Trouble handling

If you meet the following problems when you installed and use the board, please refer to the trouble handing recommendation below, if you have more questions and problem, please contact the person who sell this equipment to you.

Trouble	Trouble handling
PWR light is off	<ul style="list-style-type: none"> ● Check the whether the power connector is plugged in ● Check the swicth button is ON
EPON optical port LINK light is off	<ul style="list-style-type: none"> ● Check is the time of the power connection exceeds 20 seconds ● Check if it has been connected to ONU ● Check if the joint of fiber matched the optical module interface ● Check if the loss of optical fiber is exaggerated and if the sensibility of receive optical power is less than that of the optical receive
The rate of data packet loss is too high	<p>Check if the touchment of the optical joint is OK</p>

Table 5 Touble handling of OLT equipment

Appendix C Product application

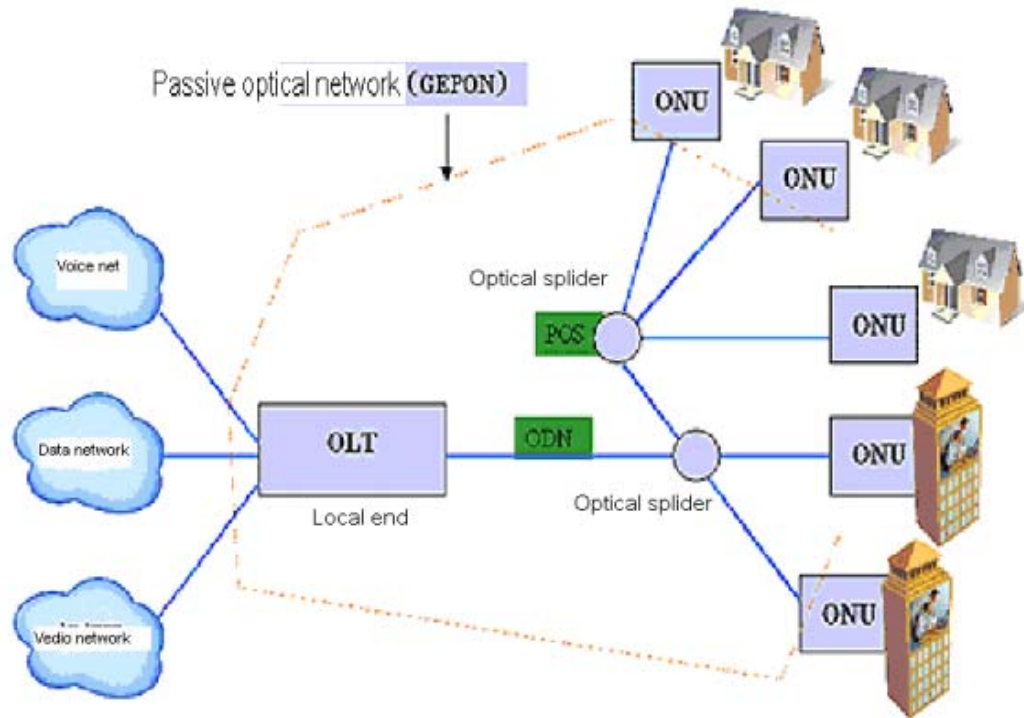


Chart 2 Product netting application chart