

EPON OLT FD1104Y

EPON Optical Line Terminal Equipment

Installation User Manual

V.1.0

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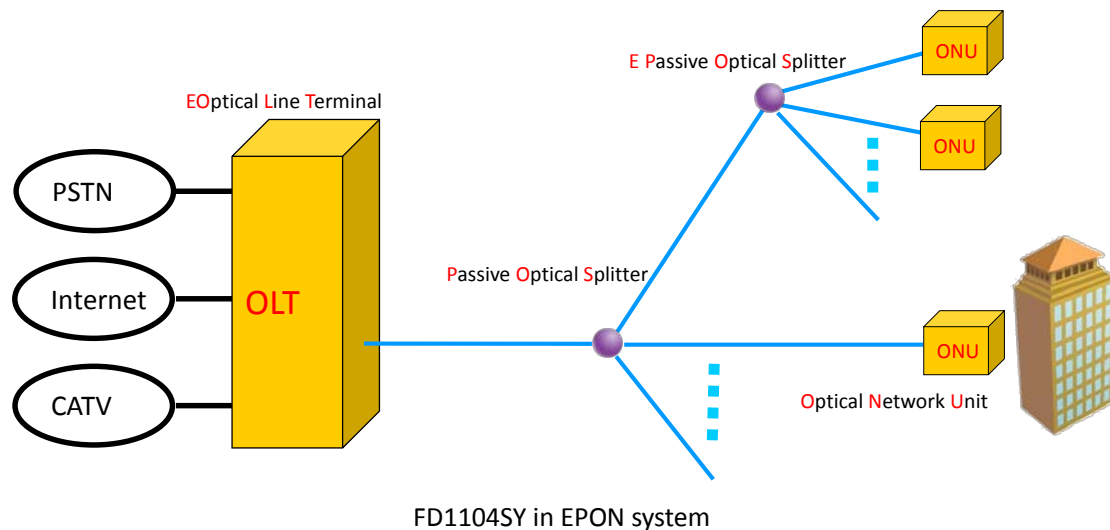
1 Product Introduction

1.1 Brief Introduction

FD1104Y is outdoor type EPON OLT product. The product using aluminum alloy die casting shaping, has good heat dissipation and shielding effect, The features of the OLT are convenient, flexible, easy to deploy, high performance. It is appropriate to deploy in a outdoor environment.

FD1104Y provides 4GE optical interface for uplink, 4 EPON ports for downstream. Built-in 220VAC power module, support Dual power supply configuration.

The OLT can use for “Triple-Play”, CPN, IP Camera, Enterprise LAN and IOT applications. It is a high performance products.



1.2 Functional Features

✧ High Stability with low cost and flexible networking construction

- Four fixed PON slots with 1:64 splitting ratio at most
- Four Uplink GE optical interface
- FD1104Y could support 256 ONU maximally
- Maximum Transmission distance:20km (1:32 splitting ratio)
- Aluminum alloy die casting shaping, has good heat dissipation and shielding effect

✧ Comprehensive Network Management

- In band and out band management;
- Support Telnet and local command lines management;
- EMS management based on standard SNMP protocol;
- Support EDFA docking management
- Support online upgrading.

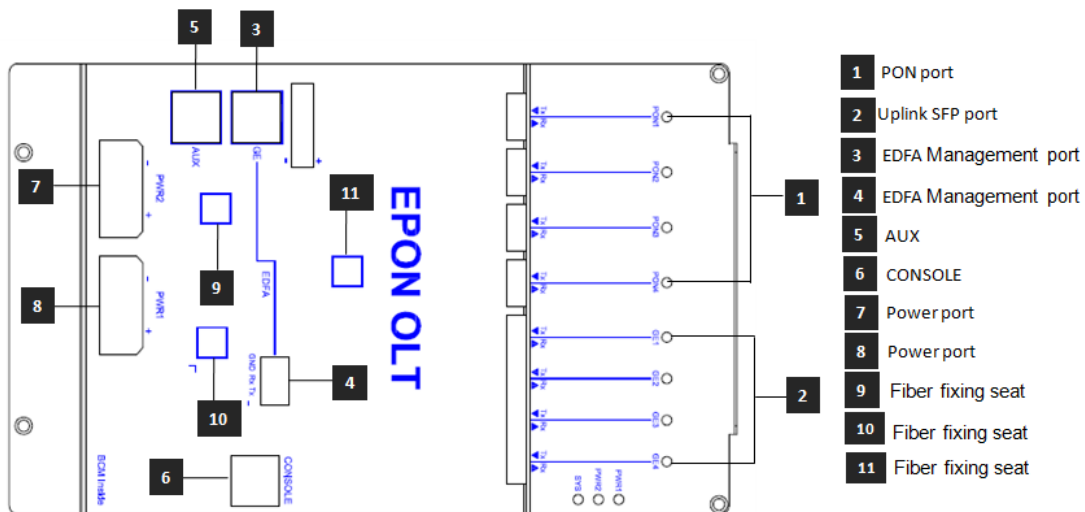
❖ **Powerful QOS Function**

- Realize stable and efficient dynamic bandwidth allocation (DBA)

❖ **Various OAM Function**

- ONU auto-detection and registration;
- Support LGMP and Snooping function;
- Support port flow control and flow shaping.

1.3 Appearance and Interface



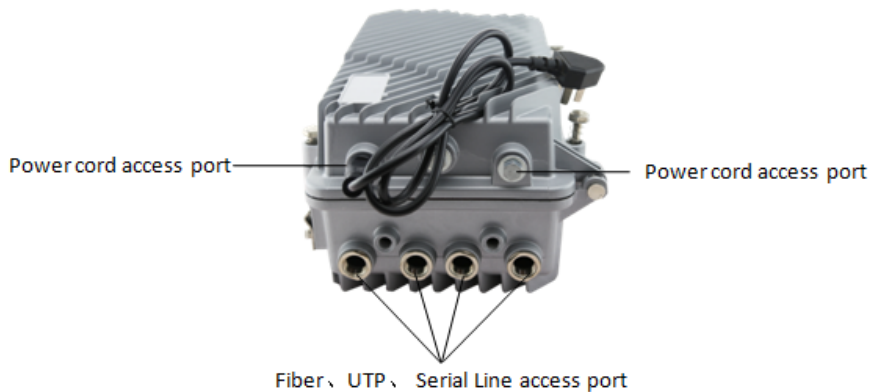
FD1104Y Panel

FD1104Y EPON has 4 EPON SFP ports, 4GE SFP slots interface for uplink, 1 console port and 1 GE network management port.,1 EDFA serial port and 1 EDFA internet port, For details, see the following table.

Item		Specification
Uplink port	SFP	4 SFP slots, compatibility optical port and electricity port
PON Port	QTY	4
	Physical Interface	SFP Slots
	Connector Type	1000BASE-PX20+
Management Ports		CONSOLE port—RJ45 connectors for local configuration AUX port (auxiliary port) ---RJ-45 connectors for Remote configuration
EDFA communication port		Serial port for communicate with EDFA Ethernet port for connecting with EDFA SNMP Management port
Power supply		Built-in single or dual power modules

Please refer to Table about LED and button on the front panel of OLT .

Type	Identification	Status	Indication
Power supply indicator	PWR n (n=1/2)	Green , Always ON	Normal Power supply
		OFF	Power supply is unconnected or breaks down
System status	SYS	Flash per second	System normally operate
Out-band management port	AUX	Flash	There is communication data at AUX port
		OFF	MGNT port isn't connected
PON port indicator	P n (n=1/2/3/4)	Flash	There is communication data at EPON port(n)
		Green , Always ON	There are ONU register on OLT port(n) and the optical fiber link is normal.
		OFF	NO ONU link with the OLT port(n)
Uplink port indicator	GE n (n=1/2/3/4)	Flash	There is the communication data at the uplink port(n)
		Green , Always ON	The uplink port(n) is connected
		OFF	The uplink port(n) isn't connected



2 Pre-Installation Preparation

2.1 Power Requirement

The input voltage must be stable, no EMI noise and distortion.

When use AC power supply, the input voltage is 110/220VAC, the allowed range is 90 ~ 264VAC.

Note: Follow all security specification and the rule about the electricity in the locality or the

building. All power supply must be legal.

2.2 Room Design Requirements

The environment of the equipment operation has very big effect on its long-term reliable operation. Room design requests to up to the following standards:

- Working temperature: 0°C ~ 40°C
- Storage temperature: -40°C ~ 85°C
- Relative humidity: 5% ~ 90%

3. Hardware Installation

3.1 Open package and checkout

According to the packing list or supply contract, check and verify the goods, if any component is loss, wrong or damaged, please contact with your customer manager.

The list includes the following content normally:

- 1 OLT Machine(1 Pcs)
- SFP modules are ordered according to user requirement
- RJ45/DB9 RS232 Console line
- User manual

3.2 Equipment installation

1 Power Supply Requirement:

- AC power supply: 110/220V AC, the allowed range: 90 ~ 264VAC

2 Check the required cable and connectors for installation

3 In the system management, need connect the following equipment with OLT:

- A management platform, such as PC
- RJ45/DB9 RS232 Console line

4 The equipment's installation must be stable, when suspended ensure the ring of sling is fixed and connected and properly tied with the equipment.

5 Dust prevention must be ensured, to prevent dust entering and accumulating in the device, which will eventually cause hardware failure.

6 When installing equipment, pay attention to the installation of the device in a fixed position and do security measures.

7 The equipment have a shell with waterproof ability. When finishing the debug operation which is must be done during the installation, adjust the waterproof ring, properly close the shell, tighten all bolts. For the interface with import and export, tighten the interface, make

sure that the wire and the interface are perfectly matched without fissure. For interface without import or export, directly use waterproof plug seal it.

3.3 Port and Connection

The chapter describes the port and power supply connection situation in OLT system, mainly include the following parts:

- Uplink Port
- PON Port Connection
- Management Port Connection

Please carefully read the following introduction before connecting each port of OLT:

3.3.1 Uplink Port

3.3.1.1 Port Explanation

OLT offers four SFP port, compatibility electrical port and optical port. Electrical port and optical port can combination at the sometime, you can use direct-through, cross cable or fiber connection of the OLT and uplink equipment.

SFP module can be the optical module or the electrical module, and follow standards below:

- 1000Base-LX (Long wave length)
- 1000Base-SX (Short wave length)
- 10/100/1000Base-TX (Electrical port)

When use the single mode optical fiber, the maximum transmission distance can be up to 10-40km; when use the multimode fiber, the maximum transmission distance is less than 500 meters.

Gigabit Ethernet uplink port supports the duplex mode and flow control auto negotiation.

But need note that the maximum length of the optical fiber is related

with work mode of the optical fiber:

- Maximum length of 1000Base-LX fiber is depend on duplex mode
- Maximum length of 1000Base-SX fiber is the same in both full duplex and half duplex mode

3.3.1.2 Port Connection

There are two kinds of uplink network connection:

- Cable with RJ45 connectors at both sides
- Cable with LC connector at both sides

Decide the port type of OLT according to the port type of the uplink device (Switch or Route)

3.3.1.3 Method of making cable

If you use SFP optical module, cable specification: the optical cable with LC connector at both sides.

If you use GE copper interface, cable specification: Category 5 cable or Category5 super cable with RJ45 connector at both sides

The below the reference for making STP (Shielded Twisted-Pair) cable with RJ45connector at both sides



3.3.2 PON Port Connection

FD1104Y support four EPON SFP slots, every SFP EPON slots can mount a EPON SFP module and provides one PON port.

Caution: When insert into optical cable, please confirm the connector is inserted into the correct position, thus guarantee the good contract.

SFP PON slots installs standard 1000BASE-PX20+ OLT SFP .The OLT SFP interface is SC/PC. Please use the patch cord with SC/PC connector to connect between the OLT and the ODN networking .

3.3.3 Management Port Connection

OLT FD1104Y equipment provides console interface (marked as “CONSOLE” RJ45 type port) and out-band management internet access (marked as “AUX” RJ45 type port).

Console access is really only required when initially configuring a device, or if remote access fails.

Console access requires:

- Console cable: RJ-45-to-DB-9 console cable
- Terminal emulation software: HyperTerminal

The cable is connected between the serial port of the host and the console port on the device. Most computers and notebooks no longer include built-in serial ports. If the host does not have a serial port, the USB port can be used to establish a console connection. A special USB-to-RS-232 compatible serial port adapter is required when using the USB port.

Port on Computer	Cable Required	Port on OLT
Serial Port	RJ-45 to DB-9 Console Cable	RJ-45 Console Port
USB Type-A Port	<ul style="list-style-type: none"> ● USB to RS-232 compatible serial port adapter (Adapter may require a software driver) ● RJ-45 to DB-9 Console Cable 	



RJ-45 to DB-9 Console Cable



USB to RS-232 compatible serial port adapter

When starting the out-band management, please use straight and cross Ethernet cable, connecting “MANAGE” out-band management interface to network or managed PC.

3.3.4 Power Supply

The two AC power supply units in the OLT allow for 1 + 1 power redundancy. If one power supply unit fails, then the system will continue to operate using the remaining power supply unit. Additionally, to ensure true AC line input redundancy for the OLT, you should connect each AC power cable to a different AC power source. You can also connect an uninterruptible power supply (UPS) between each AC power source and the server to increase the availability of the server.

3.4 OLT working status checkout

3.4.1 Check out power supply

Before you connect the power supply, double check the power supply if it is accord with the

power supply requirements, If each module and card are installed correctly, If the equipment is in reliable grounding or not. After checking everything is OK, you can turn on the power supply sources.

3.4.2 Check out OLT's working status

Please check if the OLT's working status from following aspects:

- Check the power LED. The power LED will be on.
- The SYS LED will flash per second
- If the uplink equipment is connected to the uplink port, the relevant connection LED is on.

3.4.3 Check out ONU Registration

In default situation, there is no need any configuration after you turn on the equipment. ONU equipment can be registered after connected with the PON port of OLT FD1104Y.

Before starting access the equipment, please use optical power meter to measure the optical power of PON port, and check if it's in equipment specification range.

Using one ONU correctly connecting with any PON port of OLT, check if this ONU can be registered to OLT by means of the ONU's LED working status, once the ONU is successfully registered, the "Pn" LED close to PON port of OLT should be on.

3.4.4 Network Connection Checkout

In the case of default configuration, the network of users could communicate with FD1104Y when ONU registers with FD1104Y.

Connect a PC with an ONU UNI port and check if the network is running well by means of ping LAN (in the same IP address) or by PING package tools.

3.4.5 Network Management Checkout

Local Command Line Interface Management:

Use the RJ45/DB9 Serial Port cable (in package) to link management PC with FD1104Y CONSOLE port. Management computer can access to OLT equipment from Super terminal interface of the PC for configuration..

In Band and out band Management

Use PC which has installed C-Data's EMS network management software to connect in band or



out band port of FD1104Y. EMS network management can visit FD1104Y after adding the olt into EMS interface. The icon of FD1104Y shows green, and its PON card is also green. Icon of ONU which register to FD1104Y is green under EMS interface as well. You also can telnet the FD1104Y by inband and outband.

※Please refer to relevant CLI user manual if you want to know more about command management, and refer to EMS network management configuration user manual to know more about EMS network management functions and operations

4 Default Configuration

4.1 Network Parameter Configuration

Out Band Network Port (uplink port on switch control card)

IP Address: 192.168.1.100
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1
Read community: public
Write Community: private

In Band Network Port

IP Address: 192.168.1.100
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1
Read community: public
Write Community: private

4.2 CONSOLE Parameter Configuration

Band Rate: 9600
Data Bit: 8
Parity Check: NO
Stop Bit: 1
Flow Control: NO

4.3 Default Username and Password

Local Command Line
Username: admin



Password: admin



SNMP Access

Read Community: public

Write Community: private

5 Appendix : OLT Specification

Item		Parameter
Uplink Port	QTY	4
	SFP	4 SFP slots, compatibility optical port and electricity port
PON Port	QTY	4
	Physical Interface	SFP Slots
	Connector Type	1000BASE-PX20+
	Max splitting ratio	1:64
EDFA communication port		Serial port for communicate with EDFA
		Ethernet port for connecting with EDFA SNMP Management port
Management Ports		1*10/100/1000M auto-negotiable outband port 1*CONSOLE port
PON Port Specification (Apply to C-Data PON module)	Transmission Distance	20KM
	PON port speed	Symmetrical 1.25Gbps
	Wavelength	1490nm TX, 1310nm RX
	Connector	SC/PC
	Fiber Type	9/125µm SMF
	TX Power	+2~+7dBm
	Rx Sensitivity	-27dBm
	Saturation Optical Power	-6dBm
Management Mode		SNMP, Telnet, CLI management mode.
Management Function		Fan Group Detecting Port Status monitoring and configuration management; Layer-2 switch configuration such as Vlan, Trunk, RSTP, IGMP, QOS, etc; EPON management function: DBA, ONU authorization, ACL, QOS, etc; Online ONU configuration and management User management Alarm management
Layer-two Switch		Support port Vlan and protocol Vlan Support Vlan tag/Untag, vlan transparent transmission; Support 4096 VLAN Support 802.3ad trunk

		<p>Support RSTP</p> <p>Support QOS based on port ,VID,TOS and MAC address</p> <p>Support IGMP Snooping</p> <p>Support 802.x flow control</p> <p>Support Port stability statistic and monitoring</p>
EPON Function		<p>Support port-based rate limitation and bandwidth control;</p> <p>In compliant with IEEE802.3ah Standard</p> <p>Up to 20KM transmission Distance</p> <p>Support data encryption, group broadcasting, port Vlan separation, RSTP, etc.</p> <p>Support Dynamic Bandwidth Allocation (DBA)</p> <p>Support ONU auto-discovery/Link detection/remote upgrade of software;</p> <p>Support VLAN division and user separation to avoid broadcast storm;</p> <p>Support various LLID configuration and single LLID configuration .Different user and different service could provide different QoS by means of different LLID channels.</p> <p>Support power-off alarm function ,easy for link problem detection</p> <p>Support broadcasting storm resistance function</p> <p>Support port isolation between different ports</p> <p>Support ACL and SNMP to configure data packet filter flexibly</p> <p>Specialized design for system breakdown prevention to maintain stable system</p> <p>Support dynamic distance calculation on EMS online</p> <p>Support RSTP,IGMP Proxy</p>
Dimension		350mm*220mm*155mm(L*W*H)
Weight		4kg
Power Supply		220VAC: AC: 90V~240V, 47/63Hz
Power Consumption		34W
Operating Environment	Working Temperature	0~50℃
	Storage Temperature	-40~85℃
	Relative Humidity	5~90%(non-condensing)

6 Ending

Thanks very much for deploying C-DATA equipment.

Should have any doubt or problem to know about our products installation, please don't hesitate to contact us.

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