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Product Specifications

4 PON GEPON OLT with 4-Port 10/100/1000T + 4-Port Shared 1G/10G SFP+

EPL-4000

Version 1.0

Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2019/06/10	Simon Yeh	Initial Release

Author:	Simon Yeh	Editor:	Esther Wen
Reviewed By:	Jonas Yang	Approved By:	Kent Kang

1. PRODUCT DESCRIPTION

Perfectly Designed for FTTx Applications

PLANET EPL-4000 GEPON **Optical Line Terminal (OLT)** consists of **four GEPON ports, four 1G/10G shared SFP+ ports, four GbE RJ45 interfaces** and one management port. It is easy to install and maintain a GEPON deployment. With PLANET GEPON **Optical Network Unit (ONU)** EPN series, the EPL-4000 can provide highly-effective GEPON solutions and convenient management for broadband network. PLANET GEPON technology provides a high bandwidth of up to **1.25Gbps** for both upstream and downstream, long-distance coverage of up to 20km between equipment nodes, and flexibility for network deployment. It is a cost-effective access technology with reliable and scalable network for triple-play service applications.
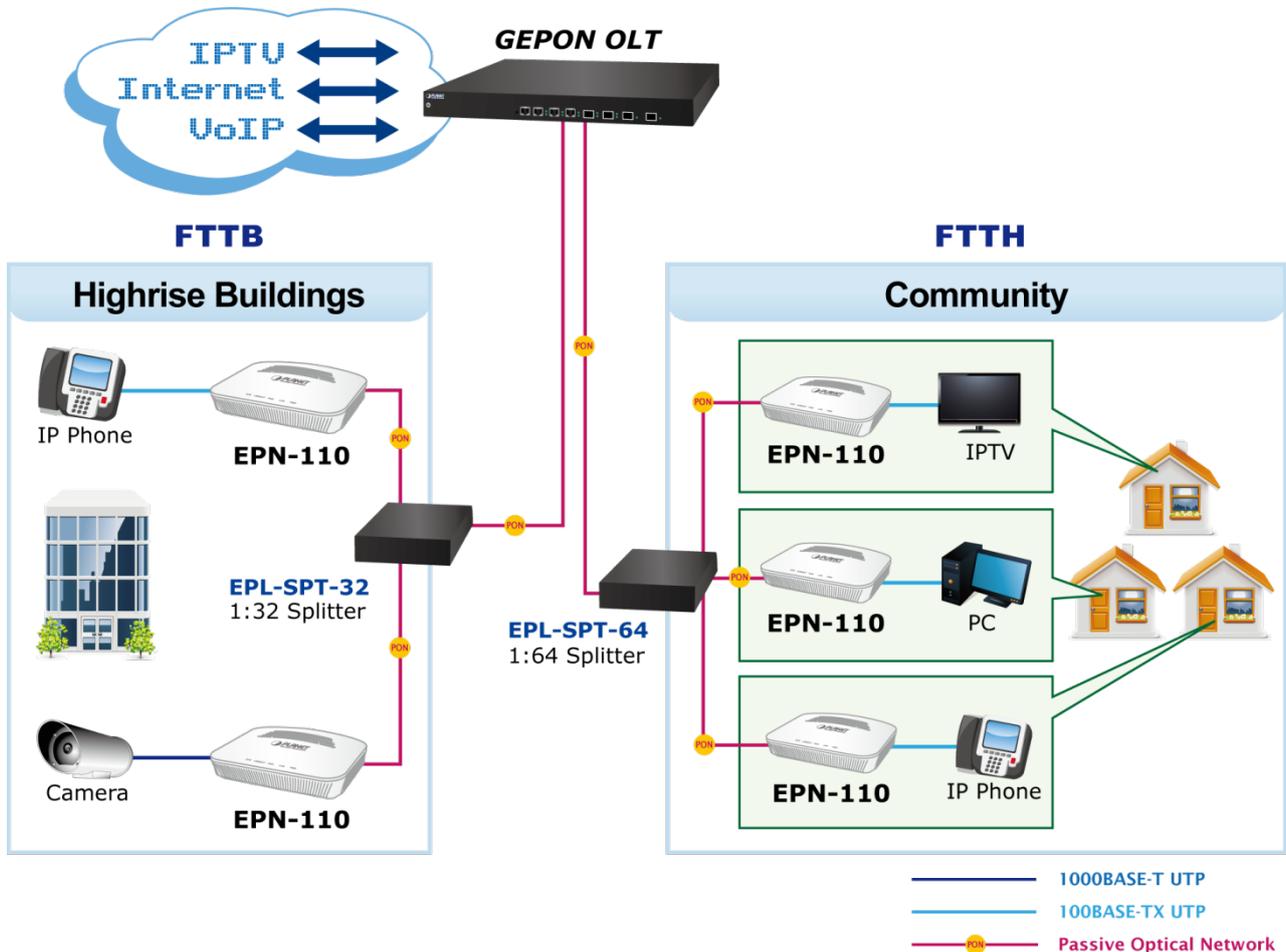
High-speed and Long-distance Coverage for Triple Play Services

With growing network services such as HDTV, IPTV, voice-over-IP (VoIP) and multimedia broadband applications, the demand for broadband use rises quickly. The present broadband environment has not accorded with needs; however, **Passive Optical Network (PON)** would be the most promising NGN (Next Generation Networking) technology to fulfill the demand.

High Split Ratio for a Cost-effective Network Solution

The EPL-4000 is an ideal solution for FTTx applications. It helps to minimize the investment cost for carriers by offering a high split ratio of **1:64** per port and supporting the usage of PLANET ONUs. The EPL-4000 provides strong functionalities for Ethernet features such as VLAN, Multicast, DBA (Dynamic Bandwidth Allocation), and Access Control List, Besides GEPON, the point to multipoint communications protocol is based on Gigabit Ethernet. GEPON protocol allows a Gigabit Ethernet communications fiber to be shared by multiple end users using a passive optical splitter. GEPON communication takes place between an Optical Line Terminal (OLT) and multiple Optical Network Units (ONUs). Using standard terminology, downstream traffic flows from OLT to ONU, and upstream traffic flows from ONU to OLT. A protocol called Multi Point Control Protocol (MPCP) is used to arbitrate the channel between the ONUs so that no collisions will occur on the common fiber.

High Scalability and Flexible OLT Maintenance

For efficient management, the EPL-4000 supports remote management functions. Via its user-friendly GUI utility, the administrators can manage and configure the OLT and ONU equipment on the central side. The GUI utility supports up to 32 EPL-4000 OLTs to be centrally managed through one control screen. The built-in **Element Management System (EMS)** offers an easy-to-use management and configuration facility to add to or remove PLANET OLTs and ONUs from the network architecture easily and economically. Its great flexibility is perfect for deployment among different network architectures.

Robust ONUs Management

The EPL-4000 supports many operating and monitoring functions for efficient ONU management, such as ONU auto-detection, auto-registration, testing link connection, binding MAC address and filtration, bandwidth control, flow control, and multicast stream control.

Flexible and Extendable Solution

The EPL-4000 has eight uplink ports. The four mini-GBIC slots of the uplink ports of the EPL-4000 are compatible with 10GBASE-SR/LR SFP+, 1000BASE-SX/LX and WDM SFP (small form factor pluggable) fiber-optic modules. The distance can be extended from 550 meters (multi-mode fiber cable) to 10/30/50/70/120 kilometers (single-mode fiber or WDM fiber cable). They are well suited for FTTx applications for distribution data link.

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2. PRODUCT FEATURES

➢ **GEPON Port**

- 4 x SC-type GEPON OLT port
- Up to 1.25Gbps upstream and downstream
- Maximum transfer distance of up to 20km
- Each PON port supports up to 64 ONUs
- Fully compliant with IEEE 802.3ah
- Point-to-multipoint network topology
- LED indicators for link status

➢ **Uplink and Management Port**

- 4 1G/10G shared SFP+ interfaces
- 4 100/1000BASE-T RJ45 interfaces
- Maximum transfer distance of up to 120km
- 1 10/100BASE-TX RJ45 management port

➢ **Layer 2 Features**

- Dynamic bandwidth allocation (DBA) support
- Supports VLAN
  - IEEE 802.1Q tagged VLAN
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
- Supports up to 16K MAC addresses
- Enhanced IGMP features

➢ **OLT Management**

- User-friendly GUI management
- IPTV multicast creation and management
- Up to 32 OLTs managed through single GUI
- Three user levels control
- 2 control interfaces

  -Out-of-Band IP – the management RJ45 port

  -In-Band IP –the four uplink ports
- Supports ONU authentication; averts illegal ONUs access to network
- Event message logging to system log

➢ **ONU Management**

- ONU port control
- ONU multicast control
- ONU IGMP fastleave
- ONU VLAN mode

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3. PRODUCT SPECIFICATIONS

3.1 FUNCTION SPECIFICATIONS

Product	EPL-4000
Hardware Specifications	
PON Interfaces	4 GEPON ports
	Transmission Speed: ■ Downstream: 1.25 Gbps ■ Upstream: 1.25 Gbps
	Optical Split Ratio: Up to 1:64
	Transmission Distance: 20KM
	Wavelength: TX:1490nm; RX: 1310nm
	Connector: SC/PC
	Fiber Type: 9/125um SMF (Single mode fiber optic)
	TX Power: +2~+7dBm
	RX Sensitivity: -27dBm
	Saturation Optical Power: -6dBm
LAN Interfaces	4 1G/10GBASE-X SFP+ slots
	4 100/1000BASE-T RJ45 ports
Management Interfaces	1 RJ45 port (10/100BASE-TX)
LED Indicators	1 power LED 1 system LED 8 uplink port LEDs (ACT and Link) 4 PON LEDs (Link)
Dimensions (W x D x H)	442 x 200 x 43mm
Weight	2.82kg
Power Requirements	100 – 240V AC
Power Consumption	30 watts
Layer 2 Features	
VLAN	802.1Q tagged-based VLAN 802.1ad Q-in-Q tunneling (VLAN stacking) Up to 256 VLAN groups, out of 4094 VLAN IDs Port VLAN Protocol VLAN Port isolation VLAN transparent transmission

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Link Aggregation	Static Port trunk
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol (STP)
	IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
IGMP Snooping	Up to 256 multicast groups
Access Control List	IP-based ACL/MAC-based ACL
QoS	Port-based storm control
	Port-based rate limitation
	QoS based on:
	- Port
	- VID
	- TOS
	- MAC address
	Dynamic Bandwidth Allocation (DBA)

Layer 3 Features

ARP proxy	IPv4 ARP proxy
Hardware Host Routes	1024
Hardware Subnet Routes	512
Static Route	IPv4 Static Route

EMS Utility Specifications

Switch Feature	– IPTV multicast creation and management
	– MAC address learning and binding
	– MAC filtering
	– Supports IGMP mode
	– Supports the VLAN division on the basis of port
	– Up to 4096 VLAN
	– 16K MAC addresses
	– ONU multicast control
	– ONU IGMP fastleave
	– ONU VLAN mode
	– ONU port management
Management	User-friendly GUI Utility
	Firmware and configuration upgradable via utility
	ONU auto-discovery, link detection and remote upgrade of software
	Remote ONU management
	DHCP server
	DHCP relay
	DHCP snooping

Standards Conformance

| Safety	CE, LVD
Standards Compliance	IEEE 802.3 10BASE-T
	IEEE 802.3u 100BASE-TX
	IEEE 802.3ab Gigabit 1000BASE-T
	IEEE 802.3z Gigabit SX/LX
	IEEE 802.3ae 10Gigabit Ethernet
	IEEE 802.3x flow control and back pressure
	IEEE 802.1Q tagged VLAN
Environment Specifications	
Temperature	Operating temperature: -10 ~ 55 degrees C
	Storage temperature: -40 ~ 85 degrees C
Humidity	5 ~ 90% non-condensing

3.2 PHYSICAL SPECIFICATIONS:

■ **Dimensions:**

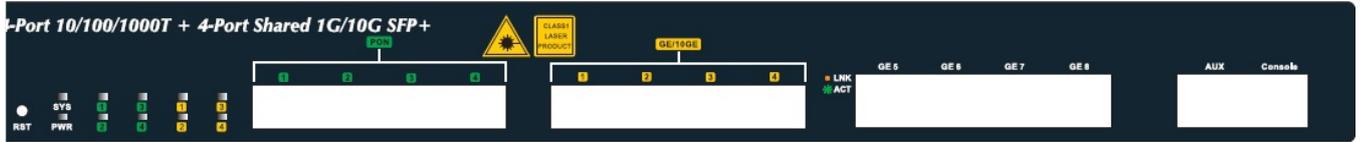　442 x 200 x 43mm (W x D x H), 1U height

■ **Weight:**

　2.82kg

■ **Front Panel:**
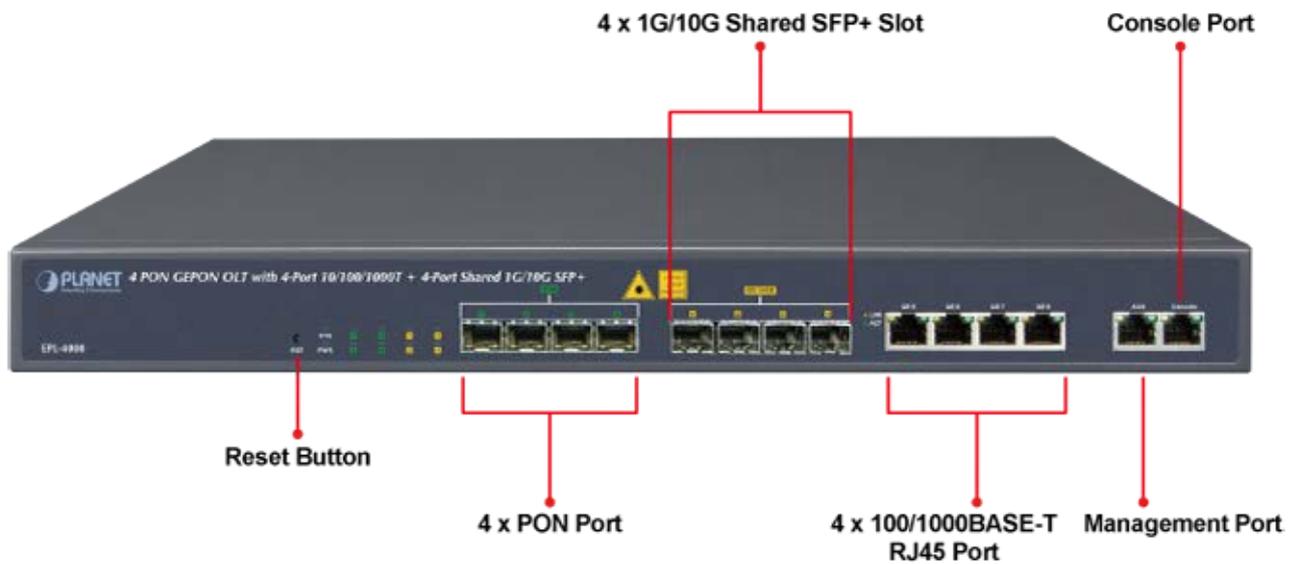
Rear Panel:

■ **LED Definition**

■ **System**

LED	Color	Function	
PWR	Green	**Lights:**	To indicate that the Switch is powered on.
SYS	Green	**Blinks:**	The OLT is ready for management.
		Off:	The OLT is operating abnormally.

■ **1000BASE-PX20 SFP PON Interfaces**

LED	Color	Function	
PON1-4	Green	**Lights:**	To indicate the link through that PON port is successfully established.
		Off:	To indicate that the PON port is link-down.
		Blinks	To indicate that the switch is actively sending or receiving data over that port.

■ **1G/10G Shared SFP+ Interfaces**

LED	Color	Function	
Port1-4	Green	**Lights:**	To indicate the link through that SFP+ port is successfully established.
		Off:	To indicate that the SFP+ port is link-down.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.

■ **100/1000BASE-T RJ45 Interfaces (GE5 to GE8 Ports)**

LED	Color	Function	
LINK	Green	**Lights:**	To indicate the link through that RJ45 port is successfully established.
		Off:	To indicate that the RJ45 port is link-down.

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ACT	Green	Blinks:	To indicate that the switch is actively sending or receiving data over that port.

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3.3 ENVIRONMENTAL SPECIFICATIONS

Operating:

 Temperature: -10 ~ 55 degrees C

 Relative Humidity: 5% ~ 90% (non-condensing)

Storage:

 Temperature: -40 ~ 85 degrees C

 Relative Humidity: 5% ~ 90% (non-condensing)

3.4 ELECTRICAL SPECIFICATIONS

Input Voltage: 100 - 240VAC, 50 - 60Hz, 1A

Power Consumption:

Power Consumption	110V: 23.6 watts
(System on Standby):	220V: 23.8 watts
Power Consumption	110V: 29.5watts
(System on Full Loading):	220V: 29.3 watts

3.5 REGULATORY COMPLIANCE

CE, LVD

3.6 BASIC PACKAGING

- GEPON OLT x 1
- MGB-PX20 SFP Transceivers x 4
- Quick Installation Guide x 1
- Rack-mount Accessory Kit x 1
- AC Power Cord x 1
- Console Cable x 1

3.7 PACKING INFORMATION

Box Dimensions (W x D x H): 554 x 308 x 95 mm

Gross Weight: 4.7kg

Carton Dimensions (W x D x H): 595 x 525 x 350 mm

Total Weight: 25kg

Quantity: 5pcs. in one carton