

Product Specification

A-GEAR P1000 series Optical Network Unit (ONU)



P1001/1501



P1004A



P1004T

1. Introduction

Abiding by IEEE802.3ah, A-GEAR P1000 ONU series, including P1001/1501 and P1004, meets relevant requirements of GEAPON OUN regulated in Technical Requirements of YD/T1475-2006—EPON and China Telecom EPON Technical Requirement CTC2.0/2.1. A-GEAR P1000 series ONU products are widely applied to the broadcast/electrical bidirectional network, FTTH/FTTO/FTTB.

2. Main Strengths

1. Supports the symmetric uplink/downlink 1Gbps PON transmission rate, efficient bandwidth usage and Ethernet services, helping carriers to provide reliable services to their users.
2. Supports P1004 series ONU hybrid networking, minimizing the cost for the carrier to establish its network.

3. Supports SLA and DBA.
4. Occupies little space and consumes a little volume of power.

3 Main Characteristics

1. These EPON products adopt the point-to-multipoint network topology, effectively collect separate Ethernet services and aggregate them. They provide the standard fast-Ethernet interface (RJ45) on the user side and can be connected to the existing network smoothly.
2. Their dynamic bandwidth distribution mechanism enables all users to share the 1Gbps bandwidth reasonably, realizes reliable QoS and guarantees different services in a same network different qualities.
3. They support the IGMP multicast and efficiently utilize the bandwidth.
4. They support port isolation.
5. They support the Ethernet loop detection, automatically judge whether the device-connecting network has Ethernet loopback interrupted, and resume the loop when the loop disappears.
6. They support the multicast VLAN.
7. It supports remote loopback and remote diagnosis of the network state.
8. It has rich OAM function designs, including the configuration, alarm, performance monitoring, fault separation and security management. It not only provides the remote OLT management mode but also supports local console platform management.

4 Technical Parameters

Attributes	P1001/1501	P1004A/T
User interface	P1001: a fixed 10/100M base-T auto-adaptable RJ45 interface; P1501: a fixed 10/100/1000M base-T auto-adaptable RJ45 interface	Four fixed 10/100M BASE-T auto-adaptable RJ45 interfaces
PON interface	A 1Gbps transmission rate with downlink and uplink symmetry Network coverage diameter: 30 kilometers Hi-sensible optical receiver: Not less than -26dBm Radiation power: 2-7dBm Security: ONU authentication mechanism	A 1Gbps transmission rate with downlink and uplink symmetry Network coverage diameter: 30 kilometers Hi-sensible optical receiver: Not less than -26dBm Radiation power: 2-7dBm Security: ONU authentication mechanism

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Attributes	P1001/1501	P1004A/T
Standard	IEEE 802.3ah PRC Community Industry Standard (YD/T 1475-2006) IEEE 802.1D, Spanning Tree IEEE 802.1Q, VLAN IEEE 802.1w, RSTP IEEE 802.3ad physical link static/dynamic aggregation (LACP) Ethernet – II, Ethernet-SNAP	
VLAN	Port-based VLAN GVRP IEEE 802.1Q VLAN	
Service quality	Backpressure flow control (half duplex) IEEE 802.3x flow control (full duplex) Head Of Line (HOL) prevention mechanism IEEE p802.1p, CoS Four transmission queues on each port are mapped to eight priority values of 802.1p. WR, SP and FIFO Rate control	
Reliability	Uni-directional Link Detection (UDLD)	
Network security	IEEE 802.1x, port-based access control Supporting the local and remote authentication, EAP termination or transparent transversal CHAP and EAP authentication Limiting the maximum number of users on each port Protecting the port Controlling the storm of packets	
Management configuration	Various management modes such as CLI, Web, SNMP, TELNET and cluster RMONv1, group 1, group 2, group 3 and group 9 SSHv1/v2 Upgrading the software and the bootrom through TFTP and FTP Local or the server's syslog logs Command prompt in English or in Chinese Network testing tools such as ping and traceroute Debug output	
Physical size	176.5 mm(W) x 126 mm(D) x 30 mm(H) Installation: Plug and play	
Heat cooling	The heat generated by the device in a long-time use (24 hours) cannot lead to the degrading of the performance and the deformation of the components.	
Environment requirements	Working condition: 0°C ~ 60°C; 10% ~85%; no condensation Storage condition: -40°C ~ 80°C; 5% ~ 95%; no condensation	

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Attributes	P1001/1501	P1004A/T
Power source	Type of the power adapter: the on-off power adapter Rated input voltage: 110V ~ 240V, 50/60Hz Fluctuated range of the input voltage: $\pm 20\%$ (domestic); $\pm 10\%$ (international) Fuse: Installing the irrecoverable temperature fuse (or temperature resistance) at the input terminal Power: Up to 10W Authentication requirements: CCC authentication (domestic), CE authentication (international) or customer-specified authentication	
EMC	Radiation Emitting (RE): VCCI Class B Conducted susceptibility (CS) of the power source and network cable: shielded cave E=3V, carrier with a 0.15~80 MHz sine wave, a 1KHz modulation signal, 80% amplitude modulation, normal working (without packet loss, link breakage or rebooting) ESD test: Research-S031 A-0 ESD Discharging Susceptibility Standards, GB/T17626.2-1998 EMC Test and Measurement ESD Discharging Susceptibility Test, air discharging $\pm 8KV$, contact discharging $\pm 6KV$, automatic recovery after deletion of packet loss and interference Thunder attack surge (power source): GB/T 17626.5-1998 standard, Research-S032A-1 Surge Susceptibility Test Standards, 1.2us/50us surge wave, $\pm 2KV$ differential mode, $\pm 4KV$ syntype mode, automatic recovery after deletion of link breakage and interference EFT immunity (power source, network cable): $\pm 2KV$ power-source port, $\pm 1KV$ network-cable port, 5KHz duplicate frequency, 5/50ns wave shape, automatic recovery after deletion of link breakage and interference	

5. Order Information

Model	Description
A-GEAR P1001	ONU device with one 100M port and AC power supply
A-GEAR P1501	ONU device with one 1000M port and AC power supply
A-GEAR P1004A	ONU device with four 100M ports and AC power supply
A-GEAR P1004T	ONU device with four 100M ports, metal hull and AC power supply

6. Application

Bidirectional upgrade of NGB in the Radio, Film and TV network

- "EPON + EoC" networking technology

The existing corridor HFC's coaxial cable resources and the EOC technology for the last 100m connection project will be used in this access solution so that rewiring need not be

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conducted in community's corridors and network upgrade is hence simpler and faster.

- "EPON+LAN" networking technology

The Optical-Line Terminal (OLT) is situated in the branch front-end terminal or the regional machine room, the optical splitter is located in the community's machine room and the Optical-Network Unit (ONU) is allocated in the communities. ONU is downlinked by the corridor switch, while the corridor switch is connected by the existing double-twisted line which is for the last 100m user access.

- FTTH networking technology

The optical fiber directly connects users, which is suitable to broadband users in the future.