A-GEAR World Wide Manufacturing

Product Specification

A-GEAR P3000 series

Industrial Optical Line Terminal (OLT)

IEP3314-4S

IEP3310

1. Introduction

A-GEAR P3000 OLT series includes P3310 and P3314-4S. They comply with IEEE802.3ah, adopt TCP/IP, an open, widely-used, transparent and uniform protocol, satisfy related requirements about GEPON ONU in YD/T 1475-2006 Access Technology Requirements - EPON and Technical Requirements of Chinese Telecom EPON. At the same time, they comply with EPON System and related standards in the electric power industry and can be widely applied on the data communication platform of automatic power distribution in the intelligent grid.

2. Main Strengths

1. **Powerful and flexible network construction mode:** Between any two PON ports of P3000 OLT series, the redundancy of the backbone optical fiber is supported and the switchover time is less than or equal to 50ms. At the same time, P3000 OLT series supports to establish RSTP and EAPS between SNIs and the switchover time is less than or equal to 50ms. Additionally it can work together with industrial IEP1000 ONUs to construct the bus or tree network topology with hand-in-hand protection.
2. **EPON transmission network:** The optical fiber is used as the transmission media and there is no source in the whole transmission, so it runs stably and reliably. The bidirectional high-bandwidth services can be realized on a single fiber with a downlink/uplink rate of 1.25Gbps. The EPON network supports the multi-level prismatic bus

topology which is suitable to the structure of the power lines of the distribution network.

3. **QoS guarantee for multi-services:** The QoS mechanism, based on ITU-T Y.1291, is supported, including priority labeling, queue schedule, flow shaping, congestion limit and cache management. Different users and services have different delays, jitters, guaranteed bandwidths and maximum bandwidths, and the DBA mechanism is supported so that the uplink bandwidth of each ONU can be distributed and limited.
4. **Advanced system architecture:** Its modularized design supports multiple customization requirements; the power supply from two power sources is reliable and secure; according to customers' requirements, DC12V, DC24V, DC48V or AC220V can be provided.
5. **Various Ethernet functions:** Multiple technologies are supported, such as VLAN isolation, port protection, MAC binding, IP binding, port limit, queue and flow control, so the combination of multiple services can be developed without technical bottleneck and upgraded smoothly.
6. **Unified and versatile network management system:** The network management system is service oriented and it provides the unified network transmission and networking protocol, address management, domain management, security management, user access management and so on. It has rich OAM functions such as configuration, alarm, performance monitoring, trouble isolation and security management. At the same time, it supports the CLI/GUI management, which is easy to use.
7. **Industrial-level design suitable to the electric power industry:** P3000 OLT series provides such interfaces as GE interfaces, FE interfaces and RS232/485 interfaces. They are suitable to different harsh environments for they can run in the temperature from -40°C to 85°C, prevent thunderbolt and powerful electromagnetic interference and comply with the requirements of IEC61850 electromagnetic compatibility.

3. Technical Parameters

Attributes	P3310	P3314-4S
Fixed interfaces	4 fixed PON ports 2 Gigabit combo ports 2 gigabit SFP optical ports 2 gigabit electric ports 1 out-band 10/100M port 1 Console port	4 fixed PON ports 2 gigabit combo ports 2 gigabit SFP optical ports 2 gigabit electric ports 4 RS232/485 serial interfaces 1 out-band 10/100M port 1 Console port
PON interface	A 1.25Gbps transmission rate with downlink and uplink symmetry Network coverage diameter: 30 kilometers Type of the optical interface: SC/PC Optical physical condition: 1000 BASE-PX20 Optical reception sensitivity: -30dBm Security: ONU authentication mechanism	

Attributes	P3310	P3314-4S
Serial interface	Cool switching RS232 and RS485 through the thumbwheel switch (* suitable for IEP3314-4S) Maximum port rate: 9600~38400bps (*suitable for IEP3314-4S) Type of the serial interface: RJ45 (*suitable for IEP3314-4S) Supporting the transparent transmission of multiple electric power communication regulations such as IEC60870-5-101/104, IEC61850, CDT and DNP (* suitable for IEP3314-4S)	
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	VLAN Division based on LLID, PON port and Ethernet type Supporting 4k VLANs IEEE 802.1Q VLAN Supporting flexible QinQ	
Service quality	Backpressure flow control (half duplex) IEEE 802.3x flow control (full duplex) Head Of Line (HOL) prevention mechanism IEEE p802.1p, CoS Supporting the Mark/Remark priority of 802.1P/DSCP WR, SP and FIFO Limiting the uplink/downlink rate based on each ONU Supporting DBA and SLA Supporting parameters about service flow classification such as MAC DA, MAC SA, VLAN ID, User Priority (IEEE802.1D) and Ethernet type Supporting optional parameters about service flow classification such as destination IP, source IP, IP type (TCP, UDP, ICMP, IGMP, etc), IP DSCP, destination L4 protocol port, source L4 protocol port and so on	
Reliability	Supporting the protection of the backbone optical fiber between any two PON ports Supporting EAPS between uplink SNIs	
Multicast	IGMP v1/v2/v3 IGMP Snooping Multicast VLAN and limited multicast	

Attributes	P3310	P3314-4S
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	
Mechanic Features	Installation: Standard cabinet Chassis' size (W*H*D): 442*315*44mm Weight: No fan, single-rib alumina chassis' hull, protection level (IP 40)	
Power source	Supporting dual-path power input and redundant power source Supporting DC 48 V (36 ~ 72 V) or AC/DC 110/220V(DC88 ~300 V, AC85 ~ 264 V) Supporting DC voltage and wave fluctuation: DC-48±20% Supporting AC voltage and wave fluctuation: AC 220V±10%, frequency 50Hz±5% Providing the protection to power overload and verso connection Complying the level-4 standard of electromagnetic compatibility	
	Power consumption: up to 43.5W	Power consumption: up to 48.4W
Environment requirements	Working temperature: -40°C ~ 85°C Storage temperature: -40°C ~ 85°C Relative humidity: 5% ~ 95% no condensation MTBF: 250,000 hours	

4. Order Information

Model	Description
A-GEAR P3310	OLT device with 4 PON ports (1 console port, 1 out-band 10/100M port, 4 fixed PON ports (SC), 2 gigabit combo ports, 2 gigabit SFP optical ports, 2 gigabit electric ports, AC220V, DC18-60V, 19-inch cabinet)
A-GEAR P3314-4S	OLT device with 4 PON ports (1 console port, 1 out-band 10/100M port, 4 fixed PON ports (SC), 2 gigabit combo ports, 2 gigabit SFP optical ports, 2 gigabit electric ports, 4 RS232/485 ports, AC220V, DC18-60V, 19-inch cabinet)