AN5506-04-A

GPON Optical Network Unit

User Manual

Version: A

Code: MN000000423

FiberHome Telecommunication Technologies Co., Ltd.

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Operation Safety Rules

High optical power can cause bodily harm, especially to eyes. Never look directly into the end of the optical transmitter fiber jumper or the end of its active connector.

Exercise care if you must bend fibers. If bends are necessary, the fiber bending radius should never be less than 38mm.

Power socket overload, broken cables or broken plugs may cause electric shock or fire. Regular check-ups on power supply wires and cables are essential. If any appears damaged, replace it at once.

Use the power supply adapter provided in the package only. Using other adapters may cause equipment damages or operation failures.

Install the equipment in ventilated environment without high temperatures or direct sunlight to protect the equipment and its components from overheating, which can result in damages.

- **Avoid moisture, dampness and water damage. Equipment exposed to water cannot work normally and can be extremely hazardous due to shorting.**

- **Do not lay this equipment on an unsteady base.**

Packing List

After opening the packing case of the AN5506-04-A, please check whether the accompanied articles are in the packing case according to the packing list as below:

Item	Quantity	Remarks
AN5506-04-A	1	-
Certificate of quality	1	-
User manual	1	AN5506-04-A GPON Optical Network Unit User Manual
DC power adapter with two pins	1	DC power adapter with two pins for the AN5506-04-A
RJ45 connector	5	-

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1 Product Introduction

1.1 Product Functions

The AN5506-04-A is a desktop GPON ONU (optical network unit). The AN5506-04-A is applicable for FTTH scenario. It provides 1 PON interface for uplink, 4 FE interfaces (or 4 GE interfaces) for downlink, 12 V DC power supply and 20 km transmission distance. As one of the GPON ONU of the AN5506 series, the AN5506-04-A should work with the GPON OLT(optical line terminal) of the AN5116 series.

The following figure shows the networking application of the AN5506-04-A:

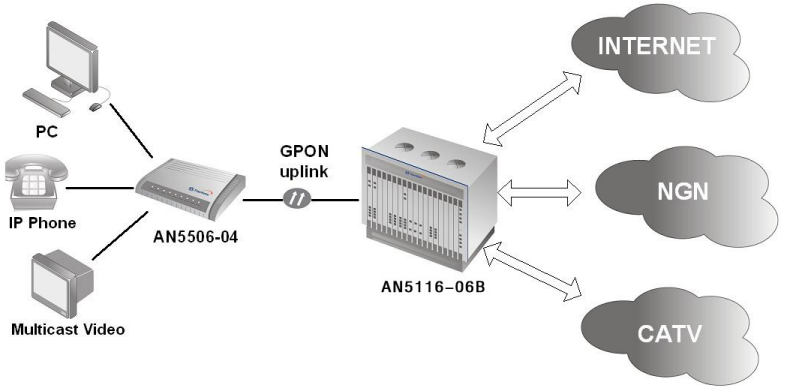

Figure 1-1 Networking application of the AN5506-04-A

As shown in Figure 1-1, the AN5506-04-A works with the AN5116-06B (OLT) to build a gigabit GPON system, and they can provide triple-play multi-service access of high capacity and reliability.

The AN5506-04-A supports the following features:

- Adopts GPON interface for uplink, compliant with ITU-T G.984.
- Supports the following configurations: Ethernet interface rate, working mode, MDI/MDIX self-adaption and pause-frame-based flow control.
- Supports packet filtering and anti-illegal message attack protection, so as to suppress unknown unicast, broadcast and multicast messages.
- Supports performance statistics of Ethernet lines.

- Supports DHCP Option82 reporting the physical position information of Ethernet interfaces.
- Supports PPPoE+ function for accurate subscribers identification.
- Supports IGMP Snooping and IGMP Proxy.
- Supports STP / RSTP protocol.
- Supports Layer2 /3 wire-speed forwarding.
- Downstream data in GPON system adopts triple churning algorithm for data encryption.
- Supports powerful QoS function. Supports global configuration of queue priority and flexible mapping of 802.1p value of messages. Supports three scheduling modes: PQ, WRR or PQ+WRR. You can configure the weight of scheduling queue to ensure QoS of key services such as voice and video under multiple service conditions.

1.2 Product Types

The AN5506-04-A has two types according to different types of interface. Table 1-1 lists the two types of the AN5506-04-A and the interface type and quantity that each product supports.

Table 1-1 Product types

Product Type	FE Interface of Ethernet	GE Interface of Ethernet	Power Interface
AN5506-04-A1	4	-	Power socket with pin

Product Type	FE Interface of Ethernet	GE Interface of Ethernet	Power Interface
AN5506-04-A1G	-	4	Power socket with pin

1.3 Technical Specifications

The AN5506-04-A has two types according to different types of interface.

Table 1-2 lists the technical specifications in detail.

Table 1-2 Technical specifications of the AN5506-04-A

Type	Item	Description
Service parameter	VLAN	Supports IEEE 802.1Q VLAN. Supports the join into 802.1Q VLAN in tag / untag mode. Supports 64 VLANs.
	MAC address	Supports 8k MAC addresses.
	Multicast	Supports IGMP Snooping and IGMP Proxy. Supports IGMP V1/V2.
	QoS	Supports 802.1P. Supports QoS classification strategy based on ports, MAC address and VLAN ID. Supports priority re-tagging.
	Wire speed layer 2/3 switch	All interfaces support wire speed forwarding.
	PON interface	One SC/PC interface. The maximum transmission distance is 20 km.
	LAN interface	AN5506-04-A1: Four RJ-45 interfaces. Supports full duplex and half duplex, 10/100Mbps self-adaption. AN5506-04-A1G: Four RJ-45 interfaces. Supports full duplex and half duplex, 10/100/1000Mbps self-adaption.
Mechanical parameter	Dimension	27 mm x 63 mm x 117 mm (Height x Width x Depth)
	Shell color	White
	Weight	About 300 g
Power supply parameter	DC	Input voltage: 12 V DC
	Consumption	AN5506-04-A1 < 6 W

Type	Item	Description
		AN5506-04-A1G < 7 W
Environment parameter	Operating temperature	0˚C to 50˚C
	Storage temperature	-30˚C to 60˚C
	Environment humidity	10% to 90%, non-condensing.

2 Appearance Description

2.1 Top Panel and LED Indicators

The device body of the AN5506-04-A adopts hollow-carved streamline design with novel and fashionable appearance. There are some LED indicators on the top panel indicating the running state of the device, so that subscribers can understand the device state directly.

Figure 2-1 shows the top panel of the AN5506-04-A, and Table 2-1 lists the LED indicators.

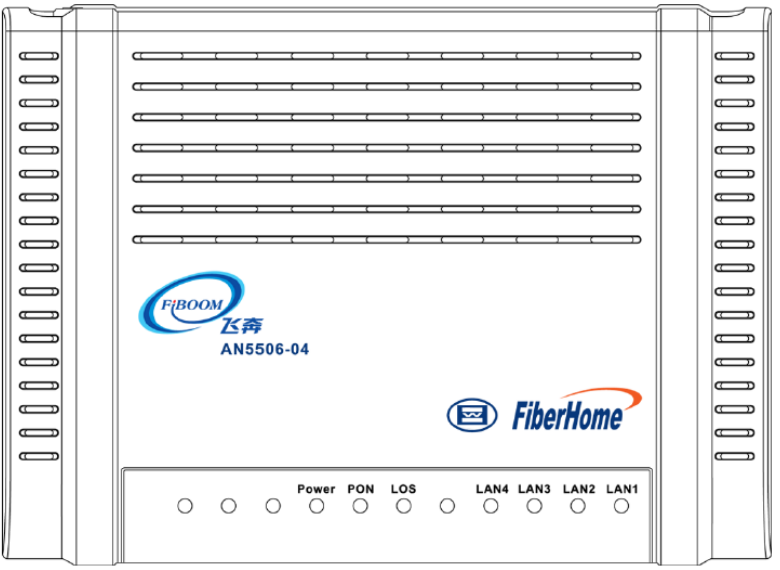

Figure 2-1 Top panel of the AN5506-04-A

Table 2-1 lists the description of the AN5506-04-A LED indicators.

Table 2-1 Description of the AN5506-04-A LED indicators

LED Indicator Name	LED Indicator Meaning	Color	Status	Description
Power	Power status indicator	Green	On	The device is powered on.
			Off	The device is powered off.
PON	Registration status indicator	Green	On	The device is registered to the GPON system.
			Off	The device fails to register to the GPON system.
LOS	Status indicator of optical signal	Red	Blinking	The device does not receive the optical signal.

LED Indicator Name	LED Indicator Meaning	Color	Status	Description
			Off	The device receives the optical signal.
LAN1/2/3/4	Status indicator of Ethernet	Green	On	This interface is connected with the subscriber terminal but there is no data transmission.
			Blinking	Data is being transmitted or received at this interface.
			Off	This interface is not connected with the subscriber terminal.

2.2 Rear Panel and Interfaces

All the interfaces and buttons of the AN5506-04-A are distributed on the rear panel of the device, with a compact shape and good utility.

From left to right, on the rear panel of the AN5506-04-A respectively are 4 Ethernet interfaces, Console interface, PON interface, power interface, reset button, and power switch. See Figure 2-2.

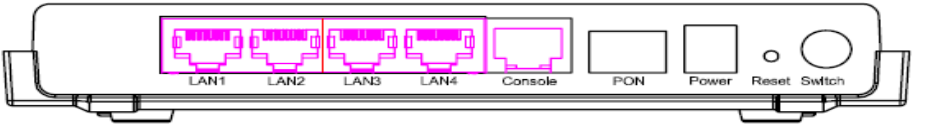

Figure 3-2 Rear panel of the AN5506-04-A

Table 2-2 Interfaces and buttons of the AN5506-04-A

Interface or Button	Meaning	Type	Description
◯	Power switch	Button	Switch on/off the power.
Reset	Reset button	Button	Press the button and then release to restore factory default settings.
Power	Power interface	Power interface of double pin	For connecting DC power adapter of two pin.
PON	Optical interface	SC/PC	For connecting the ODN.
Console	Network interface for local debugging	RJ-45	For local device debugging. Not open to subscribers.
LAN1/2/3/4	Ethernet interface	RJ-45	For connectiong PC, router and so on.

3 Product Installation

3.1 Preparation Before Installation

3.1.1 Unpacking Check

After opening the packing case of the AN5506-04-A, please check articles in the packing case according to the packing List. If the items do not match the packing list, contact the local office of FiberHome directly.

3.1.2 Installation Precautions

Before installing the AN5506-04-A please ensure that the following requirements are met:

- There are waterproof, moistureproof and lightningproof conditions at the installation position.
- The installation position can provide conditions for the AN5506-04-A to connect with the exterior. For example, there should be suitable outlet space for power supply cable and network cable.

- The installation position should be able to ensure enough air flow, convenient for cooling of the equipment.

3.2 Placing the Device

You can place the AN5506-04-A on the stable plane, such as an office desk. The placing methods are as follows.

- Take out the AN5506-04-A from the packing case. Before delivery, four rubber pads are pasted to four corners on the bottom of the device.
- Place the AN5506-04-A on a stable desk slightly and ensure the ventilation on both right and left sides.

3.3 Cable Connection

3.3.1 Connection of Network Cable

The AN5506-04-A Ethernet interfaces can connect subscriber terminals such as PCs and switches through network cables. Follow these steps to connect the network cable.

- Plan the wiring and cabling mode of the network cable, measure the distance between the AN5506-04-A LAN interface and the subscriber terminal, and select the network cable with a suitable length.

- Fix the network cable and then make Ethernet connectors for both ends.
- Connect Ethernet connector of one end to a certain AN5506-04-A LAN interface.
- Connect Ethernet connector of the other end to an Ethernet interface on a PC or a switch.
- The connection of the network cable is finished.

✍ **Note 1: Transmission distance of the network cable is less than 100m. Therefore the length of the network cable prepared by the subscriber should not exceed 100m.**

✍ **Note 2: The AN5506-04-A Ethernet interface supports MDI/MDIX self-adaption. Either straight-through network cable or cross-over network cable is suitable for cabling.**

3.3.2 Connection of Optical Fiber

The AN5506-04-A adopts wavelength division multiplexing (WDM) mode and provides “triple-play” integrated access. The connection steps of optical fibers are as follows.

- Plan the wires and cables layout mode of the optical fiber; measure the distance between the AN5506-04-A PON interface and upstream optical splitter; select the optical jumper with suitable length.
- Fix the optical fiber; remove the protection covers of the optical jumper and the AN5506-04-A optical interface.

- Insert one end of the optical jumper into the AN5506-04-A PON interface slightly.
- Connect the other end of the optical jumper with the optical splitter.
- The connection of optical fibers is finished.

Caution 1: If the optical fiber jumpers are not used, make sure optical fiber jumpers and the AN5506-04-A optical interfaces are covered to avoid dust contamination and water penetration, which lead to the uselessness of optical fiber jumpers and the AN5506-04-A optical interfaces.

Caution 2: Connect optical fibers at last if possible. Lay optical fibers at the position without extrusion.

3.3.3 Connection of Power Cable

The AN5506-04-A adopts the power adapter with two pins, the connection steps are as follows.

- Take out the accompanied DC power adapter with two pins.
- Connect one end of the adapter to the power interface of the AN5506-04-A.
- Connect the other end to AC socket.
- The connection of power cable is finished.

✍ **Note: This power adapter can convert 220V AC into 12V DC input for the AN5506-04-A so as to supply power to the device.**

3.4 Examination after Installation

After the connection of wires and cables is finished and relevant services are started up by your ISP, it needs to power on and examine the AN5506-04-A as below:

- Switch on the power.
- Observe the status of **Power** indicator LED. If **Power** indicator LED is on, it means the power-on of the device is normal. Otherwise, please check whether the connection of power cable is correct.
- Observe the status of **LOS** indicator LED. If **LOS** indicator LED is off, it means the optical fiber connection is normal. Otherwise, please check whether the connection of optical fibers is correct.
- Observe the status of **LAN** indicator LED. If **LAN** indicator LED is on or blinks, it means the network cable is connected normally. Otherwise, please check whether the connection of network cable is correct.
- Ensure the ventilation around during the device running to avoid problems because of overheating. In the case of abnormity, contact the local office of FiberHome for replacement, so as not to affect equipment running.

4 FAQs

Q: All indicator LEDs are off after power-on.

A: 1) Check whether the power connection cable is connected well.

2) Check whether the power switch on the front panel of device is on.

Q: The device fails to work after a period of normal running.

A: 1) If the device works abnormally, check whether the power is connected normally or the voltage is over high or over low.

2) The device has over-heat fault. Check whether the ventilation is normal and check whether there is direct sunshine or heat source around.

Q: LOS indicator LED is on.

A: 1) The optical fiber is faulty. Check whether the optical fiber is connected normally and whether it is connected to correct interface.

2) The upstream equipment is faulty.

3) The optical power is out of the normal range (such as overload).

Q: LAN indicator LED is off.

A: 1) Check whether the network cable is damaged or its connection is loose.

2) Check whether the network cable is made correctly. If it is incorrect, replace it with a new network cable made according to the standard method (for making a CAT 5 twisted-pair cable).

3) Check whether the network cable length exceeds allowable range.

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