An Expert in Optical Communications

User Manual

AN5506-01-A

GPON Optical Network Unit

Version: A

Code: MN000000943

Date: December 2011

FiberHome Telecommunication Technologies Co., Ltd.

Version

Version	Description
A	Initial version

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 appear damaged, replace at once.

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

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

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

When unpacking the AN5506-01-A, please check that all items in the packing list below are present.

Name	Number	Remark
AN5506-01-A	1	—
Conformity certificate	1	—
Document bag	1	Contains an AN5506-01-A GPON Optical Network Unit User Manual.
DC power adapter with two conductors	1	The AN5506-01-A is equipped with the 2-conductor DC power adapter.
RJ45 crystal head	2	—
Mount-to-wall screw	2	For securing the equipment on the wall.

Contents

1 Product Description

1.1 Product Function

The AN5506-01-A is a desktop GPON ONU used for the network connection of the FTTH equipment. It can provide data and multicast access services to meet the broadband access requirements families.

Below is the network diagram of the AN5506-01-A.

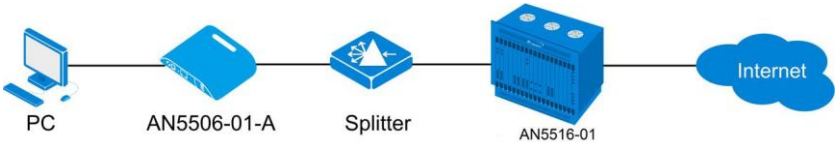

Figure 1-1 Network diagram of the AN5506-01-A

As shown in Figure 1-1, the AN5506-01-A is used together with the AN5516-01 (OLT). They together make up a GPON system that provides a large-capacity, high-reliability multi-service access network.

The AN5506-01-A supports the following functions:

Uses GPON uplink that is compliant with ITU-T G.984 series of standards;

Supports the configuration of Ethernet interface rates, working modes, MDI / MDIX auto-negotiation mode and PAUSE flow control;

Supports packet filtering and illegal message attack protection;

Provides performance statistics on all Ethernet lines;

Supports the DHCP Option82 to report the physical location information of the Ethernet interface;

Supports the IGMP Snooping protocol;

Supports L2 / L3 wire speed forwarding;

Performs various QoS functions: supports global configuration of queue priority, flexible mapping of 802.1p value of packets and the strict-priority queue scheduling mode;

Supports the AES-128 algorithm for data encryption of downlink data.

1.2 Product Type

Table 1-1 lists the type and number of the interface supported by the AN5506-01-A.

Table 1-1 Product type and its interface number

Product Type	**Ethernet FE interface**	**Ethernet GE interface**	**Power Supply Jack**
AN5506-01-A	—	1	2-conductor power socket.

1.3 Technical Specification

Table 1-2 lists the technical specifications of the AN5506-01-A.

Table 1-2 Technical specifications of the AN5506-01-A

Type	**Item**	**Description**
Service parameter	VLAN	Supports the IEEE 802.1Q VLAN standard; Supports adding 802.1Q VLAN in tag or untag mode;

Type	Item	Description
		The full 4096 VLAN address space is supported.
	MAC address	The MAC address table size is 64.
	Multicast	Supports IGMP Snooping and IGMP Proxy protocols; Supports IGMP v1 / v2 / v3.
	Wire speed L2 / L3 switching	All interfaces support the wire speed forwarding.
	QoS	Supports 802.1p; supports the QoS classification policy based on interface, MAC address and VLAN ID; Supports priority re-tag.
Network side interface	GPON interface	One, compliant with the ITU-T G.984 series of standards.
Client side interface	Ethernet interface	One RJ-45 interface. Supports full dup lex or half duplex, 10 / 100 / 1000 M bit/s self-adaption.
Mechanical parameter	Dimension	35mm×129mm×117mm (height×width ×depth)
	Weight	300g
Power supply parameter	DC	12V DC
Power consumption parameter	—	<5W
Environmental parameter	Operating temperature	-5℃ to 45℃
	Storage temperature	-20℃ to 70℃

Type	Item	Description
	Environmental humidity	10% to 90%, non-condensing

2 Product Appearance

2.1 Front Panel and Indicator LEDs

The AN5506-01-A has a streamline design with novel and fashionable appearance. The LED indicators on the front panel show the operating status of the equipment, thereby the users can learn about the status directly.

Figure 2-1 shows the front panel of the AN5506-01-A.

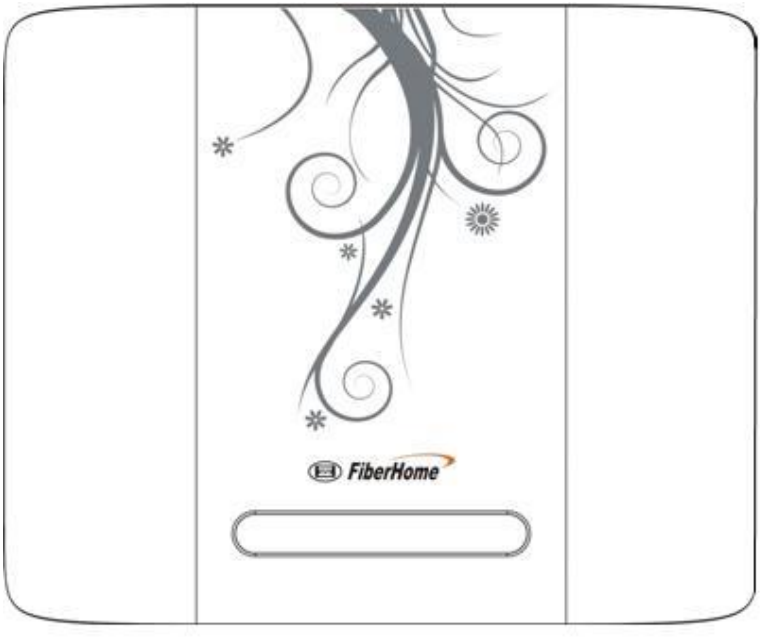

Figure 2-1 Front view of the AN5506-01-A front panel

Table 2-1 shows the description for the AN5506-01-A indicator LEDs.

Table 2-1 Description for the AN5506-01-A indicator LEDs

Name	Meaning	Color	Status	Description
Power	Power status indicator LED	Green	ON	The equipment is powered on via the 2-conductor DC power supply.
			OFF	The equipment is not powered on.
PON	Registration status indicator LED	Green	ON	The equipment is registered to the GPON system.
			OFF	The equipment is not registered to the GPON system.
LOS	Optical signal status indicator LED	Red	Blinking	The equipment receives no optical signal.
			OFF	The equipment receives optical signals.
LAN	Ethernet interface status indicator LED	Green	ON	The interface is connected to the user terminal without data transmission.
			Blinking	The interface is transmitting and receiving data.
			OFF	The interface is not connected to the user terminal.

2.2 Rear Panel and Interface

With all interfaces and buttons distributed on the rear panel, the AN5506-01-A has a simple model that is convenient for use. As shown in Figure 2-2, the interfaces and buttons from left to right are: power switch, power interface, reset button, Ethernet interface (×1) and PON interface.

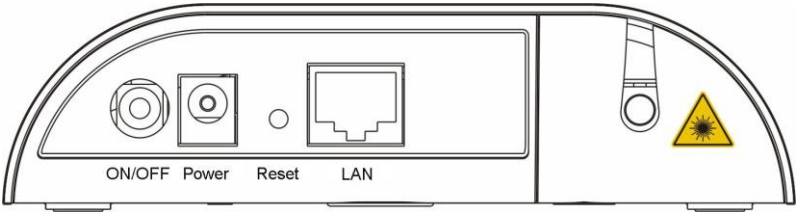

Figure 2-2 Front view of the AN5506-01-A rear panel

See Table 2-2 for descriptions of the interfaces and buttons on the AN5506-01-A.

Table 2-2 Description for the AN5506-01-A interfaces and buttons

Interface/Button	Meaning	Type	Description
ON/OFF	Switch	Button	Turns on or off the power.
12V DC	Power supply jack	2-conductor power supply jack	Connects to the 2-conductor DC power adapter.
Reset	Reset button	Button	Resets the equipment manually
LAN	Ethernet interface	RJ-45	Connects to the computer, router, etc.
PON	Optical interace	SC/PC	Connects to the optical splitter

3 Product Installation

3.1 Preparation

3.1.1 Unpacking Check

When unpacking the AN5506-01-A, please check that all items on the list are present and not damaged. If any item is missing or has been damaged, please contact local agencies of FiberHome immediately.

3.1.2 Installation Precaution

Before installing the AN5506-01-A, please read the following thoroughly.

- The installation location must be free of excessive moisture and must be properly grounded for lightning protection.
- The selected installation position enables the connection between the AN5506-01-A and the outside. For example, there should be sufficient outlet space for power cables and network cables.
- The installation position guarantees adequate air flow to facilitate heat dissipation.
- The installation position provides good earth grounding conditions.

3.2 Equipment Mounting

The AN5506-01-A can be either secured on a stable plane like an office desk or hung vertically against the wall based on your demand. The two mounting methods are introduced below:

Desk top mounting

Step 1	Take out the AN5506-01-A from the carton. Before delivery, four self-adhesive pads are pasted to the four corners on the bottom of the device.
Step 2	Gently place the AN5506-01-A on a stable surface that guarantees ventilation on both the left and right sides.

Wall mounting

Step 1	According to the recesses distance of the AN5506-01-A, drive the two mount-to-wall screws delivered with the equipment into the wall.
Step 2	Align the recesses on the bottom of the AN5506-01-A with the screws on the wall and fix them up gently.
Step 3	Take your hands off the AN5506-01-A slowly and make sure the equipment is mounted on the wall with the support of the screws.

3.3 Cable and Wire Connection

3.3.1 Connecting Optical Fiber Jumper

Cable and wire description

The PON interface of the AN5506-01-A can be uplinked to the central office end OLT equipment via the optical fiber.

Connection procedures

Step 1	Plan the layout of the optical fiber jumper. Measure the distance from the PON interface of the AN5506-01-A to the ODF distribution frame and choose the optical fiber with an appropriate length for connection.
Step 2	Loosen set screws on the fiber cover that is at the upper right corner on the bottom panel of the equipment, and remove the fiber cover.
Step 3	Take off the anti-dust caps of the optical fiber jumper and the PON interface of the AN5506-01-A.
Step 4	Connect one end of the optical fiber jumper to the ODF distribution frame.
Step 5	Insert the other end of the optical fiber jumper to the PON interface at the bottom panel of the AN5506-01-A.
Step 6	Fit on the fiber cover and fasten set screws.

	Caution: 1. When fitting on the fiber cover, pay special attention to the layout of the optical fiber and make sure they are smoothly led out of the wiring hole. 2. When the optical fiber jumper is not used, cover the AN5506-01-A's optical interfaces and fibers with anti-dust caps to protect them from the dust and moisture, which may damage the AN5506-01-A's optical interfaces and fiber jumpers and cause them fail to function.

Connection diagram

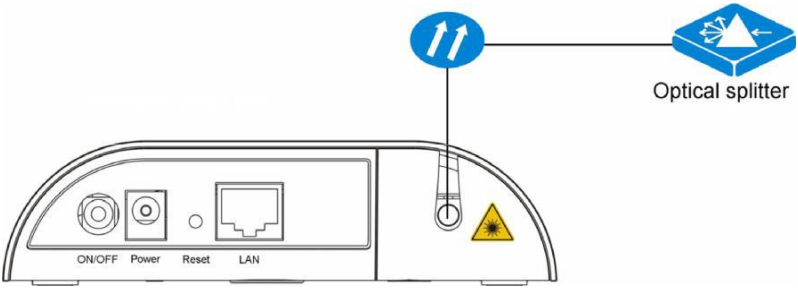

Figure 3-1 Connection diagram for optical fiber

3.3.2 Connecting Network Cable

Cable and wire description

The Ethernet interface of the AN5506-01-A is connected to the user's PC and the switch via network cables to access data service.

Connection procedures

Step 1	Plan the layout of the network cable. Measure the distance from the AN5506-01-A to the user terminal and choose the network cable with an appropriate length for connection.

Step 2	Secure the network cable and make the RJ-45 crystal head connectors at both ends of the cable.
Step 3	Insert the crystal head at one end of the network cable into a LAN interface of the AN5506-01-A.
Step 4	Insert the crystal head at the other end of the network cable into the Ethernet interface of the user's computer or the switch.

	Note 1: The transmission distance of the network cable is shorter than 100m. Therefore, the network cable you prepare should not exceed 100m. **Note 2:** The Ethernet interface of the AN5506-01-A supports the MDI / MDIX self-adaption. You can use the straight-through or cross-over network cable for connection.

Connection diagram

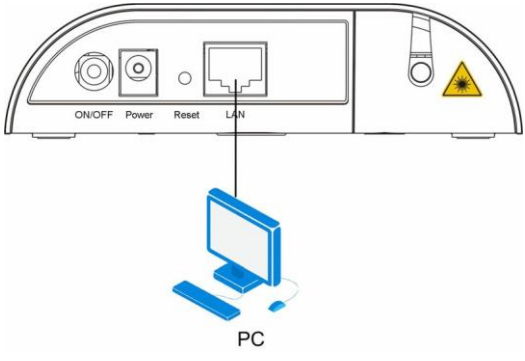

Figure 3-2 Connection diagram for network cables

3.3.3 Connecting Power Cable

The AN5506-01-A uses a 2-conductor power adapter. **Connection procedures**

Step 1	Take out the DC power adapter with two conductors provided in the AN5506-01-A package.
Step 2	Insert the plug at one end of the adapter into the 12V DC interface of the AN5506-01-A.
Step 3	Insert the other end of the adapter into the mains supply socket.

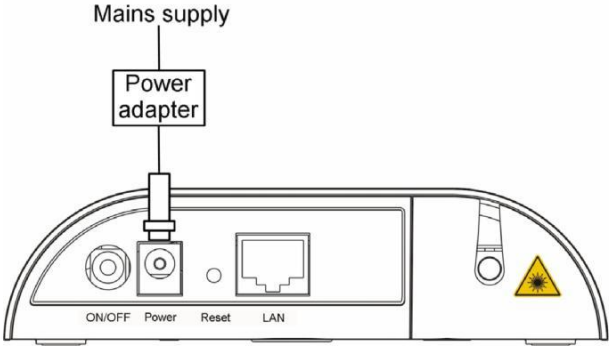

Figure 3-3 Connection diagram for power cables

	Note 1: This power adapter can convert 220V AC into 12V DC input to provide power supply for the AN5506-01-A.

3.4 Inspection after Installation

After you have completed the wire and cable connection and subscribed the relevant services, it is necessary to power on and check the AN5506-01-A as below:

Step 1	Turn on the power supply.

Step 2	Observe the status of the power indicator LED. If the power indicator LED is illuminated, the equipment is normally powered on. Otherwise, check whether the power cable connection is correct.
Step 3	Observe the status of the optical signal indicator LED. If the optical signal indicator LED is extinguished, the fiber connection is normal. Otherwise, check whether the optical fiber is correctly connected.
Step 4	Observe the status of the network interface indicator LED. If the network interface indicator LED is illuminated or blinking, the network cable connection is normal. Otherwise, check whether the network cable is correctly connected.
Step 5	During the equipment operation, ensure the ventilation to avoid abnormal events caused by overheating. When any abnormality occurs, contact the local office of FiberHome for replacement.

4 FAQs

Q:	**All indicator LEDs are extinguished after power-on.**
A:	1. Check whether the power cable is correctly connected; 2. Check whether the power switch on the equipment's rear panel is in the ON position.
Q:	**The equipment fails to work.**
A:	1. If the equipment works abnormally, check whether the power is connected normally or the voltage is not within specifications; 2. If the equipment is overheated, check the ventilation. Make sure the equipment is not exposed to direct sunshine or is near the heat source.
Q:	**The optical signal indicator LED is illuminated.**
A:	1. Check the received optical power levels with an optical power meter. Excessively low receive optical power may indicate the fiber is faulty; 2. Check whether the optical fiber is connected normally to the appropriate interface; 3. The received optical power at the ONU exceeds the normal power range (the optical power is too low or overload); 4. The ONU optical module is aged or damaged. 5. Check if the equipment at the central office end is operating normally.
Q:	**The network interface indicator LED is extinguished.**
A:	1. Check whether the network cable is damaged or incorrectly connected; 2. Check whether the wiring color-coding scheme of the network cable is incorrect. If yes, replace the original network cable with a standard CAT-5 twisted-pair network cable.
	3. Check if the network cable length exceeds the allowed range.