M2-4150 ONU User Manual

Safety Information

To use the device properly and safely, read the safety precautions carefully before using the device and strictly observe these precautions when using the device.

Safety precautions:

- Store devices and accessories in temperature –10°C to +35°C and relative humidity 30%–85% RH for at most 9 months. If the ambient temperature or relative humidity is overhigh or overlow, the device may be faulty.
- Used only indoors. Do not lead metallic cables, such as network cables and telephone lines outdoors.
- Do not look directly into the optical port without eye protection.
- Keep the device out of the reach of children as the components or accessories may be swallowed.
- Install the device in strict compliance with the requirements of the supplier. Reserve a space of at least 10 cm above and around the device for heat dissipation. During the installation, keep the device away from electric appliances that generate strong magnetic or electric fields, such as microwave ovens, refrigerators, and mobile phones.
- The described input voltage range should comply with the local power grid. For example, the input voltage of the adapter is 200–240 V AC for European Union; the input voltage of the adapter is 100–140 V AC for America.
- If the power adapter is damaged and its internal circuit is exposed due to manmade factors, do not touch the exposed circuit, which may bring safety risks.
- Only power adapters delivered with the device can be used. Otherwise, the device may be abnormal or unsecure.
- Dry your hands before connecting or disconnecting cables. Stop the device and switch off the power before connecting or disconnecting cables.
- Do not place any object on the device, so that the device will not be damaged due to overheating or deformation.
- Prevent objects, such as metal, from entering the device through the heat dissipation hole.
- Switch off the power and disconnect all cables, including the power cable, optical fiber, and network cable, during periods of lightning activities. The socket-outlet shall be installed near the power adapter and shall be easily accessible. Before use the power adapter, please check no damage on the adapter.
- Do not lead the strength member of the optical fiber or other metal parts indoors. Do not install telephone lines, network cables, power adapters or power adapter cables outdoors. Adopting these measures will help prevent device damage and bodily injuries which are especially prone during thunderstorms.
- If an abnormality occurs, for example, liquid entering the device, smoke, unusual sound, and smell, stop the device immediately, switch off the power, disconnect all cables (such as the power cable, optical cable, and network cable) to the device, and contact the authorized service center.
- Do not disassemble the device without permission. In the case of a device fault, contact the authorized service center.
- Dispose of the packing materials, expired batteries, and old or abandoned devices in accordance with local laws and regulations (recycling them is strongly recommended).
- Do not change the structure, safety design, or performance design of the device without prior authorization.
- The device should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Fireproof precautions:

- Keep the device away from large heat source equipment, bare flames, and high-power devices, such as electric heaters, candles, and blow drier, to eliminate safety risks.
- If there are aged cables or power socket facilities on the power supply line to or near the device, replace them in time to eliminate safety risks. The power supply voltage of the device must meet the input voltage requirement.

Laser Safety

Detailed description:

- Keep the optical ports of the module clean, and cap them when they are not used.
- Prevent the end faces of the optical interfaces of the module from being damaged by hard objects.
- Exercise caution when removing and reinserting the fibers for the SC optical ports on the module. Do not damage the ceramic sockets of optical components.
- The gold finger unit of the module supports no more than 50 times of removal and reinsertion.
- Laser products that are safe during use, including long-term direct intrabeam viewing, even when exposure occurs while using optical viewing instruments (eye loupes or binoculars). Class 1 also includes high power lasers that are fully enclosed so that no potentially hazardous radiation is accessible during use (embedded laser product).Intrabeam viewing of Class 1 laser products which emit visible radiant energy may still produce dazzling visual effects, particularly in low ambient light.
- Do not look into fiber end faces without eye protection using an optical meter (such as magnifier and microscope) within 100 mm, unless you ensure that the laser output is disabled. When operating an optical meter, observe the operation requirements.
- This device complies with IEC 60825-1: 2007-03 Rules.

Output average power:

- Under normal circumstances, the maximum optical output average power of the optical module is 8.0dBm. In the abnormal case, output average power of the optical module is less than 11 dBm.

Nameplate information:

- Class 1 warning sign is written on the product label, which is posted on the product.
- “Complies with 21 CFR 1040.10 and 1040.11 except for deviations Pursuant to Laser Notice No.50,dated June 24,2007” is written on the product label, which is posted on the product.

Feature	Standard
Laser Eye Safety	CDRH 21 CFR 1040 and Laser Notice 50
Laser Eye Safety	IEC 60825-1:2007,Edition 2 IEC 60825-1:2014,Edition 3 IEC 60825-2:2004+A1:2006+A2:2010
Electrical Safety	EN 60950

Product Overview

Product	Function
M2-4150	• 4 Ethernet ports • 1 POTS ports • 1 USB port • Wi-Fi access
M2-4050	• 4 Ethernet ports • 1 USB ports • Wi-Fi access

NOTE

- The devices that support Wi-Fi access are classified into devices equipped with external antennas and devices equipped with internal antennas.

Technical Specifications

- Power adapter input: 100–240 V AC, 50/60 Hz
- System power supply: See the nameplate on the device.
- Ambient temperature: 0ºC to +40ºC
- Ambient humidity: 5%–95% (non-condensing)

For other technical specifications, see the following table.

XPON ONU	Weight (Including the Power Adapter)	Maximum System Power Consumption
M2-4150	About 320 g	18 W
M2-4050	About 310 g	18 W

NOTE

If the appearance of the product in this document differs from the actual product, the actual product prevails.

Installing the XPON ONU

CAUTION

1. Do not install PON terminals outdoors or on the outdoor cabinets.
2. PON terminals can be mounted onto a wall or be placed on a workbench. Do not install PON terminals in other modes, such as the ceiling.
3. The terminal cannot be connected to other devices such as XPON ONU, switch and router.

4. After the PON terminal is installed with a foot-stand, do not remove the foot-stand unless it is necessary. When you remove the foot-stand, apply force evenly on the two sides of the foot-stand to avoid damages to the PON terminal.
5. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Mounting a XPON ONU on the desk

The figure blow uses an M2-4150 as an example to show the ONU that is horizontally placed on a desk.

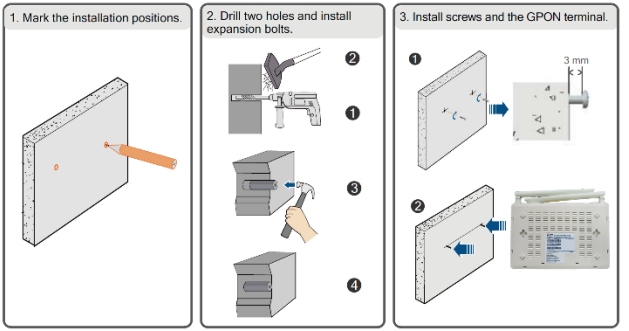
Mounting a XPON ONU onto the wall

(Only supported by some product models)

Step 1 Mark the positions of two holes used for mounting a XPON ONU, ensure that the two holes have the same spacing as the two mounting holes.

Step 2 Select a proper drill according to the outer diameter of the screws. Use a hammer drill to drill the marked positions on the wall. Then clean the wall and install two expansion bolts.

Step 3 Use a screwdriver to fasten the screws into the expansion bolts, leaving the heads of the screws 3 mm over the wall. Then install the XPON ONU to the screws.



NOTE

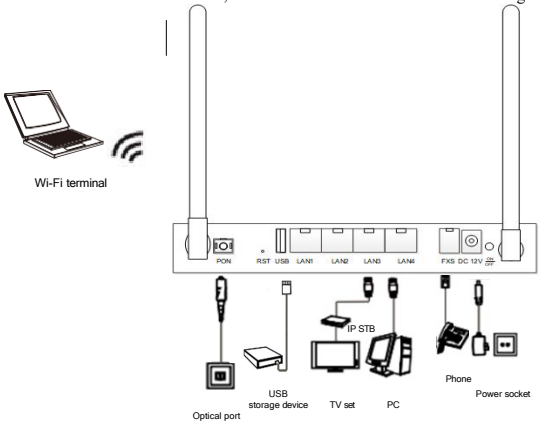
This terminal is mainly placed horizontally on a desk. When it is mounted onto a wall, the silkscreen of its indicator is reversed. If you have a special requirement on the silkscreen, purchase another terminal.

Connecting Cables

Ports on XPON ONU of all types may be different. Therefore, connect cables based on the ports that are actually supported by the device. If the external device is different from the device in the figure, see the description for connections of the external device. This document lists connections of typical devices.

NOTE

1. The optical fiber connector connected to the optical port on the wall varies depending on actual conditions.
1. To ensure normal use of fibers, make sure that the fiber bend radius is larger than 30 mm.



interface/button	Explanation
USB	USB input interface for storing and restoring configuration files
PON	PON optical fiber interface, using SC / PC optical fiber access, through the splitter connected to OLT equipment
RST	Restart or factory reset button
LAN1-LAN4	LAN interface，10/100/1000MBASE-TX
DC 12V	Power input interface, DC 12V
ON/OFF	Power switch button

Logging in to the Web Configuration Window

Step 1 Set the IP address of the PC in the same subnet as the management IP address of the PON terminal.

NOTE

You can find the default management IP address on the nameplate of the device.

Step 2 Enter the management IP address of the PON terminal in the address bar of Internet Explorer and press **Enter.**
The login window is displayed.

Step 3 In the login window, select your preferred language, enter the username and password (printed on the nameplate of the device.), and click **Login**. After the password is authenticated, the web configuration window is displayed.

NOTE

- Shipped from different manufacture batches, the nameplates of some devices do not have the IP address, username, and password printed. In such a case, log in to the device using 192.168.8.1, **useradmin** (username), and **69BC676D** (password).
- If you do not perform any operations after logging in to the system for five minutes, you will exit the system and the system automatically returns to the login interface.
- The system will be locked if you input incorrect username and password three consecutive times. One minute later, it will be unlocked.
- Change the initial password after logging in to the web page.

Configuring Wi-Fi Parameters

Step 1 Choose the **WLAN** tab and choose **WLAN Basic Configuration**.

NOTE

If the ONU supports 2.4 GHz wireless and 5 GHz wireless , Choose the **WLAN** tab and choose **2.4G Basic Network Settings**. (If you want to configure 5G Wi-Fi, choose **5G Basic Network Settings**.)

Step 2 In the pane, select the **Enable WLAN** option box. In the dialog box that is displayed, set the basic Wi-Fi parameters, including the SSID, authentication mode, and encryption mode. For example:

- SSID Name: YOTC-BCBD67-2.4G (the name of a wireless network searched by the Wi-Fi terminal)
- Authentication Mode: WPA Pre-Shared Key
- Encryption Mode: TKIP
- WPA PreSharedKey: Password (the authentication password for the Wi-Fi terminal to access a wireless network).

Step 3 Click **Apply.**

NOTE

ONU supporting Wi-Fi (such as M2-4150), a wireless network coverage is subject to the number, thickness, and positions of walls, materials, ceilings, or other objects that radio signals traverse. Besides, material type and background radio frequency (RF) noise also affect the coverage of a wireless network. You can maximize the coverage of a wireless network using the following methods:

1. **Decrease the number of walls and ceilings between M2-4150 and other network devices.**
   Each wall or ceiling reduces the coverage of a wireless network by one to 30 meters. Install M2-4150 at a proper place to avoid walls or ceilings whenever possible.
2. **Observe the straight-line rule when installing network devices.**
   The distance for which signals have to traverse at a 45° corner of two 0.5 meter-thick walls reaches approximately one meter. To better receive signals, devices should be installed at places where signals can directly traverse walls or ceilings.
3. **Note the impact of building materials on the wireless network coverage.**
   A metal door or aluminum wall may limit the coverage of a wireless network. Install access points, wireless routers, and computers, so signals can traverse walls or open passageways. Materials and objects such as FRP products, metal products, insulative walls, filing cabinets, bricks, and concrete weaken radio signals.

4. When connecting ONU (such as M2-4150) to a wireless network, keep it far from the following devices:

- Electronic devices or components that produce RF noises (keep a distance of more than 2 meters between such a device and M2-4150.)
- 2.4 GHz wireless mobile phones or X-10 devices (such as microwave ovens, home security systems, blue-tooth devices, and refrigerators) that greatly weaken or even eliminate radio signals. Even if a 2.4 GHz wireless mobile phone is not connected to a wireless network, the phone base still sends signals that interfere the wireless network.

5. In order to avoid the possibility of exceeding the Europe radio frequency exposure limits, human proximity to the equipment shall not be less than 20 cm.

Indicator Description

Table 1-1 Indicator status description 1

LEDs	color	status	explanation
PWR	green	on	Indicate power normal
		off	equipment is power off
PON	green	on	Indicate ONU and OLT connected and registered successfully
		blinking	Indicates that ONU is trying to establish a connection or its own PON port length luminescence
		off	Indicate ONU is not connected to the OLT
LOS	red	on	Indicate the power of the ONU PON optical module is shut off
		blinking	Indicate the received optical power of the ONU is lower than the sensitivity of the optical receiver
		off	Indicate the received optical power of the ONU is normal
LAN1-LAN4	green	on	Indicate user port is connected, but no data is transferred
		blinking	Indicate user port is transmitting/receiving data
		off	Indicate user port is disconnected
USB	green	on	Indicates that the device is connected normally
		blinking	Indicates that the interface has data transmission
		off	Indicates that the device is not connected
2.4G-5G	green	on	Indicates that the wireless interface is started
		blinking	Indicates that the wireless interface has data transmission
		off	Indicates that the wireless interface is disabled
WPS	green	on	Indicates that WPS pairing is successful, and the indicator light is off after it is normally on
		blinking	Indicates that Onu is pairing with other devices through WPS function
		off	Indicates that the WPS configuration function is not enabled, or WPS pairing fails

Table 1-2 Indicator status description 2

Status No.	Status		Description
	PON	LOS	
1	Off	Off	The PON terminal is prohibited by the upper-layer device or blinks abnormally, contact the service provider for help.
2	Blinks twice a second	Blinks twice a second	
3	Blinks twice a second	Off	The PON terminal attempts to set up a connection with its upper-layer device.
4	Steady on	Off	A connection is set up between the PON terminal and its upper-layer device.
5	Off	Blinks once two seconds	The PON terminal is not connected to optical fibers or does not receive optical signals.
6	Blinks once two seconds	Blinks once two seconds	The hardware is faulty.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

End-users and installers must be provide with antenna installation instructions and consider removing the no-collocation statement. This device complies with Part 15 of the FCC Rules. Operation is subject to the following.

two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FAQs

The LOS indicator blinks.

- If the LOS indicator blinks once two seconds, check whether the pigtail fiber is properly connected and the connector is clean.
- If the XPON ONU blinks twice a second, contact the service provider for help.

The PON indicator is off.

- Check whether the **OPTICAL** port and optical fiber is properly connected.
- The XPON ONU fails to register with the upper-layer device. Contact the service provider for help.

The phone does not ring upon an incoming call but communication is in normal state when the phone is in off-hook state.

- The XPON ONU provides a maximum of 60 V AC ringing current voltage. Check whether the ringing current voltage of the phone is higher than 60 V AC. If it is higher than 60 V AC, replace it with another phone.

How can I restore factory defaults?

- Press Reset by using a needle-type object for longer than 10s to restore factory defaults and reset the XPON ONU. If the indicator is off and then is lit, the system restarts successfully.