H3C WA6520H Access Point

Installation Guide

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Preface

This installation guide describes the installation procedure for the H3C WA6520H access point.

This preface includes the following topics about the documentation:

- Audience.
- Conventions.
- Documentation feedback.

Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the WA6520H access point.

Conventions

The following information describes the conventions used in the documentation.

Command conventions

Convention	Description
Boldface	**Bold** text represents commands and keywords that you enter literally as shown.
Italic	*Italic* text represents arguments that you replace with actual values.
[ ]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x | y | ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x | y | ...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x | y | ... } *	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[x | y | ...] *	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the **New User** window opens; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
CAUTION:	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
TIP:	An alert that provides helpful information.

Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

Examples provided in this document

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Contents

1 Preparing for installation

Safety recommendations

WARNING!

Only designated authorized technical personnel can install and remove the AP and its accessories. You must read all safety instructions carefully before working with the AP.

To avoid possible bodily injury and equipment damage, read the following safety recommendations before installing the AP. Note that the recommendations do not cover every possible hazardous condition.

- To avoid bodily injury and device damage, take adequate safety measures.
- Place the AP in a dry and flat location and take anti-slip measures.
- Keep the AP clean and dust-free.
- Do not place the AP in a moist area and avoid liquid intrusion.
- Keep the AP and installation tools away from walkways.

Site preparation

To ensure that the AP will operate in a favorable environment, examine the installation site before installing the AP. Make sure the temperature and humidity at the installation site meet the requirements in Table1-1.

Table1-1 Temperature and humidity requirements

Item	Specification
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–40°C to +70°C (–40°F to +158°F)
Operating humidity	5% RH to 95% RH, noncondensing

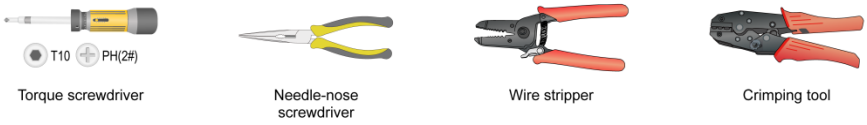
Installation accessories

Figure1-1 Accessories provided with the AP

Installation tools

When installing the AP, you might need the following tools. Prepare the installation tools yourself as required.

Figure1-2 Installation tools

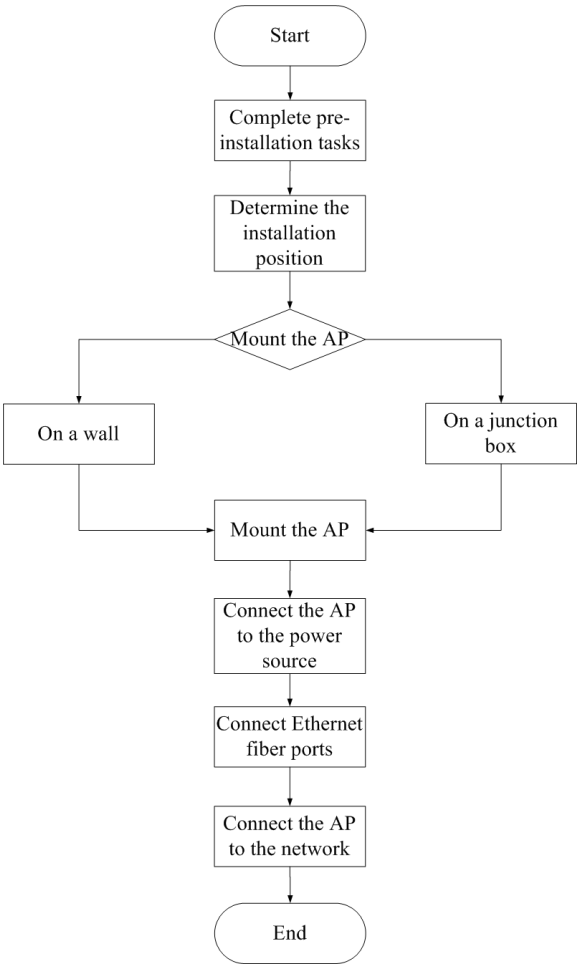


Torque screwdriver | Needle-nose screwdriver | Wire stripper | Crimping tool

2 Installing the AP

Installation flowchart

Figure2-1 Installation flowchart



Pre-installation tasks

Before installing the AP, perform the following tasks:

- Power on the AP and connect the AP to the network. Examine the LEDs to verify that the AP is operating correctly. For information about the LEDs, see "LEDs."
- Record the MAC address and serial number of the AP for future use.

Determining the installation position

Determine the installation position by observing the following principles:

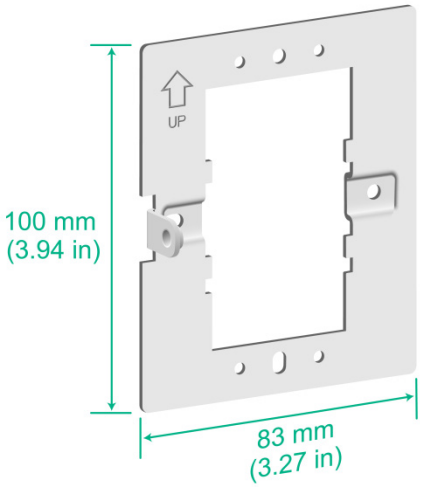
- Few obstacles such as wall exist between the AP and clients.

- Reserve clearance around the AP for heat dissipation. Ensure a minimum distance of 2 m (6.56 ft) between the AP and other radiant resources, for example, wireless base station antennas.
- The AP does not hinder people's daily work and life.
- The place is not water seeping, water soaking, or condensing.

Mounting the AP

The AP can be installed only indoors. You can mount the AP on a wall or a junction box.

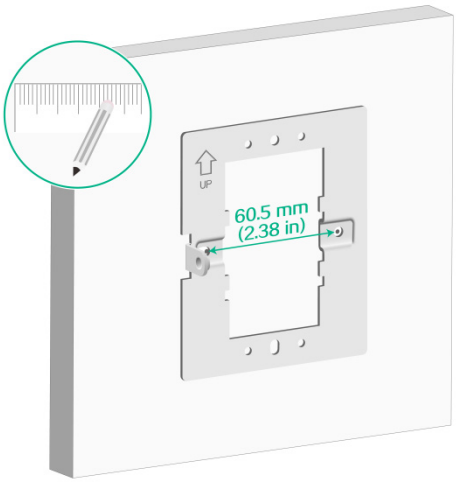
Figure2-2 Mounting bracket dimensions



Mounting the AP on a wall

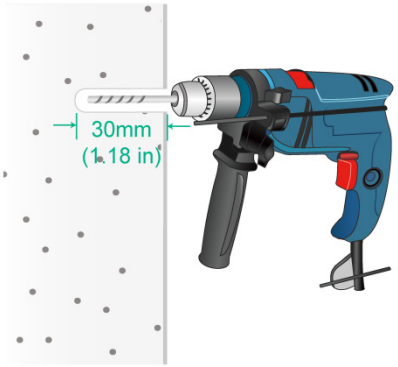
1. Place the mounting bracket against the wall and mark the installation holes on the wall.

   Figure2-3 Marking the installation holes on the wall



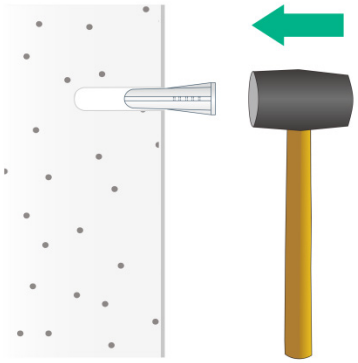
2. Drill two holes with a diameter of 6 mm (0.24 in) and a depth of 30 mm (1.18 in) at the marked locations, as shown in Figure2-4.

Figure2-4 Drilling holes in the wall



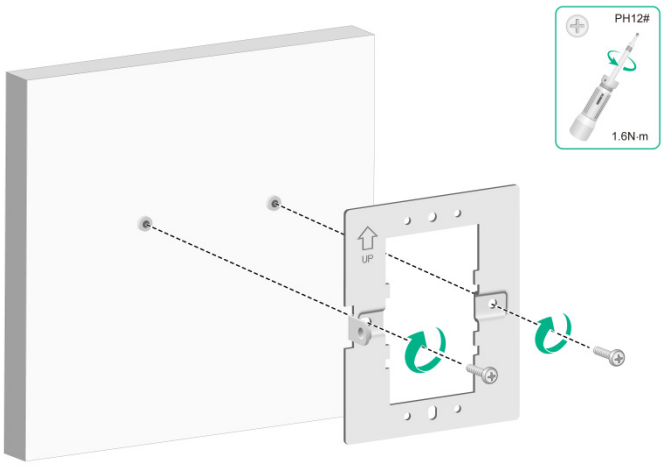
3. Use a rubber hammer to tap a screw anchor into each hole until it is all flush with the wall surface, as shown in Figure2-5.

Figure2-5 Hammering the screw anchor into the wall



4. Insert the screws through the installation holes in the mounting bracket into the holes in the wall. Fasten the screws to secure the mounting bracket to the wall, as shown in Figure2-6.

Figure2-6 Securing the mounting bracket to the wall



5. Connect a cable to the 2.5GE/SFP port or Uplink/PoE port on the AP.
   - If you connect a cable to the 2.5GE/SFP port, power the AP by using a power adapter.
   - If you connect a cable to the Uplink/PoE port, power the AP through PoE.

Figure2-7 Connecting a cable to the 2.5GE/SFP port

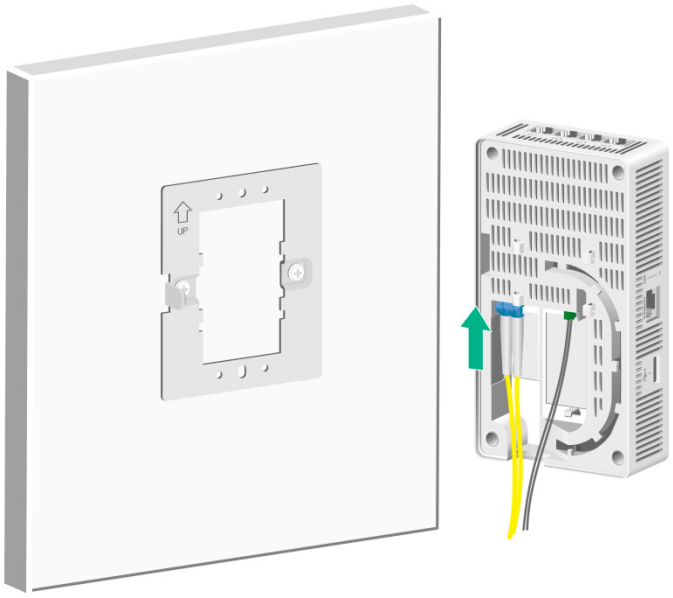
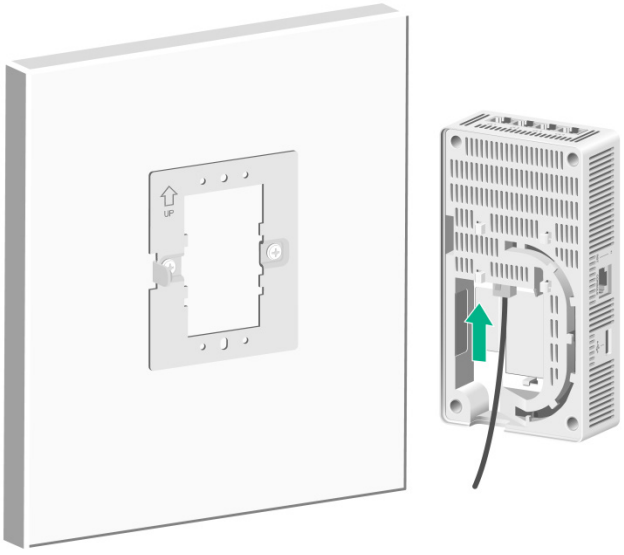
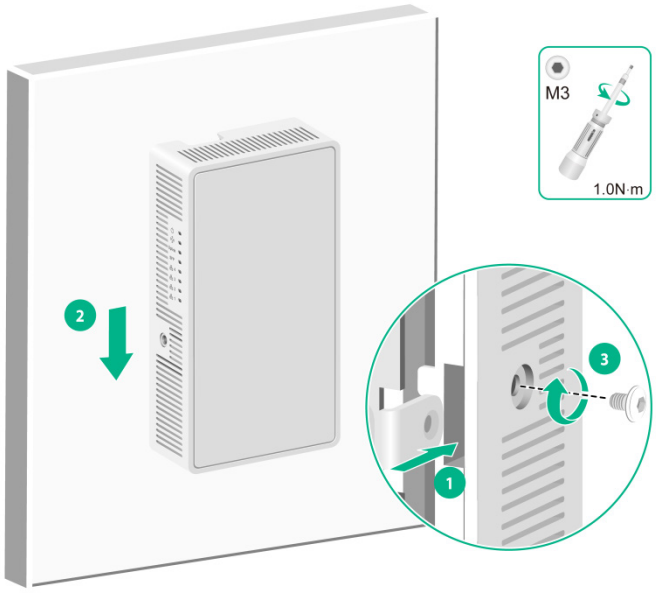


Figure2-8 Connecting a cable to the Uplink/PoE port



6. Secure the AP to the mounting bracket, as shown in Figure2-9.
   a. Align the mounting peg on the mounting bracket with the installation slot in the rear of the AP and insert the peg into the slot.
   b. Slide down the AP so that it sits securely on the peg.
   c. Fasten the M3×4 screw on the side panel of the AP.

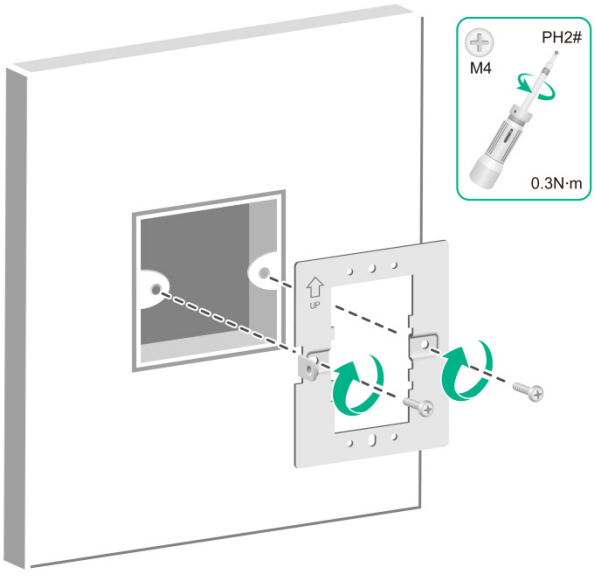
Figure2-9 Securing the AP to the mounting bracket



Mounting the AP on a junction box

1. Use the provided M4 × 30 mm pan-head screws to attach the mounting bracket to the junction box.

   Figure2-10 Attaching the mounting bracket to the junction box



2. Connect a cable to the 2.5GE/SFP port or Uplink/PoE port on the AP.
   - If you connect a cable to the 2.5GE/SFP port, power the AP by using a power adapter.
   - If you connect a cable to the Uplink/PoE port, power the AP through PoE.

Figure2-11 Connecting a cable to the 2.5GE/SFP port

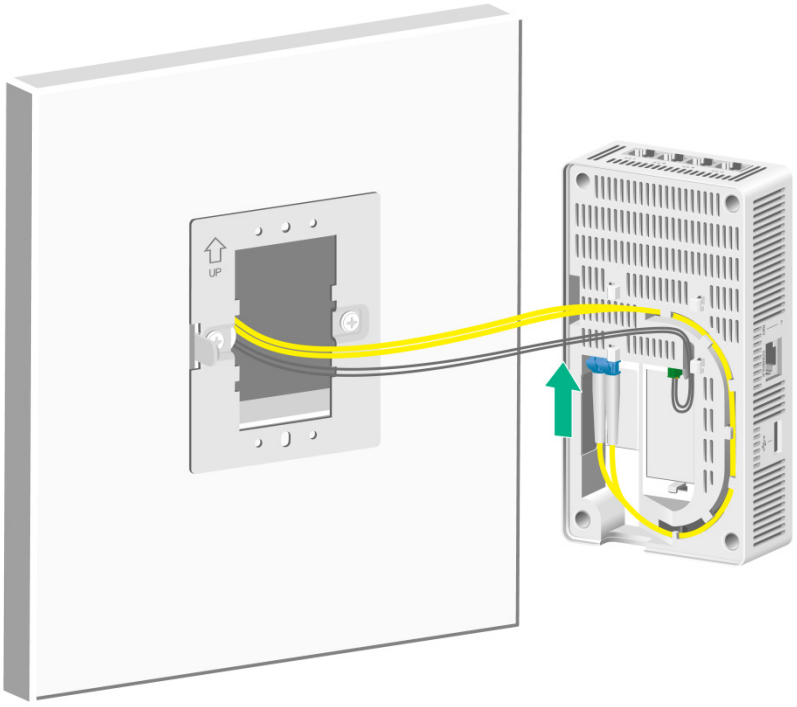
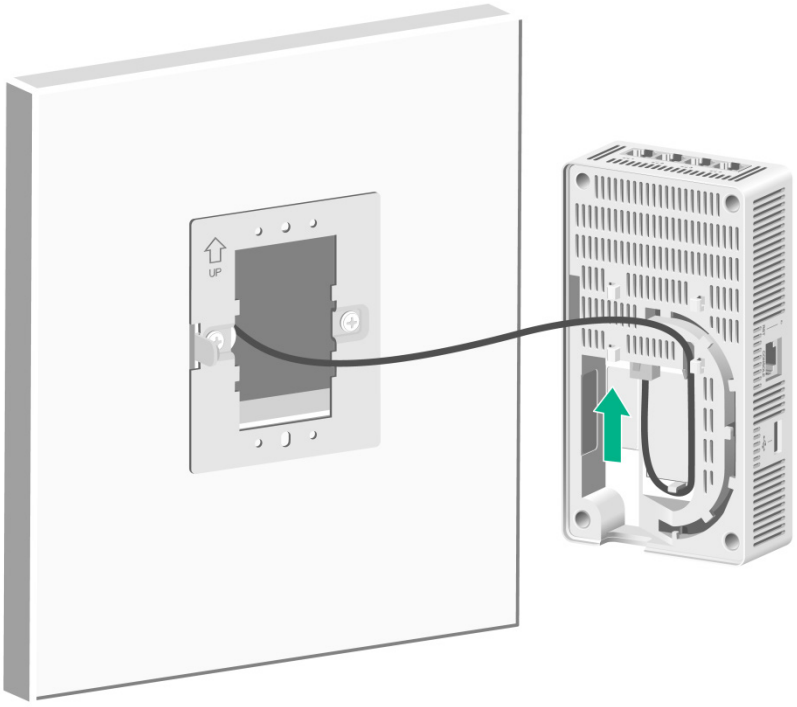


Figure2-12 Connecting a cable to the Uplink/PoE port



3. Attach the AP to the mounting bracket. The procedure is the same as wall mounting and junction box mounting. For more information, see "Mounting the AP on a wall."

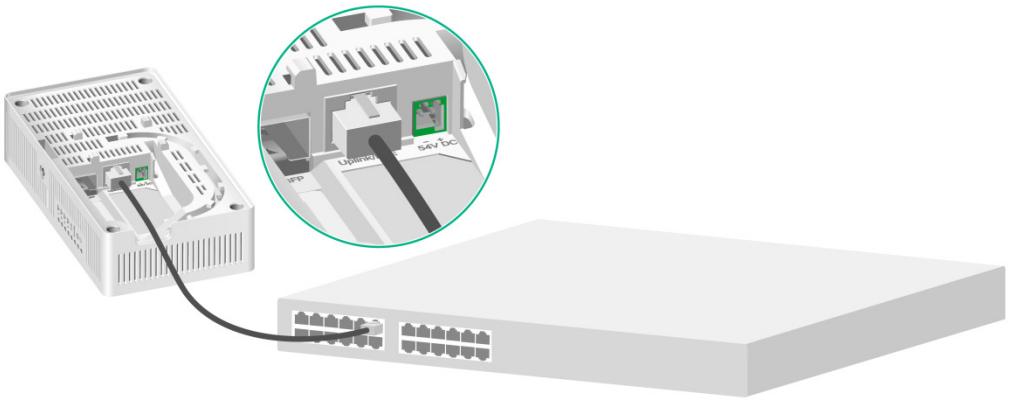
Connecting the AP to a power source

You can supply power to the AP by using a local power source or through 802.3af-compliant PoE as required. Before powering the AP, make sure the local power source or the power sourcing equipment (PSE) is reliably grounded.

Connecting a PoE power source

To power the AP through PoE, use an Ethernet cable to connect an Ethernet port on a PoE switch to the Uplink/PoE port on the AP.

Figure2-13 Connecting the AP to a PoE power source



Connecting a local power source

Connecting a local power source by using a power adapter

You can use a power adapter to connect the AP to a local power source. No power adapter is provided with the AP. Purchase an adapter as required.

To use a power adapter, make sure it is the LPS or PS2 type.

Table2-1 describes the power adapter specifications.

Table2-1 Power adapter specifications

Item	Specification
Input	100 VAC to 240 VAC
Output	+54 V ⎓ 0.67 A
Output power	36 W

Figure2-14 Connecting the AP to a local power source

Connecting a local DC power source

No terminal block is provided with the AP. Purchase a terminal block as required.

As a best practice, use copper wires with 0.5 or 0.75 mm^2 (0.0008 or 0.0011 in^2) cross sectional area. The copper wires must comply with GBT3956-1997.

The output voltage range for the AP is 40 VDC to 55 VDC.

To connect a local DC power source:

1. Insert a flat-head screwdriver straight into a square-shaped hole in the terminal block.

   This will open the round-shaped hole above the square-shaped hole.

2. Peel 10 mm (0.39 in) of sheath for one wire. Hold the screwdriver and insert the wire into the round-shaped hole in the terminal block.

   Identify the positive and negative feed positions. The wiring sequence is positive to positive and negative to negative.

3. Take out the flat-head screwdriver from the square-shaped hole.

   The round-shaped hole will close, and the wire will be secured in place.

4. Repeat the procedure to attach the other wire into the terminal block.

Figure2-15 Connecting a local DC power source

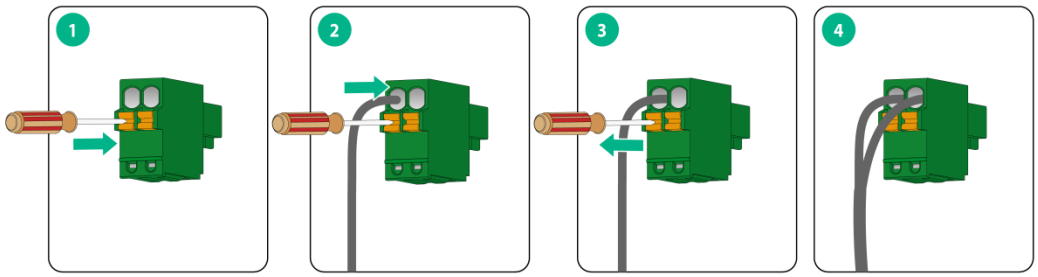
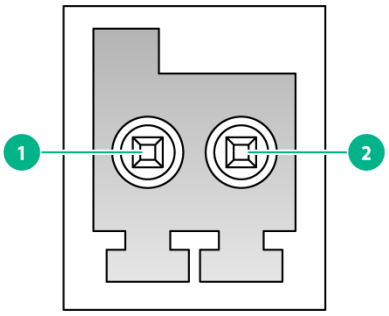


Figure2-16 Cross sectional area of the AP power port and electrode connection method



AP power port

Pin	Description
1	Positive
2	Negative

Check after power-on

Examine the LEDs on the AP after you power on it to verify that the AP is operating correctly. For more information about the LEDs, see "LEDs."

Connecting Ethernet fiber ports

WARNING!

Disconnected optical fibers or transceiver modules might emit invisible laser light. Do not stare into beams or view directly with optical instruments when the device is operating.

CAUTION:

- Do not install a transceiver module connected with a fiber into a fiber port. To connect an optical fiber, first install the transceiver module in the fiber port and then connect the fiber.
- Insert a dust plug into any open fiber port.
- Never bend or curve a fiber excessively. The bend radius of a fiber must be not less than 10 cm (3.94 in).
- Keep the fiber end clean.

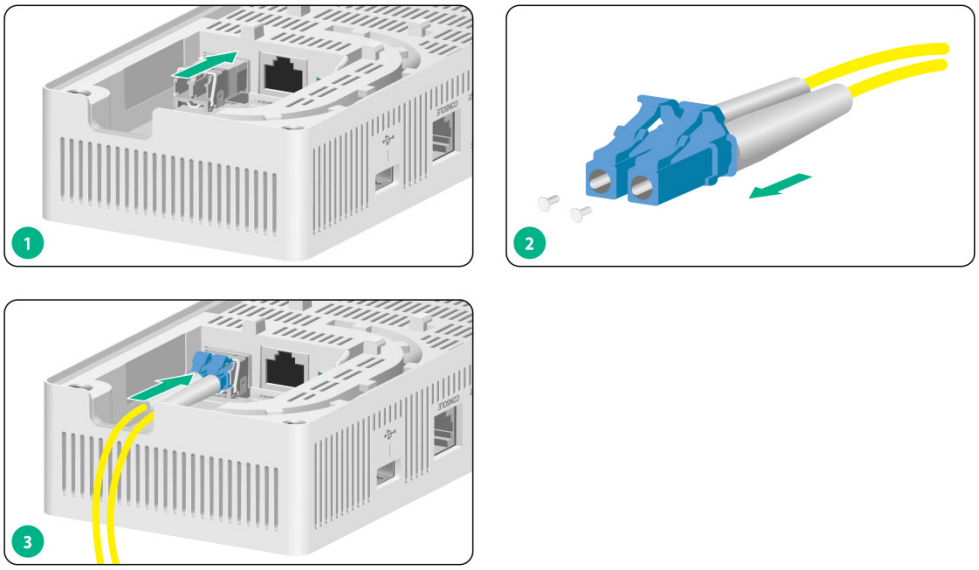
To connect the AP to the network by using fibers, install a transceiver module on the AP, and then insert the fiber connector to the transceiver module.

The fiber port on the AP supports only LC connectors. Purchase a transceiver module yourself. For more information about transceiver modules, see "Appendix C Optional transceiver modules."

To connect an Ethernet fiber port on the AP:

1. Make sure the transceiver module bail latch engages the knob on the top of the transceiver module. Hold the module by its two sides and push the module gently into the port.
2. Remove the dust cap from the LC connector.
3. Identify the Rx and Tx ports. Plug the LC connector at one end of one fiber cable into the Rx port of the AP and the LC connector at the other end into the Tx port of the peer device. Plug the LC connector at one end of another fiber cable into the Tx port of the AP and the LC connector at the other end to the Rx port of the peer device.

Figure2-17 Connecting an Ethernet fiber port



Connecting the AP to the network

Verifying network connectivity when the AP operates in fit mode

When the AP operates in fit mode, all AP settings are configured on the AC. To verify network connectivity of the AP, execute the **display wlan ap all** command on the AC. If the AP status is **R/M**, the AP has been connected to the network.

```
<AC> display wlan ap all
Total number of APs: 1
Total number of connected APs: 1
Total number of connected manual APs: 1
Total number of connected auto APs: 0
Total number of connected common APs: 1
Total number of connected WTUs: 0
Total number of inside APs: 0
Maximum supported APs: 3072
Remaining APs: 3071
Total AP licenses: 128
Remaining AP licenses: 127

                          AP information
 State : I = Idle,      J  = Join,      JA = JoinAck,    IL = ImageLoad
         C = Config,    DC = DataCheck, R  = Run  M = Master,  B = Backup

AP name             AP ID   State   Model           Serial ID
ap1                   1     R/M    WA6520H        219801A3Q48226E00001
```

Verifying network connectivity when the AP operates in cloud mode

When the AP operates in cloud mode, use a wireless terminal to search for and access the wireless service provided by the AP. If you can access external networks, the AP has been connected to the network.

3 Accessing the AP

When the AP operates in cloud mode, you can access and configure the AP from the console port, Web interface, or through Telnet. Accessing the AP from the Web interface or through Telnet requires the IP address of the AP.

Logging in to the AP from the console port

Prepare the following items for accessing the AP from the console port:

- An 8-core console cable, with a crimped RJ-45 connector at one end, and a DB-9 connector at the other end.
- A configuration terminal. It can be a standard character terminal with an RS-232 port, or a PC.

Connecting the AP to a configuration terminal from the console port

△ **CAUTION:**

- To connect a PC to the AP, first connect the PC end. To disconnect a PC from the AP, first disconnect the AP end.
- If the PC does not have an RS-232 port but a USB port, use a USB-to-RS-232 converter to connect the USB port to the console cable and install the driver on the PC.

To connect the AP to a configuration terminal from the console port:

1. Connect the DB-9 connector of the console cable to the serial port on the configuration terminal, for example, a PC.
2. Connect the RJ-45 connector of the console cable to the console port on the AP.

Setting parameters for the configuration terminal

To configure and manage the AP from the console port, you must run a terminal emulator program, such as HyperTerminal or PuTTY, on your configuration terminal. You can use the emulator program to connect a network device, a Telnet site, or an SSH site. For more information about the terminal emulator programs, see the user guides for these programs.

Configure the terminal parameters as follows:

- **Bits per second**—9600.
- **Data bits**—8.
- **Stop bits**—1.
- **Parity**—None.
- **Flow control**—None.

Procedure

Verify that the AP is connected correctly to the configuration terminal and the configuration terminal parameters are configured correctly. Then, power on the AP. You can see the following information on the configuration terminal:

```
System is starting...
Booting Normal Extend BootWare.
...

System application is starting...
Startup configuration file does not exist.
User interface con0 is available.



Press ENTER to get started.
```

Logging in to the AP through Telnet

By default, Telnet is enabled and the following login information is defined for your login

- **Username**—admin.
- **Password**—h3capadmin.

Make sure the PC obtains an IP address dynamically.

When the AP operates in cloud mode, it obtains the IP address of VLAN 1 dynamically by default.

Some Intel wireless adapters do not support 802.11ax. For clients to detect Wi-Fi 6 networks, upgrade the driver for the wireless adapter to the most recent version. For more information, see the official statement of Intel.

To log in to the AP through a wireless connection:

1. Enable WLAN on the configuration terminal and access WLAN **H3C**_*xxxxxx*, where *xxxxxx* is the last six bits of the AP's MAC address.
2. Enter **`telnet`** *`wlan.h3c.com`* from the CLI of the terminal.
3. Enter the default username and password and change the default password as prompted.

Logging in from the Web interface

By default, HTTP and HTTPS are enabled and the following login information is defined for your login:

- **Username**—admin.
- **Password**—h3capadmin.

Make sure the PC obtains an IP address dynamically.

When the AP operates in cloud mode, it obtains the IP address of VLAN 1 dynamically by default.

Some Intel wireless adapters do not support 802.11ax. For clients to detect Wi-Fi 6 networks, upgrade the driver for the wireless adapter to the most recent version. For more information, see the official statement of Intel.

To log in to the AP through a wireless connection:

1. Enable WLAN on the configuration terminal and access WLAN **H3C**_*xxxxxx*, where *xxxxxx* is the last six bits of the AP's MAC address.
2. Visit **http://wlan.h3c.com** from a browser, and then press **Enter**.
3. Enter the default username and password. For security purposes, change the password as prompted after you access the Web interface, and then click **OK**.

.

4 Configuring the AP from the Cloudnet platform

You can manage the AP remotely from the Cloudnet platform (Web interface or app) only when the AP operates in cloud mode.

Downloading and installing Cloudnet App Int

Make sure the smartphone uses Android 4.0, iOS7.0, or a higher-version operating system.

Download and install Cloudnet App Int from Google Play Store.

Logging in to the Cloudnet platform

To manage the AP from the Cloudnet platform, make sure the AP uses an IP address that can reach the external network.

To log in to the Cloudnet platform:

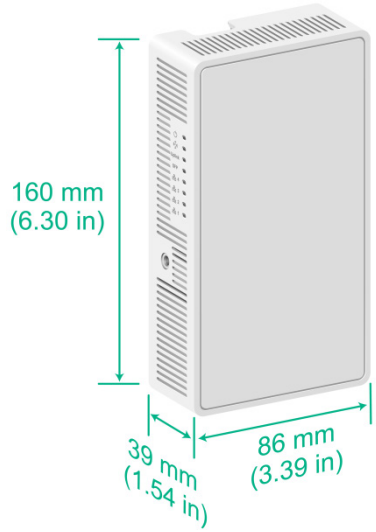
1. Open Cloudnet App Int or visit https://oasiscloudnet.h3c.com from a browser.
2. Enter the username and password.

   After login, you can add the AP to the platform and manage the AP. For more information about platform login and device management, see *H3C Cloudnet Deployment Guide*.

5 Appendix A AP view and technical specifications

AP view

Figure5-1 WA6520H



Technical specifications

Table5-1 Technical specifications

Item	Specification
Dimensions (H × W × D)	160 × 86 × 39 mm (6.30 × 3.39 × 1.54 in, excluding the mounting bracket)
Weight	350 g (12.35 oz)
Power consumption	• ≤ 15 W with a USB device attached • ≤ 12.5 W without a USB device attached
Power supply	• Local power source • PoE power supply
Antenna	Built-in antenna: • 2.4 G: 3 dBi gain • 5 G: 5 dBi gain
Standards	• 802.11ax, 802.11ac, 802.11n • 802.3af

6 Appendix B Ports and LEDs

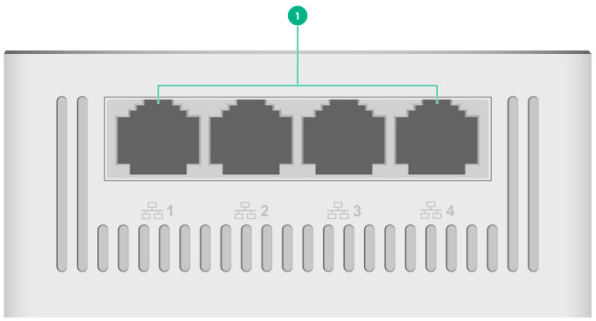
Ports

The AP provides the following ports:

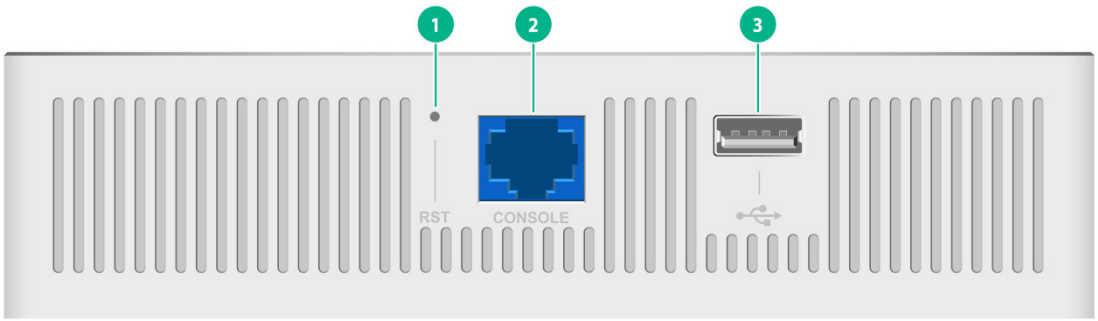
- One console port
- Four 10/100/1000M Ethernet copper ports
- One 54 VDC power port
- One 2.5GE/SFP port
- One Uplink/PoE port
- One USB port

It provides also a reset button (RST).

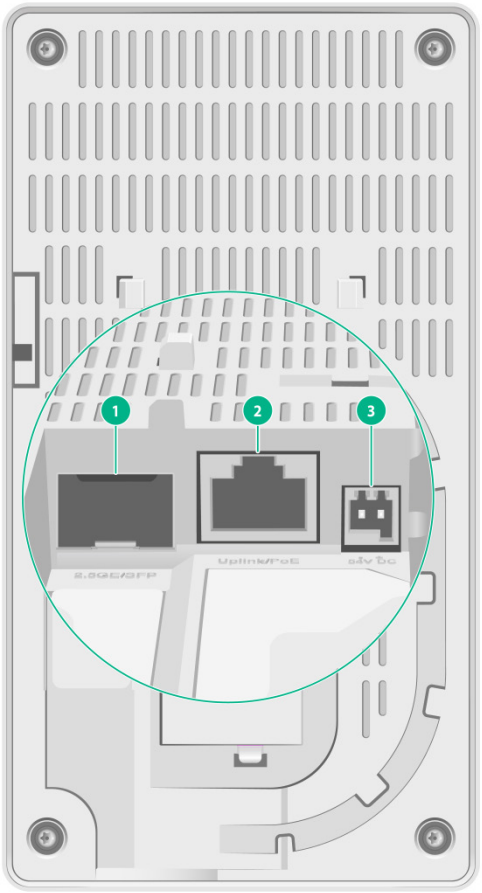
Figure6-1 Ports on the AP



(1) 10/100/1000M Ethernet copper ports



(1) Reset button (RST)	(2) Console port	(3) USB port



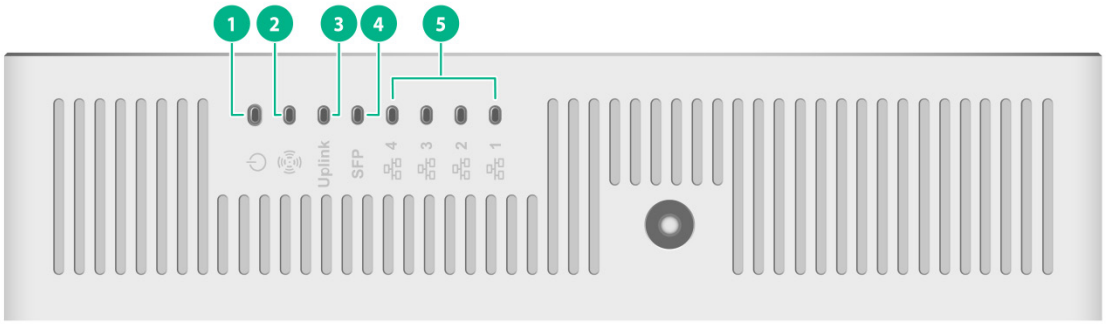
(1) 2.5GE/SFP port	(2) Uplink/PoE port	(3) 54 VDC power port

Table6-1 Port descriptions

Port	Standards and protocols	Description
Console port	RS/EIA-232	Used by technical personnel only for device configuration and management.
10/100/1000M Ethernet copper port	• IEEE802.3 • IEEE802.3i • IEEE802.3u • IEEE802.3ab	Represented by interface number GE1/0/2 to GE1/0/5 in the MAP file and GigabitEthernet 2 to GigabitEthernet 5 on the AC.
Uplink/PoE port (10/100/1000M Ethernet copper port)	• IEEE802.3 • IEEE802.3i • IEEE802.3u • IEEE802.3ab • IEEE802.3af • IEEE802.3at	Used for connecting the AP to an uplink device for Internet or MAN access. It can also receive PoE power from the uplink device. It is represented by interface number GE1/0/1 in the MAP file and GigabitEthernet 1 on the AC.
2.5GE/SFP port	IEEE802.3	100/1000/2500M Ethernet fiber port.
Power port (54 V)	N/A	Used for receiving +54 VDC power from a local power source.
USB port	USB 2.0	Used for charging as well as data reading or writing.
Reset button	N/A	For more information, see Table6-4.

LEDs

Figure6-2 LEDs on the AP



(1) Power status LED	(2) Radio status LED
(3) Uplink port status LED	(4) SFP port LED
(5) Ethernet copper port LED	

The LED status varies by AP operating mode. For information about the supported operating modes, see the release notes for the AP.

Table6-2 LED descriptions (fit mode)

LED	Status	Description
Power status LED	Off	No power is present or the LED has been disabled from the CLI.
	Steady yellow	The device is initializing or an initialization exception has occurred.
	Flashing green (once per two seconds)	The AP has started up but has not registered to any AC.
	Flashing green (twice per second)	The AP is upgrading the image.
	Steady green	The AP has started up and registered to an AC, and is in standby state.
Radio status LED	Off	The radios are disabled or the LED has been disabled from the CLI.
	Flashing yellow (once per second)	A radio has been enabled but does not have associated clients.
	Flashing green (once per second)	A radio has associated clients.
Uplink port status LED	Off	No link is present on the port.

LED	Status	Description
	Steady yellow	The port has been auto-negotiated to operate at 10/100 Mbps.
	Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
	Steady green	The port has been auto-negotiated to operate at 1000 Mbps.
	Flashing green	The port is sending or receiving data at 1000 Mbps.
SFP port LED	Off	No link is present on the port.
	Steady yellow	The port has been auto-negotiated to operate at 100 Mbps.
	Flashing yellow	The port is sending or receiving data at 100 Mbps.
	Steady green	The port has been auto-negotiated to operate at 1000/2500 Mbps.
	Flashing green	The port is sending or receiving data at 1000/2500 Mbps.
Ethernet copper port LED	Off	No link is present on the port.
	Steady yellow	The port has been auto-negotiated to operate at 10/100 Mbps.
	Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
	Steady green	The port has been auto-negotiated to operate at 1000 Mbps.
	Flashing green	The port is sending or receiving data at 1000 Mbps.

Table6-3 LED descriptions (cloud mode)

LED	Status	Description
Power status LED	Off	No power is present or the LED has been disabled from the CLI.
	Steady yellow	The device is initializing or an initialization exception has occurred.
	Flashing green (once per second)	The AP has started up but has not registered to any AC.
	Flashing green (twice per second)	The AP is upgrading the image.
	Alternating between yellow and green (once per second)	The AP has connected to the Cloudnet platform and has associated clients.
Radio status LED	Off	The radios do not have associated clients, or the LED has been disabled from the CLI.
	Flashing yellow (once per second)	A radio has been enabled but does not have associated clients.
	Flashing green (once per second)	A radio has associated clients.
Uplink port status LED	Off	No link is present on the port.

LED	Status	Description
	Steady yellow	The port has been auto-negotiated to operate at 10/100 Mbps.
	Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
	Steady green	The port has been auto-negotiated to operate at 1000 Mbps.
	Flashing green	The port is sending or receiving data at 1000 Mbps.
SFP port LED	Off	No link is present on the port.
	Steady yellow	The port has been auto-negotiated to operate at 100 Mbps.
	Flashing yellow	The port is sending or receiving data at 100 Mbps.
	Steady green	The port has been auto-negotiated to operate at 1000/2500 Mbps.
	Flashing green	The port is sending or receiving data at 1000/2500 Mbps.
Ethernet copper port LED	Off	No link is present on the port.
	Steady yellow	The port has been auto-negotiated to operate at 10/100 Mbps.
	Flashing yellow	The port is sending or receiving data at 10/100 Mbps.
	Steady green	The port has been auto-negotiated to operate at 1000 Mbps.
	Flashing green	The port is sending or receiving data at 1000 Mbps.

Table6-4 RESET button descriptions

Press and hold duration (sec)	Button LED status		Description
0 to 5	Steady green		Reset the AP.
5 to 20	Flashing green (twice per second)		Restore to the factory defaults.
20 to 30	Yellow	Flashing (once per two seconds)	The AP is operating in fit mode.
		Flashing (four times per second)	The AP is operating in cloud mode.
> 30	Yellow	Flashing (twice per second)	The AP is operating in cloud mode.
	Green	Flashing (twice times per second)	Change the AP operating mode to cloud. **NOTE:** If you release the button, the AP will restart for the new mode to take effect.

7 Appendix C Optional transceiver modules

Views

You must use an SFP transceiver module and optical fiber with an LC connector to connect the fiber port on the AP.

Figure7-1 SFP transceiver module

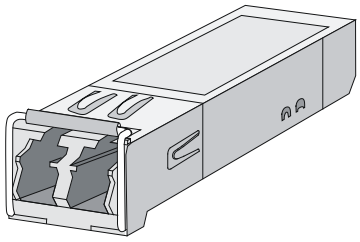
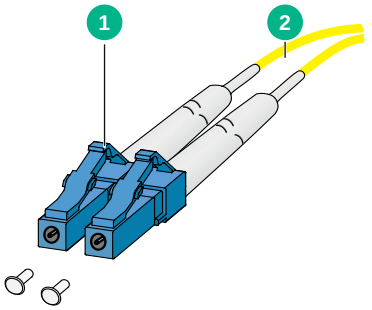


Figure7-2 Optical fibers with LC connectors



(1) LC connector	(2) Optical fiber

Specifications

Table7-1 SFP-2.5G-LX10-SM1310-DR-I transceiver module specifications

Item	SFP-2.5G-LX10-SM1310-DR-I
Central wavelength	1310 nm
Max transmission distance	10 km (6.21 miles)
Data rate	1228.8 to 2457.6 Mbps
Connector type	LC connector
Fiber mode	SMF
Fiber diameter	9/125 μm
Output power	–7 to +2 dBm

Table7-2 EOLS-1326-X transceiver module series available for the SFP ports

EOLS-1326-X transceiver module series	Central wavelength (nm)	Max transmission distance	Data rate	Connector	Fiber mode	Fiber diameter	Output power
1310nm FP and PIN, 10km	1310	10 km (6.21 miles)	100 to 2670 Mbps	LC	SMF	9/125 μm	–11.7 to –3 dBm
1310nm DFB and PIN, 15km		15 km (9.32 miles)					–5 to 0 dBm
1310nm DFB and APD, 40km		40 km (24.86 miles)					–2 to +3 dBm

Table7-3 MXPD-483SD transceiver module specifications

Item	MXPD-483SD
Central wavelength	1310 nm
Max transmission distance	15 km (9.32 miles)
Data rate	0.155 to 2.67 Gbps
Connector type	LC connector
Fiber mode	SMF
Fiber diameter	9/125 μm
Output power	–5 to 0 dBm

Table7-4 RTXM192-xxx transceiver module series available for the SFP ports

RTXM192-xxx transceiver module series	Central wavelength (nm)	Max transmission distance	Data rate	Connector	Fiber mode	Fiber diameter	Output power
RTXM192-550	850	300 m (984.25 ft)	2.5 Gbps	LC	SMF	9/125 μm	–10 to –3 dBm
RTXM192-400	1310	2 km (1.24 miles)					–10 to –3 dBm
RTXM192-450	1310	15 km (9.32 miles)					–5 to 0 dBm
RTXM192-454	1310	30 km (18.64 miles)					–2 to +3 dBm
RTXM192-452	1310	40 km (24.86 miles)					–2 to +3 dBm
RTXM192-500	1550	80 km (49.71 miles)					–2 to +3 dBm
RTXM192-6xx	N/A	40 km (24.86 miles)					0 to 3 dBm

RTXM192-xxx transceiver module series	Central wavelength (nm)	Max transmission distance	Data rate	Connector	Fiber mode	Fiber diameter	Output power
RTXM192-8xx	N/A	80 km (49.71 miles)					0 to 3 dBm