SOPHOS

Operating Instructions

APX 320/530/740

Foreword

We are pleased to welcome you as a new Sophos APX Series customer.

Sophos APX Series access points are high performance wireless products using the latest 802.11ac Wave 2 technology for a best-in-class user experience. The APX Series models can be easily managed in Sophos Central, our cloud-based security management platform. All you need to do is set up a Sophos Central account and plug in the device anywhere in your network. The access point will find the cloud-based controller automatically and become operable within seconds. Management of these APX Series models in Sophos XG Firewall will be available in a maintenance release of version 17.5.

These operating instructions will help you setup your Sophos Central account, install and configure your Sophos APX Series access point and also provide detailed technical specifications. In addition, please also see the following documents that contain useful information on safety, regulatory compliance, and configuration options:

‣ Sophos APX Series Safety Instructions and Regulatory Information

‣ Sophos APX Series Quick Start Guide

The instructions must be read carefully prior to using the device and should be kept in a safe place. You can download all user manuals and additional documentation from the Sophos Knowledgebase under www.sophos.com/en-us/support/knowledgebase.aspx or from www.sophos.com/get-started-ap.

Security Symbols

The following symbol and its meaning appears in the Quick Start Guide, Safety Instructions and in these Operating Instructions.

Caution and Important Note. If these notes are not correctly observed:

‣ This is dangerous to life and the environment

‣ The access point may be damaged

‣ The functions of the access point will be no longer guaranteed

‣ Sophos shall not be liable for damages arising from a failure to comply with the Safety Instructions
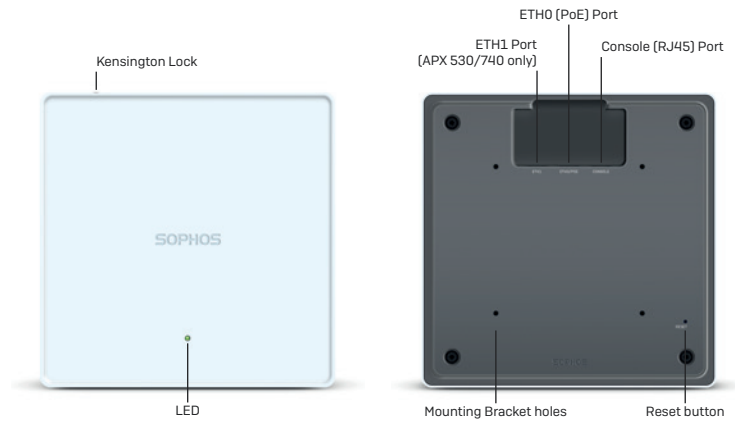
Designed Use

The access point must be installed pursuant to the current installation notes. Otherwise failure-free and safe operation cannot be guaranteed. The EU declaration of conformity is available upon request from the following address:

Sophos Technology GmbH
Gustav-Stresemann-Ring 1
65189 Wiesbaden
Germany

Operating Elements and Connections

APX 320/530/740*

Kensington Lock

ETH0 (PoE) Port

ETH1 Port
(APX 530/740 only)

Console (RJ45) Port

SOPHOS

LED

Mounting Bracket holes

Reset button

* The displayed images show the APX 740. Other APX models may vary slightly.

Component Descriptions

Component	Description
Status LED	The Status LED indicates the operational state of your access point such as boot status, firmware updates and error states. For details, see table "LED Status" below.
Eth0 (PoE) and ETH1 ports	Eth0 is the primary Ethernet port to connect your access point to your network. This port needs to be connected to a PoE capable source (PoE Injector or PoE switch) to power your access point. There is no dedicated DC power source available. Sophos offers suitable PoE injectors for purchase as an optional accessory. Eth1 (on APX 530/740 only) can be used as an alternative Ethernet port but does not receive power. Both Ethernet ports are 10/100/1000 Mbps compatible and auto-negotiate to the speed and half- and full-duplex of the connecting device.
Console port	For debugging purposes, support staff can access the CLI by making a serial connection to the RJ-45 console port. For details, see "Serial Console Connection" below.
Reset button	The reset button allows you to reboot the device and reset its configuration to the factory default. For details, please see section "Reboot & Reset"
Kensington Lock	You can physically secure the AP by attaching a lock and cable (such as a Kensington® notebook lock) to the device lock slot.

LED Status

LED on Front		
Off	Off	AP is off or reboot started.
Green	Solid	Normal operation.
	Flashing	AP is booting & connecting to wireless controller or applying configuration*.
Amber	Solid	AP has no connection
	Flashing	AP is not claimed by wireless controller
Red	Solid	Error, no wireless controller found. AP will reboot (if not yet claimed by a controller). Check network connection if error persists.
		If reset button pressed: AP preparing configuration reset
	Flashing slowly	Configuration reset in progress*
	Flashing fast	Firmware update in progress
		Note: Do not disconnect from power, nor reboot or reset the device
		When the device connects to Sophos Central or Sophos Firewall for the first time, it might take more than 15 minutes to update firmware.

* Your AP should recover from this state after a maximum of 5 minutes.

Connection and Configuration

The initial connection of your access point to your network and the wireless controller is described in the APX Quick Start Guide which was been shipped with your device or is available under www.sophos.com/get-started-ap.

For the access point to communicate with Sophos Central servers the following ports will need to be open on your firewall:

‣ 443 (HTTPS)

‣ 80 (HTTP)

‣ 123 (NTP)

After successful connection you can start your initial configuration.

Setting up your access point in Sophos Central

You will need a Sophos Central account to manage your access points from Sophos Central. Please go to https://central.sophos.com to sign in under your account or create a new account.

After signing in select *Wireless* from the popup screen or click on *Wireless* in the left navigation to get started.

Follow the Onboarding Wizard to register your access point.

For more information, please see the Sophos Central Admin Help.

Setting up your access point in XG Firewall

Please note: support for the APX 320/530/740 will be added in a maintenance release of v17.5.

Instructions on how to set up a wireless network and add access points in XG are provided in this video https://vimeo.com/271657858

Reboot & Reset

Your access point can be rebooted with the installed configuration or reset to the factory default configuration depending on how long you press and hold the reset button.

Reboot with current image and configuration

1. Press reset button
2. Release reset button
3. AP reboots (LED will go off, then will turn to solid green)

Reboot with current image and clear configuration

1. Press and hold reset button
2. AP reboots (LED will go off and then switch to green briefly)
3. LED will turn solid red for 5 sec. You can still cancel the configuration clearance process by releasing the reset button before the LED starts blinking
4. LED will blink red (configuration will be cleared)
5. Release reset button
6. AP reboots with factory default settings

Reset Button	Released	Reboot		Reboot clear config
	Pressed		5 Sec	
Status LED	Off	Solid	Solid	Blinking
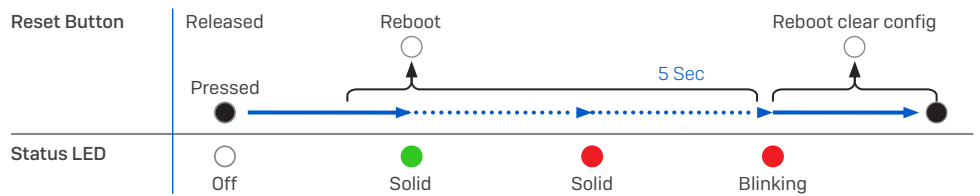
Technical specifications

APX 320	
Environment	
Power consumption	11.5 W (max.)
Power over Ethernet (PoE) requirements	802.3af
Operating temperature	0°–40° C
Storage temperature	-40°–70° C
Humidity	10–95% non-condensing
Hazardous substances	RoHS-2 and REACH compliant
Physical specification	
I/O ports	1x RJ45 connector console serial port 1x RJ45 10/100/1000 Ethernet w/PoE (802.3af) 1x Reset button 1x Kensington security slot
Memory	512 MByte DDR3L 512 Mbyte NAND Flash 4 Mbyte SPI NOR Flash
Mounting	Desktop Wall-mount hang Ceiling (15/16, 9/16, 3/8 inch ceiling tracks)
Dimensions (Width x Depth x Height)	155x155x38 mm
Weight	0,474 kg
Wireless specification	
Radios	1x 2.4 GHz/5 GHz dual-band 1x 5 GHz single band 1x Bluetooth low energy (BLE)
Antennas	2x internal dual band antenna for Radio-1 (omni-directional) 2x internal 5 GHz antenna for Radio-2 (omni-directional) 1x internal 2.4 GHz antenna for BLE
Antenna Peak Gain	3.7 dBi at 2.4 GHz, 6.7 dBi at 5 GHz
MIMO capabilities	2x2:2
Supported WLAN standards	IEEE 802.11 a/b/g/n/ac Wave 2
SSIDs	8 per radio, 16 in total
Max. Throughput	867 Mbps (5G) + 867 Mbps (5G)

Performance			
Band/Mode	Data Rate	TX Power Maximum EIRP (dBm)	RX Sensitivity (dBm)
2.412–2.472 GHz (11b)	1 Mbps	23	-99
	2 Mbps	23	-96
	5.5 Mbps	23	-94
	11 Mbps	23	-91
2.412–2.472 GHz (11g)	6 Mbps	23	-94
	9 Mbps	23	-92
	12 Mbps	22	-91
	18 Mbps	22	-89
	24 Mbps	21	-86
	36 Mbps	21	-82
	48 Mbps	19	-78
	54 Mbps	19	-76

Performance			
2.412–2.472 GHz (11n HT20)	MCS 0	23	-93
	MCS 1	23	-90
	MCS 2	22	-88
	MCS 3	22	-85
	MCS 4	21	-82
	MCS 5	21	-78
	MCS 6	19	-76
	MCS 7	19	-75
	MCS 8	18	-71
5.180–5.825 GHz (11a)	6 Mbps	22	-91
	9 Mbps	22	-90
	12 Mbps	21	-90
	18 Mbps	21	-88
	24 Mbps	20	-85
	36 Mbps	20	-82
	48 Mbps	18	-77
	54 Mbps	18	-76
5.180–5.825 GHz (11ac VHT20)	MCS0	22	-91
	MCS1	22	-89
	MCS2	21	-87
	MCS3	21	-85
	MCS4	20	-82
	MCS5	20	-78
	MCS6	18	-76
	MCS7	18	-74
	MCS8	17	-70
5.180–5.825 GHz (11ac VHT40)	MCS0	22	-89
	MCS1	22	-86
	MCS2	21	-85
	MCS3	21	-82
	MCS4	20	-79
	MCS5	20	-75
	MCS6	18	-73
	MCS7	18	-72
	MCS8	17	-68
	MCS9	17	-66
5.180–5.825 GHz (11ac VHT80)	MCS0	22	-87
	MCS1	22	-84
	MCS2	21	-82
	MCS3	21	-79
	MCS4	20	-76
	MCS5	20	-72
	MCS6	18	-70
	MCS7	18	-69
	MCS8	15	-65
	MCS9	14	-63

Radiation patterns
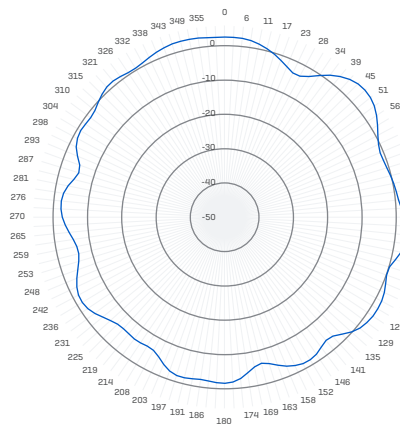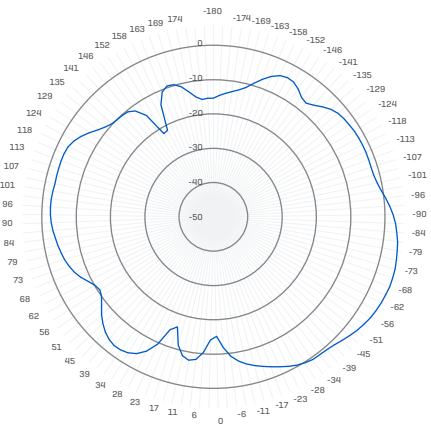### 2.4 G Band
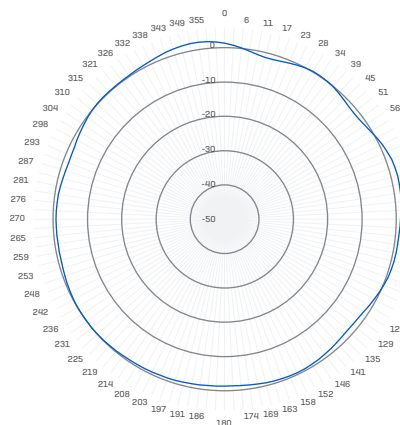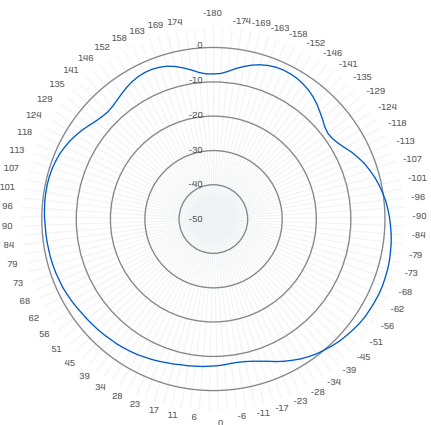
H-plane

V-plane

5 G Low Band

H-plane
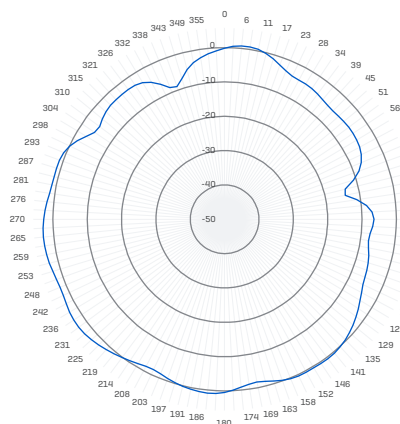
V-plane
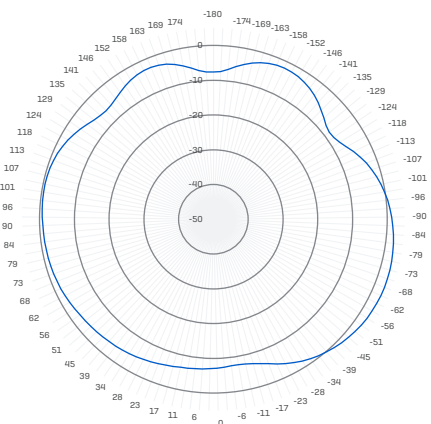
5 G High Band

H-plane

V-plane

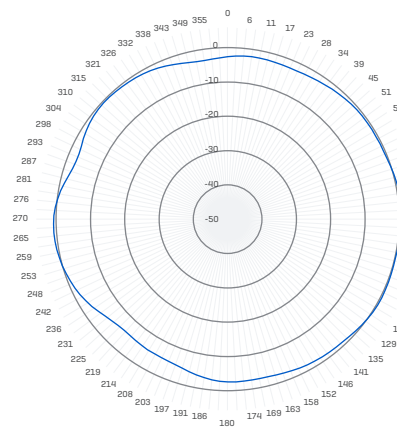| APX 530	
Environment	
Power consumption	16.7 W (max.)
Power over Ethernet (PoE) requirements	802.3at
Operating temperature	0°–40° C
Storage temperature	-40°–70° C
Humidity	10–95% non-condensing
Hazardous substances	RoHS-2 and REACH compliant
Physical specification	
I/O ports	1x RJ45 connector console serial port 1x RJ45 10/100/1000 Ethernet port 1x RJ45 10/100/1000 Ethernet w/PoE (802.3at) 1x Reset button 1x Kensington security slot
Memory	1 Gbyte DDR3L 512 Mbyte NAND Flash 4 Mbyte SPI NOR Flash
Mounting	Desktop Wall-mount hang Ceiling (15/16, 9/16, 3/8 inch ceiling tracks)
Dimensions (Width x Depth x Height)	183x183x39 mm
Weight	0,922 kg
Wireless specification	
Radios	1x 2.4 GHz single band 1x 5 GHz single band 1x Bluetooth low energy (BLE)
Antennas	3x internal 2.4 GHz antenna for Radio-1 (omni-directional) 3x internal 5 GHz antenna for Radio-2 (omni-directional) 1x internal 2.4 GHz antenna for BLE
Antenna Peak Gain	4.7 dBi at 2.4 GHz, 5.9 dBi at 5 GHz
MIMO capabilities	3x3:3
Supported WLAN standards	IEEE 802.11 a/b/g/n/ac Wave 2
SSIDs	8 per radio, 16 in total
Max. Throughput	1300 Mbps (5G) + 450 Mbps (2.4G)

Performance			
Band/Mode	Data Rate	TX Power Maximum EIRP (dBm)	RX Sensitivity (dBm)
2.412–2.472 GHz (11b)	1 Mbps	24	-97
	2 Mbps	24	-94
	5.5 Mbps	24	-92
	11 Mbps	24	-89
2.412–2.472 GHz (11g)	6 Mbps	23	-92
	9 Mbps	23	-90
	12 Mbps	23	-89
	18 Mbps	23	-87
	24 Mbps	22	-84
	36 Mbps	22	-81
	48 Mbps	20	-76
	54 Mbps	20	-75

| Performance			
2.412–2.472 GHz (11n HT20)	MCS 0	23	-91
	MCS 1	23	-88
	MCS 2	22	-86
	MCS 3	22	-82
	MCS 4	21	-79
	MCS 5	21	-75
	MCS 6	19	-73
	MCS 7	19	-71
	MCS 8	18	-67
5.180–5.825 GHz (11a)	6 Mbps	21	-93
	9 Mbps	21	-92
	12 Mbps	20	-90
	18 Mbps	20	-88
	24 Mbps	19	-85
	36 Mbps	19	-82
	48 Mbps	18	-77
	54 Mbps	18	-76
5.180–5.825 GHz (11ac VHT20)	MCS0	21	-92
	MCS1	21	-89
	MCS2	20	-87
	MCS3	20	-83
	MCS4	19	-80
	MCS5	19	-76
	MCS6	18	-74
	MCS7	18	-73
	MCS8	17	-68
5.180–5.825 GHz (11ac VHT40)	MCS0	21	-89
	MCS1	21	-86
	MCS2	20	-84
	MCS3	20	-81
	MCS4	19	-77
	MCS5	19	-73
	MCS6	18	-72
	MCS7	18	-70
	MCS8	17	-66
	MCS9	17	-64
5.180–5.825 GHz (11ac VHT80)	MCS0	21	-86
	MCS1	21	-83
	MCS2	20	-81
	MCS3	20	-77
	MCS4	19	-74
	MCS5	19	-70
	MCS6	18	-69
	MCS7	18	-67
	MCS8	15	-63
	MCS9	15	-61

Radiation patterns
2.4 G Band
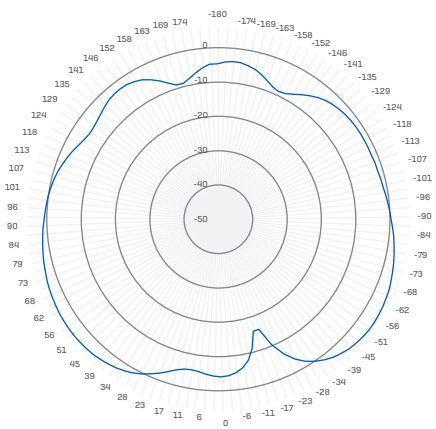
H-plane

V-plane

5 G Band
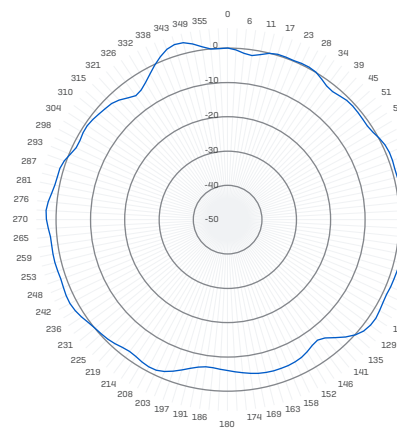
H-plane

V-plane
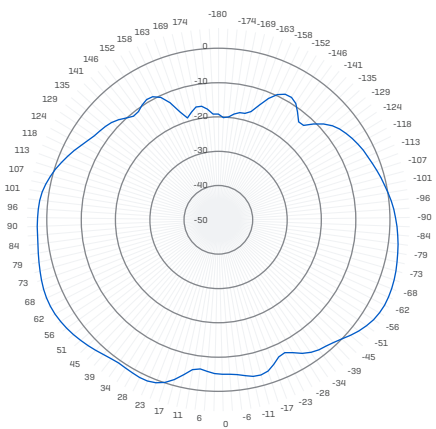
| APX 740	
Environment	
Power consumption	22.4 W
Power over Ethernet (PoE) requirements	802.3at
Operating temperature	0°–40° C
Storage temperature	-40°–70° C
Humidity	10–95% non-condensing
Hazardous substances	RoHS-2 and REACH compliant
Physical specification	
I/O ports	1x RJ45 connector console serial port
	1x RJ45 10/100/1000 Ethernet port
	1x RJ45 10/100/1000 Ethernet w/PoE (802.3at)
	1x Reset button
	1x Kensington security slot
Memory	1 Gbyte DDR3L
	512 Mbyte NAND Flash
	4 Mbyte SPI NOR Flash
Mounting	Desktop
	Wall-mount hang
	Ceiling (15/16, 9/16, 3/8 inch ceiling tracks)
Dimensions (Width x Depth x Height)	195x195x43 mm
Weight	1.012 kg
Wireless specification	
Radios	1x 2.4 GHz single band
	1x 5 GHz single band
	1x Bluetooth low energy (BLE)
Antennas	4x internal 2.4 GHz antenna for Radio-1 (omni-directional)
	4x internal 5 GHz antenna for Radio-2 (omni-directional)
	1x internal 2.4 GHz antenna for BLE
Antenna Peak Gain	4.1 dBi at 2.4 GHz, 5.7 dBi at 5 GHz
MIMO capabilities	4x4:4
Supported WLAN standards	IEEE 802.11 a/b/g/n/ac Wave 2
SSIDs	8 per radio, 16 in total
Max. Throughput	1733 Mbps (5G) + 600 Mbps (2.4G)

Performance			
Band/Mode	Data Rate	TX Power Maximum EIRP (dBm)	RX Sensitivity (dBm)
2.412–2.472 GHz (11b)	1 Mbps	24	-99
	2 Mbps	24	-96
	5.5 Mbps	24	-94
	11 Mbps	24	-91
2.412–2.472 GHz (11g)	6 Mbps	23	-94
	9 Mbps	23	-93
	12 Mbps	22	-92
	18 Mbps	22	-90
	24 Mbps	21	-86
	36 Mbps	21	-83
	48 Mbps	20	-79
	54 Mbps	20	-77

Performance			
2.412–2.472 GHz (11n HT20)	MCS 0	23	-94
	MCS 1	23	-90
	MCS 2	22	-88
	MCS 3	22	-84
	MCS 4	21	-81
	MCS 5	21	-77
	MCS 6	19	-75
	MCS 7	19	-74
	MCS 8	18	-70
5.180–5.825 GHz (11a)	6 Mbps	22	-92
	9 Mbps	22	-91
	12 Mbps	21	-89
	18 Mbps	21	-87
	24 Mbps	20	-84
	36 Mbps	20	-81
	48 Mbps	19	-76
	54 Mbps	19	-74
5.180–5.825 GHz (11ac VHT20)	MCS0	22	-92
	MCS1	22	-88
	MCS2	22	-86
	MCS3	22	-82
	MCS4	20	-79
	MCS5	20	-74
	MCS6	18	-73
	MCS7	18	-72
	MCS8	17	-67
5.180–5.825 GHz (11ac VHT40)	MCS0	22	-89
	MCS1	22	-85
	MCS2	22	-83
	MCS3	22	-79
	MCS4	20	-76
	MCS5	20	-72
	MCS6	18	-71
	MCS7	18	-69
	MCS8	17	-65
	MCS9	17	-63
5.180–5.825 GHz (11ac VHT80)	MCS0	22	-86
	MCS1	22	-82
	MCS2	22	-80
	MCS3	22	-76
	MCS4	20	-73
	MCS5	20	-69
	MCS6	18	-67
	MCS7	18	-66
	MCS8	15	-62
	MCS9	15	-60

Radiation patterns

2.4 G Band
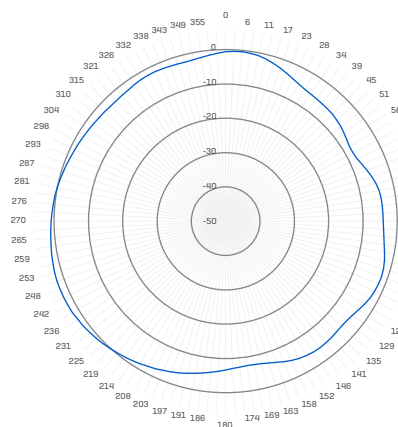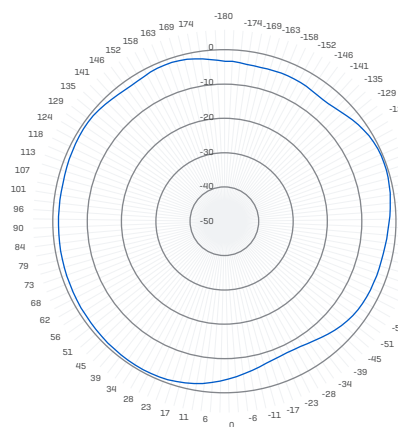
H-plane

V-plane

5G Band
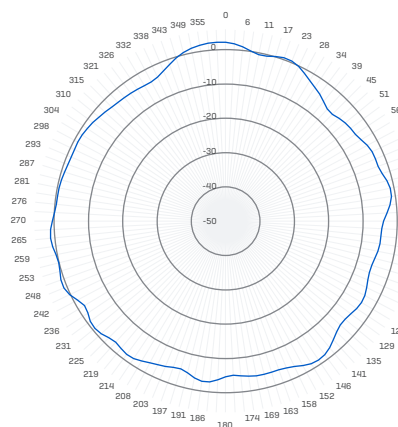
H-plane

V-plane
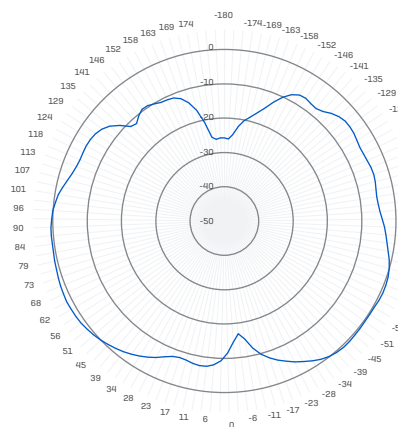
Mounting instructions

There are various mounting options available allowing you to hang your access point on the wall or mount it to various ceiling types. The following sections provide detailed instructions for the various options which are available today.

Standard wall and ceiling rails mount

Each Sophos Access Point APX 320, APX 530, and APX 740 ships with a mounting bracket that supports the following mounting options:

‣ Ceiling mount for 15/16'', 3/8'' and 9/16'' ceiling track, flush ceiling tiles

‣ Wall mount hang
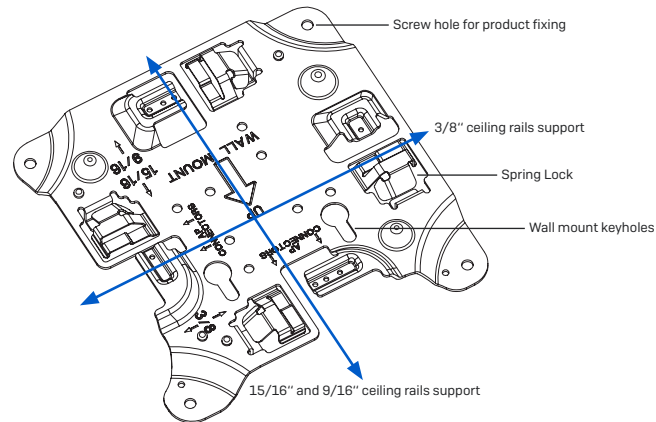
APX 320/530/740 Mounting template

Do not shrink to fit when printing

4.08cm (1.6in)

Ceiling mount
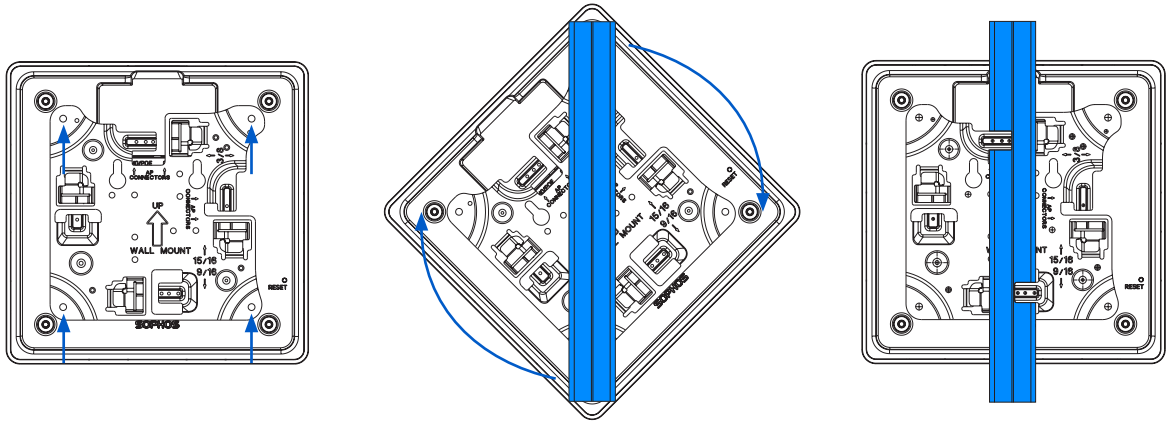
1. Fix the bracket to the rear of the Access Point by using 4 of the supplied screws.

2. To install, put the access point underneath the ceiling rail and turn it into place. To dismount, push down the spring locks and turn the access point in the other direction.

Wall mount
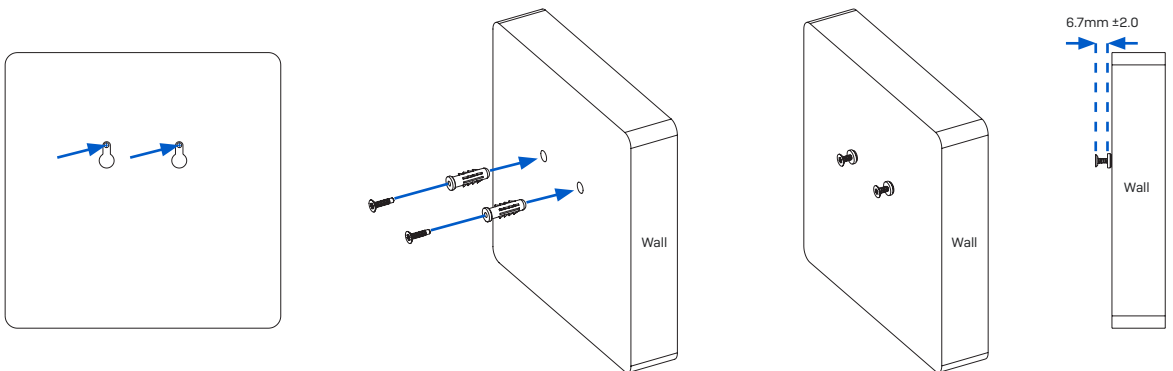
1. Use the mounting template to mark the screw mounting positions on the wall.

2. Drill the 2 supplied wall anchors into the wall at the marked positions and screw 2 supplied screws into them. Make sure they stand out ~6.7mm.

3. Fix the bracket to the rear of the Access Point by using 4 of the supplied screws.
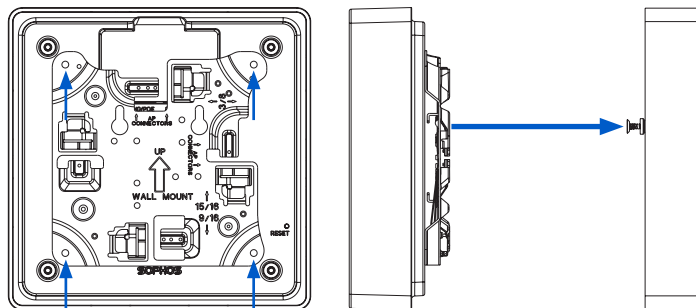
4. Hang the access point (with the mounted bracket) on the wall by aligning the key holes with the mounted screws.
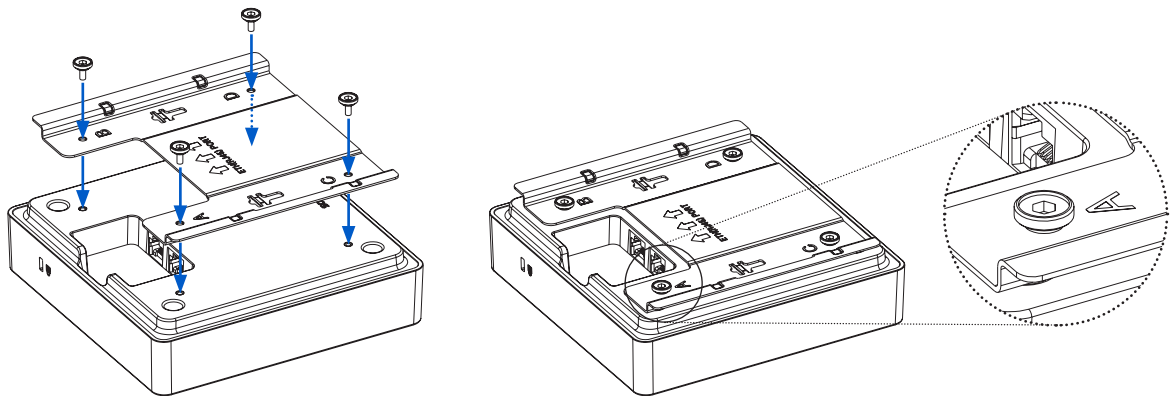
Flat ceiling mount

To mount your access point to a flat ceiling, please use the "flat ceiling & plenum mounting kit" which is available as an option from your Sophos partner.

The kit consists of the following components:
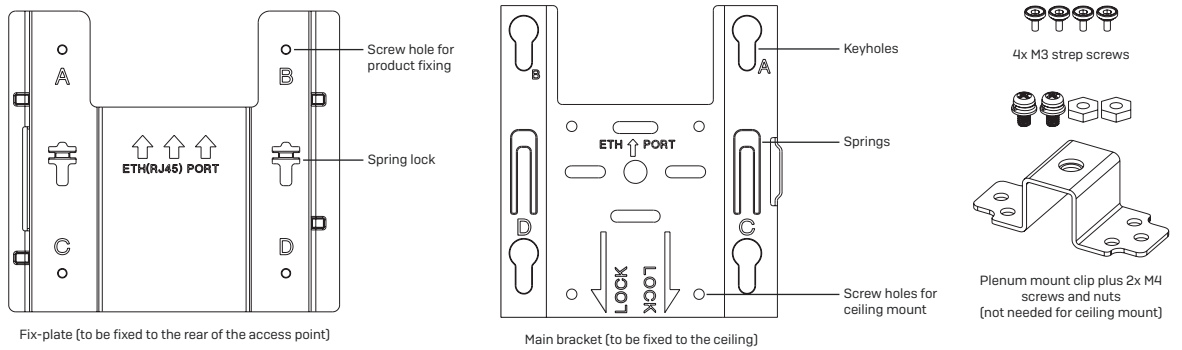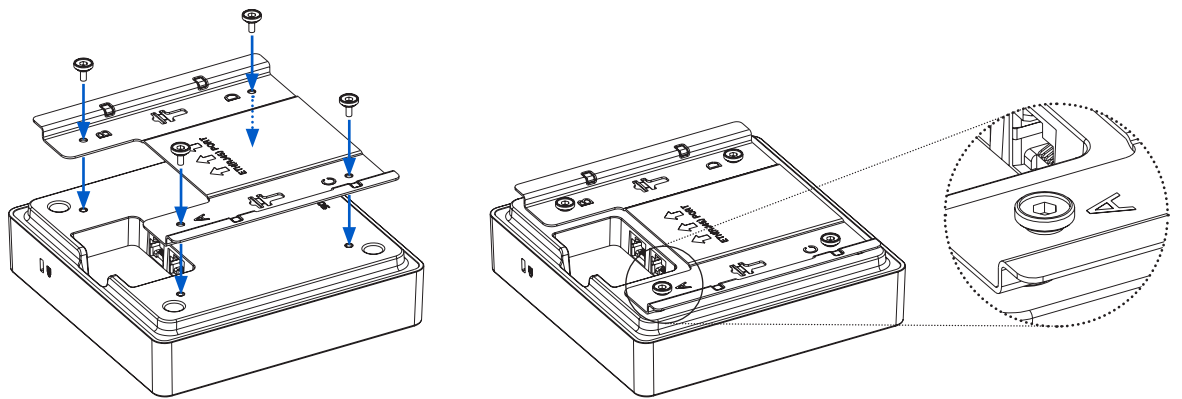
Screw hole for product fixing

Spring lock

ETH(RJ45) PORT

Fix-plate (to be fixed to the rear of the access point)

Keyholes

Springs

ETH ↑ PORT

LOCK LOCK

Screw holes for ceiling mount

Main bracket (to be fixed to the ceiling)

4x M3 strep screws

Plenum mount clip plus 2x M4 screws and nuts (not needed for ceiling mount)

Mounting instructions

1. Place the fix-plate on the rear of the Access Point. Make sure it's positioned in the right direction as indicated.
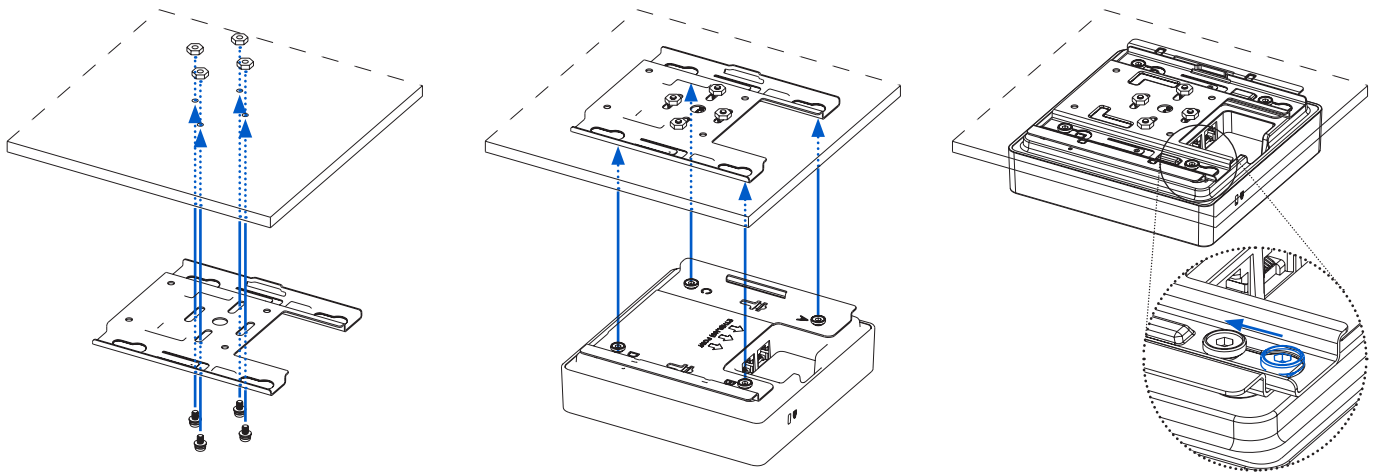
2. Install 4 step-screws (M3) from the supply into the bracket holes.

3. Fix the main bracket to a concrete ceiling by using 4 wall anchors and screws or to a ceiling tile by using 4 screws and nuts (not supplied).

4. Align the Access Point (with fix-plate) via the key holes to the main bracket and push it to the end in the sliding-slot.

Plenum mount

For plenum mounting, please use the "flat ceiling & plenum mounting kit" which is available as an option from your Sophos partner. The plenum mounting kit must be installed by a skilled installer.
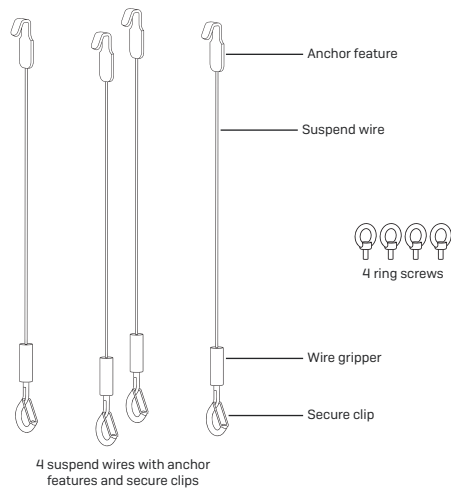
The kit consists of the following components:

Fix-plate (to be fixed to the rear of the access point)

Main bracket (to be fixed to the ceiling)

4x M3 strep screws

Plenum mount clip plus 2x M4 screws and nuts
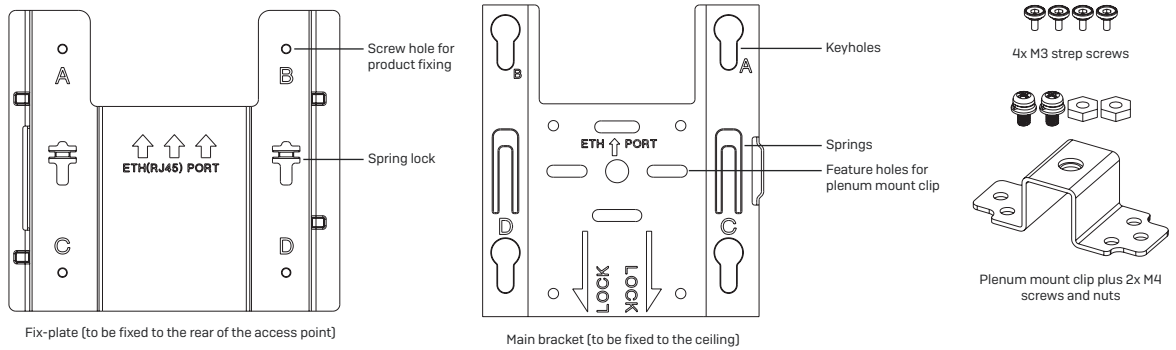
Mounting instructions

1. Place the fix-plate on the rear of the Access Point. Make sure it's positioned in the right direction as indicated.
2. Install 4 step-screws (M3) from the supply into the bracket holes.
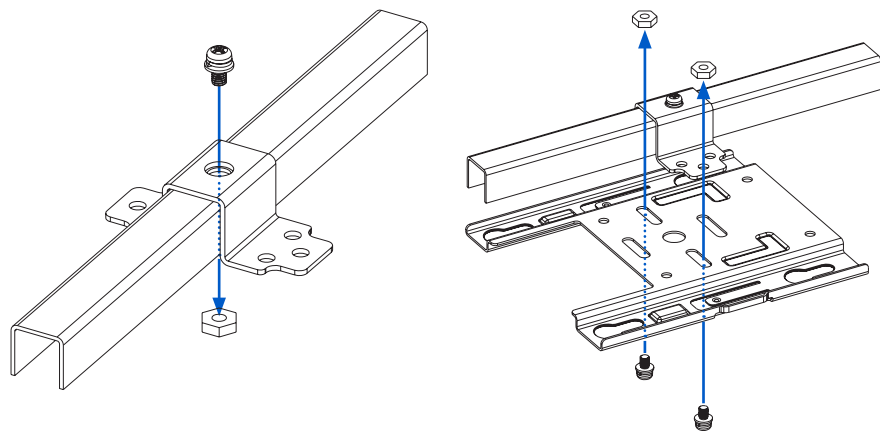
3. Install the plenum clip onto the hanger frame and fix it with a M4 or M5 screw (not supplied).
4. Connect the main bracket to the clip by using 2 of the supplied screws.
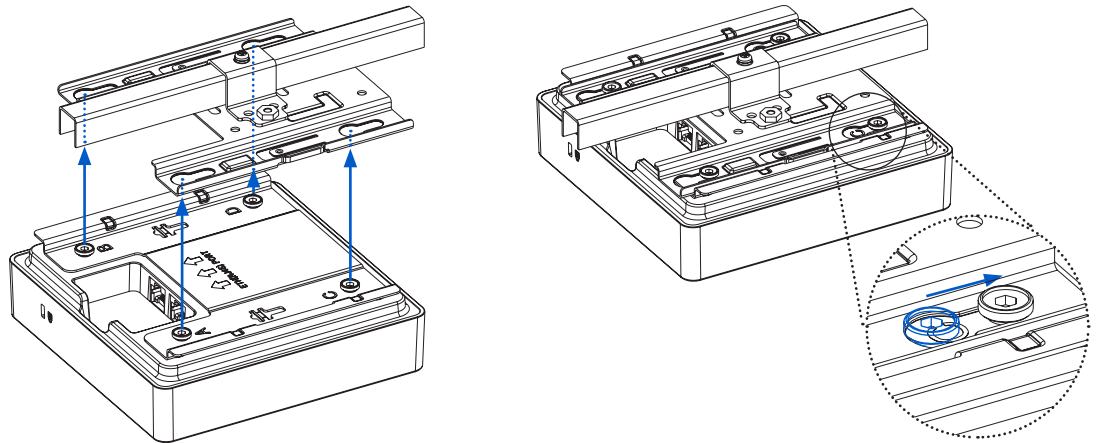
5. Align the Access Point (with fix-plate) via the key holes to the main bracket and push it to the end in the sliding-slot.

Suspend mount

For suspend mounting, please use the "suspend mounting kit" which is available as an option from your Sophos partner. The suspend mounting kit must be installed by a skilled installer.
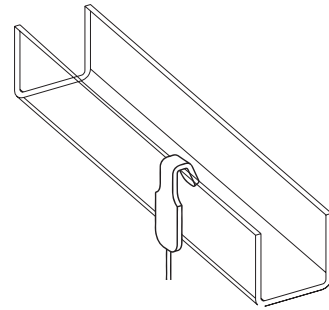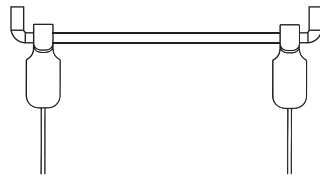
The kit consists of the following components:

Anchor feature

Suspend wire

4 ring screws

Wire gripper

Secure clip

4 suspend wires with anchor features and secure clips

Mounting instructions

Screw the 4 supplied ring-screws (M3) into the bracket holes on the rear of the access point.
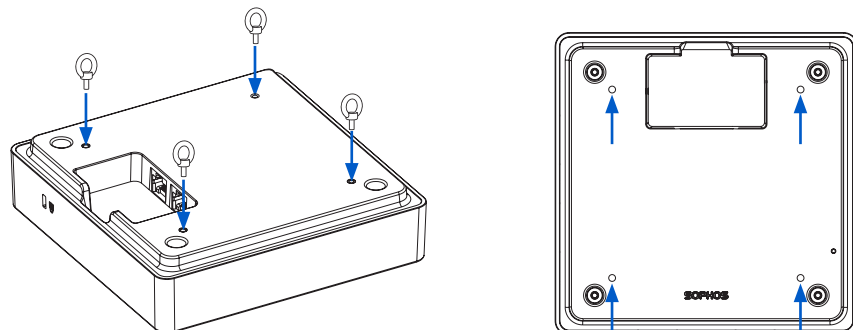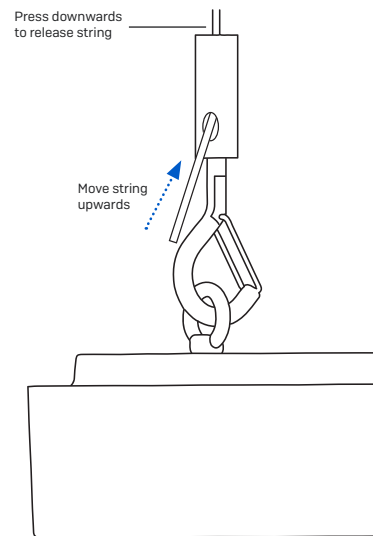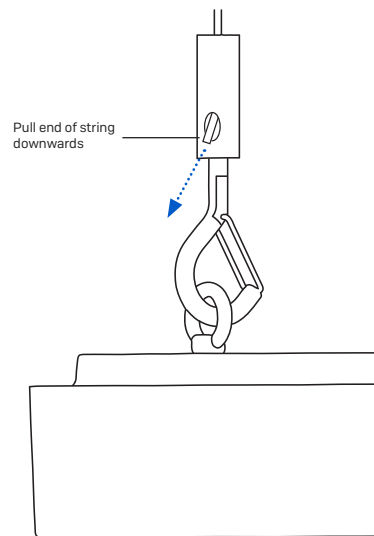
Find a suitable place on the ceiling to hang the 4 suspend-wires by using the anchor feature.
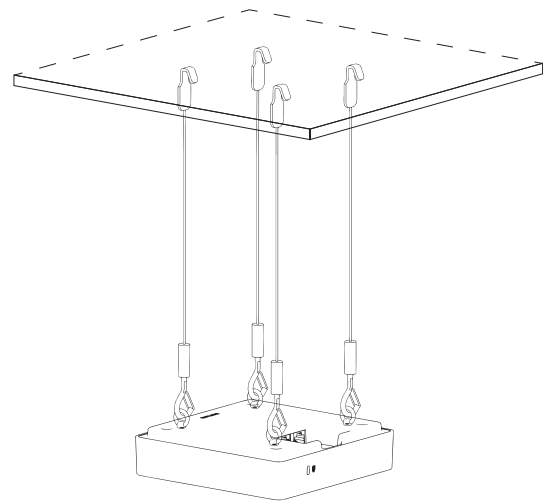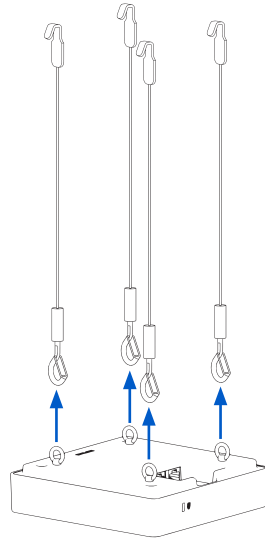
Lift the AP up, open the secure-clips, attach the hooks to the rings, and release the secure-clips to lock it.

Pull end of string downwards

Press downwards to release string

Move string upwards

In order to adjust the height of the AP upwards, pull the end of the string further out of the wire gripper. To adjust it downwards, press the top of the wire gripper to release the wire first.

Armstrong interlude and silhouette mount

An optional mounting kit will be made available soon.

Serial Console Connection

You can connect a serial console to the RJ45 COM port of your Access Point. For example, you can use the HyperTerminal program which is included with most versions of Microsoft Windows to log onto the appliance console. Use an appropriate adapter to connect the console to your hardware appliance.

The required connection settings are:

- **Bits per second:** 115,200
- **Data bits:** 8
- **Parity:** N (none)
- **Stop bits:** 1

Access via the serial console is activated by default on ttyS1.

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