Cambium Networks™ XIRRUS

XA4-240 Installation Guide

November 2019

Accuracy

While reasonable efforts have been made to assure the accuracy of this document, Cambium Networks assumes no liability resulting from any inaccuracies or omissions in this document, or from use of the information obtained herein. Cambium reserves the right to make changes to any products described herein to improve reliability, function, or design, and reserves the right to revise this document and to make changes from time to time in content hereof with no obligation to notify any person of revisions or changes. Cambium does not assume any liability arising out of the application or use of any product, software, or circuit described herein; neither does it convey license under its patent rights or the rights of others. It is possible that this publication may contain references to, or information about Cambium products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that Cambium intends to announce such Cambium products, programming, or services in your country.

Copyrights

This document, Cambium products, and 3rd Party software products described in this document may include or describe copyrighted Cambium and other 3rd Party supplied computer programs stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Cambium, its licensors, and other 3rd Party supplied software certain exclusive rights for copyrighted material, including the exclusive right to copy, reproduce in any form, distribute and make derivative works of the copyrighted material. Accordingly, any copyrighted material of Cambium, its licensors, or the 3rd Party software supplied material contained in the Cambium products described in this document may not be copied, reproduced, reverse engineered, distributed, merged or modified in any manner without the express written permission of Cambium. Furthermore, the purchase of Cambium products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyrights, patents or patent applications of Cambium or other 3rd Party supplied software, except for the normal non-exclusive, royalty free license to use that arises by operation of law in the sale of a product.

Restrictions

Software and documentation are copyrighted materials. Making unauthorized copies is prohibited by law. No part of the software or documentation may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, without prior written permission of Cambium.

License Agreements

The software described in this document is the property of Cambium and its licensors. It is furnished by express license agreement only and may be used only in accordance with the terms of such an agreement.

High Risk Materials

Cambium and its supplier(s) specifically disclaim any express or implied warranty of fitness for any high risk activities or uses of its products including, but not limited to, the operation of nuclear facilities, aircraft navigation or aircraft communication systems, air traffic control, life support, or weapons systems ("High Risk Use"). Any High Risk is unauthorized, is made at your own risk and you shall be responsible for any and all losses, damage or claims arising out of any High Risk Use.

Contacting Cambium Networks

Support website:	https://support.cambiumnetworks.com
Main website:	https://www.cambiumnetworks.com
Sales enquiries:	solutions@cambiumnetworks.com
Support enquiries:	https://support.cambiumnetworks.com
Repair enquiries:	https://support.cambiumnetworks.com
Telephone number list:	https://www.cambiumnetworks.com/support/contact-support
Address:	Cambium Networks Limited, Linhay Business Park, Eastern Road, Ashburton, Devon, UK, TQ13 7UP

Problems and warranty

Reporting problems

If any problems are encountered when installing or operating this equipment, follow this procedure to investigate and report:

1. Search this document and the software release notes of supported releases.

2. Visit the support website.

3. Ask for assistance from the Cambium Networks product supplier.

4. Gather information from affected units, such as any available diagnostic downloads.

5. Escalate the problem by emailing or telephoning support.

Repair and service

If unit failure is suspected, obtain details of the Return Material Authorization (RMA) process from the support website.

Hardware warranty

Cambium Networks's standard hardware warranty is for one (1) year from date of shipment from Cambium Networks or a Cambium distributor. Cambium Networks warrants that hardware will conform to the relevant published specifications and will be free from material defects in material and workmanship under normal use and service. Cambium Networks shall within this time, at its own option, either repair or replace the defective product within thirty (30) days of receipt of the defective product. Repaired or replaced product will be subject to the original warranty period but not less than thirty (30) days.

To register PTP products or activate warranties, visit the support website. For warranty assistance, contact the reseller or distributor.

!   *CAUTION*

Using non-Cambium Networks parts for repair could damage the equipment or void warranty. Contact Cambium Networks for service and repair instructions.

Portions of Cambium Networks equipment may be damaged from exposure to electrostatic discharge. Use precautions to prevent damage.

Security advice

Cambium Networks systems and equipment provide security parameters that can be configured by the operator based on their particular operating environment. Cambium recommends setting and using these parameters following industry recognized security practices. Security aspects to be considered are protecting the confidentiality, integrity, and availability of information and assets. Assets include the ability to communicate, information about the nature of the communications, and information about the parties involved.

In certain instances Cambium Networks makes specific recommendations regarding security practices, however the implementation of these recommendations and final responsibility for the security of the system lies with the operator of the system.

Warnings, cautions, and notes

The following describes how warnings and cautions are used in this document and in all documents of the Cambium Networks document set.

Warnings

Warnings precede instructions that contain potentially hazardous situations. Warnings are used to alert the reader to possible hazards that could cause loss of life or physical injury. A warning has the following format:

!   *Warning: Warning text and consequence for not following the instructions in the warning.*

Cautions

Cautions precede instructions and are used when there is a possibility of damage to systems, software, or individual items of equipment within a system. However, this damage presents no danger to personnel. A caution has the following format:

!   *CAUTION: Caution text and consequence for not following the instructions in the caution.*

Notes

A note means that there is a possibility of an undesirable situation or provides additional information to help the reader understand a topic or concept. A note has the following format:

 Note text.

Caring for the environment

The following information describes national or regional requirements for the disposal of Cambium Networks supplied equipment and for the approved disposal of surplus packaging.

In EU countries

The following information is provided to enable regulatory compliance with the European Union (EU) directives identified and any amendments made to these directives when using Cambium Networks equipment in EU countries.

Disposal of Cambium Networks equipment

European Union (EU) Directive 2002/96/EC Waste Electrical and Electronic Equipment (WEEE)

Do not dispose of Cambium Networks equipment in landfill sites. For disposal instructions, refer to http://www.cambiumnetworks.com/support/weee-compliance.

Disposal of surplus packaging

Do not dispose of surplus packaging in landfill sites. In the EU, it is the individual recipient's responsibility to ensure that packaging materials are collected and recycled according to the requirements of EU environmental law.

In non-EU countries

In non-EU countries, dispose of Cambium Networks equipment and all surplus packaging in accordance with national and regional regulations.

Quick Installation Guide

For XA4 Models

XA4 Series High Density Convention Center Access Points (CCAPs) are plenum-rated indoor APs using external antennas. With four 802.11ac Wave 2 radios, a powerful integrated controller, application-level intelligence, automated provisioning, and optional cloud management, the APs deliver robust wireless connectivity in areas of medium to high user density. The XA4-240 has four 4x4 Wave 2 802.11ac radios: radio IAP1 is a dual-band 2.4GHz/5GHz radio, and IAP2 through IAP4 are single-band 5GHz radios.

This Guide describes how to install and start the AP. For detailed configuration information, see the User's Guide or online help for the Cambium Xirrus XMS management system for APs (XMS), or the *Wireless Access Point User's Guide*.

1

You Need the Following Items

◆ Accessory Kit (included in each AP carton) includes Mounting plate.

◆ Cambium Xirrus-recommended antennas (and cables if needed) for up to four radios. If you are not using recommended antennas with four connectors, network designers should specify how many antennas to install for each radio—see the table in "Install Antennas" on page 5 to see which connectors to use. Cables (if needed) are low-loss coaxial cables terminated with RP-SMA connectors. See *External Antennae Guide* for recommended antennas.

◆ Power and Ethernet connection(s) to your wired network using Cat 5e/6 cables. The AP has 2 Ethernet ports:

◆ **GIG1/POE**—This 2.5 Gigabit port powers the AP via Power over Ethernet (PoE) using a Cat 5e or Cat 6 cable that also carries data traffic. See below for Power details. Note that the port's rate is always set by auto-negotiation with the switch.

◆ (Optional) **GIG2**—Connection to this second, data-only one-gigabit port provides additional bandwidth. Use Cat 5E or Cat 6 cable.

AP must be connected to PoE networks without routing cabling to the outside plant. This ensures that cabling is not exposed to lightning strikes or possible crossover from high voltage lines. AP, PoE Injectors, or Switches must be installed and used indoors. The total Cat 5e or Cat 6 cable length from the switch to the AP must be no more than 100 m, including all cable segments.

◆ Power— See the matrix below to select a compatible Cambium Xirrus-supplied injector for your AP. If using an injector, you must provide a data connection from the switch to the injector as well as another cable from the injector's OUT port to the AP's GIGABIT1/PoE port. PoE injectors require an AC outlet.

AP Model	XP1-MSI-75 (POE-75U-1UP-X)	XP8-MSI-70M
XA4-240	✓	✓

◆ The models listed above (XP1-MSI-75, XP8-MSI-70M) typically require a dongle to be connected in-line between the AP and the power injector, as instructed in *Power Dongle for XD4-240/XA4-240*. This document and the dongle are supplied with your AP if they are needed.

◆ Apply power to GIG1/POE port only—other AP Gigabit ports will not draw power if connected to a powered switch port, and AP LEDs will not light.

◆ Access to a Web browser to configure the AP via the Cambium Xirrus XMS management system for APs or directly via the AP's interface.

NOTE: Leave protective plastic film on the AP until installation is complete, to avoid leaving marks on the AP.

Mounting

◆ Direct Ceiling or Wall Mount—use the furnished mounting plate with four user-supplied screws that are appropriate for the construction type of the mounting site.

◆ Pole Mount—may be attached with metal straps as described in "3B—Pole Mount" on page 3.

The AP attaches to the mounting plate with four supplied keyhole studs, as instructed on page 6. The photo at right shows the correct seating of the AP on the mounting plate. **The mounting plate should be installed with the lock lever pointing down,** unless you are mounting on a horizontal surface. The AP slides onto the mount so that the lock lever latches into the locking slot on the back of the AP, between the two middle antenna connector arms. The lock lever will be on the opposite side of the Ethernet ports.

AP attachment
keyhole slots

Lock lever

Locking slot
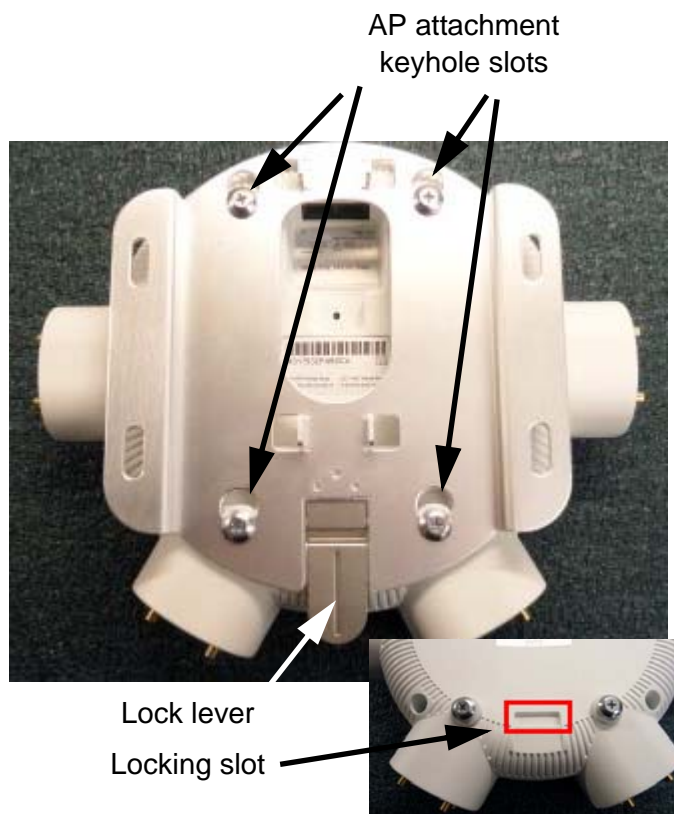
2

Choose a Suitable Location

◆ Choose an indoor location that is central to your users, and that is away from heat sources.

◆ The location must be capable of supporting the weight of the AP and the mounting plate (about 5 lb total).

◆ For optimal placement, we recommend that a predictive survey be performed by a qualified Cambium Xirrus partner.

◆ Maintain a distance of at least 50 feet between additional APs.

◆ Keep the unit away from electrical devices or appliances that generate RF noise-at least 3 to 6 ft (1m - 2m).

◆ The XA4 can operate from a Wireless Distribution System (WDS) link. However, the unit must be configured via the Ethernet connection prior to mounting and power must be supplied via the GIG1 Ethernet connector.

3

Install Mounting Hardware

◆ 3A—Ceiling or Wall Mount with Mounting Plate   ◆ 3B—Pole Mount

3A—Ceiling or Wall Mount with Mounting Plate

The following steps use a mounting plate, which offers a secure mount and ease of dismount. **For a wall mount, the locking lever should point down.**

1. Use the AP mounting plate to mark the placement on the ceiling of the cable feed opening and of the 4 mounting slots.

2. Drill and prepare holes for user-supplied screws as appropriate.

3. Cut an access hole for the cable(s) in the wall and draw enough cable through to attach to the AP when it is installed.

4. Align the mounting plate over the prepared holes (position the edges with the mounting slots flush against the wall.). Feed the cable(s) through. Secure the plate with the screws.

Mounting slots

Cable feed

AP attachment keyhole slots

Mounting slots
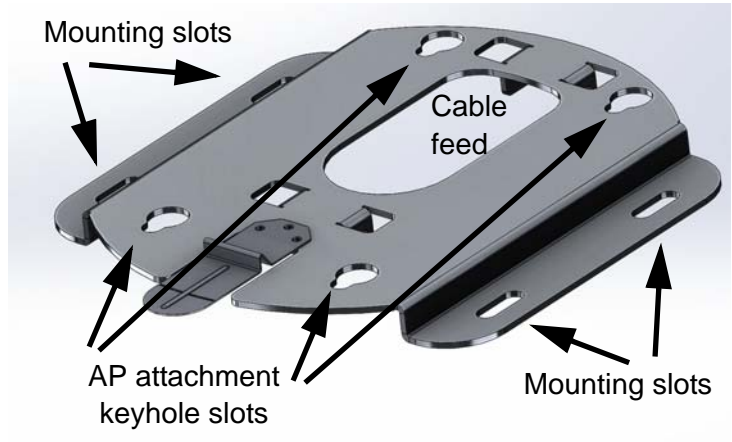
3B—Pole Mount

For pole mounting, Cambium Xirrus recommends using metal straps (not included with the AP). The metal straps can be obtained from BAND-IT-IDEX, Inc. (www.BAND-IT-IDEX.com). See their web site for additional contact information. Complete the following steps to mount the AP to a pole.

◆ Install the metal bands through the holes in the mounting plate.

◆ Note that the photos below show a different mounting plate. The steps for installation are identical, however.

◆ Install the mounting plate **with the locking lever pointing down**.

◆ Hand tighten the Band-It strap through the pole mounting plate, thread it through the strap buckle and then bend the strap back.
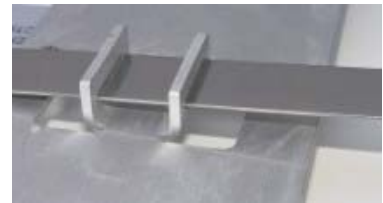
◆ Using the Band-It tool, place the tool onto the strap.

◆ Rotate the Band-It tool so that it can pull the excess strap through the buckle and turn the crank until the strap is very tight.

◆ Once the strap is satisfactorily tight, rotate the Band-It tool back so that the strap cannot slide back through the buckle.

◆ Using the built in cutting tool on the Band-It tool, cut the excess strap.

◆ Your installation should now appear as shown here.

◆ Using a hammer, bend back and flatten the remaining strap.

◆ Using a hammer, bend and flatten the two tabs on the buckle to hold the flattened strap end in place.

◆ The completed attachment should have the mounting plate firmly seated against the pole. One band should be enough for most installations however a second band can be used for additional mounting security.
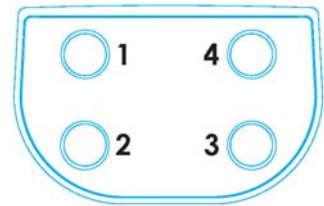

4

Install Antennas

See the *External Antennae Guide* for recommended antennas.

◆ Check the network plan for the number of antennas to connect to each of the four radios, named **IAP1** to **IAP4**. The table below shows which connector numbers to use, and the image at right shows their numbering.

For Rubber Duck Antennas:

Install the antennas on the AP as described above.

Antenna Connectors

For Panel Antennas:

◆ Install your antenna(s) as directed by the manufacturer. Note that radio IAP1 is dual-band, so if you use single-band antennas for it, you must configure IAP1 to the antennas' band (2.4 GHz or 5.0 GHz). See "Zero-Touch Provisioning and Ongoing Management" on page 7).

◆ Use low-loss coaxial cables compatible with the XA4's RP-SMA connectors. Note that some antennas include integrated cables as part of the unit, and these do not need separate cables.

◆ For Cambium Xirrus-recommended antennas with four connectors, attach all of an antenna's cables to a radio's outputs at any connector numbers (the order doesn't matter).

◆ When using antennas with less than four connectors, network designers should specify how many antennas to install for each radio. The table below shows which connectors you must use, based on the number of antennas allocated to a radio. In addition, for best performance, terminate each unused radio output with a customer-supplied 50 ohm, reverse polarized RF terminator, such as http://www.amphenolrf.com/132360rp.html.

| # Connectors on the Antenna	... For Usage Scenario (Configured settings)	Connector 1	Connector 2	Connector 3	Connector 4
2	2x2	Yes	No	No	Yes
3	3x3	Yes	Yes	No	Yes
4	4x4 (default)	Connect all antenna connectors, in any position			

See the Notices Appendix in the *Wireless Access Point User's Guide* for output power adjustments.

5

Connect Cables and Install AP

NOTE: Once you connect GIG1/POE, an automatic upgrade typically starts soon after the AP has Internet connectivity. Do not unplug this port during the upgrade or the AP may become inoperable. The upgrade should take 10 minutes or less.

1. Find the four keyhole studs supplied in the AP carton. Screw them securely into the holes on the back of the AP as far as they will go, but do not over-tighten.

2. Connect the power and data cable to **GIG1/POE** (shown in red). If you use a Cambium Xirrus-supplied injector, its CONNECT LED should light (for 70W and higher injectors, it is OK if it blinks). If power is being properly supplied, the AP LEDs will light and then commence blinking in a rotating boot pattern. A second data connection may be made to **GIG2** (optional). The GIG1 LED on the front of the AP shows the data connection rate: 2.5Gb—blue; 1Gb—orange; 100Mb—green.
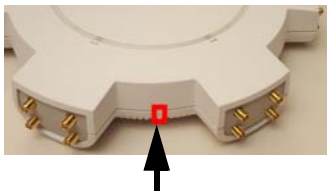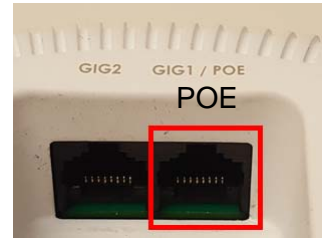
Alignment Line on AP
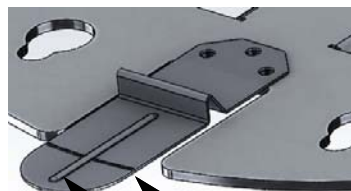
Alignment Lines on Lock/Unlock Lever

Installed AP
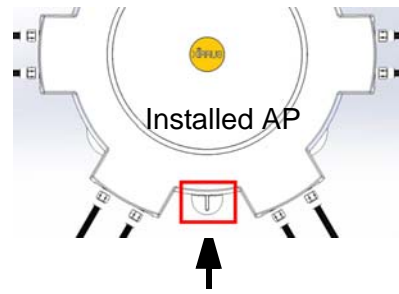
Lock/Unlock Lever

3. Install the AP: Position the keyhole studs on the back of the AP over the keyhole slots on the mounting plate using the following aid—line up the alignment line on the AP (small bump located on the AP as indicated above) with the vertical line on the locking lever. Also refer to the photo in "Mounting" on page 2.

4. Push the AP against the mounting plate and slide the AP down towards the locking lever until the keyhole studs are secure in the slots and the lever locks in place. The edge of the AP will line up with the horizontal line on the lock lever.

5. If using panel antennas, connect the cables as indicated in the table on page 5.

6. If you need to remove the AP, push down on the lock lever to unlock the AP. Continue to hold it down while you slide the AP away from the lever and pull the AP off the mounting plate.

6

Zero-Touch Provisioning and Ongoing Management

Most customers use the XMS AP management system for the initial setup and continuing management of Cambium Xirrus APs. XMS users set up new APs for zero-touch provisioning via the platforms below. Wait ten minutes after powering up the AP to automatically discover and upgrade it, then use XMS to view and manage it.

◆ XMS-Cloud—performs zero-touch provisioning. Your new APs appear in XMS even before you receive your equipment. When the email arrives with your login information, use XMS-Cloud to specify the initial settings for your APs. A Guided Tour will walk you through the basic steps of creating a profile containing configuration settings, including creating SSIDs and firewall/application control rules. Once the installed AP has Internet connectivity, it will automatically contact Cambium Networks for cloud-based zero-touch provisioning per your settings, install the latest applicable license, and upgrade the AP to the latest software version as appropriate.

◆ XMS-Enterprise—detects and provisions new Cambium Xirrus devices deployed in your network. Create and configure a default profile for newly added APs, then set up discovery for the APs' subnetwork. New devices will automatically receive the configuration defined in the default profile.

If you are not using XMS, see the *Wireless Access Point User's Guide* to configure APs manually. The User's Guide is available from support.cambiumnetworks.com.

7

Using the Reset Button

The reset button returns the AP to factory default settings while rebooting. It is located on the bottom of the AP, just above the serial number/bar code. Use the reset button as follows:

◆ Unplug the cable from the **GIG1/POE** port.

◆ Press the reset button all the way (there should be a faint click) and hold it.

◆ Plug the cable back in and continue to keep the button pressed for 10 seconds. This triggers the factory default reset during the boot process.

8

Physical/Environmental Specifications

◆ Dimensions (WxDxH, including mounting plate): 9.25 x 10.25 x 2.5 in / 23.5 x 26 x 6.4 cm

◆ Weight (including mounting plate): 5 lb / 2.3 kg

◆ Operating Temperature: 0-45°C / 32-113°F, 0-90% humidity, non-condensing.