Adtran

Quick Start Guide

BSAP 6120

Dual-band Wi-Fi 6 Outdoor Access Point

March 2023
61700973F1-13B

P/N: 1700973F1

Overview

WARNING!

Read all warnings, cautions, notes and installation instructions before installing or servicing this equipment.

This quick start guide describes how to install and access Adtran's Bluesocket 6120 access point (BSAP), a Wi-Fi 6 (802.11ax) 2x2 outdoor AP designed to provide enterprise-grade performance within high-density wireless environments. This robust AP simultaneously supports two transmit and two receive streams with data rates up to 1.7 Gbps (1.2 Gbps for 5 GHz and 574 Mbps for 2.4 GHz) using four external SMA-type antennas with up to 5 dBi peak gain, and supports zero-touch provisioning using Adtran's virtual wireless local area network (vWLAN) cloud-management application. The BSAP 6120 is fully functional with 802.3at Power over Ethernet (PoE+), WPA3 encryption and Wireless Intrusion Detection (W-IDS) for added security, support for the traditional DynamicRF, Neighbor Discovery, Layer 7 device fingerprinting features and the new multi-user MIMO (MU-MIMO), orthogonal frequency-division multiple access (OFDMA), basic service set (BSS) coloring, advanced 1024-QAM, and target wake time (TWT) features for Wi-Fi 6.

Figure 1. BSAP 6120

WARNING!

WARNING indicates a hazard which, if not avoided, could result in death, injury or serious property damage.

CAUTION!

CAUTION indicates a hazard which, if not avoided, could result in service interruption, damage to the equipment, or minor property damage.

NOTE

NOTES inform the user of additional, but important, information or features.

Installing the BSAP 6120

NOTE

Refer to the national, state and local electrical codes for the requirements for power, grounding, wiring, and installation methods.

Package Contents

- Adtran's BSAP 6120
- Four (4) (2x2) detachable 5dbi high-gain, 360º SMA-type antennas
- One wall/ceiling/pole mounting bracket
- One ceiling/wall mounting kit
  - Four plastic anchors (6 mm diameter x 25 mm long) and mounting screws (3 mm diameter x 16 mm long) for solid walls (such as concrete)
  - Four metal anchors (7mm diameter x 42.8 mm long) and mounting screws (3.5 mm diameter x 25.4 mm long) for hollow walls/ceilings (such as drywall, sheetrock, or ceiling tiles)
- One pole mounting kit (two hose straps)
- Locking screw (M3 x 6L - 5.3 mm diameter x 5.8 mm long)
- Watertight PoE fitting
- Grounding cable (180cm/5.9 feet in length, 14 AWG) and grounding screw (M4 x 5.5L - 6.8 mm diameter x 5.3 mm long)
- Quick Start Guide

Prior to Installation

Before installing the equipment, inspect the AP. If damage has occurred during shipping, file a claim with the carrier, and then contact Adtran Customer Support. For more information, refer to the product warranty available online at www.adtran.com/warranty-terms.

Antennas

The BSAP 6120 provides four SMA-type antenna connectors (no integrated antennas are included) for use with the provided antennas. These connectors support two internal 802.11 radios: one 2.4 GHz 802.11 b/g/n/ax radio and one 5 GHz 802.11 a/n/ac/ax radio. There are two antenna connectors for each band labeled **2.4GHz** and **5GHz**. You must attach the provided antennas prior to the connection of the PoE cable or mounting the BSAP.

WARNING!

Use only the antennas provided with the unit. All four antennas must be installed directly onto the BSAP 6120 prior to connection of the PoE power source.

Grounding the BSAP

The BSAP must be grounded prior to installation due to the location of the grounding connection on the chassis. Use the supplied green/yellow grounding cable (180cm/5.9 feet in length, 14 AWG) to ground the BSAP 6120 by following these steps:

1. Remove the small Phillips-head grounding screw and lock washer from the BSAP packaging. The location of the grounding screw connection is marked on the BSAP's back cover (as shown in Figure 1 on page 1).
2. Place the lock washer and ring lug of the supplied grounding cable on the shank of the screw and secure the screw to the unit using an appropriate tool.
3. After unit installation, attach the other end of the grounding cable to a reliable earth ground point.

WARNING!

Adequate grounding must be provided to the unit. A clearly marked grounding location is provided on the rear of the unit for this purpose. Consult a certified electrician to ensure that all grounding and cabling is installed in compliance with the local electrical code.

Mounting the BSAP 6120 to an Exterior Ceiling or Wall

The 6120 BSAP can be mounted in exterior applications or interior applications, and in harsh environments with an operating temperature range of –4°F to 140°F (–20°C to 60°C). The BSAP should be positioned for maximum throughput and range between other APs and wireless client devices. Complete these instructions to mount the BSAP 6120 to a ceiling or wall:

1. Attach all antennas to the BSAP (refer to "Antennas" above).
2. Attach the grounding cable and screw to the BSAP (refer to "Grounding the BSAP" above).
3. On a flat mounting surface, using the mounting bracket as a guide for exact positioning, mark the locations of the four mounting holes.
4. Select the appropriate anchor and screw combination for the material in which you will be installing the BSAP (plastic anchors for solid walls (such as concrete), and metal anchors for hollow walls/ceilings (such as drywall, sheetrock, or ceiling tiles).
5. If using plastic anchors, drill an appropriate size hole (6 mm diameter) into each of the markings. The metal anchors are no-drill anchors and do not require a drilled hole.
6. Insert the appropriate anchors into each of the drilled holes. If using metal anchors, tap the anchors into the mounting surface in the marked location(s) until the threads are secure, and then screw them in until they are flush with the surface.
7. Place the mounting bracket flat against the anchors (so that the screw-mount holes are flat against the surface and align with the anchors) and secure the bracket to the surface using the appropriate mounting screws. The protruding mounting tabs should face outward, so that the BSAP can slide onto the bracket once the bracket is secured to the surface (refer to Figure 2 on page 3).

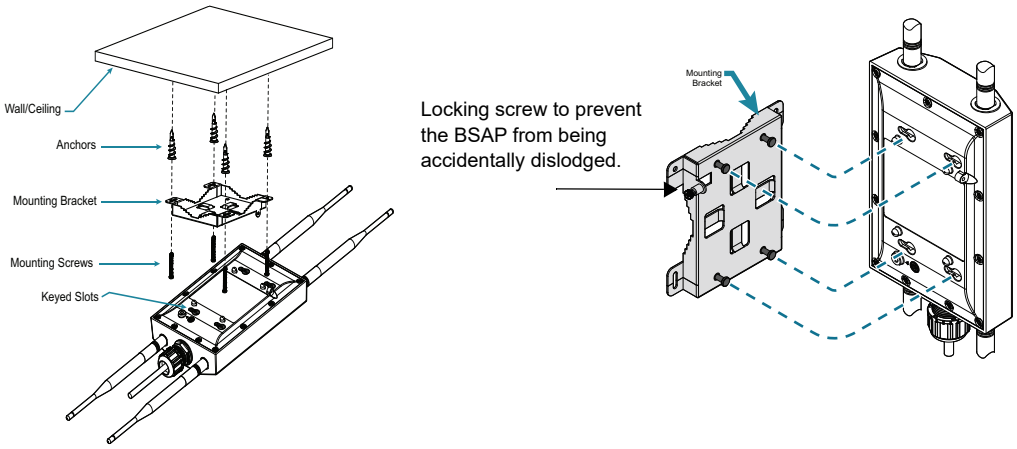


Figure 2. Installing the BSAP 6120 on a Wall or Ceiling and Securing BSAP to Mounting Bracket

> **NOTE**
>
> *The BSAP must be mounted on the bracket so that the locking tab on the bracket aligns with the threaded hole for locking screw on the unit.*

8. Slide the keyed slots on the back of the unit's chassis securely onto the bracket's protruding mounting tabs, and secure the BSAP 6120 to the bracket by installing and tightening the locking screw (as shown in Figure 2).
9. Once the BSAP 6120 is securely installed, attach the grounding cable to a reliable earth ground point and proceed to the instructions provided in "Supplying Power to the BSAP 6120" on page 5.

Mounting the BSAP 6120 to a Pole

The BSAP 6120 also ships with pole mount hose straps to mount the AP to a vertical or horizontal pole. BSAPs should be positioned for maximum throughput and range between other APs and wireless client devices. The BSAP should have the antennas and grounding wire attached before installation (refer to"Antennas" and "Grounding the BSAP" on page 2).

To Mount the BSAP 6120 to a Vertical Pole:

1. Attach all antennas to the BSAP (refer to "Antennas" on page 2).
2. Attach the grounding cable and screw to the BSAP (refer to "Grounding the BSAP" on page 2).
3. Thread the open end of the hose straps through the two tabs on the top and bottom of the mounting bracket so that the BSAP is aligned vertically (as shown in Figure 3).
4. Attach the chassis to the pole mounting bracket by sliding the keyed slots on the back of the chassis securely onto the bracket's protruding mounting tabs (Figure 3). Be sure to secure the BSAP 6120 to the bracket by tightening the locking screw illustrated in the image below.

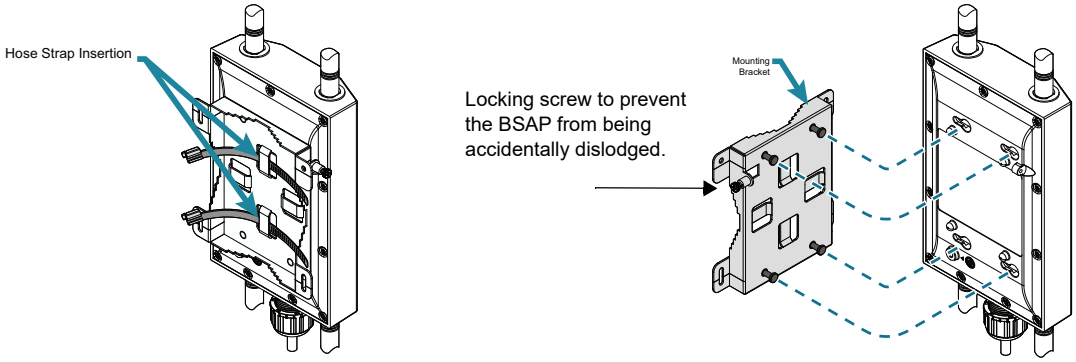


Figure 3. Insert Hose Straps for Vertical Mounting and Securing BSAP to Mounting Bracket

> **NOTE**
>
> *The BSAP must be mounted on the bracket so that the locking tab on the bracket aligns with the threaded hole for locking screw on the unit.*

5. Wrap the hose straps around the vertical mounting pole and insert the end into the strap lock. Tighten the strap locks to secure the unit to the pole (as shown in Figure 4).

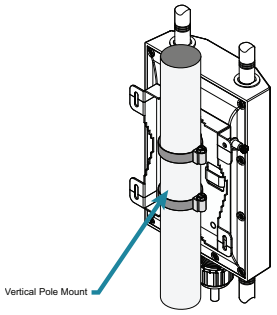


Figure 4. Vertical Pole Mount

6. Once the BSAP 6120 is securely installed, attach the grounding cable to a reliable earth ground point and proceed to the instructions provided in "Supplying Power to the BSAP 6120" on page 5.

Mounting the BSAP 6120 to a Horizontal Pole

1. Attach all antennas to the BSAP (refer to "Antennas" on page 2).
2. Attach the grounding cable and screw to the BSAP (refer to "Grounding the BSAP" on page 2).
3. Thread the open end of the hose straps through the two tabs on the right and left of the mounting bracket so that the BSAP is aligned horizontally (as shown in Figure 5).
4. Attach the chassis to the pole mounting bracket by sliding the keyed slots on the back of the chassis securely onto the bracket's protruding mounting tabs (Figure 5). Be sure to secure the BSAP 6120 to the bracket by tightening the locking screw illustrated in the image below.

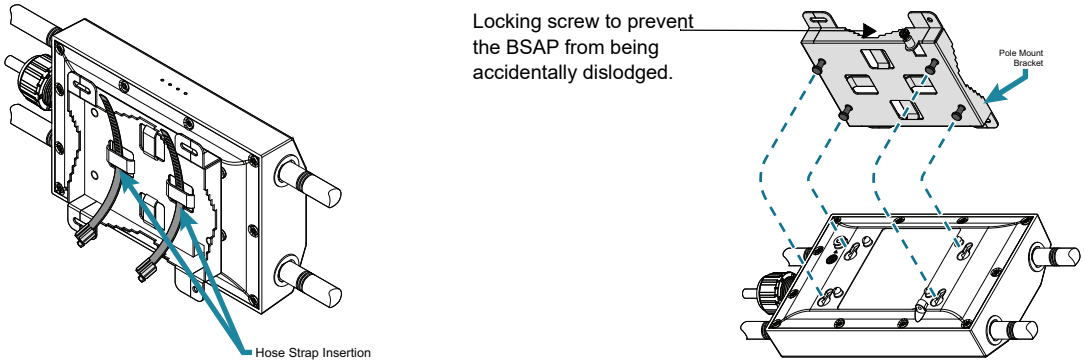


Figure 5. Insert Hose Straps for Horizontal Mounting and Securing BSAP to Mounting Bracket

> **NOTE**
>
> *The BSAP must be mounted on the bracket so that the locking tab on the bracket aligns with the threaded hole for locking screw on the unit.*

5. Wrap the hose straps around the horizontal mounting pole and insert the end into the strap lock. Tighten the lock of the hose straps to secure the unit to the pole (as shown in Figure 6).

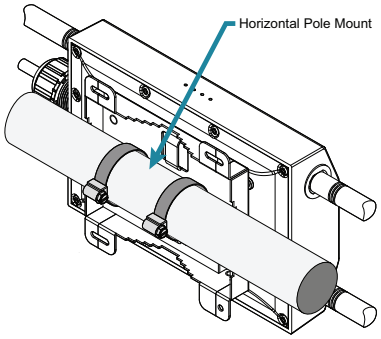


Figure 6. Horizontal Pole Mount

6. Once the BSAP 6120 is securely installed, attach the grounding cable to a reliable earth ground point and proceed to the instructions provided in "Supplying Power to the BSAP 6120".

Supplying Power to the BSAP 6120

The BSAP 6120 does not have a power switch. It is powered when connected to a network device that supplies PoE+ based on the IEEE 802.3at standard. To power the BSAP 6120, follow these instructions:

NOTE

This product is intended to have power supplied by an NRTL safety listed (certified) Power over Ethernet (PoE) adapter that complies with IEEE 802.3at standards, provides 0.6 A minimum power, and functions within an ambient temperature of 140 degrees F (60 degrees C). For further assistance, contact the manufacturer or brand owner of the PoE adapter for further information.

NOTE

Antennas must be installed on the BSAP 6120 prior to connecting power/PoE+ network devices. Refer to "Antennas" on page 2 for more information.

Connect the PoE Cable to the BSAP

1. Remove the cinch nut, strain-relief clip, and seals from the BSAP housing.
2. Insert the customer-provided RJ-45 CAT 5e or CAT 6 cable through the cinch nut and strain-relief clip, RJ-45 connector first.
3. Insert the connector into the RJ-45 receptacle on the bottom of the BSAP (the connector is recessed within the BSAP itself).
4. Separate the seals and place them around the cable near the inlet.
5. Gently push the strain-relief clip along the cable until it engages with the seals.
6. Slide the cinch nut over the strain-relief clip and seals until it engages the fitting threads. Tighten the cinch nut until it is fully seated, forming a watertight seal. See Figure 7.

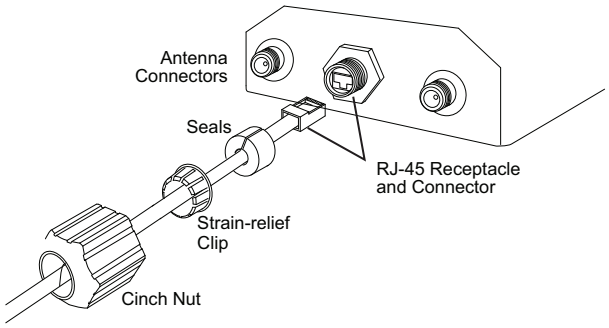


Figure 7. Watertight PoE Fitting

CAUTION!

For outdoor applications, the watertight fitting must be used when connecting PoE cables to the BSAP 6120. Failure to use the watertight fitting when the unit is installed outdoors will void the user's warranty and could create a fire or shock hazard.

Connect the BSAP to a PoE Source

Figure 8 on page 6 illustrates how to provide power to the BSAP 6120 installed indoors and outdoors. Three examples are provided:

1. A PoE+ switch providing power in conjunction with NetVanta PoE+ Protector/Injector (PN: 1702595F15) installed indoors.
2. A non-PoE switch in conjunction with NetVanta PoE+ Protector/Injector (PN: 1702595F15) and an optional AC Power Adapter (PN: 1700501F1) to provide power installed indoors.
3. A third-party outdoor rated 802.3at PoE+ injector (PowerDsine PD-9001GO) or equivalent with GR-1089-CORE or ITU-T K Series surge protection.

CAUTION!

In all cases, connect the BSAP 6120 to Earth Ground. For outdoor applications, use only shielded or outdoor-rated Ethernet cable run inside conduit to protect it from damage from extreme weather conditions and temperatures. Consult a certified electrician to ensure that all grounding and cabling is installed in compliance with local electrical code. Any damage or malfunction resulting from exposure of this unit to lightning or transient voltage events will void the user's warranty.

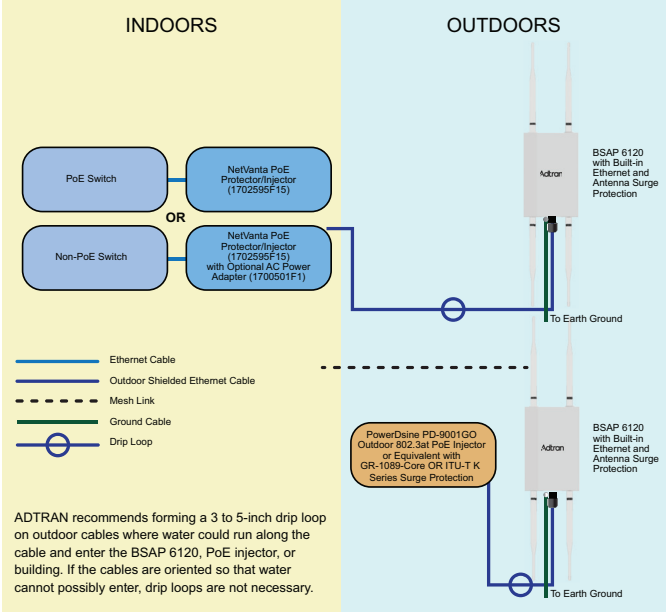


Figure 8. Powering the BSAP 6120 Indoors and Outdoors

Managing the BSAP 6120

You can connect to and manage the BSAP 6120 using one of Adtran's cloud management services or by using the BSAP's command line interface (CLI). Each service offering and management method is described in the following sections.

Managing the BSAP 6120 with Express Cloud

Express Cloud is now included with the purchase of new Adtran Bluesocket 6120 series APs. Express Cloud can be used with the BSAP 6120, however Elite Cloud or Elite On-Premises can be purchased for access to upgraded features.

For initial setup of Express Cloud:

1. Go to https://adtran.com/cloud and provide the requested information to create a new account. Express Cloud access information and credentials will be sent via email within one business day.
2. After receiving e-mail confirmation, connect the BSAP to a power supply.
3. Connect the BSAP to an internet-accessed network. The BSAP will automatically discover Express Cloud and will display in the account.

For existing Express Cloud accounts adding additional BSAPs:

1. Go to https://adtran.com/cloud.
2. Using the same email address as the existing Express Cloud account in the email field and the domain name in the company field.
3. If using an email address that already has an account and a domain that already exists, you will be adding additional BSAPs to that existing account and domain.
4. Confirmation that BSAPs have been added will be sent via email within one business day.
5. After receiving e-mail confirmation, connect the BSAP to a power supply.
6. Connect the BSAP to an internet-accessed network. The BSAP will automatically discover Express Cloud and will display in the account.

Express Cloud support is available in the Adtran interactive support community online at https://supportcommunity.adtran.com.

NOTE

For further details regarding Express Cloud, Elite Cloud, and Elite On-Premises, refer to the FAQ in the support community. For further information on creating an Express Cloud account, refer to the Creating an Express Cloud Account article in the support community.

Managing the BSAP 6120 with Elite Cloud

Purchasing an Elite Cloud subscription automatically creates a user cloud account. All further communication regarding the subscription will be provided via email.

For initial setup of Elite Cloud:

1. Elite Cloud access information and credentials will be sent via email within one business day.
2. After receiving e-mail confirmation, connect the BSAP to a power supply.
3. Connect the BSAP to an internet-accessed network. The BSAP will automatically discover Elite Cloud and will display in the account.

For existing Elite Cloud accounts purchasing additional BSAPs and Elite Cloud Subscriptions:

1. Confirmation that the BSAPs have been added will be sent via email within one business day.
2. After receiving e-mail confirmation, connect the BSAP to a power supply.

3. Connect the BSAP to an internet-accessed network. The BSAP will automatically discover Elite Cloud and will display in the account.

Managing the BSAP 6120 with On-Premises and AP Discovery

The BSAP 6120 can be configured for use on-premises, with the Bluesocket virtual wireless local area network (vWLAN) management system. Using AP discovery to configure the BSAP with a previously-installed vWLAN instance can be achieved by allowing the BSAP to discover the vWLAN instance and receive its configuration information. This AP discovery process uses an algorithm that attempts discovery methods in this order: static configuration, Dynamic Host Control Protocol (DHCP) vendor option (43), Domain Naming System (DNS) discovery, cached vWLAN information, and Express/Elite Cloud Zero Touch discovery. If no response to the discovery request is received, the algorithm moves to the next method in the list (except when using static configuration, which never queries the other discovery methods).

Two additional network components can be configured to facilitate AP discovery:

1. An external DHCP server can be configured to assign IP addresses to the BSAPs associated with the vWLAN instance. When configuring the DHCP server, make sure to configure the Bluesocket DHCP Vendor option (**43**) on the server.
2. An external DNS server can be configured to resolve the name **apdiscovery** to the IP address of the vWLAN in the network environment. When using DNS, only the A records are needed and required to be configured.

> **NOTE**
>
> *When running static configuration, the BSAPs will not automatically query the other AP discovery methods.*

For more information on the vWLAN and AP discovery, refer to the *vWLAN AP Discovery Configuration Guide* available online at https://supportcommunity.adtran.com.

Configuring the BSAP 6120 IP Address or Static Discovery Using the CLI

By default, DHCP is enabled on the BSAP 6120. However, if static configuration is required for the IP address or AP discovery for the BSAP, users can access the BSAP's CLI using either a VT100 terminal emulation program or an SSH client.

To access the BSAP 6120 CLI using a VT100 terminal emulation program, follow these steps:

1. Connect a DB-9 to RJ-45 serial cable (rollover cable) to the BSAP's **CONSOLE** port, and connect the other end of the serial cable to the PC.
2. Open a VT100 terminal emulation program with the following settings: **115,200** data rate, **eight** data bits, no parity bits, and **1** stop bit (no flow control).
3. Select **<Enter>** to access the CLI. At the prompt, enter the user name **adm1n** and the password **blue1socket**.

To access the CLI using an SSH client, complete these steps:

1. Ensure that the BSAP is connected to a controlling computer (using an RJ-45 Ethernet cable).
2. Specify that the computer's TCP/IP setting is **On** or **Enabled** by navigating to **Control Panel** and selecting **Network Connections**.
3. Double-click the connection of your network interface card and select **Internet Protocol (TCP/IP)**.
4. Select **Properties** then specify that the TCP/IP setting is enabled.
5. Set your PC to a static IP address of **192.168.190.2** with a subnet mask of **255.255.255.0**.
6. Access the BSAP's command line interface (CLI) using an SSH client.
7. Open an SSH connection using the unit's DHCP-assigned IP address (or default IP address of **192.168.190.1** if DHCP is not enabled) and port **2335** connected to the **LAN1** port on the BSAP.

> **NOTE**
>
> *If DHCP is not enabled, you can connect to the BSAP using the default IP address of **192.168.190.1**. To use this method, make sure that the BSAP is in the same subnet as the PC configured in Step 5.*

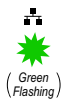
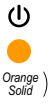
8. At the prompt, enter the user name **adm1n** and the password **blue1socket**.

Configuring the Application

More detailed information about configuring the BSAP 6120, refer to the *vWLAN Administrator's Guide*, available online at https://supportcommunity.adtran.com. Additional safety and regulatory guidelines are also available in the *Bluesocket Compliance Notice* available online at https://supportcommunity.adtran.com.

BSAP 6120 LED Descriptions

LED Array				BSAP State
⏻ (Orange Solid)	🖧 (Green Solid)	2.4 GHz (Green Solid)	5 GHz (Green Solid)	Boot Loader Initialization
⏻ (Orange Solid)	🖧 (Off)	2.4 GHz (Off)	5 GHz (Off)	Operating System Initialization

LED Array				BSAP State
 (Orange Solid)	 (Green Flashing)	2.4 GHz (Off)	5 GHz (Off)	LAN Initialization
 (Orange Solid)	 (Green Flashing)	2.4 GHz (Off)	5 GHz (Off)	Discovering vWLAN
 (Orange Solid)	 (Green Flashing)	2.4 GHz (N/A)	5 GHz (N/A)	Firmware Upgrade (Download)
 (Orange Solid)	 (Green Flashing)	2.4 GHz (N/A)	5 GHz (N/A)	Firmware Upgrade (writing or verifying)
 (Orange Solid)	 (Green Flashing)	2.4 GHz (N/A)	5 GHz (N/A)	Firmware Upgrade Complete
 (Orange Solid)	 (Green Flashing)	2.4 GHz (Green Flashing 2.4G LED only)	5 GHz (Green Flashing 5G LED only)	Operational with No Activity on Radios (scanning radio disabled)
 (Orange Solid)	 (Green Flashing)	2.4 GHz (Green Flashing 2.4G LED only)	5 GHz (Green Flashing 5G LED only)	Operational with Activity on Radios (scanning radio disabled)
 (Orange Solid)	 (Green Flashing)	2.4 GHz (Green Flashing 2.4G LED only)	5 GHz (Green Flashing 5G LED only)	Operational with No Activity on Radios (scanning radio active)
 (Orange Solid)	 (Green Flashing)	2.4 GHz (Green Flashing 2.4G LED only)	5 GHz (Green Flashing 5G LED only)	Operational with Activity on Radios (scanning radio active)

Product Specifications

Electrical

- Input: 802.3at Compliant PoE+ source
- Max Power: 15.9W

Environment

- Operating Temperature: -4°F to 140°F (-20°C to 60°C)
- Storage Temperature: -22°F to 176°F (-30°C to 80°C)
- Relative Humidity: up to 100 percent, condensing
- Environmental Protection Level: IP67
- ESD Protection:
  - Contact: 4KV

- Air: 8KV

CAUTION!

Electrostatic Discharge (ESD) can damage electronic devices. When handling devices, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place in antistatic packing material when transporting or storing. When installing or maintaining, always place devices on an approved antistatic mat that is electrically grounded.

CAUTION!

This product is intended for business deployment. Care should be taken to protect cables from damage or vandalism.

NOTE

Changes or modifications not expressly approved by Adtran will void the warranty.

Compliance

- Changes or modifications not expressly approved by Adtran could void the user's authority to operate this equipment.
- IEEE 802.3at PoE+
- FCC
  - Subpart 15 B
  - Subpart C 15.247
  - Subpart E 15.407
- CAN ICES-003(B) / NMB-003(B)
- RSS-247
- NRTL Safety Listed

FCC Statements

- 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.
  - 2. This device must accept any interference received, including interference that may cause undesired operation.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 25 cm between the radiator and your body.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate the equipment.

NOTE

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 and correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and the 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.*

Documentation for Adtran Network Solutions products is available for viewing and download directly from the Adtran Support Community website.
Go to: https://supportcommunity.adtran.com

Adtran offers training courses on our products, including customized training and courses taught at our facilities or at customer sites.
For inquiries, go to: http://adtran.com/training

Access additional safety information and updated product documentation using the QR code, or find additional resources from the Adtran Support Community website.

https://supportcommunity.adtran.com

Warranty: Adtran will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found online at www.adtran.com/warranty-terms.

Trademarks: Brand names and product names included in this document are trademarks, registered trademarks, or trade names of their respective holders.

CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY
HANDLING PRECAUTIONS REQUIRED

Adtran CUSTOMER CARE:
From within the U.S. 1.888.423.8726
From outside the U.S. +1 256.963.8716
PRICING AND AVAILABILITY 1.800.827.0807

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