
AXT610 -- ShowLink Access Point

AXT610 ShowLink Access Point

The AXT610 ShowLink™ access point enables real-time remote control of the Axient™ transmitters. The access point allows comprehensive management of transmitter parameters from the receiver or Wireless Workbench® 6 using 2.4 GHz wireless network communication. All parameter changes occur without interruption to the performer.

Multiple access points can extend the operational range or increase the number of transmitters supported on the ShowLink network.

Features

- Real-time wireless remote control of up to 16 transmitters per ShowLink access point
- Automated channel selection - Independently scans 2.4 GHz frequency range and determines best channel for use
- Receives power via Power over Ethernet (PoE) network connection or from an external power supply
- Easy transmitter authentication - Recognizes linked transmitters upon IR sync
- Provides coverage area approximately the same as the transmitter's UHF range (depending on the RF squelch setting of the receiver)
- Automatic hand-offs between multiple access points extend coverage range
- Automatic frequency agility - Moves a ShowLink network to the best available 2.4 GHz channel in the event of signal degradation
- Versatile mounting options - Fits readily available microphone stand adapters and features built-in threading for permanent installation
- Wireless Workbench 6 system supports networked control of all device functions and provides a ShowLink plot for viewing 2.4 GHz signal levels

ShowLink Access Point Overview

① ShowLink 2.4 GHz detachable antenna

For 2.4 GHz signals

② ShowLink Data Status LED (blue)

- ON Steady: Linked, no data transmission

- Flashing: Transmitting data - rate of flashing indicates level of activity

③ Power Status LED (green/amber/red)

- Steady Green: Power ON, power source = PoE
- Steady Amber: Power ON, power source = external power supply
- Red Flashing: Response to remote ID flash command

④ Ethernet Status LED (green)

- ON Steady: Ethernet connected, no traffic
- ON Flashing: Ethernet connected, flashing corresponds to volume of data traffic

⑤ Threaded mounting point

Use to wall mount the access point

⑥ External power supply connector

Connection point for external power supply

⑦ Reset button

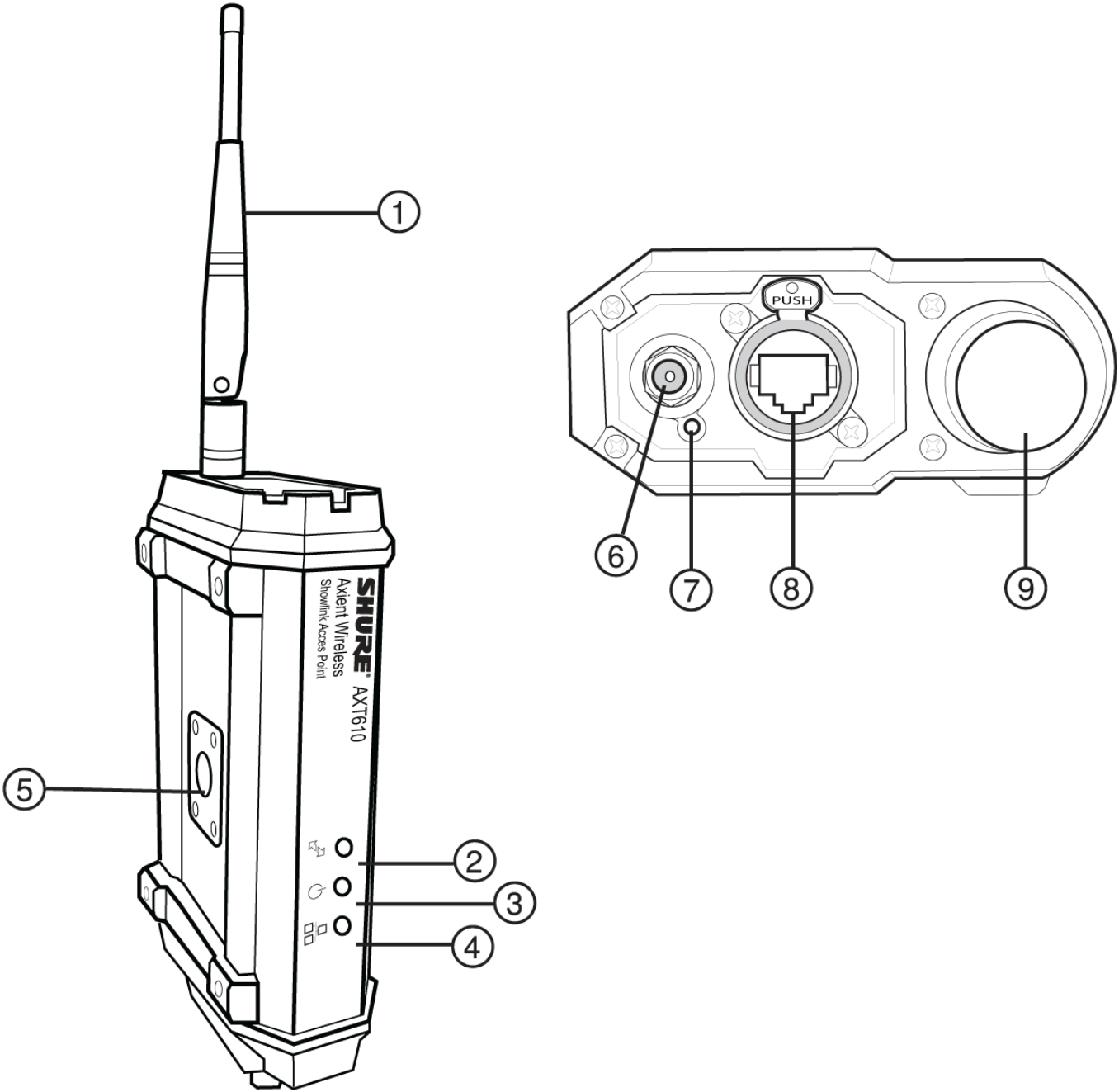
Press to restore factory settings

⑧ Ethernet port

For network connection and Class 1 PoE

⑨ Scanning antenna for channel agility

Scans the 2.4 GHz spectrum for the best frequency



Included Components

Wireless microphone clip for mounting on a microphone stand	WA371
Euro thread adapter for WA371	31A1856
Shielded 25-foot Ethernet cable for ShowLink access point, RJ45-to-EtherCon connector	C825

ShowLink Basics

ShowLink Channels and 2.4 GHz Spectrum

ShowLink channels that enable remote control of Axient transmitters operate in the 2.40 to 2.484 GHz portion of the RF spectrum in accordance with the IEEE 802.15.4 protocol. Devices that share the 2.4 GHz spectrum, including Wi-Fi, are manufactured to efficiently share the spectrum and cause minimal interference. Both ShowLink and Wi-Fi use "listen before talk" technology to transmit short message packets only when needed to conserve bandwidth. Available spectrum, low interference, and global availability make the 2.4 GHz spectrum an ideal choice for hosting ShowLink channels.

Within the 2.4 GHz spectrum, 16 channels are available for ShowLink communication. To ensure reliable communication, the access point contains an internal scanning radio that analyzes the 2.4 GHz spectrum hundreds of times per second. If interference is detected, the access point uses channel agility to automatically switch to a clear channel within the spectrum. All transmitters associated with the access point will continue to communicate uninterrupted on the new ShowLink channel. If ShowLink goes off-line for any reason, audio transmission will not be interrupted.

Coverage Area

The coverage area of the access point is approximately the same as the transmitter's UHF range (depending on the RF squelch setting of the receiver). Use the ShowLink Test feature in the receiver menu to map the boundaries of the coverage area. Multiple access points can be used to increase the coverage area or to expand coverage to multiple rooms.

Transmitter Capacity

A single access point supports up to 16 Axient transmitters. Any transmitter within range of an active access point with available capacity will be automatically controlled by that access point. When multiple access points are used to increase transmitter capacity or to increase coverage range, transmitter control is automatically divided between each access point. All changes in control between access points occur seamlessly and automatically, without requiring user intervention.

Transmitter Control

An access point with available capacity will automatically control linked transmitters that are within the coverage area. Multiple access points automatically self-manage to divide transmitter control and maintain coverage. Transitions between access point control do not affect the transmission of the audio channel.

2.4 GHz Channel Agility to Avoid Interference

When interference is present from Wi-Fi or other devices sharing the spectrum, built-in channel agility automatically switches the access point and all controlled transmitters to a clear channel. Channel agility is able to avoid interference from the following devices that operate in the 2.4 GHz spectrum:

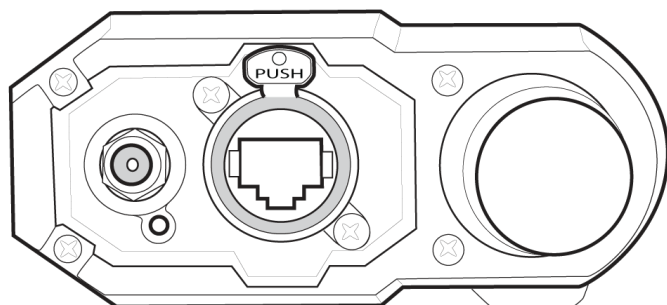
- Wi-Fi (802.11)
- Cordless phones
- Wireless video

ShowLink Icon

The ShowLink icon appears on the home screens of a linked transmitter and receiver to indicate that the transmitter is within range of an access point making remote control possible. If the transmitter is beyond the range of the access point, or if the receiver is off-line, the icon will disappear, indicating a loss of ShowLink control.

Power

The access point is powered through Power Over Ethernet (PoE) enabled network ports. If PoE is not available, an external power supply may be used.



Ethernet Port

External Power Supply Jack

Power Over Ethernet

The Shure Ethernet switch and Axient rack components offer network ports with Power over Ethernet (PoE). The network port powers the access point as long as the host component is powered on.

1. Insert a CAT-5 Ethernet cable into the Ethernet port located on the body of the access point.
2. The Ethernet PoE connection supplies power for the access point.

External Power Supply (Optional)

If Power over Ethernet (PoE) is not available, power the access point using an external power source supplying 15 V DC $\pm 10\%$ (600 mA).

1. Connect the power source to the external power supply jack.
2. Tighten the locking ring to secure the plug.
3. Plug the power supply AC line cord into an AC power source.
4. Connect a CAT 5 Ethernet cable to the access point to provide a network connection.

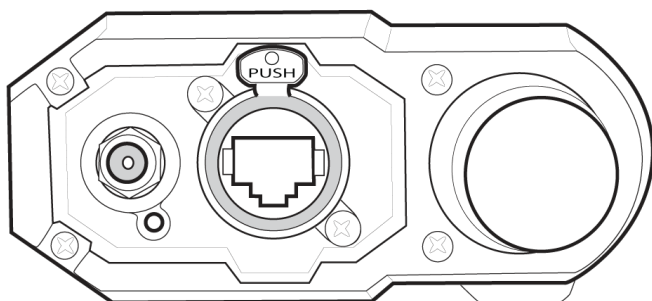
Networking

Networking the access point using a Shure AXT620 Ethernet switch or a DHCP-enabled router automatically assigns an IP address, simplifying network setup. The network connection allows the access point to share data with networked components and enables wireless control of the transmitters. To manually assign an IP address to the access point, use Wireless Workbench 6.

Reset Option

Pressing the reset button located on the bottom of the housing restores the access point to the following settings:

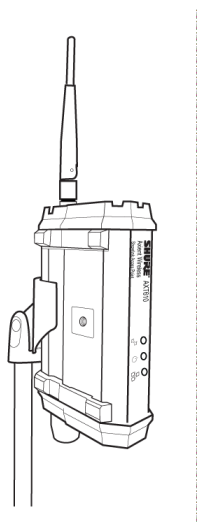
- IP Address Mode = DHCP
- Channel Agility = Enabled
- Device ID = AXT610
- Device Association Tables will be cleared



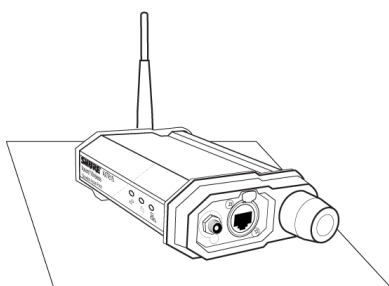
Reset Button

Positioning the Access Point

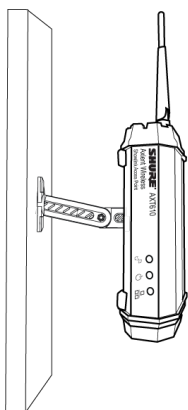
- Provide a clear line of sight between the access point and transmitters: mount the access point on a microphone stand or wall to elevate above obstructions
- Position the antenna vertically for optimal performance. The swivel joint on the antenna allows a wide range of positioning to maintain a vertical alignment



Microphone Stand Mount



Horizontal Mount



Wall Mount

Control and Configure the Access Point with Wireless Workbench 6

Wireless Workbench 6 adds the following configuration and networking options for the access point:

- Edit Device ID
- View connected transmitters
- View transmitter capacity

- Disable channel agility for troubleshooting
- Set IP Address Mode: DHCP or Manual
- Set IP Address: Edit in Manual Address Mode
- View and set subnet mask
- View MAC address

Tip: The text color of the Device ID for each transmitter in the Connected list indicates Link Quality:

- Green = Excellent
- Yellow = Good
- Red = Marginal

Hovering the cursor over the Device ID displays Link Quality ranked from 5 to 1.

Specifications

Antenna Type

Omnidirectional 2.4 GHz

Capacity

16 Axient transmitters

Mounting Type

WA371 Mic Clip or 1/4-20 thread mount

Operating Temperature Range

-18°C (0°F) to 63°C (145°F)

Storage Temperature Range

-29°C (-20°F) to 74°C (165°F)

Dimensions

186 mm x 101 mm x 46 mm (7.34 in. x 3.960 in. x 1.825 in.) H x W x D, without antenna

Weight

476 g (16.8 oz.), without antenna

Housing

Extruded Aluminum

Power Requirements

Power over Ethernet (PoE) Class 1	36 to 57 V DC/V AC
External Power Supply (if PoE is unavailable)	15 V DC (600 mA), double insulated

Antenna Connection

Connector

SMA (Shell=Ground, Center=Signal)

Impedance

50 Ω

Scanning Radio

Scanner RF Sensitivity

-106 dBm, typical (integrated antenna)

ShowLink

Network Type

IEEE 802.15.4

Frequency Range

2.40 to 2.4835 GHz (16 channels)

RF Output Power

10 dBm ERP

Working Range

Under typical conditions	150 m (500 ft)
Line of Sight, outdoors for a single system	500 m (1600 ft)

Note: Actual range depends on RF signal absorption, reflection and interference.

Networking

Network Interface

Ethernet 10/100 Mbps

Network Addressing Capability

DHCP or Manual IP address (configurable using Wireless Workbench)

Certifications

Meets essential requirements of the following European Directives:

- WEEE Directive 2002/96/EC, as amended by 2008/34/EC
- RoHS Directive 2011/65/EU

Note: Please follow your regional recycling scheme for batteries and electronic waste

Hereby, Shure Incorporated declares that the radio equipment is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <http://www.shure.com/europe/compliance>

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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Certified under FCC Part 15 and FCC Part 74.

Certified by IC in Canada under RSS-210.

Industry Canada ICES-003 Compliance Label: CAN ICES-3 (B)/NMB-3(B)

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

FCC ID: DD4AXT610. **IC:** 616A-AXT610.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Transmitters must be installed to provide a minimum separation distance of 20 cm from all persons.

Note: EMC conformance testing is based on the use of supplied and recommended cable types. The use of other cable types may degrade EMC performance.

LICENSING INFORMATION

Licensing: A ministerial license to operate this equipment may be required in certain areas. Consult your national authority for possible requirements. Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate the equipment. Licensing of Shure wireless microphone equipment is the user's responsibility, and licensability depends on the user's classification and application, and on the selected frequency. Shure strongly urges the user to contact the appropriate telecommunications authority concerning proper licensing, and before choosing and ordering frequencies.

Information to the user

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to 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.