SHURE

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PERFORMANCE™

# AXIENT


## AXT100 Bodypack Transmitter


27B15017 (Rev. 2)

Printed in USA

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

**WARNING**

- Battery packs may explode or release toxic materials. Risk of fire or burns. Do not open, crush, modify, disassemble, heat above 140°F (60°C), or incinerate
- Follow instructions from manufacturer
- Never put batteries in mouth. If swallowed, contact your physician or local poison control center
- Do not short circuit; may cause burns or catch fire
- Do not charge or use battery packs with other than specified Shure products
- Dispose of battery packs properly. Check with local vendor for proper disposal of used battery packs

# AXT100 Bodypack Transmitter

The AXT100 transmitter delivers superior audio performance in a compact, lightweight package. Efficient, ultra-linear RF performance maximizes the number of channels on-air in crowded RF environments. Advanced power management provides extended, rechargeable battery life and highly accurate status metering. ShowLink™ Remote Control enables comprehensive real-time remote control of all transmitter parameters, including real-time frequency adjustments.

### Features

- Ultra-linear RF performance places more channels on-air
- IR Sync function automatically tunes transmitter to the receiver frequency
- Comprehensive real-time remote control of all transmitter parameters when a Linked transmitter is within range of a ShowLink Access Point
- Shure lithium-ion rechargeable battery delivers up to 8 hours of runtime from a single charge
- Advanced control menu to adjust frequency and audio settings from the transmitter
- 50 dB of adjustable gain for optimal audio quality
- Lockable user interface prevents accidental or inadvertent changes to controls once settings are made
- Compatible with all Shure wireless microphones that have a TA4F connector.
- LEMO connector version (AXT100LEMO3) available for use with LEMO connector microphones

## Transmitter Overview

**① Infrared (IR) Port**
Use for automated transmitter programming. Links transmitter to AXT400 Receiver.

**② Power Button**
Hold for 1 second to turn the transmitter on. To power off, press and hold for 2 seconds until the display reads **Powering Off**. When editing, acts as an exit button to cancel changes and return to a previous parameter or to the main menu screen.

**③ Power Indicator LED**
- Green = power on
- Red = audio input overload or low battery

**④ Microphone Input**
4-pin microphone input jack (LEMO version available)

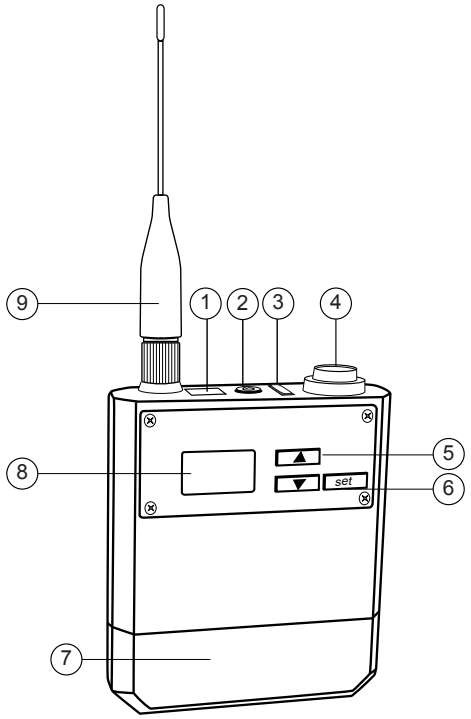
**⑤ Arrow Buttons**
Use to scroll through menu screens and to change parameter values

**⑥ Set Button**
Enables parameter editing. After editing is complete, press to save changes and return to the main menu screen.

**⑦ Shure Rechargeable Lithium-ion Battery**
Delivers up to 8 hours of runtime from a single charge

**⑧ LCD Display**
View menu screens and settings. Momentarily press power button to activate backlight.

**⑨ Dual-Band Flexible Antenna**
Covers UHF tuning range and 2.4 GHz ShowLink signal




## Included Components

| | |
|---|---|
| Bodypack rechargeable lithium-ion battery (2) | AXT910 |
| Dual-band flexible antenna | AXT642 |
| Threaded TAF4 adapter | WA340 |
| Transmitter carrying case | WA610 |
| Zipper bag | 26A13 |
| Belt clip | 44A12547 |

## Optional Accessories

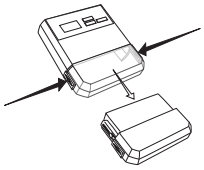
| | |
|---|---|
| Bodypack rechargeable lithium-ion battery | AXT910 |
| Y-Cable for bodypack transmitters | AXT652 |
| LEMO Y-cable for bodypack transmitters | AXT652LEMO3 |
| Dual-band flexible antenna | AXT642 |
| Portable bodypack charging station | AXT903 |
| 3-AA Battery Sled for AXT100 bodypack transmitter | AXT913 |
| Instrument cable | WA302 |
| Replacement belt clip | 44A12547 |
| Instrument cable with right angle 1/4” connector | WA304 |

## Batteries

The transmitter is powered by a Shure lithium-ion rechargeable battery.

**Caution:** Turn off the transmitter before changing batteries.

**Note:** Refer to your battery charger manual for charging instructions.



**Press the release buttons to remove the battery**

## Battery Runtime

Battery runtime varies according to the transmitter's operating mode. High power settings will reduce battery runtime.

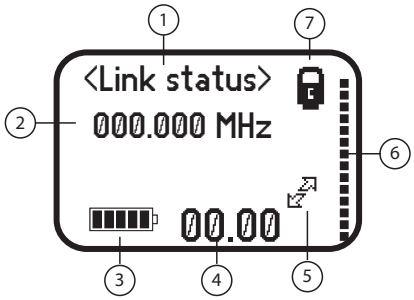
Remaining battery runtime is shown on the display in hours and minutes (accurate to within 15 minutes).

The times shown in the table represent a battery with a minimum of 5 charge cycles, fully charged, at 100% health.

| RF Power (mW) | Runtime ShowLink Enabled (hours/minutes) | Runtime Without ShowLink (hours/minutes) |
|---|---|---|
| 10 | 7:30 | 8:00 |
| 100 | 5:35 | 6:05 |

## Main Menu Screen

The main menu screen displays the following transmitter parameters:




① **Channel Name**
- **Linked**: Displays Linked receiver channel name
- **Unlinked**: Not Linked to a receiver, channel name reverts to **<unlinked>**

② **Frequency**
Tuned frequency of the transmitter

③ **Battery Charge Indicator**
5-segment icon indicates battery life

④ **Remaining Battery Life**
Displays remaining battery life in hours and minutes

⑤ **ShowLink Icon**
Indicates remote control of transmitter via ShowLink is possible

⑥ **Audio Meter**
Indicates the audio signal level

⑦ **Control Lock Icon**
Displayed when buttons are locked

## Locking the Buttons

Lock the buttons of the transmitter to prevent accidental or unauthorized parameter changes.

Press and hold the ▼ and ▲ buttons for 2 seconds to lock. Repeat to unlock.

## Hard Lock Switch

Located inside the battery compartment, this switch provides an extra level of security against accidental or unauthorized changes.

When engaged, the power, set, and arrow buttons cannot be used to change transmitter settings.

The battery must be removed to access the switch.

## Power-on RF mute

Power-on RF mute prevents transmission of audio when powering on the transmitter.

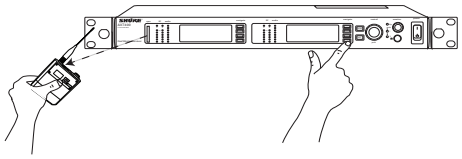
With the transmitter turned off, press and hold both the ▼ button and the **SET** button, and then press and hold the **Power** button.

After power-on, an **RF Muted** message indicates that the transmitter is in RF Mute mode.

**Note:** RF Mute mode persists through power cycles of the transmitter.

## Linking a Transmitter using IR Sync

The IR Sync function forms a Link and sets the frequency between the transmitter and an AXT400 Receiver.



1. Access the IR Sync function in the AXT400 receiver menu: **Tx**
2. Align the IR Sync ports of the transmitter and the receiver. The red IR Sync LED on the receiver IR port will illuminate to indicate correct alignment. Press **Sync**.
3. The receiver display indicates if the IR Sync is successful. Check the transmitter alignment and select **Retry** if a failure occurs.
4. The transmitter device ID will be shown in the receiver Tx menu and the receiver channel name and frequency will be shown on the transmitter display, indicating a successful IR sync.

## Using Two AXT100 Transmitters for Frequency Diversity

Two AXT100 transmitters can be connected to 2 lavalier microphones using an AXT652 "Y" cable to operate in Frequency Diversity mode with an AXT400 Receiver.

1. Connect the "Y" cable to each transmitter and to the microphones.
2. From the AXT400 menu: **Radio > Options > Diversity**
3. Use the control wheel to set the mode to **FD-Bodypack**.
4. Use the IR Sync function to Link a transmitter to each channel of the receiver.

## Parameter Menus

Use the arrow buttons to access the following parameter menus.

### Group and Channel

A group is a set of compatible frequencies. A single frequency within a group is a channel.

**G:**
Change the group

**Ch:**
Change the channel

### Frequency

Manual frequency selection in 25 kHz increments.

### Gain

Sets the input sensitivity level (gain). Gain range is -10 to +40 dB in 1 dB steps.

### RF Mute

Disables the RF carrier signal, which mutes transmission of audio.

**TX On:**
RF signal enabled

**TX Off:**
RF signal disabled

### Unlink

Ends the Link relationship between transmitter and receiver.

**YES:**
Ends the Link between transmitter and receiver.

**NO:**
Preserves the Link between transmitter and receiver.

**Note:** When a transmitter is unlinked, the channel name reverts to **Unlinked**.

### ShowLink Test

Activates the ShowLink test 5-bar display. Measures the remote control range of a ShowLink Access Point.

- 5 bars indicate the center of the coverage area
- 1 bar indicates the outer boundary of the coverage area
- If bars are not displayed, ShowLink control is not available

### Firmware

Displays the installed firmware version.

### Device ID

Identifies the transmitter on a linked receiver or in WWB software.

- ID length can be up to 8 characters
- Use arrow buttons to scroll through characters
- Use **set** button to save and move to the next character

### AA Type

This setting ensures accurate battery metering when using the optional AA battery carrier. Set the battery type to **Alkaline**, **NiMH**, or **Lithium**.

**Note:** Menu not displayed unless an AA battery carrier is installed.

### RF PWR

Sets RF power level. Access this menu by pressing and holding the **set** button and then pressing the ▼ button.

Use lower power settings to conserve battery life and to prevent RF overload at the receiver.

**Note:** A password is required in some regions.

### PCB Serial Number

Displays the serial number of the printed circuit board (PCB) installed in the unit.

1. Enter the **RF PWR** menu by pressing and holding the **set** button, and then pressing the ▼ button.
2. Press the ▲ button to access the serial number.
3. Momentarily press the power button to return to the home menu screen.

## Troubleshooting

### Input Overload

The **Input Overload** message indicates an excessive signal level at the transmitter input. To prevent overload, reduce the gain setting.

### No ShowLink Alert

This alert appears when frequency is edited on a linked transmitter that is beyond the range of an active ShowLink access point. Choose **OK** to unlink the transmitter and complete the frequency change, or **Cancel** to return to the home screen.

### Deeply Discharged Batteries

Deep discharge occurs when a battery is discharged to less than 3.0 volts. The battery chargers have a recovery mode designed to restore charge to a deeply discharged battery.

When the charger detects a deeply discharged battery, it automatically enters recovery mode which supplies reduced current to the battery for up to 30 minutes.

If recovery is successful, the charger will exit recovery mode and charge the battery to capacity. If the battery cannot be recharged, charging stops and the battery must be replaced.

## Firmware Updates

Firmware is embedded software used to control features and the user interface. Periodically, new versions of firmware are available for download from www.shure.com/wwb to incorporate additional features and enhancements. New versions of the firmware can be downloaded to AXT400 Receiver using the Firmware Update Manager tool available in WWB6 software and installed on the transmitter using the infrared ports on the transmitter and receiver.

To access the AXT400 receiver firmware update menu: **Tx > IR Presets > FW Update**

# Specifications- AXT100 Bodypack Transmitter

| | |
|---|---|
| **RF Carrier Frequency Range** | 470–814 MHz<br>Note: varies by region |
| **Working Range** | **Under typical conditions:** 150 m (500 ft)<br>**Line of Sight, outdoors for a single system:** 500 m (1600 ft)<br>Note: Actual range depends on RF signal absorption, reflection and interference. |
| **Audio Frequency Response** | 40 Hz– 18 kHz (+1, -3 dB)<br>Note: Dependent on microphone type |
| **RF Tuning Step Size** | 25 kHz |
| **Modulation**<br>45 kHz max. deviation | FM, Audio Reference Companding with pre- and de-emphasis |
| **Dynamic Range** | >113 dB, A-weighted (referenced at 0 dB setting on transmitter) |
| **Total Harmonic Distortion**<br>45 kHz max. deviation | <0.3%, A-weighted, typical |
| **System Audio Polarity** | Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 (with respect to pin 3 of low-impedance output) and the tip of the high impedance 1/4-inch output. |

## AXT100

| | |
|---|---|
| **Gain Adjustment Range** | -10 to +40 dB (in 1 dB steps) |
| **Battery Type** | Shure AXT910 (Rechargeable Li-Ion) |
| **Battery Life** | Up to 8 hours (low power mode) |
| **Dimensions** | 77 mm x 66 mm x 17 mm (3.0 in. x 2.6 in. x 0.7 in.) H x W x D,with AXT910 battery |
| **Weight** | 146.6 g (5.2 oz.), with batteries |
| **Housing** | Cast aluminum |
| **Operating Temperature Range** | -18°C (0°F) to 63°C (145°F)<br>Note: Battery characteristics may limit this range. |
| **Storage Temperature Range** | -29°C (-20°F) to 74°C (165°F)<br>Note: Battery characteristics may limit this range. |

### Audio Input

| | |
|---|---|
| **Connector** | 4-Pin male mini connector (TA4M), 3-Pin male mini connector (LEMO); See drawing for details |
| **Configuration** | Unbalanced |
| **Impedance** | 1 MΩ |
| **Maximum Input Level**<br>1 kHz at 1% THD | **Gain Setting:** **–10 to +9 dB:** 12.5 dBu<br>**+10 to +19 dB:** –2.5 dBu<br>**+20 to +40 dB:** –7.5 dBu |

### RF Output

| | |
|---|---|
| **Connector** | SMA (UHF and ShowLink); Shell=Ground, Center=Signal |
| **Antenna Type** | AXT642 Bodypack Dual Band Antenna (integrated helical and 1/4 wave) |
| **Power** | See Frequency Range and Ouput Power table |
| **Impedance** | 50 Ω |

## ShowLink

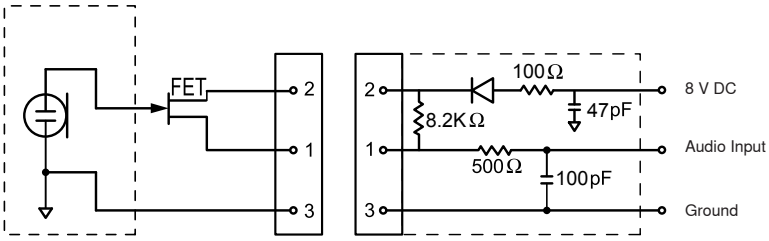
| | |
|---|---|
| **Network Type** | IEEE 802.15.4 |
| **Frequency Range** | 2.40 to 2.4835 GHz (16 Channels) |
| **RF Output Power** | 10 dBm (ERP) |

## Tables and Diagrams

### Frequency Range and Transmitter Output Power

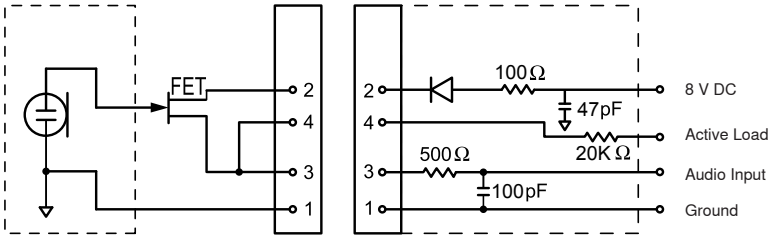
| Band | Frequency Range ( MHz) | Power ( mW) |
|---|---|---|
| G1 | 470 to 530 | 10/100 |
| G1E | 470 to 530 | 10/50 |
| H4 | 518 to 578 | 10/100 |
| H4E | 518 to 578 | 10/50 |
| J5 | 578 to 638 | 10/100 |
| J5E | 578 to 638 | 10/50 |
| K4E | 606 to 666 | 10/50 |
| L3 | 638 to 698 | 10/100 |
| L3E | 638 to 698 | 10/50 |
| L3HK | 638 to 698 | 10 |
| M8 | 666 to 730 | 10/50 |
| P8 | 710 to 790 | 10/50 |
| P9 | 710 to 787 | 10/50 |
| Q5 | 740 to 814 | 10/50 |
| MA24 | 779 to 806 | 2/10 |
| MJBX | 806 to 810 | 2/10 |

**Lemo Connector**




Top view of bodypack


**TA4M Connector**




Top view of bodypack


## System Gain

In an audio system containing both AXT400 and UR4 receivers, the overall system audio gain at the XLR (line) output varies depending on the receiver model and the type of transmitter.

The table below offers a comparison of the output gain at the XLR output for AXT400 and UR4 receivers for each transmitter model. Use the information in the table to achieve consistent gain levels when using systems comprised of both Axient series and UR series components.

**System gain from transmitter input to receiver XLR output (line) when transmitter gain = 0 dB**

| **Transmitter** | | **AXT100 Bodypack** | **AXT200 Handheld** | **UR1 Bodypack** | **UR1M Bodypack** | **UR2 Handheld** |
|---|---|---|---|---|---|---|
| | | gain = 0 dB | gain = 0 dB | gain = 0 dB | gain = 0 dB | gain = 0 dB |
| | | | | sens = 0 dB | sens = 0 dB | |
| **Receiver** | **AXT400** | +10 dB gain | +15 dB gain | +15 dB gain | +15 dB gain | +15 dB gain |
| gain setting = 0 dB | **UR4** | N/A | N/A | +18 dB gain | +18 dB gain | +18 dB gain |

## Certifications

Meets essential requirements of the following European Directives:

- R&TTE Directive 99/5/EC
- WEEE Directive 2002/96/EC, as amended by 2008/34/EC
- RoHS Directive 2002/95/EC, as amended by 2008/35/EC

**Note:** Please follow your regional recycling scheme for electronic waste

Meets requirements of the following standards: EN 300 328, EN 300 422 Parts 1 and 2, EN 301 489 Parts 1 and 9, EN60065.

Certified under FCC Part 15 and FCC Part 74.

Certified in Canada by IC to RSS-123 and RSS-210.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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:** DD4AXT100A, DD4AXT100B, DD4AXT100C, DD4AXT100D. **IC:** 616A-AXT100A, 616A-AXT100C, 616A-AXT100D.

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.

The CE Declaration of Conformity can be obtained from Shure Incorporated or any of its European representatives. For contact information please visit www.shure.com

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

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### 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.

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