SHURE®

LEGENDARY
PERFORMANCE™

WIRELESS SYSTEM

QLX-D®
USER GUIDE

Le Guide de l'Utilisateur
Bedienungsanleitung
Manuale d'uso
Guia del Usuario
Manual do Usuário
Руководство пользователя
Gebruikershandleiding

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27A29879 (Rev. 1)

IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

WARNING: Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The safety certifications do not apply when the operating voltage is changed from the factory setting.

Important Product Information

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.

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.

WARNING: Danger of explosion if battery incorrectly replaced. Operate only with Shure compatible batteries.

Note: Use only with the included power supply or a Shure-approved equivalent.

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
- Only use Shure charger to recharge Shure rechargeable batteries
- WARNING: Danger of explosion if battery incorrectly replaced. Replace only with same or equivalent type.
- 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 other than Shure rechargeable batteries
- Dispose of battery packs properly. Check with local vendor for proper disposal of used battery packs.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like

Australia Warning for Wireless

This device operates under an ACMA class licence and must comply with all the conditions of that licence including operating frequencies. Before 31 December 2014, this device will comply if it is operated in the 520-820 MHz frequency band. **WARNING:** After 31 December 2014, in order to comply, this device must not be operated in the 694-820 MHz band.

Caution: Avoid operating mobile phones and mobile broadband devices near your wireless system to prevent the possibility of interference.

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

System Overview

QLX-D® Digital Wireless delivers defined, streamlined performance with transparent 24-bit digital audio. Combining professional features with simplified setup and operation, QLX-D offers outstanding wireless functionality for demanding live sound events and installations.

Shure digital wireless technology enables QLX-D to transmit clearly detailed audio with extended, virtually flat frequency response. Designed to be highly RF spectrum efficient, QLX-D can operate more than 60 compatible channels simultaneously in a single frequency band. Automatic channel scan and IR sync make finding and assigning an open frequency quick and easy. Ethernet connection provides networked channel scanning across multiple receivers and Shure Wireless Workbench® control software compatibility for advanced frequency coordination. AES-256 encryption comes standard and can be easily enabled for secure wireless transmission.

QLX-D also adds Shure rechargeable power options to provide dramatic long-term cost savings and extended transmitter battery life over alkaline batteries, and battery metering that reports remaining runtime in hours and minutes. With clearly defined performance and innovation, QLX-D delivers the very latest in digital wireless technology from Shure.

Features

- Transparent 24-bit digital audio
- Extended 20 Hz to 20 kHz frequency range (microphone dependent)
- 120 dB dynamic range
- Digital predictive switching diversity
- 64 MHz tuning bandwidth (region dependent)
- More than 60 available channels per frequency band (region dependent)
- Up to 17 compatible systems per 6MHz TV band; 22 systems per 8 MHz band
- Easy pairing of transmitters and receivers over IR scan and sync
- Automatic channel scan
- Ethernet networking for multiple receiver systems
- Network channel scanning configures open frequencies for networked receivers
- Compatible with Shure Wireless Workbench® 6 control software
- Remote control from a mobile device or tablet via ShurePlus™ Channels app
- AES-256 encryption for secure wireless transmission
- Elegant and easy-to-use interface with high-contrast LCD menu
- Compatible with external control systems such as AMX or Crestron
- Professional-grade all-metal construction
- Transmitters use 2 AA batteries or Shure SB900 rechargeable battery

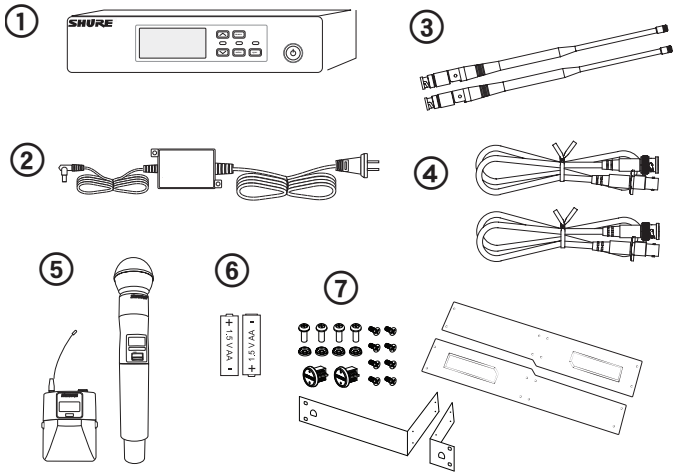
Full Manual Online

This guide is a quick reference covering the essential features and functions of the QLX-D system.

A comprehensive version of the guide covering the following topics is available online by visiting www.shure.com

- Encryption
- Network Scan
- Networking
- Firmware Updates
- Wireless Workbench 6
- Setting IP Addresses and Subnet Masks
- Connecting to External Controls Systems (AMX/Crestron)
- Transmitter RF Power
- Selecting Regional TV Bandwidth
- Combo Systems
- Custom Groups
- Optional Accessories

System Components



① QLXD4 Receiver
② PS23 Power Supply
③ 1/2 Wave Antennas (2)
④ 2 ft. BNC Cables with Bulkhead Adapters (2)
⑤ Choice of QLXD1 Bodypack Transmitter or QLXD2 Handheld Transmitter
⑥ AA Alkaline Batteries (not included in Argentina)
⑦ Rackmount Hardware

Model Variations

Model variations with additional components are available to meet specific performance situations.

QLXD2 Handheld Transmitter

Includes QLXD2 Handheld, available with any of the following microphone cartridges:

- SM58
- Beta 58A
- SM86
- Beta 87A
- SM87A
- Beta 87C
- KSM9
- KSM9HS (black)

Microphone Clip
Battery Contact Cover
Zipper Bag

QLXD1 Bodypack Guitar System

Includes QLXD1 bodypack transmitter
WA305 Premium instrument cable
Zipper Bag

QLXD1 Bodypack Headworn or Lavalier

Includes QLXD1 bodypack, available with any of the following microphone cartridges:

- Beta 98H/C
- WL93
- WL183
- WL184
- WL185
- MX150 (omni)
- MX150 (cardioid)
- MX153 (black or tan)
- SM35

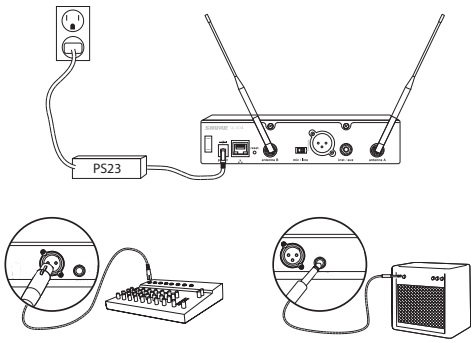
Zipper Bag

Bodypack and Handheld Combo System

- QLXD1 bodypack transmitter with WL185 Microflex cardioid lavalier microphone
- QLXD2 handheld transmitter with Shure SM58 microphone cartridge
- Battery Contact Cover
- Zipper Bag (2)

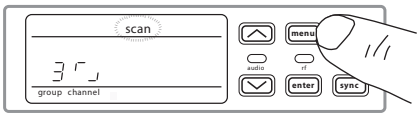
Step 1: Power and Antenna Connection

① Connect an antenna to each of the antenna connectors.
② Connect the power supply to the receiver and plug into an AC power source.
③ Connect the receiver audio output to a mixer or amplifier.
④ Press and hold the power button to turn on the receiver.

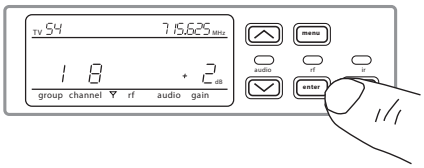


Step 2: Scanning for the Best Available Channel

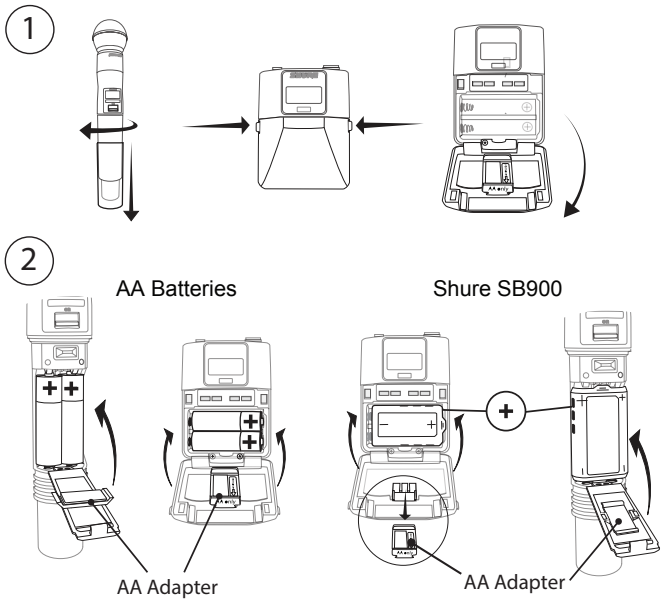
1. Press the **menu** button on the receiver to access the scan function.



2. Press the **enter** button to start a frequency scan. The scan icon will flash while in scan mode. When the scan is complete, the selected group and channel appear on the display.



Step 3: Install Batteries into Transmitter



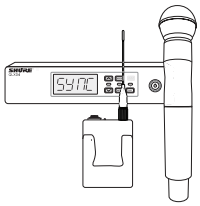
① Accessing the Battery Compartment
Press the side tabs on the bodypack or unscrew the cover on the handheld as shown to access the battery compartment.

② Installing Batteries
- **AA Batteries:** Place batteries (note polarity markings) and AA Adaptor as shown
- **Shure SB900 Battery:** Place battery as shown (note polarity markings), remove AA Adaptor from bodypack transmitter, stow AA Adaptor in door for handheld transmitter

Note: If using AA batteries, select a battery type from the transmitter menu to ensure accurate battery metering.

Step 4: IR Sync to Create an Audio Channel

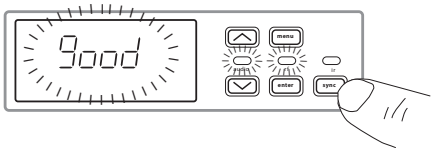
1. Turn on the transmitter.
2. Press the **sync** button on the receiver. The red **ir** LED will blink indicating that sync mode is active.
3. Align the IR sync windows of the transmitter and receiver at a distance of <15 cm (6 in.). When the transmitter and receiver are aligned, the red **ir** LED remains on and the sync will automatically occur.



< 15 cm (6 in.)

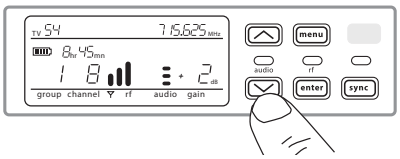
4. **sync good** appears on the display when IR sync is complete. The blue **rf** LED will illuminate indicating that the transmitter is within range of the receiver.

Note: If the IR sync fails, repeat the IR sync procedure, carefully maintaining alignment between the IR windows of the transmitter and receiver.

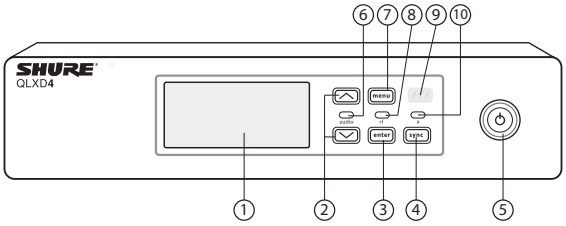


Step 5: Sound Check and Gain Adjustment

1. Test the transmitter at performance levels while monitoring the **audio** meter and the **audio** LED. The **audio** meter should display at least 3 bars and the **audio** LED should be green. Reduce the gain if there is audible distortion of the audio.
2. Increase or decrease the gain if necessary by pressing the arrow buttons on the receiver front panel.



Receiver Front and Back Panels



① **Display**
Shows menu options, receiver and transmitter settings.

② **Arrow Buttons**
Adjust gain setting or change menu parameters.

③ **Enter Button**
Press to save menu or parameter changes.

④ **Sync Button**
Press to activate IR sync.

⑤ **Power Switch**
Powers receiver on or off.

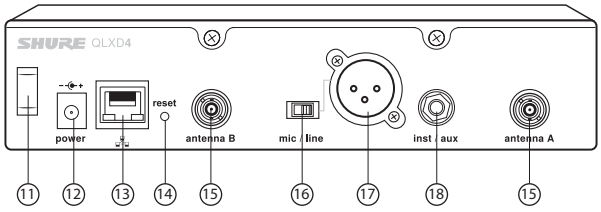
⑥ **Audio LED**
- Green = normal
- Yellow = signal approaching limiter threshold
- Red = limiter engaged to prevent clipping

⑦ **Menu Button**
- Press to access or select menu screens
- Press to cancel pending changes
- Press and hold to return to the home screen

⑧ **RF LED**
Illuminates when RF link with transmitter is active.

⑨ **IR Window**
Align with the transmitter IR window during an IR sync to automatically program transmitters.

⑩ **Sync LED**
- Blinking: IR sync mode is enabled
- On: Receiver and transmitter aligned for IR sync



⑪ **Power Cord Strain Relief**
Secures power cord.

⑫ **Power Supply Jack**
Connection point for DC power supply.

⑬ **Ethernet Port**
For network connection.
- Amber LED (network speed): off = 10 Mbps, on = 100 Mbps
- Green LED (network status): off = no network link, on = network link active

flashing = rate corresponds to traffic volume

⑭ **Receiver Reset**
Press to restore receiver default settings.

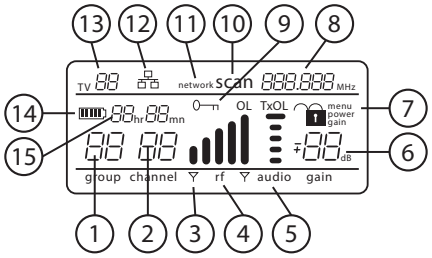
⑮ **Antenna Connectors**
BNC connector for receiver antennas

⑯ **Mic/Line Switch**
Sets output level to microphone or line.

⑰ **XLR Audio Output**
Balanced (1: ground, 2: audio +, 3: audio -)

⑱ **1/4" Instrument/Auxiliary Output**
Impedance Balanced (Tip: audio, Ring: no audio, Sleeve: ground)

Receiver Display



① **Group**
Displays group setting.

② **Channel**
Displays channel setting.

③ **Active Antenna Indicator**
Illuminates to indicate which antenna is active.

④ **RF Signal Meter**
Number of bars displayed corresponds to RF signal level - `OL` = overload.

⑤ **Audio Meter**
Number of bars displayed corresponds to audio level.
- `OL` = Illuminates when receiver audio limiter is active to prevent clipping
- `TxOL` = Illuminates when transmitter input is overloaded. Reduce input from microphone or instrument to prevent clipping.

⑥ **Gain Level**
Displays receiver gain setting in 1 dB increments.

⑦ **Receiver Lock Status**
Lock icon and name of locked control:
- `menu`
- `power`
- `gain`

⑧ **Frequency Setting**
Selected frequency (MHz).

⑨ **Encryption Status**
Illuminates when encryption is enabled.

⑩ **Scan**
Displayed when `scan` function is active.

⑪ **Network Scan**
Displayed when `network scan` function is active in multi-receiver systems.

⑫ **Network Connection Indicator**
Illuminates when additional Shure components are detected on the network.

⑬ **TV Channel**
Displays the number of the TV channel containing the selected frequency.

⑭ **Transmitter Battery Icon**
Indicates remaining battery life.

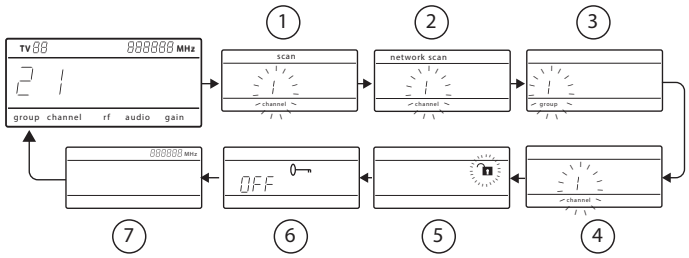
⑮ **SB900 Battery Runtime**
When the transmitter is powered by a Shure SB900 rechargeable battery, remaining runtime is displayed in hours:minutes.

Navigating the Receiver Menus

The receiver has a main menu for setup and configuration and an advanced menu to access additional receiver functions.

Main Menu

Press the `menu` button to access the menu. Each additional press of the `menu` button advances to the next menu screen in the following order:



① **Scan**
Receiver automatically scans for the best available frequency

② **Network Scan**
Scans to find frequencies for networked receivers operating in the same frequency band

③ **Group**
Edit the receiver group settings

④ **Channel**
Edit the receiver channel settings

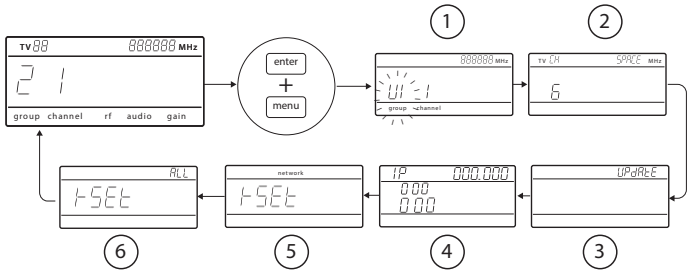
⑤ **Lock**
Choose a control lock option

⑥ **Encryption**
Use the arrow buttons to enable encryption (`on`) or disable encryption (`off`)

⑦ **Frequency**
Use the arrow buttons to edit the frequency value

Advanced Menu

Starting from the main menu home screen, press **menu** while holding the **enter** button to access the advanced menu. Each additional press of the **menu** button advances to the next menu screen in the following order.



① **Custom Groups**
Use to add channels and frequencies to Custom Groups

② **TV Channel Spacing**
Selects the regional bandwidth for TV channel display

③ **Firmware Update**
Use to update the transmitter firmware

④ **IP Settings**
Use to select and edit IP settings and subnet masks

⑤ **Network Reset**
Returns network settings and IP address to default setting

⑥ **Factory Reset**
Restores factory settings

For application and configuration details, see the related guide topic for each advanced feature.

Tips for Editing Menu Parameters

- To increase, decrease or change a parameter, use the arrow buttons
- A menu setting will blink when editing is enabled
- To save a menu change, press **enter**
- To exit a menu without saving a change, press **menu**
- To access the advanced menu, press **menu** while holding the **enter** button from the home screen
- To return to the home screen from any menu without saving changes, press and hold the **menu** button.

Transmitters

① **Power LED**
- Green = unit is powered on
- Red = low battery

② **On/Off Switch**
Powers the transmitter on or off.

③ **Display:**
View menu screens and settings. Press any control button to activate the backlight.

④ **IR window**
Align with the receiver IR window during an IR sync for automated transmitter programming.

⑤ **Menu Navigation Buttons**
menu = Use to navigate between menu screens.

▼▲ = Use to select menu screens, edit menu parameters, or choose a home screen display option.

enter = Press to confirm and save parameter changes.

Tip: Press the **menu** button to exit without saving parameter changes.

⑥ **Battery Compartment**
Requires 2 AA batteries or a Shure SB900 rechargeable battery.

⑦ **AA Battery Adapter**
Secures batteries when powering transmitter with AA batteries instead of Shure SB900 battery.

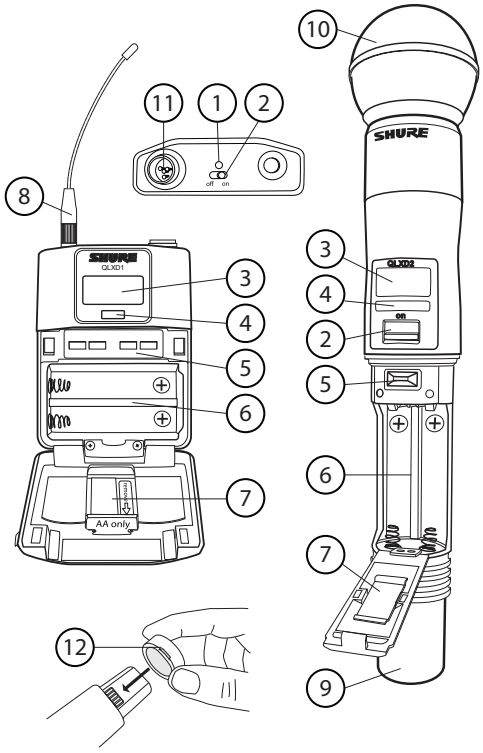
⑧ **Bodypack Antenna**
For RF signal transmission.

⑨ **Handheld Integrated Antenna**
For RF signal transmission.

⑩ **Microphone Cartridge**
See Optional Accessories for a list of compatible cartridges.

⑪ **TA4M Input Jack**
Connects to a 4-Pin Mini Connector (TA4F) microphone or instrument cable.

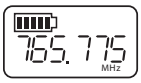
⑫ **Battery Contact Cover**
Align the cover as shown to prevent reflections from the battery contacts during broadcasts or performances.



Transmitter Display

① **Battery Indicator**
Bars displayed indicate remaining battery life.

② **Home Screen Display: Group and Channel/Frequency/SB900 Battery Runtime**
Use the arrow keys to select one of the following home screen displays:

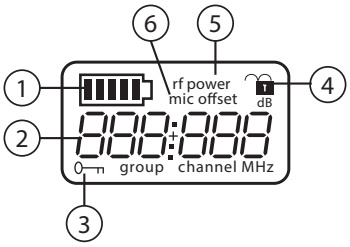
Group and Channel	SB900 battery runtime	Frequency
		

③ **Encryption Status**
Icon displayed when encryption is enabled.

④ **Lock**
Displayed when transmitter controls are locked.

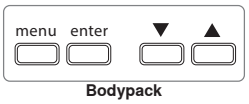
⑤ **RF Power**
RF power setting (**Lo** or **Hi**).

⑥ **Mic Offset**
Displays **micoffset** level in 3 dB increments.

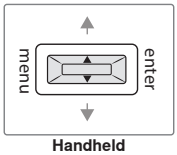


Transmitter controls

- To increase, decrease or change a parameter, use the ▼▲ buttons
- To save a menu change, press **enter**
- To exit a menu without saving a change, press the **menu** button



Bodypack



Handheld

Transmitter Menu Options and Navigation

The transmitter features individual menu screens for setting up and adjusting the transmitter. To access the menu options from the home screen, press the **menu** button. Each additional press of the **menu** button advances to the next menu screen.

① **Home Screen**
Use the arrow keys to select one of the following home screen displays:
- Battery Icon/group and channel
- Battery Icon/frequency
- Battery Icon/Battery Runtime (SB900 installed)

② **group**
Use the arrow buttons to scroll through the groups.

③ **channel**
Use the arrow buttons to scroll through the channels.

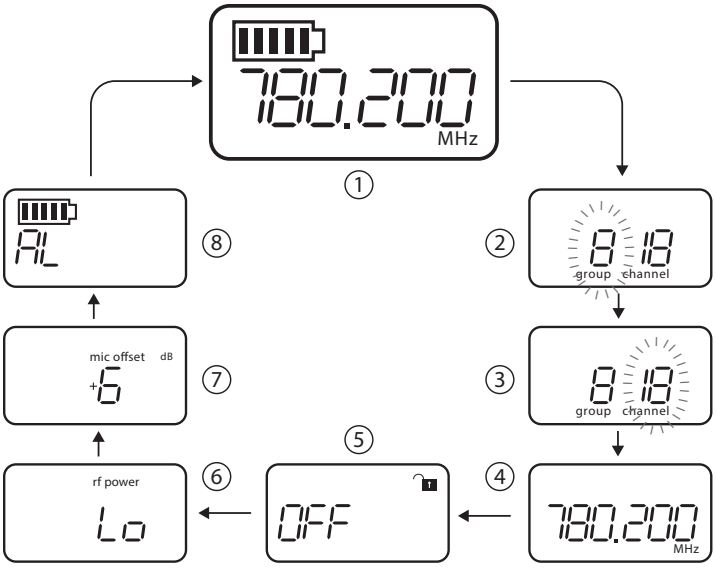
④ **frequency**
Use the arrow buttons to adjust the frequency. Press and hold for faster scrolling.

⑤ **lock**
Select a lock option:
- **On** = controls locked
- **OFF** = controls unlocked

⑥ **rf power**
Select an rf power setting:
- Lo = 1 mW
- Hi = 10 mW

⑦ **mic offset dB**
Use to match audio levels between two transmitters used in a combo system. Range is 0 to 21 dB (3 dB increments). Adjustments occur in realtime.

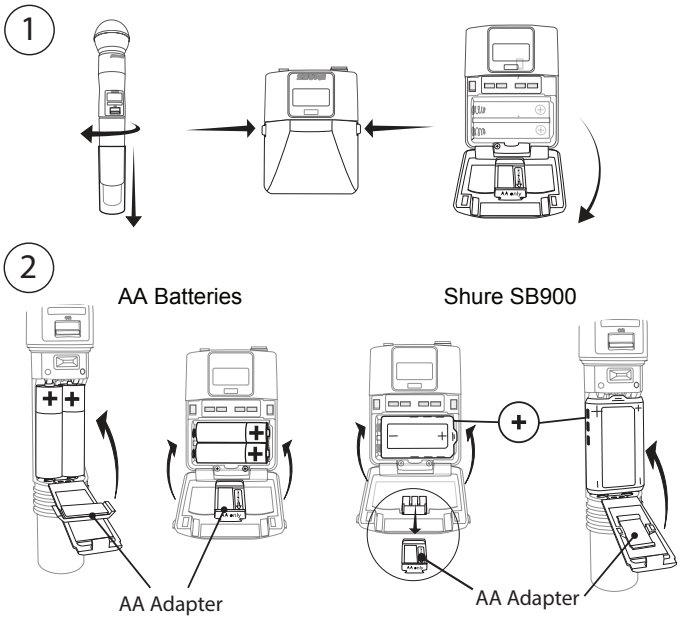
⑧ **battery type**
Use to set the battery type to match the installed AA battery type to ensure accurate battery metering. Menu is not displayed when Shure SB900 batteries are installed.



Tips for Editing Menu Parameters

- To access the menu options from the home screen, press the **menu** button. Each additional press of the **menu** button advances to the next menu screen.
- A menu parameter will blink when editing is enabled
- To increase, decrease or change a parameter, use the arrow buttons
- To save a menu change, press **enter**
- To exit a menu without saving a change, press **menu**

Battery Installation



① **Accessing the Battery Compartment**
Press the side tabs on the bodypack or unscrew the cover on the handheld as shown to access the battery compartment.

② **Installing Batteries**
- **AA Batteries:** Place batteries (note polarity markings) and AA Adaptor as shown
- **Shure SB900 Battery:** Place battery as shown (note polarity markings), remove AA Adaptor from bodypack transmitter, stow AA Adaptor in door for handheld transmitter

Note: If using AA batteries, set the battery type using the transmitter menu.

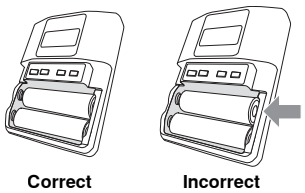
Setting the AA Battery Type

To ensure accurate display of transmitter runtime, set the battery type in the transmitter menu to match the installed AA battery type. If a Shure SB900 rechargeable battery is installed, selecting a battery type is not necessary and the battery type menu will not be displayed.

1. Press the **menu** button to navigate to the battery icon.
2. Use the ▼▲ buttons to select the installed battery type:
   - **AL** = Alkaline
   - **nH** = Nickel Metal Hydride
   - **Li** = Lithium Primary
3. Press **enter** to save.

AA Battery Installation

Fully insert the batteries as shown to ensure proper battery contact and to allow the door to latch securely.



Shure SB900 Rechargeable Battery

Shure SB900 lithium-ion batteries offer a rechargeable option for powering the QLX-D transmitters. Batteries quickly charge to 50% capacity in one hour and reach full charge within three hours.

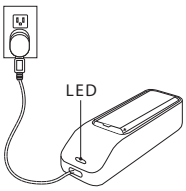
Single chargers and multiple bay chargers are available to recharge the Shure batteries.

Caution: Only charge Shure rechargeable batteries with a Shure battery charger.

Single Bay Charger

The single bay charger offers a compact charging solution.

1. Plug the charger into an AC power source or USB port.
2. Insert a battery into the charging bay.
3. Monitor the charging status LEDs until charging is complete.



Charging Status LED

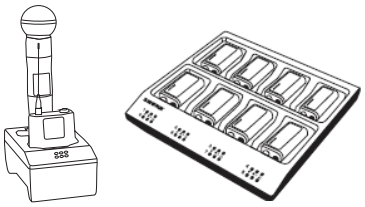
Color	Status
Red	Charging
Green	Charging Complete
Amber Flashing	Fault: check connections and battery
Off	No battery in bay

Multiple Bay Chargers

Shure offers two models of multiple bay chargers:

- SBC-200 two bay charger
- SBC-800 eight bay charger

Multiple bay chargers can charge individual batteries or batteries installed in transmitters.



1. Plug the charger into an AC power source.
2. Insert batteries or transmitters into the charging bay.
3. Monitor the charging status LEDs until charging is complete.

Charging Status LED

Color	Status
Green	Charging Complete
Green/Red	Charge level above 90%
Red	Charging
Amber Flashing	Fault: check connections and battery
Off	No battery in bay

Important Tips for Care and Storage of Shure Rechargeable Batteries

Proper care and storage of Shure batteries results in reliable performance and ensures a long lifetime.

- Always store batteries and transmitters at room temperature
- Ideally, batteries should be charged to approximately 40% of capacity for long-term storage
- During storage, check batteries every 6 months and recharge to 40% of capacity as needed

Creating Audio Channels

A wireless audio channel is formed when a receiver and transmitter are tuned to the same frequency. To ease setup, frequencies available to the QLX-D system are organized into groups and channels. Each group contains a number of channels, and each channel is assigned to a specific preset frequency.

The QLX-D system provides 3 methods for tuning the receiver and transmitter to the same frequency:

- **Scan and IR Sync:** The receiver scans the RF spectrum for the best available frequency and an IR sync automatically tunes the transmitter to the receiver frequency
- **Manual Group and Channel Assignment:** Manually setting the receiver and transmitter to the same group and channel number forms an audio channel
- **Manual Frequency Assignment:** Manually setting the receiver and transmitter to the same frequency rather than using groups and channels forms an audio channel

Important: Before you begin a scan or frequency assignment:

- **Turn off:** All transmitters for system you are setting up to prevent interference with frequency scans.
- **Turn on:** The following potential sources of interference including other wireless systems, computers, CD players, large LED panels, and effects processors to prevent selection of occupied frequencies.

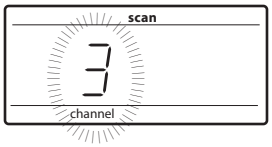
Scan and IR Sync

The simplest way to create an audio channel is to use the scan function to find the best available receiver channel, and then use the IR sync feature to automatically tune the transmitter to the receiver channel.

Step 1: Scanning to Find the Best Channel

The Scan function automatically selects the best available receiver channel.

1. Navigate to the **`Scan`** menu option.
2. Press **`enter`** to start the scan.
3. When the scan is complete, the channel will appear on the display.

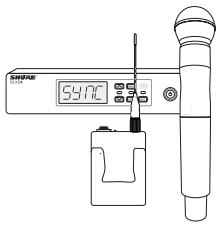


Step 2: IR Sync for Automatic Transmitter Set Up

Performing an IR Sync automatically tunes the transmitter to match the receiver frequency, forming a wireless audio channel.

1. Turn on the transmitter.
2. Press the **`sync`** button on the receiver. The red **`ir`** LED will blink indicating that sync mode is active.
3. Align the IR sync windows of the transmitter and receiver at a distance of <15 cm (6 in.). When the transmitter and receiver are aligned, the red **`ir`** LED remains on and the sync will automatically occur.
4. **`sync good`** appears on the display when IR sync is complete. The blue **`rf`** LED will illuminate indicating that the transmitter is within range of the receiver.

Note: If the IR sync fails, repeat the IR sync procedure, carefully maintaining alignment between the IR windows of the transmitter and receiver.



< 15 cm (6 in.)

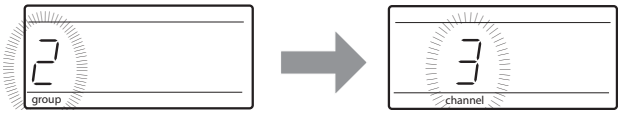
Manual Group and Channel Assignment

An audio channel can be manually created by simply setting the receiver and transmitter to the same group number and channel number. For example, a receiver set to Group 2, Channel 3 and a transmitter set to Group 2, Channel 3 would form an audio channel.

Use manual group and channel configuration to assign specific groups and channels to receivers and transmitters as an alternative method to automatically creating channels with IR sync.

Use the following steps to set the group and channel in the receiver and transmitter:

1. Navigate to the **`group`** setting.
2. Use the arrow buttons to scroll through the groups.
3. Press **`enter`** to select a group.
4. Next, use the arrow buttons to select a **`channel`**.
5. Press **`enter`** to save.

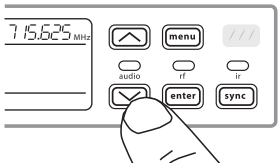


Manual Frequency Selection

Manual frequency selection can be used instead of groups and channels to set the transmitter and receiver to a specific frequency. For example, an audio channel can be created by setting the receiver and transmitter to same frequency.

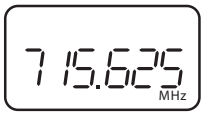
Setting the Receiver Frequency

1. Press **menu** to navigate to the **frequency** setting option.
2. Use the arrow buttons to adjust the frequency. Press and hold for faster scrolling.
3. Press **enter** to save.



Setting the Transmitter Frequency

1. Press **menu** to navigate to the **frequency** setting option.
2. Use the arrow buttons to adjust the frequency. Press and hold for faster scrolling.
3. Press **enter** to save.



Receiver Gain Adjustment

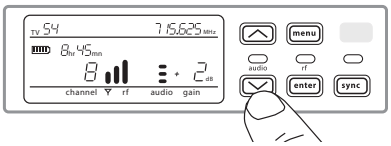
The gain control sets the overall signal level for the system. The default gain level is 12 dB and the available gain range is -18 to 42 dB, in 1 dB increments.

Set the gain to a level where the **audio** LED appears green or yellow, with only the highest audio peaks causing the LED to occasionally turn red and engage the limiter. Reduce the gain if there is audible distortion of the audio.

From the receiver home screen, use the arrow buttons to increase or decrease the gain:

- A single button press adjusts the gain in 1 dB increments
- Press and hold the button for larger adjustments

Test the transmitter at performance levels when adjusting the gain. Monitor the **audio** meter and the **audio** LED to prevent overloads.



Control Lock Options for the Receiver and Transmitter

Control lock options are available for both the receiver and the transmitter to protect against accidental or unauthorized changes. Locks can be directly set from the component menu, or remotely set from WWB6. To maintain protection, controls remain locked when the transmitter is turned off and turned on.

Locking and Unlocking the Receiver Controls

The receiver has the following control lock options which can be used separately or in any combination:

- **gain:** locks the arrow buttons to prevent changes to the audio gain settings
- **menu:** prevents access to menu items and IR sync (gain controls and power switch remain active)
- **power:** disables power switch (gain and menu controls remain active)

To lock a receiver control:

1. Press the **menu** button to navigate to the lock settings.
2. Use the arrow buttons to add or remove the lock options shown next to the lock icon.
3. Press **enter** to save the lock settings.

To unlock a receiver:

Tip: To unlock the menu and clear all locks, press and hold the **menu** button while in the home screen until the unlock icon appears. Press **enter** to confirm and save change.

1. To unlock **gain** or **power** settings, navigate to the lock settings by pressing the **menu** button.
2. Press the arrow buttons to de-select a lock option.
3. Press **enter** to confirm and save change.

Locking and Unlocking Transmitter Controls

The transmitter controls can be locked or unlocked by selecting **On** (locked) or **OFF** (unlocked) from the transmitter lock menu.

If an attempt is made to access a locked control, the lock icon will flash, indicating that the transmitter controls are locked.

To set a transmitter lock:

1. Press the **menu** button to navigate to the lock settings.
2. Use the arrow buttons to select **on**.
3. Press **enter** to save. The lock icon appears on the display to confirm that the control locks are enabled.

To unlock the transmitter:

1. Press and hold the **menu** button until **OFF** and the unlock icon appear on the display.
2. Press **enter** to save changes.

Network Scan

The Network Scan feature automates frequency assignment by using a single receiver to scan and deploy frequencies to all networked receiver within the same frequency band.

Network Scanning and Frequency Deployment

1. Connect receivers to an active Ethernet network. All receivers must be on the same subnet.
2. Prior to performing a network scan, turn on all receivers and allow 60 seconds for all receivers to join the network.
3. Choose a group or custom group for deployment on the receiver that will be used to initiate the network scan.
4. To start a network scan, press the **menu** button and navigate to the **network scan** menu. Press **enter**.
5. When the scan is complete, the displays of receivers waiting for frequencies will flash.
6. Press **enter** to deploy the frequencies or press **menu** to cancel the deployment.
7. The front panel LEDs on each receiver will blink when a deployed frequency has been assigned.

Note: Full frequency deployment may not occur if the number of receivers in the network exceeds the number of available frequencies in the selected group. Try another group or rescan after turning off unused receivers.

Troubleshooting

Issue	See Solution...
No Sound	Power, Cables, or Radio Frequency
Faint sound or distortion	Gain, Cables, Reducing Interference or Radio Frequency
Lack of range, unwanted noise bursts, or dropouts	RF
Cannot turn transmitter off or change frequency settings, or can't program receiver	Interface Locks
Receiver display shows **FAIL** after encryption is disable	Encryption Mismatch
Group and Channel display shows **"--"**	Custom Group IR Sync

Power

Make sure that the receiver and transmitter are receiving sufficient voltage. Check the battery indicators. Replace or recharge the batteries if necessary.

Gain

Adjust the system gain on the front of the receiver. Ensure the **mic/line** switch setting (XLR output only) on the back of the receiver corresponds to the input of the mixing console, amplifier, or processor.

Cables

Check that all cables and connectors are fully engaged or locked into position. Inspect cables for damage. Replace if necessary.

Interface Locks

The transmitter and the receiver can be locked to prevent accidental or unauthorized changes. If a locked control is accessed, the lock icon on the display will flash. Follow the instructions to unlock the receiver or transmitter.

Firmware Mismatch

Paired transmitters and receivers must have the same firmware version installed to ensure consistent operation. See Firmware Updates topic for firmware update procedure.

Encryption Mismatch

Indicates an encryption key mismatch has been detected. Perform an IR sync between the receiver and transmitter to clear the error.

Custom Group IR Sync

When using Custom Groups, always perform an IR sync from the **CustomGroups** menu in the receiver to ensure accurate display of group and channel information. See **CustomGroups** topic for additional details.

Radio Frequency (RF)

The blue RF LED will illuminate when a linked transmitter is within range of the receiver. Measure the transmitter range before a performance to avoid operating beyond the specified transmitter range.

The RF meter bars indicate amount of RF power being received. This signal could be from the transmitter, **or it could be from an interfering source, such as a television broadcast**. If the meter shows a signal level when the transmitter is off, then that channel may have interference. Check the surrounding area for sources of interference or change the receiver to a clear frequency.

A red **RF** LED indicates RF overload. Avoid operating multiple systems in close proximity.

Frequency Compatibility

- Perform a Scan and Sync to ensure the transmitter and receiver are set to the same channel or frequency
- Look at the label on the transmitter and receiver to make sure they are in the same band (G50, J50, L50, etc...).

Reducing Interference

- Perform a scan to find the best open frequency. Perform an IR sync to transfer the settings to the transmitter.
- For multiple systems, make sure that each receiver is assigned to a unique channel. Interference will occur if two transmitters are set to the same channel.
- Maintain a line of sight between transmitter and receiver antennas.
- Move receiver antennas away from metal objects or other sources of RF interference (such as CD players, computers, digital effects, network switches, network cables and Personal Stereo Monitor (PSM) wireless systems).
- Eliminate RF overload (see below).

Increasing Range

- Increase transmitter RF power level to **Hi**
- Use an active directional antenna, antenna distribution system, or other antenna accessory to increase RF range

Eliminating RF Overload

If the RF **OL** icon appears on the RF meter, try the following:

- Reduce the transmitter RF power level from **Hi** to **Lo**
- Move the transmitter further away from the receiver—at least 6 m (20 ft)
- If you are using active antennas, reduce antenna or amplifier gain.
- Use omnidirectional antennas

Error Codes and Solutions

Error codes are generated when the receiver detects a condition that can potentially affect system performance.

If an error is displayed on the receiver, use the following table to identify the problem and find the corresponding solution.

Error Code	Description	Solutions
Err.001	Audio Compatibility	Update transmitter and receiver firmware to the latest version.
Err.002	Encryption Mismatch between Shure product lines	Set encryption to **off** for components from different Shure products lines, such as QLX-D and ULX-D.
Err.003	Encryption Mode Mismatch	Perform an IR sync between the transmitter and receiver to clear the error.
Err.004	Band Mismatch	Receiver and transmitter are operating in overlapping frequencies from different bands.
Err.005	Frequency Mismatch	Receiver and transmitter are from bands that do not share compatible frequencies.
Err.006	No Frequencies Found	Rescan, select a different group, or use WWB to find a frequency.
Err.007	Firmware Mismatch	Update firmware on the transmitter and receiver.
Err.008	Shure SB900 battery runtime does not appear on display	Check that battery is firmly installed into the battery compartment. If condition persists, replace the battery.

Specifications

RF Carrier Frequency Range
470–937.5 MHz, varies by region (See Frequency Range and Output Power table)

Working Range
100 m (328 ft)

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

RF Tuning Step Size
25 kHz, varies by region

Image Rejection
>70 dB, typical

RF Sensitivity
-97 dBm at 10-5 BER

Latency
<2.9 ms

Audio Frequency Response

QLXD1	20 – 20 kHz (±1 dB)
QLXD2	Note: Dependent on microphone type

Audio Dynamic Range
System Gain @ +10
>120 dB, A-weighted, typical

Total Harmonic Distortion
–12 dBFS input, System Gain @ +10
<0.1%

System Audio Polarity
Positive pressure on microphone diaphragm produces positive voltage on pin 2 (with respect to pin 3 of XLR output) and the tip of the 6.35 mm (1/4-inch) output.

Operating Temperature Range
-18°C (0°F) to 50°C (122°F)

Note: Battery characteristics may limit this range.

Storage Temperature Range
-29°C (-20°F) to 74°C (165°F)

Note: Battery characteristics may limit this range.

QLXD4

Dimensions
41 mm x 197 mm x 151 mm (1.63 in. x 7.75 in. x 5.94 in.), H x W x D

Weight
777 g (1.71 lbs), without antennas

Housing
steel

Power Requirements
12 V DC @ 0.4 A, supplied by external power supply (tip positive)

RF Input

Spurious Rejection
>80 dB, typical

Connector Type
BNC

Impedance
50 Ω

Audio Output

Gain Adjustment Range
-18 to +42 dB in 1 dB steps

Configuration

1/4" (6.35 mm)	Impedance balanced (Tip=audio, Ring=no audio, Sleeve=ground)
XLR	balanced (1=ground, 2=audio +, 3=audio –)

Impedance

1/4" (6.35 mm)	100 Ω (50 Ω Unbalanced)
XLR	100 Ω

Full Scale Output

1/4" (6.35 mm)	+12 dBV
XLR	LINE setting= +18 dBV, MIC setting= -12 dBV

Mic/Line Switch
30 dB pad

Phantom Power Protection

1/4" (6.35 mm)	Yes
XLR	Yes

Networking

Network Interface
Single Port Ethernet 10/100 Mbps

Network Addressing Capability
DHCP or Manual IP address

Maximum Cable Length
100 m (328 ft)

QLXD1

Mic Offset Range
0 to 21 dB (in 3 dB steps)

Battery Type
Shure SB900 Rechargeable Li-Ion or AA batteries 1.5 V

Dimensions
86 mm x 65 mm x 23 mm (3.38in. x 2.57 in. x 0.92 in.) H x W x D,without antenna

Weight
138 g (4.9 oz.), without batteries

Housing
Cast aluminum

Audio Input

Connector
4-Pin male mini connector (TA4M), See drawing for details

Configuration
Unbalanced

Impedance
1 MΩ, See drawing for details

Maximum Input Level
1 kHz at 1% THD
8.5 dBV (7.5 Vpp)

Preamplifier Equivalent Input Noise (EIN)
System Gain Setting ≥ +20
-120 dBV, A-weighted, typical

RF Output

Connector
SMA

Antenna Type
1/4 wave

Impedance
50 Ω

Occupied Bandwidth
<200 kHz

Modulation Type
Shure proprietary digital

Power
1 mW or 10 mW

See Frequency Range and Output Power table, varies by region

QLXD2

Mic Offset Range
0 to 21 dB (in 3 dB steps)

Battery Type
Shure SB900 Rechargeable Li-Ion or AA batteries 1.5 V

Dimensions
269 mm x 51 mm (10.6 in. x 2.0 in.) L x Dia.

Weight
307 g (12.1 oz.), without batteries

Housing
Machined aluminum

Audio Input

Configuration
Unbalanced

Maximum Input Level
1 kHz at 1% THD
145 dB SPL (SM58), typical

Note: Dependent on microphone type

RF Output

Antenna Type
Integrated Single Band Helical

Occupied Bandwidth
<200 kHz

Modulation Type
Shure proprietary digital

Power
1 mW or 10 mW

See Frequency Range and Output Power table, varies by region

Frequency Range and Transmitter Output Power

Band	Frequency Range (MHz)	Power (mW RMS) (Lo/Nm/Hi)*
G50	470 to 534	1 / 10
G51	470 to 534	1 / 10
G52	479 to 534	1 / 10
H50	534 to 598	1 / 10
H51	534 to 598	1 / 10
H52	534 to 565	1 / 10
H53	534 to 598	1 / 10
J50	572 to 636	1 / 10
J51	572 to 636	1 / 10
JB	806 to 810	1 / 10
K51	606 to 670	1 / 10
K52	606 to 670	1 / 10
L50	632 to 696	1 / 10
L51	632 to 696	1 / 10
L52	632 to 694	1 / 10
L53	632 to 714	1 / 10
P51	710 to 782	1 / 10
P52	710 to 782	1 / 10
Q51	794 to 806	1 / 10
S50	(823 to 832) (863 to 865)	1 / 10
V50	174 to 216	1 / 10
V51	174 to 216	1 / 10
X51	925 -937.5	1 / 10
X52	902 to 928 (All America's except Brazil)	1 / 10
X53	902 to 907.500, 915 to 928 (Brazil)	1 / 10
X54	915 to 928 (Australia)	1 / 10

Note: Frequency bands might not be available for sale or authorized for use in all countries or regions.

*Note: Power delivered to the antenna port.

Battery Life

	SB900		alkaline	
	1/10 mW	20 mW	1/10 mW	20 mW
470 to 940	11 hours	7 hours	11 hours	5:30 hours
174 to 216	9:50 hours	7 hours	9 hours	5:45 hours
1240 to 1260	8:40 hours	6:45 hours	7:30 hours	5:30 hours

The values in this table are typical of fresh, high quality batteries. Battery runtime varies depending on the manufacturer and age of the battery.

Certifications

QLXD1, QLXD2, QLXD4

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

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

QLXD1, QLXD2

Certified under FCC Part 74.

Certified by IC in Canada under RSS-102 and RSS-210.

IC: 616A-QLXD1G50, 616A-QLXD1H50, 616A-QLXD1J50, 616A-QLXD1L50, 616A-QLXD2G50, 616A-QLXD2H50, 616A-QLXD2J50, 616A-QLXD2L50.

FCC: DD4QLXD1G50, DD4QLXD1H50, DD4QLXD1J50, DD4QLXD1L50, DD4QLXD2G50, DD4QLXD2H50, DD4QLXD2J50, DD4QLXD2L50.
IC: 616A-QLXD1X52, 616A-QLXD2X52
FCC: DD4QLXD1X52, DD4QLXD2X52
IC: 616A-QLXD1V50, 616A-QLXD2V50
FCC: DD4QLXD1V50, DD4QLXD2V50
Note: For transmitters operating in the V50 and V51 bands: nominal free space antenna gain at middle of the band is typically -6 dBi, and rolls off at the band edges an additional -4 dB.

QLXD4

Approved under the Declaration of Conformity (DoC) provision of FCC Part 15.

Conforms to electrical safety requirements based on IEC 60065.

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

Authorized European representative:
Shure Europe GmbH
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Department: EMEA Approval
Jakob-Dieffenbacher-Str. 12
75031 Eppingen, Germany
Phone: 49-7262-92 49 0
Fax: 49-7262-92 49 11 4
Email: info@shure.de

FREQUENCIES FOR EUROPEAN COUNTRIES

	Country Code Code de Pays Codice di paese Código de país Länder-Kürzel	Frequency Range Gamme de frequences Gamme di frequenza Gama de frequencias Frequenzbereich
QLXD-G51 **470 - 534 MHz** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	all other countries	*
QLXD-H51 **534 - 598 MHz** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	all other countries	*
QLXD-K51 **606 - 670 MHz** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	all other countries	*
QLXD-L52 **632 - 694 MHz** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	all other countries	*
QLXD-P51 **710 - 782 MHz** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	all other countries	*
QLXD-Q51 **794 - 806 MHz** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	All other countries	*
QLXD-S50 **823 - 832 MHz** **863 - 865 MHz** **1 or 10 mW**	D	license free
	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	863 - 865 MHz	EU: license free
	all other countries	*
QLXD-V51 **174 - 216 MHz,** **1 or 10 mW**	A, B, BG, CH, CY, CZ, D, DK, EST, F,	*
	FIN, GB, GR, H, HR, I, IRL, IS, L, LT,	*
	M, N, NL, P, PL RO, S, SK, SLO, TR,	*
	all other countries	*

* **NOTE:** This Radio equipment is intended for use in musical professional entertainment and similar applications. This Radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies and RF power levels for wireless microphone products.

* **REMARQUE :** Ce matériel radio est prévu pour une utilisation en spectacles musicaux professionnels et applications similaires. Il est possible que cet appareil radio soit capable de fonctionner sur certaines fréquences non autorisées localement. Se mettre en rapport avec les autorités compétentes pour obtenir les informations sur les fréquences et niveaux de puissance HF autorisés pour les systèmes de microphones sans fil.

* **HINWEIS:** Diese Funkausrüstung ist zum Gebrauch bei professionellen Musikveranstaltungen und ähnlichen Anwendungen vorgesehen. Dieses Gerät kann möglicherweise auf einigen Funkfrequenzen arbeiten, die in Ihrem Gebiet nicht zugelassen sind. Wenden Sie sich bitte an die zuständige Behörde, um Informationen über zugelassene Frequenzen und erlaubte Sendeleistungen für drahtlose Mikrofonprodukte zu erhalten.

* **NOTA:** Este equipo de radio está destinado para uso en presentaciones musicales profesionales y usos similares. Este aparato de radio puede ser capaz de funcionar en algunas frecuencias no autorizadas en su región. Por favor comuníquese con las autoridades nacionales para información sobre las frecuencias autorizadas y los niveles de potencia de radiofrecuencia para micrófonos inalámbricos.

* **NOTA:** questo apparecchio radio è concepito per l'intrattenimento musicale a livello professionale ed applicazioni simili. Questo apparecchio radio può essere in grado di funzionare a frequenze non autorizzate nel Paese in cui si trova l'utente. Rivolgetevi alle autorità competenti per ottenere le informazioni relative alle frequenze ed ai livelli di potenza RF autorizzati nella vostra regione per i prodotti radiomicrofonici.

* **OPMERKING:** Deze radioapparatuur is bedoeld voor gebruik bij professionele muzikale amusementsproducties en soortgelijke toepassingen. Dit radioapparaat kan mogelijk werken op bepaalde frequenties die niet zijn toegestaan in uw regio. Raadpleeg de autoriteiten in uw land voor informatie over goedgekeurde frequenties en RF-vermogensniveaus voor draadloze microfoons.

* **ПРИМЕЧАНИЕ.** Данная радиоаппаратура предназначается для использования в профессиональных музыкальных представлениях и аналогичных приложениях. Может оказаться, что эта радиоаппаратура в состоянии работать на некоторых частотах, не разрешенных в вашем регионе. За информацией о разрешенных частотах и уровнях РЧ мощности для беспроводных микрофонных систем обращайтесь в национальные органы власти.

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