

UHF



Wireless Systems User Guide

PROFESSIONAL SOUND PRODUCTS



FCC Statement

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 receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Information
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Wireless System

Smart, Hard-working Wireless

Congratulations! Welcome to Wireless. Your new system is rugged, reliable, easy to set up and operate, and produces outstanding audio clarity. Whether you're a vocalist, guitarist, or instrumentalist, your Wireless system will show you how easy wireless can be, and how good wireless can sound.

This user guide and the Quick Setup guide included with your system will tell you all you need to know to get your system working away. Welcome to the world of Wireless: smart, hard-working wireless.

Frequency Band Selection

Most countries closely regulate the radio frequencies used in the transmission of wireless information. These regulations state which devices can use which frequencies, and help to limit the amount of RF (radio frequency) interference in all wireless communications.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	550.0	10	572.5
2	552.5	11	575.0
3	555.0	12	577.5
4	557.5	13	580.0
5	560.0	14	582.5
6	562.5	15	585.0
7	565.0	16	587.5
8	567.5	17	590.0
9	570.0		

To facilitate system setup and protect against RF interference, each system comes with multiple predefined frequency groups and channels. When using a single system, the operating frequency will generally not have to be changed. In an installation with multiple receiver/transmitter systems, each system must operate on a separate channel. The group and channel system provides an optimum frequency spread when using multiple systems. Check with your local retailer for information on which bands are available in your area.

What Do You want to Do Now ?

Learn about your Receiver

Power, lock/unlock, front and back panel features:
See "Receiver Features" on page 2, 3 and "Receiver programming" on page 10, 11, 12.

Learn about your Handheld Transmitter

Power, mute, gain, lock/unlock, other features:
See "Handheld Transmitter" on page 12 and "Transmitter programming" on page 12.

Learn about your Bodypack Transmitter

Power, mute, gain, lock/unlock, other features:
See "Bodypack Transmitter" on page 12 and "Transmitter programming" on page 12.

Program your Receiver and Transmitter

Frequency selection, LCD features, using the select and menu buttons : See "Transmitter programming" on page 12 and "Receiver programming" on page 10, 11, 12.

Troubleshoot your system

See "Troubleshooting" on page 13, 14.

Specifications

Bodypack Transmitter

Dimensions

108mmH x 64mmW x 19mmD
(4.25 x 2.50 x 0.75 in.)

Power Requirements

2 "AA" size alkaline rechargeable batteries.

Weight

81 grams (3 oz.) Without batteries

Housing

Molded ABS Case

Battery life

>8 hours (alkaline)

Handheld Transmitter

Audio Input Level

+2dBV maximum at -10dB position
-8dBV maximum at 0dB position

RF. Transmitter output

30mW maximum (dependent on applicable country regulations)

Weight

290 grams (10.2 oz) without batteries

Power Requirements

2 "AA" size alkaline or rechargeable batteries

Gain Adjustment Range

10 dB

Dimensions (including Sm58 cartridge)

254mm x 51mm dia (10 x 2 in)

Housing

Molded PC/ABS handle and battery cup

Battery Life

>8 hours (alkaline)

Receiver

Dimensions

42mmH x 480mmW x 210mmD (1.65 x 18.90 x 8.27 in)

Audio output level (ref. +/-38KHz deviation with 1KHz tone)

XLR connector (into 600Ω load): -13 dBV

1/4 inch connector (into 3000Ω load): -2 dBV

Sensitivity

-105dBm for 12dB SINAD, typical

Image Rejection

>70dB, typical

Power Requirements

12-18Vdc at 150mA, supplied by external power supply

Weight

3.5kg

Housing

Galvanized steel

XLR output

Impedance balanced

Pin 1: Ground (cable shield)

Pin 2: Audio

Pin 3: No Audio

Output impedance

XLR connector: 200Ω

1/4 inch connector: 1kΩ

Specifications System

Frequency Range and Transmitter Output Level

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	550.0	10	572.5
2	552.5	11	575.0
3	555.0	12	577.5
4	557.5	13	580.0
5	560.0	14	582.5
6	562.5	15	585.0
7	565.0	16	587.5
8	567.5	17	590.0
9	570.0		

NOTE: 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 for wireless microphone products in your region.

Operating Range Under Typical Conditions

100m (300ft.)

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

Audio Frequency Response (+/-2dB)

Minimum: 45Hz

Maximum: 15kHz

(Overall system frequency depends on microphone element.)

Total Harmonic Distortion (ref. Dynamic Range +/-38kHz deviation, 1kHz tone)

0.5%, typical

>100dB A-weighted

Operating Temperature Range

-18°C to +57°C

Note: battery characteristics may limit this range.

Transmitter Audio Polarity

Positive pressure on microphone diaphragm 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.

Bodypack Transmitter

Audio Input Level

+10dBV maximum at 0dB gain position

+20dBV maximum at -10dB gain position

RF, Transmitter Output

30 mW maximum (dependent on applicable country regulations)

Gain Adjustment Range

30dB

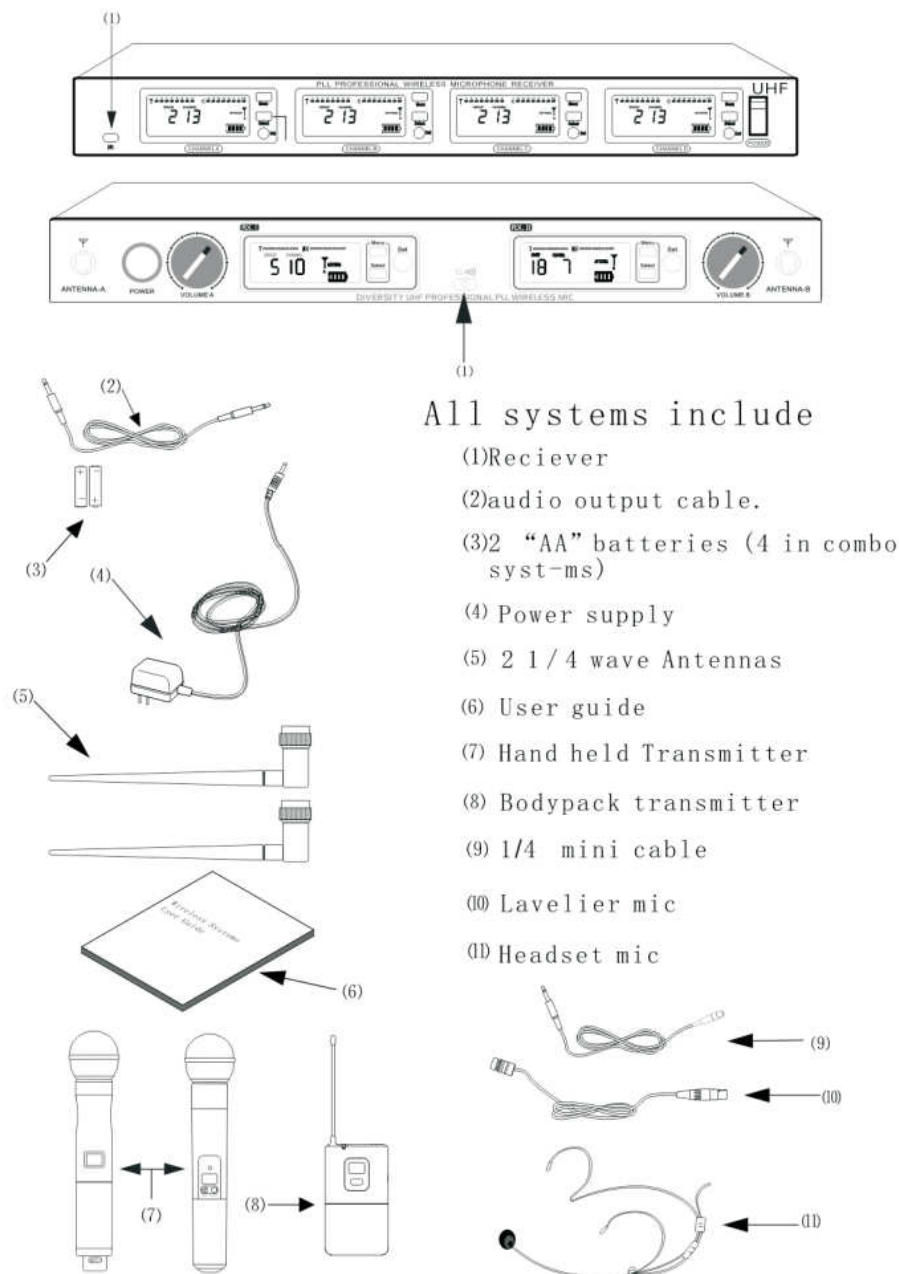
Input Impedance

1MΩ

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System components



Troubleshooting

Lssue	Indicator Status	Solution
Distortion or unwanted noise bursts	Receiver display indicates antenna activity	Remove nearby source of RF, interference (CD player, computers, digital effects, in-ear monitor systems, etc). Change receiver and transmitter to a different frequency (see page 11) Reduce transmitter gain (see page 5, 7) Replace transmitter batteries If using multiple system, increase the frequency spread between system (see page 10, 11)
Sound level different from cabled guitar or microphone, or when using different guitars		Adjust transmitter gain (see page 5, 7) and receiver volume (see page 13) as necessary
FULL warning displays on receiver		The FULL warning indicates that all available channels in the currently selected group are use. When this occurs, reprogram all systems to an alternate group.
Cannot turn transmitter off	Transmitter light flashing red	Replace transmitter batteries

Receiver Volume Control

The volume control dial should generally be left in the clock wise position. Turning the dial counter-clockwise decreases receiver output level.

If adjustments are necessary, use a small screwdriver to turn the dial.

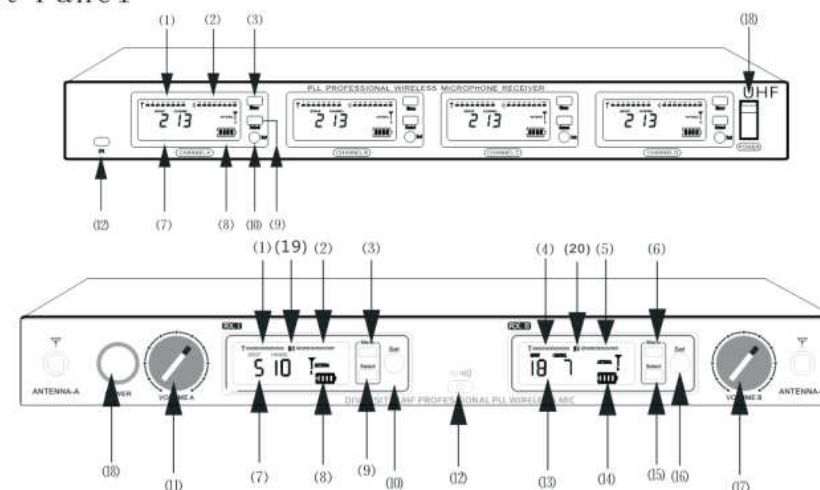
Tips for Improving System Performance

- Maintain a line of sight between transmitter and antenna.
- Avoid placing the receiver near metal surfaces or any digital equipment (CD players, computers, etc.)
- Secure the AC adapter cable to the receiver using the cable retainer loop.
- Zrstau the receiver on the rack mounting.

Troubleshooting

Issue	Indicator status	Issue
No sound or faint sound	Transmitter power light off	• Turn transmitter on (See pages 4, 5, 6, 7.) • Make the +/- indicators on battery match transmitter terminals • Insert a fresh battery
	Receiver LCD off	• Make sure AC adapter is securely plugged into electrical outlet and into DC input connector on rear panel of receiver • Make sure AC electrical outlet works and is supplying proper voltage
	Receiver display indicates antenna activity	• Press mute switch on transmitter (See pages 4, 5, 6, 7.) • Turn up receiver volume control (See pages 13.) • Increase transmitter gain switch setting (See pages 4, 5, 6, 7.) • Check cable connection between receiver and amplifier or mixer
	Receiver display indicates no antenna activity; transmitter and receiver power lights glowing	• Extend receiver antennas vertically • Move receiver away from metal objects • Check for line of sight between transmitter and receiver • Move transmitter closer to receiver • Check that receiver and transmitter are using the same frequency
	Transmitter power light glowing or flashing red	• Replace transmitter batteries
	INCOMPATIBLE warning on transmitter	• The INCOMPATIBLE warning indicates that the receiver are set to incompatible frequency bands. Contact your retailer for assistance.
Distortion level increases gradually	Transmitter power light glowing or flashing red	• Replace transmitter batteries

Receiver Features Front Panel



(1. 4) Sync Ready Indicator

Illuminates when frequencies of receiver and transmitter are synchronized. See "Receiver programming" on page 8

(2. 5) Audio Level

Indicates strength of incoming audio signal.

(3. 6) Menu switch

Press to scroll through menu options. See "Receiver programming" on page 10, 11.

(7. 13) LCD panel

See "Receiver Programming" on page 10, 11, 12.

(8. 14) Transmitter batteries level

(9. 15) Select switch

Press to select the currently displayed menu option, See "Receiver programming" on page 10, 11.

(10. 16) Sync Button

Press to initiate IR connection between receiver and transmitter. See "Receiver programming" on page 8.

(11. 17) Audio volume

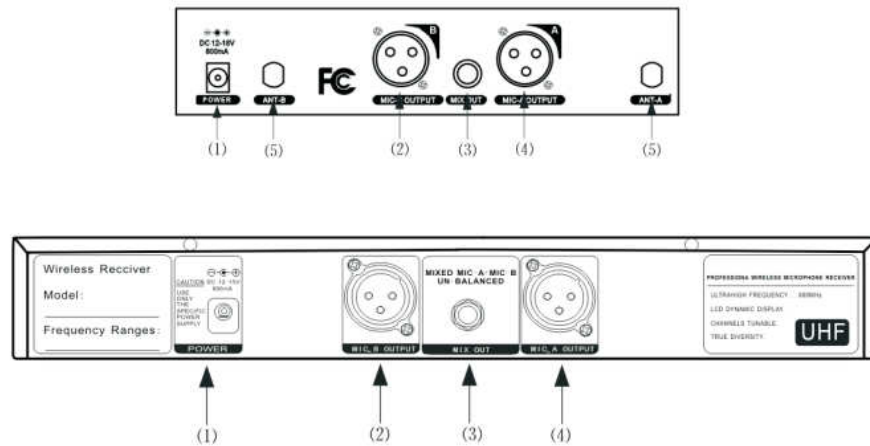
(12) Infrared (IR) port

Broadcasts IR signal to transmitter to synchronize frequencies.

(18) POWER on/off

(19. 20) MUTE on/off Flag

Back Panel



- (1) Dc adapter jack
- (2) XLR output jack
- (3) 1/4" output jack
- (4) XLR output jack
- (5) ANTENNA

Transmitter Programming

Manually Select a Group and/or Channel



1. Press and hold the select button until the GROUP and CHANNEL displays begin to alternate.
2. To change the group setting, release the select button while GROUP is displayed ①. While GROUP is flashing, pressing select increases the group setting by one.
3. To change the channel setting, release the select button while CHANNEL is displayed ②. While CHANNEL is flashing, pressing select increases the channel setting by one.

Lock or Unlock Transmitter Settings



Press the mute/⏏ and select buttons simultaneously to lock or unlock the transmitter settings. When locked, the current settings cannot be changed manually. Locking the transmitter does not disable infrared synchronization.

Battery Status



Indicates charge remaining in transmitter batteries.

Master List Indicator



Indicates that a master list frequency is currently in use. No group or channel information is displayed.

Note: the transmitter cannot be used to change master list settings.

INCOMPATIBLE Frequency Warning



The INCOMPATIBLE warning indicates that the receiver and transmitter are incompatible for frequency bands your retailer for assistance.

Wireless Programming

Receiver Programming



Exit the Master List

① 2X **menu** ② **select**

To exit the Master List and return to normal system operations, press menu, then select.

Setup Transmitter Gain

Settings 6x

menu ① **select** ② **Set** ③ **Sync**



Hold down the menu key and press select key to 0dB or -10dB (transmitter gain). press sync and automatic setup the transmitter RF output gain.

- . 0dB: fewer system (0dB: 30mW).
- . -10dB: majority system (-10dB: 10mW).

Lock or Unlock Receiver

Settings

select + **menu**



Hold down the select key and press menu to lock or unlock the receiver. When locked, the current receiver settings cannot be changed.

Antenna Status

Indicates RF activity. Only one antenna is active at any one time.



Transmitter Battery Status

Indicates a low transmitter battery charge.



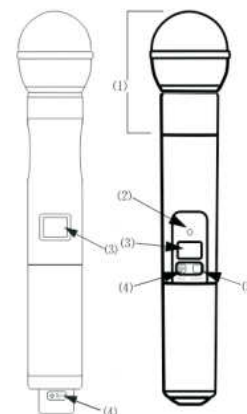
Full Group Warning

The FULL warning indicates that all available channels in the currently selected group are in use. When this occurs, reprogram all systems to an alternate group.

Press either the menu or select button to exit the warning screen.



Handheld Transmitter Features

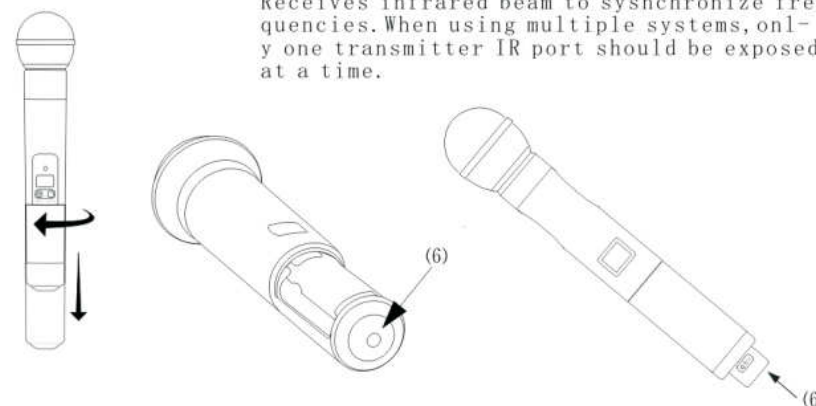


- (1) Interchangeable microphone head (SM-58 pictured)
- (2) Power / Infrared (IR) / Mute indicator
Green: ready
Amber: mute on
Flashing red: IR transmission in process
Glowing red: battery power low
Pulsing red: battery dead (transmitter cannot be turned on until batteries are changed)
- (3) LCD screen
See "Transmitter Programming" on page 12.
- (4) On-off / mute switch
Press and hold to turn on or off. Press and release to mute or unmute.

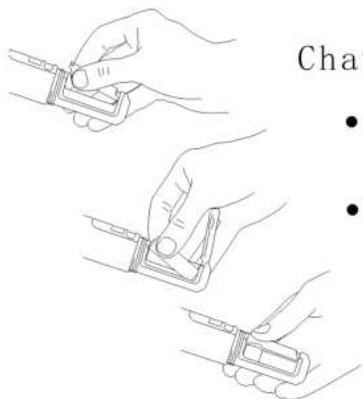
▶ To avoid accidentally muting the microphone during a performance, lock the front panel while the microphone is in use. See "Lock or Unlock Transmitter Settings" on page 12.

- (5) Select switch
See "Transmitter Programming" on page 12.
- (6) IR port

Receives infrared beam to synchronize frequencies. When using multiple systems, only one transmitter IR port should be exposed at a time.



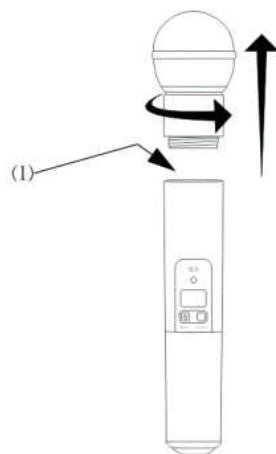
Handheld Transmitter Features



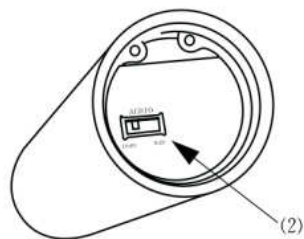
Changing Batteries

- Expected life for an Alkaline battery is approximately 8 hours.
- When the transmitter light glows red, the batteries should be changed immediately, as shown on the left.

Adjusting Gain



- Access the gain adjustment switch (1) by unscrewing the head of the microphone.
- Two gain settings (2) are available on the Transmitter. Choose a setting appropriate for vocal volume and for the performing environment. Use the tip of a small screwdriver to move the switch.
- 0dB: For quiet to normal vocal performance.
- -10dB: For loud vocal performance.



Wireless Programming

Any option displayed on screen will generally "time out" after five seconds.

Receiver Programming

Group Selection ① 2x [menu] ② [select] ③ [Sync]



Allows manual selection of a frequency group. Pressing select increases the group number by one. When the correct frequency is displayed, either wait five seconds for the screen to time out, or press sync. For best results when operating multiple systems, set all systems to a single group; then set each system to a unique channel within that group.

Manual Channel Selection ① 3x [menu] ② [select] ③ [Sync]



Allows manual selection of a frequency channel. Pressing select increases the channel number by one. When the correct frequency is displayed, either wait five seconds for the screen to time out, or press sync.

Display Frequency ① 4x [menu] ② [select]



Displays the current frequency in Mhz for approximately 5 seconds. Press and hold to increase display length.

Using the Master Frequency List ① 5x [menu] ② [select]



The "Master List" of frequencies should be accessed only by experienced users in situations which call for precise frequency selection. The "Master List" is a comprehensive index of all available frequencies in 25 kHz increments. (125kHz increments in the JB band.)

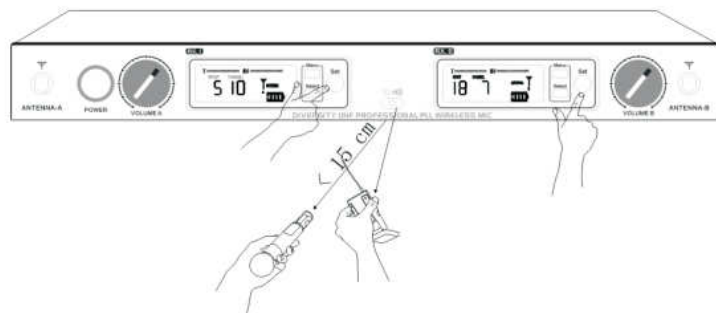
To access the Master List, hold down the menu button while powering on the receiver.

Select Frequencies in the Master List



While FREQUENCY SELECT is flashing, the select button scrolls down through all available frequencies; the menu button scrolls up. Press and release to change the frequency in 25kHz increments; press and hold to scroll quickly.

When the correct frequency is displayed, either wait five seconds for the screen to time out, or press sync.



Multiple System Setup

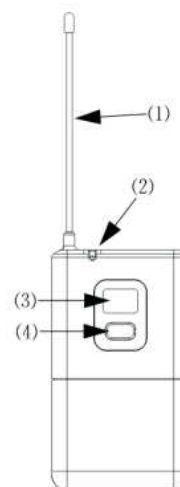
Follow these steps when using multiple systems in a single installation:

1. Turn all receivers on and all transmitters off.
2. Set all receivers to the same frequency group (See "Group Selection" on page 10).
3. Perform Automatic Frequency Selection from the Single System Setup section above.
4. Turn on the first transmitter.
5. Perform Automatic Transmitter Setup from the Single System Setup section above.

Repeat for each system.

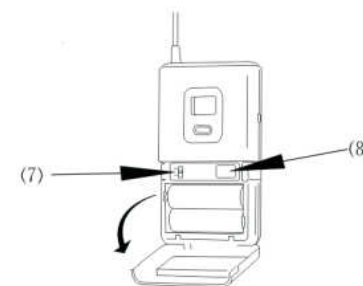
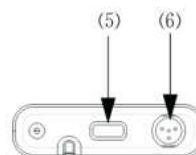
- Be sure that only one transmitter's IR port is exposed when synchronizing a system.

Bodypack Transmitter Features



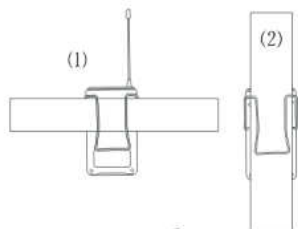
- (1) Antenna
- (2) Power / Infrared (IR) / Mute indicator
Green: ready
Amber: mute on
Flashing red: IR transmission in process
Glowing red: battery power low
Pulsing red: battery dead (transmitter cannot be turned off until batteries are changed)
- (3) LCD screen
See "Transmitter Programming" on page 12.
- (4) Select switch
See "Transmitter Programming" on page 12.
- (5) On-off / mute switch
Press and hold to turn on or off. Press and release to mute or unmute.
- (6) 3-Pin Microphone Input jack
- (7) Gain adjustment switch (see below)
See "Bodypack Transmitter Programming" on page 7.
- (8) IR port

Receives infrared beam to synchronize frequencies. When using multiple systems, only one transmitter IR port should be exposed at a time.

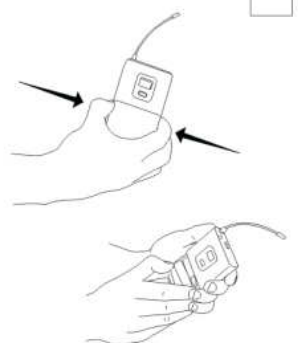


Bodypack Transmitter Features

Wearing the Bodypack Transmitter



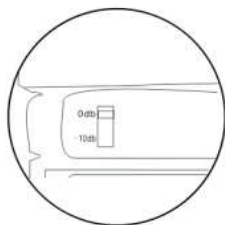
- Clip the transmitter to a belt (1) or slide a guitar strap through the transmitter clip (2) as shown.
- For best results, slide the transmitter until the belt (1) is pressed against the base of the clip.



Changing Batteries

- Expected life for an Alkaline battery is approximately 8 hours.
- When the transmitter light glows red, the batteries should be changed immediately, as shown on the left.

Adjusting Gain



- Two gain settings are available on the Transmitter. Choose a setting appropriate for vocal volume and for the performing environment. Use the tip of a small screwdriver to move the switch.
- 0dB: For quiet to normal vocal performance.
- -10dB: For loud vocal performance.

Single System Setup

Note: transmitting devices such as cellular phones and two-way radios may interfere with wireless audio transmissions. Keep your transmitters and receivers away from these and other potential sources of interference.

Follow these steps when using a single system:

1. Automatic Frequency Selection ① menu ② select

Scans for an available channel and sets the receiver to that channel.



2. Automatic Transmitter Setup Sync

Turn On the transmitter.

Open the transmitter battery compartment to display the infrared (IR) port (See page 4 and page 6)

With the IR port exposed to the receiver, press sync.

Hold the sync button until the red light stops on both receiver and transmitter.

With the receiver ready light glows, the system is ready for use.

Close the transmitter battery compartment.

