

User Guide

Clear-Com HME DX410 Dual-Channel Wireless Intercom



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FCC NOTICE

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by Clear-Com, LLC, an HM Electronics, Inc. company could void the user's authority to operate this equipment.

MANDATORY SAFETY INSTRUCTIONS FOR INSTALLERS AND USERS

Use only manufacturer or dealer supplied antennas. The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio frequency) energy, which is below the OSHA (Occupational Safety and Health Act) limits.

The term "IC:" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Base Station Antenna minimum safe distance: 7.9 inches (20 cm) at 100% duty cycle.

Base Station Antenna gain: This device has been designed to operate with an antenna having a maximum gain of up to 7dBi.

Antenna mounting: The antenna(s) used for the base transmitter must be installed to provide a separation distance of at least 7.9 inches (20 cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Antenna substitution: Do not substitute any antenna for the one supplied by the manufacturer. You may be exposing person or persons to excess radio frequency radiation. You may contact your dealer or the manufacturer for further instructions.

WARNING: Maintain a separation distance from the base station transmit antenna to a person(s) of at least 7.9 inches (20 cm) at 100% duty cycle.

WARNING: Excessive sound pressure level from earphones or headphones can cause hearing loss. You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational /Controlled Exposure Environment, for work-related use. Transmit only when person(s) are at least the minimum distance from the properly installed, externally mounted antenna.

Hereby, Clear-Com, LLC, an HM Electronics, Inc. company, declares that the DX410 is in compliance with the essential requirements and other relevant provisions of R&TTE Directive 1999/5/EC. In AFH mode, complies with European Telecommunications Standards Institute (ETSI) harmonized European standard EN 300 238 v1.8.1.



This product operates in the 2400 to 2483.5 MHz frequency range. The use of this frequency range is not yet harmonized between all countries. Some countries may restrict the use of a portion of this band or impose other restriction relating to power level or use. You should contact your Spectrum authority to determine possible restrictions.

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The European Union (EU) WEEE Directive (2002/96/EC) places an obligation on producers (manufacturers, distributors and/or retailers) to take-back electronic products at the end of their useful life. The WEEE Directive covers most Clear-Com products being sold into the EU as of August 13, 2005. Manufacturers, distributors and retailers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

Instructions for Disposal of WEEE by Users in the European Union

The symbol shown below is on the product or on its packaging which indicates that this product was put on the market after August 13, 2005 and must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of the user's waste equipment by handing it over to a designated collection point for the recycling of WEEE. The separate collection and recycling of waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local authority, your household waste disposal service or the seller from whom you purchased the product.



Clear-Com, LLC, an HM Electronics, Inc. company, is not responsible for equipment malfunctions due to erroneous translation of its publications from their original English version. Illustrations in this publication are approximate representations of the actual equipment, and may not be exactly as the equipment appears.

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SYSTEM OVERVIEW

The Clear-Com® HME DX410 is a 2-channel Digital Wireless Intercom System that supports up to 15 COMMUNICATOR®s per base station, either Belt Packs or All-In-One Headsets, or a combination of the two.

Using the DX410 in the 2-channel mode, any three of the 15 Communicators can operate in full duplex mode. In the single-channel mode, any four Communicators can operate in full duplex mode. This number can be increased by adding up to three additional base stations. The DX410 supports both Clear-Com and RTS cabled 2-wire intercom systems, and also has 4-wire and auxiliary audio connections.

System Components

BS410 Base Station



Antennas

110/240 Switching Power Supply



AC50 Batteries



WH410 All-In-One Headset



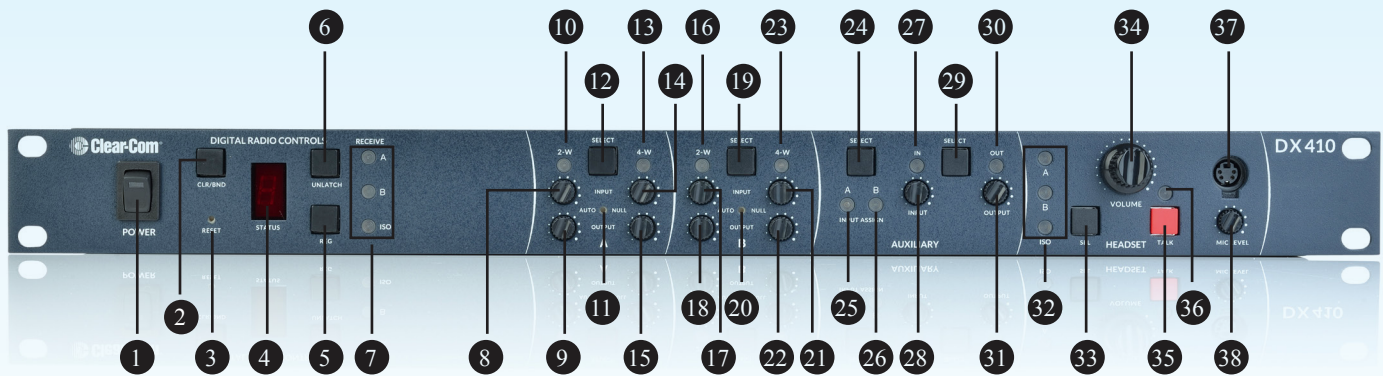
AC50 Battery Charger and Power Supply Adapter



BP410 Belt Pack



Base Station Front Panel



Digital Radio Controls

1. POWER switch
2. CLR/BND button
3. RESET button (recessed)
4. STATUS display
5. REG (registration) button
6. UNLATCH button
7. RECEIVE indicator lights

A Controls

8. (A) 2-W output level adjust
9. (A) 2-W input level adjust
10. (A) 2-W indicator light
11. (A) AUTO NULL button (recessed)
12. (A) 2-W/4-W SELECT button
13. (A) 4-W indicator light
14. (A) 4-W input level adjust
15. (A) 4-W output level adjust

B Controls

16. (B) 2-W indicator light
17. (B) 2-W input level adjust
18. (B) 2-W output level adjust
19. (B) 2-W/4-W SELECT button

20. (B) AUTO NULL button (recessed)

21. (B) 4-W input level adjust

22. (B) 4-W output level adjust

23. (B) 4-W indicator light

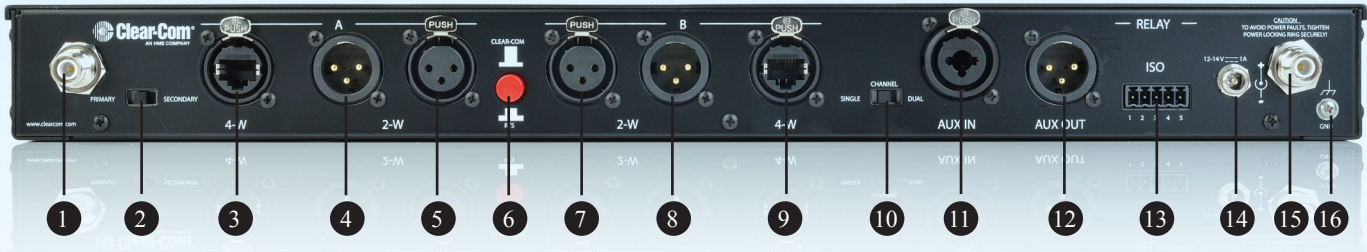
Auxiliary Controls

24. AUX INPUT SELECT button
25. AUX A INPUT ASSIGN indicator
26. AUX B INPUT ASSIGN indicator
27. AUX IN indicator light
28. AUX INPUT level adjust
29. AUX OUTPUT SELECT button
30. AUX OUT indicator light
31. AUX OUTPUT level adjust

Headset Controls

32. HEADSET A, B & ISO indicator lights
33. HEADSET A, B & ISO SELECT button
34. HEADSET VOLUME knob
35. HEADSET TALK On/Off button
36. HEADSET TALK indicator light
37. HEADSET MIC LEVEL adjust
38. HEADSET cable connector

Base Station Rear Panel



- | | |
|------------------------------------|---------------------------------------|
| 1. ANT (R-TNC) | 9. (B) 4-W RJ-45 Connector |
| 2. PRIMARY/SECONDARY Select Switch | 10. SINGLE/DUAL Channel Select Switch |
| 3. (A) 4-W RJ-45 Connector | 11. AUX IN Connector |
| 4. (A) 2-W XLR-3M Connector | 12. AUX OUT Connector |
| 5. (A) 2-W XLR-3F Connector | 13. Relay Connector |
| 6. CLEAR-COM/RTS Select Switch | 14. DC Power Connector |
| 7. (B) 2-W XLR-3F Connector | 15. ANT (R-TNC) |
| 8. (B) 2-W XLR-3M Connector | 16. Chassis Grounding Screw |

Belt Pack – BP410



- | | |
|----------------------------|-----------------------------------|
| 1. Battery | 6. Battery-release latch |
| 2. Volume-up button | 7. Power/mode lights |
| 3. PWR (Power) button | 8. Channel A (Intercom 1) button |
| 4. Volume-down button | 9. ISO (Isolate) button |
| 5. Headset cable connector | 10. Channel B (Intercom 2) button |

All-In-One Headset – WH410



1. Channel A (Intercom 1) button

2. ISO (Isolate) button

3. Volume-up button

4. Volume-down button

5. Channel B (Intercom 2) button

6. Power/mode lights

7. Microphone

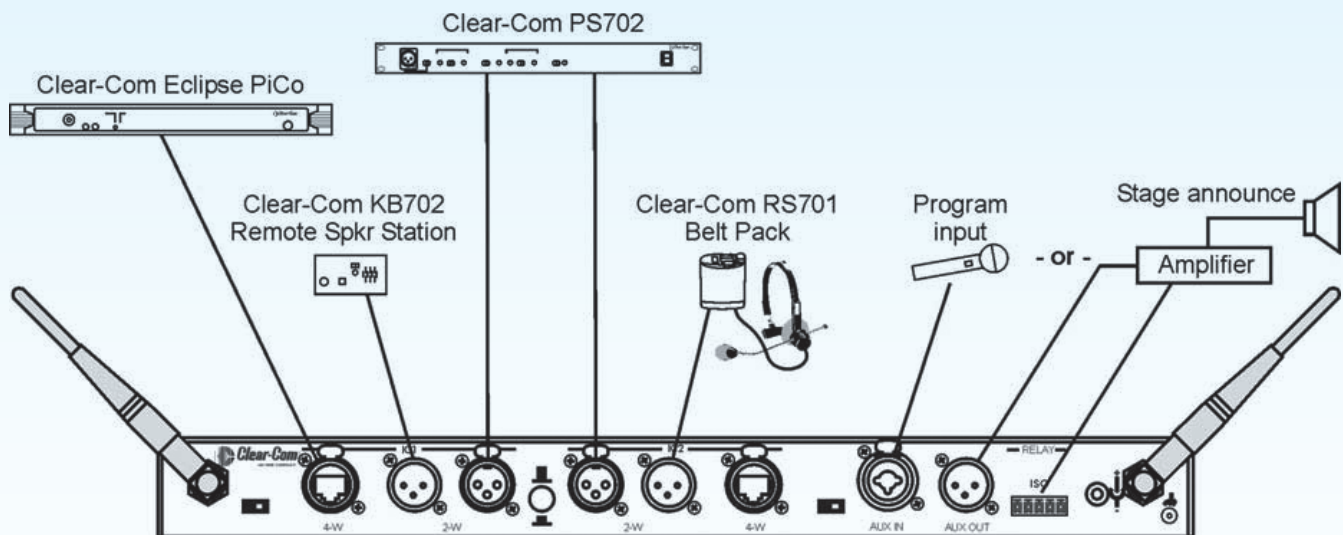
8. Power button

9. Battery

10. Battery-release latch

SYSTEM SETUP

Displayed below is an example of a typical Clear-Com set up and configuration with the DX410.



Battery Charging

Before installing the system, connect the AC power supply to the battery charger and plug it into an electrical outlet. Charge all the batteries while the other equipment is being installed. Charging time is about 2.5 hours.



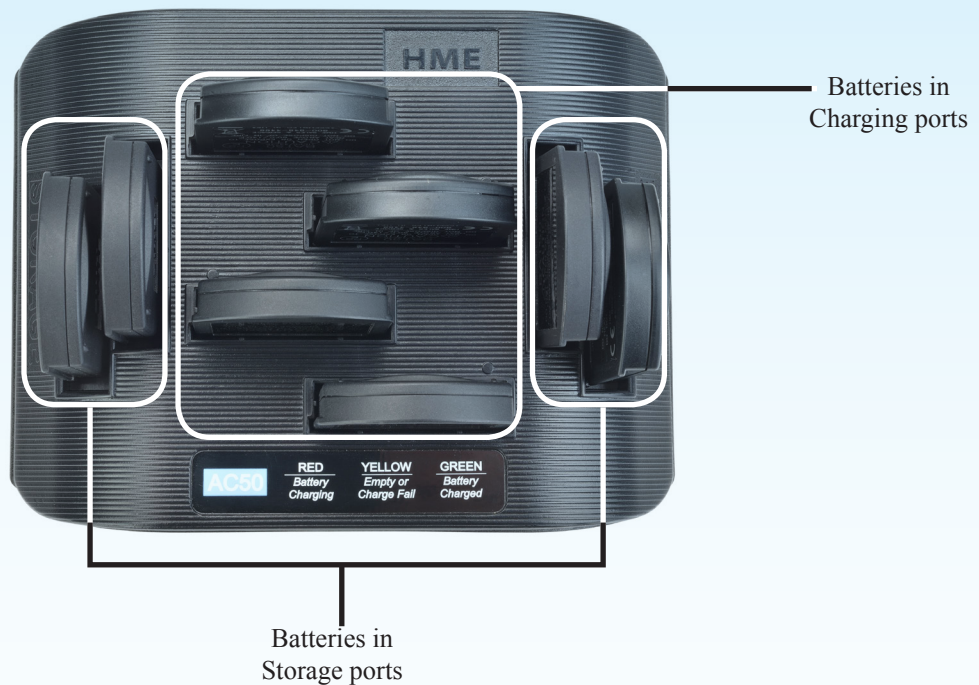
Connect AC Power Supply

To connect the AC power supply to the battery charger:

1. Connect the AC power supply cable connector to the power connection on the battery charger.
2. Connect the AC power cord to an electrical outlet.

The red lights on the charger will briefly display, and then the yellow lights will appear and remain on.





Charging the Batteries

Up to four batteries can be charged in the battery charger at one time. The battery status lights next to each charging port indicate the battery status. Up to four fully charged batteries can be stored in the battery Storage ports. Insert a battery in each of four Charging ports until it clicks in place.

- A yellow light next to a Charging port indicates that the port is EMPTY.
- A red light next indicates that the battery port is CHARGING.
- A green light indicates that the battery is READY.
- A steady yellow light indicates that the CHARGE FAILED. If a charge fails, refer to the instructions on the side of battery charger.
- A flashing yellow light next indicates CHARGE PENDING, which means the inserted battery is too hot. Adjust the room temperature or move the charger to a cooler area.
- Store fully charged batteries in storage ports.

NOTE: Batteries should not be left in charge ports after being fully charged. A battery left in a charging port for more than three weeks may display the yellow indicator light, but it does not indicate a faulty battery.

Basic Base Station Setup

This section describes setup and equipment connections for an individual base station.



1. Connect the two enclosed antennas to the antenna connectors on the rear panel of the base station, and turn the sleeves clockwise on the antenna connectors to tighten them securely in place. Position the antennas at 90° angles from each other.
2. Plug the connector at the end of the AC power supply cord into the **+12-14VDC** power connector on the rear panel of the base station (as shown above). Turn the locking nut on the cable connector clockwise to secure it to the base station. Plug the female connector at one end of the AC power cord into the power supply. Plug the other end of the AC power cord into an electrical outlet.
3. Set the SINGLE/DUAL Channel select switch for the base station to operate in **Single** or **Dual** channel mode.
 - In **Single Channel mode**, all wireless users will be able to hear each other. Up to four users can talk simultaneously.
 - In **dual channel mode**, there are two separate audio channels enabling two groups of users to independently communicate with each other. Up to three users can talk simultaneously.

NOTE: Any time the mode is changed, the unit must be reset using the **RESET button** or by power cycling for the change to take effect.



1. If a local headset will be used, plug it into the **HEADSET connector** on the front panel of the base station.

NOTE: The connector is keyed, so the headset cable plug cannot be inserted in the wrong direction.
2. Press the **POWER switch** on the front panel to turn on the base station. A red light on the switch should go on.

COMMUNICATOR® Setup and Registration

The first time you operate the DX410 system, you must register each Communicator (Belt Pack and/or All-In-One Headset) for use with a specific base station. The base station will then recognize all registered Communicators when their power is on and will differentiate between them and other electronic equipment operating on the same frequencies. If a Communicator is added or replaced later, the new one must be registered and the old one remains in memory. A maximum of 15 Communicators can be registered to a single base station at one time.

Set Up COMMUNICATOR®s

Before registering them, set up all Communicators as follows:

The Belt Pack

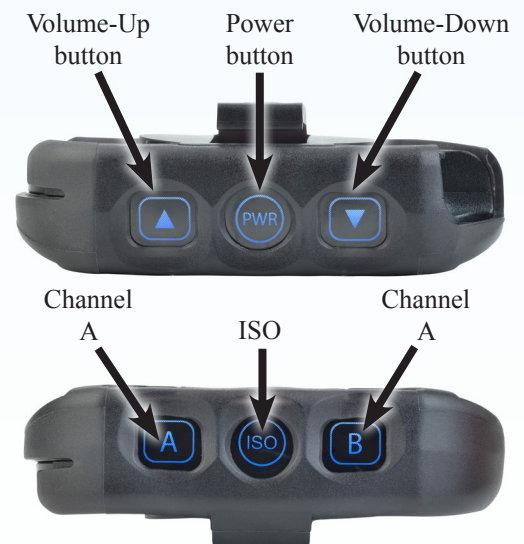
- Insert a fully charged battery in each Belt Pack with the metal contacts inserted first. Slide it in until it snaps.
- NOTE:** The battery will not slide in if inserted incorrectly. Excessive force should not be necessary.
- Plug the belt pack's headset cable connector into each Belt Pack.



Removing the battery

When a Communicator battery becomes weak, a headset voice prompt will say "Change battery."

Press the **RELEASE BATTERY button** on the belt clip of the pouch, and use your thumb to slide the battery from the belt-pac.



All-In-One Headsets



Changing Batteries

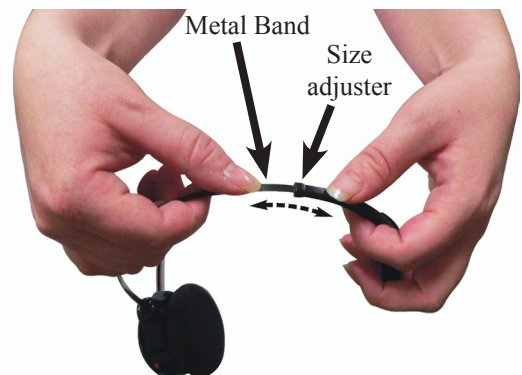
When a battery weakens, a prompt in the headset will say "Change battery". Remove the battery from the headset by pressing the blue battery-release latch.

Insert a fully charged battery in each Headset, with the battery's metal contacts inserted first. Press it in until it snaps.

NOTE: The battery will not slide in if inserted incorrectly. Excessive force should not be necessary.

Adjust the Headset to Your Head Size

You can adjust the head size of the Headset by sliding the metal headband in or out of its plastic size adjuster.



Place the Headset on your head

1. The headset can be worn with the microphone and controls on either side of your head.
2. Hold the microphone boom at its base, and adjust it so that the microphone is near the side of your mouth.

Register COMMUNICATOR®s

The Communicator must be within 6 feet (1.83 meters) of the base station to enable registration.

1. Be certain all headsets to be registered are turned OFF, and the base station power is ON.
2. Place the headset on your head.
3. Press the **REG button** on the front panel of the base station. The **STATUS** display will show a small "o" for open.

NOTE: If you wait too long before going on to the next step, the base station will exit registration mode, requiring that you press the **REG button** again.

4. Press and hold the **ISO button** on the Communicator while you press and release the **Power button (PWR)**. After power up, release the **ISO button**. The Communicator will enter Registration mode.

On **Belt Packs**, the two power lights at the corners near the **A** and **B** buttons will begin blinking red, and then they will blink green two or three times then turn off.

Note: There may be a short delay.

On **All-In-One Headsets**, the power/mode lights located at the end of the microphone boom and on the side of the unit near the **A** button will blink.

Note: There may be a short delay.



If registration is successfully completed:

- A voice prompt in the headset will say "Battery level, begin registration..."
- After a delay of about 15 seconds, the STATUS display will show the ID number assigned to the Communicator for about 10 seconds.

NOTE: ID numbers are assigned sequentially 0 through 9, then A, b, C, d and E.

- The power light on the Communicator will display steady green.



If registration failed:

- A voice message in the headset will say "Battery level, begin registration..." Both lights on the Belt Pack will be blinking red, and there may be a delay of up to 90 seconds before you hear "Registration failed."
- Press the **RESET button** at the lower-left corner of the base station with a pen or similar pointed object. When the STATUS display becomes blank, press the **REG button** and register the Communicator again. If registration fails again, call your dealer for assistance.



If you try to register more than 15 Communicators:

- An "F" will appear on the STATUS display on the base station and you will hear "Registration failed" in the headset.
- Clear all current registrations by pressing the **CLR/BND button** and the **RESET button** at the same time. To press the **RESET button**, insert a pen or similar pointed object into the **RESET** hole at the lower-left corner of the base station front panel. Continue holding the **CLR/BND button** after you release the **RESET button**, until the clear code "c" (lower case) appears on the STATUS display.
- Register all active Communicators, one at a time. Previously registered Communicators must be re-registered.



COMMUNICATOR® Settings

If you want to set up a Communicator with any of the special settings shown below, press and hold the specified button combinations during or after power up. These settings will remain in memory when the Communicators are turned off and on again.

For Setting	Press & Hold while you Press and Release the Power button
ISO restrict On	A button
ISO restrict Off	A and ISO buttons
Handsfree On selected button(s)	A and/or B and/or ISO and ▲ volume up button
Handsfree Off selected buttons(s)	A and/or B and/or ISO and ▼ volume down button
Listen-Only mode On	▼ volume down button
Listen-Only Off	▲ volume up button
WH410 only * All-In-One Headset "lights-off" mode	B button

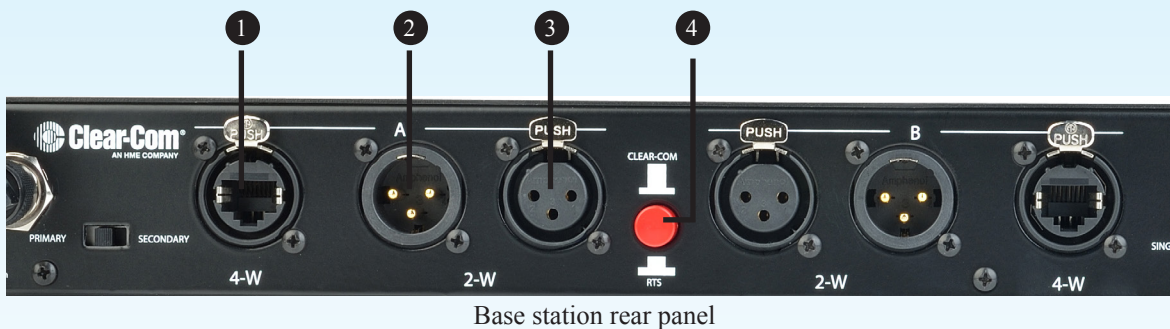
* **NOTE:** All-In-One Headsets can be set up with its indicator lights off, to avoid distraction if users are in an area visible to audience. This setting is not saved when you power off.

For Setting	With the power already on...
Increase mic gain (15 steps)	Press B while you repeatedly press the ▲ volume up button
Decrease mic gain (15 steps)	Press B while you repeatedly press the ▼ volume down button
BP410 only * Increase sidetone level (5 steps)	Press A while you repeatedly press the ▲ volume up button
BP410 only * Decrease sidetone level (5 steps)	Press A while you repeatedly press the ▼ volume down button

* **NOTE:** There is no sidetone adjustment function for All-In-One Headsets.

If you are not connecting a wired intercom, go on to [System Operation](#) (pg. 20).

Interfacing with 2-Wire or 4-Wire Intercoms



2-Wire Intercom Interface

The following 2-wire setup is for Channel 1 (A). If applicable, repeat for Channel 2 (B).

- If using a 2-wire intercom with the DX410, plug it into the base station 2-W connector at (2) or (3), depending on whether a male or female connection is required.
- Depending on whether you are using a Clear-Com® or RTS® compatible 2-wire intercom system, position the **CLEAR-COM / RTS button** (4) as follows: In position = RTS Mode Out position = Clear-Com Mode
- Press the **A SELECT button** on the front panel of the base station. The 2-W light next to the button should turn green.

NOTE: If no power is detected at the 2-W connector, the 2-W light will illuminate red and no audio will be passed through. Plugging a connection into a Clear-Com or RTS power supply will turn the light green and operation will begin.

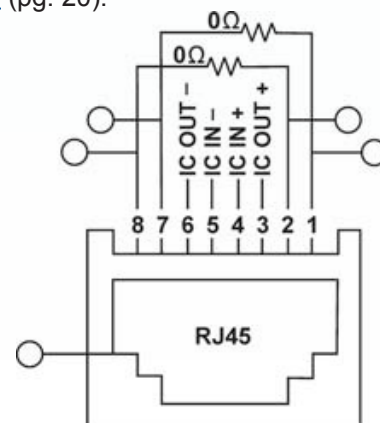
- Make certain there are no open microphones on the wired intercom. If users are wearing headsets, please notify them of the impending audio sweep prior to auto nulling.
- Press and hold the **AUTO NULL button** for two seconds. To press the **AUTO NULL button**, insert a pen or similar pointed object into the AUTO NULL hole on the front panel of the base station. An audio sweep will be heard for 25 seconds on the wired Belt Packs. (The 2-W light next to the button should turn amber, then green.)
- Adjust the 2-W intercom receive and send levels with the A 2-W INPUT control and OUTPUT control.

NOTE: If you are not connecting other equipment, go on to [System Operation](#) (pg. 20).

4-Wire Intercom Interface

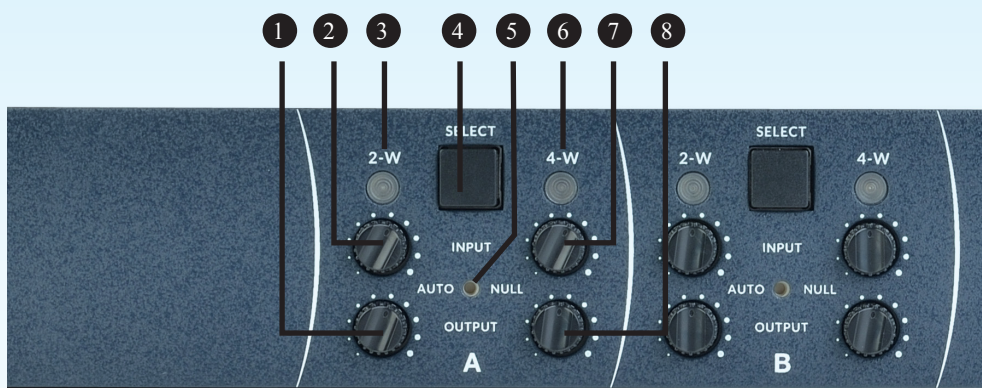
The following 4-wire setup is for Channel 1 (A). Repeat for Channel 2 (B) if applicable.

- If using a 4-wire intercom with the DX410, plug it into the base station A 4-W connector (1).
- Press the respective **SELECT button** until the A 4-W light next to the button goes on.
- Adjust the 4-wire intercom receive and send levels with the A 4-W INPUT and OUTPUT controls.



RJ45 Connector Pins	Designation
Pins 1, 2, 7 and 8	N/C (reserved)
Pin 3	Intercom Out +
Pin 4	Intercom In +
Pin 5	Intercom In –
Pin 6	Intercom Out –

A and B Intercom Controls and Indicator Lights



Base station
front panel

The A portion of this area of the panel is for Intercom Channel A, and the B portion is for Intercom Channel 2. Their operation is identical.

- The **SELECT** button (4) is used to select 2-Wire (3) or 4-Wire (6) or both. The 2-W indicator light will display red (muted) if wired intercom power is not detected at the 2-W connector on the rear panel of the base station. The 2-W indicator light will display green if 2-W equipment which supplies power is plugged into the 2-W connector on the rear panel of the base station, or if the respective bypass jumper inside the unit has been set.
- The **INPUT** controls (2 and 7) are used to adjust the audio levels going to COMMUNICATOR®s or a local headset, coming in from 2-W and 4-W equipment connected to the base station.
- The **OUTPUT** controls (1 and 8) are used to adjust the audio levels coming in from Communicators or a local headset going out to 2-W and 4-W equipment connected to the base station.
- The **AUTO NULL** button (5) is used to eliminate echo caused by mismatched line characteristics of an external 2-W system.

CAUTION: Before pressing the **AUTO NULL** button, be sure there are no open microphones on the wired system. Use a pen or similar pointed object to depress and hold the **AUTO NULL** button for 2 seconds.

NOTE: If you are not connecting other equipment, go on to [System Operation](#) (pg. 20).

Interfacing with Auxiliary Audio Equipment

ISO Audio can be routed to the AUX OUT connector for page or stage announce.

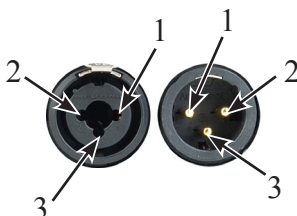
- If using auxiliary audio equipment, such as another intercom or an audio player, connect its output cable connector (male) to the AUX IN connector (9), and/or its input cable connector (female) to the AUX OUT connector (10).



Base station rear panel

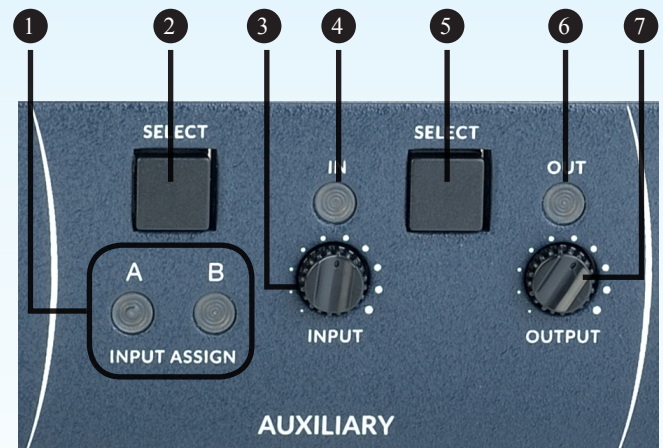
The cable connectors must be 3-pin XLR type for balanced +20dBu Pin 1 = Ground maximum audio input/output, with Pin 2 = Audio + the following pin connections:

Pin 1 = Ground
Pin 2 = Audio +
Pin 3 = Audio -



The **AUXILIARY SELECT button (2)** is used to select A or B or both as the destination for AUX IN audio. The A and/or B INPUT ASSIGN lights (1) come on green to indicate the selection as the destination for AUX IN audio. If neither is selected, AUX IN audio will not be routed to the COMMUNICATOR®s. The AUX IN light must be lit for the INPUT ASSIGN SELECT function to work.

- If only AUX IN is used, press the **AUX IN/OUT SELECT button (5)** until the IN light (4) turns on. Listen to the audio input in your headset as you adjust the INPUT control (3) to the desired level.
- If only AUX OUT is used, press the **AUX IN/OUT SELECT button (5)** until the OUT light (6) comes on. Check the audio level on the auxiliary equipment, and adjust the OUTPUT control (7) to the desired level.
- If the auxiliary equipment requires two-way communication, have someone listening at the auxiliary unit. Press the **AUX IN/OUT SELECT button (5)** until both the IN and OUT lights (4 and 7) turn on. While speaking into the headset microphone, adjust the OUT control (7) above the light to the desired listening level at the auxiliary unit. Listen to the audio input in your headset as you adjust the INPUT control (3) below the light to the desired level.



Base station rear panel

Auxiliary Controls and Indicator Lights:

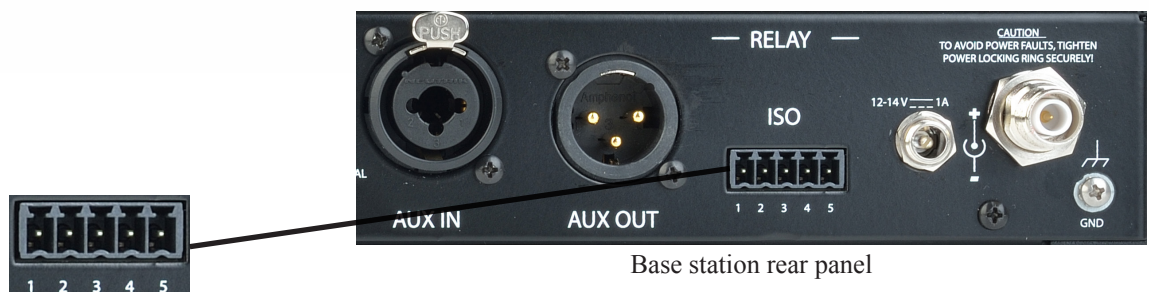
- The **SELECT button** on the right (5) is used to select AUX IN (audio from auxiliary equipment connected to the base station), AUX OUT (audio to the auxiliary equipment from the ISO channel of the COMMUNICATOR®s and local headset) or both.
- The IN and OUT lights illuminate green to indicate the selection.
- The INPUT and OUTPUT controls adjust auxiliary inbound and outbound audio levels.
- The **SELECT button** on the left (2) is used to select A or B or both as the destination for AUX IN audio. The A and/or B destination for AUX IN audio. INPUT ASSIGN lights come on green to indicate the selection as the destination for AUX IN audio.

NOTE: If you are not connecting other equipment, go on to [System Operation](#) (next page).

ISO Relay

During ISO communication, a relay closure is provided. This can be used for tasks such as keying a long range radio or triggering an alert light. It can be activated from a Communicator or a local headset.

- 1 = Normally closed
- 2 = Common
- 3 = Normally Open
- 4 = not used
- 5 = Ground

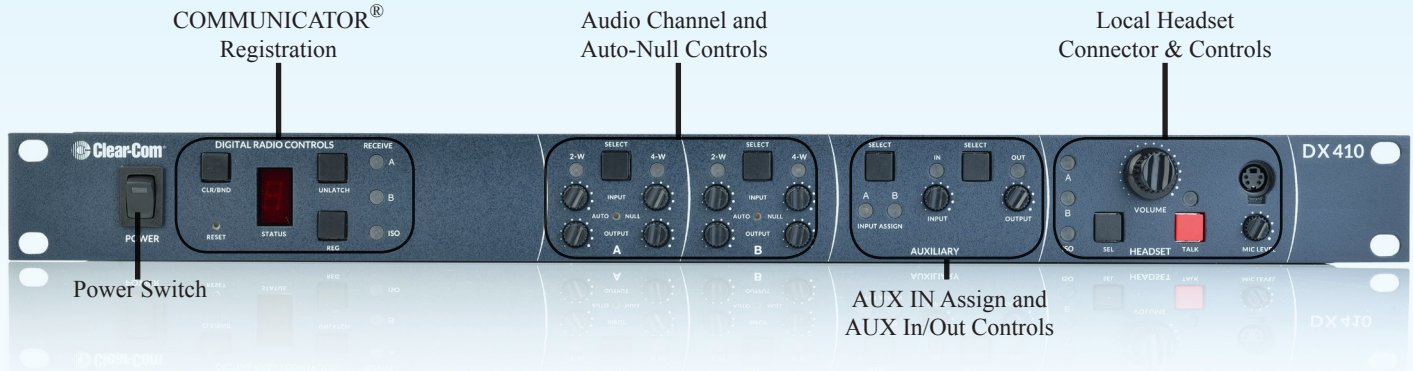


Base station rear panel

SYSTEM OPERATION

This chapter describes how to operate the Base Station and COMMUNICATOR® (Belt Pack or All-In-One Headset).

Base Station Operation



System and Registration Controls and Indicator Lights

- The **CLR/BND button**, **RESET button**, **STATUS** indicator and **REG button** are used when registering Communicators. Refer to [COMMUNICATOR® Setup and Registration](#) (pg. 13).
- The **UNLATCH button** is used by the base station operator to turn off microphones on all Communicator transmitters.
- The **RECEIVE A, B (Intercoms)** and **ISO (Isolate)** lights indicate whether reception from a Communicator is on A, B or ISO.

Local Headset Connector, Controls and Indicator Lights

- The **SEL button** (Select) is used to select communication from the local headset to A, B, A & B, or ISO.
- The A, B, A & B, or ISO indicator light will be lit for the selection you made.
- A and B communication will be heard by wireless users on the respective channel, as well as users wired into 2-W and 4-W connections.
- ISO is heard in both wireless channels, and AUX OUT if activated.



NOTE: When the ISO button is pressed, ISO RELAY is activated.

- The **TALK button** (red) is used for communication from the local headset to the selected channel. For open communication, press and release the **TALK button** quickly to "latch on." To "latch off," press and release the button again quickly.

For momentary communication, press and hold the **TALK button** for more than one second. In this mode, the selected channel will remain open only as long as you are pressing the **TALK button**. The TALK light indicates the TALK mode is active via the local headset.

- Use the **VOLUME** control to adjust the output to the local headset ear piece.
- Use the **MIC LEVEL** control to adjust the audio level from the local headset microphone.

COMMUNICATOR® OPERATION

Belt Pack control buttons have a snap action. They will activate when pressed firmly. Use your fingertips (not your fingernails) to press the Belt Pack buttons. All-In-One Headset buttons are touch sensitive.

Power On/Off

- **Power On** – Press and release the **Power button (PWR)**. A voice prompt in the ear piece will say “Battery Level”, and the red power lights near the corners of the A and B buttons will turn on. After a short time, one light will go off and the other will change to green, indicating the Belt Pack is ready for use. The STATUS indicator on the base station will momentarily indicate the ID of the Belt Pack. The green power light will be on steady whenever the Belt Pack is ready, but not transmitting.

NOTE: While the Belt Pack is transmitting, the green power light will be flashing.

- **Power Off** – Press and hold the **PWR button** for approximately two seconds. A voice message in the ear piece will say “power off”, and the green power light will turn off.

ISO (Isolate) and A, B (Intercom)

Use the **ISO button** to talk to other wireless Communicator users and the base station operator. Pressing **ISO** on the Belt Pack will also send audio to AUX OUT if the AUXILIARY OUT light on the front of the base station is on. Use the **A** and **B** buttons to communicate via the wired intercom channels and the base station operator. When the **ISO button** is pressed, ISO RELAY is activated.

Operating Modes

- **Push-To-Talk ONLY Mode Operation** – In PTT operation, audio is transmitted only while you are pressing and holding the **A, B** or **ISO button**. When you release the button, transmission stops.
- **Hands-free Mode Operation** – Quickly press and release the **A, B** or **ISO button** to “latch” the transmitter on. Talk and listen, as in a normal telephone conversation. Quickly press and release the same button again to “unlatch,” and end the conversation. The base station operator can unlatch all Communicators by pressing the **UNLATCH button** on the base station.

NOTE: In the hands-free mode, if you are latched in **A, B** or **ISO**, quickly pressing/releasing either of the other buttons will latch on that button.

Also in the hands-free mode, if you are latched in **A** or **B** and then press and hold the **ISO button**, it will function as PTT. When you release the **ISO button**, the Communicator will revert to the latched **A** or **B**.

Refer to Communicator indicator light functions, [Appendix A](#) (pg. 30).

Volume Up/Down

- **Volume Up Adjustment** – Each time you press and release the volume-up **▲ button**, a beep will be heard in the ear piece as the volume increases one step. If you press and hold the **▲ button**, repeating beeps will be heard as the volume steps up to maximum. When maximum volume is reached, “maximum” will be heard in the ear piece, and it will be repeated until you release the **▲ button**.
- **Volume Down Adjustment** – Each time you press and release the volume-down **▼ button**, a beep will be heard in the ear piece as the volume decreases one step. If you press and hold the **▼ button**, repeating beeps will be heard as the volume steps down to minimum. When minimum volume is reached, rapidly repeating beeps will be heard.

Adjusting Microphone Gain

Some users talk louder/softer than others. To allow for this, microphone gain adjustment is available.

- **To increase microphone gain** – While holding down the **B button**, press the volume-up ▲ button as many times as necessary to reach the desired level. The microphone gain increase can be monitored through side tone, or preferably by someone else using a Communicator or at the base station.
- **To decrease microphone gain** – While holding down the **B button**, press the volume-down ▼ button as many times as necessary to reach the desired level. The microphone gain decrease can be monitored through side tone, or preferably by someone else using a Communicator or at the base station.

NOTE: The mic gain setting will be indicated, in number format, by a voice prompt (typically, HS14 = 5, HS15 = 3, HS16 = 3). You will hear “Maximum” if you attempt to go higher than maximum mic gain. You will hear repeating beeps if you attempt to go lower than minimum mic gain. Microphone gain will be saved in memory and does not require readjustment each time the power is turned on. The Default setting is 3.

Adjusting BP410 Belt Pack Side Tone

- **To increase side tone** – Press the volume-up ▲ button while holding down the **A button** in the normal operating mode.
- **To decrease side tone** – Press the volume-down ▼ button while holding down the **A button** in the normal operating mode.

NOTE: The side tone setting will be indicated in numbers by a voice prompt. Default setting is “Max”.

Using WH410 All-In-One Headset Lights-Off Mode

The Lights-Off mode can be used to avoid audience distraction from the lights on the All-In-One Headsets.

- To operate in the Lights-Off mode, with the WH410 power off, press and hold the **B button** while you press the **POWER button**, and then release both buttons.
- To get out of the Lights-Off mode, power the WH410 off and back on again without pressing the **B button**.

NOTE: There is no side tone adjustment number for the All-In-One Headset.

Changing COMMUNICATOR® Batteries

When a Communicator battery becomes weak, a prompt in the ear piece will say “Change battery”.



Press the **RELEASE BATTERY button** on the belt clip of the pouch, and use your thumb to slide the battery from the belt-pac.

NOTE: You do not need to remove the pouch to remove or insert the battery.



Remove the headset battery by pressing the blue battery-release latch, and use your thumb to slide the battery out.

EU BASE STATION ADAPTIVE FREQUENCY HOPPING

Background

The Clear-Com DX wireless intercom systems utilize a **Frequency Hopping Spread Spectrum (FHSS)** radio in order to provide robust communications.

This system operates in the unlicensed 2.4 GHz band. With the proliferation of other devices over the past few years in the same 2.4 GHz band, instances where these devices and systems can interfere with each other has greatly increased.

To further complicate matters, the European Union has introduced new radio standards for equipment operating in this band in an attempt to reduce interference between equipment from different manufacturers. This European Telecommunications Standards Institute (ETSI) harmonized European standard is known as EN 300 238 v1.8.1.

CLEAR-COM Adaptive Frequency Hopping

In order to reduce interference with other equipment and comply with these new regulations, Clear-Com has implemented an **Adaptive Frequency Hopping (AFH)** mode for the new DX EU base stations. The key idea behind AFH is using only the good frequencies, or channels, unoccupied by other equipment. The system scans for other signals and avoids these signals during operation. Since the radio environment is constantly changing, there is a continuous process of scanning for used frequencies and updating the list of good channels.

The Clear-Com system utilizes 46 discrete frequencies, or channels, within the 2.4 GHz spectrum in order to communicate voice and data. The process of deciding which channels should be used is a 3-stage process. The process includes scanning for occupied channels, the broadcast of a channel exclusion list and the use of the exclusion list. The process is completed in three steps coexisting in time.

Below is the process is shown in Time. First, the system performs a channel scan to determine occupied channels. This list is then broadcast to the communicator. The communicators and base station will use this list during period three. The process is continuous, and as is illustrated below, the list could be constantly changing. Depending on the radio environment, a maximum of 46 channels, and a minimum of 15 channels may be used by the system at any time.

Time ⇒

Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6	Ch. 7	Ch. 8
Scan	Broadcast	Use					
	Scan	Broadcast	Use				
		Scan	Broadcast	Use			
			Scan	Broadcast	Use		
				Scan	Broadcast	Use	
					Scan	Broadcast	Use

For instructions describing the process of setting the base to AFH or another scanning mode, see [Appendix D: Interference Avoidance Through Spectrum Friendly](#), pg. 33.

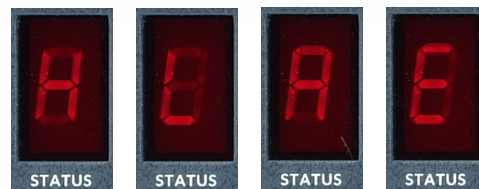
Available settings include:

High (H) - Scans the Higher frequencies.

Low (L) - Scans the Lower frequencies.

All (A) - All frequencies are scanned.

AFH (E) - (European Mode) Advanced Frequency Hopping searches for the best frequency.



Operation in Severe Environments

During normal operation, the fact that the system is constantly changing the channel list in use is transparent to the user. It is possible, however, that in an environment with severe interference that the system may experience a slight degradation. In the AFH mode, the Clear-Com system will use a minimum of 15 channels. If the environment is very crowded and less than 15 channels are truly available, there could be increased radio 'packet loss' due to the high interference. The following symptoms may be observed with AFH systems in a highly congested radio environment:

- This may result in system 'busy' indications. Channel lists are updated every few seconds, and in a severe environment it is possible that these lists get missed by the communicator.
- Slight degradation in audio fidelity between the headsets and base station. This would be due to the same symptom as the 'busy' indications. The HD audio processing is tolerant to this condition, which is why the degradation may only be slight.
- Longer times to register. Registration may take longer, since the headset has to acquire the channel list from the base station. If the base station has excluded a lot of channels, this takes longer as the communicator does not have the exclusion list and looks for the base on channels it is not using.
- Initial sync time increase. For the same reason registration may take longer, the initial headset sync on power up may take longer.

Required AFH Equipment

In order to utilize AFH, the base station must be set to European mode. The headsets and belt packs must also be AFH capable. AFH capable headsets and belt packs will have the letters 'AFH' labeled on the belt pack and headsets. AFH communicators will auto detect if the system is in AFH mode and adjust their operation accordingly.

Non-AFH Equipment

Headsets and belt packs that are not AFH capable must be operated with either a non-AFH base station or an AFH base station selected to operate in All, High or Low band mode. Headsets and belt packs that are not AFH capable will not have the letters 'AFH'.

Interference Mitigation

Certain techniques can be used in an attempt to mitigate interference between different equipment in the 2.4 GHz spectrum. Some of these are:

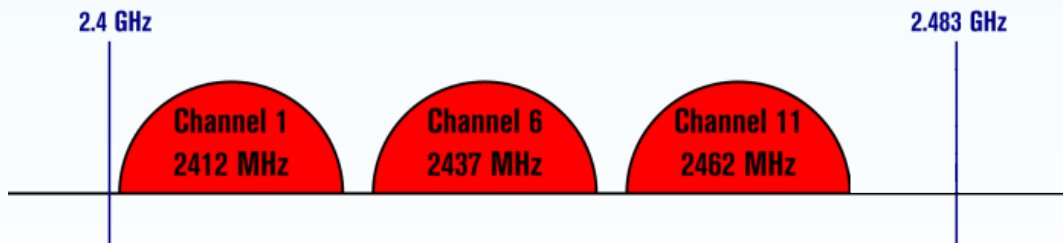
- **Physical separation.** If possible, equipment operating in the 2.4 GHz spectrum should be operating as far as physically possible from the HME base station. A Wi-Fi access point or router is a common piece of equipment that could interfere with the DX410 system, or vice versa. These two pieces of equipment in particular should not be located close together.
- **Spectral separation.** Most Wi-Fi access points allow the administrator to set the channel and bandwidth that system operates on. Some systems employ an 'auto' mode, in which the Wi-Fi access point will automatically selected the channel. With Wi-Fi access points, it is sometimes advantageous to manually select a channel number to keep the Wi-Fi transmission at a fixed location.

NOTE: If the Clear-Com system does not have AFH, then the base station should be set to operate in the region of the 2.4 GHz band where the Wi-Fi access point is not operating. For example, if the Wi-Fi access point is set to Wi-Fi channel 1, the base station should be set to operate in the 'High' band. If the Wi-Fi access point is set to channel 11, the base should be set to operate in the 'Low'.

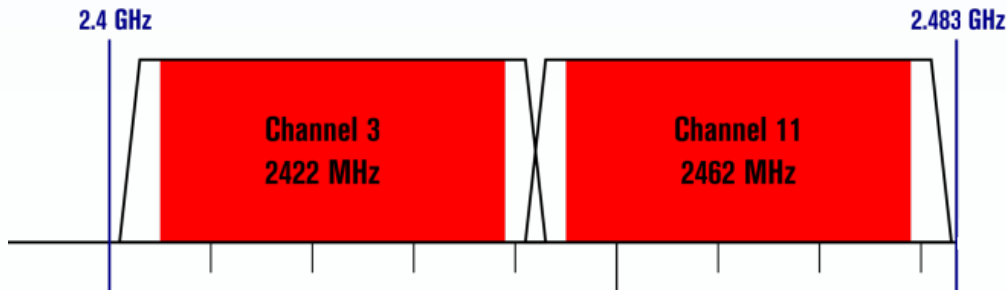
- **Spectral efficiency.** Wi-Fi systems employ a standard sometimes referred to as 802.11. The number “11” is simply the number given to the standard by the Institute of Electrical and Electronics Engineers (the IEEE). Modern Wi-Fi routers will allow operation employing the 802.11n mode. This mode will allow higher data rates, but it also may consume twice the number of radio channels. If the Wi-Fi router is set to 802.11n mode, it is best to limit Wi-Fi bandwidth to 20 MHz.
- **Alternate band selection.** While most Wi-Fi systems operate at 2.4 GHz, which is the same band as the DX410 system. Most allow operation at 5 GHz. If possible, move any Wi-Fi access points and equipment to 5 GHz. This of course requires all Wi-Fi equipment to be 5 GHz capable, and most older equipment may only allow 2.4 GHz operation. Selection of 5 GHz may also not be desirable if the Wi-Fi network is for customer access.

Non-Overlapping Channels for 2.4 GHz WLAN

802.11 channel width 22 MHz



802.11 40 MHz ch. width



TROUBLESHOOTING

Problem	THINGS TO CHECK
The Red light on base station power switch does not come on.	Be sure the power cords are properly connected to base station, power supply and electrical outlet.
The Belt Pack power lights do not turn green and “out of range” is heard in the headset.	Be sure your base station power is on. Turn the Belt Pack and base station power on and off. You may be too far from the base station. The range varies with each location's layout.
When trying to register, you keep hearing “registration failed”.	Refer to “If registration failed” in section 2.3.2, page 8, and repeat the registration procedure. If “F” shows up on the STATUS display, it indicates that an attempt has been made to register more than 15 Belt Packs. Follow the related instructions in section 2.3.2, page 9.
Others cannot hear me when I talk.	Be sure the headset is securely connected to the Belt Pack or base station, and that you are pressing the A, B or ISO button on the Belt Pack, or the TALK button on the base station. Be sure the appropriate A, B or ISO setting is selected in the HEADSET section of the base station front panel.
People on the 4-wire intercom cannot hear me, or I cannot hear them.	Be sure the cables are securely connected and the 4-wire intercom is on. If using a local headset, be sure the desired IC setting is selected in the HEADSET section of the base station front panel. If using a Belt Pack or All-In-One Headset, press the desired IC button.
People on the RTS®/Clear-Com® systems cannot hear me, or I cannot hear them.	Be sure the cables are securely connected and the 2-wire intercom is on. If using the local headset, be sure the desired IC setting is selected in the HEADSET section of the base station front panel. If using a Belt Pack or All-In-One Headset, press the desired IC button.
The 2-wire intercom is on, and there is a loud squeal whenever I try to talk.	This can occur if two or more base stations are daisy-chained without terminating the appropriate channel. The termination is set by putting JP5 (A) and/or JP6 (B) in the ON position. This should be done in only one base station. Refer to Appendix C , page 32, for jumper (JP) locations.
Settings are not retained when the base station power is turned off and then back on.	The internal battery may be low. Contact your dealer.
2-W LEDs remain red. No 2-wire power detected.	Plug into 2-W power supply. If the lack of powered 2-W system is intentional (such as when using a Clear-Com MT1, or when daisy-chaining multiple base stations), open the base station cover and set JP1 (A) and/or JP2 (B) to the ON position. If daisy-chaining, do not forget to also terminate one of the base stations by setting JP5 (A) and/or JP6 (B) to ON. Refer to Appendix C , page 32, for jumper (JP) locations.
Echo on 2-W line.	Be sure no wired Belt Packs have open mics and that the line is terminated, and rerun Auto Null.

TECHNICAL DATA

BS410 Base Station Specifications

General	
Channels	2 audio channels
Frequency Range	2400 – 2483.5 MHz
Frequency Response	200 Hz to 7 kHz
Power Requirements	100-240VAC, 50-60Hz or 12-14VDC
Temperature Range	32-122°F (0-50°C)
Size	19" x 1.72" x 17.13" (1-RU) (48.26 x 4.37 x 43.51 cm)
Weight	9.0 lbs. (4.1 kg) maximum
# of COMMUNICATOR®s per Base	15 can be registered. In single-channel operation, 4 can have simultaneous full-duplex communication. In dual-channel operation, 3 can have simultaneous full-duplex communication.
4-Wire I/O	RJ45, 600Ω balanced, level adjustable, simultaneous operation with 2-wire
2-Wire I/O	XLR-3M, XLR-3F, externally-switchable RTS® or Clear-Com® mode, 200Ω, level adjustable, null adjustable to 50dB attenuation, typical
Auxiliary Input	XLR-3F/¼" (6.35 mm) combo jack, 600Ω balanced, level adjustable
Auxiliary Output	XLR-3M, 600Ω balanced, level adjustable
Headset Connector	4-pin mini-DIN, Electret microphone
Headset Output	200mW into 32Ω
Antenna Type	External ½ -wave dipole (R-TNC connector), RX/TX horizontal/vertical diversity
System Distortion	<2%
Communication Security	64-bit encryption, dual-slot diversity
Base Station Transmitter	
Type	Frequency Hopping, Spread Spectrum (FHSS)
Transmit Power	100mW burst
Modulation Type	Gaussian filtered FSK, TDMA
Frequency Stability	13 ppm
Harmonics/Spurious	Exceeds FCC and ETSI specifications over temperature
Base Station Receiver	
Type: RF Sensitivity	Frequency Hopping, Spread Spectrum <-90dBm w 10-3 BER
Frequency Stability	13 ppm
Distortion	<2%

BP410 Belt Pack Specifications

General	
Channels	2 audio channels
Frequency Range	2400 – 2483.5 MHz
Antenna	Internal, horizontal/vertical diversity
Frequency Response	200 Hz to 7 kHz
Battery Requirements	3.6V lithium ion
Battery Life	Up to 20 hours
Temperature Range	32-122°F (0-50°C)
Weight	7.4 oz (.21 kg) with battery and pouch
Headset Connector	4-pin, mini-DIN
Microphone	Electret
Headset Output	160mW into 32Ω
Controls	Power, Volume-up, Volume-down, A, B, ISO
Indicators	Dual-color LED (red/green)
Communication Security	64-bit encryption
System Distortion	<2%
Belt Pack Transmitter	
Type	Frequency Hopping, Spread Spectrum
Transmit Power	100mW burst Transmission
Modes	Momentary or latch
Modulation Type	Gaussian filtered FSK, TDMA
Frequency Stability	13 ppm
Harmonics/Spurious	Exceeds FCC and ETSI specifications
Belt Pack Receiver	
Type: RF Sensitivity	Frequency Hopping, Spread Spectrum <-90dBm w 10-3 BER
Frequency Stability	13 ppm
Distortion	<2%

WH410 All-In-One Headset Specifications

General	
Channels	2 audio channels
Frequency Range	2400 – 2483.5 MHz
Antenna	Internal
Frequency Response	200 Hz to 7 kHz
Battery Requirements	3.6V lithium ion
Battery Life	Up to 20 hours
Temperature Range	32-122°F (0-50°C)
Weight	5.7 oz (.16 kg) with battery
Microphone	Electret
Headset Output	160mW into 32Ω
Controls	Power, Volume-up, Volume-down, A, B, ISO
Indicators	Dual-color LED (red/green)
Communication Security	64-bit encryption
System Distortion	<2%
Belt Pack Transmitter	
Type	Frequency Hopping, Spread Spectrum
Transmit Power	100mW burst Transmission
Modes	Momentary or latch
Modulation Type	Gaussian filtered FSK, TDMA
Frequency Stability	13 ppm
Harmonics/Spurious	Exceeds FCC and ETSI specifications
Belt Pack Receiver	
Type: RF Sensitivity	Frequency Hopping, Spread Spectrum <-90dBm w 10-3 BER
Frequency Stability	13 ppm
Distortion	<2%

APPENDIX A: COMMUNICATOR® Indicator Light Functions

BP410 Belt Pack Indicator Lights

BP410 Condition	A Indicator Light	B Indicator Light
A Idle	Steady Green	OFF
A TX	Blinks Green	OFF
B Idle	OFF	Steady Green
B TX	OFF	Blinks Green
ISO TX	Blinks Green	Blinks Green
Low battery	Appropriate channel light Blinks Red when in idle mode	

WH410 All-In-One Headset Indicator Lights

BP410 Condition	A Indicator Light	B Indicator Light
A Idle	Steady Green	OFF
A TX	Blinks Green	Steady Green
B Idle	Steady Red	Off
B TX	Blinks Red	Steady Green
B	Blinks Red or Green (depending on previous Mode)	Steady Red
Low battery	No indication	

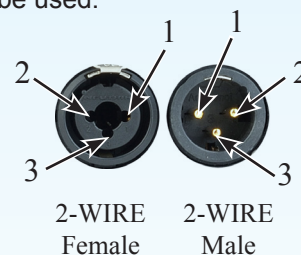
APPENDIX B: MULTIPLE BASE STATION DAISY-CHAINING

Two or more DX410 base stations can be “daisy-chained” together with cables connected to the 2-W connectors on the rear panels of each base station (following Clear-Com® / RTS® standards), or two base stations (not more) can be “daisy-chained” together with cables connected to the 4-W or AUX connectors.

A maximum of 4 base stations can be used in one system, spaced apart a minimum of 12 inches.

NOTE 1: DX410 does not provide 2-wire line power, therefore, 2-wire power bypass must be used.

RTS® Mode	Clear-Com® Mode
Pin 1 = Common	Pin 1 = Common
Pin 2 = Channel 1	Pin 2 = N/C
Pin 3 = Channel 2	Pin 3 = Audio

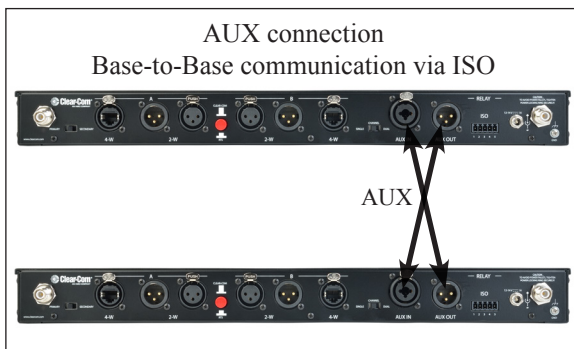
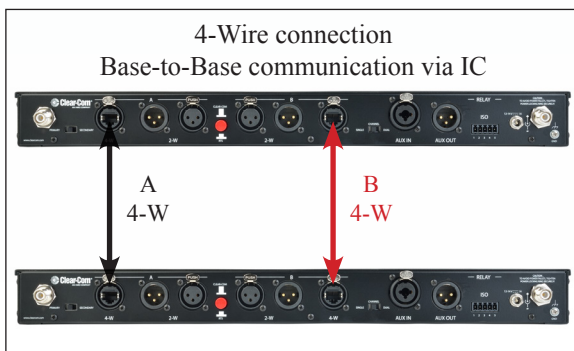
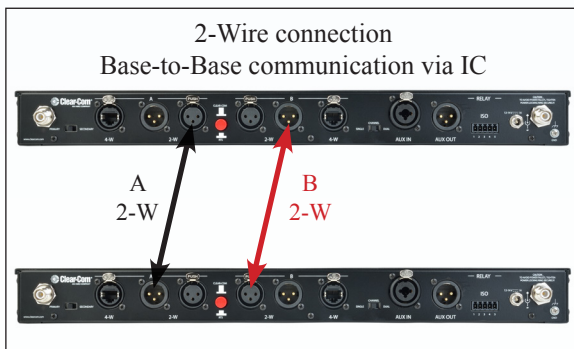


NOTE 2: For AUX type daisy-chaining, the cable connectors must be 3-pin XLR.

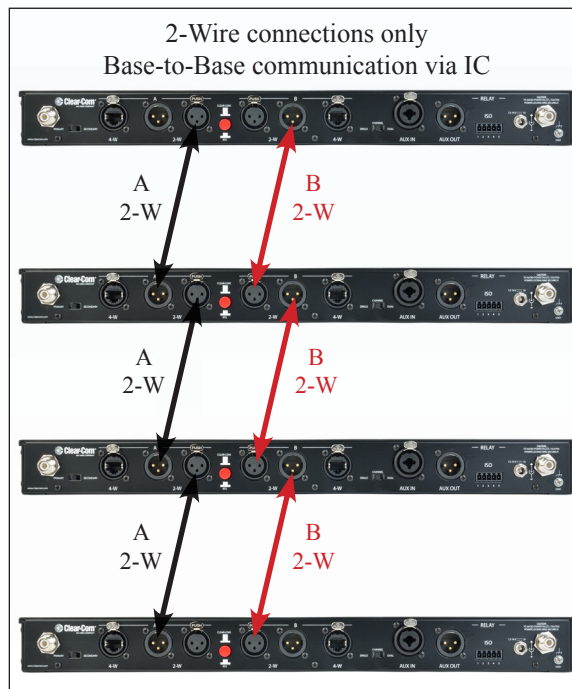
- If using 4-wire connection, use cable with In/Out crossed, as shown to the right. (An Ethernet crossover cable will not work.)
- If using 2-Wire connections, open each base station and set jumpers JP1 (A) and/or JP2 (B) in all base stations to ON for power detect bypass. Set jumpers JP5 (A) and/or JP6 (B) in only one base station per channel for termination. Refer to [Appendix C](#), next page.

A/B In +	—	A/B Out +
A/B In –	—	A/B Out –
A/B Out +	—	A/B In +
A/B Out –	—	A/B In –

2 Base Stations

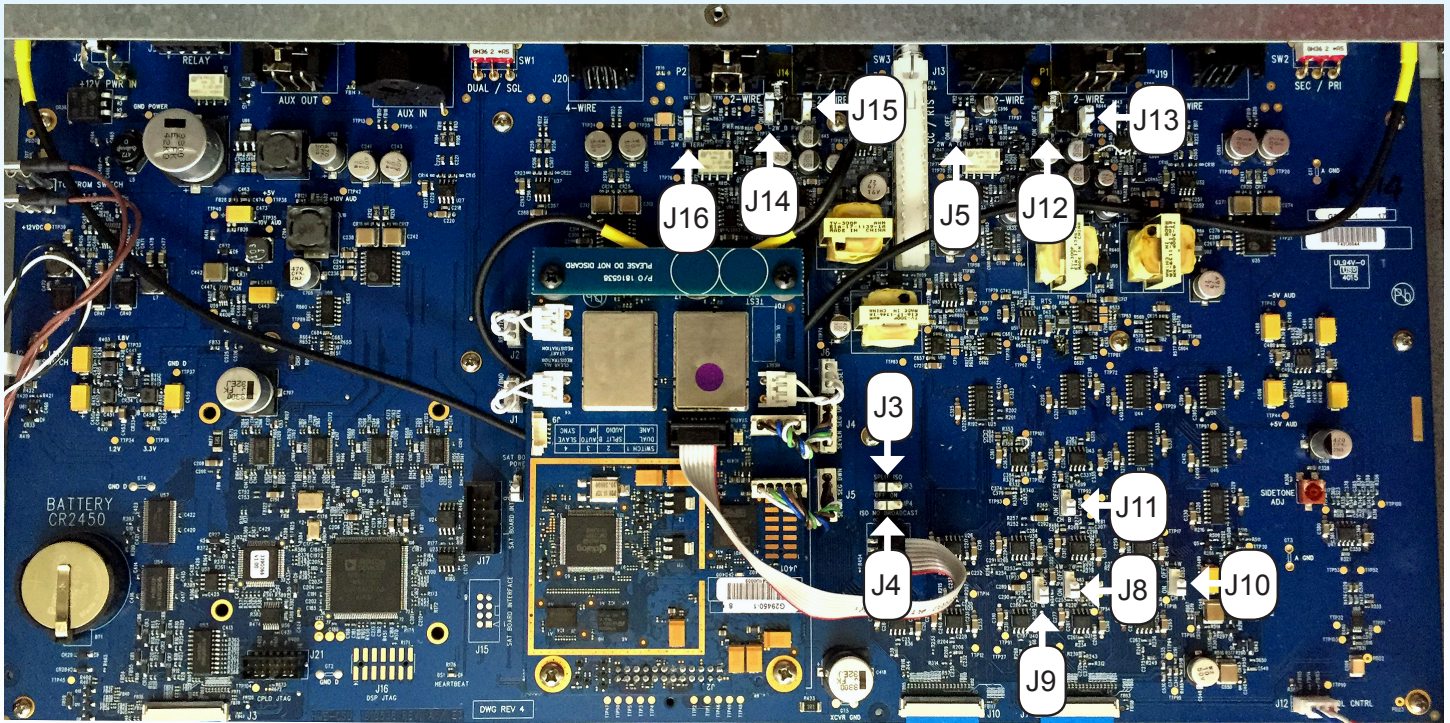


More than 2 Base Stations



APPENDIX C: JUMPER SETTINGS

The base station has internal jumpers that are used to set ISO broadcast restrict, power detect by-pass, and 2-wire channel termination.



Jumper #	Function	Default
JP3	Split 'ISO'	Off
JP4	ISO No Broadcast	Off
JP5	Channel A, 2-wire termination	Off
JP8	Ch A 4w to 2w audio bridge	On
JP9	Ch B 4w to 2w audio bridge	On
JP10	Ch A 2w to 4w audio bridge	On
JP11	Ch B 2w to 4w audio bridge	On
JP12, JP13	2WA Power	Off
JP14, JP15	2WB Power	Off
JP16	Channel B 2- Wire Termination	Off

ISO Broadcast Restrict

This feature prevents ISO communication from being broadcast from one COMMUNICATOR® to other Communicators. Local headset ISO will still be broadcast, and the local headset will still receive ISO communication. To enable this feature, set JP4 to ON.

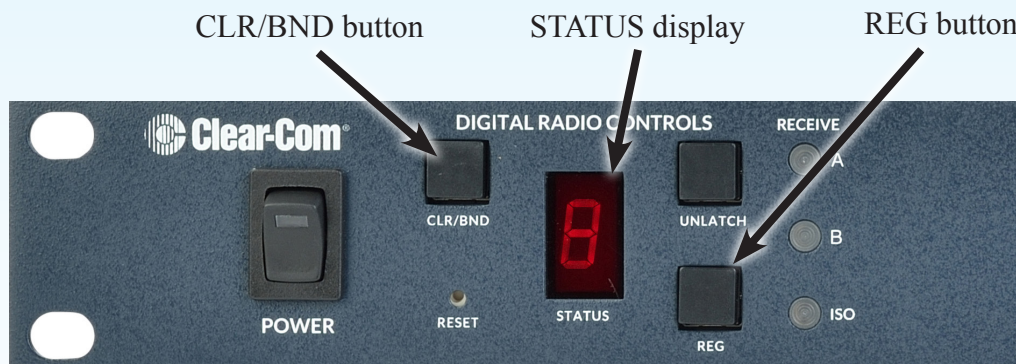
WARNING! If no termination is present on the line, enabling this feature will cause feedback in the headsets.

2-Wire Channel Termination

If termination of the base station is necessary (such as when multiple base stations are daisy chained), set the JP5 (A) and/or JP6 (B) jumpers to the ON position on one base station, when connecting multiple base station together via 2-wire connection. Only one base station should be terminated per channel.

APPENDIX D: INTERFERENCE AVOIDANCE THROUGH SPECTRUM FRIENDLY

Interference, which may be heard in a headset as popping sounds, may occur whenever other equipment such as Wi-Fi systems or wireless DMX systems use the same frequency band. Some systems can be limited to one portion of the band. If so, the DX410 can be set to the opposite half of the 2.4 GHz to 2.48 GHz band. To avoid this type of interference, select the upper or lower part of the frequency range.



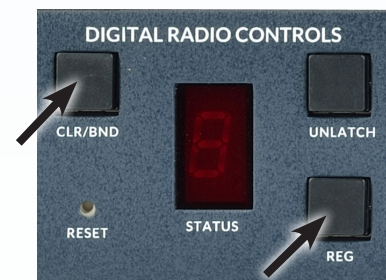
1. Power up the base station. An "8" will appear on the STATUS display for a few seconds.



Once the "8" disappears and the STATUS display is blank (primary base station) or shows a double bar (secondary base station), press and hold the **CLR/BND** button.



While you are still holding the **CLR/BND** button, press and hold the **REG** button and wait until a **L**, **H**, **A** or **E** appears. Release both buttons. Base stations are shipped in the **A** (default) position.

NOTE: The EU version of the base station is shipped in AFH mode **E**.



2. Press the **CLR/BND** button to cycle through parts of the frequency band, (**L** = Low end, **H** = High end, **A** = All and **E** = AFH), and stop on the desired setting.



<p>4. Wait until “c” appears on the display.</p> <p>NOTE: A “c” will only appear on the STATUS display if you are setting the frequency band the first time, or you are changing the setting.</p> <p>If you stop at L, H or A that was already set, an “8” will appear for a few seconds and the STATUS display will become blank.</p>	
<p>5. Register all COMMUNICATOR®s to be used with each base station as instructed on page 15.</p> <p>NOTE: If you change a base station’s frequency band setting, you will have to re-register all Communicators that were registered to that base station.</p>	 <p>Small “o” indicates Primary base station is open for registration</p>

Spectrum Friendly

All DX Series wireless intercom systems now feature Spectrum Friendly™ technology for interference-free operation in the increasingly crowded 2.4GHz frequency band. This new technology enables broadcast and theatrical production crews to avoid emerging frequency conflicts by designating the 2.4GHz operating frequency range: **low-band**, **high-band** or **full-band**.

While generally not a problem when separated, multiple applications and multiple users of the same applications in close proximity can result in additional risk for trouble-free operation. The new technology further ensures that products do not add interference to the spectrum for other essential wireless services in the vicinity, such as DMX-controlled lighting.

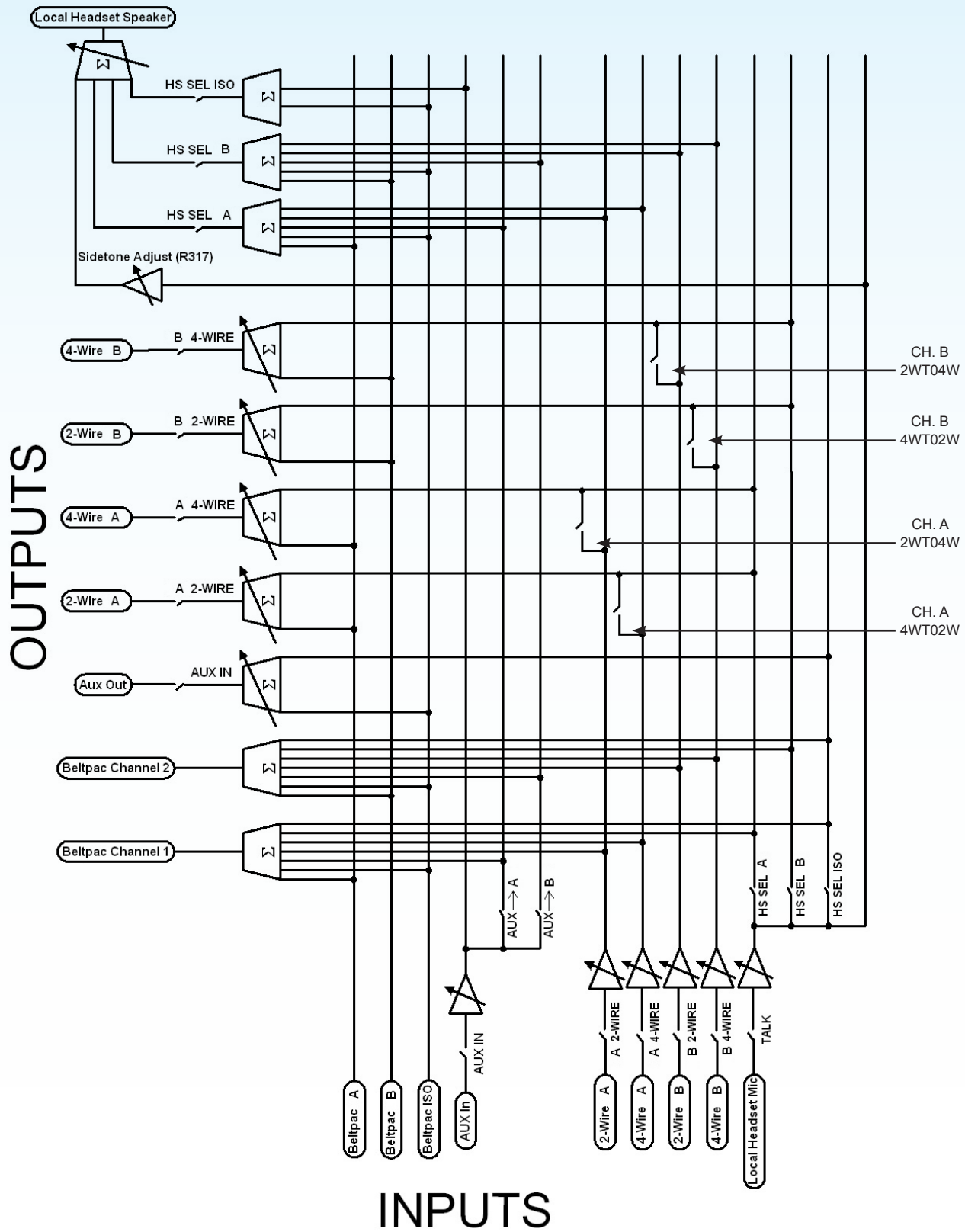
Avoiding Wi-Fi Interference

To avoid interference with Wi-Fi systems, it is recommended to set the Wi-Fi system to something other than channel 6 or 7. Your DX410 should be set to the high or low band opposite any Wi-Fi frequency range in use.

	DX410 Low Band = 2.4000-2.4400 GHz							DX410 High Band = 2.4433-2.4830 GHz							
Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Wi-Fi Frequencies	2.412	2.417	2.422	2.427	2.432	2.437	2.442	2.447	2.452	2.457	2.462	2.467	2.472	2.484	GHz

Note: This feature is not available when the base station is in AFH mode.

APPENDIX E: AUDIO ROUTING DIAGRAM





有毒有害物质或元素表

Table of Toxic and Hazardous Substances

部件名称 Names of Parts	有毒有害物质或元素 Toxic and Hazardous Substances or Elements					
	铅 Pb	镉 Cd	汞 Hg	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
BS210 基站 Top assembly BS210 (G28707-1A1)	X	O	O	O	O	O
基站电路板 Audio PCB (G28718-1)	X	O	O	O	O	O
收发器电路板 Front Panel PCB (G28729-1)	X	O	O	O	O	O
收发器电路板 XCVR PCB (G27739-4A1)	X	O	O	O	O	O
AC40 电池充电器 AC40 (G27368)	X	O	O	O	O	O
电源器 (453G008) CCC P/S	X	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirements in SJ/T11363-2006

X: 该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirements in SJ/T11363-2006



表的有毒有害物质

Table of Toxic and Hazardous Substances

部件名称 Names of Parts	有毒有害物质或元素 Toxic and Hazardous Substances or Elements					
	铅 Pb	镉 Cd	汞 Hg	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
WH210 头戴式耳麦 Top Assembly WH210 (G28741-1Z1)	X	O	O	O	O	O
耳机电路板 PCB (G28055-1F1)	X	O	O	O	O	O
电池 Battery (104034)	O	O	O	O	O	O
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。</p> <p>O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirements in SJ/T11363-2006</p> <p>X: 该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。</p> <p>X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirements in SJ/T11363-2006</p>						



有毒有害物质或元素表

Table of Toxic and Hazardous Substances

部件名称 Names of Parts	有毒有害物质或元素 Toxic and Hazardous Substances or Elements					
	铅 Pb	镉 Cd	汞 Hg	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
BP210 对讲机 Top Assembly BP210 (G27830-1A1)	X	O	O	O	O	O
对讲机电路板 XCVR PCB (G27560-1H1)	X	O	O	O	O	O
HS15 耳机 HS15/D Headset (306G100-1 /306G101-1)	X	O	O	O	O	O
对讲机套 Pouch (107G065)	X	O	O	O	O	O
电池 Battery (104034)	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirements in SJ/T11363-2006

X: 该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirements in SJ/T11363-2006