

DX121 EU

One-to-One Wireless Intercom System



Operating Instructions

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Illustrations in this publication are approximate representations of the actual equipment, and may not be exactly as the equipment appears.

HM Electronics, Inc. is not responsible for equipment malfunctions due to erroneous translation of its publications from their original English version.

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 HM Electronics, Inc. could void the users authority to operate this equipment.

MANDATORY SAFETY INSTRUCTIONS FOR INSTALLERS AND USERS

Use only manufacturer or dealer supplied antennas, power supplies, batteries and battery chargers.

All products are compliant with regulatory requirements when installed correctly per HME installation instructions..

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.

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 2dBi. The required antenna impedance is 50 Ohms.

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 or radio dealer. You may be exposing person or persons to excess radio frequency radiation. You may contact your radio 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.

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 RF 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.

Canada IC Notice to Users English/French in accordance with RSS GEN

This device complies with Industry Canada license-exempt RSS standard(s). Operation 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.

Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence (s). Son utilisation est soumise à Les deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

Hereby, HM Electronics, Inc. declares that the DX121 is in compliance with the essential requirements and other relevant provisions of the Radio Equipment Directive (RED).



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. European Telecommunications Standards Institute (ETSI) EN 300 328 v.1.8.1 compliant, when operated in the E mode.

Korea KCC EMC Class A Warning

A급기기(업무용방송통신기자재)

이 기기는 업무용 환경에서 사용할 목적으로
적합성 평가를 받은 기기로서 가정용 환경에서
사용하는 경우 전파 간섭의 우려가 있습니다.

English: Class A (Commercial broadcasting and communication equipment) Sellers and user should note that this equipment is an electromagnetic device for business (Class A) and intended for operation in non-residential locations.

Korea KCC 2.4Ghz device warning

해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음

English: This device cannot provide services related to human life safety.

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)






The European Union (EU) WEEE Directive 2012/19/EU 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 HME 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.

Base Station			
			
Power	<ul style="list-style-type: none">➤ Connect power — See page 7➤ Press POWER button to turn base station on/off — Red light above button indicates power on➤ BATT PWR light (not used in this product)		
Belpac and Headset Registration	<ul style="list-style-type: none">➤ Insert a charged battery➤ Press REG button on the base station to enter registration mode — See page 13➤ Hold down ISO button while you press and release POWER button on the headset or belpac		
IC/ISO Indicators	<ul style="list-style-type: none">➤ Green lights indicate IC or ISO communication is being received		
Headset / 4-Wire Audio Level	<ul style="list-style-type: none">➤ Adjust INbound/OUTbound headset and 4-Wire equipment audio levels using small screwdriver		
Battery Charger	<ul style="list-style-type: none">➤ Place battery in port for charging➤ Red CHG light indicates battery is charging➤ Green RDY light indicates fully-charged battery is ready		
Headset	 <ul style="list-style-type: none">● Power on/off▲ Volume up▼ Volume down● IC Intercom● ISO Isolate	Belpac  <ul style="list-style-type: none">● PWR Power on/off▲ Volume up▼ Volume down● IC Intercom● ISO Isolate	
	Hands Free (HF)	Push-To-Talk (PTT)	ISO Lockout
Mode Setup	<ul style="list-style-type: none">➤ Power OFF➤ Press/hold ▲ and ● ISO while you press/release ● PWR➤ Release ▲ and ● ISO	<ul style="list-style-type: none">➤ Power OFF➤ Press/hold ▼ and ● ISO while you press/release➤ Release ▼ and ● ISO	<ul style="list-style-type: none">➤ Power OFF➤ Press/hold ● IC while you press/release ● PWR
			To reset ISO — <ul style="list-style-type: none">➤ Press/hold ● ISO and ● IC while you press/release ● PWR
Operation	<ul style="list-style-type: none">➤ Press and release ● IC or ● ISO quickly to latch into mode to talk to other users➤ Press/release again to unlatch and listen	<ul style="list-style-type: none">➤ Press and hold ● IC or ● ISO while talking to other users➤ Release to listen	<ul style="list-style-type: none">➤ Use either ● IC or ● ISO to talk to other users in HF or PTT➤ ● ISO will not operate relay
Change Battery	<p>If you hear “Change battery” —</p> <ul style="list-style-type: none">➤ Remove battery from belpac➤ Place battery in battery-charger port for recharging➤ Install fully charged battery in belpac <div></div>		

For detailed information on DX121 features, and for setup and operating instructions, continue reading the following pages.

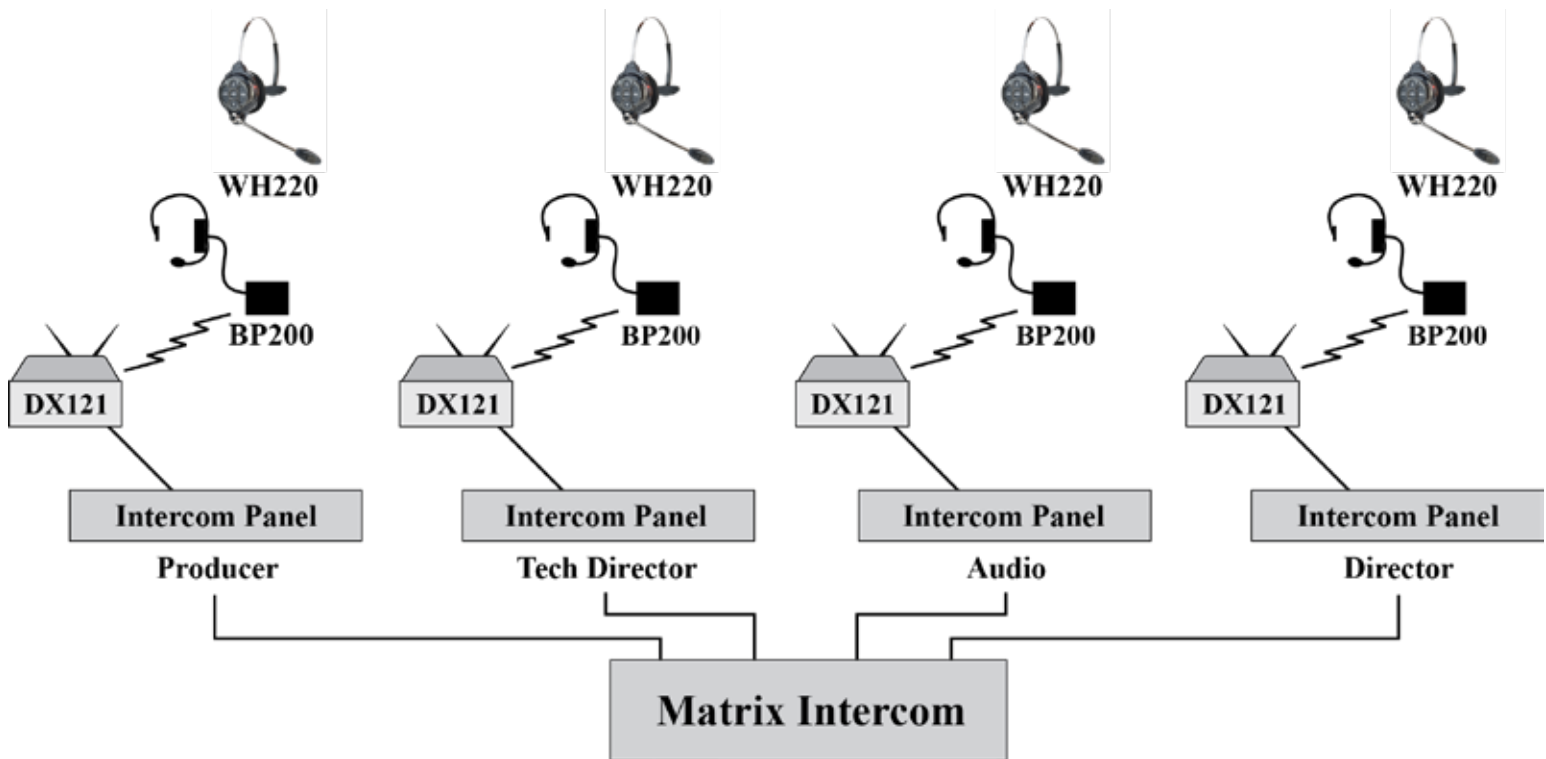
SECTION 1. INTRODUCTION

The DX121 is a 2.4 GHz Wireless Intercom System. The Base Station will connect to a dynamic microphone headset jack or the 4-Wire connector of a hardwired intercom station. It also provides battery-charging capability for one battery. The system typically uses BP200 Beltpacs, but it can also be used with the WH220 All-in-One Headset. Once connected to your system, you can leave your console or intercom station while using a beltpac or headset.

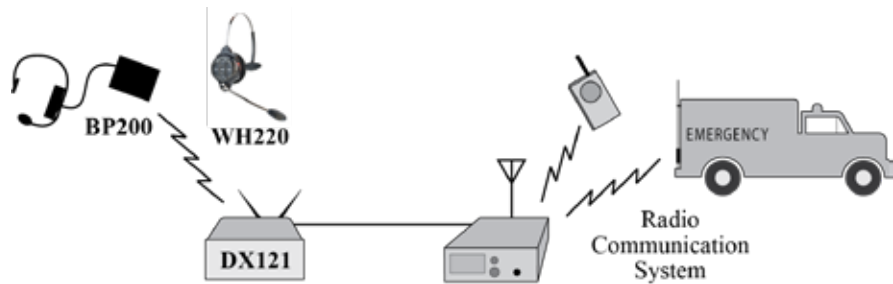
- Each Base Station supports one beltpac or headset in full duplex, hands-free operation.
 - Each Base Station supports up to four registered beltpac or headset.
 - Compatible with RTS and ClearCom/Production Intercom wired intercom headset or 4-Wire capable equipment.
- NOTE:** Use only with headset connectors capable of supporting dynamic microphone headsets.
- In the default mode, the **ISO** button activates relay-controlled contacts. For alternate operating mode, see [Relay Operation](#) on page 16.
 - The **IC** button activates audio to the 4-Wire and headset Input/Output connector(s).
 - The **ISO** and **IC** buttons activate audio to other registered beltpacs and headsets.
 - The Base Station can charge a BAT41 battery in less than 3 hours.

Typical DX121 Applications

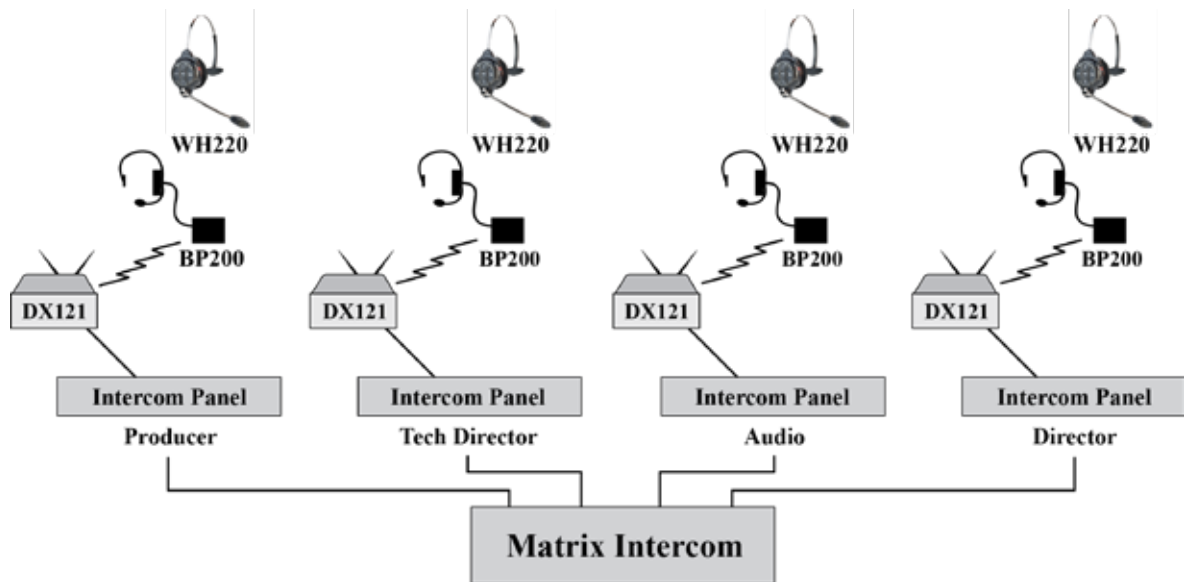
Large Venue



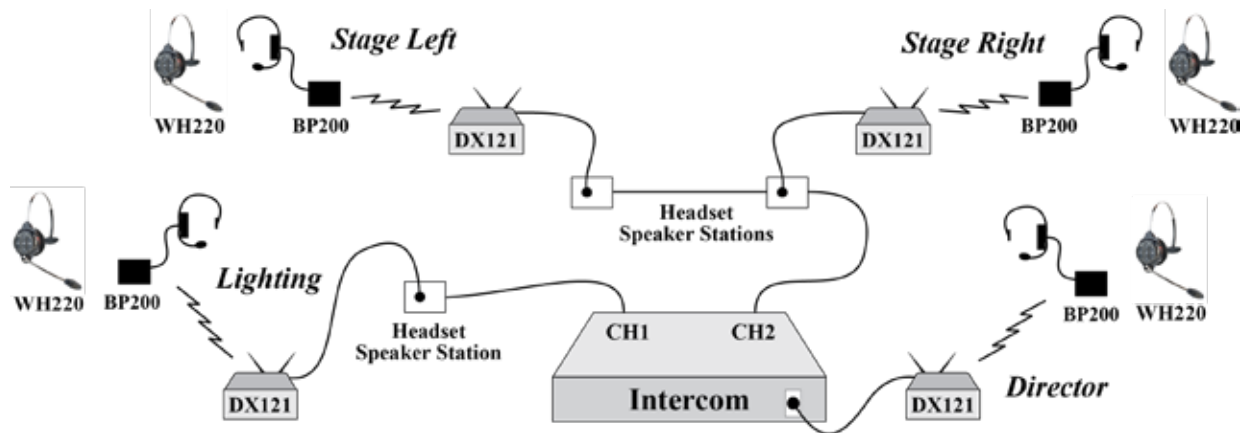
Radio Communication Center



Broadcasting



Theater



Equipment Identification

The DX121 One-to-One Wireless Intercom System includes a base station and may include any combination of belt-pacs and headsets. Other optional equipment may also be used with your system. As you unpack the equipment, check the enclosed shipping document to be sure you received all items listed.

Base Station



BS121 Base Station



Base Station Antennas
(2 per Base Station)



115/230 Volt AC Power Supply
(1 per Base Station, with Power Cord)

Beltpac and Headset



BP200 Beltpac

CC-15-MD4 Headset

Beltpac Pouch



WH220 All-in-One
Wireless Headset



Battery (BAT41)

Two per Beltpac or All-in-One Headset



Battery (BAT50)

Two per Beltpac or All-in-One Headset

AC40 Battery Charger



AC50 Battery Charger

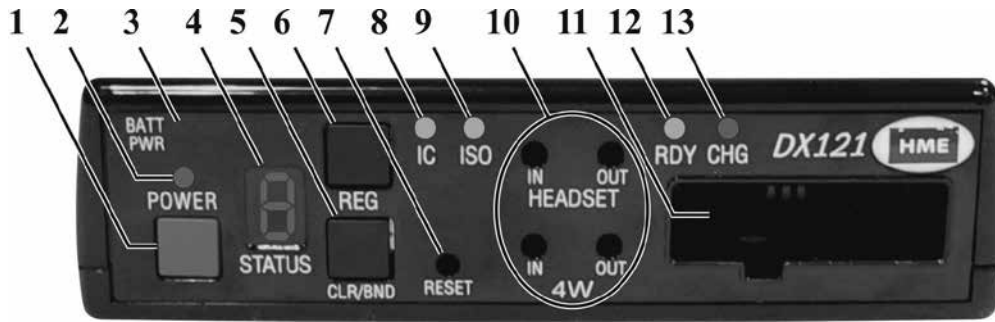
NOTE: If you're using a WH220 with the MB121, you will need to purchase AC50 battery charger.

OPTIONAL EQUIPMENT

- BP200 Beltpac
- CC-15-MD4 Single-Muff Headset
- CC-15-MD4 Dual-Muff Headset
- HS16 Lightweight Headset
- HS4-3 Earpiece & Lapel Microphone
- HSI6000 Headset Adapter
- WH220 All-in-One Headset
- BAT41 Rechargeable Battery
- BAT50, BAT41 Rechargeable Battery
- AC50, AC40 Battery Charger

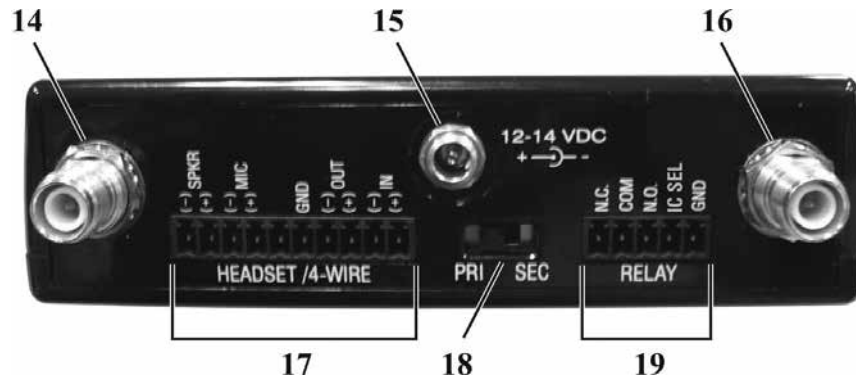
Main Equipment Features

Base Station Features



Front Panel

- | | |
|---------------------------------------|---|
| 1. POWER button | 8. IC indicator light |
| 2. POWER light | 9. ISO indicator light |
| 3. BATT PWR light (not used) | 10. HEADSET and 4W (4-Wire) IN and OUT audio level controls |
| 4. STATUS display | 11. Battery charger port (BAT41 battery only) |
| 5. CLR/BND (clear/band) button | 12. RDY (battery ready) light |
| 6. REG (registration) button | 13. CHG (battery charging) light |
| 7. RESET button (recessed) | |



Rear Panel

- | | |
|---|---|
| 14. Antenna connector | 17. HEADSET / 4-WIRE connector block |
| 15. 12-14 VDC power supply connector | 18. PRI SEC (primary/secondary) switch |
| 16. Antenna connector | 19. RELAY connector block |

Belpac Features (Uses BAT41 Battery)

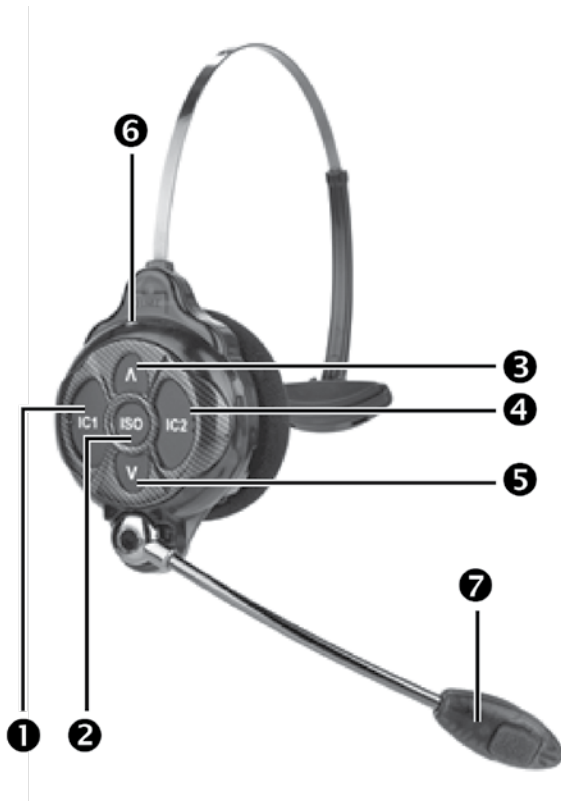


1. Headset cable connector
2. Belpac power and transmit lights
3. **ISO** (Isolate) button
4. **IC** (Intercom) button
5. **PWR** (Power) button

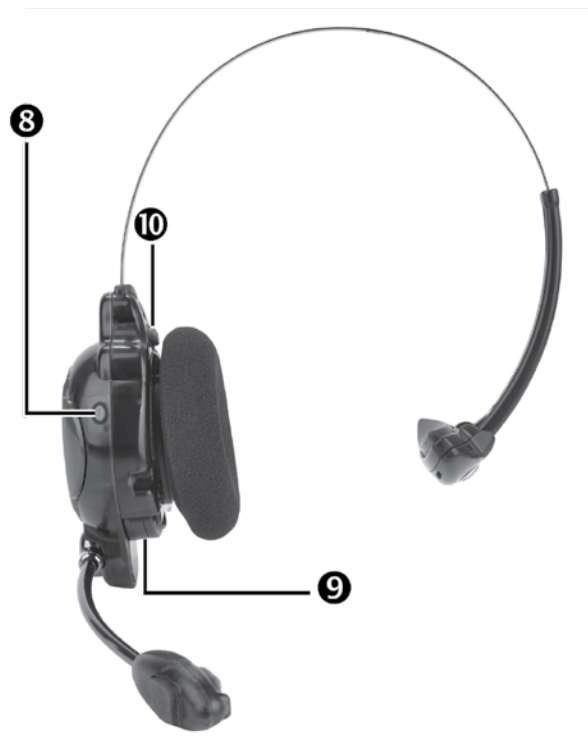


6. Volume-up ▲ button
7. Volume-down ▼ button
8. Battery
9. Battery release latch

WH220 Headset Features (Uses BAT50 Battery)



1. IC1 button
2. **ISO** (Isolate) button
3. Volume-up button
4. IC2 button
5. Volume-down button



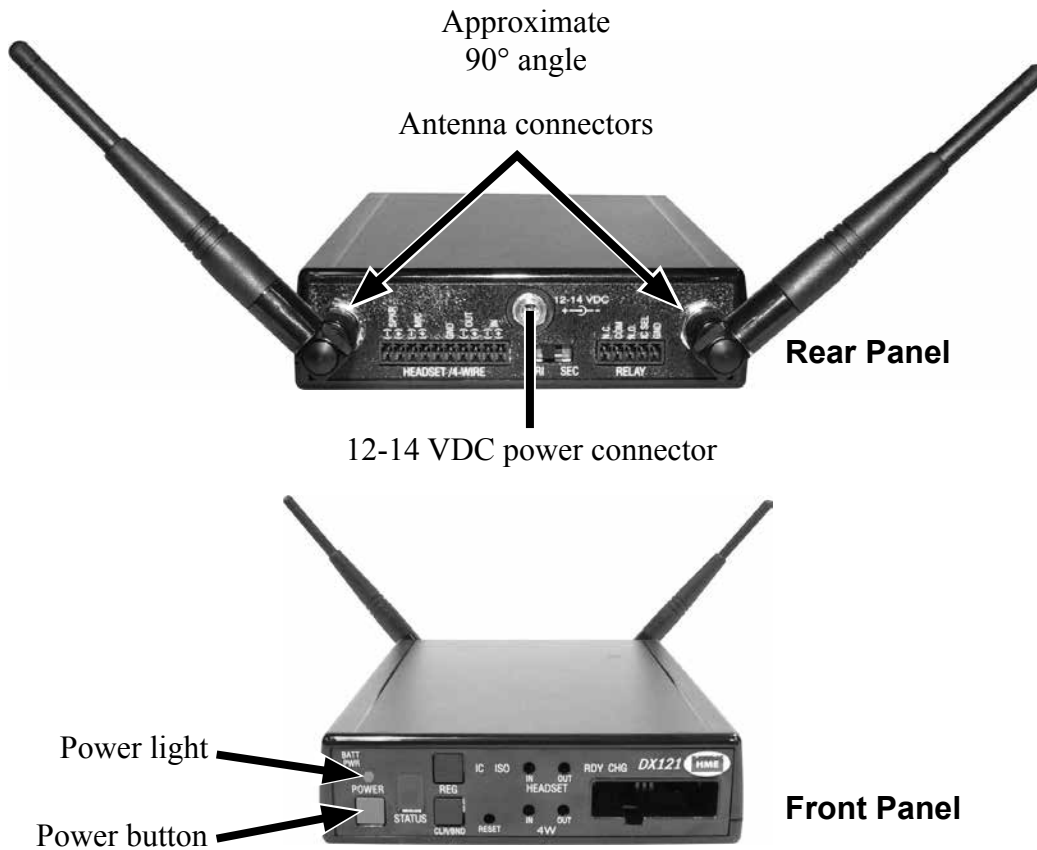
6. Power/mode light
7. Microphone
8. Power button
9. Battery
10. Battery-release latch

SECTION 2. BASE STATION SETUP

Basic Base Station Setup

The following description is for a basic, stand-alone DX121 One-to-One Wireless Intercom System setup. Intercom headset, 4-Wire intercom and relay connections are described on [page 17](#).

Set up the Base Station as follows:

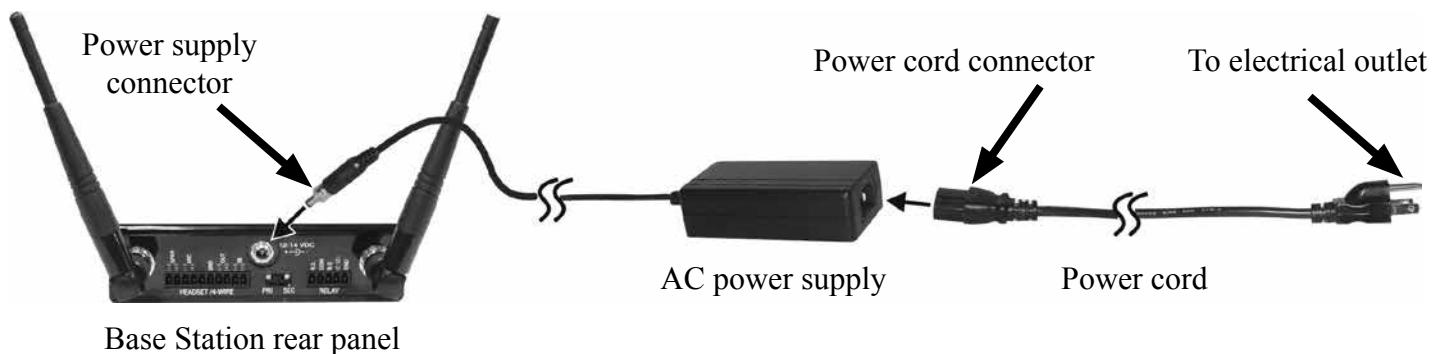


1. Mount antennas -

Mount the two enclosed antennas on the antenna connectors on the rear panel of the Base Station. Position the antennas at an approximate **90°** angle. Turn the sleeve on each of the antenna connectors clockwise to tighten it securely in place.

2. Connect power -

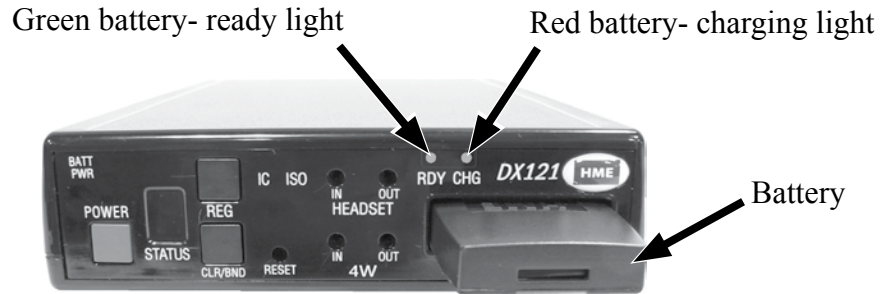
- Plug the connector at the end of the AC power supply cord into the **12-14VDC** power connector on the rear panel of the Base Station, and turn the nut on the connector clockwise to secure it to the Base Station.
- Plug the female connector at one end of the power cord into the AC power supply, and plug the other end into an electrical outlet.
- Press the **POWER** button on the front of the Base Station to turn it on. The red light above the button should turn on.



3. Charge batteries -

IMPORTANT! – Before using the DX121 system, charge the batteries for the Beltpacs and/or WH220 Headsets. Charging time for fully-discharged batteries is about 3 hours per battery.

- One battery can be charged in the battery charger at a time.
- Insert a battery in the charging port until it clicks in place.
- A red charging **CHG** light above the battery port stays on while a battery in the port is charging.
- A green ready **RDY** light above the battery port goes on when a battery in the port is fully charged.



AC50 Battery Charger Setup

The AC50 is the charger for All-in-One headsets.

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:

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

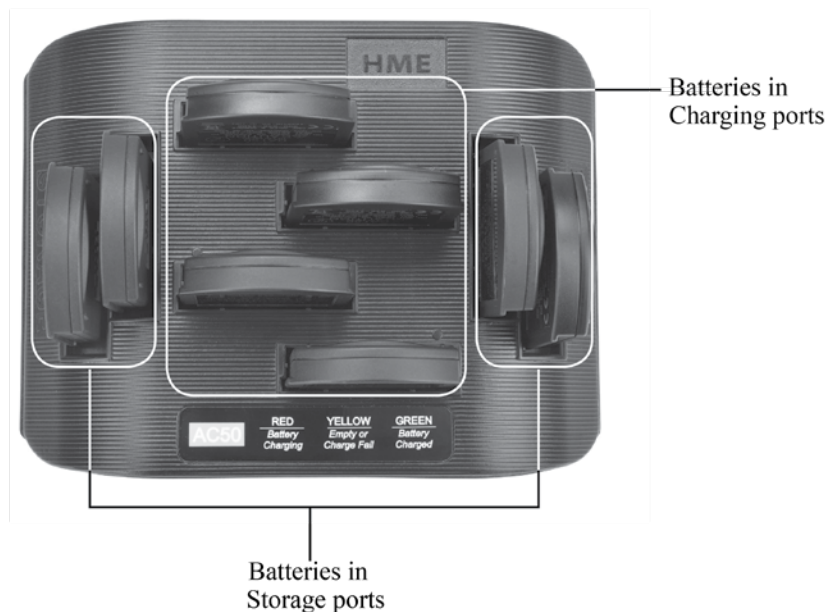
The red lights on the charger will briefly display, and then the yellow lights will appear and remain on.

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.

IMPORTANT: 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.



AC40 Battery Charger Setup

The AC40 is the charger for Beltpac batteries

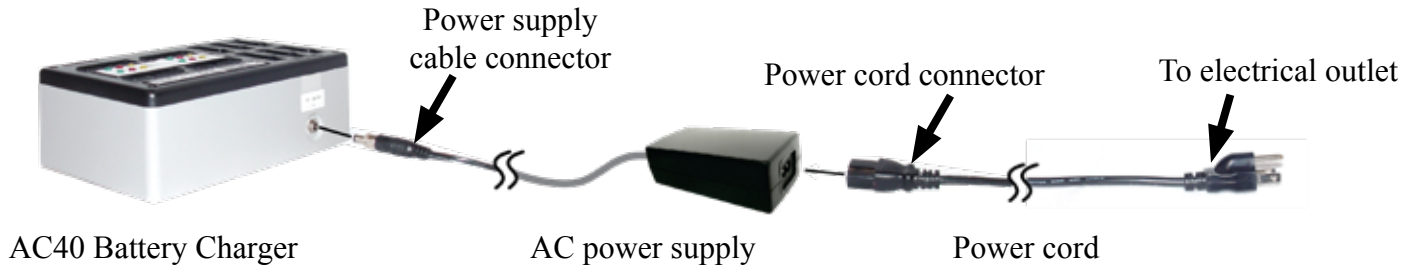
Before installing the system, connect the AC power supply to the AC40 Battery Charger and plug it into an electrical outlet. Charge all the batteries for the Beltpacs while the other equipment is being installed. Charging time is about 2.5 hours.

Connect AC Power Supply

To connect the AC power supply to the battery charger:

- Attach the AC power supply cable connector to the screw connector on the battery charger.
- Plug the power cord connector into the AC power supply.
- Plug the power cord into an electrical outlet.

The red lights on the charger will come on and go off, and then the yellow lights will turn on and remain on.



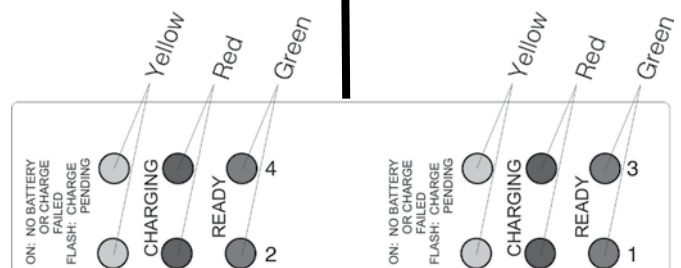
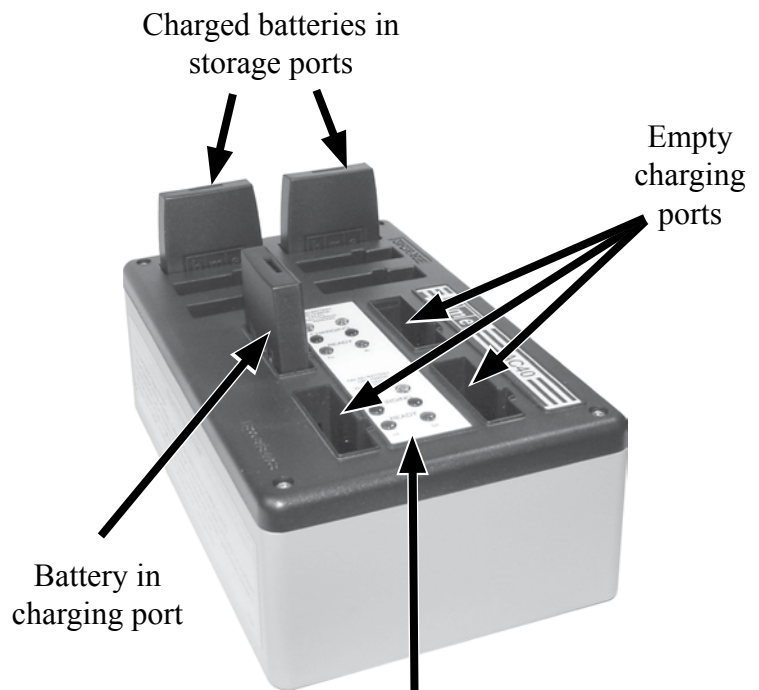
Charging the Batteries

Up to four batteries can be charged simultaneously. The battery status lights next to each charging port are explained below. Up to six 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 adjacent to each charging port illuminates while the port is empty. When a battery is in a charging port, an adjacent flashing yellow light indicates CHARGE PENDING, which indicates that the battery is too hot. Adjust the room temperature or move the charger to a cooler area. When a battery is in a charging port, an adjacent, steady yellow light indicates CHARGE FAILED. If this happens, follow the instructions on the side of battery charger.
- A red light adjacent to a battery port indicates that the battery in the port is CHARGING. A green light adjacent to an inserted battery indicates a READY, fully charged battery.

Store the fully charged batteries in storage ports.

Batteries should not be left in charge ports after being fully charged. A yellow light may illuminate if a battery is left in a charge port for more than three weeks. It does not indicate a faulty battery.



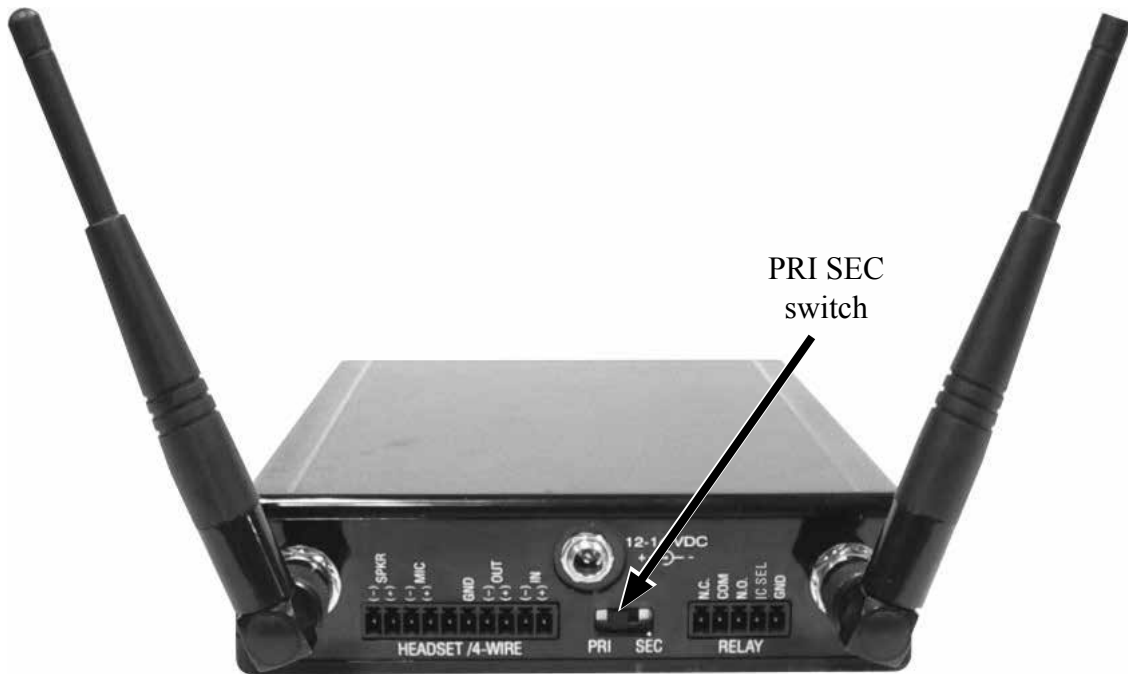
Multiple Base Station Setup

This mode of operation can be used to expand the number of users communicating through multiple HME Base Stations operating in the same portion of the 2.4 GHz to 2.48 GHz frequency band.

Primary and Secondary Base Station Settings

One Base Station must be designated as “Primary” while the others are designated as “Secondary”. You can have only one primary and up to 3 secondary Base Stations. Secondary Base Stations are assigned numbers 1, 2, or 3.

1. Label the Base Stations as **Primary**, **1**, **2** and **3**.
2. Start with every Base Station and beltpac/headset powered off.
3. Locate the **PRI SEC** switch on the rear panel of the Base Station.
4. Set the **PRI SEC** switch to the **PRI** position on the primary Base Station.
5. Set the **PRI SEC** switch to the **SEC** position on each secondary Base Station.
6. If a Base Station has been set for interference avoidance, it should be used as the primary Base Station. The secondary Base Stations will automatically be set to the same band when they are initialized.



Rear panel of Base Station

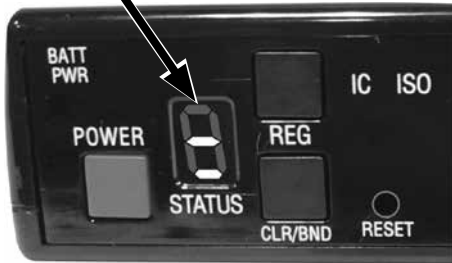
Base Station Initialization

For multiple HME Base Stations to operate without interference, they must be properly initialized before performing any other setups. After initializing each Base Station, register each beltpac or headset that will be used with that base according to the procedures on [pages 13 – 16](#).

NOTE: Base stations must be set up for split-band operation prior to initialization.

1. Turn the primary Base Station power on. Register any beltpacs or headsets to be used with the primary Base Station (See [pages 13 – 16](#)). Turn each beltpac or headset off after registering it.
2. Power on one **secondary** Base Station. The **STATUS** display will show a double bar, indicating the secondary base is ready to be initialized.

Double bar



Base Station ready to be initialized

Small "o"



Small "o" indicates primary base is open for registration

3. Press the **REG** button on the primary base. The **STATUS** display will show a small "o".
4. To assign a number to a secondary Base Station and then initialize it, repeatedly press the **REG** button on the secondary base to cycle through the numbers 1, 2, and 3. When the desired number appears, stop pressing and wait.
5. While the secondary base initializes to the displayed number, the **STATUS** display will continue showing the secondary number selected. When initialization of the secondary Base Station is finished, one bar is displayed that indicates that the secondary has initialized to the primary.

Secondary base number



Secondary 2 searching for primary

One bar



Secondary is initialized to primary

6. Press the **REG** button on the primary. The **STATUS** display will go blank.
7. Register beltpacs or headsets to the secondary (see [pages 13 – 16](#)). After registration, turn off the secondary base and all Beltpac and headsets.

8. Repeat these steps for each remaining secondary base. Use a different number for each. Only the primary base and the secondary base you are working with should have power on during initialization. All other equipment should be off.
9. After all secondary bases are initialized with beltpacs and headsets registered, power up all bases.
10. Press **RESET** on the primary base, and let it recover. Turn on the primary beltpacs or headsets to allow them to link.
11. Press **RESET** on each secondary base (one at a time), and let it initialize to the primary (indicated by a single bar).
12. Turn on the beltpacs or headsets associated with the secondary bases. Complete one group at a time until they have all linked, then move on the next group. At this point all bases and beltpacs or headsets should be powered up and linked, ready for use.
13. Proceed with normal system configuration, setting functions and levels as required.

Replacing a Secondary Base

Use the procedure above to initialize the new secondary with the same number as the old secondary. After initialization you will have to register any Beltpacs/Headsets associated with the old secondary to the new secondary.

Replacing a Primary Base

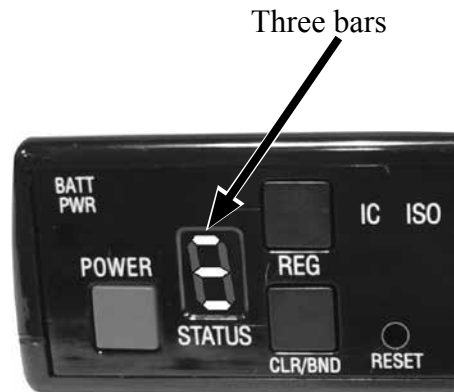
Follow the above procedure completely. Before initialization of the secondary bases, clear the previous secondary initialization as follows:

For each secondary, press the **CLR/BND** button and the **RESET** button simultaneously. Continue holding the **CLR/BND** button while releasing the **RESET** button until the clear code ("c") appears on the **STATUS** display. Any beltpacs or headsets associated with the old primary will have to be registered to the new primary after secondary base initialization. Also, all beltpacs and headsets associated with secondary Base Stations must be registered again.

Primary Base is Shut Down or Powered Off for More than 30 Seconds

All secondary bases will drop their beltpac and headset connections and begin searching for the primary. If the primary is not found in 30 seconds, the secondary will automatically revert to primary-mode operation and reconnect the beltpacs or headsets.

At this point, the secondary **STATUS** displays will show three bars. If the primary powered on, it will be necessary to press **RESET** on all secondary bases to allow them to find and initialize to the primary again. It's important to have all bases connected to the same AC circuit to prevent this situation when the system is shut down after hours and powered up again the next day.



Secondary base operating in primary mode when no primary base is found

NOTE: You cannot register beltpacs and headsets to a base that is set to primary mode, and then switch the base mode to secondary for initialization. Once in secondary mode, the base cannot recognize the beltpacs and headsets registered during primary operation. For secondary bases, the beltpacs and headsets must always be registered after secondary base initialization, with the primary base remaining active and the secondary base displaying one bar.

Belpac / All-In-One Headset Setup and Registration

The first time you operate the DX121 system, you must register each BP200 Belpac and/or WH220 All-In-One Headset for use with a specific Base Station. The Base Station will then recognize all registered belpacs and headsets when their power is on and differentiate between them and other electronic equipment operating on the same frequencies. If a belpac or headset is added, replaced or repaired later, the new one must be registered and the replaced one remains in memory. A maximum of 4 belpacs and headsets can be registered to a single Base Station at one time. If the maximum number of 4 is exceeded, you must clear all current registrations and re-register all active belpacs and headsets.

NOTE: The following two pages are for Belpac setup and registration. All-In-One Headset setup and registration instructions are on [pages 15 and 16](#).

Set Up Belpacs

Before registering them, set up all Belpacs as follows:

1. Insert a fully charged battery in the Belpac, with the metal contacts on the end of the battery inserted first. Press it in until it snaps.
2. Place the Belpac in the pouch.
3. Plug the headset cable connector into the Belpac.

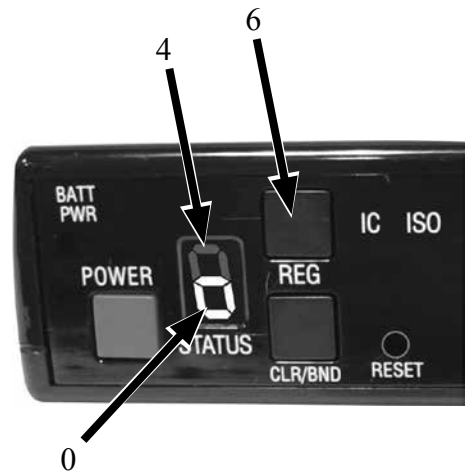


Register Belpacs

Belpacs must be within 6 feet (1.83 meters) of the Base Station during registration. Before you begin, be certain the Base Station power is on and each Belpac to be registered is turned off. Registered Belpacs can be on or off.

NOTE: If you are setting up multiple Base Stations, the following steps must be repeated for Belpacs being registered to each Base Station.

1. Place the headset of the Belpac being registered on your head.
2. Press the **REG** button on the front panel of the Base Station (#6 on Base Station front panel illustration).
 - The **STATUS** display (#4 on Base Station front panel illustration) will show a small "o" for open.
3. Press and hold the **ISO** button on the Belpac while you press and release the **PWR** (power) button to turn the unit on, then release the **ISO** button. This will cause the Belpac to enter the registration mode.
 - The two power lights at the corners of the Belpac near the **IC** and **ISO** buttons will blink red, then blink green two or three times and turn off.
 - Wait! There may be a short delay.



If registration is successfully completed:

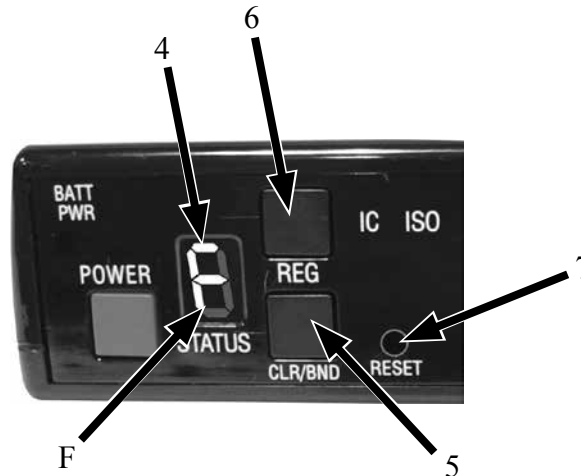
- A voice message in the headset will say “Power on, Beltpac #, Version #, Begin registration, Registration complete, ...”
- After a delay of up to 15 seconds, the **STATUS** display will show the ID number assigned to this Beltpac for about 10 seconds.

NOTE: ID numbers are assigned sequentially as 0 through 3.

- The power light on the Beltpac, next to the **IC** button, will remain on steady green.
- Repeat Steps 1 to 3 at the bottom of [page 13](#) for each Beltpac to be registered.

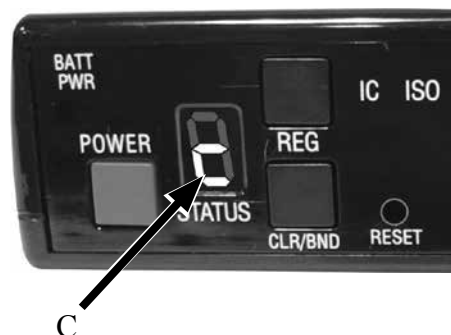
If registration failed:

- A voice message in the headset will say “Power on, Beltpac #, Version #, Begin registration, ...” Both power lights on the Beltpac will be blinking red, and there may be a delay of up to 90 seconds before you hear “Registration failed” and the **STATUS** display (#4) goes blank.
- Press **RESET** (#7) on the Base Station. To press **RESET**, insert a small paper clip or similar object into the **RESET** hole at the lower-left corner of the Base Station front panel. When the **STATUS** display (#4) becomes blank, press the **REG** button (#6) and register the Beltpac again. If registration fails again, call your dealer for assistance.



If you try to register more than 4 devices (combination of beltpacs or headsets) to a Base Station:

- An “F” (for registration “Full”) will appear on the **STATUS** display (#4) on the Base Station and you will hear “Registration failed” in the Headset.
- Clear all current registrations by pressing the **CLR/BND** button (#5) and **RESET** (#7) simultaneously. To press **RESET**, insert a small paper clip or similar 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 **RESET**, until the clear code “c” (lower case) appears on the **STATUS** display.
- Register all active Beltpacs, one at a time.



Set Up All-In-One Headsets

Before registering them, insert a fully charged battery in each Headset. When a battery weakens, you will hear “Change battery”. At this time, remove the battery from the headset by pressing the blue battery-release latch to remove the battery.

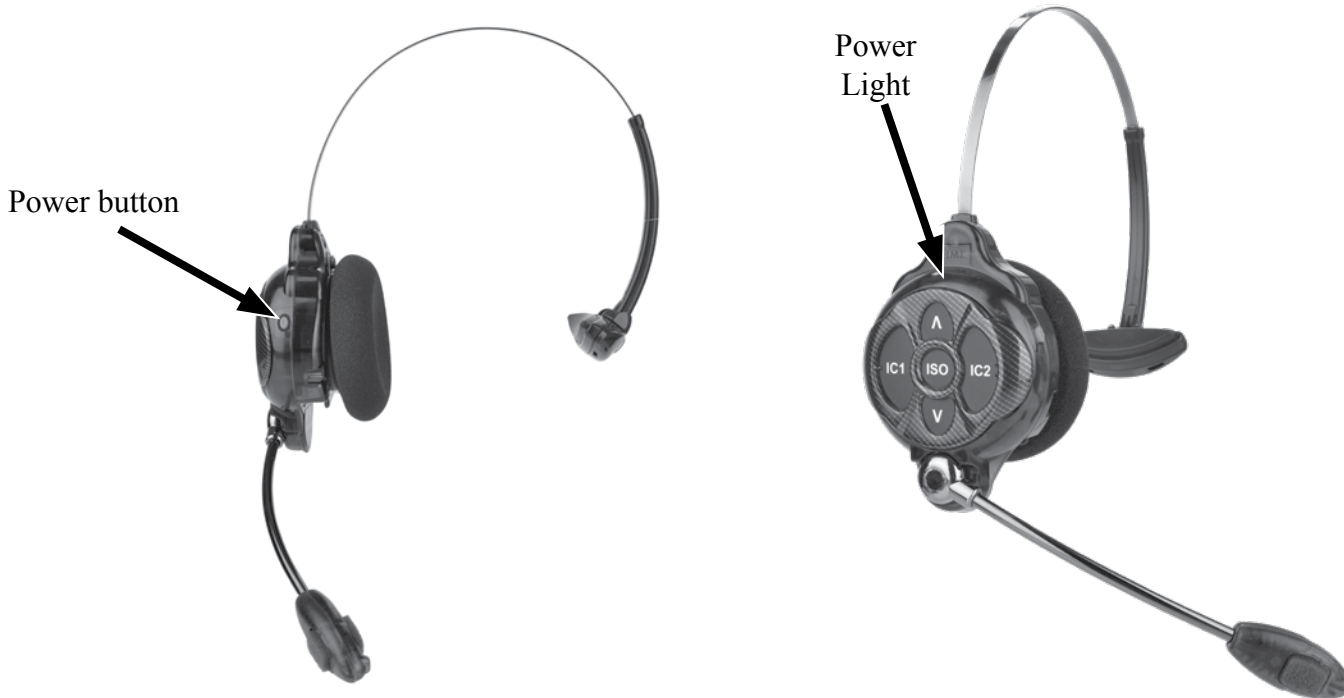
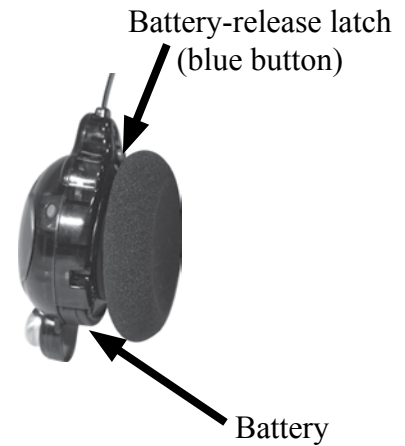
Power On/Off

➤ **To turn power on**

Press and release the power button on the inside of the Headset housing. A voice message in the earpiece will say “Headset #” and the power light on the opposite side of the earpiece will turn on.

➤ **To turn power off**

Press and hold the power button for approximately 3 seconds. A voice message in the earpiece will say “Headset off”, and the power light on the opposite side of the earpiece will go off.



Register All-In-One Headsets

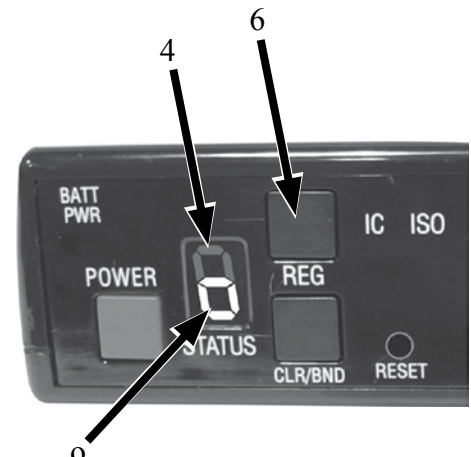
Headsets must be within 6 feet (1.83 meters) of the Base Station while you are registering them. Be certain the Base Station power is on, and each Headset you are going to register is turned off before you begin. Headsets that are already registered can be on or off.

NOTE: If you are setting up multiple Base Stations, the following steps must be repeated for Headsets being registered to each Base Station.

1. Put the Headset on your head.
2. Press the **REG** button on the front panel of the Base Station (#6 on Base Station front panel illustration).
 - The **STATUS** display (#4 on Base Station front panel illustration) will show a small “o” for open.

NOTE: If you wait too long before moving to Step 3, the Base Station will exit registration mode and you will have to repeat Step 2.

3. Press and hold the **ISO** button on the Headset while you press and release the power button to turn the unit on, then release the **ISO** button. This will cause the Headset to enter registration mode.
 - The Headset power light will begin blinking red, then will blink green two or three times and go off. There may be a short delay.

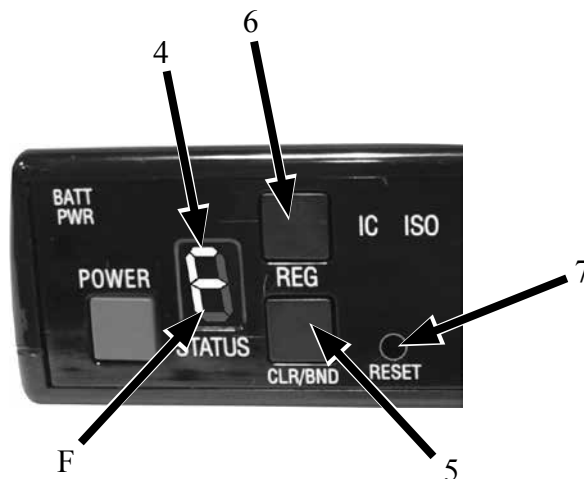


If the registration is successfully completed:

- A voice message in the Headset will say “Power on, Headset #, Version #, Begin registration, Registration complete, ...”
- After a delay of up to 15 seconds, the **STATUS** display will show the ID number assigned to this Headset for about 10 seconds.
NOTE: ID numbers are assigned sequentially as 0 through 3.
- The power light on the Headset will remain on steady green.
- **Repeat Steps 1 to 3 at the bottom of page 14 for each Headset to be registered.**

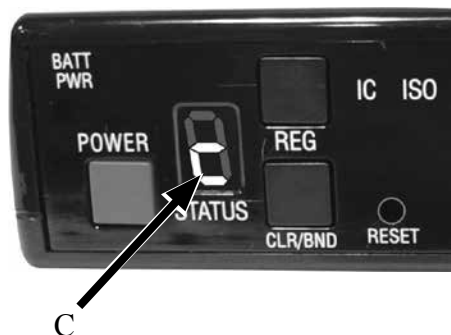
If registration failed:

- A voice message in the Headset will say “Power on, Headset #, Version #, Begin registration, ...”. The power light on the Headset will be blinking red, and there may be a delay of up to 90 seconds before you hear “Registration failed” and the **STATUS** display (#4) goes blank.
- Press **RESET** (#7) on the Base Station. To press **RESET**, insert a small paper clip or similar object into the **RESET** hole at the lower-left corner of the Base Station front panel. When the **STATUS** display (#4) becomes blank, press the **REG** button (#6) and register the Headset again. If registration fails again, call your dealer for assistance.



If you try to register more than 4 devices (combination of belt-pacs or headsets) to a Base Station:

- An “F” (for registration “Full”) will appear on the **STATUS** display (#4) on the Base Station and you will hear “Registration failed” in the Headset.
- Clear all current registrations by pressing the **CLR/BND** button (#5) and **RESET** (#7) simultaneously. To press **RESET**, insert a small paper clip or similar 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 **RESET**, until the clear code “c” (lower case) appears on the **STATUS** display.
- Register all active WH220 Headsets, one at a time.



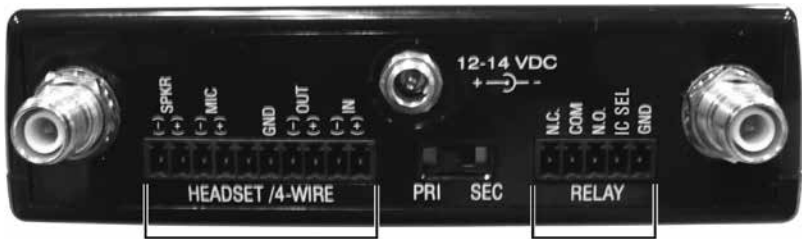
NOTICE

You have completed the system setup.

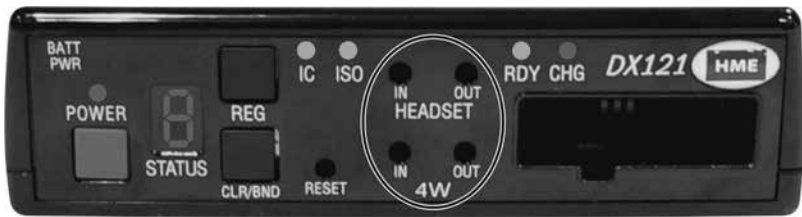
The instructions under [INTERCOM AND RELAY CONNECTIONS](#) on the next page are for setting up auxiliary audio equipment which you may want to use with your DX121.

Intercom and Relay Connections

If using your DX121 with a wired intercom system, connect the intercom to the **HEADSET/4-WIRE** connector on the rear panel of the Base Station as shown below. Also, the **RELAY** connector shown below can be used as a “dry contact” for any outside equipment.



Base Station rear panel showing HEADSET/4-WIRE and RELAY connectors



Base Station front panel showing HEADSET and 4W (4-Wire) input and output level adjustments

HEADSET/4-WIRE Connector		
Pin 1	Headset connections	SPKR – Input
Pin 2		SPKR + Input
Pin 3		MIC – Output
Pin 4		MIC + Output
Pin 5	4-Wire connections	N/C
Pin 6		GND
Pin 7		4-WIRE – Output
Pin 8		4-WIRE + Output
Pin 9		4-WIRE – Input
Pin 10		4-WIRE + Input

NOTE: Indicated PinOut connections should be matched to the corresponding PinOut connections of the intercom which will be used.

RELAY Connector	
Pin 1	N.C. (Normally Closed)
Pin 2	COM
Pin 3	N.O. (Normally Open)
Pin 4	IC SEL
Pin 5	GND

Intercom Headset Connection

If using the headset connector of an intercom, connect the wires from a headset connector (not provided) to pins 1 through 4 of the **HEADSET/4-WIRE** connector on the rear panel of the Base Station. Be sure the headset jack of the intercom system is turned on. For intercom headset wiring diagram, see [page 31](#).

4-Wire Intercom Connection

If using a 4-Wire intercom, connect the wires from a 4-Wire connector into the **HEADSET/4-WIRE** connector on the rear panel of the Base Station. For 4-Wire wiring diagram, see [page 31](#).

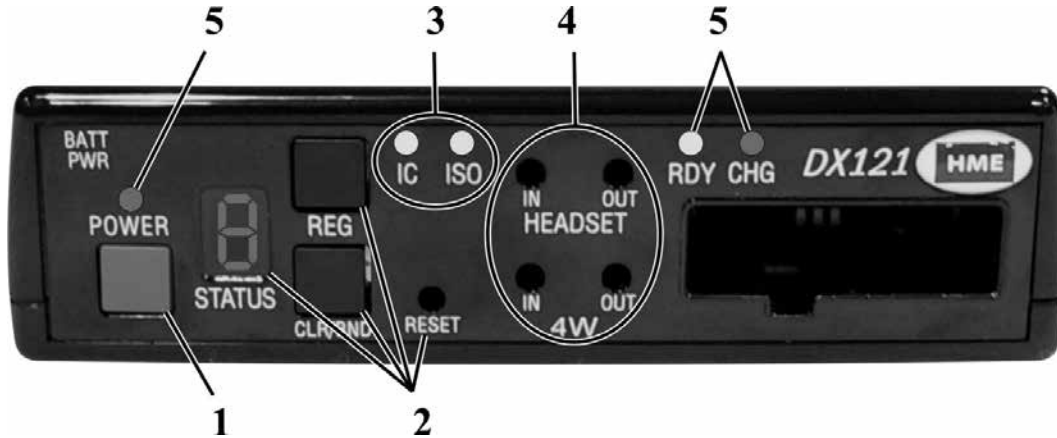
Relay Operation

In the default mode, the relay will operate only when the **ISO** button is pressed. In the **IC SEL** mode, the relay will operate only when the **IC** button is pressed. With either mode, the **IC** button activates audio to the **HEADSET/4-Wire IN/OUT** connector. The **IC SEL** mode is selected by placing a jumper across pins 4 and 5 of the **RELAY** connector.

SECTION 3. EQUIPMENT OPERATION

Base Station Operation

Front Panel Controls, Indicators and Connector



1. **Power button**

Press the **POWER** button to turn the power on. A red light above the button will be lit when the Base Station power is on. Press the button again to turn the power off. The light will go off. All settings are preserved when the power is turned off, and will be restored when the power is turned on again.

2. **Registration Controls and Status Indicator**

Use these controls to register each Beltpac, All-In-One Headset and/or Speaker Station beltpac or headset used with a specific Base Station.

STATUS display – the status of beltpacs and headsets as they are being registered to the Base Station

REG button – is used to set the Base Station in registration mode, so registration can begin

CLR/BND button / **RESET** switch – when used together, clear all registrations from the Base Station

3. **IC (Intercom) and ISO (Isolate) Receiver Indicators and Controls**

Green lights indicate whether **IC** or **ISO** is being received.

4. **Adjustments**

Use a screwdriver to adjust the **HEADSET** and **4W IN** (input) and **OUT** (output) levels.

5. **Indicators**

POWER – When the DC power is on, the red **POWER** light will be lit.

CHG – When the battery is charging, the red **CHG** light will be lit.

RDY – When the battery is fully charged, the green **RDY** light will be lit.

Beltpac Operation

The Beltpac control buttons have a snap action. They will activate when pressed firmly. Use your fingertips, not your fingernails, to press the buttons.

Power On/Off

- **Power On** — Press and release the **PWR** (power) button.
A voice message in the earpiece will say “Power on, Beltpac #, Version #”, and the red power lights at the corners of the **IC** and **ISO** buttons will turn on. After a short time, one light will go off and the other will change to green indicating the Beltpac is ready for use. The **STATUS** indicator on the Base Station will momentarily indicate the ID of the Beltpac.
- **Power Off** — Press and hold the **PWR** button for approximately 2 seconds.
A voice message in the earpiece will say “Power off”, and the green power light will turn off.

NOTE: While the Beltpac is transmitting, the green power light will be flashing. The green power light will be on steady whenever the Beltpac is ready, but not transmitting.



ISO and IC

Either the **ISO** or **IC** button can be used to talk to other belt-pacs and headsets. IC will send the audio signal out to intercoms through the **HEADSET** and **4-WIRE** connections on the rear panel of the Base Station. Depending on your Base Station **RELAY** operation setup (see [page 17](#)), either the **ISO** button or the **IC** button will activate any outside equipment connected to the **RELAY** connector on the rear panel of the Base Station.

- **Push-To-Talk Mode** — To set the Beltpac for push-to-talk (PTT) communication, with the power off, press and hold the volume-down ▼ and **ISO** buttons while you press and release the **PWR** (power) button. You will hear “Power on, Beltpac #, Version #, Hands-free off” in the headset. Press and hold the **IC** or **ISO** button while talking.
- **Hands-free Mode** — To set the Beltpac for hands-free communication, with the power off, press and hold the volume-up ▲ and **ISO** buttons while you press and release the **PWR** (power) button. You will hear “Power on, Beltpac #, Version #, Hands-free on” in your headset. When set up for hands-free communication, the Beltpac can be operated in either hands-free or PTT.
- **ISO Lockout Mode** — To set the Beltpac with the ISO feature locked out, with the power off, press and hold the **IC** button while you press and release the **PWR** (power) button. You will hear “Power on, Beltpac #, Version #, ISO off” in your headset. When set up for the ISO Lockout mode, the **ISO** button will operate the same as the **IC** button, in either hands-free or PTT communication.

To reset the ISO feature for normal **ISO** button communication, with the power off, press and hold the **ISO** and **IC** buttons while you press and release the **PWR** (power) button. You will hear “Power on, Beltpac #, Version #, ISO on” in your headset.

NOTE: The above settings are saved in memory and only need to be repeated when you want to change between hands-free and PTT operation. When changing modes, if both power lights begin blinking, turn the Beltpac off and begin again. Hands-free and Push-To-Talk mode settings affect both IC and ISO. Individual adjustment is not possible.

- **Push-To-Talk Mode Operation** — Press and hold the **IC** or **ISO** button while speaking. In PTT operation, audio will be transmitted only while you are pressing the **IC** or **ISO** button.
- **Hands-free Mode Operation** — Quickly press and release the **IC** or **ISO** button to “latch” the transmitter on in the hands-free mode. Talk and listen, as in a normal telephone conversation. Press and release the **IC** or **ISO** button again to “unlatch”, to end the conversation. If either button is held down for more than a half second, the Beltpac will function as PTT.

NOTE: In hands-free mode, pressing the **IC** button while latched in ISO will latch on IC. Pressing the **ISO** button while latched in IC will latch on ISO.

Volume Up/Down

- **Volume Up Adjustment** — Each time you press and release the volume-up ▲ button, you will hear a higher pitch beep in the earpiece as the volume increases one step. If you press and hold the volume-up button, you will hear beeps of ascending pitch as the volume steps up to maximum. When maximum volume is reached, you will hear “maximum” repeating until you release the volume-up button.
- **Volume Down Adjustment** — Each time you press and release the volume-down ▼ button, you will hear a lower pitch beep in the earpiece as the volume decreases one step. If you press and hold the volume-down button, you will hear beeps of descending pitch as the volume steps down to minimum. When minimum volume is reached, you will hear rapidly repeating beeps until you release the volume-down button.

Sidetone Adjustment

To adjust sidetone (the volume level of your own voice heard in the headset as you speak into the microphone), press and hold the **IC** button while you press the volume-up ▲ or volume-down ▼ button.

If you reach the maximum volume level, you will hear “Maximum” in the headset. If you reach the minimum volume level you will hear double beeps. Your sidetone setting will be saved in memory, and does not require readjustment each time the Beltpac is turned off and on.

NOTE: This adjustment only affects the level of your voice in your own headset, not how anyone else hears you.

Microphone Gain Adjustment

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

To increase microphone gain — Press the volume-up ▲ button while holding down the **ISO** button in the normal operating mode. The microphone gain increase can be monitored through sidetone, or preferably by someone else or at the Base Station.

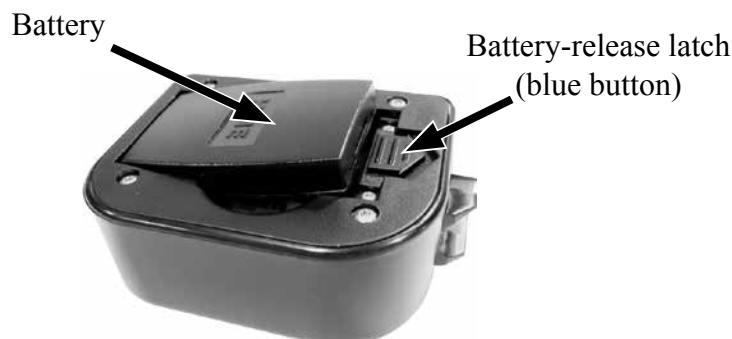
To decrease microphone gain — Press the volume-down ▼ button while holding down the **ISO** button in the normal operating mode. The microphone gain decrease can be monitored through sidetone, or preferably by someone else or at the Base Station.

NOTE: You will hear “Maximum” if you attempt to go higher than maximum microphone gain. You will hear beeps if you attempt to go lower than minimum microphone gain. Microphone gain will be saved in non-volatile memory and does not require readjustment each time the power is turned on.

Change Batteries

When a battery becomes weak, a voice in the earpiece will say “Change battery”. When this happens, take the Beltpac out of its pouch and remove its battery. Slide the arrow-shaped battery-release latch in the direction of the arrow. Pull up on the end of the battery near the battery-release latch and lift the battery out of the Beltpac, or turn the Beltpac over and catch the battery in your hand.

When replacing a battery in the Beltpac, place the end of the battery with the metal contacts into the battery holder on the Beltpac, in the same position as the battery you removed. Press the top of the battery carefully into the battery holder until it snaps in place under the battery-release latch. Recharge batteries according to the instructions on page 8.

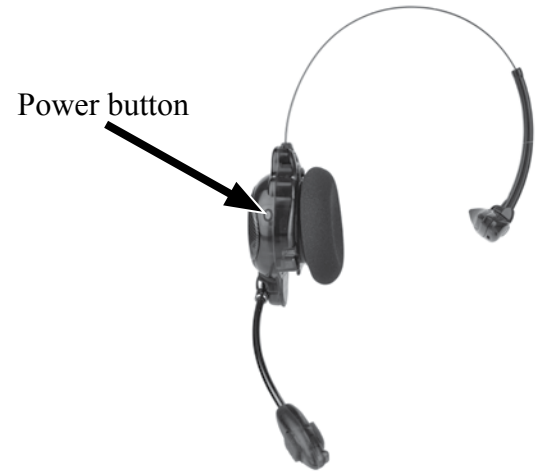


All-In-One Headset Operation

The Headset control buttons will activate when pressed lightly. Use your fingertips, not your fingernails, to press the buttons.

Power On/Off

- **Power On** — Press and release the power button on the inside of the Headset housing. A voice message in the earpiece will say “Power on, Headset #, Version #” and the power light will turn on. The **STATUS** indicator on the Base Station will momentarily indicate the Headset ID number.
- **Power Off** — Press and hold the power button for approximately 3 seconds. A voice message in the earpiece will say “Power off”, and the power light will go off.



ISO and IC

The **ISO**, **IC1** or **IC2** buttons can be used to talk to others. IC will send the audio signal out to intercoms through the **HEADSET** and **4-WIRE** connections on the rear panel of the Base Station.

Depending on your Base Station **RELAY** connection setup (see [page 17](#)), either the **ISO** button or the **IC** button will activate any outside equipment connected to the **RELAY** connector on the rear panel of the Base Station.

- **Push-To-Talk Mode** — To set the Headset for Push-To-Talk (PTT) communication, with the power off, press and hold the volume-down ▼ and **ISO** buttons while you press and release the power button. You will hear “Power on, Headset #, Version #, Hands-Free off” in the earpiece. Press and hold the **IC1**, **IC2** or **ISO** button while talking.
- **Hands-Free Mode** — To set the Headset for Hands-Free (HF) communication, with the power off, press and hold the volume-up ▲ and **ISO** buttons while you press and release the power button. You will hear “Power on, Headset #, Version #, Hands-Free on” in the earpiece. When set up for Hands-Free communication, the Headset can be operated in either HF or PTT.
- **ISO Lockout Mode** — To set the Headset with the ISO feature locked out, with the power off, press and hold the **IC1** button while you press and release the power button. You will hear “Power on, Headset #, Version #, ISO off” in your Headset. When set up for the ISO Lockout mode, the **ISO** button will operate the same as the **IC1** button, in either hands-free or PTT communication. To reset the ISO feature for normal **ISO** button communication, with the power off, press and hold the **ISO** and **IC1** buttons while you press and release the power button. You will hear “Power on, Headset #, Version #, ISO on” in your Headset.
- **Lights-off Mode** — To prevent the power and transmit lights from coming on during headset operation, press and hold the **IC2** button while you press the power button to turn the headset on. To return the lights to their normal functions, turn the power off and on again without pressing the **IC2** button.



NOTE: The above settings are saved in memory and only need to be repeated when you want to change between HF and PTT operation. When changing modes, if both power lights begin blinking, turn the Headset off and begin again. Hands-Free and Push-To-Talk mode settings affect both IC and ISO. Individual adjustment is not possible.

- **Push-To-Talk Mode Operation** — Press and hold the **IC1**, **IC2** or **ISO** button while speaking. In PTT operation, audio will be transmitted only while you are pressing the **IC1**, **IC2** or **ISO** button.
- **Hands-Free Mode Operation** — Quickly press and release the **IC** or **ISO** button to “latch” the transmitter on in the HF mode. Talk and listen, as in a normal telephone conversation. Press and release the **IC** or **ISO** button again to “unlatch”, to end the conversation. If either button is held down for more than a half second, the Headset will function as PTT.

NOTE: In Hands-Free mode, pressing the **IC1** or **IC2** button while latched in ISO will latch on IC. Pressing the **ISO** button while latched in IC will latch on ISO.

Volume Up/Down

- **Volume Up Adjustment** — Each time you press and release the volume-up ▲ button, you will hear a higher pitch beep in the earpiece as the volume increases one step. If you press and hold the volume-up button, you will hear beeps of ascending pitch as the volume steps up to maximum. When maximum volume is reached, you will hear “maximum” repeating until you release the volume-up button.
- **Volume Down Adjustment** — Each time you press and release the volume-down ▼ button, you will hear a lower pitch beep in the earpiece as the volume decreases one step. If you press and hold the volume-down button, you will hear beeps of descending pitch as the volume steps down to minimum. When minimum volume is reached, you will hear rapidly repeating beeps until you release the volume-down button.

Microphone Gain Adjustment

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

To increase microphone gain — Press the volume-up ▲ button while holding down the **ISO** button in the normal operating mode. The microphone gain increase can be monitored through sidetone, or preferably by someone else or at the Base Station.

To Decrease microphone gain — Press the volume-down ▼ button while holding down the **ISO** button in the normal operating mode. The microphone gain decrease can be monitored through sidetone, or preferably by someone else or at the Base Station.

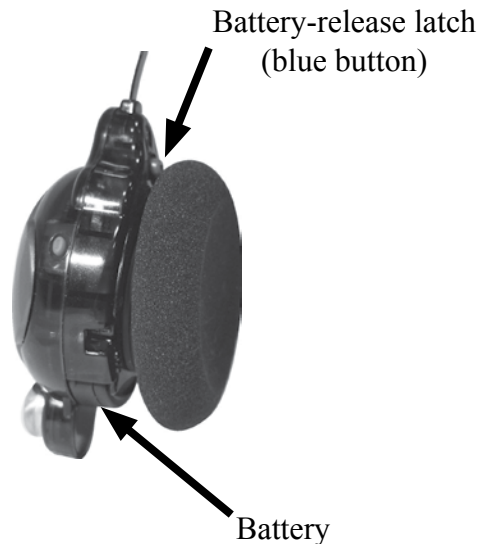
NOTE: You will hear “Maximum” if you attempt to go higher than maximum microphone gain. You will hear two beeps if you attempt to go lower than minimum microphone gain. Microphone gain will be saved in non-volatile memory and does not require readjustment each time the power is turned on.

Change Batteries

When a battery becomes weak, a voice in the Headset will say “Change battery”. When this happens, remove the battery from the headset by carefully sliding the battery-release latch and lifting the battery out.

When replacing a battery in the Headset, place the end of the battery with the metal contacts into the battery holder on the Headset, in the same position as the battery you removed. Press the top of the battery carefully into the battery holder until it snaps in place under the battery-release latch.

Recharge batteries according to the instructions on [page 8](#).



SECTION 4. EU BASE STATION ADAPTIVE FREQUENCY HOPPING

Hereby, HM Electronics, Inc., declares that DX121 is in compliance with the essential requirements and other relevant provisions of the Radio Equipment Directive (RED). In AFH mode, DX121 complies with European Telecommunications Standards Institute (ETSI) harmonized European standard EN 300 328. Customers, Distributors or Installers operating in a CE regulated country that switch off or disable AFH will render the product non-compliant with the directive and will be considered the manufacturer of the product.

CE Base Station Adaptive Frequency Hopping

Background

The DX121 wireless system utilizes 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. The European Union has updated the 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 300 328.

CLEAR-COM Adaptive Frequency Hopping

In order to reduce interference with other equipment and comply with ETSI 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.

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. 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.

EU Bases are shipped in the AFH (E-mode)

Do not tamper with the AFH mode if you are operating in a region that requires compliance with ETSI EN300 328. Changes and modifications not expressly approved by Clear-Com, LLC an HM Electronics, Inc. company could void the user's authority to operate this equipment.

Required AFH Equipment

AFH capable headsets and belt packs will have the letters 'AFH' labeled on the belt pack and headsets.

Non-AFH Equipment

Headsets and belt packs that are not AFH capable must be operated with either a non-AFH base station. Headsets and belt packs that are not AFH capable will not have the letters 'AFH'.

Model #	EU Version Part #	Non-EU Version Part #	Comments
BP200	G29663-2B10	G26705-XXX	All BP200 Beltpacks with G26705-XXX part #'s are non AFH compatible.
BP210	G29663-4B30	G28703-XXX	All BP210 Beltpacks with G28703-XXX part #'s are non AFH compatible.
WH210		G28741-XXX	All WH210's are non AFH and will not work with Base in AFH mode.
WH200		G27593-XXX	All WH200's are non AFH and will not work with Base in AFH mode.
WH220	G29090-8D13		ALL WH220's are AFH compatible.
Part number is located on label under the battery on beltpacks and wireless headsets			

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 DX121 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.
- **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 DX121 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.

SECTION 5. TROUBLESHOOTING

If you are unable to correct any of the problems described below, contact your dealer for assistance.

PROBLEM	SOLUTION
Power light on Base Station does not come on.	Be certain power cords are properly connected to Base Station, power supply and electrical outlet.
Belpac or headset power lights do not turn green, and “out of range” is heard.	Be certain your Base Station power is on. Turn Belpac or headset 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, it keeps saying registration failed.	Check to be sure that the STATUS window only goes blank, and does not show a registration number. Follow the instructions on clearing the registrations as found on page 13 or 15 , and repeat the registration procedure.
Others cannot hear me when I talk.	If you are using a Belpac or local headset, be certain the headset connector is correctly plugged in to the Belpac or Base Station.
People on the 4-Wire intercom cannot hear me or I cannot hear them.	Be certain the cables are securely connected and the 4-Wire intercom is on.
People on the RTS/ClearCom systems cannot hear me or I cannot hear them.	Be certain the cables are securely connected and the 2-wire intercom is on.

2400MHz cordless telephone interference — If there is a 2400MHz cordless telephone nearby, interference may occur. However, because the DX121 is a frequency-hopping system, this problem is unlikely. If it does occur, changing frequencies on the telephone may alleviate the problem. If not, move the phone as far as practical from the Base Station, or use another type phone.

In the event of an electrical power outage — such as from a lightning storm or power generator failure, if you experience problems with your HME equipment after the electricity comes on again, unplug the AC power supplies from their electrical outlets and wait 15 seconds, then plug them back in.

SECTION 6. DX SERIES LED AID



Powering on any DX base station will produce on the LED display the number “8” for approximately 3 seconds.



Blank display indicates the base is ready for operation.

You can register belt packs under this condition.



Single horizontal bar indicates the base is in secondary mode and registering to a base has been initiated and successfully linked with a primary base. **You can register belt packs in this mode.**



Two horizontal bars indicate that the base is in secondary mode and ready to be synced with a primary base. **You cannot register belt packs in this mode you must sync to a primary base first.**



Three horizontal bars indicate the base is in secondary mode and has been linked with a primary base but the primary base is **no longer** available to the secondary. It takes a few seconds for the secondary to recognize that the primary is not available and revert to a primary state. **However, you can register belt packs under this condition.**

Syncing Secondary to Primary Bases Feature

To sync the bases, perform the following steps:

- Press the **REG** or **REGISTER BELT-PAC*** button on the primary base and then press the **REG** or **REGISTER BELT-PAC*** button on the secondary base to begin the sync process.
- As you repeatedly press the **REG** or **REGISTER BELT-PAC*** button on the secondary you will see the numbers 1, 2, and 3 cycle through on the display. The numbers indicate the three available quadrants. **Note: The primary is in the 0 quadrant by default.**
- To select a quadrant, simply release the button at a desired number and wait. If successful, you will briefly see a blank display followed by a single horizontal bar in the secondary LED display. For additional secondary bases, assign each base to its own quadrant. Refer to the appropriate equipment manual for primary to secondary conversion.

After the bases are synced when the secondary is powered up the number “8” will appear followed by one of the numbers below on the secondary base LED display:



The number “1” indicates the quadrant the secondary has been placed in.



The number “2” indicates the quadrant the secondary has been placed in.



The number “3” indicates the quadrant the secondary has been placed in.

NOTE

* Button has the same function but with a different description on the equipment due to vintage.



The lower case “c” will appear when the registry on the base station is cleared. To clear the registry power down the base. Hold down the **CLR/BND** or **RESET REGISTRATION*** button first and then power the base on when you see the “8” on the LED display release the **CLR/BND** or **RESET REGISTRATION***. If done successfully you will see a small "c" on the LED display.

NOTE: The display indicates that the registry of a base station has been cleared of all beltpacs and secondary base stations that were registered to the base station.

Another method to clear the registry would be to start by holding down the **CLR/BND** or **RESET REGISTRATION*** button first and then pressing the **RESET** button until you hear a small click and then release the **CLR/BND** or **RESET REGISTRATION*** button. If done successfully you will see a small "c" on the LED display. We recommend you use a very small paper clip.



The lower case “o” will appear when the **REG** or **REGISTER BELT-PAC*** button is pressed and indicates that the base is ready to register a beltpac.

When registering beltpacs on DX bases that can carry 15 beltpacs please note that the numeric count displayed on the LED will be in hexadecimal. This means that the LED will represent the first 10 beltpacs as 0 to 9. Beltpac 11 will be represented by the letter A, beltpac 12 will be represented by the letter B and on up to beltpac 15 as E. Please see below.

Belpac and Headset	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Registry	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E



The letter “F” will appear when the base registry is at its maximum of 15 registered belt packs. You will need to clear the registry to add a beltpac. To clear the registry power down the base. Hold down the **CLR/BND** or **RESET REGISTRATION*** button first and then power the base on when you see the “8” on the LED display release the **CLR/BND** or **RESET REGISTRATION***. If done successfully you will see a small "c" on the LED display.

NOTE

* Button has the same function but with a different description on the equipment due to vintage.

SECTION 7. TECHNICAL DATA

DX121 Equipment Specifications

BS121 Base Station

GENERAL

Frequency Range	All, 2400 to 2483.5 MHz Low, 2401.92 to 2439.94 MHz High, 2443.39 to 2481.41 MHz
Frequency Response	200 Hz to 3.5 kHz
Power Requirements	100-240VAC, 50-60Hz or 12-14VDC
Temperature Range	32-122°F (0-50°C)
Size	1.62" x 5.50" x 7.88" (4.1 x 14 x 20 cm)
Weight	1.2 lbs. (.59 kg) with battery
# of Beltpacs per Base	4 can be registered Only 1 can have full-duplex communication at a time
4-Wire I/O	600Ωbalanced, level adjustable, simultaneous operation with headset
Headset I/O	200Ω, level adjustable
Front Panel Controls	Power button, REGister Beltpac and CLR/BND buttons, RESET switch, HEADSET IN and OUT level adjustments, 4-Wire IN and OUT level adjustments
Front Panel Indicators	POWER LED, STATUS display, IC and ISO Receive LEDs, Battery Charger RDY and CHG LEDs
Rear Panel Controls	Primary/Secondary switch
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

TRANSMITTER

Type	Frequency hopping, spread spectrum
Transmit Power	100mW burst
Modulation Type	Gaussian filtered FSK, TDMA
Frequency Stability	13 ppm
Harmonics/Spurious	Exceeds FCC and ETSI specifications over temperature

RECEIVER

Type	Frequency hopping, spread spectrum
RF Sensitivity	<-0dBm w 10-3 BER
Frequency Stability	13 ppm
Distortion	<2%

BATTERY CHARGER

Battery charging time	<3 hours
-----------------------	----------

BP200 BELTPAC

Frequency Range	2400 MHz – 2483.5 MHz
Antenna	Internal, horizontal/vertical diversity
Frequency Response	200 Hz to 3.5 kHz
Transmit Power	100mW burst
RF Sensitivity	<-0dBm w 10-3 BER
Battery Requirements	3.6V lithium ion, rechargeable
Battery Life	Hands-free – up to 14 hours, PTT – 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 ▼, IC, ISO
Indicators	Dual-color LED (red/green)

WH220 ALL-IN-ONE HEADSET

Frequency Range	2400 MHz – 2483.5 MHz
Antenna	Internal
Frequency Response	200 Hz to 3.5 kHz
Transmit Power	100mW burst
RF Sensitivity	<-0dBm w 10-3 BER
Battery Requirements	3.6V lithium ion, rechargeable
Battery Life	Hands-free – up to 14 hours, PTT – 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 ▼, IC1, IC2, ISO
Indicators	Transmit LED (red/green), Power LED (red/green)

NOTE: Beltpac or headsets will follow the frequency range determined by the setting on the Base Station (e.g. All, Low or High).

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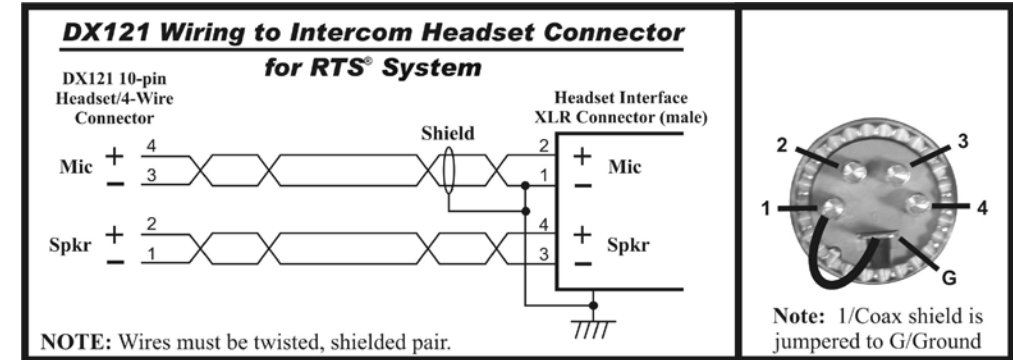
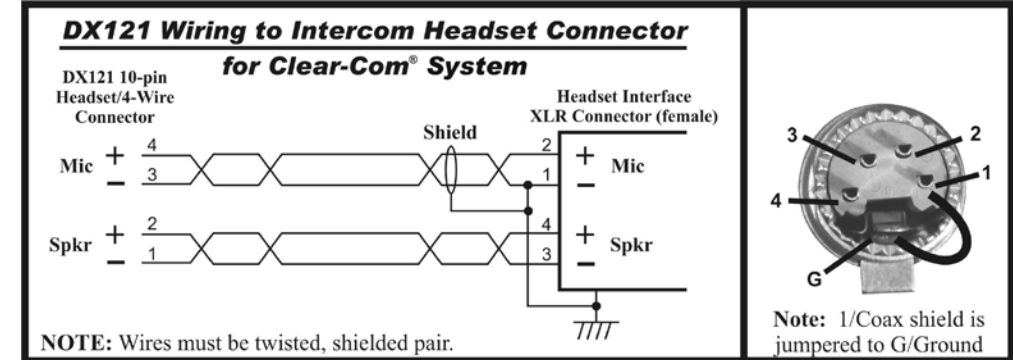
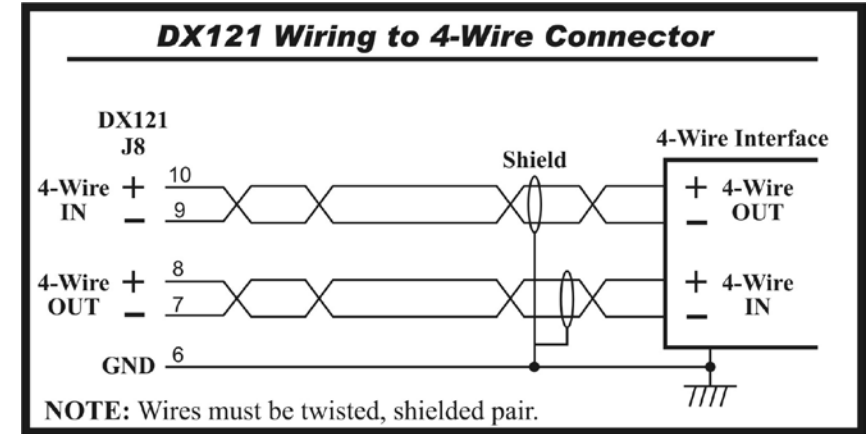
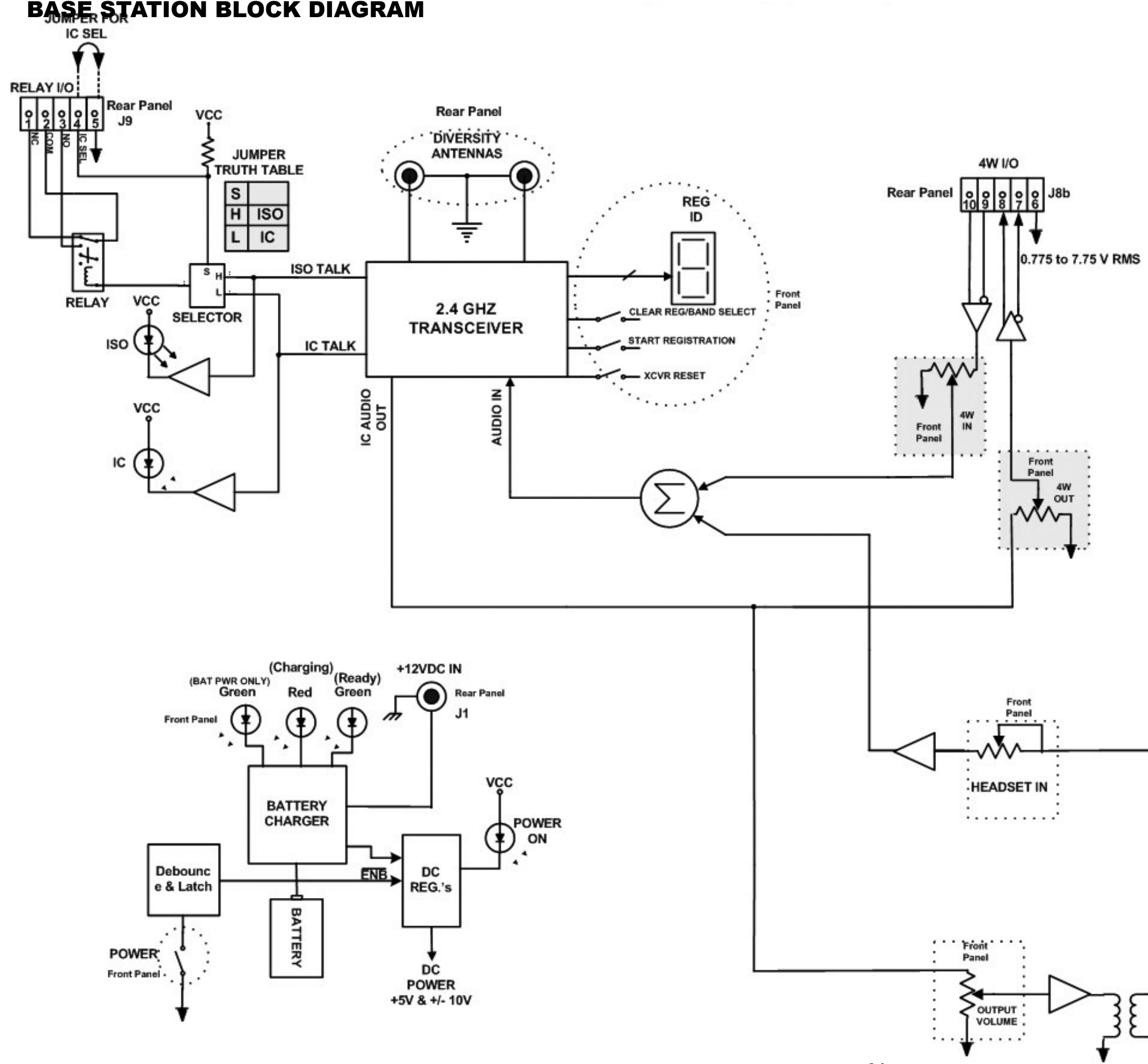
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BASE STATION BLOCK DIAGRAM



GENERAL BATTERY SAFETY INSTRUCTIONS FOR BATTERY MODEL BAT41, BAT50, BAT60

BAT50 is specifically designed only for use with product(s) offered by:

HM Electronics Inc. (HME)

Clear-Com LLC, an HME Company

SAFETY PRECAUTIONS

To ensure the safety and reliability of your Battery, follow the guidelines in this section.

Using the Battery



WARNING!

Do Not Abuse/Modify Battery Packs

Lithium-ion cells and battery packs may get hot, explode or ignite and cause serious injury if modified or abused.

Follow the safety instructions below:

- Do not place the battery in fire or heat the battery.
- Do not connect the battery backward, so the polarity is reversed.
- Do not connect the positive terminal and negative terminal of the battery to each other with any metal object (such as a wire).
- Do not carry or store the battery together with necklaces, hairpins or other metal objects.
- Do not pierce the battery with nails, strike the battery with a hammer, step on the battery or otherwise subject it to strong impacts to shocks.
- Do not solder directly onto the battery.
- Do not expose the battery to water or salt water, or allow the battery to get wet.
- Do not disassemble or modify the battery. The battery contains safety and protection devices which, if damaged, may cause the battery to generate heat, explode or ignite.
- The protection circuit module provided with battery packs is not to be used as a substitute for a shutoff switch.
- Do not place the battery in or near fire, on stoves or in other high temperature locations.
- Do not place the battery in direct sunlight, or use or store the battery in cars in hot weather. Doing so may cause the battery to generate heat, explode or ignite. Using the battery in this manner may also result in a loss of performance or shortened life expectancy.
- When the battery is worn out, insulate the terminals with adhesive tape or a similar non-conducting material before disposal.

- Immediately discontinue use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes color or shape or appears abnormal in any other way.
- Do not place the battery in microwave ovens, high-pressure containers or on induction cookware.



WARNING!

In the event the battery leaks and the fluid gets into one's eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.



WARNING!

If the device causes abnormal current to flow, it may cause the battery to become hot, explode, or ignite causing serious injury.

Charger Types

Your battery must only be charged with a HME/Clear-Com recommended charger. Any attempt to use other types of chargers may cause an explosive reaction, fire or chemical burns. Do not assume that the physical form of another battery qualifies the charger for use with the HME/Clear-Com 104G041LF battery.

Charging the Battery

Be sure to follow the warnings listed below while charging the battery. Failure to do so may cause the battery to become hot, explode or ignite and cause serious injury.

- Do not continue charging the battery if it does not recharge as specified HME/Clear-Com User Guide, under charging instructions.
- Do not attach the battery to an external charger, power supply plug or directly to a car's cigarette lighter.

Recycling the Battery

If your business or household does not have a battery recycling program, go to the following URL or copy and paste the following URL into your browser, then enter your zip code for a list of recycling centers:

<http://earth911.com>

Directives de sécurité générales pour les modèles de batterie suivants : BAT41, BAT50, BAT60

Les batteries BATXX sont spécialement conçues de manière à ne pouvoir être utilisées qu'avec les produits offerts par

HM Electronics Inc. (HME), Clear-Com LLC, une société HME

PRÉCAUTIONS

En vue d'assurer la sûreté et la fiabilité de votre batterie, respectez les directives indiquées dans cette section.

Utilisation de la batterie



ATTENTION !

Ne pas faire un usage abusif des blocs-piles ni les modifier

Les cellules de lithium-ion et les blocs-piles peuvent devenir chauds, exploser ou prendre feu et ainsi causer des blessures graves si on en fait un usage abusif ou qu'on les modifie.

Respectez les directives de sécurité ci-dessous :

- Ne pas placer la batterie dans le feu ni la faire chauffer.
- Ne pas brancher la batterie à l'envers de manière à ce que la polarité soit inversée.
- Ne pas connecter la borne positive et la borne négative de la batterie l'une à l'autre avec un objet de métal (comme du fil de fer).
- Ne pas transporter ni entreposer la batterie avec des colliers, des épingles à cheveux et d'autres objets de métal.
- Ne pas percer la batterie avec des clous, la frapper avec un marteau, marcher dessus et la soumettre de quelque autre manière que ce soit à des impacts puissants.
- Ne pas faire de soudure directement sur la batterie.
- Ne pas exposer la batterie à l'eau ou à l'eau salée ni à une grande humidité, et ne pas la laisser être mouillée.
- Ne pas démonter ni modifier la batterie. La batterie contient des dispositifs de sécurité et de protection qui, en cas de dommages, pourraient l'amener à chauffer, à exploser ou à prendre feu.
- Ne pas utiliser le module de circuit de protection offert avec les blocs-piles en remplacement d'un contacteur d'isolement.
- Ne pas mettre la batterie dans ou à proximité du feu, sur des cuisinières ou dans d'autres endroits à température élevée.
- Ne pas placer la batterie directement au soleil ni l'utiliser ou l'entreposer dans des voitures par temps chaud. Ceci pourrait l'amener à chauffer, à exploser ou à prendre feu. D'utiliser la batterie de cette manière peut également la rendre moins performante et diminuer son espérance de vie.
- Quand la batterie est usée, isoler les bornes à l'aide de ruban adhésif ou d'un matériau non conducteur semblable avant de la jeter.
- Cesser immédiatement l'utilisation de la batterie si, en cours d'utilisation ou de chargement ou lorsqu'elle est entreposée, elle émet une odeur inhabituelle, dégage de la chaleur, change de couleur ou de forme ou semble anormale de quelque autre manière que ce soit.

- Ne pas mettre la batterie dans des fours à micro-ondes, des contenants à haute pression ou des ustensiles de cuisine à induction.
- Garder les batteries hors de la portée des enfants.
- Toujours débrancher la batterie avant de l'entreposer ou de la transporter.
- Toujours entreposer la batterie dans un contenant étanche à l'épreuve des flammes loin de toute matière inflammable ou corrosive.



ATTENTION !

Si la batterie fuit et que le fluide entre en contact avec l'œil de quelqu'un, ne pas frotter l'œil. Bien rincer à l'eau et tout de suite demander des soins médicaux. Le fluide de la batterie risque de causer des dommages à l'œil si celui-ci n'est pas traité.



ATTENTION !

Si le dispositif cause la circulation d'un courant anormal, il se peut que la batterie chauffe, explose ou prenne feu et cause ainsi des blessures graves.

Types de chargeur

Votre batterie ne devrait être rechargée qu'à l'aide d'un chargeur recommandé par HME/Clear-Com. Toute tentative d'utiliser d'autres types de chargeurs risque d'entraîner une réaction explosive, un feu ou des brûlures chimiques. Ne pas présumer que la forme physique d'une autre batterie fait que le chargeur y correspondant peut être utilisé avec la batterie HME/Clear-Com.

Chargement de la batterie

S'assurer de suivre les avertissements indiqués ci-dessous au moment de charger la batterie. La batterie pourrait sinon chauffer, exploser ou prendre feu et ainsi causer des blessures graves.

- Ne pas continuer à charger la batterie si elle ne se recharge pas de la manière indiquée dans le guide de l'utilisateur HME/Clear-Com, dans la section des directives de chargement.
- Ne pas brancher la batterie à un chargeur externe, à une prise d'alimentation ou directement dans l'allume-cigare d'une voiture.
- Toujours procéder à l'inspection visuelle de la batterie avant ou après son chargement.
- Toujours laisser la batterie refroidir à une température ambiante sécuritaire avant de la charger au terme de son cycle de décharge précédent.
- Ne pas recharger la batterie sur ou à proximité de matériaux inflammables; ceci fera en sorte qu'en cas de mauvais fonctionnement, elle puisse être contenue en causant le moins de dommages et de blessures possible.

Recyclage de la batterie

Quand la batterie atteint la fin de sa vie utile, il devrait revenir à une entreprise de recyclage qualifiée ou à une entreprise de gestion des matériaux dangereux de s'en débarrasser. Ne pas mélanger cette batterie au courant de déchets solides.

Si votre entreprise ou votre foyer ne participe à aucun programme de recyclage des batteries, cliquez sur l'adresse URL suivante ou collez-la dans votre navigateur, puis entrez votre code postal en vue d'obtenir une liste de centres de recyclage : <http://earth911.com>

Instrucciones generales de seguridad para baterías para cada modelo de batería: BAT41, BAT50, BAT60

Las baterías BATXX están diseñadas específicamente para usarse solo con el(los) producto(s) que ofrezca:

HM Electronics Inc. (HME)

Clear-Com LLC, una compañía de HME

PRECAUCIONES DE SEGURIDAD

Para garantizar la seguridad y la fiabilidad de su batería, siga las directrices en esta sección.

Al usar la batería



¡ADVERTENCIA!

No dañe ni modifique los empaques de las baterías

Si las celdas de iones de litio y los empaques de las baterías se modifican o dañan, pueden recalentarse, explotar o incendiarse y causar heridas graves.

Siga las instrucciones de seguridad que se indican a continuación:

- No exponga la batería al fuego ni la caliente.
- No conecte la batería al revés, de modo que la polaridad estuviera invertida.
- No conecte la terminal positiva con la negativa usando objetos metálicos (como un alambre).
- No almacene ni lleve las baterías junto con collares, horquillas u otros objetos metálicos.
- No perforo con clavos, golpee con martillo ni pise la batería, ni la someta de manera alguna a golpes fuertes.
- No suelde directamente sobre la batería.
- No exponga la batería al agua, sea dulce o salada, ni a la humedad alta, ni permita que se humedezca o se moje la batería.
- No desarme ni modifique la batería. La batería contiene dispositivos de seguridad y de protección que, si se dañan, pueden causar que la batería genere calor, explote o se incendie.
- El módulo de circuito de protección incluido en los empaques de las baterías no debe usarse como sustituto de un interruptor de apagado.
- No exponga la batería al fuego ni cerca de este, en estufas ni en lugares de altas temperaturas.
- No exponga la batería bajo la luz solar directa ni use o almacene la batería en un carro en climas calientes. Hacer lo anterior, podría generar que la batería genere calor, explote o se incendie. Asimismo, usar la batería de esta manera podría resultar en una pérdida de rendimiento o disminución de la expectativa de vida útil del equipo.
- Cuando la batería se desgaste, aisle las terminales con cinta adhesiva u otro material similar que no sea conductor, antes de deshacerse de ella.
- Deje de utilizar inmediatamente la batería si, mientras la usa, carga o almacena, esta emite un olor inusual, se siente caliente, cambia de color o forma o parece anormal de cualquier otra manera.

- No coloque la batería en hornos microondas, contenedores de alta presión ni en materiales de cocina inducida.
- Mantenga las baterías fuera del alcance de los niños.
- Desconecte siempre la batería antes de almacenarla o transportarla.
- Almacénela siempre en contenedores estrictamente resistentes al fuego lejos de materiales inflamables o corrosivos.



¡ADVERTENCIA!

En caso de que la batería gotee y le entre el fluido en los ojos, no se los restriegue. Enjuague bien con agua y busque asistencia médica inmediatamente. Si no recibe tratamiento, el fluido de la batería podría causarle daño en sus ojos.



¡ADVERTENCIA!

Si el dispositivo causa que fluya corriente anormal, puede causar que la batería se caliente, explote o se incendie y cause heridas graves.

Tipos de cargador

Su batería debe cargarla únicamente con un cargador recomendado por HME/Clear-Com. Si intenta usar otro tipo de cargador, puede causar una reacción explosiva, incendio o quemaduras con sustancias químicas. No asuma que la forma física de otra batería permita que el cargador de esta puede usarse con la batería de HME/Clear-Com.

Cargar la batería

Asegúrese de seguir las advertencias que se describen más abajo mientras carga su batería. Si no lo hace, puede causar que la batería se caliente, explote o se incendie y cause heridas graves.

- No siga cargando la batería, si no se recarga como se especifica en la guía para el usuario de HME/Clear-Com, según las instrucciones de carga.
- No conecte la batería a un cargador externo, conector de energía ni directamente al encendedor de cigarrillos de un carro.
- Inspeccione siempre visualmente su batería antes y después de cargarla.
- Deje siempre que su batería se enfríe hasta que esté en su temperatura ambiental segura antes de cargar, después de su ciclo anterior de descarga.
- No cargue las baterías sobre ningún tipo de material inflamable. Esto asegurará que, si hay una falla de funcionamiento, se pueda contener con la menor cantidad posible de daños y heridas.

Reciclar la batería

Cuando la batería llegue al fin de su vida útil, un reciclador calificado o una persona encargada de manipular materiales peligrosos deberían encargarse de desecharla. No mezcle esta batería con el flujo de residuos sólidos.

Si su negocio u hogar no tiene un programa de reciclaje de baterías, vaya a la siguiente dirección URL o pegue la siguiente dirección en su navegador y, luego, introduzca su código postal para obtener una lista de los centros de reciclaje:

<http://earth911.com>

배터리 모델의 일반적인 배터리 안전 지침: BAT41, BAT50, BAT60

BATXX 배터리는 다음 회사에서 제공하는 제품과 함께 사용하도록 특별히 설계되었습니다:

HM Electronics Inc. (HME), Clear-Com LLC, HME Company

안전 주의사항

배터리의 안전과 신뢰성을 보장하려면 이 섹션의 지침을 따르십시오.

배터리 사용



경고!

배터리 팩을 개조하거나 과도하게 사용하지 마십시오.

리튬 이온 셀 및 배터리 팩을 개조하거나 과도하게 사용하면 뜨거워지거나 폭발하거나 발화되어 심각한 부상을 입을 수 있습니다.

아래의 안전 지침을 따르십시오:

- 배터리를 불 속에 넣거나 가열하지 마십시오.
- 배터리를 기구로 연결하지 마십시오. 그러면 극성이 바뀌게 됩니다.
- 배터리의 양극 단자와 음극 단자를 금속 물체(전선 등)로 서로 연결하지 마십시오.
- 배터리를 목걸이, 머리핀 또는 기타 금속 물체와 함께 휴대하거나 보관하지 마십시오.
- 배터리를 손톱으로 흡집을 내거나, 망치로 두드리거나, 밟거나 강한 충격을 가하지 마십시오.
- 배터리에 직접 납땜하지 마십시오.
- 배터리를 물이나 바닷물 또는 높은 습도에 노출시키거나 젖지 않도록 하십시오.
- 배터리를 분해하거나 개조하지 마십시오. 배터리에는 안전 장치와 보호 장치가 포함되어 있고, 손상된 경우 배터리가 뜨거워지거나 폭발하거나 발화할 수 있습니다.
- 배터리 팩과 함께 제공되는 보호 회로 모듈은 차단 스위치의 대체품으로 사용되어서는 안 됩니다.
- 배터리를 화기 근처나 난로 위 또는 기타 고온이 발생하는 장소에 두지 마십시오.
- 배터리를 직사광선이 비치는 곳에 두거나 더운 날씨에 자동차 안에서 사용하거나 보관하지 마십시오. 그러면 배터리가 뜨거워지거나 폭발하거나 발화할 수 있습니다. 그러한 방식으로 배터리를 사용하면 성능이 저하되거나 예상 수명이 단축될 수 있습니다.
- 배터리를 다 쓴 후에 폐기하기 전에 단자를 접착 테이프 또는 이와 유사한 비전도성 재료로 절연 처리하십시오.
- 배터리를 사용, 충전하거나 보관하고 있는 동안, 배터리에서 이상한 냄새가 나거나 뜨거워지거나 색이나 모양이 변하거나 기타 비정상적인 상태를 보이면 즉시 사용을 중단하십시오.
- 전자레인지, 고압 용기 또는 인덕션 조리기구에 배터리를 넣지 마십시오.
- 배터리를 어린이의 손이 닿지 않는 곳에 두십시오.
- 배터리를 보관하거나 운반하기 전에 항상 분리하십시오.
- 항상 가연성 또는 부식성 물질이 없는 밀폐된 방염 용기 안에 배터리를 보관하십시오.



경고!

배터리가 새어나와 액체가 눈에 들어가면 눈을 문지르지 마십시오.물로 잘 씻은 다음 즉시 병원으로 가십시오. 치료하지 않고 그대로 두면 배터리 액체로 인해 눈이 손상될 수 있습니다.



경고!

기기에 비정상적인 전류가 흐를 경우, 배터리가 뜨거워지거나 폭발하거나 발화되어 심각한 부상을 입을 수 있습니다.

충전기 유형

이 배터리는 HME/Clear-Com 권장 충전기로만 충전해야 합니다. 다른 유형의 충전기를 사용할 경우 폭발 위험이 있으며 화재나 화상을 입을 수 있습니다. HME/Clear-Com 배터리용 충전기를 다른 형태의 배터리에도 사용할 수 있다고 가정하지 마십시오.

배터리 충전

배터리를 충전하는 동안 아래 명시된 경고를 따르십시오. 그렇지 않으면 배터리가 뜨거워지거나 폭발하거나 발화되어 심각한 부상을 입을 수 있습니다.

- HME/Clear-Com 사용 설명서의 충전 지침에 나오는 대로 충전되지 않으면 배터리를 계속 충전하지 마십시오.
- 배터리를 외부 충전기, 전원 플러그 또는 자동차의 시가 라이터에 직접 연결하지 마십시오.
- 충전하기 전과 충전한 후에 항상 배터리를 육안으로 점검하십시오.
- 방전 사이클을 거친 후 배터리를 충전하기 전에 항상 안전한 주변 온도에 맞게 식히십시오.
- 가연성 물질이 있는 곳이나 근처에서 배터리를 충전하지 마십시오. 그러면 오작동이 발생할 경우 손상이나 부상 가능성을 최소화할 수 있습니다.

배터리 재활용

배터리의 수명이 다하면 유자격 재활용 업체나 위험 물질 취급업체를 통해 다 쓴 배터리를 폐기 처리해야 합니다. 이 배터리가 일반 쓰레기와 함께 섞이지 않도록 하십시오.

회사나 주거지에 배터리 재활용 프로그램이 없는 경우, 다음 URL로 이동하거나 브라우저에 URL을 복사하여 붙여넣고, 재활용 센터 목록의 우편번호를 입력하십시오: <http://earth911.com>