DX200

Wireless Intercom

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.

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Hereby, HM Electronics, Inc. declares that the DX200 is in compliance with the essential requirements and other relevant provisions of R&TTE Directive 1999/5/EC.

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 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.

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Singapore: Complies with iDA Standards DA10582

Taiwan: 注意！

依據低功率電波輻射性電機管理辦法第十二條經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

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### Table of Toxic and Hazardous Substances

<table>
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<tr>
<th>Names of Parts</th>
<th>Toxic and Hazardous Substances or Elements</th>
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<td>铅 Pb</td>
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<td>网络器 (453G008)</td>
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**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。

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<td>电池 Battery (104034)</td>
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The DX200 provides private, secure communication. Each base station can register up to fifteen BP200 Beltpac and/or WH220 All-in-one Wireless Headsets. Any combination of Beltpac and/or WH220 Headsets can be registered. Four of the fifteen can transmit simultaneously. However, by connecting two or more base stations together, these numbers can be increased. For example, two base stations can support thirty Beltpac/Headsets, of which eight can transmit simultaneously. Beltpac or Headsets may be used either in the push-to-talk or hands-free mode. The base station operator can stop all Beltpac/Headsets from transmitting.

The DX200 can be used with RTS® and Clear-Com® cabled intercom systems. On the intercom channel, 2-wire and 4-wire cabled intercoms may be operated simultaneously. Also, using the AUX In and AUX Out connections, a second 4-wire intercom channel may be used.

A local headset can be used with the DX200. Using a local headset, the base station operator can talk to crew members on the cabled intercom channel, Beltpac/Headsets only, or all channels.

The BS200 Base Station can be operated using standard DC electricity or a vehicle electrical system for mobile operation. A power supply and cable are included with the base station.

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**System Usage Example**

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**SECTION 1. INTRODUCTION**
EQUIPMENT IDENTIFICATION

The following equipment is standard with the DX200 Wireless Intercom System. As you unpack the equipment, check the enclosed shipping document to be sure you received all items listed.

### Base Station Antennas
- (2 per Base Station)

### Base Station Antennas
- (2 per Base Station)

### AC40A Battery Charger
- (1 per AC40A Battery Charger, with Power Cord)

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

### OPTIONAL EQUIPMENT

#### HS-3
- Earpiece & Lapel Microphone
- Disposable Earpiece Cover for HS15
- Disposable Earpiece Cover for WH220

#### CC-15-MD
- Single-Muff Headset
- Dual-Muff Headset

#### HS16 Light-weight Headset

#### HSI6000 Headset Adapter

#### BAT41 Rechargeable Battery

#### XLR Headset Adapters:
- MD-XLR4M Mini-DIN to 4-Pin Male
- MD-XLR4F Mini-DIN to 4-Pin Female
- MD-XLR5F Mini-DIN to 5-Pin Female
**MAIN EQUIPMENT FEATURES**

**Beltpac Features**

1. Headset cable connector
2. Beltpac 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**

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
Base Station Features

Front Panel

1. **POWER** switch
2. **CLEAR/BAND** button
3. **STATUS** display
4. **UNLATCH** button
5. IC (Intercom) receiver level control and indicator light
6. ISO (Isolate) receiver level control and indicator light
7. 2W and 4W indicator lights
8. SND and RCV (Send and Receive) controls
9. **AUX IN** and **OUT** (Auxiliary In and Out) controls
10. **LOCAL HEADSET VOLUME** control
11. **LOCAL HEADSET ISO** indicator light
12. **LOCAL HEADSET IC** indicator light
13. **LOCAL HEADSET MIC LEVEL** control
14. **LOCAL HEADSET TALK** indicator light
15. **LOCAL HEADSET** cable connector
16. **RESET** button (recessed)
17. **REGISTER** button
18. 2W/4W button
19. 4W ONLY button
20. **AUX IN** button
21. ISO+ button
22. **LOCAL HEADSET IC/ISO SELECT** button
23. **LOCAL HEADSET TALK** button

Rear Panel

24. CLEAR-COM / RTS TW button
25. CH1/CH2 RTS channel select button
26. **TERM OFF/TERM ON** local termination select button
27. 2-WIRE intercom connector (female)
28. **NULL** control
29. 2-WIRE intercom connector (male)
30. 4-WIRE connector
31. 0° **ANTENNA** connector
32. 90° **ANTENNA** connector
33. **AUX IN** connector
34. **AUX OUT** connector
35. 8-OHM **SPKR** 2-pin Phoenix connector
36. 12-14VDC Power connector
37. Chassis ground connector
**AC40A BATTERY CHARGER SETUP**

The AC40A is the charger for Beltpac.

**IMPORTANT!** – Before installing the system, connect the AC power supply to the AC40A Battery Charger and plug it into an electrical outlet. Charge all the batteries for the Beltpac while the other equipment is being installed. Charging time is about 2.5 hours.

**Connect AC Power Supply**

- 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 the 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.
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:

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.

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.
**BASE STATION SETUP**

The following description is for a basic, stand-alone DX200 system setup.

Connections and setup for multiple, daisy-chained base stations are described on pages 8 – 10.

Connections with 2-wire and 4-wire intercoms, and other auxiliary equipment are described in the **INTERCOM AND AUXILIARY EQUIPMENT SETUPS** on pages 16 and 17.

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**Equipment Connections**

![Diagram of Base Station Connections](image)

**Rear Panel**

**Front Panel**

**Step 1.** Connect the two enclosed antennas to the antenna connectors (#31 and #32) on the rear panel of the base station. Position the antenna at the **0° ANTENNA** connector (#31) vertically. Position the antenna at the **90° ANTENNA** connector (#32) horizontally, pointing to the left as indicated on the panel. Turn (clockwise) the sleeve on each of the antenna connectors to tighten them securely in place.

**Step 2.** On the rear panel of the base station, plug the connector at the end of the AC power supply cord into the **12-14VDC** power connector (#36). Turn (clockwise) the nut on the cable connector to secure it to the base station. Plug the large female connector of the AC power cord into the power supply. Plug the other end of the AC power cord into an electrical outlet.

**Step 3.** Plug a headset into the **HEADSET** connector (#15) on the front panel of the base station.

**Step 4.** Press the **POWER** switch (#1) to turn on the base station. The red light on the switch should go on.
**Interference Avoidance**

Headset interference, sometimes heard popping sounds, may occur whenever other equipment such as WI-FI systems, wireless DMX systems or other HME Base Stations use the same frequency band. If these systems can be limited to one portion of the band, then the DX200 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 part of the frequency range on one Base Station (or more), and the lower part of the frequency range on the other(s) as follows:

**Step 1.** Turn on the Base Station power. An “8” will appear on the STATUS display for a few seconds.

**Step 2.** After the “8” disappears and the STATUS display is blank (primary base) or if it displays a double bar (secondary base), press and hold the CLEAR/BAND button. Then, while you are still holding the CLEAR/BAND button, press and hold the REGISTER button and wait for a L, H or A to appear. Release both buttons.

**NOTE:** Base stations are shipped in the A (default) position.

**Step 3.** Press the CLR/BND button to cycle through parts of the frequency band; L = Low end, H = High end and A = All.

**Step 4.** Wait until “c” appears on the display.

**Step 5.** Initialize each Base Station and register all Beltpacs/Headsets to be used with each Base Station as instructed on pages 11 – 14.

**NOTE:** “c” will only appear on the STATUS display if you are setting the frequency band the first time or if you are changing the setting. 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 turn blank.

If you change a base station’s existing frequency band setting, you will have to re-register all beltpacs and/or all-in-one headsets registered to that base station.

**Multiple Base Stations**

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. Two or more base stations can be “daisy-chained” together with 2-wire connector cables (#27 and #29) on the rear panel of each base station (following Clear-Com®/RTS® standards).

**NOTE:** The base station does not provide or require 2-wire line power.

The cable connectors must be 3-pin XLR type with the following pin connections:

<table>
<thead>
<tr>
<th><strong>RTS® Mode</strong></th>
<th><strong>Clear-Com® Mode</strong></th>
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</thead>
<tbody>
<tr>
<td>Pin 1 = Common</td>
<td>Pin 1 = Common</td>
</tr>
<tr>
<td>Pin 2 = Channel 1</td>
<td>Pin 2 = N/C</td>
</tr>
<tr>
<td>Pin 3 = Channel 2</td>
<td>Pin 3 = Audio</td>
</tr>
</tbody>
</table>

If you are “daisy-chaining” multiple base stations:

**Step 1.** Press TERM button in (TERM ON) to terminate the last base station in the daisy chain. Be sure this is done to **only one base station**.

**Step 2.** For each base station, follow all the steps under Equipment Connections on page 7.

**Step 3.** Follow the procedures on pages 9 and 10 to set each base station as primary or secondary, select frequency bands and initialize each base station.
**Primary and Secondary Base Station Settings**

One base station must be designated as “primary” while others are designated as “secondary”. You can have one primary and up to three secondary base stations. Secondary base stations are assigned numbers 1, 2, or 3 during initialization to differentiate them in frequency offset.

- Label the base stations as **Primary, 1, 2 and 3**.
- Start with all base stations and Beltpac/Headsets powered off.

**Configure each secondary base station as follows:**

1. Remove the six screws from the top and three screws from each side of the top cover, and then remove and set aside the cover.
2. Locate the DIP switch on the transceiver circuit board inside the base station. Set DIP switch #4 to the **ON** position. Leave #s 1 and 3 in the **OFF** position.
3. Replace the cover and screws on the base station.
4. The **primary** base station DIP switch #4 should be in the **OFF** position.

**Base Station Initialization**

For multiple HME base stations to operate without interference, they must all be properly initialized before performing other setups. After initializing each base station, register each Beltpacs/Headsets to be used with that base according to the procedures on pages 11 - 14.

**NOTE:** Base stations must be set up for split-band operation prior to initialization. If a different frequency band needs to be selected to avoid interference, the primary base station must be set to this frequency band before base station initialization begins. (See **Interference Avoidance** on page 8.)

**Initialize each base station and register all Beltpacs/Headsets as follows:**

1. Power on the primary base station. Register any Beltpacs/Headsets to be used with the primary base station (See pages 11 - 14). Turn off each Beltpac/Headset after it has been registered.
2. Power on one **secondary** base station. The **STATUS** display will show a double bar, indicating the secondary base is ready to be initialized.
3. Press the **REGISTER** button on the primary base. The **STATUS** display will show a small “o”.

[Diagram of base station cover removal and DIP switch setting]
4. To assign a number and initialize it to a secondary base station, press the REGISTER button on the secondary base. Pressing the button repeatedly cycles through numbers 1, 2, and 3. When the desired number appears, stop pressing and wait. During initialization, the STATUS display will continue showing the secondary number. When initialization is completed, the display will show one bar, indicating that the secondary has initialized to the primary.

5. Press the REGISTER button on the primary. The STATUS display will go blank.

6. Register Beltpacs/Headsets to the secondary (See pages 11 - 14). After registration, turn off the secondary base and all Beltpacs/Headsets.

7. Repeat these steps for each remaining secondary base. Use a different number for each. Only the active primary base and secondary base to be used should be powered on during initialization. All other equipment should be turned off.

8. After all secondary bases are initialized and Beltpacs/Headsets are registered, power up all bases. Press reset on the primary base and let it recover. Turn on the primary Beltpacs/Headsets, and let them link. Press the reset on each secondary base (one at a time), and let it initialize to the primary (indicated by a single bar). Turn on the Beltpacs/Headsets associated with the secondary bases one group at a time until they have all linked. Follow with the next group. At this point, all bases and Beltpacs/Headsets should be powered up, linked and ready for use.

9. Proceed with normal system configuration, setting functions and levels as required.

10. If it becomes necessary to replace a secondary base, use the procedure above to initialize the new secondary. After initialization you will have to register any Beltpacs/Headsets associated with the old secondary to the new secondary.

11. If it becomes necessary to replace 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 CLEAR/BAND button and the RESET button simultaneously. Continue holding the CLEAR/BAND button after releasing the RESET button until the clear code “c” (lower case) appears on the STATUS display. Any Beltpacs/Headsets associated with the old primary will have to be registered to the new primary after secondary base initialization. All Beltpacs/Headsets associated with secondary base stations also have to be registered again.

12. If the primary base is shut down or if the primary base is powered off for more than 30 seconds, all secondary bases will drop their Beltpac/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/Headsets. At this point, the secondary STATUS displays will show three bars. Once 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. This makes it important that all bases be connected to the same AC circuit to prevent this situation in the event that the system is shut down at the end of a day and powered up the next day.

NOTE: You cannot register Beltpacs/Headsets to a base that is set in primary mode, and then switch the base mode to secondary for initialization. Once in secondary mode, the base cannot recognize the Beltpacs/Headsets registered during primary operation. For secondary bases, the Beltpacs/Headsets must always be registered after secondary base initialization, with the primary base remaining active and the secondary base displaying one bar.
BELTPAC / WH220 HEADSET SETUP AND REGISTRATION

The first time you operate the DX200 system, you must register each Beltpac and/or WH220 Headset for use with a specific base station. The base station will then recognize all registered and powered on Beltpacs/Headsets, and it will differentiate between them and other electronic equipment operating on the same frequencies. If a Beltpac/Headset is added, replaced or repaired later, the new one must be registered and the old one remains in memory. A maximum of 15 Beltpacs and/or Headsets can be registered to a single base station at one time. If the maximum number of 15 is exceeded, you must clear all current registrations and re-register all active Beltpacs/Headsets.

NOTE: The following two pages are for Beltpac setup and registration. WH220 Headset setup and registration instructions are on pages 13 and 14.

Set Up Beltpacs

Before registration, set up all Beltpacs as follows.

Step 1. Insert a fully charged battery in the Beltpac with the metal contacts on the end of the battery inserted first. Press it in until it snaps.

Step 2. Place the Beltpac in the pouch.

Step 3. Plug the headset cable connector into the Beltpac.

Register Beltpacs

Beltpacs 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 Beltpac to register is turned off. Beltpacs that are already registered can be turned on or off.

NOTE: If you are setting up multiple, daisy-chained base stations, the following steps must be repeated for Beltpacs registration to each base station.

Step 1. Put the headset, of the Beltpac being registered, on your head.

Step 2. Press the REGISTER button on the front panel of the base station (#17 on base station front panel illustration).

- The STATUS display (#3 on base station front panel illustration) will show a small “o” for open.

NOTE: If you wait too long before going on to Step 3, the base station will go out of the registration mode and you will have to repeat Step 2.

Step 3. Press and hold the ISO button on the Beltpac while you press and release the PWR (power) button to turn the unit on, then release the ISO button. This will cause the Beltpac to enter the registration mode.

- The two power lights at the corners of the Beltpac near the IC and ISO buttons will begin blinking red, then they will blink green two or three times and turn off.

- Wait! There may be a short delay.

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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 thru 9, A, b, C, d and E.
- The power light on the Beltpac, next to the IC button, will remain on steady green.
- **Repeat Steps 1 to 3 on page 11 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 goes blank.
- Press **RESET (#16)** 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 (#3) goes blank, press the **REGISTER** button (#17) and register the Beltpac again. If registration fails again, call your dealer for assistance.

If you try to register more than 15 Beltpacs and/or Headsets to a base station:

- An F (for registration “Full”) will appear on the STATUS display (#3) on the base station, and you will hear “Registration failed” in the Headset.
- Clear all current registrations by pressing the **CLEAR/BAND** button (#2) and **RESET** (#16) 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 **CLEAR/BAND** 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. Previously registered Headsets must also be re-registered.
Set Up WH220 Headsets

Before registration, insert a fully charged battery in each Headset with the metal contacts on the end of the battery inserted first. Press it in until it snaps.

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 go 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 turn off.

Register WH220 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 to be registered is turned off before you begin. Headsets that are already registered can be on or off.

**NOTE:** If you are setting up multiple, daisy-chained base stations, the following steps must be repeated for Headsets being registered to each base station.

**Step 1.** Place the Headset on your head.

**Step 2.** Press the **REGISTER** button on the front panel of the base station (#17 on base station front panel illustration).

**Step 3.** The **STATUS** display (#3 on base station front panel illustration) will show a small “o” for open.

  **NOTE:** If you wait too long before going on to Step 3, the base station will go out of the registration mode and you will have to repeat Step 2.

**Step 4.** 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 the registration mode.
The Headset power light will begin blinking red, then will blink green two or three times and go off.

*Wait!* 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 thru 9, A, b, C, d and E.
- The power light on the Headset will remain on steady green.
- Repeat Steps 1 to 3 above 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 (#3) goes blank.
- Press **RESET** (#16) 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 (#3) becomes blank, press the **REGISTER** button (#17) and register the Headset again. If registration fails again, call your dealer for assistance.

**If you try to register more than 15 Headsets and/or Beltpacs to a base station:**
- An **F** (for registration “Full”) will appear on the **STATUS** display (#3) on the base station and you will hear “Registration failed” in the Headset.
- Clear all current registrations by pressing the **CLEAR/BAND** button (#2) and **RESET** (#16) 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 **CLEAR/BAND** button after you release **RESET**, until the clear code “c” (lower case) appears on the **STATUS** display.

- Register all active Headsets, one at a time. Previously registered Beltpacs must also be re-registered.
NOTICE

You have completed the stand-alone system setup.

The instructions under INTERCOM AND AUXILIARY EQUIPMENT SETUPS on the following pages are for setting up additional equipment which you may want to use with your DX200, such as a 2-wire intercom, 4-wire intercom, an external speaker or other auxiliary audio equipment. Instructions are also provided for daisy-chaining two or more base stations together.
INTERCOM AND AUXILIARY EQUIPMENT SETUPS

2-Wire Intercom

Step 1. If using a 2-wire intercom, plug it into the base station at #27 or #29 (depending on whether a male or female connection is required).

Step 2. Depending on whether you are using a Clear-Com® or RTS® compatible 2-wire intercom system, position the **CLEAR-COM / RTS TW** button (#24) as follows:

- **In position = RTS® Mode**
- **Out position = Clear-Com® Mode**

Step 3. If you selected RTS TW, position the **RTS CHANNEL select** button (#25) to the desired channel as follows:

- **Out position = Channel 1**
- **In position = Channel 2**

Step 4. Press the **2W/4W** button (#18) on the front panel of the base station. The **2W** and **4W** lights (#7 & #8) above the button should go on. Turn the Beltpac/Headset power on. Press the **IC** button on the Beltpac/Headset and speak into the microphone. If you hear a delayed echo of your voice, adjust the **NULL** control (#28) while you are speaking until the echo is eliminated.

4-Wire Intercom

Step 1. If using only a 4-wire intercom, plug it into the **4-WIRE** connector (#30).

Step 2. Press the **4W ONLY** button (#19). The **4W** light (#7) above the button should turn on.

Step 3. Adjust the **NULL** control (#28) while you are speaking until the echo is eliminated.

Step 4. Adjust the 4-wire intercom send and receive levels with the **SND** and **RCV** controls (#8).

Pin designations for the RJ45 **4-WIRE** connector are as follows:

- Pins 1, 2, 7 & 8 = N/C
- Pin 3 = Intercom Out +
- Pin 4 = Intercom In +
- Pin 5 = Intercom In –
- Pin 6 = Intercom Out –

**NOTE:** If no 2-wire intercom will be used, you must press the **4W ONLY** button (#19) or a squeal will be heard in the headsets.
The numbers (# _) below refer to items on the illustrations on page 16.

### Auxiliary Equipment

**Step 1.** If using auxiliary equipment, such as another intercom, CD player or other audio source, connect its output cable connector (male) to the **AUX IN** connector (#33), and connect its input cable connector (female) to the **AUX OUT** connector (#34) (if applicable).

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

**Step 2.** If the auxiliary equipment provides audio input only, press the **AUX IN** button (#20). The light above the button (#9) should turn on. Listen to the audio input in your headset as you adjust the **IN** control (#9) above the light to the desired level.

**Step 3.** If the auxiliary equipment requires two-way communication, have someone listening at the auxiliary unit. Press the **ISO+** button (#21) on the front panel of the base station. The light above the button should turn on. While speaking into your headset microphone, adjust the **OUT** control (#9) above the light to the desired listening level at the auxiliary unit. Listen to the audio input in your headset as you adjust the **IN** control (#9) above the light to the desired level.

**Step 4. ISO+ Only Setting -** If you require **ISO** audio output to the **AUX OUT** connector (#34), but do not want it broadcasted to other beltpacks or headsets, configure your equipment as follows:

- Turn the base station off.
- Remove the six screws from the top and three screws from each side of the base station top cover, and lift the cover off and set it aside.
- Locate the DIP switch on the transceiver circuit board inside the base station. Set DIP switch #3 to the **ON** position. Leave #s 1 and 4 in the **OFF** position in secondary base station mode.
- Replace the cover and screws on the base station.
- Turn the base station on.

### 8-Ohm Speaker

**Step 1.** If an external 8 ohm speaker will be used, connect its cable wires to the **8 OHM SPKR** 2-pin Phoenix connector (#35).

**Step 2.** Adjust the speaker volume with the **LOCAL HEADSET VOLUME** control knob (#10).

**NOTE:** Either a local headset or an external speaker can be used, but not both. The **LOCAL HEADSET VOLUME** control knob is the adjustment for both.
SECTION 3. EQUIPMENT OPERATION

BASE STATION OPERATION

Front Panel Controls, Indicators and Connector

1. **POWER Switch**
   Press the upper portion of the switch to turn the power on (the switch illuminates). Press the opposite portion to turn the power off. The light will go off. All settings will be restored when the power is again turned on.

2. **Beltpac or Headset Registration Controls and Status Indicator**
   Use these controls to register each Beltpac and/or Headset used with a specific base station, as described on pages 11 - 14.

3. **UNLATCH Button**
   Use this button to unlatch all Beltpac/Headset transmitters. (Beltpac/Headset users can “latch” their units on, to talk and listen to each other in the Hands-free mode. Base station operators can use the UNLATCH button to stop Beltpac/Headset conversations.)

4. **IC (Intercom) and ISO (Isolate) Receiver Indicators and Controls**
   Lights indicate whether Beltpac/Headset reception is IC or ISO. Use IC and ISO controls to independently adjust IC and ISO receive levels.
   **NOTE:** This adjustment does not affect communication between Beltpacs and Headsets.

5. **Local Headset Connector, Indicators and Controls**
   - Adjust the microphone level control (above the TALK button) to mid-point. The level can be adjusted during use as needed.
   - Adjust the receive level by turning on a Beltpac/Headset, speaking into the microphone and listening through the local headset earpiece while adjusting the VOLUME control on the base station to the desired level.
   - With either the 2W/4W or 4W ONLY button engaged, use the SELECT button to select communication via IC or ISO+ connectors. Above the SELECT button, the indicator light will be lit for the selection you have made. IC will allow you to communicate via the intercom channel as well as Beltpacs/Headsets. If ISO is selected and the ISO+ button has been pressed (See #7 in the illustration above), you will communicate via the AUX OUT connection as well as to Beltpacs/Headsets.
   **NOTE:** If neither 2W nor 4W is on, this will have no effect. It will stay on ISO.
   - 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 TALK control knob to adjust the outbound audio level from the local headset microphone.
   - Use the VOLUME control knob to adjust the input to the local headset earpiece.
6. **2Wire/4Wire IC Indicators and Controls**

   The 2W/4W button turns on/off both 2-wire and 4-wire intercoms simultaneously. The 2W light above the button indicates intercom on/off status. The 4W ONLY button turns on/off the 4-wire intercom alone. The 4W light above the button indicates intercom on/off status. Use the SND and RCV controls in the outlined area to adjust the 4-wire intercom send and receive levels.

7. **AUX IN and ISO+ Indicators and Controls**

   The AUX IN button enables audio input from auxiliary equipment connected to AUX IN to Beltpacs/Headsets and local headset. The ISO+ button enables the ISO audio output to auxiliary equipment connected to AUX OUT, from Beltpacs/Headsets and local headset. When the IN light is on, only AUX IN is active. When the OUT light is on, AUX IN and ISO+ are both active. The IN and OUT controls adjust auxiliary inbound and outbound audio levels.

   **NOTE:** If your equipment was set up for “ISO+ only” operation (see page 17, Step 4) when ISO+ is on, outbound audio will only be output to auxiliary equipment connected to AUX OUT. It is not broadcast to other Beltpacs/Headsets. The local headset will always communicate to Beltpacs/Headsets whether in the “ISO+ only” mode or not.
BELTPAC OPERATION

The Beltpac control buttons have a snap action. They will activate when pressed firmly. It’s best to use your fingertips (not 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 turn 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 go 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 (Isolate) and IC (Intercom)**

Use the ISO button to communicate with other Beltpac/Headset users and the base station operator. Pressing ISO on the Beltpac will send audio to AUX OUT if ISO+ button on the base station is on. The ISO feature can be locked out, causing the ISO button to function the same as the IC button.

Use the IC button to communicate via the intercom channel and with the base station operator, or anyone listening to a local speaker connected to the base Station. Pressing IC on the Beltpac will send audio to the hardwired intercom if the intercom is on.

- **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 for more than one second. 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. All Beltpacs/Headsets can be unlatched by the base station operator, by pressing the UNLATCH button on the base station.

**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 headset sidetone (the volume level of your own voice 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 an adjustment each time the Beltpac is turned off and on.

**NOTE:** This adjustment only affects the level of your voice in your own headset, not the manner in which others hear 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.

**To decrease microphone gain** — Press the volume-down ▼ button while holding down the ISO button in the normal operating mode.

**NOTE:** The microphone gain increase can be monitored through sidetone or preferably by someone else on a Beltpac/Headset or at the base station.

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, replace the battery in the same position as the 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 5.
WH220 HEADSET OPERATION

The Headset control buttons will activate when pressed lightly. It’s best to use your fingertips (not 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 go 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 (Isolate) and IC (Intercom)**

Use the ISO button to communicate with other Headset/Beltpac users and the base station operator. Pressing ISO on the Headset will send audio to AUX OUT if ISO+ button on the base station is on. The ISO feature can be locked out, causing the ISO button to function the same as the IC button.

Use the IC1 or IC2 button to communicate with the base station operator or anyone listening to a local speaker connected to the base station. Pressing IC1 or IC2 on the Headset will send audio to the hardwired intercom if the intercom is powered on.
- **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 earpiece. 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” and end the conversation. If either button is held down for more than a half second, the Headset will function as PTT. All Headsets/Beltpacs can be unlatched by the base station operator by pressing the UNLATCH button on the base station.

**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.

**To decrease microphone gain** — Press the volume-down ▼ button while holding down the ISO button in the normal operating mode.

**NOTE:** The microphone gain increase can be monitored through sidetone, or preferably by someone else on a Headset/Beltpac or at the base station.

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 pressing battery-release button (blue) and sliding the battery out.

When replacing a battery in the Headset, replace the battery 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.

Recharge batteries according to the instructions on page 5.
SECTION 4. TROUBLESHOOTING

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

- **Red light on base station power switch does not come on.**
  Be certain power cords are properly connected to base station, power supply and electrical outlet.

- **Beltpac/Headset power lights do not turn green, and “out of range” is heard.**
  Be certain your base station power is on. Turn Beltpac/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 display only goes blank, and does not show a registration number. Follow the instructions on clearing the registrations as found on page 12 or 14, and repeat the registration procedure.

- **Others cannot hear me when I talk.**
  Be certain you are pressing the IC or ISO button on the Beltpac/Headset, or the TALK button on the base station. Be certain the appropriate IC or ISO setting is selected under LOCAL HEADSET on the base station. If you are using a Beltpac or local headset, be certain the headset connector is correctly plugged in to the Beltpac 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. If using a local headset, be certain the IC setting is selected under LOCAL HEADSET on the base station.

- **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. If using a local headset, be certain the IC setting is selected under LOCAL HEADSET on the base station.

- **The 2-wire intercom is on and there is a loud squeal whenever I try to talk.**
  This can occur if no intercom is connected to one of the 2-wire connectors. This can also occur if two or more base stations are daisy-chained and the TERM ON/OFF button in one of the base stations has not been set properly. Contact your dealer.

- **Settings are not retained when the base station power is turned off and on again.**
  The internal battery may be low. Contact your dealer.

- **Echo cannot be completely nulled when connected to a 2-wire wired intercom.**
  Terminate the base station then lift the termination on the wired intercom and readjust the NULL control.

| 2400MHz cordless telephone interference — If there is a 2400MHz cordless telephone nearby, interference may occur. However, because the DX200 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 returns, unplug the AC power supplies from their electrical outlets and wait 15 seconds, then plug them back in. |
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:

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

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

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

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.

<table>
<thead>
<tr>
<th>Beltpac or Headset</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>
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.

**Spectrum Friendly Feature**

*Spectrum Friendly option:* Hold down the CLR/BND (or RESET REGISTRATION*) button first then press and hold down the REG (or REGISTER BELTPAC*) button till you see the letter “A” or “L” or “H”. Then release both buttons and quickly press the CLR/BND (or RESET REGISTRATION*) to cycle through the “A” or “L” or “H” options. Stop at your selection and wait for the LED display to go blank and a lower case c will appear on the status LED.

After this procedure is performed all bases, beltpacs and communicators will need to be re-registered to the base.

- 2400 to 2483.5 MHz is the operating frequency range.

- 2401.92 to 2439.94 MHz is the operating frequency range.

- 2443.39 to 2481.41 MHz is the operating frequency range.
# SECTION 6. TECHNICAL DATA

## EQUIPMENT SPECIFICATIONS

### Base Station

**GENERAL —**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>All, 2400 to 2483.5 MHz</td>
</tr>
<tr>
<td></td>
<td>Low, 2401.92 to 2439.94 MHz</td>
</tr>
<tr>
<td></td>
<td>High, 2443.39 to 2481.41 MHz</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>200 Hz to 3.5 kHz</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>100-240VAC, 50-60Hz or 12-14VDC</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>32-122°F (0-50°C)</td>
</tr>
<tr>
<td>Size</td>
<td>19” x 1.72” x 17.13” (1 RU) (48.26 x 4.37 x 43.51 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>9.2 lbs. (4.18 kg) maximum</td>
</tr>
<tr>
<td># of Beltpac per Base</td>
<td>15 can be registered</td>
</tr>
</tbody>
</table>

- Any 4 can have simultaneous full-duplex communication at one time
- 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
- Antenna Type: External ½ -wave dipole (R-TNC connector)

### TRANSMITTER —

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

### RECEIVER —

- Type: Frequency hopping, spread spectrum
- RF Sensitivity: $<-90$dBm w $10^{-3}$ BER
- Frequency Stability: 13 ppm
- Distortion: $<2\%$

### FRONT PANEL CONTROLS:

- Clear/Band, Reset, Unlatch and Register buttons,
- IC and ISO Receive level adjustments, IC 2W/4W and 4W-Only buttons,
- IC4W-Only Send and Receive level adjustments,
- Auxiliary In and ISO+ buttons, Auxiliary In and Out level adjustments,
- Rotary knob for volume adjustment,
- Headset IC/ISO Select button and Headset Talk button

### FRONT PANEL INDICATORS:

- Status indicator, IC and ISO Receive LEDs,
- IC 2W and 4W-Only LEDs, Auxiliary In/Out LEDs,
- Headset IC/ISO select LEDs, Headset PTT LED

### REAR PANEL CONTROLS:

- Clear-Com®/RTS® mode switch, RTS® Channel 1/2 switch,
- 2-wire channel line null adjustment

### 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
### 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:** $<-90$ dBm 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 Headset

- **Frequency Range:** 2400 MHz – 2483.5 MHz
- **Antenna:** Internal
- **Frequency Response:** 200 Hz to 3.5 kHz
- **Transmit Power:** 100mW burst
- **RF Sensitivity:** $<-90$ dBm 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:** Beltpacs/Headsets will follow the frequency range determined by the setting on the Base Station (e.g. All, Low or High).
BLOCK DIAGRAM

DX200 Base Station