HME# 400G626
Rev B 1/14/10

DX100

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.

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

INFORMATION TO USER

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.

This equipment has been tested and found to comply with the limits for Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

MANDATORY SAFETY INSTRUCTIONS FOR INSTALLERS AND USERS

Use only manufacturer or dealer supplied antennas.

The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio Frequency) energy, which is below the OSHA (Occupational Safety and Health Act) limits. These instructions also meet Industry Canada RSS-GEN 7.14.

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

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

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

Hereby, HM Electronics, Inc. declares that the DX100 is in compliance with the essential requirements and other relevant provisions of R&TTE Directive 1999/5/EC.

CE

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.

SECTION 1. INTRODUCTION

The DX100 provides private, secure communication. Each base station can have up to a total of fifteen BP200 Beltpacs, WH200 All-in-one Wireless Headsets and/or WS200 Wireless Speaker Stations "registered" to it. All Beltpacs or all WH200 Headsets, or a combination of Beltpacs, Headsets and/or Speaker Stations can be used. Four of the fifteen Beltpacs, Headsets and/or Speaker Stations can transmit at the same time.

Beltpacs/Headsets/Speaker Stations can be used either in the Push-To-Talk (PTT) or Hands-Free (HF) mode. The base station operator can stop any Beltpac/Headset/Speaker Station from transmitting.

The MB100 Base Station and WS200 Speaker Station can be operated using standard AC electricity, an external DC power source or six AA batteries. A power supply, cable and a battery sled are included with the base station.

System Usage Example

This is an example of a typical theatrical application. A variety of other uses for the DX100 are possible.

EQUIPMENT IDENTIFICATION

The following equipment is standard with the DX100 Wireless Intercom System.
As you unpack the equipment, check the enclosed shipping documents to be sure you received all items listed.

MB100 Base Station

Base Station Antennas
(2 per Base Station)

Base Station Battery Sled

115/230 Volt AC Power Supply
(1 per Base Station, with Power Cord)
(1 per AC40A Battery Charger, with Power Cord)

WH200 All-in-one
Wireless Headset

Battery

AC40A
Battery Charger

BP200 Beltpac

HS15 Headset

Beltpac Pouch

WS200
Wireless Speaker Station

WS200 Battery Sled

115/230 Volt AC Power Supply
with Power Cord for WS200

OPTIONAL EQUIPMENT

HS4-3 Earpiece & Lapel Microphone

HS15 Single-Muff Headset

HS15D Dual-Muff Headset

HS16 Lightweight Headset

HSI6000 Headset Adapter

XLR Headset Adapters:

MD-XLR4M Mini-DIN to 4-Pin Male

MD-XLR4F Mini-DIN to 4-Pin Female

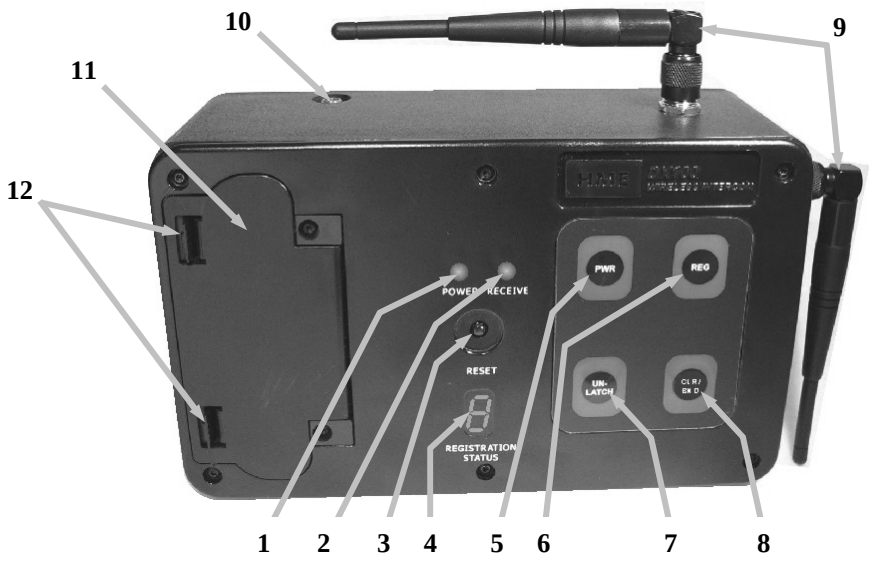
MD-XLR5F Mini-DIN to 5-Pin Female

BAT850 Rechargeable Battery for WS200

AC850 Battery Charger for WS200

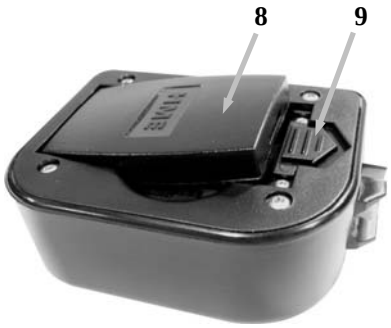
MAIN EQUIPMENT FEATURES

Base Station Features



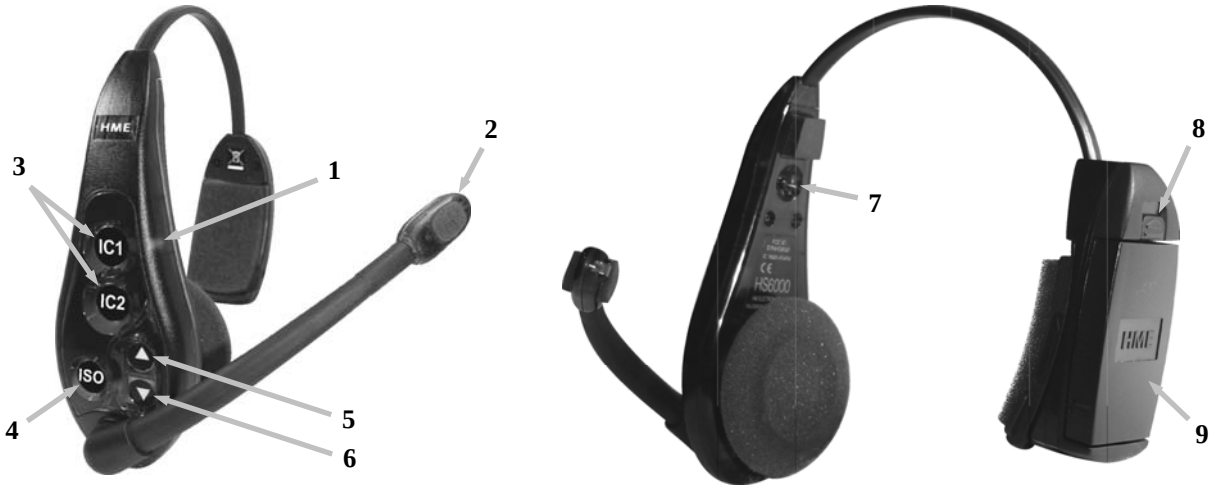
1. **POWER** indicator light
2. **RECEIVE** indicator light
3. **RESET** button
4. **REGISTRATION STATUS** display
5. **PWR** (Power) button
6. **REG** (Registration) button
7. **UN-LATCH** button
8. **CLR/BND** (Clear/Band) button
9. Antennas
10. Power connector
11. Battery compartment cover
12. Battery compartment cover release latches

Beltpac Features



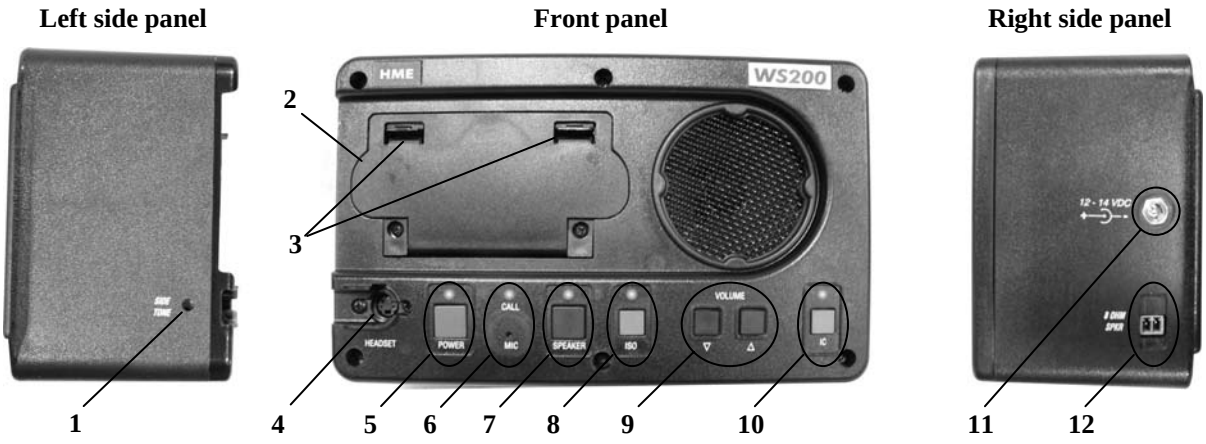
1. Headset cable connector
2. Beltpac power and transmit lights
3. **ISO** (Isolate) button
4. **IC** (Intercom) button
5. **PWR** (Power) button
6. Volume-up ▲ button
7. Volume-down ▼ button
8. Battery
9. Battery release latch

WH200 Headset Features



1. Power light
2. Transmit light
3. **IC1** & **IC2** (Intercom) buttons
4. **ISO** (Isolate) button
5. Volume-up ▲ button
6. Volume-down ▼ button
7. Power button
8. Battery release latch
9. Battery

Speaker Station Features



1. **SIDE TONE** adjustment (recessed)
2. Battery compartment cover
3. Battery compartment cover release latches
4. **HEADSET** connector
5. **POWER** button and light
6. **CALL** light and **MIC** (microphone)
7. **SPEAKER** button and light
8. **ISO** (Isolate) button and light
9. **VOLUME** down ▼ and up ▲ buttons
10. **IC** (Intercom) button and light
11. Power supply cable connector
12. External speaker connector

SECTION 2. EQUIPMENT SETUP

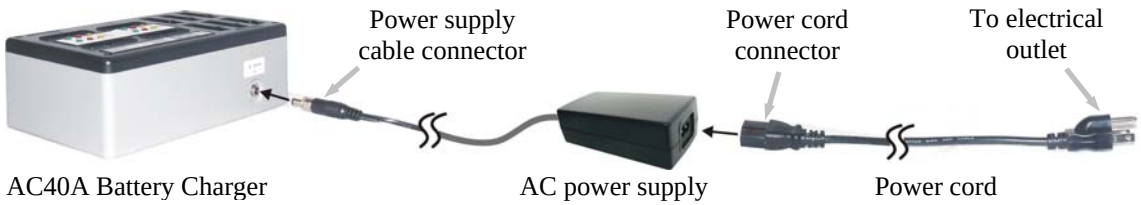
BATTERY CHARGER SETUP

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 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 come on and stay on.



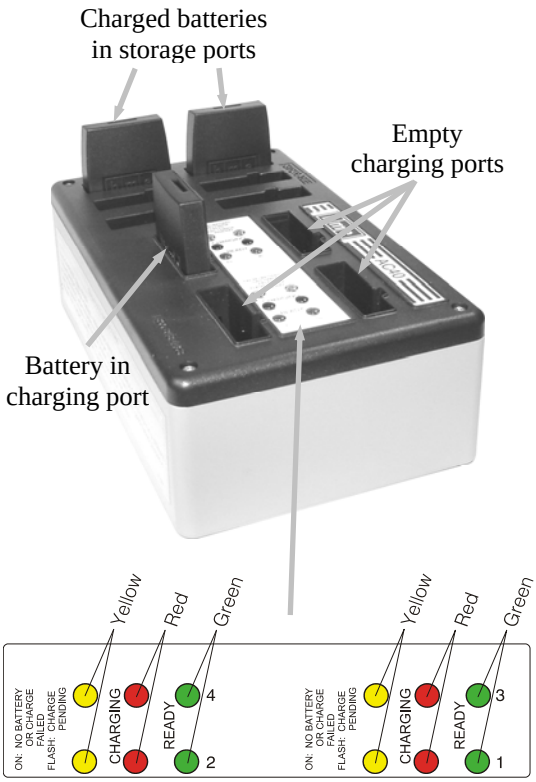
Charge Batteries

Up to four batteries can be charged in the battery charger at the same time. 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 next to each charging port stays on while the port is empty. When a battery is in a charging port, a flashing yellow light next to it indicates CHARGE PENDING, which means 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, a yellow light on steady next to it means CHARGE FAILED. If this happens, follow the instructions on the side of battery charger.
- A red CHARGING light next to a battery port stays on while a battery in the port is charging. A green READY light next to a battery port goes on when a battery in the port is fully charged.

Store fully charged batteries in storage ports.

NOTE: The storage ports neither charge nor maintain the batteries. They simply provide a place to store the charged batteries until they are needed.



Batteries should not be left in charge ports after being fully charged. If a battery is left in a charge port for more than three weeks, the yellow indicator may light up. In this case, it does not indicate a faulty battery.

BASE STATION SETUP

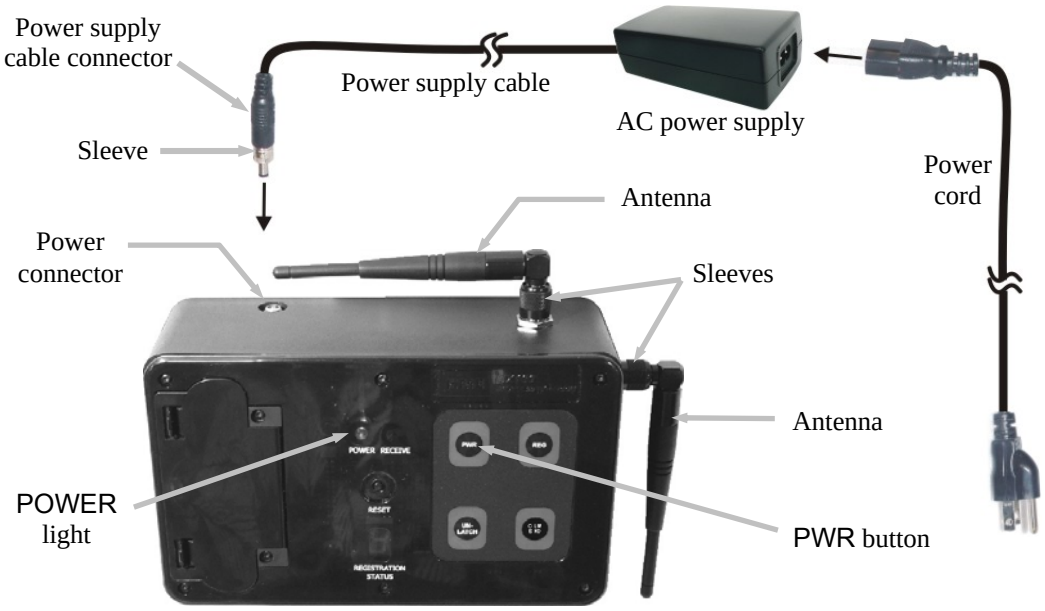
Locate the two base station antennas and the AC power adapter and power cord received with the base station, and connect them to the base station as described below.

Antenna and Power Setups

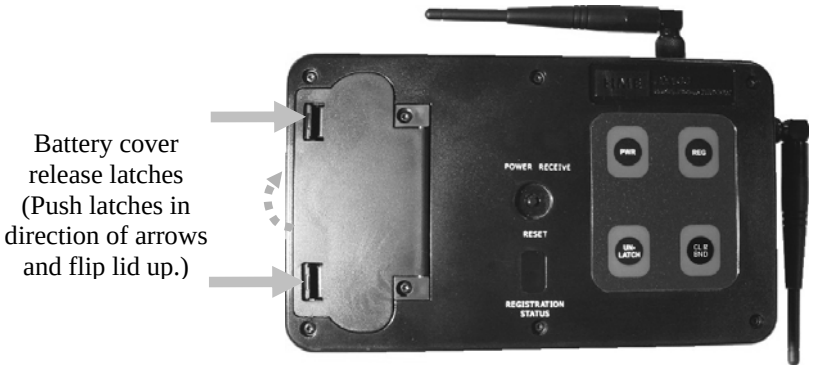
Step 1. Connect the two enclosed antennas to the antenna connectors on the top and right side of the base station, shown to the right. Position the antennas at right angles to each other. The illustration below shows one possible arrangement. Turn the sleeve on each of the antenna connectors clockwise to tighten the antennas securely in position.

Step 2. Note which of the following applies to you.

- **If using the DX100 with AC power** — Plug the connector at the end of the AC power supply cable into the power connector on top of the base station. Turn the sleeve on the cable connector clockwise to secure it to the base station. Plug the large female connector at one end of the AC power cord into the power supply. Plug the other end of the AC power cord into an electrical outlet.



- **If using the DX100 with battery power** — Press in and up on the two battery cover release latches to lift the cover and open the battery compartment.



Insert six AA batteries into the battery sled, in the positions shown inside the sled, and install the sled in the battery compartment as shown below. An HME BAT850 Rechargeable NiMH Battery may be used instead.

Close the battery compartment by pressing its cover down until both latches snap in place.
NOTE: Pressing down on the cover next to both of the latches at the same time will assure its proper closing.

- **If using the DX100 with an external DC power source** — We recommend that you purchase a power cord such as the Radio Shack 12VDC, 5A cigarette lighter power adapter, PN 270-1558 with adapter plug tip PN 273-1717. Follow the manufacturer's instructions to connect the external DC power source to the power connector on top of the DX100. Any power supply used with the DX100 should be rated at least 12VDC, 500mA.

NOTE: Having a fully charged (or new) battery in its battery compartment when operating the DX100 with AC or external DC power can prevent interruption of communication during a power outage, as the base station will automatically switch to battery power.

If only one base station will be used, skip pages 8 – 11 and go on to page 12.
If more than one base station will be used, continue with all the instructions on the following pages.

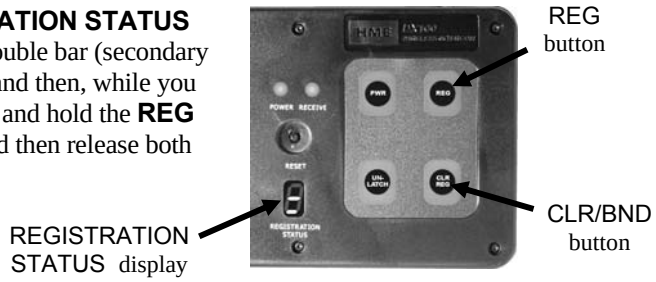
Interference Avoidance

Interference, which may be heard in a headset as popping sounds, may occur whenever other equipment such as WI-FI systems, wireless DMX systems, other HME Base Stations, etc. use the same frequency band. If these systems can be limited to one portion of the band, then the DX100 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:

- Turn on the Base Station power.

  An "**8**" will appear on the **REGISTRATION STATUS** display for a few seconds.

- After the "**8**" disappears and the **REGISTRATION STATUS** display is blank (primary base) or shows a double bar (secondary base), press and hold the **CLR/BND** button and then, while you are still holding the **CLR/BND** button, press and hold the **REG** button and wait until a **L**, **H** or **A** appears, and then release both buttons.



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

- Wait until "**c**" appears on the display.

NOTE: Base stations are shipped in the **A** (default) position.
"**c**" will only appear on the **REGISTRATION STATUS** display if you are setting the frequency band the first time, or 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 **REGISTRATION STATUS** display will become 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 that were 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.

Primary and Secondary Base Station Settings

One base station must be designated as "primary" and all others must be 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.

- Label the base stations as "**Primary**," "**1**," "**2**" and "**3**."
- Start with every base station and Beltpac/Headset power off.

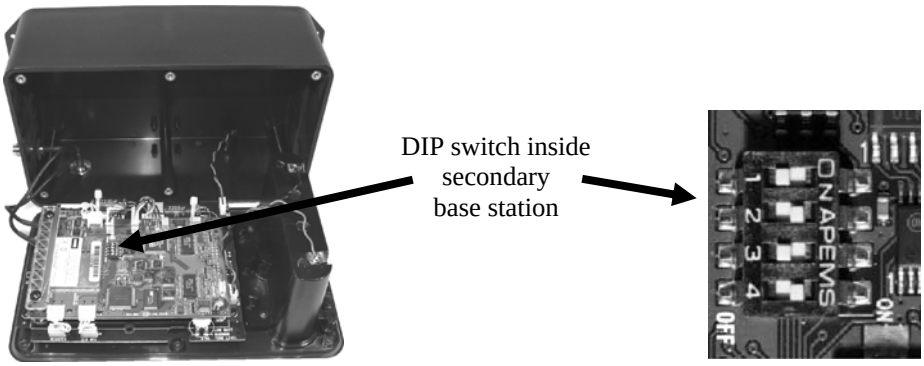
Set DIP Switches

Open each secondary base station and set DIP switch #4 to the **ON** position as follows.

- Using a T9 torque wrench, remove the six screws from the front panel of each secondary base station. Lift the front panel carefully and set it face down.

  Be careful not to pull any wires loose.

- Locate the DIP switch on the transceiver circuit board inside the front panel of each secondary base station. Set DIP switch #4 to the **ON** position. Leave #s 1 and 3 in the **OFF** position.



- Replace the front panel and screws on the secondary base stations.
- 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 be properly initialized before performing any other setups. After initializing each base station, register each Beltpacs/Headsets/Speaker Station to that base according to the procedures on pages 12 - 19.

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 is started. (See Interference Avoidance on page 8.)

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

Primary Base Station —

- Turn the primary base station power on. Register any Beltpacs/Headsets/Speaker Stations to be used with the primary base station (See pages 12 - 19). Turn each Beltpac/Headset/Speaker Station off after registering it.

Secondary Base Stations —

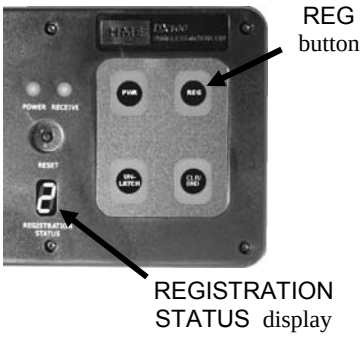
- Power-on one **secondary** base station.

  The **REGISTRATION STATUS** display will show a **double bar**, indicating the secondary base station is ready to be initialized.

- Press the **REG** button on the primary base station.

  The **REGISTRATION STATUS** display will show a small "**o**."

- To assign a number to a secondary base station and initialize it, press the **REG** button on the secondary base. Pressing the button repeatedly causes it to cycle through the numbers **1**, **2**, and **3**. When the desired number appears, stop pressing and wait. While the secondary base initializes, the **REGISTRATION STATUS** display will continue showing the selected number. When initialization of the secondary base station is finished, the display will show one bar, to indicate the secondary has initialized to the primary.



- Press the **REG** button on the primary base station.

  The **REGISTRATION STATUS** display will go blank.

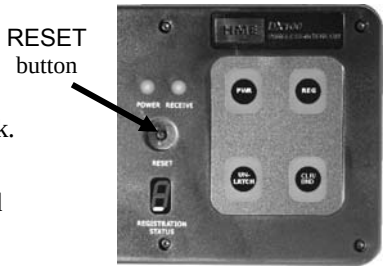
- Register Beltpacs/Headsets/Speaker Stations to the secondary (See pages 12 - 19).

- After registration, turn off the secondary base and all Beltpacs/Headsets/Speaker Stations registered to it.

- Repeat the above steps for each remaining **secondary** base station. 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.

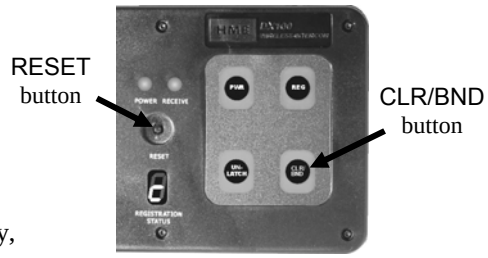
- After all secondary bases are initialized and Beltpacs/Headsets/Speaker Stations are registered, power-up all base stations.

- Press the **RESET** button on the primary base and let it recover.



- Turn on the primary Beltpacs/ Headsets/Speaker Stations and let them link.
- Press the **RESET** button on each secondary base station one at a time and let it initialize to the primary base, as indicated by a single bar.
- Turn on the Beltpacs/Headsets/Speaker Stations associated with the secondary base stations. Do one group at a time until they have all linked. Then do the next group. At this point all base stations and Beltpacs/Headsets/Speaker Stations should be powered-up and linked, ready for use.
- Now proceed with normal system configuration, setting functions and levels as required.
- If it becomes necessary to replace a secondary base station, 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.
- If it becomes necessary to replace a primary base station, follow the preceding instructions completely. Before initialization of the secondary base stations, clear the previous secondary initialization as follows.

  For each secondary, press the **CLR/BND** button and the **RESET** button at the same time. Continue holding the **CLR/BND** button after you release the **RESET** button, until the clear code "**c**" (lower case) appears on the **REGISTRATION STATUS** display.



  Any Beltpacs/Headsets/Speaker Stations associated with the old primary base station will have to be registered to the new primary, after secondary base station initialization.

  All Beltpacs/Headsets/ Speaker Stations associated with secondary base stations also have to be registered again.

- 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/ Speaker Station 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/Speaker Stations. At this point the secondary **REGISTRATION STATUS** displays will show three bars. If the primary is turned back on it will be necessary to press the **RESET** button on all secondary bases to allow them to find and initialize to the primary again. It is therefore important to have all base stations 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.

NOTE: You cannot register Beltpacs/Headsets/Speaker Stations 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/Headsets/Speaker Stations registered during primary operation. For secondary bases, the Beltpacs/Headsets/Speaker Stations must always be registered after secondary base initialization, with the primary base remaining active and the secondary base displaying one bar.

BELTPAC / WH200 HEADSET / SPEAKER STATION SETUP AND REGISTRATION

The first time you operate the DX100 system, you must register each Beltpac, WH200 Headset and/or Speaker Station for use with a specific base station. The base station will then recognize all registered Beltpacs/ Headsets/Speaker Stations when their power is on, and will know the difference between them and other electronic equipment operating on the same frequencies. If a Beltpac/Headset/Speaker Station is added, replaced or repaired later, the new one must be registered but the old one will remain in memory. Since only 15 Beltpacs, Headsets and/or Speaker Stations can be in memory, whether currently in use or not, all memory must be cleared to remove any old Beltpac/Headset/Speaker Station registrations.

Set Up Beltpacs

Before registering them, 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.

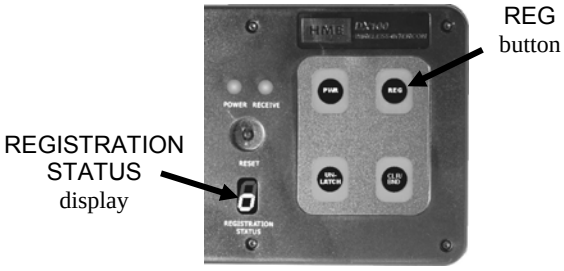
Register Beltpacs

Beltpacs must be within 6 feet (1.83 meters) of the base station while you are registering them. Be certain the base station power is on, and each Beltpac you are going to register is turned off before you begin. Beltpacs 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 Beltpacs being registered to each base station.

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

Step 2. Press the **REG** button on the front panel of the base station.



- The **REGISTRATION STATUS** display on the base station 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 will blink green two or three times and go 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 **REGISTRATION STATUS** display will show the ID number assigned to this Beltpac for about 10 seconds.

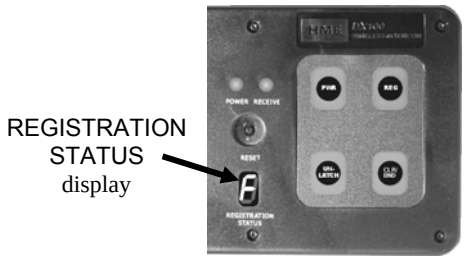
  NOTE: ID numbers are assigned sequentially as 0 thru 9, A, b, C, d and E.
- The power light on the Beltpac, next to the **IC** button, will remain on steady green.
- **Repeat Steps 1 to 3 at the bottom of page 12 for each Beltpac to be registered.**

If registration failed:

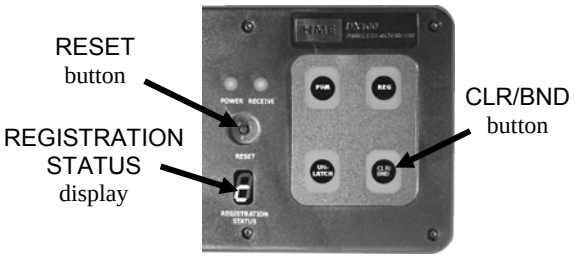
- A voice message in the headset will say "Power on, Beltpac #, Version #, Begin registration, …" Both power lights on the Beltpac will be blinking red, and there may be a delay of up to 90 seconds before you hear "Registration failed."
- Press the **RESET** button on the base station. When the **REGISTRATION STATUS** display becomes blank, press the **REG** button on the base station and register the Beltpac again. If registration fails again, call your dealer for assistance.

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

- An **F** (for registration "Full") will appear on the **REGISTRATION STATUS** display on the base station and you will hear "Registration failed" in the headset.



- Clear all current registrations by pressing the **CLR/ BND** button and the **RESET** button at the same time. Continue holding the **CLR/BND** button after you release the **RESET** button, until the clear code "**c**" (lower case) appears on the **REGISTRATION STATUS** display.



- Register all active Beltpacs, one at a time.
  Previously registered WH200 Headsets and Speaker Stations must also be re-registered.

Set Up WH200 Headsets

Before registering them, insert a fully charged battery in each WH200 Headset, with the metal contacts on the end of the battery inserted first. Press it in until it snaps.

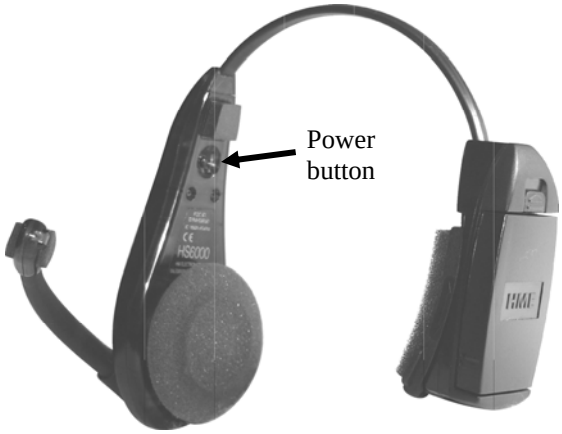
Power On/Off

- **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 go off.



Register WH200 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.

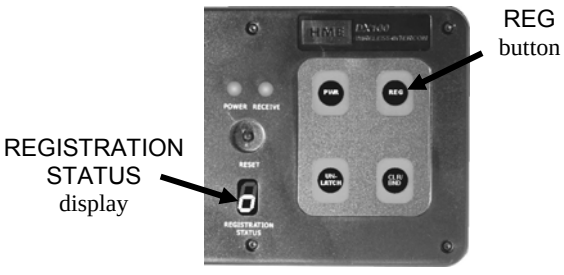
NOTE: If you are setting up multiple, daisy-chained base stations, the following steps must be repeated for WH200 Headsets being registered to each base station.

Step 1. Put the Headset on your head.

Step 2. Press the **REG** button on the front panel of the base station.

- The **REGISTRATION STATUS** display on the base station 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 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 **REGISTRATION STATUS** display will show the ID number assigned to this Headset for about 10 seconds.

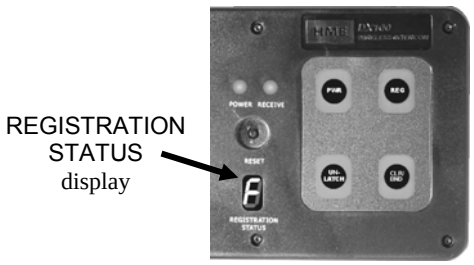
  NOTE: ID numbers are assigned sequentially as 0 thru 9, A, b, C, d and E.
- The power light on the Headset will remain on steady green.
- **Repeat Steps 1 to 3 at the bottom of page 14 for each headset to be registered.**

If registration failed:

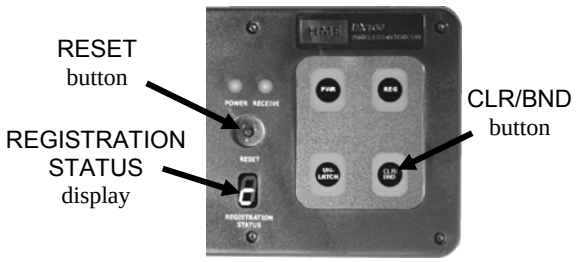
- A voice message in the Headset will say "Power on, Headset #, Version #, Begin registration, …" Both power lights on the Headset will be blinking red, and there may be a delay of up to 90 seconds before you hear "Registration failed" and the **REGISTRATION STATUS** display goes blank.
- Press the **RESET** button on the base station. When the **REGISTRATION STATUS** display becomes blank, press the **REG** button on the base station and register the Headset again. If registration fails again, call your dealer for assistance.

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

- An **F** (for registration "Full") will appear on the **REGISTRATION STATUS** display on the base station and you will hear "Registration failed" in the Headset.



- Clear all current registrations by pressing the **CLR/BND** button and the **RESET** button at the same time. Continue holding the **CLR/BND** button after you release the **RESET** button, until the clear code "**c**" (lower case) appears on the **REGISTRATION STATUS** display.



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

Set Up Speaker Station

The WS200 Speaker Station can be used together with Beltpacs and WH200 All-in-one Headsets. It provides wireless communication through its built-in microphone and speaker, or a plug-in headset. A remote speaker can also be connected to the unit.
The Speaker Station can be used on a table top or mounted on the wall. It can be operated with standard AC power, 12-14VDC or with six AA batteries or an optional rechargeable battery. A power supply with cord and a battery sled are provided. Whether used on a table top or mounted on the wall, if AC operation is required, the Speaker Station must be located close enough to an electrical outlet to be reached with the power supply and cord.

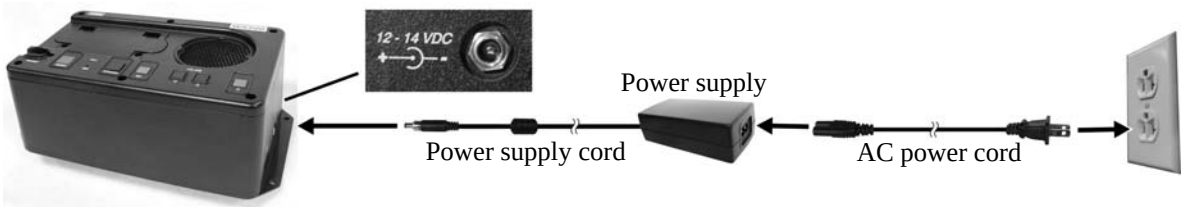
Wall Mounting

- Hold the unit against the wall where you will mount it and mark the wall through the four holes in the flanges on its left and right sides.
- Drill holes in the wall at the four marked spots, and mount the WS200 over the holes with your selected hardware (not provided).

AC Power Operation

If using the WS200 with AC power —

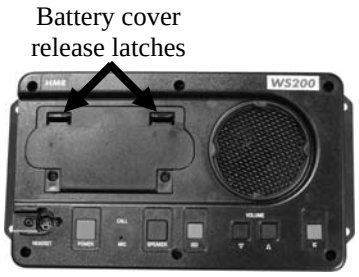
- Plug the connector at the end of the power supply cord into the **12-14 VDC** power connector on the right side of the unit. Turn the sleeve on the connector clockwise to secure it to the unit.
- Plug the large female connector at one end of the AC power cord into the power supply. Plug the other end of the AC power cord into an electrical outlet.



Having a fully charged (or new) battery in its battery compartment when operating the WS200 with AC or external DC power can prevent interruption of communication during a power outage. The WS200 will automatically switch to battery power.

Battery Operation

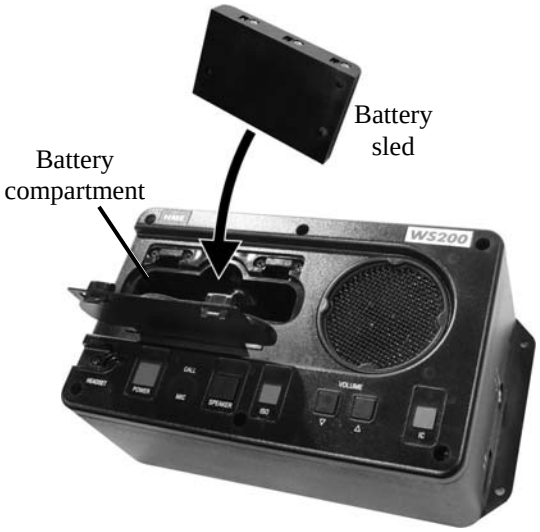
If using the WS200 with battery power —



- Press down and pull out on the two battery cover release latches and lift the cover to open the battery compartment.

- Insert six AA batteries into the battery sled, in the positions shown inside the sled, and install the sled in the battery compartment.

Battery sled
with batteries



NOTE: An HME BAT850 Rechargeable NiMH Battery can be used instead.

- Close the battery compartment by pressing down on its cover next to both of the latches at the same time until they snap in place.

Register Speaker Station

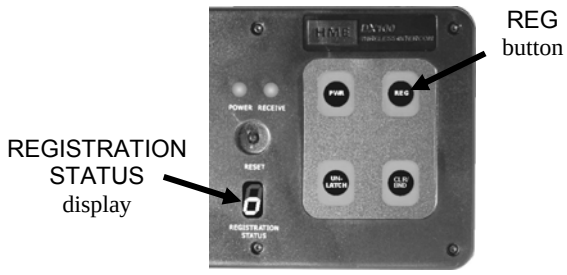
The first time you operate the WS200, you must register it for use with a specific base station. The base station will then recognize the WS200 when its power is on, and will be able to tell the difference between it and other electronic equipment operating on similar frequencies, or DX family Beltpacs or All-in-one Headsets.

NOTE: The WS200 must be within 6 feet (1.83 meters) of the base station while being registered.

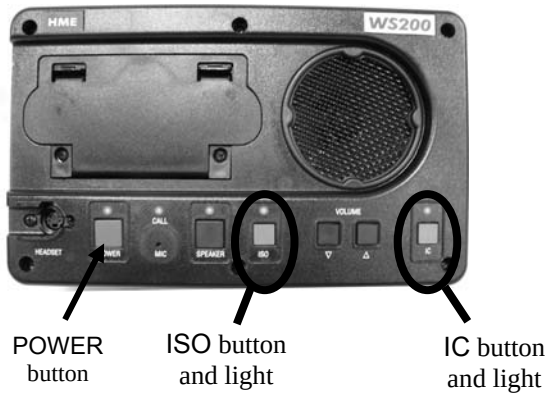
Registration Procedure:

- Be sure the WS200 is turned off and the base station power is on.

- On the base station, press and release the **REG** button.
  — The **REGISTRATION STATUS** display will show a small "**o**" for open.



- On the WS200, press and hold the **ISO** button while you press and release the **POWER** button to turn the unit on, and then release the **ISO** button. This will cause the WS200 to enter the registration mode.
  — The **REGISTRATION STATUS** display on the base station will continue to show a small "**o**."
  — The **ISO** and **IC** lights on the WS200 will be blinking red then will change to a steady green **IC** light.



When registration is successfully completed:

- If you have a headset plugged into the WS200 or if the speaker is on, you will hear a voice message in the headset or speaker saying "Power on, Speaker, Version #, Begin registration, Registration complete…"
- The **REGISTRATION STATUS** display on the base station will show the ID number assigned to the WS200, for about 10 seconds.

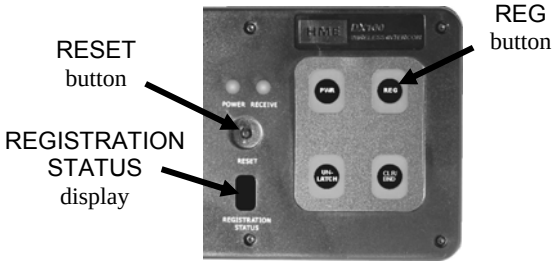
NOTE: ID numbers are assigned sequentially to registered Beltpacs, All-in-one Headsets and Speaker Stations as 0 thru 9, A, b, C, d and E (up to 15 total).

- The **IC** light on the WS200 will remain on steady green.

If registration failed:

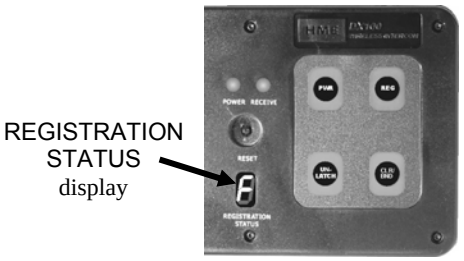
- A voice message will say “Power on, Speaker, Version #, Begin registration, …”
  The **ISO** and **IC** lights on the WS200 will be blinking red, and there may be a delay of up to 90 seconds before you hear “Registration failed” and the **REGISTRATION STATUS** display goes blank.

- Press the **RESET** button on the base station. When the **REGISTRATION STATUS** display becomes blank, press the **REG** button on the base station and register the WS200 again. If registration fails again, call your dealer for assistance.

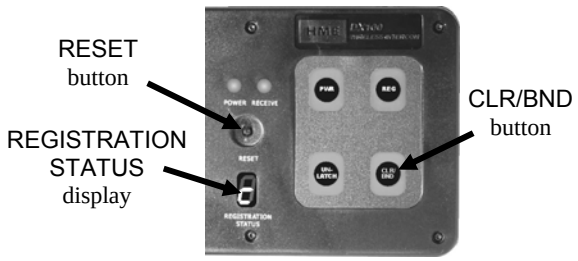


If you try to register more than 15 Beltpacs, All-in-one Headsets or Speaker Stations:

- An **F** (for registration “Full”) will appear on the **REGISTRATION STATUS** display on the base station and you will hear “Registration failed.”



- Clear all current registrations from the base station by pressing the **CLR/BND** button and the **RESET** button at the same time. Continue holding the **CLR/BND** button after you release the **RESET** button, until the clear code “**c**” (lower case) appears on the **REGISTRATION STATUS** display.

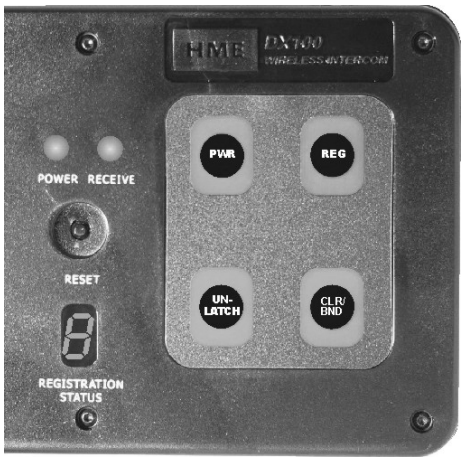


- Register all active Beltpacs, All-in-one Headsets and Speaker Stations, one at a time. All previously registered units must be re-registered.

SECTION 3. EQUIPMENT OPERATION

BASE STATION OPERATION

Controls and Indicators



- **POWER** indicator light

  Lights red when power is on. Blinks every 8 – 10 seconds when the battery is running low.

- **RECEIVE** indicator light

  Lights green when Beltpacs/Headsets/Speaker Stations are transmitting.

- **RESET** button

  Press to reset all communication links, or press together with the **CLR/BND** button to clears all Beltpac/Headset/Speaker Station registrations.

- **REGISTRATION STATUS** display

  Displays **"8"** briefly when base station power is turned on. Indicates status as you register each Beltpac/Headset/Speaker Station. See pages 12 - 19.

- **PWR** (Power) button

  Press and release to turn the DX100 power on. Press and hold for 2 seconds to turn power off.

- **REG** (Registration) button

  Use this button to register each Beltpac/Headset/Speaker Station used with the DX100. See pages 12 - 19.

- **UN-LATCH** button

  Use this button to unlatch all Beltpac/Headset/Speaker Station transmitters. Users can configure their Beltpacs/Headsets to "latch" on, in order to talk and listen to each other. Base station operators can use the **UN-LATCH** button to stop Beltpac/Headset/Speaker Station conversations. Also, if a Beltpac/Headset/Speaker Station user takes a Beltpac/Headset/Speaker Station off and leaves it "latched on" in an unknown location, sounds from the area where it is left are picked up by its microphone and transmitted to other Beltpac/Headset/Speaker Station users. This distraction can be stopped by pressing the **UN-LATCH** button on the base station.

- **CLR/BND** (Clear Registration) button

  The **CLR** feature of this button is used to clear Beltpac/Headset/Speaker Station registrations. See pages 12 - 19.

  The **BND** feature of this button is used to select upper or lower portion of frequency band. See page 9.

Low Battery Indicator

When the base station battery power is low, repeating beeps will be heard, and the POWER light on the base station will be blinking red. When this happens, replace the batteries in the base station immediately with ones that are new or fully charged, as instructed on page 5.

NOTE: Battery life varies with the type of batteries used. With the HME BAT850 (NimH) Battery, up to 10 hours can be expected.

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 go 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 **REGISTRATION 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/Speaker Station users. 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.

- **Push-To-Talk (PTT) Mode —** To set the Beltpac for 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 earpiece. Press and hold the **IC** or **ISO** button while talking.
- **Hands-Free (HF) Mode —** To set the Beltpac for HF 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 earpiece. When set up for HF communication, the Beltpac can be operated in either HF 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 earpiece. 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 earpiece.

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 Beltpac off and begin again. HF and PTT mode settings affect both **IC** and **ISO**. Individual adjustment is not possible.

- **Push-To-Talk (PTT) 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 (HF) 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 Beltpac will function as PTT. All Beltpacs/Headsets/Speaker Stations can be unlatched by the base station operator, by pressing the **UNLATCH** button on the base station.

NOTE: In HF 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 that you hear in the headset earpiece 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 earpiece. 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 on a Beltpac/Headset/Speaker Station 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 on a Beltpac/Headset/Speaker Station or at the base station.

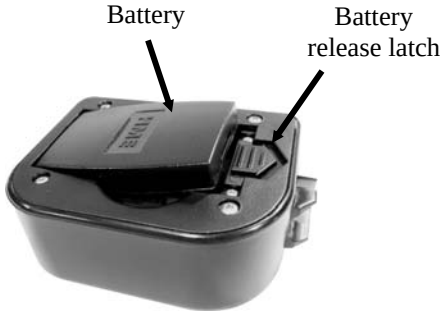
NOTE: You will hear "Maximum" if you attempt to go higher than maximum microphone gain. You will hear double beeps if you attempt to go lower than minimum microphone gain. Microphone gain will be saved in non-volatile memory and does not require readjustment each time the power is turned on.

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.

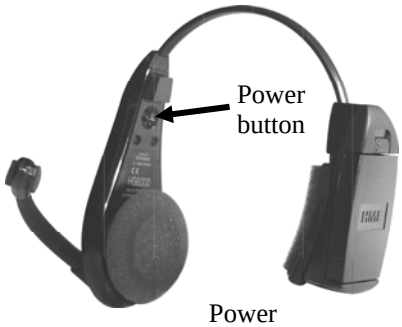
When replacing a battery in the Beltpac, place the end of the battery with the metal contacts into the battery holder on the Beltpac, in the same position as the battery you removed. Press the top of the battery carefully into the battery holder until it snaps in place under the battery-release latch.

Recharge batteries according to the instructions on page 5.



WH200 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 go on. The **REGISTRATION 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/Speaker Station users. 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 via the intercom channel.

- **Push-To-Talk (PTT) Mode —** To set the Headset for 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 (HF) Mode —** To set the Headset for 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 HF 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 earpiece.
- **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. HF and PTT mode settings affect both **IC** and **ISO**. Individual adjustment is not possible.

- **Push-To-Talk (PTT) 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 (HF) 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. All Headsets/Beltpacs/Speaker Stations can be unlatched by the base station operator, by pressing the **UNLATCH** button on the base station.

NOTE: In HF 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 on a Headset/Beltpac/Speaker Station 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 on a Headset/Beltpac/Speaker Station or at the base station.

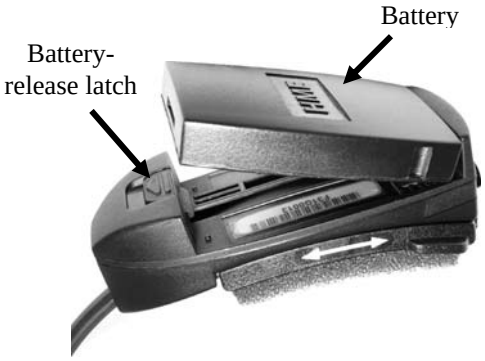
NOTE: You will hear "Maximum" if you attempt to go higher than maximum microphone gain.
You will hear two beeps if you attempt to go lower than minimum microphone gain.
Microphone gain will be saved in non-volatile memory and does not require readjustment each time the power is turned on.

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 5.



SPEAKER STATION OPERATION

Headset Connection

If you are using a headset with the WS200, plug it into the headset connector. When using a headset, if the red light over the **SPEAKER** button is on, incoming communication can be heard through the headset and the speaker. If the red light over the **SPEAKER** button is off, incoming communication can only be heard through the headset.

Push-To-Talk (PTT) or Hands-Free (HF) Mode Setting

- Be sure the WS200 power is off.
- To set up the WS200 for operation in the PTT mode, press and hold the **VOLUME** down ▼ and **ISO** buttons while you press and release the **POWER** button to turn the unit on. Then release the **VOLUME** down ▼ and **ISO** buttons.
- To set up the WS200 for operation in the HF mode, press and hold the **VOLUME** up ▲ and **ISO** buttons while you press and release the **POWER** button to turn the unit on. Then release the **VOLUME** up ▲ and **ISO** buttons.

NOTE: Mode settings are saved in memory, and only need to be reset if you want to change between PTT and HF operation. Mode settings affect both ISO and IC communication.

Routine Operation

Power On/Off

- **To turn WS200 power on**, press and release the **POWER** button.
  - — Red lights will go on over the **POWER**, **ISO** and **IC** buttons.
  - — If listening with a headset, or the speaker is turned on, you will hear "Power on, Speaker #, Version #."
  - — The light over the **ISO** button will go off.
  - — The light over the **IC** button will change to green.
- **To turn WS200 power off**, press and hold the **POWER** button for 3 seconds.

ISO / IC Buttons

The ISO button is used to communicate with Beltpac and All-in-one Headset users registered to your base station. The **ISO** feature can be locked out, causing the **ISO** button to function the same as the **IC** button.

The IC button is used to communicate with Beltpac and All-in-one Headset users registered to your base station.

Push-To-Talk Mode

- Press and hold the **ISO** or **IC** button while speaking.
  - — The green light over the button will be flashing when the unit is transmitting.
- Release button to listen on headset speaker or internal speaker, if "**ON**."
  - — The green light over the button will be on steady.
- Adjust volume level with **VOLUME** up ▲ and down ▼ buttons if necessary.

Hands-Free Mode

You must be using a headset plugged into the WS200, and the speaker must be off for hands-free operation.

- Quickly press and release the **ISO** or **IC** button.
  - — The green light over the button will be flashing.
- Speak and listen as in a normal telephone conversation.
- Adjust volume level with the **VOLUME** up ▲ and down ▼ buttons if necessary.
- Press and release the **ISO** or **IC** button again to end communication.
  - — The green light over the **IC** button will be on steady.
- Press and release the **ISO** or **IC** button if you want to speak again.
  - — The green light over the button will begin flashing again.
- Pressing and holding the **ISO** or **IC** button for more than a half second will result in PTT operation.

ISO Lockout Mode

To set the WS200 with the ISO feature locked out, with the power off, press and hold the **IC** button while you press and release the **POWER** button. You will hear "Power on, Speaker #, Version #, ISO off." 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 **POWER** button. You will hear "Power on, Speaker #, Version #, ISO on."

CALL Light Function

If the CL200 (optional) Call Light button is pressed, or a call tone from an RTS or ClearCom intercom system is received through the CL200 on the 2-wire circuit:

- One short beep will sound in the WS200 speaker or headset, and will also be heard through all Beltpacs or All-in-one Headsets registered to the same base station as the WS200.
- The yellow **CALL** light next to the **POWER** button on the WS200 will flash 3 times and pause, then flash 3 times and pause, then flash 3 final times.

Headset Microphone Gain Adjustment

Some users speak louder or softer than others. The headset microphone gain adjustment helps to compensate for these differences, raising or lowering the voice level of the user speaking into the microphone. Increase microphone gain for softer voices, decrease for louder voices.

- To adjust microphone gain, first be sure the internal speaker is off.
- Press and hold the **ISO** button while pressing the **VOLUME** up ▲ or down ▼ arrow.
  — When you reach maximum microphone gain, you will hear "Maximum."
  — When you reach minimum microphone gain, you will hear a double beep.
  There are 16 steps between maximum and minimum microphone gain levels.

Headset Sidetone Adjustment

Sidetone is the level of your own voice that you hear in the headset earpiece as you speak into the microphone.

- To increase or decrease the sidetone level, first be sure the internal speaker is off.
- Press and hold the **IC** button while pressing the **VOLUME** up ▲ or down ▼ arrow.
  — When you reach maximum sidetone level, you will hear "Maximum."
  — When you reach minimum sidetone level, you will hear a double beep.
  There are 5 steps between maximum and minimum sidetone levels.

NOTE: A trim pot is provided for fine tuning adjustments with a small screwdriver, through the hole labeled **SIDE TONE** on the left side of the WS200.
This adjustment only affects the level of your voice in your own headset, not how anyone else hears you.

Changing Batteries

When batteries are becoming weak, you will hear "Change battery" from the speaker or headset. When this happens, remove the battery sled from the WS200 and replace the six batteries in it with fresh AA batteries. Be sure battery polarity is correct when replacing the batteries.

Rechargeable BAT850 Batteries

If you are using the optional HME BAT850 Rechargeable Battery, remove the battery from the WS200 and replace it with a fully charged battery. Recharge the battery in the optional AC850 Battery Charger according to the instructions received with the charger. Charging time is approximately 3 hours.

AC850 Battery Charger

Auxiliary Speaker Connection

An 8 ohm auxiliary speaker can be connected to the right side of the WS200, using the enclosed 2-position connector plug. Adjustments affecting the WS200 speaker will also affect the parallel auxiliary speaker.

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 does not come on.**

  Be certain power cords are properly connected to base station, power supply and electrical outlet.
  If battery operated, be certain six AA batteries are inserted in the indicated positions in the battery sled, and the sled is installed in the base station. See page 7.

- **Beltpac power lights do not turn green and "out of range" is heard in the headset.**

  Be certain your base station power is on. Turn the Beltpac/Headset/Speaker Station and base station power on and off.
  You may be too far from the base station. The range varies with each location's layout.
  If you have more than one base station, be sure the Beltpac/Headset/Speaker Station is registered to the base station it is being used with. If you are not sure, re-register it.

- **When trying to register, it keeps saying registration failed.**

  Check to be sure that the **REGISTRATION STATUS** display only goes blank, and does not show a registration number. Follow the instructions on clearing the registrations as found on page 13, 15 or 19, 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/Speaker Station, or the microphone gain adjust is turned up to the required level. If you are using a Beltpac, be certain the headset is securely connected to the Beltpac unit. See pages 21–27.

2400MHz cordless telephone interference —
If there is a 2400MHz cordless telephone nearby, interference may occur. However, because the DX100 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, remove any batteries and wait 15 seconds, then plug them back in.

SECTION 5. TECHNICAL DATA

EQUIPMENT SPECIFICATIONS

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:	10.2" x 6.45" x 3.33" (1-RU) (25.91 x 16.38 x 8.46 cm)
Weight:	2.35 lbs. (1.07 kg) maximum
# of Beltpacs per Base:	15 can be registered
	Any 4 can have simultaneous full-duplex communication at one time.
	Others would be listen-only until a channel becomes available.
Front Panel Controls:	Power, Register Beltpac, Reset, Unlatch and Clear/Band buttons
Front Panel Indicators:	Registration Status display, Power and Receive LEDs
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
Splash Resistant:	IEC529 IP Code 4 (under battery operation only)

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:	<–90dBm w 10^{-3} BER
Frequency Stability:	13 ppm
Distortion:	<2%

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:	<–90dBm 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)

WH200 Headset

* Frequency Range:	2400 MHz – 2483.5 MHz
Antenna:	Internal
Frequency Response:	200 Hz to 3.5 kHz
Transmit Power:	100mW burst
RF Sensitivity:	<–90dBm 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)

Speaker Station

* Frequency Range:	2400 – 2483.5 MHz
Antenna:	Internal
Frequency Response:	200 Hz to 3.5 kHz
Power Requirements:	Six AA batteries (NiMH optional), 12-14VDC or 100-240VAC, 50-60Hz
Temperature Range:	32-122°F (0-50°C)
Size:	9.38” x 5.16” x 3.34” (23.83 x 13.11 x 8.48 cm)
Weight:	2.56 lb with battery (1.16 kg)
Microphone:	Electret
Speaker:	1.5W min into 8Ω
Headset Output:	200mW into 32Ω
Controls:	Power, Speaker, ISO, Volume-down ▼, Volume-up ▲, IC
Indicators:	Power LED (red), Call LED (yellow), Speaker LED (red), ISO LED (red/green), IC LED (red/green)
Connectors:	4-pin mini-DIN Headset, 12-14VDC, 8Ω speaker

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

IMPORTANT!

Waste Electrical and Electronic Equipment (WEEE)

The European Union (EU) WEEE Directive (2002/96/EC) places an obligation on producers (manufacturers, distributors and/or retailers) to take-back electronic products at the end of their useful life. The WEEE Directive covers most 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.