HME# 400G605
Rev A 1/18/08

# DX300

## Wireless Headset System


## Operating Instructions

HME®
HM ELECTRONICS, INC.
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# Table of Contents



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## FCC NOTICE

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

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

Changes or modifications not expressly approved by HM Electronics, Inc. could void the users authority to operate this equipment.

Hereby, HM Electronics, Inc. declares that the DX300 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.

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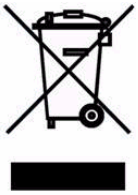
### Instructions for Disposal of WEEE by Users in the European Union

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.



# LIMITED WARRANTY

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This warranty shall be void if (a) the HME Products have been tampered with, neglected, modified, abused or misused; (b) anyone other than HME employees or authorized HME service representatives provide service on or to the HME Products; or (c) the serial numbers are not intact.

THIS WARRANTY COVERS HME PRODUCTS, AND IS NOT EXTENDED TO ASSOCIATED NON-HME PRODUCTS OR ACCESSORIES, OR ANY DAMAGE TO HME PRODUCTS CAUSED BY SUCH NON-HME PRODUCTS OR ACCESSORIES. IN NO EVENT WILL HME BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LOSS OF PROFITS ARISING FROM THE USE OF OR INABILITY TO USE ANY HME PRODUCTS, OR FROM ACCIDENTS OR ACTS OF GOD.

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ALL SALES FINAL. No returns will be accepted (except for nonconforming goods as specified above) unless HME authorizes such return and unless such return occurs within 90 days of receipt. A 15% restocking charge will be assessed on all such authorized returns. Authorized returns must be freight prepaid and shall include an authorization number noted on the outside of the package. Such authorization number will be provided by HME at the time it authorizes such return. All freight sent collect and packages without an authorization number will be refused and returned to sender.

* Exceptions:

Certain exceptions may apply. Refer to the HME website at http://www.hme.com/proAudio.cfm.

# SECTION 1. INTRODUCTION

The DX300 provides secure communication among the coaching staff

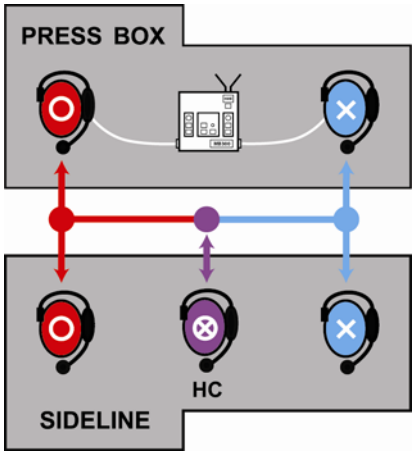
Spotters in the press box can communicate with offense "**O**" only, defense "**X**" only or "**ALL**" coaches via headsets connected directly to the base station

Coaches on the sideline wear beltpacs with headsets to communicate with each other and the spotters

Beltpacs can be set up for communication with any combination of offense, defense and ALL

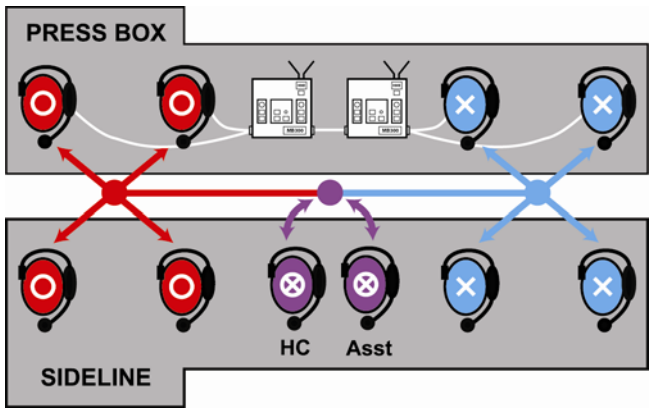
This manual includes detailed setup and operating instructions for your DX300 system

## Basic 5-Coach System




- 1 base station
- 3 beltpacs
- 5 headsets

## Expanded 10-Coach System




- 2 base stations
- 6 beltpacs
- 10 headsets

# SECTION 2. EQUIPMENT IDENTIFICATION

## *STANDARD EQUIPMENT*


Base station

Antennas

Power adapter and cord

Headset

Base station interconnect cable

10-pin spring clamp connector

Battery sled


Beltpac with headset, pouch and battery

**OR**


All-in-one headset with battery

Battery charger with power supply and cord for beltpac and all-in-one headset batteries


Travel case

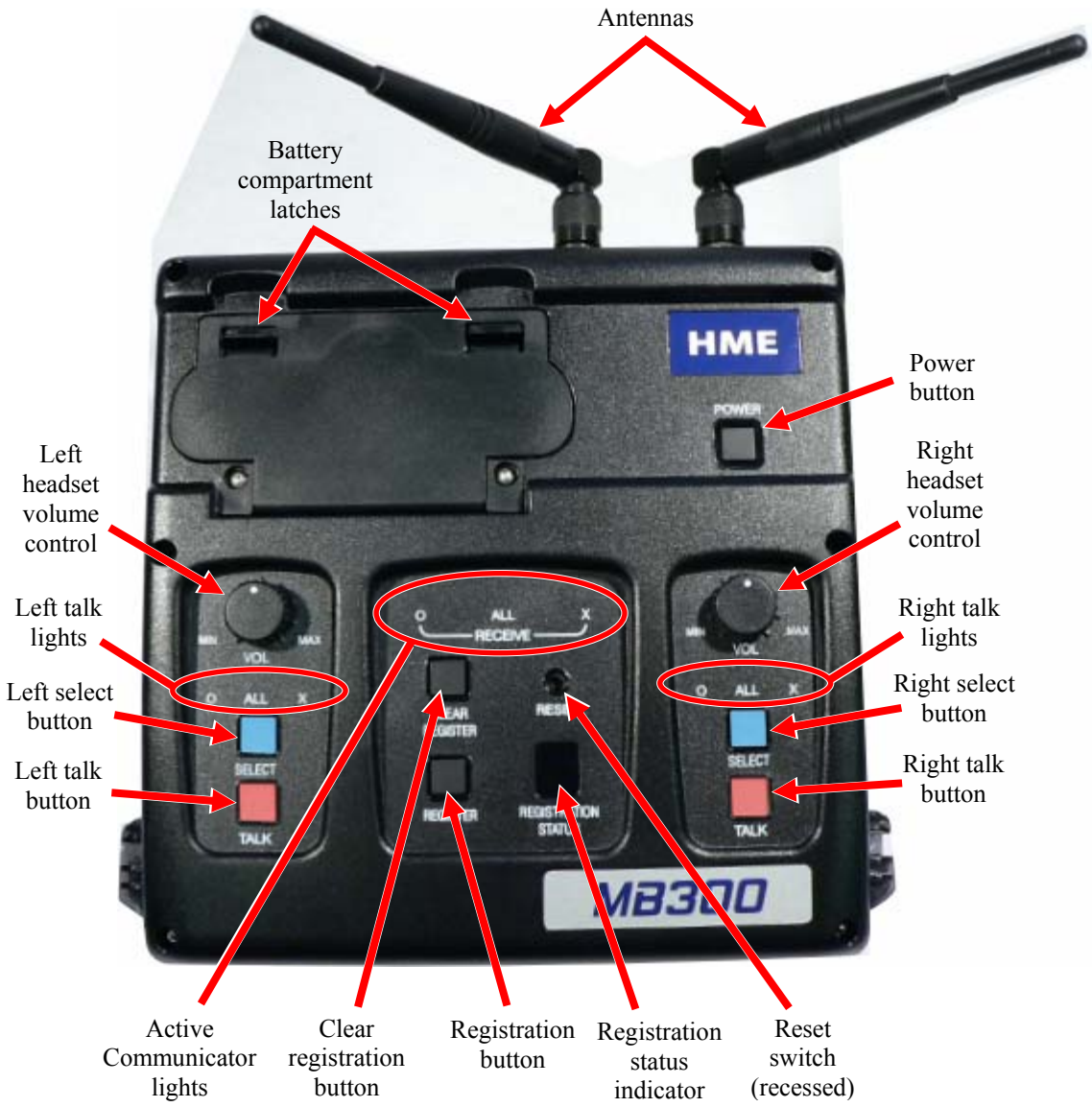
# OPTIONAL EQUIPMENT

| | |
|---|---|
| **Headset with dual ear muffs**<br>**Model # HS14D**<br>  | **Headset, all-in-one, with battery**<br>**Model # WH300**<br>  |
| **Headset extension cable, 6 ft (1.83 meter)**<br>  | **Foam earmuffs for all-in-one headset**<br>  |
| **Rechargeable battery for base station**<br>**Model # BAT850**<br>  | **Battery charger for base station batteries**<br>**Model # AC850**<br>  |
| **Remote antenna kit with 6 foot (1.83 meter) cable and bracket**<br>  | **Remote antenna kit with 30 foot (9.14 meter) cable and bracket**<br>  |
| **Adapter cable for headset w/ dynamic microphone and XLR connector**<br>**Model # MD-XLR4F**<br>**MD-XLR4M**<br>**MD-XLR5F**<br>  | |

# EQUIPMENT FEATURES

## Base Station

**Top Panel —**



**Front Panel —**


Auxiliary audio in/out volume adjustments (recessed)

**Left Side Panel —**


Cable "input" from another base station

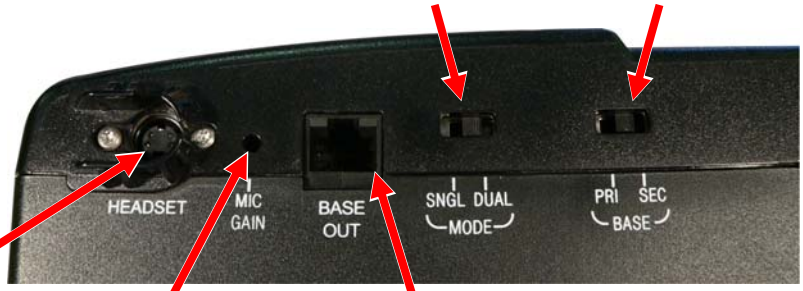
Microphone gain adjustment for left headset

Left headset connector

**Right Side Panel —**

Single/Dual base station selection switch

Primary/Secondary base station selection switch




Right headset connector

Microphone gain adjustment for right headset

Cable "output" to another base station

**Rear Panel —**

Power supply connector


Antenna connectors

Auxiliary audio input/output connector

## Beltpac



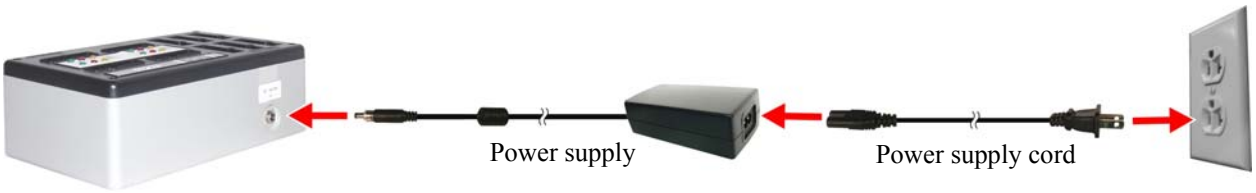
## All-In-One Headset (optional)

# SECTION 3. EQUIPMENT SETUP

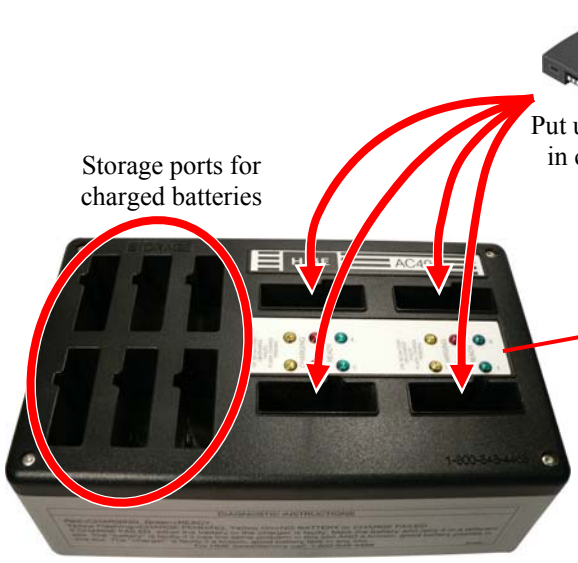
## *BATTERY CHARGER*

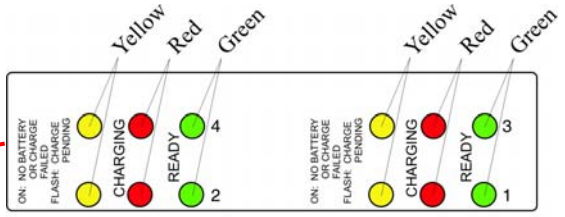
NOTE: **Set up the battery charger and charge all beltpac batteries while you are setting up the base station**

1 Connect power supply to charger and electrical outlet




2 Charge all beltpac batteries
Charging time is approximately 3 hours




### Status lights next to each charging port

**Red light**
- Stays on steady while battery is charging

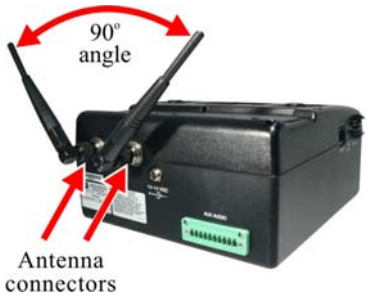
**Green light**
- Goes on when battery is fully charged

**Yellow light**
- Stays on steady when charging port is empty
- Flashes if battery is too hot to charge
- Next to battery in charging port means charge has failed – See instructions on side of charger

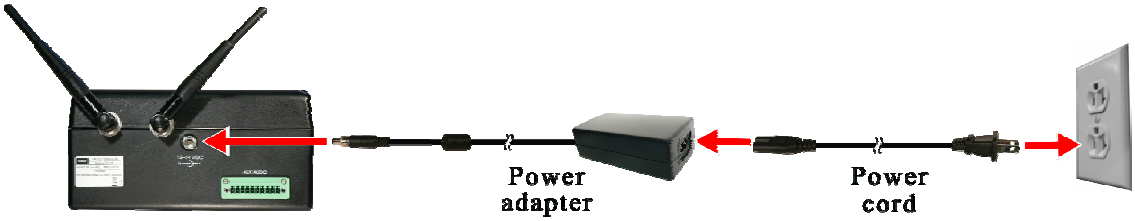
# *BASE STATION*

1 Screw both antennas onto the connectors on the back of the base station

Tighten at 90° angle

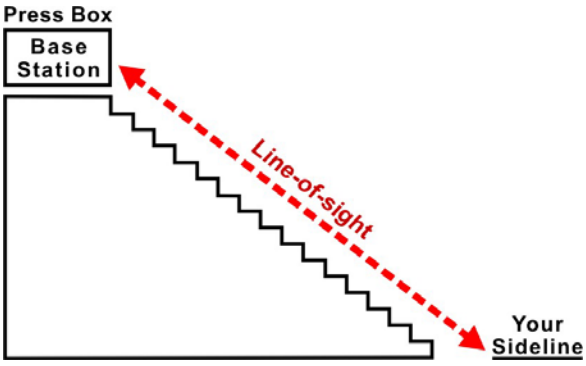



2 Plug power adapter into base station and screw nut onto connector, then plug power cord into power adapter and electrical outlet




NOTE: **A fully charged battery can be kept in the base station as a backup in case of AC power interruption**

3 Set up base station in press box, where no objects are blocking the line-of-sight from base station to your sideline
If interference is caused by objects in line-of-sight or sun screen on press box windows, refer to remote antenna installation on page 16




4 Press POWER button to turn power on

5 Plug headsets into base station, inserting headset plugs all the way into connectors

# Optional Battery Operation of Base Station

The base station can operate on battery power when AC power is unavailable

NOTE: **Always plug base station into AC power when it is available**
**Turn base station off during halftime to conserve battery power**

Typical base station battery life when used continuously is as follows

| | |
|---|---|
| Energizer Lithium | 6 hours |
| BAT850 Rechargeable Battery | 3 hours |
| Duracell Coppertop | 1 hour |

1 If you are using the battery sled, load 6 “AA” batteries into it

2 Pull back on the battery compartment latches and lift the battery compartment cover on the base station

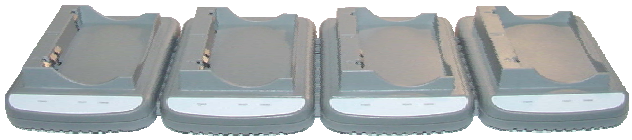


Battery sled


BAT850 Battery

3 Insert the battery sled or rechargeable BAT850 battery (optional) into the battery compartment and close the cover

4 If you are using the BAT850 battery, put it in the AC850 battery charger (optional) for recharging after each use
Follow the instructions received with the charger
Charging time is approximately 3 hours


AC850 Battery Charger

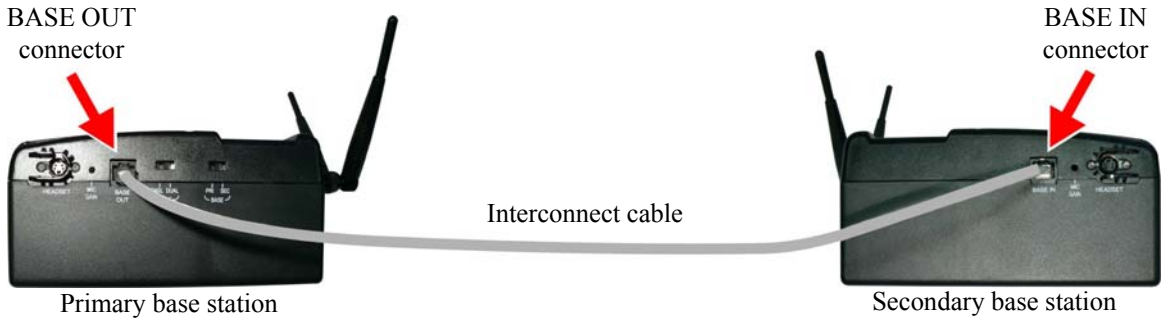
NOTE: **When base station battery power is low, everyone connected to or registered to that base station will hear a tone in their headset, repeating every 8 seconds and both headset select lights will blink**

# Multiple Base Stations

Up to 20 coaches can communicate using the DX300, 5 per base station, by interconnecting up to 4 base stations as described below

## Audio Connection

Connect base stations with the provided interconnect cable, from the BASE OUT connector on one to the BASE IN connector on the other

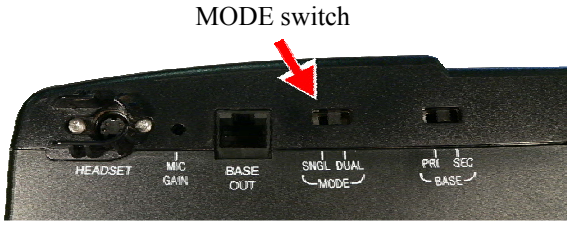



## Single/Dual Channel Setting

Single channel (SNGL) — 4 beltpacs and/or all-in-one headsets can be used in the hands-free mode

Dual channel (DUAL) — 3 beltpacs and/or all-in-one headsets can be used in the hands-free mode

On the right side of the base stations, set the MODE switch to the SNGL or DUAL position

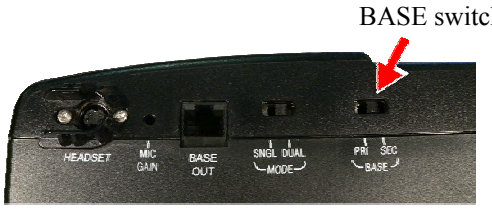



Right side of base station

## Initialize Multiple Base Stations

Multiple base stations must be “initialized” according to the following instructions, so their frequencies will not cause self-interference
After initializing each base station, register each beltpac that will be used with that base station

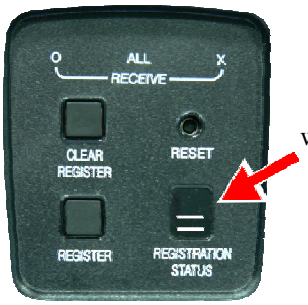
1 On the right side of the secondary base station, place the BASE switch in the SEC position



Right side of base station

2 With the primary base station powered on first, turn on the secondary base station

The REGISTRATION STATUS window will show a double bar



Registration status window with double bar

3 Press the REGISTER button on the primary base station
The REGISTRATION STATUS window will show a small “o”


4 Press the REGISTER button on the secondary base station to assign it a number (1, 2 or 3)
Wait until the base is initialized (approximately 10 seconds)

RECOMMENDED: If only two base stations will be used, set the secondary base station to #2

5 When initialization is complete, the REGISTRATION STATUS window will show one bar


6 Press the REGISTER button on the primary base station to clear the REGISTRATION STATUS window
The display will
also go blank after timing out

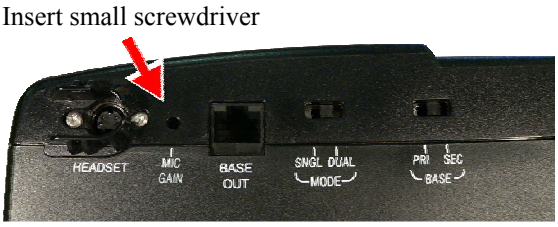

7 Repeat steps 1 – 6 to initialize up to three secondary base stations

NOTE: **If you have more than one base station, you must register each beltpac to the base station it will be used with**

# Base Station Microphone Gain Adjustment

The microphone gain adjustment allows you to adjust the level of your voice as it is transmitted from the headsets plugged into the base station

1 On the right side of a base station, locate the recessed MIC GAIN adjustment



Base station microphone gain adjustment

2 Insert a small screwdriver in the hole and turn the adjustment clockwise to increase or counterclockwise to decrease microphone gain

3 Speak into the right headset microphone and listen to your own voice level (sidetone) in the headset as you adjust the microphone gain

4 Repeat steps 1 through 3 for left side headset

5 Repeat steps 1 through 4 for each base station

NOTE: **Base station microphone gain is factory set at about one-third from minimum level**

## Beltpac Registration

NOTE: **Registration of all-in-one headsets is the same as the beltpac registration described below, except for step 2**
**If you have more than one base station, you must register each beltpac to the base station it will be used with**

1. Turn the base station power on, and beltpac power off
2. Plug the headset into the beltpac and put the headset on your head
3. Press the REGISTER button on the base station registration panel

   A lower case "o" will appear on the REGISTRATION STATUS window
4. Press and hold the ALL button on the beltpac while you press and release its PWR (power) button

   After a brief delay, you should hear "Registration complete" in the headset

   An ID number for this beltpac will appear briefly on the REGISTRATION STATUS window
5. Repeat steps 1 through 4 for each beltpac



NOTE: **If the registration is not successful, you will hear "Registration failed."**
**If this happens, refer to Section 5. TROUBLESHOOTING, on page 21**

NOTE: **If you try to register more than 15 beltpacs to a base station:**

- **An "F" (Full) will appear in the REGISTRATION STATUS window and you will hear "Registration failed" in the headset**
- **Clear all current registrations by pressing and holding the CLEAR REGISTRATION button while you press and release the RESET button with a pen point**
  **Continue holding the CLEAR REGISTRATION button after you release the RESET button until the clear code "c" (lower case) appears on the REGISTRATION STATUS window**
- **Register all beltpacs, one at a time, including previously registered beltpacs**

## Beltpac or All-In-One Headset Operating Mode Setup

Set up beltpacs and/or all-in-one headsets to operate in the desired mode by pressing and holding the button combinations shown below when you press the PWR (power) button to turn the unit on

| Mode | Button Combination | Button Functions |
|---|---|---|
| Head Coach (default) | Hold **X** + **O** + **ALL** and press **PWR** | **X**, **O** & **ALL** have normal functions |
| NOTE: **Beltpacs and all-in-one headsets are shipped in the Head Coach mode** | | |
| Offense only | Hold **O** and press **PWR** | **X** & **O** work as **O**<br>**ALL** has no function |
| Offense + ALL | Hold **O** + **ALL** and press **PWR** | **X** & **O** work as **O**<br>**ALL** has normal function |
| Defense only | Hold **X** and press **PWR** | **X** & **O** work as **X**<br>**ALL** has no function |
| Defense + ALL | Hold **X** + **ALL** and press **PWR** | **X** & **O** work as **X**<br>**ALL** has normal function |
| Offense + Defense only | Hold **X** + **O** and press **PWR** | **X** & **O** have normal functions<br>**ALL** has no function |
| Latching<br>(Hands-Free, Full-Duplex) | Hold **ALL** + ▲ and press **PWR** | **X**, **O** & **ALL** will latch on when pressed and released, for a normal two-way conversation |
| Push-To-Talk (PTT) | Hold **ALL** + ▼ and press **PWR** | **X**, **O** & **ALL** must be pressed and held while you talk, and released to listen |

NOTE: **Mode settings will be stored, so your beltpacs and/or all-in-one headsets will have the same mode settings after you turn them off and back on**

NOTE: **ALL does not latch on, and must be held down to hear both O and X**

# Beltpac or All-In-One Headset Adjustments

## Side Tone Adjustment

When you speak into the microphone, you can hear side tone (your own voice) in the headset

Side tone can be adjusted as follows:

1. Be sure the beltpac or all-in-one headset power is on
2. While holding down the “O” button, press the volume-up ▲ or volume-down ▼ button as many times as needed to reach an acceptable level
   You do not hear beeps except for maximum or minimum double beep

   Maximum side tone level is recommended

## Microphone Gain Adjustment

Some users speak louder or softer than average

The microphone gain adjustment helps to compensate for extremes in speaking level of coaches using beltpacs or all-in-one headsets

| NOTE: | **The microphone gain can be monitored through sidetone, or preferably by someone else using a beltpac or all-in-one headset, or at the base station** |
|---|---|

1. Be sure the beltpac or all-in-one headset power is on
2. While holding down the “X” button, press the volume-up ▲ or volume-down ▼ button as many times as needed to reach an acceptable level
   You do not hear beeps except for maximum or minimum double beep
   Recommended microphone gain levels are:
   Beltpacs – 10 clicks down from maximum
   All-in-one headsets – 12 clicks down from maximum

| NOTE: | **You will hear “Maximum” if you attempt to go higher than maximum microphone gain**<br>**You will hear repeating beeps if you attempt to go lower than minimum microphone gain**<br>**Microphone gain and side tone adjustments will be saved in memory and does not need to be reset after the unit is turned off and on** |
|---|---|

# *OPTIONAL REMOTE ANTENNA INSTALLATION*

It may be necessary to locate the antennas away from the base station if it is not possible to avoid obstructions between it and the sideline, or if the press box has windows that are coated with a metalized sun reflecting film Either of these situations may block signals from the press box base station to the beltpacs on the field

Remote antenna kits with either 6 foot (1.83 meter) or 30 foot (9.14 meter) cables can be used to mount the antennas wherever necessary to alleviate this problem

To order a remote antenna kit, refer to the optional equipment shown on page 3. Installation instructions are enclosed with the remote antenna kit

# *OPTIONAL AUXILIARY EQUIPMENT CONNECTION*

Auxiliary equipment such as audio/video recorder or a hardwired intercom can be connected to the rear panel of the base station

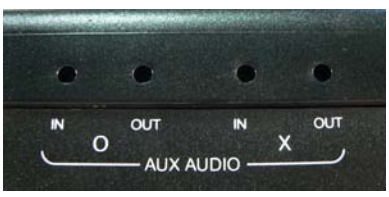
1 Connect the wires from your auxiliary audio equipment to the enclosed 10-pin connector according to the following table


10-pin
spring clamp connector

| Pin | Connections | |
|---|---|---|
| 1 | Aux In − O | Differential pair |
| 2 | Aux In + O | |
| 3 | Aux Out − O | Differential pair |
| 4 | Aux Out + O | |
| 5 | Ground | |
| 6 | No Connection | |
| 7 | Aux In − X | Differential pair |
| 8 | Aux In + X | |
| 9 | Aux Out − X | Differential pair |
| 10 | Aux Out + X | |

2 Plug the connector into the back panel of the base station as shown above

3 Using a small screwdriver in the holes on the front panel of the base station, you can adjust the IN and OUT sound level of “O” and “X” communication channels as needed



# SECTION 4. EQUIPMENT OPERATION

## *THE BASICS*

### IN THE PRESS BOX –

### Base Station Operation


1 Press base station POWER button to turn on power

2 Put left or right headset on your head
Use headset controls on same side of base station as headset

3 Adjust headset volume as needed

> *CAUTION:* ***Having your headset at a high volume level for a long time can cause hearing damage***

4 Press channel SELECT button; Green light appears above O, ALL or X selection — Press SELECT button again to change selection

5 To talk to coaches, press and release TALK button – Green light turns red
Talk and listen to coaches as in normal telephone conversation
Press and release TALK button again when you finish talking
(You will still hear the other coaches but they will not hear you)

6 To turn base station off, press and hold POWER button until the lights go off

## ON THE FIELD –

## Beltpac / All-In-One Headset Operation

1 Be sure fully charged battery is in the unit

2 If using beltpac —
Plug headset into beltpac and put headset on your head
Slide beltpac into pouch and clip it on your belt

3 Press and release PWR (power) button to turn unit on

Beltpac power button


All-in-one headset power button
(above earpiece on inside surface)

4 Press and release O button to communicate with offense coaches or X button to communicate with defense coaches

Speak to offensive coaches

Speak to defensive coaches

5 To communicate with both offense and defense coaches, press and hold ALL button while talking

Speak to all coaches

6 Adjust headset volume as needed


Increase volume


Decrease volume

| | |
|---|---|
| *CAUTION:* | ***Having your headset at a high volume level for a long time can cause hearing damage*** |

7 To turn unit off, press and hold power button for about 2 seconds until you hear “Power off”

## Changing Batteries

Beltpac batteries typically provide 20 hours of continuous use in listen mode

If you hear “Change battery” in your headset —

1. If using beltpac, remove it from its pouch
2. Slide battery release latch in direction of arrow
3. Lift battery out of beltpac or headset
4. Place battery in battery charger port for recharging
5. Install fully charged battery in beltpac or headset
6. If using beltpac, put it back in its pouch


**Beltpac**


**All-in-one headset**

# SECTION 5. TROUBLESHOOTING

**If you are unable to correct any of the problems described below or if your problem is not covered, call 1-800-909-6604 for assistance**

- **Power light on base station does not come on when power button is pressed**
  Be sure the power supply is properly connected to the base station, and the power cord is properly connected to the power supply and electrical outlet
  If operating on battery power, be sure the battery is charged and in the battery compartment with the cover is securely closed

- **Beltpac/Headset power lights do not turn green and you hear "out of range"**
  Be sure the base station power is on
  Turn beltpac/headset power on and off
  Beltpac/Headset may be too far from the base station

- **When trying to register a beltpac/headset, you hear "registration failed"**
  Press the **RESET** button on the base station with the point of a pen
  The **REGISTRATION STATUS** window will show "**8**" and then become blank
  Try again to register the beltpac/headset
  If registration fails again, call your dealer for assistance.

- **Other coaches can not hear me when I talk**
  Be sure you are pressing the **X** or **O** button on the beltpac/headset, or the **TALK** button on the base station
  Be sure you are pressing the button for the correct channel
  Be sure the headset plug is properly connected to the beltpac or base station

- **With more than one base station, offensive spotter can not hear O or ALL transmission from another base, or defensive spotter can not hear X or ALL transmission from another base**
  Be sure interface cable is properly connected from BASE OUT on the primary base station to BASE IN on the secondary base station, and so on
  If problem is not resolved, try using a different interface cable

- **No or low auxiliary audio sound**
  Check wiring from auxiliary equipment to AUX AUDIO connector on back of the base station
  Turn AUX AUDIO adjustments on front of base station with a small standard (flat) screw driver, clockwise to increase level and counterclockwise to decrease level

- **Coaches using beltpacs or all-in-one headsets can not hear or talk to coaches using base station headsets**

  Be sure base station headsets are fully plugged into the base station headset connectors

  Be sure the appropriate SELECT lights are red (O, X or ALL) when coaches at base station are talking

  Be sure coaches are talking or listening on the right channel (O, X or ALL)

- **Beltpac range is bad**

  Be sure antennas are properly connected and tightened on base station

  Be sure base station is positioned where there are no physical obstructions blocking line-of-sight from the base station to your sideline

- **Beeping is heard in base station headset and SELECT lights are blinking**

  Base station is operating on battery power and battery is low

- **Not all beltpac buttons are working**

  Buttons may have been “locked out” in beltpac setup (See page 14)

- **There is interference from a cordless telephone**

  If there is a 2400MHz cordless telephone nearby, interference may occur

  If it does occur, changing frequencies on the telephone should eliminate the problem

  If it does not, move the phone as far as possible from the base station, or use another type phone

**(If your base station does not have a battery backup)**
**In the event of an electrical power outage** — such as from lightning or a power generator failure, if you experience problems with your DX300 equipment after the power comes on again, unplug the AC power supply from its electrical outlet and wait 15 seconds, then plug it back in.

# *FREQUENTLY ASKED QUESTIONS*

**1.** Are the battery charger and base station power supplies interchangeable?

Yes

**2.** What is the maximum recommended number of base stations that can be linked together with interconnect cables?

Four

**3.** Does linking the base stations automatically prevent them from interfering with each other?

No, all base that are linked together must be initialized to prevent them from interfering with each other's frequencies

**4.** If the primary base station is turned off just momentarily (before the secondary base(s) have a chance to start working independently), will the secondary base(s) automatically re-initialize to the primary?

Yes, the secondary base(s) will re-establish communication without being initialized again

**5.** Will a secondary base station continue to operate if its primary is turned off for a period of time?

Yes & No. Secondary base stations will initially stop operating when the primary base is turned off, but will resume operation independently after about 40 seconds. Three bars will appear in its REGISTRATION STATUS display, and its beltpacs will still be able to communicate
If the primary base station is turned back on, the secondary base must be turned off and on again to re-establish proper initialization

**6.** Can I use more than three beltpacs on a single base station in dual channel mode?

Yes, but only three users will be able to transmit at the same time
Up to 15 beltpacs can be registered to a single base station
Beltpacs and all-in-one headsets should be placed in press-to-talk mode when more than 3 beltpacs or all-in-one headsets are used (See page 10)

**7.** What should I do if my carrying case and equipment get wet?

Dry them out thoroughly before further use
Be sure all equipment is dry before using it again
*CAUTION: Plugging wet electrical equipment into an AC power outlet is dangerous!*

# SECTION 6. TECHNICAL DATA

## *EQUIPMENT SPECIFICATIONS*

### Base Station

**GENERAL —**

| | |
|---|---|
| Frequency Range: | 2400 – 2483.5 MHz |
| Frequency Response: | 200 Hz to 3.5 kHz |
| Power Requirements: | 100-240VAC, 50-60Hz<br>12-14VDC or six AA batteries (NiMH optional) |
| Temperature Range: | 32-122°F (0-50°C) |
| Size: | 8” x 8” x 3.5” (20.32 x 20.32 x 8.89 cm) |
| Weight: | 2.75 lb with battery (1.25 kg) |
| # of Beltpacs per Base: | 15 can be registered; any 4 can have simultaneous full-duplex communication at one time (in single channel mode) |
| 8-Wire I/O: | RJ45, 600Ω balanced out, high impedance in |
| Auxiliary Audio: | 10-Ckt Phoenix connector, 600Ω balanced out, high impedance in, level adjustable |
| Headset Connectors: | 4-pin mini-DIN |
| Electret microphone: | 45 KΩ |
| Headset Output: | 200mW into 32Ω |
| Top Panel Controls and Indicators: | Power button<br>Left and Right headset controls<br>Rotary knobs for headset volume (VOL) adjustment<br>Headset SELECT buttons (O=Offense, X=Defense or ALL)<br>Headset TALK buttons<br>Registration controls<br>CLEAR REGISTER button<br>REGISTER button<br>RESET switch (recessed)<br>REGISTRATION STATUS indicator<br>Headset transmit dual-color LEDs, left and right (red/green) – O, X, ALL<br>RECEIVE LEDs (green) – O, X, ALL |
| Front Panel: | Auxiliary input and output level adjustments |
| Left Panel: | 8-wire audio port<br>Microphone gain adjustment<br>Left headset connector |
| Right Panel: | Right headset connector<br>Microphone gain adjustment<br>8-wire audio port<br>Single/Dual selection switch<br>Primary/Secondary selection switch |
| Rear Panel: | Auxiliary input and output connectors<br>Antenna connectors |
| Antenna Type: | External ½ -wave dipole (R-TNC connector)<br>RX/TX horizontal/vertical diversity |
| System Distortion: | <2% |
| Communication Security: | 64-bit encryption dual-slot diversity |

**TRANSMITTER —**

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

**RECEIVER —**

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

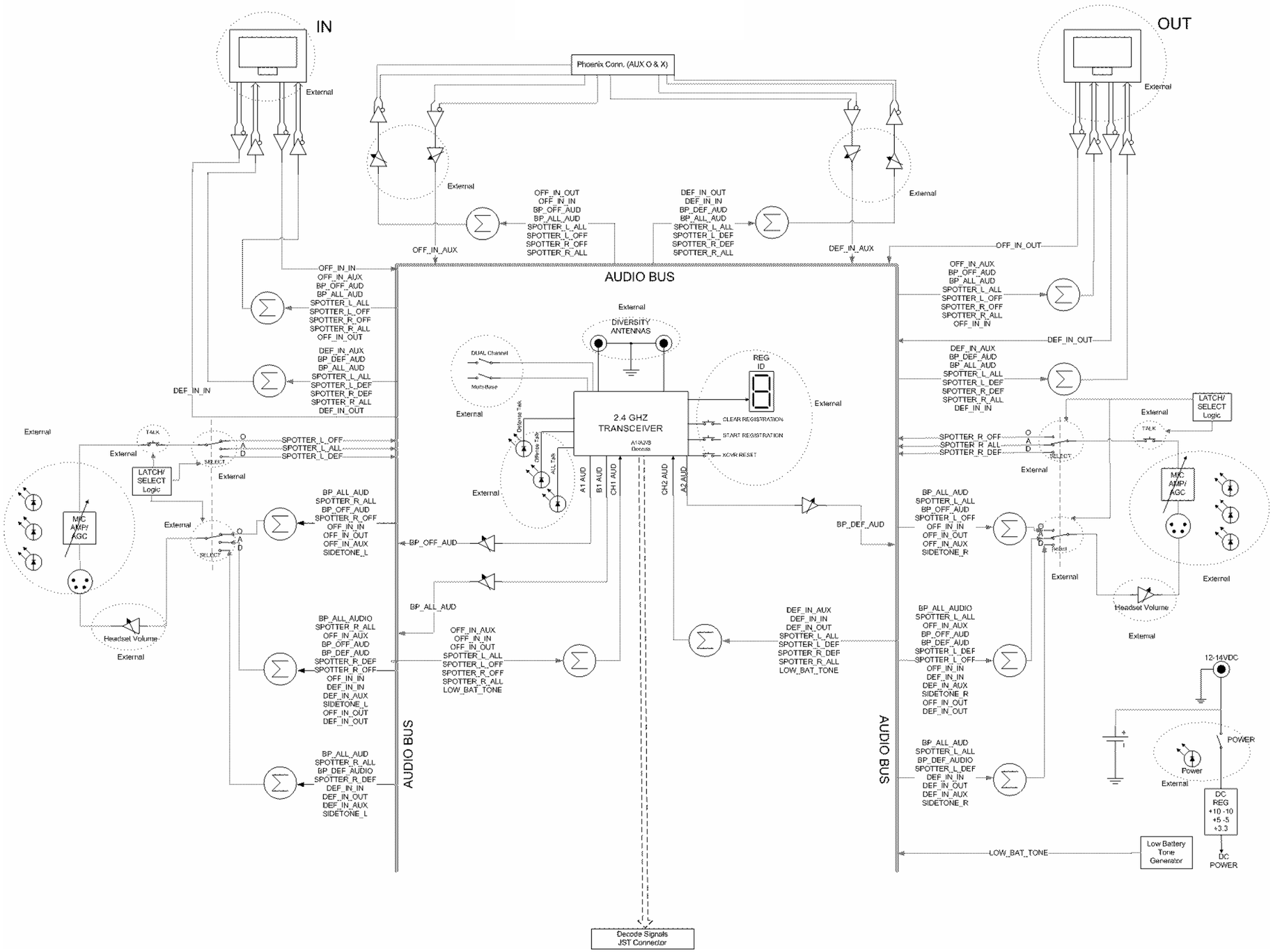
## Beltpac

| | |
|---|---|
| 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<br>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 PWR, Volume-up ▲, Volume-down ▼, O, X, ALL |
| Indicators: | Dual-color LED (red/green) |

## All-In-One Headset

| | |
|---|---|
| Frequency Range: | 2400 MHz – 2483.5 MHz |
| Antenna: | Internal |
| Frequency Response: | 200 Hz to 3.5 kHz |
| Transmit Power: | 100mW burst |
| RF Sensitivity: | <–90dBm w $10^{-3}$ BER |
| Battery Requirements: | 3.6V lithium ion, rechargeable |
| Battery Life: | Hands-free – up to 14 hours<br>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 ▼, O, X, ALL |
| Indicators: | Transmit LED (red in defense / green in offense)<br>Power LED (red/green) |

# BLOCK DIAGRAM



# SECTION 7. INDEX