

# DX300ES

## Wireless Headset System



### Operating Instructions



**HM ELECTRONICS, INC.**  
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®

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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 DX300ES is in compliance with the essential requirements and other relevant provisions of R&TTE Directive 1999/5/EC.



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

## WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The European Union (EU) WEEE Directive (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.



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

## SECTION 1. INTRODUCTION

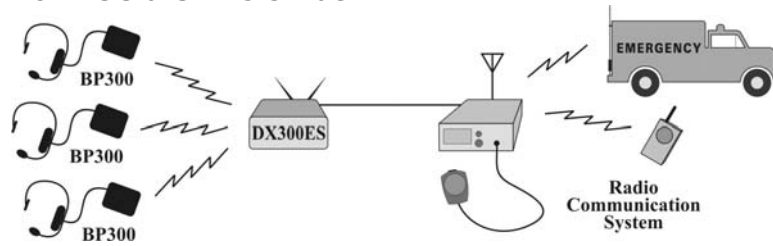
The DX300ES is a digital wireless communication system that enables hands-free two-way secure communication on two independent channels, or both channels at the same time. It can be operated with AC or battery power. Multiple base stations can be interconnected for expanded capabilities. In addition to the standard communication among base station and beltpac operators, the system can be configured to operate with almost any radio or digital matrix (4-Wire) communication system.

This manual provides detailed setup and operating instructions for your DX300ES system.

The following examples are of typical DX300ES applications.

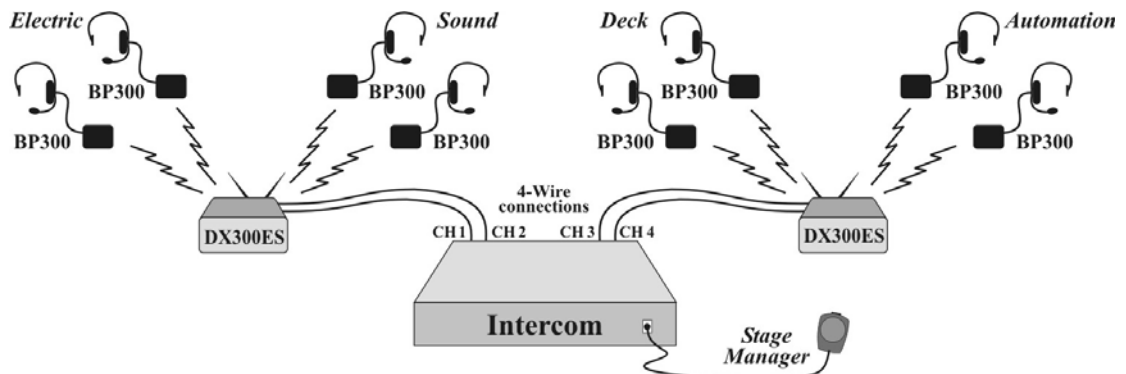
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### Radio Communication Center



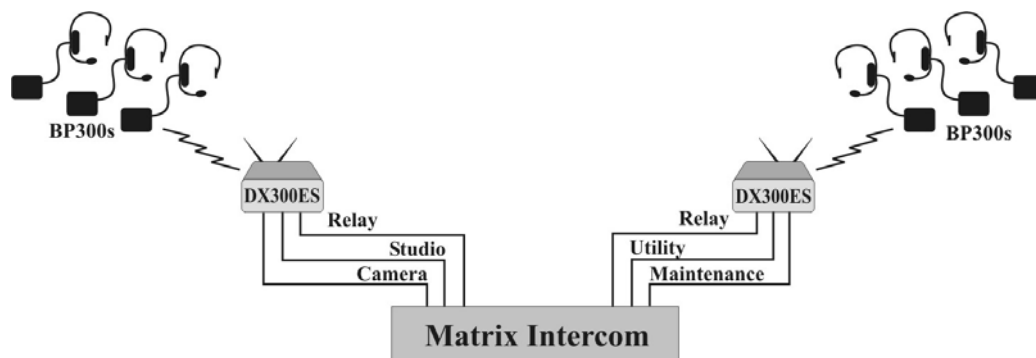
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### Theatre



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### Broadcasting



## SECTION 2. EQUIPMENT IDENTIFICATION

### *STANDARD EQUIPMENT*



Base station



Antennas



Power adapter and cord



Headset



Base station  
interconnect cable



8-pin and 10-pin  
spring clamp  
connectors



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

<p><b>Headset with dual ear muffs</b> Model # HS15D</p> 	<p><b>All-in-one headset with battery</b> Model # WH300</p> 
<p><b>Headset extension cable, 6 ft (1.83 meter)</b></p> 	<p><b>Foam earmuffs for all-in-one headset</b></p> 
<p><b>Rechargeable battery for base station</b> Model # BAT850</p> 	<p><b>Battery charger for use with rechargeable base station batteries</b> Model # AC850</p> 
<p><b>Remote antenna kit with 6 foot (1.83 meter) cable and bracket</b></p> 	<p><b>Remote antenna kit with 30 foot (9.14 meter) cable and bracket</b></p> 
<p><b>Adapter cable for headset with dynamic microphone and XLR connector</b> Model # MD-XLR4F MD-XLR4M MD-XLR5F</p> 	<p><b>Lightweight headset</b> Model # HS16</p> 

# EQUIPMENT FEATURES

## Base Station

### Top Panel —





## Front Panel —



Auxiliary audio  
in/out volume  
adjustments  
(recessed)

## Left Side Panel —

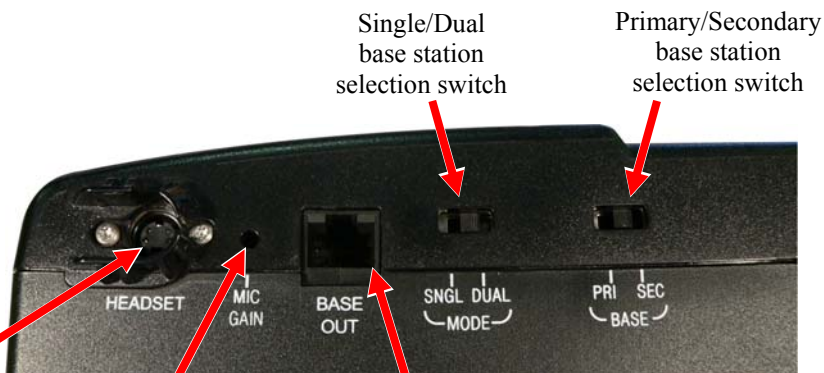


Cable “input”  
from another  
base station

Microphone gain  
adjustment for  
left headset

Left headset  
connector

## Right Side Panel —



Right  
headset  
connector

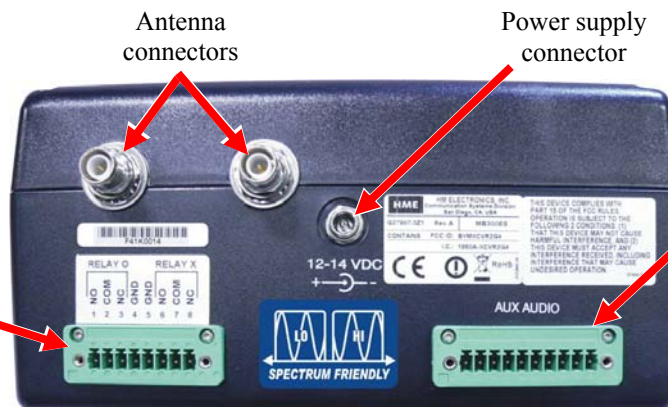
Microphone gain  
adjustment for  
right headset

Cable “output”  
to another  
base station

Single/Dual  
base station  
selection switch

Primary/Secondary  
base station  
selection switch

## Rear Panel —



Antenna  
connectors

Power supply  
connector

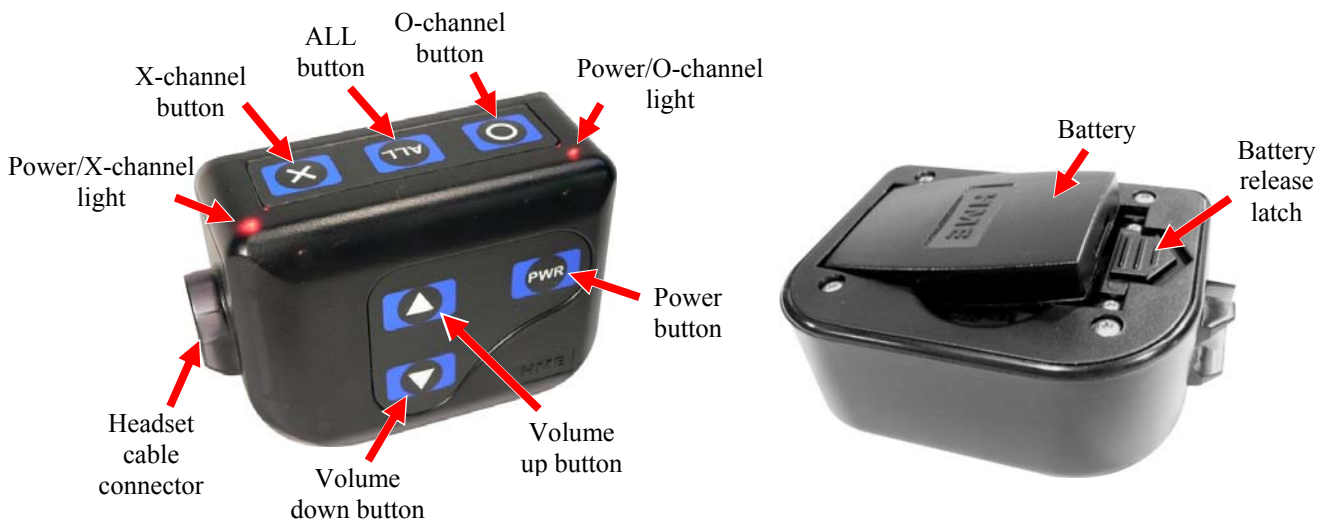
8-pin connector for  
equipment relay  
controlled by  
beltpac buttons

10-pin connector  
for auxiliary  
audio connection  
input/output



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## Belpac



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## All-In-One Headset (optional)

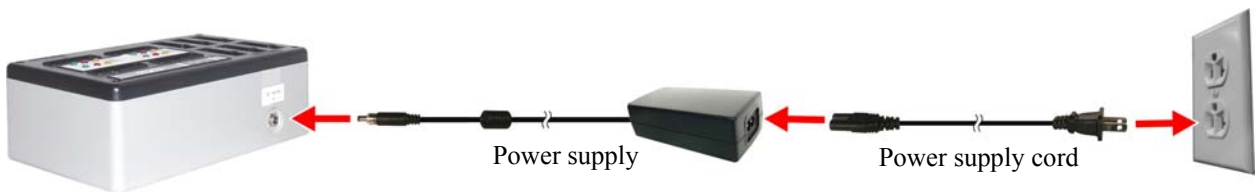


## SECTION 3. EQUIPMENT SETUP

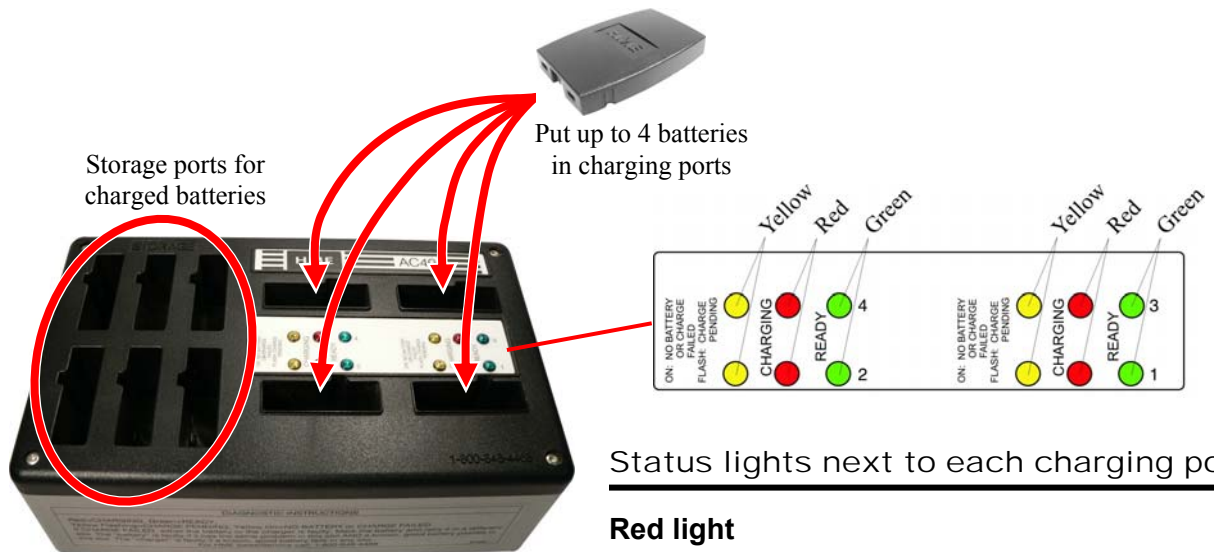
### BATTERY CHARGER

**NOTE:** Set up the battery charger and charge all beltpac and/or all-in-one headset 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



#### 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
- If on steady when battery is in charging port, charge has failed – See instructions on side of charger

# BASE STATION

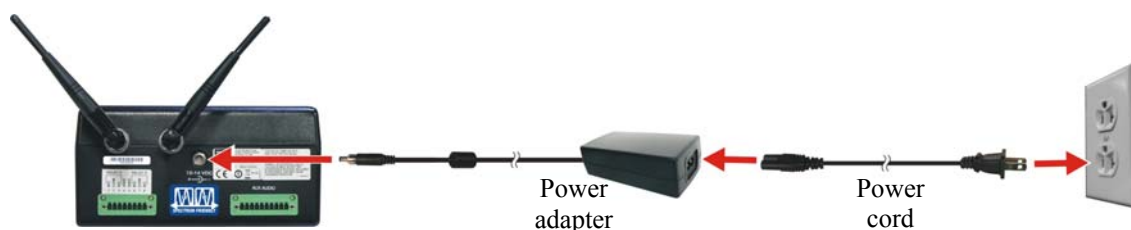
## Antenna and AC Power Connections

- 1 Screw both antennas onto the connectors on the back of the base station. Tighten at 90° angle.



- 2 Set up base station where no objects are blocking the line-of-sight from base station to the belt-pacs. If base station can not be set up with no objects in line-of-sight between it and the belt-pacs, install the antennas away from the base station. See page 17 for remote antenna installation.

- 3 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. If AC power is unavailable, the base station can operate on battery power (See page 9).

- 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

**NOTE:** Always plug base station into AC power when it is available.  
Turn base station off when it is not being used, 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.



- 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.

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## Spectrum Friendly™ Interference Avoidance

Interference such as popping sounds may occur when frequencies of a WiFi system, a wireless DMX lighting system or another HME system is in use. This interference may be avoided if these systems can be limited to one portion of the 2.4GHz to 2.48GHz frequency band, and your base station is set to operate in the opposite half of the band as follows:

- 1 Turn the base station power on.

The STATUS window will show “8” for a few seconds.

After the “8” disappears, the STATUS window will be blank.



- 2 Press and hold the CLEAR/BAND button and, while you are still holding the CLEAR/BAND button, press and hold the REGISTER button.

When the STATUS window shows L, H or A, release both buttons.



- 3 Press the CLEAR/BAND button repeatedly to cycle through parts of the frequency band — L = Low end, H = High end and A = All

Stop at the desired setting and wait until “c” appears on the STATUS display.



**NOTE:** Base stations are shipped in the “A” (default) position.  
“c” will appear on the STATUS display if you are re-setting the frequency band.  
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.

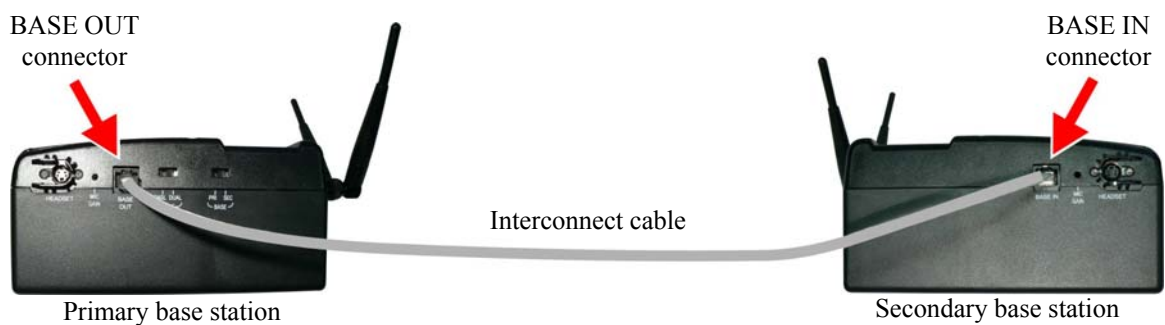
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## Multiple Base Stations

Up to 20 crewmembers can communicate in the dual-channel mode, 5 per base station, by interconnecting base stations as described below.

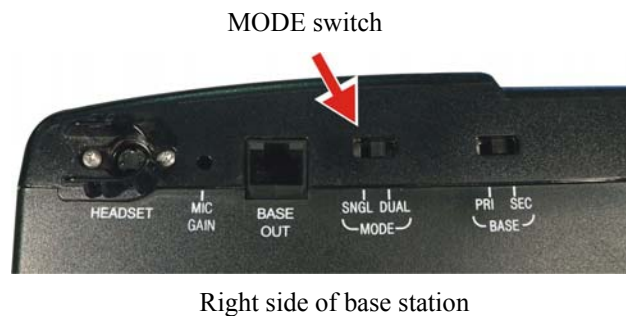
### Audio Connection

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



### Dual Channel Setting

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



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

Single channel (SNGL) — When dual channel operation is not required, 4 beltpacs and/or all-in-one headsets can be used in the hands-free mode.



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## Multiple Base Station Initialization

Multiple base stations must be “initialized” according to the following instructions, so their frequencies will not cause interference.

After initializing each base station, register each beltpac that will be used with that base station (See page 15).

### Primary/Secondary Base Station Setting

Set the BASE switch on each base station as described below, and then configure each base station through the initialization procedure that follows.

On the right side of each base station, set the BASE switch as follows:

- 1 Primary base station – Leave the BASE switch in the PRI position.
- 2 Secondary base stations – On each secondary base station, move the BASE switch to the SEC position, and then press the base station POWER switch twice to turn the power off and back on again to activate the setting.



Right side of base station

- 3 With the primary base station powered on first, turn on the secondary base station.

The STATUS window will show “8” for a few seconds, and then a double bar.



STATUS window with double bar

- 4 Press the REGISTER button on the primary base station  
The STATUS window will show a small "o."



- 5 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.**

***HINT!* Mark each base station with its assigned number, and then, when registering belt pacs and/or all-in-one headsets, mark them with the number of the base station they are registered to, for later identification.**

- 6 When initialization is complete, the STATUS window will  
show one bar.



- 7 Press the REGISTER button on the primary base station  
to clear the STATUS window, or just wait and the display  
will automatically go blank after timing out.



- 8 Repeat steps 1 – 5 to initialize up to three secondary base stations.

**NOTE: When multiple HME base stations are to be used in the Spectrum Friendly™ mode, the primary base station should always be set to the required band first.**

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## Base Station Microphone Gain Adjustment

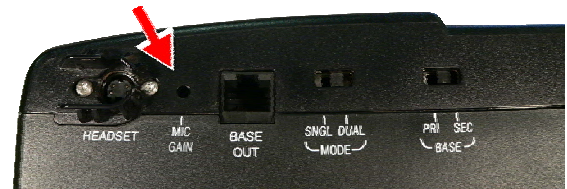
The microphone gain adjustment allows you to adjust the level of your voice as it is transmitted from the headsets plugged into the base station, to the rest of the system.

Microphone gain must be adjusted for each base station headset.

- 1 Use a headset that is plugged into the right side of a base station, and locate the MIC GAIN adjustment that is recessed in a hole on the right side of the base station.

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

Insert small screwdriver



Base station microphone gain adjustment

- 3 Speak into the headset microphone and listen to your own voice level (sidetone) in the headset as you adjust the microphone gain.
- 4 Use a headset that is plugged into the left side of a base station, and locate the MIC GAIN adjustment on the left side of the base station, and then repeat steps 2 and 3 for the left side headset.
- 5 Repeat steps 1 through 4 for each base station.

<p><b>NOTE:</b> Base station microphone gain is factory set at about one-third from minimum level.</p>
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# BELTPACS

## Belpac Registration

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

1 Turn the base station power on, and belpac power off.

2 Plug the headset into the belpac 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 STATUS window.

4 Press and hold the ALL button on the belpac 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 belpac will appear briefly on the STATUS window.

5 Repeat steps 1 through 4 for each belpac.



NOTE: If the registration is not successful, you will hear "Registration failed."  
If this happens, refer to TROUBLESHOOTING, on page 25.

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

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

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## Beltpac or All-In-One Headset Adjustments

### Sidetone Adjustment (Beltpac only, not on all-in-one headset)

When you speak into the microphone, you can hear sidetone (your own voice) in the beltpac headset.

Sidetone can be adjusted as follows:

- 1 Be sure the beltpac 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 sidetone level is recommended.

### Microphone Gain Adjustment

Some people speak louder or softer than average. The microphone gain adjustment helps to compensate for extremes in speaking level of individuals using belt-pacs or all-in-one headsets.

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

- 1 Be sure the belt-pac 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:  
    Belt-pacs – 12 clicks down from maximum  
    All-in-one headsets – 8 clicks down from maximum

NOTE: You will hear "Maximum" if you try to go above maximum microphone gain.  
You will hear repeating beeps if you try to go below minimum microphone gain.  
Microphone gain and sidetone adjustments will be saved in memory and do not need to be reset after the unit is turned off and on.

## *OPTIONAL REMOTE ANTENNA INSTALLATION*

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If it is not possible to avoid obstructions that may block signals between the base station and the beltpacs and/or all-in-one headsets, it may be necessary to locate the antennas away from the base station. 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, see optional equipment on page 3.

Installation instructions are enclosed with the remote antenna kit.



## OPTIONAL AUXILIARY EQUIPMENT CONNECTION

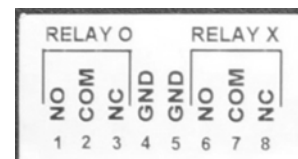
Equipment requiring 4-Wire audio interfacing, such as audio/video recorders or hardwired intercoms, can be connected to the 10-pin connector and plugged into the rear panel of the base station.

Equipment requiring relay closure, such as a router or mobile radio, can be connected to the 8-pin connector and plugged into rear panel of the base station.

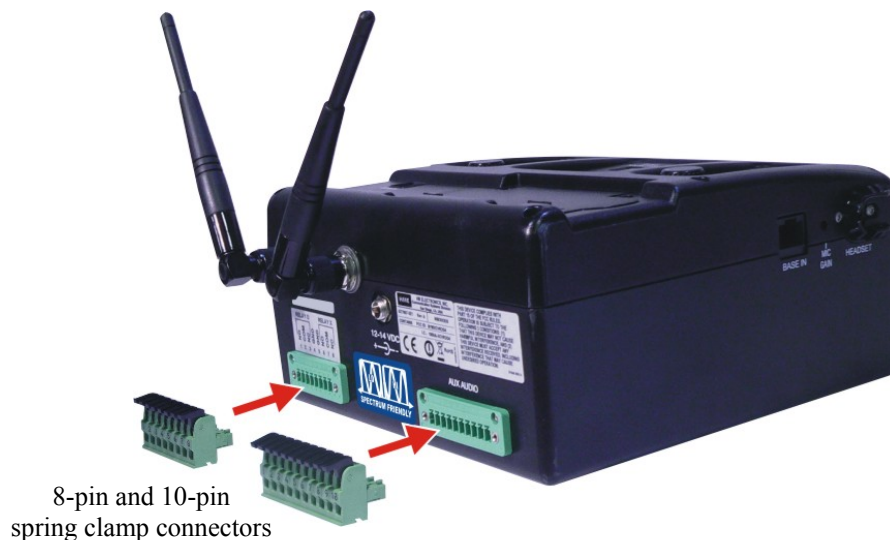
- 1 Connect the enclosed 10-pin connector to the wires from your auxiliary audio equipment according to this table.

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 Connect the enclosed 8-pin connector to the wires from equipment you would like to control from the O, X or ALL buttons on your belt-pacs and/or all-in-one headsets (i.e. long range radio).



- 3 Plug the connectors into the back panel of the base station.



- 4 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

### BASIC OPERATION

#### Base Station



- 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  
O = O channel only — ALL = both O & X channels — X = X channel only
- 5 To talk to beltpac and/or all-in-one headset users, press and release TALK button — Green light turns red.  
Talk and listen as in normal telephone conversation.  
Press and release TALK button again when you finish talking.  
(You will still hear them, but they will not hear you.)

**NOTE:** Base station TALK buttons do not activate relay closures.

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

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## Beltpac / All-In-One Headset

The O, X and ALL button functions described below are for operation in the standard default mode. The buttons can also be set to function in other modes. See page 22 for operating mode setups.

**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 O channel users, or press the X button to communicate with X channel users.



Speak to O channel users  
and activate O relay



Speak to X channel users  
and activate X relay

**5** To communicate with both O and X channel users, press and hold ALL button while talking.



Speak to ALL O and X channel users  
and activate both O and X relays

**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 belt pac, remove it from its pouch.
- 2 On belt pac or all-in-one headset, slide battery release latch in direction of arrow.
- 3 Lift battery out of belt pac or all-in-one headset.
- 4 Place battery in battery charger port for recharging.
- 5 Install fully charged battery in belt pac or all-in-one headset.
- 6 If using belt pac, put it back in its pouch.



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## 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
(default)	Hold <b>X + O + ALL</b> and press <b>PWR</b>	<b>X</b> = X-channel only <b>O</b> = O-channel only <b>ALL</b> = both X and O channels
O-channel only	Hold <b>O</b> and press <b>PWR</b>	<b>X &amp; O</b> both = O-channel <b>ALL</b> has no function
O-channel + ALL	Hold <b>O + ALL</b> and press <b>PWR</b>	<b>X &amp; O</b> both = O-channel <b>ALL</b> = both X and O channels
X-channel only	Hold <b>X</b> and press <b>PWR</b>	<b>X &amp; O</b> both = X-channel <b>ALL</b> has no function
X-channel + ALL	Hold <b>X + ALL</b> and press <b>PWR</b>	<b>X &amp; O</b> both = X-channel <b>ALL</b> = both X and O channels
O-channel + X-channel only	Hold <b>X + O</b> and press <b>PWR</b>	<b>X</b> = X-channel only <b>O</b> = O-channel only <b>ALL</b> has no function
Latching (Hands-Free, Full-Duplex)	Hold <b>ALL + ▲</b> and press <b>PWR</b>	<b>X &amp; O</b> will latch on when pressed and released, for a normal two-way conversation
Push-To-Talk (PTT)	Hold <b>ALL + ▼</b> and press <b>PWR</b>	<b>X, O &amp; ALL</b> 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.

# RADIO APPLICATIONS

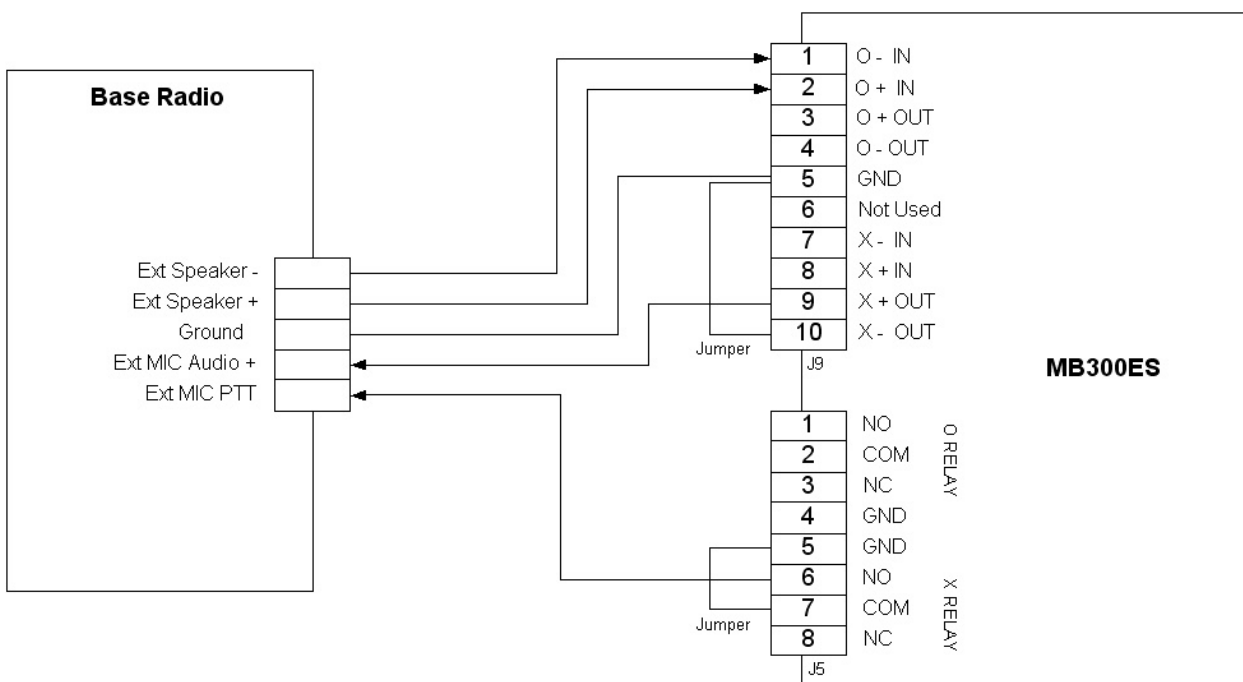
## Emergency Services

### Operating Scenario

- All crewmembers will hear both the Crew Channel and Radio Channel simultaneously.
- All crewmembers have the ability to talk to other crewmembers in either Latching (hands-free) or PTT (push-to-talk) modes, using either the O or X buttons.
- All crewmembers have the ability to talk to the radio channel in a PTT mode, using the ALL button.

### Beltpac Configuration

- Set for Latching mode with the O and ALL buttons enabled.
- The X button will work as a second O button.



**NOTE:** Application shown is for radio equipment requiring Ext MIC PTT connection to be pulled low to key radio transmitter.



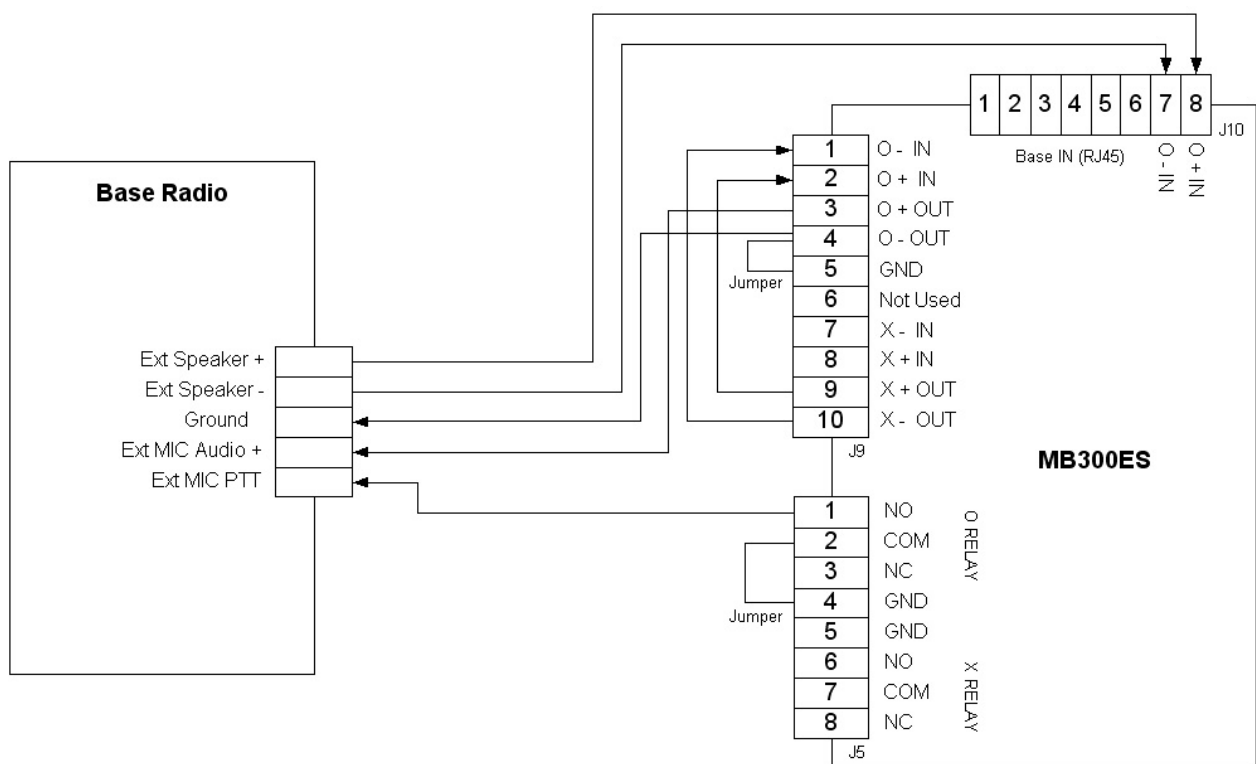
## Production Crew with Separate Radio Channel

### Operating Scenario

- Production Manager will monitor Radio Channel and Production Crew Channel simultaneously, hands free. Production Manager can selectively talk to Radio channel or Production Crew Channel.
- Production Crew members will hear and talk to Production crew members only.
- Radio Crew members will hear and talk to radio Crew members only.

### Beltpac Configuration

- Production Manager Beltpac set for X and O and ALL (monitor on O).
- Crew Beltpac set for X only.



**NOTE:** Application shown is for radio equipment requiring Ext MIC PTT connection to be pulled low to key radio transmitter.

## SECTION 5. TROUBLESHOOTING

If you are unable to correct any of the problems described below or if your problem is not covered, call 1-800-848-4468 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 securely closed.

- **Beltpac or all-in-one headset power lights do not turn green and you hear “out of range.”**

Be sure the base station power is on.

Turn beltpac or all-in-one headset power on and off.

Beltpac or all-in-one headset may be too far from the base station.

- **When trying to register a beltpac or all-in-one headset, you hear “registration failed.”**

Press the **RESET** button on the base station with the point of a pen.

The **STATUS** window will show “8” and then become blank.

Try again to register the beltpac or all-in-one headset.

If registration fails again, call your dealer for assistance.

- **No one can hear me when I talk.**

On the beltpac or all-in-one headset, be sure you are pressing the **X**, **O** or **ALL** button.

On the base station, be sure you have selected the correct channel, and you are pressing the **TALK** button.

Be sure the headset plug is properly connected to the beltpac or base station.

- **With more than one base station, one base station operator can not hear O or ALL transmission from another base, or another base station operator 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.

- **Beltpac or all-in-one headset users can not hear or talk to base station operators who are using 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 base station operators are talking.

Be sure everyone is 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 belt pacs or all-in-one headsets.

- **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 belt pac buttons are working.**

Button functions may have been changed to work in the desired operating mode (See page 22).

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

A 2400MHz cordless telephone nearby may cause interference, which may be corrected by doing the following:

Change frequencies on the phone.

Move the phone as far as possible from the base station.

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 DX300ES 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*

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

Yes.

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

Four.

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

No, all bases that are linked together must be initialized or set to the high or low portion of the frequency band to prevent them from interfering with each other's frequencies.

- **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.

- **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 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.

- **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 push-to-talk (PTT) mode when more than 3 beltpacs or all-in-one headsets are used (See page 22).

- **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:	All, 2400 – 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 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 Left and Right headset controls Rotary knobs for headset volume (VOL) adjustment Headset SELECT buttons (O, X or ALL) Headset TALK buttons Registration controls CLEAR/BAND button REGISTER button RESET switch (recessed) STATUS indicator Headset transmit dual-color LEDs, left and right (red/green) – O, X, ALL RECEIVE LEDs (green) – O, X, ALL
Front Panel:	Auxiliary input and output level adjustments
Left Panel:	8-wire audio port Microphone gain adjustment Left headset connector
Right Panel:	Right headset connector Microphone gain adjustment 8-wire audio port Single/Dual selection switch Primary/Secondary selection switch
Rear Panel:	Auxiliary input and output connectors Antenna connectors
Antenna Type:	External ½ -wave dipole (R-TNC connector) RX/TX horizontal/vertical diversity
System Distortion:	<2%
Communication Security:	64-bit encryption dual-slot diversity

## **TRANSMITTER —**

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

## **RECEIVER —**

Type:	Frequency hopping, spread spectrum
RF Sensitivity:	<-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 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 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 “X” channel / green in “O” channel) Power LED (red/green)





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