



HelixNet™

Partyline User Guide

V.1.2



Document Reference

Clear-Com HelixNet Partyline User Guide

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1 Introduction

This guide is intended to help you install, configure, and use the **HelixNet Partyline™** system.

HelixNet Partyline is a digital intercom system, featuring the award-winning I.V Core Technology from Clear-Com®. The system is designed to be as simple to use and configure as a two-wire intercom / analog Partyline system, while exploiting the flexibility and network management capabilities of a matrix system.

To expedite integration with your existing intercom infrastructure, HelixNet Partyline also features:

- Highly configurable Control I/O and Module settings.
- Flexible cabling options (microphone cable, fiber, CAT5).
- Optional Two-wire and Four-wire interface modules.

1.1 Audience

Chapters / appendices	Target audience (roles)
2 User Interfaces 3 Installing HelixNet Partyline 9 Specifications Appendix A: Compliance Appendix C: Cabling reference	Technicians and technical managers who have been tasked with: <ul style="list-style-type: none">• Installing HelixNet Partyline.• Integrating HelixNet Partyline with other intercom systems.
2 User Interfaces 4 Configuring and Managing the HMS-4X Main Station 5 Configuring and Managing the HBP-2X Beltpack 9 Specifications Appendix B: Menu maps	System administrators who have been tasked with configuring and administrating HelixNet Partyline.
2 User Interfaces 6 Using the HMS-4X Main Station 7 Using the HBP-2X Beltpack	Users (operators) of the HelixNet main station and beltpacks.

Table 1: Audience

1.2 Important Safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do **not** use this apparatus near water.
6. Clean only with dry cloth.
7. Do **not** block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do **not** install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do **not** defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-cord supply or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. **Warning:** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

1.2.1 Safety symbols

Familiarize yourself with the safety symbols in **Figure 1: Safety symbols**. These symbols are displayed on the apparatus and warn you of the potential danger of electric shock if the system is used improperly.

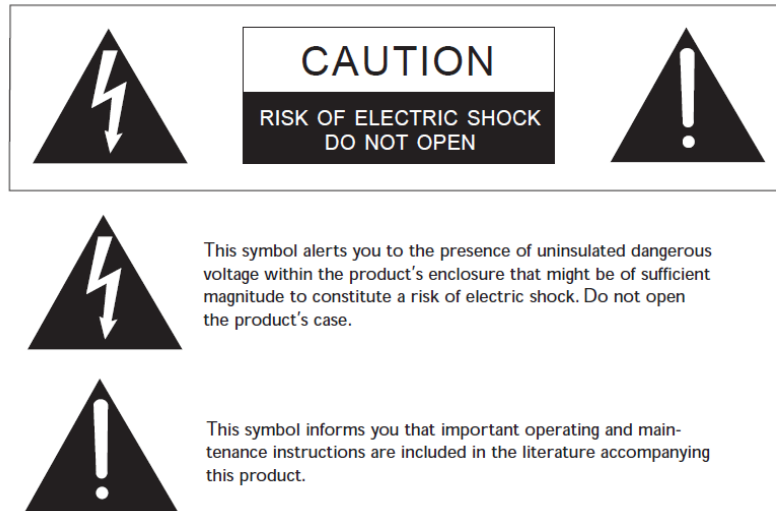


Figure 1: Safety symbols



Important note:

For compliance notices, see **Appendix A: Compliance**.

1.3 Further information

For the latest information about **HelixNet Partyline**, including software updates, see:

<http://www.clearcom.com/product/helixnet>.

For information about **Clear-Com accessories**, including headsets [] and gooseneck mics [], see <http://www.clearcom.com/product/accessories>.

For **legal** and **contact** information, see Page 2 of this guide.

2 User Interfaces

2.1 HMS-4X Main Station: Front panel

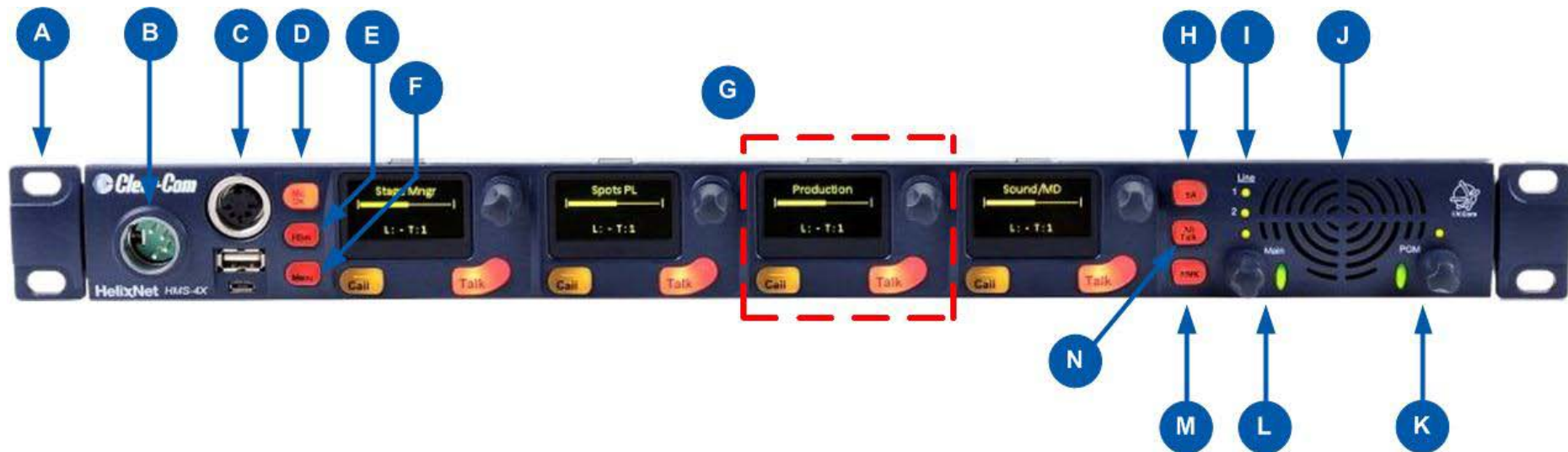


Figure 2: HMS-4X Main Station: Front panel

Key to HMS-4X Main Station: Front panel	
Feature	Description
A	Ear for rack mounting Main Station.
B	Headset socket (4-pin XLR–M)
C	Gooseneck microphone socket (3-pin female Tuchel connector)
D	Mic control [MIC ON]. Press to activate mic audio.
E	Headset key [HSET]. Press to activate the headset mic and deactivate the gooseneck mic (if connected). Audio output to the loudspeaker is diverted to the headphones.
F	Menu. Press to display the main station menus in the display screens [G]. Use the rotary control [H] for each display screen to scroll and select menu items.
G	Channel keyset. There is a keyset (set of controls) dedicated to each of the four available channels. See 2.1.1 HMS-4X Main Station front panel: Channel keyset.
H	<p>Stage Announce [SA]. Press to talk to connected Public Address (PA) / Stage Announce (SA) system (see 2.2 HMS-4X Main Station: Rear panel).</p> <p>When the SA is pressed, Mic select [MIC ON] is also lit bright red, indicating that mic audio is active.</p>
I	<p>LEDs for lines 1 and 2 (partylines). When an LED is lit:</p> <ul style="list-style-type: none"> Green, the line is functioning. Amber, the line is busy. Red, there is an error / issue with the line.
J	<p>Loudspeaker. When a headset is connected [B] and selected [E], loudspeaker output is diverted to the headphones.</p> <p>-</p>

<p>K</p>	<p>Program feed audio level rotary control [Program].</p> <p>To increase the volume of the program feed to the loudspeaker / headphones, turn clockwise (up to 360°).</p> <p>To decrease the volume, turn anticlockwise (up to 360°). As you increase or decrease the volume, the level control LEDs pass through a range of indicator colors:</p> <table border="1" data-bbox="357 501 1390 813"> <thead> <tr> <th>LED color</th><th>Volume level</th></tr> </thead> <tbody> <tr> <td>Green</td><td>Low</td></tr> <tr> <td>Amber / Green</td><td>Low / Medium</td></tr> <tr> <td>Amber</td><td>Medium</td></tr> <tr> <td>Red / Amber</td><td>Medium / High</td></tr> <tr> <td>Red</td><td>High</td></tr> </tbody> </table> <p style="text-align: center;">Table 2: Volume Indicator colors</p>	LED color	Volume level	Green	Low	Amber / Green	Low / Medium	Amber	Medium	Red / Amber	Medium / High	Red	High
LED color	Volume level												
Green	Low												
Amber / Green	Low / Medium												
Amber	Medium												
Red / Amber	Medium / High												
Red	High												
<p>L</p>	<p>Loudspeaker / Headphone audio level rotary control [Main]. To increase the volume to the loudspeaker / headphones, turn clockwise (up to 360°). To decrease the volume, turn anticlockwise (up to 360°).</p> <p>As you increase or decrease the volume, the level control LEDs pass through a range of indicator colors. For more information, see Table 2: Volume Indicator colors above [K].</p>												
<p>M</p>	<p>Remote Mic Kill [RMK]. Press to:</p> <ul style="list-style-type: none"> Send a message to all connected HelixNet HBP-2X beltpacks to deselect any latched keyset Talk routes. Turn off any latched Talk routes on connected analog partyline beltpacks. 												
<p>N</p>	<p>All Talk. Press to talk to all channels (intercom devices and systems) connected to the main station.</p>												
<p>O</p>	<p>USB 2.0 (Micro-AB) connector. For software upgrades (see 4.7.3 Updating the software).</p>												
<p>P</p>	<p>USB 2.0 (Standard-A) connector. For software upgrades (see 4.7.3 Updating the software).</p>												

Table 3: Key to HMS-4X Main Station front panel diagram

Important note:

The HMS-4X Main Station does **not** have a power switch, button or key. The system powers up when you connect the power supply. Power up takes 15-20 seconds (depending on the number of beltpacks connected).

2.1.1 HMS-4X Main Station front panel: Channel keyset



Figure 3: HMX-4 Main Station (Front panel): Keyset

Key to HMS-4X Main Station front panel: Channel keyset	
Feature	Description
A	<p>Display screen. The following default information is displayed onscreen:</p> <ul style="list-style-type: none"> The channel label [Channel A]. The channel listen (volume) level [—————]. The number of people listening and talking [L:- T:-] on the channel. <p>In Menu mode, the display screens display the four levels of menu. The menu hierarchy proceeds left to right:</p> <ul style="list-style-type: none"> The top level menu is presented in the first screen (furthest left on the front panel). The lowest level menu is presented in the fourth screen (furthest right on the front panel). <p>Note: If the display is in Menu mode, the display screen times out of Menu mode and displays the channel label if no key is pressed for 20 seconds.</p> <p>For more information about Menu mode, see 4.1 Using the Menus.</p>
B	<p>Talk key. Press to talk to all channels.</p>
C	<p>Call key. Press to send a call signal to all nodes (intercom devices and systems) listening into the channel.</p>
D	<p>Rotary control. Turn to increase or decrease the volume level for the channel, or to scroll menu items when in menu mode. To select menu items, press (push) the control.</p>

Table 4: Key to HMS-4x Main Station front panel: Key Set

Note:

If the HMS-4X Main Station remains inactive for 10 minutes, the display screens enter screensaver mode (see **4.3.5 Setting the screensaver**).

2.2 HMS-4X Main Station: Rear panel

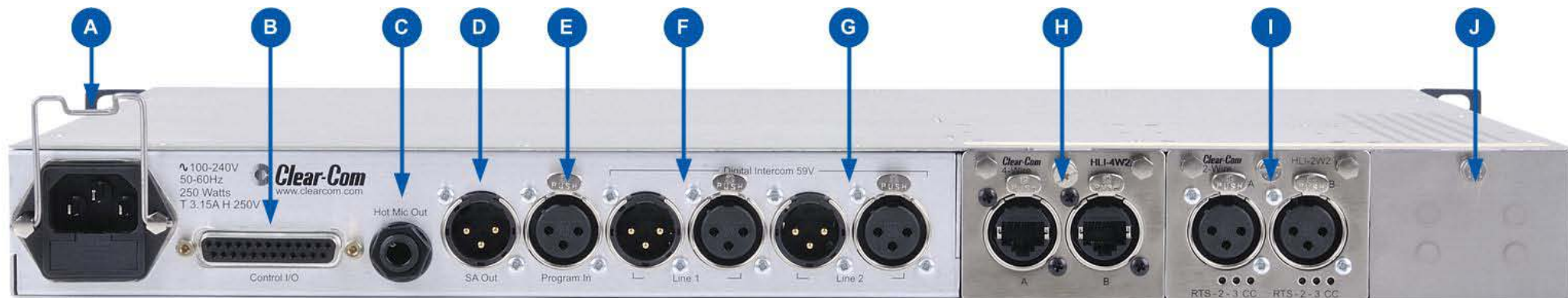


Figure 4: HMS-4X Main Station: Rear panel

Key to HMS-4X Main Station: Rear panel	
Feature	Description
A	Power supply with metal cable restrainer. The power supply operates at 100 - 240 VAC / 50-60Hz / 250 watts / T 3.15A H 250 V.
B	Control I/O (25 way female D-type). Use to connect up to 4 relay control outputs or 4 optically isolated control inputs (see 4.5 Configuring the Control I/O).
C	Hot Mic output. The Hot Mic output is always live. Audio from the mic is routed through the Hot Mic output even if the mic is inactive (off).
D	SA [Stage Announce] line out (3-pin male XLR).
E	Program Input (3-pin female XLR).
F	Line 1 (partyline). (3-pin male and female XLR connectors). Up to 10 beltpacks can be connected to a line, depending on the cable type and distance from the main station.
G	Line 2 (partyline). (3-pin male and female XLR connectors). Up to 10 beltpacks can be connected to a line, depending on the cable type and distance from the main station.
H	Optional: Four-wire interface module (Ethercon type RJ45 connectors). For more information, see Table 8: HMS-4X Main Station rear panel: Interface Modules .
I	Optional: Two-wire interface module (3-pin female XLR connectors). For more information, see Table 8: HMS-4X Main Station rear panel: Interface Modules .
J	Spare interface module bay. You can fit up to three optional interface modules to the HelixNet main station. For more information, see Table 8: HMS-4X Main Station rear panel: Interface Modules .

Table 5: Key to HMS-4X Main Station rear panel diagram



Only connect power supply to earthed supply sockets. Ensure that the power supply is routed to avoid sharp bends, hot surfaces, pinches and abrasion.

*For more safety guidance, see the **Safety Instructions** at the front of this guide.*

Important note:

*The HMS-4X Main Station does **not** have a power switch, button or key. The system powers up when you connect the power supply. Power up takes 15-20 seconds.*

2.2.1 HMS-4X Main Station rear panel: Interface modules

Up to three additional Interface modules (of the same or different types) can be fitted to the extension bay of the main station:



Interface module	Description																		
Two-wire interface module (HLI-2W2) 	<p>Enables interoperability with Tempest, CellCom / FreeSpeak, and HME DX210 systems, and both Clear-Com and RTS analog partyline systems.</p> <p>The module provides two analog partyline connectors (3 pin female XLR connectors) with the following pin out:</p> <table border="1"> <thead> <tr> <th>Pin</th><th>Function</th></tr> </thead> <tbody> <tr> <td>1</td><td>Ground</td></tr> <tr> <td>2</td><td>Power [Option for RTS mode: power and audio]</td></tr> <tr> <td>3</td><td>Audio</td></tr> </tbody> </table> <p>Table 6: two-wire Interface Module pin out</p> <p>Use HelixNet main station menus to set the module for either RTS or Clear-Com systems. If RTS mode is selected, you can set either:</p> <ul style="list-style-type: none"> Pin 2 for power and audio. Pin 3 for audio. 	Pin	Function	1	Ground	2	Power [Option for RTS mode: power and audio]	3	Audio										
Pin	Function																		
1	Ground																		
2	Power [Option for RTS mode: power and audio]																		
3	Audio																		
Four-wire interface module (HLI-4W2) 	<p>Enables interoperability with the Eclipse digital matrix system and other four-wire audio sources (telephone hybrids, AB-120/-100, PA (<i>Public Address</i>) / SA (<i>Stage Announce</i>) systems.</p> <p>The module also enables HelixNet-to-HelixNet connections using four-wire audio ports. Two four-wire connectors (Ethercon type RJ45 socket) are provided with the following pin out:</p> <table border="1"> <thead> <tr> <th>Pin</th><th>Function</th></tr> </thead> <tbody> <tr> <td>1</td><td>RS-422 data TX+</td></tr> <tr> <td>2</td><td>RS-422 data TX-</td></tr> <tr> <td>3</td><td>Audio to matrix +</td></tr> <tr> <td>4</td><td>Audio from matrix+</td></tr> <tr> <td>5</td><td>Audio from matrix-</td></tr> <tr> <td>6</td><td>Audio to matrix-</td></tr> <tr> <td>7</td><td>RS-422 data RX+</td></tr> <tr> <td>8</td><td>RS-422 data RX-</td></tr> </tbody> </table> <p>Table 7: four-wire interface module pin out</p>	Pin	Function	1	RS-422 data TX+	2	RS-422 data TX-	3	Audio to matrix +	4	Audio from matrix+	5	Audio from matrix-	6	Audio to matrix-	7	RS-422 data RX+	8	RS-422 data RX-
Pin	Function																		
1	RS-422 data TX+																		
2	RS-422 data TX-																		
3	Audio to matrix +																		
4	Audio from matrix+																		
5	Audio from matrix-																		
6	Audio to matrix-																		
7	RS-422 data RX+																		
8	RS-422 data RX-																		

Table 8: HMS-4X Main Station rear panel: Interface Modules

2.3 HBP-2X Beltpack

2.3.1 HBP-2X user controls (front and side view)



Figure 5: HBP-2X beltpack main controls (front and side view)

Key to HBP-2X user controls (front and side view)	
Feature	Description
A	<p>Menu key. Press firmly (for 2s) to enter Menu mode (see also D F). To exit Menu mode, press the Menu key again.</p> <p>Note: <i>The display screen times out of Menu mode and displays the channel label(s) if no key is pressed for 20 seconds.</i></p>
B	USB 2.0 (Micro-AB) connector. For software upgrades.
C	Casing. Metal casing for robust use. For information about the beltclip, beltloops, and feet, see 2.3.3 HBP-2X beltclip, beltloops and feet (base view) .
Keypad	
D	<p>Rotary control. Turn to increase and decrease the volume level for the channel.</p> <p>In Menu mode, you can turn either of the side-mounted rotary controls to scroll menu items. To select (enter) items, press the right-hand Call key (see F).</p>
E	Talk key. Press to talk to all nodes (intercom devices and systems) listening into the channel. There are two Talk keys on the beltpack, one for each of the supported channels.
F	<p>Call key. Press to send a call signal to all nodes (intercom devices and systems) listening into the channel. There are two Call keys on the beltpack, one for each of the supported channels.</p> <p>In Menu mode, press the right-hand Call key to select (enter) menu items (see also A D). Use the left-hand Call key to go back one menu level.</p>
G	Display screen. When the beltpack is not in Menu mode, the labels and volume level for each of the two channels supported by the beltpack are displayed on screen.

Table 9: Key to HBP-2X Beltpack main controls (front and side view)

2.3.2 HBP-2X connectors and controls (rear view)

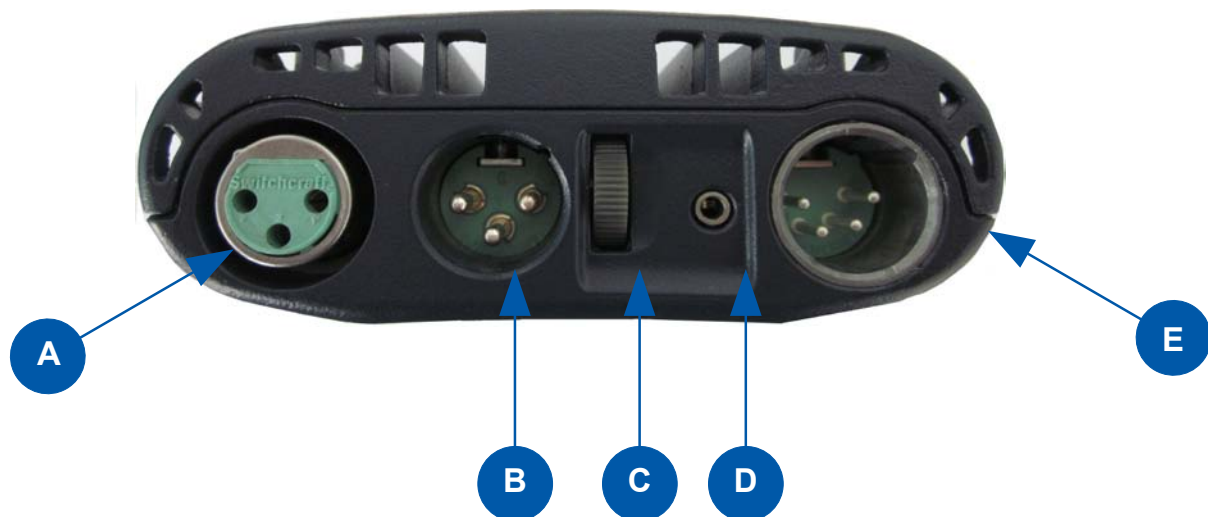


Figure 6: HBP-2X connectors and controls (rear view)


Key to HBP-2X Beltpack (Rear view)	
Feature	Description
A	Line (Partyline) (3-pin female XLR connector).
B	Line (Partyline) (3-pin male XLR connector). Pass-thru for 'daisy chain' connection (see Figure 9: Example system topologies (layouts)).
C	Program feed (volume) scroll wheel. Turn to increase or decrease the overall volume level of the program feed.
D	2.5 mm TRS headset input.
E	Headset connector (4-pin or 5-pin XLR connector (male or female options)). The 4-pin male option is shown. Example 5-pin female option: 

Table 10: Key to HBP-2X Beltpack connectors and controls (base view)

2.3.3 HBP-2X beltclip, beltloops and feet (base view)



Figure 7: HBP-2X Beltpack: base view

Key to HBP-2X Beltpack (Base view)	
Feature	Description
A	Beltclip. The beltclip is secured to the unit with three screws, and may be removed, according to your requirements. Use the beltclip to attach the beltpack to a belt or a fixed position.
B	Beltloops (one either side). Use to thread through a belt or strap for securing the beltpack to a belt or a fixed position.
C	Feet (positions only). The beltpack can also be placed on a level surface (once the beltclip has been removed). To give the beltpack more grip on the surface, attach the four rubber feet supplied with the beltpack.

Table 11: Key to HBP-2X Beltclip, beltloops and feet (base view)

3 Installing HelixNet Partyline

This chapter describes how to install your HelixNet Partyline system. It also provides basic guidance on planning your installation.

Tip: For guidance on connecting HelixNet Partyline to other systems, using the optional interface modules, see **8 Connecting to Other Intercom Systems**.



Do **not** plug any non-approved equipment into HelixNet Partyline.

HelixNet Partyline operates at different voltage levels than analog two-wire partyline systems. Do **not** plug any analog two-wire partyline equipment into the HelixNet partyline ports, as this may cause damage.

If you have damaged analog two-wire partyline equipment in this way, **contact Clear-Com for repair options**.

For more safety instructions, see **1.2 Important Safety instructions**.

3.1 Planning your HelixNet Partyline installation

3.1.1 Comparing digital with analog cabling

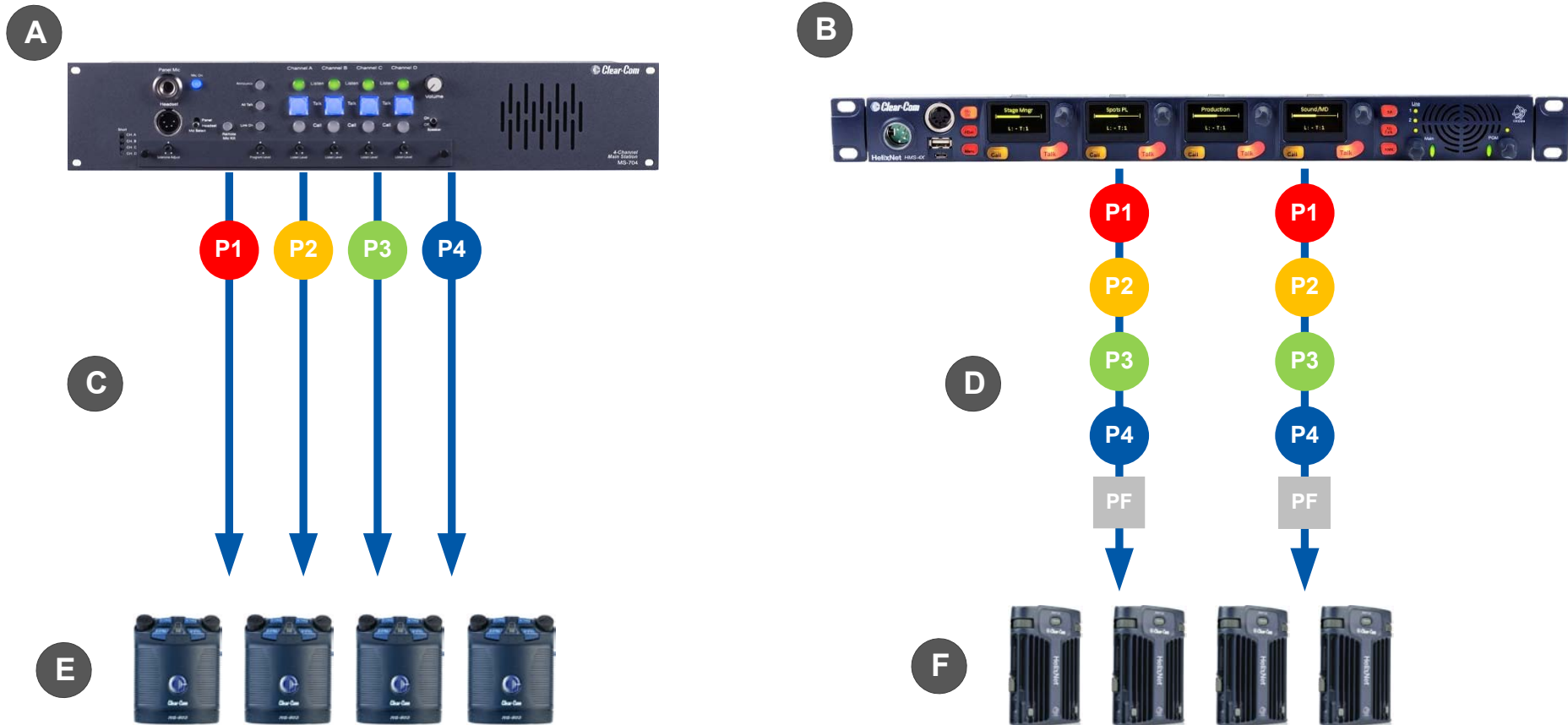


Figure 8: Analog and digital cabling comparison

Key to analog and digital cabling comparison diagram	
Feature	Description
A	Example 4-channel analog main station (MS-704 shown).
B	HMS-4X Main Station (digital main station).
P1 P2 P3 P4 PF	Partyline channel 1 Partyline channel 2 Partyline channel 3 Partyline channel 4 Program Feed
C	In a traditional analog partyline system, one cable is dedicated in hardware to each partyline channel. This can make it more difficult to build redundancy or spare capacity into the installation (owing to the number of connectors / cables dedicated to the delivery of channels).
D	In the HelixNet system, one cable can carry multiple channels (all four partyline channels plus a Program Feed). Because one cable can carry all channels, the second connector for each line can either be used for redundancy (flybacks) or for future extensions / changes to the cabling topology (layout).
E	<p>Example analog partyline beltpacks (RS-602 shown). Analog beltpacks must be re-cabled to use alternative channels, requiring the physical re-location of cabling for new configurations.</p> <p>To aid switching, Clear-Com sells additional switching equipment (the SB-704 and RCS-2700 devices). The RS-602 (6-pin XLR) beltpack requires the YC-36 splitter / combiner to combine 2 channels into a 6-pin configuration, and multi-conductor cables.</p> <p>The RS-603 (3-pin XLR) beltpack requires a TWC-701 device to combine 2 Clear-Com channels in a single twisted pair.</p>
F	<p>HBP-2X Beltpacks. Digital beltpacks can support any two of the four partyline channels (plus Program Feed), wherever they are physically located on the system.</p> <p>New configurations of beltpacks and channels can be deployed without the physical relocation of assets.</p>

Table 12: Key to analog and digital cabling comparison diagram

Note:

*The capabilities of different cable types may impact how far away beltpacks can be placed from the main station, and the topologies you use. For more information about cabling, see **Appendix C: Cabling reference**.*

3.1.2 Topologies (layouts)

HelixNet Partyline can be deployed using a wide range of topologies, both complex and straightforward. The following table describes three standard types of topology:

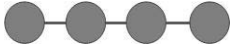
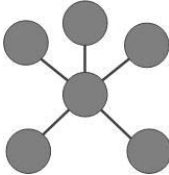
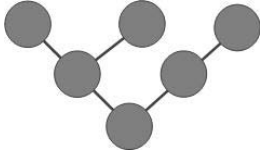
Topology	Description
Daisy-chain 	<p>In a daisy-chain topology, the main station is connected to the first beltpack. The beltpacks are then connected in a series, using the pass-thru connector on the back / rear of the device to pass on the connection. No termination is required.</p> <p>Daisy-chains can be either linear or loop back to the main station to form a ring.</p>
Star 	<p>In a star topology, the main station is connected to a passive (Y) splitter such as an XLR Bulkhead or Mult-box. The beltpacks are then connected to the splitter point-to-point.</p>
Tree 	<p>A tree topology is a more complex version of the star topology, using serially connected passive (Y) splitters. The beltpacks are connected to each splitter point-to-point (forming a branch of the tree).</p>

Table 13: Topology types

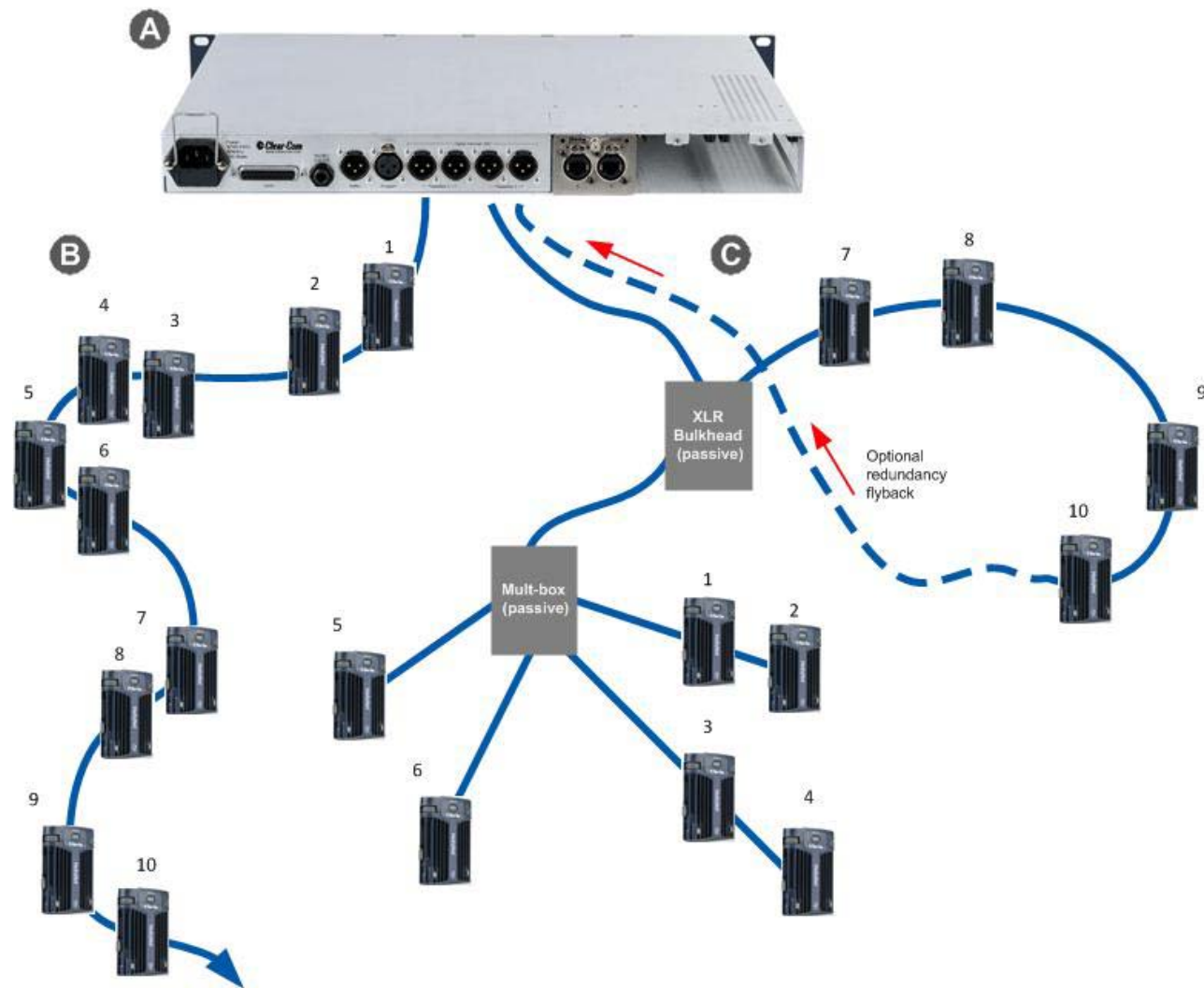


Figure 9: Example system topologies (layouts)



Key to example system topologies (layouts) diagram	
Feature	Description
A	<p>HMS-4X Main Station (digital main station) (rear panel).</p> <p>There are two lines (digital partylines) on the main station, each of which can support up to 10 digital HBP-2X beltpacks. There are two connectors (3-pin XLR, male and female) for each line.</p>
B	<p>Daisy chained HBP-2X Beltpacks. To create a 'daisy chain' of connected beltpacks:</p> <ol style="list-style-type: none"> 1. Connect the first beltpack to the main station, using either of the 3-pin XLR connectors (female [] or male []) on the base of the beltpack. 2. Pass on the connection to the second beltpack, using the remaining connector as the 'pass thru'. 3. Repeat for all beltpacks (up to 10) in the chain. No cable termination is required.
C	<p>The second layout uses an XLR Bulkhead and a Mult-box (passive (Y) splitters) to combine:</p> <ul style="list-style-type: none"> • A daisy chain (with optional redundancy flyback). • Point-to-point connected beltpacks (using the Mult-box). <p>The complexity and variety of layouts does not restrict physical access to channels.</p> <p>Because HelixNet Partyline is a digital system, the HBP-2X Beltpacks can access any two of the four available channels (plus a Program Feed), however they are connected to the main station (see Figure 8: Analog and digital cabling comparison).</p>

Table 14: Key to example topologies (layouts)

3.2 Installing HelixNet Partyline

3.2.1 Environmental information

The recommended temperature ranges for HelixNet Partyline (the HMS-4X Main Station and HBP-2X Beltpacks) are as follows:

Operational status	Temperature range (recommended)	
	Min.	Max.
In use (operational)	0 °C	+50°C
In storage (non-operational)	-30 °C	+70°C

Table 15: Recommended temperature ranges

Install the HMS-4X Main Station at a site where there is adequate ventilation around the main station. Ensure that the the top and side vents on the device are **not** blocked.

Note:


To view temperature information on the main station, see **4.8.2 Viewing temperature information**.


For safety guidance, see the **Safety Instructions** at the front of this guide.

3.2.2 Installing the HMS-4X Main Station

The HMS-4X Main Station is a **19" 1U-height** device that you can install to either:



- A standard 19" rack.
- A shelf, cabinet or other flat surface.

To enable fitting to a rack, the main station is fitted with rack-mounting ears [].

For the location of the rack-mounting ears on the main station, see  in **Table 3: Key to HMS-4X Main Station front panel diagram**.


Power up

There is no power switch, button or key on the HMS-4X Main Station. To power up the main station:


1. Connect the power cord [] to the power supply connector [] on the main station.

Use the cable retaining clip on the main station to secure the power cord. The retaining clip is detached for shipping and must be refitted.

Note:

For the location of the power supply connector on the main station, see  in **Table 5: Key to HMS-4X Main Station rear panel diagram.**

2. Connect the power cord to the power source (socket). The main station requires an input voltage between 100 - 240 VAC / 50-60Hz/ 250 watts / T 3.15A H 250 V.

During power up (which takes 15-20 seconds), the front panel display screens momentarily display the Clear-Com logo [] until the device is ready for operation.



Only connect power supply to earthed supply sockets. Ensure that the power supply is routed to avoid sharp bends, hot surfaces, pinches and abrasion.

*For safety guidance, see the **Safety Instructions** at the front of this guide.*

3.2.3 Installing the HBP-2X Beltpacks

The HBP-2X Beltpack is a device that you can:

- Wear at your belt, using either the beltclip or beltloops.
- Install to a shelf or other flat surface.
- Attach to a pole or other fixed upright position.

Tip: For more information, see **2.3.3 HBP-2X beltclip, beltloops and feet (base view)**

Power up

The HBP-2X Beltpack is powered from the (standard mic) cable that connects the device with the HMS-4X Main Station (see below).



Connecting the HBP-2X Beltpack to the HMS-4X Main Station

To connect the HBP-2X Beltpack to the HMS-4X Main Station:

1. There are two lines (partylines) on the main station, each of which can support up to 10 digital HBP-2X beltpacks. There are two connectors (3-pin XLR, male and female) for each line.

Connect the cable to the selected connector [] on the main station.

Note:

For the location of Lines 1 and 2 (the powerlines) on the main station, see   in **Table 5: Key to HMS-4X Main Station rear panel diagram.**

2. Connect the cable to the beltpack, using one of the two 3-pin XLR connectors (male and female) on the base / rear of the beltpack.


Tip: For example topologies, see **3.1.2 Example system topologies (layouts).**

4 Configuring and Managing the HMS-4X Main Station

This chapter describes how to configure the settings and manage the HMS-4X Main Station using **Menu mode**. It also shows you how to monitor and diagnose performance issues, using the **Diagnostics** menu.

Tip: For a quick reference to the main station menus, see **Appendix B: Menu maps**.

4.1 Using the Menus

To place the main station in **Menu mode**, press the **Menu key** [] to the left of the first (left) display screen.



In Menu mode, the display screens display the four levels of menu. The menu hierarchy proceeds left to right:

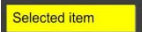
- The **top level** menu is presented in the first screen (furthest left on the front panel).
- The **lowest level** menu is presented in the fourth screen (furthest right on the front panel).

4.1.1 Configuring settings

To configure settings:


1. For each menu, turn the **rotary control** [] counter-clockwise to scroll down the menu items. Turn clockwise to scroll up the menu items.

Off-screen menu items are indicated with arrows at the top and / or bottom of the display screen [ ].

Selected menu items (which create your path through the four menus) are highlighted in solid yellow [].


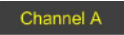


2. The fourth menu (fourth display screen) displays the settings that relate to your previous menu choices (system features or functionality).

The **current setting** is indicated by a dotted box [] around the menu item

When you have selected a setting, press the **rotary control** [] to enable the setting on the main station.

4.1.2 Exiting Menu mode



To exit Menu mode, do either of the following:

- Press the Menu key [].
- Wait until Menu mode times out. If you fail to press any key on the front panel for 20 seconds, the display screens revert to showing the standard channel information:
 - Channel label (name) [].
 - Listen level (volume) [].
 - The number of actively **Listening** and **Talking** devices [].

4.2 Configuring the Audio settings

4.2.1 Audio settings for the headset

To configure the audio settings for the headset:


1. In **Menu mode** [], select **Audio Settings** and then **Headset**.
 2. To adjust the level of sidetone on the headset:
 - a. In the third menu (third display screen), select **Sidetone Gain**.
 - b. In the fourth menu (fourth display screen), select one of the following:
 - **0dB**
 - **- 6dB**
 - **- 12dB**
 - **- 18dB**
- Note:**
The default is -12dB.
- c. To enable (confirm) the selected setting, press the **rotary control** [].

3. To limit the peaks in audio on the headphones (or to disable headphone limiting):

- a. In the third menu (third display screen), select **Headphone Limit**.
- b. In the fourth menu (fourth display screen), select one of the following:
 - **Off**
 - **+6dB**
 - **0dB**
 - **- 6dB**

Note:

*The default is **0dB**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

Note:


Limiting peaks in audio can help to prevent distortion on the headphone microphone.

4. To set (or disable) sidetone tracking on the headset:

- a. In the third menu (third display screen), select **Sidetone Control**.
- b. In the fourth menu (fourth display screen), select one of the following:
 - **Tracking**
 - **Non-Tracking**
 - **Disabled**

Note:

*The default is **Tracking**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

5. To select the type of microphone on the headset:

- a. In the third menu (third display screen), select **HS Mic Type**.


Note:

***HS** = Headset.*

- b. In the fourth menu (fourth display screen), select either of the following types of microphone:
 - **Electret**
 - **Dynamic**


Note:

*The default is **Dynamic**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].


4.2.2 Audio settings for the Program Input

To configure the audio settings for the Program Input (Program Feed):

1. In **Menu mode** [], select **Audio Settings** and then **Program Input**.
2. From the third menu (third display screen), select **Gain**.
3. From the fourth menu (fourth display screen), select one of the following:
 - **+ 12dB**
 - **+ 6dB**
 - **0dB**
 - **- 6dB**
 - **- 12dB**

Note:

The default is 0.


4. To enable (confirm) the selected setting, press the **rotary control** [].

4.2.3 Audio settings for Program IFB [*Interruptible Foldback*]

IFB allows you to temporarily interrupt the continuous program listen (program feed) and speak to the channels connected to the program listen.

See also **4.4.2 Assigning the Program Listen to a channel**.

To configure the audio settings for Program IFB [*Interruptible Foldback*]:

1. In **Menu mode** [], select **Audio Settings** and then **Program IFB**.
2. From the third menu (third display screen), select **IFB Dim Level**.


Note:

The IFB Dim Level determines the volume level the Program Level is reduced to when it is interrupted by the IFB.

3. From the fourth menu (fourth display screen), select one of the following:
 - **IFB Disabled**
 - **- 6dB**
 - **-12dB**
 - **-18dB**
 - **-24dB**
 - **Full Cut**


Note:

The default is IFB Disabled.

4. To enable (confirm) the selected setting, press the **rotary control** [].


4.2.4 Audio settings for the SA [Stage Announce] Output

To configure the audio settings for the SA [Stage Announce] Output:

1. In **Menu mode** [], select **Audio Settings** and then **SA Output**.
2. From the third menu (third display screen), select **Gain**.
3. From the fourth menu (fourth display screen), select one of the following:
 - **+ 12dB**
 - **+ 6dB**
 - **0dB**
 - **- 6dB**
 - **- 12dB**


Note:

The default is 0.

4. To enable (confirm) the selected setting, press the **rotary control** [].


4.2.5 Audio settings for the Hot Mic Output

To configure the audio settings for the Hot Mic Output:

1. In **Menu mode** [], select **Audio Settings** and then **Hot Mic Output**.
2. From the third menu (third display screen), select **Gain**.
3. From the fourth menu (fourth display screen), select one of the following:
 - **+ 12dB**
 - **+ 6dB**
 - **0dB**
 - **- 6dB**
 - **-12dB**


Note:

The default is 0.

4. To enable (confirm) the selected setting, press the **rotary control** [].


4.2.6 Audio settings for the front panel (gooseneck) mic

To configure the audio settings for the front panel (gooseneck) mic:

1. In **Menu mode** [], select **Audio Settings** and then **Front Panel**.
2. To limit feedback (howl round) on the front panel (gooseneck) microphone:
 - a. In the third menu (third display screen), select **Loudspeaker Dim**.
 - b. In the fourth menu (fourth display screen), select one of the following:
 - **0dB**
 - **- 3dB**
 - **- 6dB**
 - **- 12dB**
 - **- 24dB**

Note:

*The default is **-6dB**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

4.3 Setting Station Settings

4.3.1 Setting key latching

To enable or disable front panel keys for latching:

1. In **Menu mode** [], select **Station Settings** and then **Keysets**.
2. From the third menu (third display screen), select either:

Key(s)	Description
Talk Latch	Talk keys for the four available channels.
SA Output key	Key used to talk to a connected public address or Stage Announce (SA) system.

Table 16: Setting key latching

Important note:

*The **RMK (Remote Mic Kill)** key is also displayed in the list. This key **cannot** be latched. The RMK key is used to:*

- *Send a message to all connected HelixNet Partyline devices to deselect any latched keyset Talk routes.*
- *Turn off any latched Talk routes on connected analog partyline equipment.*

To find out how to enable or disable the RMK key, see


4.3.2 Setting the RMK (Remote Mic Kill) key.

Tip: For a quick reference to the location of keys on the front panel, see **2.1HMS-4X Main Station: Front panel.**

3. From the fourth menu (fourth display screen), select **either** of the following:
 - **Latching**
 - **Non-latching**

Note:

The default for **Talk Latch** is **Latching**. The default for the **SA Output key** is **Non-latching**.


4. To enable (confirm) the selected setting, press the **rotary control** [].

4.3.2 Setting the RMK (Remote Mic Kill) key

The RMK (Remote Mic Kill) key is used to:

- Send a message to all connected HelixNet Partyline devices to deselect any latched keyset Talk routes.
- Turn off any latched Talk on connected analog partyline equipment.

To enable or disable the RMK (Remote Mic Kill) key:

1. In **Menu mode** [], select **Station Settings** and then **Keysets**.
2. From the third menu (third display screen), select **RMK**.


Note:

Talk Latch and the **SA Output Key** are also listed in this menu.
See **4.3 Setting Station Settings**.

3. From the fourth menu (fourth display screen), select **either** of the following:
 - **Enabled**
 - **Disabled**


Note:

The default is **Enabled**.

4. To enable (confirm) the selected setting, press the **rotary control** [].


4.3.3 Setting display screen brightness

By default, the display screens are set for **medium** brightness. To set the brightness of the display screens:

1. In **Menu mode** [], select **Station Settings** and then **Display**.
2. From the third menu (third display screen), select **OLED Brightness**.
3. From the fourth menu (fourth display screen), select one of the following brightness settings:
 - **High**
 - **Medium**
 - **Low**

Note:


*The default is **Medium**.*

4. To enable (confirm) the selected setting, press the **rotary control** [].

4.3.4 Setting key brightness


By default, the front panel keys are set to **High / Low**. This means that the keys are lit bright **red** when **active (on)** and dim **red** when **inactive (off)**.

To set the brightness of all front panel keys:

1. In **Menu mode** [], select **Station Settings** and then **Display**.
2. From the third menu (third display screen), select **Key Brightness**.
3. From the fourth menu (fourth display screen), select one of the following brightness settings:

Key(s)	Description
High / Low	The default setting. Keys are lit bright red when active (on) and dim red when inactive (off) .
High / Off	Keys are lit bright red when active (on) and are unlit when inactive (off) .
Low / Off	Keys are lit dim red when active (on) and are unlit when inactive (off) .
Off / Off	Keys are unlit , whether or not they are active (on) or inactive (off) .

Table 17: Setting key brightness


4. To enable (confirm) the selected setting, press the **rotary control** [].

4.3.5 Setting the screensaver

The screensaver features the channel label and is enabled by default. The display screens enter screensaver mode when the main station has been inactive for 10 minutes.


Tip: To exit screensaver mode, press any key on the front panel.

To enable or disable the screensaver:

1. In **Menu mode** [], select **Station Settings** and then **Display**.
2. From the third menu (third display screen), select **Screensaver**.
3. From the fourth menu (fourth display screen), select either:
 - **Enabled**
 - **Disabled**

Note:


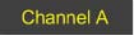
The default is **Enabled**.

4. To enable (confirm) the selected setting, press the **rotary control** [].

4.4 Configuring the channel settings


4.4.1 Editing the channel label

The maximum length for a channel label is **10 characters**. To edit the channel label:



1. In **Menu mode** [], select **Channels** and then the name of the channel you want to edit (for example, ).
2. From the third menu (third display screen), select **Label**.
3. In the fourth menu (fourth display screen), the following prompt is displayed above the channel label:


[Press to Edit]


Press the **rotary control** [].

4. The first letter of the channel label is shown as selected []. The following prompt is displayed above the channel label:

[Scroll / Press to Select]


Scroll to the character you want to edit by turning the **rotary control** []. To begin editing, press the **rotary control** [].

- The character you have selected for editing is shown in a box with a dotted border [].

To display alternative characters in the box, turn the rotary control []. The range of available characters comprises the following:

Characters	Description / range
Numbers (numeric)	0 to 9
Letters	Capital letters = A to Z Small letters = a to z
Symbols	# & * () - _ = + / ! @ : Note: <i>You can also select a space.</i>

Table 18: Channel label characters

To select a character, press the **rotary control** [].


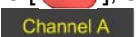
- When you have selected a replacement character, scroll to the next character you want to edit.

When you have finished editing the channel label, scroll to **Save** (displayed beneath the channel label).

To save the channel label, press the **rotary control** [].


4.4.2 Assigning the Program Listen to a channel

To assign (or unassign) the Program Listen (Program Feed) to a channel:

- In **Menu mode** [], select **Channels** and then the name of the channel (for example, ).
- From the third menu (third display screen), select **Program Listen**.
- From the fourth menu (fourth display screen), select one of the following:
 - Enabled.**
 - Disabled.**

Note:

*The default is **Disabled**.*

- To enable (confirm) the selected setting, press the **rotary control** [].

Tip: When you assign the Program Listen to a channel, **PGM** is displayed on the display screen (under the listen level bar, to the left) for that channel.

4.5 Configuring the Control I/O


The Control I/O connector (25 way female D-type) on the rear panel allows you to connect up to 4 relay outputs or 4 opto inputs and control them through the main station keysets:

I/O type	Description
Opto inputs	Opto inputs enable you to connect a foot switch or other control device and use it to trigger Call or Talk functions.
Relay outputs	Relay outputs enable you to use Call or Talk keys to trigger any external device that accepts a standard contact closure (such as a theater curtain or an On Air light).

Table 19: Opto inputs and Relay outputs

4.5.1 Configuring Opto inputs


To configure the Control I/O for Opto inputs:

1. In **Menu mode** [], select **Control I/O**.
2. From the second menu (second display screen), select **Inputs**.
3. From the third menu (third display screen), select one of the four available Opto inputs:
 - **Opto 1**
 - **Opto 2**
 - **Opto 3**
 - **Opto 4**
4. From the fourth menu (fourth display screen), select one of the following:
 - **None**
 - **Call Key 1**
 - **Talk Key 1**
 - **Call Key 2**
 - **Talk Key 2**
 - **Call Key 3**
 - **Talk Key 3**
 - **Call Key 4**
 - **Talk Key 4**

Note:


The number of the key relates to the keyset to which it belongs (for example, Call Key 1 is the Call key for the first keyset / display screen).

*The default setting is **None**.*

5. To enable (confirm) the selected setting, press the **rotary control** [].

4.5.2 Configuring Relay outputs


To configure the Control I/O for Relay outputs:

1. In **Menu mode** [], select **Control I/O**.
2. From the second menu (second display screen), select **Outputs**.
3. From the third menu (third display screen), select one of the four available Relay outputs:
 - **Relay 1**
 - **Relay 2**
 - **Relay 3**
 - **Relay 4**
4. From the fourth menu (fourth display screen), select one of the following:
 - **None**
 - **Call Key 1**
 - **Talk Key 1**
 - **Call Key 2**
 - **Talk Key 2**
 - **Call Key 3**
 - **Talk Key 3**
 - **Call Key 4**
 - **Talk Key 4**

Note:


The number of the key relates to the keyset to which it belongs (for example, Call Key 1 is the Call key for the first keyset / display screen).

*The default setting is **None**.*

5. To enable (confirm) the selected setting, press the **rotary control** [].

4.6 Configuring Module Settings

Up to three optional interface modules (of the same or different types) can be fitted to the expansion bay of the HMS-4X Main Station.


The **Menu mode** [] > **Module Settings** are used to set up the devices connected to the interface modules.

Tip: For more detailed information about interface modules, including pin out information, see: **2.2.1 HMS-4X Main Station rear panel: Interface modules.**

4.6.1 Configuring a Four-wire interface module

The following procedure shows you how to configure the Module Settings for a **Four-wire interface module**.

To configure the Module Settings for a four-wire interface module:

1. In **Menu mode** [], select **Module Settings**.
2. From the second menu (second display screen), select one of the two available ports on the two-wire interface module:

```
Slot 2/Port A 4W
Slot 2/Port B 4W
```

Notes:


In this example, the four-wire module has been fitted to slot 2 in the expansion bay. The expansion bay contains three slots (room for three interface modules).

4W = four-wire.

3. To associate one of the four available channels (or to disable channels associations) with the selected port:
 - a. From the third menu (third display screen), select **Channel Assign**.
 - b. From the fourth menu (fourth display screen), select one of the following:
 - **Disabled.**
 - **Channel A.**
 - **Channel B.**
 - **Channel C.**
 - **Channel D.**

Note:


*The default is **Disabled**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

4. To set the input level for the four-wire port:
 - a. From the third menu (third display screen), select **Input Gain**.
 - b. From the fourth menu (fourth display screen), select one of the following:
 - **+12dB**
 - **+ 6dB.**
 - **0dB**
 - **-6dB.**
 - **-12dB**


Note:

*The default is **0dB**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].
5. To set the output level for the four-wire port:
 - a. From the third menu (third display screen), select **Output Gain**.
 - b. From the fourth menu (fourth display screen), select one of the following:
 - **+12dB**
 - **+ 6dB.**
 - **0dB**
 - **-6dB.**
 - **-12dB**

Note:

*The default is **0dB**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].


6. If you are setting up a continuous audio (program) feed using the two-wire interface module, then you may want to enable the **VOX functionality**. To help reduce redundant noise, the VOX functionality automatically deactivates and activates the continuous audio feed, at an automatically determined volume threshold.

To enable or disable VOX:

- a. From the third menu (third display screen), select **VOX**.
- b. From the fourth menu (fourth display screen), select one of the following:
 - **Enabled.**
 - **Disabled.**

Note:

*The default is **Disabled**.*


- c. To enable (confirm) the selected setting, press the **rotary control** [].

7. The **VOX Delay OFF** setting determines the length of time to wait before deactivating the incoming audio. To set the VOX Delay OFF setting:

- a. From the third menu (third display screen), select **VOX Delay OFF**.
- b. From the fourth menu (fourth display screen), select one of the following:
 - **[0].5 sec.**
 - **1 sec.**
 - **2 sec.**
 - **3 sec.**
 - **4 sec**

Note:


*The default is **[0].5 sec.***

- c. To enable (confirm) the selected setting, press the **rotary control** [].

4.6.2 Configuring a Two-wire interface module

The following procedure shows you how to configure the Module Settings for a **Two-wire interface module**.

To configure the Module Settings for a Two-wire interface module:

1. In **Menu mode** [], select **Module Settings**.
2. From the second menu (second display screen), select one of the two available ports on the two-wire interface module:

```
Slot 1/Port A 2W  
Slot 1/Port B 2W
```

Notes:


In this example, the two-wire module has been fitted to slot 1 in the expansion bay. The expansion bay contains three slots (room for three interface modules).

2W = Two-wire.

3. To associate one of the four available channels (or to disable channels associations) with the selected port:
 - a. From the third menu (third display screen), select **Channel Assign**.
 - b. From the fourth menu (fourth display screen), select one of the following:
 - **Disabled**
 - **Channel A**
 - **Channel B**
 - **Channel C**
 - **Channel D**

Note:

*The default is **Disabled**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

4. **Auto-nulling** helps to reduce echo while talking on a two-wire audio system. To enable (start) Auto-nulling on the selected port:
 - a. From the third menu (third display screen), select **Auto-Nulling**.
 - b. From the fourth menu (fourth display screen), select **Start**.

Note:

*Auto-nulling is only applicable to two-wire audio. **All** Talk routes/keys must be **disabled** before Auto-nulling can commence. If an echo persists, ensure all Talk routes are disabled and re-null the system.*

5. The Two-wire interface module is set for Clear-Com systems by default. However, you can also set the two-wire ports for use by RTS analog partyline systems. If you are connecting to an **RTS** system, you also have a choice of two different pinouts:

RTS pinout option	Description
RTS Audio Pin 2	Pin 2 is used for both power and audio.
RTS Audio Pin 3	Pin 3 is used for audio (Pin 2 is used for power only).


Table 20: Configuring Module Settings: RTS pinout options

Note:

For detailed pinout information, see

2.2.1 HMS-4X Main Station rear panel: Interface modules.

To configure the port for either Clear-Com or RTS systems:

- a. From the third menu (third display screen), select **Mode**.
- b. From the fourth menu (fourth display screen), select one of the following:
 - **Clear-Com**
 - **RTS Audio Pin 2**
 - **RTS Audio Pin 3**
- c. To enable (confirm) the selected setting, press the **rotary control** [].

6. Enabling **RMK [Remote Mic Kill] Input** allows an external source (such as the main (base) station of the connected two-wire system to send an RMK signal to the analog beltacks attached to the HelixNet main station.


To enable RMK Input:

- a. From the third menu (third display screen), select **RMK Input**.
- b. From the fourth menu (fourth display screen), select one of the following:

- **Enabled**
- **Disabled**

Note:

*The default is **Disabled**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

7. Enabling **RMK [Remote Mic Kill] Output** allows you to send an RMK signal from the HelixNet main station to the connected analog beltacks.


To enable RMK Output:

- a. From the third menu (third display screen), select **RMK Output**.
- b. From the fourth menu (fourth display screen), select one of the following:

- **Enabled**
- **Disabled**

Note:

*The default is **Disabled**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].

8. If you are setting up a continuous audio (program) feed using the two-wire interface module, then you may want to enable the **VOX functionality**. To help reduce redundant noise, the VOX functionality automatically deactivates and activates the continuous audio feed, at an automatically determined volume threshold.


To enable or disable VOX:


- a. From the third menu (third display screen), select **VOX**.
- b. From the fourth menu (fourth display screen), select one of the following:

- **Enabled**
- **Disabled**

Note:

*The default is **Disabled**.*

- c. To enable (confirm) the selected setting, press the **rotary control** [].


9. The **VOX Delay OFF** setting determines the length of time to wait before deactivating the incoming audio. To set the VOX Delay OFF setting:
 - a. From the third menu (third display screen), select **VOX Delay OFF**.
 - b. From the fourth menu (fourth display screen), select one of the following:
 - **[0].5 sec.**
 - **1 sec.**
 - **2 sec.**
 - **3 sec.**
 - **4 sec**
 - c. To enable (confirm) the selected setting, press the **rotary control** [].

Note:


The default is **[0].5 sec.**

4.6.3 Configuring the Module Settings: Version information

The software (firmware) for the ports on the interface module must match that on the HelixNet main station itself.

Tip: You can check the software version of the HelixNet main station in **Menu mode** [] > **Administration**. For more information, see **4.7.2 Viewing the current versions of the software**.

To check the software version for each port on the interface module:


1. In **Menu mode** [], select **Module Settings**.
2. From the second menu (second display screen), select one of the ports on the interface module.
3. From the third menu (third display screen), select **Version**.

The firmware version is displayed in the fourth display screen, similar to the following:

Np1-**x.x.x.xxxxx**

Where **x** represents a numerical value.

4.7 Administration


In **Menu mode** [] > **Administration**, you can:

- View the network details (IP address).
- View the current versions of the software for the system.
- Update the software (firmware).
- Lock or unlock the menus on HBP-2X beltpacks connected to the main station.
- Reset the main station to the default (factory mode) settings.

Important note:

You **cannot** reset HBP-2X beltpacks to their default (factory mode) settings from the HMS-4X main station. HBP-2X beltpacks must be reset to the default (factory mode) settings individually.

4.7.1 Viewing the network details (IP address)



To view the network details (IP address) of the main station, in **Menu mode** [], select **Administration** and then **Network**.

The third menu (third display screen) displays a single, selected menu item: **IP address**. The IP address for the system (main station) is displayed in the fourth menu (display screen), for example:

10.0.0.2

4.7.2 Viewing the current versions of the software

To view the current versions of the software on the main station:

1. In **Menu mode** [], select **Administration** and then **Software**.
2. From the third menu (display screen), select **Current**.
3. In the fourth menu (display screen), use the **rotary control** [] to scroll the displayed software versions.

Note:

*Unless you have encountered a software upgrade issue, the software versions for the main station (**ms**) and IV-Router (**ivr**) (also located on the main station) will **match**. See also **4.7.3 Updating the software**.*

The software version information will appear similar to the following:

```
ms: npl-x.x.xx.xxxx  
ivr: npl-x.x.xx.xxxx
```

Where **x** is a numerical value.

Note:

*To check the version of the software on any interface modules fitted to the extension bay, see **4.6.3 Configuring the Module Settings: Version information**.*

4.7.3 Updating the software

Important note:

The following procedure is relevant to future software updates only. Customers will be contacted by email when software updates become available. Updates will be downloaded through a link provided in the email.

Any HBP-2X beltpacks that are connected to the main station are automatically updated. The beltpacks remain non-functional for approximately 5 minutes while they are updated. You can also use a USB memory stick (USB 2.0 Micro-AB) to make the software available to the beltpack (see **5.5.3 Updating the beltpack software**).



To update the software:

1. After downloading the software update, copy the update to a USB memory stick.
2. There are two USB connectors available on the front panel:
 - **USB 2.0 (Micro-AB) connector.**
 - **USB 2.0 (A) connector.**

Note:

*For more information, see   in **Table 3: Key to HMS-4X Main Station front panel diagram**.*

Insert the memory stick into the appropriate USB connector.

3. In **Menu mode** [], select **Administration** and then **Software**.
4. From the third menu (display screen), select **Update**.
5. The fourth menu (fourth display screen) displays the new software version information on the USB memory stick. To start updating the main station with the new software, press the rotary control [].

The process of updating the software takes several minutes. The following system messages are displayed during the process:

- Downloading file components
- Erasing Flash
- Copying new files
- Update successful



*Do **not** turn off the power to the main station during the software (firmware) update. Turning off the power can damage the device.*

Note:


*The main station resets **automatically**. You are **not** required to restart the main station. To check that the software upgrade was performed successfully, see*

4.7.2 Viewing the current versions of the software.

4.7.4 Locking and unlocking the HBP-2X beltpack menus


You can prevent beltpack users from changing the menu settings on connected HBP-2X beltpacks by locking the menus. Unlock the beltpack menus to allow users to change the beltpack menu settings.

To lock (or unlock) the HBP-2X beltpack menus from the main station:

1. In **Menu mode** [], select **Administration** and then **Beltpacks**.
2. The third menu (display screen) displays a single, selected menu item: **Menu Lock**.


In the fourth menu (fourth display screen), select either of the following:

- **Unlock All**
- **Lock All**

3. To enable (confirm) the selected setting, press the **rotary control** [].

4.7.5 Resetting the main station to default (factory mode) settings.

To reset the main station to its default (factory mode) settings:

1. In **Menu mode** [], select **Administration** and then **Reset**.
2. The third menu (display screen) displays a single, selected menu item: **Reset to Default**.

In the fourth menu (fourth display screen), select **Reset Now**.

Important note:

You **cannot** reset HBP-2X beltpacks to their default (factory mode) settings from the HMS-4X main station. HBP-2X beltpacks must be reset to the default (factory mode) settings individually.


The beltpacks will receive updated (default) channel label information. All other local beltpack settings will **not** be reset if the Main Station is reset to default settings.

4.8 Diagnostics

The **Diagnostics** menus help you to monitor the performance of the main station and diagnose possible system issues.

4.8.1 Viewing hardware information

To view information about the hardware (PCBs) on the main station:

1. In **Menu mode** [], select **Diagnostics** and then **Hardware**.
2. From the third menu (third display screen), select one of the following:
 - **Main PCB**
 - **Slot 1 PCB**
 - **Slot 2 PCB**
 - **Slot 3 PCB**

Note:

Slot 1, Slot 2 and Slot 3 refer to the interface module slots in the main station extension bay.


The fourth menu (fourth display screen) displays the **Part**, **Revision** and **Serial** numbers for the PCB. The format is similar to the following:

```
Part xxxxxxxZ  
Revision: x  
Serial: x
```

Where **x** is a numerical value.

4.8.2 Viewing temperature information

To view the temperature of the main station:

2. In **Menu mode** [], select **Diagnostics** and then **Hardware**.
3. From the third menu (third display screen), select one of the following temperature sensors:
 - **Sensor 1**
 - **Sensor 2**
 - **Sensor 3**

The fourth menu (fourth display screen) displays the temperature, for example:

+30°C

Environmental note:

*The recommended operating temperature range for the HelixNet HMS-4X main station is **0 - +50°C**. The storage temperature range for the main station is **-30 - +70°C**.*

*Single fan on if any sensor > **60°C**.*

*Double fan on if any sensor > **65°C**.*

*Double fan off if < **55°C** / single fan off if < **50°C**.*

*For more environmental information, see **3 Installing HelixNet Partyline**.*

4.8.3 Viewing powerline information and status


There are two digital partylines (**Line 1** and **Line 2**) on the HMS-4X main station. Line 1 and Line 2 are also referred to as **powerlines**.

Each line can support up to 10 HBP-2X beltacks.

Note:

See also   and  in **Table 3: Key to HMS-4X Main Station front panel diagram**.

To view line information and status:

1. In **Menu mode** [], select **Diagnostics** and then **Powerlines**.
2. From the third menu (third display screen), select one of the following:
 - **Powerline 1**
Note:
*Refers to **Line 1**.*
 - **Powerline 2**
Note:
*Refers to **Line 2**.*
3. The fourth menu (fourth display screen) displays the status and other measures / information for the powerline. The status of the powerline is either **Ok** [operating normally], **Busy** or **Error**.

For more details of the information displayed, see **Appendix B: Menu maps**.

Note:

Powerline status is also indicated by the powerline LEDS on the front panel.

Green LED = **Ok**
Amber LED = **Busy**
Red LED = **Error**

4.8.4 Misc [*Miscellaneous*]


Diagnostics > Misc provides Clear-Com developers with the debug trace level. This functionality is for internal Clear-Com use only.

5 Configuring and Managing the HBP-2X Beltpack

This chapter describes how to configure the settings and manage the HBP-2X Beltpack using **Menu mode**. It also shows you how to monitor and diagnose performance issues, using the **Diagnostics** menus.

Tip: For a quick reference to the main station menus, see **Appendix B: Menu maps**.

5.1 Using the Menus


To place the main station in **Menu mode**, press the **Menu key** [] on the top of the beltpack for 2 seconds.



Important note:

If Menu mode is **locked** on the beltpack, you must unlock the menus (for all beltpacks) on the HMS-4X Main Station before you can change any settings. See **4.7 Administration**.


5.1.1 Configuring settings


To configure settings :

1. For each menu, turn either of the side-mounted **rotary controls** [] to scroll the menu items. Turn the rotary control:
 - Anti-clockwise to scroll up the menu items.
 - Turn clockwise to scroll down the menu items.

Off-screen menu items are indicated with arrows at the top and / or bottom of the display screen [ ].

Back (with an arrow pointing **left**) [] indicates a previous level of menu.


To return to the previous level of menu, press the **left-hand Call key** [].

An arrow pointing **right** [] indicates another level of menu under that menu item.

To go to the next level of menu, press the **right-hand Call key** [].


Selected menu items are highlighted in solid yellow [].

Note:

Audio quality (which depends on the type of cable used, the distance of the beltpack from the main station, and the number of connected beltpacks) is indicated by reception bars in the lower left hand corner of the screen [].




2. The final level of menu (the second or third display screen) displays the settings that relate to your previous menu choices (system features or functionality).

The **current setting** is indicated by a dotted box [] around the menu item

When you have selected a setting, press the **right-hand Call key** [] to enable the setting on the main station.


5.1.2 Exiting Menu mode

To exit **Menu mode** on the beltpack, do either of the following:



- Press the Menu key [].
- Wait until Menu mode times out. If you fail to press any key on the beltpack for 20 seconds, the display screen reverts to showing the standard channel information:
 - The channel label (name) [] for each of the two channels.
 - The volume level [] for each of the two channels.

5.2 Configuring the Audio settings

To configure the audio settings for the headset:

1. In **Menu mode** [], select **Audio Settings**.
2. To adjust sidetone gain on the headset:
 - a. Select **Sidetone Gain**.
 - b. Select one of the following:
 - **0dB**
 - **- 6dB**
 - **-12dB**
 - **-18dB**

Note:
*The default is **-12dB**.*

 - c. To enable (confirm) the selected setting, press the **right-hand Call key** [].
3. Go back to the previous menu level by pressing the **left-hand Call key** [].

4. To limit the peaks in audio on the headphones (or to disable headphone limiting):

- a. Select **Headphone Limit**.
- b. Select one of the following:
 - **Off**
 - **+6dB**
 - **0dB**
 - **- 6dB**
 - **-12dB**


Note:

*The default is **0dB**.*

- c. To enable (confirm) the selected setting, press the **right-hand Call key** [].

Note:

Limiting peaks in audio can help to prevent distortion on the headphone mic.

5. Go back to the previous menu level by pressing the **left-hand Call key** [].


6. To set (or disable) sidetone tracking on the headset:

- a. Select **Sidetone Control**.
- b. Select one of the following:
 - **Tracking**
 - **Non-Tracking**
 - **Disabled**

Note:

*The default is **Tracking**.*

- c. To enable (confirm) the selected setting, press the **right-hand Call key** [].

7. Go back to the previous menu level by pressing the **left-hand Call key** [].

8. To set the type of mic on the headset:

- a. Select **Mic Type**.
- b. Select either of the following types of mic.
 - **Electret** (35db fixed gain, non-user adjustable.)
 - **Dynamic** (50db fixed gain, non-user adjustable.)


Note:

*The default is **Dynamic**.*

- c. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.3 Configuring the Beltpack Settings

In **Menu mode** [] > **Beltpack Settings**, you can:


- Assign channels to the left and right beltpack keysets (set of controls).
- Enable (or disable) **Talk key** [] latching.
- Enable (or disable) beltpack vibration when a call signal is received.

Tip: For a quick reference to the keysets on the HBP-2X Beltpack, see **2.3.1 HBP-2X user controls (front and side view)**.

5.3.1 Assigning channels

You can assign any two of the four available channels to the beltpack (including the same channel to both keysets).

To assign a channel to the **left-hand keyset** (set of controls):


1. In **Menu mode** [], select **Beltpack Settings**.
2. Select **Left Channel**.
3. Select one of the four available channels (or none):
 - **None.**
 - **Channel A**
 - **Channel B**
 - **Channel C**
 - **Channel D**

Note:

The default channel labels (names) are shown above. The channel labels (names) can be edited on the main station. See **4.4.1 Editing the channel label**.

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

To assign a channel to **the right-hand keyset** (set of controls):

1. In **Menu mode** [], select **Beltpack Settings**.
2. Select **Right Channel**.
3. Select one of the four available channels (or none):
 - **None**
 - **Channel A**
 - **Channel B**
 - **Channel C**
 - **Channel D**


Note:

*The default channel labels (names) are shown above. The channel labels (names) can be edited on the main station. See **4.4.1 Editing the channel label**.*

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.3.2 Setting Talk key latching

To enable (or disable) **Talk key** [] latching:

1. In **Menu mode** [], select **Beltpack Settings**.
2. Select **Talk Latch**.
3. Select one of the following:
 - **Latching**
 - **Non-Latching**


Note:

*The default is **Latching**. The setting is global (it applies to both channels on the beltpack).*

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.3.3 Setting the beltpack to vibrate when called

To enable (or disable) vibration when a **Call signal** is received:

1. In **Menu mode** [], select **Beltpack Settings**.
2. Select **Vibrate on Call**.
3. Select one of the following:
 - **On**
 - **Off**




Note:

*The default is **Off**.*

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.4 Configuring the Display Settings

In **Menu mode** [] > **Display Settings**, you can:


- Set the brightness of the display screen.
- Set the brightness of the **Talk** [], **Call** [] and **Menu** [] keys.
- Enable (or disable) the screensaver.

Note:

By default, the **Talk**, **Call** and **Menu keys** are lit bright **red** when **active (on)** and dim **red** when **inactive (off)**. The default brightness setting for the display screen is **medium**.

5.4.1 Setting display screen brightness

By default, the display screen is set to **medium** brightness. To set the brightness of the display screen:




1. In **Menu mode** [], select **Display Settings**.
2. Select **OLED Brightness**.
3. Select one of the following:
 - **High**
 - **Medium**
 - **Low**

Note:


The default is **Medium**.

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.4.2 Setting the brightness of the Talk, Call and Menu keys

By default, the **Talk** [], **Call** [] and **Menu** [] keys are lit bright **red** when **active (on)** and dim **red** when **inactive (off)** (**High / Low**).

To set the brightness of the Talk, Call and Menu keys:

1. In **Menu mode** [], select **Display Settings**.
2. Select **Key Brightness**.

3. Select one of the following brightness settings:

Key(s)	Description
High / Low	Keys are lit bright red when active (on) and dim red when inactive (off) .
High / Off	Keys are lit bright red when active (on) and are unlit when inactive (off) .
Low / Off	Keys are lit dim red when active (on) and are unlit when inactive (off) .
Off / Off	Keys are unlit , whether or not they are active (on) or inactive (off) .

Table 21: Setting the brightness of the Talk, Call and Menu keys

Table note:


The default is **High / Low**.

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.4.3 Setting the screensaver

The screensaver is displayed onscreen after 10 minutes of inactivity on the beltpack.

To enable (or disable) the screensaver:

1. In **Menu mode** [], select **Display Settings**.
2. Select **Screensaver**.
3. Select one of the following:


- **Enabled**
- **Disabled**

Note:

The default is **Enabled**.

4. To enable (confirm) the selected setting, press the **right-hand Call key** [].

5.5 Administration

In **Menu mode** [] > **Administration**, you can:

- View the IP address for the network.
- View the current version of the software on the beltpack.
- Update the software (firmware), if there are any available updates on the network.
- Reset the beltpack to default (factory mode) settings.


Important note:

You **cannot** reset HBP-2X beltpacks to their default (factory mode) settings from the HMS-4X main station. HBP-2X beltpacks must be reset to the default (factory mode) settings individually.

The beltpacks receive updated (default) channel label information. Other local beltpack settings will **not** be reset if the Main Station is reset to default settings.

5.5.1 Viewing the IP address


To view the IP address for the network:

1. In **Menu mode** [], select **Administration**.
2. Select **IP Address**.
3. The IP address for the network is displayed. The IP address appears similar to the following example:

```
10.0.0.1
```

5.5.2 Viewing the current version of the software

To view the current version of the software on the beltpack:

1. In **Menu mode** [], select **Administration**.
2. Select **Software Version**.
3. The current version of the software is displayed. The software version information will appear similar to the following example:

```
npl-x.x.xx.xxxx, uboot
```

Where **x** is a numerical value.

5.5.3 Updating the beltpack software

Important note:

The following procedure is relevant to **future** software updates. Customers will be contacted by email when software updates become available. Updates will be downloaded through a link provided in the email.

For more information about updating the software for your HelixNet Partyline system, see **4.7.3 Updating the software.**


Software updates are performed on the HMS-4X main station.

Any HBP-2X beltpacks that are connected to the main station are automatically updated. The beltpacks remain non-functional for approximately 5 minutes while they are updated. You can also use a USB memory stick (USB 2.0 Micro-AB) to make the software available to the beltpack.

Tip: You can also make new software available to the beltpack by connecting a USB memory stick to the beltpack USB connector (USB 2.0 Micro-AB).


For the location of the USB connector, see **B** in **Table 9: Key to HBP-2X Beltpack main controls (front and side view).**

To update the software on the beltpack:

1. In **Menu mode** [, select **Administration**.
2. Select **Software Update**.
4. The new software is displayed. The software version information will appear similar to the following example:

```
npl-x.x.xx.xxxx
```

Where **x** is a numerical value.

5. To start updating the software, press the **right-hand Call key** [].

The process of updating the software takes approximately two minutes. The following system messages are displayed during the process:

- Downloading...
- Erasing Flash...
- Writing...
- Rebooting...

The Clear-Com logo [] is briefly displayed when the update is complete.



To check that the software upgrade was performed successfully, see
5.5.2 Viewing the current version of the software.

5.5.4 Resetting the beltpack to default (factory mode) settings

Important note:

You cannot reset HBP-2X beltpacks to their default (factory mode) settings from the HMS-4X main station. HBP-2X beltpacks must be reset to the default (factory mode) settings individually.

To reset the beltpack to default (factory mode) settings:

1. In **Menu mode** [], select **Administration**.
2. Select **Reset to Default**.
3. **Reset Now** is displayed (shown as selected). To reset the beltpack, press the **right-hand Call key** [].

5.6 Diagnostics

The **Diagnostics** menus help you to monitor the performance of the main station and diagnose possible system issues.

5.6.1 Viewing the hardware (main PCB) on the beltpack

To view the **Part**, **Revision** and **Serial number** of the main PCB on the beltpack:

1. In **Menu mode** [], select **Diagnostics**.
2. Select **Hardware > Main PCB**.


The **Part**, **Revision** and **Serial number** for the PCB are displayed. The format is similar to the following:

```
Part xxxxxxZ  
Revision: x  
Serial: x
```

Where **x** is a numerical value.

5.6.2 Viewing powerline information and status

To view powerline information and status:

1. In **Menu mode** [], select **Diagnostics**.
2. Select **Powerline**.

The status and other powerline information is displayed. For more information, see
Appendix B: Menu maps.

5.6.3 General

Diagnostics > General displays the debug trace level for Clear-Com developers. For internal Clear-Com use only.


6 Using the HMS-4X Main Station

This chapter describes how to use the **HMS-4X Main Station**, after your HelixNet Partyline system has been installed and configured.

For more information about integrating and using HelixNet Partyline with your existing intercom infrastructure, see **3 Installing HelixNet Partyline**.

Tip: For a quick reference to the functionality of the HMS-4X Main Station, the optional interface modules and the HBP-2X Beltpack, see **2 User Interfaces**.

6.1 Using the gooseneck mic, loudspeaker and headset

To use a **gooseneck mic** [] to talk to connected intercom users, devices (including HBP-2X beltpacks) and systems:


1. Connect the gooseneck mic, using the gooseneck mic connector (3-pin female Tuchel connector) on the left of the front panel.

Note:


For the location of the gooseneck mic connector, see  in **Table 3: Key to HMS-4X Main Station front panel diagram**.

2. To talk to other intercom users and devices:



- a. Press the appropriate **Talk key** [  ].



When the mic (gooseneck or headset) is live, the **Mic On key** [] is activated automatically.

- b. Speak into the mic.

Use the front panel **loudspeaker** [] to listen to connected intercom users, devices and the Program Feed.

To adjust the volume level:

1. Adjust the volume of all incoming audio by turning the loudspeaker rotary control **[Main]** [], located to the left of the loudspeaker.
2. Adjust the volume of the Program Feed in **relation to** the overall volume level by turning the auxiliary loudspeaker rotary control **[Prog]** [], located to the right of the loudspeaker. The **Prog** volume control is subordinate to the **Main** volume control.

To increase the volume level, turn the **rotary control(s)** [] clockwise. To decrease the volume level, turn the **rotary control(s)** [] anti-clockwise.

Important note:


When you connect a headset, incoming audio is routed to the headset instead of the loudspeaker.


As you increase or decrease the volume, the level control LEDs pass through a range of indicator colors:

LED color	Volume level
Green	Low
Amber / Green	Low / Medium
Amber	Medium
Red / Amber	Medium / High
Red	High


Table 22: Loudspeaker volume indicator colors

Note:



For the location of the loudspeaker on the front panel, see  in **Table 3: Key to HMS-4X Main Station front panel diagram**.

To use a **headset**  to talk and listen to connected intercom users, devices and systems:

1. Connect the headset, using the headset connector (4-pin XLR–M) on the far left of the front panel.

The **Headset key**  is automatically activated. Incoming audio is routed to the headset instead of the loudspeaker.


Note:

For the location of the headset connector and the headset key, see   in **Table 3: Key to HMS-4X Main Station front panel diagram**.



To configure audio settings for the headset, see **4.2.1 Audio settings for the headset**.

2. To talk to other intercom users and devices:

- a. Press the appropriate **Talk key**   .


When the microphone (gooseneck or headset) is live, the **Mic On key**  is activated automatically.


- b. Speak into the microphone.

3. To adjust the volume level of incoming audio to the headset:
 - a. Adjust the volume of all incoming audio by turning the loudspeaker rotary control **[Main]** []. The control is located to the left of the loudspeaker.
 - b. Adjust the volume of the Program Feed in **relation to** the overall volume level by turning the auxiliary loudspeaker rotary control **[Prog]** []. The control is located to the right of the loudspeaker.

The **Prog** volume control is subordinate to the **Main** volume control.

6.1.1 Switching between the headset mic and the gooseneck mic

When both a Headset microphone and a gooseneck microphone are connected, press the **Headset key** [] to activate the headset mic.

Press the **Headset key** [] again to switch to the gooseneck mic (and deactivate the headset mic).

Tip: To find out more about Clear-Com accessories, including headsets and gooseneck mics, see <http://www.clearcom.com/product/accessories>.


6.2 Entering and exiting Menu mode


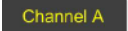


Use **Menu mode** to:

- Configure the settings for the main station, including channel and audio settings.
- Administrate the system, monitor system performance and diagnose system issues.
- Perform software updates.

In **Menu mode**, the display screens display the four levels of menu. The menu hierarchy proceeds left to right:

- The **top level** menu is presented in the first screen (furthest left on the front panel).
- The **lowest level** menu is presented in the fourth screen (furthest right on the front panel).

To place the main station in **Menu mode**, press the **Menu key** [] to the left of the first (left) display screen. To exit Menu mode, do either of the following:




- Press the **Menu key** [] again.
- Wait until Menu mode times out. If you fail to press any key on the front panel for 20 seconds, the display screens revert to showing the standard channel information:
 - Channel label (name) [].
 - Listen (volume) level [].
 - The number of actively **Listening** and **Talking** devices [].

Tip: For more detailed information about using the main station menus, see **4 Configuring and Managing the HMS-4X Main Station**.

6.3 Using the channel keysets

A keyset (set of controls) is located next to each of the four display screens. In operating mode, each keyset is dedicated to the control of one of the four supported intercom channels.


The standard onscreen information for each channel comprises:

- The channel label (name) [].
- The volume level [].
- The number of actively **Listening** and **Talking** beltacks [].



Notes:



To change (edit) the channel label (name), see **4.4.1 Editing the channel label**.

The display screens enters screensaver mode (if enabled) if the main station remains inactive for 10 minutes. Press any key to leave screensaver mode.


To send a **call signal** to all the connected devices (beltacks) on that channel, press the **Call key** [].

To **talk** to the all the devices (beltacks) on that channel:


1. Press the **Talk key** [].
When the mic (gooseneck or headset) is live, the **Mic On key** [] is activated automatically.
2. Speak into the headset or gooseneck mic (see also **6.1 Using the gooseneck mic, loudspeaker and headset**).

To **adjust the volume** of incoming audio, turn the **rotary control** []. Turn the rotary control clockwise to increase the volume, and anti-clockwise to decrease volume. The current volume level is shown onscreen [].

To **mute** incoming audio, press the **rotary control** []. The display screen displays the muted volume bar [].


To **unmute** incoming audio (restoring the audio to its previous volume level), press the **rotary control** [] again.


Note:


*In **Menu mode**, the **rotary control** [] for each channel keyset is used to scroll and select menu items. For more information, see **4.1 Using the Menus**.*

6.4 Using the All Talk key

To talk to all connected intercom users, devices and systems, **excluding** the SA (*Stage Announce*) facility:


1. Press the **All Talk key** [] to the right of the fourth (last) display screen.

Talk keys [] for all channels are activated automatically.



When the mic (gooseneck or headset) is live, the **Mic On key** [] is also activated automatically.

2. Speak into the headset or gooseneck mic
(see also **6.1 Using the gooseneck mic, loudspeaker and headset**).

6.5 Using the SA [Stage Announce] key


Use the **SA [Stage Announce] key** [] to speak to an attached SA or PA (Public Announce) system (sometimes simply a loudspeaker within the studio, theater or event area).

To make a studio / public announcement:

1. Press the **SA key** [] to the right of the fourth (last) display screen.
When the mic (gooseneck or headset) is live, the **Mic On key** [] is also activated automatically.
2. Speak into the headset or gooseneck mic (see also **6.1 Using the gooseneck mic, loudspeaker and headset**).


6.6 Using the RMK [Remote Mic Kill] key

Use the **RMK [Remote Mic Kill] key** [] to:

- Send a message to all connected HelixNet Partyline beltacks) to deselect any latched (active) **Talk keys** [].
- Turn off any latched **Talk keys** on connected analog partyline beltacks.

6.7 Line 1 and 2 LEDs

The HBP-2X beltacks are connected (and powered) by two lines to the main station. Each line can support up to 10 beltacks.

The color of the **Line 1 and Line 2 LEDs** [] to the left of the front panel loudspeaker indicate the service status of each powerline:

- **Green** LED = **Ok**.
- **Amber** LED = **Busy**.
- **Red** LED = **Error**.

For more information:

- About the service status of Lines 1 and 2, see **4.8.3 Viewing powerline information and status**.
- About monitoring system performance and diagnosing system issues on the main station, see **4.8 Diagnostics**.

7 Using the HBP-2X Beltpack

This chapter describes how to use the **HBP-2X Beltpack**, after your HelixNet Partyline system has been installed and configured.

For more information about integrating and using HelixNet Partyline with your existing intercom infrastructure, see **8 Connecting to Other Intercom Systems**.

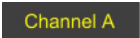

Tip: For a quick reference to the functionality of the HBP-2X Beltpack, the HMS-4X Main Station, and the optional interface modules, see **2 User Interfaces**.

7.1 Using the beltpack keysets

The HBP-2X Beltpack supports two Partyline channels, with a separate keyset (set of controls) dedicated to the control of each channel:

- The **left-hand keyset** controls the first (top) channel displayed onscreen.
- The **right-hand keyset** controls the second (bottom) channel displayed onscreen.

When the beltpack is in operating mode, the following standard information is displayed onscreen for each channel:


- The channel label [].
- The channel volume level [].

Notes:


For more information about:

- Using the beltpack in **Menu mode**, see **5 Configuring and Managing the HBP-2X Beltpack**.
- Changing (editing) the channel label (name), see **4.4.1 Editing the channel label**.


The display screens enter screensaver mode (if enabled) if the beltpack remains inactive for a [period of time]. Press any key to exit screensaver mode.


To send a **call signal** to all the connected devices (beltpacks and main station) on that channel, press the **Call key** [].


To **talk** to the all the devices (beltpacks and main station) connected to the channel:



1. Connect a headset [], using the 4-pin XLR-M connector on the base / rear of the beltpack.

Note:

For the location of the headset connector and the headset key, see  in **Table 10: Key to HBP-2X Beltpack connectors and controls (base view).**

2. Press the **Talk key** [].
3. Speak into the headset mic.


To adjust the volume of incoming audio for a channel, turn the appropriate side-mounted **rotary control** [].

Turn the rotary control [] clockwise to increase the volume, and anti-clockwise to decrease volume. The current volume level for the channel is shown onscreen [].

7.2 Entering and exiting Menu mode

Use **Menu mode** to:

- Configure the settings for the main station, including channel and audio settings.
- Monitor beltpack performance and diagnose issues.
- Perform software updates.


To enter Menu mode, press the **Menu key** [] firmly (for 2s). To exit Menu mode, press the Menu key again.

For more information about using **Menu mode** on the beltpack, see **5 Configuring and Managing the HBP-2X Beltpack.**

7.3 Adjusting the Program Feed volume level.

To adjust the listen level (volume) of the **Program Feed** to the beltpack, turn the rear / base rotary control [].

Turn upwards to increase the listen level (volume), and downwards to decrease the listen level (volume).

While the listen level is adjusted, the listen level for the Program Feed [] replaces the standard channel information onscreen.

Note:

The main station is used to assign the **Program Feed** to channels. For more information, see **4.4.2 Assigning the Program Listen to a channel.**

8 Connecting to Other Intercom Systems

This chapter provides basic guidance on connecting your HelixNet Partyline system to a range of other intercom systems, including:

- Two-wire cabled partyline systems (RTS and Clear-Com Encore).
- Two-wire / four-wire wireless systems (Tempest, CellCom / FreeSpeak, and the DX210).
- Digital matrix systems (Eclipse MVX four-wire).

The HMX-4X Main Station is connected to these systems using the optional Two-wire and Four-wire interface modules.

Note:

*Future versions (upgrades) of the HelixNet Partyline software will also enable Ethernet and Fiber Channel interface modules in HelixNet Partyline software. For more information, see **2.2.1 HMS-4X Main Station rear panel: Interface modules**.*

8.1 Connecting HelixNet Partyline to Encore

8.1.1 About Encore

Encore is the plug-and-play analog two-wire partyline system from Clear-Com. Each Encore main station and remote station can support up to 40 wired beltacks.

Clear-Com Encore is widely used in theatres, schools, local broadcast stations, churches and other small to mid-size live productions.

Two, four and twelve channel versions of the main stations and remote stations are available.

Tip: For more information about Encore, see your **Encore documentation** or visit the **Intercom Partyline** pages on the Clear-Com website: <http://www.clearcom.com/product/partyline>.

8.1.2 Quick reference: Connecting to Encore

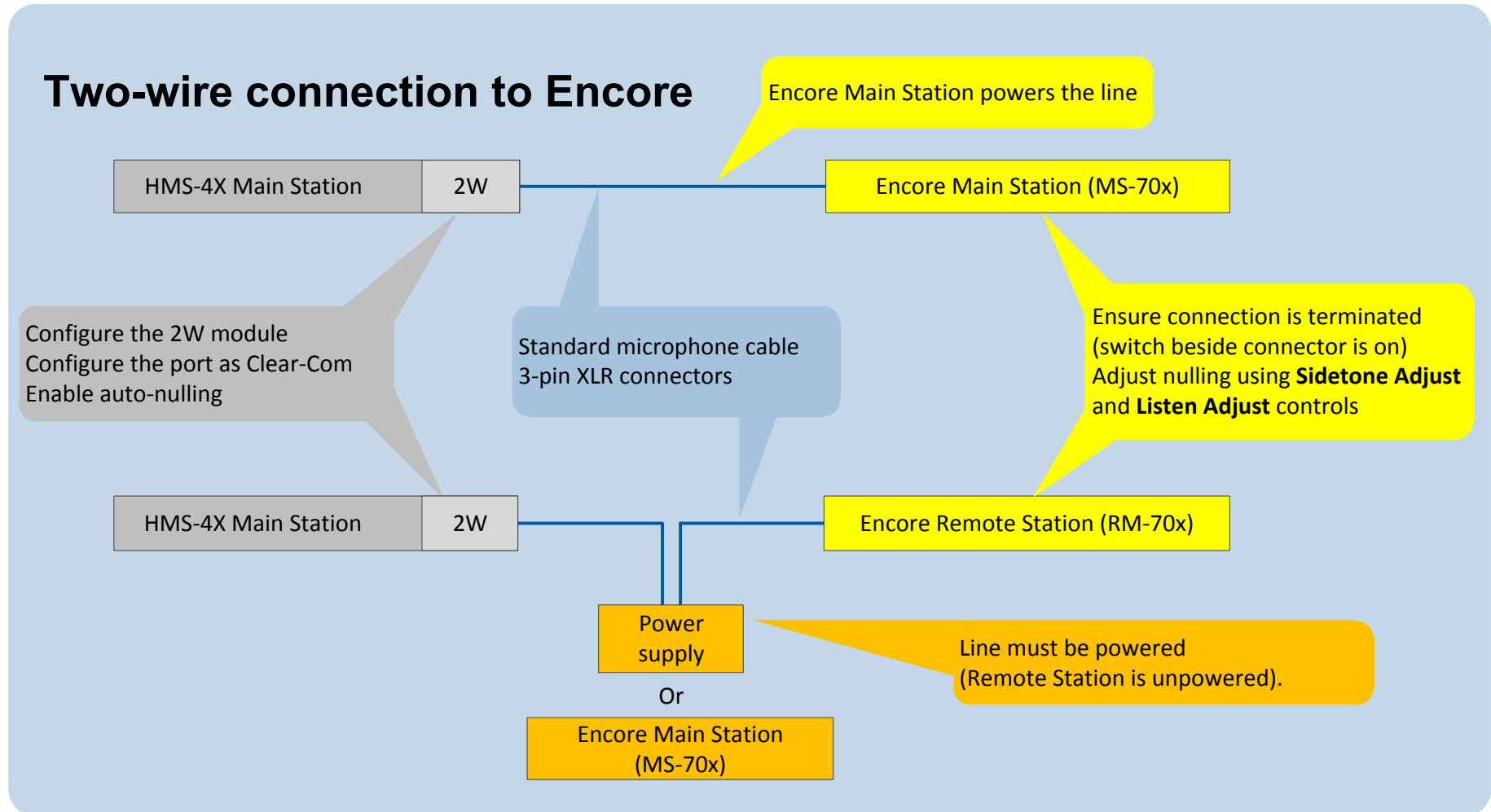



Figure 10: Two-wire connection to Encore

8.1.3 Connecting to an Encore main station

Note:

The following procedure assumes that a two-wire interface module has been fitted to the HMS-4X Main Station. For more information about interface modules, see **2.2.1 HMS-4X Main Station rear panel: Interface modules**.

To connect your HelixNet Partyline system to an Encore main station (for example, the four channel **MS-704**):


1. On the HMS-4X Main Station, configure the **Module Settings** for the two-wire interface module (**Menu mode** [] > **Module Settings**). For the full procedure, see **4.6.2 Configuring a Two-wire interface module**.

Note:

Check that the two-wire module is configured for **Clear-Com systems** (the default) and enable **Auto-nulling**. Auto-nulling helps to reduce echo while talking on a two-wire audio system.

2. Physically connect the HMS-4X Main Station to the Encore Main Station (MS-704), using the 3-pin XLR connectors:

- On the HMS-4X Main Station two-wire interface module.
- On the back panel (rear) of the Encore Main Station.

There are four channels (A, B, C and D), comprising two 3-pin XLR connectors, on the MS-704 [].

Connect to the selected channel using standard microphone cabling.

Note:

The Two-wire module will not function properly (not pass audio) without an attached power supply on the analog side of the interface.

Ensure that the connection is terminated (using the termination switch beside the connectors). The default position for the switch is **on**.



3. On the Encore (MS-704) main station, adjust nulling for the selected channel (either channel A, B, C or D on the MS-704). Nulling helps to reduce echo while talking on a two-wire audio system.

Tip: *The amount of null that is required changes when you add or remove devices, or alter the length of the cabling. For optimum performance, Clear-Com recommends that you adjust the nulling every time you make a change to the system configuration.*

Note:

Ensure that **all** Talk keys/routes are disabled before auto-nulling commences.

To adjust nulling on a channel on the Encore main station (MS-704):

- a. Turn the screwdriver-adjustable **Sidetone Adjust** control (just below the headset connector) [] to the appropriate level.
- b. Turn the screwdriver-adjustable **Listen level** control (the null control, located just below the channel **Talk** button and **Call** LED) [] for the channel to the appropriate level.

Tip: *If the headset microphone is being used, hum or gently scratch the mic for a continuous signal source to null on. If a good null is not attainable, switch the **Long / Short DIP switch** for the channel to its opposite setting. Use the setting that produces the best audio quality.*

*To optimize audio quality, you may also want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**.*

8.1.4 Connecting to Encore remote stations

Connecting to an Encore remote station (for example, the RM-704) is similar to connecting to an Encore main station (see **8.1.2 Quick reference: Connecting to Encore**).

However, you will require a **separate power supply** (for example, the PS-702 (two channel) or PS-704 (four channel) power supply) to power the remote station (which is unpowered) and any connected wired beltacks.

8.2 Connecting HelixNet Partyline to RTS (Telex) two-wire systems

8.2.1 About RTS two-wir systems

HelixNet Partyline is also designed for interoperability with RTS (Telex) TW (two-wire) analog partyline systems from Telex.

RTS two-wire systems include fully programmable intercom (main) stations, remote speaker stations, two-wire beltpacks, and two-wire power supplies.

8.2.2 Quick reference: Two-wire connection to RTS (Telex) 2W system

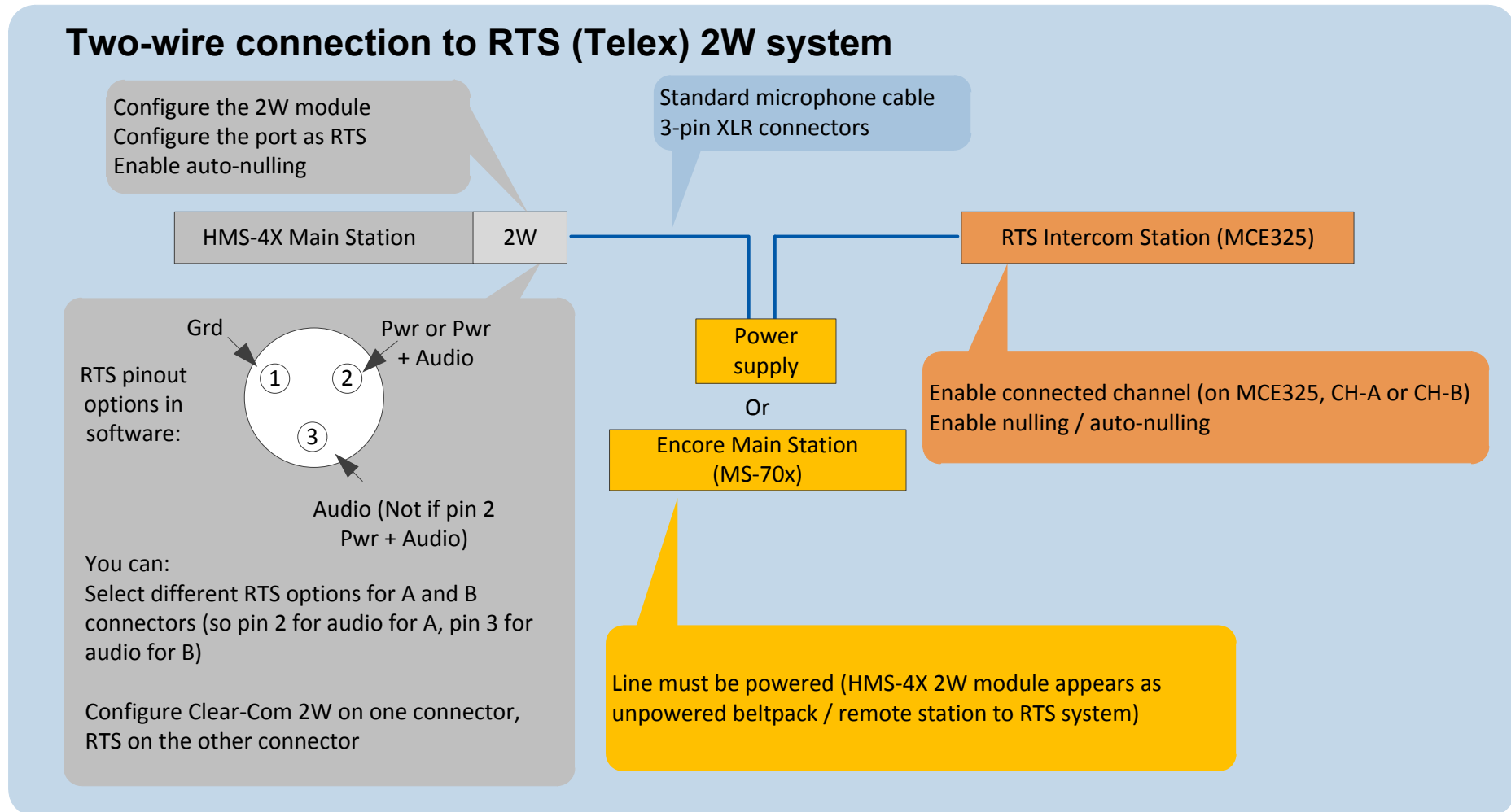


Figure 11: Two-wire connection to RTS 2W system

8.2.3 Connecting to an RTS (Telex) intercom station

To connect your HelixNet Partyline system to an RTS intercom station (in this case, the 2 channel MCE325 user station):

1. On the HMS-4X Main Station, configure the **Module Settings** for the two-wire interface module.

For the full procedure, see **4.6.2 Configuring a Two-wire interface module**.

Ensure to:

- **Configure port(s) for RTS systems.** You can select from two different pinouts when connecting to an RTS two-wire system:

RTS pinout option	Description
RTS Audio Pin 2	Pin 2 is used for both power and audio.
RTS Audio Pin 3	Pin 3 is used for audio (Pin 2 is used for power only).

Table 23: Configuring Module Settings: RTS pinout options

- **Enable auto-nulling.** Auto-nulling helps to reduce echo while talking on a two-wire audio system.
2. Physically connect the HMS-4X Main Station to the RTS intercom station (MCE325).

The two channels of RTS TW intercom must be split prior to connection with either of the Two-wire module ports. RTS Audio Pin 2 carries the power that is required for the Two-wire module.

Powering the connection:

You must power the connection between the systems using either a dedicated power supply (such as the PK-7, PS-702, or PS-704), or a powered Encore Main Station (such as the MS-702 or MS-704).

Tip: For more information about the PK-7 or PS-70x power supply devices from Clear-Com, see <http://www.clearcom.com/product/partyline/power-supplies>

Connecting to the MCE325 device:

There are three 3-pin XLR connectors on the rear panel of the MCE325 device. In two-wire mode:

- The left and right-hand connectors are used for intercom channels 1 and 2 input/output.
- The center connector is used for channels 3 and 4 input / output.
- Connect to the selected channel using standard microphone cabling.

Note:

The MCE325 is designed for use with intercom lines with a 200-ohm line terminating impedance. A 200 ohm termination plug is connected to the center 3-pin XLR connector to prevent channels 3 and 4 from oscillating when the MCE325 is in two-channel mode.

3. On the RTS device (in this case, the MCE325), adjust the nulling (if necessary) on the channel to which the HMS-4X Main Station is connected.

Nulling helps to reduce echo while talking on a two-wire audio system. A **sidetone nulling trimmer** (control) is provided for each of the four channels on the device.

To adjust a sidetone nulling trimmer:

- a. Turn the speaker switch on (even if an external speaker is not connected). This turns off the internal sidetone trimmer, which controls the sidetone level in headsets.
- b. Turn on the microphone. Activate the relevant **Talk** button and speak into the microphone.
- c. To minimize echo, adjust the **sidetone nulling trimmer** (located under the **CH1** and **CH2** rotary controls).

Note:

The default setting for each trimmer is for maximum nulling of the microphone signal when a 200-ohm resistance terminates the channel. However, you may have to adjust the nulling according to the system configuration.

8.3 Connecting HelixNet Partyline to Tempest

8.3.1 About Tempest

Tempest is a digital wireless intercom system, comprising a basestation (main station) and beltstations (beltpacks). There are two-wire and four-wire versions of Tempest available. The system operates in either:

- The 2.4GHz ISM band (Tempest 2400 models).
- The 900 MHz ISM band (Tempest 900 models).

Tempest is **not** a Wi-Fi product and operates license-free in most countries (the product is licensed in FCC and CE countries).

Tip: For more information about Tempest, see your Tempest documentation or visit the wireless intercom pages on the Clear-Com website: <http://www.clearcom.com/product/wireless>.

8.3.2 Quick reference: Two-wire connection to Tempest

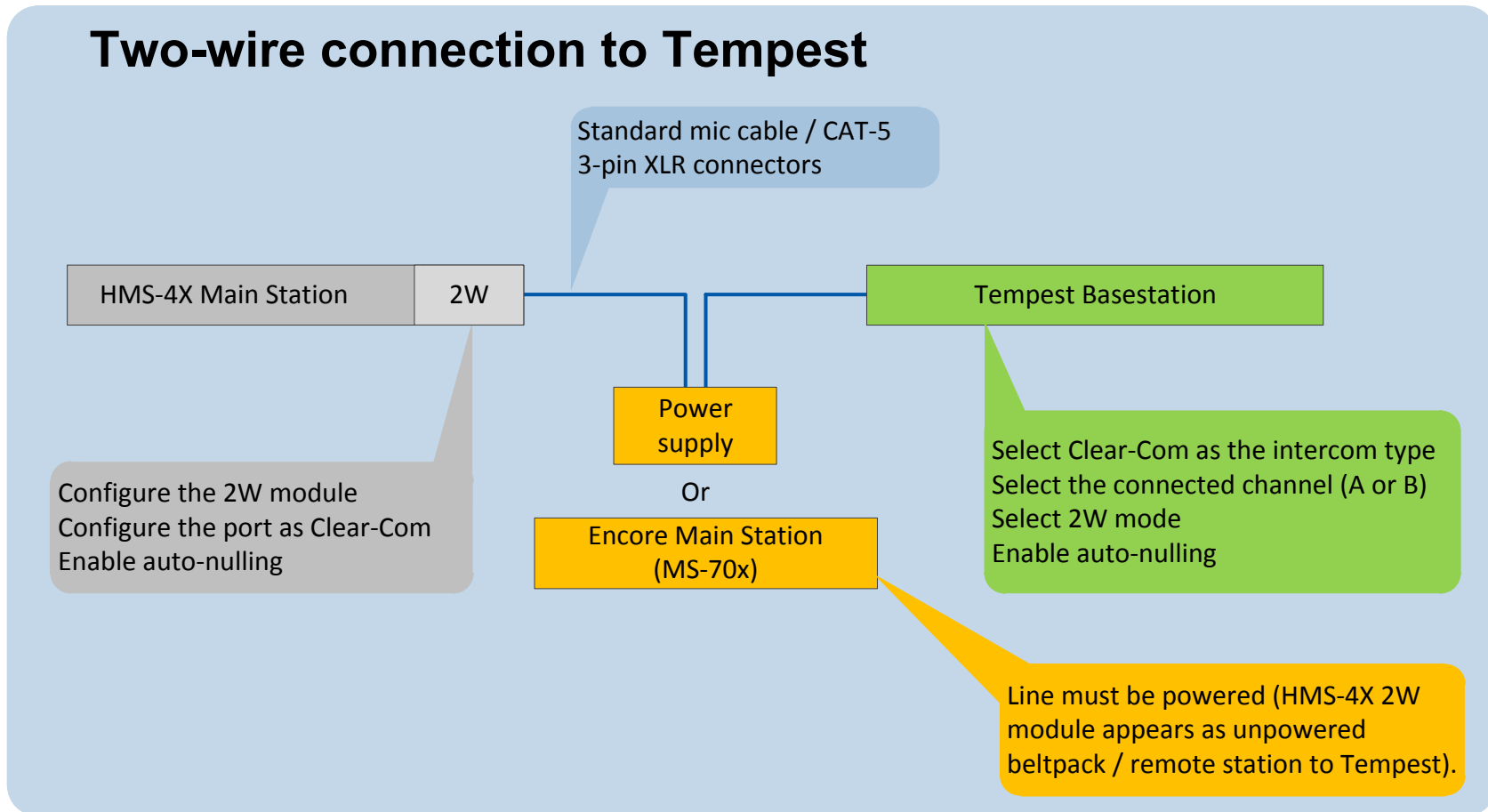


Figure 12: Two-wire connection to Tempest

8.3.3 Two-wire connection to Tempest

To connect your HelixNet Partyline system to Tempest, using a two-wire connection:




1. On the HMS-4X Main Station, configure the **Module Settings** for the two-wire interface module.

For the full procedure, see

4.6.2 Configuring a Two-wire interface module.

Note:

Check that the Two-wire module is configured for **Clear-Com systems** (the default) and enable **Auto-nulling**. Auto-nulling helps to reduce echo while talking on a two-wire audio system.

1. On the Tempest basestation:
 - a. Select **Clear-Com** as the intercom type, using the slide switch [] on the front panel.
 - b. Configure an intercom channel for two-wire connection:
 - i. Select the intercom channel (A or B), using the **CHAN** selection button [] on the front panel.
 - ii. Select two-wire connection for the intercom channel, using the **two-wire / four-wire** selection button [] on the front panel.
 - c. Enable **Auto-null**, using the Tempest menu screens. Enable **Manual Null** to remove any residual echo, where desired.

For more detailed information about setting up a two-wire connection on the Tempest basestation, see your **Tempest reference manual**.



Always set the intercom type before you connect a two-wire intercom system to the Tempest Basestation.

Never change the setting while the systems are connected. Changing the setting while the systems are connected can damage the Tempest Basestation and / or the other system (in this case, HelixNet Partyline).

2. Physically connect the HelixNet Partyline and Tempest systems.

Powering the connection:

You must power the connection between the systems using either a dedicated power supply (such as the PK-7, PS-702, or PS-704), or a powered Encore Main Station (such as the MS-702 or MS-704).


Tip: For more information about the dPK-7 or PS-70x power supply devices from Clear-Com, see <http://www.clearcom.com/product/partyline/power-supplies>

Connecting to Tempest:

You can use standard microphone cable or CAT5 cable types to connect the HMS-4X Main Station to the Tempest Basestation. 3-pin XLR connectors are located:

- On the HMS-4X Main Station two-wire interface module.
- On the back panel (rear) of the Tempest Basestation.

Tip: Tempest provides two-wire input/output gain adjustments, and can be utilized to either balance the gains between HelixNet and Tempest or connect two-wire system interfaces through a Tempest base station.

3. Adjust the **In / Out** volume level controls [] on the Tempest Basestation.

The **In / Out** volume levels have the following ranges:

Volume level	Range
In	-18dB - +4dB
Out	-18dB - +4dB

Table 24: Tempest BaseStation In / Out volume levels

For more information, see your **Tempest reference manual**.

Tip: To optimize audio quality, you may also want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**.

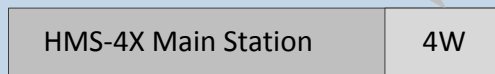
8.3.4 Quick reference: Four-wire connection to Tempest

Four-wire connection to Tempest

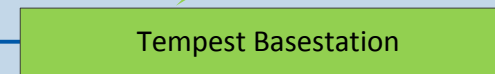
Configure the 4W module
Configure the port as Clear-Com

4W crossover cable (CAT-5)
RJ45 connectors

Select Clear-Com as the intercom type
Select the connected channel (A or B)
Select 4W mode
Adjust the In / Out levels



Pin	Function
1	Data out +
2	Data out -
3	Audio out +
4	Audio in +
5	Audio out -
6	Audio in -
7	Data in +
8	Data in -



Pin	Function
1	N/C
2	N/C
3	Audio out +
4	Audio in +
5	Audio out -
6	Audio in -
7	N/C
8	N/C

Figure 13: Four-wire connection to Tempest

8.3.5 Four-wire connection with Tempest


To connect your HelixNet Partyline system with Tempest, using a four-wire connection:


1. On the HMS-4X Main Station, configure the **Module Settings** for the Four-wire interface module.

For the procedure, see

4.6.1 Configuring a Four-wire interface module.

2. On the Tempest BaseStation, configure an intercom channel for four-wire connection:

- a. Select the intercom channel (**A** or **B**), using the **CHAN** selection button [] on the front panel.

- b. Select four-wire connection for the intercom channel, using the **two-wire / four-wire** selection button [] on the front panel.


1. Connect the HMS-4X Main Station and the Tempest BaseStation, using four-wire crossover CAT5 cabling.

Important note:

For pinout information for the two systems, see the **quick reference diagram** in **8.3.4. Quick reference: Four-wire connection to Tempest.**

RJ45 connectors are located:

- On the HMS-4X Main Station four-wire interface module.
- On the back panel (rear) of the Tempest BaseStation (the top RJ45 connector is for **intercom channel A** and the bottom RJ45 connector for **intercom channel B**).

3. Adjust the **In / Out** levels controls [] on the Tempest BaseStation, where necessary.

For more information, see your **Tempest reference manual**.

Tip: To optimize audio quality, you may also want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**.

8.4 Connecting HelixNet Partyline to CellCom / FreeSpeak

8.4.1 About CellCom / FreeSpeak

CellCom / FreeSpeak is a wireless intercom system from Clear-Com, operating within the license-free 1.92-1.93GHz frequency band. The system is branded as CellCom in North America and as FreeSpeak in the rest of the world.

CellCom /FreeSpeak combines DECT and wireless auto-roaming technologies to allow users to move freely without losing communication connection. Active Antennas enable a beltpack-to-basestation distance range of up to 3200ft (1000m).

You can connect up to 20 full-duplex wireless beltpacks (which operate as fully programmable mobile panels) to one CellCom / FreeSpeak basestation (main station).

Note:

CellCom / FreeSpeak can also operate as an integrated solution, with up to 35 beltpacks connected to a Clear-Com digital Matrix frame.

Tip: For more information about CellCom / FreeSpeak, see your CellCom / FreeSpeak documentation or visit the wireless intercom pages on the Clear-Com website:

<http://www.clearcom.com/product/wireless>.

8.4.2 Quick reference: Two-wire connection to CellCom / FreeSpeak

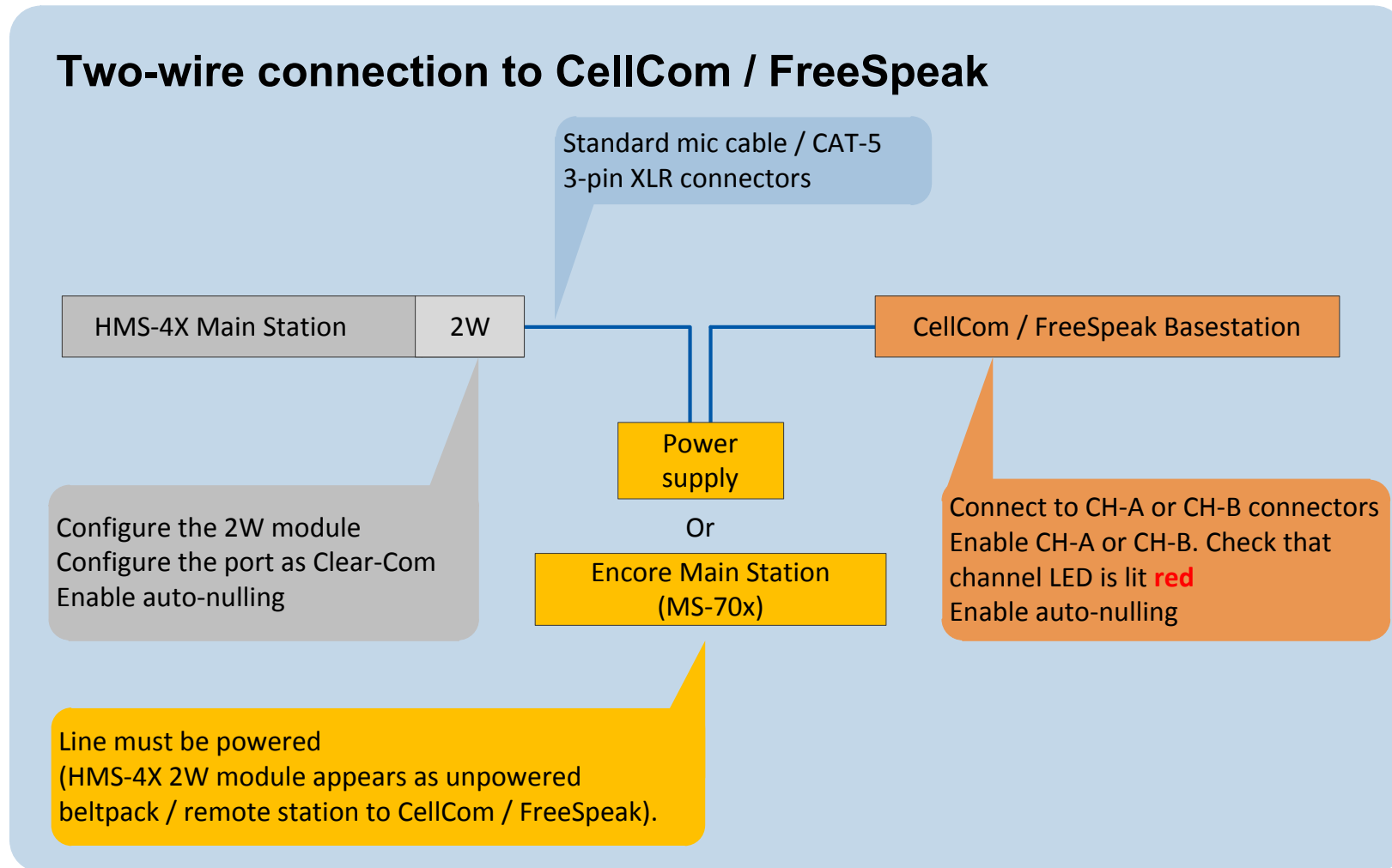


Figure 14: Two-wire connection to CellCom / FreeSpeak

8.4.3 Two-wire connection to CellCom / FreeSpeak

To connect your HelixNet Partyline system to a CellCom / FreeSpeak basestation (main station), using a two-wire connection:

1. On the HMS-4X Main Station, configure the **Module Settings** for the two-wire interface module.

For the procedure, see

4.6.2 Configuring a Two-wire interface module.

Note:

*Check that the two-wire module is configured for **Clear-Com systems** (the default) and enable **Auto-nulling**. Auto-nulling helps to reduce echo while talking on a two-wire audio system.*

2. There are two partyline channels on the CellCom / FreeSpeak basestation (**CH-A** and **CH-B**). Before connecting the HMS-4X Main Station to the basestation, ensure that the partyline LED on the front panel for the selected channel (**CH-A** or **CH-B**) is **off**.

Off indicates that the partyline connection is currently disabled from the basestation.

Note:

*If the channel is currently enabled, the partyline LED is lit **red**.*

3. Physically connect the HMS-4X Main Station to one of the two partyline channels on the CellCom / FreeSpeak basestation (main station).

Powering the connection:


You must power the connection between the systems using either a dedicated power supply (such as the PK-7, PS-702, or PS-704), or a powered Encore Main Station (such as the MS-702 or MS-704).


Tip: For more information about the PK-7 or PS-70x power supply devices from Clear-Com, see <http://www.clearcom.com/product/partyline/power-supplies>

Connecting the systems:

Use standard microphone cable or CAT5 cable types to connect the two systems. There are 3-pin XLR connectors:


- On the HMS-4X Main Station two-wire interface module.
- On the back panel (rear) of the CellCom / FreeSpeak Basestation.

Two 3-pin XLR connectors (one male, one female) are provided for each of the two partyline channels (**CH-A** and **CH-B**) on the Basestation [].

4. On the CellCom / FreeSpeak basestation, press **Enable** [] on the front panel (located directly beneath the LED for the connected channel (**CH-A** or **CH-B**)).

The LED for the channel is lit **red**.

The basestation automatically detects and configures the appropriate power and termination settings when the channel is enabled. The basestation also remembers that the channel is enabled the next time that the basestation is powered up.

5. On the CellCom / FreeSpeak basestation, press **Enable** [] again and **hold**.

The basestation activates auto-nulling on the connected channel. Auto-nulling helps to reduce echo while talking on a two-wire audio system.

8.4.4 Quick reference: Four-wire connection to CellCom / FreeSpeak

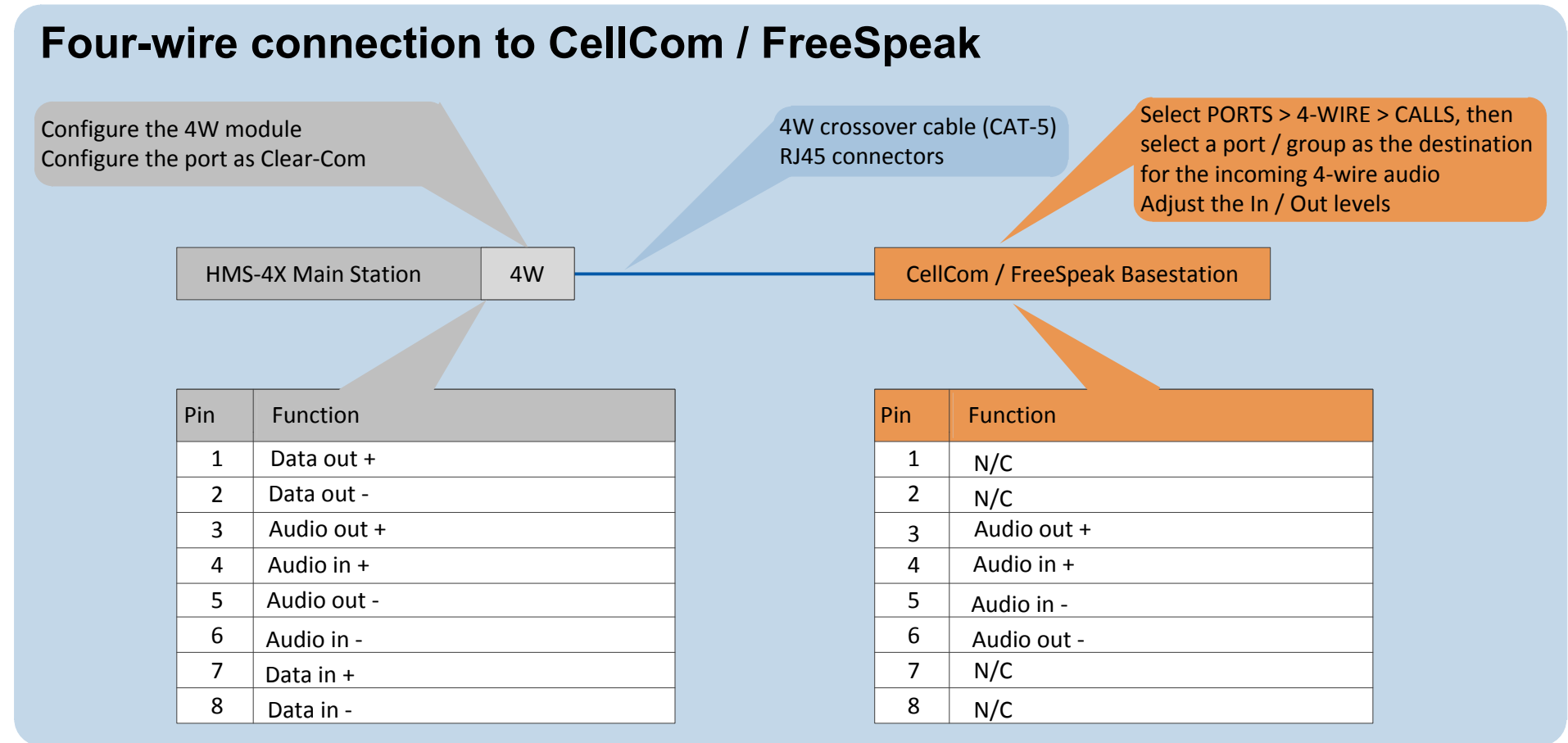


Figure 15: Four-wire connection to CellCom / FreeSpeak

8.4.5 Four-wire connection to CellCom / FreeSpeak

To connect your HelixNet Partyline system with a CellCom / FreeSpeak basestation (main station), using a four-wire connection:

1. On the HMS-4X Main Station, configure the **Module Settings** for the four-wire interface module.

For the procedure, see **4.6.1 Configuring a Four-wire interface module**.

2. Connect the HMS-4X Main Station and the CellCom / FreeSpeak basestation, using four-wire crossover CAT5 cabling.

Important note:

For pinout information for the two systems, see the **quick reference diagram** in **8.4.4 Quick reference: Four-wire connection to CellCom / FreeSpeak**.

RJ-45 connectors are located:

- On the HMS-4X Main Station four-wire interface module.
 - On the back panel (rear) of the CellCom / FreeSpeak basestation. There are four RJ45 connectors for four-wire connections on the basestation.
3. Adjust the **In / Out** volume levels, using the CellCom / FreeSpeak front panel display.

For more information, see your **CellCom / FreeSpeak documentation**.

Tip: To optimize audio quality, you may also want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**.

8.5 Connecting HelixNet Partyline to the DX210

8.5.1 About the DX210

The Clear-Com HME DX210 is a 2 channel wireless intercom system. The basestation (main station) supports up to 15 beltpacks or all-in-one headsets (headsets operating as beltpacks).

The DX210 supports Clear-Com and RTS cabled two-wire intercom systems, and also has four-wire and auxiliary audio connections.

The DX210 operates in the license-free 2.4GHz band, and has provisions for spectrum-friendly co-existence with other devices in the same band.

Tip: For more information about the DX210, see your DX210 documentation or visit the wireless intercom pages on the Clear-Com website: <http://www.clearcom.com/product/wireless>.

8.5.2 Quick reference: Two-wire connection to DX210

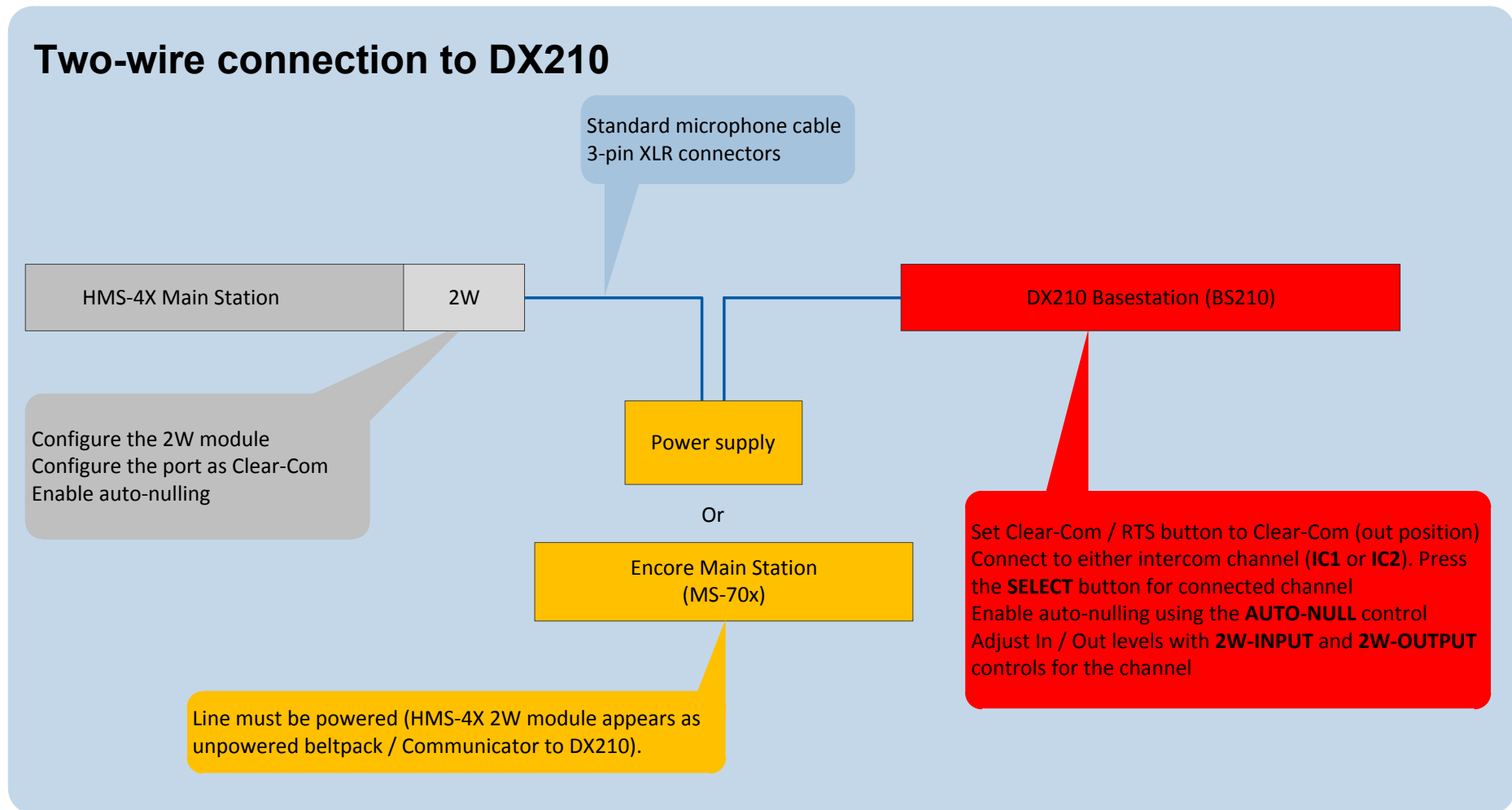


Figure 16: two-wire connection to DX210

8.5.3 Two-wire connection to the DX210

To connect your HelixNet Party-line system to the DX210 basestation (main station), using a two-wire connection:


1. On the HMS-4X Main Station, configure the **Module Settings** for the Two-wire interface module.

For the procedure, see

4.6.2 Configuring a Two-wire interface module.

Note:

Check that the two-wire module is configured for **Clear-Com systems** (the default) and enable **Auto-nulling**. Auto-nulling helps to reduce echo while talking on a two-wire audio system.

2. On the rear panel of the DX210 basestation, ensure that the **Clear-Com / RTS** button [] is set to **Clear-Com** mode (the **out position**).
3. Physically connect the HMS-4X Main Station to one of the two intercom channels on the DX210 basestation (main station).

Powering the connection:


You must power the connection between the systems using either a dedicated power supply (such as the PK-7, PS-702, or PS-704), or a powered Encore Main Station (such as the MS-702 or MS-704).

Tip: For more information about the dedicated power supply devices (PK-7 or PS-70x devices) from Clear-Com, see <http://www.clearcom.com/product/partyline/power-supplies>

Connecting the systems:

Use standard microphone cable to connect the two systems. 3-pin XLR connectors are located:

- On the HMS-4X Main Station two-wire interface module.
- On the back panel (rear) of the DX210 basestation.

Two 3-pin XLR connectors (one male, one female) are provided for each of the two intercom channels (**IC1** and **IC2**) on the basestation [].

4. On the front panel of the DX210 basestation, press the **SELECT** button for the connected intercom channel (either **IC1** or **IC2**).

The **2-W** (two-wire) LED next to the **SELECT** button is lit **green**.

Note:

*If power is **not** detected at the connector, the **2-W** LED is lit **red**. No audio can be transmitted between the systems. When the HMS-4X Main Station is powered, power is supplied to the connection and the **2-W** LED is lit **green**.*

5. Apply auto-nulling to the connected channel (either IC1 or IC2) on the DX210 basestation. Auto-nulling helps to reduce echo while talking on a two-wire audio system. To apply auto-nulling:
 - a. Insert a pen or similar pointed object into the **AUTO-NULL** hole on the front panel.
 - b. Press and hold **AUTO-NULL** for 2 seconds.

Note:

Before applying auto-nulling, ensure that there are no open microphones on the wired intercom. If users are wearing headsets, ensure to notify them of the audio-sweep that precedes the application of auto-nulling.

6. Adjust the two-wire intercom receive and send levels (in / out levels), using the **2-W INPUT** and **2-W OUTPUT** controls for the connected channel (**IC1** or **IC2**) on the DX210 basestation front panel.

For more information, see your **DX210 documentation**.

Tip: To optimize audio quality, you may also want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**.

8.5.4 Quick reference: Four-wire connection to DX210

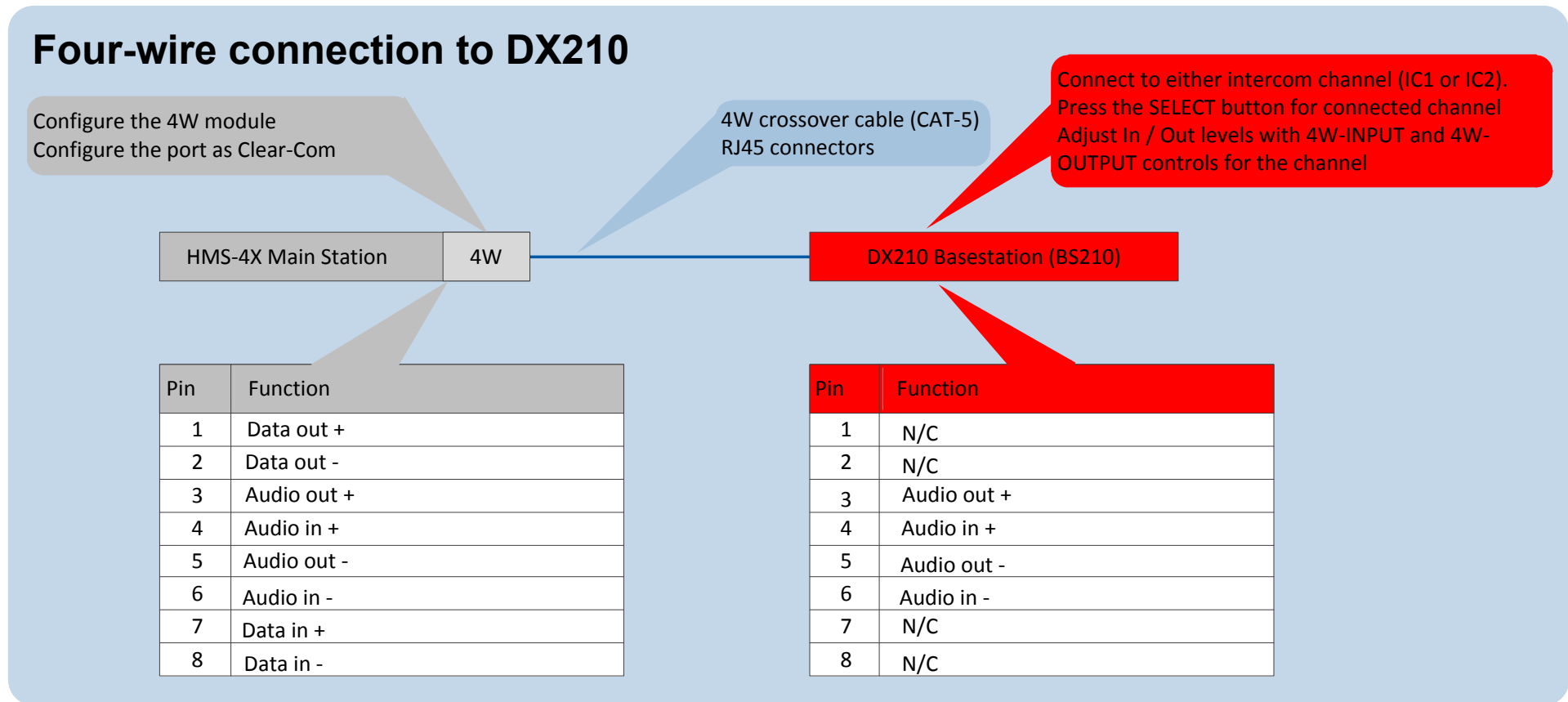


Figure 17: Four-wire connection to DX210

8.5.5 Four-wire connection to the DX210

To connect your HelixNet Partyline system with a DX210 basestation (BS210), using a four-wire connection:

1. On the HMS-4X Main Station, configure the **Module Settings** for the Four-wire interface module.

For the procedure, see

4.6.1 Configuring a Four-wire interface module.

2. Connect the HMS-4X Main Station and the DX210 basestation (BS210), using four-wire crossover CAT5 cabling.

Important note:

For pinout information for the two systems, see the **quick reference diagram** in **8.5.4 Quick reference: Four-wire connection to DX210.**

RJ45 connectors are located:

- On the HMS-4X Main Station Four-wire interface module.
- On the back panel (rear) of the DX210 basestation (BS210).

There is an RJ45 (four-wire) connector for each of the intercom channels on the DX210 base station (**IC1** and **IC2**). Connect the systems with standard CAT5 cable.

3. Adjust the **In / Out** volume levels, using the CellCom / FreeSpeak front panel display.

For more information, see your **CellCom / FreeSpeak documentation**.

Tip: To optimize audio quality, you may also want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**

8.6 Connecting HelixNet Party-line to Eclipse

8.6.1 About Eclipse

Eclipse is the digital matrix system from Clear-Com. A wide choice of system frames, system cards and modules enables the unification of multiple intercoms systems (digital, analog, wired and wireless) in a single intercoms infrastructure.

Eclipse is configured, managed and maintained using the intuitive Eclipse Configuration Software (ECS). The Production Maestro software provides a centralized routing tool, to assist with four-wire configurations. Logic Maestro is a graphical programming tool for ECS, simplifying the design and programming of complex logical functions.

The following procedures reference the following Eclipse devices:

- **The Eclipse Median system frame.** The Eclipse Median is a 6RU frame that houses 2 CPU and 7 matrix slots with 8 built-in interface module slots.
- **The CCI-22 interface module.** The CCI-22 is the two-wire party-line interface (Clear-Com and / or RTS) to Eclipse. ECS views a direct, four-wire HelixNet Party-line connection with the system frame as a 'virtual' CCI-22 connection.

Tip: For more information about Eclipse, see your Eclipse / ECS documentation or visit the digital matrix pages on the Clear-Com website: <http://www.clearcom.com/product/digital-matrix>.

8.6.2 Quick reference: Two-wire connection to Eclipse

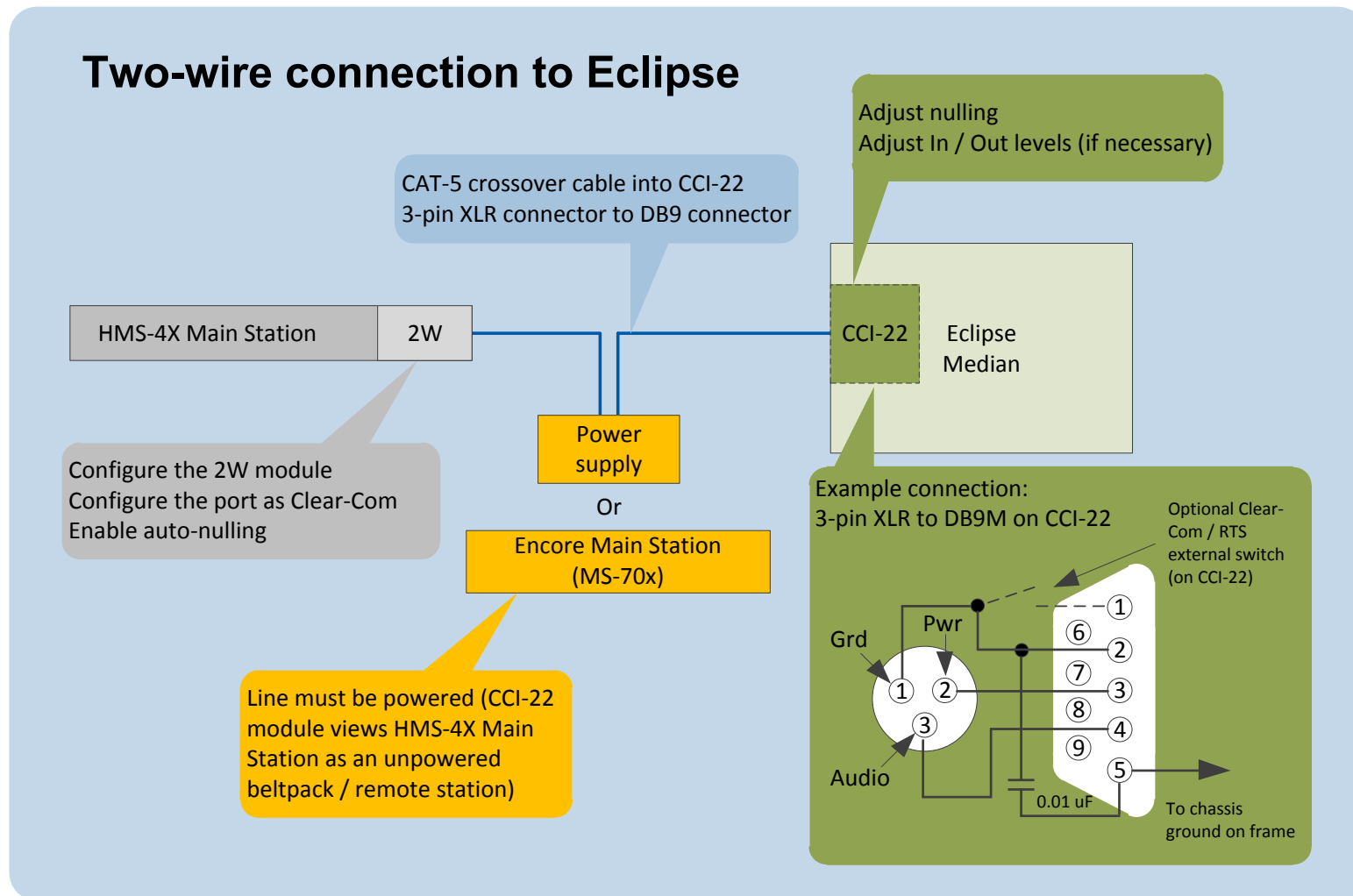


Figure 18: Two-wire connection to an Eclipse Matrix

8.6.3 Two-wire connection to an Eclipse Median system frame

To connect your HelixNet Party-line system to an Eclipse Median, using a two-wire connection:

1. On the HMS-4X Main Station, configure the **Module Settings** for the Two-wire interface module.

For the procedure, see

4.6.2 Configuring a Two-wire interface module.

Note:

Check that the two-wire module is configured for **Clear-Com systems** (the default) and enable **Auto-nulling**. Auto-nulling helps to reduce echo while talking on a two-wire audio system.

2. Physically connect the HMS-4X Main Station to the CCI-22 dual-channel party-line interface module.

The CCI-22 may be fitted:

- Directly to an Eclipse Median.
- An interface frame (such as the IMF-3 or IMF-102), connected to the Eclipse matrix.

Tip: For more information about installing and using the CCI-22, see the CCI-22 Manual, or go to: <http://www.clearcom.com/product/digital-matrix/interface-modules/ccl-22>

Powering the connection:

You must power the connection between the HMS-4X Main Station and the CCI-22 using either a dedicated power supply (such as the PK-7, PS-702, or PS-704), or a powered Encore Main Station (such as the MS-702 or MS-704).

Tip: For more information about the PK-7 or PS-70x power supply devices from Clear-Com, see <http://www.clearcom.com/product/partyline/power-supplies>

Connecting the systems:

There are two parallel DB-9M Interface I/O connectors on the CCI-22. Because the two-wire module on the HMS-4X Main Station features two 3-pin XLR connectors, a crossover CAT5 cable is required to make the connection. For more information about wiring the connection, see:

- **8.6.2 Quick reference: Two-wire connection to Eclipse.**
- The **CCI-22 Manual**.

3. Apply nulling to the connected channel on the CCI-22. To null the channel:
 - a. Insert the accessory earphone into the front-panel **Test** jack. A test tone, for all frequencies, is produced every 0.5s.
 - b. While listening to the test tone, adjust the **R** (Resistance) control until the tone is at a minimum.
 - c. Repeat Step b. for the **L** (Inductance) and **C** (Capacitance) controls. These controls compensate for each component of the line's impedance, providing the best possible null.

Because the **R**, **L** and **C** controls interact, you may have to adjust these controls several times to minimize the test tone / achieve a deep null.

Note:

The null circuit on the CCI-22 is effective on line lengths between 0 - 4000 feet (1200m) with impedances in the range of 120 to 350 ohms. Nulling can reduce local audio in the received signal by < 30 dB over the 200 Hz - 8 kHz frequency range.

Tip: For more information on the CCI-22 nulling circuit, see the **CCI-22 Manual**.

4. If necessary, adjust the **In / Out** level controls on the CCI-22 (**Send** and **Recv**, located on the front panel next to the **R**, **L** and **C** nulling controls).

Note:

*The **Send** level control affects the level of the audio signals from the Eclipse Matrix to the external party-line, and the **Recv** control affects the level of the audio from the party-line into the matrix. The Send and Receive controls have a range of ± 13 dB.*

Tip: For more information about managing the HelixNet to Eclipse connection in ECS, see your ECS documentation (including **Help**).

8.6.4 Quick reference: Four-wire connection to Eclipse

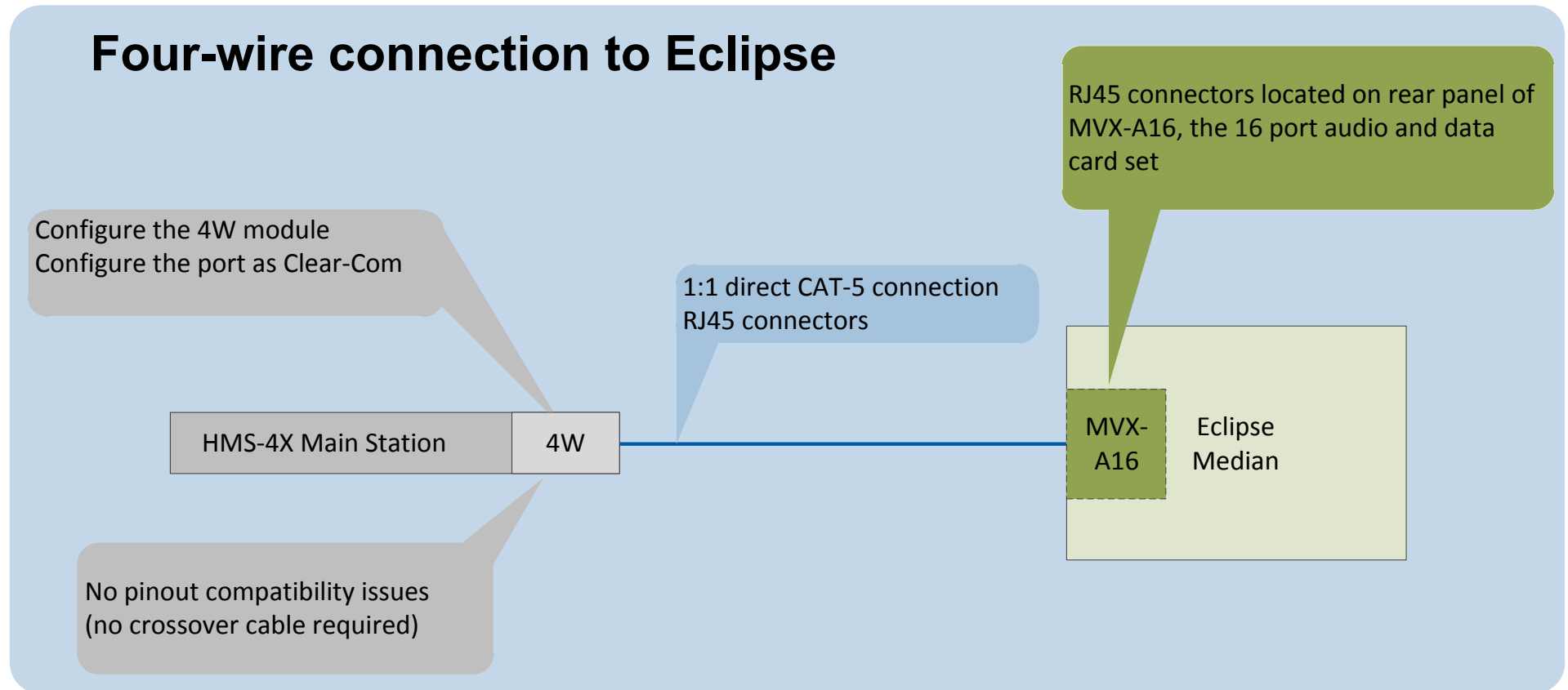


Figure 19: Four-wire connection to Eclipse Matrix

8.6.5 Four-wire connection to Eclipse

To connect your HelixNet Partyline system to an Eclipse Median, using a four-wire connection:

1. On the HMS-4X Main Station, configure the **Module Settings** for the four-wire interface module

For the procedure, see

4.6.1 Configuring a Four-wire interface module.

2. Connect the HMS-4X Main Station directly to the MVX-A16 card (the 16 port audio and data card set) with **standard** CAT5 cable.

Important note:

For pinout information for the two systems, see the **quick reference diagram** in **8.6.4 Quick reference: Four-wire connection to Eclipse.**

RJ45 connectors are located:

- On the HMS-4X Main Station four-wire interface module.
- On the rear panel of the MVX-A16 card.

Tip: To optimize audio quality, you may want to adjust the **Audio Settings** on the HMS-4X Main Station. For more information, see **4.2 Configuring the Audio settings**

Tip: For more information about managing the HelixNet to Eclipse connection in ECS, see your ECS documentation (including ECS Help).

9 Specifications

9.1 Main Station (HMS-4X)

9.1.1 Connectors

Specification	Description / value
Intercom line	(4) 3-pin XLR-M
Headset	4-pin XLR-M
USB	USB Type A and Micro-AB
Program	3-pin XLR-F
SA (Stage Announce)	3-pin XLR-M
Hot Mic / IFB Interface	1/4 in. (0.64 cm) phone jack
GPI	25 way D-type female

Table 25: Main Station: Connectors

9.1.2 Microphone pre-amplifier

Specification	Description / value
Headset Mic impedance:	200 Ω (Dynamic)
Headset Mic Voltage	1.7V (Electret selectable)
Limiter	+23 dB
The following specified for a route to 4-wire output @ 0dBu out	
Mic gain	60dB (dynamic) 45dB (electret)
Frequency response	300 Hz – 10 kHz + / -3dB (contoured for intelligibility)
Distortion	<0.2% THD @ 1 kHz
Noise-	<-55dBu dynamic, <-65dBu electret

Table 26: Main Station: Microphone pre-amplifier

9.1.3 Headphone amplifier

Specification	Description / value
Load impedance	32 Ω
Output level	+12dBu before clipping
Sidetone	-12dB (selectable)
The following specified for a route from a 4-wire output @ 0dBu in	
Max gain	0dB
Frequency response	40 Hz - 10 kHz \pm 3dB
Distortion	<0.1% THD @ 1 kHz
Noise	<-65dBu
Headphone limiter	0dBu (selectable)

Table 27: Main Station: Headphone amplifier

9.1.4 Loudspeaker amplifier

Specification	Description / value
Load impedance	8 Ω
Output level	+18dBu before clipping
Max gain	18dB
The following specified for a route from a 4-wire output @ 0dBu in	
Frequency response	200 Hz - 10 kHz \pm 3dB
Distortion	<1% THD @ 1 kHz
Noise	<-50dBu

Table 28: Main Station: Loudspeaker amplifier

9.1.5 Program line input and Four-wire option module inputs

Specification	Description / value
Maximum level before clipping	18 dBu
Nominal input level	0dBu(selectable)
Input impedance	$\geq 10\text{K}\Omega$
The following specified for a route to 4-wire output @ 0dBu out	
Frequency response	20 Hz - 10 kHz $\pm 3\text{dB}$
Distortion	$< 0.2\%$ THD @ 1 kHz
Noise	$< -65\text{dBu}$

Table 29: Main Station: Program line input and four-wire option module inputs

9.1.6 Four-wire module outputs

Specification	Description / value
Maximum level before clipping	18 dBu
Nominal input level	0dBu(selectable)
Input impedance	$\leq 100\Omega$

Table 30: Main Station: Four-wire module outputs

9.1.7 Stage Announce outputs

Specification	Description / value
Maximum level before clipping	18 dBu
Nominal output level	0dBu(selectable)
Output impedance	$\leq 100\Omega$
The following specified for a route from a dynamic headset	
Frequency response	300Hz – 12kHz $\pm 3\text{dB}$
Distortion	$< 0.1\%$ THD @ 1kHz
Noise	$< -55\text{dBu}$

Table 31: Main Station: Stage Announce outputs

9.1.8 Hot Mic output

Specification	Description / value
Maximum level before clipping	12 dBu
Nominal output level	0dBu(selectable)
Output impedance	<= 100Ω
The following specified for a route from a dynamic headset	
Frequency response	300 Hz - 12 kHz ±2dB
Distortion	<0.2% THD @ 1 kHz
Noise	<-55dBu

Table 32: Main Station: Hot Mic output

9.1.9 Partyline

Specification	Description / value
Maximum level before clipping	6 dBu
Nominal input level	-18dBu (C-C) -12dBu (RTS)
Input impedance	>= 10KΩ bridging
The following specified for a route to a 4-wire input @0dBu in:	
Frequency response	100Hz - 10 kHz ±3dB
Distortion	<0.2% THD @ 1 kHz
Noise	<-55dBu
The following specified for a route from a 4-wire output @0dBu out:	
Frequency response	40 Hz - 10 kHz ±3dB
Distortion	<0.2% THD @ 1 kHz
Noise	<-75dBu
Auto-nulling and echo cancellation	Yes
RTS / Clear-Com selectable	Yes
Termination	External
Power	30V external

Table 33: Main Station: Partyline

9.1.10 Ethernet

Specification	Description / value
Fast Ethernet standard	100BaseT only, Auto MDIX

Table 34: Main Station: Ethernet

9.1.11 Mains power

Specification	Description / value
Input Voltage range	100 – 240 VAC
Input frequency range	50 – 60 Hz
Input power	<=250 VAC
Output Voltage	+ / - 30 VDC \pm 1V
Output current per channel	-1.5A (continuous)

Table 35: Main Station: Mains power

9.1.12 Environmental

Specification	Description / value
Temperature	0°C - 50°C (32°F - 158°F)
Humidity	0 - 90% relative humidity

Table 36: Main Station: Environmental

9.1.13 Dimensions and weight

Specification	Description / value
Dimensions	19 in. W x 1.75 in. H x ? in. D (483 mm x 44 mm x ? mm)
Weight	5.83 lbs. (2.65 kg)

Table 37: Main Station: Dimensions and weight

9.2 Two-wire module: general

9.2.1 Connectors

Specification	Description / value
Intercom line	(2) 3-Pin XLR-F

Table 38: two-wire module: Connectors

9.2.2 Dimensions and weight

Specification	Description / value
Dimensions	7.05 in. H x 2.24 in. W x 1.54 in. D (179 x 57 x39 mm)
Weight	13 oz. (0.35 kg)

Table 39: Two-wire module: Dimensions and weight

9.2.3 Power requirements

Specification	Description / value
Per channel	0.025mA/channel
DC Voltage range	20 – 30 Volts

Table 40: Two-wire module: Power requirements

9.2.4 Environmental

Specification	Description / value
Temperature	0°C - 50°C (32°F - 158°F)
Humidity	0 - 90% relative humidity

Table 41: Two-wire module: Environmental

9.3 Four-wire module: general

9.3.1 Connectors

Specification	Description / value
Intercom line	(2) RJ-45 (Ethercon)

Table 42: Four-wire module: Connectors

9.3.2 Dimensions and weight

Specification	Description / value
Dimensions	7.05 in. H x 2.24 in. W x 1.54 in. D (179 x 57 x39 mm)
Weight	13 oz. (0.35 kg)

Table 43: four-wire module: Dimensions and weight

9.3.3 Environmental

Specification	Description / value
Temperature	0°C - 50°C (32°F - 158°F)
Humidity	0 - 90% relative humidity

Table 44: four-wire module: Environmental

9.4 Beltpack (HBP-2X)

9.4.1 Connectors

Specification	Description / value
Intercom line	(2) 3-pin XLR-M-F
Headset	4-pin XLR-M and 2.5mm TRS jack
USB	Micro-AB

Table 45: Beltpack: Connectors

9.4.2 Microphone pre-amplifier

Specification	Description / value
Headset Mic impedance:	200 Ω (Dynamic)
Headset Mic Voltage	1.7V (Electret selectable)
Limiter	+23 dB
The following specified for a route to 4-wire output @ 0dBu out:	
Mic gain	60dB (dynamic) 45dB (electret)
Frequency response	300 Hz – 10 kHz + / -3dB (contoured for intelligibility)
Distortion	<0.2% THD @ 1 kHz
Noise-	<-55dBu dynamic, <-65dBu electret

Table 46: Beltpack: Microphone pre-amplifier

9.4.3 Headphone amplifier

Specification	Description / value
Load impedance	>32 Ω
Output level	+12dBu before clipping
Sidetone	-12dB (selectable)
The following specified for a route from a 4-wire input @0dBu in:	
Max gain	0dB
Frequency response	40 Hz - 10 kHz \pm 3dB
Distortion	<0.1% THD @ 1 kHz
Noise	<-65dBu (@ max gain)
Headphone limiter	-0dBu (selectable)

Table 47: Beltpack: Headphone amplifier

9.4.4 Dimensions and weight

Specification	Description / value
Dimensions	TBA
Weight	TBA

Table 48: Beltpack: Dimensions and weight

9.4.5 Power requirements

Specification	Description / value
Power requirements	4W
DC Voltage range	30 – 60 Volts

Table 49: Beltpack: Power requirements

9.4.6 Environmental

Specification	Description / value
Temperature	0°C - 50°C (32°F - 158°F)
Humidity	0 - 90% relative humidity

Table 50: Beltpack: Environmental

Appendix A: Compliance

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 Clear-Com, LLC, an HM Electronics, Inc. company could void the user's authority to operate this equipment.

The HMS-4X, HBP-2X, HBP-2XS, HLI-2W2 and HLI-4W2 products comply with the following specifications:

EN55022 Emissions

EN55024 Immunity

Electromagnetic Compatibility Directive 2004/108/EC

Low Voltage Directive 2006/95/EC

Warning:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The HMS-4X, HLI-2W2 and HLI-4W2 products comply with the following specifications:

UL 60065-7

CAN/CSA-C22.2 No.60065-3

IEC 60065-7

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 Clear-Com 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.

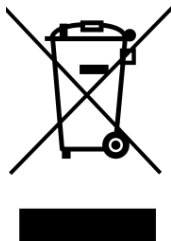


Figure 20: WEEE Symbol

Appendix B: Menu maps

HMS-4X Main Station menu map

Menu 1 (First) >	Menu 2 >	Menu 3>	Menu 4 (Last)
Audio Settings	Headset	Sidetone Gain	Range: 0dB - -18dB Default: -12db
		Headphone Limit	Off + Range: +6dB - -6dB Default: 0db
		Sidetone Control	Tracking Non-Tracking Disabled
		HS Mic Type	Electret Dynamic Default: Dynamic
	Program Input	Gain	Range: +12dB - -12dB Default: 0db
	Program IFB	IFB Dim Level	IFB Disabled + Range: -6dB - -24dB + Full Cut
	SA Output	Gain	Range: +12dB - -12dB
	Hot Mic Output		Default: 0db

Station Settings	Keysets	Talk Latch	Latching Non-Latching Default: Latching
		SA Output Key	Latching Non-Latching Default: Non-latching
		RMK	Enabled Disabled Default: Enabled
	Display	OLED Brightness	High Medium Low Default: Medium
		Key Brightness	High / Low High / Off Low / Off Off / Off Default: High / Low
		Screensaver	Enabled Disabled Default: Enabled
	Channel A	Label	Press to Edit
Channels	Channel B		Max. length for labels = 10 characters
	Channel C	Program Listen	Yes
	Channel D		No

Control I/O	Inputs	Opto 1	None
		Opto 2	Call Key 1
		Opto 3	Talk Key 1
		Opto 4	Call Key 2
	Outputs	Relay 1	Talk Key 2
		Relay 2	Call Key 3
		Relay 3	Talk Key 3
		Relay 4	Call Key 4 Talk Key 4 Default: None
Module Settings	Slot x /Port y 4W Where: x represents 1 of 3 module slots on the main station (x = 1, 2, or 3) y represents 1 of 2 ports available on each module (y = A or B)	Channel Assign	Disabled Channel A Channel B Channel C Channel D Default: Disabled
		Input Gain	Range: +12dB - -12dB Default: 0db
		Output Gain	
		VOX	Enabled Disabled Default: Disabled
		VOX Off Delay	Range: [0].5 – 4 secs Default: [0].5 secs
		Version	Firmware version: npl-1.0.x

	Slot x/ Port y 2W Where: x represents 1 of 3 module slots on the main station (x = 1, 2, or 3) y represents 1 of 2 ports available on each module (y = A or B)	Channel Assign	Disabled Channel A Channel B Channel C Channel D Default: Disabled
		Auto-Nulling	Start
		Mode	Clear-Com RTS Audio Pin 2 RTS Audio Pin 3 Default: Clear-Com
		RMK Input	Enabled Disabled Default: Enabled
		RMK Outpu	
		VOX	Enabled Disabled Default: Disabled
		VOX Off Delay	Range: [0].5 – 4 secs Default: [0].5 secs

Administration	Network	IP Address	IP address: xx.xx.xx.xx where x is a numeric value
	Software	Current	ms:[Version] ivr: [Version]
		Update	None or version list
	Beltpacks	Menu Lock	Unlock All Lock All
	Reset	Reset to Default	Reset Now
Diagnostics	Hardware	Main PCB	Part: [Part_Number] Revision: [Revision] Serial number: [Serial number]
		Front PCB	
		USB PCB	
		Slot 1 PCB	
		Slot 2 PCB	
		Slot 3 PCB	
	Temperature	Sensor 1	Temperature in °C. Note: <i>Single fan on if any sensor > 60°C. Double fan on if any sensor > 65°C. Double fan off if < 55°C / single fan off if < 50°C.</i>
		Sensor 2	
		Sensor 3	
	Powerlines	Powerline 1	Status: [OK or BUSY (according to responses to MME requests)]. DMC:[MAC of powerline modem] HMC: [MAC of local blackfin processor] Beltpacks: [# of beltpacks detected by powerline modem] Collision rate: [Percentage (0% when operating normally)] Error rate: [Percentage (0% when operating normally)] Volts: [Voltage]
		Powerline 2	

	Misc	General	Trace: [Bug trace level] Note: <i>For internal Clear-Com use only</i>
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Table 51: HMS-4X Main Station menu map

HBP-2X Beltpack menu map

Menu 1 (First) >	Menu 2>	Menu 3 (Last)
Audio Settings	Sidetone Gain	Range: 0dB - -18dB Default: -12dB
	Headphone Limit	Off + Range: +6 - -12dB Default: 0dB
	Sidetone Control	Tracking Non-tracking Disabled Default: Tracking
	HS Mic Type	Electret Dynamic Default: Dynamic Note: <i>Electret = 35dB fixed gain, non-user adjustable.</i> <i>Dynamic = 50dB fixed gain, non-user adjustable.</i>

Beltpack Settings	Left Channel	None
	Right Channel	Channel A Channel B Channel C Channel D
	Talk Latch	Latching Non-Latching Default: Latching
	Vibrate On Call	On Off Default: Off
Display Settings	OLED Brightness	High Medium Low Default: Medium
	Key Brightness	High / Low High / Off Low / Off Off / Off Default: High / Low
	Screensaver	Enabled Disabled Default: Enabled

Administration	IP Address	IP address: xx.xx.xx.xx where x is a numeric value	
	Software Version	npl-1.0.x, uboot	
	Software Update	npl-1.0.x	
	Reset to Default	Reset Now	
Diagnostics	Hardware Important Note: There are 4 levels of Menu for Hardware	Main PCB	Part: [Part_Number] Revision: [Revision] Serial number: [Serial number]
	Powerline Note: <i>Line (partyline) that connects beltpack to the network (and which also powers the beltpack).</i>	Status: [OK or BUSY (according to responses to MME requests)]. DMC:[MAC of powerline modem] HMC: [MAC of local blackfin processor] MMC: [MAC of the Main Station powerline modem, to which the beltpack is connected] Rx rate: Range: 140 – 150 Mbps Tx rate: Range: 140 – 150 Mbps	
	General	Trace: [Bug trace level] Note: <i>For internal Clear-Com use only</i>	

Table 52: HBP-2X Beltpack

Appendix C: Cabling reference

You can connect HBP-2X Beltpacks to the HMS-4X Main Station using:

- A wide range of standard microphone (intercom) cable types (18 AWG – 24AWG).
- CAT5, CAT5e and CAT6 cable types.

You can also mix CAT cables and microphone cables when connecting to the HMS-4X Main Station. For example, you might use CAT cables to trunk long distances, and flexible microphone cables to connect HBP-2X Beltpacks to bulkheads.

Important note:

The cabling information provided in this guide is for guidance only. For in-depth, tailored advice on cabling, Clear-Com recommends that you contact your Clear-Com representative.

Interoperability

The optional interface modules (two-wire, four-wire, 10/100BaseT Ethernet and Fiber Channel) for the HMS-4X Main Station enable interoperability with your existing communications infrastructure.

You can connect the HMS-4X Main Station to:

- Two-wire intercom systems and devices (including Encore and RTS) using standard microphone cable (18 AWG – 24AWG).
- Four-wire intercom systems and devices (including Eclipse) using Ethernet (CAT) cable.

Tip: For more information about integrating HelixNet Partyline into your existing communications infrastructure, see **8 Connecting to Other Intercom Systems**.

Cable capacitance versus distance

Standard microphone cables impose distance limitations at their upper limits due to cable capacitance.

If your priority is audio quality, experiment with attaching one or two fewer beltpacks than the maximum permitted (10) to each line. Your choice of topology (daisy chain, star or tree) may also impact audio quality over distance.

Manufacturer	Cable type	Gauge (AWG)	Style	Attenuation / 100m
Belden	8760	18	Std	11 dB
Canare	L-4E6S	21	Star Quad	56 dB
Belden	9451	22	Std	33 dB
Belden	1800F	24	Std	23 dB

Table 53: Cable capacitance

Quick reference: Cable capacity versus distance

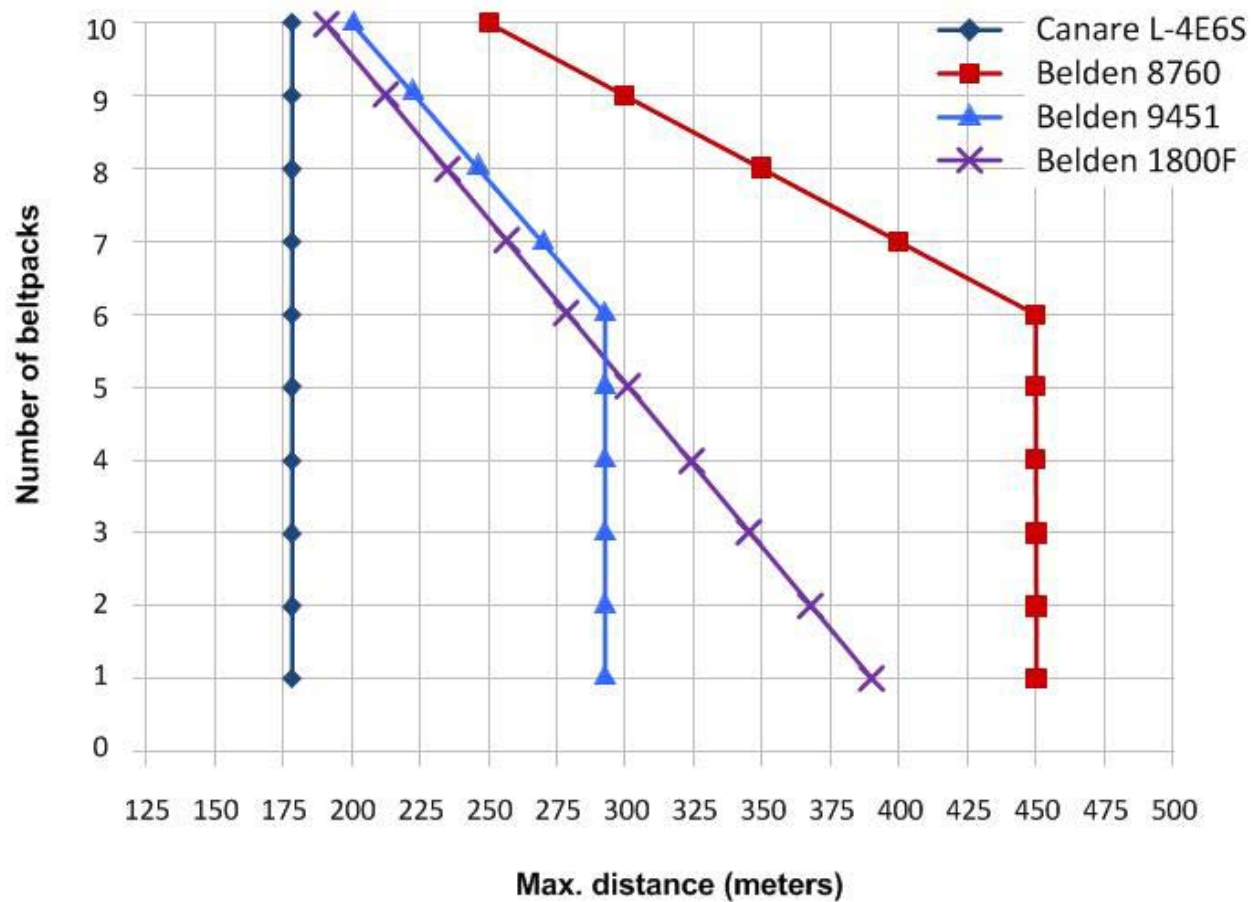


Figure 21: Cable capacity versus distance

Note:

The above graph is intended as a general guide only. Actual cable performance may vary, depending on the conditions and complexity of the installation.

Appendix D: Troubleshooting

Issue	Solution
Why are the Talk keys flashing periodically?	<p>Flashing Talk keys may indicate a fault in the cable.</p> <p>Check the cable for short-circuit conditions and replace if necessary.</p>
The Call functionality on my analog beltpack is no longer working.	<p>HelixNet Partyline operates at different voltage levels than analog two-wire partyline systems.</p> <p>The analog beltpack may have been damaged if it was connected to a HelixNet Main Station partyline port.</p> <p>Contact Clear-Com for repair options.</p>
I cannot pass audio to wired / wireless intercom equipment over the Two-wire module.	<p>Two-wire option modules require an external power supply.</p> <p>See 8 Connecting to Other Intercom Systems.</p>
Why do I hear an echo when interfacing via a two-wire audio port?	<p>Run auto-nulling.</p> <p>Ensure that all Talk keys in the system are unlatched.</p>
Echo occurs even after Two wire module has been auto-nulled.	<p>Check to ensure all open Talk keys are not latched and re-null.</p>
There is no audio or only partial audio (send or receive, but not both) between other audio systems / sources connected over four-wire.	<p>Check the cable used to connect the equipment.</p> <p>HelixNet to Eclipse four-wire connections only require a standard CAT cable, whereas other four-wire connections (to Tempest, CellCom / FreeSpeak, and other systems) require an audio crossover cable. See:</p> <ul style="list-style-type: none"> • 2.2.1HMS-4X Main Station rear panel: Interface modules • 8 Connecting to Other Intercom Systems

Table 54: Troubleshooting