User Guide – HX446 Series

v10/10

Professional compact PMR446 handheld transceiver

Common Information

HX446E
Entry

HX446L
LCD

Introduction

Common

This guide covers the 'basics' of your radio's operation. To meet your exact requirements the radio may have been customised by your Entel authorised dealer. These features will be explained in a separate guide issued by the dealer.

Table of Contents

Declaration of Conformity

We Entel UK Limited of:

320 Centennial Avenue
Centennial Park
Elstree
Borehamwood
Hertfordshire
WD6 3TJ
United Kingdom

Declares under our sole responsibility that the product range:

HX446 PMR446 UHF Handheld Radio Transceiver

Conforms to the following standards or other nominative documents:

- EN300 296-2 V1.2.1; EN301489-1 V1.8.1: 2008-04, EN3-1 489-5 V1.3.1: 2002-08; EN60950-1:2006 in accordance with Directive 1999/5/EC.

Serial Number_____

M Austin

Responsable Qualité

Date: 1 October 2010

CE

ISO 9001
REGISTERED FIRM

Radio care

Warranty

The HX446E/L comes with a 12 month warranty, for details see our full terms & conditions.

Advice

- Do not use options or accessories not specified by Entel
- Ensure that the radio is used within the parameters for which it was designed
- Please switch the transceiver off before connecting optional accessories

Warning

Turn the transceiver off in the following locations outside of the radio's ATEX approval rating:

- In explosive atmospheres (flammable gas, dust including metallic & grain powders etc)
- Whilst taking on fuel or while parked near fuel station
- Near explosives or blasting sites
- In aircraft, medical institutions or near persons known to be wearing a pacemaker

Caution

- Do not disassemble or modify the transceiver for any reason
- Do not transmit while touching the antenna terminal or any exposed metallic parts of the aerial as this may result in a burn
- Please check and observe regulations in your country with regards to use whilst driving

End of Life Disposal

- When your Entel transceiver reaches the end of its useful life, please ensure that the unit is disposed of in an environmentally friendly way. For country specific information please see: www.entel.co.uk/recycling

Battery care

Introduction

Your Entel radio is supplied with a high performance Lithium Ion (Li-Ion) battery. These batteries:

- Extend talk time
- Reduce the battery's size and weight
- Do not suffer from 'memory effect' that reduces the life of Ni-Cad and NiMH batteries
- Have a low toxicity, therefore reducing the impact on the environment

Battery Pack Precautions

- Switch the transceiver OFF before charging
- Charge the battery pack before use
- Do not recharge the battery pack if it is already fully charged. This could lead to a premature battery replacement warning message (See Battery Communications on page 4)
- Charge the battery in accordance with the instructions enclosed with your charger
- Do not charge the transceiver and/or battery pack if they are wet

The battery pack includes potentially hazardous components. Please:

- Do not disassemble or reconstruct battery
- Do not short-circuit the battery
- Do not incinerate or apply heat to the battery
- Do not immerse the battery unless attached securly to the radio in water or get it wet by other means

Battery care / information

- Do not charge the battery near fires or under direct sunlight
- Use only the specified charger and observe charging requirements
- Do not pierce the battery with any object or strike it with an instrument
- Do not use the battery pack if it is damaged in any way
- Do not reverse-charge or reverse-connect the battery
- Do not touch a ruptured or leaking battery

If liquids from the battery get into your eyes, immediately:

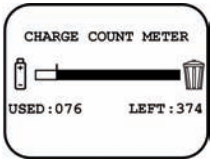
- Wash your eyes out with fresh water avoiding rubbing them.
- Seek medical treatment

Battery Pack

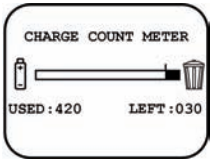
- If a battery is not to be used for an extended period of time (e.g. several months) remove the battery pack from the equipment and store in a cool and dry location (around 0°C) part charged. Do not fully discharge the battery before storage.
- Each charge cycle reduces the battery's life. Minimise the number of times you charge your battery especially in hotter environments which further shortens a battery's life.

Battery Communications

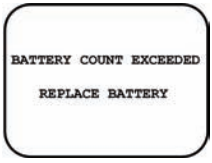
Each battery used with your radio has a microprocessor fitted, which logs the number of times your battery has been charged.
On a radio with an LCD display, the number of times the battery has been charged, together with the remaining charge cycles available, will be shown during switch on. On the advanced 8-key and 20-key models, battery charge cycle information may also be accessed via the menu. (If not de-activated by your dealer)



The warranty on all batteries is 12 months or 450 charge cycles, whichever is the sooner. After 420 cycles, at switch on the radio will emit a series of short tones, and on LCD models a waste bin icon will flash to alert you to the need to buy a new battery.



After 450 cycles, at switch on the radio will emit a series of long beeps, and LCD models the message will change to BATTERY COUNT EXCEEDED REPLACE BATTERY. The radio will continue to operate but its operational time may be reduced, eventually failing all together.



Note: only genuine Entel batteries should be used. Only genuine batteries offer the battery charge count feature informing you when the battery is reaching the end of its useful life. Customer satisfaction is assured as you can not be supplied with sub standard, potentially dangerous battery packs from 3rd party manufacturers, ensuring it delivers the expected capacity and endurance.

On HT series batteries a breathable membrane is used. This is clearly marked on the battery label. Piercing the membrane will allow water ingress to the battery, and will invalidate the warranty.

Packing List

- HX446E Transceiver with stubby or high efficiency whip antenna
- CNB450E Rechargeable 2000mAh Li-Ion battery
- CBH450 Spring loaded belt clip
- CSAHX Dual slot intelligent rapid charger
- User guide CD

Optional Accessories

Battery & Charger Options

CNB450E	Spare 2000mAh Lithium-Ion battery pack with rear clip
CSAHX	1-way dual slot intelligent rapid charger, 110-230v
CSBHX	6-way dual slot intelligent, rapid charger, 110-230v

Carry Options

CFC450	Soft leatherette case finished in black with carry strap
CLC452	HX446E Heavy duty black leather case with strap & belt loop
CLC455	HX446L Heavy duty black leather case with strap & belt loop
CBH450	Spare spring loaded belt clip

Audio Accessory Options

CMP1/450	Compact medium duty speaker microphone with earpiece jack
CMP450	Heavy duty submersible speaker microphone
EHP9	D-shaped earpiece (plugs into CMP1/450 or CMP450 above)
EA12/450	D-shaped earpiece with in-line PTT/microphone & VOX*
EA15/450	Earpiece microphone with transparent acoustic tube & VOX*
EA19/450	D-shaped earpiece with boom microphone and in-line PTT & VOX*
EHP450	D-Shaped earpiece (connects directly to radio)
EPT40/450	Bone conductive earpiece microphone with PTT
CXR5/450	Bone conductive skull microphone with in-line PTT
CXR16/450	D-shaped earpiece and throat microphone with in-line PTT

Optional Accessories Cont...

CHP1/450	Light weight single earpiece headset with in-line PTT & VOX*
CHP450HS	Single earpiece ear defender headset with boom mic and in line PTT for hard hat & VOX*
CHP450HD	Double earpiece defender headset with boom mic and in line PTT for hard hat & VOX*
CHP450D	Double earpiece headband defender headset with boom mic and in line PTT & VOX*
CHP450BT	Bluetooth double earpiece headband defender headset with boom mic and ear cup PTT

*VOX = Voice Operated Transmit (hands free operation)

For complete up to date list of optional accessories visit www.entel.co.uk

Preparing your radio for use

Attaching / Removing the Battery

1. To attach, locate the pegs on the bottom of the battery into the slots on the radio and press the top of the battery against the radio until you hear a click.
2. To remove, slide the two latches on the side of the battery down and pull the battery away from the top of the radio.

Attaching / Removing the Belt Clip

1. To attach, locate the clip into the slot on the back of the battery and slide down until you hear a "click".
2. To remove, pull the tab (**a**) towards the belt clip. Then slide the belt clip upwards (**b**).

Attaching / Removing Audio Accessories

1. To attach, remove the accessory cover by unscrewing the locking screw anti-clockwise (store the cover in a safe place). Attach accessory plug by locating the peg on top of the plug into the slot of the radio's socket. Carefully tighten the locking screw clockwise until finger tight (do not tighten with a screwdriver etc).
2. To remove, unscrew the locking screw by hand in an anti-clockwise direction (carefully use a coin or screwdriver if too tight). Ensure you re-fit the accessory cover so as to protect the socket.

Charging Your Radio

Several charger options are available. Please refer to your charger user guide.

Using Your Radio

Turning Your Radio On

Turn your radio on using the on / off volume control on the top of the radio. The radio will "beep" and the LED will briefly illuminate yellow (the beep may be disabled if required by your Entel approved dealer).

Making a Call

Before transmitting on your radio, first ensure that the channel is not in use (yellow or green busy LED will be illuminated and audio may be heard from speaker). To transmit press and hold the PTT button on the side of the radio, speak clearly 25-50mm from the microphone. Release the button to receive.

Transmit Time Out Timer (T.O.T.)

A transmit time out timer is enabled on your radio. This will prevent the radio from transmitting continuously. The maximum transmit duration is set to 90 seconds. If the transmit button is pressed for this duration, the radio will generate an alert tone 10 seconds before automatically ending the transmission, when a continuous tone will be emitted (the T.O.T. duration is dealer adjustable.)

Button Key Beeps

The radio will emit a short confirmation beep when pressing any of the function buttons. This confidence tone confirms the button has been correctly pressed (key beeps may be disabled by your dealer)

Channel Monitor Button (Dealer programmable function)

Tone/squelch defeat disables both CTCSS/DCS tone used and opens the squelch on the radio. This will allow you to monitor any transmissions taking place that are not on the same CTCSS/DCS tone on the channel you have selecte, and listen to any weak signals that may be breaking up. When activated, you will hear either a rushing noise or any other channel users.

Low Battery Warning

Alerts you when the battery needs to be recharged. A 'beep-beep' audible alert every 20 seconds and flashing red LED will indicate the battery is nearing the end of its life and needs to be charged (see battery care P.4 for information on battery life warning alerts).

Panic Alarm Siren

The radio has a local panic alarm button, that when pressed will emit a loud piercing siren from the radio's loudspeaker. To operate the local panic alarm, press the orange function button on top of the radio for a minimum of 2 seconds. To cancel the alarm simply turn the radio off.

Button Lock (dealer programmable function)

A button lock feature is available to lock the channel control and other side / top function button modes (except panic alarm). If available, press the assigned button to turn button lock on/off. If a long button press is used to enable button lock, when unlocking an error tone will be heard until the button lock disables.

Voice Scrambler (option)

With the optional voice scrambler you can prevent potential eavesdropping on your calls by others. This will make your voice transmission difficult to understand by anyone monitoring the same channel as you are using. If your dealer has made this a selectable feature, follow the instructions provided by the dealer.

*Due to local regulation, in some countries the scrambler feature may not be available, please check with your dealer prior to purchase.

Channel Scan (Dealer Programmable Function)

Scanning allows you to efficiently monitor radio activity. When scanning, the tranceiver checks for a signal on each channel and will only stop if a signal is present.

HT446E - To start / stop scanning, press the dealer assigned function button.

HT446L - Turn the channel control to the scan channel assigned by your dealer.

The yellow LED will rapidly flash to indicate the radio is scanning. When a valid signal is detected, the radio will stop scanning and monitor the transmission. At the end of the transmission the radio will remain on the channel for 5 seconds allowing you to reply to the call if desired. If you do not reply within this time, the radio will automatically resume scanning.

Nuisance channel delete (dealer programmable function)

Allows you to remove an interfering channel that you do not want to be part of the channel scan list. You can remove it by pressing the dealer assigned button when the interfering signal is being received. Switching the radio off, then on, will reset the radio to it default setting.

CTCSS / DCS

This is used to reduce interference from other users on a shared two-way radio communications channel. Where more than one user group is on the same channel, CTCSS or DCS can be used to filter out other users meaning you only hear calls from your own group of radios. If the channel you are using is in use by another user on a different tone, the yellow LED will illuminate on your radio (indicating the channel is in use). Do not transmit while the channel is busy as both transmissions will distort.

VOX - Automatic Voice Activation (Dealer programmable function)

In VOX mode the radio will react to your voice and transmit automatically without having to press the PTT button. This is available using the radio without an audio accessory, or with a VOX compatible accessory.

There is always a slight delay for the electronic switching, therefore starting a transmission with a lengthy exaggerate or, throwaway, first word is recommended e.g. "H-e-l-l-o Charlie One do you receive, over".

To enable / disable the VOX feature press the bottom side function button below the PTT button for 1 second.

For a list of VOX compatible audio accessories see page 5 of this guide / contact your dealer or visit www.entel.co.uk

HX446E

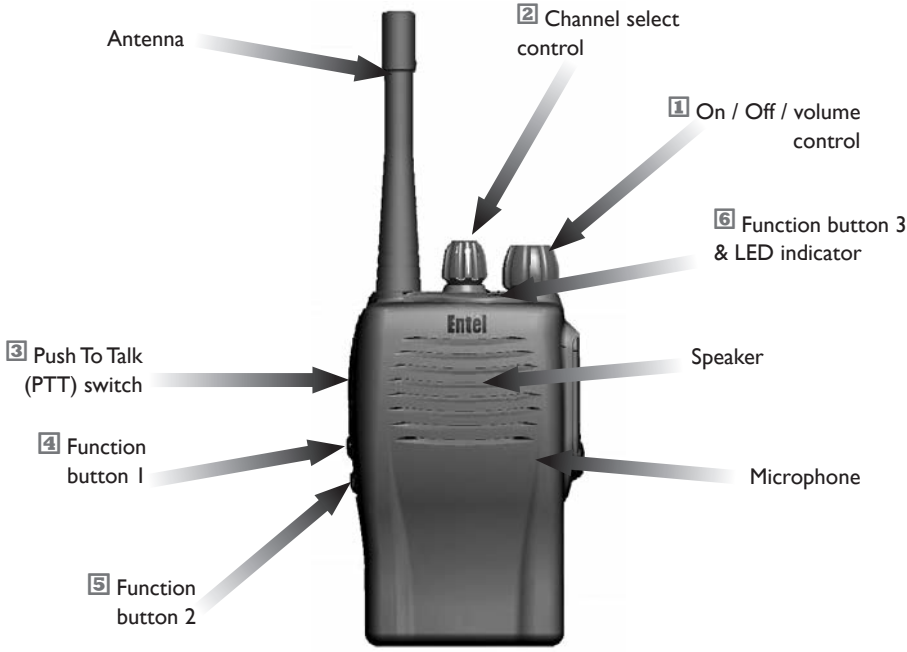
Standard Features:

- 16 programmable channel positions (8 RF frequencies)
- Full transmit power output 0.5 watts
- 2000mAH Lithium-Ion battery for superior operational time
- CTCSS & DCS (Analogue & Digital squelch) with squelch tail elimination (removes the 'shh' noise)
- Environmentally protected to IP55 i.e. rain proof
- MIL STD810C,D,E & F
- Exceptionally loud and clear audio
- Button channel programming mode
- Radio channel cloning
- Low battery alert indicates when the battery needs recharging
- Battery charge count alert

Dealer programmable features:

- VOX for hands free operation
- Normal & priority scan
- Panic (personal attack) button causes high pitch, high volume, siren tone to be emitted from the radio's speaker
- Voice scrambler (option)
- Key lock button
- Prefixed minimum volume level and fixed bleep level
- Channel Monitor (CTCSS/DCS Defeat)
- Automatic power save to further increase operational time

Controls & Indicators



1. On / Off / volume control. Rotate clockwise to turn on and increase volume, anticlockwise to reduce volume and turn off.
2. Channel select control. Rotate to select the desired channel.
3. Push to talk button, press to speak and release to listen.
4. Function button 1. Default - *Tone / Squelch Monitor on /off* short button press
5. Function button 2. Default - *VOX on /off* short button press, *Button Lock on /off* long button press
6. Function button 3 and LED indicator. Default - *Local panic alarm* long button press.
   - RED Steady = Transmitting
   - RED flashing slowly = Battery needs re-charging
   - GREEN Steady = Receiving
   - YELLOW Steady = Non valid signal detected
   - YELLOW flashing rapidly = Scanning

Function buttons are dealer programmable to change their operation
(please ask your dealer for more information)

Programming your HX446E radio

The radio's frequency and tone configuration can be changed in user programming mode. This will allow you to put any of the standard frequencies or tones into any channel position. When a radio has been configured this information can be quickly and easily cloned into other units using an optional cloning cable. The programming process is confirmed using a series of audible beep tone patterns.

To enter user programming mode

- To put the radio into user programming mode, press and hold the top side function button and PTT button and turn the radio on
- The radio will emit a beep and the LED slowly flash yellow to confirm "user programming mode" has been entered.
- Select the channel to be checked / modified using the top channel control.

Check / Modify the Frequency

Checking the current configuration

- A momentary press of the top side function button will cause the radio to beep the frequency programmed into the channel (see Frequency Table beep codes on P.15).

Changing the assigned frequency

- Press and hold the PTT button and the top side function button together until the radio emits a "warble" sound and illuminates the LED red, confirming the radio is in channel programming mode.
- Using the upper side function button enter the frequency number from the table. For example, to enter frequency number 7 press the upper button 7 times. There are 8 frequencies available in total (see Frequency Table on P.15).
- Now press the PTT button to store the setting and automatically return to the "check configuration" mode (a long beep and flashing yellow LED will confirm this action).

To check the entered setting, press the top side function button.

Note: If you accidentally "go past" the required frequency number, keep pressing the button until you hear the "warble" sound again (emitted on button press 9). This confirms you are back at the start of the channel assigned frequency mode.

Please note: The orange button allows you to escape from any setting without saving the data. If you are in frequency programming mode but decide not to save the setting you may press the orange button to exit without saving.

Check / Modify CTCSS/DCS Tone

Checking the current configuration

- A momentary press of the bottom side function button will cause the radio to beep the CTCSS/DCS tone programmed into the channel (see CTCSS/DCS beep codes below). If no tone is programmed into a channel position a  tone will sound.

Changing the assigned CTCSS/DCS Tone

- Press and hold the PTT button and the bottom side button together until the radio emits a "warble" sound and illuminates the LED GREEN, confirming the radio is in CTCSS/DCS programming mode.
- Using the two side buttons enter the CTCSS/DCS number from the table below.
- The lower side button = 10's of units (radio emits a  sound on every increment). The upper side button = units (radio emits a short  sound on every increment).
- For example, to enter CTCSS tone 189.9Hz (number 38) press the lower button three times to enter the 10's (3) and the upper side button eight times to enter the units (8).
- Now press the PTT button to store the setting and automatically return to the "check configuration" mode (a  sound and flashing yellow LED will confirm this action).

  To check the entered setting, press the bottom side function button.

- To turn off CTCSS/DCS tone on a channel, enter tone programming mode, press the PTT button without selecting a tone.
- Once you have finished programming the radio press the orange button on top of the radio to exit programming mode and return the radio to normal operation.

Please note: The orange button allows you to escape from any setting without saving the data. If you are in CTCSS/DCS tone programming mode but decide not to save the setting you may press the orange button to exit without saving.

Special notes re DCS tones

If you have entered a DCS tone and pressed the PTT button during programming you will immediately hear a  sound prompting you to set the tone to "inverted" or "normal".

Press the upper side button to select normal or inverted DCS tone.
Normal = 
Inverted = 

Now press the PTT button to store the setting. A long beep and flashing yellow LED will confirm safe storage.

To check the entered setting, press the bottom side function button.

User Programmable Key Lock

The user programmable Key Lock function allows the Key Lock to be assigned to the lower side button and enabled \ disabled via the radio's controls without the use of a computer.

Checking The Status Of The Key Lock

To check whether the key lock is currently enabled or disabled:

- Put the radio into User Programming Mode (UPM) by pressing and holding the top side button and the PTT button when you turn the radio on. This will cause the radio to emit  beeps and the LED to slowly flash yellow.
- Once you are in User Programming Mode press the PTT button, the radio will emit 2 high tone beeps if the key lock is enabled or 2 low tone beeps if the key lock is disabled.

Enabling \ Disabling The Key Lock

- Put the radio into "User Programming Mode (UPM)".
- Next enter "Key Lock Button Programming (KLBP) Mode" by pressing and holding the PTT until a "warble" sound is emitted from the radio.
- To disable the Key Lock press the upper side button and the radio will emit 2 low tone beeps to confirm it is disabled.

OR

- To enable the Key Lock press the lower side button and the radio will emit 2 high tone beeps to confirm it is enabled.

To save the setting press the PTT button, the radio will confirm this with a long beep and return to the User Programming Mode.

Exiting Key Lock Button Programming Mode

If you want to exit Key Lock Button Programming without saving any changes that you have made, press the orange button on top of the radio while it is in KLBP and the radio will give a single low toned beep and will return to User Programming Mode without any of the changes being saved.

Using The User Programmable Key Lock

- If no functions are assigned to the short press of the lower side button, then the key lock will automatically be assigned to the short press of the lower side button.
- If a function is assigned to the short press of the lower button, but no function is assigned to the long press of the lower side button, then the key lock will be assigned to the long press of the lower side button.
- But if functions are assigned to both the short and long press of the lower side buttons, then the key lock feature cannot be used and if you perform a long press of the lower side button the radio will emit an error beep.

Radio Cloning

Radio cloning allows you to copy the programmed channel and button setup information from a 'master' radio into other unprogrammed radios without the use of a PC. Cloning is performed by connecting two radios together using a HXCL cloning lead.

How to clone a radio

Connect the HXCL lead to the accessory socket on both radios. Ensure the master radio is powered up before the slave radio.

1.

Master Radio (sending radio)

Put the radio you will be using to programme other radios into 'clone send' mode by pressing the PTT and bottom side function buttons at the same time and turn the power on. The radio will emit a ◻◻ alert and the LED will alternately flash yellow / red.

2.

Slave Radio (receiving radio)

Put the radio you wish to programme into 'clone receive' mode by pressing the lower side function button at the same time and turn the power on. The radio will emit a short "beep" and the LED will alternately flash yellow / green.

Transferring data

Master radio	Press the PTT switch on the radio. A short beep will be emitted to confirm the process has been initiated. The radio's LED will flash red whilst data transfer is in progress. Once all the data has successfully transfered the LED will flash yellow/red.
Slave radio	The radios LED will flash green whilst data transfer is in progress. Once all the data has successfully transferred the LED will flash yellow/green. To return the radio to normal mode switch the radio off then on again.

The 'master' radio will automatically return to 'clone send' mode indicated by the LED alternately flashing yellow / red. You may now either programme another radio or press the orange button to return the 'master' radio to normal.

To return to clone send mode if an error occurs, press the orange button on top of the 'master radio'. A◻◻ alert will be emitted and the radio's LED alternately flash yellow / red).

Frequency Table

No	Frequency	Beeps
1	446.00625 MHz	•
2	446.01875 MHz	••
3	446.03125 MHz	•••
4	446.04375 MHz	••••
5	446.05625 MHz	•••••
6	446.06875 MHz	••••••
7	446.08125 MHz	•••••••
8	446.09375 MHz	••••••••

CTCSS (PL) Tone Table

Ref	CTCSS (Hz)	Beeps	
		—	•
0	0	See p13 Check configuration	
1	62.5	-	1
2	67	-	2
3	69.3	-	3
4	71.9	-	4
5	74.4	-	5
6	77	-	6
7	79.7	-	7
8	82.5	-	8
9	85.4	-	9
10	88.5	1	0
11	91.5	1	1
12	94.8	1	2
13	97.4	1	3
14	100	1	4
15	103.5	1	5
16	107.2	1	6
17	110.9	1	7
18	114.8	1	8
19	118.8	1	9
20	123	2	0
21	127.3	2	1
22	131.8	2	2
23	136.5	2	3
24	141.3	2	4
25	146.2	2	5

Ref	CTCSS (Hz)	Beeps	
		—	•
26	151.4	2	6
27	156.7	2	7
28	159.8	2	8
29	162.2	2	9
30	165.5	3	0
31	167.9	3	1
32	171.3	3	2
33	173.8	3	3
34	177.3	3	4
35	179.9	3	5
36	183.5	3	6
37	186.2	3	7
38	189.9	3	8
39	192.8	3	9
40	196.6	4	0
41	199.5	4	1
42	203.5	4	2
43	206.5	4	3
44	210.7	4	4
45	218.1	4	5
46	225.7	4	6
47	229.1	4	7
48	233.6	4	8
49	241.8	4	9
50	250.3	5	0
51	254.1	5	1

DCS (DPL) Tone Table

Ref	DCS	Beeps	
		—	•
52	023	5	2
53	025	5	3
54	026	5	4
55	031	5	5
56	032	5	6
57	043	5	7
58	047	5	8
59	051	5	9
60	054	6	0
61	065	6	1
62	071	6	2
63	072	6	3
64	073	6	4
65	074	6	5
66	114	6	6
67	115	6	7
68	116	6	8
69	125	6	9
70	131	7	0
71	132	7	1
72	134	7	2
73	143	7	3
74	152	7	4
75	155	7	5
76	156	7	6
77	162	7	7
78	165	7	8
79	172	7	9
80	174	8	0
81	205	8	1
82	223	8	2
83	226	8	3
84	243	8	4
85	244	8	5
86	245	8	6

Ref	DCS	Beeps	
		—	•
94	315	9	4
95	331	9	5
96	343	9	6
97	346	9	7
98	351	9	8
99	364	9	9
100	365	10	0
101	371	10	1
102	411	10	2
103	412	10	3
104	413	10	4
105	423	10	5
106	431	10	6
107	432	10	7
108	445	10	8
109	464	10	9
110	465	11	0
111	466	11	1
112	503	11	2
113	506	11	3
114	516	11	4
115	532	11	5
116	546	11	6
117	565	11	7
118	606	11	8
119	612	11	9
120	624	12	0
121	627	12	1
87	251	8	7
88	261	8	8
89	263	8	9
90	265	9	0
91	271	9	1
92	306	9	2
93	311	9	3

Ref	DCS	Beeps	
		—	•
122	631	12	2
123	632	12	3
124	654	12	4
125	662	12	5
126	664	12	6
127	703	12	7
128	712	12	8
129	723	12	9
130	731	13	0
131	732	13	1
132	734	13	2
133	743	13	3
134	754	13	4
135	036	13	5
136	053	13	6
137	122	13	7
138	145	13	8
139	212	13	9
140	225	14	0
141	246	14	1
142	252	14	2
143	255	14	3
144	266	14	4
145	274	14	5
146	325	14	6
147	332	14	7
148	356	14	8
149	446	14	9
150	452	15	0
151	454	15	1
152	455	15	2
153	462	15	3
154	523	15	4
155	525	15	5
156	526	15	6
157	645	15	7

Intentionally Left
Blank

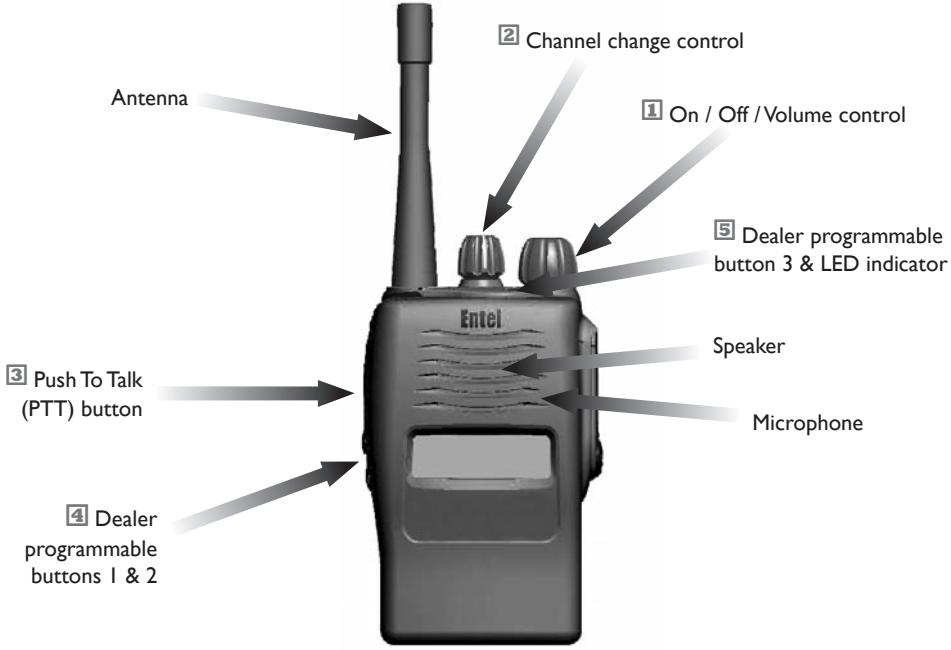
HX446L

Features:

All the features of the HX446E (see page 8) plus the following additional / Dealer programmable features:

- LCD Display
- Up to 255 programmable channel positions (8 RF channels)
- Low battery indication on LCD dispaly
- Battery count is displayed at switch on
- Multiple channel scan groups

Controls & Indicators



1 On / Off / Volume control. Rotate clockwise to turn on and increase volume, anticlockwise to reduce volume and turn off.

2 Channel change control.

3 Push To Talk button (PTT), press to speak and release to listen.

4 Dealer programmable buttons 1 & 2 (ask your dealer for more information).

5 Dealer programmable button 3 and LED indicator. Default - *Local panic alarm* long button press.

- RED steady = Transmitting
- RED flashing slowly = Battery needs re-charging
- GREEN steady = Receiving
- YELLOW steady = Non valid signal detected
- YELLOW flashing rapidly = Scanning

LCD Indicators

- Keypad Locked 
- Bluetooth Device Connected 
- Accessory Connected 
- VOX Enabled 
- Scramble Enabled 
- Battery State 
- Receive Strength / TX Output 

Programming your HX446L radio

The radio's frequency and tone configuration can be changed in user programming mode. This will allow you to put any of the standard frequencies or tones into any channel position. When a radio has been configured this information can be quickly and easily cloned into other units using an optional cloning cable. The programming process is confirmed using a series of audible beep tone patterns.

To enter user programming mode

- To put the radio into user programming mode, press and hold the top side function button and PTT button and turn the radio on.
- The radio will emit a  beep to confirm "user programming mode" has been entered.

Check / Modify the Frequency/Tone

Checking the current configuration

- The display will show the selected channel, the PL/DPL tone and the frequency.

Changing the assigned frequency

- Press the top side function button to highlight the frequency field. Turn top rotary control to change the frequency. Press PTT button to save the selection. Frequency table is on P.15).

Changing the assigned tone

- Press the top side function button to highlight the tone field. Turn top rotary control to change the tone. Press PTT button to save the selection. (*Pressing the lower side function button whilst turning the rotary control will change the selection in increments of 10.*)

User Programmable Key Lock

The user programmable Key Lock function allows the Key Lock to be assigned to the lower side button and enabled \ disabled via the radios controls without the use of a computer.

Checking The Status Of The Key Lock

To check whether the key lock is currently enabled or disabled:

- Put the radio into User Programming Mode (UPM) by pressing and holding the top side function button and the PTT button when you turn the radio on. This will cause the radio to emit a  beep and the LCD will display the message "Button Programming Mode" followed by a menu showing the settings for the radio and it's current channel including either "KL0" meaning the key lock is disabled or "KL1" meaning the key lock is enabled.

Note: If you press the PTT while in User Programming Mode it will emit a beep & save the settings of the current channel, it will not emit beeps for the status of the key lock (as in the entry models).

Enabling \ Disabling The Key Lock

- Put the radio into User Programming Mode (UPM).
- Enter "Key Lock Button Programming Mode" by pressing and holding the PTT until a "warble" sound is emitted from the radio and the radio displays the current state of the key lock.
- To Disable the Key Lock press the upper side button and the radio will emit 2 low tone beeps to confirm it is disabled and the LCD will display "Key Lock Disable".

OR

- To Enable the Key Lock press the lower side button and the radio will emit 2 high tones to confirm it is enabled and the LCD will display "Key Lock Enable".

To save the setting press the PTT button, the radio will confirm this with a single beep and return to the User Programming Mode.

Exiting Key Lock Button Programming Mode

If you want to exit Key Lock Button Programming without saving any changes that you have made, press the orange button on top of the radio while it is in KLBP and the radio will give a single low toned beep and will return to User Programming Mode without any of the changes being saved.

Using The User Programmable Key Lock

- If no functions are assigned to the short press of the lower side button, then the key lock will automatically be assigned to the short press of the lower side button.
- If a function is assigned to the short press of the lower button, but no function is assigned to the long press of the lower side button, then the key lock will be assigned to the long press of the lower side button.
- But if functions are assigned to both the short and long press of the lower side buttons, then the key lock feature cannot be used and if you perform a long press of the lower side button the radio will emit an error beep and the LCD will display the message "Cannot Override".

Radio Cloning HX446L

Radio cloning allows you to copy the programmed channel and button setup information from a 'master' radio into other unprogrammed radios without the use of a PC. Cloning is performed by connecting two radios together using a HXCL cloning lead.

How to clone a radio

Connect the HXCL lead to the accessory socket on both radios. Ensure the master radio is powered up before the slave radio.

Master & Slave Radio

To put the radios into clone mode, press the lower side function button and turn radio on. Radio will display 'Programming mode Progress.....' and LED will flash orange/green.

Transferring data

Master radio — Press the top side function button and top orange button together to initiate data transfer.

Slave radio — The radio's LED will flash green whilst data transfer is in progress. Once all the data has successfully transferred the LED will flash orange/green. To return the radio to normal mode switch the radio off then on again.

The 'master' radio will automatically return to 'clone send' mode. You may now either program another radio or switch radio off then on to return radio to normal.

If an error occurs during data transfer a  alert will sound.

Default Channel Configuration

The HX446 hand portable radio has been factory programmed with the default frequencies in the table below. This configuration may offer compatibility with other brands of PMR446 radio but can be altered either by your dealer or using button programming mode to match any existing PMR446 equipment.

Ch. 1 446.006250	CTCSS tone 94.8Hz
Ch. 2 446.018750	CTCSS tone 88.5Hz
Ch. 3 446.031250	CTCSS tone 103.5Hz
Ch. 4 446.043750	CTCSS tone 79.7Hz
Ch. 5 446.056250	CTCSS tone 118.8Hz
Ch. 6 446.068750	CTCSS tone 123Hz
Ch. 7 446.081250	CTCSS tone 127.3Hz
Ch. 8 446.093750	CTCSS tone 85.4Hz
Ch 9 446.006250	CTCSS tone 67Hz
Ch10 446.018750	CTCSS tone 71.9Hz
Ch11 446.031250	CTCSS tone 74.4Hz
Ch12 446.043750	CTCSS tone 77.0Hz
Ch13 446.056250	CTCSS tone 79.7Hz
Ch14 446.068750	CTCSS tone 82.5Hz
Ch15 446.081250	CTCSS tone 85.4Hz
Ch16 446.093750	CTCSS tone 88.5Hz
Below are in HX446L only	
Ch17 446.006250	CTCSS tone 110.9Hz
Ch18 446.018750	CTCSS tone 118.8Hz
Ch19 446.031250	CTCSS tone 127.3Hz
Ch20 446.043750	CTCSS tone 136.5Hz
Ch21 446.056250	CTCSS tone 146.2Hz
Ch22 446.068750	CTCSS tone 156.7Hz
Ch23 446.081250	CTCSS tone 167.9Hz
Ch24 446.093750	CTCSS tone 179.9Hz

Troubleshooting Guide

PROBLEM	PROBABLE CAUSE	SOLUTION
Radio will not power on	Battery needs charging Battery is exhausted	Recharge battery pack Replace the battery pack
Radio will not talk with others	Radios may be on different channel or tone code	Check that all radios in same group are using the same channel and tone
Hearing others' conversations	Using same channel and tone as other users	Select a different channel and tone
Control buttons not functioning	Button lock activated	Turn Button lock off
Radio transmits without pressing PTT button	Vox has been enabled	Press assigned vox button to switch vox off
Unintelligible Audio signal received or transmitted	Voice scrambler in wrong mode to other radios	Ensure scrambler either enabled or disabled to be compatible with other radios
Accessory does not work with radio	Accessory plug not seating correctly in accessory socket Incompatible accessory	Check connection to accessory socket Replace with genuine accessory
Radio emits constant tone when switching on	Incompatible battery fitted	Replace with genuine Entel battery
Radio emits 5 short beep tones when switched on	Battery has used almost all recommended charge cycles	Prepare to replace battery
Radio emits 5 long beep tones when switched on	Battery has used all recommended charge cycles	Replace battery

Notes

Use this page to record important information, such as the serial number of your radio and any private channels programmed by your dealer etc.

Notes

‘the professional’s choice’

<Intended Country Of Use>

☐ AT	☐ FR	☐ LT	☐ SK
☐ BE	☐ DE	☐ LU	☐ SI
☐ BG	☐ GR	☐ MT	☐ ES
☐ CY	☐ HU	☐ NL	☐ SE
☐ CZ	☐ IS	☐ NO	☐ CH
☐ DK	☐ IE	☐ PL	☐ UK
☐ EE	☐ IT	☐ PT	
☐ FI	☐ LV	☐ RO	

CE 0891 ⓘ

Headquarters: United Kingdom **www.entel.co.uk**