

3M™ PELTOR™ WS™ LiteCom Pro III



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1 Introduction

Congratulations and thank you for choosing 3M™ PELTOR™ Communication Solutions! Welcome to the next generation of protective communication. Additional information about the product can be found on this link: www.3m.com/Peltor/doc

2 3M™ PELTOR™ WS™ LiteCom Pro III Headset

This document describes the following version(s):

Intrinsic safe models:

- MT73H7F4D10EU-50
- MT73H7B4D10EU-50
- MT73H7P3E4D10EU-50
- MT73H7F4D10NA-50
- MT73H7B4D10NA-50
- MT73H7P3E4D10NA-50

Non Intrinsic safe models

- MT73H7A4D10EU
- MT73H7B4D10EU
- MT73H7P3E4D10EU
- MT73H7A4D10NA
- MT73H7B4D10NA
- MT73H7P3E4D10NA

3 Intended Use

These 3M™ PELTOR™ headsets are intended to provide workers with protection against hazardous noise levels and loud sounds while allowing the user to communicate with built-in two-way radio or Bluetooth®. It is expected that all users read and understand the provided user instructions as well as be familiar with the use of this device.

4 Important

Please read, understand, and follow all safety information in these instructions prior to use. Retain these instructions for future reference. For additional information or any questions, contact 3M™ Technical Service (contact information listed on the last page).

5 Before Use Headset Warnings

5.1 Hearing Protector Warnings

This hearing protector helps reduce exposure to hazardous noise and other loud sounds. Misuse or failure to wear hearing protection at all times when exposed to hazardous noise may result in hearing loss or injury. For proper use, read user instructions, talk to your supervisor or call 3M™ Technical Service. If your hearing seems dulled or you hear a ringing or buzzing during or after any noise exposure (including gunfire), or for any other reason you suspect a hearing problem, leave the noisy environment immediately and consult a medical professional and/or your supervisor.

Failure to follow these instructions may result in serious injury or death:

- Listening to music or other audio communication may reduce your situational awareness and ability to hear warning signals.
- Stay alert and adjust the audio volume to the lowest acceptable level.
- The audibility of warning signals at a specific workplace may be impaired while using the entertainment facility.

Failure to follow these instructions may reduce the protection provided by the earmuff and may result in hearing loss:

- 3M™ strongly recommends individual fit testing of hearing protectors. If the NRR or SNR is used to estimate typical workplace protection, 3M™ recommends that the noise reduction value be reduced by 50% or in accordance with applicable regulations.
- Ensure the hearing protector is properly selected, fit, adjusted, and maintained. Improper fit of this device will reduce its effectiveness in attenuating noise. Consult the enclosed instructions for proper fit.
- Inspect the hearing protector before each use. If damaged, select an undamaged hearing protector or avoid the noisy environment.
- When additional personal protective equipment is necessary (e.g. safety glasses, respirators, etc.), select flexible, low profile temples or straps to minimize interference with the earmuff cushion. Remove all other unnecessary articles (e.g. hair, hats, jewelry, headphones, hygiene covers, etc.) that could interfere with the seal of the earmuff cushion and reduce the protection of the earmuff.
- Do not bend or reshape the headband, and ensure there is adequate force to hold the earmuffs firmly in place.
- Earmuffs, and in particular cushions, may deteriorate with use and should be examined at frequent intervals for cracking and leakage, for example. When used regularly, replace the ear cushions and foam liners at least twice a year to maintain consistent protection, hygiene, and comfort.
- The radio level may be above 82dB(A) if the volume control is set a high level. Adjust the audio volume to the lowest acceptable level.

5.2 Note

- When worn according to the User Instructions, this hearing protector helps reduce exposure to both continuous noises, such as industrial noises and noises from vehicles and aircraft, as well as very loud impulse noises, such as gunfire. It is difficult to predict the required and/or actual hearing protection obtained during exposure to impulse noises. For gunfire, the weapon type, number of rounds fired, proper selection, fit and use of hearing protection, proper care of hearing protection, and other variables will impact performance. To learn more about hearing protection for impulse noise, visit www.3M.com/hearing.
- This earmuff is provided with level-dependent attenuation. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice for maintenance and replacement of the battery.
- This earmuff is provided with electrical audio input. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice.
- The hearing protector limits the entertainment audio level to 82dB(A).

6 EN 352 Safety Statements

- The output of the level-dependent circuit of this hearing protector may exceed the external sound level.
- The fitting of hygiene covers to the cushions may affect the acoustic performance of the earmuffs.
- Performance may deteriorate with battery usage. The typical period of continuous use that can be expected from the earmuff battery is approximately up to 12-16 hours.
- This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.
- The helmet mounted earmuffs are of large size range. Earmuffs complying with EN 352-3 are of medium size range or small size range or large size range. Medium size range earmuffs will fit the majority of wearers. Small size range or large size range earmuffs are designed to fit wearers for whom medium size range earmuffs are not suitable.
- This foldable ear-muff is of large size range. Ear-muffs complying with EN 352-1 are of medium size range or small size range or large size range. Medium size range ear-muffs will fit the majority of wearers. Small size range or large size range ear-muffs are designed to fit wearers for whom medium size range ear-muffs are not suitable.
- With Lithium ion batteries, there is a risk of fire and burns. Do not open, crush, heat above 55°C (131°F), or incinerate.

CAUTION: Use of other battery packs than ACK081 (Non intrinsic safe) or ACK08/ ACK082 (intrinsic safe) may cause an explosion.

7 Proper Use Intrinsic Safety Warnings

Intrinsic safe models:

3M™ PELTOR™ WS™ LiteCom Pro III Headset

- MT73H7F4D10EU-50
- MT73H7B4D10EU-50
- MT73H7P3E4D10EU-50
- MT73H7F4D10NA-50
- MT73H7B4D10NA-50
- MT73H7P3E4D10NA-50

The 3M™ PELTOR™ WS™ LiteCom Pro III Headset, MT73H7*4D10**-**, has been certified to be intrinsically safe for use in potentially explosive atmospheres. The user is responsible for ensuring that the intrinsically safe 3M™ PELTOR™ WS™ LiteCom Pro III Headset and accessories are used in the appropriate atmospheres as defined by the approved area classifications and according to the user instructions. Failure to do so may result in serious injury or death. See separate Safety Guide included in the product box for more information.

If there is any risk that the safety or integrity of the unit has been compromised, the unit must be taken out of operation immediately and removed from the potentially explosive atmosphere without delay. Action must be taken to prevent the device from being accidentally placed into operation again. Contact 3M Technical Service for service and repair.

To reduce the risk of igniting an explosion which, if not avoided, could result in serious injury or death:

- Ensure that the 3M™ PELTOR™ WS™ LiteCom Pro III Headset and any intrinsically safe accessories are only used and stored in the classified areas consistent with the marked equipment ratings.
- Never connect electronic components or devices to the headset in a potentially explosive atmosphere.
- Only connect to the headset the intrinsically safe 3M™ PELTOR™ Spare Parts and Accessories listed in this User Instructions. SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
- Only use the 3M™ PELTOR™ BatteryACK08/ ACK082, 3M™ PELTOR™ Charging Cable AL2AH, and 3M™ PELTOR™ Power Supply EMSA050100 (or equivalent SELV 5V power supply).
- Never change or charge the ACK08/ ACK082 battery in a potentially explosive atmosphere.
- Do not use headset or accessories if they are damaged or malfunctioning in any way.
- Only use 3M™ PELTOR™ Authorized Service Centers for service and repair.

	Presafe 16ATEX8960X Certified by DNV Nemko Presafe AS as Intrinsically Safe for Use in Hazardous Locations I M1 Ex ia I Ma -20°C ≤ Ta: ≤ +50°C II 1G Ex ia IIC T4 Ga -20°C ≤ Ta: ≤ +50°C II 1D Ex ia IIIC T130°C Da -20°C ≤ Ta: ≤ +50°C
	IECEX Presafe 16.0086X Certified by DNV Nemko Presafe AS as Intrinsically Safe for Use in Hazardous Locations Ex ia I Ma -20°C ≤ Ta: ≤ +50°C Ex ia IIC T4 Ga -20°C ≤ Ta: ≤ +50°C Ex ia IIIC T130°C Da -20°C ≤ Ta: ≤ +50°C

8 Statements

8.1 FCC Statement:

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

RF exposure statement

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition with at least 50 mm to PTT antenna and 0mm to BT antenna .

8.2 Canada statement

English version:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

French version:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes

1. l'appareil ne doit pas produire de brouillage.
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF exposure statement

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

8.3 CE statement

Declaration of Conformity

Hereby, 3M Svenska AB declares that WS™ LiteCom Pro III (MT73H7*4D10**-**) is in compliance with essential requirements and other relevant provisions of Directive 2014/53/EU.

9 Overview of WS™ LiteCom Pro III

WS™ LiteCom Pro III is a communication headset for professional use. It is a hearing protector with built in communication radio, Bluetooth and a level dependent function. Communication radio has both an analog and a digital mode and could be activated either with a PTT button or just by speaking into the boom microphone with the VOX (voice activated transmission) function.

Bluetooth supports audio streaming, music control and basic call controls. There is also a possibility to connect two Bluetooth equipped devices at the same time. Level dependent functions lets the end user listen to the environment outside the headset but limits the sound to 82 dB when higher sounds occur.

The headset also has a menu which is accessible for the end user via the buttons on the headset. When the end user is navigating through the menu there is a ghost voice guiding the end user in every menu step.

WS™ LiteCom Pro III uses a Li-Ion battery pack mounted on the outside of the left cup. There are two different battery packs depending if the headset is IECEx approved or not, ACK08/ ACK082 for IECEx and ACK081 for regular use. They must be charged via two special cables. Both cables must be connected to a wall adapter called EMSA050100.

Risk assessment of communication link performance per device type:3

This equipment has the same digital working characters when operating in both two digitized voice/data mode.

10 Technical data

10.1 Model (s)

This document describes the following intrinsic safe version(s):

- MT73H7F4D10EU-50
- MT73H7B4D10EU-50
- MT73H7P3E4D10EU-50
- MT73H7F4D10NA-50
- MT73H7B4D10NA-50
- MT73H7P3E4D10NA-50

Only ACK08/ ACK082 Li-Ion battery pack, AL2AH Charger cable and EMSA050100 Power supply

Non intrinsic safe models may be used.

- MT73H7A4D10EU
- MT73H7B4D10EU
- MT73H7P3E4D10EU
- MT73H7A4D10NA
- MT73H7B4D10NA
- MT73H7P3E4D10NA

Only ACK081 Li-Ion battery pack, AL2AI Charger cable and EMSA050100 Power supply may

10.2 Use, maintenance and storage

Allowed usage conditions:

- Temperature: -20°C - +55°C

Allowed storage conditions:

- Temperature: -20°C - +55°C
- Shelf life headset: 5 year
- Shelf life battery pack: 1 year

Weight:

Model	Weight
MT73H7A4D10**	490g
MT73H7F4D10**-50	521g
MT73H7B4D10**-**	475g
MT73H7P3E4D10**-**	512g

Color:

- Cups: light blue (intrinsic safe) and dark blue (non intrinsic safe)
- Headband: black

10.3 Technical Data, Electrical

Power:

The Intrinsic safe models is powered by a rechargeable Li-ion battery pack (ACK08/ACK082).

- 3.7 V, 1350 mAh

The non intrinsic safe models is powered by a rechargeable Li-ion battery pack (ACK081).

- 3.7 V, 1800 mAh

Operating Time Intrinsic safe models:

Expected operating time (according to standardized measurement) in room temperature with ACK08/ACK082 is:

- High power: ~12 h
- Medium power: ~13 h
- Low power: ~14 h

Operating Time Non Intrinsic safe models:

Expected operating time (according to standardized measurement) in room temperature with ACK081 is:

- High power: ~16 h
- Medium power: ~17 h
- Low power: ~18h

External input:

4-pole connector for external equipment, 3M™ Peltor type J111-A

10.4 Technical data, Radio

Frequency range:

- 406.1 - 470 MHz

Operation mode:

- Simplex

Antenna:

- ¼ wave, integrated whip antenna, fixed to the headset
- Omni directional
- Gain: 2 dBi

Channels:

- Up to 70 channels

Channel spacing:

- 12,5 kHz

Modulation:

- Analog: Max narrow 2,5 kHz (FM), Max wide 5 kHz (FM)
- Digital: 4-level FSK, 2.5 kHz max deviation.

Receiver sensitivity:

- Typical -120 dBm

Output power:

- High power: 200 mW e.r.p
- Medium power: 20 mW e.r.p
- Low power: 10 mW e.r.p

11 Modes of operation

Analog FM

Analog communication radio supports FM modulation so it could communicate with other analog radios on the market that also support FM modulation. It also have support for sub tones, both CTCSS (1 - 38) and DCS (39 - 121) tones. Analog communication radio has the possibility to set different frequencies for receiving and transmitting. This to ensure that the headset could communicate in a repeater system.

DMR:

Digital communication radio supports DMR standard (tier 1 and tier 2) so it could communicate with other digital radios on the market that also supports DMR standard (tier 1 and tier 2). Headset supports a digital sub tone called color codes (0 – 15). DMR consists of three different communication modes: All call, group call and private call. With all call you could communicate with all DMR headsets on the same frequency and color code. With group call you could communicate with all headsets on the same frequency, correct color code and correct group ID. With private call you could communicate with all headsets on the same frequency, correct color code and correct radio ID. Digital communication radio has the possibility to set different frequencies for receiving and transmitting. This makes it possible to communicate with a repeater system.

Level Dependent:

At each cup there is one microphone mounted which receives the environmental sound and plays it to the end user via the speakers inside the cups. If the sound outside the cups should exceed 82 dB it will be automatically limited so no harmful sound levels will ever reach the end users ears. If the end user has turn this volume to off or a low level there is a push to listen (PTL) function which could be activated by double press on menu button. This will raise the level dependent volume to a preset volume level and at the same time it will pause the audio stream if any. To exit PTL mode press any other button.

Bluetooth:

Bluetooth comes with four different profiles installed. HS/HF profile, A2DP, AVRCP and a PTT profile. WS™ LiteCom Pro III is also equipped with Bluetooth multipoint. With Bluetooth multipoint it is also possible to connect two Bluetooth equipped devices at the same time. Latest paired device will be the primary device. It is only possible to control the primary device from the headset. If there is an incoming call on the secondary device it will automatically be primary device and it is possible to answer the call with the headsets Bluetooth button.

Phone HS/HF and PTT profile:

HS/HF profile handles all call functions such as answer, hang up, reject and voice dial. PTT profile is active when an external communication radio is connected via Bluetooth to the headset, it could control the PTT button on the connected radio (note: All communication radios is not supporting this feature).

Streaming A2DP Profile:

A2DP is the profile for streaming audio and AVRCP could control another device which is streaming audio to the headset e.g. play/pause, next track and previous track.

Ext Audio Input and Output:

It is possible to connect an external radio, phone or music player via the external connector.

Auto shut down:

WS™ LiteCom Pro III has an auto power off function which shuts down the headset if there is no action (buttons presses or VOX activation) for a certain time. This time is preset to 2 hours but could be changed by an authorized dealer. Before the headset shuts down there is some warnings beeps and a ghost voice message, to abort the auto power function just press any button.

Low battery warning and shut down:

When the battery voltage level is getting below a low limit end user will be warned by a ghost voice message. This message is repeated until the voltage level is below another limit, then the headset is shut down in a controlled way.

Charging:

Intrinsic safe battery ACK08/ ACK082 should be charged together with a special charger cable, AL2AH. This charger cable should be connected to a wall adapter, EMSA050100. Both are supplied with the product. Charging time is approx. 12 h. May not be charged if ambient temperature exceeds 45° C.

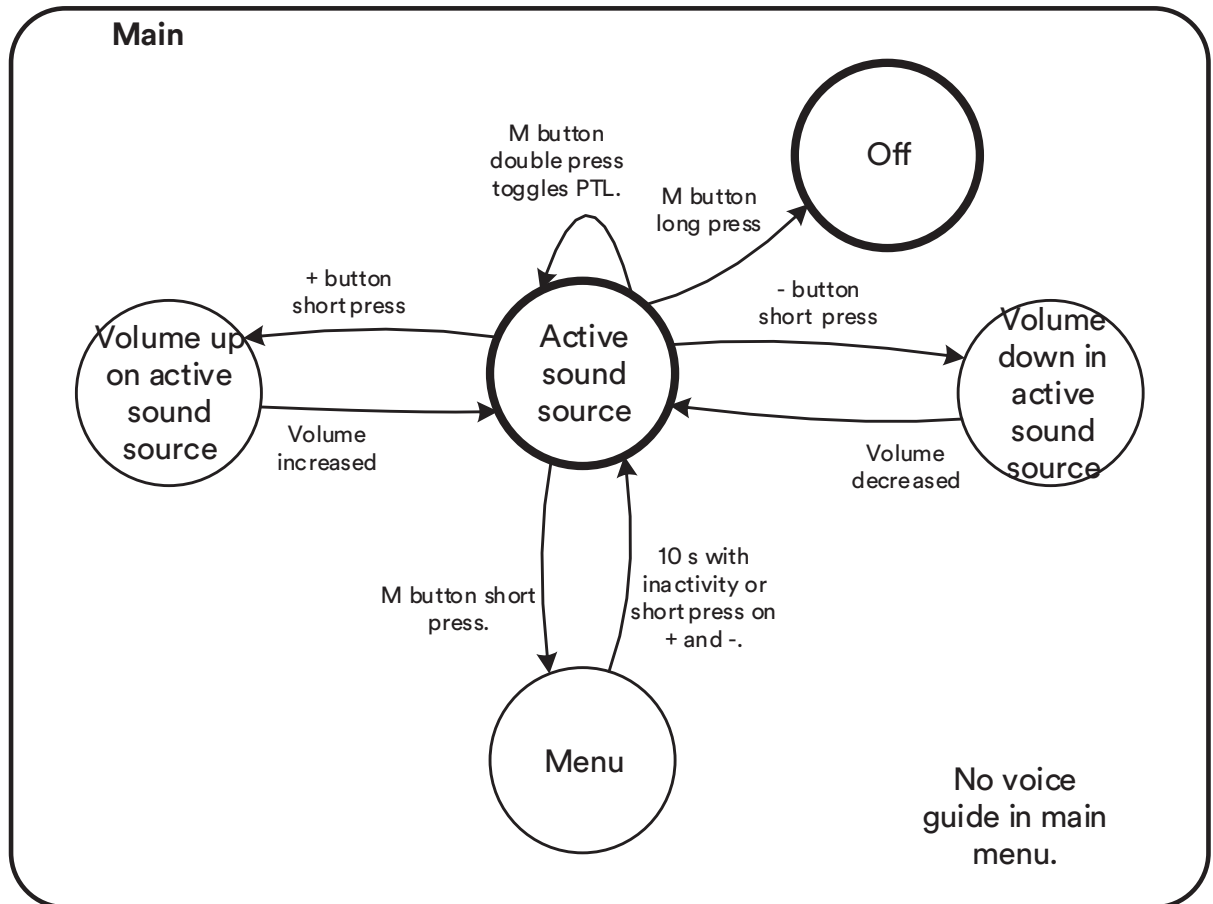
Non intrinsic safe battery ACK081 should be charged together with a special charger cable, AL2AI. This charger cable should be connected to a wall adapter, EMSA050100. Both are supplied with the product. Charging time is approx. 3 h, a LED will indicate with green light when the charging is complete. May not be charged if ambient temperature exceeds 45° C.

ACK081 and ACK08/ ACK082 can be charged in a powered off headset, or separately.

12 Menu system

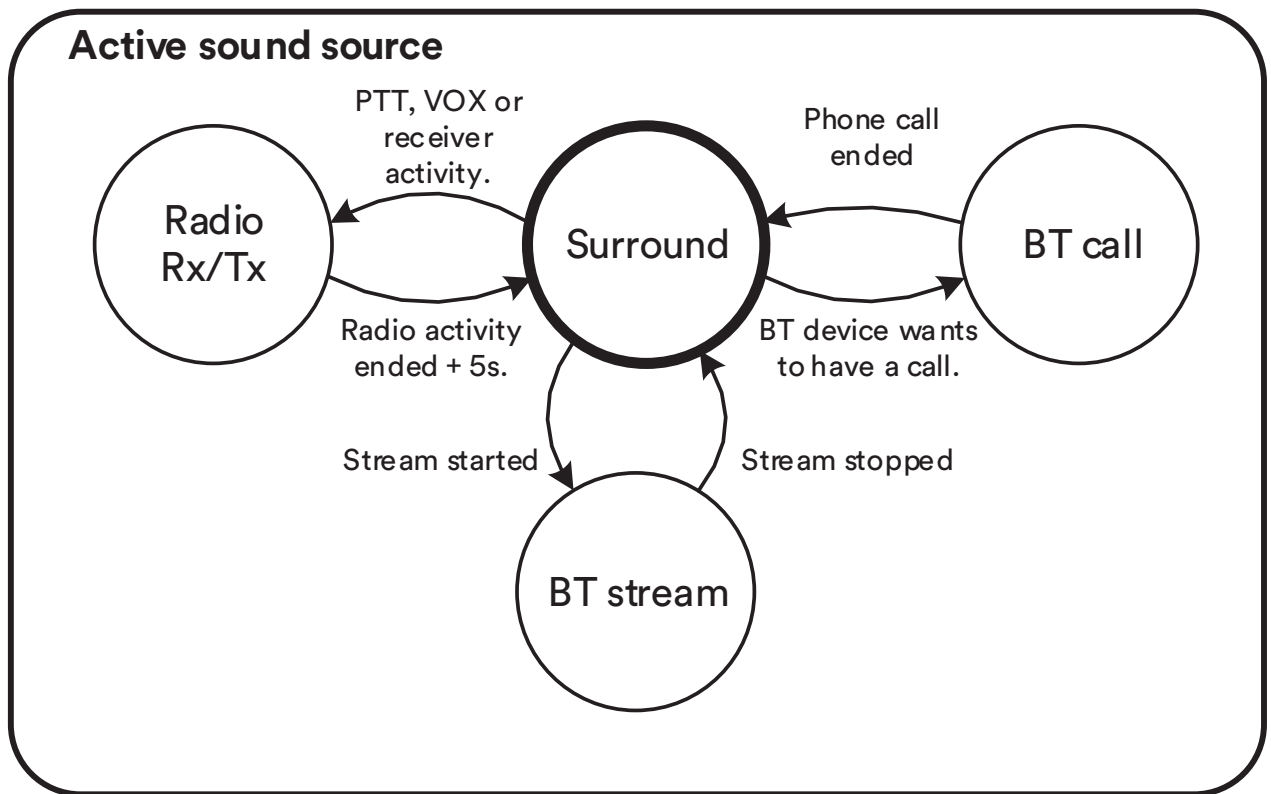
Main state:

WS™ LiteCom Pro III has a voice guided menu system which is controlled by the end user. During normal use main state is active, this means that the plus and minus buttons controls the volume of the active sound source (see picture below).



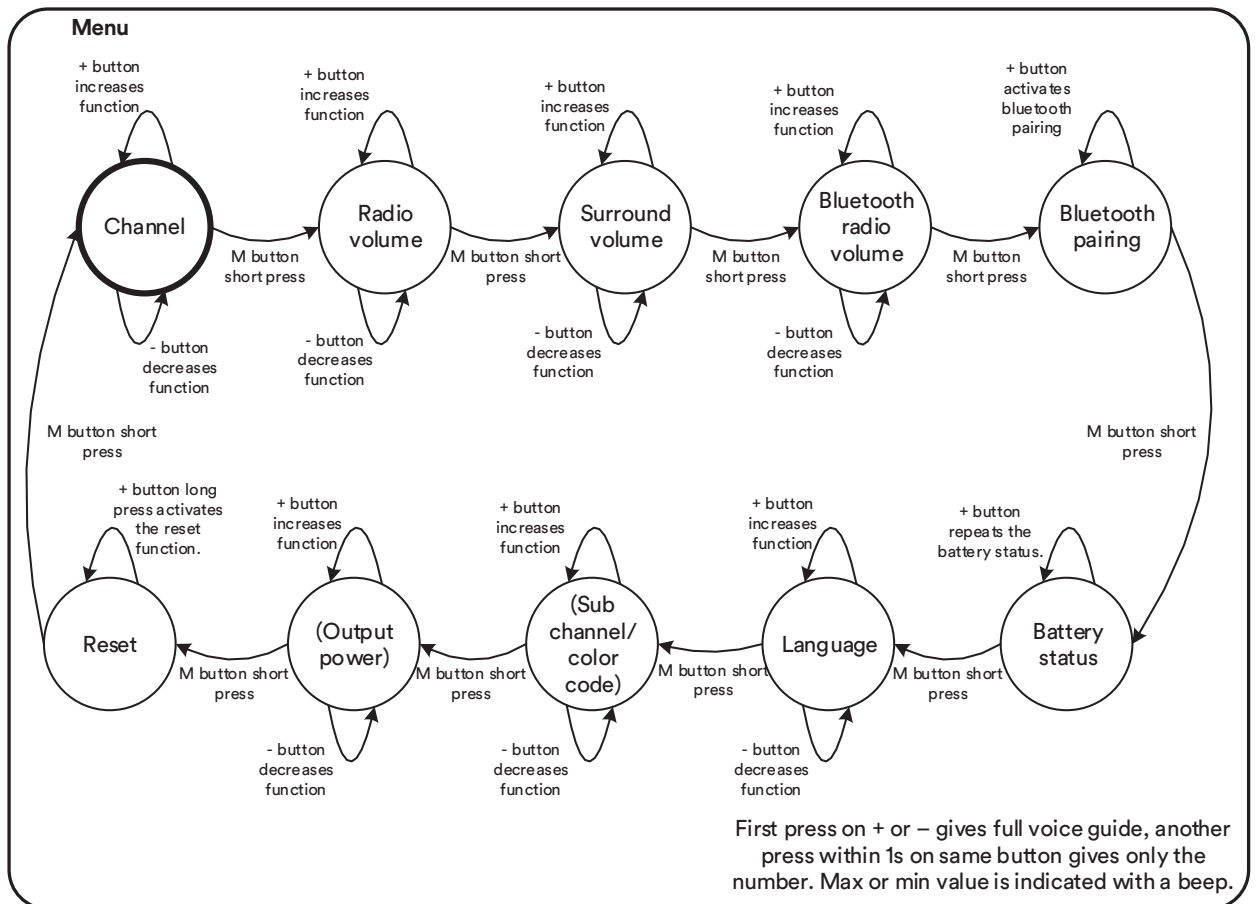
Active sound source:

In this product there is four different sound sources possible to control the volume of, level dependent, built in communication radio, Bluetooth stream and Bluetooth call. For example if there is no activity on the built in communication radio and no activity on Bluetooth link, plus and minus button is controlling the level dependent volume. As soon as there is an incoming call on the built in communication radio, plus and minus buttons will control radio volume level. Should the end user instead have an active audio stream or a call via a Bluetooth connection, plus and minus buttons will control Bluetooth volume.

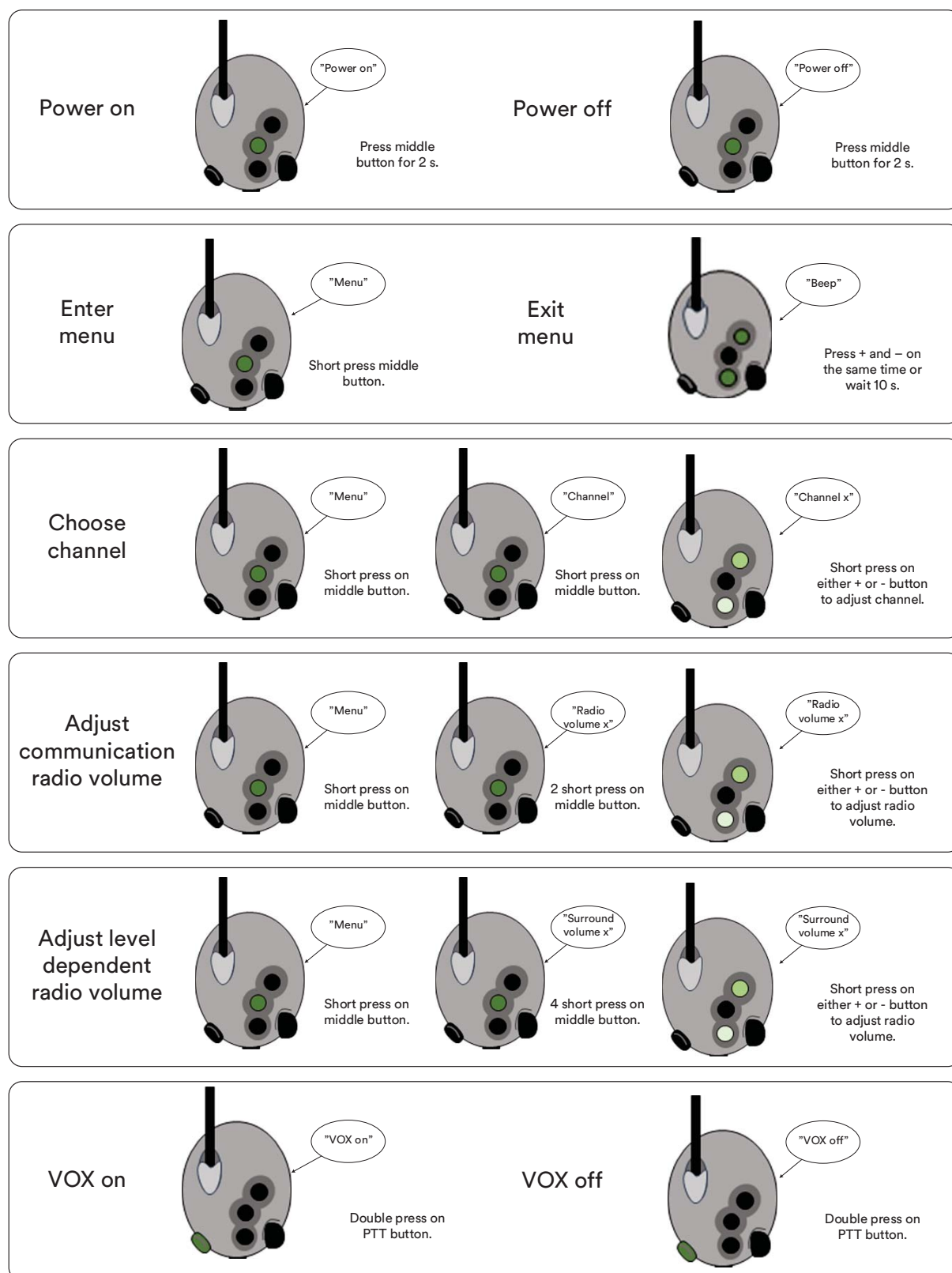


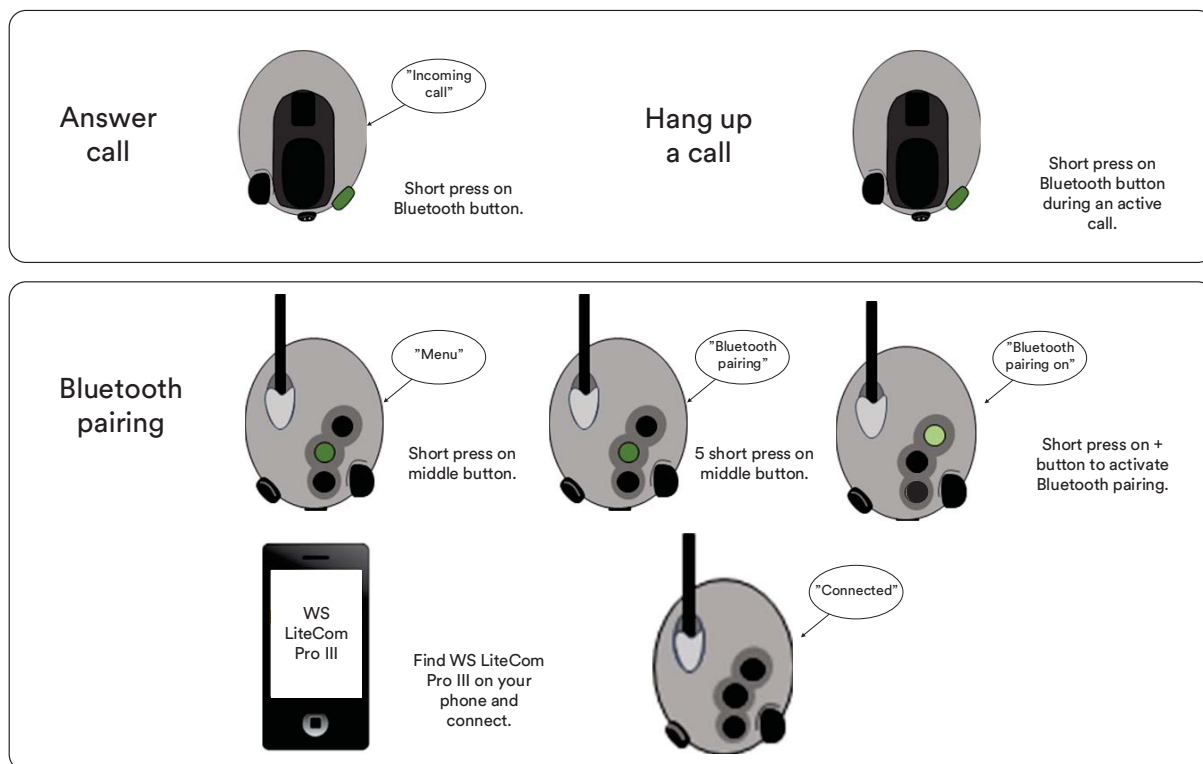
Menu state:

From main state it is possible to enter the menu state. It is done by pressing short on M button. A ghost voice will tell the end user the different setting that is possible to change. All settings are changed by pressing plus or minus button, a short press on M button takes the end user to next settings. Menu state will be left if there is 10 s inactivity, there is also a possibility to leave the menu state by pressing both plus and minus button at the same time.



12.1 Quick guides

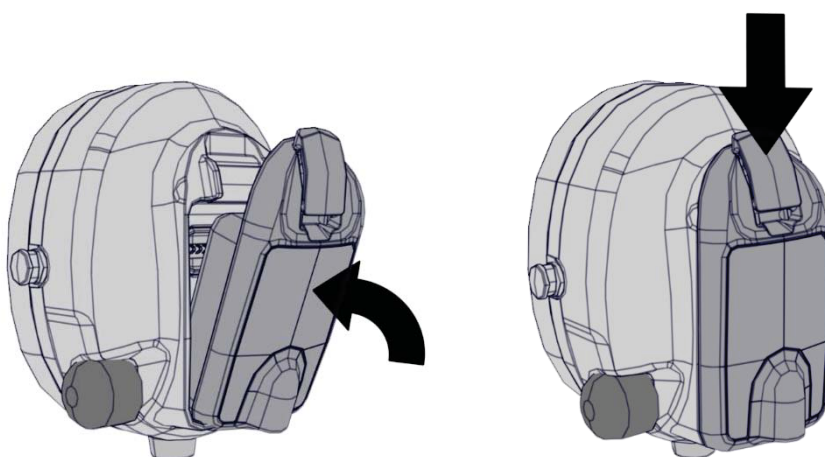




13 Replacing ACK081 and ACK08/ ACK082

13.1 Insert the rechargeable battery in the battery compartment.

13.2 Push down the latch.



14 Interfaces

14.1 External interface pin out:

Pin 1

- EXTERNAL PTT
 - Activated when shorted to Pin 2 (ground)

Pin 2

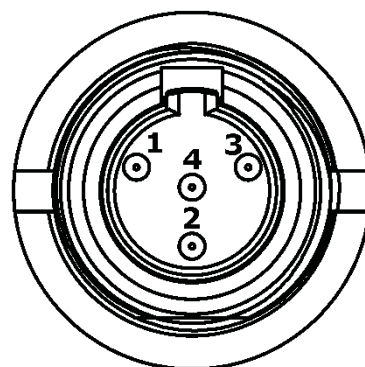
- GROUND

Pin 3

- INPUT
 - The input signal is mixed with the WS™ LiteCom Pro II audio output level (speaker output).
 - 94 mV = Input signal level for which the mean plus one standard deviation equals 82 dB(A) in cup.

Pin 4

- BOOM MICROPHONE OUTPUT
 - Applied signal at the boom microphone input comes out on pin 4
 - 2, 25 mV Microphone input = 10 mV output



External audio input levels EN 352-6:

Input signal level pin 3 U (mV, RMS)	Mean sound pressure level in cup(dB(A))	Standard Deviation Sound Pressure (dB)
28,1	70,8	0,7
49,9	75,8	0,7
88,8	80,8	0,7
157,9	85,7	0,7

15 Spare parts and accessories

15.1 Intrinsic safe



Intrinsically Safe Spare Parts:

3M™ PELTOR™ ACK08/ ACK082 Rechargeable Li-Ion battery pack.

3M™ PELTOR™ AL2AH Battery charging cable for ACK08/ ACK082

3M™ PELTOR™ EMSA050100 Power Supply

3M™ PELTOR™ FL5602-50 External PTT for WS™ LiteCom Pro III Headset.

- Push-To-Talk button with connection cable for external control of transmission with the radio in the 3M™ PELTOR™ WS™ LiteCom Pro III Headset.

15.2 Non intrinsic safe



Non Intrinsically Safe Spare Parts:

3M™ PELTOR™ ACK081 Battery

3M™ PELTOR™ AL2AI Battery charging cable for ACK081

3M™ PELTOR™ EMSA050100 Power Supply

3M™ PELTOR™ MT7V/1Microphone dynamic incl. att.

3M™ PELTOR™ FL5602 External PTT for WS™ LiteCom Pro III Headset

- Push-To-Talk button with connection cable for external control of transmission with the radio in the 3M™ Peltor™ WS™ LiteCom Pro III Headset.

3M™ PELTOR™ FL6CS Connecting cable

- With 2.5 mm stereo connector for use with DECT and mobile telephones.

3M™ PELTOR™ FL6BT Connecting cable

- With 3.5 mm mono connector for use with a communication radio.

3M™ PELTOR™ FL6BR Connecting cable

- With PELTOR J11 connector (type Nexus TP-120) for use with a PELTOR adapter and an external communication radio.

Contact your Authorized 3M™ PELTOR™ WS™ LiteCom Pro III Headset dealer for more information.

Product spare parts:

3M™ PELTOR™ HY83 Hygiene kit

- Hygiene kit consisting of two foam pads, two foam rings and snap-in ear cushions.

3M™ PELTOR™ HY100A Clean - single-use protectors

- Single-use protector for the ear cushions. Package of 100 pairs.

3M™ PELTOR™ HYM1000 Mic Protector

- Moisture and wind-tight tape. Protects the boom microphone.
Package of 5 meters for about 50 replacements.

3M™ PELTOR™ M171/2 Wind shield for MT73 boom microphones

- Wind noise protector for MT73-type boom microphones. Two per package

3M™ PELTOR™ M60/2 Wind shield for ambient microphones

- Wind noise protector for ambient sound microphones. One pair per package.

3M™ PELTOR™ MT73 Dynamic microphone

- Microphone boom with dynamic noise cancelling microphone

3M™ PELTOR™ MT90-02 Throat microphone

16 Settings

User accessible settings:

- Explained under menu operation.

Dealer accessible settings:

Following settings can be adjusted/configured by authorized dealers:

- Automatic power off
- Microphone gain
- Level dependent
- Channels
- Channels settings
- Device settings
- Radio settings
- Squelch
- VOX

Your dealer can also update different firmware on your headset.

Restore factory defaults:

- Explained under menu operation.