sepura

TETRA Radios

Product Guide

MOD-10-1164

Issue 5

Contents

CONVENTIONS

This guide uses the following formatting and graphical conventions.

Convention	Description
	Note icon. Emphasises related, reinforcing, or important information.
	Tip icon. Suggests alternative methods for accomplishing tasks or procedures.
	Caution icon. Indicates actions or processes that require caution from the user.

REGULATORY STATEMENTS

COMPLIANCE WITH STANDARDS

RADIATION PROTECTION

The radios fully comply with the NRPB specification EN50360 (EN50361) and the ICNIRP guidelines for exposure to electromagnetic fields mandated for mobile phones (2W per kg over a 10g sample).

ELECTRO MAGNETIC COMPATIBILITY

The radios meet the EMC requirements specified by the ETSI specifications:

- ETSI EN 301 489-1,
- ETSI EN 301 489-18

TYPE APPROVAL

The radios have been self-certified against the R&TTE Directive EN 303 035-1 and are CE marked accordingly.

ENVIRONMENTAL

The radios fully comply with the following environmental regulatory requirements:

- The MIL STD 810E standard for Salt Fog:
- The MIL STD 810E standard for Driving Sand (SRH3000 radios only)

The radios have been self-certified to fully comply with all environmental aspects detailed by ETSI EN 300 019. These include mechanical and climatic tests covering such things as drop, vibration, bump and shock as well as temperature and humidity.

RADIO OPERATION

The radios meet the requirements specified by the ETSI specification EN 300 394-1.

SAFETY AND VEHICLE CERTIFICATION AGENCY (VCA)

The radios fully comply with the User Safety specification EN60950, and the Automotive Directive detailed in 2006/28/EC.

NORTH AMERICAN AND CANADIAN MARKETS

The following regulatory statements apply to users in the North American and/or Canadian markets.

SRG3900 RADIOS

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment (FCC rule part 15.21).

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. (FCC Rule Part 15.19(a)(3)).

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 communications. 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 (FCC Rule Part 15.105).

When used with the High Gain Tetra Modular Whip antenna (maximum antenna gain 7dBi), the antenna must be installed to provide a separation distance of at least 31 cm from all persons during normal operation to ensure compliance for RF Exposure.

When used with the rigid Tetra Modular Whip antenna (maximum antenna gain 2dBi), the antenna must be installed to provide a separation distance of at least 25 cm from all persons during normal operation to ensure compliance for RF Exposure.

This Class A digital apparatus complies with Canadian ICES-003.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication

This radio is intended for use in occupational/controlled applications where users have been made aware of the potential for exposure and can exercise control over their exposure. This radio device is NOT authorized for general population, consumer or similar use.

STP8040/STP8140 RADIOS

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment (FCC rule part 15.21).

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. (FCC Rule Part 15.19(a)(3)).

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 communications. 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 (FCC Rule Part 15.105).

This Class A digital apparatus complies with Canadian ICES-003.

The use of third-party belt-clips, holsters, and similar accessories should not contain metallic components in its assembly. The use of these accessories that do not satisfy these requirements may not comply with appropriate RF exposure compliance requirements, and should not be used.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication

This radio is intended for use in occupational/controlled applications where users have been made aware of the potential for exposure and can exercise control over their exposure. This radio device is NOT authorized for general population, consumer or similar use.

STP8080/STP8280 RADIOS

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment (FCC rule part 15.21).

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. (FCC Rule Part 15.19(a)(3)).

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 communications. 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 (FCC Rule Part 15.105).

The use of third-party belt-clips, holsters, and similar accessories should not contain metallic components in its assembly. The use of these accessories that do not satisfy these requirements may not comply with appropriate RF exposure compliance requirements, and should not be used.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication

This radio is intended for use in occupational/controlled applications where users have been made aware of the potential for exposure and can exercise control over their exposure. This radio device is NOT authorized for general population, consumer or similar use.

OPERATIONAL REQUIREMENTS

All features and functions of Sepura radios are subject to network support of the TETRA Interoperability Specifications.

OPERATING CONDITIONS

All Sepura radios operate in a temperature range between -20ºC and 55ºC and a maximum humidity of 98%.

IP RATINGS

The Sepura radios are certified to the following IEC529 IP standards:

Product	Standard
STP8000, STP8100	IP55
STP8200	IP54
SRH3500, SRH3800, SRH3900	IP54
SRG3500, SRG3900	IP54

The STP8000, STP8100 and STP8200 radios have been tested for a full 8 hour shift in IP54 conditions. This is equivalent to 8 hours of constant rain.

HANDHELD RADIO RANGE

STP8000 Series Radios

SRH3000 Series Radios

STP8000, STP8100, STP8200

STP8000 FRONT

STP8100 FRONT

STP8200 FRONT

STP8000, STP8100, STP8200 REAR

To ensure optimal performance from your radio during half duplex calls (individual or group) please hold the radio vertically, with the half duplex microphone situated approximately 5cm away from the mouth.

STP8000, STP8100, STP8200 REAR WITH BATTERY REMOVED

SIM Card holder/Micro SD card cover (closed)

Micro SD card (STP8000, STP8100)

SIM Card holder/Micro SD card cover (open)

The SIM Card holder/Micro SD card cover should be left open in radios in storage and latched closed under normal use.

The STP8200 does not support a Micro SD card. The connections and cover for the card are not present on the radio

STP8000, STP8100, STP8200 FACILITY CONNECTOR

PEI
Car adapter
Charger connection

STP8000, STP8100, STP8200 RUGGED ACCESSORY CONNECTOR

RSM,
Personal audio accessories,
Headsets

STP8000, STP8100, STP8200 BATTERIES

Fitting and Removing the Battery

Before fitting a battery please ensure that the SIM Card holder/Micro SD card cover is latched shut. To fit, unpack the battery and slot it into the rear of the radio. Push the battery down until the catch clips into the bottom of the case. The battery is fully secure when this catch has clipped into position. To remove, push the catch upward towards the top of the radio. The battery pack unclips and can then be removed.

Battery Charging

New battery packs must be fully charged before they are used. The battery should only be charged using Sepura plc approved battery chargers. Failure to use an approved battery charger may invalidate the warranty of the battery and the radio.

A range of battery chargers is available that allow the battery to be charged while fitted to, or removed from, the radio (depending upon the charger model selected). When the battery is fitted to the radio, the battery can be charged via the facility connector located at the base of the radio. If the battery is charged with the radio switched on, the time remaining to charge the battery to its full capacity is shown on the radio's display.

When charging, the colour of the tri-colour LED on the radio indicates the progress of battery charging: flashing amber shows waiting to charge, amber shows charging in progress, green shows charging complete and red shows charging failure. A fully discharged battery may not provide enough power to support the display during the initial phases of charging. However, when sufficient power is available, the display will operate.

The mechanism for measuring the remaining charge in the battery may become inaccurate over time. To avoid this, periodically run the battery flat in normal use (so that the radio automatically switches off) and then re-charge the battery fully without disconnecting it from the charger.

If a battery has been stored for a long time it may go flat and will not be able to power a radio until it has been recharged. In extreme cases it may be necessary to restart the charging by disconnecting and reconnecting the charger (or switching the charger off then on) as charging will stop after twenty minutes if the battery has not recovered enough charge in that time to power the radio.

The battery includes circuitry to protect against damage caused by accidental shorting of the contacts. Once the battery has protected itself, it will not operate again reliably until it has been removed from the radio and been fully re-charged. If the battery is not fully re-charged the battery meter and time-to-charge indication on the radio may give an inaccurate reading.

The amount of charge in a battery, shown as a percentage, is displayed on the Battery card in the Radio Information menu. Please see section on Radio Information in the Sepura TETRA Radios User Guide.

Low Battery Warning.

The radio warns the user when less than 12% of the charge is left by displaying the Low Battery Icon on the top line of the screen and repeatedly flashing the red LED for one second at one second intervals. The Battery Level indicator at the left hand side of the screen is also displayed in red on the STP8000 and STP8100 radios.

When the battery is flat there is an audible alert just before the radio switches off.

As with all batteries, charging cycles reduce the cell capacity. The battery is specified to have retained a nominal 80% of its original fully charged capacity after 500 charge cycles. Charging should be conducted using a Sepura approved charger.

Batteries have a finite life; they deteriorate if they are not charged on a periodic basis. Batteries should not be left for more than 6 months without recharging as the cells will deteriorate and the batteries will not be recoverable.

Many professional and consumer products from cycle lamps to mobile phones and laptop computers now use rechargeable lithium polymer cells because of their small size and high energy density. When charged and used correctly these are reliable and safe. There are some simple precautions that should be observed when charging and using Lithium polymer packs. The precautions below apply to most/all Lithium polymer battery packs and chargers.

1. Properly designed Lithium polymer batteries and chargers contain effective protection circuitry to safeguard the pack during charging and use, but in some very rare circumstances of internal cell failure during charging, the protection circuits may be ineffective and the pack may overheat. To minimise the chance of this causing further damage, Lithium polymer battery chargers should be used in well ventilated areas away from combustible material. For example, charging of a TETRA battery, mobile phone battery or laptop battery should not be carried out with the battery and charger very near to curtains, soft furnishings, paper or other combustible material.
2. Copy batteries are available for many products including TETRA radios made by Sepura. These may be cheaper than approved batteries, but may not include protection features used in the approved battery, so may be less safe and should not be used.

   When the radio is switched on the battery is tested to check that it is an authentic Sepura battery. This information is displayed on the Battery card in the Radio Information menu. Please see section on Radio Information. If a non-Sepura battery is detected a warning message is displayed (“Unidentified battery - charging suspended”) which may be cleared by any key press and if charging of the battery is attempted no charging will occur.
3. Use only Sepura approved chargers for charging Sepura products and Sepura approved batteries.

   Non-approved chargers may incorrectly charge the battery, leading to premature failure, or render the battery potentially unsafe.
4. Sepura batteries are designed to be rugged and to give good service. However, as is the case for all Lithium polymer batteries, it is possible for extreme mechanical damage to weaken the internal structure of the cells within the battery. Therefore, if the battery casing shows signs of severe damage (not the minor scratches and bumps of everyday use), or has been subjected to major mechanical abuse, the battery should be safely discarded immediately.

STP8000, STP8100, STP8200 BELT CLIP AND "KLICK FAST" STUD

BELT CLIP

"KLICK FAST" STUD

The Belt Clip and "Klick Fast" Stud are both attached at the carrying aid attachment recess on the rear of the radio. When attaching or removing the belt clip or stud please first remove the battery.

The Belt Clip

Attaching The Belt Clip to the radio

To attach the belt clip to the radio slide it into the carrying aid attachment recess as shown.

Detaching the Belt Clip from the Radio

To remove the belt clip from the radio first carefully pull or lift the bottom end of the belt clip away from the radio.

Use your thumb or thumb nail to compress the metal spring and release the belt clip. It is then possible to pull the belt clip so that it slides out of the carrying aid attachment recess.

The “Klick Fast” Stud

The “Klick Fast” Stud may be attached to the radio in the same way as the belt clip and detached in a similar way by compressing the spring (which may be plastic) with the thumb or thumb nail.

Attempting to remove the belt clip or stud without compressing the spring sufficiently may result in damage to the accessory or to the radio.

SRH3500, SRH3800, SRH3900

FRONT

REAR

FACILITY CONNECTOR

PEI,
Car adapter,
Charger connection,
RSM connector

ACCESSORIES SOCKET

BATTERIES

Fitting and Removing the Battery

To fit, unpack the battery and slot it into the rear of the hand-held. Push the battery down until the catch clips into the bottom of the case. The battery is fully secure when this catch has clipped into position. To remove, push the catch upward towards the top of the hand-held. The battery pack unclips and can then be removed.

Battery Charging

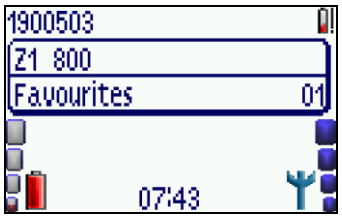
The battery should only be charged with Sepura plc approved battery chargers. Failure to use an approved battery charger will invalidate the warranty of the battery and the hand-held.

A range of battery chargers is available that allow the battery to be charged while fitted to, or removed from, the hand-held (depending upon the charger model and hand-held type selected). When the battery is fitted to the hand-held, the battery can be charged via the facility connector located at the base of the hand-held. If the battery is charged with the hand-held switched on, the time remaining to charge the battery to its full capacity is shown on the hand-held's display.

When charging, the colour of the LED on the hand-held indicates the progress of battery charging: orange shows charging in progress, green shows charging complete, red shows charging failure. A fully discharged battery may not provide enough power to support the hand-held display during the initial phases of charging. However, when sufficient power is available, the display will operate.

The battery includes circuitry to protect against damage caused by accidental shorting of the contacts. Once the battery has protected itself, it will not operate again until it has been removed from the hand-held and charged.

The hand-held warns the User of a Low battery condition by displaying the Low battery Icon and repetitively flashing the Red LED for 1 second at 1 second intervals. The Battery Level indicator at the left hand side of the screen is also displayed in red on the SRH3800 and SRH3900 radios.



As with all batteries, charging cycles reduce the cell capacity. The battery is specified to have retained a nominal 80% of its original fully charged capacity after 500 charge cycles. Charging must be conducted using a Sepura approved charger.

Batteries have a finite life; they deteriorate if they are not charged on a periodic basis. Batteries should not be left for more than 6 months without recharging as the cells will deteriorate and the batteries will not be recoverable.

Many professional and consumer products from cycle lamps to mobile phones and laptop computers now use rechargeable lithium-ion (Li-ion) cells because of their small size and high energy density. When charged and used correctly these are reliable and safe. There are some simple precautions that should be observed when charging and using Li-ion packs. The precautions below apply to most/all Li-ion battery packs and chargers.

1. Properly designed Li-ion batteries and chargers contain effective protection circuitry to safeguard the pack during charging and use, but in some very rare circumstances of internal cell failure during charging, the protection circuits may be ineffective and the pack may overheat. To minimise the chance of this causing further damage, Li-ion battery chargers should be used in well ventilated areas away from combustible material. For example, don't charge your TETRA battery, mobile phone battery or laptop battery with the battery and charger very near to curtains, soft furnishings, paper or other combustible material.

2. Copy batteries are available for many products, particularly mobile phones and more recently TETRA radios, including those made by Sepura. These may be cheaper than approved batteries, but may not include protection features used in the approved battery, so may be less safe and should not be used.
3. Use only Sepura approved chargers for charging Sepura products. Non-approved chargers may incorrectly charge the battery, leading to premature failure, or render the battery potentially unsafe.
4. Sepura batteries are designed to be rugged and to give good service. However, as is the case for all Li-ion batteries, it is possible for extreme mechanical damage to weaken the internal structure of the cells within the battery. Therefore, if the battery casing shows signs of severe damage (not the minor scratches and bumps of everyday use), or has been subjected to major mechanical abuse, do not continue to use the battery.

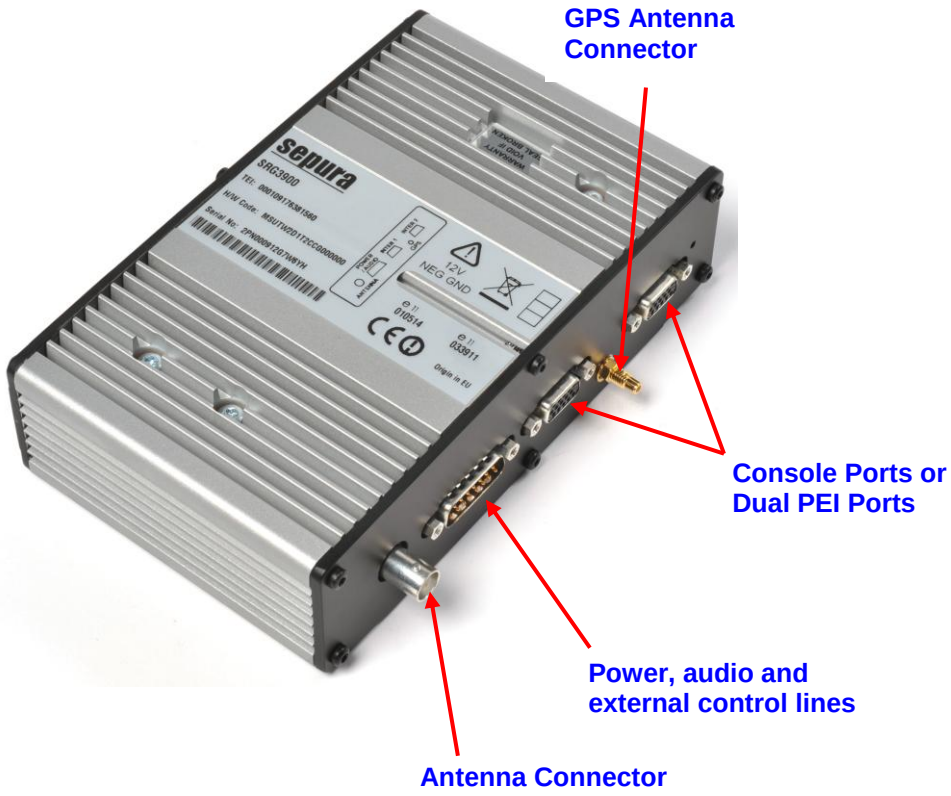
MOBILE / GATEWAY RADIO RANGE

SRG3000 Series Transceivers

SRG3000 Series Consoles

Applications Interface Unit

SRG3000 MOBILE / GATEWAY TRANSCEIVER



The finish on the SRG3000 transceivers may vary.

In order to operate the following components are required:

- TETRA Mobile / Gateway Transceiver Unit
- Power Cable Assembly
- An Antenna

Optional accessories that may be included:

- Colour Console, Standard Console or Handset Based Console Unit
- Applications Interface Unit

The Mobile or Gateway Radio should be installed by following the instructions in the Installation Guide.

STANDARD CONSOLE

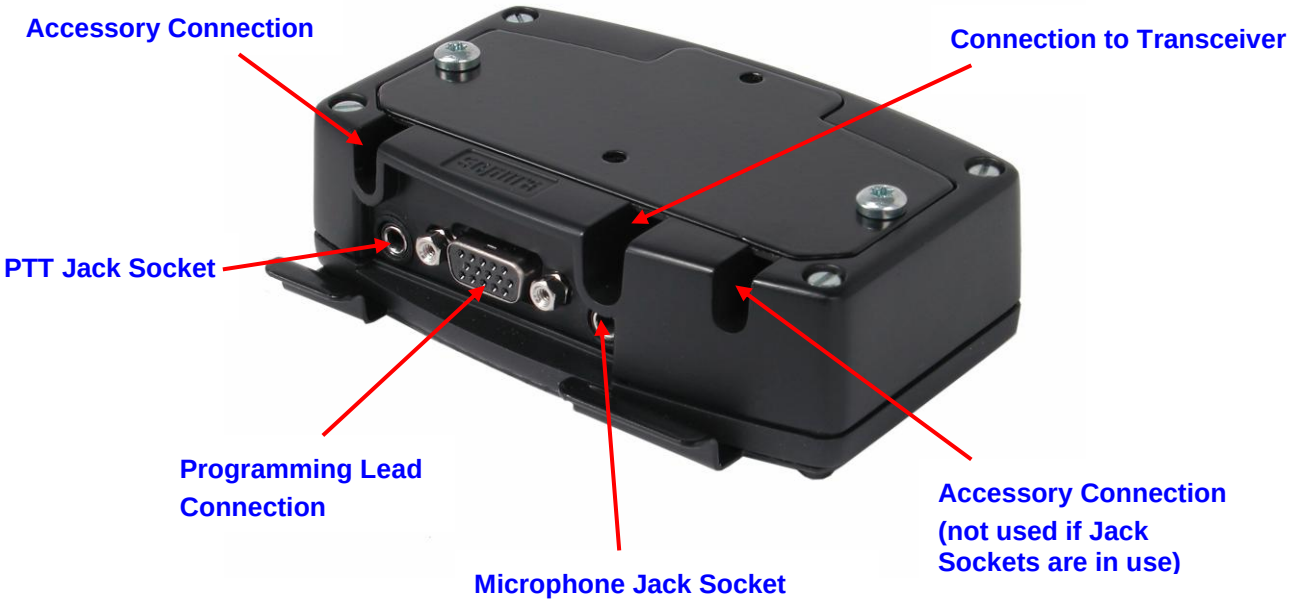
COLOUR CONSOLE

HANDSET BASED CONSOLE

Front

Rear

APPLICATIONS INTERFACE UNIT



MOBILE / GATEWAY RADIO ACCESSORIES

CONSOLE AND APPLICATIONS INTERFACE UNIT

The Mobile/Gateway radio supports the connection of up to two console units. Each console unit can be a Standard Console, Colour Console or a Handset Based Console, complete with keypad and display, or an Applications Interface Unit, which is similar to a console but which does not have a keypad and display. This enables the mobile to support the connection of up to 6 audio accessories.

If two consoles are fitted, they both display the same information. This makes it possible for a user to move from one console to another without having to take any special action. If two users are using the same Mobile/Gateway radio, operational procedures are required to ensure that the actions of the two users do not conflict.

On some configurations it is possible to have a hands-free kit attached to each console. If this is the case, only one of the remote microphones is live during a call. The remote microphone which is live is the one attached to the console which accepted or made the call or switched the call to hands-free.

AUDIO ACCESSORIES

The Mobile/Gateway radio supports up to 6 audio accessories, which can be any combination selected from:

- Standard Console, Colour Console, Applications Interface Unit:
  - none to two hands-free kits
  - none to four standard handsets
  - none to four standard fist microphones
- In addition to the above, the Colour Console also supports:

- none to two VAC handsets
- none to two VAC speaker microphones (which may be configured as fist microphones)

- Handset Based Console:
  - built-in handset
  - none to one hands-free kit

MOBILE / GATEWAY RADIO AUDIO CONTROL

The Mobile/Gateway radio supports the concept of a single controlling audio accessory for a call. The controlling audio accessory is the one in control of the call, and the only one on which the microphone becomes active.

When a fist microphone or hands-free kit is used, the received audio is directed to the loudspeaker connected to the mobile unit. When a handset is used, the received audio is directed to the handset earpiece.

The controlling audio accessory is normally the Remote Microphone used in conjunction with the Loudspeaker, i.e. the hands-free kit or 'Public' mode. If the user requires that a different accessory should become the controlling accessory this may be achieved by pressing the PTT key on that accessory or by taking that accessory off hook. If the new controlling accessory has an earpiece then normally this is used for received audio instead of the Loudspeaker ('Private' mode).

When in 'Private' mode the user can switch to 'Public' mode by pressing the hands free soft key if configured. Taking a handset off hook, or using its PTT will return to 'Private' mode.

While the controlling accessory is not the Remote Microphone, the user may switch to another accessory by pressing the PTT key on that accessory. Taking that accessory off-hook does not change the controlling accessory. This allows a second user to listen to received audio on another accessory.

If the controlling accessory is placed on-hook this clears the call unless customised differently. Other accessories can be put back on-hook without clearing the call in progress.

All earpiece audio is left on all the time in order that multiple users may listen to the received audio.

The audio presentation for duplex calls depends on the capability of the controlling accessory. With a duplex controlling accessory, duplex calls have a duplex presentation. With a half duplex accessory, duplex calls are controlled using the PTT key.

RADIO OPERATION

See the Sepura TETRA Radios User Guide for information regarding the user operation of the radios.

HEALTH AND SAFETY

USER INFORMATION

CARE OF YOUR RADIO

Use only a slightly damp soft cloth for cleaning all exterior surfaces. Do NOT use chemical aerosol or abrasive cleaners.

To ensure efficient operation, clean the battery contacts periodically with a soft, dry cloth.

Never leave the radio in extreme temperatures (over 55°C), for example behind glass in very hot, direct sunlight.

BATTERIES

Safety

Please observe the following before handling batteries:

To prevent injury, do not allow metal objects to contact or short circuit the battery radios.

Make sure that the battery radios do not become dirty.

Do not immerse in water or incinerate.

If you need to replace the battery, use the Sepura plc approved battery types.

Disposal

Batteries must be disposed of in the correct manner according to Sepura environmental policy. If in any doubt, refer to your supplier or local Sepura plc representative.

ACCESSORIES

Only accessories supplied or approved by Sepura plc are recommended for use with the radios. Any accessory used that is not supplied or approved by Sepura plc could cause damage to the radios and may invalidate the warranty. For safety reasons Sepura plc do not recommend that accessories be used with a radio without first gaining approval from Sepura plc to do so.

TRANSMIT INHIBIT 

The radio can be switched into Transmit Inhibit should the user enter a RF sensitive area (e.g. a hospital). This mode is indicated by the tri-colour LED rapidly flashing amber 4 times at approximately two second intervals and the display of the transmit inhibit icon in the top right hand corner of the screen.

In this state, the radio does not transmit under any circumstances in either TMO or DMO, except when using the emergency key if customised to do so. The radio remains on the selected group and in some circumstances can still receive conversations from this talkgroup.

The radio can automatically send a status message to the customised destination when the radio enters Transmit Inhibit, and again when it leaves Transmit Inhibit.

Use of the emergency key whilst in Transmit Inhibit is supported; however, the time to set up the emergency call could be increased by a few seconds.

ANTENNA

When fitting the antenna, do not over-tighten. Do not use the radio without the antenna attached unless the radio is being used with an external antenna (e.g. on RSM).

ACOUSTIC SHOCK

Sepura plc has engineered an innovative audio solution for the radio. Duplex audio (for telephone type calls) and the half duplex audio (for radio calls) are directed to different loudspeakers.

Duplex audio is routed to the low power Duplex Earpiece on the front of the radio. A more powerful loudspeaker, situated behind the alpha-numeric keypad on the STP8000 radios, behind the panel on the lower front of the STP8100 and STP8200 radios and on the rear of the SRH3000 series radios, is used for half duplex audio. This loudspeaker directs the loud audio away from a user's ear should the user accidentally answer a half duplex call as though it were a duplex call.

WARNING: Hold the radio close to the ear only when making, or receiving, duplex calls.

WATER INGRESS

This section applies to the STP8000, STP8100 and STP8200 radios only

If the radio is used in extremely heavy rain it is possible that some water may seep behind the keys on the keypad. This will not harm the radio but may reduce the volume of the loudspeaker. If this occurs it may be easily remedied by holding the radio firmly and shaking it once or twice to remove the water.

GLOSSARY

Term	Description
Gateway	A device which allows users working in Direct Mode to communicate with users in Trunked Mode. (This is often used to extend the working range of a radio)
Duplex	Duplex calls are telephone type calls in which both parties can talk simultaneously.
ETSI	European Telecommunications Standards Institute
Half duplex	Half duplex calls are when only one party can talk (transmit) at any time.
LED	Light Emitting Diode
Navi-knob™	A continuous rotating knob on the top of the radio that is used for talkgroup and status message selection, as well as controlling the volume.
NRPB	National Radiological Protection Board
PEI	Peripheral Equipment Interface
PTT	Press To Talk
RSM	Remote Speaker Microphone
TETRA	Terrestrial Trunked Radio

ACKNOWLEDGEMENTS

1) The Sepura STP8000 and STP8100 series radios contain iType™ from Monotype Imaging Inc.

Monotype Imaging

2) The *Bluetooth*® word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Sepura plc is under licence. Other trademarks and trade names are those of their respective owners.

***Bluetooth*® Qualified Device ID : B013965**

3) The Independent JPEG Group

The Radio software is based in part on the work of the Independent JPEG Group.

4) The SDA Group

Micro SD cards.

NOTICE

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