

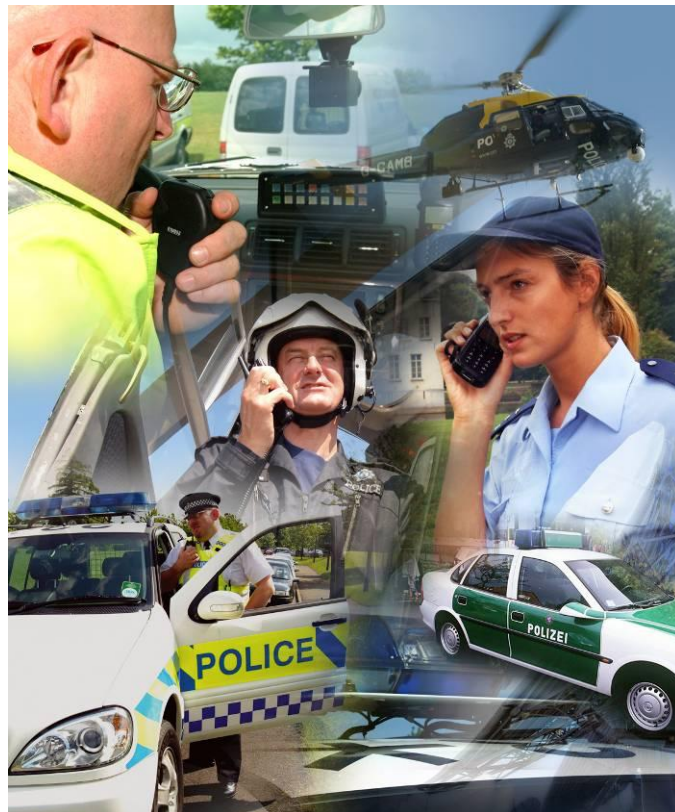
sepura

TETRA Terminals

Product Guide

MOD-10-1164

Issue 10






© SEPURA PLC 2012

Contents

CONVENTIONS	3
REGULATORY STATEMENTS	4
Compliance with Standards	4
North American and Canadian markets	5
<i>Marchés nord-américain et canadien</i>	7
OPERATIONAL REQUIREMENTS	9
Operating Conditions	9
IP, IEC and ATEX Ratings	9
HANDHELD RADIO RANGE	10
STP Series Radios	11
SRH3500, SRH3800, SRH3900	27
MOBILE / GATEWAY RADIO RANGE	32
SRG3000 Mobile / Gateway Transceiver	33
Standard Console	34
Colour Console	34
Handset Based Console	35
Applications Interface Unit	36
Mobile / Gateway Radio Accessories	36
Mobile / Gateway Radio Audio Control	37
RADIO OPERATION	38
HEALTH AND SAFETY	39
User Information	39
Compliance with Standards	42
GLOSSARY	43
ACKNOWLEDGEMENTS	44
NOTICE	45
Contact Details	45

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.

STP8X SPECIFIC ENVIRONMENTS

The STP8X radio is designed to work in the following hazardous environments...

GAS ENVIRONMENT


The STP8X radio complies with the following specifications for operation in a gas environment International IECEx Specifications: Ex ib IIC T4 Gb (-20°C ≤ Ta ≤ +55°C)

European ATEX Specification  II 2G Ex ib IIC T4 Gb (-20°C ≤ Ta ≤ +55°C)

DUST ENVIRONMENT

The STP8X radio complies with the following specifications for operation in a dust environment:

International IECEx Specifications: Ex ib IIIC T90°C Db (-20°C ≤ Ta ≤ +55°C)

European ATEX Specification  II 2D Ex ib IIIC T90°C (-20°C ≤ Ta ≤ +55°C) Db IP6x

STP8X CONDITIONS FOR SAFE USE

The equipment has been impact tested according to the low risk of mechanical danger. Care should be taken to avoid mechanical impact.

Use only Sepura approved batteries, antennas and accessories.

The battery pack must not be removed or replaced in the hazardous area.

The antenna must not be removed / replaced in the hazardous area.

The RuSC cover or RuSC connector must not be removed or replaced in the hazardous area.

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).

To ensure that RF exposure to the General Public is minimised and the level maintained below the accepted guidelines, all antenna installations should be installed with reference to SPR-DOC-0360 Sepura's "Vehicle Antenna Installation Guide"

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.

STP80XX/STP81XX/STP82XX 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.

MARCHÉS NORD-AMÉRICAIN ET CANADIEN

Les déclarations de conformité suivantes s'appliquent aux utilisateurs des marchés nord-américain et/ou canadien.

RADIOS SRG3900

Les changements ou modifications qui ne sont pas expressément approuvés par la partie responsable de la conformité peuvent annuler le droit de l'utilisateur à exploiter l'appareil. (Règlement de la FCC, article 15.21)

Cet appareil est conforme à l'article 15 du règlement de la FCC. Son utilisation est sujette aux deux conditions suivantes : (1) cet appareil ne doit pas engendrer d'interférences nuisibles, et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences qui pourraient avoir des effets non désirés sur son fonctionnement. (Règlement de la FCC, article 15.19(a)(3)).

NOTE : Cet appareil a été testé et s'est avéré être conforme aux limites d'un appareil numérique de Classe A, en vertu de l'article 15 du règlement de la FCC. Ces limites sont conçues pour assurer une protection raisonnable contre les interférences nuisibles lorsque l'équipement est exploité dans un environnement commercial. Cet équipement génère, utilise et peut émettre de l'énergie de radiofréquence et, s'il n'est pas installé et utilisé conformément au manuel d'instruction, il peut provoquer des interférences nuisibles pour les communications radio. Le fonctionnement de cet appareil dans une zone résidentielle est susceptible de provoquer des interférences nuisibles, auquel cas l'utilisateur est tenu de corriger les interférences à ses propres frais (Règlement de la FCC, article 15.105)

Pour assurer que l'exposition aux radiofréquences du grand public soit réduite au minimum et que le niveau soit maintenu en dessous des normes acceptées, toute installation d'antenne doit être effectuée en référence au document SPR-DOC-0360 - Sepura "Guide d'installation d'antennes en véhicules"

Cet appareil numérique de la Classe A est conforme à la norme ICES-003 du Canada.

Pour réduire les interférences radio potentielles pour les autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon à ce que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas les valeurs nécessaires à une communication efficace.

Cette radio a été conçue pour un usage professionnel dans un environnement contrôlé, où les utilisateurs sont pleinement conscients du danger potentiel de l'exposition à laquelle ils sont soumis et peuvent exercer un contrôle sur cette exposition. Ce dispositif radio N'EST PAS autorisé pour l'ensemble de la population, les consommateurs en général, ni pour une utilisation similaire.

RADIOS STP80xx/STP81xx/STP82xx

Les changements ou modifications qui ne sont pas expressément approuvés par la partie responsable de la conformité peuvent annuler le droit de l'utilisateur à exploiter l'appareil. (Règlement de la FCC, article 15.21)

Cet appareil est conforme à l'article 15 du règlement de la FCC. Son utilisation est sujette aux deux conditions suivantes : (1) cet appareil ne doit pas engendrer d'interférences nuisibles, et (2) cet appareil doit accepter toute interférence reçue, y compris les interférences qui pourraient avoir des effets non désirés sur son fonctionnement. (Règlement de la FCC, article 15.19(a)(3)).

NOTE : Cet appareil a été testé et s'est avéré être conforme aux limites d'un appareil numérique de Classe A, en vertu de l'article 15 du règlement de la FCC. Ces limites sont conçues pour assurer une protection raisonnable contre les interférences nuisibles lorsque l'équipement est exploité dans un environnement commercial. Cet équipement génère, utilise et peut émettre de l'énergie de radiofréquence et, s'il n'est pas installé et utilisé conformément au manuel d'instruction, il peut provoquer des interférences nuisibles pour les communications radio. Le fonctionnement de cet appareil dans une zone résidentielle est susceptible de provoquer des interférences nuisibles, auquel cas l'utilisateur est tenu de corriger les interférences à ses propres frais (Règlement de la FCC, article 15.105)

Cet appareil numérique de la Classe A est conforme à la norme ICES-003 du Canada.

L'utilisation de pinces de ceinture, d'étuis et d'accessoires similaires de tiers est autorisée, à condition que ceux-ci soient exempts de composants métalliques. L'utilisation d'accessoires qui ne satisfont pas à ces exigences peut ne pas être conforme aux normes d'exposition aux RF qui s'appliquent et doit être évitée.

Pour réduire les interférences radio potentielles pour les autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon à ce que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas les valeurs nécessaires à une communication efficace.

Cette radio a été conçue pour un usage professionnel dans un environnement contrôlé, où les utilisateurs sont pleinement conscients du danger potentiel de l'exposition à laquelle ils sont soumis et peuvent exercer un contrôle sur cette exposition. Ce dispositif radio N'EST PAS autorisé pour l'ensemble de la population, les consommateurs en général, ni pour une utilisation similaire.

OPERATIONAL REQUIREMENTS



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

OPERATING CONDITIONS

Sepura radios operate in a temperature range between -20°C and 60°C and a maximum humidity of 98%. They may be safely stored at a temperature within the range -40°C to 85°C.



The minimum and maximum temperatures for operation are -30°C to +70°C. However operating at temperature extremes may limit some aspects of operational performance.

IP, IEC AND ATEX RATINGS

The Sepura radios are certified to the following IEC529 IP, Global IEC and European ATEX standards:

Product	IP Standard	IEC Standard	European ATEX Standard
STP8X	IP67	IEC 60079-0 and IEC 60079-11	EN 60079-0 and EN 60079-11.
STP8000, STP8100	IP55		
STP8200	IP54		
SRH3500, SRH3800, SRH3900	IP54		
SRG3500, SRG3900	IP54		



The STP8000, STP8100, STP8200 and STP8X radios have been tested for a full 8 hour shift in IP54 conditions. This is equivalent to 8 hours of constant rain.



The SRH3900 radio has been tested in IP54 conditions equivalent to 2 hours of driving rain.

HANDHELD RADIO RANGE

STP Series Radios



SRH3000 Series Radios



MOD-10-1164

STP SERIES RADIOS

STP8000, STP8100, STP8200

STP8000 FRONT



STP8100 FRONT



STP8200 FRONT



STP8X FRONT



STP8000, STP8100, STP8200 Rear



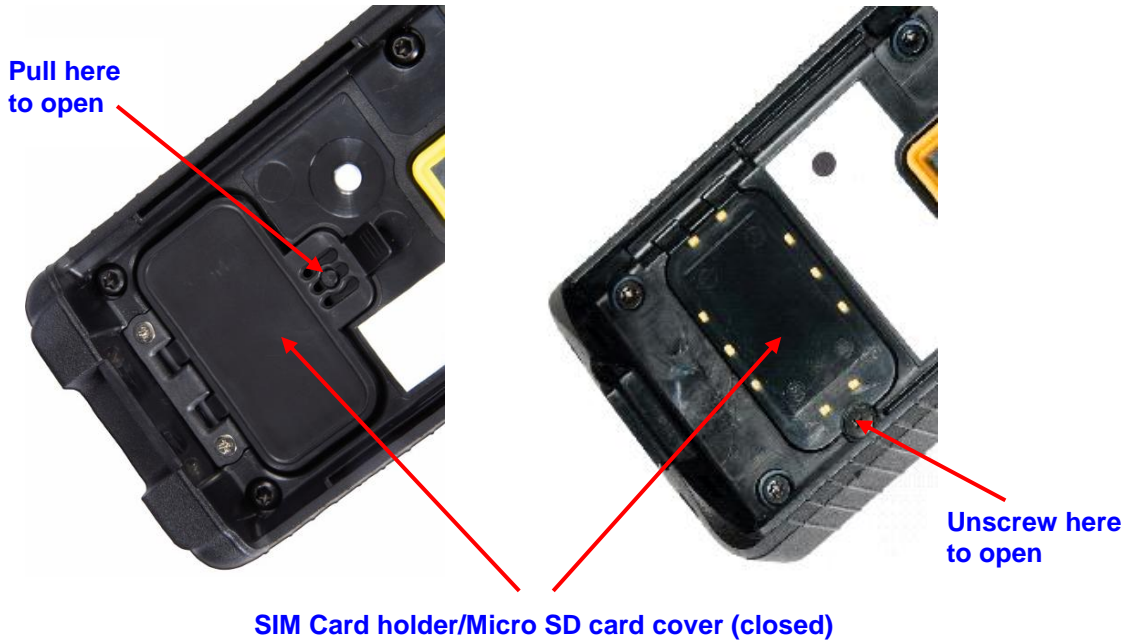
STP8X Rear



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

STP8X REAR WITH BATTERY REMOVED

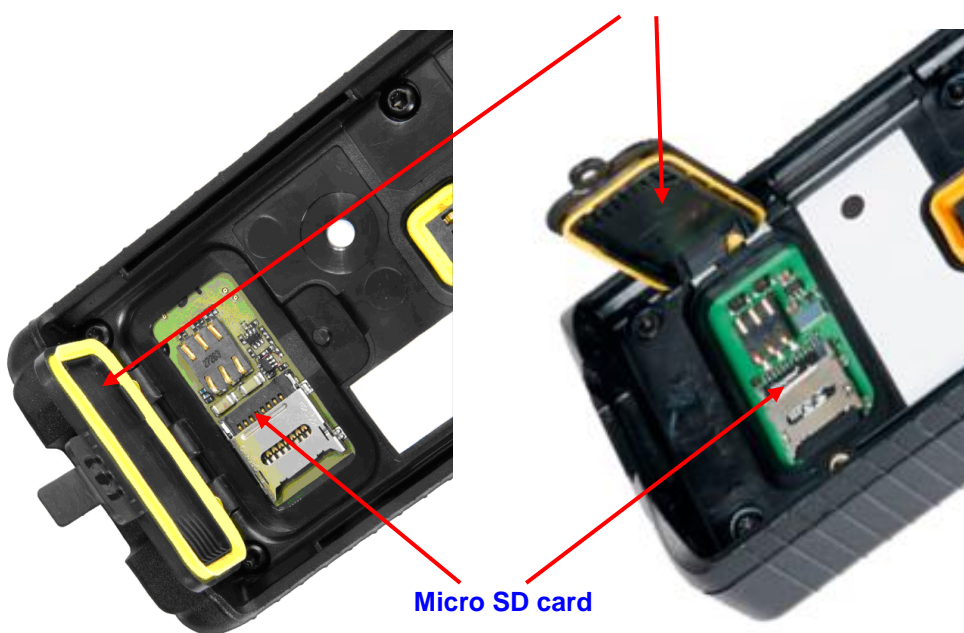



The SIM Card holder/Micro SD card cover in the STP8000, STP8100 and STP8200 is opened by pulling the flap, and in the STP8X radios a small jewellers screwdriver is needed to remove the screw.





On the STP8X radio when closing the SIM / SD plastic cover tighten the screw to 0.1 Nm. This ensures that a seal is maintained.

SIM Card holder/Micro SD card cover (open)




 The SIM card or Micro SD card must not be removed or fitted while in a hazardous environment because this would require removal or fitting of the battery in a hazardous environment which would compromise the safety ratings.

 In STP8000, STP8100 and STP8200 radios the SIM Card holder/Micro SD card cover should be left open while 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

ANTENNA

 For **STP8X** radios a Sepura approved ATEX/IECEX Antenna **must** be used. The radio must not be operated without an antenna fitted. **Do not** fit, remove or replace the antenna in a hazardous environment!
To ensure that a seal is maintained between the antenna and the Radio, screw on antenna until contact is made and follow with a minimum ¼ turn.

Please see section on Health and Safety in this document for further health and safety information about the antenna.

STP8000, STP8100, STP8200 FACILITY CONNECTOR



PEI
Car adapter
Charger connection

STP8X BASE



There is no facility Connector in the base of the STP8X

Attaching an Accessory to a STP8000, STP8100 or STP8200

When attaching an accessory ensure that the 'Sepura' name faces up:



STP8000, STP8100, STP8200 RUGGED ACCESSORY CONNECTOR



RSM (which if fitted should be used at a minimum distance of 25mm from the mouth),
Personal audio accessories,

STP8X RUGGED SIDE CONNECTOR (RuSC)



For **STP8X** radios Sepura approved ATEX/IECEX Accessories **must** be used. The radio **must not** be operated unless an accessory is attached or the RuSC Cover is screwed in place and Accessories and the RuSC cover **must not** be fitted, or removed or replaced while in a hazardous environment. When attaching the RuSC cover and accessories, to ensure that a seal is maintained, tighten the screw to 0.15 Nm and 0.25Nm respectively.



RuSC for connecting:
All audio accessories
Programming Lead
PEI

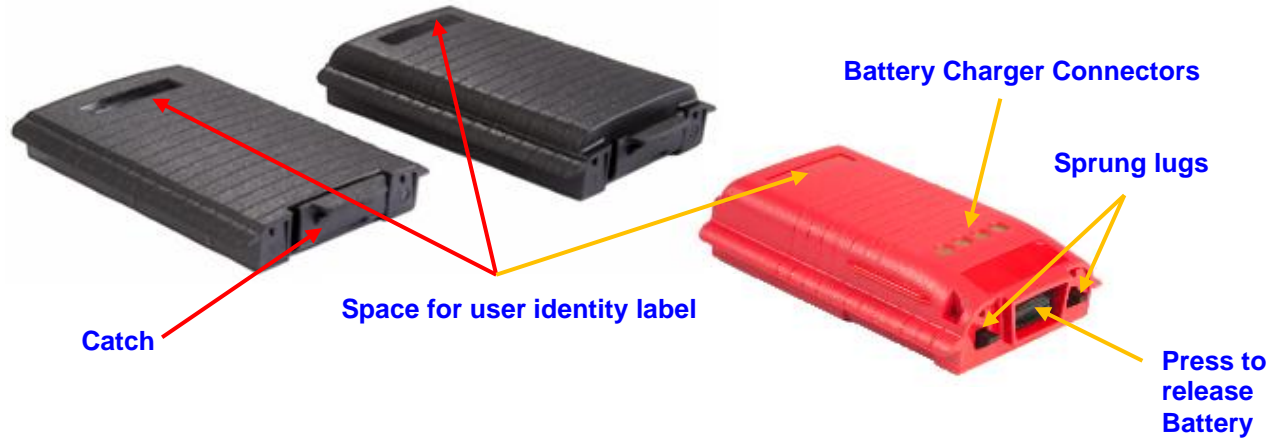


Accessory lead hooks in here

BATTERIES

STP8000, STP8100, STP8200 BATTERIES

STP8X BATTERY



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.

Safety Precautions

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 may be viewed on the Battery card in the Radio Information menu. Please see section on Radio Information in the Sepura TETRA Radios User Guide. If a non-Sepura battery is detected in a STP radio, depending on the customisation of the radio, a warning message is displayed (“Unidentified battery – Powering Down”) and the radio switches off, or 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.

Depending on the customisation of the radio, if a Sepura battery is identified, the percentage of charge remaining is then displayed.

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.

STP8X BATTERIES



For **STP8X** radios a Sepura approved ATEX/IECEX battery **must** be used.

Fitting and Removing the Battery



For **STP8X** radios: The battery must **not** be removed or replaced in a hazardous environment.

Before fitting a battery please ensure that the SIM Card holder/Micro SD card cover is screwed shut. To fit, unpack the battery and slot it into the rear of the radio. Push the battery down until the two black lugs lodge into the bottom of the case. The battery is fully secure when the lugs have locked into position. To remove, push the black button in the base of the battery upward towards the top of the radio. The battery releases and can then be removed.

Battery Charging



For **STP8X** radios: The battery must not be charged in a hazardous environment. Do not use the charger in a hazardous environment.

New battery packs must be fully charged before they are used. The battery must only be charged using Sepura plc approved battery chargers. If an attempt is made to use a non-approved battery charger the ATEX/IECEX safety rating will be invalidated and the radio will switch off. This may also invalidate the users' insurance.

The Sepura battery charger allows the battery to be charged either while fitted to or removed from the radio.

SAFETY PRECAUTIONS

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.

When the radio is switched on the battery is tested to check that it is an authentic Sepura battery and, if so, information about the battery may be viewed on the Battery card in the Radio Information menu. Please see section on Radio Information in the Sepura TETRA Radios User Guide. If a non-Sepura battery is detected in a STP radio, a warning message is displayed ("Unidentified battery – Powering Down") and the radio switches off.

If a Sepura battery is identified, the percentage of charge remaining is then displayed.



Use only Sepura approved chargers for charging Sepura products and Sepura approved batteries

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, STP8X

The following warnings and information apply to all STP radios:



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 and then on) as charging will stop after twenty minutes if the battery has not recovered enough charge in that time to power the radio.



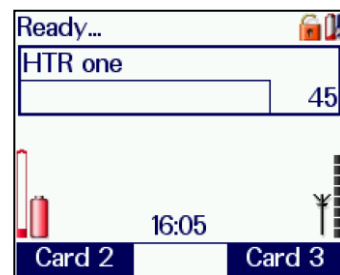
The battery includes circuitry to protect against damage caused by accidental shorting of the contacts. Once the battery has protected itself, it will not operate again reliably until it has been removed from the radio and been fully re-charged. If the battery is not fully re-charged the battery meter 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 displayed in red on the STP8000, STP8100 and STP8X 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.

STP8000, STP8100, STP8200 AND STP8X BELT CLIP AND “Klick Fast” STUD

BELT CLIP



“Klick Fast” STUD



STP8X



When using the STP8X radio, the Belt Clip and “Klick Fast” Stud **must not** be attached or removed in a hazardous environment as this would require also removing and fitting the battery which is not permitted in a hazardous environment.



STP8000
STP8100
STP8200



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



Spring

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 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



Audio
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.

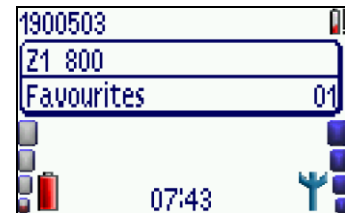


When charging, the colour of the LED on the hand-held indicates the progress of battery charging: orange shows charging in progress, green shows charging complete, red shows charging failure. A fully discharged battery may not provide enough power to support the hand-held display during the initial phases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



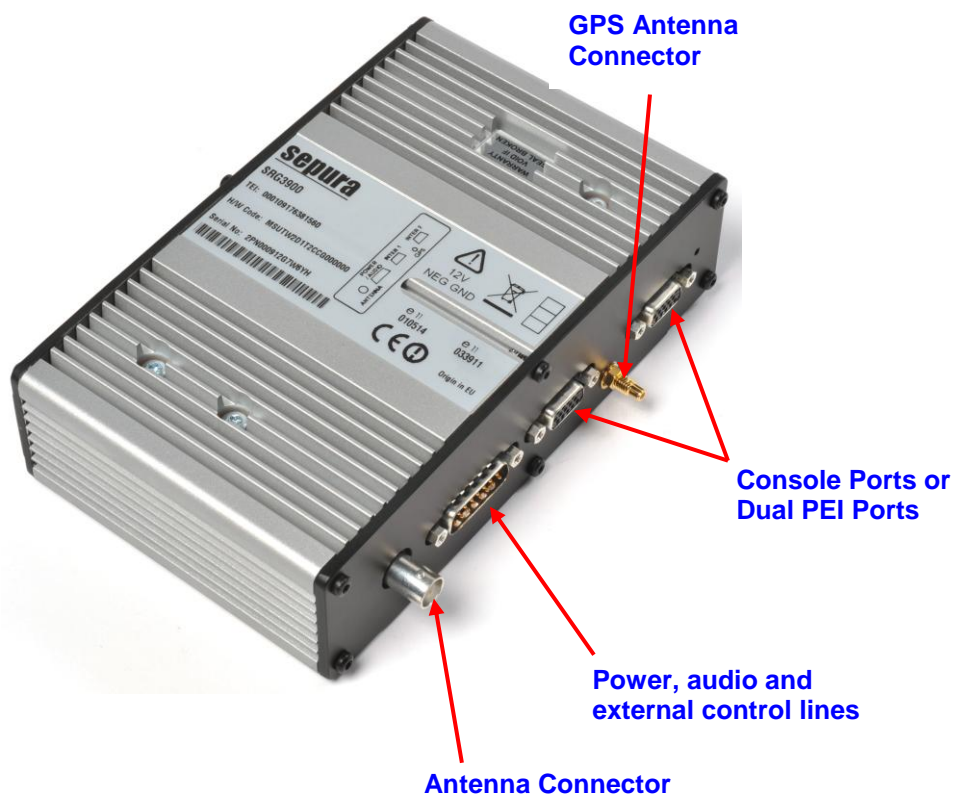
SRG3000 Series Consoles



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

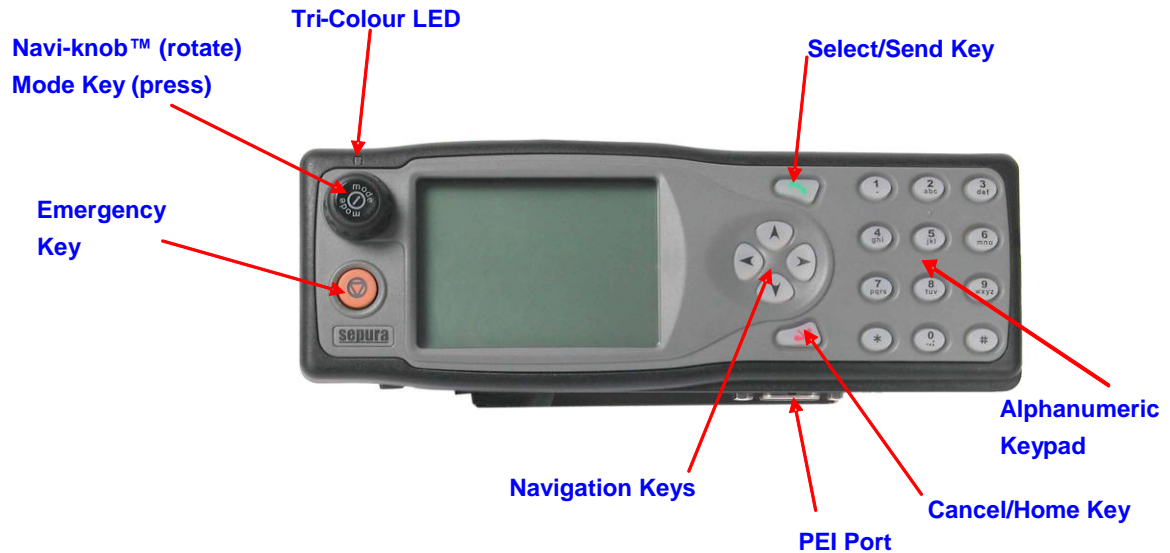
Optional accessories that may be included:

- 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.

MOD-10-1164

STANDARD CONSOLE



COLOUR CONSOLE



HANDSET BASED CONSOLE

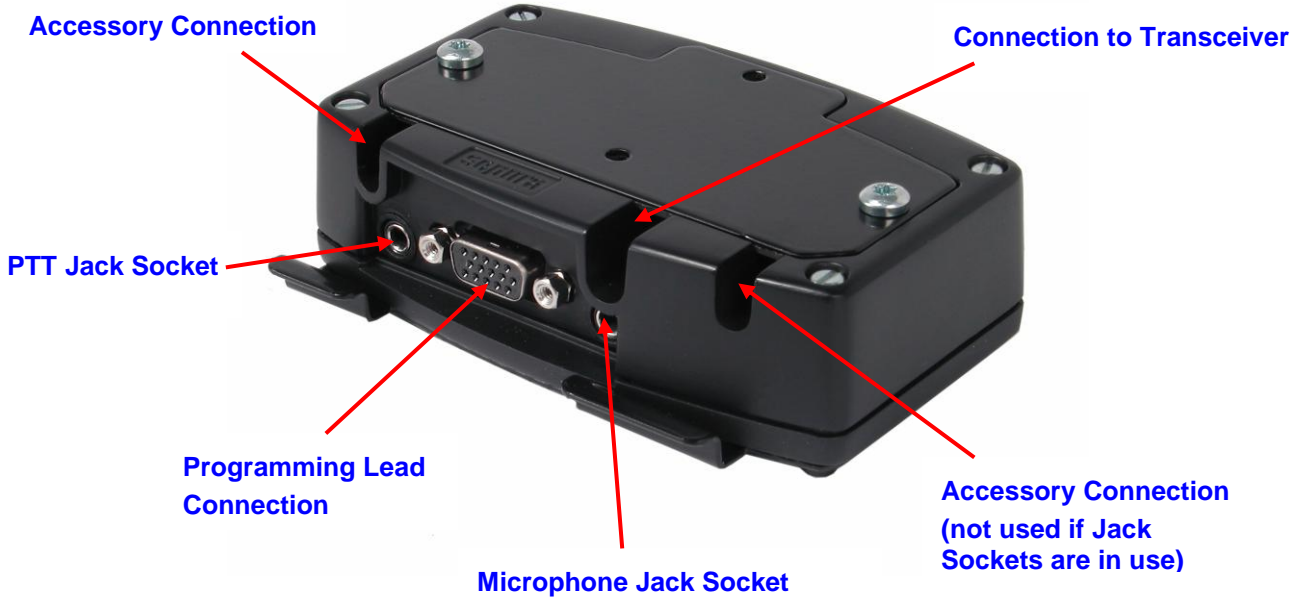
Front



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



The STP8X radio must not be used in environments exceeding those listed in the Regulatory statements section of this user guide.



Please review the STP8X conditions for safe use in the Regulatory section of this user guide. Always ensure that the STP8X radio is in good operational condition before entering any hazardous environment.

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.



For **STP8X** radios a Sepura approved ATEX/IECEX battery **must** be used. The battery must **not** be removed or replaced in a hazardous environment and the battery must **not** be charged in a hazardous environment.

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.



For **STP8X** radios Sepura approved ATEX/IECEX Accessories **must** be used.

The radio **must not** be operated unless an accessory is attached or the RuSC Cover is screwed in place.

Accessories and the RuSC cover **must not** be fitted, or removed or replaced while in a hazardous environment.

When attaching the RuSC cover and accessories, to ensure that a seal is maintained, tighten the screw to 0.15 Nm and 0.25Nm respectively.

When an accessory is connected to any STP radio, the accessory is tested to check that it is an approved Sepura accessory. If a non-Sepura accessory is detected one of the following warning messages is displayed:

- Accessory Invalid
- Accessory Unsupported
- Accessory Unapproved

STP8000, STP8100, STP8200



If the screen displays 'Accessory Invalid', 'Accessory Unapproved' or 'Accessory Unsupported': a non Sepura approved accessory has been attached to the radio which may compromise the safety ratings. The user may, however, continue operation of the radio with the accessory connected.



To minimise RF exposure please ensure that if using an Advanced RSM with Antenna that it is held a minimum distance of 25mm from the mouth during use.

If “Accessory Invalid” is displayed there is an accessory connected to the radio but the radio cannot determine what it is. It is likely that the accessory’s software or configuration is corrupted. Continued safe operation cannot be guaranteed. It is recommended that the accessory is disconnected as soon as possible.

If “Accessory Unsupported” is displayed the installed radio software may not be able to fully support the connected accessory. If the accessory is a Sepura approved accessory that is new to the market a radio software upgrade may solve the issue. If the accessory is an unapproved 3rd party accessory the radio may be able to provide partial accessory support but safe operation cannot be guaranteed.

If “Accessory Unapproved” is displayed the connected accessory is not a Sepura approved accessory. The accessory may still work with the radio but safe operation cannot be guaranteed.

STP8X



If the screen displays 'Accessory Invalid', 'Accessory Unapproved' or 'Accessory Unsupported': a non Sepura approved accessory has been attached to the radio

which may compromise the safety ratings. To ensure continued safety, after a brief period of time the radio switches off.

SIM Card and Micro SD CARD



For **STP8X** radios do **not** insert or remove the SIM Card or Micro SD card in a hazardous environment. When closing the SIM / SD plastic cover tighten the screw to 0.1 Nm. This ensures that a seal is maintained.

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).



For **STP8X** radios a Sepura approved ATEX/IECEX Antenna **must** be used.

The radio must not be operated without an antenna fitted. **Do not** fit, remove or replace the antenna in a hazardous environment!

To ensure that a seal is maintained between the antenna and the Radio, screw on antenna until contact is made and follow with a minimum ¼ turn.

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, STP8200 and STP8X 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, STP8200 and STP8X 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.

COMPLIANCE WITH STANDARDS

Please see **Regulatory Statements** section in this User Guide for information on Compliance with Standards.

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.



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

All rights reserved. This document may not be reproduced in any form either in part or in whole without the prior written consent of Sepura plc, nor may it be edited, duplicated or distributed using electronic systems.

Company and product names mentioned in this document may be protected under copyright or patent laws.

The information in this document is subject to change without notice and describes only the products defined in this document. This document is intended for the use of Sepura plc's customers and/or other parties only for the purposes of the agreement or arrangement under which this document is submitted, and no part of it may be reproduced or transmitted in any form or means without the prior written permission of Sepura plc.

CONTACT DETAILS

Sepura plc
Radio House
St Andrew's Road
Cambridge CB4 1GR
United Kingdom

Web : www.sepura.com
Tel: +44 (0)1223 876000
Fax: +44 (0)1223 879000