

Alarm Foot-switch (Soft Key 3)

This item is not supplied by Sepura. A suitable switch will need to be terminated in a 3.5 mm stereo jack plug with the switch connected between the sleeve and the tip and the ring open circuit. The alarm will be activated when the switch closes (Z < 100 Ω).

Data Connection

RS232 data connection is supported via a 9-way D-type socket. This provides an AT command interface to the radio for packet mode data (circuit mode is not supported) via the TETRA PEI interface and Sepura AT command extensions.

Troubleshooting

- Check that the radio functions correctly when installed and removed from the car kit.
- If the car kit or radio fails to function, check the following:
- The radio is properly engaged in the cradle.
 - If ignition sensing is enabled, check the ignition switch is turned on.
 - The radio battery has charge (the radio requires battery power to transmit). Recharge the radio battery (or allow to charge in the cradle).
 - The in-line fuses to the vehicle battery are of the correct rating and fuse holder is fitted correctly.
 - The vehicle battery has not discharged during installation.
 - The antenna and its connections are functional.
 - The connections to the External Interface Unit are correct.
- If the problem persists, contact your service provider or Sepura.

Technical Information

Input Voltage:	10.8 – 15.6V
Input Current:	2A Max
Input Current Standby:	<10mA
Ambient Temperature Range:	-25 °C to +75 °C (-13 °F to +167 °F)
Storage Temperature Range:	-40 °C to +85 °C (-40 °F to +185 °F)

Waste Electrical and Electronic Equipment disposal information

 This symbol on the product or its packaging indicates that this product must not be disposed of as household or commercial waste. Some countries have set up collection and recycling systems for waste electrical and electronic products. By ensuring that this product is disposed of correctly, you will help prevent potentially negative consequences for the environment and human health, and help conserve natural resources. Please dispose of your waste product according to your national and local regulations. Contact your service provider or Sepura for information on how to return this product for waste disposal.

Certified Antennas

The SC20 and SC23 radios are certified for use with an external 7 dBi (5dBi for the SC2028) TETRA antenna. The SC20 is also certified for use with the integrated 2.5dBi Bluetooth and Wi-Fi antenna. Higher gain antennas must not be used to ensure compliance with RF field strength limits. Minimum distances from radio to users are given in the adjacent table:

Region	Occupational Minimum Distance
Canada	0.3 m
USA	0.3 m
EU / UK	0.3 m



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SPR-DOC-04293 4.0 (English)

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NOTE: For additional information about your Battery Charger please contact customer.support@sepura.com

Use original packaging for storage and transportation.

Do not immerse into water or expose to moisture.

131 °F), for example behind glass in direct sunlight, may damage the product.

Do not expose to direct sunlight or direct heat. Prolonged exposure to extreme temperatures (over 55 °C or 131 °F), for example behind glass in direct sunlight, may damage the product.

Do not exceed operating and storage temperature limits.

product safety ratings and invalidate the product warranty.

may damage the product, will result in the non-compliance with regulatory requirements, compromise the

Only use Sepura radios and Sepura approved batteries with this product. The use of non-approved batteries damage.

Never operate the product if it shows signs of damage. Never attempt to charge a battery that shows signs of

Risk of fire! Do not cover. Only operate this product in a well ventilated area away from combustible materials.

and product warranty.

modifications could cause the product to become non-operational and will invalidate the product safety ratings

Do not attempt to dismantle or modify this product. There are no user-serviceable parts inside. Unauthorised

Handle the device with care. The following will help you protect the device and protect your warranty coverage:

The battery charges whether the radio is powered on or off and terminates automatically when the battery is fully charged. During charging the tri-coloured LED on the radio indicates the charging progress. Refer to the radio user guide for further information.

Safety Information

Clean the connectors periodically using a cotton bud, a soft brush or a lint free antistatic soft cloth. Do not use liquids.

Care and cleaning

The battery charges whether the radio is powered on or off and terminates automatically when the battery is fully charged. During charging the tri-coloured LED on the radio indicates the charging progress. Refer to the radio user guide for further information.

Radio battery charging

If connected, the vehicle's horn or other external sounding alarm will repeat incoming call alerts for audibility outside the vehicle in noisy environments.

External alert

If connected, the vehicle entertainment system will be muted during calls.

External mute

The battery charges whether the radio is powered on or off

The timer parameters are set in the radio configuration.

If the ignition switch is turned on before the timer expires, normal operation will resume.

radio will power off and any unread messages will be lost.

ignition switch power off the radio. Pressing any key will reset the timer. When the timer period expires, the

When the ignition switch is turned off, a configurable timer is started. If the timer is set to zero, turning off the

If connected, the radio will sense the state of the ignition switch.

Ignition sense

The following functions are provided as standard and will be connected if specified prior to installation.

Optional Functions

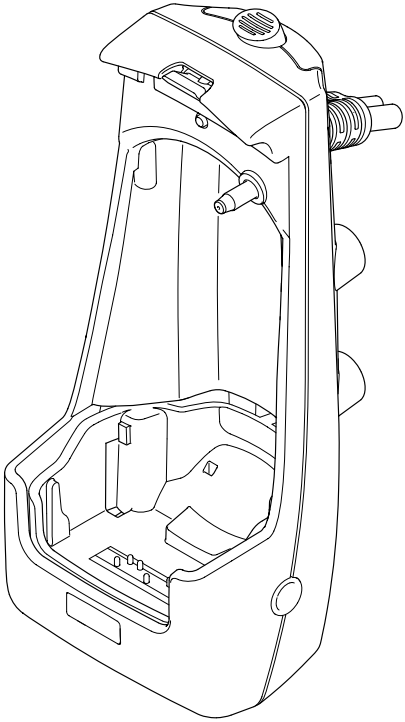


Installation & User Guide

SC20 Car Kit - Power + RF + EIU

For SC20 and SC23 series hand-potable radios

Part no. 300-01976



Function	Action
Set loudspeaker volume	Adjust the radio's volume control (Nav-knob).
Make half-duplex calls using the remote microphone & PTT	Press the external PTT button and speak into the microphone; release to listen.
Make calls using an optional accessories	The car kit automatically senses which supported accessory is in use and functions appropriately.
Make an emergency call using the alarm footswitch	Press the footswitch to initiate an emergency call.

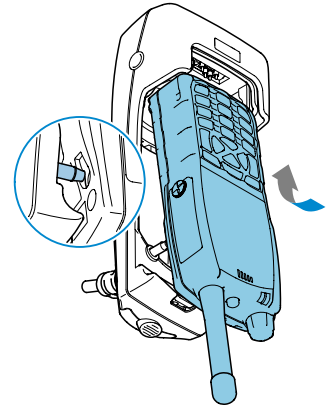
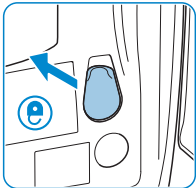
All of the controls on the radio function as normal. Calls can be initiated, answered and ended by using the controls on the radio. Refer to the radio user guide for further details. Receive audio is amplified and fed to the car kit loudspeaker. The operator's voice is picked up by the hands-free remote microphone (where installed).

Using the radio with the car kit

1. Press the release button at the top of the cradle and remove the radio.
2. The car kit powers off automatically when the radio is removed. When powered off, the car kit draws negligible power from the vehicle's battery.

Removing the radio from the cradle

- NOTE:** To maintain reliable antenna operation, clean the cradle antenna connector regularly using an aerosol can of clean air.
1. Lower the SC20 or SC23 radio into the cradle and push down firmly to fully engage with the facility socket at the bottom of the cradle.
 2. The charging LED on the radio will illuminate when the radio is correctly seated on the facility connector.
 3. Push the front of the radio towards the back of the cradle until the latch operates.
- The car kit powers on automatically when the radio is inserted.



CAUTION! Potential damage to the radio. Remove the rubber bung from the remote antenna socket on the back of the radio before inserting into the car kit.

CAUTION! Prolonged operation of the car kit with the vehicle engine powered OFF, may drain the vehicle's battery.

Insert the radio into the cradle

Operation

The SC20 Car Kit - Power + RF + EIU provides secure retention of the SC20 or SC23 Series radios within a cradle. The car kit features battery charging, external antenna connection, and connection to an External Interface Unit (EIU) for use with optional accessories.

Introduction

Thank you for purchasing the Sepura SC20 Car Kit - Power + RF + EIU. This product should reach you in good condition. Should you notice any defect or experience any problems with this product, please contact Sepura or your Service Provider immediately.

Battery Use Guidelines

Always follow the warning information on the battery label and in the user manual provided with the charging device.

NEVER use or attempt to charge a battery that shows signs of damage or swelling, or has been dropped or received a ‘heavy blow’. Damage to the battery may not always be obvious.

Take care when handling and charging batteries. Do not short-circuit batteries. Avoid deep discharge of batteries.

Do not open or disassemble batteries.

Do not incinerate batteries or expose to temperatures above 85 °C (185 °F).

Do not immerse batteries into water or expose the battery contacts to moisture.

Do not swallow batteries.

Rechargeable batteries have a limited number of charge cycles and may eventually need to be replaced. We recommend replacing batteries every two years or after 500 charge cycles.

Sepura recommends that charging is only performed at an ambient temperature between +5 °C and +35 °C (41 °F and 95 °F).

Charging will be suspended when the internal battery cell temperature is below +5 °C (41 °F) or above +45 °C (113 °F).

The overall charge capacity of a new battery will depend on its age and how it has been stored prior to operational use.

Do not store near heating devices. Avoid direct sunlight. Storing at higher temperatures may reduce the electrical performance of the battery.

Use original packaging for storage and transportation of batteries. Storage of unpacked batteries can cause short circuit and heat generation.

To achieve best battery performance, store batteries in a cool dry place below +20 °C/68 °F. Store at temperatures listed below:

Up to 1 month:		–20 °C to +45 °C (–4 °F to +113°F)
Up to 3 months.....		–20 °C to +35 °C (–4 °F to +95 °F)
More than 3 months:		–20 °C to +25 °C (–4 °F to +77°F)

Do NOT store fully charged batteries. After 6 (six) months storage, charge batteries for 36 minutes. Thereafter, recharge for 36 minutes every 6 months. Failure to store batteries correctly could lead to reduced capacity and reduced battery life and in extreme circumstances damage to or complete failure of the battery.

Parts List

- SC20 Car Kit Cradle, Power + RF + EIU (300-01977)
- Vehicle Interface Harness
- User & Installation Guide (SPR-DOC-04293)
- Product Safety Guide (SPR-DOC-00170)

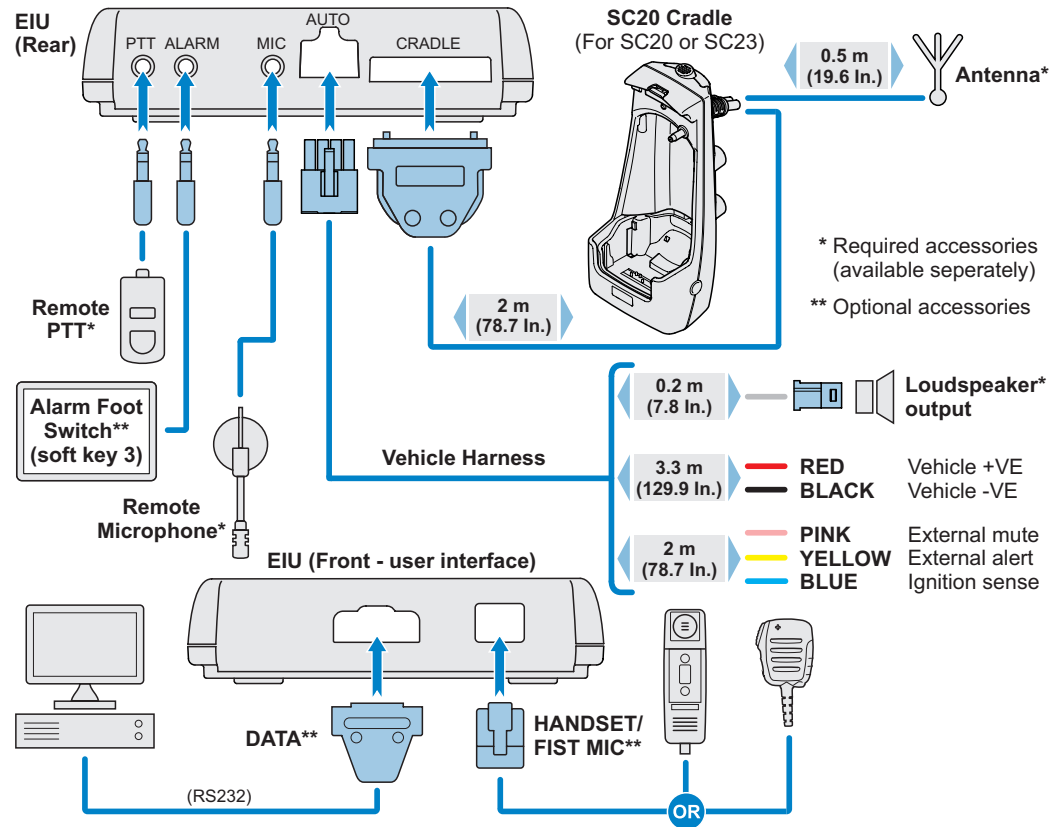
Installation Guidelines and Recommendations

THIS PRODUCT IS DESIGNED FOR USE WITH SEPURA SC20 or SC23 SERIES RADIOS ONLY. DO NOT USE THIS PRODUCT WITH ANY OTHER RADIO.

The installation of this product must be performed by a suitably skilled and technical competent person such as a qualified vehicle installation technician.

READ ALL INSTRUCTIONS before attempting to install the product. If you do not understand the instructions STOP and contact your service provider or Sepura for assistance. This product can be installed into various makes and models of vehicles and therefore these instructions are not a definitive guide to installing the product. Always read the vehicle manufacturer’s handbook before starting to install the product. Contact the vehicle manufacturer if you are not certain if it is safe to install this product.

Connections and Wiring



Power Connection (thick red and black wires)

The positive power line must include a fuse as close as possible to the power source. A fuse and fuse holder are included in the installation kit. The negative power line must be connected close to the battery-to-vehicle-body connection (not directly to the battery) and must not include a fuse.

It is recommended that the power cable runs are kept as short as possible.

The blue wire provides an ignition sensing input. If ignition sensing is required, a fuse and fuse holder are provided for this purpose in the installation kit. A splicing connector is also provided (if required). A fuse must always be fitted close to where the wire is connected.

Fuse Ratings:

Positive supply		4A
Ignition sense		1A

If ignition sensing is required, crimp the ring terminals to the power cables and directly connect to the vehicle battery when the rest of the installation is complete and satisfactory. If the ignition sensing input is not used, trim the spare wire as short as possible and insulate the free end.

External Mute Output (pink wire)

If the vehicle has an entertainment system with a standard external mute control, connect this output (pink wire) directly to it. During a call, the output switches to ground and the entertainment system is muted. Use the appropriate connector for the entertainment system installed.

If the entertainment system does not have mute control, the external mute output can be used to enable a relay to control the loudspeakers. When enabled, the output is switched to ground and protected by an internal re-settable 0.5 A fuse which resets automatically when the fault is cleared. If not used, trim the spare pink wire as short as possible and insulate the free end.

CAUTION! This equipment is suitable for 12V negative earth vehicles only. Installation using other supply systems will damage the product.

CAUTION! 12V supply leads, antenna cables and speaker wiring must be routed as far away as possible from gas or fuel lines. This reduces the risk to safety in the event of a leak.

CAUTION! Prolonged operation of the car kit with the vehicle engine powered OFF may drain the vehicle’s battery. Disconnect the vehicle’s battery before commencing installation.

CAUTION! Do not expose product to liquids or moisture.

Do not attempt to dismantle this product. Servicing and repairs to this product must be performed by trained service technicians at Sepura approved service centres. Unauthorised modifications could cause the product to become non-operational and will invalidate the product safety ratings and product warranty.

Ensure that the installation does not impede the normal operation of the vehicle, including the operation of any safety device, such as airbags and seatbelt tensioners.

Electronic control mechanisms within a vehicle can be affected by the use of RF energy such as ABS and transmission controls. Always refer to the vehicle manufacturer’s instructions and technical information relating to electronic modules and their wiring harnesses before installing an RF wireless device into a vehicle.

Regulatory compliance

This installation should comply with local radio communications authorities and/or Health and Safety regulations. Installations in the UK must comply with the *FCS1362 CODE OF PRACTICE for the installation of mobile radio and related ancillary equipment in land-based vehicles* (see [http:// www.fcs.org.uk](http://www.fcs.org.uk)).

Location considerations

Do not install the product within the air bag deployment area. In the event of the air bag inflating, the radio could be propelled at great force potentially causing serious injury. The cradle should be positioned so that it does not obstruct or become at risk of damage from any occupant or carried items. The operator should have unrestricted access to the radio’s controls and the display should be visible but not distracting whilst the operator is driving. The cradle must not prevent the operator from driving the vehicle safely.

Radio Software

For correct operation of the radio with this car kit, the radio must have radio software version SC1.5 or later installed.

Installation

CAUTION! This product is designed for 12V negative earth systems. In vehicles with a 24V supply, an approved converter must be used (DO NOT use a 12V tap on the battery).

Cabling

CAUTION! All cabling should be hidden and not left loose. Ensure the cables do not rub or press against sharp edges. Cables must be routed with sufficient slack to eliminate the risk of strain damage on the cables or the connection joints. All connectors must be correctly seated and fully secured.

Details of the wiring of the vehicle harness is shown below:

Wire colour	Electrical Parameters	Fuse
RED	Vehicle positive (12 V max)	4 A
BLACK	Vehicle negative (vehicle chassis)	None
PINK	Open drain output, max current 0.5 A	Protected by a re-settable fuse provided inside the car kit
YELLOW	Open drain output, max current 0.5 A	Protected by a re-settable fuse provided inside the car kit
BLUE	Input, signal level 12 V DC (200 µA max)	1 A

External Alert Output (yellow wire)

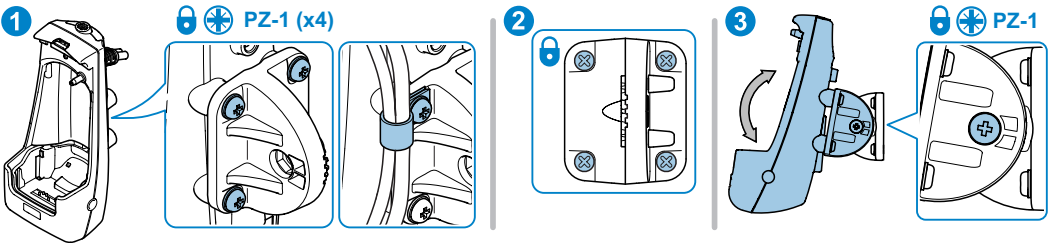
If local regulations permit, this output can be used to enable a relay (not for direct connection) to control the vehicle horn or other external alerting device. During a call alert, this output switches to ground and the alerting device is audible outside the vehicle. It is protected by an internal re-settable 0.5 A fuse which resets when the fault is cleared. If not used, trim the spare wire as short as possible and insulate the free end.

Antenna installation

An antenna must be installed. When the radio is inserted into the cradle the radio’s antenna is disabled. Follow the manufacturer’s instructions supplied with the antenna. Connect the antenna to the BNC socket on the flying lead from the cradle.

Mounting the cradle

The cradle should be attached to the vehicle’s interior in a convenient position using the AMPS mounting bracket supplied. Ensure fixing screws of an appropriate length are used (some installations may require different screws).



Optional Accessories

External Interface Unit

CAUTION! To avoid damage to the External Interface Unit, check all wiring for short circuits to the chassis, and other errors, before power is connected.

CAUTION! Do not install the unit within the engine compartment.

CAUTION! Prolonged operation at high volume levels may cause the unit to become hot.

The External Interface Unit (EIU) should be mounted on a firm surface inside the passenger compartment, within reach of all cabling. Attach the unit to the vehicle’s interior using, if appropriate, four 25mm self-tapping screws. The data socket should be easily accessible. Connect the cable from the cradle to the socket labelled “CRADLE”. Connect the vehicle harness to the socket labelled “AUTO”.

Remote microphone

The remote microphone is a high performance noise cancelling type that is primarily intended for use in cars and light goods vehicles. For best results it should be directed towards the operator and located at a distance of 15 to 25cm from the operator’s mouth. The recommended positions are on the “A” pillar (for driver only) or centre-front of roof (for driver and front passenger).

Mount the microphone using the self-adhesive Velcro™ mounting supplied. Alternatively, for rugged applications, secure the base with self-tapping screws. Plug the microphone into the jack socket labelled “MIC”.

PTT

The PTT keypad should be mounted in a convenient position using the self-adhesive Velcro™ mounting supplied. Connect the PTT plug into the socket labelled “PTT”.

Loudspeaker Installation

The loudspeaker should be positioned so that it is unobstructed and clearly audible by the operator, but not close to, or in line of sight of, the remote microphone. The recommended position is in the passenger footwell, facing the driver.

Connect the loudspeaker lead to the 2-pin flying connector on the vehicle harness.

Handset, Fist Microphone or Speaker Microphone

Plug the accessory into the RJ45 socket labelled “HANDSET/FIST MIC”.