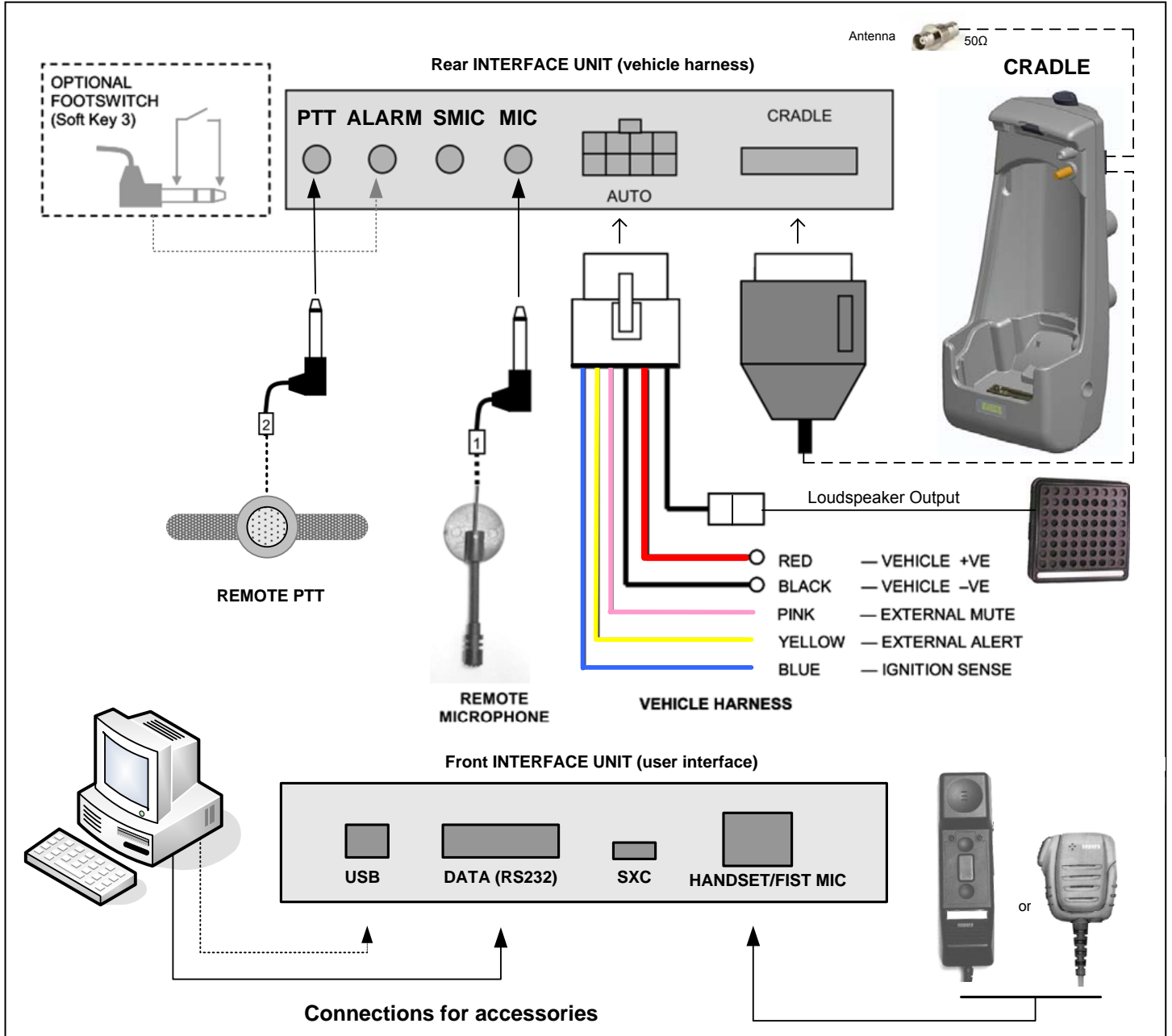


# STP8000 Series CAR KIT INSTALLATION & USER GUIDE

## INTRODUCTION

The STP8000 car kit provides secure retention of the radio within a cradle. The car kit features battery charging, external antenna connection, external PTT keypad, hands-free operation with the external microphone and loudspeaker. A standard RS232 data port and USB is provided for data transfer applications. Connections are provided for optional accessories.



Cable colour	Electrical parameters	Fuse
RED	Vehicle +ve (12v MAX)	4 Amp
BLACK	Vehicle -ve (vehicle chassis)	n/a
PINK	Open drain Output, max current 0.5A	Protected by a re-settable fuse provided inside car kit
YELLOW	Open drain Output, max current 0.5A	Protected by a re-settable fuse provided inside car kit
BLUE	Input Signal Level 12VDC (200 uA max)	1 Amp

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## Information

The STP8000 car kit is designed for **12 V negative earth** systems. In vehicles with a 24 V supply, an approved converter must be used, NOT a 12 V tap on the battery.

The equipment is to be installed in accordance with the requirements of local radio communications authorities and/or Health and Safety regulations.

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

The car kit should be positioned so that it does not obstruct, or become at risk of damage from, any occupant or carried items. All cabling should be hidden and not left loose.

## Radio Software

For correct operation of the STP8000 with the car kit, the STP8000 must have radio software of v9.0 greater.

## INSTALLATION

This installation guide provides basic installation information and is not intended to be definitive, as different types of vehicles will require different ways installation arrangements.

The installer must ensure that fixing screws of an appropriate length are used (some installations may require different screws). The information given here is general and for guidance only.

The installation must comply with in-country *CODE OF PRACTICE for the installation of mobile radio and related ancillary equipment in land based vehicles* — e.g. FCS1362 (formally MPT1362) see [http:// www.fcs.org.uk](http://www.fcs.org.uk).

### WARNING

- 1 Disconnect the vehicle's battery before commencing installation (be aware of effect on public broadcast radio security code, alarm systems and some engine management systems).
- 2 Do not smoke, or use naked flames, when working near the vehicle's fuel system.
- 3 Ensure that fuel lines, hydraulic lines and existing cables are not damaged during installation.
- 4 Ensure that the installation does not impede the normal operation of the vehicle, including the operation of any safety device, e.g., airbags and seatbelt tensioners.
- 5 Speed control, fuel injection, anti-lock braking, navigation, air bag and other electronic systems are relatively immune to RF interference. However, if difficulty is experienced, or faulty operation suspected, consult the vehicle's dealer.
- 6 This equipment is suitable for 12 V negative earth vehicles only. Use on other supply systems will result in damage to the equipment.
- 7 No part of the equipment should be mounted such that injury to the occupants is likely during an accident.
- 8 Prolonged operation of the radio in the car kit with the vehicle engine switched off, could drain the vehicle's battery.

9 Prolonged operation at high volume levels may cause the interface unit to become hot.

## Cradle

The cradle should be attached to the vehicle's interior in a convenient position using the mounting brackets. The location of the cradle should allow the user unrestricted access to the radio's controls. The radio's display should be visible to the user but not distracting when driving. The cradle should not prevent the user from controlling or operating the vehicle.

## Interface Unit

Attach the interface unit to the vehicle's interior, using, if appropriate, the four 25mm self-tapping screws provided.

The interface unit should be mounted on a firm surface inside the passenger compartment, within reach of all cabling. The data socket should be easily accessible. Connect the lead from the cradle to the socket labelled "RADIO". Connect the vehicle harness to the socket labelled "AUTO".

*Note: Do not install the interface unit in engine compartment.*

## Cables & Connectors

Ensure the cables do not rub against sharp edges and are not subjected to undue stress.

## Power Connection (thick red and black wires)

- The positive power line must include a fuse as close as possible to the power source. The negative power line must be connected close to the battery-to-vehicle-body connexion (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 switching is required, trim the wire to length so that it can be wired, via a fuse, to the ignition switch, using the splicing connector provided. Otherwise this wire must be connected, via a fuse, to the permanent positive supply. A fuse must always be fitted close to where the wire is connected.

### Fuse Ratings

Positive supply	4 A	Ignition sense	1 A
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The ring terminated wires are for direct connection to the vehicle battery (do not connect at this stage); supply should not be taken from any other point.

Feed the bullet terminated free ends through the bulkhead, using a grommet to protect the wires. Locate the free ends under the dashboard and connect to the main wiring harness supplied with the car kit. Connect the ring terminals to the vehicle battery when the rest of the installation (see following sections) is complete and satisfactory.

## Remote Microphone

The remote microphone is a high performance noise cancelling type. For best results it should be directed towards

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the user and located at a distance of (15 – 25) cm from the user's mouth. It is primarily intended for use in cars and light goods vehicles. The recommended positions are on the "A" pillar (for driver only) or centre-front of roof (for driver and front passenger). For larger vehicles, greater distances can be accommodated by increasing the remote microphone gain via the customising file in the radio. However, the noise and echo cancelling performance of the car kit may be compromised.

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 to be convenient to the user when in a normal driving position. Plug the PTT into the jack socket labelled "PTT". Mount the PTT using the self-adhesive Velcro™ mounting supplied.

## Loudspeaker Installation

The loudspeaker should be positioned so that it is unobstructed and clearly audible by the user, 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.

## Antenna Installation

Follow the manufacturer's instructions supplied with the antenna. Connect the BNC plug to the flying lead from the cradle and secure the leads.

## Ignition Sense Input (blue wire)

If used, remove the crimp terminal from the blue wire and connect it to the ignition switched supply.

If not used, plug the crimp terminal into the spare receptacle in the plug housing of the main wiring harness supplied with the car kit. Fold (do not coil) the spare wire together and secure.

## External Mute Output (pink wire)

If the vehicle has an entertainment system with a standard external mute control, connect this output 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 has no 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, fold (do not coil) the spare wire together. Insulate the free end and secure.

## 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, fold (do not coil) the spare wire together. Insulate the free end and secure.

### IMPORTANT

To avoid possible damage to the interface unit, check all wiring for short circuits to chassis, and other errors, before power is connected.

## OPTIONAL ACCESSORIES

### Handset/Fist Microphone (or Speaker microphone) & Soft Key

Mount the rest so that it is easily accessible to the user. Place the accessory on its rest. Plug the accessory into the RJ45 socket labelled "HANDSET / FIST MIC". For strain relief, fit the "P" clip to the cable and secure with one of the interface unit fixing screws.

The soft key is located at the top of the fist microphone.

### Alarm Foot-switch (Soft Key 3)

This item is not supplied by *Sapura plc*. A suitable switch will 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 ( $Z < 100 \Omega$ ).

## OPERATION

### SAFETY WARNING

DO NOT operate your STP8000 radio in an explosive atmosphere. Always comply with "Turn OFF Two-way radios" signs where these are posted

- **Inserting the STP8000 radio into the cradle**

If necessary, remove the rubber bungs from the radio facility socket and the antenna socket. Lower the STP8000 into the holster and push down lightly to fully engage with the facility socket in the bottom of the holster. Push the front of the radio towards the back of the cradle until the latch operates. The car kit switches on automatically when the radio is inserted.

*Note: To maintain reliable aerial operation, clean the holster aerial connector regularly using an aerosol can of clean air.*

- **Removing the STP8000**

Press the release button at the top of the cradle and withdraw the radio. The car kit switches off automatically when the radio is removed and draws negligible power from the vehicle's battery.

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## Using the STP8000 series with the car kit

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 STP8000 user guide for further details. Receive audio is amplified and fed to the car kit loudspeaker. The user's voice is picked up by the hands-free remote microphone, which should, ideally, be facing towards the user.

- **Volume Control**

Set the loudspeaker volume with the radio's volume control.

- **Half-Duplex Calls using Remote Microphone & PTT**

Press the external PTT button and speak in a normal conversational manner; release to listen.

- **Full-Duplex Calls using the Remote Microphone**

Both parties can speak and listen at the same time with hands free. Ensure that the radio volume is set to the minimum comfortable level.

## Calls using Optional Accessories

A fist microphone may be used with the car kit. The car kit automatically senses which is in use and functions as appropriate.

- **Fist Microphone**

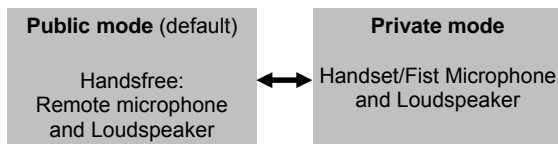
When the fist microphone is lifted, the remote microphone is automatically muted, but the loudspeaker remains in use. Press the PTT button on the fist microphone to talk and release to listen. Any alert tones produced by the radio during transmit will override the loudspeaker muting and be audible.

- **Fist Microphone soft key**

The soft key of the fist microphone, invokes the assigned function programmed in the STP8000 being used.

- **Private/Public Mode Key (on radio, if programmed)**

During calls, this key switches between accessories (e.g., transfer from handset to handsfree).



- **Alarm Foot-switch**

Press the foot-switch to initiate an emergency call.

- **Data Communication**

An RS232 serial data port and an USB serial port is provided in the interface unit. Connect a PC or data terminal (with appropriate application software) to the socket labelled "DATA" via a standard 9-way serial lead (not null modem). Follow the instructions supplied with the application software. Disconnect lead from interface unit when not in use.

## Optional Functions

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

- **Ignition Sense**

If connected, the radio will sense the state of the ignition switch. When the ignition is turned off, a configurable timer is started. If the timer is set to zero, turning off the ignition switch switches off the radio. If the timer is not set to zero, the following message is displayed and the timer started.

Press any key to stop switch off.

Pressing any key will reset the timer. When the timer period expires, the radio will switch off and any unread messages will be lost.

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

The timer parameters are set in the radio configuration.

Charging is not halted by switching off the radio.

- **External Mute**

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

- **External Alert**

If connected, the vehicle's horn, or other external sounder, repeats incoming call alerts for audibility outside the vehicle in noisy environments. *Note: This function must not be used if local regulations do not permit its use.*

## Battery Charging

The battery charges whether the STP8000 is switched on or off and terminates automatically. The indicator LED on the radio glows orange during charging, green when charged and red under fault conditions — see STP8000 radio user guide for further information.

## Problems and Hints

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 ignition is switched on.
- The battery may be discharged (the radio requires battery power to transmit). Allow the battery to charge.
- The radio functions correctly when removed from the car kit.
- The in-line fuses to the vehicle battery have not failed.
- The vehicle battery is not discharged.
- The antenna and its connections are functional.

If the problem persists, refer to your supplier.