

VEHICLE LOOP INTERFACE



Features

- Supports VSB* and Inductive Wireless Earphones simultaneously
- Will drive a single car roof loop or two seat loops.
- Simple install and setup
- Manufactured to appropriate EU standards

* Patent Pending

A dedicated car kit that can simultaneously support the VSB modulated, and all types of inductive Digital and Analogue wireless earphones making the system usable where multiple forces may be deployed as well as simplifying the migration process from standard inductive to VSB. The amplifier has been designed to be simple and quick to install with minimum setup and commissioning and will work with existing installed vehicle loops.

Technical Specifications

Power supply	12VDC nominal (4.7* - 17VDC)
Active state power demand	40 Watts max (drive level & ambient temperature dependent)
Standby current	4mA
Power switching	Automatic: radio output bias detect min 2VDC
Standby to active time	50 milliseconds max
Input level	±0.1 to ±6Vpp differential, ±1Vpp nominal with AGC
Input impedance	47 Ohms (3 Watts max)
Output level	0.43A rms/28V rms max (differential)
Output design load impedance	21 Ohms in series with 500 microHenries (standard 10 turn flat cable roof loop)
Operating temperature range	-30 to 55°C, to 70°C with reduced output
Non-operating temperature range	-40 to 85°C
Climatic performance	100% RH at 40°C
Protection features	Input and output transients, over temperature, over current, load short circuit
Electrical interface	Single 15 way male D Sub connector
Electrical certifications	CE
Environmental certifications	EN 300 019-2*

*Lower input voltage limit determined by power cable volt drop and required output drive level)

VSB System Overview

The VSB Wireless Transmitter uses a novel, specialized audio signal modulation method which has been specifically developed to provide optimum performance in conjunction with the advanced digital signal processing implemented in the VSB Digital Wireless Receiver. The patent-pending method used in the VSB transmitter/receiver combination delivers drastically reduced levels of audible interference and noise when used in areas of high AC magnetic field strength, such as in motor vehicles, on trains, and in sites with significant levels of electronic and electrical technology. As a result, the system achieves outstanding speech quality across the whole spectrum of covert applications where standard inductive devices are inoperable or frustrating to use.

The modulation scheme uses only carrier frequencies within the audio band, is highly tolerant to frequency drift, transmit coil response and mismatch of operational frequencies between transmitter and receiver. The receiver is programmed to decode only audio signals modulated onto the carrier frequency thus making it immune from inductively-coupled noise sources. The system provides consistent performance over temperature and battery discharge level, while permitting compact construction. No matching or pairing between transmitter and receiver is required. The transmitter is entirely based on robust low-frequency electronics and is categorically not a radio frequency device.

V-LIM Installation instructions

The package contains the following parts:

V-LIM box, Cable assembly, In line fuses

The box should be mounted in a place where there is adequate ventilation. Mounting with the fins to the side will maximise output drive at higher temperatures.

Bolt the box down using the slotted flanges.

Run the power cable direct to the battery. If there is a power feed to other communications equipment it may be possible to link into this. However, note that additional cable voltage drop may affect the operation of the V-LIM at low supply voltage.

Fit the in-line fuses as close to the battery or the power line as possible.

Connect the GREY fig 8 pair to the loop side of the speaker/loop changeover switch or to the loop cable running from that switch.

Connect the GOLD fig 8 pair to the installed loop cable.

Ensure that all connections are insulated so that they cannot short to the metal of the vehicle.

Set the vehicle radio volume at 3.5.

Set the speaker/loop switch to loop.

Person A should use a hand radio to transmit speech from outside the vehicle.

Person B should be in the driver /passenger seat.

Person B should listen to the received audio by wearing a standard base band inductive earpiece.

Trimmer marked **STD** should be adjusted to give clear level of received audio in this earpiece.

CAUTION do not make this level too high or you will overdrive the earpiece.

The same procedure should be used to set the level of the VSB earpiece by adjusting the trimmer marked **VSB**. **CAUTION** do not make this level too high or you will overdrive the earpiece.

With the engine and many vehicle electrical devices running the base band earpiece will pick up electrical interference. The VSB earpiece is immune.

The installed loop position and its proximity to the steel roof will vary from vehicle to vehicle.

This will affect the field strength of the loop and each vehicle must be set up separately.

If the loop has been installed too far inboard of the edge of the roof the driver/passenger may find that there is a low output, when using the ear closest to the door. In this case it is advisable to use the other ear, which will be closer to the centre of the loop field. The installed loop must have an impedance of **20ohms**. The installed loop should be fitted in such a way as to cover the roof area of the vehicle preferably around the perimeter of the roof and preferably as far away from the steel as practical.