

UK/VRC321 Clansman HF Transmitter/Receiver System

The British Army Clansman UK/VRC321 HF system has been designed and developed for mobile military use in all types of armoured and logistic vehicle. It is primarily designed as an HF vehicle station for mobile ground-wave operation, but can also be used as a ground station, or for sky-wave operation over long distances.

Digital frequency selection in 100 Hz steps over the 1.5 to 30 MHz band is provided. All frequencies are synthesised from one reference oscillator, with a warm-up time of less than 90 seconds, and the receiver/transmitter frequency is selected by decade switches.

Two stations can be operated independently in one vehicle with only 10 per cent frequency separation and 1.8 m antenna separation. This requires 150 dB suppression of unwanted emissions and receiver responses. The equipment operates from a vehicle power supply which can have a wide variation in nominal voltage and suffer from ripple, surge and transient variations. It has a power consumption of 30 W on receive and 140 W on transmit to provide 40 W PEP output. Sub-unit construction is used with built-in test facilities for rapid maintenance. Direct connection is provided for audio gear, remote-control, and so on.

For operation as a single set, or in the same vehicle as a VHF set, only the receiver/transmitter 321 and low power ATU are required. For operation in the same vehicle as a second HF set the RF selector unit (RFSU) is also required.

The controls and front-panel presentation have been designed to permit straightforward unambiguous operation without the need for extensive operator training. Protection circuits prevent damage from various hazards including local high power transmissions. The station can be operated by direct connection of audio gear, via the Clansman harness, or remote lines, and so on. Provision is also made for RTT operation and the remote-control of a duplex transmitter from the receiver unit.

Status

In production since 1977 for the British and other armies. More than 5000 have been manufactured for the Clansman system with additional export orders worth in excess of £30 million. A £15 million order was placed by the UK Ministry of Defence in September 1983.

Tuning: required frequency available within 5 s of setting decade switches

Power output

high power: 40 W PEP (SSB), 25 W CW

low power: 5 W PEP (SSB), 5 W CW

Power supply: 20-32 V battery voltage with up to 7 V P-P ripple, surges up to 100 V and short transients up to ±600 V. AC power supply unit also available

Consumption

high power transmit: 140 W average on SSB

receive: 30 W (35 W with RFSU)

Antennas: mobile, static ground-wave, end-fed sky-wave, dipole

Temperature range: -37 to + 52°C with full tropical sunlight

Humidity: all units immersible

Dimensions: all units except low power ATU and RFSU are 360 mm deep, 220 mm high

RECEIVER/TRANSMITTER 321

(2 off for duplex)

Width: 230 mm

Weight: 18 kg

LOW POWER ATU

Height: 140 mm

Width: 215 mm

Depth: 345 mm

RF SELECTOR UNIT

(required for 2 HF set operation or duplex in 1 vehicle)

Height: 150 mm

Width: 215 mm

Depth: 355 mm

Weight: 9 kg

Operational Specification

Meets all relevant clauses of DEF-133 and current NATO specifications

Manufacturer

MEL Communications Ltd, Crawley.