



MILITARY
COMMUNICATION
SYSTEMS

LEOPARD I

WIDEBAND MILITARY RADIO



leopard

1.6 MHz to 512 MHz
OUTPERFORMING CONVENTIONAL SYSTEMS



“PERFECTED MILITARY COMMUNICATION SYSTEMS”

- Modes: USB,LSB,AM,FM,FSK,MSK (standard) BPSK,QPSK,PSK,QAM,DCSS (optional)
- Wideband digital manpack: 1.6 - 170 MHz / 1.6 - 512 MHz (All modes)
- Integrated modem, GPS receiver, tuner, speaker and microphone
- Compact, lightweight and rugged design
- ALE, frequency hopping, encryption
- Extra long battery life
- 3 m water immersion
- 3 year warranty
- MIL-STD-810G

The Leopard is a compact, rugged and lightweight wideband military radio which offers uncompromised communication for tactical missions in the HF, VHF and UHF bands. Built-in tuner, modem and GPS receiver are integrated into the radio allowing flexible operation. Advanced features such as Automatic Link Establishment (ALE), Frequency Hopping and One-Time-Pad (OTP) encryption enables secure and reliable communication. The radio is configurable for portable, mobile and base station applications and is available in 30 W (portable) or 125 W with external amplifier.



Ergonomic and Rugged Design

At only 3.2 kg, the radio is one of the lightest wideband radios in its class. The radio is enclosed in a T6-Aluminium casing which is epoxy powder-coated. It complies to MIL-STD-810G specifications, and the interface and controls are user-friendly and intuitive.

Robust and Reliable Communication (Combat Net)

The Leopard radio is based on a true digital software defined platform, covering a spectrum from 1.6 MHz to 512 MHz, outperforming conventional systems. The receiver distinguishes automatically between voice and data communication. Numerous waveforms that conform to NATO and U.S. military standards are supported by the standard internal and optional tactical data modem allowing interoperability with other systems. The optional data modem caters for automatic link establishment (ALE) as well as automatic repeat requests (ARQ) allowing error-free transmission for Tactical Combat Network Applications.



Data Transfer Rate

Encrypted data transfer of up to 2400 bps is attained by the internal modem. The optional data modem enriches the data capability of the radio. Both modems enable secure military tactical messaging, chat and situational awareness over the radio link. Depending on the waveform selected, data rates of up to 96000 bps can be obtained. Future data rates will extend to 384000 bps. Email is also supported with the STANAG 5056 standard incorporating an external PC application.



Extended Battery Life

The advanced power and battery management system incorporated into the radio offers a low stand-by power consumption of 2.2 W. Superior low voltage components, latest power control techniques and battery composition can provide an operation time of up to 70 hours. Two Li-Ion battery types are available: 13 Ah and 26 Ah @ nominal 12 V.

Transceiver

High performance HF, VHF and UHF filters ensure harmonic suppression and adjacent channel rejection, offering superior selectivity. The transceiver utilises state of the art components to ensure communications in both rural and urban environments.

Antenna Tuning

The radio comes standard with a built-in antenna tuner that automatically matches the antenna to the operating frequency. Initial tuning takes seconds and only a fraction of a second when tuned from a stored profile. The tuner is capable of matching the antenna in the HF band and extending into the VHF Band up to 60 MHz.



ECCM

The option of end-to-end encryption is integrated and enables high grade security of data and voice transmissions. Optional Multiple Independent Levels of Security (MILS) are available to users. This enables advanced features like frequency hopping (up to 600 hops per second) and one-time-pad encryption.

Integrated GPS Receiver

The integrated GPS receiver and antenna provides time, position and heading information which can be viewed in the field. The radio provides full Command, Control, Communications, Computers and Intelligence (C4I) for situational awareness. The GPS transmission can be encrypted for location protection.

Leopard SPECIALISED ACCESSORIES



RF Power Amplifier

The power amplifier incorporates two separate power amplifiers and both the units are controlled by each radio interface. The amplifier unit has a three-port antenna switch. Improved performance can be obtained for mobile or base station operations by implementing band-specific high gain antennas. The power amplifier can output a maximum of 125 W from 1.6 to 30 MHz and 50 W from 20 to 512 MHz simultaneously.



Rack Configurations

Various configurations can be used in mobile, base station and cross-band repeater applications.



Field Chargers

Universal mobile solar and kinetic power sources for charging and operating the radio are available.



Tablet PC and Software

The Leopard offers software that can be loaded on any mobile Windows PC, such as the T7Q Tablet. This provides radio control and programming, military tactical messaging, file transfer, GPS mapping, data encryption (AES, Twofish, Serpent) and built-in camera integration.



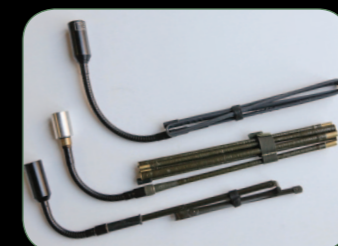
Internal Modem (optional)

The integrated modem provides the radio with additional functions such as ALE, advanced encryption, extended data and wave-form capability.



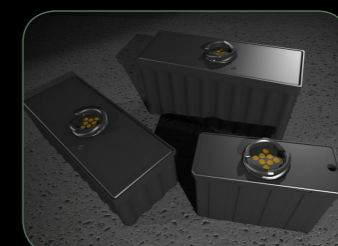
Framed Backpack for Portable Applications

The complete backpack includes optional accessories such as the solar charger, spare battery packs and various antennas. Backpacks are available in black, olive, camouflage or to customer specifications.



Antennas

Various wideband or band specific antennas can be provided according to the application or requirements.



High Capacity Battery

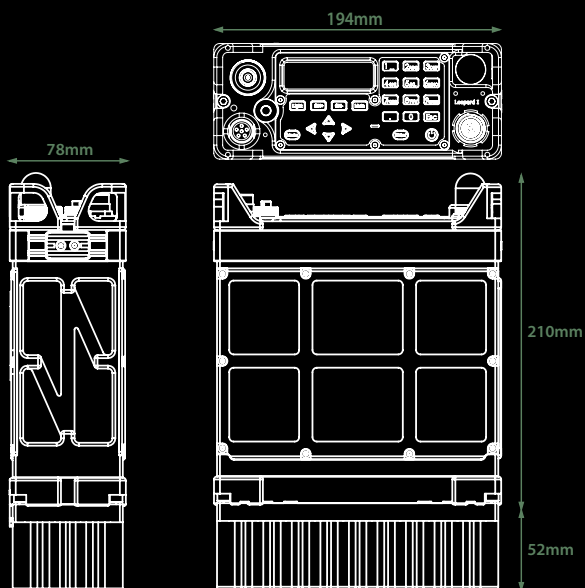
The 12 V, 26 Ah battery provides operation time of up to 70 hours.



Multi- Battery Charger

The rapid battery charger allows four batteries to be charged simultaneously.

Leopard Dimensions Including Battery



General Information

Combat Net Radio	STANAG 5066 PC Data Application
Frequency Range	1.6 - 170 MHz / 1.6 - 512 MHz (All modes)
Channel	200 Programmable
Link Establishment	3G ALE 1 chan every 1.35 sec. SELCALL EIA (FEA, CCIR, ZVEI1, ZVEI2)
Frequency Stability	0.5 ppm (0.05 ppm optional)
Modes	USB/LSB, AM, FM, FSK, MSK BPSK, QPSK, PSK, QAM, DSSS ->optional
Power Source	12 VDC (nom) 10 - 36 VDC (operational)
RF Input/Output Impedance	Whip/long wire antenna via antenna tuner 50 ohm nominal, unbalanced
Dimensions	194W x 78H x 216.4D mm (excluding Battery) 194W x 78H x 268.4D mm (13 Ah Battery)
Weight	3.2 kg (excluding Battery)
Interfaces	Serial RS232, (USB1.1, Ethernet 10Base-T -> Optional)
A/F Power + Distortion	External speaker 8 W in 4 ohm, THD 1% Internal Speaker 1 W in 8 ohm, THD 10%
Battery Capacity	Li-Ion (13.0 Ah) 1.2 kg each (Small Battery Pack) Li-Ion (26.0 Ah) 2.2 kg each (Large Battery Pack)
Expected Battery Life	70 hrs (1:1:30) with 26 Ah Battery
Power Consumption	180 mA @12 V (muted)

Transmitter

Power Output	Power output 2, 5, 30 W or User Defined: 1.6 - 30 MHz Power output 2, 5, 18 W or User Defined: 30 - 88 MHz Power output 2, 5, 10 W or User Defined: 88 - 170 MHz Power output 2, 5, 10 W or User Defined: 170 - 512 MHz 300 to 2550/3000 Hz (Selectable)
Audio Bandwidth	>50 dB
Harmonic Suppression	>60 dB
Undesired Side-band Suppression	>60 dB
Spurious Suppression	>60 dB
Antenna Tuning Capability	3 m Whip (3 to 30 MHz) Profiled Tune Automatic Antenna Tune 1.6 to 60 MHz Tuner bypass selectable

Receiver

Sensitivity	10 dB SINAD@ -124 dBm (SSB) 12 dB SINAD@ -118 dBm (FM)
Image Rejection	>80 dB
IF Rejection	>80 dB
Blocking	>90 dB
Audio Output	Handset: Via 6-way connector Internal Speaker, Selectable on/off External Speaker via 5-way connector
Noise Reduction	DSP Proprietary Comander (2:1)
Squelch Modes	Syllabic Noise Detect TCS5 RF Signal Level

Environmental

Shock, Vibration & Imersion	MIL-STD-810G
EMI / RFI	MIL-STD-461E
Operating Temperature	-30 to +65°C
Storage Temperature	-40 to +85°C

ECCM

Hop Sequence	One Time Pad, AES 128, User Specific
Hop Rate	1/2/5/10/20/50/100/200/400/600 hops per second
Hop Modes	User defined frequency bands
Audio Scrambling	Fixed tone inversion Hopping tone inversion (optional)
Data Encryption	One-Time-Pad / AES
Synchronisation	GPS (Hopping + Scrambling)

Standard Modem

Modes	FSK/MSK
Bit Rates	2400 bps 1200 bps

Optional Modem - RapidM

Supported Waveforms

Standard	Coding	Modulation	Data rates (b/s)
MIL-STD-188-110B	C	PSK/ QAM	3200,4800,6400,8000,9600 12800
STANAG 4539	C	PSK/ QAM	3200,4800,6400,8000,9600 12800
MIL-STD-188-110A	C	PSK	75,150,300,600,1200,2400 4800
STANAG 4415	U	PSK	NATO robust: 75
STANAG 4285	C	PSK	75,150,300,600,1200,2400 1200,2400,3600
STANAG 4529	U	PSK	75,150,300,600,1200 600,1200,1800
STANAG 4481	C	PSK	300
STANAG 5065	C	PSK/MSK	75,300
Proprietary	Rural Area (VHF/UHF)	QAM	96000
	Hilly Terrain (VHF/UHF)	QAM	76800
	HF (Stationary)	QAM	76800

Automatic Link Establishment (ALE)

3G ALE ARCS

STANAG 4538

2G (optional)

MIL-STD-188-141B

FED-STD 1045

FED-STD 1049

Digital Voice (optional)

Vocoder	Data rates (b/s)
MELPe	600,1200, 1800

Specifications may change without prior notice. Please verify updated specifications on order.



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Sat-Com (PTY) Ltd
2 Jakaranda Street
Suiderhof
Windhoek
Namibia

Tel: +264-61-374700
Fax: +264-61-251615
Email: sales@sat.com.na

www.sat.com.na

