

aselsan

Software Defined
HF Radio Family



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HF RADIOS

ASELSAN HF Radio Family based on Software Defined Radio technology, ensures reliable and secure communication in 1.6 to 30 MHz band for Land, Naval and Airborne Platforms. Beyond line of sight voice/data communication is achieved with the utilization of the most advanced HF technology covered in the related NATO STANAGs and Military Standards. With high processing power and software configurable architecture; the radios can easily be upgraded for new features. State-of-the-art HF radios are developed with built-in digital encryption module for secure communication. Built-in modem offers variable data rates from 75 bps to 12800 bps matching different HF channel conditions.



VEHICULAR / BASE STATION



MANPACK



NAVAL



AIRBORNE



WAVEFORMS

ASELSAN HF Radios provide state-of-the-art digital communication in the 1.6-30 MHz HF frequency band. Built-in digital encryption is available for both voice and data services in addition to conventional analog operation.

The radio uses low rate MELPe voice coding in accordance with STANAG 4591. This advanced voice coding allows high quality digital voice communication in the HF channel providing communications even in the most difficult HF conditions.

Encrypted voice and data communication is supported in frequency hopping mode.

Radios support synchronous and asynchronous data communication using built-in Single Tone Modem which accommodates STANAG 4539 modem waveforms. The available data rates are from 75 bps to 12800 bps with auto-baud capability. STANAG 4285 is also supported with built-in modem.

With the use of robust waveform working at 75 bps in Short Message Service (SMS) and Operation Code (OPCODE) transmission, ASELSAN HF radios ensure communication in very hostile channel conditions even when voice communication is not possible. In suitable channel conditions SMS and OPCODE can be transmitted at data rates up to 300 bps.

AUTOMATIC LINK ESTABLISHMENT

Automatic Link Establishment (ALE) and Automatic Channel Selection (ACS) techniques reduce the dependency on experienced operators. The use of latest digital modem technologies (Forward Error Correction, Adaptive Equalization and adaptation of receiver with respect to received signals) together with ALE and ACS, enable easy and efficient HF radio operation. 3rd Generation Automatic Link Establishment technique is in compliance with STANAG 4538 (FLSU/CLC).

Automatic Link Establishment (ALE) establishes the link automatically after the operator selects the destination radio address. Radios employ advanced channel selection analysis and techniques:

- Link Quality Analysis (LQA) measures and tabulates the quality of the analyzed HF channels.
- Automatic Channel Selection (ACS) algorithm selects the optimum channel according to the LQA results.

Adaptive Equalization is utilized to counter the effects of multi-path propagation. Advanced Forward Error Correction (FEC) and Interleaving methods are used for more error resistance and efficient communication.

In addition to the features provided in 3G ALE mode, manual ALE operation has been featured to the radios. In this context, ALE mode on radios provides capability to the user to create manual channel and group for communication. The radios, which are equipped with the capability of link establishment with the radios in different networks, are able to be participated in different networks.

COMMON OPERATIONAL FEATURES ACROSS PLATFORMS

- Modes of operation
 - USB, LSB, ISB, CW, AM and AME
- Voice communications
 - Analog Clear
 - Digital Secure
 - Digital Encrypted Frequency Hopping
- Voice Coding: STANAG 4591 MELPe (600 / 1200 / 2400 bps)
- Squelch
- Frequency Hopping Capability
- STANAG-5066 interface
- Built-in digital modem
- Built-in encryption
- Data communications 'Fixed frequency(clear/secure), frequency hopping (secure)'
 - Synchronous
 - Asynchronous
- Morse Communications
- External Modem Interface
- External Voice/Data Encryption Interface
- 200 preprogrammable presets
- Capability to generate manual presets
- SMS (Short Message Service)
- Op-Code (Operation Code)
- Synchronization by GPS
- Emergency Erase
- Built-in-Test
- Remote Control Capability
- Automatic Link Establishment



HF MANPACK RADIO

- Frequency Band: 1.6-30 MHz
- Frequency Tuning Steps: 10 Hz
- Frequency Accuracy: 0.1 ppm (@room temp.)
- RF Output Power: 1 W/ 5 W/ 20 W PEP Selectable
- Sensitivity for 10 dB SINAD:
 - For SSB and CW: Typically -113 dBm
 - For AM and AME: Typically -100 dBm
- Built-in modem (STANAG 4539, STANAG 4415, MIL-STD-188-110B)
- Number of Presets: 200 preprogrammed, 20 manually programmable
- Weight:
 - less than 4.2 kg (without battery)
 - less than 6.2 kg (with battery)
- Dimensions: 97x260x356 mm (HxWxD) with battery
- Environmental Specifications:
 - MIL-STD-810D
- EMI/EMC:
 - MIL-STD-461E
- Accessories/ Options:
 - Li-Ion Battery Block
 - Battery Charger
 - Wire / Dipole / Whip Antenna
 - Handset / Smart Handset
 - Carrying Harness
 - GPS Antenna



CARRYING HARNESS



HANDSET/SMART HANDSET



DIPOLE / WHIP ANTENNA



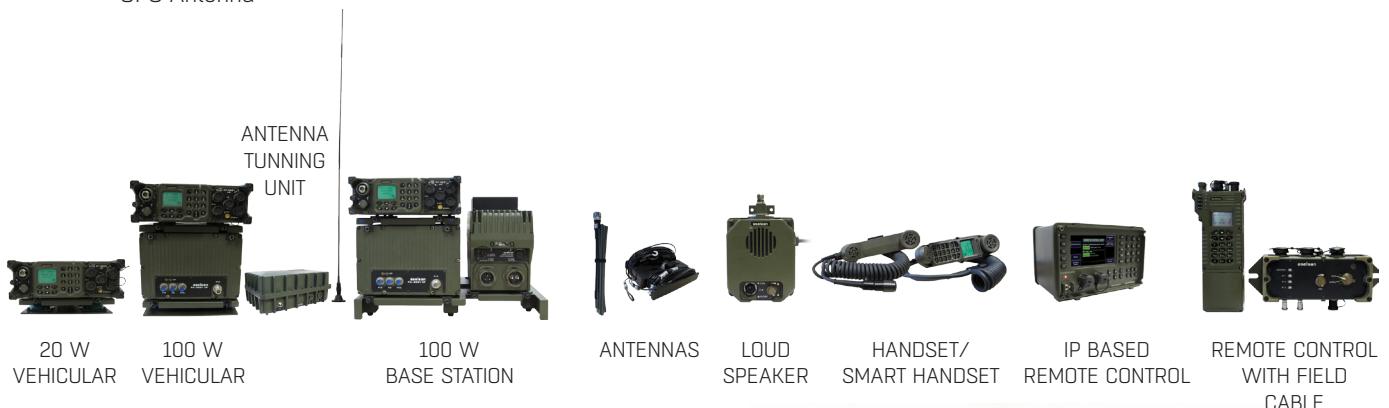
LI-ION BATTERY BLOCK



BATTERY CHARGER

HF VEHICULAR / BASE STATION RADIOS

- Frequency Band: 2-30 MHz
- Frequency Tuning Steps: 10 Hz
- Frequency Accuracy: 0.1 ppm (@room temp.)
- RF Output Power: 10 W / 30 W / 100 / 150 W PEP Selectable
- Sensitivity for 10 dB SINAD:
 - For SSB and CW: Typically -113 dBm
 - For AM and AME: Typically -100 dBm
- Built-in modem (STANAG 4539, STANAG 4415, MIL-STD-188-110B)
- Number of Presets: 200 preprogrammed, 20 manually programmable
- Supply Voltage:
 - Vehicular: 10,5 - 32 VDC
 - Base Station: 100 - 240 VAC, 47-63 Hz
18 - 32 VDC
- Environmental Specifications:
 - MIL-STD-810D
- EMI/EMC:
 - MIL-STD-461E
- Accessories / Options:
 - Various antennas (wideband, narrowband)
 - Loud Speaker
 - Handset / Smart Handset
 - Remote Control
 - Tactical RC : Remote voice and data communication capability over the radio up to 3 Km with Field Cable
 - IP RC: Remote voice and data communication capability over the radio via IP network
 - GPS Antenna



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HF NAVAL RADIOS

- Frequency Band: 1.6 -30 MHz (Receiver Transmitter)
10 kHz -30 MHz (VLF / HF Receiver)
- Frequency Tuning Steps:
 - Tx: 10 Hz
 - Rx: 1 Hz
- Frequency Accuracy: 0.1 ppm (@room temp.)
- RF Output Power (selectable):
 - 150W Receiver Transmitter: 30 W / 100 W / 150 W PEP
 - 400W Receiver Transmitter: 30 W / 100 W / 400W PEP
 - 1000W Receiver Transmitter: 100 W / 150 W / 250 W / 400 W / 650 W / 1000 W PEP
- Sensitivity for 10 dB SINAD (2-30 MHz, without PPS):
 - For SSB: typically -113 dBm
 - For CW: typically -121 dBm
 - For AM: typically -104 dBm
- Built-in modem (STANAG 4539, STANAG 4415, MIL-STD-188-110B, STANAG 4285)
- Number of Preset Channels: 200 preprogrammed , 100 manually programmable
- PPS Pre/Post Selector:
 - Internal (>40 dB)
 - External (>50 dB)
- VOX
- Internal Speaker
- External Interfaces:
 - Handset, loud speaker , voice recorder, data terminal, GPS, Fillgun, remote control (ethernet, serial), data link, narrowband voice, power supply, morse key
- User-friendly MMI with:
 - Soft keys
 - Flywheel
 - Alphanumeric keyboard
- Supply Voltage:
 - 100-240 VAC, 47-63 Hz and 22-30 VDC. When AC voltage is cut-off, supply voltage automatically switches to DC voltage.
- Environmental Specifications:
 - MIL-STD-810E
- EMI/EMC:
 - MIL-STD-461D
- Accessories/Options:
 - Various antennas (wideband, narrowband)
 - IP Remote Control
 - IP RC: Remote voice and IP data communication capability over the radio via IP network



150 W PEP

400 W PEP

1000 W PEP



IP REMOTE CONTROL

HF AIRBORNE RADIO

- Frequency Band: 2 - 30 MHz
- Frequency Tuning Steps: 10 Hz
- Frequency Accuracy: 0.1 ppm (@room temp.)
- RF Output Power: 10 W / 25 W / 40 W / 65 W / 100W PEP Selectable
- Sensitivity for 10 dB SINAD:
 - For SSB and CW: Typically -113 dBm
 - For AM and AME: Typically -100 dBm
- Built-in modem (STANAG 4539, STANAG 4415, MIL-STD-188-110B)
- Number of Presets: 200 preprogrammed, 20 manually programmable
- Remote Control: 1553 or ARINC-429 Bus Interface or Dedicated RS-422 Serial Control Interface
- External Interfaces:
 - Intercom, STANAG 5066 compatible interface, GPS, voice and data encryption devices, blanking interface, data link (Link-11, Link-22), data terminal devices
- Environmental Specifications:
 - MIL-STD-810F
- EMI/EMC:
 - MIL-STD-461E





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ASELSAN A.Ş. is a Turkish Armed Forces Foundation company.

P.O. Box - Address: P.K. 1, 06172, Yenimahalle - Ankara / Turkey

P: +90 (312) 592 10 00 **F:** +90 (312) 385 27 86

www.aselsan.com.tr | hbtmarketing@aselsan.com.tr