



ELECTRONICS DIVISION

SWave[®]

HH-E

**Wideband Soldier Radio
Handheld**

 **LEONARDO**

- The SWave HH-E is a body-worn radio for soldiers and commanders operating at the tactical edge either on Platoon or Section level. Designed to support a wide variety of services depending on the hosted waveforms, it features optimized Size-Weight-and-Power (SWaP) factors and MMI devices for friendly and comfortable operations in any kind of mission, without the need of additional tactical PDAs or terminals. Ethernet and USB interfaces are anyhow available in support of fully digitized net-centric solutions.

The unit provides a single-channel reconfigurable radio, operating in the V/UHF band with an adjustable rated output power up with 5W (up to 10W in boost mode). The radio can host both narrowband and wideband waveforms, in either fixed frequency or frequency hopping modes, standard CNR and new generation Wideband Networking waveforms, thus providing interoperability with fielded radios and full support of bandwidth demanding new generation C4ISR systems. As a result, the SWave HH-E accommodates a wide range of solutions aimed at guaranteeing information superiority, including high-quality/low latency audio services, embedded PLI (Position Location Information), audio conferencing over different virtual user groups, full IP support in either bridged or routed modes and QoS management.

A Vehicle-Mounted version VM3 radio is also available to connect dismounted troops to carrying and combat vehicles while in-operation. The VM3 Radio assembly includes a vehicle mounting base and, if required, an external V/UHF PA rating up to 50W over the whole operating band.

KEY FEATURES

- Full tunability from 30 to 512MHz
- Adjustable RF Output Power up to 5W; 10W for burst operations
- Reconfigurable SDR architecture
- Embedded mics, speaker and display for light soldier configurations
- Multiple PTT keys for multi-tier networking
- Small, ruggedized, lightweight chassis
- Available with different battery packages for standard and heavy duty mission profiles
- Embedded AES-256 security capability with programmable COMSEC and TRANSEC capabilities
- Seamless Support of CNR and NB/WB Mobile Ad-hocNetwork (MANET) waveforms
- Position Location Information (PLI) enables situational awareness and blue force tracking
- Support of multiple mission plans, selectable from local I/O devices
- Network Planning and Communications Management via SNMP interfaces
- Up to 50W Vehicle Mounting Assembly available as SWave VM3 Radio



DELIVERY PACKAGE

SWave HH-E can be delivered as a basic soldier configuration or in conjunction with a set of accessories and vehicle ancillary units.

Basic Configuration

- SWave HH-E Radio Handheld
- Standard or High Capacity Rechargeable Li-ion Battery Pack (24 or 34 Wh)
- V/UHF (30-512 MHz) Whip Antennas
- Data Cable Kit (HPI-2191/01)
- AC Depot Battery Charger (HPI-2003/01)
- Soft User Guide/Operating Instructions

User Terminals and Tools

- Data Terminal, PDA or Smartphone (on Customer’s requirements)
- Situational Awareness and Navigation Apps (for Windows and Android platforms)
- Planning and Management Control SW

Body-worn Accessories

- Data Cable Kit (HPI-2191/01)
- Dual PTT Headset (HPI-2005/01)
- Wireless PTT Device (74-212766A)
- Standard Capacity Li-ion Rechargeable Battery 24 Wh (HPI-1311/01)
- High Capacity Li-ion Rechargeable Battery 34 Wh (HPI-1311/02)
- Ultra High Capacity Li-ion Rechargeable Battery 68 Wh (HPI-1311/03)
- Radio Pouch for MOLLE (MODular Lightweight Load-carrying Equipment) (HPI-2006/02)



Logistic Package

- AC Depot Battery Charger (HPI-2003/01)
- Depot AC 3-slots Loose Battery Charger (HPI-2004/01)
- Multiple 8-slots HH-E Rugged Battery Charger CBMI-SDR-EVO (47B2002T001)
- Emergency DC Battery Charger REM-SDR-HHE (HPI-2194/01)



Antennas

- VHF whip antenna (2100047M0376)
- UHF Antenna (2100768M0019)
- Wideband Whip Antenna (2100824M0011)
- GPS antenna (1AAN003405)



Vehicle Configuration

- Vehicular Mounting Base (“Cradle”), including int-com port and DC inlet (RBG-0928/02)
- Vehicular 50W HPA with mounting base and co-location filters (RAC-6957/02)
- Tank Crew Acoustic Headset with noise cancellation (44M2003T001)
- Cable set or line connectors



HH-E Vehicular Mounting Base

V/UHF HPA 50W

TECHNICAL DESCRIPTION

GENERAL

- Number of Channels
 - Single Channel
- Frequency range
 - 30+512MHz V/UHF, continuous tuning
- Max RF Output Power
 - 5 W soldier
 - 50 W in vehicles with External HPA
- Bandwidth
 - Narrowband 25 kHz
 - Wideband up to 1.3 MHz
- Voice, Data and Video Services
 - Simultaneous, Waveform dependent
- Voice Network Access
 - 3 PTT Keys SW programmable, Dual Net PTT support
- Human-Machine-Interface
 - Back-lit LCD Graphic Display
 - 8 Keys, context dependent
 - Dual Mic
 - Embedded Speaker
 - Rotary Knob for fast mission profile selection

SECURITY

- Operating Modes
 - Programmable COMSEC (Up to NATO/National Restricted)
 - TRANSEC Capabilities
 - Waveform dependent
- Encryption
 - Embedded AES 256 Crypto Engine
 - Customer-Specific Crypto Algorithm
- Security Environment
 - Secure Key Fill
 - Secure Traffic Key Storage
 - Anti-Tampering
 - OTAR/OTAZ support

INTERFACES

- Antenna Interfaces
 - Traffic: TNC Connector, 50 Ohm
 - GPS/Wi-Fi: SMA Connector, 50 Ohm
- Audio interfaces
 - Analogue audio port with dual PTT
- Wired Data/CTRL interfaces
 - USB 2.0
 - FE Ethernet
- Wireless Data Interfaces
 - 2.4 GHz IEEE 802.11 b/g/n
 - Bluetooth 2.1+EDR
- VM3 (in-vehicle) Interfaces
 - Audio Interface Wired Data/CTRL
 - DC/DC Power Supply, HPA Antenna TNC

WAVEFORMS

- Standard/Coalition
 - V/ULOS STANAG 4204/5
- Proprietary Waveforms
 - Voice/Data Selfnet® NBAW NarrowBand Adaptive Frequency Hopping IP MANET Waveform (NBAW)
 - Selfnet® Soldier Broadband Waveform IP MANET Waveform (SBW) up to 64 nodes (expandable)
- Specific National Waveforms
 - On request

MECHANICAL

- Size (HxWxD)
 - 155 x 68 x 42 mm (without antenna)
- Weight
 - ≤ 670 g (with standard battery)
- VM3 Mounting Base Size (H x W x D) / Weight
 - 177 x 75 x 97 mm / 1,3 kg
- VM3 High Power Amplifier (HPA) (H x W x D) / Weight
 - 150 x 210 x 255 mm / 8 kg;

ENVIRONMENTAL

- Shock and Vibration
 - MIL-STD-810F
- Immersion
 - 1m, MIL-STD-810F
- EMI
 - MIL-STD-461E
- Operating temperature
 - 30°C to +55°C, MIL-STD-810F

POWER SUPPLY

- Battery Type
 - Standard/High Capacity Li-ion, rechargeable battery packs
- Autonomy (WF dependent)
 - 8 hrs (24 Wh)
 - 12 hrs (34 Wh)
 - 24 hrs (68 Wh)
- In Vehicle VM3 Power-Supply
 - 19 to 34 VDC voltage according to MIL-STD-1275E
- In Vehicle VM3 Power Consumption (@50W RF)
 - ≤ 450 W

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