

MANPACK SENTRY-H 6110-MP

DTC
A CODAN COMPANY

Codan's Sentry-H 6110-MP (type number 2410) delivers a rugged man-portable Software Defined Radio (SDR) solution for military organisations that demand uncompromised, secure voice and data communications while on the move.

The 6110-MP forms an integral part of the Sentry-H product family that meets the demands of the modern battlefield whilst offering full backwards compatibility with legacy products. The 6110-MP is one of the smallest, lightest form factor manpack HF radios available, delivering a powerful 30W RF power in a unit weighing less than 4kg without compromise on any capabilities.

KEY FEATURES

- Best in class, size, and weight
- Software Defined Radio
- 30 W power output
- Man portable usage up to 79 hour battery life
- Rugged and waterproof MIL-STD-810G design
- Colour display, with intuitive icon based User Interface
- Optional rugged smart handset with colour display and integrated GPS
- Dual handset control
- Multilingual User Interface
- Tactically aware: dedicated sound and light controls
- Embedded GPS
- Built in front panel speaker
- IP connectivity over Ethernet/Wi-Fi and USB
- Exceptional RF performance
- 2nd generation digital voice (TWELP) with ECCM support
- 3G ALE TFTP File Transfer
- Digital voice message call
- Up to 100 user define Presets
- Standards based:
 - MIL-STD-188-110A/B (STANAG 4539) Data (up to 19k2 bps)
 - MIL-STD-188-110D (Appendix C)
 - FED-STD-1045 ALE
 - MIL-STD-188-141D (Appendix A, Appendix C)
 - MIL-STD-188-141B ALE (JITC certified)
 - 3G ALE (STANAG 4538)
 - STANAG 4591 (MELPe) Digital Voice
- AES-256/DES-56/CES-128 COMSEC
- ECCM - up to 25 hops/sec
- Designed for MOTS BB-2590 style battery
- Worldwide Codan service and support



PROVEN SOFTWARE-DEFINED ARCHITECTURE

Codan's 6110-MP uses the latest-generation high-performance Digital Signal Processor (DSP), Field-Programmable Gate Array (FPGA), and system on chip (SoC) technology.

Built upon a proven SDR platform with tens of thousands of hours of operation in the field, the 6110-MP delivers market-leading performance and future upgradability through software updates that support evolving standards and ensure sustainability.

IP/ETHERNET/USB CONNECTIVITY

The 6110-MP's IP based design facilitates remote access, while the front panel or 2320 Handset USB port provides a convenient point for connecting the Codan TPS-M transceiver programming and Codan data applications. Alternatively, a conventional USB flash drive can be connected for radio profiling, COMSEC key fill, and firmware upgrades in the field. Direct access to the optional MIL-STD Data/3G ALE data modem capabilities is possible via IP connection to support fully customised data solutions and IP data.

INTUITIVE INTERFACE AND LOCALISED LANGUAGES

The 6110-MP front panel and optional 2320 Handset user interfaces, with Night Vision Goggles (NVG) support, have been designed with ruggedness and ease of configuration and operation as primary objectives. The daylight readable colour display with intuitive icon-based menu system, couple with an ability to switch between multiple native languages (including data entry modes) ensure that you can focus more on your mission and less complex radio operation and training.

Operator access to radio configuration parameters can be easily locked down or made available, depending on your mission requirements.

Additional languages available upon request.

MANPACK SENTRY-H 6110-MP

DUAL HANDSET CONTROL

The 6110-MP has full support for H-250 audio accessories but is also fully compatible with the 2320 Smart Handset. With a built in speaker and GPS, the 2320 handset provides direct access to core operations remote from the radio, highly suited to on the move communications.

SWAP OPTIMISED

The 6110-MP can be configured with a standard size, high capacity BB-2590 style rechargeable battery, resulting in an overall unit weight of less than 4.7kg and providing an industry leading battery life of up to 79 hrs.

The 6110-MP is now offered with a shorter battery compartment and compatible rechargeable battery that effectively makes it the smallest and lightest HF manpack radio available today with a weight of less than 4kg. Even with the lower capacity battery, the radio will still provide an impressive battery life of up to 23 hrs.

ADVANCED ALE

The 6110-MP includes the latest generation STANAG 4538 3G ALE technology providing the tactical user with fast linking and data capabilities. Mission critical messages are transferred securely by employing link protection and data encryption. Synchronised scanning provides more efficient use of available spectrum.

The 6110-MP is also fully interoperable with military transceivers using JITC certified MIL-STD-188-141B ALE. You can initiate NET, GROUP, and WILDCARD selective calls, along with a number of advanced calls including phone, message, GPS, and status calls. Calls can be made ad-hoc or via fully pre-programmed entries in the contacts list using 3G ALE.

LQA RAPID

Codan's proprietary enhancement to ALE waveforms provides improved performance through monitoring channel conditions over a 24 hour period. This ensures that users can rapidly establish communications on the best channel for the time of day, without the need to initiate updates to the LQA information prior to calling, thus increasing network availability and performance.

PRESET SUPPORT

Tactical communications users often require an ability to quickly switch between different radio configurations to communicate with different units or in different ways without re-programming the equipment. Until recently, Codan supported this requirement via Secure interoperability on a Channel level as well as the Select Active HF Network features. The new Presets feature further improves Sentry-H family capabilities.

A Preset is a predefined set of configurations and settings, which includes:

- A fixed channel/frequency or a scanning mode with a group of active HF networks
- Digital Voice state, rate, and active waveform
- Encryptor and secure key index
- Hopping state and hopping plan index
- Transmit power as well as values for up to 32 transceiver settings

The Preset capability allows an operator to quickly switch between different modes/operation scenarios to communicate with different parties or re-configure the equipment on a fly for different missions, ensuring that radio assets remain flexible to meet your mission needs.

GPS SUPPORT

The 6110-MP has an integrated GPS antenna and receiver built in to the front panel and optional 2320 Handset, with GPS and GLONASS navigation systems supported. The front panel has a connection point for an external remote GPS antenna for challenging conditions.

Position data display format is user selectable and includes UTM, UPS, and MGRS formats. Your distance and bearing from a remote HF station or waypoint can be displayed graphically via the user interface.

OVER-THE-AIR WAYPOINTS

The user interface facilitates straightforward sharing of waypoints over-the-air with other users. The message call mechanism provides an intuitive method to select, include, and transmit multiple waypoints from the waypoints list. Upon receiving a message call containing waypoints, the waypoints can be saved to the waypoint list and also used for immediate distance & bearing plots. This feature greatly simplifies the process of sharing and tracking geo-location information amongst a group of radio users.

MANPACK

SENTRY-H 6110-MP



DIGITAL VOICE

Codan's second generation digital voice technology utilises MELPe (Mixed-Excitation Linear Predictive enhanced) or TWELP (Tri-Wave Excited Linear Prediction), including latest addition of 300 bit/s and 480 bit/s vocoder rates to provide a major improvement in High Frequency (HF) voice communications. A fully digital mode, coupled with highly optimised vocoder technology, provides clarity and connectivity when traditional methods fail. Compatible with AES-256 encryption, DES-56 encryption, and Frequency Hopping options.

An optional open protocol version of Digital Voice is also available to enable interoperability between Codan and other vendor radios.

All optional Digital Voice capabilities also include a STANAG 4591 (MELPe) compatible vocoder type which can be selected to support interoperability with other vendor radios using the same NATO standard.

DATA WAVEFORMS

The 6110-MP is hardware ready for data mode and is delivered with the Codan 2400 bit/s robust data modem as standard. This data waveform is supported with the Codan Chat application providing peer-to-peer text chat, email, and file transfer with a simple GUI that supports multiple languages

The optional STANAG 3G ALE provides fast linking and data capability when combined with SprintChat/Net applications, and is capable of exceeding the performance experienced with traditional MIL-STD-188-110 2G data. Codan 3G ALE supports all call types including digital voice message calls and SMS text (via SprintNet stations).

The 6110-MP may be software upgraded to full MIL-STD/STANAG data capability with data rates up to 19k2 bps (with ISB) using the Codan RC50-C HF email application.

There is an additional 3G ALE File Transfer capability that allows users to transfer files over the air using 3G ALE waveforms. The transceiver can be controlled via the Computer Interface Command Set (CICS) and Trivial File Transfer Protocol (TFTP) to upload and download files to and from a connected PC. The maximum file size that can be transferred is 512KB. This capability requires the 3G ALE option to be enabled.

COMSEC

A range of COMSEC options are available with the 6110-MP, from CES-128 grade voice encryption through to AES-256 encryption of digital voice, STANAG 4538 3G ALE, and STANAG/MIL-STD data.

The AES-256 encryption supports up to 256 by 256 bit keys with additional layers of protection possible by incorporating unique radio identifiers.

The 6110-MP has an option of a non-export controlled DES-56 encryption for digital voice and data with up to 256 by 56 bit keys.

All voice encryption options can be activated by a single hotkey, and are fully integrated with core radio functions like Selcall and ALE calling to ensure simplicity of operation. The Secure Interop feature enables configuration of the 6110-MP to automatically control encryption on specified networks/channels.

Codan Key Management software can be used to generate and load encryption key files, and Codan Key Fill software or a USB flash drive may be used to load an encryption key file to the radio.

ECCM (FREQUENCY HOPPING)

The 6110-MP can be enabled with frequency hopping capability providing tactical networks with additional capability to prevent malicious jamming and signal interception. The user can select up to 31 user programmable hop plans, each comprising a hop name, rate, bandwidth, and encryption key.

Additional information security can be achieved with the use of one time session PINs, and also combining frequency hopping with CES-128 voice encryption.

Frequency hopping is now compatible with Digital Voice and 2G MIL/STANAG data waveforms to further extend ECCM capabilities. Available Digital Voice vocoder rates and 2G data rates are dependent on the selected hopping rate. ISB data is not supported in frequency hopping mode.

Codan Key Management software can be used to generate and load encryption key files, and Codan Key Fill software or a USB flash drive may be used to load an encryption key file to the radio.

WARRANTY, SERVICE, AND SUPPORT

Codan provides proven product reliability and performance, backed up by our standard three year warranty. The ability to independently sustain your equipment, complimented by field upgradable unique option codes, enables you to truly utilise SDR technology. Should your mission change, features can easily be enabled.

MANPACK

SENTRY-H 6110-MP



SOFTWARE APPLICATIONS

- TPS-M Radio Programming Software
- RC50-C HF Email (for STANAG/MIL modem)
- Codan Chat HF (for robust ARQ modem)
- Key Management Software (KMS)
- Key Fill Software (KFS)
- RTS tracking software
- SprintChat and SprintNet
- Virtual Control Point (VCP)
- Software Developers Kit (SDK)

ACCESSORIES

- 2320 Handset
- Tactical antenna solutions
- Backpacks
- Rechargeable and single use batteries
- Base and field battery charging solutions
- H-250 audio accessories
- Morse key
- External GPS antennas

TRANSCIVER BASED OPTIONS

- Standard digital bundle (includes 2G Data, 2nd Gen Digital Voice, and STANAG 4591 Digital Voice (2400 and 1200 bit/s rates only)
- Advanced digital bundle (includes 2G Data, 2nd Gen Digital Voice, and AES-256 Encryption, all vocoder rates, and STANAG 4591 Digital Voice with 2400/1200/600 bit/s vocoder rates)
- Open protocol digital voice
- 3G ALE (STANAG 4538)
- CES-128 voice encryption
- DES-56 voice and data encryption
- ECCM (frequency hopping)
- Foreign language user interface
- Free tune transmit
- Independent Sideband (ISB)
- 1.5 MHz Tx

GENERAL	
Frequency range	Transmit: 1.6 to 30 MHz (optional 1.5 to 30MHz) Receive: 250 kHz to 30 MHz
Power output	30 W PEP +/-1 dB (two-tone or voice), user-programmable in 1W steps (low/medium/high)
Channels	Up to 1000 entries
Contacts	Up to 500 entries
HF networks	Up to 20 networks (simultaneous scanning)
Presets	Up to 100 user defined presets
Input voltage range	13.8 V DC nominal, negative earth Functional range: 10.8 V to 17 V DC
Supply current	Transmit: output power 30 W, two-tone 3 A to 4.5 A CW or average speech 1.5 A for battery life calculations Receive: no signal <0.3 A typical, 0.35 A maximum
Frequency stability	+/-0.3 ppm from - 30°C to +60°C
GPS	Embedded receiver/antenna (GPS and GLONASS)
Programming	TPS-M Radio Programming Software, USB flash drive
Language support	English, Spanish, French, Arabic, Dari, Pashto, Portuguese, and Polish
Compliance	CE, FCC Part 90, AS/NZS 4770, AS/NZS 4355, MIL-STD-461G, IC RSS-125
NSN	5820-99-848-4976

MANPACK

SENTRY-H 6110-MP

RF	
Modes	Single Sideband USB, LSB (J3E), AM (H3E), CW (J2A), AFSK (J2B), FSK (F1B), ISB (B7D or B2B), Software Defined
Duty cycle	100% voice and data
Receiver specifications	Sensitivity: SSB: -125 dBm (0.12 uV) for 10dB SINAD Selectivity: >65 dB at -1 kHz at -1 kHz +4 kHz SCF (USB)
Transmitter specifications	Spurious and harmonic suppression: >65 dB below PEP Intermodulation products: >31 dB below PE

WAVEFORMS	
Automatic Link Establishment (ALE)	MIL-STD-188-141D (Appendix A, Appendix C); FED-STD-1045; JITC Certified MIL-STD-188-141B; STANAG 4538 3G ALE
Data	MIL-STD-188-110D (Appendix C); MIL-STD-188-110A/B (STANAG 4539) data capability with data rates up to 19k2 bps
Selcall	CCIR 493-4 proprietary and open standard
Digital Voice	TWELP (2400/1200/600/480/300 bit/s) MELPe (2400/1200 bit/s)
Digital Voice (open protocol)	TWELP (2400/1200/700/600 bit/s) Note: Actual vocoder rate combinations are dependent on other Export/Non-export controlled capabilities that may also be enabled.
Digital Voice (STANAG 4591)	MELPe (2400/1200/600 bit/s) Note: Actual vocoder rate combinations are dependent on other Export/Non-export controlled capabilities that may also be enabled.
Encryption	AES-256 or DES-56 digital voice and data (256 keys, direct entry via UI, and programmable via Codan KMS/KFS & USB flash drive) CES-128 voice (97 x 16-digit keys, direct entry via UI, and programmable via Codan KMS/KFS & USB flash drive, 4-digit session PIN)
ECCM	6, 12, 25 hops per second (hps) Max Data Rate: 6hps (2400 bps), 12hps (1200 bps), 25hps (600 bps) DV Vocoder Rates (TWELP only): 6hps and 12hps (1200/600/480/300 bps), 25hps (600/480 bps)



Radio with regular
battery box



Radio with short
battery box

MANPACK

SENTRY-H 6110-MP

ELECTRICAL AND MECHANICAL

Size	RFU with regular battery box: 324 L x 245 W x 96 H mm (with handles) RFU with short battery box: 277 L x 245 W x 96 H mm (with handles)
Weight	RFU without battery box: 2.45 kg RFU with regular battery box (no battery): 3.23 kg RFU with short battery box (no battery): 3.08 kg RFU with regular battery box and 17.4 Ah battery: 4.65 kg RFU with short battery box and 8.7 Ah battery: 3.95 kg
Interfaces	Handset Interface, DC supply (battery), USB (front panel and Handset), H-250 Audio (powered), GPS antenna, Antenna, Ethernet via adaptor (TCP/IP, supports remote control)
Temperature range	Operational at -30°C to +60°C; 95% RH maximum, non-condensing (-40°C to +70°C reduced performance with suitable battery)
Environmental standards	MIL-STD-810G (Shock, Drop, Vibration, Humidity, High temp, Low temp, Blowing Dust, Salt Fog, Fungus, Contamination, Altitude, Immersion) IP68 2m / 1 hr
Supported batteries	BB-2590, BA-3590 Note: Operational temperature range of the radio may be affected by the battery's operational temperature range.
MTBF	116,000 hours
MTTR	Less than 30 minutes

PRODUCT TYPE NUMBER

Product type numbers	RF Unit: 2410 Smart Handset (optional): 2320
----------------------	---

Values noted are typical. Equipment descriptions and specifications subject to change without notice or obligation.

Sentry-H 6110-MP radio's Export Commodity Classification (ECCN) under the Export Administration Regulations (EAR) is 3A611.a. Certain features may require an ITAR approval when exporting from the United States.