SOFTWARE DEFINED RADIO
SENTRY-M 6170-HH

CODAN COMMUNICATIONS

Codan's Sentry-M 6170-HH is an advanced, secure and easy to operate handheld multiband military Software-Defined Radio (SDR) designed for use in the harshest environments worldwide.

With continuous spectrum coverage from 20 MHz through to 520 MHz, the 6170 provides simultaneous voice, data and situational awareness (APP-6 NATO standard for tactical BMS), whilst offering network security with ECCM/TRANSEC, COMSEC and NETSEC.

KEY FEATURES

- 20 – 520 MHz – spectrum coverage (multiband)
- Simultaneous Voice, Data and Situation Awareness (SA)
- ECCM in GNSS denied environments
- Software Defined Radio architecture
- Large sun-readable colour display
- Embedded GPS
- Modular Solution – Jerk and Run
- Available in 50W Base / Vehicular configuration
- Dual PTT
- MELPe 2400bps
- COMSEC AES-256
- TRANSEC 300hps
- ECCM/MANET Waveforms

INTUITIVE USER EXPERIENCE

The Sentry-M 6170's high-resolution colour display offers an intuitive User Interface (UI), automatic screen brightness and backlit keypad, allowing users to operate the radio to its full potential with minimal training. The customisable UI can also be user configured to show mission critical information such as power output, signal quality, mode of operation and radio ID when receiving signal.

Allocation of special function macros allows the user to toggle a large range of options, including power level (0.1W, 1W, 5W), operational waveform, COMSEC and TRANSEC allocation with the press of a single key.

Smart network select enables the radio network administrator to set pre-predefined COMSEC, TRANSEC and frequency allocation for each of the 1000 programmable channels. With radio hot-swap functionality and emergency zeroise, the operator can ensure network security and continued communication in the event of radio compromise.

ADVANCED WAVEFORMS AND FEATURES

With high quality analog and digital voice (2.4kbps MELPe), the Sentry-M 6170 enables the use of multiple waveforms, creating an adaptable multi-role radio that can be tailored on the fly to meet mission specific requirements. With the flexible SDR platform, radio network modifications are applied easily in the field with the supplied FillGun or PC connection.

Adaptable to existing software architecture through the radio Application Programming Interfaces (APIs) coupled with an internal GPS receiver/antenna. Sentry-M 6170 can be integrated with virtually any customer supplied control system or SA (Situational Awareness) software.

The Sentry-M 6170 inbuilt network cross patching brings the ability to connect directly any third-party device with Carrier Operated Relay (COR) and Push To Talk lines (PTT), seamlessly merging radio networks and relaying mission critical voice communications.

Codan's RF and software engineering teams can collaborate with client engineers to design bespoke sovereign modes and waveforms according to specific end-user requirements.

WARRANTY, SERVICE AND SUPPORT

Proven product reliability and performance backed up by Codan standard three year warranty.

INTEROPERABILITY

The Sentry-M 6170's wide spectrum coverage and multiple operation modes allow clear and simple interoperability with almost any terrestrial, airborne or maritime radio. The 6170 can be employed to cover HF, VHF and UHF communications in both civilian and military bands.

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NARROW BAND MANET

Mobile Ad-hoc NETworking functions as a multi-hop relay for both voice and data with a self-healing network topology and maximum differential node speed of 260km/h. The Codan MANET waveform allows for robust information transfer with a low probability of detection on the front line.

The 32-user network 2 hop voice / 5 hop data relay allows for 5km Line of Sight (LoS) per hop voice and data transfer with and without GNSS (GPS) synchronisation including:

- GPS positioning
- SA, inclusive of BMS data
- Addressable short messages from the radio UI
- Sensor data
- File, image and email transmission
- IP data (IPv4) when connected to a PC

The dual PTT enables hierarchical transfer of information for different command and squad elements (see Fig. 1), with the inclusion of classified separation on data transfer (see Fig. 2) green can retransmit data from blue, but green cannot decode the information.

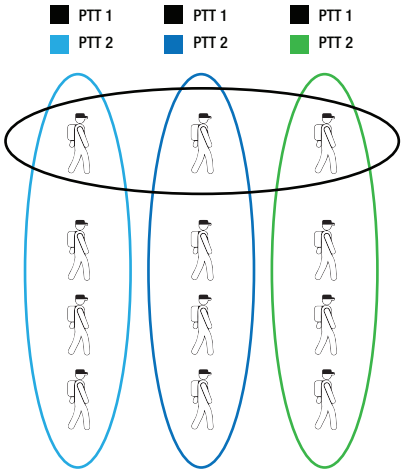

Fig 1 PTT HIERARCHY BETWEEN COMMAND AND SQUAD

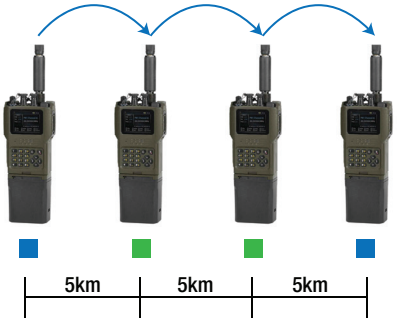

Fig 2 CLASSIFIED DATA RETRANSMITTED THROUGH GREEN CAN ONLY BE DECRYPTED BY BLUE

ECCM WAVEFORM

With the Codan advanced Low Probability of Exploitation (LPE), Low Probability of Detection (LPD) and Low Probability of Intercept (LPI) waveform, users can be confident continued communications are available behind enemy lines and in Electronic Warfare environments. The 6170 operates with only 25 kHz bandwidth, and provides a fast rate TRANSEC of 300 hops per second.

ACCESSORIES

Intelligent interfacing through a smart connection ensures the wide range of accessories are simple plug and play, automatically reconfiguring the radio interface ports when a device is connected. The Sentry-M 6170-HH has a full suite of accessories supporting different operational requirements, including:

- Headsets
- PTT devices
- shock mounts
- batteries / battery chargers
- pouches
- PC/network connections through USB, Ethernet (RJ-45) and RS-232.

Multiple antenna solutions to suit any requirement are available from full band (20-520MHz) through to band specific with increased gain and transmit properties e.g. 20-108MHz.

CODAN SENTRY-M 6170-BM

Codan's Sentry-M 6170-BM is a modular addition to the 6170-HH handheld radio, coupling a vehicle adaptor and a 50W power amplifier. This extremely robust unit provides the same advanced feature set as the handheld radio, with the benefit of additional range provided by higher power and more efficient antenna solutions.

This configuration offers selectable power output levels at 5W, 20W or 50W and a variety of supported accessories including external speakers, handsets and a range of vehicular/base antenna solutions.

The Sentry-M 6170-BM features a modular design. Where required the radio can be quickly removed from the vehicle adaptor, fitted with an antenna and used in handheld configuration.

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SPECIFICATIONS

GENERAL

Frequency range	Handheld: 20 to 520 MHz Base/Mobile: 30 to 520 MHz
Power output	Handheld: 0.1W, 1W, 5W Base/Mobile: 5W, 20W, 50W
Programmable channels	1000
Input voltage range	Handheld: 12V DC Mobile/Base: 19V to 33V DC (27V nominal)
Frequency stability	±1 ppm
Supply current	Base/Mobile: 11A
GPS	Built-in
Programming	6170-PS Radio Programming Software, FillGun
Language support	English as default (language inclusions on request)
Compliance	MIL STD 810F, EMC MIL-STD-461G

RF

Duty cycle	100% voice and data
Channel spacing	FM: 25 kHz AM: 8.33 kHz, 25 kHz
Receive specifications	Sensitivity: -116 dBm (20dB SINAD) Selectivity: ≥ 50 dB
Transmit specifications	Spurious and harmonic suppression: > 50 dBc

WAVEFORMS

FM/AM	STANAG 4203, 4204, 4205
Narrowband MANET	Proprietary
ECCM	Up to 300 hops per second
Data	π/4 DQPSK narrowband
Digital voice	MELPe 2400 / CODEC2
Encryption	AES-256
Waveform interoperability	STANAG 4203, 4204, 4205, 5630 NBWF
Transmission types	A3E, F3E, G1W – full band

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ENVIRONMENTAL

Size	Handheld: 220 x 86 x 44 mm (Excluding Antenna) Vehicle dock: 270 x 180 x 90 mm 50W Amplifier: 270 x 180 x 187 mm
Weight	Handheld: <1 kg (with Battery and Antenna) Vehicle dock: 2 kg Power amplifier: 9.5 kg
Interfaces	Audio, RS232, Ethernet, USB
Temperature range	-32°C to +55°C
Environmental standards	1m for 2 hours (MIL STD 810G)
Battery	Rechargeable 12V 10Ah Li-Ion
Battery life	10.5h at 1:1:8

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

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