

2110 MANPACK TRANSCEIVER

➤ FEATURES AT A GLANCE



- **Lightweight & rugged design**
- **Digital voice**
- **CES-128 & AES-256 Voice Encryption**
- **Internal high speed Data Modem**
- **Advanced ALE**
 - 3G ALE (STANAG 4538)
 - MIL-STD-141B
 - FED-STD-1045
- **Long battery life**
- **Intelligent battery system**
- **Interoperability with advanced calling facilities**
- **Smart, fast & fully automatic antenna tuner**
- **Clear communications with DSP noise reduction — *Easitalk*[™]**
- **Innovative & user-friendly interface**
- **Integrated GPS receiver**
- **3 year warranty**

The CODAN™ 2110 Manpack series Transceivers are extremely light and rugged, and are designed for long distance communications, whilst on the move. There are two versions available: the 2110v for basic voice only operations and the 2110 with more advanced capabilities. The 2110 supports Codan's second generation Digital Voice technology, providing outstanding voice clarity in demanding conditions. Coupled with high speed data and advanced ALE capabilities, the 2110 represents a full feature man-portable HF transceiver solution.

DIGITAL VOICE

Codan's second generation Digital Voice technology provides a quantum leap in HF voice communications. A full digital mode coupled with highly optimised vocoder technology provides voice quality similar to that experienced with cellular phones. Optional AES-256 encryption can be added to deliver a fully secure, high quality voice capability.

ADVANCED ALE

The 2110 Manpack includes the latest generation 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 existing bandwidth.

The 2110 Manpack Transceiver is 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. The 2110 is also interoperable with a number of commercial HF transceivers that are used by many non-government and humanitarian organisations.

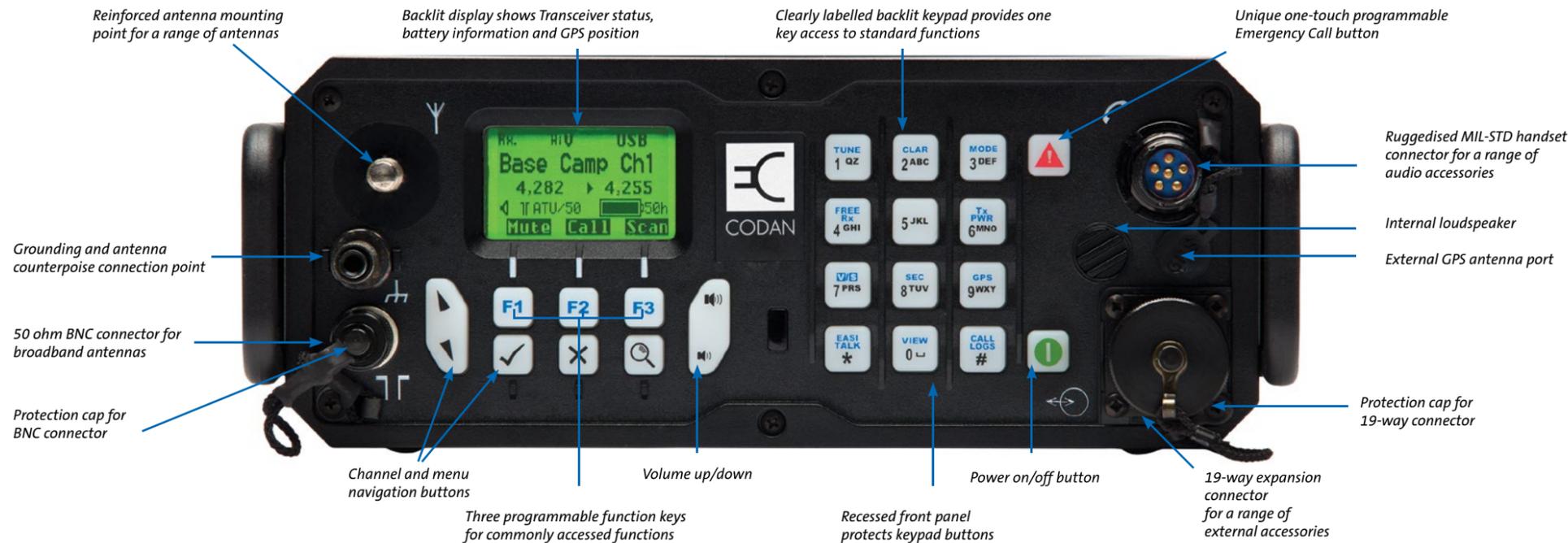
LIGHTWEIGHT & RUGGED DESIGN

Codan's 2110 series Transceivers are designed for harsh field conditions and comply with the most demanding environmental standards including MIL-STD-810F.

The Transceivers and battery compartments are made from lightweight alloys and high impact plastics. Both are capable of withstanding immersion to a depth of one metre.

At 2.9 kg Codan's 2110v and 2110 are among the lightest yet fully featured manpacks available today.

2110 MANPACK TRANSCEIVER



Reinforced antenna mounting point for a range of antennas

Backlit display shows Transceiver status, battery information and GPS position

Clearly labelled backlit keypad provides one key access to standard functions

Unique one-touch programmable Emergency Call button

Ruggedised MIL-STD handset connector for a range of audio accessories

Internal loudspeaker

External GPS antenna port

Protection cap for 19-way connector

19-way expansion connector for a range of external accessories

Power on/off button

Recessed front panel protects keypad buttons

Three programmable function keys for commonly accessed functions

Channel and menu navigation buttons

Volume up/down

Grounding and antenna counterpoise connection point

50 ohm BNC connector for broadband antennas

Protection cap for BNC connector

Please note that the picture shown (above) is not to scale

LONG BATTERY LIFE

Using state of the art technology, Codan's 2110 series Transceivers have by far the lowest current consumption of any available Manpack Transceiver. This enables continuous operation for several days on a single battery charge, which can save some users from carrying spare batteries.

INTELLIGENT BATTERY SYSTEM

Codan's unique battery management technology continuously monitors the battery condition and remaining capacity. The Transceivers' front panel shows remaining operating hours, reassuring users of their ability to communicate in mission critical operations.

The intelligent monitoring system also monitors battery charging and prevents batteries from being overcharged. This ensures maximum battery life and minimises operational costs.

Users can charge batteries via the Transceivers' front panels either while they are operating the manpacks or separately.

The 2110v and 2110 are compatible with a range of battery charging solutions for either AC or DC sources.

INTEROPERABILITY WITH ADVANCED CALLING FACILITIES

The 2110 series Transceivers provide seamless operation with Codan's NGT™ base and vehicle Transceivers. They are fully interoperable with NGT™ 4 and 6 digit calling facilities including Phone call, Message call, GPS call, Get Status call, and Over-The-Air (OTA) remote configuration and remote disable capabilities.

SMART, FAST & FULLY AUTOMATIC ANTENNA TUNER

Both the 2110v and 2110 feature an integrated antenna tuner that provides smart, fast and fully automatic tuning of whip and long wire antennas.

From the moment an antenna is connected, the Transceivers automatically detect the antenna and tune it to the operating frequency.

Users no longer have to select tuning modes, antenna types or manually initiate the tune cycle.

Initial tuning typically occurs within 2.5 seconds and takes only 50 milliseconds when tuning from memory.

The tuner is fully protected against unexpected antenna loads and mismatches, overvoltage, or continuous use.

A separate 50 ohm BNC connection is also available for broadband and other untuned antennas.

The 2110 supports connection to external antenna tuners such as the 9350 Automatic Tuning Whip Antenna.

CLEAR COMMUNICATIONS WITH DSP NOISE REDUCTION — EASITALK™

Codan's Digital Signal Processing (DSP) techniques greatly reduce the effect of interference and channel noise to provide clearer communications. Easitalk™ operates at the press of a button and the result is a loud and clear signal at all times.

INNOVATIVE & USER-FRIENDLY INTERFACE

Codan's intuitive interface is easy to use right from the start and minimises training time and costs. The Transceivers' menu driven interface includes a smart address book containing up to 100 names, call locations, and even pre-programmed text messages. It also features one key access to standard functions and pre-programmed sequences.

The front panel includes an internal speaker, full alpha-numeric keypad, and a large display that are backlit for night time operations.

The Transceivers are highly configurable and support both user and administrative access levels. This includes the ability to simplify the user interface by restricting a user to only those functions that are necessary to operate the Transceivers.

INTEGRATED GPS RECEIVER

Both the 2110v and 2110 support an integrated GPS receiver option, which enables you to monitor your own location, and your distance and

bearing from other transceivers within a network.

Emergency calls sent through the unique one button emergency facility automatically include GPS position information.

Using CODAN™ GPS and tracking software, a base station operator can track manpack units on a single map. Warning messages can be issued if the field operator enters a no-go area for added security. For extra protection, GPS data can be encrypted so positions are only seen by authorised users.

VOICE & DATA SECURITY

Codan's Voice Encryptor option is available with both Manpack Transceivers, and can prevent third party monitoring of communications that may otherwise jeopardise an operation. It uses a patented voice encryption technology to ensure sensitive information remains confidential.

For added security, the 2110 series Transceivers also support encryption of transmitted text messages and GPS position information.

WORLDWIDE SUPPORT

Codan customers are supported with our worldwide network of Accredited Service Centres, agents and distributors — 24 hours a day. Regular auditing and training by Codan technical staff ensure the best after sales service. The 2110 series Transceivers are backed by a 3 year warranty.

UPGRADABILITY & EASY SERVICE

The 2110 series Transceivers are designed to preserve your investment in the equipment by supporting future features and capabilities. Their large memory capacity and digital signal processing capabilities enable them to be extended easily through software updates.

The Transceivers' modular design makes them simple to service and repair with a minimum of tools. A range of built-in test capabilities makes it easy to test and report on the Transceivers' performance.

All CODAN™ Transceivers are fully protected from faults such as antenna damage, overvoltage and reverse polarity, which can destroy other transceivers.

OPTIONS

- Digital Voice (MELPe & TWELP vocoders)
- Data Modem, Internal STANAG 4539 / MIL-STD-188-110A/B (75–9600 bps)
- RC50-C Email Software for above
- 3G ALE (STANAG 4538) ALE
- MIL-STD-188-141B ALE
- FED-STD-1045 ALE (CALM™)
- Voice Encryption, CES-128 or AES-256
- Morse Key
- High Stability Receiver*
- GPS
- 500 Hz Bandwidth Filter
- 2700 Hz Bandwidth Filter**

* Required for MIL-STD-ALE

** Required for use with Data and Digital Voice

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SPECIFICATIONS

GENERAL

Channel capacity	2110v: 400 channels, 10 networks 2110: 600 channels, 20 networks with MIL-STD-188-141B ALE option or 3G ALE option
Scanning	Configurable up to 8 channels per second
Linking & data	3G ALE (STANAG 4538) including FLSU, HDL, LDL, CAST (Codan Adaptive Signalling Technology) MIL-STD-188-141B ALE MIL-STD-188-110A/B STANAG 4539, 75 to 9600 bit/s
Vocoder	MELPe (1200/2400 bit/s); TWELP (600/1200/2400 bit/s)
Operating temperature range	-40 to +70°C, full spec -30 to +60°C
Frequency stability	±1.5 ppm (-30 to +60°C)
Clarifier	10 Hz
Power source	12 V DC (10.8 to 15 V operational)
Size	Transceiver: 245 mm W x 250 mm D x 92 mm H, with battery 245 mm W x 350 mm D x 92 mm H
Weight	Transceiver: 2.9 kg (5.0 kg with 8 Ah NiMH battery)
Environmental	Per MIL-STD-810F including shock, vibration, humidity, immersion (1 hr at 1 m), altitude, fungus, salt fog, sand and dust, blowing dust, and rough handling
EMC	Complies with MIL-STD-461
Cooling	Convection from case
Transceiver conformance	Exceeds or meets requirements of AS/NZS 4770:2003, CE, NTIA and FCC Per MIL-STD-188-141B (required for ALE) (2110 only)
Interfaces	USB (full opto-isolation) or RS232
Approximate battery life	Approx. 50 hr (13 Ah NiMH), 1:9 Tx:Rx Approx. 65 hr (17 Ah Li-FePO ₄), 1:9 Tx:Rx

RF

Frequency range	Transmit: 1.6 to 30 MHz, 10 Hz steps Receive: 250 kHz to 30 MHz, 10 Hz steps
Modes	2110v: Voice, USB/LSB (J3E), AM (H3E), AFSK (J2B), CW (J2A) 2110: Voice/Data, USB/LSB (J3E), AM (H3E), AFSK (J2B), CW (J2A)
RF input/output impedance	Whip/long wire antenna via internal Automatic Antenna Tuner, or 50 Ω nominal
Antenna tuner	Tuning: 2.5 s typical first tune (fully automatic), 50 ms for memory recall Last tune stored for 100 frequencies
Transmitter specifications	Power output: 25 W PEP (High)/5 W PEP (Low) selectable Duty cycle: 50% with over temperature protection Audio bandwidth: 300 to 2700 Hz (standard filter) 300 to 3000 Hz (optional 2.7 kHz BW filter) (2110 only)
Receiver specifications	Operating current: 120 mA typical (speaker muted) Sensitivity: 0.14 µV for 10 dB SINAD Image & IF rejection: 85 dB Spurious response: ≥70 dB Mute: Syllabic Voice Detect Audio output: Waterproof internal speaker; 0.5 W into 8 Ω, 10% THD External speaker on GPIO connector; 1 W into 4 Ω, 10% THD

ENCRYPTION

CES-128, 97 x programmable 16-digit keys, 4-digit PIN
AES-256, 256 x programmable 256-bit keys

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



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