

# 2110 Manpack Transceiver

Codan's 2110 manpack transceiver is extremely light and rugged, and is designed for long distance communications, whilst on the move. It delivers low cost of ownership, and meets and satisfies the most demanding mission and user requirements. The 2110 is backed by Codan's reliability, worldwide support and three year warranty.

The 2110's low current consumption provides a very long battery life, and its innovative battery management system keeps the user fully informed of battery status. A user-friendly interface, integrated automatic antenna tuner, and self-test capabilities ensure it is simple to operate and maintain. The 2110 is fully interoperable with Codan's NGT series and other commercial and military transceivers. It also offers advanced ALE options, integrated voice security, GPS capabilities, and clear communications with *Easitalk*®.

## KEY FEATURES

### Lightweight and Rugged Design

The Codan 2110 is designed for harsh field conditions and complies with the most demanding environmental standards including MIL-STD-810F.

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



Codan 2110 SSB manpack transceiver

At 2.5 kg Codan's 2110 is one of the lightest yet fully featured manpacks available today.

### Advanced ALE (CALM®)

A FED-STD-1045 ALE capability is available as an option. It comes with Codan's ALE technology (CALM®), which improves the performance of ALE by maintaining channel quality information (LQA) on a 24 hour basis. This results in significantly less sounding and enables the transceiver to select the most suitable channel from the moment the transceiver is turned on.

In addition, full compliance with MIL-STD-188-141B ALE is also available as an option. This provides up to 600 channels and 20 networks.

With Codan's ALE capabilities, the 2110 is fully interoperable with other equipment complying with these standards.

Other advanced ALE features include:

- Automated message processing capability including Remote Diagnostics, GPS polling and sending, and Phone and Emergency calls
- Listen-Before Transmit capability preventing ALE transmission on channels that are already occupied
- Simultaneous Multiple Network Scanning capability

### Long Battery Life

Using state of the art technology, Codan's 2110 has by far the lowest current consumption of any available manpack transceiver. It requires only 120 mA of standby current, which enables it to be operated continuously for several days on a single battery charge. This means users typically no longer require a spare battery and hence their carrying weight is reduced significantly.



Please note that the picture (right) is not to scale

## ADVANCED FEATURES

### Intelligent Battery System

Codan's unique battery management technology continuously monitors the battery condition and remaining capacity. The transceiver front panel screen clearly displays battery condition and 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, regardless of the supported battery chemistry. This is done automatically, without the user's involvement, to ensure maximum battery life and to minimise operational costs.

Users can charge batteries via the transceiver's front panel either while they are operating the manpack or separately.

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

### Interoperability with Advanced Calling Facilities

The 2110 provides seamless operation with Codan's NGT base and vehicle transceivers. It is 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 and Fully Automatic Antenna Tuner

The 2110's integrated antenna tuner provides smart, fast and fully automatic tuning of whip and long wire antennas.

From the moment an antenna is connected, the 2110 transceiver automatically detects the antenna and tunes 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 the antenna and frequency settings are automatically stored in memory.

The 2110 takes only 50 milliseconds to tune from memory and is capable of storing up to 100 previously tuned frequencies.

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.

### 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 and User-friendly Interface

Codan's intuitive interface is easy to use right from the start and minimises training time and costs. The 2110's menu driven interface includes a smart address book containing up to 100 names, call locations, and even pre-programmed text messages of up to 64 characters. It also features one key access to standard functions and pre-programmed sequences.

The front panel includes an internal speaker, full alphanumeric keypad, and a large and clear operating display. Both the display and keys are backlit for night time operations and automatically shut off within a few seconds of inactivity to conserve battery power.

For greater choice and durability, the front panel provides rugged and waterproof connectors to accommodate a range of audio and other accessories. These include handsets, headsets, microphones, morse keys, and external data ports for messaging or easy

configuration using Codan's NGT® System Programmer (NSP) software.

The transceiver is highly configurable and supports both user and administrative access levels. This includes the ability to simplify the 2110's interface by restricting a user to only those functions that are necessary to operate the transceiver.

### Integrated GPS Receiver

An integrated GPS receiver option, with the antenna built in behind the transceiver front panel, enables users to monitor their own location, and send and receive GPS position information to and from other transceivers within a network.

The GPS latitude, longitude and altitude position can be displayed on the transceiver front panel display. For remote stations, positions are displayed as longitude and latitude or relative bearing and distance.

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 and Data Security

Codan's Voice Encryptor option for the 2110 can prevent third party monitoring of communications that may otherwise jeopardise an operation. It uses a patented SAFE voice encryption technology to ensure sensitive information remains confidential.

For added security, the 2110 can also encrypt transmitted text messages and GPS position information.

## SPECIFICATIONS

Frequency range	1.6 to 30 MHz Tx, 250 kHz to 30 MHz Rx	
Channel capacity	400 channels, 10 networks 600 channels, 20 networks with MIL-STD-188-141B ALE options	
Operating modes	Single sideband (J3E) USB, LSB, switched USB/LSB, (AM:H3E), J2A (CW), J2B (AFSK)	
Frequency stability	±1.5 ppm or ±0.5 ppm (–30 to +60°C)	
RF input/output impedance	Whip/long wire antenna via internal Automatic Antenna Tuner, or 50 Ω nominal using 50 Ω antenna port	
Sensitivity	Frequency: 0.25 to 30 MHz RF amp off: 1.25 μV PD –105 dBm Frequency: 1.6 to 30 MHz RF amp on: 0.12 μV PD –125 dBm For 10 dB SINAD with greater than 50 mW audio output	
A/F power and A/F distortion	Internal speaker; 1 W into 8 Ω, 5% THD External speaker on GPIO connector; 2 W into 4 Ω, 5% THD	
Power output	25 W PEP ±0.5 dB (high power), 5 W PEP ±0.5 dB (low power)	
Supply voltage	12 V DC nominal from supplied battery, negative earth	
Antenna tuning times	First time tuning typically 2.5 s Memory tuning, typically 50 ms, including fine tuning cycle	
Approximate battery life	13 Ah NiMH battery box: ~50 hr 8 Ah NiMH battery box: ~30 hr 7 Ah SLA battery box: ~15 hr All based on voice transmission for 10% duty cycle	
Environment	Ambient temperature: –30 to +60°C Derate upper ambient temperature by 1°C per 330 m above sea level	
Cooling	Convection from case	
Size and weight	2110 transceiver including battery box: 245 mm W x 350 mm D x 92 mm H 2110 transceiver only: 245 mm W x 250 mm D x 92 mm H	
Weight	2110 transceiver only: 2.5 kg 13 Ah NiMH battery box: 2.9 kg 8 Ah NiMH battery box: 2.1 kg 7 Ah SLA battery box: 3.2 kg	
Sealing	IP68; immersion for 1 hour at a depth of 1 metre	
Electrical standards	Exceeds or meets requirements of AS/NZS 4770:2000, AS/NZS 4582:1999, CE, NTIA and FCC	
Physical standards	Low pressure (altitude): MIL-STD-810F, Method 500.4, Procedure 1 Humidity: MIL-STD-810F, Method 507.4 Vibration (3 hours per axis): MIL-STD-810F, Method 514.5 Shock: MIL-STD-810F, Method 516.5, Procedure 1 Leakage (immersion): MIL-STD-810F, Method 512.4, Procedure 1 Fungus: MIL-STD-810F, Method 508.5 Salt fog: MIL-STD-810F, Method 509.4, Procedure 1 Sand and dust, blowing dust: MIL-STD-810F, Method 510.4, Procedure 1	
Transceiver performance	Per MIL-STD-188-141B (required for ALE)	
Interfaces	Serial RS232, Infrared (IrDA)	

## SERVICE AND SUPPORT

### Upgradability and easy service

The 2110 is designed to preserve users' investment in the equipment by supporting future features and capabilities. Its large memory capacity and digital signal processing capabilities enable it to be extended easily through software updates.

The transceiver's modular design makes it 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 transceiver's performance.

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

### 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 is backed by a 3 year warranty.

## OPTIONS / ACCESSORIES

Option	Purpose
GPS	GPS Receiver Module
NBF	Narrow Band Filter (500 Hz)
WBF	Wide Band Filter (2700 Hz)
COMSEC	Voice Encryptor Module
FED-STD-1045 ALE (CALM)	Full FED-STD-1045 ALE with CALM enhancements
MIL-STD-188-141B ALE	Full MIL-STD-188-141B ALE, 600 channels and 20 networks

Values noted are typical. Equipment descriptions and specifications are subject to change without notice or obligation. NGT®, CALM® and Easitalk® are registered trademarks of Codan Limited.

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