

## 2110 MANPACK TRANSCEIVER

### ➤ FEATURES AT A GLANCE



- **Lightweight & rugged design**
- **Advanced ALE (CALM™)**
- **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**
- **CES-128 & AES-256 Voice Encryption**
- **Internal high speed Data Modem**

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 additional interface and interoperability capabilities. The main differences between the two versions are that the 2110 Manpack Transceiver is fully interoperable with military transceivers and offers advanced Automatic Link Establishment (ALE) options.

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

### ADVANCED ALE (CALM™)

Both Transceiver models have a FED-STD-1045 ALE capability 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 Transceivers to select the most suitable channel from the moment they are turned on.

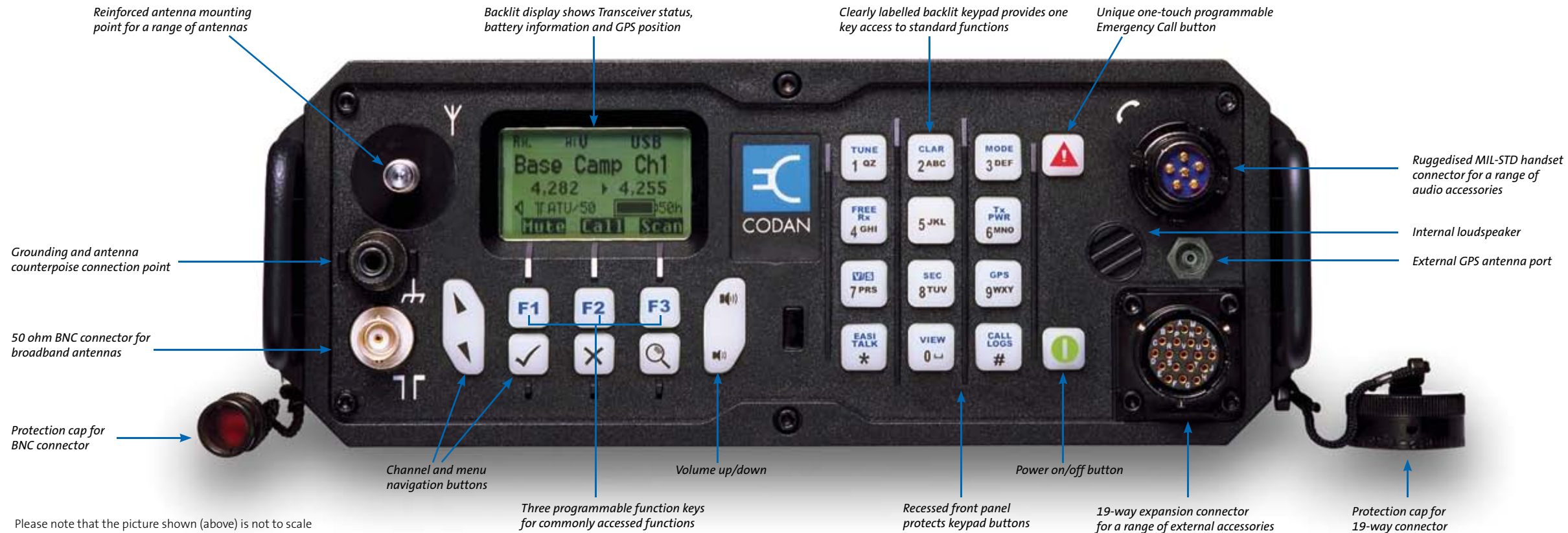
In addition to FED-STD-1045 ALE, the 2110 also offers full compliance with MIL-STD-188-141B ALE as an option. With this option, the 2110 offers up to 600 channels and 20 networks.

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

Other advanced ALE features supported in both the 2110v and 2110 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

## 2110 MANPACK TRANSCEIVER



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.

### 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

- Data Modem, Internal STANAG 4539 / MIL-STD-188-110A/B (75–9600 bps)
- RC50-C Email Software for above
- FED-STD-1045 ALE (CALM™)
- MIL-STD-188-141B ALE
- 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 MIL-STD Data Modem

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.

# 2110 MANPACK TRANSCEIVER

## SPECIFICATIONS

### GENERAL

|                                     |   |
|-------------------------------------|---|
| <b>Frequency range</b>              | 1.6 to 30 MHz Tx, 250 kHz to 30 MHz Rx  |
| <b>Channel capacity</b>             | <b>2110v:</b> 400 channels, 10 networks<br><b>2110:</b> 600 channels, 20 networks with MIL-STD-188-141B ALE option  |
| <b>Scanning</b>                     | Configurable up to 8 channels per second  |
| <b>Frequency stability</b>          | ±1.5 ppm (–30 to +60°C)   |
| <b>Power source</b>                 | 12 V DC (10.8 to 15 V operational)  |
| <b>Modes</b>                        | <b>2110v:</b> Voice, USB/LSB (J3E), AM (H3E), AFSK (J2A), CW (J1A)<br><b>2110:</b> Voice/Data, USB/LSB (J3E), AM (H3E), AFSK (J2A), CW (J1A)                |
| <b>Internal Data Modem</b>          | STANAG 4539, MIL-STD-188/110A/B, 75–9600 bps<br>USB Data Interface  |
| <b>Operating temperature range</b>  | –30 to +60°C  |
| <b>Size</b>                         | Transceiver 245 mm W x 250 mm D x 92 mm H<br>With battery 245 mm W x 350 mm D x 92 mm H   |
| <b>Weight</b>                       | Transceiver 2.6 kg (4.7 kg with 8 Ah NiMH battery)  |
| <b>Environmental</b>                | 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 |
| <b>Cooling</b>                      | Convection from case  |
| <b>Transceiver conformance</b>      | Exceeds or meets requirements of AS/NZS 4770:2003, CE, NTIA and FCC<br>Per MIL-STD-188-141B (required for ALE) ( <i>2110 only</i> )                         |
| <b>Interfaces</b>                   | Serial RS232  |
| <b>RF input/output impedance</b>    | Whip/long wire antenna via internal Automatic Antenna Tuner, or 50 Ω nominal  |
| <b>A/F power and A/F distortion</b> | Waterproof internal speaker; 0.5 W into 8 Ω, 10% THD<br>External speaker on GPIO connector; 1 W into 4 Ω, 10% THD ( <i>2110 only</i> )                      |
| <b>Approximate battery life</b>     | Approx. 65 hr (17Ah LiPO <sub>4</sub> ), 50 hr (13 Ah NiMH) voice 1:9 Tx:Rx   |

### TRANSMITTER

|                        |  |
|------------------------|--|
| <b>Power output</b>    | 25 W PEP (High)/5 W PEP (Low) selectable |
| <b>Duty cycle</b>      | 50% with over temperature protection     |
| <b>Audio bandwidth</b> | 350 to 2700 Hz                           |

### RECEIVER

|                          |  |
|--------------------------|--|
| <b>Operating current</b> | 120 mA typical (speaker muted)   |
| <b>Sensitivity</b>       | 0.14 μV for 10 dB SINAD  |
| <b>Mute</b>              | Syllabic Voice Detect  |
| <b>Audio output</b>      | <b>Handset:</b> via 6-way connector<br><b>Internal Speaker:</b> selectable on or off<br><b>External Speaker:</b> via 19-way connector ( <i>2110 only</i> ) |

### ANTENNA TUNER

|               |   |
|---------------|---|
| <b>Tuning</b> | 2.5 s typical first tune (fully automatic), 50 ms for memory recall<br>Last tune stored for 100 frequencies |
|---------------|---|

CODAN™, NGT™, CALM™ and Easitalk™ are trademarks of Codan Limited. Other brand, product and company names mentioned in this document are trademarks or registered trademarks of their respective holders.

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



[www.codanradio.com](http://www.codanradio.com)

## RADIO COMMUNICATIONS

12-20173-EN Issue 6 6/2012

**T:** +61 8 8305 0311 ▪ **F:** +61 8 8305 0411 ▪ **E:** [sales@codanradio.com](mailto:sales@codanradio.com)  
Codan Limited ▪ 81 Graves Street ▪ Newton South Australia 5074 ▪ Australia