HF Transceiver Codan Envoy

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About Envoy™

The Envoy™ is the latest generation smart Digital Software Defined HF transceiver providing reliable Digital Voice and Data communications.

Envoy's™ embedded IP connectivity allows control options simply not possible with conventional analogue radios. It is now possible to have crystal clear real-time digital voice conversations across the globe using the HF and Internet mediums with Envoy™. Unlike our competitor's radios – this functionality is possible without external accessories.

Our clients are now able to program, configure and upgrade their Envoy™ with new functionality without returning them to a depot. This offers significant operational flexibility and provides substantial savings on deployment, maintenance and total cost of ownership.

The multilingual user interface is highly intuitive with smartphone like icon controls providing rapid user adoption. With a built-in data modem sending messages and photos in the field has never been simpler.

The Envoy™ supports dual antenna inputs automatically selecting the best signal for even simpler operation and communication reliability.

AT Communication is renowned worldwide for providing leading-edge technology in mission-critical applications. The Envoy™ raises the standard again and is built on a pedigree of over 50 years of innovation.

Features of Envoy™:

- Clear, reliable voice communications
- Compatible with Analogue HF Radios
- Digital Voice option upgrade
- Dual antenna support
- 125 W RF output power
- Industry-leading RF performance

HF Transceiver Codan Envoy™

Codan's Envoy™ HF Transceiver system delivers unparalleled dependable, clear, digital voice and data communications in challenging environments.

The Envoy™ is a powerful software defined radio (SDR) communications tool that allows organisations to create and fulfil several operating scenarios using only the Envoy™. Its amazing digital voice clarity provides clear communications in even in the harshest of radio environments. Using Codan's advanced digital vocoder option, voice clarity in high noise environments now provides even more dependability when it really counts in the field. Even

- Intuitive programming and operation, and USB Smartloader
- Software-defined architecture
- IP remote controllable
- Ethernet / USB connectivity
- High-resolution colour display
- Multi-lingual graphical user interface
- Integrated robust 3012 compatible data modem
- CES / AES
- Powerful PC-based programming software
- Desk console for base stations
- Calling systems 4/6 digit Selcall based on CCiR 493-4 (compliant with UN open Selcall)
- FED-STD-1045 ALE
- MiL-STD-188-141B ALE

untrained operators can now overcome frustration common with analogue HF radios.

In addition to the remarkable digital voice option, the IP connectivity embedded in the Envoy™ now allows control options simply not possible with conventional analogue radios without a lot of add-on accessories. The Envoy™allows voice communication from the field using RF to a base station routed through the Internet to another country in real time.

Using the built-in IP control capability in the Envoy™gives organisations the following benefits and operational possibilities;

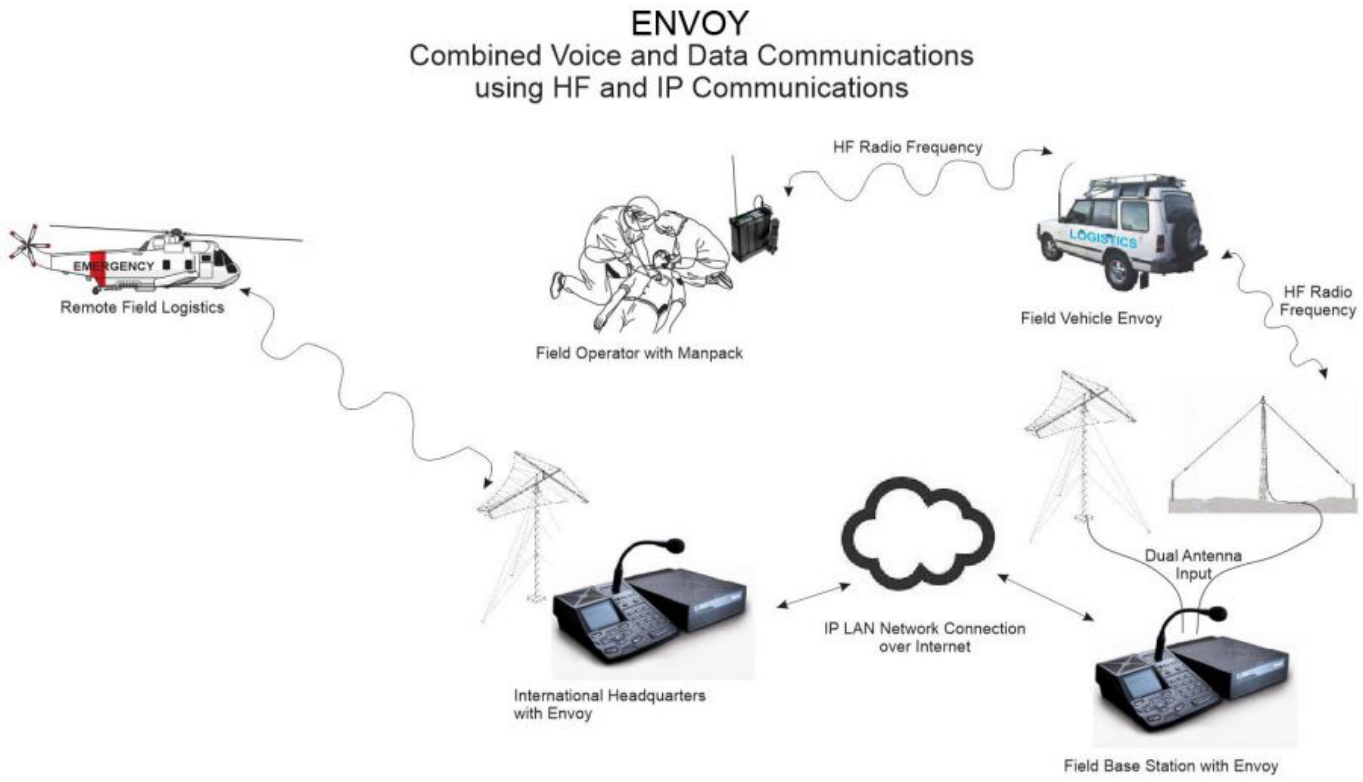
Other advanced features of the Envoy™ include:

- Support for dual antenna inputs allowing the best signal to be selected from different antenna types
- Multiple language support allowing operators to view the user interface using intuitive and familiar menu labels
- GPS Positioning offers peace of mind knowing you can locate your field personnel
- USB smart loader for distribution of programming, configuration and updates
- Option for Digital Encryption of Voice and Data. (Subject to export controls)
- 15way GPIO Port Audio Recorder Support
- Snake Game

- Remote control of radio transmitter. The operator can now be located remotely from the transmission location. Even in another country!
- Radios can be re-programmed in the field. No more sending radios back to a maintenance depot.
- Radios can be updated in the field. New features can be added remotely.
- Email & Messaging is possible with the Envoy™ built in high-speed data modem

Applications for Envoy™;

- Humanitarian
- Search and Rescue
- Infrastructure
- Border Security
- Public Safety
- Military



SOFTWARE-DEFINED ARCHITECTURE

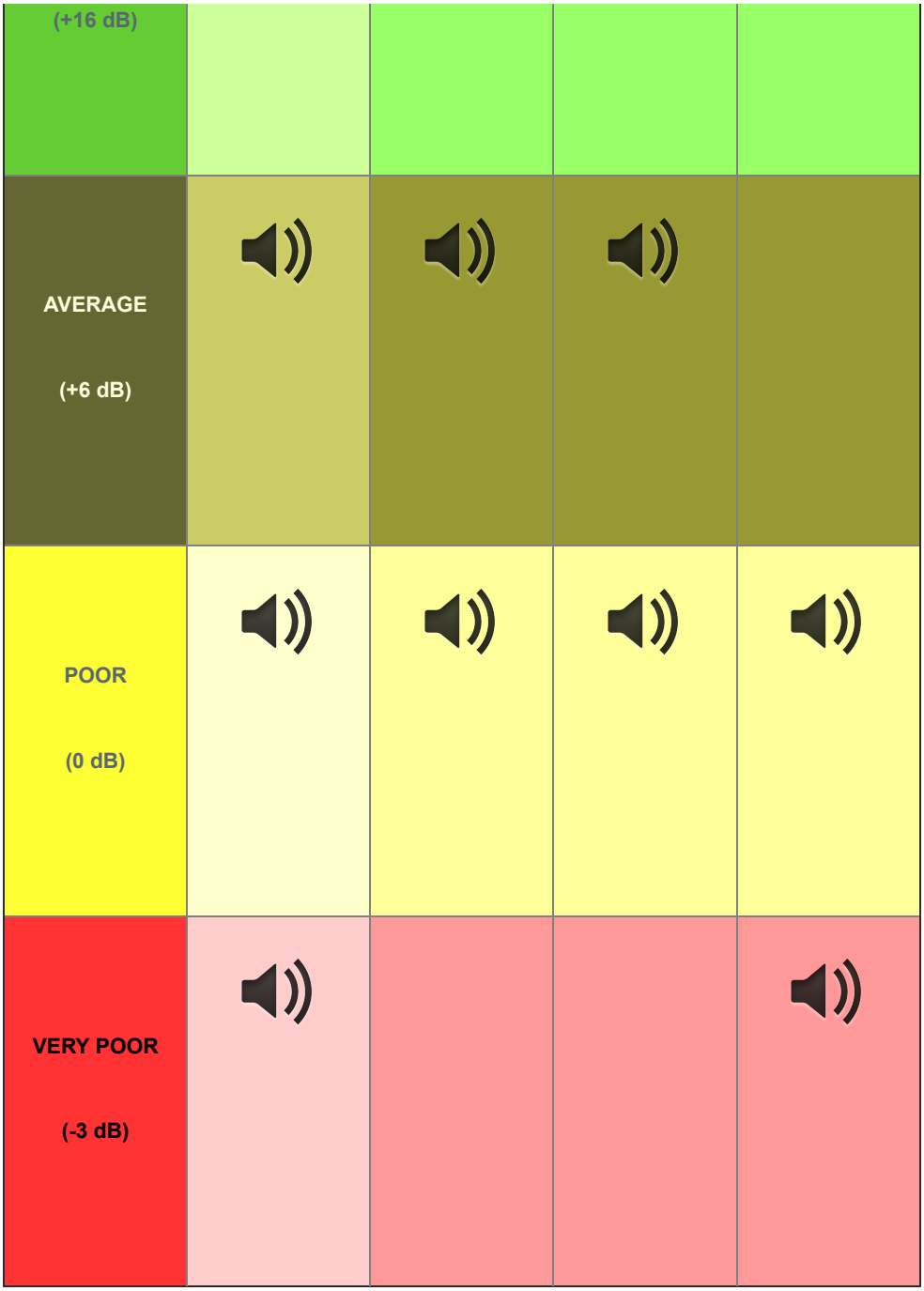
Envoy™uses latest-generation high-performance Digital Signal Processor (DSP), Field-Programmable Gate Array (FPGA) and microprocesso technology.

This allows your radio to be upgraded in the field with new features without requiring purchase of a new radio.

DIGITAL VOICE OPTION

The Envoy™ Digital Voice option uses the latest powerful DSP and Vocoder technology to produce amazing voice clarity in the harshest of radio environments. The Digital Voice option can deliver clear voice using 2400, 1200 and 600bits/sec depending on channel conditions. Coming soon is also non-real time transmission of voice down to 300bits/sec. Untrained operators will now overcome frustration common wit analogue HF radios.

CHANNEL CONDITION (SNR)	ANALOGUE VOICE	CODAN envoy DIGITAL VOICE		
		2400 bps	1200 bps	600 bps
GOOD	🔊	🔊		



DUAL ANTENNA INPUTS

Dual antenna option allows for two antennas to be simultaneously connected to the Envoy™ that teamed with the smarts of Envoy, results in optimal coverage as the Envoy™ will use the antenna that provides the best voice quality.

INTUITIVE OPERATION

With its large, high-resolution, backlit colour display and customisable icon-based menu system, Envoy™is as simple to operate as modern smartphones. Making calls is as simple as navigating to your contact list, locating the desired contact and pressing the "call" button.

Four control points (CP) can now be assigned for the one Envoy™ RF Unit. Each control point can be registered with the RF Unit and assigned a unique self ID-address. For each Control Point assigning self addresses and registering multiple control points.

If required the Control Point operator now has the ability to restart the RF Unit from the General / Restart RFU menu. This feature is especially useful in remote control systems where a restart of the RF Unit is required due to some profile changes made. Default Power Down Function is now available for both desk console and handset control points.

Default Power Down Function now is available. The Default Power Down Function allows You to select between “Power Down Control Point and RFU” or Power Down the “Control Point only”. This setting can be found in the Settings/Control Point menu of the control point and TPS. This function is useful when controlling an Envoy™ over Ethernet or you have multiple control points.

MULTI-LINGUAL

Envoy™user interface and PC programming software are available in languages other than English making training of new operators much simpler.

EASY TO DEPLOY

Envoy™ can be configured and programmed in the field via IP Remote Control or with a direct USB connection or USB memory device using the USB Smartloader capability. Alternatively Envoy™can be configured directly through the intuitive menu system, with the assistance of the in-built quick-start guides. Access to settings can be selectively protected via an administrator pin.

BITE

Envoy™features Built-in Test Equipment (BITE) with automatic self-test is run on start-up. Additional tests can be run manually and a simple status LED indicates normal operation status – red or green. Remote management is also supported via over-the-air diagnostic and status calls.

Envoy™continually monitors forward and reflected power. Voltage Standing Wave Ratio (VSWR) can be displayed to the user, and poor VSW (e.g. caused by an untuned antenna) is quickly reported.

SMART MONITORING AND SCANNING

When an operator is absent, Envoy™generates an automatic log containing the caller's identity, time and channel number that can be displayed upon their return. With multiple net adaptive scanning, Envoy™automatically adjusts scan times for multiple networks according to the channels pre-set scan times. This feature gives the most efficient scanning time possible for Selcall, ALE and voice detection.

Envoy™features flexible scanning networks, with up to 20 scan tables containing up to 100 channels. Scan rates of up to 8 channels per second are possible, which provides increased capacity for HF networks based on Envoy™.

With the syllabic Voice Mute, Envoy™effectively detects voice patterns even in high-noise environments. This ensures mute is only opened after it detects speech on any scanned or monitored channels.

When Selcall or ALE selective calling is implemented, users are able to scan multiple channels or networks. The operator is only alerted wher a call addressed to them specifically is received. This relieves the operator from continuous manual monitoring for relevant incoming traffic.

HIGH PERFORMANCE. INTEROPERABLE CALLING CAPABILITY

Envoy™ supports currently used calling standards including CCIR based Selcall, FED-STD-1045 Automatic Link Establishment (ALE) and MIL-STD-188-141B ALE. This ensures full interoperability with earlier generation Codan, competitor and legacy transceivers.

Envoy’s™ CALM™

Codan Automated Link Management takes conventional ALE to the next level through dynamic channel characterisation, maximising the probability of clear communications. In addition, Envoy™delivers advanced capabilities, such as call voting and data optimised calling.
More info about CALM https://at-communication.com/en/hf-ssb-transceiver/codan/hf_ssb_transceiver_ngt.html

INDUSTRY-LEADING RF PERFORMANCE

Clear voice communications and reliable data communications are the prime objectives of Envoy™. This is achieved by industry-leading RF performance specifications, together with Codan's renowned Easitalk™ noise-reduction technology.

INTERNAL EMAIL CAPABLE DATA MODEM

Envoy™ is available with a robust low rate modem option, or a high-speed MIL-SPEC modem offering up to 9600 bit/s data capability.

ISB Support for 2G HF Data Modem. ISB mode should only be used if the Envoy™ has an internal 2G data modem. Data Modem in conjunction with RC50-C software allowed to provide higher data rate up to 19200 bit/s on HF channel.

These are backed up by application software solutions supporting Email and Chat. All solutions compress data for minimal transmission time, and the high-speed modem utilises DRC (data rate control) to optimize the data rate to the present channel conditions.

VOICE SECURITY

Optimal voice clarity is provided through the use of a Mixed-Excitation Linear Predictive enhanced (MELPe) Vocoder. The MELPe Vocoder supports 600 bits/s, 1200 bit/s and 2400 bit/s user selectable data rates.

Envoy™has a choice of three internally fitted voice encryption options to suit all levels of communications security. The CIVS voice encryption option is a cost effective software enabled voice scrambler capability that is simple to use and provides a basic level of voice security.

The CES voice encryption option provides high-level128-bit voice security. Up to 97 16-digit user programmable keys are provided. An additional layer of security is provided through the ability to assign a PIN number during a secure communications session.

The AES voice encryption option provides 256-bit security according to the Advanced Encryption Standard, with up to 256 user programmable encryption keys.

All voice encryption options for Envoy™are fully integrated with core Transceiver functions like Selcall and ALE scanning to ensure simplicity operation.

IP REMOTE CONTROL, CONNECTIVITY

Envoy™features USB and Ethernet connectivity. End-user benefits include the capability for remote control over IP, and the convenience of deployment of configuration profiles through USB memory sticks. Programming and firmware upgrade are supported at high speed.

GPS SUPPORT

Envoy™supports connection of GPS via NMEA0183 compatible GPS receivers. This enables polling and sending of GPS positions over air. Distance and bearing to other users can be displayed. When used with Internav™ CHF tracking PC software, up to 100 vehicles can be tracked. Internav™ provides advanced features such as corridor and alarm zones, waypoints, and recording of emergency events.
More info about Internav https://at-communication.com/en/hf-ssb-transceiver/codan/hf_ssb_gps.html

15WAY GPIO PORT AUDIO RECORDER SUPPORT

The 15way GPIO Port now has the ability to output Tx audio. This feature is used in installations where audio recording of both Rx & Tx is required. The option can be found in the Peripheral menu.

SNAKE GAME

Envoy™ now has a game. Snake can be found in the General menu on the control point. As Snake is a menu item it can be hidden from operators if required. Hiding of this icon can only be achieved with TPS V1.09.

SPECIFICATIONS

GENERAL	
Channels	Up to 1000 simplex or semi-duplex
Scanning	Up to 20 scan groups Simultaneous scanning for SelcalI (ALE / CCIR) and voice Dwell time 125 ms to 9.9 s, adjustable
Contact list	Up to 500 entries
SDR processing architecture	DSP, 456 MHz, 32-bit FPGA, 500,000 gate MCU, ARM9, 300 MHz 32-bit
Interfaces	USB (via Handset or Console) Serial RS232 (supports NMEA-0183 GPS) Ethernet (TCP / IP, supports remote control) Auxiliary GPIO (audio in /out, PTT, RS232) on Envoy™X2 model
Audio response	Less than 3 dB variation from 300 Hz to 3 kHz (with optional 2.7 kHz filter)
Compliance	CE, NTIA, FCC, AS/NZS 4770:2000, AS/NZS 4582:1999 (pending)
Temperature range	-30 to +60°C
Humidity	95% RH maximum, non-condensing

RF	
Frequency range	Transmit: 1.6 to 30 MHz Receive: 250 kHz to 30 MHz Frequency Stability: ±0.3 ppm from -30°C to +60°C
Modes	Single sideband (J3E), USB, LSB, AM (H3E), CW (J2A), AFSK (J2B), FIB (FSK) (software controlled filter bandwidth)
Output power	125 W PEP ±1 dB (two-tone or voice), user-programmable (low / medium / high)
Duty cycle	100% Voice / Data with optional Fan
RF output impedance	50 Ohm
Filter bandwidths	2.4 kHz standard (500 Hz, 2.7 kHz optional) Wideband software programmable filters available on Envoy™ X2 model
Transmitter specifications	Spurious and harmonic emissions: Betterthan <69 dB below PEP Intermodulation products: 40 dB below PEP Carrier suppression: Betterthan: 65 dB below PEP Sideband suppression: 70 dB below PEP
Receiver specifications	Sensitivity: 0.12 |iV,-125 dBm for 10 dB SINAD Selectivity: >70 dB at-1 kHz and +4 kHz ref SCF USB Blocking: >100 dB at ±50 kHz Image rejection: >95 dB Spurious response: >85 dB Intermodulation: Unwanted signal >92 dB below desired signal Intercept point: +38dBm
Switching speed	<25 ms (Tx:Rx or RxTx)

ELECTRICAL	

Operating range	10.8 to 13.8 V DC (12 V Nominal)
Supply current	Receive: 500 mA (backlight min, audio muted) Transmit:Two-tone 12.5 Atypical, average speech 8 A
Protection	Over-voltage / under-voltage /over-temperature / reverse polarity
MECHANICAL	
Size	2210 RF Unit: 210 x 270 x 65 mm (8.3 x 10.6 x 2.6 in) 2220/1 Handset: 75 x 32 x 151 mm (5.9 x 1.3 x 3.0 in) 2230 Console: 190 x 228 x 79 mm (7.5 x 9.0 x 3.1 in)
Weight	2210 RF Unit: 2.8 kg (6.2 lb) 2220/1 Handset: 0.3 kg (0.7 oz) 2230 Console: 1.1 kg (2.4 lb)
Paint finish	2210 RF Unit: Powder-coated matt black
Ingress protection	IP54, MIL-STD-810G method 510.5
Environmental standards	MIL-STD-810G (Dust, Shock, Vibration, Humidity, Fungus, Altitude)
OTHER	
Data Modem (robust low rate)	CHIRP / QPSK, 2400 bps (up to 6000 bps using in-built compression)
Data Modem (high speed)	MIL-STD-188-110A/B, STANAG 4539, 75 to 9600 bit/s
Encryption	CES-128, 97 x programmable 16-digit keys, 4-digit PIN (Voice only) AES-256, 256 x programmable 256-digit keys (Voice/Data) MELPe (1200/2400 bit/s)
Software applications	TPS-3250 Transceiver Programming Software Internav™ GPS Tracking RC 50-C E-mail (for high speed modem) UUPlus™ Email (for robust low rate modem)
Language support	English, Spanish, Russian & Dari language

ACESSORIES

☑ Desk Console	☑ 3033 Telephone Interconnect
☑ 500 W / 1 kW High Power Amplifiers	☑ Dual-port Antenna Selector
☑ 3040 Automatic Whip Antenna	☑ Vehicle installation kit
☑ 3020 AC Mains supplies	☑ Vehicle dash-mount handset cradle

MODELS		
Feature	ENVOY X1	ENVOY X2
No. of channels	100	1000
Scan groups	10	20
Contact list entries	200	500

Accessory serial port	N/A	Standard
Data modem	N/A	Optional
Wideband filters	N/A	Optional
MIL-STD ALE	N/A	Optional

For more detailes please contact us .

AT Electronic and Communication International company has trained professional consultants who are able to analyse your requirements and special unique operational constraints to recommend a system that will provide reliability, value and expandability.

Please ask us to prepare a no-obligation proposal.

Codan Envoy - SDR