

## NGT™ SRx TRANSCEIVER

### ➤ FEATURES AT A GLANCE



- Easy to use
- 125 W RF output power
- Clear audio with *Easitalk™*
- 4/6 digit Selcall based on CCIR 493-4 (compliant with UN open Selcall)
- FED-STD-1045 ALE / CALM™
- MIL-STD-188-141B ALE (JITC certified)
- Multi-level access & security
- CES-128 and AES-256 encryption options
- MELPe Digital Vocoder option
- 500 W & 1 kW High power options
- ISB option for high speed (19K2) data communications
- 3 year warranty
- Global distribution & support

The NGT™ SRx Transceiver is specially designed to provide comprehensive and advanced High Frequency (HF) communication solutions. It is cost-effective and can meet your base and mobile HF communications requirements for both voice and data operation.

While incorporating the usual features of Codan's leading edge HF radio technology and renowned reliability, the NGT™ SRx has been built as a one radio solution to suit all conditions and configurations.

Codan's user-friendly handset interface and self-test capabilities ensure the NGT™ SRx is easier to install, operate and maintain than other transceivers. It is also fully interoperable with other HF transceivers to provide seamless HF network integration.

### EASE OF USE

Codan's NGT™ SRx is designed for quick deployment in base and mobile configurations. The specially designed mounting equipment and flying lead cable interfaces enable the NGT™ SRx to be installed quickly and with minimum requirement for space while still providing ease of access for servicing.

The handset can be mounted in any position for easy access and viewing; especially important in a vehicle where space is limited. With the comprehensive user-friendly interface and full control over the handset, a driver or passenger can operate the transceiver from any location within a vehicle.

Programmable password protected access rights can be used to tailor the transceiver feature set and capabilities to your specific user requirements, which ensures the operator is not presented with unnecessary complexity.

Extensive Built-In-Test Equipment (BITE) capability makes it easy for users or network administrators to analyse transceiver performance.

The 50 ohm antenna output is fully protected against any load conditions including short circuit, open circuit and high Voltage Standing Wave Ratio (VSWR), which can destroy other transceivers. In the event of poor VSWR, an error is reported to the handset. VSWR can also be reviewed via the handset at any time.

**CLEAR VOICE**

Excellent sensitivity and the high dynamic range of the NGT™ receiver ensures better reception in the most difficult channel conditions.

The dynamic range of voice signals is compressed prior to transmission, resulting in clearer and more intelligible signals for receiving stations.

Clarity of receive signals is achieved with *Easitalk™* noise reduction, which dynamically identifies and suppresses interfering non-voice signals. *Easitalk™* operates with a single button press and results in loud and clear voice reception in noisy conditions. Users have a choice of algorithms to suit personal preferences or specific types of interference.

Users looking for even greater voice clarity can choose the MELPe based digital voice option. The digital voice capability provides telephone grade voice communications and the added benefit of voice security. Operators can switch between two data rates that cater for various channel conditions.

**VOICE SECURITY**

The NGT™ SRx 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 level 128 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. Optimal voice clarity is provided through the use of a Mixed-Excitation Linear Predictive enhanced (MELPe) Vocoder. The MELPe vocoder supports 1200 bps and 2400 bps user selectable data rates.

All voice encryption options for the SRx are fully integrated with core transceiver functions like Selcall and ALE scanning to ensure simplicity of operation.

**AUTOMATIC LINK ESTABLISHMENT**

The NGT™ SRx is fully compliant with both FED-STD-1045 and JITC certified MIL-STD-188-141B ALE waveforms.

Codan's implementation of ALE incorporates unique capabilities such as maintenance of channel quality information (LQA) on a 24-hour basis. This enables the transceiver to select a suitable channel at any time of the day, from the moment it is switched on. This results in faster channel selection than conventional ALE system with significantly less sounding activity required.

The Listen-Before-Transmit capability detects voice and data traffic on the channel before initiating ALE. This prevents calling on channels that already have traffic.

The NGT™ SRx provides an extensive range of ALE and Selcall based call facilities, including Phone calls, GPS polling and sending, Emergency calls, and Remote Diagnostics.

The multiple network scanning capability enables multiple networks to be scanned simultaneously. An ability to simultaneously decode voice, Selcall and ALE calls on the same channel enables maximum interoperability in mixed vendor network environments.

The CODAN™ NGT™ SRx Transceiver has the ability to do a real time channel test with several stations then link with the station that provides the best communications path.

**INNOVATIVE HANDSET AND USER-FRIENDLY INTERFACE**

The integrated compact design of the handset is similar to a mobile phone and provides easy control of the transceiver. The handset comprises of a microphone, a large and wide-angle backlit LCD, and keypad.

An adjustable backlight automatically activates when an incoming call is received, or when any button is pressed. When the transceiver is idle, an auto-dim capability activates for efficient power usage.

A smart address book stores up to 100 addresses, including names, call locations and even pre-programmed text messages. These can be easily retrieved via the user-friendly menu.

Access to transceiver functions is menu-driven, which enables easy operation for untrained users and rapid configuration and management of equipment setup. The NGT™ SRx can be tailored according to the needs of different users through features such as configurable hot keys to provide easy access to one-touch calling and pre-programmed sequences.

**SMART MONITORING AND SCANNING**

With multiple net adaptive scanning, the NGT™ SRx automatically adjusts scan times for multiple networks according to the channels' preset scan times. This feature gives the most efficient scanning time possible for Selcall, ALE and voice detection.

The NGT™ SRx 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 the NGT™ SRx.

When an operator is absent, the NGT™ SRx generates an automatic log containing the caller's identity, time and channel number that can be displayed upon their return.

With the syllabic Voice Mute, the NGT™ SRx 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 when a call addressed to them specifically is received. This relieves the operator from continuous manual monitoring for relevant incoming traffic.

**GPS SUPPORT**

The NGT™ SRx 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.

**DATA SERVICES**

The NGT™ SRx supports a full range of data capabilities through the Codan 3012, 3212 and RM50e modem products.

In standard configuration, the NGT™ SRx provides error free 2400 bps and 7200 bps data throughput using the 3012 and 3212 modems respectively. In-built data compression makes the effective throughput up to four times faster. The waveforms are extremely robust and perfectly suited to the difficult conditions often encountered over HF links. Data transfers in email, file transfer and chat format are fully supported using Codan's UUPlus™ software.

When fitted with the wideband 2.7 kHz filter option the NGT™ SRx can provide data rates extending up to 9600 bps using the RM50e modem. If even greater data rates are required, 19200 bps can be achieved by fitting the NGT™ SRx with the Independent Sideband (ISB) option and operating the RM50e in ISB mode. The system is supported with the Codan STANAG 5066 based RC50-C email client.

All data configurations are fully integrated with Selcall and ALE call systems resulting in a seamless end to end data solution that is efficient and easy to operate.

**OPTIONS**

- **GPS positioning**
  - InterNav® CHF GPS Tracking Software for up to 100 vehicles
- **Encryption**
  - CIVS Scrambler
  - CES-128 Encryptor
  - AES-256 Encryptor
- **MELPe 1200/2400 bps Digital Vocoder**
- **ALE**
  - FED-STD-1045 ALE/CALM™
  - MIL-STD-188-141B (JITC Certified)

**DATA SOLUTIONS**

- **CHAT / EMAIL**
  - 3012 / 3212 HF Data Modems
  - UUPlus™ EMAIL / CHAT
- **NATO Standard Email**
  - RM50e MIL-STD Modem
  - RC50-C STANAG 5066 Email

**BASE ACCESSORIES**

- **Desk console**
- **Antennas**
  - Semi-delta Broadband
  - Folded Dipole Broadband
- **3020 Transceiver Supply**
- **3033 Telephone Interconnect**
- **TIP100 TCP / IP Interface**
- **19" Rack Mount**

**MOBILE ACCESSORIES**

- **3040 Automatic Whip Antenna**
- **3042 Antenna Tuner**
- **Vehicle Installation Kit**
- **Vehicle Handset Cradle**

**TRANSPORTABLE SYSTEMS**

- **MRAY Pelican Case Transceiver**
- **MRX Headquarters System**

## SPECIFICATIONS

### GENERAL

<b>Channels</b>	400 (single or two frequency simplex); 600 with MIL-STD ALE
<b>Scanning</b>	Voice, Selcall, ALE Scan up to 8 channels p/s, 20 scan tables with up to 100 channels Dwell time 125 ms to 9.9 s, adjustable
<b>Programming</b>	Via handset or NSP software connected to the handset via RS232 or USB cable
<b>Interfaces</b>	RS232 (supporting NMEA-0183 GPS), Auxiliary GPIO (audio in/out, PTT, RS232)
<b>Compliance</b>	CE, NTIA, FCC, AS/NZS 4770:2000, AS/NZS 4582:1999
<b>Temperature range</b>	-40°C to +70°C (operational), -30°C to +60°C (full specification), 95% humidity, non-condensing
<b>Display</b>	Graphic LCD with 3 levels of backlighting and auto-dim

### RF

<b>Frequency range</b>	<b>Transmit:</b>	1.6 to 30 MHz
	<b>Receive:</b>	250 kHz to 30 MHz
	<b>Frequency stability:</b>	0.3 ppm from -30°C to +60°C
<b>Modes</b>	Single sideband (J3E), USB, LSB, AM (H3E), CW (J2A), AFSK (J2B), ISB (option), F1B (FSK)	
<b>Output power</b>	125 W PEP ±1 dB (two-tone or voice), user-programmable (low / medium / high)	
<b>Duty cycle</b>	100% for all modes with Option F (fan)	
<b>RF output impedance</b>	50 Ω	
<b>Filter bandwidths</b>	2.4 kHz standard, 2.7 kHz, 500 Hz (cw) optional	
<b>Transmitter specifications</b>	<b>Spurious &amp; harmonic emissions:</b>	Better than 65 dB below PEP
	<b>Carrier suppression:</b>	Better than 60 dB below PEP
	<b>Sideband suppression:</b>	70 dB below PEP
<b>Receiver specifications</b>	<b>Sensitivity:</b>	0.12 μV, -125 dBm for 10 dB SINAD
	<b>Selectivity:</b>	> 70 dB, -1 kHz to +4 kHz
	<b>Image rejection:</b>	Better than 70 dB
	<b>Spurious response:</b>	Better than 90 dB

### ELECTRICAL

<b>Operating range</b>	13.8 V DC (10.8 to 15 V DC), 100 to 240 V AC ±10% 50/60 Hz (with 3020 PSU)
<b>Supply current</b>	Receive: 650 mA; Transmit: 14 A typical (Two-Tone), 8 A (Average Speech),
<b>Protection</b>	Open circuit / short circuit / over voltage / voltage transients / reverse polarity / high VSWR / over temperature

### MECHANICAL

<b>Size</b>	<b>RF Unit (not including fan / connectors):</b> 210 mm W x 270 mm D x 65 mm H (8.3 x 10.6 x 2.6 in)
	<b>Handset:</b> 65 mm W x 35 mm D x 130 mm H (2.6 x 1.4 x 5.1 in)
<b>Weight</b>	RF Unit: 3.3 kg (7.3 lb), Handset: 0.3 kg (0.7 lb)
<b>Environmental standards</b>	MIL-STD-810F (Dust, Shock & Vibration, Temperature, Drop)

### OTHER

<b>Encryption</b>	CES-128, 97 x programmable 16-digit keys, 4-digit PIN AES-256, 256 x programmable 256-bit keys
<b>Vocoder</b>	MELPe (1200 / 2400 bps)

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

## RADIO COMMUNICATIONS

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