

NGT™ MR TRANSCEIVER

➤ FEATURES AT A GLANCE



- 125 W output power
- Frequency hopping (ECCM)
- CES-128 & AES-256 Encryption options
- MELPe Digital Vocoder option
- 4 / 6 digit Selcall (compatible with UN)
- FED-STD-1045 ALE / CALM™
- MIL-STD-188-141B ALE (JITC certified)
- ISB option for high speed (19K2) data communications
- 500 W & 1 kW High Power options
- Excellent on-air performance
- 3 year warranty
- Service & support

With 125 W of output power packed into a rugged and small unit the NGT™ MR Transceiver is suited to mobile and base configurations. The NGT™ MR is more affordable than manpack based solutions while delivering the same critical HF needs such as reliable, secure and interoperable communications.

RUGGED DESIGN

The NGT™ MR is built to survive the world's harshest environments. The product meets MIL-STD-810F for shock, vibration and dust ingress. Electrical protection is provided against reverse polarity, over-voltage, under-voltage, antenna VSWR mismatch and over-temperature.

INNOVATIVE USER INTERFACE

Codan's cleverly designed NGT™ MR Handset and intuitive interface provides many benefits over traditional removable front panel designs. Its small size and light weight make it simple to install in many locations, especially in vehicles where space is limited. The menu system includes a call address list and the keypad is arranged like a mobile phone to ensure that radio operation is simple, familiar and intuitive. With convenient access to the programming port, located on the base of the Handset, users will find it quick and easy to program the RF unit.



FREQUENCY HOPPING (ECCM)

The CODAN™ NGT™ MR provides 128-bit security strength frequency hopping. It operates during scanning, and during reception and transmission of ALE calls to enable silent operation. Users can optimise performance via three user-switchable hopping rates of 6 / 12 / 25 hops per second. An additional level of security can be achieved through the use of a 10 digit user PIN.

AUTOMATIC LINK ESTABLISHMENT

The NGT™ MR 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™ MR 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.

SMART MONITORING AND SCANNING

When an operator is absent, the NGT™ MR™ 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, the NGT™ MR™ 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™ MR™ 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 MR™.

With the syllabic Voice Mute, the NGT™ MR™ 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.

VOICE ENCRYPTION

The NGT™ MR™ 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 NGT™ MR™ are fully integrated with core Transceiver functions like Selcall and ALE scanning to ensure simplicity of operation.



The NGT™ MR Transceiver's innovative handset contains all radio control and monitoring functions

GPS SUPPORT

The NGT™ MR™ 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 COMMUNICATIONS

The NGT™ MR™ supports the CODAN™ high speed RM50e HF Data Modem. This provides MIL-STD-188-110A/B data waveforms up to 9600 bps, or 19200 bps with the ISB option. Codan's RC50-C Email software works with the NGT™ MR™ and RM50e Modem, to provide email capability over conventional SMTP / POP mail clients such as MS Outlook. Features include compression and Data Rate Control (DRC), ensuring transmission speed is optimised to the channel conditions.

SERVICE AND SUPPORT

Codan's commitment to its customers goes beyond producing world-class communications equipment. With customers in more than 150 countries Codan has developed a highly responsive global service and support capability to ensure prompt and accurate support services. These support services include installation and commissioning of equipment, on-site and factory based training, and the provision of spare parts worldwide.

Codan provides training on the installation and use of equipment with in-country courses. Customers may also attend courses at Codan's purpose-built training suite at its Adelaide headquarters in Australia, or at any of the Company's international offices.



NGT™ MR Transceiver



3042 HF Antenna Tuner



3520 Transceiver Supply



RM50e HF Data Modem

OPTIONS

- **GPS positioning**
 - InterNav™ CHF GPS Tracking Software for up to 100 vehicles
- **Encryption**
 - CES-128 Encryptor
 - AES-256 Encryptor
- **ALE**
 - MIL-STD-188-141B (JITC Certified)
- **Frequency Hopping**
- **Independent Sideband (ISB)**

DATA SOLUTIONS

- **RM50e MIL-STD Modem**
- **RC50-C STANAG 5066 Email**

BASE ACCESSORIES

- **Desktop console**
- **Antennas**
 - Semi-delta Broadband
 - Folded Dipole Broadband
- **Power Supplies**
 - 3520 Transceiver Supply
 - Battery Backup and Solar Supplies
- **3033 Telephone Interconnect**
- **500 W and 1 kW Power Amplifiers**

MOBILE ACCESSORIES

- **Antennas**
 - 9350M Mobile Antenna
 - 3042 / 3046 Antenna Tuner
- **3031 Crosspatch™ (V/UHF)**
- **Vehicle Mounting Hardware and Cabling Kit**

TRANSPORTABLE SYSTEMS

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

SPECIFICATIONS

GENERAL

Channels	400 (single or two frequency simplex); 600 with MIL-STD ALE
Scanning	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
Programming	Via handset or NSP software connected to the handset via RS232 or USB cable
Interfaces	RS232 (supporting NMEA-0183 GPS), Auxiliary GPIO (audio in/out, PTT, RS232)
Compliance	CE, NTIA, FCC, AS/NZS 4770:2000, AS/NZS 4582:1999
Temperature range	-40°C to +70°C (operational), -30°C to +60°C (full specification), 95% humidity, non-condensing
Display	Graphic LCD with 3 levels of backlighting and auto-dim

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), ISB (option), F1B (FSK)	
Output power	125 W PEP ±1 dB (two-tone or voice), user-programmable (low / medium / high)	
Duty cycle	100% for all modes with Option F (fan)	
RF output impedance	50 Ω	
Filter bandwidths	2.4 kHz standard, 2.7 kHz, 500 Hz (cw) optional	
Transmitter specifications	Spurious & harmonic emissions:	Better than 65 dB below PEP
	Carrier suppression:	Better than 60 dB below PEP
	Sideband suppression:	70 dB below PEP
Receiver specifications	Sensitivity:	0.12 µV, -125 dBm for 10 dB SINAD
	Selectivity:	> 70 dB, -1 kHz to +4 kHz
	Image rejection:	Better than 70 dB
	Spurious response:	Better than 90 dB

ELECTRICAL

Operating range	13.8 V DC (10.8 to 15 V DC), 100 to 240 V AC ±10% 50/60 Hz (with 3020 / 3520 PSU)
Supply current	Receive: 650 mA; Transmit: 14 A typical (Two-Tone), 8 A (Average Speech),
Protection	Open circuit / short circuit / over voltage / voltage transients / reverse polarity / high VSWR / over temperature

MECHANICAL

Size	RF Unit (not including fan / connectors): 210 mm W x 270 mm D x 65 mm H (8.3 x 10.6 x 2.6 in)
	Handset: 65 mm W x 35 mm D x 130 mm H (2.6 x 1.4 x 5.1 in)
Weight	RF Unit: 3.3 kg (7.3 lb) , Handset: 0.3 kg (0.7 lb)
Environmental standards	MIL-STD-810F
	Dust: method 510.4
	Shock: method 514.5
	Vibration: method 516.5

OTHER

Encryption	CES-128, 97 x programmable 16-digit keys, 4-digit PIN AES-256, 256 x programmable 256-bit keys	
Vocoder	MELPe (1200 / 2400 bps)	
Frequency Hopping	Hop Rate:	6 / 12 / 25 hops per second (user programmable)
	Security:	128 bit
	Number of Hop Plans:	32
	Key Code length:	18 digits
	PIN length:	10 digits

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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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