



CODAN

MISSION READY.
MILITARY COMMUNICATIONS

NGT MR TRANSCEIVER

FEATURES AT A GLANCE

- **125 W Output Power**
- **Base and Mobile Applications**
- **MIL-STD-810F**
- **Voice Encryption**
- **Innovative User Interface**
- **Frequency Hopping (ECCM)**
- **Excellent On-air Performance**
- **MIL-STD-188-141B ALE**
- **Data Communications**

The NGT MR Transceiver provides High Frequency (HF) voice and data communications for military and security users worldwide. It is more affordable than manpack based solutions while delivering the same critical HF needs such as reliable, secure and interoperable communications.

Codan offers a range of accessories including telephone interconnects, crosspatches, high power amplifiers, and antenna tuners, as well as options such as voice encryption, frequency hopping (ECCM), and GPS positioning to ensure the NGT MR is mission-ready.

125 W OUTPUT POWER, BASE AND MOBILE APPLICATIONS

With 125 W of output power packed into a rugged and small unit the NGT MR Transceiver is suited to mobile and base configurations. A small user-friendly handset, similar to a mobile phone, accompanies the RF unit and simplifies installation and operation.

RUGGED DESIGN

The NGT MR meets or exceeds environmental specifications for shock, vibration and blowing dust. In addition to MIL-STD-810F, the RF unit is IP52 rated and the handset is IP41 rated. It also provides complete protection against reverse polarity, over voltage, antenna mismatch and temperature.

VOICE ENCRYPTION

Voice security is provided through an optional voice encryption module, which is fitted inside the NGT MR. The encryption is based on a 128-bit digital algorithm to meet the unique demands of HF propagation. Up to 98 eight-bit user programmable key codes are available to enable 10E10000 key code combinations. These keys are never transmitted on-air and as a result cannot be intercepted.

To start Secure Mode users simply press the SEC button on the handset. The NGT MR offers an additional level of security once a secure voice link is in session via a predefined 4 digit PIN. The two or more parties involved in communication enter the known 4 digit PIN at any time to create a separate secure session. Also, users do not have to synchronize at the beginning or during a secure session. This eliminates delays and means that there is no limit to the number of participants. Management and programming of keys is simple through Windows® terminal-based software.



Codan's NGT MR Transceiver — 125 W output power and a small, innovative handset



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 RS232 port, located on the base of the Handset, users will find it quick and easy to program the RF unit.

FREQUENCY HOPPING (ECCM)

Codan's 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.

HIGH ON-AIR PERFORMANCE

The NGT MR's high performance receiver ensures optimal reception even in the most testing HF conditions. As well as high sensitivity, selectivity and high dynamic range the NGT MR features *Easitalk*®. *Easitalk*® uses DSP based software algorithms to reduce noise interference and boost the intelligibility of the voice signal that is received. DSP techniques are also used to compress the dynamic range of voice signals before they are transmitted, resulting in clearer speech at the receiving station.

Codan offers full output power across the 1.6 to 30 MHz operating band, all at an average current consumption of only 6 A during voice operation. Users will benefit most from this clever circuit design when operating the NGT MR transceiver with a battery and/or solar based power supply system.

MIL-STD-188-141B ALE

The NGT MR is fully compliant with FED-STD-1045 and MIL-STD-188-141B ALE protocol standards. Codan has also made a number of smart enhancements to their version of ALE. These improvements include a significant reduction in sounding activity and faster linking performance. This is achieved while maintaining interoperability with the FED-STD-1045 and MIL-STD-188-141B ALE standards.

With scan rates of up to 8 channels per second and an ability to scan up to 20 groups of channels the NGT MR provides efficient and flexible ALE capabilities. Users can assign a 6 digit key code to any ALE scan group to achieve a level of Link Protection, for certain call types, to reduce the risk of data interception.

The NGT MR supports standard ALE call types, as well as a number of special types such as GPS, Emergency, Status, Message, and Telephone calls.

DATA COMMUNICATIONS

An external 15 pin accessory port enables the NGT MR to operate with external data modems. Codan's high speed 3112 HF Data Modem is fully compatible with the NGT MR and offers MIL-STD-188-110A/B and STANAG data protocols. When coupled with Codan STANAG 5066 and HF Express® software users can access file transfer and chat communications capabilities.

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.



Above: Codan offers a range of options including MIL-STD-188-141B ALE, Voice Encryption, Frequency Hopping and GPS Positioning for the NGT MR

OPTIONS

- MIL-STD-188-141B ALE (JITC Compliant)
- Voice Encryption module
- Frequency Hopping
- GPS Positioning
- Wideband Filter
- Cooling Fan (recommended with Data)
- Desktop Console

ACCESSORIES

- Antennas
 - Semi-delta Broadband
 - Folded Dipole Broadband
 - 9350M Mobile Antenna
 - 3041 Antenna Tuner
- Power Supplies
 - 3020 Transceiver Supply
 - Battery Backup and Solar Supplies
 - 24 V / 12 V Regulator
- 3033 Telephone Interconnect
- 3112 HF Data Modem
- 3031 Crosspatch (V/UHF)
- 500 W and 1 kW Power Amplifiers
- Vehicle Mounting Hardware and Cabling Kit

Below (from left): Codan's accessories include the 3041 Antenna Tuner, 3020 Transceiver Supply, 3033 Telephone Interconnect, 3112 HF Data Modem, and 3031 Crosspatch



SPECIFICATIONS

Channel capacity	400 channels 600 channels when MIL-STD-188-141B ALE is enabled		
Frequency range	Transmit:	1.6 to 30 MHz	
	Receive:	250 kHz to 30 MHz	
Operating mode	Single sideband (J3E) USB and LSB or switched USB/LSB, AM, H3E (optional), CW, FSK		
Transmitted power	High Power:	125 W PEP / 100 W PEP (optional)	
	Low Power:	10 W PEP	
Spurious and harmonic emissions	Better than 65 dB below PEP		
Receiver sensitivity	Frequency:	RF amp off:	
	0.25 to 30 MHz	1.25 μV PD	
		−105 dBm	
	Frequency:	RF amp on:	
	1.6 to 30 MHz	0.12 μV PD	
		−125 dBm	
	For 10 dB SINAD with greater than 50 mW audio output		
Selectivity	Greater than 70 dB at −1 kHz and +4 kHz reference suppressed carrier frequency USB		
	Pass Band:	−6 dB	300 to 2600 Hz
	Ripple:	−2 dB	500 to 2500 Hz
Frequency stability	±0.3 ppm (−30 to +60°C)		
Supply voltage	12 V DC nominal, negative earth		
	Normal operating range:	10.8 to 15.5 V DC	
	Reverse polarity protection provided		
Overvoltage protection	Shutdown at 16 V DC (nominal) for duration of overvoltage		
Supply current requirements	Receive:	(no signal) 630 mA (nominal)	
	Transmit: J3E voice:	6 A average	
	J3E two-tone:	9 to 16 A (depending on frequencies)	
Frequency Hopping	Hop Rate:	25 hps, 12.5 hps, and 6.25 hps, user programmable	
	Security:	128 bit	
	Number of Hop Plans:	32	
	Key Code length:	18 digits	
	PIN length:	10 digits	
Voice encryption	Security:	128 bits	
	Key Code length:	18 digits	
	PIN length:	4 digits	
Size and weight	2012 RF Unit (excluding vehicle mounting frame):	210 mm W x 270 mm D x 65 mm H; 3.3 kg	
	2020 Handset:	65 mm W x 35 mm D x 130 mm H; 0.3 kg	
	Handset and Speaker Connector:	135 mm W x 117 mm D x 38 mm H	
Sealing	2012 RF Unit:	IP52	
	2020 Handset:	IP41	
	Handset and Speaker Connector:	IP41	
Environmental	MIL-STD-810F		
	Dust:	method 510.4	
	Shock:	method 514.5	
	Vibration:	method 516.5	



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