

GRX-8000 - High Capacity & Frequency Hopping LOS Radio System

ECCM, PtP and PtMP, IP and multi-interface radio system
for tactical communication





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The GRX-8000 is Elbit Systems' fifth generation of advanced ECCM NATO Band IV and NATO Band III+, Dual Mode - fixed frequency (FF) and frequency hopping (FH) line-of-sight broadband radio system. With advanced jamming-resistant electronic counter-countermeasures (ECCM) the multi-interface GRX-8000 software-defined radio relay system enables secure, interference-free PtP, PtMP and IP tactical communications.

The GRX-8000 Multi Channel Radio (MCR) system provides high capacity, robust wireless connectivity and high link availability between general HQs and field command posts, in field and in maritime deployed CPs, EW or surveillance platforms to regional centers for video/high definition data links. The battle-proven system is designed to support the latest IP and legacy communication protocols.

Key Features

- Up to 200 Mbps data rate in both, fixed frequency (FF) and frequency hopping (FH) modes
- More than 193 dB system gain: long distance robust connectivity and high link availability in Line-Of-Sight and Near Line-Of-Sight conditions
- Advanced ECCM (electronic counter-countermeasures) for secured, interference-free communications and jamming immunity
- Multiple configurations: Point-to-Point (PtP) and Point-to-Multipoint (PtMP)
- Supports fixed, deployed and On The Move (OTM) ground and maritime applications
- Automatic and fast link tuning and establishment
- Supports latest IP and legacy communication protocols
- Remote control facility (SNMP)



High-Capacity robust tactical communications - The GRX-8000 provides enhanced performance with multi-mode, high speed data transmission, providing aggregated data transmission capacity up to 200 Mbps. Featuring an extremely high system gain, the dual mode system supports long distances over 100Km at Line-of-Sight conditions.

Advanced ECCM for jamming immunity - The GRX-8000 performs synchronous and adaptive fast frequency hopping for simultaneous, interference-free communications. Embedded reliable Forward Error Correction (FEC) and Adaptive Coding and Modulation (ACM) provide jamming immunity. Various encoding, jammed packets retransmission and advanced iterative decoding in conjunction with interleaving techniques eliminate the effects of high-power and long-time pulse jammers, as well as heavily jammed environments.

Advanced TRANSEC cryptographic techniques - AES256 bit encryption/decryption for data and System Control (SysCon).

Frequency Hopping - The GRX-8000 is capable of synchronous full band fast frequency hopping (FH) with hybrid ARQ protocol covering the total 600 MHz frequency range in NATO Band IV.

Point-to-multi-point configuration - Up to 6 points in fixed frequency (FF) and frequency hopping (FH) modes. The RF output in trunk node may be transmitted through a sectorial antenna or can be split to several directional antennas (with each antenna pointed to a different access point).

Automatic and fast link tuning and establishment - Implemented using Elbit Systems' two axes electro-mechanical antenna rotator controlled by the GRX-8000.

Multi-interface - The GRX-8000 supports a wide variety of services ranging from traditional telephony to broadband multimedia for the very latest C⁴I applications. The GRX-8000 includes a wide range of interfaces including Ethernet LAN / IP 1000Base-T, G.703 E1 (2Mbps).

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Technical Specifications

Frequency Ranges	
NATO Band IV	4,400 to 5,000 MHz
NATO Band III+	1,350 to 2,700 MHz (optional)
Transmission Rates	
One-way data rate	0.05, 5, 10, 30, 40, 60, 90 and 100 Mbps
Aggregated max rate	200 Mbps
Operating Modes	
Fixed Frequency	PtP and PtMP
Frequency Hopping	PtP and PtMP
Baseband Interfaces	
Ethernet LAN	1000 Base-T / 1000BaseLX (Fiber Optic)
G.703 (options)	Multiple E1 (2 Mbps)
Transmitter	
Output Power	Up to 35 dBm
Modulation type	64 QAM, 16 QAM, QPSK
BW	5, 10, 15, 20, 25 and 30 MHz
System Threshold	
Transmission capacity	Threshold (dBm) for BER 10^{-6}
0.05 Mbps to 100 Mbps	≤ -104 dBm to ≤ -68 dBm
Network	
IP Forwarding Protocols	IPv4, IPv6 protocols at Layers 2, 3, 4. TCP/IP, FTP, http and UDP
Radio System Management	SNMPV2, V3 AES-128 encryption UX-Web browser
QOS	per 802.1Q, 802.1P
Routing Protocol	Dynamic Link Exchange Protocol (DLEP) per RFC8175
Physical Interface	100/1000 Base T
Environmental Conditions	
Temperature (operating)	-40°C to +60°C per MIL-STD-810G
Humidity (operating)	95% per MIL-STD-810G
Dynamic & mechanical stress	Per MIL-STD-810G
EMC	Per MIL-STD-461E

Main Accessories

Cables	
CX-4230-XXX	DC Cable, up to 100m
CX-4233-XXX	Data Cable, up to 100m
CX-4454-XXX	Relay Cable, up to 50m
CX-4220-XXX	Rotator Cable, up to 10m
CG-4221-XXX	RF Ant. Cable, up to 50m
Antennas	
AN-5002	Directional dish, 28 dBi, 4.4 to 5.0 GHz
AN-8000F	Directional flat, 27 dBi, 4.4 to 5.0 GHz
AN-8000DPF (2pol)	Directional flat, 25 dBi, 4.4 to 5.0 GHz
AN-5000S	90° Sectorial, 17 dBi, 4.4 to 5.0 GHz
AN-8000SG	120° Sectorial, 15 dBi, 4.4 to 5.0 GHz
AN-8000CO	Omni Directional, 7 dBi, 4.4 to 5.0 GHz
AN-4000L/DP (2pol)	Directional Grid, 22.5 dBi, 1.35 to 2.7 GHz
AN-408S	90° Sectorial, 11.5 dBi, 1.35 to 2.7 GHz
AN-8000LO	Omni Directional, 8 dBi, 1.35 to 2.7 GHz
Antenna Rotators	
MAR-100	Manual antenna rotator
LEAR-100	Land electrical antenna rotator
MEAR-100	Maritime antenna rotator
Accessories	
Operator Terminal	8"/10" Rugged Tablet
Operator EOW Headset	Noise cancellation, out ear headset for EOW
Wireless Adapter	Rugged & secure Bluetooth or Wi-Fi Adapter
Manual Alignment Gear	Manual, light weight Elevation Over Azimuth alignment Gear
Tripod Stand	Fast deployment, High tripod stand
Masts	
MST 15-1	15 m, telescopic, winch mast
MST 18-1	18 m, telescopic, winch mast
MST 18-2	18 m, telescopic, Pneumatic mast



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