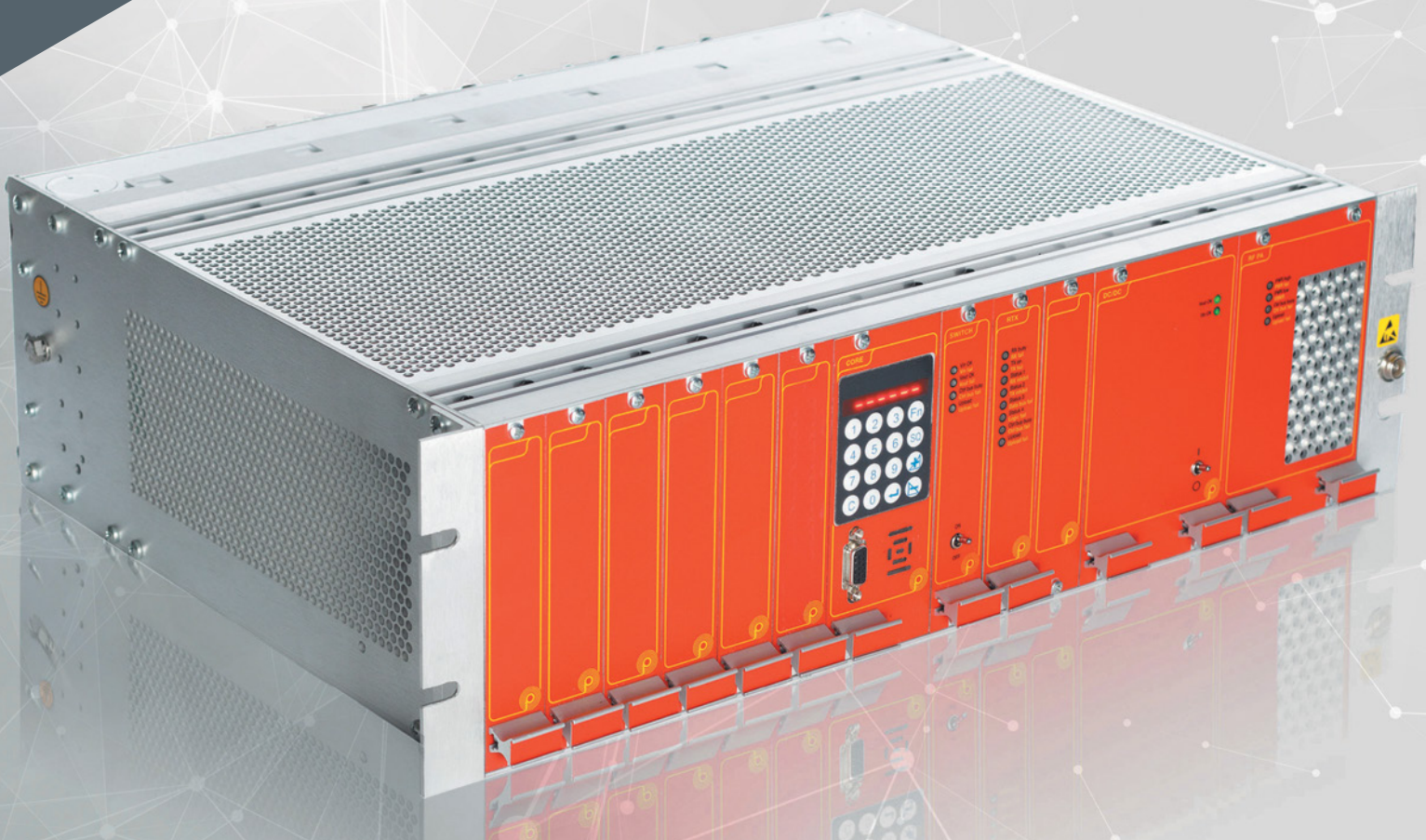


LMR SYSTEMS



RBS4000 25W

Radio Base Station



[Request More Info Here](#)

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Selex ES Inc, a Leonardo Company.

RBS4000 RADIO BASE STATION

Leonardo's Extended Communications System - Digital (ECOS-D) RBS4000 25W is a modular voice and data radio base station (RBS) designed to meet and exceed the requirements of professional land mobile radio systems.

High quality, state-of-the-art reliability and outstanding modularity allow the ECOS-D RBS4000 25W digital-based equipment to support analog FM, digital DMR conventional Tier II and digital DMR trunking Tier III.

The ECOS-D RBS4000 25W can be used in a real-time dual-mode analog FM/Digital DMR conventional Tier II or in digital DMR trunking Tier III mode.

All the modes of operation of the ECOS-D RBS4000 110W natively support flagship simulcast technology without any external ancillary. The ECOS-D RBS4000 110W can be used from stand-alone repeater to conventional simulcast to digital multi-site trunking with a configuration change only.

ECOS-D RBS4000 25W can be connected to build a system natively with IP, E1, 4W+E/M links.



ECOS-D
Digital Extended Communications System

DMR
DIGITAL MOBILE RADIO ASSOCIATION



Main Features

- › 3 RU device designed to be hosted in 19-inch rack
- › Available in Low-VHF, VHF, UHF, High-UHF Frequency bands at 12.5kHz/20kHz/25kHz programmable channel spacing
- › RBS and stand-alone repeater mode of operation:
 - Conventional analog FM only
 - Digital DMR conventional Tier II only
 - Real-time automatic dual-mode conventional analog FM/Digital DMR conventional Tier II with priority mode setting
 - Digital DMR Trunking Tier III (embedded trunking controller)
- › Designed to natively support Simulcast technology:
 - Multi-site simulcast support: available for both conventional and trunking operations
 - Simulcast Server, Sub-server, Client mode within the same device (virtually no limits in the number of RBS per simulcast channel)
 - Reliable fall-back mode: Client in-cabinet repeating and backup Server automatic reconfiguration
 - Synchronization: GPS and/or Precise Time protocol IEEE 1588v2 with fall-back
 - Voting: analog FM and digital DMR best-in-class voting
 - Auto Adaptive Technology (A2T): each RBS “adapts” itself to the time and frequency response of the backbone and automatically compensates time-variant differences
 - Multiple-link Support: IP (SoIP – Simulcast over IP – technology), E1, 4W+E&M link interfaces
 - Redundant link management between RBSs (E1, 4W+E&M and IP)
- › Provides high levels of protection from access by unauthorized radio users, via the Unauthorized Access Protection procedure
- › Embedded AMBE+2 vocoder for DMR Tier II clear or encrypted (ARC4) voice communications from a local microphone (embedded loudspeaker)
- › DMR data transmission ports (RS232/RS485/LAN), digital I/O and analog inputs available.

Maintenance

- › Display and keypad for easy local maintenance and fault handling
- › Modular structure for easy replacement of front and back cards
- › In the event of failure, all modules are individually removable
- › Digital I/O, Analog inputs, power supply, antenna connectors and backbone interfaces hosted on dedicated back-cards, easily removable from the back and insulated from voltage overload

- › Remote firmware upgrade over LAN with integrity control (embedded dual-flash memory for storage of two firmware)
- › SNMPv2c Network Management System (each RBS is a SNMP agent) and MIB availability for integration with thirdparty NMS system

Interoperability

- › Interoperability (IOP) certificates with DMR major terminals vendors in Tier II and Tier III modes of operations (for further details, please visit www.dmrassociation.org).



ECOS-D RBS4000 25W TECHNICAL DATA

GENERAL											
Mechanics	Dimensions 3 RU compatible with 19-inch rack mounts										
Weight	from 13 Kg (28.6 lbs) ³										
Supported modulations	<ul style="list-style-type: none"> › FM/PM for analogue mode › 4FSK for digital mode with I&Q mo/demodulator › C4FM 										
Frequency generation	Synthesized										
Channel spacing	12.5 kHz / 20 kHz / 25 kHz ¹										
Mode of operation	Simplex / Half-Duplex / Duplex										
Digital data gross bit rate	9600 bps with 4FSK digital modulation in 12.5 KHz channel										
Temperature range	-30° - +60°C (-22°F - + 140°F)										
Power supply	12Vdc; 48 Vdc (galvanically insulated) 85-264 Vac (47-63 Hz) EU or US plug										
Input current (at 48 Vdc)	<table border="0"> <tr> <td>Transmission²</td> <td>Standby²</td> </tr> <tr> <td>VHF-L: 2.5A</td> <td>VHF-L: 0.6A</td> </tr> <tr> <td>VHF: 2.5A</td> <td>VHF: 0.6A</td> </tr> <tr> <td>UHF: 2.5A</td> <td>UHF: 0.6A</td> </tr> <tr> <td>UHF-H: 2.5A</td> <td>UHF-H: 0.6A</td> </tr> </table>	Transmission ²	Standby ²	VHF-L: 2.5A	VHF-L: 0.6A	VHF: 2.5A	VHF: 0.6A	UHF: 2.5A	UHF: 0.6A	UHF-H: 2.5A	UHF-H: 0.6A
Transmission ²	Standby ²										
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UHF: 2.5A	UHF: 0.6A										
UHF-H: 2.5A	UHF-H: 0.6A										
CTCSS (TX/RXsplit-tones)	Yes. 67 – 254.1Hz (with 0.1Hz step)										
DCSS (TX/RX split-tones)	Yes										
Backbone interface	<ul style="list-style-type: none"> › from 4xE1 G.703/G704 (cross connect and dropinsert functionality) › from 4x4W+E/M › 1xLAN port 10/100 Base T (SolP Link, remote firmware upgrade and SNMP NMS) 										
I/O ports	LAN, RS232, 4 digital inputs, 4 digital outputs, 2 analog inputs										

SYNCHRONIZATION	
RBS main clock	Oven Controlled Crystal Oscillator 50 ppb temperature stability with programmable zero-offset compensation
Simulcast synchronization	<ul style="list-style-type: none"> › from Built-in GPS (1+1 option available on request) › from incoming IP GMC/BC/OC PTP IEEE 1588V2 › from incoming E1 stream (2.048 MHz) › from External Reference Source › from 4W Out of Band tone (3400 Hz)

TIER II CONVENTIONAL / ANALOG FM CONVENTIONAL	
Configuration mode	Stand-alone repeater
Simulcast configuration wide coverage Virtual repeater	Radio Base Station: macro-cell Server/ Sub-server/Client

TIER III TRUNKING	
Configuration mode	Radio Base Station with Embedded Trunking Controller: Control Channel RBS/Traffic Channel RBS
Simulcast configuration wide coverage Virtual repeater	Radio Base Station macro-cell Server with embedded Trunking Controller/macro-cell Server for Traffic Channel/ sub-server/client

Specifications subject to change without notice.

¹ According with the national regulations where RBS is used

² Value is to be intended for a fully equipped RBS configuration

³ Depending on RBS equipment

TRANSMITTER	
Frequency in MHz	<ul style="list-style-type: none"> › VHF-L: 66-88 › VHF: 136-174 › UHF: 400-470 › UHF-H: 854-921
Output impedance	50 Ohms
Output Power	Programmable from 2W up to 25W (0.1 dB step)
Maximum Deviation (RSD)	± 2.5/± 4 /± 5 kHz 12.5/20/25 kHz
Adjacent and alternate channel power	65 dB (ETSI)
Intermodulation Attenuation	40dB
Spurious and Harmonic Emissions Attenuation	<ul style="list-style-type: none"> › 36 dB (< 1GHz) › 30 dB (> 1GHz) (ETSI)
Audio response	+1, -3dB; 300-3000 Hz
Audio distortion	Less than 2% at 1000Hz; 60% RSD
Frequency stability	± 0.05 ppm

RECEIVER	
Frequency in MHz	<ul style="list-style-type: none"> › VHF-L: 66-68 › VHF: 136-174 › UHF: 400-470 › UHF-H: 854-921
RF input impedance	50 Ohms
Analog sensitivity	PM modulation: < -118 dBm @ 12 dB SINAD psofo
Digital sensitivity	<ul style="list-style-type: none"> › C4FM: ≤ -118 dBm @ BER = 5x10⁻² › 4FSK: ≤ -118 dBm @ BER = 5x10⁻²
Adjacent channel selectivity 12,5/20/25 kHz	60 dB/ 70 dB/ 70 dB (ETSI)
Intermodulation rejection 12.5 and 25 kHz	70 dB (ETSI)
Spurious and image response rejection	70 dB (ETSI)
Audio response	+1, -3dB; 300-3000 Hz
Audio distortion	Less than 2% at 1000Hz; 60% RSD
S/N	<ul style="list-style-type: none"> › 45dB (12.5 kHz) › 50dB (25 kHz)
Line output	-10dBm

EMISSION DESIGNATORS	
Analog FM/PM	<ul style="list-style-type: none"> › 8K50F3E/8K50G3E, › K0F3E/11K0G3E › 16K0F3E/16K0G3E
Digital 4FSK	7K60FXD/7K60FXE
Digital C4FM	8K10FID/8K10FIE

COMPLIANCIES	
FCC	CFR Title 47 - Part 90
CE	R&TTE Directive 1999/5/EC
Safety	EN 60950-1, EN 50385, EN 62311
EMC	EN 301 489-1, EN 301 489-3, EN 301-489-5

Not all variants and features are available in all countries or in all geographic areas.

RBS4000C with IP link IP options*		
A	V1025	25W VHF-L (66 - 88 MHz)
	V3025	25W VHF (136 - 174 MHz)
	U1025	25W UHF (400 - 470 MHz)
	U3025	25W UHF (854 - 921MHz)
	V1000	Receive Only VHF-L (66 - 88 MHz)
	V3000	Receive Only VHF (136 - 174 MHz)
	U1000	Receive Only UHF (400 - 470 MHz)
	U3000	Receive Only UHF (854 - 921MHz)

*4W + E/M and E1 links available on request.

RBS4000C-A-B-C-4W0-E100-S1-F-L		
B	W	Single receiver
	D	Receiver Diversity
C	A100	12 Vdc powered (negative grounded) + 12 Vdc power cord
	A1C1	48 Vdc powered (galvanically insulated) + 48 Vdc power cord
	A1E1	110 - 220 Vac powered
F	V0	no vocoder
	V1	AMBE+2 3000 vocoder board
L	G0	no GPS receiver
	G1	Single GPS receiver
	G2	Dual GPS Receiver



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