ECOS-D MT100-N

VHF/UHF DMR Modem

The ECOS-D MT100-N modem provides data and voice services for simple and fast integration in PMR professional DMR applications. Designed to exceed the requirements of professional mobile radio systems, it introduces a new concept of micro radio device, with a compact design combining reliable, secure communications with new services that greatly enhance efficiency in operations and emergency situations.

The modem is applicable to markets including industry, emergency, utilities, safety and transports. All are faced with increasingly demanding challenges requiring cost effective solutions focused on the PMR market. These evolving scenarios bring an increased reliance on data communications, requiring the removal of analogue systems and the deployment of new digital networks.

ECOS-D MT100-N delivers the security and the robustness of a DMR radio with the features of a modem and a handheld, providing both mission critical digital data transmission capabilities and voice communication services.

FEATURES

› Compliant with ETSI standard DMR protocol Tier II (Conventional) and Tier III (Trunking)
› Analog FM compatibility
› Automatic switching between DMR Tier II and FM (dual mode)
› DMRA standard encryption (AES128/256 & ARC4)
› ETSI standard registration and authentication (128 bit)
› Industry standard AMBE+2 VOCODER
› Transmit interrupt, ambient listening, DGNA
› Voice calls, talk group subscription, IP over DMR, enhanced data transmission and telemetry
› On-the-Air Programming (OTAP)
› AT command set.

SPECIFICATION

› Fully compliant with EU RED Directive requirements
› ETSI TS 102 361-1, 2, 3, 4 compliant
› ETSI EN 300 113 V2.2.1 and EN 300 086 V2.1.2 compliant.

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TECHNICAL DATA

Radio protocol	DMR, FM
Frequency range	› UHF: 400 MHz to 470 MHz › VHF: 136 MHz to 174 MHz
Channel capacity	512
Channel spacing	2.5 kHz
Operating volt.; current	DC 7.4V ± 5 %; up to 2,000mA
Antenna impedance	50 Ohm
Digital VOCODER	AMBE+2
Encryption	AES128, AES256, ARC4
Signaling	DTMF, CTCSS, DCS

MECHANICAL SPECIFICATIONS

Dimensions WxHxD	48 x 64 x 10.4 mm [1,89 x 2,52 x 0,41 in]
Weight	50 g [0,11 lb]
Body material	Aluminum

ENVIRONMENTAL CONDITIONS

Operation	-20°C to 55°C [-4°F to 131°F]
Storage	-40°C to 85°C [-40°F to 185°F]

RECEIVER	VALUE	ETSI SP.[1]
Analog sensitivity	-121 dBm	
Digital sensitivity	-121 dBm (5% BER)	-110 dBm
Intermodulation	70 dB	65 dB
Adjacent ch. selectivity	>65 dB	60 dB
Spurious rejection	>70 dB	70 dB
Blocking	90 dB	84 dB
Hum and noise	>40 dB	
Audio response	+1/-3 dB	
Conducted spur. emission	< -57dBm	

TRANSMITTER	VALUE	ETSI SP.[1]
RF output power	› 4.7W (VHF) › 4W (UHF)	
Modulation limiting	< ± 2.5 kHz	
FM hum and noise	40 dB	
Conducted/radiated emis.	< -36 dBm	
Adjacent channel power	< -60 dBc	-60 dBc
FSK error	1.5% (Typ.)	5%
Transient power suppres.	> 60 dB	50 dB
Frequency error	± 1.5 ppm	
Audio distortion	< 3%	

UART INTERFACE PARAMETERS

Signal level	3.3V
Speed (Baud rate)	38.400 bps
Data bits/parity bit/stop bit	8 / None / 1

PIN DESCRIPTION

Number	Name	Function
1	Rx_Data	Serial port UART (3.3V)
2	Tx_Data	Serial port UART (3.3V)
3	Ext_PTT	Digital input PTT
4	CD	Digital output - Carrier detection
5	Audio_In_N	Balanced analogue input
6	Audio_In_P	Balanced analogue input
7	Audio_Out	Analogue output
8	Boot	Digital input FW upgrade
9-11	Gnd	Ground
12	Reset	Digital input HW reset
13-14	Vcc (7.4V)	Vcc

[1] better than

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