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.
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%

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**UART INTERFACE PARAMETERS**

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

**PIN DESCRIPTION**

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