2300 / 432 MHz Transverter V1.4

Specifications

<table>
<thead>
<tr>
<th></th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range RF</td>
<td>2300 MHz</td>
<td></td>
<td>2425 MHz</td>
</tr>
<tr>
<td>Frequency range IF</td>
<td>430</td>
<td>432 MHz</td>
<td>440</td>
</tr>
<tr>
<td>LO Frequency:</td>
<td>see table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO Accuracy at 20 deg. C</td>
<td>+/- 1 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO temp. stability</td>
<td>+/- 2.5 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Power</td>
<td>1.5 W</td>
<td>2.0 W</td>
<td>2.5 W</td>
</tr>
<tr>
<td>Power Supply</td>
<td>12.0 V</td>
<td>12.0 V</td>
<td>13.8 V</td>
</tr>
<tr>
<td>Current Consumption</td>
<td></td>
<td></td>
<td>1 A</td>
</tr>
<tr>
<td>Input Power</td>
<td>0.2 W</td>
<td></td>
<td>5 W</td>
</tr>
<tr>
<td>Receive Gain, Adjustable</td>
<td>0 dB</td>
<td></td>
<td>+/- 10 dB</td>
</tr>
<tr>
<td>Noise Figure (Split mode)</td>
<td>1.5 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Figure (Rx/Tx mode)</td>
<td>1.9 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
<td>124x94x25mm</td>
</tr>
<tr>
<td>Spurious response</td>
<td></td>
<td></td>
<td>&lt; -55 dBc</td>
</tr>
</tbody>
</table>

Features

2 W output power
Low noise figure, GaAs HEMT input stage
High performance UP / DOWN converters
High stability TCXO
Input for 10 MHz external reference oscillator
Internal Tx/Rx switch
Possibility to work with split Tx/Rx (selectable, required soldering)
Internal Directional Coupler
PTT can be switched by connecting PTT to ground, by RF power (RF VOX) or by DC voltage
Output SWR indicator - bi color LED
Optimal input power indicator - bi color LED
Integrated Sequencer
4 LO frequencies, programmable by PC (RS-232, 3.3V levels)
2300-2425 MHz Rx/Tx (or TX only in Split Mode) SMA connector

2300-2410 MHz RX only (in Split Mode) SMA connector

12 V power supply - DC Jack 5.5x2.1 mm + GND
max. 1 A

IF 430-440 MHz SMA connector

PTT and Sequencer - 3.5 mm audio jack

PTT - 3.5 mm audio jack, active: LOW or connect to ground
Sequencer output, open collector NPN transistor 30V/0.3A max.
Time delay: 30 mS after PTT LOW. RF power is applied to the output after additional 30 mS

Ground

Input power adjustment:
Input LED color: orange - Input power is low
green - Input power is normal
red - Input power is too high

Output LED color: green - Excellent output SWR
orange - Moderate output SWR
red - High output SWR
**Trimmers**

RX GAIN - You can adjust the overall gain from 0 to +10dB
TX POWER - When PTT is LOW and power supplied to the IF input, rotate until the LED lights up green

**SWR Voltage**

Can be measured by high impedance voltmeter
FWD - voltage of forward wave
REF - voltage of reflected wave
GND - ground

**PWR / VTT**

PWR ON: The Transverter can be DC powered by coaxial cable.
VTT ON: PTT can be switched on by applying DC voltage 5-15 V in coaxial cable
A bias tee is needed to insert DC power into coaxial cable.
DET
- OFF - RF VOX detector time low
- ON - RF VOX detector time high (0.3 - 0.5 sec.)

RF VOX is always switched ON. The Transverter automatically switches to the TX mode when RF power is applied to IF (430-440 MHz input).

Jumper 3
- ON - Internal frequency reference is used
- OFF - Internal reference is switched OFF. External reference with 10 MHz frequency and -10...0 dBm power must be connected to **Ext Reference Input SMA**
  The transverter needs **restart** to switch between two modes.

**PLL unlock indicator:** Blinking Input LED in Red means a PLL unlock.

### Default LO Frequencies

<table>
<thead>
<tr>
<th>Jumpers</th>
<th>1</th>
<th>2</th>
<th>LO Freq., MHZ Rx / Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO Frequency 1</td>
<td>off</td>
<td>off</td>
<td>1870 / 1870</td>
</tr>
<tr>
<td>LO Frequency 2</td>
<td>on</td>
<td>off</td>
<td>1886 / 1886</td>
</tr>
<tr>
<td>LO Frequency 3</td>
<td>off</td>
<td>on</td>
<td>1888 / 1888</td>
</tr>
<tr>
<td>LO Frequency 4</td>
<td>on</td>
<td>on</td>
<td>1968 / 1968</td>
</tr>
</tbody>
</table>

**How to understand what is the current LO frequency:**

After switching power ON, input LED lights up in Red for 3 sec. If you switch ON and hold PTT during this time, you can hear on CW, on 432.000 MHZ what are current LO frequencies - RX and TX.