

SG LAB

5760 / 432 MHz Transverter V1.4

Specifications

	Min.	Typ.	Max.
Frequency range RF	5650 MHz	5760	5800 MHz
Frequency range IF	420	432 MHz	450
LO Frequency:		see tables	
LO Accuracy at 20 deg. C		+/- 0.5 ppm	
LO temp. stability -20...+70 deg . C		+/- 0.5 ppm	
LO phase noise @10kHz offset		-85dBc/Hz	
Output Power @ 5760 MHz , 12.6V	1.8 W	2.0 W	2.2W
Power Supply	11.0 V	12.0V	13.8 V
Current Consumption RX		0.26 A	
Current Consumption TX , 2W out		1.35A	
Input Power	0.2 W		5 W
Receive Gain , Adjustable	0 dB		+15 dB
Noise Figure (Split mode)		1.5 dB	
Noise Figure (Rx/Tx mode)		2.4 dB	
Dimensions			124x94x30mm
Spurious response		< -50 dBc	

Features

2 W output power

Internal Tx/Rx switch

Low noise figure , GaAs pHEMT input stage

High performance UP / DOWN mixer

High stability TCXO

Input for 10 MHz external reference oscillator

Possibility to work with split Tx/Rx (selectable , required soldering)

PTT switching by PTT to GND, by RF power (RF VOX) or by DC voltage

Internal Directional Coupler

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)



5760 MHz Rx/Tx (or TX only in Split Mode) SMA connector

5760 MHz RX only in Split Mode SMA connector

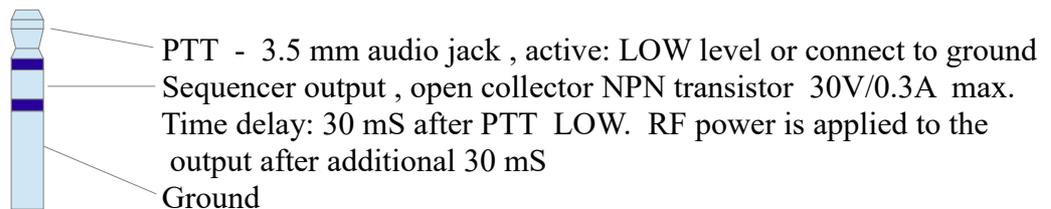
12 V power supply - DC Jack 5.5x2.1 mm. 1.4 A max

IF 420-450 MHz SMA connector

Input LED

Output LED

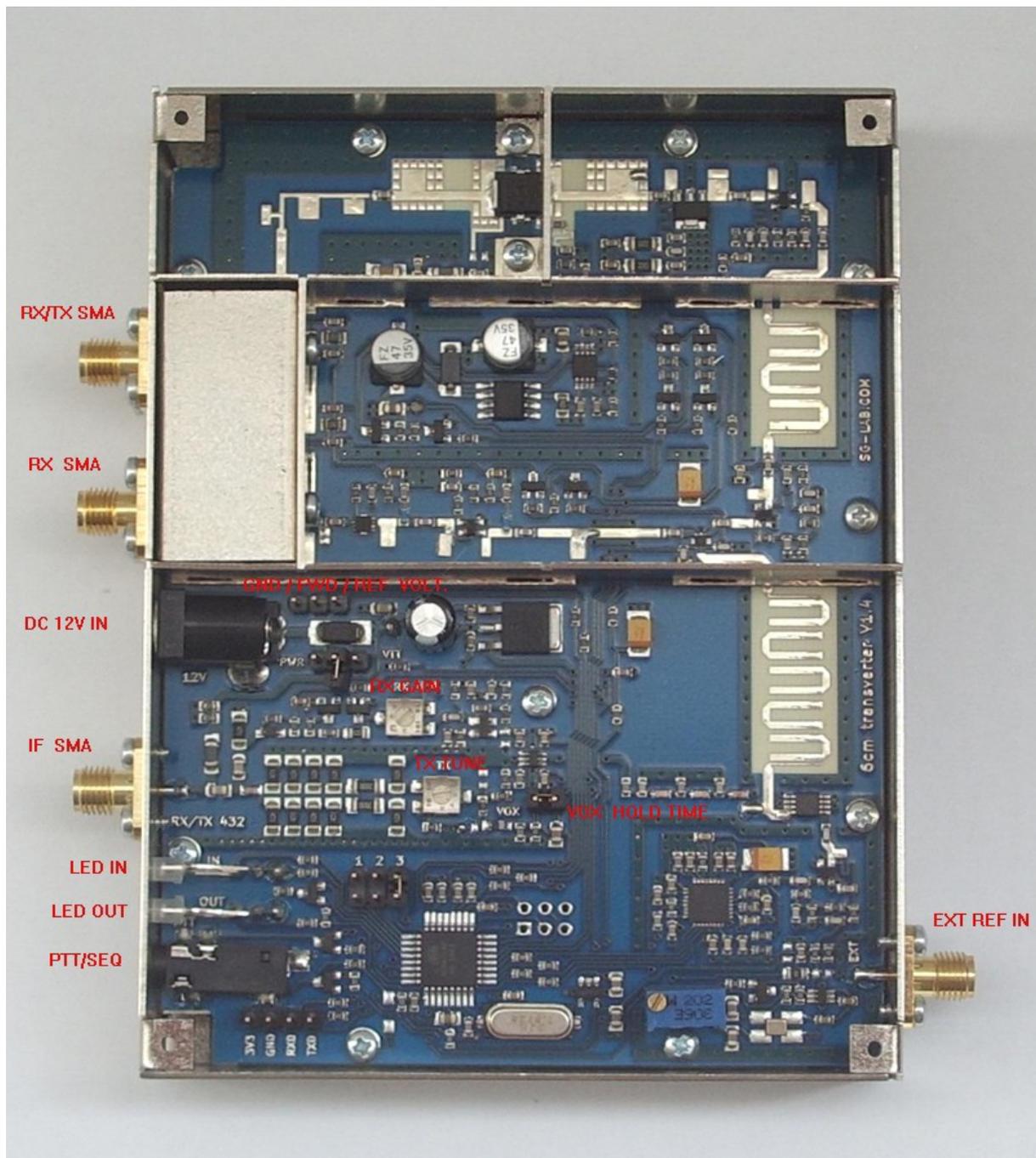
PTT and Sequencer - 3.5 mm audio jack



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 - VSWR <1.5
orange - 3 levels of orange for VSWR 1.5-2.0 , 2.0-2.5 and 2.5-3.0
red - VSWR > 3.0



Trimmers

- RX GAIN - You can adjust the overall gain from 0 to +15dB
- TX - When PTT is LOW and power applied to the IF input, rotate until the "Input" LED lights up in green. Orange means low input power, red - high input power

SWR Voltage

- Can be measured by high impedance voltmeter
- FWD - voltage proportional to forward wave
- REF - voltage proportional to 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 hold time is low

ON - RF VOX hold time is high (0.3 - 0.5sec.)

RF VOX is always 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 with -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

Jumpers	1	2	LO Freq. , MHZ Rx / Tx
LO Frequency 1	off	off	5326 / 5326
LO Frequency 2	on	off	5330 / 5330
LO Frequency 3	off	on	5328 / 5328
LO Frequency 4	on	on	5338 / 5338

Alternate LO Frequencies

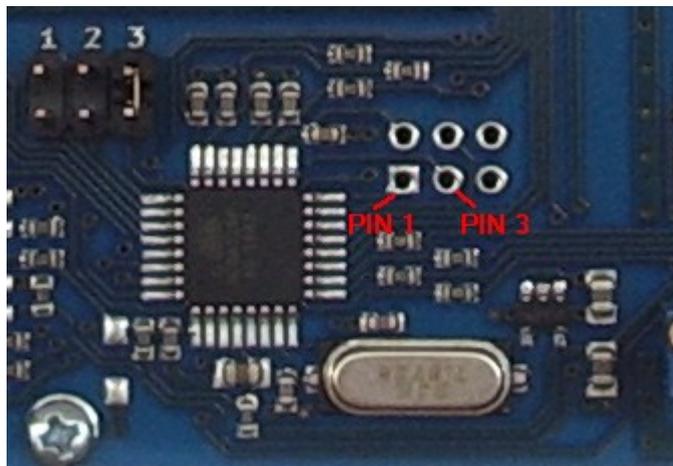
Jumpers	1	2	LO Freq. , MHZ Rx / Tx
LO Frequency 1	off	off	5240 / 5240
LO Frequency 2	on	off	5330 / 5330
LO Frequency 3	off	on	5280 / 5280
LO Frequency 4	on	on	5370 / 5370

How to program alternate frequencies:

1. Switch power OFF
2. Connect PIN 3 to GND
3. Switch power ON . When IN LED light up in green, alternate frequencies are loaded in non-volatile memory

How to return to default frequencies

The same , connect PIN1 to GND



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 .