



## 1296 MHz Transverter v.2.2

### Description:

Transverter for 23cm amateur radio band.

The new design v 2.2 of our transverter features better performance and some new functions. Our new transverter's design (v 2.2) offers better performance and some new functions.

### Applicaton:

Due to its small dimensions and light weight this transverter is suitable for portable or stationary operation.

### How to order:

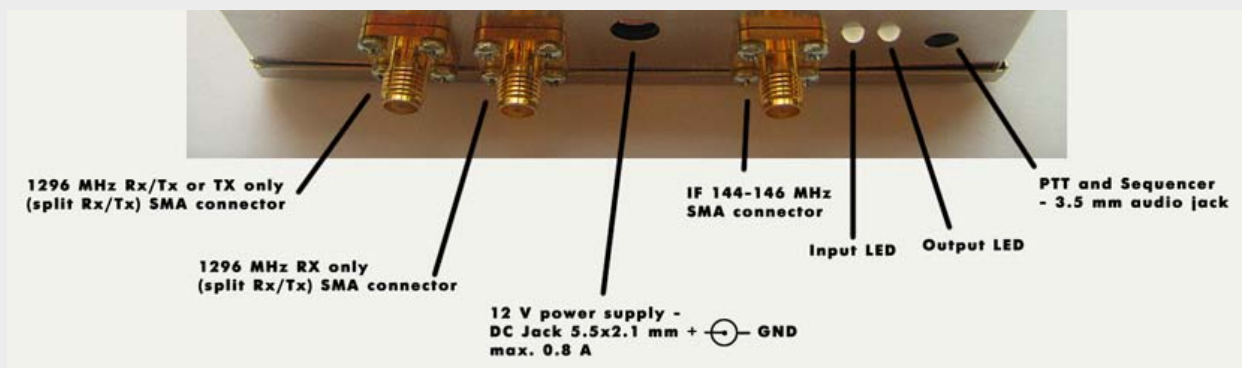
Send a mail to: lz5hp@dir.bg

### Features

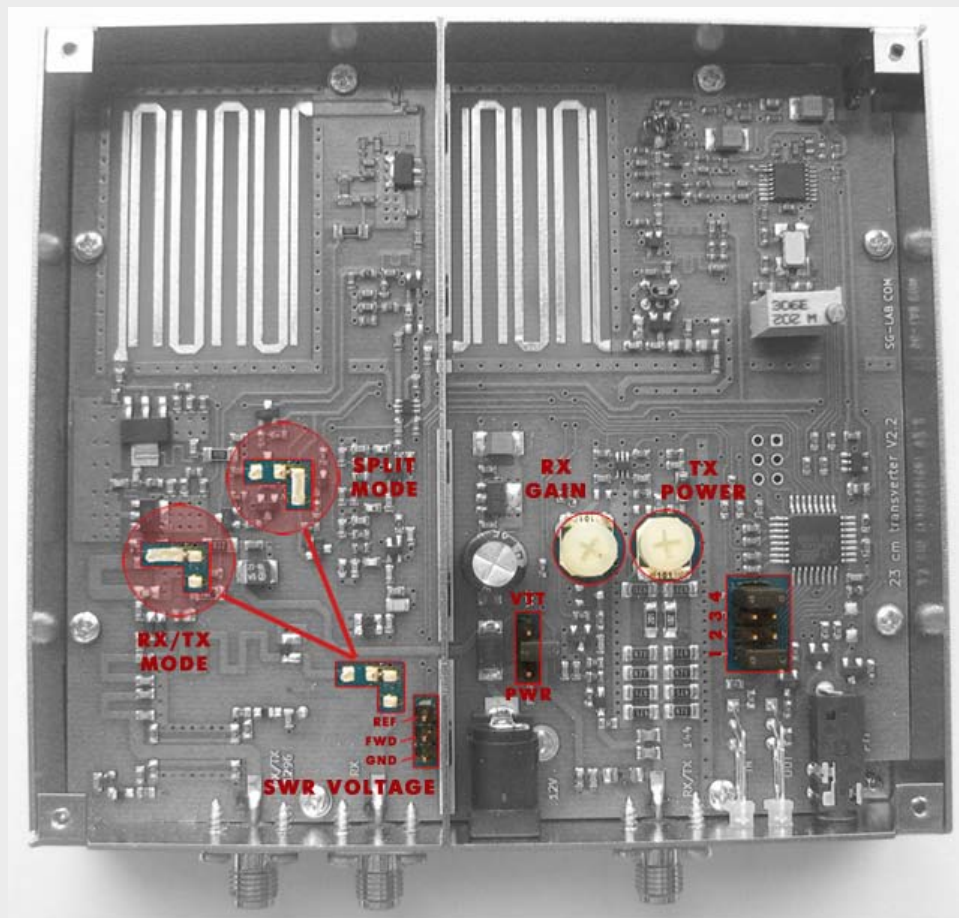
- Emmission Modes: SSB, AM, CW , FM
- 2W output power
- Low noise figure GaAs HEMT input stage
- High performance UP / DOWN converters
- High stability TCXO
- Internal Tx/Rx switch
- Split-frequency operation option (selectable, require additional soldering)
- Internal Directional Coupler
- PTT can be switched by connecting PTT to ground, by RF power (selectable) or by DC voltage
- RX/TX switching:
  - push PTT input to ground
  - RF VOX
  - apply DC voltage to coax cable
- Output SWR indicator - bi-color LED
- Optimal input power indicator - bi-color LED
- Integrated Sequencer
- Repeater operation option : -28 / -6 MHz LO shift TX (selectable)
- Working via repeater: default -28 MHz LO offset (selectable)

Specifications				
General	Min.	Typ.	Max.	Unit
Frequency range RF	1240	1296	1300	MHz
LO Frequency: Normal Mode		1152 (or 1150 / 1154 )		MHz
LO Frequency: Repeater Mode - 28 MHz		1124 / 1122 / 1126		MHz
LO Frequency: Repeater Mode - 6 MHz		1146 / 1144 / 1148		MHz
LO Accuracy at 20°C		+/- 1		ppm
LO temp. stability		+/- 2.5		ppm
Supply Voltage	12		13.8	V
Current Consumption			0.8	A
Dimensions	104 x 114 x 25			mm
Transmitter				
Input Power	0.2		5	W
Output Power	1.8	2.0	2.5	W
Receiver				
Receive Gain , Adjustable	-5		+10	dB
Noise Figure		0.9		dB
Spurious response rejection		-55		dB

### Front panel indicators and connectors



### Controls and jumpers inside the box






#### To adjust input power :

1. Adjust transceiver's output power between 0.2 и 5 W.
2. Place the transceiver in transmit mode
3. Carefully rotate TX POWER trimmer until **Input LED** lights **green**.

	No input power or input power is too low
	Input power is low
	Input power is OK
	Caution! Input power is too high!

**Monitoring SWR**

When in TX mode Output LED indicates SWR as follows:

	<b>Excellent output SWR.</b>
	Moderate output SWR
	<b>Caution!</b> High output SWR!

Jumpers	
1	<b>OFF</b> : Normal operation <b>ON</b> : Repeater mode , LO shift: -28 MHz
2	<b>OFF</b> : $F_{LO}$ = 1152 MHz $F_{IF}$ = 144 - 146 MHz <b>ON</b> : $F_{LO}$ = 1150 MHz $F_{IF}$ = 146 - 148 MHz
3	<b>OFF</b> : Normal <b>ON</b> : -6 MHz shift in repeater mode
4	<b>OFF</b> : PTT ON by connecting PTT input to GND <b>ON</b> : PTT is also RF activated with IF input power >0.2W ( RF VOX )

SWR voltage connector	
Connect high impedance voltmeter to measure forward and reflected wave	
FWD	Voltage of forward wave
REF	Voltage of reflected wave
GND	Ground

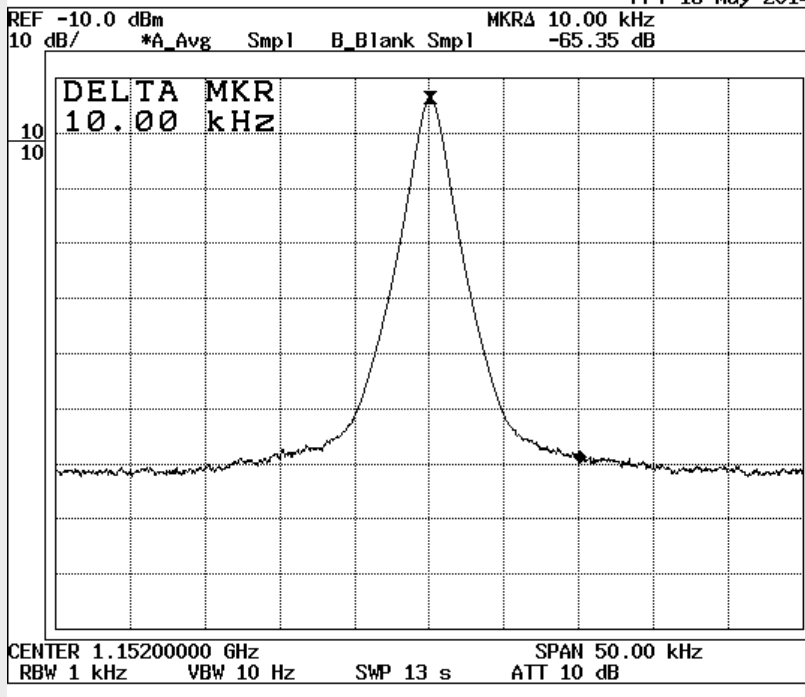
PWR / VTT	
PWR ON	Transverter can be DC powered by coaxial cable.e
VTT ON	PTT can be switched on by applying DC voltage 5-15 V A bias tee is needed to insert DC power into coaxial cable.

3.5 mm audio jack	
Tip	PTT, active: LOW
Ring	Sequencer output, open collector NPN transistor 30V/0.3A max. Time delay: 25 ms after PTT LOW

Measured results:

Oscillator phase noise

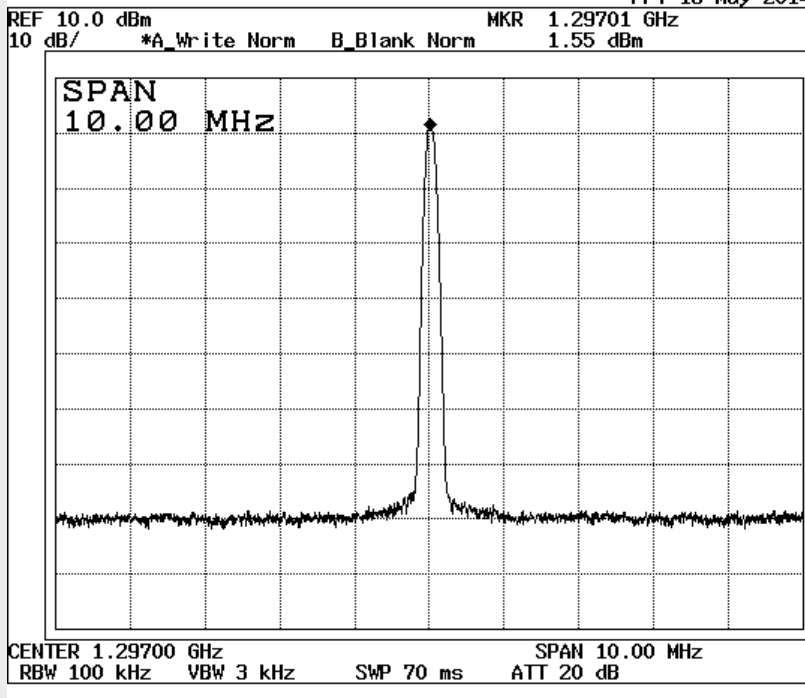
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- Peak
- 1 Next Peak
  - 2 Next Peak Left
  - 3 Next Peak Right
  - 4 Min Peak
  - 5 Next Min Peak
  - 6 Search Condition
  - 7 Cont Peak
- ON  OFF

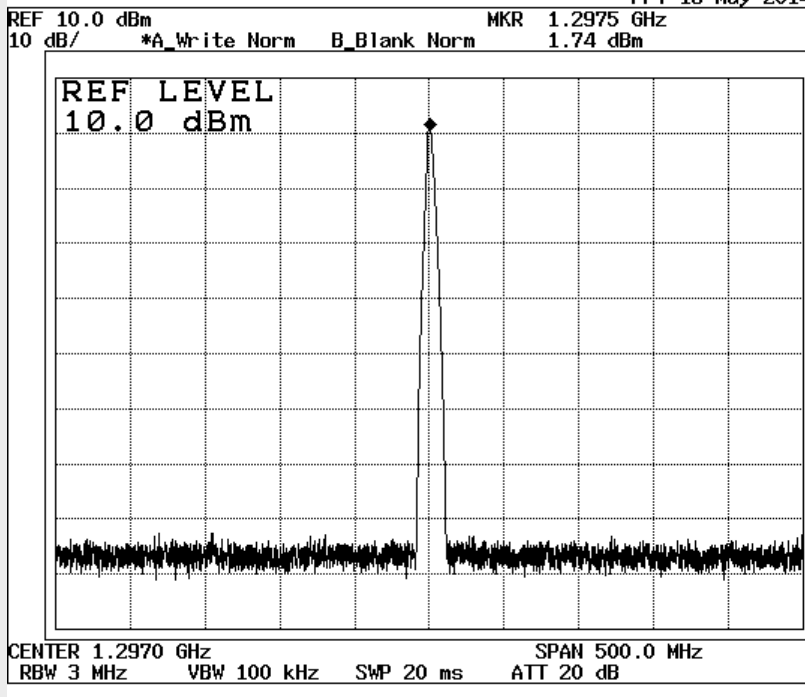
Output spectrum

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- Span
- 1 Full Span
  - 2 Zero Span
  - 4 Last Span

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Level

1 dB/div

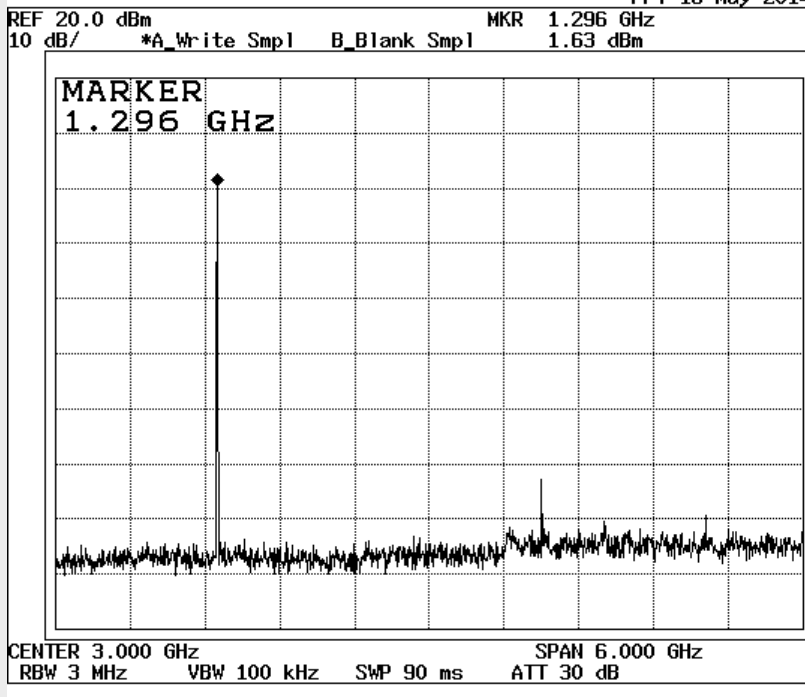
3 Linear

4 Units  
dBm

5 Ref Offset  
ON OFF

7 Correction  
Factor

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Peak

1 Next Peak

2 Next Peak  
Left

3 Next Peak  
Right

4 Min Peak

5 Next  
Min Peak

6 Search  
Condition

7 Cont Peak  
ON OFF