



EXCITERS

TX280HV₃₃₅

DESIGN AND DEVELOPMENT OF RF SYSTEMS

TX280HV

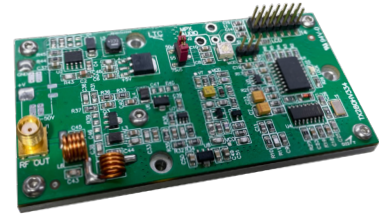
The TX280HV is the successor of our TX180A, Designed from the ground up to provide better performance and accomodate modern standarts.

Whats New?

1. 12-48V operation voltage
2. passive cooling Aluminum plate
3. SMA Ready
4. 2-3 Watt RF output power
5. full SMT Design
6. New Software

Basic theory of operation

he transmitter produce a frequency with a VCO and then modulate it with an input signal (audio) in FM (Frequency modulation) where frequency is being shifted unlike AM (Amplitude modulation) where amplitude is being changed. To make a stable FM frequency, a PLL (Phase lock loop) is responsible to correct every drift of frequency in a reference to a very stable and accurate crystal oscillator. The signal is then fed into an antenna and spreads to the open space. A smart microcontroller is responsible to many tasks:



For illustration purpose only!

Properties

- RF Output Power: 2.5W \pm 15%
- Output connector: SMA Ready
- Output Impedance: 50 Ohms
- Frequency: 87.5MHz -108MHz
- PLL Steps: 50KHz
- Frequency stability: +/- 250Hz
- AF Response: 20Hz-100KHz
- Power Supply: DC 12-48V 10W
- Pre-emphasis: None, 50 or 75uS
- LCD ready
- Compact size: 50x100mm

Package Contents

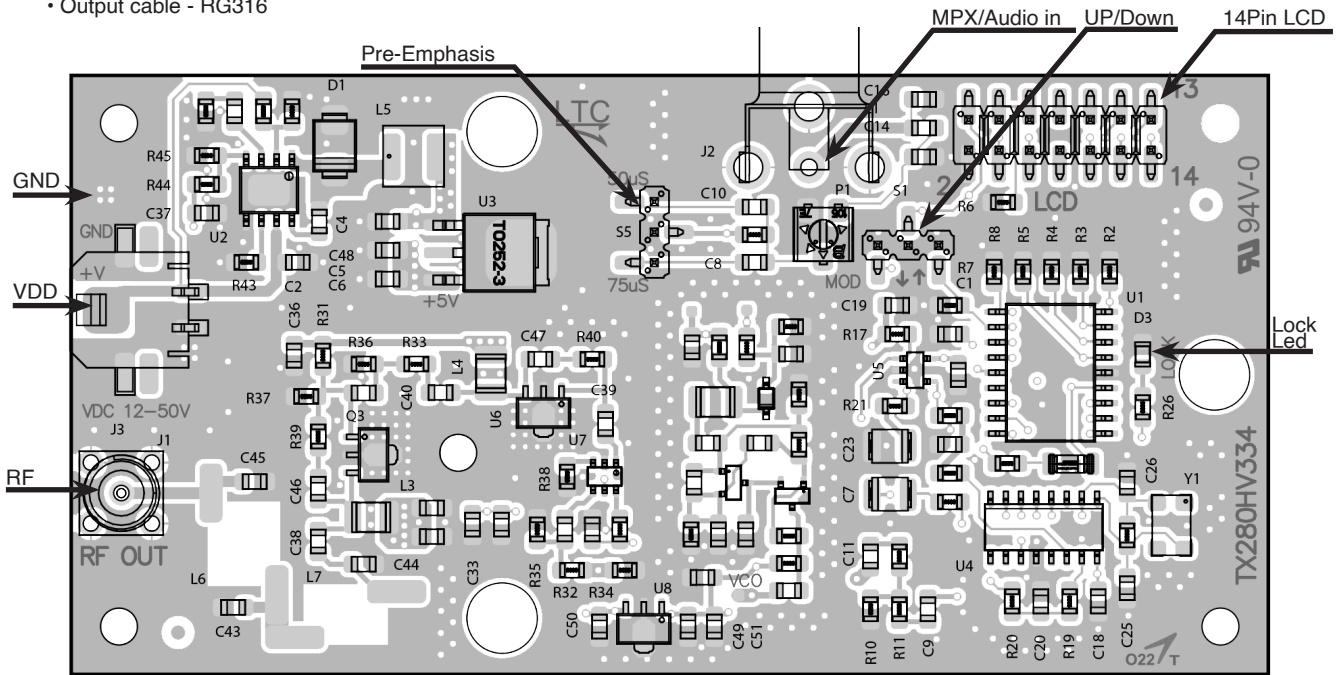
- TX280HV Board
- Attached aluminum plate
- LCD
- LCD cable

Electrical Connections

Operating without antenna or dummy load (50Ω) can permanently damage the RF power transistor
 Check the output connection before applying DC voltage to the module.

Recommendations

- DC cable for up to 1.3A - 24AWG
- Negative wire of the power supply must be connected to the GND Pad
- Output cable - RG316

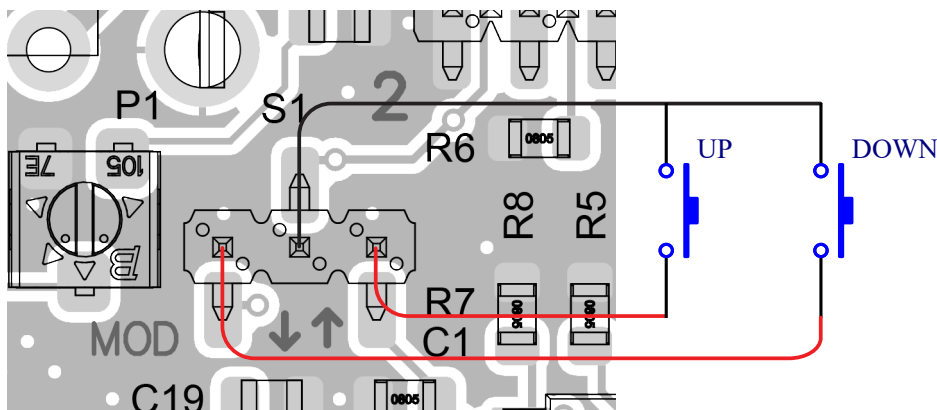


Heatsink Mounting/Hardware

The Exciter can work without being attached to a heatsink
 Overheating can cause permanently damage to the power transistor.

Connecting the LCD and UP/DOWN buttons

While connecting the LCD and the buttons, the power supply must be off.
 Connecting the LCD screen with 14 Pin Flat Cable that is supplied with the LCD.
 Connect Pin1/2 side on the LCD to Pin1/2 side on the TX180A board.
 The Diagram below shows a proper button connection.



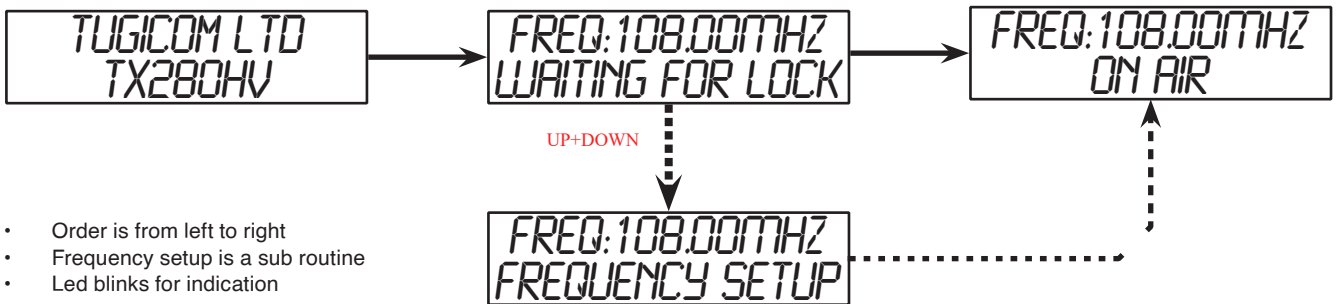
*Before applying power

there is a mandatory checklist that must be done before turning on the exciter.

- Make sure that antenna\dummy load is connected first
- UP/DOWN is connected to a set of buttons
- VDD/GND Polarity must be checked
- A frequency that you want to transmit on

*Please make sure you know your country RF regulations, in some countries you need a special license to go on air.

Navigating your way through the software



- Order is from left to right
- Frequency setup is a sub routine
- Led blinks for indication

Antenna

The antenna is one of the major elements which effect on the range of your broadcast. You will need to pay attention to the coaxial cable which will be described later. The Best position for a FM broadcast antenna is the highest place which from him you have line sight as far as possible without any interference from other buildings, mountains and other high object which may interfere your broadcast signal. Always remember that the critical parameter is not whether you broadcast 1W or 5W, but whether you are 10 or 15 meters above ground. The best antenna for this transmitter will be a 50 ohm antenna which was matched exactly to the frequency you will need to use, but the price of those antennas may be high.

Thank you for buying our products.
for every enquiry or questions feel free to contact us on Info@tugicom.com

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