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DEM Part Number 10368-144 and 10368-144LP
10 GHz. Transverters and Transverter Kits

Specifications

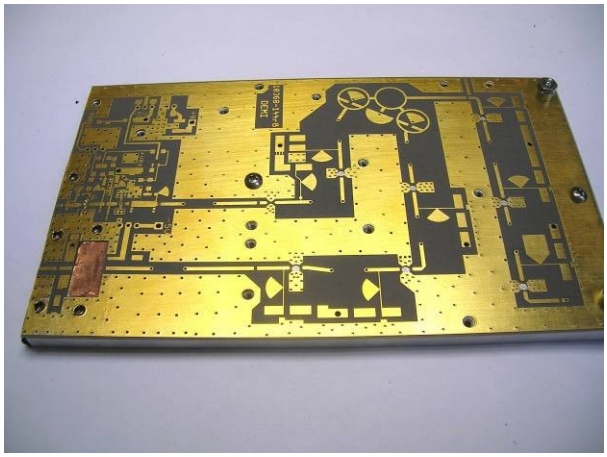
Frequency:	10368 GHz = 144,145,147,432 or 435 MHz.
Noise Figure and Gain:	10368 –144 <1.1 dB NF, > 25 dB Gain 10368-144LP <3.5 dB NF, > 17 dB Gain Optional IF gain stage may be ordered
Power Output:	10368-144 > 3 watts 10368-144LP >10 mW
IF drive requirement	10 W maximum and adjustable
DC Power requirements:	10368-144 10 –15.5 VDC @ 2.5 A 10368-144LP 10 - 15.5 VDC @ 600 mA

Description:

The DEM 10368-144 or 10368-144LP is a complete ready to go transverter needing only an IF transceiver of 10 watts or less and a 10 GHz antenna system. The 10368-144LP model (low power) is a basic design that can be used as a portable rig or integrate into an existing system. It's output level is perfect for most TWT amplifiers or to use for short mountain top contacts. The gain and noise figure of the 144LP is reciprocal for it's TX power level, but adding a high performance LNA and a power amplifier makes it a top notch system.

The 10368-144 is the latest version derived from the original W1GHZ/DEMI design published in the 1999 NEWS VHF conference proceedings. One circuit board combines a 3-watt solid-state power amplifier and an ultra low noise PHEMPT preamplifier with the original design transverter. It is all housed in a single enclosure that results in a great stand-alone unit to mast mount at a home station or use as a complete portable station.

Many new approaches have been taken in this design that improve frequency stability and accuracy while providing a system noise figure of less than 1.2 dB and 3 watts of output power! The original crystal oscillator has been replaced with Q5 Signal's DigiLO, that with a GPS locked 10 MHz standard becomes frequency stable and accurate to within a few hertz. It also has its own internal source that will provide easy portable operation or back up if a GPS system is not available. The DigiLO synthesizer is frequency agile providing flexibility in IF frequency operation. It supplies a -3 dBm output at 3404 MHz. This enters a 3X multiplier on the transverter PCB. There are provisions to measure the power levels before the mixer injection point for testing and tuning when aligning the kit version. The transverter PC board utilizes MMIC's in every gain stage in the low power version and includes a PHEMPT LNA and power MMIC in the standard 3W version. Both transverters have the TX and RX ports spaced correctly for a direct connection of common SMA relay so it can be used as a "stand alone" portable rig.



The IF switching, after being keyed by a PTT-L (to ground) or PTT-H (positive voltage) during transmit, is controlled by a transverter control board, the TC. This enables the use of up to a 10 watt 144 MHz input level and contains all of the control voltages for the transverter. You simply need to connect one 12VDC (10-15.5 VDC) regulated supply or battery to the transverter. Auxiliary switching controls and a 24V relay driver are included that allow the use of common 24-28 VDC SMA relays with the transverter. In the complete kit version, you will receive all 3 circuit required board kits and a prepped extruded aluminum enclosure with all necessary hardware and connectors to get you on the air. You just need to supply a TR relay, an antenna, and a IF rig of 10 watts or less. The 10368-144 or 10368-144LP may also be ordered with an SMA TR relay installed and tested as the "10368-WTR" option that's ready to go!

The Down East Microwave10 GHz. assembled transverters are available as model number DEM 10368-144 (3 watt version) and 10368-144LP (low power version). Complete kits are available as the 10368-144CK and the 10368CK. The PC board kit is only available as a low power transverter, the 10368K. PC boards only are available for the low power transverter as the 10368PCB. The 10368-WTR may be ordered with a kit or assembled unit as show in the picture.

Options:

Options for both transverter versions, kit or assembled, include IF frequencies of 145,147 432, and 435 MHz. Higher or lower receive gains may be ordered. Common or separate IF signals and PTT keying through the IF cable may be configured.

The transverter may also be configured for external Local Oscillators depending on level and frequency. Provisions can be made for adding external power amplifiers and LNAs. Additional transverter interfaces, sequencers, power amplifiers and LNA's are available. Consult the DEMI or the catalog.