

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

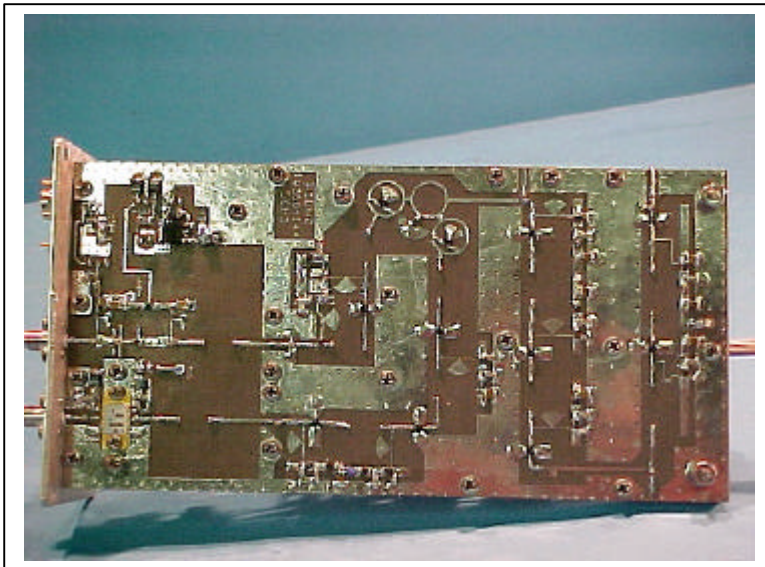
### Specifications

Frequency:	10368 GHz = 144 MHz. Other options available
Noise Figure and Gain:	10368 -144 <1.5 dB NF, > 17 dB Gain 10368-144LP <3.5 dB NF, > 17 dB Gain
Power Output:	10368-144 > 1.9 watts 10368-144LP >10 mW
144 MHz 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 transverter ready to be interfaced with a 10 watt or less 2 meter transceiver. The 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 (up to 200 km) 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 in a TWT type system makes it a top notch system.

The 10368-144 is the newest version of the original W1GHZ/DEMI design published in the 1999 NEWS VHF conference proceedings. One circuit board combines a 2-watt solid state power amplifier and a PHEMT low noise 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 1.5 dB and 2 watts of output power! Improvements to this design have been made over the duration because of the better quality components that now exist for this frequency of operation. The Local Oscillator is derived from a 189.334 MHz. base oscillator with a tighter tolerance crystal than in the past. The oscillator provides a +5 dBm output at 1136 MHz. This enters a 3X multiplier on the transverter PCB. The signal is then amplified and multiplied 3 X again. There

are provisions to measure the power levels at every multiplication 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 and power MMIC in the standard 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 2M IF switching, after being keyed by a PTT-L (to ground) or PTT-H (positive voltage) for transmit, is controlled by a transverter control



board. 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) un- regulated supply 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 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 2 meter 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! .6 Meter dish antennas and feeds are available along with low loss feed line for interconnecting. Other IF / RF configurations and options are available may be requested at time of order along with any of the other transverter operating and interfacing accessories available from DEMI.



The Down East Microwave 10 GHz. assembled transverters are available as model number DEM 10368-144 (2 watt version) and 10368-144LP (low power version). Complete kits are available as the 10368-144CK and the 10368-144LPCK. The PC board kit is only available as a low power transverter, the 10368-144K. PC boards only are available for the low power transverter as the 10368-144PCB. The 10368-WTR may be ordered with a kit or assembled unit. If ordering the WTR option, custom sized feedlines may be purchased to be used between the transverter and dish feed.

**Options:**

Options for both transverter versions, kit or assembled, include IF frequencies of 145, 432, and 435 MHz. Other custom IF frequencies may be ordered after consulting DEMI. Higher or lower receive gains may be ordered. Custom output levels up to 2 watts output may be specified along with specific IF drive levels. 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. An LO frequency monitor can be provided.

Additional transverter interfaces, sequencers, power amplifiers and LNA's are available. Consult the DEMI or the catalog. Surplus components such as attenuators and cables are also available on our Surplus page.