

## Monitor Sensors 2200m Transverter



The Monitor Sensors TVTR2 2200m Transverter enables any Amateur Radio Station, equipped with a conventional HF transceiver, immediate, all mode, access to the new 135.7-137.8 kHz, 2200m band.

The receiver design incorporates a 7pole Chebyshev filter, 3kHz wide roofing filter and a 5 pole Chebyshev filter in cascade before the double balanced, commutating mixer, fed by an ultra stable, temperature compensated, extremely low phase noise, MEMS local oscillator. The mixer is followed by a Chebychev band pass filter into an ultra linear, low noise, current feedback, IF amplifier. The receiver noise floor, in a 500Hz bandwidth, is -125 dBm and yet the onset of compression is not reached until +11dBm. A front end 20dB attenuator can be switched in for even higher signal handling. Overall receiver gain is set to +6dB, or -14dBm with attenuator in.

The transmitter input circuit incorporates a 0-14 dB switched step attenuator to prevent over driving. The same mixer and local oscillator are used on the transmit side. The PA uses 6 rugged lateral FETs in class AB push-pull to easily achieve the 50 watts rated output. Lateral FETs are inherently linear and thermally stable. The transmitter can be run at full power, indefinitely, into a

dead short or open circuit without any danger of damaging the FETs. Transmit-receive switching is automatic with user selectable VOX delay. Alternatively the PTT line may be used.

The transverter employs extensive and accurate metering. Power input and output, SWR, Frequency, Attenuation in use, Temperature, Supply Voltage, Current and Resistance are displayed. Transmission is inhibited if carrier frequencies outside the 135.7-137.8 kHz band are detected. A tuning screen may be selected which displays SWR in digital and graphical form for easy antenna adjustment. The menu system is self explanatory and users report no manual is needed, although one is supplied. A USB socket is provided for future code upgrades (free of charge) from the Monitor Sensors web site.

The transverter has been designed for the best possible protection against accidental mishaps. It will survive reverse polarity supply and the injection of 100 watts of HF into any of its ports whether in transmit or receive mode. If supply current exceeds 25 Amps, the supply is cut in 3 microseconds. This electronic breaker can be reset by simply switching off and on again. The transmitter will shut down in the unlikely event that the internal heat sink reaches 90°C. The cooling fan is under the proportional control of the microcomputer and begins operation above 35°C. Any unusual operation will cause the screen to turn red and an appropriate warning will be displayed.

### **TVTR2 Specifications**

RF frequency range	135.7 to 137.8 kHz
IF frequency range	1805.7 to 1807.8 kHz (others available in the 160m band)
Transmission modes	CW, SSB, WSPR, and all other data modes
Output Power	50 Watts Continuous, 100% duty cycle @13.8V supply
Input and Output Impedance	50 Ohms
Supply voltage	13.8 VDC @ 15 Amps nominal, 10-16 VDC operational
Rx noise floor	-125 dBm (500 Hz bandwidth)
Rx 3dB compression point	+15 dBm (Rx attenuator out)
Rx IF rejection	better than 75dB
Rx conversion gain	+6dB nominal
Roofing filter in-band ripple	+/- 0.5dB
Tx 3 <sup>rd</sup> order IMD	-33 dB below PEP, typical at 50W output
Tx 5 <sup>th</sup> order IMD	-45dB below PEP, typical at 50W output
Tx harmonics and spuri	All better than -50dB
Tx conversion gain	+10dB nominal
Power input connector	2 * Anderson Power Poles (one Power cable supplied)
RF connectors	3 * SO239 (one PL259 to PL259 cable supplied)
PTT connectors	2 * RCA (one RCA to RCA cable supplied)
USB connector	Micro B USB, (matching cable supplied)
Dimensions	12½ * 4¼ * 3 inches, 320 * 120 * 76 mm
Weight	3.4 lbs, 1.6 kg

Monitor Sensors (Aust) Pty Ltd  
1/42 Cessna Drive  
Caboolture  
Queensland 4510  
Australia  
[sales@monitorsensors.com](mailto:sales@monitorsensors.com)