



## The OMNI V Model 562

The OMNI V is a Paragon with a 12 band crystal mixed local oscillator in place of the general coverage synthesized oscillator. The result is receiver cleanliness like the legendary Corsair and Omni series. The OMNI V local oscillator is a new ultra low noise 5.0 to 5.5 MHz PLL design. Phase noise is simply eliminated as a significant variable. Dynamic range is maintained right up to the edges of the crystal filters, even under the most adverse conditions.

Many of the nifty features made possible by digital technology are included. Dual VFO's with A-B-split select, the frequency stability of a PLL, 25 tuneable memories, VFO to MEM, MEM to VFO and the SCRATCHPAD feature. RS-232 interface is standard and includes remote band switching for the HERCULES II amplifier. The memories are nonvolatile RAM and are retained until you change them. The status registers and clock are backed with a lithium battery (2 year life) so that when the rig is powered up, the status is the same as when you turned it off.

The OMNI V operates USB, LSB, fast or slow QSK CW and real FSK. FM is optional. All bands from 160 through 10 meters are push button selectable. Each band position covers 500 kHz plus 30 kHz over-shoot at the band edges. The four 500 kHz segments of the 10 meter band are switched automatically as you tune through the segment limits. Tuning is in your choice of 10 Hz or 50 Hz increments on SSB, CW and FSK. With the FM option, tuning is in 100 Hz or 500 Hz increments. Up/Down buttons tune in 10 kHz or 50 kHz increments.

An auxiliary frequency tuning system is available and plugs into the rear panel. This allows you to remotely tune the frequency from the most convenient and comfortable position. It takes about 10 ms to fall in love with this option.

A noise blanker and audio speech processor are standard equipment as is the cw sidetone and speech monitor. The rear panel has a full complement of inputs, outputs and controls for the convenience of the all-mode operator, including an auxiliary RX antenna input. High speed key lines are provided for QSK control of a fast switching amplifier, such as the TITAN or HERCULES II. Changeover in fast QSK is less than 30 ms, great for CW and the digital modes.

The front panel is spacious and friendly. The vacuum fluorescent display uses large, bright, easy to read elements. The frequency display doubles as the 24 hour clock display when the CLOCK button is pressed. Other elements indicate VFO status and warn when the memories are full.

All four of the 6.3 MHz I-F crystal filter positions are push-button selectable, independent of mode. A second filter socket is also provided, in series, behind the standard 2.4 kHz filter in the 9 MHz I-F. This may be used for an optional 2.4 kHz, 1.8 kHz, 500 Hz or 250 Hz filter which is selected with the "NARROW" button. This adds six or eight poles into the crystal filter network and even further reduces the impact of adjacent strong signals. Most impressive!

If you do not need a general coverage receiver in your HF rig, the elegant OMNI V is a great choice. If you are also a serious DX'er and/or contest, the OMNI V is the best choice.

### GENERAL SPECIFICATIONS

**Frequency Range:** Transmit and receive on all ham bands from 160 through 10 meters in their entirety. Twelve 500 kHz segments plus 30 kHz over-shoot at the upper and lower edges of the segments.

**Frequency Control:** LO generated from a crystal oscillator mixed with a low noise 5.0 - 5.5 MHz phase locked loop.

**Frequency Stability:** Worst case, 1 PPM per degree C at 29,999 MHz.

**Frequency Accuracy:**  $\pm 100$  Hz @ 25 degrees C.

**Antenna Impedance:** 50 Ohms, unbalanced.

**Printed Circuit Boards:** G-10 epoxy glass.

**Power Required:** Receive = 1.5 A. Transmit = 20 A. 12 - 14 Vdc.

**Dimensions:** HWD 5 $\frac{3}{4}$ " x 14 $\frac{3}{4}$ " x 17". (14.6 x 27.3 x 43.2 cm).

**Net Weight:** 16 lbs. (7.25 kg).

### TRANSMITTER

**Modes:** USB and LSB (J3E), CW (A1A), FSK (F1A). Optional FM (F3E).

**DC Power Input:** 200 watts maximum.

**RF Power Output:** ALC stabilized, adjustable from 20 watts to 100 watts (50 Ohm load) with front panel RF OUT control.

**Microphone Impedance:** 200 Ohms to 50k Ohms. Bias voltage for electret mic is provided in front panel connector.

**CW Sidetone:** Internally generated with rear panel level and tone adjustments, independent of front panel audio level control.

**SSB Generation:** 9 MHz, 8 pole crystal ladder filter, balanced modulator.

**Carrier Suppression:** Greater than 60 dB.

**Unwanted Sideband Suppression:** Greater than 60 dB at 1.5 kHz AF input.

**Harmonic Emissions:** Greater than 45 dB below peak power output.

**Third Order Intermod Products:** -30 dB from two tone at 100 watts PEP.

**Metering:** Switchable forward power, SWR, collector current or audio processing level on SSB.

**CW Offset:** 600 Hz.

**FSK Shift:** 170 Hz.

### RECEIVER

**Modes:** LSB, USB, CW and FSK. FM with optional board.

**Sensitivity:** .15  $\mu$ V for 10 dB signal to noise ratio at 2.4 kHz bandwidth. With FM option, .3  $\mu$ V for 12 dB SINAD at 15 kHz bandwidth.

**Selectivity:**

	-6 dB BW	-50 dB	Shape Factor
Standard 2.4 kHz	2.4 kHz	3.36 kHz	1.87:1
Opt. 1.8 kHz	1.8 kHz	2.90 kHz	1.60:1
Opt. 500 Hz	500 Hz	1.40 kHz	2.80:1
Opt. 250 Hz	250 Hz	.85 kHz	3.40:1
Opt. FM	15 kHz	30.00 kHz	2.00:1

**Attenuator:** -20 dB.

**I-F Frequencies:** 1st I-F 9 MHz, passband tuning I-F 6.3 MHz.

**Image Rejection:**  $\geq 100$  dB.

**I-F Rejection:**  $\geq 60$  dB average.

**Noise Blanker:** Switchable on/off with width adjustment.

**Dynamic Range:** 97 dB, measured with standard 2.4 kHz filter at 20 kHz spacing, 100 dB + with cw filters.

**Third Order Intercept:**  $\geq 10$  dBm.

**Noise Floor:** -133 dBm @ 2.4 kHz bandwidth.

**Squelch Sensitivity:** Less than .6  $\mu$ V.

**Receiver Recovery Time:** Less than 30 ms.

**Pass Band Tuning I-F Shift:**  $\pm 2.3$  kHz.

**Audio Output:** Speaker, 1.5 watts @ 8 Ohms. Fixed level 1 mw @ 600 Ohms.

**Notch Filter:** 250 Hz to 2.2 kHz, greater than 50 dB notch depth.

**Audio Bandpass Filter:** 4 pole, variable center frequency 220 Hz to 1.7 kHz, 35% band width @ -6 dB.

**Tone Control:** Variable 15 dB roll-off @ 5 kHz.

**Phase Noise Performance of the OMNI V:** -127 dBc/Hz @ 250 Hz offset from carrier. -146 dBc/Hz @ 5 kHz offset from carrier.

### 9 MHz I-F FILTERS FOR OMNI V

#### MODEL 216.

Special 500 Hz, 6 pole crystal ladder filter centered for operation on the digital modes. (PARTY, packet and AMTOR.)

#### MODEL 217.

500 Hz, 8 pole crystal ladder cw filter.

#### MODEL 218.

1.8 kHz, 8 pole crystal ladder ssb filter.

### MODEL 219.

250 Hz, 6 pole crystal ladder cw filter

#### MODEL 220.

2.4 kHz 8 pole crystal ladder ssb filter.



### 6.3 MHz I-F FILTERS FOR OMNI V AND PARAGON.

#### MODEL 282.

250 Hz, 6 pole crystal ladder filter for cw or the digital modes

#### MODEL 285.

500 Hz, 6 pole crystal ladder filter for cw or the digital modes. for Paragon. (Built into OMNI V.)

#### MODEL 288.

1.8 kHz, 8 pole crystal ladder ssb filter

### Model 258, RS-232 Interface Board.

Provides remote computer control of frequency, mode, filter selection, VFO selection, all memory and scan features including memory programming and the other functions controlled from the push-button panel on the face of the Paragon. Supplied with command data for writing the program. Program discs are available from Ten-Tec for some of the more popular computers.