

# OMNI-VI PLUS

Model 564



It took nearly 30 years of highly focused engineering to produce the OMNI-VI PLUS. Our passion is to provide the finest possible performance to meet the demands of even the most serious

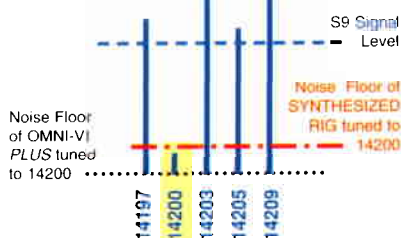
DXers and contesters. The design platform of this latest OMNI evolved meticulously from 12 previous transceivers, each pushing performance thresholds a little further. Suggestions from present TEN-TEC owners made immeasurable contributions to this product. Take a look and judge for yourself.

## YOU CAN'T WORK WHAT YOU CAN'T HEAR

Technology has advanced to the point where most high performance rigs on the market have excellent strong signal handling capability. The real design challenge is to hear the weak signals between the strong ones when the band is crowded. The best synthesizers just don't measure up. OMNI-VI PLUS is unique - it's the only rig with crystal mixing to essentially eliminate this phase noise problem.

Let's compare OMNI to any competitor's synthesized rig with both tuned to the same frequency.

5 Typical Signals on a Crowded Band



Noise Floor doesn't change in the presence of nearby strong signals. Work the weak one at 14200 just over the noise.

Noise Floor increased in presence of nearby strong signals. Can't even hear weak signal at 14200.

Phase noise generated *inside* the competitor's rig causes the noise floor to temporarily increase, covering weak signals *inside* your passband, especially when strong signals *outside* your passband are within a few kHz of where you'd like to listen. The bottom line - hear weak signals under the worst band conditions, signals our competition can't hear!

## SELECTIVITY

Superior selectivity eliminates interference from even the closest signals. Achieved by cascading optional filters from both I-Fs. Provides up to 4 choices of bandwidth in the 6.3 MHz I-F and 3 choices in the 9 MHz I-F, close to the antenna where they belong. That's 20 - 24 poles of filtering! Two of the 7 filters are standard, add only the options that fit your personal operating. All filters can be selected independent of mode.

## THE POWER OF DSP

DSP technology provides amazing benefits for both SSB and CW. OMNI-VI PLUS includes single button **DSP NOISE REDUCTION**. A 5 to 15 dB reduction of broadband noise is typical - makes signals leap out of the noise. **DSP AUTO NOTCH** instantly eliminates interfering carriers - now work 40 meters day or night. **DSP LOW PASS** provides 5 choices to cut the highs "just the way you want" to reduce listening fatigue. Rig even remembers your separate choices for SSB and CW. The DSP processor also generates the CW transmit offset, adjustable 400 - 990 Hz, with auto tracking sidetone. This is audio level DSP at its very best.

## QUALITY CONTROL...BACKED BY LEGENDARY SERVICE

Rigorous computer-controlled tests exercise every OMNI. Made possible by the rig's high speed PC Interface coupled to automatic test equipment. Our own custom software runs the entire process. There's also an overnight burn-in. Each rig transmits into a dummy load, cycling between TX and RX every few seconds, changing bands along the way. One final performance check by experienced hams finishes up the test. Reliability out of the box and for years to come - backed by our legendary TEN-TEC service.

## AS MUCH COMPUTER AS TRANSCEIVER

Powerful microprocessor delivers the latest digital features. Changing frequency has never been

easier with direct keypad entry, single button band change and band stacking registers.

Lightning fast QSK for CW and AMTOR and adjustable delay on SLOW QSK. Look at this lineup of other digital features: dual VFOs, +/-10 KHz RIT/XIT, full time clock, iambic keyer, 100 memories, and scratch pad. Four ways to use memories are provided: Memory Scroll, Memory Tune, Channel Scan, and Band Scan.

"SPORT" PC Interface (Serial Port Operation of Receive and Transmit) is an enhanced high speed interface. It runs up to 19200 baud for minimum "wait" time under PC control. Two choices of output ports are provided. Compatible with most major software.

## EVERY OMNI IS UNIQUE

Sixteen different features can be set to suit your personal operating style. Three short menus for easy access. Factory presets get you on the air immediately, so you can customize at your leisure. See the highlights below:

- Select favorite tuning rate for MAIN tuning and another for RIT, one set for SSB and another for CW!
- Choose your priority - Direct keypad entry or single button band select.
- Clock - Full time or on demand
- Display Intensity - 16 levels
- Audio Keypad Annunciator - ON or OFF
- PC Interface Speed - 1200 to 19200 baud
- Keyer - type A or B
- Front Panel Control of VOX, sidetone, keyer speed, and weight

## THE FINAL TOUCHES

Front panel layout is meant to use not just admire; 100% duty cycle final is so rugged it doesn't require SWR foldback; Main tuning knob is die cast aluminum coupled to a high resolution encoder for a smooth feel with adjustable torque; Each band crystal is phase locked to oven-stabilized time base for frequency stability.

## OMNI-VI PLUS ACCESSORIES



Model 705



Model 962

Model 962, Power Supply/Speaker - Matches OMNI-VI, 115/230 VAC, 50/60 Hz input, 13.8 VDC, 22 A output. Resetting electronic latching circuit breaker limits current to protect transceiver. Output cable is 4-pin AMP MATE-N-LOC which connects directly to OMNI-VI.

Model 705, Desk Microphone, electret with coiled cord and 4-pin connector

Model 701, Hand Microphone, electret with coiled cord and 4-pin connector

Model 257, Voice Synthesizer - Plug-in board announces frequency displayed when VOICE button is pressed.

6.3 MHz I-F Filters (choose up to 3):

- Model 282 - 250 Hz, 6 pole ladder CW filter
- Model 285 - 500 Hz, 6 pole CW
- Model 288 - 1.8 kHz, 8 pole SSB

9 MHz I-F Filters (choose any 2):

- Model 216 - Special 500 Hz, 6 pole, centered for digital modes
- Model 217 - 500 Hz, 8 pole ladder CW filter
- Model 218 - 1.8 kHz, 8 pole SSB
- Model 219 - 250 Hz, 6 pole CW
- Model 220 - 2.4 kHz, 8 pole SSB

## GENERAL SPECIFICATIONS

**MODES:** USB, LSB, CW, FSK, or AFSK, FM

**FREQUENCY RANGE:** All ham bands 160 through 10 meters, Twelve 500 kHz segments with 30 kHz overshoot at upper and lower band edges.

**DISPLAY:** 7 digit to 10 Hz resolution, .56" LED, 2 secondary .3" displays for clock, memory channel and offset.

**FREQUENCY CONTROL:** LO generated with a crystal oscillator mixed with low noise 4.97 - 5.53 MHz phase locked loop.

**DUAL VFOs** with SPLIT mode.

**OFFSET TUNING:** +/- 9.99 kHz receive and transmit.

**MEMORIES:** 100 duplex memories, one scratch pad memory, battery back-up (2 - 3 year life)

**PC INTERFACE:** Serial port operation of receive and transmit. Includes two line and RS-232 interface. Runs at 1200, 2400, 4800, 9600, or 19200 baud.

**FREQUENCY ACCURACY:** +/- 50 Hz @ 25 degrees C.

**ANTENNA:** 50 ohms unbalanced.

**REMOTE BAND SWITCHING:** Selects antenna or other station accessories.

**POWER REQUIRED:** 2 A receive, 20 A transmit @ 12 - 15 VDC

**CONSTRUCTION:** 20 epoxy glass PC boards, most field replaceable. Extruded aluminum front panel, aluminum chassis, texture painted top & bottom, snap up stainless steel bail.

**DIMENSIONS:** HWD 5.75" x 14.75" x 17" - 14.6 x 37.5 x 43.2 cm

**WEIGHT:** 16 lbs - 7.25 kg

## TRANSMITTER

**RF OUTPUT:** 0 - 100 watts, ALC stabilized

**DC INPUT:** Maximum 250 watts @ 14VDC, 100% duty cycle for up to 20 minutes. Continuous duty with customer supplied air cooling of rear panel heat sink.

**MICROPHONE INPUT:** 200 to 50K ohms, accepts microphones with 5 mv (-67db) output. Polarizing voltage provided for electrets.

**SPEECH PROCESSOR:** Adjustable compression level.

**T/R SWITCHING:** PTT or VOX on SSB, switch-

able FAST or SLOW QSK on CW, delay on SLOW is adjustable

**IAMBIC KEYS:** Adjustable 10 - 60 WPM, type A or B, weight adjustable from keypad.

**CW OFFSET:** Programmable 400 - 990 Hz, DSP generated, sidetone automatically matches offset, volume adjustable independent of AF gain control.

**FSK SHIFT:** 170 Hz

**FM DEVIATION:** +/- 5 kHz

**METERING:** Switchable to forward power,

SWR, collector current or audio processing level on SSB.

**SSB GENERATION:** Balanced modulator followed by 9 MHz, 8 pole crystal ladder filter.

**CARRIER SUPPRESSION:** 60dB typical

**UNWANTED SIDEBAND SUPPRESSION:** 60 dB typical at 1.5 kHz tone.

**THIRD ORDER INTERMOD:** 30 dB below two tone @ 100 watts PEP.

**SPURIOUS OUTPUT:** Better than 45 dB below peak power output.

## RECEIVER

**SENSITIVITY:** .16  $\mu$ V for 10 dB S+N/N @ 2.4 kHz bandwidth. In FM, .35  $\mu$ V for 12 dB SINAD at 15 kHz bandwidth.

**SELECTIVITY:** Standard 16 pole filter, 20 to 24 poles cascaded depending on options selected:

FILTER COMBINATION		TYPICAL SYSTEM BANDWIDTH		SHAPE FACTOR
9 MHz I-F	PBT I-F	@-6 dB	@-60 dB	
2.4 kHz	2.4 kHz	2.4 kHz	3.2 kHz	1.30
2.4 kHz	1.8 kHz*	1.8 kHz	2.7 kHz	1.50
2.4 kHz	500 Hz*	500 Hz	1.3 kHz	2.60
2.4 kHz	250 Hz*	250 Hz	850 Hz	3.40
1.8 kHz*	1.8 kHz*	1.7 kHz	2.4 kHz	1.40
500 Hz*	500 Hz*	350 Hz	900 Hz	2.60
250 Hz*	250 Hz*	190 Hz	550 Hz	2.90

\*Optional filter is required

**DYNAMIC RANGE:** 97 dB @ 2.4 kHz bandwidth at 20 kHz spacing, 100 dB + with CW filters.

**THIRD ORDER INTERCEPT:** +10 dBm

**NOISE FLOOR:** -133 dBm @ 2.4 kHz bandwidth

**PHASE NOISE:** -122 dBc @ 1 kHz, -138 dBc @ 20 kHz

**S-METER:** Calibrated to 50  $\mu$ V at S9

**ATTENUATOR:** -20 dB

**PASSBAND TUNING:** +/- 1.5 kHz

**I-F FREQUENCIES:** 1st I-F 9 MHz, 2nd I-F 6.3 MHz, 2nd I-F for FM 455 kHz

**NOISE BLANKER:** adjustable threshold

**DSP NOISE REDUCTION:** Auto-correlation type algorithm. Broadband noise reduction of 5 to 15 dB is typical depending on conditions.

**AUTOMATIC DSP NOTCH FILTER:** Eliminates multiple heterodynes, notch depth automatically selected for each.

**MANUAL NOTCH FILTER:** 200 Hz to 2.5 kHz, greater than 50 dB

**RECEIVE RECOVERY TIME:** Less than 20 ms, including split mode

**SQUELCH SENSITIVITY:** Less than .6  $\mu$ V

**IMAGE REJECTION:** >90 dB

**I-F REJECTION:** >90 dB

**AUDIO:** 1.5 watts @ 4 ohms with less than 2% distortion, built-in speaker, separate fixed output 1 mw @ 600 ohms.

**SEPARATE RX ANTENNA INPUT:** 50 ohm phono jack, front panel selectable

...America's Best!



1185 Dolly Parton Parkway  
Sevierville, TN 37862, U.S.A.  
Orders: 800-833-7373  
Office: (423) 453-7172

Fax: (423) 428-4483  
Repair Dept.: (423) 428-0364  
e-mail: sales@tentec.com  
web site: <http://www.tentec.com>

MADE IN  
USA