



PALMNAV™

Handheld NAV/COMM Ramp Tester



Novel Ramp Tester Packs Powerful Punch

Troll Avionics' PalmNav is a leading-edge NAV/COMM 'ramp tester', incorporating all required features for testing of aircraft radios and instrument operation in the cockpit or on the bench. The packaging, operation, and interface make the PalmNav a powerful contender in the 'ramp tester' arena, and the clear leader at its size and price. The PalmNav incorporates features and accuracy usually found only on far more expensive bench test units, and yet can be easily carried into a cockpit.

'Digital RF' Reduces Maintenance Costs

The PalmNav is fully-digital and microprocessor-controlled, operates from a single internal time base which requires only a yearly calibration. RF generation is 100% digital, dead-on accurate, and repeatable. There are no adjustments and no user-serviceable components other than the batteries – this is a tester that will only be in the shop because it's being used for testing, not because it's broken or drifted out of calibration.

Small Size

The PalmNav actually *is* handheld, compact and light-weight. Unlike other handhelds, you really CAN operate this one in the palm of your hand.

Battery Or External Power Supply Operation

The PalmNav uses robust, rechargeable NiMH batteries, among the highest energy-density available today. Batteries run for two to three continuous hours, depending on function, and a five-minute idle shutoff conserves battery life. The PalmNav can operate on the bench from an external supply, thus reserving the batteries for portability as needed.

Full 'Ramp Tester' Functionality

Generates precision modulated RF and 'demod' signals for testing VOR, localizer, glide slope, ILS (localizer + glide slope simultaneously), marker beacon, COMM, and XMT. Signal characteristics (e.g. bearing in VOR, or DDM in localizer) are easily changed by simply turning the knob. Flag testing is very simple. The DDM settings in LOC, GS, and ILS are precise and repeatable, and the flag test signal-dropout does not impact the alternate signal. Generated signals match requirements for real-world signals. There's even a Morse-code identifier on the middle marker.

Dual RF Generator, Powerful RF Output

Localizer and glide-slope signals are generated by two independent RF generators, individually amplified and matched into the antenna, at incredible levels of RF power. There are no 'approximations' in either signal for the ILS tests. Both are calibrated outputs.

DAC Generated 'DEMODO'

Clean, digitally-generated, analog demod 'tone' output at BNC connector for testing instruments on the bench.

Connect Directly To UUT

The antenna is removable, an ordinary BNC cable extends antenna, or directly connects the PalmNav to instruments for on-bench tests.

Innovative '3 button plus knob' user interface

Punch quickly to your desired functional test (VOR, LOC, etc.), choose the mode if required (it defaults to the common test), and turn the knob to adjust the setting, exercising the equipment under test.

Alphanumeric Display

The PalmNav's large, easily-read alphanumeric display carries ALL the information – no squinting at switch position labels in the dark. The green LED display matches the sensitivity of the human eye. The assembly contains a spectrum-matched filter to enhance contrast. A special matte finish reduces glare, and the non-brittle cover is hardened for resistance against scratches. The cover contains micro-louvers, like tiny Venetian blinds, to block sunlight and intense ambient light. These shade the display and increase contrast, making the unit readable and useful in a wide range of lighting environments. The display brightness defaults to a lower level perfect for most use. The power button provides an instant full-brightness toggle for high-ambient light environments.

Internal Battery Charger

'Smart', μ processor-controlled, battery charge management. Manufacturers' recommended best practices used for charging and topping-off the batteries, includes negative delta-V, max time and temp, and pulsed 'trickle' charge. Full charge achieved in about 3 hours.

Battery Status Indicator

A front panel LED shows battery status (charging, fully-charged) when the unit is off and charging, and battery problems (low, missing) when the unit is on. Battery status messages are displayed with audible alarm when batteries are low or need charging.

Built-In Speaker

A built-in speaker delivers test signals and (in XMTR test) comm audio – no headphones required much of the time. There is a headphone jack for standard testing and listening in noisy locations, or in higher fidelity as needed.



Technical Specifications

GENERAL

Hand-held NAV/COM 'ramp tester' utilizing proprietary technology for 100% digitally synthesized RF and 'demod' signals.

CONTROLS

Power, Function, Mode, and Knob buttons, and a rotary encoder (the 'knob').

DISPLAY

24-character alphanumeric display with 14-segment green LED characters, filtered and contrast-enhanced using spectrum matching polycarbonate filter, and micro-louvered light control film.

DISPLAY BRIGHTNESS

Two brightness levels available for normal and full-brightness operation as required.

BATTERY STATUS INDICATOR

Amber LED indicator shows battery & charge status.

PalmNav off

- slow blink: the batteries are charging
- constant on: the batteries are fully charged
- flash every 10 sec: battery missing or open
- off: charger is not connected, or not working

PalmNav on

- off: batteries are OK
- fast blink: batteries low

DEMOD OUTPUT (at BNC into load >10kohm)

VOR 3.8V p-p, LOC: 2.3V p-p; GS 1.9V p-p.
ILS n/a; MB 3.0V p-p, COM 1.9V p-p.

MODULATION AUDIO OUT

Built-in Speaker and 1/4" Headphone Jack

RF OUTPUT POWER

VOR, LOC: nominal +15dbm; GS nominal +5dbm.
ILS (LOC nominal +10dbm, GS nominal +5dbm, simultaneously). MB, COM nominal +14dbm.

VOR 108.0 MHz

Settable in 90°, 30°, or 1° increments.
9960Hz FM and 30Hz components, amplitude accurate to 0.1% or better, phase (bearing) accurate to 0.2°.

FROM/TO operation instantly with MODE button.

LOCALIZER 108.1 MHz

Set to standard DDM values: 0.0000, ±0.0230, ±0.0460, ±0.0775, ±0.0930, ±0.1550, ±0.2000, ±0.3000, and ±0.4000.

Flag test (FLAG): good signal, drop 150Hz, drop 90Hz.

GLIDE SLOPE 334.7MHz

Set to standard DDM values: 0.0000, ±0.0220, ±0.0450, ±0.0760, ±0.0910, ±0.1750, ±0.4000, ±0.6000, and ±0.8000.

Flag test (FLAG): good signal, drop 150Hz, drop 90Hz.

ILS (LOC + GS)

LOC on 108.1MHz, GS on 334.7MHz
Signals are independent and simultaneously radiated, same characteristics as LOC & GS. Signals are independently varied.

LOC: ±0.000, 0.0115, 0.0230, 0.0345, 0.0460, 0.0617, 0.0775, 0.0852, 0.0930, 0.1240, 0.1550, 0.1589, 0.1668, 0.1787, 0.1945, 0.2143, 0.2381.

GS: ±0.0110, 0.0220, 0.0335, 0.0450, 0.0605, 0.0760, 0.0835, 0.0910, 0.1330, 0.1750, 0.1912, 0.2237, 0.2725, 0.3375, 0.4187, 0.5000.

Cross-Test (XTST) to swing needles for mechanical interference check.

MB 75.0MHz

INNER, MIDDLE, and OUTER marker modulation supplied in accordance with real-world signal standards, including Morse code on MIDDLE marker.
Normal pulse, or continuous tone modulation.

COM 118.0MHz

2Hz pulsing tones, or continuous modulation.
Selectable 400, 1020, 1300, or 3000Hz tones.

XMTR

Wide band detector provides audio to headphone, speaker, and BNC connector.

HARMONIC CONTENT

Harmonics & Spurious below 25dbc at all frequencies and maximum output power.

ENVIRONMENTAL

Store -40°C to +85°C, operate 0°C to +60°C

POWER REQUIREMENTS

Internal batteries, 5 x 4/3A NiMH cells, nominal 6v, range 5v to 7.5v. (5 x 4/3 Fat A optional.)

Continuous Operation: 2 to 3 hours
(5 min. idle-shutoff included to conserve battery life)
Charge Time: 3 hours typical

External supply for charging, 12vdc @ 2a. Unit may be operated from this supply.

SIZE

3.7" Wide, 7.4" High (excluding BNC connectors),
1.7" Thick (1.5" Thick in hand-grip area).

WEIGHT

1.95 pounds with 4/3A batteries.

ORDERING INFORMATION

PalmNav: P/N4000030
Includes removable telescoping antenna (BNC),
External AC/DC adapter/charger, and manual.