

PA16 Electronically Steerable Array Antenna

- with upgraded control, I/O and VN-200 GPS/INS sensor.

The dependable PA16 auto-tracking array antenna, with its optimized RF beamforming network (1) is now offered with an upgraded control system featuring the VN-200 GPS/INS orientation sensor, new RISC main board and control firmware and more user interface options.

Improved Orientation Sensor.

The PA16 antenna system is now additionally configured to operate with the VN-200 Rugged GPS/INS. The VN-200 is a high performance inertial navigation system (INS) that combines inertial sensors, GPS receiver and advanced Kalman filtering to provide optimal position and orientation measurements. The sensor replaces the functions of the electronic compass and GPS receiver. It has the notable advantage that there is no need to perform a calibration of the magnetic environment, and the sensor can always be located inside the PA16 radome (factory installed), irrespective of even changing magnetic interference near the antenna. Furthermore the sensor does not suffer the inertial response errors that effect electronic compasses, allowing for perfect tracking throughout banked turns (2).

New control board hardware and firmware.

The new ultra robust single board control system features:

- Instant start-up, resuming last operation with no waiting for system re-boot.
- Lower processor power consumption and greater operational temperature range.
- Support for and automatic detection of multi-protocol interfaces allowing for greater flexibility in programming and monitoring the antenna.

More User Interface Options.

In addition to the handheld terminal (Pro-Term) user interface, Peak can now offer a 2 line x 16 character LCD display with 6 key operator keypad, for rack mounting on standard Dzus rails. The display can be self-powered from the PA16 (like the Pro-Term). Also an NVIS friendly version is available.

The PA16 can also be controlled from a PC, and for OEM's also supports control operation by a published user-control-protocol allowing the user to control the antenna from their own equipment.

See over for technical notes 1 and 2.

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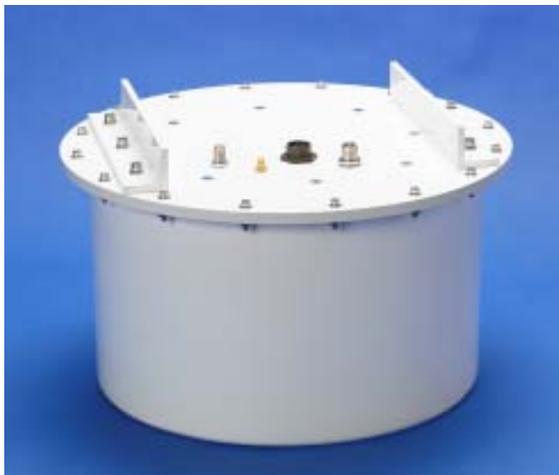
Technical note 1.

The PA16 array's 14dBi beam is formed from a ring of 16 antenna panels by switching in and phasing up 4 adjacent panels. This creates a well optimized radiation pattern to cover a 22.5 degree azimuth sector. As each of the 16 beams shares 3 panels with its neighbors, tracking is smooth and seamless with minimal changes of amplitude and phase as the panels track the target in a cascading group of 4. This tracking is impressively showcased in conjunction with the stable and accurate VN-200 heading sensor, which eliminates sources of heading error that banked turns can induce in electronic compasses.

Technical note 2.

The VN-200 uses highly sophisticated algorithms to derive heading information from dynamic GPS data and sets of accelerometers, gyros and magnetometers. The influence of the magnetometers is minimized when in motion, and this alleviates the problem that electronic compasses have in banked turns (which is that tilt angle must be measured in order to compensate for the vertical component of the earth's magnetic field, but tilt sensors only work well in a non-accelerating environment, and so are inaccurate in banked turns). The tracking accuracy of the upgraded PA16 antenna system with VN-200 INS has been extensively demonstrated in conjunction with CTV-Toronto, whose ENG helicopter was the first such installation. Prolonged orbits around event scenes now yield flawless video throughout continuous banked turns.

For more information on the upgraded PA16 antenna system please contact us at Peak Antennas.



PA16-225



Pro-Term



2 line rack-mount LCD display

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