

# PA8 V and H MIMO Electronically Steerable Array Antennas

The PA8 V and H MIMO series auto-tracking antenna system features co-centered 11 dBi gain V and H polarized beams, steered together to point in one of eight azimuth directions. The antennas have an integrated internal control system comprising a processor, system software, GPS receiver and electronic compass module. User interface through a hand-held terminal or rack-mount unit enables the entry of target sites that the beams will automatically point toward as the helicopter (or airplane or other vehicle) changes its location and heading.



## PA8-225-V/H showing connectors:

N female: V array input

N female: H array input

SMA female: RHCP downlook input

SMA female: LHCP downlook input

TNC female: GPS antenna

KPT 19 way: Control

The main array comprises eight antenna panels, each two tiers high, featuring wide-band crossed-dipole (V and H) radiating elements, symmetrically arranged to create an octagonal array. Each polarization has a separate PIN diode switching circuit, which creates a beam by driving two adjacent panels at once. This arrangement creates well optimised beams that cover a 45 degree azimuth sector making the antenna optimally compact. The overlap of elements used in adjacent beams allows for a rapid and seamless change over as the beam steps round. The V and H beams are co-centred, and steered together. The elevation beamwidth is 35 degrees from the two tier panels, and this allows leeway for aircraft banking whilst keeping the antenna depth a compact 225 mm (9”).

The array creates V and H beams that overlay each other, pointing in the same direction, and exhibiting 20 dB orthogonality both as cross-polar rejection in the radiated beams and port to port isolation at the inputs.

## PEAK ANTENNAS

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## Downlook Antenna Options:

The antennas can accommodate a fixed downlook antenna, with two available inputs, for example for a dual circularly polarized, RHCP and LHCP antenna.

## Control I/O Options:

The systems can communicate with:

- Pro-Term handheld terminal
- Terminal emulator on PC (eg. PuTTY)
- Rack mount, 2 line, 16 character LCD/Keypad
- Compatible external GPS rx (option to omit internal GPS and control beam using waypoints on external GPS) Target site location data is entered by the user, and stored in memory. The antenna can be set to either auto-tracking mode or manual mode. The system provides the following information:
  - Lat/Long from live GPS
  - Compass reading
  - Selected target site name
  - Beam heading
  - Range and bearing of target site as well as various information relating to the compass module and GPS receiver.

## Specifications:

Designation:	PA8-225V/H
Frequency band:	2.0-2.5 GHz
Gain:	11 dBi / 11 dBi (V/H)
No. of beams:	8 / 8 (V/H)
Beamwidth:	45 degrees
Polarization:	V and H main array beams, RHCP and LHCP downlook (optional)
Downlook antennas:	5 dBi / 5 dBi RHCP / LHCP
Return loss:	14 dB typ.
Power:	10W RF per input
Size:	< 235 mm (9.25") radome diameter < 225 mm (9.0") radome height
Weight:	4.5 kg (10 lbs)
Radome:	Fibregalss
Mounting:	Brackets on top plate
Voltage:	8-30 V DC unregulated
Current draw:	0.3 A (at 20 V DC)
Control connector:	19 pin circular (KPT07A14-19P)

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