

# 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<br>< 225 mm (9.0") radome height |
| Weight:            | 4.5 kg (10 lbs)   |
| Radome:            | Fibreglass  |
| 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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