



## System description

# Plug & Play Antenna 5.5 – 13.5 m

The Plug & Play antenna series consists of three variations. Which allow for an optimal solution either GEO, MEO or LEO applications.

- ✓ Turning Head: GEO, MEO,
- ✓ Full Motion: Superior GEO accuracy, MEO and LEO
- ✓ Full Motion with Tilt: Superior MEO accuracy, LEO applications with all sky coverage.

The Plug & Play antennas are designed to minimize the installation time on site. Therefore, the antennas are mostly preintegrated at the manufacturer. The transport is done with the assembled fixed AZ part, the rotating AZ part and the Hub with all the installed equipment inside the steel structure. The preinstalled steel structure is shipped inside a container and transported to the site.

For the onsite installation, the tower parts only have to be lifted out of the container by a crane and fastened to the anchoring. Meanwhile the reflector can be assembled independently; by installation of the backup structure, inlay of the panels and fastening of the quadropod with the headpart and the sub-reflector.

The figure above shows the installation exemplary of the plug and play antennas for VA's standard turning head plug and play antenna. The Plug & Play Antennas are equipped with a very spacious hub with optional HVAC system to accommodate a wide variety of equipment, including indoor units.

The Plug & Play Antennas allow for full integration and commissioning and testing of the servo cabinet inside the tower. This process allows for the in-factory acceptance testing of the servo system reducing activities onsite. RF and other system relevant equipment can be installed into the hub or tower allowing again for in-factory testing.

Depending on the requirements of the site, the Hub and Tower can support the full RF system removing the requirement for additional equipment shelters to be installed near the antenna. This can be attained through in Hub and/or Tower Rack installation.

The Plug and Play design allows for customizing of the Hub, platform and/or internal layout of the tower to meet the customer specific requirements.

## 3 different Models for different applications



### Turning Head

Optimized for GEO satellite applications. Access to the hub makes it possible to get into the hub without having to drive from the satellite.



### Full Motion

A fast antenna to support all GEO, MEO and HEO satellites.



### Full Motion Tilt

The fast full motion antenna is equipped with an additional tilt axis to eliminate the tracking keyhole at high elevation angles. Thus, all LEO satellites can be tracked from an altitude of 400 km.

	Turning Head	Full Motion	Full Motion Tilt
<b>Drive Concept</b>			
<b>Azimuth</b>	2 Gearboxes / biased	2 Gearboxes / biased	2 Gearboxes / biased
<b>Elevation</b>	1 low maintenance ballscrew	2 Gearboxes / biased	2 Gearboxes / biased
<b>Tilt</b>	N/A	N/A	2 Gearboxes / biased
<b>Travel Range</b>			
<b>Azimuth</b>	+/- 90° ; optional +/- 180°	+/- 180° ; optional +/- 270°	+/- 270°
<b>Elevation</b>	5-90° ; optional 0-90°	0-90°	0-90°
<b>Tilt Angle</b>	N/A	N/A	4° in any direction
<b>Tilt</b>	N/A	N/A	+/- 180°
<b>Acceleration</b>			
<b>Azimuth</b>	0.5 deg/sec, optional 8 deg/s <sup>2</sup>	8 deg/s <sup>2</sup>	8 deg/s <sup>2</sup>
<b>Elevation</b>	0.5 deg/s <sup>2</sup>	2.5 deg/s <sup>2</sup>	2.5 deg/s <sup>2</sup>
<b>Tilt</b>	N/A	N/A	2.5 deg/s <sup>2</sup>
<b>Velocity</b>			
<b>Azimuth</b>	1 deg/sec, (up to 16 deg/sec)*	16 deg/sec	16 deg/sec
<b>Elevation</b>	1 deg/sec; (up to 2 deg/sec)*	5 deg/sec	5 deg/sec
<b>Tilt</b>	N/A	N/A	5 deg/sec

\*) Optionally available

**5.5, 7.0, 9.0, 11.5, 13.5 Meter  
Diameter are available in all frequency bands up to Q/V Band**



**7 m Full Motion Tilt**



**9 m Full Motion Tilt**



**11.5 m Full Motion Tilt**



**13.5 m Full Motion Tilt**



## Vertex Plug & Play – this is how it works

Your entire Antenna System including Servo & Drive System and Antenna Control System is completely pre-assembled, pre-wired, commissioned, and fully tested at our premises in Germany. Once the Factory Acceptance testing is completed, the Antennas are disassembled in just a few large subassemblies. These assembly units are individually packed and transported by truck or ship to your construction site.

After unloading, our team installs the system within a day. The panels are aligned and the RF package is connected to the indoor system. System validation of the entire ground station can start after just a few days after arrival on the site.

- ✓ P&P Antennas are pre wired, pre installed in factory:
- ✓ drastically reduced on site installation time
- ✓ Installation efficiency ; factory pre assembled and characterized (validated) sub systems
- ✓ Large Hub for RF System Integration
- ✓ Easy IFL: fibre optic and power cables only
- ✓ Available for all frequencies up to Q/V Band
- ✓ Competitive minimum cost of downstream ownership
- ✓ Standardized components for reduction of spare parts
- ✓ Very low maintenance effort
- ✓ High accuracy tracking and pointing
- ✓ Low carbon footprint power heating system
- ✓ Options "health monitoring"
- ✓ Available as Turning Head, Full Motion or Full Motion Tilt (tilt angle in any direction)



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