Direction Finding (DF)
Spinning Antenna System

Model DF0500 Series Antennas

The Kratos Spinning Direction Finding (DF) Antenna System is a compact, lightweight, rugged steerable antenna designed for ground-based, mobile, and marine applications. Frequency coverage is 0.5 to 18 GHz with an extended band version covering up to 40 GHz. The antenna is slant linear polarized allowing for vertical, horizontal and circular polarization signal reception.

The DF Antenna System can operate in either full spin, variable spin, sector scan or manual modes providing versatility and adaptability for mission requirements.

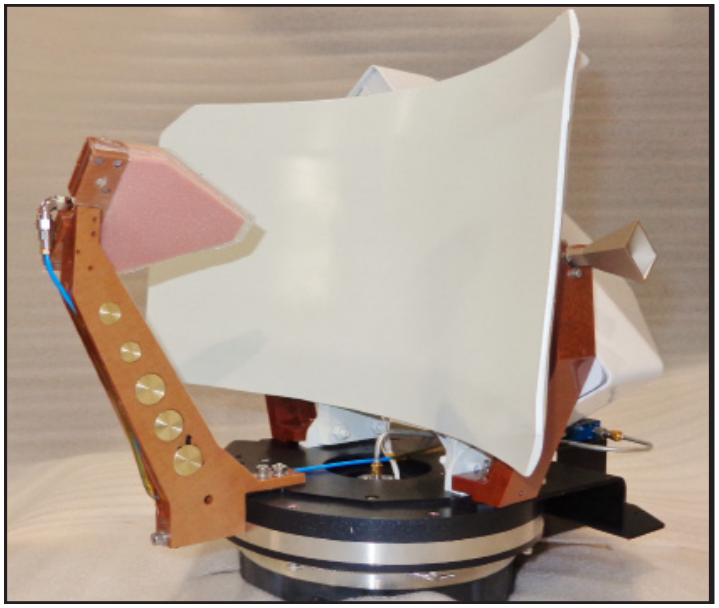
The directional antenna assembly is comprised of a 0.5 to 2 GHz log-periodic dipole array and a 2 to 18 GHz log-periodic dipole array which uses a parabolic reflector for increased gain and narrower azimuth beamwidths. The extended band variant employs two horn antennas covering 18 to 26 GHz and 26 to 40 GHz. An optional omnidirectional antenna mounts above the unit's radome, providing a secondary means of initial signal detection.

The direct-drive pedestal design provides high reliability by minimizing the number of moving parts. The servo-based control system provides smooth operation from speeds of 0 to 200 degrees per second.

A single channel coaxial rotary joint combines the RF signals and is mounted on the rotator center line. The lower pedestal can be used to accommodate customer furnished RF distribution circuitry. The assembly also employs slip rings to provide DC power and control to the servo system and switching circuitry.

The system can come complete with a custom designed 2RU 19" Master Control Unit (MCU) with RS-422 serial or parallel communications. The MCU can be remotely operated from a computer over an Ethernet link.

For improved environmental protection the primary DF antenna and the omnidirectional antenna are radome encapsulated.



Features

- Compact Package
- Spin, Variable Spin, Scan, Designate, and Halt Modes
- 0.25º Typical RMS Pointing Accuracy
- ±0.1º Pointing Resolution
- Rugged and Field Tested
- >20 Years in the Market
- Multi-platform Applications
- Brushless DC Servo Motor
- RS-422 Controlled
- Radome Encapsulated for Protection
- 0.5-18.0 GHz or 0.5-40.0 GHz Frequency Ranges
- Optional 0.5-40.0 GHz Omni Antenna

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DF Spinning Antenna			
Frequency Range	**Low Band**	**High Band**	**Extended Band**
	0.5-2.0 GHz	2.0-18.0 GHz	18.0-40.0 GHz
Polarization: 45° Slant Linear			

Antenna Gain*	
Frequency (GHz)	**Typical (dBi)**
0.5-2.0	6
2.0	10
4.0	12
8.0	16
12.0	18
18.0	20
18.0-26.0	15
26.0-40.0	15
* Measured at Antenna Feeds	

Azimuth Beamwidths	
Frequency (GHz)	**Maximum (degrees)**
0.5-2.0	85.0
2.0	22.0
4.0	12.0
8.0	6.0
12.0	4.0
18.0	3.0
18.0-26.0	24.0
26.0-40.0	24.0

Azimuth Squint	
Frequency (GHz)	**Degrees**
0.5-2.0	±4.0
2.0-12.0	±1.5
12.0-18.0	±1.0
18.0-40.0	±3.0

All Elevation Beamwidth, 15° Minimum	
VSWR: < 3.5:1 (measured at feedpoints)	
Spin Rate: 0 - 200 rpm	
Sector Scan Rate:	>30° Sector: 1° - 60°/sec
	<30° Sector: 2x Sector Width°/sec
Size (excluding omni antenna)	19.5” Dia. x 25.5” High
Weight (nom)	57 lbs

Omni Directional Antenna		
Low Band		**High Band**
0.5-8.0 GHz		8.0-40.0 GHz
Polarization		Slant Linear
Elevation		25° Typical
Beamwidth		12° minimum (3 dB points)
Deviation from Omni		±4 dB maximum
Frequency (GHz)		**Typical (dBi)**
0.5-0.6		-7
0.6-0.75		-4
0.75-1.0		-2
1.0-1.5		0
1.5-2.0		1
2.0-8.0		2
8.0-18.0		2
18.0-40.0		2
VSWR:	**0.5-0.85 GHz**	**<6:1**
	0.85-18.0 GHz	**<3.5:1**
	18.0-40.0 GHz	**<3.5:1**
Size	19” Dia x 15” High	
Weight	18 lbs	

Antenna Controller		
Dimensions		2RU, 19”, 330 mm
Weight		18 lbs (8.16 kg)
Input Power	110/220 VAC ±10%, 50/60 Hz, Single Phase	
Op Modes: Designate, Scan, Spin, Variable Spin, Halt, Resume		

Environmental (Antenna and Rotator unit)		
Altitude	up to 50,000 feet	
Temperature	Operational	-40°C to +55°C
	Storage	-45°C to +60°C
Humidity	0 to 100%	
Rain, Sand, Dust, Vibration and Shock:		Designed to meet the Intent of MIL-STD-810

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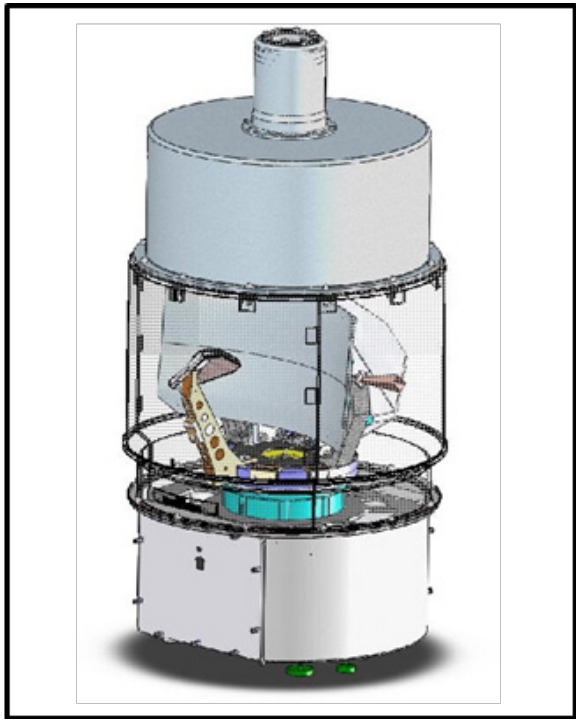
DF Spinning Antenna with Optional Omni Antenna



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Ordering Information

DF0518-BPL-OM-RS-GRN14050

- 0518 = 0.5 - 18 GHz
  0540 = 0.5 - 40 GHz
  0540H = 0.5 - 40GHz High gain
  10H18 = 1.0 - 18 GHz
  10H40 = 1.0 - 40 GHz
  10H40H = 1.0 - 40 GHz Higher gain
- BPL = slim line base plate
  HSG = cast aluminum housing
- OM = Omni antenna
  NO = No Omni
- RS = angle resolver
  EN = angle encoder
- Color Variant Examples
  - WHT(FEDSTD or RAL#) = white
  - GRY() = gray
  - GRN() = green
  - TAN() = tan or sandstone
  - OLD() = olive drab

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