orbit
A KRATOS COMPANY

AL-4049-1D EL/AZ Antenna Positioner

Heavy-Duty, High Quality, Telemetry Tracking Positioner

The AL-4049-1D, Elevation over Azimuth Antenna Positioner, is designed to support large antennas (7.0-11.0 m in diameter). Accordingly, it is well-equipped to meet the demanding requirements of applications such as longer range aeronautical telemetry tests, tracking of LEO (Low Earth Orbit) satellites for high resolution earth observation missions and tracking of MEO (Medium Earth Orbit) satellites for navigation applications. The AL-4049-1D is also suitable for tracking GEO (Geostationary Earth Orbit) satellites (for the higher bands such as Ka and above).

The AL-4049-1D model is a high performance pedestal, which is reflected in the "ZERO" backlash, high orthogonality (up to 0.02°) and high encoder accuracy (0.02° RMS).

Typical Applications

LEO/MEO
Satellite Tracking

Aeronautical
Test Telemetry

Supported Antenna Reflector Size

						AL-4049-1D	
36cm	60cm	1m	1.8m	3m	5m	7m	11m
1.18ft	1.96ft	3.28ft	5.90ft	9.84ft	16.40ft	22.96ft	36.08ft

Key Features

- Elevation Over Azimuth axes configuration (stabilization is optional)
- Four high power, digital servo amplifiers to control antenna motion
- Dual drive, zero backlash enabling high torque and stability
- Brushless motor and planetary gear assembly
- Modular & easily maintainable
- Robust, reliable and environmentally durable

EL/AZ. TRACKING PEDESTAL SPECIFICATION

1. Performance Specifications

PARAMETERS			UNITS	VALUES	
				ELEVATION	AZIMUTH
Bearing moment capacity (static)			Nm (ft-lb)	500,000 (368,781)	
Maximum Payload (Including Antenna, Electronic and RF Equipment and Balance Weights)			Kg (lbs)	Up to 6,000 (13,227.74)	
Delivered torque (Dual-drive)			Nm (ft-lb)	52,000 (38,353)	
Peak torque (Dual-drive)			Nm (ft-lb)	77,500 (57,161)	
Peak velocity			Deg/sec	15	15
Peak acceleration			Deg/sec2	10	10
Power gearing backlash (Dual drive torque-bias)			Deg.	"ZERO"	
Data take-off accuracy			Deg.RMS	0.02	0.02
Positioner Orthogonality			Deg.	±0.020.	
Travel Limits	***Azimuth (with Cable-Wrap Option) Continuous Rotation Option Available***	**Software limits**	Deg.	± 400°	
		First Electrical	Deg.	Between ± 405° to ± 410°	
		Second Electric	Deg.	Between ± 415° to ± 420°	
	Elevation	**Software limits**	Deg.	- 4° DOWN and +184° UP	
		Electrical Down	Deg.	between [-5 to –7]	
		Electrical Up	Deg.	between [+185to +187]	
Mechanical stops (Elevation axis only) (Shock absorber mechanism)		**Down**	Deg.	between [-10 up to –12]	
		Up	Deg.	between [+190 up to +192]	
Stow lock provisions			Deg.	90	0
Motor type with encoder and FAIL-SAFE brake				AC Brushless	
Air Dryer system for Feed Pressurization				Optional	
Emergency Stop				YES	

2. Dimensions and Weight

The maximum weight of the **AL-4049-1D** Pedestal will not exceed: ***6,700 Kg / 14,770.97lbs***

The maximum weight of **AL-4049-1D** Positioner System including antenna and balance weight will not exceed: ***15,500 Kg / 34,171.65lbs***

3. Power Requirements

Pedestal AC Input Voltage: **3 Phase, 230/400 VAC** ±10%, 50-60 Hz

Maximum Continuous AC Input Power consumption – **up to 40 KVA**

Maximum Peak AC Input Power consumption – **up to 70 KVA**

4. Environmental Specifications

The Pedestal is capable of withstanding the environmental conditions listed below (adequate for ground-fixed, OUTDOOR applications), without sustaining any damage or degradation in performance.

PARAMETERS			UNITS	VALUES
Temperature Range	**Operating**		°C (°F)	-30 to +55 (-22 to +131) (*)
	Storage		°C (°F)	-40 to +70 (-40 to 158) (*)
Relative humidity (including condensation)			%	Up to 100
Rain			mm(inches)/hour	130 (5.11)
Wind speed For 10m Dish dia. F.D= 4570mm	**Operating**	**Continuous**	Km/h (MPH)	80 (50)
		Intermittent (GUSTS)	Km/h (MPH)	90 (56)
	Non-operating, Survival	**Pedestal in STOW-LOCK mode (Both axes stowed, with elevation axis at zenith (90°)**	Km/h (MPH)	180 (112)
Altitude	**Operating**		Meters/Feet	3,048 (10,000)
	Non-operating (Transport)		Meters/Feet	10,000 (33,000)
Insects and fungi			Operable and Storable within environments containing fungus	
Salt sea atmosphere, sand, dust, solar radiation			The unit will operate without degradation in performance and will not sustain any physical damage during and after exposure to environmental conditions encountered in deserts or coastal regions	
Induced vibrations, accelerations and shocks			The unit *(with both axes stowed)* withstand vibrations, shocks and accelerations induced during vehicular transport over paved roads or during rail, air, or sea transport	

(*) With heating