

AZ/EL/AZ Positioners - Heavy Duty

AL-4586-1 • AL-4587-1 • AL-4588-1 • AL-4589-1

The Performance Series AZ/EL/AZ positioners represent the latest generation of multi-axis rotary positioning subsystems. They offer enhanced capabilities and improved performance relative to size and incorporate new engineering advances.

Their rugged and straightforward construction ensures maximum reliability and trouble-free operation, yielding the best size and weight / performance ratio. This series includes a counter weight option which improves overall system stability and accuracy while allowing for higher DUT loads.

Typically, the unit includes the main body, precise slew bearings, DC motors, gear reducers, encoder and limit switch assemblies. The turntable surface is designed with a threaded mounting hole pattern for ease of use. A large variety of options is available for this ORBIT/FR standard product family. See the Options pages in the Positioners Overview or on the website for slip rings, rotary joints, high precision encoders, speed options and more.

AL-4589-1 (Shown with optional wedge & base riser)



Applications

- General Purpose Positioning Subsystems
- Far-Field & Near-Field Antenna Measurements
- Aircraft Measurements
- Indoor & Outdoor Use

Product Highlights

- Vertical Loads Ranging from 18,000 to 40,000 lbs (8,165 to 18,140 kg)
- Turntable Diameters Ranging from 30.0 to 48.0 in (762 to 1,219 mm)
- Optimum Performance Relative to Size
- Excellent Angular Position Accuracy
- Low Backlash Design
- Precision Bearings
- Closed Loop Servo Control
- Industry-Standard Wiring
- Tachometers for Optimum Speed Regulation & Control
- Wide Operating Temperature Range: - 4° F to 140° F (- 20° C to 60° C)
- Fully Enclosed Design of Drive Gear Train & Data Take-Off
- Wide Variety of Available Options

Specifications - Performance Series AZ/EL/AZ Heavy Duty Positioners

PARAMETER		UNITS			
		AL-4586-1	AL-4587-1	AL-4588-1	AL-4589-1
Dimensional Drawing Number		DCD27-6169	DCD27-6169	DCD28-6507	DCD28-6506

OPERATIONAL

Bending Moment	Upper Azimuth	ft-lbs	40,000	40,000	75,000	150,000
		kg-m	5,530	5,530	10,370	20,740
	Lower Azimuth	ft-lbs	35,000	50,000	180,000	180,000
		kg	4,840	6,910	24,890	24,890
Vertical Load		lbs	28,600	28,600	40,000	40,000
		kg	12,970	12,970	18,140	18,140
Delivered Torque	Upper Azimuth	ft-lbs	2,850	5,000	18,000	30,000
		kg-m	390	690	2,490	4,150
	Elevation	ft-lbs	20,000	20,000	75,000	100,000
		kg-m	2,770	2,770	10,370	13,830
	Lower Azimuth	ft-lbs	2,850	5,000	18,000	35,000
		kg-m	390	690	2,490	4,840
Withstand Torque	Upper Azimuth	ft-lbs	4,300	6,000	18,000	35,000
		kg-m	590	830	2,490	4,840
	Elevation	ft-lbs	23,500	23,500	75,000	150,000
		kg-m	3,250	3,250	10,370	20,740
	Lower Azimuth	ft-lbs	4,200	7,500	18,000	45,000
		kg-m	580	1,040	2,490	6,220
Drive Power	Upper Azimuth	hp	3/4	3/4	5	5
	Elevation	hp	3/4	3/4	5	5
	Lower Azimuth	hp	3/4	3/4	5	5
Nominal Speed	Upper Azimuth	rpm	0.5	0.3	0.3	0.3
	Elevation	deg/min	25	25	25	20
	Lower Azimuth	rpm	0.5	0.3	0.3	0.2
Standard Angle Transducer Format			Absolute Encoder	Absolute Encoder	Absolute Encoder	Absolute Encoder
Standard Accuracy	Upper Azimuth	deg	± 0.03	± 0.03	± 0.02	± 0.02
	Elevation	deg	± 0.03	± 0.03	± 0.03	± 0.03
	Lower Azimuth	deg	± 0.03	± 0.03	± 0.02	± 0.02
Maximum Backlash	Upper Azimuth	deg	0.05	0.05	0.05	0.04
	Elevation	deg	0.05	0.05	0.04	0.04
	Lower Azimuth	deg	0.05	0.05	0.05	0.04
Elevation Limit-to-Limit Travel		deg	± 92	± 92	± 92	± 92

PHYSICAL

Height at 0° Elevation	in	71	71	94	101
	mm	1800	1800	2380	2560
Weight	lbs	4,846	5,286	23,128	26,432
	kg	2,198	2,398	10,490	11,989
Turntable Diameter	in	30.1	30.1	47.2	48.0
	mm	765	765	1,199	1,219

ENVIRONMENTAL

Operating Temperature	- 4° F to 140° F (- 20° C to 60° C)
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PARAMETER	UNITS					
			AL-4586-1	AL-4587-1	AL-4588-1	AL-4589-1

OPTIONS

EN001	Incremental Encoder (Standard Accuracy)		Opt	Opt	Opt	Opt
	Accuracy – Upper Azimuth	deg	± 0.03	± 0.03	± 0.02	± 0.02
	Accuracy – Elevation	deg	± 0.03	± 0.03	± 0.03	± 0.03
	Accuracy – Lower Azimuth	deg	± 0.03	± 0.03	± 0.02	± 0.02
EN002	Direct Incremental Encoder (High Accuracy)		Opt	Opt	Opt	Opt
	Accuracy – Upper Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Elevation	deg	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Lower Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005
EN003	Direct Absolute Encoder (High Accuracy)		Opt	Opt	Opt	Opt
	Accuracy – Upper Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Elevation	deg	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Lower Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005
SR	Slip Ring ³		SR051U SR101U SR201U SR301U SR402U SR502U	SR051U SR101U SR201U SR301U SR402U SR502U	SR051U SR101U SR201U SR301U SR402U SR502U SR602U SR512U SR812U	SR051U SR101U SR201U SR301U SR402U SR502U SR602U SR512U SR812U
RJ	Rotary Joint ³		RJ12U RJ18U RJ26U RJ40U RJ50U	RJ12U RJ18U RJ26U RJ40U RJ50U	RJ12U RJ18U RJ26U RJ40U RJ50U	RJ12U RJ18U RJ26U RJ40U RJ50U
TH	Central Thru-Hole Inner Diameter		TH002-HD TH003-HD	TH002-HD TH003-HD	TH002-HD TH003-HD	TH002-HD TH003-HD
		in	3	3	4	4
		mm	76.2	76.2	102.0	102.0
EX	Internal Harnessing		EX002	EX002	EX002	EX002
CF	Connector Format		–	–	–	–
LS	Leveling Screw (set)		LS002-6	LS002-6	LS002-10	LS002-10
ST	Stow Lock		ST002U ST002E ST002L	ST002U ST002E ST002L	ST002U ST002E ST002L	ST002U ST002E ST002L
MM	Mounting Thread		MM002 MM003	MM002 MM003	MM002 MM003	MM002 MM003
IC	Interlock Circuit		IC002	IC002	IC002	IC002

(-) N/A Opt Optional

Supplied Accessories

Digital Documentation Set

User Manual (Installation, Setup, Operation & Maintenance)

Technical Notes

- 1** All accuracy data is based on no-load conditions
Contact MVG-ORBIT/FR for accuracy under load conditions
- 2** All models are equipped with adjustable limit switches capable of approx 20° to 900° total travel in AZ axes. When rotary joint and slip ring options are specified, limit switches remain but are electrically disabled.
Multi-axis positioners are factory-set at:
 - Upper Azimuth Axis: 400° (± 200°)
 - Elevation Axis: 184° (± 92°)
 - Lower Azimuth Axis: 400° (± 200°)
- 3** Slip Ring & Rotary Joint Option:
 - Certain slip ring options may require an extension cap that protrudes above the turntable surface. Positioner height may increase. Consult MVG-ORBIT/FR
 - Slip ring contacts are provided with dedicated connectors
 - When rotary joint and/or slip ring options are specified, no central thru-hole is available to the user. Option TH002-HD and TH003-HD are available in lieu of rotary joint and/or slip ring options

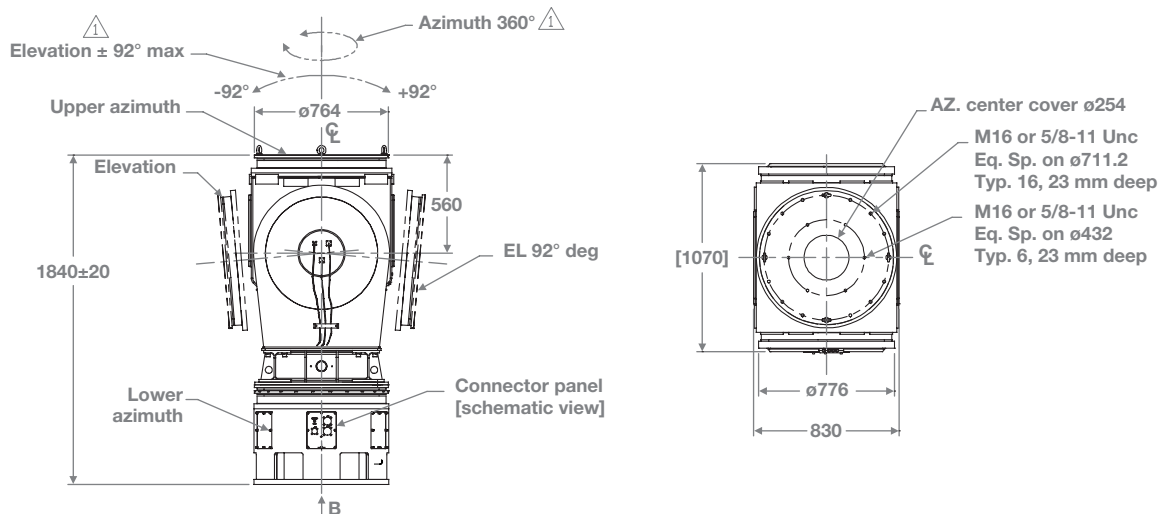
AL-4588-1 (Shown with optional counterweights & base riser)



AL-4586-1 (Shown with optional counterweights & base riser)



Dimensional drawing - AL-4586*



* Example drawing for general reference, please consult MVG-Orbit/FR for ICD.



Contact your local sales representative for more information

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www.mvg-world.com/positioners