

EL/AZ Positioners - Heavy Duty

AL-4216-1 • AL-4206-1 • AL-4207-1 • AL-4217-1 • AL-4209-1 • AL-4210-1 • AL-4211-1

These MVG-Orbit/FR Legacy Series EL/AZ Positioners provide accurate, balanced rotation, and controllable velocity of 2 axes, for the positioning of very large devices in test configurations. Their rugged yet straight-forward construction ensures maximum reliability and trouble-free operation, yielding the best size and weight/performance ratio.

Typically, the unit includes the body, precise slew bearings, a DC motor, gear reducer, encoder/synchro, and limit switch assembly. The turntable surface is designed with a threaded mounting hole pattern for ease of use. A Safe/Operate switch is included to ensure safety.

AL-4207-1



Applications

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

Product Highlights

- Broad Selection – 7 Models
- Vertical Loads Ranging from 30,000 to 50,000 lbs (13,610 to 22,680 kg)
- Platform Sizes Ranging from 34.3 x 34.1 in to 92.5 in / 870 x 866 mm to 2350 mm (diameter)
- 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 - Legacy Series EL/AZ Heavy Duty Positioners

PARAMETER	UNITS	POSITIONER MODEL						
		AL-4216-1	AL-4206-1	AL-4207-1	AL-4217-1	AL-4209-1	AL-4210-1	AL-4211-1
Dimensional Drawing Number	DCD	10-2097	10-2040	10-2098	217-0655	10-2042	10-2043	10-2106

OPERATIONAL

Bending Moment	ft-lbs	30,000	35,000	45,000	57,700	150,000	300,000	300,000	
	kg-m	4,150	4,840	6,220	7,700	20,740	41,480	41,480	
Vertical Load	lbs	30,000	30,000	30,000	33,000	40,000	45,000	50,000	
	kg	13,610	13,610	13,610	15,000	18,140	20,410	22,680	
Delivered Torque	Azimuth	ft-lbs	6,000	6,000	6,000	10,000	30,000	35,000	80,000
		kg-m	830	830	830	1380	4,150	4,840	11,060
	Elevation	ft-lbs	20,000	24,000	30,000	52,000	100,000	260,000	260,000
		kg-m	2,765	3,320	4,150	7,200	13,830	35,950	35,950
Withstand Torque	Azimuth	ft-lbs	14,000	14,000	14,000	14,000	45,000	45,000	100,000
		kg-m	1,940	1,940	1,940	1,940	6,220	6,220	13,830
	Elevation	ft-lbs	30,000	13,000	45,000	60,000	150,000	300,000	300,000
		kg-m	4,150	1,800	6,220	8,370	20,740	41,480	41,480
Drive Power	Azimuth	hp	3/4	3/4	3/4	1.5	4	4	5
	Elevation	hp	3/4	3/4	3/4	1.5	4	4	5
Nominal Speed	Azimuth	rpm	0.3	0.3	0.3	0.2	0.2	0.15	0.1
	Elevation	deg/min	20	20	15	7	25	8	10
Standard Angle Transducer Format			Absolute encoder	Absolute encoder	Absolute encoder	Absolute encoder	Absolute encoder	Absolute encoder	
Standard Accuracy	Azimuth	deg	± 0.03	± 0.03	± 0.03	± 0.03	± 0.02	± 0.02	± 0.02
	Elevation	deg	± 0.04	± 0.04	± 0.04	± 0.04	± 0.04	± 0.03	± 0.03
Maximum Backlash	Azimuth	deg	0.05	0.05	0.04	± 0.03	0.03	0.02	0.02
	Elevation	deg	0.03	0.03	0.03	± 0.04	0.03	0.03	0.02
Elevation Limit-to-Limit Travel	deg	+ 92, - 45	+ 92, - 45	+ 92, - 45	+ 92, - 45	+ 92, - 35	+ 92, - 45	+ 92, - 45	

PHYSICAL

Height at 0° Elevation	in	60	60	72	72	99	129	151
	mm	1,420	1,420	1,829	1,829	2,510	3,277	3,835
Weight	lbs	4,200	6,300	5,070	6,160	20,500	45,000	48,000
	kg	1,905	2,858	2,300	2,800	9,299	20,412	21,772
Platform Size	in	34.3 x 34.1	34.3 x 34.1	34.3 x 34.1	34.3 x 34.1	92.5 (diameter)	47.2 x 47.2	92.5 (diameter)
	mm	871 x 866	871 x 866	871 x 866	871 x 866	2350 (diameter)	1200 x 1200	2350 (diameter)

ENVIRONMENTAL

Operating Temperature	- 4° F to 140° F (- 20° C to 60° C)
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OPTIONS

EN001	Incremental Encoder (Standard Accuracy)		Opt	Opt	Opt	Opt	Opt	Opt	Opt
	Accuracy – Azimuth	deg	± 0.03	± 0.03	± 0.03	± 0.03	± 0.02	± 0.02	± 0.02
	Accuracy – Elevation	deg	± 0.04	± 0.04	± 0.04	± 0.04	± 0.04	± 0.03	± 0.03
EN002	Direct Incremental Encoder (High Accuracy)		Opt	Opt	Opt	Opt	Opt	Opt	Opt
	Accuracy – Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Elevation	deg	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005
EN003	Direct Absolute Encoder (High Accuracy)		Opt	Opt	Opt	Opt	Opt	Opt	Opt
	Accuracy – Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Elevation	deg	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005	± 0.005
SR	Slip Ring ³		SR051L	SR051L	SR051L	SR051L	SR512L	SR512L	SR512L
			SR101L	SR101L	SR101L	SR101L	SR812L	SR812L	SR812L
			SR201L	SR201L	SR201L	SR201L			
			SR301L	SR301L	SR301L	SR301L			
			SR402L	SR402L	SR402L	SR402L			
			SR502L	SR502L	SR502L	SR502L			
RJ	Rotary Joint		RJ12U	RJ12U	RJ12U	RJ12U	RJ12U	RJ12U	RJ12U
			RJ18U	RJ18U	RJ18U	RJ18U	RJ18U	RJ18U	RJ18U
			RJ26U	RJ26U	RJ26U	RJ26U	RJ26U	RJ26U	RJ26U
			RJ40U	RJ40U	RJ40U	RJ40U	RJ40U	RJ40U	RJ40U
			RJ50U	RJ50U	RJ50U	RJ50U	RJ50U	RJ50U	RJ50U
EX	Internal Harnessing		EX002	EX002	EX002	EX002	EX002	EX002	
CF	Connector Format		–	–	–	–	–	–	
LS	Leveling Screw (set)		LS002-10	LS002-10	LS002-10	LS002-10	LS002-5	LS002-12	
ST	Stow Lock		ST002L	ST002L	ST002L	ST002L	ST002L	ST002L	ST002L
			ST002E	ST002E	ST002E	ST002E	ST002E	ST002E	ST002E
MM	Mounting Thread		ST002E	MM002	MM002	MM002	MM002	MM002	
IC	Interlock Circuit		IC002	IC002	IC002	IC002	IC002	IC002	

(-) N/A Opt Optional

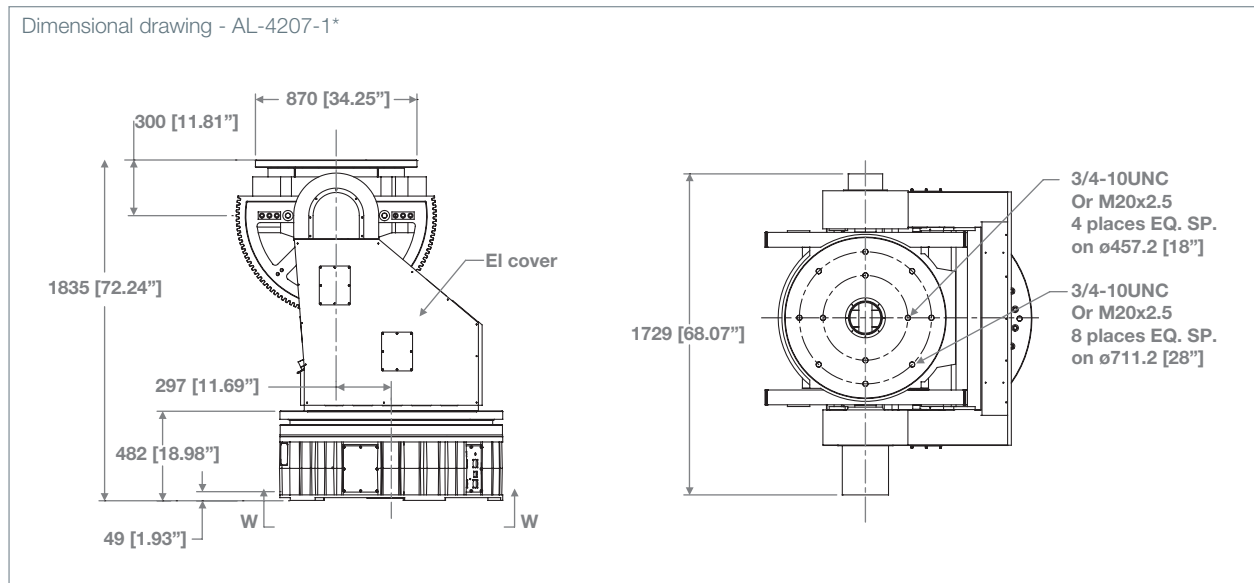
Supplied Accessories

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:
- Elevation Axis: 137° (+ 92 to - 45°) (+ 92, - 35° for AL-4209)
 - Azimuth Axis: 400° (± 200°)
- 3** Slip Ring 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.



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



Contact your local sales representative for more information
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www.mvg-world.com/positioners