

# AZ/EL Positioners - Medium Duty

AL-4382-1 • AL-4383-1 • AL-4384-1 • AL-4385-1

The MVG-Orbit/FR performance series has recently been expanded to include medium-duty, dual-axes positioners: the new AL-438X series. Thanks to their low profile design and advanced drive mechanism, these symmetrical AZ/EL positioners ensure accurate, balanced rotation, and controllable velocity.

Their rugged yet straightforward construction ensures maximum reliability and trouble-free operation, yielding the best size and weight / performance ratio. This particular series provides 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 assemblies, and limit switch assemblies. The turntable surface is designed with a threaded mounting hole pattern for ease of use. A Safe/Operate switch is included to ensure safety. A large variety of options is available for this MVG-ORBIT/FR standard product family. See the Options pages on the website for slip rings, rotary joints, high precision encoders, speed options and more.

AL-4382-1



## Applications

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

## Product Highlights

- Broad selection – 4 models
- Operating Loads Ranging from 600 to 13200 lbs (270-6000 kg)
- Turntable Diameters 24.1 in (other diameters upon request)
- 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 Medium Duty Positioners

PARAMETER		UNITS			
		AL-4382-1	AL-4383-1	AL-4384-1	AL-4385-1
Dimensional Drawing Number	DCD	215-0410	215-0380	213-1200	28-6510

### OPERATIONAL

Bending Moment	ft-lbs	4200	4200	7520	16275	
	kg-m	580	580	1050	2250	
Vertical Load (maximum)	lbs	2200	4400	6600	13200	
	kg	1000	2000	3000	6000	
Delivered Torque	Azimuth	ft-lbs	500	1200	1200	2820
		kg-m	70	170	165	390
	Elevation	ft-lbs	1250	2170	5000	11000
		kg-m	170	300	690	1500
Withstand Torque	Azimuth	ft-lbs	1800	1800	2000	4200
		kg-m	250	250	280	580
	Elevation	ft-lbs	4200	4200	7500	16270
		kg-m	580	580	1040	2250
Drive Power	Azimuth	hp	1/3	3/4	3/4	3/4
	Elevation	hp	3/4	3/4	3/4	3/4
Nominal Speed	Azimuth	rpm	1.3	1.3	1.3	0.5
	Elevation	deg/min	180	90	108	40
Standard Angle Transducer Format			Incremental Encoder	Incremental Encoder	Incremental Encoder	Incremental Encoder
Standard Accuracy	Azimuth	deg	±0.03	±0.03	±0.03	±0.03
	Elevation	deg	±0.03	±0.03	±0.03	±0.03
Maximum Backlash	Azimuth	deg	0.05	0.05	0.05	0.05
	Elevation	deg	0.05	0.05	0.05	0.05
Elevation Limit-to-Limit Travel	deg	± 92	± 92	± 92	± 92	
Counter-weight Option	ft-lbs	1080	1810	3615	8680	
Balanced EL Torque (maximum)	kg-m	150	250	500	1200	

### PHYSICAL

Height at 0° Elevation	in	36.9	36.9	36.9	36.9
	mm	937	937	937	937
Weight	lbs	1030	1030	1100	1210
	kg	470	470	500	550
Turntable Diameter	in	24.1	24.1	24.1	24.1
	mm	612	612	612	612

### ENVIRONMENTAL

Operating Temperature	- 4° F to 140° F (- 20° C to 60° C)
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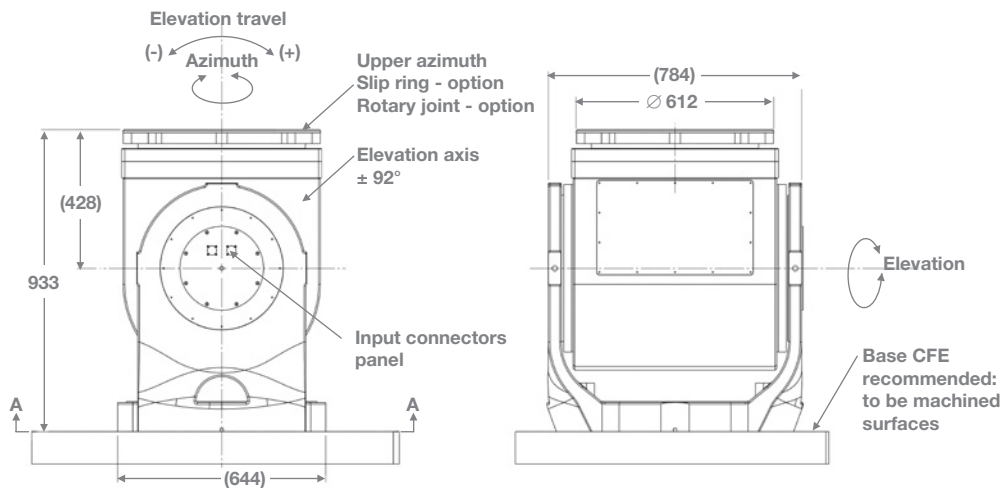
AL-4385-1

## OPTIONS

EN002	Direct Incremental Encoder (High Accuracy)		Opt	Opt	Opt	Opt
	Accuracy – Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Elevation	deg	± 0.005	± 0.005	± 0.005	± 0.005
EN003	Direct Absolute Encoder (High Accuracy)		Opt	Opt	Opt	Opt
	Accuracy – Azimuth	deg	± 0.005	± 0.005	± 0.005	± 0.005
	Accuracy – Elevation	deg	± 0.005	± 0.005	± 0.005	± 0.005
EN004	Absolute Encoder (Standard Accuracy)		Opt	Opt	Opt	Opt
	Accuracy – Azimuth	deg	± 0.03	± 0.03	± 0.03	± 0.03
	Accuracy – Elevation	deg	± 0.03	± 0.03	± 0.03	± 0.03
SR	Slip Ring <sup>3</sup>		SR051U SR101U SR201U SR301U SR402U SR502U	SR051U SR101U SR201U SR301U SR402U SR502U	SR051U SR101U SR201U SR301U SR402U SR502U SR602U	SR051U SR101U SR201U SR301U SR402U SR502U SR602U
RJ	Rotary Joint <sup>3</sup>		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-U-E	TH002-U-E	TH002-U-E	TH002-U-E
		in	4.0	4.0	4.0	4.0
		mm	101.6	101.6	101.6	101.6
EX	Internal Harnessing		EX002	EX002	EX002	EX002
CF	Connector Format		–	–	–	–
ST	Stow Lock		ST002U ST002E	ST002U ST002E	ST002U ST002E	ST002U ST002E
MM	Mounting Thread		MM002	MM002	MM002	MM002
IC	Interlock Circuit		IC002	IC002	IC002	IC002

(-) N/A    Opt Optional

Dimensional drawing - AL-4385-1



## Supplied Accessories

### Digital Documentation Set - USB key

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, and + -92° in EL. When rotary joint and slip ring options are specified, limit switches remain but are electrically disabled. Dual-axis positioners are factory-set to ± 200°
- 3** Slip Ring & Rotary Joint Option Notes:
  - 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-U-E are available in lieu of rotary joint and/or slip ring options
  - Through-hole Option: In this model, through-hole is bent, with the entrance on EL axis and exit from AZ axis
- 4** Mounting base for this series is a rigid plate with a machined top surface. For other options, consult your project manager.

AL-4384-1 with counter weight & base riser option



Contact your local sales representative for more information

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[www.mvg-world.com/positioners](http://www.mvg-world.com/positioners)