



COMPACT SERIES AZ/EL

AZ/EL Positioners

LIGHT DUTY



AL-4355-1 • AL-4356-1 • AL-4357-1 • AL4380-1 • AL-4381-1

The MVG-Orbit/FR compact, low profile light duty positioners provide accurate, balanced rotation, and controllable velocity in the positioning of light duty antennas under test. Their compact and low-profile design optimizes space in test configurations as well as high operational performance, yielding the best size and weight/performance ratio.

Typically, the unit includes the body, precise bearings, DC motor, gear reducer, encoder 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.

APPLICATIONS

- General purpose positioning subsystems
- Far-field & near-field antenna measurements
- Indoor & outdoor use

PRODUCT HIGHLIGHTS

- Compact, low profile design
- High angular positioning
- Adjustable travel in all axes
- Rotary joint 18/40 GHz (optional)
- Upper AZ through hole (optional)
- Vertical loads ranging from 13-600 lbs (6-270 kg)
- Turntable diameters ranging from 3.5-12.5 in (90-318 mm)
- Excellent angular position accuracy
- Low backlash design
- Precision bearings
- Closed loop servo control
- Industry-standard wiring
- Encoders for optimum speed regulation & control
- Fully enclosed design of drive gear train & data take-off

Specifications - Legacy Series AZ/EL Light Duty Positioners

PARAMETER	UNITS	POSITIONER MODEL				
		AL-4355-1	AL-4356-1	AL-4357-1	AL-4380-1	AL-4381-1
Dimensional Drawing Number	DCD	217-0001	216-0877	217-0658	212-040	211-0600

OPERATIONAL

Bending Moment		ft-lbs	14.5	43.4	72.3	250	600
		kg-m	2	6	10	35	80
Vertical Load		lbs	13.2	33	55.1	132	600
		kg	6	15	25	60	270
Delivered Torque	Azimuth	ft-lbs	10.8	28.9	50.6	90	150
		kg-m	1.5	4	7	12	20
	Elevation	ft-lbs	10.8	28.9	50.6	273	435
		kg-m	1.5	4	7	38	60
Withstand Torque	Azimuth	ft-lbs	21.7	43.4	72.3	150	210
		kg-m	3	6	10	21	30
	Elevation	ft-lbs	21.7	43.4	72.3	120	600
		kg-m	3	6	10	261	80
Drive Power	Azimuth	hp	1/30	1/20	1/20	1/8	1/8
	Elevation	hp	1/30	1/20	1/20	1/8	1/4
Nominal Speed	Azimuth	rpm	1	1	0.7	2.4	2.4
	Elevation	rpm	1	1	0.7	1	1
Encoder Accuracy	Azimuth	deg	± 0.03	± 0.03	± 0.04	± 0.04	± 0.03
	Elevation	deg	± 0.03	± 0.03	± 0.04	± 0.04	± 0.03
Axis Travel	Azimuth	deg	± 200	± 200	± 200	± 200	± 200
	Elevation	deg	± 92	± 92	± 92	± 92	± 92
Maximum Backlash	Azimuth	deg	0.06	0.05	0.05	0.06	0.06
	Elevation	deg	0.06	0.05	0.05	0.06	0.06
Position Feedback			Incremental Encoder				
Rotary Joint Option			RJ18, RJ40K				

PHYSICAL

Height at 0° Elevation	in	6.49	9.88	10.04	19.3	19.67
	mm	165	251	255	490	500
Weight	lbs	22	31	36	145	200
	kg	10	14	16	64	90
Turntable Diameter	in	3.54	5.9	7.9	10.3	12.5
	mm	90	150	200	261	318

ENVIRONMENTAL

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

EN001	Incremental Encoder (Standard Accuracy)		S	S	S	Opt	Opt
	Accuracy – Azimuth	deg	± 0.03	± 0.03	± 0.03	± 0.04	± 0.04
	Accuracy – Elevation	deg	± 0.03	± 0.03	± 0.03	± 0.04	± 0.05
EN002	Direct Incremental Encoder (High Accuracy)		–	–	–	–	–
	Accuracy – Azimuth	deg	–	–	–	–	–
	Accuracy – Elevation	deg	–	–	–	–	–
EN003	Direct Absolute Encoder (High Accuracy)		–	–	–	–	–
	Accuracy – Azimuth	deg	–	–	–	–	–
	Accuracy – Elevation	deg	–	–	–	–	–
EN004	Absolute Encoder (Standard Accuracy)		–	–	–	Opt	Opt
	Accuracy – Azimuth	deg	–	–	–	± 0.04	± 0.04
	Accuracy – Elevation	deg	–	–	–	± 0.04	± 0.05
SR	Slip Ring ³		–	–	–	–	SR051U SR101U SR201U
RJ	Rotary Joint ³		RJ12L RJ18L RJ26L RJ40L RJ50L	RJ12L RJ18L RJ26L RJ40L RJ50L	RJ12L RJ18L RJ26L RJ40L RJ50L	RJ12U RJ18U RJ26U RJ40U RJ50U	RJ12U RJ18U RJ26U RJ40U RJ50U
TH	Central Thru-Hole Inner Diameter		S	S	S	TH002 TH003	TH002 TH003
		in	0.75	1.6	1.6	1.5	2.5
		mm	19	40	40	38	63
EX	Internal Harnessing		–	–	–	–	–
CF	Connector Format		–	–	–	–	–
LS	Leveling Screw (set)		–	–	–	–	–
ST	Stow Lock		–	–	–	–	–
MM	Mounting Thread		–	–	–	MM002 MM003	MM002 MM003
IC	Interlock Circuit		–	–	–	–	–

(-) N/A S Standard 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 $\pm 200^\circ$ total travel. When rotary joint and slip ring options are specified, limit switches remain but are electrically disabled. Multi-axis positioners are factory-set at:
- Azimuth Axis: $400^\circ (\pm 200^\circ)$
 - Elevation Axis: $190^\circ (\pm 92^\circ)$
- 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 for customer use 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 and TH003 are available in lieu of rotary joint and/or slip ring options

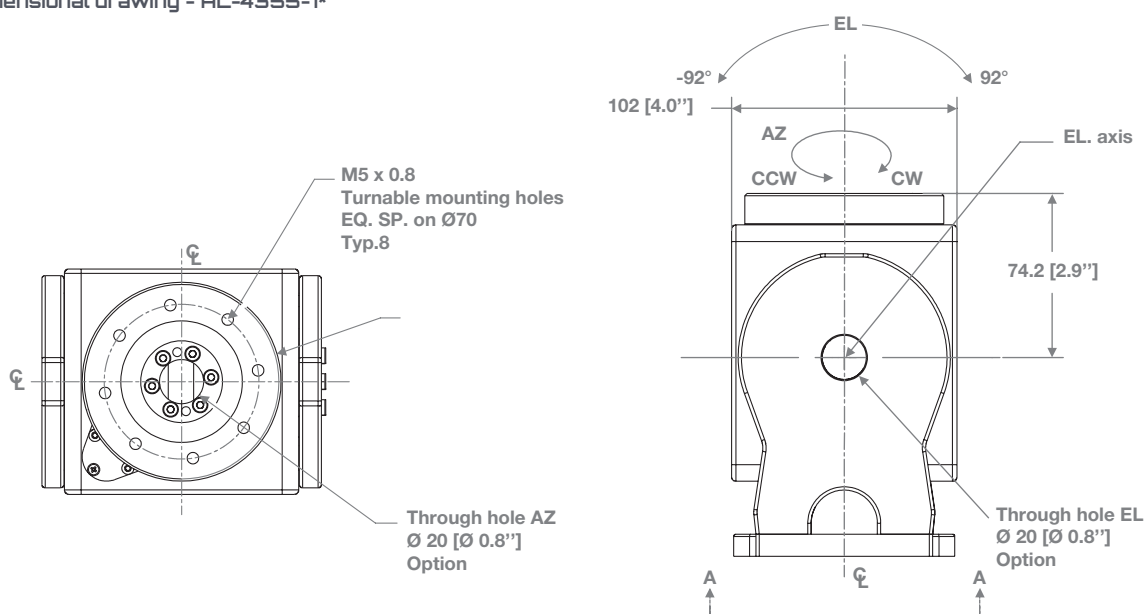
AL-4356-1



AL-4356-1



Dimensional drawing - AL-4355-1*



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