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	212-0400	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	7.2	28.9	50.6	90	150
		kg-m	1	4	7	12	20
	Elevation	ft-lbs	7.2	28.9	50.6	273	435
		kg-m	1	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	2.6	2.4
	Elevation	rpm	1	1	0.7	0.6	1
Encoder accuracy	Azimuth	deg	± 0.04	± 0.04	± 0.04	± 0.04	± 0.04
	Elevation	deg	± 0.04	± 0.04	± 0.04	± 0.04	± 0.05
Axis travel	Azimuth	deg	± 200	± 200	± 200	± 200	± 200
	Elevation	deg	± 92	± 92	± 92	± 92	± 92
Maximum backlash	Azimuth	deg	0.04	0.05	0.05	0.06	0.06
	Elevation	deg	0.04	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	10.2	10.2	19.3	19.67
		mm	165	261	261	490	500
Weight		lbs	17.6	36	36	145	200
		kg	8	16	16	64	90
Turntable diameter	Std interface	in	3.74	5.9	5.9	10.3	12.5
		mm	95	150	150	261	318
	Feed interface	in	-	7.9	7.9	-	-
		mm	-	200	200	-	-
ENVIRONMENTAL							
Operating temperature			- 4° F to 140° F (- 20° C to 60° C)				

PARAMETER		UNITS	POSITIONER MODEL				
			AL-4355-1	AL-4356-1	AL-4357-1	AL-4380-1	AL-4381-1
OPTIONS							
EN001	Incremental encoder (standard accuracy)		S	S	S	Opt	Opt
	Accuracy – Azimuth	deg	± 0.04	± 0.04	± 0.04	± 0.04	± 0.04
	Accuracy – Elevation	deg	± 0.04	± 0.04	± 0.04	± 0.04	± 0.05
EN002	Direct incremental encoder (high accuracy)		–	–	–	–	–
	Accuracy – Azimuth	deg	–	–	–	± 0.005°	± 0.005°
	Accuracy – Elevation	deg	–	–	–	± 0.005°	± 0.005°
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	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	1.5	1.5	1.37	2.3
		mm	20	38	38	35	60
EX	Internal harnessing		–	–	–	–	–
CF	Connector format		–	–	–	–	–
LS	Leveling screw (set)		–	–	–	–	–
ST	Stow lock		–	–	–	–	–
MM	Mounting thread (per icd)		Millimetric	Millimetric	Millimetric	Millimetric	Millimetric
IC	Interlock circuit		–	–	–	–	–

(-) N/A S Standard Opt Optional

Supplied Accessories

Digital Documentation Set

User manual (installation, setup, operation & maintenance)

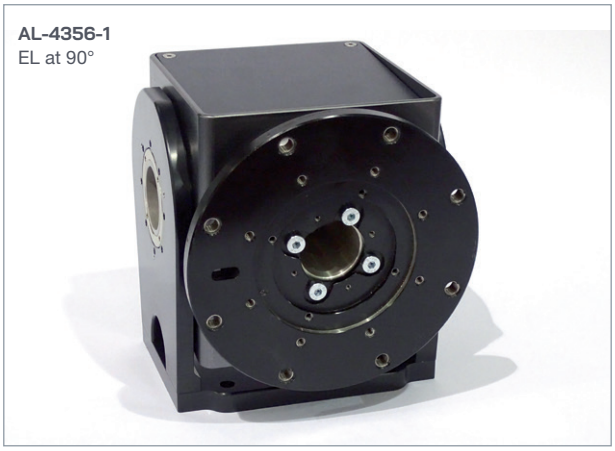
Technical Notes

1 All accuracy data is based on no-load conditions.
Contact MVG-ORBIT/FR for accuracy under load conditions

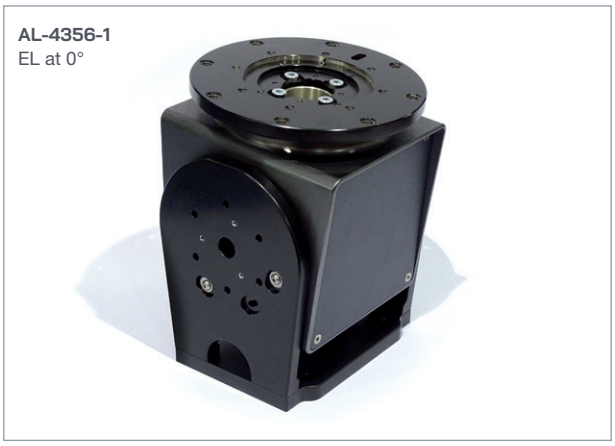
2 All models are equipped with adjustable limit switches capable of ± 200° total travel. When rotary joint and slip ring options are specified, limit switches remain but are electrically disabled. Multi-axis positioners are factory-set at:
- Azimuth axis: 400° (± 200°)
- Elevation axis: 190° (± 92°)

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

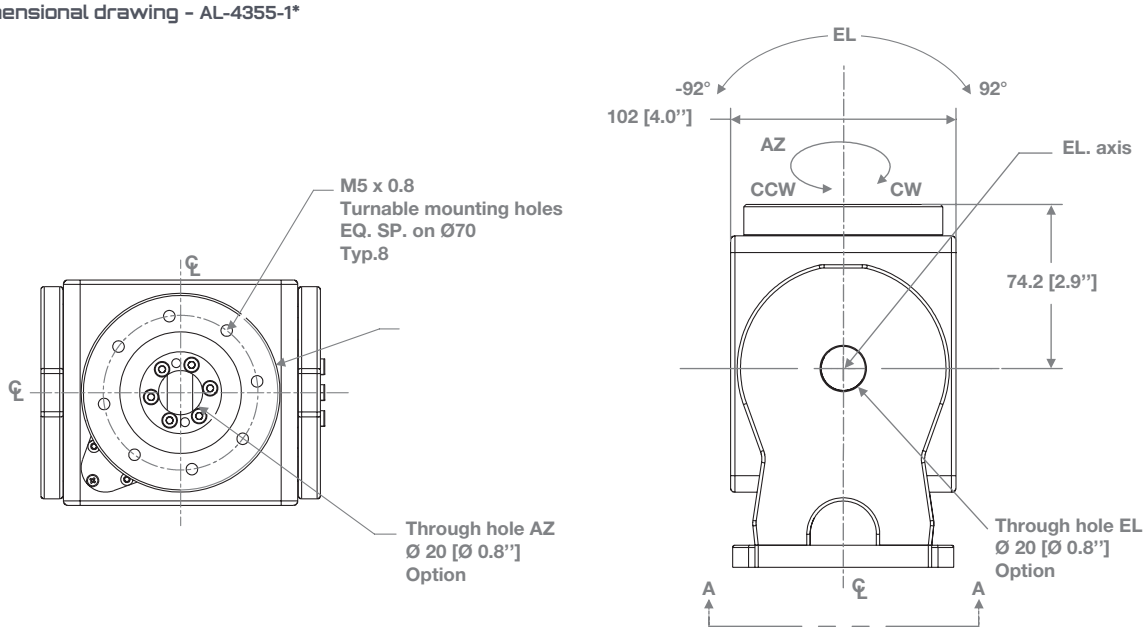
AL-4356-1
EL at 90°



AL-4356-1
EL at 0°



Dimensional drawing - AL-4355-1*



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