

# AvL TECHNOLOGIES

## Model 870 85cm Motorized FlyAway Antenna

- Unique Features**
  - Designed for high duty cycle LEO/MEO satellite tracking
  - Make-before-Break Handover on two antenna systems
  - 30-minute set-up/<1 hour satellite acquisition
- Standard Rx/Tx Feed** 2-Port Ka-Band Commercial (CP or LP)
- Optional Rx/Tx Feeds**
  - 2-Port Ka-Band MIL (CP or LP) (WGS)
  - 2-Port Ka-Band Wideband (CP) (WGS and Commercial)
  - 2-Port X-Band MIL (CP) (WGS) – Opt. Rx/Tx Reject Filter Kit
  - 2-Port Ku-Band Precision (LP)
  - 2-Port Ku-Band Mode-Match (LP) (enhanced Cross-Pol comp.)
- Other Options**
  - Single or Dual antenna systems available
  - Vehicle or Trailer or Pole Mount options available
  - BUC/LNB integration
- Standard Colorization** White, OD Green, or Desert Tan (optional colors available)
- Antenna Size Options** 1 Meter Class: 0.85cm, 1.0m and 1.2m
- Operates With** O3b Networks, virtually all Geo Satcom systems



### Mechanical

Az/EI Drive	Motorized Dual Slew Drive Positioner
Polarization Drive System	Motorized rotation of feed
Reflector Construction	Segmented carbon fiber
Axis Travel	
Azimuth	360 degree continuous
Elevation (reflector bore sight)	0-90 degrees
Polarization	+/- 90 degrees
Az/EI Speed	
Slewing/Deploying Tracking	4 degrees/second
Motors	24VDC variable speed, constant torque
Standard Integration Interfaces	
Tx Input	Waveguide flange (cover) @ Feed; 50 ohm connector @ Lower I/O panel
Rx Input	Waveguide flange (cover) @ Feed; 50 ohm connector @ Lower I/O panel
BUC (& other CFE) Mounting	Directly to feed or on the feed boom
Electrical Interface	Optional - one 30-ft. cable with connector from base connector panel to power supply
Manual/Emergency Drive	Manual adjustment for each axis available
Size & Weight	Packed in 2 cases each < 174 lbs. / < 79 kg. (Two-man lift)

### Environmental

Wind – Survival	Deployed: 60 mph (97 kph) (ballasted); Stowed: 90 mph (145 kph)	
Wind – Operational	45 mph (72 kph) gusting to 60 mph (97 kph)	
Pointing Loss in Wind (RX):	Ku 45 mph gusting to 60 mph	Ka 30 mph gusting to 45 mph
Typical	0.1 dB	0.2 dB
Max	0.3 dB	0.5 dB
Temperature:		
Operational	-22°F to 125°F (-30°C to 52°C)	
Survival	-40°F to 140°F (-40°C to 60°C)	

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### RF/Electrical

Feed Type ►	Std. 2-Port Ka-Band Commercial		Opt. 2-Port Ka-Band Military		Opt. 2-Port X-Band (Military/WGS)		Opt. 2-Port Precision Ku-Band	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
RF Parameter ▼								
Frequency Range (GHz)	17.85 – 19.27**	27.65 – 29.07**	20.2 - 21.2	30.0 - 31.0	7.25 - 7.75	7.90 - 8.40	10.95 - 12.75	13.75 -14.50
Polarization Configuration	RHCP or LHCP Co-Pol		Circular (opt. linear feed available)		RHCP or LHCP Co-Pol		Linear orthogonal standard, optional co-pol	
Gain (mid-band)	42.3 dBi	45.8 dBi	43.2 dBi	46.5 dBi	34.5 dBi***	35.2dBi***	38.5 dBi	40.0 dBi
-3dB Beam width (mid-band)	1.3°	0.9°	1.2°	0.8°	3.3°	3.0°	2.1°	1.7°
Radiation Pattern Compliance	FCC 25.209, ITU-R S.580-6		FCC 25.209, MIL-STD-188-164A		MIL-STD-188-164A		FCC 25.209*, ITU-R S.580-6	
EIRP, 29 GHz, with 5w BUC	-	53.0	-	-	-	-	-	-
with 10w BUC	-	56.0	-	-	-	-	-	-
with 20w BUC	-	58.2	-	-	-	-	-	-
G/T with LNB, midband, clear horizon	19.3 dB/° K (100° LNB)	-	20.0 dB/° K (100° LNB)	-	14.1 dB/° K (55° LNB)	-	18.1 dB/° K (50° LNB)	-
Antenna Noise Temp. (mid-band, 20° EI)	109° K	-	109° K	-	49° K	-	55° K	-
Maximum Feed Transmit (Tx) Power	-	250 watts	-	250 watts	-	1000 watts	-	500 watts
VSWR	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1
Axial Ratio (Ka and X only, within pointing cone)	1.8 dB	1.8 dB	1.5 dB	1.0 dB	1.21 dB	2 dB	-	-
Cross-Polarization Isolation (Ku only)								
On Axis (minimum)	-	-	-	-	-	-	35 dB	35 dB
Within Pointing Cone, std. Precision feed	-	-	-	-	-	-	26 dB	27 dB
Within Pointing Cone, opt. MM feed	-	-	-	-	-	-	25 dB	35 dB
Feed Port Isolation (Tx to Rx)	35 dB	85 dB	35 dB	80 dB (incl. filter)	100 (incl. opt. filter)	100 (incl. opt. filter)	35 dB	80 dB (incl. filter)

### Controller

Controller ►	AvL AAQ
Features	AvL one button auto-acquisition of selected satellites, including peaking and optimization of cross pol. Internal movement detector and automatic stow. Optional hand-held control and separate power supply. Certified for auto-commissioning on most satellite services.
Size	Embedded ACU with separate 1 Rack Unit Controller Interface Panel (CIP) power supply with LCD and keypad. 250 W and 500 W (1.6m and larger antennas) versions available.
CIP Input Power	120/240 VAC 60/50 Hz, 6/3 A Max. Power consumption is antenna size dependent: During acquisition 150 W or 300 W is typical, ~ 50 W Idle

### Available Options/Upgrades/Services

- Vehicle/Trailer Mount, Pole Mount, & Fly & Drive options available
- Upgrade from 2-Port Ka-Band Commercial (CP or LP): a) 2-Port Ka-Band MIL (CP or LP) (WGS); b) 2-Port Ka-Band Wideband (CP) (WGS and Commercial); c) 2-Port X-Band MIL (CP) (WGS) – Opt. Rx/Tx Reject Filter Kit ; d) 2-Port Ku-Band Mode-Match (LP) (enhanced Cross-Pol comp.); e) 2-Port Ku-Band Precision (LP)
- Add co-polarization Kit (for 2-port Ku feeds only) - configures Rx and Tx to same polarization sense
- Add BUC/HPA mounting (NOTE: minimum elevation may be restricted by these options) ) (may require additional case)
- Upgrade to custom RF/IF I/O cabling configurations available
- Custom colorization (contact factory for available colors)
- Add custom logo on reflector face (1- or 2-Color; per AvL Logo Policy)
- Spare parts kit
- Tie down kits: Simple stakes or earth anchors, refillable sandbags

\* Outside main beam

\*\* Contact Sales for commercial Ka-band frequency range options and circular or linear polarization options

\*\*\* Excluding optional filters

Request A Quote