# AvL TECHNOLOGIES

## Model 870 85cm Motorized FlyAway Antenna

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|---|---|
| **Unique Features** | • Designed for high duty cycle LEO/MEO satellite tracking<br>• Make-before-Break Handover on two antenna systems<br>• 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)<br>• 2-Port Ka-Band Wideband (CP) (WGS and Commercial)<br>• 2-Port X-Band MIL (CP) (WGS) – Opt. Rx/Tx Reject Filter Kit<br>• 2-Port Ku-Band Precision (LP)<br>• 2-Port Ku-Band Mode-Match (LP) (enhanced Cross-Pol comp.) |
| **Other Options** | • Single or Dual antenna systems available<br>• Vehicle or Trailer or Pole Mount options available<br>• 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

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|---|---|
| Az/El 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/El 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 | |
|---|---|---|---|---|---|---|---|---|
| **RF Parameter ▼** | **Receive** | **Transmit** | **Receive** | **Transmit** | **Receive** | **Transmit** | **Receive** | **Transmit** |
| 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° El) | 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