Motorized Flyaway Antenna C180FA

Satcom & Antenna Technologies Division

Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) lightweight 1.8-meter motorized flyaway antenna is designed for worldwide transmit and receive operation in C, X, Ku and Ka-band. This flyaway antenna consists of a carbon fiber composite reflector, a cable-driven elevation-over-azimuth positioner and an aluminum/CFRP support structure. This results in a low-weight, motorized antenna with superior stiffness and high performance under wind loading conditions.

The unique shape and the accurate reflector surface provides exceptionally low sidelobe and cross-polarization performance meeting INTELSAT and EUTELSAT requirements. Repeatability is maintained with precision registration of the nine reflector segments and the feed support structure. The interchangeable feeds are palletized for quick, easy removal and replacement, allowing the end-user to effectively change frequency bands in the field within minutes. The complete antenna system, including a single feed and a motorized positioner, is packaged in eight robust, portable cases.

FEATURES

- Simple automated satellite acquisition
- Easy 2-person deployment in less than 30 minutes
- Carbon fiber reflector: Lightweight, precision surface and high stiffness
- Cable-driven positioner: Composite/aluminum construction, lightweight, sturdy
- Easy deployment: Two-person assembly in less than 30 minutes, captive hardware and precision alignment. No tools required for assembly
- Auto-acquisition with DVB reference
- 24 VDC or 100-240 VAC input
- High performance: Low sidelobes and high EIRP capability - FCC, ITU, DISA, ARSTRAT sidelobe compliant

OPTIONS

- Finishes
  - Standard Ford Polar White reflector / feed
  - Options Green Fed Std 595 34094 or
  - Desert Sand Fed Std 595 33303

BENEFITS:

- Lightweight
- Exceptionally low sidelobe and cross-polarization performance

APPLICATIONS:

- Superior stiffness and high performance under wing loading conditions

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Specifications

Mechanical					
Azimuth Travel	A±180°				
Elevation Travel	5° to 90				
Polarization Travel	±90° (linear polarization)				
Reflector Structure	Carbon fiber composite				
Pedestal Structure	Cable drive positioner elevation over azimuth positioner				
Antenna Weight (by component)					
Pedestal Total Pedestal w/ Legs Pedestal Case (55 x 35 X 27"/ 140 X 89 X 68.6 cm)	Weight 185 lbs (84 kg) 90 lbs (41 kg) 95 lbs (43 kg)	Quantity 1 1	Reflector Total Petals Petal Case (37.4 X 37.4 X 38.4" / 95 X 95 X 97.5 cm)	Weight 146 lbs (66.2 kg) 56 lbs (25.4 kg) 90 lbs (40.8 kg)	Quantity 1 1
Positioner Total Positioner Positioner Case (30.5 x 2 9 X 30.5"/ 77.5 X 73.7 X 77.5	179 lbs (81 kg) 120 lbs (54.4 kg) 59 lbs (26.7 kg)	 1 1			Ku Band Feed Case 28 x 21 x 15" X-Band Feed Case 28 x 21 x 15" C-Band CP/LP Feed 29.8 x 20.8 17.8" C-Band CP Feed 40 x 18 x 13.2"
Backbeam + Feed Boom Total Backbeam + Feed Boom Backbeam / Feed Boom Case (35 x35 x 2727 X X 5555"/ "/ 88.988.9 X X 68.668.6 X X 139.7139.7 cm) cm)	198 lbs (89.8 kg) 89 lbs (40.4 kg) 109 lbs (49.4 kg)	 1 1	Ku-Band Feed X-Band Feed C-Band CP/LP Feed C-Band CP Feed	15 lbs (6.8 kg) 26 lbs (11.8 kg) 25 lbs (11.3 kg) 30 lbs (13.6 kg)	Ku Band Feed Case 36 lbs (16.3 kg) X-Band Feed Case 36 lbs (16.3 kg) C-Band CP/LP Feed 45 lbs (20.4 kg) C-Band CP Feed 36 lbs (16.3 kg)
Controller / Ku Feed Case (28 x 19 x 38" / 71.1 x 48.3 x 96.5 cm)	81 lbs (36.7 kg)				
Antenna Total	355 lbs (161.0 kg) without feed and cases				
Loading Operational (with ballast) Survival (with tie-downs)	 30 mph (48 km/h) gusting to 45 mph (72 km/h) 60 mph (96 km/h) gusting to 70 mph (113 km/h); antenna must be at stow position (90°elevation)				
Pointing Loss (operational winds)	Maximum 2.0 dB peak loss, performance dependent on controller				
Temperature Operational Survival	 -40° to +140° F (-40° to +60° C) -40° to +160° F (-40° to +71° C)				
Relative Humidity (operational and survival)	0% to 95%, +86°to +140°F (+30°to +60°C)				
Solar Radiation	355 BTU/h/ft2 (964 Kcal/h/m2)				
Shock and vibration	As encountered during shipment by commercial air, sea or land				
Corrosive Atmosphere	As encountered in coastal regions and/or heavily industrialized areas				

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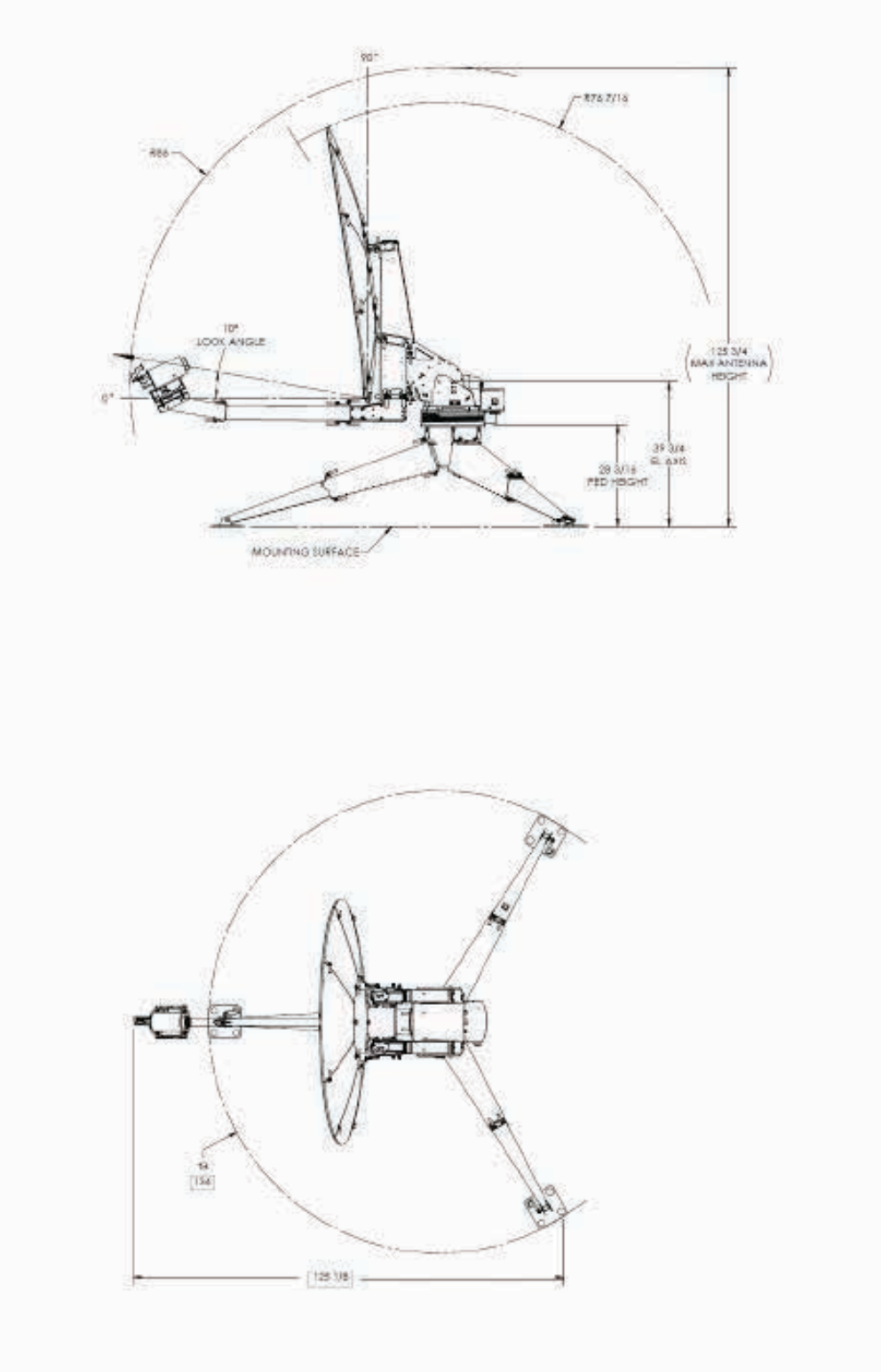
Specifications

Electrical	C-Band 2-Port Linear Polarized		C-Band 2-Port Circular Polarized		X-Band 2-Port Circular Polarized		Ka-Band 2-Port Linear Polarized		Ka-Band 4-Port Linear Polarized		Ka-Band 2-Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.625 - 4.200	5.850 - 6.425	3.625 - 4.200	5.850 - 6.425	7.250 - 7.750	7.900 - 8.400	10.950 - 12.750	13.750 - 14.500	10.750 - 12.750	13.750 - 14.500	20.200 - 21.200	30.000 - 31.000
Antenna Gain at Midband, dBi at Midband, dBi	35.6	39.3	35.3	39.3	41.3	42.0	45.0	47.1	44.6	46.3	49.1	52.3
Antenna Noise Temperature												
5° Elevation 10° Elevation 20° Elevation 40° Elevation	56K 42K 37K 38K		73K 59K 54K 55K		65K 55K 51K 52K		85K 71K 64K 64K		80K 68K 62K 61K		155K 133K 117K 108K	
Pattern Beamwidth (in degrees at midband) -3 dB Beamwidth	2.84	1.87	2.88	1.86	1.44	1.33	0.94	0.75	0.96	0.80	0.55	0.38
Sidelobe Performance** For Angle A from 2° to 30° (typical)									24-25 Log A (AZ PLANE) 29-25 Log A (in General)		25 Log A	
For Angle A beyond mainbeam to 48°	32-25 Log A		32-25 Log A		*29-25 Log A *32-25 Log A		Meets ITU-RS580 / FCC 25.209					
For Angle A from 48° to 140°	-10 dBi		-10 dBi		-10 dBi				-10 dBi	-10 dBi	-10 dBi	-10 dBi
For Angle A from 140° to 180°	0 dBi		0 dBi		0 dBi				0 dBi	0 dBi	0 dBi	0 dBi
Cross Polarization On Axis Within 1.0 dB BW	30.0 dB 26.0 dB	30.0 dB 26.0 dB	19.7 dB 19.7 dB	27.3 dB 24.0 dB	21.3 dB 21.3 dB	21.3 dB 21.3 dB	35.0 dB 27.0 dB	35.0 dB 35.0 dB	35.0 dB 27.0 dB	35.0 dB 35.0 dB	24.8 dB 24.8 dB	24.8 dB 24.8 dB
VSWR	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.35:1	1.30:1	1.35:1	1.30:1	1.30:1	1.30:1
Axial Ratio			1.81 dB	0.75 dB	1.50 dB	1.50 dB					1.00 dB	1.00 dB
Port-to-Port Isolation Rx/Tx (Rx frequency) Tx/Rx (Tx frequency)	0 dBi -70 dB	-30 dB 0 dB	0 dBi -100 dB	-50 dB 0 dB	0 dBi -110 dB	-110 dB 0 dBi	0 dBi -85 dB	-30 dB 0 dB	0 dBi -85 dB	-50 dB 0 dB	0 dB -85 dB	-70 dB 0 dB
Feed Insertion Loss	0.20 dB	0.15 dB	0.40 dB	0.20 dB	0.40 dB	0.40 dB	0.30 dB	0.20 dB	0.55 dB	0.40 dB	0.30 dB	0.30 dB
Waveguide Interface Flange	CPR-229G	CPR-137G	CPR-229G	CPR-137G	CPR-112G	CPR-112G	WR-75 Flat	WR-75 Flat	WR-75	WR-75	WR-42	WR-28
Total Power Handling Capability		2 kW CW		2 kW CW		2 kW CW		1 kW CW		1 kW CW		500 W CW
RF Specification	975-3381		975-2849		975-3125		975-5380		975-4414		975-2985	

* Angular values for X-band are A° to 20°, 20° to 40° for main beam.
* Angular values for Ka-band are 1° to 30°, 30° to 130° and 130° to 180°.

Other feeds available. Contact factory for information.
Low axial ratio feed available.
Low axial ratio feed available. X-band dual polarization switch available.

CPI Motorized Flyaway Antenna: C180FA



Contact us at CustomerCareSAT@cpii.com or call us at +1 770-689-2040.

The data should be used for basic information only.

Formal, controlled specifications may be obtained from CPI for use in equipment design.

Communications & Power Industries

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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.