

1.0m Flyaway Carbon Fiber Ku Band Antenna Datasheet

1. Product Overview

Starwin 1.0m auto flyaway satellite communication system is a new generation of satellite communication equipment which is designed for communication system operators, news media and other special industry users, which is suitable for large-capacity communication applications. The system is equipped with a high performance modified double offset Grigori antenna system, the equivalent aperture is 1.0 meters. The system has a fully automatic one-key mode of operation. The equipment can be fully automated from deployment, tracking, pointing, adjustment and collection. It is simple to install and does not need calibration. It can establish satellite channel quickly, and has two working modes: automatic and manual. When power is cut off, it is equipped with a handle to operate manually. Carbon fiber material is used in the whole system widely, which ensures its portability under large caliber conditions.

The system relies on high performance digital beacon receiver, high precision LNB, high reliability transmission system and reliable and stable antenna control system. It has excellent tracking accuracy and 100% pointing accuracy. The deploy status is as follows:



Figure 1. The working status of 1.0m flyaway antenna



Figure 2. The collection status of 1.0m flyaway antenna

2. System Features

1. **Multi-Control Platform:** It adopts multi-operating system platform (Windows, Android, iOS), multi-terminal mode (mobile phone, tablet, computer) to control by wired or wireless mode (wireless mode to support DHCP function). It adopts man-machine graphical interface of browser mode without installing third-party software.
2. **Integrating Geographic Information:** The control system adopts pre-invocation, active inquiry, manual input and GPS-aided positioning. That is, the control system has built-in longitude and latitude database, which can input city names directly in the control system interface and automatically acquire geographic information. The system has higher availability.
3. **Geographic Information Output:** The control system supports the function of geographic information delivery. It can output geographic information data in GPS format and send it to external modem or terminal equipment.
4. **Closed Loop Adjustment of Polarization:** Have the function of polarization Closed loop adjustment after the antenna tracking beacon, avoid problems of inaccurate polarization angle because of ground tilt and cross polarization isolation deterioration.
5. **Target Satellite Judgement:** The unique software anti-error lock function can quickly judge whether the target satellite is locked, and effectively improve the accuracy and credibility of pointing.
6. **Automated Main Lobe Judgment:** The antenna has automatic main lobe judgment function, which ensures that 100% of the antenna will not be tracked and locked on the side lobe.
7. **BUC Monitoring:** The interface of the antenna control system is equipped with BUC monitoring function area, which can conveniently check the real-time working state of BUC, such as output power, working temperature, 10MHz locking and other parameters, and can control BUC.

8. **BUC Tx Control:** The control system can automatically control BUC's Tx opening or closing according to the antenna's operation status, so as to prevent the antenna from interfering with other satellites in the process of satellite searching.
9. **iPstar Searching:** The unique tracking technology of the iPstar and the special satellite parameter table make the system have the ability of tracking the iPstar satellite (without beacon) automatically, and avoid the defect of low accuracy and precision brought by the reference star-seeking mode.
10. **Integrated Power Supply:** Special integrated power supply can provide stable and reliable power supply for the whole system, including BUC (to meet the power supply demand of 40W BUC) and LNB, without external power supply;
11. **Precision Transmission Structure:** The azimuth and elevation drive system adopts special precision device with large torque and high reliability of transmission structure design to ensure that the antenna system has all-weather working ability, and the ability to keep the pointing when abnormal power failure occurs in communication.
12. **Highly Waterproof Design:** The chassis adopts integral sealing design to meet the requirements of three-proof and raining, and the protection level reaches IP56, which ensures that the antenna system can work safely and reliably all-weather.
13. **Environmental Protection Design:** All antenna external interfaces are located at the back of the reflector, avoiding radiation caused by operation or connecting cables in communication.

3. Solutions for System Transportation

The main antenna host is loaded into a finished product transport case separately. The antenna panel, power cable, IF cable, manual handle and other accessories are loaded into another customized transport case with the same length and width as the main transport case. The host transport case is made of high-performance resin with rollers and pull rods, the dimension is 795mm×518mm×310 mm. The accessory case is a customized transport case, which can be carried. It meets the transportation requirements of highway, railway and aviation. Its structure can effectively protect the internal accessory safety, the dimension is 660mm×450mm×160 mm.



Figure 5. Packing and transportation

4. The main technical specifications of the system

General Performance		
Open Time	≤5 Mins	
Collection Time	≤3 Mins	
Antenna Type	Double Offset Modified Gregorian Antenna	
Equivalent Diameter	1.0m	
Control Mode	PC, Wire/Wireless Intelligent Terminal, One-Key Access	
Reflector	Carbon fiber, 6 Curve segmentation panels, 5 panels can be removed on the edge	
Automatic Location	Standard configure: On-board GPS + Built-in Longitudinal and Latitude Database Automatic Retrieval Call	
	Optional configure: GPS/Beidou Dual-mode + Built-in Longitudinal and Latitude Database Automatic Retrieval Call	
RF Performance		
Name	Rx	Tx
Operating Frequency	10.95 ~ 12.75 GHz	13.75 ~ 14.50 GHz
Gain	≥39.54+20log(f/11.8) dBi (12.5GHz: 39.93dBi)	≥41.27+20log(f/14.125) dBi (14.25GHz: 41.32dBi)
The First Side Lobe	≤-20dB	≤-20dB
SWR	1.25:1	1.25:1
Side Lobe Envelope	29-25*logθ dBi 1°≤θ≤20° -3.5 dBi 20°<θ≤26.3°	
Port Isolation	≥85dB (Include TRF)	
Cross Polarization	≥35dB (On aixs); ≥30 dB (Offset 1dB)	
Polarization Mode	Linear polarization	
Feed Interface	Two ports	
Mechanical Performance		
Azimuth Range	+90° ~ +270°	
Elevation Range	Face south: 18°~ +90° (Factory preset)	
	Face north: 5°~ +90° (Factory preset)	
Polarization	±95°	

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Range	
Reflector Dimension	1000 × 950 mm (Assembly complete)
Transportation Dimension	795 × 518 × 310 mm (Collection status)
Total Weight	≤24.9Kg (Host: 21.8kg, panel: 3.1kg, include LNB, exclude BUC)
Power Requirements	
Power Supply Mode	AC-DC (500W); Input 220VAC (50~60Hz); Provide 24V/48V DC output for BUC
Power Consumption	≤68W (peak), exclude BUC
External Interface	
Power Supply	3 core waterproof aviation plug
Antenna Control	Network control port: 7 core waterproof aviation plug or wireless
	Hand-held terminal control port: 26 core waterproof aviation plug
BUC Power Supply	Unified power supply for internal integrated power supply of antenna host
Tx/Rx	N-type female plug
Feed Interface	WR-75
One-Key Access	Self-reset ring type with lamp, the center lamp indicates the input state of 220VAC
BUC Switch	Self-locking ring type with lamp, the center lamp indicates the power up state of BUC
Special Functions	
Status Indication	It has the function of power supply indication to facilitate troubleshooting.
BUC Monitor	It has the function of real-time monitoring BUC status. It can display output power, 10M lock, power on/off, attenuation settings, automatic RF output control, etc. (This function supports part of BUC brands)
Environmental Conditions	
Operating Wind Speed	Steady wind≤50km/h (need balance weight) Gust≤65km/h (Strengthen balance weight)
Operating Temperature	-25°C~ +60°C, Standard: GJB 367A-2001
Storage Temperature	-55°C~ +85°C
Altitude	≤5000m

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Protection Grade	IP56
Vibration Test	Standard: GJB367A-2001, GJB 150.16-86 Vertical Axis Direction: Total Root Mean Square Value: 1.04G Lateral Axis Direction: Total Root Mean Square Value: 0.20G Longitudinal Axis Direction: Total Root Mean Square Value: 0.74G
Impact Test	Standard: GJB367A-2001 Acceleration: 200m/s ² Pulse width: 11ms times: 3 times / positive and negative direction Waveform: half-sine wav
Rain Test	102mm/h, Standard: GJB150.8A-2009
Humid Heat Test	Meet standard: GJB150.9A-2009
Salt Spray Test	Meet standard: GJB150.11A-2009
Electromagnetic Compatibility	Meet standard: GJB151-1997, GJB152A-1997