

## **Starwin 1.2m Ku Band**

### **Auto Flyaway Antenna Datasheet**

#### **1. Product Overview**

Starwin 1.2m flyaway antenna is a Ku-band satellite communication antenna system of super portable automatic pointing. This system has the characteristics of super portable, automatic operation and strong environmental adaptability. It is mainly designed for users who require more stringent portability of equipment.

The system is equipped with an equivalent aperture of 1.2m high performance prime focus carbon fiber parabolic antenna and a ring-focus feed system. The ring-focus feed is designed with an integrated structure and can be configured with 40WBUC, which can meet the medium-capacity communication requirements of general users.

The whole antenna system consists of 3 parts: 1.2m reflector system, feed system and pedestal system. It is easy to disassemble and assemble without any tools.



Figure 1. The working status of antenna system



Figure 2. The collection status of antenna system

## 2. Solutions for System Transportation

The 1.2m antenna system adopts two-box transportation scheme, one is the host and the other is the accessory box. There are two options for the accessory box.

- A. The antenna host is mounted in a small protective box. The protection box adopts the military transport box, which is made of high-performance resin with rollers and pull rods, the dimension is 625mm×500mm×297 mm, the total weight is less than 30kg. The host transport box can also be equipped with special straps for carrying the host box on the back.



Figure 3. The packing status of antenna host

- B. The antenna's reflector panel, integrated feed and cable accessories are all packed into an accessory transport box. The accessory box is a customized transport box, which can be lifted on the back to meet the transportation requirements of highway, railway and aviation. Its structure can effectively protect the internal accessory safety. The dimension is 700×500×210 mm, which can be lifted on the back to support logistics transportation and long-term storage. The total carrying weight is less than 15Kg.



Figure 4. The packing status of antenna accessory

### 3. System Features

1. **Super Portability:** The system adopts single-box storage, and the total weight is less than 30kg (Include the 40W BUC) in carrying state. The carrying case is safe and reliable, which can be pulled and lifted, and the weight of the main host is less than 20kg (Exclude the BUC and transport box).
2. **Installation Fast:** The antenna is divided into three parts: the host, the reflector panel and the feed. It only needs to install the reflector panel and the feed on the host. The whole installation process does not need any tools, and the operation is very simple and fast.
3. **Omnibearing Searching:** The system is equipped with a high reliable three-axis compass to realize 360° omni-directional satellite searching. Henceforth, the antenna is no longer required to be placed south. At the same time, under the complex geological environment (such as iron ore), the antenna can be set up to work in the tiltmeter mode which is placed south.
4. **Simple Operation:** Automatic working mode, One-key access or wireless terminal control makes the operation of the system very simple and convenient, and it has perfect manual function, which greatly improves the availability of the system.
5. **Excellent Wind - Resistant Performance:** The main reflector adopts the prime focus center connection mode, with a very low working height and an optimized center

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of gravity, which ensures that the antenna system has superior structural wind-resistant stability performance. It is superior than domestic and foreign manual or auto flyaway antenna in wind - resistant performance.

6. **High Water-Resistant Performance:** The antenna adopts the control seating on the Elevation working mode and the quatrepod structures. It has water-resistant performance., and the maximum wading depth is no less than 15cm.
7. **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.
8. **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.
9. **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.
10. **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.
11. **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.
12. **Wide-Range EIRP:** The system is equipped with Ku-band BUC of 2 ~ 40W, and EIRP can reach 44.2 ~ 57.2dBW, realizing medium-capacity communication capability under small aperture antenna.

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13. **Full Voltage Operation:** The system uses 90 ~ 264 VAC power supply mode, which can be used globally, and can provide stable and reliable power supply for BUC and LNB.
14. **Quatrepod Support:** The structure is novel, compact, light and reliable, which is conducive to the erection of complex terrain, and has strong wading capacity, which is not less than 18 cm.
15. **Integrated Modem (Customization Function):** The small modem board can be integrated inside the antenna chassis, which reduces the cable connection and makes it highly integrated.

#### 4. The Main Technical Specifications of The System

General Performance		
Open Time	≤5 Mins (From unpack to point satellite)	
Searching Time	≤3 Mins	
Collection Time	≤3 Mins (From disassemble to package)	
Antenna Type	Ring Focus Parabolic Antenna	
Equivalent Diameter	1.2m	
Reflector	Carbon fiber, 8 Linear segmentation panels	
Working Mode	Az&El (Auto); Pol (Manual)	
Control Mode	Wire/wireless PC, One-key access, Wireless terminal	
Automatic Positioning	Standard: On board GPS module and built-in longitude and latitude database for automatic retrieval and calling	
	Optional: GPS+BEIDOU dual mode and built-in longitude and latitude database for automatic retrieval and calling	
BUC Control	Monitoring the working state of BUC, indicating the Output power,10M Locking, power on state, Decay setting, Automatic RF output control (This function supports some brands of BUC only)	
RF Performance (Ku)		
Name	Tx	Rx
Operating Frequency	13.75~14.50 GHz	10.7~12.75 GHz

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Gain	42.8+20log(f/14.25) dBi	41.6+20log(f/12.5) dBi
SWR	1.25: 1	1.25: 1
Feed Interface	WR-75	WR-75
Port Isolation	≥85dB (Include TRF)	
Polarization Isolation	≥35dB (On axis); ≥30dB (Offset 1dB)	
Polarization	Linear Polarization	
The First Side Lobe	≤-14dB	
Side Lobe Envelop	29-25logθ dBi (1°≤θ≤20°) -3.5 dBi (20°<θ≤26.3°)	
G/T	≥21.7dB/K (Clear sky, EI=20°, F=12.5GHz)	
Mechanical Performance		
Azimuth Range	360°continuous adjustment	
Elevation Range	10°~+90°continuous adjustment	
Polarization Range	±90°continuous adjustment	
Transportation Dimensions	Host: 625 × 500 × 97mm Accessories: 700 × 500 × 210mm	
Antenna Net Weight	≤21 kg (Exclude the BUC and Transport box)	
Power Requirements		
Power Supply	90~260VAC,47~63Hz or 127~370VDC	
BUC Power Supply	Internal power supply	
Power Consumption	≤70W (peak), exclude BUC	
External Interface		
Power Supply	3 core waterproof aviation plug×1	
Network Control	7 core waterproof aviation plug×1	
Tx/Rx	N-type female plug×2	
Power Switch	Self-locking 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	
One-Key Access	Self-reset with lamp in center, the center lamp indicates the working state of the antenna	

External Interface	
Operating Wind Speed	Steady wind≤50km/h (Need counterweight) Gust≤65km/h (Strengthen counterweight)
Operating Temperature	-25°C~ +65°C, Standard: GJB150.3A-2009, GJB150.4A-2009
Storage Temperature	-40°C~ +85°C
Altitude	≤5000m
Wading Depth	≥18cm
Vibration Test	Standard: GJB150.16A-2009 The vertical axis direction: 1.24G(GRMS) The cross axis direction: 0.20G(GRMS) The longitudinal axis direction: 0.74G(GRMS)
Impact Test	Standard: GJB367A-2001 Accelerated Speed:200m/s <sup>2</sup> Pulse Width:11ms Times:3/ pro and con direction wave form: half-sine wave
EMC	Meet the standard: GJB151-1997, GJB152A-1997
Hot and Humid Test	Meet the standard: GJB150.9A-2009
Salt Spray Test	Meet the standard: GJB150.11A-2009
Protection Grade	IP66 (Standard:GB4208-2008)
Relative Humidity	0% ~ 100%
Rain	Meet the standard: GJB 150.8A-2009