

## **Starwin 1.0m Ku & Ka Band Auto Flyaway Antenna Datasheet**

### **1. Product Overview**

Starwin 1.0m 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 1.0m 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: 1.0m 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



Figure 3. The packing status of antenna system

## 2. Solutions for System Transportation

Each subsystem of the antenna is packed in a protection box. The antenna panel, integrated dielectric feed, pedestal (Include control, power and RF sub system) and cables are packed in a protection box. The protection box adopts the military transport box, which is made of high-performance resin with rollers and pull rods, the dimension is 795mm×518mm×393 mm. The appearance is shown in the figure above.

## 3. System Features

1. **Super Portability:** The system adopts single-box storage, and the total weight is less than 33kg (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 19kg (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

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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 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.
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 15 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 and the shaped + ring focus feed
Equivalent Diameter	1.0m
Reflector	Carbon fiber, 8 Linear segmentation panels
Working Mode	Az&El (Auto); Pol (Manual)
Control Mode	Wire/wireless PC, One-key access, Wireless terminal

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Automatic Positioning	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	10.95~12.75 GHz
Gain	41.2+20log(f/14.25) dBi	40.1+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	≥19.1dB/K (Clear sky, EI=20°, F=12.5GHz)	
RF Performance (Ka)		
Name	Tx	Rx
Operating Frequency	29.4~31.2 GHz	19.4~21.2 GHz
Gain	≥46.4+20log(f/30.3) dBi	≥44.2+20log(f/20.3) dBi
Axial Ratio	≤1.0dB	≤1.2dB
Feed Interface	WR-28	WR-42
Polarization Mode	Circular Polarization (LHCP, RHCP)	
Port Isolation	≥85dB (Include TRF)	
G/T	≥20.3dB/K (Clear sky, EI=20°, F=20.3GHz)	
The First Sidelobe	≤-14dB	
Sidelobe Envelope	29-25logθ dBi (1°≤θ≤20°) -3.5 dBi (20°<θ≤26.3°)	
Mechanical Performance		

Azimuth Range	±90°continuous adjustment
Elevation Range	0°~+90°continuous adjustment
Polarization Range	Ku: ±90°continuous adjustment; Ka: CP
Size of the Host	795 × 518 × 393 mm
Antenna Net Weight	≤19 kg (Exclude the BUC and Transport box)
<b>Power Requirements</b>	
Power Supply	90~260VAC,47~63Hz or 127~370VDC
BUC Power Supply	Internal power supply
Power Consumption	≤70W (peak), exclude BUC
<b>External Interface</b>	
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
<b>External Interface</b>	
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	≥15cm
Vibration Test	Standard: GJB150.16A-2009 The vertical axis direction: 1.04G(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

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	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