Starwin 0.8m Ku & Ka Band

Intelligent Assistance Flyaway Antenna Datasheet

1. Product Overview

Starwin 0.8m intelligent assistance antenna is a new generation of backpack satellite communication system. This system has the characteristics of light weight, easy and reliable operation, complete VSAT application, integration and so on. It is mainly designed for users of simple Internet applications such as scientific research exploration, network media, emergency communication, etc. This product series includes the following specific models:

- SW80K: Work in Ku band, maximum support 40W BUC, linear polarization, can achieve integrated terminal applications, support medium capacity communications.
- SW80A SCPC: Works in Ka band, maximum supports 20W BUC, circular polarization, integrates terminal applications and supports large capacity communication.

The SW80K system is equipped with a Ku-band prime focus carbon fiber parabolic antenna, which equivalent aperture is 0.8m, and an efficient dielectric feed system. At the same time, SW80K system is equipped with main control system, embedded software, three-axis angle sensor, GPS positioning, beacon receiver, local OLED touch screen, integrated power module, wireless access, active heat dissipation and other intelligent equipment. With the help of digital indication and acoustooptic prompt on the host screen, it can realize more fast and accurate manual satellite searching. Its operation is simple, convenient, efficient and reliable, and the speed of satellite searching is much faster than that of automatic satellite searching products. The application of intelligent assistant concept has transformed portable antenna from mechatronics product to pure electronic product, thus greatly improving the reliability of the product.

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Figure 1. The working status and the packing status of the antenna system

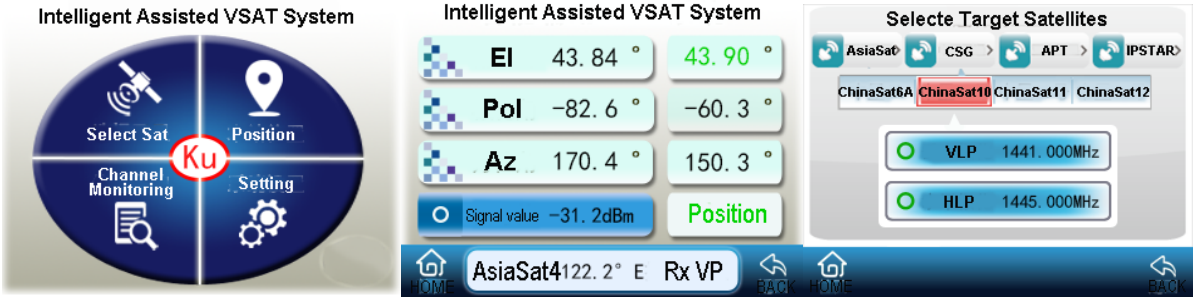

Figure 2. The control status of the antenna system

2. Solutions for System Transportation

SW80K series products adopt a special backpack carrying scheme, and can be selected and equipped with finished air boxes for transportation and storage, so as to facilitate long-distance transportation and long-term storage.

A. Backpack Type

The appearance is shown in the figure above. All components of the antenna system, such as 8 carbon fiber panel, integrated dielectric feed, ultra-light integrated pedestal and cable accessories, which are loaded into a special custom backpack. The backpack is customized according to military standards and meets the requirements of individual combat. It has the ability of rainproof. The built-in lining can effectively protect the safety of equipment. The dimension of the backpack is 600×450×300 mm, the weight is less than 4 kg (including special lining), and the carrying weight of the whole machine is less than 20 kg (Ku station includes the 40W power BUC).

B. Transport Storage Box

In order to facilitate the long-term storage of equipment and long-distance logistics transportation, transport storage boxes can be provided for users. Transport storage box is an optional item. It can storage the whole antenna together with the backpack. It can meet the requirements of logistics transportation, product stacking, long-term storage, and can effectively protect antenna equipment. The transport storage box is made of high-performance resin with rollers and pull rods. The dimension is 795×518×394 mm, and the net weight of the empty box is 10.4 kg.

Backpack

Transport Storage Box

3. System Features

1. **Super Portability:** The system adopts single-box storage, and the total weight is less than 20kg (Include the 40W BUC) in carrying state. The carrying case is safe and reliable, which can be pulled and lifted, and the net weight of the antenna is less than 14kg (Exclude the BUC and the Business board).
2. **Super Simplicity:** With the help of intelligent assistant systems such as triaxial angle sensor, beacon receiver, dual-mode positioning and OLED touch screen, fast and accurate satellite searching is realized, which greatly shortens the time of satellite searching and improves the correctness and accuracy of satellite searching.
3. **High reliability:** The antenna operates in the manual satellite-searching mode assisted by intelligent control system, which is a pure electronic product. It not only has shorter time for satellite-searching, but also greatly improves the reliability of the system.

4. **Universal Pedestal:** In order to meet the requirements of different users, different products of 0.6m or 0.8m diameter and Ka or Ku band can be provided for users on the same control system and pedestal.
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 supports for operation in severe weather conditions;
6. **Active Heat Dissipation:** In order to meet the working temperature requirement of the terminal board and reduce the internal temperature of the cabinet, the cabinet adopts the forced heat dissipation design, which forms the air flow passage inside, and adopts the anti-raining design at the inlet and outlet.
7. **VSAT Application:** The system reserved a separate space for installing business terminals such as Modem, effectively realizing highly integrated single-machine VSAT applications, it avoids the shortcomings of portability brought by configuring the terminal box separately.
8. **WiFi Access:** VSAT system can also provide WiFi and wired RJ45 interfaces to facilitate the access of various business terminals;
9. **Local touch screen:** The system is equipped with the local OLED touch screen, which can monitor the working status of antenna, BUC and IDU in real time locally without any other terminal intervention, thus greatly optimizing the working efficiency of the human-machine interface.
10. **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, LNB, IDU and other equipment.

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	Prime Focus Parabolic Antenna + Integrated dielectric feed	
Equivalent Diameter	0.8m	
Reflector	Carbon fiber, 8 Linear segmentation panels	
Working Mode	Intelligent Assisted Manual Satellite Searching	
Control Mode	Local OLED Touch Screen	
Automatic Positioning	GPS+BEIDOU dual mode + Manual Input	
Device Management	The control system has the function of monitoring BUC and reserving the ability of monitoring equipment in business cabin.	
RF Performance (Ku)		
Name	**Tx**	**Rx**
Operating Frequency	13.75~14.50 GHz	10.70~12.75 GHz
Gain	39.5+20log(f/14.25) dBi	38.5+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	32-25logθ dBi (1°<θ<48°) -10 dBi (48°≤θ)	
G/T	≥16.5dB/K (Clear sky, El=20°, F=12.5GHz)	
RF Performance (Ka)		
Name	**Tx**	**Rx**
Operating Frequency	28.2~31.2 GHz	18.2~21.2 GHz

Gain	≥44.2+20log(f/29.7) dBi	≥41.6+20log(f/19.7) 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	≥18.7dB/K (Clear sky, El=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	+15°~+75°continuous adjustment	
Polarization Range	Ku: ±90°continuous adjustment; Ka: CP	
Size of the Host	600 × 450 × 300 mm	
Antenna Net Weight	≤14 kg (Exclude the BUC and Backpack)	
Power Requirements		
Power Supply	90~260VAC,47~63Hz or Customized	
BUC Power Supply	Internal power supply	
Power Consumption	≤15W (peak), exclude BUC	
External Interface		
Power Supply	3 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 (Non-coaxial power supply of the BUC has this switch)	
SW08K	Wired business port RJ45×1, Wireless WiFi and Rx Monitoring N Type ×1	
SW08A SCPC	Receiving and transmitting N-type×2	
Environment Condition		
Operating Wind	Steady wind≤50km/h (Need counterweight)	

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Speed	Gust≤65km/h (Strengthen counterweight)
Operating Temperature	-30℃~ +55℃
Storage Temperature	-40℃~ +75℃
Altitude	≤5000m
Vibration Test	Standard: GJB150.16A-2009 The vertical axis direction: 0.84G(GRMS) The cross axis direction: 0.20G(GRMS) The longitudinal axis direction: 0.74G(GRMS)
Impact Test	Standard: GJB150.16A-2009 Accelerated Speed:200m/s^2 Pulse Width:11ms Times:3/ pro and con direction wave form: half-sine wave
Protection Grade	IP55 (Standard:GB4208-2008)
Relative Humidity	0% ~ 100%

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