



PAIR-20

The PALS PAIR-20 is a state-of-the-art airborne antenna system engineered to deliver robust, high-throughput Ka-band satellite connectivity for the most demanding aerial platforms. Designed specifically for aircraft and unmanned aerial vehicles (UAVs), it integrates a high-efficiency parabolic feed network, a low-noise amplifier, a sophisticated servo control module, a GPS/BD positioning module, and an intelligent tracking structure into a single, highly compact unit.

It features a remarkable cold-start satellite acquisition and pointing time of under 80 seconds, with hot-start or manual input reducing this to less than 60 seconds. Once locked, the antenna's two-axis stability and three-axis tracking system ensure exceptional performance, maintaining a tracking error of less than 0.5dB (RMS) under clear conditions. Its advanced algorithms guarantee perfect tracking stability; even during rapid rotations or aggressive "S-turn" maneuvers, the satellite link remains accurately locked. Furthermore, the system excels in recovery, re-acquiring the signal in under 3 seconds for brief blockages (<5 min) and in under 5 seconds for longer interruptions (<20 min).

The PAIR-20 is built for operational resilience and is critical for mission-critical communications. Its modular architecture, featuring simple interface specifications, allows for straightforward fault diagnosis and rapid maintenance in the field. This reliability makes it an indispensable asset not only for military applications but also for the emergency command and communication networks.

Key Features

- Available in Ka Band HTS
- Designed for aircraft, ships, go-fast boats, and military vehicles
- Fast initial satellite pointing time
- High tracking accuracy
- Exceptional tracking stability
- Rapid blockage recovery time
- Fast satellite switching time: < 8 seconds
- Easy maintenance
- Dynamic pointing and dynamic satellite switching
- 2-Axes stability, 3-Axes tracking



GENERAL SPECIFICATIONS

Antenna aperture	0.2m
Reflector material	Carbon-fiber
Antenna form	Circle against symmetrical reflector and cap feed
Stabilization Platform	2-Axes for stability, 3-Axes for tracking
Protection grade	IP 65
Power supply	DC18-36V
Power consumption	≤60W (Ku 8W BUC) ≤90W (Ka 10W BUC)
Positioning Mode	GPS and BD
Interface	1 Rx, 1 Tx and 1 M&C

RF CHARACTERISTIC

Frequency (GHz)	Tx	29.0 - 30.0
	Rx	18.7 - 20.2
Antenna Gain (±0.2 dBi)	Tx	33.7+20lg(f/29.4)
	Rx	30.3+20lg(f/19.6)
Polarization form		LHCP/RHCP
Antenna Pattern Compliancy		ITU-R S.580-6 and ITU-R S.465-6
G/T(dB/k)		6.7
EIRP (dBw)		42.7 (10W BUC)
Axial ratio (dB)		1.5
Tx-Rx isolation(dB)		85
Rx-Tx isolation(dB)		40

MECHANICAL SPECIFICATIONS

	Azimuth	Elevation	Polarization
Antenna Motion Range	360°continuous	-5°- 105°	± 90°(Ka)
Antenna Revolution	100°/s	100°/s	
Antenna Acceleration	200°/s ²	200°/s ²	
Pointing accuracy	≤0.2° (R.M.S)		
Initial acquisition time	≤ 2min		
Sheltering recovery time	≤5s (Cover for 20min)		
Weight	≤5.5Kg (including antenna system, 10W Ka band Transceiver)		
Antenna profile dimension	≤φ249*H288mm (D*H)		

ENVIRONMENTAL SPECIFICATION

Working temperature	-40°C + 55°C
Storage temperature	-55°C + 70°C
Protection grade	IP65

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