PALS® | Communications & Technology

Every Pass,
Zenith Included

Size: 7.50m

PXY-750-AET

Full-Hemisphere LEO/MEO TT&C

The PXY-750 AET is a 7.5 m tri-band S/X/Ka fixed ground station built for low- and medium-orbit satellite tracking, telemetry, command and high-speed data reception. A three-axis Azimuth-Elevation-Tilt pedestal drives the third axis automatically to remove the zenith keyhole, so passes directly overhead are tracked without interruption. The station acquires at 3° elevation and receives from 5°, delivering full standard TT&C and non-coherent spread-spectrum TT&C in S-band together with X-band and Ka-band mission-data reception up to 1.6 Gbit/s.

Integrated Station, Not Just an Antenna

PXY-750 AET is delivered as a complete nine-subsystem station: antenna servo & feed, transmit/receive RF chains, software-defined TT&C and data-transmission basebands, monopulse tracking, station control & management, data recording, time & frequency, comprehensive support equipment and an optional radome. Ranging, velocity and time-difference measurement, remote-command transmission with small-loop command comparison and telemetry demodulation are all handled inside the integrated baseband. Recorded data is forwarded to the mission centre over 10 Gbit/s networking in real time or post-pass.

Key Features

- 7.5 m aperture, tri-band S/X/Ka operation
- 3-axis A-E-T pedestal – no zenith keyhole, seamless overhead tracking
- Standard TT&C and non-coherent spread-spectrum TT&C in S-band
- X- and Ka-band high-rate data reception up to 1.6 Gbit/s
- Monopulse auto-tracking on S, X and Ka with automatic switching
- Multi-target (4 × CDMA) same-beam TT&C capability
- Acquisition at 3° elevation, reception from 5°
- Program track with position offset ±10° and time offset ±20 s
- Optional Radome

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TECHNICAL SPECIFICATIONS / PXY-750-AET

Scan the QR code for more information.

GENERAL SPECIFICATIONS	PXY-750-AET
Reflector Diameter	7.5 m
Antenna Mount	A-E-T (Azimuth / Elevation / Tilt), 3-axis
Primary Mission	LEO/MEO TT&C, high-speed data reception
Tracking Method	Monopulse (S, X & Ka), program (TLE/ephemeris), digital guidance, memory, manual
Acquisition / Reception Elevation	3° / 5°
Power Supply	AC 220 V ±10 % single-phase & 380 V ±10 % three-phase, 50/60 Hz *

RF CHARACTERISTIC	S-Band	X-Band	Ka-Band
Frequency (GHz) Tx	2.025 – 2.120	7.145 – 7.250	30.0 – 31.0
Frequency (GHz) Rx	2.200 – 2.300	7.750 – 8.500	20.2 – 21.2
G/T @ 10° Elevation (dB/K) (clear sky, 23 °C, at LNA output)	≥ 17.0	≥ 32	≥ 35.0
EIRP (dBW) (200 W SSPA)	≥ 61.5	≥ 75.0	≥ 86.2
Polarization Tx	LHCP / RHCP (Switchable)	LHCP / RHCP (Switchable)	LHCP / RHCP (Simultaneous)
Polarization Rx	LHCP / RHCP (Switchable)	LHCP & RHCP (Simultaneous)	LHCP / RHCP (Simultaneous)
Axial Ratio (dB)	≤ 1.2	≤ 1.0	≤ 1.0
VSWR	≤ 1.5:1	≤ 1.5:1	≤ 1.35:1
Tx/Rx Isolation (dB) (at Tx freq.)	≥ 95	≥ 85	≥ 85
Rx/Tx Isolation (dB) (at Rx freq.)	≥ 40	≥ 40	≥ 40
Difference-channel Tx Blocking (dB)	≥ 90	≥ 85	≥ 85
First Sidelobe Level (dB)	≤ −14	≤ −14	≤ −14
Difference-beam Null Depth (dB)	≥ 30	≥ 30	≥ 30
IF Interface	70 MHz (TT&C / Tracking)	1.2 GHz (data), 70 MHz (Tracking)	1.2 GHz (data), 70 MHz (Tracking)
Pointing Accuracy (R.M.S.)	≤ 0.25°	≤ 0.07°	≤ 0.02°
Tracking Accuracy (R.M.S.)	≤ 0.13°	≤ 0.035°	≤ 0.01°
Overhead Tracking	Third axis auto-positioned east/west – no blind spot at zenith		

MECHANICAL SPECIFICATIONS	Azimuth	Elevation	Tilt (3rd axis)
Travel Range	0° to ±355°	−1° to 181°	0° to ±175°
Maximum Velocity	20°/s	10°/s	5°/s
Maximum Acceleration	10°/s²	10°/s²	–

ENVIRONMENTAL SPECIFICATIONS	PXY-750-AET
Wind Speed Operational	90 km/h
Wind Speed Survival	240 km/h survival
Temperature Range Operational	−40 °C to +55 °C
Temperature Range Storage	−45 °C to +70 °C
Relative Humidity	2 – 98 % @ 25 °C, non-condensing
Lightning Protection	Independent lightning rods, grounding ≤ 4 Ω (equipment) / ≤ 10 Ω (lightning tower), SPDs on all lines
Radome	Optional

Specifications are subject to change.

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