STANDARD MIL-STD 810

STANDARD MIL-STD 461

STANDARD MIL-STD 188-164

Size: 1.0m, 1.2m, 1.8m, 2.4m

PXY SERIES

Ultra-Mobile X/Y Pedestal for Multi-Orbit Satellites

The PXY series antennas are ultra-mobile, small-footprint X/Y pedestal solution engineered for rapid high-speed connectivity across LEO, MEO, GEO, and HEO regimes. Available in 1.0m, 1.2m, 1.8m, and 2.4m reflector sizes, Also multi band feed configurations providing L, S, X, Ku and Ka bands fully compliant with MIL-STD-810 and MIL-STD-461, this agile system packs into compact transit cases for effortless tactical deployment, achieving a complete tool-free setup in less than 30 minutes.

Mission Agility & Target Acquisition

Built for absolute field flexibility, the terminal supports standby, manual, pointing, program, auto, and memory tracking modes. It achieves autonomous target acquisition by locking onto modem SNR, beacon, or carrier signals without external equipment. Real-time spectrum monitoring is available via an intuitive web interface or an ACU-connected tablet, while dual GPS receivers ensure a swift multi-orbit lock.

Precision Tracking & Modular Architecture

Driven by a high-performance servo mechanism, the terminal delivers seamless, zero-keyhole tracking during high-speed satellite passes. Its modular design allows a single operator to quickly swap sub-components and switch frequency bands in the field. For optimal tactical efficiency, a single power source feeds all critical internal modules, while tool-less quick-release captive bolts ensure effortless hardware replacements and firmware updates.

Key Features

- Precision Carbon Fiber Reflector
- Quickly Replaceable Feed and RF Chain
- Integrated Monitoring System on web GUI
- Modular Design
- 10MHz High Stability Reference
- TLE tracking
- Embedded Spectrum Analyzer Display (Optional)
- Auto Pointing on Beacon/DVB/Modem/SNR
- Overhead full tracking capability
- Easy to deploy

PALS® Communications & Technology

TACTICAL MOBILITY

TECHNICAL SPECIFICATIONS / PXY SERIES

Scan the QR code for more information.

GENERAL SPECIFICATIONS	PXY-100	PXY-120	PXY-180	PXY-240
Antenna Diameter	1.0m Carbon-Fiber	1.2m Carbon-Fiber	1.8 m Carbon - Fiber	2.4m Carbon - Fiber
Reflector Type	Segmented	Segmented	Segmented	Segmented
Tracking Method	Sun, TLE, Program Tracking	Sun, TLE, Program Tracking	Sun, TLE, Program Tracking	Sun, TLE, Program Tracking
Pointing Accuracy	≤0.1°	≤0.1°	≤0.1°	≤0.1°
Power Supply	100-240 VAC/50-60 Hz	100-240 VAC/50-60 Hz	100-240 VAC/50-60 Hz	100-240 VAC/50-60 Hz

RF CHARACTERISTIC PXY-100	X-Band	Ku-Band	Ka-Band
Frequency (GHz) Tx	7.90 - 8.40	13.75 ~ 14.50	27.50 - 31.00
Frequency (GHz) Rx	7.25 - 7.75	10.70 ~ 12.75	17.70 - 21.20
Antenna Gain @ Midband (±0.2 dBi) Tx	≥ 36.4	≥ 41.4	≥ 46.7
Antenna Gain @ Midband(±0.2 dBi) Rx	≥ 35.7	≥ 39.8	≥ 43.2
Power Capacity	≤ 200w	≤ 100w	≤ 100w
Antenna Pattern Compliance	Compliant with MIL-STD-188-164C, ITU-R S.580-6 & ITU-R S.465-6		

RF CHARACTERISTIC PXY-120	X-Band	Ku-Band	Ka-Band
Frequency (GHz) Tx	7.90 - 8.40	13.75 ~ 14.50	27.50 - 31.00
Frequency (GHz) Rx	7.25 - 7.75	10.70 ~ 12.75	17.70 - 21.20
Antenna Gain @ Midband (±0.2 dBi) Tx	≥ 37.8	≥ 42.8	≥ 48.7
Antenna Gain @ Midband(±0.2 dBi) Rx	≥ 37.2	≥ 41.5	≥ 45.3
Power Capacity	≤ 200w	≤ 100w	≤ 100w
Antenna Pattern Compliance	Compliant with MIL-STD-188-164C, ITU-R S.580-6 & ITU-R S.465-6		

RF CHARACTERISTIC PXY-180	X-Band	Ku-Band	Ka-Band
Frequency (GHz) Tx	7.90 - 8.40	13.75 - 14.50	27.5 - 31.0
Frequency (GHz) Rx	7.25 - 7.75	10.70 - 12.75	17.7 - 21.2
Antenna Gain @ (±0.2 dBi) Tx	≥ 41.3	≥ 46.2	≥ 51.5
Antenna Gain (±0.2 dBi) Rx	≥ 40.5	≥ 45.2	≥ 48.0
Polarization	Circular	Linear	Circular
Axial Ratio (dB)	≤1.2	≥35 (CPI)	≤ 1.2 (Rx) / ≤1.0 (Tx)
Antenna Pattern Compliance	Compliant with MIL-STD-188-164C, ITU-R S.580-6 & ITU-R S.465-6		

RF CHARACTERISTIC PXY-240	X-Band	Ku-Band	Ka-Band
Frequency (GHz) Tx	7.90 - 8.40	13.75 - 14.50	27.5 - 31.0
Frequency (GHz) Rx	7.25 - 7.75	10.70 - 12.75	17.7 - 21.2
Antenna Gain (±0.2 dBi) Tx	≥ 43.8	≥ 48.5	≥ 54.2
Antenna Gain (±0.2 dBi) Rx	≥ 43.1	≥ 47.0	≥ 50.7
VSWR	≤1.3:1	≤1.3:1	≤ 1.3:1
Polarization	Circular	Linear	Circular
Axial Ratio (dB)	≤1.5	≥35 dB (CPI)	≤ 1.5 (Rx) / ≤1.0 (Tx)
Antenna Pattern Compliance	Compliant with MIL-STD-188-164C, ITU-R S.580-6 & ITU-R S.465-6		

Specifications are subject to change.

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TACTICAL MOBILITY

TECHNICAL SPECIFICATIONS / PXY SERIES

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MECHANICAL SPECIFICATIONS	X	Y	Polarization for Ku-Band
Antenna Motion Range	± 90°	± 90°	± 90°
Antenna Drive Rate	0.1° - 6° /s	0.1° - 6° /s	0.1° - 6° /s
Antenna Acceleration	5° / sec²	5° / sec²	3° / sec²
Motor	DC Brushless Servo with Brakes	DC Brushless Servo with Brakes	DC Brushless Servo with Brakes

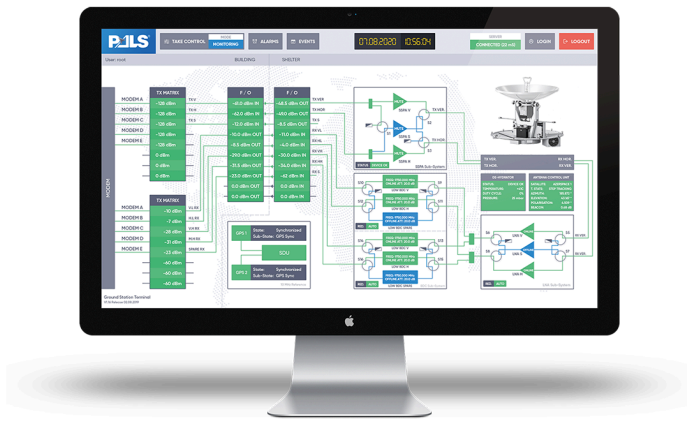
ENVIRONMENTAL SPECIFICATIONS	PXY SERIES
Temperature Range Operational	-30°C - +55°C
Temperature Range Survival	-40°C - +70°C
Wind Speed Operational	Gusting 72 km/h
Wind Speed Survival	Gusting 120 km/h
Protection Grade	IP65
Solar Radiation	1135W/m2
Relative Humidity	%100 Condensed

M&C Interface

Ethernet interface for M&C and user interface.

Full remote operation and monitoring with multiple tracking options.

The antenna can be controlled via the provided computer software application or via a customer interface.



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Specifications are subject to change.

X/Y Technology Advantages

Cost-Efficiency: Streamlined architectural design, modern manufacturing techniques, and the integration of commercial-grade components make it one of the most budget-friendly solutions in its class.

Elimination of Zenith Blind Spots: Completely removes the "keyhole" effect (cone of silence) common in traditional Az/El pedestals during directly overhead satellite passes.

Enhanced Pointing Accuracy: Reduced mechanical motion requirements allow for smoother, highly accurate target tracking, which is critical for high-frequency bands like Ka-band.

Extended Operational Lifespan & Low Maintenance: Lower dynamic stress significantly minimizes physical wear and tear, prolonging hardware endurance and reducing service requirements.

Simplified Cable Management: The inherent layout eliminates the need for complex rotary joints or slip rings, completely avoiding cable wrapping issues.

Zero-Backlash Drive Assemblies: Precision gear systems neutralize drive backlash, delivering consistent and reliable positioning accuracy.

Carbon Fiber Reflector Advantages

All sizes in the PALS PXY series feature PALS designed Carbon Fiber reflectors, providing a lightweight, rigid, and highly efficient tracking solution.

Exceptional Surface Accuracy: Delivered in modular petals, the reflector assembles with close-fitting bolting to ensure accurate alignment and a surface accuracy better than 0.5 mm rms.

Seamless Field Rebuilds: Factory photogrammetry scans guarantee that the reflector can be disassembled, shipped, and rebuilt in the field with no significant change in performance.

Superior Thermal Stability: Carbon fiber offers a much lower thermal expansion coefficient ($<2\times10^{-6}$) compared to aluminum (23×10^{-6}), ensuring the system remains viable and stable in extreme temperatures.

High Durability: These reflectors are significantly stronger and stiffer than aluminum, resist easy damage, and can be quickly repaired on-site from minor impacts without surrounding distortion.

Radome Options

Integrating a radome safeguards the system from severe weather, extends component lifespans, and provides absolute antenna position concealment.

Broad Diameter Selection: Available from 1.5 meters up to 20 meters (with larger custom sizes available upon request), precisely tuned to your target operational frequencies.

Foam Core Sandwich Composition: Engineered in three distinct structural builds:

- 'A' Sandwich: A robust three-layer construction for standard protection.
- 'C' Sandwich: An enhanced five-layer composition for maximum durability.
- 'S' Space Frame Design: A high-performance fiberglass skeleton paired with reinforced, PTFE-impregnated glass fiber (Teflon) fabric—ideal for wideband applications.

Extreme Wind Resistance: Structurally rated to survive extreme wind velocities ranging from 200 km/h to 300 km/h, depending on the specific model.

Port Options

- Two-Port Ku-Band Mode-Match (Enhanced Off-Axis Cross-Polarization)
- Four-Port Ku-Band Precision or Mode-Match
- Two-Port Ka-Band (Linear Polarization or Circular Polarization)
- Four-Port Ka-Band (Linear Polarization or Circular Polarization)
- Two-Port X-Band