



PHOENIX

HIGH-PERFORMANCE SAR SMALL SATELLITE MISSIONS

Your Ultimate Solution for Advanced
SAR Imaging



COMPACT DESIGN FOR MICROSATELLITES

Phoenix is a spaceborne payload engineered to meet the rigorous mass constraints of microsattellites, with a starting weight ranging from 50 to 60 kg. This lightweight design does not compromise on performance, as Phoenix introduces a modular X-band SAR (Synthetic Aperture Radar) system that sets a new standard for satellite payloads. Its innovative architecture includes a compact arrangement of high-power amplifiers for efficient energy generation and a slotted waveguide antenna that minimizes energy loss, ensuring peak performance.



ADVANCED IMAGING CAPABILITIES

With resolutions as fine as 0.5 meters and support for both Stripmap and Spotlight imaging modes, Phoenix provides unmatched SAR imagery tailored to a wide range of applications. From commercial needs such as urban planning and land monitoring to security operations requiring surveillance and reconnaissance, Phoenix delivers clarity and quality that redefine expectations. This advanced imaging capability makes it a versatile tool for addressing both commercial and mission-critical demands.



CUTTING-EDGE ENGINEERING AND INNOVATION

At the heart of Phoenix lies its single polarization slotted waveguide design, a feat of engineering precision optimized for X-band signals with bandwidths of up to 500 MHz. This refined design guarantees consistent, high-quality performance across diverse operating conditions. By integrating state-of-the-art technology into a compact framework, Phoenix embodies MetaSensing's dedication to innovation and excellence. It offers a powerful solution for microsattellite missions, broadening the scope of SAR imaging possibilities and setting a benchmark in the field.

PHOENIX TECHNICAL DATA

ANTENNA TYPE	Slotted Waveguide
DIMENSION	3364*589 mm
MASS	> 50 kg
FREQUENCY	X Band

KEY FEATURES:

- Lightweight design: Starts from just 50 kg, meeting microsatellite mass requirements.
- Modular X-Band SAR: High-performance, lightweight design for versatility.
- Compact Architecture: Efficient RF power concentration with minimal space usage.
- Slotted Waveguide Antenna: Ensures exceptional signal quality with minimal energy loss.
- High Resolution Imaging: Achieves resolutions as fine as 0.5 meters.
- Multiple Imaging Modes: Offers both Stripmap and Spotlight modes for flexibility.

ACQUISITION MODE	SWATH WIDTH [KM]	RESOLUTION (SLANT RANGE X AZIMUT)
SPOTLIGHT HR	5 x 5	0.5 x 0.5
SPOTLIGHT	10 x 10	0.5 x 1.0
STRIPMAP HR	30 x 140	0.5 x 2.0
STRIPMAP	30 x 140	1.0 x 2.0
STRIPMAP LR	30 x 140	2.0 x 2.0

KEY BENEFITS:

- Versatile Deployment: Suitable for a wide range of missions on microsatellites.
- Operational Efficiency: Maximizes performance while minimizing resource consumption.
- Exceptional Imaging Quality: Delivers high-quality imagery for valuable insights.
- Tailored Applications: Suitable for commercial and security missions alike.
- Cost-Effective Solution: High-performance SAR capabilities in a compact package

