



# METASAR-P

**ADVANCED RADAR SOLUTIONS  
REDEFINING PRECISION MAPPING**

**Your Ultimate Solution for Advanced  
SAR Imaging**



## **METASAR-P CAPABILITIES**

The MetaSAR-P is an advanced multichannel airborne Synthetic Aperture Radar (SAR) operating at VHF/UHF radio frequency. Designed to deliver calibrated airborne SAR images, it supports diverse applications including Interferometric SAR (InSAR), Polarimetric SAR (PolSAR), and Tomographic SAR (TomoSAR). MetaSAR-P serves both mapping applications, such as Digital Terrain Models (DTM) generation, and monitoring applications, including Foliage and Sand Penetration (FOPEN/SAPEN), vegetation and biomass mapping, pipeline monitoring, and the detection of targets or structures beneath the canopy.



## **SYSTEM DESIGN AND OPERATIONAL FLEXIBILITY**

MetaSensing offers a compact and efficient radar sensor that integrates high-quality P-band radar performance with customizable swath sizes and resolutions. The system is designed for all-weather operation, with a portable enclosure adaptable to various aircraft types. Combining over a decade of expertise in airborne SAR solutions, MetaSAR-P enables users to collect synchronized SAR and navigation data. These datasets are processed using MetaSAR-PRO, MetaSensing's proprietary software based on the Global Back Projection algorithm, producing georeferenced GeoTiff images. These Polarimetric SAR images support applications such as Automatic Feature Extraction and Land Cover Classification.



## **TERRAIN MAPPING AND FOREST APPLICATIONS**

The MetaSAR-P's long wavelengths allow it to penetrate forest canopies, providing accurate measurements of terrain surface elevation. In repeat-pass InSAR mode, the system generates precise Digital Terrain Models (DTMs), even in densely forested areas. This capability makes MetaSAR-P an indispensable tool for forestry applications, including forest height analysis and biomass estimation.

# METASAR-P TECHNICAL DATA

Frequency	300 - 600 MHz
Bandwidth	up to 250 MHz
Resolution	from 0.6 m
Channels	2 alternating transmitters, 2 simultaneous receivers
IMU/GNSS	Embedded high-performance IMU/GNSS unit
Interferometry	Repeat-Pass
Polarization	Full (Linear Vertical & Horizontal): HH, VV, HV/VH
Swath (from 10000 feet altitude AGL)	from 2 km to 10+ km (depending on configuration)
Output file format	GeoTiff, NetCDF (with all necessary metadata)
Power consumption	< 560 W @ 28 V DC
Weight	< 20 Kg
Dimensions	Electronic Enclosure: 320x320x370 mm

## KEY FEATURES

- Multichannel P-Band Radar: High-quality imaging with long wavelength penetration.
- Compact Design: Lightweight radar electronics with easy installation on multiple aircraft.
- Advanced Processing Software: Proprietary MetaSAR-PRO for GeoTiff outputs and precise analysis.

## KEY BENEFITS

- Accurate Terrain Mapping: Generates precise DTMs and DEMs, even in forested areas.
- All-Weather Operation: Reliable performance in challenging weather conditions.
- Cost-Effective Efficiency: Lightweight design with low power consumption for versatile deployment.

## APPLICATIONS:

- Environmental Monitoring: Biomass and vegetation mapping.
- Infrastructure Surveillance: Pipeline monitoring and structure detection.
- Forestry Applications: Canopy penetration for forest height and terrain analysis.

