



METASENSING
RADAR SOLUTIONS

METASAR-L

AIRBORNE SAR PAYLOAD

ADVANCED RADAR SOLUTIONS REDEFINING PRECISION MAPPING

Your Ultimate Solution for Advanced
SAR Imaging



ADVANCED L-BAND RADAR FOR AIRBORNE REMOTE SENSING

The MetaSAR-L is a state-of-the-art, multi-channel Synthetic Aperture Radar (SAR) system operating in the L-band frequency range, engineered for airborne platforms. Designed to deliver high-resolution imaging in all weather conditions, MetaSAR-L supports a wide range of remote sensing applications including topographic mapping, vegetation and biomass monitoring, soil moisture estimation, precision agriculture, land cover classification, glacier and permafrost analysis, as well as leakage detection and environmental change tracking. The L-band frequency ensures deep penetration through vegetation and soil layers, making it especially effective for monitoring complex, dynamic environments.



COMPACT, FLEXIBLE, AND AIRCRAFT-READY

Combines the robustness of high-performance radar with a compact, lightweight, and energy-efficient design. Its modular system consists of a radar electronics unit, dual-polarimetric flat-panel antennas, and aircraft-specific mounting fixtures. The system's flexible configuration enables optimization of swath width and resolution based on mission requirements. Designed for straightforward integration, MetaSAR-L can be easily mounted on a wide variety of aircraft, from fixed-wing planes to rotary platforms and UAVs. Its rugged architecture ensures reliable operation in demanding airborne conditions.



PRECISION DATA PROCESSING AND CHANGE DETECTION

Airborne data collected with MetaSAR-L are processed using MetaSAR-PRO, MetaSensing's proprietary SAR processing suite. Leveraging advanced techniques such as Polarimetric Interferometric SAR (PolInSAR), MetaSAR-PRO generates georeferenced GeoTIFF imagery suitable for integration into standard GIS environments. These data products enable in-depth environmental analysis and support applications like Digital Terrain Model (DTM) generation and Coherent Change Detection (CCD), revealing subtle variations over time that are otherwise imperceptible. The system provides decision-makers and researchers with critical, high-resolution insights for both scientific and operational use.

METASAR-L TECHNICAL DATA

MetaSensing MetaSAR-L	MetaSAR-L Airborne SAR
Frequency	L-band (1.3 GHz)
Bandwidth	Up to 200 MHz
Ground Resolution	Up to 0.75 m
Antenna Type	Microstrip Patch
Antenna Gain	15 dBi
Azimuth Beamwidth	20°
Elevation Beamwidth	40°
Polarization	Dual Linear (Vertical & Horizontal)
Power Consumption	200–600 W (depending on configuration)
Payload Mass	<18 kg
Dimensions	Electronic Enclosure: 320 x 320 x 370 mm

KEY FEATURES

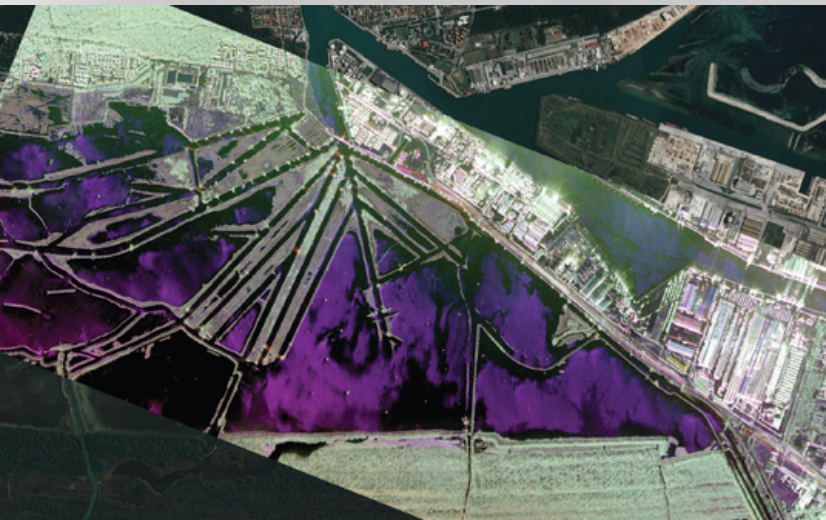
- L-band SAR with dual polarization
- High-resolution, multi-channel imaging
- Compact, lightweight, and low-power design
- Flexible swath and resolution settings
- Compatible with various aircraft
- All-weather, day-and-night operation
- PolInSAR (MetaSAR-PRO)
- Change Detection processing (MetaSAR-PRO)

KEY BENEFITS

- Penetrates vegetation and soil for deep sensing
- Easy integration on multiple platforms
- Cost-effective and energy-efficient
- Reliable data in any weather or light condition
- Advanced image analysis and change detection
- Ready-to-use georeferenced outputs

APPLICATIONS:

- Topographic and surface mapping
- Topography and terrain mapping
- Vegetation and biomass monitoring
- Soil moisture and agriculture
- Land cover and environmental change
- Glacier and permafrost analysis
- Infrastructure and leak detection



Polarimetric image acquired over a city with lexicographic decomposition. Blue/purple indicates a strong VV component as well as a significant HH component to the total backscatter. Over forested areas, the green color indicates a dominant HV component, generally characteristic of vegetated zones. Over the built-up areas, the dominant colors are white and green, where white pixels correspond to equal amplitude in all polarimetric channels.