



METASENSING

## FASTGBSAR

### APPLICATIONS

- Deformation monitoring
- Stability assessment
- Structural testing
- Archeological analysis

### FEATURES

- Sub-mm accuracy
- Low power
- Large coverage
- Non-invasive
- Autonomous operations
- Real-time updating
- All weather, day and night capabilities
- Cost-effective

### CUSTOMERS

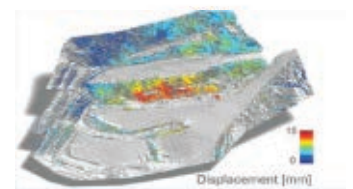
- Open pit mines
- Construction companies
- Geohazard institutes
- Land managements
- Public administrations

Structural movements or terrain sliding information are more and more affecting construction and geotechnical engineers' tasks and ultimately decision makers' choices. A continuous monitoring of critical environment is often needed, as for instance when supervising dams, towers, landslides, glaciers and unstable slopes in open pit mines.

Based on its innovative proprietary technology, MetaSensing has introduced a novel ground based solution for monitoring instable natural elements and critical artificial structures: the Fast Ground Based Synthetic Aperture Radar (*FASTGBSAR*).



The *FASTGBSAR* is a non-invasive remote sensing tool for continuous deformation monitoring of large coverage areas, a compact and easy-to-install sensor that can operate even under harsh working conditions (cold temperatures, rain, fog, dust, smoke, ash).



A *FASTGBSAR* acquisition can be performed in less than 5 seconds, overcoming the limitation of similar commercial systems in the market, i.e. low temporal coherence. High spatial resolution (0.75 m in range, 4.5 mrad in cross-range) and sub-millimeter deformation accuracy of the observed scenario is possible from a few kilometers distance without the need of an in-situ operator.



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## FASTGBSAR datasheet

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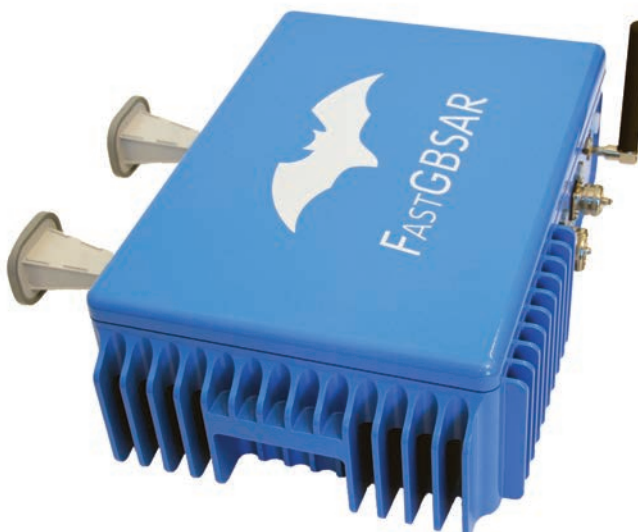
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MetaSensing <i>FASTGBSAR</i>		
Operating mode	SAR	RAR
Operating frequency (adjustable)	17.2 GHz	
Range resolution <sup>(1)</sup>	Up to 0.5 m	
Maximum range	4 km	
EIRP power <sup>(2)</sup>	42 dBm	
Operating temperature	-20°C to 60°C	
Environment	IP65	
Sensor weight	10 kg	
Accuracy <sup>(3)</sup>	± 0.1 mm	± 0.01 mm
Cross-range resolution	Up to 4.4 mrad	-
Acquisition time	5 s (0.2 Hz)	0.25 ms (4 kHz)
Power consumption	< 200 W	70 W
Linear drive weight	30 kg	-

(1) Range resolution depends on the frequency bandwidth allowed by local authorities, which for most of the cases is limited to 200 MHz, leading to an actual range resolution of 0.75 m.

(2) EIRP power depends on antennas. The given value is for a 15 dB horn antenna.

(3) Measurement accuracy depends on the target characteristics and distance from the sensor. The values on the tables are obtained for a corner reflector at 1 km of distance.



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