



## FASTGBSAR

### APPLICATIONS

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

### SNAPSHOT

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

### CUSTOMERS

- Mining companies
- Construction companies
- Geohazard institutes
- Land management
- Public administrations

Structural movement or terrain sliding information are more and more important for construction and geotechnical engineering 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 in order to monitor both 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 temperature, rain, fog, dust, smoke, ash).

A FastGBSAR acquisition can be performed in less than 5 seconds, overcoming the limitations 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 kilometer distance without the need of any in-situ operator.





# FASTGBSAR datasheet

MetaSensing FastGBSAR		
Operating mode	SAR	RAR
Operating frequency	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 <sup>(4)</sup>	Up to 4.8 mrad	-
Acquisition time	5 s (0.2 Hz)	0.25 ms (4 kHz)
Power consumption	< 200 W	70 W
Linear drive weight	72 kg	-
Linear drive total length (customizable)	2606 mm	-
Linear drive effective length <sup>(5)</sup>	1800 mm	-

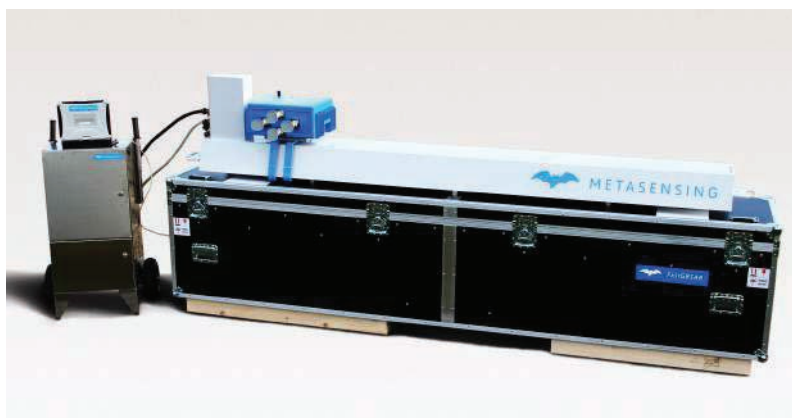
(1) Range resolution depends on the frequency bandwidth allowed by local authorities, which for most of the cases is limited to 200 MHz, leading to an actual range resolution of 0.75 m.

(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.

(4) Cross-range resolution depends on the effective rail length.

(5) Effective length is obtained at the maximum velocity 0.5 m/s. At lowest velocity 0.1 m/s, the effective rail length is 100 mm longer.



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