IBIS-FB

Remote sensing assessment of blasting performance and highwall damage control

Interferometric radar for broad area monitoring of blast-induced vibrations

IDS GeoRadar: Innovative Interferonometric Radar for Mining, Environmetal and Civil Engineering Applications

www.idsgeoradar.com

APPLICATIONS

Slope monitoring radar has emerged in the last ten years as a leading edge tool for monitoring slope movements in open-pit mines. With IBIS-FB, radar technology brings further benefits to the surface mining industry.

IBIS-FB is a revolutionary remote sensing monitoring system designed to support the assessment of blasting operations and control their impact both on the pit slopes and nearby structures.

Based on microwave interferometry technology, IBIS-FB integrates standard vibration monitoring systems providing remote broad area measurements of ground vibrations with high accuracy. After every single blast IBIS-FB measures a range of performance indexes at multiple points at long distances, even allowing data to be received from within inaccessible areas that traditional monitoring systems can't monitor.

The user will be provided with broad area measurements of

- Displacement, velocity and acceleration trends over time
- Peak Particle Velocity (PPV)
- Spectral distribution
- PPV trend vs. scaled distance

IBIS-FB simultaneously acquires a very large data set at various distances without the need to physically place any sensor or marker on the slope. The radar system not only enables frequent analysis of ground vibrations based on Peak Particle Velocity and the associated frequency, but also allows PPV trend vs. scaled distance to be modeled and predicted with a single, remote measurement. Interpreting the results is made easy through the availability of the most common blasting analysis criteria (Richards & Moore, USBM, OSM) as well as customized tools. Improved safety, production optimization and support for mine planning and hazard mitigation strategies will be ensured.

IBIS-FB BENEFITS

- **All-in-one solution to qualitatively and quantitatively monitor blast vibrations**

- **Development of site-specific indexes for blast performance monitoring and control. Repetitive measurements of areas of interest in support of long-term assessment**

- **Simultaneous acquisition of a very large data set at various distances from the monitored area**

- **Remote monitoring even of inaccessible areas of the pit. Corners or markers are not required**

- **Modeling and prediction of PPV trend vs. scaled distance for every single blast**

- **Rapid installation and one-touch project set-up**

IBIS-FB FEATURES

- Range resolution (2m)
- High sampling frequency (up to 200Hz)
- Long scan range (up to 1km)
- Broad area coverage (100x100m² at 1km)
- High displacement accuracy (0.03mm)
- External battery pack
- Operates in all weather conditions and temperatures (-30°C to 55°C)
- Built-in accelerometer to remove the bias produced by induced vibrations on the radar

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