IDS GeoRadar

HYDRA-U

Underground Safety Monitoring of Ground Fall Hazards



High-resolution radar system for early warning and real-time stability monitoring in underground mines

PART OF HEXAGON

IDS GeoRadar: Innovative Interferometric Radar for Mining, Environmental and Civil Engineering Applications

www.idsgeoradar.com

HYDRA-U

MONITORING IN UNDERGROUND RE-DEFINED

IDS GeoRadar, industry leader in radar technology for slope stability monitoring in mining, has brought its expertise to the underground mining industry.

HYDRA-U is a compact, high accuracy, **high resolution monitoring system** designed for early warning and real-time measurements of ground hazards in underground mines.

SAFETY MONITORING OF GROUND COLLAPSES

HYDRA-U is a remote sensing monitoring system able to provide real-time monitoring of surface deformations over large areas and trigger **early-warning alerts in case of impending collapses to evacuate people and machinery at-risk.** With a scan range of 200m, even non-accessible areas of underground openings can be safely monitored for elements at risk

COMPACT SOLUTION

With a compact and lightweight design, HYDRA-U can fit narrow spaces typical of underground operations. The system consists of 3 rugged boxes less than 25 kg in weight for **quick and easy deployment in critical areas** by one person.

PERFORMANCE FOR CRITICAL DECISIONS

Ground collapses and rock bursts represent a serious issue for underground mining. HYDRA-U provides the **high-accuracy (<0.1 mm) and resolution typical of radar technology** to support geotechnical engineers. The aim is to guarantee a safe access to working places of the complete mine structure, protect the major service openings throughout their designed duty life, and assess the performance of ground supports.

INFORMATION AT A GLANCE

HYDRA-U exploits the IDS GeoRadar cutting-edge ArcSAR technology, providing a **spatial resolution of centimetres** with an updated displacement information every 30 seconds, automatically corrected for changes in environmental conditions (temperature, humidity). An **optical and infrared camera** provides real-time visual inspection of monitored area and radar data are draped on a **3D model** of the scene created by the built-in laser.

ADVANCED SOFTWARE PLATFORM

The industry-leading IBIS Guardian software provides an easy-to-use and powerful tool to visualize and interpret radar data and perform **analysis of displacement trends of ground movements.** Alarms can be completely customized and set based on specific velocity thresholds, alerts activated via pop-up, email, text messages and audio-visual siren.

BENEFITS



Measurement Accuracy and Resolution
Hyper spatial resolution (0.2m x 0.8m @100m scan distance) able to detect even the smallest moving rock element with sub-millimetric accuracy.



Data Rate
Fast acquisition: 30 seconds for a full Resolution scan.



Real Time Results and On-site Alerts
Results provided in real time with onsite processing. Alarms can be set based on specific velocity thresholds and alerts activated via pop-up, email, text messages and audio-visual siren.



3D Data Representation and Visual Imaging
Radar heat-maps are overlaid on the 3D model created by the system by means of an integrated laser sensor. An IR camera improves data interpretation by providing a visual image of the monitored area.



Compact and Portable Solution
Easily transportable from a location to another and installed by one single person. In transport mode, each box weights less than 25 kg and all transport cases are equipped with off-road wheels.



High Availability with Low Maintenance Costs
Minimal moving parts and low profile design to guarantee robustness and maximum availability in all mining conditions.

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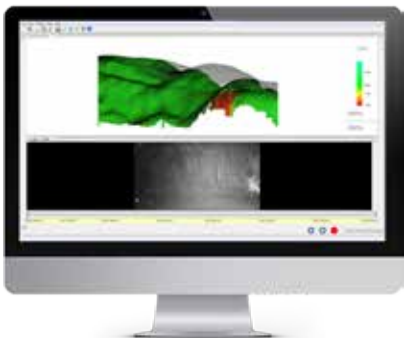
HYDRA-U

MODULAR COMPOSITION



FEATURES

- Spatial coverage: horizontal field of view of 100° and vertical of 30°
- Scan speed: a new acquisition is performed every 30 seconds
- Accuracy: line of sight displacement with an accuracy in of 0.1mm
- Survey: 3D surface model created by means of an integrated laser sensor with 10cm accuracy and 1 cm resolution
- Weight: less than 25kg per each box (3 boxes total)
- Internal rechargeable battery pack and line power connection
- Infrared HD camera operating under complete darkness
- Operates in all weather conditions and temperatures (-20°C to +50°C), IP65
- Alert generation with user-defined displacement, velocity and inverse velocity criteria
- Instant data processing and on-site alarm generation
- Built-in geotechnical analysis tools



Real-time deformation data and picture of monitored area

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