MS-SAR5000

SLOPE STABILITY MONITORING RADAR

All-weather, Non-contact, High-precision, Large Range

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Specification

Technical

Operating Range:	50m-5km
Accuracy:	≤0.1mm
Distance Resolution:	≤0.2m
Angular Resolution:	≤5mrad
Data Update Rate:	≤1 time/min
Horizontal Coverage:	360°
Field of View:	30°(support±30°vertical adjustment)

Physical

Weight:	≤15kg (including main unit, scanning turn table,data processing device)
Size:	8000mm×2000mm×2800mm

Environmental

Operational Wind Speed:	Up to 100 km/h
Ingress Protection:	IP65 waterproof & dustproof
Working Temperature:	-40℃ to +55℃

Electrical

Power Consumption:	≤40W
Power Supply :	Configured with Uninterruptible Power Supply (UPS), support utility power, diesel generator, and solar panels for power supply

Communication

Support 4G/Wifi/ wire access, provide 100 Mbit Ethernet interfaces

Applications

Open Pit Mine

Geological Hazards

Dams

Railways Embankment

Bridges & Tunnels

High-rises

MS-SAR5000

The MS-SAR5000 is an advanced slope stability monitoring radar developed by ComNav Technology Co., Ltd. This cutting-edge system is specifically designed for high-precision, real-time displacement monitoring, providing early warning capabilities for potential slope failures. Its robust technology enables accurate detection of minute movements, making it an essential tool for ensuring safety in areas prone to landslides, mining sites, construction zones, and other geologically unstable environments. By delivering timely alerts, the MS-SAR5000 helps prevent accidents, protect infrastructure, and save lives.

Slope Stability Monitoring Radar

High Accuracy & Non-contact Monitoring

The MS-SAR5000 is engineered for outstanding precision, achieving an accuracy of up to 0.1 mm. By capturing data without making physical contact with the monitored surface, the system could ensures the safety of rescue workers, and also avoids secondary injuries that may be caused by contact with the disaster area.

Full 360°Coverage

The MS-SAR5000 offers continuous 360° horizontal scanning range, enabling it to swiftly scan the entire surrounding environment. This comprehensive coverage allows for continuous monitoring of geological hazards without any blind spots, ensuring thorough and reliable surveillance.

Portable but Rugged Design

The MS-SAR5000 combines outstanding performance with a small sized, and portable design. The 12kg main unit is easy for rescue workers to transport and install, allowing for rapid deployment on site. Its rugged construc tion, coupled with an IP65 waterproof and dustproof rating, ensures durability in challenging environments.

Real-time & Efficient

The MS-SAR5000 enables real-time monitoring of slope stability, with displacement data updated every minute. This allows for quick identificatio nof potential hazards or changes, ensures efficient and accurate rescue opera tions, reduces uncertainty in decision-making, and improves the success rate of interventions.

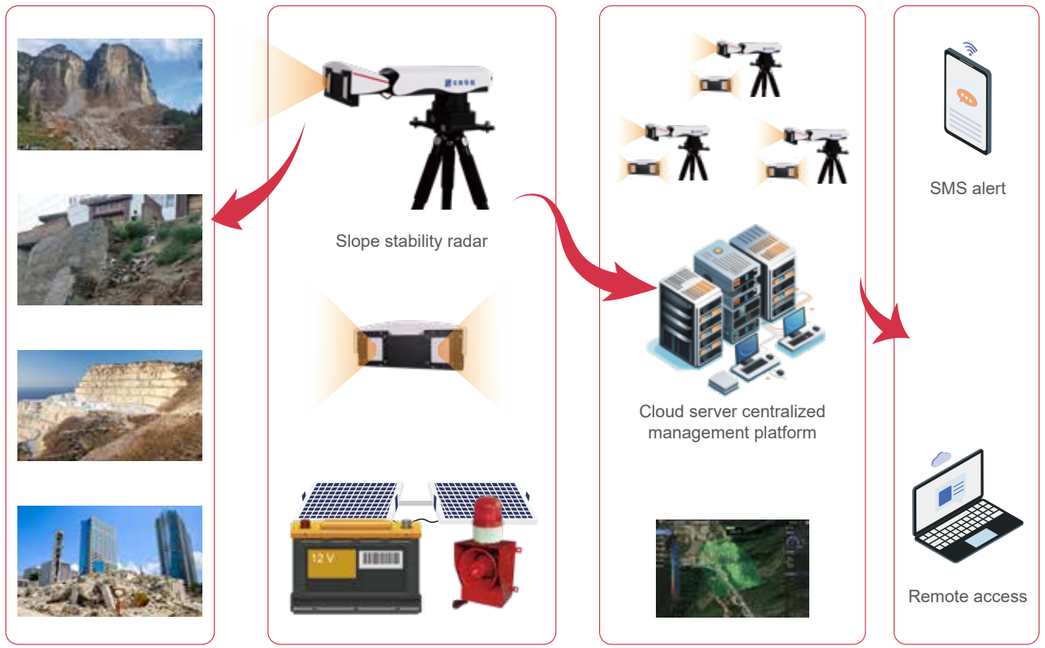
Highly Adaptable Power Design

The MS-SAR5000 features dual power supply modes, supports utility power, diesel generator, and solar panels for power supply. With a low power consumption of just 40W, it offers extended operational longevity, making it especially well-suited for rescue sites where power supply may be unstable or resources are scarce.

Multiple Deployment Modes

The MS-SAR5000 offers fixed and detachable modes, allowing it to adapt to various scenarios. The fixed mode is ideal for ongoing surveillance, providing consistent and reliable data over extended periods. Meanwhile, the detachable mode enables quick deployment and flexibility, making it suitable for rapid response in emergencies.

System Composition



Advantages

Surface Coverage Perception Monitoring:

Traditional deformation monitoring methods primarily rely on point-based measurements, which limit the ability to capture comprehensive deformation data across the entire slope. These methods face challenges in point selection and carry the risk of monitoring omissions, making accurate and efficient landslide prediction difficult. In contrast, ground-based arc SAR technology offers extensive coverage, allowing for long-distance monitoring (up to 5 km) with a full 360° view, operational in all weather and at any time.

High Cost-Effectiveness of Slope Monitoring:

the MS-SAR5000 can cover a large area with a single device, significantly reducing both construction and maintenance costs compared to traditional contact monitoring devices.

More Accurate and Real-Time Warning:

the MS-SAR5000 provides high real-time monitoring accuracy at the sub-millimeter level, enabling rapid data collection and timely output of deformation data. This technology allows for prompt evaluation of slope stability and can issue alerts in response to sudden meteorological, climate changes, or construction impacts.

Monitoring Intelligent Alert Cloud Platform

The Monitoring Intelligent Alert Cloud Platform is designed specifically for slope stability monitoring radar. Based on B/S architecture, the platform enables multiple users to operate online, enhancing collaborative monitoring efforts. Its user-friendly interface allows for seamless integration with other software platforms, facilitating data sharing and interoperability. Additionally, the platform provides robust software technical support services, ensuring that users can efficiently utilize its capabilities for effective slope stability monitoring and management. This comprehensive approach enhances situational awareness and supports timely decision-making in critical scenarios.

Main Functions

Real-time Status Monitoring

You can view the device status and warning status in real time.

Deformation Curve

It can draw the curve within the range according to the query conditions.

Monitoring Points Management

The addition, deletion and modification of monitoring points and monitoring surfaces can be displayed in a list.

Measuring Functions

It supports coordinate measurement, distance measurement, area measurement.

Overview of Early Warning

It provides an overview of warning statuses through chart displays, allows users to click on a list to the corresponding areas on the map for location verification.

Flexible UI

It allows users to control the display and hiding of the left and right measurement panels, as well as to open and close various layers as needed.

3D Display

It can perform deformation field imaging and display the monitoring results in 3D.

Information Retrieval

It supports coordinate extraction and matrix retrieval of image data information from radar images.

Area Shielding

It allows users to set shielding areas, excluding those regions from monitoring.

System Setting

The software can set warning rules and contacts.

Radar Images

It enables real-time map rendering and playback of radar images, allowing users to filter and query images by specific ranges.

Multiple Alarm Methods

It supports intelligent warnings, SMS/email/visual-audio alarms, scheduled monitoring reports, and enables unattended operation.

Solutions

Long-Term Fixed Monitoring

This solution provides continuous, round-the-clock monitoring of slopes and is primarily used for monitoring open-pit mine slopes and landslide-prone areas.

Emergency Rescue Monitoring

With exceptional portability, the MS-SAR5000 can be easily carried by a single person and quickly deployed. It's especially suitable for emergency rescue, playing an irreplaceable role in early warnings for secondary landslides.

Trailer-Mounted Mobile Monitoring

This solution integrates power supply, communication, and air conditioning systems, allowing fixed radar monitoring stations to be mobilized and adapted to the changing monitoring locations of large open-pit mines.

System-Level Comprehensive Monitoring

The software platform is compatible with various monitoring sensors, including GNSS, rain gauges, and inclinometers. It provides centralized displays and comprehensive analyses, offering more scientifically grounded monitoring, early warning and actionable recommendations.