Hi-Target

Surveying the World, Mapping the Future

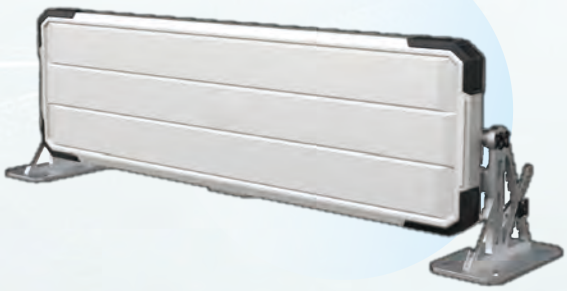
Ground-based InSAR Automatic Monitoring System

Ground-based InSAR

Ground-based InSAR is a device that utilizes Synthetic Aperture Radar (SAR) and Interferometric Radar (IR) principles to effectively monitor small deformations on the ground surface. It accurately extracts displacement information in various observation scenarios, making it ideal for real-time monitoring of ground surface displacements.

HD-SAR200（MIMO）

HD-SAR200 utilizes MIMO technology to overcome the vulnerability of slide-type slope radars, which are prone to damage. It has undergone comprehensive hardware and software upgrades. The software is more intelligent, and the hardware offers better portability. The device uses professional deformation processing algorithms to calculate the deformation information of the observation area, enabling high-precision real-time monitoring of the deformation in the observation area.



HD-SAR300 (Rotary Type)

HD-SAR300 (Rotary type) is an ultra-lightweight slope radar, featuring flexible deployment, easy operation, and maintenance. It is primarily used for high-precision real-time deformation monitoring and early warning of slopes, as well as ensuring landslide monitoring during emergency rescue operations.

Comprehensive monitoring
360° full-range scanning for thorough coverage.

Flexible communication
4G, WIFI, and wired access options.

Swift and precise updates
Fast, accurate deformation tracking, even at long distances.

Rapid deployment
Quick and convenient setup through the integrated monitoring system.

Advanced intelligence
This feature set includes self-diagnosis, automatic reconnection, remote access, and data retrieval. It offers intelligent early warnings through automatic localization of potential danger points and customizable alert rules.

Robust in any environment
All-weather, all-day operation with resistance to water, shocks, wind, extreme temperatures, and harsh field conditions.

Product Parameters

Model		HD-SAR200 (MIMO)	HD-SAR300 (Rotary Type)
Monitoring Type	Monitoring Index	Surface Displacement	Surface Displacement
	AlertInformation	Displacement/Velocity /Acceleration	Displacement/Velocity /Acceleration
Accuracy and Speed	Monitoring Accuracy	0.1mm	0.1mm
	Monitoring Range	100°×40°	360°×60° (support pitch adjustment)
	Data Update Rate	10~300s	≤ 60s/180°
	Distance	≤ 4km	≤ 5km
	Image Resolution	0.15m(R)×75mrad(A)@1km	0.25m(R)×5mrad(A)@1km
Environment	Operating Temperature	-40°C~60°C	-30°C~60°C
	Protection Grade	IP66	IP66
Physical	Radar Power Consumption	≤ 40W	≤ 40W
	Overall Weight	≤ 15kg	≤ 10kg
	Size	1.4m (L) * 0.35m (W) * 0.1m (H)	0.77m(L) * 0.17m(W) * 0.33m(H)

SOFTWARE PLATFORM

Intelligent storage and management
Supports intelligent data storage, real-time data update, data engineering management, and data export function;

Multi-source information fusion
Access to a variety of other sensors, support a variety of formats of external data import;

High-precision 3D display
With high-precision national topographic images, the monitoring data can be displayed in 3D;

AI Alert and Evaluation
Built-in professional geological model and AI model can be used for early warning and assessment in advance;

Diversified Alert Methods
Automatic warning through SMS, email, color, sound and other ways;

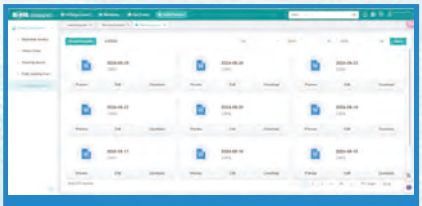
Diversified data display
Deformation displacement, velocity, acceleration heat map and curve display, deformation process dynamic demonstration;

Diversified terrain mapping and surveying
It can carry out operations such as pointing, line drawing, screen, etc., and has functions such as distance measurement, area measurement, triangulation, and so on.

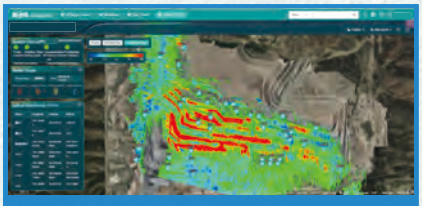
Intelligent monitoring and early warning platform

SOFTWARE FUNCTION

Supports multiple sensor access



Customized monitoring report templates



Inspection of point cloud maps

APPLICATION SCENARIOS

Emergency Rescue Monitoring and Early Warning

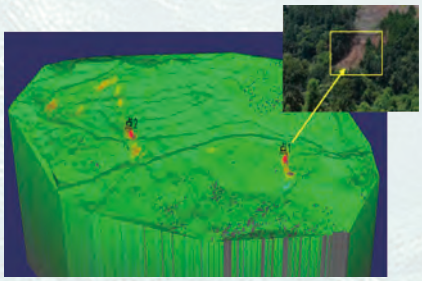
It is used to monitor the micro-deformation of buildings and slopes during earthquake emergency rescue operations. It provides early warnings for potential collapses and secondary collapses, ensuring the safety of on-site disaster relief personnel.
Additionally, it can be used to monitor and issue early warnings for dangerous buildings.

Long-term Slope Monitoring

Long-term monitoring applies to various slopes such as highways, railroad slopes, mountain slopes, open-pit mines, water conservancy dam slopes, and side slopes of bridges and tunnels. Its primary purpose is to provide early warnings and prevent potential loss of life and property.

CASE STUDY

01 Hazardous Slope Monitoring in Fuxing Town, Beipeng District, Chongqing, China.



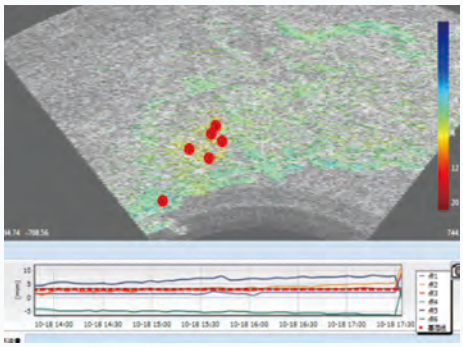
Successful identification of secondary landslide areas and early warning;

The boundary of the landslide area is clear, and the result of comparison with the actual is accurate.

02 Natural Resources Bureau of Longnan City, Gansu Province-Long-Term Monitoring of Geological Hazards.

HD-SAR200 has been utilized for long-term monitoring of multiple geological hazard sites in Longnan City, Gansu Province, and has achieved satisfactory results. This has provided reliable support for local geological hazard emergency monitoring.

03 Chinese Academy of Geological Sciences-Monitoring of High-Risk Mountainous Areas along the Jinsha River.



HD-SAR200 has been used to conduct a 3km continuous waveform test at 700m-1900m on the mountain. A total of 31 data sets were obtained, with the maximum deformation being approximately 2 millimeters. The next day, in the same mountainous area, we conducted continuous waveform tests for a distance of 3 kilometers using a bandwidth of 600 meters. A total of 105 data sets were obtained, with the maximum deformation being approximately 7 millimeters. Due to the localized nature of the deformations, we consider these results to be reliable.

AUTHORIZED DISTRIBUTION PARTNER

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