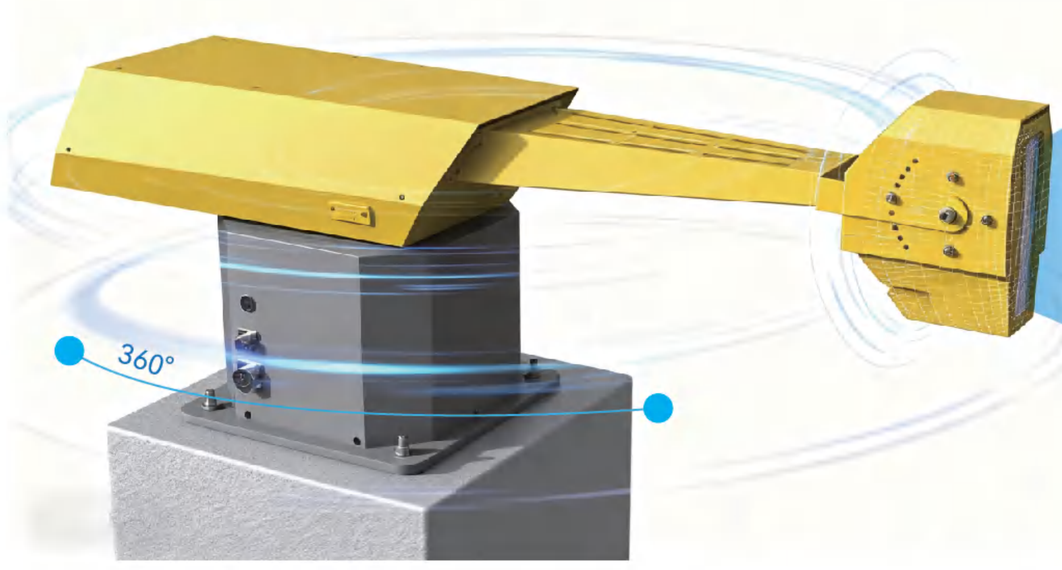
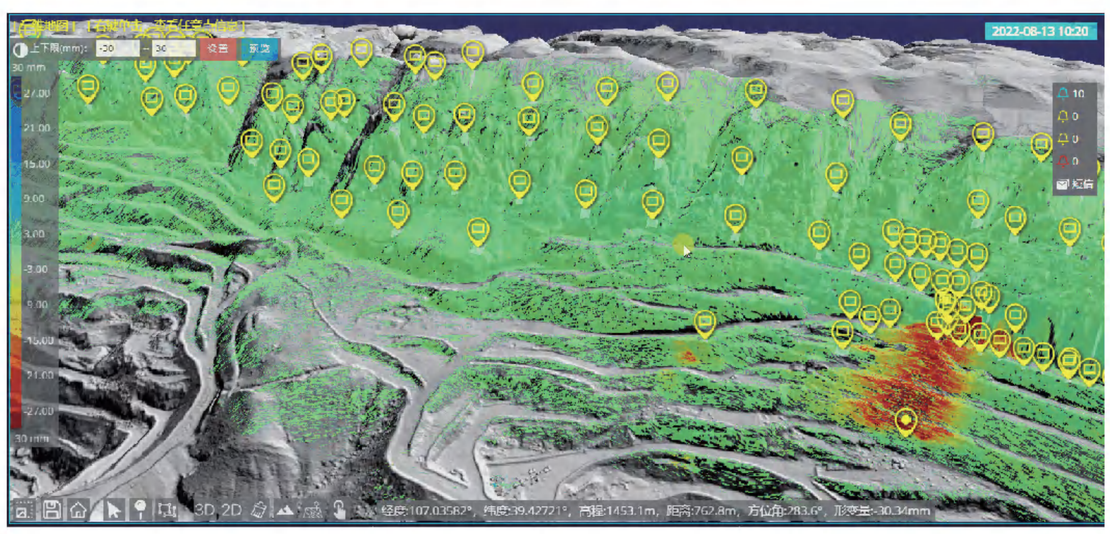
Fixed 360-degree Deformation Monitoring Radar
HC-PBLD60



The Fixed 360 ° Deformation Monitoring Radar—also known as Ground-based InSAR, Ground-based Radar, interferometric Radar, or Slope Radar)—leverages advanced arc-shaped Synthetic Aperture Radar(SAR) imaging and interferometry/differential interferometry technologies. It delivers highly precise detection of subtle surface deformations and displacements across a wide range of scenarios, including large open-pit mines, geological hazard zones, hydraulic projects, as well as railway and highway infrastructures. With 24/7 continuous monitoring and intelligent early-warning capabilities, it ensures the safety and stability of critical geological bodies and major engineering projects.

Full-Angle Remote Sensing	▶	360° all-round coverage with long-range remote sensing up to 5 km.
High Precision	▶	Sub-millimeter surface monitoring accuracy without the need for targets.
High Reliability	▶	Operates reliably at −40 ℃ in unprotected outdoor environments, ensuring long-term continuous performance.
Designed for Harsh Environments	▶	All-weather, all-day operation—unaffected by wind, rain, snow, fog, or dust.

Applicable Scenarios: Large open-pit mines, snow-covered mountains, and other long-distance environments.



Deformation Accuracy: 0.1mm

Scanning Range: 360°/5km

Display: 3D integrated Visualization / Early warning

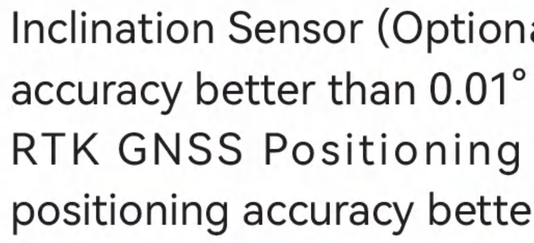
Protection Rating: IP65

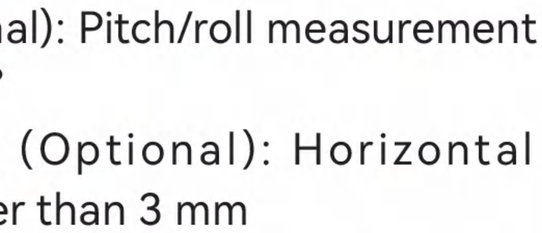
Bidar Link IoT Solutions Company

3D Millimeter Wave Deformation Monitoring Radar
HC-D30

The Omni-directional 3D Deformation Radar is an innovative engineering detection and monitoring system that leverages advanced high-resolution 3D imaging radar and microwave phase interferometry. It generates precise 3D surface models of structures, unaffected by weather or lighting conditions. Characterized by high measurement accuracy, compact and lightweight design, long battery life, and a high protection rating, it can be rapidly deployed in complex field environments. The system enables users to detect minute deformations and overlay this data directly onto the 3D model, providing professionals with an accurate and rapid solution for early warning of potential engineering and geological hazards. This ensures effective safety protection for on-site personnel, construction activities, and rescue operations.

Single Scan Angle Coverage: 360 ° ×90 ° (azimuth × elevation)
Distance Range(Optional): 100m / 300m / 1000m
Distance Resolution: 7.5cm / 15cm / 30cm
Distance Measurement Accuracy ≤5cm (RMS, within 300m)
Angle Resolution ≤2.5°×2.5°
Angle Measurement Accuracy ≤1° (RMS)
Deformation Measurement Accuracy ≤0.1mm (within 100m, RMS)
Single Scan Time ≤30s/frame (360 azimuth rotation only)
Gaze Detection: ≥ 50Hz data update rate
Inclination Sensor (Optional): Pitch/roll measurement accuracy better than 0.01°
RTK GNSS Positioning (Optional): Horizontal positioning accuracy better than 3 mm
3D Scene Reconstruction: Supports full 3D scene modeling
Output: 3D scene models, surface scattering images, surface deformation maps, etc.
Atmospheric Disturbance Compensation: 24-hour calibration error ≤ 1 mm (RMS, within 100 m)
Communication Interfaces: RJ45 / WiFi / 4G (WiFi/4G optional)





Low-power design,
Support for sleep/wake cycle data acquisition,
IP67-rated enclosure, Preconfigured API interfaces

Long distance 100-200m

Deformation accuracy 0.1mm

4G All NetworkAccess

3D reconstruction

Gaze Support

Point and Areal Monitoring