CHCNAV

Geospatial

Z8

Vision-Fused Multi-Point Deformation Monitoring System





Highlights

The Z8 combines synthetic aperture radar deformation monitoring with visual imaging and edge computing to deliver contact-free, wide-area monitoring of surface displacement. Using phase-difference measurement and deformation inversion algorithms, it measures line-of-sight displacement across the monitored area. The integrated camera supports scheduled visual inspections, targeted observation of key areas, and visual verification of monitoring data to help reduce false alarms. The Z8 is well suited for tailings dam slopes, highway slopes, reservoir dams, and geohazard slopes.



Earlier Detection of Deformation

Contact-Free, Wide-Area, High-Precision Monitoring

Adaptive Data Acquisition and Automatic Anomaly Reporting

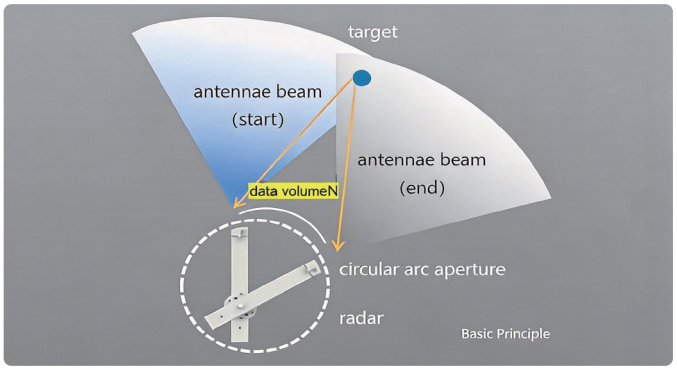
Intelligent Visual Verification

24/7 All-Weather Monitoring

360° Wide-Area Monitoring



Features 360° horizontal and -30° to 60° vertical adjustment, providing comprehensive coverage for wide-area deformation monitoring.

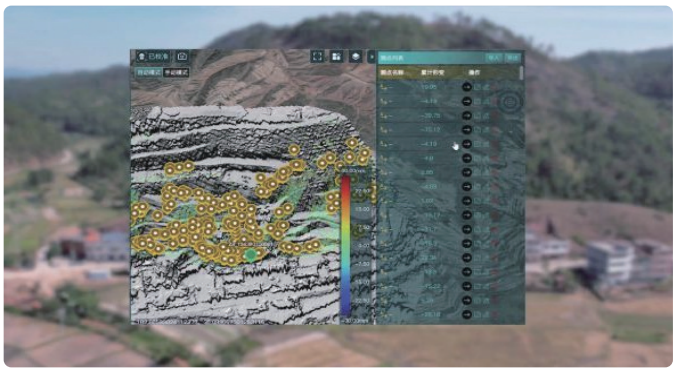


Uses synthetic aperture radar imaging and interferometric phase analysis to achieve sub-millimeter-level displacement monitoring across the monitored area.

Adaptive Data Acquisition and Automatic Anomaly Reporting



Adaptive data processing automatically adjusts acquisition and upload frequency according to site conditions, increasing measurement frequency when movement is detected.



Built-in algorithms automatically identify and report anomalies outside predefined monitoring points, helping users detect emerging risks across the monitored area.

24/7 All-Weather Monitoring

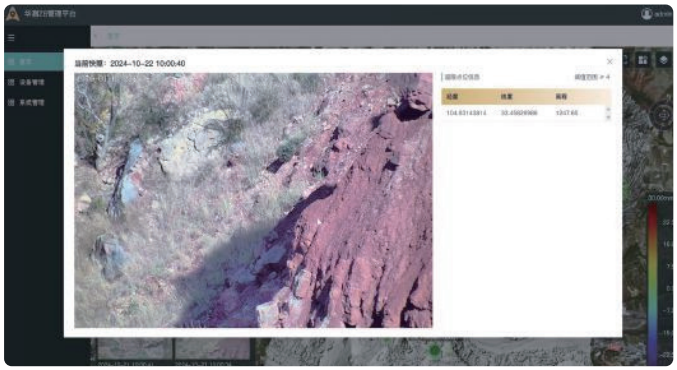


Active microwave radar technology and an IP66-rated enclosure support reliable operation in rain, snow, fog, and other harsh environmental conditions.

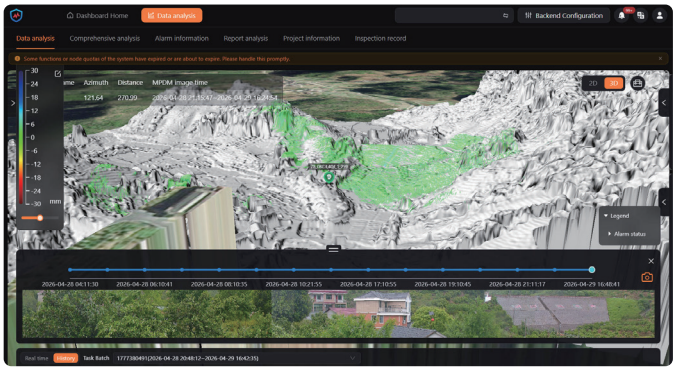


A laser fill light supports visual image capture at night for continuous monitoring.

Visual Evidence and Panorama Linkage

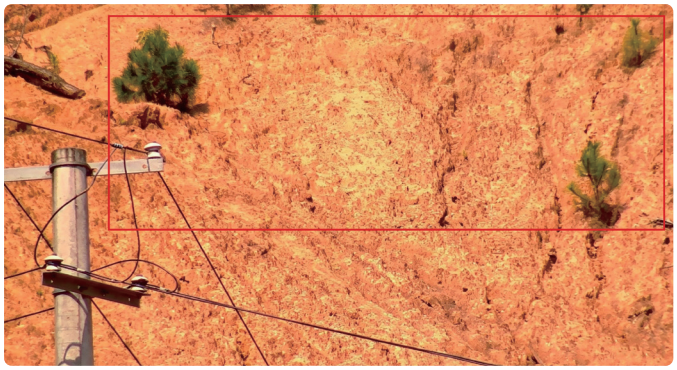


When anomalies are detected, the Z8 automatically captures images for visual verification, reducing the need for immediate on-site inspection.



The built-in camera generates a panoramic base map and links radar measurements with panoramic imagery, allowing monitoring events and their locations to be quickly identified.

AI Interference Identification and Optional Rockfall Detection



AI analysis identifies interference sources such as vegetation and trees, supporting more reliable interpretation of monitoring data.

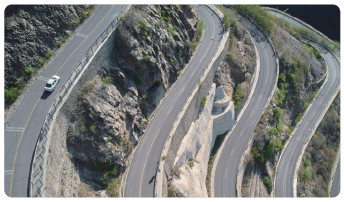


An optional AI-powered rockfall detection module can detect rapid events such as rolling rocks and sudden slope collapses.

Use Cases



Tailings Dam Slopes



Highway Slopes



Reservoir Dams



Geohazard Slopes

SPECIFICATIONS

Technical Parameters

Maximum Monitoring Distance	800 m
Field of view	360°
Antenna adjustment	Vertical: -30° ~ +60°
Displacement Accuracy	Sub-millimeter Level
Distance Resolution	≤ 0.3 m
Angular Resolution	≤ 9 mrad
Image Resolution	≥ 2 Megapixels, Support Zoom
Minimum Sampling Interval	≤ 1 min
Upload Interval	1 min ~ 24 h
Communication Methods	Mobile Communication/ Satellite Communication
Operating Frequency Band	Ku
Frequency range	17.1–17.3 GHz
Output Parameters	Displacement, Displacement Acceleration, Deformation Map, Complex Reflection Map, Video Static Image, etc.

Physical Characteristics

Size (L × W × H)	475 mm × 354 mm × 398 mm
Weight	15.9 kg
Operating Temperature	-40°C ~ +65°C
Storage Temperature	-40°C ~ +70°C
Protection Class	IP66
Installation Notes	Standard Observation Pier, On-site Concrete Pier, Steel Structure, etc.

Electrical

Average Power Consumption	≤ 20 W
Power Supply	9-22 V DC
Power Supply Mode	Supports 30 Consecutive Cloudy/Rainy Days of Normal Operation; Equipped with Overvoltage/Undervoltage Protection
Transmit power	< 200 mW (23 dBm)
Modulation	FMCW
Antenna gain	25 dBi

***All specifications are subject to change without notice.**

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