



SEEDLING CONDITION MONITORING STATION

Introduction

The Zhice Yunlian Seedling Condition Monitoring Station is an IoT monitoring device fully adapted to the digital demands of modern agriculture. Its automatic monitoring system performs real-time video surveillance of crop growth status, pest and disease conditions, and disaster situations (including daytime images and infrared night vision footage). Combined with meteorology, soil moisture sensors and pest forecasting lamps, it automatically monitors field seedling growth, pest infestation and natural disasters.

Equipped with a high-precision sensor array, self-developed AI algorithms and military-grade construction, it realizes accurate multi-dimensional data collection, intelligent analysis and decision output for seedling conditions, and is widely applicable to all crop types and extreme agricultural scenarios. Managers can remotely track crop growth and formulate irrigation, fertilization and pesticide spraying plans according to crop demands in different growth cycles.

Functions

Predict disease trends in advance

Reduce overuse of chemical pesticides

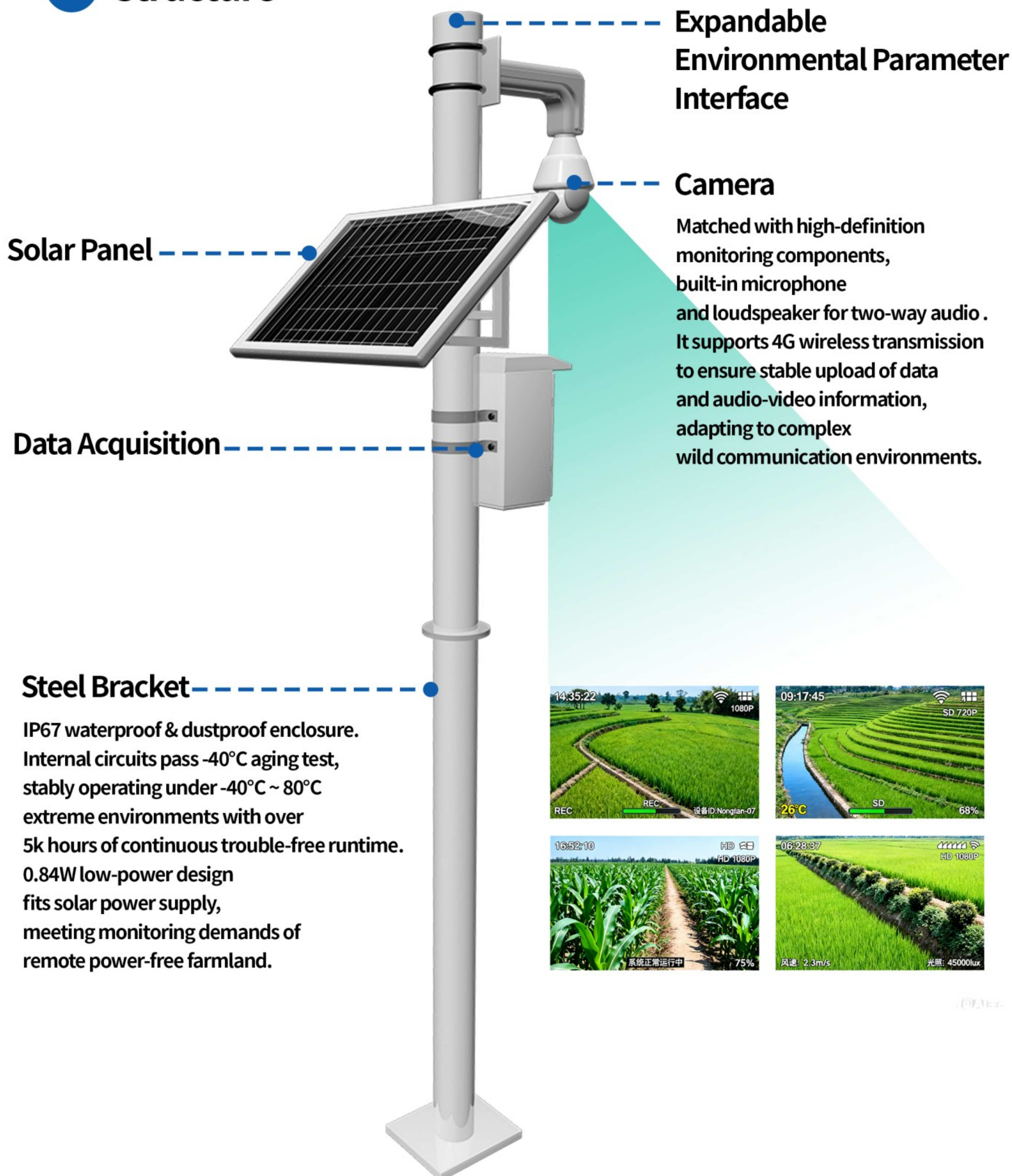
Lower crop yield loss risks

Support multi-terminal linkage





Structure





Parameters

1. Imaging & Supplementary Lighting Performance

- Ultra-low illumination imaging: Color mode 0.005 LUX F1.6, black-white mode 0.001 LUX F1.6. With infrared supplementary light, it can shoot under 0LUX zero-light environment to guarantee clear imaging at night and dim scenes.
- High-efficiency fill light: Low-power light array, infrared supplementary distance up to 100m to meet long-distance monitoring requirements.
- Anti-fog design: Built-in heating glass to eliminate lens fog, adapting to complex environments with high humidity and large temperature difference.

2. Zoom & Stream Configuration

- Flexible zoom: Supports $23\times$ optical zoom + $16\times$ digital zoom, precisely focusing on monitoring targets at different distances to balance wide coverage and detail capture.
- Triple stream technology: Each stream can be independently configured with resolution and frame rate, flexibly adjusted according to transmission bandwidth and storage needs for remote preview, local storage and diversified scenarios.

3. Image Processing & Intelligent Functions

- Image optimization: 3D digital noise reduction and 120dB wide dynamic technology filter noise and balance brightness difference under strong light & backlight to restore real picture quality.
- Snapshot function: Timed & event-triggered snapshots to store key monitoring frames for later traceback.
- Intelligent operation: Timed tasks, one-click watch & patrol to automate periodic monitoring and boost efficiency.

4. Interface & Storage Compatibility

- Multi-protocol compatibility: Supports Hikvision SDK, ISAPI, GB/T28181 and other interface protocols, seamlessly docking cloud platforms and realizing linkage integration with different monitoring systems.
- Local storage: Max supports 256GB MicroSD card for long-term offline data storage.

5. Anti-interference & Protection Capacity

- Protection grade: IP67 dustproof & waterproof, effectively resisting dust ingress and rain erosion for complex outdoor working conditions.





Installation Guide

I. Pre-installation Preparation

- Tools & Materials: Tape measure, level, impact drill, 4 sets of M12×100mm expansion bolts, spanner, insulating tape, waterproof glue.
- Site Requirements: Select open farmland areas far from shelters to avoid solar panel shading.
- The ground shall be hardened or solid soil. Installation points must stay away from strong electromagnetic interference sources such as high-voltage power lines.

II. Installation Steps

• Pole Base Fixation

Place the pole base at the installation point, calibrate horizontal level with a level gauge.

Drill holes corresponding to base mounting holes with an impact drill, embed expansion bolts and tighten nuts to fix the base, ensuring the pole stands vertically without shaking.

• Pole Assembly & Cable Routing

Splice pole segments in sequence, thread cables of sensors, solar panels and cameras through internal channels into the central control box.

Seal cable joints with insulating tape + waterproof glue to prevent water ingress and short circuit.

• Component Mounting

Solar panel: Adjust bracket angle and ensure no shelter on the panel surface after fixing.

Camera: Fix the camera bracket to the pole top, adjust viewing angle to target monitoring area and tighten fixing screws.

Control box: Close the cover and lock buckles tightly to guarantee IP67 sealing performance.

III. Power-on Debugging

- Turn on the control box power switch and check indicator lights (steady green light means normal power supply).
- Log in to the mobile/PC monitoring platform, bind the device by searching its code, verify normal data upload (temperature, humidity, wind speed, etc.).
- Test camera video and two-way audio functions; complete installation after confirming all functions work properly.

IV. Notes

Avoid violent pulling of cables during installation to prevent loose joints. Inspect pole fixation and component tightness after extreme weather (heavy rain, strong wind). Regularly clean solar panel surfaces to maintain power generation efficiency.