OPTOSKY Spectroscopy Solutions

Datasheet

Soil Moisture Monitor NY1200

Features

- Three-layer soil temperature, moisture, and electrical conductivity sensor
- Embedded solar panel top cover design, enhancing photoelectric conversion efficiency and wind resistance rating
- Low-temperature 7-inch Android screen, Version 4.4.2, Quad-core Cortex™-A7, 512MB/4GB (optional)
- Charge controller: MPPT automatic power point tracking, improving efficiency by 20%
- Sends SMS alerts to designated mobile phones when parameter limits are exceeded
- Stainless steel protective enclosure, corrosion-resistant, oxidation-resistant, IP66 waterproof rating
- Data storage capacity of no less than 500,000 entries

Applications

- Field Crop Cultivation
- Vegetable Greenhouse Farming
- High-Standard Farmland Construction
- Wetland Conservation
- Urban Greening and Landscape Management

Model	Description
NY1200	Soil Moisture Monitor

Description

NY1200 Soil Moisture Monitoring Station is a highly integrated, low-power, and easily deployable high-precision automatic weather observation device designed for field monitoring. Supporting wired, GPRS, and Bluetooth transmission, it requires no debugging and can be rapidly deployed, making it widely applicable in agriculture, forestry, geology, universities, and scientific research.

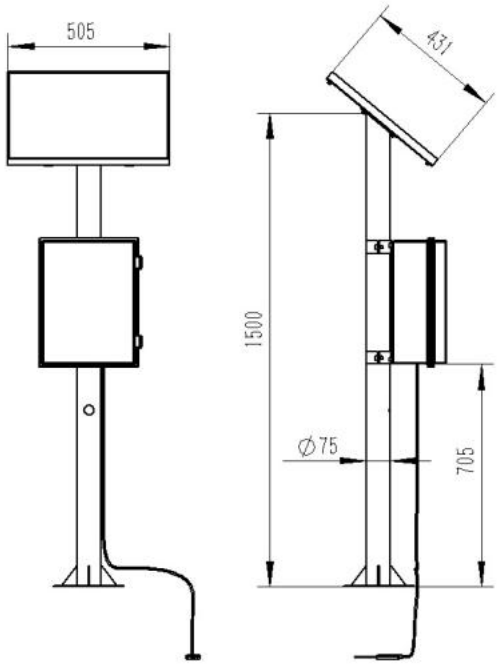
The Central Committee of the Communist Party of China and the State Council's Opinions on Further Deepening Rural Reform and Solidly Advancing Comprehensive Rural Revitalization explicitly calls for building an intelligent "Four-Condition" monitoring system (soil moisture, crop growth, pests and diseases, and disasters). It emphasizes the need to deploy field IoT devices to integrate real-time collection and analysis of agricultural meteorology, soil moisture, pests, and diseases data to enhance agricultural disaster prevention and mitigation capabilities. The document specifically highlights soil moisture monitoring as a key technical support for the "trinity" protection of cultivated land (quantity, quality, and ecology), requiring dynamic management through digital supervision platforms.

The station primarily monitors soil moisture content, soil temperature, and soil electrical conductivity, using moisture and temperature sensors to measure volumetric water content (VWC) and temperature values. Additionally, depending on user needs, it can be configured to expand with sensors for soil pH, air temperature, air humidity, solar radiation, rainfall, and other meteorological parameters.

(1) Parameter

Product Name	NY1200
Installation Method	Probe-type
Screen	7-inch low-temperature Android display, Version 4.4.2, Quad-core Cortex ™ -A7, 512MB/4GB (optional)
Host Material	Stainless steel and ABS materials
Solar Panel Design	Top-embedded design, improving photoelectric conversion efficiency and wind resistance rating
Power Supply Voltage	Solar-powered
Charge Controller	MPPT automatic power point tracking, efficiency improved by 20%
Operating Environment	−40℃ 至 80℃

(2) Effect Diagram



(3) Technical Parameters

1. Soil Moisture
Measuring Range: 0-100%
Accuracy: ±3%
Probe Length: 5.5cm
Probe Diameter: 3mm
Probe Material: Stainless Steel
Resolution: 0.01%

2. Soil Temperature
Measuring Range: -30 to +70°C
Accuracy: ±0.3°C
Resolution: 0.01°C
3. Soil Conductivity
Measuring Range: 0-20000 μS/cm
Accuracy: ±3% (0-10000 μS/cm range); ±5% (10000-20000 μS/cm range)
Resolution: 1 μS/cm
4. Soil pH (Optional)
Measuring Range: 0-14
Resolution: 0.1
Accuracy: ±0.2%
5. Air Temperature (Optional)
Measuring Principle: Diode Junction Voltage Method
Range: -40°C to 85°C (±0.3°C)
6. Air Humidity (Optional)
Measuring Principle: Capacitive
Range: 0-100%RH (±2%RH)
7. Solar Radiation (Optional)
Measuring Principle: Photoelectric Effect
Range: 0-2000 W/m² (Resolution: 0.1 W/m²)
8. Optical Rainfall (Optional)
Measuring Principle: Photoelectric
Range: 0-4 mm/min
9. Data Storage: ≥500,000 records
10. Deployment Time: ≤30 minutes (by single operator)

(4) Host Computer Software Introduction

1. Standalone PC software for data reception, storage, viewing, and analysis
2. Supports serial port data reception, processing, and display
3. Compatible with JSON string and Modbus 485 communication protocols
4. Configurable storage intervals and adjustable acquisition frequency in Modbus 485 mode
5. Customizable monitoring parameters (protocols, names, icons) with add/delete/modify functions
6. Integrated data post-processing capabilities
7. Supports external JavaScript script execution

(5) Android APP Introduction

1. Standalone Android application for data reception, storage, viewing, and analysis
2. Bluetooth data reception support
3. Background data processing during phone sleep mode

4. Automatic device registration for JSON data; QR code scanning for Modbus device pairing
5. Historical data analysis with export functionality, graphical visualization, and single-point inspection
6. Built-in data post-processing tools
7. External JavaScript script execution support

(6) Cloud Platform Introduction

1. Client-server architecture accessible via mobile/PC browsers without additional software
2. Multi-account and multi-device concurrent access
3. Real-time and historical data visualization dashboards
4. Cloud-based server and storage infrastructure with high reliability, scalability, and load balancing
5. Configurable threshold alerts via SMS notifications
6. Interactive map interface with device information overlay
7. Advanced data curve analysis tools
8. Tabular data export functionality
9. Multi-protocol data forwarding (HJ-212, TCP, HTTP)
10. Comprehensive data post-processing suite
11. External JavaScript script execution environment