# KERRO SNPK-2009

# Product function introduction

The handheld measurement platform developed and designed by our company. The detector uses a large-size full-color LCD display that can display the readings in real time.At the same time, it uses the detection circuit designed by the digital chip of a major international manufacturer, and the shell is made of industrial-specific high-strength composite plastic.High strength and good feel. This detector is widely used in petrochemical, environmental protection, metallurgy, mining, agricultural Industry, experiment, surveying and mapping.

Features: Rich man-machine interface, full-color interface designed based on the latest embedded thinking, can query, record, and display data in real time.
It can detect the values of PH, NPK, conductivity, temperature and humidity.

## One test four items

Spend less money and do more things

# Product advantages

## Automatic alarm cancellation, backlight power saving

When the detected value exceeds the alarm value set by the user, the device will alarm and remind in time,Press the alarm cancel button to cancel the alarm; when the user is not using the device, press the backlight button,Can save equipment power.

## Large size display, large capacity storage

We can store **200,000** pieces of data, and we can adjust and set the time interval for data recording.The setting range is **[5 seconds to 24 hours]**, and the corresponding data can be viewed according to the date and time.

# Plug and measure data real-time display

Insert the sensor into the soil, and the measurement results can be displayed in a few seconds, which is simple and convenient, without reagents. Different soil parameters can be measured by replacing the sensor without purchasing other display instruments, which greatly reduces the customer's use cost and is also convenient for users to measure.

- RFID identification
- Data local view
- 4G network cloud platform view

*This device is battery powered

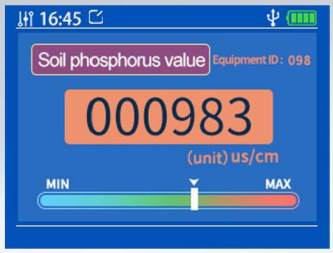
# 4G reporting cloud platform

Upload to the cloud platform at the specified frequency

*Optional function

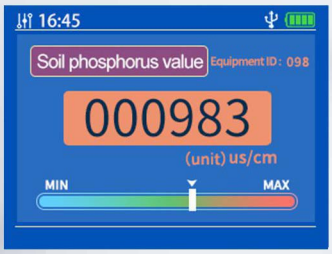
# Multiple recording methods are available

1 单点记录 Single-point recording: Press to record the current sensor data, which can assist scientific researchers to record in the desired way and set how often to collect data.

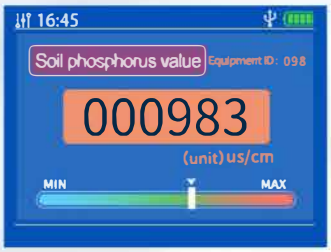



Single point recording interface

2 开始记录 3 停止记录 Start recording/stop recording: Press the start recording key to start measurement within a period of time; press the stop recording key to stop recording sensor data and save it to the memory.

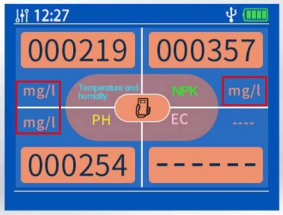



Start recording interface




Stop recording interface

7 单位切换 Unit switch: press to switch the unit (eg mg/kg<=>mg/l)




Unit switching interface

## Measuring different parameters

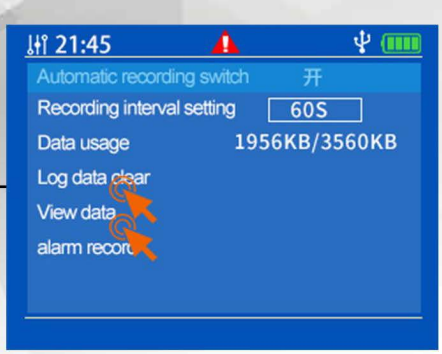
Just replace the sensor

- Temperature and humidity
- NPK
- PH
- Conductivity

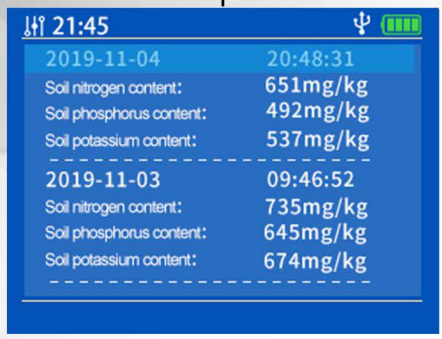
# View data one by one

The user can view the detected data one by one in real time, which is simple and convenient.

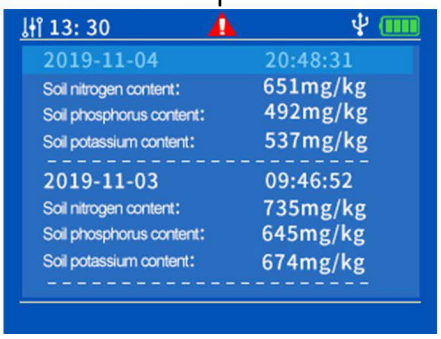
Menu interface




System setting interface




View data interface




Alarm record interface

# One-click data export, convenient and fast

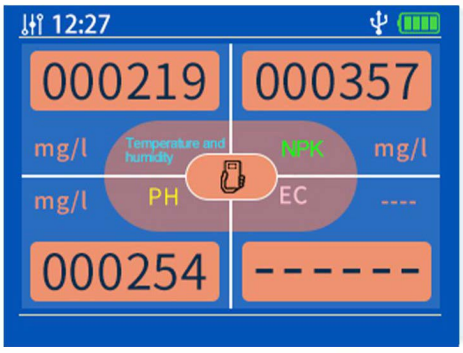
You can use the D-type data interface connector (DB9) to connect to the USB to save the data to the computer and generate reports.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8L00L812 | 玫瑰花 | 2019/11/26 | 8:01:25 | EC | 94.4 | us/cm | N | 94.4 us/cm |
| 8L00L812 | 玫瑰花 | 2019/11/27 | 8:00:32 | EC | 95.6 | us/cm | N | 95.6 us/cm |
| 8L00L812 | 玫瑰花 | 2019/11/28 | 8:02:11 | EC | 89.6 | us/cm | N | 89.6 us/cm |
| 8L00L812 | 玫瑰花 | 2019/11/29 | 7:58:46 | EC | 90.6 | us/cm | N | 90.6 us/cm |
| 8L00L812 | 玫瑰花 | 2019/11/30 | 8:01:19 | EC | 98.3 | us/cm | N | 98.3 us/cm |
| 8L00L812 | 玫瑰花 | 2019/12/1 | 8:01:01 | EC | 98.9 | us/cm | N | 98.9 us/cm |
| 8L00L812 | 玫瑰花 | 2019/12/2 | 8:01:20 | EC | 99.3 | us/cm | N | 99.3 us/cm |
| 8L00L812 | 玫瑰花 | 2019/12/3 | 8:01:14 | EC | 98.6 | us/cm | N | 98.6 us/cm |
| 8L00L812 | 玫瑰花 | 2019/12/4 | 8:02:08 | EC | 98.3 | us/cm | N | 98.3 us/cm |
| 8L00L812 | 玫瑰花 | 2019/12/5 | 8:02:25 | EC | 97.8 | us/cm | N | 97.8 us/cm |

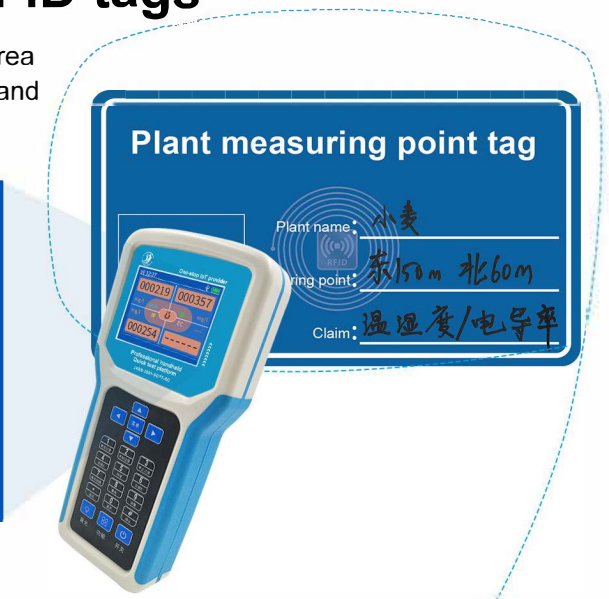
# Added dual scan function

## Sweep Land plot RFID tags

Swipe to quickly retrieve the current area parameter parameter query is simple and efficient.




Measured data of the corresponding plot c



Lot 1: Corn | Lot 2: Corn | Lot 3: Wheat | Lot 4: Wheat

## SECOND SWEEP Product traceability QR code

Product traceability Only the mobile phone scans the label QR code, which is suitable for entering the market with the product or visiting the park.
The traceability system can realize big data collection.

National Scan Code Heat Map

**Product carousel display**

**Important information**
Name, production date, etc.

**Five traceable information**
Basic information Video information
Production process Inspection information
Environmental information

Scan code experience
(Mobile phone users long press to save the QR code)
(Use VX/Alipay to scan the QR code of the picture)

The product traceability system is a customized function, please contact customer service if necessary.

# Product structure

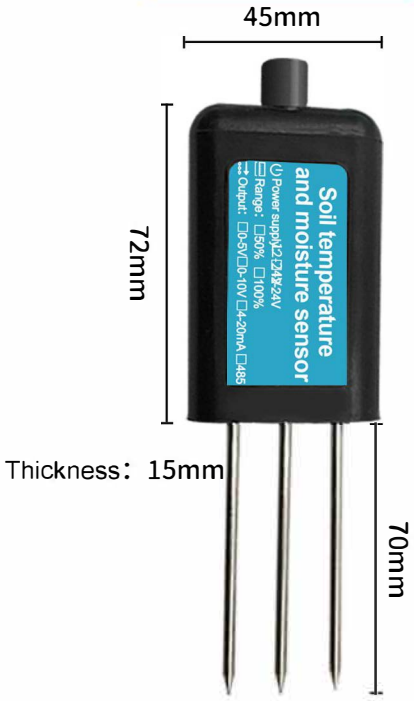
# Interface definition

| | | | |
|---|---|---|---|
| 1 | USBDM | 2 | USBDP |
| 3 | ADC | 4 | IIC_SDA |
| 5 | IIC_SDL | 6 | GND |
| 7 | 12VDC | 8 | 485B |
| 9 | 485A | | |

# Product Size

Handheld terminal

Soil sensor




*The shell size parameters of each type of sensor are consistent with the parameters above

# Product packaging

*Package content: handheld rapid test platform, soil sensor, charging power supply, suitcase

# Product parameter

## Handheld terminal

| | |
|---|---|
| Accessible equipment | 1-4 ModBus device combination |
| Letter of agreement | ModBus serial communication protocol |
| Display Data | Equipment raw data |
| Operating temperature | -20℃—50℃ |
| Working humidity | ＜90%RH no condensation |
| Power supply | 12V DC charging, 2500mAh (standard) lithium battery |
| Display method | 2.8 inch LCD screen |
| Communication method | USB (read, see DB9 interface information for details) |
| Data storage | 4MB storage space (standard configuration) |
| Charging time | ≤4H (standard configuration) |
| Size | 125*65*45mm |
| Weight | 125*65*45mm |

*This device is battery powered

## Soil conductivity temperature and humidity three-in-one sensor

| | |
|---|---|
| Power supply | 12-24V DC |
| Moisture measurement range | 0-100% |
| Storage environment | -45°C—115°C |
| Temperature accuracy | ±0.5°C |
| Temperature measurement range | -40°C—80°C(customizable) |
| Moisture accuracy | ±3% in the range of 0-53%; 53 ±5% within -100% |
| Output signal | RS485 |
| Installation method | Embed all or insert all probes Measured medium |
| Conductivity range | 0-10000us/cm |
| Conductivity resolution | 10us/cm |
| Response time | ＜1s |
| Protection level | IP68 |
| Power consumption | ≤0.15W(@12V DC，25°C) |
| Working pressure range | 0.9-1.1atm |

## Soil NPK sensor

| | |
|---|---|
| Measuring range | 0-1999mg/kg |
| Measurement accuracy | ±2%F.s |
| Resolution | 1mg/kg（mg/l） |
| Operating temperature | 5-45°C |
| Working humidity | 5-95%（Relative humidity), no condensation |
| Baud rate | 2400/4800/9600 |
| Communication port | RS485 |
| Power supply | 12V-24V DC |
| Response time (T90 seconds) | <10 |

## Soil PH sensor

| | |
|---|---|
| DC power supply | 12-24V DC |
| Power consumption | ≤0.15W |
| Measurement accuracy | ±0.3pH |
| PH measuring range | 3-9pH |
| Long-term stability | ≤5%/year |
| Output signal | RS485Output（Modbus protocol） |
| Operating temperature | 0-55°C |
| Responding speed | ≤15s |

# Product real shot/user case

# Remote supervision on cloud platform

Jingxun Cloud is a big data cloud platform based on SaaS Internet of Things. Designed for China's current government cloud system. Jingxun Cloud has the characteristics of thousands of people and thousands of faces, localized deployment of private domain names, free use of the basic interface, and all sensors of Jingxuntong can be used. Jingxun Cloud currently has more than ten industry templates such as smart city, smart industry, smart farming, smart agriculture, smart public toilets, and six functional modules for real-time monitoring, control and early warning, expert system, e-commerce system, industry empowerment, and characteristic functions. , 5 minutes to quickly build, one-stop deployment throughout the process.

### Privatization deployment

Provide domain name access services and complete privatization deployment.

### Equipment linkage

Remotely control the network relay to control other equipment to work.

### Access permission

Set a password for the master account to prevent malicious tampering and operation of the device by others.

### Data forwarding

It has a one-key configuration template and forwarding function, which can send the measurement data of the specified device to the platform.

### Jingxun Cloud Mini Program

It does not occupy memory, making the operation of the PTZ more convenient.

## Soil moisture monitoring

It can monitor soil temperature and humidity, electrical conductivity, pH, nitrogen, phosphorus, potassium, tension, water potential, heat flux, heavy metals and other parameters at the same time around the clock, and collect and upload them to the cloud.

Smart Agriculture Big Data Platform

# Agricultural product traceability system

The whole link can be traced to make the product information digital and transparent.

Seed procurement

1

Planting information

2

Inspection information

3

Packaging Information

4

Transport message

5

Consumer terminal

6

## Expert library module

It can realize the needs of online consultation, online diagnosis, agricultural knowledge base retrieval, and diagnosis resource library management.

expert system

Integrated Information Service Platform

## Government Affairs Open System

It can effectively promote nationwide anti-corruption efforts. Promote the nation's top-down rule of law. Enhance government credibility and promote cooperation between government and the public.

Agricultural Technology Extension

Government Affairs Public Page

## Agricultural Advisory System

## Warehouse Management System

Can divide the warehouse area, real-time display goods storage information. The records of incoming and outgoing goods are clear at a glance, which facilitates storage management.

## Agriculture Mall

It is highly targeted and serves various agricultural producers, wholesalers and upstream and downstream suppliers, reducing the risk of supply and demand imbalance.

Electronic business platform

Agricultural Market Information System

Input agricultural supervision system