JXCT JXBS-3001-SCY

JXCT Soil Sensor Speed Meter User Manual

Model: JXBS-3001-SCY

1. Introduction

This user manual provides comprehensive instructions for the operation, maintenance, and troubleshooting of the JXCT Soil Sensor Speed Meter (Model JXBS-3001-SCY). This device is designed for precise measurement of various soil parameters including pH, Electrical Conductivity (EC), Nitrogen (N), Phosphorus (P), Potassium (K) (NPK), temperature, and humidity. It features a handheld terminal for data display and storage, making it an essential tool for agricultural and environmental monitoring.

2. Safety Information

- Always handle the device with care to prevent damage to the sensors or the handheld unit.
- Do not immerse the handheld terminal in water or expose it to extreme moisture. The soil sensor probe is designed for soil insertion only.
- Ensure the device is powered off before connecting or disconnecting sensors.
- Store the device in a dry, cool place away from direct sunlight and corrosive materials.
- Keep out of reach of children.

3. Product Overview

The JXCT Soil Sensor Speed Meter consists of a handheld terminal and a detachable soil sensor probe. The terminal features a 4.3-inch display, a keypad for navigation, and internal storage for data logging. The sensor probe is equipped with multiple prongs for accurate soil parameter measurement.

Figure 3.1: JXCT Soil Sensor Speed Meter showing the handheld terminal connected to the soil sensor probe.

Figure 3.2: The JXCT Soil Sensor Speed Meter and its accessories, including the charging adapter, neatly packed in its protective carrying case.

Figure 3.3: Dimensional specifications of the JXCT handheld terminal (125mm x 65mm x 45mm) and the soil sensor probe (72mm x 45mm x 15mm, with 70mm prongs).

4. Setup

4.1 Charging the Device

Before first use, ensure the handheld terminal is fully charged. Connect the provided charging adapter to the terminal's charging port and plug it into a standard power outlet. The charging indicator on the device will show its status.

4.2 Connecting the Soil Sensor

1. Ensure the handheld terminal is powered off.
2. Align the connector of the soil sensor probe with the port on the handheld terminal.
3. Gently push the connector until it clicks securely into place. Do not force the connection.

5. Operating Instructions

5.1 Powering On/Off

Press and hold the power button (usually marked with a power symbol) on the handheld terminal for a few seconds to turn the device on or off.

5.2 Taking Measurements

1. Once the device is powered on and the sensor is connected, navigate to the measurement mode using the keypad.
2. Carefully insert the soil sensor probe into the soil to the desired depth. Ensure the prongs are fully submerged and making good contact with the soil.
3. Wait for the readings to stabilize on the display. The device will show real-time values for pH, EC, NPK, temperature, and humidity.

4. Record the data manually or use the device's data logging function if available.
5. Gently remove the sensor from the soil after measurement.

5.3 Data Storage and Transfer

The handheld terminal features 4MB of standard data storage. Data can be transferred to a computer via a USB connection (DB9 interface). Refer to the device's on-screen menu for specific instructions on data export.

6. Maintenance

6.1 Cleaning the Sensor Probe

After each use, clean the soil sensor probe thoroughly with a soft, damp cloth to remove any soil residue. Do not use abrasive cleaners or solvents. Ensure the probe is dry before storage.

6.2 Battery Care

The device is battery-powered. To prolong battery life, avoid fully discharging the battery frequently. Recharge the device when the battery level is low. If storing for extended periods, charge the battery to approximately 50% and recharge every few months.

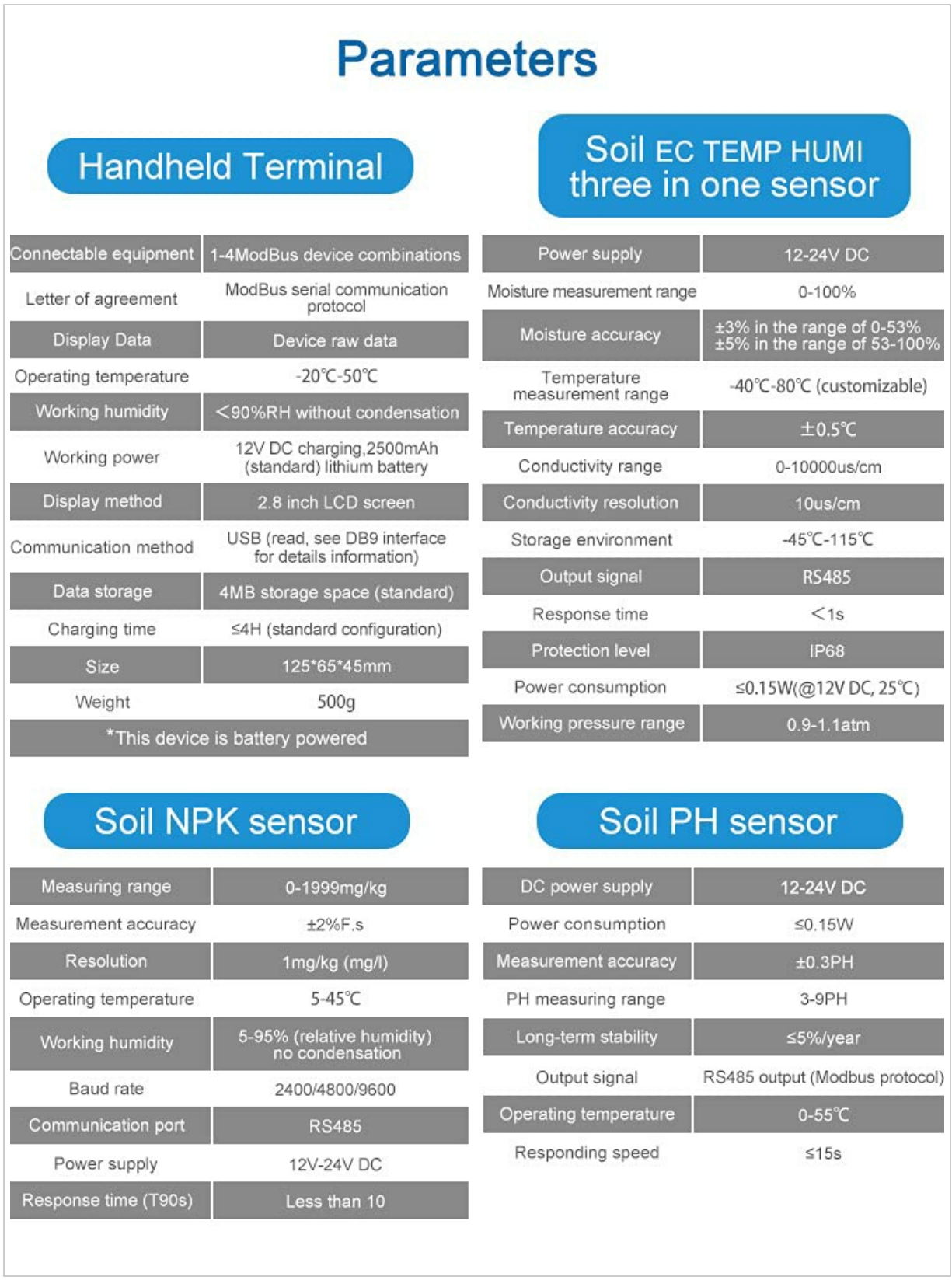
6.3 Storage

Store the JXCT Soil Sensor Speed Meter in its original carrying case or a similar protective container when not in use. Keep it in a dry, temperature-controlled environment.

7. Troubleshooting

Problem	Possible Cause	Solution
Device does not power on.	Low battery.	Charge the device fully.
Inaccurate readings.	Sensor not properly inserted; Sensor dirty; Sensor damaged.	Ensure full insertion and good soil contact; Clean the sensor probe; Contact support for replacement.
Display is blank or frozen.	Software glitch; Extreme temperature exposure.	Restart the device; Move to a suitable operating temperature range.
Cannot connect to computer.	Incorrect cable; Driver issue.	Use the provided USB cable; Install necessary drivers if prompted.

8. Specifications



Parameters

Handheld Terminal

Connectable equipment	1-4ModBus device combinations
Letter of agreement	ModBus serial communication protocol
Display Data	Device raw data
Operating temperature	-20℃-50℃
Working humidity	<90%RH without condensation
Working power	12V DC charging,2500mAh (standard) lithium battery
Display method	2.8 inch LCD screen
Communication method	USB (read, see DB9 interface for details information)
Data storage	4MB storage space (standard)
Charging time	≤4H (standard configuration)
Size	125*65*45mm
Weight	500g
*This device is battery powered	

Soil EC TEMP HUMI three in one sensor

Power supply	12-24V DC
Moisture measurement range	0-100%
Moisture accuracy	±3% in the range of 0-53% ±5% in the range of 53-100%
Temperature measurement range	-40℃-80℃ (customizable)
Temperature accuracy	±0.5℃
Conductivity range	0-10000us/cm
Conductivity resolution	10us/cm
Storage environment	-45℃-115℃
Output signal	RS485
Response time	<1s
Protection level	IP68
Power consumption	≤0.15W(@12V DC, 25℃)
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℃
Working humidity	5-95% (relative humidity) no condensation
Baud rate	2400/4800/9600
Communication port	RS485
Power supply	12V-24V DC
Response time (T90s)	Less than 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	RS485 output (Modbus protocol)
Operating temperature	0-55℃
Responding speed	≤15s

Figure 8.1: Detailed technical parameters for the Handheld Terminal and various Soil Sensors (EC, Temp, Humi, NPK, pH).

8.1 Handheld Terminal Specifications

- **Connectable Equipment:** 1-4 ModBus device connections
- **Letter of Agreement:** ModBus serial communication protocol
- **Display Data:** Device raw data
- **Operating Temperature:** -20°C to 50°C
- **Working Humidity:** <90%RH without condensation
- **Working Power:** 12V DC charging, 2500mAh (standard) lithium battery

- **Display Method:** 2.8 inch LCD screen
- **Communication Method:** USB (read, see DB9 interface for details information)
- **Data Storage:** 4MB storage space (standard)
- **Charging Time:** ≤4H (standard configuration)
- **Size:** 125*65*45mm
- **Weight:** 500g
- **Power Source:** Battery-powered

8.2 Soil EC TEMP HUMI (Three-in-one) Sensor Specifications

- **Power Supply:** 12-24V DC
- **Moisture Measurement Range:** 0-100%
- **Moisture Accuracy:** ±3% in the range of 0-53%, ±5% in the range of 53-100%
- **Temperature Measurement Range:** -40°C to 80°C (customizable)
- **Temperature Accuracy:** ±0.5°C
- **Conductivity Resolution:** 10us/cm
- **Conductivity Measurement Range:** 0-10000us/cm
- **Storage Environment:** -45°C to 115°C
- **Output Signal:** RS485
- **Response Time:** <1s
- **Protection Level:** IP68
- **Power Consumption:** ≤0.15W (@12V DC, 25°C)
- **Working Pressure Range:** 0.9-1.1atm

8.3 Soil NPK Sensor Specifications

- **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%):** Less than 10s

8.4 Soil PH Sensor Specifications

- **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:** RS485 output (Modbus protocol)
- **Operating Temperature:** 0-55°C
- **Responding Speed:** ≤15s

9. Warranty and Support

This product comes with a standard manufacturer's warranty. For warranty details, technical support, or service inquiries, please contact JXCT customer service or the authorized distributor from whom you purchased the product. Please have your model number (JXBS-3001-SCY) and purchase date available when contacting support.

Manufacturer: Weihai Jingxun Changtong Electronic Technology Co., Ltd.

Importer (India): TREE-D HUBS LLP, GAJUWAKA, VISAKHAPATNAM, ANDHRA PRADESH- 530026