Agricultural Machinery Operation Quality Monitoring（Screen Version）Instruction Manual

1. Overview

This product is an agricultural machinery operation quality monitoring instrument , suitable for agricultural machinery cooperatives, large-scale farmers, and other users who have high-precision monitoring requirements for the operation status of agricultural machinery or vehicle status. By uploading high-precision, high-frequency positioning data, as well as real-time working data such as rear suspension, engine, ECU data , and combined with back-end data processing, users can intuitively grasp the daily operation area and operation quality of agricultural machinery.

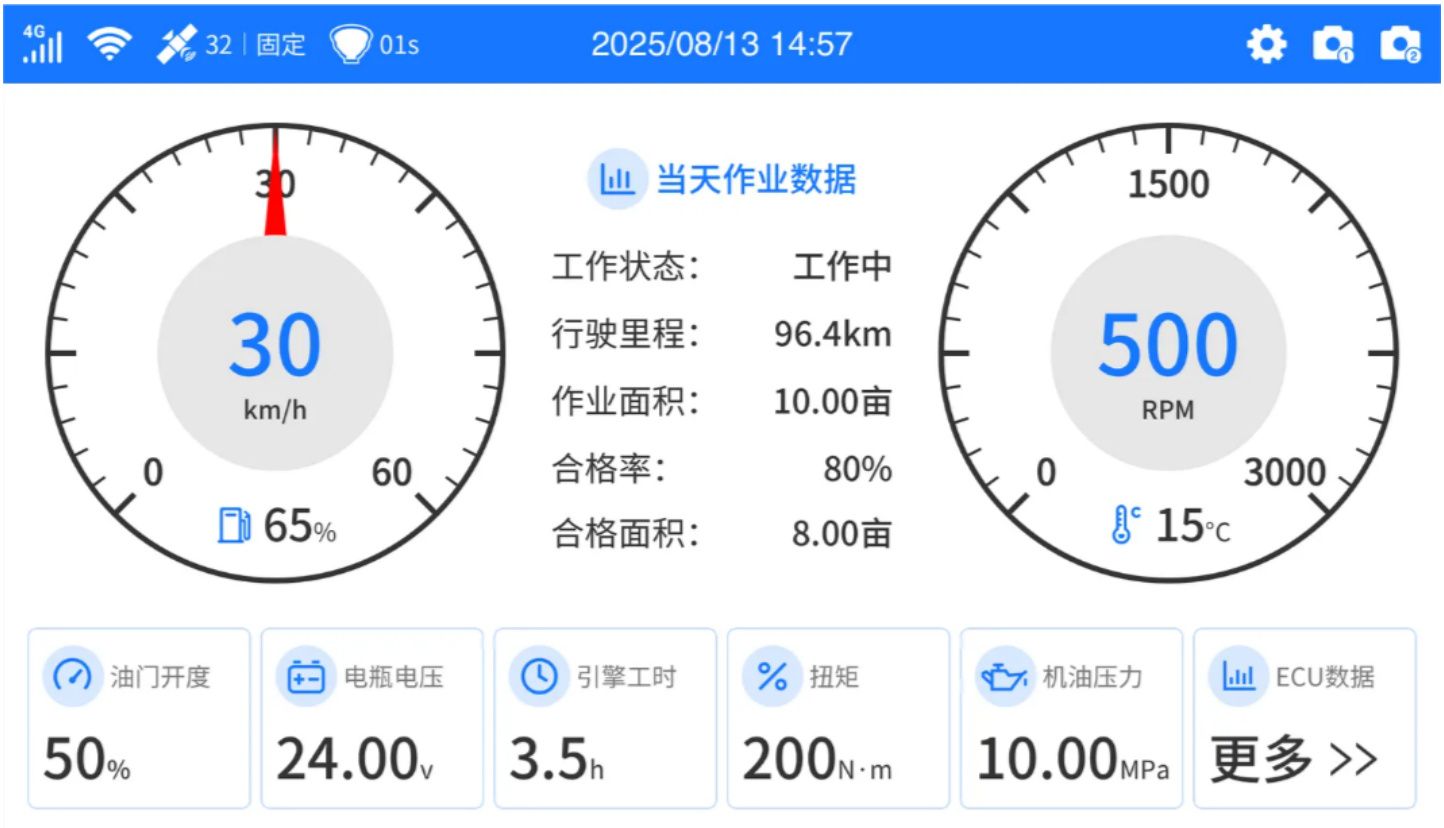
The product supports real-time monitoring and offline caching, and has multiple functions such as screen display , job area monitoring, etc., which can help users improve the refined management level of agricultural machinery operations.

2. Packing List

Number	Name	Quantity
1	10.1-inch Linux Car Infotainment System	1
2	Roof Controller	1
3	Tilt Sensor	2
4	Mechanical Angle Sensor	1
5	CAN Bus Interface	1
6	Camera	2
7	4G/WiFi Antenna	2
8	Power cord	1
9		1

	Electro-hydraulic valve block (optional)	
10	Product Manual	1
11	Install the accessory package	1

3. Product Introduction



(1) Hardware Composition

- **10.1 inch touch screen** (Linux system)
- **RTK Positioning Module** (5-10HZ, centimeter-level accuracy)
- **4G/WiFi Communication Module**
- **CAN Bus Interface** (Engine ECU Data Acquisition)
- **Camera Interface** (Dual Front and Rear Channels)
- **External Sensor Interface**(Rear Suspension Angle)

(2) Display and Functional Interface

- **Main Interface**: Dual Dashboards (Speed, RPM Data), Real-time Parameters (Operation Area, Travel Distance, Engine Speed, etc.)
- **Job Monitoring Interface**: Displays speed, area, pass rate, etc.

- **Engine Monitoring Interface**: Displays engine speed, torque, fuel consumption, water temperature, oil pressure, engine operating hours, battery voltage, etc.
- **Video surveillance interface**: Supports front view/rear view switching, and automatically activates the rear camera when in reverse gear
- **Settings Interface**: RTK Differential Configuration, Sensor Calibration, Implement Parameter Input (Width/Arm Length/Target Depth), About This Device, Diagnosis
- **Diagnostic Interface**: RTK Status, Network Status, Sensor Status Detection, NMEA Data Output

(3) Functional Advantages

- **Real-time visualization** : Drivers can directly view the operation status, reducing errors
- **Enhanced Safety**: Automatic Reverse Camera Ensures Operational Safety
- **Remote Synchronization**: Data is uploaded to the backend in real-time, supporting centralized management by cooperatives
- **Highly scalable**: Optional electro-hydraulic suspension control is available to achieve implement lifting and hydraulic output control

4. Operating Instructions

1. Power On and Basic Connection

1. Install the roof controller on the top of the agricultural machinery to ensure it is firmly fixed.
2. Connect the roof controller , rear suspension angle sensor, CAN bus interface , camera, WiFi/4G antenna .
3. Insert a SIM card or connect to Wi-Fi to ensure network availability.
4. Turn on the power switch, the device enters the startup interface, and the system will automatically detect the hardware connection status
5. After the tractor starts , it enters the main interface, where real-time data such as speed, engine speed, ECU data can be seen.

2. Differential Configuration (RTK Settings)

- By default, Beidou PPP is used. If you need to improve positioning accuracy, differential configuration is required.:
- On the main interface, click "Settings" → "Differential Configuration".

1. Select the differential method:
    - **Network Base Station (ICECORS NTRIP)**:

- Select the Glacier Network Base Station for the differential type, click on the base station list select the corresponding base station
- Click to Connect



- **NTRIP Mode:**
  - Select Ntrip for the differential type and enter the corresponding parameters
  - Click to Connect
- **CORS Mode**:
  - Select Glacial CORS for differential type, scan QR code to pay
  - Click to Connect



2. Confirm that the differential status is displayed as "Fixed" in the top status bar of the main interface.

3. Sensor Calibration

- Rear suspension angle calibration

  Calibration is performed in Settings → Sensor Calibration .

1. Park the agricultural machinery on a level ground;
2. Collect in sequence according to the prompted stepssuspension angle;
3. After the prompt "Calibration successful" appears, the rear suspension angle data will be automatically corrected;



4. Agricultural Implement Parameter Settings

1. Enter the following data in Settings → Implement Parameters:
   - **Implement Width** (m):
   - **Rear Suspension Arm Length** (m):
   - **Target Operating Depth** (m) :



2. Click Save

5. Job Monitoring and Data Viewing

1. Switch to the operation monitoring interface, and the system will display:Displayworking status, mileage, operation area, pass rate, qualified area,rotation speed, torque, fuel consumption, water temperature, oil pressure, engine working hours, battery voltageand other information.

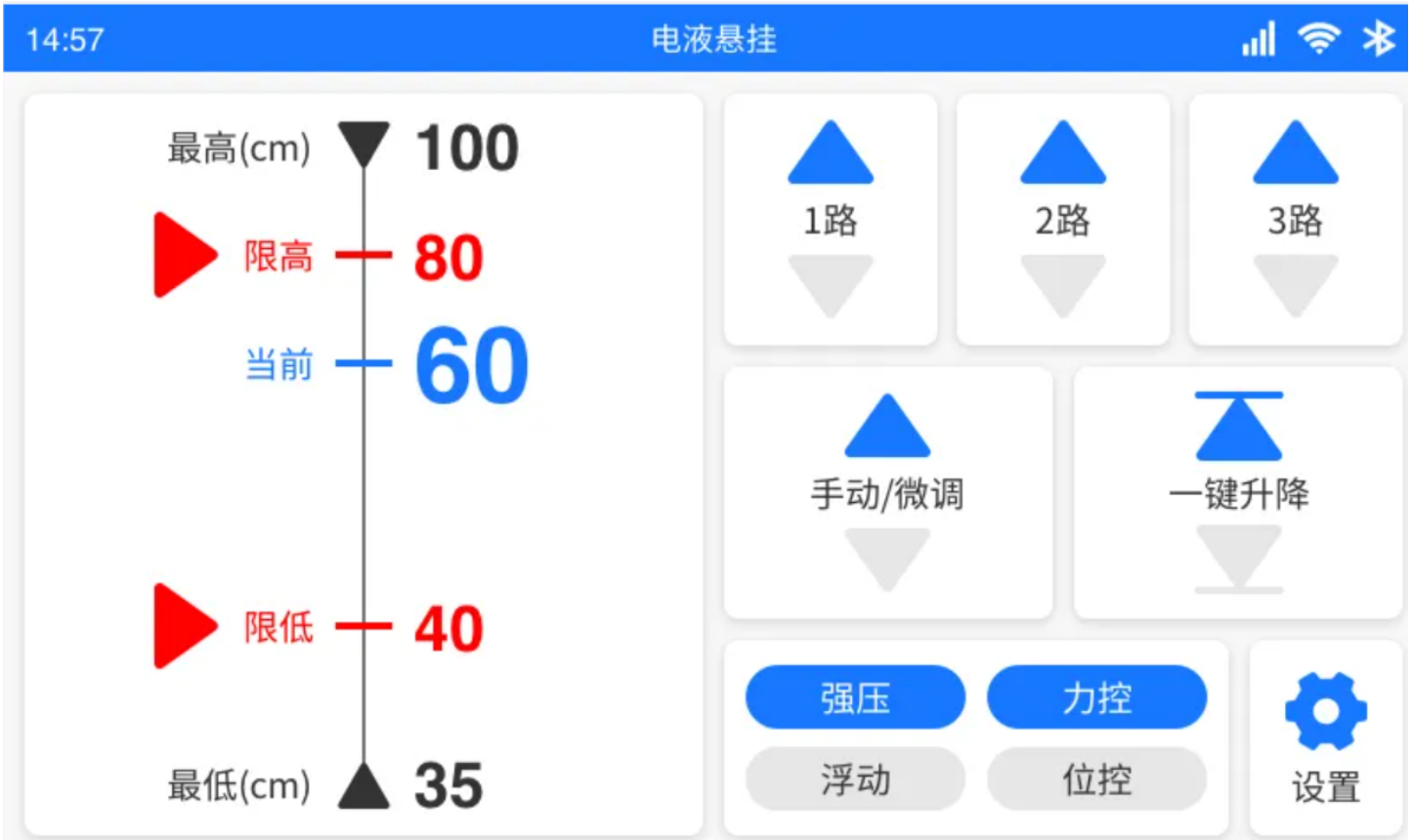


2. After completing the task, users can view work data such as qualified area and qualification rate on the interface .
3. Data will be automatically uploaded to the backend.

6. Use of Video Surveillance

1. Click the camera option in the top right corner, enter the video interface, and you can select the front or rear camera.
2. Users can manually switch screens and support full-screen display.

7. Electro-hydraulic suspension (optional)



1. **Automatic Lifting** : Through the touch button, the system automatically raises or lowers the agricultural implement to the preset "height limit" or "lower limit" position.
2. **Manual Lifting** : The user can manually fine-tune the height of the farm implement, press the button to lift or lower, and release to stop.
3. **Floating Mode** : The hydraulic cylinder automatically extends and retracts according to the terrain, and the implement freely rises and falls following the undulations of the ground.
4. **Three-way hydraulic output** : Provides three sets of independently controlled hydraulic interfaces for operating external equipment, supporting precise hydraulic control.

5. Technical Parameters

项目	参数说明
定位精度	RTK，厘米级
数据频率	1S-10min
显示屏	10.1英寸，1024*600
通讯方式	4G、WiFi
传感器接口	后悬挂角度、ECU数据、CAN 总线
摄像头支持	前后双摄，自动切换
电液控制（选配）	1组升降比例阀、3组液压输出阀
电源电压	DC 12V/24V
工作温度	-20°C ～ +10.10°C
外壳防护等级	IP65