EasyNAV EMG100

User Manual

Version:

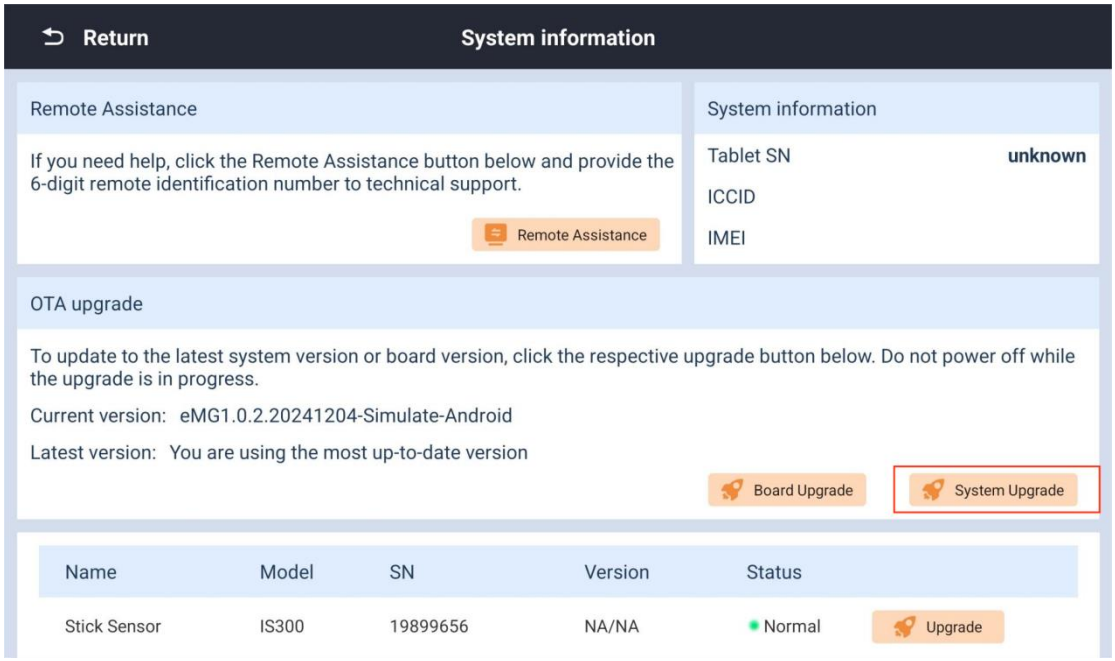
EMG V1.0.2

Contents

1. Software Installation and Registration

1.1. Software Installation

The EasyNAV EMG100 software is designed specifically for EasyNAV tablet use and supports online upgrades.

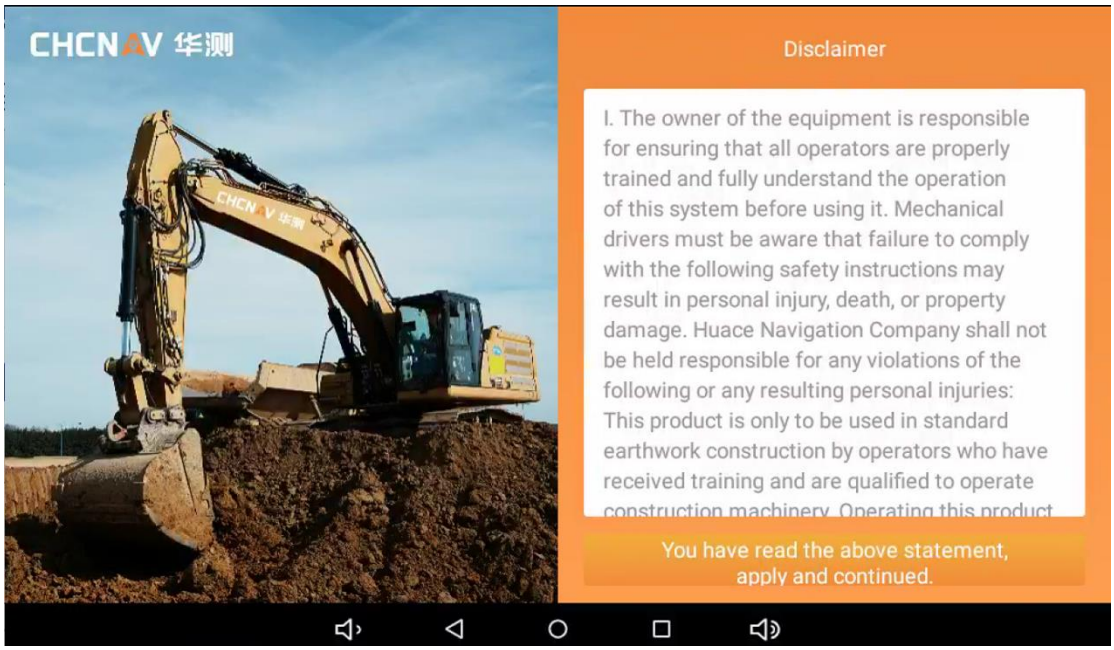


1.2. Software Login

This section provides detailed instructions for using the EasyNAV EMG100 software, helping you quickly become familiar with its operation.

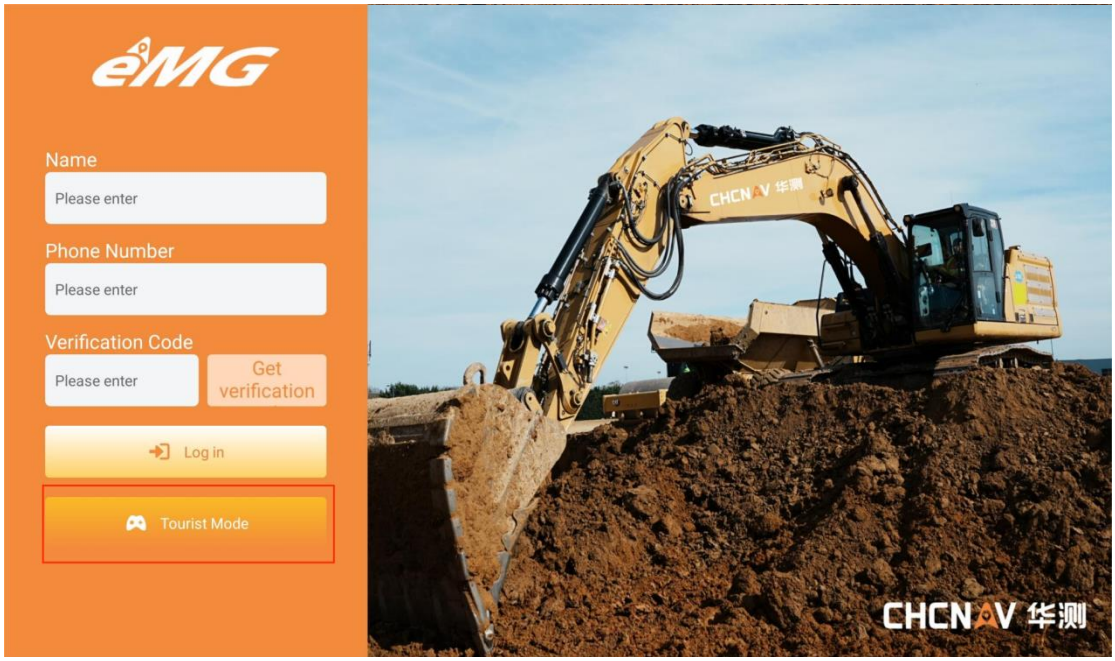
Initial Setup:

1. Power on the tablet
2. Wait 3-5 seconds for the system disclaimer
3. Read the disclaimer carefully
4. Click “I have read and agree to the above statement” to proceed to login



Note:

- Use tourist mode for initial login
- Mobile phone login is not currently supported



1.3. Home Page Overview

The main interface of the EasyNAV EMG100 software shows the construction status map, parameter status bar, and shortcut keys.

Element	Name	Description	Action
1	Product Logo	Company Logo	View only
2	Elevation Difference	Distance between bucket tip and design surface	View only
3	Profile/Cross Section	Toggle between profile and cross section views	Click to switch
4	Bucket View	Dynamic bucket visualization	View only
5	View Switch	Toggle between the top and side views	Click to switch
6	Main Antenna Status	Displays satellite count and positioning quality	View only
7	Auxiliary Antenna Status	Shows heading positioning quality	View only
8	Main Antenna Differential Age	Base station signal delay	View only
9	Positioning Accuracy	Horizontal/Vertical accuracy values	View only

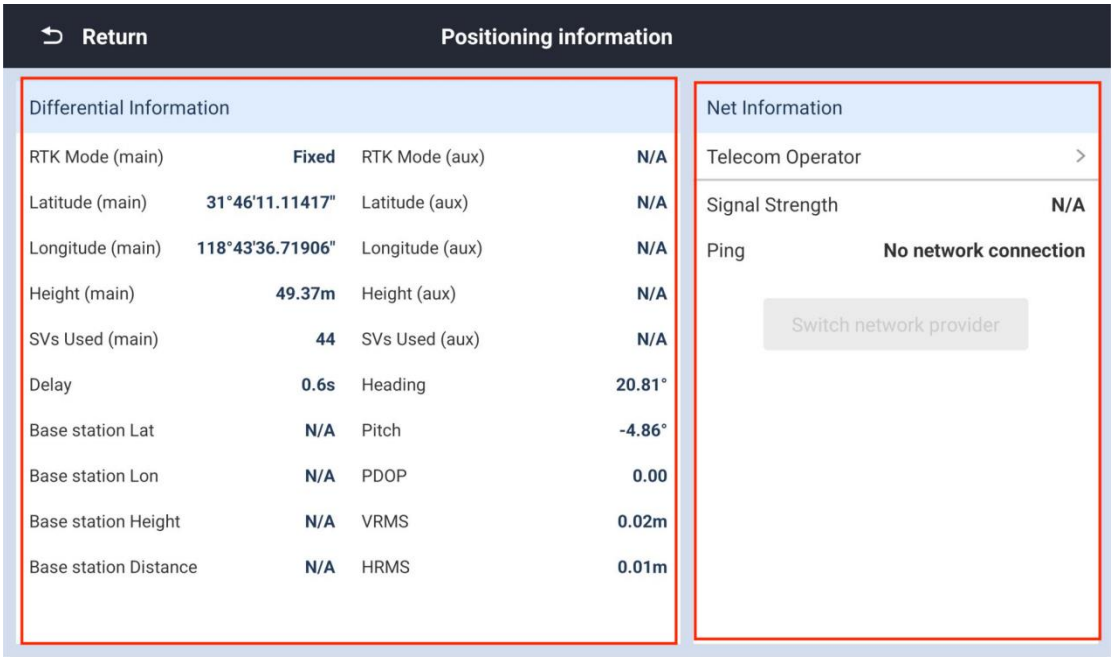
10	Network Signal	Current operator signal strength	View only
11	Wi-Fi Signal	Tablet Wi-Fi signal strength	View only
12	Setting	Access system settings menu	Click to open
13	Current Design File	View/change active design file	Click/View
14	Elevation Offset	Adjust elevation offset value	Click to modify
15	Horizontal Offset	Adjust horizontal offset value	Click to modify
16	Bucket View	Dynamic bucket visualization	View only
17	Construction Button	Create new construction data	Click to create
18	Real-Time Elevation	Current elevation display	Click/View
19	Electronic bubbles	Shows excavator body angle	View only
20	Construction Mileage	Real-time bucket tip mileage	Click/View
21	Bucket Guide Point	Guide point toggle	Click to switch
22	Bucket List	Access bucket selection	Click to open
23	Bucket Position	Initialize bucket position	Click to set

2. Position Configuration

To access position settings, click [Settings] followed by [Position] to enter the position configuration interface. This section includes positioning information and datalink functions

2.1. Positioning Information

Select [Positioning Information] to view differential and network information.



2.1.1. Differential Information

The system displays:

- Main and auxiliary antenna solution status
- Latitude and longitude coordinates
- Elevation
- Satellite count
- Differential age
- Base station position
- Heading angle
- Pitch angle
- Key accuracy indicators: PDOP (Position accuracy factor, target: <2)

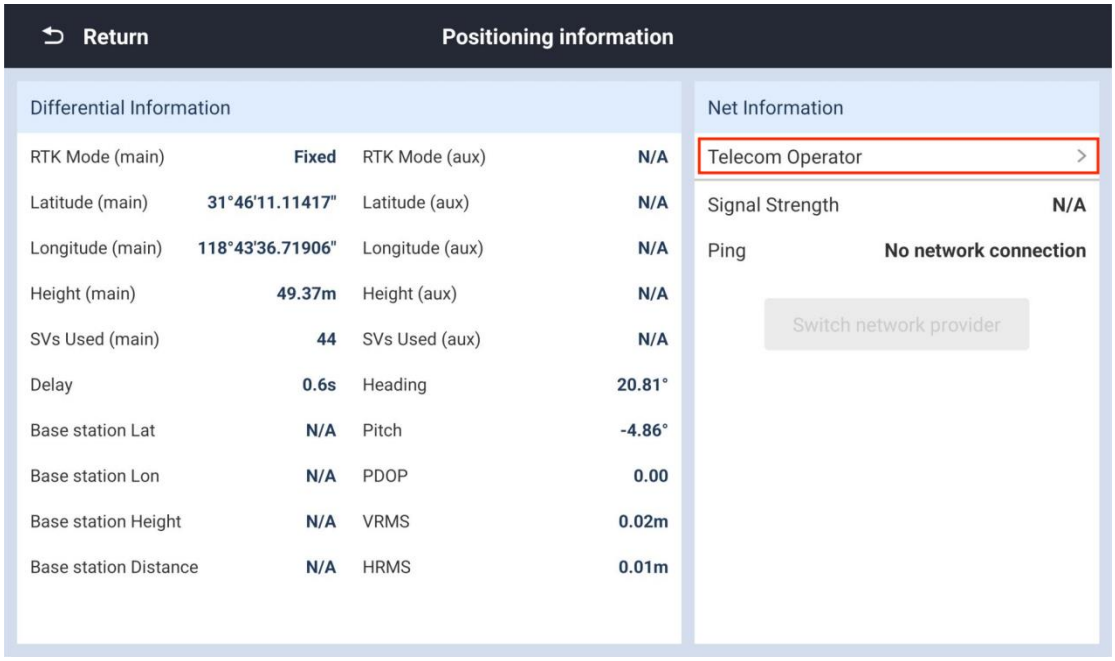
VRMS (Vertical accuracy factor, target: <0.02)

HRMS (Horizontal accuracy factor, target <0.02)

2.1.2. Network Information

Displays:

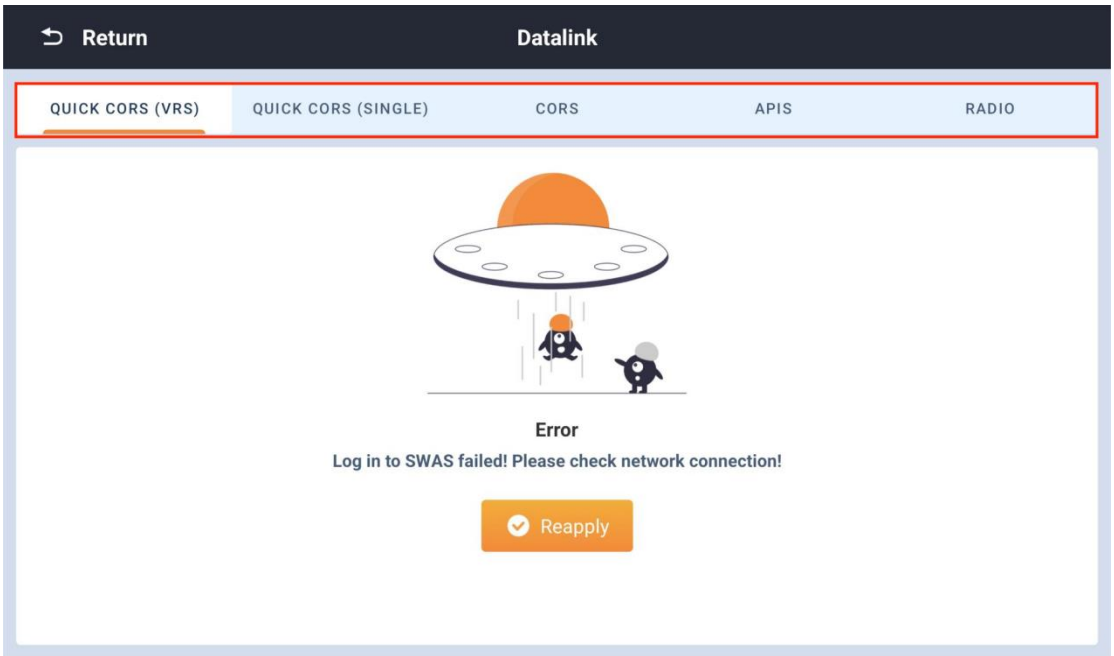
- Current network operator
- Signal strength
- Ping value



2.2. Datalink

Select [Datalink] to configure connection options:

- Quick CORS (VRS)
- Quick CORS (Single Base Station)
- CORS
- APIS
- Radio



2.2.1. Quick CORS

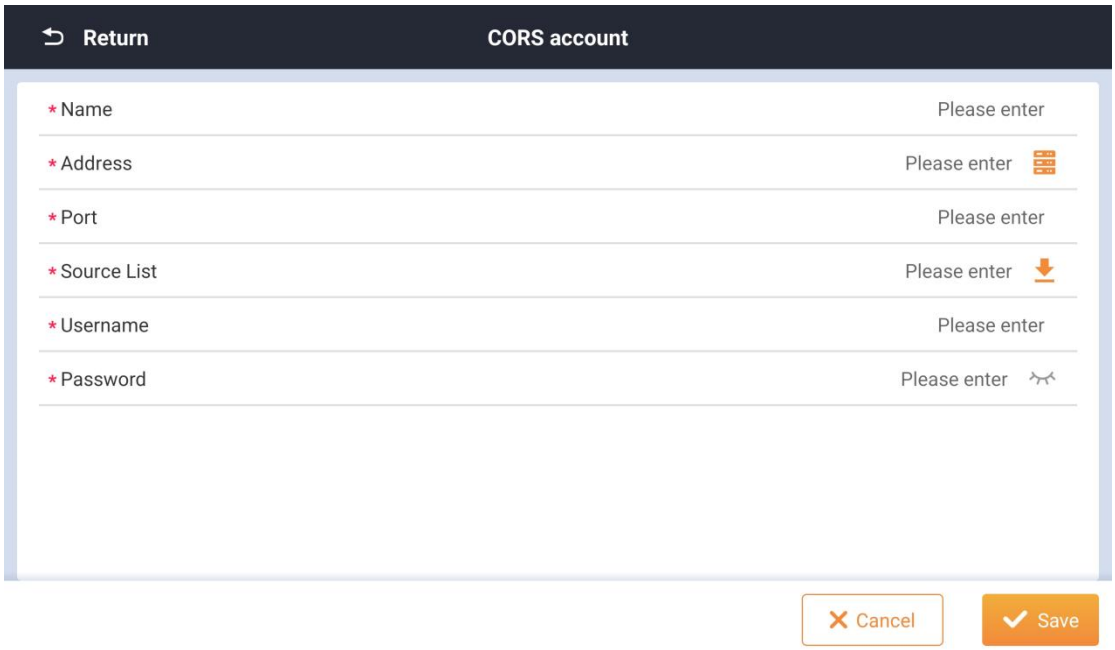
Quick CORS provides automatic connection to CHC SWAS network base stations without manual configuration.

2.2.2. CORS Account Setup

1. Select [CORS] > [+ New CORS]
2. Enter required information:
   - Account name
   - Server address
   - Port number
   - Source lists

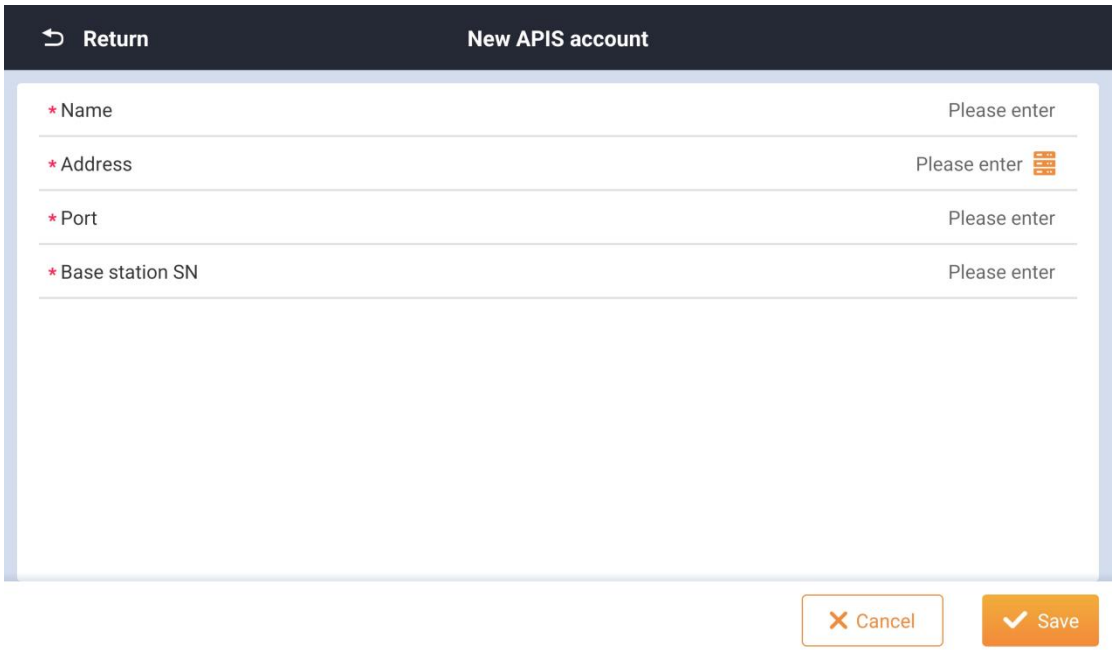
- Username
- Password

3. Select [Save] to apply settings



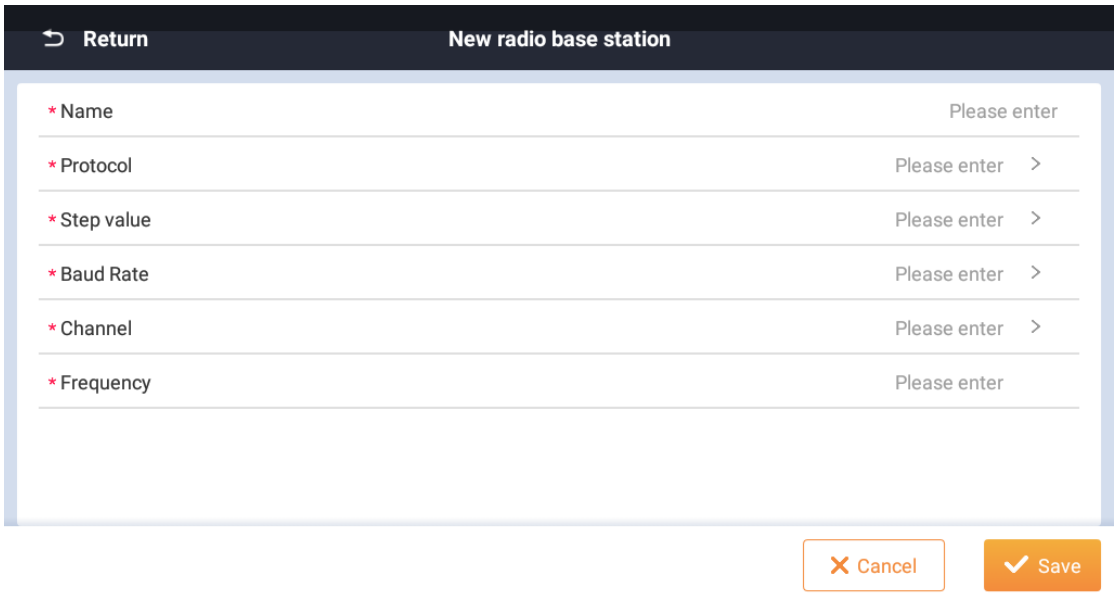
2.2.3. APIS Account Steup

1. Select [APIS] > [+ New APIS]
2. Enter required information:
   - Account name
   - Server address
   - Port number
   - Base station SN
3. Select [Save] to apply settings



2.2.4. Radio Configuration

1. Select [Radio] > [+ New Radio Account]
2. Configure radio parameters:
   - Account name
   - Protocol type
   - Step value
   - Baud rate
   - Channel
   - Frequency
3. Select [Save] to apply settings



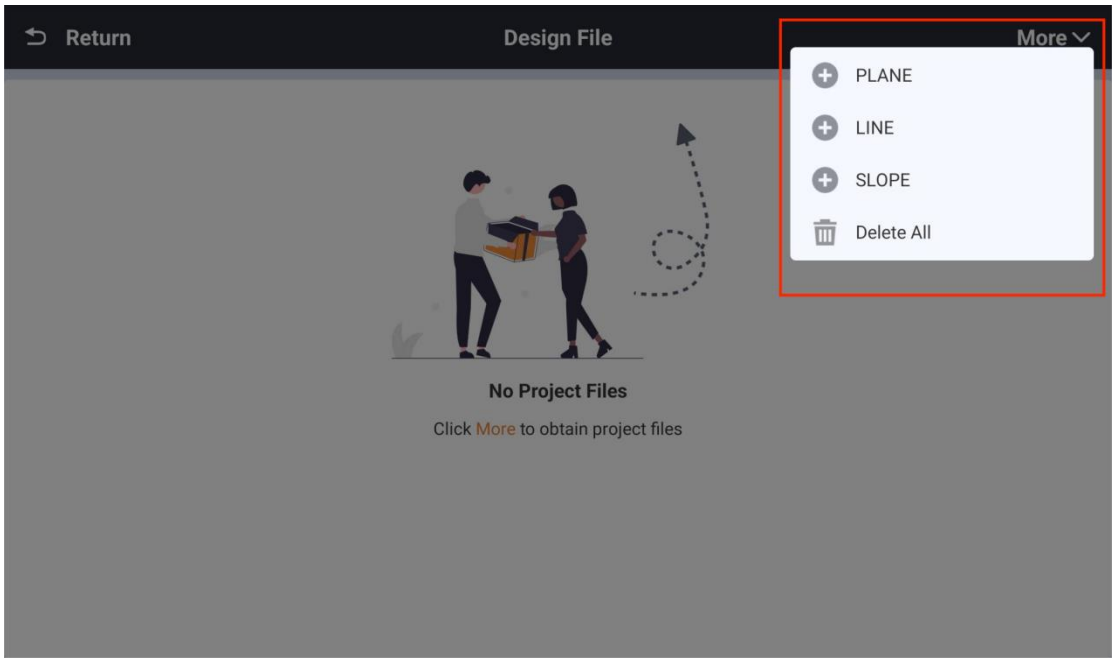
3. Work Configuration

Access work settings by selecting [Work] from the main menu. This section includes:

- Design file management
- Elevation calibration
- Start station setup
- Vertical offset adjustment
- Horizontal offset adjustment

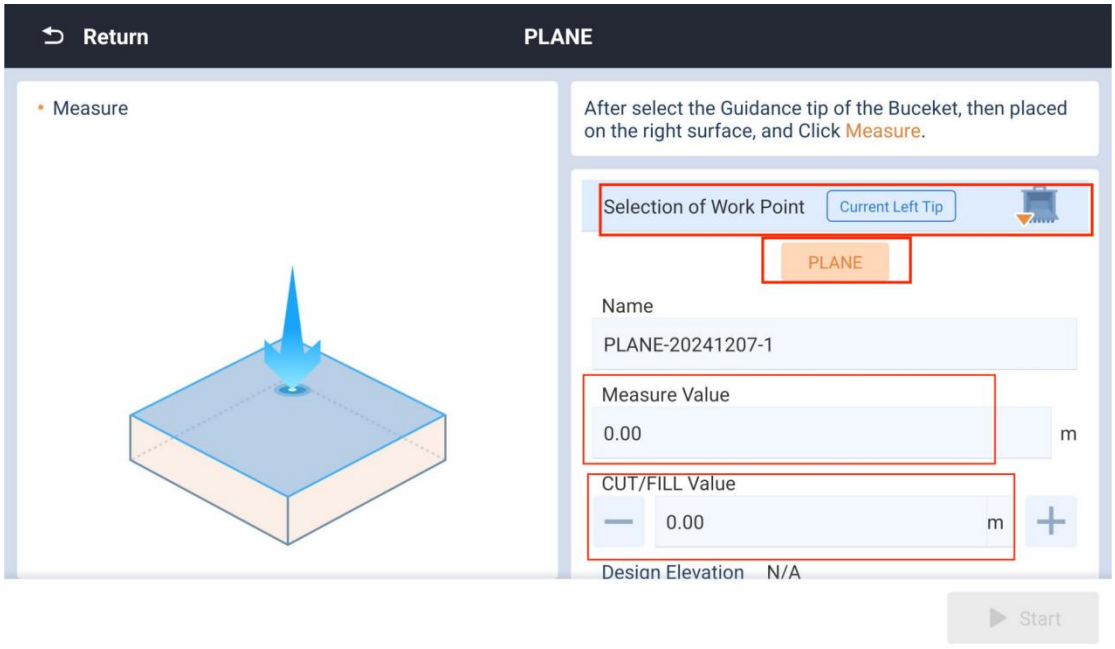
3.1. Design File

Click [Design File] to enter the design file interface. This screen displays all design files for viewing and modification. Click [More] to create new design files or delete existing files.



3.1.1. New Plane

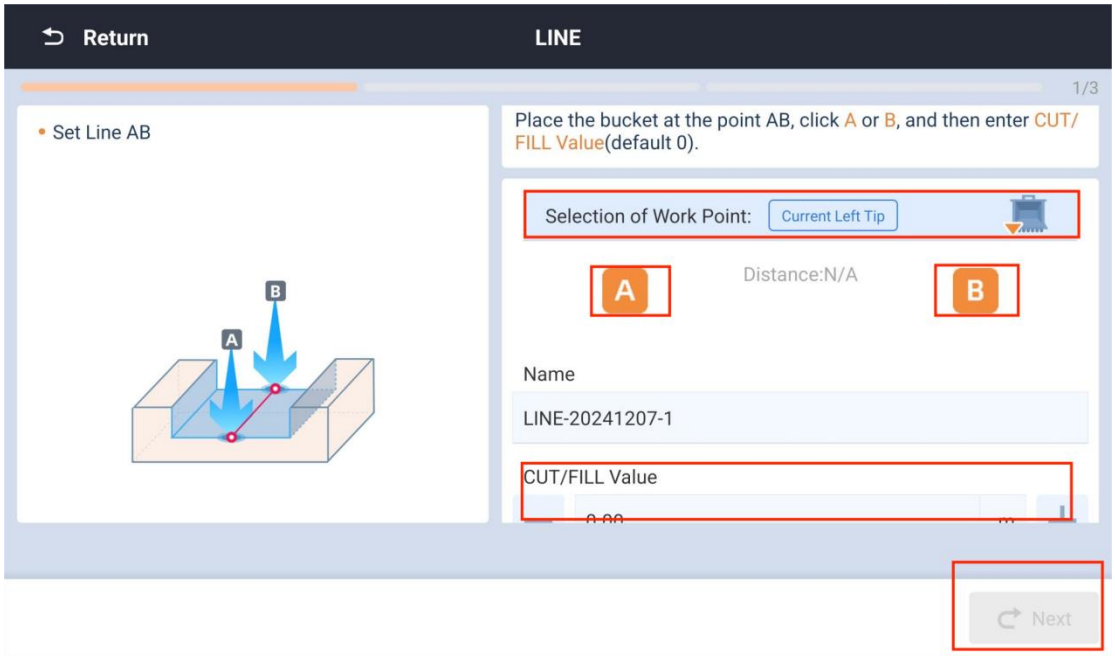
1. Click [PLANE] to enter plane configuration
2. Select bucket tip guide points
3. Configure elevation collection (Click collect to read value of bucket elevation)
4. Enter measure value and cut/fill values as needed



3.1.2. New Line

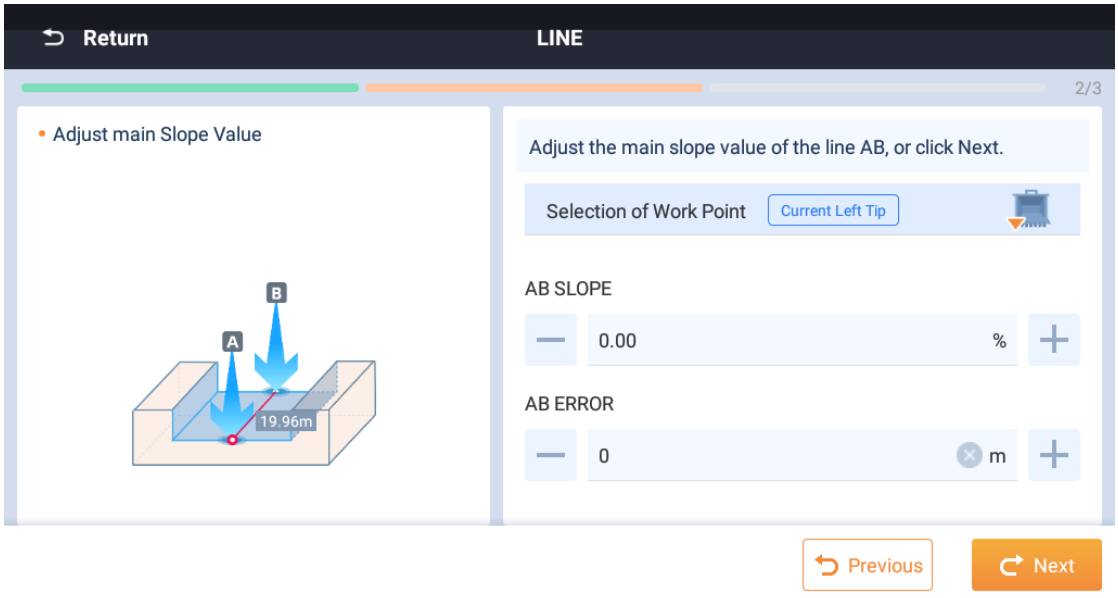
1. Click [LINE] to enter line configuration
2. Select bucket tip guide points
3. Collect elevation points A and B
4. Enter cut/fill values
5. Click [Next] for slope settings

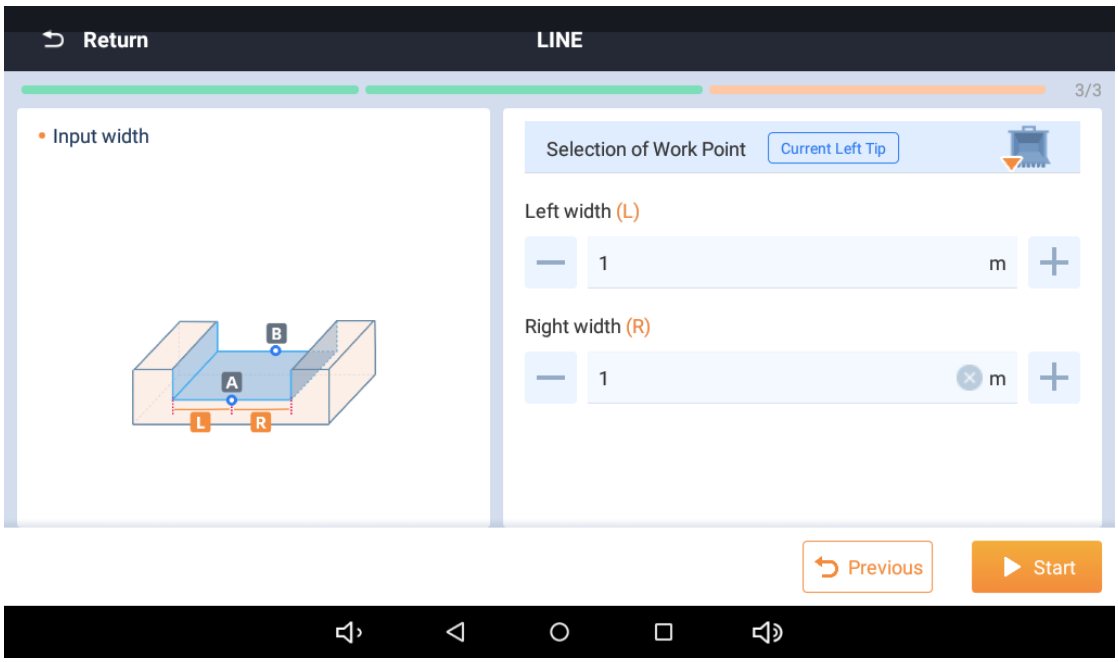
Note: Points A and B can be placed anywhere along the line. The AB line extends indefinitely in both directions.



Slope configuration:

1. Adjust longitudinal slope values for lines A and B
2. Click [Next] to proceed to width settings (if no adjustment needed)
3. Enter left and right width values
4. Click [Start]to begin line guidance

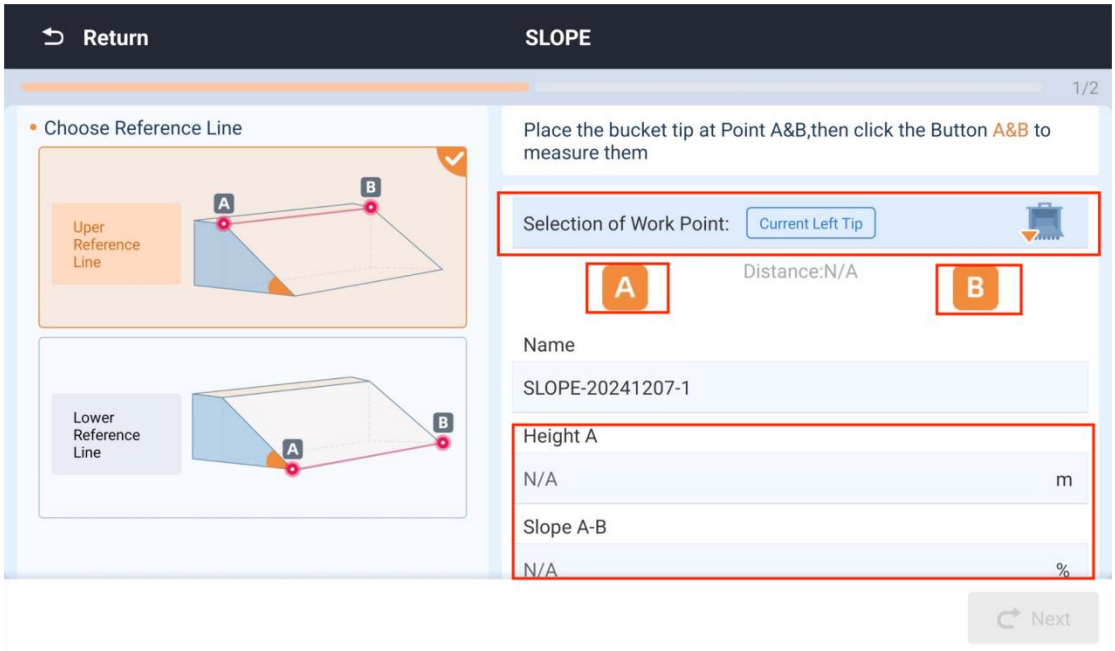




Note: A width value of 0 creates an inclined plane design.

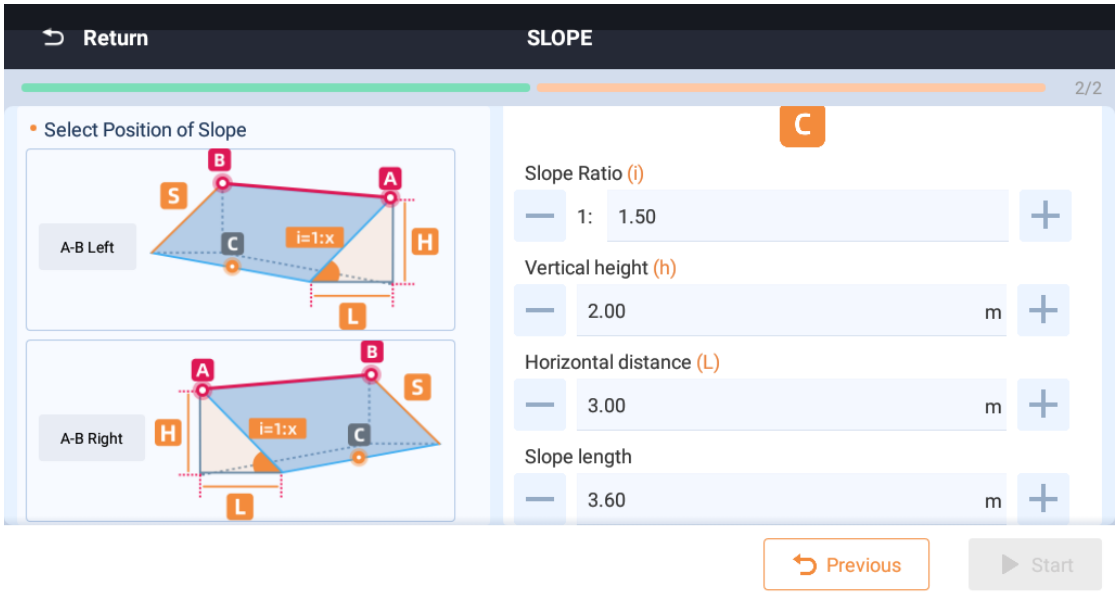
3.1.3. New Slope

1. Click [SLOPE] for slope configuration
2. Select bucket tip guidance points
3. Configure:
    - A/B point collection
    - Elevation A settings
    - Elevation difference (B-A)
    - Cut/fill values



Slope setup:

1. Position bucket tip at points A and B
2. Click respective buttons to measure coordinates
3. Verify A-B longitudinal slope
4. Adjust slope value if needed
5. Click [Next]for cross slope settings



Final Configuration:

1. Position bucket on slope
2. Click [C] for automatic slope position and ratio detection
3. Verify parameters
4. Click [Start] to begin work guidance

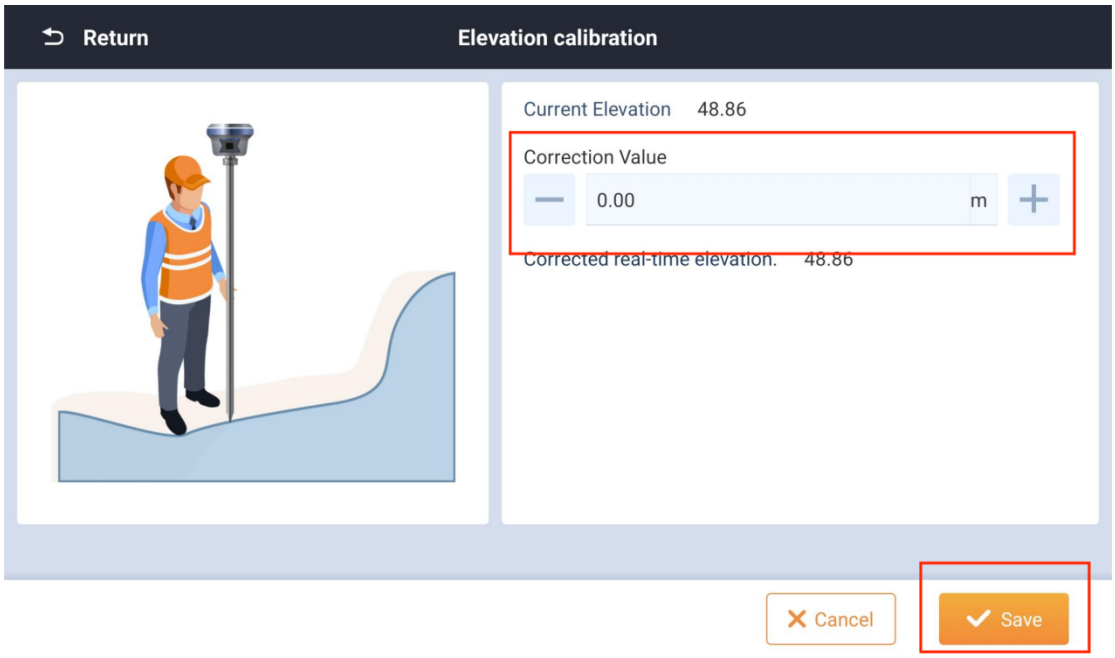
3.1.4. Delete Files

Click [Delete] to remove selected design files from the system.

3.2. Elevation Calibration

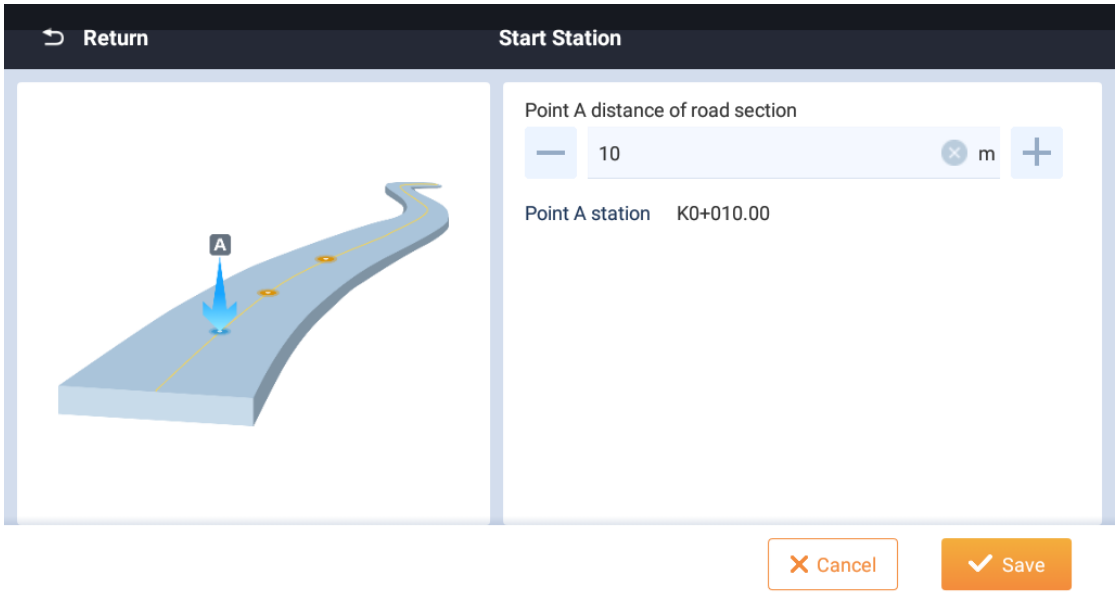
1. Click [Elevation Calibration]
2. View real-time point guide elevation
3. Compare bucket tip elevation with location elevation
4. Calculate correction value:

   Correction = Location elevation – Real-time elevation
5. Enter correction value
6. Click [Save] to apply



3.3. Start Station

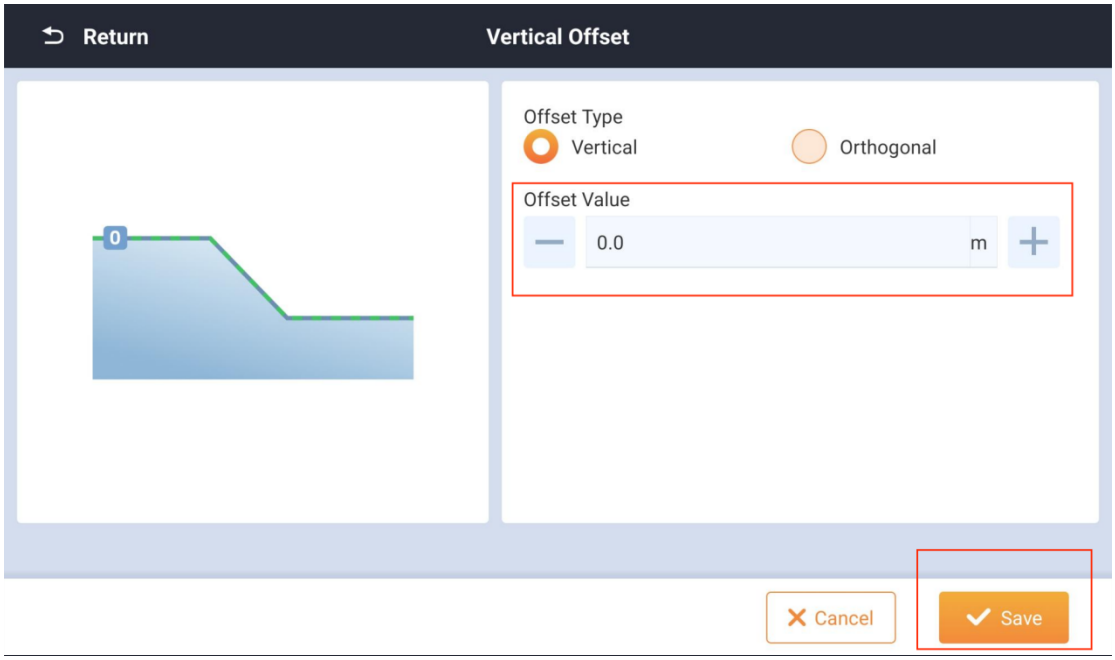
1. Click [Start Station]
2. View current design data point A pile number
3. Verify or modify point A pile number
4. Click [Save] to apply changes



Note: This function is available only for line and slope files.

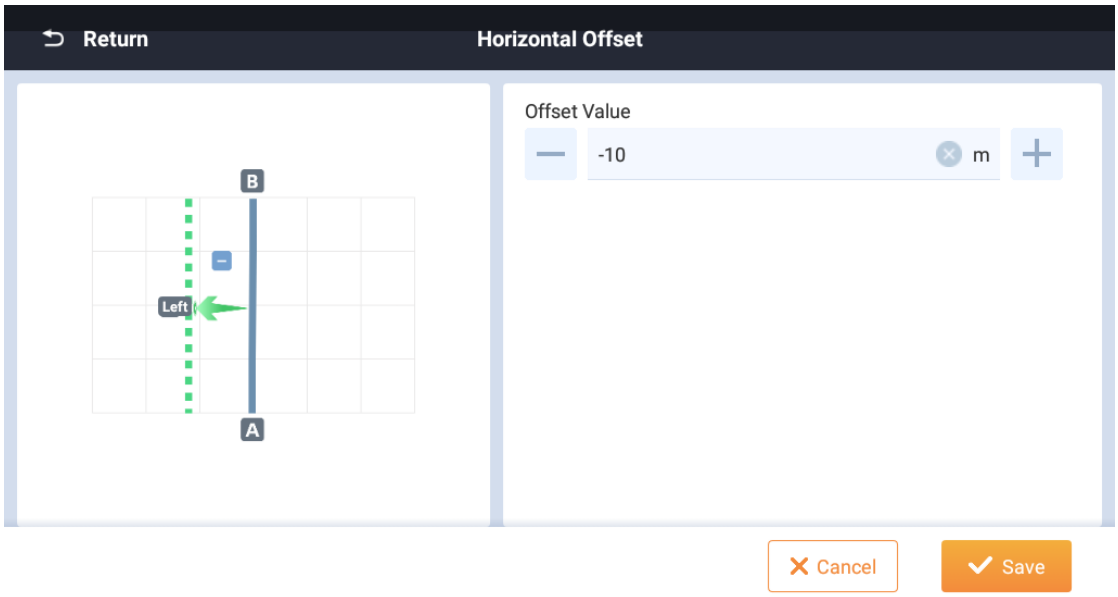
3.4. Vertical Offset

1. Click [Vertical Offset]
2. Select offset type:
   - Horizontal
   - Orthogonal
3. Enter offset value
4. Click [Save] to apply



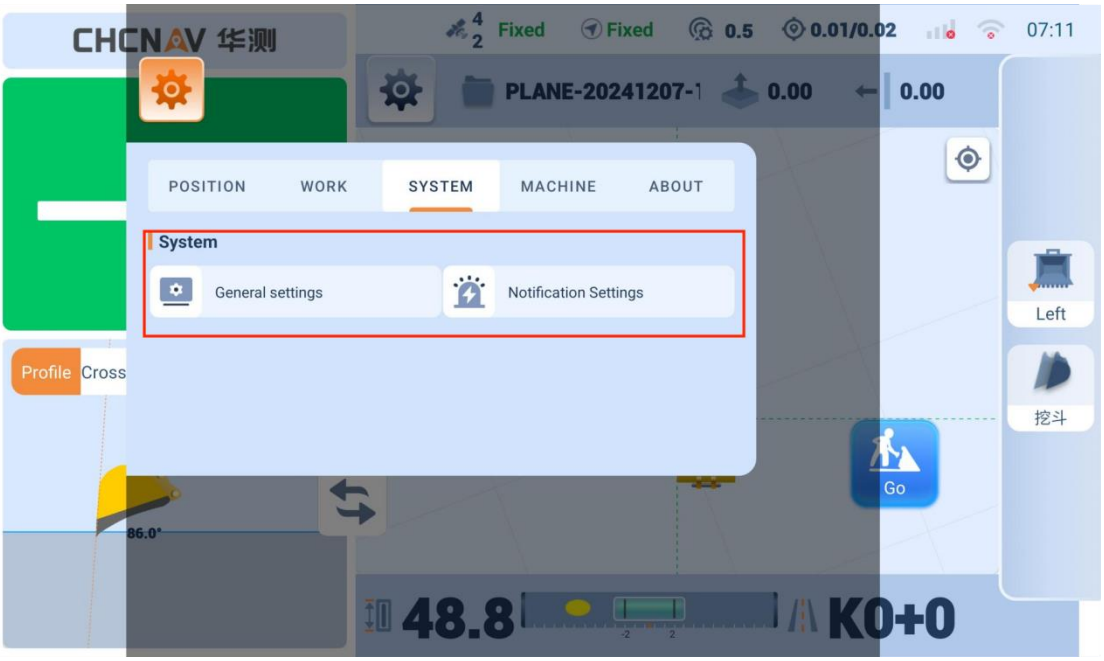
3.5. Horizontal Offset

1. Click [Horizontal Offset]
2. Enter offset value:
   - Positive: AB line shifts right
   - Negative: AB line shifts left
3. Click [Save] to apply



4. System Configuration

Click the [SYSTEM] button to enter the system configuration interface, which includes the general settings and notification settings.

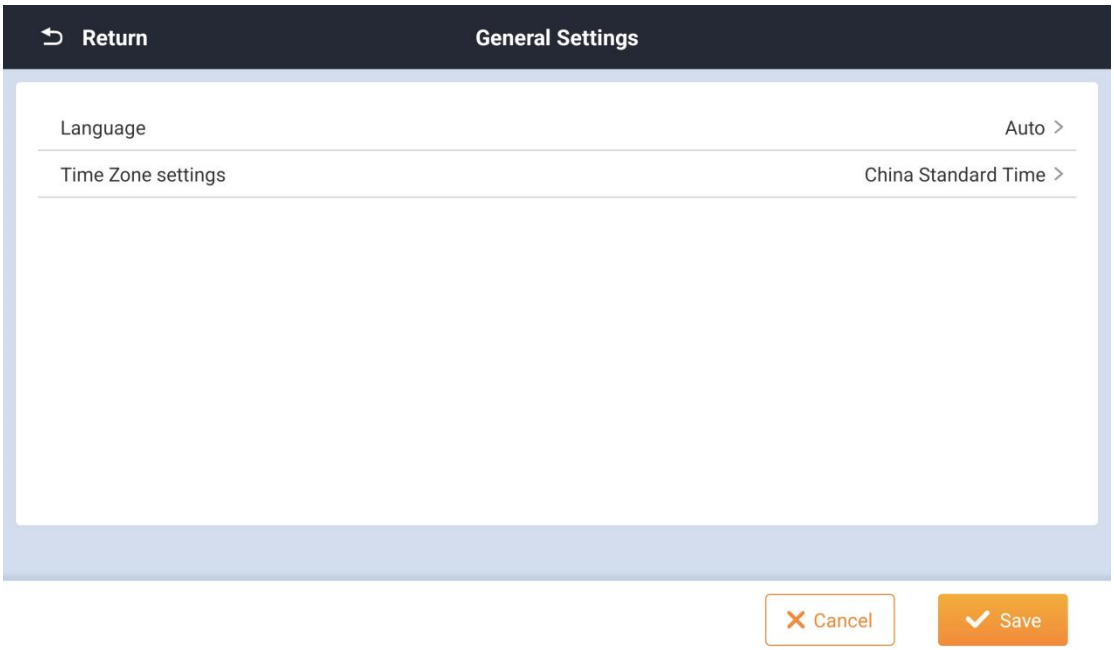


4.1. General Settings

Access general settings through [Settings] > [General]. Configure the following parameters:

Display Settings

- Language selection
- Unit system (Metric/Imperial)
- Screen brightness
- Volume control
- Auto-lock time
- Time zone selection



Guide Settings

- Guide point selection
- Guideline display
- Guide point size
- Guideline width
- Color scheme selection

Tolerance Settings

1. Vertical tolerance:

- Green zone: ±3cm
- Yellow zone: ±6cm
- Red zone: Beyond ±6 cm

2. Horizontal tolerance:

- Green zone: ±5cm
- Yellow zone: ±10cm
- Red zone: Beyond ±10cm

4.2. Notification Settings

Configure system alerts and notifications:

Sound Alerts

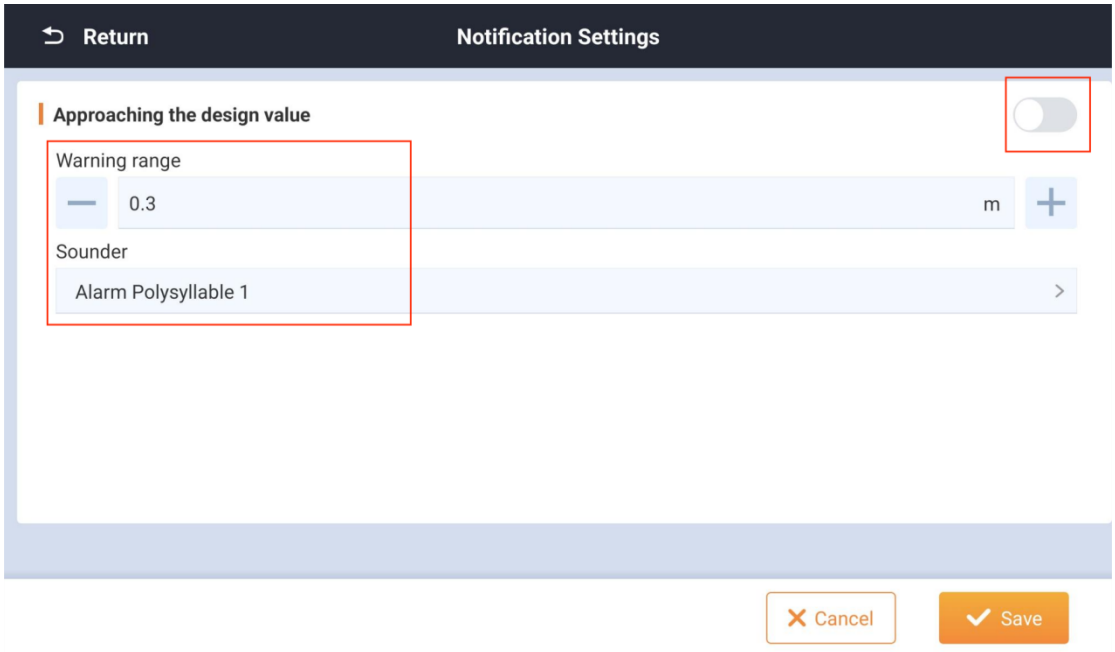
- Enable/disable sound

- Alert volume
- Alert types:
  - Position loss
  - Datalink interruption
  - Low battery
  - System errors

Visual Alerts

- Pop-up notifications

- Status bar indicators
- Warning messages



5. Machine Management

Please refer to **“EasyNAV Installation and Calibration guide”** for mechanical configuration.

5.1. Machine Information

View and manage machine details:

- Machine model
- Serial number
- Installation date
- Service history
- Operating hours

5.2. Bucket Management

Add New Bucket

1. Click [New Bucket]
2. Enter bucket details:

- Name
- Type (Standard/Tilt)
- Dimensions

3. Select calibration method
4. Follow calibration procedure
5. Save configuration

Modify Existing Bucket

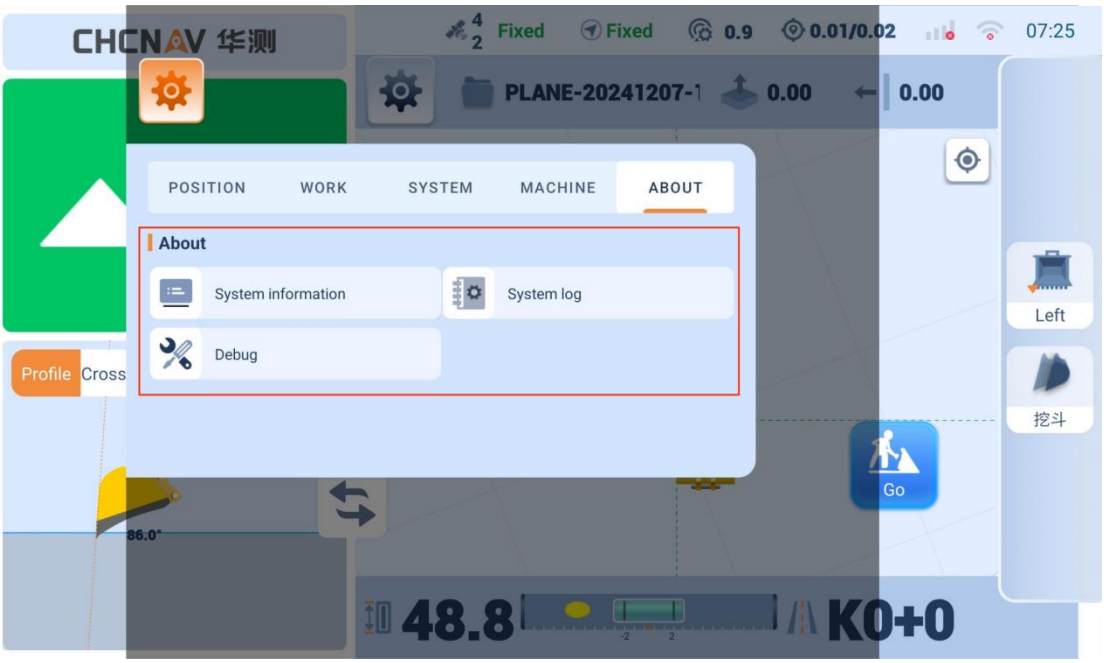
1. Select bucket from list
2. Click [Edit]
3. Adjust parameters
4. Recalibrate if needed
5. Save changes

Delete bucket

1. Select bucket
2. Click [Delete]
3. Confirm deletion

6. About

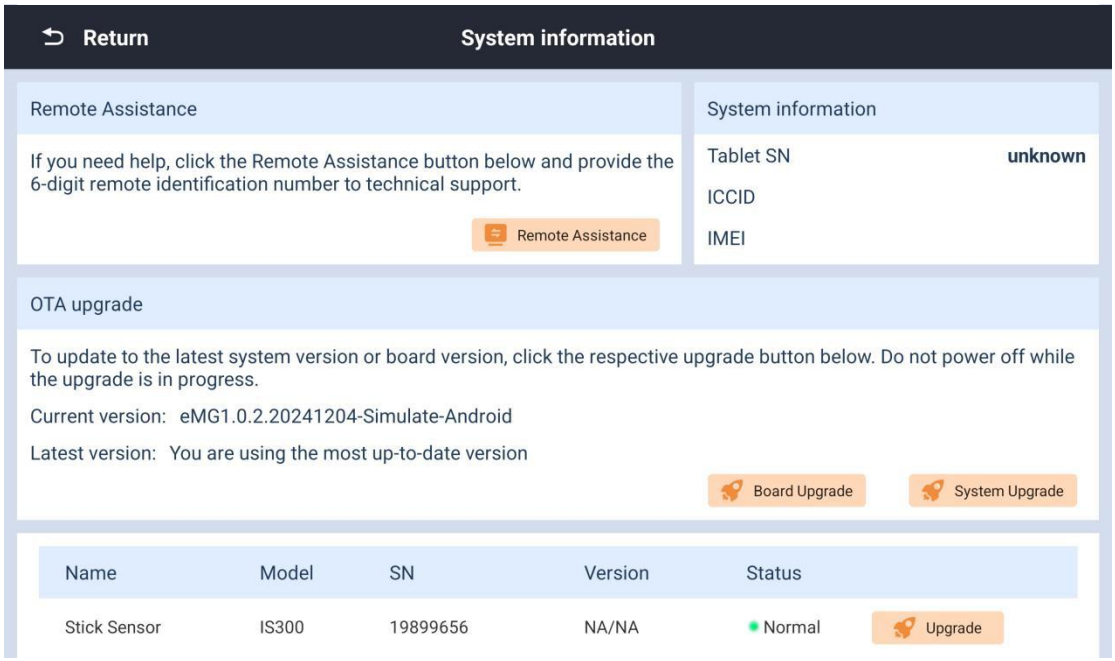
Click the [ABOUT] button to enter the about configuration interface, which includes the system information, system log, and debug.



6.1. System Information

View system details:

- Software version
- Hardware version
- License information
- Installation date
- Last update
- System status



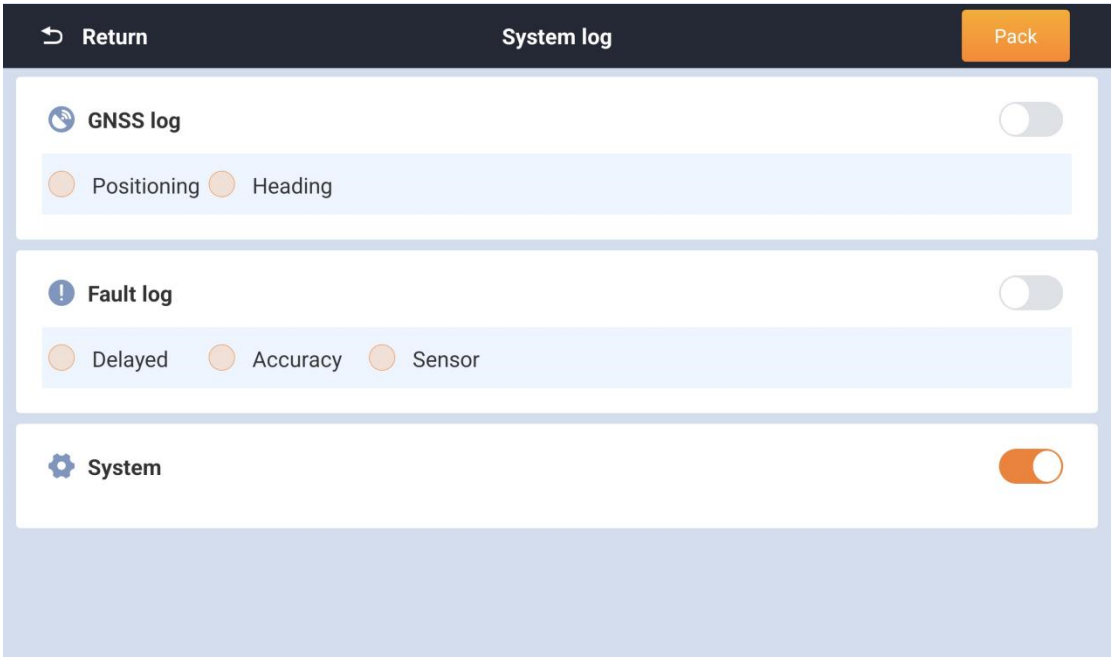
6.2. System Log

Access system logs for:

- Operation records
- Error messages
- System updates
- Calibration history
- Connection status

Export options:

1. Select date range
2. Choose log types
3. Click [Export]
4. Select storage location



Note: System logging is turned on by default

7. Appendix

A. Troubleshooting

Common issues and solutions:

Position Loss

1. Check GNSS antenna connections
2. Verify datalink status
3. Check satellite visibility
4. Confirm base station connection

Calibration errors

1. Verify sensor connections
2. Check machine stability
3. Ensure proper measurement input
4. Repeat calibration process

B. Maintenance

Regular maintenance checklist:

- Check cables and connections regularly
- Verify calibration accuracy occasionally
- Update software when available
- Backup configuration files