SMAJAYU SMA26 Pro Rover

SMAJAYU SMA26 Pro Rover GNSS Receiver RTK Surveying System User Manual

Model: SMA26 Pro Rover

1. Introduction

The SMAJAYU SMA26 Pro Rover GNSS Receiver is a high-precision RTK surveying system designed for various applications including construction, engineering, and drone base station operations. It features advanced tilt compensation, a robust handheld controller, wide protocol compatibility, and an IP67 protection rating for reliable performance in challenging environments.

This manual provides essential information for the proper setup, operation, and maintenance of your SMA26 Pro Rover GNSS Receiver. Please read it thoroughly before using the device.

Video 1.1: SMA26 Pro Features Overview. This video provides a general overview of the key features and capabilities of the SMA26 Pro GNSS Receiver.

2. Unboxing and Initial Setup

2.1 Package Contents

Verify that all components are present in the package:

- 1x GNSS receiver
- 1x Handheld controller
- 1x Handheld bracket
- 1x Handheld Charger
- 1x Power Adapter
- 1x Terminal Antenna
- 1x User Manual

Image 2.1: Contents of the SMA26 Pro Rover kit, including the GNSS receiver, handheld controller, and accessories.

Video 2.1: SMA26 Pro Rover Unboxing Video. This video demonstrates the unboxing process and shows all included components.

2.2 GNSS Receiver Components

Familiarize yourself with the physical features of the SMA26 Pro GNSS Receiver:

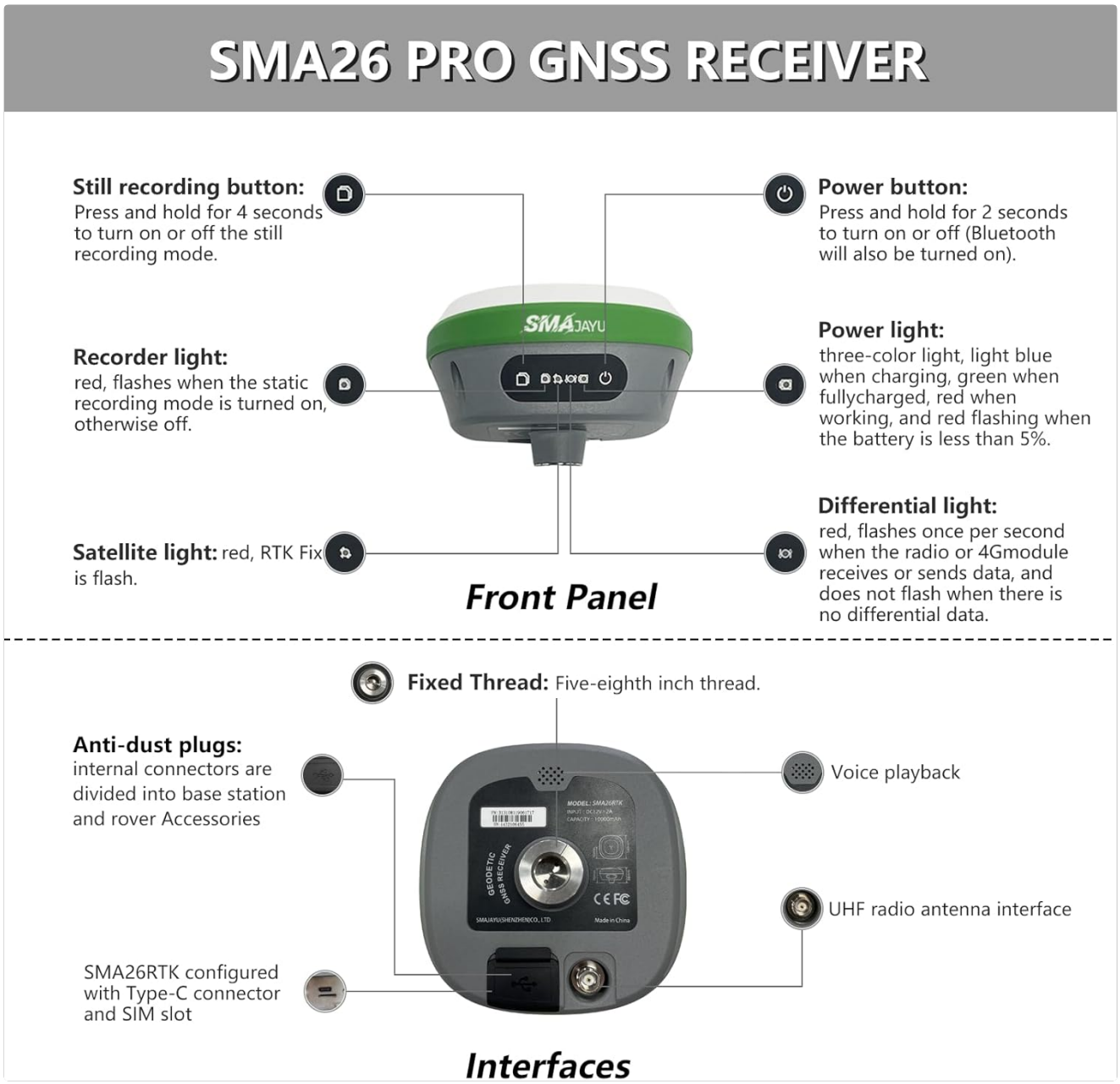

Image 2.2: Detailed view of the SMA26 Pro GNSS Receiver's front panel and interface ports, including power button, recorder light, satellite light, differential light, anti-dust plugs, fixed thread, voice playback, UHF radio antenna interface, and Type-C connector with SIM slot.

- **Still recording button:** Press and hold for 4 seconds to turn on or off the still recording mode.
- **Power button:** Press and hold for 2 seconds to turn on or off (Bluetooth will also be turned on).
- **Recorder light:** Red, flashes when static recording mode is on; otherwise off.
- **Power light:** Three-color light (charging: green, fully charged: light blue, working: red, battery < 5%: red flashing).
- **Satellite light:** Red, RTK Fix is flash.
- **Differential light:** Red, flashes once per second when the radio or 4G module receives or sends data; off when no differential data.
- **Anti-dust plugs:** Internal connectors for base station and rover accessories.
- **Fixed Thread:** Five-eighth inch thread for mounting.
- **UHF radio antenna interface:** For external radio antenna connection.
- **SMA26RTK configured with Type-C connector and SIM slot.**

2.3 Handheld Controller (FP88)

The FP88 handheld controller is an integral part of the SMA26 Pro Rover system, featuring an Android 11 operating system, a 5.45-inch HD screen, dual SIM card slots, a 9000mAh battery, NFC, IP68 protection, and a 13-megapixel rear camera.

Image 2.3: The FP88 Data Controller, highlighting its features such as Android 11, 64GB ROM, 9000mAh battery, Bluetooth 5.0/WiFi, 5.45-inch screen, NFC, IP68 dust and water resistance, industrial design, 4G network access, and user-centric keyboard.

3. Operating Instructions

3.1 Tilt Compensation

The SMA26 Pro GNSS RTK offers advanced tilt compensation, allowing for precise measurements even when the pole is not perfectly vertical. This feature supports a maximum tilt measurement angle of up to 60° with an accuracy of 2.5 cm (at tilt angles ≤30°).

Image 3.1: A surveyor utilizing the SMA26 Pro Rover for high-precision tilt surveying, demonstrating its capability for measurements at angles up to 60 degrees.

Video 3.1: SMA26 Pro RTK GNSS Tilt Measurement (IMU). This video illustrates the tilt compensation feature in action, showing how accurate measurements can be taken with the pole at an angle.

3.2 Wide Protocol Compatibility

The SMA26 Pro RTK GPS surveying equipment is compatible with a wide range of radio protocols, including CSS (Lora), Transparent, TT450S, Trimtalk, TRMMARK3, SOUTH, and SATEL. This ensures seamless integration with various mobile and base stations.

Image 3.2: The SMA26 Pro GNSS Receiver displaying its compatibility with multiple satellite navigation systems (GPS, GLONASS, Galileo, QZSS, BDS, SBAS) and wide radio protocols.

3.3 Surveying Modes

The SMA26 Pro supports various surveying modes to suit different project requirements:

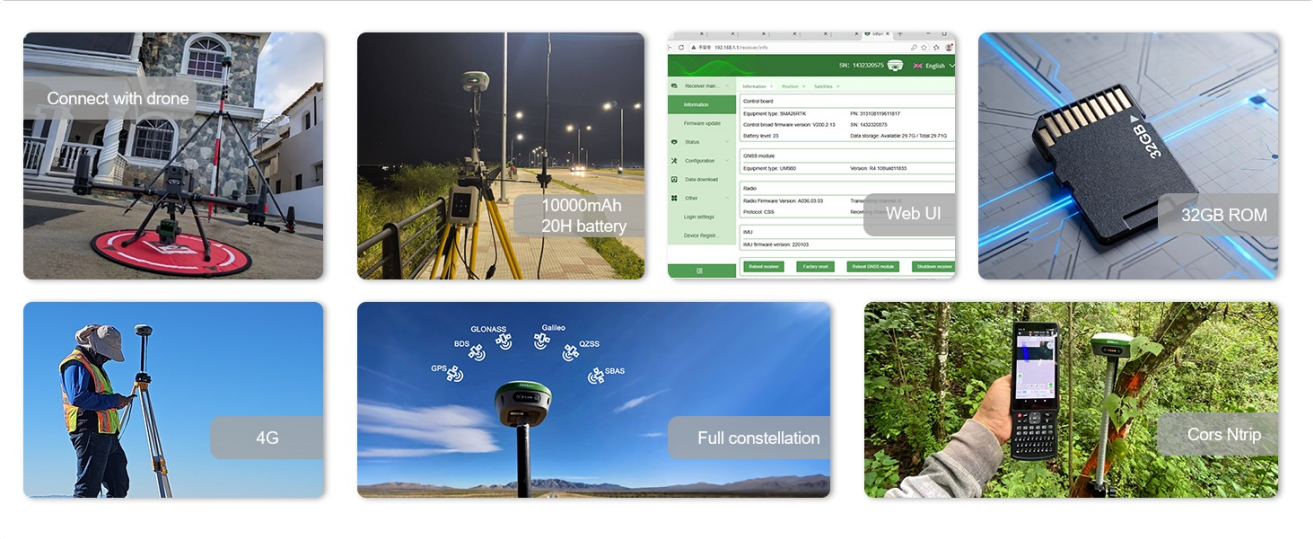

Image 3.3: An overview of the SMA26 Pro RTK Surveying Modes, including Static Surveying, RTK Surveying (Rover+Base), CORS Network Integration, SMA26 Pro Rover+Base PPK, SMA26 Pro Rover PPP, and SMA26 Pro Base (Network Base Station).

- **Static Surveying:** For high-precision positioning and long-duration surveys.
- **RTK Surveying (Rover+Base):** Real-time kinematic surveying with sub-centimeter accuracy.
- **CORS Network Integration:** Connects to Continuously Operating Reference Station (CORS) networks.
- **SMA26 Pro Rover+Base PPK:** Combines static and PPK for maximum precision, ideal for areas with poor RTK signal.
- **SMA26 Pro Rover PPP:** Achieves centimeter accuracy without the need for a base station using Galileo HAS corrections.
- **SMA26 Pro Base (Network Base Station):** Can act as a temporary CORS base station, uploading real-time differential data via 4G to rovers.

Video 3.2: SMA26 Pro RTK GNSS Polygon Surveying. This video demonstrates the process of surveying a polygon using the SMA26 Pro RTK system.

Video 3.3: SMA26 Pro RTK GNSS Volume Calculation. This video shows how to perform volume calculations using the SMA26 Pro RTK system.

Video 3.4: SMA26 Static Surveying Operation Steps. This video guides users through the steps for conducting static surveying with the SMA26.

Video 3.5: Known Point Setting Base Operation Video. This video demonstrates the procedure for setting up a base station at a known point.

3.4 SMA G-survey Software Usage

The SMA G-survey app is the primary software for controlling the SMA26 Pro Rover. It supports 42 languages and various file formats for import and export.

Image 3.4: The SMA G-survey software interface, showing options for project management, localization, coordinate system settings, data export/import, and more.

Video 3.6: Data Import Operation Video. This video demonstrates how to import data into the SMA G-survey software.

3.5 Connecting with Drones

The SMA26 Pro Rover can be connected to drones to serve as a base station, enhancing the accuracy of drone-based surveying and mapping operations.

1. Connect SMA26 PRO via Bluetooth, switch to base station mode, and select the Device Internet data link.
2. Pair the remote controller with the UAV.
3. Connect the remote controller to SMA26 PRO WiFi and enter the password 12345678.
4. Configure NTRIP protocol parameters on the UAV.
5. Display fixed solution, indicating a successful connection.

1. **Step 1:** Connect SMA26 PRO via Bluetooth, switch to base station mode, and select the Device Internet data link.
2. **Step 2:** Pair the remote controller with the UAV.
3. **Step 3:** Connect the remote controller to SMA26 PRO WIFI and enter the password 12345678
4. **Step 4:** Configure NTRIP protocol parameters on the UAV.
5. **Step 5:** Display fixed solution, indicating a successful connection.

Image 3.5: Diagram illustrating the connection steps between the SMA26 Pro, a remote controller, and a UAV for base station operation.

Video 3.7: SMA26 Plus/Pro and SMA28H Connect with Drones! This video demonstrates the connectivity of SMA26 Pro with drones for enhanced surveying capabilities.

3.6 CORS Network Connection

To connect the SMA26 Pro Rover to a CORS network for real-time differential corrections, follow these steps:

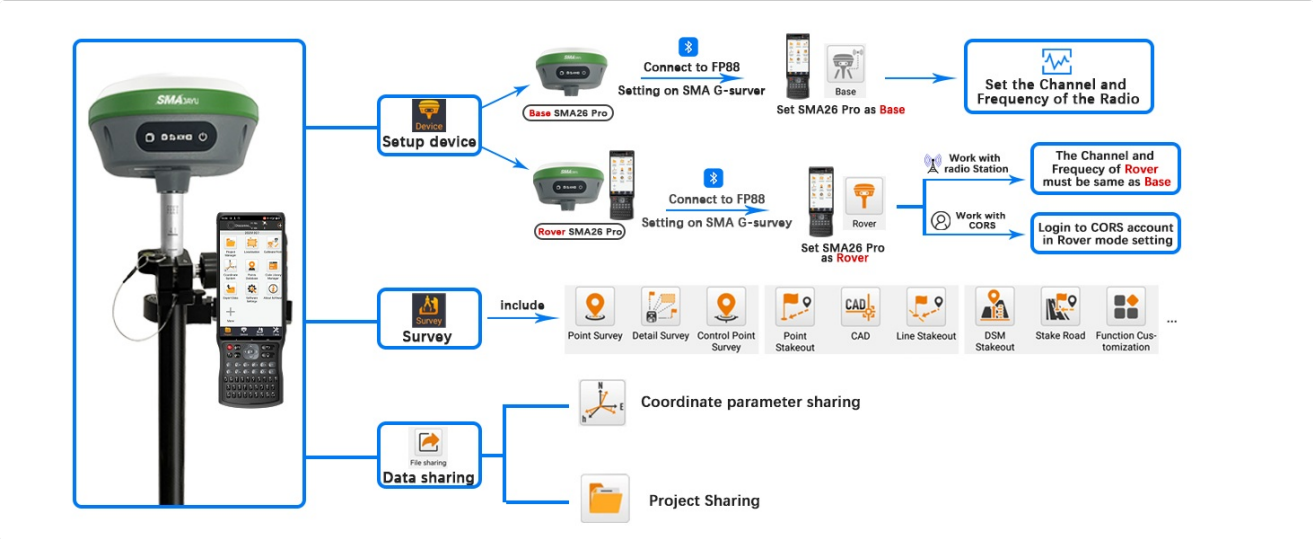

Image 3.6: Step-by-step guide on how to connect the SMA26 Pro Rover to a CORS network using the handheld controller interface.

1. Click "Rover" in the application.
2. Enter the Datalink settings, select "Phone Internet" (Collector 4G network) or "Device Internet" (GNSS receiver 4G network).
3. Go to Connect Mode and fill in your IP address, port, username, and password.
4. Get and select the Mountpoint.
5. Start receiving data and apply settings.

4. Maintenance

4.1 General Care

The SMA26 Pro Rover is designed for rugged use with an IP67 waterproof and dustproof rating and 2-meter drop resistance. It operates in temperatures from -45°C to +75°C. To ensure longevity, keep the device clean and dry, and avoid exposing it to extreme conditions beyond its specified limits.

Image 4.1: The SMA26 Pro GNSS Receiver submerged in water, illustrating its IP67 dustproof and waterproof protection.

4.2 Firmware Updates

Regularly updating the firmware ensures optimal performance and access to the latest features. Follow these steps to upgrade the firmware:

Image 4.2: Firmware Update of PPP Connection - Step 1: Copy the firmware file to the data collector's storage and connect to the

SMA26 WiFi. Step 2: Open a browser and log into the GNSS Receiver Configuration System.

Image 4.3: Firmware Update of PPP Connection - Step 3: Enter the WebUI configuration interface, select "Firmware update," upload the firmware file, and click "Upgrade." Step 4: The upgrade process takes 5-10 minutes until "Upgrade successful" is displayed. Step 5: Restart the SMA26 and verify the new firmware version. Note: CORS users may not need this firmware update.

Video 4.1: Firmware Upgrade Operation video. This video provides a visual guide on how to perform a firmware upgrade for the SMA26 Pro.

5. Troubleshooting

This section addresses common issues you might encounter with your SMA26 Pro Rover GNSS Receiver. For more complex problems, please refer to the customer support section.

5.1 Common Issues and Solutions

- **No Satellite Signal:** Ensure the receiver has a clear view of the sky. Check antenna connections. Verify that the correct satellite systems (GPS, GLONASS, etc.) are enabled in the software.
- **No RTK Fix:** Check the base station setup and ensure it is transmitting corrections. Verify the data link (radio, 4G, CORS) is active and configured correctly. Ensure the rover is within the operational range of the base station or CORS network.
- **Handheld Controller Connectivity Issues:** Restart both the receiver and the handheld controller. Check Bluetooth or Wi-Fi connections. Ensure the controller's battery is charged.
- **Inaccurate Measurements:** Calibrate the tilt sensor if necessary (though the SMA26 Pro features calibration-free tilt compensation). Ensure the pole height is accurately entered in the software. Check for obstructions or strong electromagnetic interference.
- **Battery Not Charging:** Verify the charger and cable are properly connected and undamaged. Ensure the power source is active.

5.2 Generating Debug Files

If you encounter persistent issues, generating a debug file can assist technical support in diagnosing the problem.

Video 5.1: Steps to Output Debug File. This video demonstrates how to generate and output a debug file from the SMA26 Pro system.

6. Specifications

Feature	Specification
Brand	SMAJAYU
Model Name	SMA26 Pro Rover
Supported Satellite Navigation System	BeiDou, GLONASS, GPS, Galileo
Tilt Compensation Accuracy	Up to 2.5 cm (at tilt angles ≤30°)
Max Tilt Measurement Angle	60°
Handheld Controller OS	Android 11
Handheld Controller Screen Size	5.45 Inches
Handheld Controller Battery	9000mAh
Receiver Battery Life	Up to 20 Hours
Internal Storage	32GB
Connectivity Technology	Bluetooth, USB, Wi-Fi, 4G
Protection Rating	IP67 (Waterproof and Dustproof)
Drop Resistance	Up to 2 meters
Operating Temperature	-45°C to +75°C
Item Weight	2.3 Pounds
Item Dimensions (L x W x H)	5.51"L x 5.55"W x 3.46"H

7. Warranty Information

For detailed warranty terms and conditions, please refer to the official warranty documentation provided with your SMAJAYU SMA26 Pro Rover GNSS Receiver or visit the manufacturer's official website. Keep your proof of purchase for warranty claims.

8. Customer Support

If you require technical assistance, have questions about product operation, or need to report an issue, please contact SMAJAYU customer support. Contact information can typically be found in the product packaging, on the official SMAJAYU website, or through your point of purchase.