SingularXYZ E1 RTK Base

SingularXYZ E1 GNSS GPS RTK Base Station User Manual

Model: E1 RTK Base

INTRODUCTION

The SingularXYZ E1 GNSS GPS RTK Base Station is a high-accuracy land surveying equipment designed for static surveying, coordinate collection, and point surveying. It offers rapid and stable positioning even in challenging environments. This manual provides essential information for setting up, operating, and maintaining your E1 RTK Base Station.

PACKAGE CONTENTS

Image: Overview of the E1 GNSS RTK Base Station and its included accessories in a protective case.

- E1 GNSS Receiver (1 unit)
- Transport Case (1 unit)
- USB-Type C Cable (1 unit)
- Super Charger (1 unit)
- Terminal antenna (1 unit)

- Quick Start Guide (1 unit)
- Quick Start Card (1 unit)
- 20 cm extension rod plugged on tribrach (1 unit)
- Aluminum tray (1 unit)

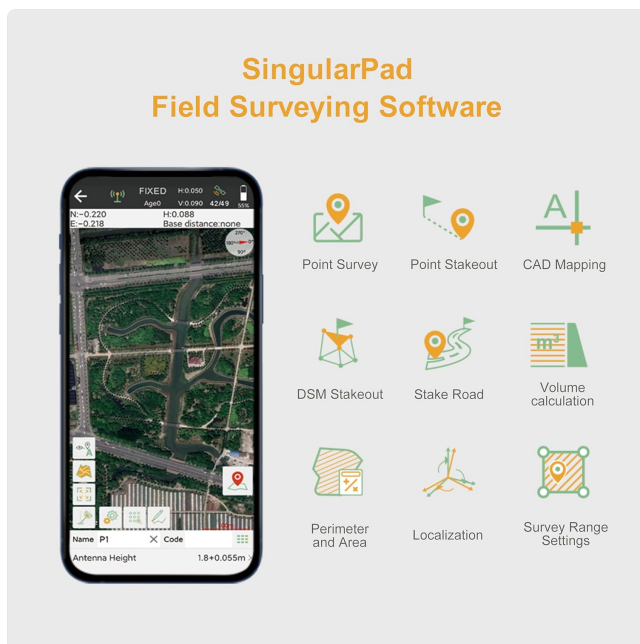## PRODUCT OVERVIEW

E1 Front Panel

Image: Detailed view of the E1 GNSS Receiver's front panel, highlighting the Satellite Tracking Indicator, Static & Network Indicator, Function Button, Correction Data Indicator, Power Indicator, and Power Button.

Satellite Tracking Indicator: Flashes N times every 5s, N = Number of tracking satellites.

Static & Network Indicator: Yellow light flashes when recording static data.

Function Button: Press twice in succession to start/stop static data recording.

Correction Data Indicator: Flashes when TX/RX correction data.

Power Indicator: Red light is on when the receiver is turned on, and red light flashes when the battery is lower than 10%. Green light flashes when charging and stays on when fully charged.

Power Button: Long press to turn on/off the receiver.

E1 Interfaces

Software Installation

To configure the work mode of your E1 GNSS base station, you'll need to install the SingularPad field surveying software on your Android device.

Where to Get the Software:

The necessary software is included on this USB drive. Please copy and install it onto your Android phone, tablet, or data collector before proceeding with the configuration.

Image: Detailed view of the E1 GNSS Receiver's interfaces, including NFC Connection, Type-C Interface for charging and data download, TNC Connector for UHF Antenna, and 7-pin Lemo RS232 Serial Port.

NFC Connection: For one-touch connection with compatible devices.

Type-C Interface: Used for charging the device and data download.

TNC Connector: For connecting the UHF Antenna.

7-pin Lemo RS232 Serial Port: For serial communication.

INITIAL SETUP

1. **Charging the Device:** Connect the E1 GNSS Receiver to the Super Charger using the USB-Type C Cable. The Power Indicator will flash green while charging and stay solid green when fully charged. The device supports fast charging.

2. **Power On/Off:** Long press the Power Button to turn the receiver on or off.

3. **Antenna Connection:** Connect the Terminal antenna to the TNC Connector for optimal signal reception.

4. **Physical Placement:** Ensure the E1 RTK Base Station is placed on a stable surface, such as a tripod or tribrach, for accurate surveying.

OPERATING MODES

Base Station Mode

The E1 supports base station configuration through the SingularPad software without any additional license requirements. In this mode, the E1 acts as a stationary reference point, transmitting correction data to rover units.

Image: The E1 GNSS Receiver configured as a base station, typically mounted on a tripod for stable operation.

Rover Mode

To activate rover mode, a permanent license for SingularPad software is required. In rover mode, the E1 receives correction data from a base station (either another E1 or a CORS network) to achieve high-accuracy positioning for mobile surveying tasks.

Image: The E1 GNSS Receiver being used as a rover, connected to a handheld controller for field operations.

60° Tilt Measurement

With an advanced IMU module, the E1 allows tilt measurements up to 60° with ±2.5cm accuracy, enhancing flexibility in surveying tasks where vertical alignment is challenging.

SOFTWARE INSTALLATION AND DATA MANAGEMENT

SingularPad Software Installation

To configure the work mode of your E1 GNSS base station and manage data, you'll need to install the SingularPad field surveying software on your Android device. The necessary software is included on a USB drive. Please copy and install it onto your Android phone, tablet, or data collector before proceeding with the configuration.

Image: Illustration of the SingularPad software installation process on an Android device, showing the USB drive and the software interface.

Data Import Tutorial

The SingularPad software allows for easy data import. Follow these steps or refer to the video tutorial below:

1. Go to **Project >> Import Data** and select the data type you need to import, including points, lines, and code library.
2. Select the corresponding file format for your import file. You can also create a new format if needed.
3. Edit the custom format based on your import file. If the data type of your import file is not included in the Options, select (null) instead.
4. Click **Next** to select the import file path.
5. You can also click **Preview** to see if the import file is in the correct format.

Your browser does not support the video tag.

Video: Singular Software Tutorial - Data Import. This video demonstrates how to import data into the SingularPad software, covering file format selection and previewing the import file.

Data Download via Web UI

Access via E1's Wi-Fi, you can conduct static data download, firmware upgrade & configuration via its web page.

Image: The E1 GNSS Receiver demonstrating NFC one-touch connection and the process of easy data download via its Web UI using Wi-Fi.

SPECIFICATIONS

Feature	Detail
Product Dimensions	2.64 x 5.26 x 5.26 inches
Item Weight	7.05 pounds
Item Model Number	E1 RTK Base
Batteries	3 Lithium Ion batteries required (included)
Battery Life	Up to 20 Hours
Screen Size	1 Inches (Visible screen diagonal: 3 cm)
Special Features	Bluetooth, NFC, Waterproof (IP68)
Connectivity Technology	Bluetooth, Ethernet, USB, Wi-Fi
Map Type	Worldwide
Audio Output Mode	Stereo
Mounting Type	Panel Mount

▼ E1 Front Panel

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▼ E1 Interfaces

NFC Connection

Type-C Interface for charging and data download

TNC Connector: For UHF Antenna

7-pin Lemo RS232 Serial Port

Image: The E1 GNSS Receiver demonstrating its IP68 waterproof and dustproof capabilities.

MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Avoid abrasive cleaners or solvents.
- **Storage:** When not in use, store the E1 RTK Base Station in its transport case in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Battery Care:** To prolong battery life, avoid fully discharging the battery frequently. Charge the device regularly, even if not in active use.
- **Firmware Updates:** Regularly check for and install firmware updates via the E1's web UI to ensure optimal performance and access to new features.

TROUBLESHOOTING

- **Device Not Powering On:** Ensure the battery is sufficiently charged. Connect the charger and attempt to power on again.
- **No GPS Signal:** Check that the antenna is securely connected. Ensure the device has a clear view of the sky, free from obstructions like buildings or dense tree canopy.
- **Connection Issues (Bluetooth/Wi-Fi):** Verify that Bluetooth/Wi-Fi is enabled on both the E1 and the connected device. Restart both devices and attempt to reconnect.
- **Software Malfunction:** If the SingularPad software is not functioning correctly, try reinstalling it from the provided USB drive. Ensure your Android device meets the software requirements.
- **Inaccurate Readings:** Ensure the device is properly calibrated and that the operating mode (Base/Rover) is correctly configured for your surveying task. Check for strong signal reception.

WARRANTY AND SUPPORT

SingularXYZ is committed to providing reliable products and professional service. For any technical assistance, warranty claims, or inquiries regarding permanent licenses for Rover Mode, please contact SingularXYZ directly. Additional protection plans are available for purchase:

- 2-Year Protection Plan
- 3-Year Protection Plan
- Complete Protect (monthly plan)

For more information, visit the SingularXYZ Store on Amazon.