



Perfect Positioning for Success!

PozStar P5

User Manual



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1. Introduction

The PozStar P5 is a high-performance GNSS receiver with built-in GNSS antenna and battery. It can be controlled through an Android app connected via Bluetooth or a wifi Web UI.

Precautions

Before using the PozStar P5, you have to read and understand all safety requirements.

While designed to withstand generally harsh environments such as in the construction field, the receiver should be handled with care as it is a precision electronic device.

The receiver contains a rechargeable lithium-ion battery, and charging or using it with unauthorized equipment can lead to explosions, fires, damage to the equipment, or personal injury. The PozPad app used with the receiver may have different available periods based on the license, so you can inquire with the manufacturer or service center to obtain or purchase a license for use.

Some products may use a 450 MHz data communication radio wireless signal, and regulations regarding use may vary by country, requiring a license.

- Do not subject the receiver to severe impacts or disassemble it arbitrarily.
- Dropping, altering, transporting without proper packaging, or handling carelessly may result in performance issues.
- When charging the receiver, use the provided charging device or an authorized one.
- Do not charge or use the product if the battery appears damaged.
- The owner of this product should regularly test it to ensure accurate

measurements.

- Receive service or repairs for this product only from an authorized warranty service center.
-

1.1. Hardware Configuration

1.1.1. Name of Each Part

The appearance and names of each part of the PozStar P5 are as shown in the pictures below.



1.1.2. Interface Connection

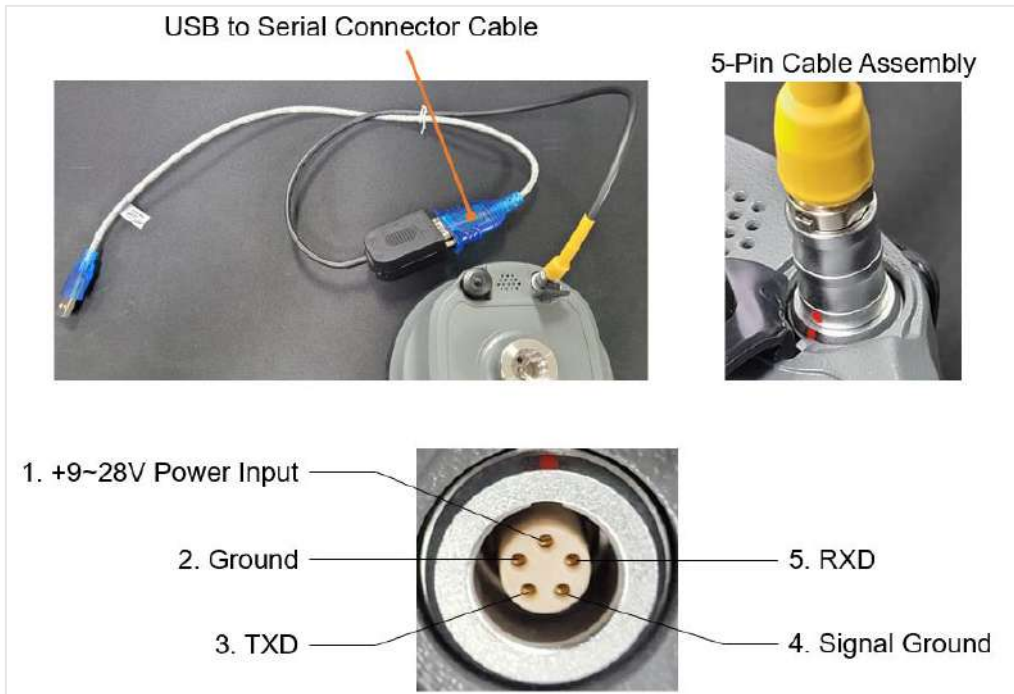
Radio Antenna Connector:

For products with a built-in radio module (Optional), you can use the radio antenna connector to transmit or receive correction data wirelessly within the frequency range of 410 to 470 MHz and the radio antenna connector is a coaxial TNC type. Remove the dust cap covering the connector and connect the provided radio antenna as shown in the diagram.



5-Pin Serial Port:

Connect the provided 5-pin serial cable as shown in the picture. The 5-pin connector should be connected with the direction of the red dot as shown in the picture, and it is used to connect to an external radio system or for NMEA data output.



USB (Type-C) Port

Open the USB cover as shown in the picture below, and connect the USB Type-C cable for file transfer and charging.

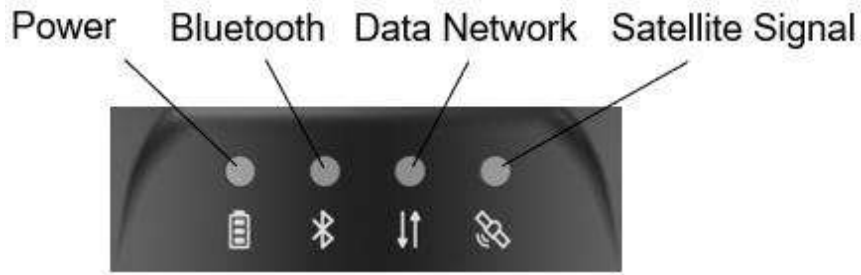


If the device is powered on and connected to a terminal device such as a computer via a USB cable, you can access the memory drive within the device through the file manager for file management.

1.1.3. Front Panel LED

There is a total of 4 indicator points that allow you to assess the power or charging status, Bluetooth connection, data communication status, satellite signal

reception status, etc., of the P5 through colors or flashing.



1.2. Software

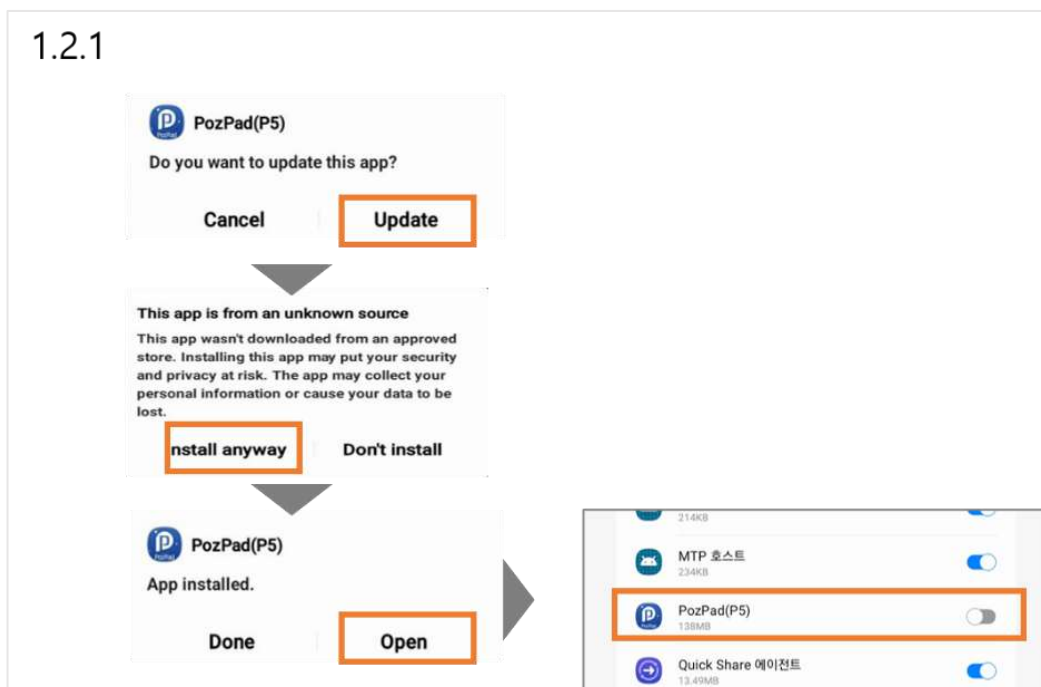
1.2.1. Android App (PozPad)

PozPad Program Installation

Install the provided apk file on your Android device that comes with the PozStar P5. If you are installing the PozPad app for the first time, follow the steps in the diagram below, as shown.

To install, follow these steps.

Installation ► Install Anyway ► Open ► Enable access to all files



If you encounter a crash message or if the app is stuck on the initial screen after installation, it may require app permission settings.

- Crash Message: Run App Info

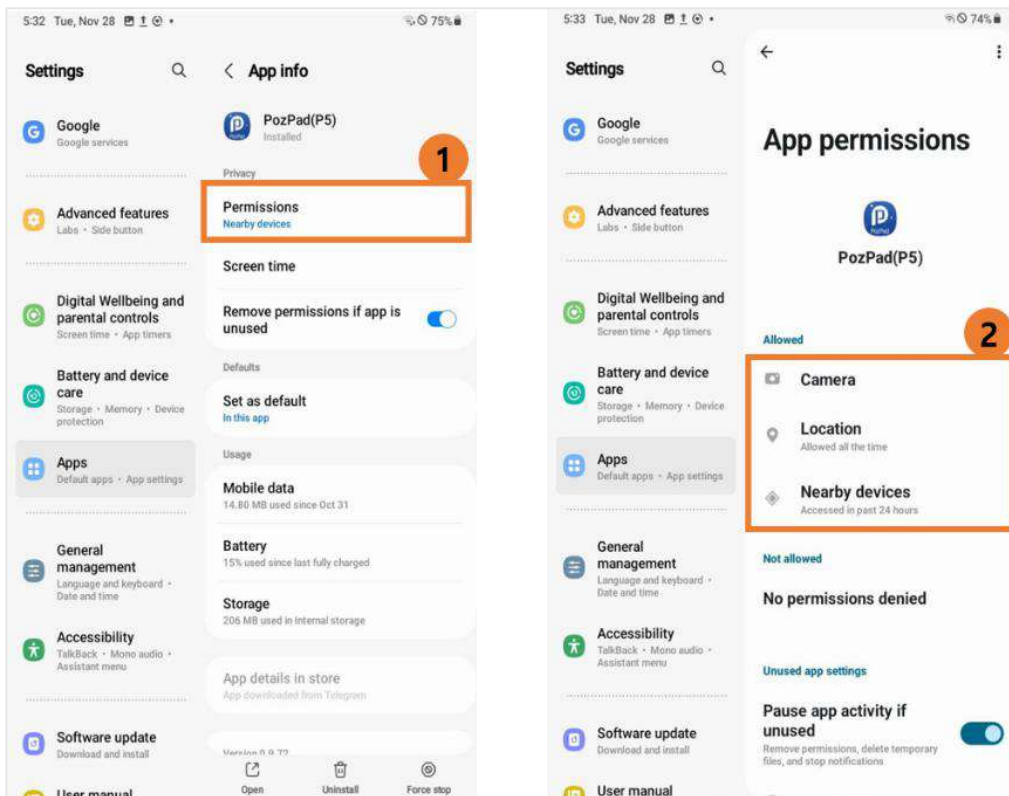


- Stuck on the Initial Screen: Long-press the icon then click ⓘ



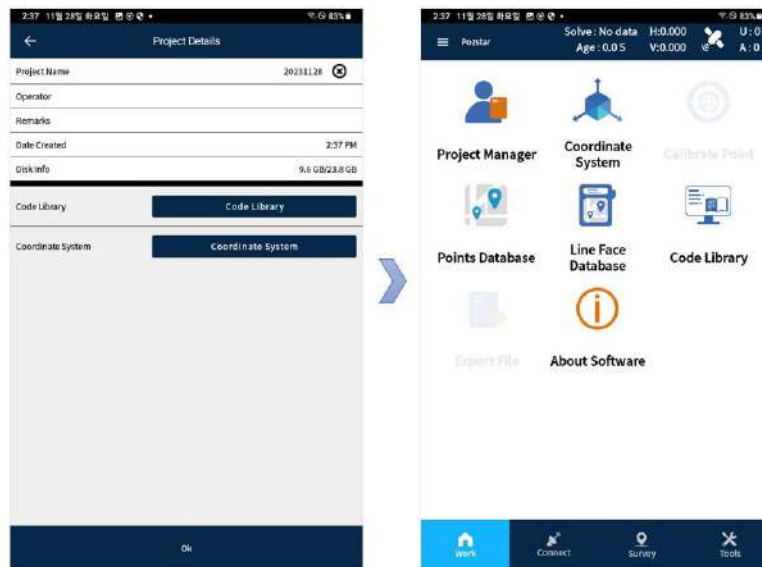
When the Application Info screen appears:

Permissions ▶ Execute the steps to allow all permissions for the specified items, including "Nearby Devices," "Location," and "Camera."



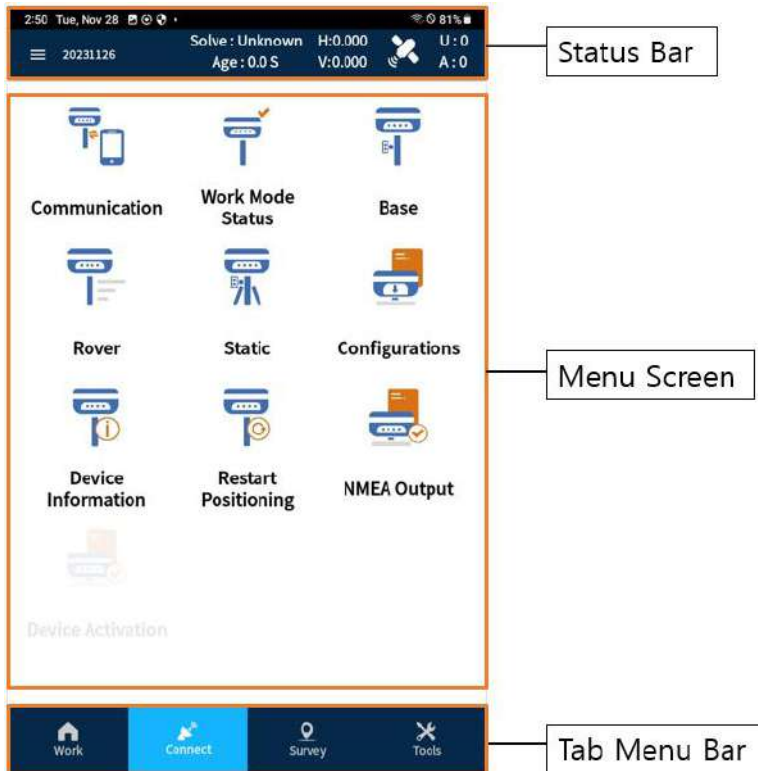
Run the application by clicking on the PozPad icon, and you should be able to access the PozPad screen.

If it's the first time running the app, you will see the screen for creating a project, as shown in the left picture below. If you have used the app before and already have a project, you will see the default screen as shown in the right picture.

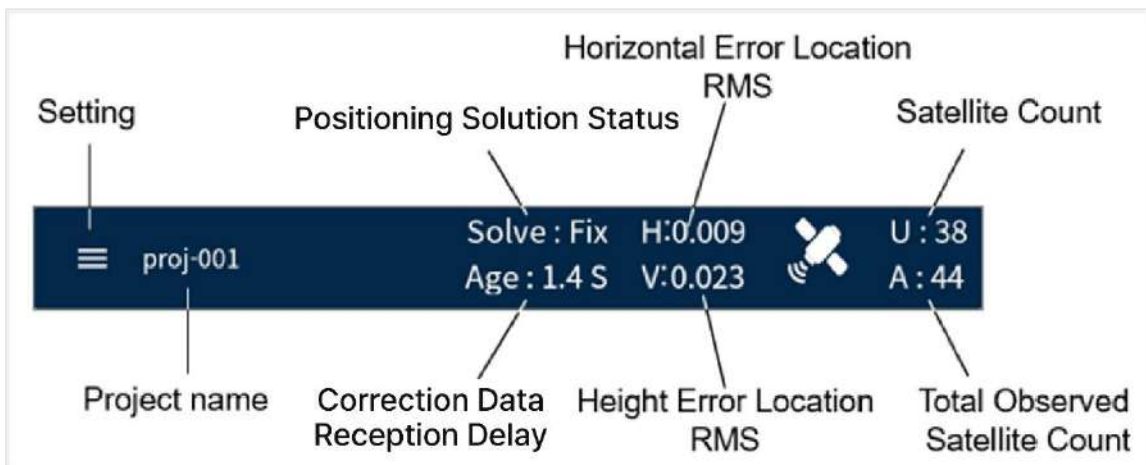


PozPad's Basic Screen Configuration:

The PozPad's main screen is divided into three main parts: the Status Bar, Menu Bar, and Tab Menu Bar.



Status Bar Configuration



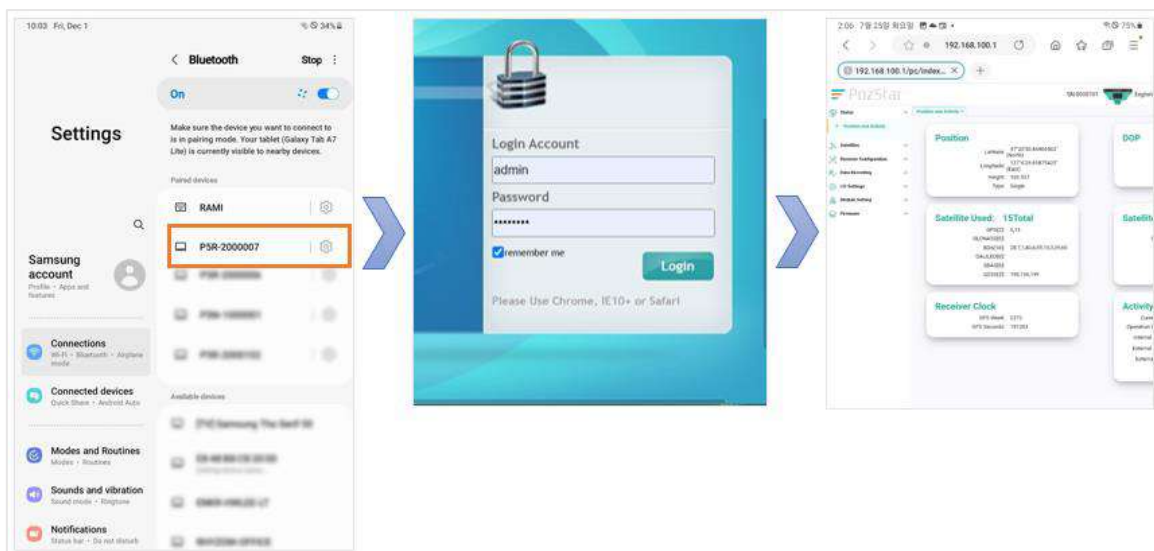
- Interface Settings: Choose between Grid or List format for the main menu, and select the desired language.
- Project Name: Displays the name of the currently applied project.
- Positioning Solution Status: Indicates the status, such as Unknown, Search Sat, Single, DGPS, Float, Fix, etc.
- Correction Data Reception Delay: Time taken to receive new correction data.

- Horizontal Position Error RMS / Vertical Position Error RMS: Displays the root mean square (rms) error in meters for the current positioning status.
- Number of Satellites Used in Calculation / Total Observed Satellites: Shows the count of satellites used in the calculation and the total number of observed satellites.

1.2.2. Web UI Interface

Web UI can be accessed via Wi-Fi communication. Connect to the P5 receiver by selecting its serial number from the Wi-Fi address list (password: **"password"**). Then, open an internet browser and enter **"192.168.100.1"** in the address bar.

At the login screen that appears, enter **"ID: admin, PW: password"** to log in, and you will be able to view the PozStar P5's Web UI screen.



The Web UI screen that appears in the internet browser of an Android device has different layouts for the mobile version and PC version. You can choose a convenient screen layout for usage through the internet browser's settings menu.

For detailed instructions, refer to section 4. Web UI.

2. Starting

2.1. Remaining Capacity of Internal Battery

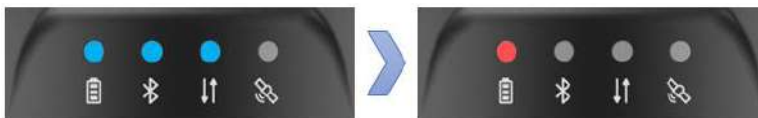
If you press the power button located at the bottom of the P5 for about 1 second, the front panel LED will display the current remaining battery capacity in four levels with a blue color.



2.2. Power On/Off

2.2.1. Power On

To power on the P5, press and hold the power button located at the bottom for 3 to 4 seconds. After hearing a beep from the buzzer, release the power button. The device will power on. At this point, the front panel LED initially indicating the remaining battery level with a blue LED will change, and the power LED will turn red indicating that the device is powered on.



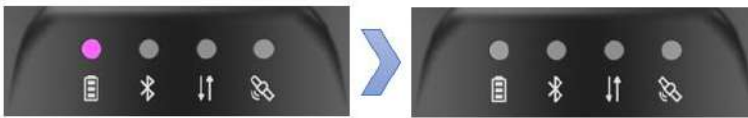
Afterwards, wait for about 15 seconds, and you will hear the voice saying "PozStar has started." along with the operating mode. The P5 will be in a ready state for use.

If the P5 is in a location where it can receive satellite signals once it's ready, you will hear the voice saying "Satellite tracking in progress." After this, the satellite signal LED will flash blue, indicating that the P5 is in satellite signal reception mode.



2.2.2. Power Off

If the P5 is powered on, pressing and holding the power button located at the bottom for 3 to 4 seconds will trigger a beep sound, and the device will power off. At this point, the power LED on the front panel will change to violet, and you will hear the voice saying "Powering off." After this announcement, all LEDs will turn off.



2.3. Android App (PozPad) Execute

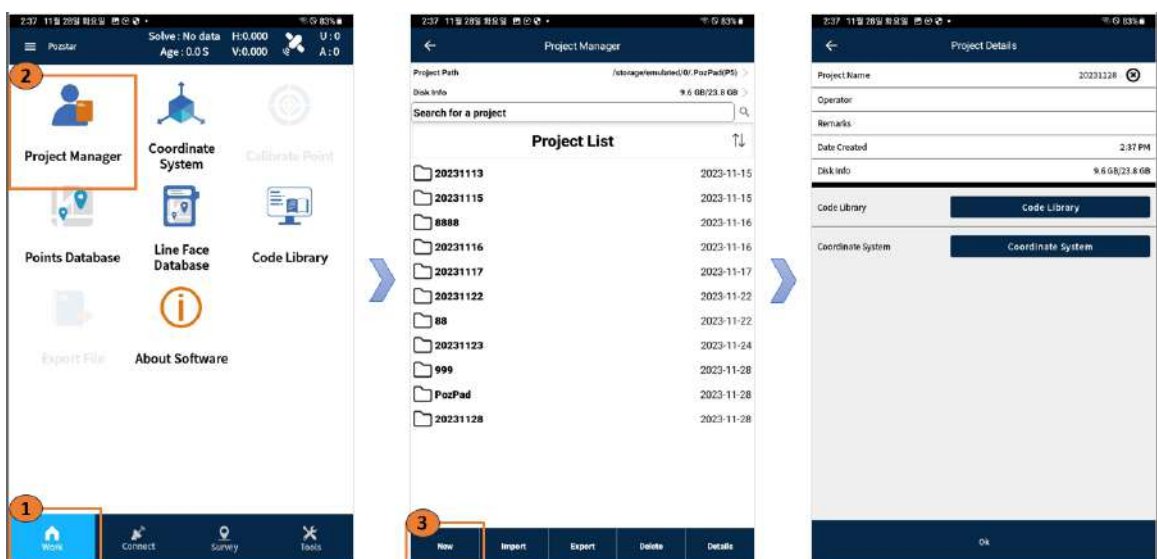
2.3.1. New Project/Creation Project

To run the app, open the icon on your Android device.

If it's the first time running the app, you will see a screen for project creation, similar to the one on the far right in the image below. If you have used the app before and have existing projects, it will start from the screen on the far left in the image.

To Create a new project

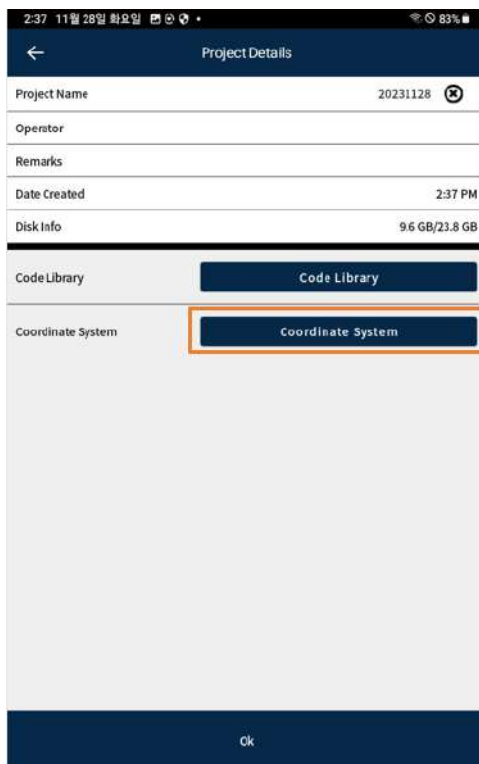
Task Tap ▶ Task ▶ New



Enter the project name, refer to section 2.3.2 “coordinate system setting: to configure the coordinate system to be used for survey work.

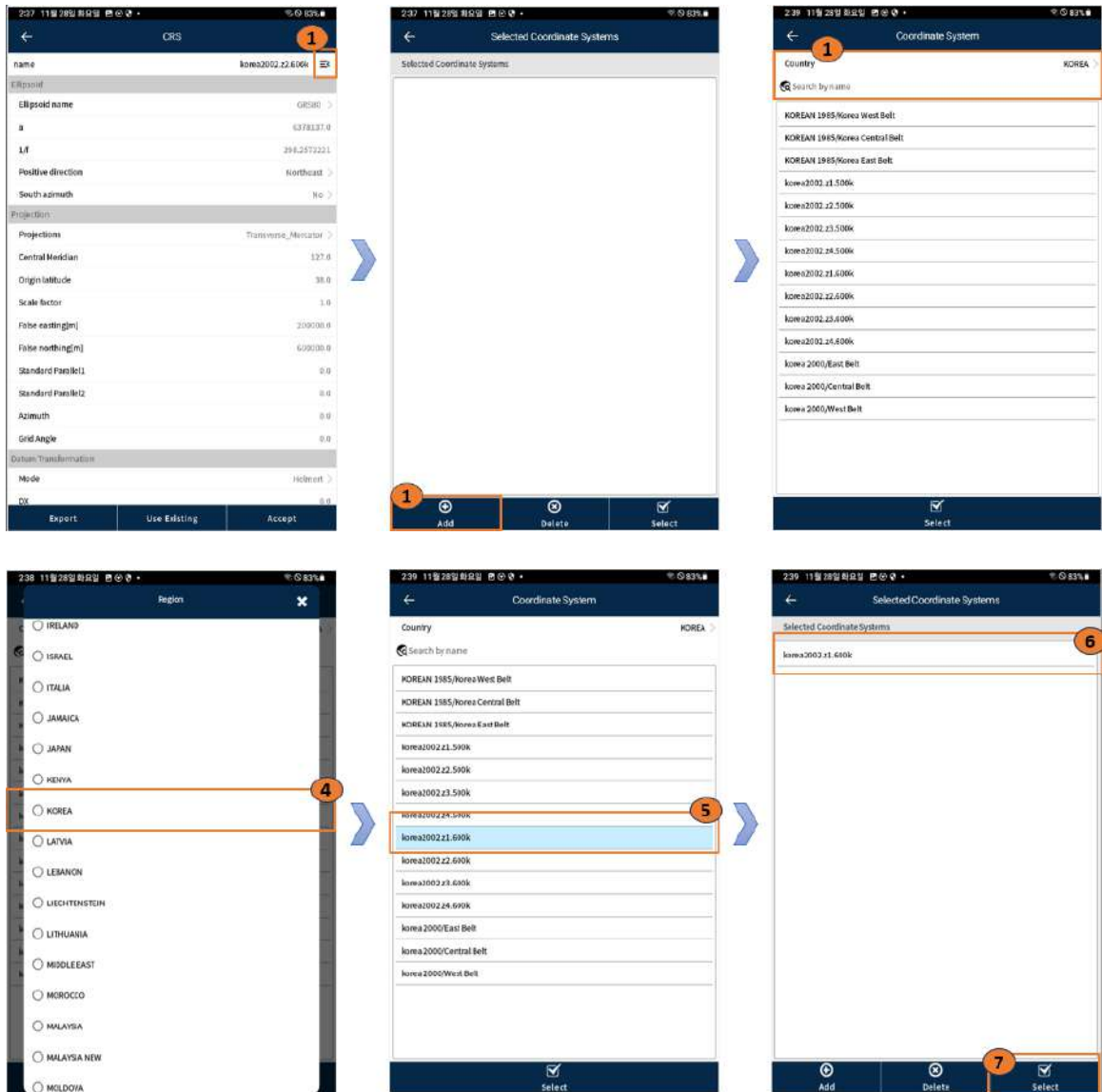
2.3.2. Coordinate System

In general, when creating a new project, it's necessary to set the coordinate system for survey points. Click the “Coordinate System” button to initiate the coordinate system settings.



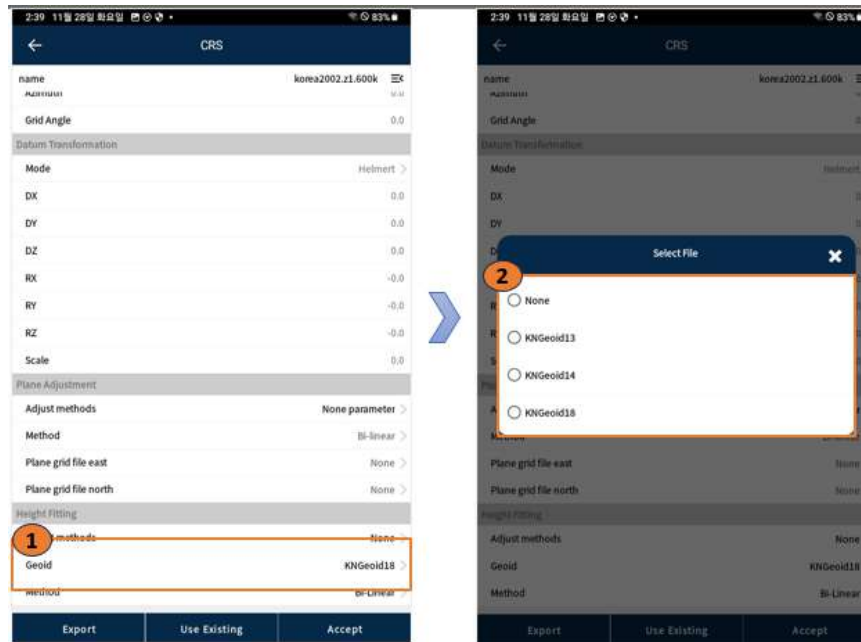
For example, to select a coordinate system using the central meridian of South Korea,

Coordinate System Setting ▶ Add ▶ Country ▶ KOREA ▶ korea2002.z2.600k ▶ Select ▶ Accept



2.3.3. Geoid Setting

To measure accurate elevations, set the Geoid in the coordinate system settings screen below. For Korea, you can choose from KNGeoid13, KNGeoid14, and KNGeoid18

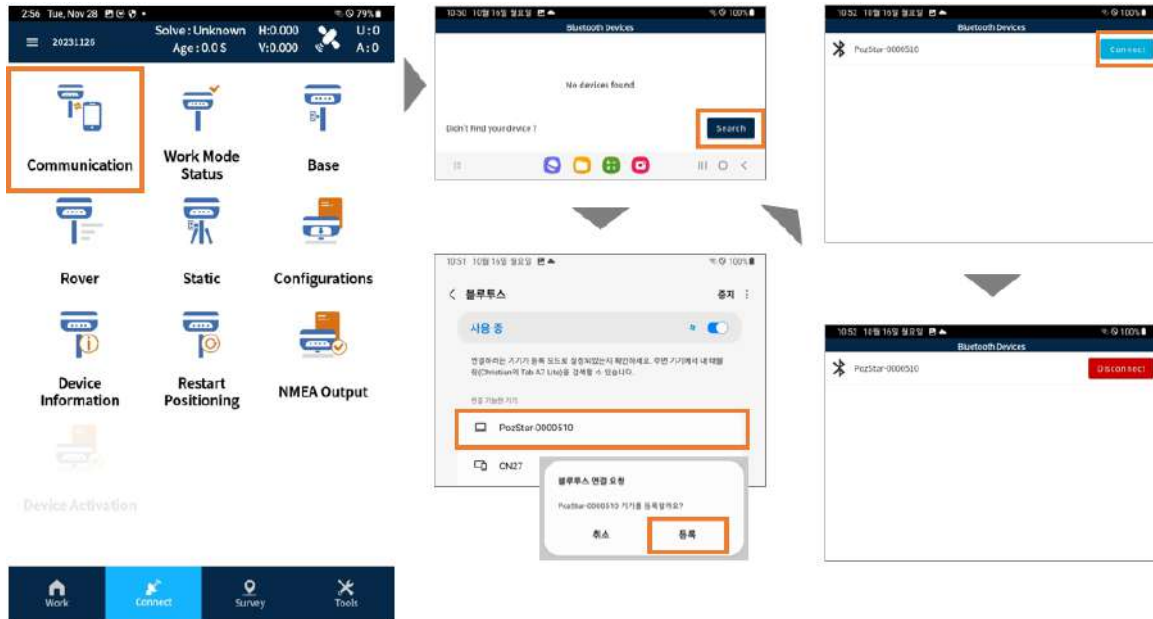


2.3.4. P5 and Bluetooth Communication Connection

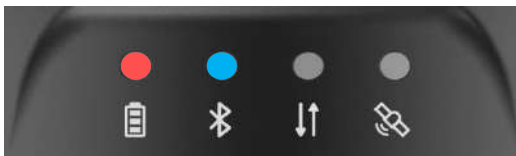
The control and configuration of the P5 receiver using the app are conducted through Bluetooth communication. When the P5 is powered on, in a ready state, and the Android device is in a Bluetooth-enabled state, you can connect the P5 with the PozPad APP through Bluetooth communication by following the steps below:

Connection Tap ► Connection ► Search ► Registration ► Connect

At this time, check and select the serial number of the P5 you want to connect among the devices that appear in Bluetooth search.



Once the P5 and the app are connected via Bluetooth, the Bluetooth LED on the front panel will turn blue, and a voice prompt saying "Bluetooth is connected" will be played.



3. Stakeout and Surveying

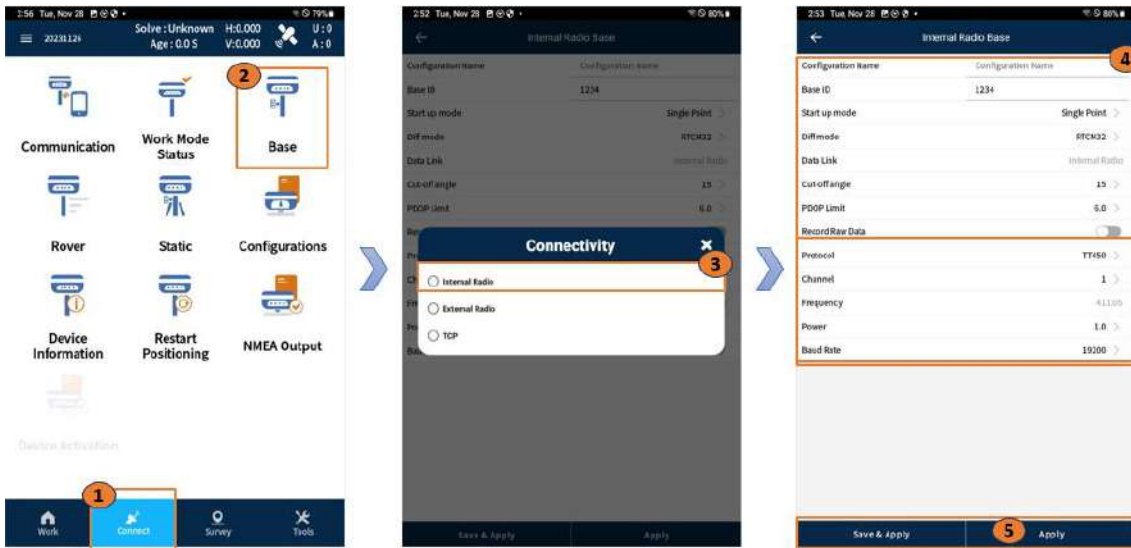
3.1. Base Mode

3.1.1. Base – Interior Radio (Optional) Transmit

The standard country mode using the built-in radio is available on receivers that include a Interior radio module. The radio transmission settings of the standard country and the radio reception settings of the mobile country must be set to be the same.

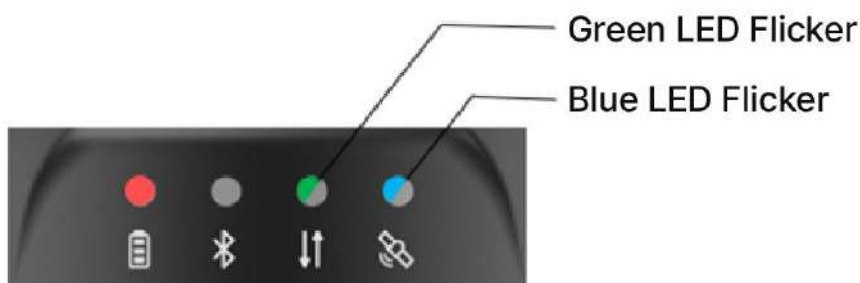
To use the built-in radio, remove the dust cap covering the connector and connect the provided radio antenna.

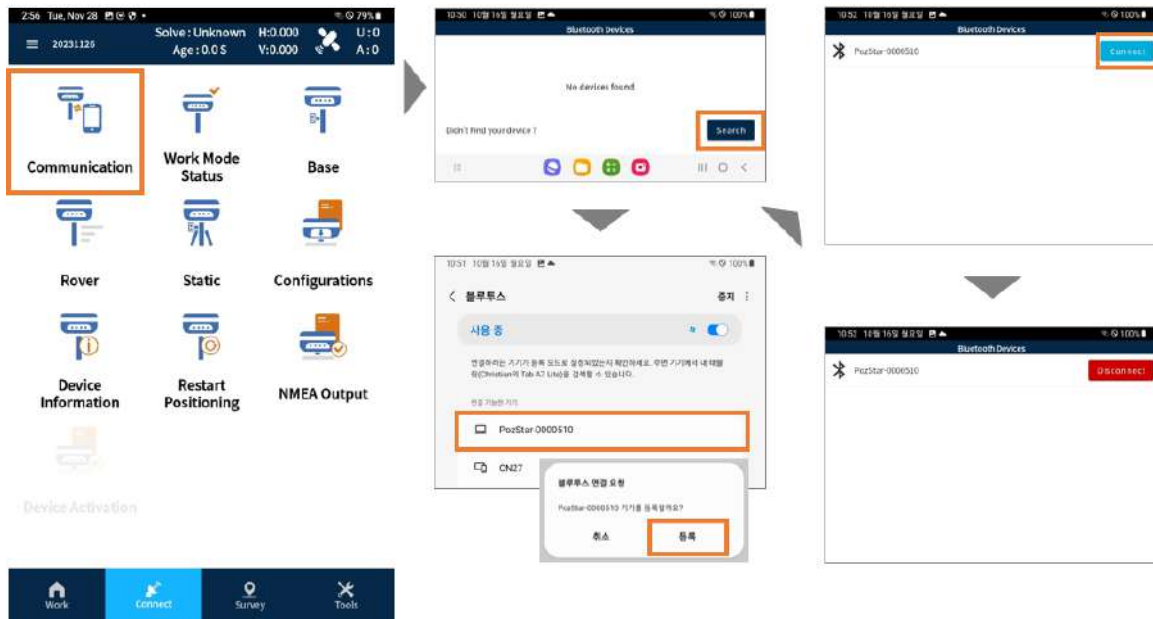
Connection Tap ► Base Tap ► Built-In ► Built-In Setting ► Save & Apply or Confirmed



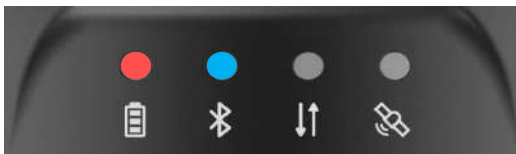
The file name is the name under which the current settings are saved and applied when executed. The Base ID serves as the distinguishing name for the reference station used during post-processing, so it should be assigned an appropriate name. In particular, the protocol, channel, and transmission speed must match the radio reception settings of the mobile station.

Once the reference station setup is complete, the voice prompt "Reference station mode activated. Bluetooth connection has been disconnected." will be played, and the Bluetooth connection between the terminal and the receiver will be terminated. When satellite signals are received, the satellite signal LED will blink in blue, and the data communication LED will blink in green, indicating that correction data is being transmitted.





When P5 is connected to the app via Bluetooth communication, the Bluetooth LED on the front panel will illuminate in blue, accompanied by the voice prompt, "Bluetooth connection established."



3. Surveying and Installation

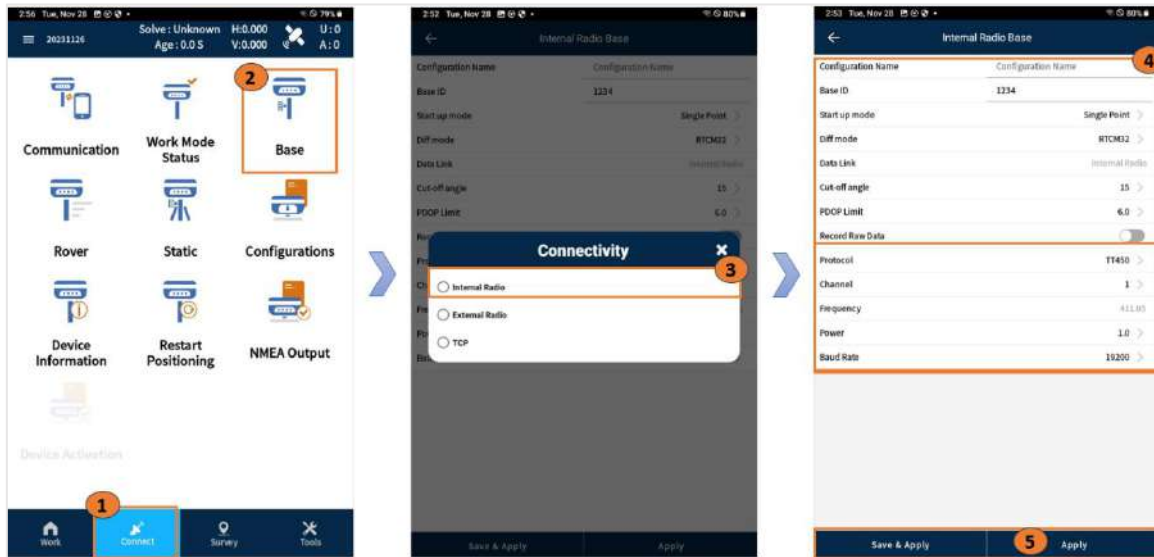
3.1. Reference Station (Base) Mode

3.1.1. Reference Station - Internal Radio (Optional) Transmission

The reference station mode using the internal radio is available on receivers equipped with an internal radio module. It is essential to configure the radio transmission settings of the reference station to match the radio reception settings of the mobile station.

To use the internal radio, remove the dust cap covering the connector and connect the provided radio antenna.

Navigate to the Connection tab ► Reference Station ► Internal Radio ► Internal Radio Settings ► Save & Apply or Confirm to execute.



The file name is the name under which the current settings are saved and applied when executed. The Base ID serves as the distinguishing name for the reference station used during post-processing, so it should be assigned an appropriate name. Especially, the protocol, channel, and transmission speed must match the radio reception settings of the mobile station.

Once the reference station setup is complete, a voice prompt saying "Reference station mode activated. Bluetooth connection has been disconnected." will be played, and the Bluetooth connection between the terminal and the receiver will be terminated. When satellite signals are received, the satellite signal LED will blink in blue, and the data communication LED will blink in green, indicating that correction data is being transmitted.



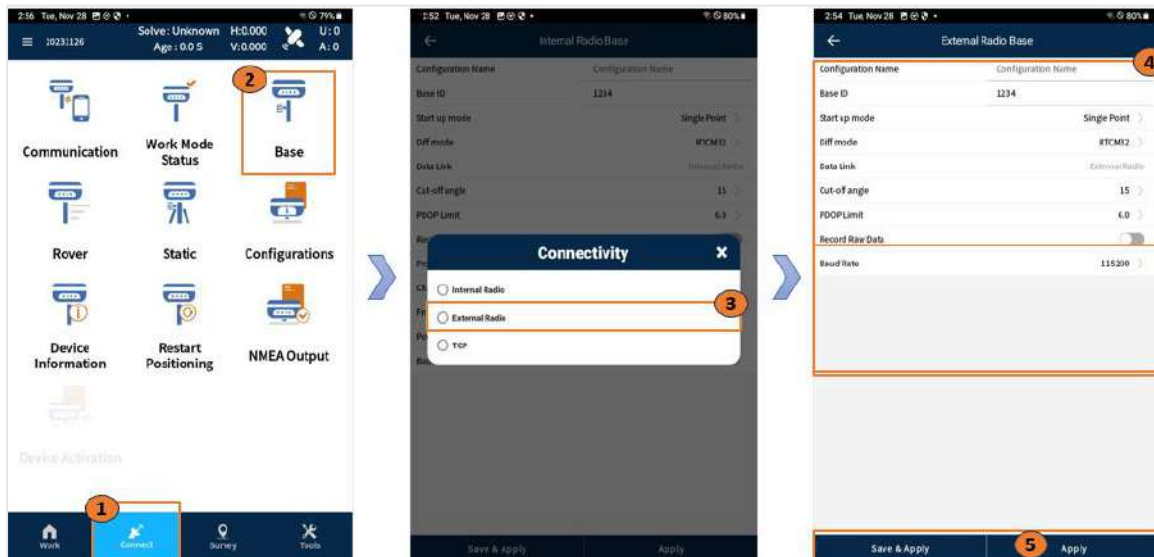
3.1.2. Reference Station – External Radio Transmission

Reference Station - External Radio Transmission

The reference station mode using an external radio is a method for utilizing an external radio transmission device on the 5-pin serial port. The radio antenna connector and antenna used for the built-in radio cannot be used.

To facilitate the connection of an external device, refer to section 1.1.2. Interface Connection, specifically the 5-pin serial port part. Ensure that the power input and data input/output pins are accurately connected.

Navigate to the Connection tab ► Reference Station ► External Radio ► External Radio Settings ► Save & Apply or Confirm to execute.



File Name and Base ID Settings:

The file name serves as the identifier for the task saved and applied when executed, capturing the current configuration. The Base ID, on the other hand, is crucial for distinguishing the reference station during post-processing and should be assigned an appropriate name.

Particularly, ensure that the transmission speed aligns with the radio reception settings of the mobile station for optimal performance and compatibility.

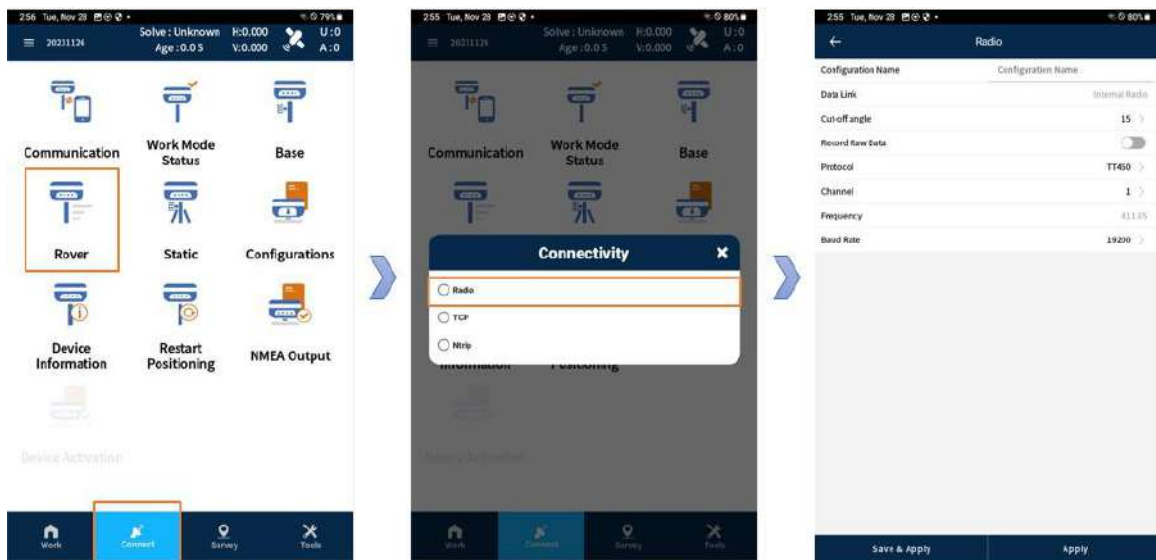
3.2. Mobile Station (Rover) Survey

3.2.1. Mobile Station - Internal Radio (Optional) Reception Settings

The Mobile Station mode utilizing the internal radio is available on receivers equipped with an internal radio module. Set the radio reception configuration of the Mobile Station to match the radio transmission settings of the Base Station.

To use the internal radio, remove the dust cap covering the connector and connect the provided radio antenna.

Connection tab ► Mobile Station ► Internal Radio ► Internal Radio Settings ► Save & Apply / Confirm to Execute.



The file name is the name of the operation mode that is saved when the "Save & Apply" operation is executed for the current configuration. Specifically, the protocol, channel, and transmission speed must match the radio transmission settings of the Base Station.

Once the Mobile Station configuration is complete, the voice prompt "Mobile Station

mode activated" will be heard. When receiving satellite signals, the Satellite Signal LED will blink in blue, and when receiving radio signals, the Data Communication LED will blink in green, indicating that correction data is being received.

If all settings and conditions are appropriate, you will hear voice prompts such as "Single," "Differential," "Float," "Fixed," in sequence. The Bluetooth connection between the terminal and the receiver will remain active.



3.2.2. Mobile Station - Network RTK (VRS, FKP) Configuration

To configure the receiver to use Network RTK services such as VRS or FKP provided by the National Geographic Information Institute, set the Mobile Station as follows:

For server-related information from the National Geographic Information Institute used since May 2022, refer to:

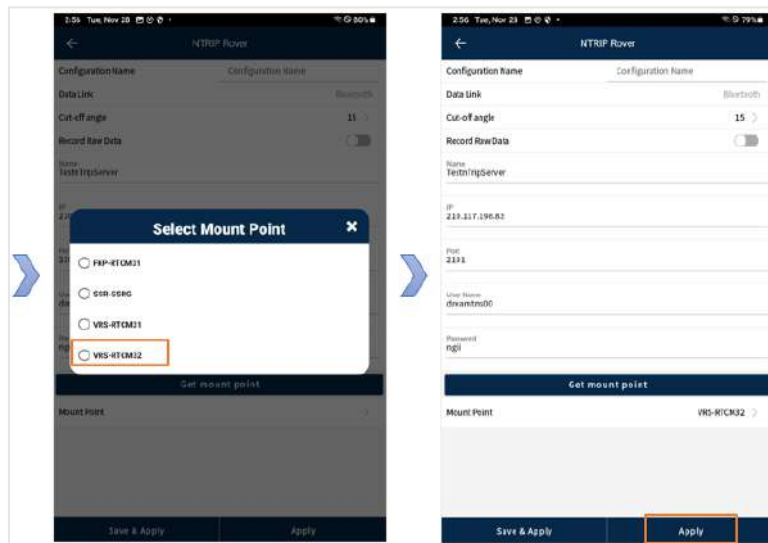
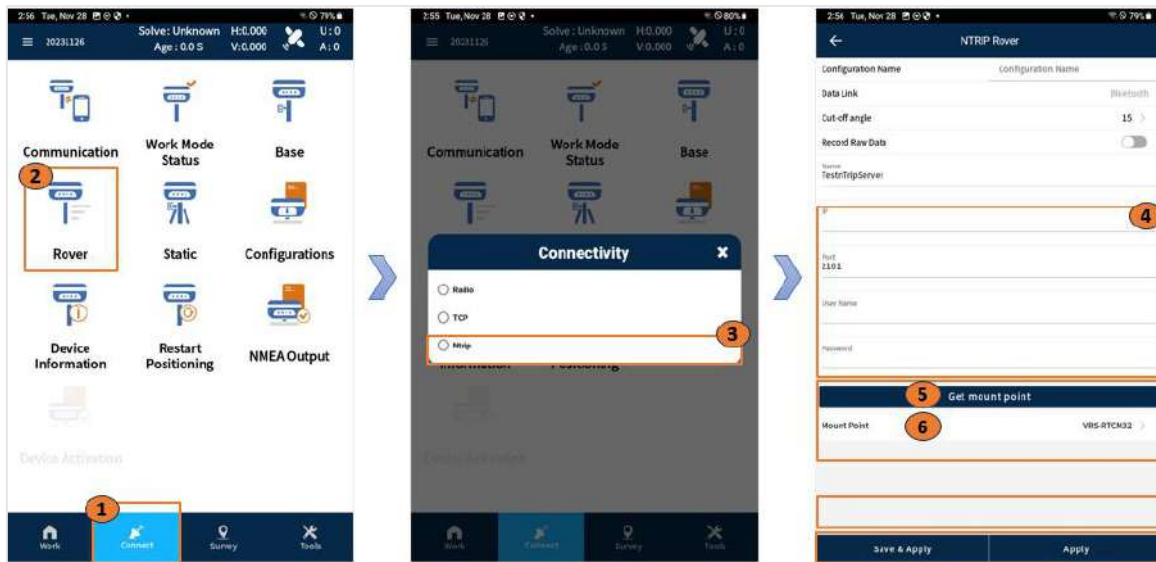
https://www.ngii.go.kr/kor/board/view.do?sq=77502&board_code=notice_ko

You can verify this information on the National Geographic Information Institute's platform. Additionally, membership registration is required on the National Land Information Platform.

※ To conduct a survey with a Mobile Station using Network RTK, the Android device with the installed app must be connected to the internet. The provided device is initially unable to use mobile communication technologies such as LTE. Therefore, you can either utilize a nearby WIFI network or connect the device to the internet using the mobile hotspot feature of a mobile phone with mobile communication capabilities.

Mobile Station ▶ Ntrip ▶ Confirm the IP/Port of the National Geographic Information Institute server ▶ Enter the registration username/password for the National Land Information Platform ▶ Get mount point ▶ Mount Point ▶ VRS-RTCM32 ▶ Apply

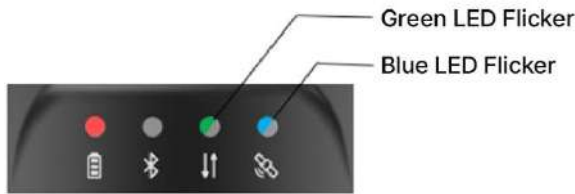
In the Mount Point field, you can choose from FKP-RTCM31, SSR-SSRG, VRS-RTCM31, VRS-RTCM32. If these options do not appear, click Get mount point to retrieve them via the internet.



The file name is the name of the operation mode that is saved when the "Save & Apply" operation is executed for the current configuration. Once the Mobile Station configuration is complete, the voice prompt "Mobile Station mode activated" will be heard. When receiving satellite signals, the Satellite Signal LED will blink in blue, and when receiving information via the internet, the Data Communication LED will blink in green, indicating that correction data is being

received.

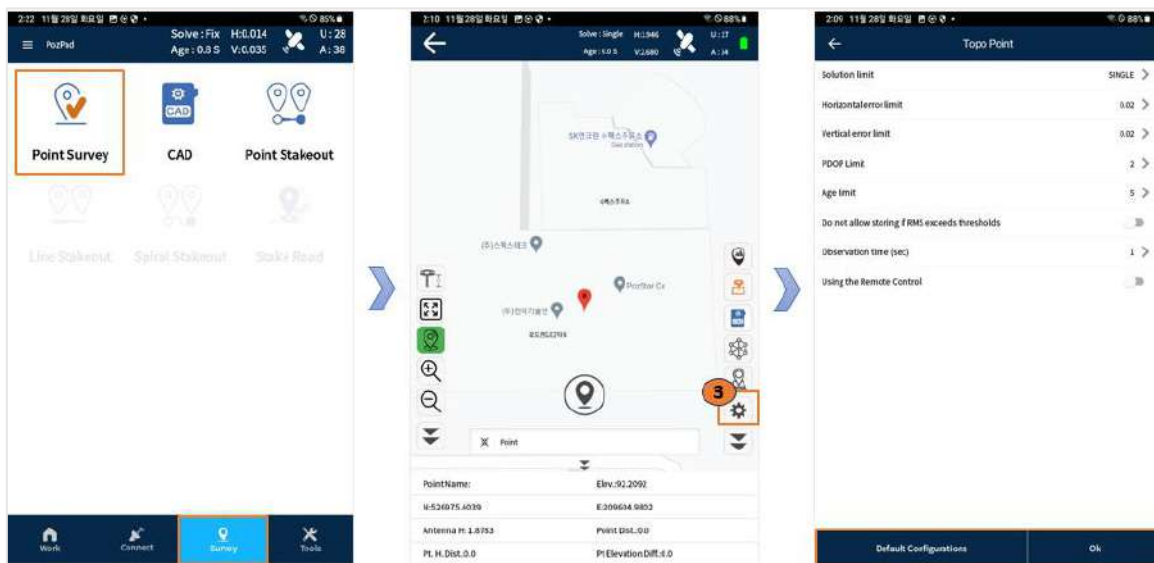
If all settings and conditions are appropriate, you will hear voice prompts such as "Single," "Differential," "Float," and "Fixed," in sequence. The Bluetooth connection between the terminal and the receiver will remain active.



3.2.3. Status Operation

After configuring the Mobile Station as described in 3.2.1 or 3.2.2 and achieving the Fixed status, proceed with the status operation.

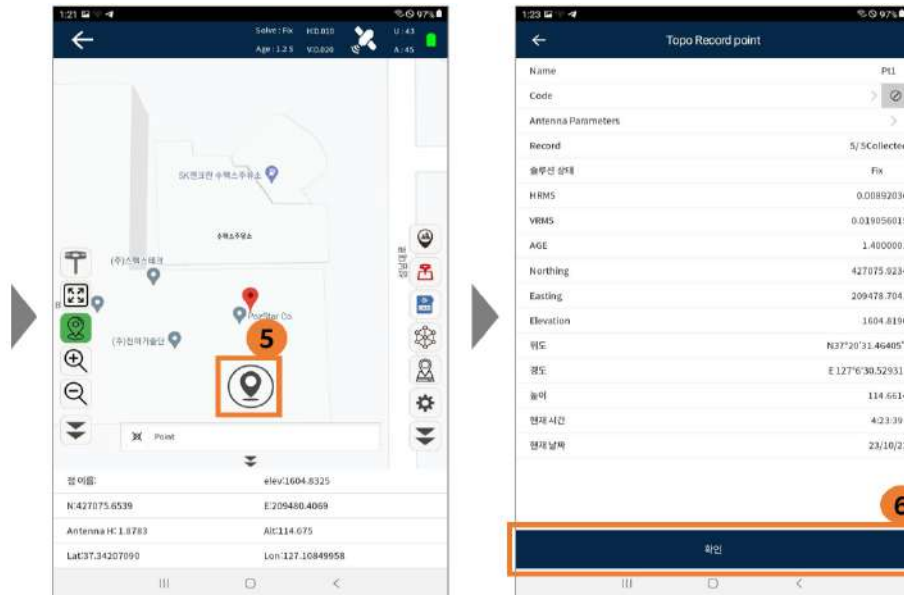
Navigate to the Survey tab ► Status Operation ►  (Status Operation Settings) ► Confirm to Execute



Click on the Survey icon  ► Confirm to execute.

On the Status Operation screen, press the Survey icon to initiate the survey of the current location. The Topo Record Point screen will appear. Wait for the observation time (in seconds) applied in the Status Operation Settings screen.

The terminal app will emit a "beep" sound when the current survey is completed. Click the Confirm button and the current survey information will be stored in the database with a "ding-dong" sound in the terminal app.



IMU Sensor Activation

The IMU sensor is a sensor in the GNSS receiver that detects the inclination and orientation of the pole. It allows for accurate surveying even when the pole is moving or tilted, and the receiver is not perfectly stationary. It calculates the position of the point where the end of the pole is in contact, enhancing precision.

If the use of the IMU sensor is required during the status operation, press the IMU Configuration icon to enable its usage.

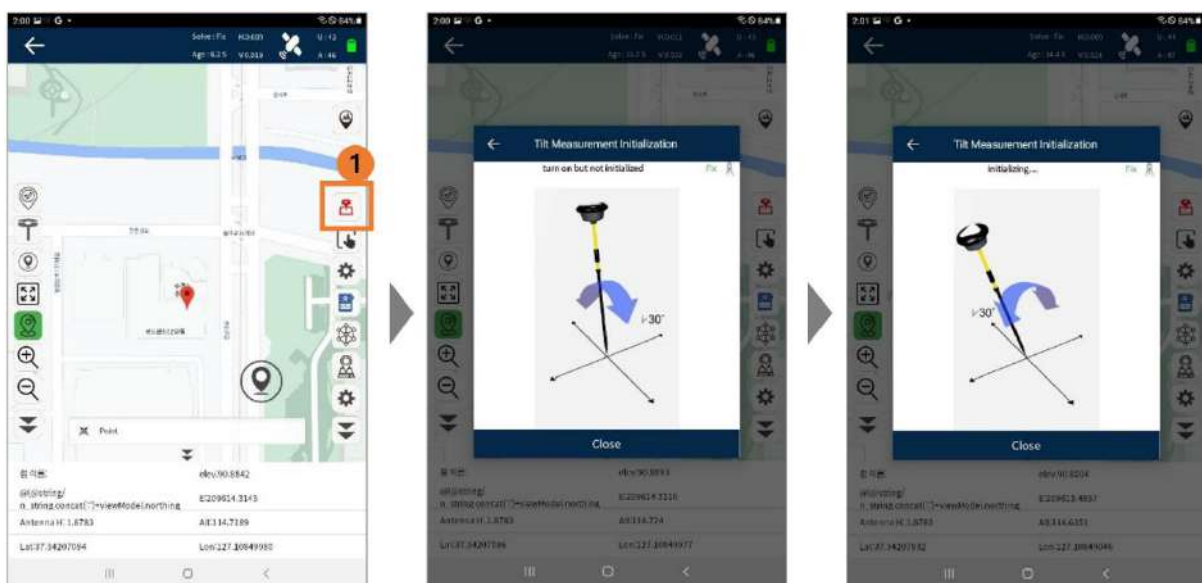


Click on the IMU Configuration icon ► Tilt the receiver back and forth at an angle of 30 degrees twice ► Tilt the receiver left and right at an angle of 30 degrees twice ► Confirm the green IMU Configuration icon.

- When you click the IMU Configuration icon, you will hear "Align the pole." A screen will appear instructing you to shake the receiver.
- When you hear "Shake it up and down, left and right," the end of the pole in contact with the ground will shake vertically at an inclination of about

30 degrees from the vertical (a total angle of 60 degrees) at approximately one oscillation per second for about two cycles.

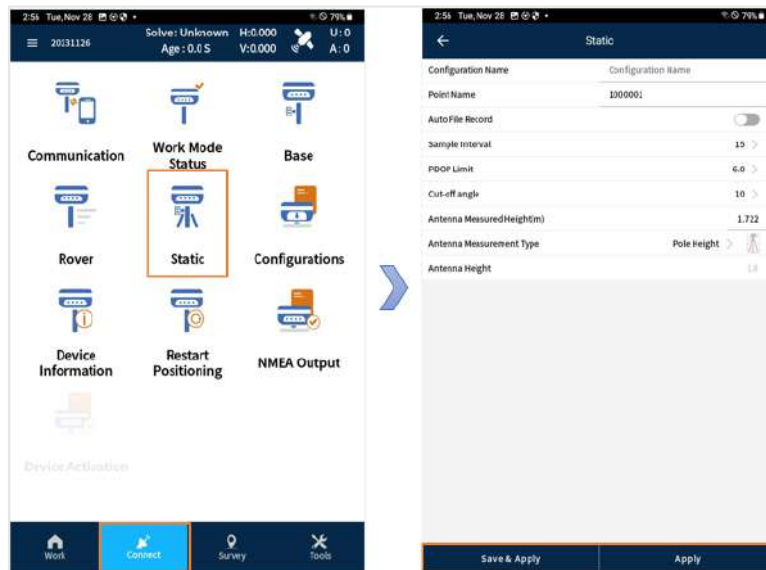
- If the shaking direction on the screen changes, shake the pole in the same way in the left-right direction for about two cycles.
- When you hear "IMU has been activated," and the screen transitions to the survey screen with a green IMU Configuration icon, the IMU sensor setup is complete. Proceed with the status operation.



3.3. Static Survey

The setup procedure for the static survey is as follows:

Connection tab ► Static Survey ► Static Survey Settings ► Save & Apply or Apply to execute.



Work Mode Save Name: The name under which the current configuration is saved when the "Save & Apply" operation is executed.

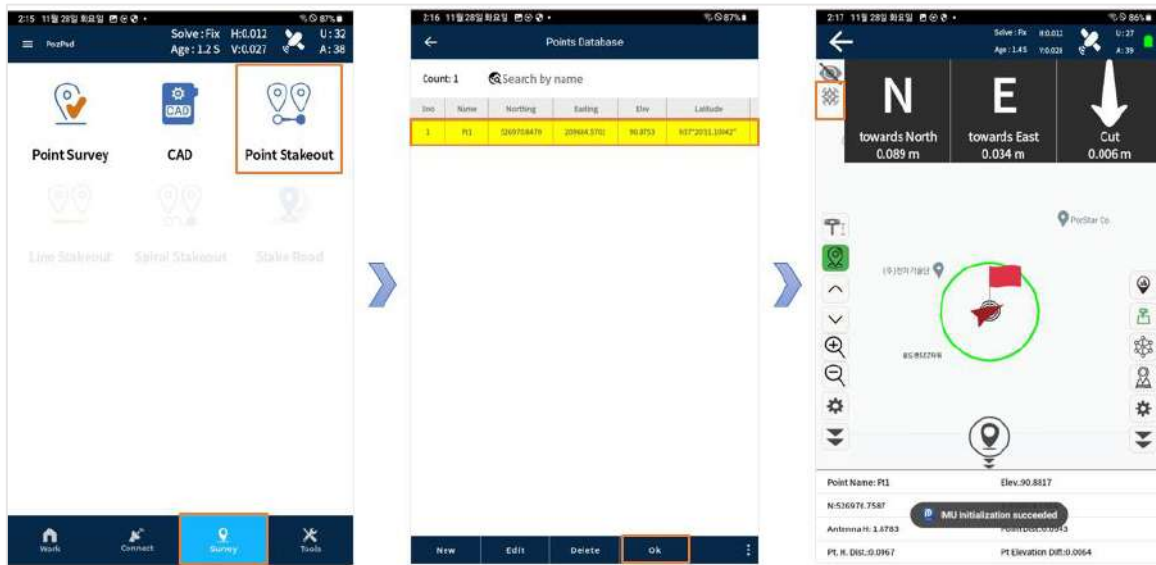
When the static survey is initiated, the satellite signals received are stored in the internal memory of P5 and saved as its .dat file. To stop the static survey and complete data storage, you can either turn off the receiver using the power button, change the survey mode, or use the stop function in the Web UI.

The saved files can be converted to RINEX files or downloaded through the Web UI. Refer to section 4. Web UI for detailed instructions.

3.4. Stakeout

Stakeout is the process of revisiting the coordinates of a previously surveyed point during a real-time survey.

- Survey tab ▶ Point Stakeout ▶ Select the survey point from the point repository
- ▶ Confirm to proceed.



If you press the Compass icon, on devices equipped with a Magnetometer, you can view the direction and distance in a compass-like format, as shown in the diagram below. This allows you to navigate to the surveyed point.

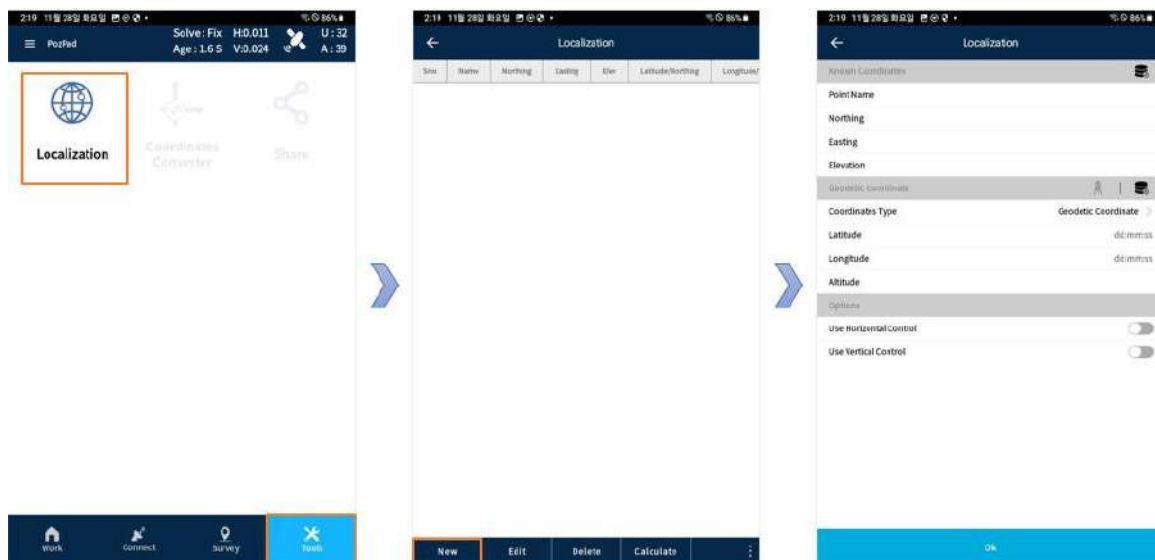
As the distance between the surveyed point and the current location narrows to a predefined distance or less, the size of the compass decreases, allowing for more detailed confirmation.




3.5. Calibration (Site Coordinates, Localization):

You can perform the task of aligning the currently surveyed or newly surveyed coordinates with existing local or site coordinates.

Initiate this process by navigating to the Tools tab ► Calibration ► New.



Click on the Point Repository icon  under **Known Coordinates**. Select and apply the surveyed point based on the site coordinates.

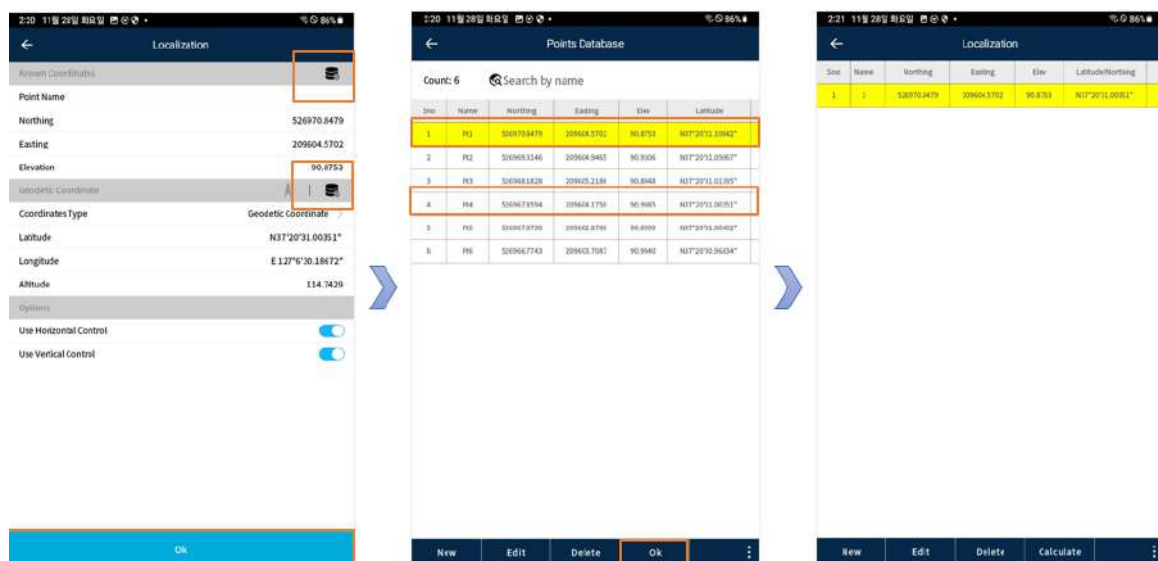
Click on the Point Repository icon under **Geodetic Coordinate**. Choose and

apply the surveyed point to align with the selected site coordinate point.

Connect these two points to register them as a Localization point. Specify a Point Name (e.g., cp1).

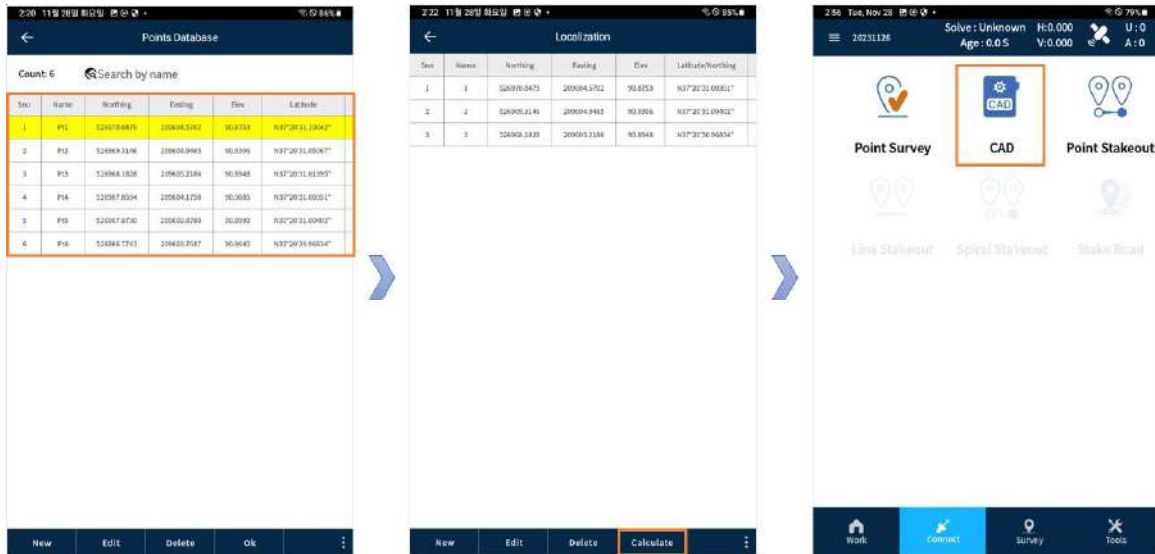
Enable "Use Horizontal Control" and "Use Vertical Control," then press the OK button.

Upon completion, you will observe that the points are registered under the name cp1.



Since a minimum of three Localization points is required, repeat these steps to establish additional connections.

Once you have three or more Localization points prepared, click the Calculate button to execute the process. Afterward, you can verify the results by navigating to Survey ► CAD Stakeout.

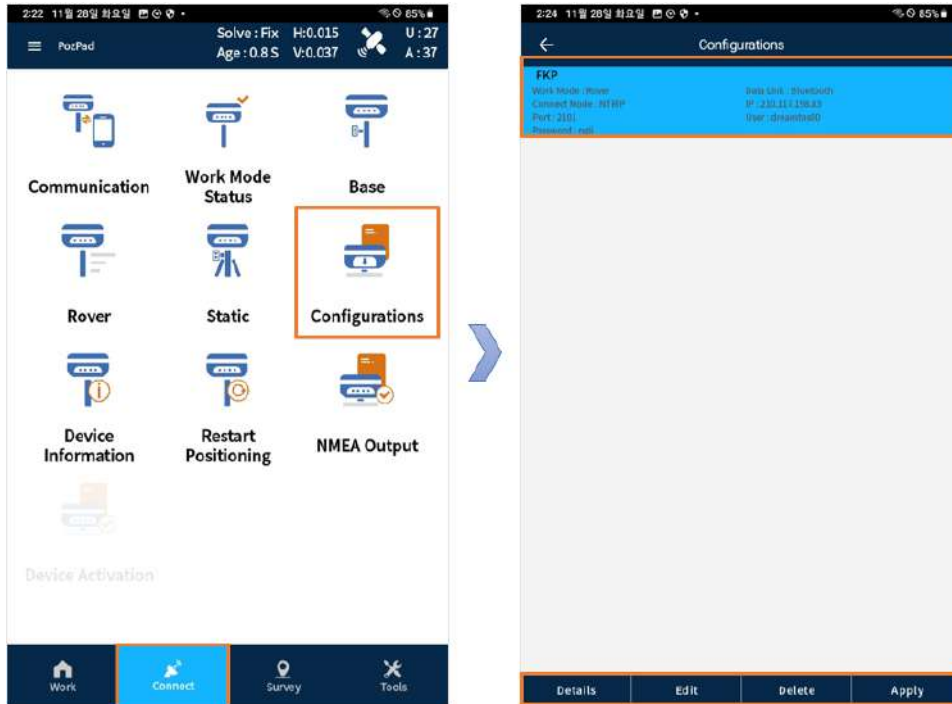


3.6. Using Stored Operation Modes:

This is the method for utilizing previously saved operation mode settings for the Base Station, Mobile Station, Static Survey, etc.

Connection tab ► Configuration ► Select Settings ► Choose between Details, Edit, Delete, or Apply.

Here, you can review, modify, or reapply the detailed settings of the stored operation mode configuration files.



4. Web UI

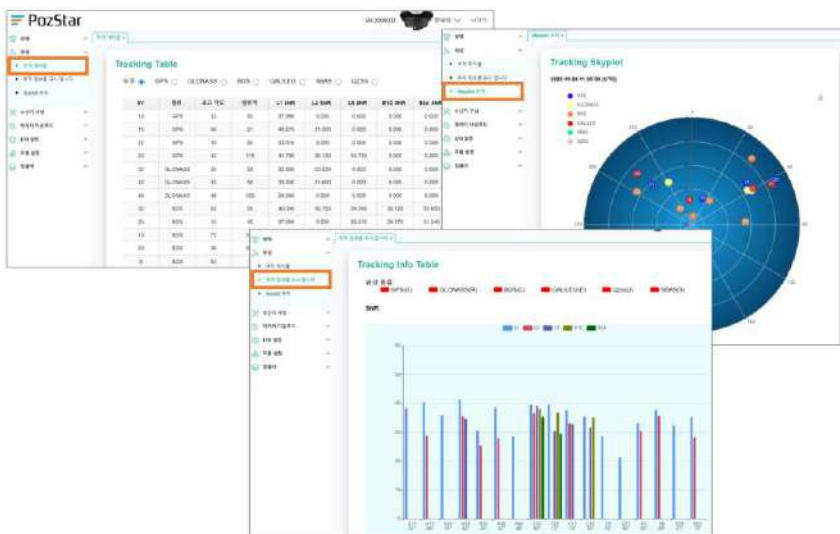
The Web UI screen displayed below is based on the PC version. For the initial screen and login methods, please refer to section 1.2.2 Web UI Interface.

Upon logging into the Web UI on the PC version, you will see an initial status screen. This screen provides information about the current location of the receiver, the number of tracked or used satellites, and the current status of the receiver.



Detailed Items in the Satellite Menu:

In the detailed items under the Satellite menu, you can examine the status of satellite reception signals in various forms.

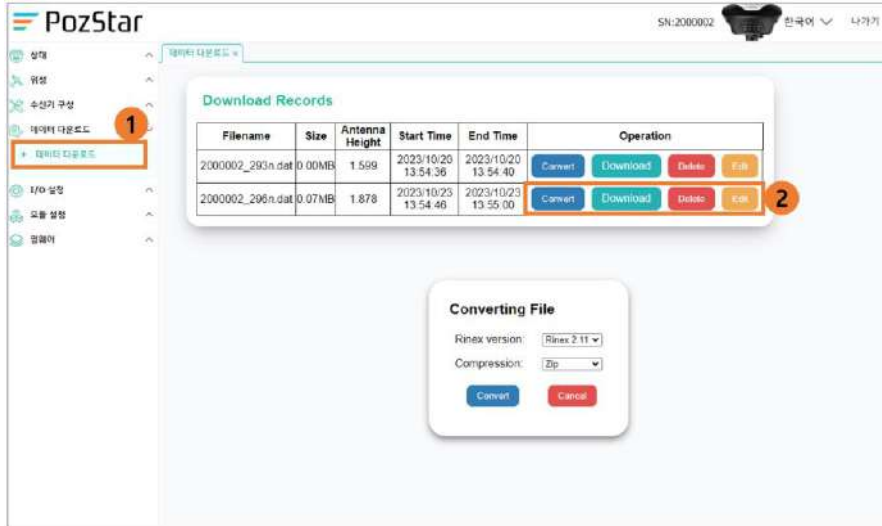


Data Download Menu for Surveyed Data:

Data collected through static surveys, etc., can be reviewed through the Data Download menu. You can view file names and survey times and perform RINEX file conversion and download.

To convert a RINEX file, press the Convert button next to the file you wish to convert. The Converting File window will appear. Select the RINEX version and click the Convert button to initiate the conversion process.

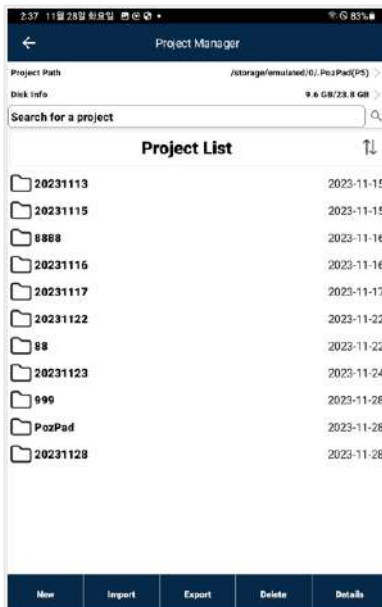
Once the conversion is complete, file listings will appear based on the compression method. Click the Download button next to the respective file to download it.



5. Feature Details

5.1. Operation Tab

5.1.1. Operation



- Project Path
- Project Search
- Sort Project
- New Project
- Load/Export
- Delete
- Project Path and File System

Changing the project path or executing load/export operations will display the File System screen.

Clicking on folder names allows navigation through different folder locations.

While navigating folder locations, clicking "Go to Internal Storage" takes you to the root folder of the internal storage, and "Go Back to Project Location" returns to the default project storage folder "PozPad(P5)."



Go to Internal Storage: Navigate to the root folder of the internal storage.

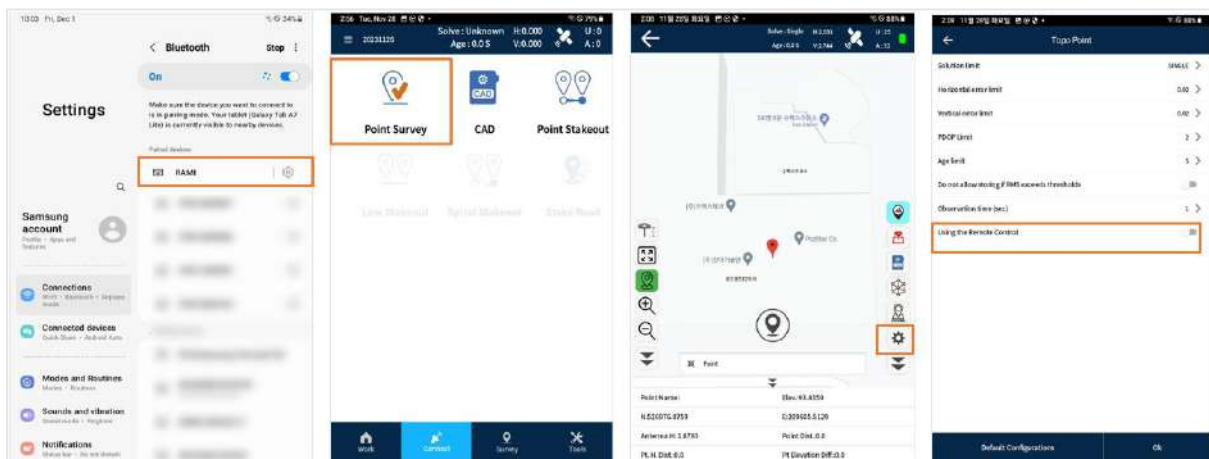
Go Back to Project Location: Return to the default project storage folder "PozPad(P5)."

5.1.2. Coordinate System

5.2. Smart Remote-Control Usage (RAMI)



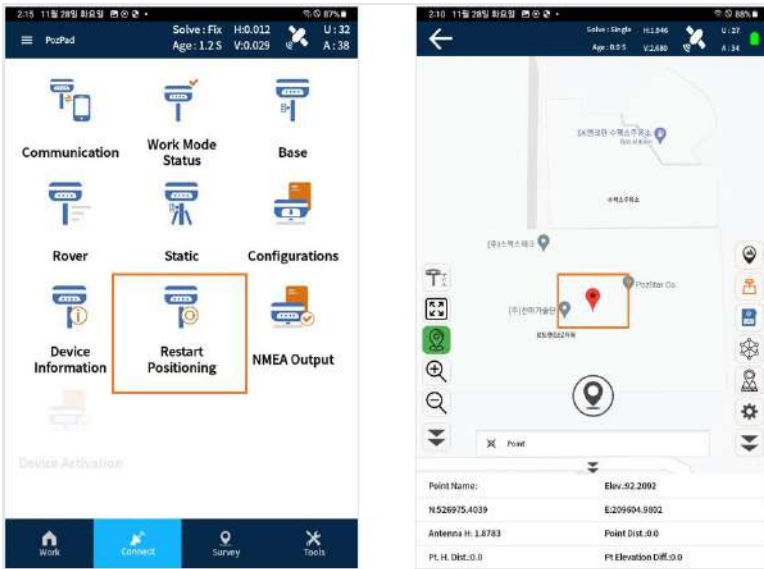
Start by pairing the provided smart remote control with the working PAD through Bluetooth.



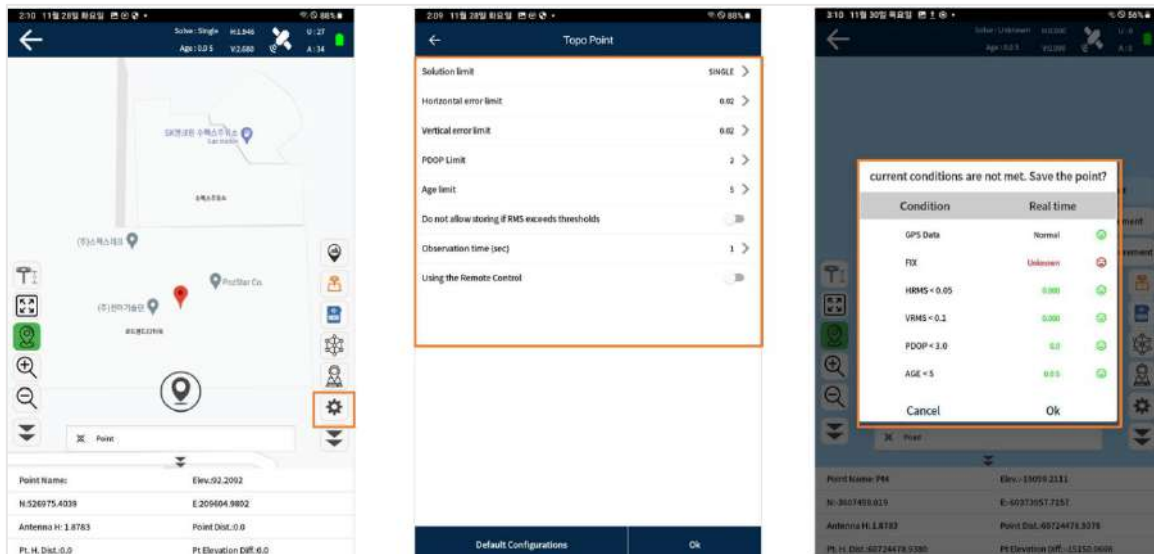
Activate the Remote-Control tab before use.

5.3. P5 Volume Control

Users have the flexibility to customize the volume of the receiver according to their preferences. This feature allows for personalized adjustment of the device's volume to enhance user experience and convenience.



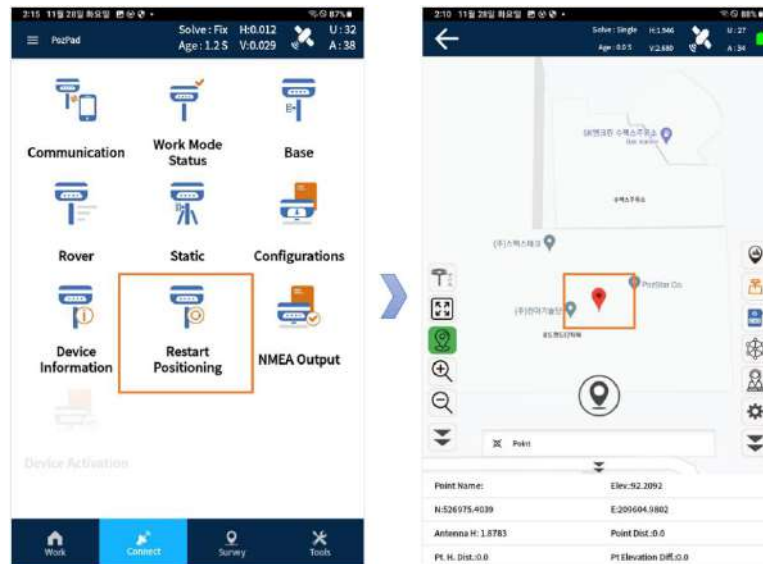
5.4. Status Measurement Options



As shown in the third screen, you will be prompted with notifications if the configured thresholds are exceeded, asking whether to save the point again.

- PDOP: Surveying is disabled if PDOP exceeds 3.
- Age Limit: Represents the network delay time.
- Observation Time:

5.5. Location Reset

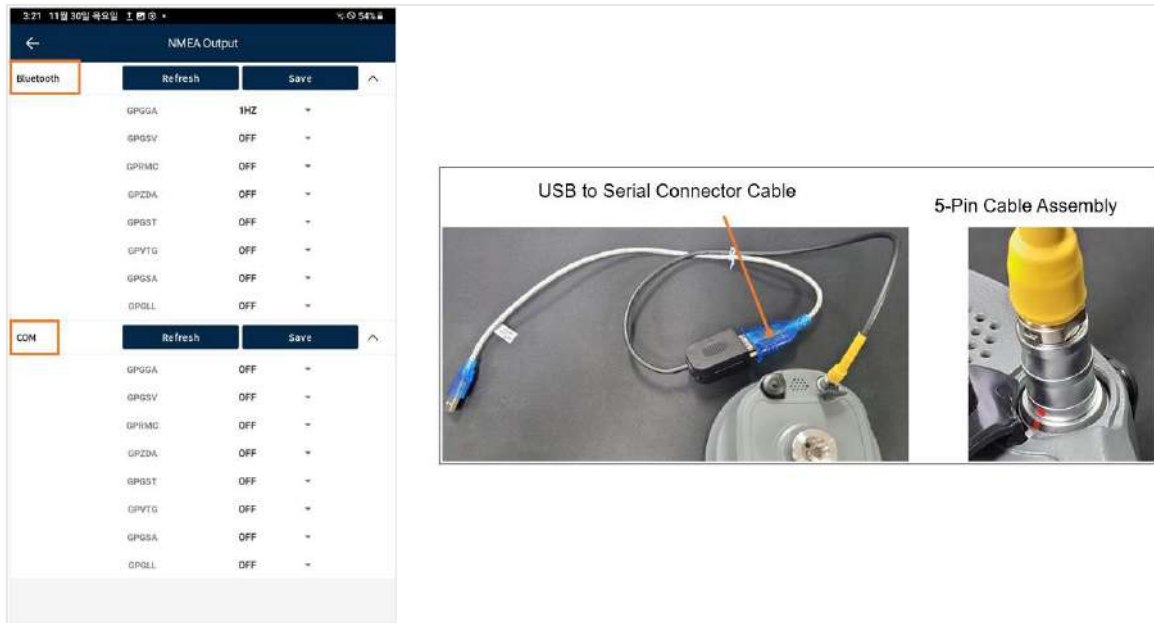


Repositioning with Location Reset:

Executing a location reset temporarily releases the Fix status, transitioning from Single to Fix status for Repositioning.

Public Surveying: This is a useful feature, especially when surveying benchmark points.

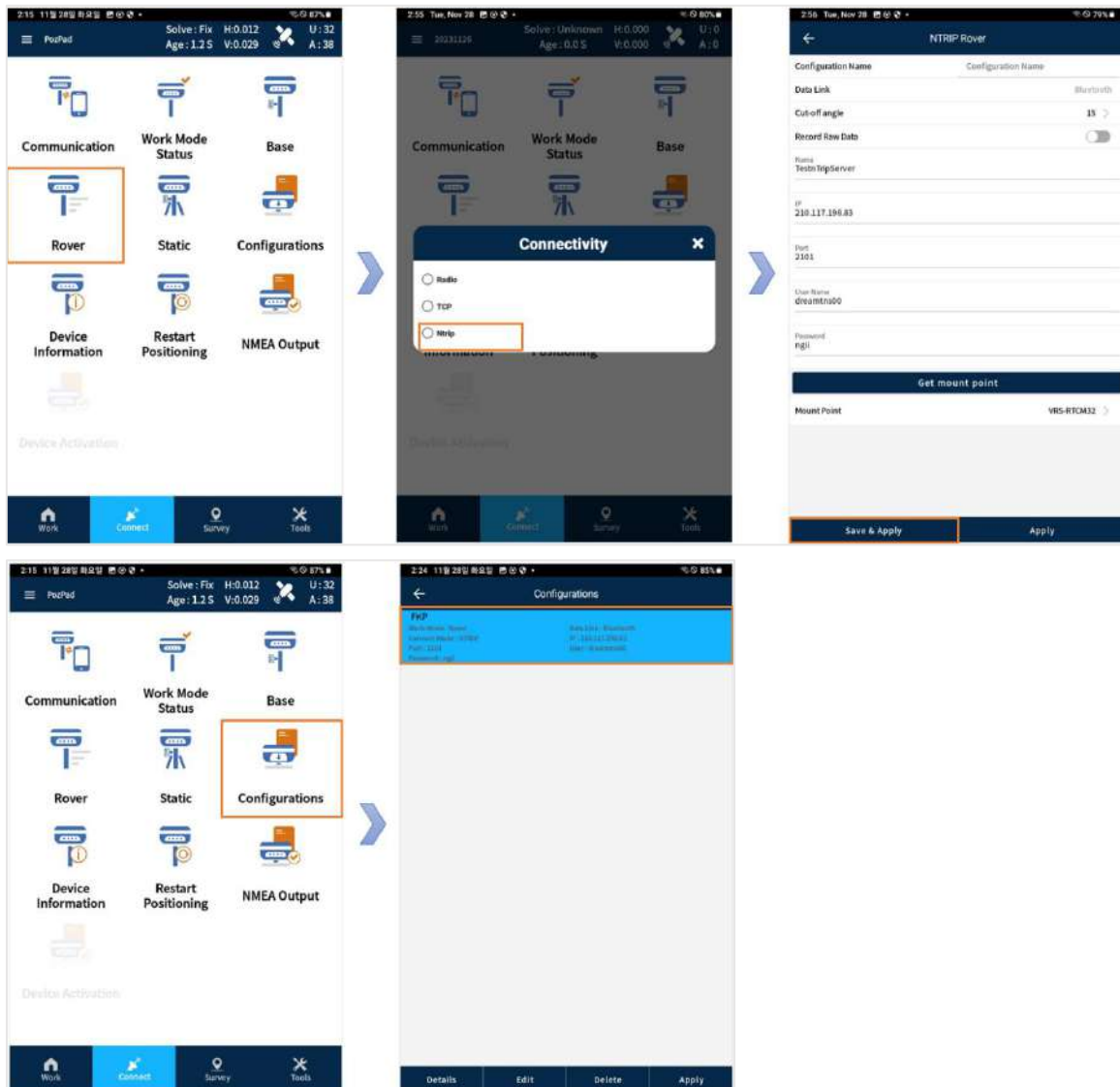
5.6. NMEA Output Configuration



For Bluetooth connection, connect the device and the app via Bluetooth and configure the desired settings. Afterward, click SAVE.

5-Pin Cable Setup: 2. If using the 5-pin cable between the device and the app with a USB to Serial cable, connect the cable, configure the settings, and click SAVE. NMEA (National Marine Electronics Association) is a standard for transmitting information such as time, position, and heading. This data is commonly used for gyrocompasses, GPS, compasses, and inertial navigation systems (INS), utilizing ASCII code for serial communication.

5.7. Work Mode Management



This feature allows the user to save configured work modes for easy and convenient access.

6. CAD

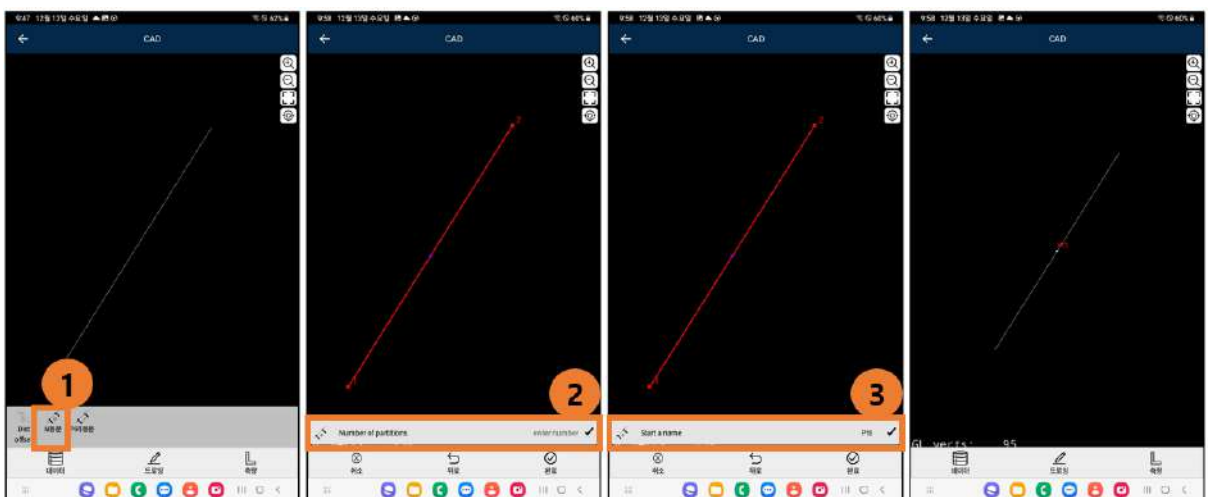
6.1 Distance Offset



Distance offset is the function that duplicates an object by the desired distance specified by the user.

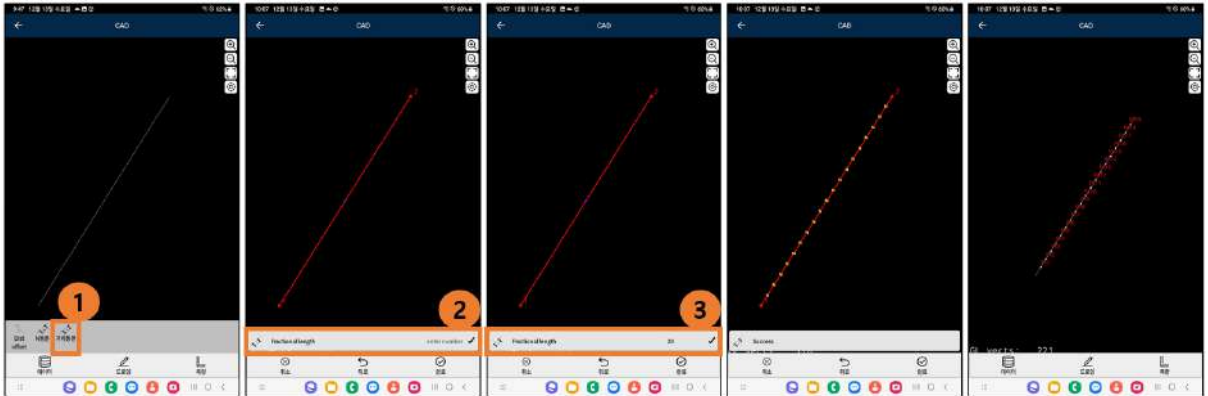
The offset (m) in Pic4 can be adjusted with both positive and negative values to change the direction. "Both Side" in Pic5 indicates a bidirectional offset.

6.2 N Division



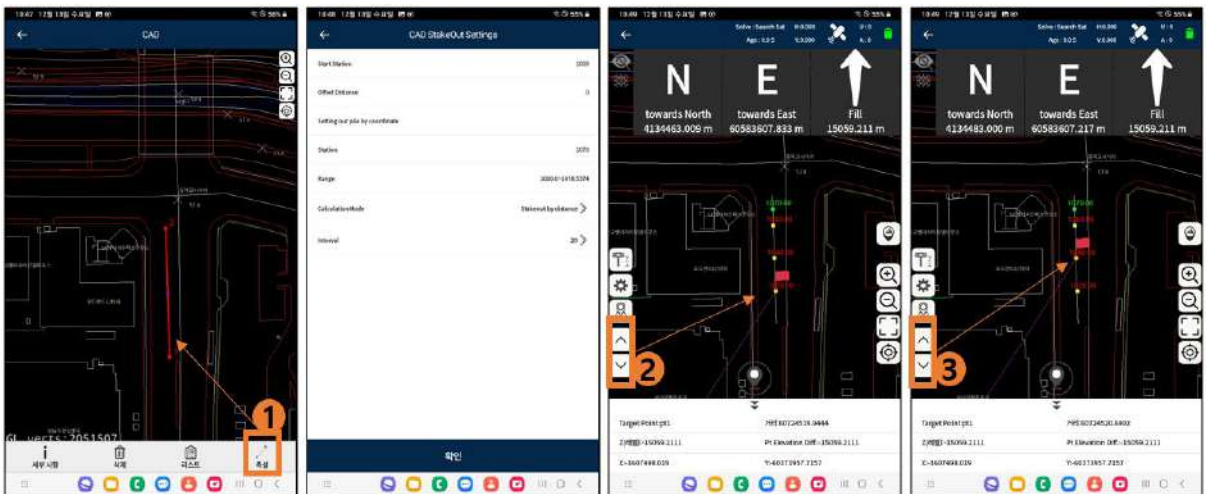
N Division is the function that divides the total length of an object into N equal parts, creating points along the way.

6.3 Distance Division



Distance Division is a function that divides the total length of an object into points based on a specified distance (m) value.

6.4 Line Stakeout



Line Stakeout is a feature used when staking out characteristic points within a line, excluding the line object's node points.

Start Station

It is used when defining a station.

Offset Distance

Setting the distance division value for an object.

Station

Setting the starting station value.

Range

Total length of the object.

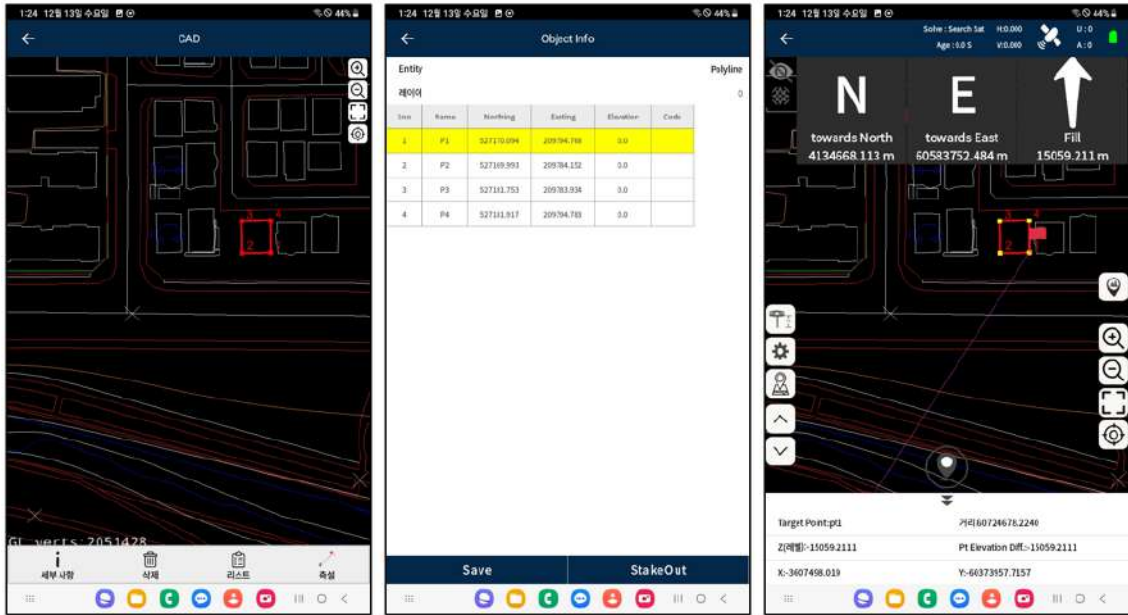
CalculationMode

Surveying method for dividing the object.

Interval

Distance value or the number of divisions for the object to be surveyed.

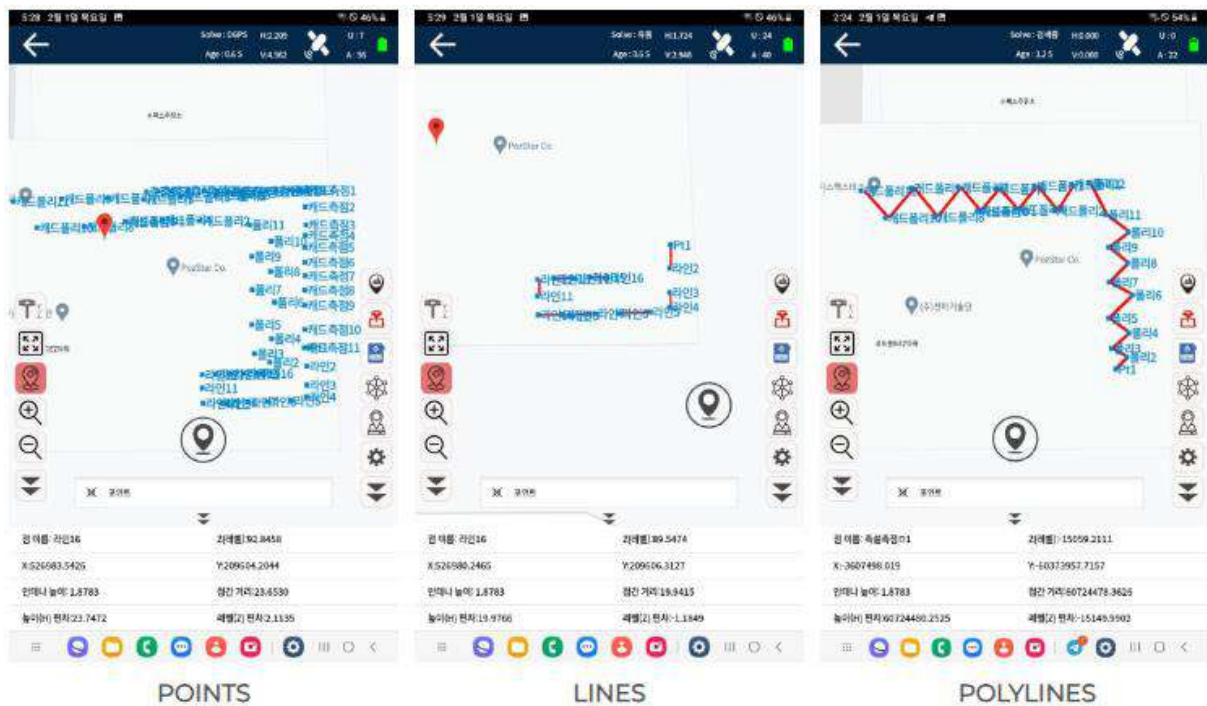
6.5 CAD Point Stakeout



This allows you to stake out the desired points in CAD.

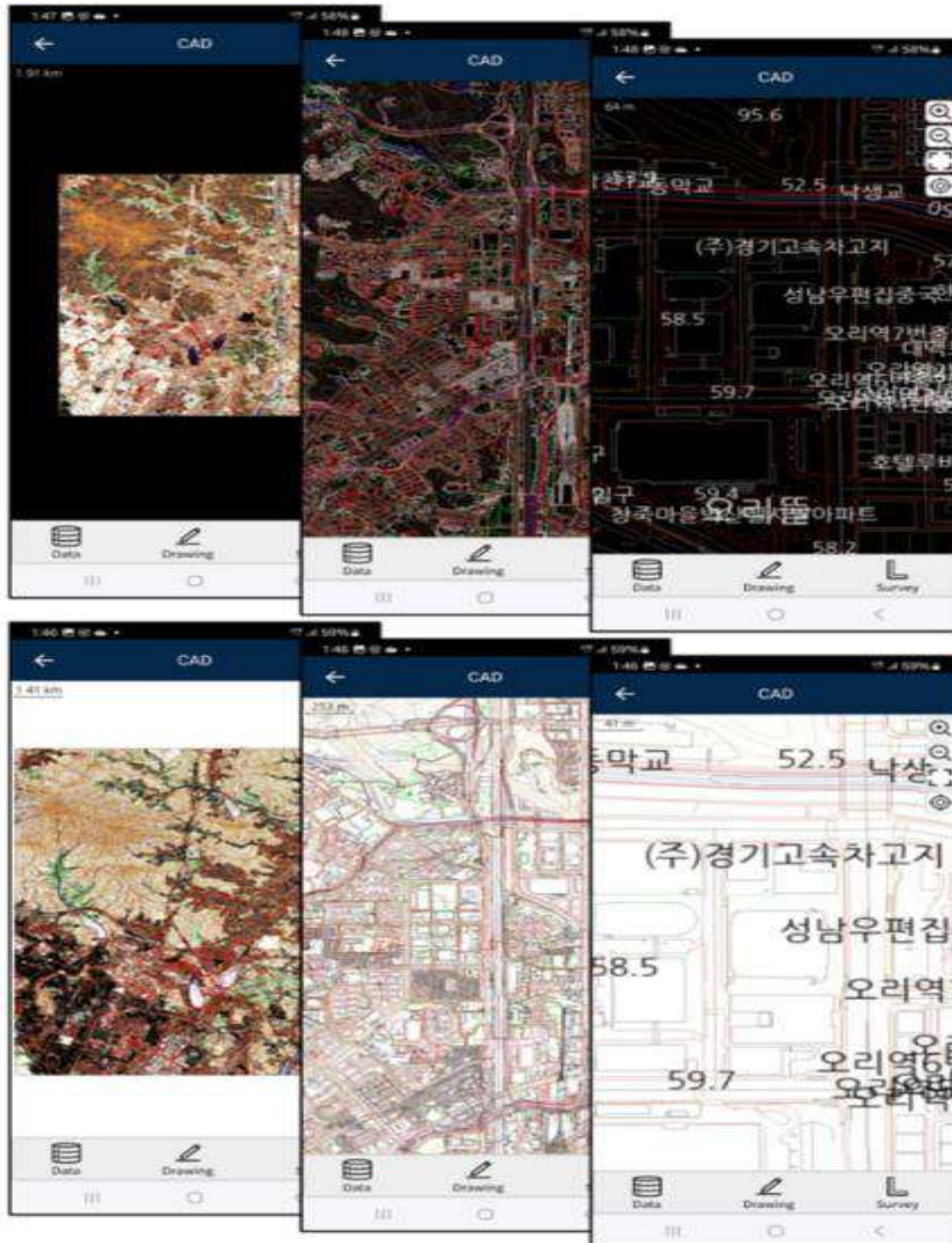
6.6 Point Survey on Pozpad

When the survey is initiated, the satellite signals received are stored in the internal memory of P5 and saved as its .dat file. Points, lines, polylines can be created with the function of point survey on PozPad P5



6.7 Handling Large CAD Data on Pozpad

PozPad can handle more than 500MB CAD data. The following picture is nearly 600 megabytes' CAD data seen on PozPad.



7 P5 Product Specifications

7.1 Product Specifications

GNSS Signals

Channels	1408 channels
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
BDS	B1I, B2I, B3I, B1C, B2a, B2b
GLONASS	G1, G2, G3
Galileo	E1, E5a, E5b, E6
QZSS	L1, L2, L5
SBAS	WAAS, GAGAN, MSAS, EGNOS, SDCM, BDS
NavIC	L5

GNSS Accuracy

RTK (RMS)	- Horizontal: 0.8 cm + 1 ppm - Vertical: 1.5 cm + 1 ppm
Standard point Positioning (RMS)	- Horizontal: 1.5 m - Vertical: 2.5 m
Code Differential (RMS)	- Horizontal: 0.4 m - Vertical: 0.8 m

Power

Power consumption	Typ. 2.2 W (depending on user settings)
Li-ion battery	Built-in rechargeable 6700mAh (Samsung cell)
Operating time	RTK Rover: 12 h Static: 18 h
Charging Power	5 VDC / 3 A

Hardware

Size	135 x 135 x 88.2 mm (5.31 x 5.31 x 3.47 in)
Weight	825 gr
Speaker	1 W (Multilingual Support)
Environment	- Operating: -40 ~ +65 °C (-40 °F to + 149 °F) - Storage: -40 ~ +85 °C (-40 °F to + 185 °F)
Humidity	100 % condensing
Ingress protection	IP67 is waterproof and dustproof, protected from temporary immersion to a depth of 1 m

Communication Specifications

Bluetooth	LE V4.1
Wi-Fi	802.11 b/g/n, Access point mode
Radio	TNC Female Radio Antenna Connector, UHF radio 410~470 MHz
USB	USB (Type-C) Port, Data download, Firmware update
Serial	5-Pin Serial Port, NMEA output

7.2 P5 Basic Package

1. RTK GNSS Receiver
2. Charging Adapter
3. USB (Type-C) Cable
4. Work Vest

