Skadi Series™

Skadi Tilt Compensation™

User Manual

Version 1.0

EOS Positioning Systems

Skadi Series™

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https://eos-gnss.com/knowledge-base/manuals/skadi-tilt-compensation

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Made for iOS®, Android™, and Windows®.

"Made for" means that an electronic accessory has been designed to connect specifically to an iOS®, Android™, and Windows® device and has been certified by the developer to meet performance standards. Third parties, such as Apple®, are not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with mobile devices may affect wireless performance.

Contents

Skadi Tilt Compensation™: The User Manual

Skadi Tilt Compensation™ eliminates the need to level (i.e., bubble-up) your range pole while performing field work with a Skadi Series™ GNSS receiver. This makes use of a built-in IMU sensor inside your Skadi Series™ GNSS receiver.

https://eos-gnss.com/registration

REGISTER YOUR SKADI GNSS RECEIVER

Thank you for purchasing a Skadi Series™ GNSS receiver from Eos Positioning Systems®. Have you registered your receiver? Scan this QR code (left) or enter the URL below it and fill out the form to register your purchase. By registering your receiver, you will receive an extra year manufacturer warranty (valid from date of purchase) directly from Eos.

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What is Required to Use Skadi Tilt Compensation?

With this solution, field workers can rectify errors introduced from tilted surveying range poles without having to manually level their range pole.

Before you get started with Skadi Tilt Compensation, you will need to make sure you have the following items:

Hardware:

- A Skadi 200, Skadi 300, or Skadi Gold GNSS receiver
- A surveying range pole
- The Skadi Pole Mounting Cradle Assembly [SKA-POL-CRADLE] to mount your receiver to your range pole
- An Android™, iOS®, or Windows® mobile device
- A bracket to mount your mobile device to your range pole

Software:

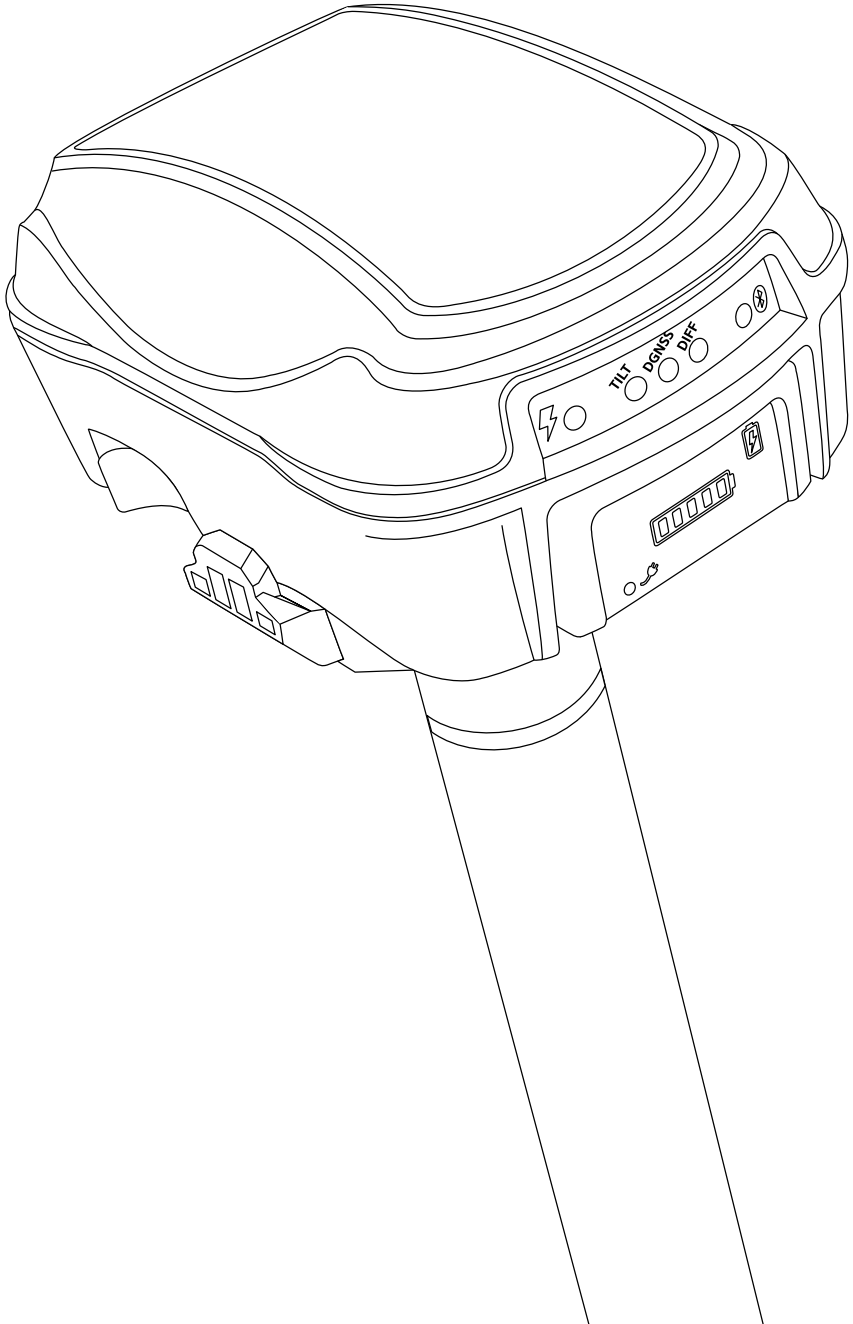
- Eos Tools Pro for iOS or Android

Activation:

- Skadi Tilt Compensation activation

GNSS Corrections:

- An RTK corrections source



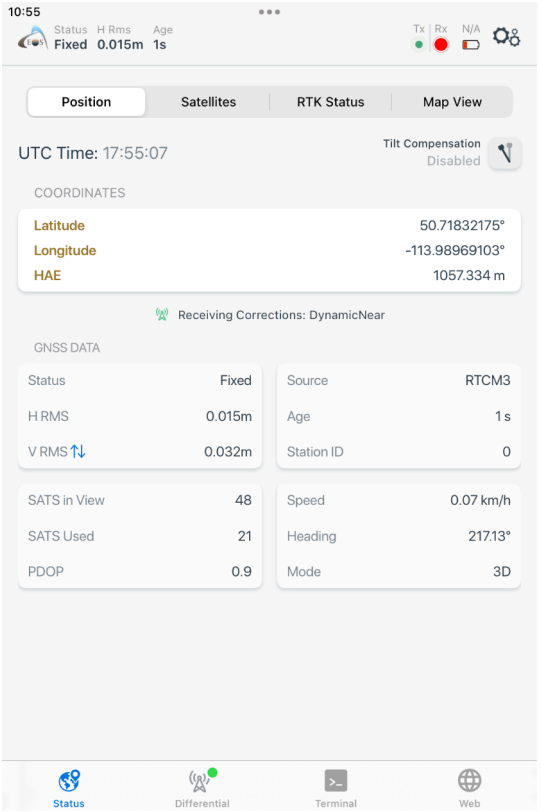
Steps to Enable and Initialize Skadi Tilt Compensation

Once you have those items, you must follow four steps to enable and initialize Skadi Tilt Compensation: Enable tilt in the receiver, set your range pole height, acquire an RTK fixed position, and finally initialize tilt. Each step is explained in further detail as follows.

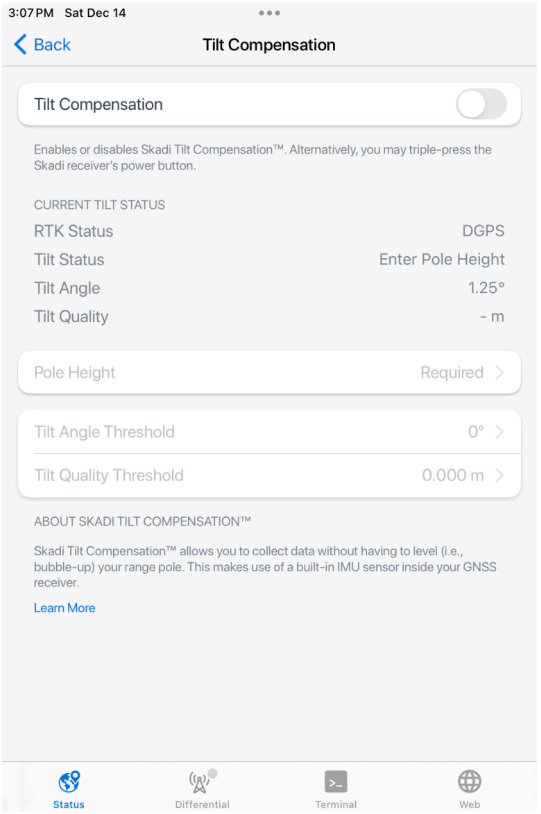
A. Enable Skadi Tilt Compensation

There are two methods you may use to enable Skadi Tilt Compensation.

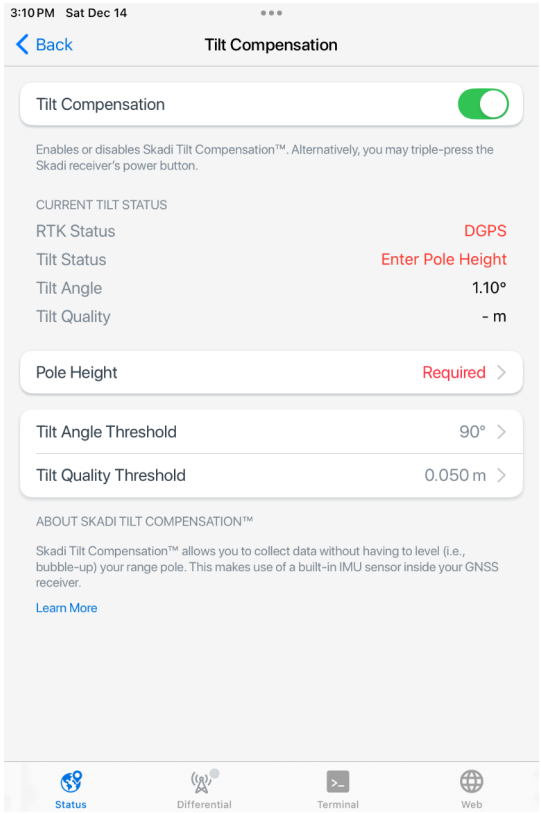
Method 1: Open Eos Tools Pro and navigate to the tilt compensation settings from the "Position" or the "Settings" menu. Toggle on the **Tilt Compensation** switch.



Tilt Compensation icon in Eos Tools Pro



Enable Skadi Tilt Compensation



Tilt Compensation enabled

Method 2: Press the Skadi receiver power button three times.

Once Skadi Tilt Compensation is enabled, the Skadi "Tilt" LED will turn on. New fields will become active.

B. Set Range Pole Height

You must next enter a range pole height; if you skip this step, Skadi Tilt Compensation will not initialize. If a wrong value is entered, it will greatly impact your positional accuracy. At this stage, the "Tilt" LED on your Skadi receiver will be fast-blinking red.

Your range pole height is measured from the tip of your pole to the bottom of the Skadi receiver (i.e., the "Antenna Phase Center Reference Plane"). This includes both the pole height and the included Pole Mounting Cradle Assembly [SKA-POL-CRADLE] onto which the Skadi receiver is mounted. The cradle assembly adds 0.037 meters to create your total pole height.

Pole Mounting Cradle Assembly Height (.037 m) + Range Pole Height (2.000 m) = Pole Height (2.037 m)

https://eos-gnss.com/products/accessories/surveying/skadi-series/pole-mounting-cradle-assembly

POLE MOUNTING CRADLE ASSEMBLY [SKA-POL-CRADLE]

Part SKA-POL-CRADLE is a standard accessory included with all Skadi Series™ GNSS receiver purchases, regardless of model. Learn more about this GNSS accessory by scanning the QR code or visiting our website:

eos-gnss.com/products/accessories/surveying/skadi-series/pole-mounting-cradle-assembly

Here are some examples of pole height values:

- If you are using the 2m Sectional Carbon Fiber Pole [POL-2MC4] made by Eos Positioning Systems, your pole height is 2.00 meters, and your mounting cradle assembly is 0.037 meters. So, you will enter a pole height of 2.037 meters.
- If you are using a range pole from another manufacturer, consult their specifications for your range pole height. Then add 0.037 meters to yield your total range pole height.
- If you are using a telescopic range pole, measure the distance from the tip of your pole to your chosen height. Then add 0.037 meters to yield your total range pole height. Repeat this every time you change the height of your pole.

2M SECTIONAL CARBON FIBER POLE [POL-2MC4]

This is our standard, two-meter surveying range pole recommended for RTK field work. This range pole is an additional purchase. Learn more about this range pole by scanning the QR code or visiting our website:

eos-gnss.com/products/accessories/surveying/2m-sectional-carbon-fiber-pole-pol-2mc4-new

https://eos-gnss.com/products/accessories/surveying/2m-sectional-carbon-fiber-pole-pol-2mc4-new

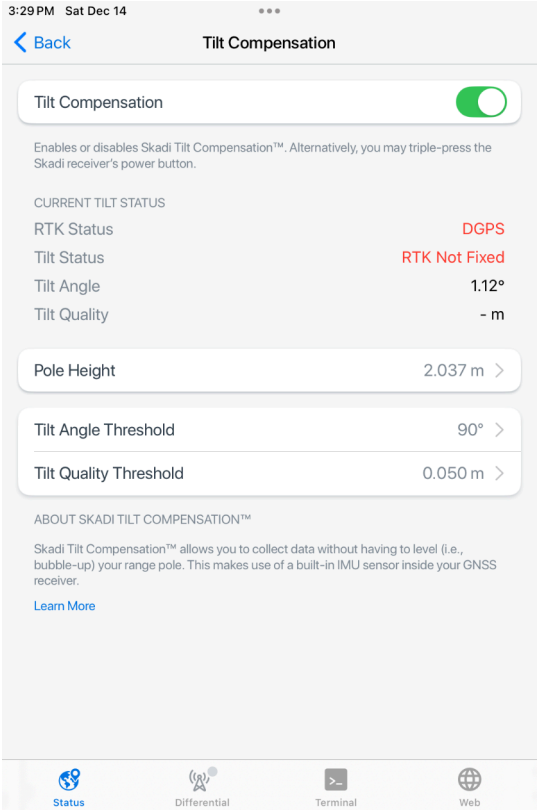
Range Pole Height

Note: *For those used to entering a total antenna height with the antenna phase center in your mobile app, note that you do not need to enter this value when using Skadi Tilt Compensation. Instead, your antenna phase center will be handled directly by your Skadi GNSS receiver.*

Important: *You must not enter an antenna height into your data-collection app when using Skadi Tilt Compensation as this will cause your antenna height to be added twice. Instead, set the antenna height in your data-collection app to zero.*

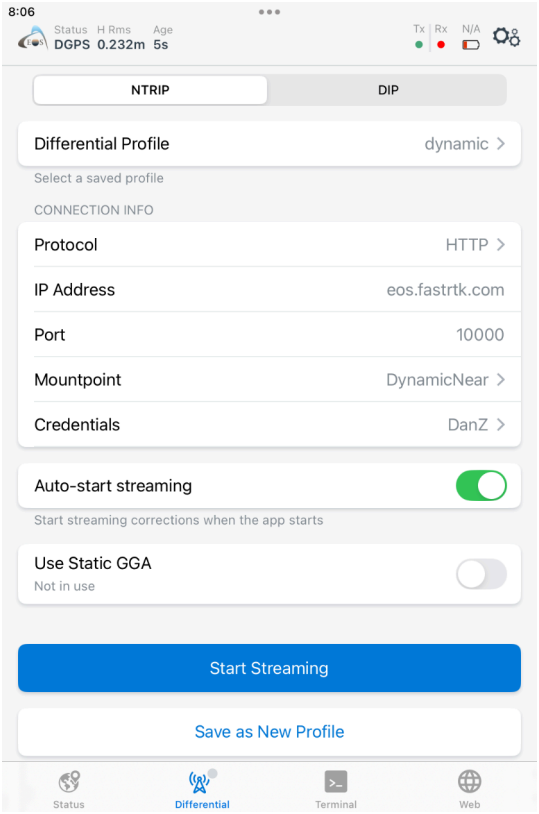
C. Acquire "RTK Fixed" Position

Skadi Tilt Compensation requires an RTK fixed status to operate. At this point, if a pole height has been entered, the "Tilt" LED on your Skadi will be blinking red at a medium rate while waiting for an RTK fixed position.



Next step: Acquire RTK fixed status

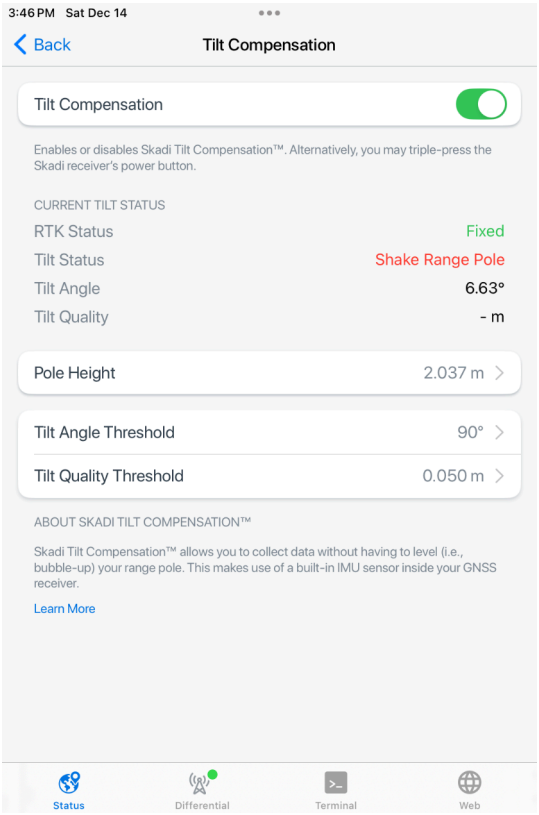
In Eos Tools Pro, follow your normal procedure to connect to your local RTK corrections source.



In the "Differential" menu of Eos Tools Pro, you can see your RTK network connection information.

Once your RTK status is fixed, your "Tilt" LED will red blink at a slow, steady rate while waiting for the final step: initialization.

D. Initialize Skadi Tilt Compensation

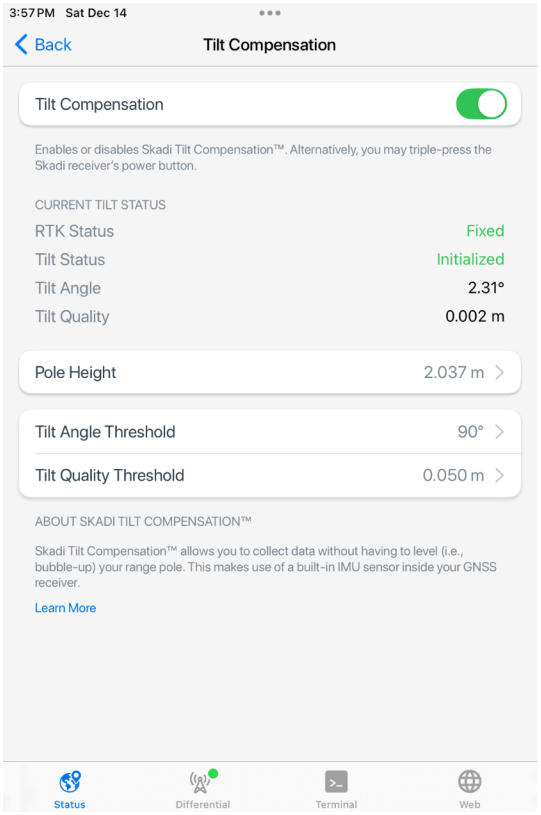


Your screen will look like this when Eos Tools Pro is ready for you to initialize Skadi Tilt Compensation.

Simply wave your range pole back and forth in a smooth motion to initialize. You do not need to shake quickly nor vigorously; a gentle and ample back-and-forth motion at a pace of about 1 meter (3 feet) per second will suffice.

Once tilt compensation is initialized, your "Tilt" LED will turn solid green.

***Note:** When tilt compensation is enabled, valid positions are sent to your mobile app only if tilt is in its initialized state and RTK is in fixed mode ("Tilt" LED green), otherwise ("Tilt" LED red) no valid positions are sent to your mobile app.*



Your settings will look like this when Skadi Tilt Compensation has been successfully initialized.

Understanding "Tilt" LED Behaviors

The "Tilt" LED on your Skadi Series GNSS receiver can help you understand the current status of your tilt compensation. Use this chart to interpret your "Tilt" LED:

LED	COLOR	DESCRIPTION
TILT	Red - Fast Blink	Range pole height is required.
	Red - Medium Blink	RTK fixed status is required.
	Red - Slow Blink	Initialization motion is required.
	Green	Tilt compensation is initialized. Valid RTK fixed positions are being shared with your mobile app.
	Green + Orange Blink	Tilt is initialized but you lost RTK fixed status.

***Note 1:** Valid GNSS locations are sent to your data collection software only when the "Tilt" LED is green.*

***Note 2:** If your receiver is idle for 10 minutes, initialization will end. Your "Tilt" LED will revert to slow blinking red. Simply perform the initialization movement again to re-initialize.*

***Hint:** For faster subsequent initializations, (Eos Tools Pro will remember the last Pole Height you entered,) set your **NTRIP connection** to **Auto-start streaming** in the **NTRIP** menu of your Eos Tools Pro **Differential** settings. Once your Skadi is in RTK fixed mode, you will only have to initialize with a motion.*

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Additional Resources

The Eos Positioning Systems website has a number of helpful resources for getting started and going further in your GNSS journey.

Our other GNSS-related products: **eos-gnss.com/products**

GNSS accessories - from antennas to mounts and poles: **eos-gnss.com/products/accessories**

Eos GNSS software & utilities: **eos-gnss.com/products/software**

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Frequently asked questions (FAQs): **eos-gnss.com/frequently-asked-questions**

Knowledge base: **eos-gnss.com/knowledge-base**

Technical support form: **eos-gnss.com/technical-support**

Technical Support

If you have additional questions, contact technical support

Our technical support team is available to help you with any questions or problems you may have with your Skadi Tilt Compensation™.

CONTACT TECHNICAL SUPPORT

Have you followed the steps for your configuration, but things are not working as expected? Reach out to our technical support team with a question.

eos-gnss.com/technical-support

https://eos-gnss.com/technical-support