EasyLevel Instruction Manual

English

Installation

1. Battery Installation


1. Unscrew the lid.
   !! Make sure there is no risk of static discharge when inserting the battery !!
2. Slide insert a CR2450 battery (with the + marking visible/upwards).
3. Press down the battery until it clicks into place.
4. Screw the lid back on. To facilitate mounting on the vehicle, there are also arrows on the lid that must match the arrows on the circuit board.

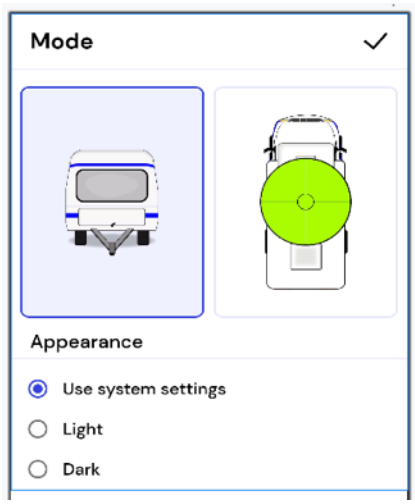
2. Application Installation

1. Download and install the "EasyLevel" application from your preferred app store.
   This application can be used for caravans, motorhomes, or other types of vehicles.

2. Start the application.

3. Accept EasyLevel's permission requests (these may vary), if not accepted the application cannot connect (Bluetooth) to the sensor.

4. If it's the first time (new installation) the EasyLevel application is installed, then the mode needs to be selected (can also be changed in the application settings).



Select between more standard mode (left image) or a more dedicated motorhome mode (right image).

- Left image (caravan) – Use this mode for caravans, trailers or other vehicles. Side view and front/back view.
- Right image (motorhome) – Use this mode for motorhomes or generic bubble spirit level. View from above.

EasyLevel also supports light and dark appearance (color of the application).

- Use system mode – follows the system setting.
- Light – Use light appearance.
- Dark – Use dark appearance.

If unsure what to use, select "use system settings"

Confirm the mode and appearance by the check marker (upper right corner).

5. A successful connection is indicated by a green sensor icon on the application main screen.
   If there is an issue connecting to the sensor, please see the "troubleshooting" chapter for further steps.

“Tip: For details on customizing and using the EasyLevel application, see the “EasyLevel Application” chapter before installing the sensor in the vehicle.”

The sensor is now ready for installation in/on the vehicle. Note the arrows on the sensor lid indicating orientation. One (any) of the arrows must point forward for proper function!

3. Vehicle Installation

To achieve the best possible functionality, the placement of the sensor is crucial.
Some factors that affect performance are:

- Sensor placement: Avoid placing the sensor (if possible) inside the caravan or under/inside/near large metal objects.
- The distance between the sensor and the Android/iOS device: The maximum distance is approximately 10 meters and is highly dependent on the Android/iOS device.
- The radio of the Android/iOS device: Different manufacturers have varying quality solutions, and the software on the Android/iOS device can also affect performance.

A possible placement on a caravan is in the gas bottle compartment (in the case of a caravan), which protects the sensor, is relatively close to the Android/iOS device (in the car) and has no large metal objects nearby (if the front is non-metal).

A possible placement in a motorhome is inside the overhead cabinet, is relatively close to the Android/iOS device and has no large metal objects nearby (if the front is non-metal).

Settings 0° level

Setting a user 0° level is highly recommended to compensate for any unevenness where the sensor is mounted and to account for sensor tolerances. Please see the “EasyLevel Application” chapter for more information.

The following procedure is recommended to setup a user 0° level:

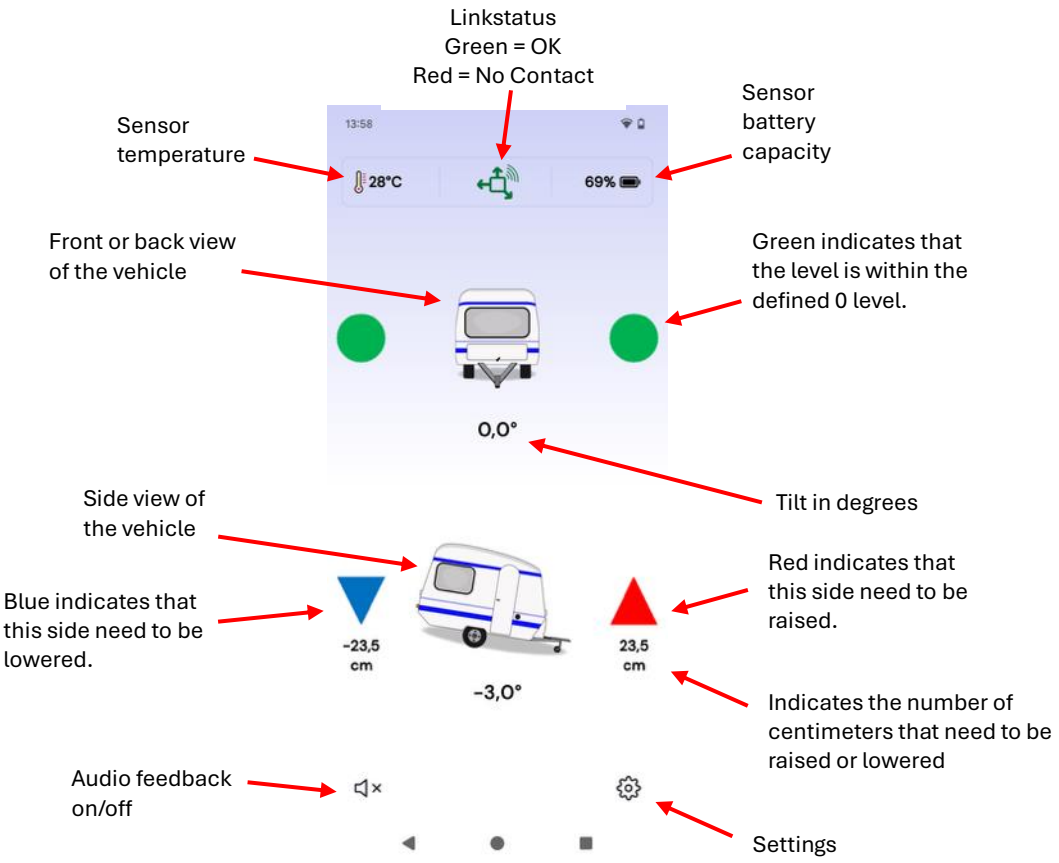
1. Level the vehicle to your desired 0° level, i.e., at the desired tilt.
2. If wanted, select a 0° level memory position to use (0° Level Memory menu).
3. Set the current level by pressing "OK” (press a few times so it stabilizes).
4. The 0° offset tilt is displayed under the vehicle icon.
5. Close the dialog, now the user 0° level is stored

EasyLevel application

The EasyLevel application is relatively simple and easy to use.
The application consists of different main screen views, which one to use can be selected in the settings menu and is dependent on the mode of the application.

Standard mode

The vehicle to display can be changed under settings.

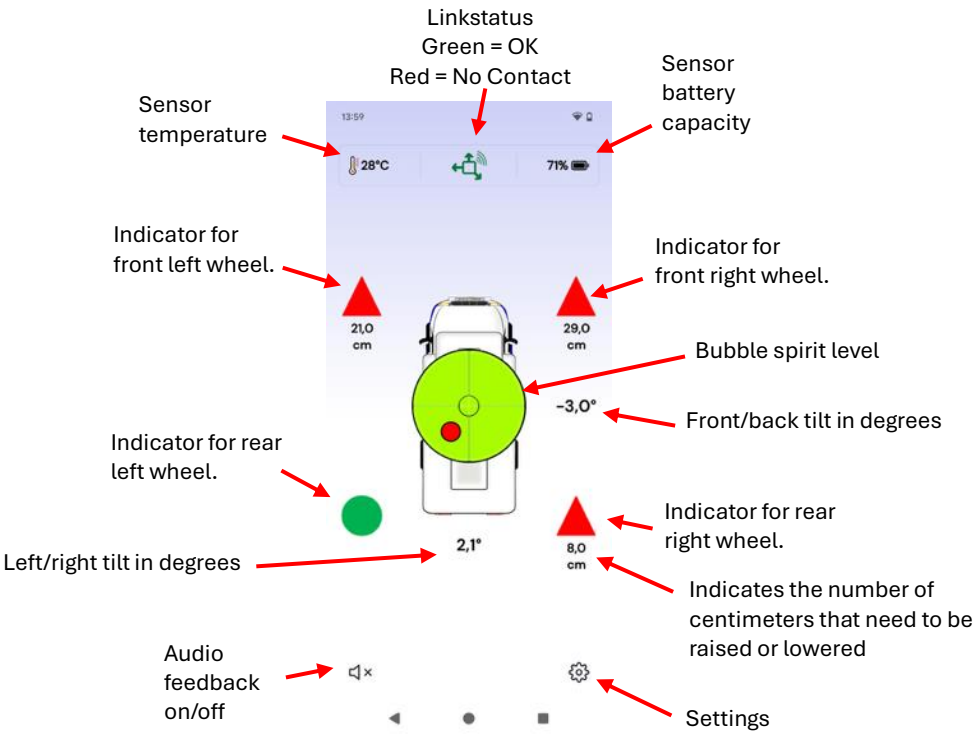


Pressing the speaker icon (bottom left) turns the auditory feedback on or off. The volume can be adjusted in the settings.

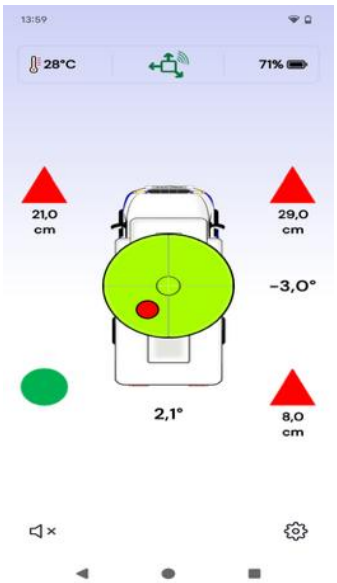
Pressing the gear icon (bottom right) brings up the settings menu. See the next page for more information.

Motorhome mode

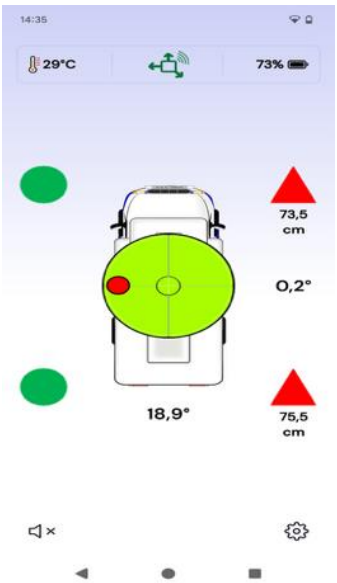
The bubble level view can be turned on/off under settings.



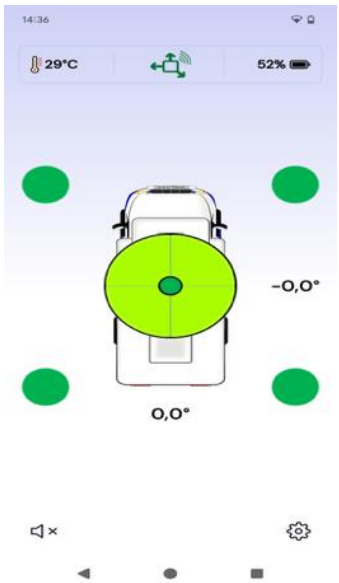
The motorhome view of EasyLevel always shows four indicators. The highest wheel is used as the reference level (green indication). If height correction is activated, it also shows how many centimeters the other wheels need to be raised to be level with the reference wheel.



The left rear wheel is used as a reference wheel, and the other three wheels need to be adjusted by different amounts to level the vehicle.



The vehicle is level in front/rear (within 0 tolerance), which means that both left front and right rear are shown as OK. Adjustment is only needed on the right side.



The vehicle is level (within 0 tolerance), all indicators are green and no height adjustment is displayed. The degree number is always displayed.

Settings

Pressing the gear symbol on the main screen brings up the settings, depending on the application mode, some settings may vary.

- **Generic** – Settings for language, views, angles
- **Vehicle** – Selection of vehicle to show on the main screen (classic mode)
- **View** – Selection of main screen (motorhome mode)
- **Sensor** – Settings for the sensor and sensor placement
- **Resolution** – Settings for degree resolution
- **0° Level Tolerance** – Settings for 0° tolerance
- **0° Level Memory** – Selection of 0° position to use
- **Set 0° Level** – Settings for 0° level
- **Audio** – Volume control for audio feedback
- **Height Correction** – Settings for height correction view
- **Mode** – Settings for application mode and appearance
- **Help** – Help menu and safety instruction

Generic

Front/Back view (classic mode):

- **Front** – Front view of the vehicle on the main screen
- **Front (Mirror)** – Front view of the vehicle, mirrored view and indicators, can be used when using car mirrors
- **Back** – Back view of the vehicle on the main screen
- **Back (Mirror)** – Back view of the vehicle, mirrored view and indicators, can be used when using car mirrors

Angle:

- **Relative degrees** – Shows degrees based on defined 0 levels, preferred way to show degrees
- **Absolute degrees** – Shows absolute degrees independent of defined 0 levels

Language:

Language selection – The application selects the device language as default; if not found, English is selected. Here, this can be overridden and manually selected.

Vehicle / View

Standard mode:

The type and color of the vehicle can be selected. The following options are available:

- **Caravan:** blue, red, and black
- **Motorhome:** blue, red, and black
- **Trailer:** blue, red, and black

Motorhome mode:

Turn on/off the round bubble level view.

The selected vehicle is marked by green and is shown on the main screen.

Sensor

Displays the current connected sensor address (only in Android).

Pressing the "New Sensor" button prepares the application to pair a new sensor.
Note that if there is an already paired sensor, it will be un-paired!

Placement:
It's important that the sensor is mounted with at least one of the arrows on the circuit board (also available on the lid) facing forward the car or front of motorhome, the mounted selection should be selected in the application for correct angle calculation.

- Mounting with broadside facing forward
- Mounting with side facing forward

This is selected and indicated by a green marking.

Advanced:

- **Inverted** – The sensor can be mounted up-side-down, this is not recommended due to vibrations and risk of battery falling out, if the sensor is mounted up-side-down this option must be selected.
- **Gyro on/off** - If you want a very quick response to tilt changes, the gyro should be on. If you want higher accuracy, the gyro should be off. Note that the gyro is significantly affected at low temperatures, so turning off the gyro at low temperatures can improve accuracy. The response will be slightly slower when the gyro is off.
- **Scan Device Name** – (Only android) If you have an old sensor (lid without arrows), older android version or having a lot of issues connecting then selecting this might improve the connection process, normally this is not needed

Resolution

The resolution of the displayed angle on the main page can be set from 0.05° to 2.0°.
Highest resolution is ±0.05° and lowest is ±2.0°.

Note that higher resolution results in more noise/sensitivity in the angle display on the main page.

0° Level Tolerance

Under 0° Level Tolerance, the maximum/minimum tolerance for the 0° level is set.
This determines how much the tilt can deviate from the defined 0° level before the indicators change from green to either red or blue (standard mode only), and if enabled, the audio feedback starts, and height correction is showed.

- **Left/Right:** plus/minus degrees from defined 0° level left-right
- **Back/Front:** plus/minus degrees from defined 0° level front-back

It is recommended not to have too narrow tolerance due to the nature and accuracy of the sensor.

To get as much detail and keep the indicators on the main screen active as much as possible, the 0° level tolerance can be set to its lowest value of 0.05° and the resolution to ±0.05°, this will provide very high resolution, with the indicators active as much as possible, but also a very sensitive/noisy system.

0° Level Memory

Up to four 0° level positions can be stored and used as custom 0° levels.

This feature can be useful when, for example, you want to have several custom 0° levels, such as one for showering and one for normal use, or one for emptying the waste tank in a motorhome.

The used memory position is marked in green.

Default is position 1 if not set otherwise.

Set 0° Level

Setting a user 0° level is highly recommended to compensate for any unevenness where the sensor is mounted and to account for sensor tolerances.

Left/Right:

- **L+** = Adjusts the left side up
- **OK** = Set the current tilt as the user 0° level
- **R+** = Adjusts the right side up
- **0.0°** = Resets the custom-defined level to zero

Back/Front:

- **B+** = Adjusts the back up
- **OK** = Sets the current tilt as the user 0° level
- **F+** = Adjusts the front up
- **0.0°** = Resets the custom-defined level to zero

Note that the custom 0° level is saved when the dialog is closed pressing the red x at top right corner.

Keep in mind that if you install the sensor in an empty space and then fill it with equipment, the angle may be affected due to weight changes and bending of the substrate/floor.

The following procedure is recommended to setup a user 0° level:

6. Level the vehicle to your desired 0° level, i.e., at the desired tilt.
7. If wanted, select a 0° level memory position to use (0° Level Memory menu).
8. Set the current level by pressing "OK" (press a few times so it stabilizes).
9. The 0° offset tilt is displayed under the vehicle icon.
10. Close the dialog, now the user 0° level is stored

Audio

Volume control for audio feedback.

Standard mode:

The audio tones for front/back feedback and left/right feedback differs from each other to simply the setup

Front/Back Volume:

- Volume level for front/back correction.

Left/Right Volume:
Volume level for left/right correction.

Motorhome mode:

Volume:

- Volume level for correction.

Height Correction

These correction numbers are only for guidance and may vary depending on factors such as tire pressure, the accuracy of the sensors and installation. The accuracy is ±0.5 cm regardless of the chosen resolution. Depending on the vehicle selection, different icons and parameters are displayed:

Show Correction:

- Enables the display of correction in centimeters on the main screen.

Standard mode:

Enter Track Width:

- The distance between the wheels (wheel center) in centimeters.

Enter Distance:

- The distance between the wheel axle and the support wheel in centimeters.

Motorhome mode:

Enter Track Width (front):

- The distance between the front wheels (wheel center) in centimeters.

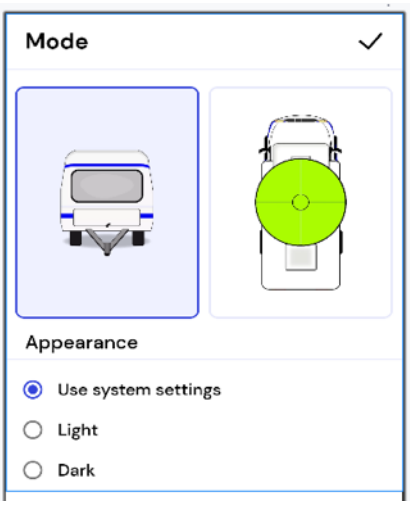
Enter Track Width (back):

- The distance between the rear wheels (wheel center) in centimeters.

Enter Wheelbase:

- The distance between the front wheel axle and the rear wheel axel in centimeters.

Mode



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Confirm the mode and appearance by the check marker (upper right corner).

Help

- Link to the manual and more information
- Sensor firmware version (FW)
- Sensor ID (ID)
- Radio link quality (RSSI)
- Application version (V)
- Warranty conditions
- Technical information
- Support email request

Setup Guide

The procedure below uses an caravan but it’s the same principle when using an motorhome.

1. Define 0-level

It is advisable to set up the 0-level before camping / new installation to compensate for uneven mounting surfaces and sensor inaccuracies.
Follow the instructions under "Set 0 Level" in the manual to establish a 0-level.

2. At camping site

Start the EasyLevel application on your phone a little before reaching the setup location, as it may take some time for the connection between the phone and the sensor to establish. The driver/operator can immediately see the tilt of the caravan/motorhome during setup and easily make corrections. A guide showing how much to raise or to lower is also displayed (if the distance has been defined in the application).

3. Setup the vehicle

Use EasyLevel to facilitate the setup and indicate how/where adjustments are needed.

This guide is also available on YouTube, click here for direct link

For more information and instruction videos check out our YouTube channel

Troubleshooting

Battery problems: If the battery depletes within a few days then the sensor is most likely broken, this can be result of static discharge when inserting the battery or component issues. In any case the sensor needs to be replaced, contact your dealer.

Important: Before following this guide, document any 0-level position settings and/or height corrections if they have been made!

Troubleshooting Steps:

1. Remove the battery from the sensor
2. Wait 5 minutes to ensure the sensor is completely discharged.
3. Uninstall the EasyLevel application from your smartphone.
4. Check that the battery is new and in good condition.
5. Insert the battery properly into the sensor.
6. Download and start the EasyLevel application on your smartphone. Note that it can take up to 60 seconds to establish a connection. The smartphone should be placed near the sensor during the first connection.
7. For some Android smartphones or when using an older sensor, if the problem persists after step 6, go to 'Settings' -> 'Sensor' -> 'Advanced' and select the option for a different connection method (scan device name). Then close and restart the application.

If the connection problem persists:

8. Close the EasyLevel application on your smartphone.
9. Download a Bluetooth scanning tool “BLE scanner” from Google Play or Apple App Store:
    - Android BLE Scanner
    - Apple BLE Scanner
10. Open the BLE scanner application and allow it to search for the sensor.

If a device named "CARATI..." appears in the list, the sensor is functioning as it should.
Try again with steps 1-7, and possibly with another smartphone. If the problem persists, contact your dealer with information about the smartphone and operating system.

If the device "CARATI..." does not appear, it may be due to:

- A bad battery or faulty sensor, if the sensor has previously worked follow steps 1-7 again. If it still does not work, contact your dealer.

- If the sensor has never been paired with the current smartphone, try steps 1-7 with another smartphone. If the problem persists, contact your dealer with information about the phone and operating system.

Warranty Conditions

- In case of defect, return the product to your reseller with failure description, proof of purchase and all accessories.
- During warranty period you will receive a replacement product from the reseller if available.
- Warranty will be void in cases of physical damage, misuse, modification, repair by unauthorized persons, carelessness and using the product for other purposes than its intended use.
- Exclusions of warranty:
    - Damage caused by accidents or disasters, such as fire, flood, earthquake, war, vandalism or theft.
    - Incompatibility with other hardware/software not defined as system requirements.
    - Accessories such as batteries and fuses.
- In no event shall the manufacturer (CaraTech AB) be liable for any consequential or incidental damages, including any loss of business profits or any other commercial damages, arising out of the use of its products.

Safety

- Only use this device as indicated in the user's guide.
- Use batteries that fulfills IEC 60086:2020 and UL1642, suggestion Varta CR2450
- The device is intended for caravans or motorhome use, except when otherwise indicated.
- Do not repair this device.
- Device should not be mounted above 2m height, make sure the product is securly mounted.
- Do not use the device in a environment that exceeds IP65 classification rating limits.
- Clean the device with a dry cloth.
- Keep the device and all loose parts away from children, pets and unauthorized persons.
- Don't use the device in any way other than mentioned in the user's guide.
- Keep the device away from heat.
- Keep the device away from water.
- Do not change or damage the device.
- When disconnecting battery, don't use excessive force.
- If a device is damaged in any way, stop using it immediately.
- If a device gets too hot, stop using it immediately.
- Don't open batteries, overheat them or put them in fire.
- Don't mix new and old batteries or batteries of different types.
- If batteries are leaking, don't touch the batteries or fluids.
- Observe local regulations when disposing of batteries.
- Do not ingest battery, Chemical Burn Hazard
- This product contains a coin / button cell battery. If the coin / button cell battery is swallowed, it can cause severe internal burns in just 2 hours and can lead to death.
- Keep new and used batteries away from children.
- If the battery compartment does not close securely, stop using the product and keep it away from children.
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.
- Reduced wireless performance can be caused by:
    - Metal objects close to or between the receiver and transmitter
    - Empty batteries
    - Other wireless devices close by
    - The reception is limited when the signal must pass through concrete
- There is no guarantee that RF interference won't occur in a particular situation.
- Be careful when using wireless devices if you have a pacemaker or are dependent on other lifesaving, sensitive electronic equipment, because the device transmits radio signals.

Privacy Statement

CaraTech AB built the EasyLevel app as a Free app. This SERVICE is provided by CaraTech AB at no cost and is intended for use as is.
This page is used to inform visitors regarding our policies with the collection, use, and disclosure of Personal Information if anyone decided to use our Service. If you choose to use our Service, then you agree to the collection and use of information in relation to this policy. The Personal Information that we collect is used for providing and improving the Service. We will not use or share your information with anyone except as described in this Privacy Policy.
The terms used in this Privacy Policy have the same meanings as in our Terms and Conditions, which is accessible at EasyLevel unless otherwise defined in this Privacy Policy.
Information Collection and Use
For a better experience, while using our Service, we may require you to provide CaraTech AB with certain personally identifiable information. The information that we request will be retained on your device and is not collected by CaraTech AB in any way.
The app does use third party services that may collect information used to identify you.
Link to privacy policy of third-party service providers used by the app
Google Play Services
Apple Store Services
Log Data:
We want to inform you that whenever you use our Service, in a case of an error in the app we collect data and information (through third party products) on your phone called Log Data. This Log Data may include information such as your device Internet Protocol (“IP”) address, device name, operating system version, the configuration of the app when utilizing my Service, the time and date of your use of the Service, and other statistics.
Cookies:
Cookies are files with a small amount of data that are commonly used as anonymous unique identifiers. These are sent to your browser from the websites that you visit and are stored on your device's internal memory.
This Service does not use these “cookies” explicitly. However, the app may use third party code and libraries that use “cookies” to collect information and improve their services. You have the option to either accept or refuse these cookies and know when a cookie is being sent to your device. If you choose to refuse our cookies, you may not be able to use some portions of this Service.
Service Providers:
We may employ third-party companies and individuals due to the following reasons:
To facilitate our Service.
To provide the Service on our behalf.
To perform Service-related services; or
To assist CaraTech AB in analyzing how our Service is used.
We want to inform users of this Service that these third parties have access to your Personal Information. The reason is to perform the tasks assigned to them on our behalf. However, they are obligated not to disclose or use the information for any other purpose.
Security:
We value your trust in providing CaraTech AB your Personal Information, thus we are striving to use commercially acceptable means of protecting it. But remember that no method of transmission over the internet, or method of electronic storage is 100% secure and reliable, and we cannot guarantee its absolute security.
Links to Other Sites:
This Service may contain links to other sites. If you click on a third-party link, you will be directed to that site. Note that these external sites are not operated by CaraTech AB. Therefore, we strongly advise you to review the Privacy Policy of these websites. We have no control over and assume no responsibility for the content, privacy policies, or practices of any third-party sites or services.
Children’s Privacy:
These Services do not address anyone under the age of 13. We do not knowingly collect personally identifiable information from children under 13. In the case we discover that a child under 13 has provided CaraTech AB with personal information, we immediately delete this from our servers. If you are a parent or guardian and you are aware that your child has provided CaraTech AB with personal information, please contact me so that we will be able to do necessary actions.
Changes to This Privacy Policy:
We may update our Privacy Policy from time to time. Thus, you are advised to review this page periodically for any changes. We will not notify you of any changes by posting the new Privacy Policy on this page, it’s up to you to review this page periodically. These changes are effective immediately after they are posted on this page.
Contact Us:
If you have any questions or suggestions about my Privacy Policy, do not hesitate to contact CaraTech AB at info@caratechab.com.

EasyLevel Sensor technical information

IP65 rated (Dust-tight and Water jets) casing
UV resistant casing
LxWxH: 9,4 x 5,8 x 3,5cm
Weight: 0,1kg
Power: CR2450 3V Battery
Operating Temperature Range: 0C- 40C
The sensor's accuracy is approximately ±1 degree in the temperature range of -20°C to +40°C, and approximately ±0.5 degrees (often better) in the range of 0°C to +40°C. The recommended operating temperature range for the sensor is 0°C to +40°C (mainly due to the battery's properties at sub-zero temperatures). The extended temperature range is -20°C to +50°C (which may affect the battery and sensor performance at subzero temperatures).
Expected Lifetime (15min/every 2nd day usage) based on CR2450 620mAh battery: =>1 year
RF: BLE, 2.4GHz ISM band, v5.0 (Certified by Bluetooth.org), <8dBm output power, <10m range
The product is compatible with the following norms/standards: EN 62368-1:2014 (2nd Edition) +AC:2015 EN 62368-2:2014 (2nd Edition) +AC:2015 EN 60950-22:2006 EN 301 489-17 v 3.2.4 EN 62311:2008 EN 300 328 v2.2.2 EN 18031-1:2024 Intended use: Indoor and outdoor.

WEEE: Do not dispose of the product together with other waste.
To avoid possible environmental pollution, the product must be disposed of at a recycling center.
CaraTech AB declares that EasyLevel Sensor complies with the required directives.
German WEEE No.: DE 33548402

CARATECH AB
www.caratechab.com