

Cerebrum Smart Sensor User Guide

CEREBRUM SENSOR USER GUIDE

Thank you for purchasing Cerebrum, the first aftermarket smart tire solution utilizing an innovative sensor technology mounted directly to the tire. Cerebrum sensors provide never-before-seen advanced tire pressure, temperature, tread depth, alignment and performance data all through this convenient mobile application. This user guide will help explain the functionality of the mobile application and how it communicates with the Cerebrum Sensors.

Account Setup

Sign In and Sign Up

In order to get started with Cerebrum, the application requires a user account. The first 'splash' screens of the application will walk through a few of the major features of the app as well as how to order the product.

After navigating through these screens, the final landing page offers the options to 'Log in' if an account already exists or 'Sign up' if an account has not yet been created.

In order to 'Sign up', several customer details are required to ensure account security and application functionality including: First name, Last name, Email Address, Password, Account type (explained below) and the Vehicle Identification Number (optional). Finally, check the Terms and Conditions box to complete account setup.

Account Type

There are two options to select from 'Account type': Product Owner and Technician

Product Owner Account: Select this option as the owner of the vehicle and Cerebrum kit. The application will require the Vehicle Identification Number (VIN) which is necessary and will sync the Account with the cloud database and enable full application and sensor functionality. If the Cerebrum Sensors were setup by a Technician, the application will automatically populate the Product Owner account for immediate use after verifying the vehicle and tire details.

Once the Product Owner details are submitted, the application will navigate to the Home screen and optionally continue setting up the vehicle, tires and Cerebrum Sensors.

Technician Account: Select this option as a technician or installer of the Cerebrum sensor kit and not the actual vehicle owner. The Technician Account is used when the Product Owner is not directly setting up the Cerebrum kit and is typically setup by wheel and tire shops, certified tire installers, and customization shops.

The Technician Account will ask to enter additional details about the business. Once completed, this information will be added to the Cerebrum Certified Installer network through which customers can be recommended.

After completing the Technician Account setup, the application will navigate to the Home screen to continue setting up a customer's vehicle, tires and Cerebrum Sensors.

Product Owner's Info (Technician Only).

If a Technician Account has been created, initial setup will require details of customer (Product Owner). These basic details include the VIN, first name, last name, phone number and customer's email address. All of this basic information is required to ensure sensor and account security.

Add Vehicle

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This screen contains the details of the vehicle to which Cerebrum Sensors are being installed. This screen requires the VIN, Year, Make, Model, Trim and estimated Annual Mileage. When adding a vehicle for the first time, the subsequent required screen is to Add Tires.

As a Product Owner and Technician, multiple vehicles can be added to the account and referenced through the Vehicles section in the Main Menu. Each Vehicle can be setup with one or more Set of Tires and Cerebrum Sensors such as for winter, summer, track tires, etc. The Vehicle(s) and Set of Tires can be edited at any time.

Tire Detail Screen

This screen represents the details of the vehicle tires including: Tire Width, Aspect ratio, Wheel Size, Brand and Model, Recommended Tire Pressure, and Tire Condition.

A traditional 'tire size' contains 3 sections of numbers, i.e. 275/40/20. The first set of numbers (typically 3 numbers) represents tire Section Width. Second set of numbers represents Aspect Ratio and last set is the wheel size.

The Recommended Tire Pressure will automatically populate based on the vehicle or tires selected. This field can also be edited as needed. The value entered here will link to pressure alerts and calculations throughout the application.

The Tire Condition field represents the tread health of the tire set. If the tires are brand new, select 100% accordingly. If approximately 10,000 miles have been driven on a tire with a 50,000 mile warranty, select 80%.

The New Tire Tread Depth will automatically populate based on the tires selected and can also be manually edited. This field represents the physical measurement of the tire tread when the tire is in new condition. This information is vital for analyzing the tread depth health of each tire.

Finally, the Add Tires page offers the option of Different Front and Rear tires in the event of a staggered tire setup. Also, a Spare Tire can be added if applicable.

You get an option to add a spare tire if you have any. Select '+Spare tire' from the top right corner of the screen.

Sensor Setup and Assignment

This screen will configure each Cerebrum Sensor with the tire position. First, choose tire position from FL (Front Left), FR (Front Right), RL (Rear Left), RR (Rear Right), one at a time from the bottom of the screen or by swiping.

Second, select the sensor from the 'available sensors' list for selected tire position. The Sensor ID represents the unique identification number of each Cerebrum Sensor and can be found on the outer housing of the sensor. Once a sensor is selected, the 'Location' will updated based on the current tire position. Use the red 'X' button to cancel a selection if required.

To finalize Sensor Setup, repeat selection of each tire position (E.g. FR, FL) and assign a sensor from the list. Select "Done" once all tires have received sensor assignment.

Note: The mobile device must be within 10 feet of a sensor to be detected. Use the 'refresh' button to search for available sensors.

Sensor Already Mounted

When the tires have already been mounted to wheels and / or the vehicle with the Cerebrum Sensors inside of the tire, the Sensor ID will not be visually accessible. Not to worry! The Cerebrum application offers an Auto Detect feature on the Assign Sensor screen. To determine the Sensor ID within each tire:

1. Selected a tire and depress the tire valve stem to release air from the tire.
2. The loss in air pressure will alert the Sensor ID on the Cerebrum mobile application with a red flashing light.
3. Select the tire location for this sensor from the tire positions (FL, FR, RL, RR).
4. Repeat this process for each tire equipped with a Cerebrum Sensor and refill each tire to the appropriate air pressure.

Sensor ECU Connection

Cerebrum sensors are a direct replacement for traditional, wheel-mounted TPMS sensors. Be sure to finish the sensor position assigning process before proceeding with ECU setup process below:

1. Select ECU option from the top right corner of Sensor Setup screen. A new screen with all listed sensors will appear.
2. Select one Cerebrum Sensor, a section to input ECU ID will appear.
3. In the 'ECU ID' form, enter the unique ID number located on the original TPMS unit being replaced. The TPMS ID is typically a 7-digit , alphanumeric code located on the TPMS housing. Be sure to select the correct TPMS ID for the respective tire and Cerebrum Sensor.

Make sure the Cerebrum Sensor is as close as possible to the mobile device during this process, ideally less than 3 feet. Click on 'Done'. The Cerebrum Sensor will reprogram automatically and will be ready to communicate with the vehicle ECU as a replacement for the OEM sensor.

Home Screen

The Cerebrum application contains multiple 'Home' screens which display key performance indicators of each tire. Each individual screen can be accessed by swiping left and right. In addition, a Tire Summary screen can be accessed by selecting an individual tire. The Tire summary screen will display all of the key performance indicators of the specific tire within one screen.

Note: The information represented on these screens may vary in accuracy. The data sources from multiple inputs including users which may result in accurate, incomplete or misleading results. Cerebrum is not intended to substitute conventional vehicle and tire inspection. Users must always consult a professional for proper safety and maintenance of the vehicle and tires.

Pressure and Temperature Screen

This screen displays the real time tire pressure and tire rubber temperature. This easy to use screen is the key to overall safety and performance featuring color-coded tire conditions and built-in notifications for leak, flat and blowout detection.

Tread Depth Health

This screen ensures a safe and indicates when it's time for tire service by monitoring the remaining tread life of each tire.

For proper functionality, this screen requires the need to input the proper tire condition during the time of initial Cerebrum Sensor Add Tires setup. Once this is done properly, the app will take it from there and automatically run the calculations to provide the tread depth of each tire at regular intervals in the future.

Cost of Inefficiency

This screen helps save some cash by calculating the additional dollars spent on gasoline and premature tire wear resulting from driving below recommended pressure.

Excess CO2 Emission

This screen helps to reduce a vehicle's carbon footprint by monitoring excess CO2 emissions as a result of driving below recommended pressure.

Tire Warranty Miles Loss Per Year

Operating vehicle tires below recommended pressure advances tire wear, reducing the lifetime of the tire. This screen projects the warranty miles lost for each tire based on current tire pressure.

Tire Summary

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Cerebrum conveniently provides a summary report of each tire. Access this screen by clicking on the larger, individual tire image on any of the 'Home'. Switch tires by selecting the tire position from the top of the screen or by clicking on a different tire in the 'Home' screen.

The Tire Summary screen also provides the estimated visual representation of tire condition. This includes the current tread depth and temperature distribution across the tread based on operating conditions.

Alerts & Notifications

Note: The information represented on these alerts and notifications may vary in accuracy. The data sources from multiple inputs including users which may result in accurate, incomplete or misleading results.

Cerebrum is not intended to substitute conventional vehicle and tire inspection. Users must always consult a professional for proper safety and maintenance of the vehicle and tires.

Low Pressure and Leak Detection

Tire pressure is a critical factor when it comes to efficiency, performance and safety. The Pressure and Temperature 'Home' screen of the application provides visual alerts in the event of low tire pressure or leaking air pressure.

In the event of low pressure, the outlined region of the large tire symbol will change to red color as well as show a condition of depression at the contact patch. This 'red' state will be reflected on several other 'Home' screens.

In addition, Cerebrum provides push notifications alerts for low pressure or leaks. These push notifications are available when navigating the device anywhere within or outside of the Cerebrum application. The application is configured with default notification settings based on the Recommended Tire Pressure. Cerebrum also offers custom alerts which can be setup and managed for the current active vehicle through the Settings screen.

Tire Temperature & Color Scale

The temperature of the tire rubber changes as the vehicle is driven as well as based on environmental conditions. Tire temperature plays a significant role in tire safety and performance. Unlike traditional TPMS sensors that measure air temperature, Cerebrum Sensors provide accurate, tire rubber temperature.

The color of the larger tires of the Pressure and Temperature screen change as Cerebrum receives updates from the Sensors. Cerebrum Sensors take into consideration the specific tire temperature grade and speed rating. The temperature scale is uniquely designed for three different tire categories: Passenger tires, High performance passenger tires and DOT high performance race tires. The color gradient follows the color scale: blue, green, yellow, orange and red. The color blue represents the coldest temperature on the spectrum (typically ambient tire temperature) and red represents the highest temperature (unsafe condition) on the spectrum. The color green represents the optimum temperature range of the tire and is the target condition for optimized performance. This color scale is also represented on the Tire Summary screen.

Tread Depth Health

The Tread Depth Health screen displays several indications of condition including approximate % of remaining life, a descriptive condition and a color scale. This color scale includes Green (acceptable), Yellow (consider inspecting), Orange (recommend inspecting and changing) and red (immediate professional inspection and change).

Main menu

Account

This screen allows edits to account information as well as the ability to change the password or switch between email accounts. However, once an Account Type is chosen it cannot be changed from Product Owner to Technician or vice versa though.

Switch Account

The application provides the option to switch between accounts. There is no limitation of accounts that can be created by a user. Click on 'Switch Account' and use the '+' button to Log-In to another account. This screen can also create a new account by Signing Up. Once logged in to a new account, that account will be added to the list of connected accounts for convenience. Simply select the account from the list and the application will populate data from that account. This functionality in particular allows easy switching between a Technician Account and a Product Owner account.

Password

The Cerebrum application enables a change of the password once logged into an Account. The application will ask to input the current password, the new password and new password confirmation. Then click on 'Save' to confirm the password change.

In the event of a forgotten password, select the 'Forgot Password' at the bottom of the login screen. Enter the valid email address associated with the account to receive an auto generated password via that email address. Use this password to login. The application will then require a change of password.

Vehicles

This screen displays all the vehicles which are setup in the account and equipped with Cerebrum Sensors. This screen can also be used to add a new vehicle or edit an existing vehicle as well as add an additional set of tires to an existing vehicle. Select any vehicle and the set of tires from the list to display information about the specific sensors. When the application is in use in the vicinity of a setup vehicle, Cerebrum will auto detect the sensors and vehicle and then request to switch to current vehicle/sensors.

Saved Sessions

Note: This feature is only available as a Product Owner.

This screen contains a list of Sessions recorded in Advanced Mode. Once a Session is complete, the Session detail is automatically created and saved with a default and editable Session name. On selecting any Session, a summary of the Session will drop down.

The Session Details screen offers a view of the entire recorded Session with a playback option. Use the session pointer on the playback timeline to drag and stop at any point during the session. The Session Details provides an interactive GPS map and tracked location for the entire Session.

Above the Session playback and GPS map, the Session Details screen displays the pressure and temperature of each tire at a given point in the Session. The section below the GPS map provides the maximum and minimum pressure and temperature of each tire for the entire Session.

The Pressure Adjustment section provides recommendations for adjustment to each individual tire pressure in order to optimize performance. These recommended values are only applicable if the next Session is started within 20 minutes after the last Session otherwise the tires will need to be re-evaluated.

Share Session

After performing an Advanced Mode Session, the Session Details can be shared in multiple ways. By selecting “Share” in the Session Details screen the user can select to export the Session as a .csv file through an email or messenger application. The .csv file contains Session Details including time stamp, temperature, pressure, and GPS coordinates data for each tire. These never-before-seen analytics which can be used for detailed review on other platforms.

The “Share” feature can also be used to export a video summary of the Session to a select social media platform such as Instagram and Facebook. The video will be compressed to fit the formatting of the select platform for convenience.

Tire Pressure Gauge

Traditional pressure gauges are unreliable and lack the precision some customers require. This customized tire pressure gauge ensures accurate monitoring of fill pressure aligned with manufacturer’s recommendations. The real time pressure will adjust the color to green when the optimum recommended pressure level is achieved.

Tire Rotation

Cerebrum supports changing the position of the tires and sensors within in the application in the event of tire rotation. In addition, any tire can be replaced with the spare tire.

System Settings

This screen allows customization of the mobile application settings including units of measure and alerts, submission of error logs and updates to sensor firmware. To change the alert settings for each vehicle, first activate the vehicle and appropriate tire set (if there are multiple set of tires for that vehicle) and return to the Settings screen. Select the ‘Restore Default Settings’ button at the bottom of the screen to cancel any edits made to the System Settings.

Terms and Privacy policy

The Terms, Conditions and Privacy policy is available in the Systems Settings screen.

Contact Us

Reach the Cerebrum application and product support team through the Contact Us page. Cerebrum customer service will respond within 1-2 business days and address any questions related to application and product performance, functionality as well as general inquiries.

Logout

Use the Logout button in the Main Menu to exit the Account. Be sure to finish and save any tasks within the application before logging out to prevent losing progress.

Advanced Mode

Note: This feature is only available as a Product Owner.

Advanced Mode enables additional features specifically recorded performance Sessions. Advanced Mode increases the data collection frequency from Cerebrum Sensors. This will result in increased usage of sensor batteries, which may decrease sensor lifetime.

This mode will display a Start and Stop button on the 'Home' screen which will commence a Session. When the Session is stopped, the Session Summary will automatically open. Each Session is given a default session name which can be changed as needed. The Save Session button stores the Session under 'Saved Sessions' in the Main Menu. Once saved, the user will be navigated back to the Home screen.

Glossary

Sign In and Sign Up

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Pressure and Temperature Screen

This screen displays the real time tire pressure and tire rubber temperature. This easy to use screen is the key to overall safety and performance featuring color-coded tire conditions and built-in notifications for leak, flat and blowout detection.

Tread Depth Health

This screen ensures a safe and indicates when it's time for tire service by monitoring the remaining tread life of each tire.

For proper functionality, this screen requires the need to input the proper tire condition during the time of initial Cerebrum Sensor Add Tires setup. Once this is done properly, the app will take it from there and automatically run the calculations to provide the tread depth of each tire at regular intervals in the future.

Cost of Inefficiency

This screen helps save some cash by calculating the additional dollars spent on gasoline and premature tire wear resulting from driving below recommended pressure.

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Saved Sessions

Note: This feature is only available as a Product Owner.

This screen contains a list of Sessions recorded in Advanced Mode. Once a Session is complete, the Session detail is automatically created and saved with a default and editable Session name. On selecting any Session, a summary of the Session will drop down.

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The Pressure Adjustment section provides recommendations for adjustment to each individual tire pressure in order to optimize performance. These recommended values are only applicable if the next Session is started within 20 minutes after the last Session otherwise the tires will need to be re-evaluated.

Share Session

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Terms and Privacy policy

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Advanced Mode

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Advanced Mode enables additional features specifically recorded performance Sessions. Advanced Mode increases the data collection frequency from Cerebrum Sensors. This will result in increased usage of sensor batteries, which may decrease sensor lifetime.

This mode will display a Start and Stop button on the 'Home' screen which will commence a Session. When the Session is stopped, the Session Summary will automatically open. Each Session is given a default session name which can be changed as needed. The Save Session button stores the Session under 'Saved Sessions' in the Main Menu. Once saved, the user will be navigated back to the Home screen. Symbol 'A' at top right corner of the screen signifies that Advance mode is switched On.

Annual Mileage

The approximate amount of miles the vehicle is driven on an annual basis. This information is required for efficiency and cost projections.

Product Owner

The Product Owner is the owner of the vehicle and tires to which Cerebrum is installed. The Product Owner account enables the user to utilize full functionality of the Cerebrum App including Advanced Mode, adding Vehicles and new Sets of Tires, as well as all Home screens such as Tire Pressure & Temperature, Tread Health, etc.

Recommended Tire Pressure

This is the optimum pressure as recommended by the vehicle manufacturer. The vehicle manufacturer's recommended tire pressure is located on a sticker in the driver's side door (where the door latches when it is closed), in the owner's manual, or on the truck lid or fuel door. If the vehicle recommended tire pressure cannot be located, use the MAX pressure for the tire that is being used, which can be located on the tire sidewall.

Saved Sessions

Note: This feature is only available for a Product Owner.

The Saved Sessions feature is your in-depth look at information gathered from Advanced Mode sessions. Saved Sessions include minimum and maximum temperature and pressure analytics for each tire, a map feature the course of the vehicle during the session, as well as a playback feature for the entire run. Saved Sessions are listed by Session Name which can be customized for easy sorting of your runs.

Sensor ID

This is the unique identification number assigned to each individual Cerebrum sensor. This is visible in and used for the Setup Sensor process. Each tire on the vehicle will receive an individual Sensor ID. Once 'assigned' to a tire, the Sensor ID is linked to the vehicle and cannot be used by another account until the sensor is 'unassigned' from the original tire. For issues related to the Sensor ID, please contact support.

Tires Already Mounted

When the tires have already been mounted to the wheels the Cerebrum sensors will not be visually accessible to identify the corresponding Sensor ID. Fortunately, the Cerebrum App features an 'auto detect' setting on the Assign Sensor screen which will highlight the applicable Sensor ID when the air pressure of a chosen tire is decreased.

Tire Pressure Gauge

A tire pressure gauge is a tool used to measure the air pressure contained within the tires on a vehicle. Cerebrum's Tire Pressure Gauge provides real-time measurement of the vehicle tire pressure during the process of filling air. Since tires are rated for specific loads at certain pressure, it is important to keep the pressure of the tire at the optimal amount.

Tire Rotation

Tire rotation is the practice of moving the wheels and tires of an automobile from one position to another, to ensure even tire wear.

Tire Size

Automobile tires are described by an alphanumeric tire code or tire code, which is generally molded into the sidewall of the tire. This code specifies the dimensions of the tire, and some of its key limitations, such as load-bearing ability, and maximum speed. The tire size will contain the section width, aspect ratio, and wheel size.

Tire Technician

The Technician account type is for businesses installing Cerebrum sensors to customer vehicles and tires. The Technician account allows the business to add and manage multiple Product Owners' information and vehicles. Once the Technician adds a Product Owners' information and completes the Cerebrum sensor setup, the VIN is used to sync the setup for the Product Owner once logged in. Technician account does not support Advanced mode, but does feature all other Cerebrum App functionalities.

Tire Temperature

Tire Temperature is a measure of the physical rubber of the tire. Vehicle tires are equipped with a temperature grade, which represents the tire's resistance to the generation of heat at speed. Cerebrum provides alerts associated with the tire temperature to prevent degradation of the rubber and reduce the risk of tire blowouts.

Vehicle Identification Number (VIN)

The vehicle identification number (VIN) is the unique identification code for a SPECIFIC automobile as defined in ISO 3779 (content and structure) and ISO 4030 (location and attachment). This number is required in order to ensure the Cerebrum sensors are setup properly to connect to your vehicle. The VIN can be found on the driver's side corner of the dashboard where it meets the windshield. If the VIN cannot be found there, the driver's side door post (where the door latches when it is closed) should contain the number.

ECU Setup

Cerebrum sensors are a direct replacement for traditional, wheel-mounted TPMS sensors. Select from the sensors below to begin the cloning process.

ECU ID

In the ECU ID field below, enter the unique number located on the TPMS unit being replaced. The TPMS ID is typically a 8-digit, alphanumeric code located on the TPMS housing.