



PRODUCT MANUAL



# TREADREADER™ HANDHELD 3D SCANNER

**TOTAL SHOP SOLUTIONS**

PRODUCT MANUAL: TREADREADER HANDHELD

**VERSION: 4.4**

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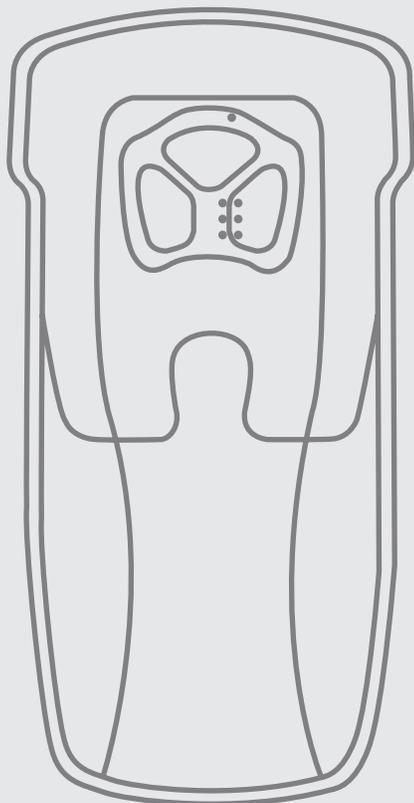
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## QUICK START

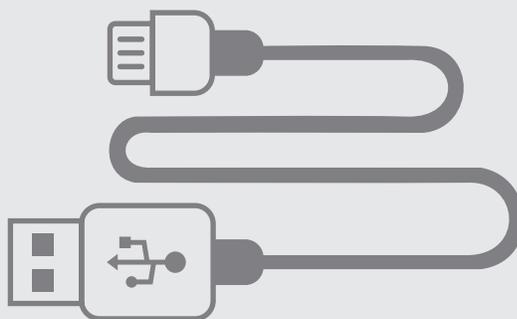
### A • What's inside the box



HandHeld Scanner



Plug Adaptors



USB Cable



Product Manual



Video Tutorial



NOTE: Extra items might be included according to your region.

### B • Check the battery level

The LED's indicate the battery level. Make sure that the scanner is fully charged before starting.



 67 - 100%

 34 - 66%

 0 - 33%

Learn more about battery status and charging in sections 5.2 and 5.4 (pages 27 and 28).

## C • Pairing the scanner to the app

The mobile app for phones or tablets can be downloaded from Google Play® or Apple App Store®. The app controls the HandHeld scanner and connects to **TREADMANAGER™**, the cloud-based service platform.



Learn more about the app connectivity in section 3.1 (beginning on page 11).

## D • Register

Request a **TREADMANAGER™** account by pressing the SIGN UP TO TM button on the mobile app or by sending an e-mail to:



[treadmanager@treadreader.com](mailto:treadmanager@treadreader.com)

- To subscribe, you'll need to inform:
- Company name
  - Address
  - Contact e-mail
  - Contact phone
  - Country\*
  - Sales agent or distributor\*

\*When registering via e-mail

Learn more about setup and user types in section 3.2.1 (beginning on page 14).



NOTE: It can take up to 24 hours for your user to be ready, you'll receive an e-mail confirmation.

Avoid shock and vibration to this product. Use the wrist lanyard provided to avoid dropping the device. Avoid continuous exposure to dust and liquid spray. Avoid direct exposure to aggressive substances, e.g. reactive chemicals, cleaning agents.

Do not view the laser directly with an unprotected eye or optical instrument. Lasers are potentially hazardous to the eye. This product contains a Li-Ion battery. Do not heat or burn. Do not charge at temperatures below 0°C (32°F) or over 45°C (113°F). Charge using manufacturer supplied charger only.

This product contains a laser that could be damaged during unauthorized repair or disassembly, which could result in hazardous exposure to laser radiation. This equipment should only be serviced by an authorized service provider.

Fully charge the device battery before the first use. To check the battery power, press and hold the battery button on the scanner keypad. Only use the charger, adaptor and cable supplied with this product in order to avoid damaging the device.

Do not attempt to open this product as there are no user-serviceable parts and the warranty will be voided. Use of this product other than as specified in the USER MANUAL may result in hazardous radiation exposure.

A copy of the user manual can be found at [treadreader.com/library](https://treadreader.com/library).

## 9 | 02 • TREADREADER™ HandHeld scanner

The **TREADREADER™** HandHeld scanner is a compact and lightweight device. It is quick and easy to use and eliminates errors associated with manual depth gauges. **TREADREADER™** is suitable for wet or dirty tyres and is ideal for all tire inspection applications in workshops, service centers, inspection lanes and at the roadside. Accurate tread depth readings for tyres of all vehicle types, such as passenger cars and LCVs, can reveal uneven wear symptomatic of problems such as wheel misalignment or worn suspension. The calculated data can be imported into different fleet management systems to log tire scans and produce wear analysis or tire lifetime modelling.

The scanner is positioned on one edge of the tire and operated by pushing it across the tread face. A 3D scan of each tire constructed from up to 300,000 measurement points is used to calculate treads depths with an accuracy of <0.2mm or 0.008". The 3D models of the tire tread obtained using the **TREADREADER™** HandHeld scanner can be viewed, alongside the calculated tread depths, on a tablet or mobile phone. A report for the operator is instantly generated containing vehicle identification, 3D tire scans with colour-coded tread warning, and error alarms for every axle and tire position.



## 03 • Buttons and LED's on the handheld scanner

There are three buttons on the HandHeld scanner. The LED's indicate power (on/off), connectivity, battery level and scanner status.



### 3.1 Buttons

Below is the general description of the use and interaction of the buttons on the HandHeld scanner. Throughout the manual there are other uses for the buttons and combinations of button presses. For more detailed information, please see chapter 6.

#### 3.1.1 Power button

Holding down the power button for 2 seconds will turn the scanner on/off. The top LED will be lit when the HandHeld scanner is on, and a vibration will indicate the on/off event.

#### 3.1.2 Battery button

Holding down the battery button for 1 second will indicate the battery level of the HandHeld scanner, as shown by the LED's in Fig. 2.

### 3.1.3 Connection button

This button does not have a function in normal operation. If pressed for 3 seconds, the device will buzz 5 times and restart.

## 3.2 LED's

Throughout the manual the following interactions will be explained in greater detail. For more detailed information, please see chapter 6.

TOP (GREEN): indicates that the HandHeld scanner is on.

TOP-LEFT (BLUE):

a. Before pairing with a mobile device this LED indicates that the scanner is connected to a Wi-Fi network (must be connected to in network mode).

b. Once paired with a mobile device, it indicates that the scanner is transmitting data to the application.

MIDDLE-LEFT (BLUE): Indicates that a connection is made to the HandHeld scanner from the application.

BOTTOM-LEFT (BLUE): Indicates that the device is enabled. After powering the scanner on (and this LED turning on), it needs around 5-6 seconds to be fully ready for a connection from the mobile application.

TOP-RIGHT (GREEN): Indicates that the scanner is ready to scan, it is also used to show the battery level (if the battery button is pushed down for 1 second or more).

MIDDLE-RIGHT (ORANGE): Indicates that the scanner is processing the captured data. It is also used to show the battery level (if the battery button is pushed down for 1 second or more).

BOTTOM-RIGHT (RED): Indicates various error messages (see chapter 6). It is also used to show the battery level (if the battery button is pushed down for 1 second or more).

## 3.3 Switching the scanner on and off

To switch the hand held scanner on or off, hold down the power (on/off) button for 2 seconds.

## 04 • TREADREADER™ mobile app



The mobile app for phones or tablets, controls the HandHeld scanner and can be downloaded from Google Play® or Apple App Store®. The following QR code can be used to get a direct link to the **TREADREADER™** app.

### 4.1 Connectivity

The HandHeld scanner can be operated in two different connection modes.

**DIRECT MODE:** Allows a one-to-one connection between the phone or tablet and the scanner through a Bluetooth® or Wi-Fi connection. A new device can be added by scanning the QR code (located on the rear of the HandHeld) or entering the device's serial number (starting with 801 for Bluetooth® devices or beginning with 601 for Wi-Fi devices).

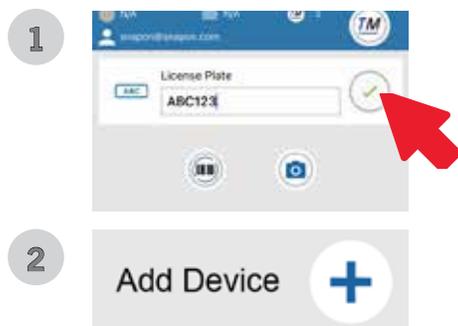
If a device has been previously added this can be selected directly. The phone or tablet and scanner will be paired when both the bottom and middle left LED's light up blue and the device buzzes.

**NETWORK MODE (Wi-Fi devices only):** Allows the scanner to connect to an external Wi-Fi network (stand alone router). A new device can be added by either scanning the QR code or entering the serial number of the device (starting with 601 or 701).

If a device has been previously added this should be removed before connecting via Wi-Fi.

Printing to a network printer does not require an Internet connection. This chapter describes how to connect and swap between modes, starting with how to connect in DIRECT MODE.

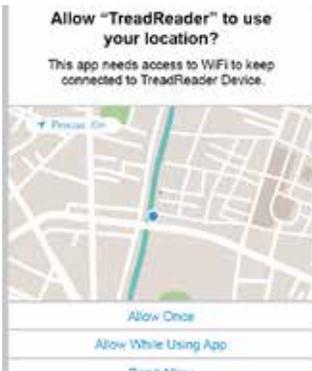
#### 4.1.1 Direct mode



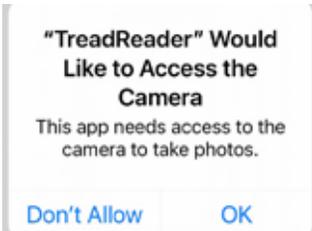
Every new HandHeld scanner is set up for a one-to-one connection with the phone or tablet via Bluetooth® or Wi-Fi. To use the scanner in DIRECT MODE:

- a. Turn on the HandHeld scanner by pressing the power button for 2 seconds.
- b. Once the first blue LED is lit, launch the mobile app and select DIRECT MODE.

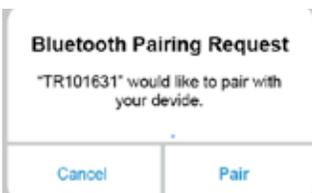
3



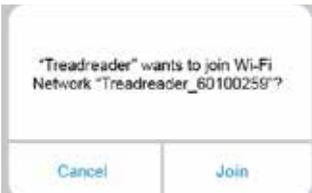
4



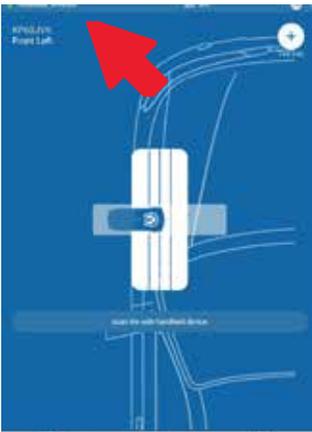
4



5



6



- c. On the next screen, push the GREEN ICON to continue (image 1).
- d. On the following screen, press the "+ SYMBOL" to add a new device (image 2).
- e. The app will request permission to use your location and access the camera. Allow all permissions (images 3 and 4).
- f. Select the pairing method (QR code or Serial Number), press OK after the required information is input.
- g. If you're connecting via Bluetooth®, a pairing request will pop on the screen, select PAIR to finish (image 5). However, if you're connecting via Wi-Fi, a network request will pop on the screen, and select JOIN to finish (image 6).
- h. The green, orange, and red LEDs on the right will briefly flash when a connection is established, and the scanner will buzz. The middle-left and bottom-left LEDs will light up and stay lit as long as the connection exists. A green light and the device name will be shown on the top-left corner of your app screen (image 7).




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This procedure should be performed for the first time only. Once paired, the device will be shown on a "paired devices" list.

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For instructions on how to scan a single tyre, or to do a complete vehicle scan, please follow the instructions in section 3.2.

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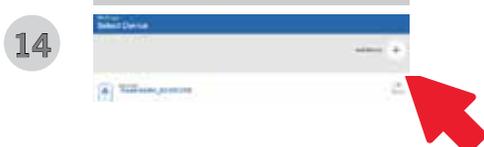
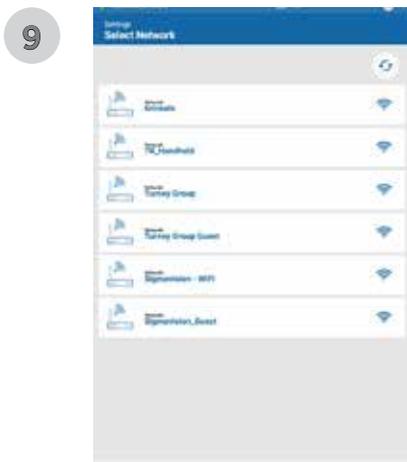
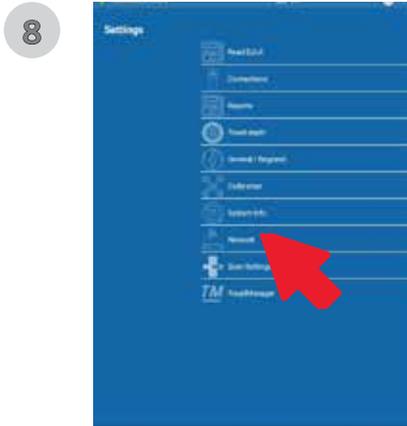
Bluetooth requires android version 9 or higher. May work on Android version 7.1 depending on the mobile device.

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#### 4.1.2 Network mode

This mode is available for Wi-Fi HandHeld devices only (series 6 and 7). To enable this mode:

- a. Turn on the HandHeld scanner.



- b. Launch the mobile app and select SETTINGS on the bottom-right corner (image 7).
- c. On the following screen, push the “+ SYMBOL” to add a new device (image 1).
- d. The app will request permission to use your location and access the camera. Allow all permissions (images 3 and 4).
- e. Select the pairing method (QR code or Serial Number), and press OK after the required information is input.
- f. A network request will pop on the screen, and select JOIN to continue (image 6).
- g. Once again, select SETTINGS on the bottom-right corner, then select NETWORK from the settings menu (images 7 and 8).
- h. Choose between the networks available, enter the network password and press OK (images 9 and 10).
- i. Follow the on-screen instructions to finish (images 11, 12, and 13).
- j. The HandHeld is now in Network Mode (image 14).

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NOTE: To exit the NETWORK MODE, please see the section 4.1.2.1 below.

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#### 4.1.2.1 Exiting the Network Mode

To exit the Wi-Fi Network Mode, follow the instructions below:

- a. Hold POWER and WI-FI BUTTONS until the HandHeld scanner buzz (about 10 seconds).
- b. The HandHeld device will restart.

## 4.2 Treadmanager.net



**TREADMANAGER™** is a cloud-based report management service, fully integrated with all **TREADREADER™** tire measurement products. **TREADMANAGER™** has been designed to improve workshop productivity and increase tire sales.

By logging in to the **TREADMANAGER™** portal, workshops can view professionally presented data and reports of tread depth and tire wear for all vehicles, which have been scanned using the **TREADREADER™** HandHeld scanner or DriveOver ramp.

Workshop and service managers can view reports on the number of vehicles scanned, technician activity, and sales opportunities for tyres and wheel alignment. **TREADMANAGER™** integrates with major electronic vehicle health check solution, to eliminate all manual tire measurement processes.

On a desktop monitor or tablet, the tire scans and vehicle reports can easily be shared with customers, to increase authorization for tire replacement or related services.

**TREADMANAGER™** enables workshops to maintain customer data to predict tire lifetime, and build trust with customers, by helping them make informed decisions about tire replacement.

### 4.2.1 Setup and user types

Before logging in to **TREADMANAGER™** in the mobile app, or using **treadmanager.net**, the user requires access to **treadmanager.net**. Access can be requested by emailing **treadmanager@treadreader.com** or via mobile app. On request, the user will be sent an invitation to the preferred email address. This invitation will include a link to create a user password. The combination of user's email address and password provides access to **treadmanager.net**. These same user details are used in the mobile app for the upload of data. (See chapter 4.2.2.).

Within **TREADMANAGER™**, there is a hierarchy of user profiles:

#### 1. Group admin

This is a management level user profile with comprehensive access to data and reports, including the ability to:

- View multiple workshops within a group or across a network.
- View customized reports to compare workshops, technicians and tire scan results.
- Set up workshops and users at the same hierarchy level or below.

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NOTE: This user profile cannot be used to upload scans and vehicle information to **treadmanager.net**

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## 2. Workshop admin

This intermediate level user profile provides full access to a specific location, enabling the user to:

- View and control a workshop
- Create or edit users
- Manage settings and integrations
- View workshop reports and individual vehicle scan reports
- Upload scans and vehicle information to **treadmanager.net**

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NOTE: For single location workshops, this may be the only user profile required.

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## 3. Staff

This is a user profile designed for the technician or service advisor, allowing the user to:

- Upload scans and vehicle information to **treadmanager.net**
- View all scans created by all users belonging to the same workshop.
- View or print individual vehicle scan reports.

### 4.2.2 Login/upload to TREADMANAGER™ in the app

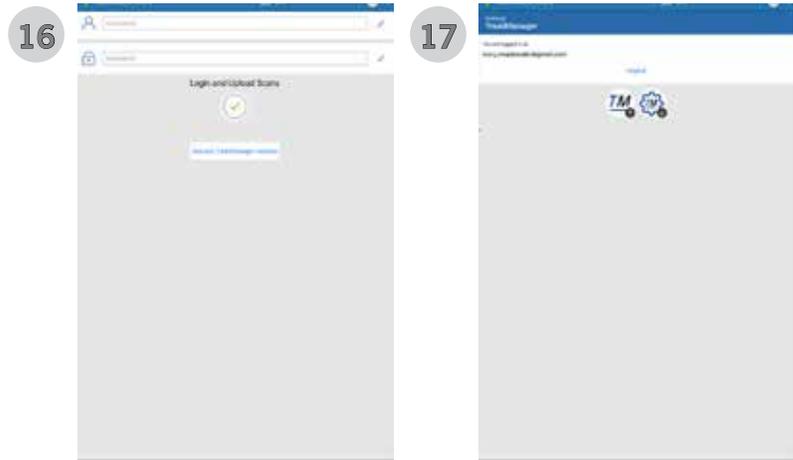
15



HandHeld app released after 11.53.1.0 include the ability to upload scans to **TREADMANAGER™**. Android® 9.0 (or later) and iOS® 13.0 (or later) is required for this option to be available.

- From SETTINGS, select TREADMANAGER in the menu list. Enter your username (email) and password, then press the large GREEN ICON to login (image 15 and 16).
- Ensure the device is connected to the internet.
- The user can request a **TREADMANAGER™** account by pressing the REQUEST TREADMANAGER ACCOUNT (image 16) button and completing the form with company name, address, contact email, and phone.
- The user receives an email to set the account password.

- e. Once connected, the user can logout, upload the scan results to the cloud platform, and synchronize the tread tolerances with those set on **TREADMANAGER™** (image 13).



When landing on the 4 scan page (image 14), the **TREADMANAGER™** icon will upload any scans completed.



When landing on the 4 scan page, the **TREADMANAGER™** icon will upload any scans completed.

If operated in direct mode, the mobile app will disconnect from the **TREADREADER™** HandHeld and try to reconnect to a known Wi-Fi network or mobile data connection. In network mode, the app will stay connected to the **TREADREADER™** HandHeld and upload any scans using the Wi-Fi network.

## 4.3 Navigation



The application has three tabs which can be found at the bottom of the app.

These can be accessed after a successful connection with the HandHeld scanner, in either DIRECT or NETWORK MODE.

- a. Vehicle scan
- b. Quick scan
- c. Settings

## 4.4 Vehicle scan

Once the HandHeld scanner is connected, the process of scanning tyres can start. The various inputs and actions available throughout the scan process will be explained in this chapter.

Identify vehicle registration: How to enter a vehicle registration in Network Mode.

Scanning/results screen: As well as displaying the 3D scan, the user can add more details/comments about each tyre.

Summary: All of the scanned tyres will be displayed to the user, additional information can be added. PDF creation: Saves the vehicle scans in a standard format that can be emailed or printed.

### 4.4.1 Entering vehicle registration



From home screen, select VEHICLE SCAN.

Enter vehicle registration manually or use the barcode reader to capture the VIN code.

The CAMERA ICON will record a photo of the vehicle and progress to the scanning screen. If a registration number or VIN code has been entered before taking the photo this will be used.

The amount of tyres to be scanned 1, 2, 4 (Default) or 6 can be controlled via the selection below.

## 4.4.2 Scanning/results screen



This part is divided into three screens:

- First Screen: The only option available to the user is to change between summer and winter (directional) tire mode.

This will switch the legal and recommended limits for colouring the 3D scans and for the PDF report generated later. The limits for summer/winter tyres can be changed from the settings menu.

Winter and summer tyres present different groove pattern. An incorrect scan mode, will lead to incorrect reading and results.

In order to have an accurate reading, it is important to select the correct tire type before starting the scan. Press the button found on the first screen, to choose the correct tire mode. The HandHeld scanner is automatically enabled to start the measurement for the first tire. Place the scanner on the edge of the tire and slide it across the tread face. An image in the app indicates how you should scan.

- Second screen: If the scan is valid, the scanner will vibrate with one short buzz (2 Sec). If the scanner vibrates with one long buzz, the scan is invalid and will need to be repeated.

A video tutorial for this is available here: <https://treadreader.com/products/treadreader-handheld-tread-depth-scanner/>

This screen will indicate the transfer of data and 3D render creation. When this is complete, the second screen is visible in full.

- Third screen (results): This screen will show the number of grooves found and measured, along with the 3D scan. The 3D scan will be shown on the results screen together with colour-coded tread depth measurements (red, amber, green) and icons to indicate the tire type (summer or winter) and if uneven wear is detected.

Tire wear modes:

There are three icons that may be visible dependent on the condition of the measurements as shown below:

- Under inflation: Inner treads are greater, compared to the outer.
- Over inflation: Outer treads are greater, compared to the inner.
- Misalignment: There is a difference across the tread wear.

The default difference is set at 1.0 mm, access **treadmanager.net** to set a personalized value.



On this screen, the user can add/perform (1-3 will show on the 2nd page of the PDF report):

- a. Tire info
- b. Comments
- c. Take a photo
- d. Re-scan (if an error message is received from the scanner, or you would like to redo the scan for other reasons)
- e. Accept and move to next tire



TIRE INFO EXAMPLE	
205	Width of the tire in millimetres
55	Height of the tire sidewall as a percentage of the width. In this case 55% of 205mm. Also known as the aspect ratio.
R	Radial construction
16	The diameter of the tire's inner rim in inches
91	Load rating of the tire. In this case its 615kg
W	Speed rating. Indicates the maximum speed for the tire when at full load. In this case 168 mph.



Comments: the user can add comments about the tire which will show on the second page of the report.

Example: "Cut in sidewall"



Take a photo: possibility to show the above "cut" with a picture in the report. You can only take one photo per tire; these photos will be shown on the second page of the report.

### 4.4.3 Visualize the scans all together and create report



Once you have scanned all the tyres of the vehicle, the app allows you to view the renders and re-scan any of the tyres if required.

If you press the add car info icon, it will allow you to type additional information about the vehicle.

A SUMMARY REPORT report is generated automatically once you have scanned all 4 tyres.

The report can be saved or printed in PDF file format. If you have added extra information, such as pictures or comments, a second page is created with it.

The summary report shows the company logo and vehicle information, 3D tire scans and tread depths produced by the hand held scanner, with an overall statement about the tire condition:

PASS (green), ADVISORY (amber) or FAIL (red).

A narrative beneath each tire scan describes recommendations based on the tread depths measured.

These include the need to replace worn tyres and/or check vehicle or tire factors associated with accelerated or uneven tire wear, such as wheel misalignment and tire under or over-inflation.

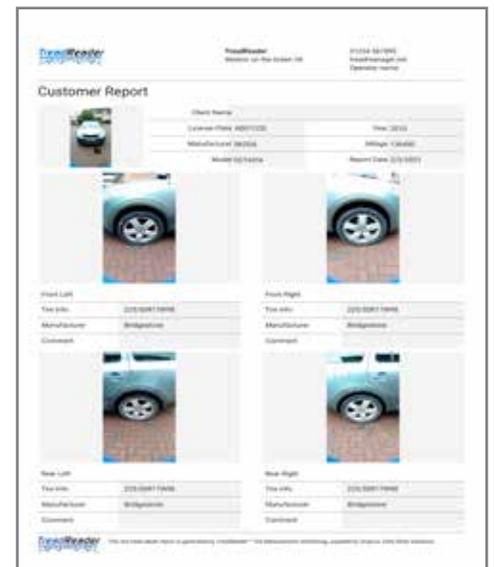
The summary report also shows an assessment of the vehicle stopping distance, as GOOD, ADVISORY, or POOR, from a calculated stopping distance, based on the tire with the lowest tread depth measured.



Save scans and create PDF or print report



Upload scan(s) to TreadManager™



NOTE: The 2nd page will only appear if the user has added at least one comment or photos.

## 4.5 Quick scan



This menu item allows the user to scan a single tire without entering a registration number. It is useful to show a customer how the scanner works.

If this menu has been chosen it will automatically enable the HandHeld scanner and you will need to perform at least one scan to be able to go any other menu item. The green tick button will enable the scanner again.

## 4.6 Settings



This menu item is used to modify settings either of the mobile application or the HandHeld scanner. A few examples:

- Add info for the report,
- Perform a calibration check,
- Change country/region settings,
- Scan direction/first tire

### 4.6.1 Tread depth

The legal minimum tread depth changes from one country to another. For this reason, the app allows you to set the advisory and legal limits for tread depth.

It can be different for summer and winter tyres. It will change the colour in the 3D scan and for the reported numbers in the application.

- Tread depth below the lower limit: app will colour the tread red.
- Above the upper limit: app will colour the tread green.
- Between the upper and lower limits: app will colour the tread amber.



## 4.6.2 Reports



From this settings page, the user can set and edit all the custom fields that appear in the report like:

- Company logo,
- Company name,
- Phone number,
- Email,
- Website,
- Operator name and
- Voucher

There is also the option to remove any previously set logo or voucher.

## 4.6.3 General/regional



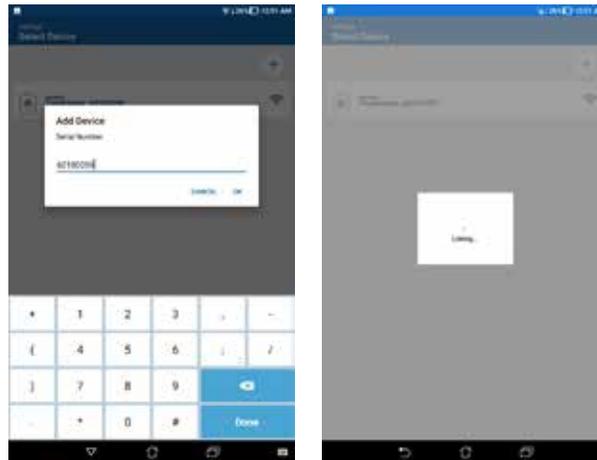
This settings page will allow you to set your location (country), measurements in mm or inches, mileage in km or miles for the stopping distance and odometer.

It is important that the country settings are correctly set.

## 4.6.4 Connections

This menu allows you to reconnect to a HandHeld scanner or swap to another unit.

When entering this menu, the app will disconnect from the HandHeld scanner and it will turn off. Please pick another device that is visible in the list.



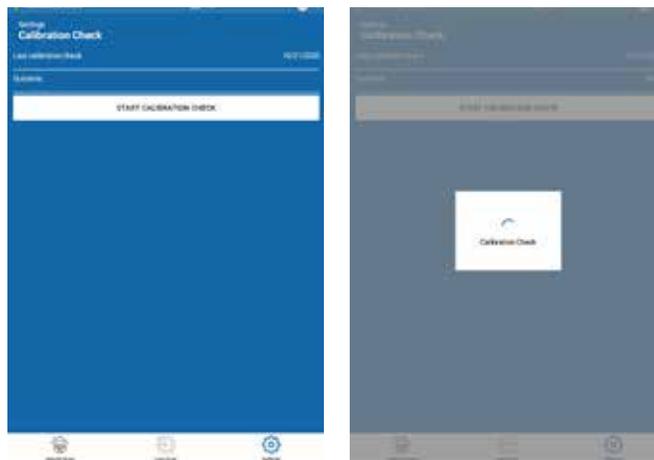
## 4.6.5 Calibration check

A calibration check piece is provided to ensure the scanner is calibrated correctly. This check piece is located at the base of the scanner compartment in its carry case.

To check calibration:

- a. Place the scanner into its compartment in the carry case
- b. Switch on the scanner
- c. Connect to the scanner from the app
- d. In the app, select CALIBRATION from the SETTINGS MENU
- e. Press the START CALIBRATION CHECK button
- f. The check will then be performed and the results displayed on screen to the user
- g. If the calibration check is successful, the scanner may continue to be used
- h. If the calibration check is unsuccessful, the scanner must be re-calibrated

Calibration should be checked at least once a month. If the scanner fails a calibration check, contact your Snap-on® Equipment distributor for instructions on how to return for re-calibration.



#### 4.6.6 System info and firmware update



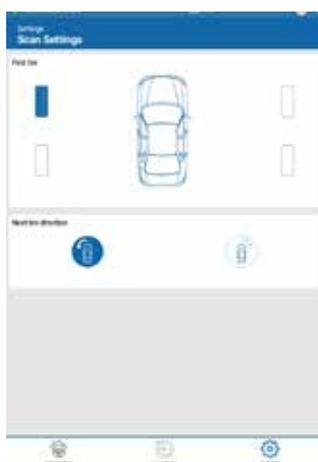
Software and hardware information can be found on this tab.

Firmware updates: If the latest firmware is a higher number than the current firmware, then you may want to perform a firmware update procedure.

Is highly recommended that the scanner is connected in DIRECT MODE, and has been on charge for at least two hours, before you start this procedure.

The application will first upload the new firmware to the HandHeld scanner. When complete, it will perform some checks and write the firmware to the HandHeld scanner. The whole procedure will take up to 7 minutes. The application will indicate if the update has been successful or not. If successful, please restart the scanner.

#### 4.6.7 Scan settings



This page allows the user to select which tire is scanned first, and also the direction in which the user wants to move around the vehicle – clockwise or anticlockwise.

## 4.6.8 Network

This menu item allows the HandHeld scanner to switch from DIRECT MODE to NETWORK MODE. See section 3.1.2 for more information.

## 4.7 Where to find the files stores on the mobile device?

The data recorded by the application will be accessible through the file system of the mobile device. Each vehicle will have its own folder with various files stored.

The XML file stores all possible text inputs and the 3D scans. Folder location: InternalStorage/Android/data/com.snapon.treadreader/files/TreadReader/Scans

## 4.8 Troubleshooting: treadmanager.net on smartphones and tablets



Google Chrome® or other browsers, may present a compatibility problem when accessing **treadmanager.net**, exhibiting an error message.

Please, follow the instructions below in order to solve it.

On Google Chrome®:

- Click on CONFIGURATION
- Mark the box DESKTOP SITE to request a desktop version of the website.
- If necessary, refresh the browser.




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NOTE: This process might change according to the browsers, but this feature is available for major browser available for smartphones and tablets.

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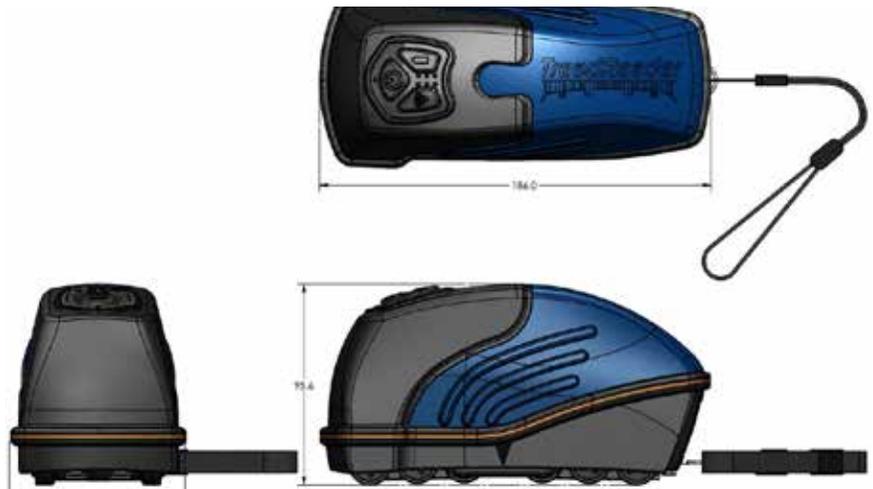
## 05 • Integrations to other software

Please contact us by email ([treadmanager@treadreader.com](mailto:treadmanager@treadreader.com)) or the regional distributor, for information about the integration options available.

## 06 • Hardware specification

### 6.1 Dimensions

The dimensions of the HandHeld scanner are 186mm x 96mm x 84mm or 7.3”x 3.8”x 3.3”.



### 6.2 Control pad buttons and LED's

There are three buttons on the HandHeld scanner – power, Wi-Fi, and battery. The LED's indicate power (on/off), device connectivity, battery level and scanner status.



## 6.3 Label and label position



The following label is affixed to this product in accordance with the relevant EU directives.

## 6.4 Charging



The scanner has a built in rechargeable Li-Ion battery, that can be charged with supplied 5VDC 2A USB charger. A fully charged scanner will usually last a full working day.

To check the battery power, press and hold the battery button on the scanner keypad. The battery status is then displayed as either green, amber or red. It is recommended to recharge the scanner battery as soon as the red battery LED is illuminated.

To recharge the scanner, plug the USB 3 cable into the recharging port on the lid of the scanner by pulling back the circular rubber cover. Only use the charger, adaptor and cable supplied with this product in order to avoid damaging the device. The warranty certificate doesn't cover damages due to improper use.

## 6.5 Maintenance and cleaning



To clean the optical window, release the wheel assembly on the underside of the scanner by pushing the two retaining clips. This allows the wheel assembly to pivot on a hinge away from the base of the scanner.




---

NOTE: the wheel assembly may only be opened 45 degrees to the base of the scanner.

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Do not attempt to open the wheel assembly further as this may damage the scanner. The optical window is now exposed and may be cleaned with a soft damp cloth.

Do not use cleaning fluids. Regular cleaning of the optical window is

recommended according to usage.

To close the wheel assembly, rotate it back to the base of the scanner and apply pressure to engage the two retaining clips.

To empty stones or grit, which have entered between the wheel assembly and the base of the scanner, though the gap directly above the viewing window:

- Open the wheel assembly according to the instructions above.
- Shake out any stones or grit.
- Close the wheel assembly according the instructions above.

## 6.6 Main specifications

DESCRIPTION	SPECIFICATION
Dimensions (LxWxH)	186mm x 96mm x 84mm (7.3" x 3.8" x 3.3")
Scan zone	50mm (2") wide patch x 26mm (1") max. tread depth
Weight	< 650g
Measurement accuracy	< 0.2mm (0.008")
Laser	Class 1, 660nm, visible laser, max power output is less < 0.1mW
Operating temperature	0°C to 50°C (32°F to 122°F)
Environmental rating	IP54
Power	5V DC rechargeable Li-Ion battery
System requirement	Android® 9.0 and iOS® 13.0 (or later)

## 07 • LED's errors



There are 7 LED's on the top of the HandHeld scanner:

Please, note that the LED's 4 and 6 are controlled by the connection module only and are not a part of any error code.

Once the error code LED flashing has completed, it is possible to try to recover the scanner by pressing all the three buttons at the same time.

Some errors can obviously mean that the scanner needs to be charged before the error goes away by itself. If unrecoverable, the scanner needs to be shipped back to the factory.

The following pages will show the possible error states and if/how they can be recovered by the user.

Basic errors:

- Battery temperature too low
- Battery temperature too high
- Battery fuel gauge fault
- Charge level is too low
- Battery voltage is too low

Charging errors:

- Timeout error while completion of charging routine
- Timeout error while fast charging
- Timeout error while slow charging

Other faults:

- Current limit exceeded

## 7.1 Basic errors

### 7.1.1 LED 2 and 7: Battery temperature too low. Blink count = 5



Solution:

- Leave the HandHeld scanner at room temperature for at least 30 minutes.
- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error before turning the scanner on.
- Repeat the process if the error persists.

### 7.1.2 LED 2 and 3: Battery temperature too high. Blink count = 5



Solution:

- Leave the HandHeld scanner at room temperature for at least 30 minutes.
- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error before turning the scanner on.
- Repeat the process if the error persists.

### 7.1.3 LED 5: Fuel gauge fault. Blink count = 5



Solution:

- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error before turning the scanner on again.
- If the error persists, try charging the scanner for at least 1 hour before attempting to turn the scanner on.
- If still unrecoverable, please contact

### 7.1.4 LED 7: Charge level is too low (<1% left). Blink count = 5



Solution:

- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error, before turning the scanner on.
- If the error persists, try charging the scanner for at least 1 hour before attempting to turn the scanner on.
- If still unrecoverable, please contact your local distributor.

### 7.1.5 LED 7: Battery voltage is too low (below 3.4V). Blink count = 8



Solution:

- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error, before turning the scanner on again.
- If the error persists, try charging the scanner for at least 1 hour before attempting to turn the scanner on.
- If still unrecoverable, please contact your local distributor.

## 7.2 Charging errors

These can happen when the battery is old/faulty or the charger cannot supply enough current. Blink count is 50 for these errors:

### 7.2.1 LED 1 and 3: timeout error while charging completion



Solution:

- Take the charging cable out.
- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error.
- Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
- If still unrecoverable, please contact your local distributor.

## 7.2.2 LED 1 and 5: Timeout error while fast charging



Solution:

- Take the charging cable out.
- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error.
- Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
- If still unrecoverable, please contact your local distributor.

## 7.2.3 LED 1 and 7: Timeout error while slow charging



Solution:

- Take the charging cable out.
- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error.
- Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
- If still unrecoverable, please contact your local distributor.

## 7.3 Other faults

### 7.3.1 LED 3: Blink count = 25 - Current limit exceeded



Solution:

- Take the charging cable out.
- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error, before turning the scanner on again.
- If still unrecoverable, please contact your local distributor.

### 7.3.2 LED 3: Blink count = 10 - Voltage limit exceeded



Solution:

- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error, before turning the scanner on again.
- If the error persists, please contact your local distributor.

### 7.3.3 LED 1,2,3,5,7: Blink count = 7 - Error undetermined



Solution:

- Clear the error by pressing all three buttons at the same time.
- Wait for 10 seconds after clearing the error, before turning the scanner on.
- If the error persists, please contact your local distributor.

## 08 • Legal warnings

### 8.1 CE Marking and declaration of conformity

This product conforms to:

- EU directive 2014/30/EU – Electromagnetic conformity
- EU directive 2012/19/EU – Waste electrical and electronic equipment
- UK Electromagnetic Compatibility Regulations 2016

Snap-on Equipment S.r.l. Via Prov. Carpi, 33 2015 Correggio (RE) Italy

### 8.2 Disclaimer

Only those applications of **TREADREADER™** tyre measurement products as specified within this product literature, technical information, and warranty statements is recommended.

Snap-on accepts no liability for use of its products in applications other than those for which they are designed. It is the responsibility of the driver, or vehicle owner, or operator, to ensure tyres have sufficient tread depth, are defect free and are in a roadworthy condition.

### 8.3 Safe use of a laser product

IEC 60825-1:2014 SAFETY OF LASER PRODUCTS was created to prevent accident by a laser product and to protect users. This regulation classifies laser products according to the level of hazard and provides safety measures for the respective classes.

This product is classified CLASS 1 LASER PRODUCT PER IEC 60825-1:2014.

CLASS	DESCRIPTION OF HAZARD
Class 1	Safe under normal conditions of operation
Class 1M	Safe under normal conditions of operation except for diverging or large area beams when collecting optics are used. Hazardous when collecting optics used.
Class 2	Visible beam, low power. Blink response of eye affords protection.

<b>CLASS</b>	<b>DESCRIPTION OF HAZARD</b>
Class 2M	Visible beam, low power. Blink response of eye affords protection. Hazardous when collecting optics used.
Class 3R	Direct intra beam viewing is hazardous, but the risk is lower than Class 3B.
Class 3B	Direct intra beam viewing is hazardous.
Class 4	High power. Capable of producing hazardous diffuse reflections. Capable of producing skin burns and fire hazardous.

This product complies with FDA radiation performance standards 21 CFR Subchapter J.



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