



TreadReader HandHeld 3D Scanner for Heavy Duty Vehicles

Operator Manual

en-GB , EAZ0155Y02A, Rev. 0

1 Document information

1.1 Document Summary

This document describes the handling of the TreadReader HandHeld 3D Scanner for use with Heavy Duty vehicles.

1.1.1 Language

en-GB

1.1.2 Document number and Revision

EAZ0155Y02A, Rev. 0.3c

1.2 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

1.2.1 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.

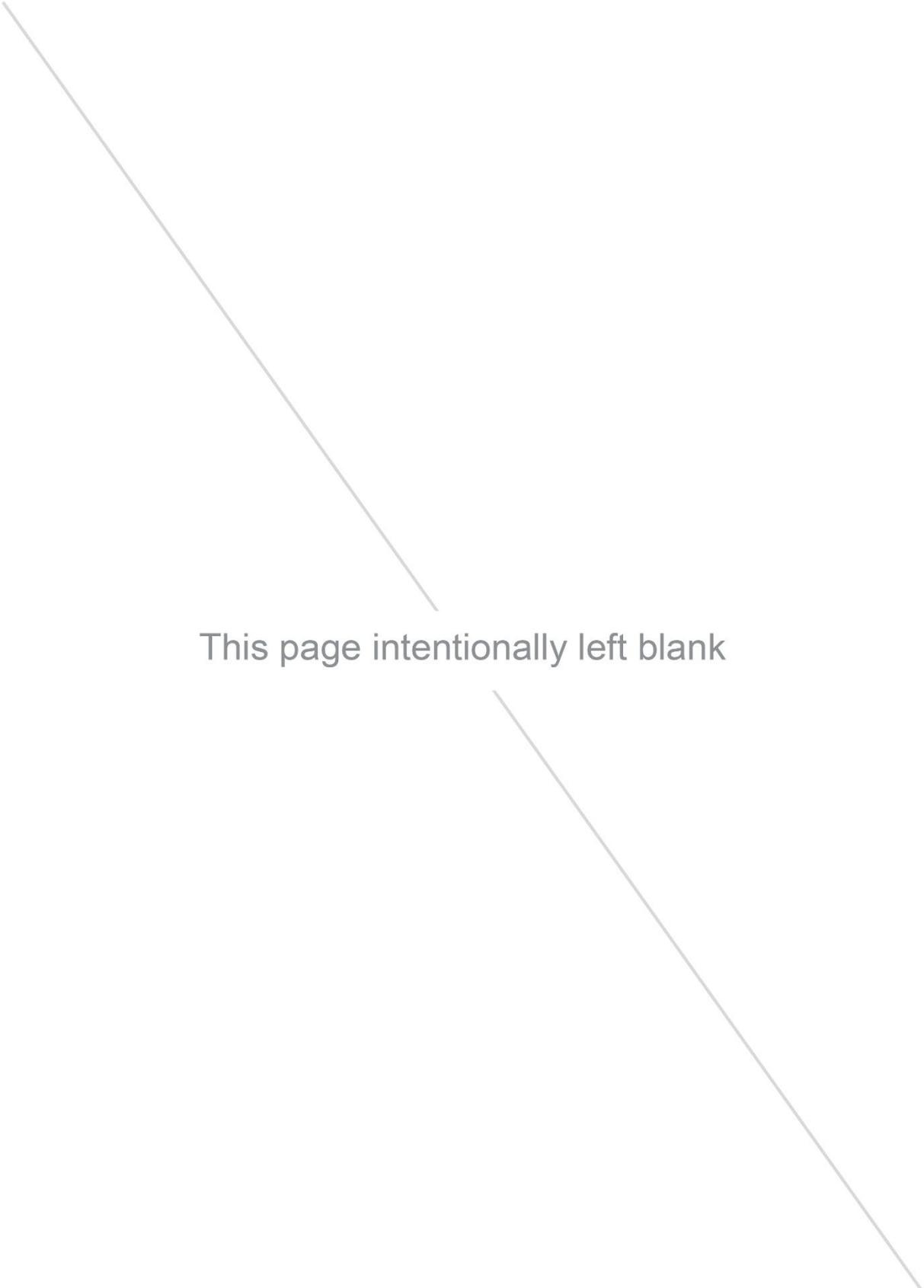
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2 Safety Information





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2.1 Danger, Warning, Caution definition

In this manual we use the following definition of Danger, Warning, Caution.

	<p>DANGER means if the danger is not avoided, it will cause death or serious injury.</p>
	<p>WARNING means if the warning is not heeded, it can cause death or serious injury.</p>
	<p>CAUTION means if the precaution is not taken, it may cause minor or moderate injury.</p>

2.1.1 Laser

	<p>Caution Class 1 Laser product</p> <p>Do not view the laser directly with an unprotected eye or optical instrument. Lasers are potentially hazardous to the eye.</p>
	<p>Caution Class 1 Laser product</p> <p>This product contains a laser that could be damaged during unauthorized repair or disassembly, which could result in hazardous exposure to laser radiation.</p>

2.1.2 Electrical Warnings

	<p>Caution!</p> <p>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).</p>
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2.1.3 Mechanical Warnings

	<p>Caution</p> <p>Avoid shock and vibration to this product. Use the wrist lanyard provided to avoid dropping the device.</p>
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2.1.4 Important notices



Note

Only use the charger, adaptor and cable supplied with this product in order to avoid damaging the device.

Fully charge the device battery before the first use.

A copy of the user manual can be found at treadreader.com/library.

2.1.5 General Importance

	<p>Caution</p> <p>Avoid continuous exposure to dust and liquid spray to this product.</p>
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	<p>Caution!</p> <p>Avoid direct exposure to aggressive substances, e.g. reactive chemicals, cleaning agents.</p>
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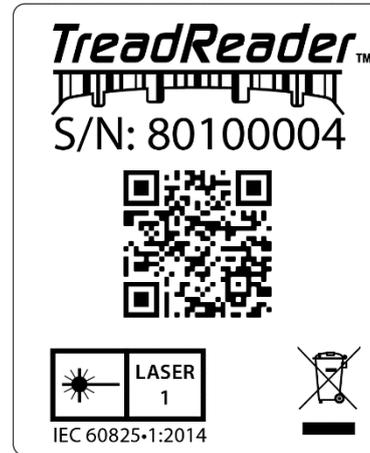
Note

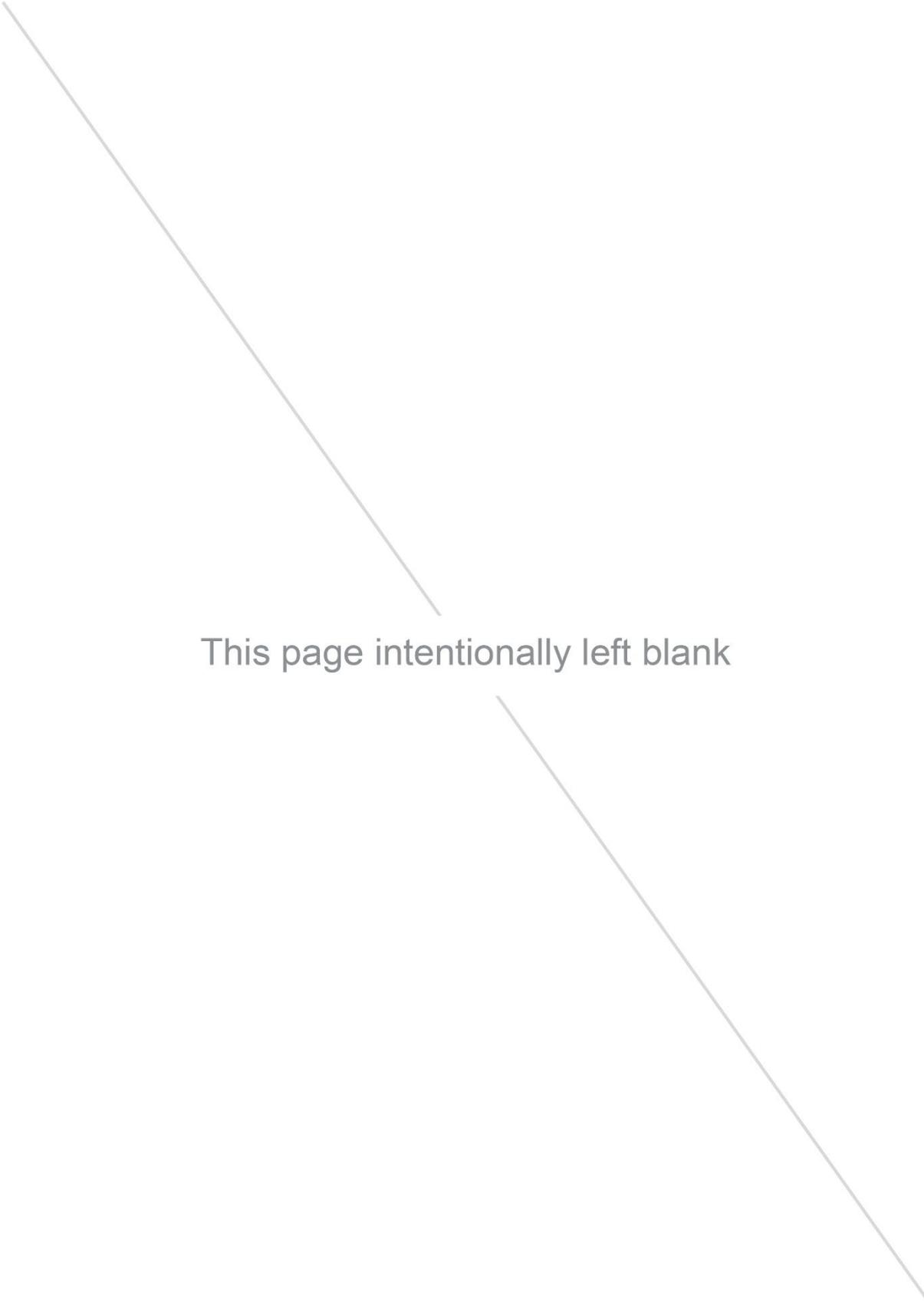
Do not attempt to open this product as there are no user-serviceable parts and the warranty will be voided.

2.2 Safety Signs and placement

2.2.1 Label and label position

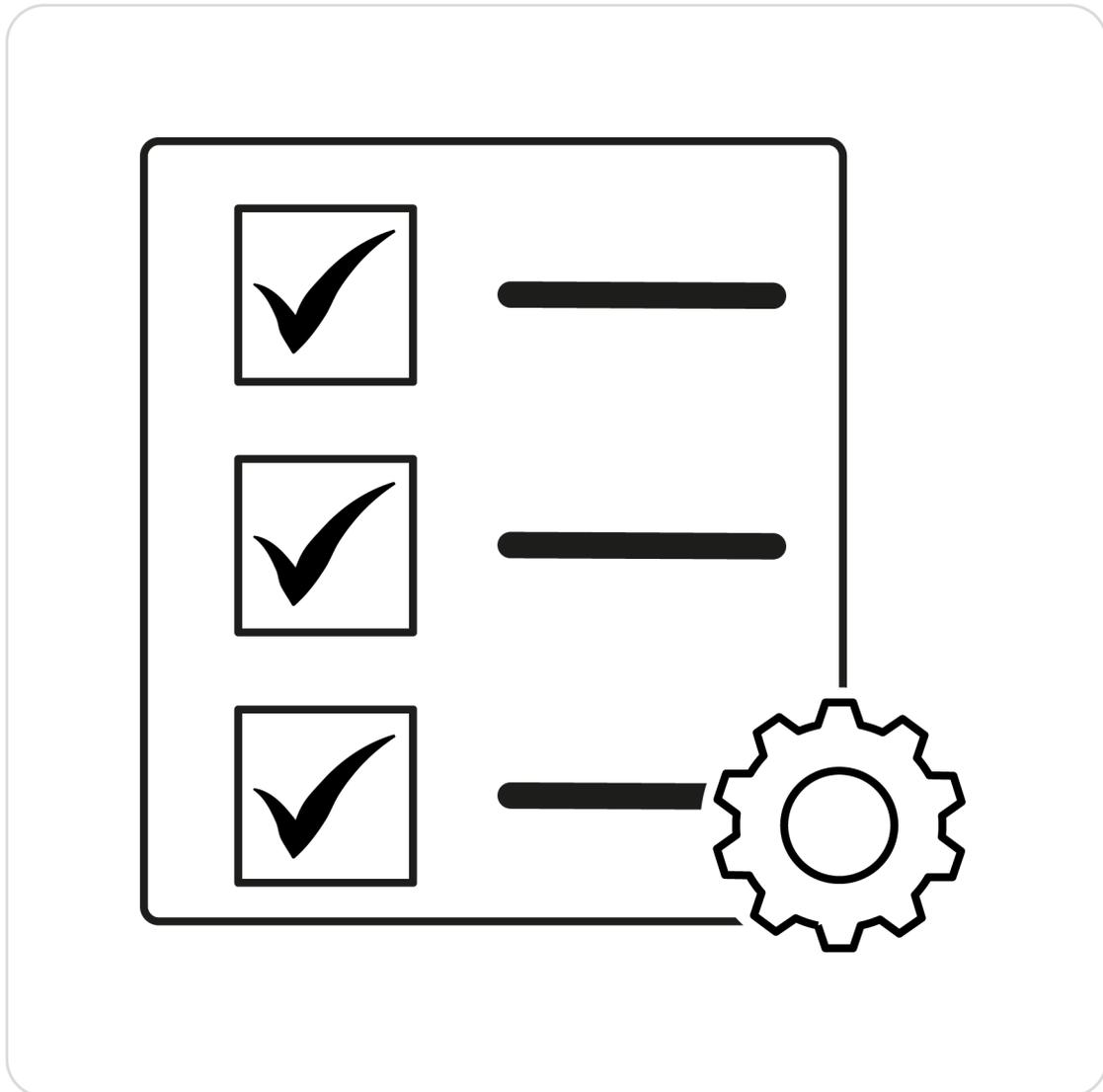
The following labels are affixed to this product in accordance with relevant directives.

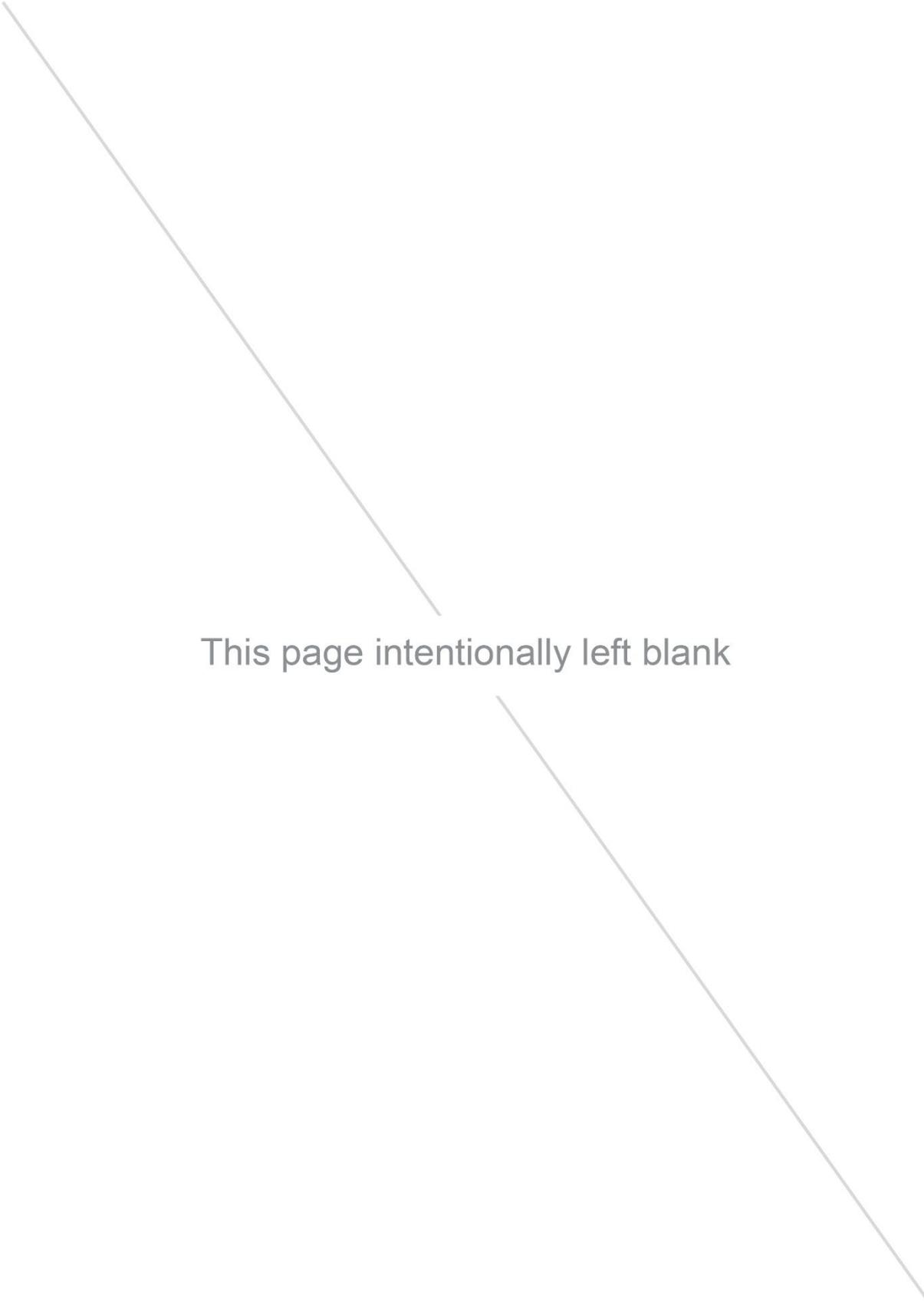




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3 Specifications





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3.1 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 tread depth gauges.

The scanner is positioned on one edge of the tyre and operated by pushing it across the tread face. A 3D scan of each tyre constructed from up to 300,000 measurement points is used to calculate tread depths with an accuracy of <math><0.2\text{mm}</math> or 0.008".

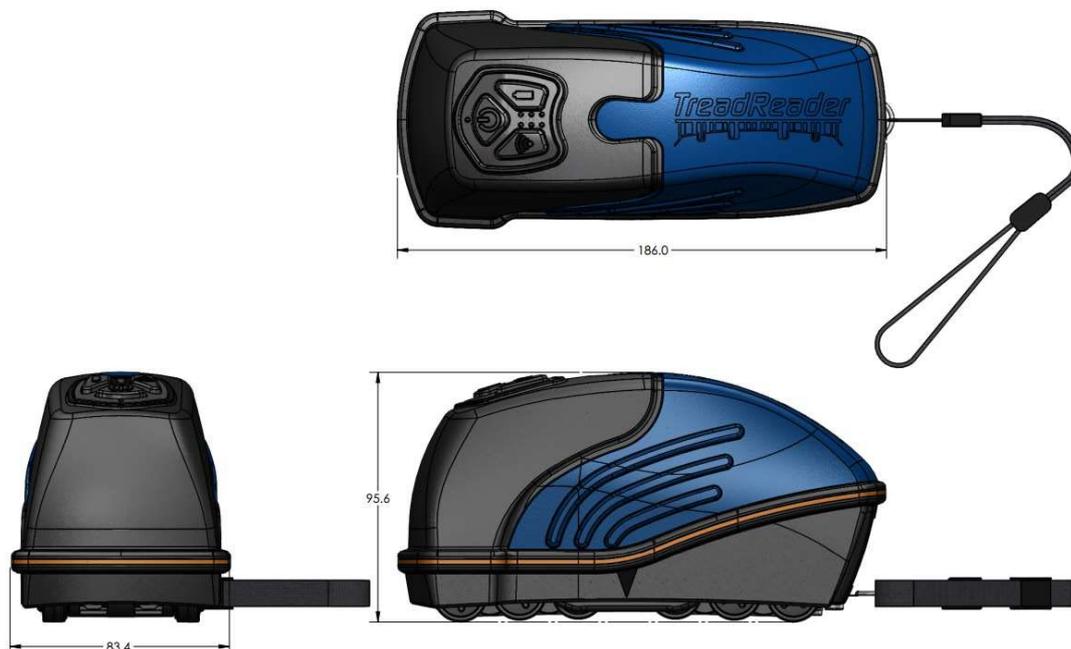
The 3D models of the tyre tread obtained using the TREADREADER™ HandHeld scanner can be viewed, alongside the calculated tread depths, on a tablet.

A report containing vehicle identification, 3D tyre scans with colour-coded tread warning, and error alarms for every axle and tyre position is available in TreadManager after scanning and syncing.



3.2 Dimensions

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



3.3 Main specifications

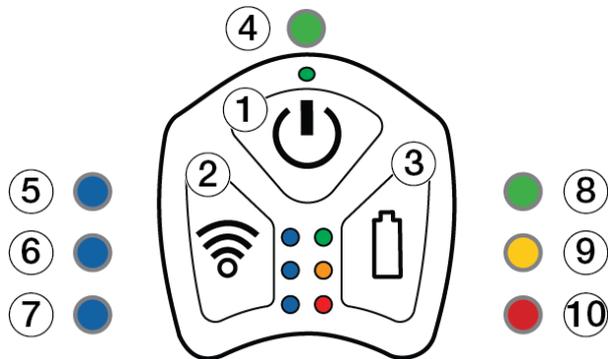
Description	Specification
Dimensions	(LxWxH) 186mm x 96mm x 84mm (7.3" x 3.8" x 3.3")
Scan zone	50mm (2") wide patch x 26mm (1") max.tread depth
Weight	< 650g
Measurement accuracy	< 0.2mm (0.008")
Laser	Class 1, 660nm, visible laser, max power output is less < 0.1mW
Operating temperature	0°C to 50°C (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)

3.4 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.

3.4.1 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.



Position	Description	Function
①	Power (On/Off)	Holding down the power button for 2 seconds will turn the scanner on/off. When device is powered ON, Holding down Power button at the same time as the Connect button, device will return to factory settings and loose any pairing.
②	Connect button	This button does not have a function in normal operation. If pressed for 3 seconds, the device will buzz 5 times and restart. A long press, resets the link to the mobile device/App. ("Forget" option of ScanID in the Comms list of the mobile device is required before new connection.)
③	Battery Level check button	Holding down the battery button for 1 second will indicate the battery level as shown by the LED's 8-9.
④	Power on led	Indicates that the HandHeld scanner is on. A vibration will indicate the on/off event.
⑤	Network mode/transmitting data	Once paired with a mobile device, it indicates that the scanner is transmitting data to the application
⑥	Device connected to the application	Indicates that a connection is made to the HandHeld scanner from the application.
⑦	Device enable and ready for connection	Indicates that the device is enabled. After powering the scanner on (and this LED turning on), it needs around 7-10 seconds to be fully ready for a connection from the mobile application.
Battery status*** / Scanner Status		
⑧	67 - 100% / Ready to scan	Shows the battery level (if the battery button is pushed down for 1 second or more) /Indicates that the scanner is ready to scan.
⑨	34 - 66%	Shows the battery level (if the battery button is pushed down for 1 second or more).
⑩	0 - 33% / Fault	Shows the battery level (if the battery button is pushed down for 1 second or more). /Indicates various error messages.

3.5 Operating systems

TreadReader™ requires:

- Android® 9.0 or later
- iOS® 13.0 (or later)

TreadReader™ app released after 11.53.1.0 include the ability to upload scans to TreadManager™.

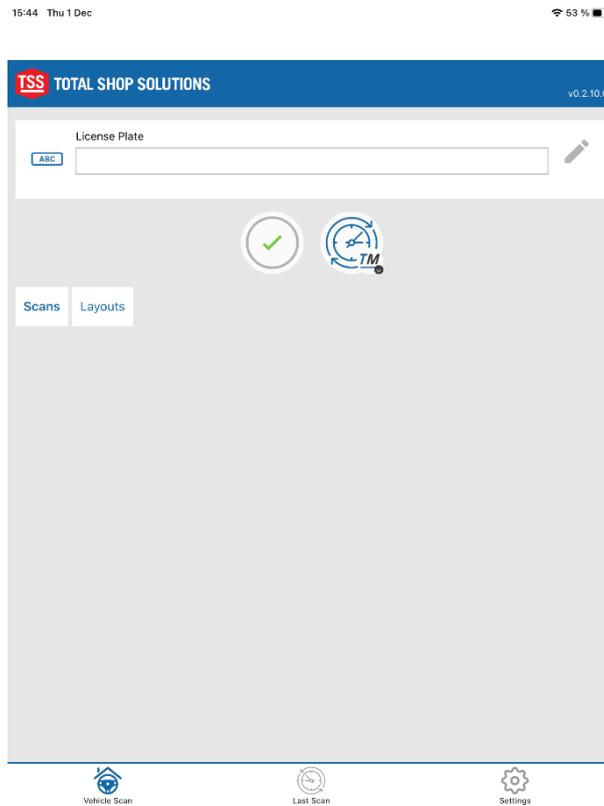
3.6 TreadReader™ mobile app

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.

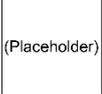


3.7 Home screen, not connected to TreadManager™

The Home screen, from here you could start a new Workorder or continue work on an existing workorder. This is where you end up when you push the **[Home]** button.

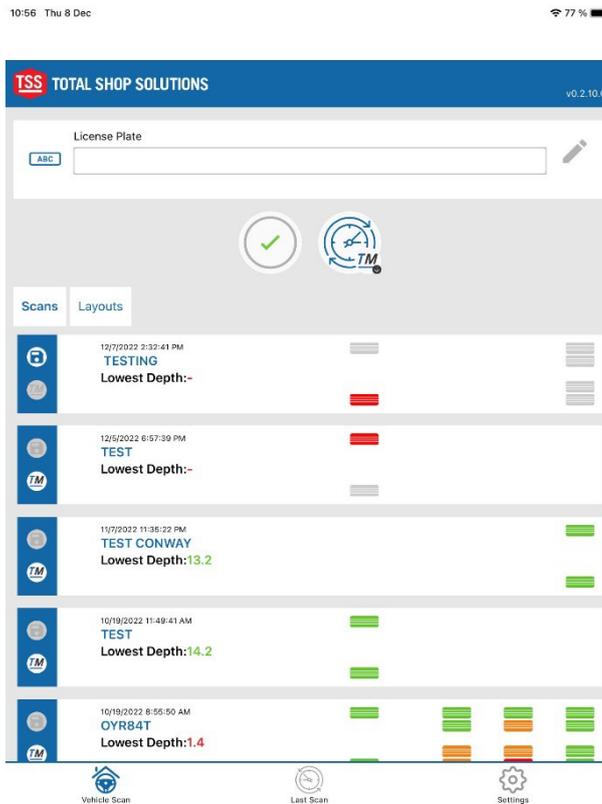


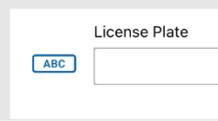
	<p>Field for entering the truck License Plate and search field for previous scanned vehicles or to show saved axle configurations.</p>
	<p>The Ok button. Tap this button to start scanning the truck.</p>
	<p>Sync button, tapping this button makes TreadReader™ sync with the TreadManager™ database where the data of the truck is stored.</p>
<p>Scans</p>	<p>Tapping this button will show the scan performed. The list will show the approved, and disapproved tyres, on the trucks, based on limits set in configuration.</p>
<p>Layouts</p>	<p>Tapping this button will show all layouts saved to TreadManager™.</p>
	<p>This is the [Home] button. Tap this to jump to this Home screen.</p>
	<p>This will open the last scan performed.</p>

 Settings	Tap this button to go the Settings menu.
 (Placeholder)	Tap the help button to open the following link: www.treadreader.com/library

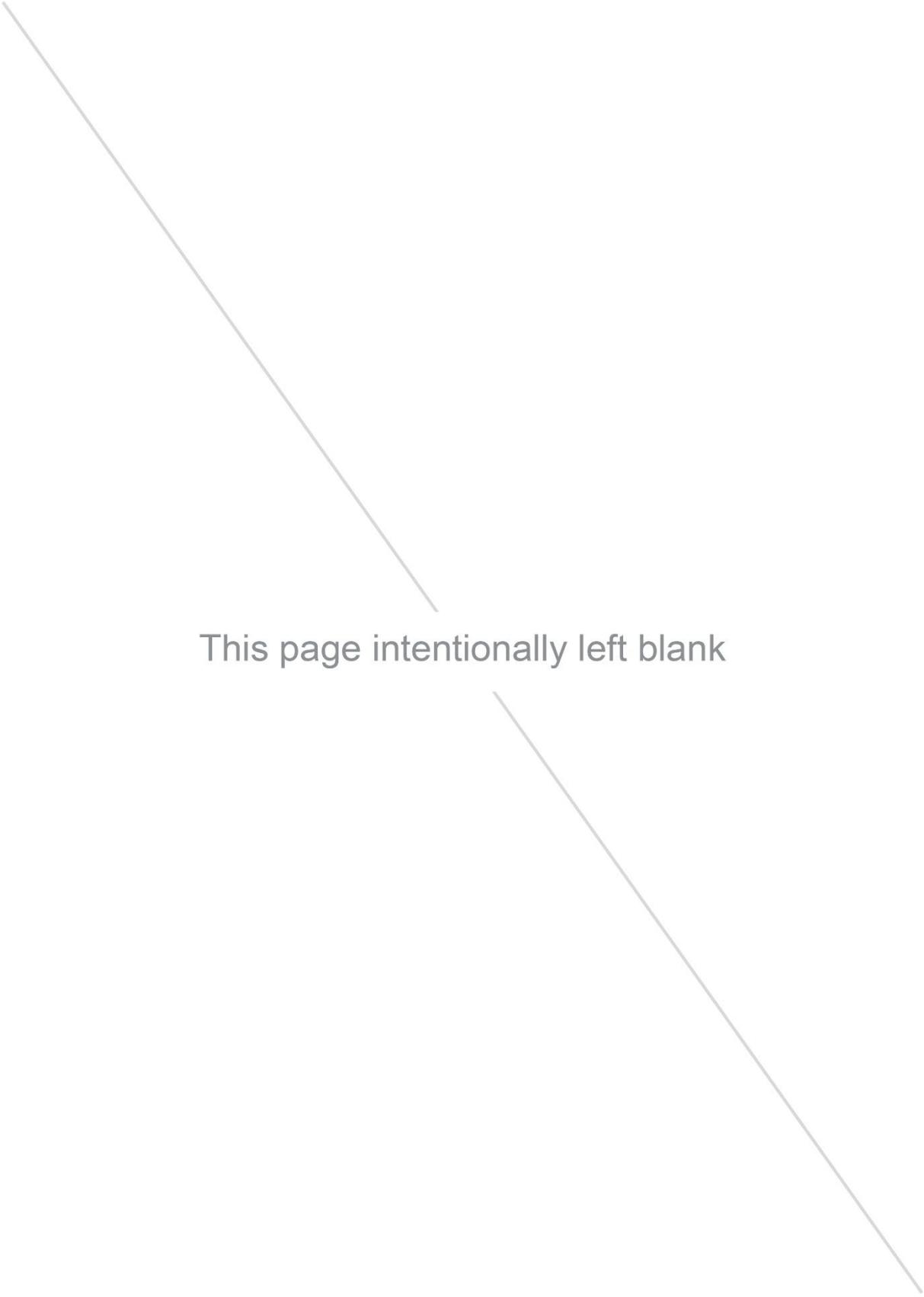
3.8 Home screen, connected to TreadManager™

In this screen the TreadReader™ App is connected to TreadManager™. This will list the scans saved to TreadManager™.



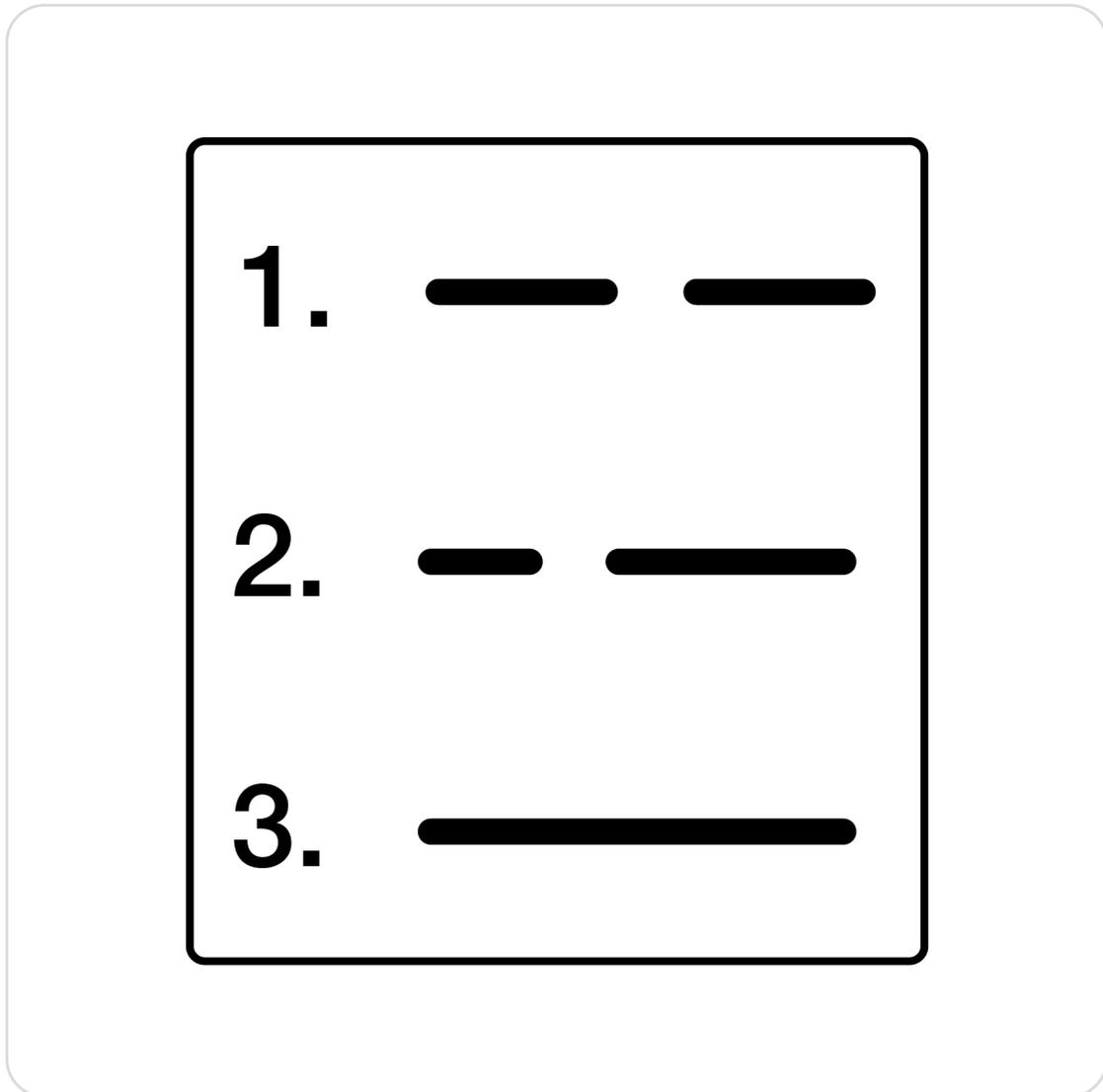
	Field for entering the truck License Plate and search field for previous scanned vehicles or to show saved axle configurations.
	The Ok button. Tap here to start scanning the truck.
	Sync button, tapping this button makes TreadReader™ sync with the TreadManager™ database where the data of the truck is stored.
<p>Scans</p>	Tapping this button will show the scan performed. The list will show the approved, and disapproved tyres, on the trucks, based on limits set in configuration.

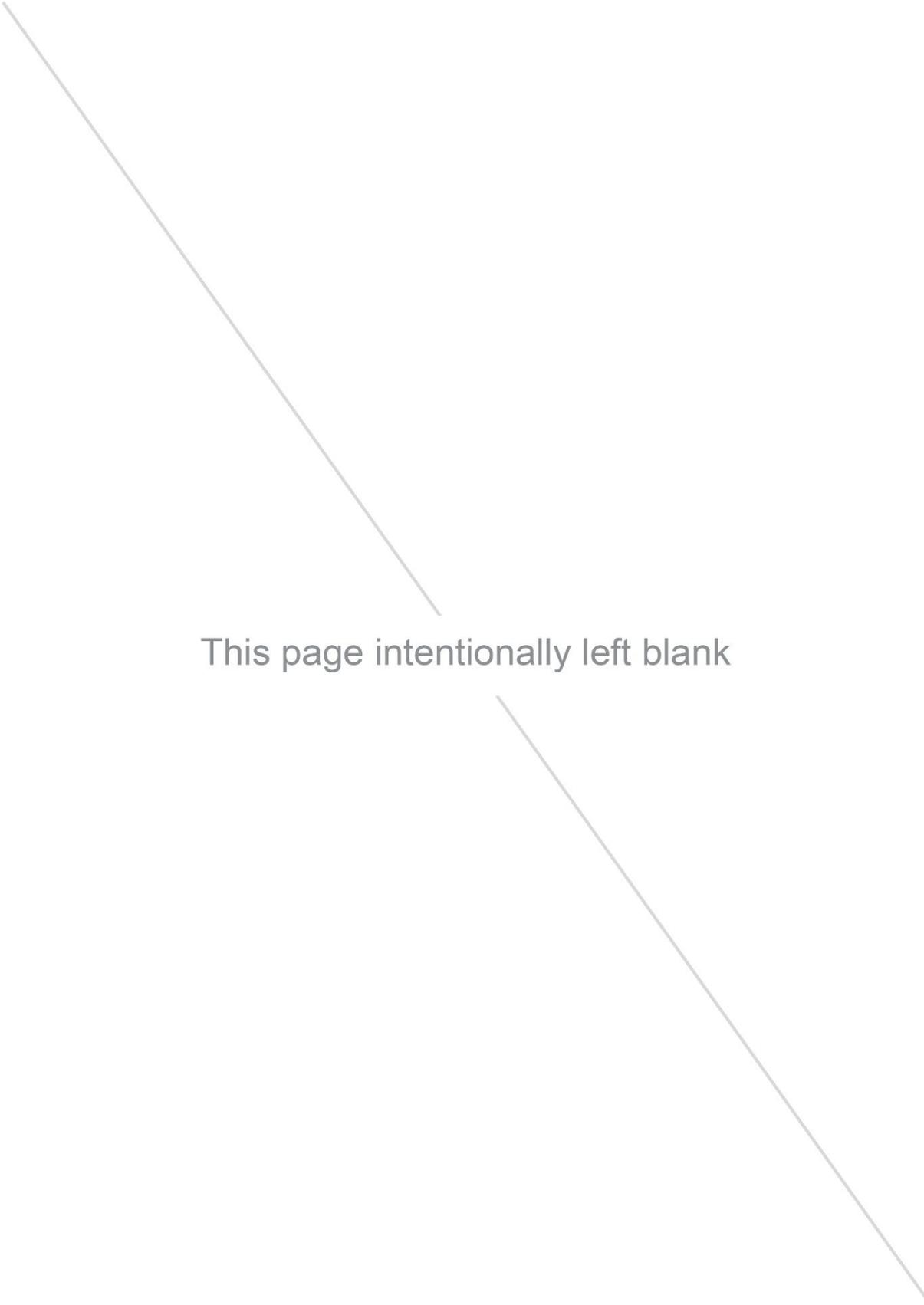
<p>Layouts</p>	<p>Tapping this button will show all layouts saved to TreadManager™. This view does not show approved or disapproved tyres.</p>
	<p>If coloured (not grey) it means that this data is stored <i>locally</i> on the device.</p>
	<p>If coloured (not grey) it means that this data is stored in TreadManager™.</p>
	<p>Gray means invalid scan.</p>
	<p>Red tyre means that <i>at least</i> one groove was below the lowest limit set locally in the App or synced from the TreadManager™ Workshop settings.</p>
	<p>Amber tyre means that means that at least one groove <i>is</i> between the highest limit (Green tyre) and above the lowest limit (Red tyre). All according to limit set locally in the App or synced from the TreadManager™ Workshop settings.</p>
	<p>Green tyre means that all grooves was above the highest limit set locally in the App or synchronised from the TreadManager™ Workshop settings.</p>
 <p>Vehicle Scan</p>	<p>This is the [Home] button. Tap this to jump to this Home screen.</p>
 <p>Last Scan</p>	<p>This will open the latest scan performed.</p>
 <p>Settings</p>	<p>Tap this button to set the settings for TreadReader™ App.</p>



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4 Operator information





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4.1 TreadManager™ request, login and setup the first time

To access the TreadManager™ the user needs an account and login credentials for treadmanager.net

On request, the user will be receiving 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.

4.1.1 Request a TreadManager™ account

To use TreadManager™ a request for an account is necessary. There are two ways to request an account:

- Send an Email request
- Request from the TreadReader™ app

4.1.1.1 Send a request by email

Send an email to treadmanager@treadreader.com and include the following information:

- Company name
- Address
- Contact e-mail
- Contact phone
- Country
- Sales agent or distributor

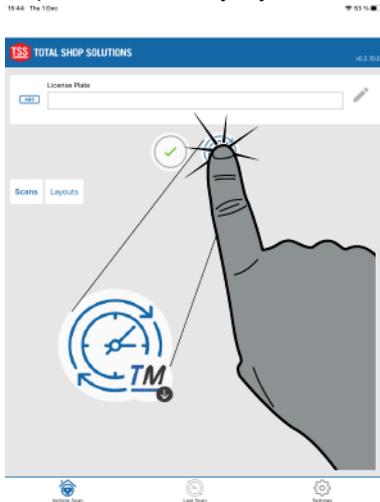
4.1.1.2 Request access via TreadReader™ app

To request access, follow the steps below:

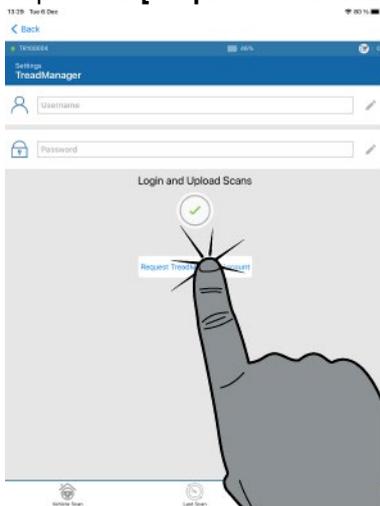
Start the TreadReader app.



Tap on the "History/Sync" icon.



Tap on the **[Request TreadManager Account]** button.



Select the preferred supplier of email.

Include the information described in 4.1.1.1 Send a request by email, page 22.

An invitation email will be provided including a link to set the password.

The email address is the username.



The same user credentials are to be used for www.treadmanager.net and for the App.

4.1.2 User profiles in TreadManager™

**Note**

These same user details are used in the mobile app for the upload of data.

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 tyre scan results.
- Set up workshops and users at the same hierarchy level or below.

**Note**

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

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
- View workshop reports and individual vehicle scan reports
- Upload scans and vehicle information to *treadmanager.net*

**Note**

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

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.

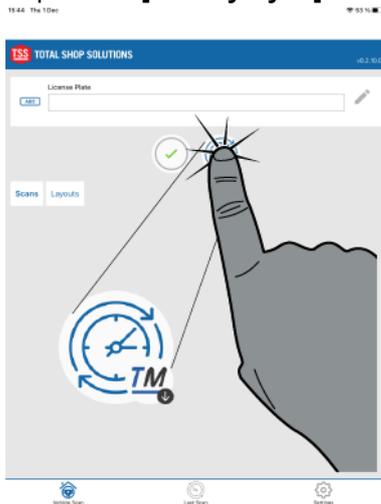
4.2 Login to TreadManager™ in the app

When you received the account details you need to login from within TreadReader™.

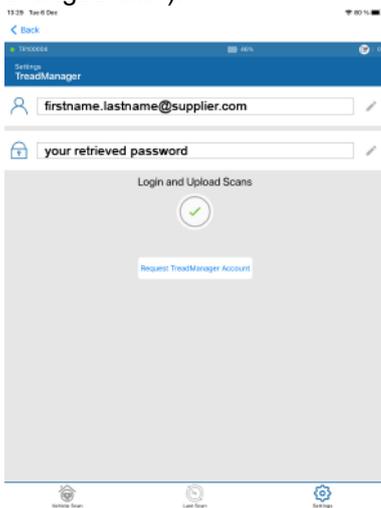
To login follow the steps below:

1. Start TreadReader™ if not already done this.

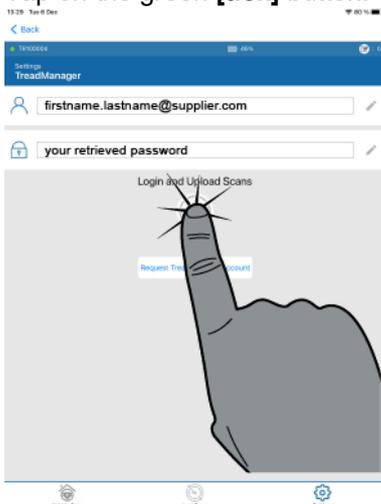
1. Tap on the **[History/Sync]** button.



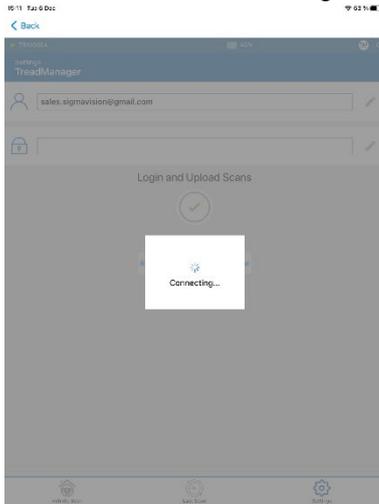
2. Enter your email as Username.
The Password is the one created using the link in invitation email." (Your password can be changed later).



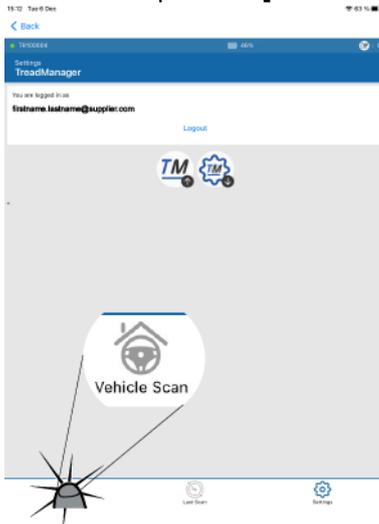
3. Tap on the green **[tick]** button.



4. TreadReader™ will now login.



5. From here tap on the [Home button]. TreadReader™ will read data from TreadManager™.



6. Ready to scan.

4.3 Scanner Connectivity

The Handheld scanner is connected via radio connection.

Allows a one-to-one connection between the phone or tablet and the scanner through a radio connection.

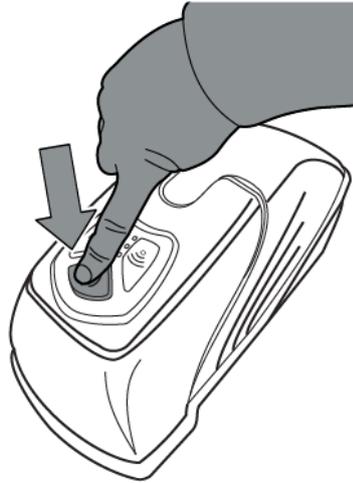
If a device has been previously added this can be selected directly. The phone or tablet and scanner is paired when both the bottom and middle left LED's light up blue and the device buzzes when turned on.

4.3.1 Connect the scanner first time

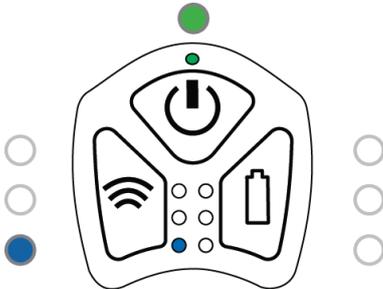
Every new Handheld scanner is set up for a one-to-one connection with the phone or tablet via a radio connection.

To connect the scanner the first time, follow the steps below:

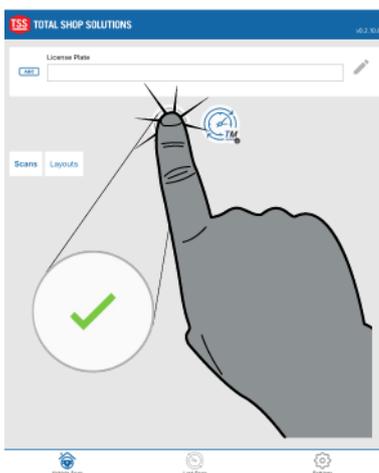
1. Turn on the Handheld scanner by pressing the **power button** for 2 seconds.



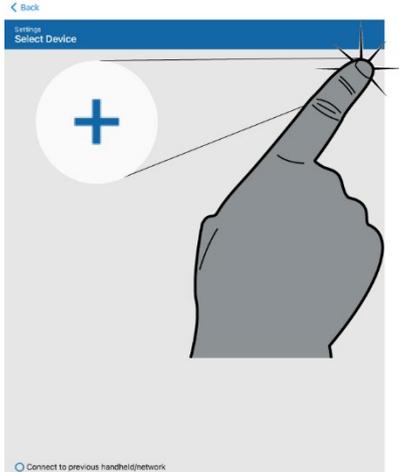
2. Once the first blue LED is lit, launch the TreadReader mobile app.



3. On the next screen, tap the green **[tick]** to continue.



- On the following screen, tap the **[+]** -icon to add a new device.

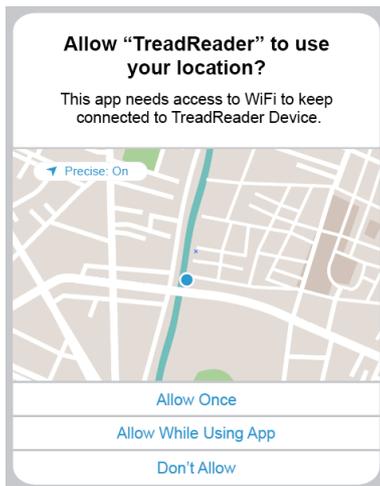


The app will request permission to use your location and access the camera. **Allow all permissions.**

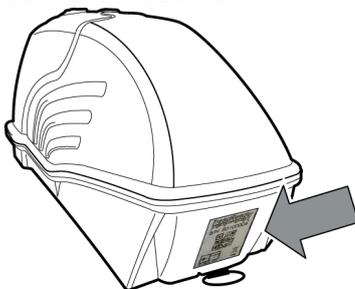


Important!

If the app is not allowed to use the camera the app will not work properly.

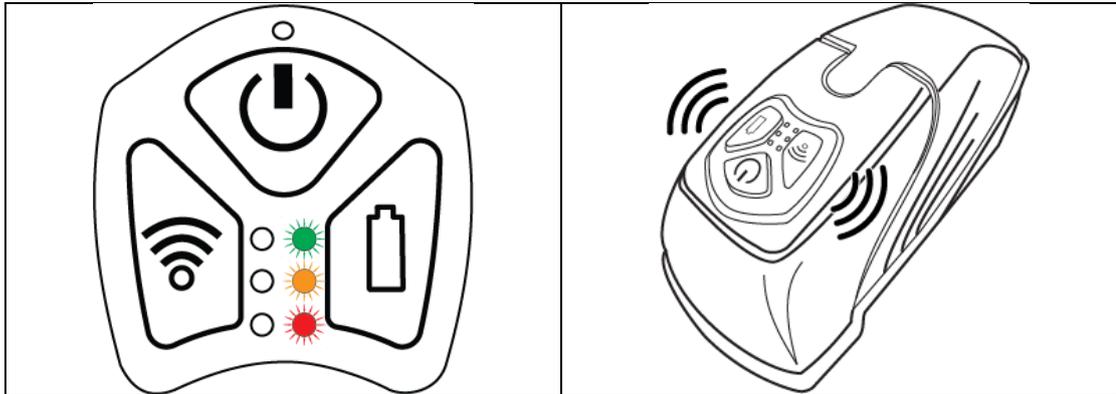


- Select the pairing method (QR code or Serial Number), press OK after the required information is input. The QR code, and the serial number (starting with 801) is located at the back of the scanner.

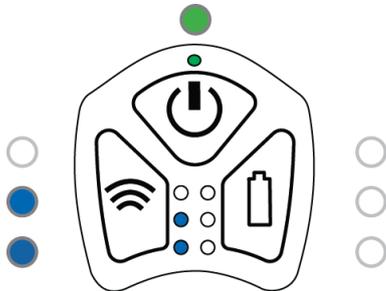


- When connecting a pairing request may pop on the screen, select PAIR to finish. If any code is prompted it is 6 Zeros. 0 0 0 0 0 0.

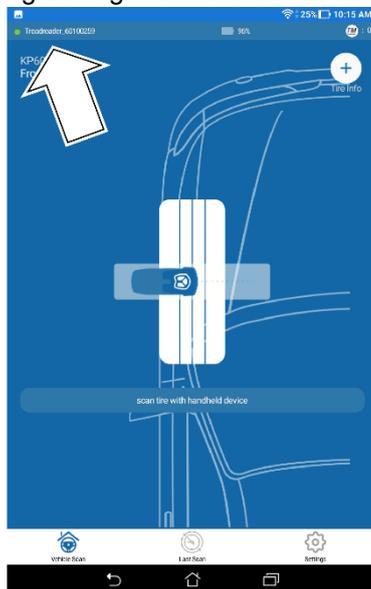
- The green, orange, and red LEDs on the right will briefly flash when a connection is established, and the scanner will buzz.



- 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.



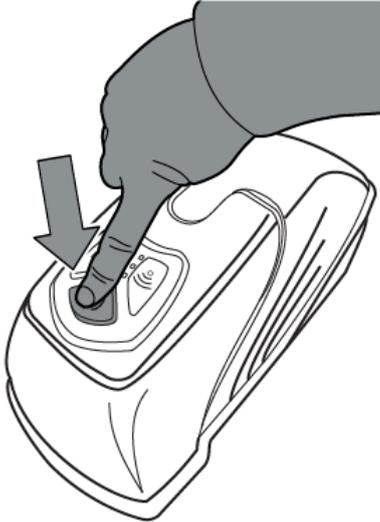
- All set and the scanner is ready to use.

4.3.2 Connect the scanner (already paired)

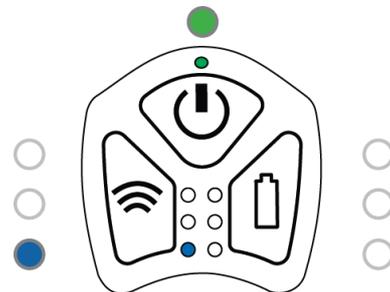
When the scanner already has been paired this is an easy connection.

Follow the steps to start and connect the scanner:

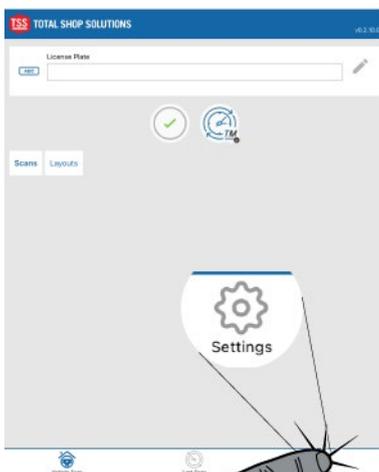
1. Start the TreadReader app.
2. Turn on the Handheld scanner by pressing the **power button** for 2 seconds.



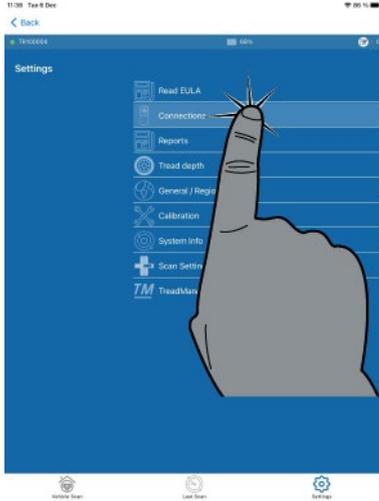
3. The scanner will vibrate and buzz, and the lower left LED lights up (together with the green).



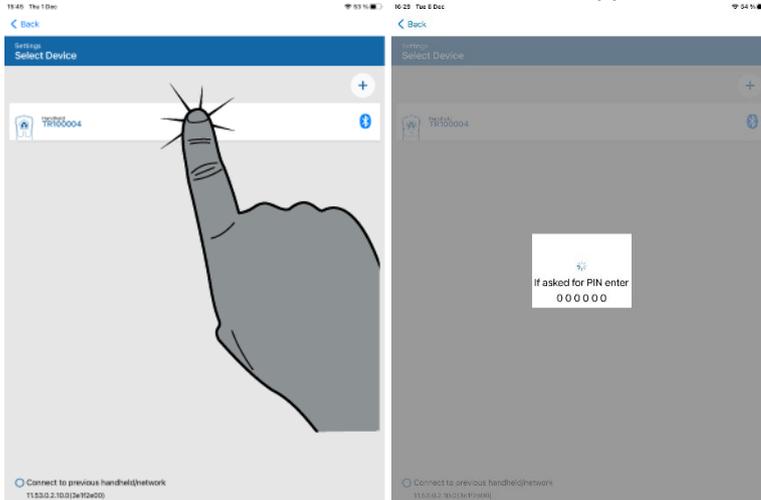
4. In the app tap on the **[Settings]** button.



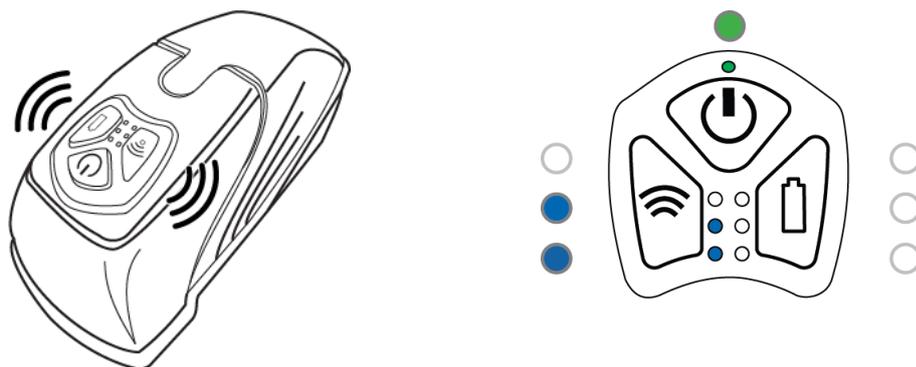
- Click on the **[Connect]** button.



- Click the Handheld scanner item on the list. The app will show a linking page.



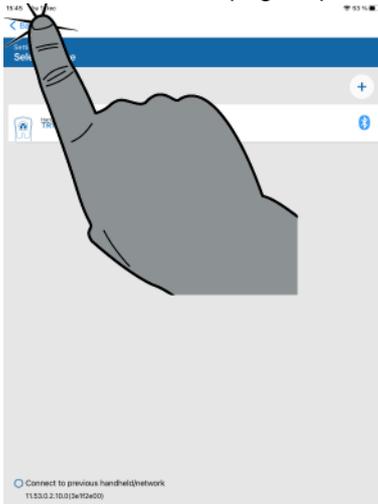
- Once connected, the scanner will buzz, vibrate and light the other blue LED on the left.



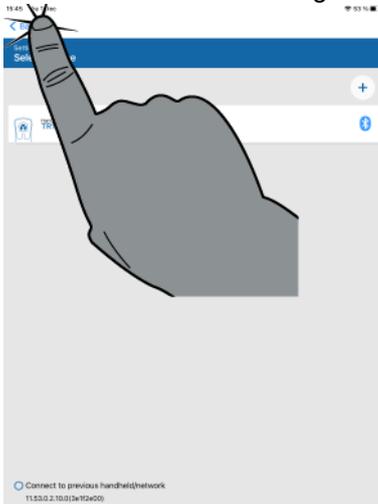
The LEDs will stay lit as long as the connection exists.

- Done!** the scanner is ready to use.

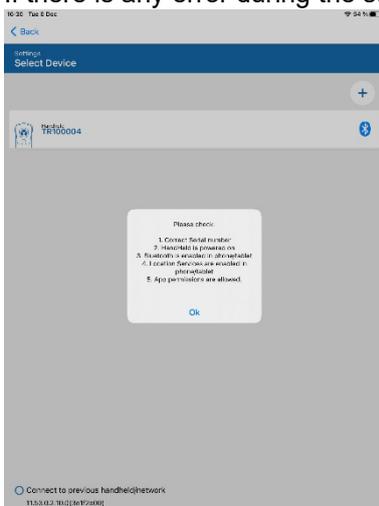
9. To return to Home page tap on the **[back]** button.



10. Click on the back button again.



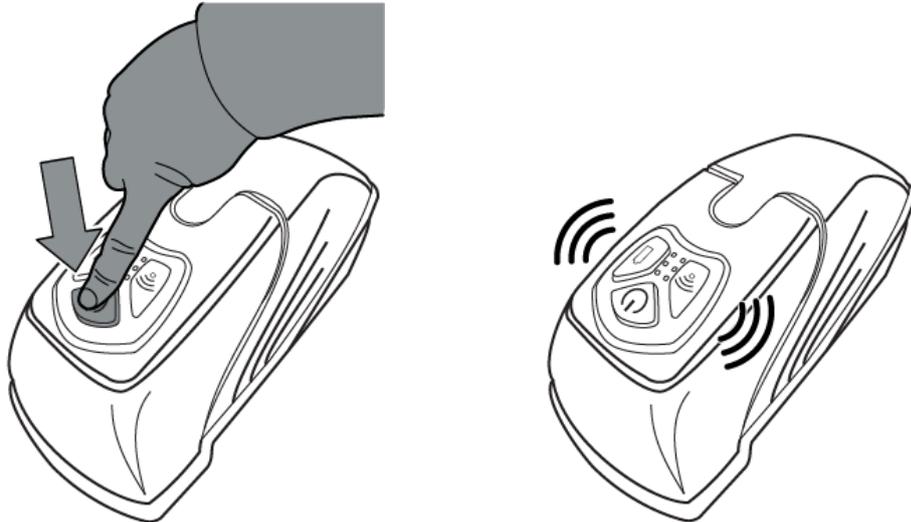
If there is any error during the startup, please read *6.1 LED's and errors, page 52*.



4.3.3 Turning OFF the scanner

To turn off the scanner there is two ways:

- Press and hold the power button on the scanner for *2 seconds*, the scanner buzz, vibrate and turns off.



- Close the app, and the scanner will turn off (buzzing and blinking with the LEDs).

4.3.4 Check the battery power

It is recommended to recharge the scanner battery as soon as the red battery LED is illuminated.



Note

Fully charge the device battery before the first use.

To check the battery power:

1. Press and hold the battery button on the scanner keypad.



2. The battery status is then displayed on the LEDs directly to the left of the battery status button.
3. If charging is needed have a look at *4.4 Charging, page 34*.

4.4 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.



Note

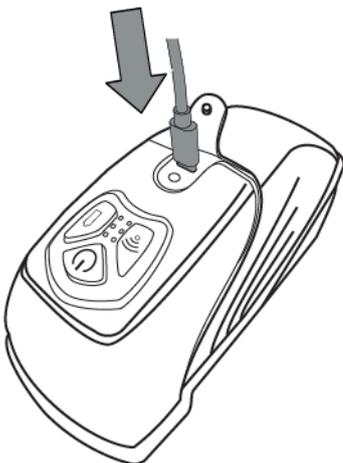
Only use the charger, adaptor and cable supplied with this product in order to avoid damaging the device.

To charge the scanner:

1. Pull back the circular rubber cover.



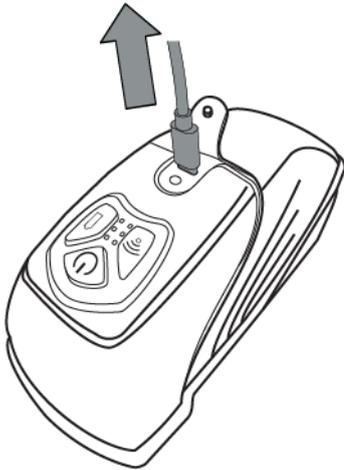
2. Plug the USB C cable into the recharging port on the lid of the scanner.



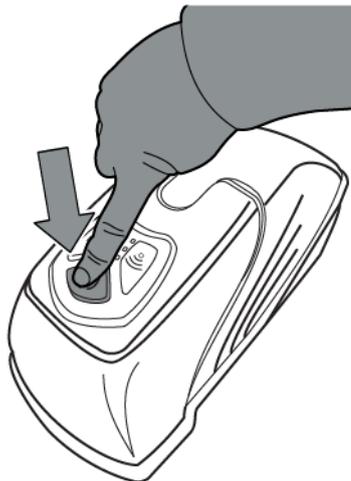
3. The LEDs start to blink from red and upward depending on the charge status.



4. When the LED's are all on constantly, charging is complete.
5. Remove the USB connector.



6. Put back the circular rubber cover.



4.5 Start scanning

Once the Handheld scanner is connected, the process of scanning tyres can start. There is more than one way to perform the tasks.

A quick scan, just for a single tyre as described below. Nothing is stored, can be used for a quick check for example.

A normal scan, where the scans are stored in the TreadManager for Emailing, printing or history. This requires an account for the TreadManager, see 4.1 *TreadManager™ request, login and setup the first time, page 22.*

4.6 Normal Scan

A normal scan contains a number of steps such as

- Login on the TreadReader.
- Register the truck.
- Scan the tyres

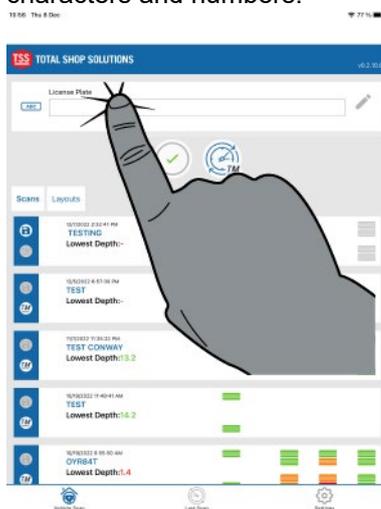


Note

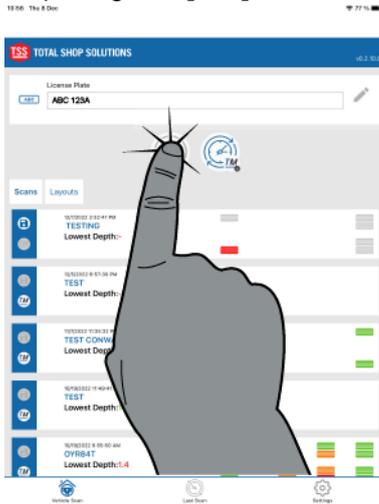
Scanning direction can be either forward or backward. Use what most convenient.

To perform a normal scan, follow the steps below:

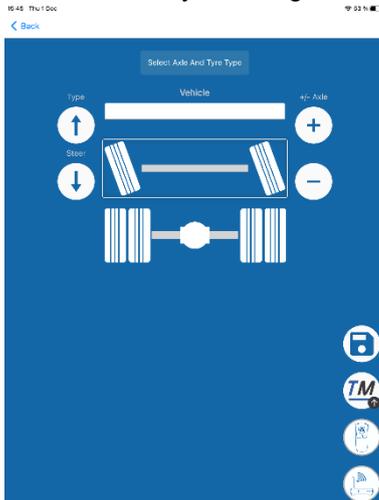
1. Start the app, see 3.8 *Home screen, connected to TreadManager™, page 17.*
2. Login to TreadManager, if not already done, see 4.2 *Login to TreadManager™ in the app, page 24.*
3. Turn on the scanner, see 4.3.2 *Connect the scanner (already paired), page 30.*
4. Register the truck number plate by tapping the text field for *License Plate* and enter the characters and numbers.



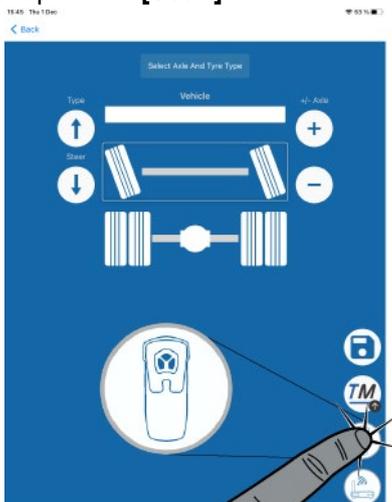
5. Tap the green **[tick]** button.



6. Set the numbers of axles of the truck. Use the plus **[+]** button to add axles and **[-]** to remove axles. The **[up]** and **[down]** arrow buttons loop between different axle types. To make a dual wheel assembly to a single rear assembly simply tap on the tyres at the axle.



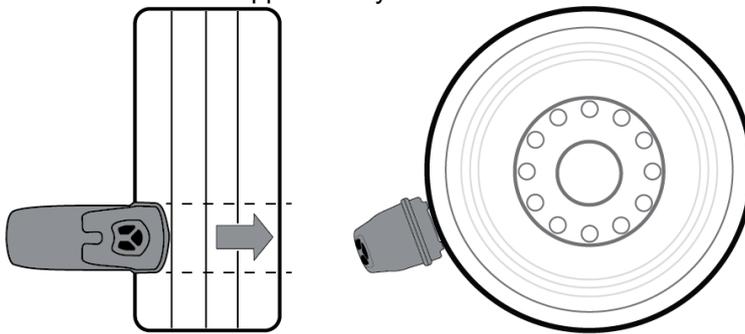
7. Tap on the **[Scan]** button.



- The scanner will buzz, and you can start to scan.



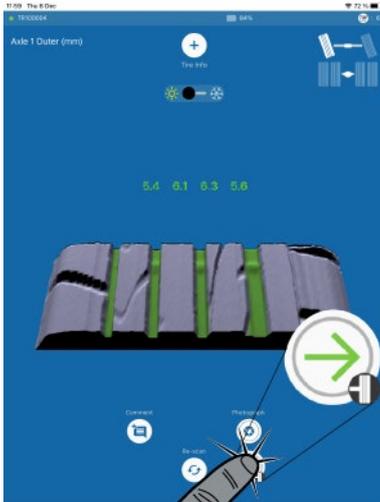
- Place the scanner below the center line on the tyre as in the figure. Move the scanner with a constant speed. Recommended speed is *1-1,5 seconds* to scan the surface. If you move the scanner too fast the app will tell you.



- When you stop scanning (stop moving the scanner) the scanner will buzz again and the screen with the tyre depths will show.

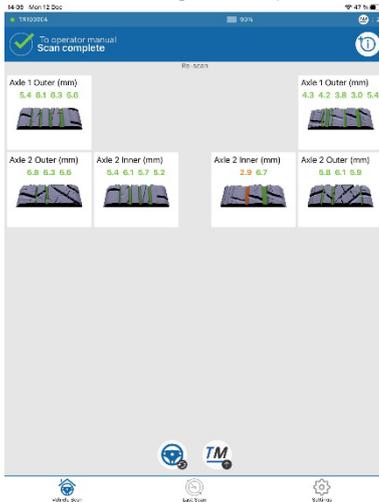


11. If scan was correct press the **[Next]** wheel button or a short press on the **Power** button, any of these action takes you to the next tyre.
A Re-Scan can also be issued by using the re-scan button or a short press on the **Battery** button.

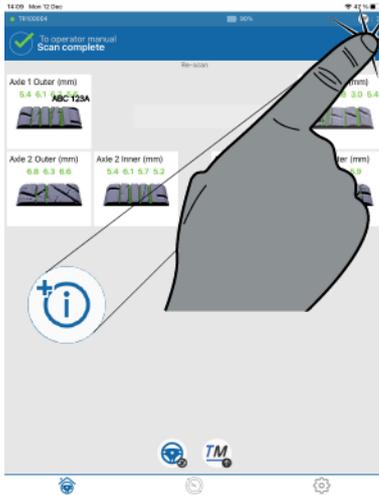


12. Repeat the step 9-11 for all wheels.

13. When scanning is complete the summary screen will show all the values from the scanning.



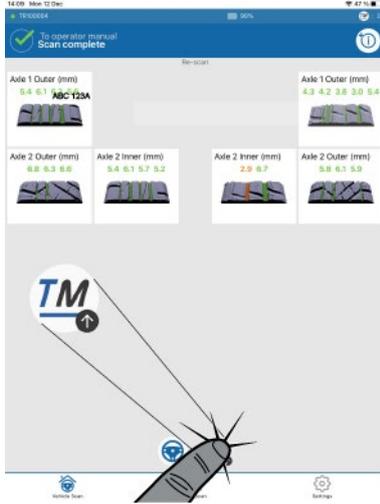
14. To add information about the vehicle, press the Information button up on the right.



From here it is possible to rescan if there is a scan that need to be refined in any way. To do that tap on the current tyre in question. Perform the scan again as described above.

To print a report, follow the instructions on 4.6.1 *Create a report, see page 40*.

To upload the result to TreadManager™ tap the **[upload]** button as shown below.



To return to Home page tap the **[Home button]**.



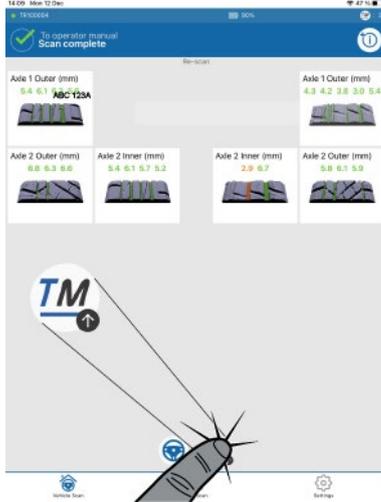
4.6.1 Create a report

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

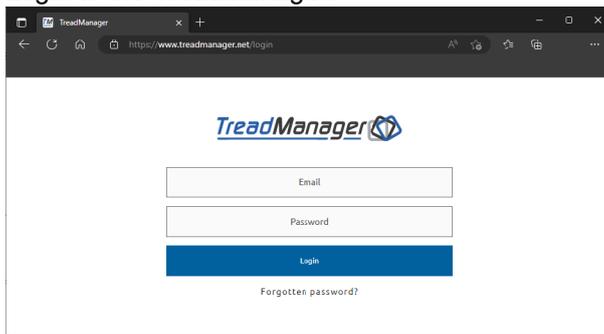
When adjustments and any rescan or supplemental information has been added it is time to upload it to TreadManager. This will require you to be logged in to TreadManager from the TreadReader App. This is described in 4.2 *Login to TreadManager™ in the app, see page 24*.

To generate a report to print follow the steps below:

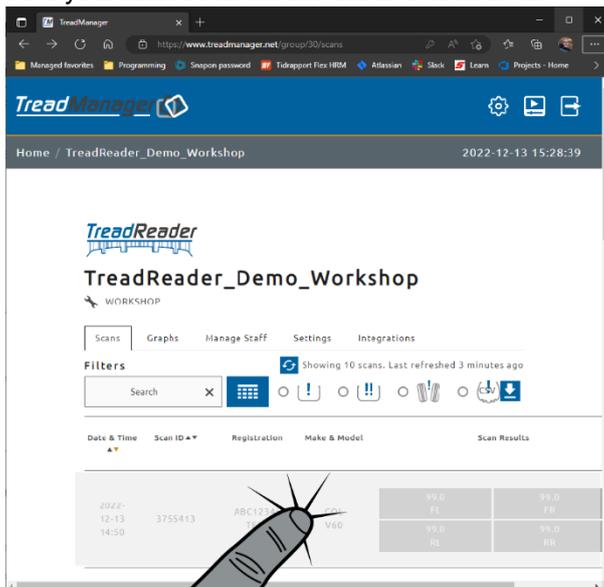
1. To upload the report to TreadManager tap the upload button.



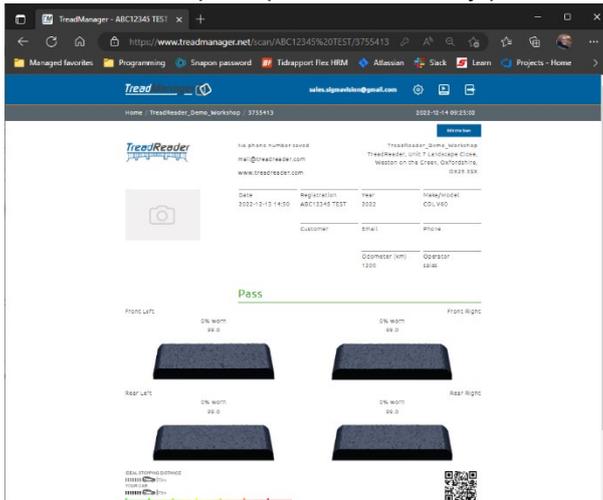
2. The report is uploaded to TreadManager™ when summary page is visible again.
3. In the web browser enter *treadmanager.net* and press **Enter**.
4. Login to the TreadManager.



5. Find your latest scan in the list and click on it.



6. With the scan report up use the ordinary print function (on Windows **CTRL+P**).



7. From the print window it can be either printed or saved to a pdf.



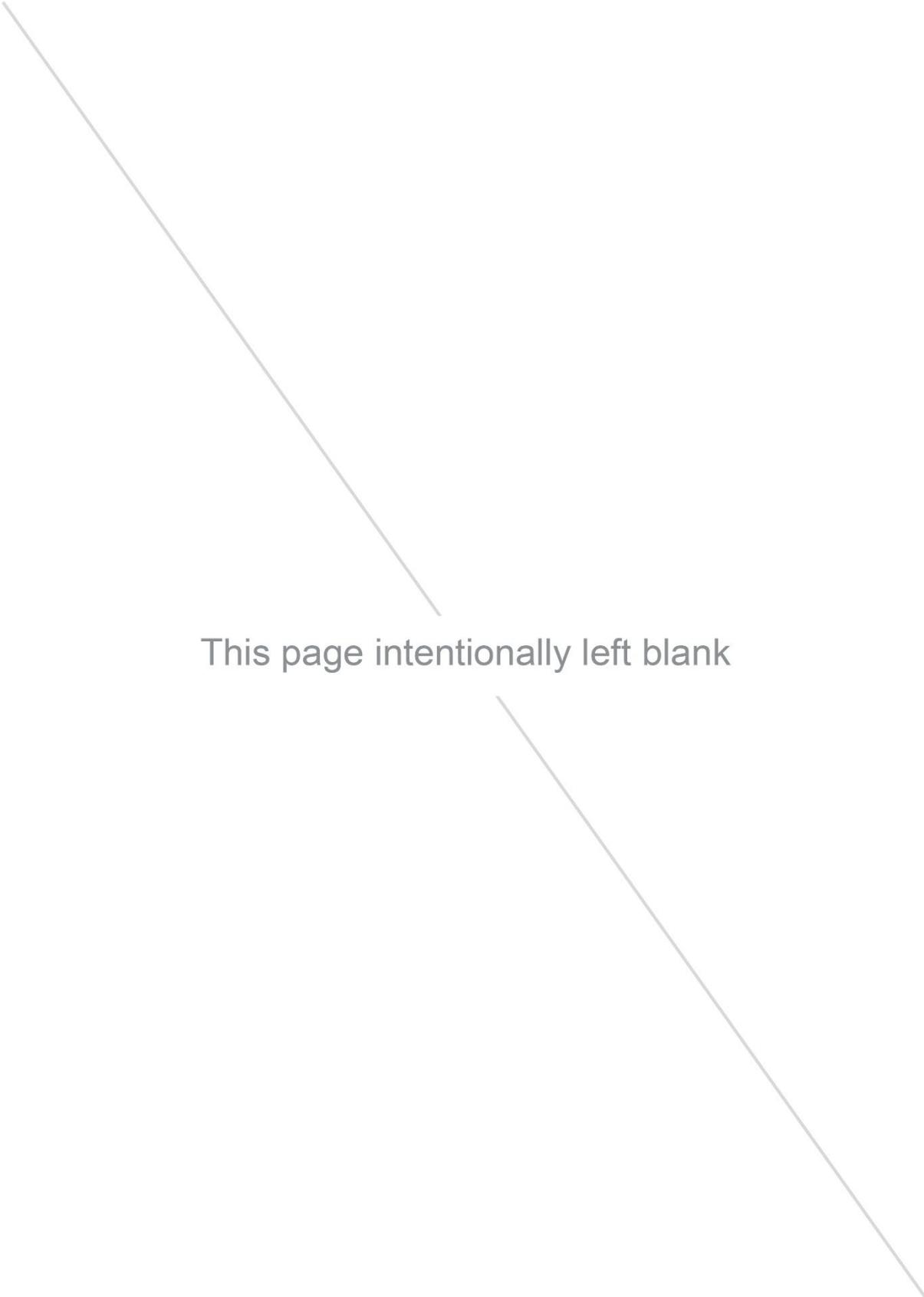
The summary report shows the company logo and vehicle information, 3D tyre scans and tread depths produced by the handheld scanner, with an overall statement about the tyre condition:

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

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

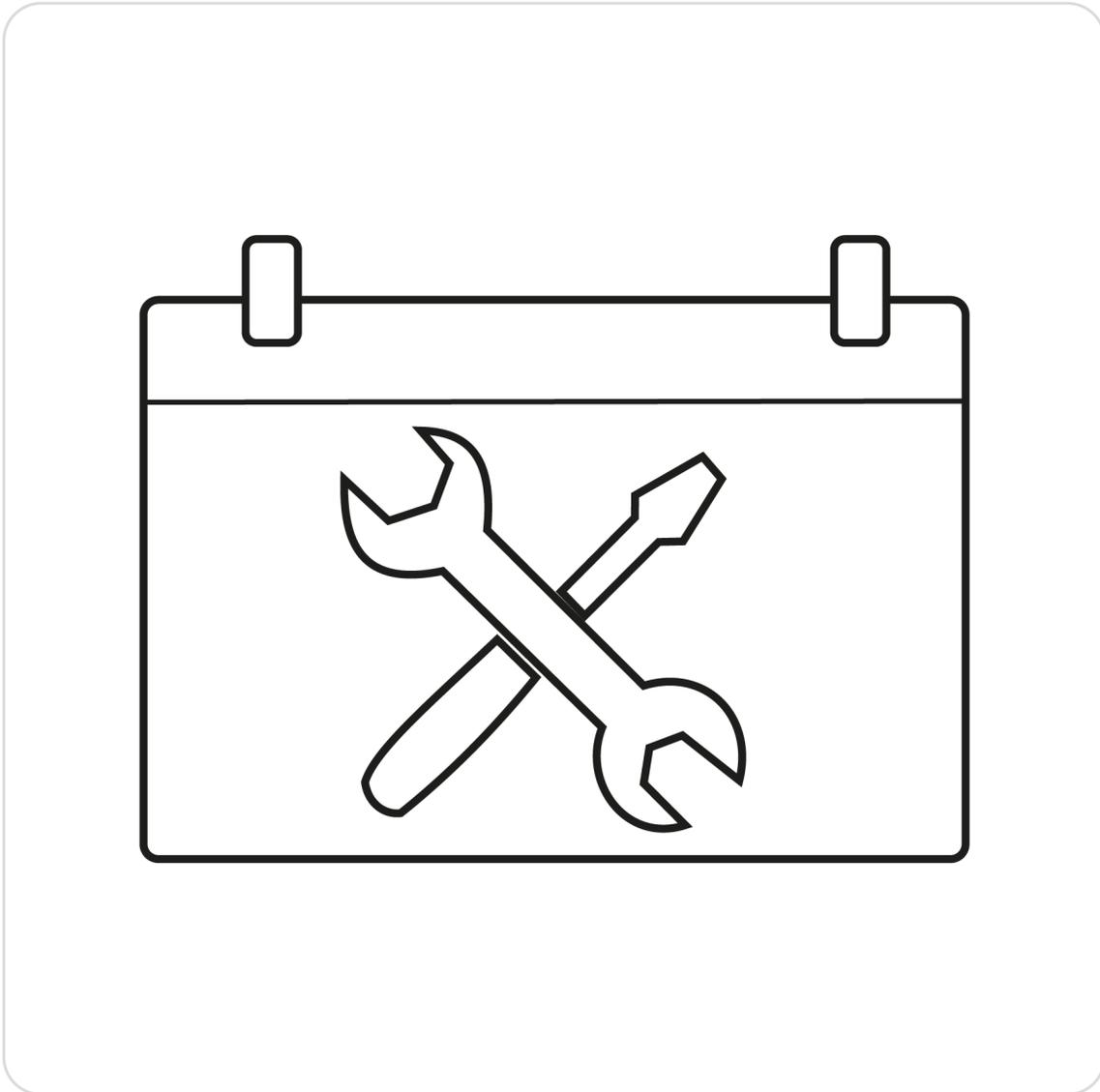
These include the need to replace worn tyres and/or check vehicle or tyre factors associated with accelerated or uneven tyre wear, such as wheel misalignment and tyre under or over-inflation.

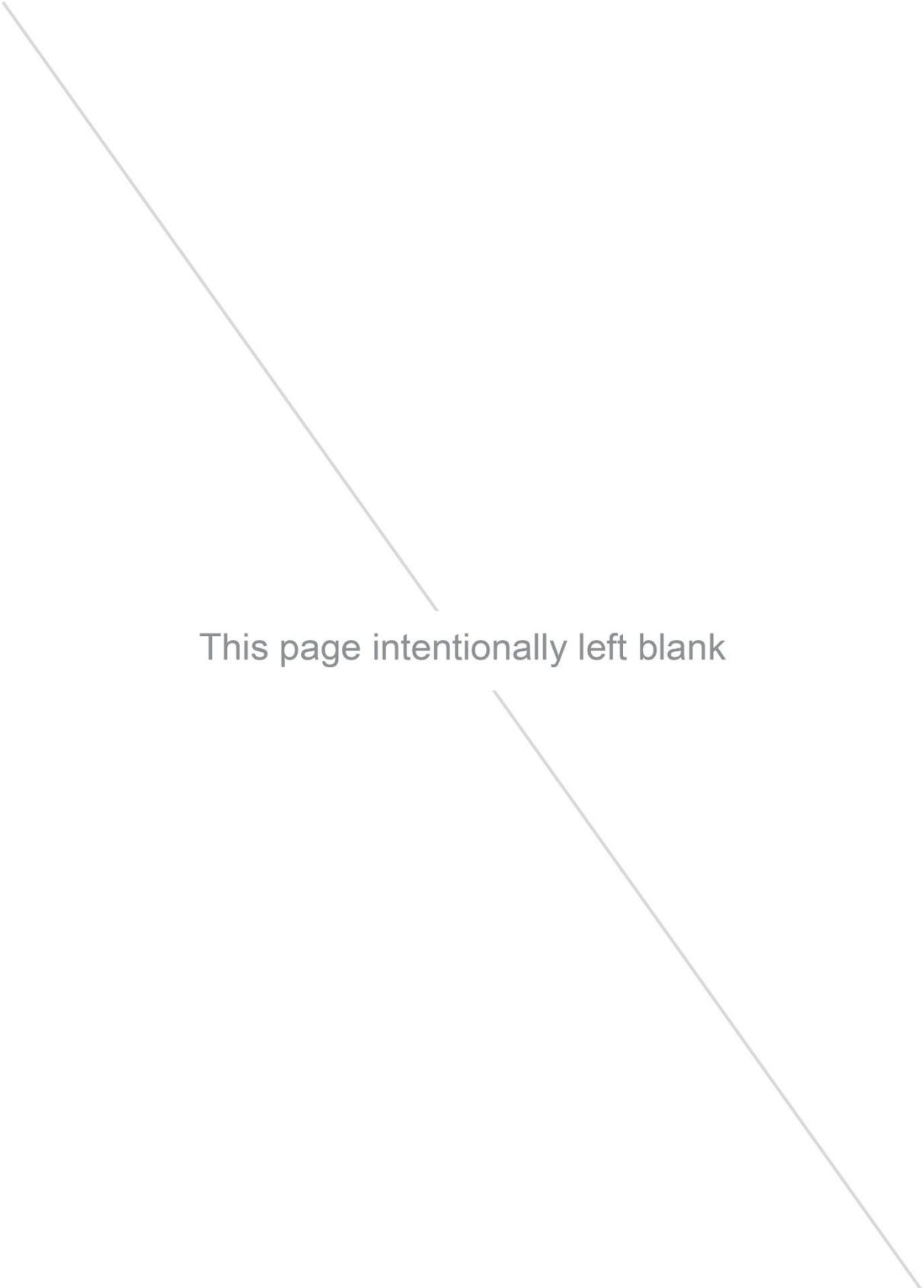
The summary report also shows an assessment of the vehicle stopping distance, as *GOOD*, *ADVISORY*, or *POOR*, from a calculated stopping distance, based on the tyre with the lowest tread depth measured.



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5 Maintenance Instructions





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5.1 Cleaning

5.1.1 Cleaning the optical Window

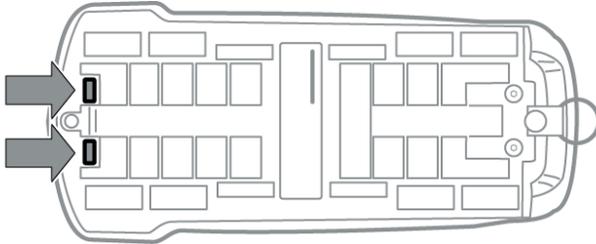


Note

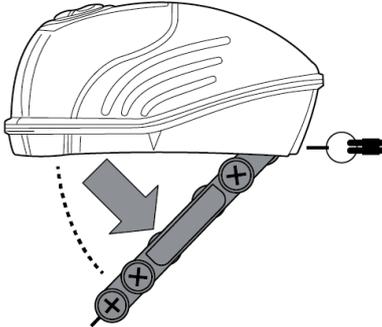
The wheel assembly may only be opened 45 degrees to the base of the scanner. *Do not* attempt to open the wheel assembly *further* as this may damage the scanner.

To clean the optical window, follow the steps below:

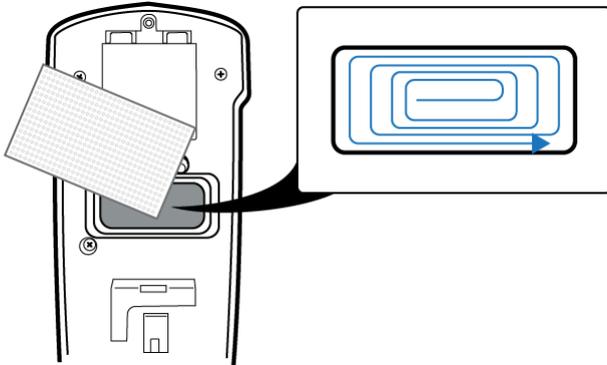
1. Release the wheel assembly on the underside of the scanner by pushing the two retaining clips.



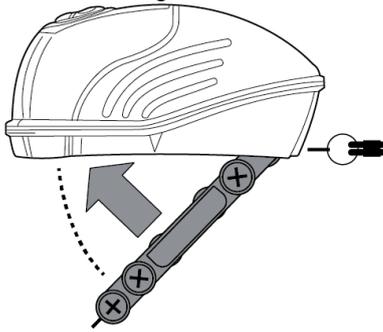
2. This allows the wheel assembly to pivot on a hinge away from the base of the scanner. Do not attempt to open the wheel assembly further than 45° as this may damage the scanner.



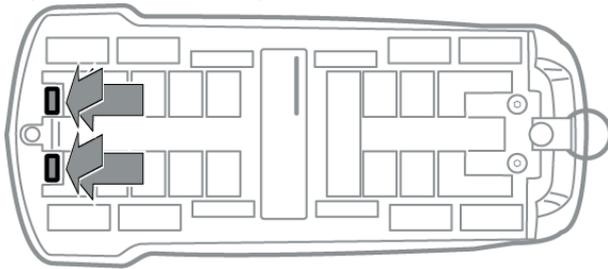
3. The optical window is now exposed and may be cleaned with a Microfibre or similar soft, lint free cloth. Start from the center and continue in a spiral outward.



4. After cleaning close the wheel assembly again.



5. Lock the wheel assembly by pressing the two retaining clips downwards and forward. The clips should “click” in place.



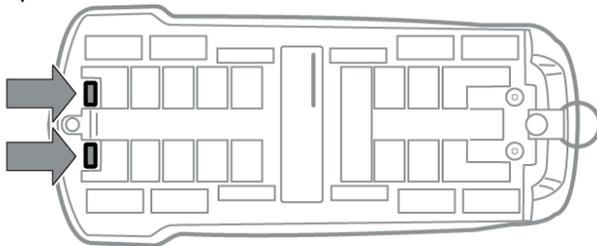
6. Finished!

5.1.2 Empty stones or grit

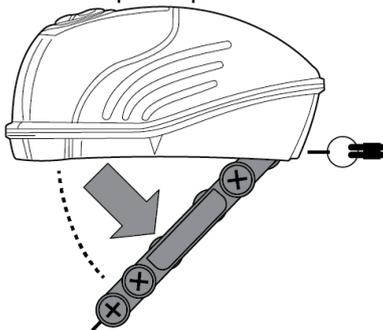
To empty stones or grit, which have entered between the wheel assembly and the base of the scanner, through the gap directly above the viewing window.

To empty stones or grit, follow the steps below:

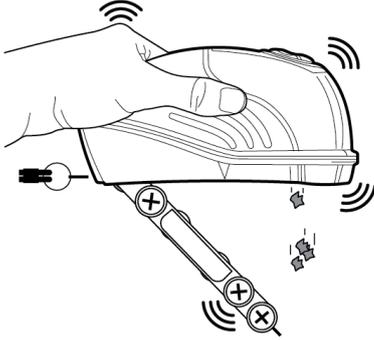
1. Release the wheel assembly on the underside of the scanner by pushing the two retaining clips.



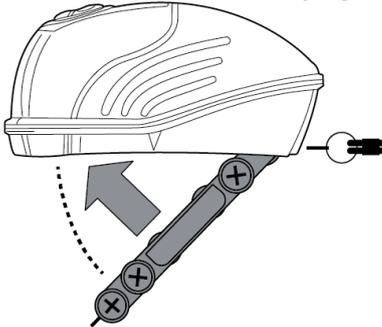
2. This allows the wheel assembly to pivot on a hinge away from the base of the scanner. Do not attempt to open the wheel assembly further than 45° as this may damage the scanner.



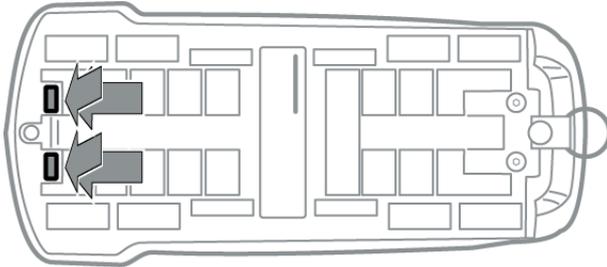
3. Shake out any stones or grit.



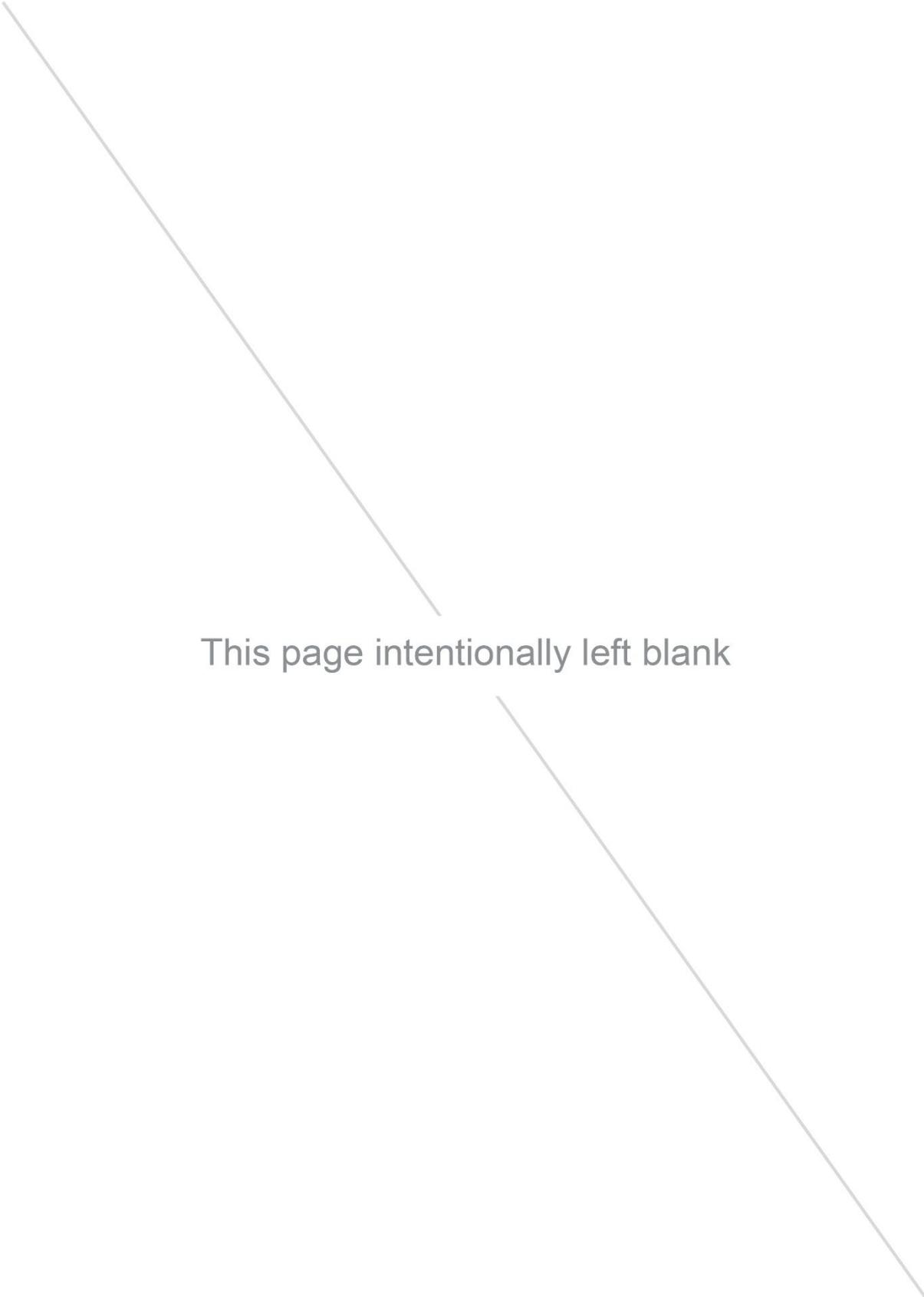
4. Close the wheel assembly again.



5. Lock the wheel assembly by pressing the two retaining clips downwards and forward. The clips should “click” in place.



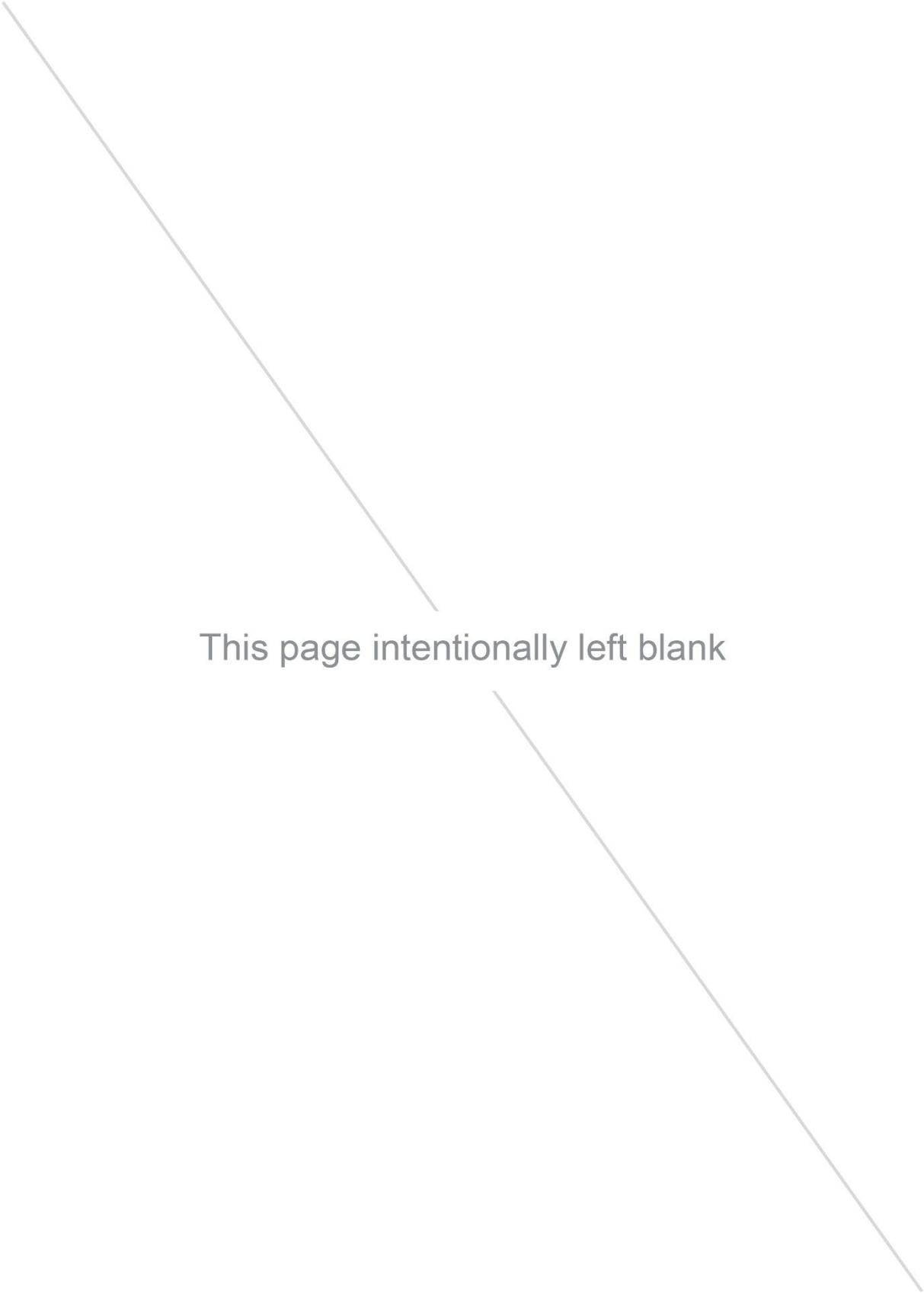
6. Finished!



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6 Troubleshooting





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6.1 LED's and 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:

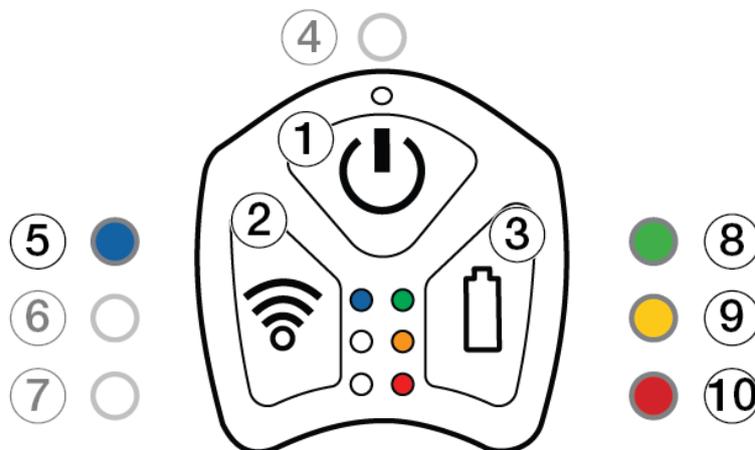
- Timeout error while completion of charging routine
- Timeout error while fast charging
- Timeout error while slow charging

Other faults:

- Current limit exceeded

6.2 LED indicated errors

There are 7 LED's (4-10) on the top of the HandHeld scanner, but only 5, 8-10 are used for error indications:





Note

Please, note that the LED's 6 and 7 are controlled by the connection module only and are not a part of any error code.

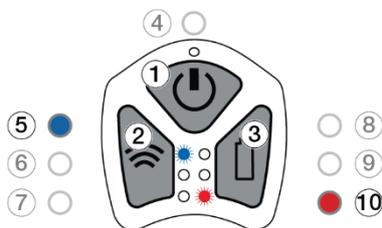
Once the error code LED flashing has completed, it is possible to try to recover the scanner by pressing all the three buttons at the same time.

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.

6.2.1 Battery temperature too low. LED 5 and 10 blinking

LED: 5 and 10

Blink count: 5



Solution:

1. Leave the HandHeld scanner at room temperature for at least *30 minutes*.
2. Clear the error by pressing all three buttons at the same time (**1-3**).
3. Wait for *10 seconds* after clearing the error before turning the scanner on.
4. Repeat the process if the error persists.

6.2.2 Battery temperature too high. LED 5 and 8 blinks

LED: 5 and 8

Blink count: 5



Solution:

1. Leave the HandHeld scanner at room temperature for at least *30 minutes*.
2. Clear the error by pressing all three buttons (**1-3**) at the same time.
3. Wait for *10 seconds* after clearing the error before turning the scanner on.
4. Repeat the process if the error persists.

6.2.3 Fuel gauge fault. LED 9 blinks

LED: 9

Blink count: 5



Solution:

1. Clear the error by pressing all three buttons at the same time (1-3).
2. Wait for *10 seconds* after clearing the error before turning the scanner on again.
3. If the error persists, try charging the scanner for at least *1 hour* before attempting to turn the scanner on.
4. If still unrecoverable, please contact your local distributor.

6.2.4 Charge level is too low (<1% left). LED 10 blinks

LED: 10

Blink count: 5



Solution:

1. Clear the error by pressing all three buttons at the same time(1-3).
2. Wait for *10 seconds* after clearing the error, before turning the scanner on.
3. If the error persists, try charging the scanner for at least *1 hour* before attempting to turn the scanner on.
4. If still unrecoverable, please contact your local distributor.

6.2.5 Battery voltage is too low (below 3.4V). LED 10 blinks

LED: 10

Blink count: 8



Solution:

1. Clear the error by pressing all three buttons (1-3) at the same time.
2. Wait for *10 seconds* after clearing the error, before turning the scanner on again.
3. If the error persists, try charging the scanner for at least *1 hour* before attempting to turn the scanner on.
4. If still unrecoverable, please contact your local distributor.

6.3 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:

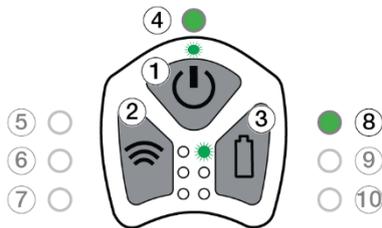
Solution:

Return the scanner to the factory for battery replacement. If the battery is changed replace the charger.

6.3.1 Timeout error while charging completion. LED 4 and 8 blinking

LED: 4 and 8

Blink count: 50



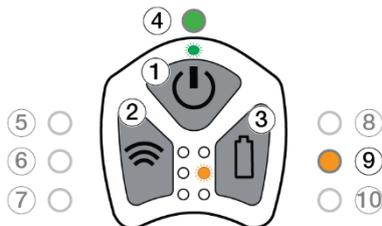
Solution:

1. Take the charging cable out.
2. Clear the error by pressing all three buttons at the same time (1-3).
3. Wait for *10 seconds* after clearing the error.
4. Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
5. If still unrecoverable, please contact your local distributor.

6.3.2 Timeout error while fast charging

LED: 4 and 9

Blink count: 50



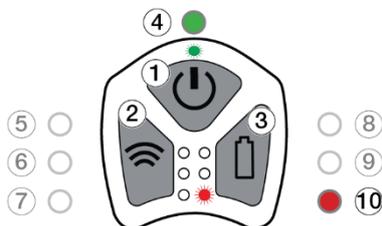
Solution:

1. Take the charging cable out.
2. Clear the error by pressing all three buttons at the same time (1-3).
3. Wait for *10 seconds* after clearing the error.
4. Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
5. If still unrecoverable, please contact your local distributor.

6.3.3 Timeout error while slow charging

LED: 4 and 10

Blink count: 50



Solution:

1. Take the charging cable out.
2. Clear the error by pressing all three buttons at the same time (1-3).
3. Wait for *10 seconds* after clearing the error.
4. Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
5. If still unrecoverable, please contact your local distributor.

6.4 Other faults

6.4.1 Current limit exceeded. LED 8 blinks

LED: 8

Blink count: 25



Solution:

1. Take the charging cable out.
2. Clear the error by pressing all three buttons at the same time (1-3).
3. Wait for *10 seconds* after clearing the error.
4. Please make sure you are using supplied cable and charger, before plugging the charging cable back in.
5. If still unrecoverable, please contact your local distributor.

6.4.2 Voltage limit exceeded. LED 8 blinks

LED: 8

Blink count: 10



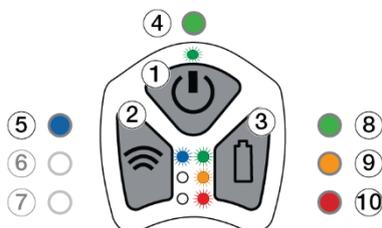
Solution:

1. Clear the error by pressing all three buttons at the same time (1-3).
2. Wait for *10 seconds* after clearing the error, before turning the scanner on again.
3. If the error persists, please contact your local distributor.

6.4.3 Error undetermined. LED 8 blinks

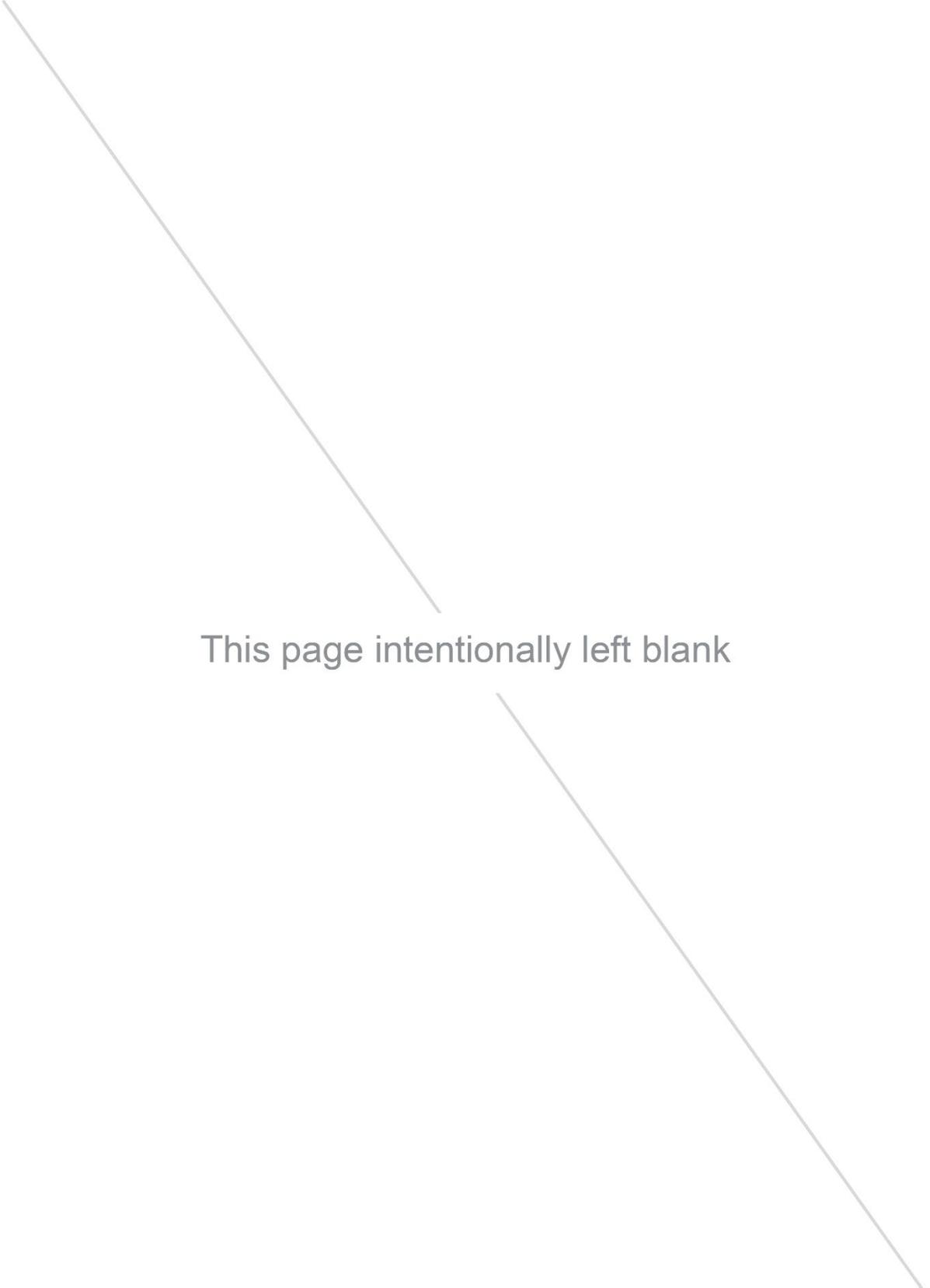
LED: 4, 5, 8, 9 and 10

Blink count: 7

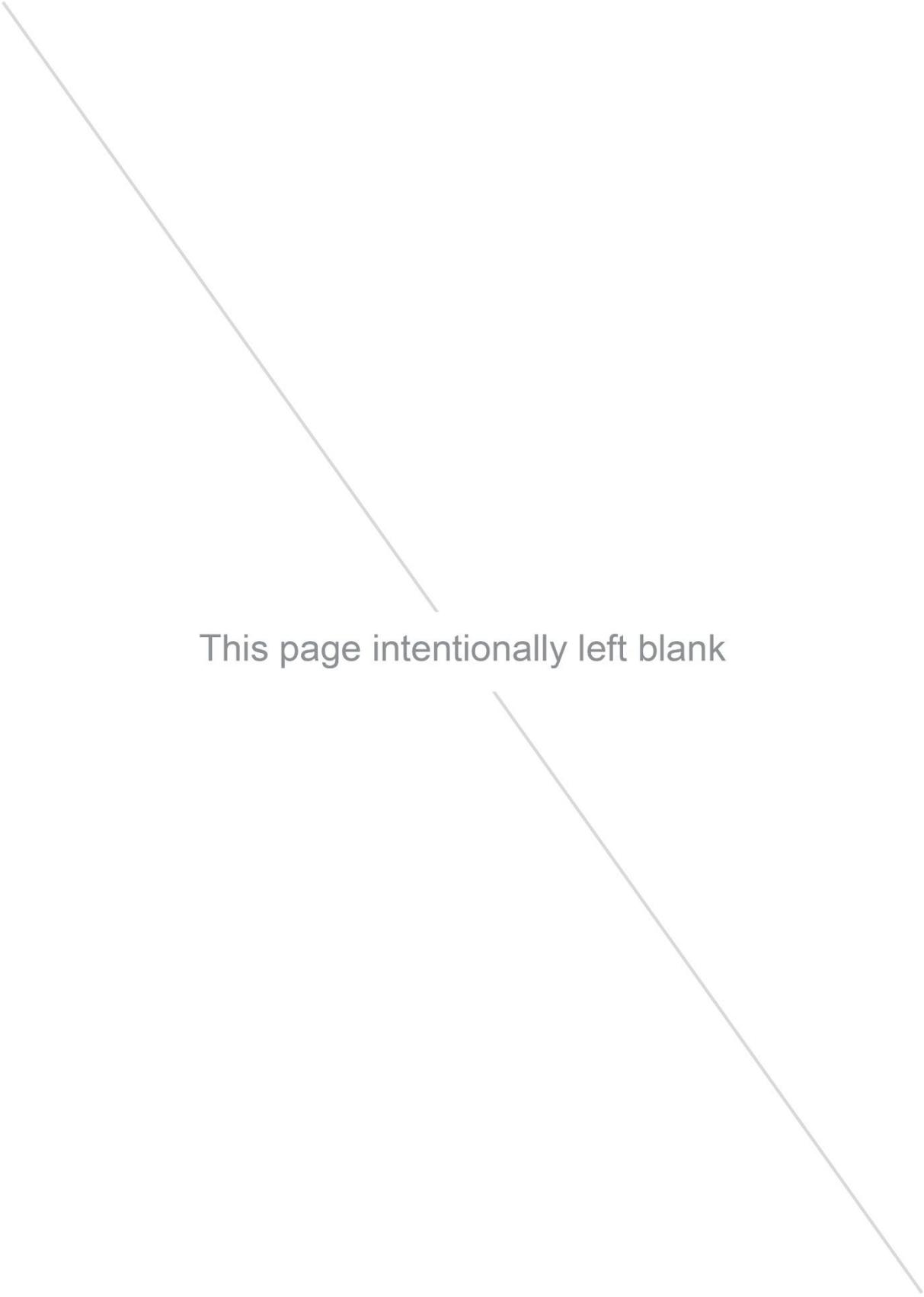


Solution:

1. Clear the error by pressing all three buttons (1-3) at the same time.
2. Wait for *10 seconds* after clearing the error, before turning the scanner on.
3. If the error persists, please contact your local distributor.



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