

User manual

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1. Introduction

We at Tec-Innovation GmbH are happy that you have chosen our InnoMake product. InnoMake is an intelligent obstacle detection system with which we want to provide greater walking safety and reduce barriers in the interaction with our environment.

For the unrestricted and safe use of InnoMake, it is important that you carefully read through this entire user manual and also follow the safety instructions.

The aim of this user manual is to help you get to know the InnoMake product and facilitate your first steps with the product.

Reading the user manual will help you to understand and use the full functionality of InnoMake. Keep this document so that you can refer to it and read up on product details in the future.

You can also have this user manual read aloud at any time with the aid of a reading programme on our website www.tec-innovation.com.

1.1. Trade name and identification

InnoMake

Serial number Attachment part 1: _____
Serial number Attachment part 2: _____



Tec-Innovation GmbH

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	1220 Vienna	WEB:	www.tec-innovation.com
	AUSTRIA		

1.2. Explanation of symbols

An understanding of the following symbols in the table below are important and helpful for this user manual and the labelling on the product.

Symbol	Description
	The symbol of an open book with the letter “i” for “Information” is our request to please observe and carefully read the user manual.
	The legal manufacturer of your InnoMake and their postal address is noted next to the symbol of a factory.
	Declaration of conformity in accordance with the applicable European guidelines
IP57	Protection rating against foreign objects and water: 5 = protected against dust 7 = protected against temporary submersion
SN	The letters “SN” describe the serial number of the attachment part.
	The symbol of a crossed-out wheelie bin concerns products, such as InnoMake I, that contain batteries and therefore must not be disposed of in normal household waste.
	Yellow framed text boxes with the lettering “NOTE” contain important notes regarding your use of InnoMake.
	Yellow framed exclamation marks highlight the relevance of the information following the symbol.

2. Product description

The InnoMake delivery includes:

- two attachment parts with ultrasonic sensors
- one battery charger with micro-USB connector
- Spacer
- User manual
- Braille flyer

A pair of shoes with built-in metal tracks is also included in the product scope, depending on your order. You will receive your shoes for InnoMake separately, they are not included in this package.

If you use a pair of shoes of your choice, tracks for adaption to InnoMake have been shipped to an orthopaedic shoe technician in your area.

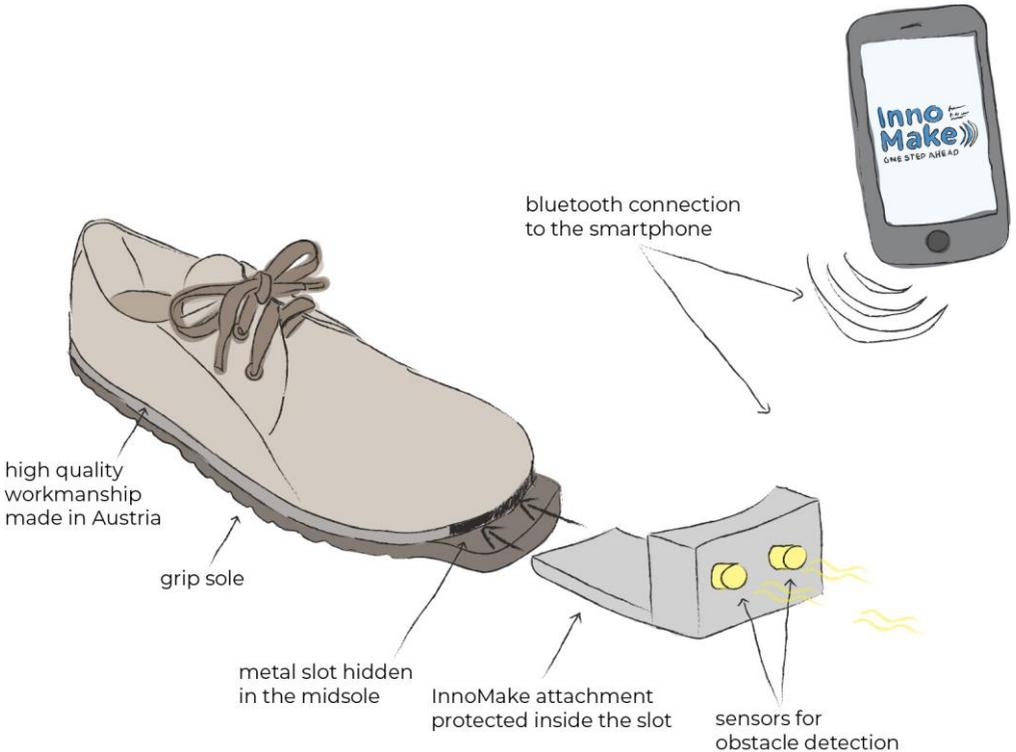
You can also use the InnoMake App as an accessory for your InnoMake to adjust the obstacle detection feedback to your preferences. The InnoMake App is available in the App Store for iPhones. The InnoMake App is not absolutely necessary for using InnoMake.

Information on the InnoMake App can be found in section 2.4 and in more detail in the App user manual and the QuickGuide on the InnoMake App.

You can have the App user manual and this user manual read aloud with the aid of a reading programme on our website www.tec-innovation.com. If required, we will also send you the App user manual in paper form to your door free of charge. Please contact us if you would prefer this option.

The above-mentioned product components are shown in connection with each other in the drawing below.

The drawing shows a shoe with a narrow midsole, the concealed compartment at the front of the shoe and the underlying profiled sole. An attachment part with the processing unit is shown in front of the shoe. The attachment part contains the two ultrasonic sensors facing forward and away from the shoe for obstacle detection in the walking direction. Radio waves between the attachment part and a smartphone present the possible use of the InnoMake App, which can be connected to the shoe via Bluetooth®.



2.1. Getting to know the product components

You can get to know your InnoMake below together with this user manual. Make sure that you have your corresponding shoes at hand and take the two attachment parts out of the packaging. Read the following description carefully to explore the product components.

Shoes with built-in metal tracks

If you hold one of the two shoes in your hand, you can feel the compartment for the attachment parts in front, at the front of the shoe. This compartment is integrated in the shoe midsole and results from an integrated metal track and gap above. The metal track protects the attachment part of your InnoMake during use. By adapting the shoe to InnoMake, the front of the shoe becomes a little longer because the metal track protrudes about 22 mm to accommodate the attachment parts. The compartment is protected from the ground by a profiled sole.

When InnoMake is in use, you will feel vibrational feedback of obstacle detection in the front area of the shoes equipped with the attachment parts. We tell you the distance to an object in your walking direction via the frequency of the vibration.

Information on the intended use and function will follow in section 3.

Attachment parts with ultrasonic sensors

Hold one of the two attachment parts in your hands. The units are completely identical, so it does not matter which one you examine more closely. The attachment parts have an L-shaped design, whereby a wider and bulkier part meets a flatter, thinner part at a right angle. The wider part contains the sensor system in your InnoMake, we call it the attachment. The thinner part is intended for insertion into your shoe compartment. The attachment part is inserted into the shoe in such a way that the attachment at the front of the shoe points upwards.

We will concentrate on the attachment in the following section. We designate the attachment surface where you can feel two notches as the 'front side' for joint orientation. The opposite attachment surface enclosed by the right angle is the 'back side'. The front side faces the walking direction during use and it is also recognisable by the fact that our company logo (a dot with three waves) is embossed in the area below the notches.

Sensors are installed in the two notches on the front side. These two sensors send and receive ultrasonic waves while your InnoMake is switched on. When your InnoMake is in use, the ultrasonic sensors point in your walking direction and detect obstacles in front of you.

An LED is integrated in the middle between the ultrasonic sensors. This can be activated on the attachment part and it improves your visibility, especially in the dark.

Activation of the LED is described in section 4.8.

Viewed from the front, there is a push button on the left side surface of the attachment. If you press this button, the built-in micro-USB socket cover will lift up on the opposite right side surface. You can only push the cover out of its fixing by pressing the push button. You can rotate the cover to the side and thus free the micro-USB socket in this pushed out state. The micro-USB socket for the insertion of a micro-USB connector is intended for charging the InnoMake together with the battery charger supplied by us.

Charging the InnoMake is described in section 4.2.

Three raised waves can be felt in the lower area on both side surfaces, i.e. below the USB socket and below the side push button. These waves make it easier to insert/remove the attachment part in/from the compartment. They give you more grip, especially when removing an attachment part. In order to avoid breaking the casing, do not pull the attachment part out with a grip on the top edge of the attachment.

Turn the attachment part by 180° and inspect the back side of the attachment. There is a push button in the top left corner of the back side, which you can use to switch your InnoMake on and off and control further functions.

The push button as a control element is described in more detail in section 2.2.

An LED is installed on the left next to the push button, which provides you with colour feedback on the battery status when the battery is charging. Of course, InnoMake also provides you with acoustic information on the battery charge level. Refer to [section 4.3](#).

Information on [application](#) will follow in [section 4](#).

Battery charger with micro-USB connector

The packaging of your InnoMake contains a battery charger with micro-USB connector that is intended for charging your InnoMake. The USB cable has a length of 1 metre. It should be kept out of the reach of children.

[Charging the battery](#) is described in [section 4.2](#).

2.2. Control elements and interfaces

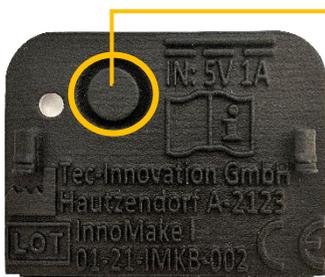
Your InnoMake has a **micro-USB port**. The micro-USB socket is located on one side of the attachment part, as described in section 2.1. The USB port is intended for charging InnoMake with the micro-USB connector supplied by us. Do not connect any other devices to your InnoMake.

[Charging the battery](#) is described in [section 4.2](#).

A **push button** is attached to the back of the attachment part as a control element. This push button can be used to

- switch your InnoMake on and off,
press: 1x long, see section 4.1
- choose between pre-set measurement ranges (1.5 or 4,0 metres),
press: 1x short, see section 4.6
- check the battery charge level,
press: 2x short, see section 4.3
- activate the LED for better visibility,
press: 3x short, see section 4.8

- activate the intelligent mode,
press: 4x short, see section 4.7



Push button
*on the back of
the attachment
part*

Your InnoMake is also equipped with **Bluetooth®** for connection to the InnoMake App (accessory).

Information on the [InnoMake App](#) can be found in [section 2.4](#) and in more detail in the [App user manual](#).

2.3. Product variants and shoe models

You can choose your favourite pair from a range of shoe models. The shoes from our partner Waldviertler Werkstätten GmbH are available in different colours and in shoe sizes EU 35 to EU 48 for equipment with our track system. The colour of the attachment parts can also be chosen when ordering and differ from the standard versions in grey or black, if required.

A list of our available shoe models and possible colour versions can be found on our website at www.tec-innovation.com/schuhmodelle/.

Would you like to have more than one pair of shoes on your shoe rack for use with your InnoMake?

Do you have a pair of your own shoes that you would like to have adapted for the use InnoMake?

Our InnoMake is also available as a product variant without a pair of shoes supplied by us.

You can always have a second (or third, etc.) pair of shoes adapted for the use of InnoMake. To this end, we work alongside our partner Waldviertler Werkstätten GmbH and together with selected orthopaedic shoemakers who can fulfil this wish for you. You can then easily insert the attachment parts from the right and left shoe into another pair and use the same settings adapted for you.

We will be happy to fit other shoe models with our track system. If you are interested or have any questions, please do not hesitate to contact your specialist retailer and visit our website for more information.

2.4. Accessory: InnoMake App

The InnoMake App is an accessory for the InnoMake product. Using the InnoMake App, you can individually adjust the range of obstacle detection and adjust the obstacle detection feedback to your preferences. Beyond vibration in the shoe, you can have acoustic obstacle detection feedback with the InnoMake App.

NOTE:

The use of InnoMake in connection with the InnoMake App assumes your adequate handling of a smartphone and the smartphone's reading programme, if required.

The InnoMake App is compatible with the iOS operating system and available to download free of charge in the App Store. The App is accessible with VoiceOver, the integrated Apple accessibility tool. The iOS accessibility tool VoiceOver can be activated in your iPhone's settings. In order to establish a connection between the InnoMake App and the processing unit in the attachment part, you must also activate the Bluetooth® function on your iPhone. The connection strength via Bluetooth® may vary depending on the version of your iPhone.

Please read the [user manual](#) or the [QuickGuide](#) for the [InnoMake App](#) for a detailed explanation of the App and its functions.

You can have the [App user manual](#) read aloud with the aid of a reading programme on our website www.tec-innovation.com. The [QuickGuide](#) starts automatically when you open the InnoMake App for the first time.

If you do not want any additional control of InnoMake via the InnoMake App, that is not a problem. The application is then based on the default settings of your InnoMake upon delivery.

3. Purpose and function

The medical purpose of InnoMake is to partially compensate for the restricted mobility resulting from visual impairment, especially from severe visual impairment or blindness. We want to support you in your mobility and enhance your perception of your immediate environment. InnoMake can be used for the early detection of obstacles in your walking direction in addition to an existing primary tool, e.g. a white cane. InnoMake is also suitable as a supplement to existing residual vision, as long as movement without a primary tool is fundamentally possible.

However, the use of InnoMake without a primary tool or existing residual vision is permissible in familiar surroundings (e.g. home environment, suitable workplace), as long as you feel confident enough to safely continue your journey if the InnoMake fails.

InnoMake detects obstacles by means of ultrasonic technology. The distance to objects between 0.3 metres and either 1.5 or 4.0 metres in the walking direction is calculated and provided as feedback. You can determine the measurement range of your InnoMake.

The calculation of the distance to objects in your walking direction is based on the reflection of ultrasonic waves and the measurement of their travel time. During use, the sensors in the attachment parts at the front of your shoes continuously send and receive ultrasonic waves. The calculated

distance from an object in the walking direction is communicated directly to you by a vibration in the shoe. The vibrational feedback varies in frequency in proportion to the measured object distance, i.e.

- the closer the object, the faster the vibrational feedback
- the further you are from an object, the slower the vibrational feedback.

If your InnoMake does not detect an obstacle within the set measurement range, there is no vibration. This will prevent you from receiving too much feedback from the shoe.

InnoMake is worn on the feet with the shoes associated with the product and it is equipped with a rechargeable battery.

Signal tones, e.g. regarding a low battery charge level, are provided as acoustic feedback by built-in piezo speakers in the InnoMake attachment parts.

You will find an [overview of InnoMake signals](#) in [section 4.11](#).



As a complementary mobility aid, InnoMake is not intended to replace your primary tool, e.g. your white cane or your guide dog. Furthermore, it cannot compensate for vision in terms of restoration.

InnoMake must only be used in the manner described here to compensate for the restricted mobility resulting from visual impairment, especially from severe visual impairment or blindness.

The use of your InnoMake to deliberately disturb creatures that can hear ultrasonic frequencies and/or are sensitive to light is not permissible.

3.1. Intended users

InnoMake is intended for use by people with impaired vision, especially people with severe visual impairment and blind people who are able to stand and walk independently.

Since, on the one hand, you operate the InnoMake product as a user and, on the other hand, you experience the medical benefit of the product, you are a patient and operator at the same time in medical technology language.

Therefore, as a user, you must meet the physical and mental requirements to operate your InnoMake and perceive acoustic signals and mechanical vibrations. Please note that vibrations may have negative effects on health in case of certain diseases of the nervous system. If you suffer from a disease of the nervous system or a similar disease, please consult your physician before using InnoMake.

InnoMake users do not require formal education in the relevant area of health care or a specialist medical area.

InnoMake is intended exclusively for use by one user. The transfer of InnoMake to other persons is not permissible.

3.2. Area of application and environmental conditions

InnoMake is suitable for daily use indoors and outdoors.

However, the use of InnoMake without a primary tool or existing residual vision is only permissible in familiar surroundings (e.g. home environment, suitable workplace), where you feel confident enough to safely continue your journey if the InnoMake fails.

We must draw your attention to some application restrictions for InnoMake due to the protrusion of the attachment parts at the front of the shoe as well as indoor and outdoor application.

The product is not intended for practicing sports or extraordinary activities, e.g. extreme sports.

There are also application restrictions in case of extreme natural influences, such as e.g. flooding, fire, hail or temperatures above 40°C and below -5°C, as well as hazardous environments, such as e.g. in constructions sites or workshops.

The detailed permissible environmental conditions can be found in the technical data in section 7.



InnoMake does not detect holes in the ground and steps going downwards. It only detects objects rising from the ground.

4. Application

4.1. Switching on / off and operational state

Switching on

In order to switch an attachment part on, hold the push button on the back of the attachment part for at least 2 seconds. An ascending audio signal indicates when the attachment part is switched on. There is a continuous vibration in the shoe during the audio signal. In order to avoid damaging the casing, do not use too much force when pressing the push button.

Both attachment parts must be switched on separately.

Operational state

The operational state of InnoMake is indicated by a single signal tone that sounds about one second after the ascending 'switching on' audio signal.

You can also recognise the operational state by the fact that you can change the distance measurement range by briefly pressing the push button on the back of the attachment part. Signal tones will sound when this setting is changed, but in a different pitch.

The default measurement range setting upon delivery is 1.5 metres.

Information on changing the measurement range can be found in section 4.6.

Switching off

In order to switch an attachment part off, hold the push button on the back of the attachment part for at least 2 seconds. A descending audio signal indicates when the attachment part is switched off. There is a continuous vibration in the shoe during the audio signal. In order to avoid damaging the casing, do not use too much force when pressing the push button.

Both attachment parts must be switched off separately.

4.2. Charging the battery

In order to charge your InnoMake, remove the attachment parts to be charged from your shoe or take the attachment parts out of the product packaging in case of first time use.

You can charge the attachment parts one after the other with the battery charger.

The obstacle detection of the charging attachment part is deactivated while the battery is charging. The battery charging time is approx. 2.5 hours.

As described in section 2.1 on getting to know the product components, viewed from the front, there is a push button on the left side surface of the attachment parts.

Press this side button to push the cover of the micro-USB socket on the opposite side surface out of its fixing. Rotate the pushed-out cover to the side in order to free the micro-USB socket.

Use the battery charger with micro-USB connector supplied by us to charge the battery. You will feel an embossment directly on one side of the micro-USB connector itself, this is the international USB symbol. Make sure that this tactile symbol is pointing in the direction of the push button on the attachment part, i.e. against the viewing direction of the InnoMake, when

inserting into the micro-USB socket. Then connect the power supply unit of the battery charger to a voltage source (220-230V).

NOTE:

Only use the battery charger included in the product scope to charge the battery in your InnoMake because the power supply unit meets the safety standard required for medical devices.

- The LED, which is located on the back of the attachment part directly next to the push button, will light up solid red while the battery is charging.
- The battery is fully charged when the colour of the LED changes from red to blue.
- Of course, you can also have the battery charge level indicated acoustically by pressing the push button twice during the charging process. (See the following point 4.3.)

Once you have charged the battery in an attachment part, disconnect the USB cable. Close the micro-USB socket again with the cover rotated to the side. All you have to do is press the button on the opposite side surface to lift the cover in order to rotate it back over the micro-USB socket. The cover protects the micro-USB socket against foreign objects.

Repeat the charging process for the second attachment part.

4.3. Checking the battery charge level

You can have the battery charge level of the battery in an attachment part indicated as an audio signal. Use the push button on the back of the attachment part and press it twice in quick succession. In order to avoid damaging the casing, do not use too much force when pressing the push button.

Four successive tones indicate the battery charge level of the battery.

High tones indicate the charged battery capacity, low tones indicate discharged battery capacity.

The following table describes the five possible tone signals:

Tone signal	Battery charge level
4x low	0% to 7 % charged
1 x high / 3 x low	8% to 25% charged
2 x high / 2 x low	26% to 50% charged
3 x high / 1 x low	51% to 75% charged
4 x high	76% to 100% charged

Example: If you hear a high tone followed by three low tones, you know that the remaining battery charge level is less than 26 %.

The battery charge level can be checked in the switched on state.

4.4. Prepare shoes and attachment parts

Before using your InnoMake, please ensure that the attachment parts are charged and switched on (see sections 4.1 and 4.2).

Check both attachment parts and the compartments for dirt and clean, if necessary, before recommissioning.

The cleaning of InnoMake is described in section 6.2.

The ultrasonic sensors on the front sides of the attachment parts must not be covered by protective foil or the like.

You push both attachment parts into the provided compartments in your shoes adapted to InnoMake for the application. Since the attachment parts are identical, it does not matter which attachment part you insert into which shoe. Both attachment parts fit in both your left and right shoe. A latching mechanism in the shoe lets you feel when the attachment part is engaged in the compartment.

When using the InnoMake App, please follow the instructions in the App user manual because the attachment parts are assigned to “left” and “right” in the App.

4.5. Your first steps

If you are using your InnoMake for the first time, familiarise yourself with the InnoMake functions in a known environment first.

Example:

Stand facing an obstacle in your walking direction, e.g. a wall. Now slowly rotate yourself and your feet sideways on your own axis. You will notice that the vibration becomes less with the rotary movement and stops when your feet are no longer pointing in the direction of the obstacle. In the same way, you can also familiarise yourself with the detection of obstacles, e.g. objects lying on the ground indoors or e.g. pavement curbs outdoors.

Please note that the shoes for your InnoMake are extended by 22 mm at the front of the shoe. This can increase the risk of tripping, e.g. when walking up stairs.

You move around in a familiar way while using InnoMake. This means that if you have used a primary tool, e.g. a white cane, up to now, you will also continue to use this primary tool.

NOTE:

You must not neglect the proper use your primary tool when using InnoMake.

4.6. Changing the measurement range

Since we are all on the move in different and changing environments, you have the possibility of changing the measurement range of your InnoMake for each attachment part separately and adjusting for your use.

The distance to objects can be provided as feedback between 0.3 and 1.5 metres or between 0.3 and 4.0 metres.

You can change between the measurement ranges with the push button on the back of the attachment part in the operational state.

A short press of the button is enough to change the measurement range.

Your setting adjustment will be confirmed as follows:

- 2 identical, short tones indicate a measurement range of 1.5 metres
- 3 identical, short tones indicate a measurement range of 4.0 metres.

You can switch between the measurement ranges as many times as you like. In order to avoid damaging the casing, do not use too much force when pressing the push button.

NOTE:

Stand still while adjusting the settings. Settings must not be adjusted while walking and using the product.

The default setting of your InnoMake covers a measurement range of 1.5 metres on first use. Your InnoMake will keep your chosen measurement range, even after interruption of the application. The setting chosen before switching off will remain unchanged when switching on again.

Always wear the shoes with your InnoMake the right way round, i.e. the right shoe on the right foot and the left shoe on the left foot. Since you can set the measurement range for each shoe separately, it could cause unexpected vibrational feedback if you wear the shoes the wrong way round.

4.7. Activate intelligent mode

The InnoMake attachment parts are equipped with an intelligent mode that you can activate at any time. When intelligent mode is activated, an attachment part detects when the respective shoe is in a resting position. Should the shoe with the attachment part be in a resting position for 3 seconds, the attachment part will switch to sleep mode and stop providing instant feedback.

You can activate intelligent mode by pressing the push button on the back of the attachment part. In order to avoid damaging the casing, do not use too much force when pressing the push button.

In order to activate or deactivate intelligent mode, press the push button 4 times in quick succession. Your setting adjustment will be confirmed as follows:

- 2 long, low tones followed by 1 short, high tone indicate that intelligent mode is activated
- 2 long tones followed by 1 short tone in the same pitch indicate that intelligent mode is deactivated

4.8. Activate LED

The LED on the front side of the attachment parts is located between the two ultrasonic sensors. If you have activated the LED, it will always light up when your shoe is in a resting position. Your shoe is in a resting position when you are standing or walking and your foot is fully on the ground. This improves visibility, especially in the dark, because a flashing effect is created while walking.

Please note that when intelligent mode is activated, the LED is also always automatically deactivated if obstacle detection is paused.

Information on intelligent mode can be found in section 4.7.

You can activate the LED by pressing the push button on the back of the attachment part. In order to avoid damaging the casing, do not use too much force when pressing the push button.

In order to activate or deactivate the LED, press the push button 3 times in quick succession. Your setting adjustment will be confirmed as follows:

- 1 long, low tone followed by 1 short, higher tone indicates that the LED is activated
- 1 long tone followed by 1 short tone in the same pitch indicates that the LED is deactivated

4.9. After use

If you have stopped using your InnoMake, switch both attachment parts on the shoes off.

In order to switch off, you can leave the attachment parts inserted in your shoes or remove them from the compartments in your shoes first. Go ahead and find out what works best for you.

When removing an attachment part, pay attention to the raised waves on the side surfaces. In order to avoid breaking the casing, do not pull the attachment part out with a grip on the top edge of the attachment.

The following questions will help you prepare your InnoMake after use and before the next use:

- Are both attachment parts switched off?
See: Switching off in section 4.1
- Are the attachment parts or the shoe compartments dirty after use?
See: Cleaning in section 6.2
- Are the attachment parts wet?

See: Measures in case of environmental influences in section 5.2

- Are the attachment part batteries charged?

See: Charging the battery in section 4.2

4.10. Attachment part warning tones

Your attachment parts emit certain warning tones in two situations.

1st warning tone:

If you do not charge the battery in an attachment part for a long period of time, it can occur that the battery runs empty while in use. If this occurs, you will be informed shortly before the battery runs empty and the system is switched off by three identical tones. There will be a continuous vibration in the shoe at the same time as the acoustic warning signal. There will be a descending audio signal, just like when switching InnoMake off.

We recommend charging the attachment parts, i.e. preparing for the next use, after every use.

Charging the battery is described in section 4.2.

2nd warning tone:

Should an attachment part overheat, e.g. due to high environmental temperatures, the electronics in the corresponding attachment part will be automatically deactivated as a protective measure. The overheating of the battery can also result in high power consumption.

In order to inform you about the increasing heat generation so that you are not surprised by the system switching off independently, an acoustic signal will be emitted shortly before the automatic deactivation.

A tone sequence of alternating high and low tones, similar to a siren, will sound in the described situation. There will be a continuous vibration in the shoe at the same time as the acoustic warning signal. There will be a descending audio signal, just like when switching InnoMake off.

In this case, we recommend taking the shoes off and allowing the product to cool down before touching the attachment parts.

Other safety instructions and measures can be found in section 5.

4.11. Overview of InnoMake signals

The signals listed in the following table are only emitted in the switched-on and active InnoMake state.

Event	Button press	Audio signal	LED signal	See section
Switch on	1x long	3 ascending tones		4.1
Switch off	1x long	3 descending tones		
Operational state		1 single tone (following “Switch on”)		
1.5 metre measurement range set	1x short	2 identical, short tones		4.6
4.0 metre measurement range set	1x short	3 identical, short tones		
Battery charging			Red LED (back side)	4.2
Battery charged			Blue LED (back side)	4.2
Charge level: 0% – 7%	2x short	4x low		4.3
Charge level: 8% – 25%	2x short	1x high, 3x low		4.3
Charge level: 26% – 50%		2x high, 2x low		
Charge level: 51% – 75%		3x high, 1x low		

Event	Button press	Audio signal	LED signal	See section
Charge level: 76% – 100%		4x high		
Activate LED	3x short	1x long / low, 1x short / high		4.8
Deactivate LED		1x long, 1x short		
Activate intelligent mode	4x short	2x long / low, 1x short / high		4.7
Deactivate intelligent mode		2x long, 1x short	White LED (front side)	
Battery empty (1st warning tone)		3 identical tones, then 3 descending tones (like “Switch off”)		4.10
Attachment part has overheated (2nd warning tone)		2 alternating tones (siren), then 3 descending tones (like “Switch off”)		

In addition to the acoustic feedback, your setting adjustments and battery level checks are also provided as feedback through vibrations in the shoe. The duration and intensity of the vibrations are aligned with the respective audio signals.

5. Safety instructions

- InnoMake may only be used in the context of its intended purpose as support for safe and personal movement. The use of feedback is also intended exclusively for the perception of distance measurement in the context of the intended purpose.
- The non-manipulated delivery state of InnoMake is a prerequisite for the intended use. Any change or manipulation of InnoMake is not permitted.

- The compartments in the shoes adapted for InnoMake are exclusively intended for the insertion of InnoMake attachment parts.
- In order to prevent the contamination of the compartments, do not use your InnoMake shoes without the correctly inserted attachment parts.
- Make sure that your InnoMake does not come into contact with acidic liquids.
- The audio signals may be too quiet in case of loud background noise. Pay more attention to the vibrational signals from your InnoMake in this situation.
- If you notice unusual heat generation in the shoe, please take them off immediately.
- As soon as you can no longer perceive the feedback from your InnoMake, please do not rely on it any further and take advantage of external help.
- The failure to comply with alarms can result in physical injuries or material damage if you ignore obstacles, especially in case of the attachment part overheating.
- Do not dry your InnoMake with hot air, e.g. a hairdryer, but allow it to air dry at room temperature.

NOTE:

In case of an abrupt change of environment, e.g. on a path through a construction site with extremely uneven ground, functional impairments or unreliable feedback may occur.

5.1. Information and measures in case of product (mal)functions

We would like to take this opportunity to give you a few tips on to react to possible InnoMake (mal)functions.

Malfunctions	Possible causes	Necessary action
An obstacle is not detected	Dirt on the sensors	Clean your InnoMake, see section 6.2
	Obstacle is not in the measurement range between 0.3 and 4.0 metres	Approach or move away from an obstacle in the walking direction to bring it into the measurement range and get feedback
	Material or shape of an object can cause unfavourable ultrasonic reflections so that it is not detected as an obstacle	Ensure the proper use of your primary tool while using InnoMake
	Ultrasonic sensors are covered by clothing	Do not wear clothing that impairs the vibrational feedback or object detection
	Obstacle lies centrally between the ultrasonic beams	Ensure the proper use of your primary tool while using InnoMake
	Vibrational feedback cannot be perceived	Do not wear unsuitable clothing, such as thick stockings or poorly-fitting shoes
An obstacle is incorrectly detected	In case of larger measurement ranges, objects to the side of the selected walking direction may be detected because the measurement range of the ultrasonic sensors widens conically in the distance	Limit the measurement range of your InnoMake to 1.5 metres to reduce the width of the ultrasonic beam
	Your additionally used white cane is detected as an obstacle because it is bent	Do not use a bent white cane in combination with your InnoMake
	Your additionally used white cane is detected as an obstacle because you are holding it at a steep angle in front of you	Hold your white cane at a flatter angle, your InnoMake can filter its reflected ultrasonic waves from the other reflections this way
	Foreign objects on the sensor	Remove the foreign objects

Malfunctions	Possible causes	Necessary action
	Nearby sources of interference in the same frequency range of the ultrasonic sensors, e.g. a jingling keychain, other ultrasonic sensors	Switch off and on again and wait for operational state
An obstacle is detected too late	The measurement range was adjusted immediately before detecting the obstacle	Stand still while adjusting the settings
Complete loss of function and deactivation of InnoMake	Attachment part overheated	Take the shoes off and let the InnoMake cool down before touching it again, meanwhile avoid skin contact
	Battery empty	Charge the battery
	Sources of electrical or (electro)magnetic disturbances cause the system to fail	Switch your InnoMake on again, your InnoMake settings and functions will remain unchanged
No warning tone before automatic deactivation	Software error	Contact your retailer
No LED feedback when charging the battery	Attachment part possibly overheated, charging was ended automatically	Let the InnoMake cool down before touching it again; meanwhile avoid skin contact; charge InnoMake in a cooled down state
Operational state is not restored	Software error	Switch off and on again, charge the battery beforehand if necessary

NOTE:

Should your InnoMake behave in a way that you cannot understand or if there are lasting, unexpected malfunctions, please contact your retailer.

5.2. Information and measures in case of environmental influences

This section provides you with information in connection with external influences or environmental conditions that you may encounter when using your InnoMake.

Temperature

- Since the attachment part electronics are equipped with overheating protection, it may happen that an attachment part switches itself off due to high environmental temperatures (see section 4.10). This not only protects you, but also the attachment part battery.
- Protect your InnoMake against direct sunlight during storage and transportation.
- The detailed permissible temperature ranges of the environmental conditions can be found in the [technical data](#) in [section 7](#).

Humidity

- Extreme influences of nature, such as downpours and muddy surfaces can result in functional impairments.
- Your InnoMake is not protected against salt water. However, should your InnoMake come into contact with salt water, use a damp cloth to clean the attachment parts of your InnoMake.
- Dry your InnoMake with a cloth if it is wet after use. Remove the attachment parts from the shoe compartments and let them air dry completely. In addition, please open the USB socket cover and place the attachment parts on their left side with the open USB socket at the bottom. This will drain any accumulated water out of the watertight USB socket and dry it.

If the attachment parts of your InnoMake do not switch on after contact with water or other liquids, or if a continuous vibration is emitted after switching on, make sure to contact your retailer and stop using your InnoMake. The protection against temporary submersion might not be able to be maintained due to external damage to the casing.

If devices in your home environment cause malfunctions and functional failures, please switch your InnoMake off and on again. Resetting the system should restore the full functionality of your InnoMake in these cases.

The switching on and off of InnoMake is described in section 4.1.

Listed below are examples of potential influences in the home environment which, among other things, can cause your InnoMake to not measure distances to obstacles.

Electrical and electromagnetic external influences

Devices with wireless modules such as:

- Wi-Fi router,
- Wi-Fi amplifier,
- Other devices with Bluetooth connections

Exposure to magnetic fields

- Transformers (except low voltages, e.g. transformers in HiFi systems)
- Devices with inductive charging, e.g. electric toothbrushes
- Devices with electric motors, e.g. vacuum cleaners

Sources of disturbance in the same frequency band

- Other ultrasonic sensors
- Jingling or high pitched tones, e.g. moving keychain

6. Handling

6.1. Storage and transportation

Ensure the dry, dust-free storage and transportation of your InnoMake. Protect your InnoMake against direct sunlight and vermin during storage and transportation and do not expose the product components to extreme heat or fire. For example, keep your InnoMake away from heating systems, ovens or radiators.

The detailed permissible environmental conditions can be found in the [technical data](#) in [section 7](#).

Keep your InnoMake and the USB charging cable out of the reach of small children < 3 years. There is a risk of strangulation due to the length of the USB cable of 1 metre.

If you return your InnoMake to your retailer or us, the product packaging which was used to deliver your InnoMake is suitable for the return.

6.2. Cleaning and disposal

Cleaning

We recommend regularly cleaning the attachment parts to increase the longevity of your InnoMake.

In particular, you should regularly remove dirt particles and dust from the two ultrasonic sensors at the front of the attachment and the USB socket including the push button mechanism of the cover. If your attachment parts get dirty, this can cause the functional impairment of the specified product features.

In case of dirt in the area of the ultrasonic sensors, we recommend cleaning with a soft standard brush. In order to prevent damage to the electronics when using the brush, make sure that you do not use too much force during the cleaning process.

You can remove heavy soiling, e.g. dried soil, with a damp cloth. A lint-free cloth is suitable for less persistent dirt and drying the attachment parts. Let your InnoMake air dry fully after drying and remove the attachment parts from the shoes.

Do not use brushes or other cleaning utensils that could damage the surface of your InnoMake. Do not clean the attachment parts of your InnoMake while charging the battery.

Contact your retailer in case of heavy, non-removable dirt.

NOTE:

Dirt in the area of the ultrasonic sensors will impair your InnoMake's obstacle detection.

Disposal

The symbol of a crossed-out wheelie bin concerns your InnoMake because the attachment parts contain batteries must not be disposed of in normal household waste.



We therefore ask you to only dispose of the attachment parts of your InnoMake at designated collection points. Please refer to the information on disposal in the official, state and local regulations regarding return and collection policies.

7. Technical data

This section contains a table concerning InnoMake's technical data, the environmental conditions, the built-in battery and the InnoMake App.

Product	
Model	InnoMake v.1
Year of manufacture	2021
Medical device	Class 1
Hardware version number	IMK1v4 (as of 20.07.2020)
Firmware version number	IMK-1.0.0 (as of 20.07.2020)
Accessory	InnoMake App
Measurement method	Ultrasonic waves
Measurement range	0.3 – 4.0 metres
Measurement accuracy	± 5%

Interfaces	Micro-USB, Bluetooth®
Range of the InnoMake Bluetooth connection to the InnoMake App	Max. 15 metres depending on terminal
Bluetooth: Frequency band	2.402 - 2.480 GHz
Bluetooth: Transmission power	RF TX Power: 0 dBm
Protection rating	IP 57
Environmental conditions	
Operation	-5°C to +40°C, 15% to 93% relative humidity, non-condensing
Battery charging	-5°C to +35°C
Storage and transportation without packaging	0°C to +65°C
Battery information	
Power supply	2-cell lithium polymer battery (rechargeable)
Design capacity	2 x 450 mAh
Nominal voltage	3.7 V
Charging cycles (charging and discharging cycles) after which at least 80% of the original battery capacity is still available	500
Battery charging time	Approx. 2.5 hours
InnoMake behaviour during the charging process	The InnoMake function is reduced to providing the battery charge level.
InnoMake operating time with a new, fully charged battery at room temperature	Approx. 9.5 hours at full system load
Date of manufacture of the battery	2017-06-03
InnoMake App	
Software version number	1.5 (as of 20.07.2020)

Supported operating system	iOS 10.0 and later (as of 20.07.2020)
Download	App Store

If you still have further questions about your InnoMake and the range of functions after reviewing the user manual, please contact your retailer or us for support.

8. Legal information

CE conformity

Thanks to the CE mark on your InnoMake, you can be assured that we meet the requirements of

- Directive 93/42/EEC (Medical Device Directive)
- Directive 2014/53/EU (Radio Equipment Directive)
- Directive 2011/65/EU (Restriction of Hazardous Substances Directive)

InnoMake is a class 1 medical device.

We at Tec-Innovation GmbH have therefore drawn up the declaration of conformity under our sole responsibility pursuant to Annex VII of the Medical Device Directive.

Reporting of incidents

Due to legal requirements as it is a medical device, we must make you aware that all any serious incidents that have occurred in connection with the product must be reported to the manufacturer, i.e. us at Tec-Innovation GmbH as well as the competent authority.

The term “serious” includes:

- the death of a user,
- a life-threatening illness,
- permanent impairment to bodily function or permanent damage,

- medical or surgical intervention to prevent the three consequences above.

9. Closing remarks

We hope you enjoy your reliable InnoMake and enjoy greater safety and comfort on your journeys.