Head Impact Tracker Sensor User Manual

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USER MANUAL

User Manual for ACT Head Impact Tracker head sensor and ACT Head Impact Tracker head sensor Pro

Contents

Head Impact Tracker Sensor

Because you should know and protect your assets.
Congratulations for making a great choice and becoming the owner of ACT Head Impact Tracker!
ACT Head Impact Tracker is designed to help you get more information on the impacts and forces acting on your head and give you means to track them.
Read this User Manual, packaging texts, warnings and safety information carefully before using the product for the first time.
Save the original purchasing receipt, packaging and this User Manual for possible later use.

PRODUCT AND SERVICE DESCRIPTION

1. ACT Head Impact Tracker head sensor and ACT Head Impact Tracker head sensor Pro measure impacts and forces acting on the head by linear acceleration and deceleration (g-force). When ACT Head Impact Tracker head sensor or head sensor Pro detect an event with linear forces 10g or above, information is sent to ACT Head Impact Tracker smartphone mobile App, from there to the cloud, and back to the relevant User Accounts where event information becomes visible in the App and in browser access tools. ACT Head Impact Tracker Pro head sensor also measures angular forces relating to the events with 10g or above acting in them. Angular forces are communicated with angular velocity (rad/s).
2. ACT Head Impact Tracker smartphone mobile App is required to operate ACT Head Impact Tracker head sensor and ACT Head Impact Tracker head sensor Pro, and to communicate with the Cloud. With the App you can create and manage User Account(s) and Profile(s), add an ACT Head Impact Tracker sensor(s) on your Profile(s) and operate it, view and receive impact and event information, share your Profile(s) Impact information with other Users,
   (COMING LATER: subscribe to Service features and functionalities, activate and manage Services). ACT Head

Impact Tracker smartphone mobile App can be downloaded for free.

The basic features are free to use, but the App will later also contain in-App purchases when new additional services, features and functionalities are made available for subscription.

(COMING LATER: You can manage subscriptions in the App (Menu > Subscriptions)).

Visit our website **www.act-tracker.com** or application store for more information.

3. You can access all the data (much more than those featuring in the App) and more features on your User Account also via Browser Access. Access there by clicking “Browser Access” (in Users column) in the bottom of our web page **www.act-tracker.com**. See more information regarding in Help FAQ in **www.acttracker.com**.
4. Compatibility with all smartphone brands and models cannot be guaranteed. Please check updating compatibility listing with different mobile phone brands and models in our Help FAQ (**www.act-tracker.com**).

   IMPORTANT USAGE INFORMATION!

   If your mobile device is not automatically connecting with the sensors (i.e. an event occurs, you are in Bluetooth® Wireless connection’s reach, but information is not appearing to the App) try with Active scanning. Depending on your mobile device, you might need to always use Active scanning to connect with the sensors.

   Active Scan works like this:

   1.) Click “Menu” (3 bars on the left upper hand corner) > Click “Start active scan” > text turns to say “Stop active scan” = Active scanning is on until you switch it off. Stop Active scanning by clicking on text “Stop active scan”.

   2.) When the text says “Start active scan” = Active scanning is off.

   3.) If needed, always use active scanning when you want to connect to the sensors.

   4.) If Active Scan is on, but event information is not received, try switching Active scanning off and turning it back on again.
5. ACT Head Impact Tracker Cloud is where data is analyzed, stored and actions mostly take place in. That’s why you need data transfer (mobile data of Wi-Fi connection) to receive information in near-real-time.

IMPORTANT USAGE INFORMATION! When you have downloaded the App on your mobile device, your ACT Head Impact Tracker App is part of the system where information flow from the head sensors to the cloud takes place. Use of mobile data on your mobile device with the application may occur at any time when ACT Head Impact Tracker head sensors are used in Bluetooth® Wireless connection’s reach.
If you do not want to be part of the system, close ACT Head Impact Tracker App and turn off Bluetooth® Wireless connection or mobile data connection in your mobile device.

WARNING!

ACT Head Impact Tracker is a measuring device. ACT Head Impact Tracker products or services are not medical devices and do not provide medical advice, any kind of diagnostics or treatment suggestions for any health problem. ACT Head Impact Tracker products or services, any content or information therein, is not to be used in place of consultation of licensed medical professional. In case of a head impact, or when suspecting one or a concussion, immediately and safely leave the activity and seek help from licensed medical professionals. It is advisable to have an accompanying person if concussion is possible. In case of an emergency, call an ambulance. If you have been given medical advice by a licensed medical professional, always follow that advice despite any information or content in or from ACT Head Impact Tracker.
Northern Sports Insight and Intelligence Oy or ACT Head Impact Tracker products or services are not health care specialists, and neither is communication between you and us or ACT Head Impact Tracker forming any kind of doctor – patient relationship.

WARNING!

ACT Head Impact Tracker products or services are not protective devices.
They do not prevent incidents from happening and they do not protect against injuries or any kind.

QUICK START GUIDE

1. Buy CR2032 coin cell battery (not included).

2. Download ACT Head Impact Tracker smartphone mobile App on your smartphone. Please note: The App's compatibility with all and every smartphone brand and model has not been tested and cannot be guaranteed. There are brands and models which are not compatible with the ACT Head Impact Tracker. Frequently updating list of brands and models tested can be found in FAQ (**www.act-tracker.com**). If your mobile device is not automatically connecting with the sensors (i.e. an event occurs, you are in Bluetooth® Wireless connection's reach, but information is not appearing to the App) try with Active scanning. Depending on your mobile device, you might need to always use Active scanning to connect with the sensors. Active Scan works like this: 1.) Click "Menu" (3 bars on the left upper hand corner) > Click "Start active scan" > text turns to say "Stop active scan" = Active scanning is on until you switch it off. Stop Active scanning by clicking on text "Stop active scan".
   2.) When the text says "Start active scan" = Active scanning is off.
   3.) If needed, always use active scanning when you want to connect to the sensors.
   4.) If Active Scan is on, but event information is not received, try switching Active scanning off and turning it back on again.
3. Create a User Account in the App. Your email will act as a User-ID. Make sure to store your password somewhere safe, it cannot be reset.
4. Create a Profile in your User Account to which you want to add the head sensor to. Click "Add profile" and follow the App's instructions in creating the Profile.
   Please note: You cannot remove or change the Profile once created.
5. Give App permission to use Location, and "Specific Location" if needed. "Specific location" can be found for example in "General Settings" > Applications > ACT Head Impact Tracker > Permissions > Location > If you find here "Use specific location", it must be on and active. You also may have to give App permission to use "Nearby devices" when applicable.
6. Bluetooth® wireless connection must be enabled, on and active in your smartphone with the App always when using it with the sensor(s) and want to get the data in near-real-time.
7. Ensure mobile data and roaming (if needed) are enabled, on and active in your mobile device for the App and always when using it with the head sensor, or that you are connected to Wi-Fi.
8. Remove the head sensor from its package. Open the hatch. Insert the battery to the sensor via hatch on the short side (see illustrated instructions in the end of this document).
9. Locate the head sensor's Serial number also acting as Registration code, which is on the product label underneath the battery hatch. Open the hatch and you will find the white sticker on the lid. Registration code is a 6-digit code on the product label.
10. Close the hatch by pressing all sides firmly together to seal the locks. Make sure the sides are seamlessly connected with each other before usage.
    Please note: Inserting the battery may turn the sensor on, but some components might not turn on. Before usage, switch the sensor off and back on.
11. Turn the head sensor on by pressing the on/off-button once slowly and firmly. The sensor is on when the small red LED light next to the button starts to blink in slow frequency. If the light blinks in high frequency (in fast pace), the battery is almost empty. Change the battery or ACT Head Impact Tracker might not work as intended. If the light does not come on at all or the light comes on, but it is not blinking, try with new battery. If the light still is not coming on at all, or the light comes on, but it is not blinking, the head sensor is not working as it is supposed to and should be replaced.
12. When the sensor is on, choose the Profile you want to add the sensor to and click on it. Click then green button next to "Sensors", and then the "Add Sensor" button.

The App has found the sensor when it says: “Found 1 sensor”. Click “Continue”.

The App is connected to the sensor when it shows “Connected to 1/1 sensors”. Add the Registration code to the line under the text. Click “Continue”. If the App cannot find any sensor, switch the sensor off and back on, and try again. If the App finds more than one sensor, switch off all the other sensors than the one you want to register and try again.

Please note: You can register the head sensor only once, and to one Profile only. It is not possible to remove or change the head sensor to another Profile once registered.

13. Follow Apps instructions to complete sensor registration. Please note: you cannot change sensor’s information once registered.
14. When data filling is completed, the App will confirm “Registration is successful”. This means your ACT Head Impact Tracker is ready for action.
15. In the end of each session of use, make sure to switch off the sensor by pressing on/off-button slowly and firmly twice. Wait for one long LED light blink to indicate the sensor is switched off.

    Doing this will prevent impacts from handling and transportation to be recorded to your impact history. It will also save energy and prolong your battery lifetime.

See pictures in the end of this manual for more detailed instructions.

IMPORTANT USAGE INFORMATION

- Give App permission to use Location, and “Specific Location” if needed. “Specific location” can be found for example in “General Settings” > Applications > ACT Head Impact Tracker > Permissions > Location > If you find here “Use specific location”, it must be on and active. You also may have to give App permission to use “Nearby devices” when applicable.
- Bluetooth® wireless connection must be enabled on your mobile device for ACT Head Impact Tracker smartphone mobile App and always when using with the sensor(s) and want to get data in near-real-time
- Ensure you have a valid SIM-card or e-SIM, mobile data, and roaming (if needed) enabled, on and active, or that you are connected to Wi-Fi, in your mobile device with ACT Head Impact Tracker smartphone mobile App always when using the head sensor. Otherwise, ACT Head Impact Tracker will not function as intended.
- Be aware of the reach limitations in data transfers between the sensor and the mobile device with ACT Head Impact Tracker smartphone mobile App. In case of an incident, keep the distance between the sensor and the mobile device with the App as short as possible (the reach could be even less than 10 meters), or ACT Head Impact Tracker might not function as intended. Data transfer reach may vary significantly depending on, but not limited to place of use, weather, smartphone model and brand, buildings and obstacles on the signal’s route. In case of an incident, place the smartphone as close to the head sensor as possible.
- When using the sensor, open the App, stay logged in and keep App on top and screen lighted and active always when you want to listen to the sensors and for the duration of the exercise. You also might need to use Active scanning, depending on your mobile device.
- Sensor can store information of 464 impacts. To avoid losing your impact data, connect the sensor to the App regularly.
- **IMPORTANT USAGE INFORMATION!** The sensor will switch off automatically after 3 hours (180 minutes). If your activity session lasts three hours or more, make sure to switch the sensor back on every three hours.
- Compatibility with all smartphone brands and models cannot be guaranteed. Please check frequently updating compatibility and test listing with different mobile phone brands and models in our Help FAQ (**www.act-**

tracker.com). If your mobile device is not automatically connecting with the sensors (i.e. an event occurs, you are in Bluetooth® Wireless connection's reach, but information is not appearing to the App) try with Active scanning. Depending on your mobile device, you might need to always use Active scanning to connect with the sensors. Active Scan works like this:

1.) Click "Menu" (3 bars on the left upper hand corner) > Click "Start active scan" > text turns to say "Stop active scan" = Active scanning is on until you switch it off. Stop Active scanning by clicking on text "Stop active scan".

2.) When the text says "Start active scan" = Active scanning is off.

3.) If needed, always use active scanning when you want to connect to the sensors.

4.) If Active Scan is on, but event information is not received, try switching Active scanning off and turning it back on again.

HOW TO WEAR IT

IMPORTANT USAGE INFORMATION! The sensor measures forces on the object it is attached to.

1. We strongly recommend attaching the ACT Head Impact Tracker sensor to a head accessory of user's choice, also when wearing a helmet. The sensor can be attached to almost any kind of head accessory or wear, with hook and loop -tape. Head bands specifically designed to accommodate the head sensor has been developed and are many cases available for purchase in same webstores as the sensors.
2. Always place the sensor so that its head side (i.e. the side with the foam, on/off-button and LED light is facing your head). If you use a head band, the sensor is to be placed between the head and the head band.
3. **WARNING!** Place the sensor only in a location where impacts or pressure do not occur.
4. If you feel pressure or discomfort when wearing the sensor, change the sensor placement.
5. If you consider attaching the sensor to a helmet, refer to your helmet's User Manual, Owner's Guide or corresponding document to verify if it is possible.

Always follow the helmet manufacturer's instructions on safe helmet use. Only use a helmet that meets the applicable safety standards when you use a helmet with ACT Head Impact Tracker head sensor or ACT Head Impact Tracker Pro head sensor.
Examples on wearing with ACT Head Impact Tracker Accessories (head band or dock) or attached to the helmet:

GOOD TO KNOW

We believe that today there is not sufficient medical research to reliably, simply and safely classify the individual impacts or events as “small-medium-hard” or “red-yellow-green” for example on the basis of g-force or angular velocity. In the absence of proven, reliable, scientific results ACT Head Impact Tracker is not telling you “when the impact is too hard, or when it is not”, nor will it tell you “when you have to seek medical help, or when not”. There is simply no safe way for a measuring device to do so. Not yet. That’s why more data and research is needed. One rule of thumb applies though: the more violent the impact or event, the bigger the forces acting on it, and the chance for damage to occur.
In case of a head impact, or when suspecting one, immediately and safely leave the activity and seek help from licensed medical professionals. It is advisable to have an accompanying person if concussion is possible.

NORMAL MODE AND TRACKER MODE

ACT Head Impact Tracker head sensor has two modes to it.
Normal mode. Recommended mode to use when you have solid Wi-Fi or mobile data connection available throughout the session. This is how it works:

1. Switch the sensor on by pushing on/off button once. LED light blinks long once and then in slow frequency, 1 short blink in every 5 seconds.
2. Open ACT Head Impact Tracker smartphone mobile App, log in, ensure location and Bluetooth® wireless connection, Nearby Devices (if applicable), Wi-Fi or mobile data connections (and roaming if needed) are enabled, on and active. Stay logged in and keep App open and active throughout the whole session duration. If possible, keep the phone open and active (screen lighted), since some mobile phone brands and models may disconnect Bluetooth® wireless connection if phone is going to power save mode. If this happens, the sensors cannot transfer data to the App.
3. When the sensor detects an impact/event 10g or over, it tries to send the information to the mobile device with the App immediately using Bluetooth® wireless connection.
4. If the information is not successfully transferred to the mobile phone with the App (the distance between the sensor and mobile phone is too long, data connections are not available or are busy, phone is on power save mode and has disconnected Bluetooth- Bluetooth® wireless connection must be enabled and active for the App and always when using with the head sensor(s) and want to get data in near-realtime. – Keep the distance of the sensor and mobile device with App listening to it as short as possible. The reach could be less than 10 meters in some conditions. If the data connection is missing, recorded impact information is saved in the head sensor and delivered when the sensor is connected to assigned App or the App to the Cloud again. – Compatibility with all smartphone brands and models cannot be guaranteed. Please check frequently updating compatibility with different mobile phone brands and models in our Help FAQ (**www.act-tracker.com**). If your mobile device is not automatically connecting with the sensors (i.e. an event occurs, you are in Bluetooth® Wireless connection’s reach, but information is not appearing to the App) try with Active scanning.
   Depending on your mobile device, you might need to always use Active scanning to connect with the sensors.
   Active Scan works like this:
   1.) Click “Menu” (3 bars on the left upper hand corner) > Click “Start active scan” > text turns to say “Stop active scan” = Active scanning is on until you switch it off. Stop Active scanning by clicking on text “Stop active scan”.
   2.) When the text says “Start active scan” = Active scanning is off.
   3.) If needed, always use active scanning when you want to connect to the sensors.
   4.) If Active Scan is on, but event information is not received, try switching Active scanning off and turning it back on again. wireless connection for the App for example), the sensor saves 464 impacts’/events’ information to it and tries to send them always when the sensor is on. The sensor will transfer all the impacts from its memory using First in Last out principle. When the small ACT-icon disappears from the left-hand upper corner

of the phone and does not reappear or impacts/events with index numbers missing from the impact history have appeared to the impact history, the sensor's memory is empty.

5. Even if using normal mode, some impact information is frequently saved in the sensor's memory. Hence, we recommend keeping an eye on the impact history. If impact information seems to be missing or impact history is missing index numbers (#X, #XX, #XXX), download the impact information from the sensor. It is recommended to do this every time before the battery is changed, because after changing the battery the time stamp of impacts/events saved prior the battery change will not be accurate.

Tracker mode. Recommended mode to use when you do not have Wi-Fi connection or mobile data connection available throughout the session. Using Tracker mode will save energy and prolong the battery's life span. What happens on the tracker mode is that when the sensor detects an impact/event 10g or over, it saves the information. No attempt to deliver information in near real time. To retrieve the information from the sensors after the session, switch all sensors off and switch them back on one by one so that the sensor is in the proximity to the mobile device with the App – which is connected to Wi-Fi or has mobile data (and roaming if needed) connection. The sensor will transfer all the impacts/events from its memory (depending on the number of impacts/events, this can take from few seconds to approximately 1 minute or even more). It is recommended to do this every time before the battery is changed, after the battery is changed the time stamp of impacts/events saved prior the battery change will not be accurate.
To activate Tracker mode.

1. Switch the sensor on by pushing on/off button 1 time. Check that the LED light starts blinking in slow frequency to indicate that the sensor is on.
2. Push the on/off button once for about 2 seconds (keep the button pressed for 2 seconds) until the LED light blinks 3 long blinks and then starts blinking in slow frequency (1 blink / 5 sec).

   Tracker mode is activated, no real time impact data will be sent, and impact information will be saved in the head sensor's memory. Please note: you first have to switch the sensor on and only then Tracker mode can be activated.

   To deactivate Tracker mode: push the on/off button once for about 2 seconds, so that you can see the LED light activating (then release the button) and blinking 4 long blinks to indicate Tracker mode is deactivated and sensor is back on normal mode (the slow LED light blinking continues). Alternatively, you can turn off the sensor when it is on Tracker mode.

See illustrations in the end of this document for more information.

HEAD SENSOR MEMORY DOWNLOAD (IF IT HAS NOT BEEN DONE DURING THE SESSION)
Open the App, log in, stay logged in and keep the mobile device active. Ensure mobile device is connected to Wi-Fi or has mobile data (and roaming if needed) connection. Switch on the head sensor you wish to download information from and place it to the proximity of the mobile device. Ensure the connection is established, a small ACT icon should feature on the top left-hand corner of the App's screen. The sensor will transfer all the impacts from its memory, depending on the number of impacts, this can take from few seconds to approximately 1 minute. It may be that the page is not refreshing automatically, if so,visit some other page on the App and return to the profile page – this should do the trick. The memory should be emptied when the connection is dismissed – you can tell this has taken place when the ACT-icon disappears from the top left-hand corner of your App's screen. If the history data is still not complete, repeat the download. Please note there is memory space for 464 impacts/events in the memory. Impacts/events prior to them are no longer stored and their information is no longer available.
IMPORTANT USAGE INFORMATION! It is recommended to do memory download frequently, and every time before the battery is removed or changed.
After the battery is removed the time stamp of events saved prior removal of the battery will not be accurate.
If you are not certain there is anything in the memory, or if memory is emptied, you can try this trick:

- Drop the head sensor on the table so that you generate an impact to it (LED light blinks once for few seconds)
- Last information is transferred first, so check the index number of the impact you created. The index number is found in each profile's impact history and can be found under the timestamp – it takes the form #X, #XX, #XXX (e.g. #5, #13, #150). The index numbers are ascending (e.g. #3, #4, #5, #6, #7), hence if the impact you created, and the impact history impacts have consecutive index numbers to them (e.g. #6, #7, #8, #9, #10) and if there are no missing numbers, the memory has been emptied successfully.
- If impacts are still missing from earlier times so that there have not been 464 evens or more between now and missing impact, it is possible that there is still information in the memory. However, if 464 impacts or more have been recorded after the missing impact, this information is no longer available.

SOME TROUBLESHOOTING

If the sensor does not turn on or function properly, it could be because:

- The battery is inserted upside down.
- The battery is dislocated.
- The battery is empty, or almost empty.
- You pressed the button too fast or too slow, too weakly or on the side of the button.

Problems in adding the head sensor to the App:

- Try switching the sensor off and back on. Add the sensor immediately after switching it on.
- Register sensors one by one. Switch on only one sensor at the time. Switch other sensors off. Then switch the sensor you want to add off and back on and try again.
- Not all mobile device brands and models have been tested and validated to work with ACT Head Impact Tracker smartphone mobile App. See the latest list of tested brands and models in our Help FAQ in **www.act-tracker.com**
- If your mobile device is not automatically connecting with the sensors (i.e. an event occurs, you are in Bluetooth® Wireless connection's reach, but information is not appearing to the App) try with Active scanning. Depending on your mobile device, you might need to always use Active scanning to connect with the sensors. Active Scan works like this:
  1.) Click "Menu" (3 bars on the left upper hand corner) > Click "Start active scan" > text turns to say "Stop active scan" = Active scanning is on until you switch it off. Stop Active scanning by clicking on text "Stop active scan".
  2.) When the text says "Start active scan" = Active scanning is off.
  3.) If needed, always use active scanning when you want to connect to the sensors.
  4.) If Active Scan is on, but event information is not received, try switching Active scanning off and turning it back on again.
- Give App permission to use Location, and "Specific Location" if needed. "Specific location" can be found for example in "General Settings" > Applications > ACT Head Impact Tracker > Permissions > Location > If you find here "Use specific location", it must be on and active. You also may have to give App permission to use "Nearby devices" when applicable.

Impact/event occurred but there is no notification about it on the App:

- Check that the sensor is on.
- Switch the sensor off and back on.
- Switch Bluetooth® Wireless connection off and back on in your mobile device.
- Change the battery. The sensor does not function properly when the battery is almost empty.
- A Give App permission to use Location, and “Specific Location” if needed. “Specific location” can be found for example in “General Settings” > Applications >

ACT Head Impact Tracker > Permissions > Location > If you find here “Use specific location”, it must be on and active. You also may have to give App permission to use “Nearby devices” when applicable.

- Bluetooth® wireless connection must be enabled and active for the App and always when using with the head sensor(s) and want to get data in near-realtime.
- Keep the distance of the sensor and mobile device with App listening to it as short as possible. The reach could be less than 10 meters in some conditions. If the data connection is missing, recorded impact information is saved in the head sensor and delivered when the sensor is connected to assigned App or the App to the Cloud again.
- Compatibility with all smartphone brands and models cannot be guaranteed. Please check frequently updating compatibility with different mobile phone brands and models in our Help FAQ (**www.act-tracker.com**).
  If your mobile device is not automatically connecting with the sensors (i.e. an event occurs, you are in Bluetooth® Wireless connection’s reach, but information is not appearing to the App) try with Active scanning. Depending on your mobile device, you might need to always use Active scanning to connect with the sensors. Active Scan works like this:
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  2.) When the text says “Start active scan” = Active scanning is off.
  3.) If needed, always use active scanning when you want to connect to the sensors.
  4.) If Active Scan is on, but event information is not received, try switching Active scanning off and turning it back on again.

How to retrieve unsent impact information from the sensor:
We recommend that you do this periodically and every time before you remove the battery: Switch the sensor off and back on in the close proximity to the mobile phone with the App to retrieve any unsent information. The saved impact data will be added to your impact history.
Visit our Help FAQ on our website **www.act-tracker.com** for more help. If nothing helps, the sensor may be defective, or corrupted in manufacturing, transportation or handling. Please contact Northern Sports Insight and Intelligence via email (**contact@norspo.com**), or the reseller where you bought the sensor from.
WARNING!

- Keep the product and packaging out of reach of children and animals. Risk of suffocation!
- Not suitable for children under 36 months of age. Contains small parts. Risk of suffocation!
- Check the product for damage and wear before every use.
- Check that all parts and locking mechanisms are secure before each use.
- The product may be used only when in good working order and condition.
- Use in adult supervision.
- Do not modify the head sensor in any way. Use only the way instructed.

WARNING REGARDING CR2032 COIN CELL BATTERY!

- Keep out of reach of children and animals.
- Swallowing and ingestion can lead to chemical burns, perforation of intestinal soft tissues and death.
- If you suspect a battery has been swallowed or entered in any body part, seek medical attention immediately.
- Store new and used batteries out of reach of children and animals.
- Dispose of used batteries according to the instructions.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

PRODUCT SPECIFICATIONS

ACT Head Impact Tracker head sensor
Dimensions: 46,70mm x 34,40mm x 7,60mm
Operating temperature: -10°C to 40°C
Water/dust protection: Not suitable for watersports or underwater use.
Communications: Bluetooth® 5.0 Low energy.
The range may vary significantly depending on multiple factors, such as surroundings.
It can be anything from <10 meters (<30 feet) to 100 meters (300 feet).
Maximum power: 0 dBm. Operating frequency: 2360-2500 MHz
Battery: CR2032 replaceable coin cell (> 225mAH) battery. Battery is not included.
Battery life span: estimated 100-150 hours depending on the battery used.
The smallest impact forces shown: 10g
Accelerator scale 100.
Sampling frequency: 1000 Hz
Theoretical maximum g-force measured: 173.
ACT Head Impact Tracker head sensor Pro
Dimensions: 46,70mm x 34,40mm x 7,60mm
Operating temperature: -10°C to 40°C
Water/dust protection: Not suitable for watersports or underwater use.
Communications: Bluetooth® 5.0 Low energy.
The range may vary significantly depending on multiple factors, such as surroundings.
It can be anything from <10 meters (<30 feet) to 100 meters (300 feet).
Maximum power: 0 dBm. Operating frequency: 2360-2500 MHz
Battery: CR2032 replaceable coin cell (> 225mAH) battery. Battery is not included.
Battery life span: estimated 60-80 hours depending on the battery used.
The smallest impact forces shown: 10g
Accelerator scale 200.
Sampling frequency: 1000 Hz
Theoretical maximum g-force measured: 346.
Theoretical maximum rad/s measured: 35.

SENSOR STORAGE AND MAINTENANCE

When not in use, always store the sensor in a clean and dry place at room temperature. Clean the sensor's outer surface using only a moist soft cloth or sponge. Use only water, do not use any detergents, soaps, other chemical substances or harsh cleaning agents. Do not put it in the washing machine or under water. Do not use sunscreens, other skin products or hair products in the proximity of the head sensor. Do not leave in direct sunlight, expose to heat or cold, moisture, chemicals or mechanical wear and tear. Do not place near or on a direct heat source, or in direct sunlight. Do not freeze. Damage due to improper handling is not covered by the warranty.

DISPOSAL

Dispose the product and packaging materials according to current local regulations. Keep the product and

packaging materials out of reach of children and animals. Risk of suffocation!

 Dispose of the product and packaging materials in an environmentally friendly manner.

 Batteries should not be disposed with your household waste. All batteries must be disposed in an environmentally friendly manner, in accordance with current local battery disposal regulations.

 Please recycle!

WARRANTIES

Northern Sports Insight and Intelligence warrants the original purchaser of this product that the product is free from defects in material and workmanship for a period of three months from the original date of purchase. Save the original purchase receipt. This warranty applies to the material and workmanship only and does not apply to misuse or improper handling. The warranty does not apply to defects or physical damage resulting from abuse, neglect, improper repair, improper fit, alterations, or use unintended by the manufacturer. The warranty does not affect your statutory rights. If the head sensor is found to be defective in materials or workmanship within three months from the date of original purchase, please contact the reseller or Northern Sports Insight and Intelligence via email at **contact@norspo.com** with “Head sensor defect” in the subject field. Northern Sports Insight and Intelligence will, at its sole option, either repair or replace the head sensor. Any repairs under the warranty, statutory guarantees or through goodwill do not extend the warranty period. This also applies to replaced and repaired parts.

REGULATORY STATEMENT

Hazardous substances (RoHS): Northern Sports Insight and Intelligence Oy certifies that this product and its packaging are in compliance with European Union Directive RoHS 3 (EU Directive 2015/863) on the restriction on the use of certain hazardous substances in electrical and electronics equipment.
EU Regulatory Conformance. Hereby, We, Northern Sports Insight and Intelligence Oy, declare that the radio equipment types in ACT Head Impact Tracker head sensor and ACT Head Impact Tracker head sensor Pro are in compliance with the Directive 2014/53/EU.
Declaration of Conformity: the full text of the EU declaration of conformity is available in the end of this document. This document can be accessed in the following internet address: **www.act-tracker.com**.

PATENT, TRADEMARK AND COPYRIGHT

Patent pending in EU.
ACT HEAD IMPACT TRACKER is a registered trademark of Northern Sports Insight and Intelligence Oy in EU and USA.

DISCLAIMER

We do not guarantee that ACT Head Impact Tracker products or services will meet your requirements. We do not guarantee that ACT Head Impact Tracker mobile application, head sensor hardware or firmware, cloud service or firmware, data transfer or any other part of the products or services, any information obtained from using the products or services will be safe, error-free, secure or timely. We do not guarantee that information received or not received when using ACT Head Impact Tracker is accurate or reliable, or that the errors in the products or services are corrected. We cannot guarantee that ACT Head Impact Tracker products or services, or any content therein, will always be available or uninterrupted.

DESIGNER AND MANUFACTURER

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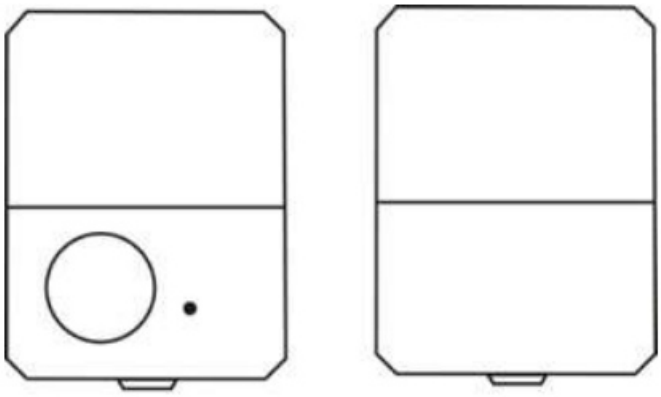
GENERAL INFORMATION

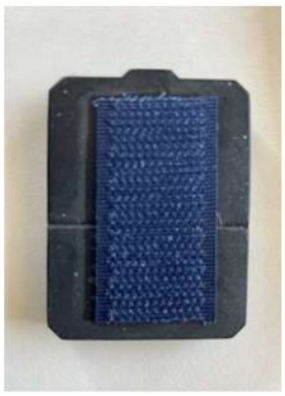
User Manual for ACT Head Impact Tracker head sensor (latest firmware version 0.72). This manual was last updated the 28th of May, 2024.
We may occasionally issue updates to this document. Please check **www.act-tracker.com** for updated and latest information.
Please see Help FAQ for use, operation, management and troubleshooting at **www.act-tracker.com**

CE ILLUSTRATED INSTRUCTIONS

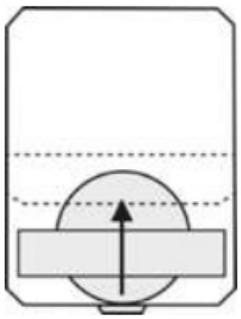


Adding hook and loop -tape to the sensor
Place the sensor on the table head-side down and back side up. The glue tape area on the sensor is covered by a yellow cover foil (1.). If you want to use hook and loop tape to attach the head sensor, take one piece of hook tape, remove the yellow cover foil from the sensor's glue area and cover foil of hook tape piece. Add the hook tape on top of the glue area on the head sensor as shown in picture 2.

1. 

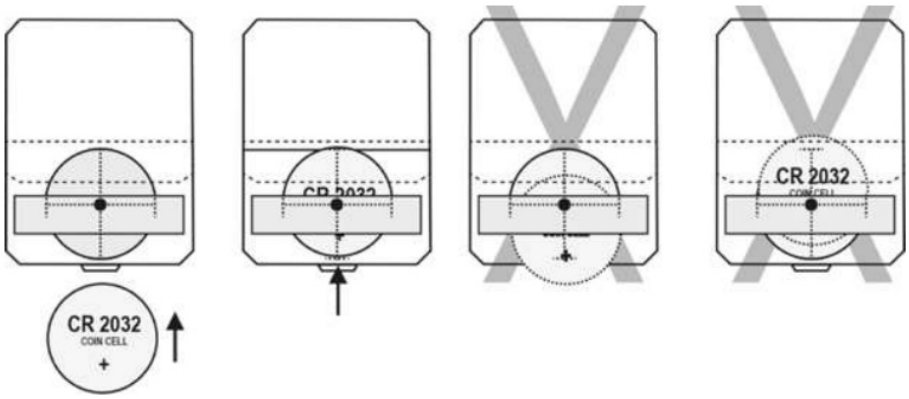
2. 

Battery use
Open the hatch on the back side by lifting it upwards.

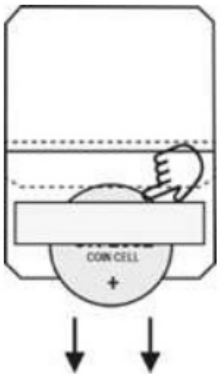


Slide in the coin cell battery underneath the silver holder bridge. Make sure the plus-side of the battery is upwards

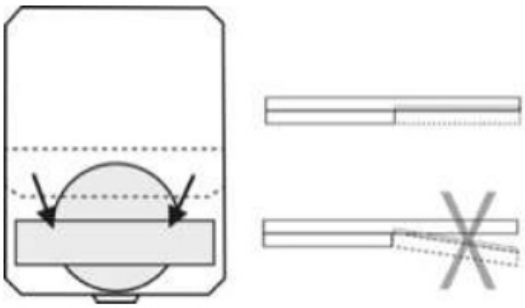
towards you, and away from the circuit board. Make sure the battery is set exactly on top of the silver-colored circle underneath the bridge. Don’t push the battery too far or you might damage the electronics.



Remove the battery by sliding it out by pushing it firmly from the side on your fingertip or nail.

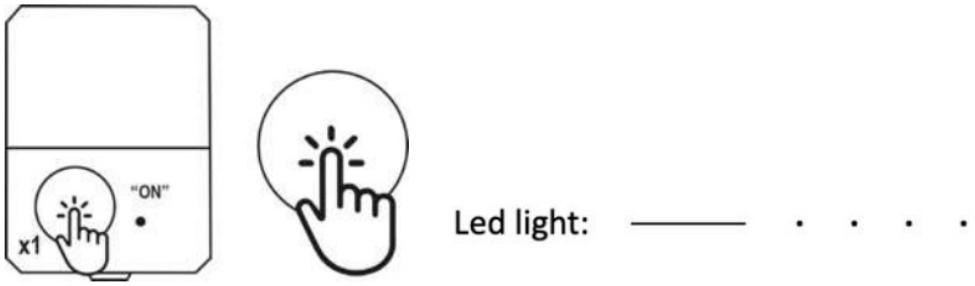


Close the hatch by pressing the sides firmly together to seal the locks. Check that sides are seamlessly connected to each other. The sensor turns on when battery is applied, but not all the components necessarily do. Switch the sensor off and back on before use.



Switching the sensor on

Switch the sensor on by pressing the on/off- button once slowly and firmly. Red LED light next to the button starts blinking in slow frequency to signal the sensor is on. If the light blinks in high frequency (in fast pace), the battery is almost empty. Change the battery or ACT Head Impact Tracker might not work as intended. If the light does not come on at all, try with new battery. If the light is still not turning on at all, or the light turns on but it is not blinking, the head sensor is not working and should be replaced

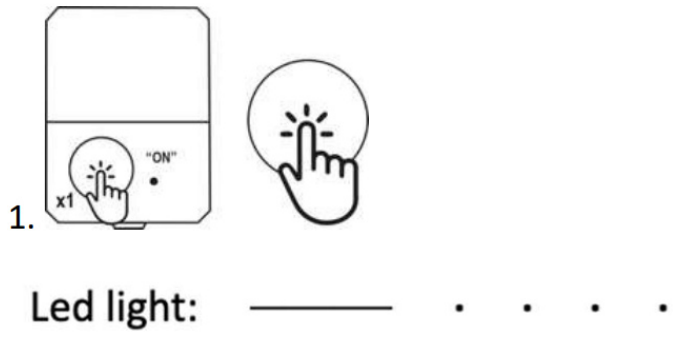


Switching the sensor off

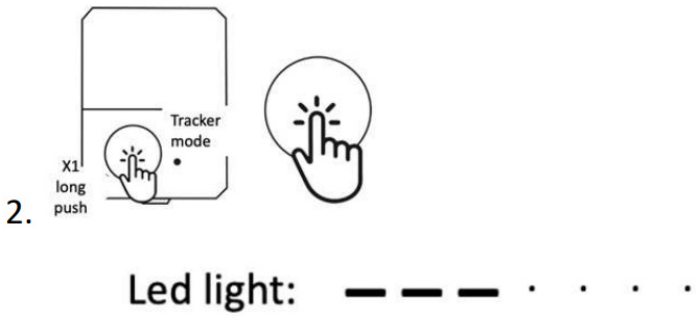
Turn sensor off by pressing the on/off-button twice slowly and firmly. Wait to see one long red LED light signal and then no more blinking to ensure the sensor is switched off.

Activating tracker mode

- Switch the head sensor on by pushing the on/off button once.
- Push the on/off button one time for about 2 seconds (1 long push), the LED light blinks 3 long blinks to show the tracker mode is activated. Then blinks slowly (1 blink every 5 seconds) to indicate that the head sensor is on. Please note: when the tracker mode is on, no real time impact information will be sent to the App. You can download all the impact data recorded by switching the sensor off and back on again, or by returning to normal mode by deactivating Tracker mode.



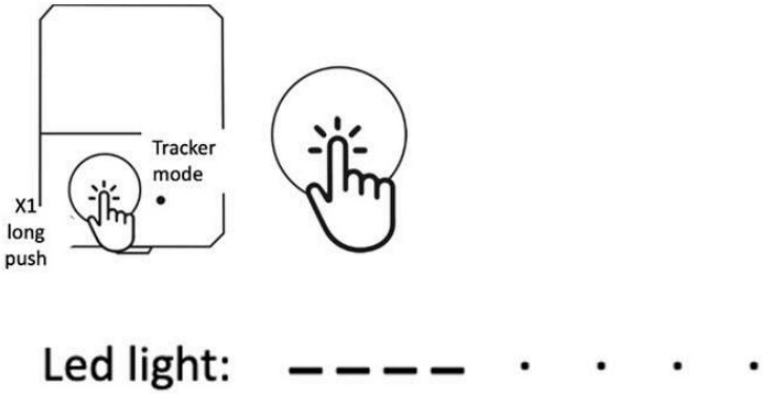
Push once to switch the sensor on.



Push and hold for 2 seconds to activate the Tracker mode.

Deactivating tracker mode

When tracker mode is on, push the on/off button one time for about 2 seconds (1 long push). The LED light blinks 4 long blinks to show the tracker mode is deactivated. LED light continues blinking slowly (1 blink every 5 seconds) to indicate the head sensor is on. You can either continue using ACT Head Impact Tracker on a normal mode or switch off the sensor by pushing on/off button twice.



Push and hold for 2 seconds to deactivate the Tracker mode.

VERIFICATION OF CONFORMITY

Certificate No.: LGT23L052C01
Product Name: ACT Head Impact Tracker head sensor
Brand Name: ACT Head Impact Tracker
Model Name: ACThs, ACThsp
Holder: Northern Sports Insight and Intelligence Oy
Address: Terkko Health Hub, Haartmaninkatu 4, Building 14, 00290 Helsinki, Finland
Manufacturer: Northern Sports Insight and Intelligence Oy
Address: Terkko Health Hub, Haartmaninkatu 4, Building 14, 00290 Helsinki, Finland
The submitted sample of the above product has been tested according with Standard(s) used for showing compliance with the essential requirements in the specified directive(s): Radio Equipment Directive (RED) 2014/53/EU.
For Standard(s) and Test report(s) No., please refer to next page.
Approved by:

Approved by:
Technical Director
Jan. 02, 2024

VERIFICATION OF CONFORMITY

	Standard(s)	**Test report(s) No.:**
Article 3.1a)	EN IEC 62368-1:2020+A11:2020 EN 50663: 2017 EN 62479:2010	LGT23L052SA01 LGT23L052HA01
Article 3.1b)	EN 301 489-1 V2.2.3 EN 301 489-17 V3.2.4	LGT23L052EM01
Article 3.2)	EN 300 328 V2.2.2	LGT23L052RF01

The applicant of the certificate is authorized to use this certificate in connection with EC declaration of conformity to the Directive. The certificate is only applicable to the equipment described above.

HEAD IMPACT TRACKER

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No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District,
Shenzhen, Guangdong, China

Documents / Resources

	ACT Head Impact Tracker Sensor [pdf] User Manual Head Impact Tracker Sensor, Impact Tracker Sensor, Tracker Sensor, Sensor

References

- Call2Recycle | Leading the Charge For Battery Recycling
- U.S. Environmental Protection Agency | US EPA
- User Manual