

Your **HEXOSKIN** User Guide

EN User Guide



Copyright Hexoskin © 2018 - All rights reserved.
Reproduction and distribution prohibited without authorization from Carre Technologies Inc.

YOUR HEXOSKIN USER GUIDE

Congratulations on your Hexoskin purchase! We hope you will enjoy using this cutting edge intelligent garment as much as we enjoyed creating it. See inside all the information you need to get started.

EN

INSIDE THE BOX	2
CHARGE YOUR HEXOSKIN DEVICE	3
CREATE YOUR HEXOSKIN ACCOUNT	4
ASSIGN A USER TO THE HEXOSKIN DEVICE WITH HxSERVICES	5
PAIR THE HEXOSKIN DEVICE TO YOUR SMARTPHONE / TABLET	6
SET UP THE HEXOSKIN SHIRT	6
EXPLORE THE HEXOSKIN APP	7
SYNC YOUR DATA TO THE HEXOSKIN DASHBOARD	9
GLOSSARY	10
FAQ - FREQUENTLY ASKED QUESTIONS	14
CARE INSTRUCTIONS	15
SUPPORT	15
WARRANTY	16
RETURN POLICY	16
RETURN/EXCHANGE PROCEDURE	16
SAFE DISPOSAL	17
CERTIFICATIONS & COMPLIANCE	17

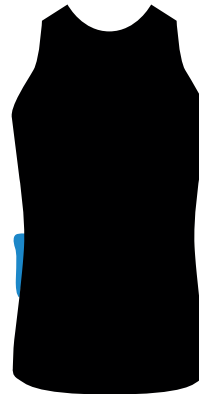
HEXOSKIN DEVICE



HEXOSKIN SHIRT



USB CHARGING CABLE



ELASTIC BANDS



(1 band for women, 2 for men
are included with each
Hexoskin Shirt)

+ The HEXOSKIN Laundry Bag

* Junior shirts do not require elastic bands



Heart Rate



Heart Rate Recovery



Heart Rate Variability



Breathing Rate



VO2max



Minute Ventilation



Acceleration



Calories



Cadence



Activity Level



Step Count



Devices:

Hexoskin Classic

14 ±

Hours of Battery Life

Hexoskin SMART

30 ±

Hours of Battery Life

Compatible with:

iOS 8.2 or later / Android 4.3 or later / MacOS 10.11 or later / Windows 7 or later






CHARGE YOUR HEXOSKIN DEVICE

HEXOSKIN

Before you can start using your Hexoskin, you need to charge your Hexoskin Device for about 2 hours.

If you have a Hexoskin Smart Device, the battery life is 30 hours while for a Classic device, the battery life is 14 hours.

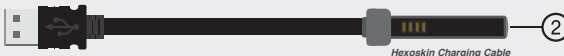
Use the enclosed USB cable to connect the device directly to your computer (avoid using a USB hub). Insert the Hexoskin Connector into the Hexoskin Device.

-  **The top orange LED is the battery indicator** - blinks while charging when connected to the shirt or when the battery is running low. The light stays on when fully charged.
-  **The middle orange LED is the recording light** - turns on when connected to the shirt and when recording.
-  **The lower blue LED is the Bluetooth light** - blinks to indicate a Bluetooth connection with a smartphone or tablet.

USB Connector

Insert part (1) to your computer's USB port

①



②

USB Connector

Insert part (1) to your computer's USB port

Connector Entrance

Insert the Hexoskin connector (2) to the device connector entrance (3)

③



④

Main Button

Hold the Main Button for 3 sec to launch the Bluetooth pairing

⑤

Battery Light

Blinks while charging and when the battery is low. Stays on when fully charged

⑥

Recording Light

Turns on when connected to the shirt

⑦

Bluetooth Light

Blinks to indicate Bluetooth communication

CREATE YOUR HEXOSKIN ACCOUNT

While your Hexoskin Device is charging, you can take this opportunity to create your account. Your account will allow you to register your device, record and synchronize your data.

You can create your Hexoskin Account either with a web browser or in the Hexoskin App.

PC/MAC Web Browser

Visit: <https://my.hexoskin.com>

Click on «Sign up»

Fill in the form

Click on «Sign up»

The image shows two screenshots of the Hexoskin web browser interface. The left screenshot displays the login/sign-up page with fields for 'User name:' and 'Password:' and a green 'CONNECT' button. The right screenshot displays the registration form with fields for 'Email', 'Password', 'Password confirm', 'Firstname', 'Lastname', 'Unit', 'Height', 'Weight', 'Gender', and 'Birthday', and a green 'SIGNUP' button. Both screenshots include 'Hexoskin Store' and 'Hexoskin News' sections at the bottom.

Hexoskin App

Download the Hexoskin App

Open Hexoskin App

Click on «Register»

Fill in the form

Click on «Register»

The image shows two screenshots of the Hexoskin mobile app interface. The left screenshot displays the app's main screen with the Hexoskin logo and three buttons: 'Enter', 'Register', and 'Login'. The right screenshot displays the registration form with fields for 'First Name', 'Last Name', 'Email', 'Password', 'Age', 'Gender', 'Height', and 'Weight', and 'Register' and 'Cancel' buttons.

Once your account created, you will have access to the HxServices software, Hexoskin App, and the Hexoskin Dashboard.

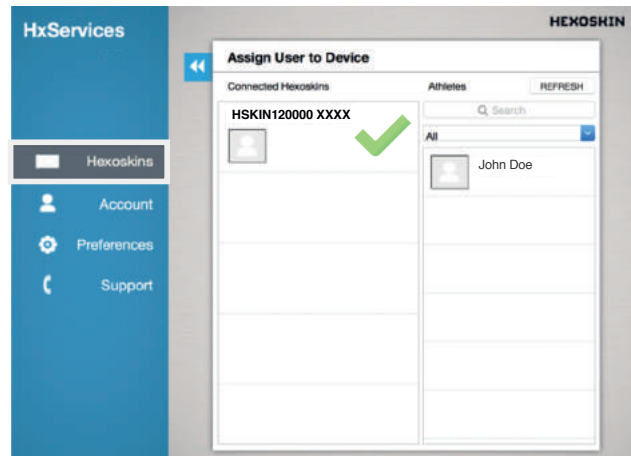
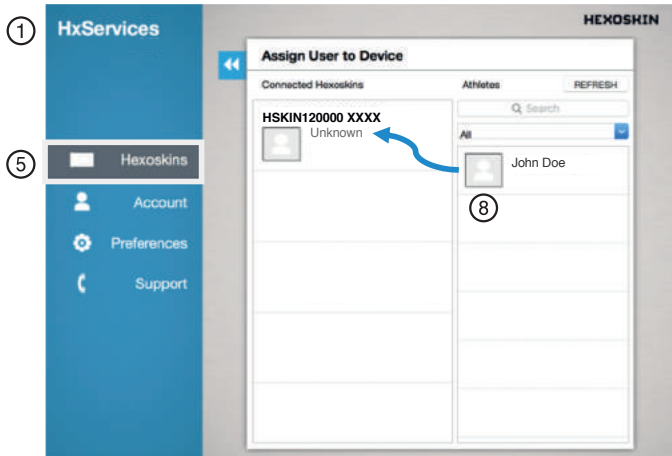
ASSIGN A USER TO THE HEXOSKIN DEVICE WITH HxSERVICES

To complete the set up of your account, you need to assign the Hexoskin Device to a user. To do so:

1. Download HxServices (if not done yet, visit hexoskin.com/pages/downloads, section « **SYNC SOFTWARE** »)
2. Open HxServices
3. Sign in with your Hexoskin Account
4. Connect your Hexoskin Device to your computer with the provided USB cable
5. Click on the tab “Hexoskins”
6. Select your device from the list (serial number behind your device SN: HSKIN120000 XXXX)
7. Click on “Assign” at the right top corner
8. Select your name from the right column, then drag and drop it on your device in the left column.

Your device is now assigned to your account, and your name should now appear under your device serial number.

You can assign many devices to an account. Visit our Hexoskin Support Community online at support.hexoskin.com to learn about managing multiple users.



PAIR THE HEXOSKIN TO YOUR SMARTPHONE/TABLET

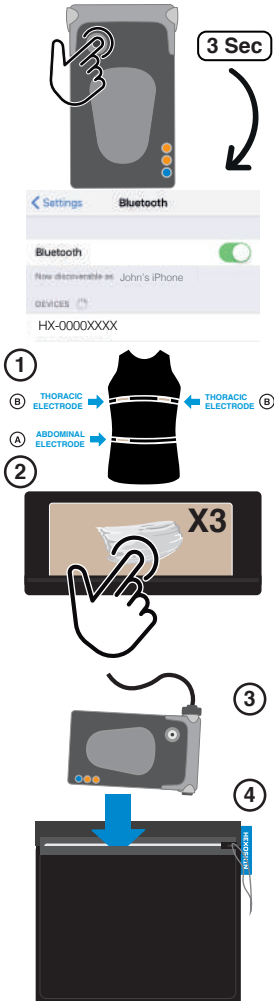
If you want to use the Hexoskin App, you need to download it from the App Store or Google Play (if not done yet). Then, you need to pair your device to your smartphone or tablet. To do this:

1. Go to Settings > Bluetooth on your smartphone or tablet. Make sure that the Bluetooth is turned on.
2. Set Hexoskin in pairing mode by holding the button for 3 seconds straight until the blue LED turns on.
3. Select your Hexoskin Device in the Bluetooth devices list and wait until you see a confirmation that the device is paired. If you can't pair or connect your Hexoskin Device, repeat Steps 1-3 again. To start using your Hexoskin App, please refer to section « [EXPLORE THE HEXOSKIN APP](#) »

SET UP THE HEXOSKIN SHIRT

Your Hexoskin Shirt is a very special garment. Here are a few tips to wear it and improve the quality of the data it collects.

1. As a conductive cream, you can use any glycerin-based cream. Before you start a recording session, you need to:
 - i. Put the shirt on carefully without stretching it too hard
 - ii. Roll up the lower part of the garment to expose the abdominal cardiac electrode square of bronze colored fabric - **figure (1.A)**
 - iii. Apply a nickel-sized amount of your glycerin-based cream on the abdominal cardiac electrode
 - iv. Roll the lower part of the garment back down
 - v. For the thoracic cardiac sensors, gently stretch the armpit opening on your right side until you are able to see one of the thoracic cardiac electrodes (**1.B**)
 - vi. Apply a nickel-sized amount of your glycerin-based cream on the cardiac electrode (**2**)
 - vii. Repeat step **v.** and **vi.** for the other thoracic cardiac electrode
 - viii. Attach your elastic straps included.
 - ix. You simply need to connect your Hexoskin Device then you are good to go
2. Your Hexoskin Device will start recording automatically as soon as you plug it to the shirt connector. The recording LED (the middle orange LED) will stay on for the duration of the recording. Place the Hexoskin Device horizontally into the shirt pocket with the wire upward and the light outward.
3. When you are done, unplug the device from your shirt. Once disconnected, the data recording will stop and the device will automatically shut down after 60 seconds. To recharge your device and synchronize your data, refer to section « [SYNC YOUR DATA TO THE ONLINE DASHBOARD](#) » .



EXPLORE THE HEXOSKIN APP

With the Hexoskin App, it is possible to visualize some of your data in real time during a recording.
To do so:

1. Download and install the Hexoskin App from the App Store or Google Play (if not done yet)
2. Open the Hexoskin App
3. Sign in with your Hexoskin Account
4. Tap on your device serial number (SN: HSKIN120000 XXXX)*
5. Tap on “Assign” in the pop-up window*
6. You are now on the Homepage XXXX)
8. Tap on the (☰) to access the Menu.

*Required steps only the first time you log in the Hexoskin App.

You are now on the Menu Page, if you tap on:

Go! you can start a Fitness Test, an Activity or a preset Workout routine (the *Go!* button is also accessible from the Homepage) ([see next page](#)).

Name, access your Fitness Status, your Timeline, your Profile Info and your Account Settings.

Device status, gives you the battery life, the recording status, and the device serial number in use.

Home, displays your Fitness Status, your Timeline, your Live Metrics, and the *Go!* button.

Show sensors, displays in real time the ECG waveform and the breathing signal from the thoracic and abdominal breathing loops ([see next page](#)).

Timeline, displays the history of all the activities performed.

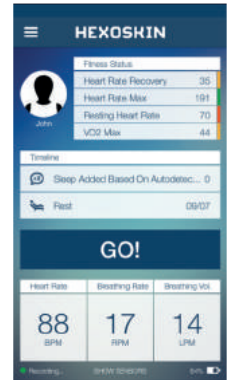
Devices, displays the details about the linked device.

Hexoskin.com, leads you to the Hexoskin Website.

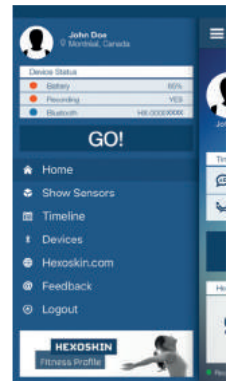
Feedback, allows you to contact the Hexoskin Support Team directly.

Logout, allows you to log out of the Hexoskin App.

HEXOSKIN



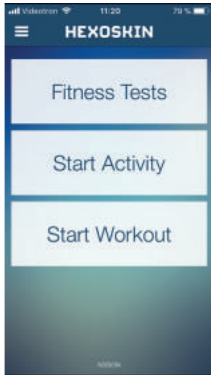
Homepage View



Menu View

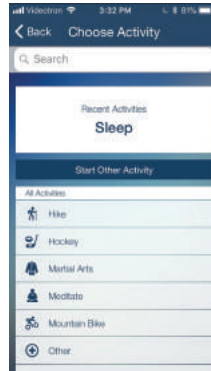
EXPLORE THE HEXOSKIN APP

Add Context



Tap on the **Go!** Button. A menu will give you a choice to start a *Fitness Test* (to assess your level of physical fitness and to calculate your cardiorespiratory metrics), an *Activity* (to add context to the recorded data) or a preset *Workout* routine.

Choose Activity



Tap on **Start Activity**, you can choose from the list the activity of your choice from the list.

Visualize your ECG



Tap on **Show Sensors**, then on *Heart*, you can visualize your ECG Waveform in real time.

Visualize your Breathing Signal



Tap on **Show Sensors**, then on *Breathing*, you can visualize the thoracic (light blue) and abdominal (yellow) breathing signals in real time.



Sleep Activity View

Start an Activity

If you tap on the **Go!** button, then on Start Activity, you can choose to start a Sleep activity, or any other activities.

The Hexoskin App will display in real time a timer, and the relevant metrics to the nature of the activity chosen. Please note that not all activities will display the same metrics and more metrics will be displayed after synchronizing your data on HxServices (refer to the section « **SYNC YOUR DATA TO THE HEXOSKIN DASHBOARD** »).

You can swipe down anywhere on your screen to add an annotation that will appear on the charts of your Hexoskin Dashboard (my.hexoskin.com).

When you are done, do not forget to End the activity and Save the recording.

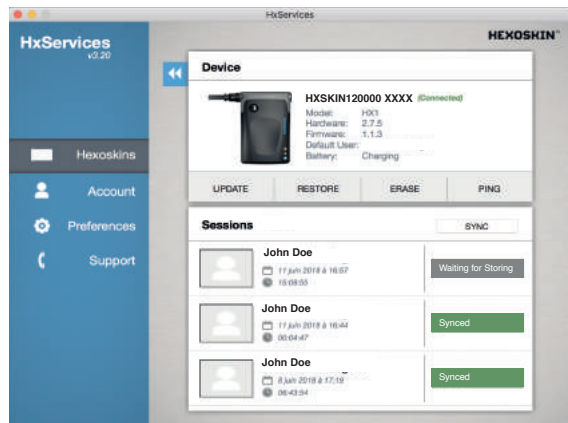
SYNC YOUR DATA TO THE HEXOSKIN DASHBOARD

To visualize your raw and processed data on the Hexoskin Dashboard online, you need to synchronize your records with the HxServices software. Please note that your device can record up to 600 hours of biometrics raw data. Past this time limit, the next record will overwrite the oldest one stored.

After a recording session, you should:

1. Open HxServices
2. Sign in with your Hexoskin Account
3. Connect your Hexoskin Device to your computer with the provided USB cable
4. Select your Hexoskin Device
5. Click on "Sync"
6. As soon as the sync is completed, your data will be available online for review on your Hexoskin Dashboard (my.hexoskin.com) and on your Hexoskin App.

HxServices View



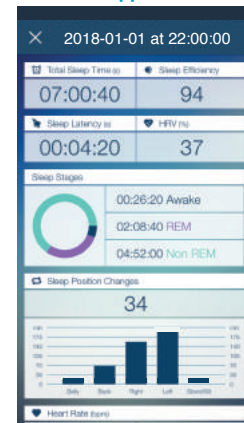
Data_Synchronization_Software

HxServices View



Online_Dashboard

Hexoskin App View



Mobile_Application

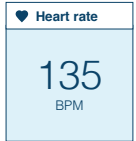
GLOSSARY - HOW TO UNDERSTAND YOUR DATA

HEART

On your App

Heart Rate: This metric represents the number of heartbeats per minute. With the Hexoskin, the value of the heart rate is updated every second. For each recording and/or activity, the heart rate maximal (highest detected), minimal (lowest detected) and average are calculated.

Unit: BPM = Beat per minute



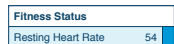
Heart Rate Recovery (HRR): This metric estimates the decrease of the heart rate in one minute following a peak intensity exercise. A high HRR is associated with good cardiovascular function. Regular aerobic training can help you increase your HRR. You can measure your HRR by performing the fitness test "400m Maximal Sprint Test".



Maximal Heart Rate (HRmax): Indicates the highest heart rate a person can achieve during a maximal exercise. The value depends mainly on age, genetics, exercise type, and medication. By identifying your HRmax, you can determine your appropriate training zone. You can measure your HRmax by performing the fitness test "400m Maximal Sprint Test".



Heart Rate: Reports the lowest heart rate value measured awake, lying down, fully relaxed, and undistracted. This metric is affected by the fitness level, age, and genetic background. It is possible to lower your HRrest resting heart rate with cardiovascular training. Endurance athletes can have a resting heart rate as low as 30 BPM. You can measure your HRrest by performing the fitness test "5 minutes Rest Test".



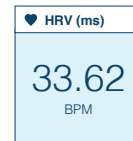
Range: 72-80BPM for women and 64-72 for men.

HEART

On your App

Heart Rate Variability (HRV): This metric measures the variation in the time interval between heartbeats. Hexoskin measures heart rate (HR) and its natural variances from beat to beat. HRV depends on external or internal stimuli such as emotions, heat, respiration, sleep, and physical exertion. Hexoskin provides HRV data during rest and sleep. The higher HRV, the better your body tolerates stress and/or recovers from it.

Unit: ms = milliseconds



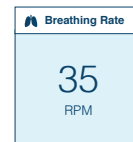
BREATHING

On your App

Breathing Rate (Br. Rate): This measure counts the number of full-breathing cycles (inspiration and expiration) per minute. With the Hexoskin, the value of the breathing rate is updated every second. For each recording and/or activity, the breathing rate maximal (highest detected), minimal (lowest detected), and average are calculated.

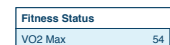
Range: as low as 6 RPM during sleep, 12-16 RPM at rest and up to 70 RPM during high intensity exercises

Unit: RPM = Respiration per minute



VO_{2max}: This measure reports the rate of oxygen consumption during a maximal aerobic exercise (where energy production depends mainly on oxygen availability) involving a large part of total muscle mass (e.g. biking or running). VO_{2max} is considered one of the best indicators of cardiorespiratory fitness and endurance capacity. Hexoskin measures a VO_{2max} predictive value. You can measure your VO_{2max} by performing the fitness test “12 minute Run Fitness Test”.

Unit: RPM = Respiration per minute



GLOSSARY - HOW TO UNDERSTAND YOUR DATA

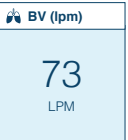
BREATHING

On your App

Breathing volume (also called Minute Ventilation, Br. Volume or MV): Refers to the total volume of air inhaled during a minute.

Range: ms = milliseconds

Unit: LPM = Liter per minute



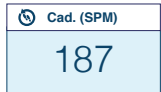
ACTIVITY

On your App

Cadence: Counts the number of steps per minute. A fast cadence reduces loading forces on the body, possibly eliminating or minimizing common running-associated pain, including pain in the knees, in the Achilles tendon, in the plantar fascia, in the lateral hips, in the lower back or in the shin splints.

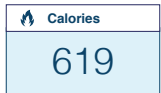
Range: ideal cadence for jogging or running is 175-185 SPM

Unit: SPM = Steps per minute



Calories (Also known as Energy): Estimates the total number of calories (amount of energy) you burned during an activity. To maintain your current weight, you need to burn the same amount of calories as your daily caloric intake.

Unit: Cal = Calories



Steps: Reports the total number of steps recorded during an activity. The number of steps per day will depend on your lifestyle. The more steps you take, the more active you are.

Unit: Cal = Calorie

Range: sedentary lifestyle: < 5,000 steps/day; low active: 5,000-7,499 steps/day; somewhat active: 7,500-9,999 steps/day; active: 10,000-12,499 steps/day; highly active: > 12,500 steps/day





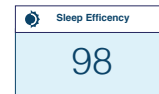
SLEEP ASSESSMENT

On your App

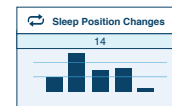
Sleep Efficiency: Reports the proportion of time asleep divided by the time in bed (lying position detected). Sleep efficiency (%) = Total Sleep Time / Time in bed * 100

Range: The sleep efficiency is normally over 95%. A value under 85% is generally associated with a bad night.

Unit: % = percentage



Sleep Position Changes: Counts the amount of sleep position changes detected during the night. The graph shows the amount of time spent in each position (Stand, Belly, Back, Right and Left).

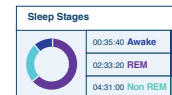


Sleep Stages: Reports the time spent in each sleep state.

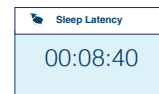
Time awake (wake after sleep onset): The total time in the awake vigilance state during the sleep period, which is defined as the time between the sleep onset and the last awakening.

Time in non-REM: The total time in the NREM sleep phase during the sleep period.

Time in REM: The total time in the REM sleep phase during the sleep period.

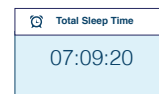


Time to sleep: Reports the time to fall asleep from the sleep activity start (lying position detected or sleep start annotation) to the first epoch of sleep detected.



Total Sleep Time: Reports the time spent in any sleep phase (i.e. not awake).

Sleep Total Time = Time in non-REM + Time in REM



FAQ - FREQUENTLY ASKED QUESTIONS

Q: Why do I need to create an account?

A: First, without an account, you will not be able to make any recording. Your account will give you access to the Hexoskin App to visualize your data in real time, and synchronize your data to the server with HxServices. It will also provide you access to your Hexoskin Dashboard, where you can manage your account's preferences and export all your raw data to make further analysis. Furthermore, some of your demographics are essential for the calculation of different metrics, such as the energy expenditure, for example. Finally, with your account, you can share your data with your family and friends.

Q: What is the garment made?

A: The shirt is made of 73% polyamide micro and 27% elastane. The textile is very lightweight and breathable. Every Hexoskin Shirt has an antibacterial treatment. The Hexoskin Shirts are machine washable, and dry quickly. The garment is comfortable under the clothes and has smooth seams that will not chafe. We have different sizes available for men, women and children (please refer to size chart hexoskin.com/pages/size-charts).

Q: What is the weight and size of the Hexoskin Device?

A: The device weighs 40 g and measures 41x73x13 mm – 1.6x2.8x0.5 in.

Q: What is the sensor for breathing monitoring?

A: Our breathing sensors are based on inductive plethysmography technology.

Q: How do I know if my device is recording?

A: Your device is recording as soon as you plug it to the shirt connector. The middle orange LED will stay on while recording.

Q: What happens if I lose the Bluetooth connection during a recording?

A: If you lose the Bluetooth signal, you will not lose any data. You just won't be able to visualize the data on your Hexoskin App.

Q: Can I use Hexoskin without a smartphone or tablet?

A: You can use your Hexoskin without a smartphone or a tablet. Your Hexoskin recording device will record your activities passively. You can then transfer your data to your computer using the provided USB cable. The use of a smartphone or a tablet allows you to monitor real-time data on your heart rate, respiratory volume and rate, and your activity. You can also name the activity, time it, and add annotations on the go. As GPS data is provided by your smartphone, no location data will be recorded if you are not using Hexoskin with your phone or tablet.

Q: Where is my data stored during a recording?

A: The data is recorded and stored on the device. The data need to be synchronized with HxServices to be transferred to the Hexoskin Servers, where they will be processed.

FAQ - FREQUENTLY ASKED QUESTIONS

Q: Are the data time-stamped?

A: Yes, all the data are time-stamped. Your time zone is set by the browser and is indicated on the Hexoskin Dashboard.

Q: What is the battery charge length?

A: If you have a Smart device, the battery charge length is 30 hours while for a Classic device, the battery life is 14 hours. It takes about 2 hours to fully charge it. Please wait until the blinking orange light becomes solid to be sure that the device has been fully charged.

Q: Can I swim with my Hexoskin?

A: Your Hexoskin shirt is waterproof while the Hexoskin Device is water-resistant. Swimming with your Hexoskin can damage the device. Damages resulting from immersing the Hexoskin Device in water are not covered by the Warranty.

Q: Can Hexoskin be used to diagnose a medical problem?

A: Hexoskin is meant to be used for remote monitoring, sports, activity tracking, education and health research. It is not sold as a medical device, and should not be used for diagnostic or therapy. If you suspect a medical condition, you must contact a medical professional immediately for consultation.

CARE INSTRUCTIONS

The Hexoskin Shirts are machine washable but the recording devices are not! The Hexoskin Device Connector entrance is not waterproof. Before washing, remove the device and put the connector back into the zipped pocket to protect it. Use the Delicate cycle with cold water and then, hang to dry. The Hexoskin Garments do not go in the dryer. Avoid storing your Hexoskin in a plastic bag or other sealed container after wearing it to avoid odors.

For optimum performance, be sure to clean your Hexoskin Device regularly when it becomes noticeably moist or dirty. Use a soft cloth moistened with mild soap to clean the device and a dry soft cloth to dry it completely. my.hexoskin.com

SUPPORT

For any support inquiries please visit support.hexoskin.com or contact us at support@hexoskin.com

WARRANTY

HEXOSKIN HARDWARE DEVICE

Hexoskin warrants the Hexoskin hardware device against defects in materials and workmanship under normal use during a “Warranty Period” of one year from the date of retail purchase by the original end user/purchaser. If a hardware defect arises and a valid claim is received within the Warranty Period, Hexoskin will either:

- repair the hardware defect at no charge;
- exchange the product with a product that is new or refurbished that is equivalent to new;
- refund the purchase price of the product (See our «[RETURN POLICY](#)»).

HEXOSKIN GARMENT

The Hexoskin Garment is under warranty during 14 days after delivery.

RETURN POLICY

Your satisfaction with your Hexoskin product is important to us. If you are not satisfied with your order, simply return it to us in its original condition within 14 days of receiving it and we will give you an account credit for the entire amount, less shipping and handling charges. A credit will be applied once the merchandise has been received and inspected by our Support Team.

RETURN EXCHANGE PROCEDURE

In order for your claim to be processed promptly, please follow the return directions below:

- Contact us to obtain an RMA number.
- Return the Hexoskin device(s) and/or garment(s) in its original packaging. The RMA number must clearly appear on the packaging.
- Make sure that all hang tags, boxes, etc. are returned with the item(s).
- Please use your local postal service to ship your return to us. Make sure to affix adequate postage. We suggest you use a traceable and insured shipping method.
- Please include a copy of your packing slip with your return, we will need this to identify your return.

SAFE DISPOSAL

Join us in our efforts to protect the environment! If you ever want to dispose of your Hexoskin Device, please take it to a designated electronics recycling depot. This will help to conserve natural resources and ensure that your Hexoskin Device is recycled in a manner that protects human health and the environment.

If you do not have access to a certified electronics recycling service, we invite you to return your Hexoskin Device to us. You can find our address on www.hexoskin.com/contact. Hexoskin will ensure that it will be disposed of in an eco-friendly manner.

CERTIFICATIONS & COMPLIANCE

FCC CFR 47: 2011, Part 15, Subpart B, Class B, Radio Frequency Devices

FCC (SMART) WAP2001 / IC ID: 7922A-2001

FCC (CLASSIC) PVH0925 / IC ID: 5325A-0925

FCC (RESEARCH) PVH0925 / IC ID: 5325A-0925

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operations.

Copyright Hexoskin © 2018 - All rights reserved.

Reproduction and distribution prohibited without authorization from Carré Technologies Inc.



Copyright Hexoskin © 2018 - All rights reserved.
Reproduction and distribution prohibited without authorization from Carre Technologies Inc.

