

Your **HEXOSKIN** User Guide

EN User Guide





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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



SCAN WITH YOUR PHONE TO VISIT THE HEXOSKIN SUPPORT COMMUNITY

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Acceleration



Hexoskin App for Smarphones



Hexoskin OneSync for Mac & PC

Compatible with:

iOS 12.0+, Android 13+, MacOS 10.15+, Windows 10+, WatchOS 4.0+

INSIDE THE BOX

-1





*Elastic band(s) are provided only with Hexoskin Smart Shirts. The Hexoskin ProShirts do not require elastic bands.

CHARGE YOUR HEXOSKIN DEVICE



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

The Hexoskin Smart Device provides 36 hours of battery life.

Use the enclosed USB cable (1) to connect the device directly to your computer (avoid using a USB hub). Insert the Hexoskin Connector (2) into the Connector Entrance (3) of the Hexoskin Device.



The top orange LED (5) 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 (6) is the recording light - turns on when connected to the shirt and when recording.

The lower blue LED (7) is the Bluetooth light - blinks to indicate a Bluetooth connection with a smartphone or tablet.



CREATE YOUR HEXOSKIN ACCOUNT - ON PC/MAC WEB BROWSER (Option 1)

While your Hexoskin Device is charging, you can create your account. The account creation step is required. If not performed, you will not be able to record data. Once created, 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 on or in the Hexoskin App. This will give access to the Hexoskin OneSync Software, Hexoskin App, and Hexoskin Dashboard.

PC/MAC Web Brow	vser - Hexoskin O	nline Dashboard				
		Visit: my.	hexos	skin.com		
		Click o	n " <mark>Siç</mark>	jn up"		
Fill in the form						
	Click on "Sign up"					
Log in Sign up Chick Of Advanced features for professional Advanced features for professional Advanced features Advanced features Content Birthday: I accept Hexoskin's terms of Luse and privacy tobicles SIGN UP Downloads: OneSync Downloads: OneSync Downloads: Downloads:			Log in Sign up Username: Username Password: Password: Password: Exercit password?		Advanced features are professional projects, research & clinical studies.	
Hexoskin Store Discover our new collection of Hexoskin Smart Shirts, for Mew, Women and Children as well as the new Hexoskin Prokits. Shop Now	Hexoskin News Visit our blog to read the latest news from Hexoskin. Latest News	Hexoskin Support Community Any question? Check out Hexoskin's support center for articles and Q&A's. Support		Hexoskin Store Discover our new collection of Hexoskin Smart Shirts, for Men, Women and Children as well as the new Hexoskin Prokits. Shop Now	Hexoskin News Visit our blog to read the latest news from Hexoskin.	Hexoskin Support Community Any question? Check out Hexoskin's support center for articles and Q&A's. Support

NOTE: After creating your account on the Online Dashboard, you will need to assign your account to a Hexoskin Device before using it for the first time. Jump to **Page 5** for instructions.

CREATE YOUR HEXOSKIN ACCOUNT - ON THE HEXOSKIN APP (Option 2)

While your Hexoskin Device is charging, you can create your account. The account creation step is required. If not performed, you will not be able to record data. Once created, 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. This will give access to the Hexoskin OneSync Software, Hexoskin App, and Hexoskin Dashboard.

Hexoskin Application				
		Download the Hexoskin App		
HEXOSKIN HEALTH SENSORS & AI	 Email Password First Name 			
Email	Last Name	Download on the App Store Google Play		
LOGIN	Height in •	Open the Hexoskin App		
Forgot Password?	Weight Ibs •	Click on "Sign Up"		
	I agree to the terms of service	Fill in the form		
Don't have an account? Sign Up	REGISTER	Click on "Register"		

NOTE: If you created your account with the Hexoskin App, your Hexoskin Smart Device will be automatically assigned to your new account during the first pairing with your smartphone or tablet (see Instructions on Page 6). If you created your account on the Online Dashboard or if you wish to assign the Hexoskin Smart Device to another User, please follow the steps on Page 5.

ASSIGN A USER TO THE HEXOSKIN DEVICE WITH HEXOSKIN ONESYNC

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

Download Hexoskin OneSync. Hexoskin OneSync allows synchronizing the data collected with the Hexoskin Smart Clothing and uploading it to the Hexoskin platform for advanced reporting. If you haven't done it yet, visit hexoskin.com/pages/start, section "HEXOSKIN ONESYNC " to download and install the software.

Once installed, launch Hexoskin OneSync and Sign in with your Hexoskin Account. Then connect your Hexoskin Device to your computer with the provided USB cable.

- 1. Select the Hexoskin Device on the left column (The serial number is on the label behind the device: SN: XXXXX)
- 2. Click on "Assign" at the right side
- 3. Select the User from the right dropdown list.



The Hexoskin Device Serial Number is listed on the left column

Select the Assign Menu to reveal a list of the Users

The device is now assigned to the Account. The Account's email address should now appear under the device serial number. If you are using Hexoskin for your personal use, this is usually the only time you will need to complete this step.

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

The User is selected and now assigned to the Hexoskin Device

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. Then, you need to pair your device to your smartphone or tablet. To do this:

Settings	Bluetooth	
Bluetooth		
Now discoverable	e as «John's Phone».	

1. Open the Hexoskin App and Log In

Make sure that the Bluetooth is turned on in the settings of your smartphone or tablet.

2. Follow the instructions on the Hexoskin App to pair your Hexoskin Device.

To start using your Hexoskin App, please refer to section " EXPLORE THE HEXOSKIN APP ".



SET UP THE HEXOSKIN SHIRT

Put on the Hexoskin Shirt without stretching it too hard. See the online videos for instructions on putting on and taking off the Hexoskin Shirt at hexoskin.com/pages/start. For better results, adjust the shirt at the thoracic and navel levels with the integrated elastic bands (ProShirts) or the elastic bands (Smart Shirts).

1. The interior of your Hexoskin Shirt has three heart sensors that are sewn at the chest and belly-button levels. To ensure good signal quality, apply a pea-sized amount of Conductive Cream to each sensor. Fold up the lower part of the shirt to expose the heart sensor and apply cream. Gently pull the fabric under the right arm and left arm to expose the heart sensors and apply cream.

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 side pocket with the wire upward and the light outward.

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 the 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: XXXXX)*
- 5. Tap on "Assign" in the pop-up window*
- 6. You are now on the Homepage
- 8. Use the Toolbar at the bottom of the screen to access the options of your Hexoskin Application.

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

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

Device: displays details about your linked device, including your battery life, recording status, device serial number, and firmware.

Heart Rate/Minute Ventilation/Rate: brings you to the live stream of your real-time data where you can view your ECG waveform, breathing signals from the thoracic, and abdominal loops.

Fitness Test: choose a Fitness test to determine your Heart Rate Recovery, Heart Rate Max, Resting HR, and estimated VO2max.

Activity: choose an activity to record, such as workout, walk, sleep, rest.

Manual Entry: allows you to enter additional metrics from other tools or devices, such as blood pressure, SpO2, temperature, weight, etc.

New Data: displays the Home Screen where you can record new data using the Fitness Test, Activity, or Manual Entry modes.

Profile: brings you to your Profile & Status to view your User Profile, Recent Activities, or Live Metrics.

Settings: brings you to your General Management page where you can view Raw Data and Give Feedback.



Homepage View



EXPLORE THE HEXOSKIN APP



Home Screen

From the Home Screen, select: Fitness Test: assess your level of physical fitness and calculate your cardiorespiratory metrics. Activity: add context to your data. Manual Entry: add health data from other test or device.



Fitness Test allows to perform different tests to assess your health condition and mental health. A report is generated at the end of a test. Activity allows to choose an activity from the list or tap Start Other Activity.





Tap on Live Metrics, then on ECG to visualize your ECG Waveform in real-time.

Tap on Live Metrics, then on Respiration to visualize the thoracic (light blue) and abdominal (yellow) breathing signals.

Tap on Live Metrics, then on Activity to visualize your acceleration on three axes (X, Y, Z).



Start an Activity, Annotate Data & Add Manual Entries

Start An Activity: Tap on the Activity tile on the Home Screen, then you can choose to start a Sleep activity, or any other activities or sports. Tap on Start Activity to start the activity selected.

The Hexoskin App will display the elapsed time, and the relevant metrics to the nature of the activity chosen. Not all activities will display the same metrics. More metrics will be displayed on the Hexoskin Dashboard after synchronizing your data (refer to the section " SYNC YOUR DATA IN THE HEXOSKIN DASHBOARD ").

Annotate Data: You can swipe down anywhere on your screen (A) 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.

Q

Start An Activity: On the Home Screen, the tile Manual Entry allows to add several manual entries such as weight, temperature, blood pressure, and SpO2 data points.

SYNC YOUR DATA TO THE HEXOSKIN DASHBOARD

To visualize your raw and processed data on the Hexoskin Dashboard, you need to synchronize your records with the Hexoskin OneSync software. Please note that your device can record up to 100 days of biometric raw data. Past this time limit, the next record will overwrite the oldest one stored.

After a recording session, you should:

- 1. Open Hexoskin OneSync
- 2. Log In with your Hexoskin Account
- 3. Connect your Hexoskin Device to your computer with the provided USB cable. The data will start syncing automatically.

As soon as the sync is completed, your data will be available online for review on your Hexoskin Dashboard (<u>my.hexoskin.com</u>) and on your Hexoskin App.



HEART

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 maximal heart rate (highest detected), minimal (lowest detected), and average are calculated.

Unit: BPM = Beats per minute

Heart Rate Recovery (HRR): This metric reports the decrease in heart rate after a minute of rest following a maximal 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 achieved during a maximal effort. 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".

Resting 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 resting heart rate (HRrest) 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 minute Rest Test".

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

Fitness Status Heart Bate Becovery

Fitness Status

67





On your App

11

Heart Rate Variability (HRV): This measures the natural variation in the time interval between successive heartbeats. It reflects the activity of the autonomic nervous system that controls the heart rate. Hence, HRV depends on external or internal stimuli such as emotions, heat, sleep, and physical exertion. Hexoskin provides HRV data during rest (RMSSD) and sleep (HF Percentage). tThe higher your HRV, the better your body tolerates stress and/or recovers from it.

Unit: ms = milliseconds (%) = percentage

BREATHING

HEART

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 maximal (highest detected), minimal (lowest detected), and average breathing rate are calculated.

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

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 VO_{2max} value is calculated by performing the 12 minutes Run Fitness Test (available on the Hexoskin App that is equivalent to the Cooper test where the VO2max is estimated based on the distance traveled and not on Hexoskin respiratory measures). The Cooper test provides an estimate of the VO_{2max} based on the distance traveled.

Unit: ml/Kg*min = milliliters per Kilogram per minute Range: male 35 - 80 mL/kg/min and female 27 - 77 mL/kg/min

On your App

99 Heart Bate Variability (ms)

33 62

Heart Rate Variability (%)

26

Fitness Status	
VO2 Max	54







BREATHING	On your App
Minute Ventilation: This metric refers to the total volume of air inhaled during a minute.	Min. Ventilation / Rate
Unit: LPM = Liters per minute Range: 5-8 LPM for normal breathing, up to 200 LPM in elite athletes during exercise	16 грм
	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, the Achilles tendon, in the plantar fascia, in the lateral hips, in the lower back or in the shins.	Cadence (SPM)
Range: ideal cadence for jogging or running is 175-185 SPM	
Calories (Also known as Energy): Estimates the total number of calories (amount of energy) you burned during	Calories
an activity. To maintain your current weight, you need to burn the same number of calories as your daily caloric intake. Hexoskin calculations of calories depend on gender, age, and weight.	619
Unit: Cal = Calories Range: Depends on the person and activity recorded	
Steps: Reports the total number of steps recorded during an activity. The number of steps per day will depend on	Steps
your lifestyle. The more steps you take, the more active you are.	
Unit: Steps 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 Efficiency: Reports the proportion of time asleep divided by the time in bed (lying position detected).

SLEEP ASSESSMENT

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 poor sleep.

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

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 (Sleep Latency): 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







00:08:40

Sleep Latency (s)

Total Sleep Time (s) 07:09:20





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 Hexoskin OneSync. 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. Finally, with your account, you can also share your data with your family and friends.

Q: What is the garment made of?

A: The shirt is made of 73% polyamide micro and 27% elastane. The textile is very lightweight and breathable. Every Hexoskin Shirt receives 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 charts at hexoskin.com/pages/size-charts).

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

A: The device weighs 40 g (1.41 oz) and measures 42x72x13 mm (1.6x2.8x0.5 in).

Q: What is the sensor for breathing monitoring?

A: Our breathing sensors are based on Respiratory Inductive Plethysmography (RIP) technology.

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

A: Your device starts recording as soon as you plug in your shirt and the two orange LEDs turn on. If there are no LEDs on, charge the device battery.

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 or tablet, no location data will be recorded if you are not using the Hexoskin App.

Q: Where is my data stored during a recording?

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

FAQ - FREQUENTLY ASKED QUESTIONS

Q: Is the data timestamped?

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

Q: What is the battery charge length?

A: With the Hexoskin Smart device, the battery will last 36 hours on a full charge. 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 diagnostics 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 Shirt Connector back into the zipped pocket to protect it. Use the Delicate cycle with cold water and liquid detergent. 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 optimal performance, be sure to clean your Hexoskin Device regularly when it becomes noticeably moist or dirty.

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 refund 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, cables, and elastic band(s) 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 <u>www.hexoskin.com/contact</u>. 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

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.

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YOUR PERSONAL NOTES

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