

LOGR

Orpyx LogR™ Real-Time Measurement of Plantar Pressure for Research

Instructions for Use Version 1.0 - August 2016

 @OrpyxLogR

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 **RPYX**
HUMAN PERCEPTION REDEFINED









www.orpyx.com

1.0 ORPYX LOGR™

Orpyx LogR™ is a solution designed for the accurate, efficient, and real-time measurement of foot and plantar pressure analysis. Comprised of sensor-embedded inserts, iOS application and cloud-based software for data storage and management, this system is used by researchers in a variety of different applications that might include footwear and orthotic design, biomechanics, sports performance, gait and balance assessments, posture research, rehabilitation, injury prevention, fall prevention, and more.

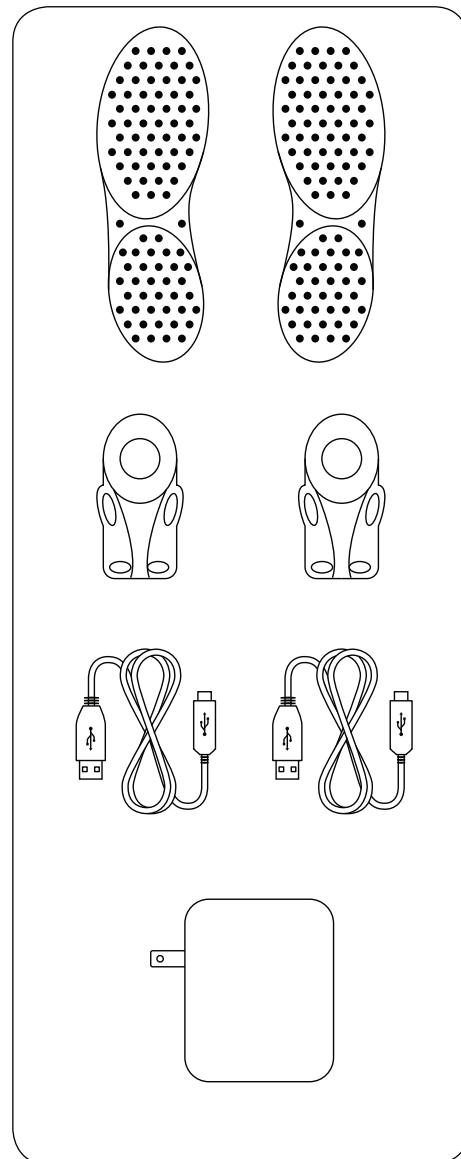
The Orpyx LogR system is an in-shoe plantar pressure research device with a simple 5-minute setup that is not tethered to a computer in a lab. By using a 0.5mm thick proprietary sensor array that is worn under foot, it connects to attached measurement electronics that stream real-time sensor measurements to the iOS Orpyx LogR app and when connected to the Internet, automatically syncs the collected measurements to the Orpyx LogR cloud-based data management portal.

INCLUDED WITH PURCHASE

-  Plantar pressure shoe inserts
-  BTLE-enabled Shoe Pods (Left and Right for each pair)
-  Orpyx LogR iOS app
-  USB charging and sync cables
-  User documentation
-  One (1) software site license for browser-based data collection tool
-  One (1) year set-up, maintenance and support services
-  One (1) getting started training session with Orpyx Customer Care

Additional inserts and software licenses – sold separately

iOS device not included with purchase



2.0 SETTING UP YOUR SYSTEM

Getting started with your Orpyx LogR system

Your Orpyx LogR system will need to be initialized before first use. To initialize the system, plug each shoe pod into the USB charging cable attached to the wall adapter or computer. Once the shoe pod is plugged in, it will flash red and green, followed by a solid red LED light for approximately 6 seconds. After 6 seconds, you may unplug the shoe pod(s) from the charging cable and proceed to use your Orpyx LogR system.



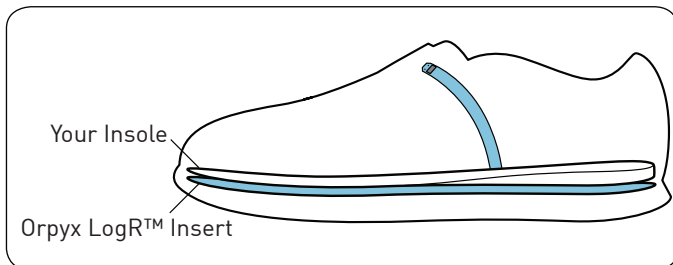
Note: We recommend fully charging shoe pods (minimum 8 hours) before use to ensure optimal battery performance. Shoe pods must be kept charging when not in use.

How to properly fit your Orpyx LogR inserts

The Orpyx LogR inserts fit inside your running or walking shoe, underneath the insole or orthotic. To install, unlace the shoe-laces, fold back the tongue and remove the existing insole from your shoe. Peel the paper backing off the double sided tape and place the appropriate left or right Orpyx LogR insert into the shoe. If the insert is used in multiple shoes, the double sided tape may need to be re-applied. The insert should lay flat on the bottom of the shoe without bunching, creasing, moving or curving up the sides. The lead should run along the instep of the shoe, up and over the shoe tongue. When in place, your shoe insole can be put back into the shoe on top of the Orpyx LogR insert – the insert should not bend or shift during this step.



Note: The Orpyx LogR inserts should not be placed under insoles that have hard plastic on their undersurfaces, or used outside of the shoe. The inserts are designed to be used in-shoe only.



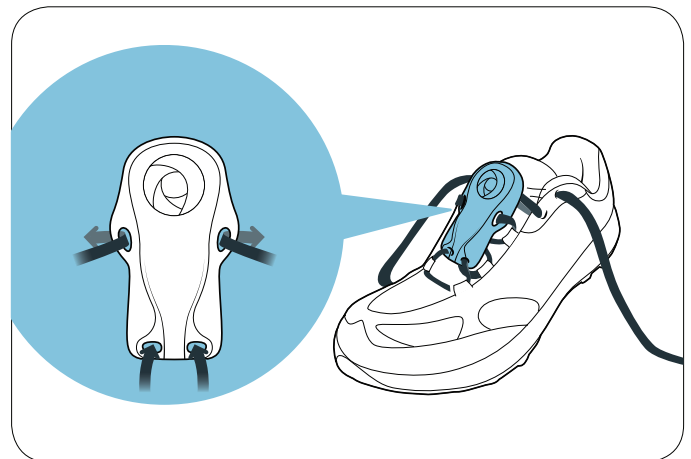
How to properly fit your Orpyx LogR shoe pods

Option 1 - Shoe Pod Clips (Recommended):

Adjust the shoe pod to sit centered on the top of the tongue. Take the shoe pod clip, included with the Orpyx LogR system, and slide the clip under the shoe laces (or Velcro). Make sure that the 2 (two) prongs on the clip are facing upwards at the base of the shoe tongue. The clip should be positioned in the middle of the laces/Velcro, not too far towards the top or bottom of the shoe tongue. Attach the shoe pod clip – hook the prongs in first to the bottom holes of the shoe pod, and then push the top until you hear it click into place.

Option 2 - Shoe Pod Lacing:

Adjust the shoe pod to sit centered on the top of the tongue. Lace up the shoe normally until there are only two shoelace holes left on each side. Take one lace and lace it through the top shoe pod hole, coming from the front to the back of the shoe pod. Cross the lace under the bottom of the shoe pod (along the back) and lace it through the opposite shoe pod hole (from bottom to top). Lace the shoe up as you normally would, back through the top two shoe lace holes. Ensure that the shoe pod is sitting centered in the shoe, and that the lead is still flat against the instep of the shoe.



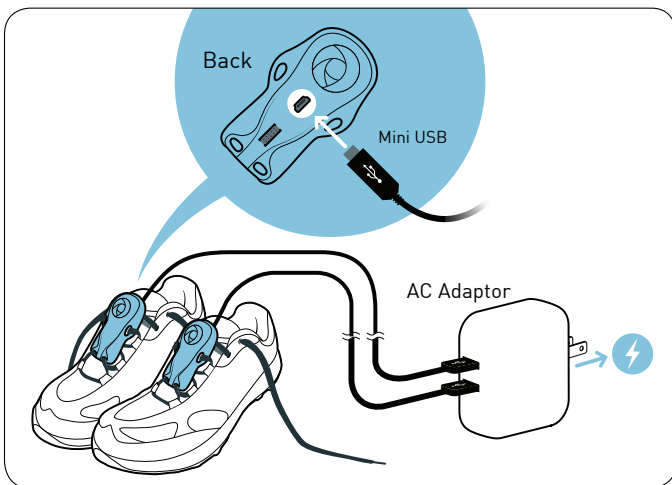
How to charge the Orpyx LogR shoe pods

With regular use, the shoe pods will require charging daily. Battery life for the shoe pods can be monitored from the foot map screen on the Orpyx LogR application. To charge the shoe pods, insert the mini USB cable into the mini USB port on the back of the shoe pod. You should hear a click when in place. The other end of the cable should be inserted into the AC adaptor, which plugs directly into an electrical outlet.

When the shoe pods are charging, a red light flashes on each shoe pod. When the shoe pods are fully charged, the lights turn solid green.



Note: The device should only be charge with the AC Adaptor included with the system. The shoe pods should be kept charging when not in use.



Orpyx LogR shoe pod lights

There are red and green lights inside each shoe pod to indicate device status.

The meaning of the light is as follows:

Shoe Pod Indicator Light	Status/Meaning
Solid green with USB connection	Battery fully charged
Flashing red with USB connection	Battery charging
Flashing green once every 10 seconds	Not connected to iOS device, battery level OK
Flashing red once every 10 seconds	Not connected to iOS device, battery level low
Flashing green twice every second	Connected to iOS device & sending data, battery level OK
Flashing red twice every second	Connected & sending data, battery level low
Flashing green once per second	Connected, battery level OK
Flashing red once per second	Connected, battery level critical

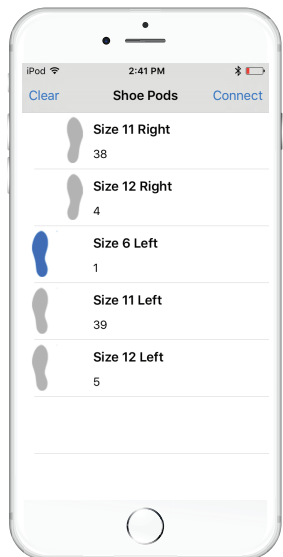
3.0 INSTALLING THE ORPYX LOGR APP

You can download the Orpyx LogR app from the Apple App Store in countries where the Orpyx LogR system is sold. To find the app, enter Orpyx into the search bar and you will see the Orpyx LogR app.

4.0 CONNECTING THE ORPYX LOGR SYSTEM FOR THE FIRST TIME TO THE ORPYX LOGR APP

When you launch the Orpyx LogR app for the first time, you will be prompted to set up your device. You can set up your device by following the instructions below:

1. Reset your system by plugging the shoe pods in to a USB charging cable – you will see the red and green light flash together quickly, followed by a solid red light. Once the shoe pod shows solid green or flashing red, unplug the shoe pods
2. Launch the Orpyx LogR app and swipe right to access the configuration screen, then press Setup Devices.
3. Select the appropriate right and left shoe pods using the number found on the shoe pod. To select a shoe pod on the app, touch the foot icon so that it highlights in blue.



Note: Data can not be collected from multiple pairs of inserts. The Orpyx LogR app can only connect and collect data from a single left and right insert at a time, either as a pair (left and right) or separately (left or right).

4. The shoe pod name can be changed by selecting the shoe pod row and entering your device name.
5. Press Connect in the top right corner to connect the shoe pods you have selected.
6. Once connected, swipe left to return to the footmap screen. Here, you will see the battery levels of connected each pod, and the New Session button will be enabled.



7. To test that the connection is working, exert pressure on the inserts, and the foot map screen will show green dots where pressure is detected.
8. Press the New Session button. You will be required to enter your activity information, including the activity type and a brief description.
9. Press the Start button to begin logging data.



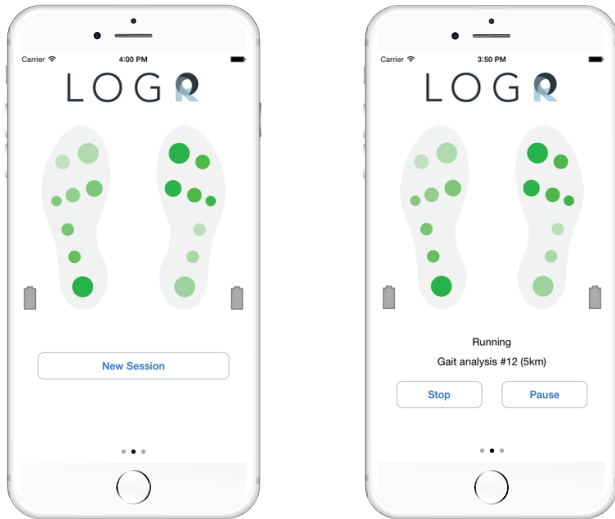
Note: Repeat steps 1-7 to connect other devices.

5.0 USING THE ORPYX LOGR™ APP

Once you have connected the shoe pods to the Orpyx LogR app, you can begin to use the Orpyx LogR system.

A. Foot Map

The foot map indicator light goes from light green to dark green based on low to high pressure. When more pressure is exerted, the indicator light will display dark green.

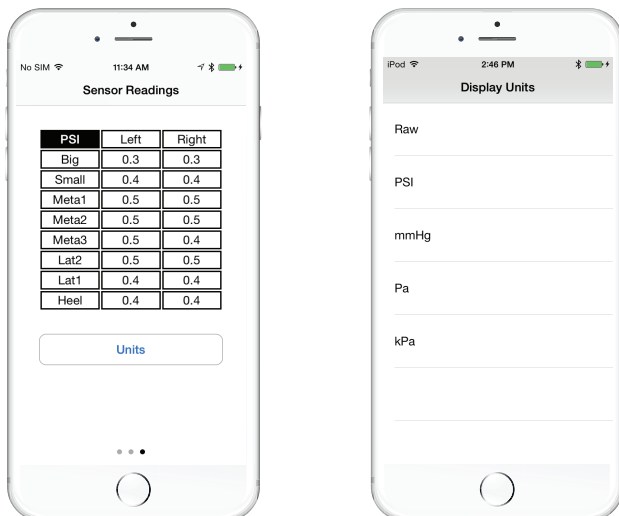


B. Sensor Readings

Swipe left to access the sensor readings screen. Real-time pressure values for each sensor and foot are shown here. Pressure units can be changed to: PSI, mmHg, kPa



Note: The data shown on the Orpyx LogR app should not be used for data analysis. Data analysis should be done using data downloaded from the cloud software.



PSI	Left	Right
Big	0.3	0.3
Small	0.4	0.4
Meta1	0.5	0.5
Meta2	0.5	0.5
Meta3	0.5	0.4
Lat2	0.5	0.5
Lat1	0.4	0.4
Heel	0.4	0.4

Units

6.0 ORPYX LOGR™ DATA

How do I view my data?

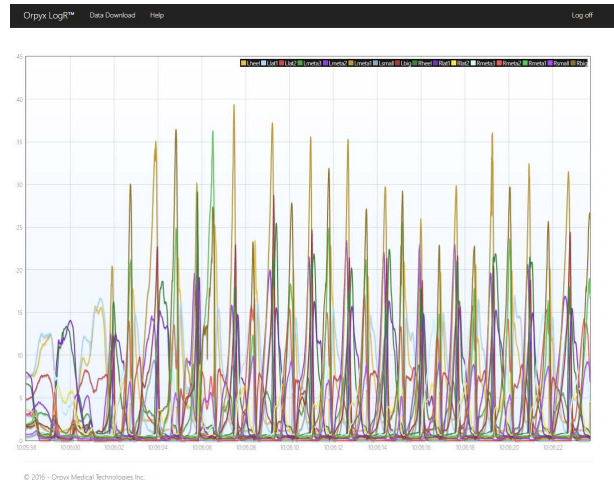
Data recorded on the Orpyx LogR app can be viewed on the Orpyx LogR cloud (logr.orpyx.com). Log in with your username and password to view the data.

How do I access the Orpyx LogR cloud?

Included with purchase of the Orpyx LogR system is a seat license to the Orpyx LogR cloud; a browser-based data collection tool. Login credentials for the cloud will be provided at the time of purchase, or during the initial LogR training session.

Once you have accessed your Orpyx LogR account, you will be able to:






- View individual data sessions
- Download pressure files
- Configure date ranges
- Highlight sessions and view in graph format
- Highlight specific data sections on the data graphs





How do I change my password?

- Click on your username at the top right of the Orpyx LogR cloud home page.
- A new page will appear to show change password.
- When prompted, enter your current password (Orpyx will provide the initial password).
- When prompted, enter your new password and press "change password".

How to use the Orpyx LogR cloud?

-  Login using your credentials
-  Sessions are listed on the page – you can search for specific session using the search bar (using the activity, description or shoe pod numbers
-  To access Orpyx Knowledge Base (Help Centre), click the Help button on the top left
-  To download data, highlight the session and click Export as CSV – this will initiate a download
-  To view the data in graphical format – highlight session and click on the graph icon beside the Session ID number

-  To select other sensors, click on the legend and select appropriate sensors
-  Highlight region – zoom in or download data from that region



Export as CSV

Show entries

Search:

SessionId	Activity	Description	Shoepods Left/Right	Start	End
8372	jumping	Test	43 / 42	2016-08-03 13:31	2016-08-03 13:31
8371	running	5mile test	43 / 42	2016-08-03 08:16	2016-08-03 08:16
8098	other	Connection and data push test	5 / 4	2016-07-12 09:16	2016-07-12 09:16
7803 	cycling	Fast biking	53 /	2016-06-21 13:13	2016-06-21 13:13
7802	jumping	Test 1234	53 /	2016-06-21 13:09	2016-06-21 13:09
7792	running	Fun	53 / 52	2016-06-16 10:25	2016-06-16 10:25
7665	walking	West Point	/ 38	2016-06-07 10:25	2016-06-07 10:25
7606	other	Ttt	5 / 4	2016-05-30 15:24	2016-05-30 15:25
7291	other	Demo prep 3	53 / 52	2016-05-04 13:23	2016-05-04 13:23
7286	other	Demo prep 2	53 /	2016-05-04 11:37	2016-05-04 11:37
7282	other	Demo prep	53 /	2016-05-04 11:30	2016-05-04 11:30
7277	other	HQ test	39 / 38	2016-04-29 15:45	2016-04-29 15:45
7275	other	Activity Session	39 /	2016-04-29 14:15	2016-04-29 14:15
7252	other	Activity Session	39 /	2016-04-28 16:30	2016-04-28 16:31
5255	standing	Demo URI	39 / 38	2016-03-03 10:27	2016-03-03 10:27
5242	jumping	Demo in office	39 / 38	2016-03-02 14:46	2016-03-02 14:46
5125	other	Demo1	53 / 52	2016-02-23 12:14	2016-02-23 12:14
5124	running	Test 1	53 / 52	2016-02-23 11:59	2016-02-23 11:59
5115	running	Test	/ 52	2016-01-26 17:42	2016-01-26 17:44

7.0 MAINTENANCE AND CLEANING

Orpyx LogR Insert Replacement

The Orpyx LogR inserts were designed to be durable and reliable over an extended period of time; however, the usable life of the inserts will vary depending on their use case. If you have questions about the life span of your Orpyx LogR inserts, please contact Orpyx Customer Care.

Cleaning the Orpyx LogR System

A damp cloth with mild detergent may be used to wipe the outside of the Orpyx LogR shoe pods and inserts. DO NOT use strong cleaning solution that contains bleach or immerse the Orpyx LogR system in the water.



Disposal of the Device

There are no user-repairable components in the Orpyx LogR system. When the device has reached the end of its useful life, please dispose of properly in accordance with all local and national regulations.

Calibration

The Orpyx LogR inserts will not require calibration with daily use before each measurement. Due to normal wear, it may be necessary to send the Orpyx LogR inserts back to Orpyx for re-calibration.

8.0 STORAGE AND HANDLING

Orpyx LogR System Handling



AVOID dropping the Orpyx LogR shoe pods. Although robustly designed, damage may occur that could cause the system to malfunction.



DO NOT open the Orpyx LogR shoe pods for any reason.



DO NOT submerge the Orpyx LogR shoe pods or inserts in water for any reason.



Keep the Orpyx LogR shoe pods charged when not in use.



DO NOT cut or trim the Orpyx LogR inserts. Cutting the sensor insert will damage the sensors.



DO NOT puncture the Orpyx LogR inserts. Sharp elements may cause damage to the sensors.



DO NOT fold or crease the Orpyx LogR inserts.



DO NOT pull on the Orpyx LogR insert and shoe pod lead. Be careful installing and uninstalling from shoes.



DO NOT use the Orpyx LogR inserts for measurements outside of the shoe.



DO NOT use excessive force/body weight on the Orpyx LogR inserts. The sensor inserts can withstand pressures up to 785 kPa (approximately 130 PSI).



Note: Failure to follow these steps may void your warranty.



Orpyx LogR System Storage

Keep dry.

Keep charged.

9.0 REGULATORY COMPLIANCE INFORMATION

FCC COMPLIANCE STATEMENT

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 interference received, including interference that may cause undesired operation.

NOTE: Orpyx is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

CANADIAN COMPLIANCE STATEMENT

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

SOFTWARE LICENSE AGREEMENT

A copy of the Orpyx Software License Agreement is available online through the Orpyx LogR portal at: logr.orpyx.com



10.0 TECHNICAL INFORMATION, SPECIFICATIONS AND WARRANTY

TECHNICAL SPECIFICATIONS FOR SHOE PODS

Size:	2.75 in x 1.18 in x 0.5 in (L x W x H)
Weight:	20 grams / 0.7oz
Power Source:	Rechargeable LiPo battery
Frequency of Operation:	2406-2475 MHz
Max.20 dB Bandwidth:	1 MHz
Max.Output Power:	+0 dBm
Number of Operation Modes:	2 - ON / Ship Mode
Storage:	Temperature -20 to +55 Celsius / -4 to 131 Fahrenheit / 95% humidity
Operation:	Temperature -20 to +55 Celsius / -4 to 131 Fahrenheit / 95% humidity

TECHNICAL SPECIFICATIONS FOR INSERTS

Thickness:	0.5 mm (0.02 in)
Sensors:	8 pressure sensors per insole, aligned with the bony prominences of the foot
Sensing Area:	Sensing area of 6.13 in (size 5) to 7.75 in (size 13)
Hysteresis:	Approximately +/- 4%
Pressure Resolution:	1.5 to 3.0 PSI / 10 to 20 kPa
Sizes:	US Men 5 to 13, US Women 7 to 13
Pressure Measurement Range:	0 to 75 PSI / 0 to 517 kPa

11.0 FREQUENTLY ASKED QUESTIONS

What type of sensors does the system use?

The Orpyx LogR has 8 Piezoresistive sensors which can measure pressure between 0 to 75 PSI / 0 to 517 kPa.

Will change in temperature have an effect on the accuracy? What effect will change in temperature cause, if any?

The operating temperature range of the inserts is between -20 to +50 Celsius / -4 to 122 Fahrenheit. Within this range the sensors have a temperature sensitivity of 0.35%/Celsius / 0.19%/Fahrenheit.

Do the sensors experience “sensor – creep”?

Under a constant static load, the sensor response changes on as described by a logarithmic time scale [6%/log(second)]. This creep is typically not measurable during cyclic loading and this effect can be compensated for in post data processing.

Does the sensor saturate?

Sensor measurements saturate at approximately 75 PSI / 517 kPa.

Will excessive force/body weight have an adverse effect on the sensor and it's accuracy?

The sensor inserts can withstand pressures up to 785 kPa (approximately 130 PSI). The Orpyx LogR sensor readings will saturate above 75 PSI / 517 kPa, meaning that the system is unable to accurately measure the applied pressure.

How do I calibrate inserts?

The Orpyx LogR inserts will not require calibration with daily use. Due to normal wear, it may become necessary to send the Orpyx LogR inserts back to Orpyx for a re-calibration. Please contact Customer Care for additional information.

What is “event synchronization”?

Current customers use an event to synchronize data streams from other devices and systems. For example, a particular foot motion which is observable by the Orpyx LogR system as well as other devices being used.

Sensor Hysteresis

Pressure sensor hysteresis is approximately +/- 4%.

Warranty

Orpyx Medical Technologies Inc. guarantees that the Orpyx LogR system will be free of defects in material and workmanship for one year, valid from the date of purchase. The warranty extends only to the original purchaser and is not transferable. Due to the varying uses of the Orpyx LogR inserts, the performance of the inserts are not covered under warranty.

For more information, please contact Orpyx Customer Care.

Orpyx Medical Technologies Inc.

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