

Exercise Heart Rate Monitor

(Order Code EHR-BTA)



The Exercise Heart Rate Monitor measures a person's heart rate by registering the small electrical signals carried across the surface of a person's skin each time his or her heart contracts. Data can be wirelessly transmitted to a Vernier interface using the Heart Rate Receiver. Sensors can also transmit data directly to devices that are compatible with Bluetooth® wireless technology, such as LabQuest® 2 or newer, without the receiver. This sensor is an excellent hands-free option for continuously monitoring heart rate before, during, and after exercise or while a person is stationary.

Note: Vernier products are designed for educational use. Our products are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

What's Included

- Exercise Heart Rate Strap
- Polar Transmitter Module (battery included)
- Heart Rate Receiver

Compatible Software and Interfaces

See www.vernier.com/product/ehr-bta for a list of interfaces and software compatible with the Hand-Grip Heart Rate Monitor.

Assembly

The Polar Transmitter Module simply snaps onto the hand grips.

Quick Start

Here is the general procedure for using the Exercise Heart Rate Monitor with the Heart Rate Receiver.

1. Ensure that the Polar Transmitter Module is securely attached to the Exercise Heart Rate Strap.
2. Connect the Heart Rate Receiver to the interface.
3. Start the data-collection software.
4. The software will identify the Exercise Heart Rate Monitor and load a default data-collection setup. You are now ready to collect data.

Note: The subject's heart rate will not be displayed on the Meter Screen when using the Heart Rate Receiver. Heart rate will be calculated and then graphed during data collection after a short delay.

Collecting Data with Bluetooth wireless technology

To use the Exercise Heart Rate Monitor with Bluetooth-compatible devices, ensure that the Polar Transmitter Module is securely attached to the Exercise Heart-Rate Strap. Locate and record the ID on the side of the Polar Transmitter Module. This is a unique sequence of eight numbers and/or letters (e.g., ID:XXXXXXXX). Secure the strap around the subject's chest. The strap should be located just below the chest muscles. Attach the hook to the other end of the strap to secure the sensor. Verify that the Polar Transmitter Module is located in the center of the chest in an upright position. The sensor is now ready for data collection.

Collecting Data with Vernier Graphical Analysis®

1. Launch Vernier Graphical Analysis
2. Select Sensor Data Collection.
3. Select the Polar HR with the proper ID from the list of available sensors.
4. Tap Collect to begin data collection.

Note: When done collecting data, tap Disconnect. This will make the sensor available for other devices. If the connection between the device and the sensor is lost using LabQuest, navigate to the Meter Screen. Tap Offline: Heart Rate and select Go Wireless. Tap Reconnect and select your Polar HR sensor.

Collecting Data with LabQuest App

1. Choose New from the File menu. On the Meter Screen, choose Go Wireless Setup from the Sensors menu.
2. Select the Polar HR with the proper ID from the list of available sensors. Tap OK.
3. The heart rate of the subject will be displayed on the Meter Screen.
4. Collect data as desired.

Note: When done collecting data, tap Disconnect. This will make the sensor available for other devices. If the connection between the device and the sensor is lost, tap Connect and select your Polar HR sensor.

Specifications

Battery type	CR 2025 (user-replaceable)
Battery lifetime	200 hrs
Operating temperature	-10 to 50°C
Radios	Bluetooth and 5 kHz RF transmission
Wireless range	
RF transmission	80–100 cm 10 m or more unobstructed
Bluetooth	

How the Sensor Works

The Exercise Heart Rate Monitor measures a person's heart rate by registering the small electrical signals carried across the surface of a person's skin each time his or her heart contracts. The Polar Transmitter Module detects each electrical signal from the heart through the electrodes on the chest strap. The heart rate information is then wirelessly transmitted using the Heart Rate Receiver or a Bluetooth radio to supported devices. Note: When using the receiver, make sure that the receiver is held close to the subject. The reception range of the plug-in receiver is 80–100 cm or about 3 feet.

Helpful Tips

Listed below are some tips to insure successful data collection.

1. If you have a device that is Bluetooth compatible, such as the LabQuest 2 or newer, use the Bluetooth option for data collection.
2. Hold the receiver within 80–100 cm of the subject when using the receiver. This is the maximum transmission range of the transmitter when using the receiver.
3. After use, detach the Polar Transmitter Module from the Exercise Heart Rate Strap. Then rinse the strap under running water and hang to dry. Store both items separately to maximize battery life.
4. The Heart Rate Receiver can receive signals from other Polar Transmitter Modules if they are within range; be sure to maintain a distance of at least 2 m between other individuals that are monitoring heart rate.
5. Interference from electrical devices, such as computer monitors, electronic exercise equipment (treadmills, stationary bicycles, etc.), televisions, TV antennas, and high voltage lines (both above and below ground) can result in poor readings. Keep the Heart Rate Receiver as far away as possible from such equipment.
6. With certain individuals, readings from the Exercise Heart Rate Monitor may take a minute or two to stabilize. In such cases, allow the readings to stabilize before performing an experiment. If readings are still unstable, remove the strap from the subject and rinse in running water. This will wet the electrodes. Then reattach to the subject and record heart rate as directed above.
7. If you are using the Heart Rate Receiver, you must start data collection to see heart rate. Live readouts do not display heart rates because that value comes from a calculated column that must be populated.

Troubleshooting

For troubleshooting and FAQs, see www.vernier.com/til/2879

Repair Information

If you have watched the related product video(s), followed the troubleshooting steps, and are still having trouble with your Hand-Grip Heart Rate Monitor contact Vernier Technical Support at support@vernier.com or call 888-837-6437. Support specialists will work with you to determine if the unit needs to be sent in for

repair. At that time, a Return Merchandise Authorization (RMA) number will be issued and instructions will be communicated on how to return the unit for repair.

Replacement Parts

Item	Order Code
Exercise Heart Rate Strap	HR-STRAP
Polar Transmitter Module	HR-TRANS
Heart Rate Receiver	HR-REC

Optional Accessories

Item	Order Code
Heart Rate Hand Grips	HR-GRIP

Warranty

Warranty information for this product can be found on the Support tab at www.vernier.com/ehr-bta

General warranty information can be found at www.vernier.com/warranty

Disposal

When disposing of this electronic product, do not treat it as household waste. Its disposal is subject to regulations that vary by country and region. This item should be given to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring that this product is disposed of correctly, you help prevent potential negative consequences on human health or on the environment. The recycling of materials will help to conserve natural resources. For more detailed information about recycling this product, contact your local city office or your disposal service.



The symbol, shown here, indicates that this product must not be disposed of in a standard waste container.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

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 operation
- RF Exposure Warning

The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

IC 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.

Industry Canada - Class B This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada. 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. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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'appareil doit accepter toute interférence radioélectrique, même si cela résulte à un brouillage susceptible d'en compromettre le fonctionnement.

*Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel interférant-brouilleur: "Appareils Numériques," NMB-003 édictée par Industrie Canada. L'utilisation est soumise aux deux conditions suivantes: (1) cet appareil ne peut causer d'interférences, et (2) cet appareil doit accepter toutes interférences, y comprises celles susceptibles de provoquer un dysfonctionnement du dispositif. Afin de réduire les interférences radio potentielles pour les autres utilisateurs, le type d'antenne et son gain doivent être choisis de telle façon que l'équivalent de puissance isotrope émise (e.i.r.p.) n'est pas plus grand que celui permis pour une communication établie. **Avertissement d'exposition RF:** L'équipement est conforme aux limites d'exposition aux RF établies pour un environnement non supervisé. L'antenne (s) utilisée pour ce transmetteur ne doit pas être jumelée ou fonctionner en conjonction avec toute autre antenne ou transmetteur.*



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