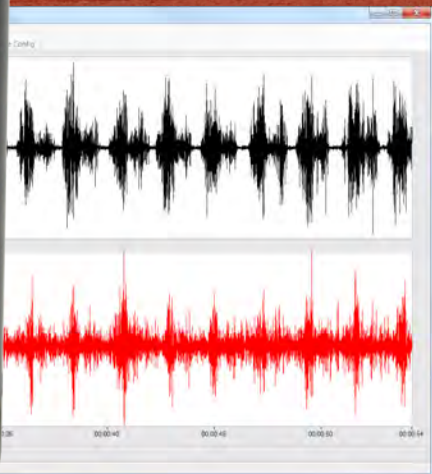


BioRadio™

WIRELESS PHYSIOLOGICAL MONITORING



The BioRadio is a wireless, multi-channel monitor for capturing physiological signals, such as electrical activity from the heart, brain and muscle. Wearable, programmable and easy to use, it is a versatile tool and a valuable addition to the classroom or research lab.

Saves time and money: the BioRadio measures ECG, EEG, EMG, GSR, respiration and more, all in one unit...no need to buy multiple pieces of equipment.

Goes where you need it to go: lightweight and wireless, the BioRadio is a lab on-the-go. Stream data to your computer via Bluetooth or store it to the BioRadio’s on-board memory.

Track movement data: record motion, direction, body position, gait, force, step count and distance

with the BioRadio’s built-in tri-axial accelerometer and gyroscopes.

Flexible data for advanced analytics: the BioRadio SDK enables you to import data into LabVIEW, MATLAB or your own proprietary program.

Professional support: every BioRadio includes training from a BioRadio expert to get you started.



BioRadio hardware features

- Bluetooth 4.0 connectivity
- Scalable recording—programmable number of input channels, input range, sampling rates and resolution
- Simultaneous recording to memory and wireless streaming to PC
- Expandable Sensor Pod (not shown) required for all external sensors except the Respiratory Effort Belt

Configure the BioRadio to capture combinations of biosignals, including:

ECG	GSR
EEG	Air Flow
EMG	Respiratory Effort
EOG	Blood Pressure
Temperature	Pulse Oximetry
PPG	ERP
Heart Rate	Movement



You can use the BioRadio for teaching and research across a broad range of subjects:

Physiology	Psychophysiology	Biomechanics	Motor Control
Exercise Physiology	Respiration	Bio engineering	Brain Computer Interface
Polysomnography	Senior Design	Telemedicine	Rehab Engineering

BioRadio hardware specifications

Connectivity & range:	Bluetooth 4.0 class 2 radio · up to 100 feet, line of sight
Dimensions & weight:	3.9" x 2.4" x .79" · 4 oz. (113 g)
Input Channels:	up to 4 differential or 8 single-ended; DC coupled
Input Range:	± 1µV to ± 2V (configurable)
Resolution:	12, 16, 24 bits, configurable
Sampling Rate:	250 Hz - 16,000 Hz (configurable)
Power Source:	Rechargeable lithium ion battery
Battery Life:	> 8 hour battery life; rechargeable via micro-USB port

The BioRadio Basic Kit gives you everything you need to record many basic biopotentials such as ECG, EMG and EOG right out of the box.



BioRadio kits take the guesswork out of ordering for your research lab or classroom. Our kits package the BioRadio with the software and all of the accessories and supplies you need to use the BioRadio across a range of applications, including Human Physiology, Exercise Science and Psychophysiology.

BioRadio Basic kit: All of the supplies needed for ECG, EOG and EMG. Includes Lab Course software for teaching and BioCapture software for data capture. **All application kits come with the following:**

BioRadio: The BioRadio is a wireless biomedical monitor with programmable channels for recording and transmitting many combinations of human physiological signals.

USB Receiver: The Receiver enables desktop or laptop PC to communicate wirelessly with the BioRadio

Cables & Electrodes: The BioRadio Basic Kit comes with ten snap electrode leads and a USB charge cable.

Nylon Carrying Case: Ballistic nylon carrying case for the BioRadio and supplies.

Disposable Supply Kit: Gauze (5 pks), Transpore Tape (1 roll), Conductive Electrode Cream (1 tube), Snap Electrodes (90), Skin Prep Cream (1 tube), Alcohol Wipes (200), Cotton Swabs (100), and One Hour of Training.

	BioRadio	Disposable Supply Kit	Snap Electrode Leads	Jumper Cables	Blood Pressure Cuff	Sensor Pod	Gold Cup Electrodes	Hand Dynamometer	Nasal/Oral Thermocouple	Breadboard Kit	Pulse Ox Finger Clip Sensor	Pulse Ox Interface Cable
Basic Kit	✓	✓	✓									
Complete Teaching Kit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Engineering Kit	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Exercise Science Kit	✓	✓	✓	✓	✓	✓						
Human Physiology Kit	✓	✓	✓	✓								
Psychophysiology Kit	✓	✓	✓	✓								
Respiration Kit	✓	✓	✓	✓								
GSR Kit	✓	✓	✓									

	Spirometer	Spirometer Mouth Pieces	Force Plate	Respiratory Effort Belt	RIP band	Chest RIP Interface Cable	Abdominal RIP Interface Cable	Snap Style GSR electrodes	One Hour of Training
Basic Kit									✓
Complete Teaching Kit	✓	✓	✓	✓	✓	✓	✓	✓	✓
Engineering Kit	✓	✓		✓					✓
Exercise Science Kit	✓	✓	✓	✓					✓
Human Physiology Kit					✓	✓	✓		✓
Psychophysiology Kit					✓	✓	✓		✓
Respiration Kit					✓	✓	✓		✓
GSR Kit								✓	✓

Accessories extend the functionality of the BioRadio and enable you to collect data from additional human physiology signals. Available separately or as part of BioRadio application kits.

Blood Pressure Cuff: measures systolic and diastolic blood pressure utilizing the oscillometric technique. Includes a standard adult size adjustable cuff (27 cm to 39 cm), a pump bulb and a pressure transducer.



Blood Pressure Cuff

Electronic Breadboard Design Kit: includes a breadboard, battery, and multiple components such as resistors, capacitor, and op-amps allows students to design their own circuits for electronic input into the BioRadio.



Force Plate

Force Plate: used to measure forces generated while stepping or jumping.

Hand Dynamometer: used to measure grip strength and to perform muscle fatigue studies. It can be used alone or in combination with EMG recordings for detailed studies of muscular activity.



Hand Dynamometer

Nasal/Oral Thermocouple: monitors respiration through changes in temperature near the nose or mouth.



Nasal/Oral Thermocouple

Pulse Oximeter: measures blood oxygen saturation (%SpO2) and pulse rate.

Piezo-Electric Respiratory Effort Belt: records respiratory effort by measuring chest and abdominal expansion associated with respiratory effort.

Spirometer: performs a variety of tests related to air flow and lung volume. It is designed to make human respiratory measurements at rest and during moderate activity.

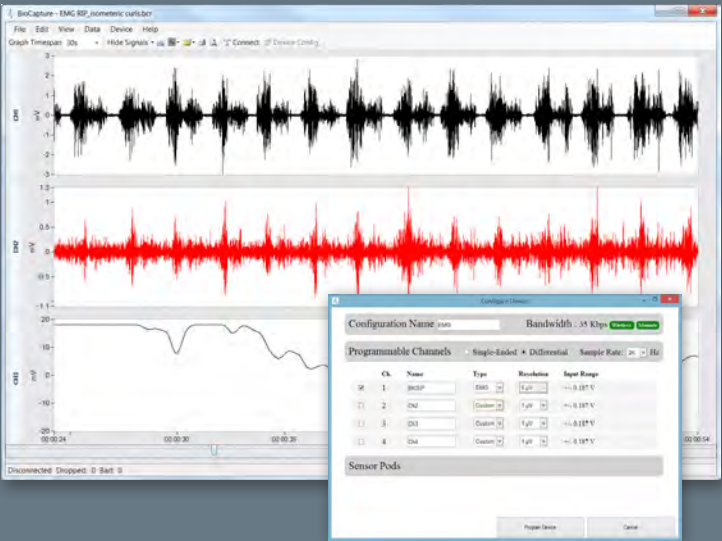
Temperature Sensor: measures surface body temperature in the range of 75-120° F.



Pulse Oximeter

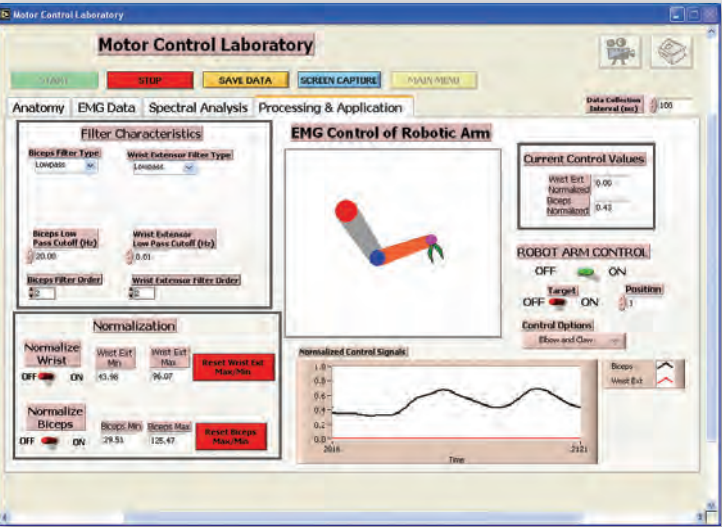
BioCapture for Research

- Flexible platform for recording physiological signals.
- Configure the BioRadio input channels.
- Real-time display and annotation.
- Filtering and digital signal processing.
- Time and frequency domain tools.
- Save and export data files.



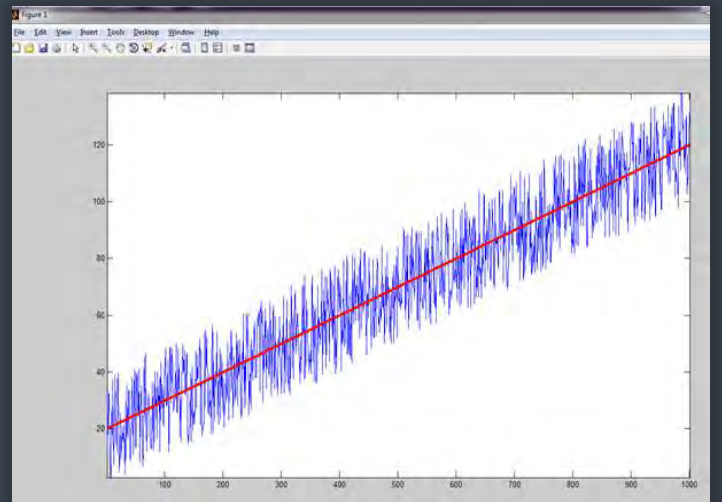
BioRadio Lab Course for Teaching

- Features over 30 lab sessions with lab manuals and video instructions.
- Time and frequency domain analysis tools.
- Technology and Engineering basics.
- Basic and Advanced Physiology.
- Digital Signal Processing and Statistical Analysis.
- Clinical Applications in healthcare.



BioRadio Software Development Kit

- Stream real-time BioRadio data into custom software applications.
- Libraries and example code in LabVIEW and MATLAB
- Expands student design projects and custom research.
- Free website download.



The BioRadio comes with a one-year limited warranty, which includes complimentary technical support by phone, email, chat or videoconference.

We provide additional service plans to extend your BioRadio coverage:

Comprehensive Support Plan – provides unlimited technical support and limited hardware support for any GLNT-manufactured product. \$2,000 per year.

Technical Support – provides unlimited support from a GLNT support representative via phone, email, or web conference for one year. \$1,000 per year.

Hardware – provides limited hardware support for one year. \$1,200 per year.

purchasing policies and information

Ordering Information

To place an order with Great Lakes NeuroTechnologies, contact our sales team to request a sales quote. We can be reached by calling 1-855-GLNeuro (1-855-456-3876) or by emailing Sales@GLNeuroTech.com. When emailing your request for a sales quote, please include the contact name, department name, billing and shipping addresses, description of the item you are ordering, a contact number and purchase order if applicable.

Sales Quote

We are happy to fax, mail or email a sales quote at your request. Quotes are good for 30 days.

Terms

Terms are Net 30 from the date of shipment with credit approval. Visa, MasterCard and Discover are accepted.

Pricing and Shipping

Prices are subject to change without notice. Shipping charges include handling and packaging. Please note that we ship between two to four weeks after receiving a purchase order.

Service and Technical Support

Service and technical issues can be addressed by calling 1-855-GLNeuro (1-855-456-3876). Loaner units can be provided. Call for availability.

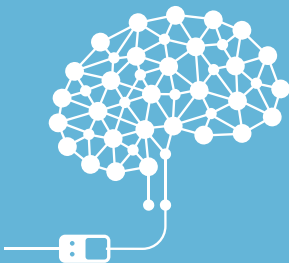
Limited Warranty

Great Lakes NeuroTechnologies guarantees its equipment against all defects in materials and workmanship to the original purchaser for 90 days from the date of shipment. This warranty does not cover damage resulting from alterations, abuse, misuse or accidents.

Orders outside of the United States

For all orders placed outside the U.S. please contact us by telephone at 001-216-361-5410 or via email at Sales@GLNeuroTech.com.

The BioRadio has been used in an impressive body of research into topics ranging from the ergonomic analysis of surgery techniques to assessing the efficacy of drugs to treat autism. Here are short descriptions of just a few research studies where the BioRadio has been used to collect data critical to the study objectives.



Brain Computer Interface for Interactive and Intelligent Image Search and Retrieval

The BioRadio was used to capture EEG in research that proposed a Brain Computer Interface as an interactive and intelligent image search and retrieval tool that would enable users to browse and search for images using brain signals.

An Intelligent Recovery Progress Evaluation System for ACL Reconstructed Subjects Using Integrated 3-D Kinematics and EMG Features

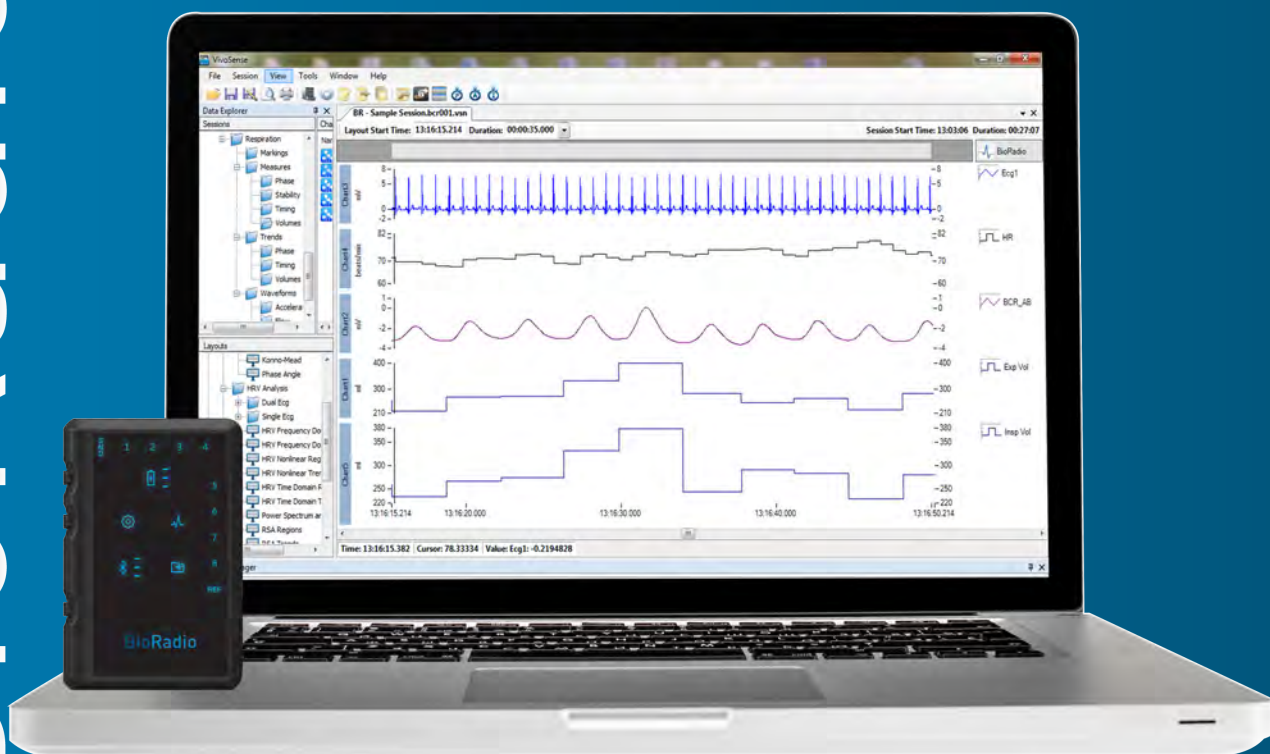
The BioRadio was used by researchers who developed an intelligent recovery evaluation system for the objective assessment and performance monitoring of anterior cruciate ligament reconstructed (ACL-R) subjects. Researchers used the BioRadio to capture EMG data from surrounding muscles during testing activities. The researchers then applied analysis techniques to provide recovery progress assessment indicators for ACL-R subjects.



Simultaneous Registration of ECG and Cardiac Motion by a Single Esophageal Probe

Long-term surface ECG is used to diagnose paroxysmal arrhythmias but this method only provides information about the heart's electrical activity. Researchers sought a method for gathering additional data about the heart's mechanical activity. The BioRadio was used in a study to investigate the use of an esophageal catheter featuring synchronous esophageal ECG and acceleration measurements. This small study could lead to more research into additional tools for long-term heart monitoring.

BioRadio™



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