

# Ring Biosignal GSR BVP

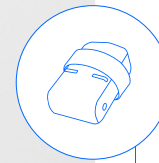
**Accurate and comfortable** GSR  
and BVP monitoring



# Ring Biosignal GSR BVP

## Accurate and comfortable GSR and BVP monitoring

Ring is an ultralight wearable device for real-time monitoring of electrodermal activity (EDA/GSR) and cardiovascular signals (BVP). It includes a 3-axis accelerometer to estimate motion artifacts and ensure high signal quality, even during dynamic conditions.



### Adaptable and adjustable

Very comfortable technology that can be set up easily in less than 10 seconds.

### Connectivity and storage

Bluetooth real time data streaming and local SD storage.

### GSR, BVP and ACC sensors

Dry-sensors located on the fingers' first and second phalanges (optimal measurement points).

### Advanced electronics

Signal acquisition layer optimized to improve SNR, while reducing external artifacts.

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## Use Cases



### Real-World Applications

Understand physiological correlates in real-world applications, such as **education, UX** or in **professional workspaces**.



### Stress and Clinical Research

In **clinical research**, perform biofeedback applications for stress, or assessments based on physiological responses.



### Psychology and Neuroscience

Explore new research scenarios in **psychology and neuroscience** with fast and easy monitoring in and out-of-the lab.

# Technical Specifications

## HARDWARE

| SENSORS               |                                                                           | DATA STREAMING AND STORAGE  |                                                    |
|-----------------------|---------------------------------------------------------------------------|-----------------------------|----------------------------------------------------|
| Biosignals channels   | 1x EDA ( $\mu$ S), 1x BVP (bpm), 1x ACC (3-axis)                          | Data transmission and range | Bluetooth 2.1 + EDR with 10 meters in direct sight |
| WIRELESS AMPLIFIER    |                                                                           | Data files                  | CSV                                                |
| Sampling rate         | 32 SPS at 16 bits                                                         | POWER                       |                                                    |
| Resolution            | 16 bits                                                                   | Battery                     | Rechargeable LiPo battery; Charging time < 3 h     |
| Bandwidth             | DC – 16Hz (2rd-order LPF)                                                 | Autonomy                    | > 8 h                                              |
| Integrated sensors    | Integrated accelerometer (3 axis)                                         | GENERAL                     |                                                    |
| Input range and noise | 0.1 - 100 $\mu$ S, (GSR)<br>0 - 250 bpm (BVP)<br>$\pm$ 4G (Accelerometer) | Weight                      | 60g                                                |
| Data backup           | Yes (removable microSD card, up to 8 GB, Class $\geq$ 10)                 | Warranty                    | 2 years                                            |
|                       |                                                                           | Certifications              | CE (Directive 2014/53)                             |

## SOFTWARE

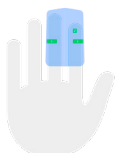
| BITBRAIN CORE RESEARCH SOFTWARE (INCLUDED WITH EQUIPMENT)                                                                                                                                                                                                                             |                                                                                                                                                                                                                        | BITBRAIN EXTENDED RESEARCH TOOLS (LICENSED)                                                                                                                                                                                          |                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bitbrain SennsLite</b><br>Real-time visualization, recording, and synchronized data across Bitbrain devices. LSL-compatible for third-party real-time I/O (BCI2000, OpenVibe, NeuroPype, Medusa). CSV and EDF export for Python (MNE), MATLAB (EEGLAB/FieldTrip/BCILAB), and more. | <b>Bitbrain SDK</b><br>SDK in C for maximum performance and portability enabling Python integration. Compatible with Windows OS and Linux (x86).                                                                       | <b>Bitbrain SennsLab</b><br>Synchronization software for experimental design and data collection, integrating 35+ sensor modalities (EEG, eye-tracking, biosignals). Compatible with third-party software via TCP/IP and CSV export. | <b>Bitbrain SennsMetrics</b><br>Data analysis tool for emotional, cognitive, and behavioral metrics. Data are recorded with SennsLab, processed through SennsCloud, and analyzed and visualized in SennsMetrics. |
| <b>BITBRAIN LABORATORIES</b><br><b>Human Behaviour Research Lab</b>                                                                                                                                                                                                                   | Multimodal platform integrating Bitbrain EEG, biosignals, and Tobii eye-tracking with synchronized data acquisition, analysis, and visualization software, delivering cognitive, emotional, and behavioral biometrics. |                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>· Diadem 12ch EEG</li> <li>· Ring Biosignal GSR BVP</li> <li>· SennsLab &amp; SennsMetrics Software</li> <li>· Tobii Pro Spark</li> <li>· Tobii Pro Glasses</li> </ul>    |

## Technical Overview

|                                                                                                                                                                                                     |                                                                                                                                                                                              |                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>Wireless, mobile, compact, and ultralight</b> (60g). Very easy to use, and allows for self-placement.</p> |  <p><b>Reliable biosignal monitoring</b> at 32Hz and 16 bits during 10+ hours on Bluetooth streaming.</p> |  <p><b>Easy to clean, transport, store, and reuse.</b></p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|

### SENSOR LAYOUT

Layout optimized for measurement of GSR and BVP (cardiac activity), often used to estimate emotional states.





### BUNDLE INCLUDES

- Ring
- 8GB Class-10 MicroSD card with SD adaptor
- USB type A - micro USB B cable

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