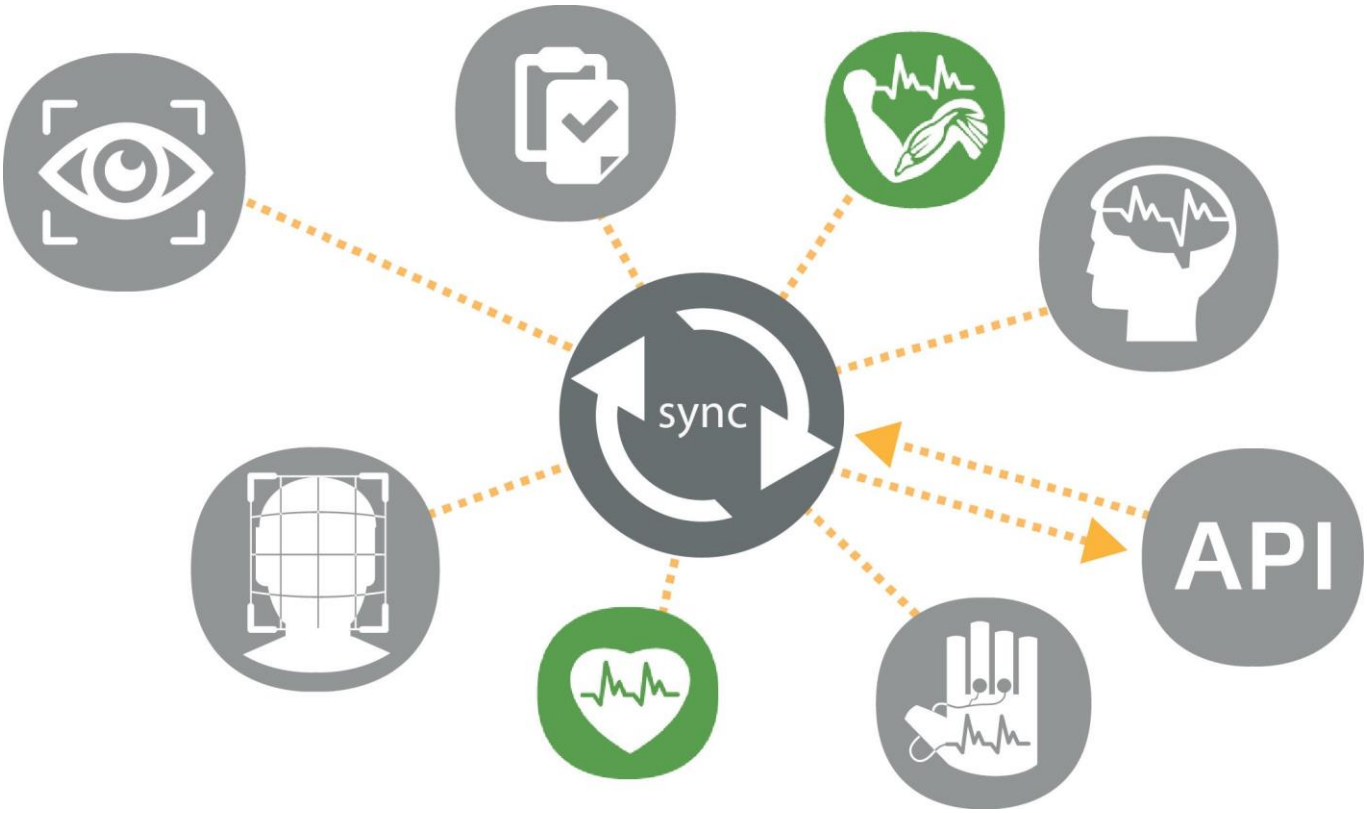


ECG/EMG Module

Shimmer3 EXG Wireless Device

Pre-requisite: iMotions Core License

IMOTIONS®

BIOMETRIC RESEARCH PLATFORM

sales@imotions.com

ECG Module - (Electrocardiogram)

Enables iMotions software to connect with the Shimmer3 EXG Wireless Device, which records the pathway of electrical impulses through the heart muscle, and can be recorded on resting and ambulatory subjects, or during exercise to provide information on the heart's response to physical exertion.

EMG Module - (Electromyogram)

Enables iMotions software to connect with the Shimmer3 EXG wireless device, which measures and records the electrical activity associated with muscle contractions, assesses nerve conduction, muscle response in injured tissue, activation level, or can be used to analyze and measure the biomechanics of human movement.

The ECG/EMG Module has the iMotions Core License as pre-requisite, which allows you to:

- Present stimuli such as images, videos, websites, games, software or real life objects
- Set up new studies and record data
- Control rotations, randomizations, and block designs
- Make live or post-processing markers to annotate and segment recordings
- Record the face of the respondent in sync with the stimuli
- Export raw data, metrics & visualizations per sensor
- Visualize results individually and/or aggregated
- Visualize real time sensor channels during data collection in sync with other sensors
- Forward data in real time and allow the import of external sensor / software data and loop it back into the platform via the API Module.
- Allows the modular integration and synchronization of any other sensor

The Shimmer3 is clinically validated for use in biomedical oriented research applications

Some relevant Shimmer users are:

HARVARD UNIVERSITY

MIT MEDIA LAB

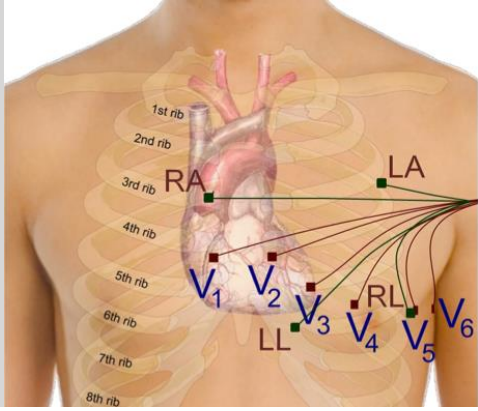
Berkeley UNIVERSITY OF CALIFORNIA

TOYOTA

SAMSUNG

IMOTIONS

This figure shows an example of how the electrodes should be positioned on the body. The electrodes for the bipolar limb leads (LA, RA, LL and RL) are represented by green nodes and wires, whilst the V_1, V_2, V_3, V_4, V_5 and V_6 positions for the unipolar leads, are represented by brown nodes and wires.



You can connect multiple ECG/EMG devices

This feature enables a number of new data collection options like monitoring of EMG from several muscle groups around the body at the same time or the collection of both ECG and GSR data simultaneously.

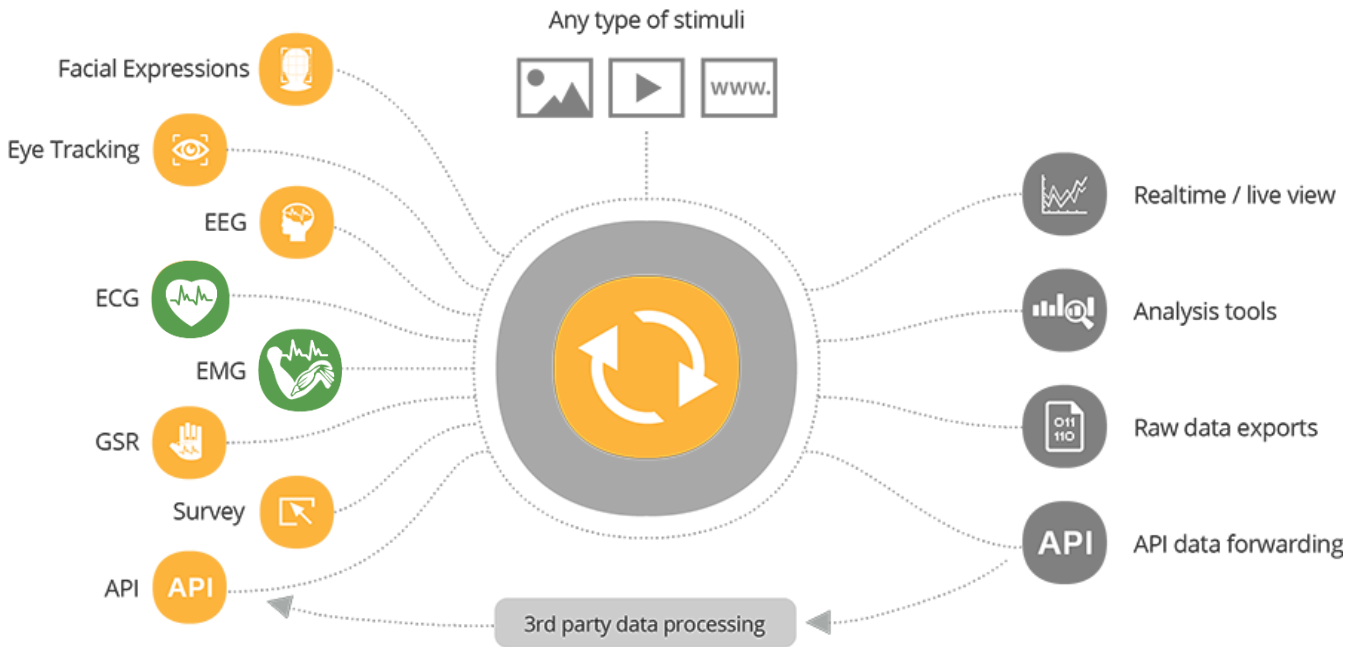
Shimmer3 EXG

Package contains:

- Hardshell box
- Bluetooth device
- ECG/EMG sensors (short cables + stickers + electrodes)
- printed instructions/setup manual.
- hand strap

Optionally combine ECG / EMG measurements with:

Eye Tracking, Facial Expression Recognition, EEG, GSR & Surveys



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The ECG/EMG Module integrates the Shimmer3 EXG wireless devi

It provides optimized measurements for five-wire, four-channel ECG (Electrocardiogram) solution measuring bipolar limb leads and user's choice of V1 - V6. The device boast best data quality with integrated 10DoF inertial sensing via accelerometer, gyroscope, magnetometer and altimeter. It also provides highly accurate and scientifically reliable raw data to allow complete control over capture and interpretation of sensed data in real time. The Shimmer EXG can record the pathway of electrical impulses through the heart muscle, and be recorded on resting and ambulatory subjects.

Technical Specifications	
Channels	Five-wire, four-channel ECG (Electrocardiogram) solution measuring bipolar limb leads and user's choice of V1 - V6
	Two channels of EMG (Electromyogram) data
Gain	Configurable: 1, 2, 3, 4, 6, 8, 12
Data Rate	Configurable:125, 250, 500, 1000, 2000, 4000, 8000 SPS
Input Differential Dynamic Range	Approx 800 mV (for gain = 6)
Bandwidth	8.4 KHz
Ground	Wilson Type Driven Ground
Input Protection	ESD and RF/EMI filtering: Current limiting: Inputs include defibrillation protection (survive only, not repeat)
Connections	EMG: Input Ch1N, Input Ch1P, Input Ch2N, Input Ch2P, Reference (Ref) All Hospital-Grade 1mm Touchproof IEC/EN 60601-1 DIN 42-802 jacks
Weight	31 grams
Dimensions	65 x 32 x 12 mm
EEPROM Memory	2048 bytes
Processing	MSP 430 microcontroller (8MHz, 16Bit)
Communication	Bluetooth - RN42, 802.15.4 radio - TICC2420
Storage	Integrated 2GB microSD card slot
Battery	450mAh rechargable Li-ion
Integrated 3 Axis Accel	Freescale MMA7361
Accel Range	+/- 1.5g - 6g