

Shimmer GSR+ Unit



KEY FEATURES

- 3.5mm jack connector for 2 extra channels of analog or digital data capture
- Dual channel GSR scientifically reliable data acquisition
- EEPROM storage device (on the GSR+ expansion board) enables expansion board detection and identification as well as 2032 bytes of data storage available to user
- Validated for use in biomedical-oriented research applications
- 4 digitally controlled measurement ranges which developers use to ensure accurate measurements across a variety of test subjects in real world deployments
- Open system with no proprietary connectors, extensible software and data format

INTRODUCTION

Shimmer GSR+ provides connections and front-end amplifications for one channel of Galvanic Skin Response (GSR) data acquisition (Electrodermal Resistance Measurement - EDR). Compatible with the Shimmer3 platform, the GSR+ also boasts an additional 3.5mm connector for 2 extra channels of analog or digital data capture.

PRODUCT OVERVIEW

The Shimmer GSR+ unit addresses challenges of mobility and provides high quality, scientifically reliable data.

The Shimmer GSR+ monitors skin conductance between 2 residual electrodes attached to 2 fingers on one hand.

The 3.5mm jack 3V connector allows users to connect and power an external/third party device, supporting an extra 2 channels of analog or digital data acquisition. The GSR+ unit is compatible with the Shimmer3 platform and hardware. All development tools and enabling applications are compatible with the Shimmer3 platform.

APPLICATIONS

GSR+ unit is compatible with the Shimmer3 platform and can be applied to a variety of applications such as:

- Affective computing and cognitive factors
- Connected/ digital health solutions
- Stress detection and analysis
- Emotional engagement
- Psychological arousal (excitement, mental effort, shock etc.)
- Marketing research
- Weight and nutrition management

Shimmer

GSR+ Module



TECHNICAL SPECIFICATIONS	
Current Consumption¹:	60µA
Measurement Range²:	10kΩ - 4.7MΩ (.2µS - 100µS) +/- 10%, 22kΩ - 680kΩ (1.5-45µS) +/- 3%
Frequency Range³:	DC-15.9Hz
Connections:	GSR Input 1 (Red), GSR Input 2 (Black); Hospital-Grade 1mm Touchproof IEC/EN 60601-1 DIN42-802 jacks Auxiliary Analog/Digital input: 3.5mm 4-position jack
Bias voltage across GSR Input:	0.5V
Input Protection:	RF/EMI filtering, Current limiting, GSR Inputs include defibrillation protection (survive only not repeat)
Dimensions:	65mm x 32mm x 12mm

1. Calculated specification assuming that on-board EEPROM is inactive and no external sensor is attached and powered via the analog/digital input channels; exact value is subject to environmental and component variation
 2. % Error is tabulated average across the measurement range
 3. Calculated specification, exact value subject to environmental and component variation

SUPPORTING APPLICATIONS
Shimmer ConsensysPRO & ConsensysBASIC Software
Synchronisation of Data : Consensys Software
Shimmersensing LabVIEW Instrument Driver
Shimmer MATLAB Instrument Driver
Shimmer Java / Android API
Shimmer Capture - C# API / .NET Development
Calibration : Shimmer 9Dof Calibration



SHIMMER3 UNIT SPECIFICATIONS	
Processing:	TI MSP 430 microcontroller (24mHz, 16Bit)
Communication:	Bluetooth – RN42
Storage:	Integrated 2GB microSD card slot
Battery:	450mAh rechargeable Li-ion
Integrated Motion Sensing:	<ul style="list-style-type: none"> ◦ WideRange Accel: ±2g, ±4g, ±8g, ±16g ◦ LowNoise Accel: ±2g ◦ Digital Mag: ±49.152 gauss ◦ Gyro : ±250, ±500, ±1000, ±2000 dps ◦ Pressure Sensor: 300 - 1100 hPa

SUPPORTING HARDWARE & ACCESSORIES	
◦	Optical Pulse Sensor Finger
◦	Optical Pulse Sensor Earlobe
◦	Biophysical Leads
◦	Straps, Documents, Charger, Case
◦	Fingers electrodes

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