



Your Sensing Innovation Realized

Shimmer develops and manufactures medical-grade wearable sensors. We partner with scientists to do ground-breaking research and with companies to bring innovative sensing applications to market



Shimmer Research Products

Unit	Measures
Shimmer3	9 Degrees of Freedom (DOF) Inertial Sensing
Shimmer3 GSR+	GSR, PPG and 9DOF Inertial Sensing
Shimmer3 ECG/EMG	ECG, EMG, Respiration, and 9DOF Inertial Sensing
Shimmer3 PROTO3	Interface with 3rd party sensors, 9DOF Inertial Sensing
Shimmer3 Bridge Amplifier+	Load, Weight, Force, Torque and Pressure through 3rd party sensors, Skin Temp, 9DOF Inertial Sensing

Shimmer sensors are designed to be integrated with our **ConsensysPRO** software which allows for the management of multiple Shimmer sensors simultaneously, live data visualization and a range of advanced data processing features. Shimmer also offers APIs for C#, Java and Android as well as instrument drivers for LabVIEW and MATLAB

Using Shimmer for the First Time?

Shimmer offers **Development Kits**, which provide first-time users with all the required equipment and support material to get started working with Shimmer including a dock or base for charging, programming and retrieving stored data from the Shimmer sensors. The docks come with capacity for 1, 6 or 15 Shimmer sensors



Pictured: Base6 with assorted Shimmer sensors



Pictured: Shimmer3 GSR, Shimmer3, and Shimmer3 Bridge Amplifier+

UNIT SPECIFICATIONS

Processing	MSP 430 microcontroller (24 MHz, 16Bit)
Communication	Bluetooth - RN42
Storage	Integrated 8GB microSD card, Supports up to 32GB
Battery	450mAh rechargeable Li-ion
Dimensions (Motion Unit)	51mm x 34mm x 14mm. Weight: 23.6g
Dimensions (Biophysical)	65mm x 32mm x 12mm. Weight: 31g
RAM	16KB
Flash	256KB
Frequency	24MHz
A/D Resolution	11 Channels of 12Bit A/D; 7 Free for expansion



Technical Specifications

TECHNICAL SPECIFICATION KINEMATIC/MOTION

Wide Range Accelerometer	STMicro LSM303DLHC
Range	±2g, ±4g, ±8g, ±16g
Sensitivity	100 LSB/g at +/-2g
Numeric Resolution	16-Bit
Typical Operating Current	110 µA (Running Mag @ 7.5 Hz & Accel @ 50Hz)
RMS Noise*	27.5 x 10 ⁻³ m/s ²
Low Noise Accelerometer	Kionix KXR85-2042
Range	±2g
Sensitivity	600 ±18 mV/g
Typical Operating Current	500 µA
RMS Noise*	5.09 x 10 ⁻³ m/s ²
Digital Magnetometer	ST Micro LSM303DLHC
Range	±1.3, ±1.9, ±2.5, ±4.0, ±4.7, ±5.6, ±8.1Ga
Sensitivity	1100 LSB/Ga at ±1.3
Numeric Resolution	16-Bit
RMS Noise*	0.0081 normalised local flux
Gyroscope	Invensense MPU9150
Range	±250, ±500, ±1000, ±2500 dps
Sensitivity	131 LSB/dps @ ±250
Numeric Resolution	16-Bit
Typical Operating Current	3.5 mA
RMS Noise*	0.0481 dps
Pressure Sensor	Bosch BMP180
Range	300 - 1100 hPa
Numeric Resolution	16-Bit
Typical Operating Current	1µA at 1Hz
RMS Noise (standard mode)	0.4 m (from Datasheet)

*@ 100Hz Bandwidth

TECHNICAL SPECIFICATION ECG/EMG/ECGmd

Gain	Software configurable (1, 2, 3, 4, 6, 8, 12)
Data Range	Software configurable (125 - 8000 SPS)
Input Differential	
Dynamic Range	Approx 800 mV (for gain = 6)
Bandwidth	8.4 kHz
Connections	EMG: Input Ch1N, Input Ch1P, Input Ch2N, Input Ch2P Reference, (Ref) ECG: Input RA, Input LA, Input LL, Input Vx, Reference (RL) All Hospital-Grade 1mm Touchproof IEC/EN 60601-1 DIN42-802 jacks
ECG Unit	Five-wire, four channel ECG solution, measuring bipolar limb leads and user's choice of V1-V6
EMG Unit	2 channels of EMG data, with common reference
ECGmd Unit	Five-wire, four lead holter monitor electrocardiograph supplied for system integrators

TECHNICAL SPECIFICATION GALVANIC SKIN RESPONSE

Current Consumption	T60µA
Measurement Range	10kΩ - 4.7MΩ (.2uS - 100uS) +/- 10% 22kΩ - 680kΩ (1.5-4.5uS) +/- 3%
Frequency Range	DC-15.9Hz
Bias Voltage across GSR Input	0.5V

TECHNICAL SPECIFICATION 200g High Accel IMU

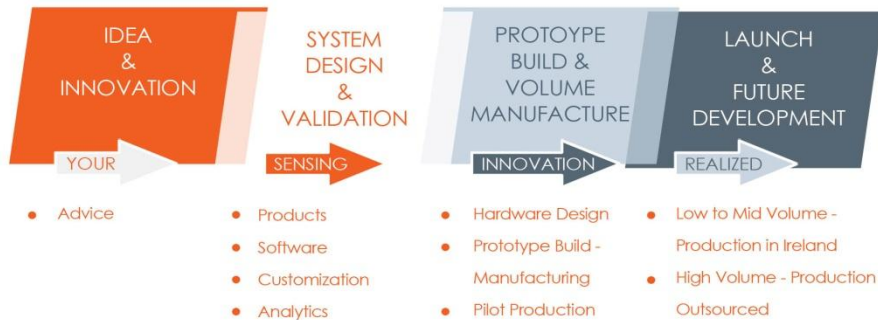
Range	±200g (±0.5% linearity up to 180g)
Sensitivity	≈ 6.5 mV/g
Numeric Resolution	12-bit
Typical Operating Current	300 µA
Frequency Range	0.5V
Bandwidth	1300Hz on X and Y axis, 1000Hz on Z axis



For full technical specification and other product documentation visit the Shimmer website at www.shimmersensing.com

Shimmer Services

Shimmer provides advanced development of wearable sensing systems. We bring your idea from concept to launch, delivering sensing innovations that matter



What we offer...

Based on award winning clinical grade sensor technology, we provide deep sensing experience and craft sensing systems to bring your innovation to life

How we offer it...

We offer consultancy, contract and manufacturing services, all the way through to a dedicated development team. This allows for the understanding and insight that accelerates your innovation's development and reduces your cost to market by up to 80%

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