



SB100

StatIQ Band

Datasheet



SB100 StatIQ Band: A Wearable Human Body Voltage Monitor

Features:

- Measures body voltage from user's upper arm
- Adjustable audio and visible alarms for:
 - Exceeding body voltage limits
 - ESD discharge events (body to object)
- Bluetooth (BLE) data link for wireless monitoring
- iOS, Android, and PC apps for:
 - Data visualization and analysis
 - Adjusting device settings
- Low drift (max 20V/hr), high sensitivity (< 10V resolution)
- Rechargeable, 16-hour battery life.
- Operates in stand-alone or data-linked modes.
- Quick, single-handed zeroing.
- Banana socket for external ground or voltage reference.



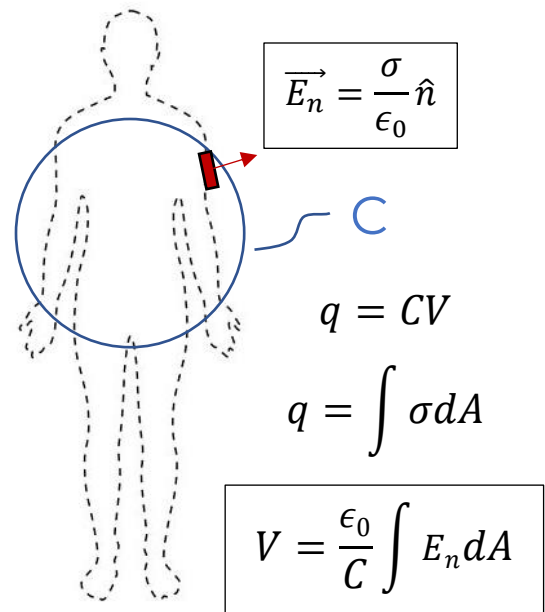
Applications:

- Monitoring and assessment of personnel ESD mitigation systems.
- Tether-free identification of potential ESD damage to electronics.
- Grounding or bonding-free prevention of hazardous chemical ignition events.
- Factory-wide measurement and assessment of ESD systems.
- Detection of ESD hotspots in the manufacturing environment.
- Short- and long-term logging of ESD performance.



How it works:

1. The human body has some intrinsic self-capacitance C , which is typically around 200pF. If a body is not grounded, it may accumulate some electric charge Q . The resulting body voltage will be $V = Q/C$.
2. The charge Q distributes itself on the surface area A of the body, with an average charge density σ . According to Gauss' Law, this charge will generate an electric field E which is perpendicular to the body surface and proportional to the charge density σ .
3. The StatIQ Band measures this electric field E using a patented miniature DC electric field sensor. Using estimated values of A and C , the body voltage V can be calculated from the field measurement E .
4. The SB100 StatIQ Band operates continuously, sampling the E field at 1200 times per second. This allows the band to identify electrostatic discharges as low as 100V. It is these low voltage ESD events that are most concerning in a manufacturing environment, as they go unnoticed and can cause latent damage to electronics.
5. The StatIQ Band transfers voltage data over Bluetooth Low Energy to mobile apps and other back-end services at 80Hz.



Technical Specifications

Description	Min.	Typ.	Max.	Units
Mass (with backplate & strap)	-	92	-	g
Mass (sensor unit)	-	44	-	g
Size (with backplate) LxWxH	-	88x62x25	-	mm
Size (sensor unit) LxWxH	-	75x43x18	-	mm
Measurement Range	-	±20	-	kV
Noise ¹	5	8	10	V _{rms}
Drift ¹	0	5	20	V/hr
Sampling Rate	-	1200	-	Hz
Output Bandwidth	DC	-	25	Hz
Voltage Alarm Resolution	-	1	-	V
ESD Event Resolution	-	10	-	V
ESD Event Magnitude (ΔV)	100	-	-	V
ESD Discharge Threshold (dV/dt)	2	5	-	kV/s
Battery Life	14	16	18	hours
BLE Range ²	10	25	50	m

¹ Sensor voltage is scaled using estimates of human body self-capacitance and area. Individual human bodies can vary by up to 10% from the average values, according to mass and BMI of the individual, but will remain constant for a given person over timescales of days.

² BLE range in use is dependent on locality, as e.g., steel building walls and structures can reduce range significantly.

What's in the box

- The StatIQ Band, with hook-and-loop arm strap
- A Zero Disc for rapid, one-handed zeroing of the StatIQ Band
- A USB-C charging cable
- A Quickstart Guide
- A Calibration Certificate for your StatIQ Band

The SB100 StatIQ Band can be used directly out of the box with no further infrastructure. For adjustment of user alarm levels, and visualization of user voltages, we recommend that you download IONA Tech's free smartphone or browser app, which enables communication with the unit over Bluetooth Low Energy (BLE) using a smartphone or PC.

Software tools

Download the **IONA Tech App** from the App Store or Google Play Store to visualize



the measured voltage data, change device parameters, and more.

All the functionality of the mobile apps can also be achieved on a Chrome browser from any computer equipped with a Bluetooth radio. Simply direct your Chrome browser to:

<https://app.iona.tech/>

ROHS and REACH Document of Conformity

ROHS-3 (2015/863/EU) – Restriction of Hazardous Substances, bans the use of the following substances in electrical and electronic equipment:

Substances Restricted	Control Levels
Lead	0.1%/1000 ppm
Mercury	0.1%/1000ppm
Cadmium	75 ppm
Hexavalent Chromium	0.1%/1000ppm
Polybrominated biphenyls (flame retardant)	0.1%/1000ppm
Polybrominated diphenyl ether (flame retardant)	0.1%/1000ppm
Bis (2-ethyl hexyl) phthalate	0.1%/1000ppm
Butyl benzylphthalate	0.1%/1000ppm
Dibutyl Phthalates	0.1%/1000ppm
Diisobutyl Phthalates	0.1%/1000ppm

Based on information obtained from its suppliers IONA Tech certifies that all finished goods that are produced by IONA Tech are fully ROHS-3 compliant to the European Union (E.U.) RoHS Directive and that no IONA Tech products contain Substances of Very High Concern (SVHC) as listed by the European Chemicals Agency (ECHA) under the provisions of (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).