



SB100/SB200

StatIQ Band

Datasheet



SB100/SB200 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)
- SB100: Bluetooth (BLE) data link for wireless monitoring
- SB200: Contains no radios for use in secure locations
- iOS, Android, and PC apps for:
 - Data visualization and analysis
 - Adjusting device settings
- Low drift (max 20V/hr), high sensitivity (< 10V resolution)
- Rechargeable, up to 20-hour battery life.
- Operates in stand-alone or data-linked modes.
- Quick, single-handed zeroing.
- Banana socket for external ground or voltage reference.



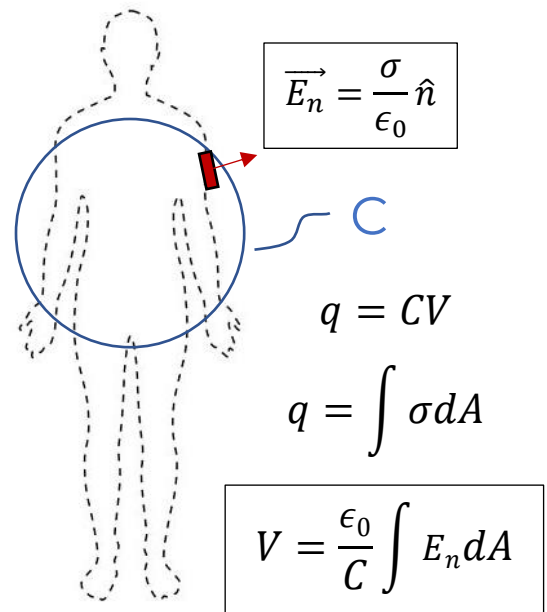
Applications:

- 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 SB100 StatIQ Band transfers voltage data over Bluetooth Low Energy to mobile apps and other back-end services at 80Hz.



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

Default Settings

The StatIQ Band is intended to be usable out of the box, with no configuration necessary. It is thoroughly tested in production and has been calibrated and zeroed. The default settings are:

Audible Alarms – muted (changed by pushing the Power/Mode button)

Alarm Threshold – $\pm 1000V$

Alarm Volume – 50%

ESD Event Detection – Enabled

Software tools

For adjustment of user alarm levels, and visualization of user voltages, use the following tools:

SB100

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/>

SB200

Connect the StatIQ Band to a computer via USB-C cable and browse to <http://usb.iona.tech> to change device settings.

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	-	±32	-	kV
Noise ¹	2	5	10	V _{rms}
Drift	0	10	20	V/day
Sampling Rate	-	1200	-	Hz
Output Bandwidth	-	76.9	-	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 ²	16	18	20	hours
BLE Range ³ (SB100 only)	10	30	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 Battery life may be affected by the frequency and volume of audible alarms.

³ BLE range in use is dependent on locality, as e.g., steel building walls and structures can reduce range significantly.

FCC compliance statement and warning



Model: SB100
FCC ID: XPYNINAB30
Unique Identifier: 2XPYNINAB30

Responsible Party – U.S. Contact Information:

IONA Tech LLC

164 Society Dr. Unit O

Telluride, CO 81435

United States

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

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference, including interference that may cause undesired operation of the device.

FCC Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device meets the FCC and IC requirements for RF exposure in public or uncontrolled environments.

EU Declaration of Conformity



The SB100 StatIQ Band is in conformity with the relevant Union harmonization Legislation

Application of Council Directives

EMC	2014/30/EU
RoHS 3	2015/863/EU
Low Voltage Directive	2014/35/EU

Standards

EMC	BS EN IEC 61326-1:2021 – Basic environment
	BS EN 55011:2016+A2:2021 – Emissions
RoHS 3 Technical Documentation	BS EN IEC 63000:2018

Disposal Information



The StatIQ Band includes a rechargeable lithium-ion battery. Your municipality may have specific instructions on how to dispose of these, and other electronic components. We recommend contacting your local department of public works for more information on proper recycling of electronic components.

As a convenience, IONA Tech will recycle a used StatIQ Band on your behalf. Contact the Customer Success team at support@iona.tech to request a free shipping label to return your used StatIQ Band.

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).

IONA Tech Standard Limited Warranty

IONA Tech warrants products manufactured and sold by IONA Tech to be free from defects in materials and workmanship for the periods listed in the tables on the following pages. This warranty is expressly limited to the original owner who purchases the equipment directly from IONA Tech or from an authorized IONA Tech Distributor.

To maintain this limited warranty, the product must be operated, calibrated, and maintained in accordance with the Operation and Maintenance Manual supplied with the product. Abuse, mechanical damage, alteration, or repairs not made in accordance with the Operation and Maintenance Manual void the IONA Tech Standard Limited Warranty.

The obligation of IONA Tech under this limited warranty is limited to the repair or replacement of components deemed by the IONA Tech Technical Support Center to have been defective under the scope of this Standard Limited Warranty. To receive consideration for warranty repair or replacement, the product must be returned to an IONA Tech Authorized Service Partner or to IONA Tech in Telluride, Colorado, USA, with transportation and shipping charges prepaid. If the product is being returned to IONA Tech, it is necessary to obtain a return authorization number (RMA) from IONA Tech prior to shipment.

This limited warranty is expressly in lieu of any and all representations, express or implied, including but not limited to the warranty of fitness for a particular purpose. IONA Tech will not be liable for loss or damage of any kind connected to the use of its products or failure of its products to function or operate properly.

IONA Tech Standard Limited Warranty covers the instrument and its critical components as follows:

Instruments	Warranty Period
StatIQ Band SB100	One year from date of original purchase
StatIQ Band SB200	One year from date of original purchase