SENSORBIO

PRELIMINARY RESULTS · ALGORITHM VERSION 8.11.0 · OCTOBER 2026

Sensor Bio V2 biometric accuracy

Preliminary results for Sensor Bio algorithm version 8.11.0. The study was conducted by an independent university exercise physiology laboratory: each Sensor Bio V2 metric was compared against a reference worn at the same time, by healthy adults aged 20–60, with a device on each wrist. Steps were tested on video-counted walking and whole days of normal wear. Average error is how far a reading is from the reference; coverage is how often the device gave a reading.

Heart rate

REST & EXERCISE

1.58 bpm
Average error at rest; 94.9% of seconds within 5 bpm

4.08 bpm
Average error in a hard exercise session; 87.4% within 10%

A reading every second, with 99.85% coverage at rest and 99.19% in exercise. Steady efforts are the most accurate: 1.8 bpm while cycling.

Reference: clinical 12-lead ECG · 32 participants, 118 recordings

Heart rate variability

REST

6.73 ms
Average error per 45-second RMSSD reading; 82.8% within 10 ms

3.9 ms
Average error of the session-average HRV (r = 0.98)

A 45-second RMSSD about every 10 seconds, with 93.9% coverage. Not reliable with frequent ectopic beats.

Reference: clinical 12-lead ECG · 30 participants, 60 recordings

Beat-to-beat intervals

REST

5.17 ms
Average interval error; 89.2% within 10 ms (r = 0.999)

86%
Of ECG heartbeats detected within 60 ms; 4.5% false beats

Every beat-to-beat interval is reported. When the device is wrong, it almost always leaves a beat out rather than adding one.

Reference: clinical 12-lead ECG · 26 participants, 48 recordings

Breathing rate

REST

1.15 br/min
Average error per reading; 92.4% within 3 breaths/min

0.77 br/min
Average error of the session-average breathing rate

Derived from the heartbeat rhythm, once a second, with 90.3% coverage. Reports 6–40 breaths/min.

Reference: Cosmed metabolic cart (face mask) · 30 participants, 60 recordings

Skin temperature

REST & EXERCISE

0.58 °C
Average error at rest (0.59 °C in exercise)

84%
Of readings within 1 °C of the reference, at rest and in exercise

A reading every minute, with 99% coverage. Allow about 15 minutes after putting the device on for the sensor to settle.

Reference: skin-temperature patch on the same wrist · 31 participants, 111 recordings

Steps

EVERYDAY WALKING

93.1%
Of video-counted steps counted (OxWalk); F1 84.4%

+1.7%
Average day-total difference vs. other wearables; 21 of 33 days within ±10%

A step total every minute. Video accuracy uses the device's step algorithm on research wrist sensors. The day comparisons were recorded on a Sensor Bio device.

Reference: steps counted by hand from video (39 recordings); other wearables (33 days)

Good to know

- **Wear:** fasten snugly, one to two finger widths above the wrist bone. Either wrist performs the same.
- **Hard-case exercise:** the heart-rate exercise session changes intensity almost every minute. Steady activity is more accurate.
- **Rest-only metrics:** HRV, beat-to-beat intervals and breathing rate were validated at seated rest.
- **Population:** healthy adults at one site, including a range of skin tones. Children and people with cardiac or lung conditions were not studied.

© 2026 Sensor Bio, Inc.