

PRESS RELEASE

## CardioSecur® – Outshining the Mobile ECG Market

Companies in the space are proudly presenting 1-lead and 6-lead ECG solutions. CardioSecur offers since its inception 10 years ago easy to use, lightweight mobile ECG devices with up to 22-leads for private users and medical professionals.

Frankfurt, May 2019. Many new mobile ECG devices are entering the consumer market. But not all ECGs are created equal allowing **substantially diverging diagnostic capabilities**. At present, there are roughly three **different quality levels of ECG technology**. At the entry level, gadget ECG devices with 1-lead or 6-leads for private users. At a substantially more advanced level, the 12-lead ECG, the so-called “gold standard”. It meets the minimum requirements of the European Society of Cardiology (ESC) and the American Heart Association (AHA) for the diagnosis of an ECG. Outshining the “Gold Standard” at an unrivalled level of excellence, there exist **even more powerful ECG systems like CardioSecur**. With **up to 22-leads it allows a 360° diagnostic view on the heart** without compromising on ease of use. This makes CardioSecur the only system which implements the guidelines of the ESC and the AHA in one, synchronous reading. These fully approved cutting-edge ECG devices are designed and available for private individuals and medical professionals.

**The number of leads** determines the level of **diagnostic power** an ECG has. Each lead represents a visual axis on the heart. The more viewing axes a system has, the more sophisticated and **medically relevant** is its data. This means, that 1-lead-ECGs (e.g. Apple Watch™, Alivecor Kardia™) are only of limited medical value. They can serve as a screening tool that may hint at some forms of arrhythmia. But do not meet the diagnostic requirements of the ESC and the AHA. Their guidelines require a 12-lead ECG even for the diagnosis of arrhythmias<sup>1</sup>. Gadget ECGs **cannot detect all forms of arrhythmia** and are unable to provide any indication about **life-threatening heart attacks**.

Still, some ECG device manufacturers (e.g. Alivecor™ Kardia Mobile 6L™) claim that 6-lead ECGs go “*after the Holy Grail* [of ECGs]”<sup>iii</sup>. However, such bold claims do not correspond to diagnostic reality. **According to cardiology guidelines, the diagnostic significance of a 6-lead ECG does not exceed that of a 1-lead ECG**. In today's medical settings, 6-lead technology **has been outdated since the 1940s**. For decades **12-lead ECGs with 10 electrodes**, have served as the so called “Gold Standard”. Medical professionals worldwide make use of this technology. Yet, even the “Gold Standard” ECG **has its limitations** as it tends to focus on the front side of the human heart. This falls short of guidelines of the **ESC** and the **AHA**. They recommend evaluating all sides of the heart including posterior and both lateral sides. This requires multiple repositioning of the 10 electrodes in order to receive a more complete, but asynchronous view of the heart. Due to these restrictions it is **hardly ever implemented in practice**.

CardioSecur is the first technology **outshining the “Gold Standard”** by allowing a **synchronous 360-degree view of the heart**. The system records a **fully-ESC compliant ECG in one reading**. With only 4 electrodes it serves the highest ease of use in its class. It maximizes doctor's diagnostic power to reveal any type of arrhythmia **including atrial fibrillation and life-threatening heart attack** on any side of the heart. Other companies are still trying to fulfill the “*promise of getting closer to a 12-lead ECG*”<sup>iii</sup>. Meanwhile, CardioSecur is several steps ahead with its ultralight ECG devices with up to 22-leads. CardioSecur provides **highly personalized ECG evaluation**. Every reading compares the previously stored **reference ECG like a “fingerprint of the heart”**, against the current state

of health. **Serial ECG-recordings** like that are **explicitly required by both ESC and AHA**. The benefits of such personalized ECG comparisons **cannot be overstated**. Its sophisticated methodology helps CardioSecur doctors to **swiftly conclude all-encompassing diagnosis**, initiate **targeted therapy** and **avoid comorbidities due to delays**. Gadget ECG devices can only speculate about heart problems and always depend on confirmation by a more powerful ECG to reach conclusive diagnosis. CardioSecur goes far beyond what others deem to be the “Holy Grail” or the “gold standard” and through **guideline-compliant ECG technology** it has set **new milestones in quality and diagnostic efficacy**.

Additional information at [www.cardiosecur.com](http://www.cardiosecur.com)



CardioSecur records a clinical-grade ECG with up to 22-leads and only 4 electrodes. ©CardioSecur



CardioSecur's ultra-light technology allows private users and healthcare professionals to take a clinical-grade ECG anytime and anywhere. ©CardioSecur

Personal MedSystems GmbH develops and sells fully approved medical ECG systems and services for private users, healthcare professionals and aviation corporates under the name CardioSecur.

**CardioSecur Active** is a cutting edge, clinical-grade 15-lead ECG for personal use. Within a few seconds, it generates personalized feedback regarding changes in the heart's health. CardioSecur initially records a personal reference ECG to integrate the user's heart history. This individual “fingerprint of the heart” allows a more accurate evaluation of the current control reading. The simple recommendation to act indicates whether to see a doctor or not. A reading can be taken anytime and anywhere and does not require an internet connection. The entire system consists of a 50g light cable with four electrodes, the complimentary app and the user's smartphone or tablet.

**CardioSecur Pro** is the ECG solution for physicians, medical professionals and the aviation sector. CardioSecur Pro is worldwide the first clinical ECG system fully meeting the guidelines of the European Society of Cardiology by providing a 22 lead ECG that operates a 360° evaluation of the heart. It is the only system that thereby identifies infarctions on any wall of the heart and is capable of capturing and localizing even the most complex arrhythmias. ECG sophistication has never before gone any further.

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<sup>1</sup>Kirchhof, Paulus, Stefano Benussi et al. 2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS: The Task Force for the management of atrial fibrillation of the European Society of Cardiology (ESC), European Heart Journal, Volume 37, Issue 38, 1 August 2016, Pages 2893-2962, <https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Atrial-Fibrillation-Management>

<sup>2</sup>Eisen, Sara. “AliveCor CEO on Kardia vs. Apple Watch Competition.” CNBC, 17 Oct. 2018, <https://www.cnbc.com/video/2018/09/17/alivecor-ceo-on-kardia-vs-apple-watch-competition.html>

<sup>3</sup>Comstock, Jonah. “AliveCor Previews next Product: A 6-Lead Smartphone ECG”. MobiHealthNews, 14 Feb. 2019, <https://www.mobihealthnews.com/content/alivecor-previews-next-product-6-lead-smartphone-ecg>