

PRESS RELEASE

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Plessey uses its EPIC sensor technology to create a heart monitor in a wristwatch

First public demonstration at Chicago Sensor Expo 2012

Plymouth, ENGLAND – 25 April 2012 – Plessey Semiconductors has designed a heart rate monitor demonstration using its award-winning EPIC™ sensor technology, which is the same size as a wristwatch and does not require a chest strap or second sensor at the end of a cable that could be easily lost or damaged. This reference design shows that simple and effective personal monitoring of electrocardiograph (ECG) signals can be as easy as taking a pulse measurement. The device straps to the wrist with a sensor electrode on the rear of the device in permanent contact with the wrist and the second electrode is on the front of the device. Touching this top electrode with a finger from the opposite hand enables the device to collect the heart signals.

“Our EPIC technology really makes heart monitoring so much simpler,” explained Plessey’s EPIC Programme Director, Dr Paul James. “Just two small contacts and no gels. This is ideal for the Sports and Fitness market where people want to measure more than just their heart rate when exercising for display either on the device or via a Bluetooth link to a mobile phone, tablet or PC. The data gathered is accurate enough that it can provide detailed ECG signals with the appropriate signal processing, including precise pulse rate and pulse rate variation. This opens up the possibility of estimating key aerobic performance parameters such as VO_2max .”



Plessey has also designed a version to provide continuous heart monitoring. This device straps to the upper arm and has two contacts on the inside of the strap. These are positioned such that the electrical cardiac signals are out of phase to give a strong differential signal to noise ratio so that unwanted noise artefacts from other muscles can be easily filtered out to give a detailed ECG trace. Such a device would enable patients to be monitored as they go about their daily routine and detect transient issues that would probably be missed during a short period of monitoring with the conventional seven electrodes and gel approach.

Plessey will be demonstrating these two reference designs on their booth 627 at the Chicago Sensors Expo Show in June 6-7, 2012 (<http://www.sensorsmag.com/sensors-expo>). Application notes are available on the Plessey website at www.plesseysemiconductors.com/products/epic/applications/. Plessey will not be manufacturing the monitors, which have been created to demonstrate to OEMs of Medical and Sports and Fitness equipment how easy it is to use EPIC technology and that it can acquire very detailed biometric information very simply.

Plessey’ EPIC Sensor technology

The EPIC sensor is a completely new area of sensor technology that measures changes in an electric field in a similar way to a magnetometer detecting changes in a magnetic field. The EPIC sensor, which requires no physical or resistive contact to make measurements, will enable innovative new products to be made such as medical scanners that are simply held close to a patient’s chest to obtain a detailed ECG reading or safety and security devices that can ‘see’ through walls. The sensor can be integrated on a chip with other features such as data converters, digital signal processing and wireless communications capability.

The technology works at normal room temperatures and functions as an ultra-high, input impedance sensor that acts as a highly stable, extremely sensitive, contactless digital voltmeter to measure tiny changes in the electric field down to millivolts. Most places on Earth have a vertical electric field of about 100 Volts per metre. The human body is

mostly water and this interacts with the electric field. EPIC technology is so sensitive that it can detect these changes at a distance and even through a solid wall.

Video demos at http://www.plesseysemiconductors.com/media_video.html

About Plessey Semiconductors Limited

Plessey Semiconductors are leading experts in the development and manufacture of semiconductor products used in sensing, measurement and control applications. Plessey's products are found in a wide range of markets including communications, manufacturing, medical, defence, aerospace and automotive. Plessey designs products for high performance applications and its range of integrated sensing products includes CMOS image sensors, HBLEDs, Hall Effect devices and its award-winning EPIC electric potential sensors. These products all benefit from Plessey's high precision, high temperature and radiation tolerant technologies.

EPIC is a trademark of Plessey Semiconductors

Media contact:

Derek Rye, Group Marketing Manager, Plessey Semiconductors Ltd

Tel: +44 (0)1793 518026. Email: derek.rye@plesseysemi.com

Or for enquiries in the USA please call: +1 (858) 324 1086

Nigel Robson, Vortex PR Tel: +44 1481 233080 Email nigel@vortexpr.com