

Sensors/MEMS 

EPIC sensors designed for ECGs

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Keywords: [contactless sensor](#) [ECG](#) [electrode](#)

Plessey Semiconductors Ltd has rolled out commercial samples of its Electric Potential Integrated Circuit (EPIC) sensors. The devices are engineered as [ECG](#) sensors and provide a comparable or better resolution as usual electrodes.

The company claims that the EPIC sensors can save money and speed up taking readings. The EPIC sensors are dry contact so that no gels or similar fluids are required. They can be cleaned between uses, unlike conventional ECG sensors that have to be disposed of

after use at a cost of \$2/set, said Plessey. Only a pair of sensors—held in each hand—is required. Plessey affirms the sensors' ease of use unlike the current approach that needs seven or more leads to be carefully applied to specific locations on the body while the patient is lying down.

This simplicity of detection even through clothes or at a distance means that new ways of taking ECG measurements are being investigated by customers. For example, the EPIC sensors could be built into stretchers for immediate monitoring of patients' heart and respiratory rates. The device can also be attached to clothing for monitoring stress levels ideal for use by emergency response personnel such as firefighters. Due to its low power, the sensors open up the opportunity for ECG monitoring over a long time so that abnormalities can be picked up during normal activities without the stress of being in a hospital or clinic.

The EPIC sensor is offered in two package formats. The PS25101 is supplied in a customized, engineered, metal or plastic disk style probe assembly. This comes complete with a connecting lead and DIN plug termination.

The PS25201 is an ultra-high impedance sensor supplied in a more compact, customized package with four exposed balls for surface mount assembly onto the PCB of a customer's equipment design. It measures 10x10x3mm. Because of the human body's large coupling capacitance of around 250pF, the sensor can obtain true ECG signals by detecting the potential at skin surface that is typically 1mV p-p. These sensors are designed for high reliability medical applications and, if required, can be built with an anodized titanium [electrode](#).

The pricing for the sensors is completely dependent on the end application and intended use. A design guide is available and quotation for volume can be provided upon request. Application boards with single and dual-channel PS25201 sensors are available from Plessey to assist with evaluation and prototyping.

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