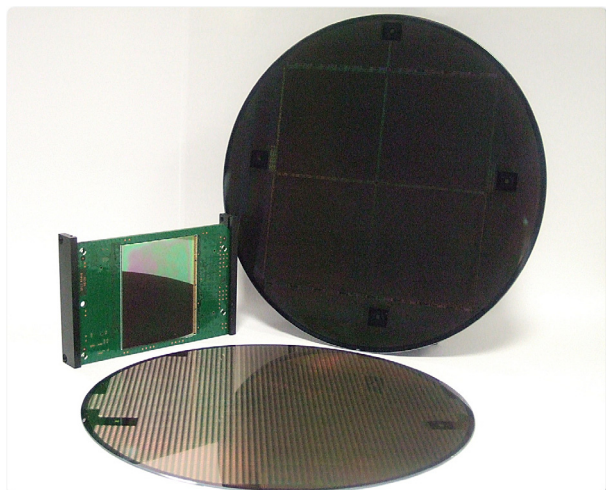


the heart of... electric potential sensing

Plessey's products address sensing, measurement and control applications in markets as diverse as communications, defence, medical, aerospace and automotive.

Plessey Semiconductor's EPIC (Electric Potential Integrated Circuit) product line uses a robust, inert and scalable technology to implement passive sensors for a wide range of applications. The technique can capture high quality clinical electrophysiological signals enabling the remote monitoring of vital signs. EPIC technology is also capable of movement sensing and the accurate imaging of charge distributions and material properties.



Features

- ▶ Ultra high input impedance amplifier with input resistance up to $>10^{15}$ Ohms
- ▶ Non-contact capacitive coupling
- ▶ Input capacitance as low as $>10^{-17}$ F
- ▶ Bandwidth quasi-DC to > 200 MHz
- ▶ Measures spatial electric potential or electric field
- ▶ Sensors are suitable for integration into 1-D and 2-D array formats

Applications

- ▶ Contact Sensing:
 - Medical, ECG, EEG, EMG, EOG etc.
 - Power Monitoring.
- ▶ Remote Sensing:
 - Occupancy
 - Position
 - Electric Field
- ▶ Array Sensing:

EPIC Sensors...

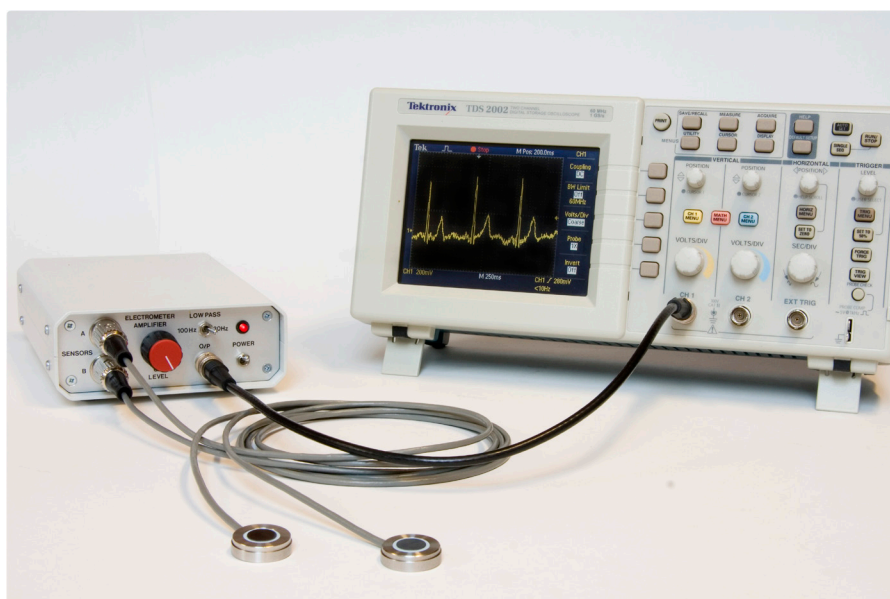
Evolving the electric potential sensors

First generation electric potential sensors have been implemented with discrete devices to realise both individual sensors and small prototype sensor arrays. These have been used to demonstrate the various contact and remote sensing applications.

Conventional semiconductor IC (integrated circuit) technology will be used to implement second generation sensor designs suitable for volume production. Different sensor implementations will be required to meet the demands of the various target applications e.g. sensor size, sensitivity and environmental considerations. An IC solution also permits the integration of other functions on chip – these might include data converters, digital signal processing and perhaps the inclusion of a wireless communication capability.

The realisation of IC sensor designs also makes possible the cost-effective production of large scale sensor arrays which in turn enable a whole new class of applications including the “imaging” of latent charge and electric potential fields.

Two electric potential sensors for high resolution ECG reading



Prototype array of 16 electric potential sensors ~7cm diameter

plessey products are central to applications that require precision and reliability in an increasingly demanding world.

