

PRESS RELEASE: Sensichips, part of the Arescosmo SpA group, announces availability of new SENSIPLUS technology.

SENSIPLUS is a new microelectronics platform that combines heterogeneous nanosensors with conditioning and pre-processing of mixed analog and digital signal into a single, smart microchip. At the heart of the SENSIPLUS chip is IP that includes an Electronic Impedance Spectroscopy (EIS) tool in addition to Potentiostat functions. For the first time, a precision, desktop-size laboratory instrument costing over €10K has been implemented into a single, miniature microchip that is 3x3mm in size, consuming only 1.5mW of power and costing in the low €10s.

EIS is a versatile tool that allows accurate measurement of Impedance in the Frequency Domain, thus deriving L, C, R components that model the behaviour of virtually any type of electrochemical sensor, material or phenomenon. Sensichips has developed their EIS analytical tool with Lock-In amplification techniques, which enables recovery of tiny signal levels buried in noise 10-100x greater than the signal itself.

Sensichips will also provide its microchips in the form of Smart Cables thanks to a single-wire, proprietary, digital, serial bus. Smart Cables are arrays of SENSIPLUS microchip sensors that can be configured to meet the user's needs, allowing distribution of microsensors over long distances (100+meters) at arbitrary density and minimum weight. Due to low power consumption and the single data wire, Smart Cables are very lightweight, narrow (flat with a width of 5mm) which makes the addition of high-density, reliable, distributed sensors to infrastructures, transportation, and mobile use, as easy as "adding lights to a Christmas tree".

Sensichips has begun to demonstrate the SENSIPLUS technology in several applications:

- Residual life indication (RLI) of filters. Filters, used universally to reduce man-made environmental pollution, still do not have a system to indicate filter saturation or the residual life. They rely on periodic maintenance procedures that are too often not respected. Ventilation systems, water and various other fluids (oil, gasoline, etc) based on carbon filters, HEPA, ULPA, and others regardless of their construction, can take advantage of this new sensor.
- Water quality monitoring and irrigation systems by measuring conductivity, adherence and other electrical parameters of water, or other fluids, to detect the presence of nutrients, salts or impurities.
- Continuous monitoring in plumbing systems for the development of pipe corrosion or deformation, and structural stress in infrastructures and transportation.
- Battery management systems and energy storage. EIS technology is one of the most important technologies for determining state of health and life of electrochemical or hydrogen batteries, lithium ion, etc., which are at the base of all new mobility systems, including autonomous ones.
- Distributed ultrasound arrays with both beamforming and receiving capabilities.
- Monitoring power consumption in appliances to manage energy efficiency in the home and office.

Marco Adami, Space Division Director at Arescosmo SpA, comments: "We are assessing Sensichips' technology with success for residual life indication of soldier's gas masks and civilian applications, where this feature is of critical importance to the user's safety. We are also considering using SENSIPLUS microsensors for our inflatable structures, one of our core businesses."

Lucia Comnes, Business Development Manager at Sensichips Srl, comments: "We believe it is important to develop our products by working closely with a partner that is active in the fields of Aerospace and Defence in order to meet their high-level requirements. This will bring our products to maturity with integrity for their eventual introduction into the industrial, automotive and consumer markets where production quantities are substantially higher. "

Sensichips supplies its chips with comprehensive development, demonstration and software that guide in their use to enable effective integration into customer's products:

For more information, please contact Lucia Comnes: lucia.comnes@sensichips.com