**New low-cost gas sensor technology from TTP uses speed of sound**

***TTP’s SonicSense delivers accurate gas sensing at a fraction of the cost of existing methods***

29 January 2014: TTP, a leading UK-based technology and product development company, has come up with an innovative approach to gas sensing that radically cuts cost, size and power consumption. The new ultrasonic sensor uses patent-pending TTP technology to precisely measure the speed of sound in a gas to determine its composition and can also be connected wirelessly to the Internet for remote monitoring and data collection.

Drawing on TTP’s expertise in nonlinear acoustics and piezoelectric technology, the new SonicSense devices will cost between £3 and £6 each in volume production. TTP is investigating a wide range of industrial and medical applications, from gas safety and process control to respiratory monitoring and anaesthesia. Once the speed of sound through the gas is measured, thermal compensation is applied before the composition of a binary gas mixture is calculated. Additional bulk gas properties such as density can also be determined using the same sensor architecture to enable more complex gas mixtures to be evaluated.

SonicSense can be used to detect dangerous levels of methane in natural gas or biogas plants and can also measure the calorific value of production gasses for quality and pricing control as well improving furnace or boiler efficiency. However, potential applications are wide ranging and diverse. For example, as the development of hydrogen fuel cell cars and their supporting infrastructure reaches a national scale, there is a growing requirement for filling station operators to monitor levels of hydrogen gas; while the new sensor technology can also detect levels of the extremely potent greenhouse gas Sulphur Hexafluoride used in high voltage electronics.

TTP has developed prototype sensors for their existing clients with a sensor diameter of only 24 mm and a depth of 18 mm – but it is expected that this dimension can be reduced to less than 5 mm. With a simple, robust design and low power consumption of around 10 mW – compared to over 1 W for some gas sensors – the TTP device is ideally suited to long-lifetime, battery powered applications with no in-field replacement or calibration required. And with growing interest in M2M communications and connected devices, TTP’s expertise in wireless communications supports the integration of SonicSence devices into an Internet of Things (IoT) ecosystem.

“Many industrial gases are expensive or difficult to measure directly,” said Andrew Baker-Campbell, one of the inventors of the SonicSense technology at TTP. “From precisely controlling process gasses for semiconductor fabrication to protecting workers from asphyxiation in the brewing industry, we are keen to work with development partners who see an opportunity to harness and commercialise this exciting new sensing technology.”

For more information, email [enquiries@ttp.com](mailto:enquiries@ttp.com) or visit [www.ttp.com](http://www.ttp.com)

**About TTP**

TTP is Europe’s leading independent technology and product development company. It combines the strengths of science, engineering and business enterprise to develop new technologies, new products, and new businesses, across a diverse range of sectors including healthcare, life science, communications, consumer products, industrial systems and digital printing.

TTP Group is the holding company for The Technology Partnership plc, TTP Labtech Ltd, TTP Venture Managers Ltd, Melbourn Science Park Ltd, and Tonejet Ltd. Established in 1987, the company is headquartered on Melbourn Science Park (near Cambridge, UK) and currently employs over 300 people in its businesses, of whom the majority are scientists and engineers.

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