

## ***PHOSFOS Fact Sheet – Oesophageal Sensor***

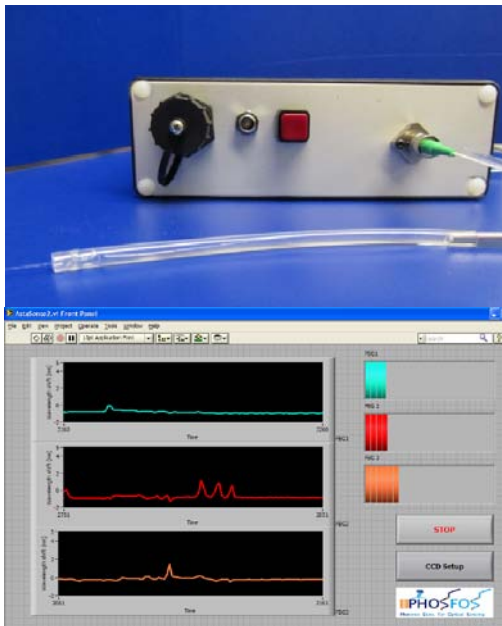
### ***Introduction***

Since its start in 2008, PHOSFOS has created a new paradigm for flexible optical sensors integrated with electronic modules and control circuitry. It aimed at developing a generic technology that offers an integrated solution to this increasingly important problem. The project is now reaching its end and has achieved several major breakthroughs in the field of optical sensing, flexible materials, embedding technologies and integration concepts which may be used in a wide range of applications.

### ***Breakthrough***

Fibre Bragg Grating (FBG) sensors are commonly used for strain and temperature sensing but pressure sensing can be more challenging especially when space is limited. The PHOSFOS project consortium developed a new polymer multipoint FBG sensor that can measure the pressure in various medical applications.

### ***Technology***



The sensor has been designed to operate at a wavelength around 850nm which is a low loss transmission window for polymer fibre. The operating band also allows us to use low cost optical components.

The sensor elements, the FBGs, are manufactured using an ultraviolet laser in a polymer fibre.

Using polymer fibre has a number of advantages. The material has a much lower Young's modulus which means that the strain transfer from the flexible outer tube is higher than with silica fibres. Also, the sensor is safer than one containing glass fibre. Should any breaks occur all of the material used is biocompatible.

The system has been designed to give a graphical representation of pressure to make interpretation of the data straight forward for clinicians.

### ***Application***

The technology enables the monitoring of pressure for medical applications such as in the oesophagus using POF FBG sensors. The technology replaces techniques such as water perfusion. Multiple point sensing is possible using an array of FBGs.

### ***Contacts***

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