

## Precision Measurement News

### December 2008



Our engineering expertise and commercial judgement support the delivery of the most complex customer projects. We prove our passion for setting increasingly higher standards of service within the industry through our delivery guarantee; **two year** comprehensive warranty and in-house laboratory for the meticulous calibration of sensors to traceable standards.

#### **Sensors in the News - Monitoring Infrastructure and Saving Lives**



Last August the world was brought to attention by the catastrophic collapse of the Interstate 35W Minneapolis bridge in the USA. Jammed with rush-hour traffic, the bridge suddenly broke into huge sections and collapsed into the Mississippi River killing thirteen people and injuring 145. Such a public disaster has once again brought into sharp relief the frailty of large numbers of the world's bridges. This particular bridge, an eight-lane steel truss arch bridge spanning 140 m, was actually in the midst of being repaired at the time and so two lanes in each direction were closed when the bridge buckled, otherwise fatalities would have been even higher.

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#### **SS2 Force Transducer with Silicon Sensing Technology™**



The new SS2 ultra low range force transducer utilises our Silicon Sensing Technology™ to deliver highly reliable

measurements of  $\pm 30g$ .

We have engineered the SS2 force transducer specifically for the precision measurement of extremely low forces. The sensor is designed around our unique Silicon Sensing Technology™ (SST) conferring excellent sensitivity while eliminating fragility and minimising temperature errors associated with other types of low range force sensors.

The design features excellent immunity to the effects of eccentric loading, side loading and bending moments. Forces may be applied either in tension or compression and

The Minneapolis bridge was built in 1967 before the advent of Structural Health Monitoring (SHM), which is now standard engineering practice for a variety of structures. In bridges, identifying damage or deterioration is of central importance. The acquisition of this data can also be used to verify and develop predictive mathematical models, improving design and construction technologies. Parameters to be considered in SHM include structural stresses, the effect of weather conditions and dynamics, including accelerations and deformations.

Older bridges are not subject to these regulations though and in 2007 the US federal government classified some 75,000 US bridges as "structurally deficient". In fact, in the case of the Minneapolis bridge, a report in 2001 concluded that due to cracking in the girders, the bridge should have some continuous structural health monitoring by strain gauges, but this was never undertaken.

Sherborne Sensors is actively involved in supplying precision sensors for bridge monitoring. Considering the hostile environment the sensors must endure of water, humidity, shock and corrosion, reliability is paramount. Typical resonant frequencies of bridges are in the sub-10Hz region so any sensors used in this application require a response down to dc. The Sherborne Sensors' range of servo accelerometers and inclinometers are designed to possess the ideal combination of these vital qualities. Now that many more of our sensors are being installed in both new and old structures throughout the world, the risk of these types of failures should be minimized, and lives saved.



BS EN 9001:2000  
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alternative loading adaptors are available. The low deflection and consequent high frequency response ensures that the unit is suitable for measuring peak and transient forces.

The sensor is suitable for many demanding applications across a range of sectors such as biotechnology, pharmaceutical manufacturing, test and measurement, aerospace/defence and industrial.

## Our commitment to growth in North America

We are delighted to announce the appointment of Jesse Bonfeld as our Vice President of Business Development for North America. The North American market represents a significant opportunity for Sherborne Sensors and over the past year we have been successful in securing a number of high profile customers. The appointment of Jesse provides a solid foundation for Sherborne Sensors to develop our operations in the region, and deliver the broader range of products and services that users in the United States and Canada have been asking for.

Jesse Bonfeld  
VP Business Development  
602-821-0762 Mobile  
928-535-9641 Fax  
[jesse.bonfeld@sherbornesensors.com](mailto:jesse.bonfeld@sherbornesensors.com)

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Sherborne Sensors Limited | Unit 1 | Ringway Centre, Edison Road | Edison Road | Basingstoke | Hampshire | RG21 6YH | United Kingdom