

The latest by email

To ensure you always get the latest news on products and innovations we offer our popular updates by email option which includes the biannual TechniTalk. To



ensure you are always up to date sign up on our website contact page or email sales@technimeasure.co.uk and ask to be added.

www.technimeasure.co.uk

ISO 9001

Techni Measure is proud to be ISO 9001 accredited to help us ensure the best possible quality of service to all our customers. More information along with a copy of our latest certificate is available on our website.



This Issue

- On The Move **P.1**
- Wireless Torque System **P.2**
- Dytran Product Upgrade **P.2**
- Fibre Optic Extensometers **P.3**
- CV-01 Handheld Shaker **P.3**
- Cylindrical Biaxial Accelerometer **P.4**
- TECHtalk 4-20mA Explained **P.4**

Techni Measure on the move

Techni Measure are pleased to announce that from 28th March we will be moving to new premises.

After a successful 30 years in Studley, Warwickshire we are moving into a

new property located near Doncaster Sheffield Robin Hood International Airport. The move is a result of our continuing development to serve our customers to the highest standards. Offering increased storage and

preparation areas, conference facilities and a newly equipped laboratory we can further enhance our services and support for all our customers.

As a result of this the move, our contact details have all been updated. We encourage

you to update them within your system and hopefully look forward to welcoming you, the kettle is always on!

Our old phone number for the time being will continue to work but to better reflect our nationwide customer base our new non-geographic phone number is: 03300 101490 (Calls to this number cost no more than calls to 01 and 02 numbers)



**Unit 4,
Buccaneer Drive
Auckley
Doncaster
DN9 3QP
Tel: 03300 101 490
Fax: 03300 101 491**

Reintroduction of N-1 coating from TML

In a previous Newsletter, it was stated that the popular N-1 neoprene rubber strain gauge coating material had been discontinued. However TML has recently reintroduced this to their product range, albeit in a smaller 25 gram tube, this is now available and in stock. Please ask for details.

Product Catalogues

We have a range of catalogues for all our suppliers that are available for customers.

These are available either electronically by email or hard copy by post. For further information or to request a copy please contact us either by the website contact form, on the phone or by email.

Wireless Torque System

LORD MicroStrain has introduced a wireless system specifically designed for use with strain gauges that are mounted on a shaft in order to measure torque. The Torque-Link™-LXRS® is a specialised analogue sensor node designed to fit over rotating shafts for wireless strain and torque measurements.

The node has one or two differential analogue input channels which are designed for full-bridge strain gauge integration. It is ideal for static and dynamic torque measurements with full temperature compensation and bending cancellation, the rugged ABS housing is designed for remote, long-term installation on cylindrical shafts.

Wireless data transmission allows installation on rotating components without a slip ring. Standard or custom diameters are available. The



housing installs over existing strain elements with no mechanical shaft modifications. The system features lossless data throughput and node-to-node sampling synchronization of $\pm 32 \mu\text{S}$ in LXRS-enabled modes, so that more than one node can be used in the same system. At the heart of a network of these nodes

are the WSDA® base stations, which use exclusive beaconing protocols to synchronize precision timekeepers embedded within each sensor node in the network. The WSDA® also coordinates data collection from all sensor nodes. Users can easily programme each node on the network for simultaneous, periodic, or burst mode sampling with the Node Commander® software, which automatically configures network radio communications to maximize the sample rate. Applications include condition-based monitoring and health monitoring of rotating components on aircraft, structures, or vehicles.

Dytran Product Upgrade

Dytran has upgraded their general purpose 3055B and 3056B product families to the 3055D and 3056D. These workhorse hermetically sealed accelerometers are characterised by low noise, high resonant frequencies ($> 35\text{KHz}$), a tight sensitivity specification of $\pm 5\%$ and a frequency response of $1\text{Hz} - 10\text{KHz}$.

Especially popular as modal response accelerometers and for shaker control, these product families have strong worldwide demand in many general purpose applications as well. The all



welded titanium housings provide a durable, lightweight, low cost product. The new 3055D and 3056D series offer an enhanced isolation design and a larger hex design for easier grip. The 3055D features a horizontal 10-32 electrical connector and is offered in acceleration ranges between 10g and 500g with optional TEDs.

The 3056D family features a top 10-32 electrical connector and is offered in acceleration ranges between 10g and 1000g with optional TEDs. The product isolation design moves the isolation from an external epoxied isolation base to an internal isolation, with the large outer hex also isolated



from internal electrical grounds as well as the mounting base. The larger hex design adds to the ruggedness of the unit providing a larger surface to grip for torque application. The electronics amplifier design has remained the same as well as the footprint of the devices, making them backward compatible with the 3055B/3056B families which are being discontinued.

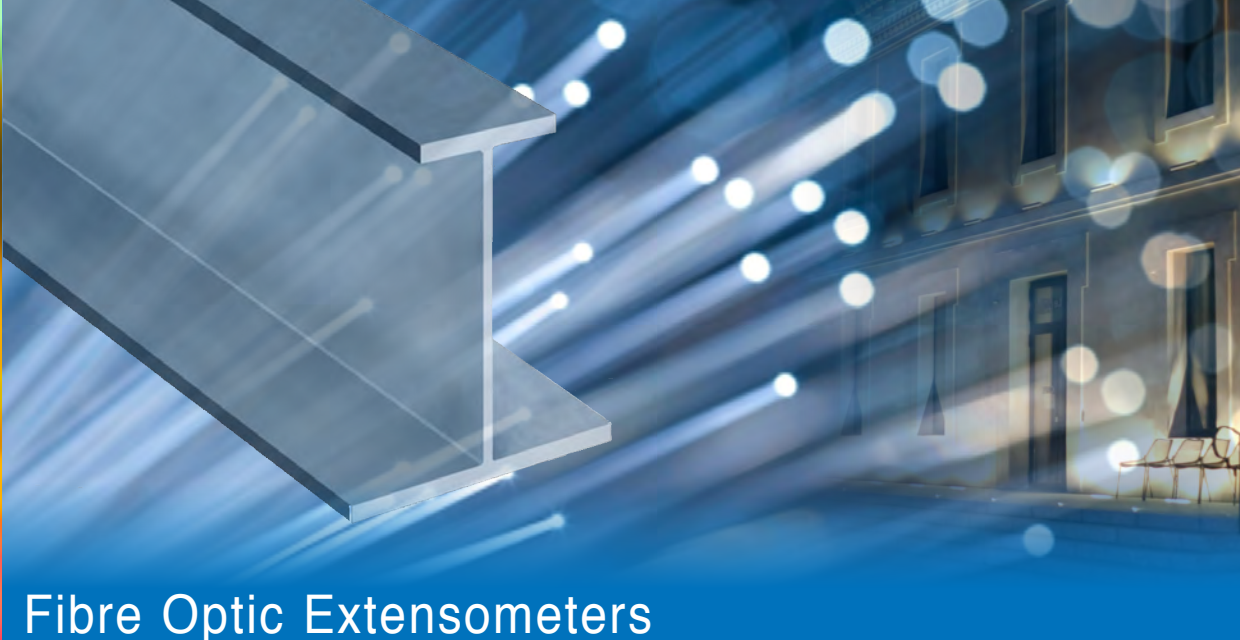
Please ask for detailed specifications for these sensors and let us know about any suitable general purpose vibration application that you might have, so that we can advise on the best choice of accelerometer.

CV-01 Handheld Shaker from SPEKTRA

The model CV-01 handheld shaker from Spektra, offers a quick and simple way for inspection of vibration transducer output sensitivity. It can also be used for field inspections of sensor wiring, by inputting a known level of vibration into the measurement system.



Power is supplied by four rechargeable batteries, and a charging unit is supplied with the kit. For power economy, automated switch off after 60 seconds is standard, but this can be adjusted to continuous operation if required. The sensor mounting thread is a 1/4-28 UNF thread, but the kit is supplied with a 10-32 adaptor stud, and also a 3/4" Hex adhesive base. The shaker can vibrate sensors up to 150 gram weight and runs at 159.2Hz at 10m/s/s acceleration. Please ask for further details.

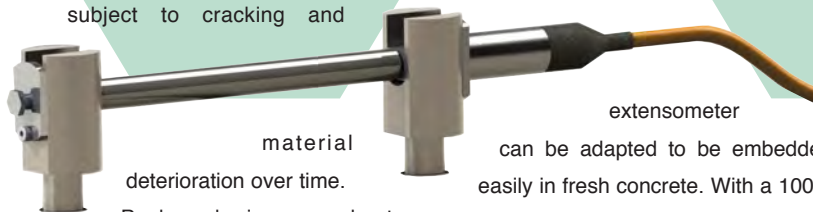


Fibre Optic Extensometers

OpSens Solutions supply a range of fibre optic sensors that work using white light as the source, instead of the laser light of other systems. Part of their range includes three forms of extensometer typically used in civil engineering applications.

The spot welded extensometer can be used for surveillance of steel infrastructure in any environment and the design of this spot welded version makes installation hassle free. Insensitive to temperature variation, the heat generated by the spot welding process will not affect the specifications of the sensor. The spot-welded strain sensor can be packaged for use in permanently immersed applications such as those related to dams or tanks and even pressurised environments since the sealed version can withstand a pressure of up to 300 bar. Being intrinsically safe, these

sensors are the obvious choice for hazardous environments such as those having explosive atmosphere and under ATEX directive. The anchored extensometer can be used for monitoring aging buildings especially for concrete constructions subject to cracking and



material deterioration over time. Packaged in a robust stainless steel casing, this version is perfectly tailored for demanding applications in civil engineering and mining sectors. They can also be packaged for the marine environment, even in applications where the sensors are permanently exposed to sea conditions such as concrete docks, and offshore platforms. Since they do not drift over time and maintenance is not required,

they can be used in surveillance applications which last for decades. The third version is for embedding in concrete, and provides accurate monitoring of expansion / contraction within a concrete infrastructure. Flexible and easy to package, the

extensometer can be adapted to be embedded easily in fresh concrete. With a 100% survivability, this robust design makes in-situ monitoring of new concrete structures worry-free and reliable. The fast response sensor can be used in both dynamic and static surveillance applications, and by using the natural advantages of fibre optics, the embeddable extensometer will not be affected by the surrounding environment like other sensing technologies.

Techni Measure Product Guide

Our popular product guide outlines the general specifications and options across our product range. We will soon be issuing the latest version, available as a printed catalogue and also electronically as a PDF.

If you would like to receive this latest publication either by email or by post please contact us via our website, on the phone, by email or from your regional sales engineer.



Dates for the diary

15th March

EIS Instrumentation Show
Stand 50
Silverstone Exhibition Centre

6th April

Engineering Testing Show
The Roundhouse, Derby

12th - 14th April

Drives & Controls 2016
Stand D832
Birmingham NEC

6th September

EMex 16
University of Exeter

28th - 29th September

Sensors & Instrumentation
Stand B23
Birmingham NEC

We shall be demonstrating our range of systems and solutions at these shows and we will welcome you on our stand to discuss your application requirements. If it is not possible for you to attend any of these shows, please remember that we will always be happy to visit you for a detailed discussion on your application and a demonstration of any of our products.

Cylindrical Biaxial Accelerometer

The new Dytran model 3054B is a unique, miniature biaxial accelerometer designed to be inserted up to 40 feet into 0.319 inches diameter heat transfer tubes for the purpose of measuring transverse acceleration of the tube.

The Dytran model 3054B uses 8 beryllium copper springs attached to the outside of the sensor body, to guide the unit into the tube and allow for slight variations in tube inside diameter and for some build-up of foreign materials inside the tube. Alternate spring sizes are available (up to .935 inches) to accommodate larger tube diameters. Biaxial in design, model 3054B incorporates two quartz sensing elements operating in shear mode. The sensing elements are internally isolated from the sensor case and



are enclosed by a Faraday shield for electrostatic noise immunity. The sensor can be used in a temperature environment between -51 to +121degC, and has a 25mV/g sensitivity (200g range). It has an integral 40ft cable to

itself weighs only 7.2 grams and comes in a stainless steel hermetically sealed case. Typically this biaxial accelerometer can be used in chillers, cooling towers, and for vibration measurements in heat transfer tubes in HVAC units, but with its unique design, many other applications are possible. One model 6565A insertion rod adaptor (6-inches long), and one model 6565A1 insertion rod extender (48-inches long) are supplied with each sensor.

We would be pleased to offer our advice on the use of these sensors, or for any other vibration sensor in the extensive Dytran range.

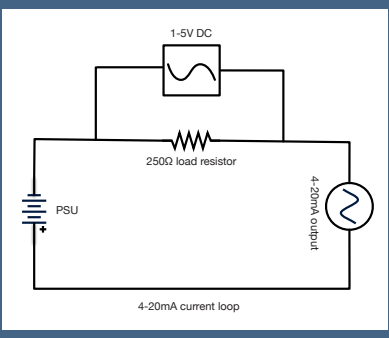
TECHtalk - 4-20mA Explained

The 4-20mA current loop is a common method of transmitting sensor information in many industrial process-monitoring applications, and many industrial sensors with built-in electronics will be supplied with such a 4-20mA output. When sending voltages over long distances, lower voltages will be received at the other end of the cable due to wiring and interconnect resistances. Also noise can be generated in the signals due to the signal-carrying wires often being in close proximity to other electrically noisy system wiring. Shielded wires can be used to minimize noise pickup, but their high cost may be prohibitive when long distances are involved. Consequently sending sensor information via a current loop is particularly useful when the information has to be sent over long distances of

300m, or more. Sending a current over long distances still produces voltage losses proportional to the length of the wire, however these voltage losses do not reduce the 4-20mA current that is flowing in the cable. External electrical noise will not affect the current flowing either. Most sensors will produce a voltage output proportional to the parameter they are measuring, so the manufacturer

will convert this voltage inside the sensor into a proportional current, with 4mA normally representing the zero-level output of the sensor, and 20mA representing the full-scale output. This means that as long as a 4mA current is flowing in the loop then the system is intact, but if this then drops to zero, there must be a break or problem in the system, and alarms can be set for this. If zero volts was converted to zero mA then this feature would not be possible. If a 4-20mA monitoring instrument is used at the remote end of the cable, it would usually have the correct supply voltage for the loop, and internal circuitry to reconvert the mA signal back to a voltage for measurement display or processing. In this case it would usually be a simple 2-wire connection. However if this is not the case it is very simple to

convert the current to a proportional voltage (that is 2-10 Volts) by using a 500 Ohm precision resistor across the input of the voltage reading device. A 250 Ohm resistor will convert to 1-5 Volts. It may be necessary to provide the correct voltage supply for the loop externally, and it would be important to ensure that this was a good clean supply.



Measurement and control systems for industrial and research applications