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## New Website

After a huge amount of work we are pleased to have launched our all-new Techni Measure website. As a major new refresh we now present a host of technical information, selection guides and product outlines as well



as the latest information on new product releases and exhibitions. As an ongoing project we will be expanding our range of technical articles and resources, which are available for free to all visitors.

[www.technimeasure.co.uk](http://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.

## Welcome to the new look TechniTalk Newsletter

Whether you are reading this for the first time or have been following our series of publications, we hope that our twenty sixth edition of TechniTalk continues to inform readers of new products, whilst providing technical suggestions on how or where these products might be used. We have changed the format of our Newsletter this time which we hope will be more presentable as an electronic version whilst still looking good in the printed form. This new look issue has a huge number of new products we are excited to add to our expansive range. If you are reading this for the first time and would like to be added to our contact list for future copies, or you would rather receive this publication electronically in the future, please let us know.

Introducing our new ranges  
of fibre optic sensors from  
OpSens Solutions and  
calibration systems from  
**SPEKTRA**

Techni Measure is pleased to announce the introduction of two new suppliers to our range of products.



We are excited to be able to offer now a range of fibre-optic strain gauges and sensors from OpSens Solutions. Further detail about these is included in a separate article within this newsletter, with an explanation of the unique white light source that is used in these sensors in the Technical note section.



The other new product range is from SPEKTRA, who offer a range of vibration, shock and acoustic calibrations systems and an extensive range of vibration exciters, further details of these are in another article.

Both of these new product ranges complement our existing line of sensors and systems, and we look forward to a continually growing reputation within the industry for being able to offer great products with good practical advice on the best solution. We do understand what we sell and advice is free.

## New BTMC Bolt Gauge from TML

TML have just introduced a new type of bolt strain gauge designed to measure the axial strain in a bolt.

Like their other range of bolt gauges, these require a hole to be drilled in the end of the bolt, but the adhesive used to glue them in is a quick setting cyanoacrylate adhesive type CN. The new BTMC series comes in three different gauge lengths, 0.5, 1 and 3mm requiring different hole diameters of 1, 1.6 and 2mm respectively, and the gauge resistance is 120 Ohms. For optimum results the gauged bolts should be left for one day at room temperature for full adhesive curing, or for quicker setting, after one hour at room temperature, they can be heat cured at 80degC for 1 hour. For further details please ask for a copy of the installation manual.

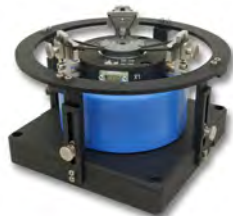


## Vibration & Acoustic Calibration Systems

Techni Measure can now offer an extensive range of vibration and acoustic calibration systems, manufactured by SPEKTRA, based in Dresden, Germany. Systems are available from very low frequency long stroke shaker

systems, through to high frequency shock systems for amplitudes up to 200,000g.

The CS18 MF calibration system is the general purpose range offering calibration frequencies from 3Hz to 10kHz. The CS18 VLF system is the low range long stroke shaker system that enables testing from 0.2Hz to 160Hz, and the CS18 HF system offers higher frequency testing from 5Hz to



20kHz. This modular range, based around the CS18 core, is available for either secondary "back-to-back" comparison calibration (systems are supplied with a reference standard accelerometer) or primary "absolute" calibration using a laser

vibrometer. A battery operated hand held vibration shaker, model CV-01, is also available for testing sensors up to 150 grams. Several different systems for primary or secondary shock calibration are also supplied ranging from the CS18 LS for shocks up to 200g, through to the model CS18 VHS for measurements up to 200,000g. The CS18 SPL offers secondary sound pressure level calibration for

¼", ½" or 1" microphones, and there is also a free field calibration system available. A wide range of vibration and shock exciters from SPEKTRA and APS are available for structural excitation and modal assessment. instance, to discuss the possibilities.

There are many options and extras for these systems and it is important for us to understand exactly what any application requires, so that we can offer a complete solution. In the first instance we would usually visit your premises to discuss the possibilities. We would be pleased to offer our advice on the specification and use of any of these calibration systems, please contact us

## Analogue 6DOF Accelerometer from Dytran

The new model 7556A sensors from Dytran Instruments are a fully analogue output six degree of freedom (6DOF) sensor containing a MEMS based triaxial accelerometer as well as three MEMS based gyros. These sensors will provide the end user X, Y, Z acceleration (g's) as well as rotational information of roll, pitch and yaw expressed in degrees/sec, around those three orthogonal axis. A unique feature of the 7556A sensors is that they have been designed to have zero volts output for zero Engineering Units nominal input, thereby eliminating DC offsets

typically found in many sensors of this type.

The sensor is supplied as one of two ranges. The 7556A1 has an acceleration sensitivity of 400mV/g (0-3g range) and gyro sensitivity of 3mV/degree/second (0-300deg/sec range), whilst the 7556A2 has an acceleration sensitivity of 200mV/g (0-6g range) and gyro sensitivity of 1mV/deg/sec (0-1000deg/sec range). Frequency responses are typically from 0Hz up to 800Hz for the accelerometers and 150Hz for the gyros. Both models are powered with a wide voltage range from 5 to 26 VDC, with a typical current

draw of 12 mA. The sensor comes in a compact, lightweight (25grams), rugged, titanium, hermetically sealed package for harsh environment survival, and has a 9-pin axial connector. Mounting is via the two supplied bolts. Typical uses for these 7556A sensors include test applications in vehicle

dynamics, ride and handling, rollover, automotive safety, aerospace testing, large machinery including industrial off road, aircraft flight dynamics, aircraft ground test, helicopter evaluation and biomechanics studies. Performance specifications do not however allow for use as an IMU.



TML has recently published their new Strain Gauge Catalogue, which includes many of their new products released over the past few years, and has several new extra information pages. With full colour throughout, this 90 page catalogue now shows clearly the various integral lead wire options that are available, and details of the new size of adhesive packaging are also shown. Please ask for a copy of this useful publication.



## New from Techni Measure Strain Gauge Toolkit

As part of our ongoing aim to support all of our customers with all aspects of measurement we are proud to introduce our new strain gauge installation toolkit. This high quality kit contains all of the manual tools and accessories to ease the installation and connection of strain gauges.



## Fibre-optic Sensors

The range of Fibre-optic sensors from Opsens based in Quebec, Canada, is now on offer from Techni Measure. These products differ from other similar types of sensors, since they employ a unique white light source instead of laser light, and do not employ Bragg gratings in their operation. Sensors are available to measure temperature, strain, pressure and displacement, and white light source electronics can be single or multi-channel.

The main method of operation used is White Light Polarization Interferometry (WLPI), but for some of their temperature sensors OpSens also employ Semi-Conductor Band Gap technology (SCBG), which uses Gallium Arsenide crystals. A full description of these techniques

is available at [www.opsens.com](http://www.opsens.com), but interferometry basically looks at the phase modulation of reflected light. When two waves combine and are changed by an external measurand, the resulting pattern is determined by the phase difference between the two waves and converted to a meaningful measurement. Opsens fibre-optic sensors for temperature, pressure, strain and displacement are designed to deliver accurate measurements in harsh environments and in the presence of EMI, MRI, RF, microwave and high voltage. They are immune to all such environmental influences. Temperature sensors measure from -40 to +250degC, the

strain gauges can measure up to 5000 microstrain, displacement sensors measure from 0 to 25mm with 1 micron resolution, and the pressure sensors are available in several ranges up to 350bar. These pressure sensors are completely sealed, and the sensor body can be made of a selection of materials including stainless steel and can therefore function under adverse conditions of temperature and toxic or corrosive atmospheres.

We would be pleased to offer our advice on the correct use of any of these sensors, so if you can send us details of any appropriate application we will be able to find a solution.



## Tech Tips

### How can I remotely monitor and access my sensor data

The range of wireless products from LORD Microstrain comprise a selection of base stations along with a variety of sensor nodes depending on the required measurement parameters. Use of the WSDA-1500 base station allows wireless data to be uploaded to either LORD Microstrain's own SensorCloud platform or alternatively integrated into a variety of systems using the free to download Software Development Kit (SDK). The standard Ethernet interface



on the base station allows easy access to the device and wirelessly connected nodes for data retrieval and configuration. Expanding on this the base station can be connected to a range of cellular modem devices to transmit data via a mobile phone data network, or alternatively used with a WiFi adapter to integrate to existing network infrastructure, thus giving the wireless measurement system infinite capabilities in terms of where the operator may be located. For further information and help specifying a wireless sensor network please contact us.

## Dates for the diary

### 30th Sep - 1st Oct

Sensors & Instrumentation

Stand A38

Birmingham NEC

### 21st Oct - 22nd Oct

Engineering Design Show

Stand E110

Ricoh Arena, Coventry

### 4th Nov - 5th Nov

Advanced Engineering

Stand D85

Birmingham NEC

### 12th Apr - 14th Apr

Drives & Controls 2016

Stand D832

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.

## Environmental Wireless System

LORD MicroStrain have introduced an upgraded wireless system specifically designed for use with various environmental measurement sensors. The ENV-Link-Pro-LXRS replaces the "Mini" version, and accommodates two thermocouple inputs, a relative humidity/temperature (RHT) sensor, and 4 additional 0-5 VDC sensors. Possible sensors include pyranometer (light measurement), soil moisture, leaf wetness, rain gauge, wind speed and direction, water level, barometric pressure, conductivity, etc.

Multiple units may be deployed up to 1km away (line of sight) from the wireless base station, and data is either stored locally or forwarded to a cloud server, providing analysis tools, scripting, alerts, and downloads. Internal rechargeable or long-life batteries can allow long term unattended data acquisition. The unit is supplied in an IP67 FRP enclosure measuring 140 x 140 x 101mm. 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 program 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.

Synchronized data collection, combined with LXRS data acquisition, allows users to select lower sampling rates, because there is no need to over sample. In many cases, users can also use reduced radio transmission

power levels, which leads to longer battery life and enables energy harvesters to be used in lieu of primary batteries. Applications include environmental monitoring, precision agriculture, crop maintenance, and ecological research.

For additional information on this new system, or for advice on any of the other wireless systems available from LORD MicroStrain, please let us know details of any possible application.

## Low Profile Force Sensor

The new Dytran model 1212V series are low profile ring style IEPE force sensors, which the industry commonly refers to as "force washers", due to their similar appearance. These sensors are designed to measure rapid or slowly changing dynamic forces in machinery and other applications where a through stud or bolt holds the sensor in place in a preloaded condition

The model 1212V can measure vibratory compressive forces over a wide frequency range and unidirectional pulsing forces from punch and forming presses and other repetitive force applications as well as impact forces. The 1212V series are offered with either a 1.0, 2.5 or 10 mV/lbf sensitivity, having full scale ranges of 5000, 2000,



or 500 lbs respectively. As an IEPE sensor, the 1212V series features built-in electronics, eliminating the need for an external charge amplifier and converter, although

for repetitive force applications a special zero clamp circuit may be required. These models are all just 4mm thick with an external diameter of 19mm and an internal hole of 4mm, and are supplied with an integral 10 ft cable with a BNC plug termination. Design of the model 1212V design features a quartz sensing element, operating in compression mode and packaged in a rugged stainless steel housing weighing just 8 grams. The working temperature range is from -51 to +121 degC.



Measurement and control systems for industrial and research applications