## Sensors for miniature hydraulic components

A 3mm diameter version has been added to Micro-Epsilon's range of pressure-resistant position sensors for hydraulics and pneumatics applications. Suitable for miniature hydraulic cylinders and actuators, the EDS series has a non-ferrous aluminium outer sleeve as its target, which can be integrated into the piston rod. This enables the sensor body to be a solid rod, making it easier to assemble and more robust in harsh environments.

The sensors are manufactured from a pressure-resistant stainless steel (up to 450bar) and can withstand vibration and shock levels up to 300g axial and 100g radial. The sensor electronics and signal conditioning are completely integrated in the sensor flange.

The standard range is capable of measuring lengths from 100mm up to 630mm, and OEM versions can be designed to almost any measurement range, from 10mm to 1m typically. The temperature range is from -40˚C to +85˚C and the sensors also have short dead-bands at either end of the measurement range.

Suitable applications also include use in hydraulic suspension cylinders on mobile cranes and other off-highway vehicles, where precise measurement of displacement is required.

**Micro-Epsilon**
**T: 0151 355 6070 Enter 215**
**www.micro-epsilon.com**

## Pressure sensors

New from Honeywell is the IP Series of industrial pressure sensors. There are two models available – the IPG1 and IPG2 – which offer robust pressure measurement performance with accuracies of 0.15% and 0.25% respectively.

Built on the company's proven Sensotec pressure platform, the Model IP pressure product is CE certified and offered in common psi (five to 10,000) and bar (0.5 to 700) ranges. It also includes temperature in its Total Error Band (TEB) configuration.

The series is compatible with a wide range of media including liquids, chemicals and gases.

**Honeywell Enter 217**
**http://sensing.honeywell.com**

# Torque sensors benefit specialist test rig


As well as assuring precise wellbore targeting and reservoir delineation, Gyrodata's high accuracy surveys prevent such problems as missed objectives and wellbore collisions in multiwell structures. The company supplies its survey services to the energy, mining, environmental and construction industries, with manufacturing and test facilities in Houston, Aberdeen and Barrow-in-Furness. At the Barrow plant, it has around 60 Well-Guide RSS (rotary steerable systems) which it dispatches to oil field operations.

The Well-Guide RSS is a fully automated rotary steerable drilling system with 3D automated control near the bit. It can drill highly accurate trajectories using pre-programmed courses with full downhole closed-loop control that allows real time trim steering during the drilling operation. The result is that survey and extraction drilling is more predictable and reliable.

A typical job lasts about two weeks, and when the kit comes back there is an intensive two weeks completely rebuilding it. A key operation in the overhaul process is torque testing the rotating parts – any variation from tight torque tolerance specifications suggests that there might be something needing attention. Here, a specialist rig featuring Sensor Technology's TorqSense is used.

In operation, the Well-Guide is loaded into the rig. It is switched on and a suite of tests are run at different speeds. The data is collected on the fly and fed straight into a computer for immediate analysis.

TorqSense uses tiny piezo-ceramic combs, known as Surface Acoustic Wave (SAW) devices, fixed to the shaft of the equipment under test. These distort in proportion to the instantaneous torque level in the shaft as it rotates, with the distortion creating RF data signals that are transmitted via a radio frequency coupling. This data signal is then transmitted to the control unit, from which it can be read on an alpha-numeric display or (as Gyrodata does) transferred to a PC for analysis and profile building using a customised version of Sensor Technology's TorqView software programme.

Following trials of TorqSense in its UK plant, Gyrodata bought more and encouraged its American engineering colleagues in Houston to adopt the technology too.

**Sensor Technology T: 01869 238400 www.sensors.co.uk Enter 216**

## Cylindrical photoelectric series

Cylindrical in shape, Pansonic Electric Works' CY-100 photoelectric sensor series is suitable for use in industrial environments.

The user can choose from four types: thru-beam type with a sensing distance of up to 15m; retroreflective type with a sensing distance of up to 4m; retroreflective type with polarization filter and a sensing distance of up to 2m; and diffuse reflective types with sensing distances of up to 100mm or 600mm.

Features include an M18 male thread for quick mounting, and they are available with a cable or M12 plug-in connector. They have an operating voltage of 12 - 24V DC and a short-circuit proof PNP or NPN transistor output. They are enclosed in a robust PBT housing with IP67 protection and have integrated status LEDs.

Applications include sorting, counting and palletizing while monitoring production and packaging lines, and position and liquid level control of transparent containers in the beverage and filling industry.

**Panasonic Electric Works Enter 218**
**www.panasonic-electric-works.co.uk**

## Wideband power sensor range extended


Bird Technologies Group has extended its range of Wideband Power Sensors (WPS) by five new models. The sensor range, which is expected to find use in the design, installation and maintenance of radio frequency systems, is available in the UK and throughout Europe from distributor, Aspen Electronics.

Applications will be in systems including analogue and digital cellular, 3G, 4G, GSM, GPRS, EDGE, UMTS, HSDPA, Tetra, APCO/P25, WiMAX and WLAN, CDMA, TDMA and WCDMA, as well as in specialised systems used in the transportation, tactical military, radar, avionics, marine, LMR, broadcast, paging, public safety, telematics and utilities sectors.

The range has been manufactured using the company's 'Thruline' design concept, coupled with the latest advances in digital signal processing technology.

The five new models cover a frequency range from 25MHz to 4GHz and a power measurement range from 25mW to 500W average power. Models include the 5012A with a frequency range of 350MHz to 4GHz and a power range of 150mW to 150W average, 400W peak; and the 5018 with a frequency range of 150MHz to 4GHz and a power range of 25mW to 25W average, 60W peak.

In addition, the devices feature all major components required for power measurement included in one module: a high power, low loss, high directivity coupler; two high accuracy detectors (one each for forward and reflected power measurements), plus digital processing circuitry for connection to a PC for capturing and storing readings, via a USB interface.

Measurements performed include true average power, peak power and duty cycle. Calculations performed include VSWR, return loss, reflection coefficient, crest factor, average burst power and CCDF.

**Aspen Electronics Enter 219**
**T: 020 8868 1311 www.aspen-electronics.com**