



# Sensors Spotlight

## Motion-control couplings

A variety of couplings from **Lovejoy** provides transfer of motion between two rotating shafts, compensating for parallel, angular, and axial misalignments.



Specifications and tolerance ranges vary, depending on the application required and a facility's internal tolerance ranges. The couplings are suitable for various market segments with zero backlash, including metal-cutting machine tools. Maximum temperature tolerance is 300°F (150°C) to manage harsh environments. The curved jaw mini-couplings offer a maximum 31,800 rpm for high-speed operations, while the bellows clamp-style coupling addresses higher torque and bore capacities.

## Drive module

**SensComp** offers the 9000 Sonar Ranging Module to provide engineers and designers a solution for interfacing piezo ultrasonic transducers with external circuitry or with a controller for ultrasonic sensing in various applications.



The module operates on 5 V dc and provides a pulse-width output proportional to the distance to the target. As a pair, the company's 9000 transducer and ranging module can detect objects or liquid surfaces from 1 to 18 ft (0.3 to 5.5 m). Suitable applications include back-up and blind-spot sensors and other noncontact object detection.

## Load indicators

A line of load indicators including the DS-2100 and the DS-2100 WiFi displays from **Loadstar Sensors** features input acceptance from up to four attached load sensors, digitized analog signals using 21-bit analog-to-digital converters, and automatic sum loading from connected sensors. Users can tare values from a set pre-load. The indicators also linearize calibration curves, display calibrated loads in increments of 0.1 to 999.9 lb (0.04 to 455 kg) on a red LED display, and operate using a 9-V dc power supply or a 9-V battery. The DS-2100 measures and displays loads and output data directly to a PC serial port, while the DS-2100 WiFi version uses a virtual serial port to provide the command set and data output in decimal format.



## Angular position sensor

**Cherry** ILAPS AN101101 magnetic speed and proximity sensors feature advanced electronics and rugged packaging, making them suitable for demanding environments such as high thermal shock, water immersion and spray resistance, dust, gravel, and high-vibration applications. Features include programmable offset, gain, temperature compensation, and clamping voltage. Patented non-contact angular position sensors provide linear output over 120° maximum travel without the need for electrical compensation and are appropriate for pedal, throttle, and valve position sensing.



## Liquid level sensor

**Gems Sensors & Controls'** ELS-1150 electro-optic liquid level sensor features a compact size of 1.38 in (35 mm) and uses a glass prism fused to a carbon steel/stainless steel housing to monitor vessels pressurized up to 2500 psi (172 bar). The ELS-1150 offers an operating temperature range of -40 to +212°F (-40 to +100°C) and is commonly used for low, high, and intermediate level detection in hydraulic applications. The prism works with an IR LED and transistor logic/complementary metal oxide semiconductor-compatible solid-state circuitry to provide liquid level detection and transistorized switch action with no moving parts; units are capable of switching 18 mA. The Series is available with 0.5-in (12.7-mm) NPT mountings and with operating voltages of 5 or 12 V dc.



## Submersible technology

Models AST4500 and AST4510 media isolated submersible pressure sensors from **American Sensor Technologies** were designed for use with an entity barrier and are suitable in various submersible and level measurement applications including groundwater level depth, well water monitoring, earthen and concrete dams, liquid level tanks, gasoline and diesel fuel tanks, irrigation, holding tanks, and wastewater canals. Models AST4500 and AST4510 feature a weighted front-end nose cone, contain no internal O-rings, and are designed for harsh environments. The stainless-steel sensors offer output options of 1 to 5 V and 4 to 20 mA, are equipped with 100 V/m of electromagnetic induction/RF interference protection from electrical noise, and operate at a range of -20 to +85°C (-4 to +185°F) with pressure ranges up to 100 psi (7 bar).



tools of the trade



### Ultracapacitor module

The 125-V Boostcap ultracapacitor module, from **Maxwell Technologies**, provides a building block for scalable energy storage and power delivery. It is suitable for heavy hybrid and electric vehicles and heavy-duty industrial applications that require up to 1500 V. Compact and fully integrated, the HTM BMOD0063-0P125 module is based on the 2.7-V Boostcap MC3000 power cells and incorporates proprietary balancing, monitoring, and thermal management capabilities to ensure charge/discharge performance, reliability, and long operational life. According to the company, the module is designed to satisfy the demand for ultracapacitor-based braking energy recuperation and torque assist systems.



### Back-up alarm

The Hark Alarm series from **Triton Signal** provides automatic sound level selection. It is suitable for applications in which wide variations in ambient noise occur, where a standard alarm would be either too quiet or too loud. The self-ranging alarm uses a built-in, environmentally sealed true flat-response microphone to sense ambient noise around the alarm, not just behind the vehicle. Its circuitry digitally stores the ambient sound level and adjusts its sound output dynamically, up or down, making it 10 dB louder, therefore causing it to be loud enough to be heard yet not cause a disturbance. Certified to **SAE J994**, the alarm meets OEM requirements for high-voltage transient protection and has standard industry mounting holes.



### Pushbutton actuator

The D1040 plunger actuator from **Control Products** features a heavy-duty .625-24 stainless-steel bushing and bracket for panel mounting in harsh environments. Used in various manual actuation applications, the waterproof switches are available with panel seals to provide a finished look. The switches are designed for year-round outdoor use and withstand a variety of conditions—snow, ice, rain, temperature extremes, dust, dirt, and oil. Integral wire leads come standard; special lead lengths and terminations are available.

The PolyLube and PolySlide line of self-lubricated composite bushings and liner-less composite cylinders offer manufacturers new performance capabilities for their products. Polygon says the advantages of using composite as opposed to traditional material like metal include less mass, more strength, improved performance, and a reduced overall cost of ownership.



### Coaxial CIR connectors

**ITT's** VEAM CIR Series connectors can function as electrical, optical, or pneumatic connectors and come in high-voltage, twin or triaxial, hermetic, and EMC versions. The design is based on MIL-C-5015; however, the units' positive lock and quick-disconnect coupling surpasses this specification's environmental requirements. The connectors accept most popular RG cables. Fiber styles are available with single- or multiple-fiber termini. Devices can include a range of insert/grommet materials to provide superior resistance to fuel oils, solvents, and elevated temperatures; alternatively, they can be supplied with glass-to-metal hermetic seals.



### High-torsion couplings

Next-generation ServoClass couplings offered by **Zero-Max** feature zero backlash and improved torsional stiffness, suitable for demanding servo motor applications with high reverse loads and precision positioning requirements. The robust design with stainless-steel disc packs, aluminum hubs, and center members provide stiffness with low inertia to avoid system resonance. The couplings handle speeds up to 10,000 rpm and offer 0.4 to 44 lb-ft (0.5 to 60 N-m). Offered in 16 sizes and various inch and metric hub and bore combinations, all models feature clamp style mounting hubs and corrosion-resistant bolts.



### Multifunctional brakes

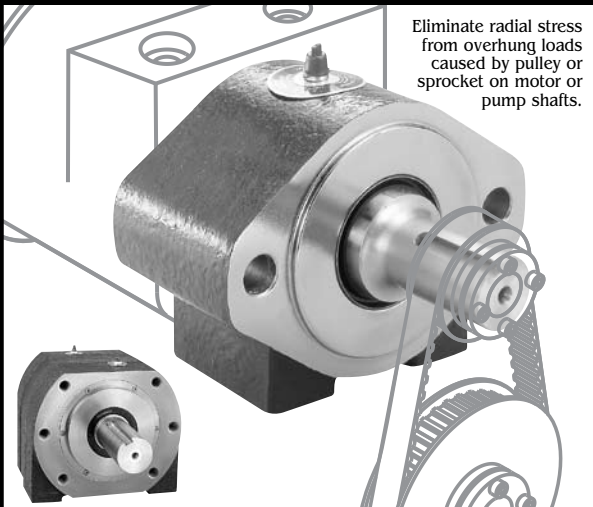
Suited for a wide range of applications, the Thomson-Deltran power-off magnetic brake (PMB) series is a low-cost, multifunctional brake alternative from **Danaher Motion**. Available in nine standard frame sizes ranging from 30 to 120, the brakes feature a torque range from 45 to 4250 lb-in (5 to 480 N-m) and a diameter of 3.30 to 11.89 in (84 to 302 mm). Operating voltages of 24, 90, and 190 dc are standard; other voltages available on request. PMB brakes mount without difficulty to a motor or frame as a simple splined hub attaches to the shaft with a set screw and keyway.



### Composite bushings

Two new lines of composite products from **Polygon** offer off-highway OEMs new design options for pneumatic and low-pressure hydraulic applications as well as traditional pivot locations.

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### Recessed switch

**Cole Hersee** has designed a recessed toggle switch suitable for trucking applications. Composed of a standard toggle switch centered at the bottom of a 0.892-in (23-mm) deep plated steel bowl, this new design mounts in a cab or body of the vehicle and prevents accidental actuation by the driver or personnel loading or unloading cargo. The steel casing fits into a 2-in (51-mm) diameter hole, has an outer rim diameter of 3 3/16 in (81 mm), and also has three holes for mounting.



### Portable finish gage

The portable Pocket Surf PS1 from **Mahr Federal** offers a mass of 14 oz (400 g) and can measure more than 24 surface finish parameters with a high-resolution inductive probe. The two most frequently used parameters are directly selectable, with 22 others accessible from scrolling function keys. Features include memory, USB connectivity, optional PC software, and a measuring range that improves versatility for various applications. The unit's display shows measurement data and all functions in plain text. Other benefits include an integrated calibration master that eliminates the need for external calibration, start buttons on both the right and left sides, and a measuring range of up to 0.35 mm (0.13 in) for the ability to measure very rough surfaces. The PS1 can measure upside down, mounted on a surface plate or measuring stand, or perpendicular to the contact surface with an optional end face vee-block.



### Short-stroke thruster

**Parker Hannifin's** P5T2 short-stroke thruster features heavy-duty performance in a small footprint and is suitable for use where space is limited and loads are substantial. Available in various bore sizes with strokes up to 200 mm (8 in), the series' maximum operating pressure is 10 bar (145 psi). Features include standard through-hole mounting and available rear mounting, standard top porting, and a polytetrafluoroethylene-impregnated composite bushing. Construction features an aluminum body and end caps; steel tool plate, support rods, and rod bolts; and a stainless-steel piston rod. Nitrile seals operate at temperatures from -18 to +74°C (0 to 165°F), with fluorocarbon seals available for high-temperature applications.



### Rocker switches

**APEM Components** has developed the KR series of sealed rocker switches suitable for use in the off-highway industry. Single and double pole models are available in a range of electrical configurations, including on-off, on-on, and on-on-on. Rated up to 15 A at 12 V dc for 10,000 cycles, the switches are available with solder lug/quick-connect, screw terminals, and with or without a plastic barrier between terminals. Up to 10 terminals are offered to allow for multiple electrical and illumination possibilities. Designed to be mounted into a 1.45 x 0.83 in (37 mm x 21 mm) panel cutout, the rocker switch can be customized to fit specific applications.



### Compact digital torque meters

**MCRT 48200V Series** of torque meters from **S. Himmelstein** are suited for control, laboratory, and production use, have no pots or switches, and do not require manual adjustments. In addition to storing calibration values, scaling, and units of measure in nonvolatile memory, the torque meters load these values automatically when powered up. Any of 10 supported units of measure can be selected without recalibration. These noncontact devices have full-scale ranges of 2 to 830 lb-ft (3 to 1130 N-m). Internal signal processing is accurate to 14 bit.



### Electronic foot pedals

**Tuthill Controls** has developed the TCF series of electronic floor-mounted industrial foot pedals for the control of modern diesel- and gasoline-powered vehicles with sophisticated electronic management systems. Suitable for controlling electric vehicles and modern hydraulic systems, the pedals feature a noncontact angular displacement sensor. The sensor design offers simple and reliable pedal assemblies that can be incorporated into most any type of vehicle. Available with a wide range of different signal outputs, the sensor is compatible with most electronic engine management systems. Pedal assemblies can be designed to meet specific customer requirements.

## Caution!

**Extreme conditions demand extreme performance.**



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