



Low-dust actuator

Designed for clean room environments, the Type CKR actuator from **THK** offers low dust-generating and corrosion-resistant features. A sealing mechanism and externally mounted suction couplings for particle collection reduce dust, while grease is used to



generate a low level of particles. To resist corrosion, the rail and ball screw of the actuator are surface-treated. Type CKR is compact and rigid, offering position accuracies of 0.010 mm, rail lengths of 100 to 940 mm (4 to 37 in), and stroke ranges from 41.5 to 808 mm (1.6 to 32 in).

Construction crane controls

The FSE 524 radio control receiver from **HBC-radiomatic** provides increased efficiency and safety for construction crane controls. Its feedback capability and proportional output are suited for bottom slewing cranes as well as many top slewing cranes. The feedback display can be used to indicate wind speeds or crane loads, as well as for timely advance warning to the operator in case of a threatening crane overload. The system includes 24 digital commands and a CAN bus interface.



Control units

The RC Family from **Bosch Rexroth**, including the RC2-2, RC4-4, and RC6-9, was designed for use in mobile machinery and to meet protective requirements in terms of ambient temperature, tightness, shock and vibration resistance, and electromagnetic compatibility. The units provide programmable control of up to six proportional solenoids and nine additional switching functions for open- and closed-loop electronic control of hydrostatic drive transmissions or in implement control for mobile machinery. The devices feature a 16-bit microcontroller and all inputs and outputs on a single circuit board, and are short-circuit protected from miswiring. All three sizes of RCs are pin-for-pin compatible, and inputs including analog voltage, analog current, frequency, and switching voltage can be configured to be used as multifunction inputs for expansion capabilities.



Terminal blocks

UL-approved OTB Series hi-power terminal blocks from **BlockMaster**

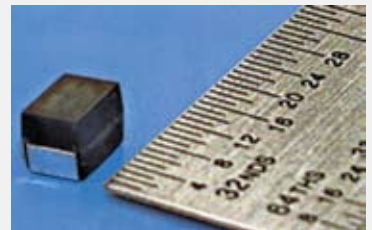
Electronics feature a pass-through current capability of up to 130 A at 660 V per terminal block position. Available with up to 15 positions on each side of the panel, the series offers a temperature range of -40 to +90°C (-40 to +194°F). Units are furnished with external terminal covers and a polyamide housing material, and the series is suitable for applications requiring the transfer of outside high power sources to inside power panels in the off-highway industry.



Robust inductor

The SMT 2920 robust surface-mount inductor from **Gowanda**

Electronics offers a molded and shielded toroidal inductor for radio frequency applications. The encapsulated toroids are molded for durability, shielded to allow usage in magnetic fields, and are designed with a powdered iron core to be insensitive to operating temperature changes from -55 to +105°C (-67 to +221°F). The SMT 2920 was designed for applications where temperature stability and high frequency are important. Other features include an inductance range from 0.5 to 5.0 uH and a current rating of 0.78 to 1.75 A.



Data control and display

G-Wiz from **RDS Technology** is a flexible instrument that can be used for controlling operations



and to display configurable data. The durable system can be free-standing or panel-mounted. The front panel can be customized to show company livery and logo. Five-button and single-button options are available. The display is 160 x 128 pixel dot matrix with variable contrast and adjustable illumination. Program storage is 512 K x 8 flash RAM, and data storage is 128 K 8 SRAM.



PCB receptacle

The DTP10-4P receptacle for printed circuit boards (PCBs) from **LADD Industries** offers a compact flange design that



permits mounting through an enclosure or potting in place. Environmental seals protect from chemicals and up to 3 ft (1 m) of water. Other features include vibration tolerance up to 20 g at 10 to 2000 Hz and shock resistance after 50 g, making the connector suitable for harsh environments and on PCBs in the off-highway and construction industries, including multi-plexing systems, electronic control boxes, and fuel cells. The receptacle features four size-12 pins, each rated for 25 A at 125°C (257°F) continuous.

Electronics chassis

Parker Hannifin has designed a standards-based technology liquid cooling demonstrator for high-power embedded electronics applications to support open-system architectures. The liquid flow-through (LFT) electronics chassis is capable of cooling to a maximum of 850 W per slot up to a total of 2000 W with dielectric fluids or 4000 W without. The self-contained LFT unit measures 8 x 10 x 20 in (200 x 250 x 500 mm) and features its own closed-loop liquid cooling system. Designed to be two-level maintenance compatible and usable through several tech-refresh cycles, the system contains coolant, a control system, smart pump, filter, accumulator, heaters, and three heat-absorbing technologies. Storage temperature ranges from -40 to +125°C (-40 to +257°F).

Transmission management

SmartDrive Easy from **Poclair Hydraulics** allows engineers to create their own transmission management software. No programming skills are required to download and



configure the transmission functions. A wiring schematic is generated automatically at the end of the process. Within 24 h, the controller is installed, the parameters are entered, and the vehicle is operational. Available functions include acceleration and deceleration control, infinitely variable speed, operating mode selection, constant speed regulation in work mode, anti-stall, transmission power limitation, high-performance combined braking (mechanical and hydrostatic), and automotive style driving. The controller is compatible with the major pump brands.



Driver training simulation

MPRI and **Bison Transport** have joined to integrate simulation technology into Bison's driver training program. Since integrating the driver simulation technology into its program, Bison's annual accumulated safe driving miles for its fleet of 800 trucks have increased by nearly 50%, while greater fuel efficiency resulted in annual savings of \$1,120,000.



The simulators expose drivers to a broad range of driving scenarios designed to strengthen and refine safety skills over the road. They include the Mark III and TranSim VS models, and are aimed at transforming safer driving techniques into greater profitability for companies. The simulators feature advanced software for clear visuals across three screens for a 180 to 360° field of vision, precision motion platforms for a realistic feel, steering that provides real-time feedback to augment muscle memory in maneuver techniques, and a fully operational cab/dashboard with realistic instrument panel, gauges, and other features.

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Collision warning

Preco Electronics' WideBand PreView collision warning system offers pulse radar technology up to 6.6 GHz and improves distance resolution as well as detection zone shape. Other features include a maximum range of 20 ft (6 m), the ability to network multiple sensors, J1939 CAN bus facilitation for vehicle integration, IP67 rating for environmental durability, and a polycarbonate housing and encapsulated circuitry for dust and moisture protection. Input voltage is 9- to 33-V dc with an operating temperature range of -40 to +185°F (-40 to +85°C). The 4.125 x 4.950 x 1.75 in (105 x 125 x 44 mm) sensor has a mass of 1.5 lb (0.68 kg).



Multifunction display

Teleflex Industrial offers the CANtrak 2600/2610 intelligent multifunction display to measure, display, store, process, and transmit data. Features include a graphical resolution of 160 x 128 pixels; rugged design; low operating temperature range of -25°C (-13°F) for the 2600 and -40°C (-40°F) for the 2610; data logging, diagnostics, and control capability; and contrast backlighting. The display is RS232, RS485, and CAN bus datalink compatible, and the unit is front and rear mountable. A 10- to 32-V dc supply powers the 110 x 110 x 38.5 mm (4.33 x 4.33 x 1.5 in) display.



Control system

By-Wire control technology from **Arens Controls** is used on electronic throttle controls, multifunction control systems, and fully integrated cockpit control consoles to reduce operator fatigue and consolidate control functions for improved efficiency. Using the multifunction and integrated control systems, common functions including propulsion controls, electrohydraulics, electronic throttles, LED displays, and switches can be integrated into one control console.



Back-up alarms

Triton Signal designs the TB20 and TB21 heavy-duty back-up alarm series. The alarms feature a complex, rectangular horn design that is mathematically arranged to smoothly adjust the sound pressure waves allowing for maximum efficiency and a less vertically distributed sound. Designed with a more flat frequency response, the Triton alarm is less affected by temperature extremes such as those encountered by construction and agricultural applications. The horn also offers a lower mounting profile than round designs and an interchangeable, recyclable mounting bracket (TB21 series), along with integrated connector options, a low drive current, an anti-tamper grille, and a double reflex design.



Medium-duty drivetrain

Roadranger's medium-duty drivetrain system features a host of components and systems from **Dana** and **Eaton** that are designed to complement the other to maximize performance, reliability, and overall vehicle efficiency. The products include Dana's Spicer D-800 F steer axle, offering a variety of design features to reduce driver fatigue, improve steering, enhance safety, and increase the overall productivity of the vehicle; the Fuller UltraShift HV (Highway Value) medium-duty transmission, which features a fully automated transmission system that shares technologies and electronic components from UltraShift heavy-duty transmissions; Dana's Spicer Life SPL-55 driveshaft, which offers a thermoplastic thrust washer in the bearing cap to prevent metal-to-metal contact between the cross and bearing cup bottom; and Dana's Spicer S130 drive axle, featuring a 3.07 to 6.50 range of axle options to cover a wide variety of applications and vocations.



Seating alternative

Spray Skin Technology (SST) developed by **Seats Incorporated** offers an economical seating alternative to vinyl for both the off- and on-highway markets. SST seating addresses many of the needs of the operator who spends most of the work day in their seat. Available in several designs including a fold-forward style and a plastic bucket seat, SST provides full foam support and stretches four to five times more than vinyl or foam-in-place seating by providing more give and comfort. SST contains improved elastomeric vibration control properties that absorb more vibration than standard seating. Since the skin is integrated with the foam, it will not crack or peel, and is waterproof.

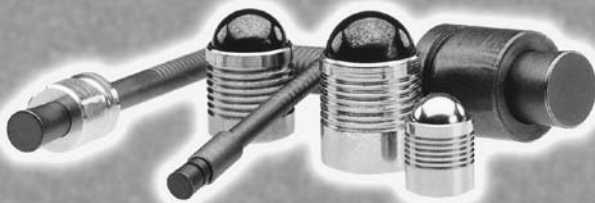
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Cylindrical connectors
Amphenol Industrial

Operations offers the RoHS-compliant version of its PT series miniature cylindrical connectors, suitable for environmental sealing or pressurized applications in the off-highway industry. The company had reduced or eliminated regulated hazardous substances from the connectors, which are available in shell sizes six through 24 in various styles. Features include a five-keyway polarization with lock coupling to ensure positive mating without cross plugging, wave washer spring tension to maintain the interfacial seal between halves, molded neoprene insert and main joint gaskets for moisture sealing, improved electrical isolation of the contact in the insert, and gold-plated machined copper alloy pins and sockets to eliminate contact corrosion and extend shelf life.



Rugged converters

The IEXR and IEHR Series of rugged 70- to 150-W dc/dc converters from **Schaefer** are suitable for various applications including process control, instrumentation, and industrial installations. The converters are available with three input voltage ranges of 10- to 16-V dc, 21- to 60-V dc, or 60- to 132-V dc. Nominal output power is 70 to 150 W, including single output voltage models ranging from 8- to 110-V dc, and custom voltage outputs are available. Housed in a chassis mount vented enclosure, the convection-cooled converters are rated from 0 to 50°C (32 to 122°F) and feature full galvanic isolation, fused input protection, reverse polarity protection, and output protection for short circuit or overload conditions.



Code generator

TargetLink, the production code generator from **dSPACE**, generates production code straight from the MATLAB/Simulink/Stateflow graphical development environment to shorten coding and development time and improve production code quality. Code generation options range from plain ANSI C-code to optimized fixed- or floating-point code for certain processors and microcontrollers. Code configuration options ensure the production code copes with processor constraints, while converting graphical models into production codes improves consistency between model and code. TargetLink's code generation is deterministic and improves software quality, according to the company.



Reflective jacketing

Heat reflective products from **Zippertubing** were designed to provide moderate to severe heat barrier protection in environments where maximum continuous temperatures reach 1200°F (650°C) and are suitable for the automotive, truck, bus, and aerospace markets. The products combine aluminized fiberglass or aluminized polymer impregnated fiberglass jacketing for use with adhesive closure systems, stainless steel snaps, high-temperature hook and loop, or a Teflon interlock closure to provide thermal protection. The products offer wire and cable protection where high temperatures and low profile tolerances are required and are available in sizes from 3/8 in for both flat and round cable bundles; custom shapes and sizes are offered.



Steering system

Danaher Motion offers the IP67-rated DDS direct drive steering system, designed to replace hydraulic steering systems and featuring improved uptime, quiet operation, reduced maintenance, and decreased energy use. The DDS linear actuator provides maximum stroke to 160 mm (6.3 in) at up to 75 mm/s (3 in/s) at nominal force. The linear shaft is rated for total travel of >600 km (370 mi), and resolution of 0.4 mm is attainable. The system only runs when steering, resulting in improved efficiency compared to hydraulic systems. Flexibility enables limitless placement of input devices such as steering wheels and joysticks, and the configurable ac drive, when used with electric traction systems, improves durability and stability by controlling traction speed based on load and steering angle.

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