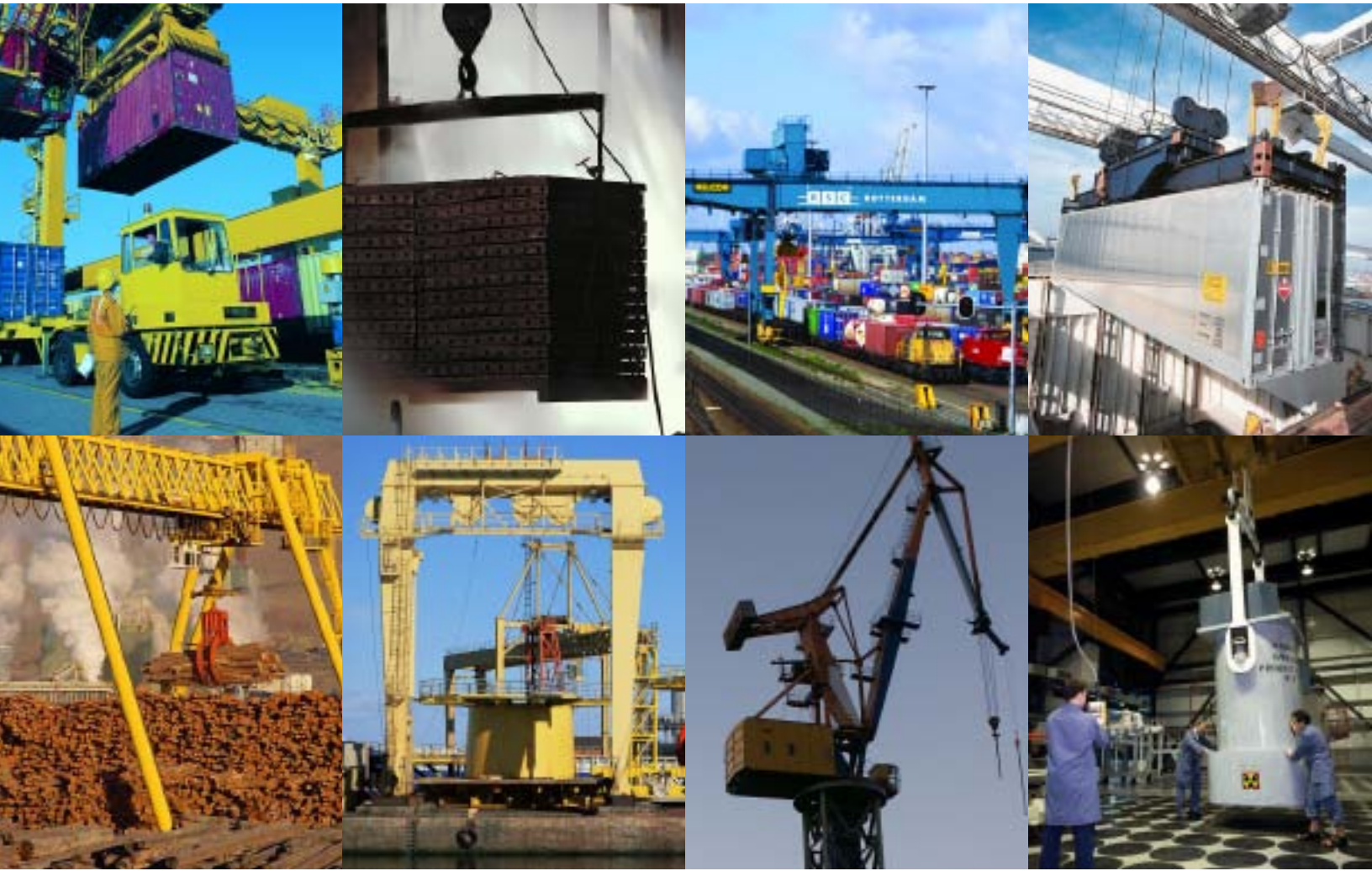


Systems that meet your requirements

Hirschmann is recognized as a leader in information monitoring and control systems with offices and manufacturing facilities throughout the world. Over thirty years of experience, innovative engineering, and attention to detail allows us to meet the specific requirements of every project.



Overload Protection and Weighing Systems

Maximize Efficiency of Crane Operations



Additional Products Available From Hirschmann



Hirschmann maestro LMI
Upgrades existing Hirschmann/PAT LMI's to the latest technology.



PRS 80 EZ
Wireless Multi-Sensor Indicator for Mobile Cranes.



TRS 05
Wireless sensor upgrade for hardwired systems.

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SENSING



System Solutions for Cranes

Overhead Traveling Cranes, Bridge Cranes, Ship-to-Shore Cranes, Harbor Cranes

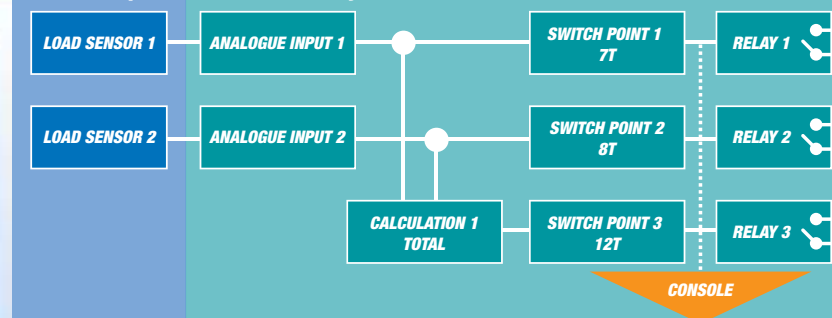
PROCESSING



INDICATING



Basic example-Overload Protection System



Hirschmann Overload Protection and Weighing Solutions

Hirschmann Automation and Control is a leading manufacturer of information, monitoring, and control systems for lifting applications. Hirschmann's years of design and technical experience through the Hirschmann, PAT, and KRÜGER brands allow us to provide the optimum solution for every application.

Hirschmann's overload protection and weighing systems meet the sensing, processing, and indicating requirements of even the most complicated lifting applications. Whether you require a load system with preset limits or a fully programmable control system, Hirschmann has you covered. Our wide range of systems encompass the entire lifting industry: bridge cranes, overhead traveling cranes, steel mill cranes, container cranes, straddle cranes, gantry cranes, harbor cranes, off shore cranes, and mobile cranes. We have extensive experience in mining, steel, port/harbor, and oil/gas industries and are able to meet the requirements of OEM and aftermarket applications.

The Hirschmann Advantage

- Proven performance with over 30 years of experience
- Single source for all your processing, sensing, and indicating system components
- Installation, maintenance, and training by our global sales and service network
- Standard systems as well as custom solutions to meet all your requirements
- Project planning for machinery modernization and upgrading
- Training and consulting services

SENSING

Hirschmann offers a wide range of standard and custom load sensors to meet the requirements of each application. Known in the industry for their rugged design and accuracy, Hirschmann sensors include load pins, compression load cells, tension/compression load cells, and rope tensiometers.

Load Pins

Hirschmann Load Pins are frequently used where existing pins or bolts in the flow of force can be replaced by a load pin with identical dimensions. The load pin will then respond to the shear stress inside the axle, which is proportional to the load. Hirschmann offers a full line of standard high-grade tensile steel load cells as well as custom solutions to meet application-specific requirements.



Force Transducer

Hirschmann Force Transducers are used to determine the tensile forces at the points where the rope-ends are fastened ("dead-end" installation). This measurement method benefits from its simple design and installation. Force transducers are designed to be used in adverse conditions, for instance sensing the forces generated in hoist and pendant ropes and for monitoring loads in load bearing structures. Hirschmann offers standard force transducers with various capacities as well as custom solutions to meet your specific requirements.



Running Line Tensiometers

Running line tensiometers measure the forces in the running rope and can therefore be used to measure the linepull directly on the hoist rope of the crane. Hirschmann running line tensiometers are lightweight in design and incorporate sealed bearing design, which provides extremely reliable and accurate load sensing. The SKM series is available for ropes from 6-30mm diameter – custom sizes are available on request.



Compression/Tension Load Cells

Hirschmann Compression/Tension Load Cells are used to measure static and dynamic tensile and compressive forces in various lifting applications. Stainless steel sensors generate an output signal in proportion with the load and permit application in routine industrial operations. External screw threads allow the sensor to be furnished with maintenance-free PH-Rod End (Cardan joint) joint heads to provide optimum force introduction for higher accuracy requirements. In addition to the standard versions, other variations are available on request; e.g., explosion-proof designs needed for offshore or underground mining operations.



Compression Load Cells

The Hirschmann Compression Load Cells are used in applications where heavy loads have to be measured and where bolt replacements and/or "dead-end" installations are not feasible due to construction constraints. Typical applications include cranes where the load measurement is done under the torque base of the winches. Compression load cells are available in various sizes and capacities and are best suited for use in rugged or extreme environments.



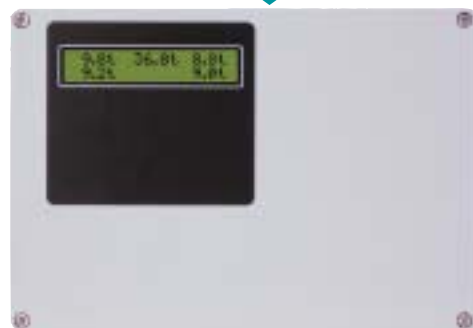
Cable Strain Gauge

Hirschmann Cable Strain Gauge Sensors are designed for indirect cable strain measurement. Indirect measurement of the cable strength is performed at the dead-end point. Used in conjunction with the BSA (Basic Switching Amplifier) this sensor provides a cost-effective, and easy-to-install overload protection system.



PROCESSING

At the heart of Hirschmann's overload protection and weighing system is the processing of the load data. Hirschmann offers several solutions depending on the specific requirements of the lifting application – from Low-End to High-End / from Aftermarket Solutions to OEM Solutions.



PSA3/1 – Programmable Switching Amplifier

The PSA3/1 controls equipment by activating/deactivating functions via relay switches, analog outputs, or standard PSA3/1 interfaces.

The system's flexible design incorporates all Hirschmann/PAT/KRÜGER standard sensors and offers a wide range of operator interfaces including large numerical displays, cab mounted consoles, and/or warning lightbars to meet application specific requirements. The PSA3/1 can be programmed to monitor and analyze all critical load conditions such as overload, unbalanced loads, slack cables, snag-load, and load moment.

The PSA3/1 is available with a datalogger which is capable of documenting operational procedures and critical situations. This enables the user to monitor the crane's utilization and schedule maintenance cycles. If the machine is equipped with a programmable logic controller (PLC) the PSA3/1 can be directly networked with the PLC via the integrated Profibus-DP interface. Via this bus, the PSA3/1 can exchange data such as load values, angles, critical states, or error codes with the PLC. Additional relay outputs can be used for external control.

BSA – Basic Switching Amplifier

The BSA is a cost effective solution in applications where only one or two analog signals need to be monitored. The load can be measured with any standard Hirschmann (PAT/ KRÜGER) sensor or cable strain gauge that can be attached easily to any rope from 6 – 22 millimeters in diameter. The BSA system installs quickly and easily on any size overhead traveling crane.



iFLEX

The iFLEX product line provides a powerful and scalable platform for systems management and operational control. The iFLEX supports a distributed systems approach with CANbus communications between all sensors and subsystems.

Hirschmann takes an interactive approach to man-machine interface by collecting inputs from operator controls such as Hall effect joysticks and precision sensors, including load, speed, and position.

To effectively translate these inputs to machine function, Hirschmann has developed a scalable modular electronics system with varying levels of customization and capacity. With a distributed processing approach the intelligence can be positioned where it makes the most sense.

The iFLEX supports the Hirschmann 1131 pro software tool, which is a high level control programming language based on the IEC 1131 standard that allows customers to fully exploit the capabilities of the iFLEX while maintaining the machine control development.



INDICATING

The man-machine interface is a very important feature of the overload protection and weighing system. Hirschmann offers a wide range of operator interfaces including color graphic displays, large numerical displays, and warning lightbars to meet the specific requirements of each lifting application.



Large Numeric Display

Hirschmann's Large Numeric Display is ideal for use when the weight of the lifted load must be visible at great distances or in poor lighting conditions. It is available as a parallel display to Hirschmann's processing systems. The large numeric display incorporates different working modes to display single loads from one or two inputs or a sum load from two inputs. The IP65 housing provides protection for use under severe industrial conditions. The four digit load display can be seen at a distance of up to 40m (130 ft) due to its bright LED and the character height of 100 mm (4").



Lightbar – Audible and Visual Warning Lightbar

The Hirschmann Lightbar works in conjunction with Hirschmann's processing units to provide an audible and visual warning to the operator and personnel on the ground of the crane's load condition. If the yellow signal appears, load condition is at 90% (of full crane capacity) indicating that at this stage crane operation must be carried out carefully to avoid overload conditions. In case of an overload condition the red light appears and an audible alarm is sounded to inform the operator and ground personnel of the hazard.

Graphic Consoles

Hirschmann Graphic Consoles are designed as display units for decentralized networks such as EOT cranes, container cranes, port cranes, etc. Hirschmann's Graphic Consoles are available in various sizes with VGA color or monochrome displays. All include Best View – adaptive display control system and a Real Time Operating System (RTOS). The user-friendly design includes a graphic interactive set-up menu and multi-lingual software enabling the consoles to be used anywhere in the world. Most graphic consoles include CANopen interface which provides optimal communication with Hirschmann's programmable control systems. These consoles include up to 16 megabytes of extended program storage and include optional software such as GenerSYS® (graphic creation).



Alpha/Numeric Consoles

Hirschmann's alpha/numeric consoles are designed as a display unit for decentralized networks such as EOT cranes, container cranes, port cranes, etc. Whether hardwired or wireless the compact, user-friendly consoles are designed to be used in harsh environments. The LED displays have up to four lines with up to 20 characters per line. Most include backlighting. They are capable of displaying all types of load data including loads from multiple sensors, total loads, and target loads.

Options Include:

Hand Held Terminals, Hardwired and Wireless Consoles, and Printers