



automation

systems and components





A world full of solutions

R. STAHL automation

No matter how difficult the specification, we will find a solution. As a leading supplier of automation technology for hazardous areas, R. STAHL offers state-of-the-art components and complete systems, perfectly matched to your operating requirements. Uniquely, we have decades of experience in combining all types of protection to deliver the most appropriate solution. Worldwide "Automation Centres of Competence" can give you the most professional advice, 'right first time' and of highest quality.

Product Overview

- Safety barriers
- ISpac isolators
- IS1 remote I/O
- ISbus fieldbus
- Wireless solutions
- HMI
- CCTV
- System solutions





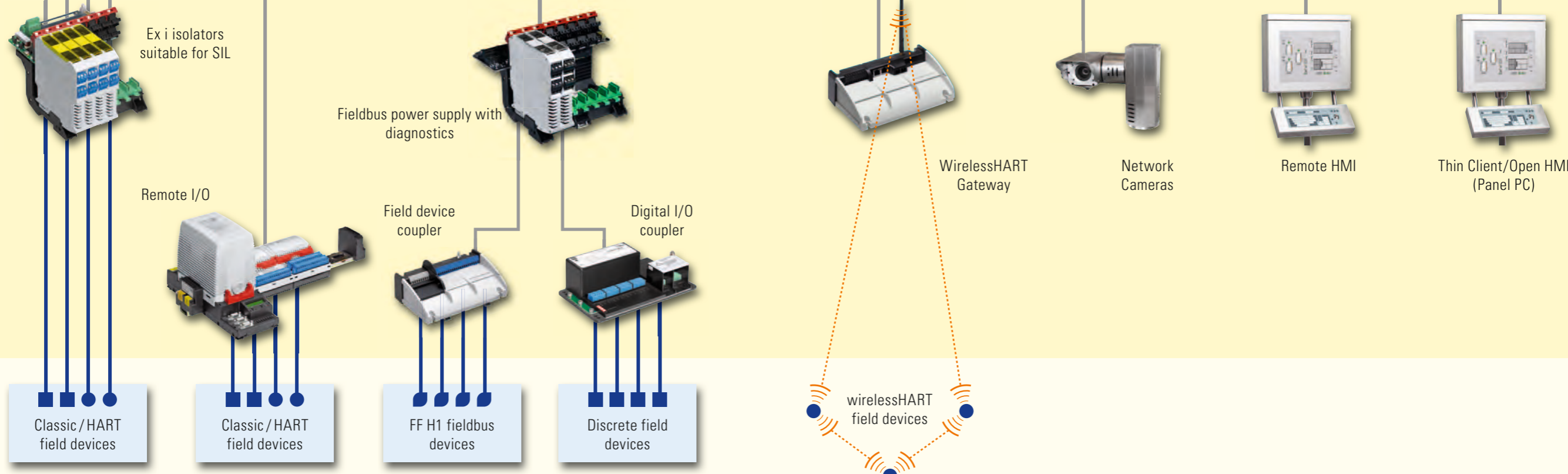
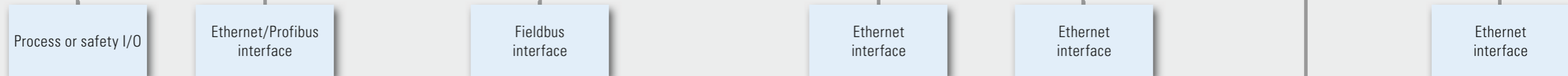
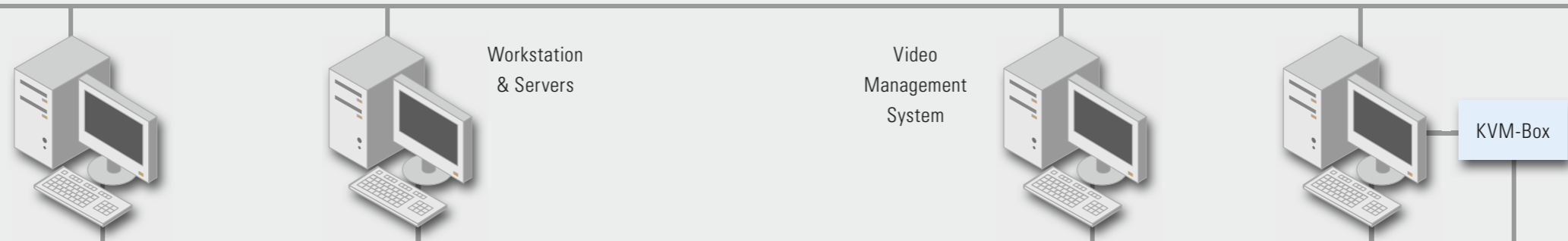
Solutions

for process automation

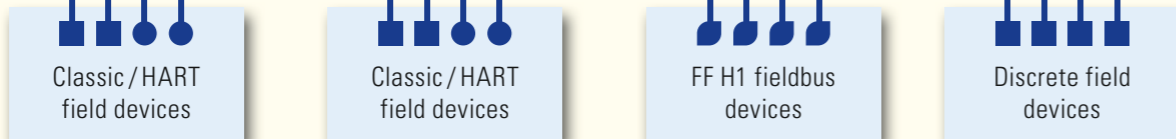
Plant network

Automation system

Control network



Zone 1/21
Zone 2/22
Division 1 & 2





INTRINSPAK-safety barriers

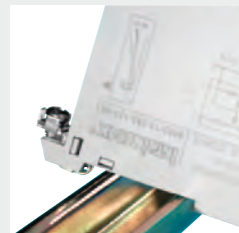
individual point-to-point solution



Safety barriers are a robust and flexible solution to interface Ex i field devices to control systems. We have an enormous range that covers standard signals like 4...20mA, plus nearly any other signal – individual or in combinations. Through our pioneering work in safety barriers, our latest design allows incredibly easy installation and simple maintenance. Mounting & PE connection are combined in one solid action, and a range-spanning and replaceable back-up fuse makes INTRINSPAK unique.



+ Complete spectrum in a compact design
Machinery automation requires a wide range of sensors and actuators, each with specific requirements for Ex i protection. INTRINSPAK has more than 180 variants for universal application at just 12 mm width.



+ Installation and connection in one go
Mounting onto DIN rails takes only a few seconds. Snap-on assembly gives simultaneous mechanical and PE connection. Time consuming individual PE wiring is no longer required.



+ More than 180 variants but only one back-up fuse
We protect the internal fuse with an easily replaceable back-up fuse – and thus the safety barrier. Having only one type of fuse for all 180 variants reduces stock-keeping.

customer-specific solutions



Installation in Zone 1 – small number of signals
Mobile or decentralised plant equipment and machines may require safety barriers to be installed in Zone 1 hazardous areas. For these applications R.STAHL offers suitable solutions from its modular system, including Ex d enclosures (series 8150 – see picture – and GUBox 8265). Every solution is produced individually according to your specifications.



Installation in Zone 1 – large number of signals
Solutions for installations in hazardous areas are our speciality! This also includes pressurized cabinets (Ex p). Our product portfolio includes enclosure systems for both small and large numbers of signals – for isolators and also for safety barriers.

Further information at www.stahl.de

WebCode INTRINSPAKA



ISpac isolators

systematic point-to-point solution

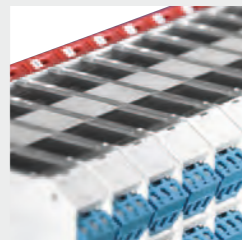
Point-to-point connections using galvanic isolators are a proven and easy to apply solution to connect Ex i field devices to control systems. The ISpac isolator series is designed for quick and cost-saving installation. All modules can be mounted individually, in groups or in pac-carriers – a unique feature. ISpac isolators are perfectly suitable for functional safety applications: SIL2 or SIL3 assessment also includes trip amplifier. Asset management packages can be efficiently connected through a combination of isolators, HART multiplexers and wiring boards.



+ Easy and quick installation – pac-Bus
Reduce your wiring costs by more than 20% by using the unique pac-Bus. Easy mounting, connection of power supply and common alarm signal in one step – together with a robustness no other system on the market can offer.



+ Three kinds of signals to indicate line faults
Indication of line faults reduces time required to find wiring errors and thus improves system availability. As standard, ISpac isolators offer LED indicator, alarm contact per device, plus a common alarm signal.



+ Complete spectrum in a compact design
Automation solutions consist of a wide scope of different field devices – and each one requires a suitable isolator. ISpac covers this spectrum – with one-channel and also with two-channel modules. Regardless of function and number of channels, module width is only 17.6 mm.



customer-specific solutions

pac-Carrier – fast integration

A large number of signals means a lot of expenditure for wiring and possible wiring errors. R. STAHL pac-Carriers can reduce installation time by up to 40%. Wiring errors are eliminated through standardized connection cables. The pac-Carrier features a robust design and a wide spectrum of tailored solutions for all DCS/PLC systems.



Complete solution – isolators and more, in the cabinet
Benefit from our in-depth expertise in cabinet engineering! We offer solutions for industrial and hazardous area applications. Our strengths are high quality as standard, on-time delivery and detailed knowledge of explosion protection – at multiple worldwide locations. Even orders consisting of more than 100 cabinets are no problem for us.



Further information at www.stahl.de

WebCode ISpacA

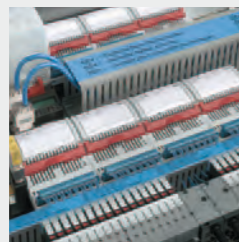


IS1 Remote I/O

leading for hazardous areas



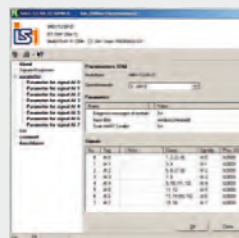
IS1 is the second generation of our remote I/O system for hazardous area installation. Its simple structure offers powerful flexibility, superb efficiency and excellent cost-effectiveness, making IS1 the most popular remote I/O system for Zone 1 and Division 1. IS1 fulfils all requirements, no matter how complex your installation. Due to the intrinsically safe system design with Ex i fieldbus, using either copper wire or optical fibre, the system can be easily expanded and maintained directly in the hazardous area (hot work and hot swap). Different fieldbuses and HART integration is available for practically every automation system. The wide range of international approvals simplifies applications across the world.



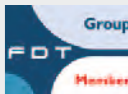
+ Versatile communication – flexible connection to your system
IS1 supports the most important fieldbuses as well as HART for the connection in hazardous areas, Zone 1 and Zone 2: PROFIBUS DP and Modbus RTU with Ex i copper or "op is" optical fibre, Fast Industrial Ethernet Modbus TCP and EtherNet/IP with "op is" optical fibre.



+ Hot swap – easy maintenance for all modules
Clever design with intrinsically safe power bus, data bus and communication links, plus smart explosion-protection solutions for the non-intrinsically safe components means that all modules can be removed and replaced with a 'live' system in the hazardous area.



+ Redundancy and diagnostics for high process availability
IS1 offers different redundancy solutions: media redundancy, system redundancy or optical ring structures. Error diagnostics, alarm indications and configuration parameters of the IS1 system and connected field devices are either transmitted via an independent ServiceBus or through efficient DTM-technology.



customer-specific solutions



Integrated pneumatics with the new DOMV-module
The new Digital Output Module with Valves is an IS1 IO-module with 8 integrated 3/2 way Ex i solenoid valves. The module only requires a standard-IO-module slot and supports hot swap. The small mounting space required, low costs per channel and simplified engineering makes the DOMV an interesting alternative to separate valve islands. The DOMV-module is ATEX and IECEx certified for Zone 1 and has a SIL2 plant shut-down function.



IS1 with Fast Industrial Ethernet – for the future
IS1 Ethernet makes 100 Mbit/sec Industrial Ethernet solutions available in Zone 1 and Zone 2 hazardous areas for the first time. This simplifies integration into existing Ethernet structures and inter-connection between different IT systems. IS1 currently supports ModbusTCP and EtherNet/IP protocols. For future applications, PROFINET and FF HSE couplings are being developed together with the respective working groups of those fieldbus organisations.

Further information at www.stahl.de

WebCode IS1A

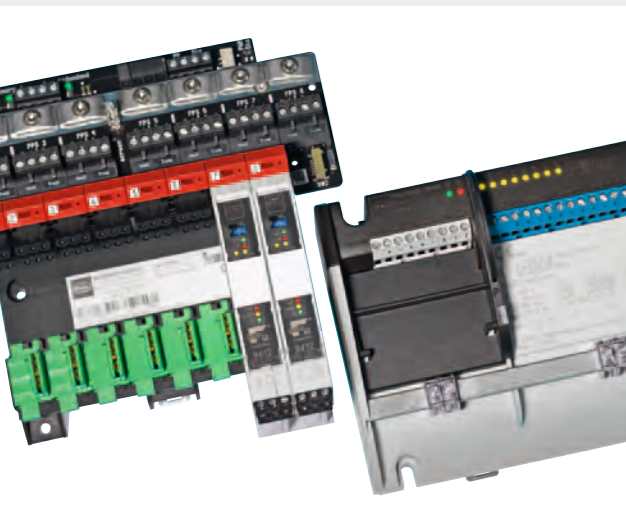


ISbus fieldbus

innovative solutions for FF and PA



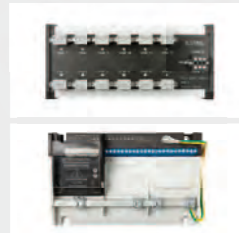
EDDL™



ISbus delivers high-performance products for hazardous areas fieldbus installations with Profibus PA and Foundation Fieldbus. Based on the universal HighPowerTrunk concept, this product range offers a modular fieldbus power supply system, various multi-spur field device couplers supporting FISCO, Ex ic/nL/nA and Ex d/e/q fieldbus devices, smart digital-I/O couplers for discrete IO signals and a scalable physical layer diagnostics system. An extensive range of accessories like terminators, field enclosures, plug connectors and cable glands are also available, with fieldbus cables and surge protection completing the range of products on offer. ISbus makes modern fieldbus installations even more effective and economic with its innovative solutions.



+ High-performance and flexible solutions for the fieldbus supply
ISbus offers a modular system of FF H1 segment power supplies in either simplex or redundant mode. The modules can be installed on DIN rails or on DCS-specific carriers. Additionally, every ISbus fieldbus power supply has sophisticated physical layer diagnostics integrated as standard.

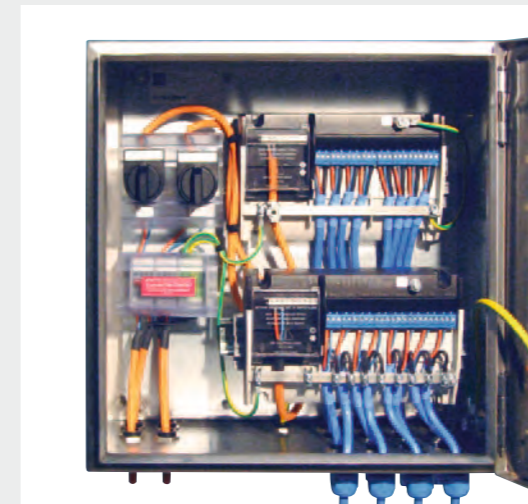


+ Efficient installation in hazardous areas with ISbus device couplers
Different field device couplers (FDC) with 4 to 12 spurs are available in the ISbus range. All couplers have a unique power management design to significantly reduce start-up current consumption and fold-back spur short circuit protection, to simplify engineering and field installation.



+ Scalable physical layer diagnostics
The physical layer diagnostic data can be accessed in a variety of ways depending on user requirements; via a serial port to any laptop, via adjustable quality level settings and a relay contact and 'traffic light' LEDs for signalling of changes or online at a maintenance station via H1 connection and EDDL through the diagnosis communication module for up to 8 segments.

customer-specific solutions



Very compact field station for 16 fieldbus devices
An example of a compact but nevertheless easy to maintain solution for the connection of up to 16 FISCO fieldbus devices to a high-power-trunk segment: two 8-spur Zone 1 Ex i FDCs with removable terminals for quick and easy maintenance, soft-start power management and fold-back spur short circuit protection. Additional switches allow individual FDC isolation for field disconnection from the high power trunk. Alarm & status LEDs are visible through inspection windows in the enclosure cover. Alternative enclosures are also available in many sizes and different materials: stainless steel, glass-fibre reinforced plastic and aluminium.



Fieldbus and Remote I/O – the most effective combination
Most fieldbus applications also require many conventional and discrete signals. Remote I/O packages with high capacity fast communications can be easily used alongside fieldbus H1 to avoid any necessity for conventional wiring. IS1 Remote I/O from R. STAHL can use Fast Industrial Ethernet communication and allows installation and all maintenance work (hot swap/hot work) in hazardous areas, supporting all kinds of conventional and discrete signals as well as HART devices. These remote I/O concepts with fast fieldbus communication can also be found on the roadmaps of the big fieldbus organisations for 2012 – using PROFINET and FF HSE protocol.

Further information at www.stahl.de

WebCode ISbusA



Wireless solutions

infinite possibilities



Wireless technology in the process industries can be used to optimize existing processes and opens the way to new applications free from cable restrictions. Typically used for mobile data transfer between portable operating devices and simplifying the connection of sensors on movable plant equipment, wireless also has prospects for localisation of people and the movable plant equipment. R. STAHL supports this market development in various ways with new developments for hazardous areas: new WLAN, GSM and WirelessHART solutions plus unique position switches working without external power or battery. Our new RFID based localization system can be incorporated into asset management packages to improve production efficiency and safety.

customer-specific solutions

Individual wireless solutions

In addition to R. STAHL's radio solutions, we can also retrofit your individual wireless applications for use in hazardous areas. With our design competence and proven components, we can develop the ideal solution for your application.



Advisory service, planning and engineering

Wireless is more than just hardware: Projects based on communication via radio require careful planning, site survey and installation alongside the selection of the most suitable devices, and also possibly final measurements during implementation. Furthermore, localization systems require integration into ERP or other software environments. R. STAHL can provide the complete service package to make sure that these hurdles are overcome.



+ WirelessHART Gateway
The WirelessHART Gateway supports wireless communication between field devices and process control systems, typically used for inaccessible locations or for temporarily installed devices.



+ GSM/GPRS modem
With the GSM/GPRS modem, data from pumping stations or machines in hazardous areas can be transmitted to any place on earth for remote control.



+ RFID localization systems
Real-time localization systems make it easy to locate persons, tools and measuring devices within a plant environment. RFID tags can help in emergency situations, to facilitate full evacuations and to locate safety equipment.



+ Powerless switching
With the 8074 position switches and 8040 control devices, R. STAHL offers completely self-powered solutions for signal transmission via radio which can do completely without wire, battery and external power.



+ WLAN access point
The R. STAHL WLAN access point allows hazardous area broadband data transmission typically used for CCTV signals or communication data from mobile devices such as bar-code scanners.



Further information at www.stahl.de

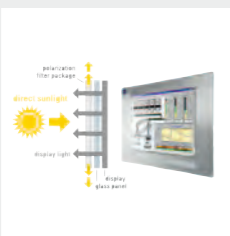
WebCode WIRELESSA



The development of innovative HMIs for hazardous areas: this is the world of R. STAHL HMI Systems. Our portfolio ranges from small operator terminals typically used for machine control, up to 24" widescreen terminals with full HD resolution for complex process control. Depending on the type of installation and your requirements, our on-site operator stations are equipped with operating system and engineering software. They are available for network connection as remote terminals, thin client or panel PC. Our thin clients are ideally suitable for effective server/thin client networks. Even under extreme temperatures ranging from -30 °C to +70 °C we guarantee a 24/7 functionality – for even more extreme temperatures, we can provide specific solutions.



+ T-series for complex process control
Modern widescreen displays with resolutions of 1280x1024, 1680x1050, 1920x1080 and 1920x1200 pixels are the hallmark of this series – environmentally friendly with LED backlighting (no lead, cadmium and mercury) and requiring approx. 50% less energy compared to CFL displays.



+ Direct sunlight readability
An innovative polarizing filter system in our panel PCs ensures optimum display readability, even in direct sunlight. The polarization filter technique developed by R. STAHL allows safer operation in the most demanding applications and should be specified for all outside monitors.



+ Atom processors + firmware
The use of modern Intel® Atom™ processors in our Open HMI Panel PCs guarantees fastest functionality and professional continuous operation. Moreover we provide sophisticated firmware to diagnose possible system failures.

customer-specific solutions



PC for drilling platform
For a drill head control application, we developed a fully mobile and easily portable Panel PC. Equipped with our new polarized filter display, this PC achieves an unprecedented display readability in direct sunlight.



Control with international certificates
We develop control stations with HMIs for world-wide applications in hazardous areas, Zones and Divisions.



Offshore control panel for very low temperatures in IP66
A special control panel in saltwater resistant design for a GPS-supported positioning system, integrating an EAGLE HMI for use in Zone 1 in an extremely cold environment.



CCTV

Camera systems for all areas



From compact cameras to dome cameras, and from the component to complete CCTV systems, R. STAHL offers an extensive range of ISview cameras for hazardous areas. State-of-the-art camera technology and intelligent software ensure optimum process and area monitoring in Ex and non-Ex areas. With the world's smallest Ex-camera, you can monitor every part of a process. The lightweight dome camera is perfectly suitable for all-round monitoring. The PTZ and Zoom cameras cover processes as well as the environment, while the thermal imaging cameras capture objects, people and events in complete darkness. With their aluminium or stainless steel enclosures, all cameras withstand the most demanding chemical and mechanical stress. They are generally configurable for IP-based or analog transmission.



IP 69K

+ High-pressure cleaning with IP 69K
Almost all of our explosion-protected cameras achieve protection class IP 69K – and are thus even protected against water jets from high-pressure cleaners.



-40°C +75°C

+ Temperature range up to 115K
Our camera design supports applications at extreme temperatures – many of our camera types are designed for continuous operation at temperatures ranging from -40°C to +75°C, e.g. for monitoring of pipelines in ice and snow, and also in desert areas.



lightweight

+ Lightweight
We optimized the cameras in such a way that they are extraordinarily lightweight despite their high IP-protection and robustness – with an expectation of long service life.

customer-specific solutions



Complete systems consisting of software and hardware

Our portfolio includes complete camera and monitoring systems, tailored to the specific requirements of your application – from the right explosion-protected camera with accessories (e.g. stabilization dampers for camera holders for crane monitoring) to CCTV software and individual surveillance monitors.



Surveillance solution for drilling rigs

We developed this system for digital recording with network connection on remote drilling rigs. The compact cameras are easily mounted in confined areas such as on the drilling platform. As the recording takes place in the external container, the client experts can trace problems in the process back to their source.

Further information at www.stahl.de

WebCode CCTVA



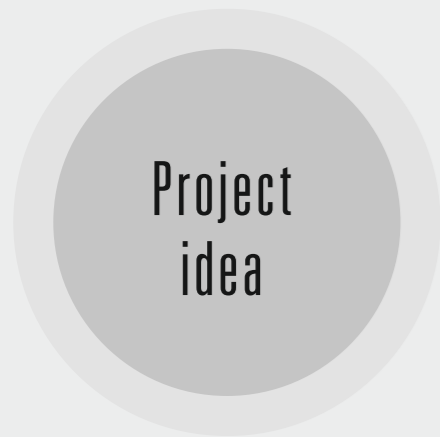
System solutions



together we will find the solution

R. STAHL is your competent partner, from your idea to the full implementation of a project. We offer comprehensive advice and assistance throughout the whole project. Together with you our engineers can develop your individual requirements into an effective solution.

Early involvement often avoids faults and costly mistakes. Sales, product management and production work closely together at R. STAHL, ensuring optimum implementation, from the design & engineering stages to production & final inspection.



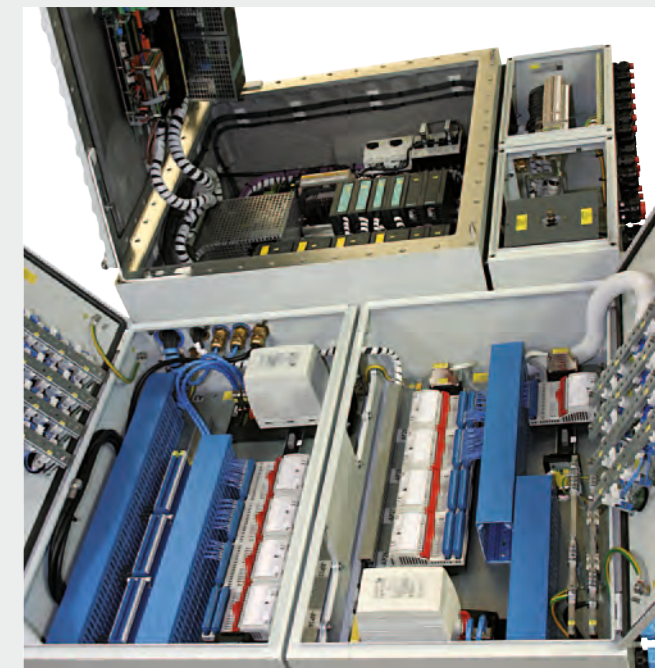
Customer's requirements

Example: Control of loading arm for use in Russia

- > installation in Ex-area; Zone 1 IIB, T4
- > extreme temperature performance: down to -40°C
- > GOST-R approval
- > wiring diagram, parts list of loading arm control to be supplied
- > Russian language documentation
- > factory acceptance test
- > employee training

Realization by R. STAHL

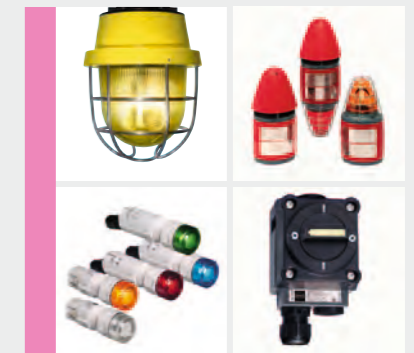
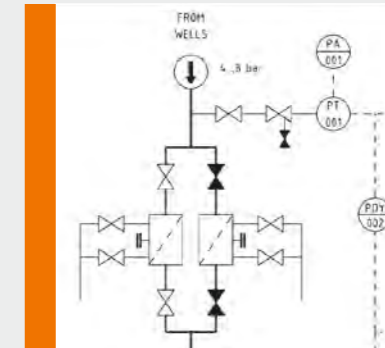
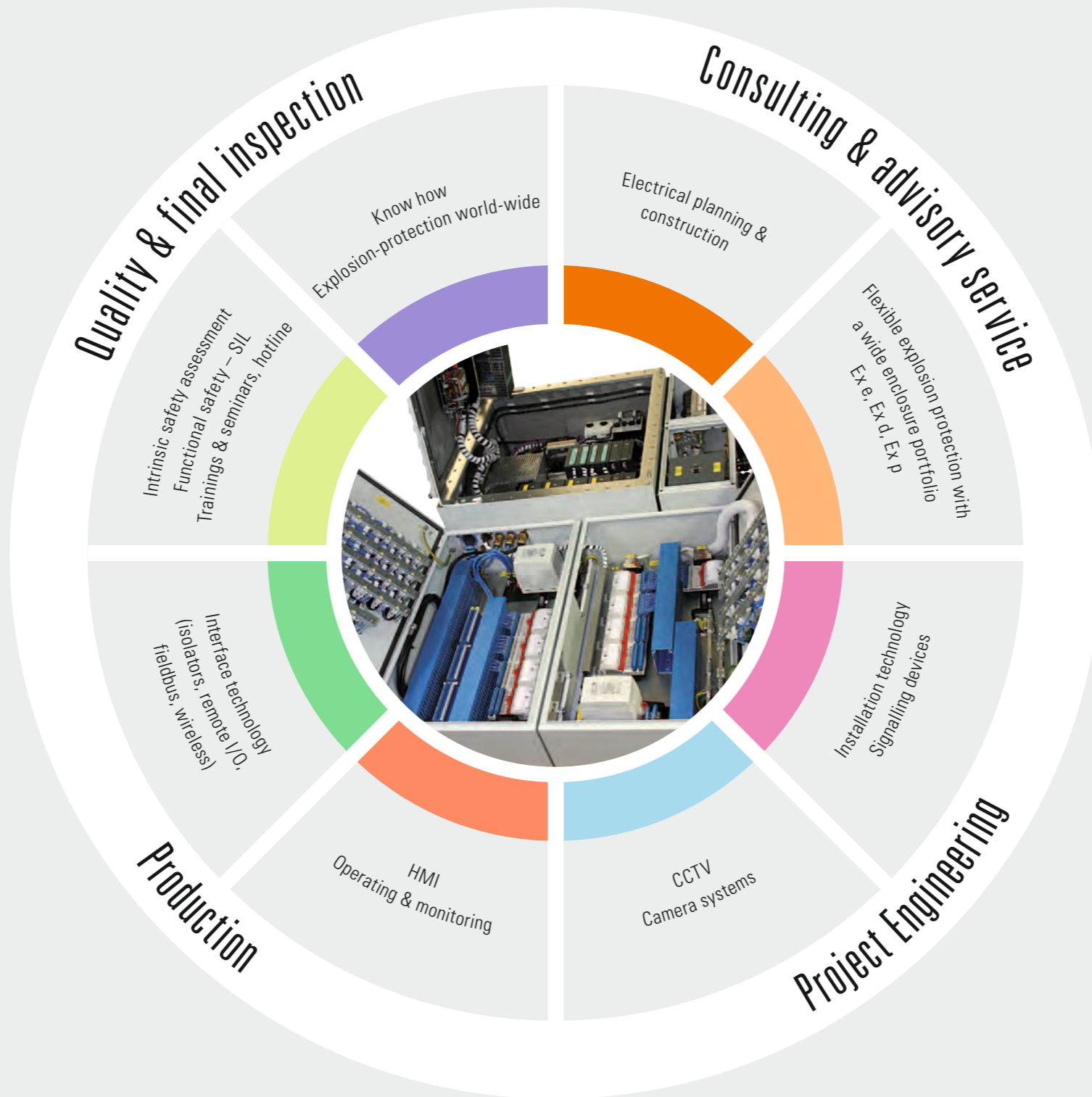
- > compact solution with heating for low temperatures
- > combination of different enclosure systems
- > intrinsically safe connection of sensor technology and actuator technology via remote I/O
- > indicating lamps, pushbuttons, cable glands of R. STAHL
- > PLCs and power supply from third parties





System solutions

more than the sum of all components





System solutions

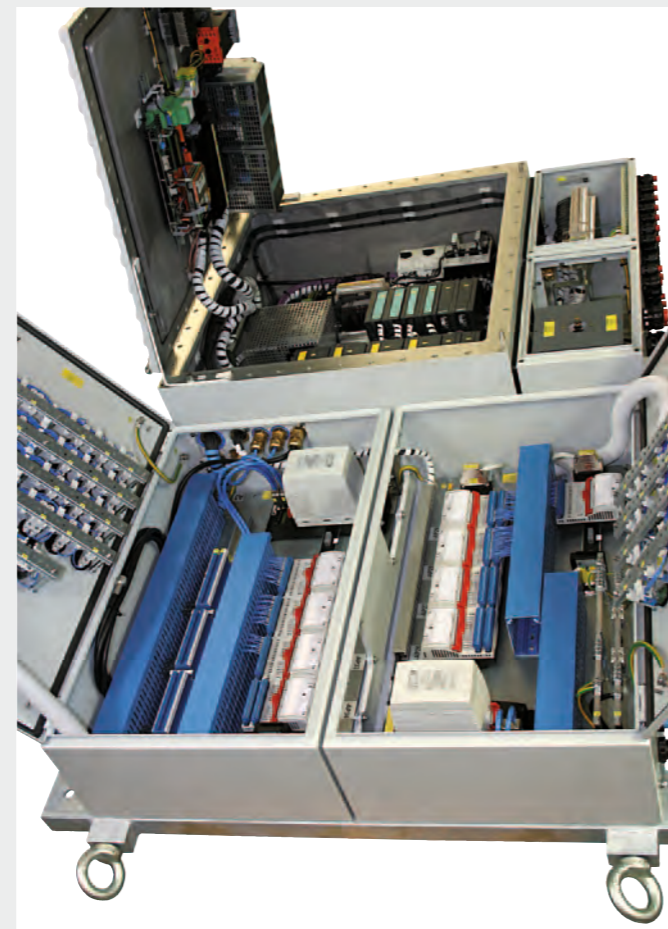
from field stations to containers — project examples



Remote I/O with Ex i solenoid valves
Application: connection of field devices
Installation in Zone 1

Highlights:

- > one solution for electrical and pneumatic signals
- > reduced wiring effort
- > completely preassembled field station



Combination of remote I/O and Ex d control
Application: loading arm control for oil and chemical tankers
Use in Zone 1

Highlights:

- > complete control from a single source
- > intelligent combination of types of protection like Ex i, Ex d, Ex e ensures compact design and ease of maintenance



Ex p pressurized apparatus
Application: gas analysis in a fertilizer plant
Installation in Zone 2

Highlights:

- > optimized for outside temperatures up to 55 °C by using an air conditioning device and shading

Complete container solutions

Application: motor control and control technology for a power station
Installation in Zone 2

Highlights:

- > advisory service and engineering in close cooperation with the customer
- > everything from a single source: container and installations from R. STAHL
- > quick commissioning on site





At your service all over the world

your partner for system solutions



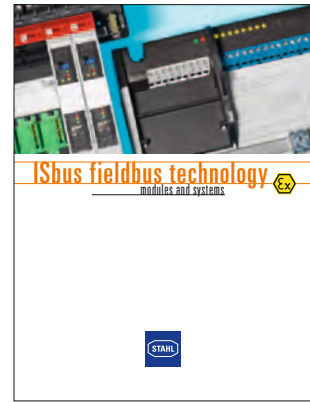
With our world-wide presence, local representatives can discuss, design and build individual solutions for automation technology with you. Our unparalleled expertise, as well as our detailed knowledge of international and regional standards, approvals and installation directives will ensure the smooth delivery and installation of your system solution.

Please look here for your local contact person for automation technology and system solutions at R. STAHL

www.stahl.de



Further information you can find in the following brochures:



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