

EX 4.0

*THE NEXT LEVEL OF
EXPLOSION PROTECTION.*



Mod No

M/S
RUN
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THE STRONGEST LINK.

STAHL

INNOVATIONS 2017

Explosion protection for the future made by R. STAHL

INNOVATIONS 2017

PREFACE

Major challenges call for innovative products and new solutions. This is particularly important when it comes to health and safety, protecting the environment and preventing damage to systems and machinery. R. STAHL has the answer: EX 4.0, explosion protection for the future. A globally connected industry 4.0 requires energy-efficient and intelligent

explosion protection solutions for all types of facilities, for every region and every operating condition.

Our varied products, systems and services and our ongoing innovation process put us in the perfect position to offer you customised solutions that provide optimum safety and efficiency:

state-of-the-art LED lighting solutions, switchgear, control panels and remote I/O systems, as well as modular concepts for easy integration in systems and existing networks in hazardous areas. With EX 4.0, R. STAHL offers future-proof concepts for explosion protection.



CONTENT



*THE NEXT LEVEL OF
EXPLOSION PROTECTION.*

Automation	4
HMI systems	10
Camera systems	12
Lighting	14
Installation and control	16
System solutions	26



AUTOMATION



IS1+

Remote I/O IS1+ with new CPU – even better for Zone 2

WebCode IS1A

NEW COMMUNICATION UNIT AND I/O MODULES FOR OPTIMAL USE IN ZONE 2.

R. STAHL has taken all the benefits of the existing IS1+ remote I/O systems and made them even better, optimised them for use in Zone 2 in particular: a new CPU & power module, three new I/O modules, and standard enclosures available straight from our production lines.

The new Zone 2 CPU comes with all the communications protocols supported by R. STAHL. These can be chosen by the user, which reduces the storage required if different automation systems are used. For plant modernisations, the migration from, e.g. PROFIBUS DP to Ethernet networks is possible without exchange of the CPU. IS1+ diagnostics allow for predictive maintenance and help eliminate unplanned downtime.

The CPU & power module makes upgrading to the latest generation simple – and makes modifications unnecessary. Ethernet installations can be made even more effective thanks to the new dual Ethernet port for linear and ring topologies.

Three new I/O modules are available for non-intrinsically safe signals. These can be combined as required with Ex i modules in the IS1+ system in Zone 2. They boast the same wide-ranging functions, while offering enhanced functionality in certain areas for analogue and digital signals.

- Can be used worldwide in Zones 1 and 2 and Divisions 1 and 2.
- Connection via PROFIBUS DP, Modbus RTU, Modbus TCP, EtherNet/IP and PROFINET.
- Multi-functional modules for combining analogue and digital inputs/outputs.
- Temperature range from $-40\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$.
- Comprehensive diagnostics for CPU, power module and I/O modules.
- System service life extended to typically 15 years.

PROFI[®]
NET

PROFI[®]
BUS

EtherNet/IP[™]
conformance tested

Modbus
RTU

Modbus
TCP

CPU and power modules for Zone 2

WebCode IS1A



The benefits of the new CPU and power modules include their numerous different applications, along with the versatility they offer in terms of integration into a whole variety of system structures. Thanks to the enhanced diagnostics functions, effective integration into plant asset management systems is easy.

- We have made things simple: All the communications protocols are available on your CPU for you to choose from.
- Comprehensive, integrated diagnostics provide early warnings of an impending system failure.
- Robust, vibration-resistant installation and significantly longer service life.

Zone 2 modules for non-Ex i signals

WebCode from 2017



The IS1+ functionalities for Zone 2 applications have been boosted by the addition of three new I/O modules. These can be hot-swapped, and can operate at temperatures ranging from $-40\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$.

- 9471 series digital input/output module with 16 channels for contacts, initiators and low-power solenoid valves.
- 9472 series 24 V digital input/output module with 16 channels for contacts, PNP/NAMUR proximity switches and solenoid valves (24 V/0.5 A).
- 9469 series UMH universal module with eight channels for 2-, 3- and 4-wire HART transmitters, PNP initiators, positioners and solenoid valves (24 V/0.5 A).

Standard enclosures for IS1+ in Zone 1 and 2

WebCode 8150D



With the IS1+ standard enclosures, we offer you a variety of pre-assembled Zone 1 and 2 field enclosures with reduced delivery times of no more than three weeks. Allow for just one extra week's delivery time and we can offer you a whole host of different customisation options.

- Robust V2A stainless steel enclosure (1.4301), prepared and operational for the IS1+ remote I/O.
- Preconfigured with all accessories and assembly parts; no additional acceptance or certification required.
- Optional extras, e.g. V4A stainless steel (1.4404), other cable entries, redundant IS1+.

AUTOMATION



Network solutions for hazardous areas

WebCode from 2017

THE IOT AND INDUSTRY 4.0 REQUIRE A HIGH-PERFORMANCE INFRASTRUCTURE.

However Industry 4.0 is implemented in the process manufacturing industry, one thing is certain: The amount of data and the number of devices communicating with one another is set to rise significantly.

Network technology will inevitably play a key role in transmitting this data. Technologies that have hitherto played only a minor role in hazardous areas are now garnering the attention of production engineers and plant operators. The challenge now for everyone involved is to reconcile the requirements of both broadband data communication and explosion protection.

R. STAHL offers a wide range of products and components that can be combined in modular fashion to meet the customer's specific requirements. Besides offering protection against explosions in hazardous areas, these products and components marry exceptional reliability with ease of use.

Industrial Ethernet explosion protection solutions:

- Unmanaged switch.
- Media converter.
- WLAN access point.
- Installation technology for 100BASE-TX copper conductors.
- Installation technology for 100BASE-FX fibre optics.

Solutions for wireless sensor and actor networks:

- WirelessHART gateway.
- ISA 100.11a gateway.

Unmanaged switch with four explosion-protected "op is" FX ports

WebCode 9721B



These switches transform electrical (TX) into optically inherently safe (op is) Ethernet networks. They allow installation and maintenance work to be conducted on fibre optics in Zones 0, 1 and 2 without the need for downtime (hot swap/hot work). They are suitable for systems such as IS1+ Ethernet Remote I/O, HMI and camera systems.

- Suitable for 100 MBit/s Ethernet with two copper ports (RJ45) and four "op is" ports (SC).
- Transmission range of up to 5 km (multi mode) or up to 30 km (single mode).
- Zone 2 installation with extended temperature range of $-30\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$.

WirelessHART and ISA100.11a GATEWAY 7145

WebCode 7145C



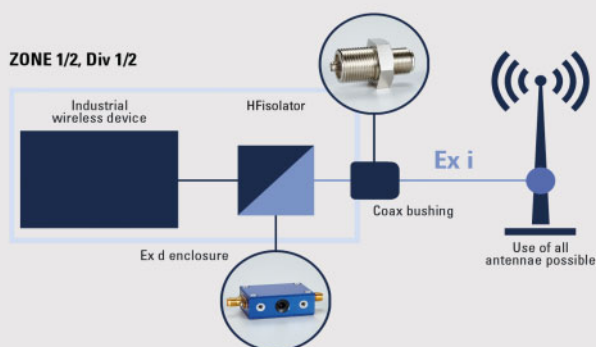
The gateway allows wireless networks to be established for field equipment that communicates using the WirelessHART or ISA100.11a protocol. R. STAHL has a flexible solution for both protocols.

- Increased availability through the use of redundancy.
- Robust stainless steel enclosure with degree of protection IP65.
- Zone 2 installation with a temperature range of $-20\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$.
- Optional: Ex i wireless and FO interface.

WirelessHART ISA100.11a

Wireless solutions with industrial equipment

WebCode 9730A



Smartphones and tablets require infrastructure for data transmission. R. STAHL offers the complete package – from finished products to custom solutions using your chosen options. Our versatile enclosure and connection technology brings the following benefits:

- Ease of use and safety guaranteed in your operating conditions.
- Standard cables and standard antennae can be used.
- Your solution can be available within just a few weeks.

AUTOMATION



ISbus

Fieldbus integration and migration: R. STAHL bus-Carrier with linking device

WebCode 9412A

GATEWAY SOLUTIONS FOR USE WITH PROFINET AND FOUNDATION FIELDBUS FOR ZONE 2.

Linking devices manufactured by the company Softing connect FF H1 or PROFIBUS PA segments via Ethernet to DCS and plant asset management systems. This makes them an effective solution for migration projects and system upgrades.

The integrated solution using R. STAHL bus-Carriers minimises the installation work required and significantly reduces cabling work. The ISbus fieldbus power supplies are suitable for simplex and redundant supply of segments. Different versions of the bus-Carriers are available for use with up to eight fieldbus segments. The ISbus fieldbus power supplies' integrated advanced physical layer diagnostics can also be employed when used with FOUNDATION Fieldbus H1.

When it comes to installing fieldbus devices in Zones 1 and 2, R. STAHL is on hand with a comprehensive selection of different field device couplers for FISCO and non-intrinsically safe equipment. Further information on Softing's linking devices can be found at <http://industrial.softing.com>.

- Available proxy for PROFIBUS PA / PROFINET or as Linking Device Foundation fieldbus H1 / FF HSE or Modbus TCP.
- Adapted bus-Carriers minimise the amount of installation work required.
- Redundancy is possible for the segment power supply and redundant linking devices.
- Advanced physical layer diagnostics.
- Installation in Zone 2 with customised field enclosures.



R. STAHL is a UL-listed panel shop

WebCode from 2017

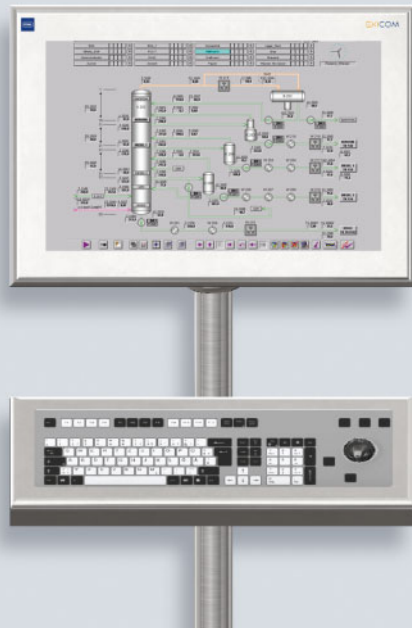
NEC/CEC SOLUTIONS FOR THE USA AND CANADA.

R. STAHL supplies products and solutions for the use of machinery and systems in North America.

R. STAHL's inclusion on UL's list of approved panel shops provides assurance of its wide-ranging expertise, which also incorporates custom solutions. We produce UL 508A-certified panels for use in ordinary locations and UL-certified panels for use in hazardous locations, and offer comprehensive services.

- Support and expert advice.
- Comprehensive explosion protection expertise specifically for the USA and Canada.
- Engineering and documentation.
- Individual approval of NEC/CEC-certified explosion-protected system solutions in collaboration with a Nationally Recognised Testing Laboratory (NRTL).
- Comprehensive product range with UL, CSA and FM certification.

HMI SYSTEMS



Clean room HMI

stahl-hmi.de

R. STAHL HMI SYSTEMS FOR CLEAN ROOMS.

We strive day in, day out to develop the ideal HMI. The new clean room HMI is a testament to all our hard work. It fulfils all the relevant GMP, GAMP and FDA requirements, can use any HMI technology and can be configured so that it is compatible with the requirements of any system type.

- Specially developed for the fine chemical, pharmaceutical and life sciences industries.
- Hygienic design for use in clean rooms in accordance with the requirements of GMP.
- Front panel installation equipment and operating stations can be configured in numerous different ways.
- Available as thin client, KVM system, panel PC or direct monitor.
- Complies with GAMP and FDA 21 CFR Part 11.
- Display sizes: 24" (1920 x 1080) and 24" WU (1920 x 1200).
- Compatible with all DCS.
- User identification via card reader/RFID.

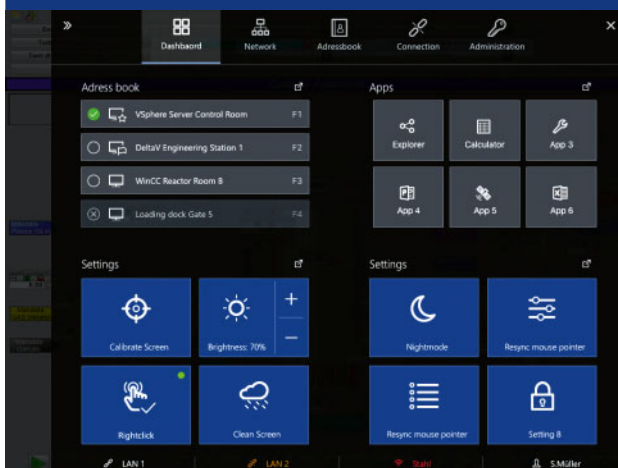
New V5 REMOTE HMI FIRMWARE based on Windows® 10 IoT



Our V5 remote HMI firmware boasts unparalleled performance and the most secure thin client operating system ever.

Designed as a closed system on Windows® 10 IoT Enterprise with activable password protection, operator input blocking function and redundant LAN and WLAN support, the remote firmware boasts the latest remote desktop services with RDP 10, VNC, DRDC and browser, and provides these with top-level protection and security.

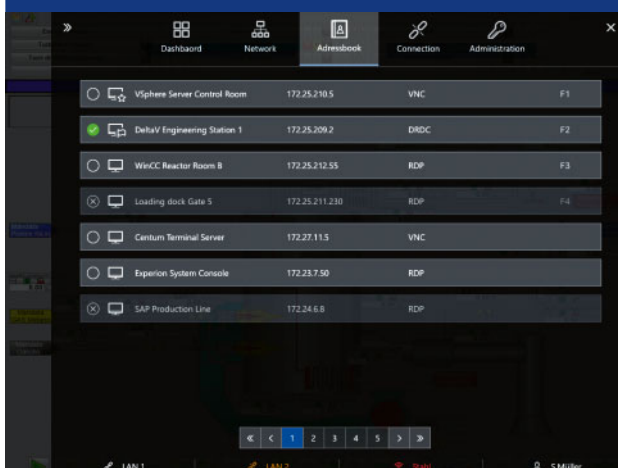
New V5 REMOTE HMI FIRMWARE with Windows® 10 style guides



Redesigned and bearing the fruits of yet another round of improvements, the interface complies with the requirements set out in the Windows® 10 style guides.

- The menu is easily accessible, providing a clear overview of all DASHBOARD, NETWORK, ADDRESS BOOK, CONNECTION and ADMINISTRATION functions.
- User-friendly buttons offer a shortcut to system functionalities, allowing you to fine tune them to your requirements.

New V5 REMOTE HMI FIRMWARE overview: All your connections in one place



The ADDRESS BOOK lists all your connections clearly, showing you exactly who is on the network.

The system displays the following:

- Thin client.
- IP address.
- Type of connection – VNC, RDP, DRDC, etc.

CAMERA SYSTEMS



OPEN CCTV SYSTEM

stahl-camera.de

OPEN CCTV SYSTEM WITH THE LATEST CAMERA TECHNOLOGY.

To optimise video surveillance to accommodate all your requirements, we came up with the OPEN CCTV SYSTEM, allowing us to design CCTV systems completely tailored to your facilities.

Our portfolio, which ranges from diminutive compact cameras to high-resolution thermal imaging cameras, has something to offer for virtually any camera system requirement you care to imagine. Blanket surveillance, leak monitoring, external monitoring, flexible access from various locations or redundant server structures – the possibilities with our OPEN CCTV SYSTEM are endless.

R. STAHL's cameras are designed to be "open" – this means that they can communicate with (virtually) any of the cameras and hardware components on the market, regardless of protocol.

- Full HD IP camera with ONVIF S protocol.
- WDR and defogging-function for clear images.
- With ATEX, IECEx, CEC and NEC certification for global use.

Universal AFZ camera: The EC-940-AFZ

WebCode from 2017



This new zoom camera boasts numerous different electrical connection options such as Power over Ethernet, sophisticated camera technology and an operating temperature range of between $-55\text{ }^{\circ}\text{C}$ and $+65\text{ }^{\circ}\text{C}$. Not only this, but the Ex e connection chamber makes installation in hazardous areas incredibly quick, and eliminates the need for a separate terminal box.

- 32x optical zoom.
- PoE++ extender variant for data transmission up to 150 m.
- FO variant Ex op is MM for data transmission up to 5 km (24 V DC/230 V AC).
- Ethernet variant (24 V DC/230 V AC) and PoE (Class 3) possible for up to 100 m without heating.

Small AFZ camera: The EC-940S-AFZ

WebCode from 2017



This zoom camera features the latest camera technology for hazardous areas. Weighing in at 8 kg and offering degree of protection IP69, it is easy to install and able to withstand powerful jets of water used for cleaning (up to 100 bar).

- 24 V AC/DC possible.
- Also available as an EC-840S-TIC thermal-imaging camera.

Fast PTZ camera: The EC-940-PTZ

WebCode from 2017



This PTZ camera offers more safety in hazardous areas. In less than two seconds, the camera can identify every point in the surroundings and users can monitor the plant at any time.

- High-precision, fast rotating PTZ camera with up to $100^{\circ}/\text{s}$ and 0.02° recovery (preset).
- Electropolished stainless steel 316L for high corrosion resistance.
- 24 V AC/DC possible.
- Includes wiper function for a clear view at all times.

LIGHTING



LED floodlights

WebCode 6525A

VERSATILE, ROBUST LED FLOODLIGHTS.

Energy-saving LED technology lights up the latest generation of versatile, explosion-protected floodlights. High-quality TIR optics minimise scattered light and dazzling, and focus the beam angle to 10°, 40° or 120°. Not only does this make these lights suitable for use as spotlights or for illuminating large areas, it also means they can be used as pendant light fittings.

The 210 W versions of the 6125 series (for ATEX Zone 1) and 6525 series (for ATEX Zone 2) LED floodlights emit an impressive 21,000 lm. The lens set has hinges, allowing the replaceable components to be installed, maintained and repaired with ease.

With their corrosion-resistant construction and low weight, these LED floodlights are perfect for both onshore and offshore applications. For other applications such as illuminating production and storage facilities in the food industry, they can be ordered with an optional splinter guard on the glass front.

- Three different beam angles.
- Standard enclosure made of single-coated stainless steel or with V4A double-coated stainless steel for marine environments.
- Wide operating temperature range of -40°C to $+60^{\circ}\text{C}$.
- Low maintenance due to long service life of up to 100,000 operating hours.

EXLUX 6002/2 series linear luminaire with LED, version IIC

WebCode 6002C

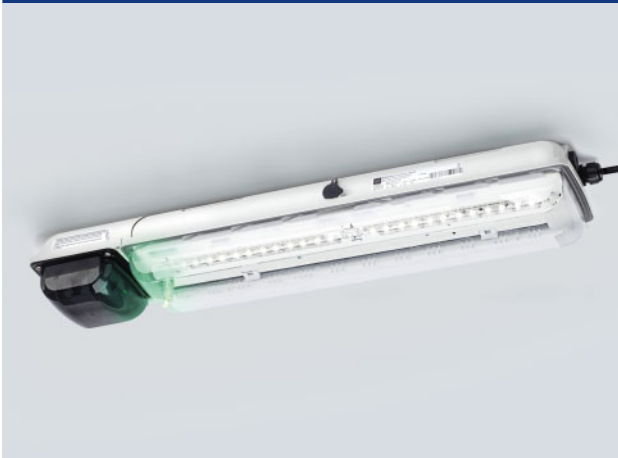


These LED luminaires are suitable for general lighting, both indoors and outdoors. They are designed in such a way that luminaires and fluorescent tube lamps are completely interchangeable. With the same luminous flux but reduced energy consumption, this lighting system boasts increased efficiency.

- Can be used in hazardous areas with gas group IIC.
- High luminous efficacy coupled with a long service life.
- As a pendant light fitting or a pole-mounted light fitting.
- Central lock.

Emergency luminaire with LED

WebCode from 2017



The emergency luminaires with LED can be used as safety lighting.

- As bulkhead light fitting, pendant light fitting or pole-mounted light fitting.
- 28 W and 52 W versions available.
- Central lock.
- All-pole disconnection by means of positive-opening switching elements when the luminaire or battery enclosure is opened.
- Weekly functional test and annual rated operating time test.

MEXE, MS25, MS35, MS45 and MS55 series multi-status indicators

WebCode MSA



Product series MEXE, MS25, MS35, MS45 and MS55 offer a user-friendly solution – a status indicator designed for use in harsh environments and hazardous areas.

- Pre-wired for use with a multi-signalling device.
- Incorporates the FX15 GRP beacon and YA90 for visual and audible notification.
- Sounder with output of up to 115 dB.
- Extreme temperature range of -55°C to $+70^{\circ}\text{C}$.
- Light-intensifying lens, eight colour options.

INSTALLATION AND CONTROL



Plug and socket devices series 8572

WebCode 8572A

PLUG AND SOCKET DEVICES IN SMALL, COMPACT DESIGN.

R. STAHL's various SolConeX 857 series offer a wide selection of small, compact plug and socket devices for use in Zones 1/2 and 21/22. These 3-pole sockets feature an integrated rotary switch and can be used with voltages of up to 277 V and currents of up to 16 A. These devices have been developed in line with the latest standards and comply with IEC/EN 60309-1/-2 for "plugs, socket-outlets and couplers".

Plugs are plugged in and unplugged straight and with the switch set to "Off" (zero position). Very little force is required to do so, but the plug will still sit securely in the socket. High-quality contact materials and contact design ensure that contact resistances are low and corrosion is reliably prevented, even in corrosive gas atmospheres. The glass-fibre-reinforced plastics provide extremely effective mechanical protection against damage and aggressive chemicals. The injection-moulded seals reliably prevent water and dust (IP66) from finding their way in, whatever the working environment.

International certification and the ability to operate at temperatures ranging from $-60\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$ mean that these products can be used all over the world.

- Integrated internal rotary switch.
- Full AC-3 switching capacity, 16 A/ 277 V in accordance with EN 60947-3.
- Mechanical interlock to prevent accidental or unauthorised removal of the plug.
- GRP enclosure to withstand extreme mechanical and chemical stress.
- Compatible with plugs in any of the 8570/12-3 and following series.
- Deep-drawn enclosure construction for easy access to the terminals and for quick installation.

8572/13 series compact wall-mounting socket

WebCode 8572A



Compact, 3-pole 16 A wall-mounting socket for voltages of up to 277 V. Reliable protection against extreme mechanical stress, chemically aggressive gases and corrosion.

- Deep-drawn enclosure construction for easy access to the terminals and for quick installation.
- Compact, optimised installation flange for enclosure installation.
- Integrated internal rotary switch with mechanical interlock.
- Smooth surfaces to withstand extreme mechanical and chemical stress.
- Complies with IEC/EN 60079-14:2014-10 for dust applications.

8572/14 series coupling

WebCode 8572B



3-pole 16 A compact coupling for voltages of up to 277 V; allows direct installation of flexible cables. The reliable internal strain relief and impressively effective sealing system make this coupling well suited to mobile use.

- Integrated internal rotary switch.
- Mechanical interlock to prevent accidental or unauthorised removal of the plug.
- GRP enclosure to withstand extreme mechanical and chemical stress.
- Wide temperature range (–60 °C to +55 °C).
- Degree of protection IP66 in any application position.

8572/15 series flange socket

WebCode 8572C



3-pole 16 A compact flange socket for voltages of up to 277 V; for installation directly into enclosures for Zones 1/2 and 21/22. Integrated rotary switch mechanism with full AC-3 switching capacity in accordance with IEC/EN60947-3.

- Compact, optimised installation flange for enclosure installation.
- Internal rotary switch with mechanical interlock.
- Smooth surfaces to withstand extreme mechanical and chemical stress.
- Complies with IEC/EN 60079-14:2014-10 for dust applications; optional flange adapter available.

INSTALLATION AND CONTROL



8573 series sockets

WebCode 8573A

VERSATILE EXTRA-LOW-VOLTAGE SOCKETS FOR USE WORLDWIDE.

These 2- and 3-pole extra-low-voltage sockets can be used with voltages of up to 50 V and currents of up to 16 A. These devices have been developed in line with the latest standards and comply with IEC/EN 60309-1/-2 for "plugs, socket-outlets and couplers".

High-quality contact materials ensure that contact resistances are low and corrosion is reliably prevented, even in corrosive gas atmospheres. Glass-fibre-reinforced plastics provide extremely effective protection against mechanical damage and chemicals. The injection-moulded seals reliably prevent water and dust from finding their way in. International certification and the ability to operate at temperatures ranging from $-60\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$ mean that these products can be used all over the world.

- Extra-low voltages of up to 50 V/16 A.
- Integrated internal rotary switch.
- Mechanical interlock to prevent accidental or unauthorised removal of the plug.
- GRP enclosure to withstand extreme mechanical and chemical stress.
- Deep-drawn enclosure construction for easy access to the terminals and for quick installation.
- Degree of protection IP66 in any application position.

8573/12 series plug

WebCode 8573A



The 2- and 3-pole 16 A connector for extra-low voltages of up to 50 V/16 A. High-quality contact materials ensure optimal electric contact. Very little force required to plug and unplug thanks to the floating pins/connectors.

- GRP enclosure to withstand extreme mechanical and chemical stress.
- Internal fold-out strain relief to ensure that cables maintain their integrity for as long as possible.
- IEC/EN 60309-1/-2 compatible.
- Wide temperature range (–60 °C to +55 °C).

8573/13 series wall-mounting socket

WebCode 8573B



The 2-pole and 3-pole socket for extra-low voltages of up to 50 V/16 A; suitable for use in Zones 1/2 and 21/22. The enclosures are made in 2-component technology, and an excellent degree of protection, IP66, is guaranteed, whatever the working environment. High-quality plastics for an extreme operating temperature range of between –60 °C and +55 °C.

- Features an integrated internal rotary switch.
- Mechanical interlock to prevent accidental or unauthorised removal of the plug.
- Deep-drawn enclosure construction for easy access to the terminals and for quick installation.

8573/15 series flange socket

WebCode 8537C



The 2-pole and 3-pole 16 A flange socket for extra-low voltages of up to 50 V/16 A; suitable for use in Zones 1/2 and 21/22. High-quality, self-cleaning contact materials ensure optimal contact. Non-wearing, self-cleaning lamellar contact technology ensures that contact resistances are low.

- Compact, optimised, fitted flange for enclosure installation.
- Integrated internal rotary switch with mechanical interlock.
- Smooth surfaces to withstand extreme mechanical and chemical stress.

INSTALLATION AND CONTROL



8150/5-V88 series socket panels for clean rooms

WebCode 8150E

SOCKET OUTLET ASSEMBLIES FOR USE IN CLEAN ROOMS.

8150 series socket outlet assemblies are suitable for use in clean rooms and come in three different sizes. The electropolished stainless steel enclosures are easy to clean. The built-in sockets meet very stringent requirements in terms of surface texture and electrostatic charge, which means that the accumulation of particles (dust) is kept to a minimum.

High-quality plastics protect against extreme mechanical stress and chemically aggressive materials and cleaning agents. International certification in line with the latest standards is available.

The installation frame is welded all around the edge and is designed for quick installation in back panels and tiled walls. The newly developed flange adapter complies with the requirements set out in IEC/EN 60079-14:2014 pertaining to mounting orientation for dust applications.

- Electropolished enclosure surfaces.
- Can be fitted with up to four flange sockets.
- High-quality circumferential silicone seal.
- No particulate emissions.
- Mounting frame.
- Complies with the standards for clean rooms: VDI 2083, EU GMP guidelines, ISO 14644 and FS 209 E.
- IP66: Protected against dust and water jets.

8150/5-V88 series clean room sockets, size 1

WebCode 8150E



Size 1 socket outlet assemblies (176.5 x 176.5 mm) for use in clean rooms with a socket flange for voltages of up to 277 V/16 A. The built-in sockets meet very stringent requirements in terms of surface texture and electrostatic charge, which means that the accumulation of particles (dust) is kept to a minimum.

- Electropolished enclosure surfaces.
- Protection against extreme mechanical stress and chemically aggressive materials.
- Very compact.

8150/5-V88 series clean room sockets, size 2

WebCode 8150E



Size 2 socket outlet assemblies (176.5 x 360 mm) for use in clean rooms with up to two socket flanges. The electro-polished stainless steel enclosures are easy to clean. The high-quality plastics are designed to withstand extreme mechanical stress and chemically aggressive materials and cleaning agents.

- The accumulation of particles is kept to a minimum.
- Silicone-free (standard version); no particulate emissions.
- Can be fitted with sockets for currents of up to 32 A.

8150/5-V88 series clean room sockets, size 3

WebCode 8150E



Size 3 socket outlet assemblies (360 x 360 mm) for use in clean rooms with up to two socket flanges. Thanks to the design of the installation frame, enclosures can be easily and securely installed in back panels and tiled walls.

- Can be fitted with up to two sockets for currents of 16 A or 32 A.
- IP66 protection rating: protected against dust and water jets.
- Installation frame for flush mounting.

INSTALLATION AND CONTROL



8602/3 series actuators

WebCode 8602A

ACTUATORS FOR HAZARDOUS AREAS.

With our new 8602/3 series actuators, you can now use 8040 series control devices and 8150 and 8146 series control boxes at ambient temperatures of as low as -60°C . In addition to the 8602/3 series actuators, all explosion-protected components used in the enclosure, such as the 8082 series contact element, 8010 series indicator lamp, 8208 series universal element and 8008/8006 series control switches and load switches, are suitable and certified for use at this extreme ambient temperature.

Customers can choose from a variety of different actuators. In addition to push-buttons, mushroom pushbuttons and rotary actuators, key-operated switches, twin pushbuttons and illuminated pushbuttons are also available. Thanks to the wide variety of different actuators on offer, it is possible to use these actuators in both hazardous and non-hazardous areas.

The entire series features degree of protection IP66 in accordance with EN 60529 – this represents the ultimate in system safety and minimises the risk of failure. An SIL assessment for the 8602/3 series actuator and 8082/8208 contact element combination is available (EXIDA test report 04/11-05 R007 V2 2015).

- 24 different versions.
- Up to four contact elements can be installed under one actuator.
- Service life > 100,000 operating cycles.
- Wide range of accessories, e.g. locking devices.
- International certification.



8150 series all-purpose enclosure

WebCode 8150A

COST-EFFECTIVE AND ROBUST: R. STAHL'S ALL-PURPOSE ENCLOSURE.

R. STAHL's 8150 series all-purpose enclosure is a solution that allows terminal boxes and control boxes to be designed and produced cost-effectively. To strike the perfect balance between value for money and functionality for Zones 1 and 2, the enclosure design has been streamlined, retaining just the essential features for the majority of applications. These enclosures have obtained international certification that verifies their suitability for use the world over and in extremely adverse conditions.

The degree of protection IP66 is afforded by the circumferential protection channel. This is designed to leave sufficient space for the wiring. The wide variety of accessories (e.g. protective roof) helps to ensure that the enclosure lasts a long time, even in harsh environments.

More than 75 standardised enclosure sizes are available in either 1.4404 or 1.4301 grade steel. More than 54 different flange sizes are also available. On request, we can also supply enclosures with 3 mm walls or EMC enclosures.

- Certificates: ATEX, IECEx, cULus, FM, GL, PESO, ITRI, KGS and UL Brazil.
- IP66 in accordance with EN 60529.
- Extreme ambient temperature range (–60 °C to +135 °C).
- Extensive range of accessories, e.g. flanges, stainless steel V4A protective roof for the internal elements.

INSTALLATION AND CONTROL

8060/2 series standard-compliant position switch

WebCode 8060B



Plastic Position switch; switch dimensions meet the requirements of DIN EN 50047. It is designed to detect the position of moving components. Certified versions fulfil the requirements for safety switches as set out in EN 13849-1 and have positive-opening contacts in accordance with EN 60947-5-1.

- Operating temperature range: $-60\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$.
- Plastic Ex e enclosure.
- Degree of protection IP66/67.
- Five different contact versions.
- 10 different actuator versions.

8070/2 series standard-compliant position switch

WebCode 8070B



Plastic Position switch; switch dimensions meet the requirements of DIN EN 50041. The field of application and requirements are the same as for the 8060/2 series standard-compliant position switch.

- Operating temperature range: $-60\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$.
- Large inner connection chamber.
- Plastic Ex e enclosure.
- Degree of protection IP66/67.
- Five different contact versions.
- Nine different actuator versions.

8074/2 series standard-compliant position switch

WebCode 8074C

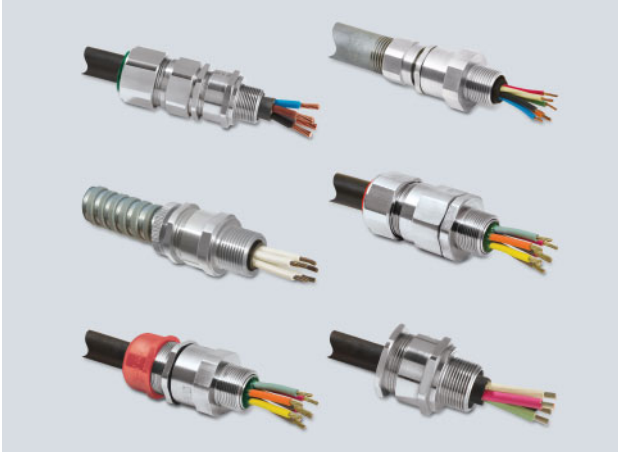


Metal position switch; switch dimensions meet the requirements of DIN EN 50041. The field of application and requirements are the same as for the 8060/2 series standard-compliant position switch.

- Operating temperature range: $-40\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$.
- Large inner connection chamber.
- High-quality metal Ex e enclosure with outer PE connection.
- Degree of protection IP66/67.
- Five different contact versions.
- Nine different actuator versions.

Metal cable glands

WebCode CMPA

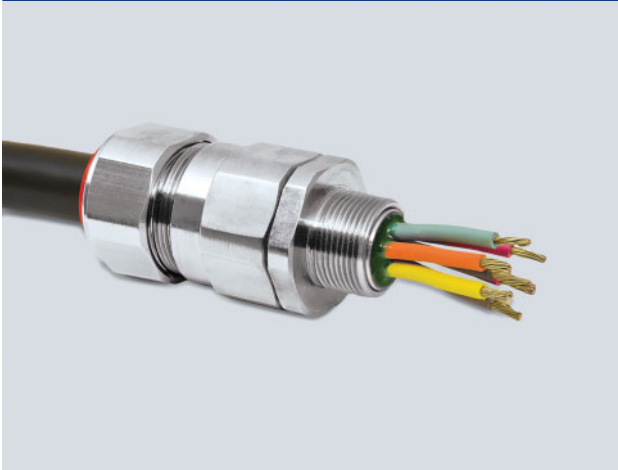


R. STAHL's partnership with CMP boosts its position as an explosion protection system supplier. This is why we are stepping up our collaboration with CMP and developing it into a strategic partnership.

- Even broader spectrum of products and extensive range of accessories.
- International certification for worldwide use.
- Worldwide listings with leading companies.
- Short lead times.

Compound barrier cable gland for armoured cables

WebCode PX2KB

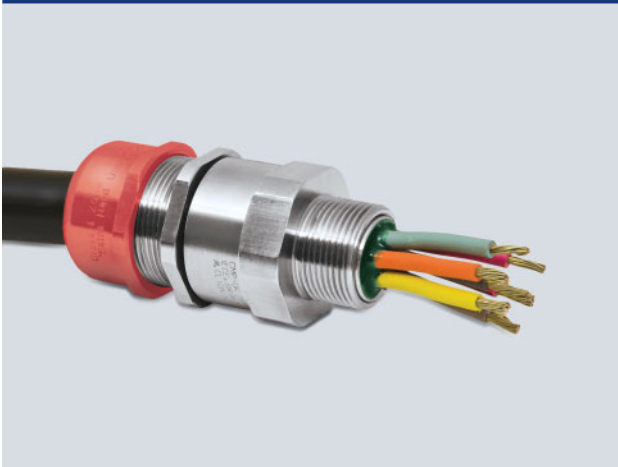


PX2K REX cable gland:

- The RapidEx sealing system with liquid compound affords increased reliability and reduces the amount of time, the costs and the risks involved in installation.
- Multi-functional holder for the armour.
- Flood seal with integral protection.
- Controlled outer load retention seal.
- International certification for use the world over.
- EMC-tested.

Compound barrier cable gland for unarmoured cables

WebCode PXSS2KB



PXSS2K REX cable gland:

- The RapidEx sealing system with liquid compound affords increased reliability and reduces the amount of time, the costs and the risks involved in installation.
- Flood seal with integral protection.
- Special sealing system to prevent cold flow.
- International certification for use the world over.

SYSTEM SOLUTIONS



ModibEx modular power distribution board

WebCode ENV1

MODIBEX: MODULAR POWER DISTRIBUTION BOARD FOR HAZARDOUS AREAS.

ModibEx is a customer-friendly, flexible, modular system that makes ordering power distribution boards quick and easy: You specify the connected load and cables, and R. STAHL will find the right power distribution board for you. There is no need for any further specifications – and you can leave the engineering, including the project engineering, to us.

The options range from compact to large power distribution boards for all common customer applications. The design of the power distribution board has been streamlined, with the outer dimensions and the weight reduced to retain only that which is really essential. International certification obtained for worldwide use.

We will get back to you with a quotation in no time at all. The modules are available with short lead times. This affords a considerable degree of flexibility for projects.

- Predefined assemblies make for fast engineering.
- Pre-assembly and inspection conducted by R. STAHL to minimise construction time.
- Numerous options to choose from.
- The modules can be lighter, smaller and are available with short lead times.

Machine and system control system

WebCode MAS8A



From project engineering to supply, R. STAHL offers a complete range of explosion-protected solutions for use in Zones 1, 2, 21 and 22. For compact and complex solutions alike, our flexible enclosure range allows us to provide you with just the control system you need.

- Solution for controlling electro-hydraulics in explosion-protected, Ex d aluminium enclosures housing industry-standard electronic components.
- Space for motor starters with up to 45 kW of power or for a wide variety of control equipment.
- Robust, thanks to copper-free aluminium alloy.
- Seawater-resistant material for extreme temperatures ranging from $-60\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$.

Machine and system control system

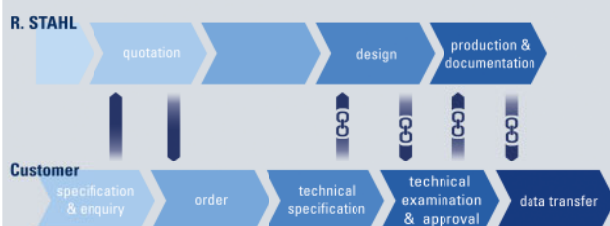
WebCode MAS8A



- Explosion-protected control unit for mobile centrifuge with container-style construction.
- Switch and control cabinets tailored to your specific operating conditions.
- The powerful built-in components notwithstanding, explosion protection is ensured thanks to effective heat dissipation.
- The compact design and close integration of the control unit in the overall system makes it more mobile.
- The centrifuge can be moved to wherever it is needed and requires minimal set-up – simply “plug and play”!

Integrated engineering

WebCode from 2017



Right from the planning phase, we communicate with our customers' systems and use the information they store. You will see your solution at work in your own system, and have the corresponding data at your disposal, ready for further use.

- No need to do things twice.
- No transmission errors.
- Reduced documentation work.
- Early identification of logical errors.



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