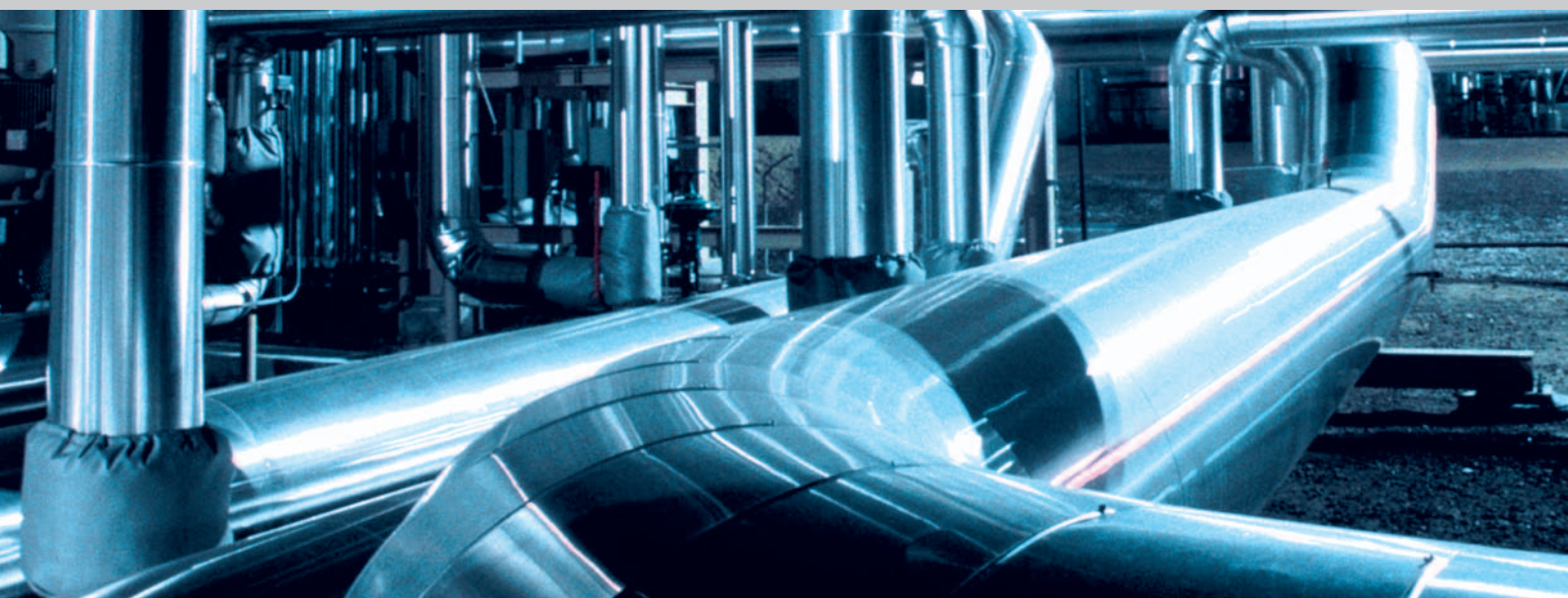




PRESSURE · TEMPERATURE · FLOW CONTROL

Solutions for Your Safety





Solutions for Your Safety

Honeywell FEMA pressure monitors and limiters for safety applications make a significant contribution to the safe operation of machines and plants. With certifications according to the Pressure Equipment Directive, the Gas Appliance Directive, and the Explosion Protection Directive, the devices can be used to a wide extent to monitor flammable liquids and gases, as well as steam and hot water. SIL2/3 Certification as per IEC 61508 makes them suitable for use in areas in which the functional safety of plants is calculated on the basis of failu-

re probabilities. Additionally, Honeywell FEMA also carries pressure switches and pressure transmitters for air, gases and liquid media. Especially our electronic pressure and differential pressure switches as well as transmitters can help solve a variety of measurement and switching tasks in the area of machine and plant construction. A wide portfolio of components for air conditioning technology round out the company's portfolio. Our customers include Original Equipment Manufacturers, installers, contractors and service providers.

Our customers value quality and performance, and they appreciate our competence and reliable delivery. On the following pages, you can read more about some of those areas in which we have been especially successful.

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Additional applications for our products are water treatment, cleaning systems, chip manufacturing plants, dyeing plants, liquid gas handling, greenhouses and ripe stores, turbine test benches as well as printing machines.

In the area of safety technology, in particular instrumentation represents a strategic focus of our product line. Thus, FEMA offers solutions for instrumentation in explosion relevant areas and for those plants to which the Pressure Appliance Directive applies. Additional areas of focus include instrumentation for functional safety.

In the event that you are unable to find your area of business in our portfolio, please ask us about corresponding Honeywell services, products, and references.

Steam Generation

Steam generators are employed in many areas of chemical process technology, plastics manufacture and heat supply. FEMA pressure monitors and limiters – certified according to the Pressure Appliance Directive and IEC 61508 –

make a major contribution to the technical and functional safety of these plants. Steam and gas pressure monitors are also available for ex-zones 1, 2, 21, and 22.



STW and STB Certified temperature monitors and limiters



DWR and DWR...-205/206 Pressure monitors and pressure limiters



Ex-DWR and Ex-DGM Ex-proof pressure monitors



Temperature sensors P...



PTH, PTS Pressure transmitters



K and L Series solenoid valves



AT Solenoid valve

Heating Systems

It is necessary to monitor pressures and temperatures to ensure the safe operation of large-scale thermal plants. Especially the filling level and boiler temperature must be registered. Additionally, the fuel supply must be monitored.

Safety valves prevent fuel leakage. FEMA offers a number of different measurement converters and TÜV and DVGW-certified pressure monitors for this purpose. For the Ex-area, ATEX-certified devices are available.



DGM, Ex-DGM Pressure monitors for flammable gases



DWR and Ex-DWR Pressure monitors for flammable liquids and gases



STW and STB Certified temperature monitors and limiters



Solenoid valves K... an AV... for liquid fuel and burnable gases



PTH, PTS, PSH, PSS and PST Pressure transmitters and electronic pressure switches and TST electronic thermostats



S6065 and KSW Mechanical and electronic flow monitors

Biogas / Combined Heat & Power Units (CHP`s)

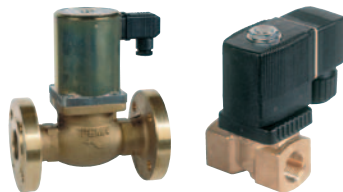
In large-scale biogas plants and Combined Heat & Power Units, pressures and temperatures must be measured to ensure safe operation. Pressure transmitters and Ex-protected pressure switches are used especially in the area of the production, drying, and distributi-

on of gases as well as the supply of fuel in CHP`s. FEMA carries a number of corresponding TÜV-certified devices meeting the Pressure Equipment Directive and the Gas Appliance Directive, as well as devices certified according to ATEX 94/9 EC Different models are also availa-

ble with SIL 2/3 as per IEC 61508. Chemical seals are offered for media-side separation.



DWR, VNM, DWAM, DDCM Gas pressure monitors, pressure monitors, and pressure limiters, vacuum and differential pressure switches – also in Ex-i and Ex-de versions



AV..., K15... Solenoid valves for heating oil and flammable gases



PSH, PTH, PTS and PST Electronic pressure switches and pressure transmitters



P and TST Series Temperature sensors and electronic thermostats

Pump Stations and Water Supply

Using FEMA pressure switches, differential pressure switches, and pressure transmitters, it is possible to safely and reliably monitor and limit pressures and differential pressures and to transmit them to central control units. FEMA pressure switches and pressure trans-

mitters with SIL classification and/or certified according to the Pressure Equipment Directive are especially well-suited for use in water purification plants, wastewater treatment plants, and to boost pressure. In water tanks, pressure transmitters are used to display the filling

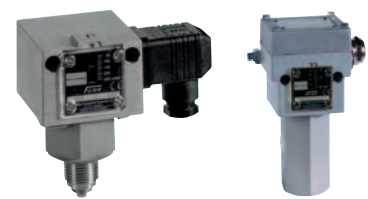
level and prevent overflowing. In pump stations, pressure switches and differential pressure switches provide protection against dry-running and are used to control pumping.



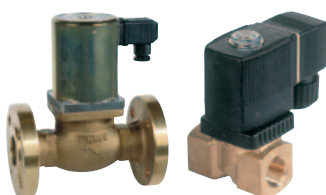
KSW and S6065 Mechanical and electronic flow monitors



P and TST electronic thermostats



DCM, DNM, and DDCM Pressure and differential pressure switches – also available in Ex-de versions



AT Solenoid valves with KTW drinking water certification T and L Series Solenoid valves for liquid media



PSH, PTH, PTS, PSHD, PTHD and PST Electronic pressure switches, differential pressure switches, pressure transmitters and differential pressure transmitters

Ventilation and Air Conditioning

In air conditioning and ventilation systems, blowers and filters are monitored by measuring the differential pressure. Using differential pressure switches, it is possible to, e.g., transmit readings to a central control unit as soon as the filter has attained a specified degree of con-

tamination. Differential pressure switches can be employed both for the continuous monitoring of filters and the control of pressure differentials between rooms or zones. Frost protection thermostats protect against freezing and flow sensors provide information on the condition and

performance of blowers. Explosion-protected thermostats are available for simple temperature control in storage rooms and industrial processing systems.



PSH, PTH, PTS, PSHD, PTHD and PST Electronic pressure switches, differential pressure switches, pressure transmitters and differential pressure transmitters



KSW, KSL, S6040 and S6065 Mechanical and electronic flow monitors



KF, ALF, STF and TF, H6045, H6120 Temperature sensors and thermostats



DPTM, DPS Differential pressure transmitters and differential pressure switches for air and waste gases



T69, TRM, TX and T6120 Frost protection thermostats, room thermostats, and rod-type thermostats

Transportation

In ships and diesel locomotives, but also carnival rides (e.g., roller coasters), pressures and temperatures must be monitored. Thus, pressure switches and transmitters can be used to monitor shafts, the tank level, as well as the

hydraulic and pneumatic control. Coolants in electrical generators and auxiliary systems must be monitored. Bilge pumps, hydraulic lifts, pumps, and freshwater tanks must be monitored on the pressure side. Certified pressure

monitors are used in particular to monitor the brakes in carnival rides.



Components of air conditioning systems provide information for control technology. The contamination of filters and the smooth functioning of ventilation systems must be monitored. Certified pressure switches monitor waste gas plants. Thermostats are employed for the temperature regulation of storage facilities and machine rooms.



KSW, KSL, S6040 and S6065 Mechanical and electronic flow monitors



HCD Differential pressure monitor for flammable gases



PSH, PTH, PTS, PSHD, PTHD and PST Electronic pressure switches, differential pressure switches, pressure transmitters and differential pressure transmitters



DPTM and DPS Differential pressure transmitters and differential pressure switches for air and waste gases



KF, ALF, STF and TF Temperature sensors



DCM, DNS, DWR, DGM and Ex-DWR Pressure monitors for steam, hot water and gases

Manufacturing Facilities and Machine Construction

Sensors and pressure switches play an important part in the control of machines and plants. Seal-less sensors with welded seams – available in completely stainless steel versions, too – allow use with virtually all media. Pressure switches and pressure transmitters suitable

for use in low pressure, vacuum and differential pressure areas are to be recommended in monitoring filters, pumps and filling levels. An optional configuration device enables transmitters to be easily programmed on site. Additional areas of application for our pressure switches are

to be found in pneumatic and hydraulic control systems as well as in supplying compressed air.



Extremely reliable pressure monitors and pressure limiters with TÜV-certified components classified according to SIL2/3 are available for applications in safety areas. In explosion-areas, Ex-de and Ex-i equipped devices provide a high level of safety for machines and plants.



KSW, KSL, S6040 and S6065 Mechanical and electronic flow monitors



DCM, VNM, DNS and DDCM Pressure and differential pressure switches (also available in Ex-de versions)



P, STF and TST Temperature sensors



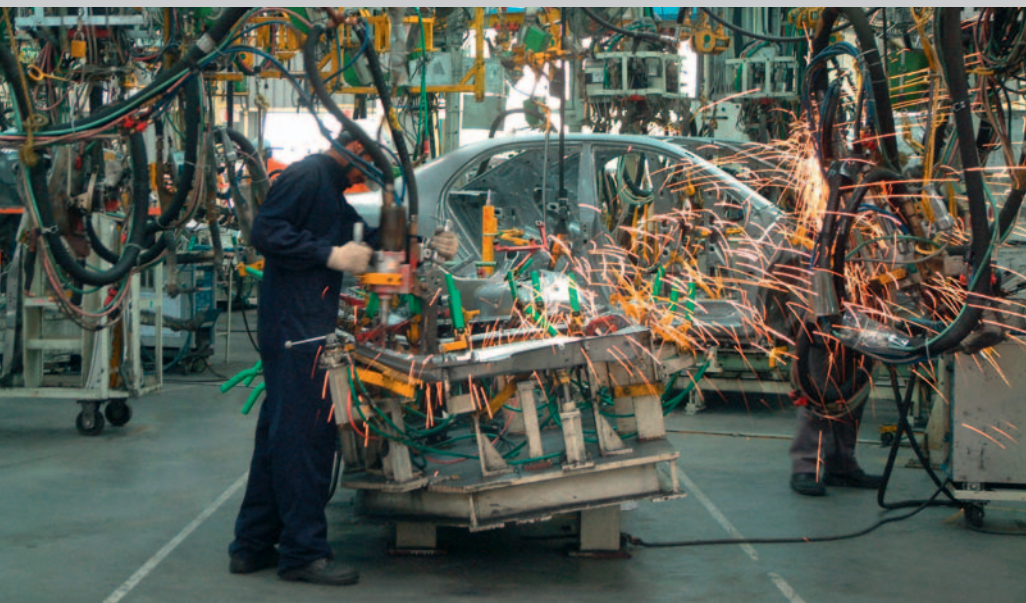
Electronic pressure switches, differential pressure switches, pressure transmitters and differential pressure transmitters PSH, PTH, PTS, PSHD, PTHD, CFT1 Configuration interfaces

Welding and Painting Systems

Welding and soldering equipment are essential in the manufacture of mass-produced technical articles. Automated gas burners are employed to shape glass components. Electronic pressure switches and transmitters, as well as TÜV-certified magnetic valves are used

to control and regulate the flow of gases. FEMA Ex-proof pressure switches are used in with explosion risk areas. FD Pressure switches are suitable for monitoring liquid gas applications. VCM and Ex-VCM can be used to switch off vacuum pumps. Solenoid valves are used to

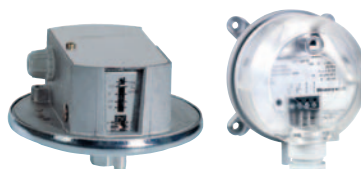
control the flow of gases and fuels as well as to regulate cooling water systems.



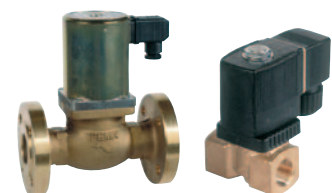
Additional areas of application for FEMA pressure switches and pressure monitors, as well as flow monitors are found in the manufacture of chips, handling devices, regulating compressors, measuring flows and pressures in dyeing plants and wastewater treatment plants, as well as in registering pressures in turbine test benches and paint shops.



PSH, PTH, PTS, PSHD, PTHD and PST Electronic pressure switches, differential pressure switches, pressure transmitters and differential pressure transmitters



HCD, DPT, DPS Differential pressure switches and transmitters for gases, air and exhaust gases



T, K and L as well as AB, AT and AV Solenoid valves



KSW, KSL, S6040 and S6065 Mechanical and electronic flow monitors



DCM, DDCM, Ex-DCM and Ex-DDM Pressure and differential pressure switches, pressure monitors and pressure limiters DWR, Ex-DWR, DGM, Ex-DGM, VCM, Ex-VCM and FD

Ex-proof Applications



Installations, in which explosive gases or dust mixtures can occasionally appear, must be assessed and divided into zones according to the 1999/92/EC ATEX Directive. The resultant explosion-protection document represents the basis for determining what explosion-

protected components are needed. Such installation components are planned and manufactured according to 94/9/EC ATEX. The suitability of such components for corresponding zones must be verified by means of sample testing. The quality of the equipment is

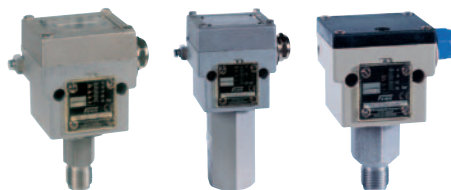
ensured by means of an audited Quality Management System as well as annual ATEX-specific internal and external audits.



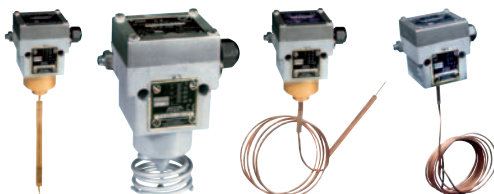
For explosion-relevant areas, FEMA has a number of pressure switches, thermostats and magnetic valves featuring ignition protection by means of flameproof enclosure. For the Ex-i area, various different pressure switch product lines equipped with gold contact and Ex-i are available under the heading "Simple Electrical Apparatus."



Ex-proof solenoid valves K...- and T...-series



Ex-DCM, Ex-DWR, Ex-DDCM, DCM, DWR...-513, -574, -575, -576 and -577 Ex-pressure and differential pressure switches



Ex-TX, Ex-TRM, Ex-TAM and Ex-FT Ex-proof thermostats

Safety Applications as per the Pressure and Gas Appliance Directives

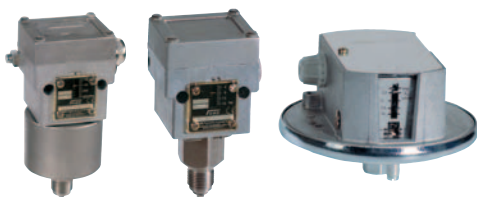
The safety of installations for the generation of steam, burnable gases and liquids is ensured by means of various forms of instrumentation. The monitoring of fuel supply and the pressure monitoring of the steam generator must be performed using devices certified according to the

Pressure Equipment Directive or the Gas Appliance Directive. Pressure monitors and pressure limiters for steam plants conforming to TRD 604 and for hot water boilers according to DIN 4751 part 2 are safety-relevant components and are thus classified in category 4 of the

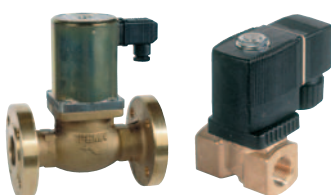
Pressure Equipment Directive. FEMA pressure monitors and limiters are certified according to Vd-TÜV Druck100/1 and DIN 3398, part 1,2 and 3.



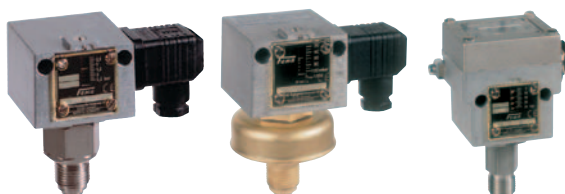
Pressure monitors for gases according to DVGW worksheet G260 are manufactured according to the specifications of the Pressure Equipment Directive 90/396/EEC and DIN 3398, parts 1 and 3, as well as according to DIN EN 1854. Honeywell FEMA has tailor-made products for a wide variety of applications. Ex-proof models are available for installations in which explosive gas mixtures can arise in the proximity of pressure equipment. For Ex-relevant areas, FEMA offers a number of Ex-proof models.



DGM, Ex-DGM, FD and HCD Pressure monitors for flammable gases and liquid gases



K 15G... and K15..., G-Ex, L15G... and AV Solenoid valves for gases, liquid fuels, steam and hot water



DWR, DWAM, SDBAM, DGM, FD, Ex-DWR and Ex-DGM, DWR...-513, -574, -575, -576 and -577 Pressure monitors and pressure limiters

Safety Applications as per IEC 61508

In process plants, besides ensuring process safety by means of process instrumentation, it is also necessary to enact measures to provide for the safety of the plant, itself. Above all else, design measures should guarantee basic safety. Additionally, alarm plans, protective shelters, and fire extinguishing systems are

required to ensure the safety of personnel. Another important measure is reducing dwelling time in dangerous areas. Once all of these measures have been implemented, the entire installation is subjected to a risk assessment using a risk graph as per IEC 61511. The result of this assessment determines the necessary SIL value for

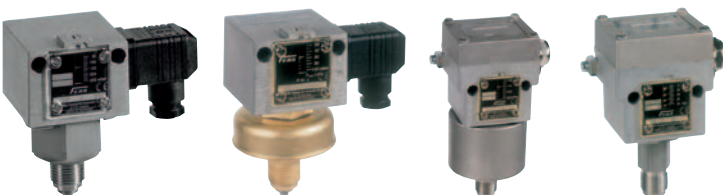
remaining actions ensuring 100% functional safety. This protective technology must employ SIL-conform equipment.



That is the usual procedure in the field of chemical engineering. Due to calculable risks, this principle of minimization is now acquiring greater currency in other areas of technology, as well, including in the area of machine construction as per IEC 62061 and combustion plants according to IEC 50156. The following FEMA pressure transmitters and pressure monitors can be used for safety instrumentation according to IEC 61508.



PTH... and PSH 2-wire Pressure transmitters



DWR, DWAM, SDBAM, DGM, FD, Ex-DWR, Ex-DGM, DWR...-513, -574, -575, -576 and -577 Pressure monitors and pressure limiters



General Information ...

... about FEMA services

Besides offering products for various applications, we provide a well sorted system of accessories to adapt our portfolio of pressure- and temperature measuring equipment to many different application situations.

Chemical seals ZFV can be mounted on pressure switches and transmitters to measure pressure in critical media. Furthermore different service functions can be offered, as such as pre-setting of

switchpoints, sealing / plumbing, marking on customer request or cleaning free of oil- and grease for oxygen and gas applications.

Optional gold contacts, as well as combinability with different housings and surface coating for rough environment support adaption of our products to various application scenarios.

Last but not least we provide test reports and inspection certificates according to EN 10204.

Honeywell GmbH

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