

PRR

SIGNALS THE BEST

Chemical Industry

Strong signal conditioning catalyzes the process

**Chemical
Petrochemical
Pharmaceutical**



Reliability

creates good chemistry

» *Signal conditioning devices from PR electronics have a solid foothold in standard, I.S. and SIL 2 installations all over the world. In this folder you can find out why chemical, petrochemical and pharmaceutical companies think "PR" when it comes to addressing their signal conditioning needs. The key words are efficiency and safety.*



Your stable chemical partner

Our daily contact with customers ensures that we have our finger on the pulse of the wide range of industries relying on chemical processes in their production. This close contact and our 35 years of experience within signal conditioning mean that devices from PR electronics are tailor-made to suit the needs of the industries. And because we are in charge of all development and production and have opted not to outsource, we are in complete control of quality. The quality of our products constantly opens new doors as does our approach to customer service: Rapid delivery, 5 years' guarantee and free, competent advise before and after sales are a matter of course when you do business with us.



This is why industries react well with us

Reliability, flexibility and user-friendliness are the key words in PR electronics' product range, and on the world market we are known for our outstanding signal conditioning devices at attractive prices. We are able to combine these opposites because of our state-of-the-art production facilities, strong bargaining power (we purchase 100 mio. components per year) and the fact that every step from product development over production to test is carried out at our Danish headquarters.

We are close by

A network of sales subsidiaries and distributors ensures global access to PR electronics' wide range of analog and digital signal conditioning devices.

The product range offers:

- Temperature transmitters, universal devices, isolators, I.S. interfaces, displays and much more.
- Programmable devices with universal power supply and universal input and up to four independent relays for process surveillance and control.
- The I.S. approvals IECEx, ATEX, CSA, FM, GOST and UL.
- SIL 2-certified devices (Full Assessment according to IEC 61508).
- Uniquely high galvanic isolation (3.75 kVAC) and EMC immunity.
- Vibration-tested devices with DNV marine approval.
- Easy configuration via front display or PC.
- Alarms in case of cable and sensor errors.
- Individually tested devices with a 5-year guarantee.
- Protocols: 4...20 mA, HART®, PROFIBUS® and FOUNDATION™ Fieldbus.
- Competitive prices.

Wide I.S. expertise

Our complete I.S. range complies with the strictest safety requirements and includes I.S. interfaces, 2-wire transmitters, displays, bus and HART® transmitters with one or more of the approvals IECEx, ATEX, CSA, FM, GOST and UL. All I.S. interfaces from PR electronics are intrinsically safe isolation barriers that - in contrast to Zener barriers - ensure low installation costs (no grounding necessary), maintenance-free operation and the prevention of ground loops and asymmetrical noise effects.

Outstanding SIL 2 devices

Worldwide, only a small number of electronics manufacturers have been certified as developers of signal conditioning devices for SIL 2 applications in accordance with the Functional Safety standard IEC 61508. Not only has PR electronics achieved this certification, but we are one of the first in the industry to develop SIL 2 devices using the most comprehensive methodology - Full Assessment. This comprehensive safety concept is carefully planned and integrated into the product's construction from the very start, and both the products and the development process are certified according to IEC 61508 by an impartial third party, (exida). These signal conditioning devices have a longer proof test interval, better internal diagnostics, better EMC specifications and less loading of their critical components, (66%), than competing products, which are typically approved via less stringent "Proven-in-use" or Hardware Assessment methodologies.

Green production of red devices

PR electronics' production is 100% lead-free, and we were one of the first companies in the business to comply with the RoHS directive aiming to protect the environment.



» PR electronics' product range is tailor-made for the numerous signal types used in industrial processes and the varied demands regarding supply voltage, communications protocols and special functions. We have the devices you can rely on even in tough operational environments with electrical noise, vibrations, temperature fluctuations etc. In addition to the products described in these pages, we also manufacture pulse / frequency devices, limit switches, power supplies and devices for special functions.



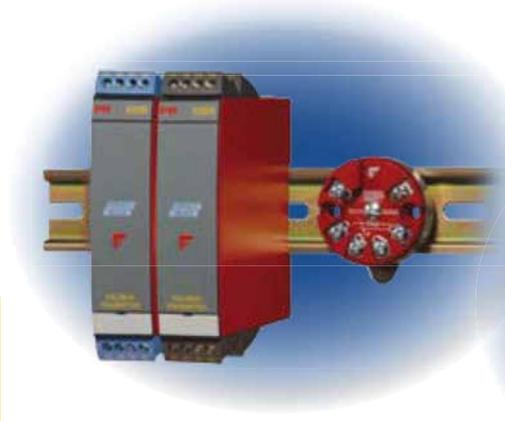
Temperature transmitters

The product range covers all conversion of RTD and TC sensor signals to analog, HART® and bus communication. Our assortment of transmitters for head-mounting, DIN rail and 11-pole socket mounting offers features such as automatic switching between PROFIBUS® PA and FOUNDATION™ Fieldbus, fast response times, RTD cable compensation, automatic CJC, auto-calibration, sensor error detection and complete programmability.



Universal transmitters

Universally supplied multipurpose devices for a wide variety of industrial signals. The product range covers signal isolation, conversion, scaling, amplification, surveillance and control. These transmitters are easily configured via PC or with the model 4501 detachable display which features scrolling help text in seven languages. The front display can copy the configuration to other devices, show process and output values and gives access to numerous advanced functions.



» A market leader in:

- Spare parts costs
- Operating costs
- Process costs
- Service
- Safety

And no. 1 when it comes to life cycle costs.

Red process



I.S. interfaces

Our I.S. interfaces are connected between the sensors/field equipment mounted in the process and the major control system, and the product range complies with the strictest requirements for measurements in areas with flammable gas and dust. Because of product features such as universal input, universal power supply, complete programmability, relays, etc., we can offer a wide and user-friendly I.S. interface range for nearly every application, involving analog, digital or HART® signals. Our I.S. interfaces have the approvals you need, such as IECEx, ATEX, FM, GOST and UL which means the I.S. interfaces from PR electronics can be used all over the world.



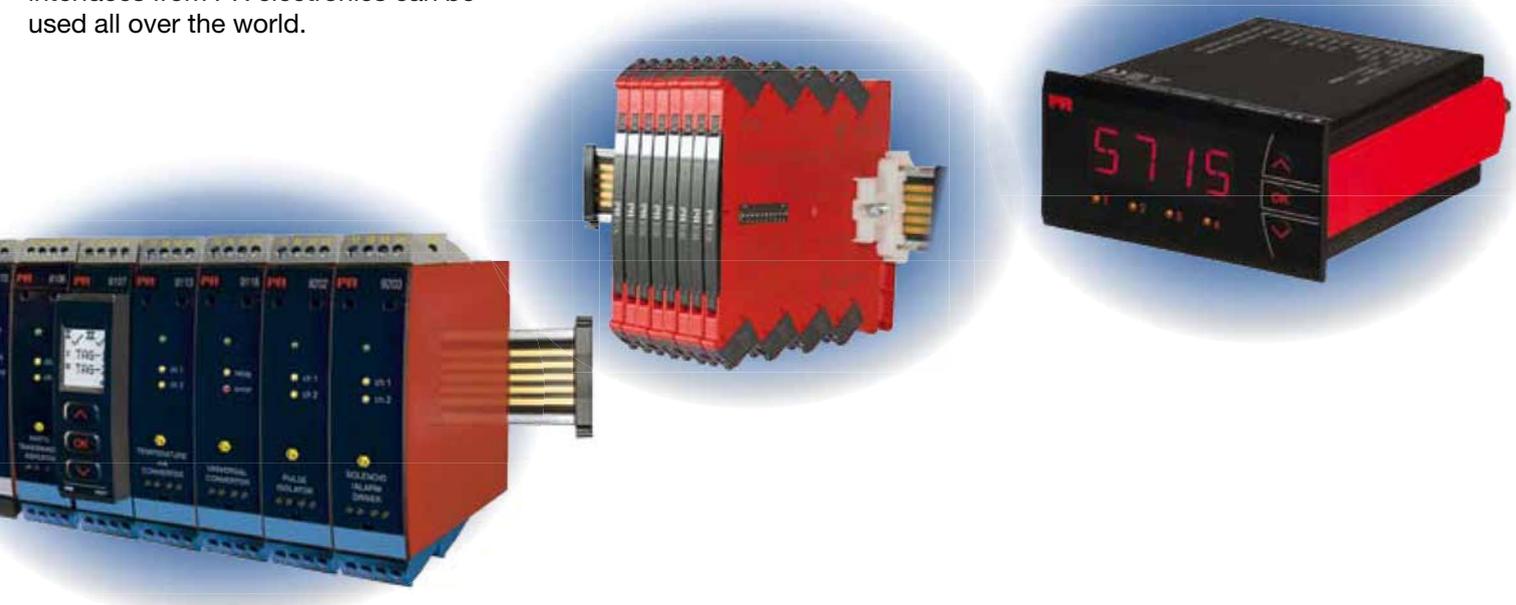
Signal isolators

This product range covers all signal isolation, involving analog, digital or HART® signals. The range includes loop-powered and 4-wire style isolators that mount on DIN rail or plug into an 11-pole socket. The majority of our isolators have an extremely high isolation level of up to 3.75 kVAC and exceptional EMC immunity. Our isolators are typically used for galvanic isolation, signal conversion, elimination of ground loops, scaling of process values, potential separation and noise filtration.



Displays

Besides visualizing numerous kinds of process measurements, several of our displays are capable of controlling complex process sequences via an analog output and up to four potential-free relays. The broad applicability of our displays is also due to features such as universal power supply, easy push button programming and the possibility of multipoint linearization, offset, special input ranges and advanced relay settings like on/off delay and sensor error action.



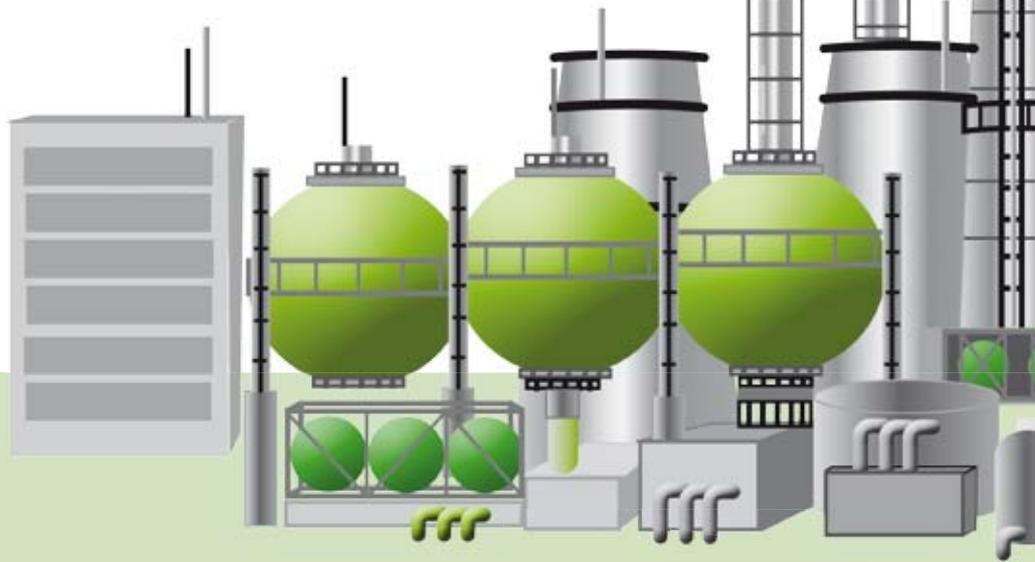
promoters

Chemical industry

» Every drop counts...

Signal conditioning in the chemical industry is largely a matter of reducing process costs as many chemicals require special manufacturing processes where every drop counts.

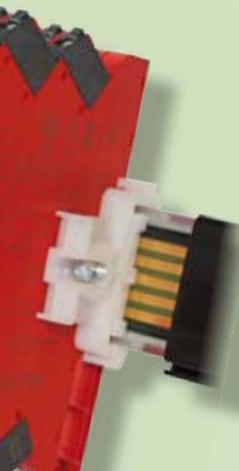
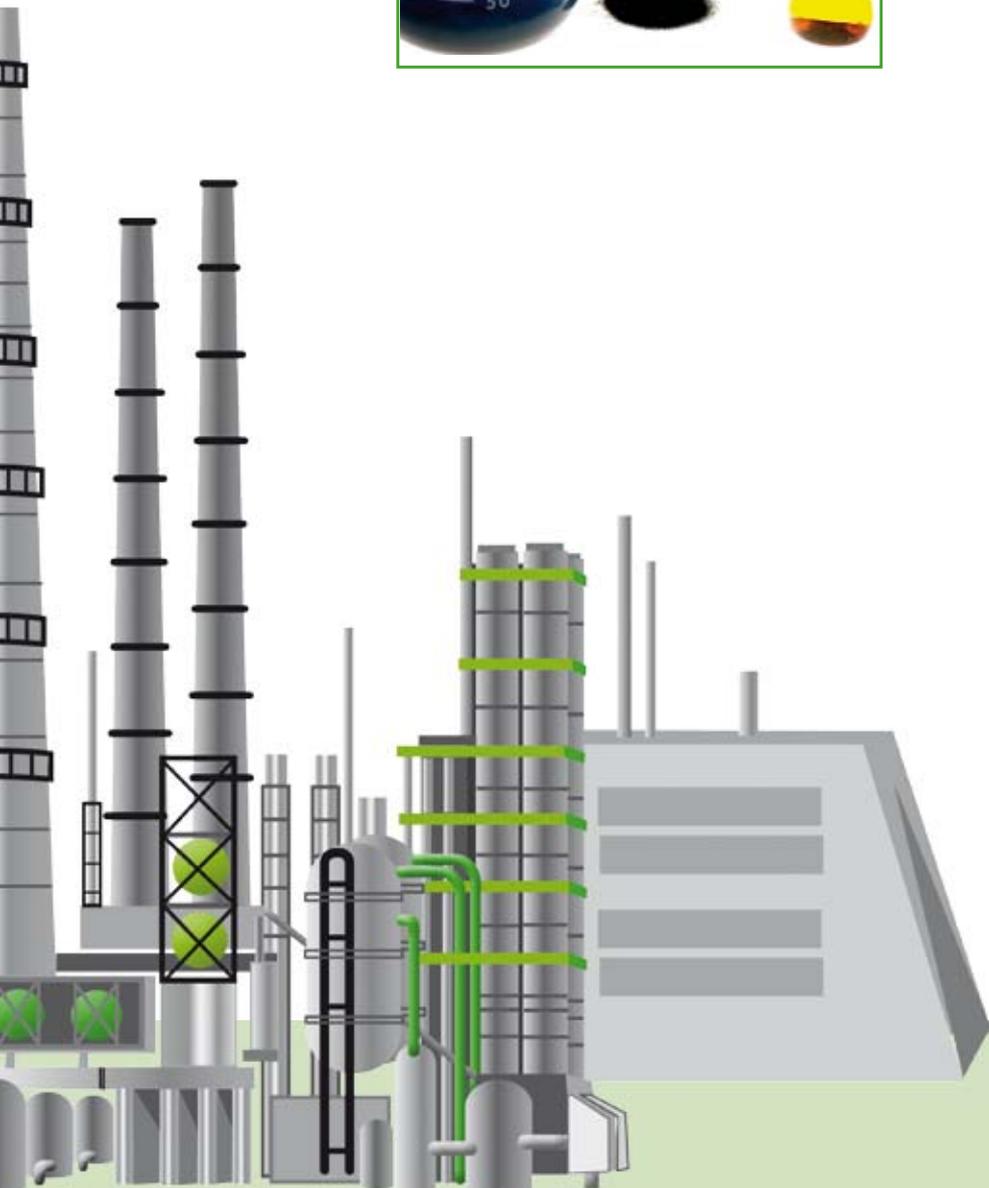
Accuracy, long term stability and response time have been optimized to the limits of current technology. In System 3100, our latest series of signal isolation devices, we have raised the bar and are now – the only supplier in the market – able to offer an accuracy below $\pm 0.05\%$.



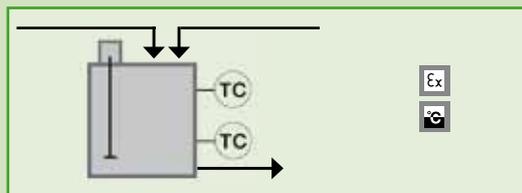
» *The isolation devices in the 3100 series have set new standards for accuracy, as most of the units feature an accuracy below $\pm 0.05\%$.*

Furthermore, this series has been designed with a response time of less than 7 ms and is approved for installation in demanding environments where vibrations, temperature fluctuations and varying supply voltages are everyday challenges.





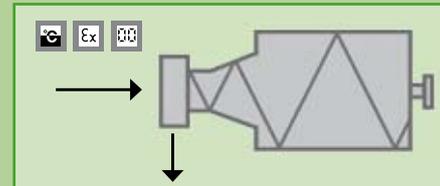
CHEMICAL MIXING STATION



Signal splitter (1 input & 2 outputs) of temperature signals to Emerson Delta V SIS system with output signals to main PLC and safety PLC. The temperature probe is connected to the DIN-rail device **6335D** which transmits the signal through HART® repeater **5106B**. Level control in the mixing tank with pulse isolator **5202B2** connected to min./max. level detectors and solenoid driver **5203B**.

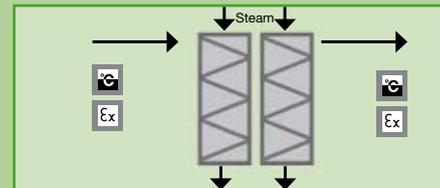


SEPARATION PROCESS



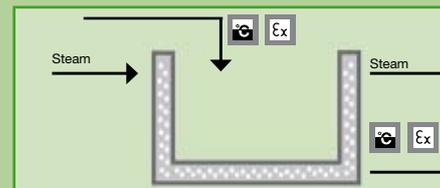
Monitoring and display of rotational speed on decanters and separators with programmable f/i-f/f converter **5223B** and isolated driver **5105B**. Speed is displayed on **5531B2**.

HEAT EXCHANGER



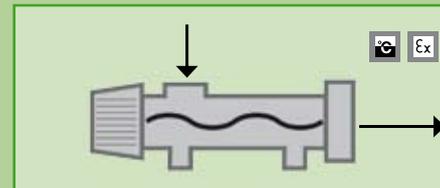
Measurement of temperature after the heat exchanger for regulation of steam pipe with 2-wire temperature transmitter **5331D** and Ex repeater **5104B**.

BOILER



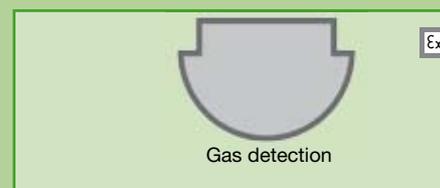
Measurement of cleaning water temperature with 2-wire temperature transmitter **5335D** and Ex repeater **5106B**. 5335D features AMS diagnostics with HART® transparent communication.

PUMP DIAGNOSTICS



Measurement of stator temperature, bearing temperature and gear box temperature with PROFIBUS transmitters **5350B** and **6350B**.

GAS DETECTION SYSTEM



Measurement of gas leakage with SIL 2-certified universal converter **9116B**. An increased focus on safety has also increased the requirement for MTBF calculations and documentation according to IEC61508.

Petrochemical industry

» PR electronics' I.S. interface range includes the 5000 series, programmable via PC or DIP-switches, and the 9000 series, the latest addition to our product family, configurable via the detachable programming front 4501.



FILLING OF TANKER TRUCK



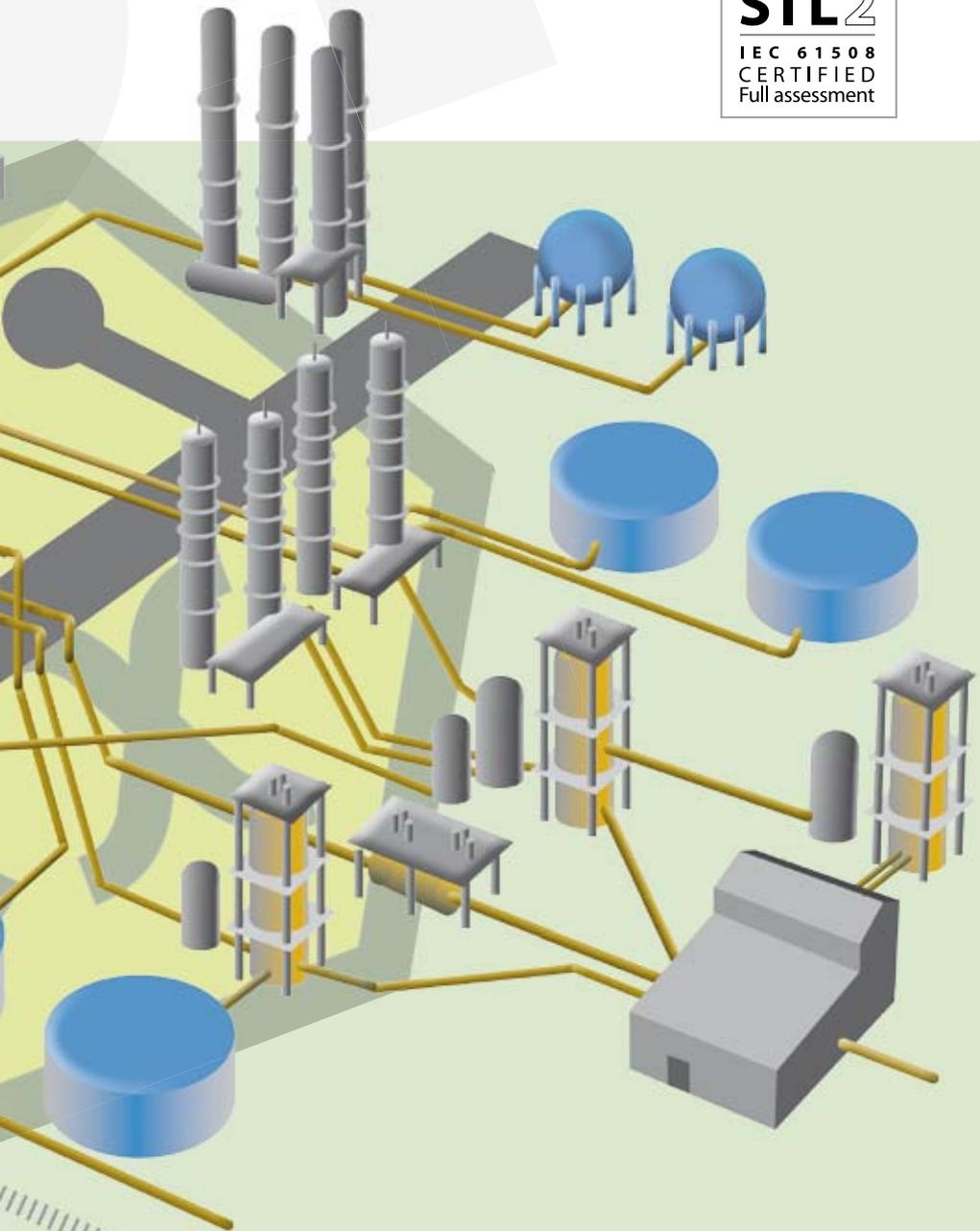
Ex

Measurement of flow at filling station with pulse isolator **9202B**.

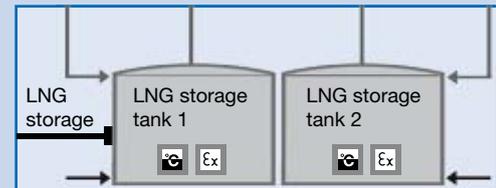
We do not compromise...

Safety, safety and safety are the three most important terms in the petrochemical industry. PR's latest I.S. interface product range - System 9000 - has set the standard in the market. Naturally, the rest of our I.S. interfaces also meet the safety requirements.

A number of worldwide approvals make PR's devices the safe and uncompromising choice. PR electronics was among the pioneers to obtain ATEX and IECEx company certifications and in 2008, we were certified according to IEC 61508 as a developer of devices for SIL 2 applications ... one of the first electronics companies in the world to earn this certification.

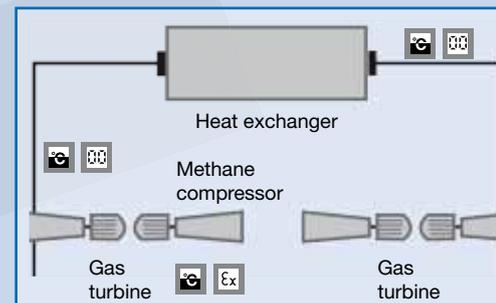


LNG STORAGE TANKS



Measurement of level with universal converter **9116B** and 2-wire programmable temperature transmitter **5334B**.

COMPRESSOR STATIONS

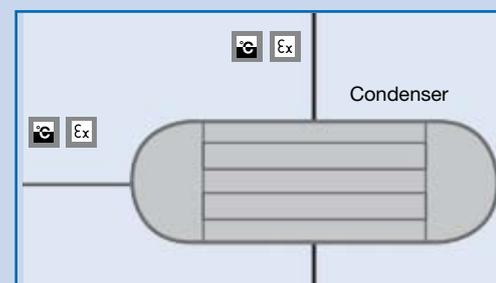


Measurement of pressure before and after the compressor station with HART® transparent repeater **9106**.

Measurement of gas temperature, gas chromatography, gas flow and gas pressure with universal converter **9116B** and 2-wire programmable temperature transmitter **5333D**.

Display **5531B2** for visualization of gas temperature, gas chromatography, gas flow and gas pressure; decentralized installation at the gas pipe.

CONDENSER STATIONS

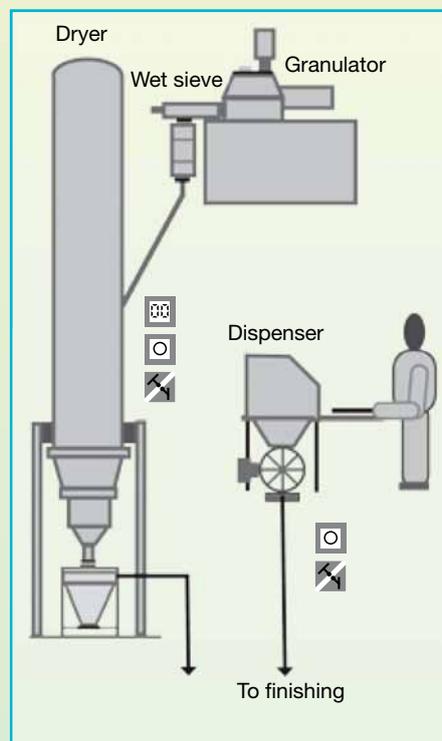
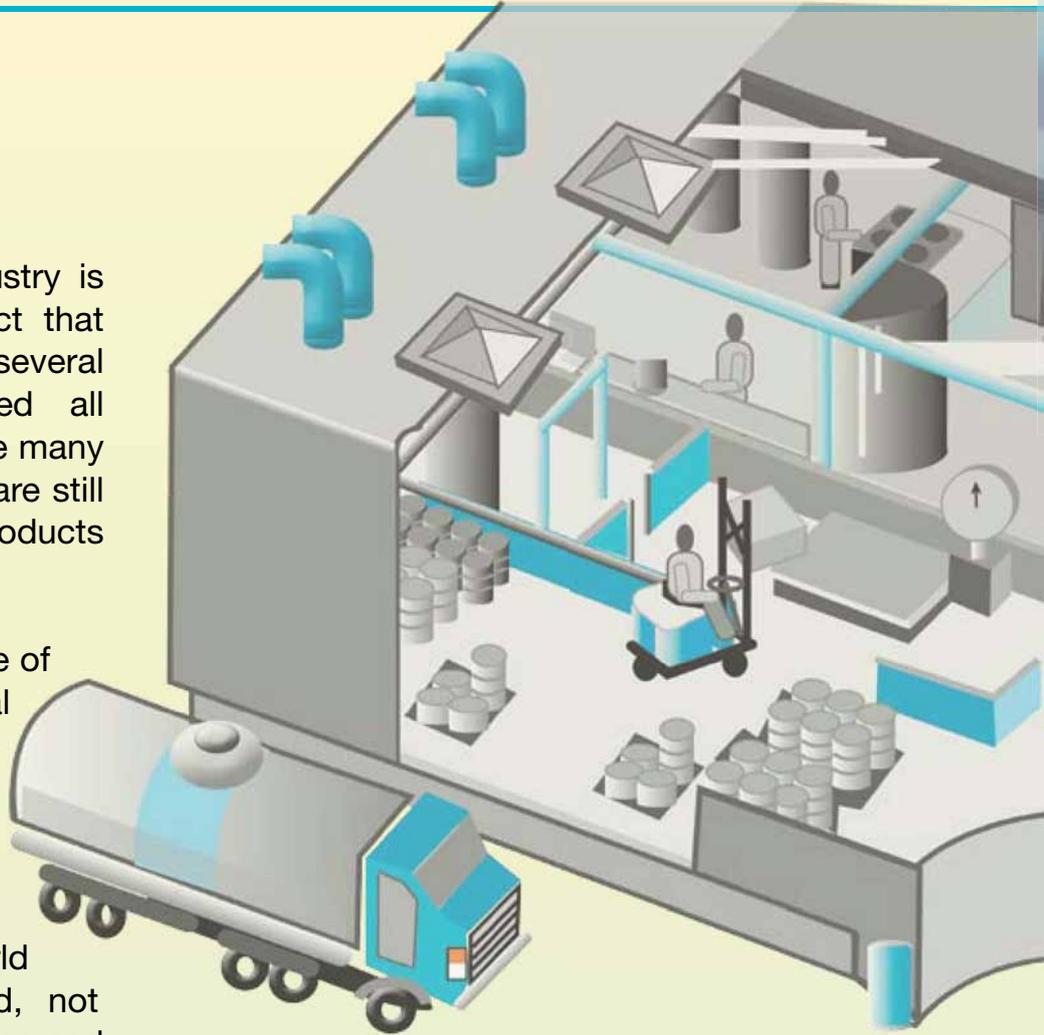


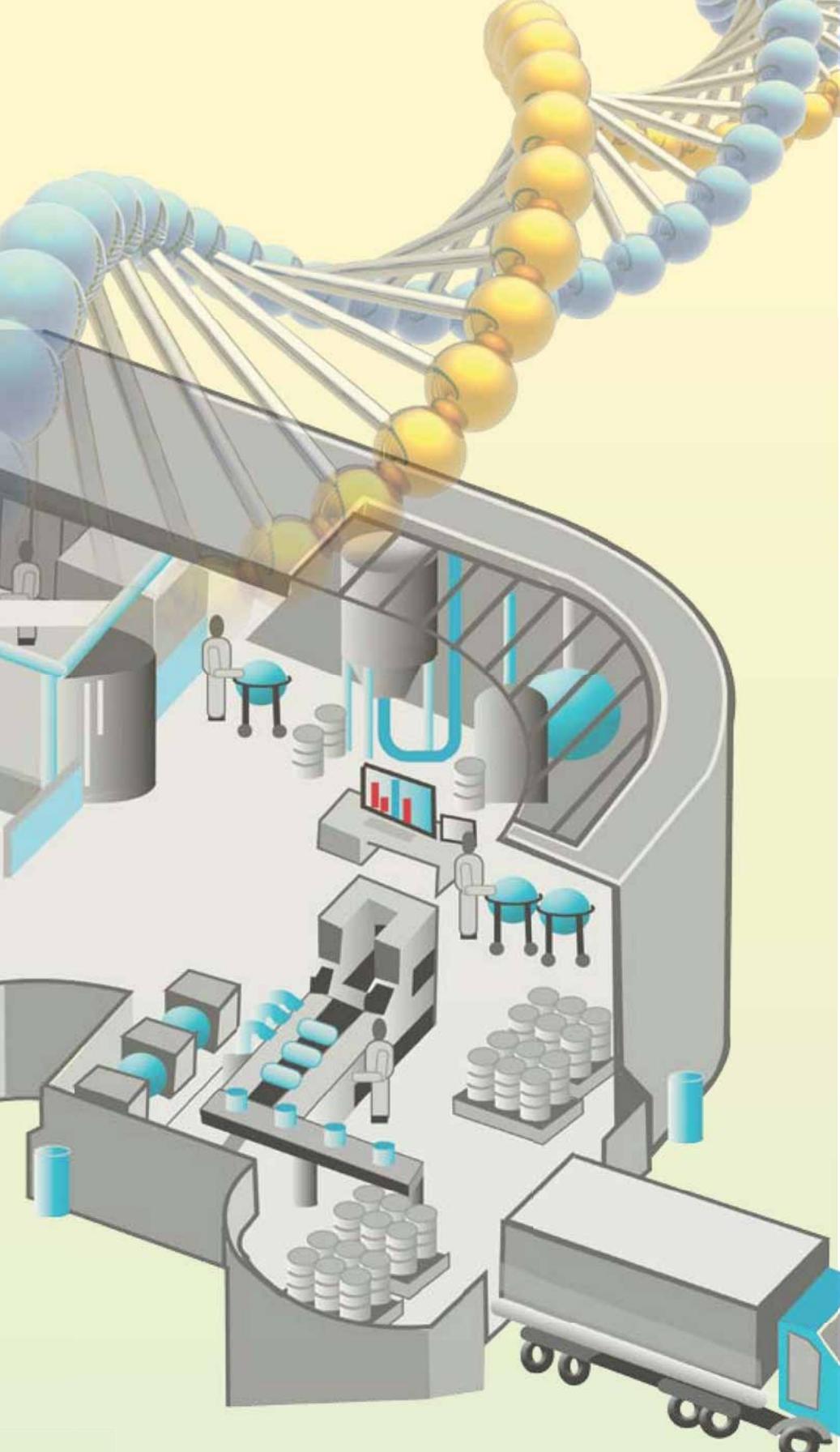
Measurement of gas temperature, gas chromatography, gas flow and gas pressure with universal converter **9116B** and 2-wire programmable temperature transmitter **5331D**.

Pharmaceutical industry

» The pharmaceutical industry is characterized by the fact that many large groups have several production units located all around the world. Despite many different operators, they are still able to manufacture products with a uniform quality.

PR is the preferred choice of the largest pharmaceutical companies as a strategic partner. One of the reasons is that we are able to provide the same high level of service no matter where in the world the company is located, not least owing to our widespread sales & service network which is represented in more than 55 countries.

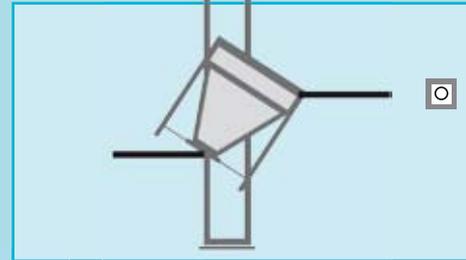




» *User-friendliness is of vital importance to PR electronics. With the universal devices in the 4000 series we have made operation simple and logical, and at the same time we offer you a built-in diagnostic tool ensuring quick and efficient troubleshooting in the process.*

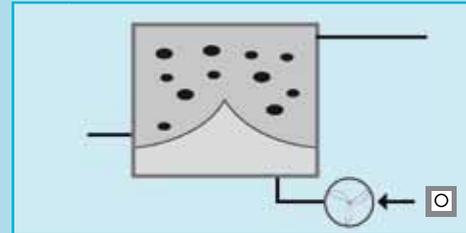


MIXING



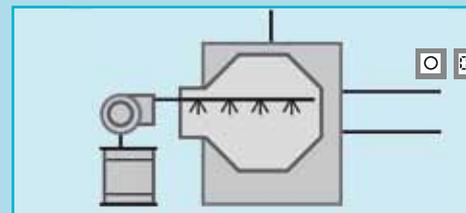
I/f conversion of analog signals from feed pump with I/f converter **4222**.

PELLETIZING



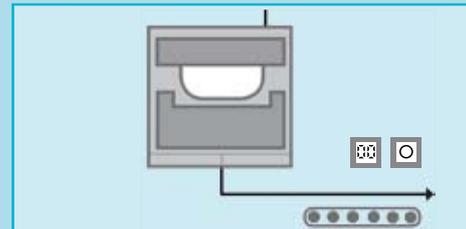
Flow - signal isolation with universal transmitter **4114** or isolated converter **3104**.

COATING



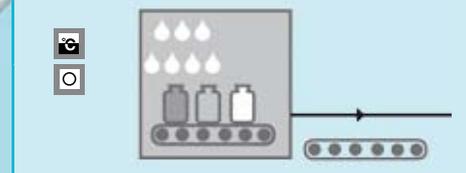
Display of pressure and monitoring of spray pressure - e.g. with display **5714** or universal transmitter **4114 / 4116**.

BLISTER PACKING



Temperature - local redundant readout and control of temperature with display **5715** (4 relays) or universal transmitter **4116** (2 relays).

WASHING AND DRYING



Wash water - measurement of temperature with transmitter **5331/4114**. Monitoring of speed with I/f converter **4222** via capacitive sensor. Drying - measurement of pressure, valve positions and temperature with universal transmitter **4116**. Gas analysis - linearized oxygen measurement with lambda sensor and universal transmitter **4116**.



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Chemical industry with PR electronics

PR electronics is one of the world's leading manufacturers of devices used in industrial signal conditioning and process control. Our solutions for the chemical industry are based on a thorough knowledge of the processes and demands of the industry combined with more than 35 years of experience in developing and manufacturing industrial instrumentation.

This is why PR electronics always ...
... **Signals the Best!**

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