



# Signal Isolation

The 5000 series

ADDING VALUE TO FACTORY AND PROCESS AUTOMATION



display



I.S. interface



isolation



temperature



universal

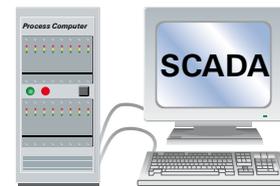
# The Process Industry's Problem Solver

Signal conditioning involving galvanic isolation is a craft which demands careful skill and which can save you a lot of time and much inconvenience when it is done professionally. During the past 30 years, PR electronics has specialized in signal isolation for the process industry and today we are considered one of the leaders in this field. Our product range is uncompromising in reliability and quality and you will experience both concrete and cost-saving advantages as we offer you:

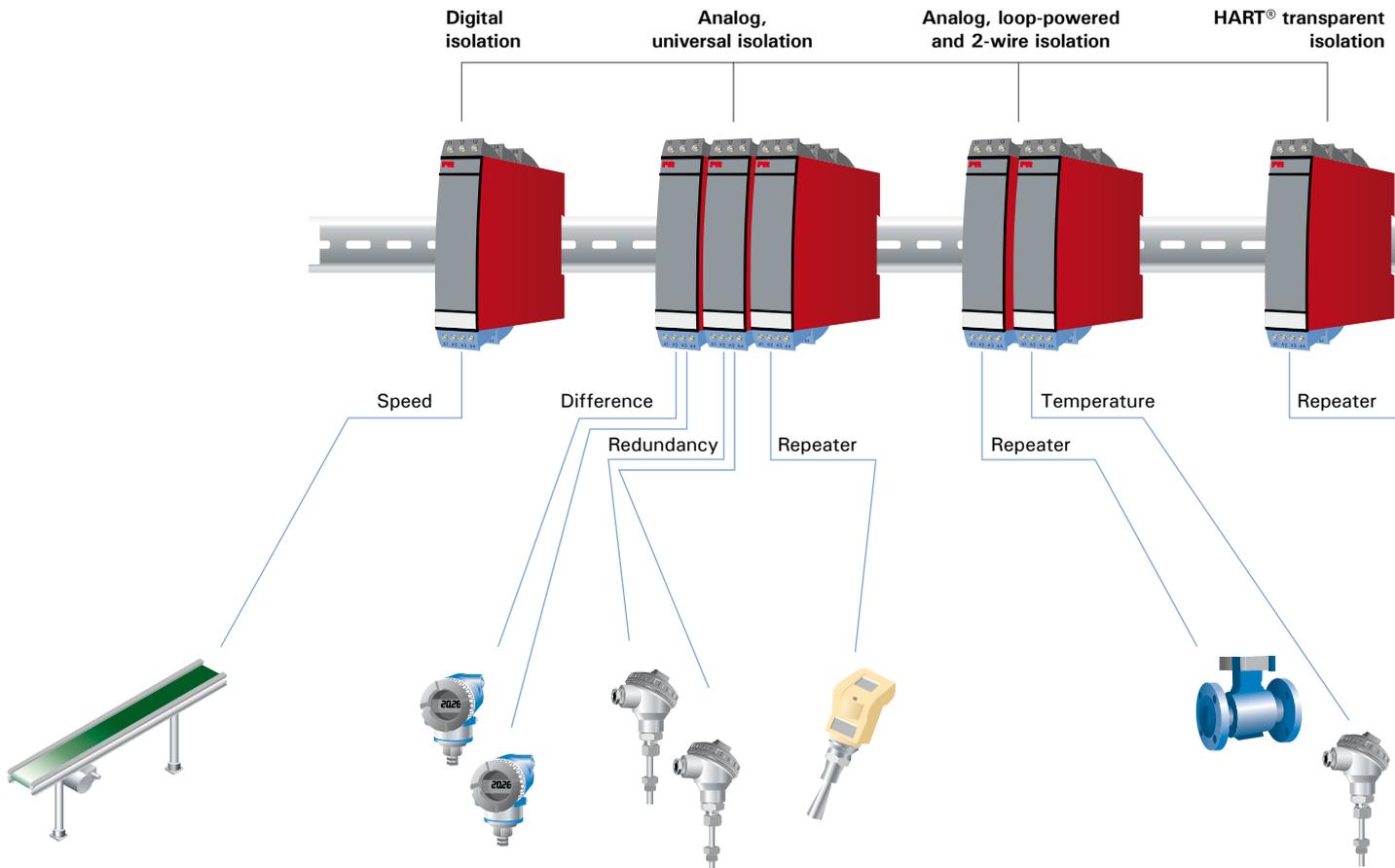
- A five-year guarantee for a reliable signal isolation minimizing the risk of operational stops and increasing productivity and efficiency.
- An active partner offering fast delivery as well as advice and service at a high level - always meeting your demands.

## A universal range of problem solvers

Our 5000 series is a complete range of signal isolators covering any form of signal isolation no matter the type of signal. Our isolator range handles separation of analog or digital signals or HART® signals.



PLC/DCS

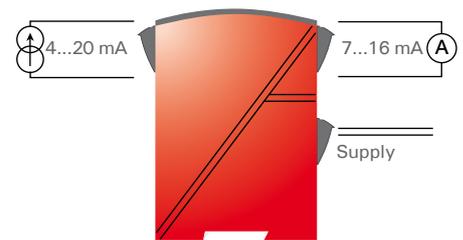


# Why Signal Isolation?

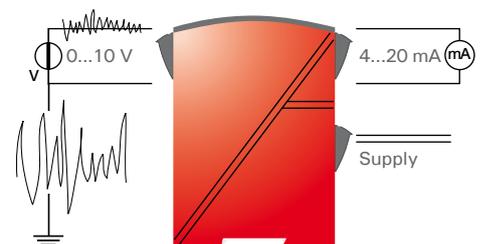
Signal isolation eliminates all forms of operating disturbances, whether the signal transmission in question runs from sensors/transmitters to PLCs or to DCS systems. The most common problems are:

- Signal adaptation
- Ground loop elimination
- Scaling of process values
- Potential separation
- Galvanic separation
- Noise filtration

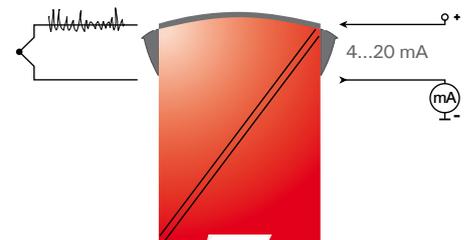
**Signal adaptation and scaling of process values:**  
The incoming signal is scaled/ adapted to suit the specific application.



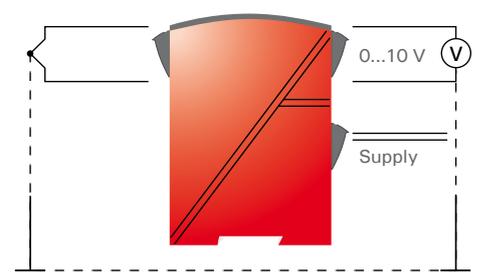
**Noise filtration:**  
Galvanic isolation of conducted noise ensures an accurate transmission of the signal.



**Electrostatic filtration:**  
Electrostatic charges typically occur in the plastics industry. When galvanic isolation is used, PLCs and SCADA systems are protected against breakdown.



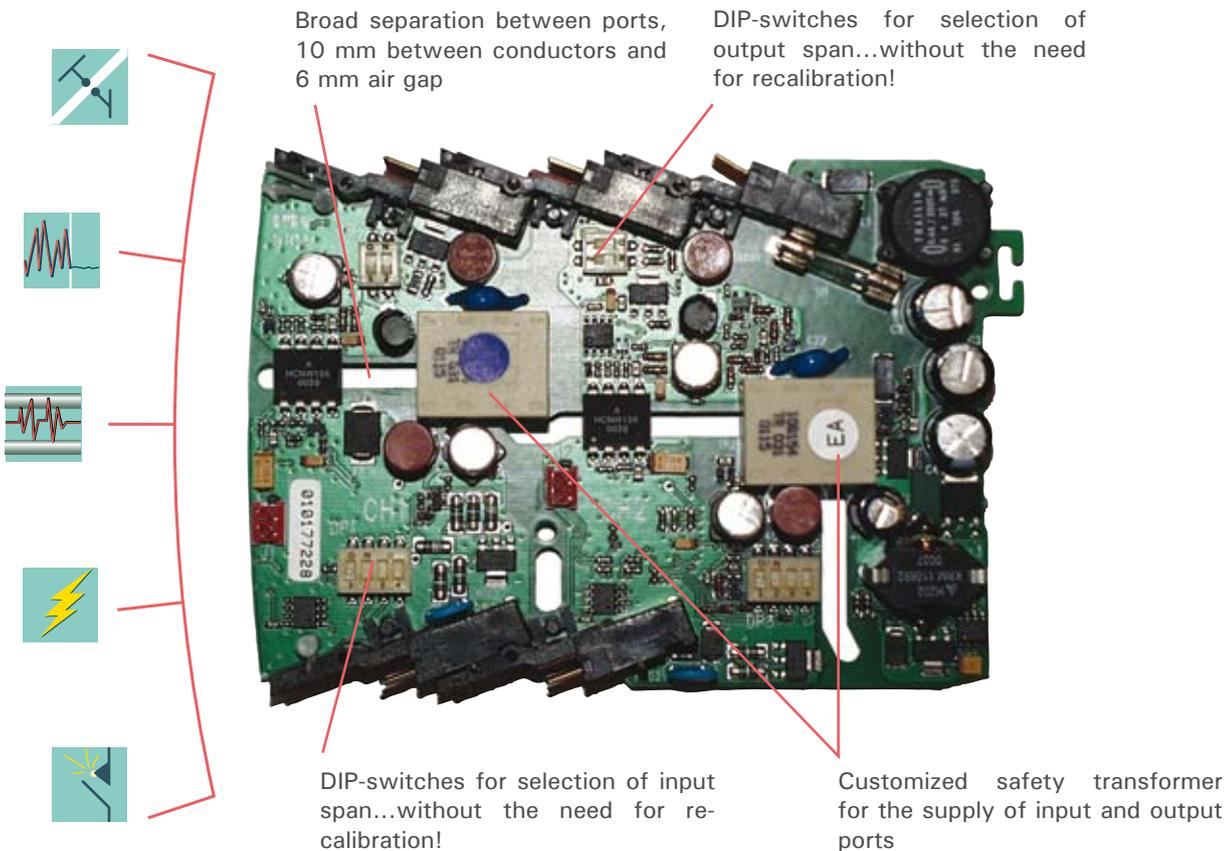
**Elimination of ground loops:**  
Elimination of ground loops ensures that faulty readings do not occur.



# Reliable Signal Conditioning with 3.75 kVAC Galv

It is our objective to deliver the most reliable isolators on the market and that this reliability shall hold true for all your applications - even the harshest of them, as reliability can be directly converted into cost-savings. How much does an hour's downtime in your process cost? And not least, how much inconvenience does it cause?

Operational reliability is achieved by efficiently protecting the module against outside disturbances. STREAM SHIELD is our patented technology providing the modules with a high basic accuracy and maximum protection against noise. The reliability is reflected in concrete product advantages assuring you of quality and stability - and we back that up with our five-year guarantee.



**PRetrans 5104 with DIP-switch configuration**



**An extremely high isolation voltage** allows you to protect your installation according to the requirements in the Low Voltage Directive. The majority of our isolators feature a uniquely high isolation voltage of 3.75 kVAC.

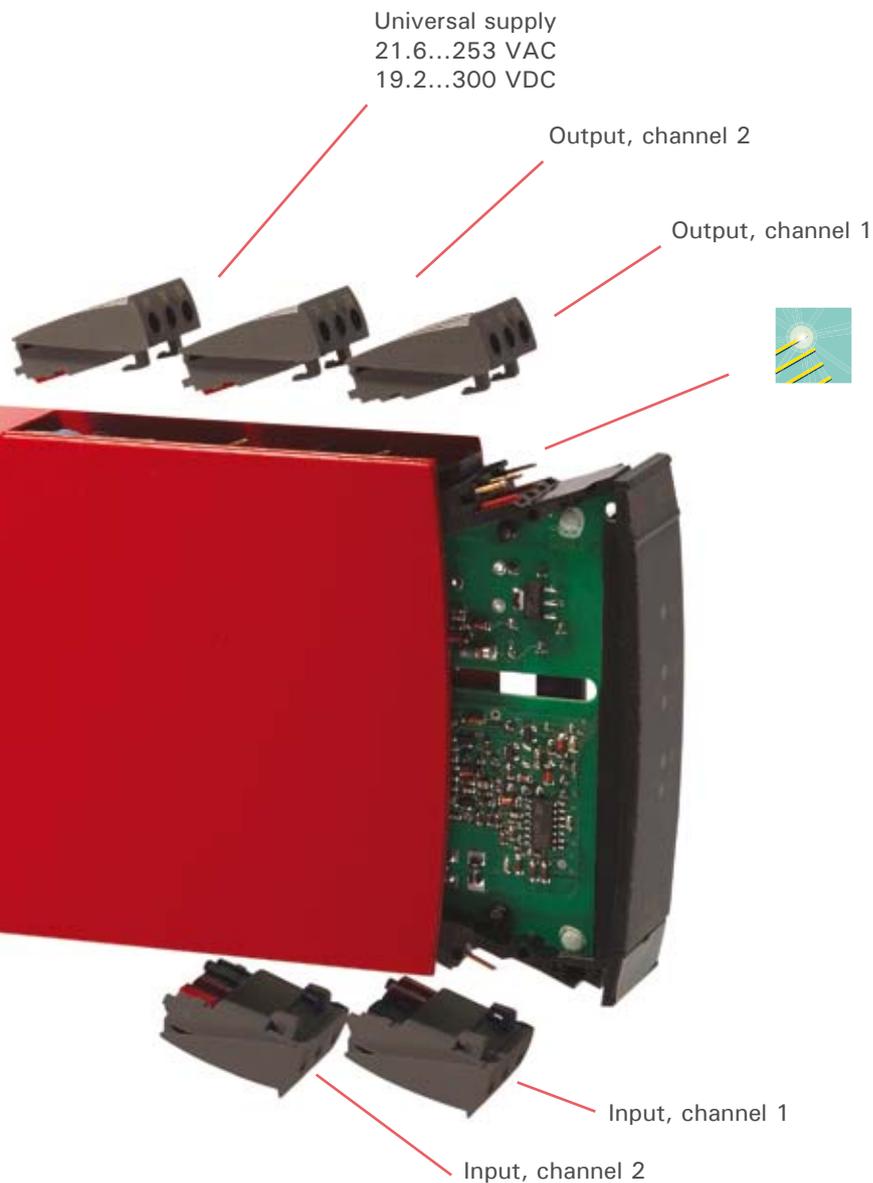


**A high signal / noise ratio** of typically 80-100 dB corresponding to a noise attenuation factor of 10,000–100,000.



**Robust and solid connectors** with gold-plated pins ensure operational reliability in even the most extreme situations.

# anic Isolation!



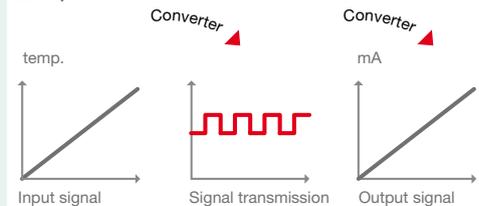
## STREAM SHIELD

... has been developed and patented by PR electronics. This technology acts as a shield and efficiently protects the signal against outside disturbances.

How does it work? It is simple, and yet complex. Here is the simple explanation:

A converter modulates the incoming signal to a stream of bits. Via a so-called phased-locked log-in filter the STREAM SHIELD technology protects the bits against outside disturbances, thus allowing the demodulated signal to be converted to an analog or a digital output signal with an extremely high degree of accuracy.

### Example



**High immunity to conducted noise:** This type of disturbance may come from frequency converters or switchmode power supplies. Our isolators are tested against 10 Vrms in the range 15 Hz-100 MHz, according to requirements from the marine industry among others.



**High immunity to energy-loaded transients:** The disturbance comes from e.g. contactors. Our isolators are surge-tested at a test voltage of up to 2 kV differential mode and up to 4 kV common mode.



**High immunity to burst noise:** Efficient protection against burst noise from e.g. relays. In order to ensure a reliable operation in areas exposed to a high degree of burst noise, we test our isolators at 2.5 kV for twelve hours. We easily meet the NAMUR NE 21 A criterion prescribing 2.0 kV for one minute.



## One Module for Active and Passive Signal Conditioning

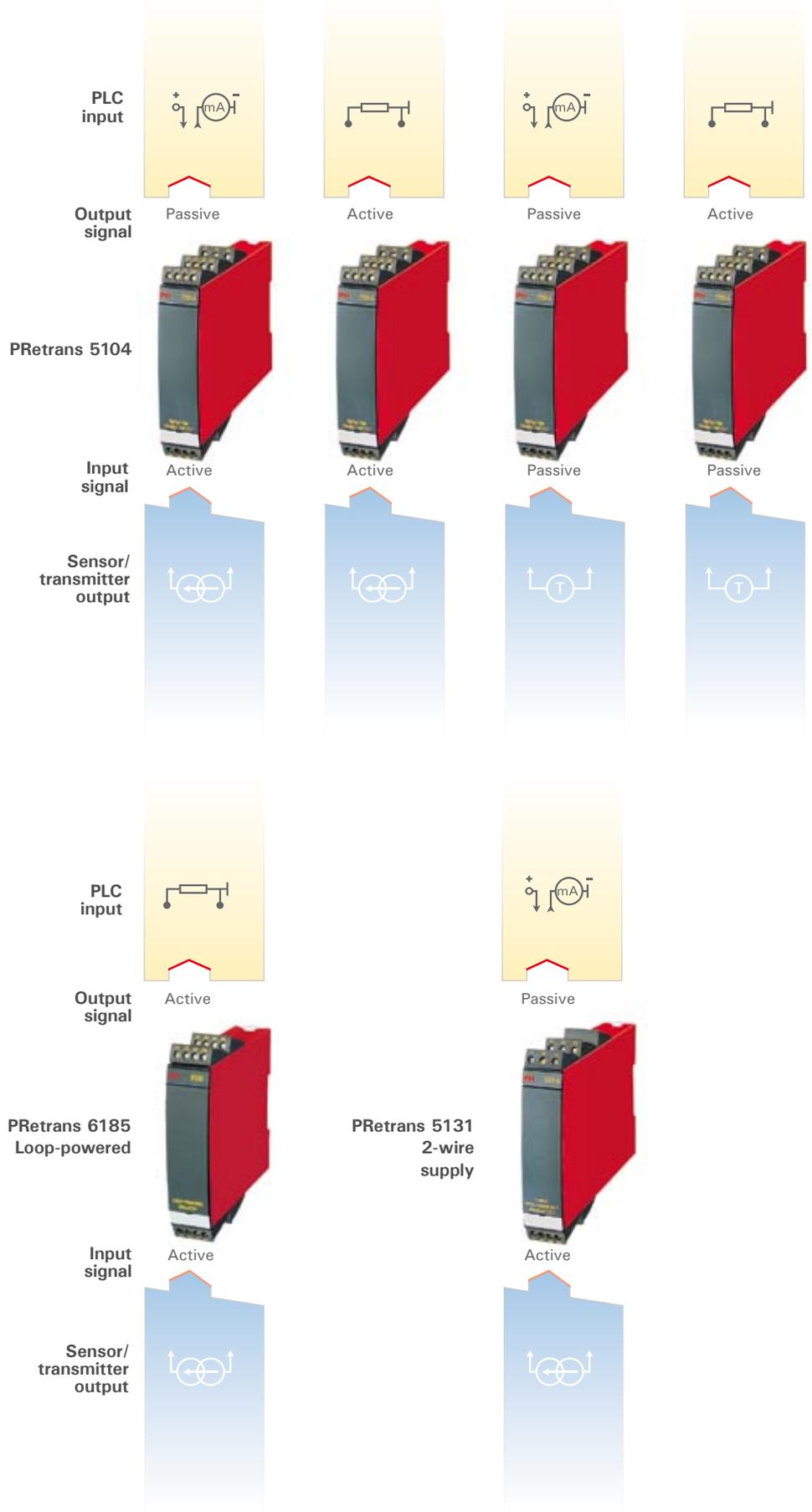
### Signal isolation with built-in flexibility...

Several of the modules in our 5000 series have been designed to allow handling of active or passive signals both on the sensor/transmitter side and on the PLC side. This makes product selection much easier and gives you a greater degree of freedom...

This feature is built into:

- PReTrans 5104
- PReTrans 5106
- PReTrans 5114
- PReTrans 5115
- PReTrans 5116

The modules are available in 1- or 2-channel versions which gives a low installation width of less than 12 mm per channel in the 2-channel version.



### Loop-powered and 2-wire supply modules for active and passive signal conditioning

When loop-powered modules are used, there is no need for a separate supply. This means that signal transmission and supply can be handled through the same 2-wire cable. The modules are characterized by:

- High load capacity
- Low drop voltage
- 1, 2 or 4 channels
- Down to 6 mm channel width

### Protection of inputs and outputs

The following measures have been taken to protect the isolators on the input side as well as on the output side:

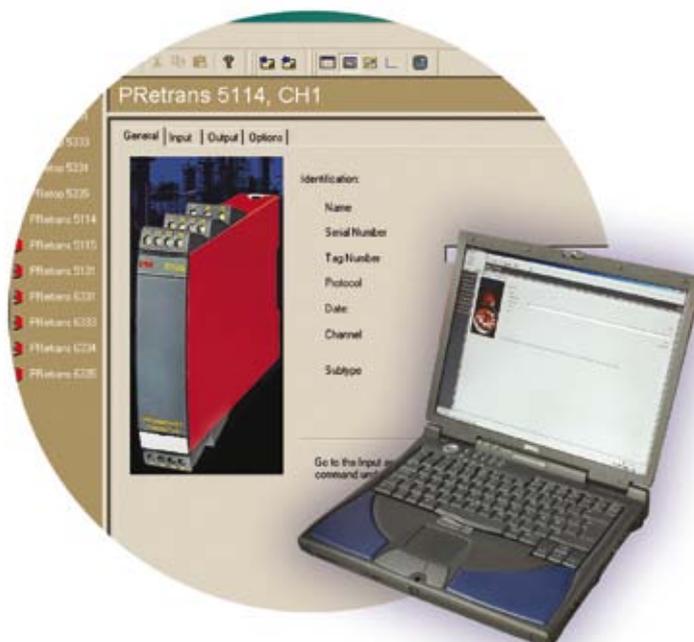
- Reverse polarity protection
- Voltage-protected output
- Overvoltage protection

## Easy Configuration with PReset Software

Isolators from PR electronics are easily configured to suit the specific application. The configuration is carried out by way of DIP-switches or via a standard PC and our user-friendly PReset software. All parameters can be configured from PReset within a few minutes. Quickly and simply!

### Available menu functions in PReset:

- Conversion
- Inversion
- Scaling
- Linearization
- Calculation
- Process calibration
- Error detection



## The Galvanic Signal Isolation Product Range

HART  
COMMUNICATION FOUNDATION

5104 5106 5114 5115 5116 5131 5223 6185

	5104	5106	5114	5115	5116	5131	5223	6185
Analog input	✓	✓	✓	✓	✓	✓		✓
Digital input							✓	
Temperature input			✓	✓	✓	✓		
2-wire transmitter interface	✓	✓	✓	✓	✓			
Inversion	✓	✓	✓	✓	✓	✓	✓	
Scaling	✓	✓	✓	✓	✓	✓	✓	
Custom linearization	✓	✓	✓	✓	✓	✓		
Galvanic isolation 3.75 kVAC	✓	✓	✓	✓	✓	✓	✓	
HART® transparent isolation		✓						
NAMUR NE 21 A	✓	✓	✓	✓	✓	✓		
PReset programming			✓	✓	✓	✓	✓	
DIP-switch programming	✓	✓	✓	✓	✓	✓	✓	
Universal power supply	✓	✓	✓	✓	✓		✓	
Loop-powered								✓
2-wire supply						✓		
Active input / active output	✓	✓	✓	✓	✓			✓
Active input / passive output	✓	✓	✓	✓	✓	✓		
Passive input / active output	✓	✓	✓	✓	✓			
Passive input / passive output	✓	✓	✓	✓	✓			

## Signals the Best

Around the world, PR electronics helps create increased efficiency and safety via industrial signal conditioning. The means to achieve this is reliable, flexible and user-friendly devices, thorough technical documentation, fast delivery and competent technical support – in short, all aspects which are of importance to our customers.

This is why PR electronics always...

»Signals the Best«



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