



Temperature Transmitters

for the Process Industry



isolation



display



ex barrier



temperature



backplane

SIGNALS THE BEST



Freedom the rational way

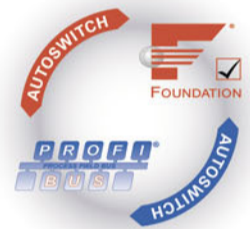
A Serious Partner for the Process Industry

For the past 30 years we have specialised in transmitters for temperature measurement and our focus has always been on meeting the demands of the industry. Our product range is uncompromising when it comes to reliability and quality. Due to the small number of product variants it always provides you with an optimum solution reducing inventory costs both for OEM sensor customers and end-user customers as well. You will experience both concrete and cost-saving advantages as we offer you:

- A five-year guarantee for long-term stable and reliable temperature measurement allowing you to optimise your process to the highest possible level of efficiency and productivity.
- An active partner offering day-to-day delivery as well as advice and service at a high level - always meeting your demands.

Technological Leader in Temperature Transmitters

With the implementation of our new AUTOSWITCH principle, we have taken the market lead in transmitter technology. AUTOSWITCH is a unique principle recognising both PROFIBUS® PA and FOUNDATION™ Fieldbus protocols via the telegram format and automatically switching to the applied protocol. Using this technology the same type of transmitter can communicate with the two most common bus protocols – and our customers can achieve greater flexibility and reduce educational, purchasing and inventory expenses through product standardisation.



Rationality

Reliability

Flexibility

PRetop 5350/PRetrans 6350
Universal transmitter for 2-, 3- and 4-wire sensors with PROFIBUS® PA or FOUNDATION™ Fieldbus

PRetop 5335/PRetrans 6335
Universal 4...20 mA transmitter for 2-, 3- and 4-wire sensors with HART® communication

PRetop 5331/PRetrans 6331
Universal 4...20 mA transmitter for 2-, 3- and 4-wire sensors

PRetop 5334/PRetrans 6334
4...20 mA transmitter for thermocouple sensors

PRetop 5333/PRetrans 6333
4...20 mA transmitter for 2- and 3-wire Pt100 and RTD sensors

Digital output

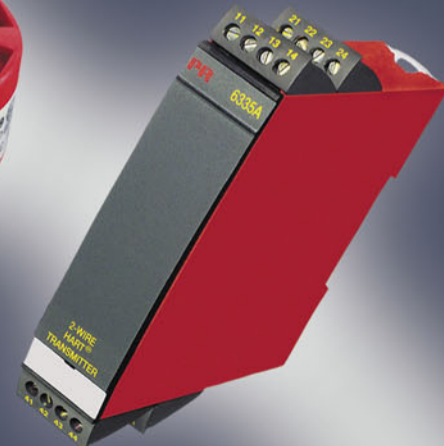
Universal

Analogue output

Application-specific



PRetop



PRetrans

Number 1 when it Comes to Operational Reliability

It is our objective to deliver the most reliable temperature transmitters on the market, even when it comes to the most exposed and difficult applications. Why so? Because operational reliability can be directly converted into cost-savings. How much does an hour's down time in your process cost? And not least, how much annoyance does it cause?

Operational reliability is achieved by efficiently protecting the transmitter against outside disturbances. STREAM SHIELD is our patented technology providing the transmitter with a high basic accuracy, maximum protection against electromagnetic noise, and an extremely low temperature coefficient. This reliability is reflected in concrete product advantages satisfying our customers' demands for quality and stability and always backed up by our five-year guarantee.

STREAM SHIELD Minimises Operational Stops and Increases Productivity



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



High immunity to HF noise: Airborne disturbances from mobile phones, walkie-talkies etc. All our transmitters are tested at 10 V/m in the entire prescribed range (80-1000 MHz) and thus meet the NAMUR NE 21 A criterion.



High immunity to energy-loaded transients: The disturbance comes from e.g. contactors. Our transmitters are surge-tested at a test voltage of 1 kV differential mode and 2 kV common mode according to NAMUR NE 21 A criterion.



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 transmitters at 2.5 kV for twelve hours. We easily meet the NAMUR NE 21 A criterion prescribing 2.0 kV for 1 minute.



Extremely low temperature coefficient: State-of-the-art when it comes to a high basic accuracy and an extremely low temperature coefficient of down to 0.002% - measured according to the European standard IEC 68-2-1 / IEC 68-2-2 / IEC 770 6.2.10.

Other Factors Improving Reliability:



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



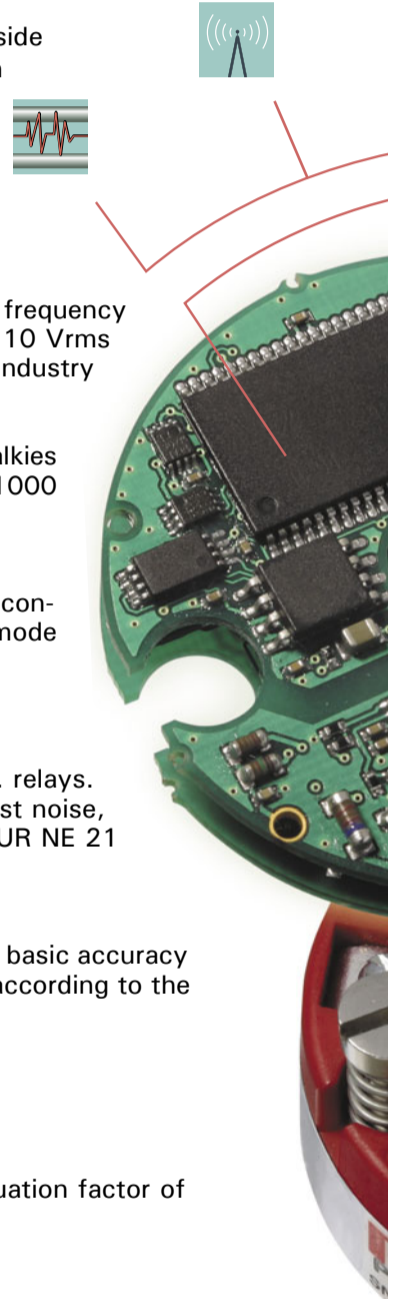
Long-term stability: Microprocessor technology ensures a maximum long-term stability of less than 0.15% / 0.20% after 5 years. Even after prolonged working periods there is no need for time-consuming recalibration.



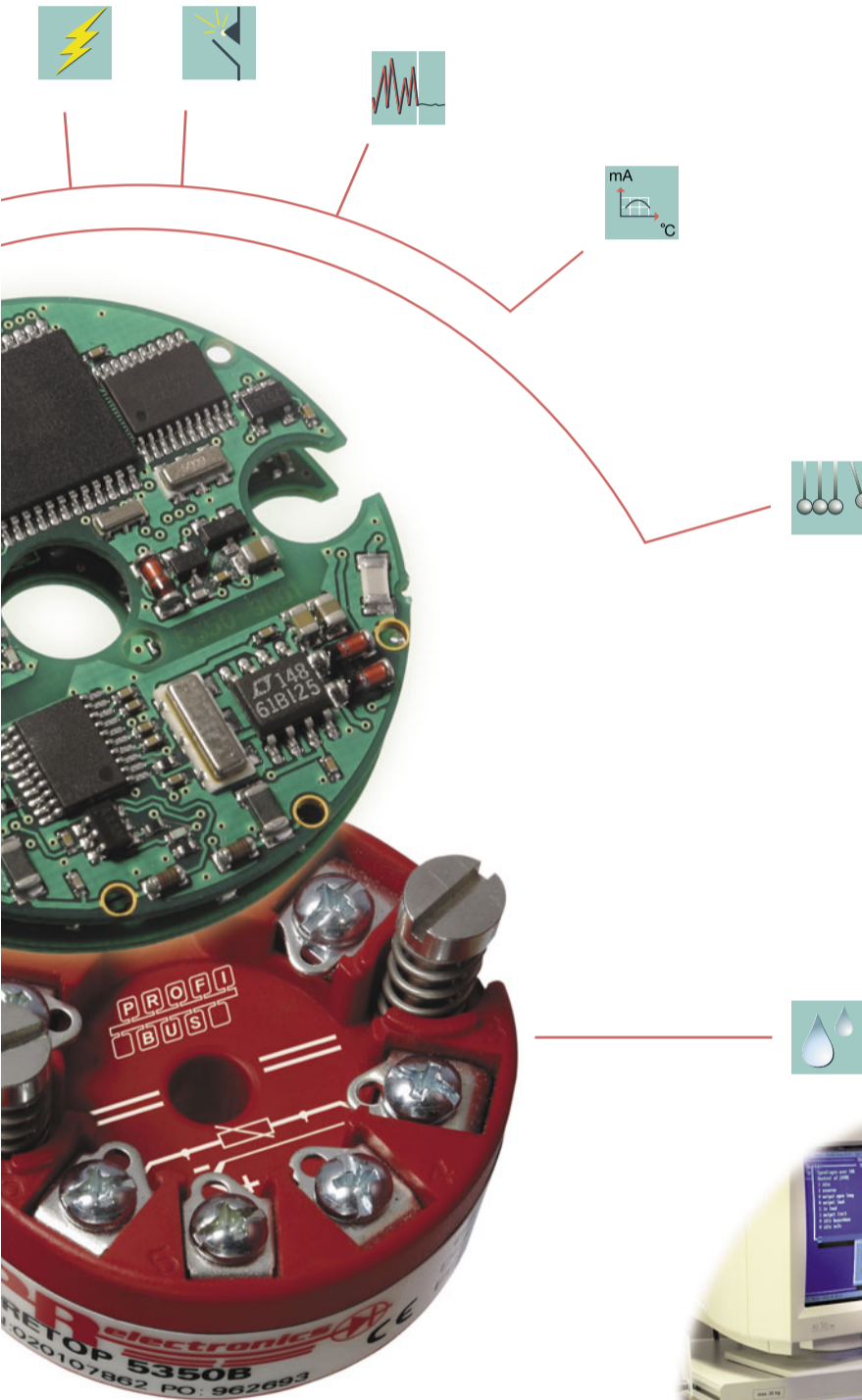
Calibration in a controlled environment: 100% control and calibration to absolute values in an environment where all ambient factors and possible disturbances are efficiently monitored and controlled.



Degree of protection IP68: Your guarantee that the transmitter is able to function in even the most humid of environments.



Rationality
 Reliability
 Flexibility



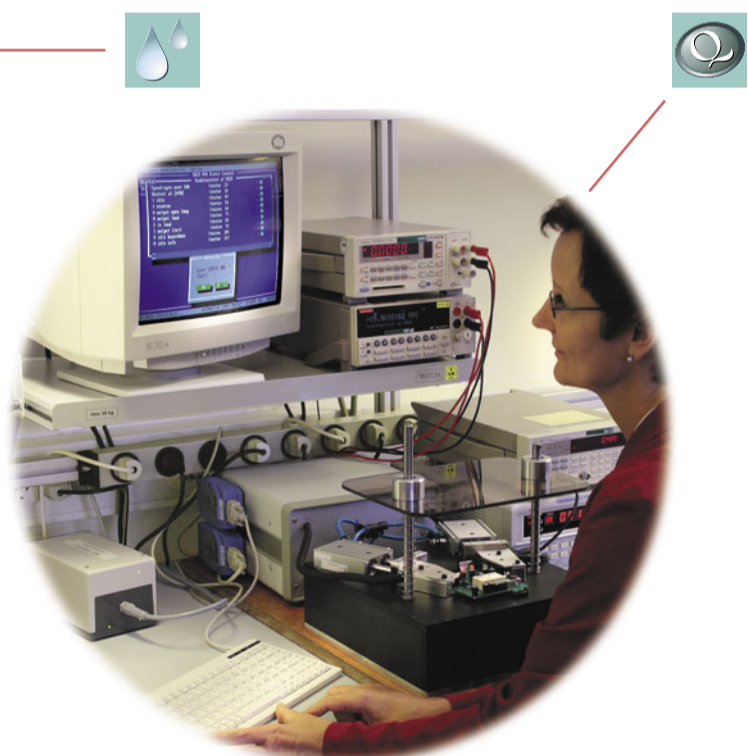
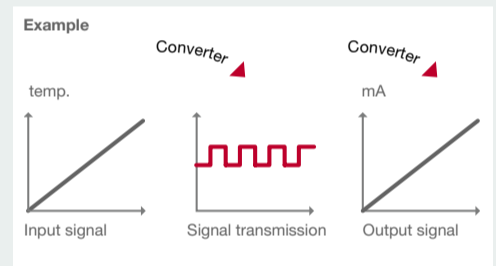
STREAM SHIELD

... has been developed and patented by PR electronics.

This is a new technology acting as a shield and efficiently protecting 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 analogue or a digital output signal with an extremely high degree of accuracy.

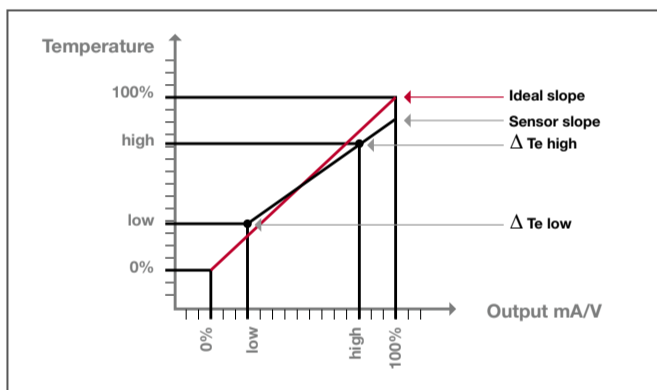




Universal and Accessible Transmitter Set-up

Process Calibration Ensures Extreme Accuracy

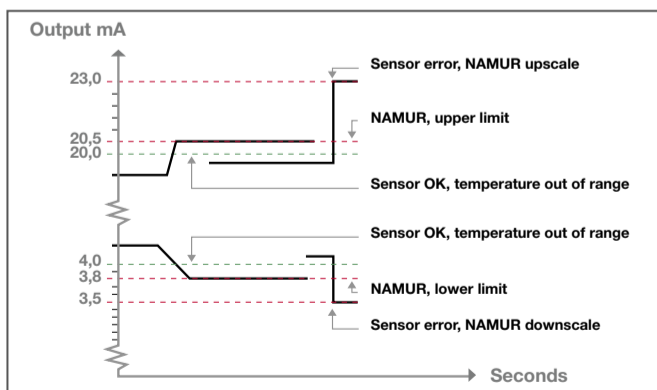
In applications making heavy demands to accuracy, the combined inaccuracy of sensor and transmitter may be too great. The solution is to calibrate the transmitter to match the specific sensor. As an example the Pt100 ideal curve of the transmitter is matched to the specific sensor via a 2-point process calibration by way of the PReset software.



Set-up of Sensor Error Detection

All our transmitters allow set-up of sensor error detection and output limitation, making it possible to distinguish between "out of range" error and sensor error.

Sensor error detection can be carried out according to NAMUR NE 43 or it can be adapted to suit a specific application.



Quick On-line Configuration via PC Software

Temperature transmitters from PR electronics are quickly configured to the specific application. All our analogue transmitters and HART® transmitters permit configuration via a standard PC and our user-friendly software, PReset. Parameters for input, output, sensor error detection and process calibration can be configured via PReset within a few minutes.

Some applications call for an occasional change in the transmitter set-up in order to configure it to the actual process. In this respect, the PRetop transmitter series is absolutely unique as these transmitters all feature on-line configuration, carried out through the transmitter's current loop.

Our bus transmitters are also universal regarding configuration as they are able to communicate with all the most recognised bus software systems on the market:

- Emerson DeltaV
- Yokogawa CS 1000 / CS 3000
- ABB Melody / Harmony
- Siemens Simatic® PDM®
- Honeywell Ax and Psource

Intelligent, Digital Solutions

Our transmitter solutions are suitable for systems using HART®, FOUNDATION™ Fieldbus or PROFIBUS® PA protocols for digital communication.

The digital communication opens a wide range of possibilities, e.g.:

- Difference, average or redundancy measurements
- PID control with FOUNDATION™ Fieldbus
- LAS or Basic functionality with FOUNDATION™ Fieldbus
- Diagnosing via fully-supported AMS function in HART® transmitters



Rationality

Reliability

Flexibility

PRetop Product Range

	5331	5333	5334	5335	5350
RTD/R transmitter	✓	✓		✓	✓
TC/mV transmitter	✓		✓	✓	✓
Galvanic isolation	1500 VAC		1500 VAC	1500 VAC	1500 VAC
Channels	1	1	1	1	1
Basic accuracy Pt100	<± 0.2°C	<± 0.3°C		<± 0.1°C	<± 0.1°C
Temperature coefficient *)	<± 0.01%	<± 0.01%	<± 0.01%	<± 0.005%	<± 0.002%
NAMUR NE 21 A	✓		✓	✓	✓
DIN form B housing	✓	✓	✓	✓	✓
Analogue output	✓	✓	✓	✓	
Digital output				HART FOUNDATION	
PRreset programming	✓	✓	✓	✓	
Bus programming					✓

*) % of span/°C



PRetrans Product Range

	6331	6333	6334	6335	6350
RTD/R transmitter	✓	✓		✓	✓
TC/mV transmitter	✓		✓	✓	✓
Galvanic isolation	1500 VAC		1500 VAC	1500 VAC	1500 VAC
Channels	1&2	1&2	1&2	1&2	1&2
Basic accuracy Pt100	<± 0.2°C	<± 0.3°C		<± 0.1°C	<± 0.1°C
Temperature coefficient *)	<± 0.01%	<± 0.01%	<± 0.01%	<± 0.005%	<± 0.002%
NAMUR NE 21 A	✓		✓	✓	✓
DIN rail mounting	✓	✓	✓	✓	✓
Analogue output	✓	✓	✓	✓	
Digital output				HART FOUNDATION	
mA to bus communication					✓
PRreset programming	✓	✓	✓	✓	
Bus programming					✓

*) % of span/°C



ATEX

CE

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C US

UL
C US

FM

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**Signals the Best**

Reliability is our contribution to higher efficiency and safety in our customers' processes.

The means to achieve this objective is quality in all stages of the order: Product, technical documentation, delivery time, and technical support – in short, all aspects which are of importance to our customers.

Inconspicuousness is often the best proof that we fulfil our mission. But in critical situations our customers can rest assured that PR electronics always...

»Signals the Best«.