PR | Process Refractometer

Complete quality control!

Process refractometers are built directly into pipework and boilers or operated in the bypass. They are ideal for process monitoring, control and product separation in a variety of industries (chemicals, beverages, food and sugar).

Why use Refractometers in pipelines?
The monitoring of refractive index is a popular method of inline quality control in many process industries, including pulp and paper, food and beverage, chemical and pharmaceutical, and wastewater. It provides real-time data for quality control and Good Manufacturing Practice (GMP), and can be used to monitor qualities such as concentration of a solution, density of a fluid, or % Brix. An inline process refractometer is installed directly into pipework or a boiler, with standard connections for easy assembly. The alternative bypass process refractometer analyses a stream of fluid drawn off the main process run.

Fields of application

Determination of mixing ratios, quality and quantity inspection in the following industries:

- Beverages
- Food
- Sugar/sweeteners
- Chemicals
- Flavours
- Petrochemicals
- Cosmetics / hygiene
- Metalworking
- Pharmaceuticals
- Water / effluent
- Education / research

Special Features

- Excellent value for money
- Wide measurement range from 1.3300 –1.5600 nD; 0–95 %Brix
- Adjustable measurement interval (min. 3 s)
- Password-protected
- Prism in the sample chamber is easy to clean
- User-friendly interfaces for direct connection to a PLC
- Very easy to install, no special requirements

PR21 Series | Process Refractometer

As no bypass is necessary, it is much simpler to install the process refractometer in a pipeline or tank. Standard connections enable the process refractometer to be assembled quickly and easily. Depending on diameter, a T-piece is inserted into the pipeline or an adapter welded on, as with the tank.
Three interfaces are available for this unit:
Analogue 0/4-20 mA, Ethernet, or PROFIBUS.

PR21

Model overview

	Measurement accuracy	Resolution	Product temperature	Ambient temperature
PR21S	±0.0002 nD ±0.2 %Brix	0.0001 nD 0.1 %Brix	< 60 °C	< 40 °C
PR21S-T			< 160 °C	< 60 °C
PR21H	±0.00002 nD ±0.02 %Brix	0.00001 nD 0.01 %Brix	< 60 °C	< 40 °C
PR21H-T			< 160 °C	< 60 °C

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Specifictions

Measurement mode	Refractive index [nD], Sugar content [%Brix], User defined [%]
Measurement interval	3–60 s
Temp. sensor	PT100
Temp. measurement	-10–200 °C
Temp. resolution	0.1 °C
Temp. measurement accuracy	± 0.2 °C
Temp. compensation	ICUMSA, arbitrary
Process temperature	-5–160 °C
Ambient temperature	0–60 °C

Prism	Sapphire
Illumination	LED 590 nm (est. life: >100.000 h)
Housing	Stainless steel, Cast aluminium, powder-coated
Interfaces	Analogue 0/4-20 mA, Ethernet, PROFIBUS (optional)
Protection class	IP65
Working voltage	24 V
Dimensions in cm	18.0 x 19.0 x 18.0
Weight	3.5 kg

PRB21 | Bypass Process Refractometer

The bypass process refractometer PRB21 fills the gap between the DR6000 series of digital laboratory refractometers and the process refractometer PR21.
The sample is fed into the measurement chamber through a stainless steel bypass. The prism is made of particularly scratch-resistant sapphire.
The PRB21 is generally connected to a PLC and provides continuous process control. Small sample volumes suffice for this. The measurement interval is adjustable (>3 s) and the measurement result is not affected by either the colour or the turbidity of the sample.

The PRB21 has various interfaces and can also be supplied with PROFIBUS on request. A display is also available for visual monitoring. Automatic temperature compensation can be obtained by means of the internal temperature sensor and the measured temperature fed to the PLC.

PRB21

Specifictions

Measurement range	1.3200 nD–1.5600 nD 0–95 %Brix	
Accuracy	PR-H:	±0.00002 nD; ± 0.02 %Brix
	PR-S:	±0.0002 nD; ± 0.2 %Brix
Resolution	PRB-H:	0.00001 nD; 0.01 %Brix
	PRB-S:	0.0001 nD; 0.1 %Brix
Measurement units	Refractive Index [nD] Saccharose [%Brix] Invert Sugar [%Brix] Glucose [%Brix] Fructose [%Brix]	
Measurement interval	3–60 s	
Temperature sensor	PT100	
Temperature measurement	-10–99.9 °C	

Temperature resolution	0.1 °C
Temperature accuracy	±0.2 °C
Temperature compensation	ICUMSA, arbitrary
Ambient temperature	0–40 °C
Prism	Sapphire
Illumination	LED 590 nm (est. life: >100.000 h)
Housing	Cast aluminium, powdercoated
Interfaces	RS-232, analogue 0/4–20 mA
Protection class	IP65
Working voltage	24 V
Display (optional)	LCD 120 x 32 Pixel
Dimensions in cm	18.0 x 10.0 x 18.0
Weight	3 kg