Flexim PIOX® R

Process Analytics by Inline Refractometry

Accurate | Reliable | Unique Measuring Principle

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EMERSON™

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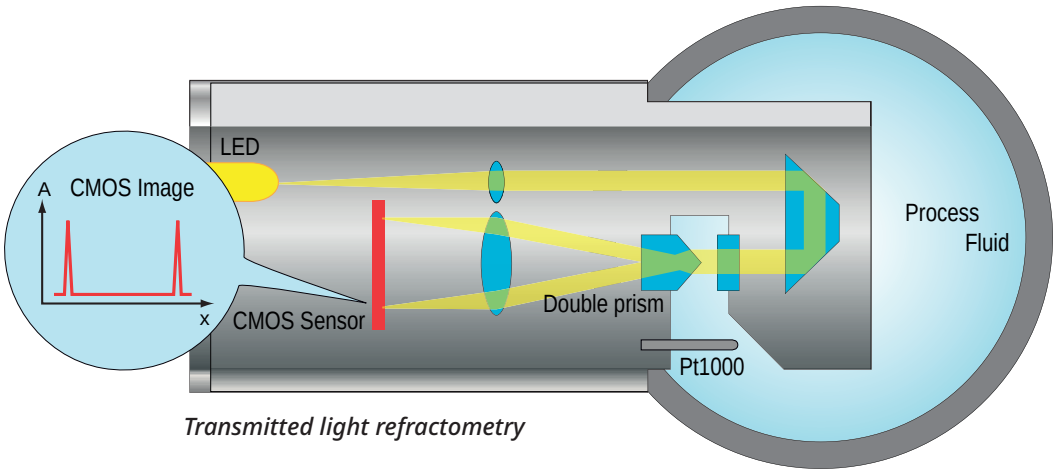
With the PIOX® R Emerson redesigned the process refractometer. The patented transmitted light principle offers a new level of precision, stability and diagnostics. The system, consisting of the R500 sensor and either the R532 or the R721 transmitter, can be deployed in a wide range of applications in the food and beverage, oil and gas, chemical, and machining fluid industries.

Unique measuring principle

Employing our patented transmitted light principle, the refractometer emits light through a 1 mm section of the liquid rather than just using a reflection from the liquid's surface. This results in a measurement that is more representative of the true liquid composition. In addition, fouling films on the prism surface do not affect the measurement result.



Transmitted light refractometry

Robust measurement

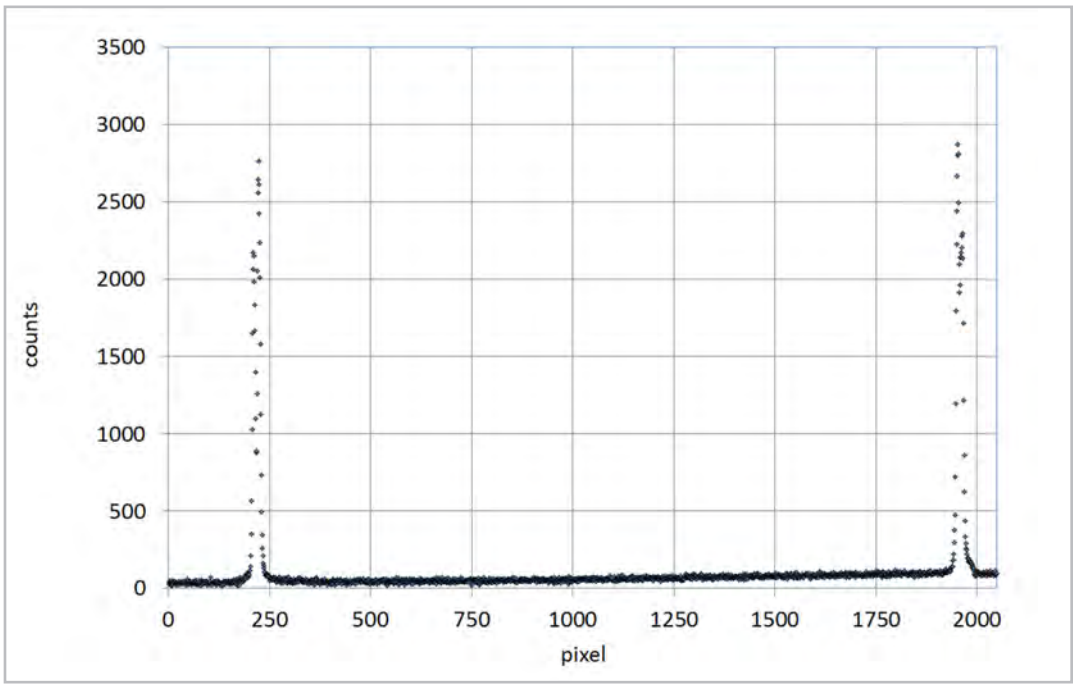
To ensure a stable and robust measurement we use a double prism, that splits the light beam into two. This allows us to measure the refractive index at two points instead of the standard one. The result is added stability with regards to temperature, pressure and mechanical stress to the sensor.

Drift-free and reliable measurement

The double signal is received by the latest generation of CMOS image converters, which transforms the raw data into practical values. In addition to the refractive index, these include diagnostic values. The height, the shape and difference of the two peaks provide information about noise, fouling and turbidity and provides you with useful information about the health of the measurement.

Advantages

- **Concentration & Density Measurement**
- **Patented Measuring Principle**
- **Accurate / Drift-free**



Accurate
With a refractive index reproducibility of nD ± 0.00002, very accurate concentration measurements can be derived.

Emerson provides an extensive fluid database and, in the case of unique customer media, Emerson's laboratory will create the fluid data set file that can be added to the transmitter.

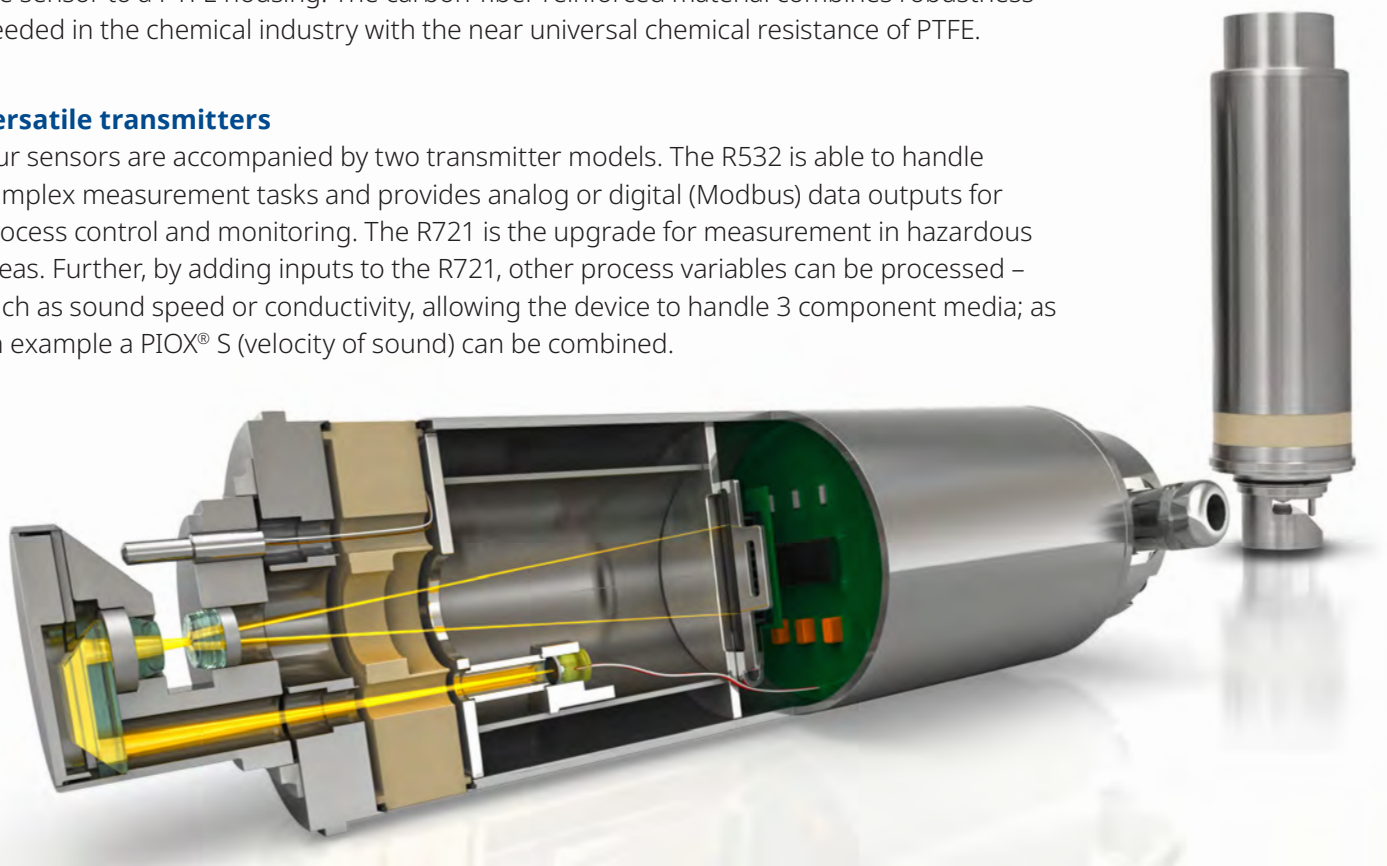
For more information request the Flexim Application Handbook.

Widely applicable

Emerson offers three distinctive sensor designs, all deploying the transmitted light technology. The hygienic sensor is most suitable for food and beverage application. It provides Varivent and Tri-clamp process connections, wetted parts in stainless steel 316L (1.4404) and importantly the rounded corners. For the heavy-duty applications, we offer our standard sensor made out of stainless steel 316Ti (1.4571) and with FFKM gaskets in protected gasket seats. And when the chemicals become more aggressive, we can upgrade the sensor to a PTFE housing. The carbon-fiber reinforced material combines robustness needed in the chemical industry with the near universal chemical resistance of PTFE.

Versatile transmitters

Our sensors are accompanied by two transmitter models. The R532 is able to handle complex measurement tasks and provides analog or digital (Modbus) data outputs for process control and monitoring. The R721 is the upgrade for measurement in hazardous areas. Further, by adding inputs to the R721, other process variables can be processed – such as sound speed or conductivity, allowing the device to handle 3 component media; as an example a PIOX® S (velocity of sound) can be combined.



TECHNICAL FACTS

Transmitter	R721	R532
		
Housing material	Stainless steel 316L (1.4404)	Aluminium (powder coated)
Explosion protection / Approvals	NonEx, ATEX/IECEx Zone 2, FM Class I Div. 2	NonEx
Inputs	current (4...20 mA), binary, voltage	-
Outputs	max. 4: current (4...20 mA), Modbus RTU/TCP, binary, voltage	max. 1: current (4...20 mA), Modbus RTU, binary

Sensor	R500 MH Refractometer for food and beverage industry	R500 MC S4 Refractometer for process industry	R500 MC TF Refractometer for chemical industry
			
Measurement range	nD: 1.3 ... 1.7, °Brix: 0...100		
Measurement uncertainty	nD: 0.0002 (corresponds to: 0.1 °Brix, 0.1 w%)		
Repeatability	nD: 0.00002 (corresponds to: 0.01 °Brix, 0.01 w%)		
Wetted parts materials	Stainless steel 316L (1.4404)	Stainless steel 316Ti (1.4571)	PTFE carbon-fiber reinforced bulk material
Operating temp. (fluid)	-4...+302 °F (-20...+150 °C)		-4...+248 °F (-20...+120 °C)
Fluid pressure	PN 10	PN 16, on request PN 40	PN 10
IP protection	IP67		
Explosion protection / Approvals	NonEx, ATEX/IECEx Zone 0/1, FM Class I Div. 1		
Process connection	Varivent, Tri-clamp	DIN/ANSI flange, flow cell	

ACCREDITED
CERTIFICATE #3791.01

For more information, visit
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