Compact sensors

EXspect & EXplore

EXNER
Process Equipment

About EXNER Process Equipment

EXNER Process Equipment GmbH, based in Ettlingen, is in the middle of the Karlsruhe technology region. The medium-sized company has operated as an international provider of high-quality process holders for pH measurement and optical sensors for the determination of cell growth and turbidity for more than 15 years. The owner-run company is characterised in particular by its accurate and long-lasting products, its agile and flexible way of doing things, and customer-specific solutions. The products developed and produced by the ISO9000-certified business offer the highest degree of variability and can therefore be configured to meet almost any requirement.

Customers from the chemical industry, in the bio and food technology sectors, and the pharmaceutical industry all benefit from their consulting and support services, as well as their innovative research and development division. Thanks to the combination of their expertise gained over many years and the use of new technologies, their products are being continuously developed and optimised for each area of application. So, the processes become safer, more efficient, and more accurate. In addition, EXNER products are being supplied by distribution partners and OEM customers all over the world.

Advantages and features of our sensor series “EXspect” and “EXplore”

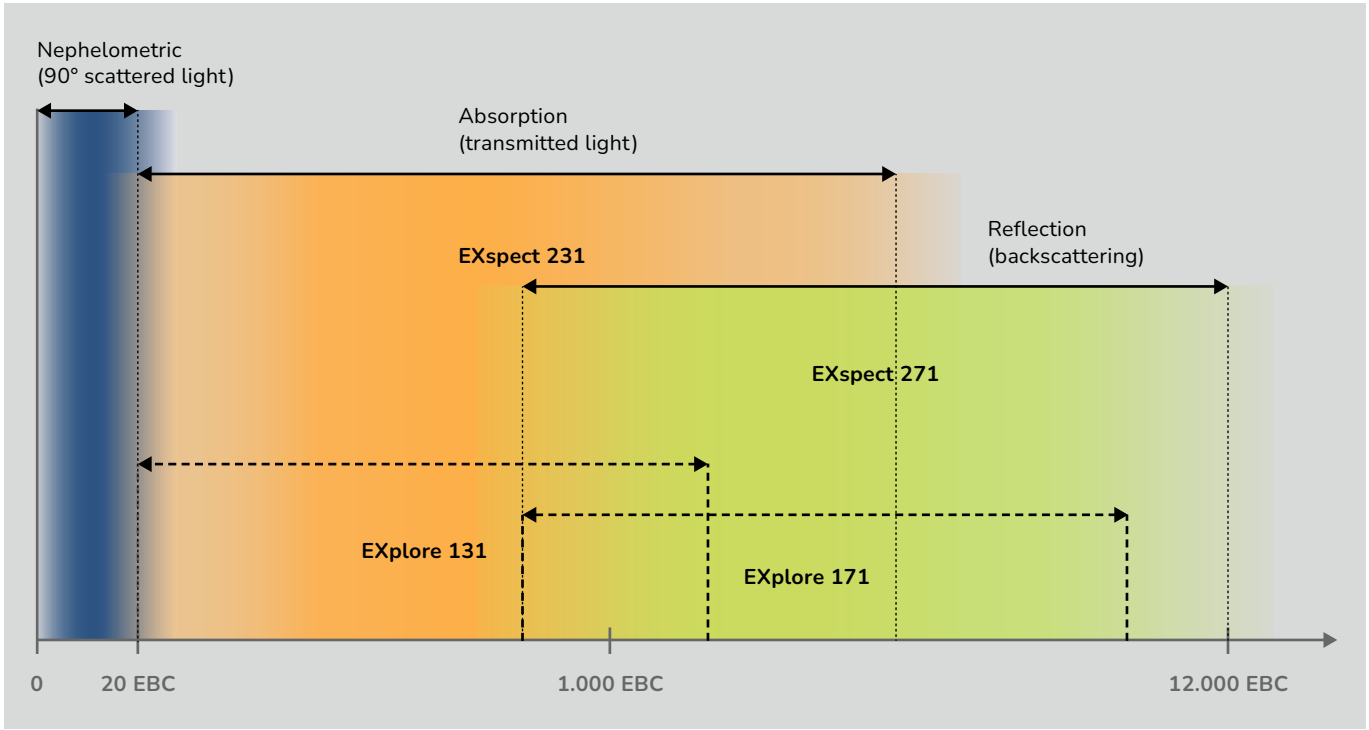
» Modern, durable LED technology guarantees a permanent and stable signal
» Different optical path lengths for the absorption measurement are available
» Compact design (depending on the version also with an integrated touch display)
» Integrated transmitter, no additional external device required
» In-line measurements in real time with a large number of measurement points
» Verification possible by means of optical solid references, no use of chemicals required
» No calibration and parameterisation necessary
» Resistant sapphire window or sapphire lens
» Depending on the sensor, different turbidity units can be selected
» Freely configurable and adjustable to customer-specific units (depending on version)
» Hygienic design, suitable for CIP/SIP

Our compact sensors at a glance

Features	EXspect 231		EXspect 271		EXplore 131	EXplore 171
	5-pin	8-pin	5-pin	8-pin		
Touch-Display	■	■	■	■	-	-
Basic settings via display	■	■	■	■	-	-
Addtional settings via software* (e.g. customer-specific-calibration)	-	■	-	■	-	-
Switching output	■	■	■	■	-	-
Adjustment input	■	■	■	■	-	-
Measuring principle	Absorption (transmitted light measurement)	Absorption (transmitted light measurement)	180°-Scatterd light (backscatter measurement)	180°-Scatterd light (backscatter measurement)	Absorption (transmitted light measurement)	180°-Scatterd light (backscatter measurement)
Output signal	4...20 mA	0/4...20 mA	4...20 mA	0/4...20 mA	4...20 mA	4...20 mA
Turbidity units	Depending on version: %-Absorption, AU, OD, EBC, FAU, TEF, mg/l	Depending on version: %-Absorption, AU, OD, EBC, FAU, TEF, mg/l, CDU (customer-specific)	%-Backscattering	%-Backscattering, CDU (customer-specific)	%-Absorption	%-Backscattering
Available accessories	Reference filter, connection cable, process adapter	Reference filter, connection cable, process adapter, USB-interface (ECI-01)	Reference normal, connection cable, process adapter	Reference normal, connection cable, process adapter, USB-interface (ECI-01)	Reference filter, connection cable, process adapter	Reference normal, connection cable, process adapter

* Software EXpert available free for download (Note: Communication interface “ECI-01 EXspect” is necessary)

Preferred measuring range



Comparison Formazin: 1 EBC ≈ 4 NTU ≈ 4 FAU

EXspect 231 NIR absorption sensor

EXspect 231 is a high-precision NIR compact sensor for monitoring production processes in the food and pharmaceutical industries as well as in many areas of further process applications. The robust and compact design in stainless steel housing and the wear-free sapphire windows make the EXspect 231 a reliable absorption sensor with integrated digital measuring amplifier and touch display.

Depending on the sensor type, the measuring units can be output in % turbidity, absorption or common turbidity units and a maximum measuring range of 0...6 AU is available, which can be output via the standard interface of 4...20 mA. Two alarm limits can be programmed and different switching outputs are available.

User-friendly
Easy to mount and service

Color-neutral
NIR light source
(wave length 850 nm)

Exact
High accuracy and reproducibility

Individual
Different turbidity units selectable

Flexible
Different path lengths possible depending on the measurement task

Precise
High surface quality
(Ra < 0,37 µm)

Application examples:
» Precise phase separation
» Control of separators
» Filtermonitoring
» Colour-independent concentration measurement
» Detection of product injections / water injections

EXspect 271 NIR backscattering sensor

EXspect 271 is a highly accurate compact NIR turbidity sensor for monitoring production processes in the food industry, e.g. in dairies, as well as in many areas of other process applications with medium and high turbidity. The robust and compact structure in the stainless steel housing and the wear-free sapphire lens makes the EXspect 271 a reliable back scattering sensor with integrated transmitter.

The turbidity value can be displayed in % or in a freely definable customer-specific unit directly in the display and output via the standard interface 4...20 mA. Two alarm limits can be programmed.

Individual
Customer-specific calibrations possible

Visable
Touch-Display integrated as standard

Protected
Protection class IP69

User-friendly
Easy to mount and service

Durable
Reliable LED light source

Standardised
Interface 4...20 mA

Application examples:
- Precise phase separation
- Colour-independent concentration measurement
- Monitoring of product changes
- Monitoring of precipitation processes
- Yeast management

EXplore 131 NIR absorption sensor

EXplore 131 is a NIR turbidity sensor for monitoring production processes in the food and beverage industries, as well as in many areas of further process applications. The robust and compact design in stainless steel housing and the wear-free sapphire windows make the EXplore 131 a reliable absorption sensor with integrated amplifier.
A %-value is used as the measuring unit. The measuring range is 0...100 %, which is output via the standard interface of 4...20 mA.

Robust
CIP/SIP-capable

Standardised
Interface 4...20 mA

Compact
Minimum installation space necessary

User-friendly
Easy to mount and service

Reliable
Durable LED light source

Exact
High surface quality (Ra < 0,37 µm)

Application examples:
» Reliable phase separation
» Filtermonitoring
» Colour-independent concentration measurement
» Monitoring of cleaning processes
» Detection of product in water

EXplore 171 NIR backscattering sensor

EXplore 171 is a NIR turbidity sensor for monitoring production processes in the food industry, e.g. in dairies, as well as in many areas of other process applications with medium and high turbidity. The robust and compact design in stainless steel housing and the wear-free sapphire lens make the EXplore 171 a reliable back scattering sensor with integrated amplifier. A %-value is used as the measuring unit. The measuring range is 0...100 %, which is output via the standard interface of 4...20 mA.

Easy
No parameterisation/ calibration necessary

Exact
High accuracy and reproducibility

Compact
Minimum installation space necessary

User-friendly
Easy to mount and service

Robust
Process pressure 0...20 bar

Innovative
Sapphire lens for precise measurements

Application examples:
- Reliable phase separation
- Monitoring of precipitation processes
- Colour-independent concentration measurement
- Monitoring of product changes
- Yeast harvesting

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