

## TECHNICAL INFORMATION

Turbidity sensor – 90° scattered light



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EXNER PROCESS EQUIPMENT GmbH

## Imprint

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Carl-Metz-Str. 26

D-76275 Ettlingen

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# 1 Technical data

## 1.1 Standards

The following standards were applied when manufacturing the sensor:

- EN 61326-1: 2013-7
- EN 61326-2-3: 2013-7
- DIN/EN 27027 (ISO 7027)

## 1.2 Specification

Sensor specifications	
Measurement process	90° scattered light
Measurement range	0...10 NTU / 0...10 FNU
Resolution	0,01 NTU / 0,01 FNU
Units	NTU, FNU, CDU (Customer Defined Unit)
Precision	± 1 % of measurement range end value
Reproducibility	≤ 1 % of measurement range end value
Wavelength	850 nm (NIR)
Light source	LED
Material finish	Stainless steel, 1.4435 (316L)
Material sealing	EPDM
Material Casing / Measuring cell	Polyoxymethylene (POM), black / Polyethylene (PE-HD), black
Measuring window	Sapphire
Process connector	Female thread G 1/4"
Installation position	Vertical
Electrical connection	Pin-and-socket connector M12 (8-pin)
Connector cable length	2 m / 5 m
Interfaces	Modbus RTU (RS485), analogue 4...20 mA (optional)

Electrical connection	9...24 V DC
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### 1.3 Dimensions

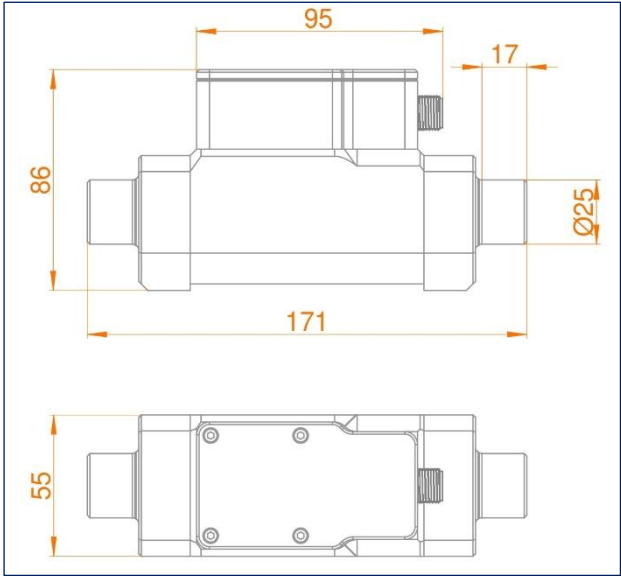


Fig. 1: EXpure 191 dimensions

### 1.4 Environmental conditions

Ambient temperature                      0...60 °C  
Transport and storage temperature   -10...80 °C

### 1.5 Process conditions

Pressure range:                              0...6 bar  
Temperature range:                        1...50 °C  
Measuring cell media flow:              30...80 l/h

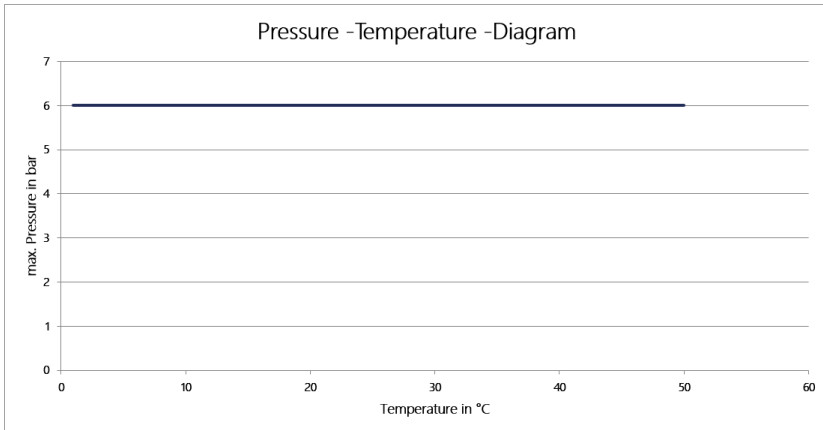


Figure 2: EXpure 191 pressure temperature diagram

## 1.6 Identification plate

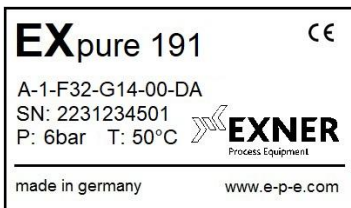


Fig. 3: Identification plate

## 2 Product description

### 2.1 EXpure 191

#### 2.1.1 Components

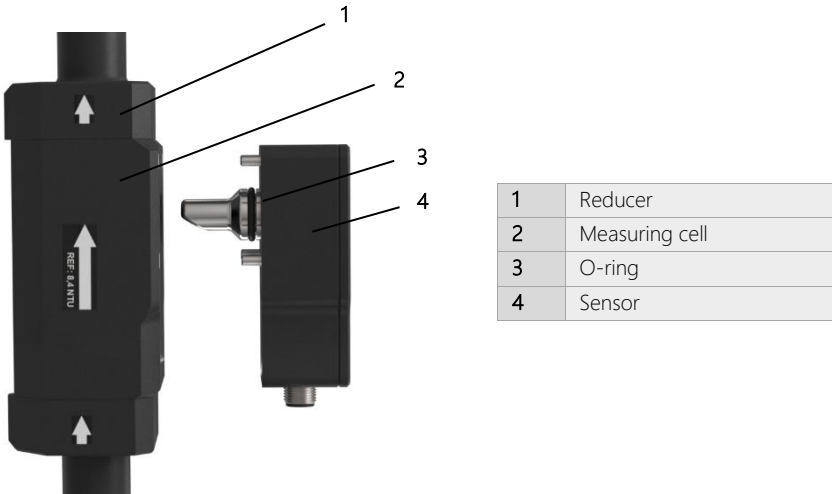


Fig. 4: EXpure 191

#### 2.1.2 Description and structure

The sensor EXpure 191 is a high-precision turbidity sensor in compact casing for use including the areas of swimming pool technology and drinking water purification.

The sensor is easy to mount and connect. Servicing work is little effort when in operation. Moreover, there is no need for complex calibration.

The sensor is supplied pre-assembled with a measuring cell, which is installed upright in a pipe, preferably a rising pipe, using size G1/4" female thread. Observe the direction of flow when installing. A marking arrow is attached to the EXpure 191 measuring cell for orientation purposes.

Air bubbles in the system can affect the measurement. A bubble trap is available as an accessory to minimise these influences.

When measuring in swimming pool water, for example, various accompanying substances (e.g. chlorine) can influence the measured value. The EXpure 191 sensor with the "SP" parameterisation was fine-tuned for this purpose. This allows reliable measurement of turbidity for use in swimming pools without further calibration steps.

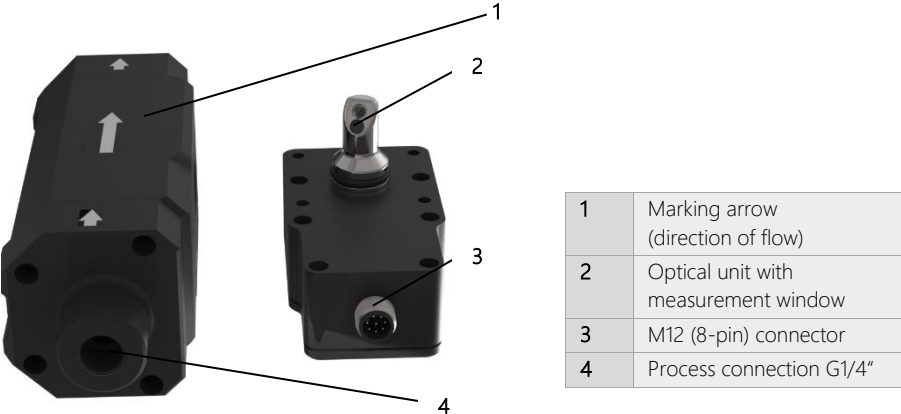


Fig. 5: Measuring cell and sensor

### 2.1.3 Reducers

Reducers are located on both ends of the measuring cell. If they are removed, e.g. for cleaning purposes, observe when re-assembling that the printed arrows point in the medium flow direction or a direction identical to the measuring cell directional arrow.



### 3 EXpure 191 order structure

	<b>Code</b>	<b>Measurement range</b>							
	A	0...10 NTU / 0...10 FNU							
		<b>Code</b>	<b>Material (fluid-wetted)</b>						
		1	PE-HD / Stainless steel 1.4435 (316L)						
			<b>Code</b>	<b>Structure type / Nominal size</b>					
			F32	Flow-through vessel DN32 (1 1/4")					
				<b>Code</b>	<b>Process connector</b>				
				G14	Female thread G1/4"				
					<b>Code</b>	<b>Parameterisation</b>			
					00	Standard			
					SP	Swimming pool			
						<b>Code</b>	<b>Interface</b>		
						D0	Modbus RTU (RS485)		
			DA	Modbus RTU (RS485) / analogue 0/4...20 mA					
			EXpure 191					<b>Order number</b>	

## 4 Spare parts and accessories

The sensor serial number must always be quoted for spare parts and accessories orders.

Accessories & Spare parts	Order number
Connector cable 2 m	2-120-68-001
Connector cable 5 m	2-120-68-002
PC software EXpert 2.x on USB stick (for Windows)	2-120-69-003
Communication interface ECI-01 EXspect / EXpure for PC connection via USB	2-120-66-001
Set Bubble trap	2-120-84-001
Set O-rings (EPDM – FDA/USP IV/KTW-BWGL)	2-120-84-005

### 4.1 Certificates

Certificates	Order number
Certificate for factory calibration of NIR sensors according to DIN EN 10204-3.1	2-121-01-022

### 4.2 Factory examination

Factory examination	Order number
Works recalibration for NIR sensors including a certificate (recirculation proof)	2-999-00-013

## 5 Certificates and compliances

All freely available certificates and conformities can be found in their most current form in the "Downloads" section of our website.

To access the following address, enter it into your browser or scan the QR code below. Then select the relevant product and document from the list.

<https://e-p-e.com/en/downloads>



Depending on the product, additional certificates (e.g. material, surface, etc.) are available. If necessary, please send a corresponding request to Exner Process Equipment GmbH.









Exner Process Equipment GmbH  
Carl-Metz-Str. 26  
D-76275 Ettlingen  
Germany

tel +49 (0)7243-94 54 29-0  
fax +49 (0)7243-94 54 29-99  
mail [info@e-p-e.de](mailto:info@e-p-e.de)

[www.e-p-e.com](http://www.e-p-e.com)