TW Turb

65S0X0000

TW Turb is a sensor from the modular TW Master series from TriOS, one of the world's leading manufacturers of optical measurement technology. It has been specially developed for the precise analysis of turbidity in drinking water and meets the highest standards of accuracy and reliability. The measuring range is tailored to the requirements of drinking water monitoring. Seamless integration with the TW PS300 supply and communication module means that the measurement data can be easily transferred to existing systems.

The TW Turb-40 is equipped with an infrared light source that emits light at a main wavelength of 860 nm. The detector has a high sensitivity at 860 nm. The TW Turb-W40 uses a white light source and has a detector with a spectral peak sensitivity between 400 nm and 600 nm.

The flexibility of the TW Master series allows individual combinations to be created and further parameters to be recorded according to the requirements of the respective application. With dimensions of just 160 mm x 280 mm x 108 mm, the modules are compact and can be easily integrated into almost any installation. The simple installation and the possibility to adapt to individual application requirements make the TW Master series the ideal choice for achieving the highest standards in water analysis.

Advantages

- Precise analysis of turbidity
- Individual, modular composition
- Simple installation and configuration
- Fast cleaning

Applications

- Drinking water monitoring in water supply systems
- Quality control in sewage treatment plants
- Water quality research projects
- Environmental monitoring

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Technical specifications

TW-Turb-40 / TW Turb-W40

	TW Turb-40	TW Turb-W40
Application	Drinking water, groundwater and surface water	
Measurement technology - Light source	IR LED 860 nm, FWHM* 30 nm	White light LED (color temperature between 2200-3000 °K)
Measurement technology - detector	IR photodiode with a spectral peak response at 860 nm	Photodiode with a spectral peak response in the range between 400 and 600 nm
Measurement principle	Nephelometry	
Parameters	Turbidity in FNU or NTU	Turbidity in NTU
Applied standard	DIN EN ISO 7027-1:2016-11	EPA Method 180.1 (August 1993)

*Full Width at Half Maximum (= half value width)

	TW Turb-40	TW Turb-W40
Measurement range	0-40 FNU	0-40 NTU
Measuring accuracy	± (5 % + 0.01) FNU	± (5 % + 0.01) NTU
Resolution	0.002 FNU	0.002 NTU
Sensitivity	0.005 FNU	0.005 NTU
Repeatability	± (0.5 % + detection limit)	± (0.5 % + detection limit)
Detection limit	0.015* FNU	0.03* NTU

*A detection limit of 0.01 can be achieved using a post-offset calibration.

	TW Turb-40	TW Turb-W40
Linearity / coefficient of variation	≤ 0,53 %	≤ 0,53 %
Measurement deviation	≤ (2 % of the measured value + detection limit)	≤ (3 % of the measured value + detection limit)
Reproducibility	≤ (1 % of the measured value + detection limit)	≤ (1 % of the measured value + detection limit)

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		TW Turb-40	TW Turb-W40
Response time (T90)	**Sensor**	20 s (only for the sensor)	
	Complete system	90 s at a flow rate of 10 L/h	
Warm-up time		60 s	

	TW Turb-40	TW Turb-W40
Data logger	Internal 8 GB memory, smallest storage interval 5 s	
Response time	20 s	
Smallest measurement interval	3,1 s	
Cross sensitivities	Finely dispersed air bubbles	Colored solutions, finely dispersed air bubbles

Display	3.5 inch capacitive color touch display, 320x480 pixels	
Interface - digital	RS-485 (Modbus RTU), Ethernet (Modbus TCP)	
Interface - analog	-	
Power supply	12-24 VDC (± 10 %)	
Power consumption	Typical 2 W; standby: 1.5 W	
Connection	M12 hybrid industrial connector, 8-pin	

Housing material	**Flow cell**	POM / NBR	
	Sensor	Aluminum / POM / PET / quartz glass	
Dimensions (W/H/D)		160 / 280 / 108 mm	6.3 / 11 / 4.25 "
Weight		approx. 3.8 kg	approx. 8.4 lbs

Operating conditions		
Temperature	Sample (insitu) 0...40 °C	32...104 °F
Ambient temperature	0...40 °C	32...104 °F
Min. internal pressure	0.2 bar	2.9 psi
Max. Internal pressure	1 bar	14.5 psi

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Flow rate	Min. 6 L/h (0.1 L/min)	
	Recommended 30 L/h (0.5 L/min)	
	Max. 1200 L/h (20 L/min)	
Internal volume	Approx. 150 mL	
Transport conditions	0...80 °C	32...176 °F
Storage conditions	0...80 °C	32...176 °F
Degree of protection	IP30	

Maintenance effort	Depending on the water quality, typically < 0.5 h / month
Calibration/maintenance interval	Depending on the water quality (typically every 12 months), regular cleaning depending on the water quality
System compatibility	TW Master, Modbus RTU, Modbus TCP
Warranty	1 year (EU & USA: 2 years)

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