



# New WTW Spectral Sensors – Optimized Performance.

ON-LINE MEASURING PARAMETERS: NO<sub>3</sub>, COD, BOD, TOC, DOC, SAC, TSS



a xylem brand

# Chemical-free Measurement direct

Whether influent, biological tank or effluent, the self-cleaning sensors NitraVis® / CarboVis® / NiCaVis® provide:

- High measurement reliability
- Low operating costs
- Simple handling
- Maximum durability

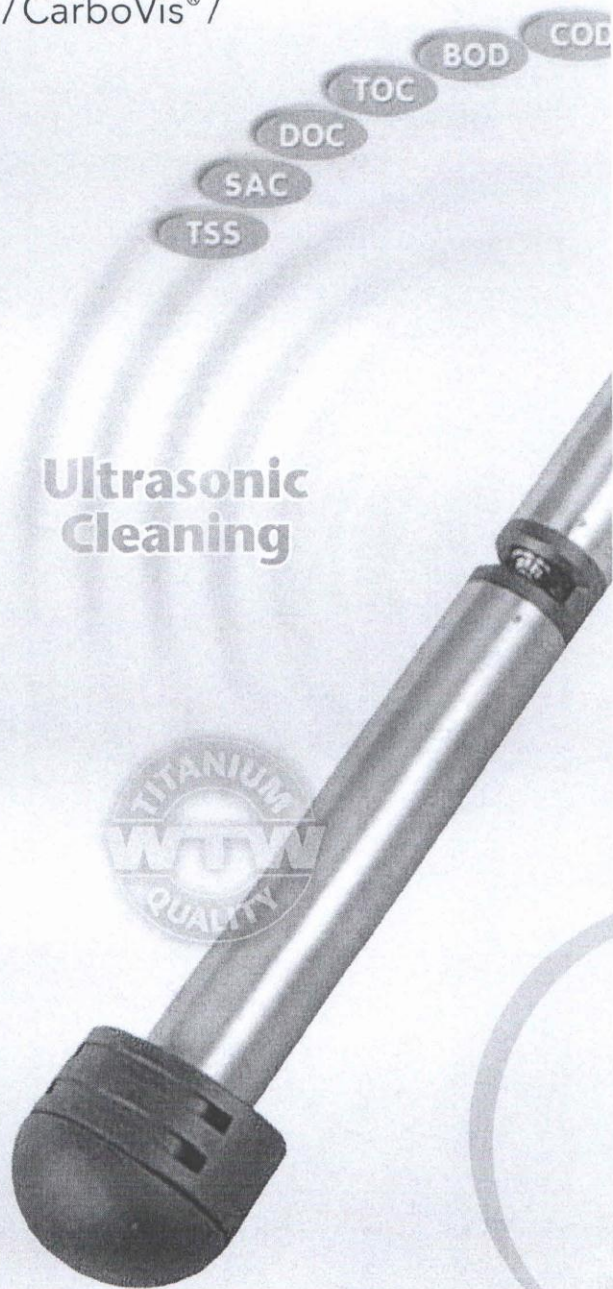
## Simple to Use

- Reagent-free measurement
- No sample treatment
- Integrated ultrasonic cleaning
- No routine-service

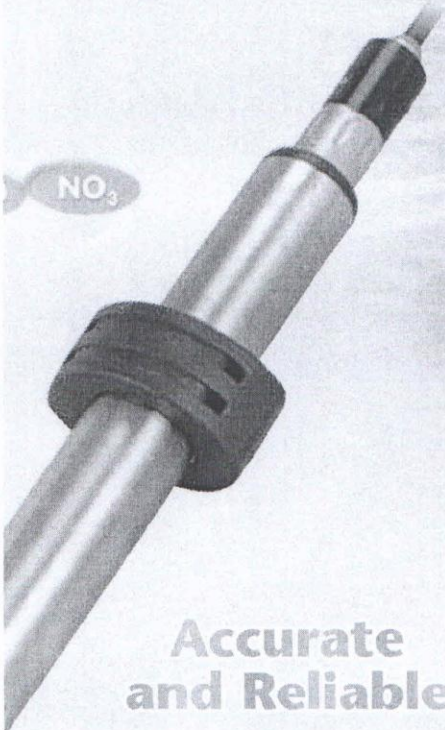
## Maximum Durability

- High-tech materials Titanium and PEEK
- Integrated shock absorbers

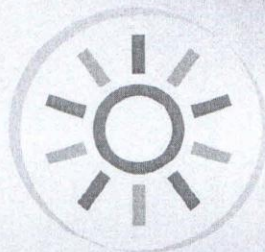
**Ultrasonic  
Cleaning**



# ectly in the Wastewater Process

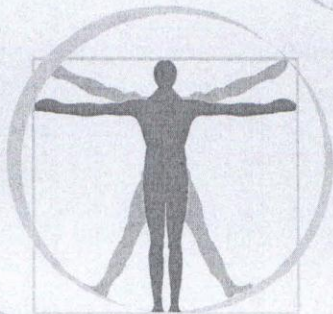


**Accurate  
and Reliable**



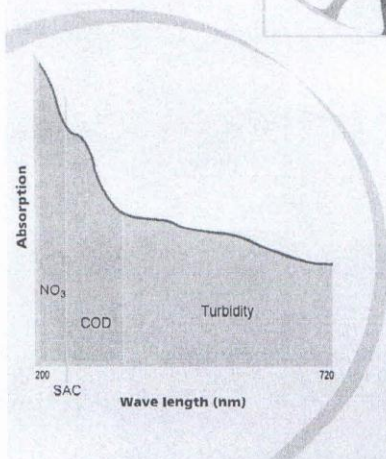
Detector Optimization

- Wide, dynamic measuring range
- High measurement accuracy



Innovative Optical Design

- Highest measurement repeatability
- High zero-point for long-term stability



Spectral Measurement

- No interference from nitrate and COD
- No influence from turbidity

# Technical Data

Parameter	Carbon: COD/TOC/SAC			Nitrogen	
	Measuring Principle	Spectral Measurement in the UV/VIS range (200 - 720 nm)			
	CarboVis® 705 IQ	CarboVis® 701 IQ	NiCaVis® 705 IQ	NitraVis® 701 IQ	NitraVis® 705 IQ
Applications	Municipal wastewater: inlet, effluent		Municipal wastewater: effluent	Municipal wastewater: inlet, aeration, outlet	
Measuring Ranges in Standard Solution (potassium- hydrogenphthalate)	COD: 0.1 ... 800.0 mg/l TOC: 1 ... 500.0 mg/l SAC: 0.1 ... 600.0 1/m	COD: 0.5 ... 4000.0 mg/l TOC: 5 ... 2500.0 mg/l SAC: 0.5 ... 3000.0 1/m	COD: 0.1 ... 800.0 mg/l TOC: 1 ... 500.0 mg/l SAC: 0.1 ... 600.0 1/m NO <sub>3</sub> -N: 0.01 ... 25.00 mg/l	NO <sub>3</sub> -N: 0.1 ... 100.0 mg/l (inlet, aeration)	NO <sub>3</sub> -N: 0.01 ... 25.00 mg/l (outlet)
Accuracy in standard solution	±3 % of the measured value ±2.5 mg/l			±3% of measured value ±0.5 mg/l	
Measuring Ranges TSS (Option)	Inlet: 0 ... 3000 mg/l TS Effluent: 0.0 ... 900.0 mg/l TS	Inlet: 0 ... 15 g/l TS Effluent: 0 ... 4.5 g/l TS	-	inlet, aeration: 0 ... 10.00 g/l TS	outlet: 0 ... 900.0 mg/l TS
Materials	Housing: Window:	Titanium 3.7035, PEEK Sapphire glass			
Pressure Resistance	≤1 bar				
Ambient Conditions	Operating temperature: 0 °C ... +45 °C; Storage temperature: -10 °C ... +50 °C				
Flow velocity	≤3 m/s				
pH range	pH 4 ... pH 12				
Dimensions	802 x 59.9 mm (length x diameter)				
Weight	Approx. 4 kg				
Warranty	2 years				

# Ordering Information

Model	Description	Order No.
<i>Supplied with multifunctional slide and Shock-Absorption-Rings, without connection cable (SACIQ order separately)</i>		
NitraVis® 701 IQ	Optical nitrate probe, with spectral processing of the UV/VIS range, for in-situ measurement in inlet/ BNR part of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 044
NitraVis® 701 IQ TS Double sensor	Optical nitrate/TSS probe, with spectral processing of the UV/VIS range, for in-situ measurement in inlet/ BNR part of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 045
NitraVis® 705 IQ	Optical nitrate probe, with spectral processing of the UV/VIS range, for in-situ measurement in the effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 046
NitraVis® 705 IQ TS Double sensor	Optical nitrate/TSS probe, with spectral processing of the UV/VIS range, for in-situ measurement in the effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 047
CarboVis® 701 IQ	Optical COD/TOC/DOC/BOD or SAC probe, with spectral processing of the UV/VIS range, for in-situ measurement in inlet/effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 048
CarboVis® 701 IQ TS Double sensor	Optical COD/TOC/DOC/BOD/SAC and TSS probe, with spectral processing of the UV/VIS range, for in-situ measurement in inlet/effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 049
CarboVis® 705 IQ	Optical COD/TOC/DOC/BOD or SAC probe, with spectral processing of the UV/VIS range, for in-situ measurement in inlet/effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 050
CarboVis® 705 IQ TS Double sensor	Optical COD/TOC/DOC/BOD/SAC and TSS probe, with spectral processing of the UV/VIS range, for in-situ measurement in inlet/effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 051
NiCaVis® 705 IQ Double sensor	Optical nitrate and COD/TOC/DOC/BOD/SAC probe, with spectral processing of the UV/VIS range, for in-situ measurement in effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 052

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**Technical Data digital D.O. Sensors**

Type	TriOxmatic® 700 IQ (SW*)	TriOxmatic® 701 IQ	TriOxmatic® 702 IQ	FDO® 700 IQ (SW*)	FDO® 701 IQ (SW*)
Measuring method	Electrochemical	Electrochemical	Electrochemical	Optical	
Measuring range (25 °C)					
O <sub>2</sub> concentration	0.0 ... 60.0 mg/l	0.00 ... 20.00 mg/l 0.0 ... 60.0 mg/l	0 ... 2000 µg/l 0.00 ... 10.00 mg/l	0 ... 20.00 mg/l (0 ... 20.00 ppm)	0 ... 200.0%
O <sub>2</sub> saturation	0 ... 600 %	0.0 ... 200.0 % 0 ... 600 %	0 ... 110 %	0 ... 200.0%	
Resolution					
O <sub>2</sub> concentration	0.1 mg/l	0.01 mg/l 0.1 mg/l	0.001 mg/l 0.01 mg/l	0.01 mg/l (0.01 ppm)	0.1 %
O <sub>2</sub> saturation	1 %	0.1 % 1 %	0.1 %	0.1 %	
Response time at 25 °C	t <sub>90</sub> : 180 s	t <sub>90</sub> : 30 s t <sub>99</sub> : 90 s	t <sub>90</sub> : 30 s t <sub>99</sub> : 110 s	t <sub>90</sub> : <150 s t <sub>95</sub> : <200 s	t <sub>90</sub> : <60 s t <sub>95</sub> : <80 s
Minimum flow rate	0.05 m/s	0.23 m/s	0.3 m/s	No drift required	
SensCheck	SensLeck (700 IQ) SensReg (700 IQ/ 700 IQ SW)	SensLeck SensReg	- SensReg	Monitoring of membrane function	
Signal output	Digital	Digital	Digital	Digital	
Sensor memory for calibration values	Yes	Yes	Yes	Yes (factory calibrated)	
Power consumption	0.2 Watt	0.2 Watt	0.2 Watt	0.7 Watt	
Temp. measurement	Integrated NTC, 23 ... 140 °F (-5 °C ... +60 °C)				
Temp. compensation	32 ... 140 °F (0 °C ... +60 °C)			23 ... 122 °F (-5 °C ... +50 °C)	
Maximum pressure	10 bar (incl. sensor connection cable)				
Ambient conditions	Operating temperature: 32 ... 140 °F (0 °C ... +60 °C) Storage temperature: 32 ... 149 °F (0 °C ... +65 °C)			23 ... 122 °F (-5 °C ... +50 °C) -13 ... 122 °F (-25 °C ... +50 °C)	23 ... 104 °F (-5 °C ... +40 °C) -13 ... 104 °F (-25 °C ... +40 °C)
Electrical connections	2-wire shield cable with quick fastener to sensor				
Input power	Powered by IQ SENSOR NET				
Translet voltag protection	Yes				
EMI/RFI Conformance	EN 61326, Class B, FCC Class A; Intended for indispensable operation				
Certifications	CE, cETL, ETL				
Mechanical	Membrane head assembly, locking cap: POM Sensor body: 316 Ti stainless steel Protection rating: IP 68			Sensor cap, fixation: POM, PVC, silicone, PMMA housing shaft: VA steel 1.4571 protection type IP 68	
Dimensions (length x diameter)	14.17 x 1.57 in. (360 x 40 mm); SW: 14.17 x 2.34 in. (360 x 59.5 mm)			15.75 x 1.57 in. (400 x 40 mm) SW: 15.75 x 2.34 in. (400 x 59.5 mm)	
	incl. connection thread of SACIQ sensor connection cable				
Weight (Approx.)	1.46 lb (660 g, without sensor connection cable); SW: 2.58 lb (1,170 g)			1.98 lb (900 g) SW: 3.31 lb (1.5 kg)	
Guaranty	2 years for sensor acc. § 10 AGB				

**Ordering Information**

Digital D.O. Sensors	Order No.
TriOxmatic® 700 IQ	D.O. sensor for water/wastewater; oxygenation determination 201 640
TriOxmatic® 701 IQ	D.O. sensor for water/wastewater; oxygenation/residual oxygen determination 201 644
TriOxmatic® 702 IQ	D.O. sensor, ppb measuring range; ultrapure water/boiler feedwater 201 646
FDO® 700 IQ	Digital calibration-free optical O <sub>2</sub> sensor for water/wastewater, determination of oxygen concentration 201 650
FDO® 700 IQ SW	Digital calibration-free optical O <sub>2</sub> sensor for water/wastewater, determination of oxygen concentration in sea water 201 652
SACIQ-7,0	Sensor connection cable for all IQ sensors, cable length 23 ft. (7.0 m) 480 042

IP 68

**2 Year**  
Guaranty

*Further cable lengths and special seawater/brackwater designs see brochure "Product Details"*

\* SW: Sensor in sea water design (with plastic armouring (POM))

 For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you

Parameter section

Dissolved Oxygen

pH, ORP

Conductivity

 Turbidity/  
Suspended Solids

Nitrogen

 Carbon: COD/TOC/  
DOC/BOD/SAC

Phosphate

Sludge level

Technical Data analog D.O. Sensors		
Type	TriOxmatic® 690/700 (SW*)/700 IN	TriOxmatic® 701
Measuring method	Electrochemical	Electrochemical
Measuring range (25 °C)		
O <sub>2</sub> concentration	0.0 ... 60.0 mg/l	0.00 ... 20.00 mg/l
O <sub>2</sub> saturation	0 ... 600%	0.0 ... 60.0 mg/l 0.0 ... 200.0% 0 ... 600%
<i>(depending upon the selected monitor model)</i>		
Resolution		
O <sub>2</sub> concentration	0.1 mg/l	0.01 mg/l
O <sub>2</sub> saturation	1%	0.1% 1%
Response time at 25 °C	t <sub>90</sub> : 180 s	t <sub>90</sub> : 30 s t <sub>99</sub> : 90 s
Minimum flow rate	0.05 m/s	0.23 m/s
SensCheck	SensLeck (700/700 IN) SensReg (700/700 SW)	SensLeck SensReg
Signal output	Analog	Analog
Temp. measurement	Integrated NTC, 23 ... 122 °F (-5 °C ... +50 °C)	
Temp. compensation	32 ... 122 °F (0 °C ... +50 °C)	
Maximum pressure	10 bar	
Ambient conditions	Operating temperature: 32 ... 122 °F (0 °C ... +50 °C) Storage temperature: 32 ... 122 °F (0 °C ... +50 °C)	
Electrical connections	Integrated PU connection cable with fitted 7-pole screw connector (IP65)	
Input power	Powered by WTW D.O. monitor	
Translet voltag protection	Yes	
EMI/RFI Conformance	EN 61326 Class B, FCC Class A	
Certifications	CE	
Mechanical	Membrane head assembly, locking cap: POM Sensor body: 316 Ti stainless steel Protection rating: IP 68	
Dimensions (length x diameter)	7.83 x 1.57 in. (199 x 40 mm) SW: 8.90 x 2.34 in. (226 x 59.5 mm)	
Weight (Approx.)	1.46 lb (660 g); SW: 1.90 lb (860 g)	
Guaranty	2 years for sensor acc. § 10 AGB	

**Ordering Information**

Analog D.O. Sensors	Order No.
TriOxmatic® 700-7 D.O. sensor for water/wastewater; oxygenation determination; cable length 23 ft. (7.0 m)	201 670
TriOxmatic® 690-7 Same as model 700-7, but without SensCheck function; cable length 23 ft. (7.0 m)	201 690
TriOxmatic® 701-7 D.O. sensor for water/wastewater; oxygenation/residual oxygen determination; cable length 23 ft. (7.0 m)	201 678
TriOxmatic® 700 IN-7 D.O. sensor for highly polluted industrial wastewater; cable length 23 ft. (7.0 m)	201 695

IP 68

**2** Year Guaranty

*Further cable lengths and special seawater/brackwater designs see brochure "Product Details"*  
 \* SW: Sensor in sea water design (with plastic armouring (POM))

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Parameter section

Dissolved Oxygen

pH/ORP

Conductivity

 Turbidity/  
Suspended Solids

Nitrogen

 Carbon: COD/TOC/  
DOC/BOD<sub>5</sub>/SAC

Phosphate

Sludge level

Technical Data CarboVis®/NiCaVis®					
Measuring Principle	Spectral measurement in the UV-VIS range (200 - 720 nm) / UV range of 200 - 390 nm				
	CarboVis® 705 IQ	CarboVis® 701 IQ	NiCaVis® 705 IQ	NiCaVis® 701 IQ NI	NiCaVis® 705 IQ NI
Applications	Municipal wastewater: effluent	Municipal wastewater: inlet, Biological Tank, effluent	Municipal wastewater: effluent	Municipal wastewater: effluent: inlet, Biological Tank, effluent	Municipal wastewater: effluent
Measuring Ranges in Standard Solution (potassium-hydrogenphthalate)	COD: 0.1 ... 800.0 mg/l TOC: 1 ... 500.0 mg/l SAC: 0.1 ... 600.0 1/m	COD: 0.5 ... 4000.0 mg/l TOC: 5 ... 2500.0 mg/l SAC: 0.5 ... 3000.0 1/m	COD: 0.1 ... 800.0 mg/l TOC: 1 ... 500.0 mg/l SAC: 0.1 ... 600.0 1/m NO <sub>3</sub> -N: 0.01 ... 25.00 mg/l	NO <sub>2</sub> -N: 0.1 ... 25 mg/l NO <sub>3</sub> -N: 0.1 ... 100 mg/l COD: 0.5 ... 4000.0 mg/l	NO <sub>2</sub> -N: 0.01 ... 5 mg/l NO <sub>3</sub> -N: 0.01 ... 25 mg/l COD: 0.1 ... 800 mg/l
Measuring Ranges TSS (Option)	Inlet: 0 ... 3000 mg/l TSS Effluent: 0.0 ... 900.0 mg/l TSS	Inlet: 0 ... 15 g/l TSS Effluent: 0 ... 4.5 g/l TSS	—	—	—
Materials	Housing: Titanium 3.7035, PEEK Window: Sapphire glass				
Pressure Resistance	≤1 bar				
Ambient Conditions	Operating temperature: 32 °F ... 113 °F (0 °C ... +45 °C) Storage temperature: 14 °F ... 122 °F (-10 °C ... +50 °C)				
Flow Velocity	≤3 m/s				
pH Range	pH 4 ... pH 12				
Salt Content of Medium	<5000 mg/l (Chloride)				
Dimensions	31.57 x 2.36 in. (802 x 59.9 mm, length x diameter)				
Weight	Approx. 8.82 lb (4 kg)				
Guaranty	2 years for defects of quality				

### Ordering Information

UV-VIS sensors CarboVis®	Supplied with multifunctional slide and Shock-Absorption-Rings, without connection cable (SACIQ order separately)	Order No.
CarboVis® 701 IQ	Optical COD/TOC/DOC/BOD or SAC probe, with spectral processing of the UV-VIS range, for in-situ measurement in inlet, BNR part and effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 048
CarboVis® 701 IQ TS Double sensor	Optical COD/TOC/DOC/BOD/SAC and TSS probe, with spectral processing of the UV-VIS range, for in-situ measurement in inlet, BNR part and effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 049
CarboVis® 705 IQ	Optical COD/TOC/DOC/BOD or SAC probe, with spectral processing of the UV-VIS range, for in-situ measurement in effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 050
CarboVis® 705 IQ TS Double sensor	Optical COD/TOC/DOC/BOD/SAC and TSS probe, with spectral processing of the UV-VIS range, for in-situ measurement in effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 051
UV-VIS sensors NiCaVis®	Supplied with multifunctional slide and Shock-Absorption-Rings, without connection cable (SACIQ order separately)	Order No.
NiCaVis® 705 IQ Double sensor	Optical nitrate and COD/TOC/DOC/BOD/SAC probe, with spectral processing of the UV-VIS range, for in-situ measurement in effluent of municipal wastewater treatment plants, with integrated ultrasonic cleaning.	481 052
UV sensors NiCaVis®	Supplied with multifunctional slide and Shock-Absorption-Rings, without connection cable (SACIQ order separately)	Order No.
NiCaVis® 701 IQ NI	UV sensor for the measurement of nitrate, nitrite, CODtotal, CODsoluble, TOC, BOD, DOC, SACTotal, SACsoluble and UVT254 in inlet, BNR part and effluent of municipal wastewater treatment plants.	481 054
NiCaVis® 705 IQ NI	UV sensor for the measurement of nitrate, nitrite, CODtotal, CODsoluble, TOC, BOD, DOC, SACTotal, SACsoluble and UVT254 in the effluent of municipal wastewater treatment plants.	481 055
Accessories	for additional compressed air cleaning system (optional)	Order No.
Cleaning Air Box	Cleaning air box with compressor, 230 VAC with air-filter	480 019
MIQ/CHV PLUS	Valve module for automatic cleaning by compressed air; controlled directly via the IQ SENSOR NET Bus	480 018
DIQ/CHV	Valve module for the automatic compressed air cleaning for System 182; accessible by means of an DIQ/S 182 relay	472 007
SET/AP	Compressed air cleaning set: 15 m compressed air tubing incl. fittings, additional modules and components must be ordered separately	481 075



Accessories see page 128.

 For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you

با پیش صنعت ایرانیان  
 با مسئولیت محدود  
 ثبت: ۳۸۹۴۰۷

Parameter section

Dissolved Oxygen

pH/ORP

Conductivity

Turbidity/Suspended Solids

Nitrogen

Carbon: COD/TOC/DOC/BOD/SAC

Phosphate

Sludge level

Configuration Guide digital conductivity measurement				
		1. Measuring range 2. Cell constant 3. Probe type 4. Temperature compensation	5. Temperature range 6. Pressure range 7. Protection rating	<b>IQ SENSOR NET</b>  Systems 2020 XT/182
<b>Digital</b>	<b>TetraCon® 700 IQ</b>	1.: 10 µS/cm ... 500 mS/cm 2.: K=0.917 cm <sup>-1</sup> 3.: 4-electrode cell 4.: NTC	5.: 32 ... 140 °F (0 ... 60 °C) 6.: 10 bar 7.: IP 68 (electrode)	Water/Wastewater; Usable Measuring Range: 0.00 ... 20.00 µS/cm 0.0 ... 200.0 µS/cm 0.000 ... 2.000 mS/cm 0.00 ... 20.00 mS/cm 0.0 ... 200.0 mS/cm 0 ... 500 mS/cm
		Junction box for connecting the analog measuring cells to the IQ SENSOR NET:		
<b>Analog</b>	<b>TetraCon® 700</b>	1.: 10 µS/cm ... 1000 mS/cm 2.: K=0.917 cm <sup>-1</sup> 3.: 4-electrode cell 4.: NTC	5.: 32 ... 122 °F (0 ... 50 °C) 6.: 10 bar 7.: IP 68 (electrode)	KI/LF-0,9/MIQ 505 570
	<b>LRD 01</b>	1.: 0,01 ... 200 µS/cm 2.: K=0.1 cm <sup>-1</sup> 3.: 2-electrode cell 4.: NTC	5.: 32 ... 266 °F (0 ... 130 °C) 6.: 14 bar (68 °F/20 °C) 7.: IP 68 (electrode)	KI/LF-0,1 MIQ 505 573
	<b>LRD 325</b>	1.: 1 µS/cm ... 2 S/cm 2.: K=0.475 cm <sup>-1</sup> 3.: 4-electrode cell 4.: NTC	5.: 32 ... 212 °F (0 ... 100 °C) 6.: 10 bar 7.: IP 68 (electrode)	KI/LF-0,4/MIQ 505 572
	<b>LR 325/01</b>	1.: 0.001 ... 300 µS/cm 2.: K=0.1 cm <sup>-1</sup> 3.: 2-electrode cell 4.: NTC	5.: 32 ... 212 °F (0 ... 100 °C) 6.: 2 bar 7.: IP 68 (electrode)	KI/LF-0,1 MIQ 505 573 + ADA/AMPH-LAB-LF 303 212
	<b>LR 325/001</b>	1.: 0.0001 ... 30 µS/cm 2.: K=0.01 cm <sup>-1</sup> 3.: 2-electrode cell 4.: NTC	5.: 32 ... 212 °F (0 ... 100 °C) 6.: 2 bar 7.: IP 68 (electrode)	KI/LF-0,01 MIQ 505 574 + ADA/AMPH-LAB-LF 303 212
	<b>TetraCon® 325</b>	1.: 1 µS/cm ... 2 S/cm 2.: K=0.475 cm <sup>-1</sup> 3.: 4-electrode cell 4.: NTC	5.: 32 ... 212 °F (0 ... 100 °C) 6.: 2 bar 7.: IP 68 (electrode)	KI/LF-0,4/MIQ 505 572 + ADA/AMPH-LAB-LF 303 212
	<b>TetraCon® DU/T</b>	1.: 1 µS/cm ... 2 S/cm 2.: K=0.778 cm <sup>-1</sup> 3.: 4-electrode cell 4.: NTC	5.: 32 ... 140 °F (0 ... 60 °C) 6.: 2 bar 7.: IP 65	KI/LF-0,7/MIQ 505 571 + ADA/AMPH-LAB-LF 303 212 + KKDU 325 301 963

— Not Applicable

### Analog conductivity measurement

Configuration guide of analog conductivity measuring cells can be seen on page 100



Parameter section

Dissolved Oxygen

pH/ORP

Conductivity

Turbidity/  
Suspended Solids

Nitrogen

Carbon: COD/TOC/  
DOC/BOD/SAC

Phosphate

Sludge level

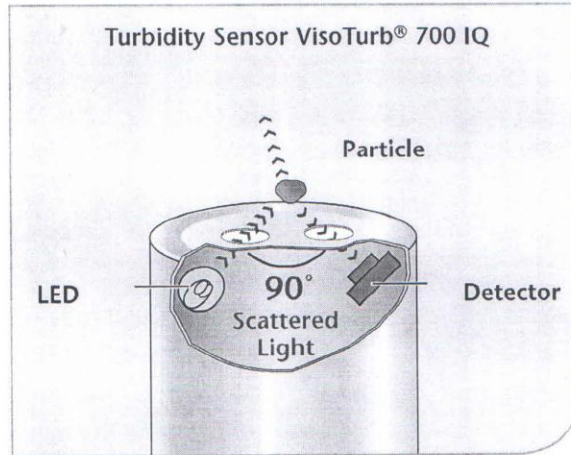
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اباستولیت محدود  
تلفن: ۳۸۹۴۰۷



## Turbidity Sensor VisoTurb®

### Turbidity Measurement according to the Nephelometric Principle

Using this principle, scattered light is measured at an angle of 90 degree. This method is ideal for low and medium range turbidity up to 4000 FNU. In compliance with EN 27027 and ISO 7027, infra red light with a wavelength of 860 nm is used. This wavelength is outside of the visible range – thus potential coloration of the sample does not effect the measurements.



Technical Data VisoTurb® 700 IQ (SW*)			
Parameter	FNU; NTU; TEF	mg/l SiO <sub>2</sub> ; ppm SiO <sub>2</sub>	g/l TSS
Measuring Range	0.05 ... 4000 FNU	0.1 ... 4000 mg/l SiO <sub>2</sub>	0.0001 ... 400 g/l TSS
Typical Applications	Drinking water, surface water, waste water plant: effluent, aeration basin ≤3 g/l TSS		
Calibration	Factory calibration with formazine	Factory calibration with SiO <sub>2</sub>	Calibration by user, (TSS regulations in compliance with DIN 38414)
Process variation coefficient according to DIN 38402 part 51	<1% (in the range up to 2000 FNU)		
Repeatability according to DIN ISO 5725 or DIN 1319	<0,015% or ≥0,006 FNU		
Resolution	Automatic according to measuring range 0.001 ... 1 FNU	0.001 mg/l ... 1 mg/l	0.001 mg/l ... 1 g/l
Cleaning System	Ultrasound cleaning system		
SensCheck	Contamination detection of optical window; failure of cleaning system		
Ambient Conditions	Operating temperature: 32 ... 140 °F (0 ... 60 °C); ultrasonic cleaning system: 32 ... 104 °F (0 ... 40 °C) (overheating protection) Storage temperature: 23 ... 149 °F (-5 ... +65 °C)		
Mechanical Components	Measurement window: Sapphire Sensor body: V4A stainless steel 1.4571 Protection rating: IP 68		
Pressure Resistance	Maximum 10 bar (incl. sensor connection cable)		
Power Consumption	1.5 Watt		
Dimensions	14.37 x 1.57 in. (365 x 40 mm, length x diameter), incl. sensor connection cable SACIQ		
Weight	Approx. 2.18 lb (990 g, without cable)		
Guaranty	2 years for defects of quality		

### Ordering Information

		Order No.
VisoTurb® 700 IQ	Turbidity sensor for water/wastewater with ultrasound cleaning system	600 010
SACIQ-7,0	Sensor connection cable for all IQ sensors, cable length 23 ft. (7.0 m)	480 042



Further cable length and special seawater/brackwater designs and accessories see brochure "Product Details"

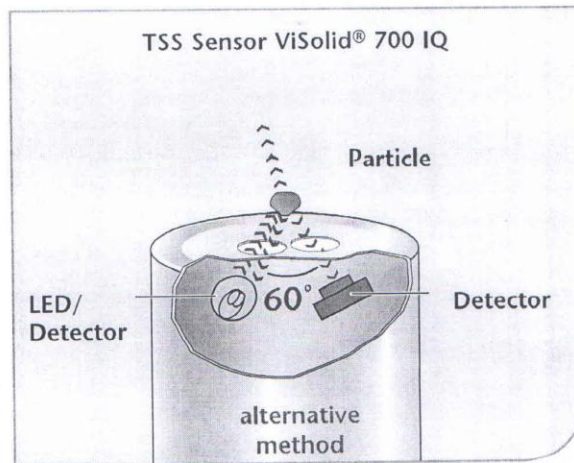
\* SW: Sensor in sea water design (with plastic armouring (POM))

## Suspended Solids Sensor ViSolid®

### Measuring Principle of Suspended Solids

With increasing concentration of suspended solids, particles will interfere with each other. With this increasing number, not every particle is reached by the light source or the reflected light is not detected by the receiving device – thus incorrect values are measured. So the 90 degree scattered light method used for the turbidity measurement can only be used for lower concentrations.

For this reason WTW uses two methods of measurement – depending on the concentration. For lower concentrations, a scattered light method is used, in case of higher concentrations, the backscatter method is the better choice.



Technical Data ViSolid® 700 IQ (SW*)		
Parameter	g/l SiO <sub>2</sub> / % SiO <sub>2</sub>	g/l TSS / % TSS
Measuring Range	0.01 ... 300 g/l 0.001 ... 30 %	0.003 ... 1000 g/l 0.0003 ... 100 %
Typical Applications	Matrix type 1: aeration basin of waste water plants even with > 3 g/l TSS; return-sludge Matrix type 2: digested sludge	TSS TSS
Calibration	Typical sludge characteristics stored: matrix type 1, matrix type 2 Calibration by user: adjustment via correction factor, 1-point or multi-point calibration possible	
Process variation coefficient according to DIN 38402 part 51	< 2% for matrix type 1, < 4% for matrix type 2	
Resolution	Automatic according to measuring range 0.1 mg/l ... 0.1 g/l	0.1 mg/l ... 1 g/l
Cleaning System	Ultrasound cleaning system	
SensCheck	Contamination detection of optical window; failure of cleaning system	
Ambient Conditions	Operating temperature: 32 ... 140 °F (0 ... 60 °C) Storage temperature: 23 ... 149 °F (-5 ... +65 °C)	
Mechanical Components	Measuring window: Sapphire Sensor body: V4A stainless steel 1.4571 Protection rating: IP 68	
Pressure Resistance	Maximum 10 bar (incl. sensor connection cable)	
Power Consumption	1.5 Watt	
Dimensions	14.37 x 1.57 in. (365 x 40 mm, length x diameter), incl. sensor connection cable SACIQ	
Weight	Approx. 2.18 lb (990 g, without cable)	
Guaranty	2 years for defects of quality	

### Ordering Information

		Order No.
ViSolid® 700 IQ	Suspended solids sensor for water/wastewater with ultrasound cleaning system	600 012
SACIQ-7,0	Sensor connection cable for all IQ sensors, cable length 23 ft. (7.0 m)	480 042



Further cable length and special seawater/brackwater designs and accessories see brochure "Product Details"

\* SW: Sensor in sea water design (with plastic armouring (POM))

For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you

رایان پایش صنعت ایرانیان  
(با مسئولیت محدود)  
شیت: ۳۸۹۴۰۷

Parameter section

Dissolved Oxygen

pH/ORP

Conductivity

Turbidity/Suspended Solids

Nitrogen

Carbon: COD/TOC/DOC/BOD/SAC

Phosphate

Sludge level

### Technical Data SensoLyt® digital Sensor Assemblies

Type	SensoLyt® 700 IQ (SW*)
Integrated Preamplifier	Yes
Signal output	Digital
Sensor check funktion	Yes
Sensor memory for calibration values	Yes
Power consumption	0.2 watts
Temperature measurement	Integrated NTC, 23 ... 140 °F (-5 ... +60 °C)
Ambient conditions	Operating temperature: 32 ... 140 °F (0 ... +60 °C)
Electrical connections	2-wire shielded cable with quick fastener to sensor
Transient voltage protection	Yes
EMI/RFI Conformance	EN 61326 class B, FCC Class A Intended for indispensable operation
Certifications	CE, cETLus
Mechanical	Sensor body: 316 Ti stainless steel Protection cap: PVC Sensor holder: POM Protection rating: IP 68
Dimensions (L x D)	20 x 1.57 in. (508 x 40 mm); SW: 20.78 x 2.34 in. (515 x 59.5 mm)
Weight (without cable)	2.14 lb (970 g) SW: approx. 3.97 lb (1.800 g)
Guaranty	2 years for defects of quality

### Ordering Information digital pH/ORP Sensors

Digital SensoLyt® Sensors		Order No.
SensoLyt® 700 IQ	pH/ORP sensor for combination electrodes SensoLyt® SEA, DWA, ECA, PtA	109 170
SACIQ-7,0	Sensor connection cable for all IQ sensors, cable length 23 ft. (7.0 m)	480 042



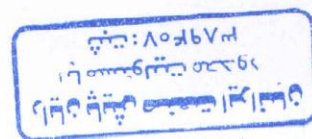
\*on armature

Further cable lengths, special design (e.g. for seawater) and buffer solutions see brochure "Product Details"

\* SW: Sensor in sea water design (with plastic armoring (POM))

Parameter section  
Dissolved Oxygen  
pH/ORP  
Conductivity  
Turbidity/Suspended Solids  
Nitrogen  
Carbon: COD/TOC/DOC/BOD/SAC  
Phosphate  
Sludge level

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## Technical Data analog SensoLyt® Sensor Assemblies

Type	SensoLyt® 700 (SW*)	SensoLyt® 690	SensoLyt® 650
Integrated Pre-amplifier	Yes	Yes	No
Signal output	Low impedance, analog	Low impedance, analog	High impedance
Sensor check funktion	Yes	No	No
Sensor memory for calibration values	—		
Power consumption	—		
Temperature measurement	Integrated NTC, 32 ... 140 °F (0 ... +60 °C)		
Ambient conditions	Operating temperature: 32 ... 140 °F (0 ... +60 °C)		
Electrical connections	integrated PU connecting cable with fitted 7-pole screw connector (IP 65)		Integral PU connection cable with bare cable ends
Transient voltage protection	Yes		
EMI/RFI Conformance	EN 61326 class B, FCC Class A		
Certifications	CE		
Mechanical	Sensor body: POM Protective cap: PVC Protection rating: IP 68		
Dimensions (L x D)	12.24 x 1.57 in. (311 x 40 mm); SW: 15.52 x 2.34 in. (318 x 59.5 mm)		
Weight (without cable)	Approx. 0.71 lb (320 g); SW: approx. 1.94 lb (880 g)		
Guaranty	2 years for defects of quality		

## Technical Data SensoLyt® Combination Electrodes

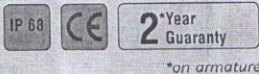
Type	SEA/SE**	SEA-HP	DWA/DW**	ECA/EC**	PtA/Pt**
Electrode type	Gel-polymer solid electrolyte double pinhole junction		Modified gel electrolyte single pinhole junction	Gel electrolyte single pinhole junction	Gel-polymer solid electrolyte double pinhole junction
Operation conditions (Overpressure/temperature)	10 bar/68 °F (20 °C) 1 bar/140 °F (60 °C)	10 bar/140 °F (60 °C)	6 bar/68 °F (20 °C) 1 bar/140 °F (60 °C)	6 bar/68 °F (20 °C) 1 bar/140 °F (60 °C)	10 bar/68 °F (20 °C) 1 bar/140 °F (60 °C)
Measuring range	32 ... 140 °F (0 ... 60 °C) 2 ... 12 pH	32 ... 140 °F (0 ... 60 °C) 4 ... 12 pH	32 ... 140 °F (0 ... 60 °C) 0 ... 14 pH	32 ... 140 °F (0 ... 60 °C) 2 ... 12 pH	32 ... 140 °F (0 ... 60 °C) ±2000 mV***
Mechanical	Cylindrical glass membrane, armored version with PVC armouring (SEA-HP: POM), 2 Viton O-ring seals for mounting into SensoLyt® sensor assemblies				
Dimensions	Length 4.72 in./120 mm (without plug head)				
Electrical connections	watertight plug head connector				
Guaranty	6 months for defects of quality				

## Ordering Information analog pH/ORP Sensors

Analog SensoLyt® Sensors	Order No.
SensoLyt® 700-7	pH/ORP sensor with integrated pre-amplifier; cable length 23 ft. (7.0 m) 109 191
SensoLyt® 690-7	Same as model 700-7, but without SensCheck funktion 109 180
SensoLyt® 650-7	pH/ORP sensor for high impedance operation; cable length 23 ft. (7.0 m) (for SensoLyt® SEA, DWA, ECA, PtA) 109 195
SensoLyt® Combined electrodes	Order No.
SensoLyt® SEA	pH combination electrode, measuring range 2 ... 12 pH, for mounting into SensoLyt® sensor assemblies 109 115
SensoLyt® SEA-HP	pH combination electrode, measuring range 4 ... 12 pH, for mounting into SensoLyt® sensor assemblies 109 118
SensoLyt® DWA	pH combination electrode, measuring range 0 ... 14 pH, for mounting into SensoLyt® sensor assemblies 109 119
SensoLyt® ECA	pH combination electrode, measuring range 2 ... 12 pH, for mounting into SensoLyt® sensor assemblies 109 117
SensoLyt® PtA	ORP combination electrode, measuring range ± 1000 mV, for mounting into SensoLyt® sensor assemblies 109 125
SensoLyt® SE	Same as model SEA, but without armor; e.g. for direct use in flow-thru vessels 109 100
SensoLyt® DW	Same as model DWA, but without armor; e.g. for direct use in flow-thru vessels 109 103
SensoLyt® EC	Same as model ECA, but without armor; e.g. for direct use in flow-thru vessels 109 102
SensoLyt® Pt	Same as model PtA, but without armor; e.g. for direct use in flow-thru vessels 105 412

Further cable lengths, special design (e.g. for seawater) and buffer solutions see brochure "Product Details"

\* SW: Sensor in sea water design (with plastic armouring (POM))  
\*\* Electrode without armor, e.g. for direct use in flow-thru vessels  
\*\*\* Depending on monitor



\*on armature