

# Process photometer in drinking water treatment

Main catalogue



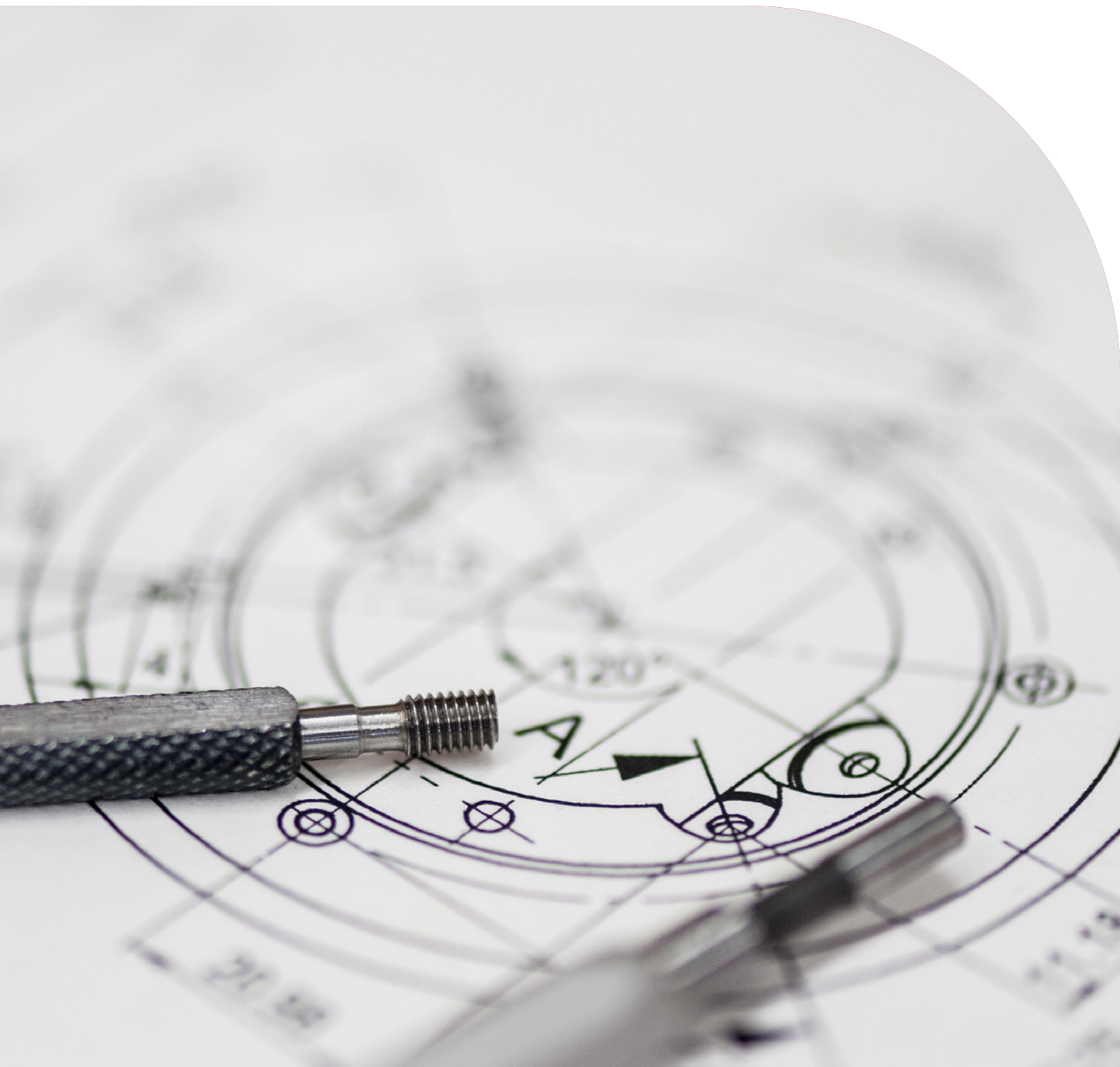
**swiss  made**  
since 1946

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# Swiss Quality

Precise and high quality. Since 1946.



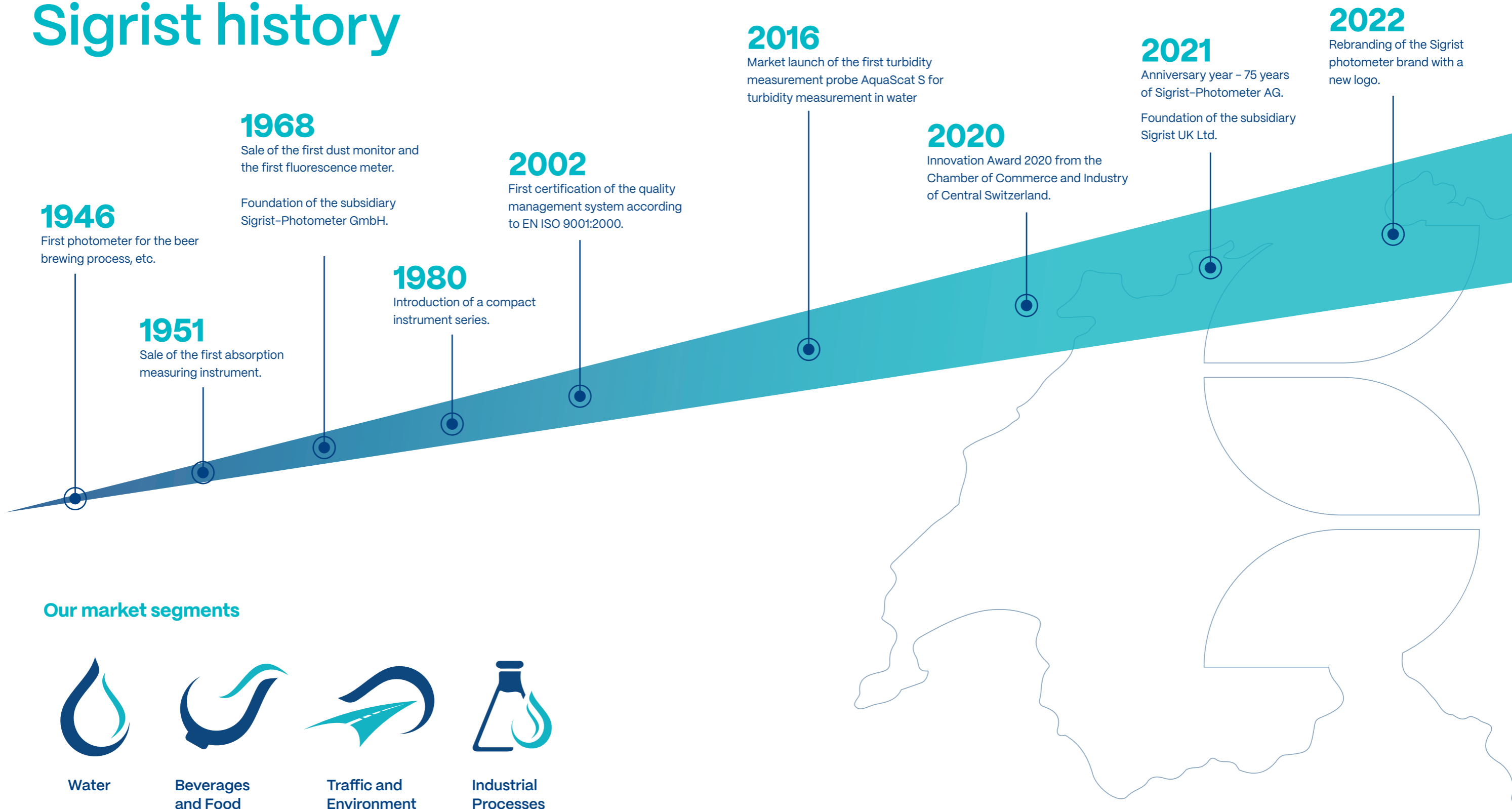
## Tradition and innovation combined

**Sigrist-Photometer AG** with its roots and headquarters in Ennetbürgen, Switzerland, has been developing, manufacturing and marketing high-quality optical measuring instruments for use in water treatment, food industry, industrial processes as well as traffic and environment since 1946. We are one of the sector's technology and quality leaders and our products are sold in over 80 countries. With great commitment, our 85 employees contribute to the sustainably positive development of the company and the appreciative corporate culture.

The large network of sales and service partners ensures competent advice around the world and supports customers in the practical use and service of all Sigrist products.

swiss  made  
since 1946

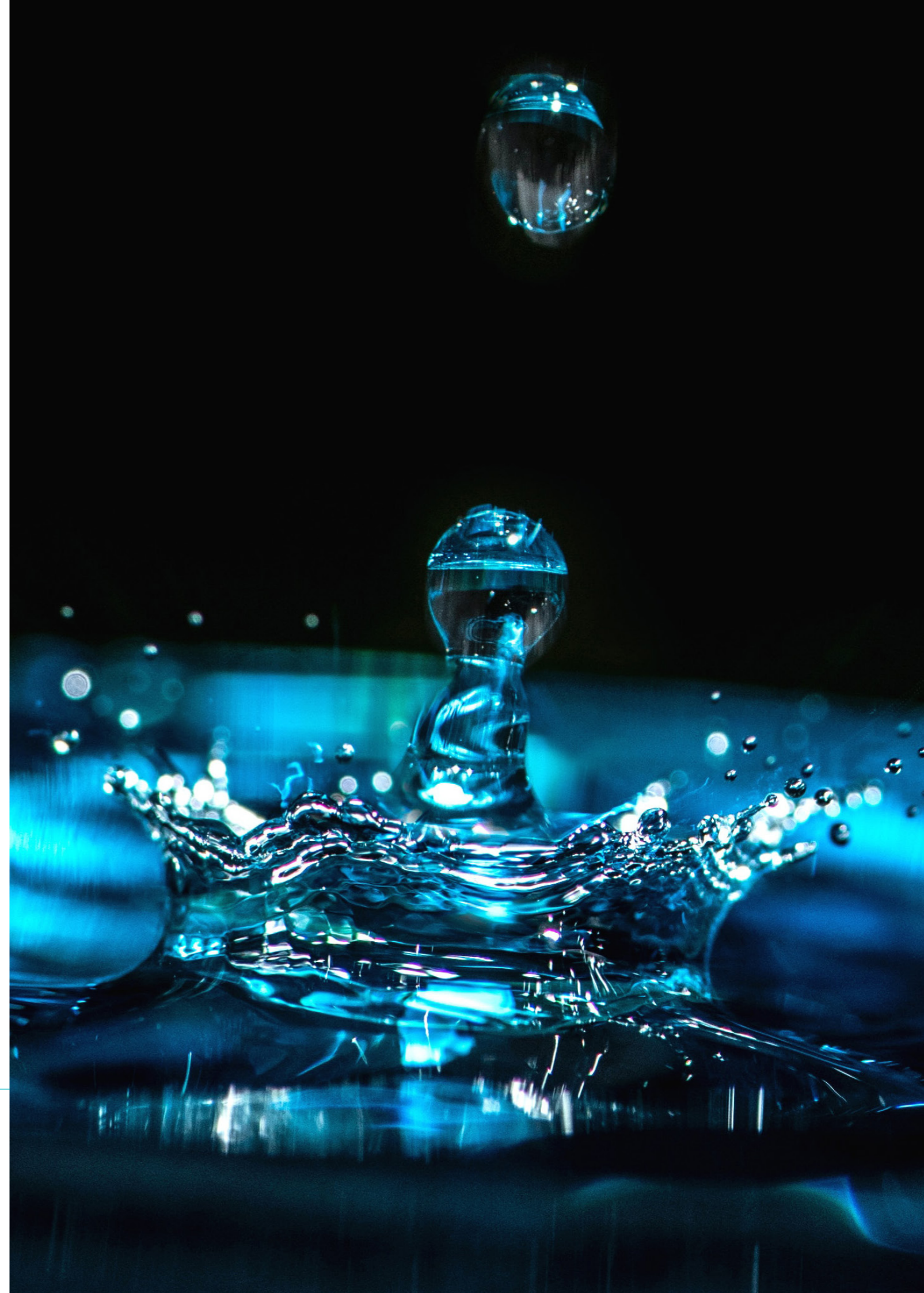
# Excerpt from the Sigrist history



# Sigrist process photometers in drinking water treatment

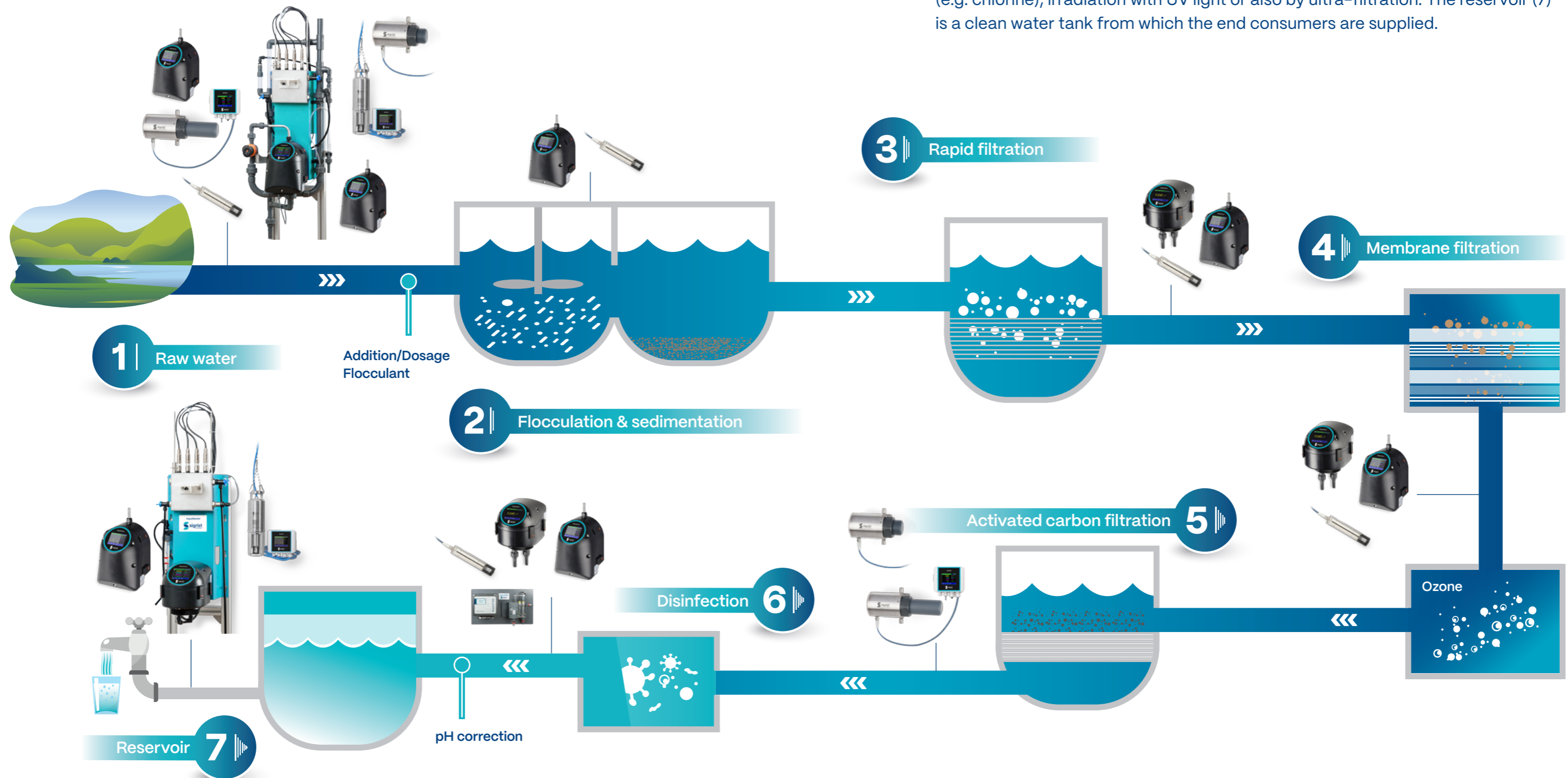
With our process photometers, we monitor that raw water is turned into clean high-quality drinking water. Drinking water treatment begins with the extraction of raw water. The latter varies depending on the country or geographical location and comes either from surface water, groundwater or natural springs. The degree of contamination determines how extensive the treatment must be. Typical treatment steps in drinking water supply are the addition of flocculants with sedimentation, filtration, disinfection or the regulation of the pH value. Our measuring devices can be used before or after these processes. In doing so, they serve to monitor or control the processes and make a reliable contribution to ensuring perfect drinking water quality.

*"Water is our most important resource!"*



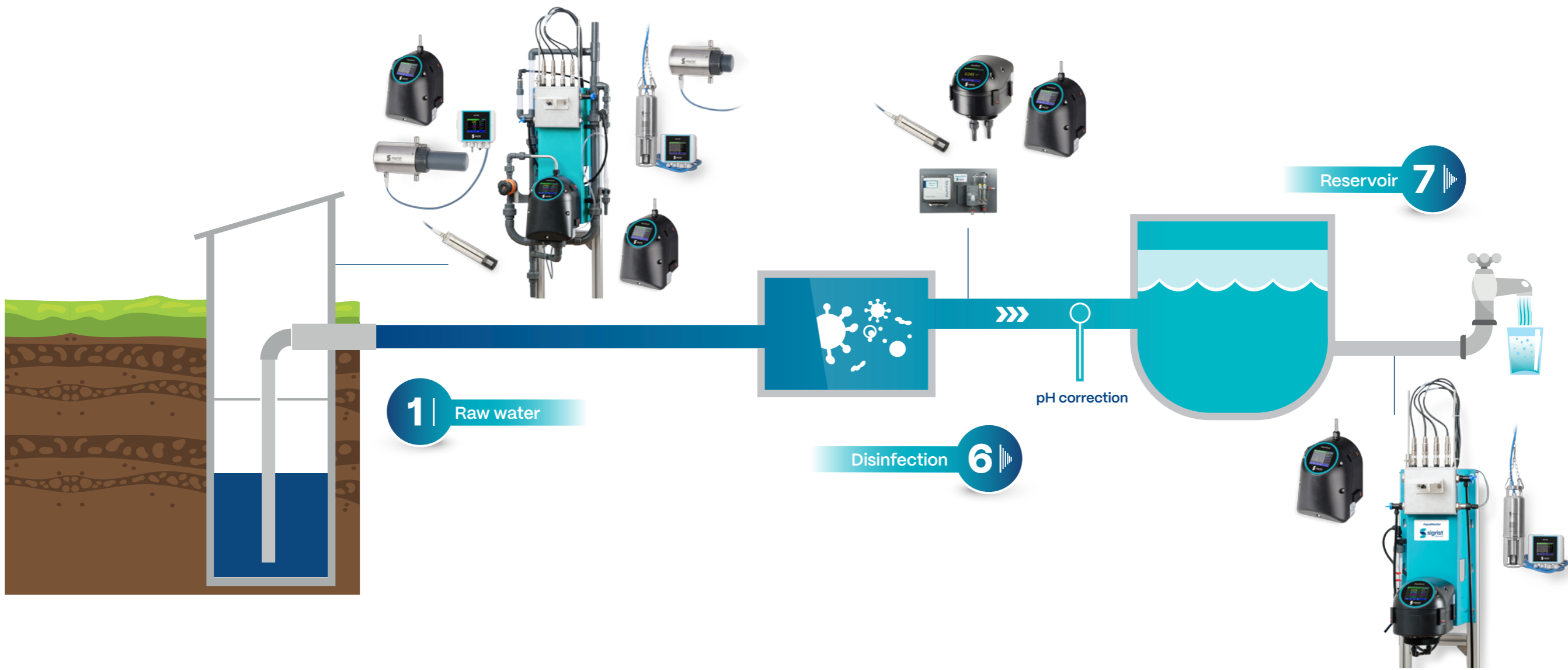
# Treatment of surface water

In the case of heavily polluted raw water (e.g. lake water) flocculants are added after extraction (1). These bind suspended matter and promote its coagulation. The heavy particles settle in a sedimentation tank (2) and the water is then filtered (3, 4). Various filtration processes are used, which not only retain turbid or suspended particles, but also algae or bacteria. The filtered raw water is often oxidised with ozone and then treated with activated carbon (5). This breaks down and removes inorganic and organic substances. In the final step, the water is disinfected before it flows into a reservoir. The water is disinfected (6) by adding chemical substances (e.g. chlorine), irradiation with UV light or also by ultra-filtration. The reservoir (7) is a clean water tank from which the end consumers are supplied.



# Groundwater treatment

Groundwater is usually of drinking water quality. The rock layers in the ground serve as a natural filter that frees the water from dissolved organic substances and biological contaminants. This reduces treatment to a minimum. Raw water (1) is extracted directly from the ground. The water is then disinfected (6) and pumped into a reservoir (7). In some cases it is also fed directly into the drinking water network without disinfection.



# Overview



## According to measuring task

Products	Turbidity	Disinfectant	pH	Redox	Conductivity	Dissolved oxygen	Nitrate	SAC 254	Colour	Poly-aromatic hydrocarbons (PAH)	Oil traces
AquaScat 2 WTM (A)	●										
AquaScat HT	●										
AquaScat 2 P	●										
AquaScat S	●										
AquaDMS		●									
AquaMaster	(●)		(●)	(●)	(●)	(●)	(●)	(●)	(●)		
AquaGuard PR 30	●		(●)	(●)	(●)	(●)					
ColorPlus 3 SAC 254								●	(●)		
ColorPlus 3 Nitrate							●				
OilGuard 2 W (A)										●	●
OilGuard PR 30										●	●

● Recommended product (●) Depending on the product variation

## After treatment process

Products	Raw water	Flocculation	Filtration	Decarbonisation	Ultra-filtration	Reverse osmosis	Disinfection	Clean water	Distribution network
AquaScat 2 WTM (A)	●●	●●	●●		●●			●●	
AquaScat HT	●●	●	●						
AquaScat 2 P	●	●	●		●●			●●	
AquaScat S	●●	●	●●		●●			●●	●●
AquaDMS							●●		
AquaMaster	●			●				●●	
AquaGuard PR 30	●							●●	
ColorPlus 3 SAC 254	●		●●						
ColorPlus 3 Nitrate	●					●			
OilGuard 2 W (A)	●●								
OilGuard PR 30	●●								●●

●● Recommended ● Possible, depending on the application



# Our products for perfect drinking water quality



# AquaScat 2 WTM A



## Applications

- 1 - Turbidity in raw water
- 2 - Turbidity in sedimentation stage, dosing of flocculants
- 4 - Turbidity before/after membrane filtration
- 6 - Turbidity before/after disinfection
- 7 - Turbidity in drinking water before network distribution

The AquaScat 2 WTM A measures turbidity in water according to the ISO 7027 standard. The measurement is carried out in a free falling water jet without touching the optical components. This allows turbidity to be measured precisely over a wide measuring range without drift. The integrated solid reference automatically and periodically adjusts the calibration without the need for formazine. This reduces operating costs to a minimum.

## Innovations with real benefits



### Non-contact free-fall measurement

- No contamination of the optical components and thus no cleaning effort
- No zero point drift



### Automatic adjustment of instrument calibration

- No need for formazine
- Reproducible and reliable in the field
- Low maintenance



### High dynamic measuring range due to sophisticated instrument design

- Low stray light allows accurate measurement of lowest turbidities or turbidity changes (< 0.01 FNU)
- Ideal for use in critical process control applications and also for measuring polluted raw water



### Integrated control unit with touch screen

- Compact design
- Simple and fast parametrisation directly on the unit
- Flexible and individual configurations possible (master software, interfaces)



1

2

**Photometer product variants and sets**

	AquaScat 2 WTM A + wall mounting	AquaScat 2 WTM A
IO: 0/4..20 mA Modbus TCP	122645	118993 * ** ***
Profibus DP	122646	122638
Profinet IO	122647	122639
Modbus RTU	122648	122640

- \* 123509: 118993 with activated Master Software
- \*\* 123512: 118993 with activated Master Software and acitvated Software for 1x Hamilton-probe
- \*\*\* 123513: 118993 with activated Master Software and acitvated Software for 2x Hamilton-probes

**Accessories**

- + 119045 24 VDC power supply 20 W
- + 118811 Hose kit for level control long for AquaScat 2
- + 118778 Deaeration tube
- + 121475 Vortex flow meter

**Main technical details**

Measuring range	0 ... 4000 FNU
Resolution	0.001 FNU
Sample conditions	0 ... 40 °C, unpressurised
Sample flow	min. 1.3 l/min
Voltage	18 ... 30 VDC
Power	max. 8 W
Recalibration	automatic
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA 1x optional for flow meter
Protection class	IP54
Conformities	CE UK

Full details and technical data:



# AquaScat 2 WTM



## Applications

- 1 - Turbidity in raw water
- 2 - Turbidity in sedimentation stage, dosing of flocculants
- 4 - Turbidity before/after membrane filtration
- 6 - Turbidity before/after disinfection
- 7 - Turbidity in drinking water before network distribution

The AquaScat 2 WTM measures turbidity in water according to the ISO 7027 standard. The measurement is carried out in a free falling water jet without touching the optical components. This allows turbidity to be measured precisely over a wide measuring range without drift. Calibration can be checked in the field with a solid-state reference. Operating costs are reduced to a minimum.

## Innovations with real benefits



### Non-contact free-fall measurement

- No contamination of the optical components and thus no cleaning effort
- No zero point drift



### Simple verification of instrument calibration

- No need to use formazine, check carried out with solid state reference
- Reproducible and reliable in the field
- Low maintenance



### High dynamic measuring range due to sophisticated instrument design

- Low stray light allows accurate measurement of lowest turbidities or turbidity changes (< 0.01 FNU)
- Ideal for use in critical process control applications and also for measuring polluted raw water



### Integrated control unit with touch screen

- Compact design
- Simple and fast parametrisation directly on the unit
- Flexible and customised configurations possible (master software, interfaces)



1

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	Photometer product variants and sets		
	AquaScat 2 WTM + checking unit + wall mounting	AquaScat 2 WTM + checking unit	AquaScat 2 WTM + adaption of checking unit to another AquaScat 2 WTM
IO: 0/4..20 mA Modbus TCP	123072	123060	123061 * ** ***
Profibus DP	123073	123062	123063
Profinet IO	123074	123064	123065
Modbus RTU	123075	123066	123067

- \* 123510: 123061 with activated Master Software
- \*\* 123514: 123061 with activated Master Software and acitvated Software for 1x Hamilton-probe
- \*\*\* 123515: 123061 with activated Master Software and acitvated Software for 2x Hamilton-probes

Accessories

- + 119045 24VDC power supply 20W
- + 118811 Hose kit for level control long for AquaScat 2
- + 118778 Deaeration tube
- + 121475 Vortex flow meter

Main technical details

Measuring range	0 ... 4000 FNU
Resolution	0.001 FNU
Sample conditions	0 ... 40 °C, unpressurised
Sample flow	min. 1.3 l/min
Voltage	18 ... 30 VDC
Power	max. 8 W
Recalibration	manual, with solid state reference
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA 1x optional for flow meter
Protection class	IP54
Conformities	CE

Full details and technical data:



# AquaScat 2 HT



## Applications

- 1 - Turbidity in raw water
- 2 - Turbidity in sedimentation stage
- 3 - Turbidity before/after filtration stage

The AquaScat 2 HT measures turbidity in water according to the ISO 7027 standard. The measurement is carried out in a free falling water jet without touching the optical components. This allows turbidity to be measured precisely over a wide measuring range without drift. Calibration can be adjusted in the field with a solid-state reference. Operating costs are reduced to a minimum.

## Innovations with real benefits



### Non-contact free-fall measurement

- No contamination of the optical components and thus no cleaning effort required
- No zero point drift



### Simple adjustment of instrument calibration

- No use of formazine necessary, adjustment with solid state reference
- Reproducible and reliable in the field
- Low maintenance



### High dynamic measuring range due to sophisticated instrument design

- Reliable measurement of turbidity changes (0.1 FNU)
- Ideal for raw water measurement and filter monitoring



### Integrated control unit with touch screen

- Compact design
- Simple and fast parametrisation directly on the unit
- Flexible and individual configurations possible (master software, interfaces)



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	Photometer product variants and sets		
	AquaScat 2 HT + checking unit + wall mounting	AquaScat 2 HT + checking unit	AquaScat 2 HT + adaption of checking unit to another AquaScat 2 HT
IO: 0/4..20 mA Modbus TCP	123028	123016	123017
Profibus DP	123029	123018	123019
Profinet IO	123030	123020	123021
Modbus RTU	123031	123022	123023

**Accessories**

- + 119045 24VDC power supply 20W
- + 118811 Hose kit for level control long for AquaScat 2
- + 118778 Deaeration tube
- + 121475 Vortex flow meter

**Main technical details**

Measuring range	0 ... 4000 FNU
Resolution	0.1 FNU
Sample conditions	0 ... 40 °C, unpressurised
Sample flow	min. 1.3 l/min
Voltage	18 ... 30 VDC
Power	max. 8 W
Recalibration	manual, with solid state reference
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA 1x optional for flow meter
Protection class	IP54
Conformities	CE

Full details and technical data:



# AquaScat 2 P



## Applications

- 1 - Turbidity of raw water with high gas content
- 3 - Turbidity after rapid filtration
- 4 - Turbidity before/after membrane filtration
- 6 - Turbidity before/after disinfection
- 7 - Turbidity in drinking water before network distribution

The AquaScat 2 P measures turbidity in water according to the ISO 7027 standard. The measurement is carried out in a closed measuring cell and is particularly suitable for applications with pressure or high gas content in the sample. The measurement of scattered and transmitted light reduces window contamination and thus the need for maintenance. Calibration is adjusted with a solid reference.

## Innovations with real benefits



### Optimised measuring cell with dual-beam measuring technology

- Measurement of transmitted and scattered light for compensation of window contamination
- Extended cleaning intervals



### Simple adjustment of instrument calibration

- No need to use formazine, adjustment with solid-state reference
- Inexpensive, fast and reliable



### Ideal measuring range for applications in drinking water

- Low stray light
- Cell design allows measurements of the smallest turbidities (< 0.01 FNU)
- Suitable for process-critical controls



### Integrated control unit with touch screen

- Compact design
- Simple and fast parametrisation directly on the unit
- Flexible and individual configurations possible (master software, interfaces)





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	Photometer product variants and sets			
	AquaScat 2 P + checking unit + flow regulator 16/16 mm + wall mounting	AquaScat 2 P + checking unit + flow regulator 16/16 mm	AquaScat 2 P + checking unit	AquaScat 2 P + adaption of checking unit to another AquaScat 2 P
IO: 0/4...20 mA Modbus TCP	123051	123043	123035 * ** ***	123036
Profibus DP	123052	123044	123037	123038
Profinet IO	123053	123045	123039	123040
Modbus RTU	123054	123046	123041	123042

- \* 123511: 123035 with activated Master Software
- \*\* 123516: 123035 with activated Master Software and acitvated Software for 1x Hamilton-probe
- \*\*\* 123517: 123035 with activated Master Software and acitvated Software for 2x Hamilton-probes

Accessories

- + 119045 24VDC power supply 20W
- + 118411 Flow meter with regulating valve and connections 12/12mm for AquaScat 2
- + 120963 Flow sensor Vortex

Main technical details

Measuring range	0 ... 100 FNU
Resolution	0.001 FNU
Sample conditions	0 ... 40 °C, max. 10 bar @ 20 °C
Sample volume	0.2 ... 2.0 l/min
Voltage	18 ... 30 VDC
Power	max. 8 W
Recalibration	manual, with solid state reference
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA 1x optional for flow meter
Protection class	IP65
Conformities	CE UK

Full details and technical data:



# AquaScat S



## Certificates and conformities



**ACS** (Attestation Conformité Sanitaire)

**DWI** (Drinking Water Inspectorate)

## Applications

- 1 – Turbidity in raw water
- 2 – Turbidity in sedimentation step, dosing of flocculants
- 4 – Turbidity before/after membrane filtration
- 6 – Turbidity before/after disinfection
- 7 – Turbidity in drinking water before network distribution

The AquaScat S measures turbidity and temperature in water according to the ISO 7027 standard. The in-line measurement reduces water consumption to a minimum. The available drinking water certifications also allow the use in drinking/fresh water. Calibration is adjusted with a solid reference without the use of formazine. The AquaScat S offers a wide range of installation options and process integrations.

## Innovations with real benefits



### Precise measurement without water loss

- Measurement of turbidity and temperature directly in the water
- No expensive installations necessary
- Hygienic design with drinking water approvals in several markets

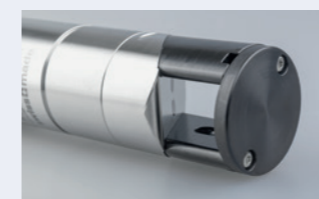


### Simple adjustment of instrument calibration

- No use of formazine, adjustment is done with solid state reference
- Inexpensive, fast and reliable

### Sophisticated design

- Inclined sensor head for cleaning effect by water flow
- Absorber minimises influence of line reflections or other interferences
- Precise measurements of low turbidity (< 0.01 FNU) possible



### Highest flexibility

- Versatile installation options
- Can be used in-line, on-line or off-line
- Various possibilities for electronic connection to existing systems


- ①      ②      ③      ④      ⑤      ⑥      ⑦      ⑧      ⑨      ⑩

Photometer product variants and sets										
	AquaScat S + Retractable fitting assembly with flange + checking unit + SiCon	AquaScat S + Retractable fitting assembly + checking unit + SiCon	AquaScat S + checking unit + SiCon + pipe flange	AquaScat S + checking unit + SiCon + immersion pipe basic equipment	AquaScat S + checking unit + SiCon M	AquaScat S + checking unit + SiCon	AquaScat S + checking unit + WiFi module	AquaScat S + checking unit	AquaScat S + checking unit + WiFi module + adaptation of checking unit to another AquaScat S	AquaScat S + adaptation of checking unit to another AquaScat S
IO: 0/4...20 mA Modbus TCP	123104	123100	123099	123098	123097	123096	123094	123092	123095	123093
Profibus DP	123105	123101	123348	123345	123110	123114				
Profinet IO	123106	123102	123349	123346	123111	123108				
Modbus RTU	123107	123103	123350	123347	123112	123109				

Main technical details

Measuring range	0 ... 4000 FNU
Resolution	0.001 FNU
Sample conditions	0 ... 60°C, max. 10 bar @ 20 °C
Sample flow	max. 3.0 m/s
Voltage	24 VDC ± 10%
Power	max. 2 W
Recalibration	manual, with solid state reference
Control unit	SiCon, SiCon M
Outputs	8-pole cable (basic) 1x 0/4 ... 20 mA 2x digital
Inputs	-
Protection class	IP68 (electrical connector IP67)
Conformities	CE UK

Accessories

-  120510 Connection box Conn-R
-  120290 SiCon C
-  120561 PE-fitting



Full details and technical data:

# AquaScat S

with retractable fitting assembly



Certificates and conformities



ACS (Attestation Conformité Sanitaire)

## Applications

- 1 - Turbidity in raw water
- 2 - Turbidity in sedimentation step, dosing of flocculants
- 4 - Turbidity before/after membrane filtration
- 6 - Turbidity before/after disinfection
- 7 - Turbidity in drinking water before network distribution

The AquaScat S with retractable assembly is one way of installing the turbidity probe in pipelines. What is the major advantage? The retractable assembly allows the AquaScat S to be easily installed and removed in pipelines with water pressure up to 10 bar. This is done without interrupting the process.

## Innovations with real benefits

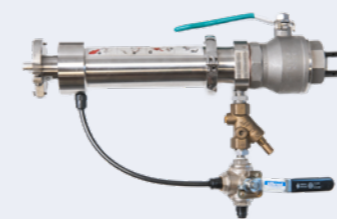


### No process interruption

- Turbidity probe can be inserted and removed from the drinking water pipe under pressure without interrupting the process
- No installation of expensive valves necessary
- All advantages of AquaScat S

1

2



IO: 0/4..20 mA  
Modbus TCP

Profibus DP

Profinet IO

Modbus RTU

### Photometer Product variants and sets

1	2
AquaScat S + Interchangeable fitting and flange connection + Control unit + SiCon	AquaScat S + Retractable fitting assembly + Control unit + SiCon
123104	123100
123105	123101
123106	123102
123107	123103

# AquaScat S Mobile



## Certificates and conformities



**ACS**  
(Attestation Conformité Sanitaire)

## Applications

- 1 - Turbidity in raw water (wells, springs)
- Turbidity measurement at decentralised
- Portable turbidity measurement

The AquaScat S Mobile is a self-sufficient and portable system solution for measuring water turbidity. The case contents consist of the AquaScat S (see p. 34), a SiCon control unit with integrated USB stick and a powerful power bank with a battery life of almost 20 hours. This makes it possible to measure water turbidity quickly and inexpensively anywhere.

## Innovations with real benefits



### Direct measurement in drinking water

- Measurement in up to 10 m water depth incl. temperature measurement
- Combines all the advantages of the AquaScat S turbidity probe



### Full-fledged operating device with logger function

- Displays measured value and measurement history
- USB interface



IO: 0/4..20 mA  
Modbus TCP

①

②

Photometer Product variants and sets	
AquaScat S Mobile with L = 10 m cable	AquaScat S Mobile with L = 5 m cable
122306	122343

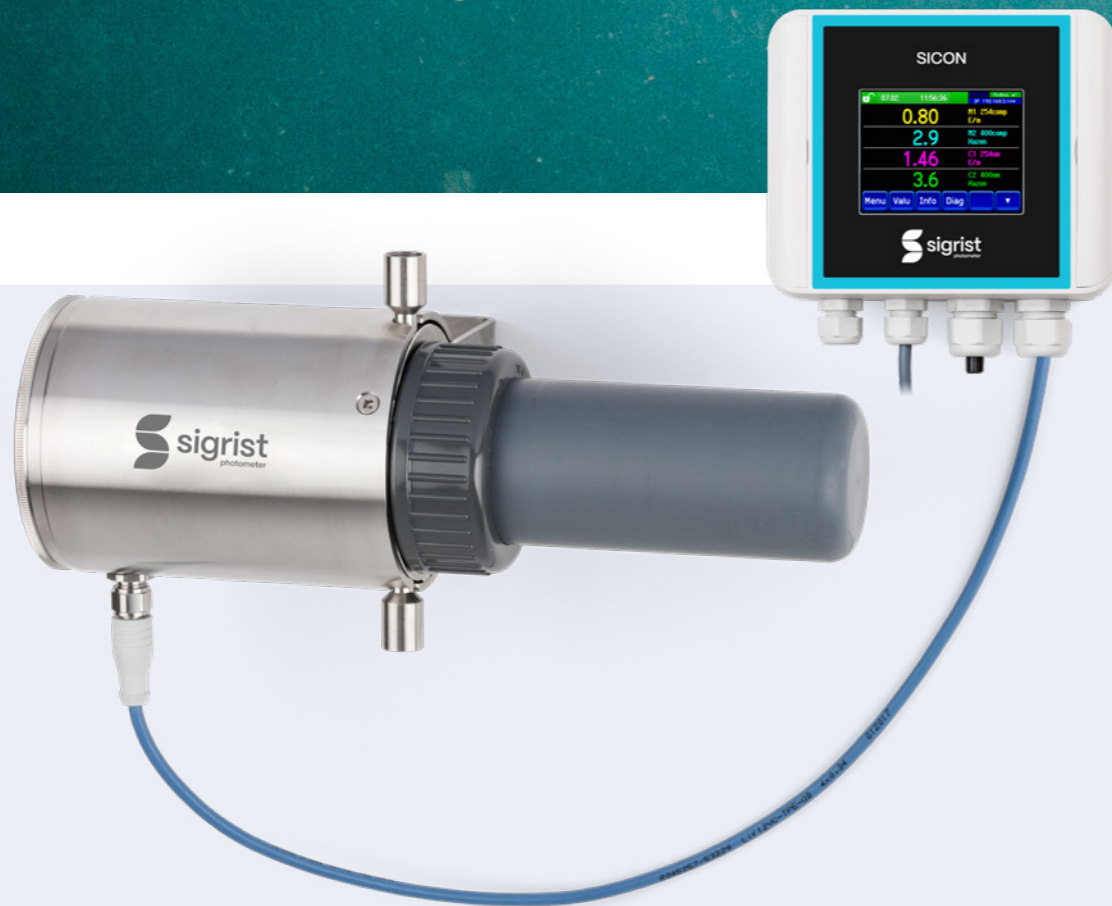
**Main technical details**

Measuring range	0 ... 4000 FNU
Resolution	0.001 FNU
Sample conditions	0 ... 60 °C, max. 10 bar @ 20 °C
Sample flow	max. 3.0 m/s
Voltage	24 VDC (+/- 10 %)
Power	max. 2 W
Control unit	see SiCon
Outputs	see SiCon
Inputs	see SiCon
Protection class	IP68
Conformities	CE UK

Full details and technical data:



# ColorPlus 3 SAC 254



## Applications

- 1 – SAC 254 content in raw water, colour in raw water
- 5 – SAC 254 content after activated carbon filtration

The ColorPlus 3 SAC 254 is an absorption measuring instrument for the determination of the concentration of dissolved organic substances. It can also be used for the determination of various colour numbers in water. The sophisticated instrument design has, in addition to an integrated compensation of window fouling, an automatic check of the instrument calibration. The photometer is operated with the SiCon.

## Innovations with real benefits



### Integrated window fouling compensation

- Output of a warning when cleaning is necessary
- Quick maintenance as required
- Precise measurements due to reduced measurement drift



### Flexible and durable optical system

- Halogen lamp with 10-year lifetime
- Use of optical filters between 200 and 800 nm.
- Two additional measuring points possible



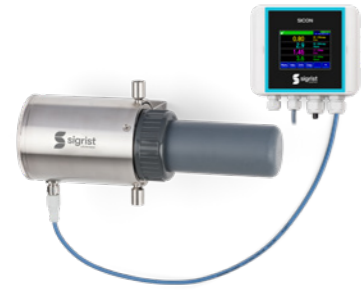
### Integrated calibration check

- Built-in optical glasses are used for periodic adjustment of factory calibration
- Manual check is no longer necessary and saves costs
- Precise and reproducible



### Tool-free access

- Easy and quick servicing
- PVC cover can be removed manually
- High quality parts designed for long product life



1

2

3

4

5

Photometer Produktvarianten und Sets					
	1	2	3	4	5
	ColorPlus3 (SAC254) + 10 m signal cable + SiCon + Wall mounting set with water filter unit	ColorPlus3 (SAC254) + 10 m signal cable + SiCon + Additional UV filter for Hazen + Hazen calibration certificate	ColorPlus3 (SAC254) + 10 m signal cable + SiCon + Additional UV filter	ColorPlus3 (SAC436) + 10 m signal cable + SiCon	ColorPlus3 (SAC254) + 10 m signal cable + SiCon
IO: 0/4...20 mA Modbus TCP	121140 121141	122837 122838	122835 122836	122839 122843	122827 122831
Profibus DP	122847 122850	-	-	122840 122844	122828 122832
Profinet IO	122848 122851	-	-	122841 122845	122829 122833
Modbus RTU	122849 122852	-	-	122842 122846	122830 122834

Path length 100 mm  
Path length 50 mm

Accessories

- + 121139 Optical filter in the visible range for ColorPlus 3
- + 120538 Instrument cable 4-pole 20m with connector
- + 120539 Instrument cable 4-pole 30m with connector

Main technical details

Measuring range	0 ... 30 E/m (100 mm path length) 0 ... 60 E/m (50 mm path length)
Resolution	0.001 E
Sample conditions	0 ... 50 °C, max. 6 bar
Sample volume	0.5 ... 1.0 L/min
Voltage	24 +/- 10% VDC
Rating	max. 8 W (incl. SiCon)
Control unit	SiCon, SiCon M
Outputs	see SiCon, SiCon M (p. 76)
Inputs	see SiCon, SiCon M (p. 76)
Protection class	IP67
Conformities	CE UK

Full details and technical data:







# ColorPlus 3 Nitrate



### Applications

- 1 – Nitrate concentration in raw water
- 5 – Nitrate concentration in treated water

The ColorPlus 3 Nitrate is used for the on-line determination of nitrate concentration. The sophisticated instrument design has, in addition to an integrated compensation of window fouling, an automatic adjustment of the instrument calibration. Interference (SAC 254, turbidity) are directly compensated. The photometer is operated with the SiCon.

### Innovations with real benefits



#### Integrated window fouling compensation

- Output of a warning when cleaning is necessary
- Quick maintenance as required
- Precise measurements due to reduced measurement drift



#### Flexible and durable optical system

- Halogen lamp with 10-year lifetime
- Use of optical filters between 200 and 800 nm.
- Two additional measuring points possible



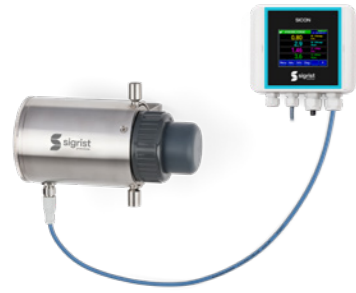
#### Integrated calibration adjustment

- Built-in optical glasses are used for periodic adjustment of factory calibration
- Manual check is no longer necessary and saves costs
- Precise and reproducible



#### Tool-free access

- Easy and quick servicing
- PVC cover can be removed manually
- High quality parts designed for long product life



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**Photometer product variants and sets**

<p>ColorPlus 3 Nitrate + 10 m signal cable + SiCon + Wall mounting set with water filter unit</p> 	<p>ColorPlus 3 Nitrate + 10 m signal cable + SiCon + Wall mounting set</p> 	<p>ColorPlus 3 Nitrate + 10 m signal cable + SiCon</p> 
---	---	--

IO: 0/4 ... 20 mA

121845

121864

122817

Profibus

122821

122824

122818

Profinet

122822

122825

122819

Modbus RTU

122823

122826

122820

**Accessories**

- + 121139 Optical filter in the visible range for ColorPlus 3
- + 120538 Instrument cable 4-pole 20m with connector
- + 120539 Instrument cable 4-pole 30m with connector

**Main technical details**

Measuring range	0 ... 100 mg/L nitrate
Resolution	0.01 mg/L
Sample conditions	0 ... 50 °C, max. 6 bar
Sample volume	0.5 ... 1.0 L/min
Voltage	24 +/- 10% VDC
Power	max. 8 W(incl. SiCon)
Control unit	SiCon, SiCon M
Outputs	see SiCon, SiCon M (p. 76)
Inputs	see SiCon, SiCon M (p. 76)
Protection class	IP67
Conformities	CE UK

Full details and technical data:



# OilGuard 2 W A



## Applications

- 1 - Determination of oil traces and polyaromatic hydrocarbons in raw water

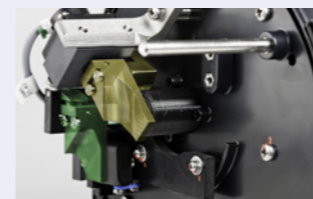
The OilGuard 2 W A measures traces of oil in a free falling water jet without touching the optical components. This allows the unsoiled and unadulterated detection of the smallest traces of oil in water. The turbidity or the colour of the sample do not affect the measurement precision. Calibration is adjusted automatically with a solid reference. The instrument output is in ppb PAH and ppm oil.

## Innovations with real benefits



### Non-contact free fall measurement

- No contamination of the optical components and thus no cleaning effort required
- No distortion of measurement values by contaminated optical components



### Automatic adjustment of instrument calibration

- Easy, replicable and cost-effective
- Precise factory calibration with 16 EPA-PAH and conversion factor to ISO 9377-2 oil



### High measuring accuracy

- Smallest traces and quantities of oil detected reliably (< 0.03 ppm oil)
- Early detection of contamination in water



### Integrated control unit with touch screen

- Compact design
- Simple and fast parametrisation directly on the unit
- Flexible and individual configurations possible (master software, interfaces)



1

2

	Photometer product variants and sets	
	OilGuard2 WA + wall mounting-set	OilGuard2 WA
IO: 0/4...20 mA Modbus TCP	121316	121315
Profibus DP	122814	122740
Profinet IO	122815	122743
Modbus RTU	122816	122746

Accessories

- + 119045 24VDC power supply 20W
- + 118811 Hose kit for long level control for AquaScat 2
- + 121475 Flow sensor Vortex

Main technical details

Measuring range	0 ... 3000 ppb PAH (16 EPA-PAH) 0 ... 100 ppm oil (ISO 9377-2 oil)
Resolution	0.01 ppb (16 EPA-PAH)
Sample conditions	0 ... 50 °C, unpressurised
Sample flow	min. 3 l/min
Voltage	18 ... 30 VDC
Rating	max. 8 W
Recalibration	automatic
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA 1x optional for flow meter
Protection class	IP54
Conformities	CE UK

Full details and technical data:



# OilGuard 2 W



## Applications

- 1 - Determination of oil traces and polyaromatic hydrocarbons in raw water

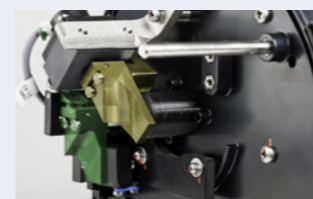
The OilGuard 2 W measures traces of oil in a free falling water jet without touching the optical components. This allows the unsoiled and unadulterated detection of the smallest traces of oil in water. The turbidity or the colour of the sample do not affect the measurement precision. Adjustment of the instrument calibration is done manually with a solid reference. The instrument output is in ppb PAH and ppm oil.

## Innovations with real benefits



### Non-contact free fall measurement

- No contamination of the optical components and thus no cleaning effort required
- No distortion of measurement values by contaminated optical components



### Automatic adjustment of instrument calibration

- Easy, replicable and cost-effective
- Precise factory calibration with 16 EPA-PAH and conversion factor to ISO 9377-2 oil



### High measuring accuracy

- Smallest traces and quantities of oil detected reliably (< 0.03 ppm oil)
- Early detection of contamination in water



### Integrated control unit with touch screen

- Compact design
- Simple and fast parametrisation directly on the unit
- Flexible and individual configurations possible (master software, interfaces)



1

2

**Photometer product variants and sets**

	OilGuard 2 W + Checking unit + Wall mounting set	OilGuard 2 W + Checking unit
IO: 0/4...20 mA Modbus TCP	123087	123079
Profibus DP	123088	123080
Profinet IO	123089	123081
Modbus RTU	123090	123082

**Zubehör**

- + 119045 24VDC power supply 20W
- + 118811 Hose kit for long level control for AquaScat 2
- + 121475 Flow sensor Vortex

**Main technical details**

Measuring range	0 ... 3000 ppb PAH (16 EPA-PAH) 0 ... 100 ppm oil (ISO 9377-2 oil)
Resolution	0.01 ppb (16 EPA-PAH)
Sample conditions	0 ... 50 °C, unpressurised
Sample flow	min. 3 l/min
Voltage	18 ... 30 VDC
Rating	max. 8 W
Recalibration	manual, with solid state reference
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA 1x optional for flow meter
Protection class	IP54
Conformities	CE UK

Full details and technical data:



# OilGuard PR 30

## Applications

- 1 - Determination of oil traces and polyaromatic hydrocarbons in raw water

The OilGuard PR 30 monitors oil traces in water with zero water loss. Even the smallest traces of oil are reliably detected by means of sensitive UV fluorescence. The probe is factory-calibrated with the international standard 16 EPA-PAH; recalibration is carried out with a solid reference. The simple form factor enables a variety of installation options – whether immersed, in-line or in a by-pass installation. Sigrist, thus offers a solution for almost all requirements.



## Innovations with real benefits



### Oil trace detection directly in the water

The OilGuard PR 30 completes our portfolio of reliable oil-in-water analyzers.

- Oil traces are measured with zero water loss



### Sophisticated instrument design

- Tilted head design creates a self-cleaning effect with water flow
- Direct water temperature measurement included in sensor head
- Absorber unit reduces stray light and disturbances from surrounding light



### Reproducible instrument calibration

With reproducible calibration we make sure that the instrument can be used as a reliable watchdog

- Factory-calibration with international standard 16 EPA-PAH and conversion to oil equivalents (ISO 9377-2)
- Easy re-calibration with secondary standard (checking unit) in the field



### System integration

Mechanical: submersed installation, in-line installation, by-pass installation

Electrical: 8-wire cable with 1x 0/4 ... 20 mA and Modbus TCP output, WLAN-adaptor, SICON C, SICON (M), etc.

Communication : Profibus DP, Profinet IO, Modbus RTU



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**Photometer product variants and sets**

	OilGuard PR 30 + checking unit + SiCon + Extractable assembly	OilGuard PR 30 + checking unit + SiCon + Pipe flange	OilGuard PR 30 + checking unit + SiCon	OilGuard PR 30 + checking unit	OilGuard PR 30 + Adaptation of the checking unit
IO: 0/4..20 mA	123577	123574	123559	123455	123545
Profibus DP	***	***	***		
Profinet IO	***	***	***		
Modbus RTU	***	***	***		

\*\*\* available on request

**Main technical details**

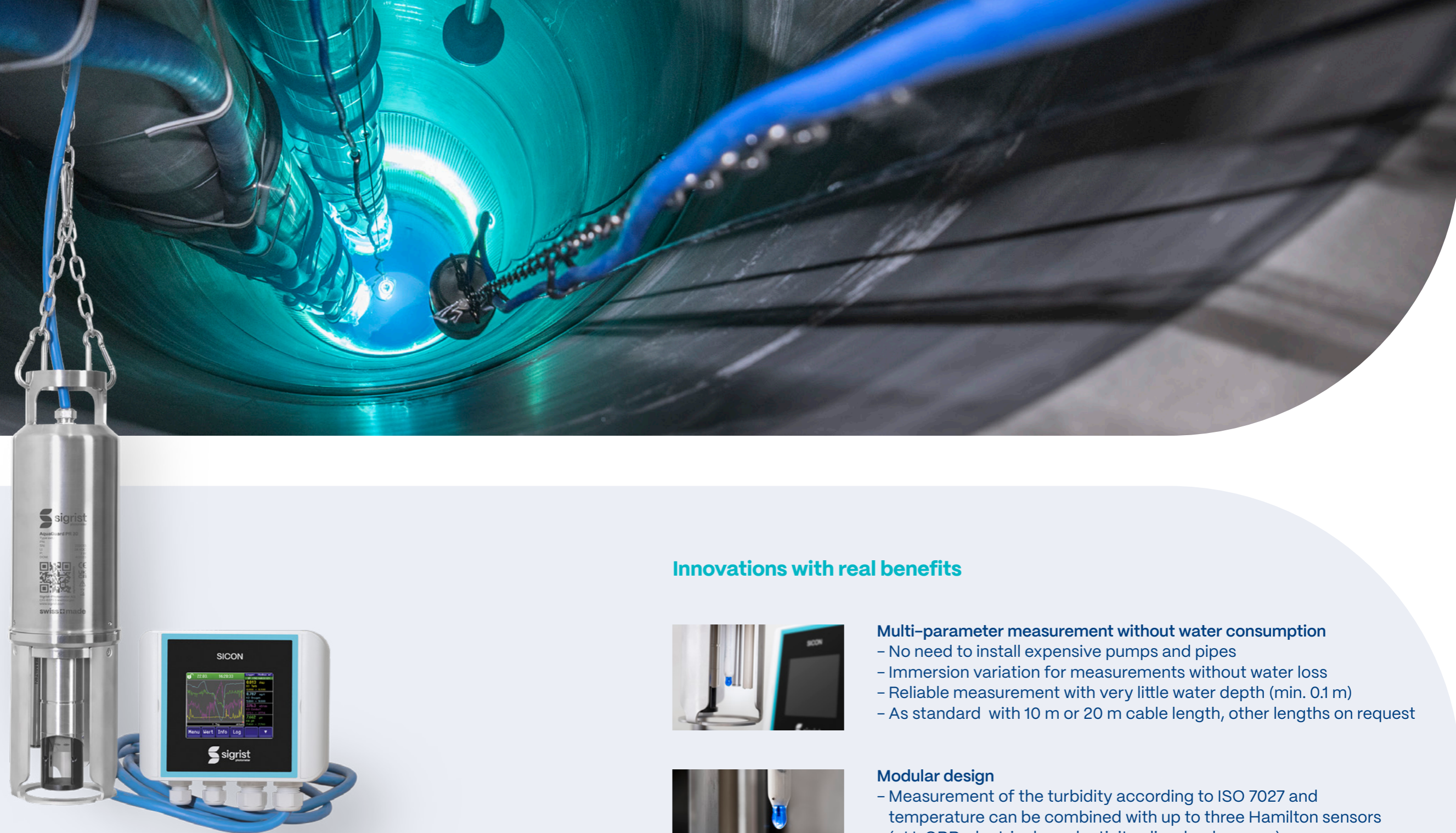
Measuring principle: UV-fluorescence  
 Nominal range: 0 ... 500 ug/L (ppb) 16 EPA-PAH  
 Measuring ranges: 8, freely programmable  
 Sample temperature: 0 ... 60°C  
 Protection class: IP 68

Full details and  
technical data:





# AquaGuard PR 30



## Applications

- 1 – Determination of raw water quality
- 7 – Determination of drinking water before network distribution

With the AquaGuard PR 30, up to five parameters can be measured directly in the water – entirely without the use of expensive pumps and without a loss of water! The portable measuring station consists of an AquaScat S and can be equipped with up to three additional sensors (pH, ORP, conductivity, dissolved oxygen). This means that the AquaGuard PR 30 can be conveniently adjusted to the user's needs. The system is conveniently controlled via a SiCon operating device.

## Innovations with real benefits



- Multi-parameter measurement without water consumption**
  - No need to install expensive pumps and pipes
  - Immersion variation for measurements without water loss
  - Reliable measurement with very little water depth (min. 0.1 m)
  - As standard with 10 m or 20 m cable length, other lengths on request



- Modular design**
  - Measurement of the turbidity according to ISO 7027 and temperature can be combined with up to three Hamilton sensors (pH, ORP, electrical conductivity, dissolved oxygen)
  - Easy adjustment to customer wishes
  - The system can be easily expanded any time



- Maintenance-friendly design**
  - Reliable instruments design for quick tool-free maintenance
  - Recalibration simply via solid reference (AquaScat S) and calibration solution (Hamilton probes)



- Integrated control unit**
  - Easy handling, visualisation and parametrisation with SiCon M control unit
  - Data can be logged for up to 32 days
  - Easy extension to other communication platforms such as Profibus DP, Profinet IO, etc.



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Photometer product variants and sets

	1 ORP EC dO2	2 pH EC dO2	3 pH ORP dO2	4 pH ORP EC	5 EC dO2	6 ORP dO2	7 ORP EC	8 pH dO2	9 pH EC	10 pH ORP dO2	11 dO2	12 EC	13 ORP	14 pH
IO: 0/4 ... 20 mA	122614 122524	122623 122579	122605 122606	122603 122604	122619 122620	122616 122617	122612 122613	122608 122609	122456 122607	122601 122602	122621 122622	122457 122618	122610 122611	122455 122600
Profibus	123211 123212	123205 123206	123199 123200	123193 123194	123187 123188	123181 123182	123175 123176	123169 123170	123163 123164	123157 123158	123157 123158	123145 123146	123139 123140	123133 123134
Profinet	123213 123214	123207 123208	123201 123202	123195 123196	123189 123190	123183 123184	123177 123178	123171 123172	123165 123166	123159 123160	123159 123160	123147 123148	123141 123142	123135 123136
Modbus RTU	123215 123216	123209 123210	123203 123204	123197 123198	123191 123192	123185 123186	123179 123180	123173 123174	123167 123168	123161 123162	123161 123162	123149 123150	123143 123144	123137 123138
	119508 119509	119506 119571 119509	119506 119571 119508	119506 119571 119508 119509	119509	119508	119508 119509	119506 119571	119506 119571 119509	119506 119571 119508		119509	119508	119506 119571



10 m cable  
20 m cable

Abbreviations: ORP = Redox, EC = Conductivity,  
dO2 = Dissolved Oxygen - xxxxxx coming soon

Main technical details

Measuring range	0 ... 4000 FNU (AquaScat S) pH: 0 ... 14 ORP: -1500... 1500mV Conductivity: 1... 300' 000 µS/cm Diss. oxygen: 0.004 ... 25 ppm
Sample conditions	0 ... 50 °C, max. 5 bar depending on the equipment
Sample flow	-
Voltage	24± 10% VDC
Output	Photometer + SiCon M
Control unit	see SiCon M (p. 76)
Outputs	see SiCon M (p. 76)
Inputs	see SiCon M (p. 76)
Protection class	IP68
Conformities	CE UK

Full details and technical data:



Accessories

119602 Cleaning solution from Hamilton

# AquaMaster



## Applications

- 1 – Determination of raw water quality
- 7 – Determination of drinking water before network distribution

AquaMaster is a full-fledged plug-and-measure system for monitoring water quality. The system consists of either a turbidity measuring device (AquaScat 2 WTM A, AquaScat 2 P) or a SiCon M. Up to four additional sensors can be connected that measure pH, redox, conductivity, dissolved oxygen and temperature. Operation is via the integrated surface of the respective AquaScat 2 or SiCon M.

## Innovations with real benefits



### Compact and modular complete system

- Free choice and combination of parameters
- Easy sampling, no complex piping required

### Modular design

- Operation with turbidity (AS 2 P or AS 2 WTM A) or with another Sigris measuring device (SiCon M)
- Basic set up with 1 – 4 probes possible



### User-friendly maintenance

- instrument design already includes integrated trays and holders for maintenance
- Automatic recognition of the calibration status of the sensors



### Integrated control unit

- One surface for controlling all sensors
- Quick and easy parametrisation of all sensors



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	Photometer product variants and sets											
	1	2	3	4	5	6	7	8	9	10	11	12
	pH ORP EC dO2	ORP EC dO2	pH EC dO2	pH ORP dO2	pH ORP EC	EC dO2	ORP EC	pH EC	dO2	EC	ORP	pH
IO: 0/4 ... 20 mA	123256	123253	123255	123254	123252	123251	123250	123249	123248	123246	123247	123245
Profibus	123268	123265	123267	123266	123264	123263	123262	123261	123260	123258	123259	123257
Profinet	123280	123277	123279	123278	123276	123275	123274	123273	123272	123270	123271	123269
Modbus RTU	123292	123289	123291	123290	123288	123287	123286	123285	123284	123282	123283	123281

Abbreviations: **ORP** = Redox, **EC** = Conductivity  
**dO2** = dissolved oxygen



119506		119506	119506	119506								119506
119571	119508	119571	119571	119571								119571
119508	119509	119509	119508	119508	119509	119508	119509	119506		119509	119508	119506
119509			119508	119509				119506				119571

### Main technical details

Measuring range	0 ... 100 FNU(P), pH: 0 ... 14, ORP: -1500... 1500mV Conductivity: 1... 300' 000 µS/cm, diss. oxygen: 0.004 ... 25 ppm
Sample conditions	0 ... 40 °C, max. 6 bar
Sample volume	0.5 ... 1.0 l/min
Voltage	18 ... 30 VDC
Rating	max. 10 W
Recalibration	AquaScat 2 P: Manual with solid reference Probes: Manual with the respective buffer solutions
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA, 2x Rely 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA, 1x optional for flow meter
Protection class	IP66
Conformities	CE

Full details and technical data:





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Photometer product variants and sets												
	1	2	3	4	5	6	7	8	9	10	11	12
	pH ORP EC dO2	ORP EC dO2	pH EC dO2	pH ORP dO2	pH ORP EC	EC dO2	ORP EC	pH EC	dO2	EC	ORP	pH
IO: 0/4 ... 20 mA	123304	123301	123303	123302	123300	123299	123298	123297	123296	123294	123295	123293
Profibus	123316	123313	123315	123314	123312	123311	123310	123309	123308	123306	123307	123305
Profinet	123328	123325	123327	123326	123324	123323	123322	123321	123320	123318	123319	123317
Modbus RTU	123340	123337	123339	123338	123336	123335	123334	123333	123332	123330	123331	123329

Abbreviations: **ORP** = Redox, **EC** = Conductivity  
**dO2** = dissolved oxygen



119506						+						
119571	119508	119506	119506	119506	119506		119508	119506		119509	119508	119506
119508	119509	119571	119571	119571	119508	119509	119509	119571				119571
119509		119509	119508	119508	119509			119509				

### Main technical details

Measuring range	0 ... 4000 FNU, pH: 0 ... 14, ORP: -1500... 1500mV Conductivity: 1... 300' 000 µS/ cm diss. oxygen: 0.004 ... 25 ppm
Sample conditions	0 ... 40 °C, unpressurised
Sample flow	min. 1.3 l/min
Voltage	18 ... 30 VDC
Rating	max. 10 W
Adjustment	AquaScat 2 WTM A: Automatic Probes: Manual with the respective buffer solutions
Operating unit	integrated, touch screen ¼ VGA 3.5"
Outputs	2x 0/4 ... 20 mA, 2x relay 250 VAC, 4A
Inputs	2x 0/4 ... 20 mA, 1x optional for flow meter
Protection class	IP54
Conformities	CE

Full details and technical data:





IO: 0/4 ... 20 mA



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Photometer Product variants and sets											
pH ORP LF dO2	ORP LF dO2	pH LF dO2	pH ORP dO2	pH ORP LF	LF dO2	ORP LF	pH LF	dO2	LF	ORP	pH
123242 123243 123244	123239 123240 123241	123236 123237 123238	123233 123234 123235	123230 123231 123232	123227 123228 123229	123224 123225 123226	123221 123222 123223	123220	123218	123219	123217
+ SAC 254 Abbreviations: <b>ORP</b> = Redox, <b>EC</b> = Conductivity + Nitrate <b>dO2</b> = dissolved oxygen											
119506 119571 119508 119509	119508 119509	119506 119571 119509	119506 119571 119508	119506 119571 119508 119509	119509	119508 119509	119506 119571 119509		119509	119508	119506 119571



### Main technical details

Measuring range	pH: 0 ... 14 ORP: -1500... 1500mV Conductivity: 1... 300' 000 µS/cm Diss. oxygen: 0.004 ... 25 ppm
Sample conditions	0 ... 40 °C, depending on the parametrisation
Sample flow	min. 0.2 l/min, depending on the parametrisation
Voltage	18 ... 30 VDC
Rating	max. 10 W
Recalibration	probes: Manual with the respective buffer solutions
Control unit	see SiCon M (p. 76)
Outputs	see SiCon M (p. 76)
Inputs	see SiCon M (p. 76)
Protection class	IP66
Conformities	CE UKA

Full details and technical data:





# AquaDMS

## Applications

- 7b – Measurement of disinfection residuals in water

AquaDMS is a compact plug-and-measure system for determining the concentration level of disinfectants. Depending on the equipment, the system measures free chlorine, chlorine dioxide, ozone, or hydrogen peroxide with or without compensation of the pH value. The integrated flow regulator and the automatic probe cleaning reduce maintenance to a minimum.

## Innovations with real benefits



### Complete measuring system

- Quick and easy installation and commissioning
- Stable water throughput for precise measurements

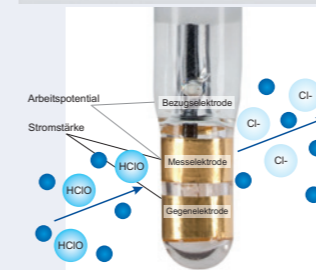
### Integrated control unit with touch screen

- Easy operation



### Low maintenance and stable probes

- integrated probe cleaning ASR®, i.e. no manual or chemical cleaning required
- No refilling of electrolytes required



### Customised solutions

- Suitable for all standard disinfectants
- Integrated pH-compensation possible



IO: 0/4 ... 20 mA

1

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Photometer product variants and sets	
AquaDMS with Cl <sub>2</sub> /ClO <sub>2</sub> /O <sub>3</sub> -sensor with pH-compensation	AquaDMS with Cl <sub>2</sub> /ClO <sub>2</sub> /O <sub>3</sub> -sensor w/o pH-compensation
960001	960000

### Accessories

960005 Cl<sub>2</sub>, ClO<sub>2</sub>, O<sub>3</sub> in salt water sensor

960006 H<sub>2</sub>O<sub>2</sub> sensor

### Main technical details

Measuring principle	free chlorine: 0 ... 20 mg/L Chlorine dioxide: 0 ... 20 mg/L Ozone: 0 ... 10 mg/L Hydrogen peroxide: 0 ... 30 mg/L
Resolution	0.01 mg/L
Sample conditions	0 ... 50 °C, max. 6 bar @ 20 °C pH of the sample: 6 ... 9
Conductivity of the sample:	50 ... 2000 µS/cm
Sample volume	0.6 ... 6.7 l/min
Voltage	85 ... 230 VAC, 50... 60 Hz
Power	max. 10 watt
Control unit	integrated, touch screen 90x50 mm
Outputs	1-5 0/4 ... 20 mA 1x relay 250 VAC, 4A
Inputs	1x digital (NO/NC)
Protection class	IP65
Conformities	CE

Full details and technical data:





# SiCon (M)



The control unit SiCon (M) with the latest technology and colour display facilitates the handling by operators due to its logical menu navigation. The display allows the reading of measuring values, curves with progression, as well as status and alarm notifications. The SiCon (M) offers all options for easy system integration via various interfaces. The integrated SD cards allows almost unlimited data recording for quality assurance.

## Main technical details

Outputs	4 x 0/4 ... 20 mA (max. load 500 Ω) 7x digital (max. 30 V)
Inputs	5x digital (max. 30 V)
Display	¼ VGA with touch screen (320 x 240 pixels with 3.5" diagonal)
Power supply	9 ... 30 VDC
Power input	max. 8 W
Protection degree	IP 66

## SiCon

SiCon	1 photometer with up to 4 measuring channels
SiCon M	Up to 8 photometers / 8 measuring channels
SiCon C	Tool, ideal for maintenance

## Conn Box

### 119510 Conn-P Box

Passive connection box for the connection of up to 5 sensors.

- Maximum sensor distance of 5 m
- Power supply: 24 V

### 119920 Conn-A Box

Active connection box for the connection of up to 8 sensors .

- Maximum sensor distance of 800 m
- Power supply: 24 V

### 120510 Conn-R Box

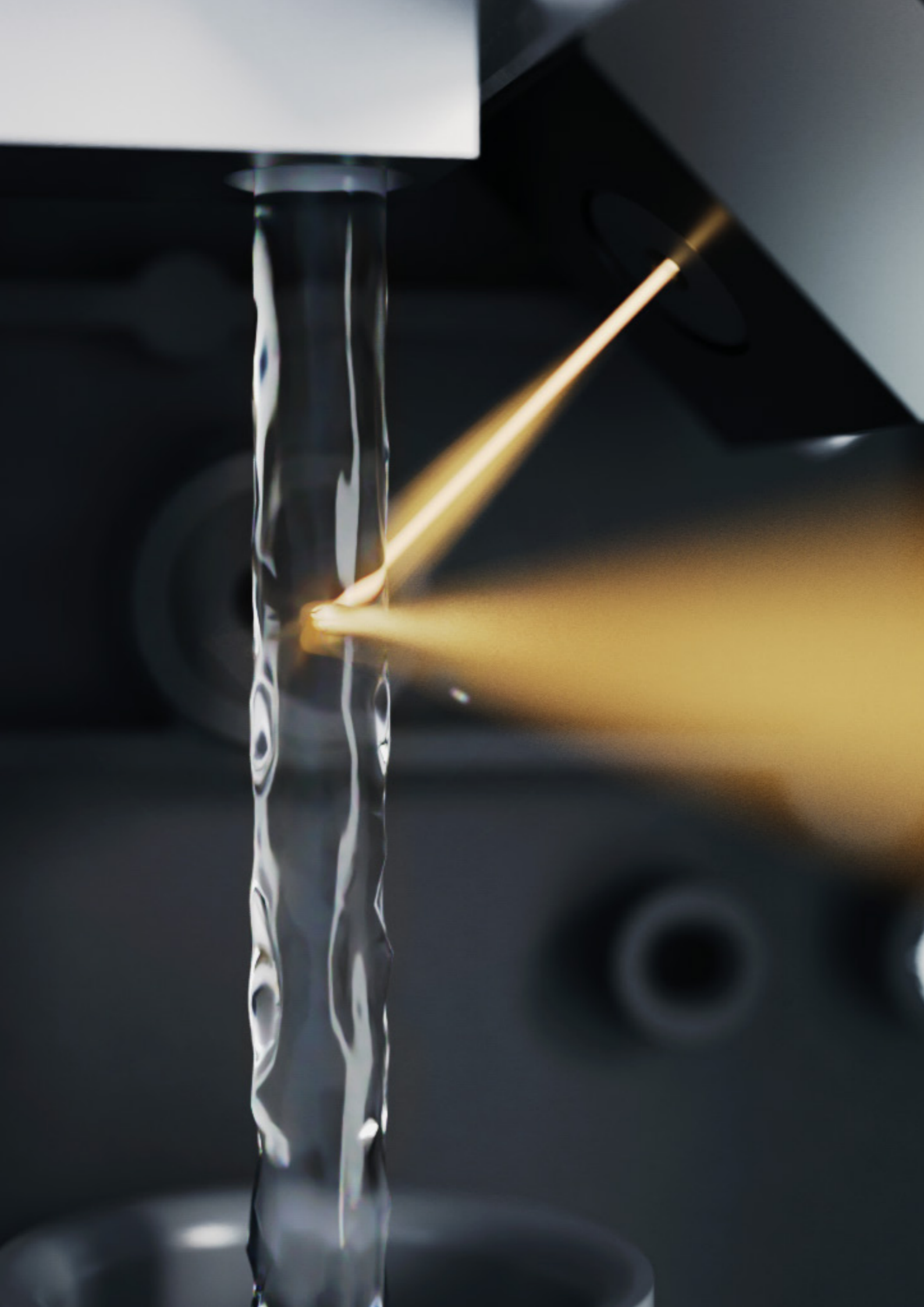
Connection box for AquaScat S.

- 2 Relays and connection for SiCon C

## Activation master software 20076

A Sigrisr measuring or control unit can be configured at all time, so that it can also serve several devices in a client/server configuration. This requires an activation code.

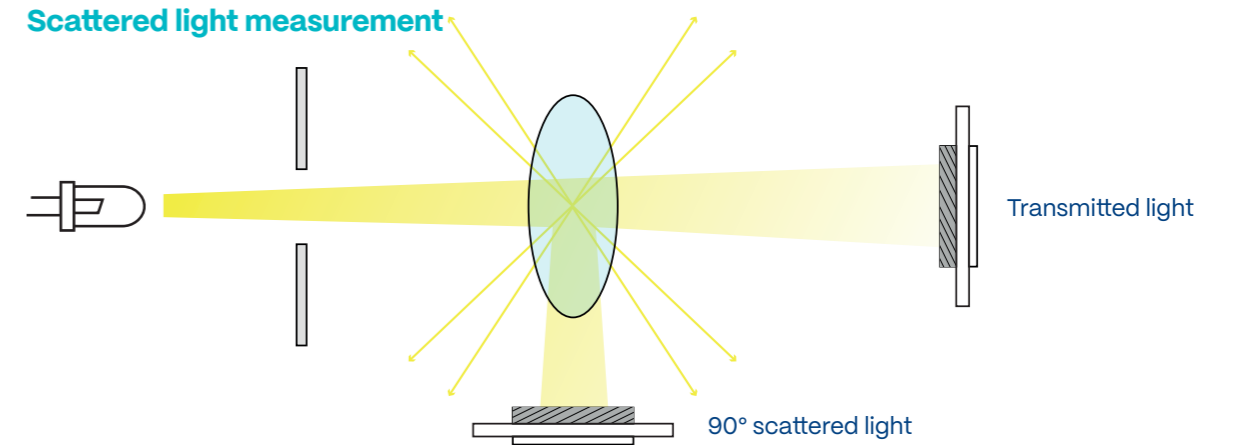




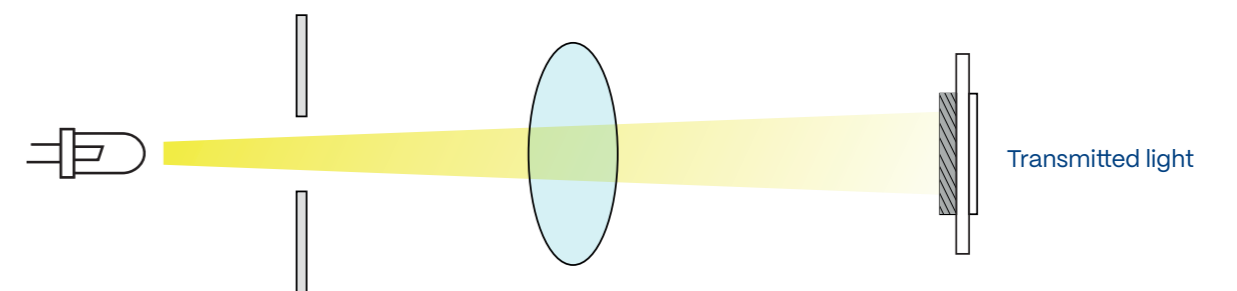
# Measurement principles

Reliable and safe water quality measurement.

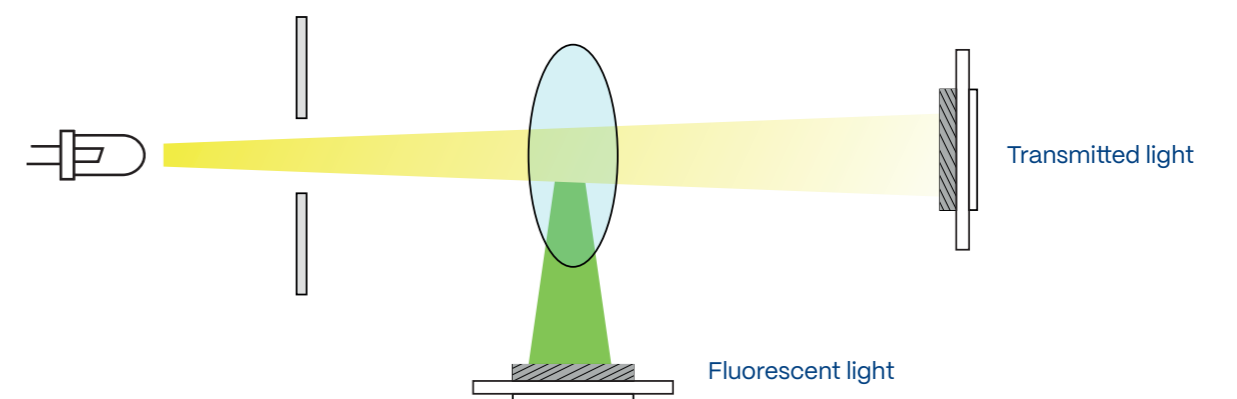
## Scattered light measurement



## Absorption measuring



## Fluorescence measurement





# Sigrist USP's and advantages

## Background

Our company is an independent Swiss SME and has gained an excellent international image as a manufacturer of high-quality process photometers. Our customers benefit from our many years of expertise and best Swiss quality.

## Values

Our corporate culture is based on a symbiosis of material and immaterial values that we foster and develop for the benefit of all stakeholders.

## Swiss Innovation

Our products offer solutions to real needs of society, of humans and the environment. They fulfil the highest quality, reliability and uniqueness standards, offering our customers great value.

## Ethics and Responsibility

Acting economically responsibly is at the centre of all we do. To us, fairness, reliability and sustainability are as important factors for success as economic aspects.

# Legal information

## Contents

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# Sigrist near you



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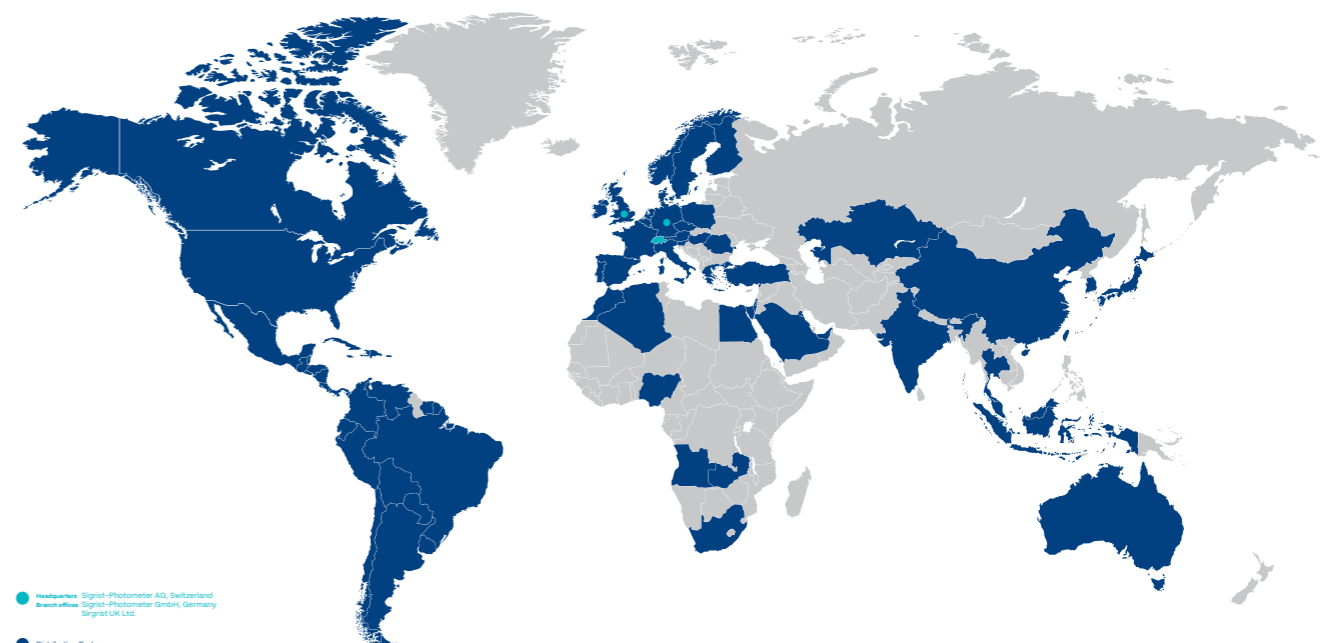
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## Sigrist-Photometer and distribution chambers in 80 countries.



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