



# HWT

High Water Technology  
تصفية و تحلية المياه

## POUR UNE MEILLEURE QUALITÉ D'EAU

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# seko

## Solutions for **Measurement** and **Analysis**



Your Choice,  
Our Commitment

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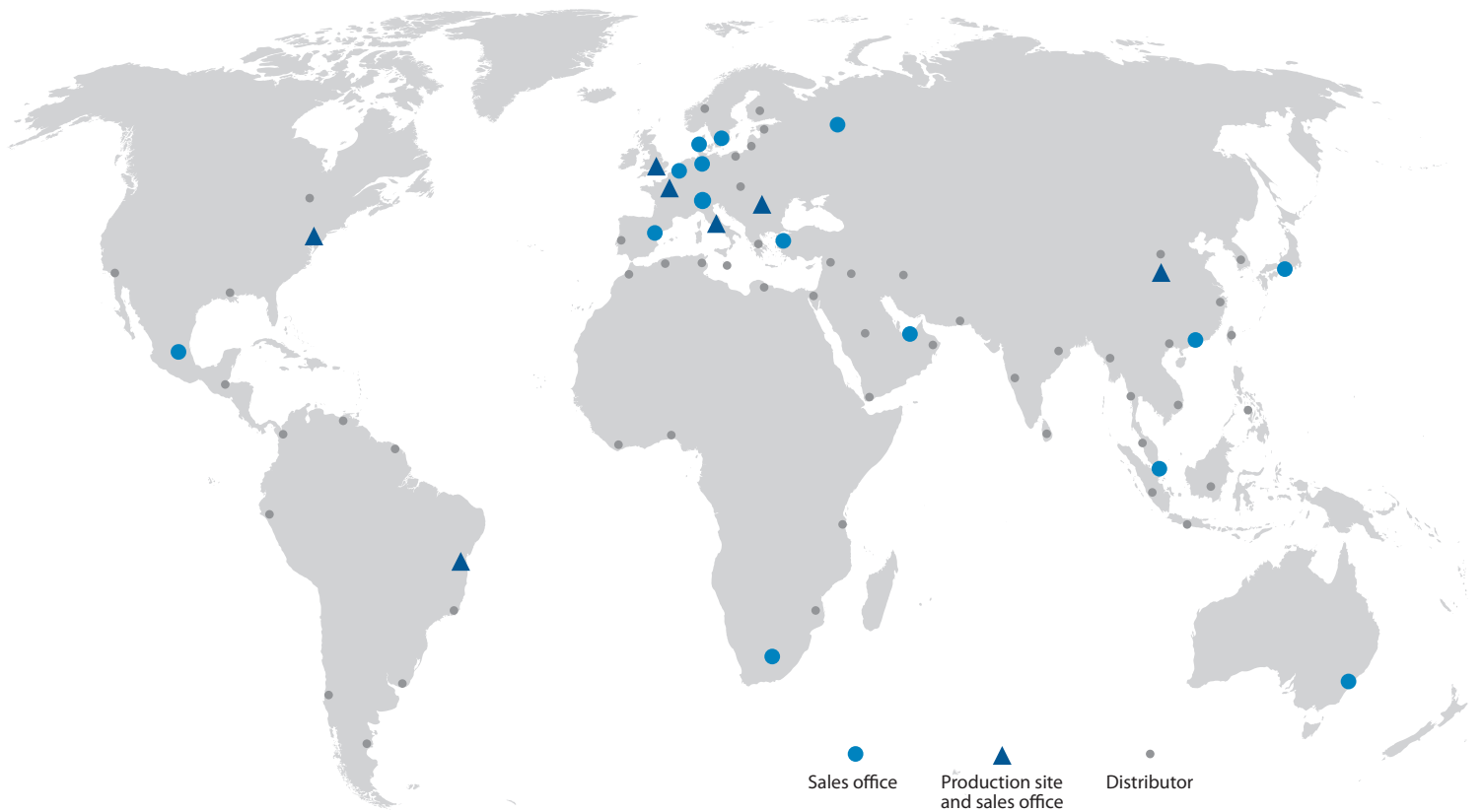
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# Globally Present, Locally Active

## A Worldwide Group at your service

Our Global presence ensures that we can support our Customers wherever they are. Supported by teams in over 20 countries, as well as by our accredited Partner Distributor network, we ensure professional, local customer support in over 120 countries, with the added benefit of rapid delivery of goods to meet your needs.

All this backed up and supported by a world-class team of Technical Customer Service, able to provide all the back up or technical support needed. With ISO certificated production sites in Europe, the Americas and Asia, we are close to our customers and fully compliant with all local norms both in terms of our product designs as much as our production facilities.

# How SEKO works for You

From the spark of an idea, through to the delivery of a solution, SEKO is with you all the way

SEKO supports its customers in every phase of a project, from the inception of an idea or request, through design and testing to launch and installation. Our in-house research, design and development teams work closely with the local teams, drawing on customer and market inputs. Then using state-of-the-art technologies to optimize costs and using our own specifically designed test benches to ensure rigorous, robust testing, we ensure a quality solution is delivered quickly to market.

No matter which processes and applications are planned SEKO has a solution in the cleaning and hygiene of kitchens and laundries and surfaces of all types in applications like **Offices and Restaurants, Hospitals and Hotels, Retailers and Schools, Car Washes and Swimming Pools, Cooling Towers, Energy, Food & Beverage, Water & Gas Utilities Potable and Waste Water Treatment.**

## Partnership philosophy

Being a privately-owned business means that we are here for the long term and can plan projects with and for our Customers, where both parties benefit. It means we can rapidly take decisions to invest our resources to ensure our optimum solutions are delivered.

## Your Business, Our Solutions

Our extensive product range represents a unique combination of design, development and implementation know how. With a wide and ever evolving range of products and ancillaries, we can offer specific and comprehensive solutions for a variety of industrial applications. Our solutions are conceived to fit seamlessly into your operation, optimizing the processes and applications.

## Uniquely positioned

SEKO's 3 business units, Cleaning & Hygiene, Water & Industry and Industrial Processes puts us in a unique position to be able to respond to the widest range of business needs, with a broad range that allows you the Customer to deal with just one company, simple.

# Measurement and Analysis

## Smart solutions to ensure the consistent quality of the liquids involved in an application

SEKO's R&D teams take time to develop measuring and analytical solutions that meet the needs of a broad range of applications, environments and specific needs combining their in house know, from over 40 years of application specific experience and a thorough knowledge of liquid measuring and analysis with solutions from the wider market.

The result is a range of products that are flexible and highly modular, that comprises high-performance individual products and complete panel solutions, offering every customer maximum flexibility and affordable measuring in specific processes and waste water treatment – anytime, anywhere. Exploiting our market experience, we design, develop, test and manufacture products that ensure all our solutions and systems deliver.

## Precision and consistency

From managing the total cost of ownership of a system, whilst guaranteeing accurate measurement of critical water parameters from our Kontrol Series, through to chemically compatible raw materials, chosen for their robustness and durability in our manufacturing process, to our range of Photometric systems and complete range of probes and probes, SEKO offers an optimal result, providing peace of mind and brand security.

## Safety and reliability

The safety of customers, installers and operators is paramount, requiring the very best in terms of design and features. From the IP65 class enclosures of our controllers to our CE class 1 and 2 certificated controllers, safety is at the forefront of our design ethos. Reliability drives good safety, and all SEKO's products are fully tested prior to leaving our warehouse.

## Ease of use and installation

As a global company, we are attuned to the differing needs of individual markets. This is why, when we design a new product, we ensure that installation is simple and that we use uniform programming language solutions that are intuitive and easy to understand, in whatever language you speak.

## Operational efficiency

From the affordability of the range of solutions, to thoughtful design elements that keep maintenance costs low, a common programming language, and increasingly the ability to take data direct from the system to manage understand operating costs better, SEKO's measurement and analysis systems offer an exceptional mix of affordability and high performance across a very wide range of diverse applications.



A photograph of a water treatment plant. The scene is dominated by numerous large, blue, curved pipes that arch over a series of rectangular basins. The basins contain water with a brownish, foamy appearance, likely from aeration. Metal railings run along the edges of the basins. In the background, there are utility poles and a clear sky. The overall lighting is bright, suggesting a sunny day.

# Controllers and Probes

Ensuring that water quality is always at its best, balancing the variables that impact it, demands measuring and dosing systems with the highest accuracy

SEKO's Controllers and Probes are built with precision in mind and can function in both internal and external environments. Specifically conceived to fit a wide range of individual applications, they are available in different performance classes ensuring easy integration into every process environment.

# Controllers and Probes

Single, double, multi parameter controllers, probes, sensors, probe holders and buffer solutions for measurement of pH, ORP, electrical and inductive conductivity, dissolved oxygen, flow, chlorine and disinfectants, turbidity and suspended solids, temperature

The Kontrol Range represents SEKO's most advanced solution for the comprehensive monitoring of multiple water parameters. The result of SEKO's dedication to innovation and a passion for measurement solutions and systems to meet increasingly complex and large customers' technical requirements, Kontrol provides high levels of measuring accuracy and control with simple functionality.

The range enables the operator to monitor key values to suit almost any application covering the following parameters: pH, ORP, Conductivity, Chlorine, Oxygen, Turbidity, Suspended Solid, Peracetic Acid, Ozone, Bromine, Peroxide, Flow rate and Temperature. The range also benefits from having a traditional compensation measure providing extra assurances on the accuracy and repeatability of measurements taken.



Monitoring a limit, a value or building a closed control circuit is easy with our sensors – in an enormous range of measuring applications. The measured values are delivered in real time and can be flexibly connected to the various process interfaces via bypass, immersion or installed fittings.

Our product line provides a wide range of sensors for different measuring tasks. The field of application covers everything from simpler water treatment tasks to industrial process waters with more stringent requirements in terms of temperature, pressure, contamination tolerance and chemical resistance.



## SEKO controllers offer the following features

Graphic display, keypad, enclosure box, power supply, manual self check capabilities, data storage, RS485 serial port with Modbus RTU protocol, USB port, measure input, digital input, current outputs 4 – 20 mA galvanic isolation, relay outputs

### Innovative enclosure

The Kontrol Range is designed with SEKO's reknown know-how to be easy to install keeping costs low and safety to the forefront, and features fasteners that allow easy maintenance of the electronic circuits eliminating the need to remove electrical connections that have already been made.

### Electronic control

The innovative electronic control board used in the Kontrol range, provides the operator with consistent, highly accurate and importantly, guaranteed repeatability of each measurement. Full CE/UL certification ensuring full health and safety compliance.

### Measure compensation

The Kontrol range benefits from having a traditional compensation measure that provides extra assurances on the accuracy and repeatability of measurements taken.

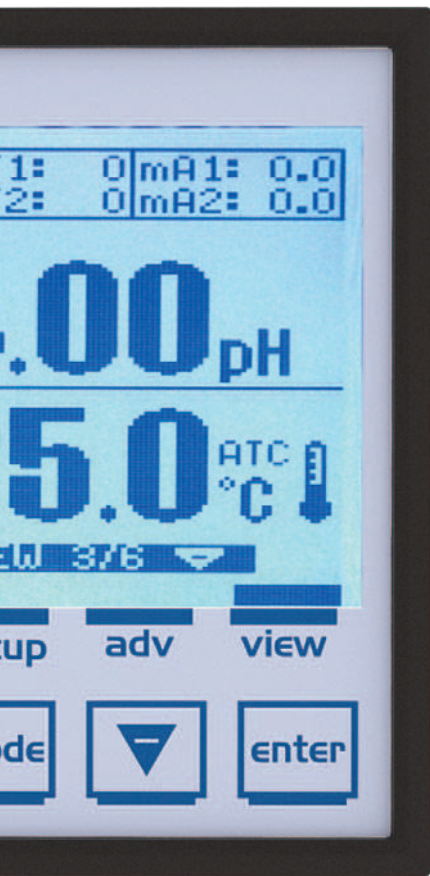
### Wizard calibration

All models in SEKO's Kontrol range have a standard calibration routine (or wizard calibration) to help end users through regular probe maintenance operations. The controller is also equipped with programmes that assist the installer when it comes to the management and replacement of the measurement electrodes, thanks to a clever "electrode quality " control function.



## Intuitive menu

The set up, programming and eventual reading of the controller needs to be as straightforward as possible. Using the high contrast image of the graphic display and easy to read, self explanatory icons, the operator is guided step by step through the applications. SEKO's controllers have multiple screen settings to improve the display legibility. Using variable display backlighting allows the user to quickly understand which operating mode the device is currently operating.



## Dynamic QR-Code

A bi-dimensional "quick response" code, that is easily accessible and just as easy to manage. It allows for the download of calibration parameters, setup menu settings and an Advanced menu. This function increases the versatility of the product, helping technical assistance to monitor/check wrong settings or improve the performance of the controllers.



## Broad spectrum of applications

Thanks to thoughtful design from the outset, the features and subsequent breadth of available measurements built into the Kontrol range means it can meet the needs of the most commonly found applications needed by the Water Treatment and Industrial Processes sectors.

# Controllers range

Controllers	Multi-parameters		Dual-parameters		Single-parameter			
	Kontrol 800 Tech	Kontrol 800	Kontrol 502	Kontrol 42	Kontrol 500	Kontrol 100	Kontrol 50	Kontrol 40
<b>Measures</b>								
Number	7	6	2	2	1	1	1	1
Insulation	Optical	Optical	Optical	Galvanic	Optical	Optical	Galvanic	Galvanic
Accuracy	0.1%	0.1%	0.1%	1%	0.1%	0.1%	0.1%	1%
<b>Analog/Digital Output</b>								
4 – 20 mA	4	2	2	2	2	2	1	1
Relays	6	6	4	4	2	2	2	2
Frequency	4	2	-	-	2	2	1	-
<b>Enclosure box</b>								
Din-Rail								•
48 x 96								•
96 x 96			•		•	•	•	•
144 x 144			•		•	•	•	•
280 x 290	•	•		•				
<b>Display</b>								
Alphanumeric	-	4 x 20	-	2 x 16	-	-	-	2 x 16
Graphic	240 x 128	-	64 x 128	-	128 x 128	128 x 128	128 x 128	-
<b>Power Supply</b>								
24 Vac				•				•
12 - 32 Vdc						•	•	
100 - 240 Vac	•	•	•	•	•	•	•	•
<b>Interface</b>								
Modbus RTU/ASCII	•	•	•		•	•		
USB			•		•			
<b>Software</b>								
Modbus RTU/ASCII	•	•	•	•	•	•	•	•
Measure compensation	•	•	•	•	•	•	•	•
Ultra pure water compensation					•	•	•	
On-Off/Timed control	•	•	•	•	•	•	•	•
Proportional control	•	•	•	•	•	•	•	•
PID control			•		•			
Data logger function	•	•	•		•			
Internal clock	•	•						
Alarms list	•	•				•	•	
Alarm event	•	•	•	•	•	•	•	•
Qr-Code download	•					•		
Control panel	•	•	•	•	•	•	•	•
View level	•	•				•	•	
USB download			•		•			



# Kontrol 800 Tech

Professional multi-parameter controller designed for advanced water treatment applications

## Product line

**K800 Tech PR**  
for pH, ORP and flow rate

**K800 Tech PC**  
for pH, CL and flow rate

**K800 Tech PRC**  
for pH, ORP, CL, and flow rate

**K800 Tech PRC+NTU**  
for pH, ORP, CL, turbidity and flow rate

The Kontrol 800 Tech allows a mixed configuration from 2 to 7 simultaneous measures.



## Why

### Kontrol 800 Tech

The Kontrol 800 Tech is a multi parameter controller that manages up to 7 simultaneous measurements. It is a professional tool offering a complete range of measurements with the ability to adjust the parameters as required.

The Kontrol 800 Tech has a double channel 4 - 20 mA analog input and features an extended range of measures including: hydrogen peroxide, bromine, ozone, peracetic acid. Thanks to a custom function, any type of required probe can be connected to the Kontrol 800 Tech and have its parameters, unit scale and measurements set by the user providing ultimate flexibility.

The standard Serial Port RS485 device is a first step to communication with a local network. The Kontrol 800 Tech can connect to the web thanks to a hub communication device. This feature further enhances the controller's range of benefits and allows remote setting and control by the technician.

A compensation software function has been added for highly accurate Chlorine measurement that takes into account any pH variation that may impact the chlorine reading, again helping to guarantee consistent and accurate chlorine measurement.

In the "advanced" menu software settings Kontrol 800 Tech has the option to set the following outputs: relay, 4 – 20 mA and frequency, with chemical measurements for pH, ORP, chlorine etc. This provides the end user with the flexibility to assign the control outputs to a specific desired chemical measurement whereas previous versions offered only fixed outputs.

## Display and human interface

Parameter setting can be done via a keyboard and a **240 x 128 pixel graphic display** that ensures a fast set up and final check on the programming data. The easy to navigate menu enables simple setting of the various options eliminating the risk of steps being omitted. The smart internal menu also allows users to check the statistics on the life of the probes and the operating life of the controller.

## Electronic control

The controller has galvanized electricals to ensure reliable performance and offers **CE Class 1** certification ensuring full health and safety compliance. It also allows two separate power supply phases to be managed to guarantee adequate system safety.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

SEKO's know how in the Kontrol Series means that it meets the needs of many water treatment applications. Kontrol 800 Tech is ideally suited for use in the following applications: **drinking water, irrigation systems, cooling water treatment, swimming pools.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.01 pH
ORP	± 2000 mV	± 1 mV
Electrical Conductivity	0.054 – 200000 µS	± 2 %
Dissolved Oxygen	0 – 20 ppm	± 2 %
Flow Rate	0 – 99999 l/sec.	± 0.5 Hz
Chlorine	0 – 200 ppm	± 0.01 ppm
Peracetic Acid	0 – 99000 ppm	± 0.01 ppm
Hydrogen Peroxide	0 – 99000 ppm	± 0.01 ppm
Bromine	0 – 10 ppm	± 0.01 ppm
Ozone	0 – 99000 ppm	± 0.01 ppm
Turbidity	0 – 4000 NTU	± 2 %
Temperature	0 – 100° C	± 0.2° C

## Technical features

Features	Description	
Multi measure	Mix from the above list	Multi channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 or PT1000 sensor
Voltage input	Hold function	24 Vac
Reed input	Hold function	Resistive contact
Serial port	Communication device	RS485 Modbus RTU
Six relays device	Normally open status	10A 250V (powered)
Four open collector	Output frequency signal	1 - 120 pulse/min
Four 4 - 20 mA channel	Output current analog signa	500 ohm max load
Display	Graphic display	240 x 128 pixel
Power supply	100 - 240 Vac	CE Class 1
Enclosure box	290 x 280 mm	IP65 wall mounting

# Kontrol 800

User-friendly multi-parameter controller designed for simple and advanced water treatment applications

## Product line

**K800 PR**  
for pH, ORP and flow rate

**K800 PC**  
for pH, CL and flow rate

**K800 PRC**  
for pH, ORP, CL and flow rate

The Kontrol 800 allows a mixed configuration from 2 to 6 simultaneous measures.



## Why

### Kontrol 800

The Kontrol 800 controller is a multi parameter controller measuring up to 6 simultaneous parameters providing professional levels of measurement, data reading and adjustment.

The Kontrol 800 has a single channel 4 - 20 mA analog input and features an extended range of measures including: hydrogen peroxide, bromine, ozone, peracetic acid. As with the Kontrol 800 Tech, this model also offers the flexibility of connection to any probe type required by the operator for a given chemical, which can then be set and provide measurements as required.

The standard Serial Port RS485 device is a first step to communication with a local network. Moreover Kontrol 800 can connect to the web thanks to a hub communication device. This feature further enhances the controller's range of benefits and allows remote setting and control by the technician.

Specialised software allows the conversion of free chlorine measurement using Bromine giving the end user the advantage being able to use chemical products based on Bromine and still have an objective measure of the value present in the plant.

## Display and human interface

Parameter setting can be done via a keyboard and an **alphanumeric display** that ensures a fast set up and final check on the programming data. The easy to navigate menu enables simple setting of the various options eliminating the risk of forgetting anything. The innovative internal menu also allows users to check the statistics on the life of the probes and the operating life of the controller.

## Electronic control

The controller has galvanized electricals to ensure reliable performance and offers **CE Class 1** certification ensuring full health and safety compliance.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

SEKO's know how in the Kontrol Series means that it meets the needs of many water treatment applications. Kontrol 800 is ideally suited for use in the following applications: **drinking water, irrigation systems, cooling water treatment, swimming pools and flocculent dosing systems.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.01 pH
ORP	± 2000 mV	± 1 mV
Electrical Conductivity	0.054 – 200000 µS	± 2 %
Dissolved Oxygen	0 – 20 ppm	± 2 %
Flow Rate	0 – 99999 l/sec.	± 0.5 Hz
Chlorine	0 – 200 ppm	± 0.01 ppm
Peracetic Acid	0 – 99000 ppm	± 0.01 ppm
Hydrogen Peroxide	0 – 99000 ppm	± 0.01 ppm
Bromine	0 – 10 ppm	± 0.01 ppm
Ozone	0 – 99000 ppm	± 0.01 ppm
Temperature	0 – 100° C	± 0.2° C

## Technical features

Features	Description	
Multi measure	Mix from the above list	Multi channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 sensor
Voltage input	Hold function	24 Vac
Reed input	Hold function	Resistive contact
Serial port	Communication device	RS485 Modbus RTU
Six relays device	Normally open status	10A 250V (powered)
Two open collector	Output frequency signal	1 - 120 pulse/min
Two 4 - 20 mA channel	Output current analog signal	500 ohm max load
Display	Alphanumeric display	4 lines 20 letters
Power supply	100 - 240 Vac	CE Class 1
Enclosure box	290 x 280 mm	IP65 wall mounting



# Kontrol 502

Professional dual-parameter controller designed for advanced water treatment applications

## Product line

**K502 pH + Redox**  
for pH or ORP

**K502 pH + CL**  
for pH and chlorine

**K502 pH + CD**  
for pH and conductivity

**K502 pH + OX**  
for pH and dissolved oxygen

**K502 TB + OX**  
for turbidity and dissolved oxygen



## Why

### Kontrol 502

The Kontrol 502 series are professional controllers designed for advanced high-end water treatment applications. All models are equipped with analogue and digital outputs that can be set by the end user via software, who has full programming autonomy.

Double PID regulation in the Kontrol 502 controller provides superior efficiency by delivering twice the measurement capacity of the Kontrol 500, bringing superior operational cost control as well as full control of the specific application.

The standard Serial Port RS485 device is a first step to communication with a local network, moreover Kontrol 502 can connect to the web thanks to a hub communication device. This feature further enhances the controller's range of benefits and allows remote setting and control by the technician.

The integrated Data logger function gives feedback on the measured parameters and by using the USB port, it is possible to download the list of both sets of parameter measurements.

## Display and human interface

Parameter setting can be done via a keyboard and a **graphic display** that ensures a fast set up and final check on the programming data.

The easy to navigate menu enables simple setting of the various options eliminating the risk of forgetting anything. The smart internal menu also allows users to check the statistics on the life of the probes and the operating life of the controller. SEKO's interactive menus are inbuilt with our common programming language making routine calibrations straightforward, less prone to mistakes and less time consuming.

## Electronic control

The controller has galvanized electricals to ensure reliable performance and offers **CE Class 1** certification ensuring full health and safety compliance.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

The Kontrol 502 benefits from SEKO's expertise and consequently can be used in a wide variety of water treatment applications including: **drinking water, irrigation systems, fish farming, cooling water treatment, swimming pools, flocculent dosing systems, waste water, pure water, plating and reverse osmosis.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.01 pH
ORP	± 1500 mV	± 1 mV
Electrical Conductivity	0.1 – 20000 µS	± 1 %
Inductive Conductivity	200 – 999999 µS	± 1 %
Dissolved Oxygen	0 – 20 ppm	± 1 %
Chlorine	0 – 200 ppm	± 0.01 ppm
Peracetic Acid	0 – 99000 ppm	± 0.01 ppm
Hydrogen Peroxide	0 – 99000 ppm	± 0.01 ppm
Bromine	0 – 10 ppm	± 0.01 ppm
Ozone	0 – 99000 ppm	± 0.01 ppm
Turbidity	0 – 4000 NTU	± 1 %
Suspended solid	0 – 30 gr	± 1 %
Temperature	0 – 100° C	± 0.2° C

## Technical features

Features	Description	
Double measure	Mix from the above list	Double channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 sensor
Voltage input	Hold function	24 Vac
Reed input	Hold function	Resistive contact
Serial port	Communication device	RS485 Modbus RTU
Four relays device	Normally open status	10A 250V (dry contact)
Two 4 - 20 mA channel	Output current analog signal	500 ohm max load
Display	Graphic with backlight	128 x 64 pixel
Power supply	24 Vac or 100 - 240 Vac	CE Class 1
Enclosure box	144 x 144 mm 96 x 96 mm	IP65 wall mounting IP40 panel mounting

# Kontrol 42

Dual-parameter controller designed for simple water treatment applications

## Product line

**K042 pH + Redox**  
for pH or ORP

**K042 pH + CL**  
for pH and chlorine

**K042 pH + CD**  
for pH and conductivity

**K042 pH + FX**  
for pH and flow rate

**K042 CD + FX**  
for conductivity and flow rate



## Why

### Kontrol 42

The Kontrol 42 controller features double parameters with separate displays to simplify measurement reading, and separate menu setting parameters.

Through the programming menu, the operator can set relays with three different settings such as: On / Off, Timed or Proportional Activation, which allows more flexibility in various installations.

The current output, thanks to the range item regulation, assures a very high level of performance to aid control of remote devices.

The voltage input completes the controller. It is possible to remotely lock all functions using an external device to create a basic automatic unit.

## Display and human interface

Parameter setting can be done via a keyboard and an **alphanumeric display** that ensures fast set up and allows for a final check on the programming data. The easy to navigate menu enables simple setting of the various options eliminating the risk of forgetting anything.

## CAL and Mode quick menu

Rapid access to the interactive menu assures quick parameter setting and rapid calibration of probes.

## Electronic control

The controller has galvanized electricals to ensure reliable performance and offers **CE Class 1** certification ensuring full health and safety compliance.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

Kontrol 42 provides reliable and consistent performance across the following applications: **drinking water, irrigation systems, cooling water treatment, swimming pools and reverse osmosis.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.1 pH
ORP	± 1500 mV	± 5 mV
Electrical Conductivity	1 – 50000 µS	± 5 %
Flow Rate	0 – 99999 l/sec.	± 0.5 Hz
Chlorine	0 – 200 ppm	± 0.01 ppm
Temperature	0 – 100° C	± 1° C

## Technical features

Features	Description	
Double measures	Mix from the above list	Double channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 sensor
Voltage input	Hold function	15 – 30 Vdc
Four relays device	Normally open status	10A 250V (dry contact)
Two 4 - 20 mA channel	Output current analog signal	500 ohm max load
Display	Alphanumeric with backlight	2 line 16 letters
Power supply	100 - 240 Vac	CE Class 1
Enclosure box	290 x 280 mm	IP65 wall mounting

# Kontrol 500

Professional single-parameter controller designed for advanced water treatment applications

## Product line

### K500 PR

for pH, ORP and flow rate

### K500 CL

for CL, PAA, H<sub>2</sub>O<sub>2</sub>, NTU, O<sub>2</sub> or custom measure

### K500 CD for conductivity

### K500 ID for inductive conductivity

### K500 OX for dissolved oxygen

### K500 T1 for turbidity

### K500 T2 for suspended solid turbidity



## Why

### Kontrol 500

Kontrol 500 are professional controllers designed for advanced water treatment applications. All models are equipped with analogue and digital outputs that can be set by the end user via software with full programming authority for the user.

The Kontrol 500 controller features PID regulation delivering automatic adjustment of the chemical parameters ensuring a much higher level of efficiency.

The standard Serial Port RS485 device is a first step to communication with a local network, moreover Kontrol 500 can connect to the web thanks to a hub communication device. This feature further enhances the controller's range of benefits and allows remote setting and control by the technician.

The integrated Data logger function provides feedback on parameter measures and by using the USB port it is possible to download the list of parameters.

## Display and human interface

Parameter setting can be done via a keyboard and a **graphic display** that ensures a fast set up and final check on the programming data.

SEKO's attention to detail when it comes to reducing operating costs over the lifetime of its controllers extends to the easy to navigate menu that enables simple setting of the various options eliminating the costly risk of forgetting anything. The same smart internal menu also allows users to view and analyze statistics on the probe life and operating life of the controller, while the common programming language, as found across all of the Kontrol range, means routine calibration can be done quickly and effectively even across multiple Kontrol models at any given installation.

## Electronic control

The controller has galvanized electricals to ensure reliable performance and offers **CE Class 1** certification ensuring full health and safety compliance.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

Kontrol 500 benefits from SEKO's application expertise and has been designed to be specifically suited to the following applications: **drinking water, irrigation systems, fish farming, cooling water treatment, swimming pools, flocculent dosing systems, waste water, pure water, plating and reverse osmosis.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.01 pH
ORP	± 1500 mV	± 1 mV
Electrical Conductivity	0.1 – 20000 µS	± 1 %
Inductive Conductivity	200 – 999999 µS	± 1 %
Dissolved Oxygen	0 – 20 ppm	± 1 %
Chlorine	0 – 200 ppm	± 0.01 ppm
Peracetic Acid	0 – 99000 ppm	± 0.01 ppm
Hydrogen Peroxide	0 – 99000 ppm	± 0.01 ppm
Bromine	0 – 10 ppm	± 0.01 ppm
Ozone	0 – 99000 ppm	± 0.01 ppm
Turbidity	0 – 4000 NTU	± 1 %
Suspended solid	0 – 30 gr	± 1 %
Temperature	0 – 100° C	± 0.2° C

## Technical features

Features	Description	
Single measure	From the above list	Single channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 sensor
Voltage input	Hold function	24 Vac
Reed input	Hold function	Resistive contact
Serial port	Communication device	RS485 Modbus RTU
Four relays device	Normally open status	10A 250V (dry contact)
Two 4 - 20 mA channel	Output current analog signal	500 ohm max load
Display	Graphic with backlight	128 x 64 pixel
Power supply	24 Vac or 100 - 240 Vac	CE Class 1
Enclosure box	144 x 144 mm 96 x 96 mm	IP65 wall mounting IP40 panel mounting

# Kontrol 100

Advanced single-parameter controller designed for simple and advanced water treatment applications

## Product line

### K100 PR

for pH, ORP and flow rate

### K100 MP

for CL, PAA, H<sub>2</sub>O<sub>2</sub>, NTU, O<sub>2</sub> or custom measure

### K100 CD

for conductivity

### K100 FX

for flow rate value with single or double sensor



## Why

### Kontrol 100

Kontrol 100 are advanced controllers designed for high-end applications and equipped with analogue and digital outputs that can be programmed via software providing the user has a great autonomy in programming. The  $\mu$ S (Micro Siemens) conductivity measurement can be visualized in TDS (Total dissolved solids) for cooling water treatment applications and Ohm (resistivity) for reverse osmosis applications to help the technician.

Kontrol 100 MP with a 4 - 20 mA analog input, features an extended range of measures that includes: hydrogen peroxide, bromine, ozone, peracetic acid. Thanks to its custom function, any probe that is required can be connected and subsequently the scale, unit and measurement can be set by the user.

The standard Serial Port RS485 device is a first step to communication with a local network. Moreover Kontrol 100 can connect to the web thanks to a hub communication device. This feature further enhances the controller's range of benefits and allows remote setting and control by the technician.

## Display and human interface

Parameter setting can be done via a keyboard and a **graphic display** that ensures a fast set up and final check on the programming data.

Kontrol 100 is the first controller that visually indicates its operating status. Its **4 colour levels clearly identify the status of the system**, alerting the operators even in poorly lit environments. Blue stands for standard operation, Red for alarm status, Green signals correct operation, Orange for automatic calibration.

The smart internal menu allows users to check the statistics on the life of the probes and the operating life of the controller identifying potential issues and the need for early replacement of either. Ease of use is a key feature of SEKO design and here as across the Kontrol series, SEKO's interactive menus feature our common programming language making routine calibration setting straightforward across all models of controller, saving time for operators and eliminating the risk of confusion or error during set up.

## Electronic control

The controller has galvanized electrical componentry to ensure reliable performance and offers **CE Class 2 compliance** assuring health and safety for the operators.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

SEKO's know how in the Kontrol Series means that it meets the needs of many water treatment applications. Kontrol 100 is ideally suited for use in the following applications: **plating, drinking water, irrigation systems, cooling water treatment, flocculent dosing systems, waste water, pure water, reverse osmosis.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.01 pH
ORP	± 2000 mV	± 1 mV
Electrical Conductivity	0.054 – 200000 µS	± 2 %
Dissolved Oxygen	0 – 20 ppm	± 2 %
Flow Rate	0 – 99999 l/sec.	± 0.5 Hz
Chlorine	0 – 200 ppm	± 0.01 ppm
Peracetic Acid	0 – 99000 ppm	± 0.01 ppm
Hydrogen Peroxide	0 – 99000 ppm	± 0.01 ppm
Bromine	0 – 10 ppm	± 0.01 ppm
Ozone	0 – 99000 ppm	± 0.01 ppm
Turbidity	0 – 4000 NTU	± 2 %
Temperature	-50 – 100° C	± 0.2° C

## Technical features

Features	Description	
Single measure	From the above list	Single channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 or PT1000 sensor
Voltage input	Hold function	24 Vac
Reed input	Reed function	Resistive contact
Serial port	Communication device	RS485 Modbus RTU/ASCII
Two relays device	Normally Open status	5A 250V (dry contact)
Two solid state relay	Output frequency signal	1 - 120 pulse/min
Two 4 - 20 mA channel	Output current analog signal	500 ohm max load
Display	Graphic with multi color backlight	128 x 128 pixel
Power supply	12 - 36 Vdc/24 Vac or 100 - 240 Vac	CE Class 2
Enclosure box	144 x 144 mm 96 x 96 mm	IP65 wall mounting IP65 (front panel only) panel mounting



# Kontrol 50

Advanced single-parameter controller designed for simple and advanced water treatment applications

## Product line

### K050 PR

for pH, ORP and flow rate

### K050 MP

for CL, PAA, H<sub>2</sub>O<sub>2</sub>, NTU, O<sub>2</sub> or custom measure

### K050 CD

for conductivity

### K050 FX

for flow rate value with single or double sensor



## Why

### Kontrol 50

Kontrol 50 are controllers designed for applications covering multiple parameters.

SEKO's latest controller features a bar function that makes rapid navigation of the menus possible. The Status bar also means rapid verification of all the controller's outputs possible making every day use of the controller, fast and efficient.

The  $\mu$ S (Micro Siemens) conductivity measurement can be visualized in TDS (Total dissolved solids) for cooling water treatment applications and Ohm (resistivity) for reverse osmosis applications.

Kontrol 50 MP with a 4 - 20 mA analog input, features an extended range of measures including hydrogen peroxide, bromine, ozone, peracetic acid. It is possible to connect any type of required probe thanks to a custom function where the operator can set the scale, the unit and the name of measure.

## Display and human interface

Parameter setting can be done via a keyboard and a **graphic display** that ensures a fast set up and final check on the programming data.

The easy to navigate menu enables simple setting of the various options eliminating the risk of forgetting anything. The smart internal menu also allows users to check the statistics on the life of the probes and the operating life of the controller. SEKO's interactive menus are inbuilt with our common programming language making routine calibration setting straightforward.

## Electronic control

The controller has galvanized electrical componentry to ensure reliable performance and offers **CE Class 2 compliance** assuring health and safety for the operators.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

Kontrol 50 benefits from SEKO's expertise and in its design has been aimed specifically at applications such as: **drinking water, irrigation systems, cooling water treatment, swimming pools, flocculent dosing systems, waste water, pure water, reverse osmosis.**

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.1 pH
ORP	± 2000 mV	± 5 mV
Electrical Conductivity	0.054 – 200000 µS	± 5 %
Flow Rate	0 – 99999 l/sec.	± 0.5 Hz
Chlorine	0 – 200 ppm	± 0.01 ppm
Peracetic Acid	0 – 99000 ppm	± 0.01 ppm
Hydrogen Peroxide	0 – 99000 ppm	± 0.01 ppm
Bromine	0 – 10 ppm	± 0.01 ppm
Ozone	0 – 99000 ppm	± 0.01 ppm
Temperature	0 – 100° C	± 1° C

## Technical features

Features	Description	
Single measure	From the above list	Single channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 or PT1000 sensor
Reed input	Reed function	Resistive contact
Two relays device	Normally Open status	5A 250V (dry contact)
One solid state relay	Output frequency signal	1 - 120 pulse/min
One 4 - 20 mA channel	Output current analog signal	500 ohm max load
Display	Graphic with multi color backlight	128 x 128 pixel
Power supply	12 - 36 Vdc/24 Vac or 100 - 240 Vac	CE Class 2
Enclosure box	144 x 144 mm 96 x 96 mm	IP65 wall mounting IP65 (front panel only) panel mounting

# Kontrol 40

Simple single-controller designed for non complex water treatment applications



## Why

### Kontrol 40

Kontrol 40 is an entry-level controller specifically conceived to fit a wide range of individual applications allowing accurate adjustments for less complex water treatment applications.

Through the programming menu, users can set relays with three different settings such as: On / Off, Timed or Proportional Activation, which allows more flexibility in various installations.

Thanks to the outputs already associated with measurement functions such as relay and current output, the Kontrol 40 gives a user friendly interface.

The wizard calibration probes ensure fast set up and final quality check.

## Display and human interface

Parameter setting can be done via a keyboard and an **alphanumeric display** that ensures fast set up and allows for a final check on the programming data. The easy to navigate menu enables simple setting of the various options eliminating the risk of forgetting anything.

## CAL and Mode quick menu

Rapid access to the interactive menu assures quick parameter setting and rapid calibration of probes.

## Electronic control

The controller has galvanized electricals to ensure reliable performance and offers **CE Class 1** certification ensuring full health and safety compliance.

## Enclosure box

The enclosure box is IP65 classified and features both wall and panel mounting. The innovative box design with inbuilt smart fasteners means electronic circuits can be easily maintained, eliminating the need to remove electrical connections that have already been made.

## Applications

SEKO's know how in the Kontrol Series means that it meets the needs of many water treatment applications. Kontrol 40 is ideally suited for use in the following applications: **drinking water, irrigation systems, cooling water treatment, swimming pools and reverse osmosis.**

## Product line

Model	Measure	Detail
K40 PR	pH or ORP	Single measure set via software
K40 CD	Low Conductivity	Dedicate for low range 1 - 200µS
K40 CD Std	Conductivity	Standard range 10 - 20000 µS
K40 CD High	Conductivity	Dedicate High range 100 - 50000 µS
K40 CL	Chlorine	Standard range 0 - 200 ppm
K40 FX	Flow rate	Standard range 0 - 99999 l/s, l/h, m/H, GPH

## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.1 pH
ORP	± 1500 mV	± 5 mV
Electrical Conductivity	1 – 50000 µS	± 5 %
Flow Rate	0 – 99999 l/sec.	± 0.5 Hz
Chlorine	0 – 200 ppm	± 0.01 ppm
Temperature	0 – 100° C	± 1° C

## Technical features

Features	Description	
Single measure	From the above list	Single channel
Calibration	Single or double point	Wizard calibration routine
Temperature measure	Compensation measure or activation outputs	PT100 sensor
Voltage input	Hold function	15 – 30 Vdc
Two relays device	Normally open status	10A 250V (dry contact)
One 4 - 20 mA channel	Output current analog signa	500 ohm max load
Display	Alphanumeric with backlight	2 line 16 letters
Power supply	24 Vac or 100 - 240 Vac	CE Class 1
Enclosure box	144 x 144 mm 96 x 96 mm 48 x 96 mm Din-Rail 6 modules	IP65 wall mounting IP65 (front panel only) panel mounting IP40 panel mounting P40 rail mounting





# pH probes

pH

pH measurement is important in many processes.

There is almost none where pH value does not play a dominant role

The rate and outcome of chemical reactions taking place in water often depends on the acidity of the water, and it is therefore useful to know the acidity of the water, typically measured by means of a pH meter. Knowledge of pH is useful or critical in many situations, including chemical laboratory analyses. pH meters are used in water quality for municipal water supplies, swimming pools, environmental remediation but also brewing of wine or beer and manufacturing amongst other applications.

A pH meter measures the hydrogen-ion activity in water-based solutions, indicating its acidity or alkalinity expressed as pH. The pH meter measures the difference in electrical potential between a pH electrode and a reference electrode, and so the pH meter is sometimes referred to as a "potentiometric pH meter". The difference in electrical potential relates to the acidity or pH of the solution.

Potentiometric pH meters measure the voltage between two electrodes and display the result converted into the corresponding pH value. They comprise a simple electronic amplifier and a pair of electrodes, or alternatively a combination electrode, and some form of display calibrated in pH units. It usually has a glass electrode and a reference electrode, or a combination electrode. The electrodes, or probes, are inserted into the solution to be tested. A glass electrode is a ion-selective electrode made of a doped glass membrane that is sensitive to a specific ion. These are most commonly used for pH measurement, where the glass electrode is sensitive to hydrogen ions.



## SPH1

Low maintenance sealed unit with **gel filled reference cell** suitable for **general laboratory, swimming pools and water monitoring and control plan.**



### Technical features

**Measuring range** 2 – 12 pH

**Process temperature** 0 – 60° C

**Pressure range** (relative to ambient) 0 – 6 Bar

**Body material** Plastic ; **pH element** Glass ;  
**Ceramic diaphragm** high accuracy

**Connection** 6 or 1.5 m cable with BNC and boot plastic cover

**Single and double junction** with KCL Gel

## SPH2

Low maintenance sealed unit with **gel filled reference cell** suitable for **waste water, drinking water, cooling water treatment and irrigation.**



### Technical features

**Measuring range** 2 – 12 pH

**Process temperature** 0 – 60° C

**Pressure range** (relative to ambient) 0 – 6 Bar

**Body material** Plastic ; **pH** Glass ;  
**Pellon PTFE diaphragm** high accuracy

**S8 connector** (PG13.5 mm mechanical and S7 electrical)

**Single junction** with KCL Gel

## SPH3 WW

Low maintenance sealed unit with gel filled reference cell suitable for waste water, drinking water, cooling water treatment, fish farming and galvanic process.



### Technical features

Measuring range	2 – 12 pH
Process temperature	0 – 80° C
Pressure range (relative to ambient)	0 – 6 Bar
Body material	Plastic ; pH element Glass ;
Diaphragm	open hole
S8 connector	(PG13.5 mm mechanical and S7 electrical)
Double junction	with KCL Gel

## SPH4 HP

Low maintenance sealed unit with gel filled reference cell suitable for waste water, drinking water, fish farming, ground water and galvanic process.



### Technical features

Measuring range	0 -14 pH
Process temperature	-10 – 60° C
Pressure range (relative to ambient)	0 – 6 bar
Body material	glass for high temperature environmental; pH element Glass ; 2 single pore diaphragms
S8 connector	(PG13.5 mm mechanical and S7 electrical)
Double junction	with KCL Gel

## SPH4 HT

Low maintenance sealed unit with gel filled reference cell suitable for ammonia application, chromium plating, reverse osmosis, galvanic process and bisulphite application.



### Technical features

Measuring range	0 – 14 pH
Process temperature	0 – 130° C
Pressure range (relative to ambient)	0 – 16 bar (25° C) / 0 – 6 bar (130° C)
Body material	Glass ; pH element Glass ; 3 ceramic diaphragms high performance
S8 connector	(PG13.5 mm mechanical and S7 electrical)
Double junction	with KCL Gel

## SPH4 LC

Low maintenance sealed unit with gel filled reference cell suitable for waste water, drinking water, fish farming, ground water and galvanic process.



### Technical features

Measuring range	0 -14 pH
Process temperature	-10 – 40° C
Pressure range (relative to ambient)	0 – 0.5 bar or higher if pressurization by side-arm
Body material	glass for low pressure environmental ; pH element Glass ; One sleeve diaphragm
S8 connector	(PG13.5 mm mechanical and S7 electrical)
Double junction	with KCL Gel



# ORP probes



ORP (Oxidation Reduction Potential) is a common measurement in biochemistry, environmental chemistry and water quality

ORPs in aqueous solutions are determined by measuring the potential difference between an inert sensing electrode in contact with the solution and a stable reference electrode. The reference electrode is connected to the solution by a salt bridge. It has a known potential and is made of silver chloride or saturate calomel. Platinum is mostly used for the sensing electrode.

The Oxygen-Reduction Potential, also known as Redox Potential describes the tendency of a chemical or a solution to acquire electrons and therefore to be reduced. Each types has its own reduction potential. It is measured in Volts (V) or mV.

For water system monitoring, the ORP value provides the operator with a rapid and single value assessment of the disinfection potential of water in a postharvest system. This enables an operator to assess the activity of the applied disinfectant rather than the applied dose.



## SRH1

Low maintenance sealed unit with **gel filled reference cell** suitable for **general laboratory, swimming pools and water monitoring and control plan.**



## Technical features

**Measuring range**  $\pm 1000$  mV

**Process temperature** 0 – 60° C

**Pressure range** (relative to ambient) 0 – 6 Bar

**Body material** Plastic ; **ORP element** Platinum wire ;

**Ceramic diaphragm** high accuracy

**Connection** 6 or 1.5 m cable with BNC and boot plastic cover

**Single and double junction** with KCL Gel

## SRH1 AU

Low maintenance sealed unit with gel filled reference cell suitable for general laboratory, swimming pools and water monitoring and control plan.



### Technical features

Measuring range  $\pm 2000$  mV

Process temperature 0 – 60° C

Pressure range (relative to ambient) 0 – 6 Bar

Body material Epoxy ; ORP element Gold ;  
Pellon diaphragm accuracy

Connection 6 or 1.5 m cable with BNC and boot plastic cover

Single junction with KCL Gel

## SRH3 PT

Low maintenance sealed unit with gel filled reference cell suitable for waste water, legionella disinfection, drinking water and galvanic process.



### Technical features

Measuring range  $\pm 1000$  mV

Process temperature 0 – 80° C

Pressure range (relative to ambient) 0 – 6 Bar

Body material Glass ; ORP element Platinum wire ;  
Diaphragm open hole

S8 connector (PG13.5 mm mechanical and S7 electrical)

Double junction with KCL Gel

## SRH4 HT

Low maintenance sealed unit with gel filled reference cell suitable for ammonia application, chromium plating, reverse osmosis, galvanic process and bisulphite application.



### Technical features

Measuring range  $\pm 2000$  mV

Process temperature 0 – 130° C

Pressure range (relative to ambient)  
0 – 16 bar (25° C) / 0 – 6 bar (130° C)

Body material Glass ; ORP element Platinum wire ;  
3 ceramic diaphragms high performance

S8 connector (PG13.5 mm mechanical and S7 electrical)

Double junction with KCL Gel

# Electrical conductivity probes

EC

Electrical conductivity is important for the characterization of liquids in different kinds of processes

Electrical conductivity is determined by a resistivity measurement when an alternating voltage is applied to a measurement cell that consists of two or four electrodes. To compensate for the geometry of the conductivity cell a cell constant is used. This constant is either known or determined by means of conductivity standards.

Electrical conductivity is the reciprocal of electrical resistivity, and measures a material's ability to conduct an electric current. For the measurement of the conductivity of a solution it's common to use  $\mu\text{S}/\text{cm}$  or  $\text{mS}/\text{cm}$ .

## 2-Pole Sensor Features:

With or without temperature sensor built-in

Accurate measurement of solutions with extremely low or high ionic strength



*With temperature sensor PT100*

## CTK100

Very low conductivity concentration unit suitable for reverse osmosis.



### Technical features

Measuring range 0.05 – 20  $\mu\text{S}$

Process temperature 0 – 130° C

Pressure range (relative to ambient) 0 – 16Bar

Cell constant 0.01  $\text{cm}^{-1}$  or  $K = 100$

Body material SS 316L ; Electrodes material SS 316L

Cable 5 m ; Mechanical connection 1/2" Gas M

## CTK10 PT

Low maintenance sealed unit with gel filled reference cell suitable for waste water, drinking water, cooling water treatment and irrigation



### Technical features

Measuring range 0.05 – 500  $\mu\text{S}$

Process temperature 0 – 70° C

Pressure range (relative to ambient) 0 – 7.5 Bar

Cell constant 0.1  $\text{cm}^{-1}$  or  $K = 10$

Body material Epoxy ; Electrodes material Platinum

Cable 6 m ; Mechanical connection 12 mm

## CTK1 GR

Standard conductivity concentration unit suitable for drinking water, process industry, boilers, waste water treatment and brine water.



### Technical features

Measuring range 1 – 20000  $\mu\text{S}$

Process temperature 0 – 60° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 1  $\text{cm}^{-1}$  or  $K = 1$

Body material PVC ; Electrodes material Graphite

Cable 5 or 10 m ; Mechanical connection 1/2" Gas M

## CTK0.1 PT

Low conductivity concentration unit suitable for waste water and brine water.



### Technical features

Measuring range 100 – 200000  $\mu\text{S}$

Process temperature 0 – 70° C

Pressure range (relative to ambient) 0 – 7.5 Bar

Cell constant 10  $\text{cm}^{-1}$  or  $K=0,1$

Body material Epoxy ; Electrodes material Platinum

Cable 6 m ; Mechanical connection 12 mm

## CTK1 SS

Standard conductivity concentration unit suitable for waste water, drinking water, cooling water treatment, reverse osmosis and irrigation.



### Technical features

Measuring range 5 – 5000  $\mu\text{S}$

Process temperature 0 – 100° C

Pressure range (relative to ambient) 0 – 2 Bar

Cell constant 1  $\text{cm}^{-1}$  or  $K = 1$

Body material PTFE ; Electrodes material SS316L

Cable 5 or 10 m ; Mechanical connection 1" Gas M

## CTK1 G

Standard conductivity concentration unit suitable for waste water, drinking water, cooling water treatment and irrigation.



### Technical features

Measuring range 5 – 20000  $\mu\text{S}$

Process temperature 0 – 70° C

Pressure range (relative to ambient) 0 – 7.5 Bar

Cell constant 1  $\text{cm}^{-1}$  or  $K = 1$

Body material Epoxy ; Electrodes material Graphite

Cable 6 m ; Mechanical connection PG 13,5 mm

## CTK1

Standard conductivity concentration unit suitable for waste water, drinking water, cooling water treatment and irrigation.



### Technical features

Measuring range 5 – 5000  $\mu\text{S}$

Process temperature 0 – 80° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 1  $\text{cm}^{-1}$  or  $K = 1$

Body material PP ; Electrodes material SS316L

Cable not included ; Mechanical connection 3/4" Gas M

## CTK5

Medium conductivity concentration unit suitable for drinking water, cooling water treatment and irrigation.



### Technical features

Measuring range 0.5 – 2000  $\mu\text{S}$

Process temperature 0 – 80° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 0.2  $\text{cm}^{-1}$  or K = 5

Body material PP ; Electrodes material SS316L

Cable not included ; Mechanical connection  $\frac{3}{4}$ " Gas M

## CTK10

Low conductivity concentration unit suitable for reverse osmosis and fish farming.



### Technical features

Measuring range 0.05 – 500  $\mu\text{S}$

Process temperature 0 – 80° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 0.1  $\text{cm}^{-1}$  or K = 10

Body material PP ; Electrodes material SS316L

Cable not included ; Mechanical connection  $\frac{3}{4}$ " Gas M

## *Without temperature sensor*

## CK1 PT

Standard conductivity concentration unit suitable for waste water, drinking water, cooling water treatment, reverse osmosis and irrigation.



### Technical features

Measuring range 1 – 20000  $\mu\text{S}$

Process temperature 0 – 120° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 1  $\text{cm}^{-1}$  or K = 1

Body material Glass ; Electrodes material Platinum

Cable 6 m ; Mechanical connection 12 mm

## CK1

Standard conductivity concentration unit suitable for waste water, drinking water, cooling water treatment, reverse osmosis and irrigation.



### Technical features

Measuring range 5 – 5000  $\mu\text{S}$

Process temperature 0 – 60° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 1  $\text{cm}^{-1}$  or K = 1

Body material PVC ; Electrodes material SS316L

Cable 5 m ; Mechanical connection  $\frac{1}{2}$ " Gas M

## CK5

Medium conductivity concentration unit suitable for drinking water, cooling water treatment and irrigation.



### Technical features

Measuring range 1 – 2000  $\mu$ S

Process temperature 0 – 60° C

Pressure range (relative to ambient) 0 – 6 Bar

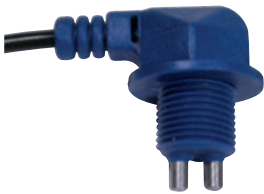
Cell constant 0.2  $\text{cm}^{-1}$  or K = 5

Body material PVC ; Electrodes material SS316L

Cable 5 m ; Mechanical connection 1/2" Gas M

## CK10

Low conductivity concentration unit suitable for reverse osmosis and fish farming.



### Technical features

Measuring range 1 – 500  $\mu$ S

Process temperature 0 – 60° C

Pressure range (relative to ambient) 0 – 6 Bar

Cell constant 0.1  $\text{cm}^{-1}$  or K = 10

Body material PVC ; Electrodes material SS316L

Cable 5 m ; Mechanical connection 1/2" Gas M

# Inductive conductivity probes

IC

The inductive sensor has been engineered to produce a low cost sensor, without sacrificing performance or quality

The result has been obtained by molding the sensor using polypropylene reinforced with fibreglass. The sensor provides all of the benefits that inductive conductivity measurement provides.



## S411 IND

High conductivity concentration unit suitable for waste water, ammonia, brine, CIP (cleaning in place) and cooling water treatment.



### Technical features

Measuring range 1000  $\mu$ S – 1 S

Process temperature -5 – 60° C

Pressure range (relative to ambient) 0 – 6.5 Bar

Body material PVC

PT1000 temperature sensor integrated

Cable 5 m ; Mechanical connection 1/2" Gas M

# Dissolved oxygen probes

DO

Dissolved Oxygen (DO) is the amount of oxygen dissolved in a unit of water

Oxygen gets into water by diffusing within the surrounding air, aeration (turbulent movement), and as a waste product from plants through photosynthesis. Galvanic DO sensors consist of two electrodes: an anode and cathode. Both of these electrodes are immersed in electrolytes (inside the sensor body).

An oxygen permeable membrane separates the anode and cathode from the measured water. While interacting with the probe internals to produce an electrical current, oxygen diffuses across the membrane. Higher pressures allow for more oxygen to be diffused across the membrane and for more currents to be produced. The actual output from the sensor is in millivolts. This is achieved by passing the current across a thermistor (a resistor that changes output with temperature).

For aquaculture, if the DO level falls too low then the fish will suffocate as a consequence. In a sewage treatment plant, bacteria will decompose the solids. If the DO level is too low, then the bacteria will die and the decomposition will cease; if the DO level is too high, then the energy will be wasted through the aeration of the water. In industrial applications, including boilers, the make-up water must have low DO levels in order to avoid corrosion and boiler scale build up.

Monitoring dissolved oxygen content is essential for ensuring process efficiency, because boiler scale build up inhibits heat transfer. A high DO level in water improves the taste of drinking water. However, high DO levels will increase corrosion in water plumbing and transport lines.



## Oxysens®

Measure of the electric current influenced by the oxygen partial pressure.

High accuracy and short response time control, required flow rate  $\geq 0.03$  m/s and voltage signal output.

Suitable for **fish farming and biological treatment**.



## Technical features

**Measuring range** 40 ppb – 40 ppm

**Temperature compensation** with internal NTC 22 kOhm

**Process temperature** 0 – 60° C

**Pressure range** (relative to ambient) 0 – 4 Bar

**Wetted Parts** SS 1.4435, Silicone, EPDM, PEEK ;

**Electrode** Silver-Platinum combination ;

**Membrane** delivered with Optiflow

**Electrolyte** Alkaline solution

**Cable** 5 m ; **Mechanical connection** PG13.5

**Electrical Output** amperometric value (nA)

## S423C OPT

Optical measure using luminescence.

High accuracy and short response time control with Modbus RTU Standard Protocol RS485.

Suitable for waste water, sludge treatment, fish farming and biological treatment.



### Technical features

**Measuring range** 4 – 20 ppm

**Temperature compensation** with internal NTC probe

**Process temperature** -10 – 60° C

**Pressure range** (relative to ambient) 0 – 5 Bar

**Body material** SS 316L ; **Electrodes material** special optical glasses ; **O-Rings** NBR and Silicon

**Diameter** 33 mm

**Cable** 10 m ; **Mechanical connection** 3/4" BSP

**Electrical Output** Digital signal Modbus protocol

## S423C OPT PVC

Optical measure using luminescence.

High accuracy and short response time control with 4 – 20 mA output.

Suitable for waste water, sludge treatment, fish farming, and biological treatment.



### Technical features

**Measuring range** 4 – 20 ppm

**Temperature compensation** with internal NTC probe

**Process temperature** -10 – 60° C

**Pressure range** (relative to ambient) 0 – 5 Bar

**Body material** PVC ; **Electrodes material** special optical glasses ; **O-Rings** NBR and Silicon

**Diameter** 36 mm

**Cable** 10 m ; **Mechanical connection** 3/4" BSP

**Electrical Output** amperometric value (nA)



# Flow sensors

FW

## Flow is the third most measured value in industrial processes

Flow may be expressed as a rate of volumetric flow, mass rate of flow, or in terms of a total volume or mass flow. Measurement is achieved primarily using a combination of two devices: a primary device that is placed in direct contact with the fluid and which generates a signal, and a secondary device that translates this signal into a motion or a secondary signal for indicating, recording, controlling, or calculating the flow. Other devices indicate or calculate the flow directly through the interaction of the flowing fluid and the measuring device that is placed directly or indirectly in contact with the fluid stream.

According to Faraday's Law the voltage induced by the magmeter is proportional to the velocity of the conductor fluid. In the **SFWE magmeter** the physical principle at work is electromagnetic induction.

**SFW paddle wheel sensor** consists of a freely rotating wheel with magnets which is perpendicular to the flow. As the magnets in the blades spin past the Hall sensor, a frequency and voltage signal which is proportional to the flow rate is generated.

### Benefits

Low cost solution with high flow system accuracy

No pressure drop making it ideal for gravity flows

Reduced dependence on flow, substances and film-forming media

Magnetometer without moving parts for measurement of conductive and homogeneous dirty media



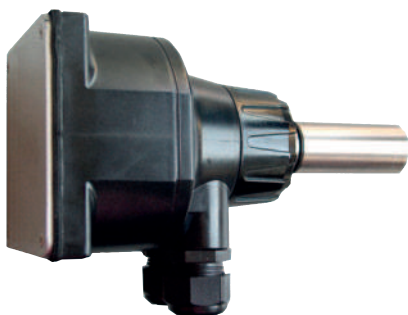
## Flow meters without moving mechanical parts which can be applied for the measurement of dirty liquids so long as they are conductive and homogeneous

4 – 20 mA output for long distance transmission.

The specific design allows an accurate flow measurement over a wide dynamic range in pipe sizes from DN15 (0.5") to DN600 (24").

Suitable for **waste water, sludge treatment, fish farming and biological treatment.**

### SFWE



### Technical features

**Measuring range** 0.15 – 8 m/s

**Pipe size range** DN15 – DN600

**Pressure/ Temperature range** 16 bar at 25° C ;  
8.6 bar at 60° C

**IP65 Enclosure** ABS ; **Body material** SS 316L/PVDF; SS 316L/ PEEK; CuNi alloy/PVDF ; **O-Rings** EPDM or FPM ; **Electrodes** SS 316L or CuNi alloy

**Cable** not included ;

**Mechanical connection** by probe holder

# Simple and reliable paddle wheel flow sensor designed for use with every kind of solid-free liquid

Square wave output type transistor NPN open collector for a safe connection to any kind of controller digital input

A specially designed family of fittings ensures an easy and quick installation into all pipe materials in sizes from DN15 to DN600 (0.5" to 24")

Suitable for **drinking water, fish farming, cooling water treatment, swimming pool and textile finishing**

## SFW PVC-C



### Technical features

**Measuring range** 0.15 – 8 m/s

**Pipe size range** DN15 – DN600

**Pressure/ Temperature range** 10 bar at 25° C ;  
1.5 bar at 80° C

**Square wave output frequency** 45 Hz per m/s nominal

**Body material** C-PVC ; **O-Rings** EPDM or FPM ;  
**Rotor** ECTFE (Halar®) ; **Shaft and bearings** Ceramic

**Cable** not included ;

**Mechanical connection** by probe holder

## SFW PVDF



### Technical features

**Measuring range** 0.15 – 8 m/s

**Pipe size range** DN15 – DN600

**Pressure/ Temperature range** 10 bar at 25° C ;  
2.5 bar at 100° C

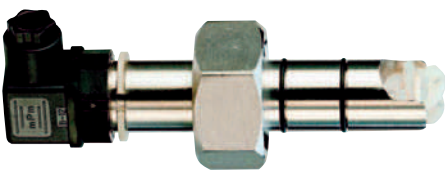
**Square wave output frequency** 45 Hz per m/s nominal

**Body material** PVDF ; **O-Rings** EPDM or FPM ; **Rotor** ECTFE (Halar®) ; **Shaft and bearings** Ceramic

**Cable** not included ;

**Mechanical connection** by probe holder

## SFW SS



### Technical features

**Measuring range** 0.15 – 8 m/s

**Pipe size range** DN15 – DN600

**Pressure/ Temperature range** 25 bar at 120° C

**Square wave output frequency** 45 Hz per m/s nominal

**Body material** SS 316L ; **O-Rings** EPDM or FPM ;  
**Rotor** ECTFE (Halar®) ; **Shaft and bearings** Ceramic

**Cable** not included ;

**Mechanical connection** by probe holder

# Amperometric probes for disinfectants and oxidising agents

The wide range of probes provides the best choice depending on the parameter to be tested, ensuring the most accurate measurement

Standard **potentiostatic and amperometric probe** design consists of two electrodes (anode and cathode) that measure a change in current caused by the chemical reduction of hypochlorous acid at the cathode. The current that flows because of this reduction is proportional to the chlorine concentration.

The sensor contains a platinum and a copper electrode. With the sample water acting as the electrolyte, galvanic potential develops between the two electrodes. With stable conditions of pH and water flow, the sensor current increases proportionally to the free chlorine content.

## Benefits

Different membranes available to measure range of chlorine ions

Only 30 seconds to achieve an accurate reading

Reduced dependence on flow, substances and film-forming media

Wide range of measure up to 200 ppm

Complete range of parameter measurements as: Chlorine, Peracetic acid, Peroxide, Bromine and Ozone



## Probes for chlorine

Chlorine is an important chemical in water purification, in disinfectants and bleach products

Chlorine is also used widely in the manufacture of many products and items directly or indirectly, i.e. in paper product production, antiseptic, dyestuffs, food, insecticides, paints, petroleum products, plastics, medicines, textiles, solvents, and many other consumer products. It is used to kill bacteria and other microbes from drinking water supplies. Chlorine is involved in bleaching wood pulp for paper making, bleach is also used industrially to remove ink from recycle paper.

Free chlorine, chlorine dioxide or total chlorine (incl. chloramines) are usually measured to monitor and control the disinfection of drinking water, reuse water or pool water. When chlorine is added to water, it reacts with organic materials and metals, forming combined chlorine. Because combined chlorine is not available for disinfection, this effect is called the chlorine demand of the water.

## Free Chlorine probes

**Free chlorine** refers to chlorine that is present as hypochlorous acid (HOCl) or the hypochlorite (OCl<sup>-</sup>) ion. When the chlorine demand of water is satisfied, the remaining free chlorine is available to oxidize contaminants. Free chlorine measurements are one of the most important measurements in the water industry today. These measurements ensure an adequate amount of chlorine is available for disinfection purposes, and in some cases that the chlorine has been removed. For applications where the free chlorine concentration is critical for disinfection, the most robust measurement technique is the use of an amperometric free chlorine sensor.

### FCL

Chlorine sensor with membrane-covered, 4 – 20 mA output and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement.

Suitable for the measurement of **free inorganic chlorine at constant pH or with reduced pH-dependence** and for **free chlorine on the basis of iso-cyanuric acid (organic free chlorine)**.

Ideal for **drinking water, waste water treatment, process water and swimming pool**. Also sea water.



### Technical features

Free inorganic chlorine at constant pH

**Measuring range** 0 – 0.5 ppm/ 0 – 2 ppm/ 0 – 5 ppm/  
0 – 10 ppm/ 0 – 200 ppm

**pH range** 6 – 8

**Pressure range** 0 – 1 bar

Free inorganic chlorine with reduced pH-dependence

**Measuring range** 0 – 2 ppm/ 0 – 10 ppm

**pH range** 4 – 9

**Pressure range** 0 – 3 bar

Free chlorine on the basis of iso-cyanuric acid (organic free chlorine)

**Measuring range** 0 – 2 ppm/ 0 – 5 ppm/ 0 – 10 ppm

**pH range** 4 – 12

**Pressure range** 0 – 0.5 bar

**Process temperature** 0 – 45° C

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, PEEK, SS 1.4571 ; **Electrode** Silver chloride with gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal

### FCL HP

Sensor for the measurement of free inorganic chlorine with open measuring cell, 4 – 20 mA output and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement. Suitable for the measurement of **free inorganic chlorine at high pressure (up to 8 bar)**.

Ideal for **drinking water, waste water treatment, process water and swimming pool**. Also sea water.



### Technical features

**Measuring range** 0 – 1 ppm/ 0 – 5 ppm/ 0 – 10 ppm

**pH range** 1 – 9

**Process temperature** 0 – 50° C/ 0 – 70° C

**Pressure range** 0 – 8 bar

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, PEEK ; **Electrode** Gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal

## Chlorine dioxide probes

**Chlorine dioxide** is a neutral chlorine compound. It is very different from elementary chlorine, both in its chemical structure (ClO<sub>2</sub>) and in its behaviour. One of the most important qualities of chlorine dioxide is its high-water solubility, especially in cold water. Chlorine dioxide does not hydrolyse when it enters water; it remains a dissolved gas in solution. Chlorine dioxide is approximately 10 times more soluble in water than chlorine. It is not affected by pH and has an excellent residual effect remaining active for hours to days. It does not interact with ammonia or ammonium. It is effective in cold temperatures.

Chlorine dioxide is one of the most effective disinfection methods measurements in the water industry today. These measurements ensure effective use of chlorine dioxide for disinfection purposes as well as other applications. Under dosage can be ineffective and over dosage results in excess Chlorite by product formation. It is extremely effective in controlling legionella.

### DCL

Chlorine sensor with membrane-covered, 4 – 20 mA output and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement. Suitable for **drinking water and swimming pool**.



#### Technical features

Measuring range 0 – 2 ppm/ 0 – 10 ppm

pH range 1 – 11

Process temperature 0 – 45° C

Pressure range 0 – 1 bar

Flow rate range approx. 30 l/h

Body material PVC-U ; Electrode Gold ; Membrane PTFE

Cable not included ; Connection 2-pole terminal

### DCL HP

Sensor for the measurement of chlorine dioxide with open measuring cell, 4 – 20 mA output and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement.

Suitable for the measurement of **free inorganic chlorine at high pressure (up to 8 bar)**.

Ideal for **drinking water, waste water treatment, process water and swimming pool**. Also sea water.



#### Technical features

Measuring range 0 – 1 ppm

pH range 1 – 9

Process temperature 0 – 50° C/ 0 – 70° C

Pressure range 0 – 5 bar/ 0 – 8 bar

Flow rate range approx. 30 l/h

Body material PVC-U, PEEK ; Electrode Gold ; Membrane PTFE

Cable not included ; Connection 2-pole terminal

## Total Chlorine probes

**Total chlorine** is the combination of the free chlorine left in the water and the combined chlorine. Total chlorine sensors are commonly used in wastewater treatment plants to measure the effluent water's disinfection status.

### TLC

Chlorine sensor with membrane-covered, 4 – 20 mA output and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement. Suitable for **drinking water and swimming pool. Also sea water.**



### Technical features

**Measuring range** 0 – 2 ppm / 0 – 5 ppm / 0 – 10 ppm

**pH range** 4 – 12  
(linear decrease with approx. 5 % per increasing pH-unit)

**Process temperature** 0 – 45° C

**Pressure range** 0.5 bar

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, PEEK, SS 1.4571 ; **Electrode** Silver chloride with gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal

## Probes for peracetic acid



Peracetic acid (PAA) is an extremely strong oxidizer widely used in the food industry for disinfection of piping systems and processing equipment

It is also used for spray washing of food products, and for disinfection of cooling water systems. As a disinfecting agent, PAA is often preferred because it produces no harmful breakdown products. As with any disinfection system, maintaining proper residual values is the key to effective pathogen control. Peracetic acid sensors are amperometric devices isolated from the water by a permeable membrane. As PAA diffuses through this membrane, it comes in contact with an active electrode and is reduced on the surface. The next effect is that the sensor generates a current proportional to PAA concentration. Peracetic acid sensors require a steady flow of sample across the membrane at the tip of the sensing assembly. Sample agitation is required as PAA sensors cannot be used in still water.

### PAA

Sensor for the measurement of peracetic acid with 4 – 20 mA output, membrane-covered and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement. Suitable for **fresh water and all types of water treatment.**



### Technical features

**Measuring range** 0 – 2000 ppm / 0 – 200 ppm

**pH range** 1 – 6

**Process temperature** 0 – 45° C

**Pressure range** 0 – 1 bar

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, SS 1.4571 ; **Electrode** Silver chloride with gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal

## Probes for hydrogen peroxide



Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) is an extremely strong oxidizer widely used in bleaching applications in the paper industry

It is also used for spray washing of food products, and for disinfection of cooling water systems. As a disinfecting agent, PAA is often preferred because it produces no harmful breakdown products. As with any disinfection system, maintaining proper residual values is the key to effective pathogen control. Peracetic acid sensors are amperometric devices isolated from the water by a permeable membrane. As PAA diffuses through this membrane, it comes in contact with an active electrode and is reduced on the surface. The next effect is that the sensor generates a current proportional to PAA concentration. Peracetic acid sensors require a steady flow of sample across the membrane at the tip of the sensing assembly. Sample agitation is required as PAA sensors cannot be used in still water.

### H2O2

Low flow-dependence unit with 4 – 20 mA output, surfactant proofed membrane and integrated automatic temperature compensation. Guaranteed precision and a response time control between 5 and 10 minutes thanks to active amperometric measurement. Suitable for **drinking water and swimming pool**.



### Technical features

**Measuring range** 0 – 200 ppm/ 0 – 500 ppm

**pH range** 2 – 11

**Process temperature** 0 – 45° C

**Pressure range** 0 – 1 bar

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, SS 1.4571 ; **Electrode** Silver chloride with gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal

## Probes for bromine



Bromine compounds are an increasingly popular alternative to chlorine compounds in water disinfection in spite of the higher costs of the reagents

Bromine has a number of advantages over chlorine compounds when it comes to disinfection including greater disinfection at higher pH values, lower volatility at higher temperatures and less tendency to have a corrosive effect.

### BR

Low flow-dependence unit with 4 – 20 mA output, membrane-covered and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement. Suitable for **process water and swimming pool. Also sea water**.



### Technical features

**Measuring range** 0.05 – 10 ppm

**pH range** 6.5 – 9.5

**Process temperature** 0 – 45° C

**Pressure range** 0 – 0.5 bar

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, PEEK, SS 1.4571 ; **Electrode** Silver chloride with gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal

# Probes for ozone

O<sub>3</sub>

Ozone is a powerful oxidizing agent and has many uses in water treatment, including oxidation of organic chemicals

Ozone is currently the next most widely used drinking water disinfectant after chlorine, although its use is almost exclusively limited to the industrial countries with high-integrity piped water networks. Ozonation enhances the coagulation process despite its inherent weakness in leaving practically no residual in the water distribution system. However, ozone does not provide residual protection against recontamination in the distribution system. Therefore, its common use is to pre-treat the water source before chlorination in a municipal system, so that a smaller chlorine dose is required. Although ozonation can effectively disinfect water, it is not suited for most developing country applications owing to its high cost, need for operational and maintenance infrastructure, and lack of residual protection in the distribution system.

## O<sub>3</sub>

Sensor for the measurement of dissolved ozone in water, with surfactant-resistant membrane, 4 – 20 mA output and integrated automatic temperature compensation. Guaranteed precision and short response time control thanks to active amperometric measurement. Suitable for **fresh water and brine water**.



## Technical features

**Measuring range** 0 – 2 ppm/ 0 – 5 ppm/ 0 – 10 ppm

**pH range** 2 – 11

**Process temperature** 0 – 45° C

**Pressure range** 0 – 1 bar

**Flow rate range** approx. 30 l/h

**Body material** PVC-U, SS 1.4571 ; **Electrode** Silver chloride with gold ; **Membrane** PTFE

**Cable** not included ; **Connection** 2-pole terminal



# Turbidity probes

Turbidity is a measure of the degree to which the water loses its transparency due to the presence of suspended particulates

The turbidity of water is based on the amount of light scattered by particles in the water column. The more particles that are present, the more light that will be scattered. As such, turbidity and total suspended solids are related. However, turbidity is not a direct measurement of the total suspended materials in water. Instead, as a measure of relative clarity, turbidity is often used to indicate changes in the total suspended solids concentration in water without providing an exact measurement of solids.

The more total suspended solids in the water, the murkier it seems and the higher the turbidity. Turbidity is considered as a good measure of the quality of water.

Turbidity is measured in NTU: Nephelometric Turbidity Units. The instrument used for measuring is called a nephelometer or turbidimeter, which measures the intensity of light scattered at 180 or 90 degrees as a beam of light passes through a water sample. A turbidity measurement could be used to provide an estimation of the TSS (Total Suspended Solids) concentration.

SEKO's turbidity sensors measure the amount of light that is scattered by the suspended solids in water. As the amount of total suspended solids (TSS) in water increases, the water's turbidity level (and cloudiness or haziness) increases.

This sensors are used in river, wastewater and effluent measurements, control instrumentation for settling ponds, sediment transport research, and laboratory measurements. The dual pulsed light beam system compensates for drift from any optical components, while digitized signals inside the probe body reduce the possibility of electrical interference in the signal transmission.

## Benefits

Measurement is performed by using a 180° or 90° scattered light method compliant with ISO 7027 / EN 27027

Medium is in direct contact with the sensors to make the unit virtually independent from humidity and condensate water

No need to replace silica gel for easier and cheaper maintenance



## S462 Turbidimetric cell

The measuring principle is the deviation of light produced by the particles suspended in the liquid. Thanks to the dual sensor system, turbidity can be measured at low and very low concentrations with high levels of precision and repeatability. The absence of contact with the measuring liquid and the optical LED technology makes the system stable over time and minimizes the need for recalibration. The cell can be installed directly in-line. The maximum allowable pressure is 6 bar, or on Bypass piping. The flow rate does not affect the measurement.

Suitable for **water treatment plants**, on leaving the filtration or decantation sections, **waste water refining plants** for agricultural or industrial reuse, **food industry**, in particular in the production of beverages, wine, beer etc., **swimming pools**.

### S462 SS



#### Technical features

**Measuring range** 0 – 100 NTU/FTU

**Temperature range** 0 – 90° C

**Pressure range** (relative to ambient) 0 – 6 Bar

**Body material** SS316 L ; **Inner lining** Black PTFE ; **Inspection windows** Tempered glass

**Projector and sensors** positioned at 180° mounted on SS 316 L flanges with integral outgoing cable

**Cable** 5 m ; **Mechanical connection** threaded 2 ½ " M

### S462 PVC



#### Technical features

**Measuring range** 0 – 100 NTU/FTU

**Temperature range** 0 – 45° C

**Pressure range** (relative to ambient) 0 – 6 Bar

**Body material** Black PVC ; **Inspection windows** Transparent PVC

**Projector and sensors** positioned at 180° mounted on PVC flanges with connector for electrical connections

**2 Cables** 5 m ; **Mechanical connection** threaded 2 ½ " F

### S462 PW



#### Technical features

**Measuring range** 0 – 10 NTU/FTU

**Temperature range** 0 – 45° C

**Pressure range** (relative to ambient) 0 – 6 Bar

**Body material** Black PVC ; **Inspection windows** Transparent PVC

**Projector and sensors** positioned at 180° mounted on PVC flanges with connector for electrical connections

**2 Cables** 5 m ; **Mechanical connection** threaded 2 ½ " F

**IN/OUT fast connection** 8 x 12mm fittings tubes

**Electronic board** 4 – 20 mA adapter external box

## S461 Turbidity probes

Turbidity refers to the scattered component of a light beam which is diverted away from its natural course by optically denser particles in the medium (e.g. solid matter particles). The measurement is performed by **using a 90° scattered light** method compliant with ISO 7027 / EN 27027. The turbidity of the medium is determined by the amount of scattered light.

Suitable for **untreated water and well water, surface water, drinking water, process water, industrial and municipal waste water, low turbidity waters.**

### Available versions

PVC or SS body

RS485 Modbus or 4 – 20 mA interface

### Benefits

Reliable concentration measurements using optical method

Glass oleophobic coating

Pulsed infrared scattered light technology

No mechanically moving parts

Digital reading

Accuracy increased by sensor data processing

## S461 TN

Turbidity sensor with **Modbus RTU Standard Protocol RS485**. Guaranteed precision and short response time control. Suitable for **sewage treatment, sludge application, waste water and fish farming.**



### Technical features

**Measuring range** 0.01 – 4000 NTU/FTU

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** SS316 ; **O-ring** Viton® and Silicon ; **Optics** Special Glass with oleophobic treatment

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ;  
**Mechanical connection** threaded 1" GAS

## S461 LT SS

Low range turbidity sensor with **4 – 20 mA output**. Guaranteed precision and short response time control. Suitable for **food and beverage.**



### Technical features

**Measuring range** 0.01 – 10 NTU/FTU

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** SS316 ; **O-ring** Viton® and Silicon ; **Optics** Special Glass with oleophobic treatment

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ;  
**Mechanical connection** threaded 1" GAS

## S461 LT

Low range turbidity sensor with **4 – 20 mA output**. Guaranteed precision and short response time control. Suitable for **low turbidity water, swimming pools and drinking water**.



### Technical features

**Measuring range** 0.01 – 10 NTU/FTU

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** Black PVC ; **O-ring** Viton® and Silicon ;  
**Optics** Special Glass with oleophobic treatment

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ;

**Mechanical connection** threaded 1" GAS

## S461 MT

Middle range turbidity sensor with **4 – 20 mA output**. Guaranteed precision and short response time control. Suitable for **untreated water and well water, surface water, waste water**.



### Technical features

**Measuring range** 0.1 – 40 NTU/FTU

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** Black PVC ; **O-ring** Viton® and Silicon ;  
**Optics** Special Glass with oleophobic treatment

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ;

**Mechanical connection** threaded 1" GAS

## S461 ST

Turbidity sensor with **4 – 20 mA output**. Guaranteed precision and short response time control. Suitable for **untreated water and well water, surface water, waste water**.



### Technical features

**Measuring range** 1– 400 NTU/FTU

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** Black PVC ; **O-ring** Viton® and Silicon ;  
**Optics** Special Glass with oleophobic treatment

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ;

**Mechanical connection** threaded 1" GAS

## S461 HT

High turbidity sensor with **4 – 20 mA output**. Guaranteed precision and short response time control. Suitable for **sludge application**.



### Technical features

**Measuring range** 10 – 4000 NTU/FTU

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** Black PVC ; **O-ring** Viton® and Silicon ;  
**Optics** Special Glass with oleophobic treatment

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ;

**Mechanical connection** threaded 1" GAS

# Suspended Solids probes

SS

Monitoring suspended solids in wastewater and industrial process water is useful either for process control or as an alert to abnormal conditions

Suspended solids (SS) is the amount of tiny solid particles that remain suspended in water and act as a colloid. The measurement of suspended solids is one way of gauging water quality. Suspended solids are common in wastewater applications and should not be mistaken for settleable solids, which are also abbreviated as SS. When suspended solids are left untreated, these can contribute to sewer pipe blockage and cause damage to other systems.

In biological treatment systems, monitoring suspended solids in the aeration tank can assist operators in maintaining optimum MLSS (Mixed Liquor Suspended Solids) concentration. In industrial clarifier's, suspended solids water quality monitoring can warn of upset conditions that might result in the discharge of solids that exceed plant permits.

Suspended solids sensors are optical devices operating in the infrared region. Unlike turbidity sensors that use 90 degree scatter to optimize sensitivity, suspended solids sensors use "backscatter" to allow solids measurements at much higher levels. Operation with infrared light ensures very long sensor life and minimizes the effects of changing sample color.

Sensors are designed to withstand the rigorous conditions of wastewater and industrial process streams and to last for years of service with nothing more than occasional cleaning of the sensing surface.



## S461 S

Suspended solids sensor with **Modbus RTU Standard Protocol RS485**. Guaranteed precision and short response time control. Also available versions with **PVC body and 4 – 20 mA outputs**.

Suitable for **sludges from biological processes, chemical industry paper mills, food, extraction systems: quarries, tunnels, aggregate extraction**.



## Technical features

**Measuring range** 0 – 30 g/l

**Process temperature** 0 – 60° C

**Pressure range** 0 – 4 bar

**Body material** SS316 or Black PVC ; **O-ring** Viton® ; **Optics** Special Glass

**Diameter** 42 mm

**Cable** 10 m integral with IP68 Sensor ; **Mechanical connection** threaded 1" GAS

# Temperature sensors



Temperature measurement in water applications provides an important back up to measurements such as pH, Dissolved Oxygen, Suspended Solids and Turbidity

Temperature is a critical water quality and environmental parameter because it regulates the maximum dissolved oxygen concentration of the water and influences the rate of chemical and biological reactions. Temperature is a measurement for the thermal state of a material. The movement of the material's molecules and atoms produces heat (kinetic energy) and the greater the movement, the more heat that is generated.

One of the most-used methods for understanding temperature is by measuring with a resistance thermometer. Resistance thermometers offer great stability, accuracy and repeatability. The advantages of platinum resistance thermometers include: high accuracy, wide operating range and suitability for precision applications. The resistance thermometer (RTD)'s electrical resistance sensor changes with temperature and as the resistance increases as temperature rises. This is commonly referred to as PTC (Positive Temperature Coefficient).

PT100 or PT1000 measuring resistors are normally used for industrial applications. They are the most common type of platinum resistance thermometer. Pt refers to that the sensor is made from Platinum (Pt). 100 refers to that at 0°C sensor has a resistance of 100 ohms ( $\Omega$ ). The most common type (PT100) has a resistance of 100 ohms at 0° C and 138.4 ohms at 100° C. There are also PT1000 sensors that have a resistance of 1000 ohms at 0° C.



## PT100 NUT



### Technical features

Measuring range 0 – 100° C

Pressure range 0 – 7 bar

Body material PP

2-wire cable 3 m ; Mechanical connection  $\frac{3}{4}$ " or  $\frac{1}{2}$ " Gas M

## PT100 V



### Technical features

Measuring range 0 – 100° C

Pressure range 0 – 7 bar

Body material Pyrex

3-wire cable 6 m ; Mechanical connection 12 mm

## PT100 VPG



### Technical features

Measuring range 0 – 100° C

Pressure range 0 – 7 bar

Body material Pyrex

3-wire cable 6 m ; Mechanical connection PG13.5

# Patented modular holders with open chlorine amperometric cell (organic and inorganic) and flow level control

SEKO has studied a "user friendly" solution of probe modules, patenting the idea of simplicity and immediacy of use

Open amperometric probes offer stable and precise measurement using copper and platinum electrodes to detect the presence of chemical. The cells typically are used in the main pipe of the process liquid located in a by-pass housing. To ensure the best quality measurement, the water flow passing through the housing to the outflow must be stabilized to 60 l/h.

For use with the **flow-through probe holder in plexiglass**, PSS-PLEXI can be used across the full SEKO range of probes and temperature sensors.

## Chlorine amperometric cell

Measuring range 0 – 5 ppm

pH range 6.5 – 8.2

Process temperature 0 – 60° C

Pressure range 0 – 6 bar

Flow rate range approx. 60 l/h

Electrode Copper and platinum



## PSS PLEXI

Probe holder in PMMA plastic material, pressure resistant up to 5 bar at a working temperature of 60 °C

**12 models are available**, plus the modular probe holder that guarantees ultimate flexibility to add modules to meet individual application or installation needs.

The parts are designed and adapted to the range of available probes guaranteeing perfect chemical measurement in water treatment applications.

### Technical features

Material PMMA without color

Sensor adapter PG 13.5, 24 mm, 36 mm, 42 mm

Process connection 8 x 12 mm (tube)

Process temperature 0 – 60° C

Pressure range 0 – 5 bar

Flow rate range approx. 60 l/h

Infinitely variable  
from 6 probes



# Flow-through, inline and immersion holders for probes

A full range of holders to ensure the most professional installation

SEKO's range of holders provide safety and convenience when it comes to measuring pH, ORP, dissolved oxygen and conductivity. The product range extends from immersion, in-line and flow-through holders to fully automated calibration and cleaning systems.

Probes must be installed using specialized holders that ensure the correct mechanical protection and degree of impermeability. The probes can be submerged in tanks, inserted in pipes or placed in sample draw down containers (catch pots).



## Flow-Through holders

Used for measurement in either a by pass or directly in the main liquid flow, where flow direction may be different

Their modular design makes them suitable for use in all conceivable processes. Up to three sensors can be used simultaneously. Different process connections and materials provide great flexibility of use. Other essential advantages are the individual sensor adaptations and cleaning equipment. Flow-through holders solve specific measurement problems reliably, precisely and over the longer period.

PSS7 used for inline measurement where part of the sample is re-directed from the main pipe to the probe holder

### SINGLE

The water can be drawn off into the sampling circuit at a pressure of 6 bar.

Suitable for **waste water, fish farming and oxidation sludge.**



#### Technical features

**Head Material** PP and SAN

**Probe adapter** 3/4" Gas F

**Process connection** 4 x 6 mm or 8 x 12 mm (tube)

**Process temperature** 0 – 40° C

**Pressure range** 0 – 6 bar

1 probe for





## PSS8 an essential component in any proposal needing a simple solution to install the probes in water treatment applications

The PSS 8 probe holder series offers advanced housing for by-pass hydraulic connections the fruit of SEKO's broad experience in design and construction of housing probe holders. Once installed, the electrode remains in contact with the fluid at all times, providing for the most accurate readings possible. Four different versions satisfy all principle needs.

The **main features** are:

Pressure range 1 bar at 50 °C ; 2 bar at 40 °C and 5 bar at 20 °C

Probe adapter PG 13.5, 12, 24, 36, 42 mm and process connection 8 x 12 mm (tube)

Flow check by Reed sensor at 0.5 bar minimum opening pressure

Wall mounting version via built-in bracket

pH compatibility: 2.7 – 12

**Suitable** for waste water, drinking water, cooling water treatment, reverse osmosis and irrigation



### PSS8 B1 HP



#### Technical features

Head material Black PP

Wesse material Transparent PMMA

Sensor adapter PG 13.5 and 12 mm

Process temperature 0 – 40° C

Pressure range 0 – 2 bar / HP type 0 – 5 bar

pH range 4 – 10

3 probes for pH ORP EC DO °C  
°F

### PSS8 A1 / PSS8 A1 HP



#### Technical features

Head material Black PP

Wesse material Black PP

Sensor adapter PG 13.5 and 12 mm

Process temperature 0 – 40° C

Pressure range 0 – 2 bar/ HP type 0 – 5 bar

pH range 2.7 – 12 (high acidity)

3 probes for pH ORP EC DO °C  
°F

## PSS8 B1 HP



### Technical features

Head material Black PP

Wesse material Black PP

Sensor adapter 33, 36 and 42 mm

Process temperature 0 – 40° C

Pressure range 0 – 5 bar

pH range 2.7 – 12 (high acidity)

1 probe for



## PSS8 C



### Technical features

Head material Black PP

Wesse material Transparent PMMA

Sensor adapter 24 mm

Process temperature 0 – 40° C

Pressure range 0 – 2 bar

pH range 4 – 10

1 probe for



## In-Line holders

Suitable for aggressive chemical processes as well as for processes with high level hygiene requirements

These holders are used to immerse the probe directly into the pipe where the sample to be measured passes. The probes must always be positioned vertically or at a slant in the direction of the flow at a maximum of 45°. The connection line must be fitted between two isolation valves (input and output) so that flow can be stopped during probe maintenance.

## PSS3 S

Pressurized fitting with max. slant 45° in the direction of the flow allows the probe to be immersed directly into the pipe where the sample to be measured passes. Vertical or slanted position. Suitable for **swimming pool, waste water, cooling water treatment and irrigation plant.**



### Technical features

Material PP

Sensor adapter 12 mm

Process connection ½" Gas M

Process temperature 0 – 70° C

Pressure range 0 – 7 bar

1 probe for



## PSS3

Pressurized fitting with max. slant 45° in the direction of the flow allows the probe to be immersed directly into the pipe where the sample to be measured passes. Vertical or slanted position. Suitable for **swimming pool, waste water, cooling water treatment and irrigation plant.**



### Technical features

Material PVC

Sensor adapter PG 13.5 and 12 mm

Process connection ½" Gas M

Process temperature 0 – 60° C

Pressure range 0 – 12 bar

1 probe for 

## SPP

Pressurized fitting with max. slant 45° in the direction of the flow allows the probe to be immersed directly into the pipe where the sample to be measured passes. Vertical or slanted position. Suitable for **swimming pool, waste water, cooling water treatment and irrigation plant.**



### Technical features

Material PP and PVC

Sensor adapter PG 13.5

Process connection 1" Gas F

Process temperature 0 – 60° C

Pressure range 0 – 16 bar

1 probe for 

## SPP FIL

Pressurized fitting with max. slant 45° in the direction of the flow allows the probe to be immersed directly into the pipe where the sample to be measured passes. Vertical or slanted position. Suitable for **swimming pool, waste water, cooling water treatment and irrigation plant.**



### Technical features

Material PP and PVC

Sensor adapter PG 13.5

Process connection 1" Gas F

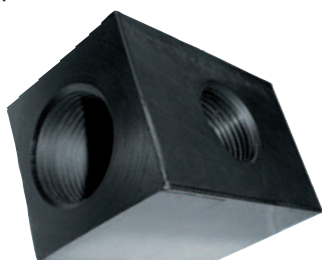
Process temperature 0 – 60° C

Pressure range 0 – 16 bar

1 probe for 

## PSS EC

Outflow holders for conductivity probe model CTK1, 5 and 10. Suitable for **cooling tower, reverse osmosis, irrigation plant.**



### Technical features

Material PVC black color

Process connection 1" Gas F

Sensor adapter ¾" Gas F

Process temperature 0 – 50° C

Pressure range 0 – 6 bar

1 probe for 

## CLAMP SADDLES

Outflow holders for flow sensors SFW paddle wheel. Suitable for **cooling tower, reverse osmosis, irrigation plant.**



### Technical features

**Material** PP ; **Gasket** FPM

**Process connection** 1" Gas F or T-Flange

**Sensor adapter** 3/4" Gas F

**Process temperature** 0 – 50° C

**Pressure range** 0 – 6 bar

1 probe for **FW**

## Immersion holders

Robust, precise and durable interface to measuring processes in tanks, basins and pipes

Thanks to their design, the different process connections and the use of different materials, the devices can be individually adapted to any process. Measurements can be performed with up to three sensors simultaneously, at immersion depths of up to four meters. Individual sensor adaptations and cleaning equipment supplement the list of outstanding features. The immersion models with adjustable flange can be used in conjunction with a counter-flange which allows quick and easy installation and removal.

### PI

Ensure correct assembly and mechanical protection with degree of impermeability for sensors. Submersible in tanks, insertable in pipes or placed in containers with adjustable flange. Suitable for **waste water, fish farming and oxidation sludge.**



### Technical features

**Material** PVC

**Probe adapter** PG 13.5 and 12 mm

**Process connection** adjustable flange

**Immersion depths** 400 – 2000 mm

**Process temperature** 0 – 40° C

1 probe for **pH** **ORP** **EC** **DO**

### PIR

Ensure correct assembly and mechanical protection with degree of impermeability for sensors. Submersible in tanks, insertable in pipes or placed in containers with adjustable flange. Suitable for **waste water, fish farming and oxidation sludge.**



### Technical features

**Material** PVC

**Sensor adapter** PG 13.5 and 12 mm

**Process connection** FER optional flange adapter

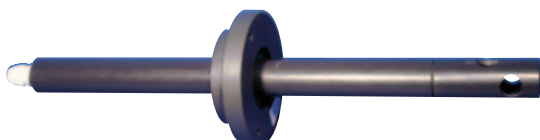
**Immersion depths** 250 – 1550 mm

**Process temperature** 0 – 40° C

1 probe for **pH** **ORP** **EC** **DO**

## PIR2

Ensure correct assembly and mechanical protection with degree of impermeability for sensors. Submersible in tanks, insertable in pipes or placed in containers with adjustable flange. Suitable for **waste water, fish farming and oxidation sludge**.



### Technical features

**Material** PP

**Sensor adapter** PG 13.5 and 12 mm

**Process connection** adjustable flange

**Immersion depths** 450 – 1050 mm

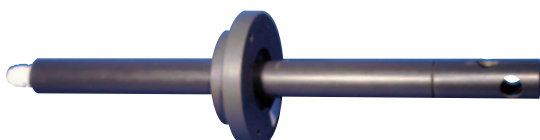
**Process temperature** 0 – 80° C

2 probes for



## PCIR

Ensure correct assembly with 3/4" adapter without protection for CTK conductivity sensors. Submersible in tanks, insertable in pipes or placed in containers with adjustable flange. Suitable for **waste water, fish farming and oxidation sludge**.



### Technical features

**Material** PP

**Sensor adapter** 3/4" Gas M

**Process connection** adjustable flange

**Immersion depths** 250 – 1050 mm

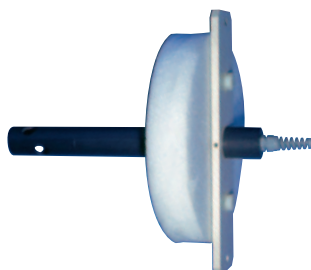
**Process temperature** 0 – 80° C

1 probe for



## PI G

Ensure correct assembly and mechanical protection with degree of impermeability for sensors. Submersible in tanks, insertable in pipes or placed in containers with adjustable flange. Suitable for **waste water, fish farming and oxidation sludge**.



### Technical features

**Material** PVC or PP

**Sensor adapter** PG 13.5 and 12 mm

**Process connection** B-PI-G optional adapter flange

**Immersion depths** Floating in PVC up to 2 m with anchorage arm in PP

**Process temperature** 0 – 40° C

1 probe for



## PI A

Immersion fitting with rinse function for cleaning the sensor without opening or dismantling the fitting ensures long term measurement consistency, reducing the need for maintenance. Submersible in tanks, insertable in pipes or placed in containers with adjustable flange. Suitable for **waste water, fish farming and oxidation sludge**.



### Technical features

Material PVC

Sensor adapter PG 13.5 and 12 mm

Process connection adjustable flange

Immersion depths 400 – 800 mm

Process temperature 0 – 40° C

Pressure range 0 – 4 bar

Flow rate range 100 – 600 l/h

1 probe for



## S315 O

Immersion fitting with 45° elbow for dissolved oxygen sensors, measurement in tanks, basins and pipes. Suitable for **water treatment plant, biological treatment, fish farming**.



### Technical features

Material PP with PVC 45° fitting

Sensor adapter 3/4" BSP

Immersion depths 500 – 3500 mm

Process temperature 0 – 60° C

1 probe for



## S315 F

Immersion fitting for turbidity and suspended solids sensors, measurement in tanks, basins and pipes. Suitable for **primary and waste water treatment plant, chemical industry paper mills, food, extraction systems, fish farming and biological treatment**.



Back wash optional adapter flange

### Technical features

Material PP

Sensor adapter 1" GAS

Probes number 1

Immersion depths 500 – 3500 mm

Process temperature 0 – 90° C

1 probe for



# Certified buffer solutions

## Assuring precise calibration with quality certified buffer solutions

Conductivity standard solutions and pH buffers are used to calibrate water quality testers critical to understanding if your calibrated equipment is working precisely. SEKO's certified buffers give added peace of mind regarding traceability. The precision and reliability of a pH, Redox or Conductivity measurement is determined by the buffer solution used for calibrating the probe. Regular use of these solutions is recommended to ensure specified instrument accuracy. Recalibration should be done regularly, depending on usage levels. The special double plug container means fresh unpolluted buffer is always available.

A complete range of patented buffer solutions provides pH stability up to 5 years, something never achieved before. The pH buffers 9.21 and 10.01 are even stable when exposed to air. High buffering capacity provides rapid, stable calibration. The growth of fungus and micro-organisms is prevented.

For measurements in low conductivity ranges, stable and reliable calibration standards have been difficult to find. As a conductivity standard is not a buffer solution, the lower the value of the conductivity standard, the greater the effect of entry of CO<sub>2</sub> or contamination. SEKO offers patented conductivity standards of 1.3 and 5  $\mu$ S/cm with a certified accuracy of  $\pm 1\%$  and a lifetime of 1 and 3 years, respectively.



### KIT STPH



pH

#### Technical features

SEKO also offers a low cost certified kit of pH buffers to meet the non professional user supplying product in 70 cc bottles that meet all essential pool needs.

for pH value 4.00 and 7.00 pH

Quantity 70 cc each

### KIT STPHORP



pH ORP

#### Technical features

SEKO also offers a low cost certified kit of pH and ORP to match your non professional requirements in bottles of 70 cc each. Ideal for your swimming pools needs.

for pH value 4.00 and 7.00 pH and ORP value 465 mV

Quantity 70 cc each

## STPH



pH

### Technical features

pH measurements are only as accurate as the buffer solutions used for calibration purposes. SEKO offers a selection of quality pH buffers to match your specific requirements. No matter if you look for traceable technical buffers or buffers that are certified by an accredited body, you will find the right solution.

for pH value 4.00/ 7.00/ 9.22

Process temperature 0 – 20° C

Quantity 250 ml

## STRX 465



ORP

### Technical features

ORP buffer solutions are used for verification of all common ORP sensors. They are not used for calibration purposes. Similar to other solutions they are temperature dependent. It is therefore important to know the measurement temperature of the buffer.

for ORP value 465 mV

Process temperature 0 – 25° C

Quantity 250 ml

## STMS



EC

### Technical features

SEKO offers conductivity standards whose stability of  $\pm 1\%$  is guaranteed over a lifetime of up to 3 years. They can be used repeatedly under the condition that the bottle is not left open for more than 1 hour in total.

MS 8 for conductivity value 84  $\mu\text{S}$

MS 14 for conductivity value 1423  $\mu\text{S}$

MS 128 for conductivity value 12880  $\mu\text{S}$

Process temperature 0 – 25° C

Quantity 500 ml





## Multi-parameter photometric analyser

SEKO's products offer very high precision and reproducible analysis results with minimum time and effort

SEKO's multi-parameter control unit provides for real time determination of Free Chlorine (Photometric System), pH, Redox and Temperature. The system is equipped with a graphic display subdivided into areas for simultaneous display of all available measurements

# Multi-parameter photometric analyser

At the core of any operation where water quality is key, the ability to measure and control the quality quickly, accurately and with a reassurance constancy is paramount

SEKO's photometry products offer very high precision and reproducible analysis results with minimum time and effort. Its multi-parameter control unit provides for real time determination of Free Chlorine (Photometric System), pH, Redox and Temperature.



SEKO's products offer very high precision and reproducible analysis results with minimum time and effort. Its multi-parameter control unit provides for real time **determination of Free chlorine (Photometric System), pH, Redox and Temperature.**

The system is equipped with a **graphic display** subdivided into areas for **simultaneous display of all available measurements.**

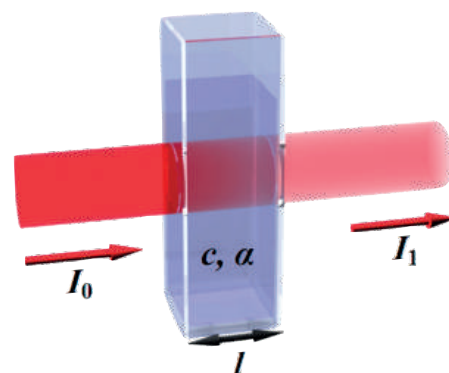
**The range also features:** multi parameter with high accuracy measure and integrated data logger, comes with RS485 port with ModBus RTU protocol for full compatibility remote data logging interface and chlorine photometric chamber.

# Photometric measurement technology

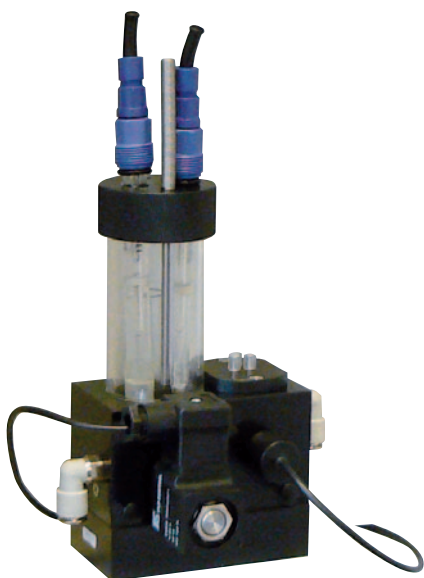
Photometric measurement, or photometry, is a technique that can be used to measure the concentration of organic and inorganic compounds in solution by determining the absorbance of specific wavelengths of light

Integral to water quality analysis, photometry instruments go beyond simple testers by allowing users to develop a chemical profile of the sample rather than just simple detection of the presence of a chemical compound.

Though there is some variety amongst instruments capable of photometric measurement, all are based upon the same principle. When testing for water quality, most organic and inorganic compounds are colourless and undetectable to the human eye. Photometry instruments introduce chemical reagents and light providing a way to “see” these invisible compounds.



Photometers are designed to measure multiple ion types and are thus equipped with filters able to isolate multiple wavelengths of light. Beyond the multiple wavelengths, photometers operate much like colorimeters. Test samples are combined with reagents which colourize specific ions. Certain wavelengths of light are passed through the sample where some of the light is absorbed by the colourized test sample depending upon which ions are present and their concentration. Any light that passes through the solution is measured by photodiode or photocell. The quantity of light absorbed by a substance dissolved in solution is directly proportional to the concentration of the substance.



DPD is an effective and often used reagent to measure Chlorine, Ozone or Bromine in pools and other water treatment applications. The DPD indicator is available in powder, liquid and tablet form. All forms of DPD react with pool water containing chlorine, colouring the water sample in various shades of pink: the deeper the colour, the higher the concentration of sanitiser.

The DPD method like other colorimetric analysis measures the intensity of colours produced by the reaction between reagents in the DPD with the disinfectants to be measured in the water. Visual colorimetric techniques will help to translate the intensity of colours into values using calibrated colour charts. However, photometers provide more accurate readings as they can digitally analyse the colour generating results and referring to calibration data stored in the instrument memory.

# Photometer EL

A 4 parameter controller combined with a sampler dedicated to chlorine measurement

SEKO's Photometer EL is a DPD reference point for Chlorine control. The combination of water sampling and reagents ensure maximum measurement precision. The unit itself is a compact miniature analysis laboratory dedicated to Chlorine measurement. Suitable for **drinking water, crate wash, dioxide station, swimming pools, legionella disinfection, boilers and irrigation.**

## Product line

for Free Chlorine, pH and ORP

## Display and human interface

Intuitive interface with messages about the status of the method; the **STN 128 x 64 backlit graphic LCD** display. Programming keypad with 4 bubble-keys.

## DPD Pumps

The peristaltic pump using 2 pressure points ensures reagent saving. One mechanical support with silicon tube 3 x 5 mm for a **flow rate of 0.07 cc** per sample measure. **DPD Chemical** 1 liter 48 days at 5 minute period sample.

## Software function on demand

Data logger of Circular (F.I.F.O.) or Filling type, on an internal 4 Mbit flash memory, equal to 16000 records, with a recording interval from 1 to 99 min. RS485 serial output for set-up and Real Time status from remote or to download stored data on a PC or laptop (using dedicated software), via MODBUS RTU communication protocol. Digital input for disabling dosages.



## Available measures



Measure	Range	Nominal accuracy
pH	0 – 14 pH	± 0.01 pH
ORP	± 1500 mV	± 1 mV
Chlorine(*)	0 – 5 ppm	± 0.01 ppm
Temperature	0 – 50° C	± 0.1° C

(\*) in photometric chamber with DPD Method and 6.2 – 8.2 pH condition

# Photometer System

SEKO's Photometers range offers professional parameter setting and proportional dosing

## Product line

Single parameter

for Free Chlorine

for Total Chlorine

Multi-parameters

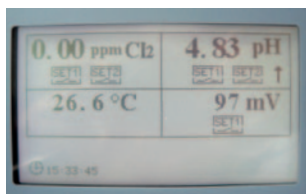
for Free Chlorine and pH

for Free Chlorine, pH and ORP

for Free, Total and Combined Chlorine, pH, ORP

Our photometric system is a reference point in the DPD chlorine control thanks to the combination between reagents and water sampling that guarantees a maximum measurement accuracy, making it a compact analytical mini laboratory, dedicated to the chlorine measurement.

The SEKO Photometer Systems combine "6 parameter" multi-parameter controllers with a sampler dedicated to chlorine measurement.



## Display and human interface

Intuitive interface with messages about the status of the method; the **STN 240x128 backlit graphic LCD** display enables the creation of graphs to display the measurements stored in the internal Data Logger. Programming keypad with 4 bubble-keys.



## DPD Pumps

The peristaltic pump using 4 pressure points ensures reagent saving. Two mechanical support with silicon tube 3 x 5 mm for a **flow rate of 0.15 cc** per sample measure. **DPD Chemical** 1 liter 24 days at 5 minute period sample.



## DPD Reagents

Continuous monitoring of the reagents through level probes. The powder DPD reagent to be diluted before use is an excellent solution for storing the product safely in any place.

## Applications

Industrial applications include the analysis of drinking and waste water as well as the analysis of food products, pharmaceuticals, chemicals etc.

## Phases of the measuring cycle

**Entry of the sample** in the measuring cell for washing/priming

**First measurement** on the sample as is (Photometric Zero)

**Reagent addition** using the peristaltic pump

**Development of the reaction** through stirring

**Reading of the colour (Absorbance)** the differential measurement between the Zero and the Absorbance is processed by the electronic processor and converted into a concentration value, using specific correlation tables developed in our laboratories

The **electronic controller displays** the measured substance in mg/l and determines whether or not to activate the dosing components designed to control or correct it.

The operating and maintenance costs are very low and, above all, the **system calibration** is performed automatically at each measuring cycle.

## Software function

Data logger of Circular (F.I.F.O.) or Filling type, on an internal 4 Mbit flash memory, equal to 16000 records, with a recording interval from 1 to 99 min.

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Temperature	0 – 50° C	± 0.1° C

(\*) in photometric chamber with DPD Method and 0 – 14 pH condition



## Measuring cell

The photometric measuring cell comes complete with an **RS485 serial interface card** in PVC, while the measuring cell is made from plexiglass and glass which assures a very high accuracy level of chlorine measurement and enables the optimum performance **from the 520nm sensor and LED light**.

Consistency and reliability of measure is enhanced further by a gravity drain for clean water or polluted water, an electrode holder cup that houses the pH or ORP electrodes and temperature/flow sensors. **The cell manages a hydraulic supply of 30 l/h at a max pressure of 0.5 bar.**

# Your Choice, Our Commitment

People choose to do business with SEKO for one or more reasons, but ultimately it is their choice, and therefore they merit our commitment. "Our commitment" is total and not only to our customers, but also to each other and the Company's to its employees.

## Vision

**TO BE YOUR PARTNER OF  
CHOICE FOR DOSING  
SOLUTIONS, GLOBALLY**

SEKO, is a passionate, dedicated Global Family of Professionals. We listen to each of our Partners and are committed to deliver the right solution in the Hygiene, Water Treatment and Industrial Process markets.

## Values

**MUTUAL RESPECT, QUALITY  
AND SPIRIT OF COLLABORATION**

### MUTUAL RESPECT

Mutual Respect because doing business is about being able to generate trust between Customer and Supplier. We'll deliver against our commitments, on time and in a transparent fashion, so you know can plan for your own business needs.

### QUALITY

Quality for SEKO is a 360° reality. It covers not only the design, development, production and delivery of our products and solutions but it runs through the core professionalism of our teams.

### SPIRIT OF COLLABORATION

Spirit of Collaboration is fundamental to our success and SEKO prides itself on how we work as a worldwide team, blending multiple country teams and functions to bring solutions to a Customer request or market need from an idea to the real world in very short time, across our global presence and beyond.





# Your Choice, Our Commitment

In the modern Globalised world, being a privately owned Company has significant benefits especially for our Customers, our Partners. For over 40 years, SEKO has developed a Global organisation able to take the longer view, manage the pressure of the now, and to plan for the long term, delivering true Partnership for our Customers, with transparency and mutual respect for each other.

Whether it's for our reknown flexibility, our attention to detail, the high-quality products, or just the way we do business, we understand that it's Your Choice to do business with us. It is Our Commitment to fulfill your needs wherever you, our Customers are.



For more information about our portfolio, worldwide locations, approvals, certifications, and local representatives, please visit [www.seko.com](http://www.seko.com)



As part of a process of on-going product development, SEKO reserves the right to amend and change specifications without prior notice. Published data may be subject to change.

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