At a glance

Seko equipment can be widely used in industrial process, water treatment, chemical and physical parameters monitoring.

Dosing systems for water treatment includes measure and control instruments and a wide range of accessories in addition to the dosing pumps. Our long experience let us develop specific products for the different applications of the various markets.

Seko control instruments products range allow the customer to measure many different parameters with a wide range of sensors and accessories.

Seko policy is to focus on a high technical level and innovative products. The modern design of the control instruments and their precision in measurements allowed Seko to became one of the most trusted company in this market. Highly precise measurements can be taken, even under difficult conditions.

All these characteristics allow Seko to keep offering its customers products that perfectly suits their tasks, and that represent a secure investment due to their high quality.

Index

Controllers

Sensors

Accessories

Selection Table

		Control Instruments			Applications				
									
Measurement	**Probe models**	Kontrol 50	Kontrol 100	Kontrol 800	Waste Water	Swimming Pool	Drinking Water	Cooling Tower	Reverse Osmosis
pH	**SPH-1** 5M	■	■	■		■	■		
	SPH-3 WW	■	■	■	■	■	■	■	■
	SPH-4 HP	■	■	■	■		■	■	■
	SPH-4 HT	■	■	■	■				■
ORP	**SRH-1** 5M	■	■	■		■		■	■
	SRH-3 PT	■	■	■	■			■	
	SRH-4 HT-PT	■	■	■	■			■	
Electrical conductivity	**C-K1** PT	■	■	■	■	■	■	■	
	C-TK 1; **C-TK** 5; **C-TK** 10	■	■	■	■	■	■	■	■
	C-TK 1G	■	■	■	■		■		
	C-TK 0,1 PT ; **C-TK** 10 PT	■	■	■	■	■	■	■	■
Inductive conductivity	**S411** IND	■	■	■	■			■	
	S411 IND HT	■	■	■	■			■	
Chlorine and disinfectants	**Free Inorganic** Chlorine	■	■	■	■	■	■	■	■
	Free Organic Chlorine	■	■	■		■			
	Total Chlorine	■	■	■	■	■		■	
	Chlorine **Dioxide**	■	■	■	■	■	■	■	■
	Bromine, PAA, H_2O_2, O_3	■	■	■	■	■		■	
Dissolved Oxigen	**S 423 C OPT**	■	■	■	■		■		
Turbidity	**S462** PVC	■	■	■		■	■	■	■
	S461 T 40 NTU	■	■	■	■			■	
	S461 T 400 NTU	■	■	■	■				
	S461 T 4000 NTU	■	■	■	■				
Flow	**PVC** paddlewheel	■	■	■	■	■	■	■	■
	AISI paddlewheel	■	■	■	■				■
	SFWE electromagnetic	■	■	■	■		■		
Temperature (*)	**PT100**	■	■	■	■	■	■	■	■

(*) only compensation

Overview of Control Instruments

Being the heart of the measurement loop made by sensor and dosing device, a controller must provide high accuracy, state-of-the-art technology and easy-to-use setting.

Single, double or multi-channel input together with relay, analog and digital outputs means we can monitor the process and control pumps and valves in real time and in any application.

In conjunction with SEKO sensors and SEKO dosing equipment, the following controllers, developed in different classes, provide the most efficient management of any liquid media dosing application.

Single-parameter control instrument Kontrol 50

The new Seko K50 controller provides a single channel interface for the most common parameters in water treatment applications, plus an additional channel for PT100 temperature sensor.

Available in both universal and low power supply, as well as in panel and field mount, this controller is the perfect choice for any of your stand-alone application.

Thanks to its many output channels and its independent set points, SEKO K50 can drive up to 4 devices simultaneously.

It can be used for up to 7 different measured variables.

Single-parameter control instrument Kontrol 100

Including the same features of the K50 plus many additional others, the SEKO K100 controller is the ideal choice for the continuous measurement and control of parameters needed in waste water treatment analysis.

Its standard RS485 serial port makes this unit perfectly suitable for measuring network.

Four different backlight colours and six view levels provide the best legibility among all the controllers in its class.

Relay, Analog and Frequency outputs can drive up to 6 devices simultaneously.

It can be used for up to 13 different measured variables.

Multi-parameter control instrument Kontrol 800

Multi-parameter controller designed to automate the monitoring of different parameters within a water treatment system.

SEKO advanced software and state-of-the-art technology ensures the most efficient control, at all times .

Thanks to a wide range of measured variables and to the SEKO patented modular probe holder, the K800 unit is easily configurable into the most flexible tailor made unit to perfectly fits any of your measurement needs.

Kontrol **100**

Single-parameter control instrument

The Kontrol 100-series are advanced controllers designed for simpler high-end applications. The units feature an independent proportional control output, probe quality checking and a variety of outputs . The user has full programming authority.

Kontrol 100

Parameters

- pH / ORP
- Conductivity
- Flow Rate
- Dissolved Oxygen
- Chlorine
- Chlorine Dioxide
- Hydrogen Peroxide
- Ozone
- Peracetic Acid

Applications

- Waste Water
- Drinking Water
- Pure Water
- Cooling Towers
- Boiler
- Reverse Osmosis
- Crate Wash
- Galvanic Process
- CIP
- Irrigation
- Swimming Pool
- Dairy

Features

Graphic display and Keypad

128 by 128 pixel resolution monochrome display with graphic icons to show digital output status, washing cycle, alarms menu

Simultaneous flashing values for the measurement (numeric + bargraph) and temperature readings

Five control keys for instrument calibration and configuration

Enclosure Box and Power Supply

Wall mounting
ABS plastic material IP65 (144x144)

Panel mounting
ABS IP65 front panel only (96x96x42)

Universal Power Supply
100÷240 Vac 50/60 Hz

Low Power Supply 12÷32Vdc or 24 Vac

CE compliant

Configuration Outputs

All outputs Relay, SSR and Output mA are configurable with primary and secondary measure.

Current outputs 4÷20mA Galvanic isolation

Two independent programmable Output Measures with Proportional routine regulation.

Relay Outputs

Two independent relays, two set points, alarm remote and back washing probe setting by software.

On/OFF, Timed routine function setting.

Solid State Relay (SSR)

Two Frequency output signal, two set points with Proportional routine regulation.

Service Maintenance Timer

One countdown timer to show a periodical maintenance service alarm.

Reverse Display function

Invert the writings on the display to obtain a high contrast.

Toolbar menu

The user-friendly programming step Menu by Toolbar functions.

Outputs Status bar

Quick information thanks to Status bar in real time.

Index menu

The user- friendly navigation thanks to index menu

Measure range

Code	Description
pH	0 ÷ 14,00 pH
ORP	± 2000 mV
Conductivity	0,054 ÷ 20 /200 /2.000 /20.000 /200.000 µS
Inductive Conductivity	0 ÷ 10.000 /10.000 /100.000 /999.999 µS
Flow Rate	0 ÷ 99.999 Liters/Sec.
Dissolved Oxygen	0 ÷ 20,0 ppm or mg/l - 0 ÷ 200% SAT
Chlorine and **Chlo. Dioxide**	0 ÷ 0,50/1,00 /2,00 /5,00 /10,0 /20,0 /200,0 ppm
Hydrogen Peroxide	0 ÷ 500 /1000 /2000 /10.000 /100.000 ppm
Ozone (0_3)	0 ÷ 0,5 /2,00 /5,00 /10,00 ppm
Peracetic Acid	0 ÷ 500 /2000 /10.000 /20.000 ppm
Turbidity	0,0 ÷ 4,00 /40,0 /400 /4.000 NTU/FTU
Temperature	with PT100/PT1000 -50÷150°C (-58÷302 °F)

Product line **Kontrol 100** Single parameter

Code	Code	Description	
K100PR	Kontrol PR 100	for pH or ORP values	
K100CD	Kontrol CD 100	for Conductivity values	
K100FX	Kontrol FX 100	for Flow Rate value	
K100MP	Kontrol MP 100	for Modular parameters	The unit's Software enables the following measures: H_2O_2 - O_3 - ClO_2 - $C_2H_4O_3$ ...custom!!!

Multi-Color Backlight Function

Four different Backlight color to underline functions.

Working

Probe Wash

Calibration

Alarm

Kontrol **50**

Single-parameter control instrument

The Kontrol 50-series are advanced controllers designed for simpler high-end applications. The units feature an independent proportional control output, probe quality checking and a variety of outputs . The user has full programming authority.

Parameters

- pH / ORP
- Conductivity
- Flow Rate
- Chlorine
- Per Acetic Acid
- Hydrogen Peroxide
- Custom Measure for 4÷20mA input

Applications

- Waste Water
- Drinking Water
- Pure Water
- Cooling Towers
- Boiler
- Reverse Osmosis
- Crate Wash
- Galvanic Process
- CIP
- Irrigation
- Swimming Pool
- Dairy

Features

Graphic display

128 by 128 pixel resolution monochrome high brilliance display with white backlight.

Graphic icons to show digital output status, washing cycle, alarms menu.

Simultaneous flashing values for the measurement and temperature readings.

Toolbar menu allows a series of views for the various menus, for programming and for viewing during operation.

Outputs Status bar to visualize information in real time.

Index menu allows a user- friendly navigation.

Reverse function for invert the writings to obtain a high contrast.

Keypad

Five (5) control keys for instrument calibration and configuration.

Enclosure Box

Wall mounting
ABS plastic material IP65 full box (144x144).

Panel mounting
ABS IP65 front panel only (96x96x42).

Power Supply

Universal Power Supply
100÷240 Vac 50/60 Hz.

Low Power Supply
12÷32Vdc or 24 Vac.

CE compliant.

Configuration Outputs

All outputs Relay, SSR and Output mA are configurable with primary and secondary measure.

Current outputs 4÷20mA Galvanic isolation

One (1) independent programmable Output Measures with Proportional routine regulation.

Relay Outputs

Two (2) independent relays, two (2) set points, alarm remote and back washing probe setting by software.

On/OFF, Timed routine function setting.

Solid State Relay (SSR)

One (1) Frequency output signal, two (2) set points with Proportional routine regulation.

Measure range

Code	Description
pH	0 ÷ 14,00 pH
ORP	± 2000 mV
Conductivity	0,054 ÷ 20 /200 /2.000 /20.000 /200.000 µS(*)
Flow Rate	0 ÷ 99.999 Liters/Sec. (**)
Input 4÷20mA (****)	0 ÷ 99.999 ppm (****)
Temperature	with PT100/PT1000 0÷100°C (32÷212 °F)

(*) Setting by software following unit : µS, mS, KΩ, M Ω, ppm, ppb.
(**) Setting by software following unit : l/s, l/m, l/h, m^3/h, GPM.
(***) Setting by software following unit measures: ppm, ppb, mg/l, mA or Custom
(****) Setting by software following measures: CL, PAA, H2O2 or Custom

Product line **Kontrol 50** Single parameter

Code	Code	Description
K50PR	Kontrol PR 50	for pH or ORP values
K50CD	Kontrol CD 50	for Conductivity values
K50FX	Kontrol FX 50	for Flow Rate value
K50MP	Kontrol MP 50	for CL, PAA, H_2O_2 or custom

Standard version

Graphic version

Kontrol **800**

Multi-parameter control instrument

The Kontrol 800 is a dedicated multi-parameter controller for complex applications that require a number of chemical parameters to be checked at the same time. The unit features independent proportional control output measures, two programmable frequency outputs, RS 485 serial port with MODBUS protocol, three relais outputs, probe quality checking and Data logging capability.

Kontrol **800**

Parameters

- pH / ORP
- Conductivity
- Chlorine
- Chlorine Dioxide

Applications

- Waste Water
- Drinking Water
- Cooling Towers
- Boiler
- Legionella disinfection
- Reverse Osmosis
- Sludge
- Crate Wash
- Galvanic Process
- Dioxide Station
- CIP
- Irrigation
- Swimming Pool
- Fish Farming
- Dairy

Features

Graphic display and Keypad

Simultaneous value of the measure, Temperature and Relay status.

4-line, 20-character Alphanumeric Display.

Seven control keys for instrument calibration and configuration.

Enclosure Box and Power Supply

Wall mounting ABS plastic material IP65.

Universal Power Supply 100÷240 Vac 50/60 Hz

Manual controls

The user-friendly programming step menu makes starting up and checking the control and dosing system easy.

Data logging

Internal Flash memory to load record measures values.

Type: Circular (F.I.F.O.) or Filling.

RS485 Serial port

For set-up and real-time data acquisition from remote or for stored data download on PC or laptop (Communication software **Sekonet** required).

MODBUS RTU communication protocol.

Measure Input

High measuring resolution with probe quality control.

Modular measuring system.

Chlorine measure in sea water application.

Digital Input

Double channel, Voltage Input and Reed level input to disable all function controller output.

Current outputs 4÷20mA Galvanic isolation

Two (2) programmable Output Measure.

Frequency Outputs

1÷120 Pulse/Minutes open collector Isolation channel.

Two (2) programmable Output Measure.

Relay Outputs

Three (3) independent relais, Three (3) set point measure with power contact.

One Alarm remote dry contact
One Set point Measure dry contact.

On/OFF, Timed, Proportional routine function setting.

Measure range

Code	Description
pH	0÷14,00 pH
ORP	± 2000 mV
Conductivity	1÷200/10÷2000/100÷20.000 µS
Chlorine (Amperometric Cell)	0÷5,00 ppm (*)
Chlorine and **Chlo. Dioxide** (Potentiostatic Cell)	0÷0,50 /1,00 /2,00 /5,00 /10,0 /20,0 /200,0 ppm
Temperature	with PT100/PT1000 0÷100°C (32÷212 °F)

(*): Amperometric Chlorine CU+PT sensors

Product line **Kontrol 800** Single parameter

Code	Model	Description
K800L01	Kontrol CL 800	for Amperometric Chlorine values
K800L06	Kontrol CL_P 800	for Free and Total Potentiostatic Chlorine values

Product line **Kontrol 800** Double parameters

K800L02	Kontrol PR 800	for pH/ORP - pH/ORP values
K800L03	Kontrol PC 800	for pH/Amperometric Chlorine values
K800L04	Kontrol PRC 800	for pH/ORP - Amperometric Chlorine values
K800G04	Kontrol PRC 800	for pH/ORP - Amperometric Chlorine values
K800L05	Kontrol PR+EC 800	for pH/ORP - Conductivity values
K800L07	Kontrol PC_P 800	for pH + Potentiostatic Chlorine values
K800L08	Kontrol PRC_P 800	for pH /ORP + Potentiostatic Chlorine values
K800L09	Kontrol PRC_P+C_A 800	for pH/ORP + Pot. and Amperometric Chlorine values

Sensor Overview

pH/ORP

- For every application up to 130°C and 16 bar
- Virtually maintenance-free
- Highly accurate with pressurizable liquid electrolyte
- Open hole, pellon or ceramic diaphragms

Conductivity

- From ultrapure water to highly concentrated process media
- Cost-efficient for water / wastewater applications
- Inductive sensors for maintenance free applications

Chlorine

- Different membranes for selective measure of different 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

	pH/ORP Sensors							Concuctivity Sensors						
Applications	**SPH-1** 5M	**SPH-3** WW	**SPH-4** HP	**SPH-4** HT	**SRH-1** 5M	**SRH-3** PT	**SRH-4** HT-PT	**C-K1** PT	**C-TK** 1	**C-TK** 5	**C-TK** 10	**C-TK** 1G	**C-TK** 0,1 PT	
Waste Water		■	■	■		■	■	■	■	■	■	■	■	
Swimming Pool	■	■			■	■								
Drinking Water		■	■			■	■	■		■		■		
Cooling Tower		■	■			■	■		■	■	■			
Reverse Osmosis		■	■			■	■				■			

Dissolved Oxigen

- Measure indipentend on variations in the optical properties of the media as turbidity
- Only few seconds to achieve an accurate measure
- Luminophore deposited directly to the glass to ensure a better mechanical adhesion

Turbidity

- Measurement is performed by using a 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

Flow

- 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
- Magmeter without moving parts for measurement of conductive and homogeneous dirty media

	Chlorine and disinfectants Sensors					Oxigen Sensors	Turbidity Sensors		Flow Sensors		
C-TK 10 PT	**S411** IND	**S411** IND HT	**Free Inorganic** Chlorine	**Free Organic** Chlorine	**Total** Chlorine	Chlorine **Dioxide**	Bromine, PAA, H_2O_2, O_3	**S 423 C OPT**	**S462** PVC	**S461 T**	**PVC** paddlewheel	**AISI** paddlewheel	**SFWE** electromagnetic
▪	▪	▪	▪		▪	▪	▪	▪		▪	▪	▪	▪
			▪	▪	▪	▪	▪		▪			▪	
▪			▪			▪		▪	▪			▪	▪
			▪		▪	▪	▪		▪	▪		▪	
▪			▪			▪			▪		▪	▪	

Overview of **pH/ORP** Probes

pH measurement is based on the use of a pH sensitive glass electrode, a reference electrode and a temperature element to provide a temperature signal to the pH analyzer.

The pH electrode uses a specially formulated, pH sensitive glass in contact with the solution, which develops a potential proportional to the pH of the solution.

The reference electrode is designed to maintain a constant potential at any given temperature, and serves to complete the pH measuring circuit within the solution.

ORP (Redox) is a potentiometric measurement of the oxidizing/reducing power of a liquid.

Control instruments

Wall mount

Pannel mounting

Sensors

pH

ORP

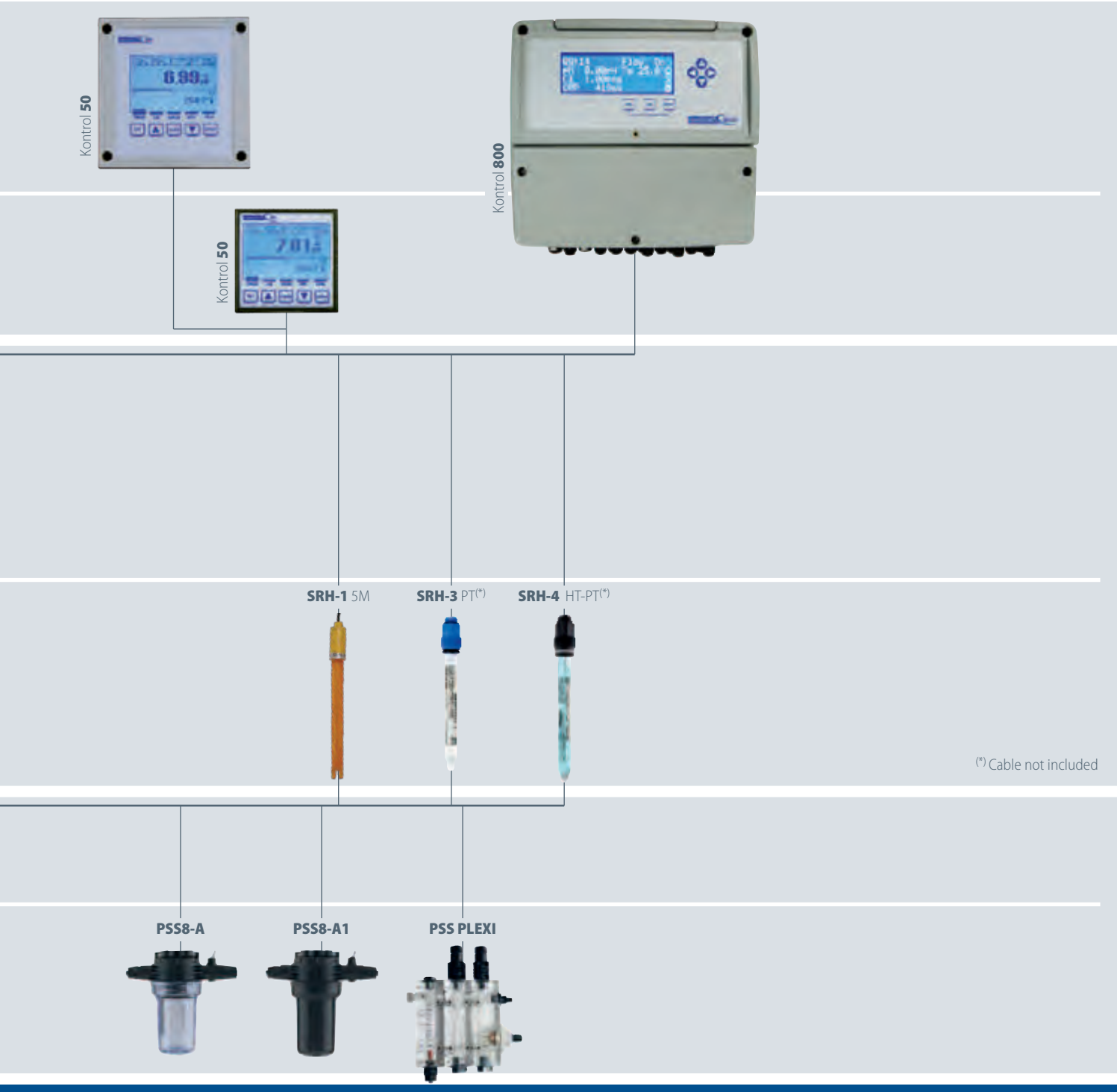
Probeholders

On line

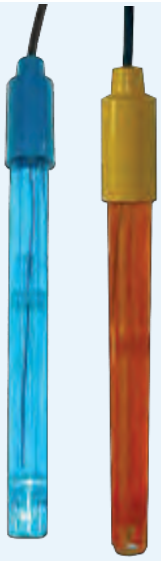
Off line

An ORP measuring electrode is similar to a pH measuring electrode, except it is normally constructed of an noble metal (Platinum).

From a water treatment perspective, ORP measurements are used often to control disinfection with chlorine and chlorine dioxide



pH/Redox Probes



SPH-1 / SRH-1

Field Application:

- General laboratory
- Drinking Water
- Swimming pools
- Water monitoring and control plan

Features:

- Low maintenance sealed unit
- Gel filled reference cell
- BNC connection with Boot plastic Cover
- Cable length 6 or 1,5 meter
- Pellon Diaphragm high accuracy

SPH-3 WW
SRH-3 PT

Field Application:

- Waste water
- Drinking Water
- Cooling Towers
- Legionella disinfection
- Galvanic Process

Features:

- Low maintenance sealed unit
- Gel filled reference cell
- S8 connection with PG 13,5 mm
- Glass Body
- Diaphragm open hole

SPH-4 HP

Field Application:

- Waste water
- Drinking Water
- Reverse Osmosis
- Cleaning in place (CIP)
- Galvanic Process

Features:

- Low maintenance sealed unit
- Gel filled reference cell
- S8 connection with PG 13,5 mm
- Glass Body for High Temperature Enviromental
- Diaphragm 2 Sigle pore

SPH-4 HT
SRH-4 HT-PT

Field Application:

- Ammonia application
- Chromium plating
- Reverse Osmosis
- Bisulphite application
- Galvanic Process

Features:

- Low maintenance sealed unit
- Gel filled reference cell
- S8 connection with PG 13,5 mm
- Glass Body for High Pressure Enviromental
- Three ceramic diaphragm type

Measure range

Measurement range	Min. conductivity	Temperature range	Pressure range	Body material	Membrane material	Reference electrolyte	Diaphragm type	Electrical connection	Mechanical mounting
SPH-1 5M		Code **9900105101**							**pH** Probes
2÷12	50 µS/cm	0÷60°C	0÷4 bar	Epoxy	Glass	GEL	1 Ceramic	5m cable + BNC	Standard Ø 12
SPH-3 WW		Code **9900105005**							**pH** Probes
2÷12	5 µS/cm	0÷80°C	0÷6 bar	Glass	Glass	GEL	1 Open hole	S8	PG 13.5
SPH-4 HP		Code **9900105006**							**pH** Probes
0÷14	5 µS/cm	0÷130°C	0÷6 bar	Glass	Glass	GEL	2 Single Pore	S8	PG 13.5
SPH-4 HT		Code **9900105007**							**pH** Probes
0÷14	5 µS/cm	0÷130°C at 6 bar	0÷16 bar at 25°C	Glass	Glass	GEL	3 Ceramic	S8	PG 13.5
SRH-1- 5M		Code **9900105100**							**Redox** Probes
±1000 mV	-	0÷60°C	0÷4 bar	Epoxy	Platinum wire	GEL	1 Ceramic	5m cable + BNC	Standard Ø 12
SRH-3 PT		Code **9900105033**							**Redox** Probes
±2000 mV	-	0÷80°C	0÷6 bar	Glass	Platinum wire	GEL	1 Open hole	S8	PG 13.5
SRH-4 HT - PT		Code **9900105034**							**Redox** Probes
±2000 mV	-	0÷130°C at 6 bar	0÷16 bar at 25°C	Glass	Platinum wire	GEL	3 Ceramic	S8	PG 13.5

pH/Redox Probes

*** S7 connection:** it is a electrical connection only
**** S8 connection:** S7 on the top electrical probe connection and PG 13.5 mm mechanical connection

Overview of **Electrical Conductivity** a

Conductivity is the ability of a solution to pass an electric current and tells us the amount of dissolved solids there is in a solution. It is usually measured by two different principles: conductive and inductive.

By the conductive principle, an alternating current is applied between the sensor poles the resulting current, that depends on the concentration of ions and on the length and area of the solution through which the current flows, is measured.

The current path is defined by the sensor geometry, or cell constant, which has units of 1/cm (length/area).Usually it is referred as K factor, that is the reciprocal of the cell constant.

Control instruments

Wall mount

Pannel mounting

Sensors

Electical Conductivity

Inductive Conductivity

Probeholders

On line

Off line

and **Inductive Conductivity** Probes

By the inductive principle, the field coil of the sensor is stimulated by a sinusoidal voltage. The current field in the fluid, that depends on its conductivity, generates a voltage in the receiver coil of the sensor.

The measure of this voltage and the cell constant give the right value of conductivity of the fluid.

Electrical Conductivity Probes

The range of conductivity probes is specially designed for use in industrial environments in conjunction with **seko** measurement instruments.

The various available models make it possible to cover an extremely wide measurement range.

There are versions with temperature sensors and special versions with graphite or platinum probes, PTFE cell bodies and IP67 connectors.

Note All the models are guaranteed for a

Max Pressure 6 bar

CT-K10

- Costant Cell: 0,1 cm^{-1} or K=10
- Body material: PP (80°C)
- Electrodes material: Stainless steel 316L
- Mechanical Connection: ¾ Gas M PP

With temperature sensor (PT100)

Field Application:
- Waste Water
- Drinking Water
- Cooling Towers
- Reverse Osmosis
- Irrigation

CT-K1

- Costant Cell: 0,1 cm^{-1} or K=10
- Body material: PP (80°C)
- Electrodes material: Stainless steel 316L
- Mechanical Connection: ¾ Gas M PP

With temperature sensor (PT100)

Field Application:
- Waste Water
- Drinking Water
- Cooling Towers
- Reverse Osmosis
- Irrigation

CT-K5

- Costant Cell: 0,1 cm^{-1} or K=10
- Body material: PP (80°C)
- Electrodes material: Stainless steel 316L
- Mechanical Connection: ¾ Gas M PP

With temperature sensor (PT100)

Field Application:
- Waste Water
- Drinking Water
- Cooling Towers
- Reverse Osmosis
- Irrigation

C-K1 PT

- Costant Cell: 1 cm^{-1} or K=1
- Body material: Glass (130°C)
- Electrodes material: Platinum
- Mechanical Connection: Ø12 mm

Without temperature sensor

Field Application:
- Waste Water
- Drinking Water
- Cooling Towers
- Boiler
- Reverse Osmosis
- CIP
- Irrigation
- Fish Farming
- Dairy

CT-K 1 - G
CT-K 0.1- PT
CT-K 10 - PT

- Costant Cell: 1 cm^{-1} or K=1
- Body material: Epoxy 70°C
- Electrodes material: Graphite or Platinum
- Mechanical Connection: Ø12 mm
- Mechanical Connection: ¾ Gas M PP

With temperature sensor (PT100)

Field Application:
- Waste Water
- Drinking Water
- Cooling Towers
- Reverse Osmosis
- CIP
- Irrigation
- Fish Farming

Measure range

Measurement range	Constant [C-K]	Temperature range	Pressure range	Body material	Mounting Process	Cable
C-K1-PT	Code **9900101013**			**Without temperature** Sensor		
1÷20000µS	C=1 cm-1 K=1cm	120°C	6(*)	Glass - Platinum	Ø 12 mm	6 m
CT-K10	Code **9900101103**			**(PT100) With temperature** Sensor		
0,01÷500µS	C=0,1 cm-1 K=10cm	80°C	6(*)	PP-AISI 316	3/4" G.M.	Plug (**)
CT-K5	Code **9900101102**			**(PT100) With temperature** Sensor		
0,5÷2000µS	C=0,2 cm-1 K=5cm	80°C	6(*)	PP-AISI 316	3/4" G.M.	Plug (**)
CT-K1	Code **9900101101**			**(PT100) With temperature** Sensor		
5÷5000µS	C=1 cm-1 K=1cm	80°C	6(*)	PP-AISI 316	3/4" G.M.	Plug (**)
CT-K1-G	Code **9900101124**			**(PT100) With temperature** Sensor		
5÷20000µS	C=1 cm-1 K=1cm	70°C	7,5(*)	PVC Graphite	PG 13,5 mm	6 m
CT-K10-PT	Code **9900101190**			**(PT100) With temperature** Sensor		
100÷200.000µS	C=0,1 cm-1 K=10cm	70°C	7,5(*)	Platinum	12 mm	6 m
CT-K 0,1-PT	Code **9900101191**			**(PT100) With temperature** Sensor		
0,01÷ 500µS	C=10 cm-1 K=0,1cm	70°C	7,5(*)	Platinum	12 mm	6 m

Conductivity Probes

(*) The maximum pressure of 6 bars is guaranteed at 25 °C. As the temperature increases, the pressure decreases linearly and at 50° or 80 °C, the maximum pressure is 1 bar.

(**) To be used in conjunction with CC series cables.

Inductive Conductivity Probes

S411/IND

The inductive sensor has been engineered to produce a low cost sensor, without sacrificing performance or quality. The result has been obtained by moulding the sensor using polypropylene reinforced with fibreglass. The sensor provides all of the benefits that the method of inductive conductivity measurement provides.

Applications

Polluted surface waters, process monitoring, means very contaminated or aggressive, influ-ential water of treatment plants and wastewater.

Models

S411/IND
sensor only

S411/IND/ T
for immersion

S411/IN/ E
for insertion with T-fitting

S411/IND/INS
for direct insertion on flat wall

S411/IND

S411/IND/INS

S411/IND/E

S411/IND/T

Measure range Inductive Probes

Inductive Probes	SENSOR **S411/IND**
Operating temperature	-5 to 60 °C (without freezing)
Contact materials	Glass-reinforced polypropylene
Temp. compensation	PT1000 wires
Cable	Standard 5 metre
Connection	½" BSP male
Protection rating	IP68
Materials	PVC with Viton gaskets
Submersion length	600 or 1200 mm
Assembly	Standard bracket or optional flange
Operating pressure	From vacuum to 6.5 bar (100 psi)
Conductivity Range	1000 µS to 1 Simens
Resolution	100 µS to 1000 µS
	Code **6100011441**

S411/IND/HT

These sensors are manufactured of PEEK™, a food grade material with excellent aggressive chemical resistance and high temperature performance. The construction allows the sensors to operate at 100°C continuously, withstanding thermal shocks commonly associated with CIP applications. The sensors can be sterilized at up to 135°C.

Applications

- Ideal for food and process applications
- Conductivity and concentration measurements
- Wide range of process connections

Models

S411/IND/HT
for insertion

S411/IND/HT60/120
for immersion

S411/IND/HT TP
for By-pass with PVC T-fitting

S411/IND/HT/TP
for By-pass with SS T-fitting

S411/IND/HT

S411/IND/HT TP

S411/IND/HT/TS

S411/IND/HT 60/120

Measure range Inductive Probes

Inductive Probes	SENSOR **S411/IND/HT**
Operating temperature	- 5 to 100°C – up to 135°C for short periods (CIP process)
Contact materials	Body PEEK – Temperature sensor INOX (PEEK on request)
Temp. compensation	Temperature sensor Pt1000 with 2 wires
Cable	Disconnectable Standard 5 meters
Connection	**RJT** 2", 2.5", 3" – **Tri clamp** 2", 3" **– IDF/ISS** 2", 2.5", 3" **DIN** 1185: 50mm, 80mm (oher on request)
Protection rating	IP67
Materials	PEEK / AISI
Submersion length	600 or 1200 mm
Assembly	Standard bracket or optional flange
Operating pressure	Vacuum to 10 bar (150 psi)
Conductivity Range	1000 µS to 1 Simens
Resolution	100 µS to 1000 µS
	Code **xxxxxxxxxxxx**

Overview of **Chlorine and disinfectan**

The standard amperometric sensor 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.

Seko electrodes are covered with a selective membrane and submerged in an electrolyte to keep the measurement environment protected and constant, providing for better precision of the analysis of diverse disinfectants.

Control instruments

Wall mount

Pannel mounting

Sensors

Chlorine

Free Inorganic Chlorine(*)

Free Organic Chlorine(*)

Disinfectants

Probeholders

Off line

PSS8-C

nts Probes

The free chlorine amperometric sensor works according to the principle of depolarization of a galvanic element.

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.

Kontrol **50**

Kontrol **50**

Kontrol **800**

Total Chlorine(*)

Chlorine **Dioxide**(*)

Amperometric Cell

Bromine, PAA, H_2O_2, O_3(*)

(*) Cable not included

PSS PLEXI

PSS PLEXI

Chlorine and disinfectants Probes

CLPROBES

This range consists of potentiostatic amperometric probes to measure free or total chlorine for applications such as: water treatment, swimming pools, industrial applications and more.

The wide range of probes allows a better choice depending on the parameter to be tested, thus obtaining a more accurate measurement.

- The two-wire interface allows quick and easy installation.

High pressure Probe sensors

Potentiostatic Probes

Measure range

Models	F-CL 1	F-CL 2	F-CL 3	F-CL 4	F-CL 5	F-CL 6	F-CL 7	F-CL 8	F-CL 9	F-CL 10	F-CL 11
Measure range	0÷10 ppm			0÷200 ppm	0÷2 ppm	0÷1 ppm	0÷5 ppm	0÷1 ppm	0÷5 ppm	0÷0,5 ppm	0÷5 ppm
pH range	4÷8 pH	4÷12 pH	4÷11 pH	4÷8 pH		5÷9 pH				4÷8 pH	4÷8 pH
Response time	1 minutes - 90% of measure (100% of measure after 15 minutes)										
Flow rate	30 L/h					80 L/h				30 L/h	
Temperature	45 °C					50 °C		70 °C		45 °C	
Pressure	1 bar	0,5 bar				5 bar (*)		8 bar (*)		0,5 bar	1 bar
Sensor material	Silver chlorine with gold					Gold				Silver chlorine with gold	
Membrane	M20	M48	M48 G	M20	M20	–				M20	M20
Electrolyte	ECL1	ECC1	ECS1 Gel	ECL1	ECL1	EAS1 Gel				ECL1	ECL1
Electrical connection	Wire connection with screw										
Mechanical mounting	Ø 24mm										
Application fields	Inorganic Free Chlorine	Organic Free Chlorine	Inorganic Free Chlorine								
	Code **9900101140**	Code **9900101141**	Code **9900101142**	Code **9900101146**	Code **9900101148**	Code **9900101149**	Code **9900101150**	Code **9900101152**	Code **9900101153**	Code **9900101159**	Code **9900101173**

(*) with Snap-Ring
F-CL 2 • F-CL 3 • T-CL 1 can be used in sea water application with special electrolites

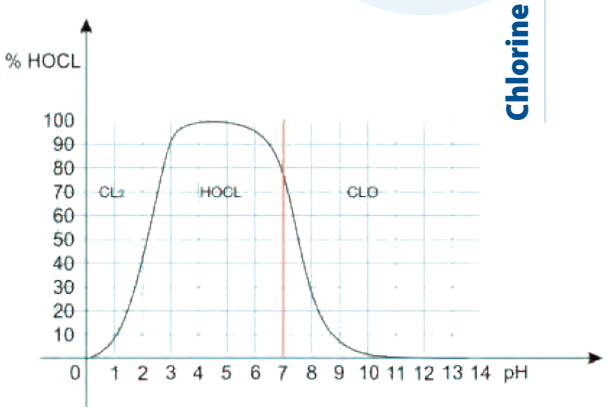
Chlorine Amperometric Cell

For the disinfection of any type of water, preference is given to chlorine gas or chlorine compounds. The germicidal effect is due to the formation of Hypochloric acid (HClO) if chlorine is dissolved in water.

The formation of Hypochloric acid depends strongly on the pH value consequently a constant pH value of the water is suggested (preferably pH 7.00 or less).

Otherwise the same chlorine concentration would cause different indications.

Chlorine Amperometric Cell



Range	0.00 ÷ 5.00 ppm
Accurancy	± 0.1 ppm
Pressure	6 bar
Temperature	0 ÷ 60 °C
pH	6.5 ÷ 8.2

F-CL12	F-CL13	T-CL 1	T-CL 2	D-CL	D-CL 2	D-CL 3	PAA 1	H_2O_2 1	H_2O_2 2	O_3 1	O_3 2	BR 1
0÷2 ppm		0÷10 ppm	0÷5 ppm	0÷10 ppm	0÷1 ppm		0÷2000 ppm	0÷200 ppm	0÷500 ppm	0÷2 ppm	0÷5 ppm	0.05÷10 ppm
4÷12 pH	4÷11 pH	4÷14 pH		1÷14 pH	5÷9 pH		2÷11 pH			1÷14 pH		6.5÷9.5 pH
1 minutes - 90% of measure (100% of measure after 15 minutes)												
30 L/h					80 L/h		30 L/h					
45 °C					50 °C	70 °C	45 °C					
0,5 bar				1 bar	5 bar (*)	8 bar (*)	1 bar	5 bar (*)		1 bar		0,5 bar
Silver chlorine with gold					Gold		Silver chlorine with gold					
M48	M48 G	M48	M48	M20	–		M7N			M20	M20	M48
ECC1	ECS1 Gel	ECP1 Gel	ECP1 Gel	EDC41	EAS1 Gel		EPS7/W			EOZ1		EBR1 Gel
Wire connection with screw												
Ø 24mm												
Organic Free Chlorine	Inorganic Free Chlorine	Total Chlorine		Chlorine Dioxide			Peracetic Acid	Hydrogen Peroxide		Ozone		Bromine
Code **9900101174**	Code **9900101177**	Code **9900101143**	Code **9900101172**	Code **9900101144**	Code **9900101151**	Code **9900101154**	Code **9900101157**	Code **9900101158**	Code **9900101156**	Code **9900101175**	Code **9900101176**	Code **9900101179**

Potentiostatic Chlorine Probes

Overview

The S423/C OPT is an oxygen sensor based on luminescent optical technology.

This technique is based on a diode that emits a blue light towards a support on which a fluorescent substrate is applied.

The substrate reacts by emitting initially a red light (luminescence), then returns to its initial state.

The intensity of the produced red light and the return rate to the initial state are related to the present oxygen concentration

Control instruments

Wall mount

Pannel mounting

Power Supply

Sensors

MADE IN SEKO GROUP

S 423 C OPT

Probeholders

Off line

PSS8-B1

Dissolved Oxigen Probes

S423/C OPT

The S423/C OPT sensor with an integrated temperature sensor is based on luminescent optical technology. Without calibration requirements and thanks to an ultra low power technology, the S423/C OPT sensor meets the demands of field works and short or long term campaigns. Without oxygen consumption, this technology allows you an accurate measure in all situation and especially in very low oxygen concentrations.

The S423/C OPT sensor stores calibration and history data within the sensor. This allows you a "plug and play" system without recalibration. Thanks to the Universal Modbus RS485 protocol, The S423/C OPT sensor can be connected to all devices commonly used (Datalogger, Controller, Automat, Remote System…).

Applications

Fish farms, drinking water, waste water, sea water

Dissolved Oxigen Probes

Measure range

Models	**S423/C OPT PVC** (35mm)
Measuring range	0.00 to 20.00 mg/L 0-200%
Measuring method	Optical measure by luminescence
Precision	±0.1mg/L or ±1 %
Response time	90% of the value in less than 60 s
Required flow rate	No necessary move
Temperature sensor	NTC
Temperature range	-10 ÷ 60°C (optional -10÷ 80°C)
Pressure range	5 bar
Body material	PVC
Electrode material	Special optical glasses
Membrane material	No membrane
Reference electrolyte	No electrolyte
O-Rings	NBR and Silicon
Electrical connector	Integral cable 10 mt with the sensor
Connection to process	35mm
Polarisation current	5 to 12 volts
Signal interface	4÷20 mA Output
	Code **9900105102** 35mm

Overview

Turbidity is the cloudiness of a fluid caused by large numbers of individual particles

Turbidity sensors measure the scattered component of a light beam which is diverted away from its natural course by optically denser particles in the medium according to the Tyndall effect.

The turbidity of the medium is determined by the amount of scattered light.

In S462/T the measurement is performed by using a 90° scattered light method compliant with ISO 7027 / EN 27027.

In S462/PVC sensor the measurement is performed by using a 180° scattered light method.

The measure is virtually indipentend on variations in the optical properties of the sample (turbidity, refractive, index and coloration).

Control instruments

Wall mount

Pannel mounting

Power Supply

Sensors

S462 PVC

S461 T

Probeholders

Off line

PSS8-B1

Turbidimetric Probes

Features and Benefits

- Reliable concentration measurement using optical measuring process
- Infrared light pulsing beams scattering method
- Black rigid PVC sensor body
- No mechanically moving parts
- Measured value pre-processing in sensor resulting in low signal transmission sensitivity

MADE IN seko GROUP

S462/PVC

- Black Plastic Body
- Turbidity Measure with Led light with Resistors sensor

Turbidimetric probes

Field Application:
· Waste water
· Drinking Water
· Sewage Treatment

Resistors sensor
Threaded Connection 2 1/2" F GAS
Two cables included

MADE IN seko GROUP

S461/T/PVC

- Black PVC Body
- 4÷20mA outputs
- Turbidity Measure with Led light with Resistors sensor
- Threaded Connection 1" GAS
- Cables included

Turbidimetric probes

Field Application:
· Sewage Treatment
· Sludge application
· Waste water
· Fish farming

Resistors sensor
Threaded Connection 1" GAS
Cables included

Measure range

Measurement range	Measurement method	Temperature range	Pressure range	Body material	Power supply	Electrical connection	Threaded connection
S462/PVC	Code **9900316021**			**Turbidimetric Probes**			
0,00÷100 NTU/FTU	Scattering at 180° Light absorption	0÷45 °C	0÷6 bar	PVC black Transparent PVC door	12÷24 Vdc	2 cables 5m	2½"F
S461/T/PVC				**Turbidimetric Probes**			
Code **9900316032**	Torbidity Range **0.2 ÷ 40 NTU**						
Code **9900316033**	Torbidity Range **1 ÷ 400 NTU**						
Code **9900316034**	Torbidity Range **1 ÷ 4000 NTU**						
0,00÷/4 /40 /400 /4000	Scattering at 90° Light absorption	0÷60 °C	0÷4 bar	PVC Special Optical Glass or Viton	12÷24 Vdc	10m cable	1"GAS

Overview

The 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.

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

It requires a conducting fluid and an electrical insulating pipe surface.

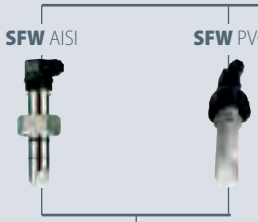
Control instruments

Wall mount

Pannel mounting

Sensors

Paddle wheel



Magmeter

Fittings

Flow Sensor

SFW

The paddlewheel flow sensor SFW is designed to be used with every kind of solid-free liquid. The sensor can measure flow from 0.15 m/s (0.5 ft/s) producing a frequency output signal highly repeatable.

A new electronic, with a push-pull output, is now available for a safe connection to any kind of PLC/instrument digital input.

A special family of fittings ensures installation into all pipe material in sizes from DN15 to DN600 (0.5" to 24").

Flow Sensor

SFWE

The SFWE insertion magmeters can measure flow rate in both metal and plastic pipes.

No moving parts allow the measurement of liquids with suspended solids as long as conductive and homogeneous.

The sensors can be assembled into the standard FLS fittings for installation from DN15 to DN600 (0.5" to 24").

They offer frequency output to use with FLS flow instrumentation and 4-20 mA output for long distance transmission and PLC connection.

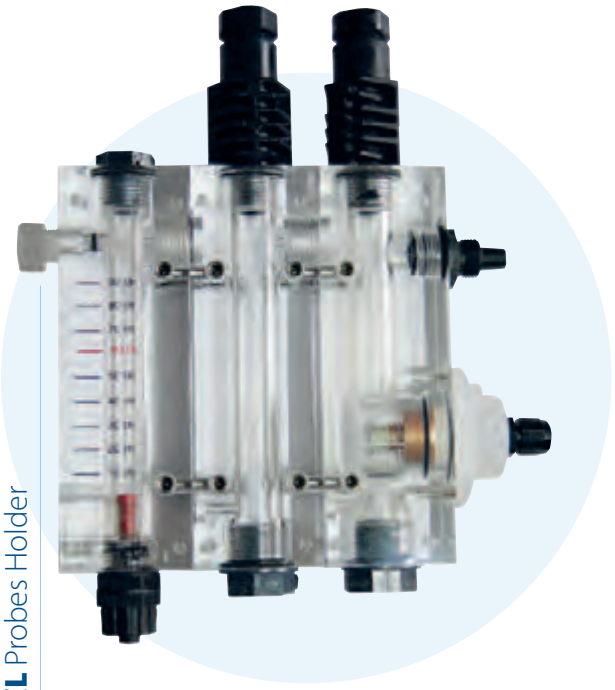
Special versions for salt-water applications (high concentration of chlorides as sea water) and for high temperature conditions.

Flow Sensor

Measure range

Flow Sensor	**SFW**					**SFWE**		
Working range	0.15 to 8m/s [0.5 to 25ft/s]					0.15 to 8m/s [0.5 to 25ft/s]		
Minimum reynolds	4500					-		
Linearity	±0.75% of full scale					±1% of reading +1.0 cm/s		
Repeatability	±0.5% of full scale					±0.5% of reading		
Maximum process Pressure/Temperature	**PVC-C**body: 10 bar - 25°C 1.5 bar - 80°C	**PVDF**body: 10 bar - 25°C 1.5 bar - 100°C	**Brass**&**SS**body: 25 bar - 120°C 25 bar - 100°C			16 bar - 25°C 8.6 bar - 70°C		
Materials	**Sensor body**: CPVC or PVDF or 316L SS	**O-rings**: EPDM or FPM	**Rotor**: ECTFE (Halar®)	**Shaft**: Ceramic (Al_2O_3)	**Bearings**: Ceramic (Al_2O_3)	**Sensor**body: 316L SS PVDF	**O-rings**: EPDM or FPM	**Electrodes**: 316L SS
Outputs	Square wave, frequency: 45 Hz per m/s [13.7 Hz per ft/s] nominal 4÷20 mA with K330 output kit mounted					4÷20 mA - Isolated Square wave, frequency: 0-500Hz Open collector: flow direction		
Power supply	5 to 24 VDC ± 10% regulated					12 to 24 VDC ± 10% regulated (reverse polarity and short circuit protected)		
Application fields	Water and industrial waste water treatment, water distribution, processing and manufacturing industry, textile finishing, chemical production, cooling and Heating systems, swimming pools and Spas.					Water and waste water treatment, raw water intake, industrial water distribution, textile industry, swimming pools, Spas and aquariums, HVAC, processing and manufacturing industry.		
	Code **990031701X** PVC SFW1 / SFW2 Code **990031704X** Stainless Steel SFW1 / SFW2					Code **9900317040** Mag SFW1 Code **9900317041** Mag SFW2		

Probeholders



CL Probes Holder

PSS-PLEXI

Features

- In/Out: 8x12 mm (tube)
- Material Plexiglas without color
- Hydraulic - **By Pass**
- Pressure **5 bar**
- Temperature **60°C**

Code **9900103047** PSS-PLEXI [FLUX/PH]
Code **9900103048** PSS-PLEXI [FLUX/PH/RX]
Code **9900103049** PSS-PLEXI [FLUX/CL-A]
Code **9900103050** PSS-PLEXI [FLUX/PH/CL-A]
Code **9900103051** PSS-PLEXI [FLUX/PH/RX/CL-A]
Code **9900103052** PSS-PLEXI [FLUX/PH/CL-P]
Code **9900103053** PSS-PLEXI [FLUX/CL-P]
Code **9900103054** PSS-PLEXI [FLUX/PH/RX/CL-P]
Code **9900103055** PSS-PLEXI [FLUX/PH/RX/CL-A/CL-P]
Code **9900103056** PSS-PLEXI [FLUX/CL-P/CL-P]

PSS

Pressurized probe holder

Pressurised probe holders are used to immerse the probe directly into the pipe where the sample to be measured passes. The probe must always be positioned vertically or slanting in the direction of the flow at a maximum of 45°. The probe holder connection line must be fitted between two isolation valves (input and output) in order to permit the prevention of the flow during maintenance of the probes.

PSS 3

Connection to the process	Mechanical Connection	Max Temperature	Max Pressure	Material
PSS 3	Code **9900106670**			
1/2" G.M.	PG 13,5 or Ø 12 mm	60°C	7 bar	PVC

PSS-EC **Outflow** probe holder

Outflow probe holders for conductivity probes

Bypass probe holder for conductivity probe model CTK1, 5 and 10

Made of black PVC with 3/4" mechanical connection and 1" GAS IN/OUT hydraulics.

OUTFLOW SECTION (PSS-COND-T)

Code **0000126035**

Probeholders and **Power Supply**

PSS 8
By-Pass probe holder

The PSS 8 probe holder series is an advanced housing for by-pass hydraulic connection. Once installed, the electrode will remain in contact with the fluid all the times, allowing the most accurate readings possible. There are four different versions to satisfy all needs.

Applications

- Waste Water
- Drinking Water
- Cooling Towers
- Reverse Osmosis
- Irrigation
- Swimming Pool

Technical Features

- Inlet and Outlet connections : 8x12 mm
- Feedback Flow check sensor by Reed at 0,5 bar minimum pressure
- Pressure range : 1 bar at 50 °C / 2 bar at 40 °C / 5 bar at 20 °C

PSS 8-A

PSS 8-A1

PSS 8-B1

PSS 8-C

Connection to the process	No. of probes	Probes Connections	Probe types	Temperature	Pressure	Material	pH range chemical compatibility
PSS 8-A	Code **9900103087**						
By-pass	3	PG 13,5 or Ø 12 mm	pH ; redox ; conductivity ; oxygen ; temperature	50°C	2 bar	Transparent PMMA	4,0 ÷10 pH
PSS 8-A1	Code **9900103088**						
By-pass	3	PG 13,5 or Ø 12 mm	pH ; redox ; conductivity ; oxygen; temperature	50°C	2 bar	Black PP	2,7 ÷ 12 pH High Acidity
PSS 8-B1	Code **9900103086**						
By-pass	1	Ø 42 mm ; Ø 35 mm	torbidity ; oxygen	50°C	2 bar	Black PP	2,7 ÷ 12 pH High Acidity
PSS 8-C	Code **9900103089**						
By-pass	1	Ø 24 mm	Potentiostatic Chlorine	50°C	2 bar	Transparent PMMA	4,0 ÷ 10 pH

Power Supply

External power supply DIN RAIL mounting for Oxigen and Turbidity sensors.

Features

- Output 24Vdc 10W (Input 100÷240Vac)
- NEC class 2 / LPS compliant
- Protections: Short circuit / Overload / Over voltage

Temperature sensor, cables, buffer solutions

PT100

Temperature sensor

In order to correctly measure the pH in environments with variable temperatures, it is necessary to correct the response error of the probe resulting from temperature change.

The measuring instrument must therefore be connected to a special temperature sensor.

Max Pressure 7 bar

PT 100V
PG

Connection	Mechanical Connection	Material
PT 100V **PG**	Code **9900105062**	
6 m 3-wire cable	PG 13,5	Pyrex

CE

Probe cables with **S7 heads**

CE B

Length	Type of Cable	Terminal block
CE **1/B**	Code CE**B** **9900109001**	
1 mt.	Mod. RG58 **5 mm**	Crimping BNC - Soldered BNC
CE **5/B**	Code CE**B** **9900109003**	
5 mt.	Mod. RG58 **5 mm**	Crimping BNC - Soldered BNC
CE **10/B**	Code CE**B** **9900109004**	
10 mt.	Mod. RG58 **5 mm**	Crimping BNC - Soldered BNC
CE **20/B**	Code CE**B** **9900109006**	
20 mt.	Mod. RG58 **5 mm**	Crimping BNC - Soldered BNC

CC

Cables for **CTK** Probe

with 4-pole connectors

Length	Version	No. poles
CC **5**	Code **9900110111**	
5 mt.	standard	4
CC **10**	Code **9900110112**	
10 mt.	standard	4
CC **15**	Code **9900110113**	
15 mt.	standard	4

ST
Buffer **solution**

ST PH

ST RX

ST MS

Certified buffer solutions

The precision and reliability of a pH, Redox or Conductivity measurement is determined by the buffer solution used for calibrating the probe. The special double-plug container ensures that a new unpolluted buffer is always available.

Solution	Value	Quantity
ST **PH 4**	Code **9900122007**	
pH	4,00 pH 20 °C	250 ml
ST **PH 7**	Code **9900122008**	
pH	7,00 pH 20 °C	250 ml
ST **PH 9**	Code **9900122009**	
pH	9,22 pH 20 °C	250 ml
ST **RX 465**	Code **9900122010**	
Redox	465 mV 25 °C	250 ml
ST **MS 8**	Code **9900122018**	
Conductivity	84 µS/cm 25°C	500 ml
ST **MS 14**	Code **9900122019**	
Conductivity	1423 µS/cm 25°C	500 ml
ST **MS 128**	Code **9900122020**	
Conductivity	12880 µS/cm 25°C	500 ml