

Water Treatment and Industrial Applications



innovation > technology > future

about us

seko is an International Group, developing, manufacturing and delivering its products in more than 80 countries, through its subsidiaries and an extended network of distributors, agents and authorized dealers.

seko has been a significant manufacturer of metering pumps and dosing systems since 1976. It has gained a worldwide leader position in many fields by supplying innovating products and offering reliable solutions for the dosing, injection and transfer of liquids, together with an efficient control of the related chemical parameters.

seko is specialized in the design and production of peristaltic pump, solenoid metering pumps, motor driven metering pumps, measure and process instruments.



key figures

Foundation 1976

Subsidiary companies Italy, Spain, France, Germany, UK, Singapore, USA, Brazil, South Africa, China, Russia, Denmark, Sweden, Romania, UAE, Benelux, Turkey

Sales in over 80 countries

Employees over 700 employees worldwide

Revenue EUR 100 million consolidated

Certified according to ISO 9001:2000; GOST R

Pumps according to guidelines API 674 und API 675; 94/9 EG (ATEX)

manufacturing and logistic

AN EFFECTIVE INDUSTRIAL AND LOGISTIC PLATFORM:

- Lean production extended to all production plants
- 9 production sites located in 4 continents
- 20 subsidiaries with local inventory offering a fast delivery of products and spare parts

research & development

R&D IS ONE OF THE MOST IMPORTANT ASSET OF OUR COMPANY:

- A team of over 80 engineers provides optimal solutions to the different aspects of the projects using state-of-the technologies to optimize costs and significantly reduce the time to market.
- Mechanical and electronic engineers are divided in multidisciplinary teams, operating with parametric and interactive software.

quality

CERTIFIED QUALITY SYSTEM SINCE 1994

- Products certification according to international standards
- 100% products tested before shipment
- Test benches designed and made internally



Tekna Series

Clever

Just 5 Models, Just PVDF,
All functions in one pump

○ **5 models** that cover 0,4 to 54 l/h with an output pressure up to 20 Bar

○ **1 Casing** allows skids to be pre-constructed, as the fixing points remain constant, and the pumps can be selected on confirmation of the dosing flow

evo **Inventory Reduction**
Reduce spares stock holding



Compatible

PVDF pump head and ceramic ball valve as standard

● **PVDF** is suitable for almost all chemical used in the Industrial, Waste Water Treatment and potable Water applications

● The use of **Ceramic balls** as standard improves the pumping reliability and the chemical compatibility of the whole liquid end

evo **Full chemical compatibility**



Reliable

Long life diaphragm tested to give 5 years working life

● The advanced design and manufacturing process allows the diaphragm to have a unique life expectancy

● Made of pure solid **PTFE**, the diaphragm is compatible with most chemicals

● The diaphragm has been tested over a period of 5 years giving superior results

● Routine diaphragm replacement is no longer a requirement

evo **Reduced maintenance**
Full chemical compatibility



The **Evolution** of solenoid dosing pumps

A new concept of programming menu. Once a function is selected, the pump displays only the parameters that are associated with the specific function

PVDF pump head and ceramic ball valve as standard

Stabilized Multi Power Supply 100÷240 Vac 50/60 Hz with reduced consumption



Steady Dosing Performance

Stabilized Multi Power Supply 100÷240 Vac 50/60 Hz with reduced consumption

- Reduced power consumption as the solenoid only draws the required power to activate the pump, based on the working conditions

- **Stable dosing performance:** improve pump efficiency as performance is not affected by power supply fluctuations

Reduce inventory holding



Intuitive programming

A new concept of programming menu

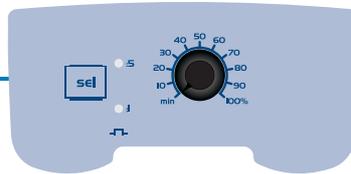
- Programming menu are self explanatory and available in 5 languages

- **Intelligent Display**, once a function is selected the pump will only display the parameters to set, which are linked to the selected function

- **Reduced programming time**

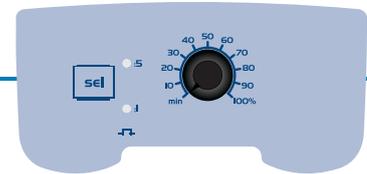


Tekna Analogue version



AKS Costant dosage

Analogue dosing pump with constant flow rate manually adjustable by control dial on the front panel, two frequency range (0÷20% or 0÷100%), Power-ON led indicator.



APG Proportional dosage

Analogue dosing pump with constant flow rate manually adjustable, proportional flow rate according to an external analogue (4÷20 mA) or digital pulse signal (e.g. from water meter).

- Control dial (percentage and "n" value in multiplication mode)

- 6 position adjustable switch:
 - 3 in division mode (1, 4, 10 = n)
 - 1 in multiplication mode (n=1)
 - 1 for proportional 4÷20 mA signal
 - 1 for constant functionality

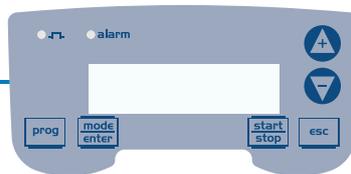


AKL Costant dosage

Analogue dosing pump with constant flow rate manually adjustable by control dial on the front panel, two frequency range (0÷20% or 0÷100%), Power-ON led indicator and level control input.

- "pacing" function adjustable by dip switch

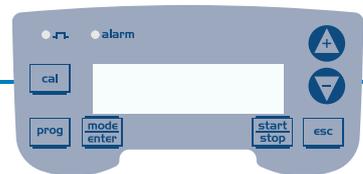
Tekna Digital version



TPG Proportional dosage

Digital dosing pump with constant flow rate manually adjustable, proportional flow rate according to an external analog (4÷20 mA) or digital pulse signal (e.g. from water meter).

- Timer function, ppm dosing, statistics, password and On/Off input (remote switch).



TPR Proportional dosage

Digital dosing pump with pH/Redox control meter built in.

- Digital interface for constant or proportional dosing, depending on the measured pH or Rx value

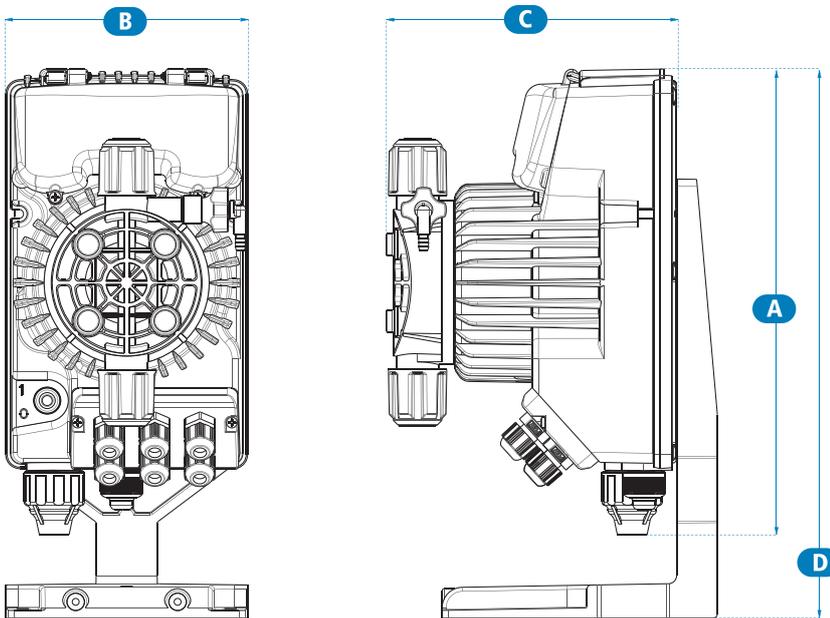
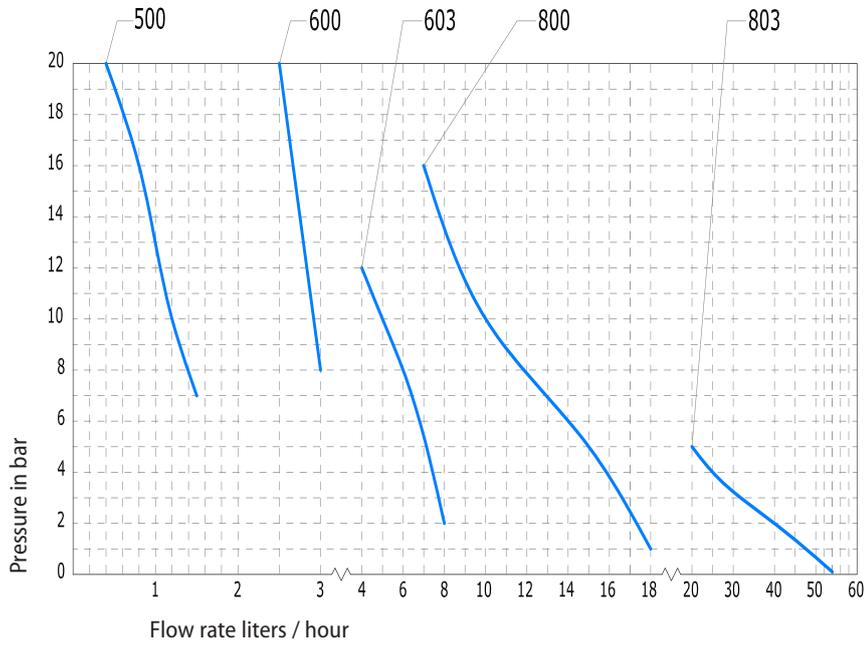
- PT100 probe input for thermal compensation

- Repetition alarm relay

- Input On-Off for remote control

- 4÷20 mA output for measure transmission

Flow Rate and Dimensional Drawings



DIMENSIONS [mm]

Model	500 600 603 800	803
A (Height)	231	
B (Width)	119	
C (Depth)	145	149
D (Max Height)	257	

Installation Kit

The pumps are supplied complete with the indispensable accessories for their correct installation as: Foot filter, Screws, Fixing bracket, Injection valve, 2m PE tube (delivery), 4 m PVC tube (suction), Seal in FPM and EPDM



Wall-mounted bracket



Injection valve (PVC) (G3/8", G1/2")



Foot valve (PVC)



Suction tube (PVC, 2m, 8x12)



Delivery tube (PVC, 3m, 8x12)



Vertical mounting bracket

Pumps Identification

Version		
AKS	Analogue	Analogue dosing pump with constant flow rate manually adjustable
AKL		Analogue dosing pump with constant flow rate manually adjustable and level control input
APG		Analogue dosing pump with constant flow rate manually adjustable, with proportional flow rate according to an external analog (4÷20 mA) or digital signal (water meter)
TPG	Digital	Digital dosing pump with constant flow rate manually adjustable, with proportional flow rate according to an external analog (4÷20 mA) or digital signal (water meter)
TPR		Digital dosing pump with pH/Redox control meter built in

Model	Pressure [bar]	Flow rate [L/h]	Frequency max [stroke/min]	Ø Connections IN / OUT [mm]	Stroke capacity [cc/stroke]	Consumption [kW]	Weight [Kg]	Wooden box size (LxWxH)
500	20	0,4	0,06	4 / 7	120	12,2	3,4	285x185x240 (mm)
	16	0,8	0,11					
	10	1,2	0,16					
	6	1,5	0,21					
600	20	2,5	0,35	4 / 6 suc. 4 / 7 dis.	120	12,0	3,9	
	18	3	0,42					
	14	4,2	0,58					
	8	3	0,97					
603	12	4	0,42	4 / 6	160	12,2	3,4	
	10	5	0,52					
	8	6	0,63					
	2	8	0,83					
800	16	7	0,38	4 / 6	300	23,9	4,4	
	10	10	0,55					
	5	15	0,83					
	1	18	1,00					
803	5	20	1,11	8 / 12	300	22,9	4,4	
	4	25	1,39					
	2	40	2,22					
	0,1	54	3,00					

Power supply

N	100÷240 Vac	50-60 Hz
O	24÷48 Vac (For AKL 603 series only. For APG 603 : 30-48Vac/Vdc)	

Liquid end material

H	Pump head : PVDF	Balls : Ceramic	Diaphragm : PTFE
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Installation Kit

H	PVDF
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Seals

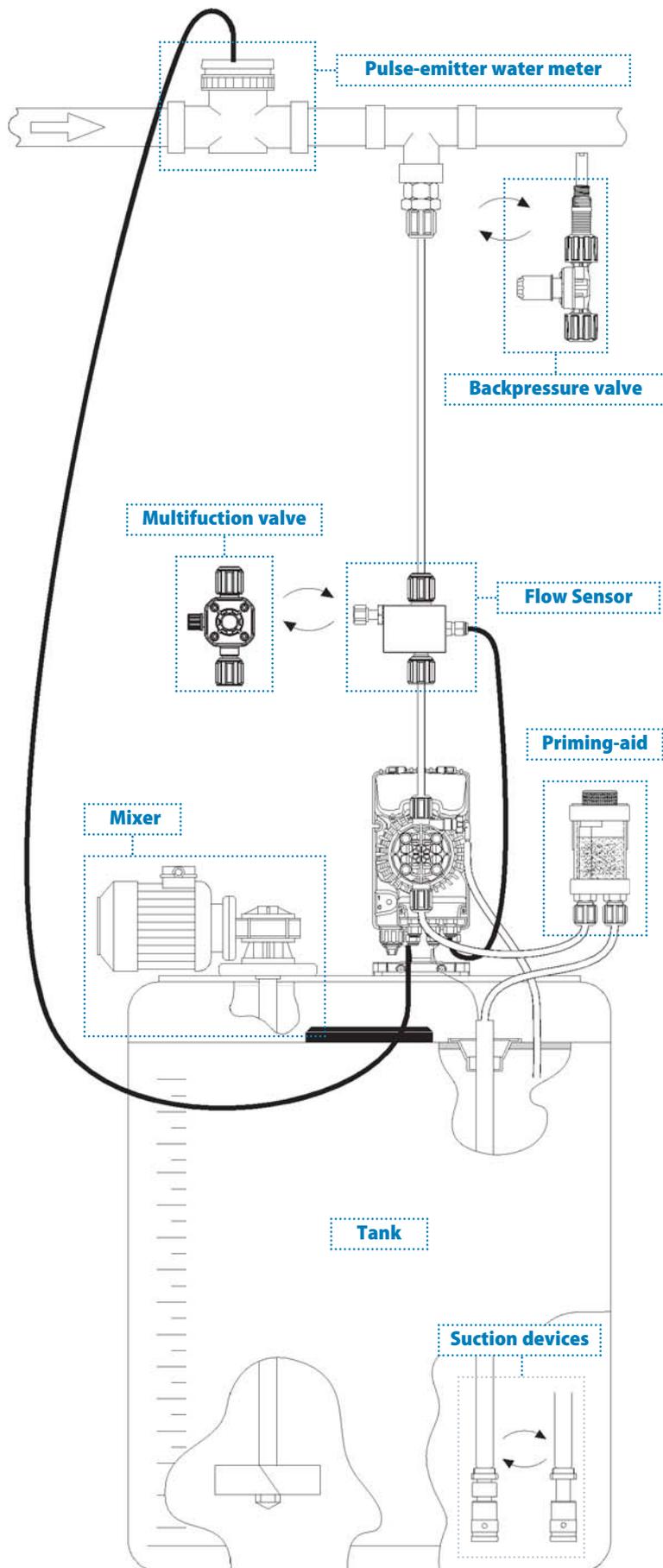
0	FPM
1	EPDM

Options

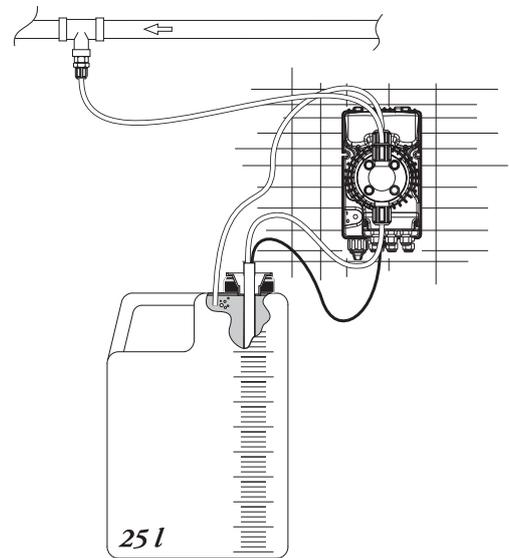
800	Standard
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AKL | 603 | N | H | H | 0 | 800

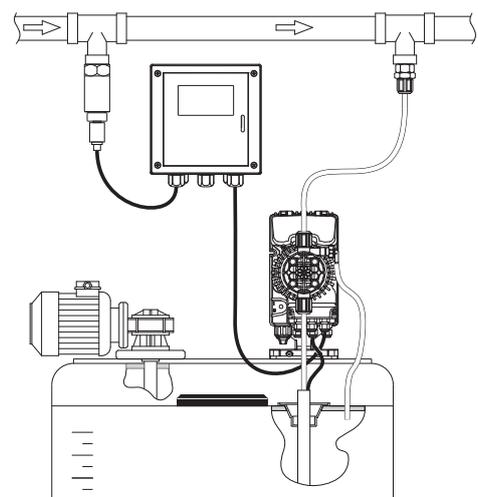
Typical Installation



Degassing head installation



With control instrument



Kompact Series

Kompact is a simple solenoid dosing pump, operating with a micro-processor to manage the dosing.

Its external enclosure has an IP65, which guarantees a protection versus splashing water and aggressive environments.



Dosing Mode

The pump head has a manual priming valve.

The flow rate is manually or automatically (by signal input) adjustable from 0 (pump stop) to 100% of the max flow rate. Moreover it is equipped with the low level alarm to stop or not the pump.

Pumps Head

BODY	PVC
BALL VALVES	Ceramic
SEAT VALVE	FPM/EPDM
DIAPHRAGM	PTFE

The parts in contact with the liquid have been chosen in order to guarantee perfect compatibility with most chemical normally in use.

Long life diaphragm

Tested to give 5 years working life



- The advanced design and manufacturing process allows the diaphragm to have a unique life expectancy
- Made of pure solid PTFE, the diaphragm is compatible with most chemicals
- The diaphragm has been tested over a period of 5 years giving superior results
- Routine diaphragm replacement is no longer a requirement

Graphic display and Keypad

Kompact digital is programmable via keypad and 2 line x 8 digits backlit display.

Wall-mounted

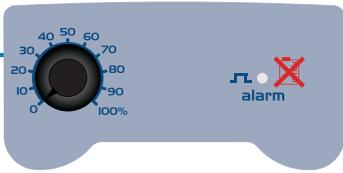
Kompact pump can be fixed on wall by fixing bracket provide with the pump or top of drums by the optional foot fixing bracket.

Kompact Analogue version



AMS Costant dosage

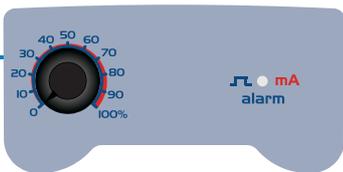
Constant flow rate manually adjustable by control dial on the front panel, Power-ON led indicator.



AML Costant dosage

Constant flow rate manually adjustable by control dial on the front panel, two flow rate range:

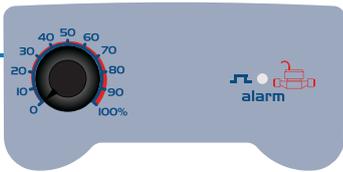
- 0÷20% with switch in P position,
 - 0÷100% with switch in C position,
- Power-ON led indicator and level control input



AMM Proportional dosage

Constant flow rate manually adjustable, proportional flow rate according to an external analogue signal (4÷20 mA), Power-ON led indicator and level control input. The two different modes are:

- **Constant** (switch in C position) The pump constantly doses the rate selected with the potentiometer.
- **Proportional** (switch in P position) The pump doses proportionally to the analogue input signal (4÷20 mA).



AMC Proportional dosage

Constant flow rate manually adjustable, proportional flow rate according to a digital pulse signal (e.g. from water meter), Power-ON led indicator and level control input. The two different modes are:

- **Constant** (switch in C position) The pump constantly doses the rate selected with the potentiometer.
- **Proportional** (switch in P position) The pump doses proportionally to the digital input signal (Division mode 1 : 1). Maximum input frequency: 80Hz.

Installation Kit

The pumps are supplied complete with the indispensable accessories for their correct installation as:

Foot filter, Screws, Fixing bracket, Injection valve, 2m PE tube (delivery), 4 m PVC tube (suction), Seal in FPM and EPDM



Wall-mounted bracket



Suction tube (PVC, 2m, 8×12)



Delivery tube (PVC, 3m, 8×12)



Injection valve (PVC) (G3/8", G1/2")



Foot valve (PVC)



Vertical mounting bracket

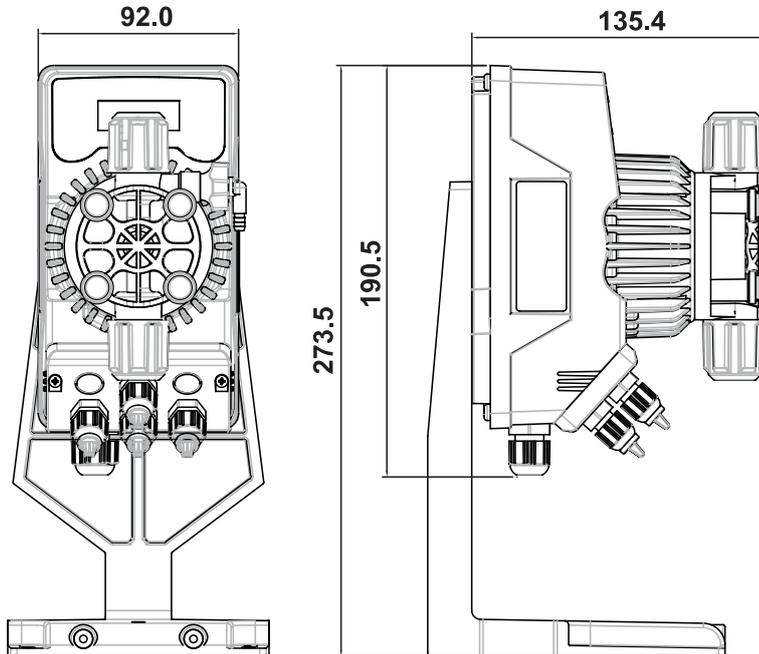
Technical specifications

Model	Flow rate [l/h]	Pressure [bar]	Stroke capacity [cc/stroke]	Ø Connections IN / OUT [mm]	Frequency max [stroke/min]	Weight [Kg]	Wooden box size (LxWxH) [mm]
200	5	8	0,52	4 / 6	160	2,4	285x185x180
	3	10	0,31				
	9	2	0,93				
201	1	7	0,10	4 / 6	160	2,4	285x185x180

Pump Head materials	Type	Body Pump	Balls	Seat valve	Diaphragm
	P	PVC	Ceramic	FPM - EPDM	PTFE

Enclosure	Materials	Protection degree	Power supply
	PP	IP65	

DIMENSIONAL DRAWINGS



TECHNICAL FEATURES

FLOW RATES	5 l/h @ 8 bar 3 l/h @ 10 bar 8 l/h @ 1 bar
POWER SUPPLY	100÷240 Vac 50/60 Hz
STROKE RATE	160 strokes/minute
ENCLOSURE	PP protection degree IP65
INSTALLATION KIT	Included

MS1 Series

Mechanical Diaphragm Metering pumps

MS1 pumps are mechanical diaphragm metering pumps featuring a spring return mechanism in an aluminium housing.

FEATURES

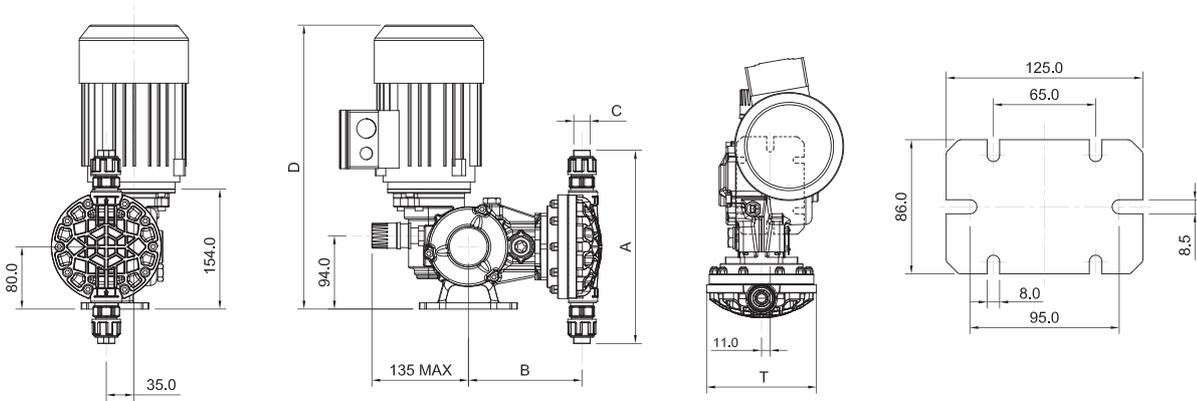
■ FLOW RATE	from 5,5 to 500 L/h
■ MAX PRESSURE	10 bar
■ STROKE RATE	58 – 78 – 116 strokes/minute
■ DIAPHRAGM DIAMETER	from 64 to 165 mm
■ MOTOR	standard 0,18 – 0,25 – 0,37 Kw (IP 55)
■ STROKE LENGTH	2 mm – 4 mm – 6 mm



TECHNICAL FEATURES

MODEL	DIAPHRAGM DIAMETER [mm]	STROKE LENGTH [mm]	STROKES RATE [Strokes/min]	FLOW RATE [L/h]	MAX PRESSURE [bar]		CONNECTIONS		MOTORS [kW]	WEIGHT [Kg]		WOODEN BOX SIZE (LxWxH) (mm)
					SS 316 PVDF	PP	SS 316	PP		SS316	PVC PVDF	
MS1A064A	64	2	58	5,5	10	10	1/4 GF	1/4 GF DN15	0,18	15	13	430x280x530
MS1A064B			78	8								
MS1A064C			116	11								
MS1A094A	94	2	58	20	10	10	3/8 GF	3/8 GF DN15	0,25	16	14	
MS1A094B			78	26								
MS1A094C			116	40								
MS1A108A	108	4	58	60	10	10	3/8 GF	3/8 GF DN15	0,25	19	16	
MS1A108B			78	80								
MS1A108C			116	120								
MS1A138A	138	6	58	155	7	7	3/4 GF	3/4 GF	0,37	23	18	590x400x550
MS1A138B			78	220								
MS1A138C			116	310								
MS1A165A	165	6	58	230	5	5	1"GF	1"GF	0,37	27	21	
MS1A165B			78	330								
MS1A165C			116	500								

DIMENSIONAL DRAWINGS



DIAPHRAGM DIAMETER [mm]	A [mm]		B [mm]		C [mm]		T [mm]	
	PP	SS 316						
64	208	150	149	144	1/4 GF		98	
94	236	172	144	146	3/8 GF		117	120
108	248	212					131	140
138	347	258	158	157	3/4 GF		160	170
165	377	296	160		1"GF		193	190

	STANDARD		
	21	31	41
PUMP HEAD	SS 316	PVC	PVDF
DIAPHRAGM	PTFE		
SEAL	FPM		
VALVES	Ceramic		
VALVE SEATS	SS 316	PTFE	PVDF

PUMP HEAD MATERIALS

MAX DOSAGE TEMPERATURE

- PP pump head 40° C
- SS 316 pump head 90° C

FLOW RATE ADJUSTMENT

Every pump can be equipped with an electric actuator which accepts a 4÷20 mA.

M S1 A 064 B 51 A4 080

PUMP IDENTIFICATION

- OPTIONAL
- MOTOR
- PUMP HEAD MATERIALS
- STROKES
- DIAPHRAGM DIAMETER
- STROKE LENGTH
- MECHANISM TYPE
- MODEL

PS2 Series

Plunger Piston Metering pumps

PS2 pumps are plunger piston metering pumps featuring a spring return mechanism in an aluminium housing.

FEATURES

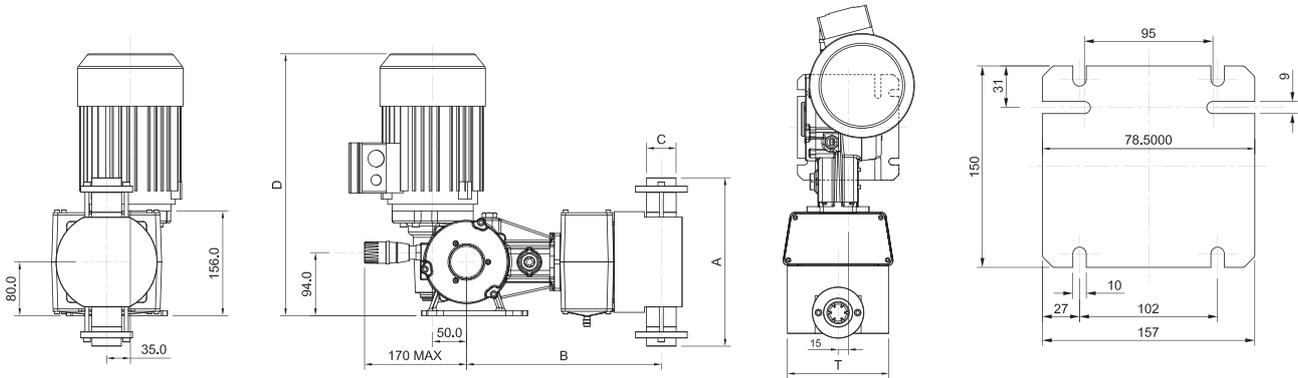
■ FLOW RATE	from 40 to 1000 L/h
■ MAX PRESSURE	20 bar
■ STROKE RATE	58 – 116 strokes/minute
■ PISTON DIAMETER	from 25 to 89 mm
■ MOTOR	standard 0,25 – 0,37 – 0,55 – 0,75 Kw (IP 55)
■ STROKE LENGTH	25 mm



TECHNICAL FEATURES

MODEL	PISTON DIAMETER [mm]	STROKES RATE [Strokes/min]	FLOW RATE [L/h]	MAX PRESSURE [bar]		CONNECTIONS		MOTORS [kW]	WEIGHT [Kg]		WOODEN BOX SIZE (LxWxH) (mm)		
				SS 316	PVC	SS 316	PVC		SS316	PVC			
PS2E025A	25	58	40	20	10	3/8 GF	3/8 GF DN15	0,25	25	23	590x400x550		
PS2E025C		116	80										
PS2E030A	30	58	55										
PS2E030C		116	112										
PS2E038A	38	58	90										
PS2E038C		116	180										
PS2E048A	48	58	140										
PS2E048C		116	284										
PS2E054A	54	58	180			15	10	1/2 GF	1/2 GF	0,55		26	24
PS2E054C		116	365										
PS2E064A	64	58	250			10	10	3/4 GF	3/4 GF	0,75		27	25
PS2E064C		116	505										
PS2E076A	76	58	365	7	7	1" GF	1" GF	0,75	29	26			
PS2E076B		116	730										
PS2E089A	89	58	495	5	5	1" GF	1" GF	0,75	34	27			
PS2E089C		116	1000										

DIMENSIONAL DRAWINGS



PISTON DIAMETER [mm]	A [mm]		B [mm]		C [mm]		T [mm]	
	SS 316	PVC	SS 316	PVC	SS 316	PVC	SS 316	PVC
25	120	147	258	258	3/8 GF	3/8 GF	68	80
30							88	100
38	160	168	268	268	1/2 GF	1/2 GF	108	120
48		196					138	148
54	173	216	273	273	3/4 GF	3/4 GF	150	160
64	202	222					138	148
76	202	244	288	288	1" GF	1" GF	150	160
89	238	256					150	160

	STANDARD	
	21	31
PUMP HEAD	SS 316	PVC
PISTON		Ceramic
PISTON SEAL	FPM	
VALVES	SS 316	Ceramic
VALVE SEATS		PVC

PUMP HEAD MATERIALS

MAX DOSAGE TEMPERATURE

- SS 316 pump head 90° C
- PVC pump head 40° C

FLOW RATE ADJUSTMENT

Every pump can be equipped with an electric actuator which accepts a 4÷20 mA.

P S2 E 064 C 31 E4 080

PUMP IDENTIFICATION

- OPTIONAL
- MOTOR
- PUMP HEAD MATERIALS
- STROKES
- PLUNGER DIAMETER
- STROKE LENGTH
- MECHANISM TYPE
- MODEL

PS1 Series

Plunger Piston Metering pumps

PS1 pumps are plunger piston metering pumps featuring a spring return mechanism in an aluminium housing.

FEATURES

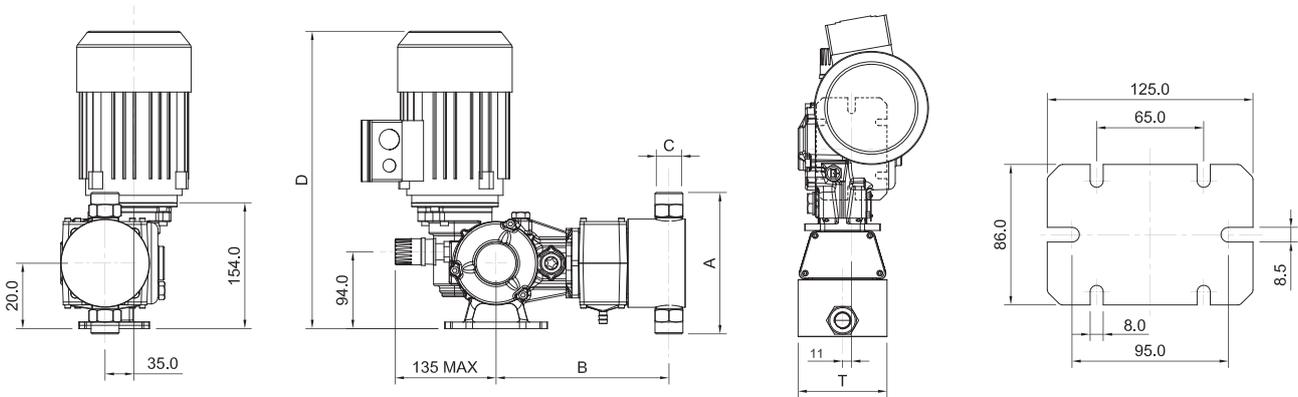
■ FLOW RATE	from 1,5 to 304 L/h
■ MAX PRESSURE	20 bar
■ STROKE RATE	58 – 116 strokes/minute
■ PISTON DIAMETER	from 6 to 64 mm
■ MOTOR	standard 0,18 and 0,25 Kw (IP 55)
■ STROKE LENGTH	15 mm



TECHNICAL FEATURES

MODEL	PISTON DIAMETER [mm]	STROKES RATE [Strokes/min]	FLOW RATE [L/h]	MAX PRESSURE [bar]		CONNECTIONS		MOTORS [kW]	WEIGHT [Kg]		WOODEN BOX SIZE (LxWxH) (mm)						
				SS 316	PVC	SS 316	PVC		SS316	PVC							
PS1D006A	6	58	1,5	20	10	1/4 GF	1/4 GF DN15	0,18	14	12	430x280x530						
PS1D006C		116	3						14	12							
PS1D011A	11	58	5						3/8 GF	3/8 GF DN15		0,18	14	13			
PS1D011C		116	10										14	13			
PS1D017A	17	58	11										3/8 GF	3/8 GF DN15	0,18	14	13
PS1D017C		116	22													14	13
PS1D025A	25	58	25			3/8 GF	3/8 GF DN15	0,18								17	14
PS1D025C		116	50													17	14
PS1D030A	30	58	35						1/2 GF	1/2 GF		0,25				19	16
PS1D030C		116	70													19	16
PS1D038A	38	58	55										1/2 GF	1/2 GF	0,25	19	17
PS1D038C		116	110													17	10
PS1D030A	48	58	85	1/2 GF	1/2 GF	0,25	19	17									
PS1D030C		116	170				10	10			19					17	
PS1D030A	54	58	110				3/4 GF	3/4 GF	0,25	20	17						
PS1D030C		116	220							8	8	20				17	
PS1D030A	64	58	152							3/4 GF	3/4 GF	0,25	21	19			
PS1D030C		116	304										6	4	21	19	

DIMENSIONAL DRAWINGS



PISTON DIAMETER [mm]	A [mm]		B [mm]		C [mm]		T [mm]	
	SS 316	PVC						
6	120	157	210	216	1/4 GF		68	80
11					147	215		
17		168	227	235				
25					196	229		
30	160	216	238	250				
38					172	222		
48								
54								
64								

	STANDARD	
	21	31
PUMP HEAD	SS 316	PVC
PISTON		Ceramic
PISTON SEAL	FPM	
VALVES	SS 316	Ceramic
VALVE SEATS		PVC

PUMP HEAD MATERIALS

MAX DOSAGE TEMPERATURE

- SS 316 pump head 90° C
- PVC pump head 40° C

FLOW RATE ADJUSTMENT

Every pump can be equipped with an electric actuator which accepts a 4÷20 mA.

P S1 D 064 C 31 B4 080

PUMP IDENTIFICATION

- OPTIONAL
- MOTOR
- PUMP HEAD MATERIALS
- STROKES
- PLUNGER DIAMETER
- STROKE LENGTH
- MECHANISM TYPE
- MODEL



Kontrol 40

Single parameter control instruments

The Kontrol 40 are single parameter controllers. These very user-friendly systems combine advanced performance and simple design. Single-parameter units are available in four different casings, ensuring perfect fit at the right price.

Kontrol 40

Parameters

- pH / ORP
- Conductivity
- Chlorine
- Chlorine Dioxide
- Flow Rate

Applications

- Waste Water
- Drinking Water
- Cooling Towers
- Boiler
- Legionella disinfection
- Reverse Osmosis
- Crate Wash
- Galvanic Process
- Dioxide Station
- CIP
- Irrigation
- Swimming Pool
- Sea water

Features

Graphic display and Keypad

Simultaneous value of the measure, Temperature and Relay status. 2-line, 16 character Alphanumeric Display. Four control keys for instrument calibration and configuration.

Enclosure Box and Power Supply

Four (4) mechanical box:
Wall mounting PP (IP65)

Panel mounting:
96x96 IP65 Front panel
48x96 IP40
Din-Rail (6 modules) IP40

Universal Power Supply
100÷240 Vac 50/60 Hz and 24Vac/dc

Manual controls

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

Measure Input

High measuring resolution with probe quality control.

Modular measuring system

Chlorine measure in sea water application

Digital Input

Voltage Input to disable all function controller output.

Current outputs

4÷20mA Galvanic isolation

One(1) programmable measurement output.

Relay Outputs

Two (2) independent function, two Set point Measure, dry contact.

Software-set alarm functions.

Routine function settings : ON/OFF, Timed or proportional

Measure range

Code	Description
pH	0 ÷ 14,00 pH
ORP	± 1500 mV
Conductivity	1 ÷ 200/10 ÷ 2000/100 ÷ 20000/200 ÷ 50000 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 0 ÷ 100°C (32 ÷ 212 °F)
Flow Rate	99 999,99 Liters/second (*)

(*) Setting by software following unit measures: l/s, l/h, m³/h, GPM.

Product line Kontrol 40 Single parameter

Code	Model	Description
SPR040	Kontrol 40	for pH/ORP values
SCD040	Kontrol 40	for Conductivity value
SCL040	Kontrol 40	for Potentiostatic Chlorine value
SFX040	Kontrol 40	for Flow Rate value



Photometer System



Photometer Light

Photometer **System** Multi parameter photometer instrument

The Seko Photometer System 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.

Photometer System

Parameters

- pH / ORP
- Free and Total Chlorine
- Combined Chlorine by software

Applications

- Waste Water
- Drinking Water
- Boiler
- Legionella disinfection
- Crate Wash
- Dioxide Station
- Irrigation
- Swimming Pool
- Sea water

Features

The unit has the following innovative features:

- New hydraulic device with water drain dedicated to chemical reagents used for chlorine measure. Therefore it allows to reduce the water amount used for chlorine measure. The water dedicated to pH and Redox probes it may be to restored in the compensating basin, while only the water with chemical DPD reagent will be discharged in special tank to observes the local law.
- Fast installation thanks to quick coupling for Inlet and Outlet water.
- Optical unit assure a High accuracy Chlorine measure with a 520 nm sensor and LED light device.

Moreover:

- The Peristaltic pump with 4 mechanical support assure chemical reagent saving.
- Reagent level controlled by level probes.
- The chemical powder to dilute before the use is a good solution safety to keep it ready in every place.

Graphic display and Keypad

LCD STN 340x128 backlighted.

Visualisation of: measurements (simultaneous up to 4 values + trend line), digital outputs condition, storage condition, malfunctions.

Using keypad with 4 embossed keys.

Internal data logger

4 Mbit flash memory equal to 16000 records

Recording interval
00:00 to 99:99 min

Type: circular / fill

Display: table / graph
(1 for each parameter).

Analogue outputs

1 for each measured parameter
(excluding comb. chlorine)

Type: 0.00 / 4.00 to 20.00 mA
Galvanically isolated

Programming limit:
lower / upper / reverse

Maximum load: 500 Ohms - Alarm
output NAMUR compliant 2.4 mA (with
4÷20 mA range)

PID control function can be activated
on the pH output

Set point relay outputs

Two (2) for Primary measure + for pH
measurement (only mod. 4001-3)

Programming for Hysteresis, working
time and Daily hourly activation not
subject to the measured value:

- ON - OFF
- 00.00 to 05:00 ppm Cl 2
- 00:00 to 14.00 pH

Working time: 000 to 999 sec.

Relays 5A resistive
load up to 230 Vac

Alarm Relay Output

Two (2) for Primary measure
+ Two (2) for pH measurement
(only mod. 4001-3)

Programming for Hysteresis, working
time and Daily hourly activation not
subject to the measured value:

- ON - OFF
- 00.00 to 05:00 ppm Cl 2
- 00:00 to 14.00 pH

Working time: 000 to 999 sec.

Relays 3A resistive load up to 230Vac

Measure range

Code	Description
pH	0 ÷ 14,00 pH
ORP	± 1500 mV
Chlorine (Photometric chamber)	0 ÷ 5,00 ppm (*)
Temperature	with PT100/PT1000 0 ÷ 100°C (32 ÷ 212 °F)

(*): DPD Method

Product line Photometer Light Multi parameters

SPL3CL	Photometer	Free Chlorine, pH and Redox
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Product line Photometer System Single parameter

Code	Model	Description
SPT2CL	Photometer	Free Chlorine
SPT2CT	Photometer	Total Chlorine

Product line Photometer System Multi parameters

SPT3CL(*)	Photometer	Free Chlorine and pH
SPT4CL	Photometer	Free Chlorine, pH and Redox
SPT5CL	Photometer	Free, Total and Combined Chlorine, pH, Redox

(*): Sea water application on demand code **SPT3CLMW0001**

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	
SPH-1 1.5M		Code 9900105001						pH	Probes
2÷12	50 µS/cm	0÷60°C	0÷4 bar	Epoxy	Glass	GEL	1 Ceramic	1,5m cable + BNC	Standard Ø 12
SPH-1 5M		Code 9900105088						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-1-1.5M		Code 9900105031						Redox	Probes
±1000 mV	-	0÷60°C	0÷4 bar	Epoxy	Platinum wire	GEL	1 Ceramic	1,5m cable + BNC	Standard Ø 12
SRH-1-5M		Code 9900105089						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

Conductivity Probes

The **seko** 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.

Measurement of conductivity is performed by suspending the two metallic electrodes of the probe in the solution to be measured. The passage of the current between the two electrodes indicates the electrical resistance of the liquid, and therefore its conductivity.

The measurement is influenced by the temperature. In saline solutions, measurement variations of 2% / °C can occur. This variation can even reach 7% / °C. Therefore, conductivity probes without temperature sensors should only be used if the solution being tested is maintained at a temperature between 15°C and 25 °C, restricting the potential for error to 10%.

Note All the models are guaranteed for a maximum pressure of 6 bars.



C-K1 PT

Field Application:

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

Features:

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

Without temperature sensor



CT-K5

Field Application:

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

Features:

- 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)



C-K10/5 /1

Field Application:

- Waste Water
- Drinking Water
- Cooling Towers
- Irrigation

Features:

- Costant Cell:
 - 0,1 cm⁻¹ or K=10
 - 0,2 cm⁻¹ or K=5
 - 1,0 cm⁻¹ or K=1
- Body material: PVC (60°C)
- Electrodes material: Stainless steel 316L
- Mechanical Connection: ½ Gas M Pvc

Without temperature sensor



CT-K10

Field Application:

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

Features:

- 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)



CT-K1

Field Application:

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

Features:

- 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)

Measure range

Measurement range	Constant [C-K]	Temperature range	Pressure range	Body material	Mounting Process	Cable
C-K10	Code 9900101012			Without temperature Sensor		
0,01÷500µS	C=0,1 cm-1 K=10cm	60°C	6(*)	PP-AISI 316	1/2" G.M.	5 m
C-K5	Code 9900101011			Without temperature Sensor		
0,1÷1000µS	C=0,2 cm-1 K=5cm	60°C	6(*)	PP-AISI 316	1/2" G.M.	5 m
C-K1	Code 9900101010			Without temperature Sensor		
1÷5000µS	C=1 cm-1 K=1cm	60°C	6(*)	PP-AISI 316	1/2" G.M.	5 m
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 (**)

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.

Conductivity Probes



CT-K1 G

Field Application:

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

Features:

- Constant Cell: 1 cm^{-1} or $K=1$
- Body material: PVC (60°C)
- Electrodes material: Graphite
- Mechanical Connection: $\varnothing 12 \text{ mm}$

With temperature sensor (PT100)



CT-K1-SS

Field Application:

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

Features:

- Constant Cell: $0,1 \text{ cm}^{-1}$ or $K=10$
- Body material: PVDF (80°C)
- Electrodes material: Stainless steel 316L
- Mechanical Connection: $\frac{3}{4}$ Gas M PP

With temperature sensor (PT100)



CT-K1-GR

Field Application:

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

Features:

- Constant Cell: $0,1 \text{ cm}^{-1}$ or $K=10$
- Body material: PVC (60°C)
- Electrodes material: Graphite
- Mechanical Connection: $\frac{1}{2}$ Gas M PVC

With temperature sensor (PT100)

Measure range

Measurement range	Constant [C-K]	Temperature range	Pressure range	Body material	Mounting Process	Cable
CT-K1-G	Code 9900101124					
5÷20000µS	C=1 cm-1 K=1cm	60°C	6(*)	PVC Graphite	PG 13,5 mm	7 m
					(PT100) With temperature Sensor	
CT-K1-SS	Code 9900316009 (5m) 9900316010 (10m)					
1÷20000µS	C=1 cm-1 K=1cm	100°C	6(*)	PTFE	1" G.M.	5 m or 10 m
					(PT100) With temperature Sensor	
CT-K1-GR	Code 9900316028 (5m) 9900316029 (10m)					
1÷20000µS	C=1 cm-1 K=1cm	50°C	6(*)	PVC	1/2" G.M.	5 m or 10 m
					(PT100) With temperature Sensor	

(*) 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.

Conductivity Probes

Inductive Probes

The S411/IND series of inductive sensors has been engineered and developed to produce an electrode that is very powerful but at the same time competitive. The result has been obtained by moulding the sensor made using polypropylene reinforced with fibreglass.

This sensor offers all the advantages of the inductive cond. measurement method, including the absence of passivation of the conventional conductivity electrodes. All the sensors in the S411/IND range are temperature-compensated, and are also designed for inline, submersion or tank installation.



S411/IND



S411/IND/E



S411/IND/T IN



S411/IND/T

Measure range

Inductive Probes

Inductive Probes	SENSOR S411/IND
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	IP67
Materials	PVC with Viton gaskets
Operating temperature	-5 to 60 °C (without freezing)
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	

Inductive Probes

Dissolved Oxygen Probes



Dissolved Oxygen Probes

OXYSENS®

The OXYSENS® is an electrochemical oxygen sensor designed for applications in water, e.g. waste water treatment, swimming pools or fish farms. It is easy to maintain, because the membrane and the electrolyte don't need to be replaced. The response time of the OXYSENS® is fast, it is almost independent of flow and insensitive to soiling.



Dissolved Oxygen 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 re-calibration. 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...).

Measure range

Dissolved Oxygen Probes	OXYSENS®	S423/C OPT (35mm)
Measuring method	Measurement of the electrical current affected by the partial pressure of oxygen	Optical measure by luminescence
Measurement range	40ppb÷40ppm	0,00 to 20,00 mg/L / 0,00 to 20,00 ppm / 0-200% [Resolution 0,01]
Accuracy	< 0.5% [relative to current in air]	± 0,1mg/L / ±0,1 ppm / ±1%
Response time	98% Max. 60 s at 25 °C	90% of the value in less than 60 seconds
Required flow	≥ 0.03 m/s	No necessary move
Temperature sensor	NTC 22 kOhm	CTN
Storage temperature	-10÷60°C	-10÷60°C
Temperature range	0÷60°C	0÷50°C
Pressure range	0÷4 Bar	0÷5 Bar
Body material	Stainless steel 1.4435, silicone, EPDM	Stainless Steel INOX 316L
Membrane material	OPTIFLOW	No membrane
Reference electrolyte	Silver platinum combination	No electrolyte
Electrical connection	5 m cable	10 m cable
Mechanical mounting	PG 13.5	35mm
Measuring method	Measurement of the electrical current affected by the partial pressure of oxygen	Optical measure by luminescence
Signal interface	-	Modbus RS-485 (standard) and SDI-12 (option)
Polarization voltage	-670 ± 50 mV	5 to 12 volts
Application fields	Water applications: Waste water treatment, swimming pools, fish farms; composting facilities	Urban wastewater treatment, industrial effluent treatment, surface water monitoring, drinking water
	Code 9900316005	Code 9900105091 35mm

Flow Sensor



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 magnetometers 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.

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-Cbody:	PVDFbody:	Brass&SSbody:			16 bar - 25°C 8.6 bar - 70°C		
	10 bar - 25°C 1.5 bar - 80°C	10 bar - 25°C 1.5 bar - 100°C	25 bar - 120°C 25 bar - 100°C					
Materials	Sensor body:	O-rings:	Rotor:	Shaft:	Bearings:	Sensorbody:	O-rings:	Electrodes:
	CPVC or PVDF or 316LSS	EPDM or FPM	ECTFE (Halar [®])	Ceramic (Al ₂ O ₃)	Ceramic (Al ₂ O ₃)	316L SS PVDF	EPDM or FPM	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		

Potentiostatic 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.
- Calibration of the probe is guided by the **Kontrol CL500** instrument .



High pressure Probe sensors

Potentiostatic Probes

Measure range

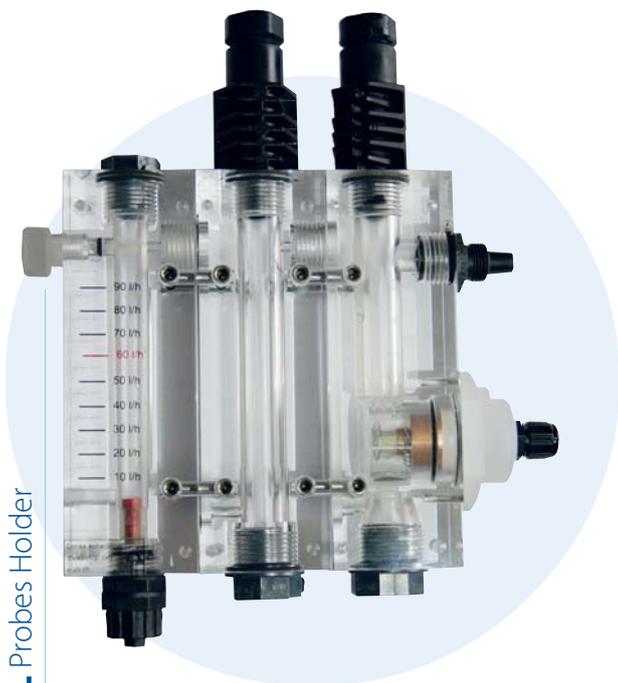
Models	F-CL 1	F-CL 2	F-CL 3	F-CL 4	F-CL 5	F-CL 6	F-CL 7	F-CL 8	F-CL 9	F-CL 10	F-CL 11
Measure range	0÷10 ppm			0÷200 ppm	0÷2 ppm	0÷1 ppm	0÷5 ppm	0÷1 ppm	0÷5 ppm	0÷0,5 ppm	0÷5 ppm
pH range	4÷8 pH	4÷12 pH	4÷11 pH	4÷8 pH		5÷9 pH				4÷8 pH	4÷8 pH
Response time	1 minutes - 90% of measure (100% of measure 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	9900101141	9900101142	9900101146	9900101148	9900101149	9900101150	9900101152	9900101153	9900101159	9900101173

(*) with Snap-Ring

F-CL 2 • F-CL 3 • T-CL 1 can be used in sea water application with special electrolytes

and **Modular probe** holder

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]

F-CL12	F-CL13	T-CL 1	T-CL 2	D-CL	D-CL 2	D-CL 3	PAA 1	H ₂ O ₂ 1	H ₂ O 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 Probe

CONTROL AND MEASURING INSTRUMENTS