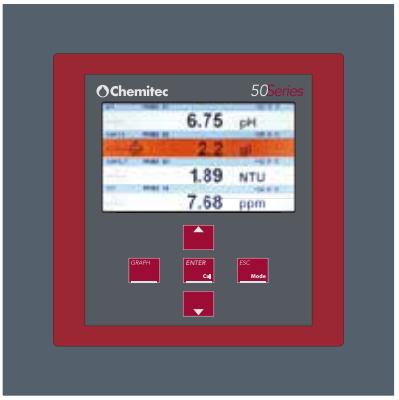
Chemitec

Water Monitoring Solutions



Product Catalogue

Chemitec
Water Monitoring Solutions

About us

Founded in 1984 in Florence (Italy), Chemitec operates in more than 80 countries and expanded its international presence by opening a subsidiary in Shanghai (China) in 2015.

Chemitec has a vast range of experience and expertise in water treatment and liquid chemical analysis. Chemitec designs, manufactures and distributes level and flow rate detection systems, analyzers and probes to industries worldwide.

With a reputation for quality and service, we specialize in developing highly-specific, customized and user-friendly products for our discerning clients.


Florence 1984


Shanghai 2015

Vision:

To lead the world in high-tech on-line water and liquid analysis

Our aim is to be the worldwide leader in on-line water and liquid analysis through new specific sensor development, ensuring an international presence, a customer-focused approach and a philosophy of continuous appraisal and improvement.

Mission:

To turn knowledge into innovation

Everyone at Chemitec is driven by a single purpose - to translate our knowledge and expertise into new and innovative products using our probe/sensor technology that not only fulfils customer requirements but provides user-friendly, cost-effective water-monitoring solutions.

Quality Assurance & Quality Control

As a quality-oriented company, Chemitec monitors and evaluates all aspects of design, planning (MRP), production (Kaizen) and after-sales support in order to guarantee customer satisfaction.

Quality standards

Chemitec develops its products according to the most demanding international quality standards. The company's quality management system UNI EN ISO 9001:2015 is certified by DNV (Det Norske Veritas).

Chemitec's dedication to maintaining the highest standards in health and safety and environmental management is reflected in ISO 14001 and ISO 45001 certification from DNV (Det Norske Veritas).

Research & Development

Research and development is at the heart of everything that we do at Chemitec.

With over 35 years of R&D experience in the field, uncompromising quality and premium components, our team of highly-skilled engineers develop all of our products in accordance with individual customer specifications, ensuring optimum performance and reliability at the right cost.

Committed to customer satisfaction

Chemitec provides an experienced, professional and comprehensive technical consultancy service. We are focused on the individual needs of each customer, from the preliminary stages of the project through to design, manufacture and after-sales technical support.

Customer needs
our priority

Customer satisfaction
our target

Application fields

Potable water

Wastewater

Industrial water

Cooling towers

Swimming pools

Fish farming

Chemical industry

Pulp & paper

Food & beverage

Clean In Place (CIP)

Electroplating

Irrigation

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Controllers & Sensors

Selection Table For Controllers & Sensors

		Applications				Controllers			
		Water treatment	Depuration	Industry	Swimming pool	50 Series	46 Series	30 Series	80 Series
Parameters	**Probe models**								
pH	S401 DIG/N	•	•	•		•			•
	S401 DIFF		•	•		•			•
	S401 VG	•	•	•	•	••	•	•	•
	S401 LC	•		•		••	•	•	•
	S401 VGC	•	•	•		••	•	•	•
	S401 HTAJ	•	•	•		••	•	•	•
	S408 MEC/POL Plus		•	•		••	•	•	•
ORP (redox)	S406 DIG/N	•	•	•		•			•
	S406 DIFF		•	•		•			•
	S406 VG	•	•	•	•	••	•	•	•
	S406 POL/S406 OXT		•	•		••	•	•	•
	S406 HTAJ	•	•	•		••	•	•	•
Conductivity	S411 DIG	•		•		•			•
	S411 DIG/N	•		•		•			•
	S411 IND DIG	•	•	•		•			•
	S411S	•				••	•	•	•
	S411/S411 C	•		•		••	•	•	•
	S411 D12	•		•		••	•		•
	S411 TEF C	•	•	•		••	•	•	•
	S411 U/P/PS	•		•		••	•		•
	S411 IND/S411 IND HT	•	•	•		••			•
Disinfectants	S494 Cl_2/S494 Cl_2 ORG	•	•	•	•	••	•		•
	S494 ClO_2	•		•		••	•		•
	S494 O_3	•		•		••	•		•
	S494 CLT	•		•	•	••	•		•
	S494 Br				•	••	•		•
	S494 PAA	•		•		••	•		•
	S494 ClO_2^-	•				••	•		•
	S494 H_2O_2	•		•		••	•		•
	S494/CL_2/HT70	•		•		••	•		•
Dissolved oxygen	S423C/OPT	•	•	•		•	•		•
	S423/C/OPT/T	•	•	•		•	•		•
Turbidity	S461 LT	•		•	•	•	•		•
	S461 N	•	•	•		•			•
	S461 TN	•	•	•		•	•		•
Suspended solids	S461S	•	•	•		•	•		•
	S461ST	•	•	•		•			•
Nutrients	S470/N NH_4^+	•	•			•			•
	S470/N NO_3^-	•	•			•			•
	S470/NO_3^- NH_4^+	•	•			•			•
Organic substances/ colour	S480 NO_3	•	•	•		•			•
	S480 SAC_{254}	•	•	•		•			•
	S480 PAH*	•	•	•		•			•
	S480 COLOR	•	•	•		•			•
	S480 CHL	•				•			•
	Fluoruro	•							•

* Polycyclic Aromatic Hydrocarbons

•• Through digitizer

Multi-parametric plug & play control unit for up to 12 channels

Chemitec has developed the 80 Series for industrial applications with attention to the water treatment and treatment markets in the swimming pool sector. It is equipped with analogue and digital outputs to be able to control pumps and actuators in a proportional way (PID and PWM).

The 80 Series has an easy-to-use interface and is equipped with a touch-screen that makes control even easier and more intuitive.

80 Series

Multi-parametric control unit

Up to 12 parameters visible on the large display and saved in the internal data logger can be viewed graphically on the screen or downloaded through the internal Wi-Fi module. Available up to 4 mA outputs with PID control for proportional dosages, 8 relays. Modbus RS485 serial protocol.

The large 7 "RGB 800x480 colour display allows the display of all parameters on a single screen. The ease of use of the interface makes it easy to calibrate the measurements and set the dosage parameters. In the absence of flow, the presence of a dedicated digital input allows immediate blocking of the dosage and a signal is sent through an alarm relay.

All information can be viewed on smartphone or PC through the Wi-Fi module integrated in the control unit.

Measures

- pH/ORP
- Dissolved Oxygen
- Conductivity
- Turbidity
- Suspended Solids
- Chlorine
- Chlorine Dioxide
- Ozone
- Chlorites
- Hydrogen Peroxide
- Peracetic Acid
- Nitrates (ISE)
- Nitrates (UV)
- Organic Substances (UV)
- Colour (UV)
- PAH*/OIL (UV-Fluorescence)

*Polycyclic Aromatic Hydrocarbon

Alarm screen

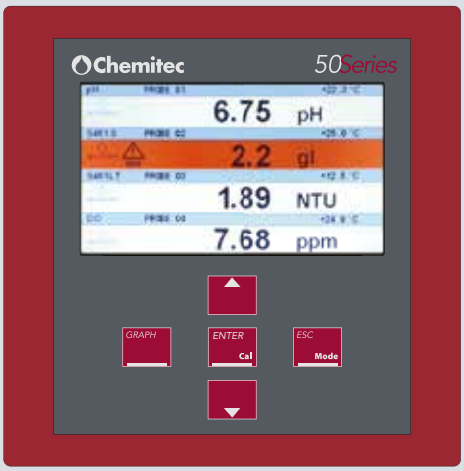
Measurement screen

80 Series
Multi-parametric control unit

Hardware specifications, software and functions 80 Series

Display	7" TFT LCD graphic colour display 800x480 RGB with resistive touch 16:9
Languages	Italian, English, French, German, Spanish, Russian
Wi-Fi	Internal for viewing and setting measures and downloading data via smartphone and PC
Data logger	32Mbit flash memory, with clock and graphs
Recording method	Circular (F.I.F.O.) or filling
Display of stored data	In tabular and graphical form with indication of maximum. Minimum and average values of the period recorded. Zoom function
PID control	Settable functions P [Proportional] ; PI [Proportional - Integral] and PID [Proportional - Integral - Derivative]
Activation	On analogue or digital output
Proportional range	0...500%
Time	Integral and/or derivative time 0:00...5:00 min
Analogue outputs	Eight (8) programmable; 0/4...20 mA; galvanic separation ; opto-isolator 1KV; maximum load 500 Ohm; freely programmable output limits within the measuring ranges.
Alarm output	NAMUR alarm output; 2.4 mA [with 4...20 mA range].
Alarm/Wash	Two (2) Alarm: instrument fault, minimum/maximum value, delay set point delay (live check); delay time; Set point disablement in case of alarm: Enable / Disable Washing: programming of the interval (minimum 15 minutes) and of the duration from 00:00...24:00 hh:mm; during the washing phase they are frozen
Digital inputs	Two (2) for dosage disabling or washing cycle activation Input voltage 24 Vdc /ac Absorption 10mA max
Serial outputs/ports	Programmable RS485 for set-up and data remote real time or stored data download (through dedicated SW)
Baud rate	1200...38400
Communication protocol	Modbus RTU; on request PROFIBUS DP Slave, CAN open, Ethernet, Devicenet, Modbus TCP, Profinet
Manual commands	Possibility of simulation of all analogue and digital outputs via keyboard
Power supply	90 - 240 Vac/dc 47- 63 Hz [24Vac/dc on request]
Transformer isolation	4KV
Average power consumption	< 20W
Electrical protection	EMI / RFI CEI-EN55011 - 05/99
Mounting	Wall
Container	Red ABS
Dimensions	(W x H x D) 250 x 160 x 116 mm
Mechanical protection	IP 66
Weight	1 Kg
Working temperature	0...50°C
Humidity	10...95% non-condensing
Storage and transport	-25...65°C

Multi-parametric plug & play control unit for digital sensors



Complete and flexible system for a wide range of applications in water treatment with easy to use software and automatic recognition of sensors: available in three configurations, up to two (2), four (4) and eight (8) simultaneous measurements, freely selectable.

Equipped with two RS485 serial ports: one (1) for sensors with RS485 digital interface and Modbus RTU protocol and one (1) opto-isolated for the connection with the communication devices (setup computer, remote control terminals etc.) of the local networks.

Incorporates a real-time clock which allows the software to archive the data chronologically to the flash memory also used for storing LOG event files.

50 Series

User Interface (HMI)

Programming keypad with 5 bubble-keys with:

- CAL key for direct access to the calibration menu
- GRAPH/USB key for direct access to the measure graphs and for data download to USB pendrive
- MODE key for self-recognition of sensors

Graphic TFT colour LCD resolution 480x272 visible area 95x93mm which allows the simultaneous display of digital measurements

Software & functions

Internal Data Logger (flash 64 Mbit) with the possibility of recording up to 250,000 records, graphical and tabular display. Data download on pendrive USB or via RS485 and dedicated SW C_NET.

Programmable analogue outputs for repeating measurements, PID control and temperature; with the first and the second set on the measurement of the same parameter, the third can be set as the average of the other two.

Digital output relays to adjust set points, instrument anomaly alarm, probe washing or temperature set point.

Analogue Input for perturbative functions or engineered display of additional measuring.

Digital Input for disabling dosage.

Connectable to the whole range of Chemitec digital sensors and expandable to the traditional electrodes/probes through AD Series digitizers.

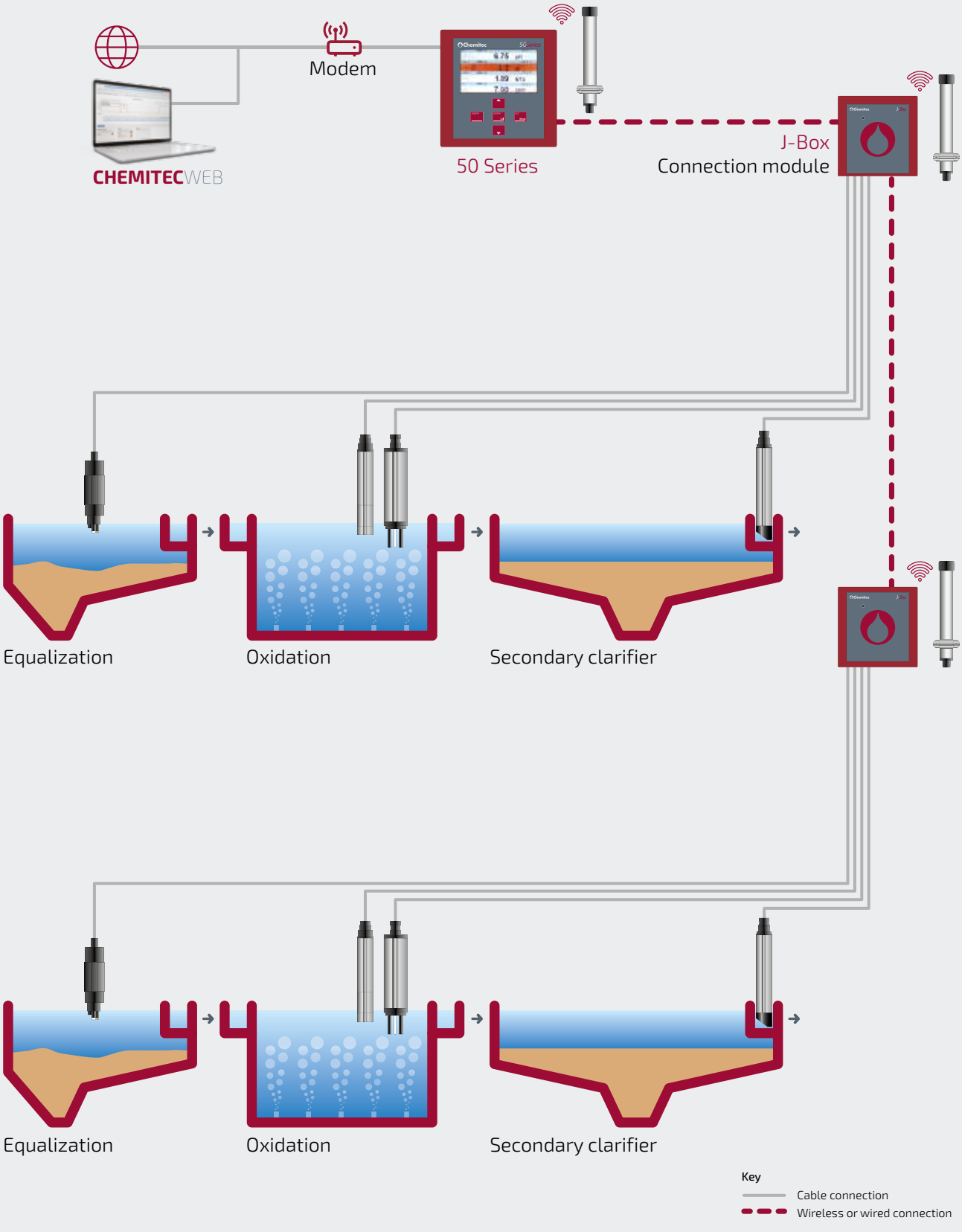
Measures

- pH/ORP
- Dissolved Oxygen
- Conductivity
- Turbidity
- Suspended Solids
- Chlorine
- Chlorine Dioxide
- Ozone
- Chlorites
- Hydrogen Peroxide
- Peracetic Acid
- Nitrates (ISE)
- Nitrates (UV)
- Organic Substances (UV)
- Colour (UV)
- Chlorophyll
- PAH*/OIL (UV-Fluorescence)

*Polycyclic Aromatic Hydrocarbon

50 Series

Possible layout up to 8 sensors



Plug & play multi-parametric instrument

Hardware specifications, software and functions 50 Series

Display	Graphic TFT colour LCD
Resolution	480 X 272 (visible area 95x93)
Languages	Italian, English, French, German, Spanish, Russian
Keypad	5 bubble-keys [6] [5] single keys and [GRAPH/USB] [ESC/MODE] [ENTER/CAL] keys with double functions available
Data Logger	Internal Flash 64Mbit Memory up to 250,000 records with a recording interval of 15 sec up to 120 minutes
Recording method	Circular (F.I.F.O.) or Filling
Display of stored data	In tabular and graphic form, with indication of maximum, minimum and average values of the selected period. Zoom function.
PID Control	Settable functions P [Proportional] ; PI [Proportional – Integral] and PID [Proportional – Integral – Derivative]
Activation	On analogue or digital output
Proportional range	0…500%
Time	Integral and/or derivative 0:00…5:00 min
Analogue outputs	Four (4) programmable ; 0/4…20 mA ; Galvanic separation ; 1KV Optoisolator ; Maximum load 500 Ohm ; Output limits user programmable between measuring ranges
Alarm output	NAMUR ; 2.4 mA [with range 4…20 mA]
Digital outputs	Six (6) ; Switching relays usable as NO ; Maximum resistive load 3A at 230Vac
Set point (4)	Working range setting (Hysteresis/direction) ; pause/working time setting 000…999 Seconds ; PID Control ; Pulse frequency or PWM
Alarm/wash (2)	Alarm: Instrument failure, min/max value, set point delay, permanence time (live check) ; Delay time ; Set point disabling (in case of alarm): Enable/Disable Wash: Programmable interval (minimum 15 minutes) and duration between 00:00…24:00 hh:mm; during the washing phase, all digital and analogue outputs are frozen

Hardware specifications, software and functions 50 Series

Digital inputs (2) for free contact	To disable dosing or activate wash cycle
Power consumption	5mA max
Absorption	10mA max
Serial ports/outputs	RS485 programmable for set-up and real time data acquisition from remote or download stored data (using dedicated SW)
Baud rate	1200...38400
Communication protocol	Modbus RTU ; on request PROFIBUS DP SLAVE, CAN open, Ethernet, Devicenet, Modbus TCP, Profinet
Manual controls	Keyboard can be used to simulate all analogue and digital outputs
Power supply	90...240 Vac/dc 47– 63 Hz [on request 24Vac/dc]
Transformer isolation	4KV
Power consumption	< 6W
Electrical protection	EMI / RFI CEI-EN55011 – 05/99
Mounting	Wall
Housing material	ABS Gray RAL 7045
Dimensions (L x H x P)	144 x 144 x 122.5 mm
Mounting depth	122.5 mm
Mechanical protection	IP 66
Weight	1 Kg
Operating temperature	0...50°C
Humidity	10...95% non-condensing
Storage and transport	-25...65°C

Communication protocol

Modbus RTU (standard) for set-up, real time data communication or download of the stored data through C_NET dedicated software

Upon request PROFIBUS DP ; CAN open; Ethernet; Devicenet; Modbus TCP ; Profinet

Single or double channel control unit

The 46 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 – who has full programming autonomy – via software.

46 Series

Graphic display and keypad

128x128 pixel monochrome display with graphic icons to show digital output status, washing cycle and alarms with three-colour backlight. Simultaneous flashing values for measurement (numeric & paragraph) and temperature readings. Five control keys for instrument calibration and configuration.

Box dimension and power supply

Wall mounting ABS plastic material IP65 full box (144x144x122.5mm). Panel mounting ABS IP65 front panel only (96x96x80mm). Universal power supply 100...240 Vac 50/60 Hz. Low power supply 24...48 Vdc or 24 Vac

Current outputs with galvanic isolation

4-20mA output. Two independent programmable output measures with proportional routine regulation.

Relay outputs

Four independent relays, two set-points, remote alarm and back washing probe setting by software. On/Off, timed and proportional (PWM) routine function setting.

Solid state relay (SSR)

Dual-frequency output signal with two set-points. Snail lock fixing system. Quick connection for panel mounting version. Communication features. Wi-Fi embedded module for hotspot connectivity; RS485 serial port with Modbus protocol.

Measurements

- pH / ORP (redox)
- Conductivity
- Chlorine
- Chlorine dioxide
- Ozone
- Hydrogen peroxide
- Peracetic acid
- Chlorites
- Bromine
- Dissolved oxygen
- Turbidity
- Suspended solids
- Flow

Power supply (version 100...240 Vac)	
Electrical requirements	from 100 to 240 VAC ±10%, 8 W (note 1)
Frequency	50 to 60 Hz
Power supply fuse	Fuse glass body 5x20mm T1.25AL250V
Short circuit protection	Active

Power supply (version 24...48 Vdc)	
Electrical requirements	from 24 to 48 Vdc, or 24Vac ±20%, 8 W (note 1)
Power supply fuse	Glass body 5x20mm T1.25AL250V
Short circuit protection	Active
Reverse polarity protection	Active

Relay outputs	
RL1, RL2, RL3 and RL4	2-SPST mechanical 250 VAC/5A, 30 VCC/3 A
Relay RL1, RL2 configuration	Load activation
Relay RL3, RL4 configuration	Load activation, Probe Wash, Alarm repetition
Cycle time	1 sec to 3600 sec
Delay time	1 sec to 3600 sec
Test mode	ON, OFF

SSR outputs (solid state relays)	
SSR1 and SSR2	2-SPST 60 V, max 100 mA, Bidirectional, NPN, PNP
Resistance in ON state	5 ohm max
Leakage current in OFF state	1 uA max
SSR1 and SSR2 configuration	Pulse output
Frequency range	0 to 400 pulse/min
Pulse duration	100 msec
Test mode	0 to 400 pulse/min

Outputs 4-20 mA	
Analogue output signals	2 outputs 4-20 mA, galvanically isolated from one another and from the power supply
Measure error	± 0.01 mA
Load	max. 800 Ω
Error condition	NAMUR Alarm: OFF, 3.6 mA, 22 mA
Test mode	3 to 23 mA

Digital inputs	
REED digital input	Input for dry contact 5 Vdc, max 6 mA

Communication ports	
RS485 digital communication port	Modbus server ASCII/RTU standard protocol

Output 24 Vdc for digital probe	
Voltage	24 Vcc ±5%, max. 250 mA (note 2)
Short circuit protection	Self-resettable fuse

User interface	
Connection terminals	Removable screw terminals AWG 14 < 2.5 mm^2
Machine cycle time	ca. 1 s
Keyboard	5 tactile feedback keys
Display	Graphic LCD 128x128 or 240x128 pixels, FSTN, transflective
Display refresh	500 msec
Backlight	White, green and red with energy saving function

(note 1) Only Instrument: 8W; Instrument + 1 Digital probe: 10,5W; Instrument + 2 Digital probes: 13,5W;
(note 2) DO NOT exceed the maximum allowable current limit, RISK of damaging the apparatus

pH / ORP - conductivity control unit

Square version (96x96x65mm)
3037 for pH or ORP (redox) measurement
3022 for conductivity measurement

30 Series

User interface (HMI)

3037 – 3022

Programming keyboard with 5 bubble-keys for instrument calibration and configuration with single keys [ESC] [5] [MODE] [6] [CAL].

Graphic display with 128 by 128 pixel monochrome resolution with graphic icons to show the status of the digital output, wash cycle, alarm menu.

Software & features

Automatic temperature compensation.

Two (2) digital outputs for set point, with programmable hysteresis, or for set point delay alarm.

0/4 ... 20mA analogue output galvanically separated, programmable within the measurement range.

Solid state relay (SSR) One (1) frequency output with proportional control; Two (2) relay outputs for alarms or electrode washing.

Container and power supply

3037 - 3022

Mechanical protection IP65 front panel only; black ABS case.

Power supply 100...240 Vac 50/60 Hz.

Measure

- pH/redox
- Conductivity

30 Series
pH / ORP (redox) - conductivity control unit

Hardware specifications, software and functions 30 Series

Measurement parameters	3037	3022
pH	0...14 pH	
Resolution	± 0.10 pH	
ORP	± 2000 mV	
Resolution	± 5 mV	
Conductivity		0.054...200.000 µS Software setting for measurement in µS, mS, KΩ, MΩ, ppm, ppb
Resolution		± 5% of the measured point
Measurement accuracy	± 1% F.S.	
Temperature	0...100°C	0...100°C
Resolution	± 1°C	
Temp compensation	Automatic	

pH and ORP electrodes

S401 VG
S406 VG

S408 MEC
S406 OXT

S408 POL PLUS
S406 POL

S401 LC

S401VG HTAJ
S406VG HTAJ

AD Series

General features

The electrodes listed below are all of the combined type (measurement & reference), without maintenance, and are classified by their construction features, which makes them adaptable to multiple applications.

Models and applications

S401VG
Combined pH electrode for general use

S401VG HTAJ
Combined ph electrode for heavy applications and high temperatures

S406VG
Combined ORP (redox) electrode for general use

S408MEC
Combined pH electrode for high temperature liquids and/or installations under pressure

S408POL Plus
Combined pH electrode for harsh chemical applications

S406POL
Combined ORP (redox) electrode for harsh chemical applications

S406OXT
Combined ORP (redox) electrode for high temperature liquids and/or installations under pressure

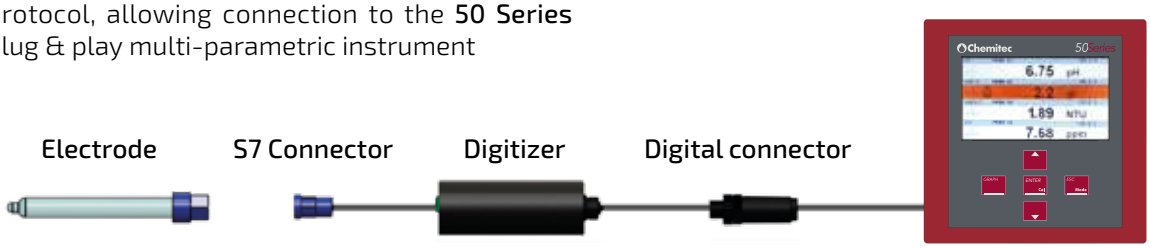
S401LC
Combined pH electrode for waters with low electrical conductivity

S406VG HTAJ
ORP (redox) electrode for applications in liquids with a high content of suspended solids

Digitizer for pH and ORP electrodes

AD Series Chemitec digitizers convert the signals of the common pH and ORP (redox) electrodes into serial signal with standard Modbus RTU protocol, allowing connection to the **50 Series** plug & play multi-parametric instrument

50 Series controller



pH and ORP electrodes

Technical specifications electrodes for pH measurement

Models	S401 VG	S408 MEC	S408 POL PLUS	S401 LC	S401 VG HTAJ
		Ex	Ex		
Measuring range	0...14 pH	0...14 pH	0...14 pH	2...14 pH	0...14 pH
Operating temperature	0...80°C	0...130°C	0...130°C	0...60°C	0...135°C
Maximum pressure	6 bar	16 bar	6 bar	16 bar	10 bar
Min. liquid conductivity	5 µS/cm	50 µS/cm	2 µS/cm	2 µS/cm	50 µS/cm
Body material	Glass	Glass	Glass	Glass	Glass
Electrolyte	Gel	Gel	Polisolve	Gel	Gel
Junction	Single open hole	3 ceramic diaphragm	Double open hole	Single open hole	Single pore increased
Cable connection	S8	S8	S8	S8	S8
Connection to process	Pg 13.5	Pg 13.5	Pg 13.5	Pg 13.5	Pg 13.5
Cable	5 mt	5 mt	5 mt	5 mt	5 mt

Technical specifications electrodes for ORP (redox) measurement

Models	S406 VG	S406 POL	S406 OXT	S406VG HTAJ
		Ex	Ex	
Measuring range	±2000 mV	±2000 mV	±2000 mV	±2000 mV
Operating temperature	0...80°C	-10...60°C	0...130°C	-5...135°C
Maximum pressure	6 bar	6 bar	16 bar	10 bar
Min. liquid conductivity	5 µS/cm	2 µS/cm	50 µS/cm	50 µS/cm
Body material	Glass	Glass	Glass	Glass
Electrolyte	Gel	Polisolve	Gel	Gel
Junction	Single open hole	Ssingle open hole	3 ceramic diaphragm	Single pore increased
Cable connection	Screw "S7"	Screw "S7"	Screw "S7"	S8
Connection to process	Pg 13.5	Pg 13.5	Pg 13.5	Pg 13.5
Cable	5 mt	5 mt	5 mt	5 mt

Conductivity measuring cells

S411
S411 C

S411 TEF
S411 TEF C

S411 U
S411 P

AD Series digitizer for conversion of conductivity measurement into serial signal with standard Modbus RTU protocol.

S411 D12

General features

Wide range of conductive cells designed for both water treatment and industrial applications. Thanks to the combination of cell constant (k) and construction material, it is possible to cover a wide range of applications with different measuring ranges.

Applications

Raw water, drinking water, ultra pure water, demineralization, reverse osmosis, ion exchanger, water from air conditioning and boiler systems, process water.

Technical specifications

Models		S411	S411 C	S411 TEF	S411 TEF C
Constant	K	1	1	1	1
Measurement range		0...50.000 µS	0...50.000 µS	0...10.000 µS	0...10.000 µS
Temp compensation		-	yes	-	yes
Working temperature		5...100°C	5...100°C	0...100°C	0...100°C
Max pressure		5 bar	5 bar	2 bar	4 bar
Body material		PP	PP	PTFE	PTFE
Electrode material		Graphite	Graphite	SS316	SS316
Connector		Supportive cable			
Process connection		½" GAS	½" GAS	1" GAS	1" GAS
Cable standard		5 mt	5 mt	5 mt	5 mt

Technical specifications

Models		S411 U		S411 P		S411 D12
Constant	K	1	10	10	100	1
Measurement range		0...50.000 µS	10...200 mS	0...1000 µS	0.04...20 µS	0...100 mS
Temp compensation		Yes	Yes	Yes	Yes	Yes
Working temperature		0...120°C	0...120°C	0...130°C	0...130°C	0...60°C
Max pressure		6 bar	6 bar	16 bar	16 bar	2 bar
Body material		PES	PES	SS316	SS316	Polycarbonate
Electrode material		Graphite	Graphite	SS316	SS316	Platinum on ceramic base
Cable connection		With connector				
Process connection		½" GAS(*)	½" GAS(*)	½" NPT(*)	½" NPT(*)	pg 13.5
Cable		5 mt (other on request)				
Applications		Mid-range industrial	High-range industrial	Low-range industrial	Very low-range industrial	Industrial for wide ranges

(*) On request clamp connections, food flanges, DIN

Inductive conductivity cells

General features

The conductivity measuring system with inductive sensors has many advantages over other conventional methods. The absence of electrodes in contact with the fluid to be measured makes the system virtually maintenance-free and free from re-calibration for long periods of time. The S411 IND sensors have a great tolerance with respect to the "coating" phenomena of the sensor, probably the most common problem encountered in measurements with traditional electrodes.

S411 IND

S411 IND T

S411 IND E

S411 IND T INS

AD SERIES

S411 IND

This model has been engineered to obtain a low-cost product without sacrificing performance quality. Chemitec's designers achieved this by making a polypropylene mould filled with fibre that contains the sensors - thus making it possible to maintain all the advantages of inductive measurement.

Applications

Polluted surface water, process monitoring, highly contaminated or aggressive media, influential wastewater treatment plants.

Models

S411 IND
Sensor only

S411 IND T
By immersion

S411 IND E
For insertion with T-fitting

S411 IND T INS
For direct insertion on a flat wall

Digitizer for inductive cells

The Chemitec AD series digitizer converts the conductivity measurement into a serial signal with standard Modbus RTU protocol.

Technical specifications

Sensor	
Working temperature	- 5 ... 60°C (without freezing)
Measurement range	1000 uS... 1000 mS
Temp compensation	2-wire Pt1000 temperature sensor
Cable	Standard 5 metres
Operating pressure	Vacuum to 6.5 bar (100 psi)
Mechanical construction	
Materials	PVC with Viton® seals
Materials in contact	Glass-filled polypropylene
Immersion length	600 or 1200 mm
Assembly	Standard bracket or optional flange
Connection	0.5 "BSP male
Degree of protection	IP68

Inductive conductivity cells

S411 IND HT

S411 IND HT TP

S411 IND HT TS

SERIE AD

S411 IND HT 60/120

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 HT 60/120
For immersion

S411 IND HT TP
For bypass with PVC T-fitting

S411 IND HT TS
For bypass with SS T-fitting

Digitizer for inductive measuring cells

The AD Series Chemitec digitizers convert the conductivity measurement into serial signal with standard Modbus RTU protocol.

Technical specifications

Sensor	
Operating temperature	- 5 to 100°C / up to 135°C for short periods (CIP process)
Measuring range	1000 uS...1000 mS
Temp. compensation	Temperature sensor Pt1000 with 2 wires
Cable	Disconnectable standard 5 metres
Operating pressure	Vacuum to 10 bar (150 psi)
Mechanical construction	
Materials	PEEK / AISI
Contact materials	Body PEEK – Temperature sensor INOX (PEEK on request)
Immersion length	600 or 1200 mm
Mounting	Standard bracket or optional flange
Connections	**RJT** 2", 2.5", 3" – **Tri clamp** 2", 3" – **IDF/ISS** 2", 2.5", 3" **DIN** 1185: 50 mm, 80 mm (other on request)
Protection grade	IP67

Amperometric sensors for chlorine and oxidants measurements

S494

Applications

Drinking water

Wastewater

Swimming Pools

General features

S494 are amperometric probes with two (2) or three (3) electrodes covered with membrane with an integrated temperature sensor for signal compensation.

Applications

Swimming pool, drinking water, wastewater, process water.

Technical specifications

Measuring parameters	Free Chlorine ; Total Chlorine ; Organic and Inorganic Free Chlorine ; Chlorine Dioxide ; Ozone ; Peracetic Acid ; Hydrogen Peroxide ; Chlorites	
Measuring error	±2 % of the indicated value	
Repeatability	±2 %	
Stability	±1 % of the analytical determination after 4 weeks from the calibration	
Operating conditions	Sample speed on the membrane 15 cm/sec	
	Constant flow rate of the hydraulic supply 30...40 l/h	
	Acceptable overpressure 1 bar	
Operating temperature	>5 ...45°C (other on request)	
Temp. compensation	Automatic through NTC integrated sensor	
Time	**First polarization** from 1 to 3 h; **Repolarization** 30 min	
Response	60 sec for 90% f.s.	
Body material	PVC, Silicone, PTFE	
Membrane	PTFE (Teflon) semipermeable	
Measuring electrode	Gold (cathode)	
Reference electrode	Silver (Anode) /Silver Chloride	
Calibration point	**Zero**	Not necessary
	Work	Aaccording to user requirement, through analytical determination (colourimetric with DPD)
Warnings	Maintenance interval 2 weeks or more	
	Life time of the electrolyte solution approx. 1 year	

Digital pH and ORP sensors

S401 DIG/N • S406 DIG/N

Applications

- Drinking water
- Wastewater

General features

The pH electrode S401 DIG/N and the ORP (redox) S406 DIG/N electrode are suitable for measuring pH and ORP (redox) in various applications.

The liquid junction of the Teflon® porous septum resists encrustations and chemical attack. The double junction of the reference electrode increases the service life in applications containing sulphides (H2S) and metals such as lead, mercury and silver. The new type of solid-state electrolyte allows a constant reference potential over time and with variations in pressure and temperature.

The Pt100 capillary temperature sensor is positioned behind the sensitive membrane (pH or ORP (redox)) thus ensuring accurate temperature measurement and compensation.

The IP68 mechanical protection protects the high impedance signal of the electrodes from humidity that can be generated in immersion applications (condensation).

Applications

Drinking water, process water, wastewater, samples containing sulphides and metals such as mercury, lead and silver.

Technical specifications

Models	S401 DIG/N	S406 DIG/N
Measurement range	0...14 pH	-1500mV... +1500mV
Measurement method	Potentiostatic	
Accuracy	0.05 pH	± 5mV
Repeatability	± 0.05 pH	± 1mV
Response time	T_{90} < 60s	
Working temperature	0... 100°C in insertion / by-pass - 0... 50°C in immersion	
Max pressure	11 bar	
Body material	Glass and PPS	
Measuring electrode	Hemispherical glass membrane	
Other materials	Teflon®	
Mechanical protection	IP68 sensor & cable	
Power supply	12... 24Vdc	
Absorption	Max. 1W	
Cable	10 m integral with the sensor (others on request)	
Signal interface	Standard Modbus RTU protocol	

Differential digital pH and ORP sensors

S401 DIFF • S406 DIFF

Applications

Heavy industry

Wastewater

General features

S401 DIFF and S406 DIFF are pH and ORP (redox) differential electrodes designed for measurement in heavy-duty applications, where traditional reference system electrodes would have a short life.

They consist of a Ryton® body which houses a glass electrode for pH or redox measurement, the reference electrode with salt bridge and KCL reserve which guarantees high stability of the reference signal over time and operation with varying environmental conditions.

The measurement and reference electrodes are connected to a ground reference for excellent measurement accuracy even in extreme conditions.

The reference electrode is replaceable.

Applications

Entry and exit from biological treatments of water treatment plants. Aggressive industrial applications.

Technical specifications

Models	S401 DIFF	S406 DIFF
Measuring range	0…14 pH	-1500…+1500 mV
Measurement methods	Potentiostatic differential	
Sensitivity	± 0.05 pH	± 5 mV
Repeatability	± 0.05 pH	± 5 mV
Response time	T_{90} < 60s	
Operating temperature	0…85°C (32-185 °F)	
Max pressure	6.9 Bar (100 psi)	
Body material	Ryton®	
Measuring electrode	Hemispherical glass membrane	Platinum wire
Other materials	PVDF, ceramic junction, Viton o-rings, Titanium (ground ref)	
Mechanical protection	IP68 sensor & cable.	
Power supply	12… 24Vdc	
Absorption	Max. 2W	
Cable	PUR, integral with the sensor, 10m	
Equipotential contact	Included (Titanium)	
Interface	Standard Modbus RTU protocol	

Digital conductivity sensor

S411 DIG/N

Applications

- Drinking water
- Wastewater
- Industrial water
- Cooling towers
- Electroplating
- Irrigation
- Reverse osmosis
- Boilers

General features

The S411 DIG/N is used for the measurement of conductive conductivity in pure and process water.

- Conductivity measurement with a wide range thanks to the use of a 4-electrode graphite sensor
- Measurement communication via Modbus RTU protocol
- Suitable for industrial applications
- Ease of attachment to the process
- Integrated temperature sensor
- Operating pressure 5 bar
- Sensor body in PPS and epoxy, electrodes in graphite
- Absence of mechanical moving parts
- Immediate installation and easy maintenance

Applications

- Conductivity measurement in wastewater
- Conductivity measurement in industrial and recirculating water

Technical specifications

Measurement range	1 µS / cm - 200 mS / cm (k = 0.55 nominal)
Measurement method	Conductive with 4 graphite electrodes
Accuracy	≤ 4% on the reading point
Repeatability	≤ 0.2% on the reading point
Response time	5s
Working temperature	-5... 100°C in non-frozen waters
Max pressure	5 bar
Body material	Epoxy and PPS
Measuring electrode	Graphite
Other materials	Viton O-rings
Mechanical protection	IP68
Power supply	12-24 Vdc
Absorption	<250 mA
Cable	10 mt
Signal interface	RS485 Modbus RTU protocol

Digital conductivity sensor for immersion

S411 DIG

Applications

- Drinking water
- Electroplating
- Irrigation

General features

The S411 DIG is used for conductive conductivity measurement in pure and process water.

- Reliable conductivity measurement thanks to the use of graphite electrodes.
- Two-electrode conductive measurement method with temperature compensation.
- Sensor body in PVC graphite electrodes
- Absence of mechanical moving parts
- Immediate installation and easy maintenance
- Modbus RTU serial communication protocol

Applications

Raw water, drinking water, demineralization, reverse osmosis, ion exchanger, water from air conditioning and boiler systems, process water, artesian wells.

Technical specifications

Measurement range	0 ... 20/200/2000/20000 µS
Measurement method	Two-electrode conductive
Sensitivity	0.01 / 0.1 / 1/10 (range 0 ... 20/200/2000/20000) µS
Accuracy	± 2.5% f.s.
Response time	90% of the value in less than 60 seconds
Refresh time	T90 <60s
Temp compensation	With internal NTC probe (external NTC probe on request)
Working temperature	0... 50°C
Max pressure	10 bar
Body material	PVC
Electrode	Graphite
	The probe is completely resin-coated inside
Mechanical protection	IP68 Sensor & cable
Power supply	12... 24Vdc
Absorption	Max. 2W
Cable	10 m integral (others on request) - 10 m disconnectable cable
Equipotential contact	For solution included
Signal interface	RS485 with standard Modbus RTU protocol

Digital inductive conductivity sensor

S411 DIG IND

Application

- Drinking water
- Wastewater
- Cooling towers
- Clean In Place (CIP)

General features

The inductive conductivity probe S411 / IND / DIG can measure conductivity in dirty water conditions up to 1S, and can easily interface with data acquisition systems thanks to the Modbus RTU RS485 protocol.

- Presence of 4 possible scales with one or two-point calibration
- Sturdy body in loaded PPS
- Immediate installation

Applications

Conductivity measurement in conductive liquids, wastewater, primary waters.

Technical specifications

Measurement range	0,5 ... 2/2 ... 20/5 ... 200/10 ... 1.000 mS / cm
Accuracy	± 6% on the measuring point
Repeatability	± 3%
Response time	T90 <60s
Working temperature	-10 ... 60°C
Work pressure	From vacuum to 6.5 bar
Body material	Glass-filled PP, PPS, Viton (O-ring)
Mechanical protection	IP68 (Sensor & cable) / IP67 Connector
Power Supply	12 - 24 Vdc
Cable	10 mt
Signal interface	RS485 Modbus RTU protocol
Thread	1 "1/2 GAS BSP
Measurement method	Inductive without contact electrodes
Temperature compensation	Automatic with built-in PT1000
Salinity	0-120g / kg (programmable conversion factor default 0,64)
Calibration	After connecting the probe to the instrument with the supplied cable, refer to the instrument manual for calibrations.

Turbidity sensor low range

S461 LT

Applications

- Drinking water
- Industrial waters
- Fish farming

General features

Measurement is performed by using a 90° scattered light method compliant with ISO 7027 / EN 27027. The measuring method is based on the Tyndall effect. The turbidity of the medium is determined by the amount of scattered light.

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).

Applications

Drinking water, process industrial water, low turbidity waters, immersion or bypass installation.

Standard version

PVC Body and Modbus RTU RS485 interface.

On request

SS316 body; 4...20 mA outputs

S461 LT
with Flow cell

Technical specifications

Measuring range	0...10 NTU / 0...100 NTU
Measuring method	90° Scattered light
Resolution	0,01 NTU for 0...10 NTU range 0,1 NTU for 0...100 NTU range
Accuracy	±1% for 0...10 NTU range ±5% for 0...100 NTU range
Repeatability	±0.05 NTU for 0...10 NTU range ±0.5 NTU for 0...100 NTU range
Response time	T_{90} < 60s
Operating temperature	0...50°C (0...75°C with AISI316 optional body)
Maximum pressure	4 bar
Body material	Black PVC (on request only AISI316)
O-ring	Viton® and silicone
Optics	Special glass with oleophobic treatment
Mechanical protection	IP68 Sensor & cable
Power supply	12...24Vdc
Power consumption	max. 3W
Cable	10 mt integral with the sensor
Calibration	1-point and/or 2-point for scale
Signal interface	Modbus RTU standard protocol RS485

Turbidity sensor

S461 TN

Applications

- Drinking water
- Industrial water
- Fish farming
- Wastewater

General features

The measurement is performed by using a 90° scattered light method compliant with ISO 7027 / EN 27027. The measuring method is based on the Tyndall effect. The turbidity of the medium is determined by the amount of scattered light.

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).

Applications

Untreated water, surface water, process water, industrial or municipal water treatment plant discharge.

Standard version

PVC and SS316 body with Modbus RTU RS485 interface.

On request

Only AISI316 body ; 4-20 mA outputs

2 models available

S461 TN for immersion
S461 TN INS for insertion (in combination with S305-INS)

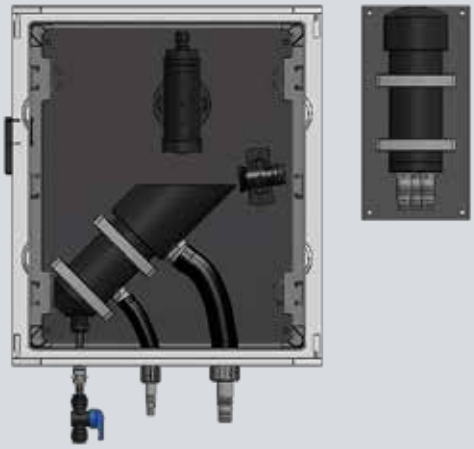
Technical specifications

Measuring range	0...1000 NTU / 0...4000 NTU
Measuring method	90° Scattered light
Resolution	1 NTU for 0...1000 NTU range 1 NTU for 0...4000 NTU range
Accuracy	±2% for 0...1000 NTU range ±5% for 0...4000 NTU range
Repeatability	±5 NTU for 0...1000 NTU range ±20 NTU for 0...4000 NTU range
Response time	T_{90} < 60s
Operating temperature	0...50°C (0...75°C with body in AISI316)
Maximum pressure	4 bar
Body material	Black PVC and SS316 (on request only AISI316)
O-ring	Viton® and silicone
Optics	Special glass with oleophobic treatment
Mechanical protection	IP68 sensor & cable
Power supply	12...24Vdc
Power consumption	max. 3W
Cable	10 mt integral with the sensor
Calibration	1-point and/or 2-point for scale
Signal interface	Modbus RTU standard protocol RS485

S305-INS
probe holder for insertion into the pipe

Nephelometric turbidity cell

S461 N



Applications

- Wastewater
- Industrial water
- Fish farming

General features

Turbidity measurement without contact with the sample. 90° scattering method compliant with ISO 7027 / EN 27027 with visible light beam.

Black rigid PVC sensor body.

Optional air bubble elimination device (debubbler) applicable externally.

No mechanically moving parts.

Measurement pre-processed in the sensor which provides high sensitivity in low-signal transmission.

Quick calibration by means of pre-calibrated calibration plate, supplied with the instrument.

Applications

Measuring turbidity in primary water upstream of treatment plants, industrial or municipal water treatment plant discharge.

Technical specifications

Measuring ranges	0…100 NTU / 0…1000 NTU (optional 0…4000 NTU)
Measuring method	Nephelometric
Resolution	0.1 NTU for 0…10 NTU range 0.1NTU for 0…100 NTU range 1 NTU for 0…1000 NTU range
Accuracy	±10% f.s.
Maximum flow rate	60 l/h
Operating temperature	0…50°C
Maximum pressure	0.5 bar
Materials	ABS case
	Black PVC measuring cell, receiver assembly and spotlight assembly
O-ring	NBR and Silicone
Optical	Special glass with oleophobic treatment
Power supply	24Vdc
Power consumption	max. 5W
Cable	10 m with connector
Calibration	1 point for scale
Signal interface	Modbus RTU standard protocol RS485 (on request 4…20 mA)

Suspended solids sensor

S461 S

Applications

- Industrial water
- Chemical industry
- Paper mills
- Wastewater

General features

Turbidity is a reduction of water transparency due to the presence of suspended solids, consisting of very fine particles that cannot settle in a reasonably short time.

The particles in suspension determine an absorption of light radiation according to the number and size of the particles themselves.

Applications

Sludges from biological processes, chemical industry paper mills, food, extraction systems: quarries, tunnels, aggregate extraction

Standard version

AISI316 body with Modbus RTU RS485 interface

On request

Only PVC body; 4-20 mA outputs

2 models available

S461 S for immersion
S461 S INS for insertion
(in combination with S305-INS)

Technical specifications

Measuring range	0...30 g/l MLSS of WWTP - on request 0...100 g/l Kaolin reference
Measuring method	Absorption of light
Resolution	0.1 g/l
Accuracy	± 0.3 g/l
Repeatability	± 0.5 g/l
Response time	T_{90} < 60s
Operating temperature	0...50°C
Maximum pressure	4 bar
Body material	SS316 (on request only Black PVC
O-ring	Viton®
Optics	Special epoxy
Mechanical protection	IP68 sensor & cable
Power supply	12...24Vdc
Power consumption	Max. 3W
Cable	10 mt integral with the sensor
Calibration	By points
Signal interface	Modbus RTU standard protocol RS485

S305-INS
probe holder for insertion into the pipe

Suspended solids and turbidity sensors

S461 ST

Applications

- Industrial water
- Mining industry
- Wastewater

General features

The S461ST sensor is used for the optical measurement of suspended solids in industrial and process waters up to 300 g/l (depending on the type of sludge). The probe uses the dual sensor scattering measurement method.

- Reliable concentration measurement thanks to the use of the infrared optical measurement process
- Absorption method of pulsed infrared light
- Sensor body in AISI316
- Absence of mechanical moving parts
- Pre-processed measurement in the sensor that provides high sensitivity in low signal transmission
- Immediate installation and easy maintenance

Applications

- Measurement of suspended solids and turbidity in biological purification processes
- Measurement of suspended solids and turbidity in industrial waters

Technical specifications

Measurement range	Measuring ranges SS: 0-300 g/l depending on the type of sludge Turbidity measuring ranges: 0...4000 NTU
Measurement method	Absorption of light
Sensitivity	0.1 g/l
Repeatability	± 5%
Accuracy	± 0.5 g/l
Response time	T_{90} < 60s
Working temperature	0...50°C
Max pressure	4 bar
Body material	SS316
O-ring	Viton®
Optics	Special epoxy
Mechanical protection	IP68 sensor & cable
Power supply	12... 24Vdc
Absorption	Max. 3W
Cable	10 m integral with the sensor
Calibration	By points
Signal interface	RS485 with standard Modbus RTU protocol

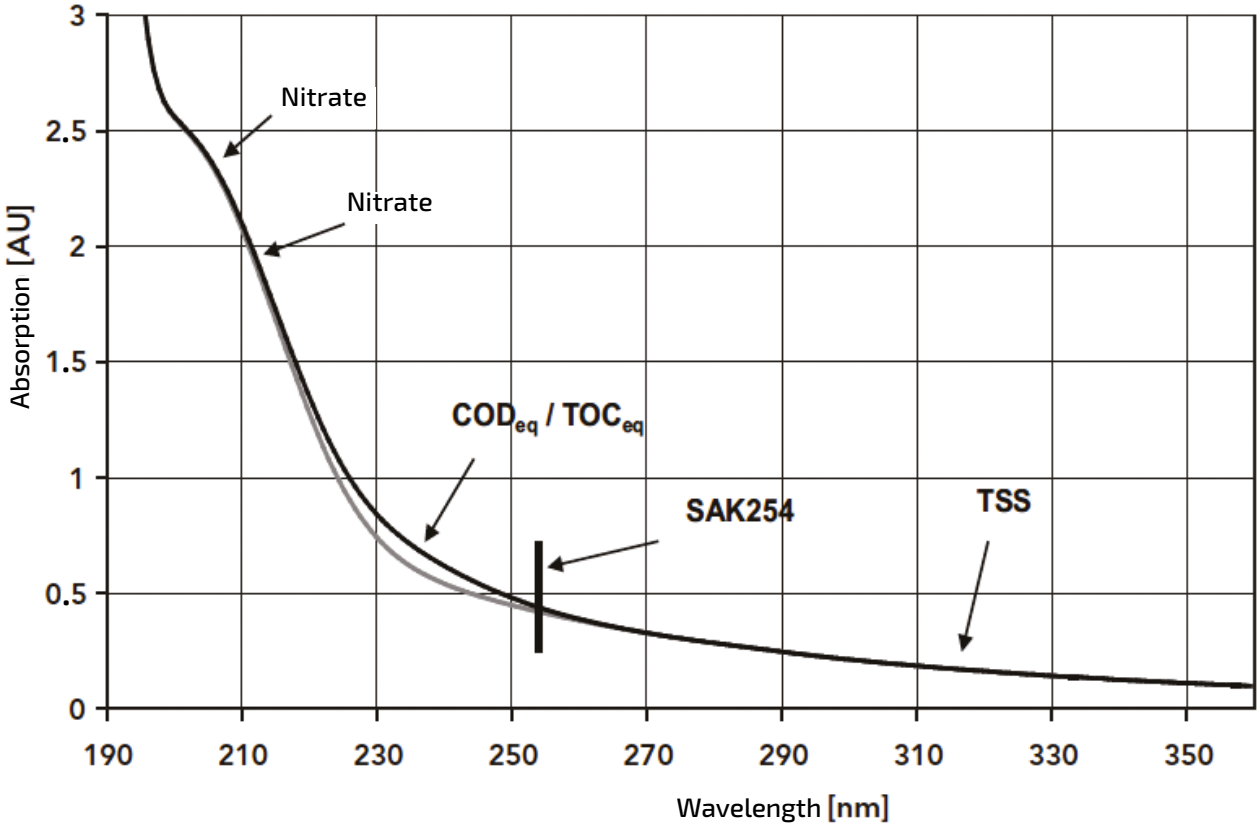
UV photometric sensors

S480

S480 the new generation of spectral sensors for the online measurement of nitrogen and carbon compounds. Through the analysis of a full spectrum, readings for NO_3-N, NO_2-N, organic substances (CODeq, BODeq, DOCeq, TOCeq) and a number of other parameters are able to provide reliable results.

Like all sensors, S480 uses exclusive nano-coated optical lenses and, in combination with a flow of compressed air, allows for long operating times without cleaning.

The length of the optical path can be adapted according to the application.



UV photometric sensor

S480 UV NO_3

Nitrate sensor

Based on the innovative UV photometric technology, Chemitec has developed a sensor for the direct determination of nitrate.

The four detection channels allow, by absorption, a precise optical determination taking into account turbidity and organic substances. The stability of the measured values is further increased thanks to correction of the internal temperature

S480 UV SAC_{254}

Organic substance sensor at 254nm

Long life UV-LED technology, rugged design and high energy efficiency are the main features of the S480UV-SAC254 sensor.

Automatic turbidity compensation is performed via a second measuring channel.

The SAC_{254} measurement is correlated and shown on the display with BODeq or CODeq or TOCeq values by means of appropriate internal temperature laboratory checks.

Technical specifications

Template	S480 UV NO_3	S480 UV SAC_{254}
Light source	Xenon lamp	2 LED technology (254nm, 530nm)
Detector type	4 photodiodes & filter	Photodiode
Measurement method	Attenuation	Attenuation, transmission
Optical path	0.3, 1, 2, 5, 10, 50 mm	1, 2, 5, 10, 50 mm
Measurement parameter	NO_3^-N, NO_3, NO_x^-N, NO_x Calibrated with standard solution NO_3	SAC_{254}, CODeq, BODeq, TOCeq
Precision	± 5%	0.2%
Turbidity compensation	Yes	Yes
Response time	T_{100} 20s	T_{100} 4s
Measurement range	≥ 10 s	≥ 2 s
Dimensions (L x Ø) mm	470x48mm (10 mm path)	300x48mm (with 10 mm path)
Weight	~ 3 kg (In Titanium 2 Kg)	~ 2.3 kg (In Titanium 2,1 Kg)
Absorption	≤ 7 W	≤ 1 W

Measuring range S480 UV NO_3

Optical path 1mm	0.5...60 mg/L NO_3^-N
Optical path 10mm	0.05...6 mg/L NO_3^-N

Measuring range S480 UV SAC_{254}

Path (mm)		1		10	
		Measurement range	Limit of detection	Measurement range	Limit of detection
Measurement parameter	SAC254mm	5...1500/m	5/m	0.5...150/m	0.4/m
	CODeq	5...2200 mg/l	8 mg/l	0.8...220 mg/l	0.8 mg/l
	BODeq	2.5...700 mg/l	2.5 mg/l	0.25...70 mg/l	0.25 mg/l
	TOCeq	3...880 mg/l	3 mg/l	0.3...90 mg/l	0.3 mg/l

S480 Color

Colourimetry sensor enables reliable low-cost colour measurement.

S480 Colour uses two different LEDs for long-term stable measurements of SAC or colours at different wavelengths. The second channel is used for turbidity/ background correction.

A titanium version is available for use in aggressive waters.

Benefits

- Low investment
- Low maintenance (nano coating, air blast cleaning)
- Robust housing

Applications

- Environmental monitoring
- Drinking water monitoring
- Industrial applications

Technical Specifications

Measurement technology	Light source	2 LEDs
	Detector	Photo diodes
Measurement principle		Attenuation, transmission
Optical path		50 mm, 100 mm, 150 mm, 250 mm
Parameter		SAC_{436}, SAC_{436}
		Colouring (based on DIN EN ISO 7887 (410 nm, 525 nm, 620 nm)
		Pt-Co colour number (APHA/Hazen) (390 nm or 455 nm)
		Cr-Co colour number (390 nm or 413 nm)
Measuring range		See parameter list
Measurement accuracy		0.5 %
Turbidity compensation		Yes, 740 nm
T100 response time		T_{100} 4 s
Measurement interval		≥ 2 s

UV photometer sensor

S480 UV PAH

Oil-in-water sensor

The measuring principle of UV fluorescence is many times more sensitive than the conventionally used infrared scattering or absorption process. This makes it possible to determine even the slightest traces of PAHs, such as in drinking water, but also in cooling water condensates.

Application areas include the petrochemical industry, leakage detection in cooling and wastewater streams as well as environmental monitoring.

Benefits

- UV absorption method
- No sampling and preparation of test samples
- Real time sensor
- No reagents
- Optical window with nano coating

Applications

- Drinking water
- Wastewater
- Airports
- Cooling water
- Desalination plants
- Refineries
- Exhaust gas cleaning with approval for ship use according to IMO regulation MEPC.184(59)

Technical Specifications

Measurement technology	Light source	Xenon flash lamp & filter (254 nm)
	Detector	Photo diode & filter (360 nm)`
Measurement principle		Fluorescence
Parameter		PAH, Oil
Measuring range	500 version	PAH: 0…50 ppb, 0…500 ppb / Oil: 0…1.5 ppm, 0…15 ppm typical
	5000 version	PAH: 0…500 ppb, 0…5000 ppb / Oil: 0…15 ppm, 0…150 ppm typical
Measurement accuracy		500 version 0.3 ppb / 5000 version 0.5 ppb
Turbidity compensation		± 5% F.S.
T100 response time		T_{100} ≤ 10 s
Measurement interval		≤ 5 s
Housing material		SS (1.4571 / 1.4404) or titanium (3.7035)
Dimensions (L x Ø)		311 mm x 68 mm
Weight	SS	~ 2.7 kg
	Titanium	~ 1.9 kg
Power consumption		≤ 3.5 W
Power supply		12…24 VDC (± 10 %)
Maintenance effort		Typically ≤ 0.5 h/month
Calibration/maintenance interval		24 months
Signal interface		Analogue out 4...20 mA

Dissolved oxygen sensor

S423 C OPT

Applications

- Drinking water
- Wastewater
- Fish farming

General features

S423 C OPT is an oxygen measuring sensor with an integrated temperature probe. The measuring technique is based on the following optical principle: a diode 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. This innovative method allows reliable, accurate measurements with no drift over time, so that system calibration is no longer necessary.

No maintenance is required except for the replacement of the luminescent support about every two years. The system does not consume oxygen, therefore it is suitable for the most varied fields of application, including those in which the measuring liquid is almost stationary.

Applications

Surface waters, fish farms, drinking water, wastewater, sea water

Available versions with PVC body, with 4...20mA outputs

Technical Specifications	S423 C OPT	S423 C OPT T
Measuring range	0...20 mg/l	
Measuring method	Optical measure by luminescence	
Accuracy	± 0,2 mg/l when < 5mg/l ± 0,3 mg/l when > 5mg/l	
Response	T_{90} < 60s	
Refresh time	< 1s	
Temp. compensation	With internal NTC probe	
Operating temperature	0...50°C	
Maximum pressure	5 bar	
Body material	SS316 (PVC body optional)	Titanium
Electrode material	Special optical glasses	
O-Rings	NBR and silicone	
Mechanical protection	IP68 sensor & cable	
Power supply	12...24Vdc	5...24Vdc
Power consumption	Max. 2W	max. 0,5W
Cable	10 m integral with the sensor	
Signal interface	RS 485 Modbus RTU Protocol	

Ammonia and nitrates I.S.E. sensors

S470

Applications

- Drinking water
- Wastewater
- Fish farming

General features

Sensor with ion-selective electrodes (ISE: Ion-selective electrodes) suitable for monitoring ammonium ion (such as NH_4^+ o NH_4-N) and nitrate (such as NO_3^- o NO_3-N) in a liquid matrix.

Particular attention was paid to identifying a set of stable and at the same time sensitive sensors. For this purpose, a particularly performing reference electrode has also been introduced with a high capacity to compensate for pollutants. The following versions are available:

S470 NH_4^+ - Ammonium ion sensor with potassium ion compensation.

S470/N NO_3^- - Nitrate ion sensor with chloride ion compensation.

S470/N Combined sensor - Combined sensor for ammonium and nitrate ions with compensation of potassium and chloride ions.

All specific electrodes are individually replaceable

Technical specifications

Measurement range	NH_4: 0...100 ppm K^+: 0...1000ppm NO_3: 0...100 ppm Cl^-: 0...1000 ppm
Diameter	36 mm
Body material	Probe body in AISI 316
Electrode material	Protection, electrode housing and black PVC cap
O-Rings	NBR
Mechanical protection	IP68 sensor & cable
Resolution	0.1 mg/l
Accuracy	± 5 mg/l
Repeatability	± 5%
Operating temperature	5 - 40°C
Maximum operating pressure	1 bar
Power supply	12...24Vdc
Signal interface	Modbus RTU Standard Protocol
Temperature sensor	PT100 included

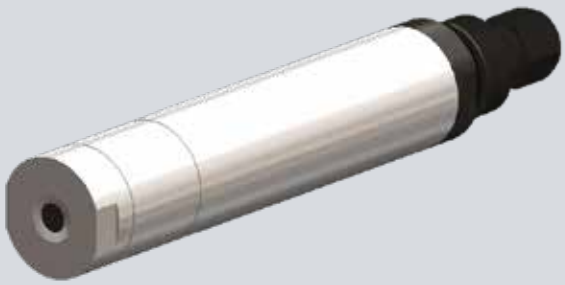
Simplified biological process automation system

Oxysmart Blue

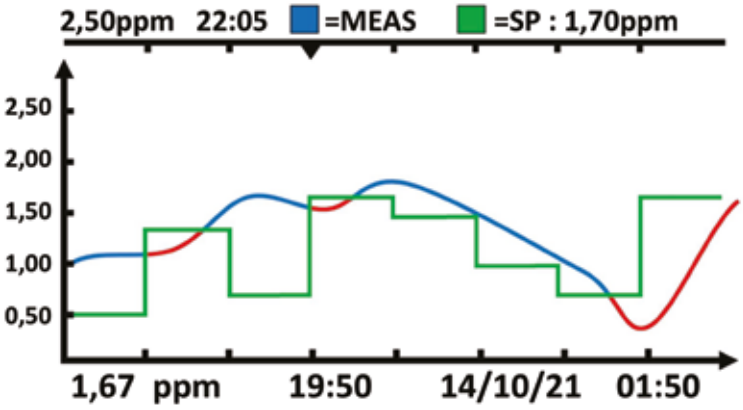
General features

Oxysmart Blue is the solution designed by Chemitec aimed at optimizing purification processes for small and medium-sized plants, even unmanned. This system allows energy savings due to the intelligent modulation / optimization of the blowers.

It allows a drastic reduction in calibration and maintenance interventions compared to more complex systems on the market because it uses only one or more dissolved oxygen sensors.

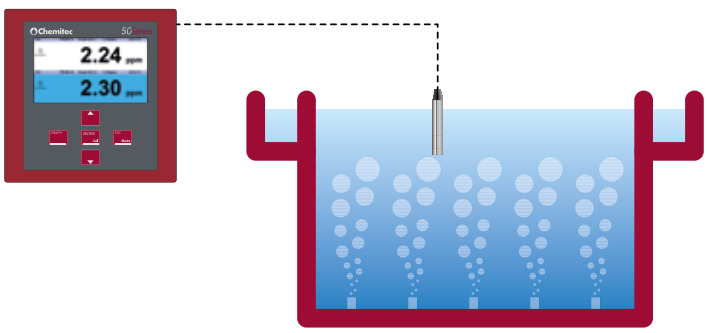


Thanks to this solution, it is possible to set a model of the progress of the oxidation process over 24 hours on a weekly basis (MON-FRI; SAT-SUN) according to the presumed load.



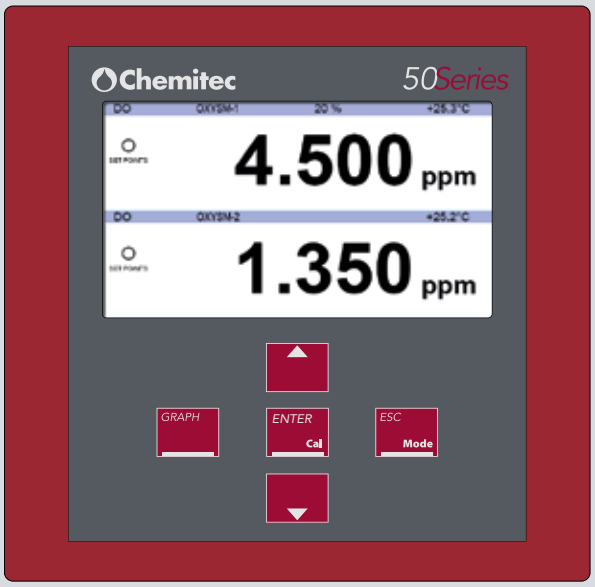
Benefits:

- User friendly both in installation and application
- With CHEMITECWEB, an excellent solution for isolated systems and Industry 4.0
- Minimal maintenance
- Safety in process management thanks to intrinsic safety



Optimization system for biological treatment plants

Oxysmart



General features

Oxysmart is a control algorithm. It is based on the assumption, verified in a first approximation, that it is possible, in a civil treatment plant, to monitor the incoming load by controlling the concentration of ammonia nitrogen.

This algorithm transforms the control unit into a system capable of managing compressors, inverters and mixers, to optimize the process and adapt it to load variations.

Proper management of the nitrogen and carbon cycle is vital for complying with environmental legislation and avoiding wastage of resources.

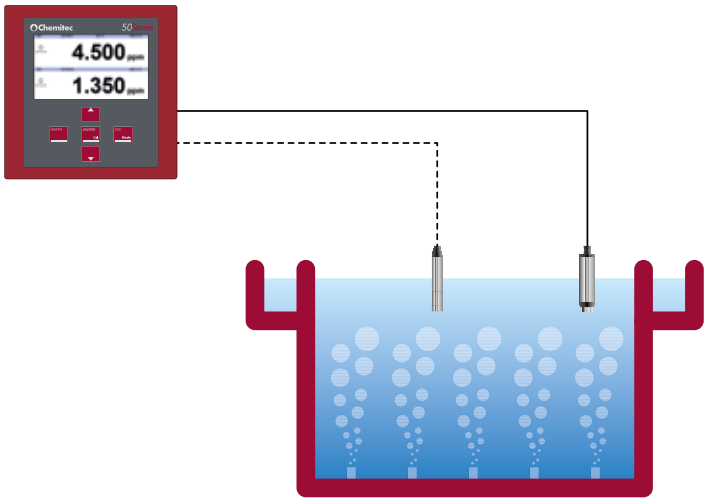
The market offers many dedicated solutions, with varying degrees of effectiveness, but is mainly targeted at plants sized greater than 10Kae.

Chemitec worked hard to find a performing solution even where it's not possible to apply the usual systems of supervision and control.

Oxysmart is installed at the poolside and is operative immediately. The logic is adaptable to any plant and optimizes operation regardless of the electromechanical equipment.

The oxygen set-point is varied in a continuous manner according to the load detected by the ammonia-ion selective probe **S470/N-NH_4** and its abatement.

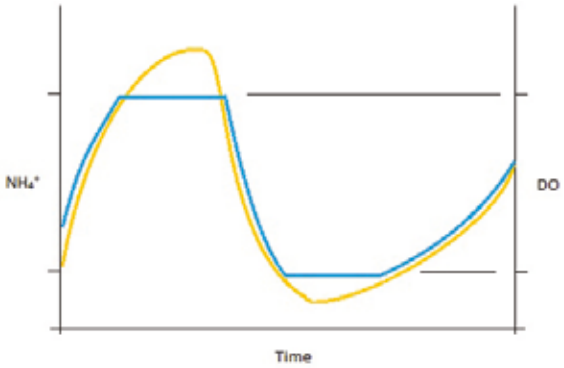
The **S423 C OPT** oxygen probe is responsible for monitoring the achievement of the imposed target.



Three logical algorithms available, suited for every kind of plant

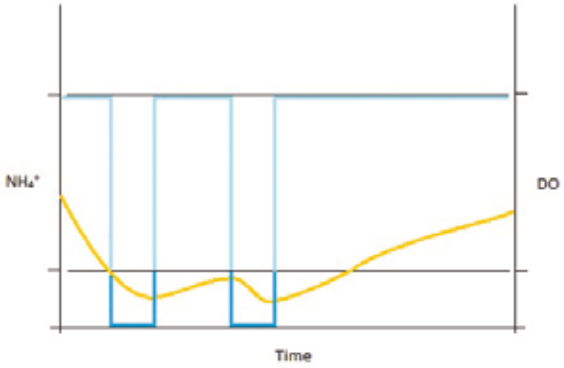
Smart DO

In conditions of low load, the DO threshold is maintained at low levels, and then it grows when the load increases.



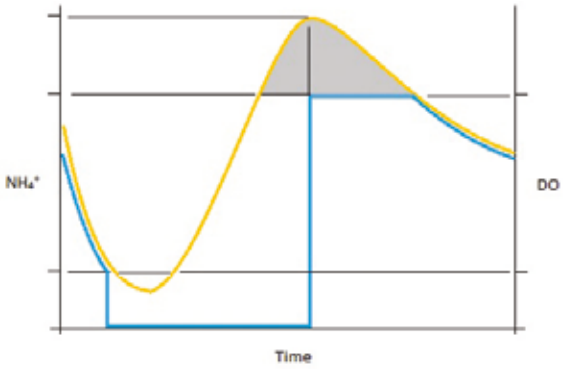
Smart ON/OFF

In conditions of low load, the system goes in pause/work mode, ready to modulate the oxygen when the load increases.



Smart N/DN

At the end of an oxidation cycle, the system activates the mixer, turns off the compressors and waits for a peak of ammonia nitrogen; when the peak is reached, the system reactivates oxidation.



Oxysmart provides a series of safeties to protect the compressors and inverters, as well as to compensate for the failure of the probes. Alarm functions are provided in case of malfunction of some component: the system automatically positions the adjustments of the safety values.

The benefits of Oxysmart system include:

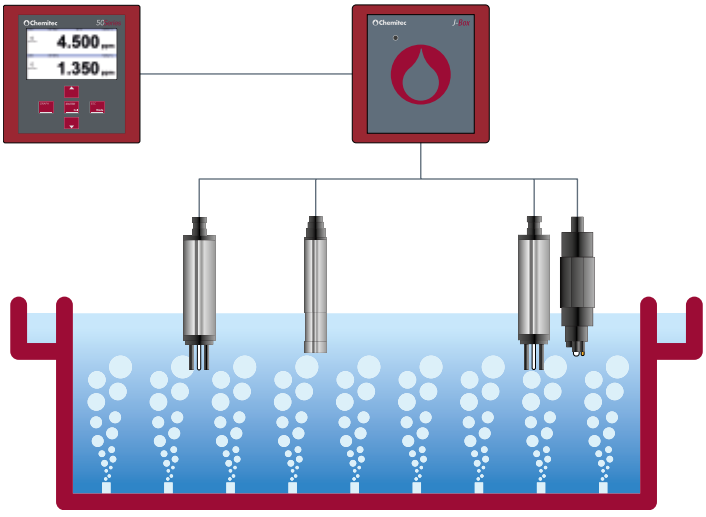
Economical: reduced intervention costs

Technical: immediate start, ease of installation and management

Managerial: energy consumption optimization, stability of the effluent's parameters

In the 50 Series four-Parameters version, the Oxysmart system is able to connect two additional probes for the management of two different analytes:

- ISE S470/N probe - NO_3 nitrates
- Probe for freely selectable parameter



Plug & play multi-parameter portable unit

Compact Pro

General features

Multi-metric portable system for an agile and safe measurement of water quality.

Thanks to the convenient connector and the special automatic recognition software, it is possible to connect a wide range of sensors in order to measure all the quality parameters of primary, waste or industrial water.

Available measurements Oxygen (ppm) / Oxygen saturation (%), Temperature (°C), Ph (pH), Electrical conductivity / Salinity (ppm), Turbidity (NTU), ORP (redox Potential)

Chlorophyll, (ppm) Ammonia & Nitrates (ppm) (pending), COD / BOD / TOC eq. (pending)

CompactPro has a degree of mechanical protection to IP67 with an impact resistance suitable for the most demanding uses.

Technical features

Display	2" monochrome TFT LCD
Dimensions	130mm x 80mm x 35mm
Battery	Non-removable lithium (LiPo) 1400mAh wireless charging via dedicated PAD
IP grade	IP67
Barometer	Integrated atmospheric pressure sensor
Weight	T_{90} < 60s
Working temperature	210gr without probe
Kit	Wireless power supply - shockproof carrying bag (optional hard case)
Calibration	By points

Portable system for measuring the respiratory activity of biomass (OUR test)

Complete system for taking respirometric measurements with parameter setting via dedicated software

S250

Measurements displayed in graphical and tabular form (O_2 consumption/time) with the final result expressed directly as a ratio in mg of consumed oxygen per mass of activated sludge and brought to the analytical standard of 20°C.

Accuracy ± 1% of the f.s. at constant temperature.

Storage of measurements and relative graphics with printing option.

Selectable measuring ranges
0.00...3.00/5.00/10.0/20.0 ppm di O_2

Selectable measuring times
Min 1 minute - max 60 minutes

Fully-portable system housed in shock-resistant aluminium case

Thermo-compensated fluorescent optical sensor

500 ml flask with airtight stopper

Stirring/oxygenation unit powered by rechargeable batteries or 220 V mains power

Display and measurement management software (for PCs running Windows 98 operating system or higher). The program supplied can be used on PCs, laptops or desktops with a USB port.

OUR Test (Oxygen Uptake Rate)

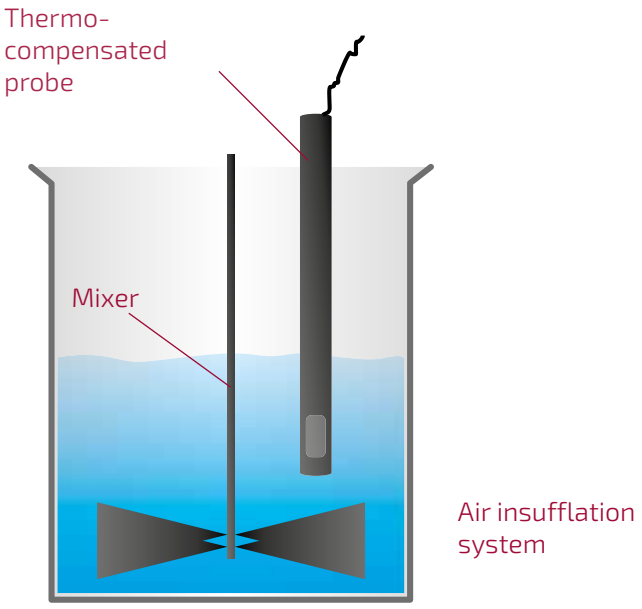


Figure 1

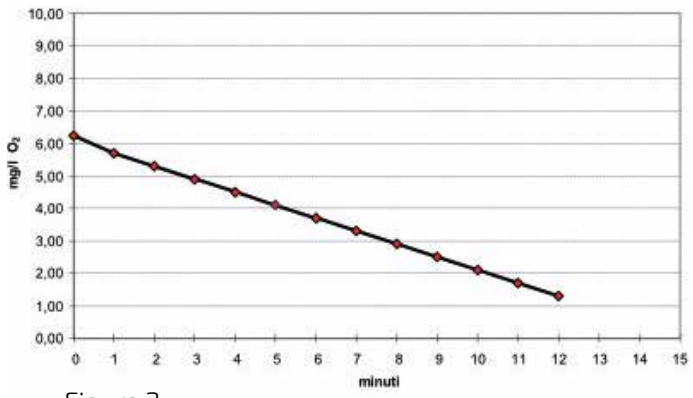


Figure 2
sample graph of an OUR measurement conducted in the laboratory

The measurement of OUR

To control the efficiency of a biological activated sludge treatment plant, the test for determining the oxygen uptake rate is performed on a sample taken directly from the oxidation/nitrification basin.

The classic method provides for the registration, at regular time intervals, of the consumption of dissolved Oxygen by a sample of activated sludge, with known MLSS concentration and volume, previously brought to a rapid saturation with a forced ventilation system and kept constantly mixing (as schematically shown in figure 1).

The time/concentration of Oxygen pairs are then turned into a graph, and a descending, almost straight curve is obtained, whose slope represents the rate of consumption of oxygen by the biomass (see figure 2).

The OUR value obtained in this way is generally expressed as mg O2/g SSV*h.

Some typical applications of the OUR test are listed below :

Test	Use
Biological activity test	Checking the degree of activity of the biomass in breaking down a certain organic substrate in relation to the endogenous OUR
Assessment of the degree of inhibition	Determining the possible toxic effect of sewage containing potentially inhibitory substances by making use of the OUR test
Biodegradability test on special wastewater	Testing the behaviour of the activated sludge when fed with a compound, the effect of whose biomass is not known for certain; for example the acceptance of special wastewater at the treatment plant
Characterisation of organic substrates	Quantification of the organic substrate present in influent wastewater, in order to determine the fraction of readily biodegradable COD of wastewater for the integration of a carbonaceous substrate in a state of denitrification or biological dephosphating

Analyzers & Samplers

Analyzer

Samplers

Multiparameter photometer analyzer for chlorine and other disinfectants

Our photometric system is a reference point in 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 chlorine measurement.

4001-Series

Phases of the measuring cycle

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

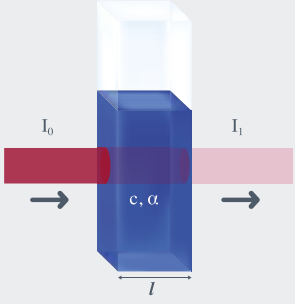
First measurement on the sample as is (Photometric Zero)

Reagent addition using peristaltic pump

Development of the reaction through stirring

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

The photometric method



In the last decades, photometry has developed as an essential method of analysis because it enables the "quantitative" determination of both organic and inorganic compounds. The technique uses the colourimetric methods characteristic of certain analytes, i.e. the properties of certain chemical reagents to develop colour with an intensity proportional to the concentration of a given substance, at a particular wavelength of the spectrum visible between the UV and IR (from 400 to 800 nm).

Compared to UV or IR spectrophotometry, the colourimetric technique has the extraordinary advantage of relying on well-defined linear reactions and with few well-known interfering substances. The Palin method employs the interactive DPD principle to determine the concentration of certain oxidants such as: free chlorine, total chlorine, chlorine dioxide, ozone, peracetic acid, bromine, permanganate etc...

The DPD reacts with the oxidant present in the water, producing almost instantly a pink colour, making sure that all those factors that may affect measurement (pH, µS,°C, organic matter etc.) have no influence on the analytical methodology.

The electronic controller displays the measured substance in mg/l and allows the user to choose 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.

User interface (HMI)

Programming keypad with 4 bubble-keys.

STN 240x128 backlit graphic LCD to display measurements (simultaneous measurement and temperature parameter & trend line), digital output status, storage status, faults, photometric measurement phase.

Software & functions

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.

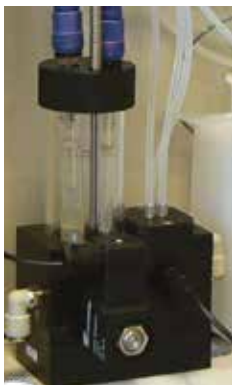
RS485 serial output for set-up and real time status from remote or to download stored data on a PC or laptop (using dedicated software), via Modbus RTU communication protocol.

Digital input for disabling dosages.

Application fields

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

Measuring cell



Photometric measuring cell complete with **RS485 serial interface card**

Body made of PVC; plexiglass; Glass

Light-emitting diode LED

Silicone photosensor

Electrode holder cup or housing pH, Rx electrodes, temperature/flow sensors

Hydraulic supply 60 l/h

Max pressure 1 bar

Gravity drain for clean water or for polluted water

Features

Intuitive interface with messages about the status of the method; the large display enables the creation of graphs to display the measurements stored in the internal data logger.

The peristaltic pump using four pressure points ensures reagent saving.

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.

Multi-parameter photometric system

Available versions 4001-Series

4001-2 Cl_2 Photometric free (or Total) Chlorine and Temperature meter	**Free Chlorine**	0…5.0 ppm (0…2.0 ppm on request)
	Resolution	0.01 ppm
	Accuracy	1% f.s. (colourimetric method with DPD)
	Temperature	0…50.0°C – Resol. 0.1°C – Accuracy 1% f.s.
4001-2 PPA Photometric Peracetic Acid and Temperature meter	**Peracetic Acid**	0…5.0 ppm (0…2.0 ppm on request)
	Resolution	0.01 ppm
	Accuracy	1% f.s. (colourimetric method with DPD)
	Temperature	0…50.0°C – Resol. 0.1°C – Accuracy 1% f.s.
4001-2 ClO_2 Photometric Chlorine Dioxide and Temperature meter	**Chlorine Dioxide**	0…5.0 ppm (0…2.0 ppm on request)
	Resolution	0.01 ppm
	Accuracy	1% f.s. (colourimetric method with DPD)
	Temperature	0…50.0°C – Resol. 0.1°C – Accuracy 1% f.s.
4001-2 O_3 Photometric Ozone and Temperature	**Ozone**	0…5.0 ppm (0…2.0 ppm on request)
	Resolution	0.01 ppm
	Accuracy	1% f.s. (colourimetric method with DPD)
	Temperature	0…50.0°C – Resol. 0.1°C – Accuracy 1% f.s.
4001-3 Cl_2 - pH - T Multi-parameter control unit for determination of free chlorine with photometric method and pH	**Free Chlorine**	0…5.0 ppm (0…2.0 ppm on request)
	Resolution	0.01 ppm
	Accuracy	1% f.s. (colourimetric method with DPD)
	pH	0…14.00 pH
	Resolution	0.01 pH
	Accuracy	1% f.s. (colourimetric method with DPD)
	Temperature	0…50.0°C – Resol. 0.1°C – Accuracy 1% f.s.

Other available versions 4001-Series

Photometric bromine meter
Integration with conductivity measurement
6 Parameter: Total, Free, Combined* Chlorine, pH, ORP (redox), T *as calculation (Total less Free)

Operating conditions, power supply/electrical protection 4001-Series

Operating temperature	0…50°C
Storage and transport	-25…65°C
Humidity	110…95% non-condensing
Power supply	85…275Vac 50-60Hz
Power consumption	66 W
Electrical protection	UL6950-1 TUV EN60950 EN 55022 Class B EN61000 ENV50204 EN55024

Hardware specifications, software and functions 4001-Series

Display	LCD STN with white backlight
Resolution	240 x 128 pixels
Languages	Italian, English, French, German, Spanish
Keypad	4 bubble-keys [6] [5] [GRAPH/USB] [ESC/MODE] [ENTER/CAL]
Data logger	Internal flash 4Mbit memory equal to 16000 records with a recording interval of 01:00…99:99 min
Recording method	Circular (F.I.F.O.) or filling
Display of stored data	In tabular and graphic form (1 for each parameter)
Analogue outputs	1 for each parameter measured (excluding Comb. Chlorine)
Type	0/ 4…20 mA galvanically isolated
Programming limits	Lower / upper / reverse
Maximum load	500 Ohm
Alarm output	According to NAMUR 2.4 mA (with range 4/20mA)
PID Control	Activation on the pH output
Set point relay outputs	Two (2) for primary measure & two (2) for pH measure (only mod. 4001-3)
Programming	Hysteresis, working time and daily/hourly activation non subject to the measured value: ON – OFF: 00.00…05.00 ppm Cl2 / 00.00…14.00 pH
Working time	000…999 sec.
Max resistive load relay	5A at 230Vac
Alarm relay output	Cumulative ON-OFF for: Min/Max, set point delay, faults (no water, reagents finished, projector burned, cell dirty)
Delay time	00:00…59:99 mm:ss with minimum steps of 15 seconds
Max resistive load relay	5A at 230Vac
Auxiliary relay output	Programmable as: Set point for temperature measurement or timed activation (programmable frequency and activation time)
Max resistive load relay	5A at 230Vac
Digital input	Clean contact for disabling dosages
RS485 serial output	Modbus RTU protocol (1200… 38400 Baud Rate) for set-up, real time status or downloading data
Dimensions (L x H x P)	598 x 601 x 190 mm
Total width	598 mm
Total height	601 mm (including valves)

Photometric color analyzer

The analytical procedure is used for spring waters, groundwater, water from rivers and lakes and water destined for human consumption after appropriate treatment. The method can be applied to samples with the base colour similar to that of the platinum - cobalt reference solution (yellow - brown).

The colour of a water is generally given by organic substances, such as humic and fulvic acids (to which a yellow - brown colouring may be assigned) or by salts of some metals such as iron, copper and manganese.

Observing the light transmitted through a thickness of a few metres, the colour of water is of course variable in blue shades. The presence of coloured foreign substances causes a variation of colour in infinite shades.

The apparent colour, due to substances dissolved and suspended into the water, must be distinguished from the real one, only due to dissolved substances.

Color Master

User Interface (HMI)

Programming keypad with 4 bubble-keys

STN 128x64 pixels backlit graphic LCD, to display measurements (simultaneous of 4 values & trend line), digital output status, storage status, faults, photometric measurement

Software & functions

Data Logger (optional) of circular (F.I.F.O.) or filling type on internal 4 Mbit flash memory equal to 16000 records, with recording interval from 1 to 99 min. Data display in graphical and tabular form (1 for each parameter).

RS485 serial output (optional) (opto-isolated) for set-up and remote real time acquisition or for downloading the stored data on a portable or desktop PC (using dedicated software), through Modbus RTU communication protocol at programmable speed 1200...38400 baud rate.

Hardware specifications, software and functions Colour Master

Absorbance measuring	0…500 ABS
Resolution	0.01 ABS
Accuracy	1% f.s.
Temperature measuring	0…50°C
Resolution	0.1°C
Accuracy	1% f.s.
Wavelength	445 nm (others on demand)
Analogue outputs	Four (4) 0/ 4…20 mA galvanically isolated
Quantity	Absorbance, Temperature
Programming limits	Lower / upper / reverse
Maximum load	500 Ohm
Alarm output	NAMUR 2.4 mA (with range 4…20mA)
Set point relay outputs	Four (4) with direct feeding of users max 100VA Two (2) for absorbance; One (1) for temperature; One (1) for alarm
ON – OFF	0…500 ABS
Programming	Daily activation with programming of switching on and off hour. Relay max resistive load 3A at 230Vac
Alarm relay output	Closed / open relay max resistive load 3A at 230Vac
ON – OFF	Cumulative for min/max, set point delay, faults (no water sample, reagents finished, projector burned, cell dirty)
Delay time	00:00…59:99 mm:ss with minimum steps of 15 seconds
Thresholds disabling	Active
Digital inputs	Two (2) clean contact and 220 Vac for disabling dosages
Analogue input	One (1) optional 0/4…20 mA for auxiliary measurements
Power supply	85…265 Vac 50-60Hz
Power consumption	30 W
Electrical protection	CEI EN 61010-1
Mounting	Wall
Dimensions (L x H x P)	276 x 514 x 126.5 mm
Mounting depth	126.5 mm
Housing	ABS Grey RAL 7045
Front panel	UV resistant polycarbonate
Weight	4 Kg
Operating temperature	0…50°C
Recording interval	-25…65°C
Humidity	10…95% non-condensing

Photometric analyzer for chemical parameters

Analyzer for chemical parameters such as Al, NH_4^+, Cr(VI), PO_4^{3-}, Fe, Mn, SiO_2 and others on request.

It consists of two sections, hydraulic/analytical and electronics. These two sections are separated from each other so as to ensure efficiency and durability of all the parts

User interface (HMI)

The user interface consists of an industrial PC with touch screen.

Color Tec

Software & functions

The control software, simple and intuitive, allows the immediate understanding of all the commands and functions.

It is possible to perform measurements at programmed intervals, at a specific time or at an external event.

The software archives and makes available in graphical form all the measurements.

The instrument is designed for connection to an existing LAN.

Phases of the measuring cycle

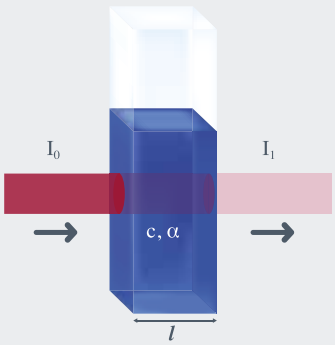
Entry of the sample in the measuring cell for washing/priming

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 zero and absorbance is processed by the electronic processor and converted into a concentration value using specific correlation tables developed in our laboratories



General principles of the Lambert-Beer law

The Lambert-Beer law is an empirical relation that correlates the amount of light absorbed by a medium to the chemical nature (molar extinction coefficient), to the concentration (c) and to the thickness of the crossed medium.

When a light beam (monochromatic) of intensity I_0 passes through a layer with the thickness l of the medium, a part of it is absorbed by the medium itself and another part of it is transmitted with residual intensity I_1.

Colouring reagent(s) and sample dosing
Depending on the specific methodology, one or more colourimetric reagents are dosed.

Absorbance measurement and calculation of the concentration
Reading of light intensity value of the coloured liquid after proper mixing of the reagents.

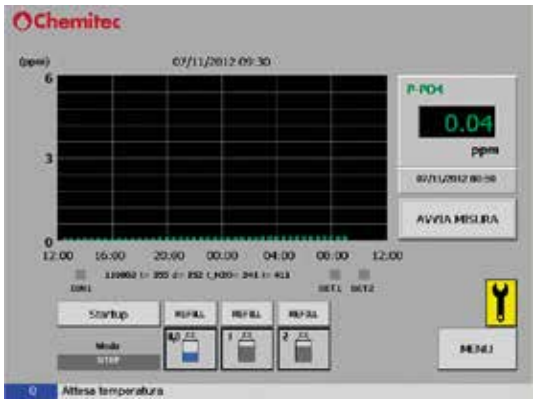
Emptying, rinsing of the hydraulic circuit and of the measuring cell
The reading cell is emptied and flushed with cleaning water together with the entire hydraulic circuit. At the end the reading cell will be left full of clean water until the next measurement.

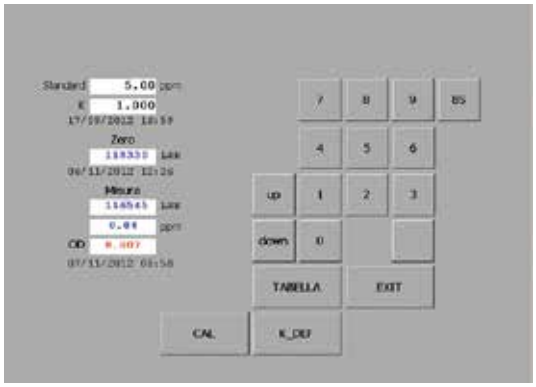
Calibration

The instrument is supplied with factory calibration, performed using certified standard solutions; however, the user has the possibility to change this calibration by acting directly on the coefficient K (1,000 by default).

The coefficient "K" can be automatically determined by the instrument after making a measurement of known value, set in the "STANDARD" box.

Alternatively, the calibration can be changed by using an ABS/PPM correlation table (up to a maximum of 50 points).





System composition

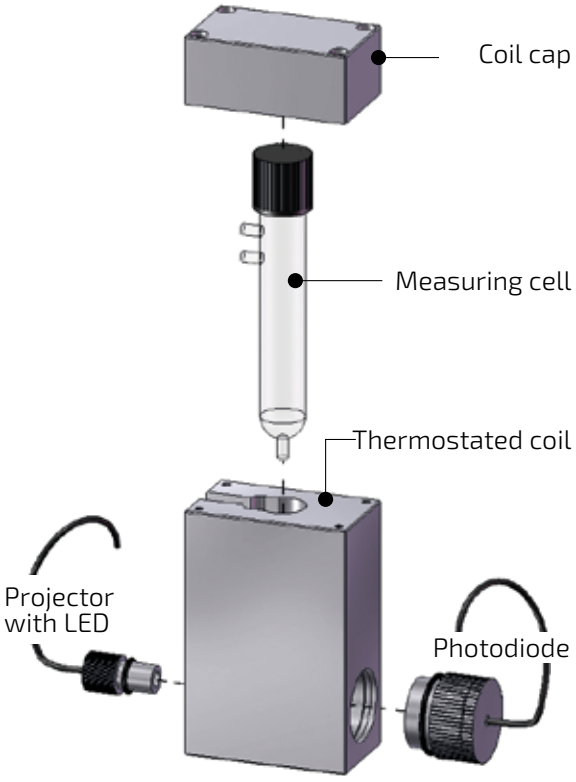
1. Touch screen controller
2. Peristaltic pump for dosing reagents / sample / cleaning water
3. Sample/Cleaning water solenoid valves
4. Measuring cell
5. Sample inflow cell
6. Cleaning water tank
7. Reagent bottles

Process analyzer

Measuring cell

The measuring cell consists of a thermostated aluminium coil inside of which contains a test tube into which flows the liquid to be analysed.

A projector with LED sends a light beam that passes through the medium, while a photodiode, located on the opposite side of the projector relative to liquid to be analyzed, receives the signal given by the emitted light beam, according to the Lambert-Beer law.

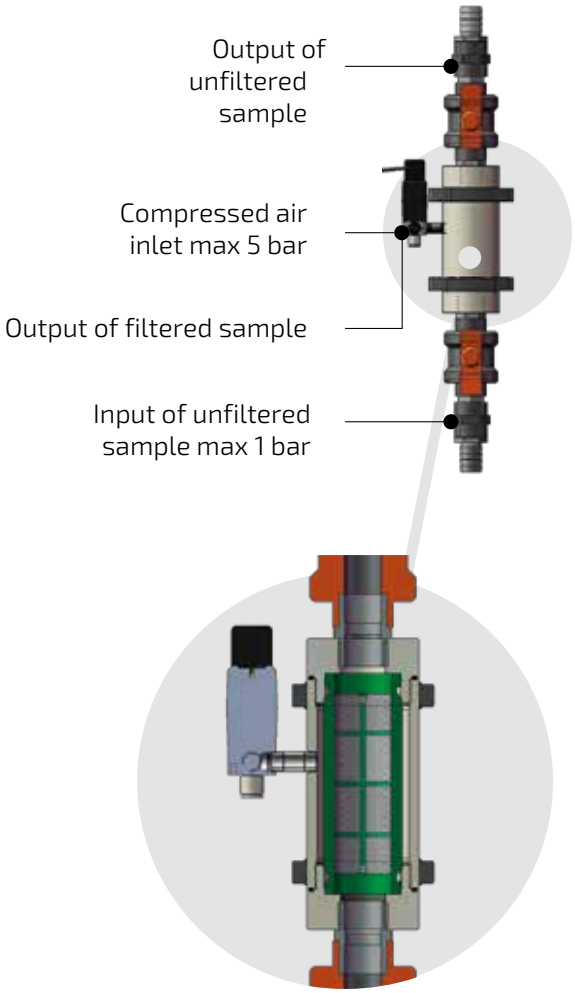


Measuring cell

Filtering system (optional)

In particular applications, it is necessary to perform a pretreatment of the sample to remove suspended particles present into the liquid to be analyzed.

Chemitec can provide a filtration system at 100 µm, complete with self-cleaning system (with compressed air) fitted on a pre-drilled panel to be installed comfortably on the wall.



Probe for suspended solids Color TEC

Photometric range	2.5 optical density
Accuracy	± 3 % of the full scale
Repeatability	90 % of the measure
Frequency of the analysis	Hourly or by step (20 minutes minimum)
Turbidity of the sample	Max 10 FTU/NTU. For higher turb. It's recommended to use the filtration system. (optional)
Liquid pressure	0,1...0,3 Atm. stable
H_2O or air pressure for filter washing	0,1...0,5 Atm. stable
Measuring sensor	Standard silicone sensor with 17-bit digital converter
Wave length	445...800 nm with LED
Light source	LED
Reading cell	Made of PIREX® Ø 16 mm
Mixer	Aluminium thermostat reaction coil
Reactive dosage	Reaction coil in thermostated aluminium
Hydraulic system cleaning	Automatic washing with distilled H_2O
Visualization	LCD 8.4 colour display
Data insertion	Resistive touch screen
Computer CPU	Atom with 4GB flash disk
Access to the system	Through password
Archive	Circular, with date and value storage
Visualization of measures	Via SW it is possible to view the daily, weekly and / or monthly chart of all the archived measures
Data download	Possible via USB mass storage device
Set points	Two (2) ON-OFF programmable as min. or max. via SW
Output relay contacts	Max 2A 220V resistive load
Current output	0/ 4...20 mA programmable via software
Load	Maximum 500 ohm
Serial interface	Two (2) ON-OFF programmable as min. or max. via SW
Calibration	Manual with activation from menu
Calibration curve	Creation of the calibration curve using a table from 2 to 50 points in which it is possible to enter arbitrary values
Dimensions (L x H x P)	1000 x 400 x 200 mm
Weight	45 Kg
Power supply	220 Vac 50 Hz (110Vac on request)
Power consumption	100 W max

Photometric analyzers

UVMeter features

- Compact size
- No reagents (except NaOH for ammonia)
- Built-in automatic washing system
- Extremely fast response time
- Operating costs are very low as the UV spectrophotometric measurement principle does not require the use of analysis reagents
- Extremely simple hydraulic system and large diameter pipes
- The automatic cleaning system allows the user to keep the measuring cell clean for long periods without the need for intervention. Refilling the cleaning solution tank (5% sulphuric acid) is only necessary once a month
- Built-in peristaltic pump for sampling

C.O.D. analyzer

The measuring principle is based on the intense UV absorption of organic molecules at 254 nm in accordance with the Lambert-Beer law:

$$[C] = k \cdot log \left(\frac{I_{in}}{I_{out}} \right)$$

[C]: sample concentration
k: extinction coefficient
I_{in}: sample input light intensity
I_{out}: sample output light intensity

Turbidity, organic substances, suspended solids or dirt in the measuring cell are automatically compensated through a differential measurement with a second detector at a different wavelength.

Compliant with AFNOR X PT 90...210 - DIN38404-C3 regulations.

Applications

Surface water monitoring
Potabilizers
Water treatment plants

Hardware specifications, software and functions UV Meter COD

Measuring ranges	0 ... 200 mg/l - 0 ... 800 mg/l - 0 ... 2.000 mg/l - 0 ... 5000 mg/l - 0 ... 20000 mg/l others on request	
Principle of measurement	UV spectrophotometry	
Frequency of analysis	Settable	
Accuracy	10% f.s.	
Drift	On zero 5%	Full range 10%
Temperature	Environment> 0...50°C	Sample> 0...80°C
Analogue output	4 ... 20 mA	
Serial output	RS232	
Alarms	4 relays	
Data-logger	Integrated - data download via RS232	
Power Supply	110...130 Vac or 220...240 Vac / 30 VA / 50...60 Hz; 12 ...15 Vdc 3A	
Dimensions (W x H x D)	600 x 420 x 230 mm	
Weight	About 20 kg	
Peculiarities	Interference in the presence of chlorides	No
	Reagents or consumables	No
	Filtration	Not necessary
	Self-cleaning	Integrated
	Operating costs	Extremely limited

Nitrate analyzer

The measuring principle is based on the intense UV absorption of the NO chromophore at 210...220 nm in accordance with the Lambert-Beer law:

$$[C] = k \cdot log \left(\frac{I_{in}}{I_{out}} \right)$$

[C]: sample concentration
k: extinction coefficient
I_{in}: sample input light intensity
I_{out}: sample output light intensity

An automatic linearization stored in the analyzer allows the user to compensate for the non-linearity of the Lambert Beer's law for high concentrations.

The measurement is the weighted sum of the concentrations of NO_2 and NO_3, although, in most applications, the concentration of NO_2 is negligible compared to that of NO_3.

Turbidity, organic substances, suspended solids or dirt in the measuring cell are automatically compensated through a differential measurement with a second detector at a different wavelength.

Applications

Surface water monitoring
Potabilizers
Water treatment plants

Hardware specifications, software and functions
UV Meter Nitrates

Measuring ranges	0...30 mg/l – 0...100 mg/l – 0...250 mg/l
Principle of measurement	UV spectrophotometry
Frequency of analysis	Settable
Accuracy	5% f.s.
Drift	On zero 5% Full range 10%
Temperature	Environment> 0...50°C Sample> 0...80°C
Analogue output	4...20 mA
Serial output	RS232
Alarms	4 relays
Data-logger	Integrated - data download via RS232
Power supply	110...130 Vac to 220...240 Vac/30 VA/ 50...60 Hz; 12...15 Vdc 3A
Dimensions (W x H x D)	600 x 420 x 230 mm
Weight	20 kg
Peculiarities	Interference in the presence of chlorides No
	Reagents or consumables No
	Filtration Not necessary
	Self-cleaning Integrated
	Operating costs Extremely limited

Hydrocarbon analyzer in water

The measuring principle is based on UV fluorescence.

Thanks to the use of a high sensitivity photomultiplier, even very low concentrations (in the order of micrograms / liter) can be determined.

The table shows the relative intensity measurements of some aromatic hydrocarbons:

Anthracene	42
Benzene	10
Biphenyl	20
Chlorobenzene	7
Fluorobenzene	10
Naphtalene	35
Phenanthrene	25
Phenol	18
Propybenzene	17
Styrene	10
Toluene	17
Xylene	22

Applications

Aromatic hydrocarbons in water (BTEX, PAH, phenol, oil, fuel, etc.)
Shallow waters
Square waters
Groundwater
Cooling waters
Drinking water
Process waters

Hardware specifications, software and functions
UV Meter Nitrates

Measuring ranges	0...1 mg/l – 0...10 mg/l – 0...100 mg/l – 0...1000 mg/l (others on request)
Principle of measurement	Fluorescence
Repeatability	±0,1 ppm ± 1 ppm
Accuracy	10% f.s.
Drift	On zero 5% Full range 10%
Temperature	Environment> 0...50°C Sample> 0...80°C
Analogue output	4...20 mA
Serial output	RS232
Alarms	4 relays
Data-logger	Integrated - data download via RS232
Power Supply	110...130 Vac to 220...240 Vac/30 VA/ 50...60 Hz; 12...15 Vdc 3A
Dimensions (W x H x D)	600 x 420 x 230 mm
Weight	20 kg
Peculiarities	Interference in the presence of chlorides No
	Reagents or consumables No
	Filtration Not necessary
	Self-cleaning Integrated
	Operating costs Extremely limited

Filtration system for analyzers

Self-cleaning filter SF 100

The filtration system SF-100, often used upstream of a line analysis systems, is a self-cleaning device that uses compressed air with programmable frequency to maintain the stainless steel filter.

While most of the liquid under analysis goes much faster through the polypropylene filter body, only the amount needed by the analyzer is filtered through the stainless steel special profile filter element. This prevents a rapid accumulation of dirt and deposits on the filter.

In addition to this, the filtration system uses an electronic timer that periodically, at intervals programmed by the user, provides the opening of the NC of the three-way solenoid valve allowing the entry of compressed air at suitable pressure, which provide a powerful backwash of the filter. This proves to be a very effective backwashing to remove trapped particles on the outer surface of the filter.

The frequency and duration of the automatic washing cycle can be programmed by the user in a wide range of values.

Technical specifications SF 100

Filter body material	PP (polypropylene)
Filter element	SS316 – Passage size 100 micron
Solenoid valve	Parts in contact with the liquid SS SS316 - Viton
Protection grade	Timer and solenoid valve IP 65
Filter weight	1 kg
Temperature	Sample and ambient 2…55°C
Pressure	Minimum sample line 0.3 bar
	Maximum sample line 2.5 bar
	Backwashing compressed air pressure minimum 20% above sample line pressure, up to 3 bar max.
Flow	Minimum sample line 0.1 mc/h
	Filtered sample 0.1 - 2 l/min depending on the sample line pressure
Hydraulic connections	for input/output filter 1" NPT
	Compressed air inlet connection for washing tube ¼"
Power supply	220...240 Vac
Power consumption	20VA
Washing frequency	Programmable from 1 to 45 min
Washing time	Programmable from 1 to 30 sec

Candle

Hollow fiber

Immersion filtration system UF TEC

UF TEC is a filtration system which allows sample feeding of Color Tec or similar analyzers.

It consists of a control panel and an immersion filtering element that can be installed in any section of a water treatment plant because its operation is independent of the sample condition: biological sludge, presence of foams, algae, bloated or floating sludge. Suction of the sample occurs using the peristaltic pump located inside the control panel, which is also used to push the filtered liquid to the analyzer.

Start-up of the peristaltic pump and duration of suction is controlled by the Color Tec analyzer in relation to the predetermined frequency of analysis and the distance between analyzer and the sampling point. A cleaning system is provided, controlled by the analyzer or through a timer (optional), which by means of a compressor and a 3-way valve directs, on the same sampling tube, pressurized air which allows the user to purge both the line and the pipes of the filtering element.

Technical specifications UF TEC

Components	Wall mounted control panel; Immersion filter candle; suction / delivery tube 10m
Filtration	**Porosity 0.02 µm with candle / 0.1µm with hollow fibre**
	Capacity 1l/h with a 3m head between control panel and candle filter
Temperature	**Sample 4…40°C; Ambient 4…45°C, max humidity 95% non-condensing**
Installation conditions	▪ Maximum mounting depth of the immersed filter: 2m ▪ Maximum distance control panel - immersed filter: 10m ▪ Maximum distance analyzer - control panel: 5m ▪ Maximum head control panel - immersed filter: 5m ▪ Maximum head analyzer - control panel: 5m
Cleaning system	Integrated with compressed air at 4 bar. Automatic control from Color Tec analyzer or timer (optional)
Materials	Control panel made of ABS
Candle filter	Body housing of white PVC-U ; Covers made of Noryl GTX Filtering material PESM
Suction tube	PE
Power supply	220 Vac – Power consumption 50 VA
Dimensions	Control panel (lxhxp) 900 x 600 x 300 mm – Weight 10 kg Candle filter (lxØ) 425 x 95 mm – Weight 4 kg

Sampling systems

Chemitec markets MAXX GmbH sampling systems in Italy. This company's experience, gained over the last 20 years, means that it is now possible to offer a wide range of equipment and technical solutions for operation in a variety of system conditions

- Wide range of models, for fixed installation or portable
- Electronic control unit is the same for all models in the range
- Internal data logger for storing sampling and fault data.
- Possibility to connect to a remote PC for programming or data download.

Electronic control unit

Microprocessor control, Sleep-Mode (<5 mA), power supply 8-16 V, membrane keyboard (with 0-9, ESC, ORL, cursor keys), graphic display (128 x 64 pixel), backlit

Mini-USB interface, RS422/485, RS 232; Ethernet RJ45 (optional)

Optional communication Modbus, connection via PROFIBUS DP; LAN / WLAN through TCP / IP RJ45, with IE-Browser, 4-32GB SD / SDHC memory

Analogue input 0/4...20 mA

Digital inputs for remote control, event and pulse launch flow meter

Digital outputs for reporting status and faults

Programming

Twelve (12) different sampling programs that can be set freely, with linking programs function

In relation to time range between 1' and 99h 59' with 1 minute step

In relation to flow using a flow meter with a 0/ 4...20 mA analogue or digital output

In relation to an event contact activated by set point from pH,°C, Conductivity, Oxygen meters etc., also in combination with time and flow rate

Filling each bottle in relation to time or number of samples

Memorization of the sampling and fault vents with date and time and possibility of **remote data acquisition and programming,** via serial port, LAN, UMTS/GPRS modem with dedicated software (optional)

Sampling system

Dosage system
Vacuum pump 20...350 ml or 20...250 ml
VAR (variable) vacuum pump 5... 250 ml
Peristaltic pump 20...10.000 ml

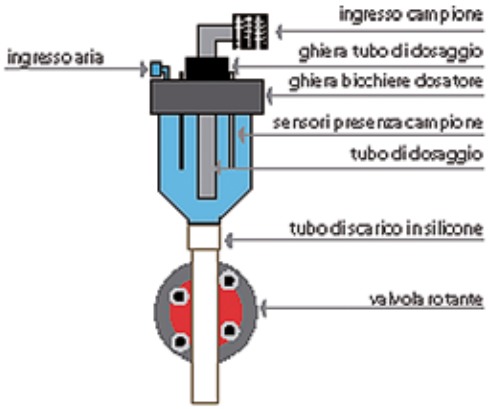
Accuracy Vacuum pump: < 2,5 % o ±3 ml; Peristaltic pump ±5 % o ±5 ml

Suction speed > 0.5 m/s at a height of 7.8 m (at 1013hPa); the pump capacity can be electronically adjusted

Maximum suction height 8 m

Sampling mode Time, flow, event, manual sampling, variable volume proportional to the flow

Motorised torsion discharge valve with no interruption of the discharge pipe, open at the front with no parts in contact with the liquid



Thermostat-controlled and self-emptying stationary samplers

SP5 B

Thermostat-controlled stationary sampler in plastic container

Housing	PE material with 50mm insulation / PS/PC (GF10)
Upper part	Control unit and dosing unit with lid
Lower part	Distribution system and sample collection bottles, with door and handle with lock, insulated
Dimensions	1100 (1640 with lid open) x 760 x 7450 mm
Weight	Approx. Kg. 75 (with a single bottle)
Operating temp.	Ambient -20…40°C ; Sample 0…40°C
Power supply	230V – 50/60Hz. ; Consumption 350VA
Standard bottles included	1x25L of PE; 4x14L of PE; 12x2.9L of PE; 12x2L of Glass; 24x1L of PE; S24x1L- of Glass (other on request)

SP5 S

Thermostat-controlled stationary sampler in stainless steel cabinet

Housing	Two (2) separate SS 1.4301 compartments, each with door and lock
Upper part	Control unit and dosing unit, with door and window, upper canopy made of plastic material (Styrosun) can be opened for inspection and maintenance
Lower part	Distribution system and bottles for collecting the samples with blind door, double wall insulation, thermostat-controlled
Dimensions	1290 (1890 with canopy open) x 690 x 645 mm
Weight	Approx. Kg. 90 (with a single bottle)
Operating temp.	Ambient -20…40°C ; Sample 0…40°C
Power supply	230V... 50/60Hz. ; Consumption 350VA
Standard bottles included	1x25L of PE; 1x50L of PE; 2x10L of PE; 4 S 4x6L PE; 4x10L PE; 4x14L of PE; 12x2.9L of PE; 12x2L of glass; 24x1L of PE; S24x1L- of glass (other on request)

Sampling systems

SP5 A

Thermostat-controlled self-emptying stationary sampler in stainless steel cabinet

Housing	Two (2) separate SS 1.4301 compartments, each with door and lock.
Upper part	Control unit and dosing unit, with door and window, upper canopy made of plastic material (Styrosun) can be opened for inspection and maintenance
Lower part	Distribution system and bottles for collecting the samples with blind door, double wall insulation, thermostat-controlled
Dimensions	1290 (1930 with lid open) x 690 x 645 mm Version with 24 bottles of 2L 1400 (2175 with canopy open) x 800 x 850 mm
Weight	Kg 115 version with 2 bottles; greater for versions with more bottles
Operating temp.	Ambient -20…40°C ; Sample 0…40°C
Power supply	230V – 50/60Hz. ; Consumption 350VA
Standard bottles included	2x10L of PE; 4x5L of PE; 12x1.6L of glass; 16x2L of glass; 24x2L of glass (other on request)

Portable samplers and sampling heads

TP5 W

Sampling head for wall mounting

Housing	Electronic control unit, suction and dosing unit, assembled in a PS/PC (GF 10) plastic structure for wall mounting
Dimensions	362 x 442 x 222 mm – Weight approx.10 Kg.
Control unit	Inserted in IP 65 container
	Microprocessor with 128KB Eprom, 32KB di ram, 16KB Eeprom. 16 digital I/O , 8 analogue I/O. Real-time clock
	Waterproof keypad – Display LCD 4 x 20 backlit
Power supply	230 / 115 Vac – Power consumption approx. 25VA

TP5 C — Compact portable sampler

Housing	PE/PC (GF10) consisting of 3 parts
	Base containing the bottles, insulated (40 mm), with possibility to insert ice to refrigerate the samples
	Control and sample dosing unit
	Lid with latches
Dimensions	787 x 510 x 468 mm – Weight approx. 23Kg
Operating temp.	Ambient 0…45°C ; Sample 0…40°C
Power supply	Electronic control unit, suction and dosing unit: 12VDC with internal rechargeable battery or direct from the mains via battery charger
Autonomy	With battery fully charged, at least 2000 sampling operations in the following conditions: ambient temp. 20°C, sampling depth 1.5 m, sampling interval 1 min.
Standard bottles included	1x13L in PE; 1x25L in PE; 4x5L in PE; 16x1L in PE; 24x1L in PE

P6 — Portable compact unit. Available with distributor and various types of bottles.

Housing	Double wall, lower part insulated (P6 L) with ABS
Dimensions	**P6 L** 500 x 740 millimeters (diam xh.) **P6 Mini Maxx** (. Ø x h) 400 x 605 millimetres
Weight	**P6 L** approx. 15 kg – **P6 Mini Maxx** approx. 10 kg
Operating temp.	Ambient 0…45°C ; Sample 0…40°C
Power supply	230V – 50/60Hz. ; Consumption 350VA
Standard bottles included	**P6 L: in** PE 24x1 L / 1x 0 L / 4x4 L / 8x2 L ; in glass 24x350 ml / 12x950 ml / 8x2 L
	P6 Mini Maxx: in PE: 1x10 L; of glass: 1x4 L

Flow Level & Pressure

Flow

Level

Pressure

Flow meters for open channels with ultrasonic or piezometric sensor

50 Series F/L

Main features

- Flow measurements on narrow canals or weirs
- Preset calculation exponents or free programming by the user
- Possibility of calibration with table up to 30 points, for non-linear functions
- Double data logger for instant measurements and totalized volumes. Data download by USB port
- Graphic display with visualization of real-time values and those stored in graphic or table mode
- Modbus RTU communication protocol

Hardware specifications, software and functions 50 Series F/L

Features Measure	
Unit of measure	**Flow rate** mc/h, lt/sec - **Level** mt, cm, mm - **Temperature** °C
Measurement fields	**Flow rate** 0... 99999 mc/h - Up to 3 decimal points
Types of devices / exponents for PMD flow calculation (primary measuring device)	RETTANG (rectangular weir) / BAZIN (rectangular suppressed) / VENTURI (venturi canal) / PARSHALL (Parshall canal) / STRAM. V (V-shaped weir) OTHER (freely programmable exponent) / PB (Palmer Bowlus canal). Table with 30 points for free programming.
Two (2) totalizers	**Absolute** 9-digit (saved on Flash PROM non-resettable) - **Partial** 9-digit resettable
Hardware Features	
Display display	Graphic TFT colour LCD 480x272 (Visible Area 95x93)
	Simultaneous display of: instantaneous flow rate (absolute & bar-graph), totalized volume, temperature, status of digital outputs, alarm events.
	In scrolling: Status level of the analogue outputs, resettable totalizer
Checks	5 Keys
Data Logger	Internal 32 Mbit 128000 record
Serial output	One (1) RS485 Galvanically Separated Modbus RTU
Analogue outputs	Two (2) galvanically programmable separated
Relay outputs	Four (4) for thresholds - two (2) for alarm (max load 1A at 230Vac resistive)
Power supply	100... 240Vac / dc 50-60Hz (Optional 24Vac / dc) - Isolation Trasf. 4KV
Average absorption	<7W
Dimensions / weight	Dimensions: (L x H x D) 144x144x122.5mm - Weight: 1 Kg

Hardware specifications, software and functions 50 Series F/L

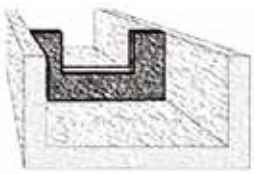
Measurement recording	Instant flow	Totalized volume
Record interval	1/2/5/10/15/20/30/60 min	5/10/30 min. 1/2/6/12/24 h.
Type	Circular / Filling	Circular / Filling
Visualization	Graphics: minimum, maximum and averages of the period and Zoom function	Tabular
Analogue outputs	Primary	Secondary
Size	Flow / Temperature	Flow / Temperature / Level
Typology	0.00... 20.00 mA / 4.00... 20.00 mA	
Range	Limit Programming: Lower / Upper	
Maximum load	500 Ohm	
Alarm output	NAMUR 2.4 mA (with 4 / 20mA range)	
Relay outputs (5)		
Function - selectable	Thresholds	Pulses
Programming	ON-OFF with hysteresis	Demultiplier: 1mc / h
		Duration: 250, 500, 1000, 2000 msec
Alarm		
Function	Eco Leak Alarm	
Programming	Out time (no echo time): 00: 00... 24: 00 h	
Operating conditions		
Temperature	Working 0...50°C; storage and transport -25...65°C	
Humidity	10-95% not condensed	
Mechanical protection	Closed IP66 EN60529	
EMI / RFI	CEI-61010 - 05/99	

S425 C

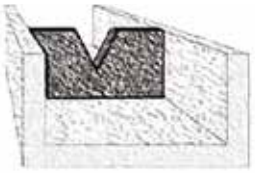
Technical specifications S425 C

	S425C	S425K
Measuring method	Ultrasonic with automatic temperature compensation	
Measuring ranges	30...500 cm	5...150 cm
Working temperature	-10° ...75°C	-25° ...75°C
Maximum pressure	0,5...1,5 bar	
Accuracy	± 0.2% of measured distance (but not better than 2mm)	
Interfaccia	RS485 Modbus RTU	
Body material	PVDF – PCV	PP
Protection class	IP67 (with connector) / IP68 (with fixed cable)	
Process connection	1"g.m e 1,5"g.m.	1"g.m

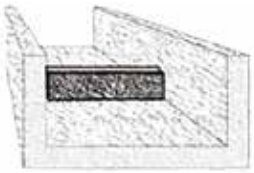
Weirs



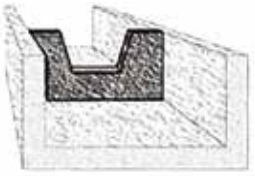
Regular weir
with side restraints



Triangular weir



Rectangular weir
without side restrictions



Trapezoidal weir

Venturi prefabricated channels VENTURI BS

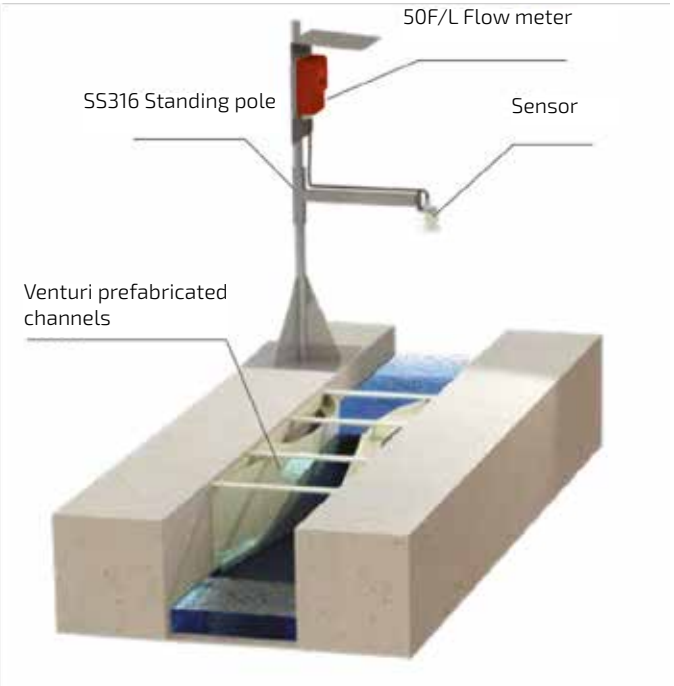
- Installation in rectangular section ducts
- Flow rates 1 ...> 7700 m³/h
- Low pressure drops

Developed in collaboration with the Institute of Hydraulics of the University of Pavia, these measurement primaries are venturi with a flat bottom and suitable for installation in pre-existing rectangular channels.

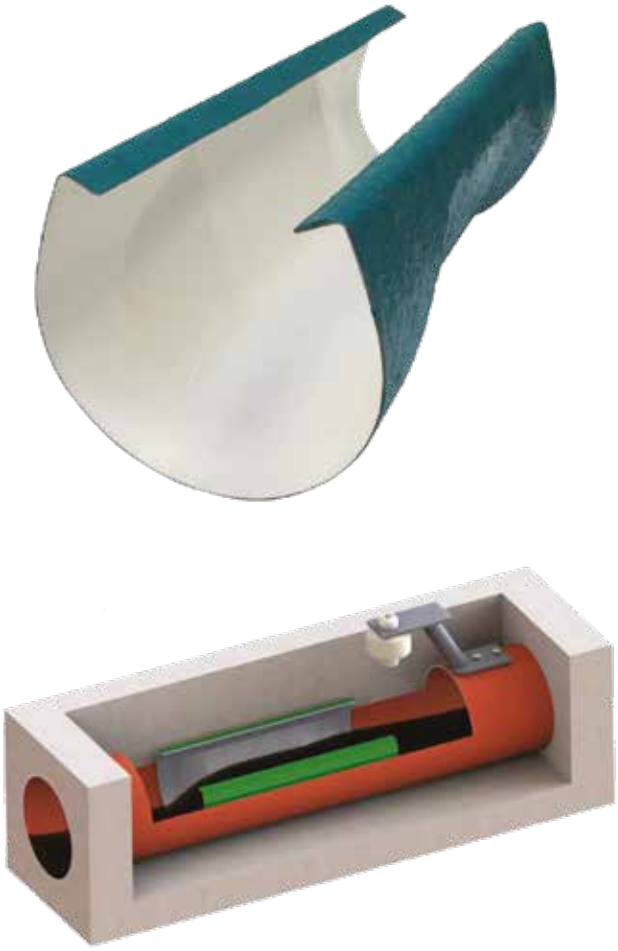
The continuous bottom surface without protrusions has a self-cleaning effect because it does not favour the deposit of debris.

Venturi BS are suitable for use in irrigation systems, industrial wastewater treatment, sewage sewage and turbid water in general.

Flow rate / Template	Q.min m³/h	Q.max m³/h
BS 150	1	50
BS 200	2	55
BS 300	3	150
BS 400	10	310
BS 500	20	500
BS 600	25	850
BS 800	50	1400
BS 1000	60	2250



Palmer-Bowlus channels



Palmer-Bowlus with holder and level sensor

Specific for flow measurement in outflow pipes or in non-pressurized pipes

- Direct installation in the pipe, or in the inspection well
- Flow rates from 0.45 to 1800m³/h

The Palmer-Bowlus is a hydraulic modeller consisting of an internal restriction that causes the hydraulic head to rise during its outflow. This rise is measured by a level sensor and used to calculate the instantaneous flow rate value.

Its main use is in pipes or conduits accessible through hatches.

The ease and low cost of installation are the reason for the growing number of applications of this instant flow measurement system.

Model	DN pipe	Measuring range
100	100	0.45...8m³/h (max. 8,9m³/h)
150	150	0.68...21m³/h (max. 22m³/h)
200	200	1.2...50m³/h (max. 52m³/h)
250	250	1.29...80m³/h (max. 82m³/h)
300	300	2.27...100m³/h (max. 102m³/h)
400	400	2.23...256m³/h (max. 262m³/h)
500	500	5.34...490m³/h (max.496m³/h)
600	600	10...700m³/h (max.709m³/h)
700	700	15...1150m³/h (max.1177m³/h)
800	800	18...1800m³/h (max.1841m³/h)

Electromagnetic flow meters

S103 C

S103 C electromagnetic flow meter is used to measure the flow rate of conductive fluids and wastewater.

The measurement is independent of density, viscosity, temperature and pressure and the conductivity of the fluid must be greater than 5µS/cm.

The measuring tube must not be crossed by fluids carrying solid bodies of high dimension that cannot be considered suspended solids. Load losses are absent and straight stretches reduced upstream and downstream of the instrument are necessary.

Main application fields

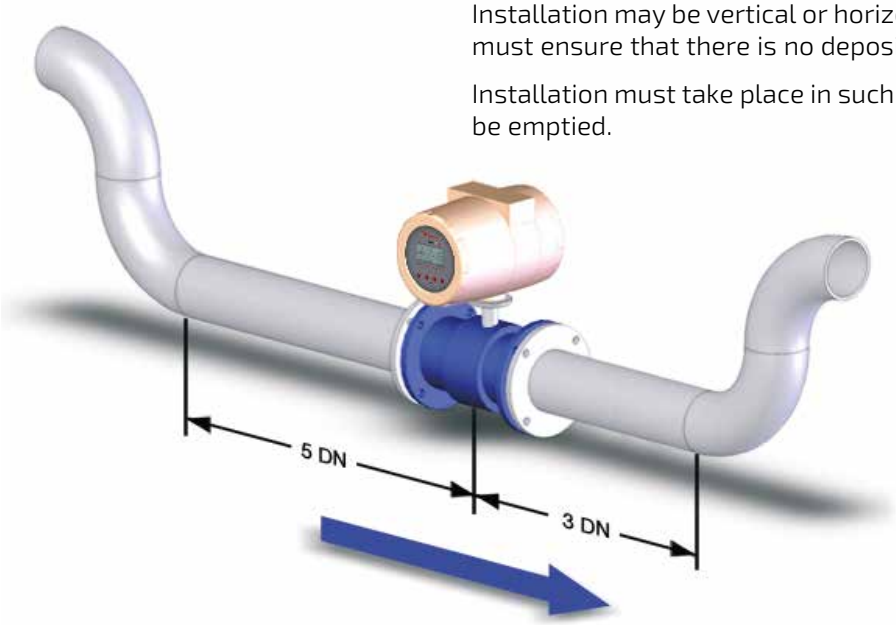
- Sludge and water (primary, drinking and waste) treatment
- Control of civil and industrial wastes
- Measurement of industrial process water: chemical, paper, tanning, pharmaceutical, food
- Control of chemical dosage
- Energy industry: generation and distribution
- Extractive industry: quarries, mines
- Environmental protection

Mounting

The electromagnetic meter must be installed so that the pipe is always completely filled with fluid. In the case of a half-empty pipe, the meter must be installed in an underground channel, or in a “goose neck”, to achieve a siphon effect.

Installation may be vertical or horizontal but in the latter case, users must ensure that there is no deposit of material on the electrodes.

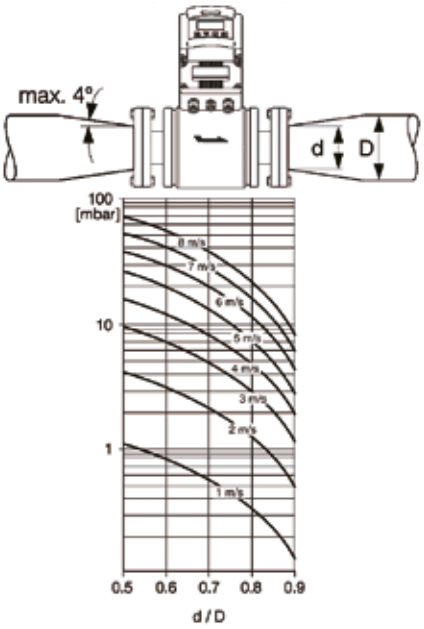
Installation must take place in such a position that the piping cannot be emptied.



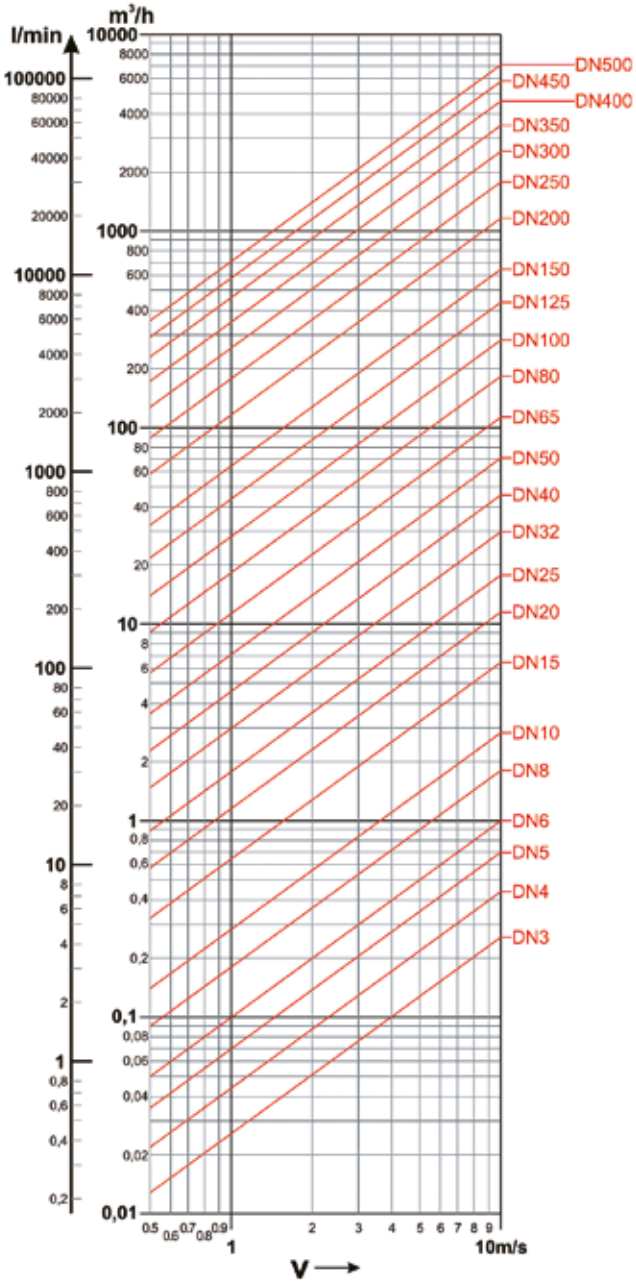
Electromagnetic flow meters diameter selection table

Abacus for the optimal selection of the measuring tube

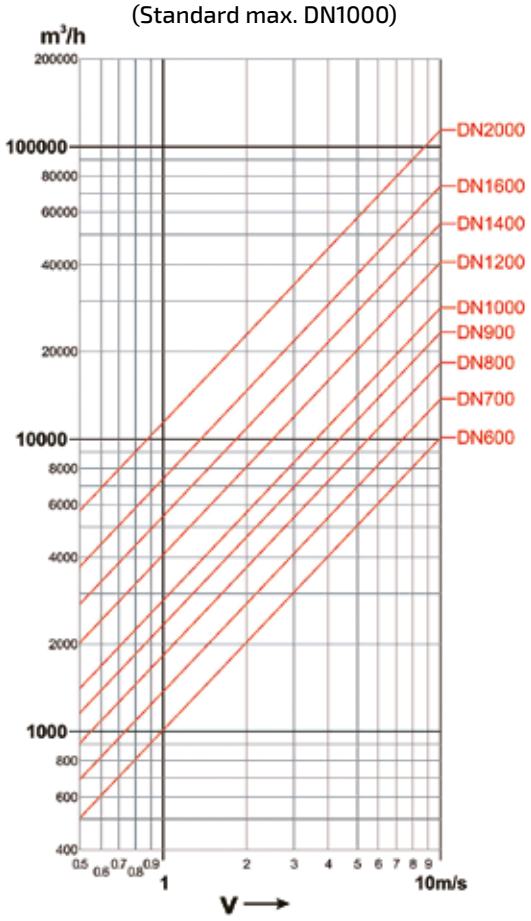
Head Losses



Brought from DN3 to DN500
(Standard min. DN10)



Brought from DN600 to DN2000
(Standard max. DN1000)



Electromagnetic flow meters

CH608 A/B/R

Converter **CH608**

CH 608 A: powered at 12/24 Vac-dc or 90/264 Vac - Aluminium case.

CH 608 B: battery powered with 6-year life (maximum diameter DN600 with body gauges) - Aluminium case.

CH 608 R: rechargeable battery, with solar panel and 12/24 Vac-dc input.

Hardware specifications, software and functions CH608 A/B/R

Converter installation	Compact on the sensor or remote on support, up to 100 m far from the sensor
Converter case	Epoxy painted aluminium, IP68 . With front window in toughened glass.
Power supply	**CH608A** 90...264 Vac; 12/24 Vac/dc; Max. consumption 10 Watt
	CH608B Battery powered or 12/24 Vac/dc ; Expected battery life T=0 / 50°C (32 / 122 °F) ; Internal battery pack 6...10 years
	CH608R Rechargeable battery & 10 Watt photovoltaic panel
Output signals	**Active analogue output** 4...20 mA ; Digital output for pulses 1000 Hz duty cycle max 50% for instant flow, positive only, positive and negative
	Programmable digital output for: – Maximum pulses1000 Hz duty cycle max 50% for negative flow; – Negative flow indication; – Cumulative alarm
	Digital output in active frequency 0...10 kHz
Temperature	**Process** -10°C...70°C ; **Ambient** -20°C ...60°C; **Storing** -30°C...70°C
Display	Graphic LCD 128x64 pixels, visual area 50x25mm, backlit
	Simultaneous indications: counter, instant variable and status flags
	4 totalizers available (2 positive totals and 2 negative totals)
Programming	– With 4 push buttons for non-billing applications – Through IrCOM interface and dedicated software – Via RS485 Modbus RTU protocol
Process data logger	4 MB flash memory, 200,000 lines of data (one line includes: instant flow, 2 counters, date, time, temperature)
Diagnostics data logger	64 kB EEPROM, 2000 lines of data (one line includes: date, time, temperature, error codes, user actions with changes made)

Electromagnetic flow meters

CH406

Converter **CH406**

The CH406 converter is the new flow meter designed for battery power, with high efficiency and advanced technological solutions. The 10-year battery life ensures reliable maintenance-free operation. The battery pack is easily replaceable, all data is automatically stored in the EEPROM memory to ensure the maintenance of recorded data.

Applications

- Extraction and distribution
- Accounting and counting of volumes
- Irrigation
- Waste and treatment waters
- Leak detection systems
- Any remote application without access to electricity

Hardware specifications, software and functions CH406

Transmitter type	Battery powered - 2 x D Cell 3.6 V * - Optional 12 / 24Vdc power supply
Battery life	Lithium battery pack up to 10 years / GSM module battery up to 10 years
Accuracy	0.2% ± 2 mm / s - 2% insertion sensors on scale ± 2 mm / s
Temperature	Environment: -20 ... 60°C Liquid -25 ... 80°C Storage -40 ... 70°C (-22 ... 158 F)
Custody	Technopolymer housing with aluminium lower section in the vertical compact version. IP 68.
Sensor types	Body sensors up to DN600 - Insertion meters
Speed range	From 0.015 m/s up to 10 m/s
Reading frequency	Standard mode 1/5 Hz up to 1/60 Hz (default 1/15 Hz) max 3.125 Hz
Installation	Integral (compact) or remote with factory resin-coated sensor cables from 5 to 30 m
Digital filters	Damping - flow suppression (0.05 m/s default) - bypass - peak suppression
Display and keyboard	LCD display - index, menu and status icons for dedicated information 4 buttons to access all functions
Views	Instantaneous flow, Positive total counter (T +) Negative total counter (T-) Positive partial counter (P +) Negative partial counter (P-) Net counter (NET)
	Time & date converter temperature
	Process pressure and temperature (if available) Matching parameters, codes and value
Flow unit	m, m^3, l, ml, ft^3, gal
Go out	2 passive outputs (1 programmable) MOS, galvanically isolated - clean contact
	Maximum load ± 35V DC, 100mA protected against short circuits.
	Optional 4 ... 20mA loop powered output.
	Optional RS485 Modbus output
Communication	Integrated Ircom interface.
Data-logging	100,000 lines of data with a recording rate between 1 minute and 120 minutes
Alarms and status icons	Status icons shown on the display and alarms recorded in the data logger
Self-diagnosis	Available alarms: interrupted excitation, power supply voltage, empty tube with fourth electrode, accumulation of pulses, empty tube with measuring electrodes, wet electronic board, high temperature, low battery level
External verification	Availability of the field verifier to verify the calibration and electronics status
Communication and programming software	Commissioning (same setting of the meters) - Print of data for documentation - Export of data (in CSV format) - Firmware update - Instant reading of flow rate - Reading and writing of non-volatile parameters - Download of internal data logger - Display of stored events

* Lithium batteries are subject to special transport guidelines in accordance with United Nations "Regulation of Dangerous Good", UN3090 and UN3091. To comply with these regulations, special transport documents are required. This can affect both transport times and costs.

Electromagnetic flow meters
Table of measuring tubes and insertion sensors

	CH2200	CH2200	CH2400
			
Connection to process			
Dimensions	DN15…DN100	DN 125…DN 2000	DN25…DN100
Connections	UNI 2223 on request ANSI 150; ANSI 300; AWWA Cl.D; ANSI 600		TRICLAMP on request DIN 11851; SMS fil. male
Pressure	PN10…PN64		PN10…PN40
Accuracy			
With liquid speed ≥ 0.2 m/s	0.2%	0.2%	0.2%
Material			
Inner lining	PTFE on request EBANITE	EBANITE on request PTFE	PTFE
Electrodes	HASTELLOY C on request Titanium, Tantalum, Platinum		HASTELLOY C on request Titanium, Tantalum, Platinum
No. of electrodes	2 x DN15..20 3 x DN25…40 4 x DN50…100	4	2
Body	Carbon steel		SS304
Flange	Carbon steel		SS304
Process temperature			
Compact version with integral converter with sensor	-25…80°C	-25…80°C	-25…80°C
Individual version with converter Individual from the sensor	-25…200°C	-25…200°C	-25…130°C
Protection grade			
Compact version with converter integral with the sensor	IP68	IP68	IP68
Separated version with converter separated from the sensor	IP68	IP68	IP68
Certifications			
ATEX II 2 GD EEx mb IIC T4 U	on request	on request	on request

	CH1000	CH500	CH2660	CH2770	CH1222
					
	DN25…DN300	DN6…DN20	DN80…DN500	DN80…DN2500	DN5…DN2000
	WAFER	GAS on request NPT; TRICLAMP; DIN 11851	INSERTION THREADED	INSERTION FLANGED UNI2278 DN40	INSERTION 1" BALL VALVE
	PN16…PN40	PN16	PN10	PN25	PN20
	0.2%	0,2%	2%	2%	2%
	PTFE on request EBANITE	PTFE	-	-	-
	HASTELLOY C on request Titanio,Tantalio	SS316 L	SS316 L	SS316 L	SS316 L
	3 x DN15…40 4 x DN50…300	2	2	2	2
	Carbon steel	SS304	SS304	SS304	SS304
	–	SS316 L	–	Carbon steel	Ball valve SS316 L
	-25…80°C	-25…80°C	-25…80°C	-25…80°C	-25…80°C
	-25…130°C	-25…130°C	-25…130°C	-25…130°C	-25…130°C
	IP68	IP68	IP68	IP68	IP68
	IP68	IP68	IP68	IP68	IP68
	on request	on request	on request	on request	on request

Electromagnetic flow meters

CH2300

Measuring tube for mounting in confined spaces

CH2300 sensors represent the state of the art of Chemitec production for water cycle and process applications. The innovative inner part of the sensor - which considerably increases liquid flow rate and the reading accuracy of signals to the electrodes - enables an extremely wide range of measurement.

This high performance also enables the precise and repeatable measurement of low flow rates even in difficult or problematic applications with solid parts.

Installation with no upstream and downstream distances

The cone-shaped section of the internal part of the sensor allows an optimized and accelerated flow profile which enables the sensor to be installed in any kind of condition; there is no need to have straight sections or segments of pipe upstream and downstream.

This U0-D0 condition enables excellent flexibility on the flow meter installation position.

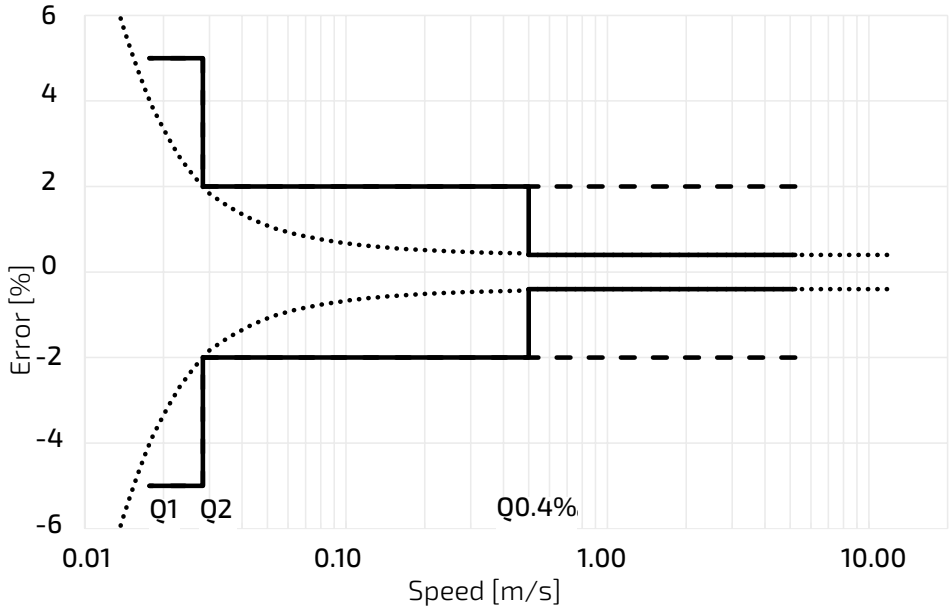
Technical features CH608 A/B/R

Flow tube material		AISI 304, SS316 (optional)							
Flanges material		Carbon steel (S235JR - 1.0037), AISI 304 optional, SS316 optional							
Available electrodes		Hastelloy C (standard), Hastelloy B, Titanium, Tantalum, Platinum							
Internal lining		Ebanite							
Liquid temperature		-40... 80°C							
Available diameters	mm	50	65	80	100	125	150	200	250	300
	inches	2"	2½"	3"	4"	5"	6"	8"	10"	12"
Standard flanged connections		EN1092-1 PN 16, ANSI 150							
Flanged connections on request		AS 2129 (Tab D, E, F), AS 4087 (PN 16, 21), KS10K, other on request							
Standard operation pressure		16 bar							
Pressure drop class		ΔP25 (< 0.25 bar)							
Installation requirements/ conditions		U0-D0							
Protection Degree		IP68 permanent submersion at 1.5 m (EN 60529)							

Calibration and maximum error

CH2300 sensors belong to the reference group B1 (ISO 11631). Each sensor is calibrated on a hydraulic bench equipped with a reference weighting system and is Accredia certified. The uncertainty of the measure is defined by the terms of OIML R49 regulation. The measure is bi-directional and repeatable to a tolerance of 0.1% while sensors are OIMLR49 certified.

The maximum permissible error is within the limits shown in the following graph:



Flow table CH2300

Sensor diameter	Flow [m³/h]					Ratio Q3/Q1
	Min. Q1	Trans. Q2	Q0.4%	Perm. Q3	Overl. Q4	
DN 50 - 2"	0.125	0.20	3.50	25.00	31.25	200
DN 65 - 2½"	0.2	0.32	6.00	40.00	50.00	200
DN 80 - 3"	0.315	0.50	9.00	63.00	78.75	200
DN 100 - 4"	0.50	0.80	14.00	100.00	125.00	200
DN 125 - 5"	0.80	1.28	22.00	160.00	200.00	200
DN 150 - 6"	1.25	2.00	32.00	250.00	312.50	200
DN 200 - 8"	3.15	5.04	57.00	630.00	787.50	200
DN 250 - 10"	5.0	8.00	90.00	1000.00	1250.00	200
DN 300 - 12"	8.0	12.50	128.00	1000.00	1250.00	125

Fixed or portable ultrasonic “transit time” flow meters for pressure pipes

Mod. **S101 F** for fixed installation

Mod. **200 H** portabl

The flow measurement systems **S101 F** and **200 H** consist of a digital converter and two ultrasonic **clamp-on** or **insertion transducers.**

The transit time of a fluid inside a pipe with a cylindrical section is the operating principle on which the instrument is based to calculate the value of the instantaneous flow rate.

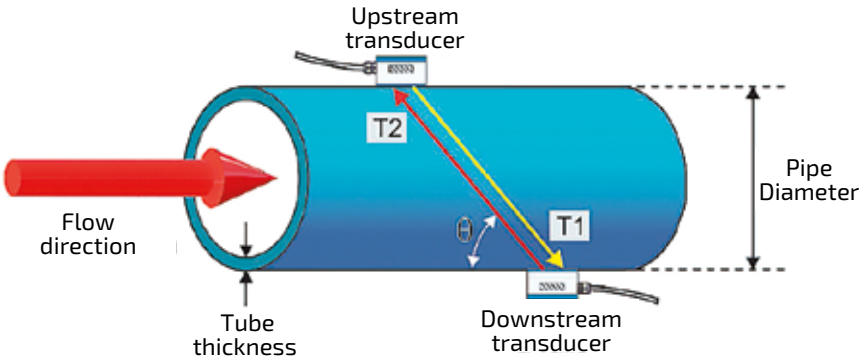
DSP technology

Digital Signal Processing technology (DSP) ensures low sensitivity of the system to any potential disturbing factors.

The pipe dimensions may vary from 20 to 4,000 mm (by using different transducers) while liquids can be: ultra-pure, drinking water, chemicals, dirty water, cooling water and river water.

Assuming the transducers are applied externally to the pipe, are not in contact with the liquid and have no moving parts, the transmitter will not be damaged by wear, deposits or pressure.

All the configuration values entered by user are saved on the EEPROM, which is password-protected to prevent accidental changes.



DSP technology - diagram

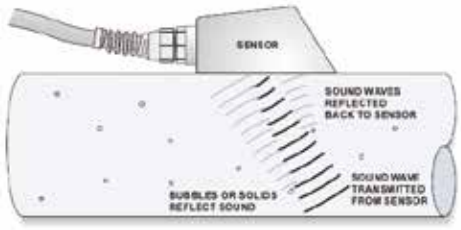
Hardware specifications, software and functions

Models	S101 F	200 H
Measurement on pipes	From DN 20 to 4000mm	From DN 20 to 4000mm
Piping material	Steel, stainless steel, cast iron, copper, PVC, aluminium, fibreglass-reinforced plastic (cement with insertion transducers)	
Measurement units (user selectable)	Metres, cubic metres, litres, feet, cubic feet, U.S. gallons, imperial gallons, oil barrels, U.S. oil barrels, imperial oil barrels, millions of U.S. gallons	
Type of liquid	Conductive fluids and not, even with the presence of suspended material (< 10g / l; < Ø1mm)	
Speed range	± 12m/s	
Linearity	0.5% ; repeatability: 0.2% ; total accuracy ± 1%	
Display	2 x 20 alphanumeric characters	3.5"; 320 x 240 px
Keypad	4 membrane buttons	8 buttons
Internal data logger	Optional	Storage capacity up to 32GB with SD card
Displayed data	Instantaneous flow rate; total flow; other	
Safety	Setup and change settings password protected	
Selectable output	4...20 mA or 0...20 mA	–
Frequency output	Programmable 0...5000 Hz	–
Output relay	For pulse or alarm totalizer	–
Signal interface	RS485	
Communication protocol	Modbus RTU; ASCII+ (Optional)	
Power supply	230Vac / 24Vdc (Optional)	External p. supply 100 ± 253Vac
Rechargeable batteries	–	Three (3) AAA Ni-mH integrated with autonomy >24 hours
Mounting	Wall-mounted IP66	Portable
Housing	Aluminium	ABS
Dimensions (L x H x P)	200 x 120 x 77 mm	218 x 103 x 35 mm
Weight	1Kg	0.4 kg
Operating temperature	-20...60°C	–
Maximum humidity	85% RH non-condensing (40°C)	
Process temperature	Sensor -40...160°C in reference to sensor type	
Sensor protection	IP68	

Fixed or portable “doppler” effect flow meters for pressurized lines

Fixed meter **DFM 6.1**

Portable meter **PDFM 5.1**



Operating principle

The **DFM 6.1** Doppler effect flow transmitter is suitable for most liquids, such as water, wastewater, chemical liquids, sludge and viscous liquids. It controls, indicates, totalizes and transmits the flow rate in gallons, litres or other measurement units.

The **PDFM 5.1** Doppler effect flow meter is suitable for monitoring a flow rate or to identify problems encountered in a closed pipe.

Operating principle

The sensor transmits high-frequency sounds into the liquid, through the pipe wall. The pulses are reflected and sent back to the sensor by solid particles and air bubbles present into the fluid. Because of the fluid’s movement, the reflected sounds return to the sensor with an altered frequency (Doppler effect). **DFM 6.1** and **PDFM 5.1** continuously measures the frequency deviation in order to ensure precise measurement of the velocity of the fluid and thus the flow rate.

Installation

Can be performed without stopping the plant. There is no contact between the sensitive element and the fluid whose flow rate is to be measured and no cutting or drilling are required on the pipe. The sensor is of a parallelepiped shape, is not affected by dirt or deposits and is easy to mount on the outside of a pipe using tape.

Easy programming

Using the program buttons, the programming menu is easily accessible and allows the user to select the diameter of the pipe and set the engineering units (gallons, litres etc), totalization velocity, relays, sensitivity and damping. Totalization and calibration data are password-protected and also protected against power failures.

Applications

DFM 6.1 is recommended for liquids containing solids or air bubbles; the sensor is mounted on the outside of a pipe made of steel, iron, PVC or ABS.

PDFM 5.1 is an ideal instrument for evaluating the performance of flow meters inserted in line. Can be installed, calibrated and commissioned in a few minutes and, therefore, used as a temporary substitution of an in-line transmitter.

Specifications	DFM 6.1 Doppler effect flow meter
Liquid characteristics	Required suspended solids or air bubbles with minimum cross section of 100microns, concentration 75ppm
Piping / DN and materials	½"...180" (12.7...4500mm) Steel, stainless steel, cast iron, ductile iron, concrete-lined ductile iron, PVC, HDPE or any other sound-conducting pipe material, including pipe lined with a coating bonded to the pipe wall. Avoid pipes with deteriorated coatings that contain air
Velocity measurement range	±0.03 up to 12.2 m/sec
Accuracy	±2% of reading or 0.05 ft/sec (0.015 m/sec). Repeatability±0.1%, Linearity ±0.5%
Display	White, backlit - Display of instantaneous flow rate, totalization, relay status
Programming	5-digit keypad
Analogue output	4...20mA opto-isolated (1000 ohm max.)
Control relay	Two (2) SPDT, 5 A programmable for flow alarm and/or pulse output
Power supply	100...240VAC 50-60Hz (other on request), Absorption 5 Watts max.
Enclosure	Polyester IP 66 NEMA4X. Clear polycarbonate front panel
Operating temperature	-23….60°C (-10...140°F)

Sensor Specifications	
Model SE4-A	Single-head ultrasonic with 6 m cable and SS mounting kit for pipes ½" (12.7 mm) ID or larger. Certified non-incendive for Class I Division 2, Groups A, B, C, D hazardous locations
Assembly kit	Sensor mounting bracket for pipes with external diameter from 15 to 800 mm. Gel of coupling (150g)
Operating temperature	-40...150°C (-40...300°F)

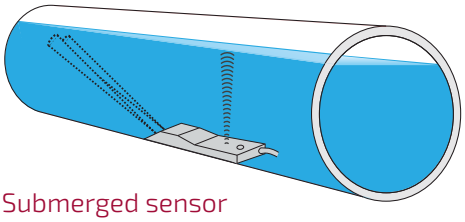
General Specifications	PDFM 5.1 Portable Doppler Flow Meter
Flow rate range	± 0.46 up to 12.2 m/sec
Pipe size	From ½ "up to 180" (12.7 .... 4500 mm)
Display	White, backlit matrix - displays flow rate, totalizer
Power input	Built-in NiMH battery for up to 18 hours continuous operation External charger with 100...240VAC 50/60Hz input
Outputs	4…20mA (500 ohm) when AC powered USB for Data Log transfer by direct PC connection
Data Logger	Programmable 300000 data point capacity, time and date stamped or formatted flow reports including total, average, minimum, maximum and times of occurrence
PC software	For Windows 98 or higher. Retrieves, displays and saves data log files
Electronics operating temperature	-23... 60°C (-10...140°F)
Electronics enclosure	Portable, ABS enclosure
Carry Case	Rated IP67 with protective molded foam insert
Accuracy	±2% of full scale, requires solids or bubbles minimum size of 100 microns, minimum concentration 75 ppm. Repeatability: ±0.25%, Linearity: ±0.5%
Calibration	Built-in 5-key programming with user-friendly calibration menu. Password protected
Sensitivity	Adjustable cut-off, damping: adjustable

Sensor specifications	
Model PSE4	Clamp-on, single-head ultrasonic for pipes ID: ½"...180" (12.5 mm...4.5 m) with 3.4 m shielded dual-coaxial cable
Sensor mounting kit	SS pipe clamp and 5.3 oz. (150 g) Siliconee coupling compound
Operating Temperature	-40...150°C (-40...300°F)

Fixed or portable flow meters: “Area x velocity”

Fixed meter **AVFM 6.1**

Portable meter **STINGRAY 2.0**



Submerged sensor
measures level and velocity

The **AVFM 6.1** system simultaneously measures the level and the velocity of the fluid in order to calculate the flow rate into an open channel or a pipe.

The **STINGRAY 2.0** portable instrument works for a very long period of time powered by alkaline batteries and stores measurements of water level, velocity and temperature in open channels and in partially filled or pressurised pipes without the need for constrictions or weirs.

Operating principle

The immersible ultrasonic sensor continuously monitors both the velocity and the level of the channel or piping by transmitting high frequency sounds into the liquid, through the pipe wall. The pulses are reflected and sent back to the sensor by solid particles and air bubbles present into the fluid. Because of the fluid's movement, the reflected sounds return to the sensor with an altered frequency (Doppler effect).

The best accuracy is achieved if the flow does not have an excessive turbulence and the velocity on the sensor is not less than 1 m/sec. The channel, right upstream of the sensor, must not have abrupt changes in the level of the bottom and a slope of no more than 3%. The conditions downstream of the sensor do not affect the measurement if the surface profile is not changed right above the sensor itself.

Easy calibration

To calibrate **AVFM 5.0** just insert the pipe diameter or the channel width and choose the measurement unit from the menu. The flow rate, level and velocity can be expressed in gallons, litres, ft^3 or m^3. The calibration parameters remain stored even in the absence of tension.

For **STINGRAY 2.0** no calibration is required. On the front there is a bar indicating velocity, level, temperature, battery status and finally the used/available memory. The display automatically turns off after 60 seconds to save power. The software allows the user to set the sampling intervals, to download the files and to get an indication of the variables. The logger displays the files and the calculated velocity in trend graphs and tables, including the minimum and maximum values, the average and total flow rate in normal measurement units.

Technical specifications	AVFM 6.1 Flow Meter Area x Velocity
Liquid characteristics	Required suspended solids or air bubbles with minimum cross section of 100 microns, 75ppm concentration
Type of channels	Unfilled pipe, rectangular, trapezoidal, egg-shaped or custom channels
Accuracy	Level: ± 0.25% of measurement range. Velocity: ± 2% of reading repeatability and linearity: ± 0.1%.
Display	White, backlit display - of instantaneous flow rate, totalisation, relay status.
Programming	5-digit keypad
Data logger	Recording capacity of 26 million points. Includes USB output and Windows Software
Analogue outputs	Three (3) 4...20mA Opto-isolated (1000 ohms max.)
Control relays	Two (2) SPDT, 5 A programmable for flow alarm and/or pulse output
Power supply	100...240VAC 50-60Hz (other on request), Absorption 5 Watts max.
Enclosure	Polyester IP 66 NEMA4X. Clear polycarbonate front panel
Operating temperature	-23... 60°C (-10... 140°F)

QZ02L Sensor specifications	
Velocity measurement range	0.03...6.2 m/sec and reverse flow to -1.5 m/sec in fluids containing bubbles or solids with a minimum size of 100 microns and a minimum concentration of 75 ppm to act as acoustic reflectors
Level measurement range	Minimum Head: 25.4 m Maximum Head: 4.57 m
Operating temperature	-15...65°C (5...50°F)
Exposed materials	SS316, epoxy resin, polyurethane
Sensor cable	7.6 m submersible polyurethane jacket, shielded, 3-coaxial
Sensor mounting	Includes MB-QZ SS mounting bracket
Temperature comp.	Automatic, continuous

General specifications	Stingray 2.0 Level-Velocity Logger
Electronics enclosure	Watertight, airtight, dust proof (IP 67) polycarbonate
Accuracy	Level: ±0.25% of Range. Velocity: ±2% of Reading
Display	LCD displays: Level, Velocity, Water Temperature, Battery and Memory capacity
Operating temperature	-20...60°C (-4... 140°F)
Instrument set-up	Via software for Windows: Logging Time Interval, Site Name
Logger interval	10 sec (15 days), 30 sec (45 days), 1 min (3 months), 2 min (6 months), 5 min (1 year), 10 min (2 years), 15 min (3 years), 30 min (4 years) or 60 min (4 years)
Data logger capacity	130,000 data points
Power	4 Alkaline 'D' cell batteries
Output/communications	USB
USB Cable	1 m shielded
Software	For Windows. Supports real-time monitoring, log file download and export, graph and data table presentation, level/velocity to flow conversion
Approx. shipping weight	4.5 kg

QZ02L Sensor specifications	
Velocity measurement range	0.03...3.8 m/sec in fluids containing bubbles or solids with a minimum size of 100 microns and a minimum concentration of 75 ppm to act as acoustic reflectors
Level measurement range	Minimum Head: 25.4 mm. Maximum Head: 4.5 m
Operating temperature	-15 to 80°C (5 to 175°F)
Exposed materials	SS316, polyurethane, epoxy
Sensor cable	7.6 m submersible polyurethane jacket, shielded, 3-coaxial
Sensor mounting	Includes MB-QZ SS mounting bracket
Temperature comp.	Automatic, continuous

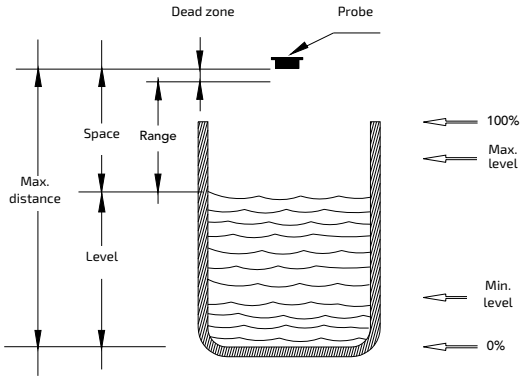
Level meter with ultrasonic or piezometric sensor

50 Series F/L

Main features

- Ultrasonic level measurement, single level, double level, differential level
- Automatic temperature compensation
- Programming display with 6 bubble keys
- Graphic display
- Pump operation: single, rotating or timed
- RS485 Modbus RTU serial output
- 2 Programmable analogue outputs
- 5 relay outputs for intervention thresholds for pump control
- 1 relay output for instrument anomaly alarm/ for flow totalisation/ or level 2 alarm

Main operational settings



DEAD ZONE Transducer insensitivity distance measured from the transducer active surface. (~ 30/40/70 cm depending on the type of probe connected)

DISTANCE Interval between the face of the transducer and the surface of the liquid inside the tank or equivalent. The distance cannot be greater than the range of the transducer.

RANGE Measurement range. Freely programmable within the range of the transducer - dead zone; therefore constitutes the theoretical operating range of the system.

LEVEL The interval between the zero level and the surface level of the liquid inside the tank or equivalent.

MAX LEVEL This is the maximum operating level above which the system issues an alarm.

MIN LEV It is the minimum operating level below which the system issues an alarm.

MAX DISTANCE maximum distance between the transducer surface and the vacuum level (zero).

SPACE Interval between the surface of the liquid inside the tank or equivalent and the dead zone

Hardware specifications, software and functions 50 Series F/L

Features measure	
Unit of measure	**Level** mt, cm, mm - **Temperature** °C
Measurement fields	**Level** 0.... 200 mt (in relation to the connected probe)
	Temperature -25°C...75°C
Precision	± 0.2% F.S.
Hardware features	
Display display	Graphic TFT colour LCD resolution 480x272 visible area 95x93 Backlit
	Simultaneous display of: Level (absolute / differential & bar-graph for percentage of full scale), temperature, status of the digital outputs, alarm events.
	Level 2, status of the analogue outputs
Checks	5 Keys
Data logger	Internal with 4 Mbit Flash
Serial output	One (1) RS485 galvanically separated Modbus RTU
Analogue outputs	Two (2) galvanically programmable separated
	1st exit: level / temperature - 2nd exit: level 2, differential, temperature
Relay outputs	Five (5) for Thresholds - One (1) for Alarm (max load 1A at 230Vac resistive)
Power supply	100... 240Vac / dc 50-60Hz (Optional 24Vac / dc) - Isolation Trasf. 4KV
Average absorption	<7W
Dimensions / weight	Dimensions: (L x H x D) 144 x 144 x 122.5 mm - Weight: 1 Kg
Analogue outputs	Selectable between: level 1, level 2, differential level, temperature
Typology	0.00... 20.00 mA / 4.00... 20.00 mA
Range	Limit programming: lower / upper
Maximum load	500 Ohm
Alarm output	NAMUR 2.4 mA (with 4 / 20mA range)
Relay outputs (5)	
Function - selectable	Thresholds
Alarm	
Function	Eco leak alarm
Programming	Out time (no echo time): 00: 00... 24: 00 h
Operating conditions	
Temperature	Working 0...50°C; storage and transport -25...65°C
Humidity	10...95% not condensed
Mechanical protection	Closed IP66 EN60529
EMI / RFI	CEI-61010 - 05/99

Ultrasonic level sensor

S425 C

Ultrasonic level measurement, without contact, suitable for measurement of liquids, with an integrated temperature sensor for temperature compensation.

Features and advantages

PVDF body resistant to aggressive environments

High resolution measurement 1mm

Double threaded connection

Immediate installation with disconnectable connector (IP67)

Modbus RTU protocol

Technical specifications S425 C

Measuring ranges	**S425 C5**	**S425 C12**
Measurement intervals	30...500 cm	50...1200 cm
Measurement method	Ultrasonic with automatic temperature compensation	
Emission angle	14° ±1°	10° ±1°
Accuracy	± 0.2% of measured distance (but not better than 2mm)	
Resolution	1 mm	
Working temperature	-10°C ...75°C	
Max pressure	0,5 bar...1,5 bar	
Body materials	PVDF – PCV	
Thread	1"g.m. / 1.5"g.m.	1"g.m. / 2"g.m.
Degree of protection	IP67 (IP68 optional)	
Electrical connection	Screw connector	
Power supply	24 Vdc	
Absorption	2 W	
Cable	5 m	12 m
Current output	Optional max load 500 ohm	
Signal interface	Standard Modbus RTURS485 protocol	

Ultrasonic level transmitters

Meter

The **measurement technology** used by the **Meter** level transmitter is that of the emission of a short ultrasonic pulse. The ultrasound wave propagates towards the surface of the product to be measured, bouncing on its surface, back towards the sensor. The time interval between the emission and reception of the wave is called the flight time and is proportional to the distance measured, therefore to the level.

Available versions

Range 6 m 2 wires; 2 wires HART; 2 wires ATEX
4 wires, 2 relays, Modbus

Range 10 m 2 wires; 2 wires HART; 2 wires ATEX
4 wires, 2 relays, Modbus

Programming takes place via a removable module (keypad/display). Once programming is complete, users can to remove the module (keypad/display), leaving the level transmitter operational but with no display on board.

Bluetooth

Hardware specifications, software and functions Meter

Measuring range	0.25…6 m ; max. 0.4…10 m (Distances expressed are valid for measurements of perfectly reflective surfaces, otherwise the maximum measurable distance is reduced)
Temp. compensation	Digital between -30…80°C
Accuracy	±0.2% (of the measured distance) but not less than ±3mm
Resolution	1 mm
Operating temperature	-30…70°C; 80°C non-continuous
Pressure	0.5…1.5 bar (absolute)
Programming/display	Removable module with 4 keys and dot matrix LCD (or via HART / Modbus RTU on request)
Housing material	PC o Al / PP o PVDF (ATEX certified versions only of PVDF)
Mechanical installation	2"GAS M (PP flange DN80 optional)
Protection grade	IP67
Power supply	24Vdc (20…30Vdc); 12Vdc (only 2 wires version)
Power consumption	2 wires version 0.6 W ; 4 wires version 1.5 W W
Analogue output	4…20mA, max 750ohm (4 wires version)
Output relays	Nr.2 - 3A 230Vac (n.a.) (only 4 wires version)
Digital communication	2 wires version (optional) HART ; 4 wires version Modbus RTU
Ex-proof	ATEX II 1/2G Ex ia II C T6

Radar level transmitters

Radar level transmitters

Non-contact continuous level measurement for liquids and solids

For liquids (max 20m) and solids (max 10m)

80GHz radar pulses

Visualization and configuration on removable display module

Output 4...20mA; 2 configurable relays

Remote control via Smartphone

Bluetooth

Hardware specifications, software and functions RDR81 / RDR 75

	RDR 81	RDR 75
Housing / sensor material	PP	PC / PP wet part
Mechanical installation	2 "GAS M (DN80 PP flanges optional)	2 "GAS M (DN80 PP flanges optional)
Degree of protection	IP66 / IP68 (Sensor) - IP68 optional	IP67 / IP68 (Antenna)
Electrical connection	Terminal blocks or waterproof connector cer. IP68 (optional)	Pressure terminal blocks
Working temperature	-30... 70°C; 80°C not continuous	-20... 60°C
Pressure	0.5 to 1.5 bar (absolute)	0.5 to 1.5 bar (absolute)
Power supply	24Vdc	24Vdc
Absorbed power	5W peak; 2.5W average	5W peak; 2.5W average
Analogue output	4 ... 20mA, max 750ohm	4 ... 20mA, max 750ohm
Relay in output	N° 2 3A 230Vac (n.a.)	N° 2 3A 230Vac (n.a.)
Digital communication	Modbus RTU	Modbus RTU
Maximum measuring range	0.05...20mt The distances expressed are valid for measurements from perfectly reflective surfaces, otherwise the maximum measurable distance is degraded	0.05...10mt max for solids 0.05...20mt max for liquids The distances expressed are valid for measurements from perfectly reflective surfaces, otherwise the maximum measurable distance is degraded
Block distance	0.05m	0.05m
Accuracy	± 0.2% (of the measured distance) however not better than ± 3mm.	± 0.2% (of the measured distance) however not better than ± 3mm.
Resolution	2mm	2mm
Calibration	Vers. IP66 display optional - 2 buttons - Modbus / vers. IP68– Modbus / Bluetooth via dedicated App	4 buttons or via Modbus RTU or Bluetooth via dedicated App
Visualization	VL611 programming module (optional)	VL601 programming module (optional) With 4 keys and matrix LCD

Radar level transmitter

RPL 55

Radar level transmitters

RPL55 is a radar sensor for continuous measurement of liquids, even chemically aggressive, in the presence of less-than-severe process conditions. Suitable for level measurement in tanks with G1½" threaded connections. The small size antenna allows mounting in still pipes or small tanks, and the availability of different sizes of the antenna extension allows installation in the presence of insulation or other thicknesses to be overcome.

- Continuous level measurement for liquids, pastes and sludges
- Measurement range 10 m
- Max process pressures up to 3 bar
- 2/4 wire technology
- Radar pulses at 26 GHz (K band)
- ATEX certification II 1 G/D Ex ia IIC T6...3 Ga / Ex ia IIIC T76°C...T146°C

Hardware specifications, software and functions RPL55

Frequency range	K band (26GHz)
Housing / antenna material	Aluminium; PVDF
Mechanical installation	Threaded G1½"
Degree of protection	IP67 / IP68 (Sensor)
Electrical connection	Pressure terminal blocks
Working temperature	PVDF antenna -40... 130°C
Pressure	from -1 to 3 bar
Power supply	24Vdc; 230Vac
Certification	ATEX
Analogue output	4...20mA
Digital communication	HART / Modbus
Maximum measuring range	10 mt
Accuracy	± 10mm
Resolution	1mm.
Calibration	4 buttons or via HART / Modbus
Thermal stabilization	5 minutes typical
Visualization	Extractable programming module VL602 (optional) With 4 keys and matrix LCD

Sludge interface level meter

Control unit

Power supply unit

Level sensor

Level (optional turbidity sensor) with wiper

EchoSmart™

Ultrasonic measuring system with submerged sensor (Sonar)

Sensor EchoSmart™

EchoSmart™ sensors generate and process the ultrasound signal for real-time measurement with maximum flexibility of the liquid/solid interface.

They have greater signal control and the performance of control algorithms, specifically developed and field tested, has been confirmed in the U.S. and around the world.

Flexibility

Available options

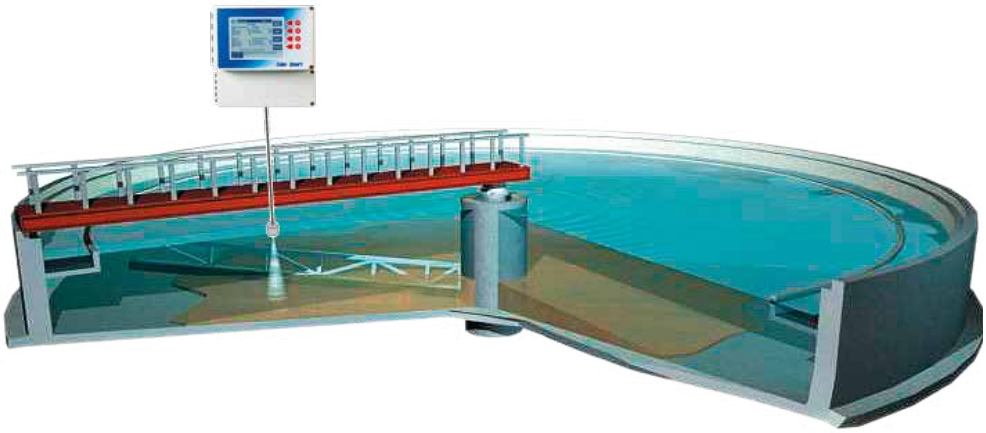
- EchoSmart™ sensor in conjunction with the EchoSmart™ control unit
- EchoSmart™ with sensor in conjunction with the power supply unit (remote programming via EchoSmart™ Console SW)

EchoSmart™ Networks

- Network interconnection of up to 128 EchoSmart™ sensors
- Communication via RS-485 or Ethernet
- RF compatible ZigBee network integration

Easy to use

- Large display with intuitive screens for quick entry of parameters
- Soft keys operation with Guide for all settings
- Initialization and automatic calibration for quick start-up with no process interruption



EchoSmart™ Network

- An EchoSmart™ network consists of between 2 and 28 sensors interconnected with a wired or wireless network
- For the wired networks here are available **RS-485 Serial - Modbus RTU** or Ethernet connections
- The ZigBee wireless system is also available and it is the ideal choice, considering the enormous reduction plant engineering (wiring and piping) costs

Features

- Up to 16 EchoSmart™ sensors can be connected in a network with a single EchoSmart™ controller with optimized operation and significantly reduced costs
- ZigBee with "self-healing" mesh technology ensures reliable communication by eliminating unnecessary piping and wiring costs

Hardware specifications, software and functions EchoSmart™

	Sensor	Control unit	Power supply unit
Measuring range	0.305...10.0 m	–	–
Measuring principle	Ultrasonic immersion	–	–
Measuring interval	Adjustable	–	–
Resolution	3.05 mm at 3 m	–	–
Accuracy	0.03 m at 3 m	–	–
Operating temperature	1...52°C	–	–
Calibration	Factory calibrated; Adjustable speed of sound	–	–
Display	–	Monochrome graphic Backlit 320 x 240 pixels ; Visual area 92 x 122 mm	–
Material	**ABS and Epoxy**	**320 x 240 pixels ; visual area 92 x 122 mm**	
Self-cleaning wiper	**Silicone (optional)**	**–**	**–**
Environmental conditions	–	- 40...60°C	- 40...60°C
Power supply	15 VDC	Polycarbonate NEMA 4X with IP65 protection	
Power	3W with wiper 6W	65 W (fuse)	20 W 1.34A
Relay (optional)	–	Four (4) 10A at 250 VAC; 10A at 30VDC	–
Mounting	Fixed or flexible	Wall or pipe	–
Dimensions (L x H x P)	Standard 62 x 75 mm With wiper 146 x 75 mm	235 x 229 x 115 mm	181 x 181 x 61 mm
Weight	Standard 1.02 kg With wiper 1.25 kg	Approx. 1.36 kg	Approx. 0.68 kg

Piezoresistive level transmitters

KPL

An ideal instrument for automating the process for measuring levels with hydrostatic head in duty applications. The absence of a separation liquid between the membrane and the pressure sensor, "dry-pressure" measure-ment technology, allows superior technological performance to be achieved in terms of overpressure, small temperature drifts, high stability and accuracy.

Measurement	From 0.1 bar (1m H_2O) to 20 bar (200m H_2O)
Accuracy / stability	±0.5 % FS / ±0.1 % FS
Operating temperature	**Product**- 20...60°C ; **Ambient** -20...70°C ; **Storing** -40...80°C
Output signal	4...20mA
Power supply	10...36Vdc with two wires
Material	**Membrane** AISI316L ; **Probe submerged** AISI304 ; **Cable** PU (polyurethane)
Protection grade	IP68
Dimensions	**Probe submerged** Ø 27 mm ; **Cable** Ø 8 mm

KWL

Hydrostatic head level transmitter

Specifically for wastewater

Accuracy ± 0.5%

Range from 1...200 m H2O

Immersed probe protection (wet part): IP68

Power supply 12...30Vdc (2-wire)

Power supply	10...36 Vdc (2 wires)
Measurement range	From 0...0.4 mH2O to 0...200 mH2O
Probe material	Immersed PVC (ø 46mm)
Capacitive sensor	Golden ceramic membrane
Shielded cable material	PU Ø 7.5 mm
Housing material	Epoxy-painted aluminium
Attack to the process	2 "GAS M, suspension cable, self-supporting fixing hook (optional)
Analogue output	4...20mA
Overload capability	1.5 times the F.S.
Accuracy	± 0.5%
Working temperature	-10...50°C
Storage temperature	-20...70°C

Piezoresistive and capacitive pressure transmitters

KPT

Suitable for continuous level measurement of liquids. KPT is a pressure transmitter that can be used for measuring liquids, gases, and vapours. The small pressure transducer offers maximum reliability and operating safety.

- Accuracy ± 0.25%
- Best quality/ price ratio
- Threaded, sanitary and vacuum connections

CPT

CPT is a compact transmitter suitable for applications in the aqueduct and water treatment sectors.

- Accuracy ± 0.2%
- Best quality/ price ratio
- Threaded process connections
- Capacitive sensor with ceramic membrane
- High mechanical resistance to over-pressures

SPT

SPT is a pressure transmitter for use in industrial processes, flexible in its use thanks to its high range-ability and the various possibilities of connection to the process. Thanks to its innovative technology it is particularly stable over time and accurate in measurement.

The internal temperature sensor corrects any deviations of the measurement caused by thermal variations of the process.

- Accuracy 0.075%
- Relative and absolute measurement
- Process connection threaded, male or female and by vacuum
- Hart communication
- Backlit matrix display
- Parameter setting via display
- Self-diagnosis and fast response time
- ATEX

SDT

SDT differential pressure transmitter. Particularly recommended for installations in processes where high accuracy and stability over time are required.

SDT can measure very low differential pressures, starting from 1 mbar (10 mm H_2O). It is IP67 rated and fully programmable by means of a backlit matrix display and two external watertight buttons.

- Accuracy 0.075%
- Range from 1 mbar to 20 bar
- Hart communication
- Backlit matrix display
- Parameter setting via display
- Self-diagnosis and fast response time
- ATEX

WEB Remote Control

CHEMITECWEB

Web app for monitoring and set up via HTTPS protocol

Monitoring using HTTPS via GPRS

CHEMITECWEB

The remote control system for your equipment

For a water-quality control plant to be truly reliable, its operation must be monitored at all times.

To achieve this, **CHEMITECWEB** uses specific tools to remotely control each plant, alerting the customer immediately in case of anomalies that may lead to non-compliance or loss of control.

Functions

Monitoring up to 50 water quality parameters via web for up to 30 instruments

Download report

Alerts via e-mail for exceeding maximum / minimum thresholds of the monitored parameters

Trend graph of the parameters in electronic format

Historical trends report

Event log and alarm history

Instant user interface

Thanks to a constant control of all functionality para-meters and to a frequent update, **CHEMITECWEB** allows you to view, thanks also to the graphs, the trend of the monitored variables of plant, typically the trend of the analysis, flow rates and levels.

These variables are always available in time with an immediate buffer of at least 30 days, and a history buffer from plant commissioning of 50,000 records. The data will always be available from PC via web, smartphone and tablet.

The communication gateway connects to the field devices through different connection methods: RS-232/485 serial ports, ASCII or Modbus RTU. The gateway sends the data to the cloud-based data center via Ethernet or a GSM / GPRS cellular network.

The SIM card for connection is provided by Chemitec and allows 5MB of data per month.

Quick and easy setup

Wherever your equipment is on the field, simply connect it to the gateway, and you'll be able to access real-time data online via a normal web browser.

The plug-&-play functionality allows the user to perform large installations in minutes.

Technical features

Communication gateway with automatic connectivity

Support for GPRS quad band communication or Ethernet communication

Device connectivity via RS232 and RS485 serial ports

Extendable, through add-in boards dedicated to instrumentation with analogue output (4...20mA) and equipment with digital outputs (ON-OFF status, alarm, etc.)

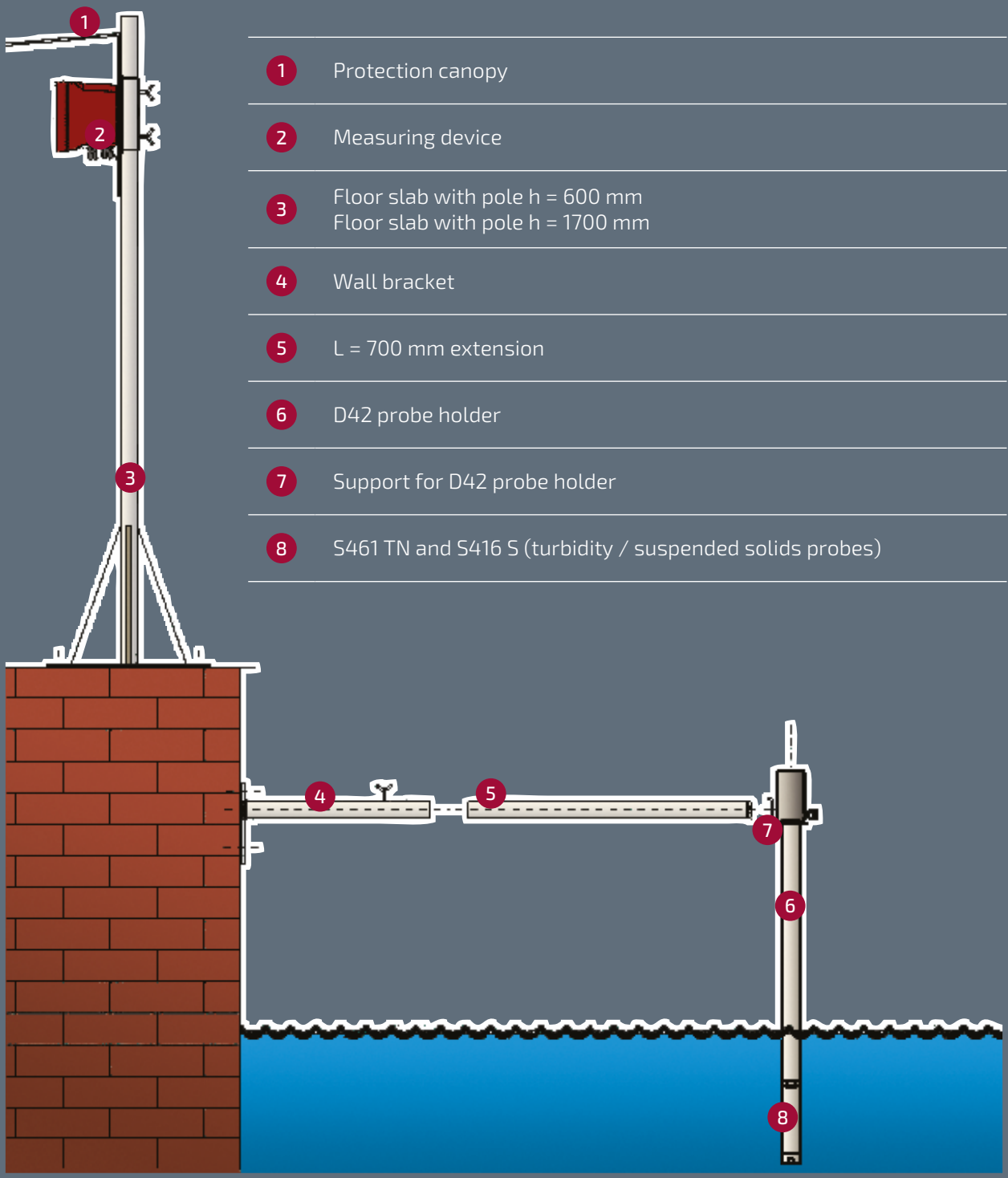
Temperature sensor integrated

Status LED for diagnostics

Hardware specifications CHEMITECWEB

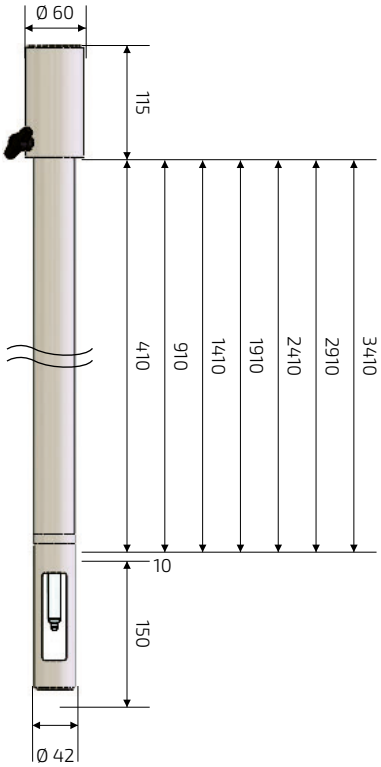
Connection	Ethernet and 2G/GSM/GPRS
Ethernet	10/100 Mbit/s
2G/GSM/GPRS	GPRS: Quad-Band GPRS Class 12 (850/900/1800/1900 MHz)
Antenna connector	SMA female
Relay output	1 (max 24 V, AC/DC, 1A)
Digital inputs	2 (Dry contact)
Analogue inputs (PT100, 0...10 V to 0...20 mA)	4 per 0...10 V to 0...20 mA and 2 perPT100
Analogue output	0...10 V
Serial port	#1 RS-232, from 1,2 kbit/s to 115,2 kbit/s / #2 RS-485, from 1,2 kbit/s to 115,2 kbit/s
GPS	Integrated (antenna for SMA female)
Protocols	Modbus-RTU (with TCP conversion), Modbus TCP, EtherNet/IP
Proxy support	SOCKS / WEB
Wall mounting / DIN rail	Yes / Yes
Dimensions (lxhxp)	92 x 135 x 27 mm
Housing	Metal
Operating temperature	-40 to 65°C
Power supply	9...32 VDC
Power consumption	(max 24 Vdc) 4.5 W

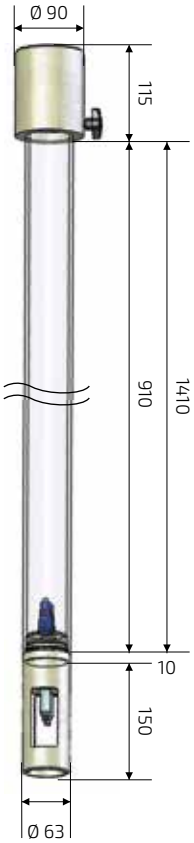
Accessories



1	Protection canopy
2	Measuring device
3	Floor slab with pole h = 600 mm Floor slab with pole h = 1700 mm
4	Wall bracket
5	L = 700 mm extension
6	D42 probe holder
7	Support for D42 probe holder
8	S461 TN and S416 S (turbidity / suspended solids probes)

Immersion probe holder





S315 Immersion probe holder for single D42 electrode

S315/2 Immersion probe holder for two D63 electrodes

S315/3 Immersion probe holder for three D63 electrodes

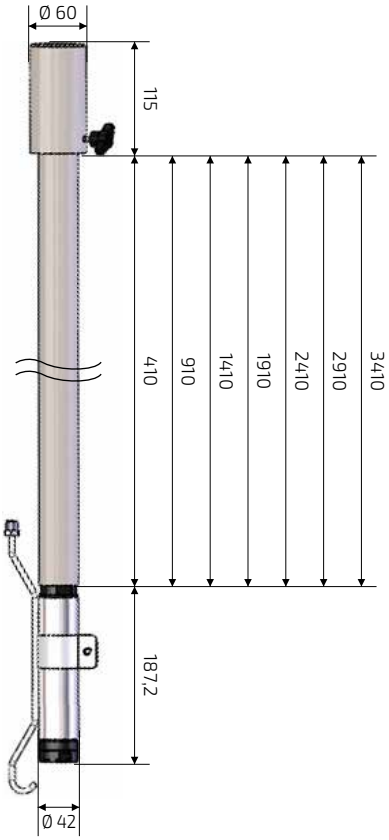
Materials
Polypropylene (PP) body
Nylon fixing screw
NBR O-rings
Working temperature
max 80°C
Available lengths
See drawing

S315/T Immersion probe holder with KCl tank

S315/T/2 Immersion probe holder for two D12 electrodes and KCl tank

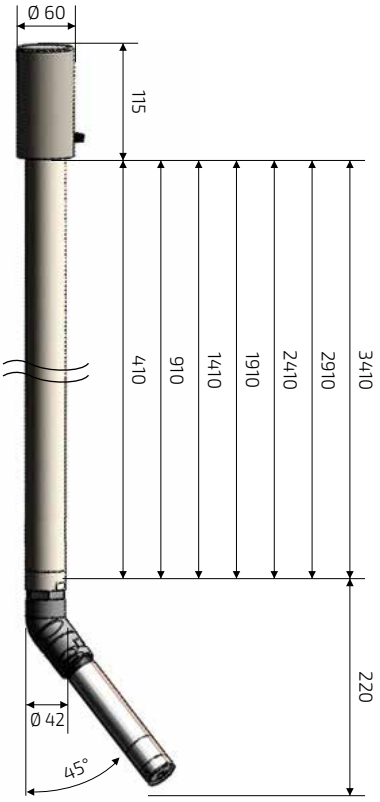
Materials
Plexiglass tube
Polypropylene (PP) protection and cap
Nylon fixing screw
NBR O-rings
Working temperature
max 80°C
Available lengths
See drawing
The plexiglass tube/tank allows the user constantly verify the KCl quantity

Immersion probe holder



S315/F Immersion probe holder for turbidity/suspended solids probes

Materials
Polipropilene (PP) tube and cap
Nylon fixing screw
NBR O-rings
Working temperature
Max 80°C
Available lengths
See drawing



S315/O Immersion probe holder for S423-C-OPT Oxygen probe and S401/6 DF/DG pH and redox digital/differential electrodes

Materials
Polipropilene (PP) tube and cap
Nylon fixing screw
PVc 45° fitting
NBR O-rings
Working temperature
Max 80°C
Available lengths
See drawing

SS316 nozzle for immersion probes cleaning

Materials
SS316 tube
SS316 nozzle
SS316 fittings and nuts
The washing conduit is connected to the nozzle via the ¼"BSP male threaded fitting. The system can be adapted to all Chemitec immersion probes and probe holders.

Insertion probe holder

Articulated support for probe holder

Materials
Black PVC articulated parts and probe holder support
SS316 plates and fixings
SS316 fixing screws
Suitable for Chemitec diameter 42 probe holder supporting, the articulated support is able to rotate and tilt around the X and Y axis, allowing a remarkable number of configurations.

Pressurized probe holder

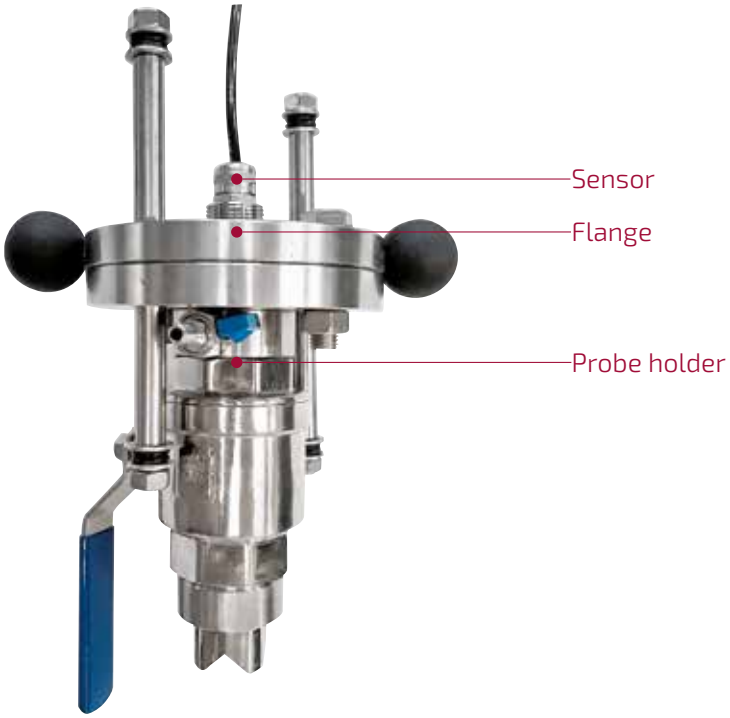
The pressurized probe holders are used to insert the electrode directly into process pipe lines.

The probe holder must be placed between two isolation valves to prevent lack of process liquid during maintenance operations.

Insertion probe holder

Model	PSS 3	SPP	SPPFIL
Connection	½" G.M.	1"G.F.	¾" o 1"1/4 G.M.
Probe connection	PG 13.5 o Ø 12mm	PG 13.5	PG 13.5
Maximum temperature	60°C	60°C	80°C
Maximum pressure	7 bar	16 bar	16 bar
Materials	PVC	PP and PVC	PP

Insertion probe holder for Turbidity/SS



General features

The probe holder **S305 INS** for insertion into the pipe is used for turbidity/suspended solids sensors.

Technical specifications

Body material	SS316
Ball valve	DN 40 for extraction of the probe without interruption of the process
Connection	Welded for mounting on pipe
Complete with	Fixing brackets of the safety sensor

Bypass probe holders

S305/M bypass probe holder for S461LT Probe

The modular probe holder is used to insert S461LT sensor for turbidity measurement in bypass

Applications

- Turbidity measurement in primary and drinking waters and industrial waters

Features and advantages

- System modularity allows alternative probe holders to be mounted
- Absence of moving mechanical parts
- Easy emptying and cleaning of the system

Technical data

Materials	Black PVC and plexiglass body, aluminium plate, NBR seals
Working temperature	0...50°C
Max working pressure	6 bar
Flow rate	min 60l/h - max 100l/h

PSS 8-A

Bypass probe holder for three (3) probes diameter 12 mm
Pressure up to 2 bar
Temperature up to 50°C
Transparent vessel
pH range 4.0...10 pH

Probe types
pH and ORP (redox) 12 mm
pH and ORP (redox) 13.5 mm
Temperature 12 or 13.5 mm
Conductivity 12 or 13.5 mm
Oxygen 13.5 mm

PSS 8-A1

Bypass probe holder for three (3) probes diameter 12 mm
Pressure up to 2 bar
Pressure up to 2 bar
Black vessel
pH range 2.7...12 pH

Probe types
pH and ORP (redox) 12 mm
pH and ORP (redox) 13.5 mm
Temperature 12 or 13.5 mm
Conductivity 12 or 13.5 mm
Oxygen 13.5 mm

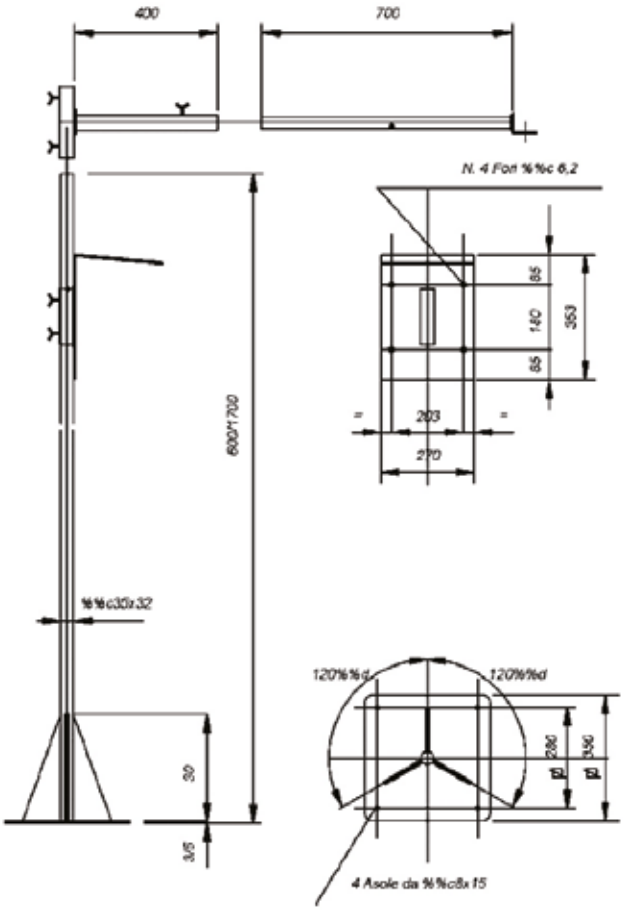
PSS 8-B1

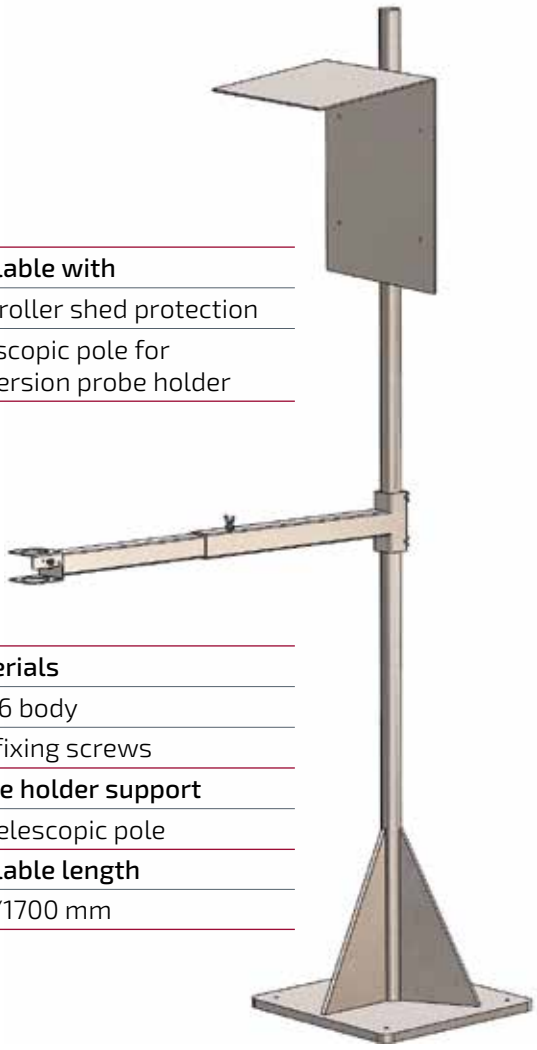
Bypass probe holder for one (1) probe diameter 35 or 42 mm
Pressure up to 2 bar
Temperature up to 50°C
Black vessel
pH range 2,7...12 pH

Probe types
Turbidity 42mm
Oxygen 35mm

Accessories for installations

SS316 standing pole for poolside fixing



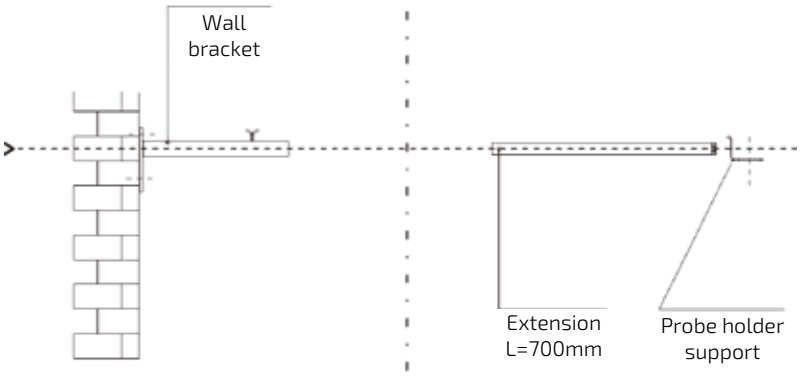


Available with
Controller shed protection
Telescopic pole for immersion probe holder

Materials
SS316 body
AISI fixing screws
Probe holder support
Via telescopic pole
Available length
600/1700 mm

SS316 standing pole or wall mounting/ poolside. D42 or 63 mm immersion probe holder

Materials
AISI 316 Mounting plate
AISI 316 Probe holders support
AISI 316 Fixing screws



Pre-assembled panels

The wide range of Chemitec products is enriched with new integrated systems for ease of use.

Paneltec with one (1) S494 chlorine sensor and 4293 test tool

Paneltec series

The wide range of Chemitec products is enriched with new integrated systems for ease of use.

Controllers, sensors and measuring cell are pre-assembled on polypropylene panels, with small dimension. The only required operations are the link to the electric and hydraulic network.

The Paneltec Series is a modular system which can be expanded up to 4 measuring parameters and compatible controller.

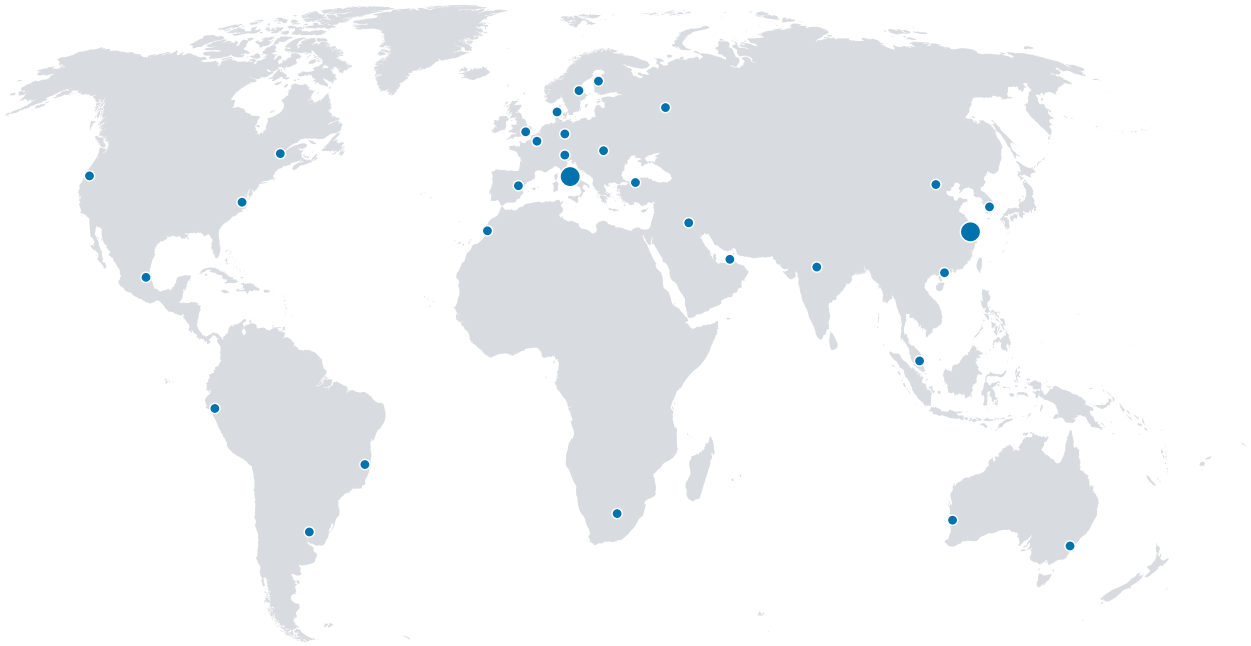
The standardized solutions of the paneltec series meet the needs of the most advanced operators and can be integrated with additional modules for the dosing or analysis of specific parameters, configuring the system according to customer requirements.

Paneltec with two (2) S461N turbidity cell (In-Out) and one (1) S494 chlorine sensor

Paneltec with two (2) S494 chlorine, one (1) S461LT turbidity sensor and one (1) S401VG pH electrode

Worldwide Distributor Network

Thanks to flexible and reliable instruments, user friendly solutions, outstanding technical skills and continuous improvement, we are selected as an ideal partner and continue to increase our international presence:



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