

SVCL



SVCL2
SVCL3S
SVCL3N
SVCL8
SVBR
SVCT

SVCL9
SVCL10
SVCL11

CLOSED AMPEROMETRIC CELLS

EN

OPERATING MANUAL

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This operating instructions contains safety information that if ignored can endanger life or result in serious injury.

The original instruction is in Italian. All non-Italian instructions are translations of the original instruction.

Read these instructions **carefully** before use and keep them for future reference.

Information and specifications on this manual could be uncorrect or could have printing errors. Specifications are subject to change without notice.

Version: R2-09-18



NORME CE
EC RULES (STANDARD EC)
NORMAS DE LA CE

Direttiva Bassa Tensione
Low Voltage Directive
Directiva de baja tensión

} **2014/35/UE**

Direttiva EMC Compatibilità Elettromagnetica
EMC electromagnetic compatibility directive
EMC directiva de compatibilidad electromagnética

} **2014/30/UE**

GENERAL SAFETY GUIDELINES

Operating, installing, or maintaining the unit in any way that is not covered in this manual could cause death, serious personal injury, or damage to the equipment.

ICON

This manual use the following safety message icon:



Danger!

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Warning!

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Important - A practice not related to personal injury or additional information.



Cross reference - An instance which refers to related information elsewhere in the same document

**PURPOSE OF USE
AND SAFETY**

**EQUIPMENT INTENDED FOR THE MEASUREMENT OF CHLORINE (OR ITS ABSENCE) IN
WATER.**

Do not use in explosive area (EX).
Do not use with flammable chemicals.
Do not use with radioactive chemicals.

Use the probe in accordance with the data and specifications printed on the label.

Do not modify or use in a manner inconsistent with the provisions of the operating manual.



When using this product with aggressive chemicals observe the regulations concerning the transport and storage of aggressive fluids.



When installing always observe national regulations.



Manufacturer is not liable for any unauthorized use or misuse of this product that may cause injury, damage to persons or materials.



Probes must be serviced and repaired by qualified and authorized personnel only.



Before any operation:

- always read chemical Material Safety Data Sheet (MSDS);
- always wear protective clothing;
- empty and rinse the liquid end before work on a the product which has been used with hazardous or unknown chemicals.



Avoid grinding / shock / falls / friction.

Environmental safety

Work area
Always keep the area clean to avoid and/or discover emissions.

Recycling guidelines

EWC code: 16 02 16

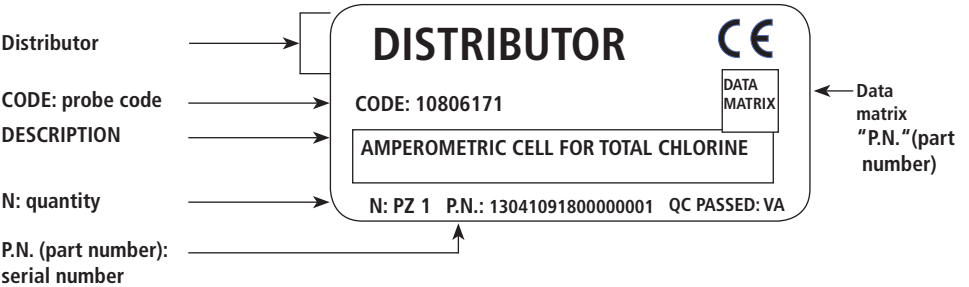
Always recycle according to these guidelines:
1. If the unit or parts are accepted by an authorized recycling company, then follow local recycling laws and regulations.
2. If the unit or parts are not accepted by an authorized recycling company, then return them to the nearest representative.

Waste and emissions regulations
Observe these safety regulations regarding waste and emissions:

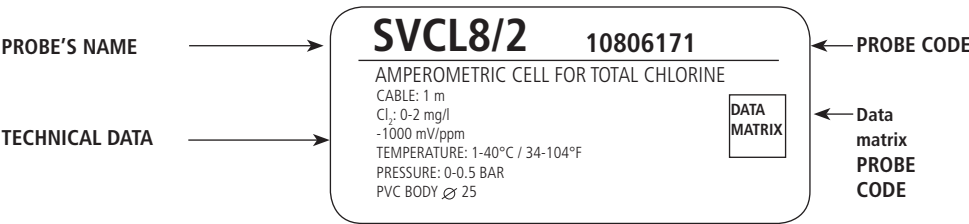
- Dispose appropriately of all waste.
- Handle and dispose of the dosed chemical in compliance with applicable environmental regulations.
- Clean up all spills in accordance with safety and environmental procedures.
- Report all environmental emissions to the appropriate authorities.

LABELS

On the box (example)



On the probe (example)



Spare parts
For spare parts orders or any other communication, refer to the pump's label. Code (CODE) and serial number (P / N) uniquely identify the probe.

i An unsuitable transportation or storage can cause damages.

Use original box to pack the probe.

Observe storage conditions also for transportation.

Although packed, always protect the unit against humidity and the action of chemicals.

! Before returning the probe to the manufacturer repair service, clean and rinse it. Disassemble the membrane cap and discard electrolyte.

i DO NOT DISCARD PACKAGING. USE IT TO RETURN THE PROBE.

Storage

To store the probe:

- 1. Decommission the probe
- 2. Store the probe in the original box, protected against sun, chemicals and humidity.

Transportation and storage temperature +10°C - +50°C (+32°F - +122°F)
Humidity 95% relative humidity (not condensed)

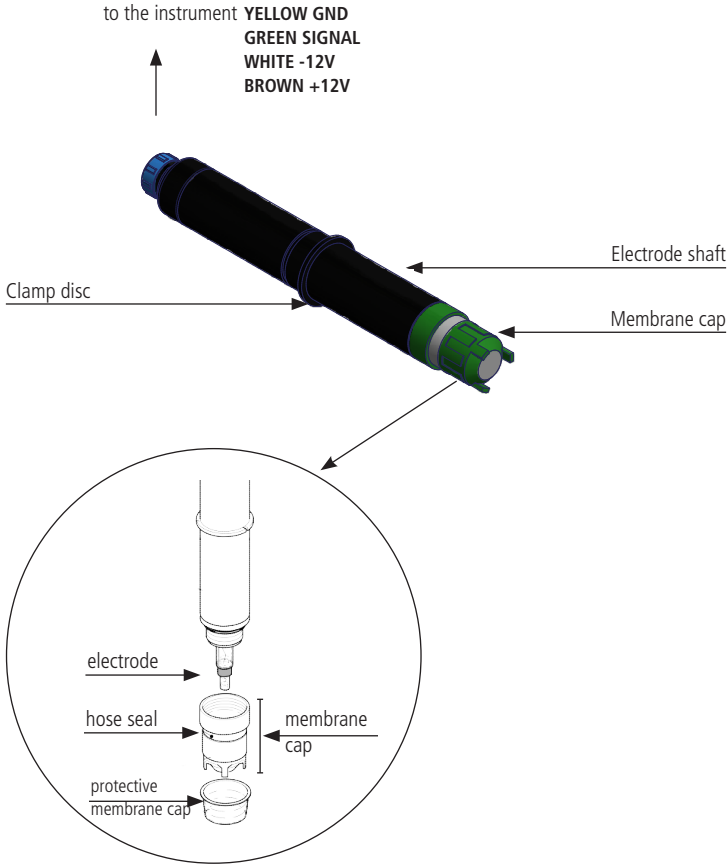
INTRODUCTION

Closed amperometric cells

They are equipped with a special membrane system.
SVCL 3 and 8 work in chlorine water system.

Absence of chlorine for more than 100 hours damage the probe.

The probe has to be installed into a probe holder and connected to a measuring and control instrument.



Packaging

The packaging will include the following:

- Sensor complete with sensor cap, protective cap and clamp ring
- Connector cable
- electrolyte
- operating manual

MODELS

- SVCLS3 for free chlorine (organic and inorganic) for fresh water
- SVCL3N for free chlorine (inorganic) for fresh water
- SVCL8 for total chlorine
- SVCL2 for chlorine dioxide
- SVCL9 for hydrogen peroxyde
- SVCL10 for ozone
- SVCL 11 for peracetic acid
- SVBR for bromine
- SVCT for chlorite

	SVCL3S
Parameter	FREE CHLORINE (ORGANIC) FOR FRESH WATER
Measuring range	SCL3S/20: 0,1-20 mg/l (0,1-20 ppm)
Output (Output resistance)	~ 100mV/ppm (1k Ω)
Voltage supply	± 15 VDC ($\pm 10\%$) - 10 mA
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric potentiostatic 2-electrode system
Ph working range	5,5-9,5 pH
Sample water conductivity	30-10.000 μ S/cm
Run-in-time	First commissioning: 6 h approx. Recommissioning: 3 h approx.
Response time	T ₉₀ : 2 min. approx.
Zero point adjustment	see chapter "Probe alignment"
Slope calibration	see chapter "Probe alignment" DPD1 method
Alcalinity	100 ppm
Working temperature	5-45 °C with temperature compensation
Max pressure	1 bar - 10 mwc [mH ₂ O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCL3
Membrane mod.	MESVCL3
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Membrane cap: PPE Shaft: PVC
Storage	probe: frost-protected, dry and without electrolyte ((5-40°C) membrane cap: 1 year, depending on water quality electrolyte: in original bottle, protect from sunlight (5-25°C). Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

	SVCL3N
Parameter	FREE CHLORINE (INORGANIC) FOR FRESH WATER
Measuring range	SVCL3N/2: 0-2 mg/l (0-2 ppm) resolution: ± 0.001 SVCL3N/20: 0-20 mg/l (0-10 ppm) resolution: ± 0.01 SVCL3N/200: 0-200 mg/l (0-200 ppm) resolution: ± 0.1
Output (Output resistance)	SVCL3N/2: ~ 1000 mV/ppm ($1k\Omega$) SVCL3N/20: ~ 100 mV/ppm ($1k\Omega$) SVCL3N/200: ~ 10 mV/ppm ($1k\Omega$)
Voltage supply	$\pm 5 - \pm 15$ VDC (10 mA)
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric 2-electrode system
Ph working range	5-9.5 pH, reduced dependance on pH value. When the pH value increases, the measured signal decreases at about 10% per pH unit.
Water sample conductivity	500 $\mu S/cm$ - 10000 $\mu S/cm$
Run-in-time	first start up: 1-24 h (6 hours usually) depending on water quality
Response time	T_{90} : 2 min. approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment" DPD1 method
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar - 10 mwc [mH2O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCL3N
Membrane mod.	MESVCL3
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Shaft: PP/PMMA; Membrane cap: PPE
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

	SVCL8
Parameter	TOTAL CHLORINE
Measuring range	SVCL8/2: 0-2 mg/l (0-2 ppm) resolution: ± 0.001 SVCL8/20: 0-20 mg/l (0-20 ppm) resolution: ± 0.01
Output (Output resistance)	SVCL8/2: ~ 1000 mV/ppm ($1k\Omega$) SVCL8/20: ~ 100 mV/ppm ($1k\Omega$)
Voltage supply	$\pm 5 - \pm 15$ VDC (10 mA)
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric 2-electrode system
Ph working range	6.5-9.5 pH, reduced dependance on pH value. When the pH value increases, the measured signal decreases at about 10% per pH unit.
Water sample conductivity	0.03 - 40 mS/cm
Run-in-time	first start up: 24 h approx.
Response time	T_{90} : 60 s approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment" DPD4 method
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar (14.5 PSI) - 10 mwc [mH ₂ O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCL8
Membrane mod.	MESVCL8/2 or MESVCL8/20
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Shaft: PVC; membrane cap: PPE.
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

Parameter	CHLORINE DIOXIDE
Measuring range	SVCL2/2: 0-2 mg/l (0-2 ppm) resolution: ± 0.001 SVCL2/20: 0-20 mg/l (0-20 ppm) resolution: ± 0.01
Output (Output resistance)	SVCL2/2: ~ 1000 mV/ppm (1k Ω) SVCL2/20: ~ 100 mV/ppm (1k Ω)
Voltage supply	$\pm 5 - \pm 15$ VDC (10 mA)
Connection	4-pole screw connector
Measuring system	membrane covered, 2-electrode system
Ph working range	4-11 pH
Run-in-time	first start up: 1-24 h approx. (usually 6 h)
Response time	T ₉₀ : 15 sec.. approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment"
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar (14.5 PSI) - 10 mwc [mH2O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCL2
Membrane mod.	MESVCL1-2
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Shaft: PVC; membrane cap: PPE.
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

Parameter	HYDROGEN PEROXIDE
Measuring range	SVCL9/200: 0-200 mg/l (0-200 ppm) resolution: ± 0.1
Output (Output resistance)	0 / ~ 10 mV/ppm (1k Ω)
Voltage supply	$\pm 5 - \pm 12.5$ VDC 10 - 25 VDC 25 mA
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric electrode system
Ph working range	1-11 pH
Water sample conductivity	0.05 - 5.00 mS/cm
Run-in-time	first start up: 2-6 h approx.
Response time	T ₉₀ : 10 min. approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment"
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar (14.5 PSI) - 10 mwc [mH ₂ O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCL9
Membrane mod.	MESVCL9
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Shaft: PVC-C; membrane cap: PVDF, PVC
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

Parameter	OZONE
Measuring range	SVCL10/20: 0-20 mg/l (0-20 ppm) resolution: ± 0.01
Output (Output resistance)	SVCL10/20: 0 / -1000 mV (1k Ω)
Voltage supply	$\pm 5 - \pm 15$ VDC 10 mA
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric 2-electrode system
Ph working range	2-11 pH
Run-in-time	first start up: 1 h approx.
Response time	T ₉₀ : 50 sec. approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment"
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar (14.5 PSI) - 10 mwc [mH ₂ O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELSVCL10
Membrane mod.	MSVCL10
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	PVC-U, stainless steel 1.4571
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

Parameter	PERACETIC ACID
Measuring range	SVCL11/200: 0-200mg/l (0-200 ppm) resolution: ± 0.1 SVCL11/2000: 0-2000 mg/l (0-2000 ppm) resolution: ± 1
Output (Output resistance)	0 / -2000 mV (1k Ω)
Voltage supply	$\pm 5 - \pm 15$ VDC 10 mA
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric 2-electrode system
Ph working range	1-9 pH
Run-in-time	first start up: 1 h approx.
Response time	T ₉₀ : 3 min. approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment"
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar (14.5 PSI) - 10 mwc [mH ₂ O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCL11
Membrane mod.	MESVCL11
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	PVC-U, stainless steel 1.4571
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

Parameter	BROMINE
Measuring range	SVBR/20: 0-20mg/l (0-20 ppm) resolution: ± 0.01
Output (Output resistance)	$\sim 100 \text{ mV/ppm (1k}\Omega\text{)}$
Voltage supply	$\pm 5 - \pm 15 \text{ VDC}$ 10 mA
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric 2-electrode system
Ph working range	6.5-9.5 pH
Water sample conductivity	500 $\mu\text{S/cm}$ - 10000 $\mu\text{S/cm}$
Run-in-time	first start up: 1-24 h approx. (usually 6 h)
Response time	T_{90} : 2 min. approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment"
Alcalinity	80 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	0.5 bar (7 PSI) - 5 mwc [mH ₂ O] no pressure impulses and/or vibration, no depressure
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVBR
Membrane mod.	MESVBR
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Shaft: PVC; membrane cap: PPE
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDING ON WATER QUALITY.

Parameter	CHLORITE
Measuring range	SVCT/2: 0-2mg/l (0-2 ppm) resolution: ± 0.001
Output (Output resistance)	~ 1000 mV/ppm
Voltage supply	$\pm 5 - \pm 15$ VDC 10 mA
Connection	4-pole screw connector
Measuring system	membrane covered, amperometric 2-electrode system
pH range	5.5-9.5 pH
Conductivity range	0.05-5 mS/cm
Run-in-time	first start up: 1-24 h approx. (usually 6 h)
Response time	T_{90} : 60 s approx.
Zero point adjustment	See Operating manual: "Probe alignment"
Slope calibration	See Operating manual: "Probe alignment"
Alcalinity	100 ppm
Working temperature	1-40° C (34-104°F)
Temperature compensation	automatically, by an integrated temperature sensor
Max pressure	1 bar (14.5 PSI) - 10 mwc [mH2O] no sbalzi di pressione, no depressione
Power supply	4 wires (brown +; white -; green OUT signal; yellow GND)
Cable (standard)	1 m (3.28 ft)
Electrolyte mod.	ELESVCT
Membrane mod.	MESVCT
Working flow	30 l/h
Suitable for probe holder mod.	PEF1, PEF1/E, PEF5, PEF23
Material	Shaft: PVC; membrane cap: PPE
Storage	probe: frost-protected, dry and without electrolyte (5-40° C) membrane cap: used membrane cap can not be stored electrolyte: in original bottle, protect from sunlight (5-25°C) Expiration date on the label.
Maintenance	regular control of measuring signal change of the membrane cap: every 3-6 months change electrolyte: every 3-6 months SHORTEN THE MAINTENANCE INTERVALS APPROPRIATELY DEPENDENT ON WATER QUALITY.

Operating principle

SVCL probes are membrane covered amperometric electrode systems.

The measuring electrode is membrane covered and it is in the electrolyte area together with the reference electrode. Electrolyte area contains a special electrolyte and it is separated from the measuring water.

SVCL probes measuring method is an electrochemical technique that measures the changes in current resulting from chemical reaction as function of the analyte concentration.

Precautions

Before any operation (preparation, cleaning and replacements) and before handling the probe you MUST FOLLOW these PRECAUTIONS.



DANGER

Wear unpowdered nitrile gloves.

Avoid contact of the electrolyte with the skin.

In case of contact with skin, rinse immediately with plenty of water.

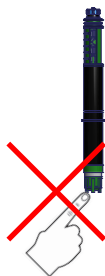


DANGER

Wear eye protection

Avoid contact of the electrolyte with the eyes.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.



i IMPORTANT

DO NOT TOUCH OR DAMAGE THE MEMBRANE AT THE BOTTOM OF THE MEMBRANE CAP AND THE ELECTRODES AT THE BOTTOM OF THE ELECTRODE SHAFT OR BRING THEM INTO CONTACT WITH GREASY SUBSTANCES. OTHERWISE THE SENSOR WILL NO LONGER WORK ACCURATELY. REPLACE THE MEMBRANE CAP WITH A NEW MEMBRANE CAP OR SEND THE SENSOR AWAY TO HAVE THE ELECTRODES CLEANED.

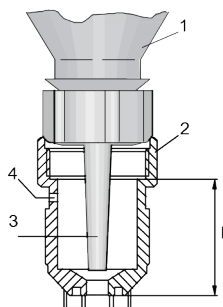
⚠ WARNING

Wear nitrile gloves powder free.
Avoid electrolyte contact with skin.
In case of contact, immediately rinse with water.

i IMPORTANT

The electrolyte is sensitive to oxidation: Always keep electrolyte bottle sealed after use. Do not decant electrolytes into other containers. Do not store electrolyte beyond its "Use by" date and note the "Use by" date on the label. As far as is possible, fill the electrolyte so that it is free from bubbles. Only use the membrane cap once.

Fig. 1. Filling electrolyte



- 1 Electrolyte bottle
- 2 Membrane cap
- 3 Nozzle
- 4 Venting hole
- l Electrolyte level

1. Open the electrolyte bottle.



2. SVCL3S - SVCL8

Screw on the nozzle.

Place the electrolyte bottle on the membrane cap and allow the electrolyte to press out slowly in a stream of liquid from the bottle, while at the same time constantly pulling back the bottle

The cap is completely full if the electrolyte can be seen at the bottom thread (thread not covered by electrolyte).

Fig. 2. SVCL3N - SVCL2 electrolyte



2. SVCL3N - SVCL2

SVCL3N / SVCL2 electrolyte is already screwed. Remove the red end cap and cut off the top end of the spout on the **second line** (Fig. 3).

The cap is completely full if the electrolyte can be seen at the bottom thread (thread not covered by electrolyte).

Avoid bubbles.

Fig. 3. SVCL9 electrolyte



2. SVCL9

Use the pipette included to fill the membrane cap.

The cap is completely full if the electrolyte can be seen at the bottom thread (thread not covered by electrolyte).

Avoid bubbles.

3. Place the electrode shaft vertically onto the filled membrane cap.

4. Turn the membrane cap manually as far as it will go so that there is no gap between the membrane cap and the electrode shaft.

When screwing shaft, allow excess electrolyte to outlet through the air vent hole underneath the hose seal.

Do not use fingers to close the vent hole beneath the hose seal.

5. Wipe up any escaped electrolyte with a soft paper towel or similar.

6. Rinse the nozzle thoroughly and then rinse off with a clean, powerful water jet, so that there is no longer any adhering electrolyte.

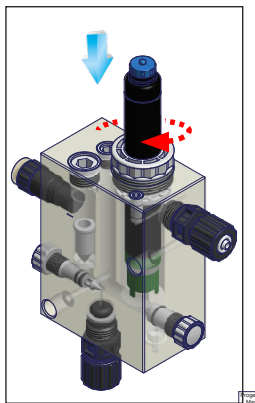
7. Close electrolyte bottle after use.

Probe alignment procedure

Alignment procedure must be performed monthly or more frequently if the application needs higher precision.

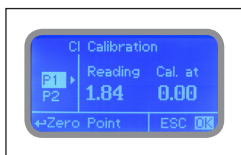
The sensor needs to be calibrated to the instrument it is connected to.

Two points calibration: 0 and a value close to working point.



Connect the probe to the measuring instrument. Install the probe into PEF flow cell (PEF in the pictures is an example). See “**Installation on PEF**”:

- close water inlet/outlet through the PEF;
- unscrew completely the threading nut on PEF;
- insert the probe **slowly** until the **bottom**;
- screw the threading nut to fix the probe into the PEF. Use **hands only**. Make sure the probe is **tightly fastened** in the place.



To calibrate the probe to point 0, water must be chlorine free. For a chlorine free water, substitute the filter (installed before the PEF) with a carbon filter one.

Check the absence of chlorine by a DPD1 / DPD4 or a colorimetric method (depending on the probe).

Open PEF water outlet and then water inlet.

Wait the time as in “Run-in-time” on the probe technical sheet.

Proceed to 0 calibration as described on instrument manual.

To calibrate the probe on the second point, substitute the carbon filter with a standard filter.

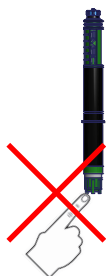
Open PEF water outlet and then water inlet.

Wait the time as in “Run-in-time” on the probe technical sheet.

Check the water chlorine by a DPD1 / DPD4 or a colorimetric method (depending on the probe).

Proceed to slope calibration (Point 2) as described on instrument manual.

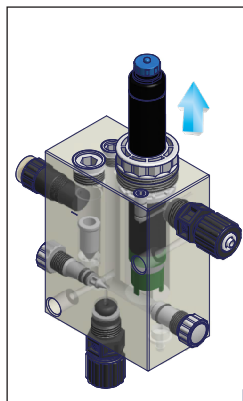
Cleaning procedure must be performed monthly or more if the application needs higher precision.



i IMPORTANT

DO NOT TOUCH OR DAMAGE THE MEMBRANE AT THE BOTTOM OF THE MEMBRANE CAP AND THE ELECTRODES AT THE BOTTOM OF THE ELECTRODE SHAFT OR BRING THEM INTO CONTACT WITH GREASY SUBSTANCES.

OTHERWISE THE SENSOR WILL NO LONGER WORK ACCURATELY. REPLACE THE MEMBRANE CAP WITH A NEW MEMBRANE CAP OR SEND THE SENSOR AWAY TO HAVE THE ELECTRODES CLEANED.



Uninstall the probe from PEF flow cell.

- close water inlet/outlet through the PEF;
- unscrew completely the threading nut on PEF;
- extract the probe **slowly**.

Gently remove any adhesive dirt:

1. Rinse the membrane under a gentle stream of cold water
2. Remove deposits (lime scale, rust):

- Dismantle the membrane cap
- Rinse the sensor with plenty of water

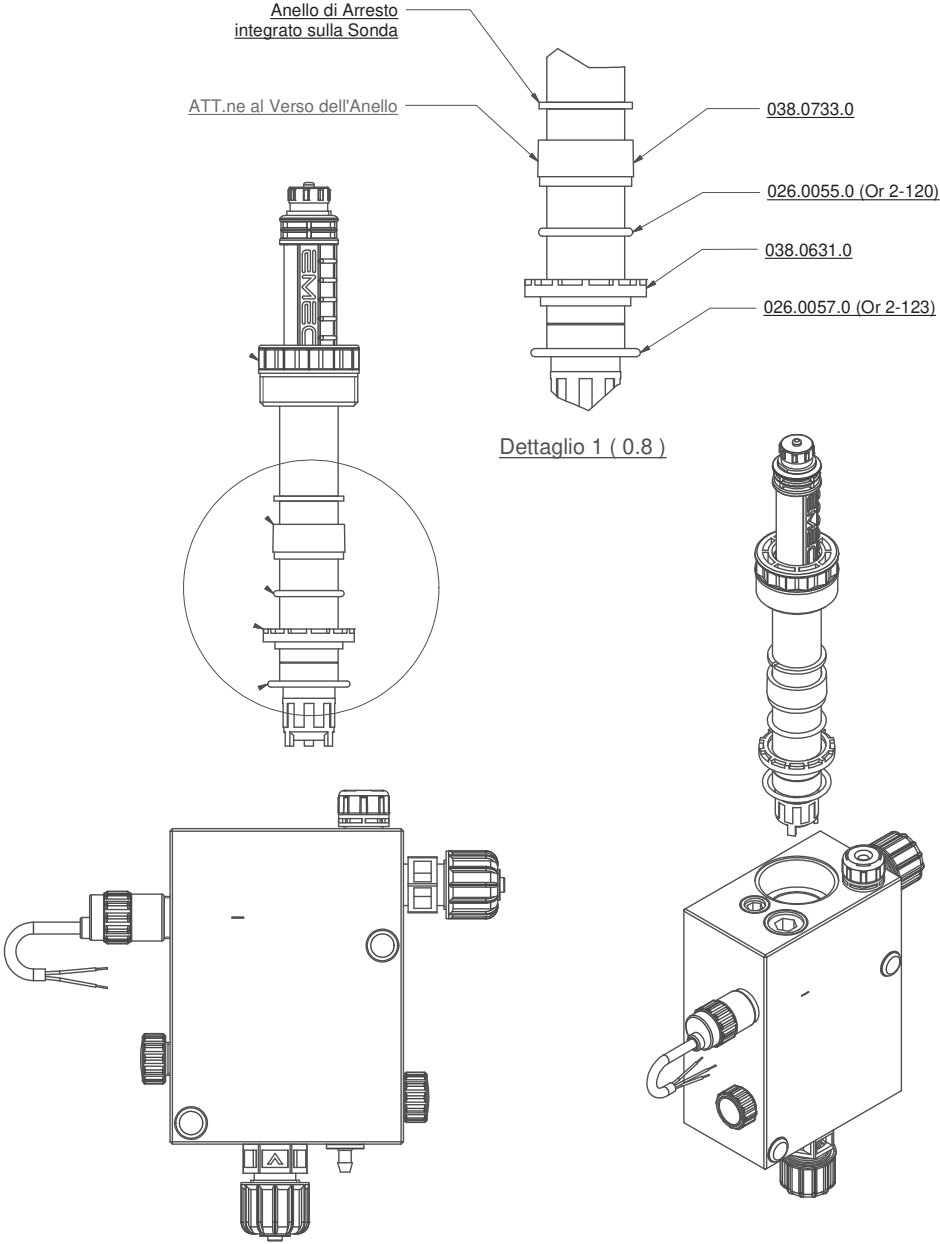
Now fill the sensor with electrolyte, allow it to run in and recalibrate.

Replacing the membrane

If calibration is no longer possible even after the membrane has been cleaned or if the membrane is damaged, then you need to replace the membrane cap.

Repairing the sensor

The sensor can only be repaired in the factory. Return it in its original packaging.



MAINTENANCE

Maintenance schedule

⚠ DANGER
MAINTENANCE SCHEDULE

In order to ensure the requirements of potable drinking water treated and the maintenance of the improvements as declared by the manufacturer, this equipment must be checked at least once a week.

⚠ DANGER
OPERATOR PROTECTION

Use safety equipment according to the company regulations.

Use this safety equipment within the work area during installation, service and when handling chemicals:

- protective mask
- unpowdered nitrile gloves
- safety goggles
- further security device, if necessary.

⚠ DANGER
POWER SUPPLY DISCONNECTION

Always disconnect power to the motor before you perform any installation or maintenance tasks. Failure to disconnect power will result in serious physical injury.

⚠ DANGER
AUTHORIZED AND QUALIFIED PERSONNEL

Installation and maintenance tasks should be carried out by AUTHORIZED AND QUALIFIED PERSONNEL only in accordance with local regulations.

i IMPORTANT

Use original spare parts.

Maintenance inspection

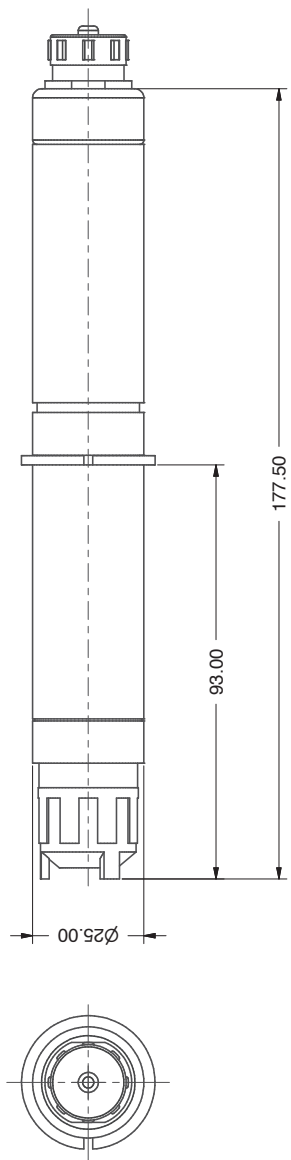
INTERVAL	MAINTENANCE INSPECTIONS	REFERENCE
Weekly	Control probe reading using a DPD1/DPD4 or colorimetric method.	Probe calibration procedure
Monthly	Check probe integrity	Cleaning procedure
Monthly	Check electrical wiring	-
Every 3/6 months	Replace electrolyte solution into membrane cap. Control membrane cap integrity.	Electrolyte replacement procedure
Yearly	Replace membrane cap.	Membrane cap replacement procedure

Shorten the inspection intervals appropriately if the chemical is abrasive or corrosive.

Decommissioning

1. Disconnect the sensor from the power
2. Depressurise the in-line probe housing
3. Loosen the clamping screw
4. Remove the sensor slowly from the in-line probe housing
5. Screw open and empty the membrane cap over a sink or similar vessel
6. Flush the membrane and electrode with clean water and dry until free of dust
7. Loosely screw on the membrane cap to protect the electrodes
8. Replace the membrane protection cap to protect the membrane cap

Dimension (mm)



TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTIONS
Sensor cannot be calibrated and measured value greater than DPD measurement	Run-in period too short	Observe the run-in period
	Membrane cap damaged	Replace membrane cap
	Troublesome substances in the water	Check water for troublesome substances and remedy this
	Distance between membrane/ electrode is too great	Screw the membrane cap up to its stop
	Short circuit in the measuring line	Identify short circuit and eliminate the cause
	DPD chemicals out of date	User new chemicals, repeat calibration
	pH < pH 5,5	Increase pH value
Sensor cannot be calibrated and measured value lower than DPD measurement	Run-in period too short	Observe the run-in period
	Coating on the membrane cap	Replace membrane cap, allow sensor to run in and calibrate
	Sample water flow rate too low	Correct flow rate
	Air bubbles on the outside of the membrane	Increase the flow within the permitted range
	pH < pH 5,5	Increase pH value
	No electrolyte in the membrane cap	Fill with new electrolyte
	Electrolyte pushed out by gas bubbles in the sample water	Contact supplier
Measured value display 0	Chlorine content below the lower limit of the measuring range	Add chlorine and then repeat calibration and/or use a suitable sensor
	Measuring line broken	Replace measuring line
	Sensor connected to the controller with incorrect polarity	Connect the sensor correctly to the controller
	Run-in period too short	Observe the run-in period
	Sensor defective	Send sensor in for regeneration
Sensor measured value is unstable	Membrane damaged	Replace membrane cap; allow sensor to run in and calibrate
	Air bubbles on the outside of the membrane	Remove air bubbles by tapping them and increase flow rate if necessary
	Reason lies with the controller	Eliminate cause

When you have tried everything: Check whether the reference electrode at the end of the electrode shaft is silvery-white instead of brownish-grey. The reference electrode is then worn out and needs to be replaced.

PRODUCT SERVICE REPAIR FORM

ENCLOSE THE PRESENT FORM TO THE DELIVERY NOTE

DATE

SENDER

Company name.....
Address,
Phone no.
Contact person.....

PRODUCT TYPE (see product label)

DEVICE CODE
S/N (serial number).....

OPERATING CONDITIONS

Location/installation description
.....
Chemical
Start-up (date) Running time (approx. hours).....

REMOVE ALL THE LIQUID AND DRY IT BEFORE PACKAGING IN ITS ORIGINAL BOX.

DESCRIPTION OF PROBLEM

- ☐ MECHANICAL
Wear parts.....
Brekage/other damages
Corrosion.....
Other
- ☐ ELECTRICAL
Connections, connector, cables
Other
- ☐ NOT OR INADEQUATE FUNCTION/OTHER
.....
.....
.....

I declare that the product is free of any hazardous chemical.

Signature of the compiler

Company stamp

