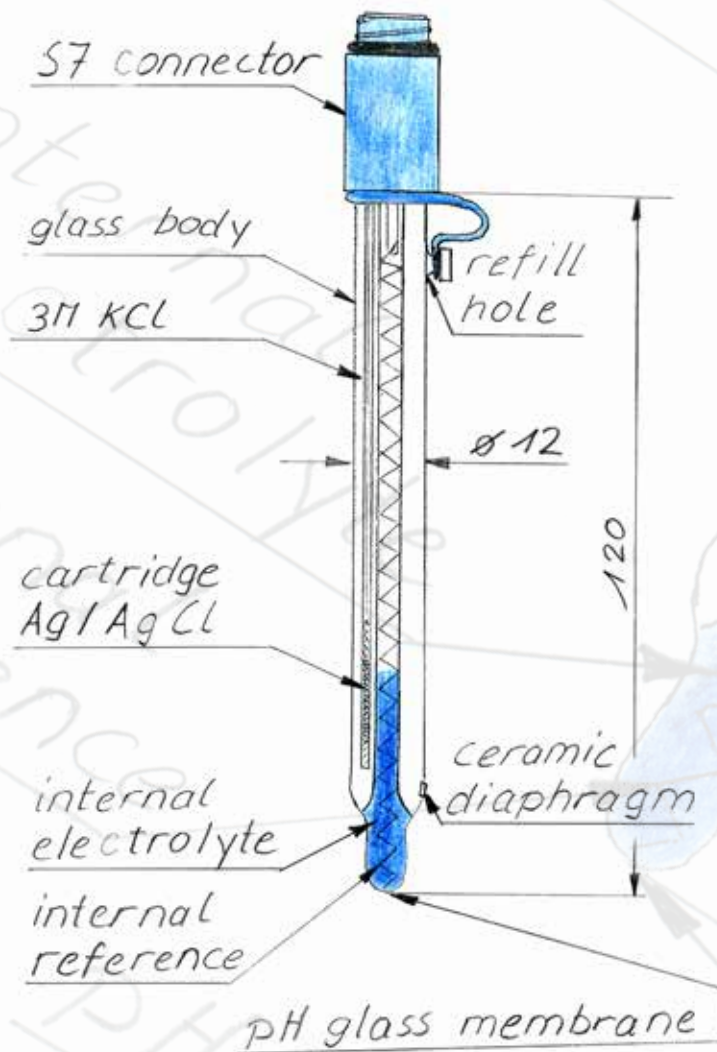




**pH Electrode** swiss hand made +

**Conductivity Cells**

**Calibration Buffers**



**Laboratory electrodes**


# Electrode selection table

	Gel	Polymer	Polymer TIP	Standard	Polymer Plast / 201T	Standard HA	Flat	Standard HF	Food	2 Pore Slim	2 Pore	2 Pore F	Food Slim	Semimicro	Micro	Micro P	Micro Special	Flow
Aqueous emulsions																		
Aqueous suspensions																		
Bread, Pasta																		
Brine																		
Butter																		
Cheese																		
Cosmetics																		
Cream																		
Detergents																		
Fruit juice																		
Fruits and vegetables																		
Galvanic exhaust																		
Jam																		
Leather																		
Mayonnaise																		
Meat																		
Milk																		
Paint (water-based)																		
Paint																		
Sample containing proteins																		
Sample high alkalinity																		
Sample high temperature*																		
Sample in NMR tubes																		
Sample small volume																		
Sample with Hydrofluoric Acid																		
Semi-Aqueous suspensions																		
Soap liquid																		
Soil																		
Solutions low ionic strength																		
Surfaces																		
Titration																		
Titration, non-aqueous																		
TRIS buffer																		
Viscous Samples																		
Water and sewage																		
Water, distilled																		
Water, drinking																		
Wine																		
Yoghurt																		

\* Max 100 °C for a short time

# Quality test certificate

XS electrodes Standard and Flow are provided with a quality certificate attesting and documents the final inspection carried out on each single electrode. Also on the certificate and label shows the serial number of the electrode for a correct traceability (GLP) of the relations of the calibration of the measurement chain.

 <b>QUALITY TEST REPORT</b>	
<b>Electrode model</b>	<b>Electrode Type:</b> STANDARD <small>Elektrodentyp / Elettrodo</small>
	<b>Product number:</b> 32200373 <small>Produktnummer / Codice prodotto</small>
	<b>Serial number:</b> 0009 <small>Seriennummer / Numero seriale</small>
<b>Lot of production</b>	<b>Batch number:</b> 444 <small>Chargennummer / Numero di lotto</small>
	<b>Reading in pH 7 buffer (0 ± 20mV)*:</b> -5 mV <small>Lesen im pH 7 / Lettura in pH 7*</small>
<b>Tests results</b>	<b>Reading in pH 4 buffer (174 ± 20mV)*:</b> 169 mV <small>Lesen im pH 4* / Lettura in pH 4*</small>
	<b>Measuring range:</b> 0...14 pH <small>Messbereich / Range di misura</small>
<b>Technical specifications</b>	<b>Temperature range:</b> -10...80 °C <small>Temperaturbereich / Range di temperatura</small>
	<b>Temperature sensor:</b> - <small>Temperatursensor / Sensore di temperatura</small>
	<b>Reference electrolyte:</b> KCl 3M <small>Bezugselektrolyt / Elettrolita di riferimento</small>
<small>* Measurements are performed in Certified Reference Materials.            * Die Messungen werden in zertifizierten Referenzmaterialien durchgeführt.            * Le misurazioni sono eseguite in materiali di riferimento certificati</small>	
<small>A change of the measurement values above during storage and use is a normal behavior of the electrochemical sensors.            Eine Änderung der Meßwerte oberhalb während der Lagerung und der Verwendung ist ein normales Verhalten der elektrochemischen Sensoren.            Una variazione dei valori di misura di cui sopra, durante la conservazione e l'uso, è un comportamento normale dei sensori elettrochimici.</small>	
<b>Test date</b>	<b>Passed Quality Control</b> 16/12/2014 <small>Bestanden Qualitätskontrolle / Controllo Qualità Effettuato</small>
	<small>This document is generated electronically and doesn't require any signature.            Dieses Dokument ist elektronisch erzeugt und erfordert keine Unterschrift erforderlich.            Questo documento è generato elettronicamente e non richiede alcuna firma.</small>



Electrode box



Indelible internal serial number

# XS Sensor electrodes

Very famous Swiss producer has developed a complete line laboratory pH, Redox and conductivity electrodes, with glass and plastic body. The new XS sensor are available with S7 head or cable fix with BNC or DIN connector plug. For food application many models are equipped with temperature sensor inside for fast temperature compensation.

Some models are designed to help in daily work in GLP condition with indelible internal serial number and certificate are provided with quality test.



Serial number



Blue inner buffer

Special polymer electrolyte combined with high performance reference system generate a complete range of electrodes for food application in special part of this catalogue.

Blue inner buffer provides clear visual of contact with internal pH glass membrane.

All XS sensors line are connectable at all common pHmeters brand in the market. Our customer support are available for every special application request or support for right type electrode indication.

**XS sensor for pH is not only pH electrode is perfect combination for pH measurement with XS pH meters and XS buffer solutions.**

## GENERAL LABORATORY APPLICATION

Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Open pore
Reference system:	Ag/AgCl cartridge
Electrolyte:	Polymer maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>POLYMER</b>	0...14	-10...+80 °C	S7 connector	1 Diaphragm open pore	<b>32200223</b>

Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Open pore
Reference system:	Ag/AgCl cartridge
Electrolyte:	Polymer maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>POLYMER TIP</b>	0...14	-10...+80 °C	S7 connector	2 Diaphragm open pore for soil pH measure	<b>32200443</b>



Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl
Electrolyte:	Gel maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>GEL</b>	0...14	-10...+60 °C	S7 connector	General application	<b>32200203</b>

Shaft material:	Glass
Temperature probe:	No – Yes (for model T)
Diaphragm:	Ceramic
Reference system:	Ag/AgCl cartridge
Electrolyte:	KCl 3M
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>STANDARD</b>	0...14	-10...+100 °C	S7 connector	General application <b>serial number/certificate</b>	<b>32200363</b>
<b>STANDARD HA</b>	0...14	-10...+100 °C	S7 connector	Minimal alkali error <b>serial number/certificate</b>	<b>32200423</b>
<b>STANDARD HF</b>	0...14	-10...+100 °C	S7 connector	For samples with HF (0,01M/200 mg/l)	<b>32200433</b>

BNC Plug



RCA Cinch Plug



DIN Plug



Model	Range pH	Temp. °C	Head	Note	Code
<b>STANDARD BNC</b>	0...14	-10...+100 °C	Cable fix / BNC	General application <b>serial number/certificate</b>	<b>32200263</b>
<b>STANDARD DIN</b>	0...14	-10...+100 °C	Cable fix / DIN		<b>32200273</b>
<b>STANDARD T - BNC</b>	0...14	-10...+100 °C	Cable fix / BNC	With temperature sensor NTC 30KΩ plug RCA Cinch	<b>32200473</b>
<b>STANDARD T - DIN</b>	0...14	-10...+100 °C	Cable fix / DIN	With temperature sensor NTC 30KΩ plug Banana 4mm	<b>32200463</b>



Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Teflon sleeve
Reference system:	Ag/AgCl cartridge
Electrolyte:	KCl 3M
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>FLOW</b>	0...14	-10...+80 °C	S7 connector	Viscous sample and low ion media <b>serial number/certificate</b>	<b>32200373</b>

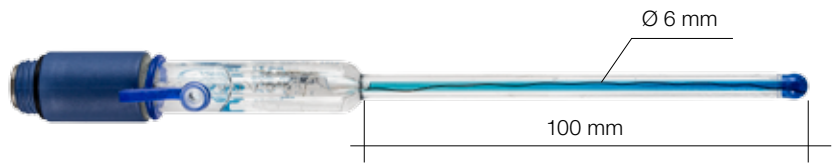


Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Teflon with 3 hole
Reference system:	Ag Coated
Electrolyte:	Polymer maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>FLAT</b>	0...14	0...+60 °C	S7 connector	For surface measurements e. g. paper	<b>32200413</b>

Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl cartridge
Electrolyte:	KCl 3M
length:	100 mm
Diameter:	12 mm / 6 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>SEMI MICRO</b>	0...14	0...+100 °C	S7 connector	Test tube measurements	<b>32200383</b>



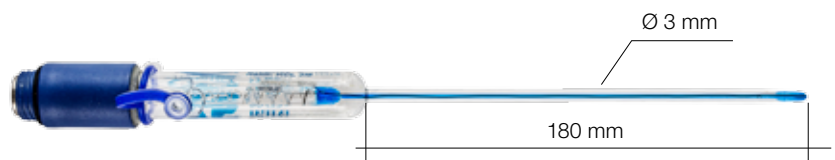
Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl cartridge
Electrolyte:	KCl 3M / Glycerin KCl
length:	60 mm
Diameter:	12 mm / 3 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>MICRO</b>	0...14	0...+100 °C	S7 connector	Electrolyte KCl 3M small volume sample <2 ml	<b>32200213</b>
<b>MICRO P</b>	0...14	0...+100 °C	S7 connector	Electrolyte Glycerin KCl small volume sample <2 ml with protein	<b>32200253</b>



Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl cartridge
Electrolyte:	KCl 3M
length:	180 mm
Diameter:	12 mm / 3 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>MICRO SPECIAL</b>	0...14	0...+100 °C	S7 connector	Measure in NMR tube	<b>32200453</b>

## FOOD MEASUREMENTS APPLICATION

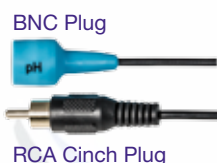
Shaft material:	Glass
Temperature probe:	No
Diaphragm:	3 ceramic diaphragms
Reference system:	Ag/AgCl cartridge
Electrolyte:	Glycerin KCl
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>FOOD</b>	0...14	-10...+100 °C	S7 connector	Glycerin KCl electrolyte	<b>32200393</b>



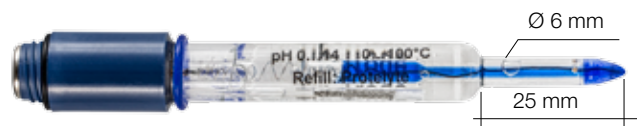
Shaft material:	Glass – POM/Glass (F model)
Temperature probe:	No – Yes (T model)
Diaphragm:	2 diaphragms open pore
Reference system:	Ag Coated
Electrolyte:	Polymer maintenance free
length:	35 mm
Diameter:	12 mm / 6 mm 12 mm / 4,5 mm (SLIM model)



Model	Range pH	Temp. °C	Head	Note	Code
<b>2 PORE</b>	0...14	0...+60 °C	S7 connector	-	<b>32200333</b>
<b>2 PORE SLIM</b>	0...14	0...+60 °C	S7 connector	-	<b>32200283</b>
<b>2 PORE F</b>	0...14	0...+60 °C	S7 connector	-	<b>32200293</b>
<b>2 PORE T</b>	0...14	0...+60 °C	Cable fix / BNC	With temperature sensor NTC 30KΩ plug RCA Cinch	<b>32200323</b>



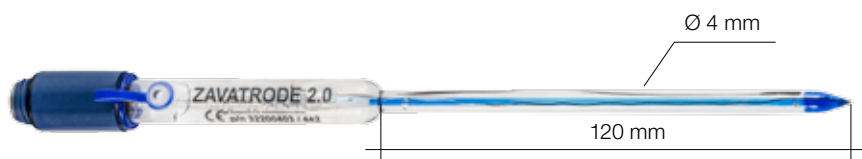
Shaft material:	Glass
Temperature probe:	No
Diaphragm:	2 Ceramic diaphragms
Reference system:	Ag/AgCl cartridge
Electrolyte:	Glycerin KCl
length:	25 mm
Diameter:	12 mm / 6 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>FOOD SLIM</b>	0...14	0...+100 °C	S7 connector	-	<b>32200243</b>



Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl
Electrolyte:	Glycerin KCl
length:	120 mm
Diameter:	12 mm / 4 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>ZAVATRODE</b>	0...14	0...+60 °C	S7 connector	Cheese measurements	<b>32200403</b>

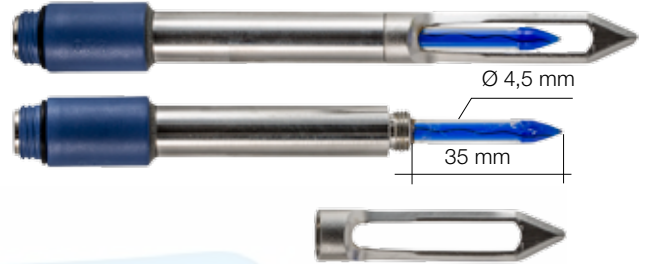
Shaft material:	Glass/steel
Temperature probe:	Yes
Diaphragm:	2 open pore diaphragms
Reference system:	Ag Coated
Electrolyte:	Polymer maintenance free
length:	50 mm
Diameter:	12 mm / 6 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>2 PORE STEEL T</b>	0...14	0...+60 °C	Fix cable / BNC	With temperature sensor NTC 30KΩ plug RCA Cinch	<b>32200313</b>



Shaft material:	Glass/steel
Temperature probe:	Yes
Diaphragm:	2 open pore diaphragms
Reference system:	Ag Coated
Electrolyte:	Polymer maintenance free
length:	35 mm
Diameter:	12 mm / 4,5 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>2 PORE K complete</b>	0...14	0...+60 °C	S7 connector	With knife	<b>32200303</b>
<b>2 PORE K without knife</b>	0...14	0...+60 °C	S7 connector	Without knife	<b>32200343</b>
<b>Knife for 2 PORE K</b>	-	-	-	Replaceable knife	<b>32200353</b>

## ELECTRODES FOR ORP MEASUREMENT

Shaft material:	Glass
Temperature probe:	No
Diaphragm:	3 ceramic diaphragms
Reference system:	Ag/AgCl cartridge
Electrolyte:	KCl 3M
length:	120 mm
Diameter:	12 mm



Model	Range mV	Temp. °C	Head	Note	Code
<b>STANDARD ORP</b>	± 2000 mV	-10...+100 °C	S7 connector	Platinum ring for ORP/Redox	<b>32200233</b>



Shaft material:	Glass
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl cartridge
Electrolyte:	KNO <sub>3</sub> 1M
length:	120 mm
Diameter:	12 mm



Model	Range mV	Temp. °C	Head	Note	Code
<b>STANDARD Ag</b>	± 2000 mV	-10...+80 °C	S7 connector	Silver tip for argentometric titration	<b>32200483</b>



Shaft material:	Epoxy
Temperature probe:	No
Diaphragm:	Ceramic
Reference system:	Ag/AgCl double junction
Electrolyte:	Gel maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range mV	Temp. °C	Head	Note	Code
<b>Plast ORP</b>	± 1000 mV	0...+60 °C	S7 connector	Platinum pin for ORP/REDOX	<b>32200663</b>
<b>Plast ORP BNC</b>	± 1000 mV	0...+60 °C	Fix cable / BNC	Platinum pin for ORP/REDOX	<b>32200673</b>



## pH PLASTIC SHAFT ELECTRODES

Shaft material:	Epoxy
Temperature probe:	No
Diaphragm:	1 ceramic + 1 open pore
Reference system:	Ag/AgCl cartridge
Electrolyte:	Polymer maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>POLYMER PLAST</b>	0...14	0...+60 °C	S7 connector	-	<b>32200493</b>
<b>POLYMER PLAST BNC</b>	0...14	0...+60 °C	Fix cable / BNC	-	<b>32200503</b>
<b>POLYMER PLAST DIN</b>	0...14	0...+60 °C	Fix cable / DIN	-	<b>32200513</b>

Shaft material:	Epoxy
Temperature probe:	Yes
Diaphragm:	1 ceramic
Reference system:	Ag/AgCl
Electrolyte:	Gel maintenance free
length:	120 mm
Diameter:	12 mm



Model	Range pH	Temp. °C	Head	Note	Code
<b>201T</b>	0...14	0...+60 °C	Fix cable / BNC	With temperature sensor NTC 30KΩ plug RCA Cinch	<b>50002002</b>

## Electrolyte and maintenance solutions

Part No.	Package	Description
<b>32208003</b>	75ml	3M KCl XS Sensor Electrolyte solution
<b>32208013</b>	500ml	3M KCl XS Sensor Electrolyte solution
<b>32208023</b>	75ml	GLYCERIN-KCl XS Sensor Electrolyte solution
<b>32208033</b>	75ml	KNO <sub>3</sub> 1M Electrolyte solution for XS Sensor STANDARD Ag
<b>32208043</b>	75ml	XS Sensor STORAGE Solution
<b>32208053</b>	500ml	XS Sensor STORAGE Solution
<b>32208063</b>	75ml	PROTEIN CLEANING Solution (pepsin) for XS Sensor
<b>32208073</b>	75ml	DIAPHRAGM CLEANING solution (thiourea) for XS Sensor
<b>32208083</b>	75ml	REGENERATION Solution for XS Sensor pH electrode

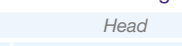
# XS Conductivity cells

Shaft material:	Glass
Temperature probe:	No/Yes in VPT 80/1
Plate:	Platinum
length:	120 mm
Diameter:	12 mm

BNC Plug



RCA Cinch Plug



Model	Range COND	Temp. °C	Head	Note	Code
<b>VP 8</b>	10µS...10mS	0...+80 °C	Fix cable / BNC	cell constant C=1	<b>50004062</b>
<b>VPT 80/1</b>	10µS...10mS	0...+80 °C	Fix cable / BNC	cell constant C=1 With sensor NTC 30KΩ plug RCA Cinch	<b>50003352</b>



Shaft material:	PVC / Steel
Temperature probe:	Yes
Plate:	Steel
length:	120 mm
Diameter:	12 mm



Model	Range COND	Temp. °C	Head	Note	Code
<b>VPT 51/01</b>	0,1 µS...1 mS	0...+60 °C	Fix cable / BNC	cell constant C=0,1 With sensor NTC 30KΩ plug RCA Cinch <b>ultrapure water</b>	<b>50004012</b>



Shaft material:	Glass
Temperature probe:	Yes
Plate:	Platinum
length:	120 mm
Diameter:	12 mm



Model	Range COND	Temp. °C	Head	Note	Code
<b>VPT 80/10</b>	100 µS...200 mS	0...+80 °C	Fix cable BNC	cell constant C=10 With sensor NTC 30KΩ plug RCA Cinch <b>sea water</b>	<b>50004072</b>



Shaft material:	PVC
Temperature probe:	Yes
Plate:	4 graphite plate
length:	120 mm
Diameter:	12 mm



Model	Range COND	Temp. °C	Head	Note	Code
<b>VPT 80/4</b>	10 µS...200 mS	0...+60 °C	Fix cable / multipin	cell constant C=0,5 With sensor NTC 30KΩ plug multipin	<b>50003362</b>



Shaft material:	PVC / Steel
Temperature probe:	Yes
Plate:	Steel
length:	120 mm
Diameter:	12 mm



Model	Range COND	Temp. °C	Head	Note	Code
<b>2301T</b>	10 µS...200 mS	0...+60 °C	Fix cable / BNC	cell constant C=1 With sensor NTC 30KΩ plug RCA Cinch	<b>50004002</b>

## Cables



1 m cable S7 / BNC

**33551733**

1 m cable S7 / DIN

**33551743**

# Calibration Buffers and Standards with N.I.S.T. Traceability



Package pH 4,01



Package pH 7,00



Package pH 9,00 / 9,21



Package pH 10,01



Package conductivity standard

## Conductivity Standards

- 500 ml ergonomic bottle with built-in dosing compartment and value table depending on temperature for an accurate calibration
- Economical, using just the proper amount per calibration
- Actual value and expiration date printed on the bottle
- Actual Value referred to N.I.S.T. Reference Material and expiration date reported on the certificate
- Certificates available at our website

## Redox Standards

- For ORP electrode test

## Buffer solutions

- 250 ml and 500 ml ergonomic bottle with built-in dosing compartment and value table depending on temperature for an accurate calibration
- Economical, using just the proper amount per calibration
- Coloured for an easier identification
- Immune to micro-organisms
- Actual value and expiration date printed on the bottle
- Actual Value referred to N.I.S.T. Reference Material and expiration date reported on the certificate
- Certificates available at our website

CONDUCTIVITY STANDARDS			
Part No.	Package	Value $\mu\text{S/cm}$ (20°C / 25°C)	Accuracy
51100613	500 ml	76 / 84	$\pm 1\%$
51100633	500 ml	1278 / 1413	$\pm 1\%$
51100643	500 ml	11670 / 12880	$\pm 1\%$

REDOX STANDARDS			
Part No.	Package	mV value	Accuracy
51100303	250 ml	Redox/ORP 200mV/25°C	$\pm 5\text{mV}$
51100313	250 ml	Redox/ORP 475mV/25°C	$\pm 5\text{mV}$
51100323	500 ml	Redox/ORP 475mV/25°C	$\pm 5\text{mV}$
51100333	5 l	Redox/ORP 650mV/25°C	$\pm 5\text{mV}$

pH BUFFERS				
Part No.	Package	pH Value (25°C)	Accuracy	Colour
51100033	250 ml	4,01	$\pm 0,01$	Red
51100043	250 ml	7,00	$\pm 0,01$	Green
51100053	250 ml	9,00	$\pm 0,02$	Blue
51100073	250 ml	9,21	$\pm 0,02$	Blue
51100063	250 ml	10,01	$\pm 0,02$	Colourless
51100133	500 ml	4,01	$\pm 0,01$	Red
51100143	500 ml	7,00	$\pm 0,01$	Green
51100153	500 ml	9,00	$\pm 0,02$	Blue
51100173	500 ml	9,21	$\pm 0,02$	Blue
51100163	500 ml	10,01	$\pm 0,02$	Colourless
51100233	5 l	4,01	$\pm 0,01$	Red
51100243	5 l	7,00	$\pm 0,01$	Green
51100253	5 l	9,00	$\pm 0,02$	Blue
51100273	5 l	9,21	$\pm 0,02$	Blue
51100263	5 l	10,01	$\pm 0,02$	Colourless



Lot number, Actual Value and expiration date reported on the bottle



Value table depending on temperature and QR Code with link to our website



Fill calibration compartment with simple press



Calibrate electrode



Empty calibration compartment

# The Perfect Combination



This Chinese symbol means the "The Double Happiness", the combination between two perfect elements. This is used in China as a greeting during wedding. We believe that The Perfect combination is something that going on.

A group of European experts in electrochemistry and a famous Asian producer have developed this new line of bench top meters, finding the right balance between the design, innovative ideas in pH and conductivity measurement and easy use.

**This is the First Perfect Combination.**



If you have a beautiful bench meter, but you don't combine it with a perfect pH electrode, this will be always and only a simple instrument that shows only numbers on the display and not pH measurement. Also in this case we have worked for a perfect combination. A very famous Swiss producer has developed, only for this line of instruments, a complete laboratory line of pH electrodes for every type of application.

**This is the Second Perfect Combination.**

"The calibration of pH measuring system is one of the most important factors. To ensure a high measuring accuracy one has to follow the correct calibration procedure, use new and accurate buffer solutions and wait long enough for stable indication values of the electrode assembly to be calibrated. No pH measurement can be more accurate than its calibration accuracy"

*(International of basic and General Terms in Metrology)*

If you have a good electrode, but you don't calibrate this with buffer solutions with good metrological traceability, You can't obtain reliable results. The XS buffer solutions come to celebrate the **Third Perfect Combination.**



**A Perfect Combination for new emotion.**

## XS instruments Right solution from the start.

Full line of waterproof portable and tester meters for pH, Conductivity and ORP in field measurement.



**pH Series**  
pH 7 - pH 70



**Conductivity Series**  
COND 7 - COND 70



**Multiparameter**  
Series PC 7 - PC 70



**pH-COND-PC-ORP**  
waterproof tester

GUARANTEED BY:

**GIORGIO BORMAC**  
s.r.l.



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