



2020 Catalog

Fluid Precision Since 1991

pH ORP Conductivity TDS Salinity Turbidity Dissolved Oxygen

Water Analysis Instruments and Sensors





Apera Instruments provides all types of scientific instruments and sensors for measuring pH, ORP, conductivity, TDS, salinity, dissolved oxygen, turbidity, and ISE with our leading technology, reliable product quality, and outstanding customer service.

We have been focusing on the development of water analysis instruments and sensors since 1991. Our sensor and electronics technologies have gained recognition in over 30 countries across America, Asia, and Europe. All the products are CE certified and are produced by our ISO 9001:2009 certified manufacturing base in Shanghai.

For over 27 years, we have been dedicated to providing more reliable, accurate, and attainable water analysis instruments, a goal we continue to strive for.

Why choose Apera?



Expertise

Accuracy and precision from 27 years of focus on electrochemistry.



Quality Assurance

Industry-leading 2-Year warranty.



Customer Support

Customers' full satisfaction is our top priority.



Affordability

We simply provide the best value.

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60 Series Premium Pocket Testers

pH, ORP, Conductivity/TDS/Salinity, Temp.



Durable design:
IP67 Waterproof
& Dustproof



Easy-to-install
Replaceable Probes



Powered by AAA batter-
ies, up to 2000 hours of
operation time

Display Features



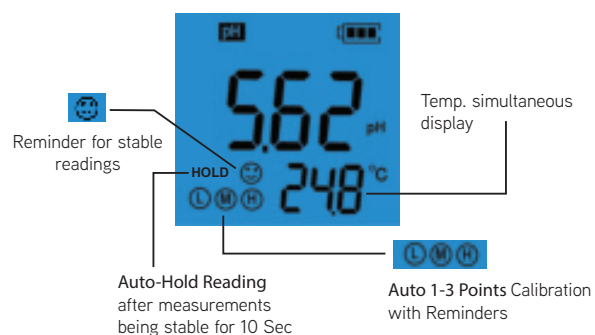
Measurement
Mode



Calibration
Mode



Heads-Up
Mode



Probe Features

6 Models for your
choice



PH60
(Glass Bulb)
General water solution
pH Test

PH60F
(Flat Glass)
Surface and
micro-volume pH
Test

PH60S
(Spear Glass)
Solid/Semi-Solid
pH Test

ORP60
(Platinum)
ORP Test

EC60
(Platinum Black)
Conductivity/TDS/
Salintiy Test

PC60
(Glass Bulb &
Platinum Black)
pH/Cond./TDS/
Salintiy Test

Applications



Test anywhere



Micro-Volume
pH Test



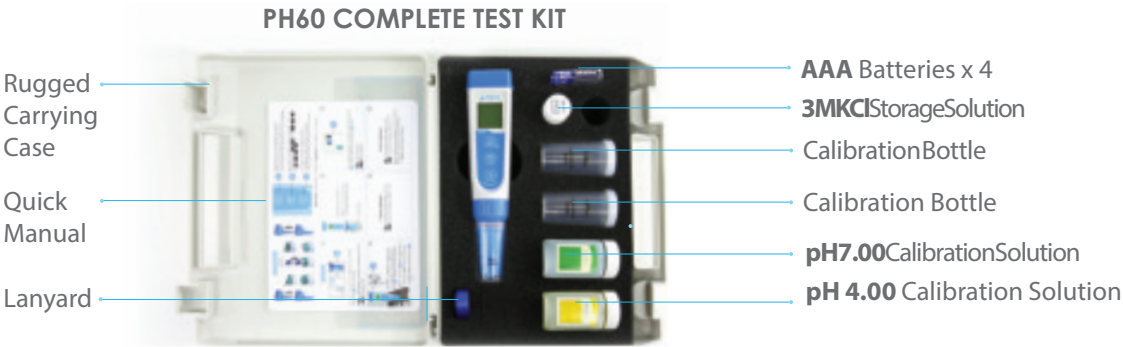
Skin pH Test



Food pH Test



		PH60	PH60F	PH60S
pH	Measuring Range	-2.00 to 16.00 pH		
	Resolution/Accuracy	0.01pH / ±0.01 pH		
	Calibration	1 to 3 points Auto Calibration		
ORP	Measuring Range	±1000 mV		
	Resolution/Accuracy	1 mV / ±0.2% F.S		
Temp.	Measuring Range	0 to 50.0 °C (32 to 122 °F)		
	Temp. Compensation	Automatic 0 to 50.0 °C (32 to 122 °F)		
Others	Heads-Up Function	Yes		
	Self-Diagnosis	Yes		
	Low-Battery Warning	Yes		
	IP Rating	IP67 Waterproof and Dustproof, Floatable		
	Power Supply	DC3V AAA batteries x4; Continuous working > 2000 hours		
	Sensor Model	PH60-E	PH60F-E	PH60S-E
	Application	General water solution's pH	Flat surface pH (fabrics, skin, paper) and micro-volume water soltion's pH	Solid/Semi-Solid food samples (cheese, meat, fruit, sushi rice...) and soil's pH
	Compatible Probes	PH60-E, PH60F-E, PH60S-E, ORP60-E		





		PC60	EC60	ORP60
pH	Measuring Range	-2.00 to 16.00 pH	/	/
	Resolution/Accuracy	0.01 pH / ±0.01 pH	/	/
	Calibration	1 to 3 Points Auto Calibration	/	/
ORP	Measuring Range	/	/	±1000 mV
	Resolution/Accuracy	/	/	1 mV / ±0.2% F.S
Cond.	Measuring Range	0-200.0 µS/cm, 0-2000 µS/cm, 0-20.00 mS/cm	0-200.0 µS/cm, 0-2000 µS/cm, 0-20.00 mS/cm	/
	Resolution/Accuracy	0.1/1 µS, 0.01 mS / ±1% F.S	0.1/1 µS, 0.01 mS / ±1% F.S	/
	Calibration	1 to 3 Points Auto Calibration	1 to 3 Points Auto Calibration	1 Point Manual Calibration
	Temp. Coefficient Setting	0.00 to 4.00%/°C	0.00 to 4.00%/°C	/
TDS.	Measuring Range	0.0 ppm to 10.00 ppt	0.0 ppm to 10.00 ppt	/
	TDS. Factor Setting	0.4 to 1.0	0.4 to 1.0	/
Salinity	Measuring Range	0 to 10.00 ppt	0 to 10.00 ppt	/
Temp.	Measuring Range	0 to 50.0 °C (32 to 122°F)		
Others	Temp. Compensation	Yes		No
	Heads-Up Function	No	No	Yes
	Self-Diagnosis	Yes		
	Low-Battery Warning	Yes		
	IP Rating	IP67 Waterproof and Dustproof		
	Power Supply	DC3V AAA batteries x4; Continuous working > 1000 hours	DC3V AAA batteries x4; Continuous working > 1000 hours	DC3V AAA batteries x4; Continuous working > 2000 hours
	Sensor Model	PC60-E	EC60-E	ORP60-E
	Compatible Probes	PH60-E, PH60F-E, PH60S-E, PC60-E, EC60-E	EC60-E	ORP60-E

20 Series ■ Value Pocket Testers



	PH20	EC20	TDS20	Salt20
Measuring Parameter	pH /°C	Conductivity (EC)/°C	TDS /°C	Salinity /°C
Range	0 to 14.0 pH 0 to 50.0 °C (32 to 122 °F)	0 to 200.0 µS/cm 0 to 2000 µS/cm 0 to 20.00 mS/cm 0 to 50.0 °C (32 to 122 °F)	0 to 100.0 ppm 0 to 1000 ppm 0 to 10.00 ppt 0 to 50.0 °C (32 to 122 °F)	0 to 10.0 ppt 0 to 50.0 °C (32 to 122 °F)
Resolution	0.1 pH; 0.1 °C	0.1/1 µS; 0.01 mS; 0.1 °C	0.1/1 ppm; 0.01 ppt; 0.1 °C	0.1 ppt; 0.1 °C
Accuracy	±0.1 pH; ±0.2 °C	±1% F.S; ±0.2 °C	±1% F.S; ±0.2 °C	±1% F.S; ±0.2 °C
Temperature Compensation	Automatic 0 to 50 °C	Automatic 0 to 50 °C	Automatic 0 to 50 °C	Automatic 0 to 50 °C
Calibration Points	1~3 Points	1~2 Points	1~2 Points	1 Point
Self-Diagnosis	Yes	Yes	Yes	Yes
Low Battery Warning	Yes	Yes	Yes	Yes
Battery Life	continuous working > 2000 hrs	continuous working > 1000 hrs	continuous working > 1000 hrs	continuous working > 1000 hrs
IR Rating	IP67 waterproof and dustproof, floatable			
Power Supply	AAA batteries ×4			
Dimension Weight	Tester : 40x31x178mm/107g Case: 190x165x40mm /438g			

- Large clear STN LCD, 180° viewing angle
- Simultaneous display of measurement and temperature reading
- Stable reading indication with a smiley face
- Self-diagnosis to ensure correct calibrations
- Powered by 4 AAA batteries, up to 2000 Hours of continuous operation
- Complete kit with ready-to-use buffers
- Durable design: IP67 Waterproof & Dustproof



Aquaculture/Aquarium



Pools and spas



Agriculture



IP67 waterproof and dustproof

20 Series Value Pocket Testers

pH, Conductivity, TDS, Salinity, Temp.

Complete Kit

PH20

PH20 meter / 1×50ml pH7.00 and pH4.00
Buffer Solution / 4×AAA Batteries / Lanyard
/ Carrying case

EC20

EC20 meter / 1×50ml 1413 μ S and 12.88mS
Calibration Solution / 4×AAA Batteries /
Lanyard / Carrying Case

TDS20

TDS20 meter / 1×50ml 1413 μ S and 12.88mS
Calibration Solution / 4×AAA Batteries /
Lanyard / Carrying Case

Salt20

Salt20 meter / 1×5ppt Calibration Solution /
4×AAA Batteries / Lanyard / Carrying Case





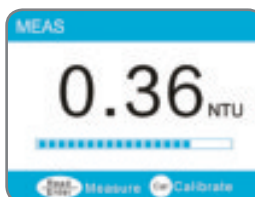
- Generates QUICK & ACCURATE Turbidity test results
- Large clear TFT Color Screen with Intuitive graphic and text operation guides
- U.S. EPA certified non-toxic & easy-to-use Reagecon high-molecular polymer standard solutions
- CE certified and comes with a 2-YEAR Warranty
Meets the criteria of ISO 7027 and DIN 27027

TN400 Portable Turbidity Meter



- TFT color screen shows blue background in measuring mode and green background in calibration mode.

- Text and graphic operation guides provided



Flip-Cover of the sample well

Provided with 4 kinds of Reagecon high-molecular polymer turbidity standard solutions (0.02 NTU, 20.0 NTU, 100 NTU, 800 NTU), U.S. EPA certified, non-toxic, and easy to use, which have evident advantages compared to the traditional Formazin standard solutions.



0.02 NTU, 20.0 NTU, 100 NTU, 800 NTU

Measuring Method	ISO 7027 compliant nephelometric method (90°)
Measuring Range	0 to 1000 NTU, automatic range selection: 0.01 to 19.99 NTU 20.0 to 99.9 NTU 100 to 1000 NTU
Resolution	0.01 / 0.1 / 1 NTU
Reading Error	≤ ±2% of reading ±stray light
Repeatability	≤ ±1% of reading or 0.02 NTU (whichever is greater)
Calibration Standards	0.02 NTU, 20.0 NTU, 100 NTU, 800 NTU (Polymer)
Light Source	Infrared light emitting diode (850nm wavelength)
Detector	Silicon photovoltaic
Display	TFT Color screen
Sample Vials	ø25×60 mm, high borosilicate glass with screw cap
Sample Volume	18 ml
Operating Temp.	0 to 50 °C (32 to 122 °F)
Power Supply	4× AA Alkaline Batteries
IP Rating	IP67
Dimension/Weight	Meter: (90×203×80)mm / 385g; Carrying Case: (310×295×110)mm / 1.5kg
Quality and Safety Certificate	ISO 9001:2008 & CE





DO850

DO8500

DO850/DO8500

Portable Optical Dissolved Oxygen Meter

State of the Art Luminescent Optical DO Sensor



Reliable DO tests made **Simple**

State of the art Luminescent Optical DO Sensor

- No warm-up; No solution; No membrane; No Hassel.
- The probe does not consume oxygen. No limit on water flowing speed.
Quick response time: it takes only 2 to 3 minutes for the readings to be stable.
- Maintenance-free. No need to calibrate before every use.
- The service life of the luminescent cap is over 8000 hours.
No need to replace the cap every year.
- The special coating on the luminescent cap makes it anti-interference and unaffected by light and chemicals.
- A calibration cap comes with the probe, which allows it to be calibrated and stored in saturated air.



PC connectivity
(*DO8500 only)

DO8500 Complete Test Kit

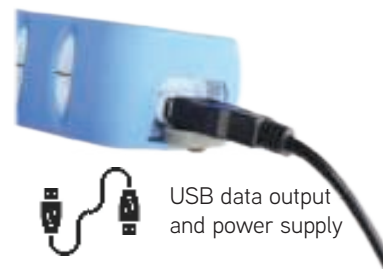
	MODEL	DO850	DO8500
Dissolved Oxygen	Range	0-200%; 0-20.0mg/L	
	Resolution	0.1%, 0.01mg/L (ppm)	
	Accuracy	±2% of reading or ±2% of saturation, whichever is greater; ±2% of reading or ±0.2 mg/L (ppm), whichever is greater	
	Calibration Points	Zero Oxygen and saturated oxygen	
	Temp. Compensation	0 to 50 °C (32 to 122 °F) Automatic	
	Air Pressure Compensation	60 to 120 kPa Automatic	
	Salinity Compensation	Manual	Automatic or Manual
Temperature	Range	0 to 50.0 °C (32 to 122 °F)	
	Resolution	0.1 °C	
	Accuracy	±0.5 °C	
Instrument specs	Stable reading indication	Yes	
	Reading Auto-Lock	Yes	
	Display	White Backlit LCD	
	Data Storage	N/A	500 groups (with time and date)
	Digital Clock	N/A	Yes
	Data Output	N/A	USB
	IP Rating	IP57 Waterproof and Dustproof	
	Power Supply	AA Batteries×3 Battery life> 200 Hours	AA Batteries×3 Battery life> 200 Hours / USB

Intelligent Functions

- Auto Temperature Compensation; Auto Barometric Compensation (Air Pressure)
- Auto Salinity Compensation (only for DO8500)
- Large backlit LCD screen, simultaneously displaying dissolved oxygen reading and temperature. Users can switch from “mg/L & %” to “ppm & %” with a single tap
- Advanced digital processing technology, which supports stable reading and auto-lock display modes.
- DO8500 has a built-in digital clock and supports manual/auto data logging with USB data output.

Durable Structure Design

- IP57 waterproof rating allows usage in harsh environments.
- Comes with a rugged carrying case, which includes a meter, an optical DO probe, and the accessories.
- Foldable stand allows use as a benchtop meter.





Accurate Measurement

- High quality 3-in-1 combination pH electrode and BPB (Brush-Resistant Platinum Black) conductivity electrode ensure accuracy in wide measuring ranges and quick response time.
- The advanced digital processing technology enhances measuring performance and stability.
- Stable reading and Auto-Lock display modes available

Intelligent Functions

- Quick & Easy 3-point pH Auto Calibration and 4-point Conductivity Auto Calibration
- Smart Self-Diagnosis helps you conduct proper calibrations and determine the condition of your probes.
- Fully configurable parameter setting (buffer standards, electrode constant, base temperature, temperature compensation coefficient, Temperature unit, etc.)

Reliable Structure

- IP57 Waterproof and Dustproof, ideal for use in harsh environments
- Clear white backlit LCD display
- Comes with a rugged carrying case with complete test kit



Measuring Parameters	PH400	EC400	PC400
pH/mV	Yes	N/A	Yes
Conductivity/TDS	N/A	Yes	Yes
Temperature	Yes	Yes	Yes

400S

Everything in 400 & More

- GLP data management (500 to 1000 groups of data storage)
- 5-Point pH Auto Calibration with calibration reminder function
- USB Data output and power supply
- Timing measuring/data logging Mode
- Purified water and ammonia-added purified water measuring modes available

Measuring parameters	PH400S	EC400S	PC400S
pH/mV	Yes	N/A	Yes
Conductivity/TDS/Salinity/Resistivity	N/A	Yes	Yes
Temperature	Yes	Yes	Yes



PC Connectivity



USB Data Output & Power Supply



Name	3-in-1 Combination pH Electrode
Model	201T-S
Measuring Range	0 to 14 pH/ 0 to 80 °C
Junction	Ceramic
Reference Electrode	Ag/AgCl
Temperature Sensor	Thermister
Connector	8-pin Connector
Features	Built-in thermister, measuring pH and temperature simultaneously, ATC available.



Name	Conductivity Electrode
Model	2301-S
Measuring Range	0.5 μ S/cm to 200 mS/cm
Electrode Constant	1.0 \pm 0.2 cm ⁻¹
Sensor	Brush-Resistant Platinum Black
Temperature Sensor	Thermister
Connector	8-pin Connector
Features	BPB Cond. Sensor ensures high accuracy in wide measuring ranges (0 to 200 mS/cm)

400 Series ■ Portable pH/Conductivity Meter



	PH400	PC400	EC400
pH	Measuring Range	0.00 to 14.00 pH	
	Resolution	0.01 pH	
	Accuracy	±0.01 pH ±1 digit	
	Temp. Compensation	0 to 100°C (32 to 212°F) Auto or Manual	
	Calibration	1-3 Points Auto Calibration	
mV	Measuring Range	±1000 mV	
	Resolution	1 mV	
	Accuracy	±0.2% F.S ±1 digit	
Cond.	Measuring Range	/	Conductivity 0 to 200 mS/cm, include: (0.00 to 19.99) µS/cm; (20.0 to 199.9) µS/cm; (200 to 1999) µS/cm; (2.00 to 19.99) mS/cm; (20.0 to 199.9) mS/cm; TDS: (0 to 100) g/L
	Resolution	/	0.01/0.1/1 µS/cm; 0.01/0.1 mS/cm
	Accuracy	/	±1.0% F.S ±1 digit
	Temperature Compensation	/	0 to 50°C (32 to 122°F) Auto or Manual
	Electrode constant	/	0.1 / 1 / 10 cm ⁻¹
	Calibration		1-4 Points Auto Calibration
Temp.	Measuring Range	0 to 100°C (32 to 212°F)	
	Resolution	0.1 °C	
	Accuracy	±0.5 °C ±1 digit	
Others	Power Supply	AA Batteries *4 1.5V*4	
	IP Rating	IP57 Waterproof and Dustproof	
	Dimensions and weight	Meter: (86×196×33) mm / 335g; With carrying case: (360×275×80) mm/1.6kg	

Complete Test Kit



PC400



PC400S



	PH400S	PC400S	EC400S
pH	Measuring Range	-2.00 to 19.99 pH	
	Resolution	0.1/0.01 pH	
	Accuracy	±0.01 pH ±1 digit	
	Temp. Compensation	0 to 100°C (32 to 212°F) Auto or Manual	
	Calibration	1-5 Points Auto Calibration	
mV	Measuring Range	±1999 mV	
	Resolution	1 mV	
	Accuracy	±0.1% F.S ±1 digit	
Cond.	Measuring Range	/	Conductivity 0 to 200 mS/cm, include: (0.00 to 19.99) µS/cm; (20.0 to 199.9) µS/cm; (200 to 1999) µS/cm; (2.00 to 19.99) mS/cm; (20.0 to 199.9) mS/cm; TDS: (0 to 100) g/L Salinity: (0 to 100) ppt; Resistivity: (0 to 100) MΩ·cm
	Resolution	/	0.01/0.1/1 µS/cm 0.01/0.1 mS/cm
	Accuracy	/	±1.0% F.S ±1 digit
	Temp Compensation	/	0 to 50°C (32 to 122°F) Auto or Manual
	Electrode constant	/	0.1 / 1 / 10 cm ⁻¹
	Calibration Points	/	1-4 Points Auto Calibration
Temp.	Measuring Range	0 to 100 °C (32 to 212 °F)	
	Resolution	0.1 °C	
	Accuracy	±0.5 °C ±1 digit	
Others	Data Storage	500 Groups	1000 Groups
	Storage Content	Numbering, Date, Time, Measurements, Unit, Temperature	
	Data Output	USB – PC-Link Software	
	Timing Data Logging	Yes	
	Pure Water Mode	Yes	
	Power Supply	AA Batteries *4 1.5V*4 / USB	
	IP Rating	IP57 Waterproof and Dustproof	
	Dimensions and weight	Meter: (86×196×33) mm / 335g; With carrying case: (360×275×80) mm/1.6kg	Meter: (86×196×33) mm / 335g; With carrying case: (480×360×95) mm/4.2kg
		Meter: (86×196×33) mm / 335g; With carrying case: (360×275×80) mm/1.6kg	



700 Series

The Most Economical Lab-Grade pH & Conductivity Meter

pH and Conductivity Measurement

- Equipped with long lasting 3-in-1 Combination pH electrode and Conductivity combination electrode, measuring temperature simultaneously
- Automatically recognizes 6 types of pH standard buffer solutions and 8 types of conductivity standard solutions
- Comes with a portable electrode holder and premixed standard solutions

Reliable Performance

- High quality Durable pH & Conductivity electrodes provide high accuracy in wide measuring ranges.
- Advanced digital processing technology improves response time and accuracy of measurements.
- IP54 Splashproof and Dustproof

Intelligent Functions

- Easy Multi-Point auto calibration mode with auto buffer recognition, calibration guide and auto check
- Automatic Temperature Compensation
- 50 Groups of data storage
- Max/Min measuring mode, alternately displaying the maximum and minimum readings



pH700

EC700

Parameter	Technical Specifications		Model
pH	Measuring Range	0 to 14.00 pH	PH700
	Resolution	0.1/0.01 pH	
	Accuracy	±0.01 pH ±1 digit	
	Stability	±0.01 pH ±1 digit/3 Hrs	
	Calibration	1 to 3 points Auto Calibration	
	Temp. Compensation	0 to 100°C (32 to 212°F) Auto or Manual	
mV	Measuring Range	±1999 mV	PH700
	Resolution	1 mV	
	Accuracy	±0.1% F.S ±1 digit	
Conductivity	Measuring Range	Conductivity: 0 to 200.0 mS/cm, include: (0.00 to 19.99) µS/cm (20.0 to 199.9) µS/cm (200 to 1999) µS/cm (2.00 to 19.99) mS/cm (20.0 to 199.9) mS/cm	EC700
	Resolution	0.1/1 µS/cm; 0.01/0.1 mS/cm	
	Accuracy	±1% F.S ±1 digit	
	Temperature Compensation	0 to 50°C (32 to 122°F) Auto or Manual	
	Base Temperature	25°C (77°F)	
	Temperature Coefficient	0.00 to 9.99%/°C, default: 2.00%/°C	
	Electrode Constant	0.1 / 1 / 10	
Temperature	Calibration	1 to 4 Points Auto Calibration	PH700 EC700
	Measuring Range	0 to 100.0°C (32.0 to 212 °F)	
	Resolution	0.1°C; 0.1/1°F	
Others	Accuracy	±0.5°C ±1 digit	PH700 EC700
	Data Storage	50 groups	
	Storage Content	Numbering, measurements, unit, temperature, and status of temperature compensation	
	Power Supply	DC9V/300mA	
	IP Rating	IP54 Splashproof and Dustproof	
	Dimensions and weight	240×235×103 mm / 1kg	



800 Benchtop pH / Conductivity Meter

Accurate Measurements:

- High quality 3-in-1 pH & platinum black Conductivity electrodes provide high accuracy in wide measuring ranges.
- Advanced digital processing technology improves meter's response time and accuracy.
- Easy and Quick Auto Calibration with auto buffer recognitions (up to 15 types of auto buffer recognition)

Intelligent Functions

- GLP Data Management, 500 groups of data storage, Digital Clock Display, USB data output
- Slope Data Display during calibrations, showing the health condition of your probes
- Smart Self-Diagnosis to help you conduct correct calibrations

Reliable Performance

- Quick Auto Temperature Compensation
- Stable / Auto-Lock reading display to improve consistency
- Calibration Reminders and Calibration History Check to assure you are receiving the most accurate measurements.
- IP54 Splashproof and Dustproof



PC Connectivity





820 Precision Benchtop pH / Conductivity Meter

Highest Accuracy
(± 0.002 pH & $\pm 0.5\%$ F.S in conductivity)

Measuring pH

- Equipped with LabSen 211 Long-Life Premium Glass pH Electrode
- 1-3 points or 1-5 points of auto calibration with guidance and auto-check.
- Automatically recognizes up to 15 kinds of pH standard buffer solutions (3 optional series: U.S., NIST, and China; also featuring a User-Defined Setting).
- Pure water and ammonia-added pure water test modes available; especially suitable for electric power and petrochemical industries.
- "E_H" oxidation-reduction potential (ORP) measuring mode available

Measuring Conductivity

- Equipped with 2401T-M High-Accuracy Glass Conductivity Electrode
- 1-4 points of auto calibration with guidance and auto-check.
- Easy switch among conductivity/TDS/Salinity/Resistivity.
- Automatically recognizes up to 8 kinds of conductivity standard solutions (2 optional series: U.S. and NIST; also featuring a User-Defined Setting).
- Auto-range switch. Auto non-linear Temp. Compensation for pure water and ultra-pure that is less than 10 $\mu\text{S}/\text{cm}$, which significantly improves the accuracy of ultra-pure water's conductivity testing.

LabSen 211 Long-Life Glass pH Electrode



Model: PH820



Measuring Range	0 to 14 pH
Temp. Range	-5 to 100°C (23 to 212°F)
Material	Lead-Free Glass
Temp. Probe	No
Junction	Ceramic
Reference	Long Life
Electrolyte	Gel 3M KCl
Membrane	Impact-Resistant Half Ball
Connector	BNC
Applications	This sturdy glass pH electrode with long-life reference system is ideal for general pH measurements in scientific research and quality control

800 Series Benchtop Meter

	PH800	PC800	EC800
pH	Electrode	201T-F 3-in-1 Plastic Combination pH Electrode	
	Measuring Range	(-2.00 to 19.99) pH	
	Resolution	0.1/0.01 pH	
	Accuracy	±0.01 pH ±1 digit	
	Calibration	1-5 points Auto Calibration	
	Input current	≤1x10 ⁻¹² A	
	Input impedance	≥1x10 ¹² Ω	
	Stability	±0.01 pH ±1 digit/3 hrs	
mV	Temp. Compensation	0 to 100 °C (32 to 212 °F) Auto or Manual	
	Measuring range	±1999 mV	
	Resolution	1 mV	
Cond	Accuracy	±0.1% F.S ±1 digit	
	Electrode	/	2301T-M Plastic Conductivity Electrode
	Measuring Range	/	(0.00~19.99) μS/cm (20.0~199.9) μS/cm (200~1999) μS/cm Conductivity: 0 to 2000 mS/cm, include: (2.00~19.99) mS/cm (20.0~199.9) mS/cm
		/	TDS: (0 to 100) g/L
		/	Salinity: (0 to 100) ppt
		/	Resistivity: (0 to 100) MΩ-cm
	Resolution	/	0.01/0.1/1 μS/cm; 0.01/0.1 mS/cm
	Accuracy	/	±1.0% F.S ±1 digit
	Calibration	1-4 points Auto Calibration	
	Temp. Compensation	/	0 to 50 °C (32 to 122 °F) Auto or Manual
Temp	Electrode constant	/	0.01/0.1/1/10 cm ⁻¹
	Electrode	MP500 Temperature Electrode	
	Measuring Range	/	0 to 100 °C (32 to 212 °F)
	Resolution	/	0.1 °C
Others	Accuracy	/	±0.5 °C ±1 digit
	Data Storage	500 Groups	
	Storage Content	Numberings, Date, Time, Measurements, Unit, and Temperature	
	Data Output	USB – PC-Link Software	
	Timing Data Logging	Yes	
	Pure Water Mode	Yes	
	Power Supply	DC9V/300mA	
	IP Rating	IP54 Splashproof and Dustproof	
	Dimensions and Weight	(240*235*103) mm/1kg	

820 Series Precision Benchtop Meter

	PH820	PC820	EC820
pH	Electrode	LabSen 211 Long-Life Glass pH Combination Electrode	
	Measuring Range	(-2.000 to 19.999) pH	
	Resolution	0.1/0.01/0.001 pH	
	Accuracy	±0.002 pH ±1 digit	
	Calibration	1-5 points Auto Calibration	
	Input current	≤1x10 ⁻¹² A	
	Input impedance	≥3x10 ¹² Ω	
	Stability	±0.002 pH ±1 digit/3 hrs	
	Temp. Compensation	0 to 100°C (32 to 212°F) Auto or Manual	
mV	Measuring range	±1999.9 mV	
	Resolution	0.1 mV	
	Accuracy	±0.03% F.S ±1 digit	
Cond	Electrode	/	2401T-M Glass Conductivity Electrode
	Measuring Range	/	(0.00~19.99) μS/cm (20.0~199.9) μS/cm (200~1999) μS/cm (2.00~19.99) mS/cm (20.0~199.9) mS/cm (200~1999) mS/cm
		/	Conductivity: 0 to 2000 mS/cm, include:
		/	TDS: (0 to 100) g/L
		/	Salinity: (0 to 100) ppt
		/	Resistivity: (0 to 100) MΩ·cm
	Resolution	/	0.01/0.1/1 μS/cm; 0.01/0.1/1 mS/cm
	Accuracy	/	±0.5% F.S ±1 digit
	Calibration	1-4 points Auto Calibration	
Temp	Temp. Compensation	/	0 to 50°C (32 to 122°F) Auto or Manual
	Electrode constant	/	0.01/0.1/1/10 cm ⁻¹
	Electrode	MP500 Temperature Electrode	
	Measuring Range	/	-10 to 110°C (14 to 230°F)
Others	Resolution	/	0.1°C
	Accuracy	/	±0.4°C ±1 digit
	Data Storage	500 Groups	1000 Groups
	Storage Content	Numberings, Date, Time, Measurements, Unit, and Temperature	
	Data Output	USB – PC-Link Software	
	Timing Data Logging	Yes	
	Pure Water Mode	Yes	
	Power Supply	DC9V/300mA	
	IP Rating	IP54 Splashproof and Dustproof	
	Dimensions and Weight	(240*235*103) mm/1kg	



WS200 Portable Fluoride / pH / Conductivity Meter



Reliable. Quick. Convenient

The patented 3-in-1 Fluoride Ion probe is composed of an ion electrode, a reference electrode, and a temperature electrode, generating reliable readings with stable potential and fast response rate. No need for probe stirring or added reagents during fluoride tests. (only takes 10 minutes to activate the fluoride probe before tests)

7-in-1 Measurements

In addition to the fluoride electrode, a pH electrode and a conductivity electrode are also included in the kit for measuring pH, conductivity, TDS, resistivity, salinity, along with fluoride and temperature.

Intelligent Functions

F501-S 3-in-1
Fluoride Ion probe

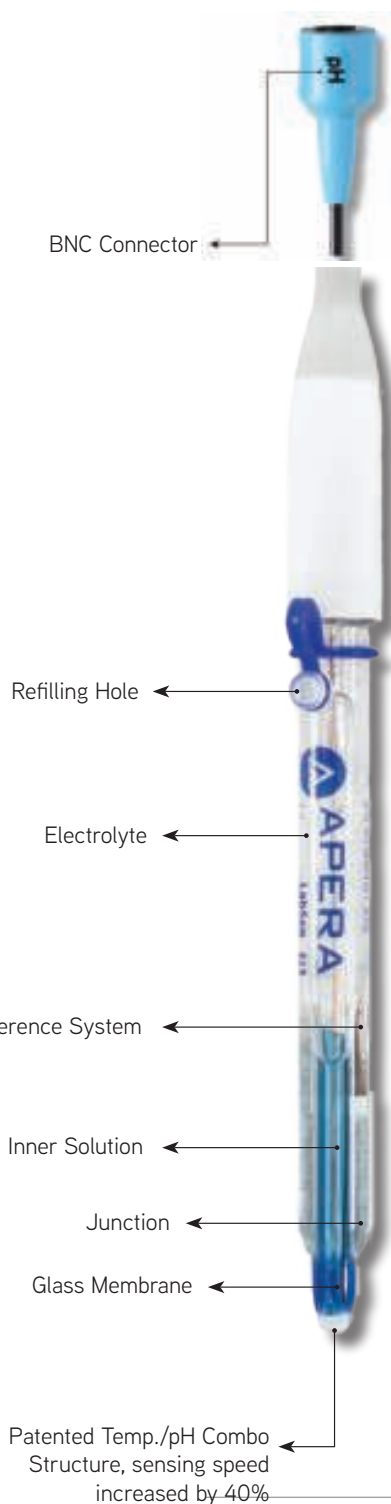
2-point automatic calibration (0.19mg/L, 19.0 mg/L) for fluoride; 3-point automatic calibration for pH (4.00, 7.00, 10.01 pH); 300 groups of data storage; auto. power-off; backlight adjustment; Self-Diagnosis.

WS200/WS100 Fluoride Multi-parameter Meters

		WS200	WS100
Fluoride	Measuring Range	0.02 ppm to 1900 ppm	
	Accuracy	±0.02 ppm, or ±5% of reading (whichever is greater)	
	Unit	mg/L; ppm; pF	
	Temp. Compensation Range	0 to 80°C (32 to 176°F) Automatic	
pH	Measuring Range	0 to 14 pH	
	Accuracy	±0.01 pH±1 digit	
	Resolution	0.1/0.01 pH	
	Temp. Compensation Range	0 to 80°C (32 to 176°F) Automatic	
mV	Measuring Range	-1999 mV – 0 – 1999 mV	
	Resolution	1 mV	
	Accuracy	±0.1% F.S	
Conductivity	Measuring Range	0 to 200mS/cm; TDS (0 to 100 mg/L); Salinity (0 to 100 ppt); Resistivity: 0 to 100MΩ•cm	N/A
	Resolution	0.01/0.1/1 μS/cm 0.01/0.1 mS/cm	
	Accuracy	±1.5% F.S	
	Temp. Compensation Range	0 50°C (32 to 122°F) Automatic	
	Electrode Constant	0.1/1/10 cm ⁻¹	
	Base Temperature	25°C; 20°C; 18°C	
Others	Data Storage	800 groups	300 groups
	Storage Content	Numberings, measurements, unit, and temperature	
	Power Supply	AA alkaline batteries *2 (1.5V*2)	
	IP Rating	IP57 waterproof and dustproof	
	Dimensions	Meter: 65*120*31mm; Case: 360*270*76mm	

Apera LabSen® Professional pH Electrodes

Apera Instruments LabSen® Professional pH Electrodes are backed by proprietary sensor technologies and components from Switzerland, designed for a wide variety of applications in scientific research and product quality control with more than 30 models.



Glass Membrane

Glass membrane is the most important part of pH electrodes.

- LabSen® pH electrodes are equipped with 4 types of glass membrane to meet needs in various applications: S membrane, H membrane, HF membrane, and PHY membrane.
- LabSen® glass membrane is highly resistant to general impact (totally differentiates from the traditional fragile glass bulb membrane).
- LabSen® glass membrane with different shapes are shown as below:



Hemispherical Cylindrical Slim Spear Flat Conical

Junction

Junction is the electrolyte interface between reference system and the test samples. LabSen® electrode adopts the following junctions:

- Diaphragm – the most frequently used junction type, easy to get blocked by protein-containing or suspension solutions.
- Pore without Diaphragm – it is used with solid electrolyte, no clogging, and maintenance-free.
- Moveable sleeve – easy to clean, suitable for suspension, emulsion, low ion-concentration solution and non-aqueous solution. The infiltration rate of electrolyte is determined by the tightness of the sleeve during installation.
- PTFE – a type of Teflon material with multi pores, hard to be contaminated.

Inner Solution

The inner solution of LabSen® electrode is in a distinctive dark blue color. With a special gel treatment, inner solution does not flow and will not cause bubble. The electrode can even work upside down.

Reference System

Besides the routine Ag/AgCl reference electrode, LabSen® Electrodes are more likely to adopt the Long-Life reference system and Silver Ion Trap reference electrode.



Long-Life Reference System

Long-Life reference system is composed of a glass tube, AgCl, and reference silver wire. The top end of the slim glass tube is stuffed with cotton, which will prevent reaction between AgCl and electrolyte when temperature changes. It improves the stability of reference electrode and service life.

Material	Lead-Free Glass
Temp. Probe	No
Junction	Ceramic
Reference	Long Life
Electrolyte	3M KCl
Length	120mm
Diameter	12mm
Membrane Shape	Half Ball

LabSen® 211 Routine pH Electrode



Range: 0 to 14 pH
Temp.: -5 to 100 °C
(23 to 212°F)
Connector: BNC/1m cable

Application

- Suitable for routine lab tests in regular aqueous solutions

Features

- Shock-proof glass membrane
- Long-Life reference

Material	Lead-Free Glass
Temp. Probe	No
Junction	Movable Sleeve
Reference	Long Life
Electrolyte	3M KCl
Length	130mm
Diameter	12mm
Membrane Shape	Cylindrical

LabSen® 221 Precise pH Electrode



Range: 0 to 14 pH
Temp.: -5 to 80 °C
(23 to 176°F)
Connector: BNC/1m cable

Application

- Suitable for low ion-concentration liquid and viscous samples.

Features

- Movable sleeve helps generate quick and stable readings in low ion-concentration samples.

Material	Lead-Free Glass
Temp. Probe	Probe
Junction	Ceramic
Reference	Long Life
Electrolyte	3M KCl
Length	150mm
Diameter	12-6mm
Membrane Shape	Cylindrical

LabSen® 241-6 Semi-micro pH Electrode



Range: 0~14 pH
Temp.: 0 to 100 °C
(32 to 212°F)
Connector: BNC/1m cable

Application

- Suitable for small volume liquid ($\geq 0.2\text{ml}$) and test tube samples.

Features

- 6mm measuring tip
- Long-Life reference system

Material	Lead-Free Glass
Temp. Probe	No
Junction	Ceramic
Reference	Long Life
Electrolyte	3M KCl
Length	130mm
Diameter	12-3mm
Membrane Shape	Cylindrical

LabSen® 241-3 Micro pH Electrode



Range: 0 to 14 pH
Temp.: 0 to 100 °C
(32 to 212°F)
Connector: BNC/1m cable

Application

- Suitable for micro samples ($\geq 30\mu\text{L}$), or testing in centrifuge tubes and NMR tubes.

Features

- 3mm measuring tip is $\Phi 3 \times 70\text{mm}$.
- Long-Life reference system

Material	Lead-Free Glass
Temp. Probe	No
Junction	Ceramic +Single Pore
Reference	Long Life
Electrolyte	Polymer
Length	100mm
Diameter	12-6mm
Membrane Shape	Spear

LabSen® 251 Glass Spear pH Electrode



Range: 0 to 14 pH
Temp.: 0 to 80 °C
(32 to 176°F)
Connector: BNC/1m cable

Application

- Suitable for soft solid and semi-solid food, e.g. cheese, fruit, vegetables, sushi rice, etc.

Features

- Spear tip for direct soil pH measurements
- Solid Polymer electrolyte, maintenance-free

Material	PVC
Temp. Probe	No
Junction	Ceramic +Single Pore
Reference	Long Life
Electrolyte	Polymer
Length	90mm
Diameter	15-6mm
Membrane Shape	Spear

LabSen® 551 Spear pH Electrode



Range: 0 to 14 pH
Temp.: 0 to 60°C
(32 to 140°F)
Connector: BNC/1m Cable

Application • Suitable for solid and semi-solid medium e.g. soil

- Features • Spear tip for direct soil pH measurements
• Solid Polymer electrolyte, maintenance-free

Material	POM
Temp. Probe	No
Junction	PTFE
Reference	Long Life
Electrolyte	3M KCl
Length	110mm
Diameter	12mm
Membrane Shape	Flat

LabSen® 371 Flat pH Electrode



Range: 0 to 14 pH
Temp.: 0 to 80°C
(32 to 176°F)
Connector: BNC/1m Cable

Application • Suitable for flat surface measurement such as fabrics, skin, paper, carpet, etc.

- Features • Flat glass membrane, fast response

Material	Lead-free Glass
Temp. Probe	No
Junction	Movable Sleeve
Reference	Silver Ion Trap
Electrolyte	3M KCl
Length	130mm
Diameter	12mm
Membrane Shape	Cylindrical

LabSen® 801 Purified Water pH Electrode



Range: 1 to 11 pH
Temp.: 0 to 80°C
(32 to 176°F)
Connector: BNC/1m Cable

Application • Suitable for purified water measurement e.g. RO water, distilled water, deionized water etc.

- Features • Movable sleeve helps generate quick and stable measurements in low ion-concentration liquid.
• Silver ion trap reference system

Material	Lead-Free Glass
Temp. Probe	No
Junction	Ceramic
Reference	Silver Ion Trap
Electrolyte	3M KCl
Length	120mm
Diameter	12mm
Membrane Shape	Half Ball

LabSen® 831 HF pH Electrode



Range: 0 to 11 pH
Temp.: 0 to 100°C
(32 to 212°F)
Connector: BNC/1m Cable

Application • Suitable for strong acid solutions and solutions containing Hydrofluoric acid ($\geq 3\text{pH}$).

- Features • Special HF glass membrane, HF corrosion resistance.
• Silver ion trap reference system, preventing the junction from being contaminated by silver sulfide or protein.

Material	Lead-Free Glass
Temp. Probe	No
Junction	Ceramic *3
Reference	Long Life
Electrolyte	Protelyte
Length	120mm
Diameter	12-6mm
Membrane Shape	Conical

LabSen® 851-1 Viscous pH Electrode



Range: 0 to 14 pH
Temp.: 0 to 100°C
(32 to 212°F)
Connector: BNC/1m Cable

Application • Suitable for cosmetics and viscous samples.

- Features • 3 ceramic diaphragm
• Protelyte reference solution
• Silver ion trap reference system

Electrodes for General Purposes

pH, ORP, and Conductivity

201-C Plastic pH Combination Electrode

- Measuring Range: 0 to 14 pH
- Temp. Range: 0 to 80°C
- Dimension: $\varnothing 12 \times 160 \text{ mm}$
- Junction: Ceramic
- Reference: Ag/AgCl
- Connector: BNC

Features: Ideal for both lab and in-field use. Gel KCl Electrolyte, no need to refill; Detachable probe cap, easy to clean; Not suitable for testing in strong base solution ($\text{pH} > 12$), erosive solutions, or constant testing in high temperature ($> 60^\circ\text{C}$)

201T-F Plastic 3-in-1 pH Combination Electrode

In addition to the features of 201-C, it has a built-in thermistor, which allows simultaneous temperature measuring and auto temperature compensation.



301Pt-C Plastic Combination ORP Electrode

- Junction: Ceramic
- Dimension: $\varnothing 12 \times 160 \text{ mm}$
- Sensor: $\varnothing 1 \times 5 \text{ mm}$ Platinum
- Reference: Ag/AgCl
- Connector: BNC

Features: PC housing, Gel KCl electrolyte, no need to refill. Suitable for use in general water solutions and waste water.



2301-C Plastic Conductivity Electrode

- Measuring Range: 0.5 $\mu\text{S}/\text{cm}$ to 200 mS/cm
- Electrode Constant: $1.0 \pm 0.2 \text{ cm}^{-1}$
- Dimension: $\varnothing 12 \times 155 \text{ mm}$
- Sensor: Brush-Resistant Platinum Black Rods
- Connector: BNC

Features: The brush-resistant Platinum black sensor ensures high accuracy in wide measuring ranges. Suitable for lab and field use.

2301T-F Plastic Cond./Temp. Electrode

In addition to the features of 2301-C, it has a built-in thermistor, which allows simultaneous temperature measuring and auto temperature compensation.



2310-C Plastic Conductivity Electrode

- Measuring Range: 20 to 2000 mS/cm
- Electrode Constant: $10 \pm 1 \text{ cm}^{-1}$
- Dimension: $\varnothing 12 \times 155 \text{ mm}$ • Connector: BNC
- Sensor: $\varnothing 5 \times 5$ Platinum Black Ring Sensor

Features: High-Concentration Conductivity electrode. Accuracy without calibration: $\leq \pm 10\%$ of readings; Accuracy after calibration: $\leq \pm 1.5\%$ F.S. Suitable for high concentrated electrolyte, sea water, and high concentrated salt water.

2310T-F Plastic Cond. / Temp. Electrode

In addition to the features of 2310-C, it has a built-in thermistor, which allows simultaneous temperature measuring and auto temperature compensation.



2401-C Glass Conductivity Electrode

- Measuring Range: $0.5 \mu\text{S/cm}$ to 200 mS/cm
- Electrode Constant: $1.0 \pm 0.2 \text{ cm}^{-1}$
- Dimension: $\varnothing 12 \times 145 \text{ mm}$ • Connector: BNC
- Sensor: $\varnothing 5 \times 5 \text{ mm}$ Platinum Black

Features: The cavity structure renders higher accuracy and better repeatability, making it suitable for high-precision lab testing.

2401T-F Glass Cond. / Temp. Electrode

In addition to the features of 2401-C, it has a built-in thermistor, which allows simultaneous temperature measuring and auto temperature compensation.



DJS-0.1-C Pure Water Conductivity Electrode

- Measuring Range: 0 to $200 \mu\text{S/cm}$
- Electrode Constant: $0.1 \pm 0.02 \text{ cm}^{-1}$
- Dimension: $\varnothing 12 \times 155 \text{ mm}$ • Connector: BNC
- Sensor: $\varnothing 7 \times 18 \text{ mm}$ Platinum Black

Features: equipped with a removable glass flow cell, making it suitable for measurements in pure and ultra-pure water.

DJS-0.1-F Pure Water Cond. / Temp. Electrode

In addition to the features of DJS-0.1-C, it has a built-in thermistor, which allows simultaneous temperature measuring and auto temperature compensation.



Accessories ■ Stirrers, Electrode Holders, Standard Solutions



Model 901 Intelligent Stirrer

- Ability to store and recall the stirring speed
- Waterproof housing and battery power supply allow for portable use
- Comes with a electrode holder

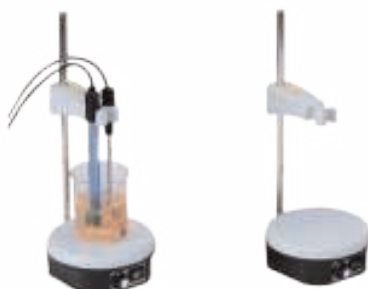
Working diameter	ø100mm
Speed Range	0 to 2300 RPM (no load)
Max. Stirring Volume	1000 ml
Dimension	100*146*48 mm
Power Supply	DC6V Power Adapter or AA Batteries



Model 601 Magnetic Stirrer with Electrode Holder



Model 602 Flexible Electrode Holder



EZ Calibration Box



Model 801 Magnetic Stirrer

Speed Range	0 to 2300 RPM (no load)
Working Diameter	ø120mm
Max. Stirring Volume	3000ml
Power	DC9V Power Adapter
Dimension	ø120*49mm



Model 802 Heating Magnetic Stirrer

Heating Power	40W
Surface Temp.	120°C (no load)
Speed Range	0 to 2300 RPM no load)
Max. Stirring Volume	1000 ml
Power Supply	AC220V, 50HZ
Dimension	ø120*53mm

Model 601 Stirrer with Electrode Holder

Speed Range	0 to 2300 RPM (no load)
Working Diameter	ø120mm
Max. Stirring Volume	3000ml
Power Supply	DC9V Power Adapter
Dimension	ø120*49mm
Installing Size	ø16mm ø13mm
Adjustable distance of electrode clip	0 to 90mm

EZ Calibration Combo
(Calibration Box included)

	Accuracy	Container Size
pH 4.00 Buffer Solution	±0.01 pH (25°C)	500mL/250mL/100mL
pH 7.00 Buffer Solution	±0.01 pH (25°C)	500mL/250mL/100mL
pH 10.01 Buffer Solution	±0.01 pH (25°C)	500mL/250mL/100mL



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