

Docu-pH_{Meter}

12,03,00 13:15
20.5°C ATC S
-82.6 mV
pH



Menu

Cal

Print/
Mem





Laboratory Equipment for Electrochemical Analysis

Sartorius DocuClip® & Docu-pH_{Meter}

The New Standard for Reliability in Electrochemical Analysis



Reliability starts with easy and comprehensible operation. With the newly developed Docu-pH_{Meter} instruments, Sartorius is setting new standards in the determination and management of measured values. Equipped with a graphic display and easy-to-use soft keys, all Docu-pH_{Meter} models are practical meters that make even complex laboratory tasks simple.

You can choose between "intelligent" electrodes connected to DocuClip® and standard electrodes with a BNC connector.

Comprehensive features – simple results

- Graphical display and softkeys
- Easy-to-understand menu-driven prompts in plain language
- Defined function keys for the most common applications; no double-assigned keys

- Fast mode for rapid results
- Automatic recognition of DocuClip®
- Automatic recognition of a variety of temperature probes
- Serial interface for data transfer to computer or printer (Docu-pH_{Meter}+) (Docu-pH_{Meter}+))
- Memory capacity for 500 data records (Docu-pH_{Meter}+))

Give your electrodes an identity. DocuClip® is a unique device that makes an electrode uniquely identifiable, in just seconds. Equipped with built-in memory for calibration data, DocuClip® works together with the Sartorius Docu-pH_{Meter} to store essential electrode specifications over its entire service life.

Electrode data is automatically logged 100% at each measurement, and can be sent to a printer or exported to a computer for further processing.

Specifications

Temperature measurement	Docu-pH _{Meter}	Docu-pH _{Meter} ⁺
Temperature range in °C	-5 to 105 (23 to 221 °F)	-5 to 105 (23 to 221 °F)
Readability in °C	0.1	0.1
Accuracy in °C	± 0.2	± 0.2
Temperature compensation	Automatic or manual from -5 to 105 °C	
Buffer recognition	Automatic: technical buffers, DIN/NIST buffers	
Calibration standards, max. quantity	3	3
Date time battery-supplied	-	×
Sample IDs	-	×
Calibration prompts	-	×
Complete GLP-compliant record printout	-	×
Memory for measurement data	-	×
Communication with DocuClip®	×	×
Input for pH combination electrodes	BNC	BNC
Input for temperature probe: NTC 10 kΩ, NTC 30 kΩ, Pt1000	2.5 mm phone jack	2.5 mm phone jack
RS-232 interface	-	×
Dimensions in mm	89 × 229 × 145	
Weight in kg	1	1

Specifications

pH Measurement	Docu-pH _{Meter}	Docu-pH ⁺ _{Meter}
Range	-2.000 ... 20.000	-2.000 ... 20.000
Readability	0.001 0.01 0.1 configurable	0.001 0.01 0.1 configurable
Accuracy	± 0.005	± 0.005

mV Measurement

Measurement range in mV	-2000.0 ... 2000.0	-2000.0 ... 2000.0
Readability in mV	0.1 1 configurable	0.1 1 configurable
Accuracy in mV	± 0.2 < 1000 ± 1 > 1000	± 0.2 < 1000 ± 1 > 1000

Choice of Standard Features

Docu-pH _{Meter}	Order number	
Measuring instrument incl. electrode retainer arm, technical buffer, AC adapter, operating instructions	Docu-pH	Docu-pH+
...with electrodes and DocuClip® for unique, 100% traceable data recording		
pH electrodes with: Plastic body, refillable, fiber junction, NTC 10 kΩ	Docu-pH P10doc	Docu-pH+ P10doc
Glass housing, refillable, platinum junction, NTC 10 kΩ		Docu-pH+ P11doc
Plastic body, gel electrolyte, fiber junction, NTC 10 kΩ	Docu-pH P12doc	Docu-pH+ P12doc
Plastic body, gel electrolyte, fiber junction	Docu-pH P20doc	Docu-pH+ P20doc
Glass housing, refillable, platinum junction		Docu-pH+ P21doc
...with conventional electrodes		
pH electrodes with: Plastic body, refillable, fiber junction, NTC 10 kΩ	Docu-pH P10	Docu-pH+ P10
Glass housing, refillable, platinum junction, NTC 10 kΩ		Docu-pH+ P11
Plastic body, gel electrolyte, fiber junction, NTC 10 kΩ	Docu-pH P12	Docu-pH+ P12
Plastic body, gel electrolyte, fiber junction	Docu-pH P20	Docu-pH+ P20
Glass housing, refillable, platinum junction		Docu-pH+ P21
DocuClip® ... for unique, 100% traceable documentation of calibration for any pH electrodes; initialization by the user with Docu-pH _{Meter} (or Docu-pH ⁺ _{Meter}) required	DocuClip®	

Professional Meters: Multi-talented Instruments for the Most Sophisticated Measurement Tasks



pH | mV meters, ion meters, conductivity meters. Four models – with all options to meet the highest requirements.

- Large, backlit multifunction graphical VGA 5.7" display
- Measuring accuracy down to ± 0.1 mV
- Automatic temperature compensation
- Menu-driven operation with plain language prompts
- Automatic recognition of 26 standard buffers (NIST and DIN, among others)
- Automatic checking of your combination electrode
- Automatic calibration prompt
- Stability icon: stability parameters can be adapted to the measuring task at hand
- Help function always available through soft keys

Clear functions – clear advantages

Simultaneous display of a measured value and the temperature, also for parallel measurements of the pH and conductivity, for example

Research-grade – i.e., the highest – accuracy covering a broad range of concentrations

Excellent reliability and repeatability of the measured results

GLP | GMP | ISO-compliant documentation of the calibrations and results

Interface port for connecting a printer or a PC



PP-15 | pH meter for pH and ORP measurements.

High resolution ensures even greater accuracy in electrochemical analysis.



PP-20 | pH and conductivity meter.

In addition to pH measurement, the high-end PP-20 Professional Meter offers research-grade conductivity measurements.



PP-25 | pH and ion-selective meter.

In addition to convenient pH measurement, the PP-25 features the added capability of research-grade ion-selective analysis for a wide range of concentrations.



PP-50 | pH meter, ion-selective meter and conductivity meter all in one unit.

The fully professional PP-50 combines all features of the models presented in this catalogue. This convenient Professional Meter is designed for use in a broad range of applications in the field of potentiometric analysis.

Specifications

pH Measurement	PP-15	PP-20	PP-25	PP-50
Range	-2.000 ... 20.000	-2.000 ... 20.000	-2.000 ... 20.000	-2.000 ... 20.000

Calibration standards, max. quantity	5	5	5	5
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mV measurement

Measurement range in mV	±2,000	±2,000	±2,000	±2,000
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Temperature measurement

Temperature range in °C	-5 ... +105	-5 ... +105	-5 ... +105	-5 ... +105
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Ion-selective analysis

Measuring range	-	-	1.00 · 10 ⁻⁹ ... 9.99 · 10 ⁹	
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Direct potentiometric measurement and incremental modes	-	-	×	×
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Calibration standards, max. quantity	-	-	7	7
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Conductivity measurement*

Measuring range in µS/cm	-	0.5 ... 20.000	-	0.5 ... 20.000
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Specific electrical resistance Measuring range in Ω · cm	-	50 ... 2.0 · 10 ⁶	-	50 ... 2.0 · 10 ⁶
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Salinity Measuring range in ppt	-	0.01 ... 42.0	-	0.01 ... 42.0
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NaCl content Measuring range in ppt	-	0.01 ... 70.0	-	0.01 ... 70.0
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TDS Measuring range in mg/l	-	0.005 ... 300,000	-	0.005 ... 300,000
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Calibration standards, max. quantity	-	5	-	5
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Manual temperature input	×	×	×	×
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Inputs for pH-combination electrodes and ISE	BNC	BNC	2 BNC	2 BNC
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Input for conductivity cells	-	DIN	-	DIN
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Date and time, non-volatile memory	×	×	×	×
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Memory for measurement data	620	620	620	620
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Dimensions in mm	265 × 200 × 100			
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* Specifications based on a cell constant of 2.54 cm

pH/mV Meters: Reliable in All Applications



Basic Meter: A strong basis featuring Sartorius quality

Four keys do it all!

The user-friendly prompts and messages guide you fast and reliably through laboratory routines.

PB-11

- Easy 1-key calibration of 1, 2 or 3 calibration standards
- Automatic buffer recognition
- Automatic electrode test during standardization
- Automatic temperature compensation
- Clear readout with easy-to-understand symbols and LCD

Three kits are available with different ranges of equipment:

Meter with electrode retainer arm, technical buffers, AC adapter and operating instructions, as well as

- Refillable pH electrode, PY-P10, with plastic body and integrated temperature sensor PB-11-P10
- Refillable pH electrode, PY-P11, with glass body and integrated temperature sensor PB-11-P11
- Low-maintenance pH electrode, PY-P20, with gel electrolyte PB-11-P20

Portable Meter:

Compact design – solid performance

It's easy to operate anywhere in the field where you need accurate measurements on the spot.

Portable Meter PT-10

- Battery operation using a 9-volt battery (optional AC adapter available separately)
- Waterproof in conformance with IP65
- Easy 1-key calibration of 1, 2 or 3 calibration standards
- Automatic buffer recognition
- Automatic electrode test during standardization
- Automatic temperature compensation
- Clear readout with easy-to-understand symbols and LCD
- Weighs only 270 g

Two kits are available with different ranges of equipment:

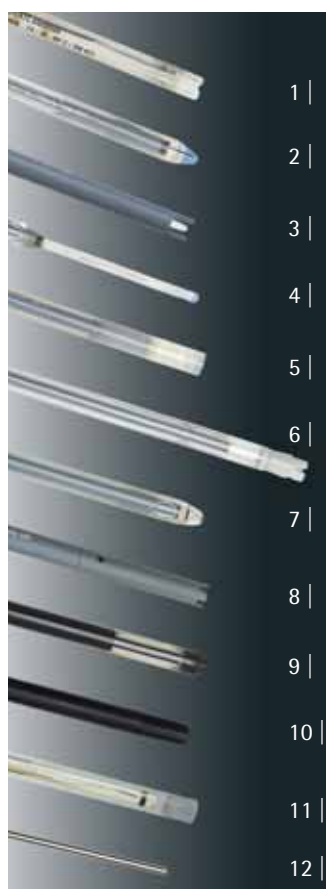
Meter in a carrying case with 9-volt DC battery, technical buffers (90 ml with pH 7 and 90 ml with pH 4), 2 plastic sample containers, each with 60 ml, as well as:

- low-maintenance combination electrode, PY-P12, gel-filled, fiber junction, built-in temperature sensor PT-10P
- low-maintenance electrode, PY-P20, gel-filled, fiber junction PT-10-P20

Specifications

	Basic Meter PB-11	Portable Meter PT-10
pH measurement		
Range	-1.99 ... 19.99	0.00 ... 14.00
Calibration standards, max. quantity	3	3
mV measurement		
Measurement range in mV	-1,800 ... +1,800	-1,800 ... +1,800
Temperature measurement		
Temperature range in °C	-5 ... +105	-5 ... +105
Inputs for pH combination electrodes	BNC	BNC
Type of protection	-	IP65
Power source	AC adapter	9V battery or AC adapter
Dimensions in mm	230 × 120 × 80	165 × 95 × 33
Weight	1,390 g	270 g incl. battery

Sensors for the Highest Quality Measurements



pH | ATC combination electrodes – glass membrane electrodes

All pH combination electrodes have an Ag | AgCl reference. The electrodes are supplied with a 1 fixed cable and BNC connector; electrodes with a built-in temperature sensor additionally have a 2.5 mm phone plug.

Figure number	Order number	Construction	Built-in temperature sensor	pH range	Application
1	PY-P10	Plastic body; electrolyte: KCl 3 mol/l; free of silver ions; fiber junction	Yes	0 to 14	Simple standard applications
2	PY-P11	Glass body; electrolyte: KCl 3 mol/l; free of silver ions; platinum junction; toughened low-resistance glass	Yes	0 to 14	All standard applications; TRIS-compatible
3	PY-P12	Plastic body, gel-filled, fiber junction	Yes	0 to 14	Simple standard applications
3	PY-P20	Plastic body, gel-filled, fiber junction	No	0 to 14	Simple standard applications
2	PY-P21	Glass body; electrolyte: KCl 3 mol/l; free of silver ions; platinum junction, toughened low-resistance glass	No	0 to 14	All standard applications TRIS-compatible
4	PY-P22	Micro-electrode (length: 110; diameter: 5 mm); electrolyte: KCl 3 mol/l, free of silver ions; platinum junction; low-resistance glass	No	0 to 14	Low sample quantity
5	PY-P23	Flat-membrane electrode; glass body; gel-filled; annular-gap junction; low-resistance glass	No	2 to 13	Surface measurements; quantity
6	PY-P24	High-performance electrode, plastic body; electrolyte: KCl 3 mol/l; free of silver ions; adjustable sleeve junction for control of the flow rate of the KCl solution; low-resistance glass membrane	No	0 to 14	Samples with a low ionic concentration; emulsions, suspensions pH values

ORP combination (redox) electrodes

This type of electrode has an Ag | AgCl reference. It is supplied with a permanently attached cable and a BNC connector.

Figure number	Order number	Construction	Built-in temperature sensor	pH range	Application
7	PY-R01	Glass body; porous ceramic reference junction; platinum disc sensing element (4 mm diameter); electrolyte: KCl 3 mol/l; free of silver ions	No	0 to 14	

Conductivity cells and multi-sense cell (pH, conductivity, temperature)

The conductivity cells are supplied with a permanently attached cord and an 8-pin DIN connector.

Figure number	Order number	Recommended measuring range	Construction	Built-in temperature sensor
8	PY-C01	0.5 $\mu\text{S}/\text{cm}$ to 2000 S/cm	4-band conductivity cell (platinum)	Yes
8	PY-C02	0.01 mS/cm to 5 mS/cm	4-band conductivity cell (platinum)	Yes
8	PY-C03	1 mS/cm to 200 mS/cm	4-band conductivity cell (platinum)	Yes
	PY-C12	1 $\mu\text{S}/\text{cm}$ to 300,000 $\mu\text{S}/\text{cm}$	4-band conductivity cell (graphite)	Yes
3	PY-PC1	0.01 mS/cm to 5 mS/cm pH 0 to 14	Combination electrode, 12 mm diameter; 120 mm length; 2-band cell (platinum); pH electrode with gel-filled electrode; temperature sensor	Yes

Ion-selective pH combination electrodes

All ion-selective electrodes are combination electrodes. They are supplied with a permanently attached cord and BNC connector.

Figure number	Order number	Ion	Measuring range in ppm	pH range
9	PY-I01	Fluoride (F^-)	0.05 ... 500	5 ... 5.5
10	PY-I02	Ammonia (NH_3)	0.02 ... 17,000	≥ 11
11	PY-I03	Sodium (Na^+)	0.02 ... to saturation	9 ... 12
9	PY-I04	Chloride (Cl^-)	2 ... 35,500	2 ... 12
9	PY-I05	Nitrate (NO_3^-)	0.4 ... 62,000	2.5 ... 11
9	PY-I06	Potassium (K^+)	0.04 ... 39,000	2 ... 12
9	PY-I07	Calcium (Ca^{2+})	0.2 ... 40,000	2.5 ... 11
9	PY-I08	Silver/sulfide ($\text{Ag}^+/\text{S}^{2-}$)	0.003 ... 12,000 S^{2-} 0.01 ... 108,000 Ag^+	$>12 \text{S}^{2-}$ 2 ... 8 Ag^+

Temperature compensating probe

NTC 10 $\text{k}\Omega$ stainless steel sensor with permanently attached cord and a 2.5 mm phone plug.

Figure number	Order number	Recommended for	Construction
12	PY-T01	Temperature measurement and automatic temperature compensation; for use with all electrodes without a built-in temperature sensor	Stainless steel body; 4.7 mm diameter; 120 mm length

Accessories



	Order No.
Printer for Professional Meters and Docu-pH_{Meter} Docu-pH⁺_{Meter}	YDP05-PH
Printer paper, 5 rolls, 50 m/roll	6906937
Color ink ribbon	6906918
pH buffers	
50 capsules per pkg; dissolve contents of each capsule in 100 ml of distilled water	
pH = 4.01 ± 0.02 at 25 °C	PY-Y01
pH = 7.00 ± 0.02 at 25 °C	PY-Y02
pH = 9.00 ± 0.02 at 25 °C	PY-Y03
pH = 10.00 ± 0.02 at 25 °C	PY-Y04
Color-coded buffer solution in practical pump-bottle, eliminates the need for a beaker during calibration, traceable to NIST standards	
pH = 4.00 ± 0.01 at 25 °C, 500 ml	PY-Y21
pH = 4.00 ± 0.01 at 25 °C, 6 + 90 ml	PY-Y21-6
pH = 7.00 ± 0.01 at 25 °C, 500 ml	PY-Y22
pH = 7.00 ± 0.01 at 25 °C, 6 + 90 ml	PY-Y22-6
pH = 10.00 ± 0.01 at 25 °C, 500 ml	PY-Y23
Storage solution , for pH combination electrodes, 500 ml	PY-Y05
Cleaning solution , pepsin hydrochloric acid, 500 ml	PY-Y06
Electrolyte solution , KCl (3 mol/l), free of silver ions, 500 ml	PY-Y07
Conductivity standards, traceable to NIST Standards	
0.084 mS/cm ±1.0% at 25 °C (KCl 0.0001 mol/l), 500 ml	PY-Y10
0.147 mS/cm ±1.0% at 25 °C (KCl 0.001 mol/l), 500 ml	PY-Y11
1.413 mS/cm ±1.0% at 25 °C (KCl 0.01 mol/l), 500 ml	PY-Y12
12.88 mS/cm ±1.0% at 25 °C (KCl 0.1 mol/l), 500 ml	PY-Y13
Equipment qualification* – IQ OQ PQ	
pH meter qualification (IQ OQ)	8407pH
For each additional parameter	8407Para

* in Austria and Switzerland: available starting in 3rd quarter