



# Starter Pen Meters



## **Accurate Results Anywhere and Anytime you Need Them**

After more than a century of perfecting the art of accurate measurement through our durable weighing products, OHAUS precision is now available in a line of pen meters that provide accurate measurement of pH, oxidation-reduction potential (ORP), conductivity, salinity, and total dissolved solids (TDS). OHAUS Starter pen meters are the economical option when you are simply looking for accurate measurement with no restriction.

- **Simple Operation in a Slim and Portable Design** – Starter pen meters provide what should be expected of a small pen meter: simple, fast, straightforward, no-frills yet highly accurate operation time and time again.
- **Durably Constructed to Withstand Wear and Tear Resulting from Repetitive Use** – With durable plastic housing, a protective cap that safeguards the sensor and an automatic shutdown feature to preserve battery life, Starter pen meters can endure consistent use in rugged environments. The electrodes are also replaceable, which extends the meters' usable life considerably.
- **Waterproof Housing Protects the Meters in their Working Environment** – Equipped with a wrist strap that helps to prevent unintentional dropping, Starter pen meters are constructed with an IP67 waterproof design that can prevent water damage when accidentally dropped into liquid.

# Starter Pen Meters

## Convenient pH Testing

Two models with varying resolution and accuracy, ST10 and ST20 offer a convenient way to measure pH, or the relative acidity or alkalinity of a sample at a given temperature. The pH pen meters can be completely operated with just one hand, freeing up your other hand to handle samples.

### pH Meters

Model	ST20	ST10
Range	0.00-14.00	0.0-14.0
Resolution	0.01pH	0.1pH
Accuracy	0.05pH	0.1pH
Temperature Range	0.0-99.0 °C	NA
Temperature Compensation	Yes	NA
Display	Dual	Single
Calibration	3 Point	NA
Buffer Group	4.01, 7.00, 10.01	NA
Automatic Shutdown	6 Minutes of Non-Use	6 Minutes of Non-Use
Battery	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries



## Portable ORP Measurement

Measure ORP virtually anywhere with the ST10R and ST20R meters. Both models provide almost instantaneous results and the ST20R offers the ability to freeze the reading right on the display to provide additional time for recording data.

### ORP Meters

Model	ST20R	ST10R
Range	-1000mV-1000mV	-1000mV-1000mV
Resolution	1mV	1mV
Accuracy	2mV	2mV
Temperature Range	0.0-99.0 °C	NA
Temperature Compensation	Yes	NA
Display	Dual	Single
Calibration	NA	NA
Automatic Shutdown	6 Minutes of Non-Use	6 Minutes of Non-Use
Battery	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries



## Small But Productive Conductivity Meters

OHAUS Starter pen meters are the choice for basic testing needs of the total ionic concentration within a solution. With six models that can measure within three different conductivity ranges, there is a Starter conductivity pen meter for every application that requires portable operation and consistent, quick results.

### Conductivity Meters

Model	ST20C-C	ST20C-B	ST20C-A
Range	0.00-19.99 ms/cm	0-1999 us/cm	0.0-199.9 us/cm
Resolution	10 us/cm	1 us/cm	0.1 us/cm
Accuracy	±1.5% FS	±1.5% FS	±1.5% FS
ATC	With Temperature Display	With Temperature Display	With Temperature Display
Display	Dual	Dual	Dual
Automatic Shutdown	6 Minutes of Non-Use	6 Minutes of Non-Use	6 Minutes of Non-Use
Battery	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries

Model	ST10C-C	ST10C-B	ST10C-A
Range	0.00-19.99 ms/cm	0-1999 us/cm	0.0-199.9 us/cm
Resolution	10 us/cm	1 us/cm	0.1 us/cm
Accuracy	±2.5% FS	±2.5% FS	±2.5% FS
ATC	Without Temperature Display	Without Temperature Display	Without Temperature Display
Display	Single	Single	Single
Automatic Shutdown	6 Minutes of Non-use	6 Minutes of Non-Use	6 Minutes of Non-Use
Battery	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries



## Simple Salinity Measurement

OHAUS Starter pen meters combine all of the most useful features for measuring salinity, or the dissolved salt content in a liquid medium. With the combination of quality construction and sturdy design, Starter pen meters will provide durable operation in even tougher environments.

### Salinity Meters

Model	ST20S	ST10S
Range	0.0-80.0 ppt	0.0-10.0 ppt
Resolution	0.1 ppt	0.1 ppt
Accuracy	±1.5% FS	±2.5% FS
ATC	With Temperature Display	Without Temperature Display
Display	Dual	Single
Automatic Shutdown	6 Minutes of Non-Use	6 Minutes of Non-Use
Battery	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries



# Starter Pen Meters

## Complete TDS Meters

When you need reliable and accurate measurement of TDS, the Starter pen meters offer a great value in a portable and compact design. Bring the Starter TDS meter wherever your need to measure the combined content of all organic and inorganic substances in a liquid takes you.

### TDS Meters

Model	ST20T-B	ST20T-A	ST10T-B	ST10T-A
Range	0-1000 mg/L	0.0-100.0 mg/L	0-1000 mg/L	0.0-100.0 mg/L
Resolution	1 mg/L	0.1 mg/L	1 mg/L	0.1 mg/L
Accuracy	±1.5% FS	±1.5% FS	±2.5% FS	±2.5% FS
ATC	With Temperature Display	With Temperature Display	Without Temperature Display	Without Temperature Display
Display	Dual	Dual	Single	Single
Automatic Shutdown	6 Minutes of Non-Use	6 Minutes of Non-Use	6 Minutes of Non-Use	6 Minutes of Non-Use
Battery	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries	4 AG13 1.5V Micro Alkaline Batteries



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Registered Quality  
Management System



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### Approvals

All pen meters meet CE requirement and comply with FCC Part 15 Class B emissions. Ingress Protection Rating (IP) 67.





# Starter Test Meters

## Water Quality and Electrochemistry Pen Meters

### Starter pH, ORP, Conductivity, Salinity, TDS Pen Meters

#### Accurate Results Anywhere and Anytime you Need Them

- Starter pen meters provide what should be expected of a small pen meter: simple, fast, straightforward, no-frills yet highly accurate operation time and time again.
- With durable plastic housing, a protective cap that safeguards the sensor and an automatic shutdown feature that preserves battery life, Starter pen meters can endure consistent use in rugged environments.
- Equipped with a wrist strap that helps to prevent unintentional dropping, Starter pen meters are constructed with an IP67 waterproof design that can prevent water damage when accidentally dropped into liquid.

<b>Application</b>	pH, ORP, Conductivity, Salinity, TDS
<b>Display</b>	Single/Dual
<b>Operation</b>	4 AG13 1.5V Micro Alkaline Batteries
<b>Construction</b>	IP67 ABS Housing
<b>Design Features</b>	Automatic shutdown, wrist strap



Model	Measurement Range	Resolution	Calibration	Item No.	Price USD
ST10	0.0 to 14.0	0.1 pH	0.1 pH	30073970	49
ST20	0.00 to 14.00	0.01 pH	0.05 pH	30073971	89
ST10R	-1000mV to 1000mV	1mV	2mV	30073984	110
ST20R	-1000mV to 1000mV	1mV	2mV	30073985	145
ST10C-A	0.0-199.9 us/cm	0.1 us/cm	±2.5% FS	30073972	67
ST10C-B	0-1999 us/cm	1 us/cm	±2.5% FS	30073973	67
ST10C-C	0.00-19.99 ms/cm	10 us/cm	±2.5% FS	30073974	67
ST20C-A	0.0-199.9 us/cm	0.1 us/cm	±1.5% FS	30073975	95
ST20C-B	0-1999 us/cm	1 us/cm	±1.5% FS	30073976	95
ST20C-C	0.00-19.99 ms/cm	10 us/cm	±1.5% FS	30073977	95
ST10S	0.0-10.0 ppt	0.1 ppt	±2.5% FS	30073982	65
ST20S	0.0-80.0 ppt	0.1 ppt	±1.5% FS	30073983	95
ST10T-A	0.0-100.0 mg/L	0.1 mg/L	±2.5% FS	30073978	75
ST10T-B	0-1000 mg/L	1 mg/L	±2.5% FS	30073979	75
ST20T-A	0.0-100.0 mg/L	0.1 mg/L	±1.5% FS	30073980	95
ST20T-B	0-1000 mg/L	1 mg/L	±1.5% FS	30073981	95

\*Pricing and specifications subject to change

## Ingeniously Practical



# Starter

Water Analysis Portable Meters



## ***Versatile and Portable Water Quality & Electrochemistry Products for Your Classroom, Inside or Out***

After more than a century of perfecting the art of accurate measurement through our durable weighing products, OHAUS precision is now available in a line of portable water quality & electrochemistry products that includes pH, conductivity, and dissolved oxygen meters that can also test for ORP and TDS. These portable meters offer convenience, reliability and durability in one compact design.

### ***Standard Features Include:***

- **Intuitive Software Powers the Starter Series**—Intuitive software and a well-organized display work in tandem to make operating the Starter Series a simple and straightforward task.
- **Compact And Ergonomic Design Creates A User Friendly Experience**—Starter portable products fit comfortably in the palm of your hand. Each also comes equipped with a retractable built-in stand that can be used to prop up the meter on a flat surface.
- **Reliable Calibration Results in Accurate Measurement**—Starter tracks the accuracy of the calibration process right on the display so you can measure with peace-of-mind knowing your results will be highly precise.

# ***Starter*** Water Analysis Portable Meters

## **Portable Meters Packed with Productive Features**

The OHAUS Starter Series of portable water quality & electrochemistry meters was created with versatility in mind. They can be operated in the lab with the support of the built-in stands or in the field thanks to their lightweight design. With a crisp, well-organized LCD screen and five clearly marked keys, utilizing the OHAUS Starter Series is simple for students and teachers alike. The portable OHAUS Starter Series also boasts IP54 protection which shields the meter from damage by water and dust particles and also offers an integrated labeling area which can be customized for quick identification. Each meter can store 30 sets of data memory and has the ability to quickly recall calibration data and stored information with one quick touch.

### **Starter 300 pH Meter**

Starter 300 marries portability with precise pH measurement. An ORP or temperature electrode can also be easily connected to provide additional functionality.

- **Auto buffer recognition stores calibration data and helps to avoid errors during the calibration process**
- **Automatic and manual temperature compensation helps ensure accurate readings**

### **Starter 300C Conductivity Meter**

Starter 300C is the reliable and accurate choice for measurement of the conductivity and TDS levels of liquids. With a variety of features that protect the meter from more extreme elements, Starter 300C can be used for a wide variety of applications.

- **The 4-pole linear electrode offers a large conductivity range that safeguards itself from polarization and pollution effects**
- **Automatic temperature compensation with an adjustable temperature coefficient**

### **Starter 300D Dissolved Oxygen Meter**

Starter 300D provides accurate and reliable dissolved oxygen measurement that is critical to aquatic life and water quality.

- **Each time the meter is calibrated, icons appear on the display to confirm the accuracy of the calibration process so you can ensure accurate measurement**
- **Push-button toggling between ppm, mg/L and percentage**
- **The galvanic electrode can be used immediately after being powered on without the wait time typically associated with dissolved oxygen meters**



## Specifications

Model	ST300*	ST300C*	ST300D*
Measurement Range	0.00...14.00 pH -1999...1999 mV 0 °C...100 °C	0.0 µS/cm...199.9 mS/cm 0.1 mg/l...199.9 g/l (TDS) 0 °C...100 °C	0.0 to 199.9%; 200 to 400% 0.00 to 19.99; 20.0 to 45.0 mg/L 0.00 to 19.99; 20.0 to 45.0 ppm 0 to 50 °C
Measurement Resolution	0.01 pH 1 mV 0.1 °C	Automatic Range 0.1 °C	0.1%; 1% 0.1 mg/L; 1 mg/L 0.01 ppm; 0.1 ppm 0.1 °C
Barometric Range	NA	NA	375 to 825 mmHg 500 to 1100 mbar 500 to 1100 hPa
Barometric Resolution	NA	NA	1 mmHg 1 mbar 1 hPa
Error Limits	± 0.01 pH ± 1 mV ± 0.5 °C	± 0.5 % of the Measured Value ± 0.3 °C	± 1% ; ± 0.3 °C
Calibration	3 Points 1 Predefined Buffer Group	1 Point 3 Predefined Standards	1 or 2 Points 100% and 0%
Memory	30 Measurements Last Calibration Data	30 Measurements Last Calibration Data	30 Measurements Last Calibration Data
Power Supply	4 AAA > 500 Operating Hours	4 AAA > 250 Operating Hours	4 AAA > 250 Operating Hours
Size/Weight	Approximately 90 W × 150 D × 35 H mm / 0.18 kg (Without Batteries)	Approximately 90 W × 150 D × 35 H mm / 0.16 kg (Without Batteries)	Approximately 90 W × 150 D × 35 H mm / 0.18 kg (Without Batteries)
Display	Liquid Crystal	Liquid Crystal	Liquid Crystal
Input	BNC, Impedance > 10e+12 Ω Cinch, NTC 30 kΩ	Mini-Din	BNC, Cinch, NTC 30 kΩ
Temperature Compensation	ATC & MTC	ATC, Linear: 0.00 %/°C...10.00 %/°C Reference Temperature: 20 & 25 °C	ATC & MTC
Salinity Compensation	NA	NA	0.0 to 50.0 ppt
IP Protection	IP54	IP54	IP54
Housing	ABS	ABS	ABS

\*Portable Meters are available in different packages:

### ST300

Model	Description
ST300	300 Meter, ST320 3-in-1 Plastic Gel pH Electrode, and pH Buffer Powder Sachet
ST300-B	300 Meter with IP54 Sets, Electrode Clip, Wrist Strap and 4 AAA Batteries

### ST300C

Model	Description
ST300C	300C Meter, with STCON3 4-Pole Conductivity Electrode (70 µS/cm-200ms/cm), 2 Small Bottles of Standard Conductivity Solution - 1413 µS/cm and 12.88ms/cm, IP54 Sets, Electrode Clip, Wrist Strap, 4 AAA Batteries

### ST300D

Model	Description
ST300D	300D Meter with STDO11 Galvanic DO Electrode, and STTEMP30 Temperature Electrode
ST300D-B	300D Meter with IP54 Sets, Electrode Clip, Wrist Strap and 4 AAA Batteries



# Starter Water Analysis Portable Meters

## 300 Compatible Electrodes

Description	Model
3-in-1 Plastic Refillable pH Electrode	ST310
2-in-1 Plastic Refillable pH Electrode	ST210
3-in-1 Plastic Gel pH Electrode	ST320
2-in-1 Glass Muddy Sample pH Electrode	ST230
2-in-1 Glass Pure Water Sample pH Electrode	STPURE
Temperature Electrode	STTEMP30
Gel Plastic ORP Electrode	STORP1
Refillable Glass ORP Electrode	STORP2

## 300C Compatible Electrodes

Description	Model
4-Ring Conductivity Electrode (70 $\mu$ S/cm-200ms/cm)	STCON3

## 300D Compatible Electrodes

Description	Model
Temperature Electrode	STTEMP30
Galvanic DO Electrode	STDO11

## Buffers and Accessories

Description	Item Number	300	300C	300D
pH Buffer Powder Sachet (4.01; 7.00; 10.01)	83033971	•		
pH Buffer 4.01 250ml*6	30065083	•		
pH Buffer 7.00 250ml*6	30065084	•		
pH Buffer 9.21 250ml*6	30065085	•		
pH Buffer 10.01 250ml*6	30065086	•		
pH Electrode Reference Electrolyte	30059255	•		
pH Electrode Protection Solution (3M KCl)	30059256	•		
pH Sensor Protector Bottle (10 in bag)	30064800	•		
Standard Conductivity Solution 84uS/cm 250ml*6	30065087		•	
Standard Conductivity Solution 1413uS/cm 250ml*6	30065088		•	
Standard Conductivity Solution 12.88mS/cm 250ml*6	30065089		•	
Dissolved Oxygen Zero Oxygen Chemicals	30059257			•
IP54 Seal Kit	83032962	•	•	•
Wrist Strap	83032963	•	•	•
Electrode Clip	83032964	•	•	•
Portable Bag (5 Units)	83031635	•	•	•

## Approvals

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.



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# Starter

## Water Analysis Bench Meters



### *Smart Bench Meters for a Variety of Laboratory Applications*

After more than a century of perfecting the art of measurement through our durable weighing products, OHAUS precision is now available in a line of benchtop electrochemistry products that includes pH and conductivity meters that can also test for salinity, TDS, and ORP. The Starter Series of benchtop meters includes a wide breadth of products from basic level meters that offer high performance at a great value to premium performance products that have extended and advanced functionality.

#### *Standard Features Include:*

- **Intuitive Software Powers the Starter Series**—Intuitive software and a well-organized LCD display work in tandem to make operating the Starter Series a simple and straightforward task.
- **Functional Design Assists with Ease-of-Use**—With five clearly marked input keys and built-in or standalone electrode holders, operating the Starter bench meters and obtaining your measurements is an easy process.
- **Reliable Calibration Results in Accurate Measurement**—Starter tracks the accuracy of the calibration process right on the display so you can measure with peace-of-mind knowing your results will be highly precise.

# ***Starter*** Water Analysis Bench Meters

## **Sturdy and Accurate Bench Meters for Lab Applications**

Whether you are looking for a basic model that can get the job done right and on time, or one with premium features, you will find a meter to meet your needs in the Starter line of bench meters. The Starter Series carries on the OHAUS promise of delivering the highest quality measurement results while maintaining the best price/performance ratio in the market.

### **Starter 3100**

Starter 3100 offers many premier features that propel the bench meter to an advanced level of operational efficiency

- **Three-point calibration for the highest accuracy**
- **Automatic and manual temperature compensation**
- **Automatic and manual endpoint functions determine the stability of readings**
- **The height of the standalone electrode holder can be adjusted for maximum versatility**
- **Auto buffer recognition helps to avoid errors during the calibration process**
- **99 sets of data memory and the ability to instantly recall the last calibration data**
- **Self-diagnostic software provides assurance that the meter is in proper working condition**
- **Each time a pH sensor is calibrated, an icon appears on the display to confirm the accuracy of the calibration process so you can ensure accurate measurement**
- **Connection to peripheral devices through RS232 port**
- **The height of the electrode holder can be adjusted to optimize placement of the electrode**
- **A quick reference guide with operating instructions is attached**



### **Starter 2100**

Starter 2100 is the bench meter of choice for those looking for a cost-effective pH meter that will provide reliable measurements time and time again.

- **Built-in electrode arm makes operation simple and convenient**
- **Auto buffer helps to avoid errors during the calibration process**
- **A quick reference guide with operating instructions is attached**



## Starter 3100C

Starter 3100C can test for conductivity, salinity, and TDS and has many advanced features that make it as intuitive as it is accurate.

- A one-touch switch between conductivity, salinity, and TDS measurements
- The height of the standalone electrode holder can be adjusted for maximum versatility
- The 4-pole linear electrode offers a large conductivity range that safeguards itself from polarization and pollution effects
- Automatic temperature compensation with an adjustable temperature coefficient
- Automatic and manual endpoint functions determine the stability of readings
- 99 sets of data memory and the ability to instantly recall the last calibration data
- Connection to peripheral devices through RS232 port
- A quick reference guide with operating instructions is attached



## Specifications

Model	ST3100*	ST2100*	ST3100C*
Measurement Range	-2.00...16.00 pH -1999...1999 mV -5 °C...110 °C	0.00...14.00 pH -1999...1999 mV 0 °C...100 °C	00.0 µS/cm...199.9 mS/cm 0.1 mg/l...199.9 g/l (TDS) 0.00 ... 19.99 psu (Salinity) 0 °C...100 °C
Resolution	0.01 pH 1 mV 0.1 °C	0.01 pH 1 mV 0.1 °C	Automatic Range 0.1 °C
Error Limits	± 0.01 pH ± 1 mV ± 0.5 °C	± 0.01 pH ± 1 mV ± 0.5 °C	± 0.5 % of the Measured Value ± 0.3 °C
Calibration	Up to 3 Points 3 Predefined Buffer Groups	1 or 2 Points 1 Predefined Buffer Group (4.01, 7.00, 10.01)	1 Point 3 Predefined Standards
Memory	99 Measurements Last Calibration Data	Last Calibration Data	99 Measurements Last Calibration Data
Power Supply	110-240V/50Hz, DC 12V	110-240V/50Hz, DC 12V	110-240V/50Hz, DC 12V
Size/Weight	Approximately 220 W × 175 D × 78 H mm / 0.75 kg	Approximately 220 W × 175 D × 78 H mm / 0.75 kg	Approximately 220 W × 175 D × 78 H mm / 0.75 kg
Display	Liquid Crystal Backlight	Liquid crystal	Liquid Crystal Backlight
Input	BNC, impedance > 10e+12 Ω Cinch, NTC 30 kΩ 2mm	BNC, impedance > 10e+12 Ω Cinch, NTC 30 kΩ 2mm	Mini-Din
Temperature Compensation	ATC & MTC	ATC & MTC	Linear: 0.00 %/°C...10.00 %/°C Reference Temperature: 20 & 25 °C
Housing	ABS	ABS	ABS

\*Bench meters are available in different packages:

Model	Description
ST3100-B	3100 Meter with Standalone Electrode Holder
ST3100-F	3100 Meter with ST310 3-in-1 Plastic Refillable pH Electrode, pH Buffer Powder Sachet and In-Use Cover

Model	Description
ST2100-B	2100 Meter with Built-in Electrode Arm
ST2100-E	2100 Meter, ST210 2-in-1 Plastic Refillable pH Electrode and pH Buffer Powder Sachet
ST2100-F	2100 Meter, ST210 2-in-1 Plastic Refillable pH Electrode+STTEMP30 Temperature Electrode, and pH Buffer Powder Sachet

Model	Description
ST3100C-B	3100C Meter with Standalone Electrode Holder, and 2 Small Bottles of Standard Conductivity Solution - 1413 µS/cm and 12.88ms/cm)
ST3100C-F	3100C Meter with Standalone Electrode Holder, STCON3 4-Pole Conductivity Electrode (70 µS/cm-200ms/cm) and In-Use Cover

# Starter Water Analysis Bench Meters

## 3100 & 2100 Compatible Electrodes

Description	Model
3-in-1 Plastic Refillable pH Electrode	ST310
2-in-1 Plastic Refillable pH Electrode	ST210
3-in-1 Plastic Gel pH Electrode	ST320
2-in 1 Glass Muddy Sample pH Electrode	ST230
2-in-1 Glass Pure Water Sample pH Electrode	STPURE
Temperature Electrode	STTEMP30
Gel Plastic ORP Electrode	STORP1
Refillable Glass ORP Electrode	STORP2
Silver/Silver Chloride Reference Electrode	STREF1
Saturated Calomel (SCE) Reference Electrode	STREF2

## 3100C Compatible Electrodes

Description	Model
4-Pole Conductivity Electrode (70 $\mu$ S/cm-200ms/cm)	STCON3

## Buffers and Accessories

Description	OHAUS Item Number	ST2100	ST3100	ST3100C
Attached Electrode Holder	30058732	•		
pH buffer powder sachet (4.01; 7.00; 10.01)	83033971	•	•	
pH Buffer 4.01 250ml*6	30065083	•	•	
pH Buffer 7.00 250ml*6	30065084	•	•	
pH Buffer 9.21 250ml*6	30065085	•	•	
pH Buffer 10.00 250ml*6	30065086	•	•	
pH Electrode Reference Electrolyte	30059255	•	•	
pH Electrode Protection Solution(3M KCl)	30059256	•	•	
pH Sensor Protector Bottle(10 in bag)	30064800	•	•	
Electrode Stand Alone Holder (3100/3100C)	30058733		•	•
In-use Cover for Bench Meters (3100/3100C)	30058734		•	•
SF40A Printer	Contact an Authorized OHAUS Dealer or OHAUS Representative		•	•
Standard Conductivity Solution 84uS/cm 250ml*6	30065087			•
Standard Conductivity Solution 1413uS/cm 250ml*6	30065088			•
Standard Conductivity Solution 12.88mS/cm 250ml*6	30065089			•

## Approvals

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

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Management System





# Starter 5000

pH Bench Meter



## High Performance Bench Meter for Universal Applications

Backed by OHAUS' century-old commitment to providing precise measurement, Starter 5000 provides accurate pH and ORP measurement for high-level experiments and research. Enhanced features, advanced technology, and high performance have been combined to support complex laboratory tasks requiring pH measurement.

### Standard Features Include:

- **Various High-Level Capabilities Propel Powerful Performance** — With a 1,000 measurement memory, eight predefined buffer groups, and three endpoint modes, Starter 5000 provides various ways to achieve precise pH measurement.
- **Advanced Software and Technology Support Complex Applications and Intuitive Operation** — Starter 5000 has a user-friendly interface, similar to other smart devices used daily. With a large LCD touchscreen display, users will find themselves intuitively navigating through all applications.
- **Enhanced Features Offer Protection & Simple Use of this Advanced Meter** — Starter 5000 also has many features that promote ease of use, convenience, as well as protection, including a standalone electrode arm, IP54 housing and in-use cover.

# Starter 5000 *pH Bench Meter*

## Various High-Level Capabilities Propel Powerful Performance

High resolution

- **0.001/0.01/0.1pH**
- **0.01/0.1/1 mV**

Advanced Memory

- **Large memory bank can store the data of up to 1,000 individual measurements**

Heightened Performance

- **Meter can be set to record continuous measurement at designated intervals of time**
  - Graphs can be simultaneously generated
- **Starter 5000 has a GLP measurement mode that records critical information such as User ID and sample ID to generate complete and traceable information**
- **10 sensors that can store the results of 10 separate calibrations for each sensor**
  - pH-mV axis graphs can be viewed for each set of calibration data
  - An alert can be set to remind user to calibrate the meter

Accuracy

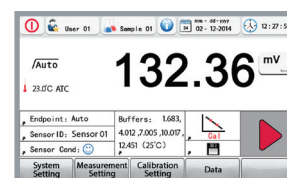
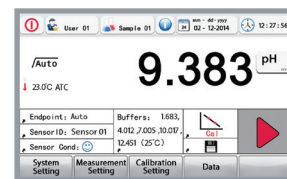
- **Up to a nine point calibration ensures extreme precision with a large calibration curve that covers a wider pH measurement range**
- **Manual, automatic, and time endpoints produce enhanced results**
- **Eight predefined buffers and one customizable buffer are standard**

## Advanced Software and Technology Support Complex Applications and Intuitive Operation

All of Starter 5000's features are at your fingertips. The color touchscreen display operates similar to everyday products such as smartphones and tablet computers.

Color Touchscreen Display

- **4.3" high-resolution color touchscreen has large digits and well-arranged icons**
  - Recognizable icons provide direct, one-touch access to important information including user ID, sample ID, date, time, current calibration group, and sensor performance where you can check detailed calibration data
  - Return to the main menu from any screen with just one button tap on the display
- **One touch toggling between pH, mV(ORP) and Rel.mV**



## Enhanced Features Offer Protection & Practical Operation of this Advanced Meter

### Protection

- **IP54 housing protects the meter from damage by water and dust particles**
- **The transparent in-use cover provides an extra layer of protection**



### Practical Operation

- **The positioning of the standalone electrode holder can be moved around the base to fit your workstation best and the height can also be adjusted for optimal viewing**
- **Use the built-in USB host port to export data or RS232 to connect a printer to the meter**

## Specifications

Model	ST5000
Measurement Range	-2.000...20.000 pH -2000.00...+2000.00 mV -30°C...130 °C
Resolution	0.1/0.01/0.001pH 1/0.1/0.01mV 0.1 °C
Error Limits/Accuracy	± 0.002 pH ± 0.03% FS mV ± 0.1 °C
Buffer Group	8 predefined groups, 1 self define group
pH Calibration	1-9 points
Memory	1000 sets, with 10*10 calibration data
Power Supply	110-240V/50-60Hz, 9 V DC
Size/Weight	220 W × 175 D× 78 H mm / 0.55 kg
Display	Color Touch-Screen LCD
Input	BNC, impedance >3*10e+12 Ω Cinch, NTC 30 kΩ
Output	USB & RS232
Temperature Compensation	ATC and MTC
Housing	ABS

Model	ST5000
ST5000-B	5000 meter, stand alone electrode holder, ST5000 in-use-cover, 4G USB-driver
ST5000-F	5000meter,ST350 ,pH buffer powder sachet

# Starter 5000 *pH Bench Meter*

## Starter 5000 Compatible Electrodes

Description	Model
3 in 1 glass shaft refillable pH Electrode	ST350
3 in 1 plastic gel pH Electrode(no need to fill)	ST320
3 in 1 plastic refillable pH Electrode	ST310
2 in 1 glass double salt bridge pH Electrode	ST260
2 in 1 glass muddy sample pH Electrode	ST230
2 in 1 plastic refillable pH Electrode	ST210
2 in 1 glass micro sample pH Electrode	STMICRO5
2 in 1 glass micro sample pH Electrode	STMICRO8
2 in 1 glass pure water sample pH Electrode	STPURE
2 in 1 plastic flat surface pH Electrode	STSURF
Temperature Electrode	STTEMP30
Gel plastic ORP Electrode	STORP1
Refillable glass ORP Electrode	STORP2

## Buffers and Accessories

Description	OHAUS Item Number
pH buffer powder set (4.01; 7.00; 10.0)	83033971
Buffer pH 1.68 250ml	30100424
Buffer pH 4.01 250ml	30100425
Buffer pH 6.86 250ml	30100426
Buffer pH 7.00 250ml	30100427
Buffer pH 9.18 250ml	30100428
Buffer pH1 0.01 250ml	30100429
Buffer pH 12.45 250ml	30100440
pH electrode Reference Electrolyte	30059255
pH electrode protection solution (3M KCl)	30059256
pH sensor protect bottle (10 in bag)	30064800
Electrode holder stand alone	30058733
ST5000 In-use-cover	30129897
SF40A printer	30064202

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# *Starter Electrodes*

*High Performance Water Analysis Instruments*



*Ingeniously Practical*

# Starter Electrodes Selector Guide

		pH Electrodes										
		ST350	ST320	ST310	ST270	ST260	ST230	ST210	STMICRO8	STMICRO5	STPURE	STSURF
pH measurements of environmental and laboratory samples	Standard Aqueous samples, general purpose (e.g. pH buffers)	●	●	●	◐	◐	●	●	●	●	●	◐
	Waste water	●	◐	◐			●	◐				
	River/lake water	●	●	●			●	●			●	
	Swimming pool	●	◐	◐			●	◐			●	
	Tap water/drink water	●	◐	◐			●	◐			●	
	Pharmaceutical industry water	●	◐	◐			●	◐			●	
	Distilled water/pure water	◐					◐				●	
	Education purpose samples	◐	◐	●			◐	●	◐		◐	
	Strong Acid(not HF)or strong Base	◐					◐					
	Harsh Environmental solution, e.g high temperature or corrosive	◐					◐					
	Drug formulations	◐					◐					
	Tris-buffer solutions					●						
	Suspensions(e.g. ink, soil in water)	◐					◐					
	Cell culture media				◐							◐
	Small container/Tube samples								●	◐		
	Microtube samples								◐	●		

pH measurements of Food and Beverages etc...(various liquid or semi-solid samples)	Jam/Yoghurt	◐			●		◐					◐
	Vegetable and fruit	◐			●		◐					
	Honey	◐					◐					
	Cream	◐					◐					
	Fish/Meat/Poultry				●							
	Cheese				●							
	Milk	●	◐	◐			●	◐				
	Soy sauce	●	◐	◐			●	◐				
	Beer	●	◐	◐			●	◐				
	Wine	◐					◐					
	Tea and coffee	●	◐	◐			●	◐				



fit for this application



partially fit for this application

not fit for this application

# Starter Electrodes Selector Guide

		pH Electrodes										
		ST350	ST320	ST310	ST270	ST260	ST230	ST210	STMICRO8	STMICRO5	STPURE	STSURF
Exemplary daily use chemical products pH measurements	Pesticidea solution	●					●					
	Paint/latex paint	●					●					
	Water paint	●					●					
	Cosmetics/emulsion	●	●	●			●	●				
	Shampoo/Shower creams/liquid soups	●	●	●			●	●				

pH measurement on surface	Meat/Cheese											●
	Paper											●
	Skin											●
	Agar											●

		Redox(ORP) Electrodes		Conductivity Probes	
		STORP1	STORP2	STCON3	STCON7
pH measurements of environmental and laboratory samples	Standard Aqueous samples, general purpose (e.g. pH buffers)	●	●	●	●
	Waste water	●	●	●	
	River/lake water	●	●	●	
	Swimming pool				
	Tap water/drink water	●	●	●	
	Pharmaceutical industry water			●	●
	Distilled water/pure water				●
	Education purpose samples				
	Strong Acid(not HF)or strong Base				
	Harsh Environmental solution, e.g high temperature or corrosive				
	Drug formulations				
	Tris-buffer solutions				
	Suspensions(e.g. ink, soil in water)				
	Cell culture media				
	Small container/Tube samples				
	Microtube samples				



fit for this application



partially fit for this application

not fit for this application

# About the Starter Series

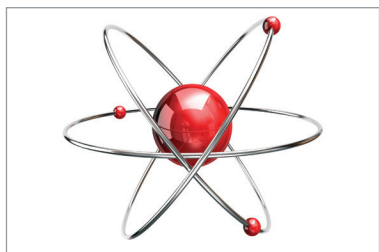
Accurate and precise measurement has been our main focus since our inception in 1907.

After more than a century of developing balances that have provided the reliable and precise weight determination that is essential to laboratory applications, OHAUS is proud to now offer our expertise in measurement in a line of electrochemistry products.

The Starter Series includes pH, reference, oxidation-reduction potential (ORP) electrodes, as well as conductivity, dissolved oxygen (DO) and temperature probes that can be used in conjunction with our bench and portable meters. This catalog contains essential information regarding OHAUS' portfolio of Starter sensors, including product specifications and sample types they were designed to measure. In addition to the sensors, information regarding accessories such as conductivity and pH solutions used for calibration, are included.

## Contents

6	..... pH Electrodes
9	..... Reference Electrodes
10	..... ORP Electrodes
11	..... Conductivity Probes
13	..... DO Probes
14	..... Temperature Probes
14	..... Standard Solutions



## Basic Theory of pH

pH is one of the most commonly measured parameters in chemical and life sciences research, as well as in many different industries, including water and wastewater treatment, food technology, environmental protection, production and agriculture.

pH is defined as the negative logarithm of the hydrogen ions concentration in the sample:

$$\text{pH} = -\log [\text{H}^+]$$

pH provides a convenient way to compare the relative acidity or alkalinity of a sample at a given temperature.

pH electrodes produce different mV values in solutions with different pH. Ideally, at 25°C, a pH electrode should produce a slope of 59.16mV per 1 pH unit.

## Electrodes for pH Measurement

pH measurement is usually conducted using a combination electrode that consists of a pH-sensitive glass electrode that is sensitive to hydrogen ions present in the sample as well as a reference electrode that has a constant potential value.

A potential is developed on the membrane surface when a pH electrode comes into contact with a sample.

pH meters measure variations in the potential and convert it directly to a corresponding pH value, according to the Nernst equation:

$$E = E_0 + (2.303RT/nF)\log[\text{H}^+]$$

pH measurement is sensitive to temperature changes. However, at a pH of 7, temperature will not have an effect on the potential of the system. This is known as the isopotential point. OHAUS' 3-in-1 electrodes are convenient tools that contain a built-in temperature probe that can be used together with a meter to compensate temperature changes without application of any external temperature probe.



## pH Electrode Structure

### Shaft Body Material

	Characteristic	Advantage
Glass Shaft	Can withstand high temperatures and is resistant to corrosive materials and organic solvents.	Ideal for laboratory use, easy to clean.
Plastic Shaft	Not recommended for usage at temperatures above 80°C. Moderate resistance to highly corrosive materials and organic solvents.	Durable and sturdy

### Refillable vs. Non-refillable

	Characteristic	Advantage
Refillable	Reference electrolytes can be replenished when necessary.	Reusable
Non-refillable	The electrode must be replaced when contaminated.	No maintenance is required.

### Reference Junctions Types

	Characteristic	Advantage
Ceramic	This standard junction consists of a porous piece of ceramic which allows the electrolyte to slowly flow out of the electrode.	Stable and simple to use.
Annular Junction	Formulated with a special ceramic which encircles the glass bulb. Numerous pores in the ceramic provide lower resistance and more stable pH readings.	Not easily blocked, Ideal for muddy samples.

# pH Electrodes

## Maintenance and Storage of pH Electrodes

pH electrodes are delicate measuring instruments that require proper care and maintenance to produce accurate and reliable results as well as to ensure a long usable life.

If an electrode is not in use always keep it moist by placing the electrode's glass bulb in the storage solution (3M KCl). Do not store the electrode in distilled or deionized water as this will cause ions to leak out of the glass bulb and reference electrolyte, which can cause a slow response and damage the electrode.

Electrodes may be shipped with either protective caps or in electrode soaking bottles to prevent cracking or scratching and to keep the glass bulbs moist. Gently remove the electrode from the storage bottle and rinse it with distilled water before use. For long-term storage, always keep the electrode in the bottle in enough storage solution to cover the bulb. Replenish the bottle as needed.




					
Model	ST320	ST310	STPURE	ST230	ST210
Item Number	83033967	83033965	83033969	83033968	83033966
pH Range	0 to 13pH	0 to 14 pH	0 to 13 pH	0 to 14pH	0 to 14 pH
Temp. Range	0 to 80 °C	0 to 80 °C	0 to 100 °C	0 to 100 °C	0 to 80 °C
Shaft material	Plastic	Plastic	Glass	Glass	Plastic
Internal Reference Type	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl
Refillable/Non-refillable	Non-refillable, Gel	Refillable	Refillable	Refillable	Refillable
Reference Junction Type	Fiber pin	Ceramic pin	Ground glass	Annular ceramic	Ceramic pin
Refilling Reference Electrolyte	3M KCl gel	3M KCl solution	3M KCl solution	3M KCl solution	3M KCl solution
Dimensions (Shaft)	120 x 12 mm	120 x 12 mm	120 x 12 mm	110 x 12 mm	120 x 12 mm
Cable Length	1 m	1 m	1 m	1 m	1 m
Temperature Sensor	Yes	Yes	No	No	No
Connector	BNC Cinch	BNC Cinch	BNC	BNC	BNC
Application	3-in-1 non-refillable pH electrode with integrated temperature probe. Suitable for standard or muddy samples.	3-in-1 plastic refillable pH electrode, suitable for normal samples.	Glass-body refillable pH electrode for pure water (distilled water, rain water, tap water etc.).	Glass-body refillable pH electrode. Suitable for muddy samples such as juice, milk etc..	2-in-1 plastic refillable pH electrode. Suitable for normal samples.

# pH Electrodes

The newest addition to the OHAUS Starter Series of electrochemistry instruments includes electrodes that support advanced pH measurements.

OHAUS offers several pH electrodes, including a glass shaft 3-in-1 electrode (ST350), micro-sample pH electrodes (STMICRO5 and STMICRO8), double-salt bridge pH electrode (ST260) that is suitable for pH measurement of tris-buffer solutions, or a flat surface pH electrode (STSURF).



						
Model	ST350	ST270	STMICRO5	STMICRO8	ST260	STSURF
Item Number	30129354	30240974	30087566	30087569	30129357	30129470
pH Range	0 to 14pH	0 to 14pH	0 to 14pH	0 to 14pH	0 to 14pH	2 to 12pH
Temp. Range	0 to 100 °C	0 to 100 °C	0 to 100 °C	0 to 100 °C	0 to 100 °C	0 to 80 °C
Shaft material	Glass	Glass	Glass	Glass	Glass	Plastic
Internal Reference Type	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl	Ag/AgCl
Refillable/Non-Refillable	Refillable	Non-refillable, Gel	Refillable	Refillable	Refillable	Refillable
Reference Junction Type	Annular ceramic	Annular ceramic	Annular ceramic	Annular ceramic	Ceramic pin	Ground glass
Refilling Reference Electrolyte	3M KCl solution	3M KCl gel	3M KCl solution	3M KCl solution	Double salt-bridge 3M KCl(AgCl)--- Pure KCl solution	3M KCl solution
Dimensions (Shaft)	120 x 12 mm	120 x 12 mm	80 x 5 mm	150 x 8 mm	120 x 12 mm	120 x 12 mm
Cable Length	1 m	1 m	1 m	1 m	1 m	1 m
Temperature Sensor	Yes	No	No	No	No	No
Connector	BNC Cinch	BNC	BNC	BNC	BNC	BNC
Application	3-in-1 refillable pH electrode, with integrated temperature probe. Suitable for normal samples.	Puncture electrode suitable for semi-solid samples such as fruits, meat or cheese.	2-in-1 80mm length and 5mm diameter refillable pH electrode. Suitable for small samples, tubes, and narrow containers.	2-in-1 150mm length and 8mm diameter refillable pH electrode. Suitable for small samples, tubes, and narrow containers.	2-in-1 double salt-bridge pH electrode. Suitable for samples which may react with Ag ions, such as tris-buffer solution.	2-in-1 refillable pH electrode. Suitable for flat surface applications, such as skin, paper etc..

# Reference Electrodes

## Basic Principle of Reference Electrodes

Reference electrodes have a stable and well defined electrochemical potential. A measured potential in an electrochemical cell is determined against a defined potential value of a reference electrode.

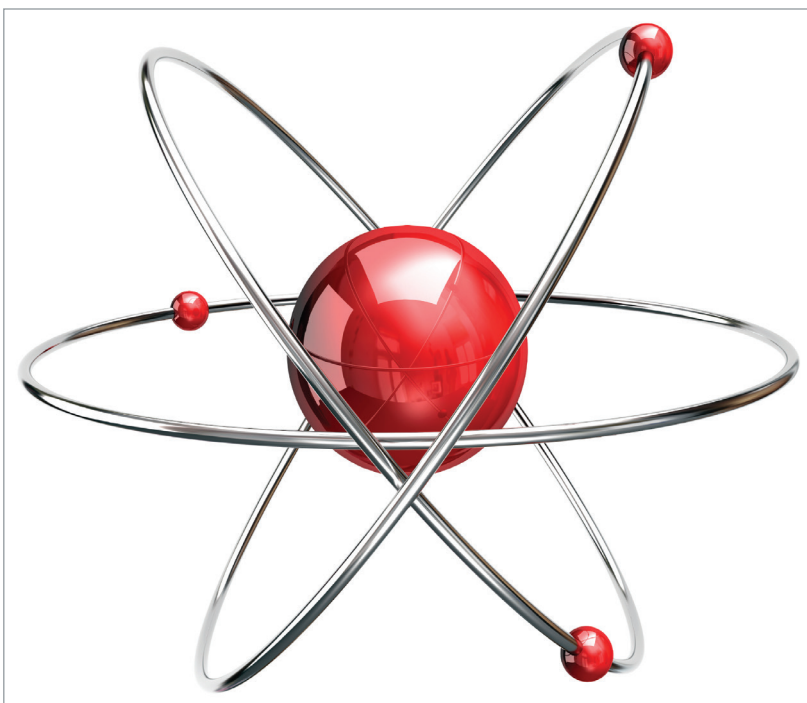
STREF2 is saturated calomel electrode (SCE) ( $\text{Hg}/\text{Hg}_2\text{Cl}_2$  in saturated KCl) which traditionally is the most widely used electrode. The disadvantage is that it cannot be used above  $50^\circ\text{C}$  due to  $\text{Hg}_2\text{Cl}_2$  instability.



STREF1 is Silver/Silver Chloride ( $\text{Ag}/\text{AgCl}$  in Saturated KCl), which represents another type of reference electrode.

## Care and Maintenance

Maintenance of reference electrodes can help avoid stability problems and keep them in proper working condition.

Check that the reference electrode compartments are filled with electrolyte solution and the junction is not blocked.



		
Model	STREF2	STREF1
Item Number	30059254	30059253
Description	Saturated Calomel (SCE)	Silver/Silver Chloride (Ag/AgCl)
E vs. SHE (Standard Hydrogen Electrode) (V)	0.241	0.198
Connector	2mm Banana	2mm Banana
Dimensions (Shaft)	120 x 12 mm	110 x 12 mm
Cable Length	1 m	1 m

# ORP Electrodes

## Basic Principle of ORP

Oxidation-Reduction Potential (ORP) electrodes test for the overall availability of electrons in a medium, specifically the ratio of positive and negative ions in the solution. They are also sometimes referred to as Redox electrodes.

ORP is the only practical method used to electronically monitor sanitizer effectiveness and it is also commonly tested in water, such as swimming pools and aquariums.

ORP is expressed in millivolts (mV). -1000 mV to 1000mV is a common range for ORP tests. The pH value influences the ORP value significantly.

## Care and Maintenance

To ensure accurate measurements, it is important to keep the electrode clean. Contamination can cause inaccurate results and slow response times.



Model	STORP2	STORP1
Item Number	30038553	30038555
Shaft Material	Glass	Plastic
Temperature Range	0-100 °C	0-80 °C
Internal Reference Type	Ag/AgCl	Ag/AgCl
Refillable/Non-refillable	Refillable	Non-refillable, Gel
Reference Junction Type	Annular Ceramic	Ceramic Pin
Refilling Reference Electrolyte	3M KCl Solution	3M KCl Gel
Dimensions (Shaft)	120 x 12 mm	120 x 12 mm
Cable Length	1 m	1 m
Temperature Sensor	No	No
Connector	BNC	BNC
Zero Potential Value	86mV±15mV	86mV±15mV
Grade Difference	≥ 165mV	≥ 165mV

# Conductivity Probes

## Basic Theory of Conductivity

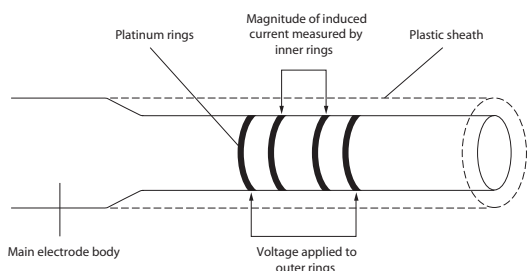
Conductivity is measured in a wide range of industries and gives a readout of total ionic concentration within the sample. It is a rapid and inexpensive way of determining the ionic strength of a solution.

A basic conductivity cell consists of a pair of electrodes that are placed in a sample. The ratio of the distance between the electrodes (D) and their surface area (A) is known as the cell constant K:

$$K = D/A \text{ [cm}^{-1}\text{]}$$

Each measuring cell has its own particular cell constant. It is recommended that you always determine the exact cell constant by using a calibration standard.

In contrast to a pH electrode, the measuring cell does not change with time, at least if the sensor is used properly. The cell constant changes only if the surface of the probe changes, for example through fingerprints, deposits, scratches or enclosed air bubbles. The conductivity probe should be stored in a clean and dry environment.



The STCON3 utilizes the 4-ring potentiometric method for measuring conductivity, which incorporates a series of four stainless steel rings formed into the probe shaft. This design completely eliminates polarization, which occurs with the 2-plates amperometric method. Furthermore, without polarization the probe can measure a wider range of conductivity values because it does not suffer from electrolysis.



The STCON3 conductivity probe has a built-in temperature sensor which is 30k $\Omega$ . When using STCON3, please consider the following:

1. Make sure the plastic shield is in place when measuring.
2. Be sure the solution reached the line on the plastic shield and below the vent hole when measuring.
3. To prevent carry over from high to low conductivity solutions, rinse with distilled water between and after measurements.
4. Make sure the cell chamber is bubble-free.
5. Allow sufficient time for the sensor to stabilize when measuring samples at different temperatures. A manual end-point is advised.



Model	STCON3
Item Number	83033972
Connection	Mini-Din
Cable Length	1.0 m
Shaft Length	130mm
Shaft Diameter	14mm
Temperature Range	0-50 °C
Measurement Range	70 $\mu$ S/cm - 200mS/cm (0.5% accuracy) 2 $\mu$ S/cm - 70 $\mu$ S/cm (1% to 5% accuracy)

# Conductivity Probes

The newest conductivity probe to join the Starter Series is a 2-pole potentiometric probe, STCON7. STCON7 is especially designed for low conductivity measurements in mediums such as pure or distilled water. With a built-in 30K $\Omega$  temperature sensor, it performs automatic temperature compensation. The measuring cell chamber is 316L stainless steel.

## Operation

For optimal performance, use the same procedure as described for STCON3 on the previous page. Moreover, when taking measurements, make sure the solution is above the cell chamber and remove any build-up of solids in the chamber. This can be done by dabbing the probe with cotton soaked in detergent solution and then rinsing it in distilled water.

## Precautions and Limitations

1. Do not expose the shaft to organic solvents when cleaning or when taking measurements.
2. Do not use the probe outside the recommended temperature range.
3. Calibrate the electrode with standard solution for an accurate measurement.



Model	STCON7
Item Number	30080693
Connection	Mini-Din
Cable Length	1.0 m
Shaft Length	95mm
Shaft Diameter	12mm
Temperature Range	0-60 °C
Measurement Range	0.02 $\mu$ S/cm - 200 $\mu$ S/cm (accuracy: 0.02 $\mu$ S/cm)

# Dissolved Oxygen Probes

## Basic Principle of Dissolved Oxygen (DO) Probes

There are three types of commonly used oxygen sensors: polarographic, galvanic and optical (luminescence) sensors.

STDO11 is a galvanic DO probe and the simplest among the three probes. It produces its own electric current.

The cathode is silver and the anode is zinc. Oxygen passes through the membrane and is reduced at the cathode to increase the electrical signal (current) read by the electrode. As oxygen increases, the signal increases.

Galvanic sensors are active at all times and will degrade in storage as well as during use. They do not need to polarize (warm up) before calibration or measurement while polarographic electrodes take 15 minutes to several hours to warm up.

## Care and Maintenance

Carefully remove the protective bottle from the tip of the electrode by unscrewing the lid and removing the bottle. Remove the shorting plug from the connector and store in a safe place. Be careful because the protective bottle lid is tightly fit on the electrode. STDO11 should be stored in a moist environment to keep the membrane from drying out, but do not store directly in water.



Model	STDO11
Item Number	30031639
Connection	BNC
Cable Length	1.1m
Shaft Length	120mm
Shaft Diameter	12mm
Shaft Material	Plastic
Temperature Range	0-50 °C
Measurement Range	0-200%
Storage Solution	10% NaCl

## Calibration and Measurement

DO probes should be calibrated before being placed in the sample. Before calibrating a probe, do not forget to remove water droplets from the membrane by gently shaking the sensor.



# Temperature Probes & Solutions

## Temperature Compensation

Temperature variations can affect measurement values.

OHAUS offers a standalone temperature probe, STTEMP30. It can be used in conjunction with ST5000, ST3100, ST2100 and ST300 meters to check for temperature variations.

## Standard Solutions

### pH Buffer Solutions

1.68, 4.01, 6.86, 7.00, 9.18, 10.01, and 12.45 buffer solutions are available in 250ml bottles.

### Conductivity standards

Four conductivity standard solutions for calibration include: 10 $\mu$ S/cm, 84 $\mu$ S/cm, 1413 $\mu$ S/cm and 12.88 mS/cm.

### Reference Refilling Electrolyte

3M KCl saturated with AgCl reference fill solution for Ag/AgCl single junction electrodes.

### Electrode Protection Solutions

After cleaning or when the electrode is not in use, always keep it in storage solution. To ensure proper conditions for pH electrodes, we offer pH electrode protection solution (3M KCl, 125ml).



Model	STTEMP30
Item Number	83033970
Shaft Material	Stainless Steel
Shaft Length	120mm
Temperature Range	0-100 °C
Cable Length	1 m
Connection	Cinch

Solutions	Item Number
Buffer pH 1.68, 250ml Bottle	30100424
Buffer pH 4.01, 250ml Bottle	30100425
Buffer pH 6.68, 250ml Bottle	30100426
Buffer pH 7.00, 250ml Bottle	30100427
Buffer pH 9.18, 250ml Bottle	30100428
Buffer pH 10.01, 250ml Bottle	30100429
Buffer pH 12.45, 250ml Bottle	30100440
Cond. Solution 10 $\mu$ S/cm, 250ml Bottle	30100441
Cond. Solution 84 $\mu$ S/cm, 250ml Bottle	30100442
Cond. Solution 1413 $\mu$ S/cm, 250ml Bottle	30100443
Cond. Solution 12.88mS/cm, 250ml Bottle	30100444
pH Electrode Reference Electrolyte	30059255
pH Electrode Protection Solution	30059256



### About OHAUS Starter Series

After more than a century of perfecting the art of measurement through our durable weighing products, OHAUS precision is now available in a line of benchtop, portable and pen pH, conductivity, dissolved oxygen, salinity, total dissolved solids (TDS), oxidation reduction potential (ORP) meters and electrodes. The Starter Series includes a wide breadth of products from basic level meters that offer high performance at a great value to high performance products that have extended and advanced functionality, as well as a variety of electrodes that can be used in combination with our bench and portable meters.

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