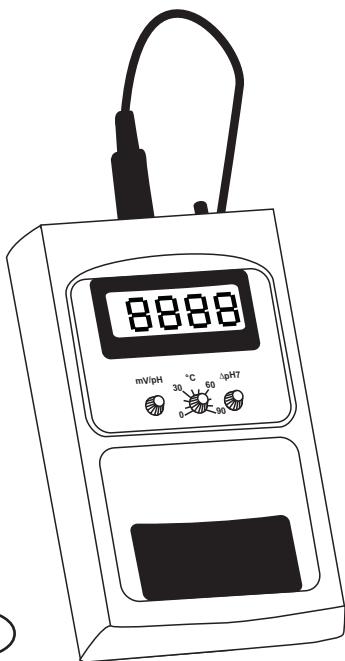


SensoDirect pH 19

Operating Instructions pH Meter





Declaration of CE-Conformity

The manufacturer:

Tintometer GmbH

Schleefstraße 8 a
44287 Dortmund
Deutschland

declares that this product

Product name:

SensoDirect pH 19

with all optional items conforms to the following regulations:

EMC

**CISPR 22, Klasse B
IEC 1326-20 : 1995
(IEC1000-4-6, IEC1000-4-4,
IEC1000-4-3, IEC1000-4-2)**

**The product conforms to the regulations of the
EMC Directive 89/336/EEC and 73/23/EEC.**

Dortmund, March 12, 2003

Cay-Peter Voss,
Managing Director

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1. General Description

The "SensoDirect pH" is a portable, battery-powered pH meter with a pH range of 0 - 14. Temperature compensation is carried out manually over a range of 0 - 90 °C.

The unit has an automatic check on the battery level. The gel electrode to the device can be used anywhere over the pH range of 0 - 14 and will resistant temperatures from 0 - 80 °C. It is provided as standard with a "cinch" connector. The pH measurement unit is supplied in a practical plastic case, which also contains the electrode, buffer solutions and the operating instructions.

2. Products supplied

- SensoDirect pH (the basic measurement unit)
- low-maintenance gel electrode with 1 metre cable
- buffer solution, pH 4
- buffer solution, pH 7
- KCl solution
- carrying case
- operating instructions

3. Setting to work

The unit is supplied as standard with a battery and is therefore ready for immediate use, once the cinch connector plug to the pH electrode is inserted into its socket. The unit is switched on and off with the red push-button to the side of the electrode socket.

4. Calibration

In order to achieve optimum accuracy of measurement, the unit should be calibrated in such a way that the calibration range covers the measurement range.

Determine the temperature of the buffer solution and turn the centre knob (the temperature compensation control) to set the temperature which has been determined : 1 line-mark is roughly equivalent to 10°C.

Setting the 1st calibration point:

Remove the protective cap from the electrode, rinse the electrode with fully demineralised water and dry it carefully, before placing it in the

pH 7.0 buffer solution. Wait ca. 20 to 30 seconds (until the display reading stabilises) and then turn the right-hand knob (pH 7) to set a pH reading of 7.00.

Setting the 2nd calibration point:

DClean the electrode with fully demineralised water and dry it carefully, and then place it in the pH 4.0 buffer solution. Again, wait ca. 20 to 30 seconds (until the display reading stabilises) and then turn the left-hand knob (mV/pH) to set a reading of 4.00.

To check the calibration, repeat operations (1) and (2) and adjust the readings as necessary with the relevant rotary knob.

If you are using a buffer solution with a pH value other than 4.0 (for example, pH 9.0 or pH 10.0) turn the left-hand knob (mV/pH) to set this value (9.00 or 10.00).

Please note that the right-hand knob (pH 7) must always be set to the value of the pH 7.0 buffer solution

(that is, a reading of 7.00) no matter what the measurement range to be covered.

NOTE:

To achieve greater accuracy, the unit should be re-calibrated before each new series of measurements. When doing so, always ensure that the calibration solution and the medium to be measured are at more or less the same temperature.

Never hold the instrument with the hands placed near the electrode connector : this can cause false readings. If the display "jumps" when the unit is picked up, or when the connector is wiggled in its socket, this does not mean that there is an intermittent fault in the connector. It merely indicates changes in capacity, caused by the user's hand.

5. Carrying out measurements

Firstly, determine the temperature of the medium to be measured and set the appropriate temperature by turning the central adjustment knob. Then remove the protective cap carefully from the electrode, rinse the electrode in fully demineralised water and dry it thoroughly. Immerse the electrode in the medium to be measured and move it around gently. Wait ca. 20 - 30 seconds for the display to stabilise and read off the measured value. After any measurement, rinse the electrode with fully demineralised water and replace the cap containing the KCl solution.

6. Overhaul & Maintenance

pH electrodes are disposable items which deteriorate under chemical and mechanical loads. They must be replaced when required readings can no longer be maintained, despite careful cleaning and maintenance. If it is impossible to set the mV/pH value, this indicates that either:

- a) the electrode is worn out and must be replaced; or
- b) the buffer solution is worn out. Buffer solutions cannot be kept indefinitely (see "use by" date on the label) and must be handled carefully when carrying out calibrations. (Inadequate rinsing and drying of the electrode will allow residues of one buffer solution to be transferred to another).

To maintain performance and accuracy for as long as possible, the following points should be borne in mind:

- the glass pH membrane must always be kept damp. When the electrode is not in use, it should be stored with the membrane in a 3 mol/l KCl solution. To achieve this, fill the sealing cap to the electrode with 3 mol/l KCl solution and fit the cap to the electrode when measurements have been completed.
- if the glass pH membrane dries out, performance and sensitivity will deteriorate. To revive a dry membrane completely, store it in KCl for a period of 24 hours.
- Do not touch the glass membrane ! Any damage or frictional wear to the surface of the electrode will

reduce its performance (to protect the membrane, screw the cap (supplied with the unit) to the electrode head).

7. Changing the Battery

If "BAT" appears in the bottom left corner of the display, the battery is flat and must be replaced. Remove the back of the unit by loosening the 6 screws and replace the battery.

Due to the electronic design the „BAT“ indication disappears if the battery is nearly empty. Readings under these conditions are faulty.

8. Spare Parts

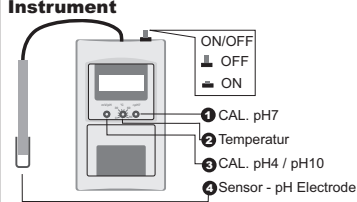
Article No.	Description
418 720	Low-maintenance replacement gel electrode
418 606	Buffer solution: pH 4, 250 ml
418 607	Buffer solution: pH 7, 250 ml
418 608	Buffer solution: pH 9, 250 ml

9. Technical data

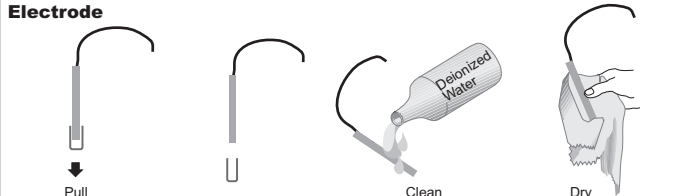
Measurement range:	0 - 14 pH
Resolution:	0,01 pH
Accuracy:	± 0.02 pH ± 1 Digit (Inst.)
Ambient conditions:	0 - 45 °C 0 - 80 % relative humidity (non-condensing)
Power supply:	9 V pack, ca. 200 operating hours
Housing:	ABS plastic housing
Dimensions:	165 x 95 x 42 mm (LxBxH)
Weight:	ca. 280 g (without electrode)
Certified:	CE
Cat. No.:	418 719
Temperature Compensation:	0 - 100°C, manual

9. Short Instructions

General

Instrument	
	<p>Range: 0.00 - 14.00 pH (Instrument) Resolution: 0.01 pH Accuracy: $\pm 0.02 \pm 1$ Digit (Instrument) Ambient: 0 - 45°C Conditions: 0 - 80% rel. humidity (no condensing) Battery: 9 V (IEC 6F22) (Life: 200 h) CE: 89/336/EN (add. Tolerance < 1%) Electrode: non refillable gel/ phono plug (0 - 14 pH) (T = 0 - 80°C)</p>

Electrode

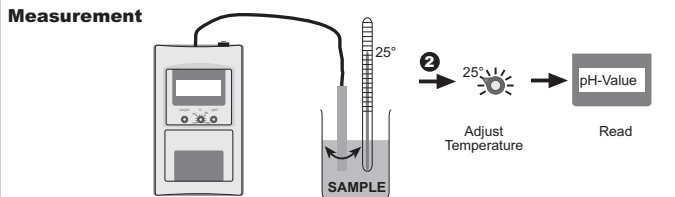


Pull

Clean

Dry

Measurement



25°

25°

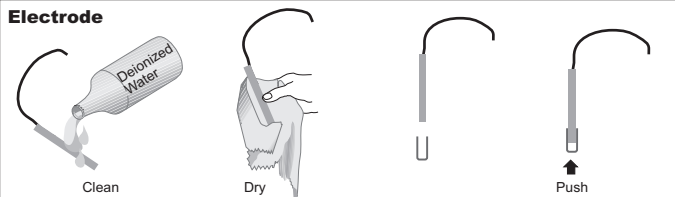
Adjust Temperature

pH-Value

Read

SAMPLE

Electrode

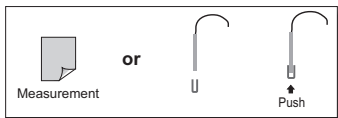
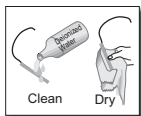
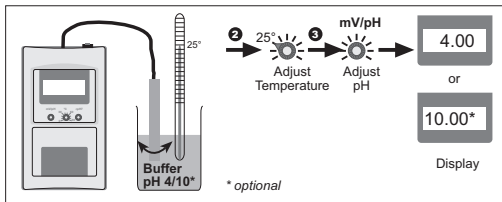
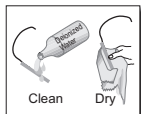
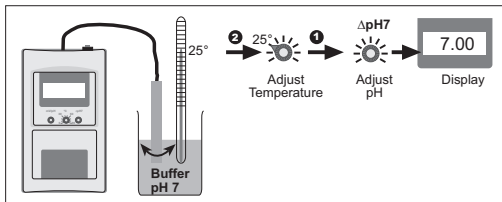
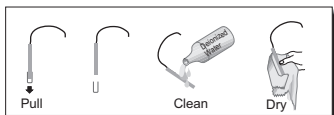


Clean

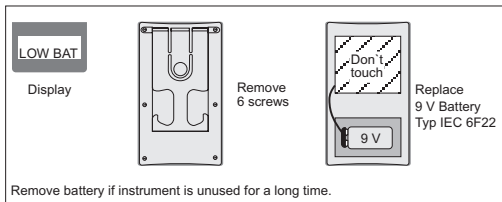
Dry

Push

Calibration



Maintenance



9. Guarantee Information

Warranty

As the manufacturer of the unit and its accessories, the Tintometer Group

extends a

warranty of two years

on new units to the end user from the date of purchase, on the condition that the unit is used and maintained in the proper manner.

Warranty conditions

This warranty is only valid if:

1. the unit is not damaged due to leakage from (storage) batteries, is not subject to incorrect use or maintenance, negligence or other causes other than those due to material or production faults.

2. the unit is returned accompanied by a full description of defects.

The warranty does not cover electrodes, accessory items and defects which only impair the use of the instrument to a minor degree.

Scope of warranty

If a fault occurs during the warranty period the unit must be returned to a Tintometer Group Company or an appointed Agent. The unit will be inspected and all

defects caused by materials or production faults will be repaired or remedied using spare parts of the appropriate quality, free of charge.

Further claims, in particular for compensation for damage not affecting the unit itself, are excluded.

The manufacturers warranty exists alongside the legal warranty rights of the end user and is not affected if his contract is with a third party.

Proof of warranty

Proof of purchase is required as entitlement to claim under warranty. If relevant paperwork is not submitted the repairs will be chargeable at the service prices pertaining at the time of repair.

Please return the unit complete with its packaging, full description of defect and purchase receipt.

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