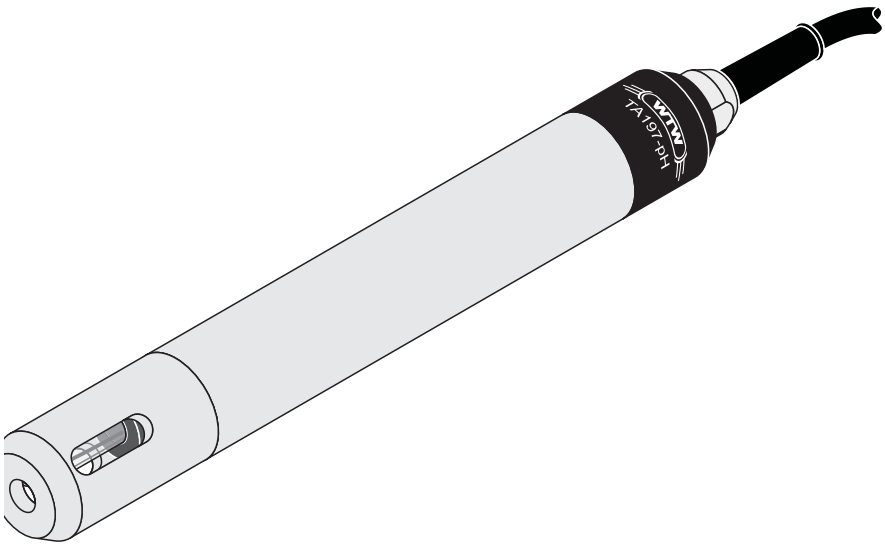
Operating manual

TA 197 pH



pH/ORP depth armature with integrated temperature probe

ba15306e04 04/2009

Copyright © Weilheim 2009, WTW GmbH
Reprinting - even as excerpts - is only allowed with the explicit written authorization of WTW GmbH, Weilheim.
Printed in Germany.

TA 197 pH - Contents

1 Overview 18

2 Safety instructions 19

3 Commissioning 19
3.1 General information 19
3.2 Installing the electrode 20

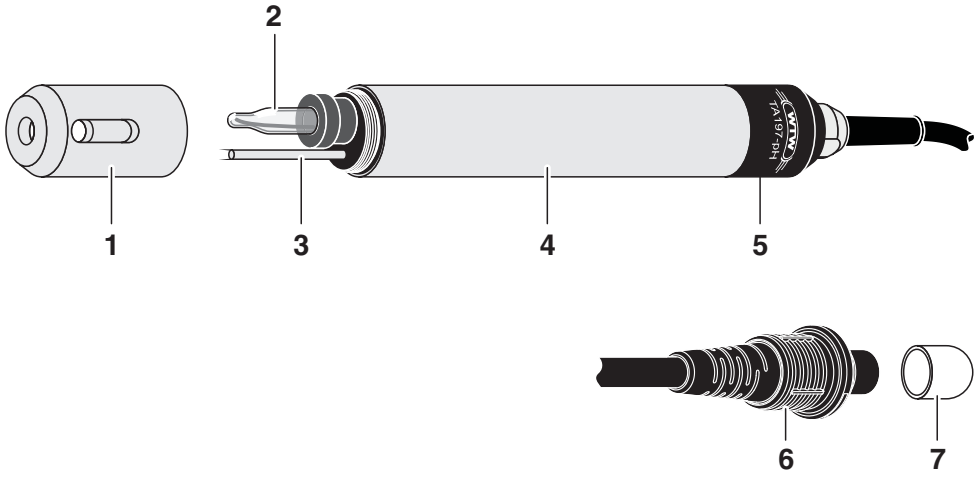
4 Maintenance and cleaning 22
4.1 Cleaning 22
4.2 Electrode change 22
4.3 Disposal 25

5 Technical data 25

6 Wear parts and accessories 27

1 Overview

Structure



1	Protective hood
2	Single-rod combination electrode (not included in the scope of delivery)
3	Temperature sensor
4	Shaft
5	Connection head
5	8-pin plug
6	Protective cap for plug

The TA 197 pH depth armature is suitable for pH or ORP measurements in ground water, surface water, waste water in depths of up to 100 m. It is used in conjunction with the pH single-rod combination electrode.

Note
The pH single-rod combination electrodes that can be used are available as accessories (see chapter 6 WEAR PARTS AND ACCESSORIES).

Impedance converter

The impedance converter integrated in the shaft of the armature converts the high-impedance measurement signal of the combination electrode to a low impedance signal. This guarantees a failure-free signal transmission even over greater distances.

Recommended fields of application

On site measurements in rivers, lakes and waste water and measurements in great water depths up to 100 m.

2 Safety instructions

This operating manual contains special instructions that must be followed during the operation of the TA 197 pH. Always keep this operating manual available in the vicinity of the TA 197 pH.

General safety instructions

The individual chapters of this operating manual use safety labels like the one below to indicate danger:



CAUTION
indicates instructions that must be followed precisely in order to avoid slight injuries to personnel or damage to the instrument or the environment.

3 Commissioning

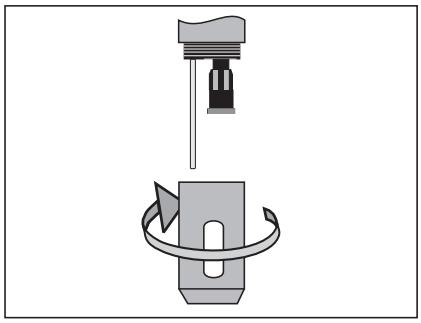
3.1 General information



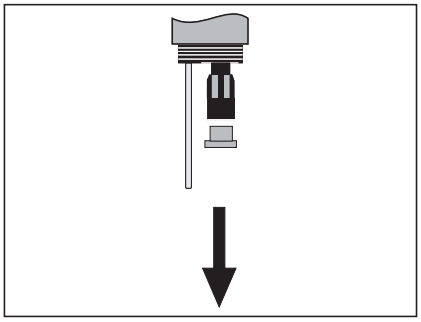
CAUTION
The TA 197 pH depth armature may only be immersed in conjunction with a mounted combination electrode. When changing the combination electrode, avoid the penetration of moisture into the pH armature.

3.2 Installing the electrode

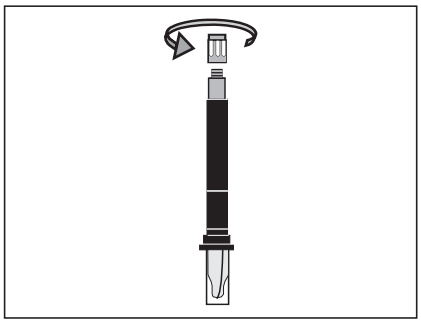
1	Unscrew the protective hood.



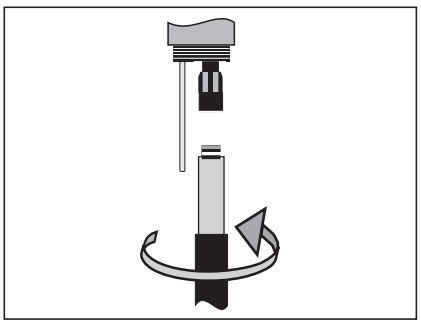
2	Pull the closing plug off the plug head socket.



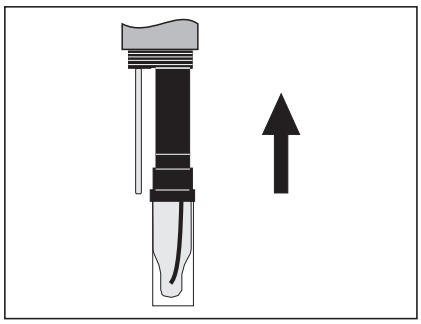
3	Unscrew the protective cap from the combination electrode.



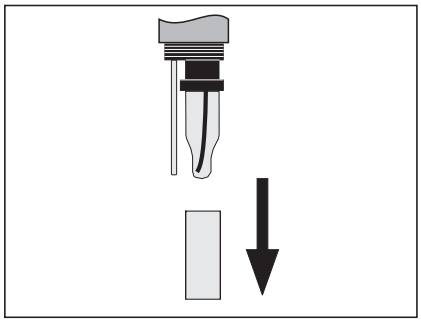
4	Screw the combination electrode into the plug head socket.



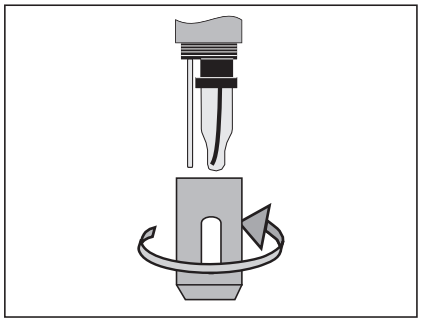
5	Push the unit into the armature up to the stop.



6	To measure, pull off the watering cap.



7	Screw on the protective hood.



4 Maintenance and cleaning

4.1 Cleaning



CAUTION
For cleaning, disconnect the sensor from the instrument.

Exterior cleaning of the armature

Contamination	Cleaning procedure
Lime sediments	Immerse in acetic acid for 5 minutes (volume share = 10 %)
Fat/oil	Clean with warm water that contains washing-up liquid

After cleaning, thoroughly rinse with deionized water and recalibrate if necessary.

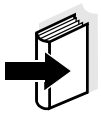
4.2 Electrode change



CAUTION
If the glass of the pH electrode breaks there is danger of being cut by broken glass.



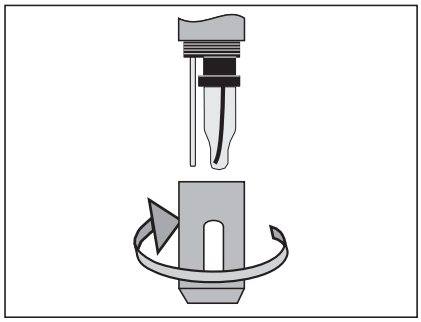
CAUTION
Before all maintenance activities, disconnect the sensor from the instrument.



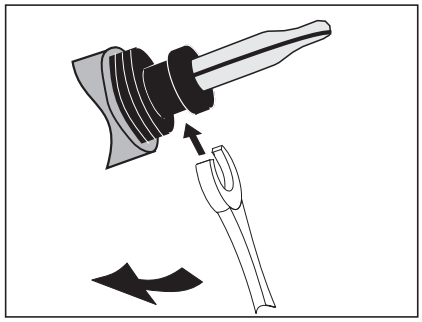
Note
Please read the maintenance of the combination electrode in the relevant operating manual of the electrode.

If it is necessary to replace an electrode, proceed as follows:

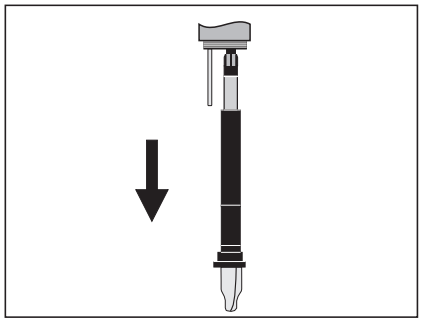
1	Unscrew the protective hood.



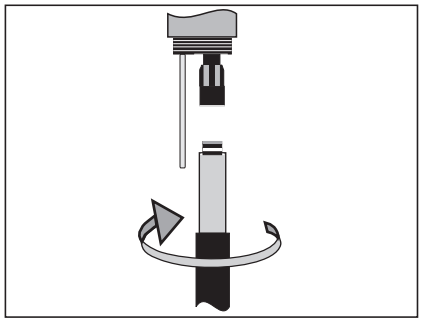
2	Carefully lever out the combination electrode with an open-ended wrench (wrench size 20 mm).



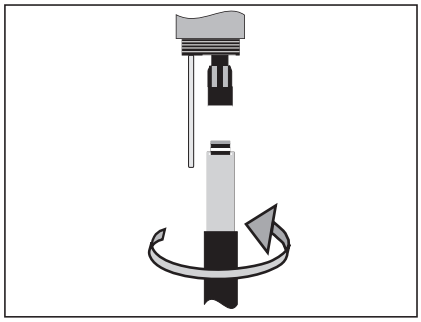
3	Pull out the combination electrode so that the plug connection is visible.



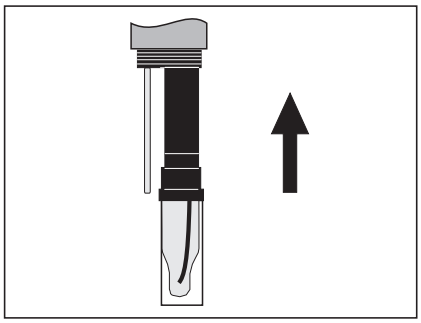
4	Unscrew the combination electrode from the plug head socket.



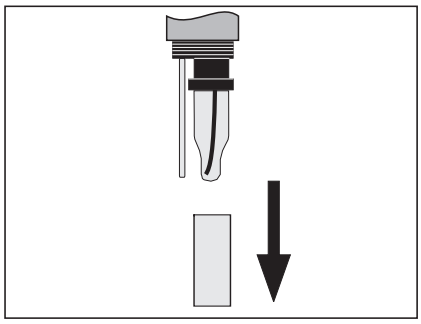
5	Screw in a new combination electrode.



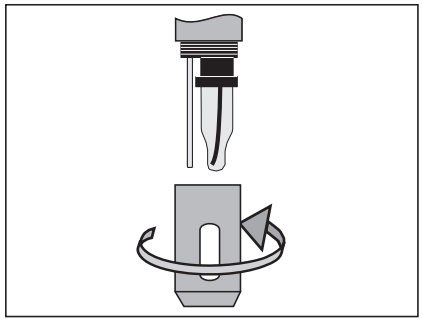
6	Push the unit into the armature up to the stop.



7	To measure, pull off the watering cap.



8	Screw on the protective hood.



4.3 Disposal

Armature

We recommend disposing of the armature as electronic refuse.

Combination electrodes

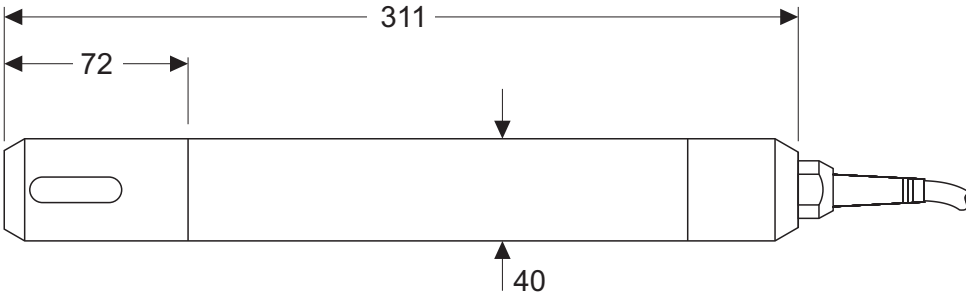
If no official regulations apply to the contrary, used and defective combination electrodes can be treated as household waste.

5 Technical data

General features

Combination electrodes that can be integrated	See chapter 6 WEAR PARTS AND ACCESSORIES
Temperature sensor	Integrated NTC 30 (30 kΩ at 25 °C / 77 °F)

Dimensions (in mm)



Weight

Approx. 900 g (without electrode and cable)

Materials

Protective hood	VA steel 1.4571
Electrode receptacle	POM
Temperature sensor (housing)	VA steel 1.4571
Shaft	VA steel 1.4571
Connection head	POM
Seals	FPM (Viton)
Cable screw joint	VA steel 1.4571
Cable coating	PUR

Connection cable

Lengths	25 ... 100 m
Diameter	8 mm
Smallest allowed bend radius	Fixed installation: 50 mm Flexible use: 120 mm
Plug type	Socket, 8 pins

Pressure resistance

Armature	IP 68 (10 bar)
Connection cable	IP 68 (10 bar)
Plug	IP 67 (when plugged in)

The TA 197 pH meets the requirements according to article 3(3) of the 97/23/EC directive ("Pressure equipment directive").

Measurement conditions

Temperature range	0 ... 60 °C (32 ... 140 °F)
Max. allowed overpressure	10^6 Pa (10 bar)
Depth of immersion	min. 45 mm max. 100 m (depending on the cable length)
Operating position	Any

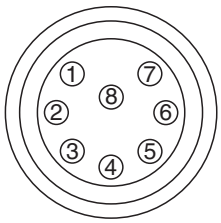
Storage conditions

Recommended storing method	In air
Storage temperature	0 ... 60 °C (32 ... 140 °F)

Characteristics when delivered

Response time of temperature measurement	t_{99} (99 % of the final value display after) < 15 s
Precision of temperature measurement	± 0.2 K

Pin assignment



View of the plug

Pin	Assignment	Voltage	Max. current
1	NTC (30kOhm)	---	---
2	SK	---	---
3	Ua (output signal)	± 3.7 V	< 370 µA
4	U+	+ 3.7 V	< 420 µA
5	---	---	---
6	U-	- 3,7 V	< 420 µA
7	GND	---	---
8	NTC (30 kOhm)	< 3.7 V	< 250 µA

6 Wear parts and accessories

Electrodes

Description	Model	Order no.
pH combination electrode for depth armature	TA-SensoLyt® SEA	103 710
ORP combination electrode for depth armature	TA-SensoLyt® PtA	103 711

pH buffer solutions (Technical buffers)

Description	Model	Order no.
pH 4.01 (1 liter)	TEP 4	108 700
pH 7.00 (1 liter)	TEP 7	108 702
pH 10.00 (1 liter)	TEP 10*	108 704
pH 10.01 (1 liter)	TEP 10 Trace*	108 703

* see operating manual of the measuring instrument

Special accessories for TA-SensoLyt® PtA

Description	Model	Order no.
Reagents for regenerating: 3 tubes of activating powder (3 grams each) and 3 tubes of chlorina tablets (20 pcs. each)	SORT/RH	109 730
ORP buffer solution (250 ml)	RH 28	109 740



Note
Information on further accessories is given in the WTW catalog and on the Internet.