

OPERATING MANUAL

ba75435e03 01/2016

NH500/TC

Ammonia gas-sensitive electrode

WTW

a xylem brand

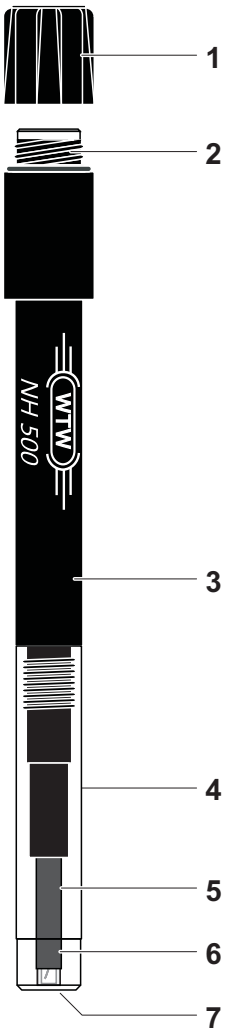


Note
The latest version of the present operating manual can be found on the Internet under www.WTW.com.

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1 Overview

Structure



1 Protective cap for plug-in connector

2 Plug-in connector

3 Shaft

4 Exchange membrane head (white) or storing cap on delivery (black)

5 Ag/AgCl reference electrode

6 pH glass electrode

7 Gas-permeable membrane

2 Safety

Authorized use

The authorized use of the NH500/TC consists of its use as an ammonia or ammonium electrode in WTW analyzers.

3 Commissioning

Scope of delivery

- 1 electrode, provided with protective cap and storing cap
- 3 exchange membrane heads (white)
- 1 bottle ELY/NH electrolyte solution (50 ml)
- Operating manual

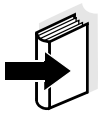
Getting the sensor ready for measuring

On delivery, the electrode is equipped with the storing cap (black, without the gas-permeable membrane).

- Remove the storing cap.
- Rinse the electrode with deionized water.
- Fill approx. 1 ml ELY/NH electrolyte solution into an exchange membrane head.
- Remove air bubbles in the electrolyte by knocking.
- Screw the exchange membrane head on the electrode.
- Connect the electrode to the meter using the connection cable.
- Keep the storing cap. It serves as a protective cap if the electrode is stored for a longer period of time.

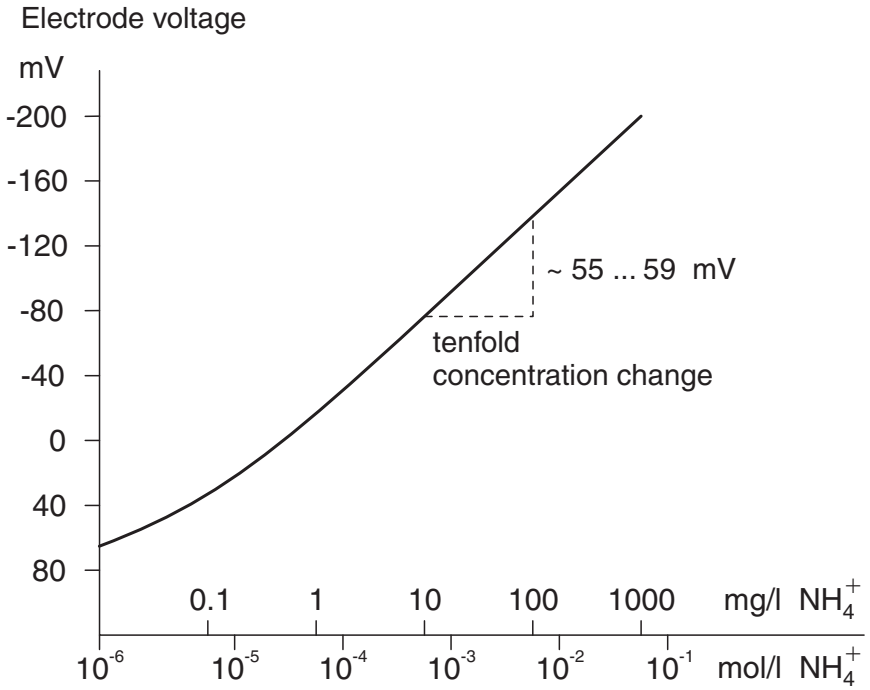
4 Measuring / operation

4.1 Calibration



Note
For calibration, please refer to the operating manual of the measuring instrument.

Typical calibration line of an ammonia electrode



4.2 Response time

The response time depends very much on the concentration of the measured ion, the condition of the electrode and the direction of the concentration change.

For a 10-fold concentration change from 50 to 5 mg/l NH_4-N, the response time t_{99} is < 8 min.

4.3 Interferences

- Volatile bases, e.g. amines.
- Coatings on the membrane (e.g. metal hydroxides)

4.4 Storage

Storage duration	Way of storing
Up to approx. two days	Place in ELY/NH electrolyte solution with the exchange membrane head screwed on
For more than two days	Store the electrode as follows: ● Unscrew the exchange membrane head ● Rinse the electrode ● Fill some drops of ELY/NH electrolyte solution in the storing cap and screw it on. Thus the glass membrane will remain conditioned.

4.5 Aging

The glass part of the electrode that is visible when exchanging the exchange membrane head is a special pH electrode. Please note that it undergoes a natural aging process. If the required slope cannot be achieved despite having changed the exchange membrane head, the pH electrode is exhausted.

The pH electrode is unsuitable for conventional pH measurement. This case as well as using unsuitable electrolytes and mechanical damage invalidates any warranty claim.

5 Cleaning and maintenance

5.6 Cleaning

Contamination	Cleaning procedures
Water-soluble contamination	Immerse in deionized water for 10 minutes
Metal hydroxides	Immerse in 10% citric acid

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

5.7 Exchanging the exchange membrane head

The exchange membrane head is a wear part and has to be replaced from time to time, depending on demand and requirements. A reduced slope, an extended response time or a restricted measuring range indicate that a replacement is necessary. The exchange is carried out according to the chapter, COMMISSIONING.

6 Wear parts and accessories

Wear parts and maintenance means

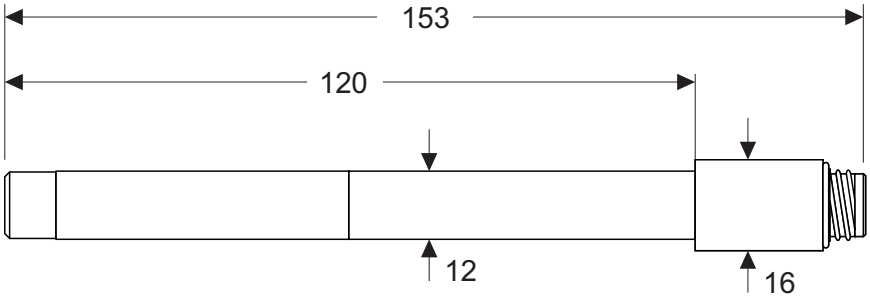
Description	Model	Order no.
Accessory set, comprising: – 3 exchange membrane heads – ELY/NH electrolyte solution (50 ml)	ZBK/NH500/TC	180102
Electrolyte solution for NH500/TC (50 ml)	ELY/NH	821220



Note
For further accessories, refer to the WTW catalog or the Internet.

7 Technical data

Dimensions (in mm)



Materials

Shaft, storing cap	POM
Plug-in connector	PPS
Exchange membrane head	POM copolymer (white)
Membrane	PP
Materials with sample contact	POM copolymer, EPDM (O ring), PP

Measurement conditions

Measuring ranges at 20 °C	10^{-6} ... 5 · 10^{-2} mol/l NH_4^+ 0.02 ... 900 mg/l NH_4^+
Temperature range	0 ... 50 °C
Depth of immersion	min. 5 mm max. 50 mm
Operating position	vertical, inclined to max. 45 °
Max. allowed overpressure	< 5·10^4 Pa (0.5 bar)

Characteristic data on delivery

Reproducibility	± 2 %

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