

Instructions for Use for the Series SE 554 pH/ORP Sensors



WARNING – Failure to observe this warning may result in serious injury.

The safety alert symbol on the nameplate means:

Read these instructions for use, observe the Specifications, and follow the Safety Instructions.

1 Safety Instructions

1.1 All Applications

Hazards due to pressure, temperature, aggressive media or explosive atmosphere are possible, depending on the location of use. Therefore, the installation, operation, and servicing of the sensor shall only be carried out by suitably trained personnel authorized by the operating company.

1.2 Hazardous Areas

Observe all applicable local codes and standards for the installation of electrical equipment in hazardous locations. For orientation, please refer to IEC 60079-14, EU directives 2014/34/EU and 1999/92/EC (ATEX), NFPA 70 (NEC), ANSI/ISA-RP12.06.01. The electrical and thermal parameters of the sensors must be adhered to. Memosens Ex sensors are marked by an orange-red ring. Combined with a model CA/MS-***X** measuring cable or a certified measuring cable which is identical in hardware and function, the sensor may be connected to a suitable measuring device, as described in the Certificates BVS 15 ATEX E141 X and IECEx BVS 15.0114X.

2 Intended Use

The sensor is used for continuous measurement of pH and optionally of ORP (Model AMSN) in liquid media. The SE 554 is a low-maintenance (polymer electrolyte) and pressure-resistant sensor. It has a temperature detector for automatic temperature compensation. The sensor is designed for applications in industrial processes:

- Heavily polluted media
- Media containing sulfides
- Emulsions and suspensions
- Alkaline media
- Media containing proteins
- Processes with large pressure variations
- Acidic media
- Media containing solvents

The sensor is non-sterilizable / non-autoclavable and unsuitable for measurements in media containing chlorine or bromine.

3 Installation and Commissioning

- On unpacking, check the sensor for mechanical damage. Report any damage to your Knick service team.
- Remove the watering cap and briefly rinse the sensor with pure water. After rinsing, the sensor should only be dabbed dry with a tissue. Do not rub the pH-sensitive glass, since this can lead to electrostatic charging and sluggish response times.
- Check the space behind the pH-sensitive glass for the presence of any air bubbles and remove them by gently swinging the sensor in a vertical plane.
- Install the sensor in the fitting as described in the user manual of the respective fitting.
- Connect sensor and cable.

4 Operation

4.1 Calibrating the Sensor

2-point pH calibration is recommended for the SE 554 sensor: First remove the watering cap. Then dip the sensor successively into two different buffer solutions with given pH values (e.g., CaliMat pH 7.00 and pH 4.00) and calibrate the sensor to these buffer values. ORP calibration is performed as a 1-point calibration (delta value) using an ORP calibration solution. Please refer to the user manual of the pH transmitter for further details.

4.2 Temperature Detector

The integrated temperature detector is intended for automatic compensation of the pH signal and not for any high-precision and safe temperature indication or control of the process temperature.

5 Maintenance and Cleaning

Carefully rinse the sensor tip and junction with pure water after each operating cycle. Under no circumstances must measuring solution be allowed to dry on these parts!

When the sensor is not in operation, store it with sensor tip and junction well submerged in electrolyte (3 mol/l KCl). If a sensor is stored dry for a few days by mistake, let it soak in electrolyte for several hours before use.

6 Specifications

Model Code

The markings on each sensor or on the packaging label include the following information:

SE 554X/1 - AMSN

Model designation

Sensor connector

MS: Memosens®

Pt electrode (ORP)

A: with

N: without

Length

1: 120 mm

2: 225 mm

3: 325 mm

4: 425 mm

Ex approval

X: Yes

Further Data

pH/ORP range	0 ... 14 / ±1500 mV
Temperature	0 ... 120 °C
Pressure, relative	0 ... 10 bar
Junction	2 x hole
Electrolyte	Solid polymer
Reference system	Ag/AgCl
pH sensor material	Alpha glass medium impedance, universal glass, fluoride resistant
ORP sensor material	Platinum
Body material	Glass
Mounting	PG 13.5
Temp detector	NTC 30 kΩ

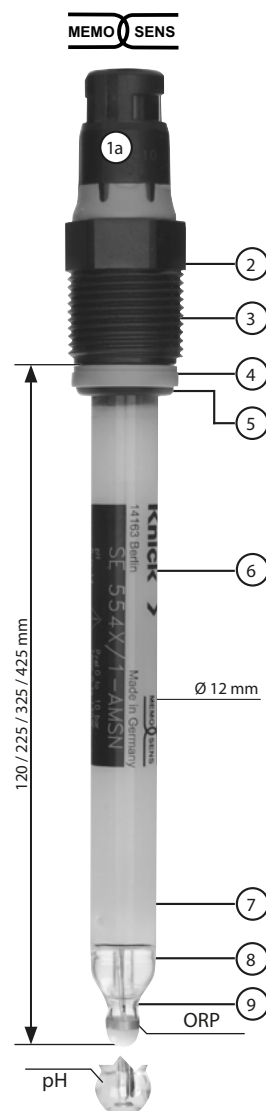
7 Disposal

Observe the applicable local or national regulations for disposal.

Knick ➤

Manual

SE 554X/*-AMSN
SE 554X/*-NMSN



- ① Sensor connectors Memosens
- ② 19 mm A/F, serial number
- ③ PG 13.5 thread
- ④ PVDF compression ring
- ⑤ EPDM-FDA O-ring (11.5 x 2.6 mm)
- ⑥ Nameplate
- ⑦ Junction
- ⑧ pH glass
- ⑨ Platinum (ORP sensors only)

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
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Hazardous Areas: Electrical and Thermal Parameters

Certificate Number:

BVS 16 ATEX E 037 X
IECEX BVS 16.0030X
JPEX DEK19.0046X

Marking:

 II 1G
Ex ia IIC T4 Ga
Ex ia IIC T4 Ga

Thermal Parameters:

Temperature class	Ambient temperature range Ta	Maximum permissible process temperature
T4	-20 °C < Ta < +120 °C	120 °C

Special Conditions

- The cable and the sensor shall only be used within the ambient temperature range specified for the temperature class.
- The measuring cable including its connecting head must be protected from electrostatic charging if it passes through areas of Zone 0 (category 1G).
- The Memosens sensors shall not be operated in electrostatically critical processing conditions. Intense vapor or dust flows directly impacting on the connection system shall be avoided.
- Metallic process connection parts must be mounted at the installation site so that they are electrostatically conductive (< 1 MΩ).