

Instructions for Use for the Series SE 555 pH 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 in liquid media. The SE 555 is a low-maintenance sensor with pressurized electrolyte. It has an integrated temperature detector for automatic temperature compensation. The sensor is sterilizable by autoclaving and is CIP/SIP capable.

The sensor is designed for applications in industrial processes:

- Hygienic processes
- Biotechnology, food, pharma
- High temperatures, high pH values, electroplating

3 Installation and Commissioning

- On unpacking, check the sensor for mechanical damage. Report any damage to your Knick service team.
- Take off the watering cap and use the included knife to remove the silicone sealing from the junction. 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 shaking the sensor up and down.
- Please refer to the user manual of the respective fitting for instructions on how to install the sensor.
- Connect sensor and cable.

4 Operation

4.1 Calibrating the Sensor

2-point pH calibration is recommended for the SE 555 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. Please refer to the user manual of the pH transmitter for further details.

4.2 Sterilizing

For application in sterile processes, such as fermentation, sterilize the sensor before starting the operating cycle. Sterilization can be effected in situ by means of steam or superheated process medium.

4.3 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.

Contaminants can be removed as follows:

Protein:	Solution of pepsin / HCl
Lime:	Dilute acids
Silver sulfide:	Solution of thiourea / HCl
Grease:	Tenside solution / lye

6 Specifications

Model Code

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

SE 555X/1 - NMSN

Model designation

Sensor connector

MS: Memosens

Length

- 1: 120 mm
- 2: 225 mm
- 3: 325 mm
- 4: 425 mm

Ex approval

X: Yes

Further Data

pH	0 ... 14
Temperature	0 ... 120 °C
Process pressure, relative	-1 ... 6 bar
Pressure resistance	12 bar
Junction	1 x ceramic
Electrolyte	Viscous gel with internal pressure
Reference system	Ag/AgCl with silver ion trap
Sensor material	Omega glass High impedance for high-temperature applications, very low alkali error, CIP/SIP capable
Body material	Glass
Mounting	PG 13.5
Temperature detector	NTC 30 kΩ

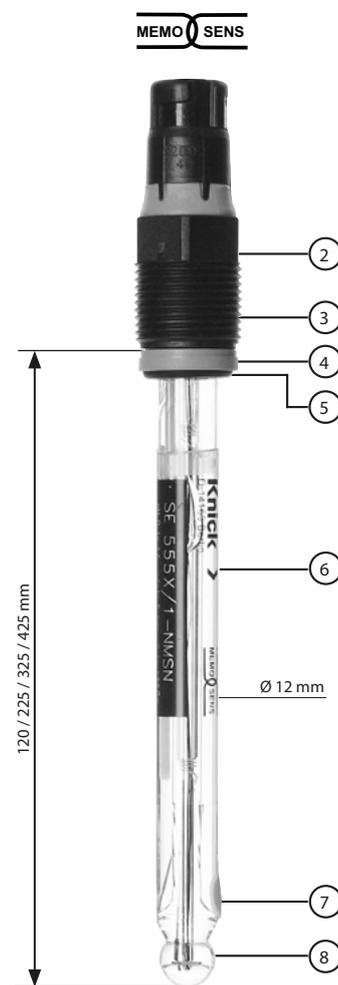
7 Disposal

Observe the applicable local or national regulations for disposal.

Knick ➤

Manual

SE 555X/*-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

Knick Elektronische Messgeräte GmbH & Co. KG

Beuckestraße 22

14163 Berlin

Germany

Phone: +49 30 80191-0

Fax: +49 30 80191-200

info@knick.de

www.knick-international.com



096858

TA-SE555XNMSN-TIIS-KNEN02 20200428

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).