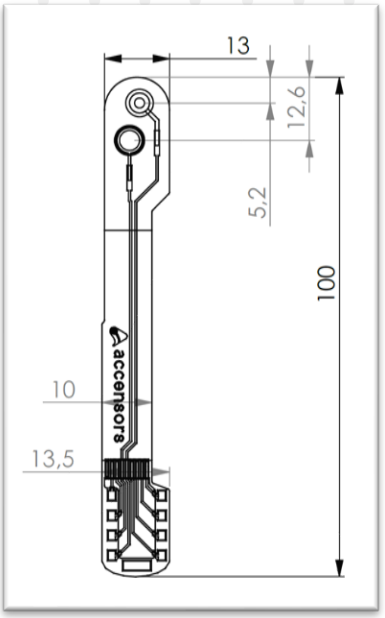
Datasheet

pH sensor S-303 PET 190µm

addSensors

The S-303 is a foil sensor with electrodes for electrochemical determination of pH of samples. The addSensors pH-sensor consists of two electrodes (a pH-sensitive and a non-sensitive Ag/AgCl reference electrode) on a transparent PET foil. The readings are taken by measuring the open circuit potential/voltage between both electrodes. Potential (E) and pH have a linear relationship (between the operating range of pH 4 to pH 9) so the pH of an unknown analyte solution can be calculated using the pre-determined slope and an offset E value (E0 determined by measuring the potential in a calibration buffer of known pH). The reference electrode and overall sensor can be used in analytes with different chloride concentrations thanks to a solid-state electrolyte layer. Once used, the sensor must be kept hydrated for further application and not allowed to dry out.

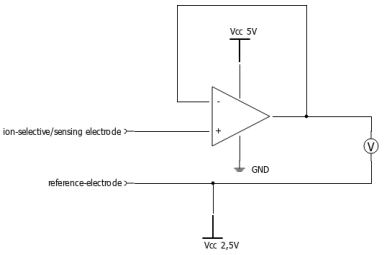


The foil carrier is made of transparent PET material and the sensor is flexible, although care should be taken not bend the electrode spots. A connection between sensor and measurement electronics can be established via addSensors connect or ZiF-connector. Contact pads are covered with an oxidation protection. The data given refers to the use of the sensor in combination with the ACO addSensors D-300 measurement device and our addSensors iOS application. The measuring output will display the measured potential (in mV) or if the sensor is calibrated (one-point software calibration at 20°C or two-point at other temperature) output can be given as pH.

Technical Data	
Dimensions	L x W x H in mm
Whole sensor foil	100.0 x 13.0 x 0.2
Potential response (at 20°C)	52.2 ± 1.0 mV / pH
Set-up time (time till stable output)	< 30 min
Response time (t_{90})	< 20 sec
Drift	~ 30 mV in first 24 hrs
Lifetime (in use)	~ 3 days
Measuring environment	
Operating pH range	4 – 9 pH
Samples	Diverse*

**must be sufficient moisture for contact to be maintained between both electrodes*

TRL 8 *MRL 8*



Schematic example for a measuring circuit including an operational amplifier as voltage follower

All mechanical dimensions are valid at 25 °C ambient temperature, if not differently indicated. All data except the mechanical dimensions only have information purposes and are not to be understood as assured characteristics. Technical changes without previous announcement as well as mistakes reserved. Load with extreme values during a longer period can affect the reliability. Typing errors and mistakes reserved. Product specifications are subject to change without notice.

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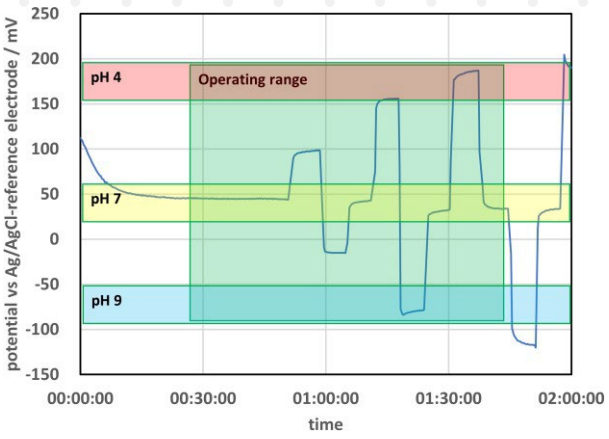
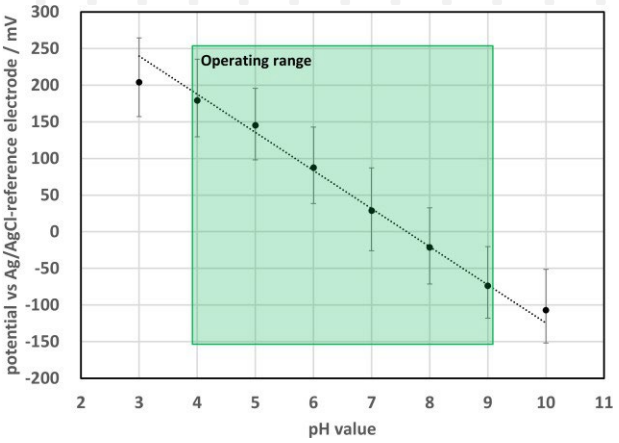


Example output readings for different pH buffer solutions



Potential dependency for different pH buffer solutions and linearity approximation in the range of pH 4 to 9

Version history:

Version	Release date	Changes
0.1	24.11.2023	First release

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