

Getting Started Guide & Unisense standard specifications for Hydrogen Sensors

This sensor has been successfully tested prior to shipping, however some sensors suffer from rough transportation. Therefore, it is important that you test the sensor upon arrival!

Replacement of Defective Sensors

Unisense will replace the sensor if it does not meet the specifications below, provided that:

1. A test is performed upon receipt without breaking the seal (Note! No seal on MR-sensors for testing purposes)
2. The complaint is given to Unisense *within two weeks* from receipt of the equipment.

Guaranteed Lifetime

Unisense guarantees the hydrogen sensor a minimum lifetime of 3 months on condition of correct storage and use according to the manual.



Individual Sensor Calibration is required

Our sensors are handmade and as the sensor signal relies on the exact geometry of the sensor tip (micrometer scale), some variation must be expected.

Signal Amplification

Unisense hydrogen sensors should be connected to a Unisense amplifier such as a UniAmp series instrument or the Field Microsensor Multimeter.

Standard Hydrogen Sensors are functioning correctly if (at room temperature, standard pressure):

- It has an immediate response when exposing the tip to hydrogen
- The 90 % response time is within the specified range (see table below)
- The zero signal is less than the specified value (see table below)
- The response to H₂ is above the specified value (see table below)*

	H ₂ -aa**	H ₂ -aa-LR	H ₂ -X-aa
90% response time (sec.)	<15	<15	<30
Zero-signal less than	10 mV	10 mV	10 mV
Minimum response to H ₂	500 mV for 100% H ₂	500 mV for 100% H ₂	500 mV for 100% H ₂

The sensor signal in pA is converted to an instrument signal in mV. The default setting of this Pre-Amp range is 1 pA = 1 mV. However, this can be changed by the user (see the instrument manual).

* If the signal is below the specified value, an air bubble may have formed in the sensor tip during shipping. Shake the sensor (QR code to video guide on page 2) and check the response to H₂ again.

** All tip sizes, MR, N, NP, ST, SL, PEEK, and FT-GLASS variants.

Getting started with Hydrogen Sensors

1. Unpacking

- Remove the grey shock-absorbing plastic net and inspect the sensor visually. Leave the sensor in the protection tube for testing, and do not break the seal.

2. Connect the sensor to the amplifier

- The amplifier is automatically set up correctly when used with these instruments: UniAmp series and Unisense in situ amplifiers.
- For other amplifiers, set the polarization manually to +100 mV.
NOTE: Incorrect polarization may destroy the sensor!

3. Wait for the sensor to stabilize

- The signal will be very high right after the sensor is connected and will decrease over time.
- The period of decreasing signal will normally be at least 1 hour.
- Once the signal is stable, calibration can be performed.

4. Calibrate the sensor

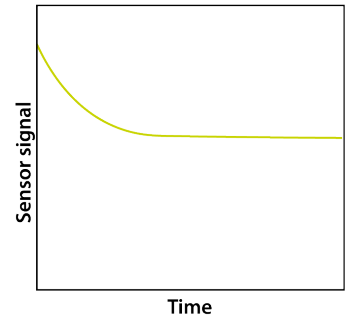
- Place the sensor in water or air to obtain a zero H₂ calibration point.
- Prepare water containing a known concentration of H₂ by bubbling a gas with a known H₂ content through the CAL300. Place the sensor in the CAL300 to obtain the second calibration point.
- Consult the H₂ sensor manual for further information about calibrating the H₂ sensor.

5. Approve the sensor

- Compare the calibration points to the specifications given on the previous page. If necessary, see Troubleshooting in the H₂ Microsensor manual or contact support.

6. Storage

- When not in use, store the sensor with the protection tube mounted at 10 - 30°C. If the sensor is used regularly, keep it polarized and connected to the amplifier.



A typical decrease in sensor signal over time for a sensor that has just been plugged in.



CAL300 with microsensors and bubbling with air.

Useful tools



Video guide on how to remove an air bubble



H₂ Microsensor Manual



uSense Solutions Manual



Contact information for support

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