



## GETTING STARTED GUIDE AND UNISENSE STANDARD SPECIFICATIONS FOR NITROUS OXIDE SENSORS

### Important! Test sensor upon receipt!

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 nitrous oxide sensor a minimum lifetime of 2 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 nitrous oxide sensors should be connected to a Unisense amplifier such as a UniAmp series instrument or the Field Microsensor Multimeter

### STANDARD NITROUS OXIDE SENSORS ARE FUNCTIONING CORRECTLY IF (AT ROOM TEMPERATURE):

- The 90 % response time to changes in  $N_2O$  is less than 20 seconds
  - The 90 % response time for  $N_2O$ -R should be less than 45 seconds
- The zero signal is less than 30 % of the stabilized signal for 100  $\mu M$  nitrous oxide in water and below 20 mV\*

\* 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).

### Patent information

This product is covered by the following patents:

Patent issued in China: CN 104937405 A

Patent issued in USA: 9921178

Patent issued in Japan: JP6275744B2

Patent pending in several other jurisdictions.



# GETTING STARTED WITH NITROUS OXIDE SENSORS



## 1. UNPACKING

- Remove the grey shock-absorbing plastic net and inspect the sensor visually. Leave the sensor in the protection tube for testing.

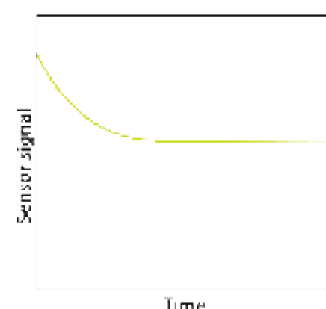
## 2. CONNECT THE SENSOR TO THE AMPLIFIER

- Set the polarization voltage to  $-1.3\text{ V}$  for pre-activation of the sensor.
- For UniAmp series instruments, adjust the polarization in the calibration window or in the Unisense Service in the Windows Notification Area.
- For Multimeter, Monometer, and Field Multimeter adjust the polarization on the instrument.
- For other amplifiers, set the polarization manually to  $-1.3\text{ V}$ .

**NOTE! Incorrect polarization may destroy the sensor**

## 3. WAIT FOR THE SENSOR TO STABILIZE

- Wait for 10–15 minutes and adjust the polarization to  $-0.8\text{ V}$ .
- The signal will first fluctuate and then decrease over time for at least 2 hours. If possible, leave the sensor to stabilize overnight.
- Once the signal is stable, calibration can be performed.



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

## 4. CALIBRATE THE SENSOR

- Use air saturated water as one calibration point. This is easily done using the CAL300 calibration chamber. The sensor may be dipped directly into the calibration chamber or the air saturated water may be injected into the protection tube using the calibration cap.
- Use the Unisense  $\text{N}_2\text{O}$  solution as the second calibration point. Inject the  $\text{N}_2\text{O}$  solution into the calibration cap (incl. in calibration kit) and wait for the sensor to respond.
- For alternative calibration method, see the  $\text{N}_2\text{O}$  Microsensor manual.



CAL300 with microsensors and bubbling with air.



Injecting calibration liquid into protection tube using the calibration cap.

## 5. APPROVE THE SENSOR

- Compare the sensor signals to the specifications given on the previous page. If necessary, see Troubleshooting in the  $\text{N}_2\text{O}$  Microsensor manual or contact support (see below).

## 6. STORAGE

- When not in use, store the sensor with the protection tube mounted at  $10 - 30^\circ\text{C}$ . If the sensor is used regularly, keep it polarized and connected to the amplifier.

## USEFUL TOOLS



For support go to  
[www.unisense.com/support](http://www.unisense.com/support) or  
contact [sales@unisense.com](mailto:sales@unisense.com)



Get the full manuals for all  
sensors, equipment & software  
at [www.unisense.com/manuals](http://www.unisense.com/manuals)



$\text{N}_2\text{O}$  Microsensor  
Manual



Calkit- $\text{N}_2\text{O}$   
Manual



SensorTrace Suite  
Manual



Find SDS for Cali-  
bration Kit here

Version: November 2022