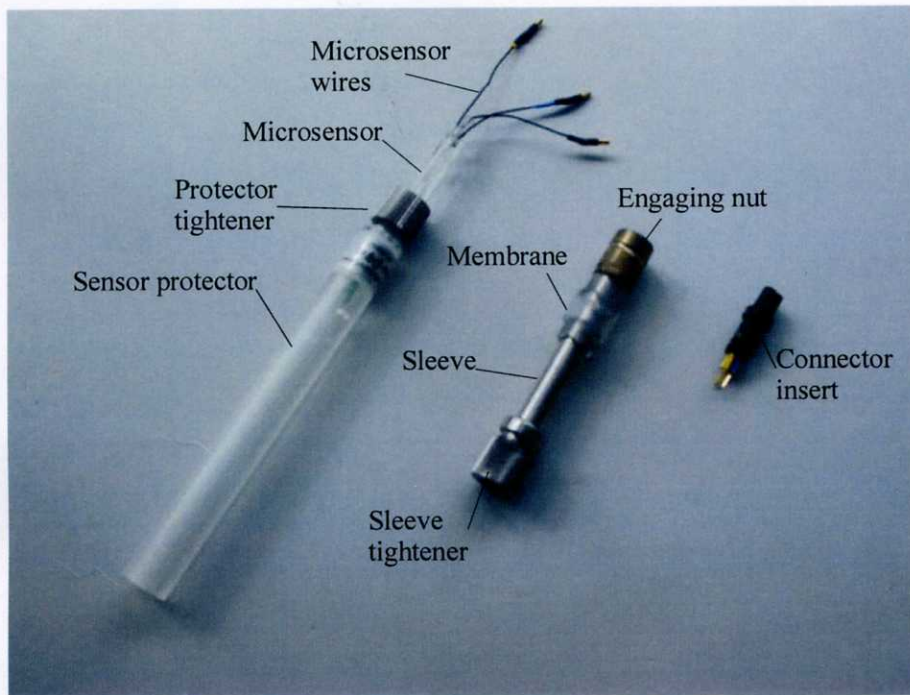
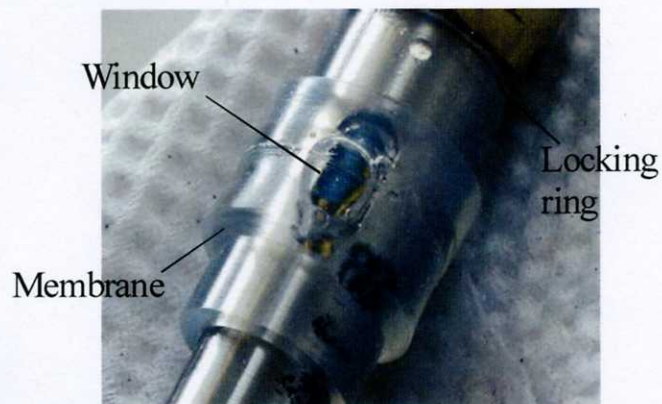
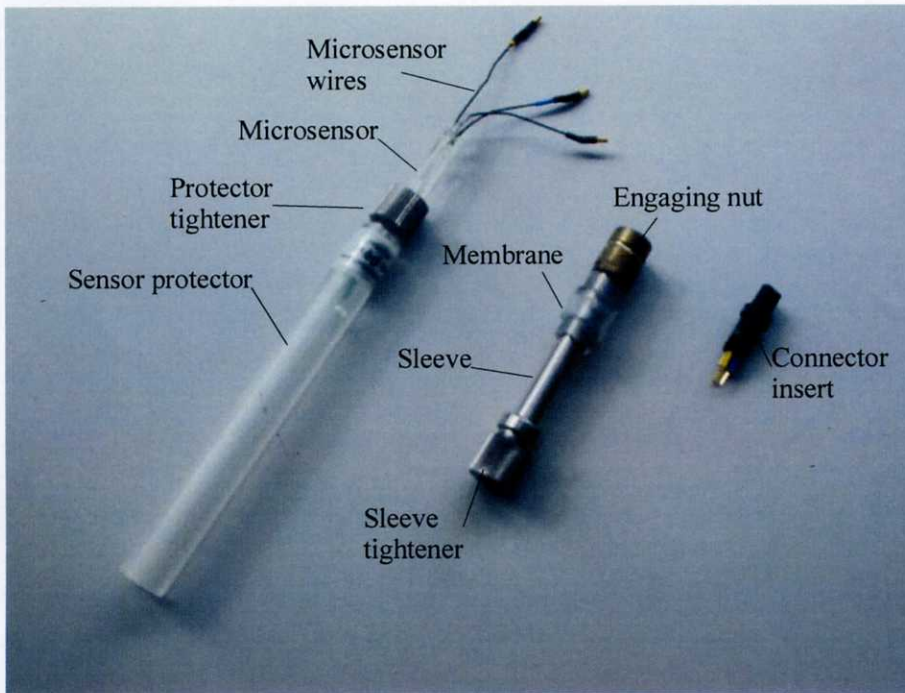




Unisense microsensor connector system



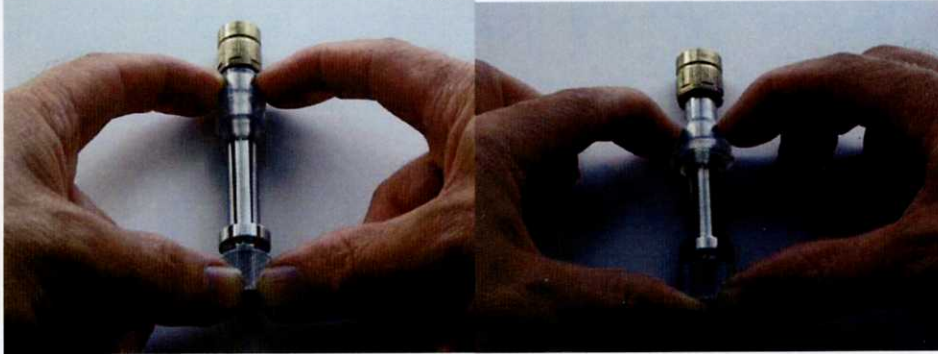
Overview



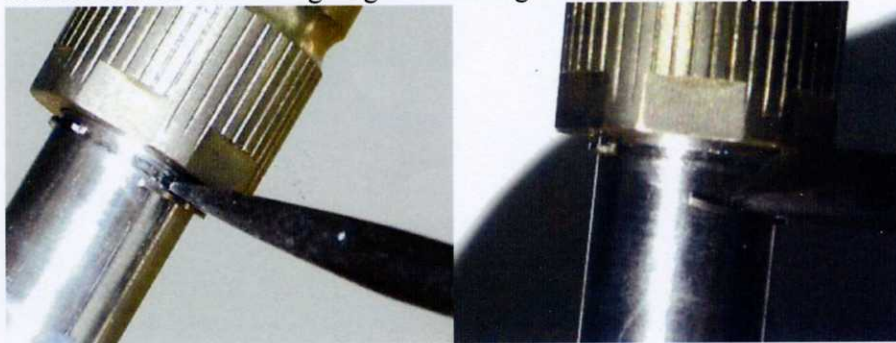
Installation of the microsensor in the sensor holder unit.

1. First, check the sensor condition and performance as described in the sensor manual.

2. Pull the compensation membrane approx. 20 mm back with your fingers



3. Using a fine screwdriver, carefully pry one end of the engaging nut locking ring out of the groove by placing the screw driver between the engaging nut and one end of the locking ring and rotating the screwdriver tip.

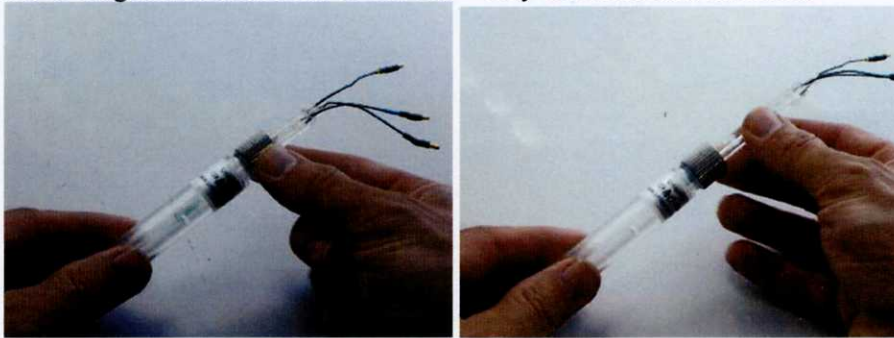


4. Carefully pry the locking ring progressively around the sleeve until it is completely clear of the groove.
5. Pull the locking ring down the sleeve to the compensation membrane.
6. Pull the engaging nut down the sleeve to the locking ring

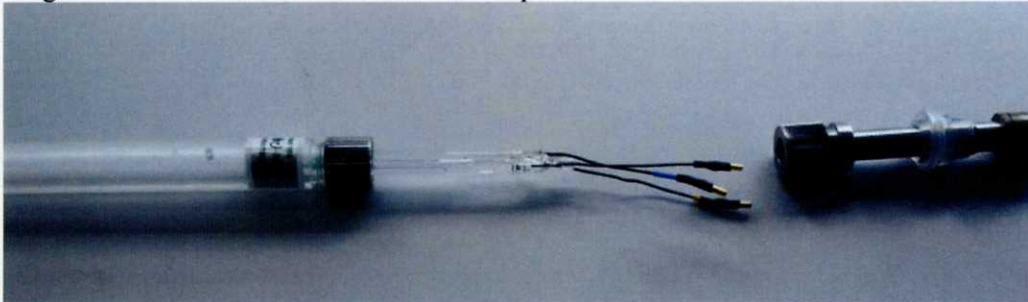


7. Loosen the tightener on the sensor protector and pull the sensor somewhat back to expose approx. 5 cm of the parallel-sided part of the sensor glass casing and tighten the tightener again. **CAUTION: do not pull the sensor so far that the tapering enters the tightener. This may cause the sensor tip to break against the walls of the sensor protector.**

NOTE: the tighteners should never be removed completely – which can cause the O-ring and conical disk to fall out – only loosened and fastened.

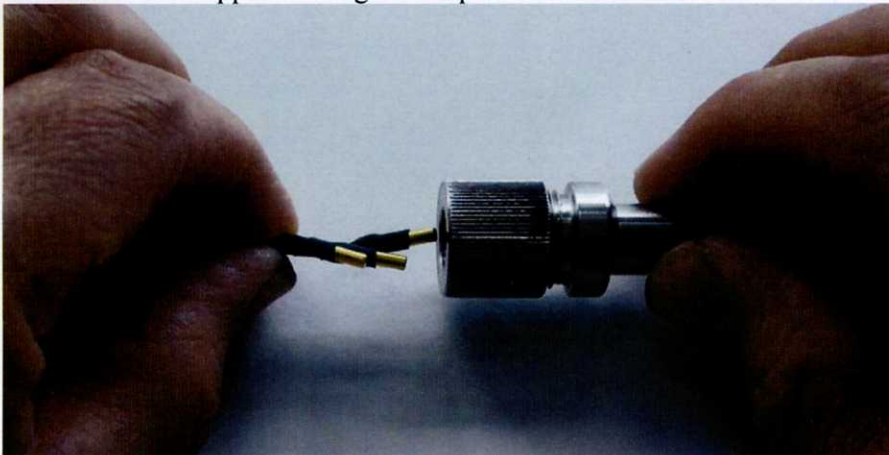


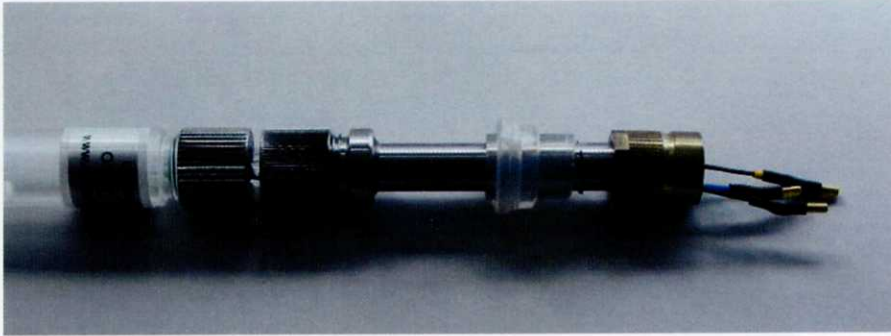
8. Align the sensor and the sleeve on a desktop



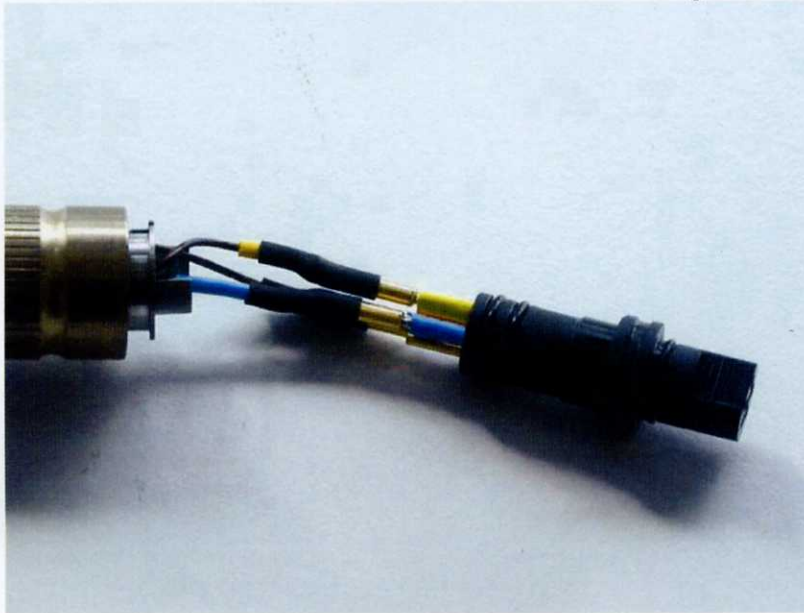
9. Loosen the sleeve tightener

10. insert the sensor wires through the sleeve tightener and push the sensor in until the sensor wires appear through the top of the sleeve unit

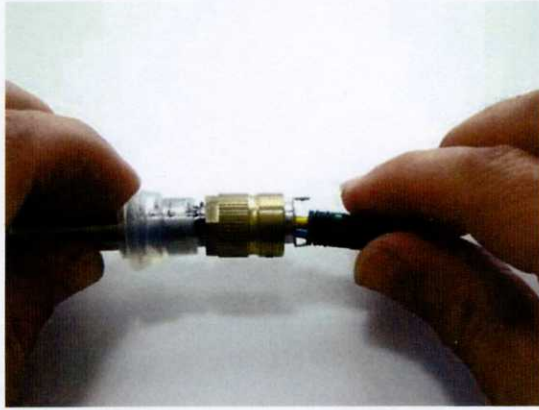




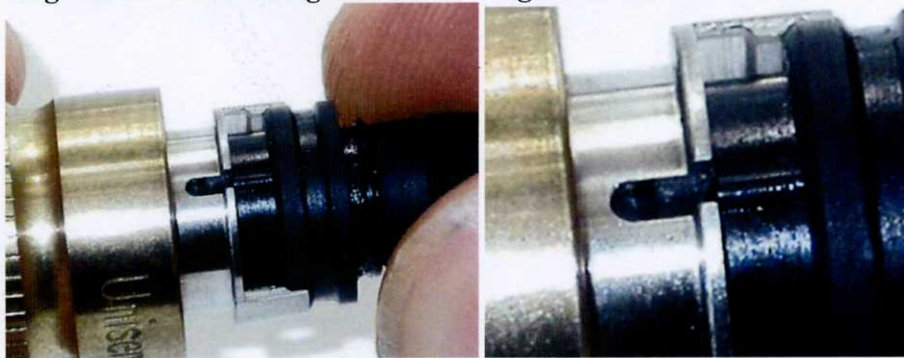
11. Take a sensor connector insert with the right color code (see color code section below) for the sensor to be used. Check that the O-rings are present, lubricated, and intact. Regarding lubrication of the O-rings of the sensor connector insert: after cleaning (if necessary) apply O-ring grease such that the O-rings and grooves are covered. Remove excess grease with a dry clean cloth until the O-rings only have a thin shiny layer of grease.
12. Connect the sensor wires to the connector insert according to the color code.



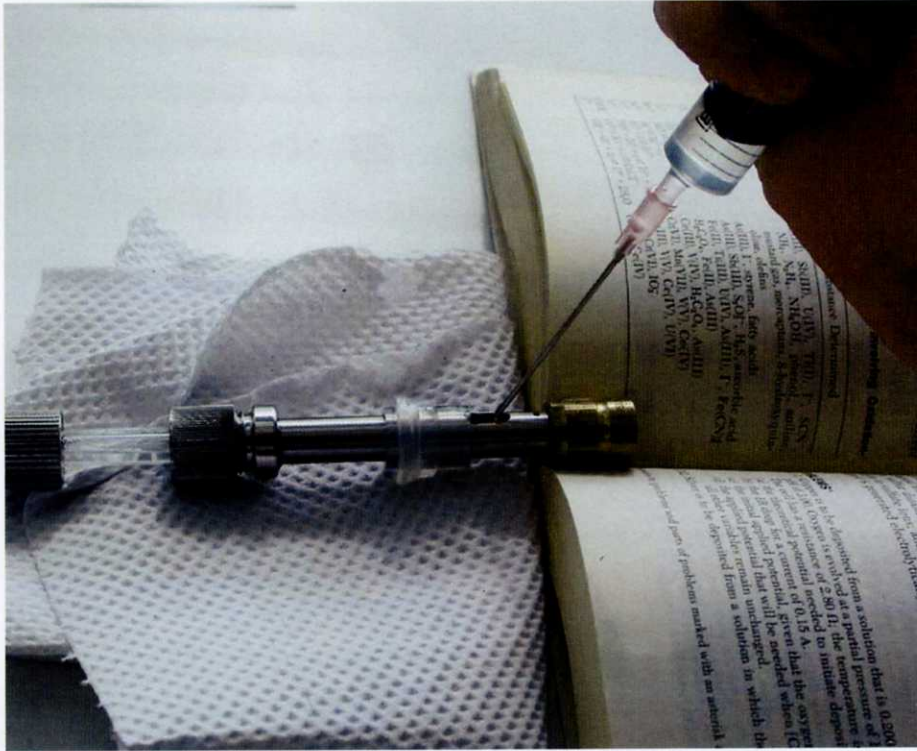
13. Gently pull the sensor protector and sensor out until there is approx. 15 millimeters between the connector insert and the sleeve. **CAUTION: in this step, make sure that the sensor wires are not getting caught on the edge of the sleeve. If the wires are caught on the sleeve and the sensor is pulled, the connections between the wires and sensor may get damaged.**
14. Gently rotate the connector insert quarter turns back and forth while pushing it into the sleeve. When the insert has been pushed a few millimeters in, the protector with the sensor should be pulled out correspondingly.



15. When the insert O-rings meet the sleeve the resistance increases. Push a bit harder to overcome this resistance. **CAUTION: make sure the alignment ridge on the insert is aligned with the alignment cut-out of the sleeve.**



16. Push the insert completely in.
17. Pull the engaging nut in place and secure it with the locking ring
18. The sensor position can now be adjusted some millimeters out or in by pulling or pushing the protector with the sensor. **CAUTION: do not use excessive force when adjusting the sensor position, as this may damage the sensor wires.**
19. Tighten the sleeve tightener to secure the sensor position.
20. Place the sensor/holder unit in a tilted position with the sleeve window facing up and a piece of paper tissue under. Fill a syringe with a needle with paraffin oil. Slowly drip paraffin oil into the sleeve window. Allow a few minutes for the oil to displace all air inside and continue dripping oil until the oil level is constantly close to the window. Any excess oil should be captured by the paper tissue. **CAUTION: excess oil on the outside of the sensor/holder unit should be removed, as the oil can damage especially pH electrodes and as oil increases the risk of accident during handling.**



21. Slide the membrane back over the window.

22. Hold the sensor in an up-right position and carefully slide the needle under the membrane and fill the membrane with oil, while allowing the air to escape along the needle. Take care to capture excess oil in a paper towel. Let the sensor rest for 5 minutes to allow time for remaining air to flow into the membrane. Please note that there is a pressure compensation port in the connector insert, and to avoid oil loss this should be held in the highest position when the sensor is oil filled.



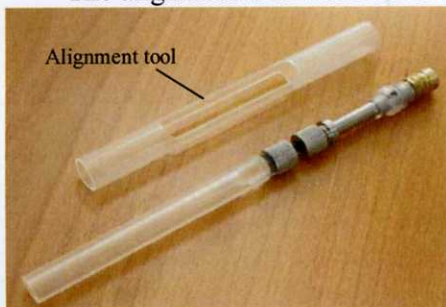
23.

CAUTION: it is important for proper pressure compensation that only a small amount of air (a bubble of max. 5 mm diameter) remains in the membrane.



24. The sensor unit can now be attached to the amplifier and function tests and calibrations of the sensor can be performed with the sensor protector mounted. Unplug the sensor unit from the amplifier before proceeding to the next step.

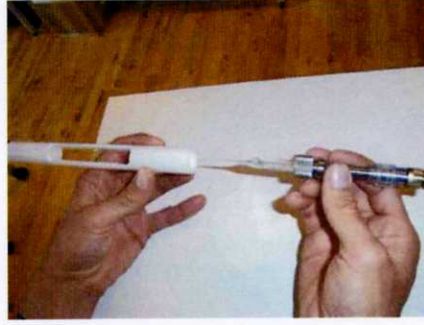
25. To remove the sensor protector before measurements (and perhaps final calibrations) slide the alignment tool over the assembled sensor/holder unit. The alignment tool will rest on the membrane



26. Tighten the sleeve tightener, and loosen the sensor protector tightener. Pull the sensor protector out.



27. Carefully slide the alignment tool back over the sensor tip. **CAUTION:** the sensor tip is now unprotected and will easily break on contact with solid objects.

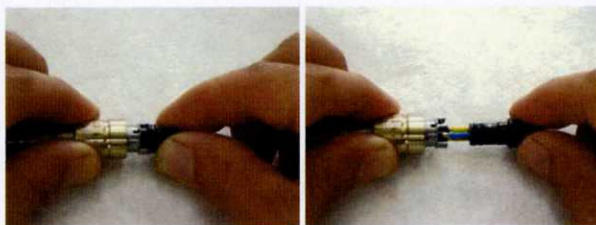


28. Carefully mount the sensor unit on the amplifier before measurements and final calibrations.

Unmounting the microsensor from the sensor holder unit

1. Detach the sensor/holder unit from the amplifier. Take care not to break the sensor tip.
2. Carefully put the sensor (with the sensor tip first) into the alignment tool until the tool rests on the silicon membrane.
3. Insert the sensor protector into the alignment tool after making sure that the tightener is loose and push until the sensor is well inside the protector.
4. Tighten the protector tightener and remove the alignment tool
5. Pull the membrane approx. 20 millimeters down.
6. Pry the locking ring off.
7. Pull down the engaging nut.
8. Loosen the sleeve tightener and push the sensor slightly in until there is resistance from the wires. Catch the oil that spills out of the window in paper tissue.
9. Push the tip of a fine flat screwdriver in between the connector insert and the top of the sleeve on the side opposite to the alignment ridge. Carefully pry the insert out of the sleeve and subsequently pull the insert gently out until the sensor wires resist. If the connection between sensor wires and connector insert is not exposed, push the sensor a bit further in and pull the insert correspondingly out. Catch the oil that spills out in paper tissue or a beaker.





10. Detach the sensor wires by holding the connector insert in one hand and in turn pushing each gold connector on the sensor wires off with the other hand. A pair of tweezers can be used. **CAUTION: be care not to pull the sensor wires, they make break if pulled.**

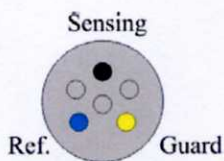


11. Pull the sensor out, while making sure that the sensor wires are not caught on the sleeve.
 12. wipe excess oil off the sleeve and sensor.

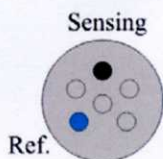
Sensor connector color codes:

The sensor connector insert viewed from the sensor side:

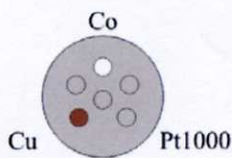
Amperometric:
 - Oxygen
 - H₂S
 - H₂



Potentiometric:
 - pH
 - redox



Temperature:



External ph-ref
 4ch version

