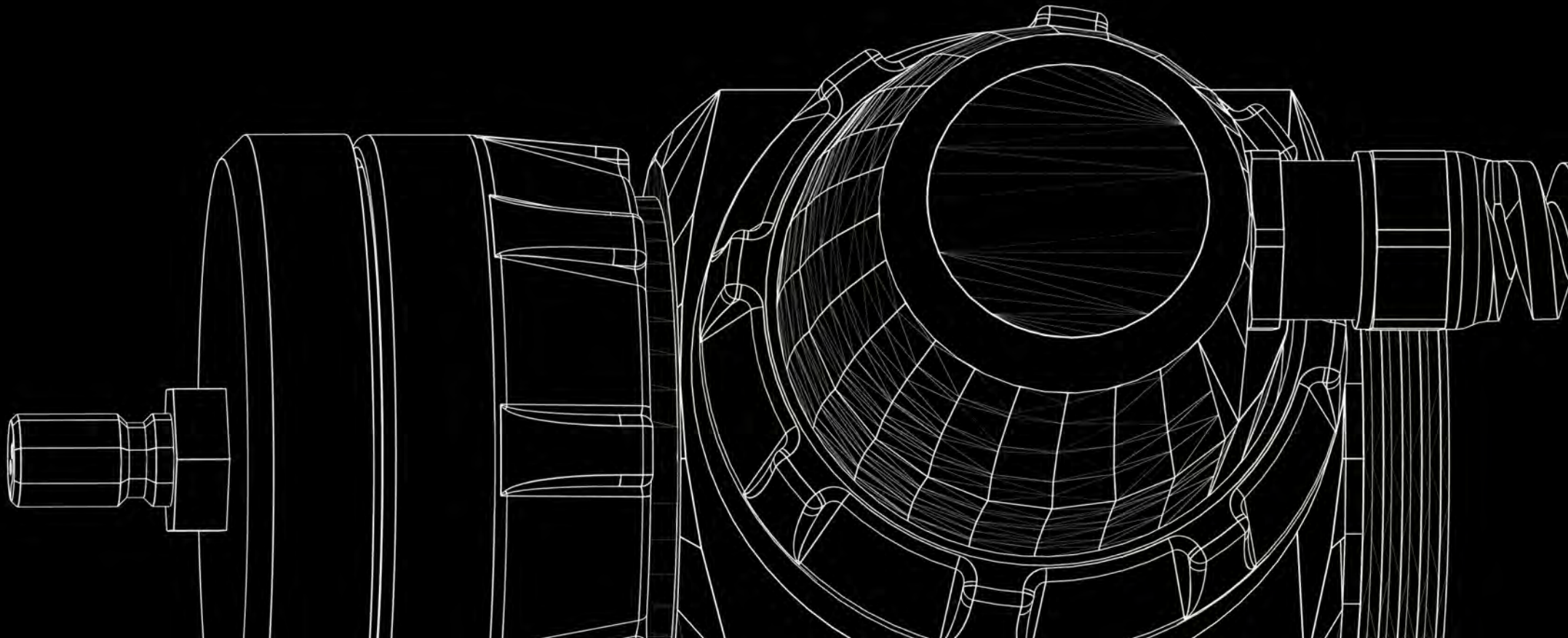




3RD SENSOR CALIBRATION KIT USER MANUAL





3rd Sensor Calibration Kit

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Instruction

1. Remove the 3rd sensor POD from the rebreather.



2. Connect the sensor lid to the POD (make sure the sensor is properly installed inside and the sensor's face is dry) and screw it in place. Connect the sensor cable to your off board external pO₂ monitoring computer and turn it on.



3. Instal the calibration lid to the bottom of the POD and screw it in by turning the POD nut until it is snugly in place.



4. On the opposite end of the POD instal the mushroom valve with the membrane facing out, so that pure oxygen pressure can escape from inside the POD and no air can get in.
5. Get your external computer into "ready for sensor calibration" mode (check your specific computer instruction manual on how to do this).



6. Connect the Manual Addition Valve (MAV) inflator hose to the nipple in the calibration lid earlier installed on the bottom of the POD and turn on the Oxygen tank valve on your MkVI or SE7EN. You will hear a hissing sound from Oxygen being injected thru the tiny flow restricting orifice inside the calibration lid.



7. Wait a few seconds so that air is chased out of the POD by the Oxygen being injected. Ten or fifteen second will be sufficient.
8. If your off board external computer is able to display O₂ sensor mV reading during calibration, wait until the reading no longer increases (it ideally should read above 48 mV). When the reading is stable press the relevant button on your computer to begin calibration.
9. If calibration is unable to be concluded, your computer will probably let you know (check computer instruction manual for meaning of messages in case of unsuccessful calibration). If the sensor cannot be calibrated, it has been damaged or it is no longer able to present a linear mV output and must be discarded. Replace the sensor with a good one and repeat procedure.
10. After calibration the pO₂ reading displayed on the computer should be 1 bar.
11. When calibration has been successfully achieved, disconnect the MAV inflator hose and remove the calibration lid and the mushroom valve from the POD. Ventilate the inside of the POD so that sensor is exposed to pure air, the reading should now be 0,21 bar.
12. The calibration has thus be completed and the POD can be installed on your rebreather.
13. When powering up and running PST on your rebreather, you can check your calibration of the 3rd sensor during the first half of T53, when pure O₂ is being injected over the sensors inside the E-module (if POD is installed directly on the canister).
14. At the beginning of the dive you can check your 3rd sensor hyperoxic linearity when the rebreather performs the 6m linearity check (if POD has been installed directly on the canister) If your 3rd sensor can register at this moment, past 6 m depth, 1,6 bar pO₂ or above, then the sensor is able to read above the bottomset point pO₂ range and is most likely linear and probably reliable.

WARNING:

This calibration procedure may vary according to the make and model of computer used. Please read your computer user manual referring to the calibration procedures of an external O₂ sensor and adapt the above procedure to match your computer operation.

WARNING:

Do not over-rely on a sensor that has passed successfully the calibration procedure above. Remember this is a non ASV (Active Sensor Validation) O₂ sensor and as such cannot and should not be blindly trusted. Remember to regularly check through out the dive the 3rd sensor reading against the pO₂ reading of the e-module on the rebreather display. The readings should match closely, but the 3rd sensor reading will probably be more dynamic and reactive to small pO₂ fluctuations. If the reading of the 3rd sensor seems "frozen" it probably means that water has condensed over the sensor's face. Try to shake the breather on your back to dislodge water drops from sensor's face. If this does not work, try to perform a long diluent loop flush by pressing the diluent MAV while pressing the OPV on exhale counter lung and maintain minimum loop volume.

**WARNING:**

you should get proper training by a qualified instructor from a recognised training agency before attempting to use O₂ MAV to keep loop pO₂ based on 3rd sensor monitoring. Failure to get such training can result in injury or death.

WARNING:

in case of partial loss of main electronics or major sensor failure (C0 alarm) the unit may in certain cases inject Oxygen, doing its best to keep a breathable loop. This may offset O₂ manual drive thru MAV and compound a severe case of high loop pO₂ if both MAV and electronic injection are combined. You should consider installing an inline-shut-off-valve in the O₂ hose feeding the O₂ E-module inlet, so you may close it in case of need in an emergency to prevent abnormal injection of O₂ by the electronics (refer to appropriate section of rebreather user manual).

WARNING:

in case of total or partial main electronics loss (rebreather electronics) the first choice action still should be to abort to OC and terminate the dive without returning to the CC loop. Only as last resort should you ever rely on driving manually O₂ injection on the O₂ MAV based on 3rd sensor reading (i.e. in case you have lost, no longer have enough to terminate the dive or cannot access off board bailout gases). If you have to rely on your 3rd sensor readings do so extremely vigilant and use extreme care in doing so (remember this is not an ASV sensor). If you must absolutely resort to a 3rd sensor reading do only so in an absolute emergency. If you lose partially or totally your rebreather electronics, or are prompted with loss of confidence in pO₂ reading alarms (C0, C1 or C2) you should bailout to OC (on board OC or off board OC bailout) and terminate the dive! **DO NOT CONTINUE THE DIVE BASED SOLELY ON THE PO2 READINGS OF THE NON ASV 3RD SENSOR!**

WARNING:

being able to monitor loop pO₂ thru a 3rd sensor is not an option or replacement to carrying OC off board bailout gas in proper quantity and quality, and use these OC gases to turn the dive safely. To ignore this is to accept a very high risk of injury or death!