



ANALOX O2EII®

Replacement oxygen sensors

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Analox O2EII® – Replacement oxygen sensors

Introduction

The correct replacement oxygen sensor for your O2EII is Analox Part No. 9100-9220-9B.

We are aware that there are a number of 'alternative' sensors on the market, some of which are cheaper, but none that we have seen are designed to mate correctly with the O2EII® analyser.

Some of the 'alternative' sensors we have seen have an unnecessary potentiometer fitted. Others have incorrect temperature compensation components fitted. None of the sensors use the same size waterproof membrane as we do.

Quite why this should be, we have no idea. Presumably a lack of knowledge on the part of the 'alternative' sensor provider on exactly how an O2EII® works. All it means is that your job to fit and use the new sensor becomes more difficult, the readings you obtain may be dubious, and the sensor won't last as long as a genuine Analox sensor.

Please be aware that this may put your life at risk!

So first of all, why does an Analox sensor not have a potentiometer fitted?

Because we select oxygen sensors with a fairly narrow band of performance. The existing user adjustment knob on the instrument will quite happily accommodate any of the sensors that you buy from us to fit an O2EI[®]. Presumably with the 'alternative' sensors, you will have to adjust the two pots to arrive at a working solution. And if you did this at relative extremes of temperature or atmospheric pressure, then you may have to repeat the double adjustment next time around too.

Is the O2EII® better with an Analox supplied sensor temperature compensated, or will it work better with one of the ‘alternative sensors’?

The Analox O2EII® is indeed a temperature compensated device. However, in the original design released to the market, we had opted to remove the temperature compensation from the sensor itself, and to fit it on the electronic printed circuit board beside the display. Why did we do this? Well, we found that a sensor with compensation fitted, did not work well due to the heat effect from how you grip the instrument with your hand. A thermistor (used as a temperature sensor) on the sensor itself, saw the heat of your hand too quickly – long before the overall bulk of the sensor equalised in temperature with your hand. By fitting the thermistor on the display board, made the sensor unaffected by your hand for the typical time taken to make a measurement.

Note that ‘alternative’ sensors with temperature compensation fitted could give very strange readings across the temperature range, because in actual fact you will be doubly compensating for temperature changes – once on the sensor, and again in the display electronics.

Why does the waterproof membrane matter?

Well there are a couple of reasons. Firstly you are often using your analyser in wet conditions, and the waterproof membrane offers protection to the sensor. It prevents liquid water entering the sensor and affecting the chemistry of the sensor. And secondly, our sensors have a thicker than normal membrane fitted. Actually, this slows down the response time of the sensor, but not so that it is noticeable in normal use. But importantly it also prolongs the life of the sensor by limiting how much oxygen diffuses into the sensor. Therefore you should get around **4-5 years** life from an Analox sensor, and probably **2-3 years** from a non-Analox sensor, provided it uses the original R22D type membranes. But remember also that R22D type membranes are becoming increasingly difficult to source since Teledyne withdrew their sensors from the diving market. So if you are considering the purchase of an 'alternative sensor', make sure you understand the specification of the membrane fitted.

Conclusions/Recommendations

So if you want to measure oxygen levels in tanks reliably and correctly, especially in wet conditions then do the right thing – fit an Analox sensor – you know it makes sense! It may even be slightly more expensive, but it will repay you with a longer life and by giving you correct readings. Entrust your safety to genuine Analox equipment!