

## ***Ensuring the safety of technical divers: trimix gas analyzer***

### **Introduction**

Technical diving – at depths greater than 150 feet (46 meters) – requires highly accurate and specific mixes of breathing gas to ensure the safety of the diver. If the mix of gases, the depth and length of the dive are not calculated correctly the diver is at risk of:

- Nitrogen narcosis
- Oxygen toxicity
- Decompression sickness

Adding helium to mix of breathing gas reduces the risk of nitrogen narcosis as well as stress on the diver's lungs. This 'trimix' of oxygen, nitrogen and helium has to be calculated precisely for the depth of the dive:

e.g. a 330 foot (100 meter) dive uses a mixture of 10% oxygen, 70% helium and 20% nitrogen. Getting these ratios wrong could be fatal so accurate equipment to analyze the gas mixtures is crucial.

Changes in temperature, pressure and humidity affect the results of calibrations and measurements, with a possible error of up to 6.7%. Many analyzers require the operator to manually make these adjustments, using a chart of environmental compensation factors. Any mistake made in interpreting or integrating the factors into the calibration could increase the error.

### **Eliminating risk: Oxygen Helium Trimix Analyzer**

The ***AII-4001 Oxygen Helium Trimix Analyzer*** removes the risk of operator error in compensating for environmental factors, as well as being the most advanced, accurate and reliable analyzer for trimix gas available. Proprietary algorithms process inputs from 5 different sensors: oxygen, helium, temperature, pressure and relative humidity to eliminate errors from compensation calculations and environmental influences, thereby enabling users to analyze dive gas mixtures with confidence.

Powered by a rechargeable battery or AC adapter, the AII-4001 is both user friendly and easy to operate. "One touch" of one of the round colored button-keys controls the power, LCD backlight or automatically calibrates the oxygen sensor and zeroes the helium



*Photo credit: Roberto Bordin of Wet Side srl*



## ***Analytical Industries Inc.***

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sensor using ambient air. The large backlit LCD also displays the MOD (maximum operating depth) @ 1.4 ATA of the gas mixture being sampled and displays the environmental values in either Imperial or Metric units. Packaged in a robust bright orange carrying case, the AII-4001 takes 2 hours to charge, can operate for 16 hours continuously and is equipped with several power saving features to extend the time between charging the battery.

### **About AII**

Analytical Industries Inc., headquartered in Pomona, California, designs and manufactures innovative solutions for gas analysis, including advanced oxygen sensors and oxygen analyzer platforms.

Their product range includes:

- Oxygen sensors – for PPM and %O<sub>2</sub>
- Oxygen analyzers – for PPB, PPM and %O<sub>2</sub>
- Gas analyzers – for H<sub>2</sub>S, CO, Heliox and Trimix

They supply customers in the industrial control, natural gas, medical and professional sports diving industries.