



CTD/O₂ Fast Profiling Probe

Fast vertical and horizontal profiling in shallow water



Fast - Accurate - Reliable - Small Dimensions



Apart from the parameters conductivity/salinity, temperature and depth, the determination of **dissolved oxygen** is one of most important data for the monitoring of lakes, rivers and oceans.

Until now, the vertical and horizontal profiling with oxygen sensors was very time-consuming and uncertain. This was caused by the very slow response of conventional oxygen sensors and by the long settling time when changing from high to low concentrations. Therefore, the probe had to be stopped at each level for adjustment leading to very long profiling times.

These disadvantages can be avoided, if the **galvanic micro-sensor** from AMT GmbH is used for the dissolved oxygen determination. Compared with all the other commercially available so called macro-sensors for the determination of dissolved oxygen, the galvanic micro-sensor has **essential faster response times** of down to 200 milliseconds for $t_{90\%}$. Due to the **very low analyte consumption** the sensor membrane has not to be streamed and stirring of the sample – as it is well-known from nearly all the other DO sensors - is not necessary. This feature allows several new applications, as for instance the **use in towed vehicles** or for the **fast depth profiling**. Measurements in static samples and with very high local resolution become possible.

The new **CTD/O₂ Fast Profiling Probe** is available as online probe or as memory probe. It is equipped with a galvanic DO micro-sensor, a combined conductivity/temperature sensor with high accuracy and fast response and with a pressure sensor for depth measurements. The probe is lightweight and allows an easy handling for the *in-situ* profiling and for horizontal profiling with towed vehicles and from small boats for depths of up to 100 m.

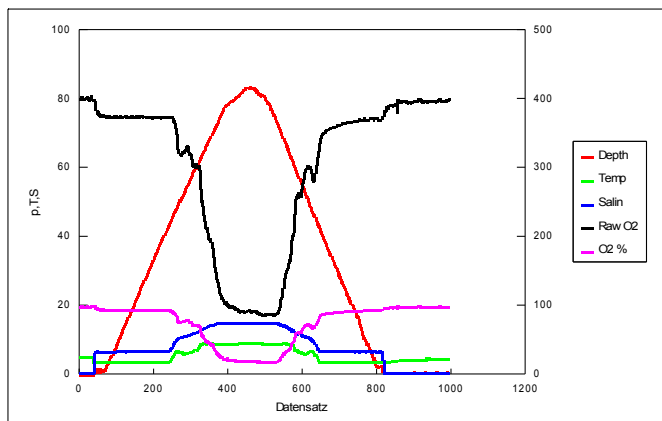
Special features of the probe:

- Direct-reading (online) or Memory probe
- Sensors for O₂ (micro-sensor), temperature, conductivity, pressure (depth)
- very simple exchange of DO sensor head (could be done by the customer)
- Windows Software for probe configuration and data display
- Titanium housing and connector
- small dimensions and low weight
- up to 350.000 data sets storage (memory version)

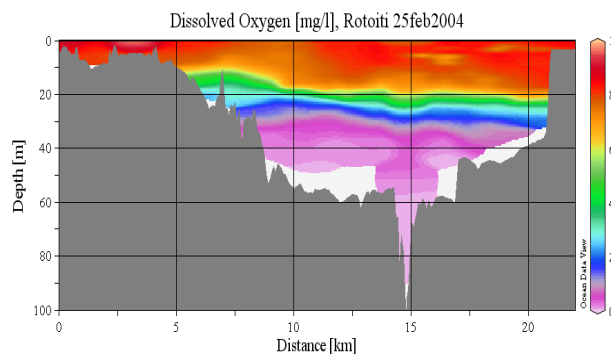
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The **CTD/O₂ Fast Profiling Probe** is equipped with a microprocessor-operated high precision-4-channel-16 bit analog/digital-converter. The output signal is available as RS-232 signal transmitted via multi-conductor sea-cable with polyurethane jacket or optional as FSK signal transmitted via single-core sea-cable. The probe can be powered with batteries or with an external power supply unit (see below) when using the RS232 output. Alternatively the use of a constant current power supply unit via telemetry output (coaxial link) is possible in case of the FSK version (only online version). Additionally an interface is available as constant current source.



Left: Fast profiling of CTD/O₂ in the North Sea.



Right: Oxygen cross-section of lake Rotoiti, Newzealand

Standard Sensor Equipment

| Sensors | Sensor principle | Range | Accuracy | Resolution | Response time |
|----------------|-----------------------------|-----------------|------------|-------------|---------------|
| pressure | piezo-resistive full bridge | 10 bar | 0,1 % FS | 0,002 % FS. | 150 ms |
| temperature | Pt 100 | - 2 ... + 36 °C | 0,005 °C | 0,0006 °C | 150 ms |
| conductivity | 7-pole cell | 0...60 mS/cm | 0,01 mS/cm | 0,001 mS/cm | 150 ms |
| O ₂ | galvanic micro-sensor | 0...150% sat. | 2 % sat. | 0,01% sat. | >200 ms |

Further features of the probe system

| Feature | Online Probe | Memory Probe |
|----------------------|-------------------------|--|
| Dimensions: | 400 mm x 48 mm | 440 mm x 48 mm |
| Weight on air: | 1,1 kg | 1,3 kg |
| Power Supply: | External 9...30 Volt DC | External: 7...16 V DC Internal Battery: 1...5 V DC |
| Current consumption: | 12 mA at 12 V DC | External 15 mA Li-battery: approx. 20...35 mA Alk.-battery: approx. 50...90 mA |
| Battery Size | | Baby, C, LR14 |
| Serial Port | RS232 (1200,o,8,1) | RS232 (1200,o,8,1) |
| Telemetry | Option: FSK | none |
| Memory capacity: | none | 8 MB (approx. 350.000 data sets) |

In view of our policy of continual improvement, the design and specifications of our products may vary from those illustrated in this brochure.

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