

## MEASURING INSTRUMENTS

# Digox Optical

## Oxygen measuring instrument



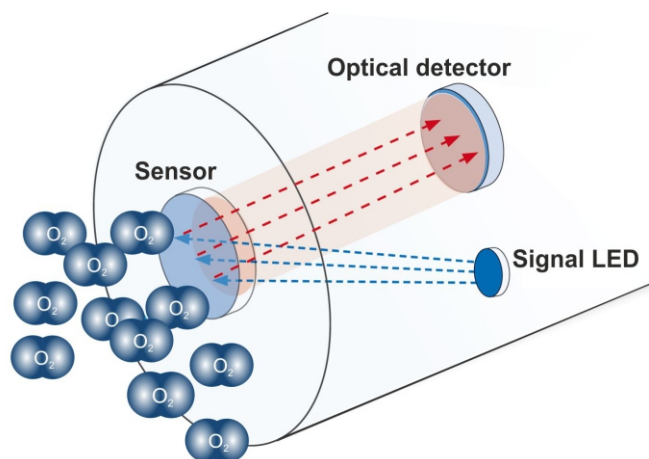
### The Art of Oxygen Measurement in Water/Steam Cycles

The Digox Optical is a state-of-the-art oxygen measuring device based on the principle of the dynamic fluorescence Quenching. The device uses neither a membrane nor an electrolyte. Also, the principle is independent of the CO<sub>2</sub> concentration of the sample and the sample flow. Additional features are a low maintenance and a longer uptime.

A blue light source excites a luminophore in the sensor cap. Electrons of the luminophore absorb the energy of the incident blue light and are transferred to a higher energy level. Within a very short time (Microseconds) the electrons revert to lower energy levels and the energy is released in form of a red light. Oxygen is able to take over the energy of the excited electrons of the luminophore and the intensity of the emitted red light is a function of the oxygen concentration in the sample. Also, the presence of oxygen molecules accelerates the process of the electrons for leaving the higher energy level. The intensity of the emitted red light and the fading time of the red light are a function of the oxygen concentration in the sample. The resulting life period of the emitted red light directly indicates the oxygen concentration in the sample.

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## TECHNICAL FEATURES

- Simultaneous measurement of dissolved oxygen, temperature and sample flow
- Easy installation, low maintenance and a long period of operation
- Analogue and digital outputs
- Profibus communication (option)
- Integrated Flowmeter



## TECHNICAL DATA

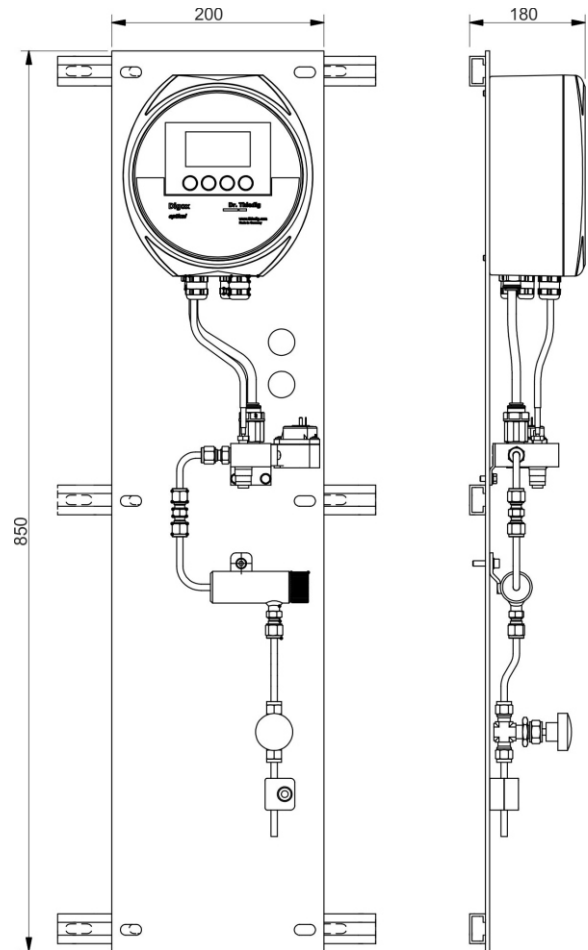
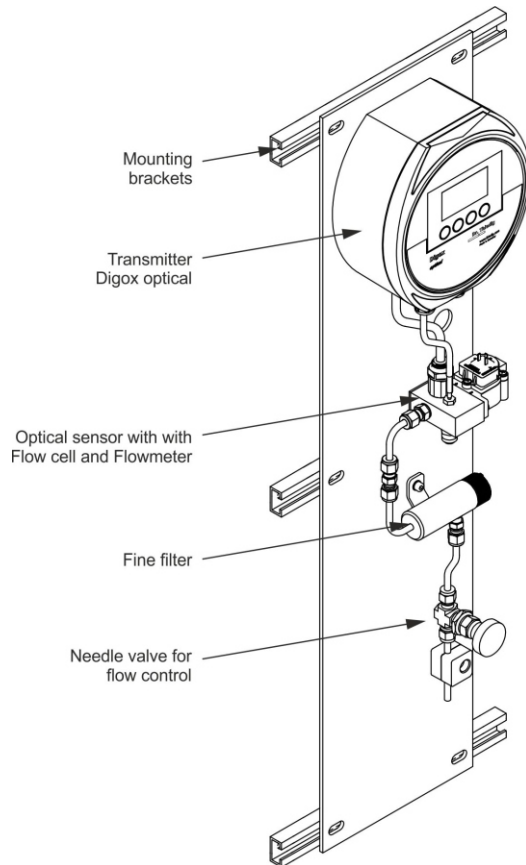
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|                                 |                                                                |
|---------------------------------|----------------------------------------------------------------|
| <b>Model</b>                    | <b>Digox Optical</b>                                           |
| <b>Measuring Principle</b>      | Dynamic fluorescence quenching                                 |
| <b>Measuring Range</b>          | 0...2000 µg/l                                                  |
| <b>Sample Flow</b>              | 0...10 l/h                                                     |
| <b>Lower Limit of Detection</b> | 0.6 ppb                                                        |
| <b>Repeatability</b>            | ±0.4 ppb or 1% of the reading, whichever is greater            |
| <b>Accuracy</b>                 | ±0.8 ppb or 2% of the reading, whichever is greater            |
| <b>Calibration</b>              |                                                                |
| <b>Methods</b>                  | Zero and reference calibration, manual or automatic (option)   |
| <b>Features</b>                 | calibration history and calibration timer                      |
| <b>Temperature Range</b>        |                                                                |
| <b>Ambient</b>                  | 0...50 °C                                                      |
| <b>Process</b>                  | 0...50 °C                                                      |
| <b>Sample Pressure max.</b>     | 12 bar, sample outlet atmospheric conditions                   |
| <b>Units of Measure</b>         | ppb, µg/l                                                      |
| <b>Wetted Parts</b>             | stainless steel, EPDM                                          |
| <b>Analogue outputs</b>         | Two 4...20 mA, physically isolated                             |
| <b>Digital outputs</b>          | Three switching contacts (N/O), max. 30 VDC, 3A, programmable  |
| <b>Interfaces (Options)</b>     | Universal serial bus (firmware update)<br>Profibus DP (option) |
| <b>Power Supply</b>             | 24 VDC                                                         |
| <b>Power Consumption</b>        | 15 watts                                                       |
| <b>Enclosure</b>                | IP65, NEMA 4                                                   |
| <b>Certificates</b>             | RFI/EMI 61326-1<br>LVD 61010-1 <b>CE</b>                       |
| <b>Weight</b>                   | 5.2 kg, complete assembled on mounting plate                   |
| <b>Dimensions</b>               | 850 x 200 x 180 mm (HxWxD)                                     |



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*Illustration: Mounting details and major components (mounting brackets optional)*



Leading Technology of Sampling and Analysing Systems

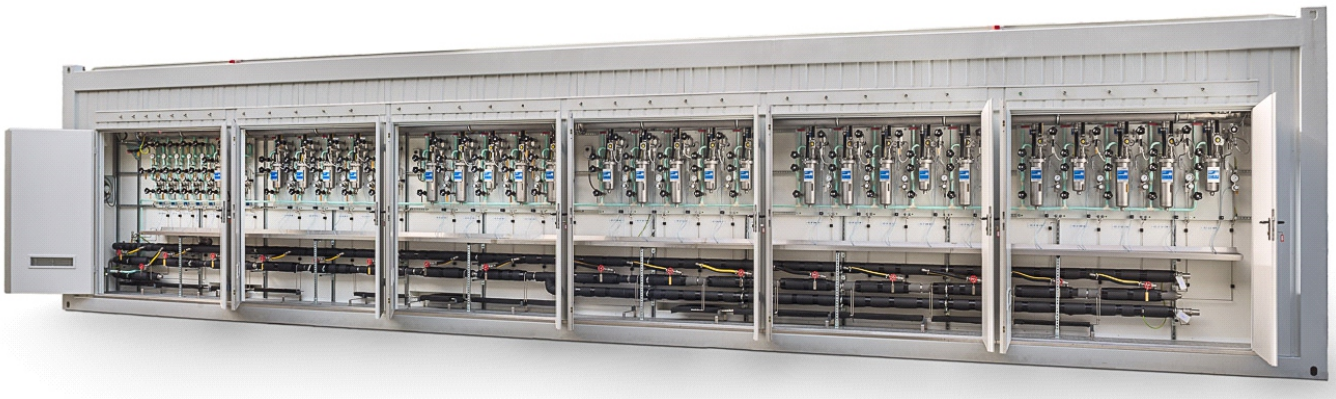
## ABOUT DR. THIEDIG

Dr. Thiedig GmbH & Co KG (Berlin) is a German mid-sized company with its headquarter in Berlin – Germany's multicultural hotspot. With more than 80 years of experience, Dr. Thiedig is the leading supplier for steam and water analysing systems and analysers. The Thiedig sampling system is the result of many decades of experience. Clients are local and global engineering companies, who specialise in power plants, customers who operate in the oil & gas industry, customers who build and operate desalination plants and many others.

Our full range of products and solutions, the consistent improvement of our products, the outstanding quality, high standards and the engineering service we are offering our customers are the basis of Dr. Thiedig's reputation and success.

Our steam and water analysing systems and analysers have been developed for the monitoring of the specific, acid and degassed acid conductivity, the pH-value, the oxygen concentration, the Na<sup>+</sup> and silica concentration in feed water, steam, boiler water, condensate of steam cycles and many others.

All critical parts of the steam and water analysing system, like analysers and sensors, high pressure inlet and shut off and blow out valves, are manufactured by ourselves in order to guarantee the highest quality and an absolutely reliable functionality for our customers.



# Dr. Thiedig

Subject to technical alterations.

Sampling & Analysing Systems

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