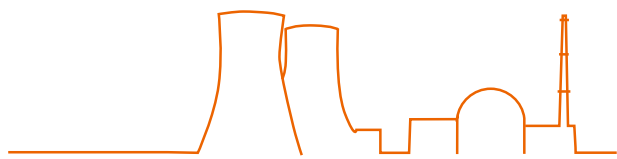


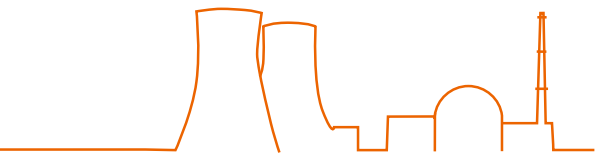
# Dr. Thiedig

Engineering Solutions



## Digox 6.1

The oxygen trace analyser



# Digox 6.1

## Accuracy where it counts

Oxygen plays a key role in the water-steam cycle of power plants. The oxygen concentration needs to be monitored continuously in order to avoid corrosion in boilers, pipes and turbines.

The Digox 6.1 dependably provides the highest possible accuracy and safety.



### Accuracy and safety in the process

The Digox 6.1 measures traces of dissolved oxygen in process water and high-purity water. Both, stationary and portable instruments, are designed for continuous operation in sampling systems for water-steam cycles. Data interfaces, analog signals, alarms and contacts offer a variety of options to integrate the Digox 6.1 into a process control system. The rugged design of the Thiedig sensor with its automatic calibration allows for a nearly maintenance-free continuous operation. The calibration can be performed at any time during the measuring operation or activated in programmable time intervals. Hence, a safe and reliable measurement is always guaranteed.

### Flexible and portable:

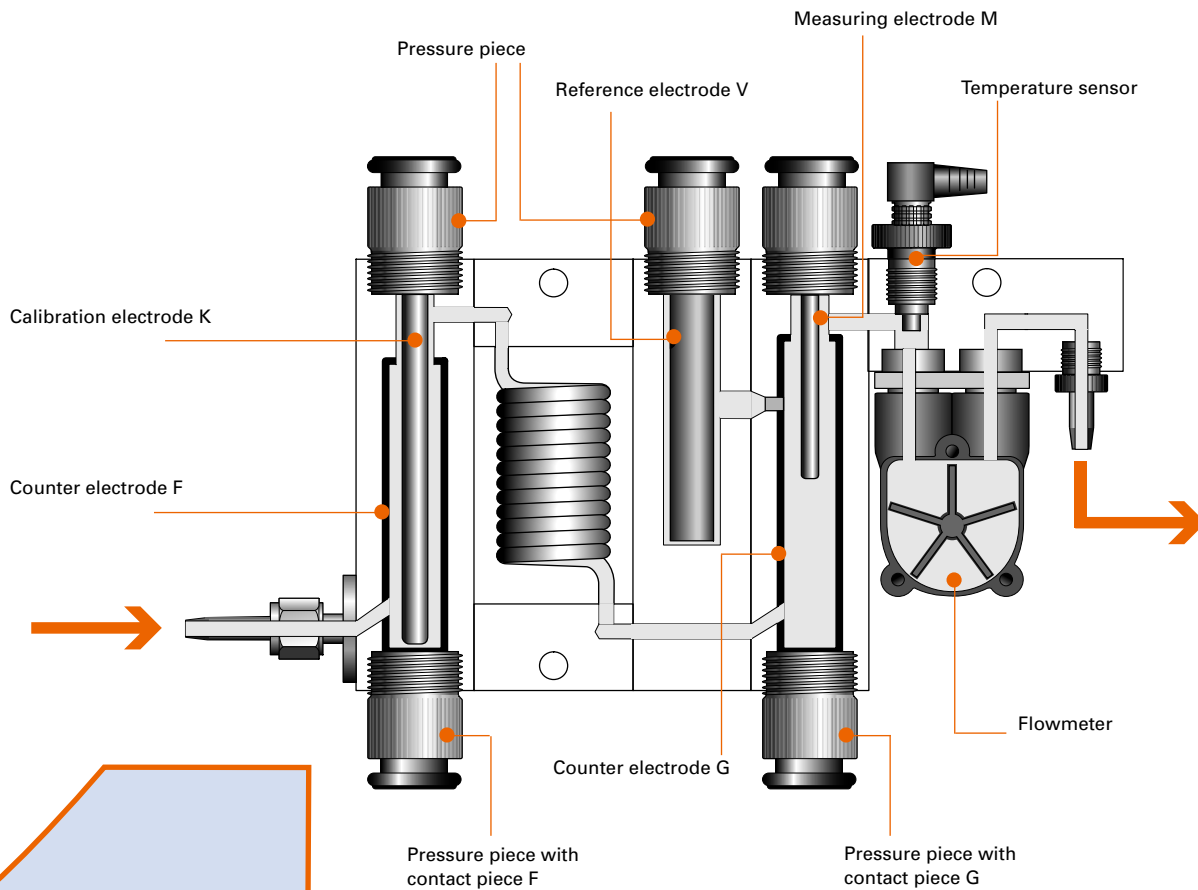
The Digox 6.1 K-LC is the portable instrument to measure traces of dissolved oxygen in high-purity water. The rechargeable battery allows for an independent operation of up to 6.5 hours. The internal data logger records up to 2,000 data sets. An integrated trend recorder continuously records all measured values and indicates these directly as graphics.

### Applications Digox 6.1 KS (stationary):

- Monitoring the oxygen concentration in boiler feed water, condensate and process water
- Detecting oxygen leaks in process steam or heating networks
- As an actuating variable for oxygen dosing systems

### Applications Digox 6.1 K-LC (portable):

- Detecting oxygen leaks
- Periodic oxygen measurement at sites that are not equipped with stationary measuring instruments
- Checking stationary analysers



## The Thiedig Sensor reliable and rugged design

The measuring principle of the Digox 6.1 is based on the cathodic reduction of dissolved oxygen on a polarised electrode. The Thiedig sensor works by means of a potentiostatically controlled arrangement of three electrodes. Unlike other measuring principles, the liquid to be analysed acts as an electrolyte and is not separated from the sensor by a membrane.

The bare sensor provides various advantages over the sensors covered by a membrane:

- The sensor works drift-free and reliably.
- The response time is extremely short due to the direct contact to the medium.
- No consumable materials.
- The system allows for an exact compensation of both temperature and flow over a wide range.
- There is no zero-point drift as a result of the measuring principle.
- Due to the built-in calibration cell, the measuring sensitivity can be checked at any time without interrupting measurement.

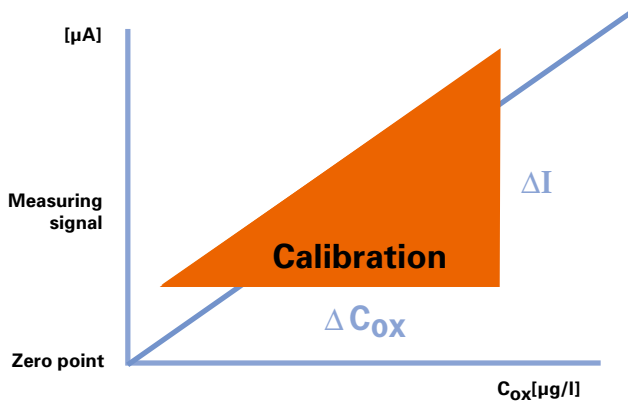


## Accuracy – available at any time

### The Thiedig Active Calibration

Each electro-chemical or optical sensor needs to be calibrated outside the sample medium, which is inconvenient and takes time. The Thiedig sensor can be calibrated “insitu” during a measurement. The calibration is carried out at the actual measuring conditions; the calibration point is within the measuring range.

#### Thiedig Active Calibration



The calibration is based on Faraday's law and a flow measurement. By means of electrolysis, an exactly defined quantity of oxygen will be brought into solution and calculated with the measured flow to a concentration value. The sensitivity of the sensor can be determined with this additional oxygen concentration. An error message is displayed, if there is a deviation from the boundary conditions, which are monitored during calibration. A linear correlation between oxygen concentration and measuring current is determined and extrapolated to the fixed zero point.



Approved for decades:  
The Thiedig sensor

#### Advantages of the automatic calibration

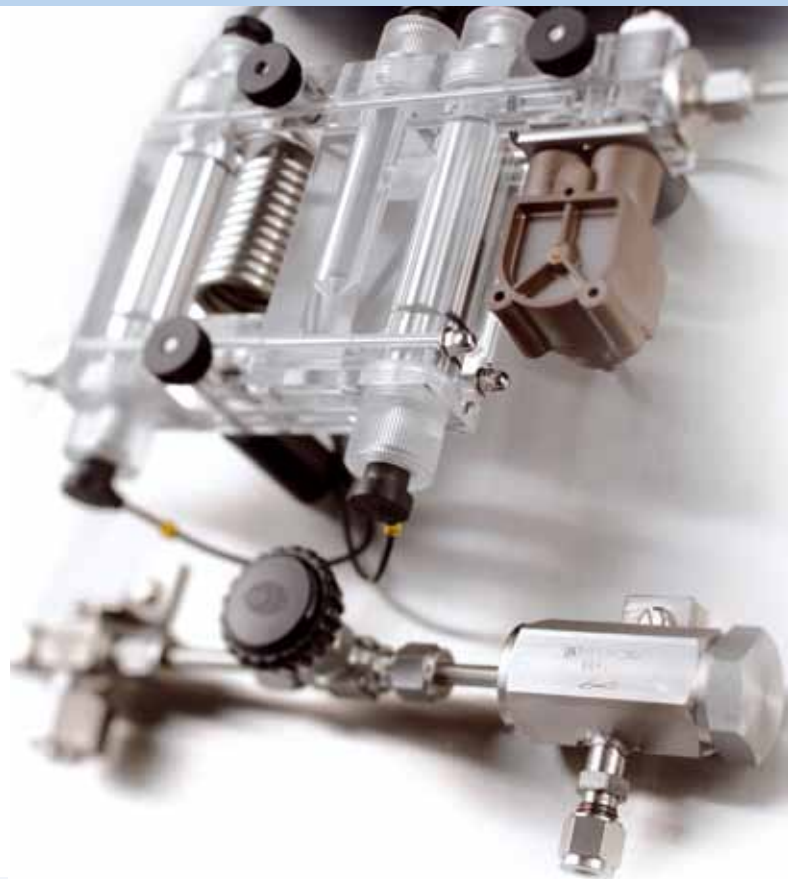
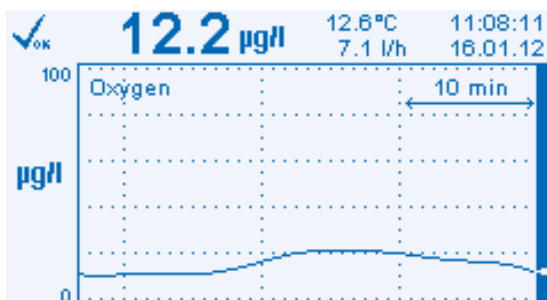
- The swift calibration works automatically, does not cost extra time and offers a high degree of measuring safety.
- In case of implausible measuring results, an immediate calibration is possible at any time without interrupting the measurement.
- Since the calibration is carried out in the sample, the sensor does not have to be removed to calibrate.
- All calibration data are saved automatically and can be called up and documented.



# Digox 6.1

**Easy operation –  
at the instrument or  
at the computer**

The intuitive menu makes the operation with the Digox 6.1 K easy. All important parameters can be displayed at once. The data logger can save 2,000 data sets. The integrated scalable trend recorder documents permanently the concentration, temperature and flow.



## Data logger included

The software provided serves for downloading the built-in data logger of the portable Digox 6.1 K-LC. The data can be simply imported to Microsoft™ Excel and are available for further analysis. The portable Digox 6.1 K-LC is connected with the PC via the USB 2.0 connection. In addition, the continuous analog signals (0(4) ... 20 mA) for the measuring values are available.

The Digox 6.1 KS (stationary) can optionally be integrated in a process control system via Profibus DP or Ethernet.



# Technical data



<b>Model</b>	Digox 6.1 KS stationary (DG 75.00.00)	Digox 6.1 K-LC portable (DG 74.50.00)
<b>Measuring range</b>	0...1,000 µg/l O <sub>2</sub> , display up to 20,000 µg/l separated in 3 measuring ranges	0...1,000 µg/l O <sub>2</sub> , display up to 20,000 µg/l separated in 3 measuring ranges
<b>Measurement error</b>	< 1 % related to the measured value or minimum ± 0.5 µg/l	< 1 % related to the measured value or minimum ± 0.5 µg/l
<b>Detection limit</b>	0.2 µg/l	0.2 µg/l
<b>Resolution</b>	0.01 µg/l, adjustable	0.01 µg/l, adjustable
<b>Response time</b>	t <sub>90</sub> < 8 s	t <sub>90</sub> < 8 s
<b>Calibration</b>	manual and automatic calibration with self test, possible in three areas	manual and automatic calibration with self test, possible in three areas
<b>Data logger</b>	2,000 data sets in a continuous data logger	2,000 data sets in a continuous data logger
<b>Flow</b>	3...20 l/h, compensated automatically optimal 10 l/h	3...20 l/h, compensated automatically optimal 10 l/h
<b>Sample pressure</b>	0...8 bar, unpressurised outlet pressure peaks up to 16 bar	0...8 bar pressure peaks up to 16 bar
<b>Sample temperature</b>	0...60 °C, automatically compensated	0...60 °C, automatically compensated
<b>Minimum conductivity</b>	> 1.5 µS/cm	> 1.5 µS/cm
<b>Ambient temperature</b>	0...40 °C	0...40 °C
<b>Signal outputs</b>	3 x active 0(4)...20 mA, freely selectable 5 x switching contact (changer), freely selectable 60V/0,5A optional 3 x switching contact (changer) 230V/0,5A	1 x active 0(4)...20 mA, freely selectable 1 x switching contact (changer), freely selectable 60V/0,5A
<b>Interface</b>	optional Ethernet, USB 2.0	USB 2.0, optional Touch Memory (1-wire)
<b>Power supply</b>	100...240 VAC (50/60 Hz), 20 VA, optional 24 VDC (DG 75.10.00)	12 V NiMH rechargeable battery for 6 - 8 h operation Power supply plug 100...240 VAC (50/60 Hz), 20 VA
<b>IP Rating</b>	IP 65	IP 65
<b>Weight</b>	8.0 kg, mounted on stainless steel plate (optional stainless steel cabinet)	3.8 kg
<b>Dimensions</b>	580 x 335 x 140 mm (H x W x D)	270 x 330 x 140 mm (H x W x D)

Subject to technical alterations.

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