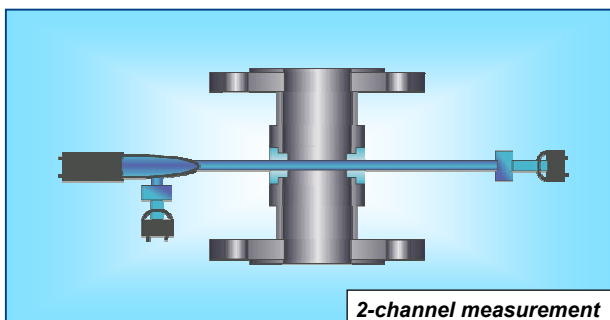


Reliable • Rugged • Compact • Modular

Special Features:

- ⇒ **COD** • **TOC** • **DOC surrogate**
- ⇒ Dynamic range: 0-0,3....3000 m^{-1} / SAK / SSK
- ⇒ Indication without delay (0,1 sec. response time)
- ⇒ Low maintenance - optimum availability (sapphire)
- ⇒ Wide function for measurement and calculation
- ⇒ Easy to use
- ⇒ Powerful system diagnosis
- ⇒ Use of external data (pH/ flow...)
- ⇒ Remote (product / range / zero / hold)
- ⇒ Datalogger
- ⇒ Validation for quality control system
- ⇒ Reliable in rough process environment



Your benefits:

- **Inline control**
↳ **maximum profitability**
- **Measurement without reagents**
↳ **maximum cost-saving**
- **Indication without delay**
↳ **responds immediately**

Description of UV-absorption sensor model AF45

The sensor AF 45 is a very precise dual beam absorption sensor. It measures the attenuation of light intensity brought about by the process medium. The sensor AF 45, manufactured in stainless steel, is designed for inline operation. Its modular construction allows maximum flexibility in the adaption to the process without affecting the quality of the measurement. While using the dual beam method of this sensor one photocell measures the light intensity on the detector side (measurement) and second photocell on the lamp side (reference). The change in light intensity, caused by absorption and/or scattering by substances in the medium, is described by Lambert-Beer's law: the attenuation of light is proportional to the concentration of the substance. This is applicable to dissolved as well as to undissolved substances. Depending on the respective properties of the medium, the concentration of substances can be measured both in ppm- and %-ranges. The sensor type AF45 uses the light in the UV. Optical filter on the detector side allows to adapt the measuring wavelengths to 254 nm.

Description of converter CONTROL 4000:

The new converter CONTROL 4000 is based on **decades of experience** with optical process measurements. Together with numerous sensors the complete range of inline photometric applications is covered with **a single converter** CONTROL 4000. Of course the measurement of **UV-absorption** is carried out. Beside this the CONTROL 4000 provides a powerful diagnosis function as well as offset and **linearization** of results including compensation of external datas like pressure or temperature. In the end the system isn't only able to indicate absorption, but also directly the concentration of the desired component. Use of different datas ensures maximum flexibility even in case of varying application tasks.

Product switching **saves time and money**. This function, which is based on current microprocessor technology, offers **maximum handling comfort** in adapting the instrument to changing process demands. If process is changing the CONTROL 4000 not only adapts the ranges accordingly, but also may change to a complete different measuring technique if required. New measuring ranges and alarm values are taken into account as well as different units, different linearization and calibration factors. Up to 8 different datasets per output contain all respective information. Furthermore, the switching of products can be controlled locally at the CONTROL 4000 or **remotely** from the process control system. **Because of this valuable time and money will be saved.**

Datalogger: It records 4 customer defined results which are displayed on the LCD. Thus, you are able to follow run of the datas and to compare them immediately. This allows to recognize correlation between different signals and to gain further valuable information for optimum process control. The **remote** control functions are providing **maximum flexibility** also in hazardous area. A **multilevel password system** protects from unauthorized access to the functions of CONTROL 4000.

CONTROL 4000 meets highest standards of safety and fulfills the regulations of **EMC and NAMUR**. A Self-Testing-Routine checks sensor and converter function as well. Two sensor inputs allow measurement in plenty and more **safety** with it.

Tecnicl Data – Model C4000/AF45



Sensor: type AF45

| | |
|---------------------|--|
| Range: | 0-0,3...3000 m ⁻¹ / SAK / SSK |
| Process temp.: | -20...120 °C / -4...248°F |
| Ambient temp.: | 0...40 °C / 32...104°F |
| Window: | sapphire |
| OPL: | 1...100 mm |
| Pressure: | 10 mbar...500 bar |
| Gaskets: | NBR / Viton / EPDM / Kalrez |
| Material: | compl. of 1.4571 / 316Ti |
| Special material: | 1.4435 / (316L SS) / TFMC / Titan/Hastelloy/Monel/PEEK |
| Linesize: | DN 6...300/ 1/4" ...12" |
| Process connection: | DIN/ANSI-Flange/TriClamp/SMS/pipe-thread/sanitary-th. |
| Light source: | life approx. 2-3 years |
| protection: | IP65 (optical housing compl. SS) |
| Certificates: | CE, GS |

Typical applications:

- Easy and quick INLINE-measurement (DIN 38404) assess organic loading and water quality.
- Surrogate COD ◦ TOC ◦ DOC

DIN 38404 and SAK

In DIN 38404 Part 3 is indicated, that many organic substances have absorption bands in the range of ultraviolet light. That's why this property may use for informing measurement of dissolved organic water pollutions. The wavelength of the mercury line at 254 nm is especially recommended because of its high repeatability. The regulations concerning color measurement are valid for the measurement of absorption with optical instruments. So the content of organic substances is described by loss of light intensity in the ultraviolet spectral range. Then the decadic spectral absorption coefficient SAK $\alpha(\lambda)$ is the quotient from the decadic absorption measure $A(\lambda)$ and the pathlength (d) of the penetrated medium:

$$\alpha(\lambda) = \frac{A(\lambda)}{d(\text{mm})} \cdot f \quad (f = 1000 \text{ mm/m})$$

CONTROL 4000

| | |
|----------------------|--|
| Range: | 0-0,3...3000 m ⁻¹ / SAK / SSK / UV-transmission |
| Password protection: | 3 different levels |
| Display: | 8x8 cm / graphic display 240x128 Pixel |
| Display mode: | 6 different / clear text/ bar indication/ trendline |
| Software concept: | logical structure in clear text |
| Linearization: | 1...11-points / 16 linearization tables |
| Product memory: | 8 different products with 4 results |
| mA-inputs: | 2x 4-20 mA, use of external data (pH/ temp. / ...) |
| Remote-inputs: | 8x product switching / zero / hold |
| Relay-outputs: | 3x alarms / status response (adjustable) |
| Relay FAIL-SAFE: | 1x for lamp and system failure (active) |
| mA-outputs: | 4x 0 / 4-20 mA (NAMUR), galv. isolated - 600 Ω |
| Data logger: | 4 lines (120.000 results per product) |
| RS-232 interface: | readout data logger and system parameters |
| Resolution: | < 1% |
| Power supply: | 24/115/230 V AC, (47...64 Hz), 24 DC (±15% V AC/DC) |
| Dimension /mounting: | 19"/3HE-42TE / 19"/3HE-rack |
| Housing: | front side IP40 (with gaskets IP65), back side IP20 |
| Certificates: | (EX)- EN / PTB / FM • GS, CE (EMC and NAMUR) |



Wall mounting: stainless steel IP66



Wall mounting: Polymer IP66

(subject to change)

- Prozessoptimierung durch optek-Messsysteme ● process optimization with optek measuring systems

▶ Trübung / Turbidity ▶ Konzentration / Concentration ▶ UV-Absorption ▶ Farbe / Color

Herrn/Frau / Mr./Mrs.

Firma / Company

Abt. / Dept.

Strasse / Street

PLZ/Stadt / ZIP/City

Land / Country

optek-Danulat GmbH Emscherbruchallee 2 D-45356 Essen

Tel.: +49(0)201-63409-0 Fax: +49(0)201-63409-999 e-mail: sales@optek.de

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/ Please call me:

() _____ / _____

Bitte senden Sie mir / Please send me:

☐ weitere Unterlagen / more information

☐ ein Angebot / quotation

Antwortfax/Reply-Fax
+49(0)201/63409-999