**FLUO SENS DD**

Confocal fluorescence sensor for the measurement of two fluorescent dyes

**Characteristics:**

- Ultra-compact fluorescence sensor
- High resolution (Fluorescein $10^{-12}$ mol/l)
- Confocal optic
- Contact-free measurement on surfaces and liquids
- Measurement with ambient light
- 1 or 2 controlled excitation light source
- 2 highly sensitive photodiodes
- Low-noise, high-durability
- Wide spectrum of filters and excitation light
- Various sources for variety of fluorescence dyes
- Robust encapsulated unit, user-friendly

This unique fluorescence sensor, developed with our uncompromising approach towards both optical performance and implementation, offers a wide range of applications. The sensor, available in single- or dual channel formats (each containing separate excitation and emission), uses confocal optics. This simplifies in-line coupling to a process stream via fibre optic or small measurement window for the measurement of liquids or solids. The solid exterior protects the sensor from dust, humidity and electromagnetic radiation. Its lack of moving parts and low operating voltage (5V DC) make it suitable for use in hazardous environments without the need for extensive additional safety requirements. Whether analysis is required in a reaction vessel, for in-line, in-transfer, recycling, packaging or shipping, the ESE fluorescence sensor can provide you with the information to improve product quality and yield. It will also help you decrease waste without complicated operational and calibration requirements.
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<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity Sample</td>
<td>fluorescein sodium salt in 0.1M sodiumhydroxid; volume 100ul</td>
</tr>
<tr>
<td>Detection Limit</td>
<td>&lt;10^{-12} mol/l fluorescein</td>
</tr>
<tr>
<td>Linearity</td>
<td>&gt; 4 decades</td>
</tr>
<tr>
<td>Noise</td>
<td>&lt;1 mV @ max. range</td>
</tr>
<tr>
<td>Signal drift</td>
<td>0.3% / hour</td>
</tr>
<tr>
<td>Excitation</td>
<td>High performance LED or Laserdiode</td>
</tr>
<tr>
<td>Detector</td>
<td>low-noise si-photodiode</td>
</tr>
<tr>
<td>Reference signal measurement</td>
<td>feedback loop by direct measurement of the source intensity</td>
</tr>
<tr>
<td>Measurement interval</td>
<td>0.1 sec up to several hours</td>
</tr>
<tr>
<td>Measurement area</td>
<td>2 mm² focused to 25mm² unfocussed</td>
</tr>
<tr>
<td>Distance (detector/sample)</td>
<td>12mm focussed to 25mm unfocussed</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>15 °C – 50°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>20% – 70% waterproof version available</td>
</tr>
</tbody>
</table>

Filter sets for common fluorescent dyes

- Fluoresceine
- Rhodamine
- Rox
- Atto 590
- EvoBlue 30
- Atto 680

Bandpass Excitation
Bandpass Emission
Dichroic mirror

wavelength [nm]
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Ordering Information

FL-DD-XXXX

<table>
<thead>
<tr>
<th>Filter set</th>
<th>Excitation1</th>
<th>Excitation 2</th>
<th>Emission 1</th>
<th>Emission 2</th>
<th>Dyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>460nm</td>
<td>520nm</td>
<td>550nm</td>
<td>601nm</td>
<td>Fluorescein/Rhodamin</td>
</tr>
<tr>
<td>01</td>
<td>586nm</td>
<td>648nm</td>
<td>648nm</td>
<td>721nm</td>
<td>Atto590/Atto680</td>
</tr>
</tbody>
</table>

Further combinations available upon request
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### Dimensions

![Dimensions diagram]

### Typical Applications

- Diagnostics, Medical and Biochemistry Applications
- Environmental Measurement, Water Analysis, Sanitation Technology
- Agricultural Technology
- Whenever you need to measure two dyes for special analysis. e.g., FRET (Fluorescence Resonance Energy Transfer)

### Controller

FLUO SENS DD is ready to use with the following ESE systems:

- FLUO LOG Handheld
- FLUO LOG USB
- FLUO LOG 485