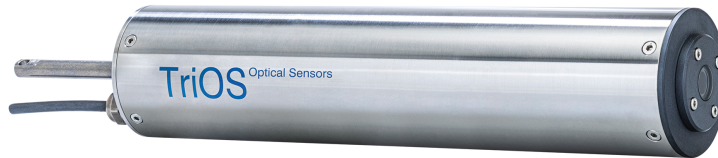




# enviroFlu

30SXXXXX0



## PAH, oil in water using UV fluorescence

enviroFlu HC is an immersion probe for measuring oil in water. The measuring principle of UV fluorescence used is many times more sensitive than the conventionally used infrared scattering or absorption methods. This makes it possible to determine even the smallest traces of PAHs (polycyclic aromatic hydrocarbons), e.g. in drinking water, but also in cooling water condensates.

Applications range from petrochemicals, leakage detection in cooling and waste water streams to environmental monitoring. The devices can be used stationary in shafts, in flow-through or in pipelines. A new type of coating reduces soiling of the optical measuring windows and thus minimizes the maintenance required.

### Advantages

- Without sampling and sample preparation
- Without delay
- Without reagents
- Optical windows with nano coating
- High sensitivity and selectivity
- enviroFlu (HC and BT) MB incl. Modbus interface

### Applications

- Environmental monitoring
- Bathing and surface waters
- Seawater, brackish water
- Flue gas scrubbing / Scrubber
- Cooling water monitoring
- Seawater desalination plants
- Refineries / Pipeline monitoring
- Airport waste water treatment
- Waste water treatment
- Drinking water treatment

|                        | Interface                                    | Data protocol       | Variants   | Measuring range |
|------------------------|----------------------------------------------|---------------------|------------|-----------------|
| <b>enviroFlu HC</b>    | Digital: RS-232<br>Analog: 4...20 mA / 0-5 V | TriOS data protocol | HC 500     | 0 - 500 µg/L    |
|                        |                                              |                     | HC 5000    | 0 - 5 000 µg/L  |
| <b>enviroFlu HC MB</b> | Digital: RS-485                              | Modbus RTU          | HC MB 500  | 0 - 500 µg/L    |
|                        |                                              |                     | HC MB 5000 | 0 - 5 000 µg/L  |
| <b>enviroFlu BT</b>    | Digital: RS-232<br>Analog: 4...20 mA / 0-5 V | TriOS data protocol | BT         | 0 - 10 000 µg/L |
| <b>enviroFlu BT MB</b> | Digital: RS-485                              | Modbus RTU          | BT         | 0 - 10 000 µg/L |

## Technical specifications

### Measurement technology

| Measurement technology | Light source: flash lamp + filter | Detector: photodiode + filter |
|------------------------|-----------------------------------|-------------------------------|
| Parameters HC          | 254 nm                            | 360 nm                        |
| Parameter BT           | 254 nm                            | 305 nm                        |
| Measuring principle    | Fluorescence                      |                               |

### Measuring range / parameters

| sensor            | Parameters   | Measuring range                | Detection limit |
|-------------------|--------------|--------------------------------|-----------------|
| enviroFlu HC 500  | PAH          | 0-50 µg/L,<br>0-500 µg/L       | 0.3 µg/L*       |
|                   | Oil in water | 0-1.5 mg/L,<br>0-15 mg/L typ.  | 9 µg/L**        |
| enviroFlu HC 5000 | PAH          | 0-500 µg/L,<br>0-5 000 µg/L    | 0.5 µg/L*       |
|                   | Oil in water | 0-15 mg/L,<br>0-150 mg/L typ.  | 15 µg/L**       |
| enviroFlu BT      | BTX          | 0-1 000 µg/L,<br>0-10 000 µg/L | 20 µg/L*        |

\*related to the high degree of amplification

\*\*dependent on the type of oil

|                            |                           |
|----------------------------|---------------------------|
| Accuracy of measured value | ± (5 % + detection limit) |
|----------------------------|---------------------------|

### Resolution

| sensor            | Measuring range | Measuring range Resolution |
|-------------------|-----------------|----------------------------|
| enviroFlu HC 500  | 0-50 µg/L       | 0.0122 µg/L                |
|                   | 0-500 µg/L      | 0.122 µg/L                 |
| enviroFlu HC 5000 | 0-500 µg/L      | 0.122 µg/L                 |
|                   | 0-5 000 µg/L    | 1.22 µg/L                  |
| enviroFlu BT      | 0-1 000 µg/L    | 0.244 µg/L                 |
|                   | 0-10 000 µg/L   | 2.44 µg/L                  |

## Sensitivity

| sensor            | Measuring range               | Sensitivity          |
|-------------------|-------------------------------|----------------------|
| enviroFlu HC 500  | 0-50 µg/L<br>0-500 µg/L       | 0.2 µg/L<br>0.2 µg/L |
| enviroFlu HC 5000 | 0-500 µg/L<br>0-5 000 µg/L    | 0.2 µg/L<br>1 µg/L   |
| enviroFlu BT      | 0-1 000 µg/L<br>0-10 000 µg/L | TBD<br>TBD           |

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>Response time (T90 / T100)</b> | ≤ 10 s                                      |
| <b>Temperature compensation</b>   | No                                          |
| <b>Turbidity compensation</b>     | No (only possible via TTurb on the TriBox3) |
| <b>Data logger</b>                | No                                          |
| <b>Measuring interval</b>         | ≥ 5 s                                       |
| <b>Cross sensitivities</b>        | Turbidity, DOM                              |

## Interface

|                                                  |                                                                 |
|--------------------------------------------------|-----------------------------------------------------------------|
| <b>enviroFlu HC</b><br><b>enviroFlu BT</b>       | Digital: RS-232 (TriOS protocol)<br>Analog: 4 .. 20 mA, 0 – 5 V |
| <b>enviroFlu HC MB</b><br><b>enviroFlu BT MB</b> | Digital: RS-485 (Modbus RTU)<br>Analog: not available           |

|                          |                                                |
|--------------------------|------------------------------------------------|
| <b>Power supply</b>      | 12 – 24 VDC (± 10 %)                           |
| <b>Power consumption</b> | ≤ 3,5 W                                        |
| <b>Connection</b>        | SubConn 8pin or fixed cable with M12 connector |

## Material

|                                  |           |                                                                                                                                                                |                                                              |
|----------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <b>Housing</b>                   |           | Stainless steel (1.4571 / 1.4404),<br>not suitable for permanent use in seawater;<br>Titanium (3.7035);<br>Deep sea version: Titanium (3.7035)                 |                                                              |
| <b>Measuring head</b>            |           | POM black with synthetic quartz glass,<br>not suitable for pH values < 4<br>Deep sea version: cover titanium, pressure ring POM<br>Acid-resistant version: PPS |                                                              |
| <b>Dimensions (L x Ø)</b>        |           | 311 mm x 68 mm<br>Deep sea version: 314 x 78 mm                                                                                                                | ~12.2 " x 2.6 "<br>Deep sea version: ~12.4 " x 3.1 "         |
| <b>Weight</b>                    | <b>VA</b> | ~ 2.7 kg                                                                                                                                                       | ~ 6 lbs                                                      |
|                                  | <b>Ti</b> | ~ 1.9 kg<br>Deep sea version: ~ 3.9 kg                                                                                                                         | ~ 4.2 lbs<br>Deep sea version: ~ 8.6 lbs                     |
| <b>Ambient temperature</b>       |           | -5...+55 °C<br>+2...+40 °C for specified measurement accuracy                                                                                                  | ~ +23 to +131 °F<br>~ +35.6 to +104 °F                       |
| <b>Sample temperature</b>        |           | +2...+40 °C in situ<br>+2...+40 °C in FlowCell                                                                                                                 | ~ +35.6 to +104 °F in situ<br>~ +35.6 to +104 °F in FlowCell |
| <b>Relative humidity</b>         |           | 0 to 95 %, non-condensing                                                                                                                                      |                                                              |
| <b>Storage temperature</b>       |           | -20...+80 °C                                                                                                                                                   | ~ -4 to +176 °F                                              |
| <b>Max. Max. pressure</b>        |           | with SubConn: 30 bar                                                                                                                                           | ~ 435 psi                                                    |
|                                  |           | with fixed cable: 3 bar                                                                                                                                        | ~ 43.5 psi                                                   |
|                                  |           | in flow unit (FlowCell):<br>1 bar, 2...4 L/min                                                                                                                 | ~ 14.5 psi, 2 to 4 L/min                                     |
|                                  |           | Deep sea version: 600 bar                                                                                                                                      | ~ 8702 psi                                                   |
| <b>Inflow velocity</b>           |           | 0.1...10 m/s                                                                                                                                                   |                                                              |
| <b>Storage conditions</b>        |           | -20...+80 °C                                                                                                                                                   | ~ -4 to +176 °F                                              |
|                                  |           | Relative humidity 0 to 95 %, non-condensing                                                                                                                    |                                                              |
| <b>Transportation conditions</b> |           | as storage conditions                                                                                                                                          |                                                              |
| <b>Protection type</b>           |           | Sensor side: IP68<br>Controller side: IP65 / IP67                                                                                                              | sensor: NEMA 6P<br>controller: NEMA 6                        |
| <b>Operating altitude</b>        |           | max. altitude 2000 m                                                                                                                                           | ~ 6562 ft                                                    |

|                                              |                                                                                                          |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Maintenance effort</b>                    | ≤ 0.5 h/month typical                                                                                    |
| <b>Calibration/<br/>maintenance interval</b> | 24 months, manufacturer calibration can be extended to 4 years when used with the associated DryCAL set. |
| <b>System compatibility</b>                  | TriBox3, TriBox mini, Modbus RTU                                                                         |
| <b>Warranty</b>                              | 1 year (EU & US: 2 years)                                                                                |