enviroFlu

30SXXXXX0

PAH, oil in water by means of UV fluorescence

enviroFlu HC is an immersion probe for measuring oil in water. The measuring principle of UV fluorescence used is far 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.

The field of application ranges from petrochemistry, leakage detection in cooling and waste water streams to environmental monitoring. The devices can be used stationary in manholes, in the flow or in pipelines. A new type of coating reduces soiling of the optical measuring windows and thus reduces the required maintenance to a minimum.

Advantages

- without sampling and sample preparation
- without delay
- without reagents
- high sensitivity and selectivity
- optical windows with nanocoating
- enviroFlu MB HC including Modbus interface

Areas of application

- Surface water
- Drinking water
- Waste water
- Airports
- Cooling water
- Desalination plants
- Refineries / Stations
- Pipeline monitoring
- Bilge water monitoring

	Interface	Data protocol	Variants	Measuring range
enviroFlu HC	Digital: RS-232 Analog: 4...20 mA / 0 – 5 VDC	TriOS Data protocol	HC 500	0 – 500 µg/L
			HC 5000	0 – 5 000 µg/L
enviroFlu HC MB	Digital: RS-485	Modbus RTU	HC MB 500	0 – 500 µg/L
			HC MB 5000	0 – 5 000 µg/L
enviroFlu BT	Digital: RS-232 Analog: 4...20 mA / 0 – 5 VDC	TriOS Data protocol	BT	0 – 10 000 µg/L

TriOS Mess- und Datentechnik GmbH · Bürgermeister-Brötje-Str. 25 · 26180 Rastede · Germany
Tel: +49 (0) 4402 69670 - 0 · Fax: +49 (0) 4402 69670 - 20 · info@trios.de · www.trios.de

Technical specifications

Meas. technology	Parameter	Light source: Xenon flashlamp + filter	Detector: Photo diode + filter
	HC	254 nm	360 nm
	BT	254 nm	305 nm
Measurement principle		Fluorescence	

Measurement range / Parameter	Sensor	Parameter	Measurement range	Detection limit
	enviroFlu HC (MB) 500	PAK	0 – 50 µg/L, 0 – 500 µg/L	0.3 µg/L*
		Oil in water	0 – 1.5 mg/L, 0 – 15 mg/L typ.	9 µg/L**
	enviroFlu HC (MB) 5000	PAK	0 – 500 µg/L, 0 – 5 000 µg/L	0.5 µg/L*
		Oil in water	0 – 15 mg/L, 0 – 150 mg/L typ.	15 µg/L**
	enviroFlu BT	BTX	0 – 1 000 µg/L, 0 – 10 000 µg/L	20 µg/L*

*related to the high degree of amplification **dependent on the type of oil

Measurement accuracy	± (5 % + detection limit)

Resolution	Sensor	Measurement range	Resolution
	enviroFlu HC (MB) 500	0 – 50 µg/L 0 – 500 µg/	0.0122 µg/L 0.122 µg/L
	enviroFlu HC (MB) 5000	0 – 500 µg/L 0 – 5 000 µg/L	0.122 µg/L 1.22 µg/L
	enviroFlu BT	0 – 1 000 µg/L 0 – 10 000 µg/L	0.244 µg/L 2.44 µg/L

Sensitivity	Sensor	Measurement range	Sensitivity
	enviroFlu HC (MB) 500	0 – 50 µg/L	0.2 µg/L
		0 – 500 µg/	0.2 µg/L
	enviroFlu HC (MB) 5000	0 – 500 µg/L	0.2 µg/L
		0 – 5 000 µg/L	1 µg/L
	enviroFlu BT	0 – 1 000 µg/L	TBD
		0 – 10 000 µg/L	TBD

Response time (T90 / T100)	≤ 10 s
Temperature compensation	No
Turbidity compensation	No (only possible via TTurb on the TriBox3)
Data logger	No
Measurement interval	≥ 5 s
Cross sensitivity	Turbidity, DOM

TriOS Mess- und Datentechnik GmbH · Bürgermeister-Brötje-Str. 25 · 26180 Rastede · Germany
Tel: +49 (0) 4402 69670 - 0 · Fax: +49 (0) 4402 69670 - 20 · info@trios.de · www.trios.de

Technical specifications

Interface	enviroFlu HC	Digital: RS-232 (TriOS protocol) Analog: 4...20 mA, 0 – 5 V
	enviroFlu HC MB	Digital: RS-485 (Modbus RTU) Analog: not available
	enviroFlu BT	Digital: RS-232 (TriOS protocol) Analog: 4...20 mA, 0 – 5 V
Power supply		12 – 24 VDC (± 10 %)
Power consumption		≤ 3.5 W
Connection		SubConn 8-pin or fixed cable with M12 plug
Material	Housing	Stainless steel (1.4571/1.4404), not suitable for permanent seawater use; titanium (3.7035); DeepSea version: titanium (3.7035)
	Measuring head	black POM with synthetic quartz glass, not suitable for pH values < 4 DeepSea version: Cap titanium, pressure ring POM Acid-resistant version: PPS
Dimensions (L x Ø)		311 mm x 68 mm ~12.2″ x 2.6″ DeepSea version: 314 x 78 mm DeepSea version: ~ 12.4″ x 3.1″
Weight	Stainless steel	VA: ~2.7 kg ~ 6 lbs
	Titanium	TI: ~1.9 kg ~ 4.2 lbs DeepSea version: ~3.9 kg DeepSea version: ~ 8.6 lbs
Ambient temperature		–5 °C...+55 °C (+2 °C...+40 °C for specified accuracy) ~ +23 °F to +131 °F (~ 32 °F to 104 °F for specified accuracy)
Sample temperature		insitu +2 °C...+40 °C, in FlowCell +2...+40 °C insitu +36...+104°F, in FlowCell +36...+104 °F
Relative humidity		0...95 %, non-condensing
Storage temperature		–20 °C...+80 °C
Max. pressure		with SubConn: 30 bar with fixed cable: 3 bar in FlowCell: 1 bar, 2...4 L/min DeepSea version: 600 bar
Inflow velocity		0,1...10 m/s
Transport conditions		see storage conditions
Storage conditions		-20 C...+80 C Relative humidity 0 to 95 %, non-condensing
Protection class		Sensor side IP68 Controller side: IP65 / IP67
Operating height		max. height 2000 m (6562 ft)
Required supervision		Typically ≤ 0.5 h/month
Calibration/ maintenance interval		24 months, the manufacturer calibration can be increased to 4–5 years when used with associated DryCAL-Set
System compatibility		TriBox3, TriBox mini, Modbus RTU
Warranty		1 year (EU & US: 2 years)

TriOS Mess- und Datentechnik GmbH · Bürgermeister-Brötje-Str. 25 · 26180 Rastede · Germany
Tel: +49 (0) 4402 69670 - 0 · Fax: +49 (0) 4402 69670 - 20 · info@trios.de · www.trios.de