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METS Methane Sensor

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Function principle

A methane sensitive detector is located in a detector room in the sensor head. The detector room is protected against water and pressure by a silicone membrane. The gas molecules diffuse through the membrane, following the partial pressure gradient between water and detector room, according to the Law of Henry. Hence, the concentration in the detector room is directly correlated to the concentration in the outside water. The correlation is expressed by the calibration formula.

The Methane Sensor is a direct product of a R&D project funded by the German Federal Ministry for Research and Technology through Grant # BEO 71/03F0171A. The principles of the methane sensor and several applications are protected by international patents, pending patents and patent applications

Inherent to the technology, and also dependent on detector manufacturing and tuning, all parameters such as sensitivity, power consumption, response time and response behavior are linked together. The following specifications are indicative, we can select and tune the detectors to meet your requirements.

Versions

Classic METS: high sensitivity, for long-term monitoring or low-speed profiling

IR-METS: for high concentrations and anoxic environments

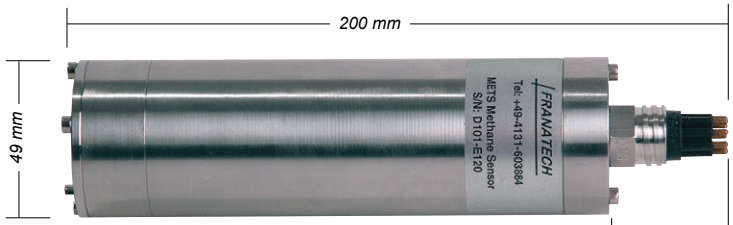
W-METS for work at over-saturation

K-METS for mobile deployment: profiling, ROVs, AUVs

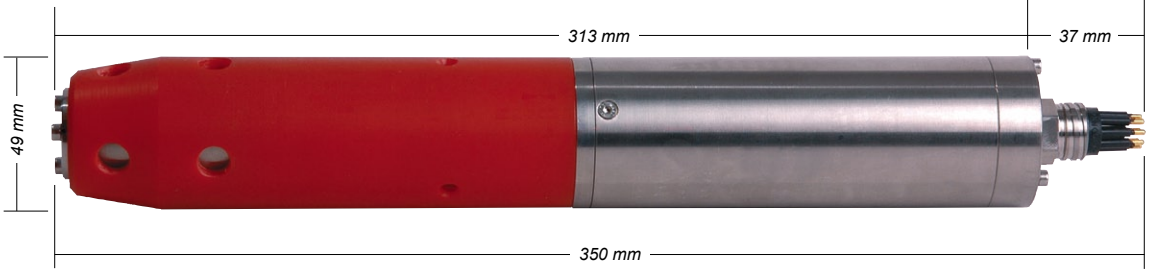
Response time: reaction time within few seconds
T90 between 1 and 30 min depending on version and deployment conditions.

Mechanical specifications

METS classic, IR, W



K-METS



no internal moving parts or pumps, hence lower failure risk and lower power drain

	Standard	Optional
Material (housing and connector)	Stainless steel	Titanium
Weight in air METS (classic, IR, W)	1.3 kg	0.8 kg
Weight in air K-METS	2.2 kg	1.4 kg
Connector (manufacturer: Subconn®)	MCBH8M-SS	MCBH8M-Ti

Depth standard 2000m, optional 3500m.

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Electrical specifications

Power supply: generally 9..36 VDC
Consumption: depending on version 35 mA to 100 mA@ 12VDC

Output

	standard	optional
digital	RS485	Integral RS232
		RS485/RS232 desktop converter
analog	0..5 V	4..20 mA
Format Calibration formula	Franatech, universal	Seabird® SBE-probe
		SST®CTD-probe www.sea-sun-tech.com
		Integrated (plug & play)
		Oxygen correction (classic METS)
Note	Digital and analog outputs in parallel	With integrated formula no raw data available

Concentration Ranges

Following values illustrates typical available ranges. Contact us about your application for special requirements.

Version	standard	optional
Classic METS	50 nanomol/l – 10 micromol/l	Sensitive: 10 nanomol/l – 1 micromol/l
		SBE-5M pump for constant flow conditions
		High range: 1 – 100 micromol/l
IR-METS	100 micromol/l – 2 millimol/l	With SBE-5M pump 10 micromol - approx 2 millimol/l
W-METS	2 - 150 millimol/l	
K-METS	100 nanomol/l – 10 micromol/l	2 to 150 millimol/l

Typical temperature range standard 2-20°C, optional 10-30°C. Contact us for special requirements

NOTE: above concentration and temperature ranges are typical. Depending on the application requirements, we can select other calibration ranges.

With compliments
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