

Product Description

The MS1200 is an **Oil in Water, Hydrocarbon and VOC Analyser** for water supply protection, process control and waste water outflow monitoring.

The MS1200 utilises a contactless measurement technique, sensing headspace gases to provide a measurement system requiring **no reagents or gases** and with very low maintenance requirements.

The MS1200 is accurate to low ppb concentrations and its wide dynamic range allows it to be used in a wide variety of environments.

It is available with a standard display or touch screen interface.

Applications

- Monitoring of water abstraction points e.g. **raw river water, reservoirs and boreholes**
- Monitoring for **oil in water** contamination
- Detection of VOC contamination in **wastewater**
- Monitoring of **drain and storm water** systems
- Surface water systems for **fuel pollution**
- A monitoring solution for industrial applications
- Detection of VOC breakthrough in **carbon beds**
- **Reverse Osmosis membrane** protection
- Measurement of VOCs in **process water**

**“without the MS1200
it is far more likely
that we’ll be prosecuted
and make the national news”**



Key Benefits

- No sensor contact with water:
low maintenance, no sensor cleaning
- **No reagents:** low running costs
- Electronic Nose: **not affected by turbidity**
- **High sensitivity:** ideal for potable water
- Can be calibrated for specific substances:
used to monitor known spills
- **Detects VOC chemical spills**
- Interfaces to wide variety of communication interfaces

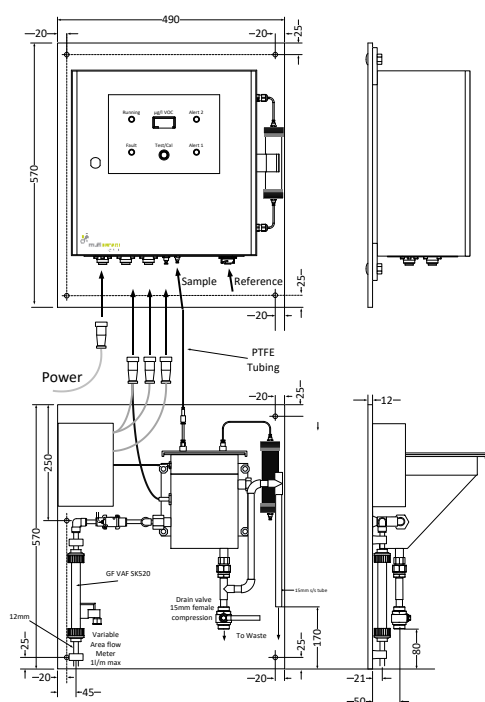
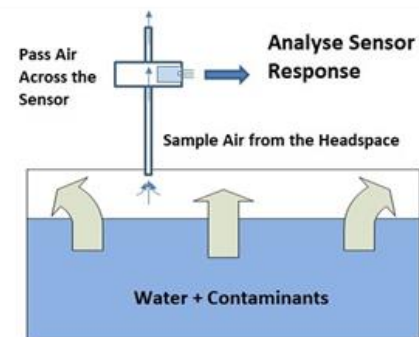
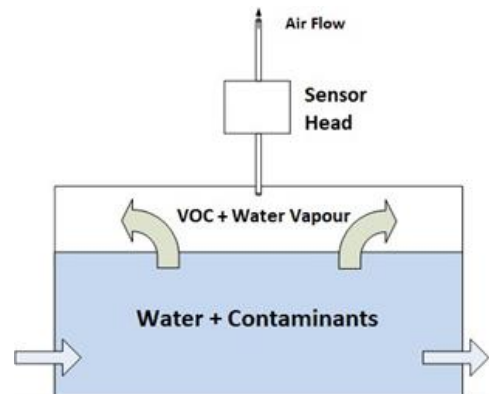
Principle of Operation

The principle of operation is the measurement of **headspace gases** from a sample tank containing the water to be measured. According to Henry's Law the concentration of gases in the headspace is proportional to the concentration of the substance in the water. Therefore, measurement of the gases provides a technique to measure the concentration of the substance in the sample water.

Calibration of the instrument is done by presenting a known concentration to the sensors and generating calibration data from the responses obtained.

The MS1200 works by passing water through a sample tank as shown below. The **volatile components** in the water will pass into the headspace above the water where they will be trapped. This will continue until equilibrium is reached.

A sample of the headspace gases are then passed across sensors in the MS1200 which respond to the Volatile Organic Compounds (VOCs) in the headspace. This response is then analysed by the instrument and a concentration value is generated based upon the relationship between the concentration present in the headspace and that in the water.



Validation

Validation of systems in the field is achieved using the Multisensor Validation Kit which presents a standard concentration to the instrument.

Installation

Installation is a very straightforward process: the instrument requires only connection to a power source, to a water source and to waste. It is supplied mounted on two panels and to be bolted to a wall or onto a frame.

Typical River Water Application

The photo shows an application where the MS1200 is monitoring a river water intake to detect **hydrocarbon contamination** from an accidental spill.

Story: In early 2013 there was an oil spill into the river from a local petrochemical plant.

The Problem: The water company that abstracts water from the river was hit with high levels of hydrocarbons and this led to a halt in the production and to high costs due to the replacement of filters and pipes and for cleaning operations.

Installation Facts: The instrument is installed in an outbuilding at around 70 m from the river from where the water is taken. Water is analysed for hydrocarbons and VOCs every 15 minutes and, if there's an increased level, an alarm is triggered and action is taken.

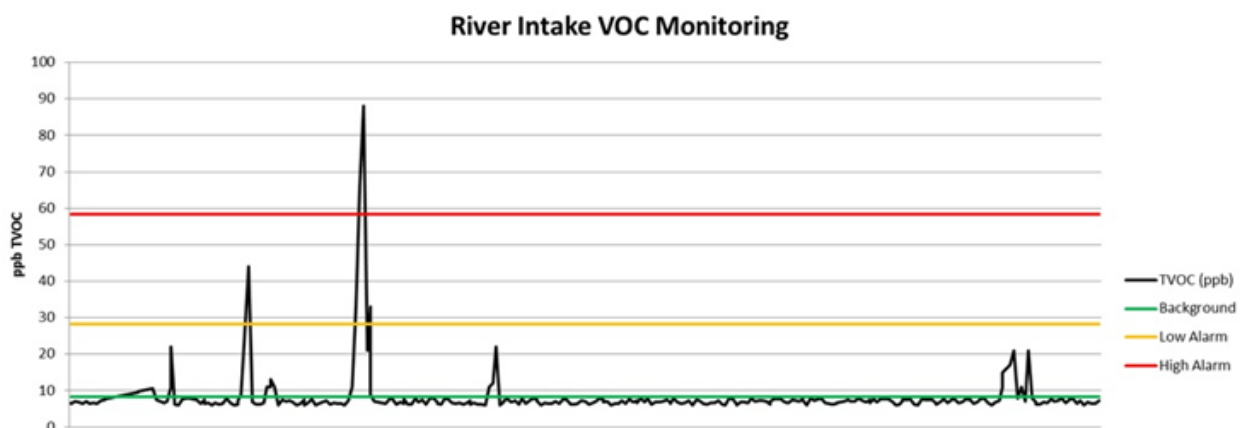
Since the installation the system has protected the water plant on two occasions.



Standard Version of the Analyser

Low and High Level Alerts

Two alarm levels can be set up in order to give a low level and a high level alarm. In many rivers and bodies of water we can always expect a level of background VOCs contamination. Relays can be triggered to divert water flow and protects the WTP. A background level of VOCs can always be expected, however peaks can be clearly seen.



Key Performance Parameters

| Parameter | Operational Requirements | | Notes |
|--|---|--------------|--|
| | Minimum | Maximum | |
| Supply Voltage | 90 V AC | 240 V AC | 50 Hz or 60 Hz |
| Power Consumption: Standard Version Touch Screen Version | | 15 W 45 W | Typical 10 W during operation Typical 20 W during operation |
| Water Supply | 0.5 l/min | 1.0 l/min | |
| Water Pressure | | 4.0 bar | |
| Working Temp: Ambient | 0 °C | 40 °C | Higher temperature available |
| Working Temp: Water | 1 °C | 40 °C | Higher temperature available |
| Sampling Period | 10 mins | 120 mins | User selectable. High concentrations may limit the minimum time period allowed |
| Detection range | 1 ppb | 3000 ppb | Measured against Toluene standard. For calibration using other compounds contact Multisensor Systems |
| Repeatability | -2% | +2% | 200 ppb sample measured using standard 1.5 l solution (Water plus Toluene dissolved in DMSO) in glass 2.5 l Winchester type bottle using magnetic stirrer at 25 °C |
| Accuracy | -10% | +10% | |
| Display range (Default) | 0 ppb | 1000 ppb | Configurable on commissioning |
| Analogue Output | 4 mA | 20 mA | Scalable to range required, max load 900 R |
| Analogue Output Isolation | 400 V | | Continuous. Opto-isolated. |
| Relay Voltage | | 50 V | 3x, Alarm 1, Alarm 2 and Fault Relays with NO and NC contacts |
| Relay Current | | 5 A | |
| Flow Switch | Contacts closed if flow below set point | | Option available on request |
| Instrument Case | IP65, Coated Mild Steel | | |
| Sample Tank Material | 316 Stainless Steel | | Other materials and coatings available |
| Weight | 25 kg | | |
| Dimensions | 1170 x 490 x 300 mm | | Mounted on 2 separate PVC backboards |

Validation Period

6 Months - using Validation Kit available from Multisensor Systems or Authorised Distributor

Consumables

Every 6 Months: Air Filter Contents (Active Carbon), Dust Filter Element

Every 12 Months: Sample Tank Gasket

Multisensor Systems Limited reserves the right to revise any specifications and data contained within this document without notice.

For more information please visit: www.multisensor.co.uk

MS1200 Data Sheet, 2019, V1.2

©Multisensor systems Limited