

Product Description

The MS1100 is a Volatile Organic Compound (Hydrocarbon) monitor designed as an alarm system for clean and waste water applications. It provides on-line, real time monitoring and alarm generation for the protection of equipment and the environment.

The instrument samples air from the headspace in a sampling tank for high sensitivity applications such as clean water intakes, from drains through the use of a sampling fan or directly from the air.

The MS1100 provides very high sensitivity, to ppb levels, fast processing and low cost of ownership through long servicing and validation periods.

The instrument can be powered from either AC or DC supplies, provides various communications options and is available with an optional sampling system.



Summary Specification

Conforms to

UL 61010-1 / EN 61010-1:2010
EN61326-1:2006

Dimensions

Height 400mm (15.75ins) x Width 400mm
(15.75ins) x Depth 200mm (7.9ins)

Dynamic Range

1 – 1,000 ppb in water

Precision

User programmable, typical levels:
Alarm1 = 15% - 30% \pm 2
Alarm2 = 25% - 60% \pm 5

Repeatability

For repeated measurement of 200ppb
Toluene in Water: \pm 2%

Absolute Accuracy

For repeated measurement of 200ppb
Toluene in Water: \pm 5%

Analysis time

60s, repetition rate 5, 10, 15 mins

Applications

Protection of clean water intakes to water treatment works
Detection of hydrocarbons in waste water drains
Detection of discharges from industrial facilities
Monitoring of the environment

Enclosure

Dimensions Height 400mm (15.75ins) x Width 400mm (15.75ins) x Depth 200mm (7.9ins)
Supplied with wall mounting kit

Material Steel

Weight 12kg (27lbs)

IP Rating IP65 (IP66 option available)

Connections Sample inlet: 1/4" 28 UNF screw fitting to 1/8" PTFE tube
Purge inlet: 1/4" 28 UNF screw fitting to 1/8" PTFE tube
Exhaust output: 1/4" 28 UNF screw fitting to 1/8" PTFE Tube

Sample Presentation System (Optional extra)

Volume: 3 – 10L
Flow: 1l/min
Headspace: 1l – 2l
Surface area: 500 – 1000 cm²

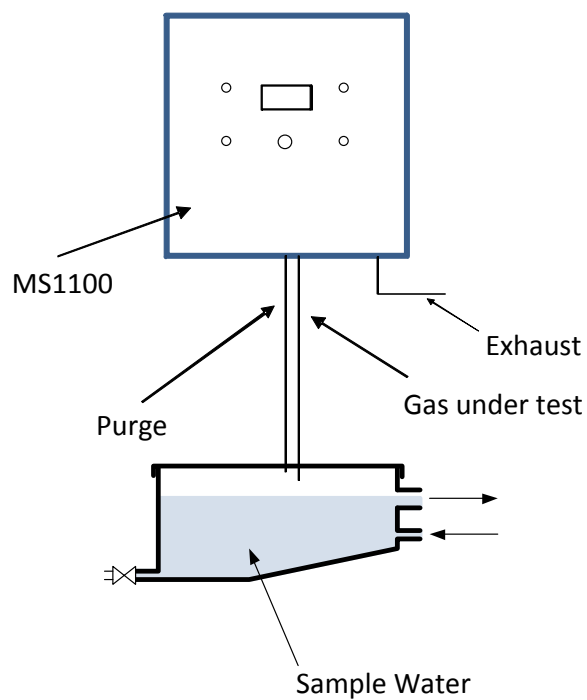


Figure 1: Typical Setup

Operating Conditions

Parameter	Notes	Min	Max	Units
AC Power Voltage	50/60Hz Systems, alternative to DC	85	264	V rms
DC Power	Alternative to AC	19	36	V
Power Consumption	Continuous		50	W
Temperature		0	40	C
Relative Humidity		0	85	%
Sample Gas Flow		40	60	ml/s
Sample Temperature		2	40	C

Technical Specification

Safety

UL Std 61010-1
EN 61010-1:2010

EMC

EN61326-1:2006

Modes of operation

Normal operation: 5, 10 or 15 minute sampling
Raw: Measurement without historical data being used
Test: Continuous sampling every 2 seconds vs single purge measurement

Performance ($T_{\text{ambient}} = 20\text{C}$, $T_{\text{sample}} = 18\text{C}$, see setup in Fig 2, Sensor Gain = 1, Toluene in distilled water)

Sensitivity

1 ppb toluene

Dynamic Range

1 – 1,000 ppb in water

Precision

Alarm level user programmable, typical levels:

Alarm1 = 15% - 30% ± 2

Alarm2 = 25% - 60% ± 5

Repeatability

For repeated measurement of 200ppb Toluene in Water: $\pm 2\%$

Absolute Accuracy

For measurement of 200ppb Toluene in Water: $\pm 5\%$

Analysis time

60s, repetition rate 5, 10, 15 mins

Measurement Stability

Maximum time between validation tests: 180 days

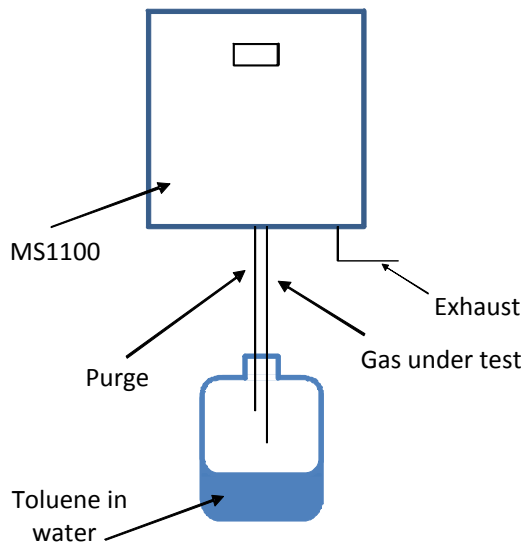


Figure 2: Test Setup for Accuracy and Repeatability

Display

4 Digit 7 Segment LCD
4 – 20mA Loop

Indicators

Running :	Green, rate of flashing denotes sampling rate
Alert 1:	Amber, Alarm1 indicator
Alert 2:	Amber, Alarm2 indicator
Fault:	Amber, illuminated if: Sensor fail, air flow fail, comms fail

Electrical Connections

USB

Connector Type:	USB, Female, IP67
Version:	USB2, Full Speed

4 – 20mA loop

Connector type:	RD24 Circular Connector with screw terminals
Isolation:	1000V DC
Maximum Load:	900Ω
Accuracy:	$I = 4 + ((16 \times \% \text{ change}) / 100) \text{mA} \pm 1 \text{mA}$

Profibus

Connector Type:	9 Way D Type, IP67
Baud Rate:	9k6, 19k2, 93k75, 187k5, 500k, 1M5, 3M, 6M, 12M
Sub Baud Rate:	1k2, 2k4, 4k8, 9k6, 19k2, 35k7, 38k4, 57k6
Profile:	Profibus-DP

Relays (On all models, selectable as normally open, normally closed or common)

Connector Type:	RD24 Circular Connector with screw terminals
Connector 1:	Relays 1 & 2
Connector 2:	Relays 3 & 4
	Relay 1 – Fault
	Relay 2 – Alert 1
	Relay 3 – Alert 2
	Relay 4 – Sample
Relay Rating:	Maximum current: 5A continuous
	Maximum Voltage: 50V DC
	Minimum current: 5mA continuous
	Minimum Voltage: 5V DC

GSM Modem

Connected externally via 9 Way D Type connector as alternative to Profibus or other modules
internally connected via RS232

Other connectivity

Ethernet: Internally connected as an alternative to Profibus

Programming and Control

Multisensor Systems GUI:

Diagnostics

Multisensor Systems Command Set

Recording: Sensor Resistance, sample and purge
 Air Flow

All recorded data time stamped by battery backed clock

Data storage 180 days on SD Card

Additional Equipment required

Sample tank (Optional Extra)

Sampling fan (For monitoring of drains and waste water over long pipe runs)

Consumables

Filters

Activated Carbon Filter, externally mounted, contents replacement interval: 6 months

Dust filter, element replacement interval: 6 months

Pump

12V air pump, rotary vane, replacement interval: 24 months

Ordering Information

Part Number	Description
MS1100-01	VOC/Hydrocarbon Monitor with 4-20mA output, AC power
MS1100-02	VOC/Hydrocarbon Monitor with 4-20mA output, 24V DC power
MS1100-03	VOC/Hydrocarbon Monitor with 4-20mA output, AC power, Profibus
MS1100-04	VOC/Hydrocarbon Monitor with 4-20mA output, 24V DC power, Profibus

Revision History

Date	Revision Number	Detail of Change	Author	Checked
22/3/11	1.0	First Issue	B Weaterton	