

ATEX MSFM Multi Sensor Flow Monitor

The MSFM Sewer Flow Monitor from Detectronic Ltd is a versatile Ultrasonic Doppler Flow measurement system for sewers in the form of open channels or partially filled pipes.

It is designed to monitor raw sewage, industrial effluents and storm waters.

Automatic GPRS Data Retrieval is standard and can be used worldwide*

Additional standard input accepts Detectronic Ultrasonic Level Sensor for Storm Overflow Monitoring.

DETECTRONIC ATEX MSFM 123

3 Sensor Inputs:

1. Velocity - Ultrasonic Doppler
2. Level - Pressure
3. Ultrasonic Level for Storm Overflow

GSM/GPRS Communications with
User Replaceable Li Cell 5 Years
High/Low Alarm Dial Out
Low power alarm
Rechargeable Li-ion Battery-Pack

INTRINSICALLY SAFE



Ga Ex ia IIB T4
Ta = -40°C to +60°C
ATEX IECEX
CSA and UL Pending
February 2009



IECEX CoC
Certified Service Facility
IECEX SIR S0005

*Any country that currently supports GPRS network; Air time agreement may apply. Please contact Detectronic Ltd for UK and World Wide tariff details.





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3 Heads are better than One!

The MSFM123 has 3 Sensor Inputs:

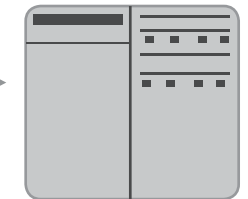
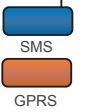
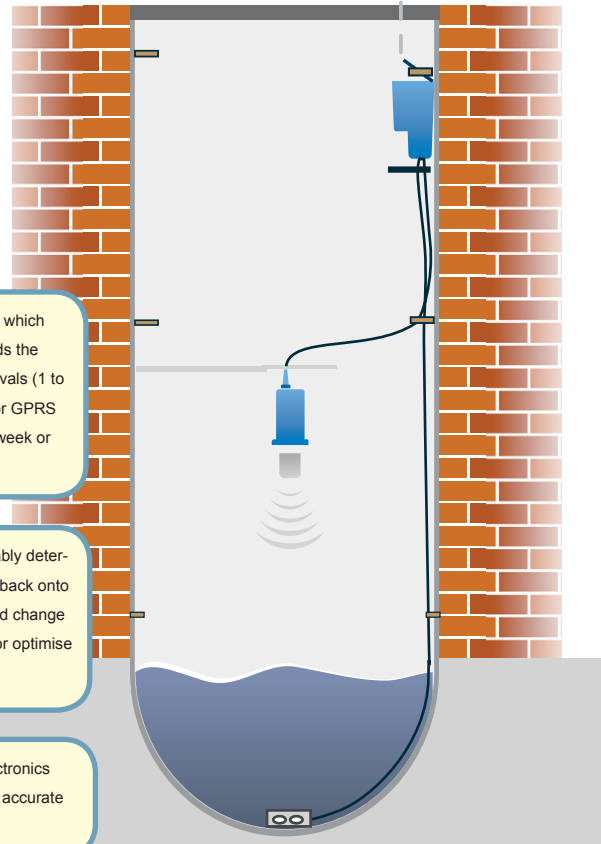
- 1. Level
- 2. Velocity
- 3. Aux Level (Ultrasonic)



The MSFM123 flow monitor has a custom designed antenna which improves signal sensitivity in underground locations. It records the level, velocity and Aux Level (CSO) readings at regular intervals (1 to 60 minutes) and sends them to the host computer via SMS or GPRS at a user selectable frequency (typically once a day, once a week or once a month)

The ultrasonic level sensor uses patented algorithms to reliably determine the time required for the incident soundwave to reflect back onto the sensor. The sensor also compensates for speed of sound change with temperature. The intelligent electronics within the sensor optimise the measurement process for minimal power consumption

The Area Velocity Sensor combined with the MSFM123 electronics uses evolutionary Doppler processing technology to ensure accurate measurement.

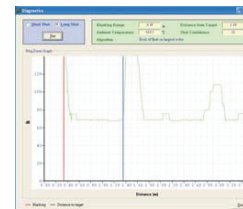
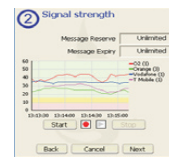


Detectronic software provides support for local and remote communication with MSFM123 as well as powerful tools for graphing, analysing and exporting data.

The MSFM123 is easily set up on site using a step by step installation Wizard. This includes a signal strength test so that the best GSM operator may be selected.

At installation time, the user can set up the ultrasonic level sensor using his laptop, visualise the echoes from the target, and select the most appropriate measurement algorithm.

Alarms from the MSFM123 in the field can be re-transmitted to the relevant field support staff by text message or emails.



ATEX MSFM MULTI-SENSOR FLOW MONITOR

Specification – Datalogger and GSM/GPRS Communication

MEMORY

Non-volatile, Solid-state – 40KB per channel.
Rotating store, or store until full.

LOGGING CAPACITY

20,000 Level1 + Velocity + (CSO) Level 2 reading

Equivalent to:

- 4 weeks continuous recording at 2 minute intervals.
- 10 weeks at 5 minute intervals.

RECORDING INTERVALS

1, 2, 5, 10, 15, 20, 30 minutes.

GSM / GPRS COMMUNICATION

Integral antenna – designed for underground use. Quad Band - 900MHz, 1800MHz (World); 850MHz, 1900MHz (North America).

- The GSM networks are used to transfer recorded data via GPRS protocol to a host computer or to the Internet.
- Recorded data are transferred Daily, Weekly or Monthly (programmable time and date) - every 24 hours typical.

SERIAL PORT FOR LOCAL COMMUNICATION

Full duplex, asynchronous 1200, 2400, 4800, 9600 bps.

GSM COMMUNICATION POWER SUPPLY

User replaceable Lithium primary cell - battery life up to 7 years depending on mode of use.

Additional back up cell maintains logging and local communication when main cell is discharged.

CLOCK

Crystal controlled calendar clock with leap year adjustment. 100 seconds per month maximum error over operating temperature range.

Option to synchronise clock to GSM network.

ALARM DIAL-OUT

High/low alarms, independently programmable for Level, Velocity and U/sonic Level. Alarms transmitted via Internet or SMS text message.

ENVIRONMENTAL HOUSING - MAIN ENCLOSURE

Injection-moulded PC/ABS alloy and ACETAL with stainless-steel frame and carrying handle.

IP67 (submersible to 1m).

INTERNAL ELECTRONICS

Totally environmentally sealed. Operating temperature: -20 C to +50 C.

CONNECTORS

Waterproof IP68 Mil-spec for Local Communication, Level + Velocity + CSO sensor and Battery pack.

BATTERY PACK

ATEX Li-ion rechargeable (in safe area only). Field exchangeable – single cap-screw fixing and size 12 Military Connector.

Full charge gives 13+ weeks at 2 min. rate (max at 20°C ambient temp).

DIMENSIONS

510 x 150 x 110mm (max), including frame and Battery Pack.

WEIGHT

< 7kg - Including Battery-Pack, Frame and Lev+Vel Cables and Sensors.

APPROVALS

ATEX and IEC Ex approved (CSA pending)

Specification – Depth And Velocity Sensors

DUAL TRANSDUCER HEAD

Body

Machined PVC, Titanium and Polyurethane

Cable

Waterproof Mil-spec with additional PVC/ Polyurethane armouring.

Standard length 10m.

VELOCITY SENSOR

Twin crystal Ultrasonic

Measuring Range

<0.05 – 4.0m/s

Resolution

1cm/sec

Non-linearity

± 1%

Accuracy

± 2.5% FS (± 1% in range 0.05 - 2.00m/s)

Operating Temperature Range

-2°C to +40°C

DEPTH SENSOR

Differential pressure – Titanium Isolated Silicon Diaphragm

Measuring Range

0.050m to 2.000m (at quoted accuracy and linearity) plus 2.000m to 6.000m surcharge range

Resolution

1mm

Non-linearity

± 0.1%

Accuracy

± 2% FS

Operating temperature range

-2°C to +40°C

Compensated temperature range

-2°C to +30°C

CSO ULTRASONIC DEPTH PROBE

Cable Length

Std: 10m

Measuring Range

0.25m to 3.000m

Accuracy

± .25% FS (Integrated temperature Compensation)

Beam Angle

10 degree (-3dB envelope)

Environmental

Operating Temp: -20 to +80C

Protection: IP68

