



Mobile stations for water quality monitoring

The quality of ground water and surface water is constantly threatened by illegal discharges, sewage overflows, spills and runoff. By using continuous monitoring stations that can quickly be moved from one place to another, it is possible to trace a pollution to its source. The monitoring stations continuously measure the water quality and issue an email or text (SMS) alarm when a pollution is detected. The responsible official can then view the measured parameters on a web site and take the appropriate action.

Example 1: Accidental sewage overflow

Assume that a sewage system overflows into a river a few times per year, causing incidental complaints about stench. To find the cause of the stench, a few monitoring stations are placed along the river. A few weeks or months later, the next overflow occurs. The first down-stream monitoring station detects the pollution and sends an alarm to the mobile phone of the responsible official. The official immediately goes to the river and uses a handheld to trace the source before the overflow stops.

If the area between to stations is too big to cover with the handheld, the monitoring stations can be replaced to tighten the net around the source for the next overflow.

Example 2: Illegal discharge

Assume that a company incidentally discharges waste products into a stream. This is done secretly at night or in the weekend. The stream flows into a lake where the pollution causes fish to die. To find the source, monitoring stations are placed at all streams discharging into the lake. After the next pollution, the polluting stream is identified. Next, the stations are moved upstream to further refine the search area. Finally, after the second or third incident, a well-hidden monitoring station close to the crime scene issues an alarm and the perpetrators are caught red-handed.



OMC-045-III datalogger and YSI-EXO Multi-parameter sonde.



Various sensors for conductivity, pressure and temperature. At the right, the OMC-042 logger with solar panel.



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System properties

In all cases a monitoring system consists of one or more sensors, a data logger with GPRS modem and a battery. A solar panel may be added in some cases. In most cases a simple conductivity sensor is sufficient, because most pollutants increase conductivity. Not that for detection and tracing it is not relevant to determine exactly what the polluting substance is. This can be done using grab samples, after detecting a jump in conductivity.

The monitoring systems are small and can easily be hidden. The pictures on the first page show two examples. Other (covert) housing can be designed on request.

The monitoring station transmits its data by GPRS (mobile phone network) to a server computer. The user can view graphs and tables of the measured data using a web browser. He can set alarm thresholds for receiving alarm messages on his phone in case a parameter exceeds a threshold.

Mobile monitoring stations are typically custom build around the building blocks shown on the right. You can find the data sheets of these products on our [website](#).

Sensors



CT2X Conductivity, Temperature and (optionally) Pressure sensor.



NEP5000 Turbidity sensor with integrated wiper.



EXO2 multi-parameter sonde (DO, pH, Algae, conductivity and more) with wiper.

Data loggers



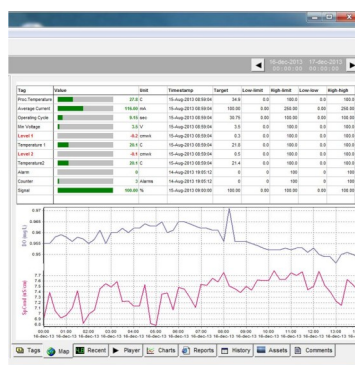
OMC-045-III with internal GPS.

All shown loggers have an integrated GPRS modem and use an SD card to store measurement data.



OMC-042 logger with touch screen, blank cover or integrated solar panel. All with internal battery, modem and antenna.

Software



OMC-Data-OnLine for displaying graphs and tables of all measurement stations. Also for generating alarm messages when a parameter exceeds a threshold.