AVKEM® oil treatment

# MultiPointDetector

## MPD

Multi Point Detector or MPD system allows to perform monitoring in many points, both in the air and in the water, with a single set of sensors.
It is able to generate significant savings, due to:

- the purchase of numerous series of sensors
- on site installation
- to the wiring, especially if in the ATEX zone
- the maintenance of all sensor series

The system has small dimensions and is composed of two sections:

- the first for the solenoid valves and the measuring system
- the second for the power panel which houses the PLC and the 7 "touch screen display.

Given its simplicity of installation, the system can be used for both fixed and temporary installations. It works 24 hours a day and sends signals to the remote in case of exceeding the alarm thresholds or malfunctions. The PLC can interact with automatic treatment systems capable of counteracting the exceeding of the alarm thresholds.

## AIR

**The first system section** houses the following components.
Measurement sensors, the type of which depends on the pollutants to be determined. Calibration is possible by diverting the flow without disconnecting them from the sampling system.

The air suction pump, whose power and flow rate is a function of both the length and section of the supply pipes, and the suction time.

Downstream of the pump, an anti-condensation / anti-dust filter, an electronic flow regulator and a counter for the volume of the sucked air are installed, which highlights any occlusions of the pipes.

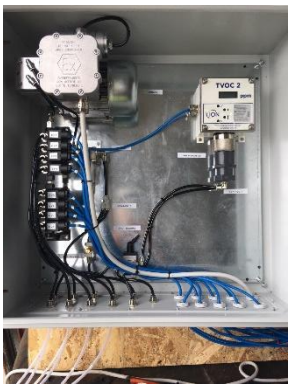
12 solenoid valves, controlled by the PLC, able to manage the sampling routine, to which 12 Rilsan or Teflon tubes are connected. These can have a length of several hundred meters (600/1000) and more, depending on the power of the pump and the diameter of the pipes.

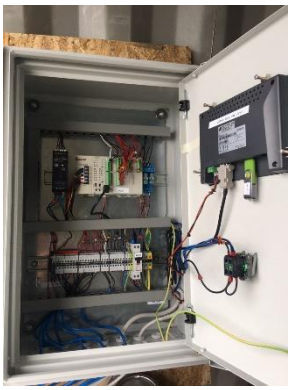
The pipes are brought up to the sampling points, taking care not to create depressions that generate accumulation of condensate.

**In the second section** there is the PLC that manages the measurement routine, commanding the opening and closing of the solenoid valves. The pump suction time to normalize the air in the pipe and the measuring instruments, before reading, is generally> 3min <5min. The settings are entered via the 7 ” display.

The PLC commands the opening of the first solenoid valve while keeping the others closed. At the end of the purge for normalization, a series of readings take place. Then he closes the IV and opens the next one to repeat the treatment.

Below is an MPD system for air sampling in which only the sensor for detecting VOCs is inserted.





### Applications

One application of the system is the determination of odors emitted by hydrocarbon compounds. In this case a kit of sensors is used such as: PID, H2S and MOS for the total HC. Alternatively, electronic noses suitably calibrated to the specific problem can be used.

The system is previously calibrated with an olfactometric analysis, in order to have more reliable answers.

Other applications are possible with only the use of specific sensors.

## WATER

The system, properly configured, is also used for water quality monitoring.

**The first section** contains only the solenoid valves, for safety reasons the sensors and the water suction pump are located externally.

**The second section** remains essentially unchanged.

### Applications

As for air, the MPD system is able to sample from many points and carry out analyzes with a single set of sensors chosen according to the parameters to be determined.
The system is used:

- in water treatment plants
- in the bioremediation of land and groundwater
- in the monitoring of surface or marine waters

## MPD

- in industrial plants where water monitoring is required.

Also in this case the system works 24 hours and the times of the measurement routine are set according to the distances.