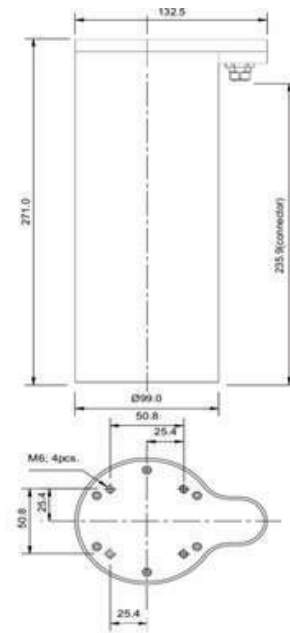
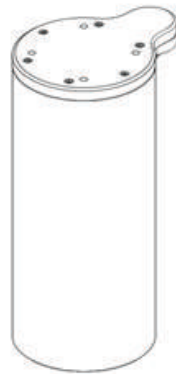


# 1. OILVIEWER

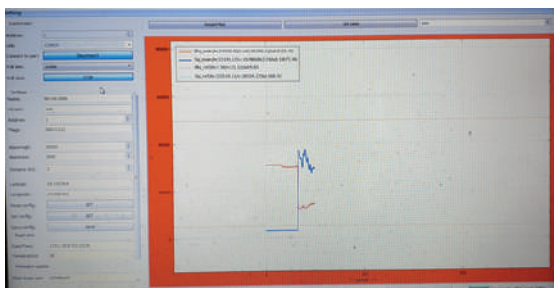
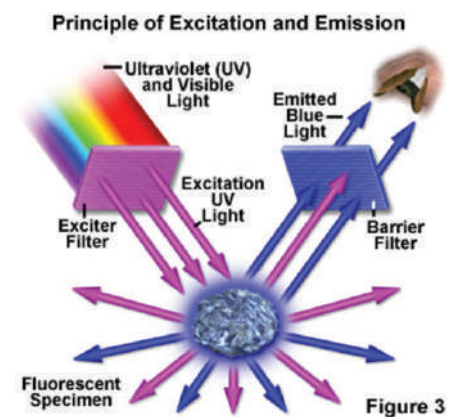
## 1-A - LOCATION MAPPING

OilViewer, touchless oil detection on water



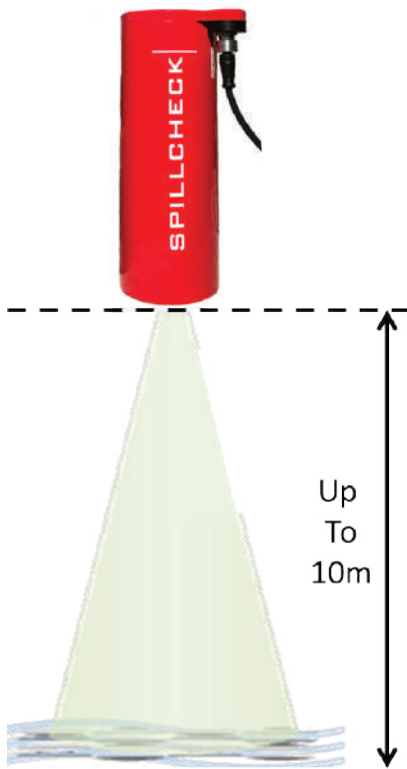
## 1-B – HOW IT WORKS

Our OilViewer technology is based on Ultra-Violet Light Emitting Diode (UV LED). The UV light excites the oil molecules electrons which drop from an upper stage to a lower stage liberating a photon. Our OilViewer detects this photon as fluorescence.

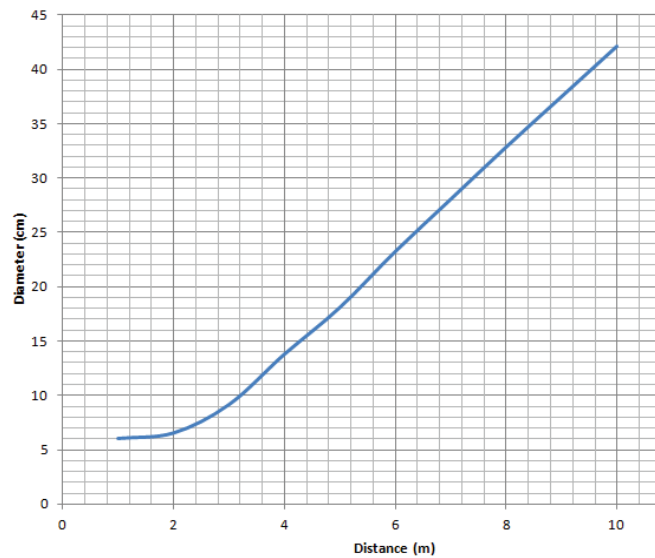


Through a user-friendly set up software, we determine the range of thresholds (max and min) in which the alarm has to be triggered thus making our OilViewer insensitive to any other substances in water except oil products and reducing false alarms.

## 1-C – DETECTION DISTANCES

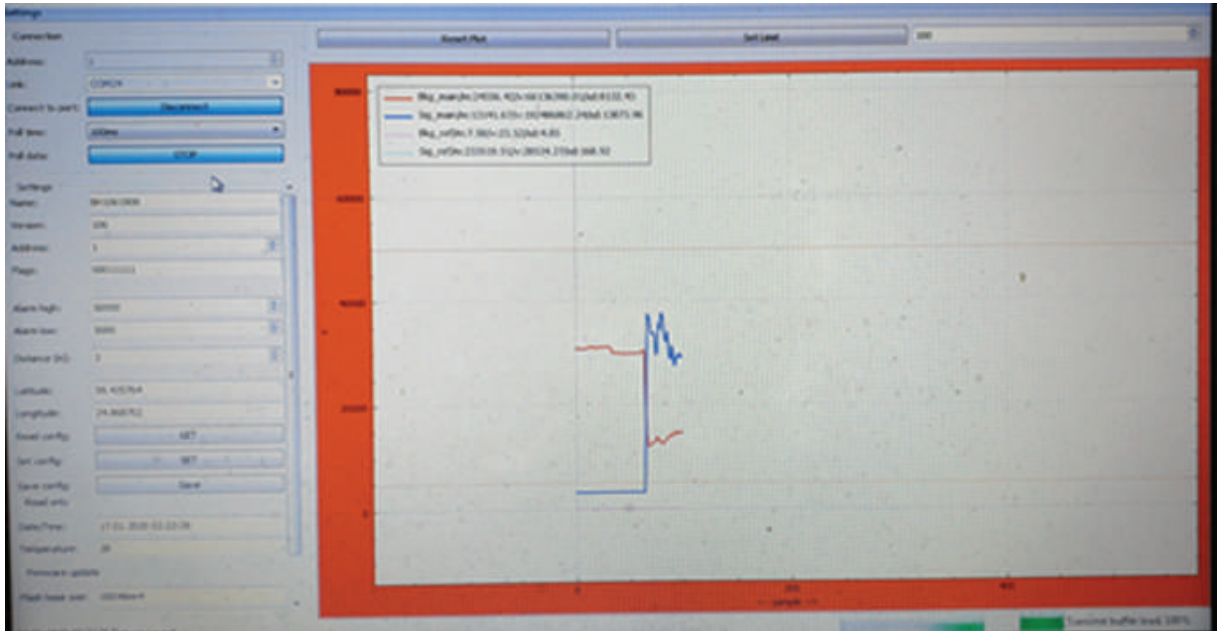


This technology allows us to detect oil film with minimum thickness from 1 to 10\* $\mu$ m (depending on the type of oil product) from a distance up to 10m (recommended distance being 3m).



## 1-D – TECHNICAL DATA

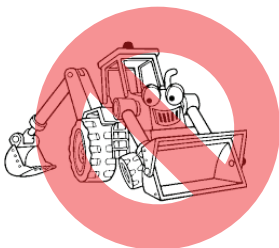
- 2 different units, depending on the product you need to detect :
  - UV-A, with UV lamp emitting at 365 nm  
To detect crude oil, fuel oil, motor oil, turbine oil, hydraulic oil....
  - UV-B with UV lamp emitting at 280 nm  
To detect benzene, kerozene, light diesel, gasoline, jet fuel and other very light refined products
- 2 outputs possible :
  - 4-20 mA
  - Dry contact (normally open or normally closed, as per your request)
- Sampling rate : 100 Hz
- ATEX enclosure
- UV lamp lifetime: 5 years, with control of aging life of light source (to avoid false alarm when lamp strats to deteriorate)
- Adjustment of alarm triggering delay to reduce false alarm



- Low power consumption : 5W
- At 3 meters, variation of distance, between detector and water surface, of up to 20 % will not affect the detector readings, thus avoiding false alarm in case of moderate waves

## 1-E – FULL TURNKEY SOLUTION

- In addition to supplying the bare units, we can provide a full solution showing each detector location on a google map.
- In case of alarm, the detector status switches from green to red (as shown on screenshot).
- Clicking on the detector will open additional information.



And, to avoid additional cost of digging trenches and pulling cables from the units to the control room, we can provide a wireless solution.



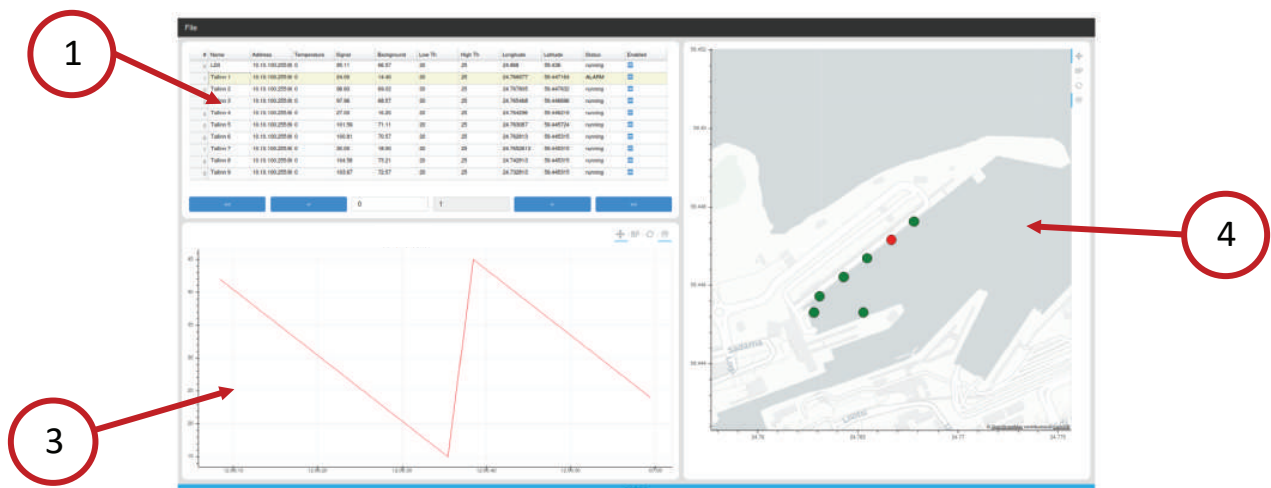
- Devices table – shows the list of devices connected to our software and display their parameters  
Table controls – to navigate through the list of devices
- Signal chart – when a device is selected in the devices table, chart is populated with signal information, over time, from this device
- Location map – when a device is selected in the devices table, the map is zoomed onto selected device location, and provides information in pop-up window, if mouse is hovered over the device

## 2-B – DEVICES TABLE

#	Address	Temperature	Signal	Background	Low Th	High Th	Longitude	Latitude	Status	Enabled
0	10.10.100.255:81	0	95.11	66.57	20	25	24.868	59.436	running	OK
1	10.10.100.255:81	0	24.00	14.40	20	25	24.766677	59.447164	ALARM	OK
2	10.10.100.255:81	0	98.60	69.02	20	25	24.767805	59.447632	running	OK
3	10.10.100.255:81	0	97.96	68.57	20	25	24.765468	59.446696	running	OK
4	10.10.100.255:81	0	27.00	16.20	20	25	24.764296	59.446219	running	OK
5	10.10.100.255:81	0	101.59	71.11	20	25	24.763087	59.445724	running	OK
6	10.10.100.255:81	0	100.81	70.57	20	25	24.762813	59.445315	running	OK
7	10.10.100.255:81	0	30.00	18.00	20	25	24.7652813	59.445315	running	OK
8	10.10.100.255:81	0	104.58	73.21	20	25	24.742813	59.445315	running	OK
9	10.10.100.255:81	0	103.67	72.57	20	25	24.732813	59.445315	running	OK

For each OilViewer device connected to our software, the following data is shown in the table:

- Name (user defined)
- Address (connection address, i.e. IP or COM port, etc...)
- Temperature
- Signal (measured fluorescence)
- Background (ambient light signal)
- Low threshold (low signal level of alarm)
- High threshold (high signal level of alarm)
- Longitude coordinate
- Latitude coordinate
- Status ("running", "connected", "disconnected", etc...)
- Enabled (OK if send signals)

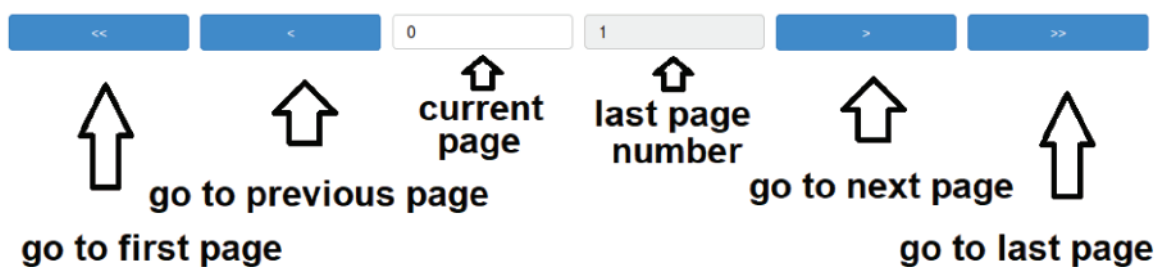


When you click on a device listed in the table (1), the selection is highlighted in yellow color. The device signal history log is shown in the signal chart (3) and device location is shown with zoom on the location map (4).

In the screenshot above, it can be noted that the highlighted device is in alarm state ("ALARM" being mentioned on the device line). The signal log shows the alarm signal and the device is switched from green to red on the map.

## 2-C - TABLE CONTROL BUTTONS

A maximum of 10 devices can be shown on a single page of the devices table. If you connect more than 10 devices to our software, then they will be shown over multiple pages. To navigate from one page to another, you'll use the "table control buttons" shown below.

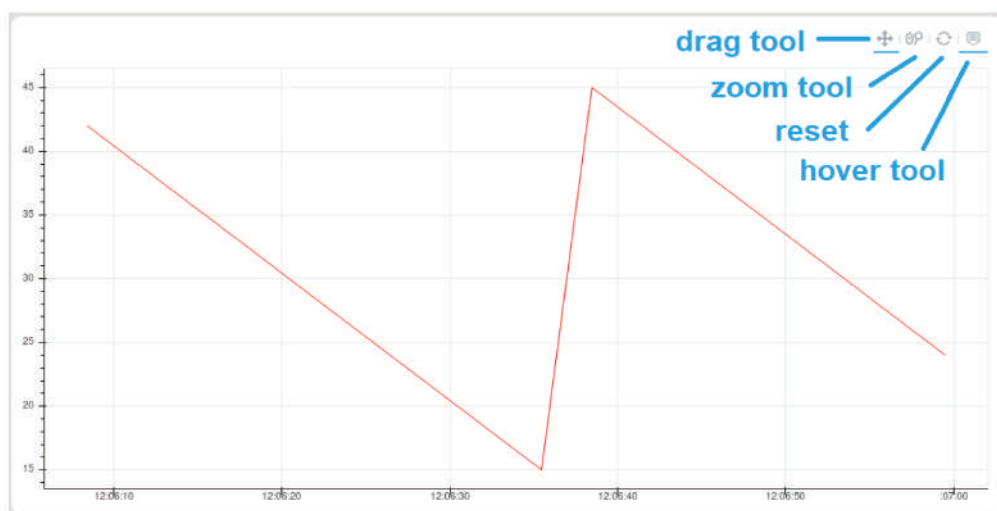


On the example above, table has two pages. Pages always start with 0 numbering. So here is pictured that current user is on page 0 and last page is 1. There are 2 pages in total.

For example, if last page is showing 19, there are total 20 pages and between 190 to 199 devices overall.

## 2-D - ALARM SIGNAL HISTORY LOG

Signal chart shows signal data history log over time for the selected device in the table.



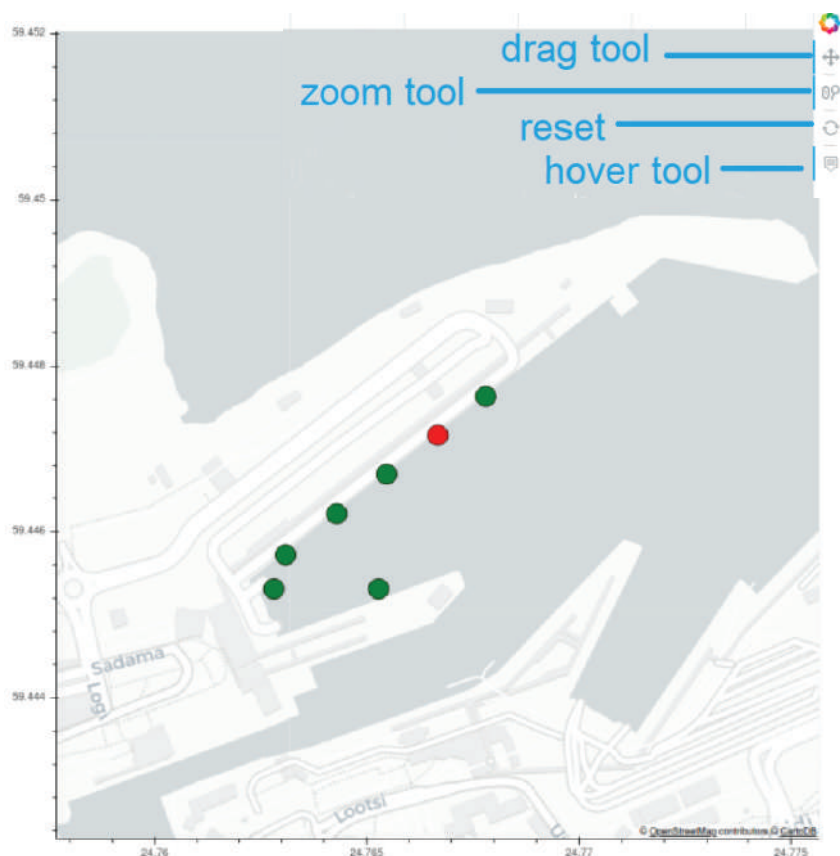
- Drag tool is used to drag map in any direction.
- Zoom tool is used to zoom in or zoom out the map.
- Reset – click onto the icon to reset plot to default settings
- Hover tool is used to see the signal level, if mouse is hovered over signal plot, the data is displayed on screen pop-up info window.

FYI - You'll notice those functions are enabled when you see a small blue horizontal line under tool icon. Click on tool icon to activate them and to disable, click again on the icon.

## 2-E - LOCATION MAPPING

Location map is seen on the right-hand side of the application. Devices listed in the devices table will be shown as circles of different color on the map.

- Drag tool is used to drag map in any direction.
- Zoom tool is used to zoom in or zoom out the map.
- Reset – click onto the icon to reset map to default setting (whole world)
- Hover tool is used to see the information about each device, if mouse is hovered over a device (circle presenting the device). If enabled, information about this device is displayed on screen.



FYI - You'll notice those functions are enabled when you see a small blue vertical line on the left side of the tool icon. Click on tool icons to activate them, to disable, click again on the icon.

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