

# WiMo / WiMo Plus

## User Manual



Revision 1.3 (09.03.22)

## Table of contents

<b>TABLE OF CONTENTS .....</b>	<b>1</b>
<b>1 INTRODUCTION.....</b>	<b>3</b>
1.1 WIMO SPECIFICATIONS .....	3
1.2 WIMO PLUS SPECIFICATIONS.....	4
1.3 PRESSURE SENSOR .....	5
1.4 CLEANING DEVICE .....	6
1.4.1 <i>Installation on a WiMo probe.....</i>	6
1.4.2 <i>Installation on a WiMo Plus probe .....</i>	7
<b>2 OPERATION.....</b>	<b>7</b>
2.1 SENSORS INSTALL.....	7
2.1.1 <i>Install/Remove caps .....</i>	8
2.1.2 <i>Install/Remove sensors.....</i>	9
2.2 INSTALL/REMOVE GUARD .....	10
2.2.1 <i>ISE sensor protection guard.....</i>	11
2.3 SONDE ACTIVATION.....	12
2.4 CONNECTION TO SONDE .....	12
2.4.1 <i>PC .....</i>	13
2.4.2 <i>Tablet .....</i>	13
2.4.3 <i>Smartphone.....</i>	14
<b>3 WEB INTERFACE.....</b>	<b>15</b>
3.1 DASHBOARD MENU .....	16
3.1.1 <i>General settings .....</i>	16
3.1.2 <i>Storage .....</i>	17
3.1.3 <i>Network and communication .....</i>	17
3.1.4 <i>Available parameters .....</i>	18
3.1.5 <i>Connected accessories.....</i>	18
3.1.6 <i>Acquisition settings .....</i>	18
3.2 MEASUREMENT FILES MENU .....	20
3.3 LIVE VIEW MENU .....	21
3.4 ALARM MENU .....	22
3.5 OPERATES SONDE IN FIVE STEPS.....	23
<b>4 MAINTENANCE .....</b>	<b>24</b>
4.1 ROUTINE MAINTENANCE.....	24
4.1.1 <i>O-rings service .....</i>	24
4.1.2 <i>Sensor port service .....</i>	24
4.2 REPLACE BATTERIES.....	25
<b>5 PRODUCT IDENTIFICATION .....</b>	<b>26</b>
<b>6 FILE FORMATS.....</b>	<b>27</b>
6.1 TOPKAPI TXT2 FORMAT .....	27

6.2	CSV FORMAT .....	27
6.2.1	<i>Datas</i> .....	28
6.2.2	<i>settings</i> .....	28
<b>7</b>	<b>MANAGEMENT OF ALARM FILES</b> .....	<b>30</b>
<b>8</b>	<b>OPERATION WITH THE WIMO MODEM</b> .....	<b>31</b>
8.1	FLOTTEUR WIMO 20 LITRES .....	32
8.2	BOUEE COTIERE WIMO .....	33
<b>9</b>	<b>RETURN A PRODUCT TO THE FACTORY</b> .....	<b>34</b>

## 1 Introduction

The WiMo multiparameter range, including the WiMo sonde (4 locations) and the WiMo Plus sonde (7 locations), offers flexible and innovative solutions for water quality data collection. The sonde have a native pressure sensor and temperature measurement and 4 to 7 additional sensors can be added depending on the model. The end-user plugs directly the sensors to the sonde which are automatically recognized (Plug and Play system). The sonde can also be connected to a transmission module that will also be automatically detected.

Data can either be recorded in internal memory of the sonde or transmitted to a data collection platform via the transmission modems. The sonde also operates in Modbus for real-time measurement of the environment.

### 1.1 WiMo Specifications

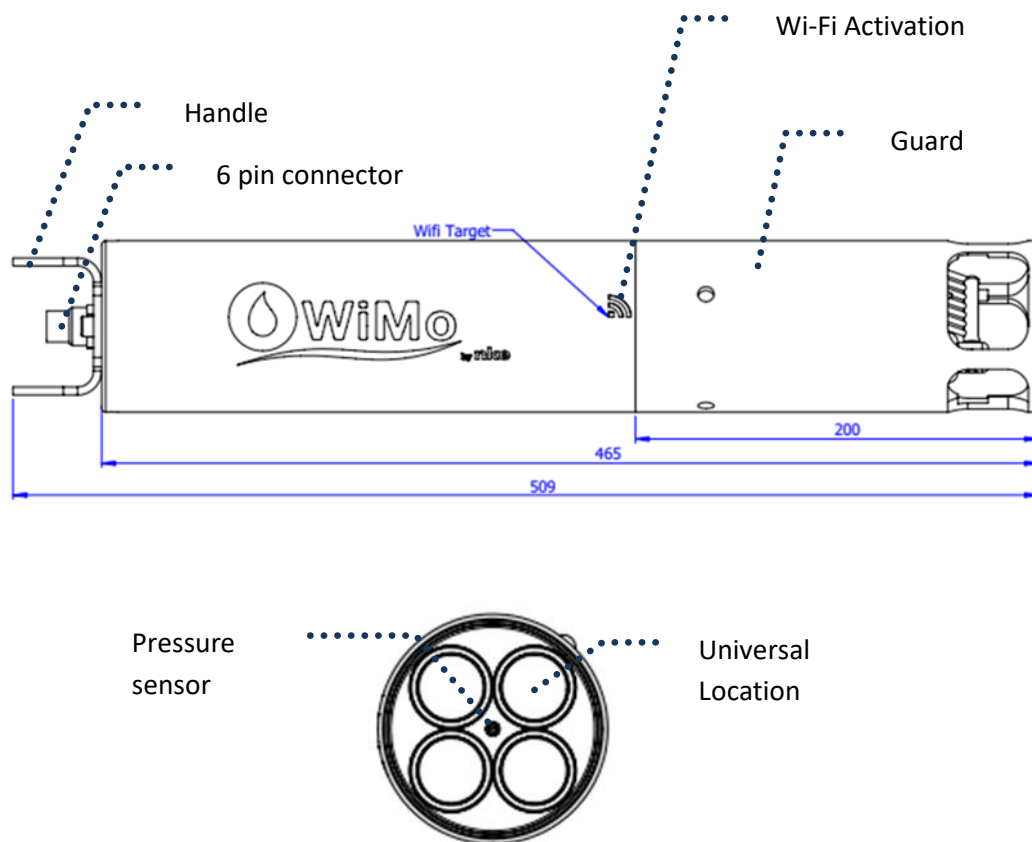
The WiMo sonde has 4 universal locations where sensors or a cleaning system can be plugged. The sonde is equipped with a pressure and temperature sensor.

It is powered by 6 Type D Alkaline batteries and is compliant with NiMH Type D rechargeable batteries. The probe can, if necessary, receive an external power supply

A Wi-Fi link is used to setup the sonde and for file data transfer.

No dedicated software is needed to setup the WiMo. An Embedded WEB Server gives access to all the sonde functionalities using an internet browser.

WiMo Sonde Specifications	
Number of locations	4
Operating environment	Fresh and sea water
Maximum Depth	250 m
Communication	WiFi / Modbus RTU
Power supply	External 9 - 16 VDC
	Internal 6 alkaline batteries type D or 6 NiMh rechargeable batteries type D
Temperature	Storage (no battery): -20°C à 70°C
	Operating : - 2 à +50°C
Size	Diameter : 85 mm
	Total length : 489 mm
Weight	2,65 kg



## 1.2 WiMo Plus Specifications

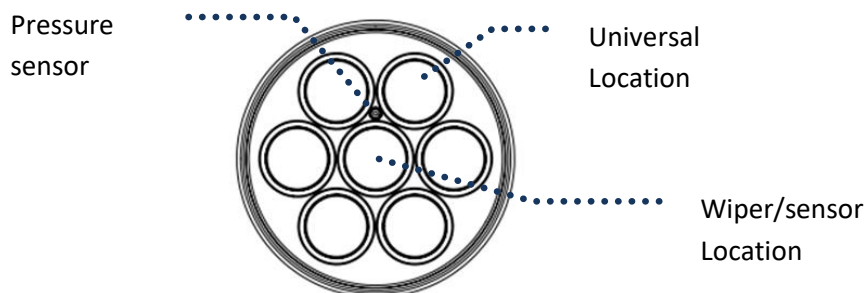
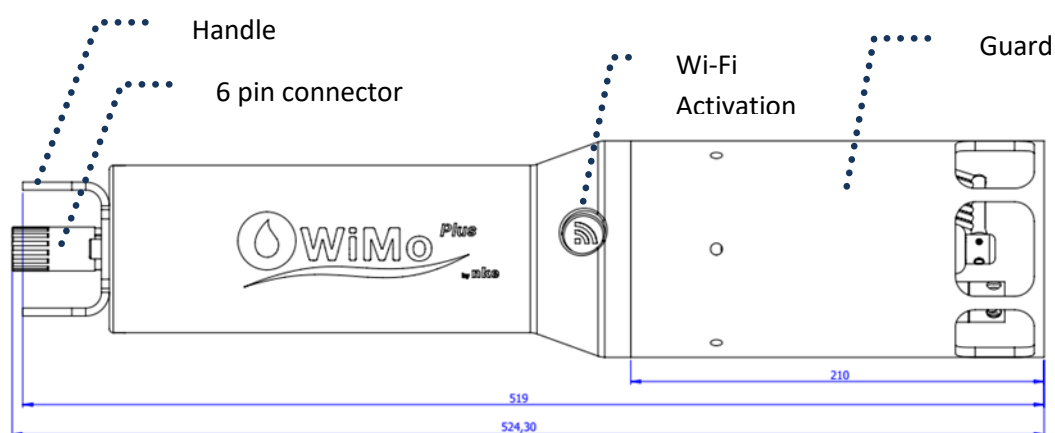
The WiMo Plus sonde has 7 universal locations where sensors can be plugged. The central location can be used also for a wiper instead of sensor. The sonde is equipped with a pressure and temperature sensor.

It is powered by 6 Type D Alkaline batteries and is compliant with NiMH Type D rechargeable batteries.

A Wi-Fi link is used to setup the sonde and for file data transfer.

No dedicated software is needed to setup the WiMo. An Embedded WEB Server gives access to all the sonde functionalities using an internet browser.

WiMo Plus Sonde Specifications		
Number of locations	7	
Operating environment	Fresh and sea water	
Maximum Depth	250 m	
Communication	WiFi / Modbus RTU	
Power supply	External 9 - 16 VDC	
	Internal 6 alkaline batteries type D or 6 NiMh rechargeable batteries type D	
Temperature	Storage (no battery): -20°C à 70°C	
	Operating : - 2 à +50°C	
Size	Diameter :	110 mm
	Total length :	499 mm
Weight	3,05 kg	



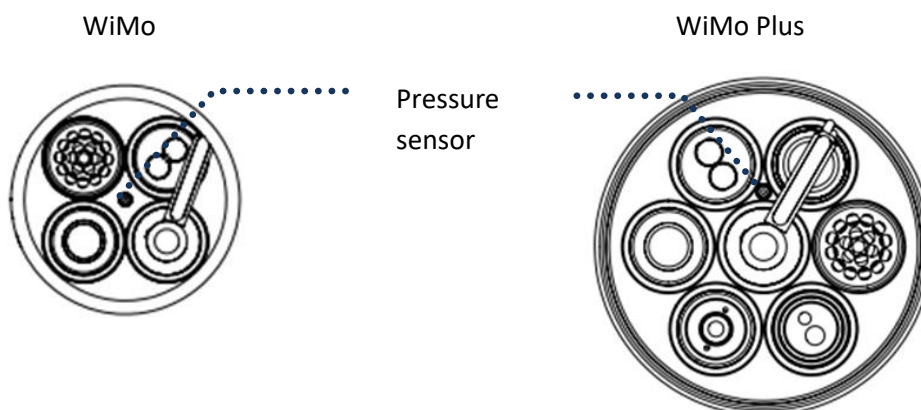
### 1.3 Pressure sensor

The pressure sensor is a piezoresistive sensor that measures absolute pressure. That's means the reference is vacuum. The sonde allows adding an offset to compensate the measured pressure with the current atmospheric pressure in order to get a zeroing of the pressure sensor. However zero will vary with changes in atmospheric pressure.

The sensor contains its own temperature measurement to make its compensation. Temperature measurement is available in the WiMo and WiMo Plus sondes.

For depth information it is able in the sonde to activate a calculated depth parameter based on the UNESCO equation.

Technologie / Technology	Piezorésistif
Gamme / Range	0 - 25 bars
Exactitude / Accuracy	max $\pm 0.1\%$ EM
Stabilité Long terme / Long Term Stability	Typ $\pm 0.1\%$ EM



Pressure measurement is done at the upper tap of the sonde. There is therefore a position offset between the pressure measurement and the measurements made by the sensors. They don't have all the same offset:

Conductivity	10,5 cm
Fluo Chla	12,3 cm
Dissolved oxygen	12,3 cm
Turbidity	12,3 cm

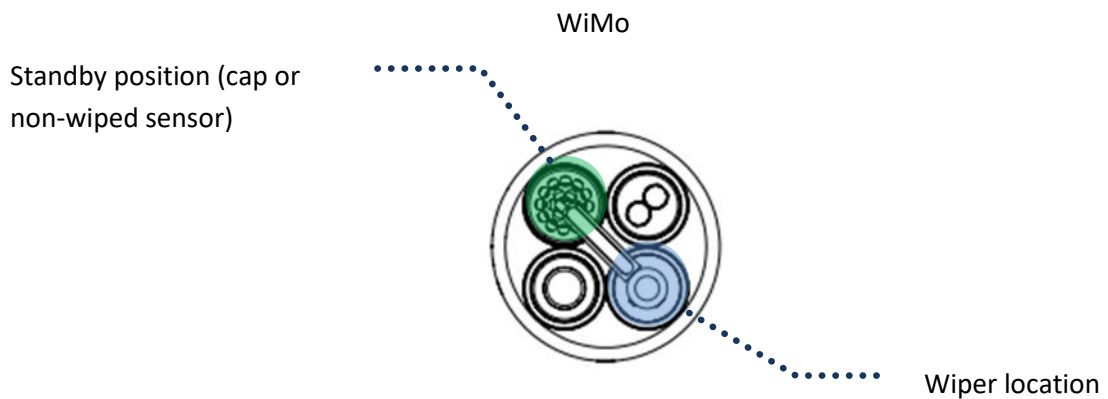
## 1.4 Cleaning device

The WiMo and WiMo Plus sondes allow a cleaning device on their location. This device is a smart wiper. It self-configures according to the sensors that are connected to the sonde. It automatically detects whether the sensors need or can be cleaned and adjusts its wipe accordingly.

You must take care to avoid having a sensor that should be wiped below the brush in the standby position.

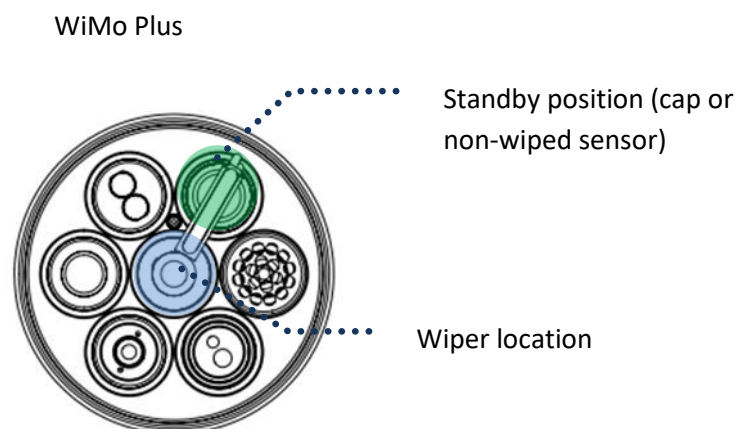
### 1.4.1 Installation on a WiMo probe

On version 4 slots (WiMo) the wiper can be placed on any location.



### 1.4.2 Installation on a WiMo Plus probe

On version 7 locations (WiMo Plus) the position of the wiper is unique and central.



## 2 Operation

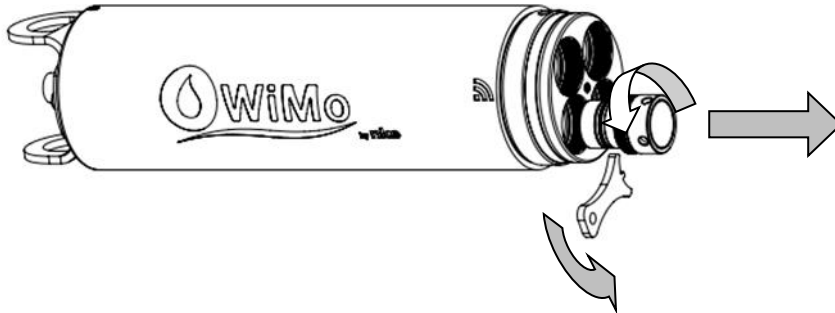
### 2.1 Sensors install

The WiMo and WiMo Plus sondes come with a cap on each sensor location. These caps ensure the sonde is waterproof. When you remove a cap the sonde is no longer waterproof until you place a sensor or a cap.

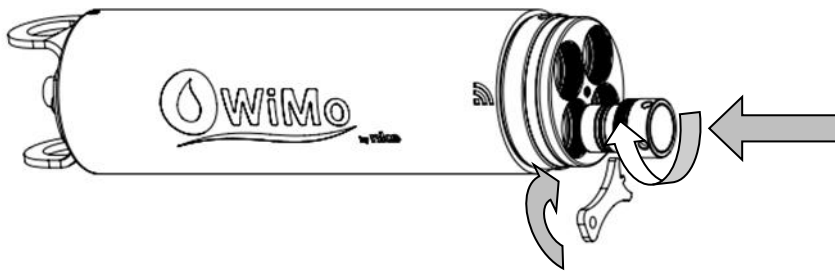
If the WiMo has been immersed in water you must dry the sonde properly before any dismantling.  
**The plug/unplugged operations of sensors or caps must be done head-down.**



### 2.1.1 Install/Remove caps

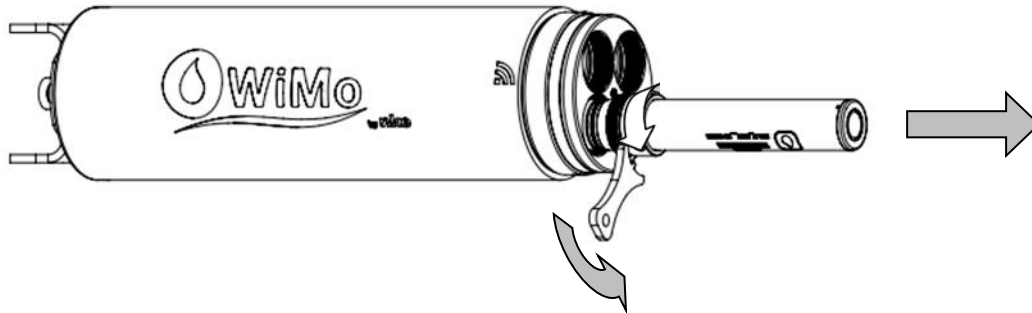


Unscrew the locking sleeve in the anti-clockwise direction by hand or with the key tool provided. Pull the cap to extract it. Place it on a clean surface and store it taking care not to damage the O-rings.



Before repositioning the cap check that the location in the sonde has no damage and no scratches. Grease both O-rings of the cap with the grease provided and engage the cap in the location. Screw the cap clockwise until the locking sleeve is in contact with the sonde head. Help with the key tool provided if necessary.

### 2.1.2 Install/Remove sensors



Unscrew the sensor locking sleeve in the anti-clockwise direction by hand or with the key tool provided. Pull the sensor to extract it. Place it on a clean surface and store it taking care not to damage the O-rings.

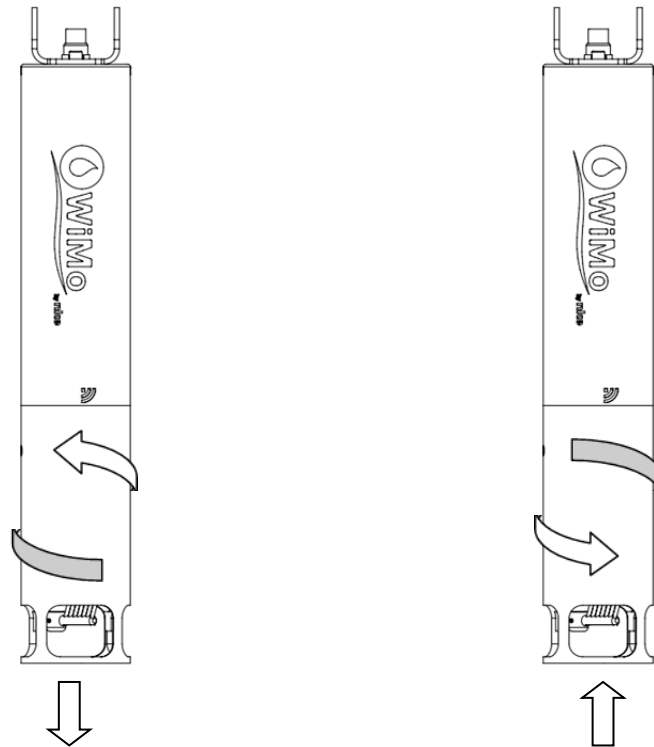


Before repositioning the sensor check that the location in the sonde has no damage and no scratches. Grease the two sensor O-rings with the supplied grease and engage it in the location by making the coded pin coincide with the host hole in the sonde. Take care to the sensor's centering in its location. Move the sensor slightly from right to left to check that the pin is in front of its receptacle before starting to screw. Be careful not to damage the threads of the sonde. Any deterioration of the threads is not covered by the warranty.

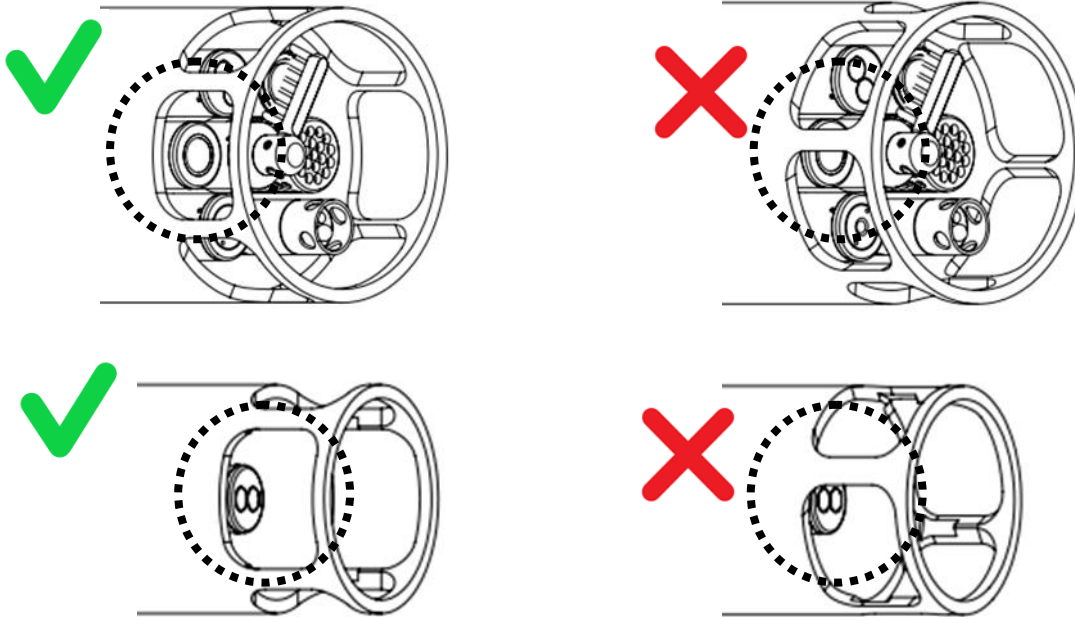
## 2.2 Install/Remove Guard

The guard protects the sensors and limits the extension of biofouling. It is strongly advised to install it before any in-situ deployment. The guard is covered with antifouling paint. It is important to handle it carefully to avoid damaging the coating.

To install the guard screws in clockwise direction. To remove it you must unscrewed by turning in the anti-clockwise direction.



If optical sensors are mounted on the sonde, it is important to properly set the guard to avoid bias on the measurements. The figure below shows how to set the guard on the sonde (WiMo or WiMo Plus). Screw the guard to the maximum and unscrew slightly to fit the sensors centered on the windows as below:

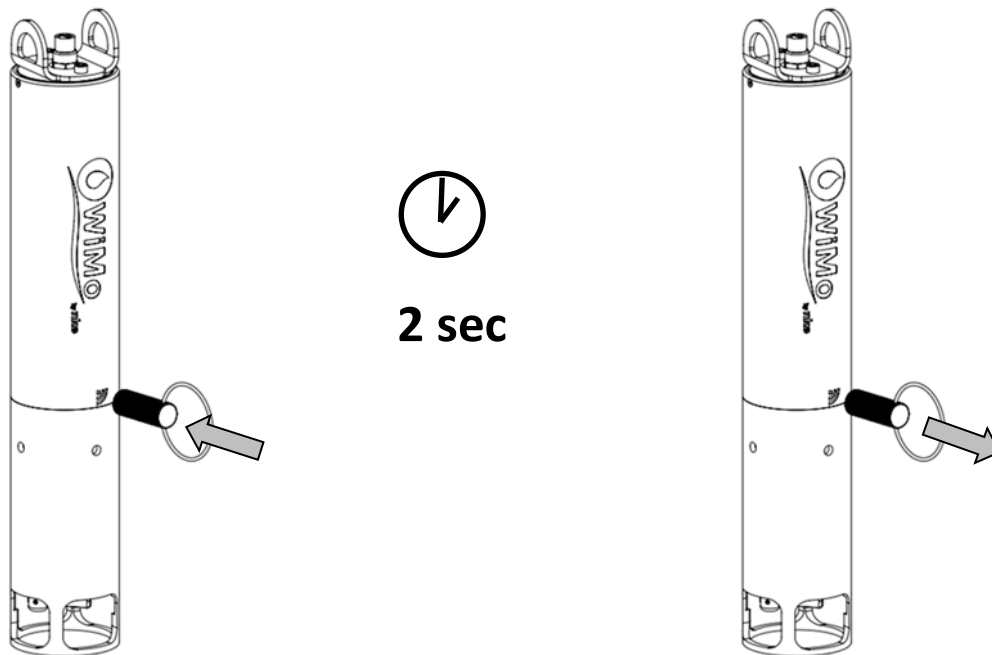


### 2.2.1 ISE sensor protection guard

The protection supplied as standard with the WiMo and WiMoPlus probe does not properly protect the ISE sensors (Redox, Nitrate and Ammonium). For optimal protection it is necessary to equip yourself and change the sensor protection with ref 72-12-544

## 2.3 Sonde activation

To activate the Wi-Fi you must use the supplied magnet. Affix the end of the magnet to the Wi-Fi symbol of the sonde as shown in the picture below. Wait at least two seconds before removing it. If the sound indication is enable, when activated the sonde will beep twice.



The Wi-Fi session can stop on session timeout. However you can stop manually Wi-Fi. As for activation, affix the magnet to the Wi-Fi symbol. Wait at least two seconds before removing it. If the sound indication is enable, when activated the sonde will beep continuously for one second.

## 2.4 Connection to Sonde

The WiMo uses a Wi-Fi radio link to communicate point-to-point with equipment as smartphone, tablet or PC. It is compatible all operating systems (Windows, Mac OS, Android, IOS, Linux). The radio specifications are:

Standard network support	IEEE 802.11 a/b/g/n
Frequency Bandwidth	2.4 - 2.5 GHz

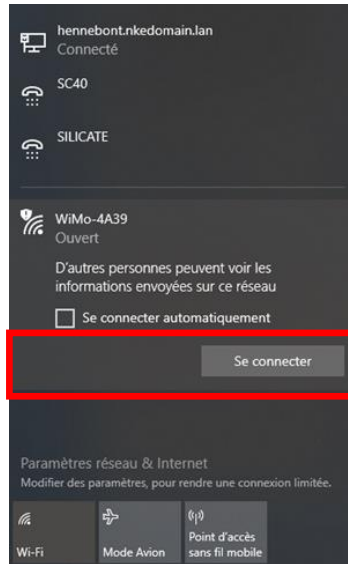
The sonde can only be connected to one device at a time. Be careful to disconnect from the WiMo before reconnecting with another device.

### 2.4.1 PC

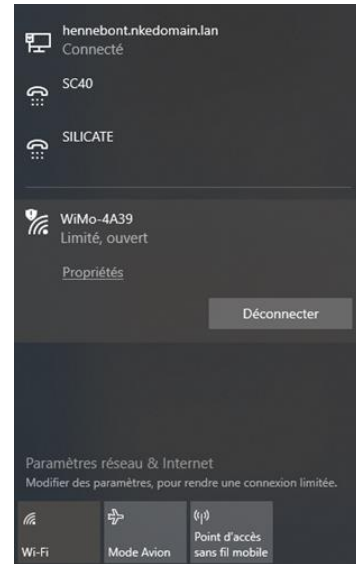
Once the sonde is activated (see §2.3) search its SSID in the list of available networks. The sonde's SSID is in the FORM of WIMO - XXXX. Select the sonde and click "Connect"



Step N°1 :  
Sonde Identification



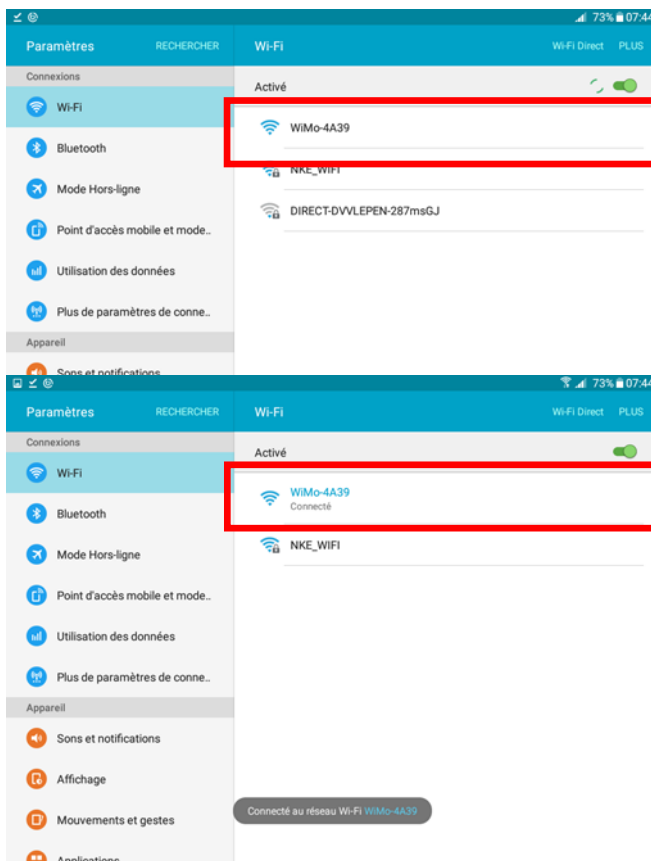
Step N°2:  
Connect



Step N°3:  
Sonde is connected

### 2.4.2 Tablet

Once the sonde is activated (see §2.3) search its SSID in the list of available networks by going into Wi-Fi settings. The sonde's SSID is in the FORM of WIMO - XXXX. Select the sonde and click "Connect"

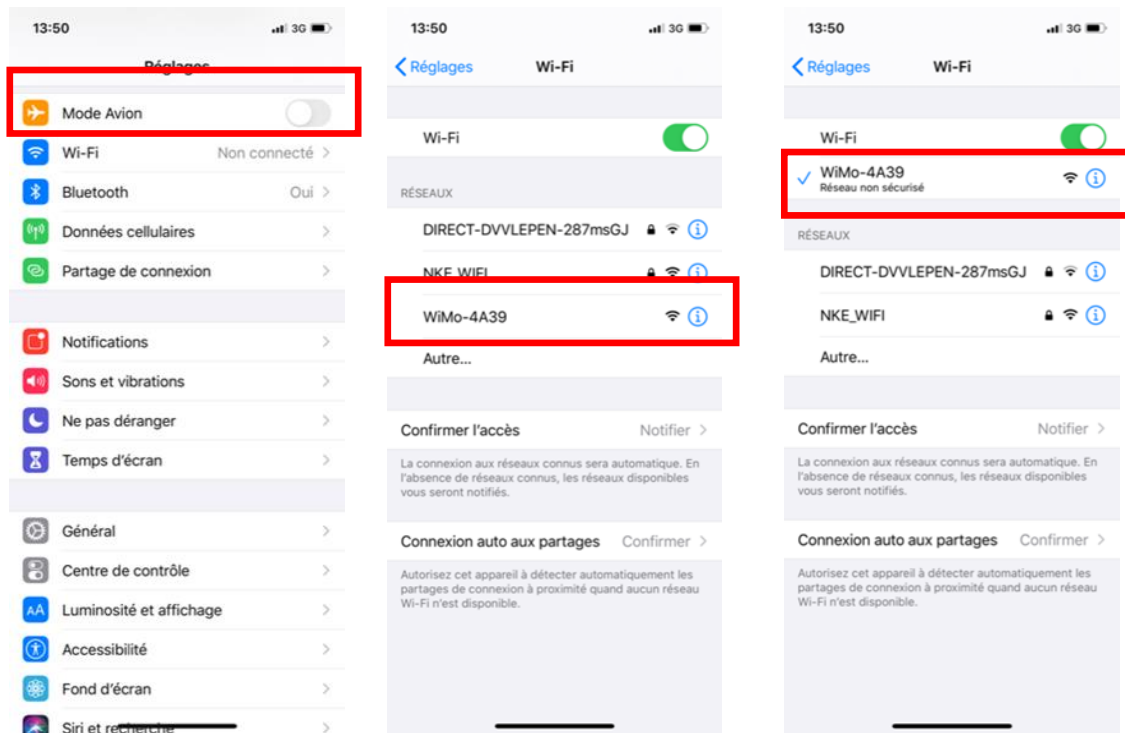


Step N°1 :  
Selects WiMo and click  
on to connect

Step N°2:  
The sonde is connected  
to tablet

### 2.4.3 Smartphone

Once the sonde is activated (see §2.3) go to Wi-Fi settings menu and search its SSID in the list of available networks. The sonde's SSID is in the FORM of WIMO - XXXX. Select the sonde and click "Connect"



Step N°1 :  
Sonde Identification

Step N°2:  
Connect

Step N°3:  
The sonde is connected

### 3 WEB Interface

There is no dedicated software to the sonde. It integrates its own WEB server. To view the interface connect to the sonde (see §2.4) and use an internet browser (Chrome, Edge, Safari).

Enter the default address 192.168.56.1 in the address bar. It will be possible in the sonde interface to modify this address if you want to protect access to your WiMo. **Be careful if this address is changed, take care to write it down or you will no longer be able to connect to the probe.**





### 3.1 Dashboard Menu

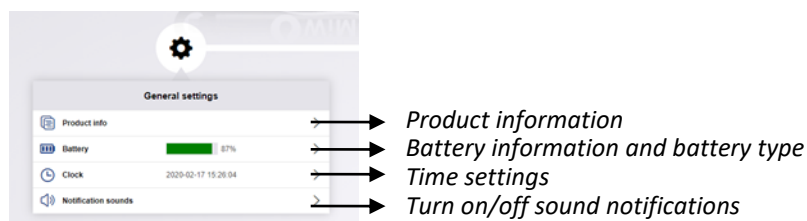
This menu is the home page of the sonde. It allows you to set it up and to start recording.



The image of the WiMo at the top (see above) shows an overview of its configuration. On the left are the available communications and whether they are activated or not (grey icon = disabled) ❶ and on the right the sensors connected to the probe ❷.

The probe is in run mode by clicking the "OFF" button ❸. The "timer icon" button ❹ allows you to have an estimate of battery life based on sonde settings.

#### 3.1.1 General settings



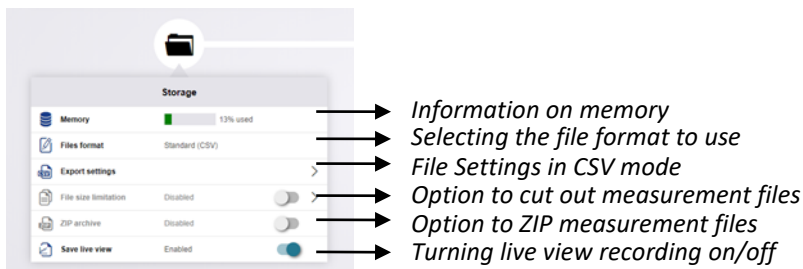
When first using or changing the battery it is essential to set the sonde at the actual time in order to be able to switch to run mode.

**⚠** When changing the batteries, the window below appears. It is essential to make the right choice in the "Power" field and to fill in the "Battery capacity" field appropriately to allow the probe to continue to provide the estimate of the battery autonomy according to the configuration of the probe.

On delivery, the Wimo probe is equipped with alkaline batteries with a capacity of 20 000 mAh

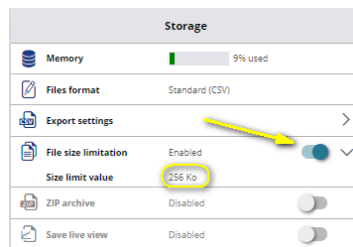


### 3.1.2 Storage



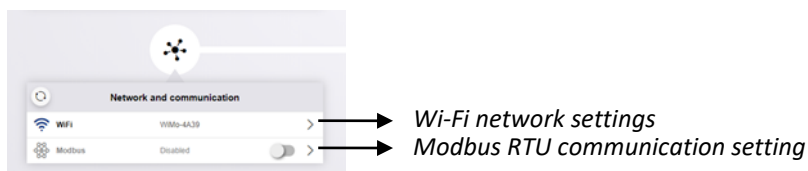
There are two file formats: CSV or Topkapi's format TXT2.

It is possible to cut the measurement files to a size adjustable by the end-user. The goal is to avoid losing data for long time deployments on a low battery shutdown for example. In operation with the WiMo Modem, this option is automatically activated and the measurement files cut to a size of 256K.



Data files can be compressed to ZIP to save memory space.

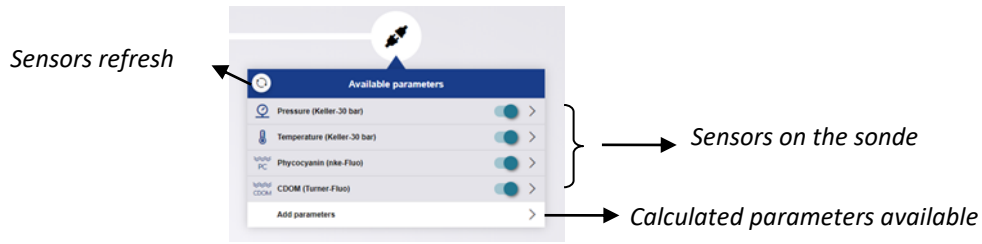
### 3.1.3 Network and communication



Wi-Fi network settings can be changed, including the narrow bands used if they are cluttered.

To be able to communicate in Modbus with the sonde you must enable the Modbus function in the interface. It will only work if an external power supply is detected. It is possible to select the RS232 or RS485 support, as well as the address of the sonde (128 by default).

### 3.1.4 Available parameters



When sensors are added or removed from the sonde, the sensors are detected and displayed by clicking on the refresh button.

The sensors are listed and can be turned on/off. If sensors are enabled and set up other than "not recorded" in the sensor's "recorded format" description, these sensors will be stored in files.

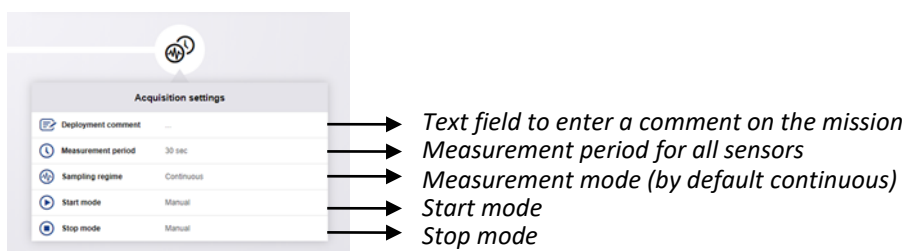
Depending on the sensors plugged you are able to have access to additional calculated parameters.

### 3.1.5 Connected accessories




When a wiper is detected, it appears in this topic. The "refresh accessories" button also refreshes the sensors.

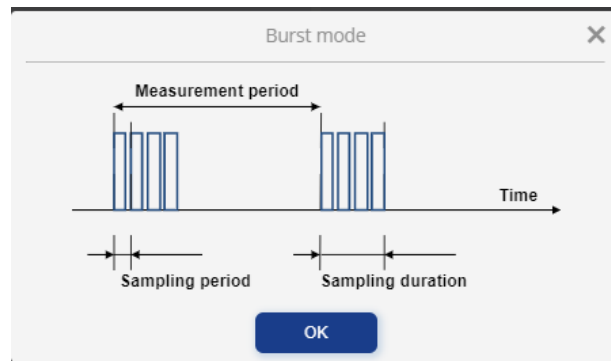
### 3.1.6 Acquisition settings




There are several sampling modes. In continuous mode a sample of each parameter is recorded at the rate of "measurement period." Burst mode allows you to record a number of samples for a shorter time period than "measurement period" at the rate of "measurement period."

Whether in start or stop mode it is possible to start/stop recording manually, on a parameter condition or on a specific date.

 By clicking on this symbol present in “Sampling regime”, you will see a schematic help window like the one below on the different operating modes.



 When operating in ModBus, Burst, Tide and Wave sampling modes are not allowed

## 3.2 Measurement Files Menu

The screenshot shows the 'Measurement files' section of the WiMo web interface. It features a table with the following data:

Name	Size
4a30_rt_200210_151149.csv	0 KB
4a30_rt_200210_150040.csv	4 KB
4a30_rt_200210_144936.csv	1 KB
4a30_rt_200210_144445.csv	3 KB
4a30_rt_200210_143402.csv	9 KB
4a30_data_200211_165811.csv	401 KB
4a30_data_200205_101740.csv	58 KB
4a30_data_200204_082547.csv	200 KB
All files	676 KB

A tooltip for the file '4a30\_data\_200211\_165811.csv' provides the following details:

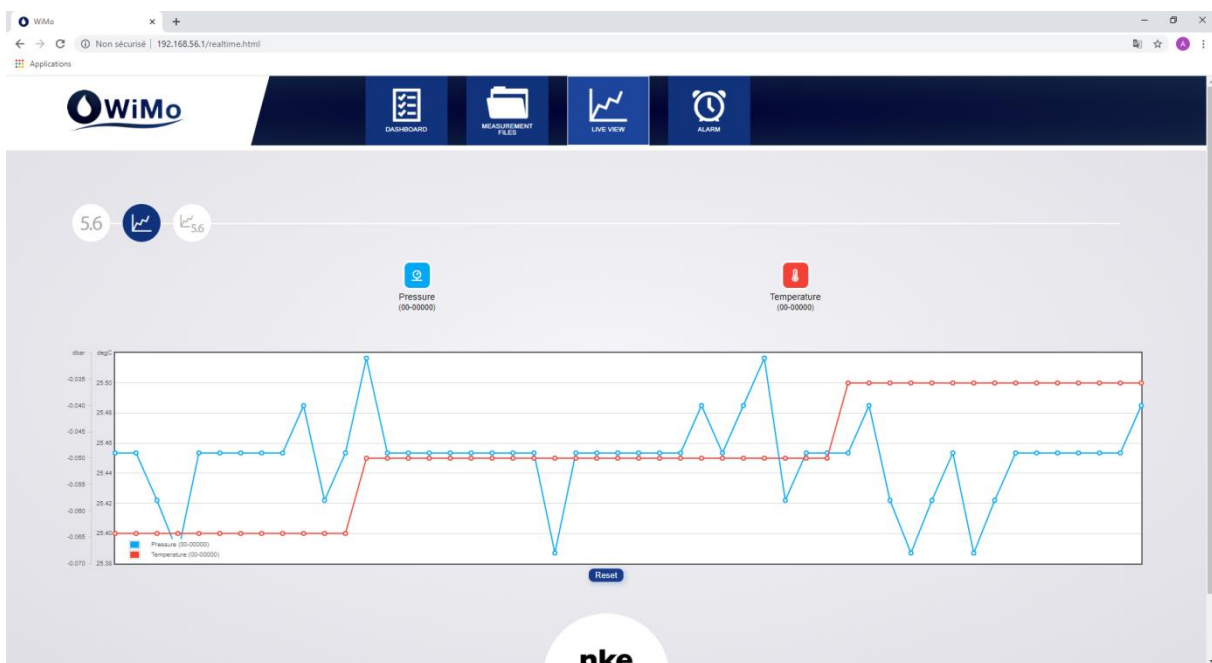
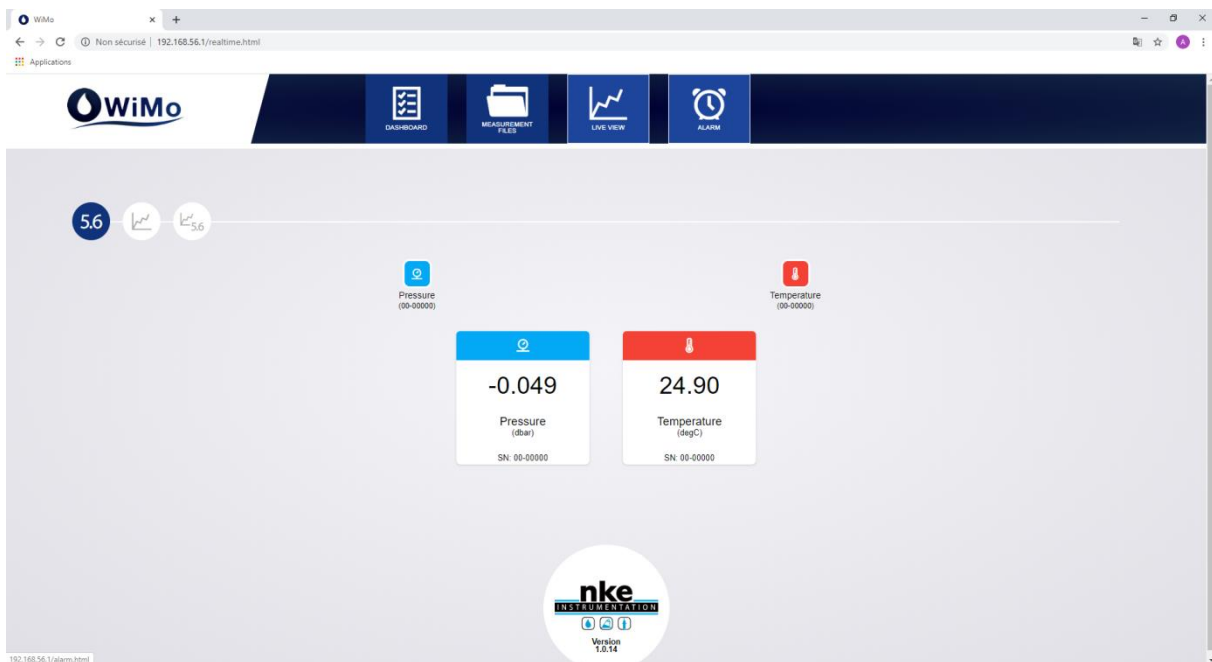
- Deployment comment
- Measurement period: 30 s
- Recording start date: 2020-02-11 16:58
- Recording end date: 2020-02-13 16:53
- Number of recordings: 5741

Two different files exist (\*\_rt\_\* or \*\_data\_\*). Real time "rt" files correspond to measurements done when the "save live view" option in the DASHBOARD page is enabled.

Data files are measurement recorded in datalogger mode. You can either download or delete the files one by one or all at once.

For "data" files, information about the file is available by clicking on the information icon. Comment information, start date, end-of-record and number of samples acquired are provided. If the sonde is still running the end date of registration is not filled.

### 3.3 Live View Menu

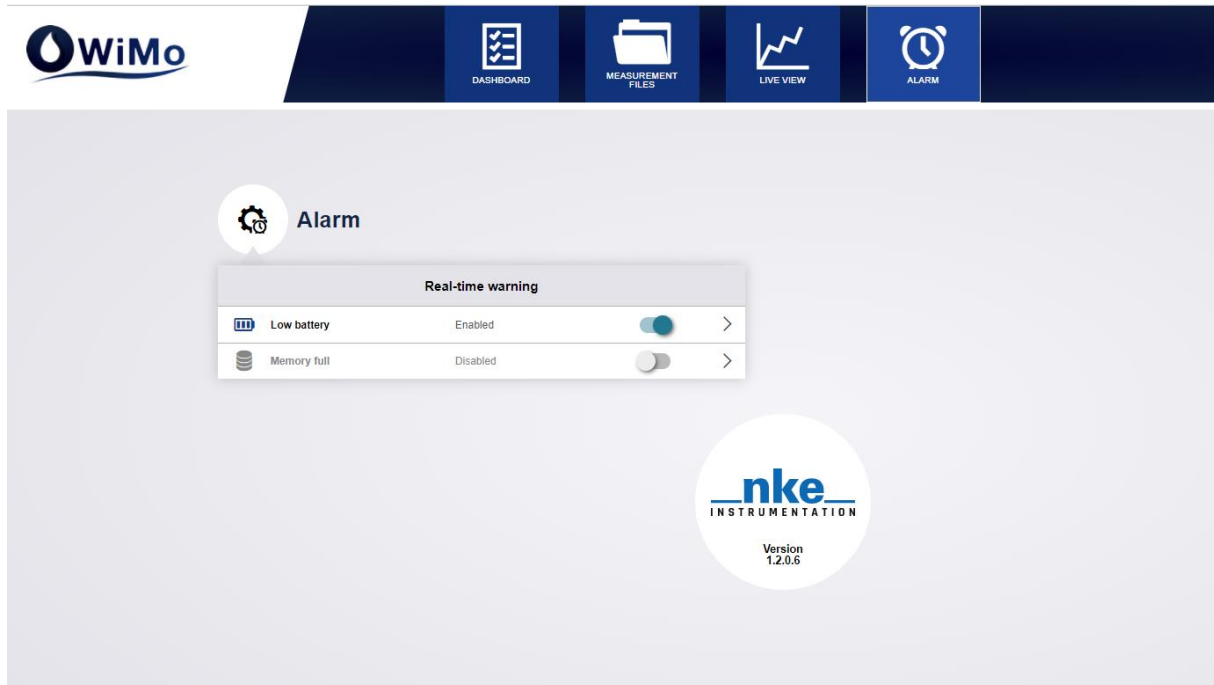


The "live view" menu allows you to display in real time the measurements. Only enabled sensors on the DASHBOARD page appears in live view. Measurements can be viewed analytically, graphically or both. The parameter is displayed or not simply by clicking once on the associated parameter icon.

You change the display arrangement by clicking on the lozenges at the top left. The active arrangement is dark blue.

The graphic view can be reset with the "reset" button below the graph. However in "save live view" mode data are not deleted from file.

### 3.4 Alarm Menu



The WiMO probe has 2 levels of internal battery voltage monitoring. It can generate and then transfer by Email an alarm file on detection of weak batteries. All you have to do is activate the "Low battery" function.

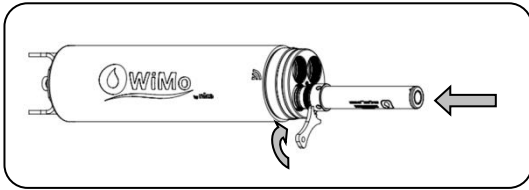
The second level of detection secures the probe and the data if the battery voltage reaches a critical level. In this case, the probe stops the recordings and switches to "Stop" mode.

#### **Exemple :**

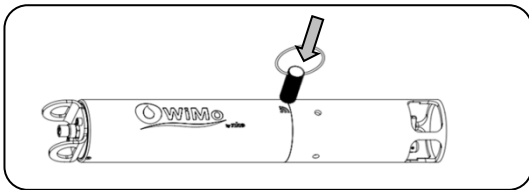
```
2018-12-10;00:00:02;D990;Battery voltage=8.7 V
```

The code "D990" gives the type of alarm received (voir §7 Management of alarm files)

### 3.5 Operates sonde in Five steps



Step N°1 : Connect all sensors and accessories to the sonde



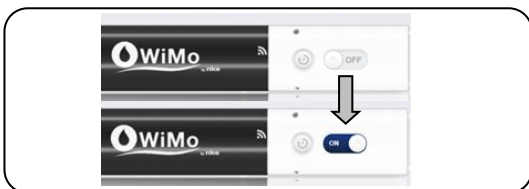
Step N°2 : Activate Wi-Fi (cf. §2.3) and connect to the sonde (cf. §2.4)



Step N°3 : Open the communication interface (cf. §3)



Step N°4 : Check that all sensors have been detected and set up the acquisition



Step N°5 : turn on the probe



Once the Wi-Fi shuts down the probe can be deployed



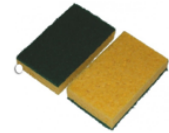
## 4 Maintenance

### 4.1 Routine Maintenance

Regular maintenance of the equipment ensures maximum longevity. A thorough visual inspection must be carried out regularly and any damaged part must be replaced.

Deposits such as biofilm (or silt), silt and mud must be carefully removed.

Use a sponge with warm soapy water (such as dishwashing liquid) to clean the body of the probe and in particular at the level of the locking rings of the caps and sensors. Never use abrasive agents (eg a scouring pad).



In case of heavy contamination with barnacles (or calcifying organisms), rinsing with water may not be sufficient. Depending on the degree of contamination, we recommend removing the heaviest contamination with a plastic scraper. Then use a soft sponge with a 5% acetic acid solution (white vinegar), preferably with warm water, and rinse the sensor with fresh water.



Wipe and dry the sensor with a soft cloth or optical wipes.

#### 4.1.1 O-rings service

The O-rings seal the probe. Any O-rings damaged can affect the reliability of the sonde. A visual inspection must be done each time a sensor is plugged or unplugged and also when battery compartment is opened. Check that no hair-type, particle-like elements are found on the O-rings. If the surface has impurities, gently clean them with a non-fluffy wipe and lightly grease the O-rings with molykote grease. Any damaged O-rings must be changed.

#### 4.1.2 Sensor port service

 A sensor should **ALWAYS** be unplugged WiMo's head downwards in order to avoid any water entering the sonde.

During each plug/unplug sensor operation, do a careful inspection of the surfaces of the sensor location. Check that there are no scratches, no particles or impurities lodged on these surfaces. Prefer compressed air for cleaning location to avoid scratching by using a wipe or other.

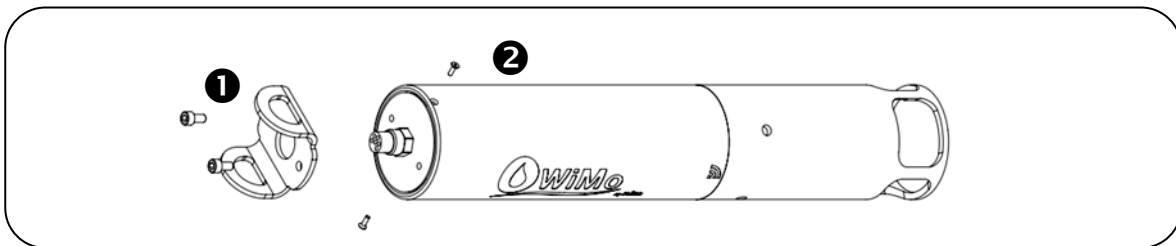
Check that the location is dry before repositioning a sensor on the location.

## 4.2 Replace batteries

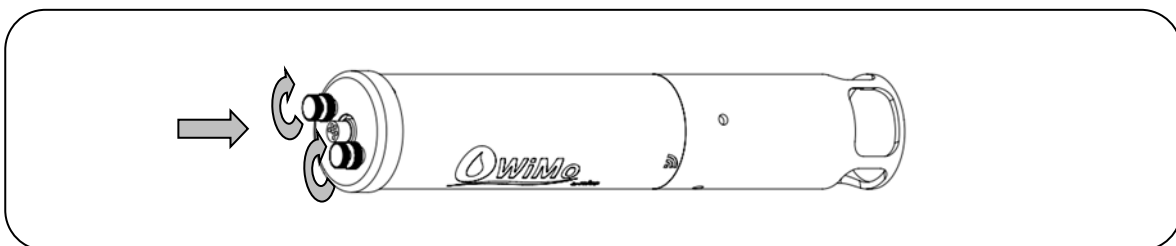
The WiMo and WiMo Plus sondes use 6 D-type Alkaline batteries. It is important to use reliable alkaline batteries, especially batteries whose capacity is notified, as this capacity will have to be carried over in the sonde for battery life calculation (voir § 3.1.1).

The probe is also able to use 6 Nickel Metal Hydrure (NiMH) D-type rechargeable batteries.

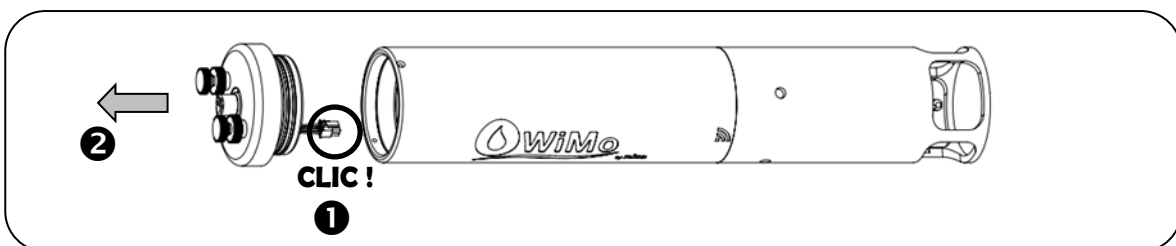
**Step 1 :** Using allen keys provided, unscrew the screws from the handle ❶ and then remove the handle. Unscrew the two screws holding the cap ❷



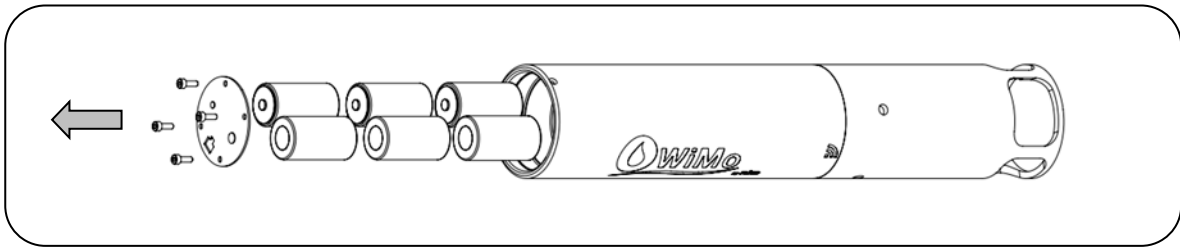
**Step 2 :** Put the dismount cap toolkit on the handle attachment holes and screw both screws (Plastic knurled closed to the screw head stop) to the maximum. Continue screwing using plastic knurled until unscrewing becomes easy.



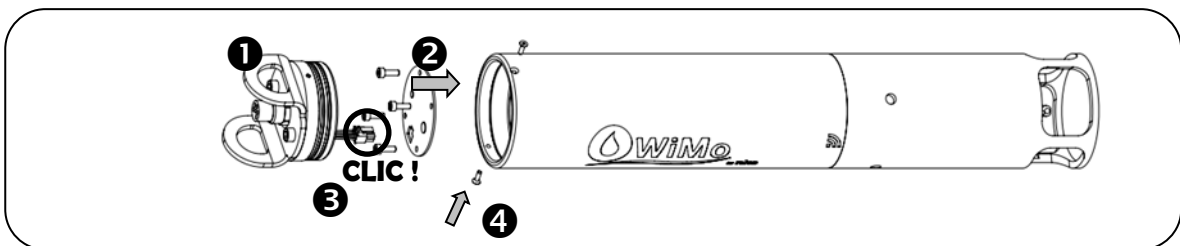
**Step 3 :** Gently remove the cap to have access to the connector. Unclip the connector to completely remove the cap.



**Step 4 :** Remove the 4 screws sustaining the stack plate and remove the 6 old batteries. Replace with 6 new batteries **paying attention to polarity!**



**Step 5 :** Remove the dismount cap toolkit attached to the cap and fix the handle ❶. Insert the stack plate (small spring on the + polarity and large spring on the - polarity) and use the Allen key to insert the 4 screws ❷. Clips the connector and push the cap into the body. Take care to check the state of o-rings ❸. Use the Allen key to insert the two screws to lock the cap ❹.



## 5 Product Identification

The WiMo is identified with a label summarizing its identifiers and the information needed to log in.



- ❶ Product name
- ❷ QR-code to access configuration interface
- ❸ Product family code
- ❹ Product serial number and SSID for Wi-Fi connection

The SSID number identifies the product in the list of available WIFI networks using discover mode on the platform (PC, tablet or Smartphone).

## 6 File formats

Measurement files created by WiMo and WiMo Plus sondes can be in CSV or TXT2TopKapi's format

### 6.1 Topkapi TXT2 Format

The Topkapi TXT2 format is a compliant format with the monitoring software, SCADA Topkapi.

The name of the file is formatted as PREFIXE\_AAAAMMJHHMMSS.TXT

The prefix discriminates the WiMo. It corresponds to its serial number. Each file is a 3-column ASCII file defined as follows:

- Field 1 : The date of the data as AAMMJHHMMSS
- Field 2 : Variable ID (a chain that necessarily starts with a letter and can only contain letters, underscores and dots)
- Field 3 : Data value

File example : 4a39\_20200218111415.txt

```
200218111425 PRESSURE_01 0,079
200218111425 TEMPERATURE_02 19,90
200218111425 PHYCOC_15 11123,000
200218111425 TCDOM_12 4,000
200218111425 PH_08 6,51
200218111430 PRESSURE_01 0,070
200218111430 TEMPERATURE_02 19,90
200218111430 PHYCOC_15 11095,000
200218111430 TCDOM_12 6,000
200218111430 PH_08 6,53
200218111435 PRESSURE_01 0,079
200218111435 TEMPERATURE_02 19,95
200218111435 PHYCOC_15 11038,000
200218111435 TCDOM_12 2,000
200218111435 PH_08 6,54
```

### 6.2 CSV Format

The data is arranged in accordance with the export configuration chosen by the end-user. The name of the file is as follow: serialnumber\_data\_AAMMJJ\_HHMMSS.csv

## 6.2.1 Datas

MIS	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Timestamp(Standard)	CH0:Pressure(dbar)	CH1:Temperature(degC)	CH2:Chlorophyll_a(ug/L)	CH3:Conductivity(mS/cm)	CH4:Temperature(degC)	CH5:Oxygen_Concentration(mg/L)	CH6:Oxygen_Saturation(%)	CH7:Practical_Salinity(Psu)					
2	11/02/2020 16:59	-0.031	21.95	2.88	45.73	15.725	9.17	100.47	36.888					
3	11/02/2020 16:59	-0.022	21.95	3.33	45.7	15.677	9.3	101.18	36.907					
4	11/02/2020 17:00	-0.022	21.99	2.84	45.67	15.659	9.38	101.56	36.896					
5	11/02/2020 17:00	-0.031	21.9	3.04	45.65	15.615	9.45	101.67	36.919					
6	11/02/2020 17:01	-0.031	21.89	2.92	45.61	15.586	9.51	101.88	36.914					
7	11/02/2020 17:01	-0.022	21.8	3.58	45.63	15.565	9.56	101.98	36.948					
8	11/02/2020 17:02	-0.031	21.79	2.99	45.59	15.524	9.63	102.25	36.951					
9	11/02/2020 17:02	-0.013	21.7	2.97	45.6	15.516	9.67	102.42	36.972					
10	11/02/2020 17:03	-0.031	21.69	3.15	45.58	15.49	9.72	102.61	36.971					
11	11/02/2020 17:03	-0.031	21.6	3.07	45.56	15.458	9.76	102.68	36.986					
12	11/02/2020 17:04	-0.022	21.5	3.23	45.52	15.417	9.8	102.86	36.97					
13	11/02/2020 17:04	-0.031	21.45	3.47	45.49	15.423	9.83	102.9	36.962					
14	11/02/2020 17:05	-0.022	21.45	2.84	45.5	15.426	9.83	102.79	36.959					
15	11/02/2020 17:05	-0.022	21.4	3.02	45.5	15.384	9.88	102.66	37.006					
16	11/02/2020 17:06	-0.013	21.35	2.69	45.44	15.361	9.88	102.83	36.972					
17	11/02/2020 17:06	-0.031	21.3	3.22	45.45	15.341	9.91	102.98	36.995					
18	11/02/2020 17:07	-0.022	21.29	3.09	45.44	15.34	9.92	102.95	36.992					
19	11/02/2020 17:07	-0.022	21.2	2.94	45.43	15.317	9.94	103.06	37.006					
20	11/02/2020 17:08	-0.022	21.2	3.67	45.48	15.303	9.96	103.14	36.972					
21	11/02/2020 17:08	-0.031	21.15	2.92	45.34	15.282	9.97	103.13	36.957					
22	11/02/2020 17:09	-0.031	21.1	2.57	45.34	15.265	9.99	103.24	36.972					
23	11/02/2020 17:09	-0.004	21.1	2.92	45.3	15.242	10.02	103.42	36.952					
24	11/02/2020 17:10	-0.022	21.09	2.92	45.31	15.229	10.02	103.33	36.979					
25	11/02/2020 17:10	-0.022	21	3.07	45.27	15.213	10.01	103.08	36.958					
26	11/02/2020 17:11	-0.031	20.99	3.17	45.31	15.187	10.02	103.15	37.012					
27	11/02/2020 17:11	-0.031	20.99	3.05	45.3	15.187	10.04	103.29	37.007					
28	11/02/2020 17:12	-0.031	20.9	2.88	45.24	15.168	10.02	103.01	36.969					
29	11/02/2020 17:12	-0.013	20.9	2.98	45.22	15.154	10.07	103.4	36.961					
30	11/02/2020 17:13	-0.022	20.85	3.04	45.24	15.145	10.07	103.39	36.992					
31	11/02/2020 17:13	-0.031	20.8	2.99	45.24	15.132	10.05	103.12	37.006					
32	11/02/2020 17:14	-0.031	20.8	2.79	45.18	15.108	10.06	103.17	36.968					
33	11/02/2020 17:14	-0.031	20.79	3.09	45.17	15.094	10.08	103.29	36.976					
34	11/02/2020 17:15	-0.031	20.79	2.98	45.15	15.076	10.08	103.22	36.976					
35	11/02/2020 17:15	-0.031	20.7	3.2	45.1	15.063	10.06	103.06	36.941					
36	11/02/2020 17:16	-0.031	20.7	3.1	45.11	15.043	10.08	103.15	36.972					
37	11/02/2020 17:16	-0.013	20.69	3.09	45.12	15.038	10.08	103.15	36.983					
38	11/02/2020 17:17	-0.031	20.65	3.5	45.07	15.018	10.09	103.29	36.96					
39	11/02/2020 17:17	-0.031	20.6	3.08	45.09	15.014	10.09	103.16	36.977					
40	11/02/2020 17:18	-0.022	20.6	2.97	45.08	14.991	10.1	103.14	36.994					
41	11/02/2020 17:18	-0.031	20.55	3.77	45.09	14.973	10.08	102.96	37.012					

## 6.2.2 settings

At the end of the measurement file entire configuration used for data acquisition is inserted in XML format. This part is used to display the information about the file in the interface but can also be used by the end-user to find the full configuration of his WiMo. If compression has been enabled the configuration will be in a separate file.

Section	Field	Description
PROBE	eH0	Product name
	eH1	Product type
	eH2	Serial number
	eH3	Software version
COMMENT	eX0	Comment on Deployment
STATUS	eS0	Memory capacity
	eS1	Battery capacity
SENSOR_X	eS0	Sensor ID
	eS1	Manufacturer
	eS2	Sensor name
CHANNEL_X	eC0	Measurement channel name and type
	eC1	Unit
	eC2	Number of measurement precision digits
	eC4	Measurement mean (do not change without nke notice)
CALIBRATION	eT0	Type of calibration (Raw, linear, etc.)
	eC0	If Steinaradt for example, A coefficient
	eC1	If Steinaradt for example, B coefficient
POINT	eP0	Physical value of the calibration point
	eP1	Raw value of the calibration point

The description of the XML fields is as follows

PROBE	
eH0	Product name
eH1	Product type
eH2	Serial number
eH3	Software version
eH4	Number of channels
COMMENT	
eX0	Comment on Deployment
STATUS	
eS0	Memory capacity
eS1	Battery capacity
SENSOR_X	
eS0	Sensor ID
eS1	Manufacturer
eS2	Sensor name
CHANNEL_X	
eC0	Measurement channel name and type
eC1	Unit
eC2	Number of measurement precision digits
eC4	Measurement mean (do not change without nke notice)
CALIBRATION	
eT0	Type of calibration (Raw, linear, etc.)
eC0	If Steinaradt for example, A coefficient
eC1	If Steinaradt for example, B coefficient
POINT	
eP0	Physical value of the calibration point
eP1	Raw value of the calibration point

<b>MEASURE</b>	
eS0	Sampling Type (continuous...)
<b>START</b>	
eS0	Start mode (manual, on date, on condition)
<b>STOP</b>	
eS0	Stop mode (manual, on date, on condition)
<b>EXPORT</b>	
eX0	Data export type
eX1	Decimal separation (point or comma)
eX2	Separation of fields (space, tab, semicolon)
<b>DATA</b>	
eD0	Recording period
eD1	Starting date (ISO-8601)
eD2	Stopping date (ISO-8601)
eD3	Number of records

## 7 Management of alarm files

There are different sources of alarms managed by the probe:

- System supervisor alarms (eg low battery voltage).
- Sensor alarms (e.g. brush blockage).
- Communication system alarms (eg: GPS loss).

The table below lists the code of the alarms that are likely to be transmitted

Code	Commentaires
I990	System power-on information
I991	External power supply presence information
I992	Low internal temperature information
I993	High internal temperature information
<b>Défauts</b>	
D990	Low battery voltage fault
D991	Brush position fault incompatible with the sensor positions
D992	Low remaining battery capacity fault
D993	Memory card access fault
D994	Low remaining memory capacity fault
D995	GPS drift fault
<b>Défaillances</b>	
Fxx0	I2C command write failure with sensor « xx »
Fxx1	I2C configuration write failure with sensor « xx »
Fxx2	Failure to read I2C result with sensor « xx »
Fxx3	I2C no response failure with sensor « xx »
Fxx4	Failure during I2C acquisition with sensor « xx »
Fxx5	I2C result failure with sensor « xx »
Fxx6	I2C cleaning failure with broom « xx »

**Exemples :**

- WiMo probe alarm on low battery voltage:  
\_2021-11-22 11:57:32;D990;1;Voltage=6.9 V  
\_2021-11-22 11:58:33;D990;0;Voltage
- Non-response alarm of the Chl-a sensor placed on slot n°5 of the probe.  
\_2021-10-20 22:40:01;F053;1;Chl-a  
\_2021-10-20 22:55:01;F053;0;Chl-a
- Alarm on GPS drift (distance 5198m from the original location) + low Modem battery voltage.

```

Message | 0005_alarm_201026_071942.txt (398 o)
2020-10-26 07:19:42;D981;1;GPS Radius=5198m
2020-10-26 07:19:45;D980;1;voltage=9.9v

```

## 8 Accessories available

### 8.1 Modem

The 3G/4G WiMo modem coupled to the WIMO multi-parameter sonde is able to transmit its data using the deployed 3G/4G networks. The modem is multi-operator and is compliant with French and foreign networks.

The modem once connected to a WIMO sonde is automatically detected. The sonde is then able to set it up. The modem retrieves files acquired by the WIMO and transmits them at the user defined rate.


It has a GPS inside and can use it to transmit its position through the 3G/4G network. The end-user can setup the modem to monitor a circular area with alarm transmission if the buoy goes outside this area.



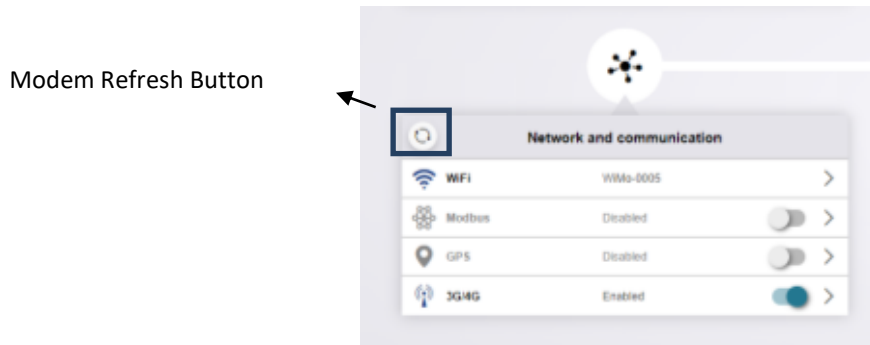
WIMO Modem specifications	
Features	transmission 3G/4G & GPS
Operating environment	Freshwater and sea water
Waterproof	IP67
Communication	3G/4G / serial link
Power Supply	Internal 8 Type C Alkaline batteries or 8 NiMH Type C rechargeable batteries
Temperature	Storage (no battery): -20°C à 70°C
	Operating : - 2 à +50°C
Size	Diameter : 114 mm
	Total length: 242 mm
Weight	1.65 kg



### 8.1.1 Modem settings

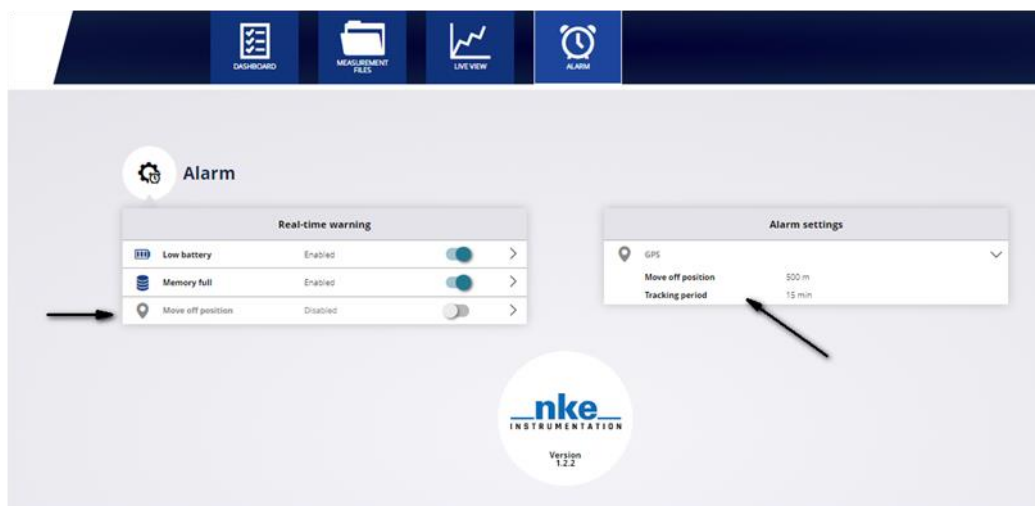
 Refer to the "3G/4G WiMo Modem" modem manual for installation and configuration.

The modem can only be configured if it is connected and detected by a WiMo probe. Detection is done when you click on the Refresh button in the "Network and communication" window.



Modem detection causes new elements to appear in the WEB interface specific to the modem.

- « Network and communication ».
  - « GPS » line: Allows the activation and configuration of the GPS
  - « 3G\4G » line: Enables activation and configuration of the transmission mode.
- « Alarm ».
  - « Move off position » line: : Allows the activation of GPS Tracking mode.
  - « Alarm setting » line: Allows you to define the avoidance radius and the recurrence of the alarms.



## 8.2 Flotteur WiMo 20 Litres

The WIMO float 20 liters allows to easily deploy a WIMO or WiMo Plus probe equipped with a 3G/4G Modem at sea or on inland bodies of water. It provides protection against shocks and reduces the development of biofouling on the probe's body. When mounted on the float, the sensors of the WIMO are located 1 meter below the water surface. The float has been designed to facilitate the extraction of the probe without tools and thus easily carry out the maintenance of the sensors.

The system supplied by nke is made up of the following sub-assemblies:

- A central body fitted with a 20-litre float.
- A WIMO support pole.
- Kit of screws and tools
- Optional: a maritime signaling light and a cross of Saint Andrew



### 8.3 Bouée côtière WiMo

The coastal WiMo buoy is designed to host a Wimo multiparameter sonde and its 3G/4G modem. Possible deployment areas are coastal areas, lakes and rivers..



## 9 Return a product to the factory

For a consideration of your product by our after-sales service it is essential to follow the RMA procedure. Any material returned without an RMA number will not be taken into account.

- In case of shipment for repair or expertise, obtain an RMA number by using the procedure available on the website:

<https://nke-instrumentation.com/product-return-form/>

Pack the product in its original shipping box to prevent damage in transit

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