BAMOPHOX 451 LOG

Dissolved Oxygen monitor
for AQUAPLUS™ Probe

INSTRUCTION MANUAL

Dissolved Oxygen monitor
BAMOPHOX 451 LOG / E & M

Content

1. TECHNICAL FEATURES

Displayed parameters:	Measurement values - Configuration Menu - Temperature value
Display:	Back lighted - 2 lines of 16 alphanumerical characters ; 9.2 mm high
Indication:	LED alarms status
Programming:	8 push buttons keyboard on front face - Keyword protected
Measuring range:	0 to 500% or mg/L
Accuracy	Input DO: ± 0.1% from 0 to 200 % ; ±1% from 200 to 500 %
	Input temperature: ± 0.3 %
Input signal:	For sensor AQUAPLUS, screw connectors
Temperature compensation:	Automatic: input for 1 sensor Pt 100 Ohm/0°C, range 0 …+100°C
	Manual: programming in the menu temperature between 0 and 100°C

4 output relays:	4 closing contacts (Silver alloy), voltage free
	Initial resistance 100 mΩ as a maximum (voltage drop 6 V DC 1 A)
	Rated at 831 V AC / 3 A / 277 V AC ; 90 W / 3 A / 30 V DC
	Switching capacity (minimum) 100 mA, 5 V DC
	(depending of switching frequency, ambient conditions, accuracy)
	Mechanical life time (minimum) 5×10^6 operations (180 commutation/min)
	Electrical life time (minimum) 2×10^5 (20 comm./min) [3 A, 125 V AC], [3 A, 30 V DC]
	and 10^5 (evaluated charge) for 3 A, 125 V AC

3 Relays S1, S2 & S3	Thresholds: 3 programmable independent thresholds - with adjustable hysteresis 0…100%
	and adjustable timer from 0 to 9999 s
	On/Off Regulation: High and low proportional bandwidth, high and low dead zones
	PID regulation: proportionality 0…200%, - Integrant and Derivative: 0…999 second

Output relay (S4):	Common alarm signal for:
	- System malfunction
	- Temperature out of range
	- Pt 100 Ω dysfunction or probe cleaning function
	- Signal, over-range or opened loop

Calibration sequence:	Regulation on standby, relay outputs inhibited, analogical outputs stand on last values
Self-cleaning program:	Frequency and duration settings, with regulation inhibited
	and analogical outputs standing on last values
Measurement output:	0/4-20 mA (maxi 600 Ω), galvanic insulated
Temperature output/ PID:	0/4-20 mA (max 600 Ω), scalable on 0…100°C, galvanic insulated
Program Testing:	Simulation through the menu on measurement, temperature, PID and relay outputs
Main power supply:	230 V AC / 50-60 Hz [other on request] - Consumption 10 VA
Models:	Panel mounting, IP65, 72 x 144 mm, connections on screw terminal IP40
	Wall mounting, IP65, cable glands, connections on screw terminal

Data-Logger:	Cycle average measurement record, with a programmable period,
	150000 records maxi on Memory card / External driver necessary

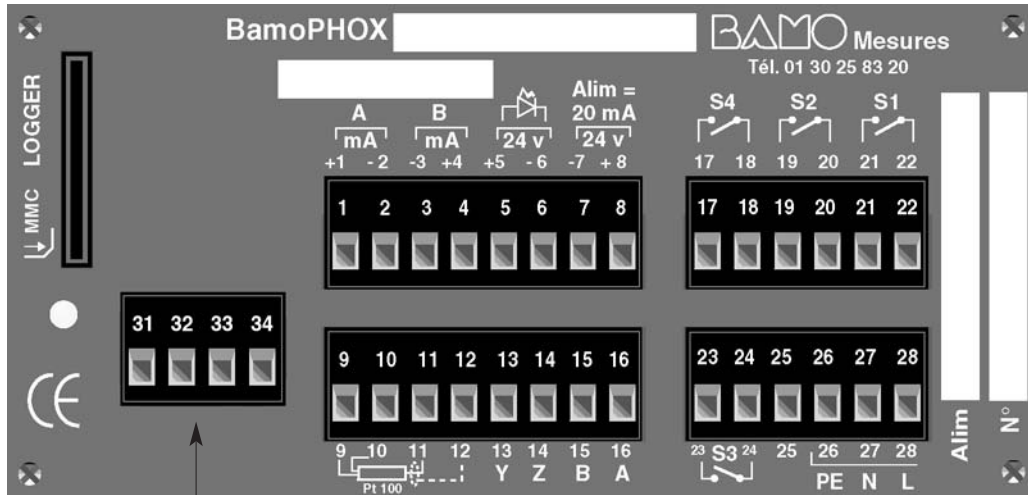# 2. DIMENSIONS

Extension terminal:
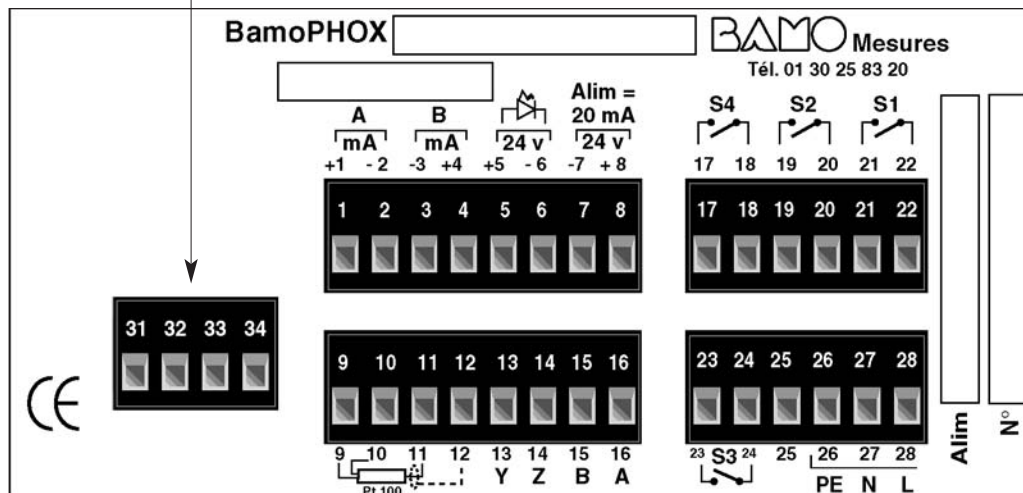identical to the panel
or wall mounting
BAMOPHOX
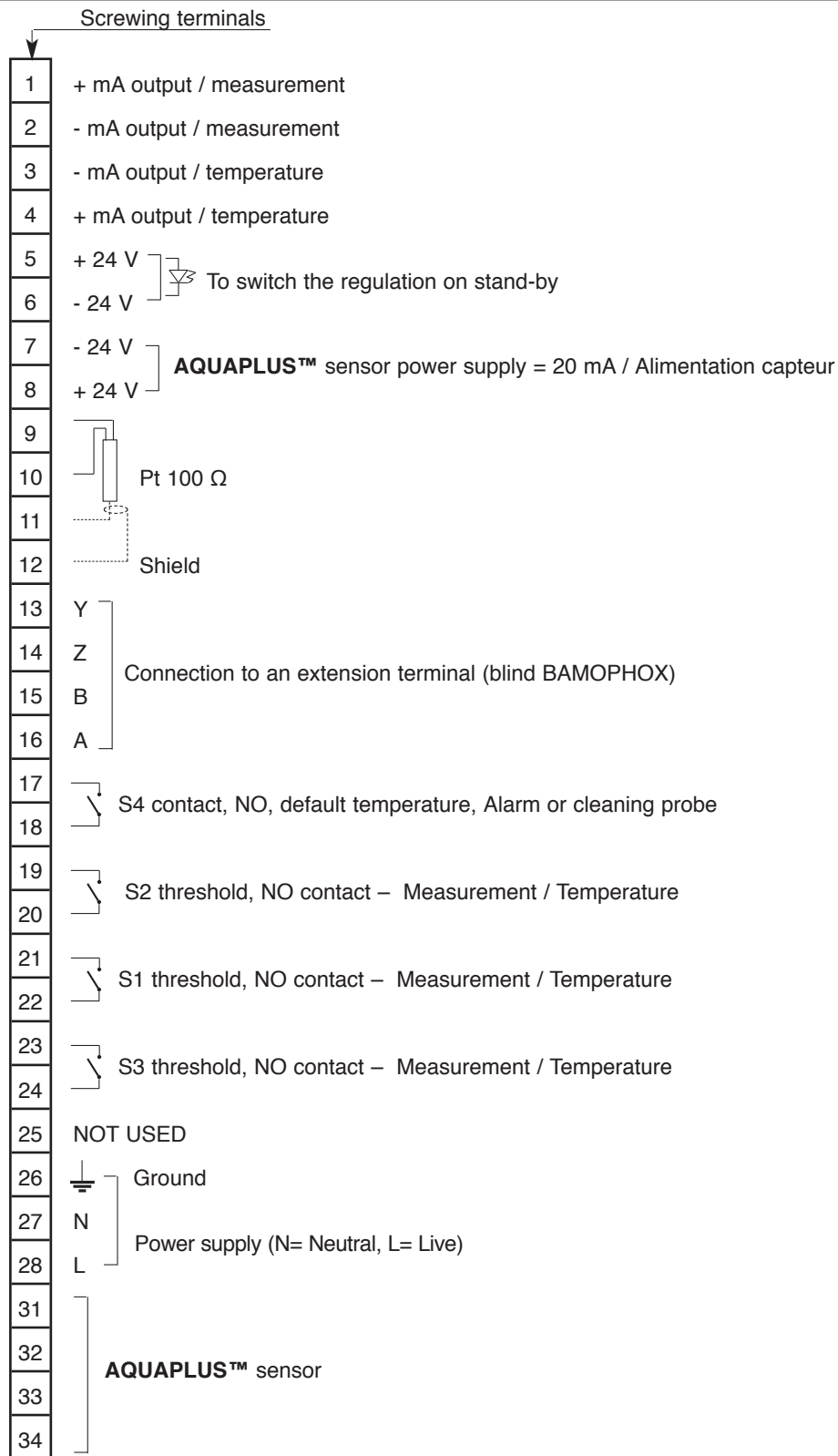

Panel mounting instrument

Wall mounting instrument
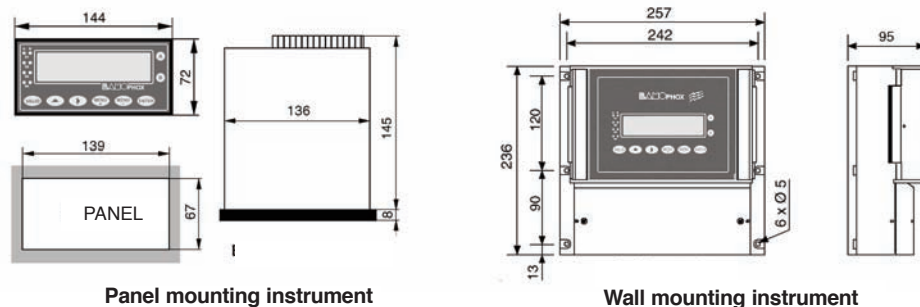
3. WIRING

WALL MOUNTING PANEL

INPUT **AQUAPLUS™** sensor

PANEL MOUNTING MODEL

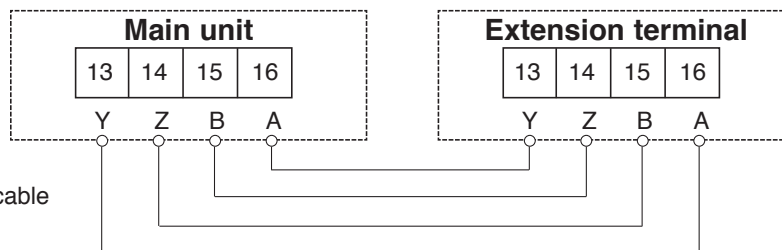|	
1	+ mA output / measurement
2	− mA output / measurement
3	− mA output / temperature
4	+ mA output / temperature
5	+ 24 V
6	− 24 V	To switch the regulation on stand-by
7	− 24 V
8	+ 24 V	**AQUAPLUS™** sensor power supply = 20 mA / Alimentation capteur
9	
10	Pt 100 Ω
11	
12	Shield
13	Y
14	Z
15	B	Connection to an extension terminal (blind BAMOPHOX)
16	A
17	
18	S4 contact, NO, default temperature, Alarm or cleaning probe
19	
20	S2 threshold, NO contact – Measurement / Temperature
21	
22	S1 threshold, NO contact – Measurement / Temperature
23	
24	S3 threshold, NO contact – Measurement / Temperature
25	NOT USED
26	Ground
27	N
28	L	Power supply (N= Neutral, L= Live)
31	
32	
33	**AQUAPLUS™** sensor
34	

Screwing terminals

Wiring from wall or panel mounting BAMOPHOX to an Extension terminal BAMOPHOX
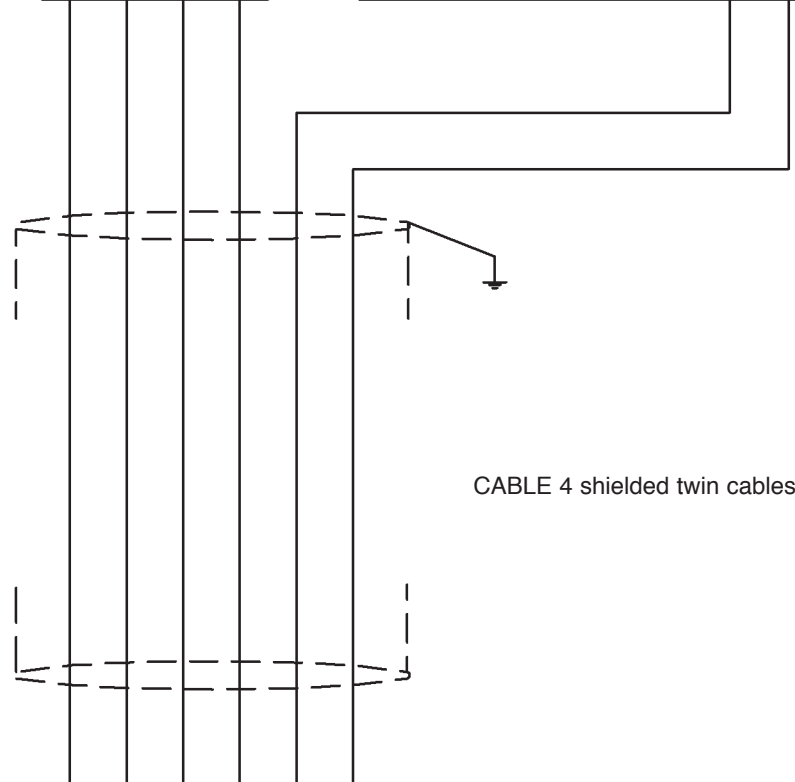
- <u>Maximum length cable</u>
 500 m

- <u>Wire specifications:</u>
 Mains cable or 4 wires shielded cable
 ≥ 0,25 mm^2 cross section

Main unit			
13	14	15	16
Y	Z	B	A

Extension terminal			
13	14	15	16
Y	Z	B	A

Power=
24 V

BAM◻PH◻X

B	A	Y	Z
31	32	33	34

+1 −2 −3 +4 +5 −6 −7 +8
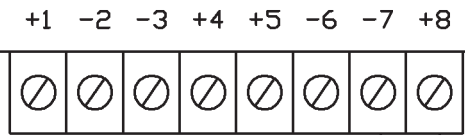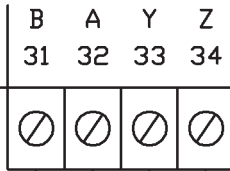
CABLE 4 shielded twin cables

31	32	33	34	7	8
Y	Z	B	A	0V	V+

PROBE HEAD: code 460 211
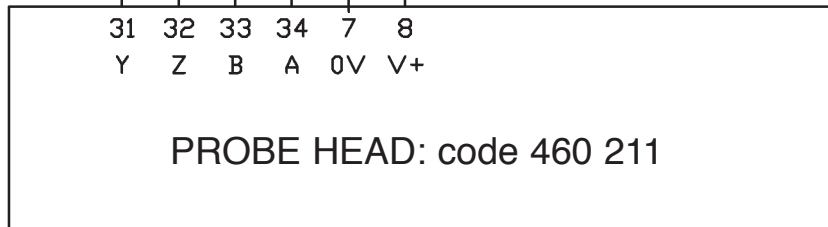
4. FRONT PANEL

S1, S2, S3, and S4
indicate relays status:

LED lighting = contact ON
LED OFF = contact OFF
LED flashing = Timer in use

2 lines /16 alphanumeric characters
9.22 mm high - Back lighted

Key **"A"**
To display the parameters of upper line.
(main BAMOPHOX)

Key **"B"**
To display the parameters of lower line.
(Extension blind BAMOPHOX)

OXYG. 00,00 mg/1

BAMOPHOX

"VALID" key
To save the parameters on EPROM
when it asks:

VALIDATION ?

Caution, when you press this key,
all parameters are saved.
(previous data programmation
will be overwrited).
If you are not sure of any modification,
do not press the VALID key,

To change parameters of data capture:

Numéric input increase the
flashing digit (loop 0 after 9).

Reverse the choice Yes / No,
Up/Down, 0-20 mA / 4-20 mA etc.

To go to the next display or to change a
value.

"ENTER" key
To change the step displayed menu.
At the last step, it comes back to the
first line.

"MENU - " key
To move the cursor during configuration.
At the last digit, comes back on the first
one.

"MENU +" key
To go to the next menu.

Pushing simultaneously both keys
"MENU +" and **"ENTER"**
allows a fast return to measurement display.

5. FIRST COMMISSIONING

- The supplied cards with the BAMOPHOX logger monitors are ready to use.

CAUTION:

supplied cards are for exclusive use on BAMOPHOX Loggers.

<u>**YOU MUST NOT RECORD ANY OTHER DATA ON MEMORY CARDS.**</u>

In case of use for other purpose (such as memory card in camera, files saving from PC, etc.) the data from PHOXLOG won't be saved anymore until the format will be done once more (data will be lost).

Erasing the file Bamophox.log on memory card can be done only from the menu on PHOXLOG software.
- Never use Windows explorer to erase or rename the file Bamophox.log on memory card
- Never format the memory card from Windows tools.

<u>**YOU MUST FORMAT MEMORY CARD AFTER INSERTION IN BAMOPHOX.**</u>

<u>Do not insert the memory card prior to use. Please follow the operation order like described here after:</u>
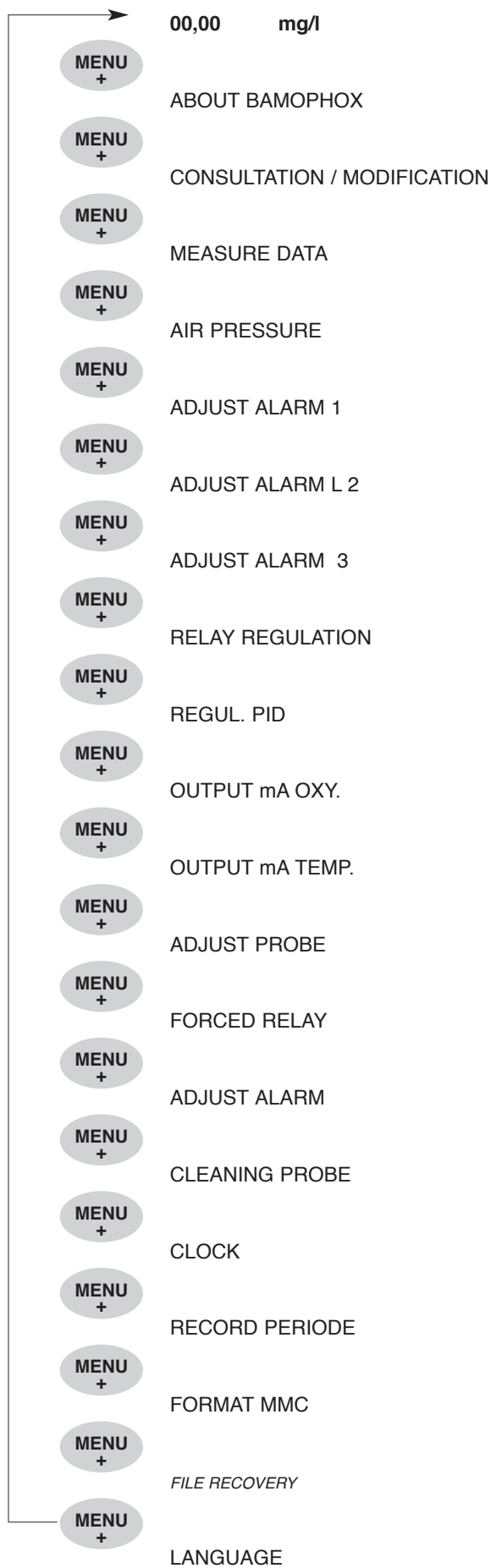
1) Connect the BAMOPHOX Logger model to the main supply.

2) Check the clock through the main menu.

3) Choose the recording period.

4) Locate the memory card on the upper cabinet (wall mounting) or on the rear of the panel mounting model.
   Only when the red LED is off, insert the memory card.
   Remove the memory card when red LED is lighted (recording sequence data) will damage all data.
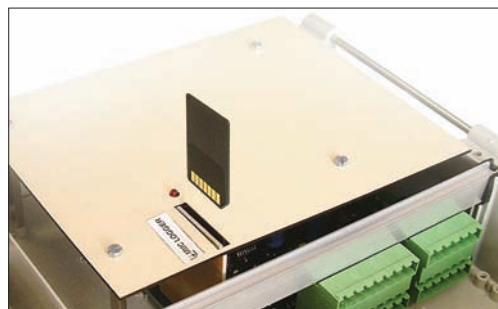
5) Data recording is done every x minutes.
   During 5 seconds red LED lights on when record mode.
   When red LED is lighted, do not insert or extract the memory card.

Note: without any memory card, the logger will not record any data.

SCROLLING MENU

00,00   mg/l

MENU +

ABOUT BAMOPHOX

MENU +

CONSULTATION / MODIFICATION

MENU +

MEASURE DATA

MENU +

AIR PRESSURE

MENU +

ADJUST ALARM 1

MENU +

ADJUST ALARM L 2

MENU +

ADJUST ALARM 3

MENU +

RELAY REGULATION

MENU +

REGUL. PID

MENU +

OUTPUT mA OXY.

MENU +

OUTPUT mA TEMP.

MENU +

ADJUST PROBE

MENU +

FORCED RELAY

MENU +

ADJUST ALARM

MENU +

CLEANING PROBE

MENU +

CLOCK

MENU +

RECORD PERIODE

MENU +

FORMAT MMC

MENU +

FILE RECOVERY

MENU +

LANGUAGE

ABOUT Bamophox

ENTER → ABOUT BAMOPHOX

ENTER VERSION 2.04

ENTER SERIAL N°

ENTER 20|51 05|

CONSULTATION / MODIFICATION

CONSULTATION

▲

MODIFICATION

ENTER CODE ? 0000 ▲ ▶

ENTER CODE ? 5105

Last 4 digits (of serial number) are the key code to access the MODIFICATION menu.
When wrong code is entered, a message **"ERROR"** appears during 3 seconds.

ENTER TIME : 30 mn

After 30 minutes, the display returns automatically to the measurement mode.

MENU +

From this mode MODIFICATION it is easy to return back to measurement for testing the relay outputs and regulation mode.
Once in modification mode, **reach measurement display and press ENTER**

ENTER

ENTER FORCED MEASURE

00,00 mg/l +20°C ▲ ▶ (one digit is flashing) Modify the value. Immediately the instrument acts within the configuration (thresholds, regulation, analog outputs ...).

When PID regulation is activated, the display shows the PID %

ENTER

FORCED PID

ENTER

00,00 mg/l 0,000% ▲ ▶ (one digit is flashing) Modify the value. Immediately the instrument acts within the configuration.

To test the analog output (mA) on PID mode: the PID should be active and in MANUAL mode.

ENTER

Press ENTER to cancel the test mode and to go back to the measurement mode.

MEASURE DATA

ENTER

DISPLAY

ENTER

SAVING ?

VALID

▲ **%** / **mg /l**
Choose the unit, confirm with **ENTER** then save.

AIR PRESSURE

ENTER

P = 1013 hPa

ENTER

SAVING ?

VALID

▲ **▶** The blinding digit has to be modified, according
to the day value. Confirm with **ENTER** then save.

ADJUST ALARM 1 ————————→ MENU + ————→ ADJUST ALARM 2

ENTER

ALARM 1 **ON/OFF** ▲

ENTER

ALARM 1 **MEASURE/TEMP** ▲ **MEASURE**= Threshold against pH/mV measured value
TEMP.= Threshold against temperature measured value

ENTER

ALARM 1 LOW/HIGH ▲ **HIGH**= Contact closes when value goes over the limit
LOW= Contact closes when the value goes under the limit

ENTER

ON **00,00** mg/l / °C ▲ ▶ To close the contact S1 at this value

ENTER

OFF **00,00** mg/l / °C ▲ ▶ To open the contact S1 at this value

ENTER

DELAY UP **ONI/OFF** ▲ Delay (or no delay) before to close the contact S1

ENTER

TIME **0000** SEC ▲ ▶ Delay time to close the contact S1

ENTER

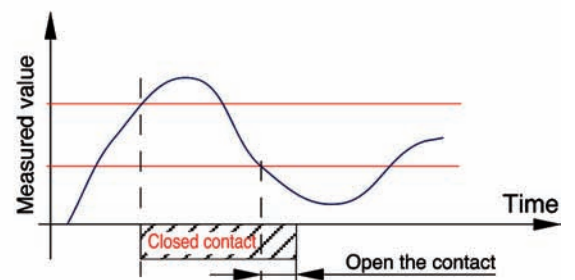DELAYDOWN **ON/OFF** ▲ Delay (or no delay) before to open the contact S1

ENTER

TIME **0000** SEC ▲ ▶ Delay time to open the contact S1

ENTER

SAVING ?

VALID

ADJUST ALARM 2 ————————→ MENU + ————→ ADJUST ALARM 3 —→ please, see page 11

ENTER

ALARM 2 **ON/OFF** ▲

ENTER

ALARM 2 **MEASURE/TEMP** ▲ **MEASURE**= Threshold against pH/mV measured value
TEMP.= Threshold against temperature measured value

ENTER

ALARM 2 LOW/HIGH ▲ **HIGH**= Contact closes when value goes over the limit
LOW= Contact closes when the value goes under the limit

ENTER

ON **00,00** mg/l / °C ▲ ▶ To close the contact S2 at this value

ENTER

OFF **00,00** mg/l / °C ▲ ▶ To open the contact S2 at this value

ENTER

DELAY UP **ONI/OFF** ▲ Delay (or no delay) before to close the contact S2

ENTER

TIME **0000** SEC ▲ ▶ Delay time to close the contact S2

ENTER

DELAYDOWN **ON/OFF** ▲ Delay (or no delay) before to open the contact S2
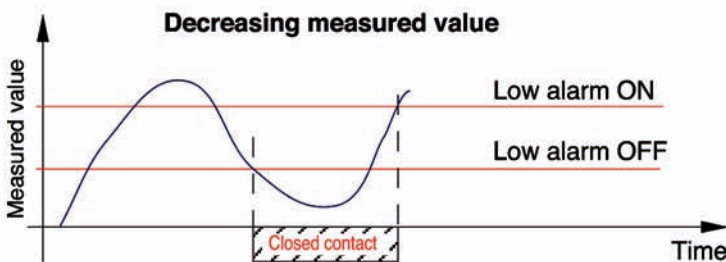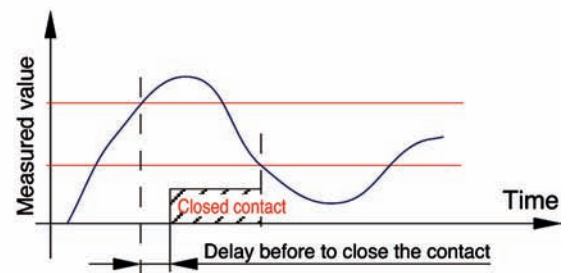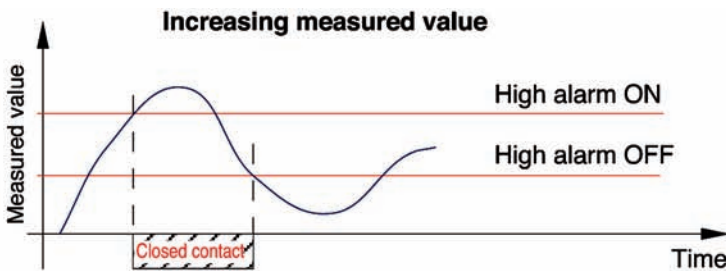
ENTER

TIME **0000** SEC ▲ ▶ Delay time to open the contact S2

VALID **SAVING ?**

ADJUST ALARM 3 ——————→ (MENU +) ——→ RELAY REGULATION

ENTER

ALARM 3 **ON/OFF** ▲

ENTER

ALARM 3 **MEASURE/TEMP** ▲   **MEASURE**= Threshold against pH/mV measured value
TEMP.= Threshold against temperature measured value

ENTER

ALARM 3 LOW/HIGH ▲   **HIGH**= Contact closes when value goes over the limit
LOW= Contact closes when the value goes under the limit

ENTER

ON **00,00** mg/l / °C ▲ ▶   To close the contact S3 at this value

ENTER

OFF **00,00** mg/l / °C ▲ ▶   To open the contact S3 at this value

ENTER

DELAY UP **ONI/OFF** ▲   Delay (or no delay) before to close the contact S3

ENTER

TIME **0000** SEC ▲ ▶   Delay time to close the contact S3

ENTER

DELAY DOWN **ON/OFF** ▲   Delay (or no delay) before to open the contact S3
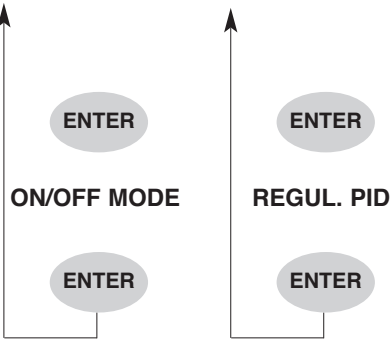
ENTER

TIME **0000** SEC ▲ ▶   Delay time to open the contact S3

ENTER

SAVING ?

VALID

Increasing measured value

High alarm ON
High alarm OFF
Closed contact

Closed contact
Delay before to close the contact

Decreasing measured value

Low alarm ON
Low alarm OFF
Closed contact

Closed contact
Open the contact

RELAY REGULATION

MENU + → REGUL. PID

ENTER

**ON/OFF MODE**

ENTER

ENTER

REGUL. PID

ENTER

Indicates when S1 or S2 are "ON"
Back to "ADJUST ALARM" to switch OFF S1 or S2

Indicates when "REGUL. PID" is operating
Back to "REGUL. PID" menu to switch it OFF

ENTER — REGUL **ON/OFF** ▲

ENTER — SET VAL. **00,00** mg/l ▲ ▶ Set point

ENTER — T. CYCLE **0000** SEC ▲ ▶ Cycle time

ENTER — HIGH PB **00,00** mg/l ▲ ▶ Highest limit for proportional bandwith

ENTER — LOW PB **00,00** mg/l ▲ ▶ Lowest value for dead zone

ENTER — H IGH DZ **00,00** mg/l ▲ ▶ Highest value for dead zone

ENTER — LOW DZ **00,00** mg/l ▲ ▶ Lowest value for dead zone

ENTER — SAVING ?

VALID

Caution: On S1 you set up the lowest value for proportional bandwith and respectively S2 for the highest value.
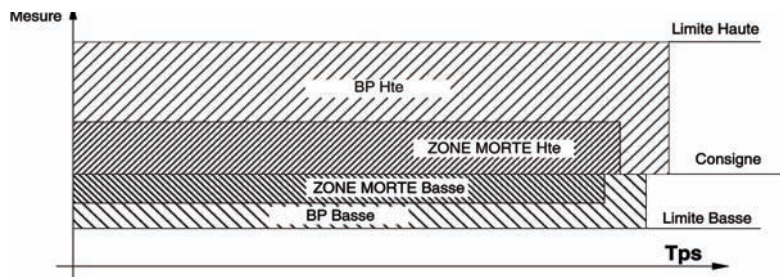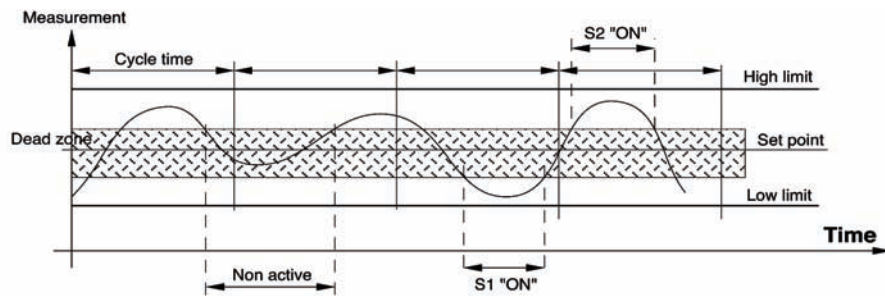
REGUL. PID ────→ (MENU +) ─────→ Output mA Oxygen

This operating mode allows a PID regulation with an analogic output 0/20 or 4/20 mA

(ENTER) REGUL **ON/OFF** ▲ To switch ON or OFF the regulation mode

(ENTER) REGUL **AUTO/MANU** ▲ MANU=MANUAL to be able to check the relays output

(ENTER) SET VAL **00,00 mg/l** ▲ ▶ Set point value

(ENTER) GAIN : **0,000** ▲ ▶ Gain setup (see also ADJUST PID PARAMETERS)

(ENTER) T.i : **0050** Sec ▲ ▲ Integrant setup

(ENTER) Td : **0012** Sec ▲ ▶ Derivative setup

(ENTER) ACTION: **DIRECT/REVERSE** ▲

(VALID) OUTPUT **4/20 mA / 0/20 mA** ▲

SAVING ?

To switch the PID regulation on stand-by, please input 24 V= 20 mA on terminals 5(+) and 6(-).

ADJUST PID PARAMETERS

In order to determinate the setup values for PID regulation, we recommend to use the Ziegler-Nichols open loop method

Proceed as following:

- Connect a recorder to the analogic measurement output or write the reading measurement values for then to draw the graph $f_{(time)}$
- Switch on the PID regulation in MANUAL mode
- Reach to and keep close the measurement value to the set point, adjusting the PID output
- Apply on ΔCde a step of 10 % (for instance) on the analogic output (Cde).

Example: if the value is 30,00 %, apply 40,00 %

- Note on the graph the corresponding timing.
- Determinate on this graph both t ant T:

     t = delay of response

     T = Time corresponding to the same variation in % of measurement (Δm) and the analogic output (ΔCde), Δm = ΔCde. This value may be found out on the slope.

- Modify the PID parameters as following:

Regulation	Gain	Ti(s)	Td(s)
PID	1,2 x T/t	2 x t	0,5 x t
PI	0,9 x T/t	3,3 x t	0
P	T/t	9999	0

OUTPUT mA Oxygen —— MENU + —→ Output mA TEMP.

Measurement signal copy on the analog output

ENTER

HIGHER **0000** mg/l ▲ ▶ Value corresponding to 20,00 mA

ENTER

LOWER **0000** mg/l ▲ ▶ Value corresponding to 00,00 or 04,00 mA

ENTER

OUTPUT **4/20 mA / 0/20 mA** ▲ Output type

ENTER

SAVING ?

VALID

OUTPUT mA TEMP. —— MENU + —→ ADJUST PROBE

Caution: If PID regulation is active, this step menu would not appears

ENTER

HIGHER **0000** °C ▲ ▶ Value corresponding to 20,00 mA

ENTER

LOWER **0000** °C ▲ ▶ Value corresponding to 00,00 or 04,00 mA

ENTER

OUTPUT **4/20 mA / 0/20 mA** ▲ Output type

ENTER

SAVING ?

VALID

ADJUST PROBE → (MENU +) → FORCED RELAY

ENTER

> **CAUTION:** check and modify if necessary atmospheric pressure value inside the controller, if value is different from one of calibration day.

ZERO ADJUST **YES**/NO

Note: Zero is factory done. It is not necessary to do it again.
Zero has to be done only when a new endcap has to be changed.

ENTER

CAL BUFFER

→ Put the probe into the calibration solution
Rapidcal 300 (code number: 471 072)

ENTER

OXYG. +000.0

→ Wait for the steady display 0,000%.

ENTER

CALIBRATION ON   Sensor and controller communicate

CALIBRATION OK   Wait for the steady display **"CALIBRATION OK"**

→ The 0,000% of the sensor is done.

ENTER

PROBE IN AIR

→ Rinse the probe, wipe out water drops on the endcap
of the sensor and surround the probe with a clean wet tissue.

ENTER

OXYG. +000.0

→ Wait for the steady display 100,0%.
The more is takes time, the better it will be.

ENTER

CALIBRATION ON   Sensor and controller communicate

CALIBRATION OK   Wait for the steady display **"CALIBRATION OK"**

→ The 100,0% of the sensor is done.

ENTER

DELAY 0015 Sec

→ Choose the stand-by period, all regulation and measurements are
on stand-by (same values blinked as they were as begining
calibration) during this timing.

ENTER

SAVING ?

VALID

FORCED RELAY → (MENU +) → ADJUST ALARM

ENTER

ALARM 1 **ON/OFF** ▲

ENTER

ALARM 2 **ON/OFF** ▲

ENTER   } Diagnostic mode to test the threshold configurations

ALARM 3 **ON/OFF** ▲

ENTER

ALARM 4 **ON/OFF** ▲

VALID

ADJUST ALARM → (MENU +) → LANGUAGE

When in use the S4 contact is active.
This mode allows to detect a malfunction on S1
and S2 contacts ; an overtime contact could be set up.

ENTER

WITH / WITHOUT ALARM ▲

ENTER

TIME. S1 **0005** Sec ▲ ▶ Overtiming on S1 closed contact
(maximum time for active relay)

ENTER

TIME. S2 **0000** Sec ▲ ▶ Overtiming on S2 closed contact
(maximum time for active relay)

ENTER

SAVING ?

VALID

CLEANING PROBE → (MENU +) → CLOCK

(Contact S4)
In order to protect the regulation, all measurements are on
stand-by during the cleaning process (plus a delay before
to restart the operating mode).

ENTER

CLEANING **YES / NO** ▲

ENTER

PERIOD **0000** Sec ▲ ▶ Set up the time after witch a cleaning sequence will begin

ENTER

TIME **0000** Sec ▲ ▶ Cleaning time

ENTER

DELAY **0000** Sec ▲ ▶ Delay after cleaning, before to restart the regulation mode

ENTER

SAVING ?

VALID

CLOCK   MENU +   →   RECORD PERIOD

ENTER

08/09/2012   Date: day/month/year

ENTER

18 : 15 : 41   Clock: hh/mn/ss

ENTER

ADJUSTING **YES/**NO   ▲ ▶   Choose

ENTER

YEAR : **2012**   ▲ ▶

ENTER

MONTH : **0009**   ▲ ▶

ENTER

DATE : **0008**   ▲ ▶

ENTER

HOUR : **0018**   ▲ ▶

ENTER

MINUTES : **0015**   ▲ ▶

ENTER

SAVING ?

VALID

RECORD PERIOD   MENU +   →   FORMAT MMC

ENTER   **Configuration of recording period time between two records**

ENTER   BETWEEN 1 AND 60 MIN   ▲ ▶   Choose a value from 1 up to 60 minutes

ENTER   PERIOD: **0001** MIN   ▲ ▶   Enter the chosen value

VALID   SAVING ?

FORMAT MMC   MENU + →   *FILE RECOVERY*

ENTER

SAVING ?
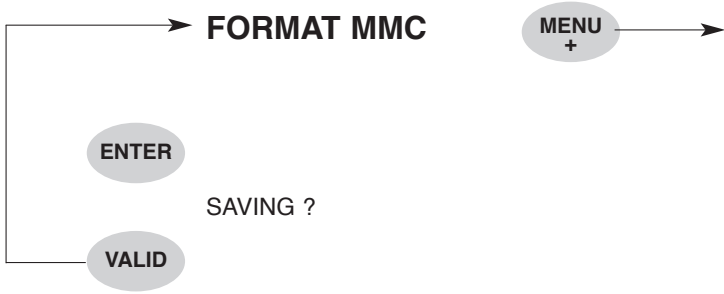
This menu sequence allows the format of Memory card for BAMOPHOX Logger as a FAT 16 (File Allocation Table / 16 bits). This is necessary to assure recording and storage of data on the Memory card.

VALID

Without MMC in the card reader of BAMOPHOX logger, an error message appears when saving is pressed.

*FILE RECOVERY*   MENU + →   LANGUAGE

MENU FOR EXCLUSIVE USE BAMO MESURES

ENTER

SAVING ?

VALID

LANGUAGE   MENU + →   *Go back on display*

ENTER

FRENCH / **ENGLISH**   ▲   Choose
ITALIAN / GERMAN

ENTER

SAVING ?

VALID
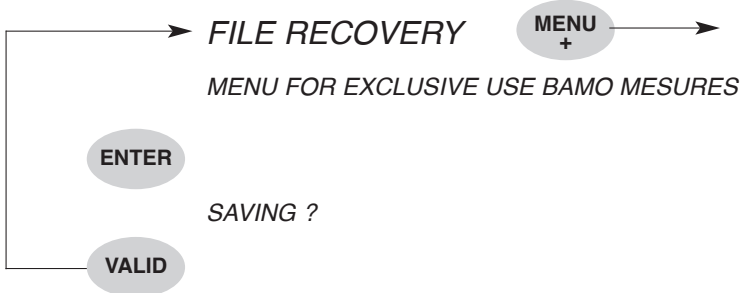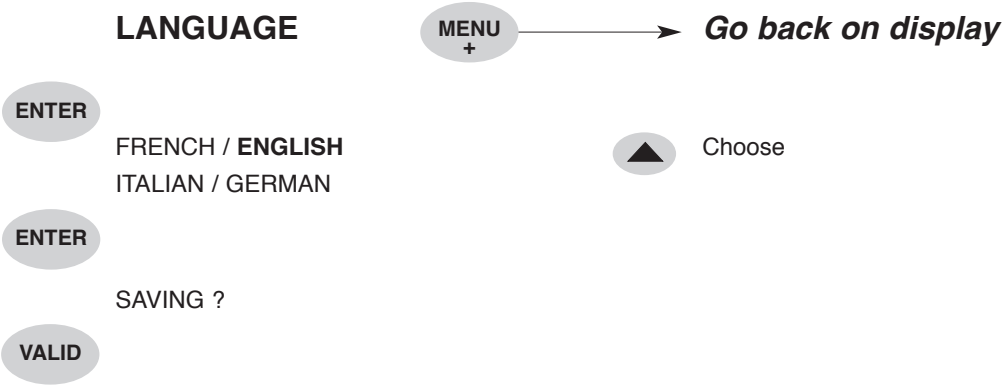
6. Sofware PHOXLOG

To install PHOXLOG software, you may use:

- CD supplied with the BAMOPHOX or,
- download latest version (zip file)
  from http://www.bamo.fr

Unzip the file that contains like following: - PHOXLOG.CAB
                                                        - SETUP.EXE
                                                        - SETUP.LST

From **setup.exe** you start the installation.
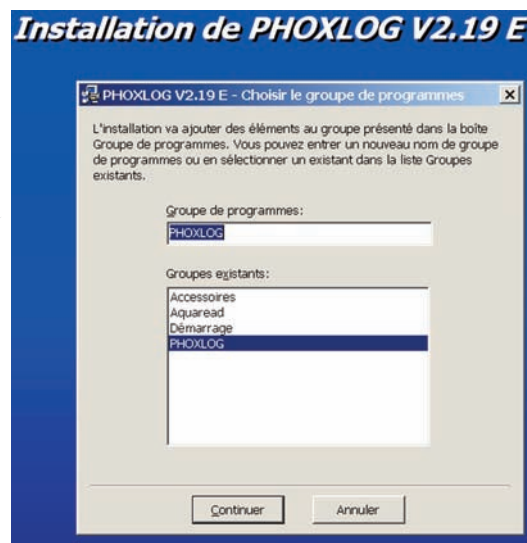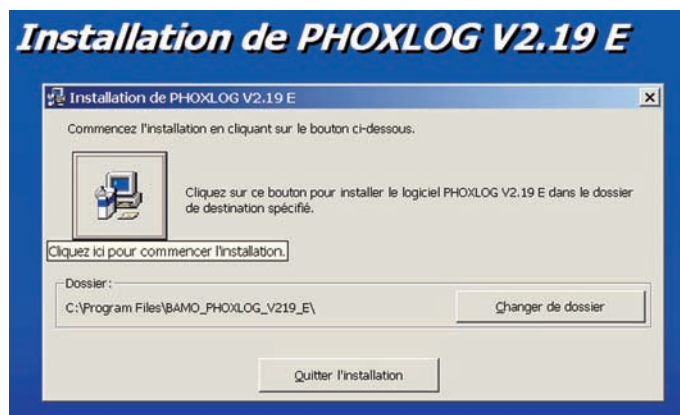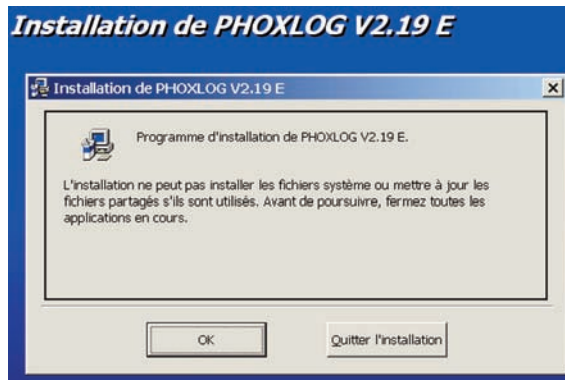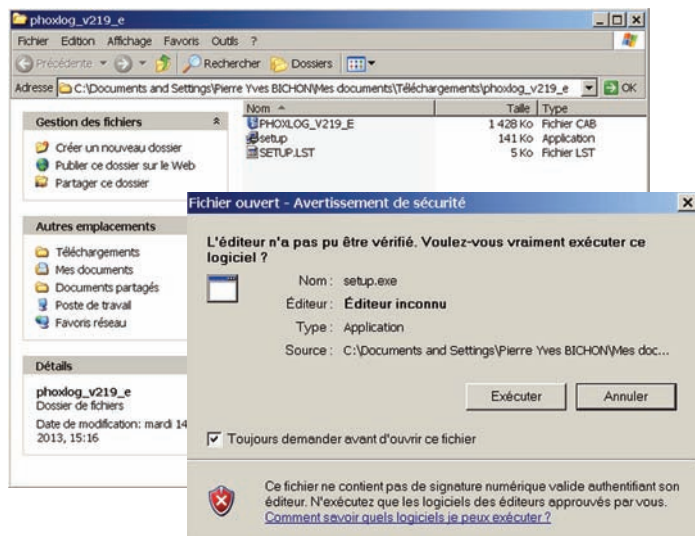
Quitter l'installation: **to quit the installation program**
Cliquez ici pour commencer l'installation: **click on icon to begin installation sequence**
Changer de dossier: **to change file for PHOXLOG software localization**

To change file for PHOXLOG software localisation:

Groupe de programme: name of new software PHOXLOG
Groupes existants: existing software
*Continuer:* continue
Annuler: cancel

L'installation de PHOXLOG a réussi:
Install is successful

Now you can use the software from the starting menu.
If you keep the default installation parameters, the software
is located in **C:\Program Files\BAMO_PHOXLOG**
In this menu tree, data files will be saved.

6.1 FILES

Existing files
in BAMO_PHOXLOG:
- CONFIG.TXT
- INSTRUM1.BMP
- PHOXLOG.EXE
- PORTCOM.DAT
- SAVEDATA.DAT
- ST6UNST.LOG
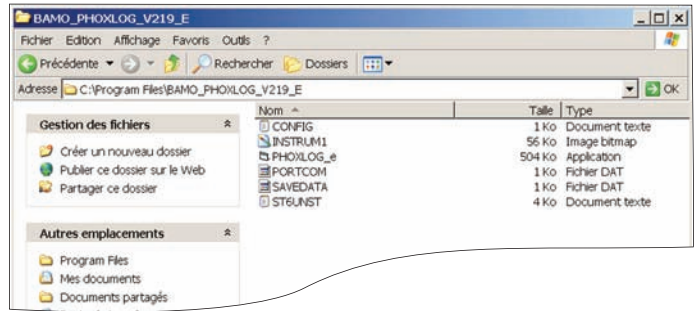
It is necessary that you create your own files to keep safely the data without a risk to delete an original record. These original record files cannot be corrupted, they will allow you to prove the historical of measurements.

- **Original records**
- **pH measurement**
- **Flow rate measurement**
- **etc...**
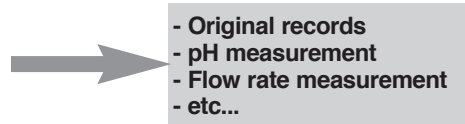
6.2 DATA DOWNLOADING

The BAMOPHOX Logger records measurements on a memory SD Card.
Records are saved in a file named: BAMOPHOX.LOG.
Through a memory card reader, this file is saved on a PC and access to data is done with the software PHOXLOG.
The software creates 1 or 2 files (the second would be for the extension -blind BAMOPHOX- when existing) with a name corresponding to the main parameter (pH, flow,...) plus the serial number of the BAMOPHOX (example: ph-metre_20691-01.xls).

This file is a text type file, it could be read by any word processor or data sheet processor. Its extension is .xls for a quick opening in Excel.

How to proceed:

- Insert the memory card in the card reader
    - **Card reading**

a) – **Copy** the file **BAMOPHOX.LOG** from the memory card
   – Past this file to your "Original records" menu tree.
   – Rename it (date, station,...) still with the extension **.LOG**
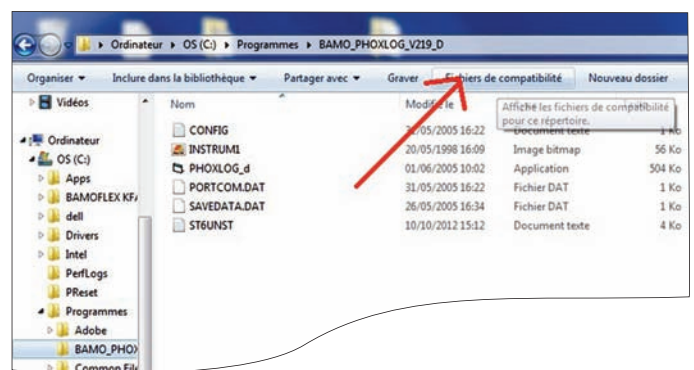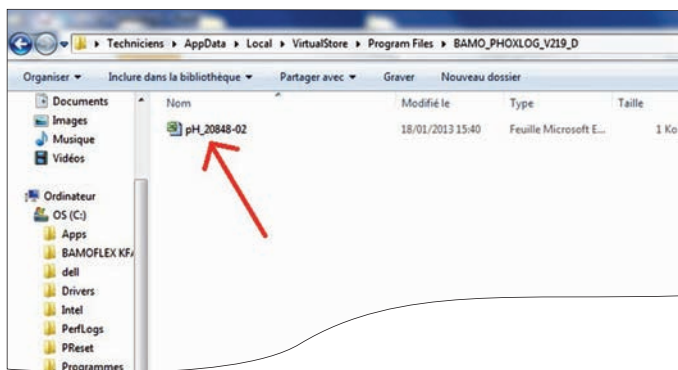
   Close the window

b) – Open PHOXLOG
   – Click on **"OK"** key
   – In LOGGER, choose the application **Data Extraction** then choose your file in Original records then press key **"Extraction"**.
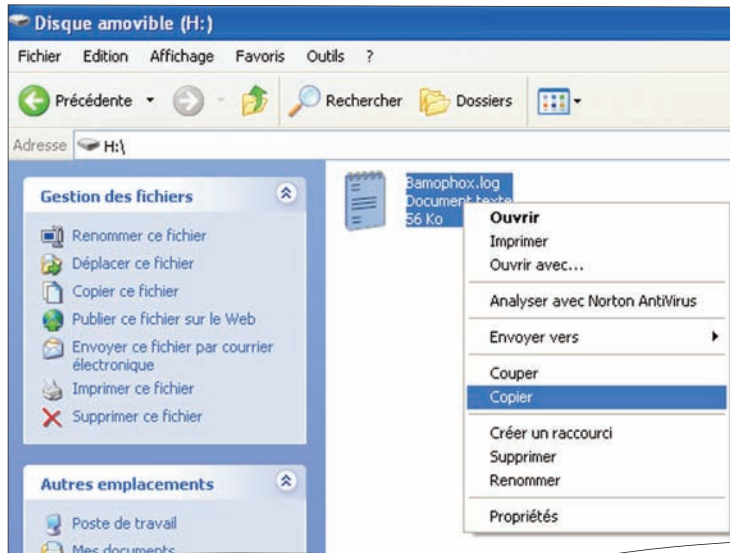
   Close the window

CAUTION: If you use **Windows 7**, you may have difficulties to find the data file.
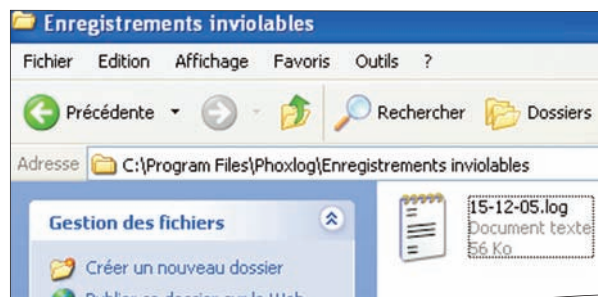Here is how to proceed :

– Go to menu tree **BAMO PHOXLOG**
– Click on icon **''compatibility files''**
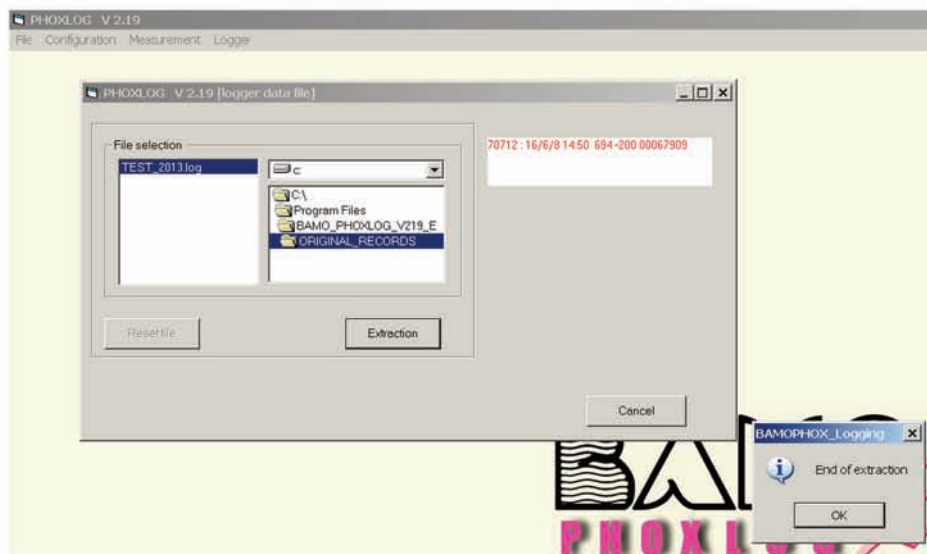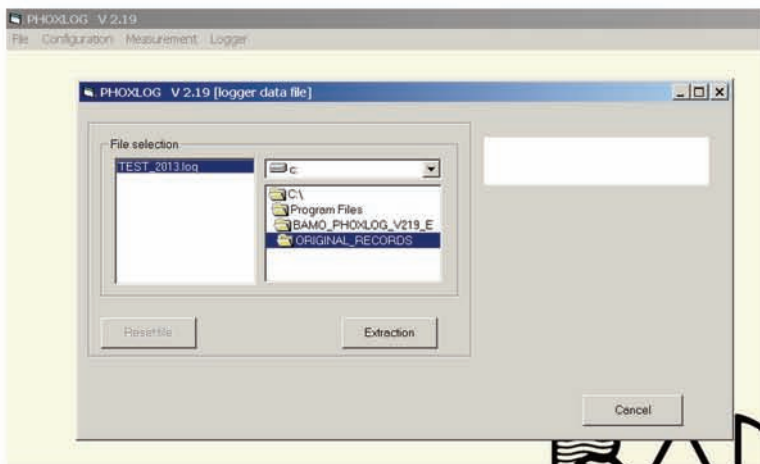 Logically, file will appear in the window with the extension

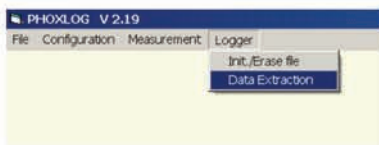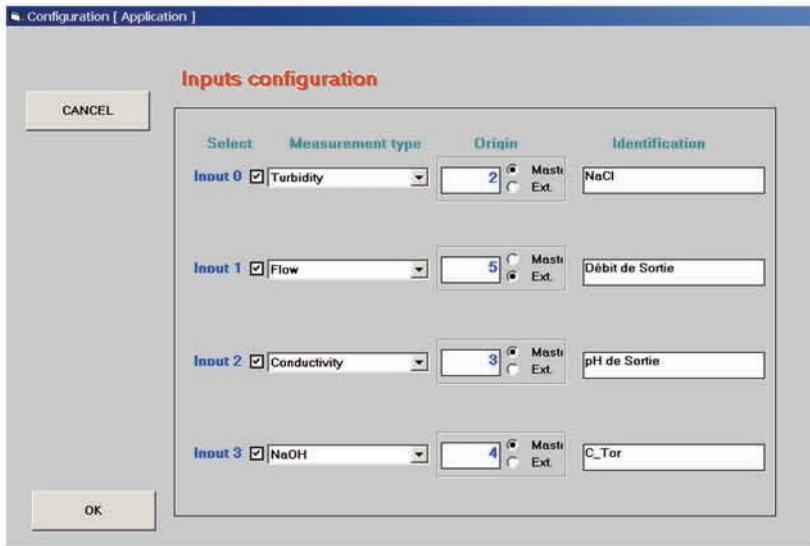# PHOXLOG screen

Copy of original file

Configuration [Application]

Inputs configuration

CANCEL

Select	Measurement type	Origin		Identification
Input 0 ☑	Turbidity	2	○ Master ○ Ext.	NaCl
Input 1 ☑	Flow	5	○ Master ○ Ext.	Débit de Sortie
Input 2 ☑	Conductivity	3	○ Master ○ Ext.	pH de Sortie
Input 3 ☑	NaOH	4	○ Master ○ Ext.	C_Tor

OK

PHOXLOG V 2.19

File   Configuration   Measurement   Logger
                                     Init./Erase file
                                     Data Extraction

PHOXLOG V 2.19

File   Configuration   Measurement   Logger

PHOXLOG V 2.19 [logger data file]

File selection

TEST_2013.log

c:
C:\
Program Files
BAMO_PHOXLOG_V219_E
ORIGINAL_RECORDS

Reset file   Extraction

Cancel

PHOXLOG V 2.19

File   Configuration   Measurement   Logger

PHOXLOG V 2.19 [logger data file]

File selection

TEST_2013.log

c:
C:\
Program Files
BAMO_PHOXLOG_V219_E
ORIGINAL_RECORDS

70712 : 16/6/8 14:50 694-200 00067909

Reset file   Extraction

Cancel

BAMOPHOX_Logging

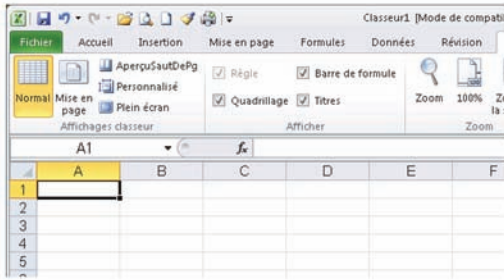ⓘ End of extraction

OK

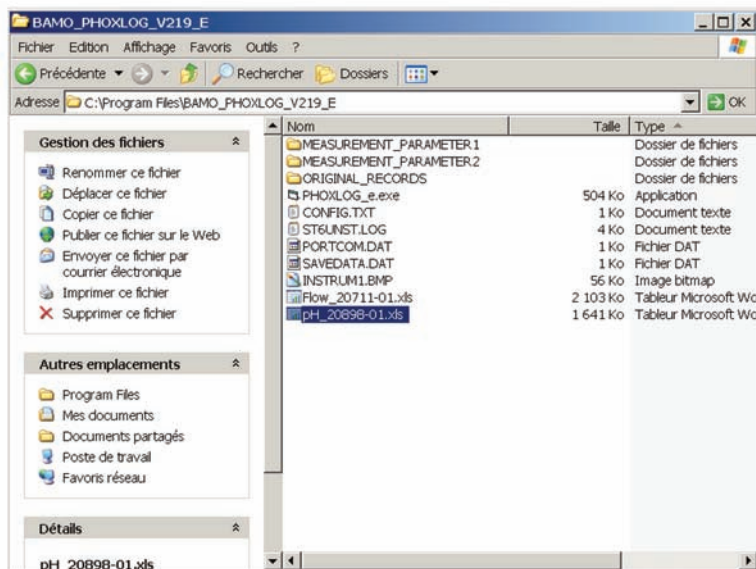## 6.3 DATA PRESENTATION

How to proceed:

First of all open your spreadsheet software.

When data are loaded (please refer to § 6.2):

a) – go to menu tree **BAMO_PHOXLOG**
– **select the file**(s) with extension **.xls**
– **rename** the file(s) if necessary **or** double click to **open it**

From Original files (cannot be corrupted)

b) – **Open** the application **PHOXLOG**
– Click on "OK" key
– In LOGGER choose the application **Data Extraction**
  then choose **Original records**

– **Select** the file ***.LOG** on the left side windows
– then **"Extraction"**

– When ready valid **"OK",** Data Eextraction is done

– **Quit** the application **PHOXLOG**

To work with your data: same as **a)** sequence in the file **BAMO_PHOXLOG**

6.4   MEMORY CARD USE

To procure more space on the memory card, it is necessary to delete old recorded data.
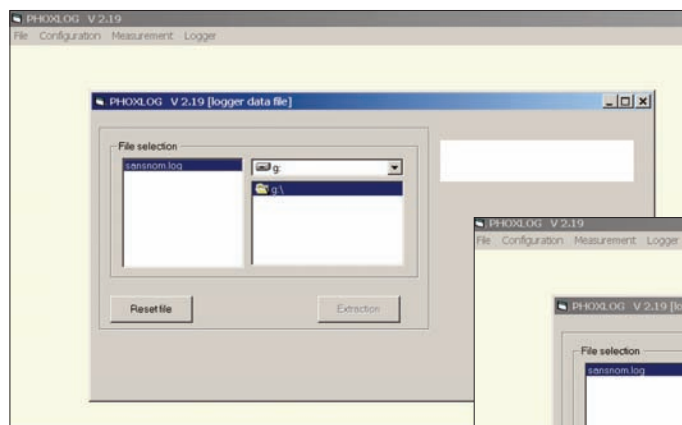
<u>**This operation can only be done after BAMOPHOX.log files downloading from memory card to computer and only after this operation.**</u>

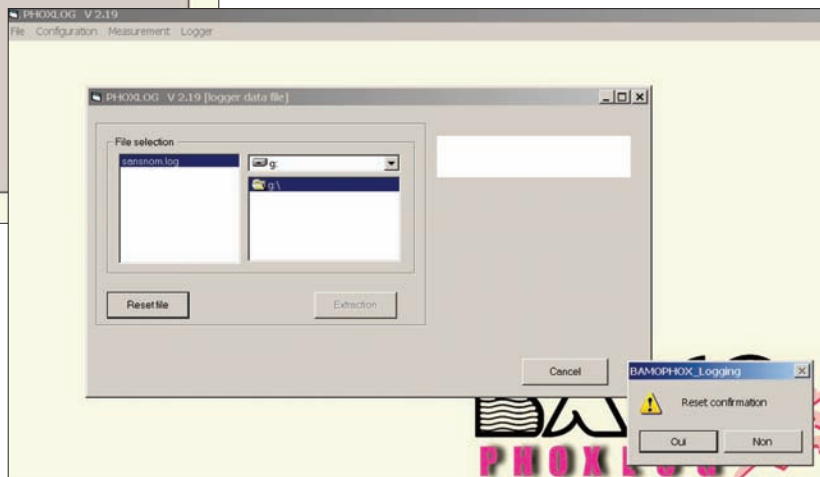<u>**And this operation can only be done from PHOXLOG software**</u>

How to proceed:
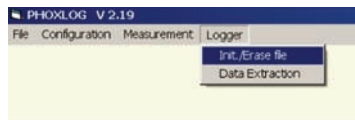
– Open **PHOXLOG** software
– Click on **"OK"** key
– In tab Logger, choose **Init./Erase file**

– Select file with extension **.log**
– Press **"reset file"** key
– Confirm reset by pressing **"Oui"** key

The memory card is ready to use for recording with increased capacity.

Parameters available for pH, ORP, Resistivity, Conductivity, Concentration, Chlorine, Dissolved Oxygen, Turbidity:

1 record is: DATE / TIME / MEASUREMENT /TEMPERATURE

Parameters available for Flow rate:

1 record is: DATE / TIME / MEASUREMENT /TEMPERATURE / TOTALIZATION

Number of records:

Memory card is 32 Mo capacity used on PHOXLOG format, identical to 31 948 800 octets.
1 record use (main instrument or main instrument + extension unit) 21 octets
Records available: 1 521 371

CAUTION: take caution not to overpass the spreadsheet capacity for data presentation if you do not use an Excel software.

**- Excel is 178 000 lines, if you record once every minute during 123 days,
  the total number of records is 1 x 60 x 24 x 123 --> 177 120 records**