

## Programming instructions



Parts of the general documentation

- Part 1 : Installation and starting instructions
- Part 2 : Programming instructions
- Part 3 : Communications instructions

**General information :**

**SYCLOPE Electronique 2016®** Manual of 2016, February 20<sup>th</sup> Rev 2

Universal controller for standard and trace measurement.

**Product line TRACE'O®**

Part 2 : Programming instructions (Ref. DOC0322)

Editor :



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Subject to modification

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## I. Use of the document

Please read this entire document before starting to install, adjust or commission your controller device, in order to ensure the safety of swimmers, users and equipment.

The information provided in this document must be strictly observed. SYCLOPE Electronique S.A.S. declines all responsibility in cases where failure to comply with the instructions of this documents is observed.

The following symbols and pictograms will be used to facilitate reading and understanding of these instructions.

- Information
- ▶ Action to be taken
- Item of a list or catalogue



Risk of injury or accident. Identify a warning concerning a potentially dangerous risk. Documentation must be consulted by the user with each time the symbol is notified. If the instructions are not respected, that presents a risk of death, physical injuries or property damages.



Electric hazard. Identify a warning statement relative to a mortal electric danger. If the instructions are not strictly respected, that implies an inevitable risk of physical injuries or death.



Risk of incorrect operation or damage for the device.



Comment or particular information.



Recyclable element

## II. Environment and safety procedures



All the programming procedures you will do with the **SYCLOPE TRACE'O®** controller will modify his current working. Therefore, it is strongly recommended to read this entire manual before any change. Only specialized or recommended technical personal must be authorized to program the **SYCLOPE TRACE'O®** controller.

Please:

- Read this manual carefully before unpacking, installing or commissioning this equipment
- Take into account all the hazards and recommended precautionary measures

Failure to respect these procedures can result in serious injury to users or damage the device.

### 1) Use of the equipment

The **SYCLOPE TRACE'O®** system has been designed to measure and control physico-chemical parameters by means of sensors and controls of suitable actuators in the context of the possible uses described in this manual.



All other uses are considered to be non-conforming and must therefore be forbidden. SYCLOPE Electronique S.A.S. will not be responsible in any case for any damages that result from such uses.



Any use of sensors or interfaces not-in conformity to the features defined in this handbook must also be proscribed.

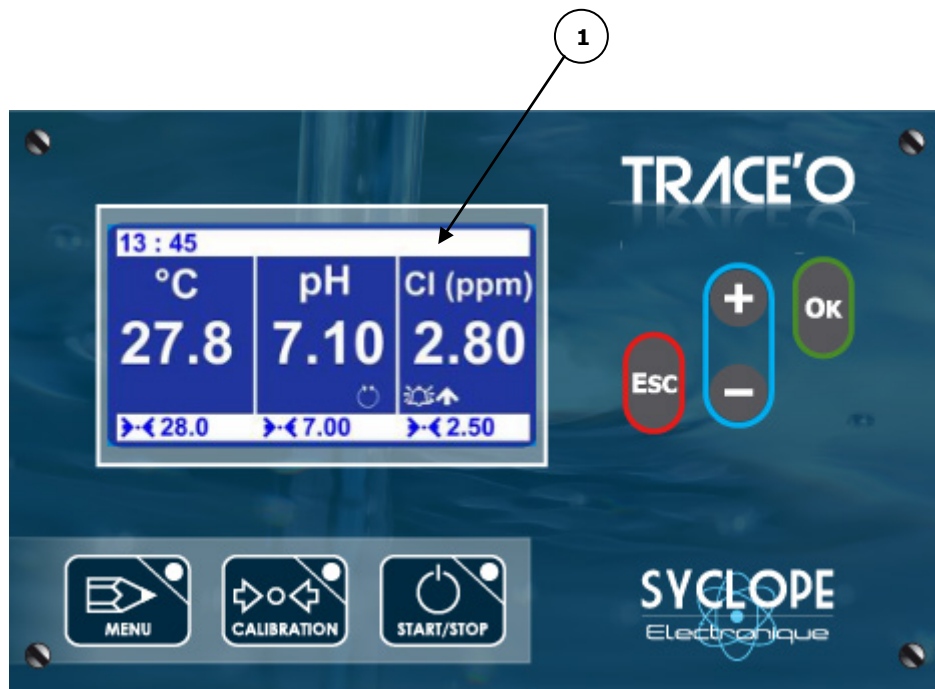
### 2) User obligations

The user undertakes not to allow its employees to work with the **SYCLOPE TRACE'O®** equipment described in this manual unless they:

- Are aware of the fundamental instructions relating to work safety and prevention of accidents
- Are trained in the use of the device and its environment
- Have read and understood these instructions, warnings and manipulation rules.

### III. Introduction to the human-machine interface (HMI)

#### 1) Display and control keypad



1

Backlit 64x128 display with white writing on blue background



Menu key: To allow accessing to the programming menu (red LED)



Calibration key: To allow the sensors, to be directly calibrated (Orange Led).



STOP/START key: To allow starting or stopping of the processes (green LED)



Esc key: To allow to delete the settings or to come back in the programming menus



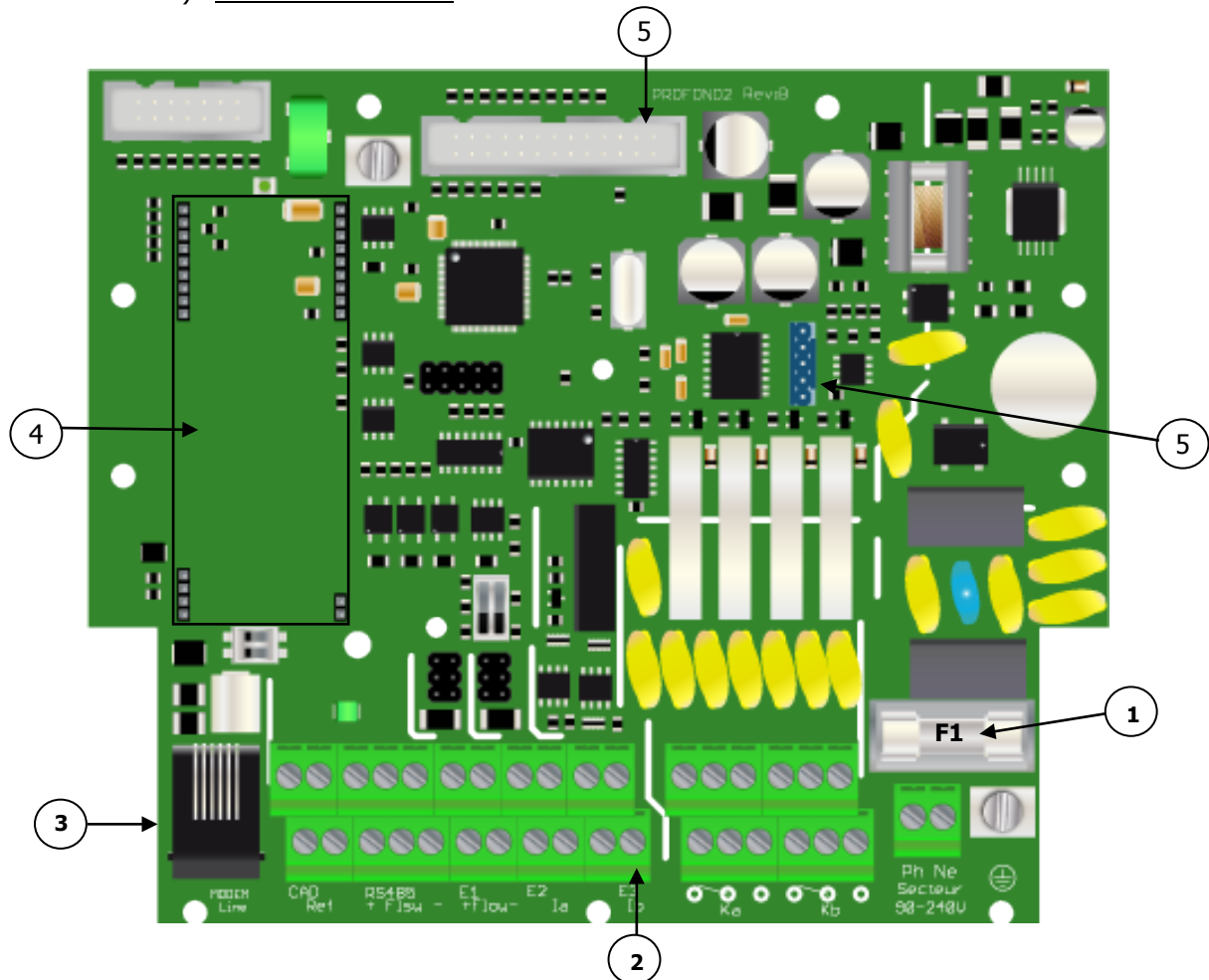
OK key: To allow to validate the settings or to move forward in the programming menus



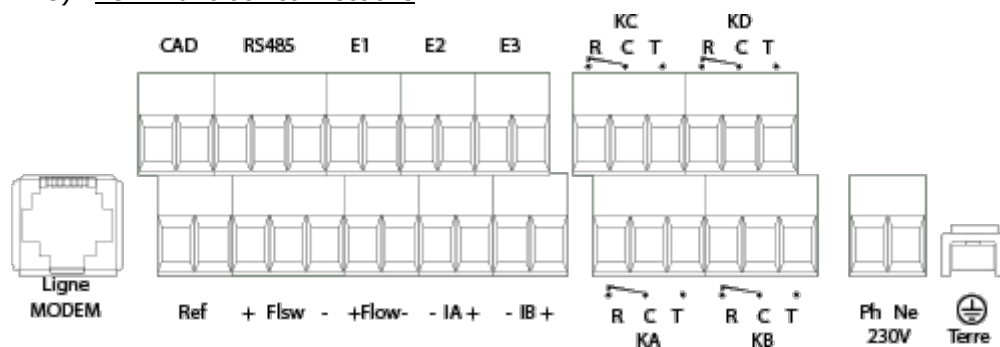
Plus key: To allow scrolling through the menus and to increase a value



Minus key : To allow scrolling through the menus and to decrease a value

2) Internal connections

- 1 F1 : General fuse (Time-lag 315 mA miniature Glass type)
- 2 Terminal block (See below)
- 3 Modem phone line standard connector (RTC)
- 4 Location for socket modem (Phone, GSM, WIFI or Ethernet - optional)
- 5 Serial printer connector (RS232C)
- 6 Ribbon cable connector to the top card.

3) Terminal block connections

#### IV. Structure and index of the programming menus

##### 1) Structure of the menus

The programming structure of the **SYCLOPE TRACE'O®** controller is organized in three levels of menu with the possibility to manage each level by a protection access code. From the simple user level to the specialist level, the controller gives access progressively to fundamental functions of his operation and thus, to the human safety and water treatment warranties.

- Main menu : For the normal operations and simple calibrations
- User menu : For the programming of basic elements as setpoints, thresholds, etc ...
- Specialist menu : For the complete configuration or modification of the controller.



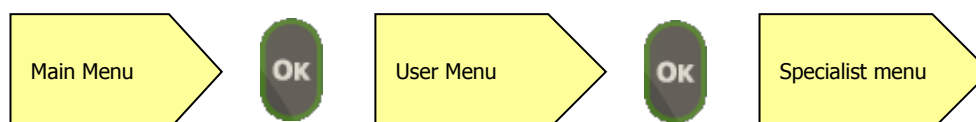
For accessing to the roll-up menu, the function "START/STOP" must be on "STOP" position (Green DEL off)

Press the " Menu " key ...



The red DEL into the "Menu" key light-up ...

Using the navigation keys, validate the successive menus ...



Each level offers a various menu of functions to be programmed.

##### 2) Tree structure and index of programming

Menu	Function	Page
Main	Accessing user menu	9
	Changing the language	9
	Adjusting real time clock	10
	Services (Unlocked in the specialist menu)	10
User	Accessing specialist menu	14
	User code	15
	Calibrations	15
	Setpoints	18
	Timer polarization cycles ( <i>Available in « Trace detection » mode</i> )	19
	Technical alarms	20
	Analogical outputs	21
	Printer output	22
	Display management	22
	Specialist code	26
Specialist	Select parameters	26
	Type of controls	29
	Relay functions	36
	Analogical functions	41
	Polarization cycles ( <i>Available in « Trace detection » mode</i> ))	42
	« Hold » Function	46
	Maintenance Function	46
	Flowrate Function	47
	« Flow-switch » Function	48
	Communication	49
	Factory settings	53



## V. Main menu

For entering into the Main menu, press on key . Now, you have access to the first level of the menus.

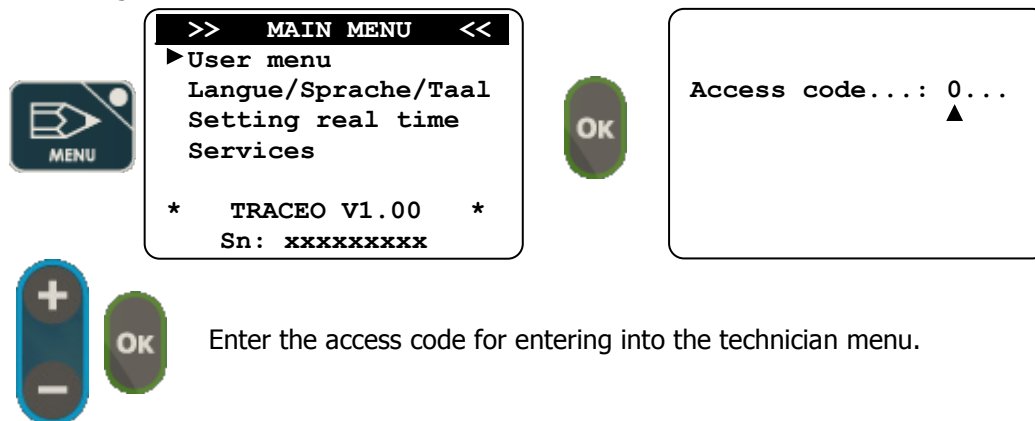


For accessing to the first roll-up menu, the function "START/STOP" must be on "STOP" position (Green DEL off)

### 1) Accessing user menu

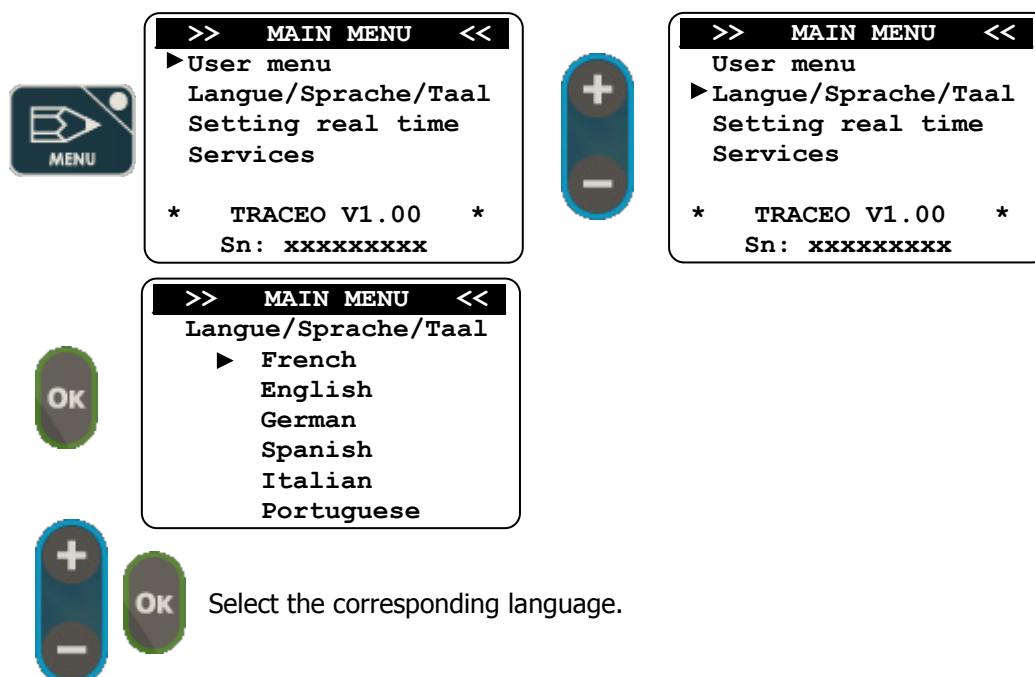


If a code was registered :

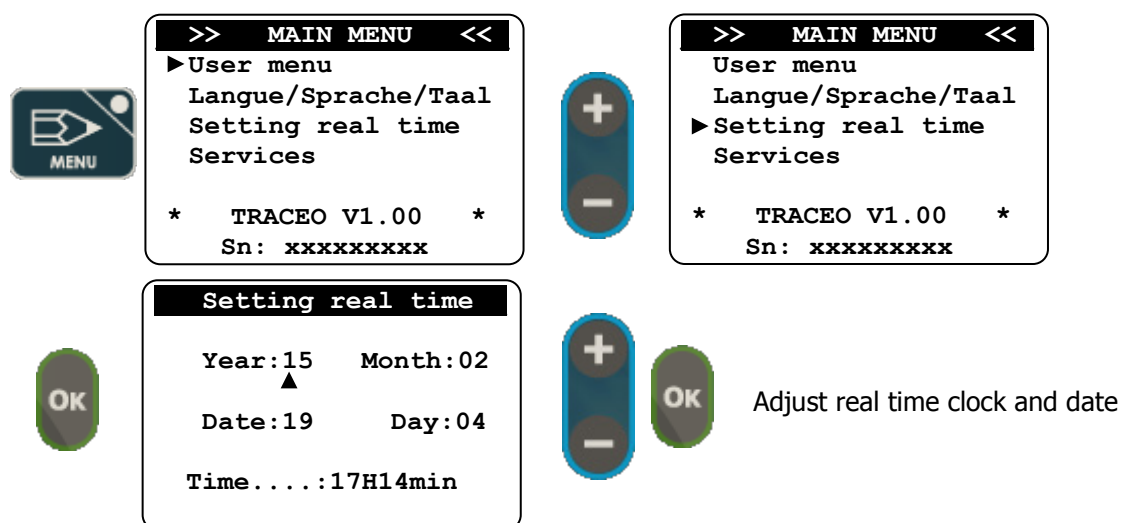


Enter the access code for entering into the technician menu.

### 2) Changing the Language

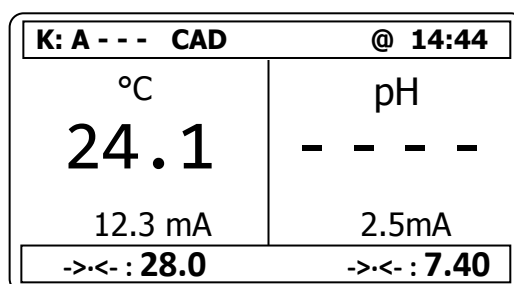
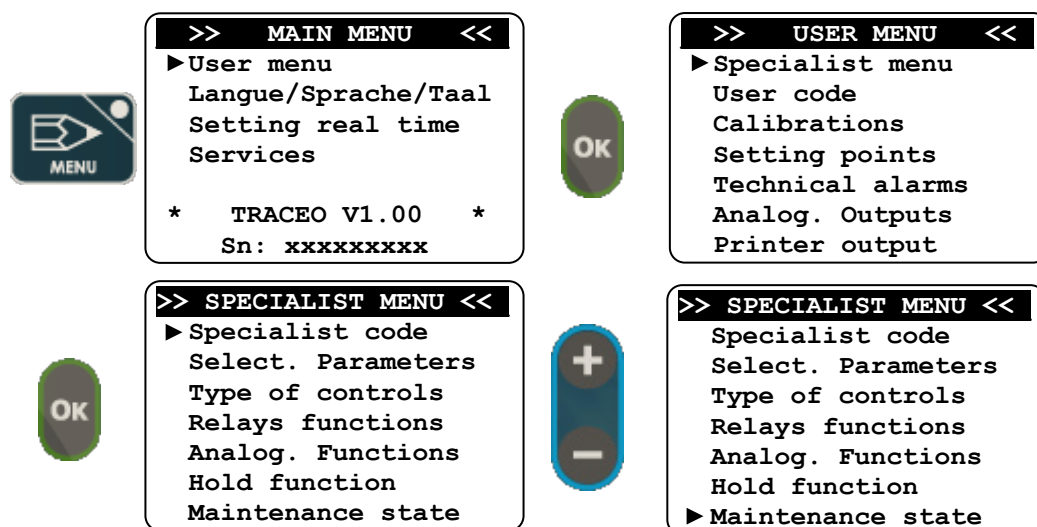


Select the corresponding language.

3) Setting real time and date4) Services of the controller

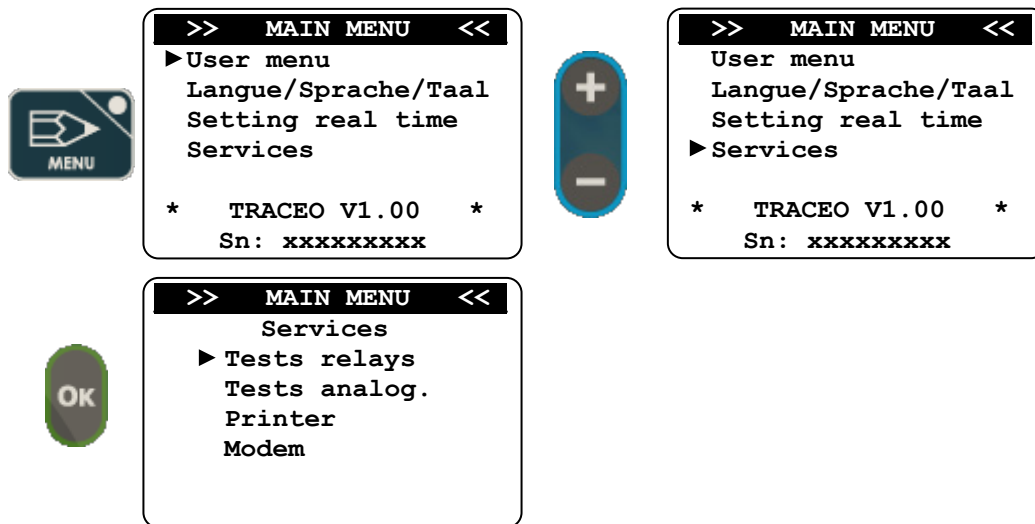
This function allows to realize the maintenance of the controller. It is possible to simulate all inputs and outputs for controlling the normal working. This function is activated after his validation into the specialist menu.

When the maintenance function is activated, all signals generated by the sensors are displayed and allow you to estimate the quality and the good working of each of them.

a) Unlock and lock the maintenance function



b) Enter into the Maintenance menu



The function of "Test Modem" is only available when a communication modem is connected internally.

c) Test of the relays

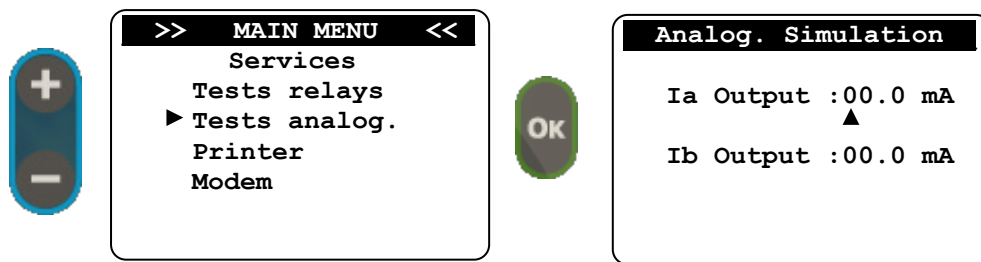


Use the +/- keys for activating or disabling the selected relay. (1)=activated and (0)=Disabled. Use the OK key for navigating between each relay.

► When activated (1), check if the corresponding relay is really "on".

► Repeat the same procedure for each relay.

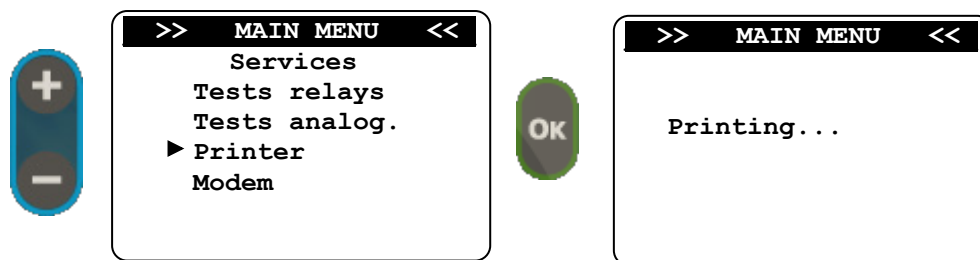
## d) Analogical Simulation



Use the +/- keys for programming the desired value.  
Use the OK key for navigating between each digit and between each output.

► Check with an amperometric measurement tool, if the same value is immediately onto the corresponding analogical output.

## e) Printer test



► Check if "Printer test" is really printed.



For executing the printer test, you must use the special serial cable for RS232C serial printer. (Réf. câble CBI0000)

## f) Test of the Modem

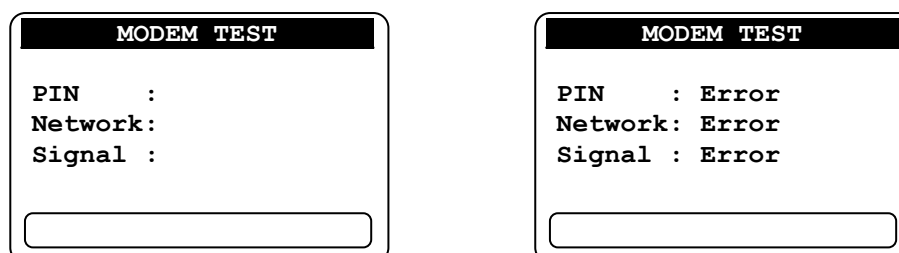
## ► Case of phone line modem

The phone line modem doesn't provide information.

## ► Case of GSM or GPRS modem

As soon as the modem is activated and recognized, the following informations appear:

► If the modem cannot connect the network ...



- If the modem is connected to the network ...

MODEM TEST	
PIN	: In progress
Network:	
Signal.:	
<div></div>	

MODEM TEST	
PIN	: OK
Network:	OK
Signal.:	OK
<div></div>	

- Case of ETHERNET modem

As soon as the modem is activated and recognized, the following informations appear:

- If the Modem cannot connect the network ...

MODEM TEST	
STATE:	In progress
IP...:	In progress

MODEM TEST	
STATE:	Error
IP...:	0.0.0.0

- If the modem is connected to the network ...

MODEM TEST	
STATE:	In progress
IP...:	In progress

MODEM TEST	
STATE:	CONNECTED
IP...:	168.192.3.2

- Cas of WiFi Modem

As soon as the modem is activated and recognized, the following informations appear:

- If the Modem cannot connect the network ...

MODEM TEST	
STATE:	In progress
IP...:	In progress
Signal.:	In progress
<div></div>	

MODEM TEST	
STATE:	INITIALIZING
IP	: 0.0.0.0
Signal.:	Erreur
<div></div>	

- If the modem is connected to the network ...

MODEM TEST	
STATE:	In progress
IP...:	In progress
Signal.:	In progress
<div></div>	

MODEM TEST	
STATE:	CONNECTED
IP...:	168.192.3.2
Signal.:	Good
<div></div>	

## VI. User Menu

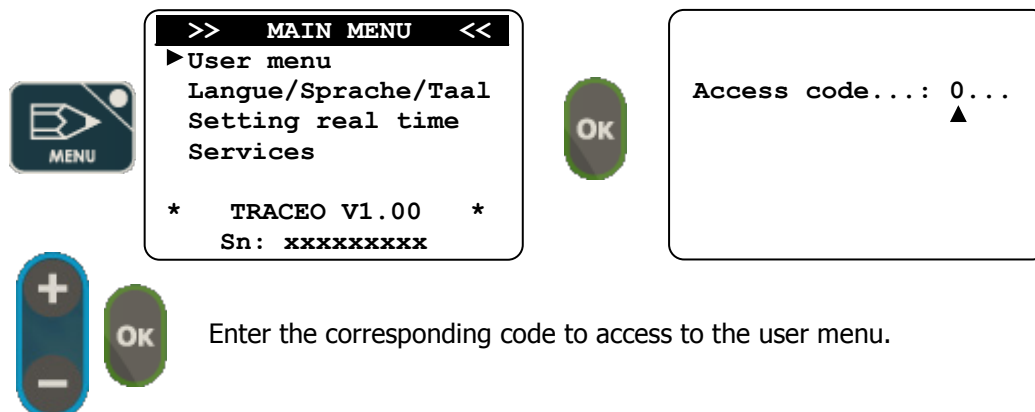
This menu allows to program or to modify all basic functions such as:

- User access code
- Calibrations
- Set points
- Polarization cycle timers (Only if « Trace detection » function is activated))
- Technical alarms
- Analogical outputs
- Printer port
- Display environment

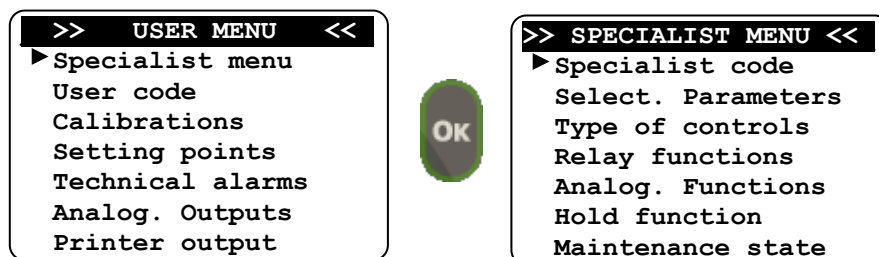
Accessing to the User Menu ...



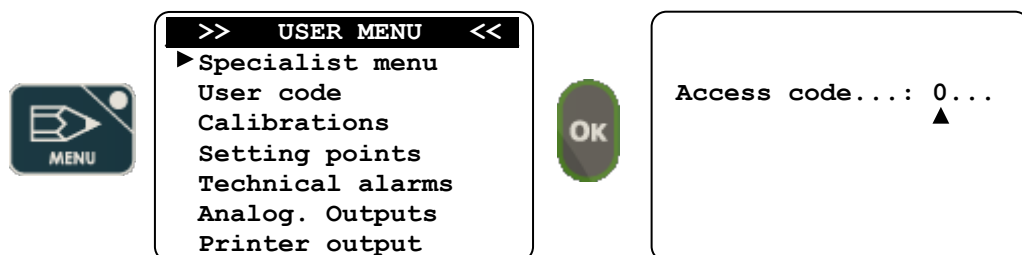
If a User access code was registered :



### 1) Accessing the Specialist Menu



If a specialist access code was registered :



## 2) User access code

For modify the User Code or to cancel it, proceed as follow:

Use the +/- and « OK » keys to enter the new User Code.

**i** For cancelling the User code, repeat the same procedure and enter the "0000" value !

## 3) Calibration of parameter

The complete calibration procedure is described in this paragraph.

### a) Calibration of analogical parameters

Both analogical parameters (Main and auxiliary) can be adjusted by the same manner.


- For a complete method, it is necessary to use special calibration reagents.  
According to the reagent, the following procedures are done :
  - pH=7 solution for "zero" of the pH electrode
  - pH=4 solution for determining "slope" of the pH electrode
  - 465mV solution (or another one) for determining the « slope » of the Redox electrode (Zero of the Redox electrode is generally not necessary)
  - For the other sensors, it is strongly recommended to calibrate the sensor into the working measuring cell with the normal flowrate before any calibration procedure. This procedure must be executed when real value has been determined by manual procedure with a special photometric tool.

In this menu, three procedures can be executed for modifying the measurement of the sensor:


- Zero (or pH=7) : For fixing the Zero of the sensor if necessary !
- Slope (or gain) : For calibrating the sensor to the real measured value.
- Clearing : For erasing all previous values (Default factory setting)

According to the physical selected parameters, the choice displayed into the screen of the **SYCLOPE TRACE'O®** are different.


For example, if the main parameter is the pH and the auxiliary parameter is the chlorine ...



**Parameter E1**  
 Calibrations  
 ► Zero (or pH=7)  
 Slope (or Gain)  
 Clearing...



**Paramètre Principal**  
 Etalonnages  
 ► Zéro (ou pH=7)  
 Pente (ou Gain)  
 Effacement  
  
 Reference: 7.01 pH  
 ▲




Use the +/- keys to adjust the required value ...  
 Use the "OK" or « ESC » keys to select the digit and to validate the value.




***Be careful to have the good reference of calibration onto the sensor !  
 As well, for a chlorine sensor, it is strongly recommended to verify if no chlorine is present into the measuring cell.  
 For a pH electrode, be careful of using the good "pH7" reagent and if the electrode is placed correctly.***




***Special case when using the "Open cells" amperometric sensor without reference electrode. (CAA2963 for measuring bromine in sea water)  
 For making the zero of the sensor, please use a carbon filter on the sampling water before the measuring cell or stop the flowrate during 3 to 5 minutes before processing the zero procedure.***



**Parameter E1**  
 Calibrations  
 Zero (or pH=7)  
 ► Slope (or Gain)  
 Clearing...



**Parameter E1**  
 Calibrations  
 Zero (or pH=7)  
 ► Slope (or Gain)  
 Clearing...  
  
 Reference: 4.01 pH  
 ▲



Use the +/- keys to adjust the required value ...  
 Use the "OK" or « ESC » keys to select the digit and to validate the value.



***Calibration procedure of the slope (or Gain) must never been executed when the real value is near the zero value or pH=7 value for pH electrode.  
 The calculation will be aborted or will cause error of measurement.***

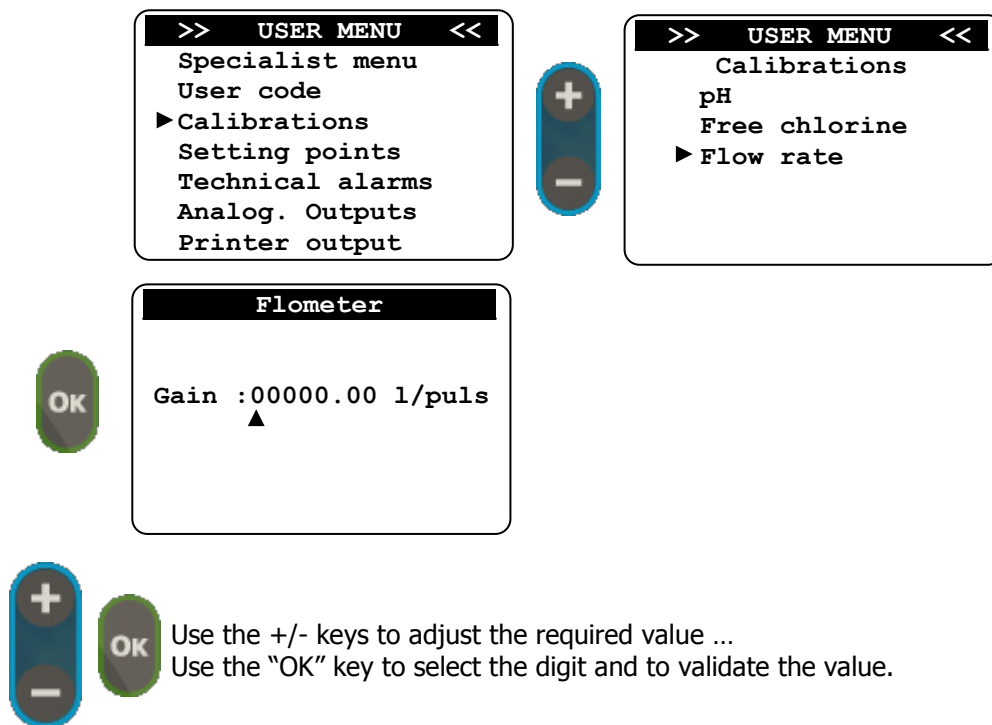


***In case of doubts about calibration procedures or when changing spare parts on the sensor, it is strongly recommended to proceed to the clearing option.***



## b) Calibration of the flowmeter (Only if programmed)

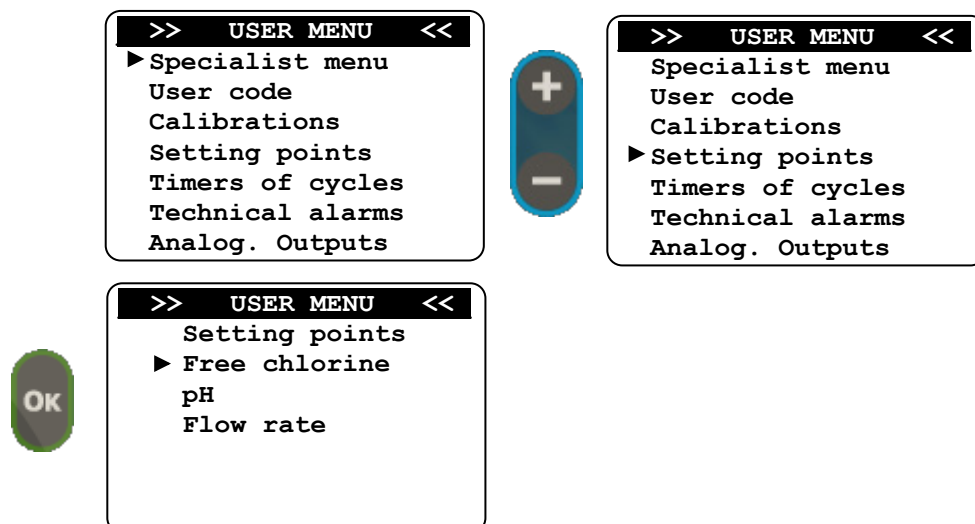
The calibration of the flowmeter must be done according the "weigh" of the pulse of the counter or of the sensor who will used to measure le flowrate.



*The calibration is made with LITER/pulse unity ! The displaying of the parameter will be expressed in m<sup>3</sup>/hour.*

4) Setting points

This menu allows to determine the setting point of each parameter.



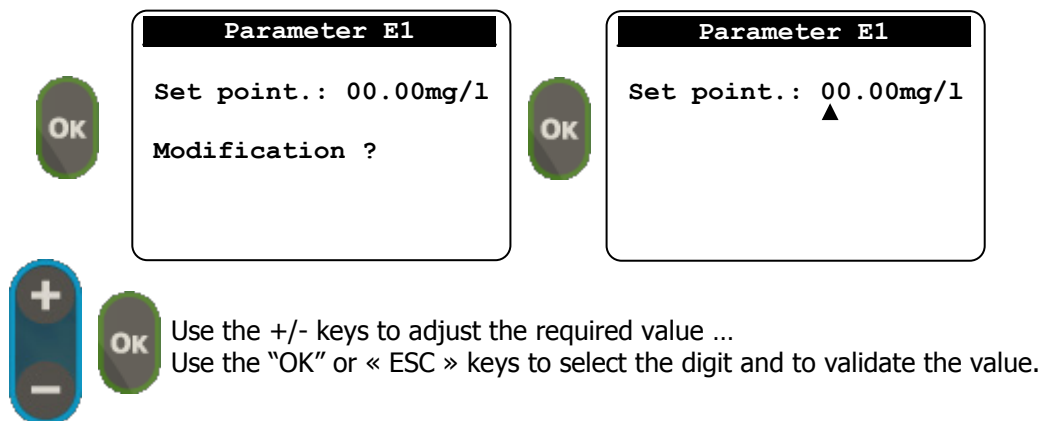
The measuring parameters are listed according the selected parameters.

The first one corresponds to the main entry (E1).

The second one correspond to the auxiliary entry (E2).

The third one is displayed or not according the activation of the flowrate measurement channel.

## c) Programming the setting points of the parameters



Parameter E1

Set point.: 00.00mg/l

Modification ?

OK

Parameter E1

Set point.: 00.00mg/l

Use the +/- keys to adjust the required value ...

Use the "OK" or « ESC » keys to select the digit and to validate the value.



The unit of measurement can be different according the selected parameter (pH, mg/l, mV, etc...).

The number of digits can be different according the range of the sensor.

## d) Programming the flowrate parameter



>> USER MENU <<

Setting points

Free chlorine

pH

► Flow rate

OK

>> USER MENU <<

Flow rate

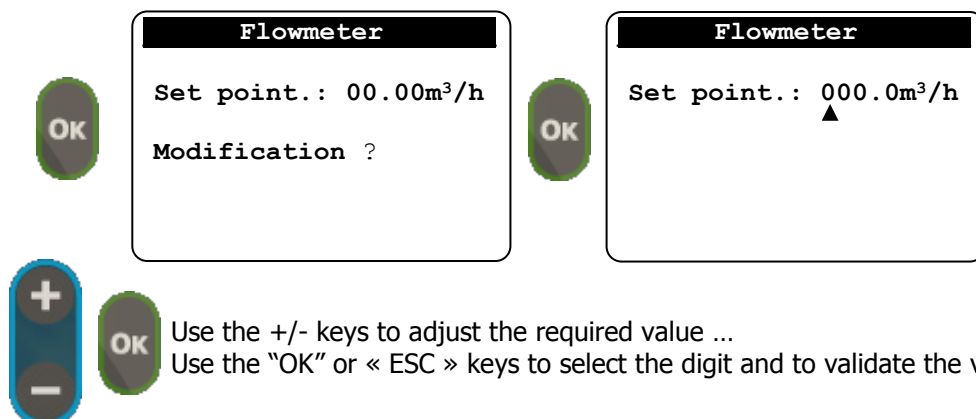
► On/Off Threshold

Compensation

Channel compens.

## ➤ On/Off threshold

When the programmed value is different of zero, this low limit value will be used for stopping the process of the corresponding channel(s) when programmed as depending of flowrate. Entering zero value will cancel the function.



Flowmeter

Set point.: 00.00m³/h

Modification ?

OK

Flowmeter

Set point.: 000.0m³/h

Use the +/- keys to adjust the required value ...

Use the "OK" or « ESC » keys to select the digit and to validate the value.

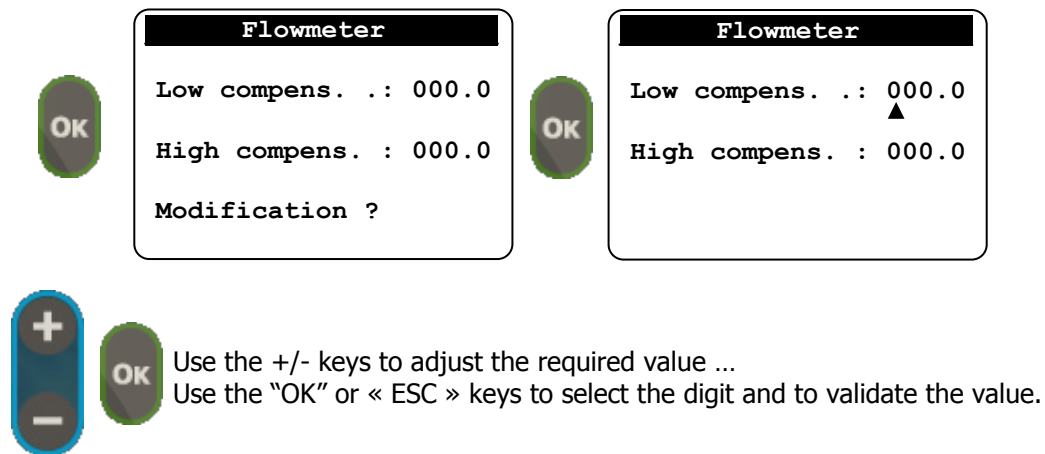
## ➤ Compensation

When the programmed value is different of zero, these values will be used for calculating the percentage of dosing value when the corresponding channels are programmed as depending of flowrate.

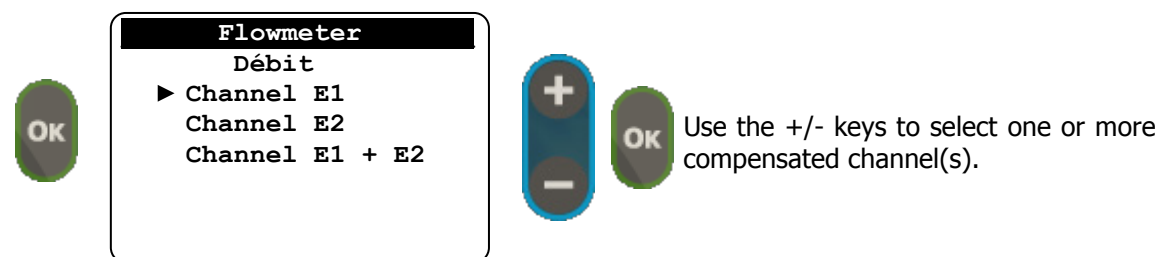
Entering zero will cancel the compensation function.

<= Low compensation => 0% of the dosing value

>= High compensation => 100% of the dosing value



➤ Compensated channel



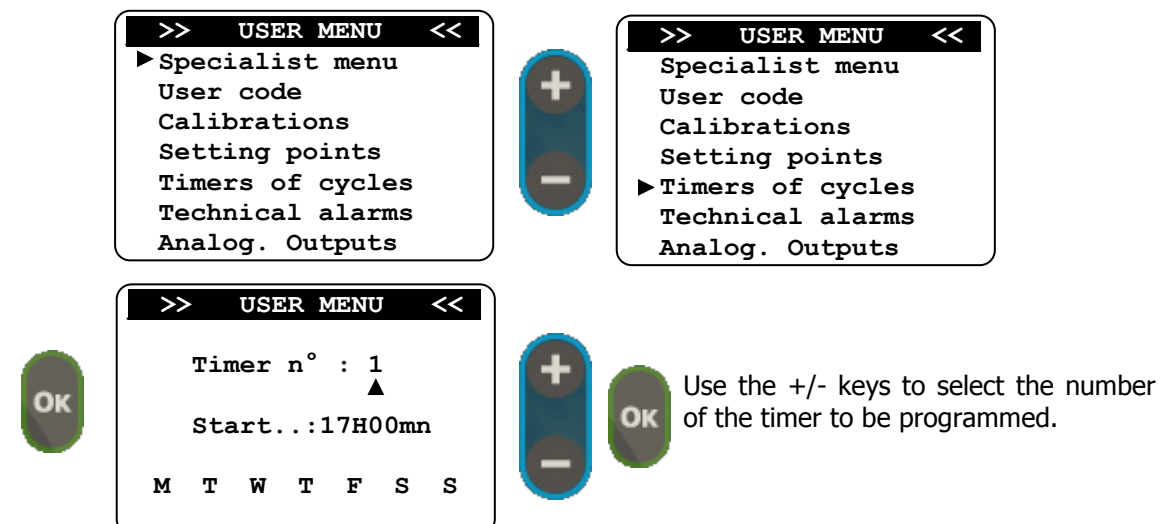
5) Programming cycles of polarisation times

When the **SYCLOPE TRACE'O®** controller has at least one of the programmed channel as a "Trace detection" function, the special line for programming timers of polarization/depolarization appears into the menu.

The timers allows to define one or more day(s) of the week and the starting time of the polarization/depolarization procedure.

As soon as the time reached, the polarization/depolarization cycle starts according the time cycles and thresholds programmed by the specialist menu.

Eight timers are available and each of them can have different starting time and different days of working.



OK

```

>>  USER MENU  <<

Timer n° : 1

Start...:17H00mn
      ▲
M  T  W  T  F  S  S
  
```

Use the +/- keys to select the starting time of the polarization/depolarization cycle.

OK

```

>>  USER MENU  <<

Timer n° : 1

Start...:17H00mn

M  T  W  T  F  S  D
▲
  
```

Use the +/- keys to select the day of the week where the cycle will be activated.

OK

Use the "OK" or Esc" key for navigating between each day.

#### 6) Programming technical alarm thresholds

Allows to define each technical alarm threshold (Min. and Max.) for each measurement parameter.

OK

```

>>  USER MENU  <<
► Specialist menu
User code
Calibrations
Setting points
Timers of cycles
Technical alarms
Analog. Outputs
  
```

+

-

```

>>  USER MENU  <<
Specialist menu
User code
Calibrations
Setting points
Timers of cycles
► Technical alarms
Analog. Outputs
  
```

OK

```

>>  USER MENU  <<
Technical alarms
► Free chlorine
pH
Flow rate
  
```



The measuring parameters are listed according the selected parameters.

The first one corresponds to the main entry (E1).

The second one correspond to the auxiliary entry (E2).

The third one is displayed or not according the activation of the flowrate measurement channel.

OK

```

Parameter E1

Low alarm .....: 00.00

High alarm ....: 00.00

Modification ?
  
```

OK

```

Parameter E1

Low alarm .....: 00.00
                  ▲
High alarm ....: 00.00
  
```



Use the +/- keys to adjust the required value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the value.



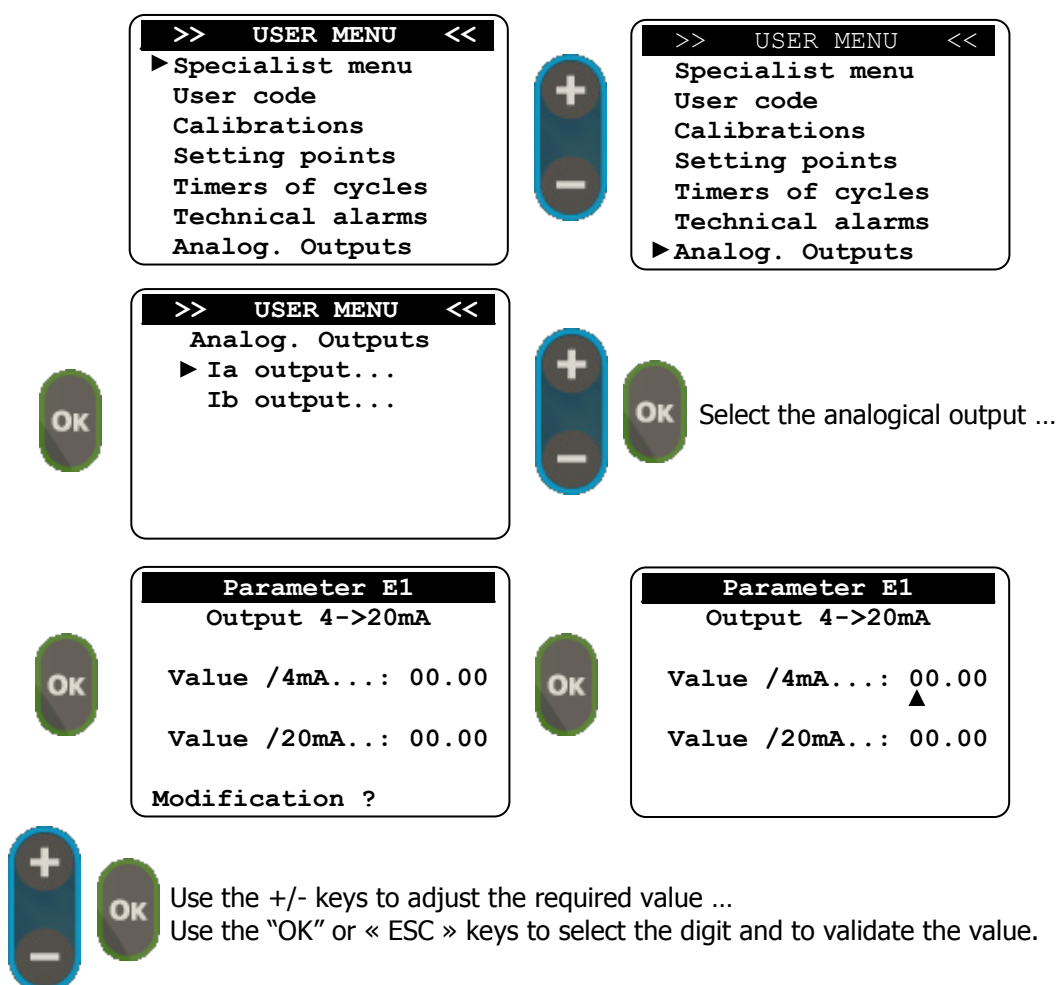
The unit of measurement can be different according the selected parameter (pH, mg/l, mV, etc...).

The number of digits can be different according the range of the sensor.

► Follow the same procedure for each technical alarm thresholds of the other parameters.

### 7) Programming analogical outputs

Allows to define each threshold analogical level (Low and high values) when the corresponding output is programmed as a data transfer. (See Menu Specialist – Analogical functions)

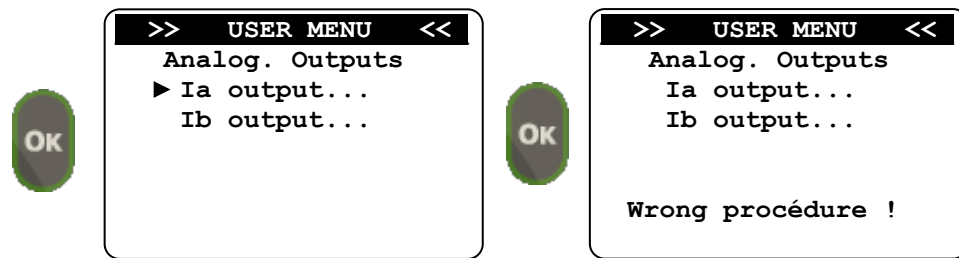


The unit of measurement can be different according the selected parameter (pH, mg/l, mV, etc...).

The number of digits can be different according the range of the sensor.

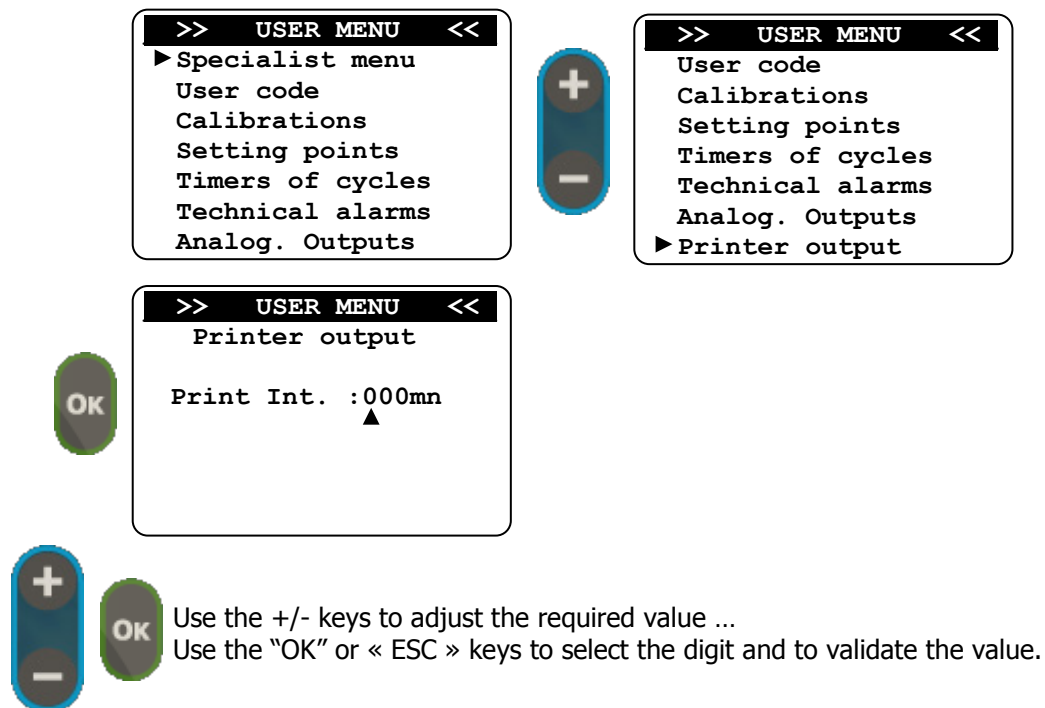
► Follow the same procedure for each thresholds analogical level of the other output.

If the selected output is NOT programmed as a data transfer output, a short message appears on the screen during three seconds.



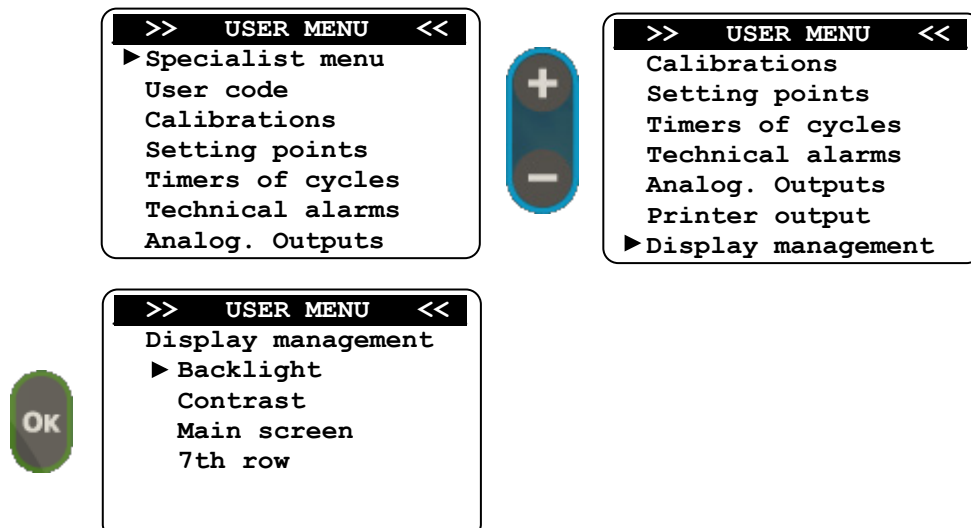
#### 8) Programming the interval of printing

Allows to define the printing interval of data.  
When programmed "zero" will cancel the printing output.




#### 9) Management of the display

This menu allows to define the levels of luminosity or backlight and the general format of parameter display.




## a) Programming of the backlight



Use the +/- keys to increase or decrease the intensity of the backlight ...  
Use the « ESC » key to leave the menu.

## b) Programming the contrast

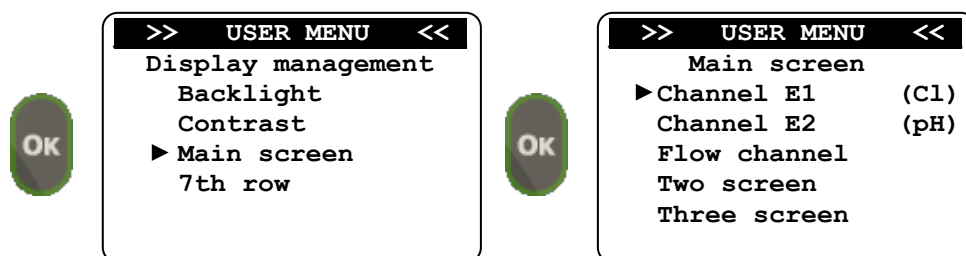


Use the +/- keys to increase or decrease the contrast ...  
Use the « ESC » key to leave the menu.



The contrast can also be modified from the main screen when the controller is in "STOP" mode by using +/- keys.

## c) Programming the main screen



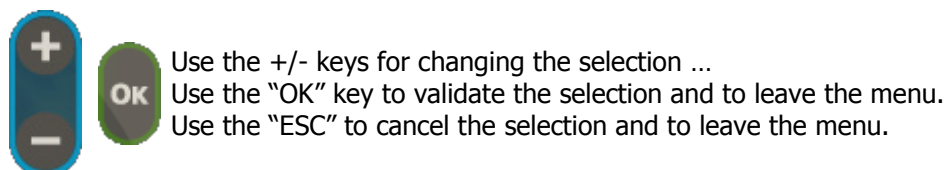
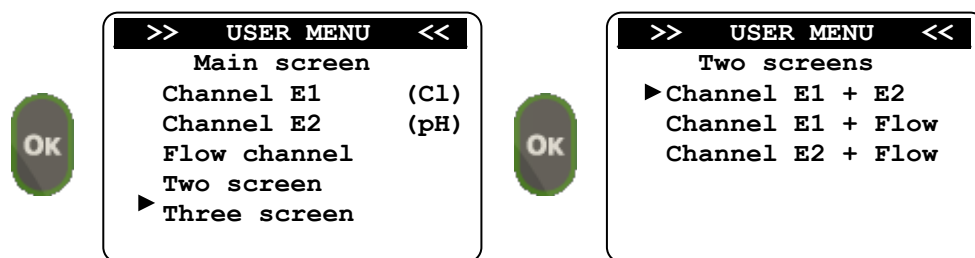
The list of parameters (Cl, pH ...) can be different according the programmed parameters of the controller.

- The "Channel E1 or E2" selection will display only the selected parameter.
- The "Two screen" selection will display the E1 and E2 parameters.
- The "Three screen" selection will display the E1, E2 and flowrate parameters.



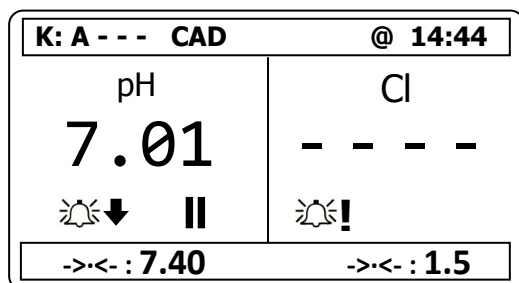
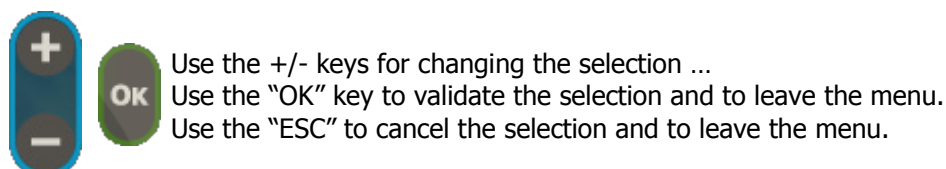
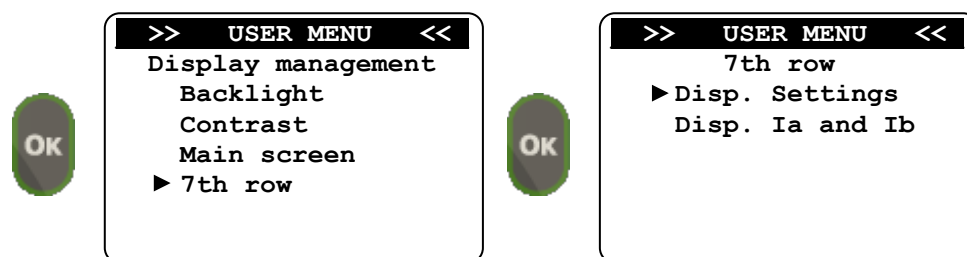
If only one channel is selected, the "Two screen" mode is not available.  
If two parameters are selected, the "Three screen" mode is not available.

- If three parameters are selected and if you use "Two screens" mode, you must define the parameters to be displayed.

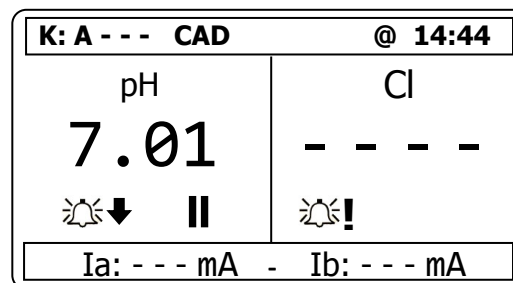


#### d) Programming the « 7th row »

The 7<sup>th</sup> row or line correspond to the last line of the main screen. This menu allows to select the display of setpoints of each parameter or the display of analogical outputs "Ia" and "Ib".



Display of the setpoints



Display of the output currents

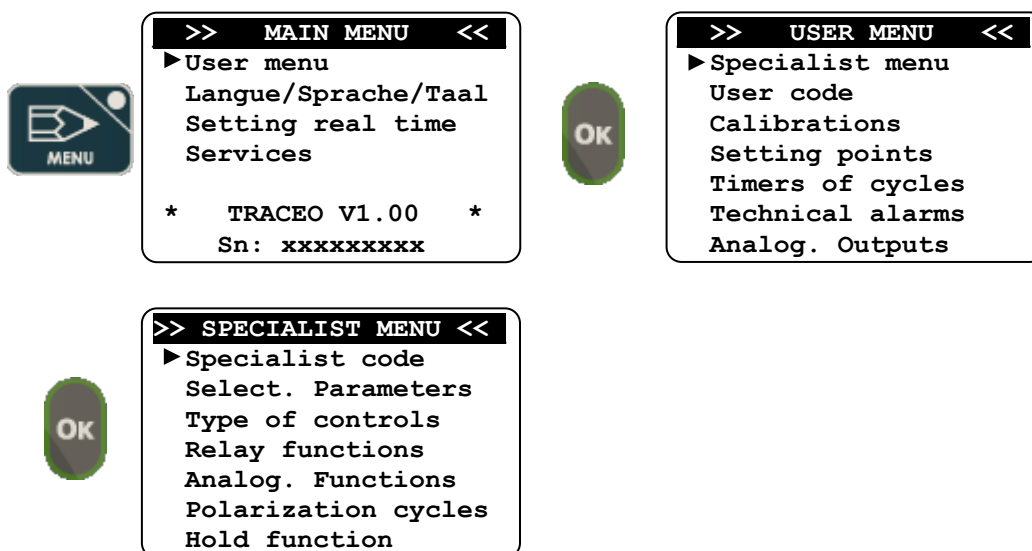


## VII. Specialist Menu

This menu allows to program or to modify the working functions of the controller such as:

- Select parameters
- Type of controls
- Relay functions
- Analogical functions
- Polarization cycles
- Hold function
- Maintenance state
- Flow function
- Flsw function (Flow-Switch Function)
- Communication
- Factory reset

Accessing to the Specialist Menu ...



When passing from "Main Menu" to "User menu" and from "User Menu" to "Specialist Menu", an access code can be required according the programming. At each step, indicate the corresponding code as follow:

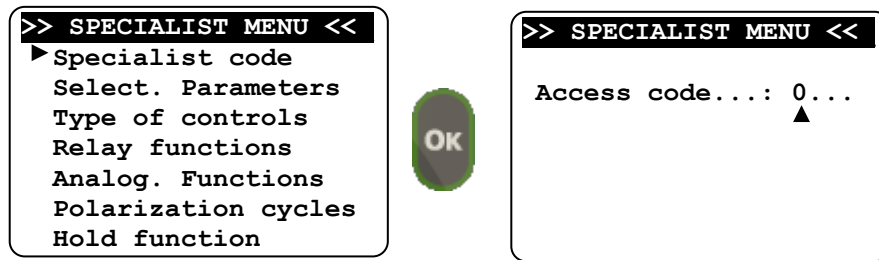
Access code...: 0...  
 ▲



Use the +/- keys to enter the required code ...  
 Use the "OK" or « ESC » keys to select the digit and to validate the access code.

1) Specialist code

This menu allows to modify or to cancel the specialist access code.



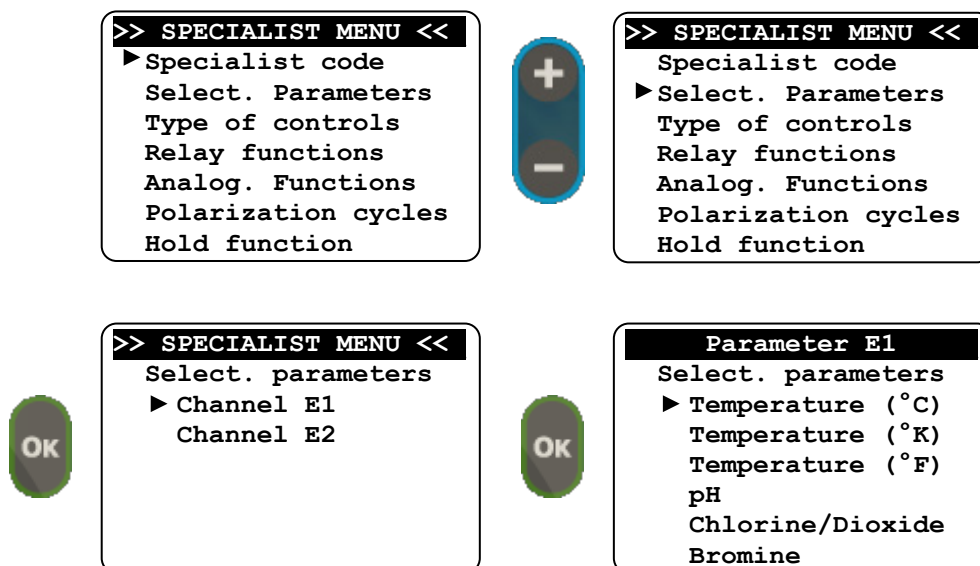
Use the +/- keys to enter the required code ...  
Use the "OK" or « ESC » keys to select the digit and to validate the access code.



For cancelling the access code function of the specialist menu, repeat the same procedure and enter the "0000" value !

2) Selecting parameters

Allows to program or to modify the selected parameters of the main channel (E1) and of the auxiliary channel (E2).



Find below the general structure definition of a selected parameters:

- Select the parameter to be used
- Select the normal scale of the corresponding sensor (According std. parameters)
- Select the amortization of the measurement (According parameters)
- Select the compensation mode function for "Current probe entry" (mA)
- Select the trace detection mode (Only for Total chlorine and Ozone parameters)

## &gt; General structure definition of a selected parameter &lt;

<i>Parameter</i>	<i>Scale</i>	<i>Option</i>	<i>Amortization</i>
Temperature (°C)	-5°C ▶ 45°C 0°00 ▶ 100°C		0 to 9
Temperature (°K)	-5°C ▶ 45°C 0°00 ▶ 100°C		0 to 9
Temperature (°F)	-5°C ▶ 45°C 0°00 ▶ 100°C		0 to 9
pH			0 to 9
Chlorine/Dioxide			
▶ Free chlorine	0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l 0.00 ▶ 5 mg/l 0.00 ▶ 10 mg/l		0 to 9
▶ Active chlorine	0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l 0.00 ▶ 5 mg/l 0.00 ▶ 10 mg/l 0.00 ▶ 20 mg/l 0.00 ▶ 50 mg/l 0.00 ▶ 100 mg/l 0.00 ▶ 200 mg/l 0.00 ▶ 250 mg/l		0 to 9
▶ Total chlorine	0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l 0.00 ▶ 5 mg/l 0.00 ▶ 10 mg/l 0.00 ▶ 20 mg/l	Trace detection	0 to 9
▶ Chlorine Dioxide	0.00 ▶ 0.5 mg/l 0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l 0.00 ▶ 5 mg/l 0.00 ▶ 10 mg/l		0 to 9
▶ Chlorite	0.00 ▶ 0.5 mg/l 0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l		0 to 9
Bromine	0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l 0.00 ▶ 5 mg/l 0.00 ▶ 10 mg/l 0.00 ▶ 20 mg/l		0 to 9
Oxygen	0.00 ▶ 0.5 mg/l 0.00 ▶ 1 mg/l 0.00 ▶ 2 mg/l 0.00 ▶ 5 mg/l 0.00 ▶ 10 mg/l 0.00 ▶ 20 mg/l 0.00 ▶ 50 mg/l 0.00 ▶ 100 mg/l 0.00 ▶ 200 mg/l 0.00 ▶ 500 mg/l 0.00 ▶ 1000 mg/l 0.00 ▶ 2000 mg/l 0.00 ▶ 5000 mg/l		0 to 9

## &gt; General structure definition of a selected parameter &lt;

Parameter	Scale	Option	Amortization
Ozone	0.00 ▶ 0.5 mg/l	Trace detection	0 to 9
	0.00 ▶ 1 mg/l		
	0.00 ▶ 2 mg/l		
	0.00 ▶ 5 mg/l		
	0.00 ▶ 10 mg/l		
Redox (mV)	0 ▶ 1000 mV		0 to 9
	0 ▶ 1500 mV		
	0 ▶ 2000 mV		
	+/- 1000 mV		
	+/- 1500 mV		
Current probe (mA)	+/- 2000 mV	Compensation	0 to 9
Peroxide H2O2	0.00 ▶ 2 mg/l		0 to 9
	0.00 ▶ 5 mg/l		
	0.00 ▶ 10 mg/l		
	0.00 ▶ 20 mg/l		
	0.00 ▶ 50 mg/l		
	0.00 ▶ 100 mg/l		
	0.00 ▶ 200 mg/l		
	0.00 ▶ 500 mg/l		
	0.00 ▶ 1000 mg/l		
	0.00 ▶ 2000 mg/l		
	0.00 ▶ 5000 mg/l		
	0.0 ▶ 10000 mg/l		
Peracetic Acid	0.00 ▶ 2 mg/l		0 to 9
	0.00 ▶ 5 mg/l		
	0.00 ▶ 10 mg/l		
	0.00 ▶ 20 mg/l		
	0.00 ▶ 50 mg/l		
	0.00 ▶ 100 mg/l		
	0.00 ▶ 200 mg/l		
	0.00 ▶ 500 mg/l		
	0.00 ▶ 1000 mg/l		
	0.00 ▶ 2000 mg/l		
	0.00 ▶ 5000 mg/l		
	0.0 ▶ 10000 mg/l		
PHMB	0.00 ▶ 50 mg/l		0 to 9
	0.00 ▶ 100 mg/l		
	0.00 ▶ 200 mg/l		
	0.00 ▶ 500 mg/l		



**Compensation :** When the entry is selected as a "Current probe", this last one can be used to compensate the signal of control of the other entry according the proportional value of current applied. To do this, activate the compensation function for this entry when selected.



The compensation entry uses only a "0-20mA" proportional current.



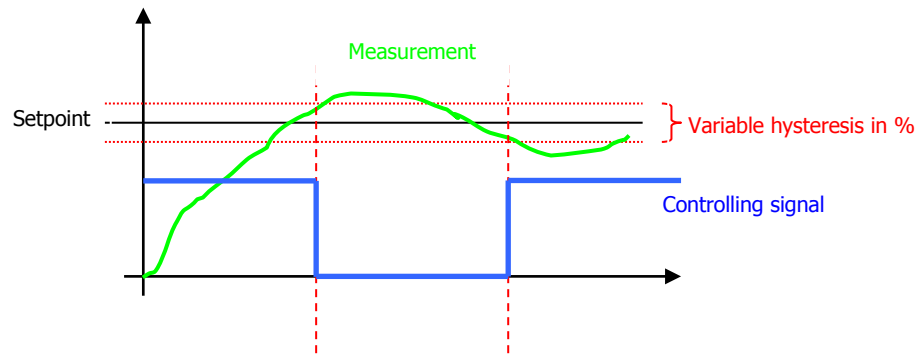
**Amortization :** When this value is over zero, the measurement will be more or less averaged according the selected value.

### 3) Type of controls

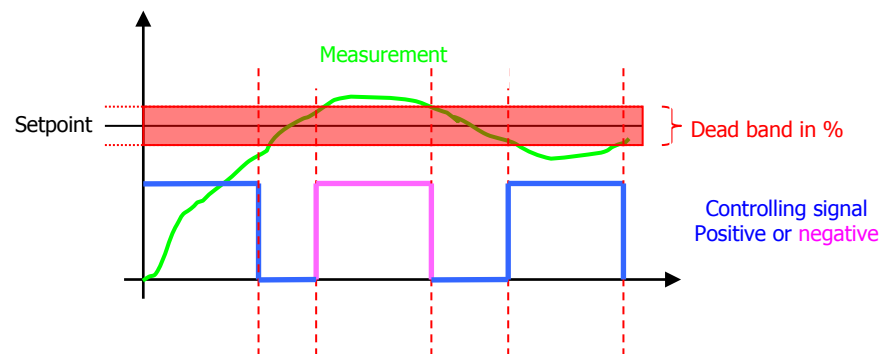
Allow to select the controlling mode of each parameter and to define his programming.

#### a) Definition of the influence factors

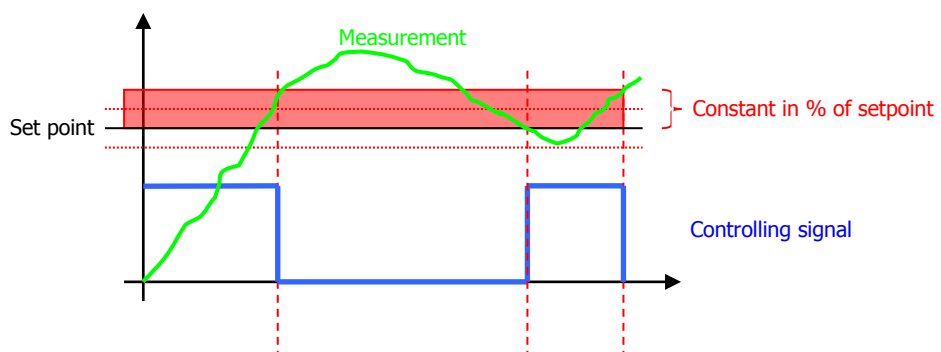
- **Hysteresis :** (Only for the On/Off control)  
This is the lower and upper values for conditioning the controlling signal for activating or disabling the dosing elements.



- **Dead band :**  
This is the proportional threshold values around the setting point where no controlling signal is generated. Cause the dosing element to be stopped.

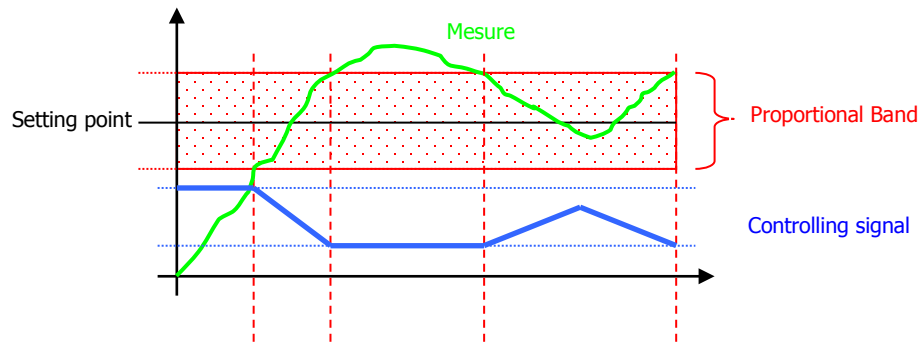


- **Constant :**  
This is a fixed value added to the calculation of the controlling signal.

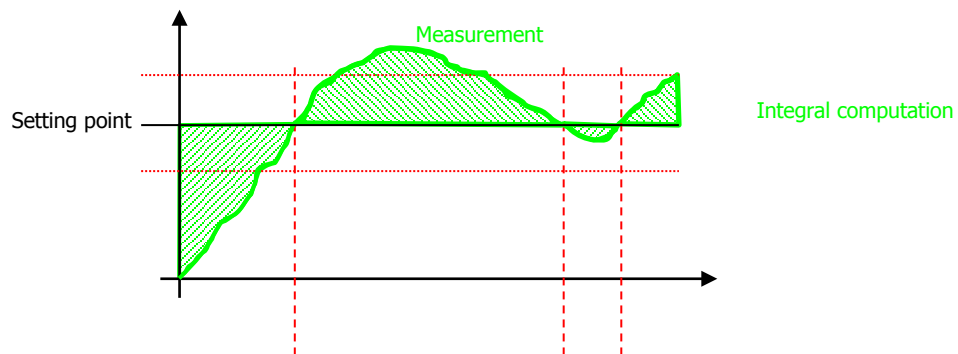


➤ **Proportional band :**

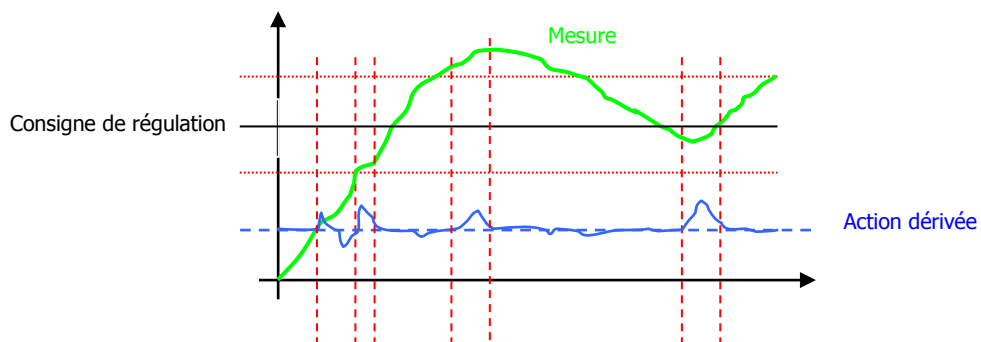
This is the area around the setting point where the controlling signal is linear.

➤ **Integral :**

This is the computation of the average value of positive and negative differences around the setting point conditioned by the time of integration.

➤ **Derivative :**

This is the computation of positive or negative peaks of value conditioned by the time of derivation.



## b) Programming types of controls

**>> SPECIALIST MENU <<**  
 ▶ Specialist code  
 Select. Parameters  
 Type of controls  
 Relays function  
 Analog. Functions  
 Polarization cycles  
 Hold function

**>> SPECIALIST MENU <<**  
 Type of controls  
 ▶ Total chlorine  
 pH

**i** The two parameters are displayed according the selected parameters of each entry.

**i** If one channel (or more) is programmed as a "Trace detection" or "Current probe" mode, it is not possible to select a type of control for this condition.

**>> SPECIALIST MENU <<**  
 Type of controls  
 ▶ Total chlorine  
 pH

**>> SPECIALIST MENU <<**  
 Type of controls  
 ▶ Without control

▶ If the channel is not in "Trace detection" or "Current probe" ...

**>> SPECIALIST MENU <<**  
 Type of controls  
 Total chlorine  
 ▶ pH

**>> SPECIALIST MENU <<**  
 Type of controls  
 ▶ Without control  
 On/off control  
 P. control  
 P.I. controls  
 P.I.D. controls  
 Auto-control

## c) On/off control

**>> SPECIALIST MENU <<**  
 Type of controls  
 Without control  
 ▶ On/off control  
 P. control  
 P.I. controls  
 P.I.D. controls  
 Auto-control

**Parameter E2**  
 Hysteresis .: 00.0%  
 Modification ?

**Parameter E2**  
 Hysteresis .: 00.0%  
 ▲

Use the +/- keys to enter the value ...  
 Use the "OK" or « ESC » keys to select the digit and to validate the value.

## d) Proportional control (P)

>> SPECIALIST MENU <<

Type of controls

- Without control
- On/off control
- P. control
- P.I. controls
- P.I.D. controls
- Auto-control



Parameter E2

Control parameters

- Dead band
- Constant
- Band factor

Parametre E2

Dead band...: 00.0%

Modification ?



Parametre E2

Dead band...: 00.0%

▲



Use the +/- and "OK" keys to enter the new value of the "Dead band" ...

Parameter E2

Control parameters

- Dead band
- Constant
- Band factor



Parametre E2

Constant ...: 00.0%

Modification ?

Parametre E2

Constant ...: 00.0%

▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the constant value.

Parameter E2

Control parameters

- Dead band
- Constant
- Band factor



Parametre E2

Band factor...: 05.0

Modification ?

Parametre E2

Band factor...: 05.0

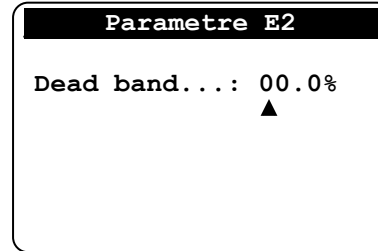
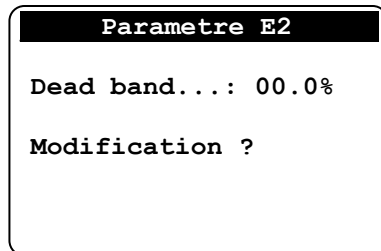
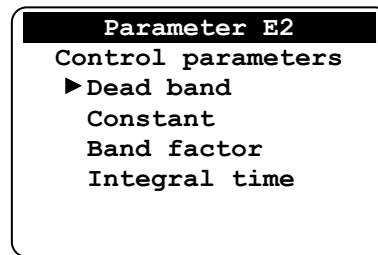
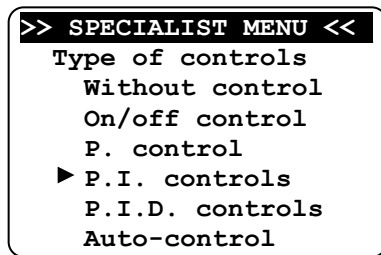
▲



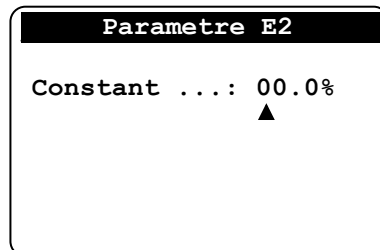
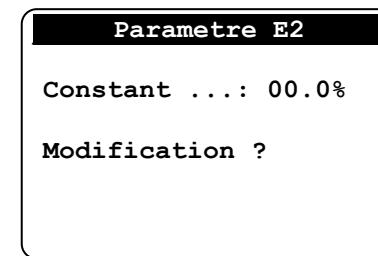
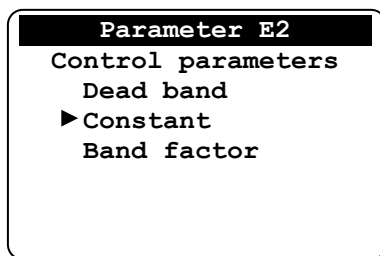
Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the constant value.



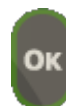
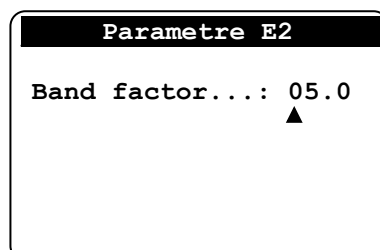
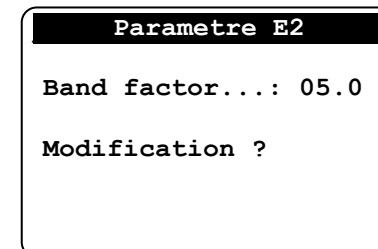
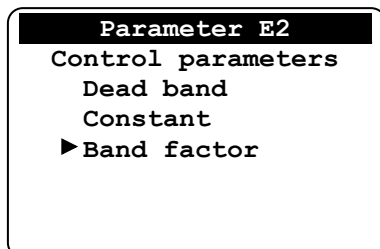
## e) Proportional and integral controls (P.I.)



Use the +/- and "OK" keys to enter the new value of the "Dead band" ...



Use the +/- keys to enter the value ...  
 Use the "OK" or « ESC » keys to select the digit and to validate the constant value.



Use the +/- keys to enter the value ...  
 Use the "OK" or « ESC » keys to select the digit and to validate the constant value.

**Parameter E2**

Control parameters

- Dead band
- Constant
- Band factor
- Integral time



**Parametre E2**

Integral.....: 0010s

Modification ?

**Parametre E2**

Integral.....: 0010s

▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the constant value.

f) Proportional, integral and derivative controls (P.I.D.)

**>> SPECIALIST MENU <<**

Type of controls

- Without control
- On/off control
- P. control
- P.I. controls
- P.I.D. controls
- Auto-control



**Parameter E2**

Control parameters

- Dead band
- Constant
- Band factor
- Integral time
- Derivative time

**Parametre E2**

Dead band....: 00.0%

Modification ?



**Parametre E2**

Dead band....: 00.0%

▲



Use the +/- and "OK" keys to enter the new value of the "Dead band" ...

**Parameter E2**

Control parameters

- Dead band
- Constant
- Band factor
- Integral time
- Derivative time



**Parametre E2**

Constant ....: 00.0%

Modification ?

**Parametre E2**

Constant ....: 00.0%

▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the constant value.

**Parameter E2**

Control parameters

Dead band

Constant

► Band factor

Integral time

Derivative time



**Parametre E2**

Band factor...: 05.0

Modification ?

**Parametre E2**

Band factor...: 05.0

▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the constant value.

**Parameter E2**

Control parameters

Dead band

Constant

Band factor

► Integral time

Derivative time



**Parametre E2**

Integral....: 0010s

Modification ?

**Parametre E2**

Integral....: 0010s

▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the integral value.

**Parameter E2**

Control parameters

Dead band

Constant

Band factor

Integral time

► Derivative time



**Parametre E2**

Derivative...: 0010s

Modification ?

**Parametre E2**

Derivative...: 0010s

▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the derivative value.

#### g) Automatic controls

**>> SPECIALIST MENU <<**

Type of controls

Without control

On/off control

P. control

P.I. controls

P.I.D. controls

Auto-control

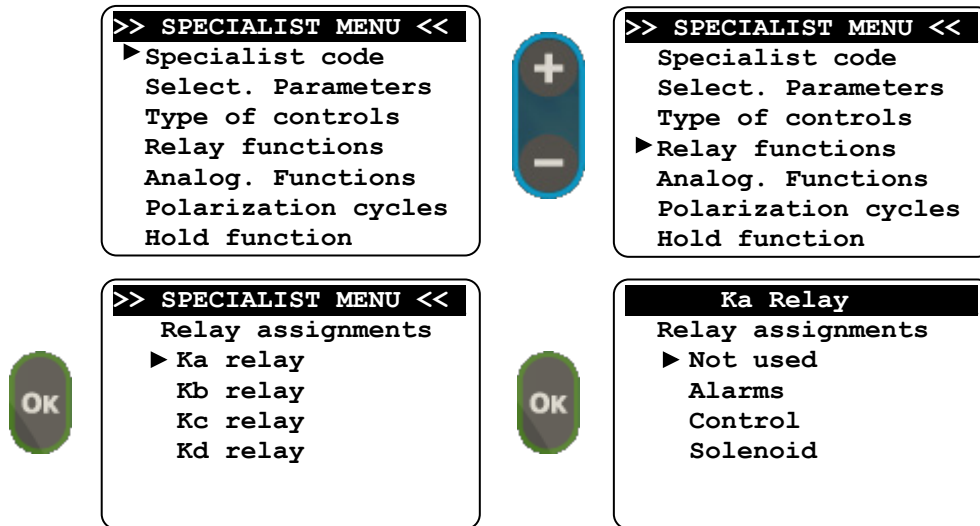


Calculates automatically the parameters of controlling according to the feed-back of the measurement.

#### 4) Using and programming relays

Allows to select and to program the four relays (Ka, Kb, Kc and Kd).  
These relays can be used by the following functions:

- **Alarms (technical or process)**
- **Controlling**
- **Processing (Trace detection relays)**

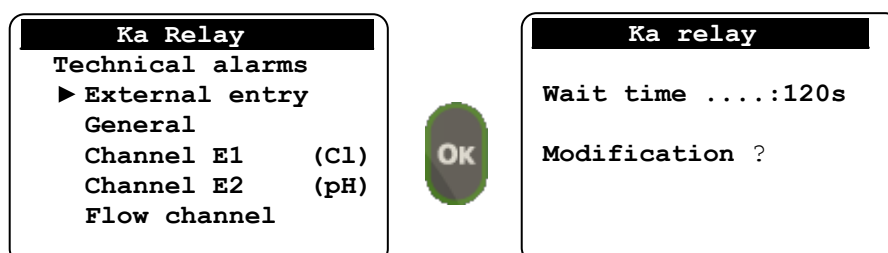


- The choice of solenoid valve is available only in case of "Trace detection" processing.
- The controlling mode can be disabled when all the entries are programmed in "Trace detection" mode.
- The programming procedure is identical for the four relays.

##### a) Alarms assignment



- **External entry**  
The external entry allows to copy the state of the conditional "CAD" entry. This function allows to chain more **SYCLOPE TRACE'O®** controller by using only one external entry information.



**Ka relay**

Wait time ....:120s  
▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the wait time value.



The "Wait time" corresponds to the delay between the real time of changing onto the "CAD" entry and the real time of changing of the relay. It can be set from 0 to 240s.

➤ General alarm

The general technical alarm concerns the physical errors from the sensors or from the electronic parts.

**Ka Relay**

Technical alarms  
External entry  
▶ General  
Channel E1 (Cl)  
Channel E2 (pH)  
Flow channel



**Ka relay**

Wait time ....:120s  
Modification ?

**Ka relay**

Wait time ....:120s  
▲



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the wait time value.



The "Wait time" corresponds to the delay between the real time of the alarm detection and the real time of changing of the relay. It can be set from 0 to 240s.

➤ Alarm from channel 1 or 2

The alarm corresponds to the selected alarm from each measurement entry. This alarm is defined by the corresponding value of technical alarm. (See Technical menu)

**Ka Relay**

Technical alarms  
External entry  
▶ General  
Channel E1 (Cl)  
Channel E2 (pH)  
Flow channel

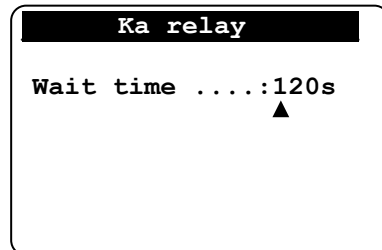
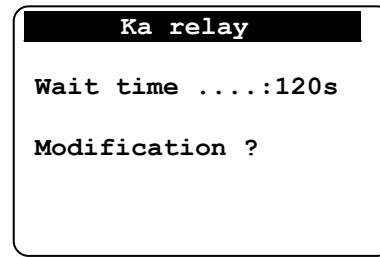
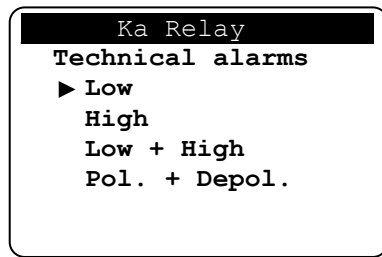


**Ka Relay**

Technical alarms  
▶ Low  
High  
Low + High  
Pol. + Depol.



The alarm "Pol. Depol." is only available in case of "Trace detection" mode. This alarm corresponds to a fault into the probe polarization/depolarization processes.



Use the +/- keys to enter the value ...  
Use the "OK" or « ESC » keys to select the digit and to validate the wait time value.

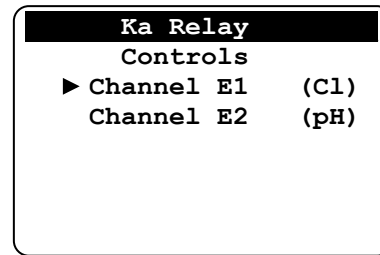
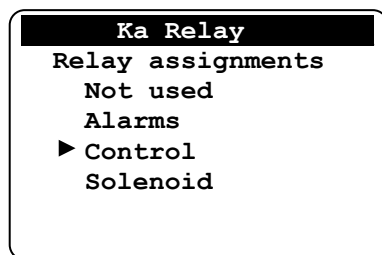


The "Wait time" corresponds to the delay between the real time of the alarm detection and the real time of changing of the relay. It can be set from 0 to 240s.



This procedure is identical for each alarm (Low, High, Low+High and Pol.+Depol.)

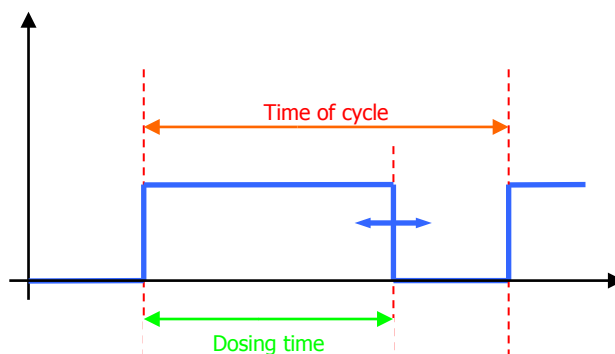
#### b) Control assignment



According to the programming, this last screen can be proposed or not.

#### ➤ **Pulse width modulation (PWM) command:**

According to the time of cycle, the dosing time is calculated using the dosing value and proportionally translated into the time of cycle.



<b>Ka Relay</b> Controls (E1) ▶ PWM Pulse 3-point	OK	<b>Ka Relais</b> Direction control ▶ Up (+) Down (-)
<b>Ka relay</b> Time of cycle .:120s Modification ?	OK	<b>Ka relay</b> Time of cycle .:120s ▲



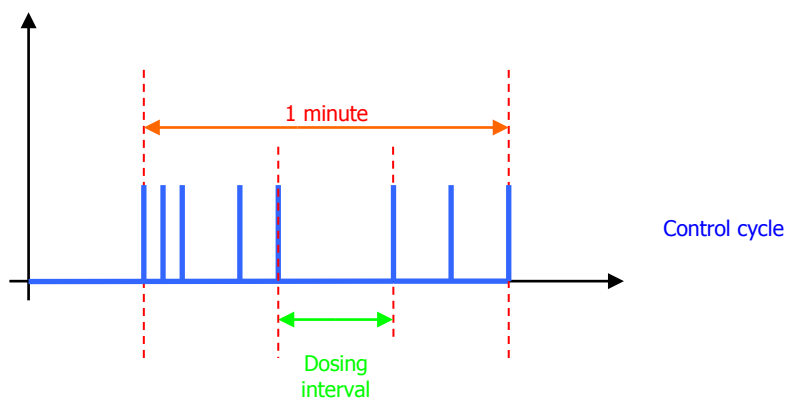
Use the +/- and "OK" keys to enter the new value of the "Time of cycle" ...



The time of cycle is programmable from 10 to 240 seconds.

➤ **Pulse command:**

This command generates calibrated pulses where the maximum number per minute is fixed by programming.



<b>Ka Relay</b> Controls (E1) PWM ▶ Pulse 3-point	OK	<b>Ka Relais</b> Direction control ▶ Up (+) Down (-)
<b>Ka relay</b> Nb of pulse/mn: 120s Modification ?	OK	<b>Ka relay</b> Nb of pulse/mn: 120s ▲



Use the +/- and "OK" keys to enter the new value of the maximum "Number of pulses per minute" ...

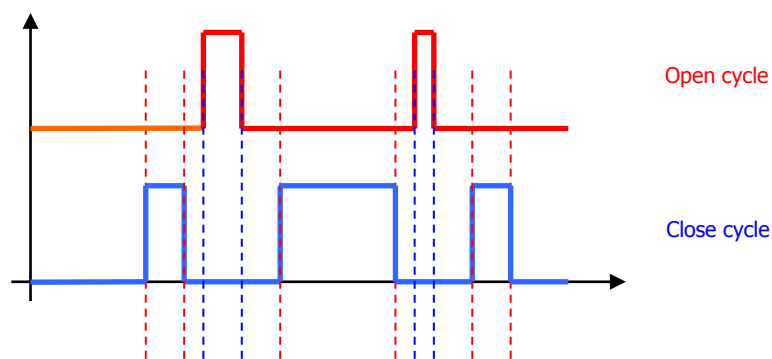


The maximum number of pulses per minutes is programmable from 10 to 180.

➤ **Three point command :**

This command uses always two relays. One of them is used for opening and the other one for closing the dosing element. When no relay is activated, the dosing element stay in the same position. (Not good for automatic closing valve !)

The time cycle is defined as the time for opening and closing the element at 100%.



Ka Relay

Controls (E1)

PWM

Pulse

▶ 3-point



Ka Relais

Direction control

▶ Up (+)

Down (-)

Ka relay

Time of cycle ..:120s

Modification ?



Ka relay

Time of cycle ..:120s

▲



Use the +/- and "OK" keys to enter the new value of "Time of cycle" ...



The time of cycle is programmable from 10 to 240 seconds.



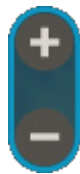
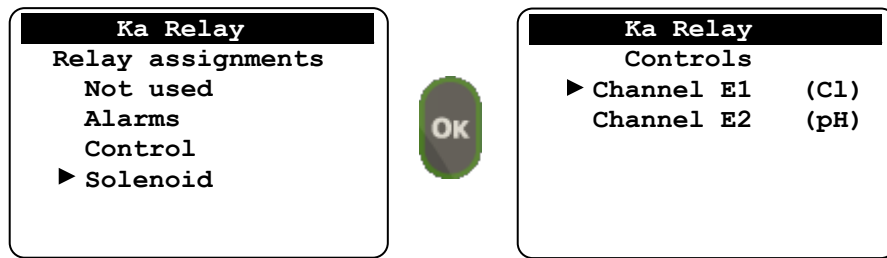
When using the Ka or Kb relay, the function is automatically associated to the Kb or Ka relay.

When using the Kc and Kd relay, the function is automatically associated to the Kd and Kc relay.



## c) Solenoid valve function

This function is only used by the "Trace detection" process. The solenoid valve is used to invert the sample circuit for polarization of the sensor during polarization processes.



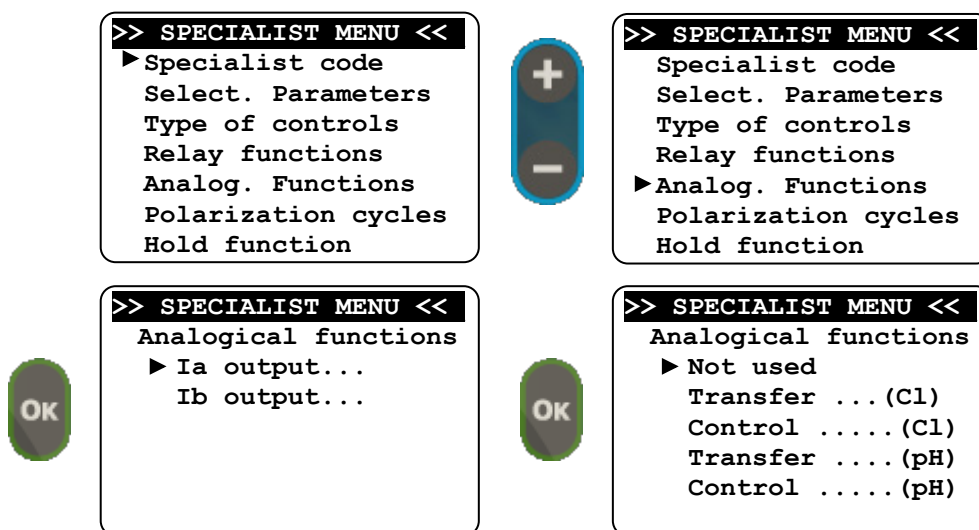
Use the +/- and "OK" keys to select the corresponding entry to associate the relay.



If only one entry is programmed as a "Trace detection", the channel is automatically selected and the last screen doesn't appear.

5) Analogical outputs assignment

Allows to assign and to select the type of using of the two analogical outputs.

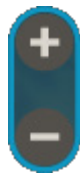
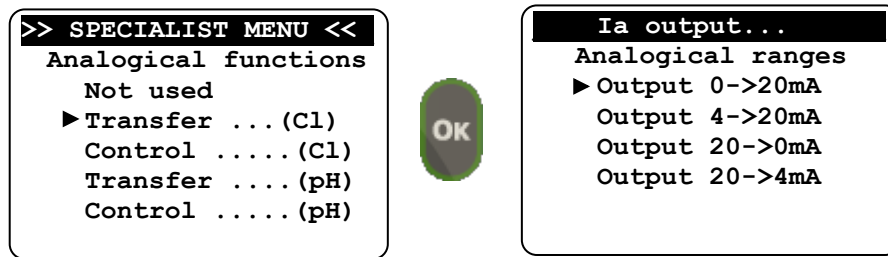


The controlling mode cannot be programmed if the corresponding entry is in "Trace detection" mode.



The procedure of programming is identical for the two analogical outputs.

## a) Transfer mode

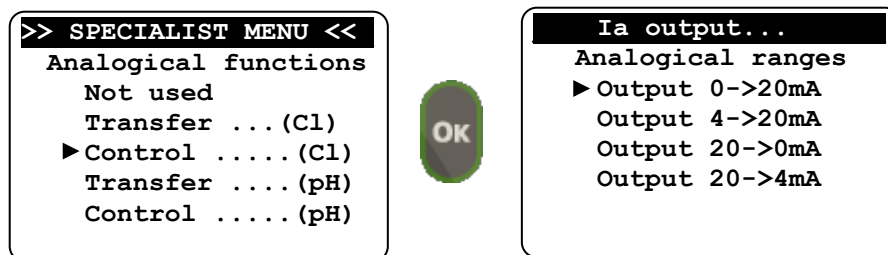


Use the +/- and "OK" keys to select the corresponding mode of the analogue output.



Reminder when "Transfer" mode is used : Don't forget to program the thresholds of the corresponding analogue outputs into the **User menu – Analog. Output !**

## b) Control mode



Use the +/- and "OK" keys to select the corresponding mode of the analogue output.

6) Polarization/depolarization cycles

This function defines the complete working of the polarization/depolarization cycles for the sensors used in "Trace detection" mode.

When using this such sensor without no chemical product into the sample, it is impossible to determine if the sensor works fine and in this case, it is strongly recommended to control periodically the good working of the sensor by an automatic process.

The principle consists to establish different steps where each successive values will be checked. These steps are defined by the user according the period of free time to do this and the concentration of the polarizing chemical product.

The complete process of control includes :

- A polarization step (For checking the reaction of the sensor)
- A hold time (For maintaining the polarization procedure on the sensor)
- A depolarization step (For checking the return to zero of the measurement)

For executing all the functions of control, two type of technical data are used :

- The polarization or depolarization thresholds
- The times used to reach these thresholds.

The step of "Time of hold", used to guaranty the oxidization of the sensor, will be determined by a necessary time for regenerating the balancing between the electrolyte and the internal electrodes. This "Time of hold" is directly influenced by the repetitive cycle of polarization and the concentration of polarizing chemical product used. It should be determined by experimentation.

#### Polarization step:

This step allows to check if the sensor is sensible to the chemical product of polarizing and if the time to do this is not too longer. (Period of latency due to the membrane permeability).

For executing this step, two conditions must be programmed:

- The threshold of polarization to be reached ...
- The maximum time to reach the previous threshold.

If the threshold is not reached into the maximum time defined, an alarm will be activated and the process will be stopped. A visual information will be displayed on the main screen. This alarm will be cleared by the technician of maintenance when visiting the site.

#### "Time of hold" step :

The step of "Time of hold", used to guaranty the oxidization of the sensor, will be determined by a necessary time for regenerating the balancing between the electrolyte and the internal electrodes. It is determinant for the good working of the sensor. (Sensitivity and reaction time).

For executing this step, one condition must be programmed:

- "Time of hold" for maintaining the chemical product of polarization.

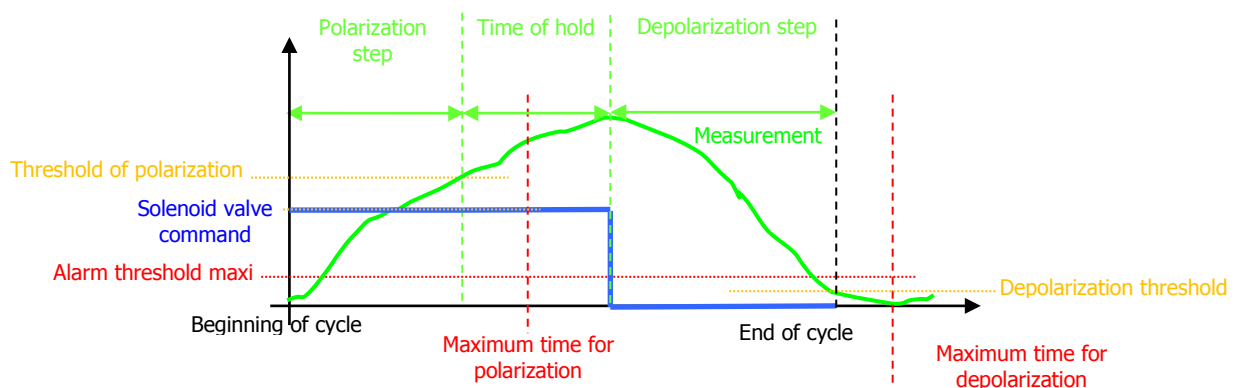
#### Depolarization step :

This last step allows to check if the sensor is able to return near the zero measurement. In case of defective membrane or bad electrolyte, the return time will be too high and the sensor will not be able to measure the real chemistry correctly.

For executing this last step, two conditions must be programmed:

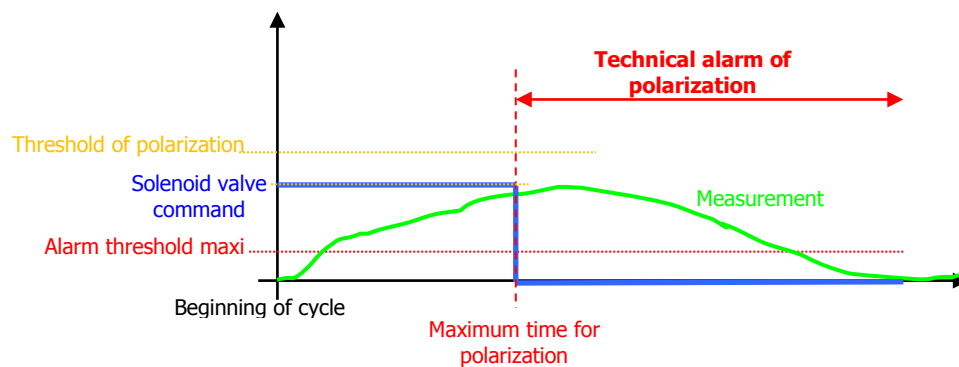
- The threshold of depolarization to be reached ...
- The maximum time to reach the minimum threshold.

Example : Normal polarization/depolarization cycle for a good sensor



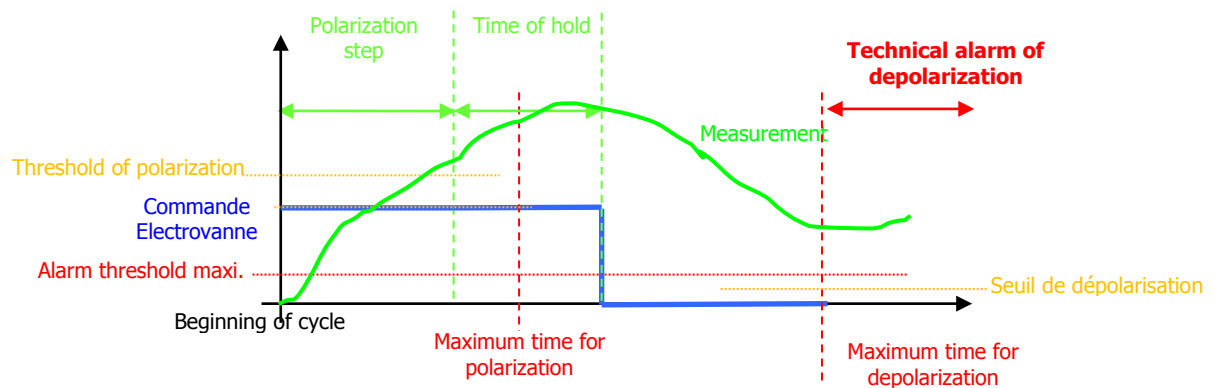
***As soon as the process ended, the measurement technical alarms are reactivated automatically !***

Example : Polarization cycle cancelled due to a bad sensor



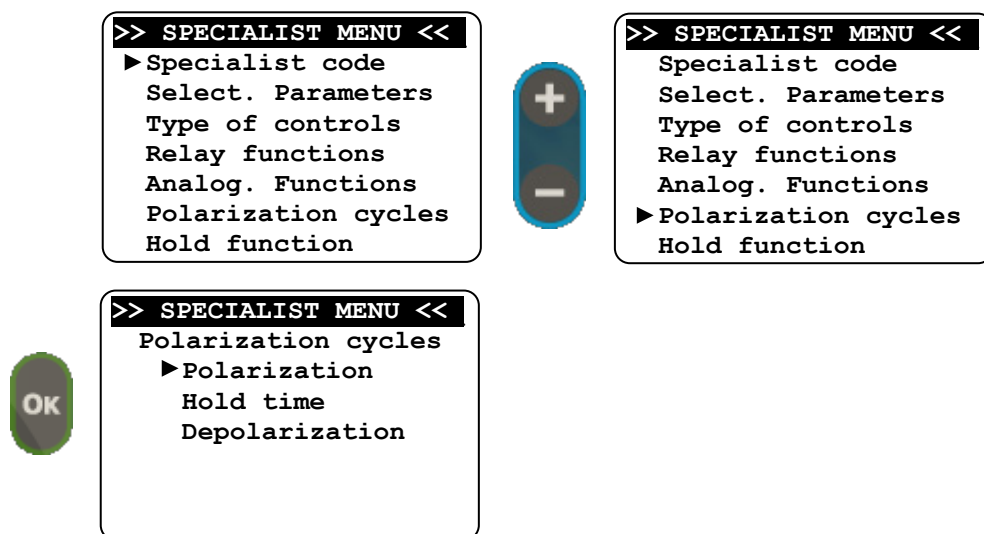
*The technical alarm of polarization has been engaged, the alarm relay is activated and only the maintenance technician could cancel the error !*

Example : Depolarization cycle cancelled due to a bad sensor



*The technical alarm of depolarization has been engaged, the alarm relay is activated and only the maintenance technician could cancel the error !*

Programming the process :

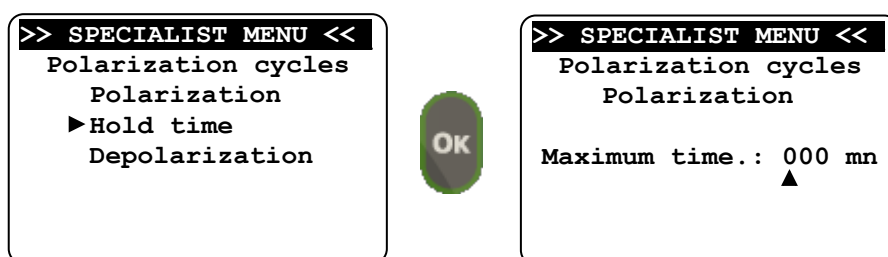


## ➤ Polarisation step



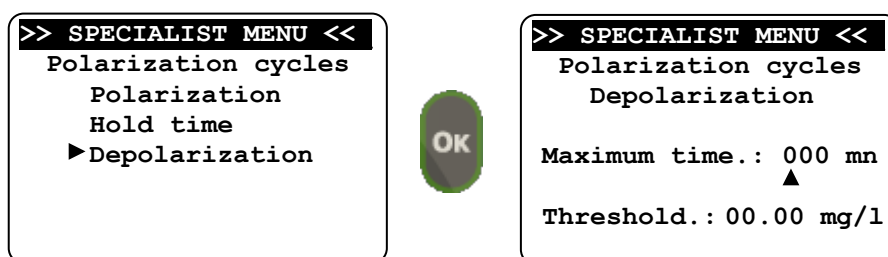
Use the +/- and "OK" keys to enter the values of "Maximum time" and the "Minimum threshold" of the polarisation step.

## ➤ "Hold time" or oxidizing cycle



Use the +/- and "OK" keys to enter the values of "Maximum time" of the "Hold time" step.

## ➤ Depolarization step



Use the +/- and "OK" keys to enter the values of "Maximum time" and the "Maximum threshold" of the depolarisation step.

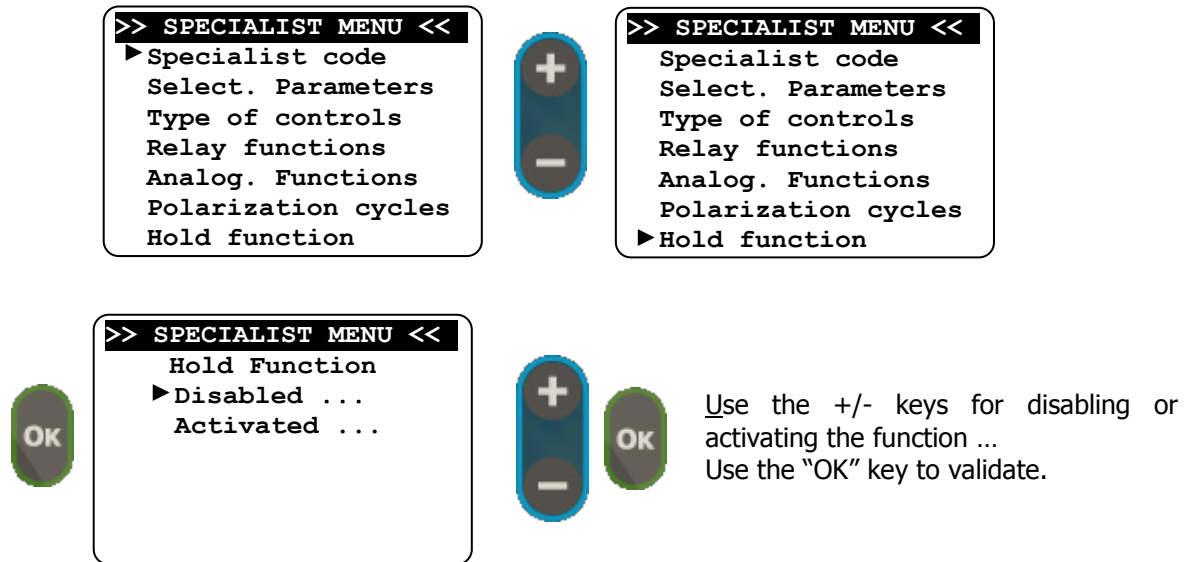


*The programmed threshold cannot be higher than the high alarm !*

7) Hold function

This function allows to keep all the algorithms of calculation when the **SYCLOPE TRACE'O®** controller is stopped. (Green LED off).

When the controller stopped for a short time, the controller keeps his accuracy and restarts immediately with the previous calculations.

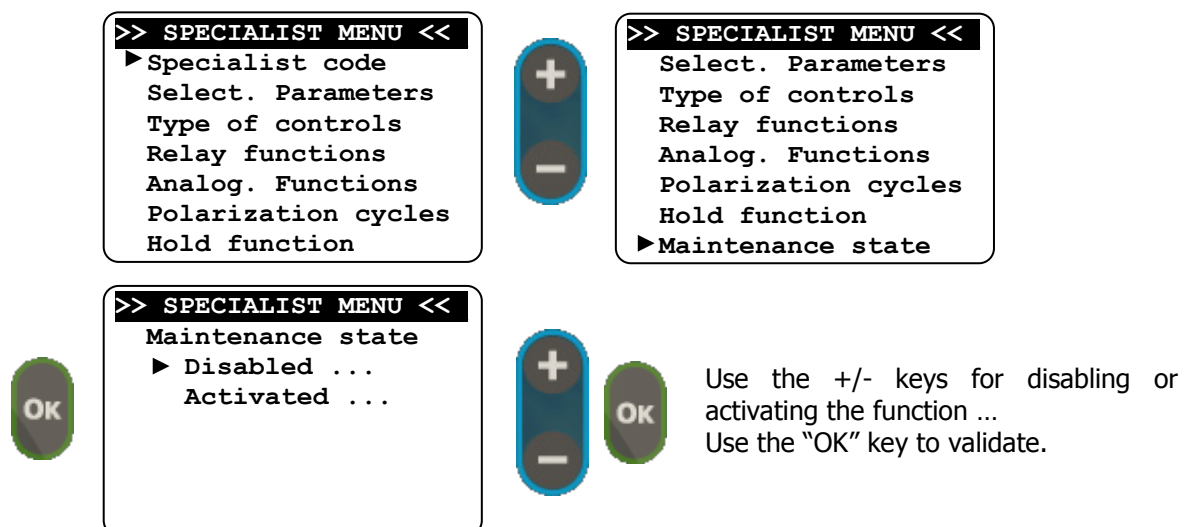
8) Maintenance function

Allows to activate the maintenance function of the **SYCLOPE TRACE'O®** controller.

The activation of the maintenance allows to display more informations onto the different screens and accessing to the manual actions on relays and communication controls.

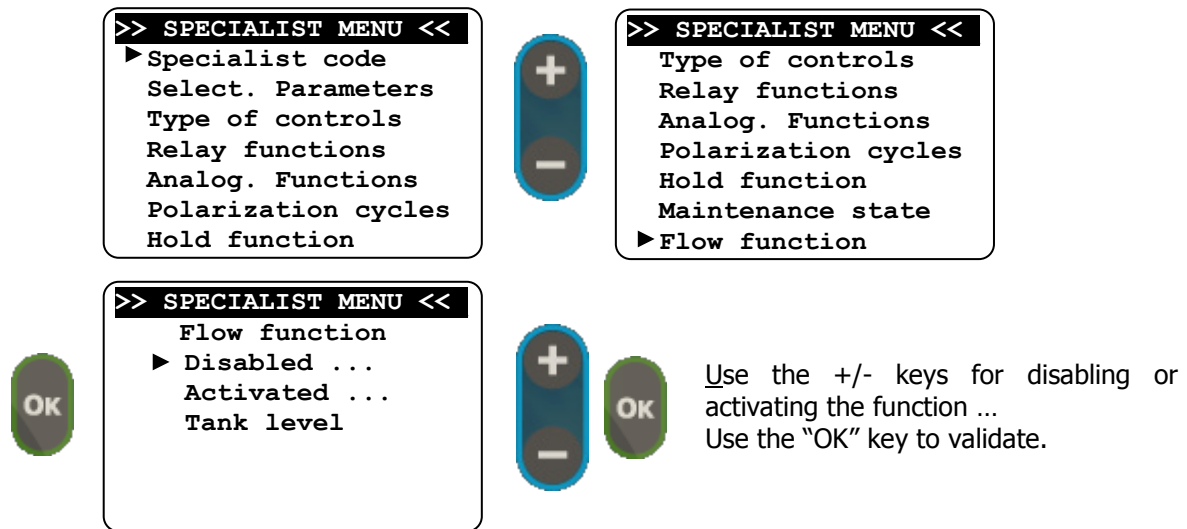
This option extends the possibilities of the controller by giving the following functions:

- Displaying the gross current of the sensor in "Stop" mode.
- Activating/Disabling manually all the relays
- Simulating the output currents onto Ia and Ib analogical outputs
- Controlling the good working of the Modem (If activated)
- Sending data information onto the RS232C printer port.

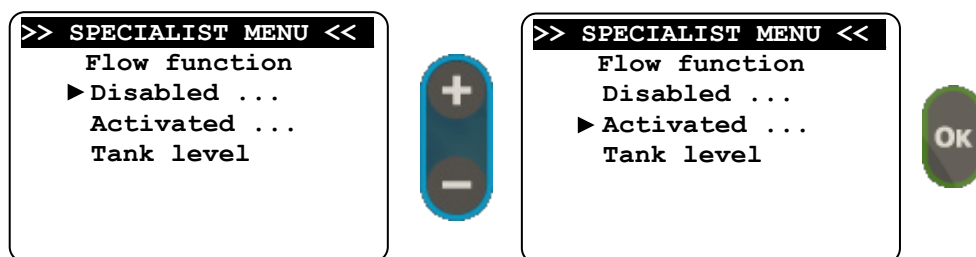


9) Flow function

Allows to activate the flowrate measurement or to program the process of detection level for the chemical tanks.

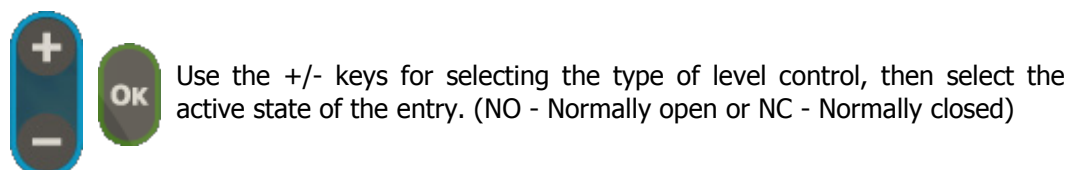
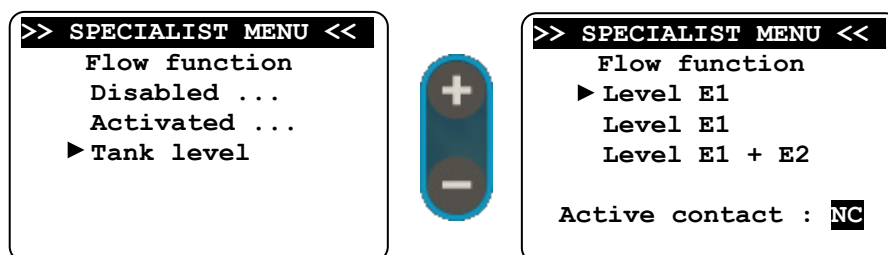


## ➤ Activate flowrate function



**i** When the flowrate function is activated, don't forget to return to the **"User Menu – Calibration – Flowrate"** for calibrating the quantity of liter (or m<sup>3</sup>) per pulse.

## ➤ Activate Level tank function

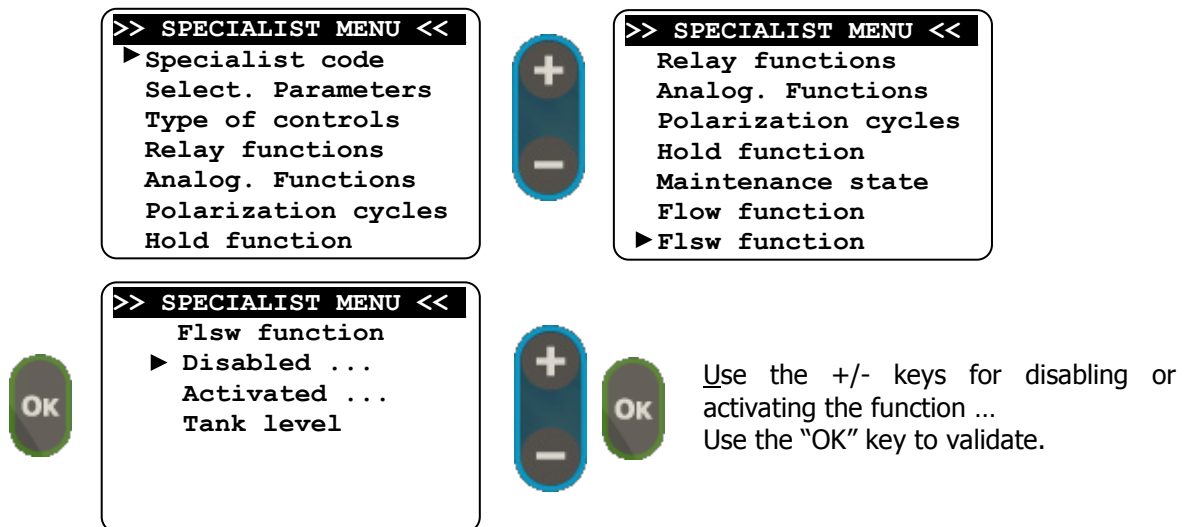


**i** When the low level of the tank is detected, the dosing function of the corresponding channel will be disabled until the refilling of the tank will done.

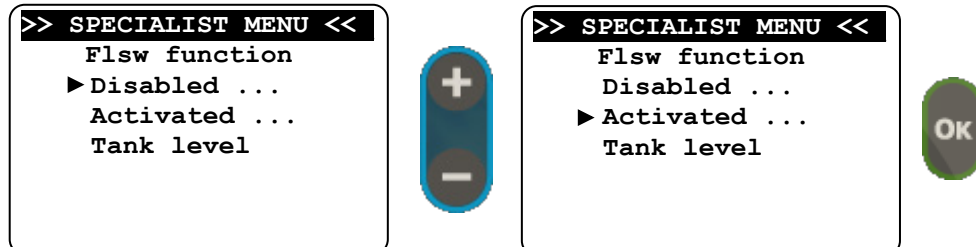
## 10) Flow switch function (Flsw)

Allows to activate the flow switch detection or to program the process of detection level for the chemical tanks. (DEB)

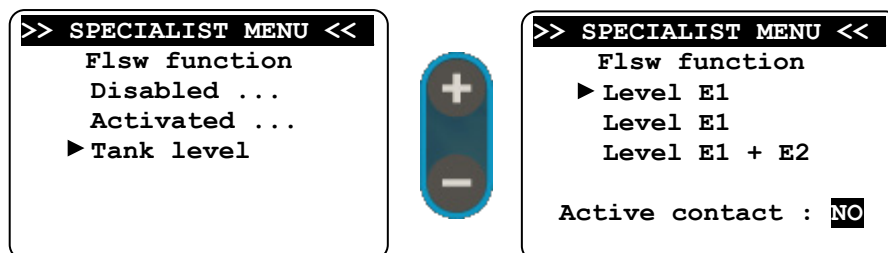
The using of this option allows to perform the complete conditioning of the controller to the entry. The level of tank condition allows to use this logical entry as a low level of chemical product in a tank.



## ➤ Activate Flow switch detection entry (Flow switch)



## ➤ Activate level tank function



Use the +/- keys for selecting the type of level control, then select the active state of the entry. (NO - Normally open or NC - Normally closed)

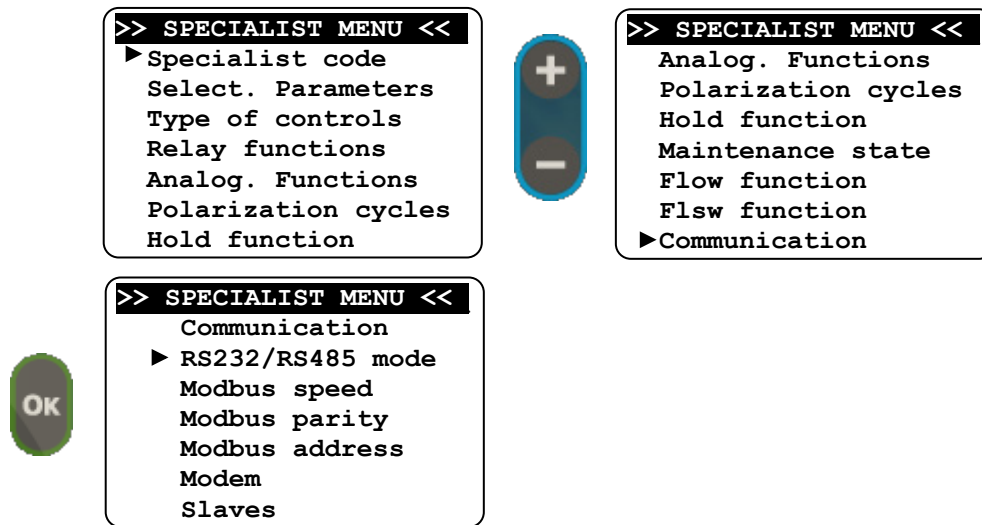


When the low level of the tank is detected, the dosing function of the corresponding channel will be disabled until the refilling of the tank will be done.



11) Communication

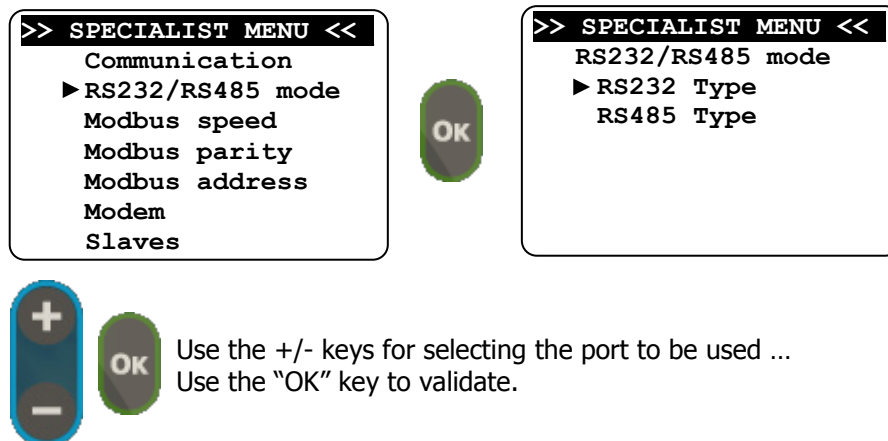
Allows to set the communication port parameters to establish a connection with the controller.



## a) RS232/RS485 mode

Allows to select the communication port :

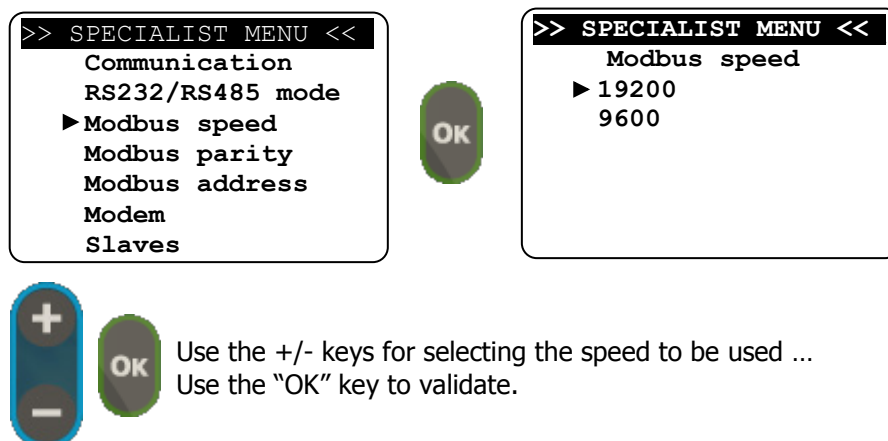
- RS232C Internal port (Printer connexion)
- RS485 External port (On terminal connector)



Use the +/- keys for selecting the port to be used ...  
Use the "OK" key to validate.

## b) Modbus speed

Allows to select the speed of communication (in baud) :



Use the +/- keys for selecting the speed to be used ...  
Use the "OK" key to validate.



*If the controller use a communication modem, the speed must be 19200 baud and must be NOT modified !*

### c) Modbus parity

Permet de sélectionner la parité de communication :

>> SPECIALIST MENU <<

Communication

RS232/RS485 mode

Modbus speed

► Modbus parity

Modbus address

Modem

Slaves

OK

>> SPECIALIST MENU <<

Modbus parity

► Without

Even

Odd

+  
-

OK

Use the +/- keys for selecting the parity to be used ...  
Use the "OK" key to validate.

### d) Address Modbus

Allows to define the communication address of the controller:

>> SPECIALIST MENU <<

Communication

RS232/RS485 mode

Modbus speed

Modbus parity

► Modbus address

Modem

Slaves

OK

>> SPECIALIST MENU <<

Address...:001

Modification ?

+  
-

OK

Use the +/- keys for programming the Modbus address...  
Use the "OK" key to validate.



The address can be chosen from 001 to 250.



*The upper addresses are used by manufacturer special applications :*

- Address >=200 : Master/Slave communications for Ultra-Filtration system.

## e) Activate the modems

Allows to activate the external communication through a modem. Several method of communication can be initiate:

- A simple communication using the "**TRACOM**®" maintenance software
- A communication through internet using the data website **mysyclope.com**.

For the last one, an access to internet is necessary and a subscription must be taken to access the data web site.

This access allows to verify all parameters from your swimming pool, to modify alarm thresholds or setpoints and to read histories. It can be possible to program sending of emails or SMS when a fault is activated. (See demonstration Web site [www.mysyclope.com](http://www.mysyclope.com) Login : demo and password : demo).

For accessing the [www.mysyclope.com](http://www.mysyclope.com) data web site, use a simple internet browser. A specific application for PDA is also available when using your mobile phone.

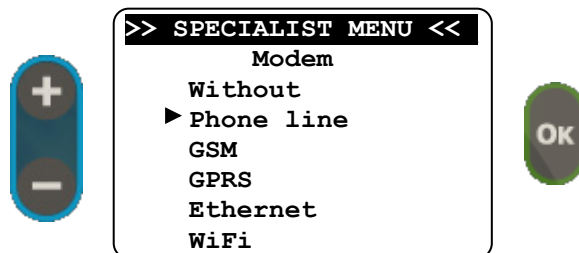


- Phone line Modem (Maintenance access to **TRACOM**® through wire phone line)

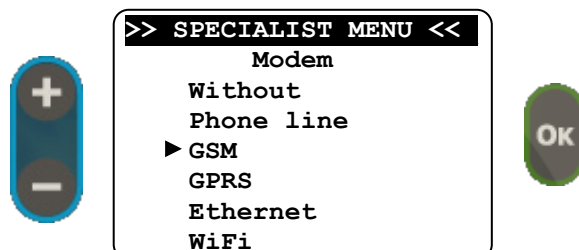
To use this modem, The "**TRACOM**®" software is necessary. In general, it is available free of charge with the controller or it can be downloaded from the web site : [www.syclope.fr](http://www.syclope.fr) .

To use "**TRACOM**®" software with a remote access, you must pay a licence to your reseller or directly to SYCLOPE Electronique by automatic registering.

Without this licence, only the local access is available using the RS485 wire port.

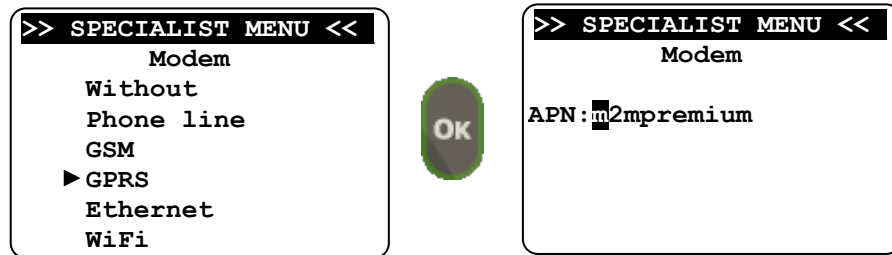


- GSM Modem (Maintenance remote access with **TRACOM**® software using mobile)



- GPRS Modem (Internet access via using GPRS/3G/4G to the web site mysyclope.com)

For accessing to the "data" transmission of your provider, you must enter the corresponding APN number (Access Point Number). It can be obtain from your provider.



Use the +/- keys for selecting a letter of the alphabet ...

Before using the "OK" key to validate, let a "Blank" character (Space) after entering the complete APN.

- Ethernet IP Modem (Local network access to the website mysyclope.com)

When selecting an IP Modem, you must unconditionally use the "**TRACOM®**" software for programming the communication controller through the RS485 local communication port (A special adapter USB/RS485 is recommended to connect your PC to the controller port).

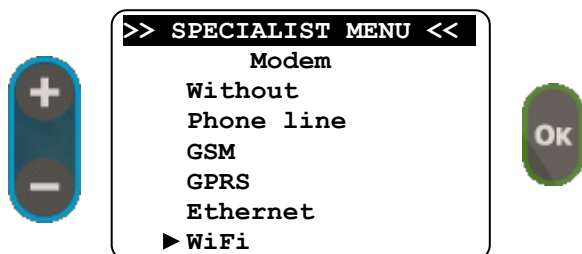
When IP Modem is connected, the remote maintenance and the remote programing can be performed using "**TRACOM®**" software through internet or the local network. (See Communication manual).



- WiFi Modem (Internet access with a Box or a Modem to the website mysyclope.com)

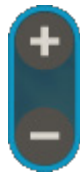
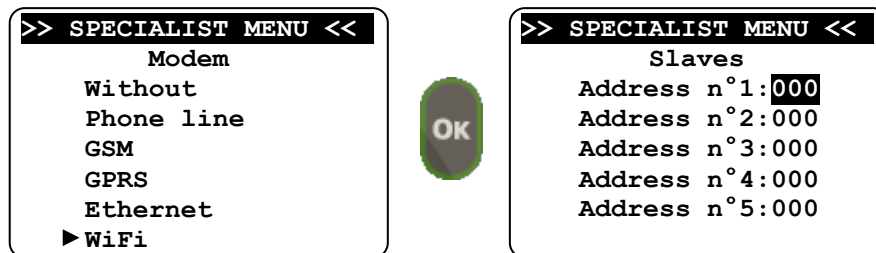
You must have a laptop or a Personal Computer with a RS485 communication port and the "**TRACOM®**" software. (If not, an adapter can be used ex: USB↔RS485).

When WiFi modem is connected, the remote maintenance and the remote programing can be performed using "**TRACOM®**" software through internet or the local network. (See Communication manual).



## f) List of slaves

When the **SYCLOPE TRACE'O®** controller is equipped with a GPRS, Ethernet or WiFi modem and if it is connected to internet to the data web site [www.mysyclope.com](http://www.mysyclope.com) , it can be used as a **"Master"** gateway for connecting up to 5 others **"Slaves"** controllers to the web site.



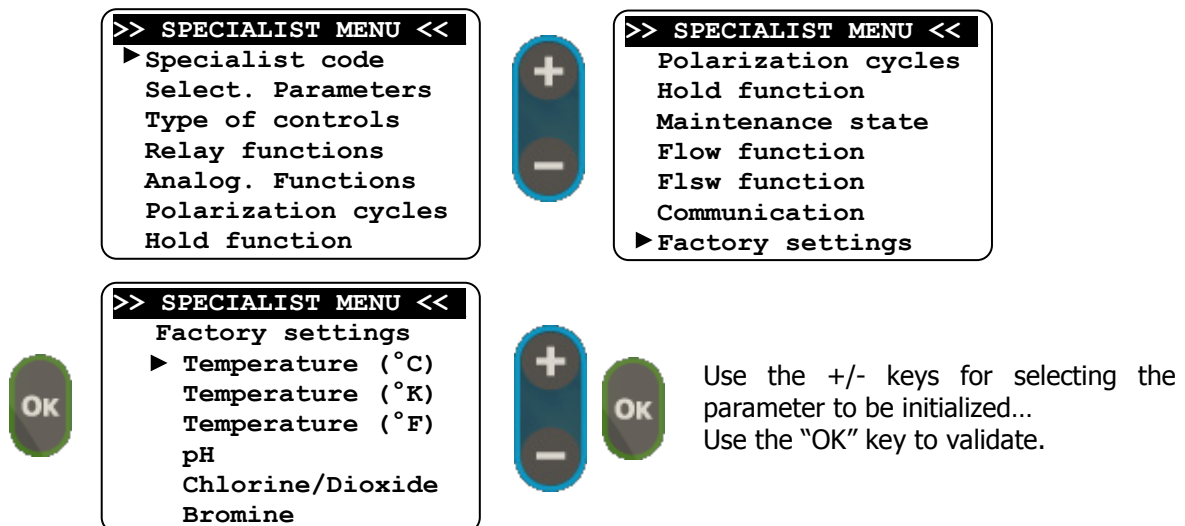
Use the +/- and "OK" keys for programming each slave address connected on the RS485 bus ...  
Terminate by a last address "000" to leave the menu.



*The "Slave" and "Master" controllers must not have the same addresses !  
Parity and speed of communication must be exactly the same into "Slaves" and "Master".*

12) Factory settings

Allows to program or to reset a standard factory setting. This operation will set a minimum of functions to help you for the first using. The other functions should be programmed to set the controller according your desires.



Use the +/- keys for selecting the parameter to be initialized...  
Use the "OK" key to validate.

### VIII. Start the calculations and dosages

When all functions are programmed, the controller can be started by pressing "START/STOP" key. The calculations of controls and the dosages will be engaged.



Before starting the controller, be sure all parameters of each function as well, safety instructions of this manual have been respected.

- For starting the controller, please press on :



- Check if no visual problem appears and if the dosing starts.

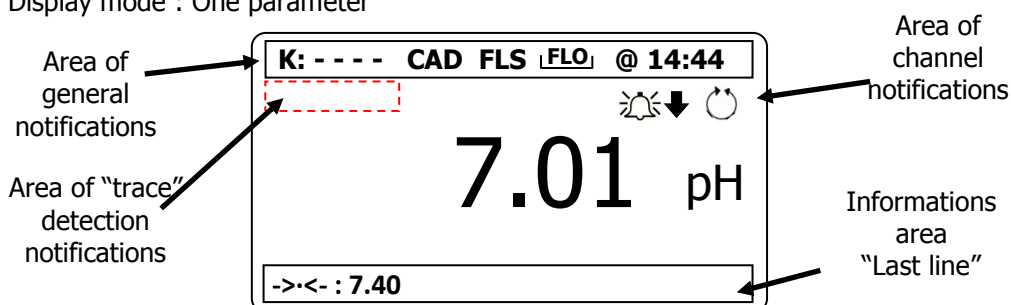


The LED into "STOP/START" key can take different states according the programming.

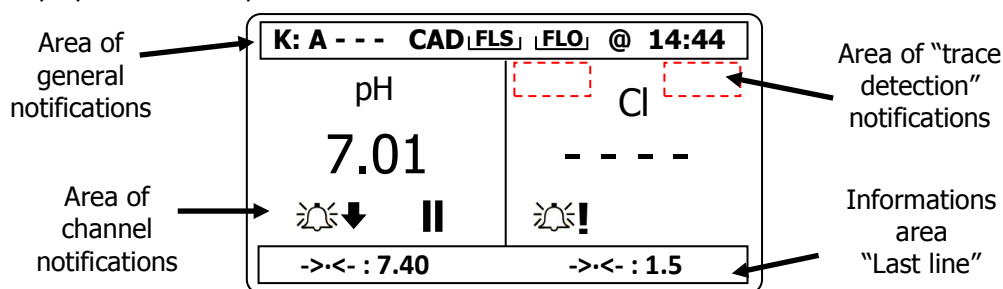
- On : Calculations of dosages activated
- Off : Calculations of dosages disabled
- Blink : Pause. Check all the working conditions (Start time, CAD, Flow switch, etc ...) because one of them is activated.

To help the user, some indicators are present into the display and according the screen ...

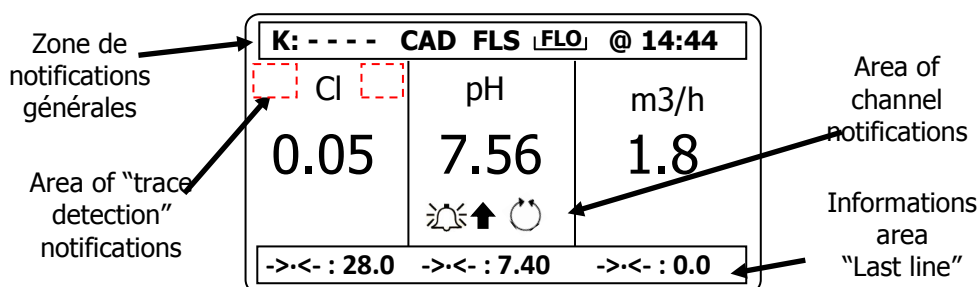
#### a) Display mode : One parameter



#### b) Display mode : Two parameters








#### c) Mode d'affichage trois paramètres









➤ Signs of general notifications area

<b>K: - - - -</b>	: Notification about relays (All Off)
<b>K: A B C D</b>	: Notification about relays (All On)
<b>CAD</b>	: Notification of CAD entry statutes
<b>FLS</b>	: Notification about flow switch entry (Flsw)
<b>FLS</b>	: Notification about flow switch entry (Flsw) when programmed as a low level tank.
<b>FLO</b>	: Notification about flow rate (Flow) when programmed as a low level tank.
@	: Indicate that internet connection to <a href="http://www.mysyclope.com">www.mysyclope.com</a> is active

➤ Signs of « Trace detection » notification area :

	: Indicate waiting of start cycle
	: Indicate started polarization cycle – Up step
	: Indicate polarization cycle – Maintain step
	: Indicate depolarization cycle – down step
	: Alarm Polarization / Depolarization steps

➤ Signs of channel statutes area :

	: Indicate low threshold activated
	: Indicate high threshold activated
	: Indicate a technical alarm
	: Injection of chemistry activated
	: Open phase of 3 ways command
	: Close phase of 3 ways command
<b>  </b>	: Indicate « Pause » of all treatments (When tank is empty or flow switch entry is activated)

➤ Signs of « Last line » area :

<b>-&gt;.&lt;-</b>	: Setpoint of the programmed channel
--------------------	--------------------------------------

# Declaration of conformity

**Product description : TRACEO**

**Product type : CTR 000\***

**Déclaration :**

SYCLOPE Electronique SAS, Z.I. Aéroport Pyrénées in SAUVAGNON - France -, hereby certifies by the present that the following models "TRACE'O, controllers for the analysis and controls of physico-chemical measurements" are in conformity with the standards and safety as defined by the European directives 2014/35/EU (Low voltage directive), 2014/30/EU (Electromagnetic compatibility) and 2011/65/EU (RoHS directive).

This present declaration is valid for all of the specimens manufactured according to the original documents of manufacture from 2016, April 20<sup>th</sup>.

The following standards were used for the examination:

**2014/35/EU : EN 61010-1 Ed.3 : 2010**

Safety requirements for electrical equipment for measurement, control, and laboratory use.

**2014/30/EU : EN61326-1 : 2013**

**EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11, EN61000-3-2 et EN61000-3-3**

Electromagnetic compatibilities EN 61326-1 of May 2013

**Harmonized standard ETSI EN 301 511 V9.0.2.**

Harmonized standard of conformity for mobile GSM with Article 3.2 of the R&TTE Band 900 and 1800MHz

**Harmonized standard ETSI EN 300 328 V1.8.1.**

Harmonized standard of conformity with Article 3.2 of the R&TTE Band 2,4GHz

**Harmonized standard EN62311 : 2008, EN50385 : 2002 et EN50383 : 2010**

Harmonized standard related to human exposure restrictions for electromagnetic fields (0 to 300GHz).

**2011/65/EU : EN 50581 : 2013**

RoHS2 Directive (Products with respect to the restriction of hazardous substances)

**Date of the first distribution : November2015**

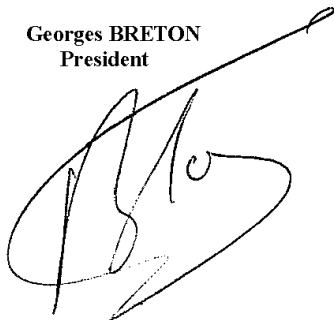
The present declaration engages the responsibility of :

**SYCLOPE**  
Electronique

**SYCLOPE Electronique S.A.S.  
Z.I. Aéroport Pyrénées  
64 230 SAUVAGNON**

Represented by par :

Georges BRETON  
President



Sauvagnon : 2016/04/08





## NOTES

[illegible]







**SYCLOPE Electronique S.A.S.**

Z.I. Aéropole pyrénées

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