



## Installation and starting 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**<sup>®</sup> Manual of 2016, February 18<sup>th</sup> Rev 2

Universal controller for standard and trace measurement.

**Product line TRACE'O**<sup>®</sup>

Part 1 : Installation and starting instructions (Ref. DOC0321)

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Subject to modifications

# Summary

I.	General informations .....	4
1)	Applicability .....	4
2)	Use of the document .....	5
3)	Symbols and signs.....	5
4)	Storage and transport.....	6
5)	Packaging .....	6
6)	Warranty .....	6
II.	environment and safety procedures .....	7
1)	Use of the equipment .....	7
2)	User obligations .....	7
3)	Risk prevention .....	7
4)	Identification and localization of the identification plate .....	8
5)	Disposal and conformity.....	9
III.	Technical specifications and functions .....	10
1)	Features .....	10
2)	Main functions.....	11
3)	Measurement parameters, scales and control ranges .....	12
a)	Basic versions : Direct entries (2x 4...20mA) or isolated entries (2x 4...20mA) .....	12
b)	Version with 1 isolated potentiometric entry and 1 isolated 4-20mA entry .....	13
c)	Version with 2 potentiometric entries.....	14
IV.	Installation and wiring .....	15
1)	Installation conditions.....	15
2)	Installation of the wall-mounted controllers.....	15
3)	Electrical connections .....	15
4)	Connection of the primary power supply .....	16
5)	Connexion of the free of potential relays (KA, KB, KC et KD) .....	17
6)	Connection of the measurement inputs.....	17
7)	Connections of the analogue outputs (IA1 and IA2).....	20
8)	Connection of the remote control input (CAD).....	20
9)	Connection of the flow control entry sensor (Flsw) or low level detection tank .....	21
10)	Connection of the counter entry (Flow) or low level detection tank.....	22
11)	Connection of the RS232C printer output.....	22
12)	Branchements du bus de communication RS485.....	22
13)	Connections of the MODEM port for communications.....	23
14)	Connection of GMS, Wifi and Ethernet modems for internet access .....	24
15)	Connection of the internal socket modem .....	24
V.	Expendable external connection box .....	25
VI.	General uses .....	26
1)	Using « standard » mode.....	26
2)	Using « trace » mode .....	27
VII.	Introduction to the human-machine interface (HMI) .....	28
1)	Display and control keypad .....	28
2)	Internal connections .....	29
3)	Terminal block connections .....	29
VIII.	Commissioning .....	30
1)	Choosing the language .....	30
2)	Setting real-time clock .....	31
3)	Contrast adjust (Only when « Stopped ») .....	31
4)	Setting display screens .....	31
5)	Programming setpoints.....	33
6)	Programming technical alarms .....	34
7)	Calibration of measurement probes .....	34
8)	Start processes and dosages.....	35
IX.	Guide and maintenance. ....	37

## I. General informations

### 1) Applicability

**SYCLOPE TRACE'O**<sup>®</sup> controller range you have just purchased is an electronic special equipment for measuring standard chemistry in trace range. It has been carefully developed and manufactured to ensure your greatest pleasure and peace of action.

Its remarkable capacity of adaptation to the different situations means it can be installed in the most difficult environments where processes and measurements of water are decisive.

Designed according to the needs of the customer, the **SYCLOPE TRACE'O**<sup>®</sup> controller is equipped with four analog inputs for specific sensors for treating water and also include alarm functions and regulations with cyclic commands transmitted by means of 4 configurable relays to control pH chemistry levels of the water.

When using chlorine or ozone measurement, **SYCLOPE TRACE'O**<sup>®</sup> controller is able to measure automatically some traces of chemistry with a special processing for guarantying the good working of the respective sensors.

Two ports, RS232 and RS485, for a printer and/or a computer link, allows communication by direct link or modem to a desktop computer (PC) for filing and graphic processing of the acquisition data.

The **SYSCOM**<sup>®</sup> software application has been developed to perform these functions.

**TRACOM**<sup>®</sup> software also developed by SYCLOPE Electronique S.A.S. makes it possible to ensure the maintenance and the programming of the basic functions as well as the functions necessary to the communications with the Internet.

With an adequate interface carrying out internet connectivity, **SYCLOPE TRACE'O**<sup>®</sup> will be connected in real-time to Internet site "**mysyclope.com**" thus ensuring a management and a total follow-up of all the parameters as well as a management of alarms by email or SMS in all circumstances. (Yearly subscription of access to be envisaged)

The simplicity of operation of the **SYCLOPE TRACE'O**<sup>®</sup>, the user friendliness and the remarkable technical aspects of these controllers, will ensure you benefit from their many options, guaranteeing you full control and supervision of the quality of the water.

The following instructions contain all the information required for the installation, use and maintenance of your new equipment.

- Installation
- Technical specifications
- Commissioning instructions
- Safety tips

If you would like to receive further information or if you encounter any difficulties not described in this manual, please contact your usual retailer or else directly contact the sales department of SYCLOPE Electronique S.A.S., either at the agency or at the office for your region, or the technical/quality departments of our establishments. We will do everything in our power to help you and ensure you benefit from our advice and know-how in the field of measurement and treatment of swimming-pool water.

Contact : [service-technique@syclope.fr](mailto:service-technique@syclope.fr)

## 2) 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

## 3) Symbols and signs



Identification of a continue voltage or current



Identification of an alternative voltage or current



Protective ground



Functional ground



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

#### 4) Storage and transport



It is important to store and transport your **SYCLOPE TRACE'O®** in its original packaging in order to minimize risk of damage.

Furthermore, the package must be stored in an environment that is protected against humidity and exposure to chemical products.

Environmental conditions for transport and storage:

Temperature: -10 °C to 70 °C

Air humidity: Maximum of 90% with no condensation

#### 5) Packaging



The controller is delivered without electrical power cable.

The pre-holes of the box are drilled and equipped with according electrical glands in compliance with IP65 level protection. Cables must be adapted to the electrical glands to respect the level of protection.

Grounded cables for connecting pH and ORP (Redox) sensors are not provided.

Content of the packaging :

- ✓ One analyzer/controller **SYCLOPE TRACE'O®**
- ✓ Installation and starting instruction notice
- ✓ Programming notice
- ✓ Communication notice (Option)

#### 6) Warranty

The warranty is provided according to the terms of our general conditions of sale and delivery as long as the following conditions are met:

- Use of the equipment according to the instructions of this notice
- No modifications of the equipment which may modify its behavior and no incorrect manipulation
- Respect for the electrical safety conditions



Consumable material is no longer covered by the warranty when in use.

## II. environment and safety procedures

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

### 3) Risk prevention



The installation and connection of the **SYCLOPE TRACE'O®** equipment should only be performed by personnel specialized and qualified for this task.  
The installation must comply with current safety standards and instructions!



Before switching the controller on or manipulating the relay outputs, remember always to off the primary power supply!  
Never open the controller when it is powered on!  
Maintenance operations and repairs should only be performed by trained, specialized personnel!



Take care when choosing the location for installing the equipment according to the environment!  
The **SYCLOPE TRACE'O®** electronic box should not be installed in a hazardous environment and should be protected against splashing with water or chemical products. It should be installed in a dry, well-ventilated location, isolated from corrosive vapours.

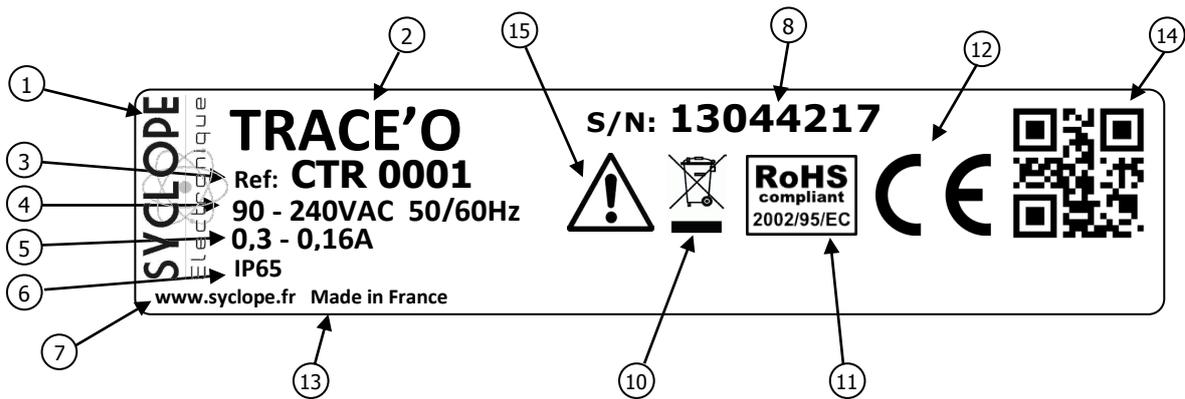


Make sure that the chemical sensors used with this device correspond well to the chemicals used. Refer to the individual technical note of each sensor. Chemistry of water is very complex, in case of doubt, contact immediately our engineering service or your approved installer/reseller.



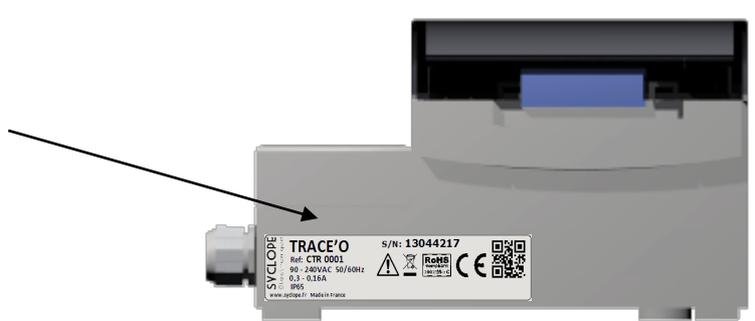
Chemical sensors are sensitive elements using consumable parts. They must be supervised, maintained and calibrated regularly using specific calibrator systems not-provided with this equipment. In the event of defect, a surplus possible hazard of chemical injections can be noted. In the doubt, a service contract must be taken near your reseller/installer or failing this near our engineering services. Contact your approved installer/reseller or our business service for more information.

4) Identification and localization of the identification plate



① Label of the manufacturer	⑧ Serial number
② Model of the product	⑨ Particular risks Read de manual
③ Reference of the product	⑪ Product which can be recycled
④ Range of the power supply	⑫ Limitation of dangerous substances
⑤ Values of the maimum current	⑬ EC compliance
⑥ Class of the protection	⑭ Country of the manufacturer
⑦ Identification of the manufacturer	⑮ Manufacturer Square code

Identification plate



### 5) Disposal and conformity

The recyclable packaging of the **SYCLOPE TRACE'O®** equipment must be disposed of according to current regulations.



Elements such as paper, cardboard, plastic or any other recyclable elements must be taken to a suitable sorting center.



According to European directive 2012/19/UE, this symbol means that as of 2012, July 4<sup>th</sup>, electrical appliances cannot be thrown out together with household or industrial waste. According to current regulations, consumers within the European Union are required, as of this date, to return their used devices to the manufacturer, who will take care of disposing them at no extra expense.



According to European directive 2011/65/UE, this symbol means that the **SYCLOPE TRACE'O®** controller is designed in compliance with the restrictions on hazardous substances



According to low-voltage directive (2014/35/UE), the electromagnetic compatibility directive (2014/30/UE) and the RoHS2 directive (2011/65/UE) this symbol means that the device has been designed in compliance with the previously cited directives

**III. Technical specifications and functions**1) Features

<b>General characteristics</b>		
Type	Specification (s)	Marker(s)
Consumption	0,3 to 0,15A Maxi. (Without external load)	-
Power supply required	Between 90VAC and 240VAC +/-10%	-
Electric protection	Fuse 315 mA Time-lag 5x20 glass	F1
Operating Temp. (°C)	-5 °C to 45 °C	-
Storage temperature (°C)	-10 °C to 70 °C	-
Humidity	Max. 90% without condensation	-
Case material	ABS or Polycarbonate (US et Canada)	-
Case dimensions	Length : 185 mm (7,3 inches)	-
	Width : 185 mm (7,3 inches)	
	Height : 119 mm (4,7 inches)	
Weight of the case	1,2 kg	-
Protection rating	IP 65	-
Display	Blue back-light 128x64 LCD screen	-
<b>Inputs</b>		
Measurement inputs	2x 4...20mA inputs on special configuration modules	
Auxiliary input	1x 4...20mA auxiliary input for additional function (Option)	
Control inputs	1x control input for external Start/Stop	CAD
	1x control input for level tank or flow-level input	Flsw
Metering input	1x flow meter pulse input or chemical product level tank	Flow
<b>Outputs</b>		
Relay outputs	4x Free of potential relays Max. 5A 250VAC	KA;KB;KC;KD
Analog outputs	2x Analog outputs 0/4...20 mA Max 500 Ω	IA ; IB
Printer output	1x RS232 for serial printer	SV3
<b>Communications</b>		
RS485 Bus	1x Communication port RS485 type for compatible software protocol type "MODBUS RTU"	RS485
Modem (Optional)	1x RJ-45 connector for phone line socket modem or GSM, WIFI or Ethernet internal modem.	Modem line

2) Main functions

<b>Main functions</b>		
Function	Specification (s)	Comment(s)
Controls	Controls of the 2 selected parameters	According the version
Trace detection	Total chlorine / Ozone	Specific processes
Actuator type	4x Free of potential relays outputs 0/4...20 mA outputs	PWM command Impulse command On/Off command with hysteresis
Alarms	Low, high and technical alarms	Expressed in real measurement values Control of top and bottom thresholds
Closed-loop control	Remote control Flow rate control	Closed-loop control of injections with an external contact (filtering, for example) or with flow-switch control from cell.
Level tanks	Low level detection for chemical tanks	Control of each injection channel to one or two external contact(s). (Flow et Flsw)
Timers	Programming of polarisation depolarisation controls timers	According to the type of measurement entries.
Communication	RS485 local port half-duplex	External communication port with "MODBUS RTU" supported.
Maintenance	Assistance to maintenance	Checking of general good working
Supervision	Remote supervision via modem	Event tracking

3) Measurement parameters, scales and control ranges

a) Basic versions : Direct entries (2x 4...20mA) or isolated entries (2x 4...20mA)

The main and auxiliary entries are programmable as bellow:

<b>Measurements and controls</b>		
<b>Parameter</b>	<b>Range of measurement</b>	<b>Accuracy</b>
T°C /°K / °F	-5 to 45°C 0 to 100°C	± 0,5 %
pH	2 to 11 pH	± 0,5 %
Free chlorine	0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l	± 0,5 %
Active chlorine	0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l 0 to 20mg/l 0 to 50mg/l 0 to 100mg/l 0 to 200mg/l 0 to 250mg/l	± 0,5 %
Total chlorine (Trace function)	0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l 0 to 20mg/l	± 0,5 %
Chlorine dioxide	0 to 0,5mg/l 0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l	± 0,5 %
Chlorites	0 to 1mg/l 0 to 2mg/l	± 0,5 %
Bromine	0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l 0 to 20mg/l	± 0,5 %
Oxygen	0 to 0,5mg/l 0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l 0 to 50mg/l 0 to 100mg/l 0 to 200mg/l 0 to 250mg/l 0 to 500mg/l 0 to 1000mg/l 0 to 2000mg/l 0 to 5000mg/l	± 0,5 %

Ozone (Trace function)	0 to 0,5mg/l 0 to 1mg/l 0 to 2mg/l 0 to 5mg/l 0 to 10mg/l	± 0,5 %
Redox (ORP)	0 to 1000mV 0 to 1500mV 0 to 2000mV +/- 1000mV +/- 1500mV +/- 2000mV	± 0,5 %
Peroxide (H <sub>2</sub> O <sub>2</sub> )	0 to 2mg/l 0 to 10mg/l 0 to 20mg/l 0 to 50mg/l 0 to 100mg/l 0 to 200mg/l 0 to 500mg/l 0 to 1000mg/l 0 to 2000mg/l 0 to 5000mg/l 0 to 10000mg/l	± 0,5 %
Peracetic Acid (PA)	0 to 2mg/l 0 to 10mg/l 0 to 20mg/l 0 to 50mg/l 0 to 100mg/l 0 to 200mg/l 0 to 500mg/l 0 to 1000mg/l 0 to 2000mg/l 0 to 5000mg/l 0 to 10000mg/l	± 0,5 %
PHMB	0 to 50mg/l 0 to 100mg/l 0 to 200mg/l 0 to 500mg/l	± 0,5 %
Input current	0 to 20mA	± 0,5 %

b) Version with 1 isolated potentiometric entry and 1 isolated 4-20mA entry

The main entry can be programmed according to the version as bellow :

Measurements and controls of the main entry		
Parameter	Range of measurement	Accuracy
pH	2 to 11 pH	± 0,5 %
Rédox	0 to 1000 mV	± 0,5 %
Rédox	0 to 1500 mV	± 0,5 %
Rédox	+/- 1000 mV	± 0,5 %
Rédox	+/- 1500 mV	± 0,5 %



**SYCLOPE TRACE'O®** controller will detect automatically the type of the additional module!

The auxiliary entry can be programmed as the normal 4...20mA entry (cf. :a)

c) Version with 2 potentiometric entries

The main entry and the auxiliary entry can be programmed only as bellow :

<b>Measurements and controls</b>		
<b>Parameter</b>	<b>Range of measurement</b>	<b>Accuracy</b>
pH	2 to 11 pH	± 0,5 %
Rédox	0 to 1000 mV	± 0,5 %
Rédox	0 to 1500 mV	± 0,5 %
Rédox	+/- 1000 mV	± 0,5 %
Rédox	+/- 1500 mV	± 0,5 %



**SYCLOPE TRACE'O®** controller will detect automatically the type of the additional module!

## IV. Installation and wiring

### 1) Installation conditions



To guarantee user safety and ensure correct operation of your **SYCLOPE ODISEA®**, please observe the following installation instructions:

- Install the controller in a dry location
- The controller must be protected against rain, frost and direct sunlight
- The room temperature must range between 0°C and 50°C, with no condensation.
- Choose an installation location free from vibration, on a suitable support and with no deformation



If these instructions are not observed:

- The controller is at risk of being damaged
- The measurements can be disrupted
- The warranty is not applicable!

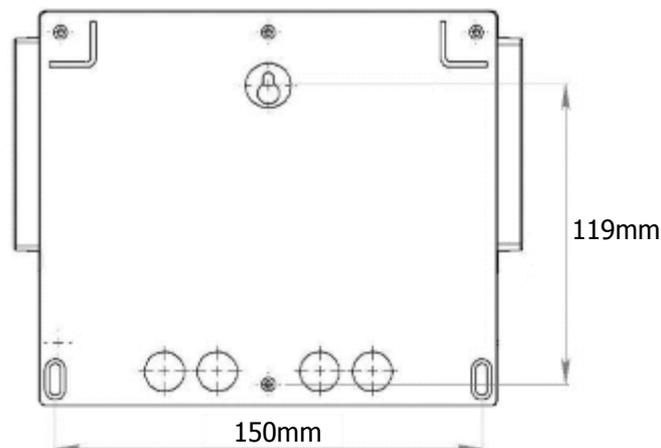
### 2) Installation of the wall-mounted controllers



Before performing the installation and electrical connections, remember to turn off the power!

The rating of IP65 is only guaranteed when the closing cover and the glass of the electric box are closed and when the cable glands match the diameters of your cables and are correctly sealed

- ▶ Drilling three holes ( $\varnothing$  5-mm) according to the following drilling plan



- ▶ Inserting the 5-mm plugs using a hammer
- ▶ Insert the upper screw (top screw) first without completely tightening it
- ▶ Insert the lower screws and tighten them
- ▶ Tighten the upper screw
- ▶ Use a spirit level to check for correct and accurate fixing to the wall.

### 3) Electrical connections



The electrical installation must be performed in accordance with current standards by authorized personnel!

A 30 mA differential circuit breaker must be installed!

A breaker circuit of maximum 10A must be installed near the controller and easily accessible to stop the main power. It must be identified as a circuit-breaker for the controller!  
Before performing the connections, remember to turn off the power!



Use multicore cables if possible!

If not possible, always use a special wiring tip to be sure that wires do not make a contact together!

Protect the wirings by using electrical clamps.



The **SYCLOPE TRACE'O**® controller must be connected to the main recirculation pump system by means of the "remote control" input (CAD) to disallow functionality in the case of the main pump being stopped.

The controller is protected by a glass time-lag fuse type of 315 mA over-current and by a varistor against voltage surges over 275 V.

Reference	Name
-----------	------

FUS5X20T315	Time-lag fuse 315mA 5x20 Glass
-------------	--------------------------------



In case of fuse destroyed, check that the card is not burnt. If this is the case, the complete card must be changed!

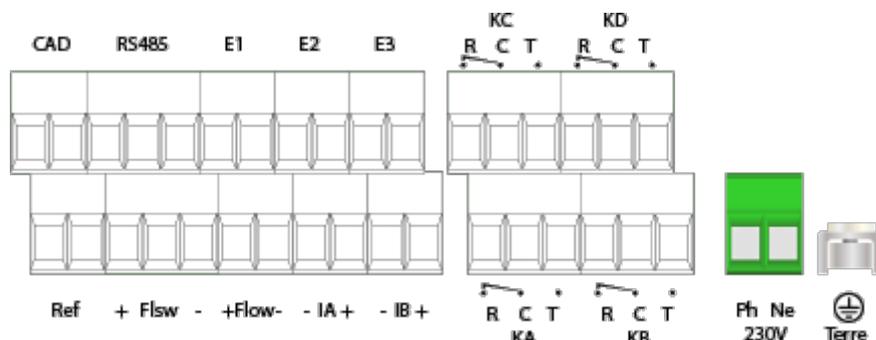
In case of varistor burned, please return the controller to our technical after-sales department for repairing!

#### 4) Connection of the primary power supply



The **SYCLOPE TRACE'O**® controller is equipped with a switching power supply. It is therefore able to be supplied by an AC voltage used between 90V to 240V - 50/60Hz.

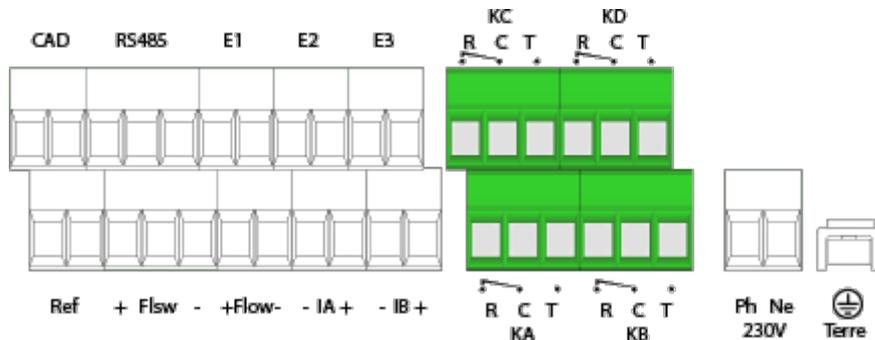
- ▶ Use a 3-point 1.5 mm<sup>2</sup> cable to wire the power supply
- ▶ Strip the 3 wires for 7 mm
- ▶ Pass the 3-point cable through a cable gland
- ▶ Wire the live to 1 and the neutral to 2 of the sector terminal block B1
- ▶ Wire the ground to contact PL1 with the help of an M4 eyelet terminal
- ▶ Tighten the cable gland to ensure tightness



The controller does not have its own independent power switch. It is directly powered when connected to the main power supply.

5) Connexion of the free of potential relays (KA, KB, KC et KD)

The free of potential output relays are used to control the various measured parameters. They are used also for alarm transfers or for driving magnet valves of water entries when the controller is programmed as a trace measurement.



6) Connection of the measurement inputs

The main entry and the auxiliary entry are dedicated to various type of parameters. The controller is equipped with three entries maximum according to the module configuration.

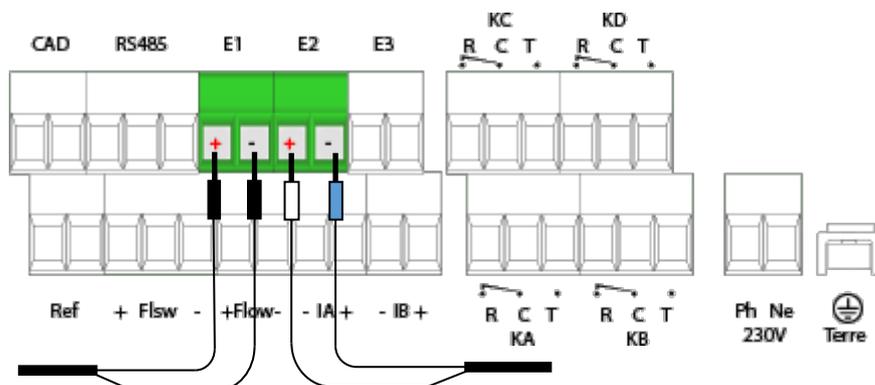


Using SYCLOPE cells is mandatory. They are adapted to the different type of sensors and offer the best guaranty of good measurement. No claim will be received in case of unrespect of this condition.

a) Basic version (2 entries 4...20mA NOT isolated)



The amperometric measurement inputs generate their own power supply and should not be powered in any case!  
When no module is used, the entries are NOT isolated!



Temperature probe  
without polarity

Amperometric sensor :  
Respect polarity



Please, respect the polarity of the amperometric sensor! When using a SYCLOPE cell, the colors of the wires are :

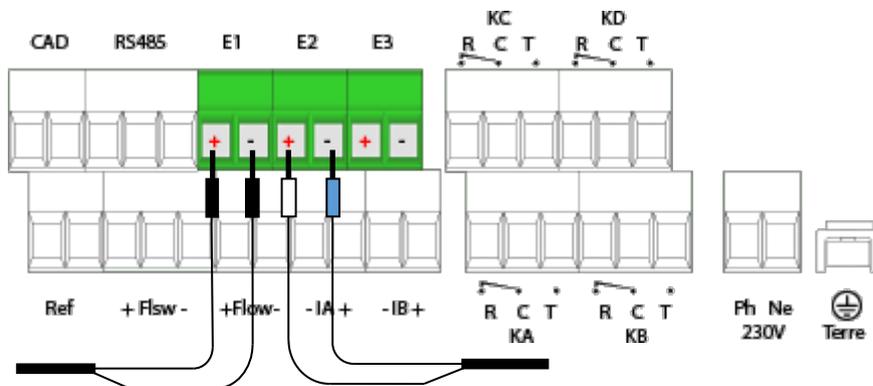
- Entry + : **White wire**
- Entry - : **Blue wire**

b) Full mA entries module (3x entries 4...20mA)



The amperometric measurement inputs generate their own power supply and should not be powered in any case!

The main and auxiliary entries E1 and E2 are isolated (E1 & E2).  
The last passive entry is not isolated (E3).



Temperature probe  
without polarity

Amperometric sensor :  
Respect polarity



Please, respect the polarity of the amperometric sensor!

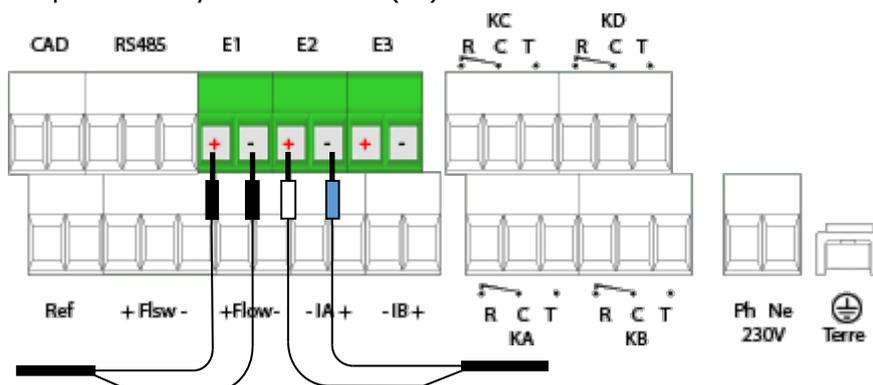
Entry + : **Blue wire (Left terminal)**  
Entry - : **White wire (Right terminal)**

c) Potentiometric and mA entries module (1x mV & 2x 4...20mA)



The amperometric measurement inputs (E1 and E2) generate their own power supply and should not be powered in any case!

The main potentiometric entry E1 is isolated (E1).  
The auxiliary 4...20mA entry E2 is isolated (E2).  
The last passive entry is not isolated (E3).



pH or REDOX sensor  
Hot point to the left

Amperometric sensor :  
Respect polarity

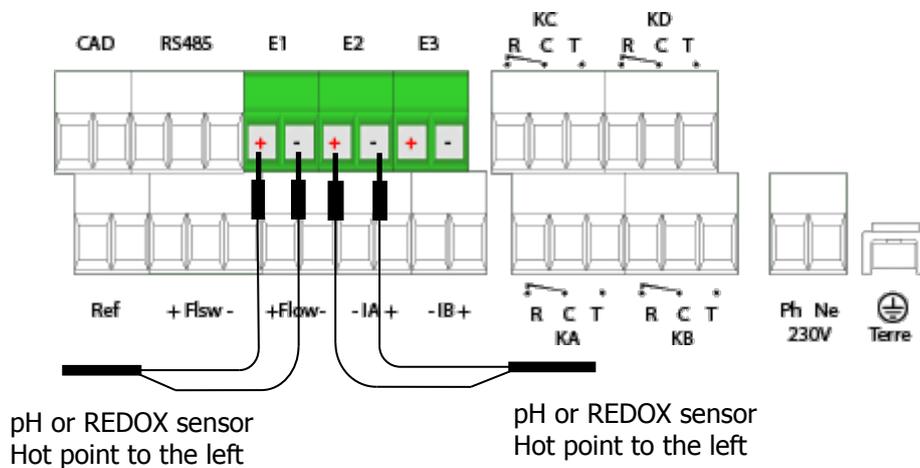


Please, respect the polarity of the amperometric sensor!

Entry + : **Blue wire (Left terminal)**  
Entry - : **White wire (Right terminal)**

d) Potentiometric entries module (2x mV & 1x 4...20mA)

The main and auxiliary potentiometric entries are isolated ! (E1 & E2).  
The last passive entry is not isolated (E3).



Please use a shielded cable connected as bellow:



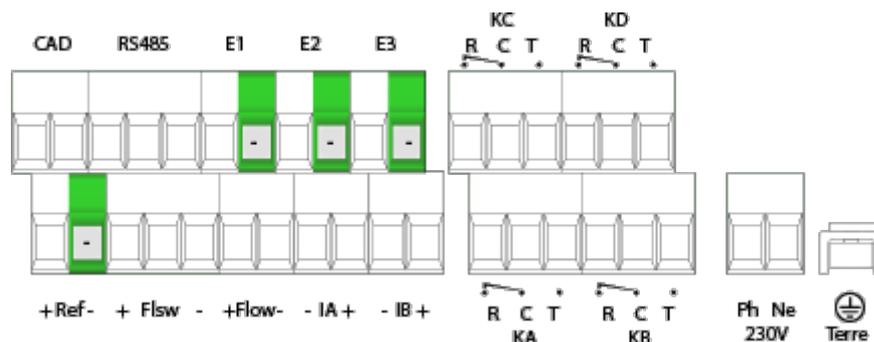
Entry + : **Hot wire of the shielded cable**  
Entry - : **Guard of the shielded cable**

e) Connecting a 4...20mA « Active » sensor



E1 and E2 entries cannot be used with an « active » sensor when isolated !

Normally, the E1 and E2 entries are powered and E3 entry is passive (No power generated).  
When connecting an active sensor (power generated by another source, the wiring must be executed as bellow:



When using an « active » sensor:

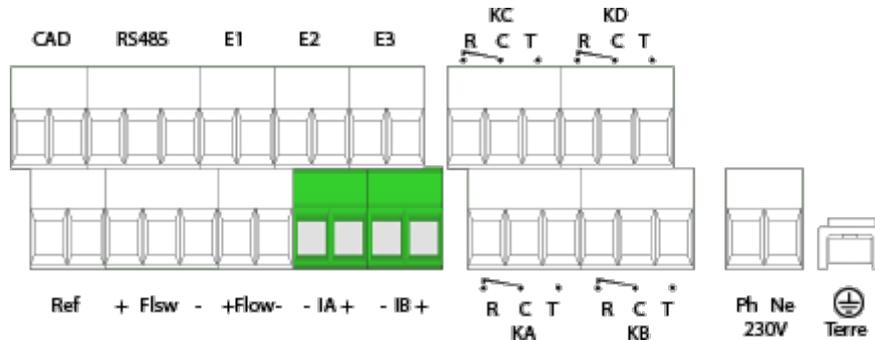


- + of the active output (sensor) ⇔ - to the entry (E1, E2 or E3)
- of the active output (sensor) ⇔ - of the internal power supply (+Ref-)

### 7) Connections of the analogue outputs (IA1 and IA2)

The analogue outputs of the **SYCLOPE TRACE'O**® controller are used to forward information to a central unit or to control a dosing unit by means of a signal of 0/4...20 mA.

The analogue outputs of the **SYCLOPE TRACE'O**® controller are fully configurable. You can therefore assign an output to any measured parameter and use it for regulation or transfer operations.



### 8) Connection of the remote control input (CAD)

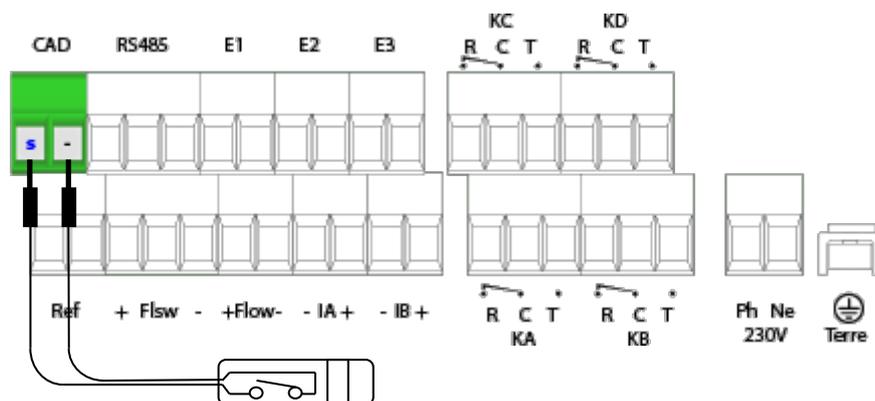
The **SYCLOPE ODISEA**® controller has a remote control input "CAD" which stops the regulation units. This input is an open/closed contact input used in a subservient manner to the main circulation pump of the pool filtration system.



It is compulsory to slave your **SYCLOPE ODISEA**® controller to the switch of the filter motor to prevent incidents caused by overloads!



The remote control input is designed to receive a NO contact (normally open).



9) Connection of the flow control entry sensor (Flsw) or low level detection tank

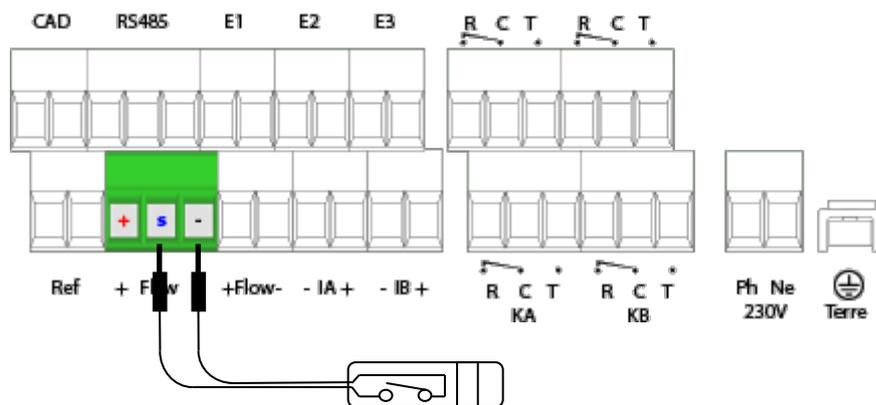
The **SYCLOPE TRACE'O®** controller has a flow-control input used to check for the presence of water circulating in the measurement chamber. This input is designed to receive a NO contact (normally open).

In case of absence of flow or insufficient flow, the dosages of chemicals and other types of regulation will be suspended.

In case of nonuse of the flow-control function, this input can be also used to control the low level of chemical product tanks and will cause the stop of the dosage of the corresponding products when the low level is reached. In this last case, the function NO (Normally open) or NC (Normally closed) is programmable.

a) Case of a connection to a potential free dry contacts (2wires)

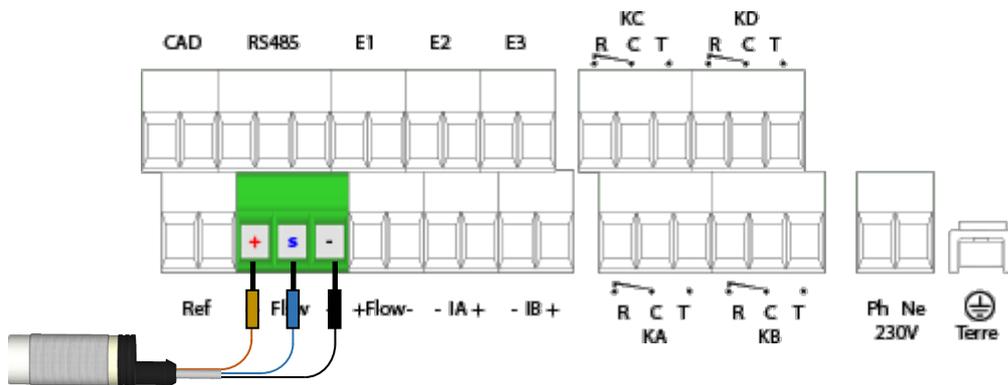
The detector must be free of potential contacts.



Reference	Name
PRO0021	Flow-switch with free potential contacts for DGMa housing

b) Case of a connection to an electronic contact (3 wires)

The electronic detector must be NPN type, with open collector (or open drain) working with 12VDC power.

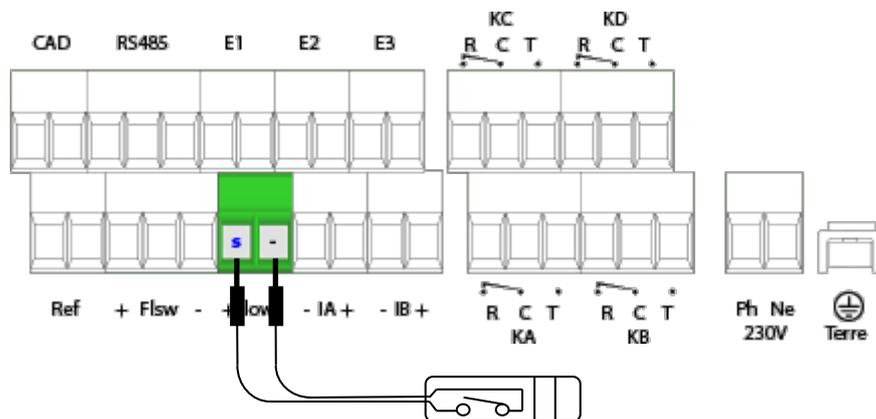


Reference	Name
PEF1006	Electronic inductive flow detector NPN type for PMMA housings

### 10) Connection of the counter entry (Flow) or low level detection tank

The **SYCLOPE TRACE'O**® controller has a counter input (or flow-meter input) for managing the injection of flocculant and for displaying flow rate. This input is a pulse-based type and must be connected to the water meter contact directly if compatible.

In case of nonuse of the counter/flow meter function, this input can be also used to control the low level of chemical product tanks and will cause the stop of the dosage of the corresponding products when the low level is reached. In this last case, the function NO (Normally open) or NC (Normally closed) is programmable.

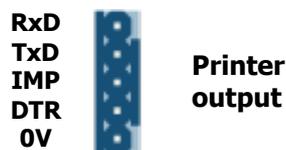


### 11) Connection of the RS232C printer output

The **SYCLOPE TRACE'O**® controller has a serial-compatible RS232C output (speed: 4800 bauds) for printing paper reports, guaranteeing surveillance of your measurements and editing the operating log of the machine.

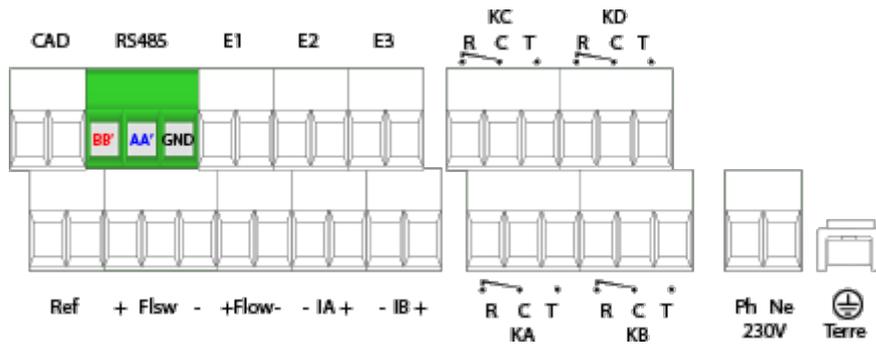
SYCLOPE Electronique S.A.S proposes you a compatible printer like that a connecting cable in order to fulfill this function:

Reference	Name
IMP0080	80-column printer, serial interface port
CBI0000	5-point printer cable / DB25M length 3 m



### 12) Branchements du bus de communication RS485

The **SYCLOPE TRACE'O**® controller has an RS485/RS422 communication bus for linking a desktop computer and the data-processing software **SYSCOM**® which enables it to trace measurements, alarms, instructions and graphic displays.



Please contact us for further information on this product.



Respect the connection polarities of the bus

- + of the terminal block on signal 'AA' (n°. 3) of the USB/485 converter
- - of the terminal block on signal 'BB' (n°. 4) of the USB/485 converter
- Ground to the terminal block 'GND' (n°. 5) of the USB/485 converter

We suggest using a USB/RS485 interface module to connect your **SYCLOPE TRACE'O**® controller to your computer. Please consult the instructions of this controller for the connection.

Référence	Name
INF1021	USB – 485 converter



### 13) Connections of the MODEM port for communications

The **SYCLOPE TRACE'O**® controller has a RJ45 Modem output for connection to a phone line to establish a remote link with a computer via the **SYSCOM**® or **TRACOM**® communication softwares. The special "phone line modem kit" is provided with the modem and its RJ-45 cable stripped at its end for connection to the phone line.

Phone line modem kit



Reference	Name
<i>Contact us for quotation</i>	

14) Connection of GSM, Wifi and Ethernet modems for internet access

The **SYCLOPE TRACE'O®** controller can be connected remotely or through Internet with help of various types of modem to establish distant communications or to connect Internet data site "mysyclope.com". (See communication notice 3)

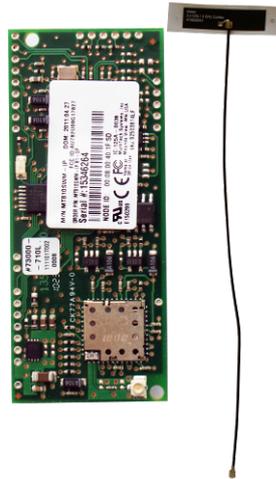
According to the type of modem and subscription of internet connectivity, the data are transmitted to the data web site "mysyclope.com" allowing thus a management in real-time of the swimming pool.

Messages of alarms can be sent to the users by emails or SMS and a history of measurements and alarms is recorded.

GSM modem kit



WIFI modem kit



Ethernet modem kit

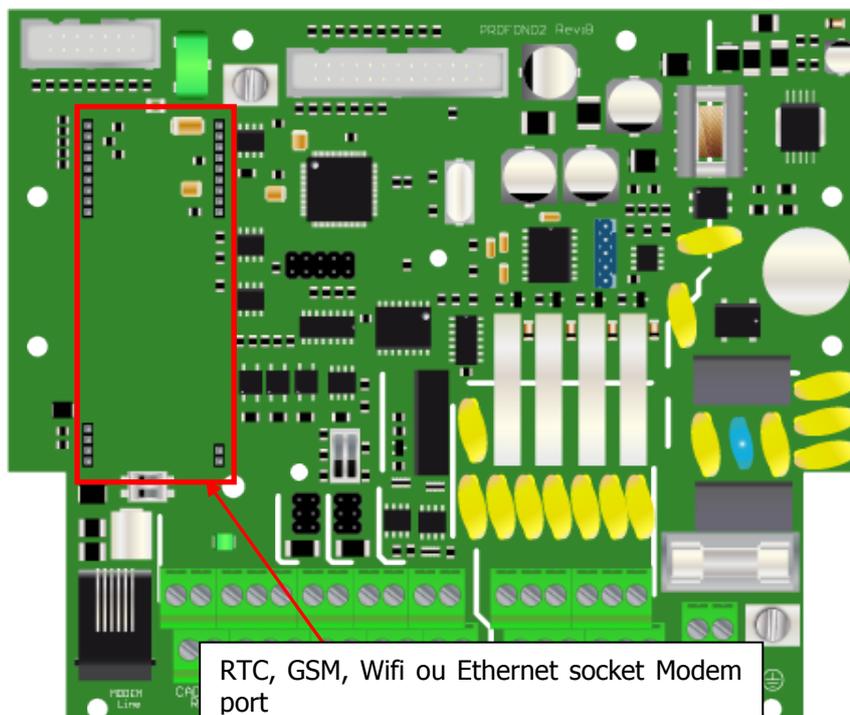


Reference	Name
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Contact us for quotation

15) Connection of the internal socket modem

The Modem socket is sold as an option and must be inserted in the location provided as shown in the diagram below.



RTC, GSM, Wifi ou Ethernet socket Modem port

## V. Expendable external connection box

The expendable external box allows you to connect all the entries and outputs of the **SYCLOPE TRACE'O®** controller.

The quantity of glands of the **SYCLOPE TRACE'O®** controller is only sufficient for connecting simple needs but use more glands in case of using full functions.

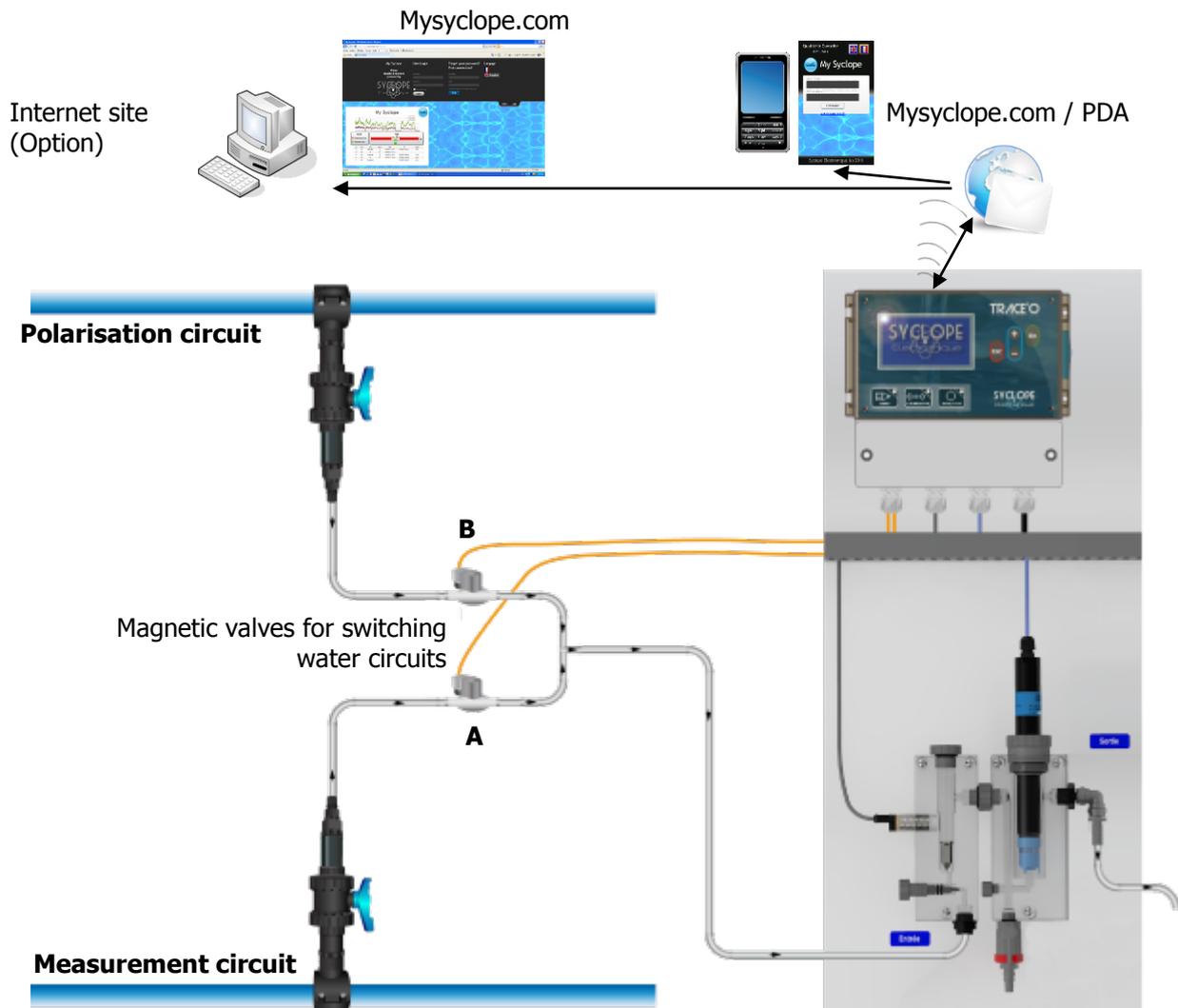
This extension kit is delivered with a multi-wires special cable to be connected quietly to the **SYCLOPE TRACE'O®** controller.



2) Using « trace » mode

The particular function of the **SYCLOPE TRACE'O**<sup>®</sup> controller is to measure traces of chemical products. It can be used in dialysis system to measure « no chlorine » or in a swimming pool ozone treatment to ensure no ozone returns into the swimming pool.

The installation of the **SYCLOPE TRACE'O**<sup>®</sup> equipments must be realized with a by-pass between the "measurement circuit" and the "polarisation circuit" of the measurement probe.

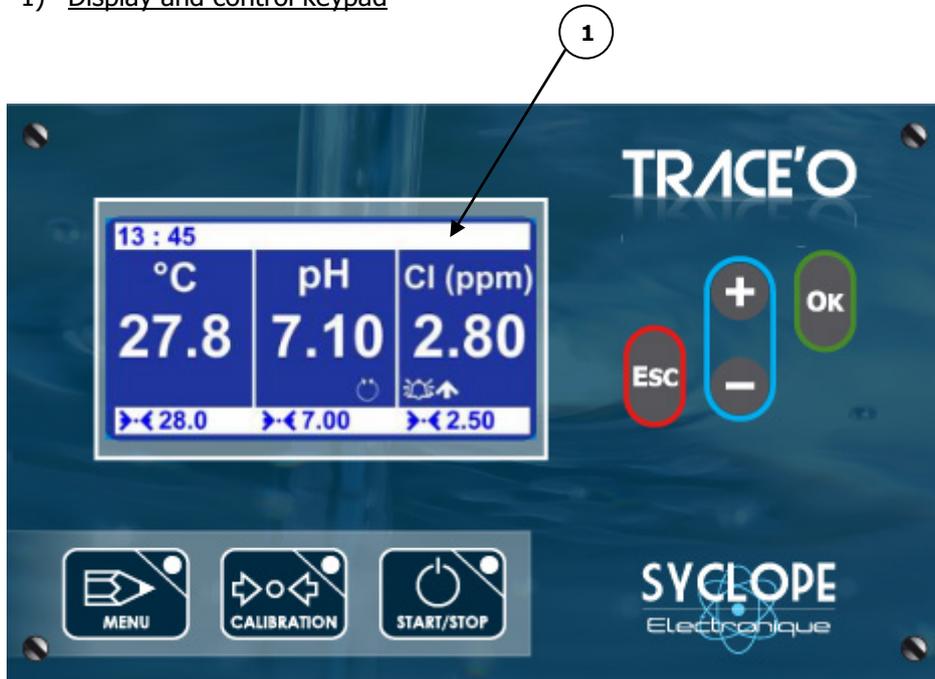


- Water to be controlled is sampled from the measurement circuit
- Water for checking the sensor is sampled from the polarization circuit
- Measuring cell receives the sensor for measuring chemical product and sends the value to the controller.
- Beginning of the polarisation cycle (Polarisation step) :
  - Solenoid valve A closed
  - Solenoid valve B opened
  - Waiting to reach the programmed threshold
- Starting the polarization time (Maintain step):
  - Checking the good working of the sensor and waiting stabilization of the internal chemistry
- Starting recovering measurement (Depolarization step):
  - Solenoid valve A is opened
  - Solenoid valve B is closed
  - Checking time and waiting to reach the low programmed threshold.

If the **SYCLOPE TRACE'O®** controller is connected to internet through GSM, WIFI or Ethernet link, the checking of the complete phase is made in real-time. (Year contribution must be taken for connecting to [www.mysyclope.com](http://www.mysyclope.com)).

## VII. 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

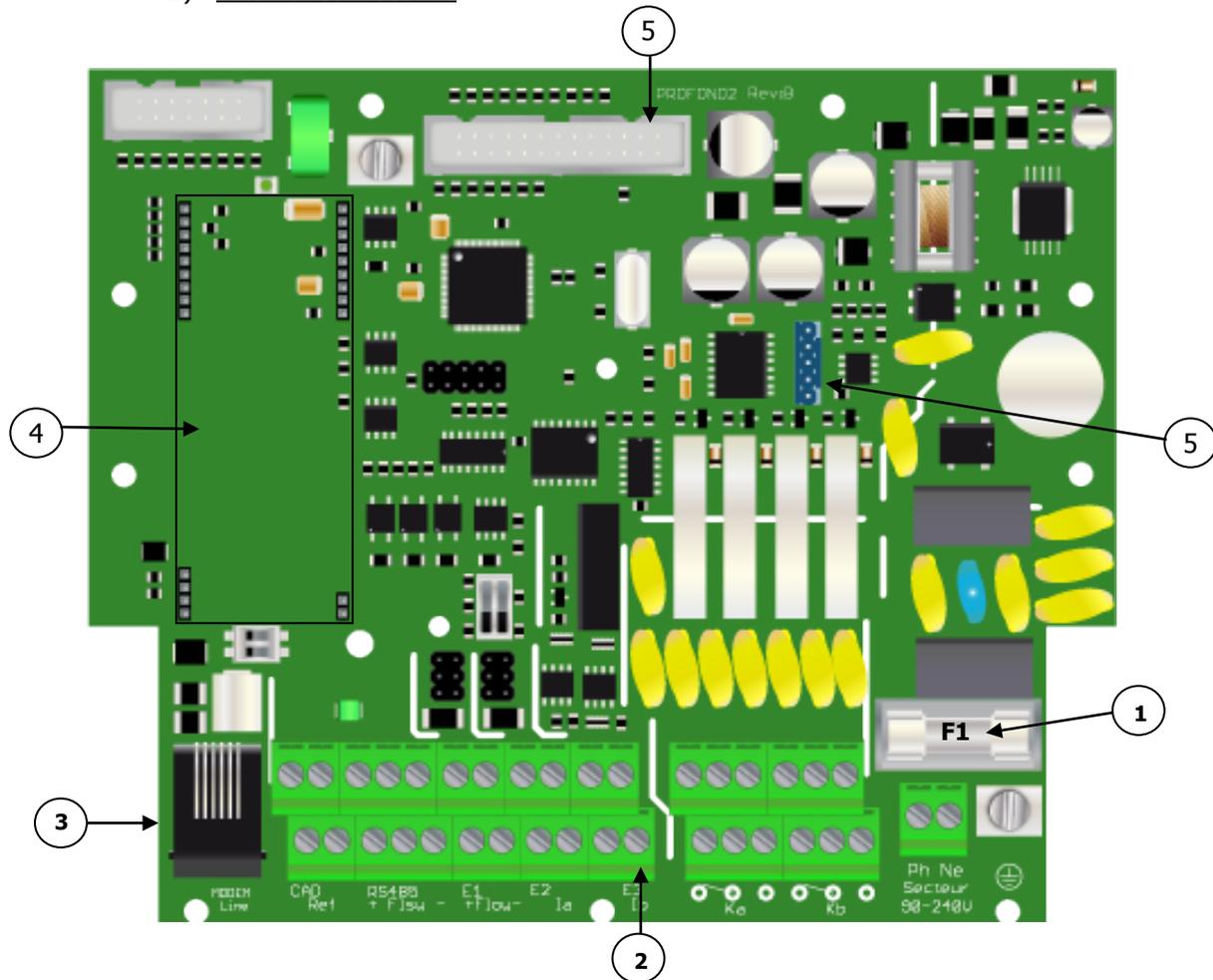


Plus key: To allow scrolling through the menus and to increase a value



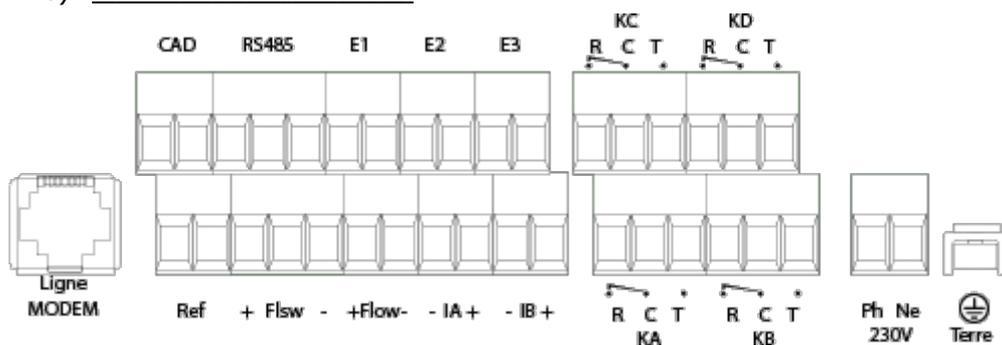
Minus key : To allow scrolling through the menus and to decrease a value

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



### VIII. Commissioning

You just finished to connect all the wires for measurements, actuators and communication equipments and now, you are ready for commissioning the controller.

The commissioning consists to set basic values for controlling actuators and to proceed to the water treatments. To ensure you are right, please check:

- Environmental settings (Real time, contrast, language, communication...)
- Setting points of all parameters
- Calibrations of the sensors
- Programing of the threshold alarms



- ▶ Power on the controller.
- ▶ Check that all systems are correct, that your central unit has switched on and that the other elements of your installation are not disrupted.



The **SYCLOPE TRACE'O**® regulator does not automatically begin treatment and dosing of chemical products when switched on. Only the user can control when to begin treatment having checked that the central unit has been correctly programmed according to his/her needs.

When switching on, the measured parameters predefined by the basic configuration are displayed and the processes are inactives.

As soon as you switch on the controller, a "**TRACE'O**" screen appears, followed by the main screen displaying the measured parameters.

K: - - - -		14:44
Cl	pH	m3/h
1.05	7.86	1.8
-><- : 1.00	-><- : 7.40	-><- : 0.0

#### 1) Choosing the language



>> MAIN MENU <<

▶ User menus

Langue/Sprache/Taal

Setting real time

Services

\* TRACEO V1.00 \*

Sn: xxxxxxxxxxxx



>> MAIN MENU <<

User menus

▶ Langue/Sprache/Taal

Setting real time

Services

\* TRACEO V1.00 \*

Sn: xxxxxxxxxxxx



>> MAIN MENU <<

Langue/Sprache/Taal

French

▶ English

German

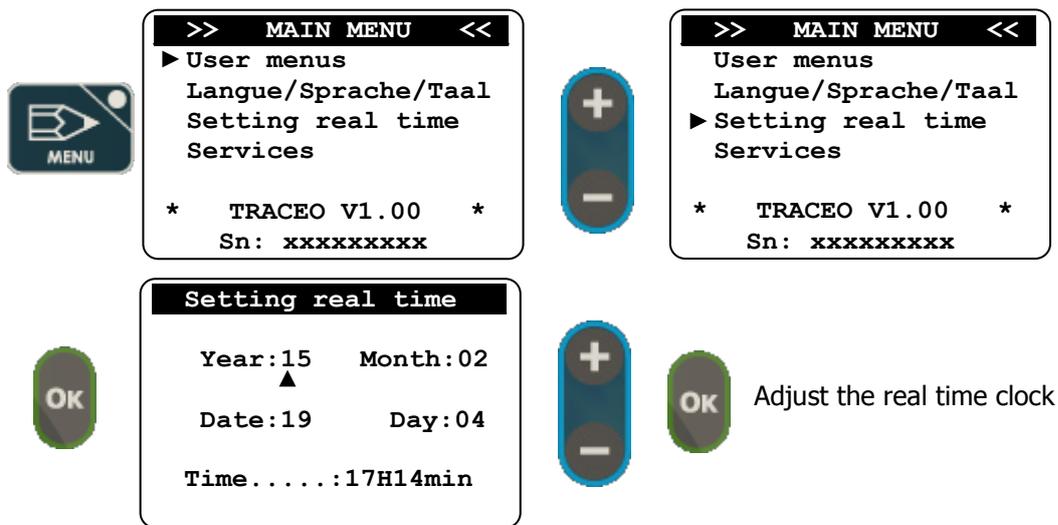
Spanish

Italian

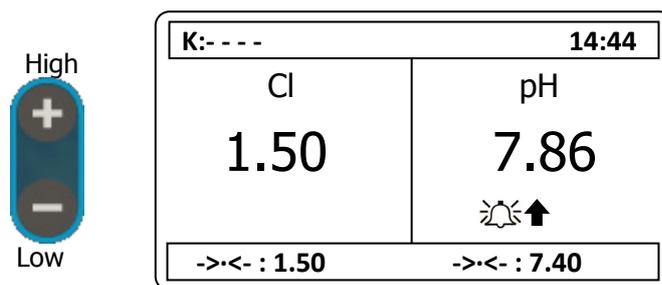
Portuguese



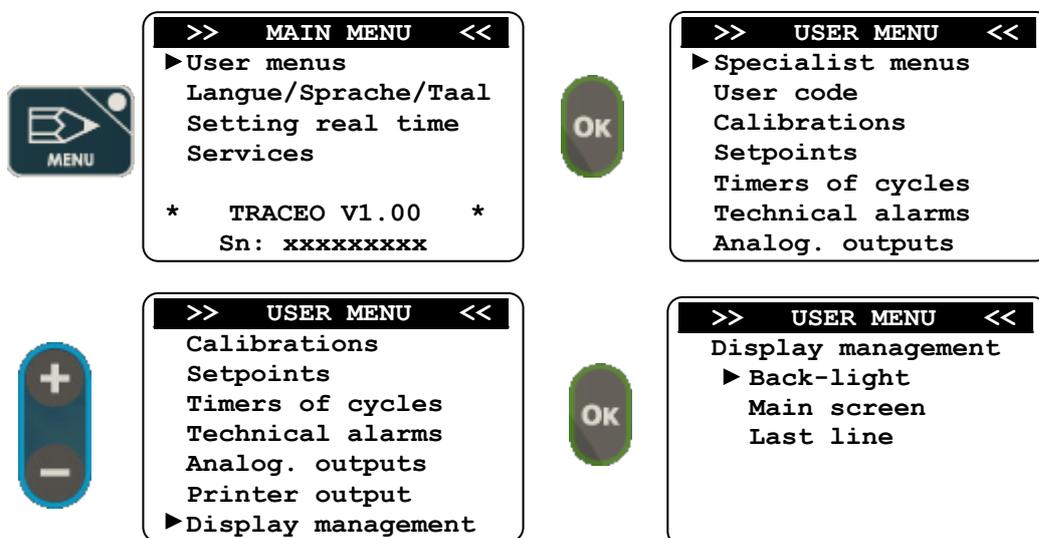


2) Setting real-time clock3) Contrast adjust (Only when « Stopped »)

From the main screen (displaying the measurements), hold the "+" or "-" key pressed to adjust the display contrast.

4) Setting display screens

According to the measured parameter of the **SYCLOPE TRACE'O®** controller, it is possible to change the manner for displaying the values on the main screen.

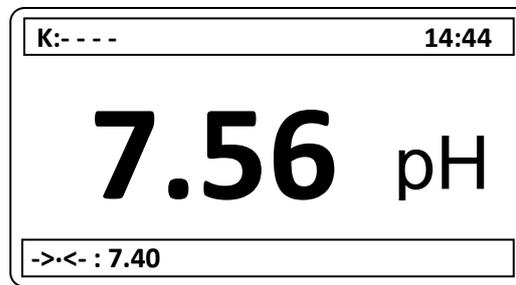




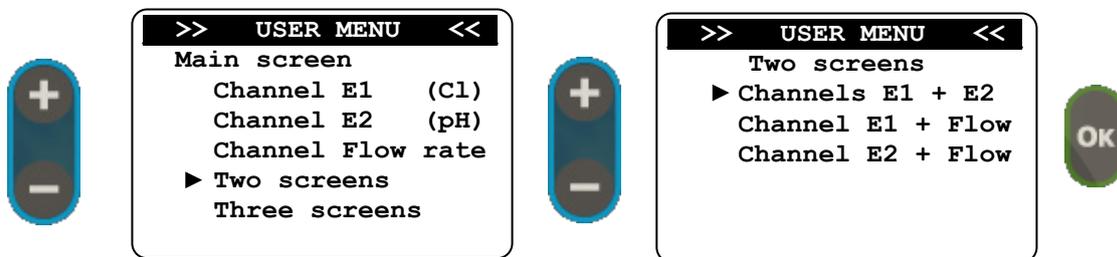
**i** The options of analog channels and the number of screens depend of the programmed input of the controller.

a) Case of one parameter on screen

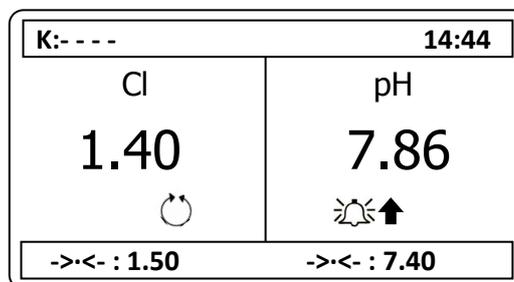
According to the selected entry (E1, E2 or flow rate), the general aspect is shown below:



b) Case of two parameters on screens

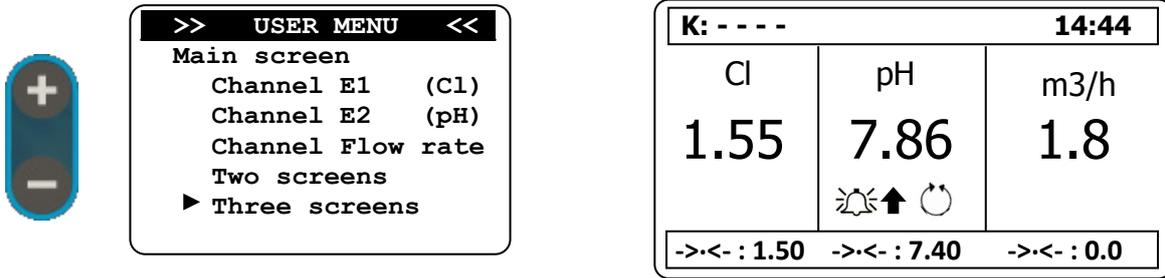


According to the selected parameters display, the general aspect is shown below:



c) Case of three parameters on screens

In any case, the general aspect is shown below:



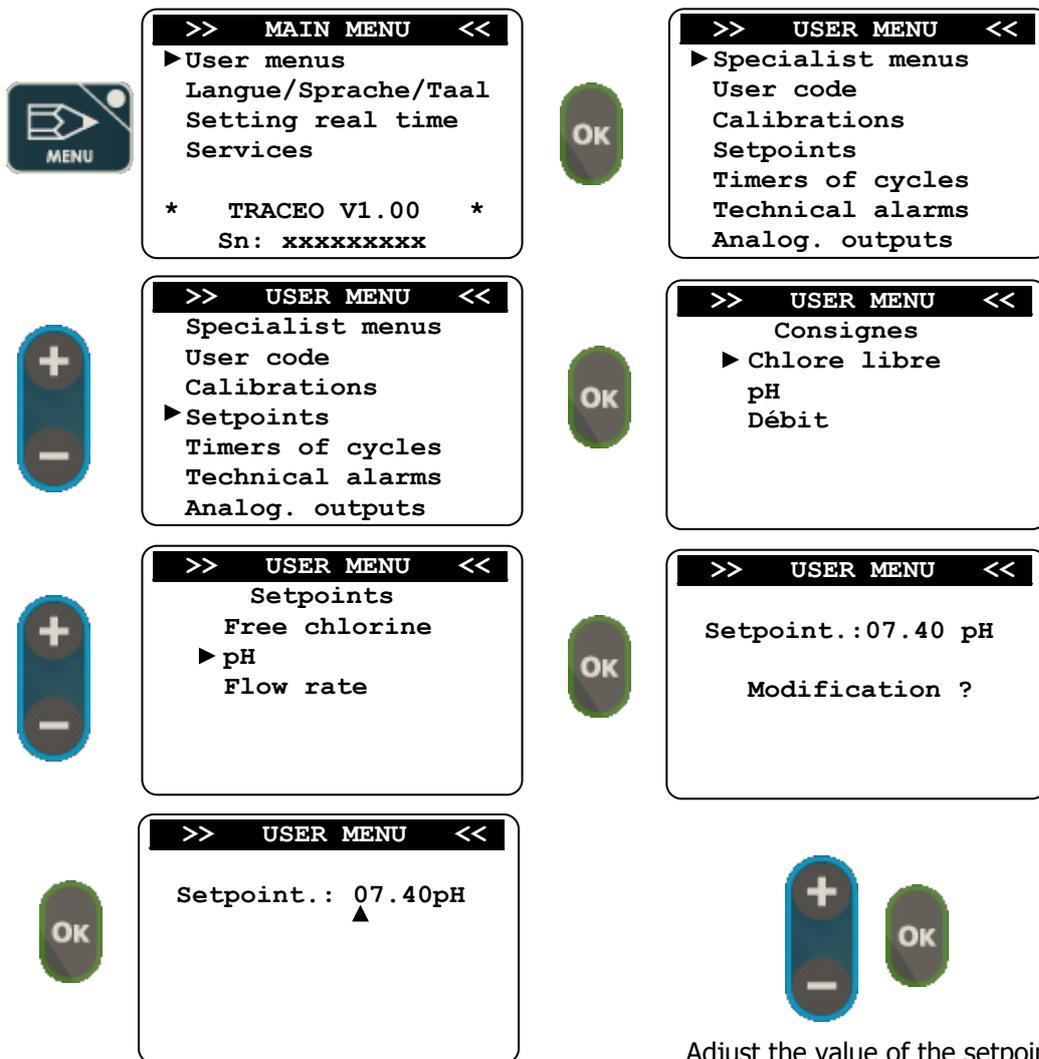
5) Programming setpoints



Entering incorrect settings can have harmful effects on human health and on the safety of the equipments of water treatment. In the event of any doubt regarding the doses to use, please contact our technical service department before programming it.



A bad setpoint can result excessive dosing of the chemical product, and thus harm the environment.



Adjust the value of the setpoint

► Repeat this process for all the other setting items.

## 6) Programming technical alarms

To ensure the safety of users and of the equipments, it is necessary to program the alarm thresholds to stop product injection whenever they are exceeded. These thresholds include a high level and a low level which you can modify according to your needs.

The diagram illustrates the sequence of steps to program technical alarms:

- Press the **MENU** key to enter the **MAIN MENU**.
- Press the **OK** key to enter the **USER MENU**.
- Press the **+** key to navigate to the **Technical alarms** section.
- Press the **OK** key to enter the **Technical alarms** menu.
- Press the **+** key to navigate to the **pH** / **Flow rate** section.
- Press the **OK** key to enter the modification screen.
- Press the **+** key to increase the low alarm threshold.
- Press the **OK** key to confirm the modification.

Set the requested alarm thresholds

► Repeat the same procedure for all other parameters.

## 7) Calibration of measurement probes



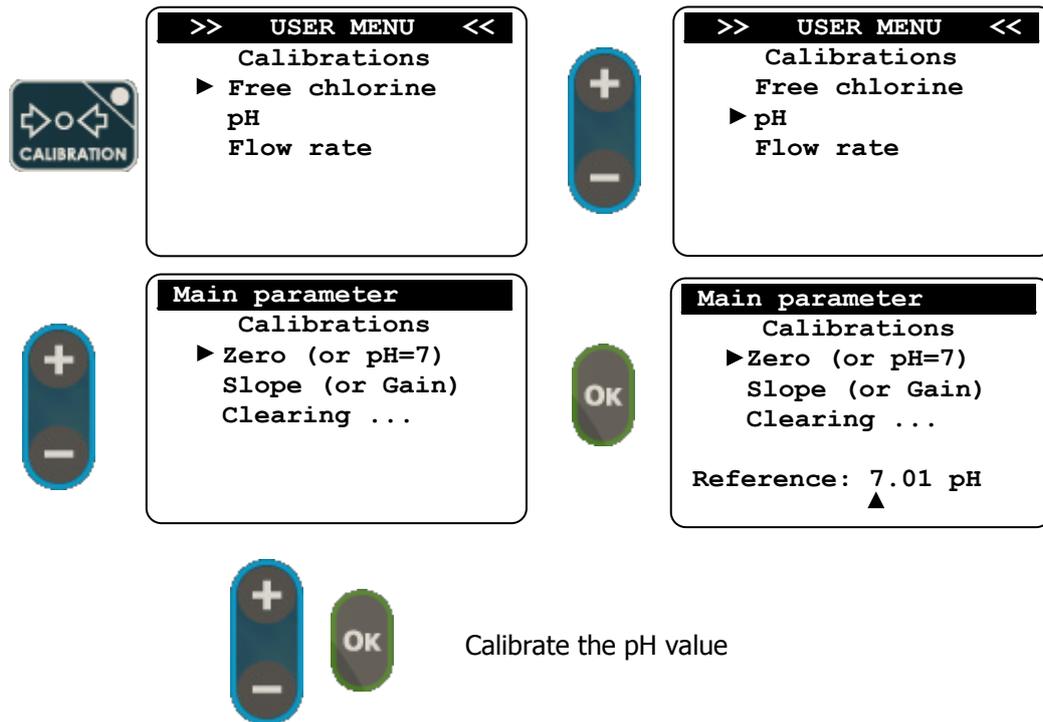
Sensor calibration is an essential function for the correct treatment of the water. Entering incorrect calibration can have harmful effects on human health and on the safety of the equipments of water treatment. In the event of any doubt concerning the operations to perform, please contact our technical department before calibration.



An incorrect calibration can result in excessive doses of the chemical product, and thus harm the environment.



The **SYCLOPE TRACE'O®** controller has a key on its front panel allowing you to perform the calibration directly. This direct key is operational while the treatment is active (green "STOP/START" key lit).



- ▶ Repeat this same process for all the other settings.



Calibration via the "calibration" button can only be performed while the treatment is in process (Stop/Start LED lit and not flashing).

#### 8) Start processes and dosages

Once you have made entered all the preceding settings, you are ready to begin processing and dosing by means of the **SYCLOPE TRACE'O®** controller.



Before beginning processes, please make sure that all the parameters and various safety features mentioned in this documentation have been observed.

- ▶ To begin processes, press the key



- ▶ Check that everything works and that the controller begins the treatments as required.

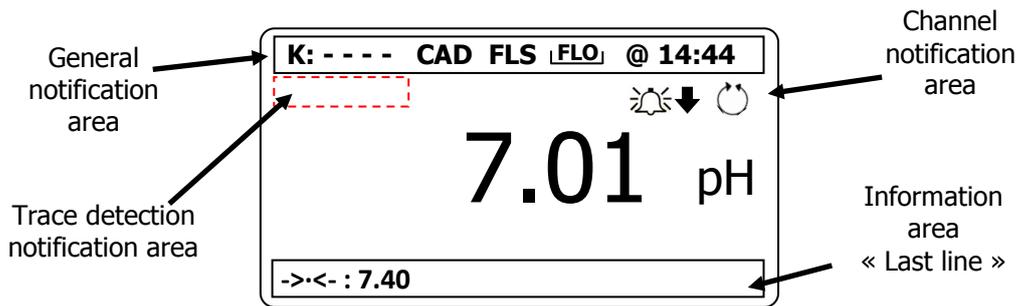


The LED of the "STOP/START" button can have various statuses according to the environment.

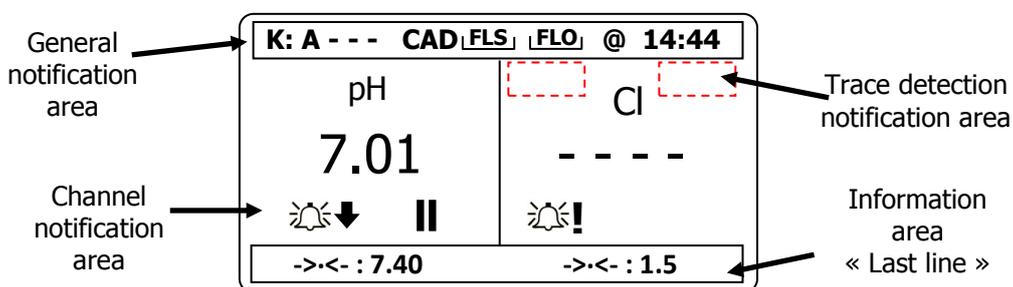
- Lit: the processes are active
- Not lit: the processes are inactive
- Flashing: the processes are paused if a "start delay" is programmed or if the conditional optional functions "CAD" and "Flsw" are active or if an operating interval timer has been defined and when the controller is out of this interval.

To assist the user in managing the treatment of the water, the **SYCLOPE TRACE'O®** controller is equipped with visual indications directly on the screen for alarms exceeded and for injections of chemical products, and some LEDs on the front panel.

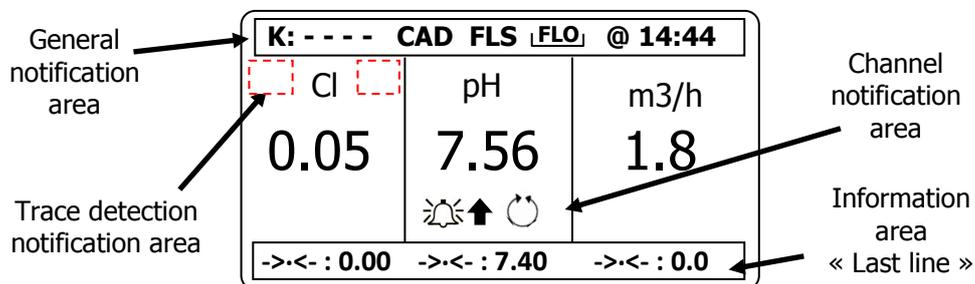
Display mode of one parameter :



Display mode of two parameters :



Display mode of three parameters :



➤ Signs of general notifications area

- K: - - - -** : Notification about relays (All Off)
- K: A B C D** : Notification about relays (All On)
- CAD** : Notification of CAD entry statuses
- FLS** : Notification about flow switch entry (Flsw)
- |FLS|** : Notification about flow switch entry (Flsw) when programmed as a low level tank.
- |FLO|** : Notification about flow rate (Flow) when programmed as a low level tank.
- @** : Indicate that internet connection to [www.mysyclope.com](http://www.mysyclope.com) 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
-  : Indicate « Pause » of all treatments (When tank is empty or flow switch entry is activated)

➤ Signs of « Last line » area :

-  : Setpoint of the programmed channel

## IX. Guide and maintenance.

The controller does not require any specific maintenance.

Repairs may only be performed only by qualified technicians, and must be carried out exclusively at our plant.

If you have any problems with the controller or if you need treatment tips, do not hesitate to contact our after-sales department.

# 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 : November 2015**

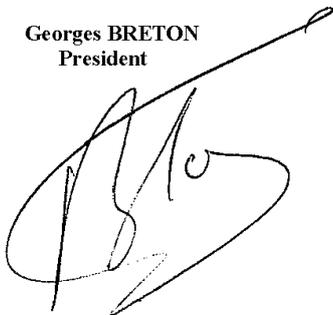
The present declaration engages the responsibility of :

**SYCLOPE**  
Electronique

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

Represented by par :

**Georges BRETON**  
President



Sauvagnon : 2016/04/08







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

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Internet : <http://www.syclope.fr>

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