



Communication 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 the 2016, April 9th Rev. 2

Universal controller for standard and trace measurement.

Product line TRACE'O[®]

Part 3 : Communication instructions (Ref. DOC0323)

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. Recall 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.

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 cut 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 vapors.

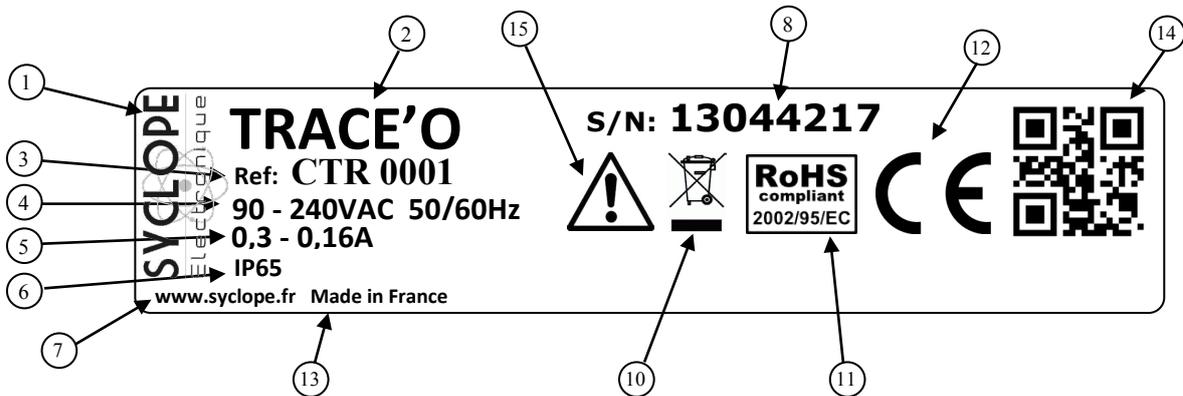


Make sure that the chemical sensors used with this device correspond well to the chemicals used. Refer to the individual technical note of each sensor. Chemistry of water is very complex, in case of doubt, contact immediately our engineering service or your approved installer/reseller.



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/EU, this symbol means that as of 4 July 2012 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/EU, 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/EU) and the electromagnetic compatibility directive (2014/30/EU), this symbol means that the device has been designed in compliance with the previously cited directives

III. Synoptics of communication

The **SYCLOPE TRACE'O**® controllers have been created for connection through a RS485 bus with ModBus RTU protocol supported or by "mysyclope.com" data web site. Several controllers can be connected together as describe below.

1) Local connection using "TraCom" maintenance software.

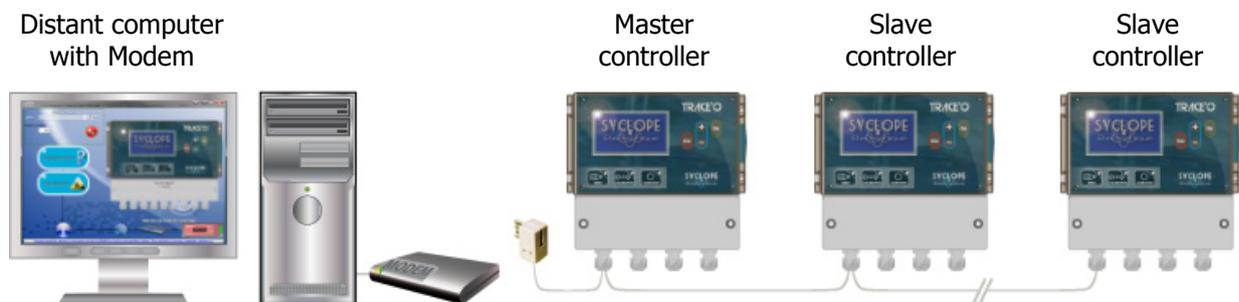


- Connection of one or more **SYCLOPE TRACE'O**® controllers through the RS485 local bus.

To connect the **SYCLOPE TRACE'O**® controller to the computer, a USB/RS485 interface is necessary in case of no direct RS485 port is available.

Reference	Description
INF1021	USB/485 interface converter

2) Distant connection with maintenance 'TraCom" software



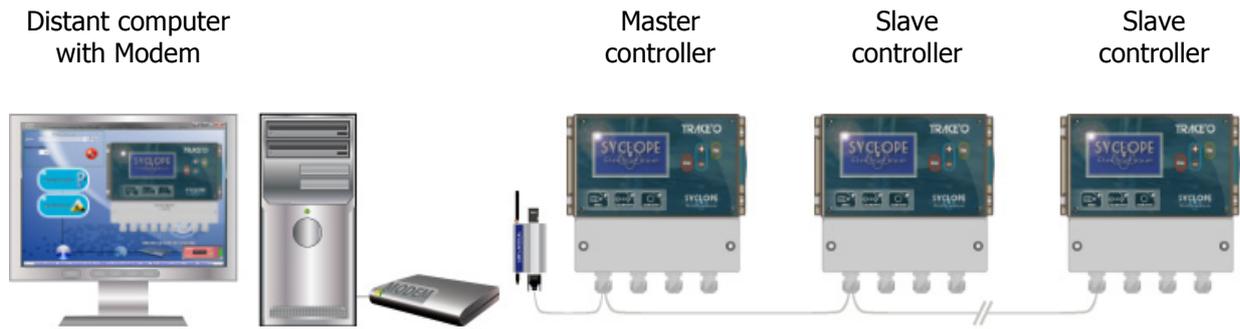
- Connection of several **SYCLOPE TRACE'O**® controllers between them via BUS RS485.



The first **SYCLOPE TRACE'O**® controller is connected to the phone line (Modem Line option inside) and works as a gateway for the others slave controllers connected onto the RS485 bus.

A Modem kit is available to connect the the **SYCLOPE TRACE'O**® controller to the phone line.

Reference	Description
KMD0010	Internal Modem kit for Phone line with cable



- Connection of several **SYCLOPE TRACE'O®** controllers between them via BUS RS485.

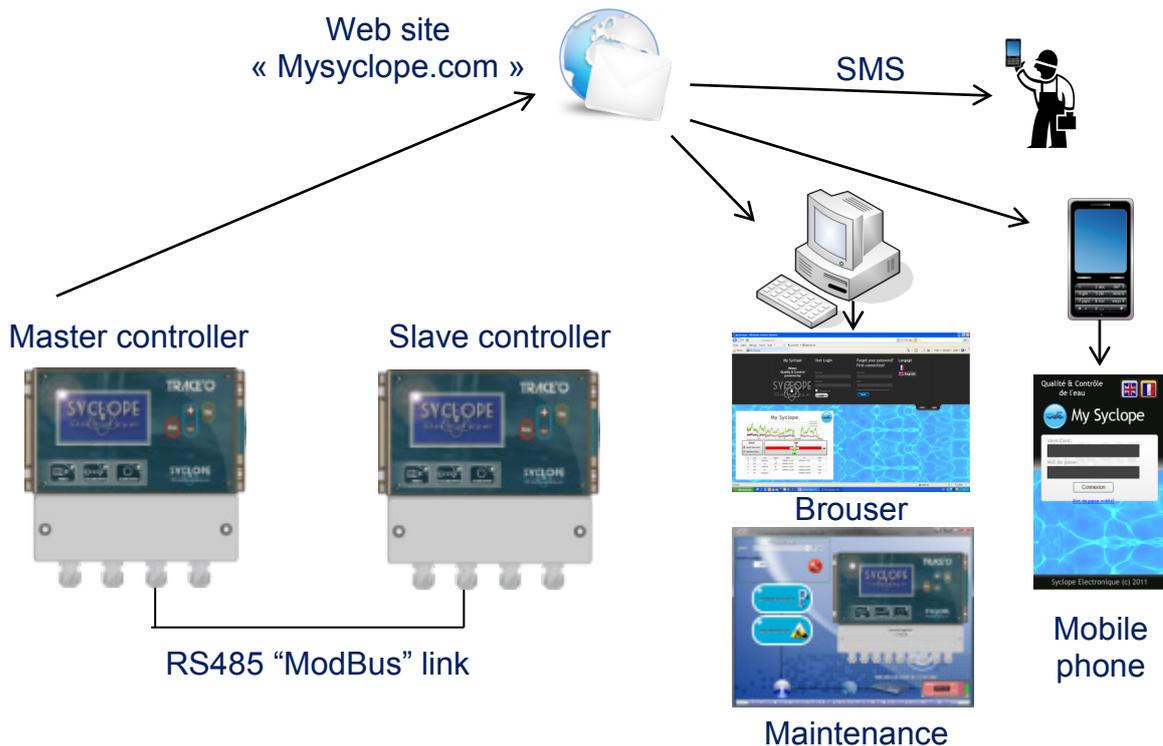


The first **SYCLOPE TRACE'O®** controller is connected to the GSM network (GSM Modem option inside) and works as a gateway for the others slave controllers connected onto the RS485 bus.

A GSM Modem kit is available to connect the the **SYCLOPE TRACE'O®** controller to GSM network.

Reference	Description
KMD0020	Internal GSM/GPRS Modem kit with cable and antenna

3) Distant connection to the data web site mysyclope.com



The first **SYCLOPE TRACE'O®** controller is connected to the GPRS/IP/WiFi network and works as a gateway for the others slave controllers connected onto the RS485 bus.

Internal Modem Kits are available for realizing a remote connection either through a phone line or through internet:

Reference	Description
KMD0020	Internal GSM/GPRS Modem kit with cable and local antenna
KMD0040	Internal Ethernet Modem kit
KMD0050	Internal WiFi Modem kit with cable and local antenna

IV. Connecting internal Modems

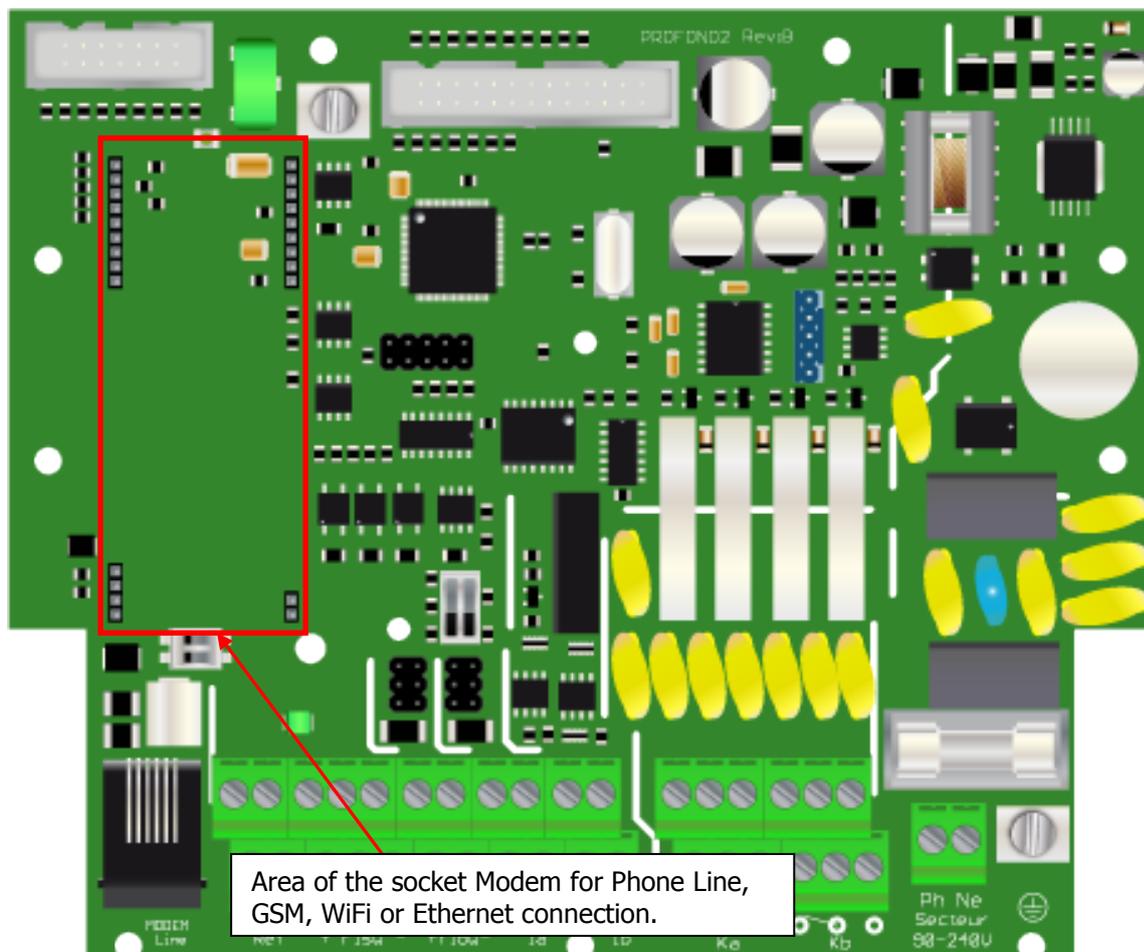
1) Branchements des MODEMS GSM, GPRS, Wifi et Ethernet

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".

According to the type of modem and the 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.

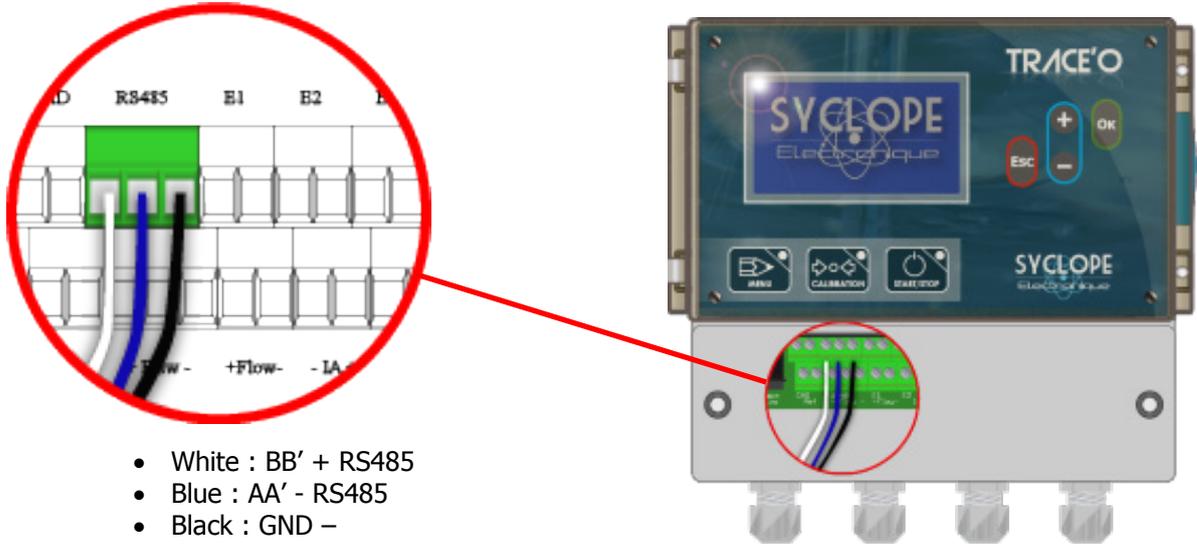
2) Branchements des MODEMS sur la carte interne

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



V. Connections

1) Connection of the USB/RS485 adaptor on the internal terminals



- White : BB' + RS485
- Blue : AA' - RS485
- Black : GND -



All the controllers can be chained on the RS485 connections by respecting of the same wiring.

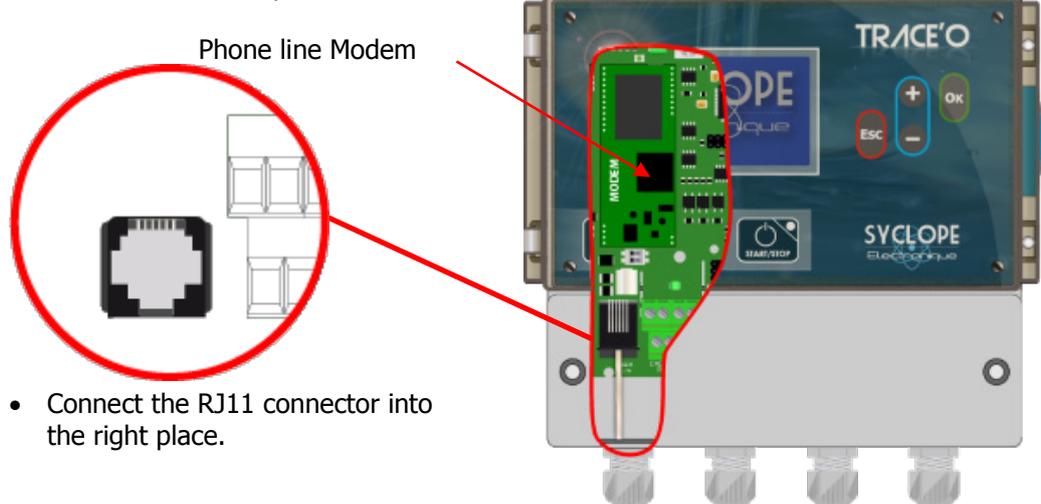


- Blue (Terminal n°3) : AA' RS485
- White (Terminal n°4) : BB' RS485
- Black (Terminal n°5) : GND RS485



Configuration : All the switches are **ON**

2) Connection of the telephone line Modem

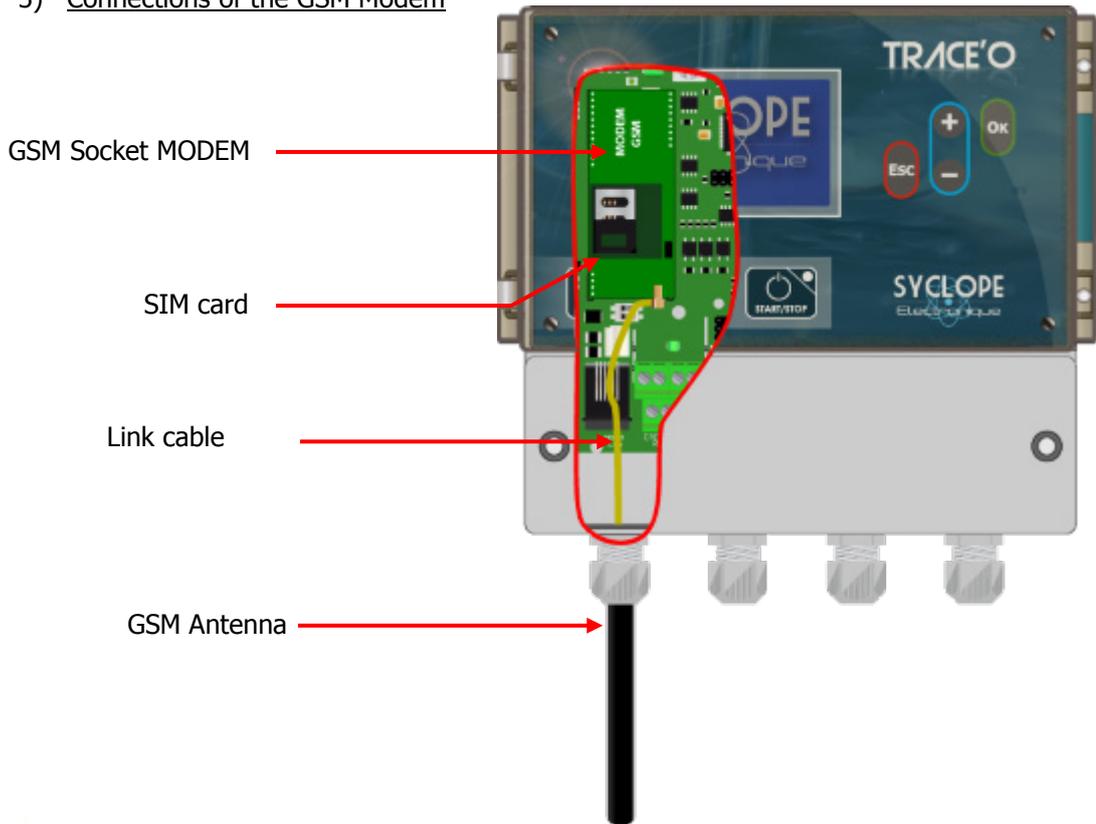


- Connect the RJ11 connector into the right place.



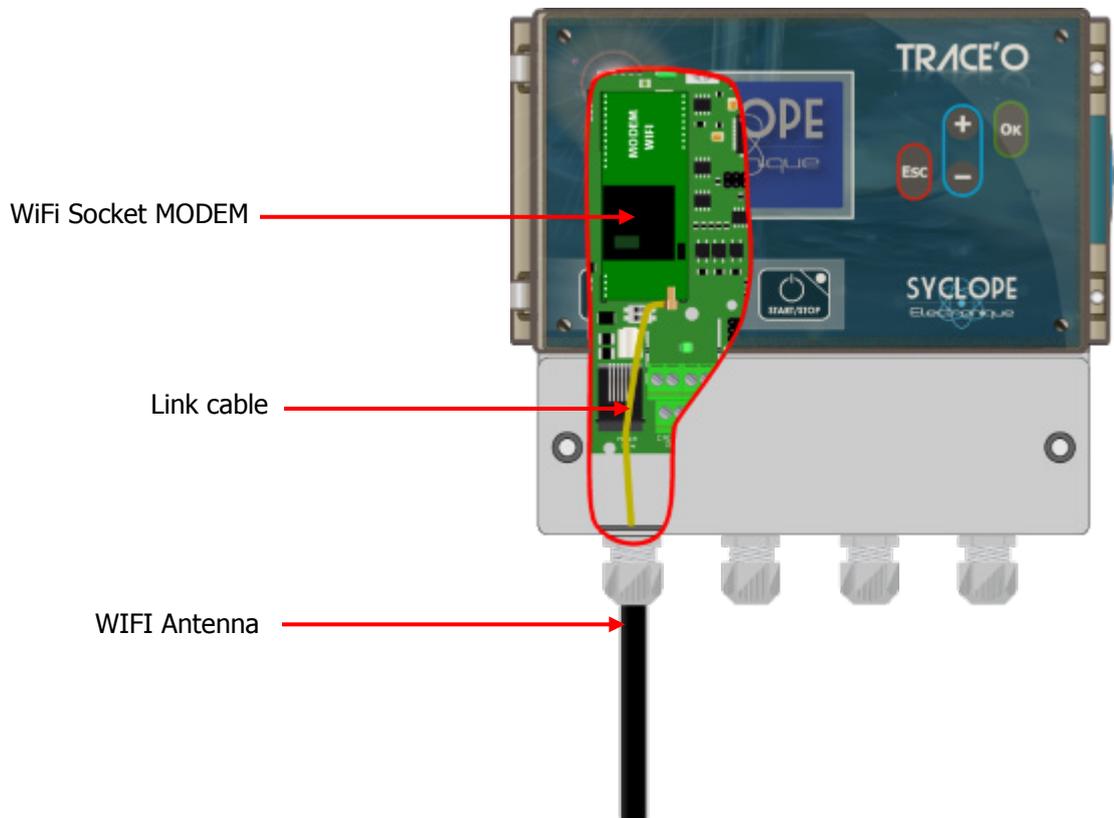
CAREFUL: This type of connection is not compatible with the communication protocol used by « mysynclope.com » data web site.

3) Connections of the GSM Modem

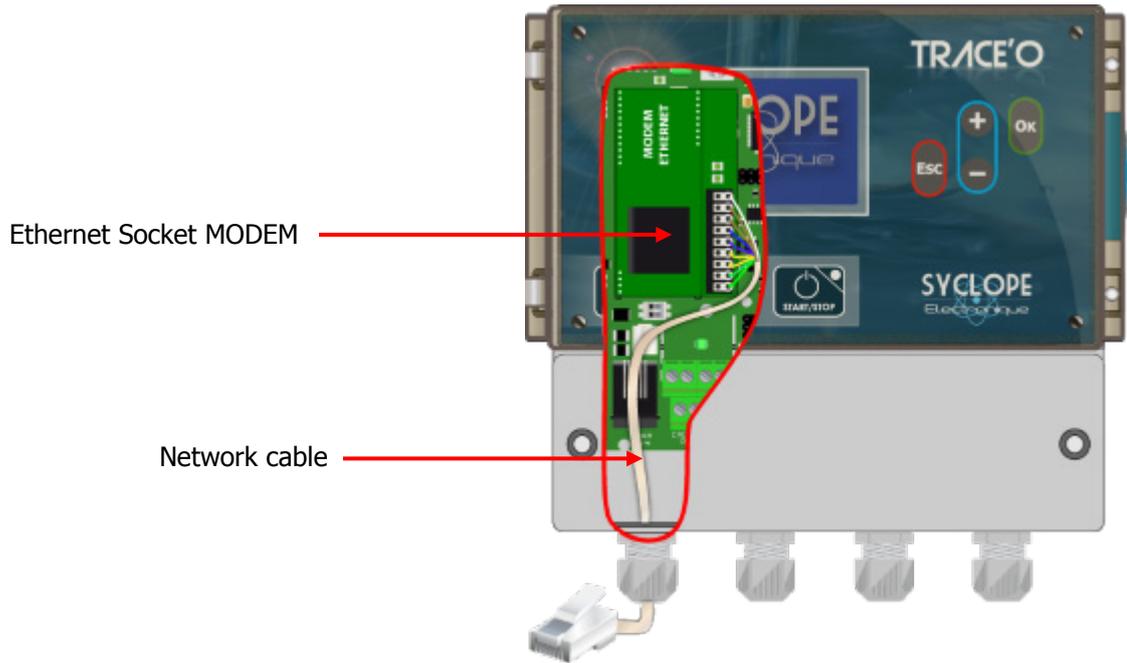


The PIN code of the SIM card must be disabled!

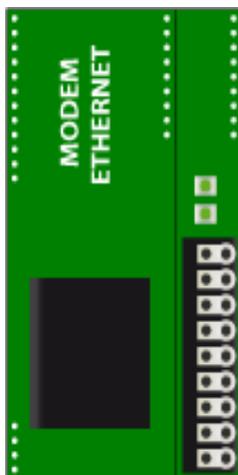
4) Connection of the WiFi Modem



5) Connection of the Ethernet (IP) Modem

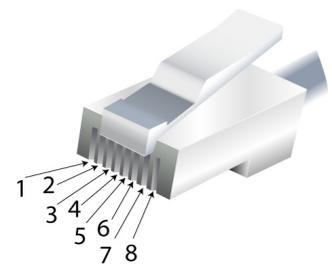


Colors code EIA 568B



- 9 : GND
- 8 : Brown
- 7 : Brown/White
- 6 : Blue
- 5 : Blue/White
- 4 : Orange
- 3 : Orange/White
- 2 : Green
- 1 : Green/White

- Brown : 8
- Brown/White : 7
- Green : 6
- Blue/White : 5
- Blue : 4
- Green/White : 3
- Orange : 2
- Orange/White : 1

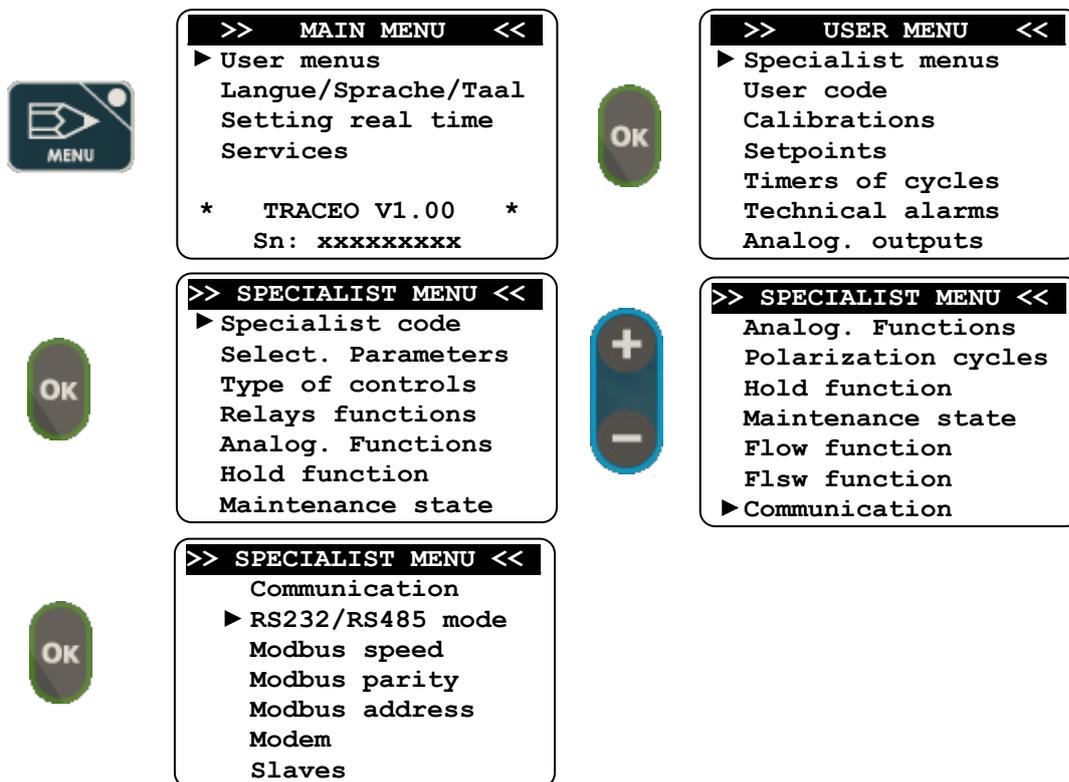


VI. Programming the SYCLOPE TRACE'O® controller

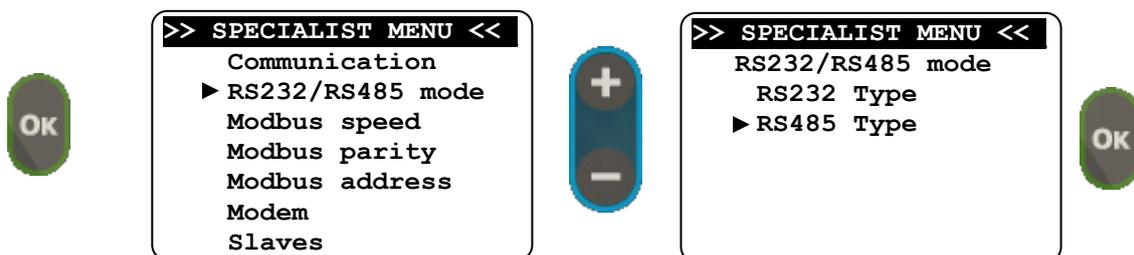
1) RS485 Communication port

To connect a **SYCLOPE TRACE'O®** controller onto the RS485 bus, it is necessary to use the same configuration for all systems connected on the bus. To perform this, use the communication configuration menu.

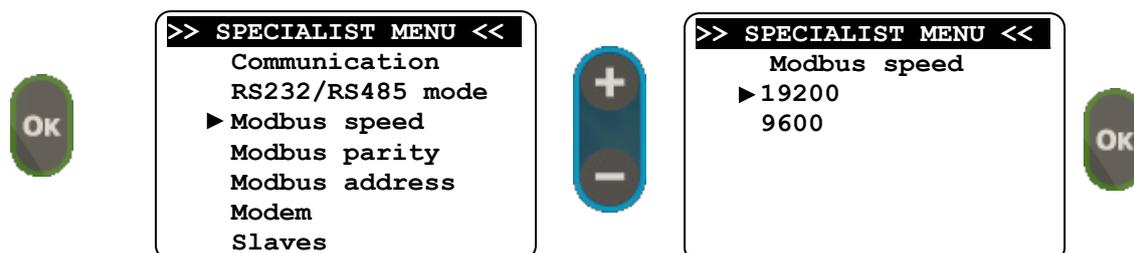
a) Access to the specialist Menu – Communication



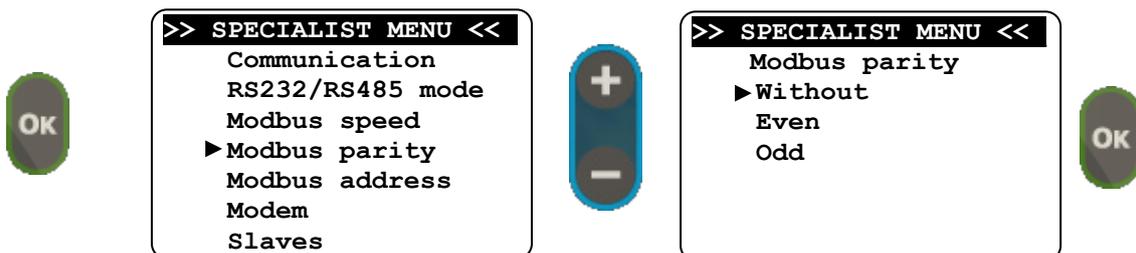
b) Select of the RS485 physical communication port



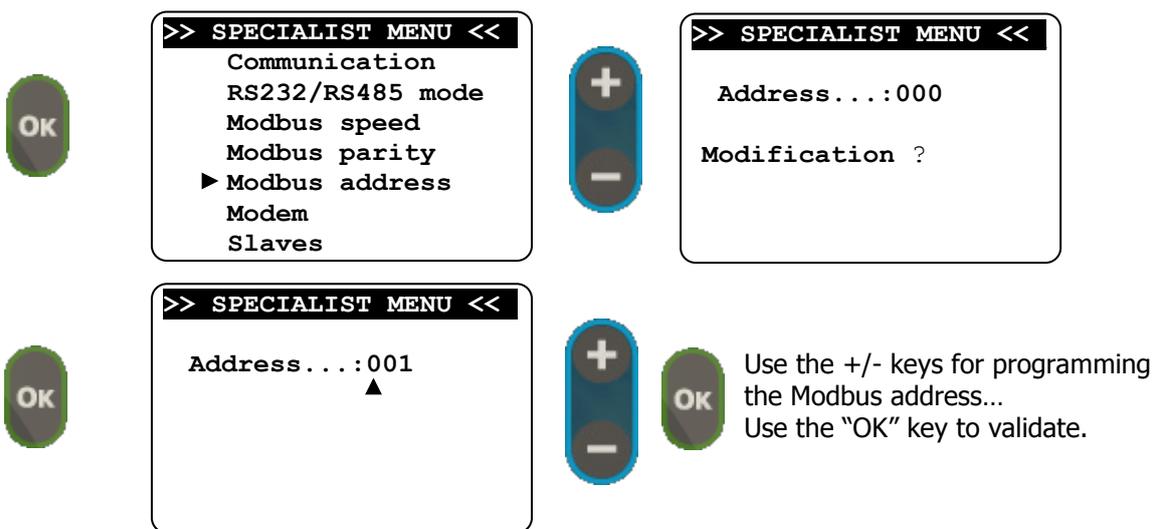
c) Select the speed of the communication protocol



d) Select the parity of the communication protocol



e) Select the address of the controller (Unique address!)



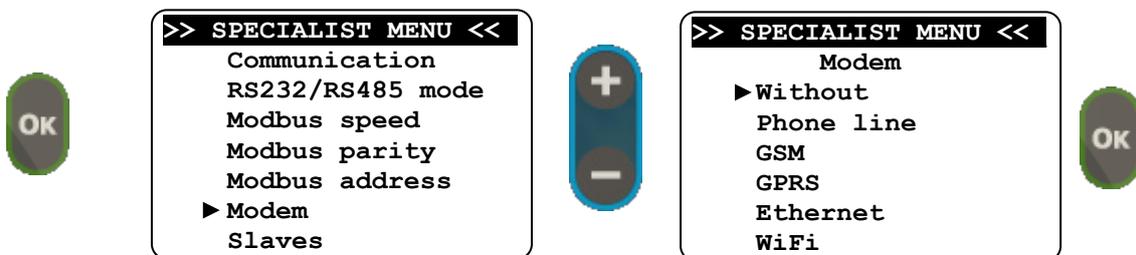
All the systems of all the **SYCLOPE TRACE'O®** controllers connected on the network must have a different address!



All the systems of all the **SYCLOPE TRACE'O®** controllers connected on the network must have the same parameters of communication (Speed and Parity).

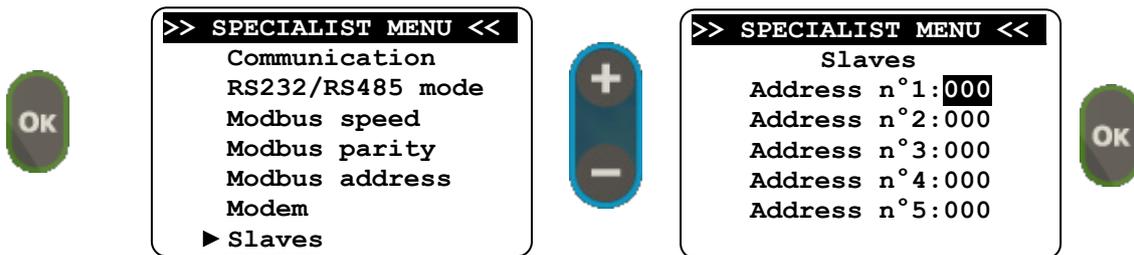
2) Communication with a MODEM

a) Select of the Modem type



In Phone Line and GSM communication mode, the controller waits an entry.
In GPRS, Ethernet and WiFi communication mode, the controller connects itself on mysyclope.com (With a validated subscription)

b) Select the slaves addresses



The slave selection is available when the Modem is defined before.
By writing the address "000" cancels the selection and quits the menu.

VII. ModBus communication registers

1) List of the supported functions

Code	Name
01	Read coil status
03	Read Holding registers
06	Preset single register
15	Force Multiple coils

2) Functions code « 01 »

Register	Description
00001	Relais KA
00002	Relais KB
00003	Relais KC
00004	Relais KD

3) Functions code « 03 »

R => code 03

Register	Name	Format	Size	R/W	Nota	Range
40001	Functional mode	unsigned integer	1	R		
40002	Value entry E1	inverted float	2	R		
40004	Value entry E2	inverted float	2	R		
40006	Flow rate value	inverted float	2	R		
40008	Setpoint E1	inverted float	2	R		
40010	Setpoint E2	inverted float	2	R		
40012	Flow threshold	inverted float	2	R		
40014	High alarm E1	inverted float	2	R		
40016	Low alarm E1	inverted float	2	R		
40018	High alarm E2	inverted float	2	R		
40020	Low alarm E2	inverted float	2	R		
40022	High alarm flowrate	inverted float	2	R		
40024	Low alarm flowrate	inverted float	2	R		
40024	High comp. threshold flowrate	inverted float	2	R		

40026	Low comp. threshold flowrate	inverted float	2	R		
40028	Flags Alarms / Levels	unsigned integer	1	R		
40029	Flags polarisation cycle	unsigned integer	1	R		
40030	Value (mA) entry E1	inverted float	2	R		
40032	Value (mA) entry E2	inverted float	2	R		
40034	Value (mA) output IA	inverted float	2	R		
40036	Value (mA) output IB	inverted float	2	R		
40038	% Positive control signal E1	unsigned integer	1	R	* 100	
40039	% Negative control signal E1	unsigned integer	1	R	* 100	
40040	% Positive control signal E2	unsigned integer	1	R	* 100	
40041	% Negative control signal E2	unsigned integer	1	R	* 100	
40042	Cumulated time cycle P. E1	unsigned integer	1	R		
40043	Cumulated time cycle P. E2	unsigned integer	1	R		
40044	States of the relays	unsigned integer	1	R		
40045	Hour - Minute	unsigned integer	1	R		
40046	Jour - Month	unsigned integer	1	R		
40047	Year	unsigned integer	1	R		

4) Functions code « 15 »

Register	Description
00001	Relay KA
00002	Relay KB
00003	Relay KC
00004	Relay KD

It is possible to activate the "SERVICE" mode for taking the hand on the system and to switch on or off the relays. For keeping the relays on, it is necessary to repeat the order before a delay of 5 seconds.

To activate the Service mode, you must:

→ Send in one time, the states of the 4 relays with an added octet with value = \$FF

To disable the Service mode, you must:

→ Send in one time, the states of the 4 relays with an added octet with value <> \$FF

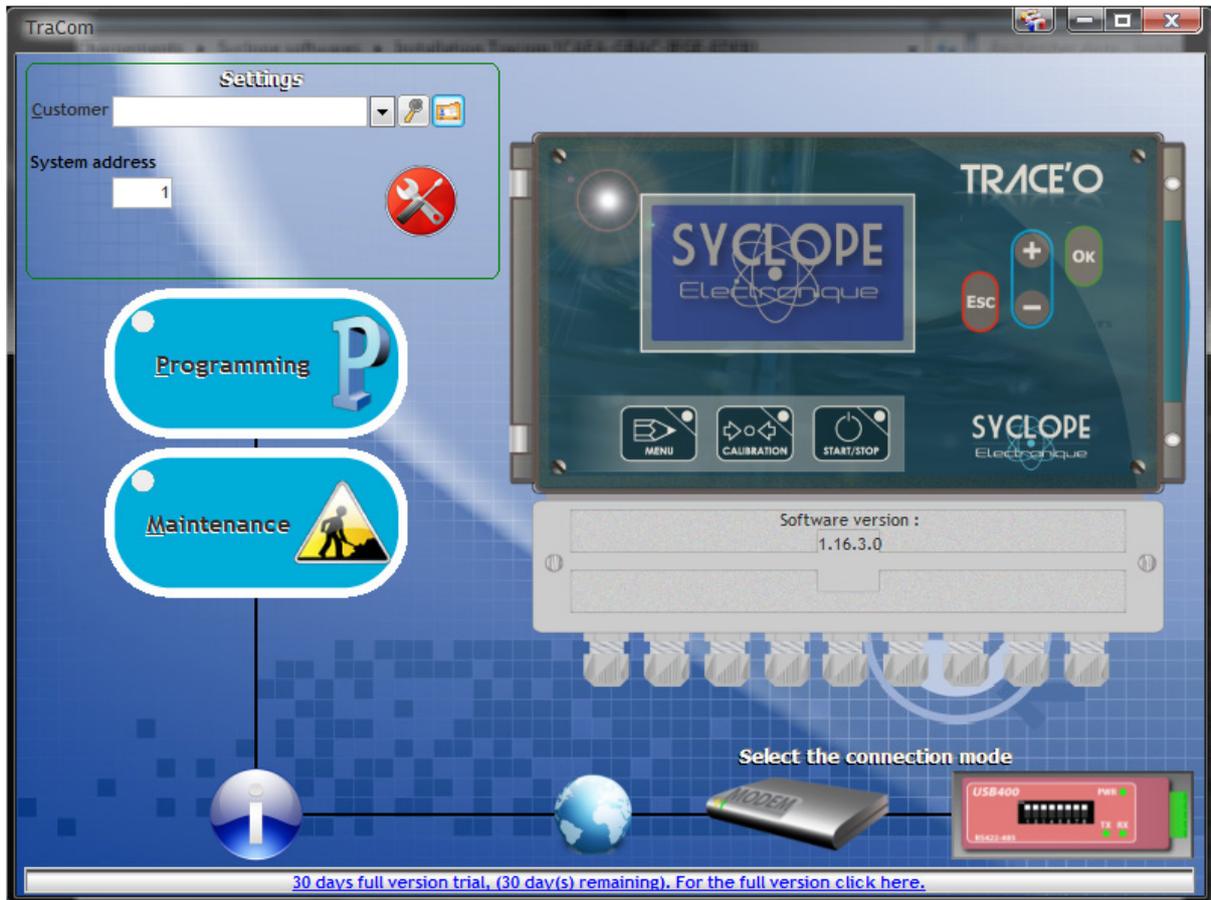
The ModBus frame will be:

Activation		Deactivation	
Slave Address	xx	Slave Address	xx
Function	0F	Function	0F
High Address	00	High Address	00
Low Address	00	Low Address	00
High Quantity	00	High Quantity	00
Low Quantity	06	Low Quantity	06
Number of octet	02	Number of octet	02
States of relays	xx	States of relays	xx
Activation « Service »	FF	Deactivation « Service »	00
CRC Low	xx	CRC Low	xx
CRC High	xx	CRC High	xx

VIII. Programming software "TraCom"

1) Presentation

The "TraCom" software allows the programming and maintenance of **SYCLOPE TRACE'O®** controllers, locally by the RS485 Bus, in remote mode via telephone line or via the site internet mysyclope.com. The software is free in its communication local version and subject to license in the remote version.



Programming the software.



Accessing to the functions of the software.



Selecting the communication mode (Local or Remote).



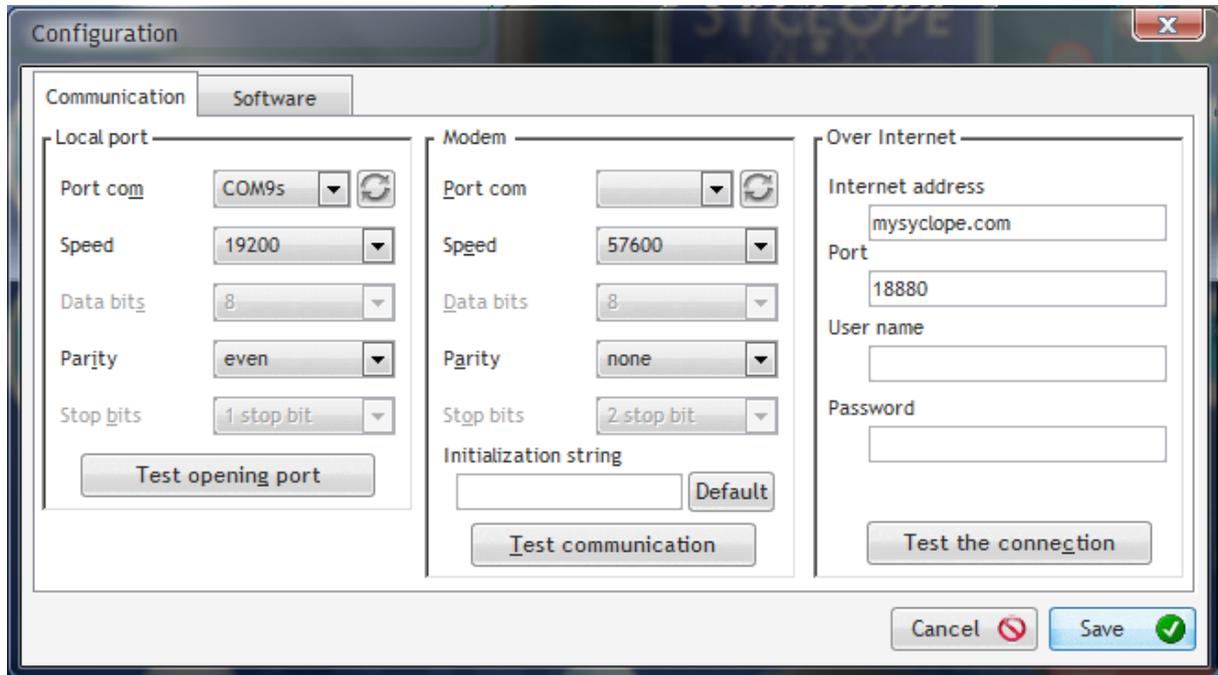
To collect some informations from the connected controller.

Numéro boîtier

ModBus address of the controller connected on the corresponding bus.

2) Programming

Click on the programming button

**Local port (Connection by RS485 Bus):**

- Select the communication port of the computer
- Select the speed (Must be the same as the controller connected on the Bus)
- Select the parity (Must be the same as the controller connected on the Bus)

Phone Line Modem (Connection by wire direct Phone line):

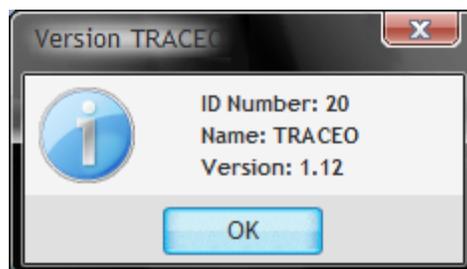
- Select the parameters according the communication of the modem.

Via internet (Connection through internet to the web site mysyclope.com):

- Indicate all the parameters from the provider to connect internet.

3) Test of the connection

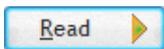
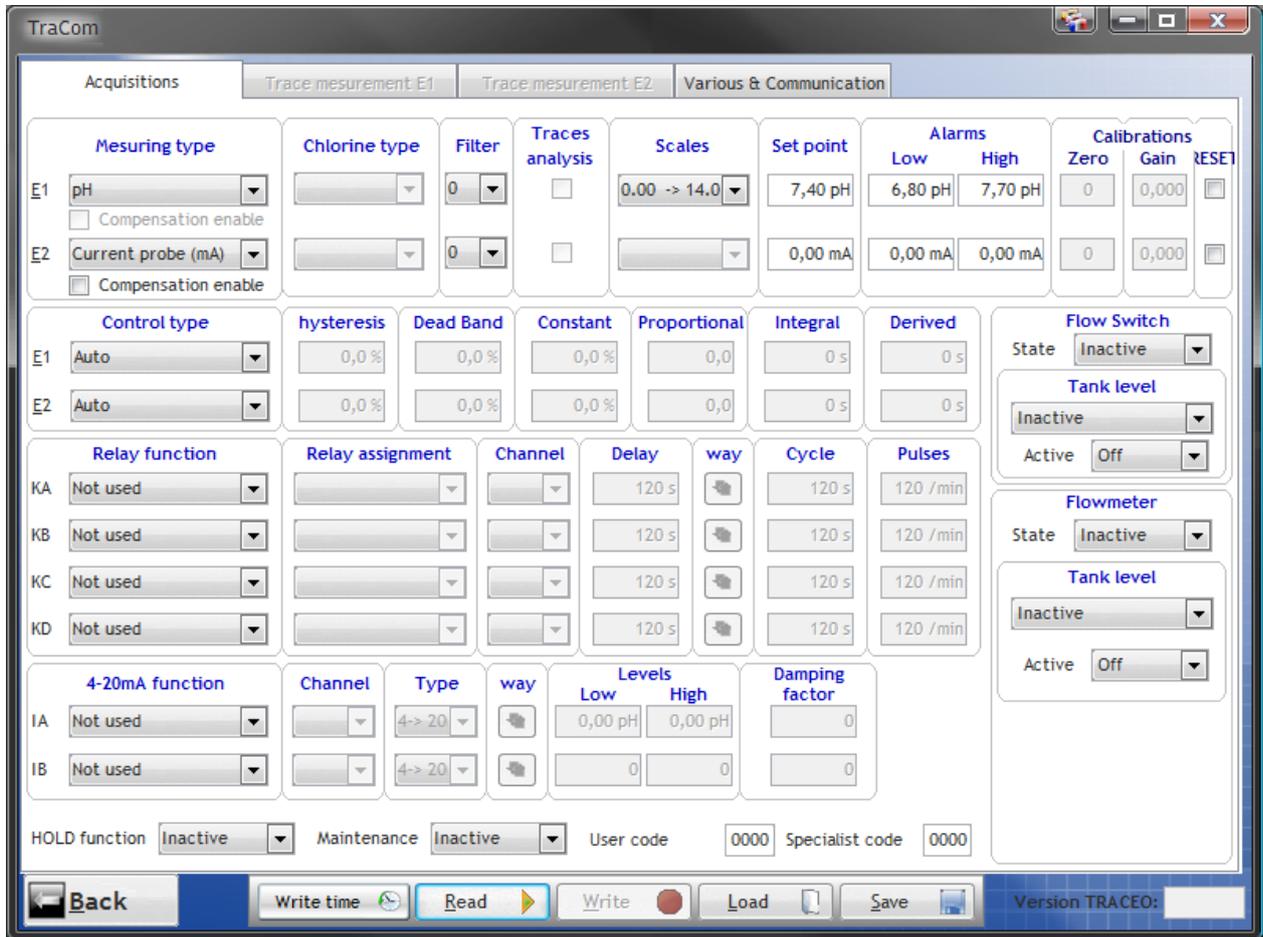
Click on the information button



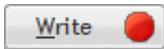
4) General programming



Click on the programming button



Allows to download the actual configuration of the controller to the software.



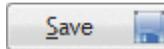
Allows to upload the present configuration of the software to the connected controller.



Allows to set the time and the calendar from the computer to the connected controller.



Allows to download a recorded configuration.



Allows to save or to record the active configuration from the software.



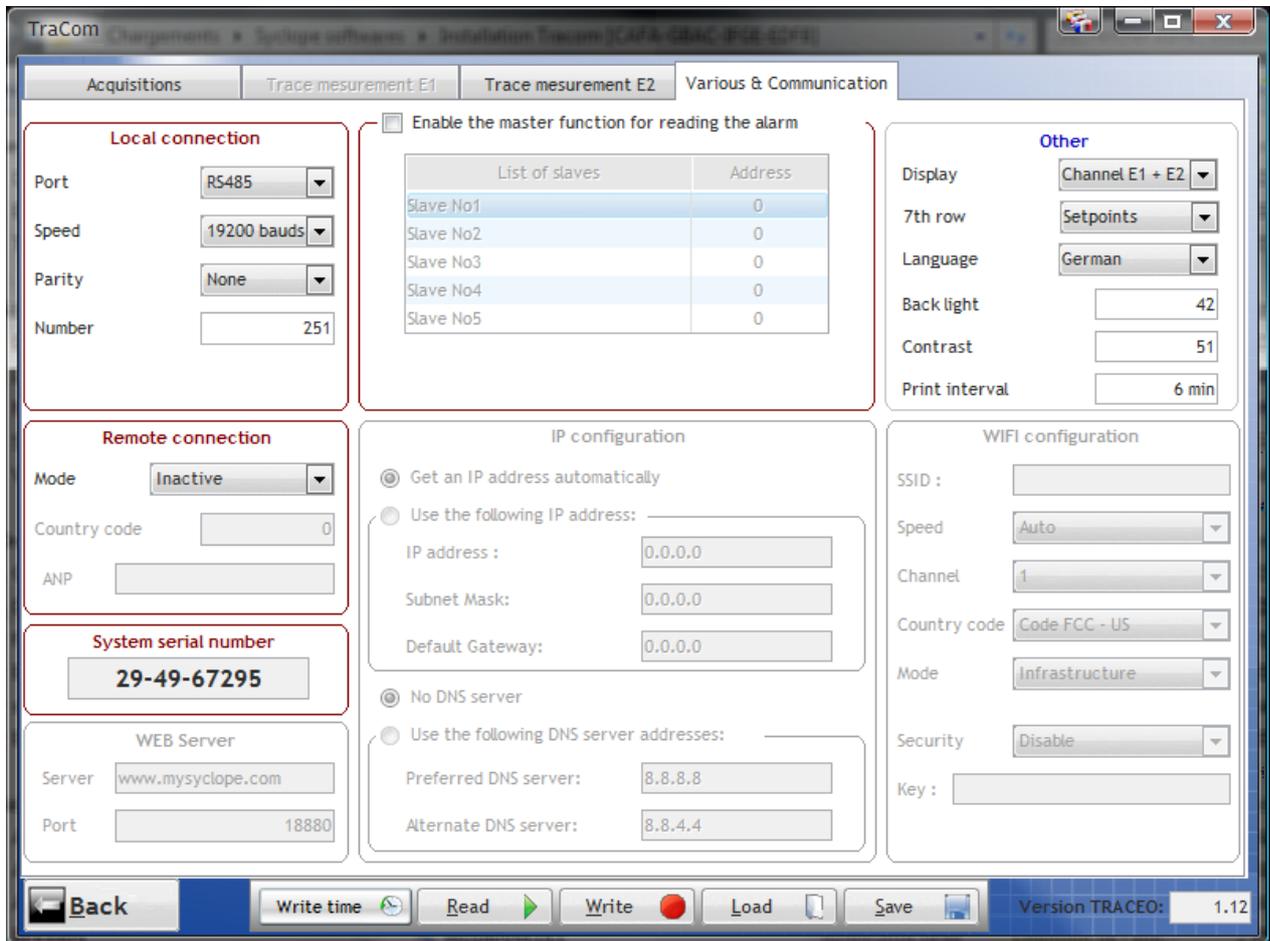
Calibration of the sensors with the software is forbidden and cannot be performed. The calibration parameters of the controller are kept after uploading. To clear the calibration parameters of the connected controller, you must select the corresponding check box.



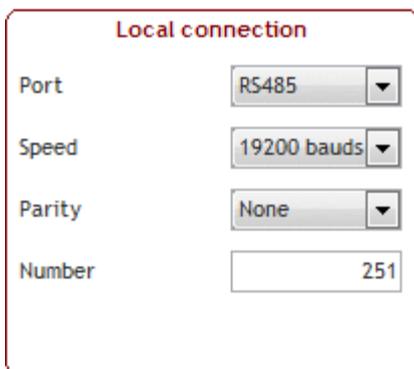
Please, refer to the programming manual (Part:2) of the **SYCLOPE TRACE'O®** controller before any downloading.

5) Programming the communication parameters

All the communication parameters are not programmable directly from the controller and must be set with the "TraCom" software.



a) Setting local communication under RTU ModBus



This window allows to set the port, the speed, the parity and the number (ModBus address) of the controller.

These parameters correspond to the "Config. ModBus" menu accessible directly on the controller.



Careful: Any change of these parameter causes to redefine the communication settings between the software and the controller.

b) Setting GPRS communication mode for connecting the website

Remote connection

Mode:

Country code:

ANP:

System serial number

29-49-67295

WEB Server

Server:

Port:

In GPRS Mode

- Enter the PIN number of SIM card
The APN (Access Point Name) is given by the provider of your SIM card.
Don't forget to ask it because you need it for programming the connection.
- The serial number of the controller is used as an ID for connecting the web site.

Check the following parameters:

- Server : www.mysyclope.com
- Port : 18880



The GPRS mode is the only mode that can be configured directly from the Menu of the controller.



The APN (Access Point Name) of the SIM card is given by your provider. Don't forget to ask it because you need it for programming the connection.



It is necessary to have a M2M (Machine to Machine) subscription with a minimum of 4Mo of data transfer per month.



Be careful: If you want to access the controller more often with the "TraCom" software through the internet connection, please increase the capacity of your subscription.

c) Setting Ethernet communication mode for connecting the website

Remote connection

Mode:

Country code:

ANP:

System serial number

29-49-67295

WEB Server

Server:

Port:

IP configuration

Get an IP address automatically

Use the following IP address:

IP address:

Subnet Mask:

Default Gateway:

No DNS server

Use the following DNS server addresses:

Preferred DNS server:

Alternate DNS server:

In Ethernet Mode

- Select the DHCP mode or take a specific address (IP), subnet mask and gateway.
- Enter the DNS of the provider to access internet.

Check the following parameters:

- Server : mysyclope.com
- Port : 18880

d) Setting WiFi communication mode for connecting the website

<p>Remote connection</p> <p>Mode: <input type="text" value="WIFI MODEM"/></p> <p>Country code: <input type="text" value="0"/></p> <p>ANP: <input type="text"/></p>	<p>IP configuration</p> <p><input checked="" type="radio"/> Get an IP address automatically</p> <p><input type="radio"/> Use the following IP address:</p> <p>IP address: <input type="text" value="0.0.0.0"/></p> <p>Subnet Mask: <input type="text" value="0.0.0.0"/></p> <p>Default Gateway: <input type="text" value="0.0.0.0"/></p> <p><input type="radio"/> No DNS server</p> <p><input checked="" type="radio"/> Use the following DNS server addresses:</p> <p>Preferred DNS server: <input type="text" value="8.8.8.8"/></p> <p>Alternate DNS server: <input type="text" value="8.8.4.4"/></p>	<p>WiFi configuration</p> <p>SSID: <input type="text" value="SYCLOPE"/></p> <p>Speed: <input type="text" value="Auto"/></p> <p>Channel: <input type="text" value="1"/></p> <p>Country code: <input type="text" value="Code FCC - US"/></p> <p>Mode: <input type="text" value="Infrastructure"/></p> <p>Security: <input type="text" value="Disable"/></p> <p>Key: <input type="text"/></p>
<p>System serial number</p> <p><input type="text" value="29-49-67295"/></p>		
<p>WEB Server</p> <p>Server: <input type="text" value="www.mysyclope.com"/></p> <p>Port: <input type="text" value="18880"/></p>		

In WiFi Mode

- Select the DHCP mode or take a specific address (IP), subnet mask and gateway.
- Enter the DNS of the provider to access internet.
- Enter the parameters of the WiFi connection

Check the following parameters :

- Server : mysyclope.com
- Port : 18880

e) Chaining of the controllers

When a controller is connected to internet by one the previous mode, it is possible to chain up to 5 other controllers to the first one by using the chaining function.

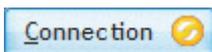
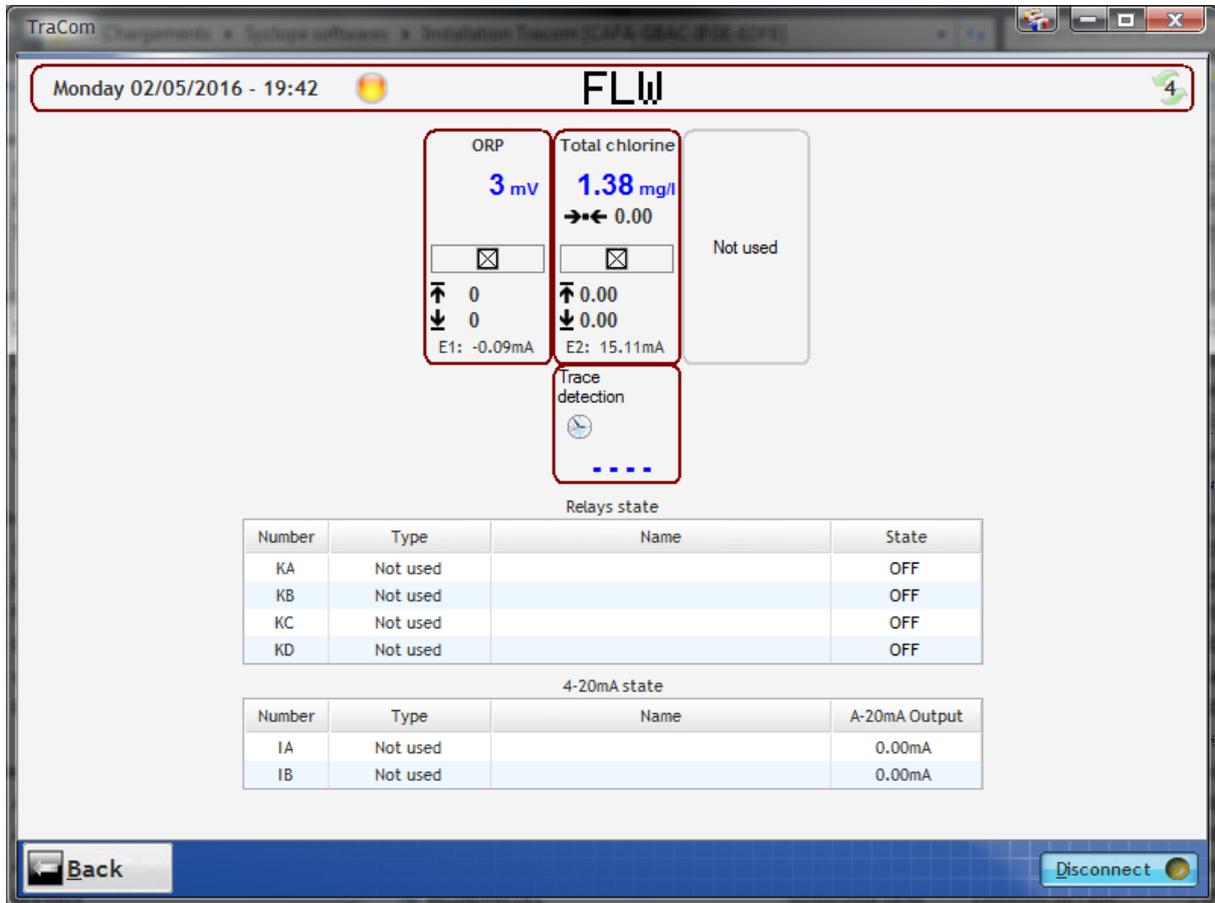
The controller equipped with the modem is considered as the 'Master' of the chain and must be programmed to receive the 'slaves' connected on the RS485 bus.

Enable the master function for reading the alarm:

List of slaves	Address
Slave No1	0
Slave No2	0
Slave No3	0
Slave No4	0
Slave No5	0

6) Maintenance

It is possible to activate a "Maintenance mode" who allows to show all the data from the controller in real time.



This button appears when opening the window, click on it to start the test.



Click on this button to abort the displaying of the data in real time.



Please, refer to the programming manual to know the signification of each icon or use the mouse on it to show the legend.



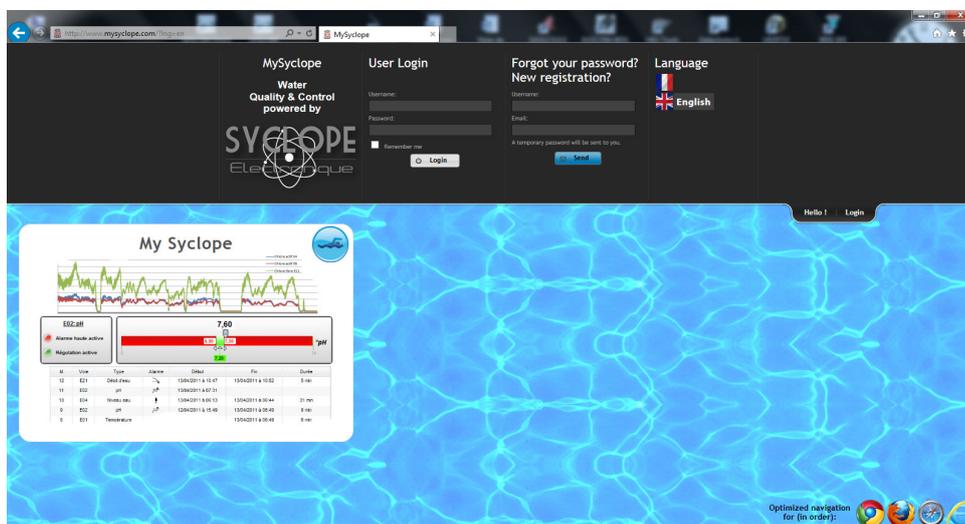
During the connection, if the programming of the controller is modified by using the menu, this last one will be ignored by the software until the next connection.

IX. Access to the Data website www.mysyclope.com

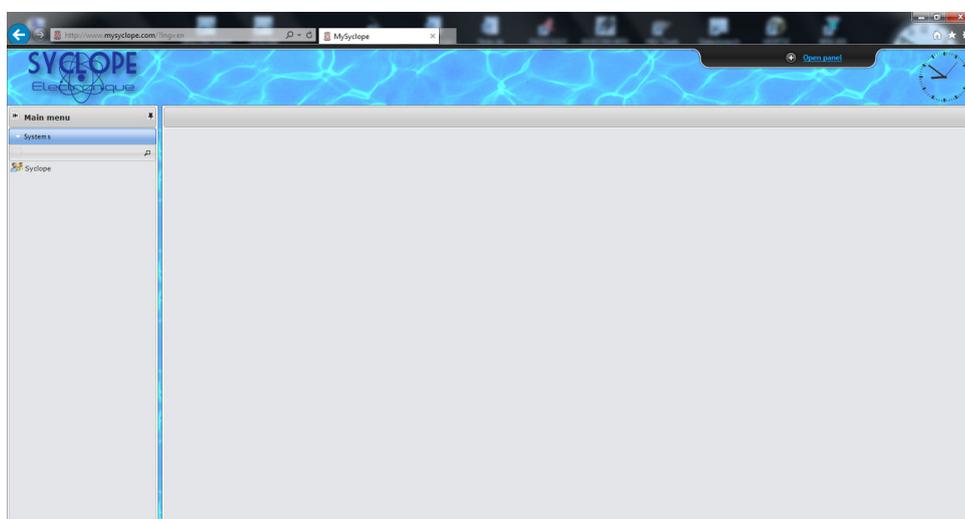
1) Activation of your subscription

You must provide some basic informations to your reseller or to IT service of "SYCLOPE Electronique" for activating your subscription.

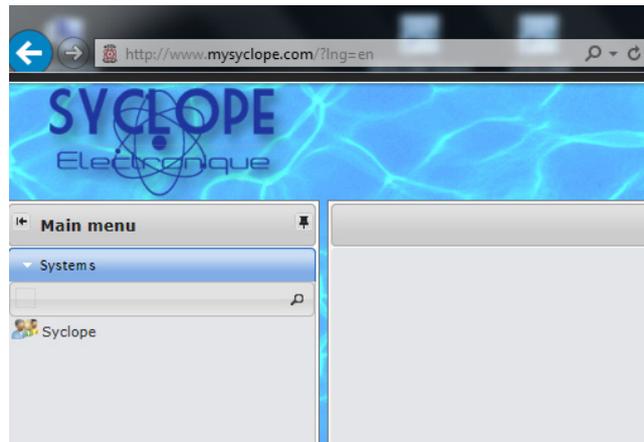
- Read and record the serial number of the controller to be connected
- Call your reseller or the IT service of "SYCLOPE Electronique"
- Give them the serial number of the controller
- Give the responsible of the connection
- Give his email address
- The IT service will declare the controller on the site, it will activate your account and will give you an "User Name".
- Connect the web site www.mysyclope.com with your browser...



- Write your user name into the "User Name" field just over the "Email" field of the column "Forgot your password or First connection" and the email of the responsible for receiving your password.
- Click on the button "Send".
- Check your emails
- When received, return to the website page of mysyclope.com
- Enter your "User Name" and the new password to access your account.



- Click on the « Systems » tab in the « Main menu » column
- Read the connected controllers into the customer sites.



- Now, data sent by the controllers are recorded and readable.

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 20th.

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)

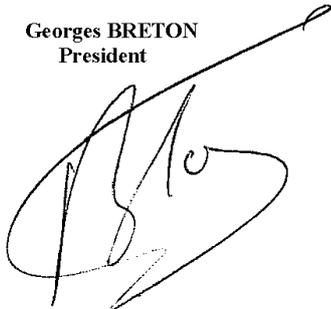
Date of the first distribution : November2015

The present declaration engages the responsibility of :

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

Represented by par :

Georges BRETON
President



Sauvagnon : 2016/04/08





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