



Communication instructions



Parts of the general documentation

- Part 1 : Installation and starting instructions
- Part 2 : Programming instructions
- ▶ Part 3 : Programming communication instructions

General information:

SYCLOPE Electronique 2014[®] Notice of the 07/05/2014 Rev 4

Professional Analyzers/Controllers for public swimming pools.
Product line EVASION[®]

Part 3 : Communication instructions (Ref : DOC0173)

Editor :



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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



Electric hazard



Risk of incorrect operation or damage for the controller

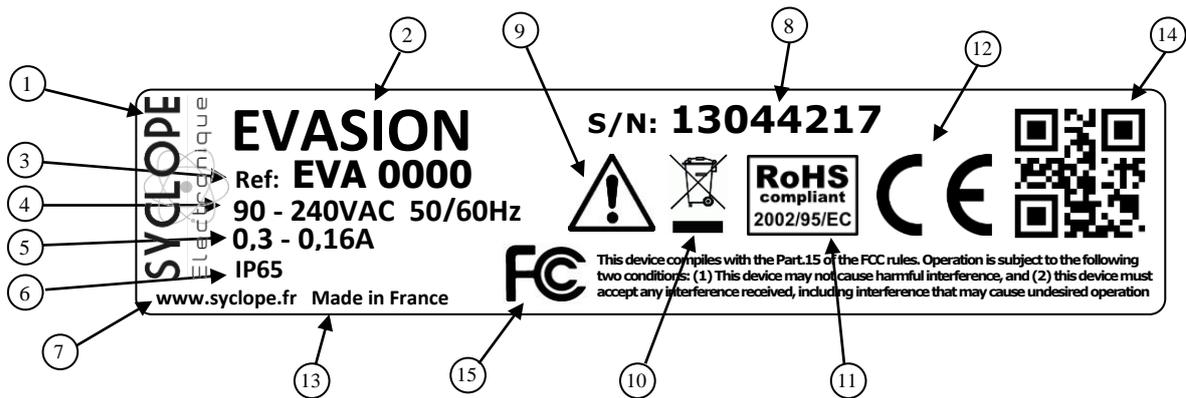


Comment



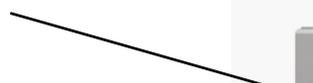
Recyclable element

1) Labelling and localization of the identification plate



① Label of the manufacturer	⑨ Particular risks. Read the notice
② Model of the product	⑩ Product which can be recycled
③ Reference of the product	⑪ Limitation of dangerous substances
④ Range of power supply	⑫ EC compliance
⑤ Values of the maximum current	⑬ Country of the manufacturer
⑥ Class of protection	⑭ Manufacturer square code
⑦ Identification of the manufacturer	⑮ Conformity with the FCC part 15 Class B
⑧ Serial number	

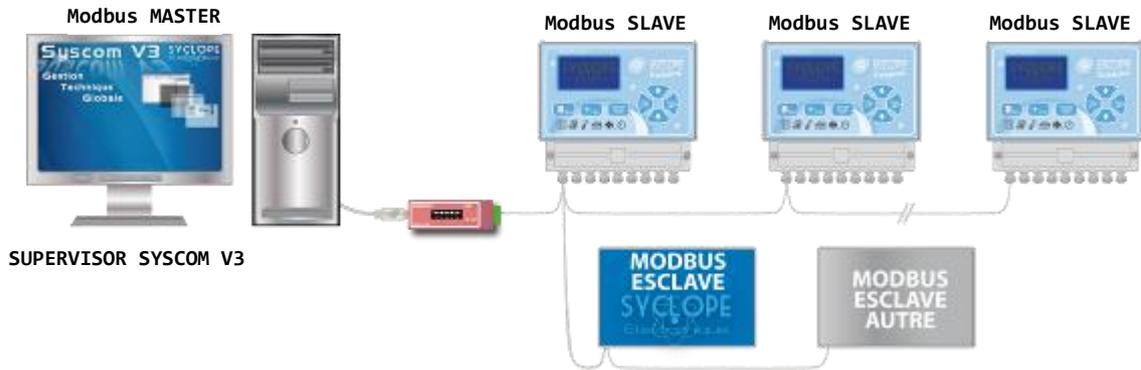
Identification plate



II. Synoptic of communication

The **SYCLOPE EVASION**[®] controllers have been created to be connected together to a high tech supervisor in local or distant mode. Many controllers can be connected together in different concepts.

1) Local mode with supervisor SYSCOM V3 as a client

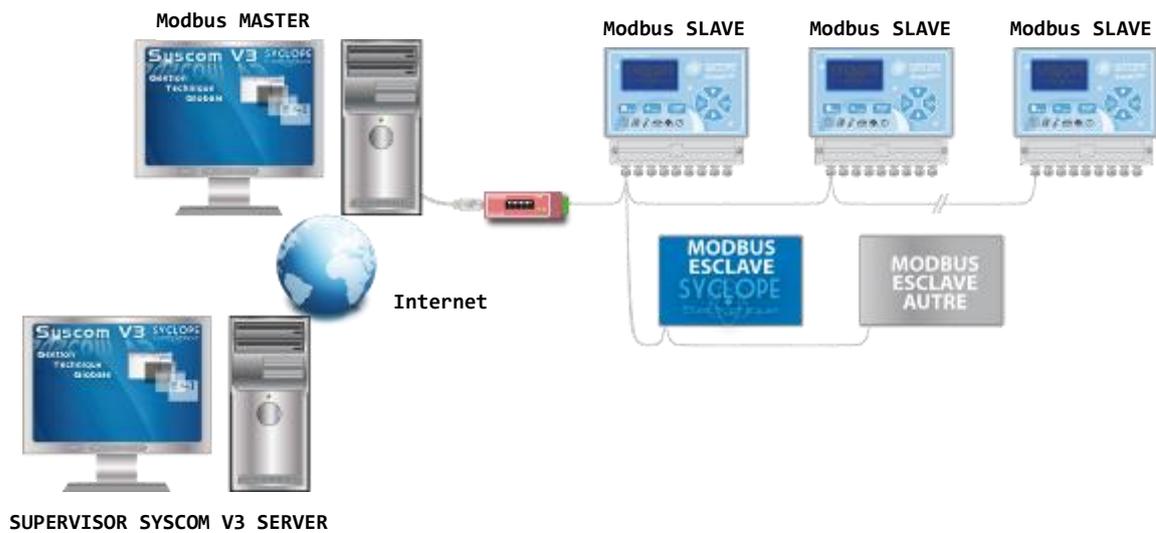


- Connection to one or more controllers through the RS485 bus.
- Connection to others compatible SYCLOPE units with Modbus protocol.
- Connection of all equipments using MODBUS RTU protocol.
- General supervision using SYSCOM V3 software installed on local PC.



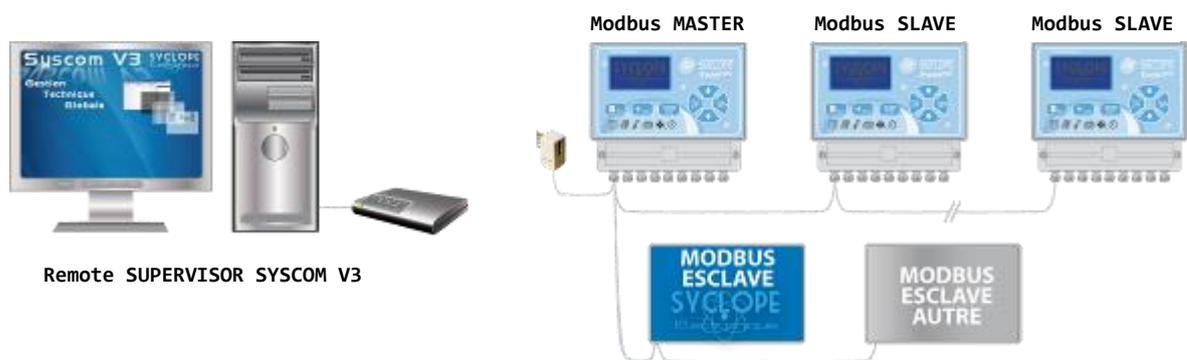
i The **SYCLOPE EVASION**[®] controllers are compatible with **ARCHIMEDE**[®] embedded computer and can be connected together.

2) Local mode with supervisor SYSCOM V3 as a client connected to a server SYSCOM V3.



i The local installation is controlled by the supervisor SYSCOM V3 Server through internet. The supervisor is able to control one or more local installations.

3) Distant connection via telephone line with remote SYSCOM V3 supervisor.



- Connection to one or more controllers through the RS485 bus.
- Connection to others compatible SYCLOPE units with Modbus protocol.
- Connection of all equipments using MODBUS RTU protocol.
- General supervision using remote SYSCOM V3 software installed on distant PC.



The first controller receives the MODEM and is "MASTER" for the Modbus protocol. It is used as a passerelle for the communications with the others controllers.

4) Connection between SYCLOPE EVASION® controller and OPTILIGHT® probe.



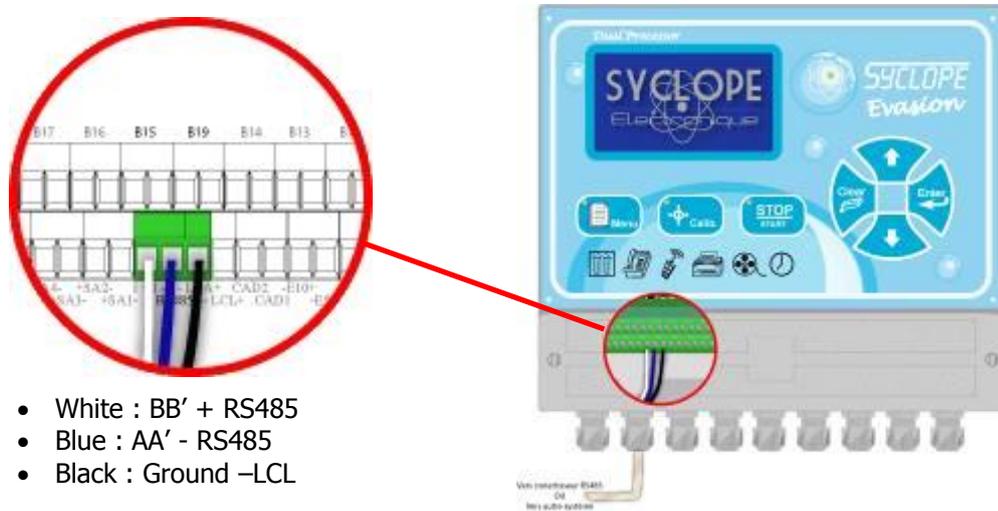
- Connection to the **SYCLOPE EVASION®** and one or two **OPTILIGHT®** probes.



The « master » controller is able to drive one or two Optilight probes through the RS485 bus and to transfer pH and chlorine values to the probe for internal computations to read a real value of cyanuric acid (stabilizing of chlorine).

III. Wirings

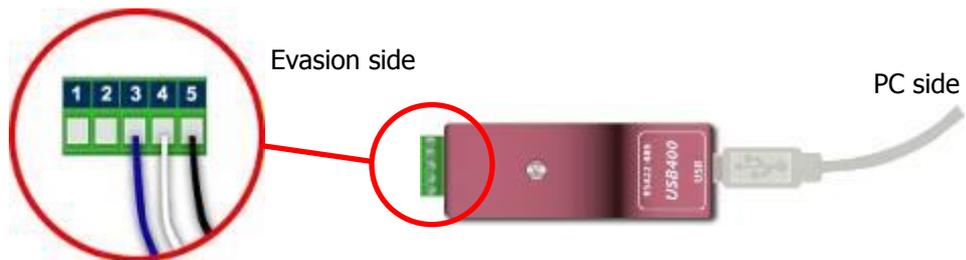
1) Wiring of the internal RS485 port and the PC converter RS485/USB



- White : BB' + RS485
- Blue : AA' - RS485
- Black : Ground -LCL



All units on the bus must be chained together.

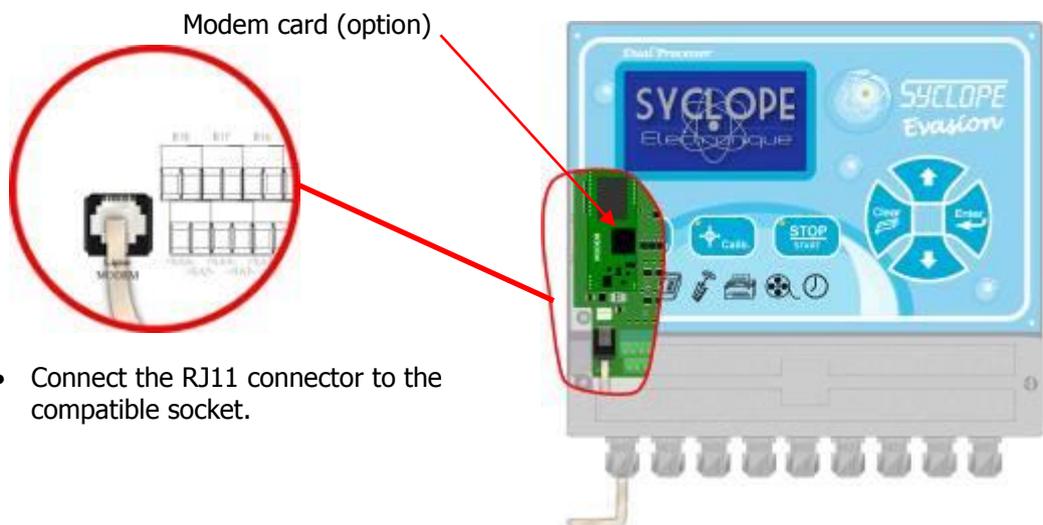


- Blue (Terminal n°3) : AA' RS485
- White (Terminal n°4) : BB' RS485
- Black (Terminal n°5) : Ground RS485



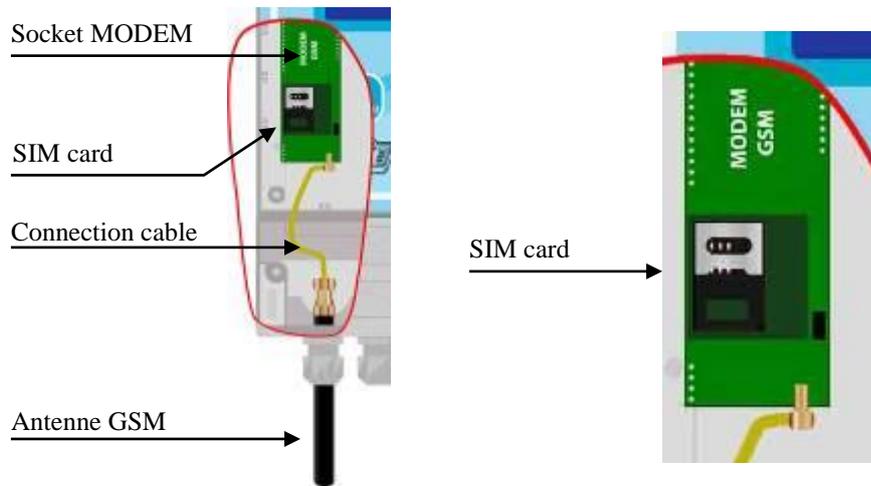
Configuration : All switches are **ON**

2) Connection to the telephone line

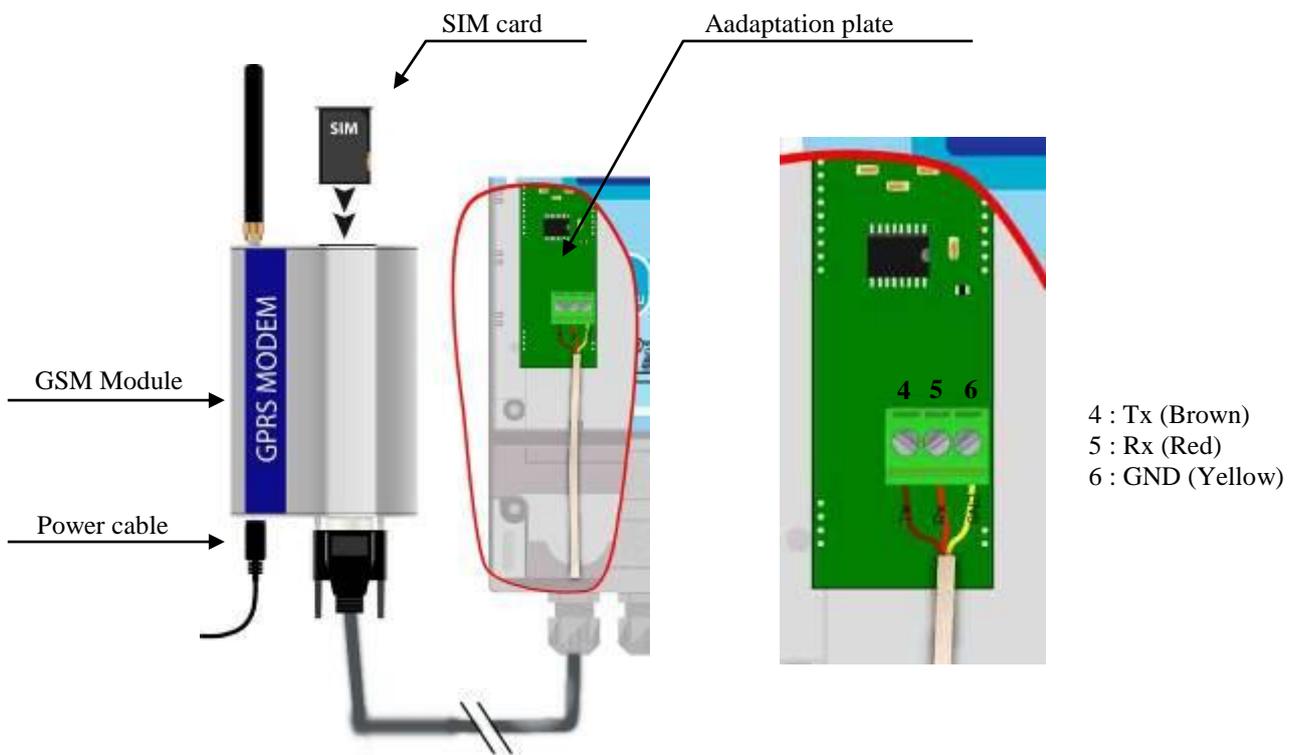


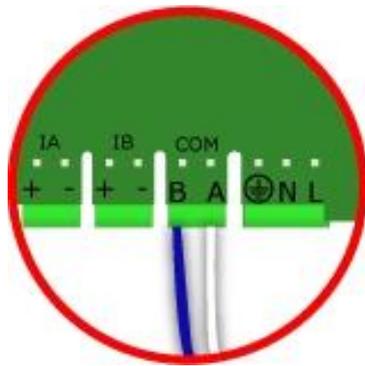
- Connect the RJ11 connector to the compatible socket.

3) Connection of the internat GSM Modem

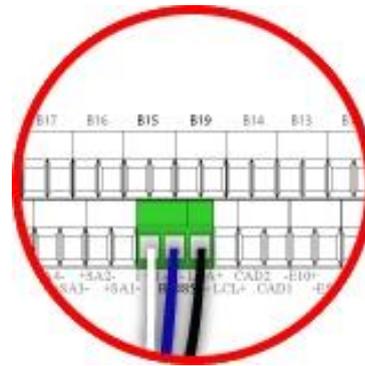


4) Connection of the externat GSM Modem



5) Connection between EVASION and OPTILIGHT

Optilight side



Controller side

- + RS485 EVASION ⇔ A OPTILIGHT probe
- - RS485 EVASION ⇔ B OPTILIGHT probe
- GND ⇔ - LCL EVASION

IV. Programming of the controller

1) Communication RS485 sur EVASION

To connect the controller on the bus, you must program the same communication parameters you have for all units on the bus.

	<p>USER MENU</p> <ul style="list-style-type: none"> > Technician menu access Select language Setting real time clock Interface management Printing management 		<p>TECNICIAN MENU</p> <ul style="list-style-type: none"> > Specialist menu access Technician code Working timers Sensors calibration Setting points Technical alarms Analogue outputs
	<p>SPECIALIST MENU</p> <ul style="list-style-type: none"> > Specialist code Analogue inputs definition Chemical computations Numerical inputs Conditioned functions Relays definition Analogue outputs definition 		<p>SPECIALIST MENU</p> <ul style="list-style-type: none"> Chemical computations Numerical inputs Conditioned functions Relays definition Analogue outputs definition Displaying parameters > Communications
	<p>SPECIALIST MENU</p> <ul style="list-style-type: none"> Communications Speed of printing > RS232/RS485 mode Remote displays External modules Infrared sensor Modem 		

Selecting the RS485 communication port.

	<p>RS232/RS485 mode</p> <ul style="list-style-type: none"> Transfer mode:RS485 Speed:19200 Parity:Without Device number: 1 		<ul style="list-style-type: none"> → RS485 → RS232
--	---	--	--

Selecting the speed of the communication port.

	<p>RS232/RS485 mode</p> <ul style="list-style-type: none"> Transfer mode:RS485 Speed:19200 Parity:Without Device number: 1 		<ul style="list-style-type: none"> → 19200 → 38400 → 57600
--	---	--	---

Selecting the parity of the communication port.

	<p>RS232/RS485 mode</p> <ul style="list-style-type: none"> Transfer mode:RS485 Speed:19200 Parity:Without Device number: 1 		<ul style="list-style-type: none"> → Without → Even → Odd
--	---	--	--

Selecting the address of the controller.

	<p>RS232/RS485 mode</p> <ul style="list-style-type: none"> Transfer mode:RS485 Speed:19200 Parity:Without Device number: 0 		<p>RS232/RS485 mode</p> <ul style="list-style-type: none"> Transfer mode:RS485 Speed:19200 Parity:Without Device number: 1
--	---	--	---

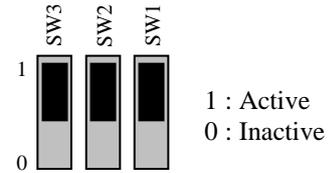


All controllers connected on the same RS485 bus must have the same speed, same parity and each controller must have a different address to ensure a good communication.



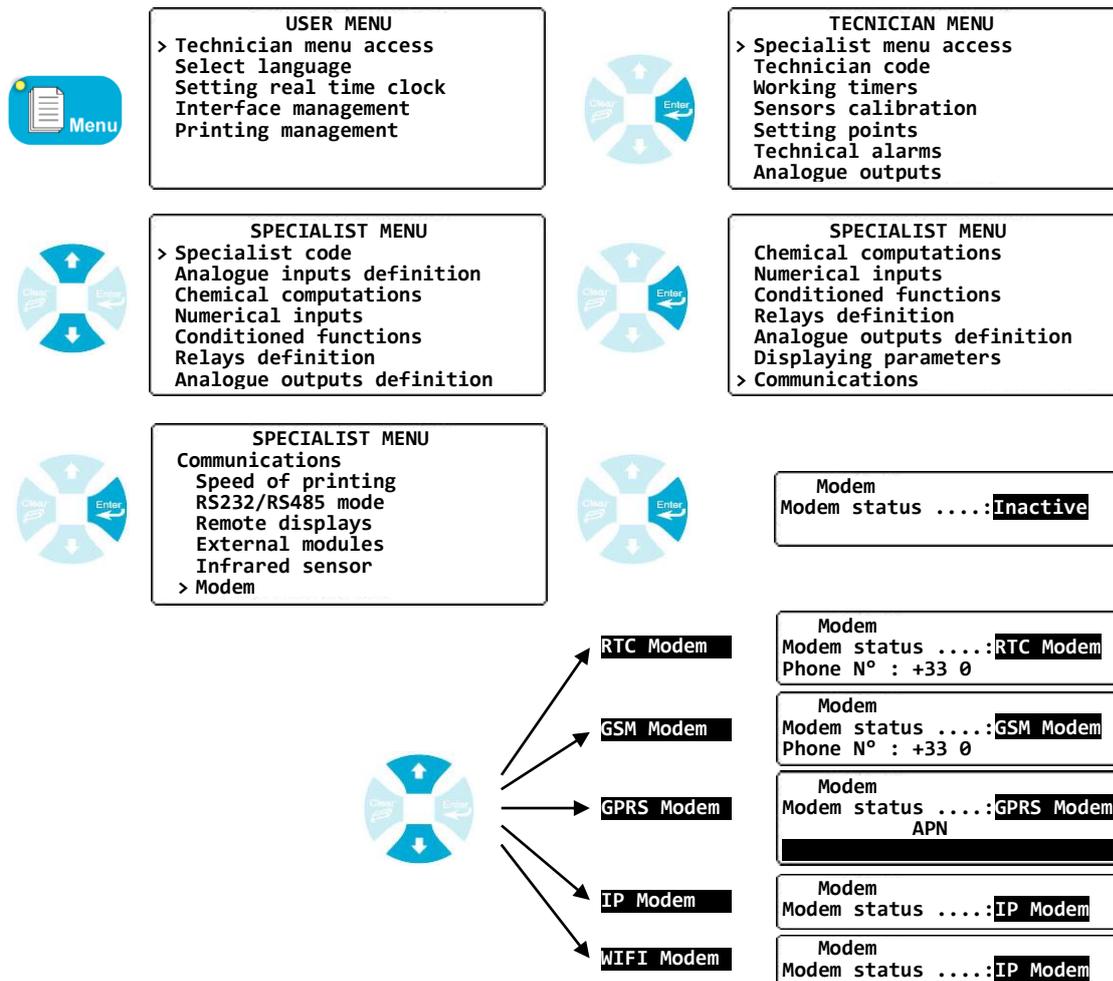
Three switches are located on the EVAMICRO card to manage the termination and the polarization resistors of the RS485 line. By default, the controllers are delivered with switches on the 1 position.

- SW1 > Polarization resistor of the RS485 positive line
- SW2 > Polarization resistor of the RS485 negative line
- SW3 > Termination resistor



2) Modem communication port

This procedure allows you to select modem function and to define the telephone number who is called.



- ▶ Use the arrows keys to inactive or to select the type of modem.



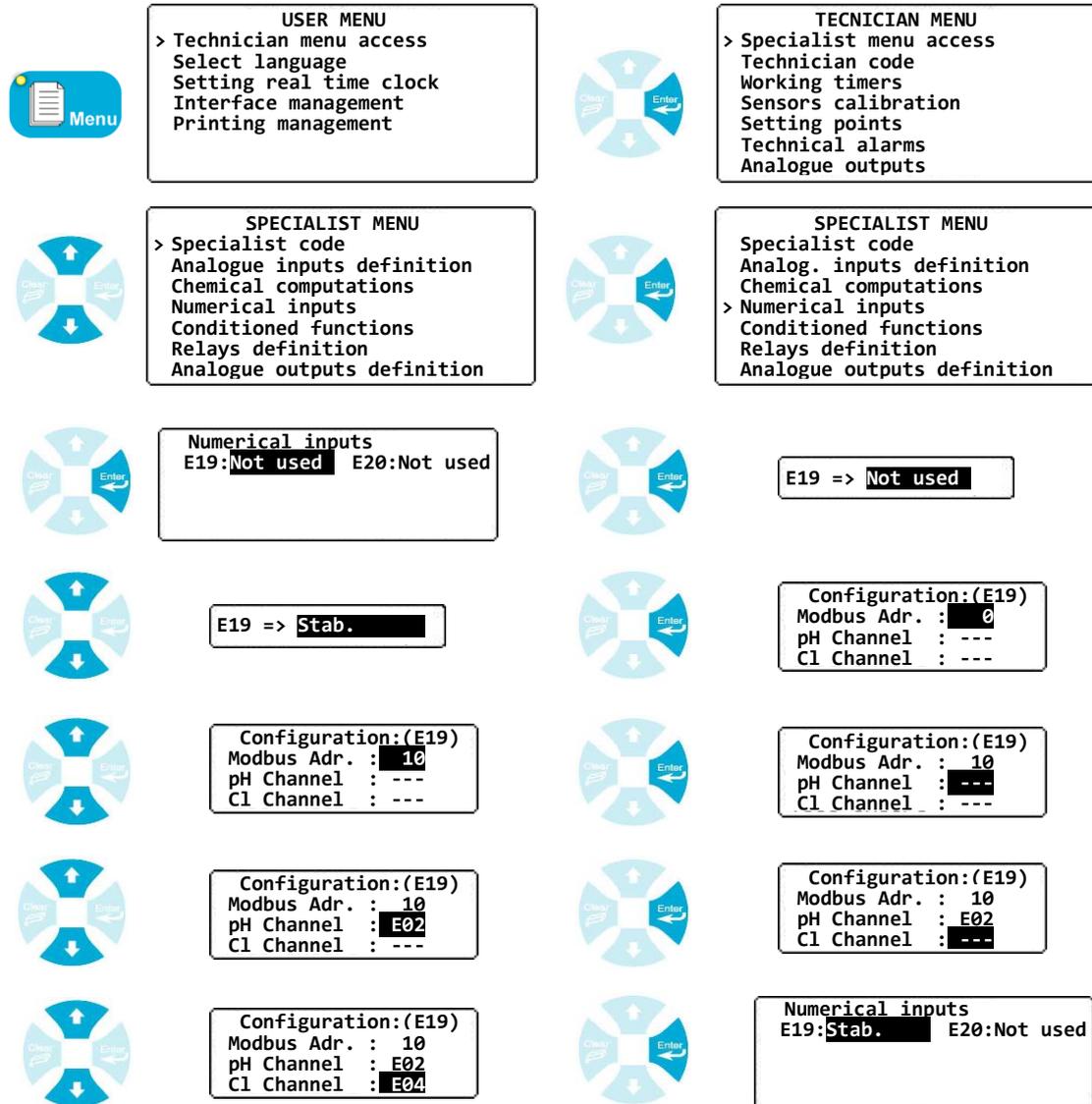
For the GSM Modem, the SIM Card should not use a PIN code to communicate

- ▶ Use the key to validate the type of modem and to access to the parameters.

- ▶ Use the arrows keys  to write the phone number, APN, etc

3) Communication between controller and OPTILIGHT

Allows to connect a cyanuric acid sensor (Stabilizing) via the RS485 bus of the controller.



- The communication use MODBUS protocol (See. chapter IV § 1)
- In this example, the additional parameters pH and Chlorine are optional. If they are not sent to the probe, the default values will be taken.



In this configuration, The controller became « Master » on the MODBUS protocol and establishes a communication with the probe. **In this case, only one controller must be configured as a "master".**



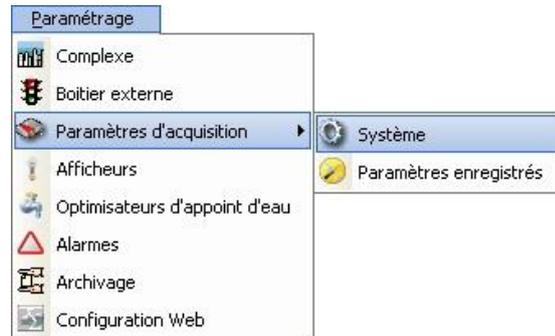
In the case where more controllers were connected together, the controller using the modem must receive the probe.

V. SYSCOM V3 programming

For a complete information about this software, please consult the help in line.

Start SYSCOM V3 software, and go to the menu :

- Programming
- Acquisition parameters
- System

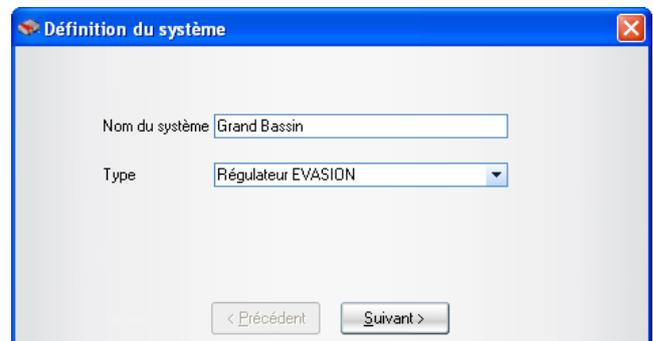


- Click on : New

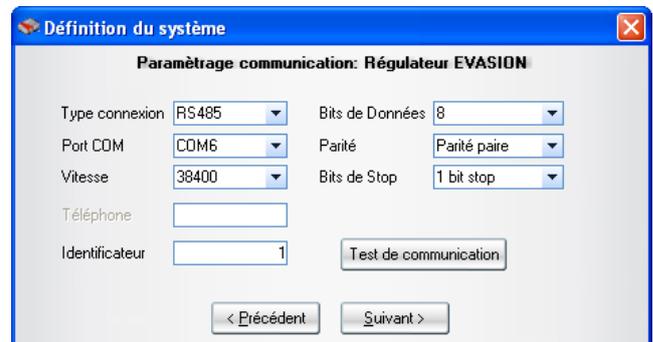


1) SYSCOM V3 communication and EVASION in RS485

- **Name of the system** : Name the controller in the software.
- **Type** : Select « EVASION controller».
- Click on : « Suivant »



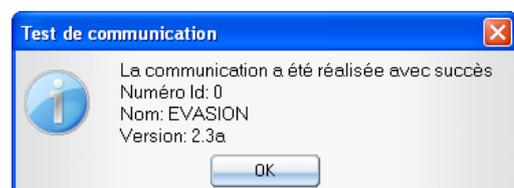
- **Connection type** : Select **RS485**
- **COM port** : Select the port where you have the RS485 converter.
- **Speed** : Select the same speed as the controller.
- **Identify** : Write the number the controller you want connect.
- **Bits** : Select 8
- **Parity** : The same as the controller
- **Stop bit** : 2 if no parity, 1 if odd or even.



If the controller is already connected, you are able to test the communication.

- Click on : « Communication test»

- Click on : « Suivant »



- ➔ **Interval** : Select the recording interval you want to realize. (minimum 1min).
- ➔ **Differential** : If you have selected this option, the records will not registered if equals.
- ➔ **Always** : If you have selected this option, all records will be registered.

➔ Click on : « Suivant »

➔ Click on : « End » to end the configuration of the system.

The screenshot shows the 'Définition du système' dialog box with the 'Enregistrer les informations' section. It features a text input field for 'Toutes les' set to '5 minutes'. Below it are two radio buttons: 'A chaque modification' (selected) and 'Systématiquement'. At the bottom are '< Précédent' and 'Suivant >' buttons.

The screenshot shows the 'Définition du système' dialog box with the instruction 'Cliquez sur "Terminer" pour valider l'enregistrement'. At the bottom are '< Précédent' and 'Terminer' buttons.

When programming is finished, you will see the new system in the software.

The screenshot shows the 'Liste des systèmes' dialog box with a table titled 'Liste des systèmes définis'. The table has columns for 'Désactivé', 'Nom', 'Type', and 'Adresse'. A 'Nouveau' button is visible on the right.

Désactivé	Nom	Type	Adresse
<input type="checkbox"/>	Grand Bassin	Régulateur EVASION	1
<input type="checkbox"/>			
<input type="checkbox"/>			

2) SYSCOM V3 Modem communication

➔ **Name of the system** : Name the controller in the software.

➔ **Type** : Select « EVASION controller ».

➔ Click on : « Suivant »

The screenshot shows the 'Définition du système' dialog box with the 'Nom du système' field set to 'Grand Bassin' and the 'Type' dropdown menu set to 'Régulateur EVASION'. At the bottom are '< Précédent' and 'Suivant >' buttons.

➔ **Connection type** : Select **MODEM**

➔ **Telephone** : Write the telephone number of the controller.

➔ **Identify** : Write the number the controller you want connect.

➔ **Erase memories**: If you select this option, all records will be deleted after reading. This option is used to have a short reading time.

The screenshot shows the 'Définition du système' dialog box with the 'Paramétrage communication: Régulateur EVASION' section. It includes fields for 'Type connexion' (MODEM), 'Port COM' (COM5), 'Vitesse' (38400), 'Téléphone' (0659337037), and 'Identificateur' (1). There are also dropdowns for 'Bits de Données' (8), 'Parité' (Parité paire), and 'Bits de Stop' (1 bit stop). A checkbox for 'Effacer l'historique après le téléchargement' is present, along with a 'Test de communication' button. At the bottom are '< Précédent' and 'Suivant >' buttons.

If the controller is already connected to the MODEM, you are able to test the communication.

→ Click on : « Communication test »

A window appears to show you the status of your test...



... and a window to confirm the good working.



→ **Interval** : Select the recording interval you want to realize. (minimum 1min).

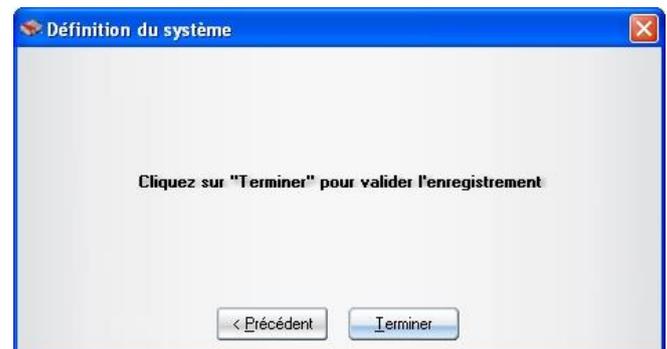
→ **Differential** : If you have selected this option, the records will not registered if equals.

→ **Always** : If you have selected this option, all records will be registered.

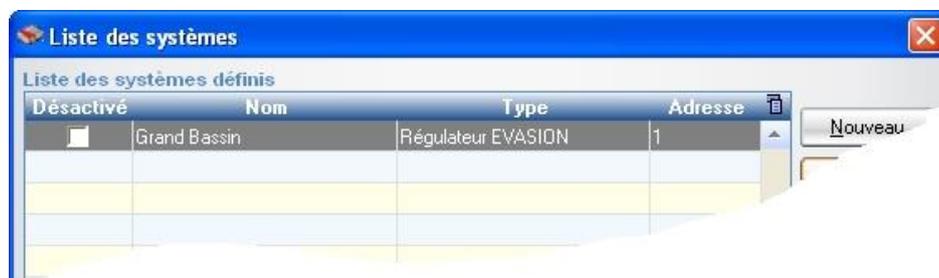


→ Click on : « Suivant »

→ Click on : « End » to end the programming in the system.



When programming is finished, you will see the new system in the software.



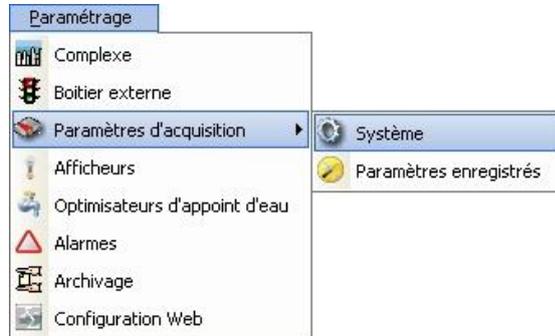
VI. Programming and maintenance with SYSCOM V3

By using SYSCOM V3, you are able to program, to read data, to control the working in real time and to read histories from the controllers.

These operations will be performed through the RS485 local communication or through the MODEM communication.

Start SYSCOM V3 software and go to the menu :

- ➔ Programming
- ➔ Acquisition system
- ➔ System



Select the system you want to read and :

- ➔ Click on :
 - « Programming »

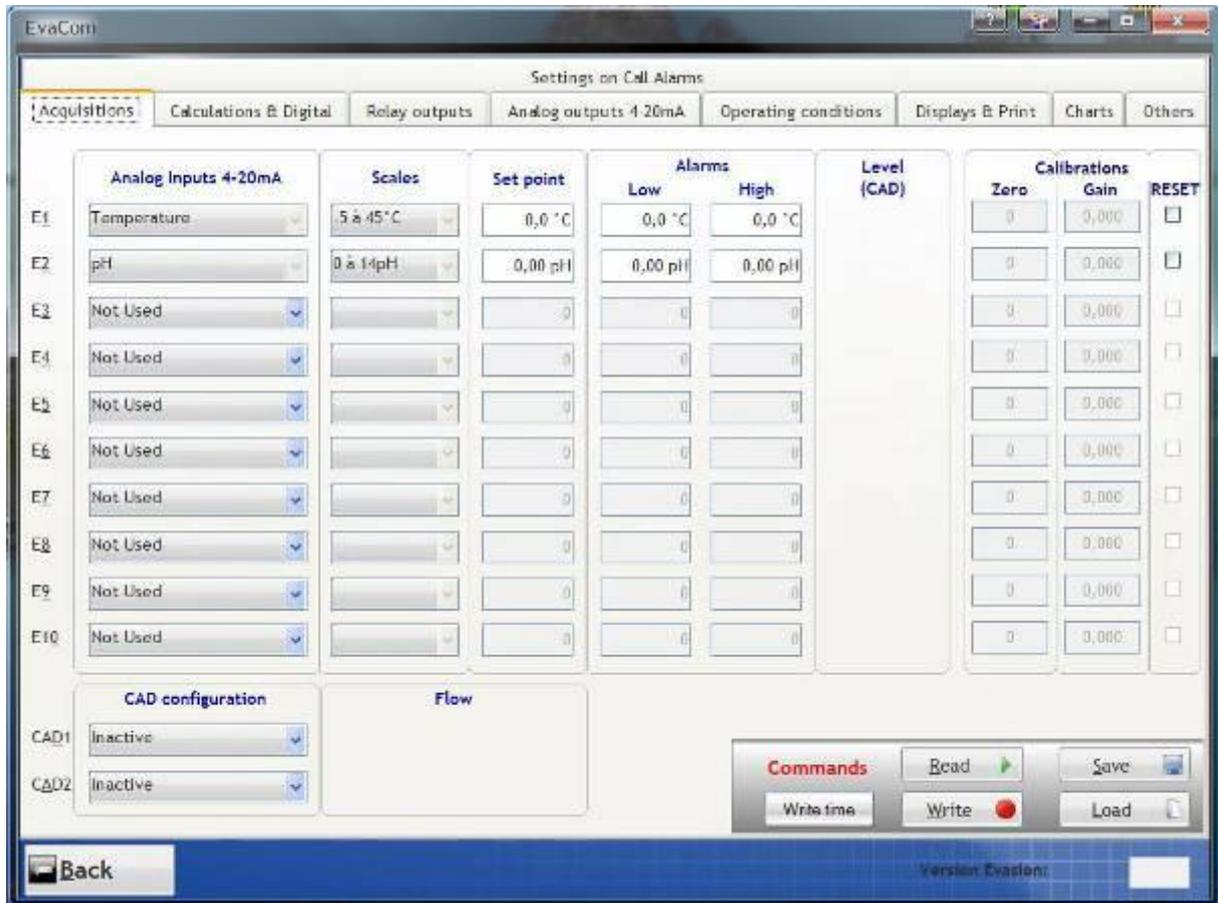


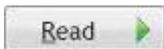
Window of the maintenance software SYSCOM V3



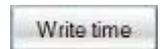
1) Programming the controllers

For complete understanding of the programming, refer you to the "programming instructions" notice. This window offers you the possibilities to modify all parameters.

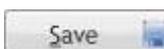


 To upload the configuration from the connected controller.

 To download the new configuration to the connected controller.

 To update the real time clock of the connected controller.

 To read a file of an old configuration already used and saved.

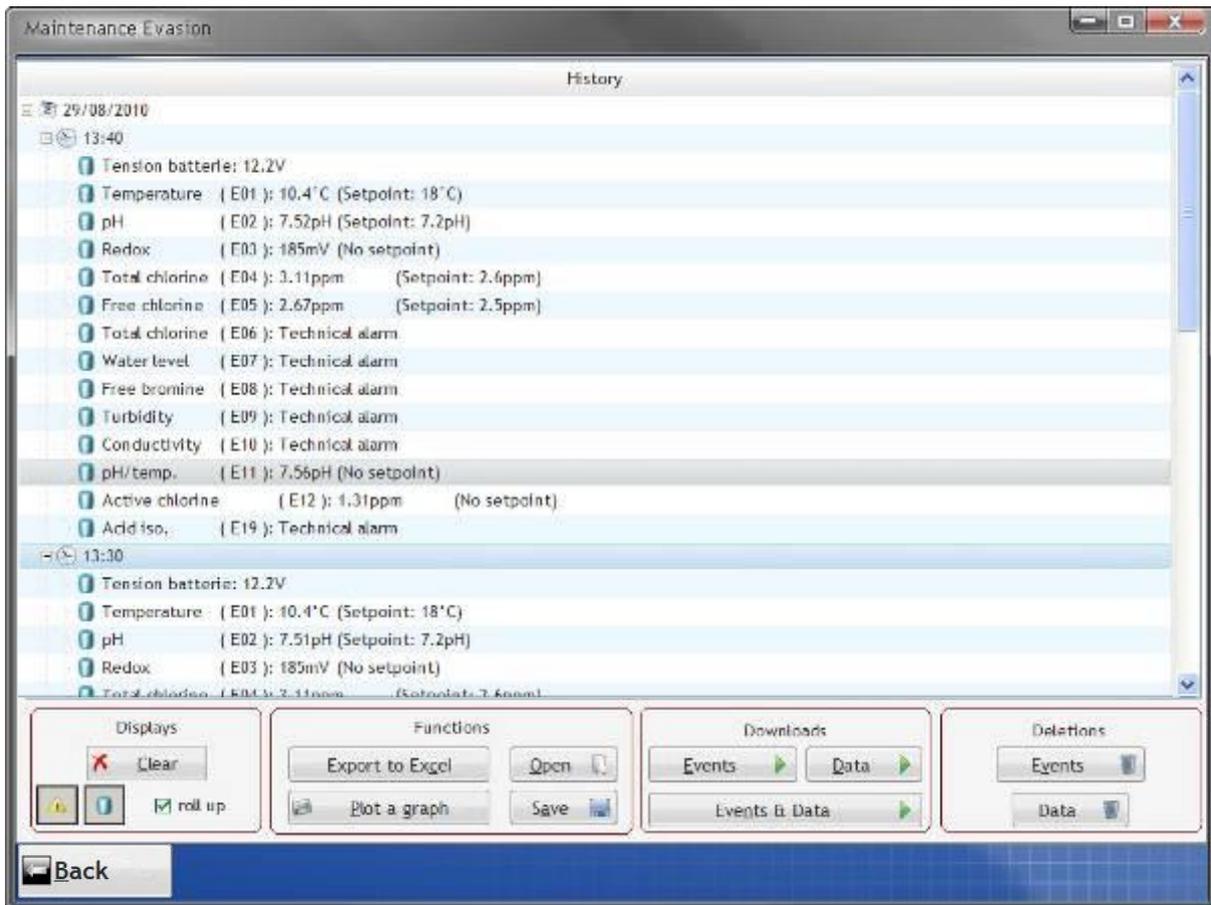
 To save in a file, the actual configuration to upload later.



The remote programming of the controllers does not allow you to perform a calibration. The calibration values are read and overwritten when you download the new configuration. To erase the calibration of a sensor, you need to select and to confirm the operation before downloading.

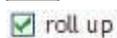
2) Histories of the controllers

It is possible to upload all internal memories of the connected controller.



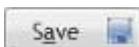
Show or delete the events in the window.

Show or delete the data in the window.



Roll or unroll the events and data in the window.

Commands

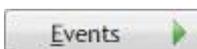


Save in a file all histories in the window.

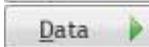


Load from a file all histories in the window.

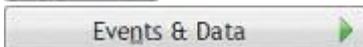
Recordings



Load the events from the memories of the connected controller.

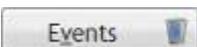


Load the data from the memories of the connected controller.

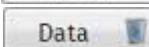


Load the events and the data from the connected controller.

Erasing



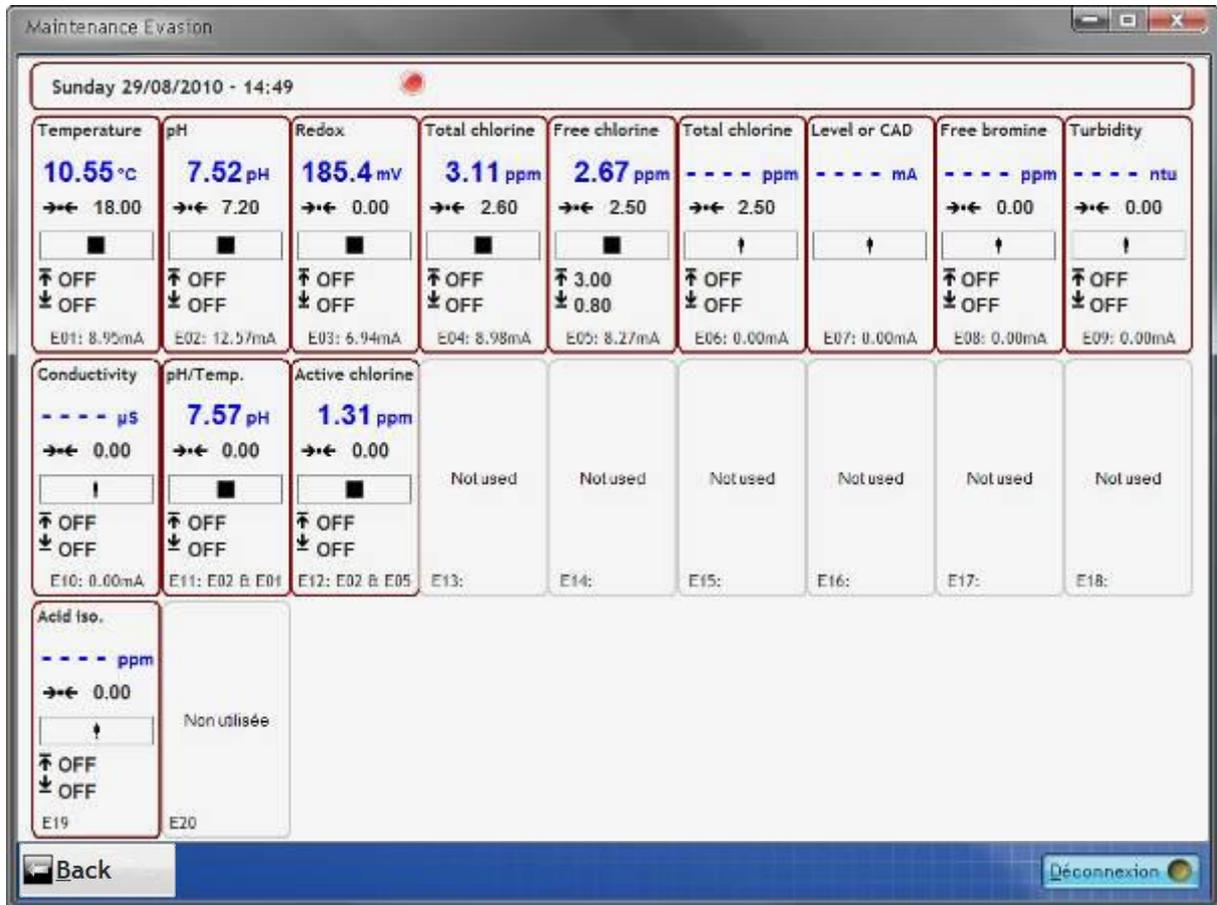
Erase the events of the memories into the controller.

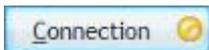


Erase the data of the memories into the controller.

3) Maintenance in real time of the controller.

It is possible to read in real time all values from the connected controller to ensure the good working of the complete unit.



 **Connection** This button allows you to connect the controller for reading and maintenance.

 **Disconnect** This button allows you to stop the maintenance and the reading.

 Use the notice to ensure the signification of all icons or puts the mouse on it to show the function.

 If you modify the configuration of the controller during maintenance, you are not able to see the modifications. You must disconnect and reconnect the controller to see the new changes.

VII. MODBUS communication registers

Name	Register	Format	Size	R/W	Description
Hour & Minute	40001	unsigned integer	1	R	Hour 8bits MSB – Minute 8bits LSB
Day	40002	unsigned integer	1	R	Day of the week
Date	40003	unsigned integer	1	R	Date
Month	40004	unsigned integer	1	R	Month
Year	40005	unsigned integer	1	R	Year (00 to 99)
Working flags	40006	unsigned integer	1	R	Bit 0 On/Off - Bit 1 Timer - Bit 2 CAD1 status - Bit 2 CAD2 status
Technical alarms	40007	unsigned long	2	R	Binary values of E1 à E22
High alarms	40009	unsigned long	2	R	Binary values of E1 à E22
Low alarms	40011	unsigned long	2	R	Binary values of E1 à E22
Analogue levels	40013	unsigned integer	1	R	Binary values of programmed level entries from E1 to E10
Conditions of analogical entries	40014	unsigned integer	1	R	Binary of working condition of E1 à E10 , E18 et E19
Conditions of computed entries	40015	unsigned integer	1	R	Binary of working condition of E11 à E18
Measurement value of E1	40016	inverted float	2	R	Temperature value
Measurement value of E2	40018	inverted float	2	R	pH value
Measurement value of E3	40020	inverted float	2	R	Xx value (according to programming)
Measurement value of E4	40022	inverted float	2	R	Xx value (according to programming)
Measurement value of E5	40024	inverted float	2	R	Xx value (according to programming)
Measurement value of E6	40026	inverted float	2	R	Xx value (according to programming)
Measurement value of E7	40028	inverted float	2	R	Xx value (according to programming)
Measurement value of E8	40030	inverted float	2	R	Xx value (according to programming)
Measurement value of E9	40032	inverted float	2	R	Xx value (according to programming)
Measurement value of E10	40034	inverted float	2	R	Xx value (according to programming)
Measurement value of flow rate CAD1	40036	inverted float	2	R	Value of flow rate if CAD1 configuration is flow
Measurement value of flow rate CAD2	40038	inverted float	2	R	Value of flow rate if CAD2 configuration is flow
Input current of E1	40040	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E2	40041	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E3	40042	unsigned integer	1	R	Current value *20 / 734 =value in mA

Input current of E4	40043	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E5	40044	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E6	40045	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E7	40046	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E8	40047	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E9	40048	unsigned integer	1	R	Current value *20 / 734 =value in mA
Input current of E10	40049	unsigned integer	1	R	Current value *20 / 734 =value in mA
Valeur courant brut batterie	40050	unsigned integer	1	R	Current value *20 / 734 =value in mA
Computed value of E11	40051	inverted float	2	R	Xx value (according to programming)
Computed value of E12	40053	inverted float	2	R	Xx value (according to programming)
Computed value of E13	40055	inverted float	2	R	Xx value (according to programming)
Computed value of E14	40057	inverted float	2	R	Xx value (according to programming)
Computed value of E15	40059	inverted float	2	R	Xx value (according to programming)
Computed value of E16	40061	inverted float	2	R	Xx value (according to programming)
Computed value of E17	40063	inverted float	2	R	Xx value (according to programming)
Computed value of E18	40065	inverted float	2	R	Xx value (according to programming)
Valeur voie E19	40067	inverted float	2	R	Xx value (according to programming)
Valeur voie E20	40069	inverted float	2	R	Xx value (according to programming)
Percentage of the treatment relay 1	40071	unsigned integer	1	R	Value of treatment in % * 100
...
Percentage of the treatment relay 22	40092	unsigned integer	1	R	Value of treatment in % * 100
Percentage of analog treatment 1	40093	unsigned integer	1	R	Value of treatment in % * 100
...
Percentage of analog treatment 22	40114	unsigned integer	1	R	Value of treatment in % * 100



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