

PCR Automation is a software **simple to use**.  
It works immediately **without the need for any programming**.

PCR Automation Application Version 2.10 allows not only to manage most of the Phidgets interfaces but also has a **powerful automation module** (Programmable Logic Controller)

You can create circuits by adding buttons, lights, timers, logic functions, displays, analog comparators and interfaces (Phidgets).

Multiple controllers and interfaces can be opened simultaneously, each in a separate window.  
Connections can be established by a simple drag and drop outputs to the inputs.

Each input / output can be customized (label, sensor, offset, units, sensitivity, recording ...)  
The log files can be automatically sent by E-mail

Ability to create and **add their own sensors** to the library of thirty Phidgets sensors

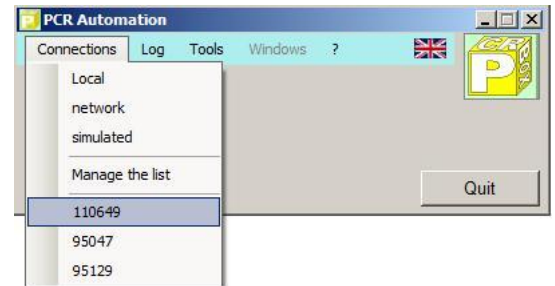
Runs on XP, Vista, 7 (32 and 64bit)

**A test interface Phidgets 1070 (serial number 110649) can be accessed 24/24 for testing full-scale ...**

Phidgets interfaces compatible with the **1010, 1011, 1012\*, 1014, 1017, 1018, 1019, 1070, 1072 and 1203\***.  
(\* 1012 : Only 0/8/8 - 1203 only 8/8/8, not the LCD)

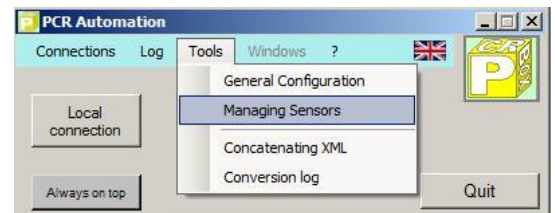
## Main Window

- Connect an interface on a USB interface
- Connect an interface via the Internet (or LAN)
- Simulate a connection to test functions
- Manage the list of interfaces to set address and password
- View log files recorded



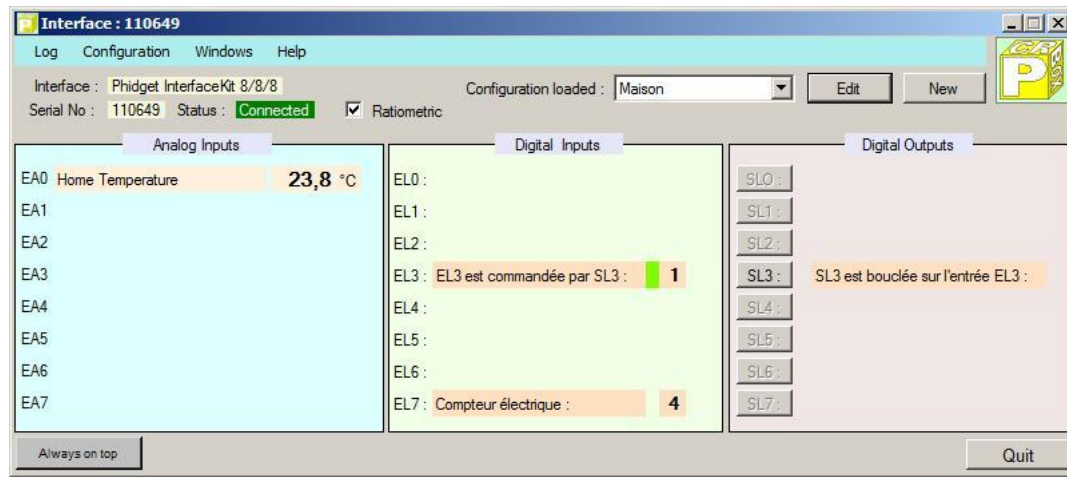
It also

- Configure the general parameters of the application
- Open the sensor management
- Concatenate XML files (log files or not)
- Convert log files as an hourly average (Chart)
- Switch to one of the windows open interfaces



## Interface Window

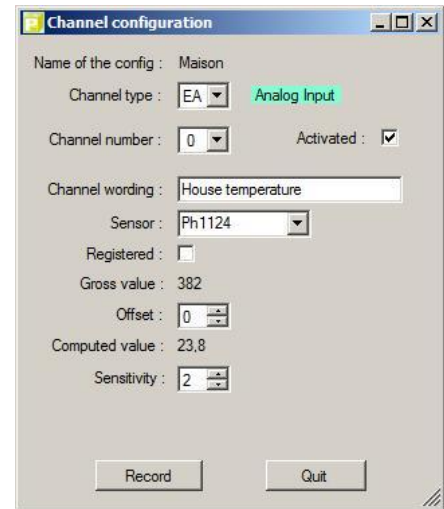
- Viewing 8 analog channels
- Viewing 8 digital inputs
- Viewing 8 outputs
- Operate a logic output
- Configure each input / output
- Manage configurations
- View log current
- Start recording log
- Switch to another window



## Channels Configuration Window

For each channel :

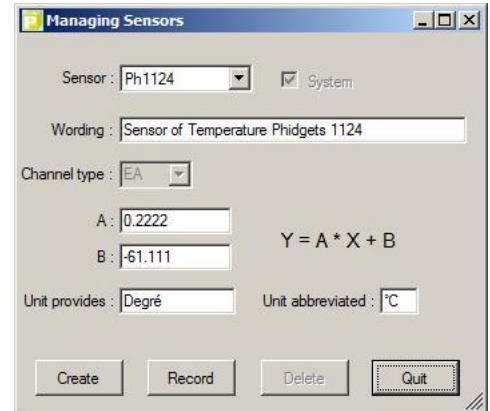
- On or off (display or not)
- Enter the text of your choice
- Indicate the sensor connected to this channel
- Record in the log file
- Indication of the gross value delivered by the sensor
- Shift + or - to catch the errors of the sensor (offset)
- Level of sensitivity of the sensor, sending threshold value



## Managing Sensors Window

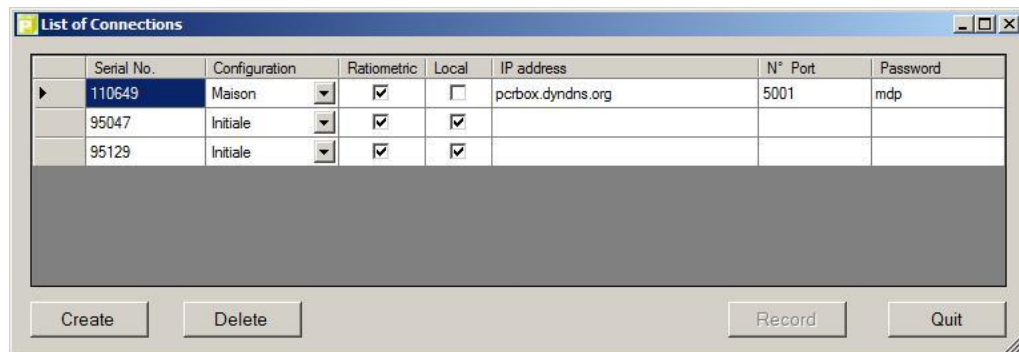
For each sensor :

- Sensor System or not (automatic)
- Enter the text of your choice
- A value of the conversion formula (  $Y = A * X + B$  )
- B value of the conversion formula (  $Y = A * X + B$  )
- Wording of the unit to the sensor
- Abbreviated wording of the unit



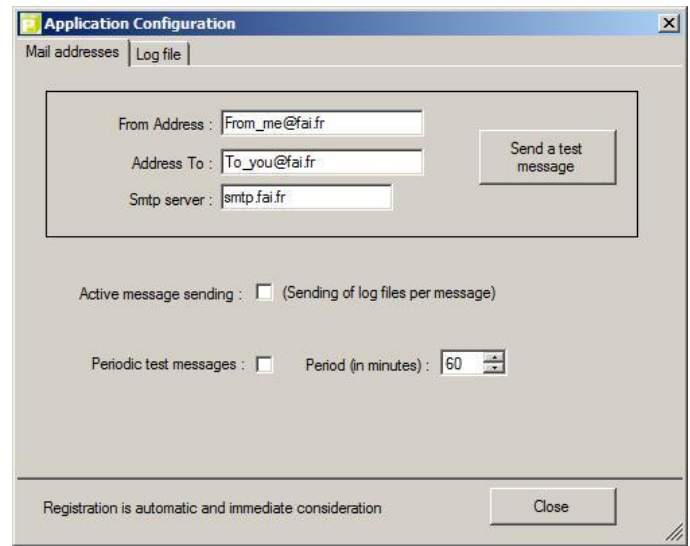
## List of connections

- Automatic entry to the first connection
- Assigning a configuration
- Ratiometric sensors or not
- Local connection or network
- Internet address of the interface
- Port number of the interface
- Password Interface



## Application Configuration

- E-mail address of the sender of the message
- E-mail address of the message
- Coordinate entry of SMTP server
- Ability to send an immediate e-mail test
- Enable sending log files by e-mail
- Enable sending a test message periodically
- Number of minutes between periodic tests
- Maximum size of the log file before creating another

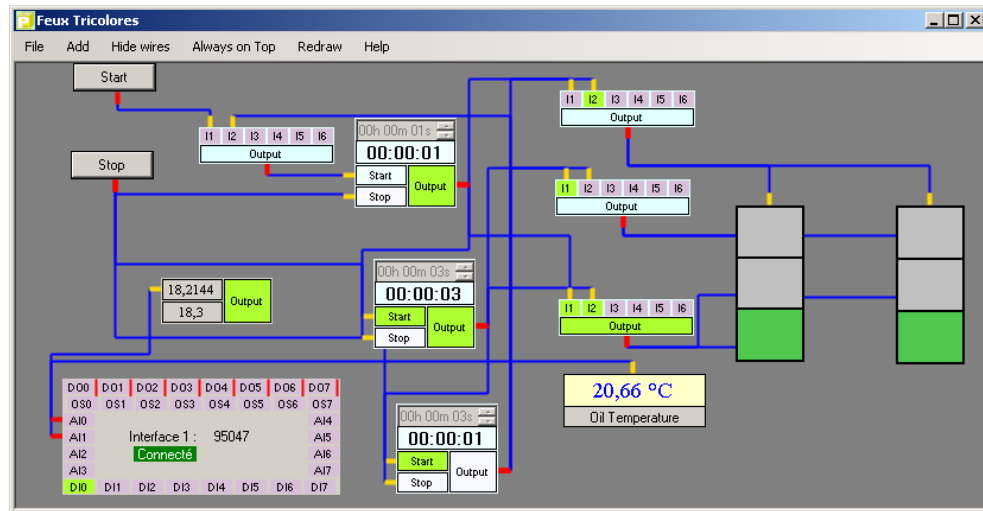


## Programmable Logic Controller

Real small PLC (Automate).

You add the elements that you want and you connect them. You connect and move each item using the mouse.

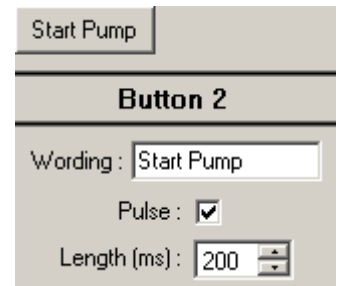
Multiple controllers can operate simultaneously each in a different window.



## Button

The button has two modes of operation. Be bistable as a switch, either as a push button which the closing time is equal to the duration of the pulse. The duration is expressed in milliseconds (1000 ms = 1 second)

A wording field allows you to customize the text on the button. The button itself is an output area on which you can click and hold down the Ctrl key to drag on an input (logic).

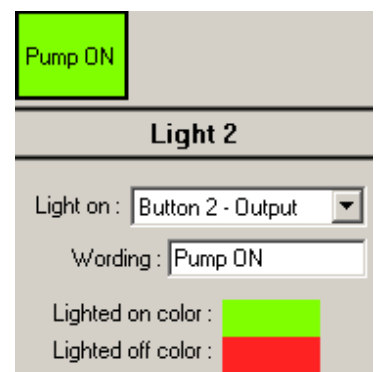


## Light

The input of the LED should be connected to a logic output, such as a button, a logic function or a timer. This connection can be made either by selecting an output from the dropdown or by sliding and dropping an output on the LED area.

A wording field allows you to customize the text on the LED.

The colors of the ON and OFF states can be selected by clicking on the color boxes provided for this purpose.



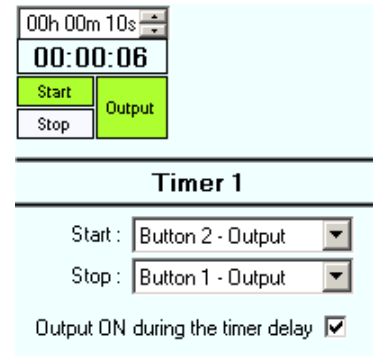
## Timer

The inputs of the Timer must be connected to the logic outputs. These connections can be made either by selecting an output in drop-down lists, either by dragging and dropping an output on the inputs Start or Stop .

There are two operating modes depending on whether the box "Output ON during the delay" is checked or not.

- Checked: the output is activated from the activation of the input "Start" until the end of the timer.
- Unchecked: the output is activated at the end of the timer and remains active until a next startup or a solicitation of the "Stop" input.

In both cases, pressing "Stop" stops the timer and disable the output. On the Output area, it is possible to click and holding down the Ctrl key to drag it on an input (logic).



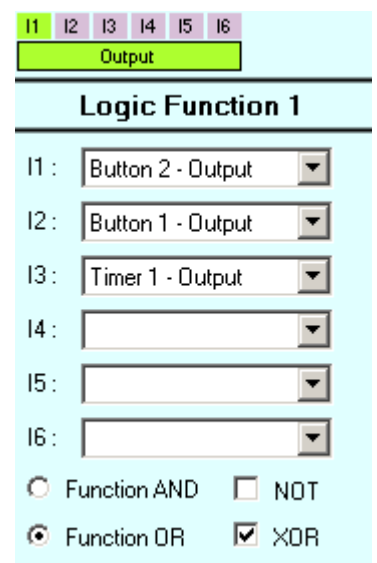
## Logic Function

The Logic Function inputs must be connected to the logic outputs. These connections can be made either by selecting an output in the drop-down lists, either by dragging and dropping an output on one of the Logic Function inputs.

Unused inputs are ignored and are not taken into account in determining the output.

The function can be either an AND or an OR according to the selection made.

It is possible to invert the output by checking the NO box. When the OR function is selected, a box appears order to obtain a function XOR.



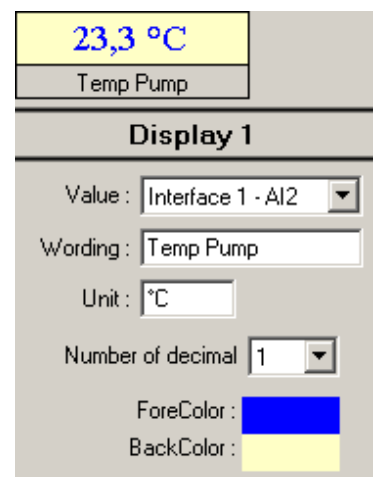
## Display

The input of the Display must be connected to an analog output, such as an interface for example. This connection can be made either by selecting an output value from the dropdown list or by a dragging and dropping an output (analog) on the display area.

A static to customize the text entered in the display. If the field is left blank, only the display area appear.

In a field, you can enter a text that will be added after the value (like a unit). It is possible to specify the number of decimal places you want. If it is let blank, the number of decimal are automatic.

The colors of foreground and background display can be selected by clicking on the color boxes provided for this purpose.



## Analog Comparator

The Analog Comparator inputs should be connected to some analog outputs. These connections can be made either by selecting an output in drop-down lists, either by a dragging and dropping an output (analog) on one of the inputs.

The analog comparator has two modes of operation depending if the value2 is let empty or no.

- Value2 present : the comparison is made between the two values. If value1 falls below the value2 then the output is activated. When the value1 is back above the value2 + hysteresis, the output turns off.
- Value2 let empty : the comparison is between the value1 and the threshold constant. The operation of the output is identical to the first case.

23,325	Output
23,405	

**Analog Comparator 1**

Value1 : Interface 1 - AI2

Value2 :

Constant Threshold : 23,405

hysteresis : 0,15

Output Reversed :

It is possible to invert the output by checking the box provided for this purpose.

## Interface

The interface has up to 8 Analog Inputs (AI), 8 Digital Inputs (DI) and 8 Digital Outputs (DO). If during the connection of the physical interface, there is fewer inputs or outputs, the interface adapts herself. The inputs and outputs absent are grayed out.

The Digital Outputs (DO) are coupled with the Output states (OS) that take the value of these digital outputs when they are physically activated. If an Digital output (DO) is activated, the physical interface activate the Digital Outputs and then inform the interface the new state of the Outputs States (OS).

The Terminology of Inputs Outputs "from the physical interface" has been retained. This is why a digital input of the physical interface is for the Automate an output.

The Digital Inputs (DO0 to DO7) must be connected to some logic outputs. These connections can be made either by selecting an output in drop-down lists, either by dragging and dropping an output on one of the Digital Inputs (DO).

D00	D01	D02	D03	D04	D05	D06	D07
O00	O01	O02	O03	O04	O05	O06	O07
AI0							AI4
AI1	Interface 1 : 95047						AI5
AI2	Connected						AI6
AI3							AI7
DI0	DI1	DI2	DI3	DI4	DI5	DI6	DI7

**Interface 1**

Sérial number : 95047

D00 : Button 2 - Output

D01 : Button 1 - Output

D02 : Logic Function 1 - Output

D03 : Timer 1 - Output

D04 :

D05 :

D06 :

D07 :

Attention, although it is possible to use several times the same physical interface in one or more Automates, conflicts that could arise from such a practice is not managed, especially when an input is used by different Automates. For cons, the outputs could be used several times without a problem.

## Menu

### File

- **Duplicate**

Copy the Automate actually open in a new record with a name chosen by the user. Be care at the end of the duplication, this is always the old automaton that is active. To work with the new Automate, it must be open it normally from the main window.

- **Delete**

The Automate currently open is deleted. This action is final with no possibility of turning back. A confirmation is required when deleting. One trick is to save an important Automate using the "Export".

- **Export**

The Automate is being saved in a new file whose name and location are chosen by the user. Note that the name of the Automate is kept and that it is him that will appear during a eventual import.

- **Quit**

The Automate window is closed. All Interfaces windows that have been opened by this Automate will also be closed except those which are still in use by another Automate remained open.

## Add

- **For all objects**

When added, the object appears in position 10.10 (top left of the window Automate).

To **move an object**, hold down the Shift key and keep clicking on the object while moving it. Approaching to the left and top of the Automate, there is an effect of magnetization. To remove this magnetization, hold also the Alt key (the left Alt key, not the Alt-Gr key).

To **modify** it, open the object by double-clicking or bring up the context menu with the right click and choose "Edit". The double click does not work with the button object. To establish a connection (a wire) from an output, hold the control key (Ctrl) key and click on the output by moving the mouse to an entry, then release the mouse.

To **delete a connection** (a wire) of an input or of an output, hold down the Control and Shift keys and click on the entry or the output (for the output, all links connected to it will be deleted).

With right click on the object, in the context menu, you can also duplicate or delete the object. During duplication, all that can be copied is copied including links except outputs (because an input can have only one connection).

At the time of creation, each object is automatically numbered by a number the smallest possible according to the space available. This number appears after the name of the object between the two horizontal lines visible when the object is in modification.

- **Hide Wires**

This command allows you to hide all the wires to be able to work more easily when you modify the Automate. The functioning of the Automate is in no way changed when the wires are apparent or not. A new request for this command redisplay the wires.

- **Always on Top**

When this command is activated, the Automate window remains in the foreground even if one tries to drag another window over unless of course than this window also has its command "Always Visible" activated.

- **Redraw**

When you try to move objects outside the Automate's window, it shows the scroll bars. If you move the scroll bars, the wires no longer coincide with the objects. The only way to find again the wires which coincide with the objects is click on this command. This treatment can be quite long.

- **Help**

Opening the help file.