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Starting with the WebServer	

## **EXEMPLE : Starting with the WebServer**

**Duration : 1H.**

### **Target :**

Build a monitoring project using a WebServer and an adjacent Millenium II.

Understanding the programming steps

Build a simple monitoring diagram.

### **Material needs for the exemple :**

#### **With the help of the document "implementing communication" :**

Connect the MII WEB Server as an adjacent extension of a Millenium II XT20.

On the MII XT20 24 VDC we have :

- ✓ A temperature sensor wich a 0-10V output connected to the on the I9 input
- ✓ A lamp connected to the output O7
- ✓ A ventilator on the output O8

Connect the alimentations

Connect the MII Web Server.

Install the eTiceSoft Software, release 1.24

## **I – The Millenium II program :**

MII Web Server exchange data with a millenium II using reserved MODBUS Exchange words or the reserved words of the XC10 WebServer module.

These words are :

For writing :

8 bits : I1XC to I8XC

3 words : I9Xc to I11XC

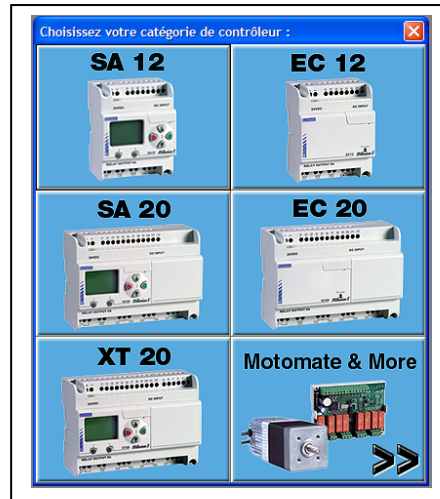
For reading :

8 Bits : O1XC to O8XC

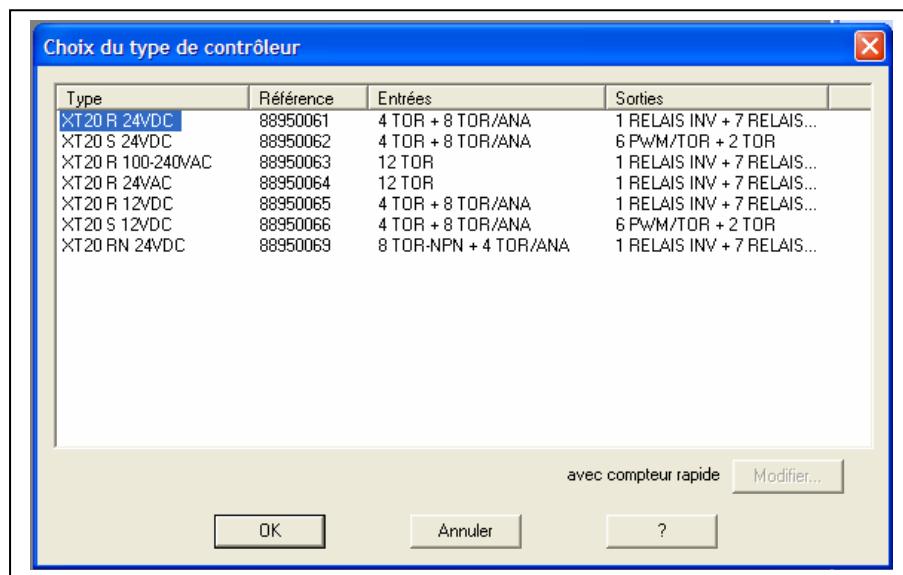
3 words : O9XC to O10XC

## 1 – Creating the project :

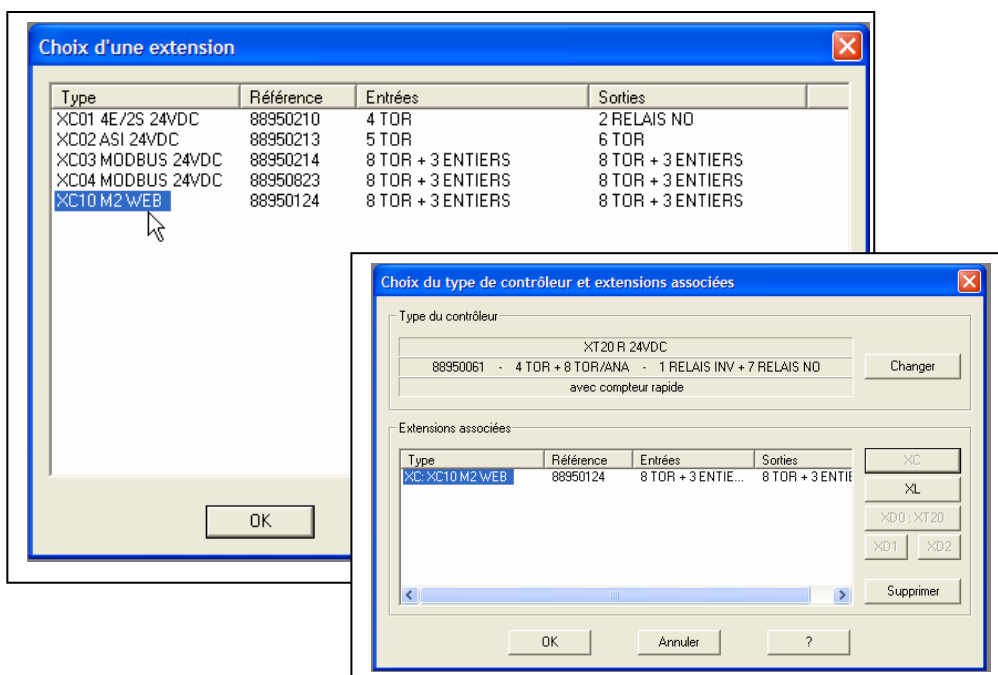
Launch the M2 software,  
Click on NEW  
Select M2 XT20



Then select the 24 V XT20 model :

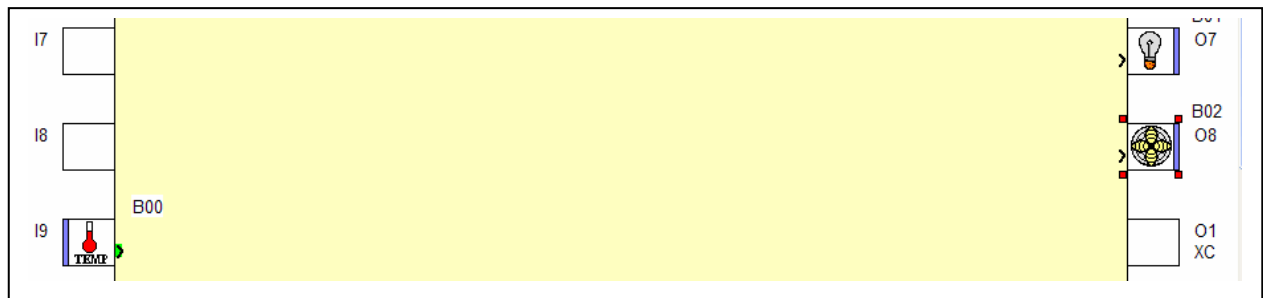


Then select the adjacent extension XC : XC 10 M2Web



## 2 – Project's FBD :

Put the inputs and outputs terminals



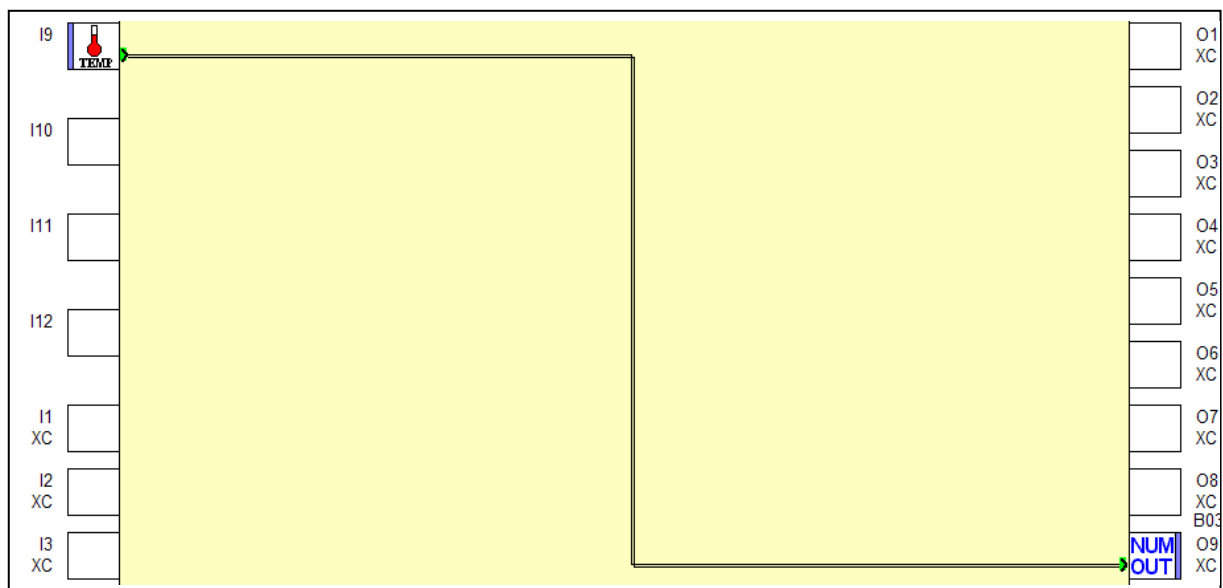
**From the WebServer, we wants to :**

- Monitor the temperature,
- Be able to activate the lamp with a graphic button,
- Be able to activate the ventilator with a graphic button.

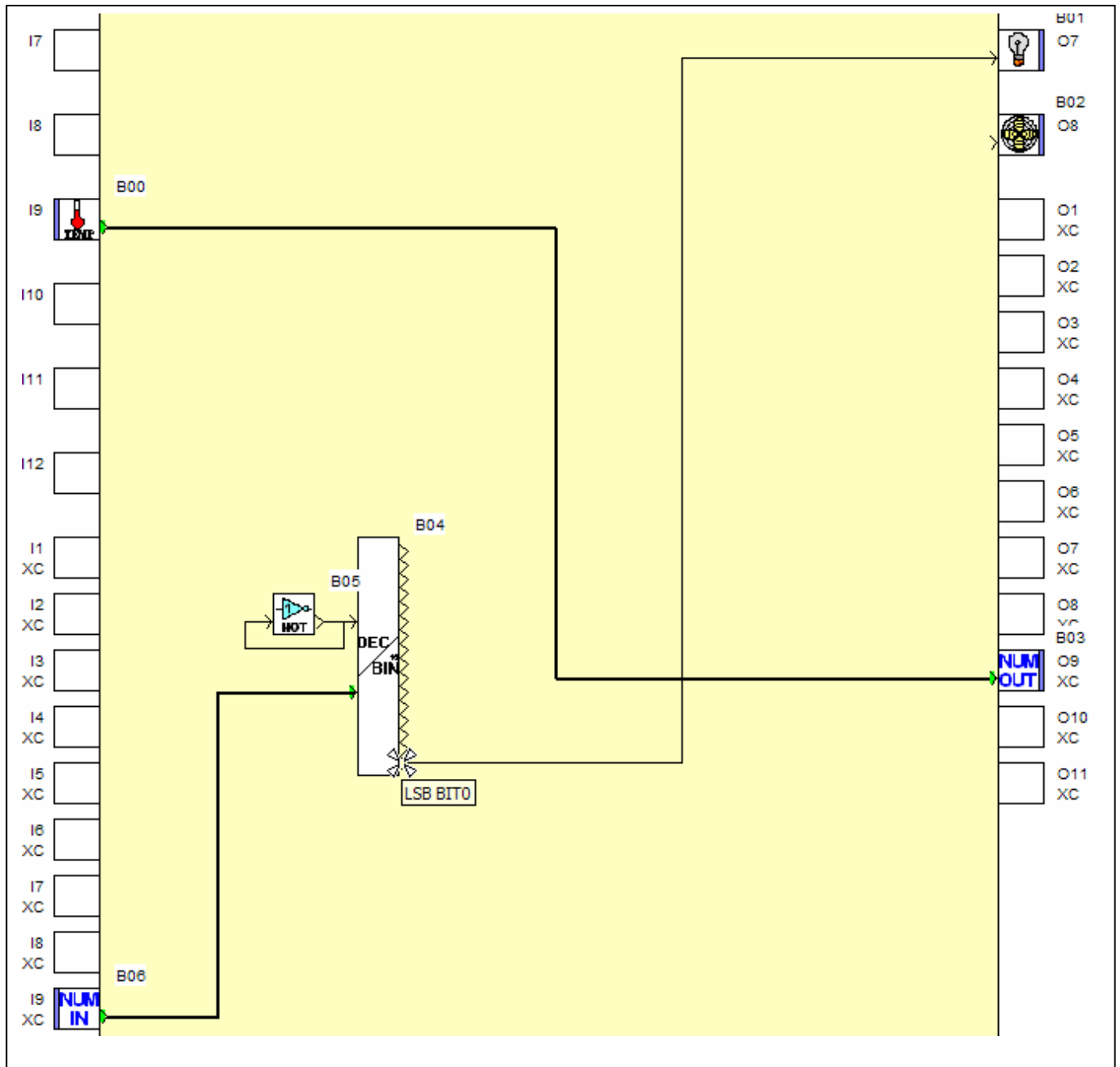
**To monitor the temperature,** we need to read the current numeric value witch represents the 0-10V input state corresponding to the temperature sensor measurement. This value is stored in an integer (possibles values of an integer: -32768 to +32767). But the ADC converter only uses 8 bits, so only the values from 0 to 255 are possible.

This numeric value is sending to a read exchange word, here the O9XC word.

Here's the corresponding FBD :

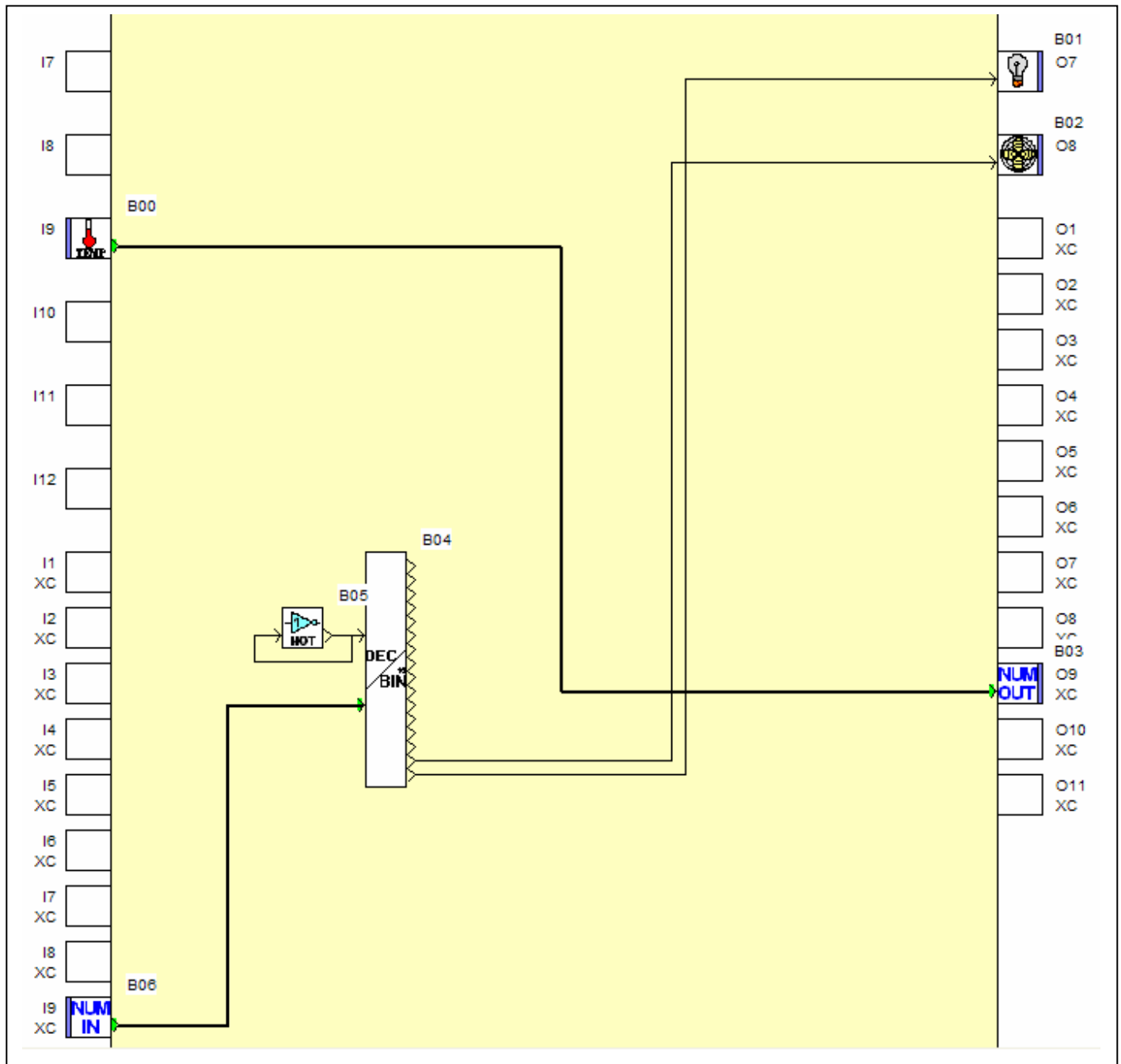


**To activate the lamp**, the webserver should set one of the bits of the exchange word in writing I9XC at state 1, for exemple bit 0.  
To extract the value of this bit from the word I9XC, we need to use a Decimal to Binary converter FBD :



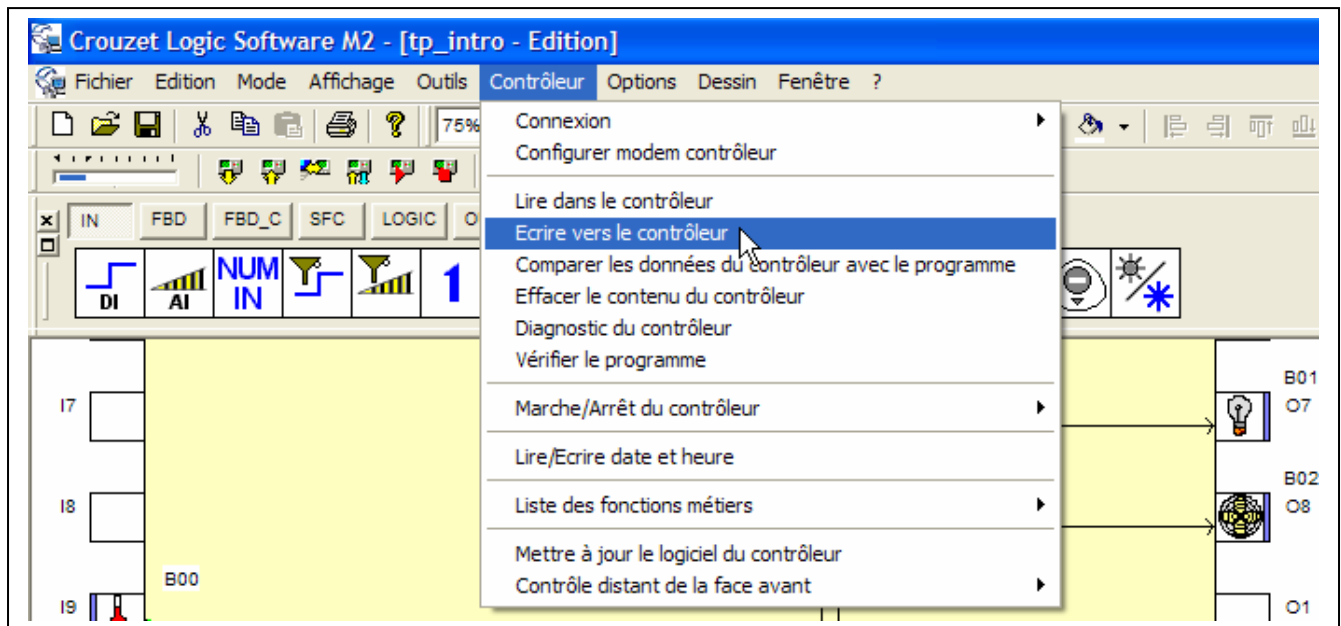
The NOT binary function feedback itself is necessary to refresh the decimal/binary conversion with cycle time of the Millenium II.

**Here's the complete FBD for this example :**



Note : To activate the ventilator or the lamp, we should also use directly the exchanges writing bits I1XC to I8XC without using the FBD function of decimal to binary converter.

Compile and write the project in the millenium II connected to the WebServer.



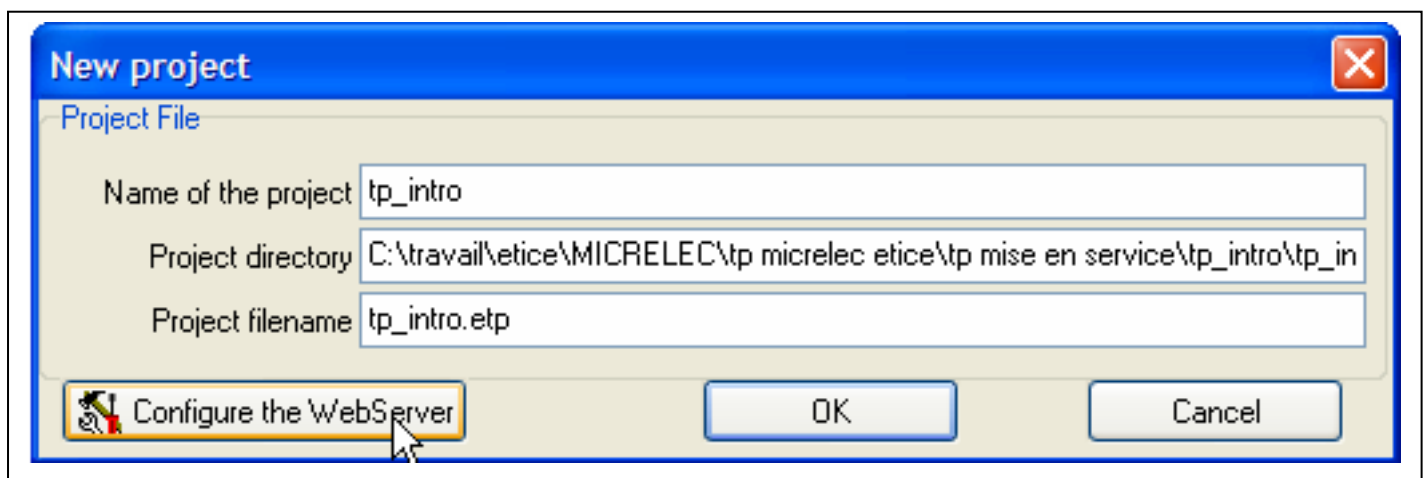
Then initialize and run this application.

## II – Configure the WebServer

### 1 – A neww Project

Lunch the eTiceSoft software, the click on New Project.

Give a name to your project and then click on the button Configure the WebServer.



Add the adjacent Millenium (extension) to the list of connected Milleniums to the WebServer.

**Advanced configuration of the Web server**

**MODBUS RTU Parameters**  
MODBUS Baudrate: 19200 Bauds Parity: None Type of Milleniums MODBUS Extension: XC03 Parameters

**Declaration of Milleniums connected to WebServer**  
☒ Connected as contiguous extension  
☐ Connected on MODBUS (RS485)  
☐ Reset words IXC for each new transfer of projects or WebServer reboot  
Add to list

Id	Connected to	MODBUS Address
1	EXTENSION	

**MODEM Parameters (For SMS and PPP connections)**  
Select the MODEM : None

**Information and Malfunctions (Faulty Millenium connection, Unable to archive, or other system information)**  
If MODEM, International Phone number of the person to be notified : +330000 Send a SMS for internal alarm ☐  
If service activated, eMail Address of the person to be notified : MrX@fai.fr Use the history file (LOGFILE.TXT) ☐

**Network Services**  
Company's e-Mail address: Societe@fai.fr  
☒ eMail service active (SMTP client)  
☒ DNS Client  
☐ DynDNS Client (Dynamic DNS)

**Parameters of the eMail Server (SMTP Server)**  
Domain name of the SMTP Server : monfai@smtp.fr  
IP Address of the SMTP Server: 0 . 0 . 0 . 0

**DNS Server parameters**  
Primary DNS IP Address: 0 . 0 . 0 . 0  
Secondary DNS IP Address: 0 . 0 . 0 . 0

Cancel Create the file and put it in the upload list

(The network parameters are not usefull for this exemple)

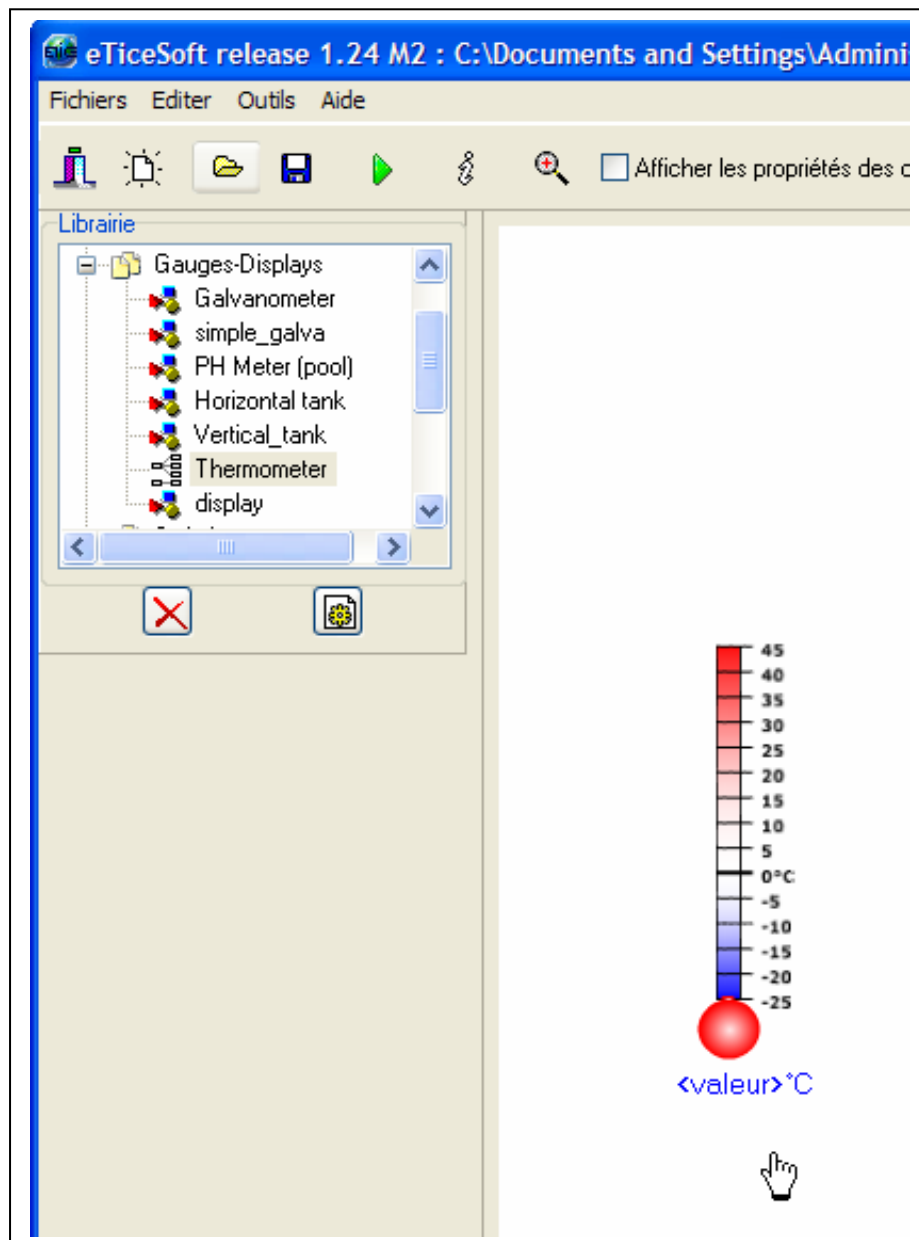
Then click on « Create the file and put it in upload list ».

Then click on OK.

Design the Monitoring pages.

### To monitor the temperature :

Place a component Thermometer (double click on the component thermometer in the library Gauges\_Displays) :



Place the mouse cursor on the thermometer, left click, the thermometer is then selected.



We need to setup the graphic object thermometer with a value from the Millenium II corresponding to the temperature conversion.

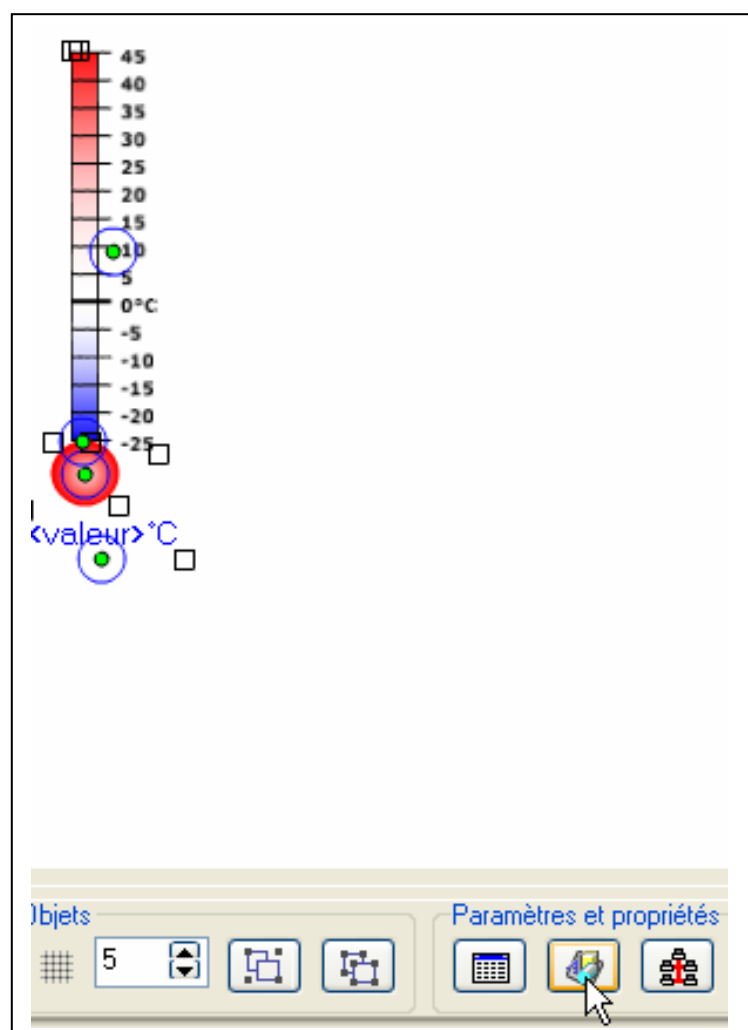
*For information:*

The temperature transmitter sends:

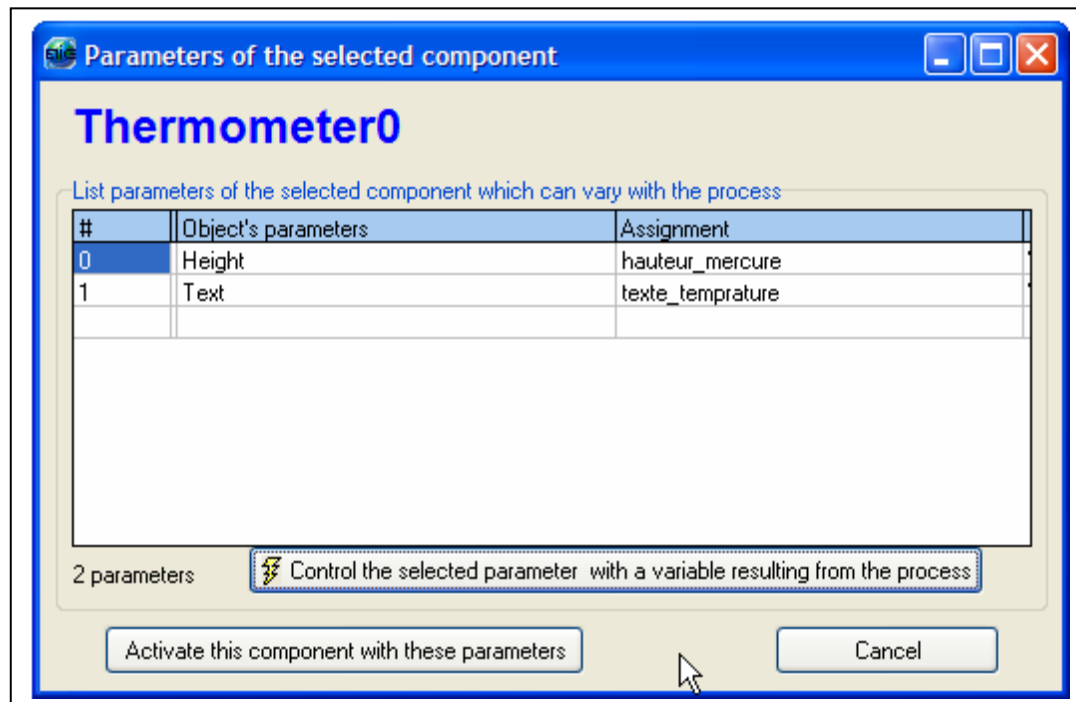
10V for 40°C (Numeric value I9XC : 255)

0V for -10°C (Numeric value on I9XC : 0).

**To setup the thermometer object,** click on the object's configuration button:



The following windows then appear:



It indicates that the selected object (thermometer) has 2 visual parameters able to change :

- a text
- an object who has its parameter height designed to change (the mercury level of the thermometer)

### The height parameter :

The range of the graphical object parameter indicates -25°C to +45°C, but the sensor gives us 0 for -10°C and 255 for 40°C. So we need to calculate the value that this sensor should deliver for -25°C (Scaling)

#### Scale calculation :

We want :

Numeric value for -25°C =  $(-25+10)*(255/50) = -76$

Numeric value for 45°C =  $(45+10)*(255/50) = 280$

The visual mercury level will change like it :

For -25°C, theoric numeric value read from Millenium II is -76 for the minimum level.

For 45°C, theoric numeric value read from MilleniumII is 280 for the maximum level.

So we can fill in the parametric table of the mercury displayed level :  
(click on « Control the selected parameter with a variable resulting from the process »...)

**Selection of Process Variable**

Source of the variable

- ☒ The variable results from Millenium
- ☐ The variable comes from another MODBUS slave
- ☐ This variable must be a property of component

Millenium

Communication BUS : EXTENSION

Data type : ☒ Word (-32768...32767)  
☐ Bit

Millenium reference : 0 9 XC

Behavioral parameters of the variable

Limit and display value

-76 < Data value < 280

Operation : Read

Mnemonic for the variable : hauteur\_merc

Apply Close

Then press the « apply » button.

For the text zone of the visual thermometer :

**Selection of Process Variable**

Source of the variable

- ☒ The variable results from Millenium
- ☐ The variable comes from another MODBUS slave
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Millenium

Communication BUS : EXTENSION

Data type : ☒ Word (-32768...32767)  
☐ Bit

Millenium reference : 0 9 XC

Behavioral parameters of the variable

Limit and display value

-76 < Data value < 280  
-25 < Display value < 45

Operation : Read

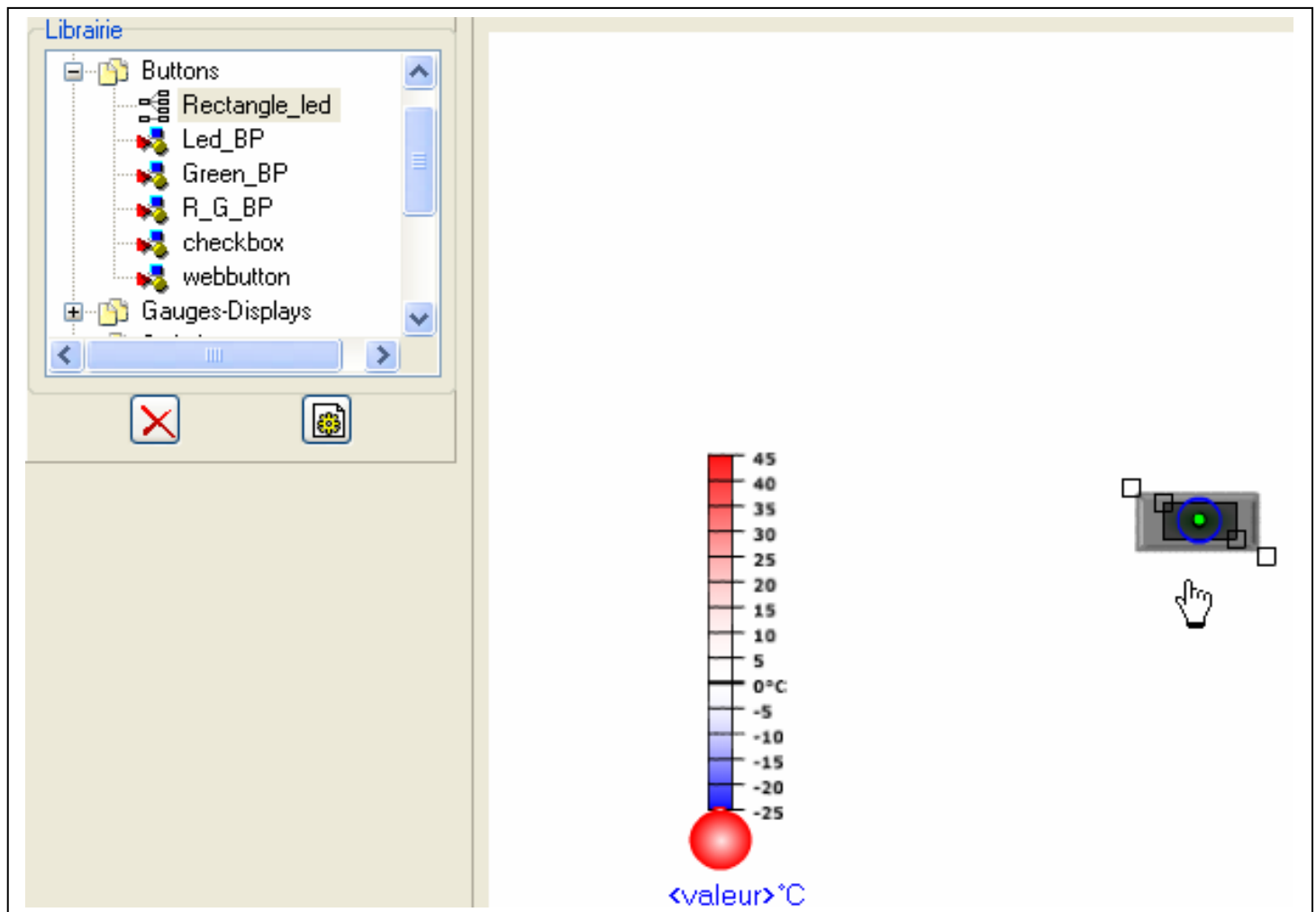
Mnemonic for the variable : texte\_temprat

Apply Close

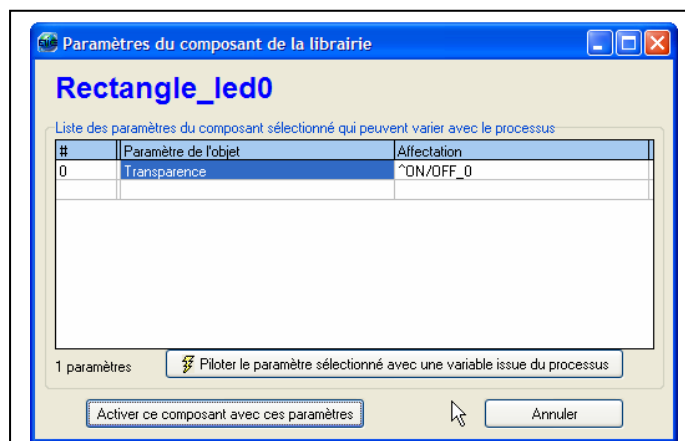
Then apply,  
After this, click on « activate the component with these parameters » to terminate the configuration of this object.

### To activate the lamp :

Place a button object :

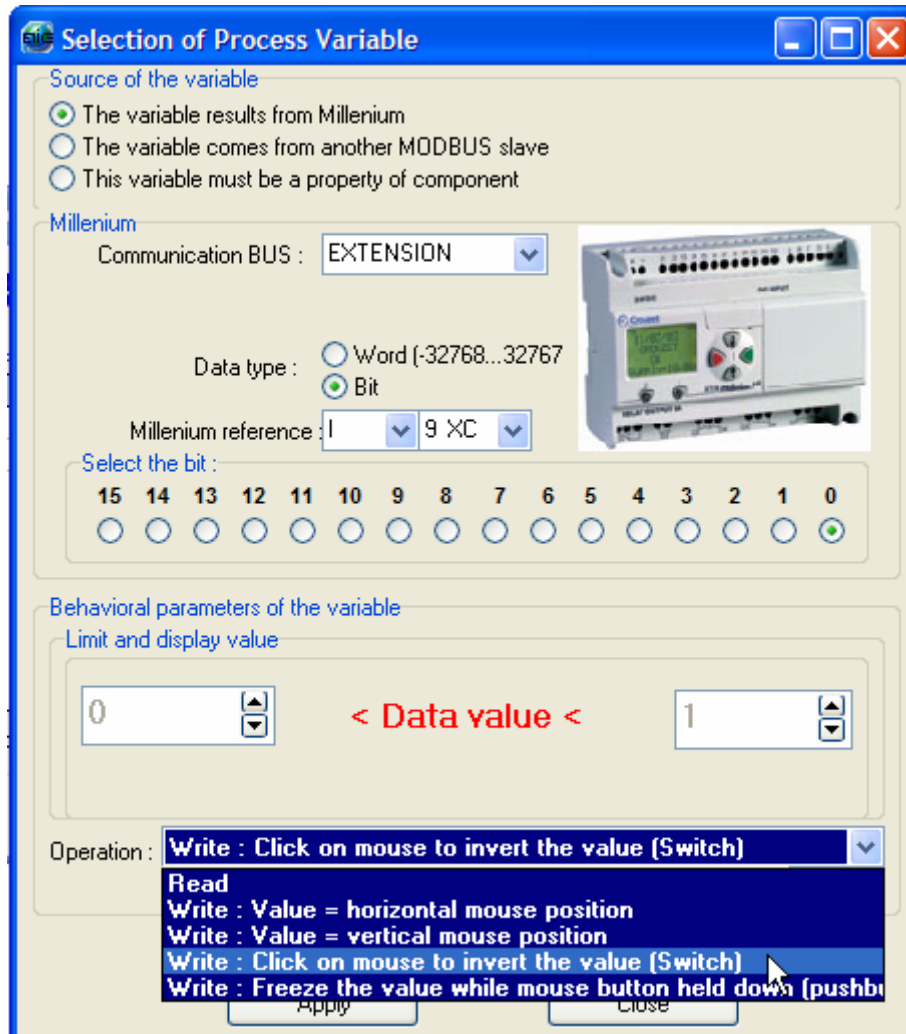


Select this « **button** », then open the parameters table :

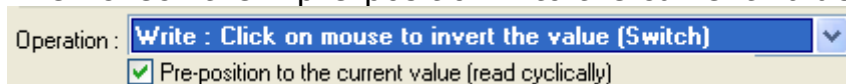


We want to build a bistable (2 stable positions) and then invert the state of the lamp each time we press on this visual button. To do this, we select the operation "click on mouse to invert the value (switch)"

We need to apply it to the bit 0 of the I9XC word of the adjacent Millenium :



Then check the « pre-position » to the current value (read cyclically)

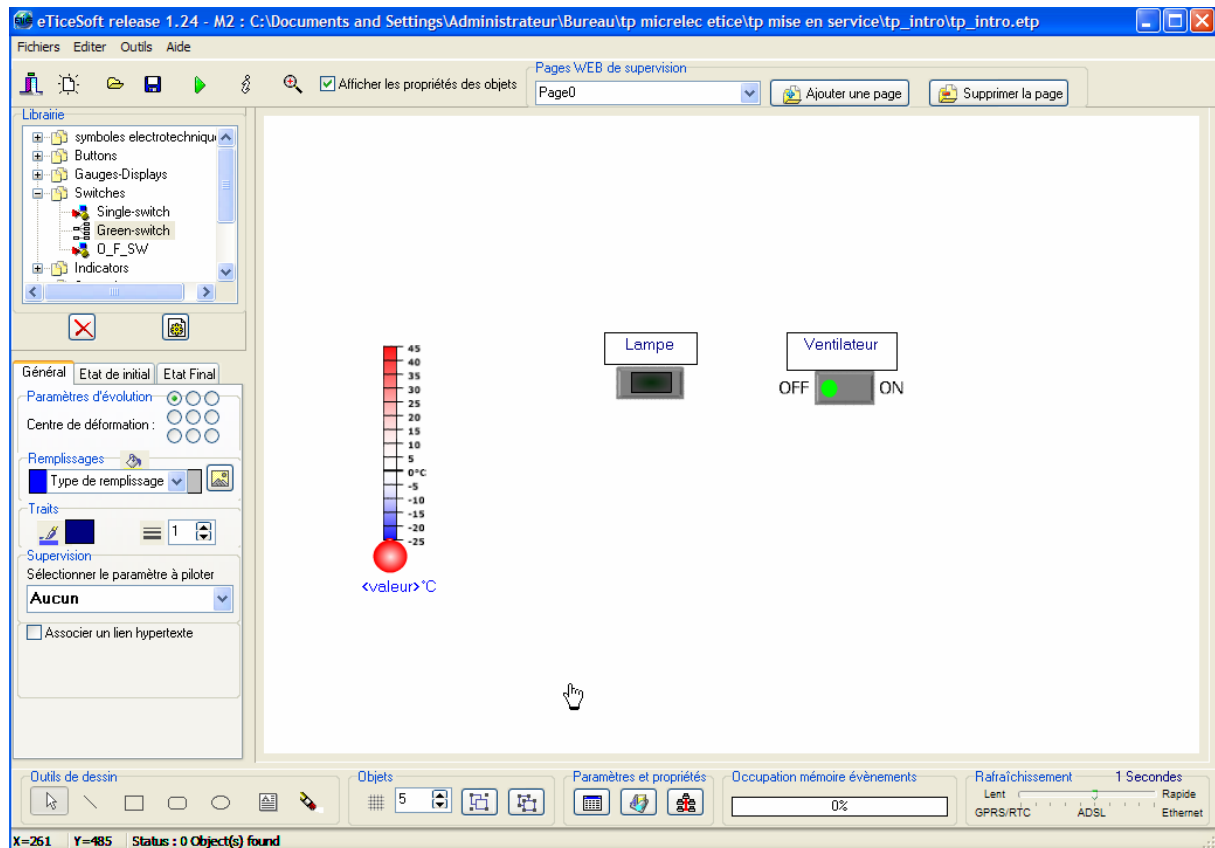


This allow the button to show the real status of the button at the first connexion.

Then apply and activate this component

**Follow the same procedure for the button wich activate the ventilator (bit 1 of the I9XC exchange word).**

Here's an example of a Monitoring synoptic corresponding to this application :

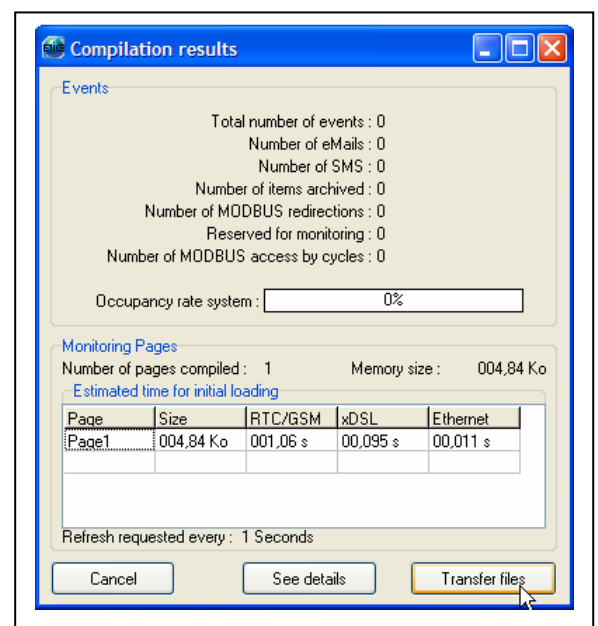


Compile the project using the green triangle of the menu bar :



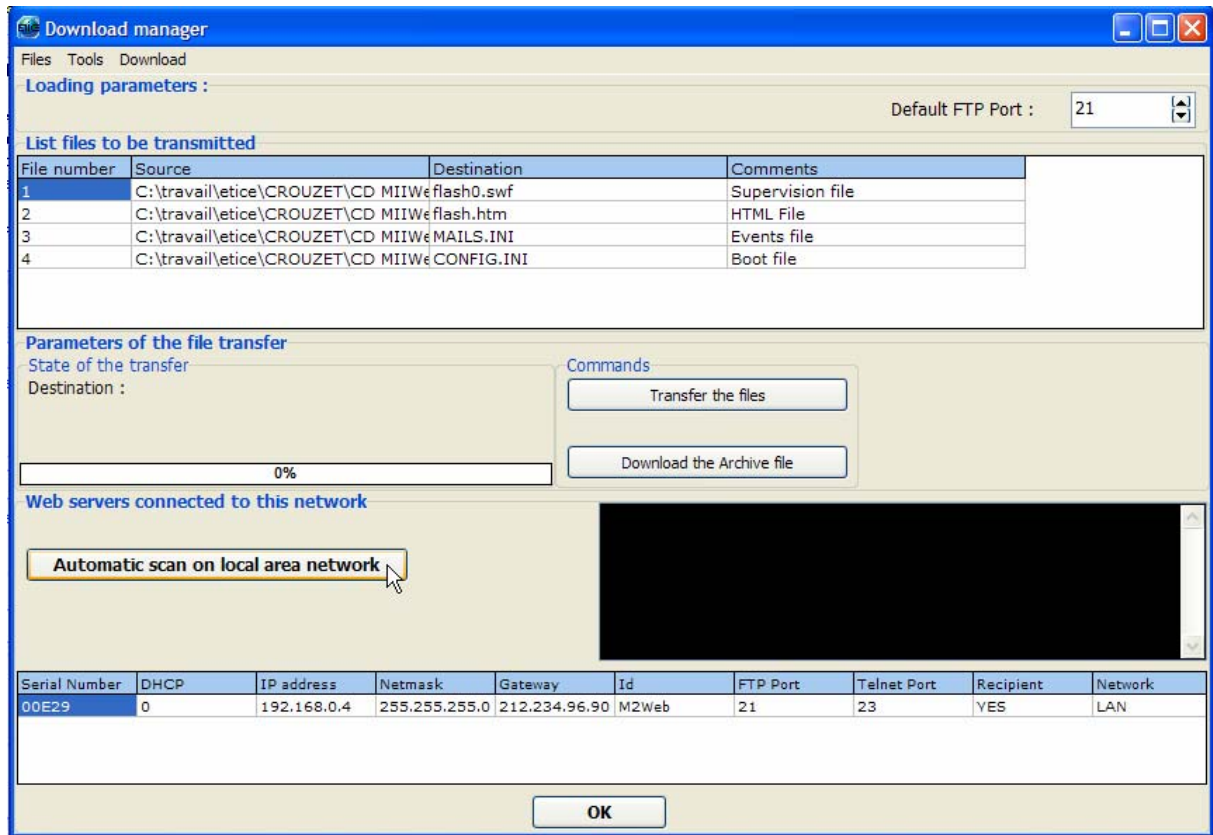
The compilation synopsis then appear :

(Notice that the WebPage use only 4.9Ko !)



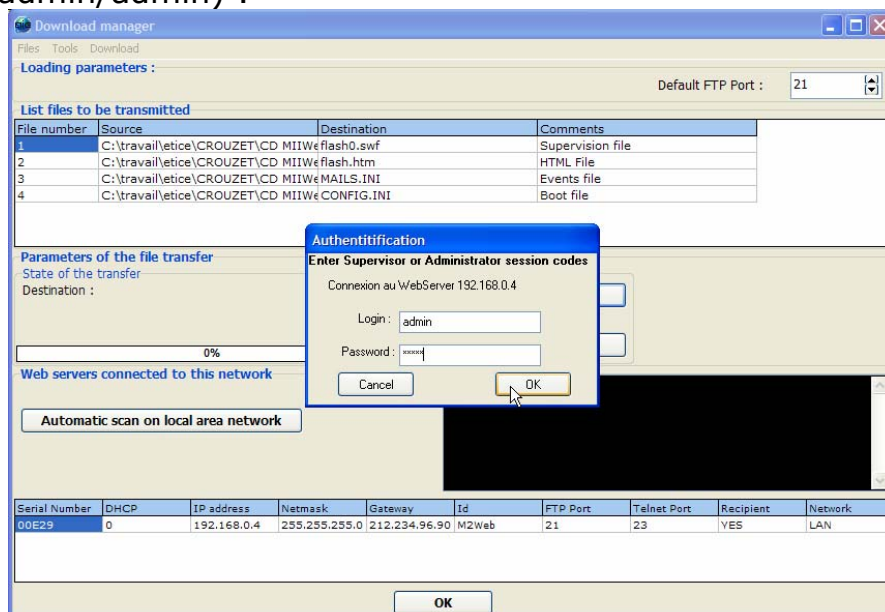
Click on the « Transfer file » button.

The download manager then appear :

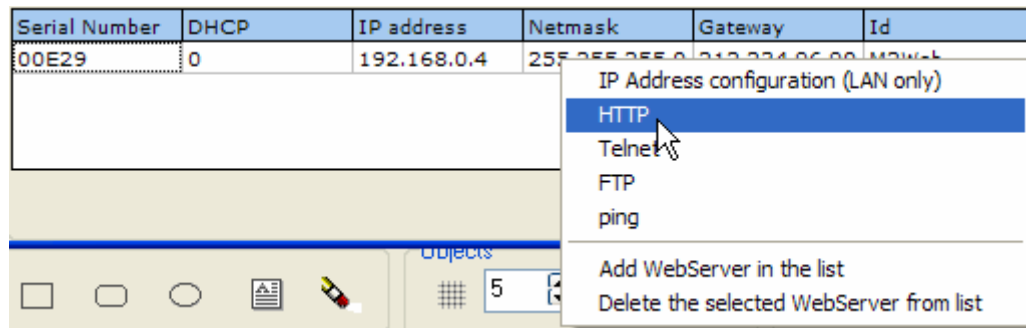


Then perform an automatic scan on LAN to detect all the webserver connected on this network.

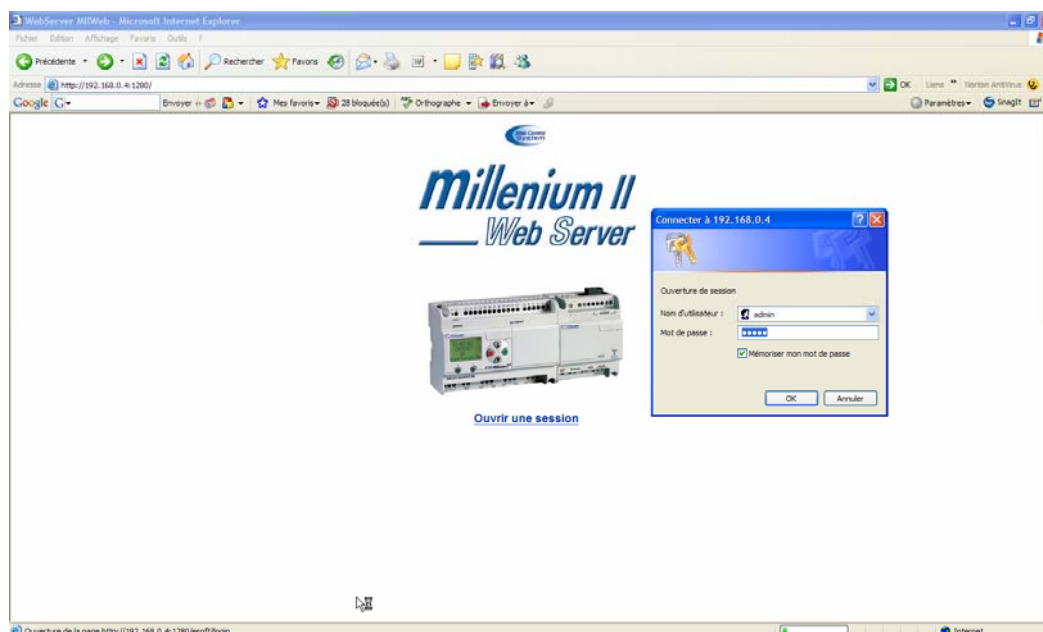
Then transfer files with entering administrator session codes. (default settings admin/admin) :



After 2 minutes (time needed by the webserver to reboot), you can test your project on the WEB :



After the connection time, the Web Browser appear and a index page of the webserver is displayed :



Then open a session (exemple : admin/admin) and the diagram appear.

The End.