Tutorial
Millenium 2
Contents

TUTORIAL
Millenium 2

1 PRODUCTS

Congratulations on purchasing one of the following products:

Cable

Memory cartridge

Internal extension

External extension

2 ENVIRONMENT:

MILLENIUM 2 is programmed using the **CIs M2** software workshop. It should therefore be connected to your PC.

2.1 Your PC resources:

PC Pentium 166 MHz minimum; 32 Mb of RAM memory. SVGA (800x 600) screen with 256 colours minimum. 65536 recommended. Windows 9x or Windows NT4.0 SP5 operating system.
Disk space required 32 Mb.

2.2 Installing the software workshop.

Insert the Millenium 2 CD and follow the instructions. You can perform as many installations as there are languages (English, French, German, Italian, Spanish).

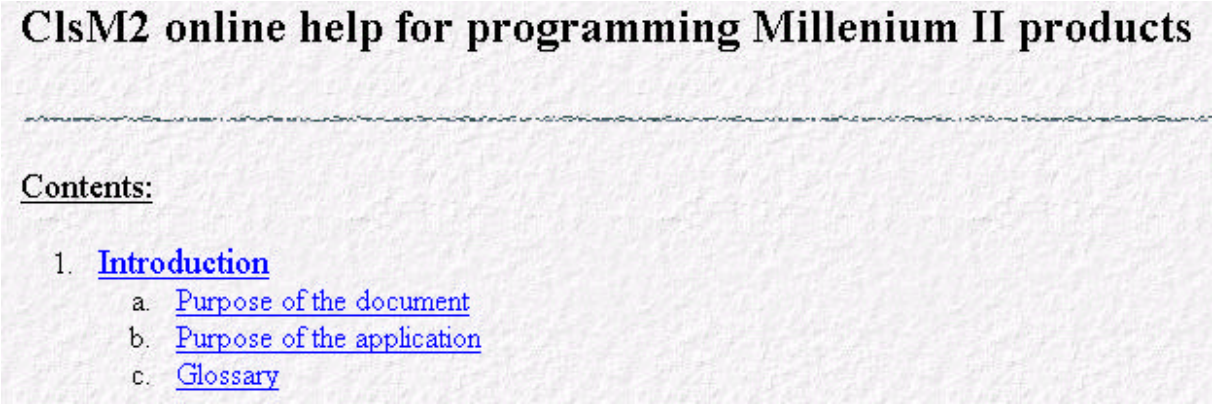
2.3 Connection to the PC

Connection should be made to the serial port of your PC via the 88 950 102 cable.

3 FAMILIARIZATION

3.1 Accessing Help

The CLS 2 software workshop Help is accessible from the menu bar by clicking on **?** then Help.



Help is also available in the function windows.

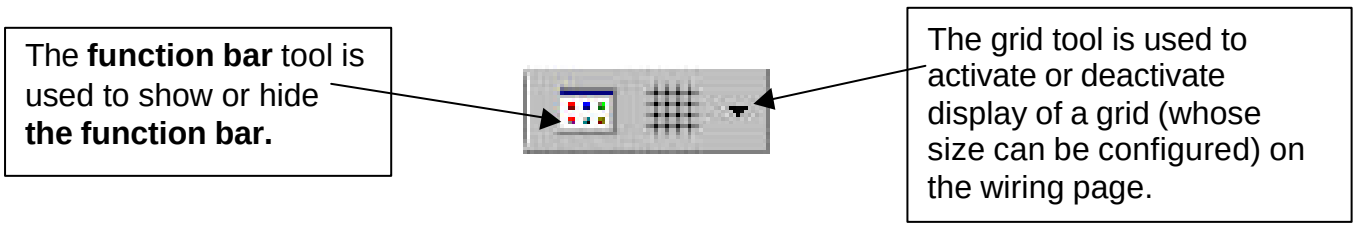
3.2 Toolbars

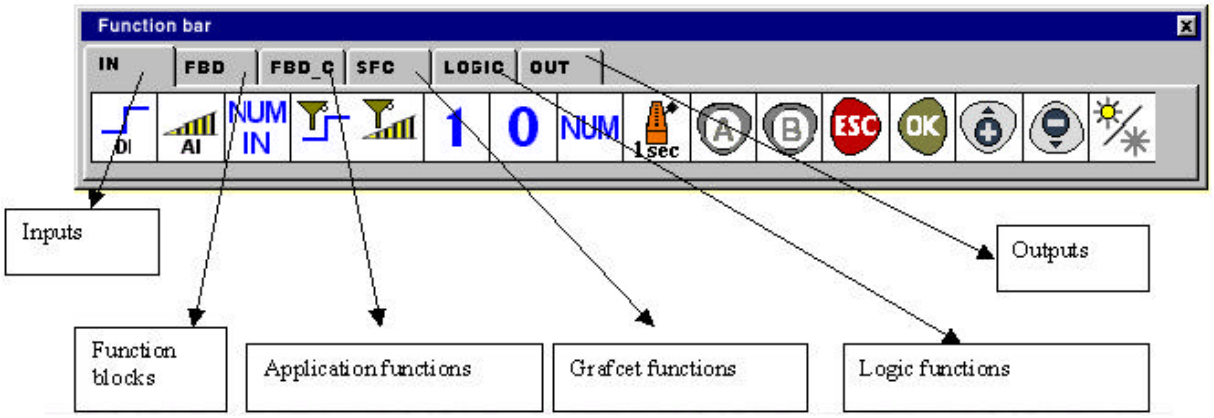
The toolbars contain shortcuts to elements in the menu. A description of the toolbar icons can be found in the help. Click **?** then **Help;** select edit window then select a menu element.

The controller toolbar:
This is used to manage actions on the Millenium and also to select the application mode (editing, supervision, monitoring). Pausing the cursor on the button icon displays the action associated with the button.

3.3 The function bar

The function bar contains all the Millenium functions.





3.4 Menus

See Help: select the ? menu then Help. Click on Edit window.

4 FUNCTIONS

4.1 Inputs:

Note: The following descriptions are illustrated with working examples. Double-click on the file icon to open the application, then select simulation mode.

DI (Digital Input): (On/Off).

- See Help: double-click on the block and click on ?

AI (Analogue Input): This type of input can take an input voltage of 0 to 10 V corresponding to a value of 0 to 255.

♦ See Help: double-click on the block and click on ?

NUM IN: These inputs are only used in cases where your controller is an XT20 and is using an extension. For example, it is possible to use these inputs to communicate a counter value to the extension.

- See Help: double-click on the block and click on ?

Filtered inputs: You can insert filtered digital or analogue inputs in the wiring. These types of input can be used to suppress interference.

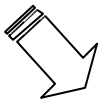
Management of a light signal which is activated when 10 products are at the end of the line. Since the product is subject to bounce on arrival at the sensor, the input should be filtered.

- See Help: double-click on the block and click on ?

Constants: You can affect how the constants are wired. There are both analogue and digital constants.
Here is an example using two digital constants.

- See Help: double-click on the block and click on ?

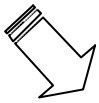
1 sec: This is an internal clock with a period of one second.



Flashing system

- See Help: double-click on the block and click on ?

Buttons: you can use the buttons on the front panel of the Millenium: A, B, ESC, OK, + and - in your application.



4.2 Outputs

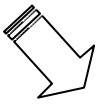
DO Digital output: on/off output.

- See Help: double-click on the block and click on ?

PWM analogue output or solid state output selected by the workshop. The default frequency of the PWM outputs is 122 Hz. This can be adjusted by selecting the block in the wiring page.

PROGRAM

122 Hz to 1960 Hz.



- See Help: double-click on the block and click on ?

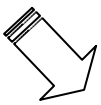
NUM OUT:

These outputs are only used when your controller is an XT20 and is using an extension. For example, it is possible to use these outputs to communicate data to the extension.

- See Help: double-click on the block and click on ?

4.3 Function blocks / FBD (Function Block Diagram)

The Boolean function takes four inputs. The output reacts according to the truth table described in the parameters.



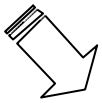
Creation of an exclusive OR gate on four inputs

To access the boolean function parameters, simply double-click on the block or right-click and select the parameter-setting window.

- See Help: double-click on the block and click on ?

Rocker switch: This is an element consisting of two inputs: R and S. R for Reset and S for Set. To activate the output, simply generate a pulse on S; to deactivate it, generate a pulse on R. The priority defines the output state when both inputs are at 1.

- See Help: double-click on the block and click on ?



This is a motor controlled by a run button and a stop button

Time delay: This is used to apply an ON delay, an OFF delay, or both delays to the output signal in relation to the input signal. This block can be used to make a function A or function C timer.

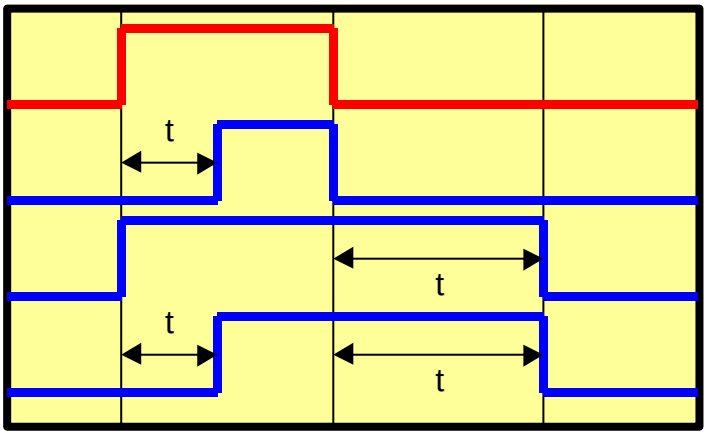
- See Help: double-click on the block and click on ?

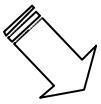
Input

Function A

Function C

Function AC

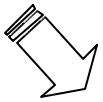




In this example you can see how to create a timer

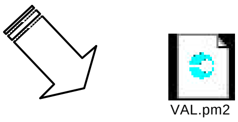
Counter: This function is used to count up to a value defined in the parameter-setting window. Once this value has been reached, the output changes to 1 until reset if the fixed output is selected or for a certain period if the pulse output is selected. The count value and the maximum value can be displayed.
The user has the option of counting from zero to the defined value or from the defined value to zero.

- See Help: double-click on the block and click on ?

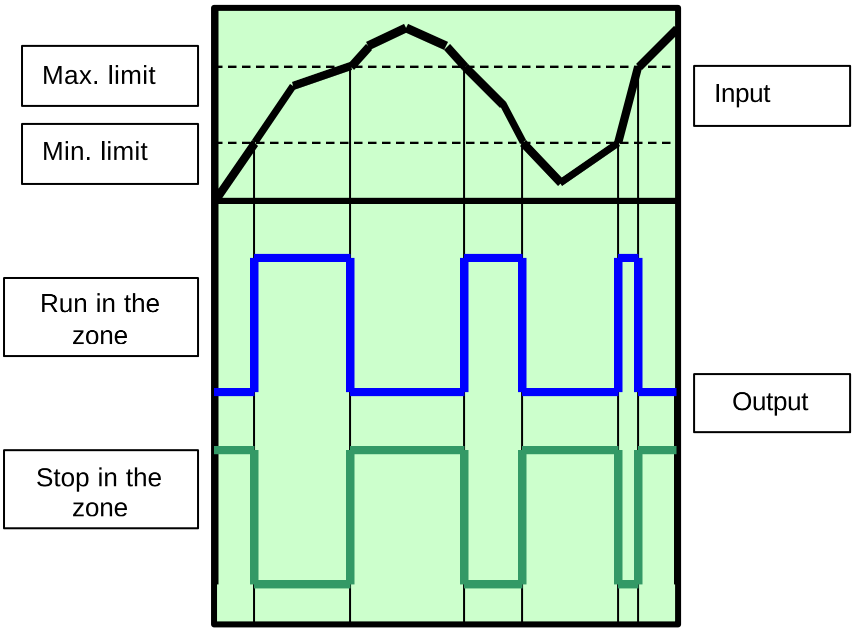


Here is a conveyor carrying parts to be packed. After every 5 parts, the conveyor stops and the operator packs the parts. Then he presses the button again to reset the counter and thus restart the conveyor.

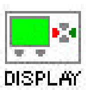
Zone comparison: Used for applications using analogue data.



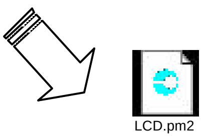
Checking a voltage.
If the voltage is >6V or <4V
then the bell rings



- See Help: double-click on the block and click on ?



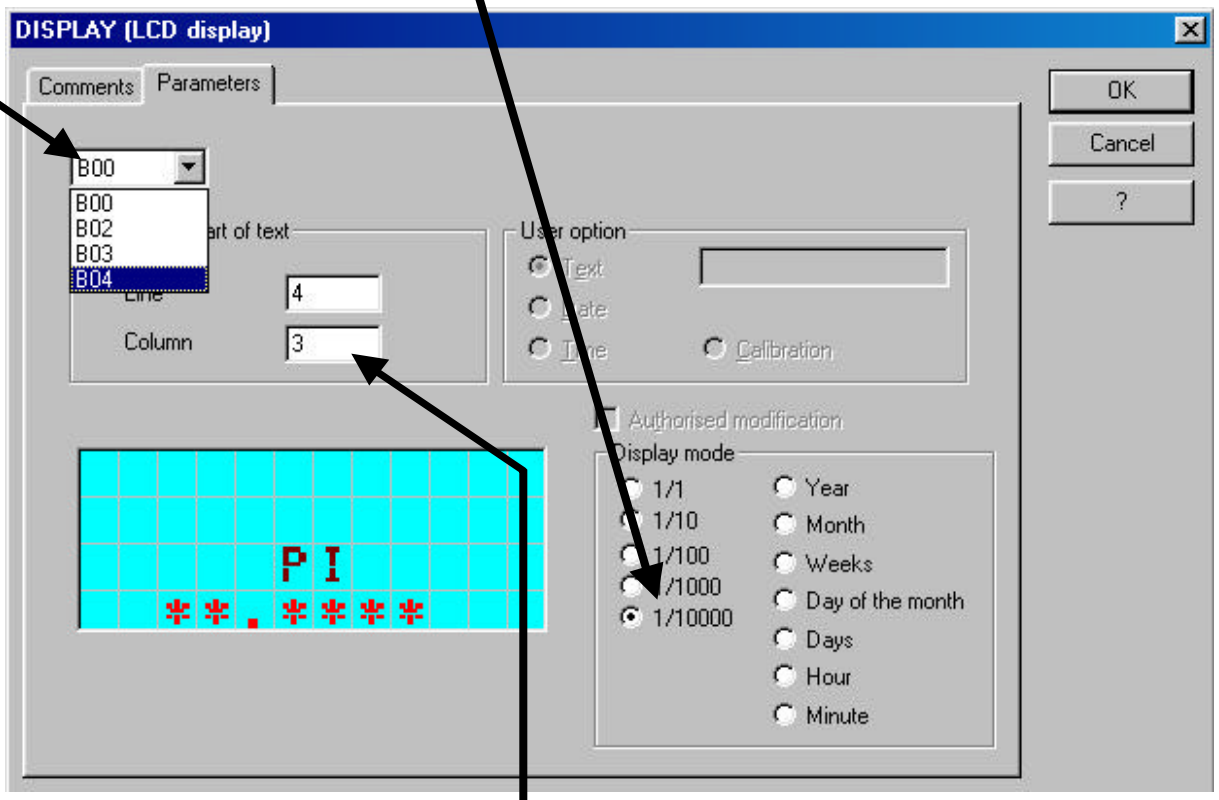
Display on the LCD: This block is used to display text or an integer on the LCD display on the controller front panel. For example, you can display a decimal derived from an integer. For more details, please refer to the example.



This is an example of using the controller LCD. The date, time, text and a decimal value is displayed on it from an integer.

The display function is used to display text, variables, the time or the date on the Millenium display. The function window is used to display the variable with decimal places and to edit text.

In this example 4 display blocks are used;
here B00 is selected, which displays the content of the variable B01; here a display of 1/1000 has been chosen by selecting this radio button.



Display Blocks

We have chosen to display this constant on line 4, starting at the Third column.

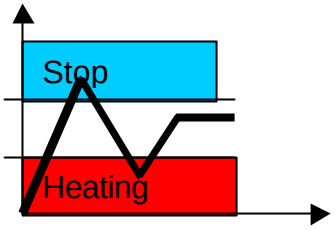
Note: Calibration compensates for drifting of the Millenium clock. If the calibration button is activated, the display will allow modification of this value. The unit is in seconds per week.

- See Help: double-click on the block and click on ?

Schmitt trigger: The output changes state if the input is lower than the minimum value, and the output changes state again if the input is higher than the maximum value. If the input is between the two, the output remains unchanged.

This function is used to locate a high threshold and low threshold in relation to an analogue variable.

This is an example of temperature regulation: the heating comes on when the input is lower than a certain temperature and goes off when this input reaches a given temperature.



- See Help: double-click on the block and click on ?

Gain: Function which allows the use of a scale factor and is applicable to all analogue data.

Example: This is a program which uses a counter, a comparator, a gain and the counter read-out display. An alarm is activated after the sensor has been passed 20 times.

In this example, an alarm is activated after the sensor has been passed 20 times. The number of impulses is divided by 5.

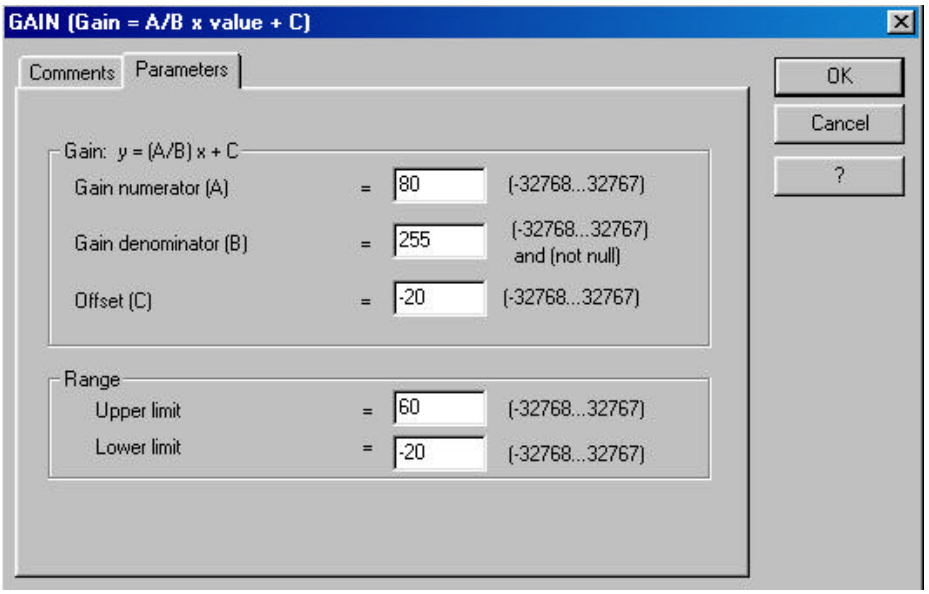
You can use this function in a timer, for example.

- See Help: double-click on the block and click on ?

Example of a gain function used to display the temperature measured by a PT 100 temperature probe between -20 and + 60°C.
The measurement scale A = 80 (-20 to +60); these 80°C are divided into 256 points.
The offset corresponds to -20°C; the limit display values would be 60 and -20.

Range: 80
resolution 0 to 255
Min. value -20°

Max. Temp: 60°C
Min. Temp: -20°C

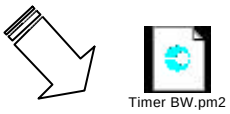


This example combines some blocks which have already been introduced in order to control temperature and display it on the controller, using a gain function which enables the data provided by the sensor to be used.

In this example, the chosen display is 1/100°C and therefore all the parameters of the Schmitt Trigger function and the Gain function should be multiplied by 100 with the exception of the 255 denominator constant.

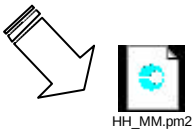
BW timer: This generates a cycle duration pulse on a rising or falling edge or on both edges of an input, according to the setting chosen in the parameters.

This block can, for example, be used to convert pushbutton actions into pulses so they can be counted. Because if several pushbuttons are connected to a counter input and a user holds down the pushbutton, pressing the other pushbuttons would have no effect.



- See Help: double-click on the block and click on ?

Clock: This function measures the duration of the input state at 1. After a preset duration, the output changes state. This block can, for example, be used as an alert on a machine for maintenance purposes.



This is the principle used to warn of the need for maintenance. Every 30 hours of operation, to change a filter on the machine for example.

If the INI on break box is checked, this means that the content of measurement will be reset after a power cut.

- See Help: double-click on the block and click on ?

Pulse: This is used to generate pulses on a rising edge of the input.

This example shows how to make an alarm and the display flash

- See Help: double-click on the block and click on ?

Monostable: This block is used to generate a pulse (the time can be configured) on a rising edge of the input.


Timer HB.pm2

This example shows how this block operates in simulation mode

- See Help: double-click on the block and click on ?

Comparison of two values: This block is used to compare two analogue values using the =, >, <, , , operators. The output is digital and is activated if the comparison is true.


COMPARE.pm2

This program example is used to activate the output if both inputs are the same

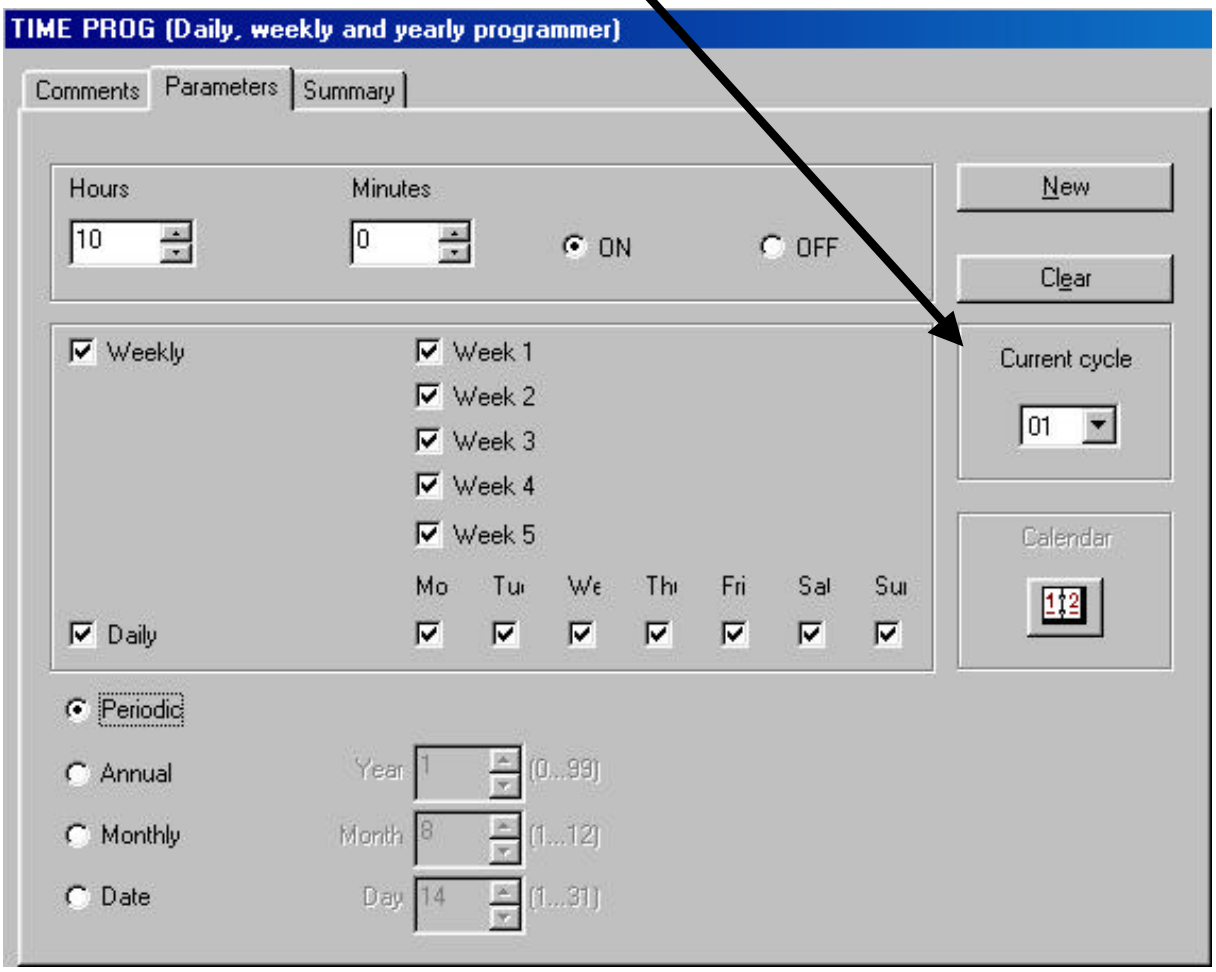
- See Help: double-click on the block and click on ?

24-hour, 7-day and 365-day timer switch: This function is used to activate or deactivate the output at a precise moment in the day, week or year. This block works on the event principle. To create an event, go into the parameter tab, enter an active event number. Choose the time when this event occurs, then define the state of the output at this instant. You can select the frequency of this event. You can use the calendar at the right of the screen.

Number of programmed events.

Display event No. 1.

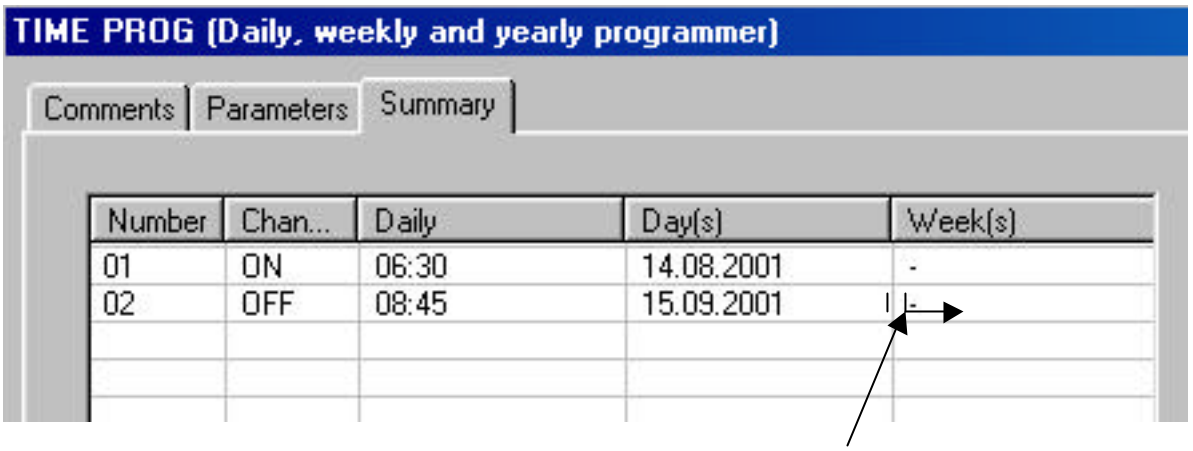
The summary index gives the description of programmed events.



PRESET H-METER.pm2

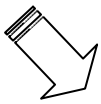
In this example, the timer switch is used as an alarm clock.

- See Help: double-click on the block and click on ?



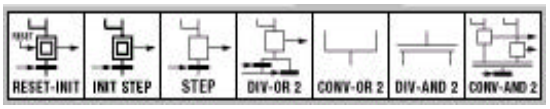
To display the content of the window, select and drag the bar.

Bistable: The principle of this block is very well known, since it involves an impulse relay. An initial impulse sets the output to 1 then a second is required to change the output to 0.



Here this bistable is used to control lighting.

4.4 Grafcet / SFC (Sequential Function Chart)



SFC functions are similar to Grafcet language. The principle is simple, since it involves sequential programming, with steps succeeding one another surrounded by transitions. When a step is active, wait for the next transition to become active in order to go to the next step.

This example shows the sequence of a program using SFC functions.

- See Help: double-click on the block and click on ?

4.5 Backlighting the display.

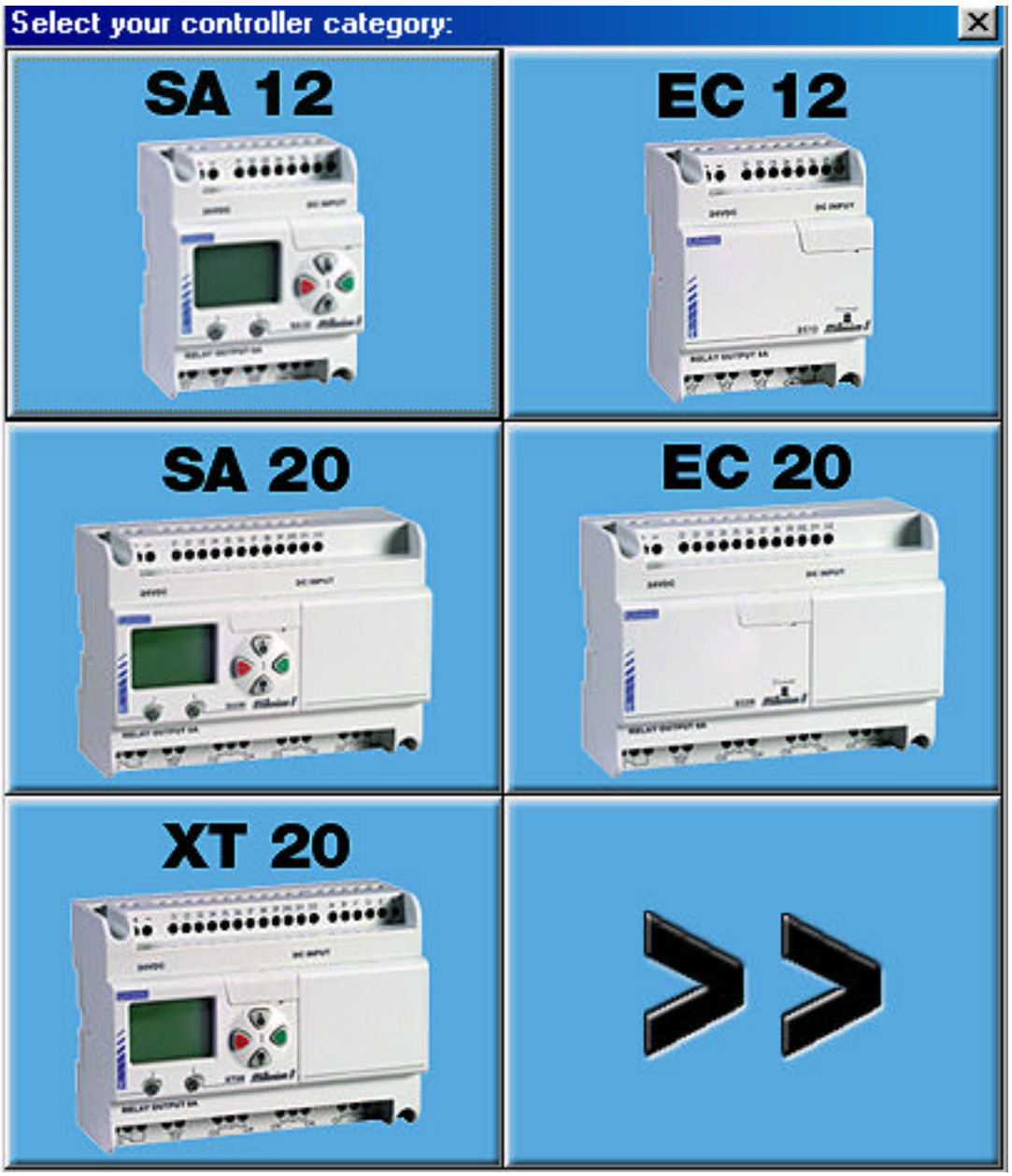
BK light: processed like an output. When it is active it lights up the display.

- See Help: double-click on the block and click on ?

5 STARTING AN APPLICATION

5.1 The wiring page

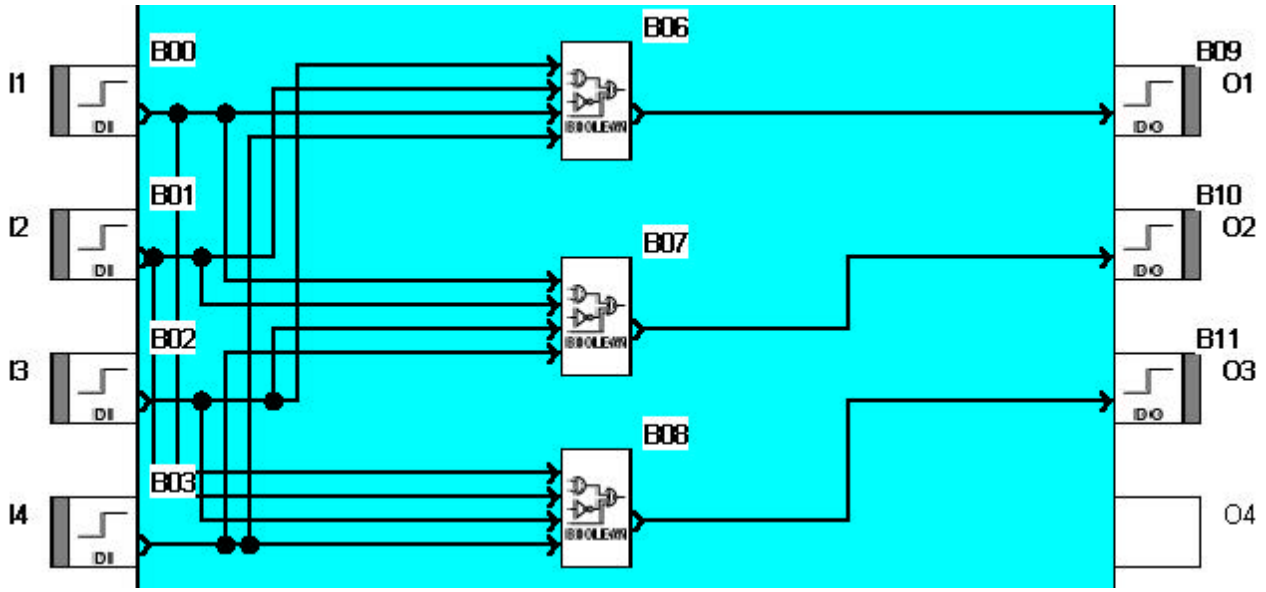
Select New File and click the type of Millenium you have chosen.
Select the part number corresponding to the Millenium.
The wiring page opens and you are ready to build your application.
The part number of the selected Millenium then appears on the wiring page.



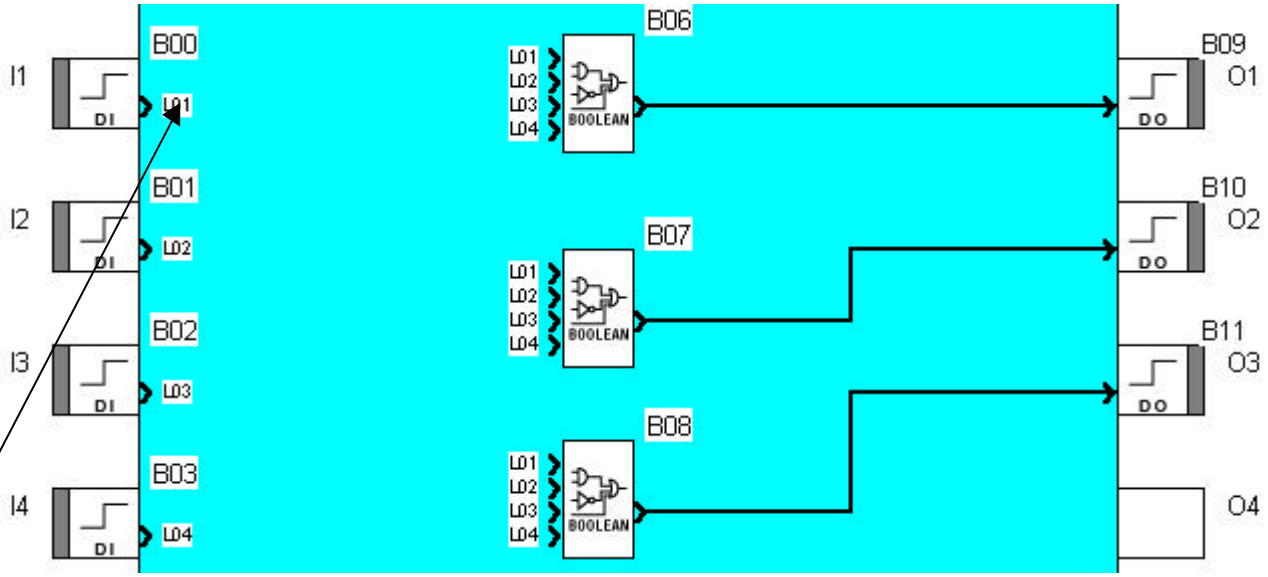
Blocks are positioned by clicking on the block, holding down and dragging it onto the wiring page. Links between blocks are created directly by selecting block inputs and outputs. In the wiring mode tool, you can choose wire as the wiring type, and you will see the links between the various elements. If you choose text mode, the links will be marked but will no longer be visible.
To change this parameter, right-click on a link and select the wiring type: wire or text.

.

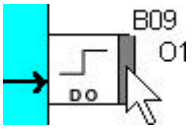
wire:



text: The connections are marked



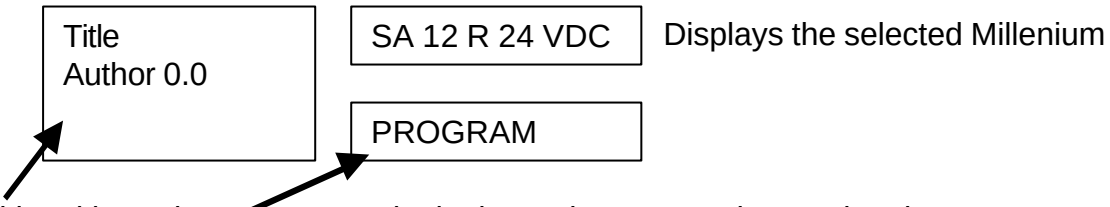
You can choose your own text: for example write SET instead of LO1. Position the cursor on LO1 then right-click with the mouse, then choose Wiring type and modify the text.
When you want to move an input or output which is already assigned to an element you can move the input or the output using the handle on the side.



It is possible to change an input or output type. This option does not affect operation.
If you want to change an input or output type, simply double-click on the icon and choose an alias.
On the wiring page, you can add a comment and drawings. To do this, you can use the draw toolbar and also the draw menu bar.
To change the line thickness, the line colour or the background colour, you need to select the element and click on the icon associated with the desired action in the toolbar.

5.2 Editing your program: Edit mode

The wiring page presents these three windows.



Displays the selected Millenium

By clicking title Author, you can write in the project name, date and author.
By clicking Program, you can select the application **cycle duration.**
10 ms min. by default. Then you can choose the date format.

IIf you are using PWM (solid state) outputs, you select the frequency of all PWM outputs. (By default 1960 Hz).
By clicking Title you can display comments.
To build your application:
Select the input blocks and place them on the input terminals, select the output blocks and place them on the output terminals.
Select the function blocks, create the wiring between the various points. Double-click on the functions in order to set the parameters.

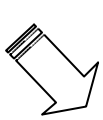
Each function block is numbered in the order of placing the blocks on the wiring page. Deleting blocks results in a break in the numbering. To renumber, select the blocks then **Tools**, **Renumber functions.**

In text mode wiring, each link is numbered in the order of placing the wiring on the wiring page. Deleting links results in a break in the numbering. To renumber, select the links then **Tools**, **Renumber links.**

Block alignment. By selecting a number of blocks, you can align them according to the icon on the Draw bar. Align left, right, … centre etc.

5.2.1 Supervision

Select **window** then **Supervision**. Simply drag the inputs/outputs and function blocks of your choice from the wiring page to the supervision window. You can illustrate your application using the draw tools. You can also choose a .BMP background image by right-clicking in the supervision window; Modify background, Bitmap.
This window explicitly displays the elements you have dragged from the wiring page in their own environment. When you change to simulation or monitoring mode, the inputs and the outputs are updated; it is also possible to force an input in the same way as with the edit window. Here is an example of using supervision mode:



5.2.2 Import

You have the option of recovering all or part of the wiring page of an existing file. To import a wiring scheme, you should already have opened a file. Select File then Import, next choose the file to be imported. When importing a wiring scheme, you will see that the previously opened file stays open. You can therefore drag a selection from the edit window of the imported wiring scheme to the edit window of the previous wiring scheme.

5.3 Testing your program: Simulation mode

Once your program is complete, you can test it by selecting S or simulation mode.
Simulation on digital or analogue inputs can be temporary or permanent. Force the input or output by clicking on the link or on the input or output pin. It is not necessary for the controller to be connected to the PC to perform simulation.

5.3.1 Front panel display

In simulation mode click on **Window** then on **Front Panel**. The keys illustrated on the front panel are activated by clicking and holding down.
NB: If there is a display function in your program, the menu is not accessible.

5.3.2 Simulation mode parameters

The monitoring/simulation bar is used to change the number of cycles executed at each simulation stage, and is similar to a time multiplier. Moreover, the refresh period is the frequency at which the output and parameter values are updated in the application windows

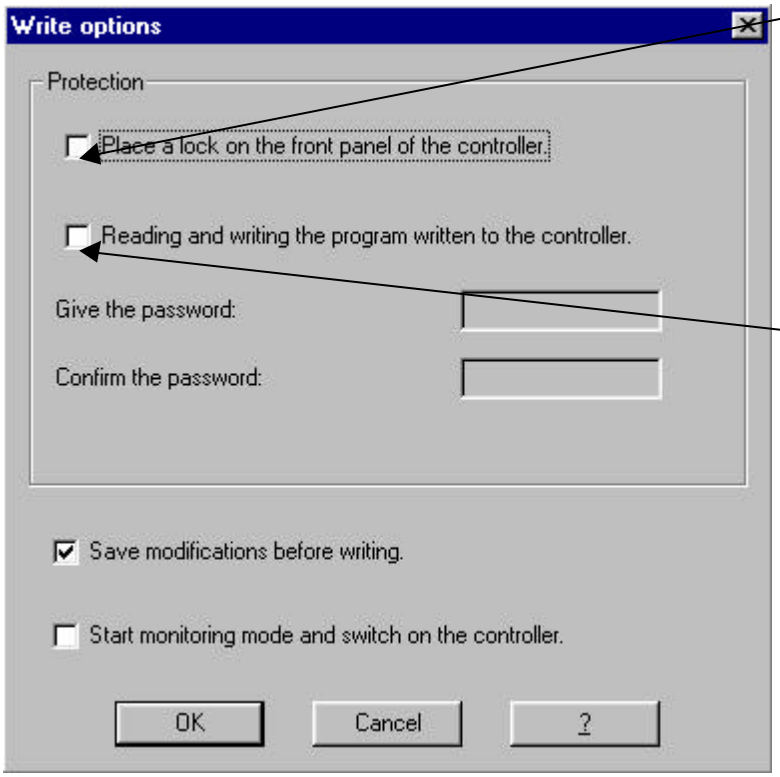
5.4 Writing to the Millenium and running

Once your application has been debugged, you can transfer it to the Millenium.
The procedure is as follows:

-Stop the program
-Write to the Millenium
-Select run

To write data to the controller, it must be in stop mode. To send a program to the Millenium, go into the controller menu, then click on write to the controller. The following window appears:

To lock the front panel and prevent the user from accessing the menu, check this box.
§9



To protect the program with a password, check this box.

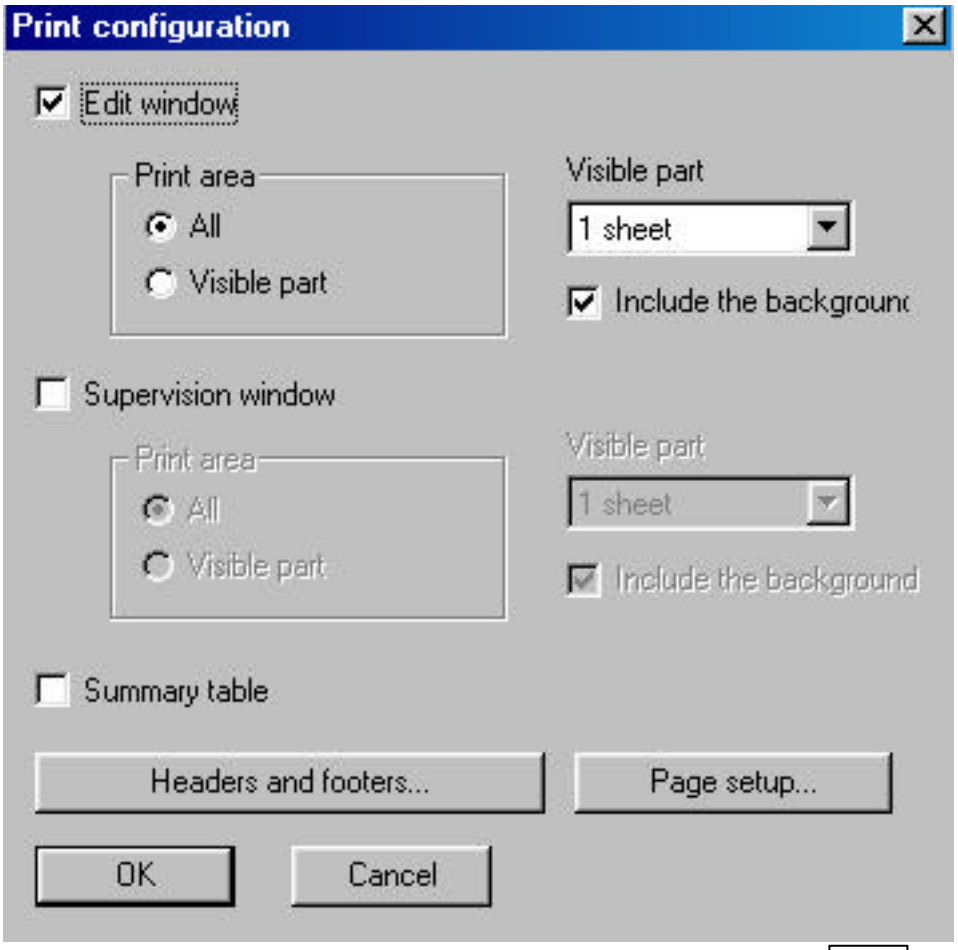
5.5 Monitoring mode

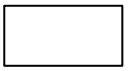
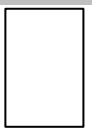
The controller is then connected to the PC.
This mode has the same characteristics as simulation mode. The state of any Millenium input or output can be displayed or changed from the software workshop. These inputs are visible from the edit window and the supervision window. The front panel is used to monitor the process and operate the keys remotely by selecting the front panel window.

5.6 Printing your application

You can print out a complete application listing. Select **File**, **Printer configuration.**
Select the required parameters.

Before printing, select **File**, **Print preview**



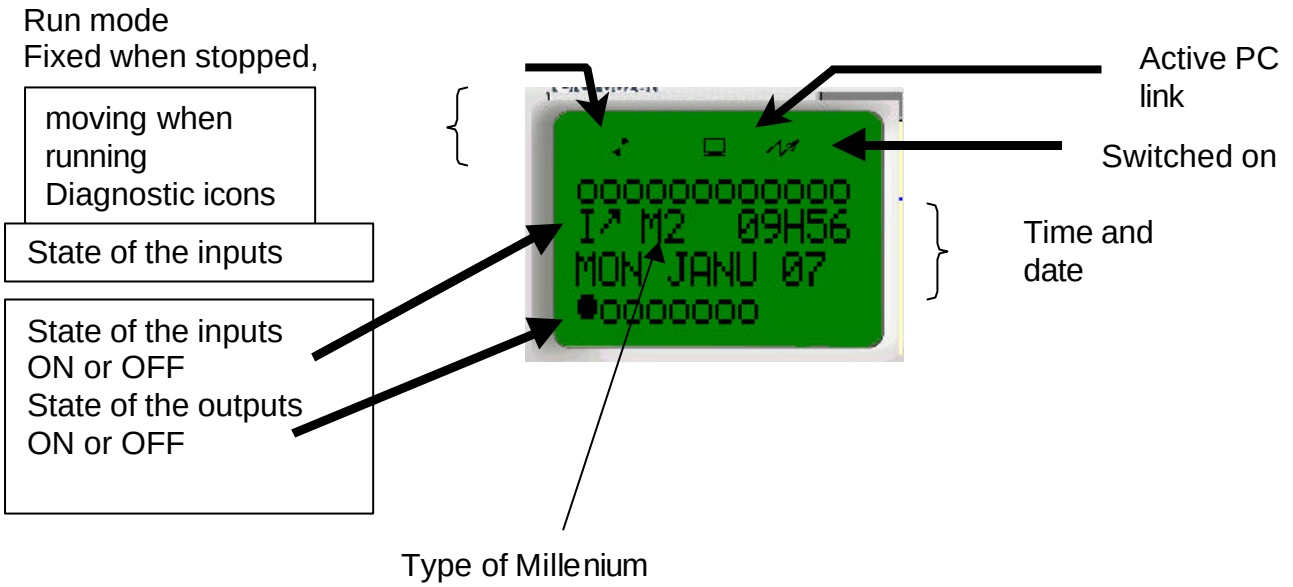
To modify the page orientation,  or 

Select **File, Print** and select the page format in your printer properties window.

6 MILLENIUM IN RUN MODE

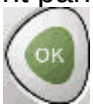
6.1 The display:

Default screen for a Millenium without extension.
If no “Display” function is used, the Millenium displays the state of the inputs, the state of the outputs, the date, the time and the diagnostic icons.



6.2 Accessing the menu

If the front panel lock option has not been activated, you access the menu by pressing 

or 

If there is a display function in your program, to go to the menu you should press 

and 

at the same time.

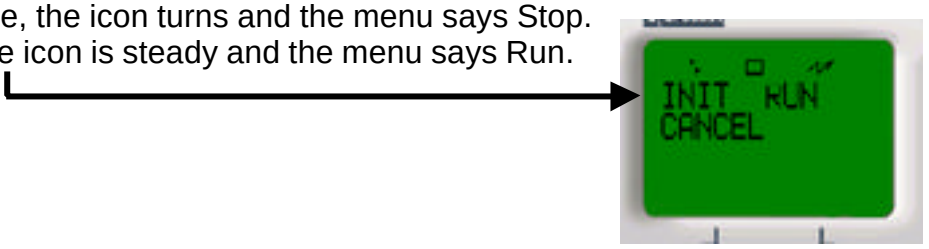
6.3 Menu structure

These are the main menus:

or


6.4 Run/Stop

Access the menu by pressing **ESC** or **OK**.
If the Millenium is in Run mode, the icon turns and the menu says Stop.
If the Millenium is stopped, the icon is steady and the menu says Run.



the values of the function blocks for which the INI option was checked will be reset

6.4.1 Accessing the menu with a password

In this case, the **key icon** is displayed.
To enter the menu, type the password, using the  and  buttons

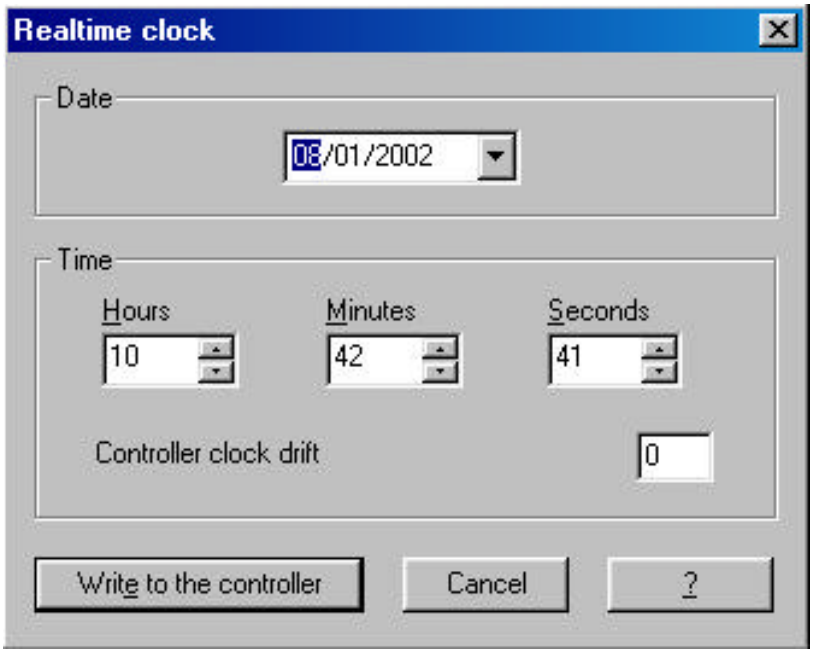
to vary the value of the password. You can make 5 attempts at entering the password. If you have not managed to enter your password after 5 attempts, you can try again after waiting 30 minutes. For example, if you want to enter 1250, hold down the  button and scroll rapidly until the value is approached, then release the button and scroll slowly, pressing repeatedly until you reach 1250. Then press OK.

6.5 Setting the date and time

To ensure that the programs work correctly with time-based programming, the date and the time must be set accurately and this section shows you how to do this.

6.5.1 Setting the time on the Millenium from the software workshop

From the software workshop: Go to the Controller menu and you can then select Read/Write date and time. You are then presented with the following dialogue box:



The Millenium time is displayed by default; you can modify this time if you wish and then send it to the controller. The new time is then recognised by the controller.

6.5.2 Setting the time on the Millenium from the front panel

First of all, go into the main menu. To do this, press OK or ESC. If the password is required, enter it. The following menu

Press - twice so that **MISCELLANEOUS** becomes the flashing item.

First of all, go into the main
To do this, press OK or ESC
password is required, enter i
following menu then appear

Now, go down to CLOCK, which flashes, and confirm with OK. The following screen then appears:

To select a value to modify, you can browse using the + and – keys. To modify a value, select it then press OK. You can then modify the value by pressing the and keys and finally confirm with OK.

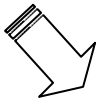
6.5.3 Calibration

Calibration compensates for drifting of the clock. The unit is in seconds per week. To modify this value, go into the timesetting menu then select the calibration value. To modify it, press OK, then to change the value press the + or – keys and confirm with OK.

6.6 Values in the blocks which can be modified

It is possible to modify block parameters such as analogue constant, counter, timer, pulse, programmer etc. directly from the controller front panel in the 2 ways described below: by selecting the function block or via the display function.

If you have a Millenium connected to the workshop, you can download this program to the Millenium.

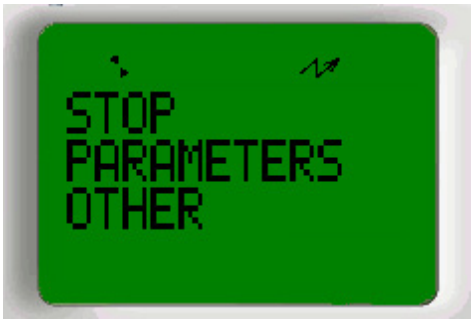


Important: Make sure that the type of Millenium selected in the workshop is the same as the one you are using. Check this by clicking on **tools** then **choose the type of controller**.

Click on **controller** then on **write to the controller** to modify the parameters. Click run.

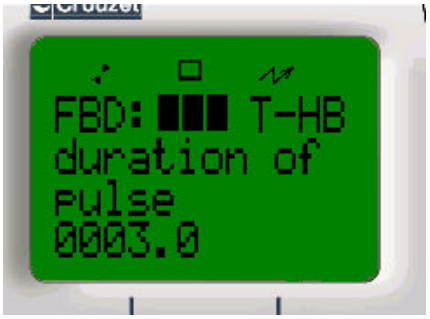
6.7 Modifying a value by selecting FBD blocks

To go into the configuration menu press OK or ESC. Once in the menu, select PARAMETERS. To do this, press the key until PARAMETERS is the flashing item. This screen will then appear:



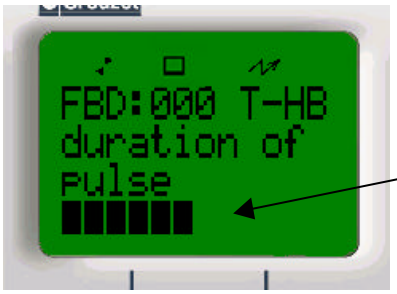
Now press OK to confirm.
The black text flashes to indicate that a value has been selected. To modify it, press OK.
The value flashes when it is possible to modify it.
The OK key switches from one mode to the other.
Note: No parameters means there is no block corresponding to the number or the block is not configurable.

In the example, the FBD name is B00 so you should select 000. Should you wish to select another configurable block, press . When the required number is reached, confirm with the OK button.



To browse the various parameters. select the type of parameter by pressing

to obtain the parameters. Then press OK.

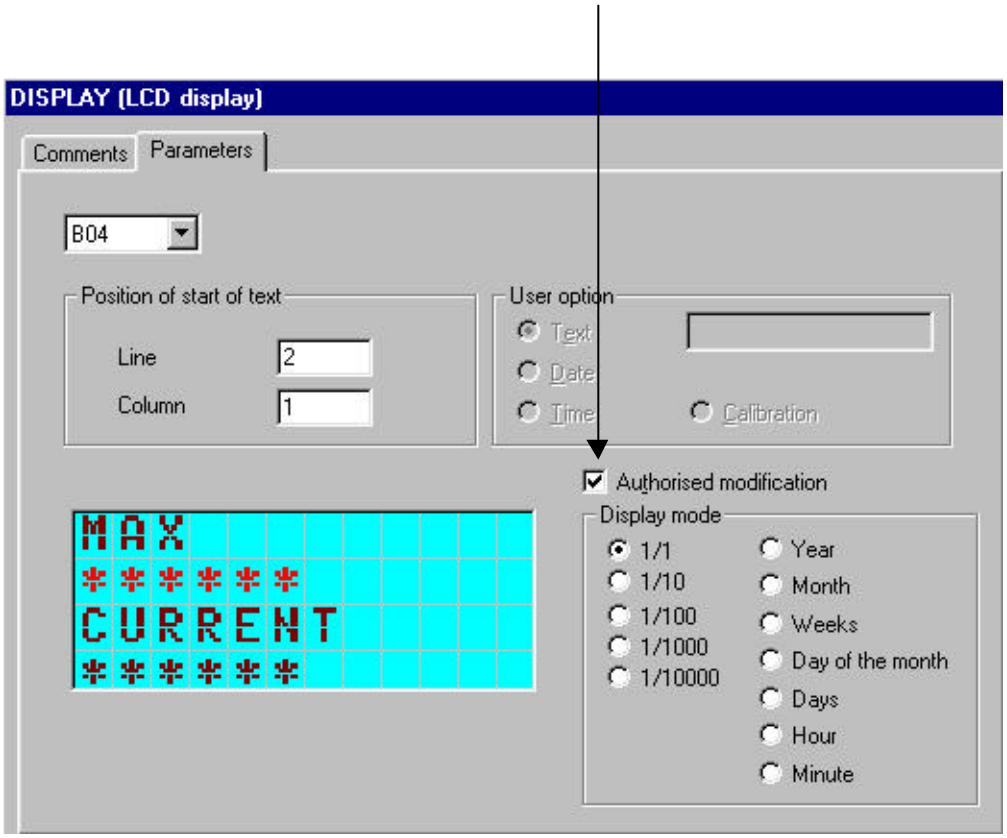


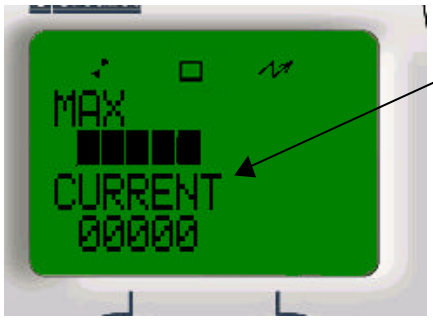
In this example, time delay B function is selected and the only parameter is the time delay duration.

Select a new value and confirm with OK, enter a value of your choice and confirm with OK. If your program is running you will hear the difference.

6.8 Modifying a variable using display blocks.

In this case, the variables to be modified are wired on the Analogue input of the function block. When the modification box is checked, it is possible to modify the value.





Continuous flashing indicates the value (or one of the values) that can be modified.

Select the value to be modified with the keys, then OK. To modify the value press the + and - keys again. Then confirm with OK.

6.9 Fault

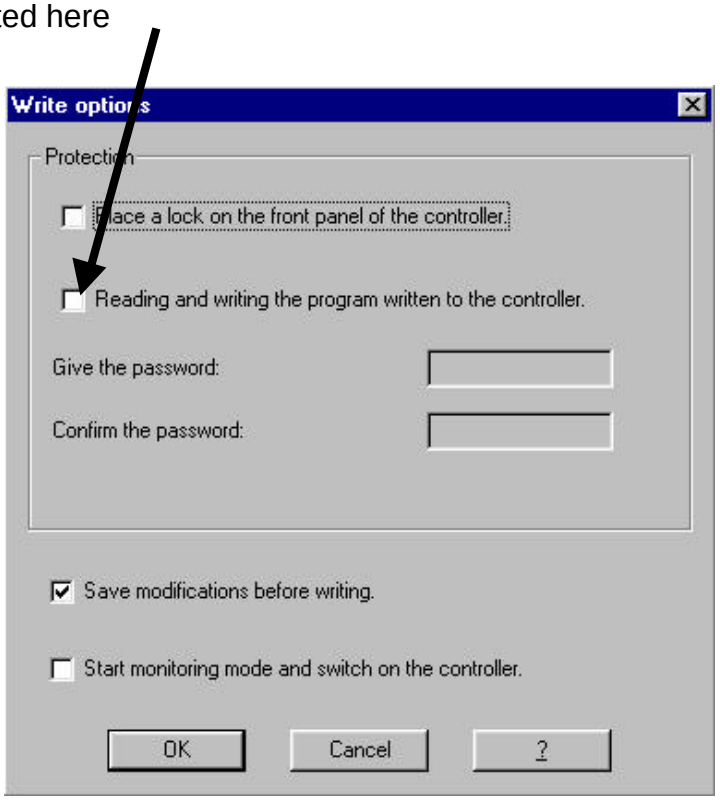
When a fault is detected on the Millenium, an icon ⚠ appears at the top of the display unit. You can find out the error number by going into the main menu, selecting **MISCELLANEOUS** and then selecting **FAULT**. In this screen you can see the number of the last fault which appeared on the Millenium.

Here is the error correspondence table:

No error	**0**
EEP	1
Clock	2
Binary	50
Cycle	51
Operation code	52
XL local extension	53
XC D.C. extension	54
XD1 extension	55
XD2 extension	56
Remote M2	57
Watchdog	58

7 PASSWORD FUNCTION

The password protects access to a program. When you write your program to the Millenium, the write option window opens; check the box indicated here



Once the password is active, you can no longer write to the controller nor read the program without knowing this password. The program is therefore protected.
If you wish to access the menu and, for example, reset the time you will be invited to enter the password.

7.1 You have lost your password

If the password is accidentally lost, the only solution is to delete the program from the Millenium. To do this, go into the **controller** menu then select **delete the controller content**. It will then be possible to write a new program to the controller.

8 FRONT PANEL LOCK

The front panel lock function prevents any access to the menus. The lock is effective when the program is running, but also when it is stopped. To start or stop the program once the lock is active, you have to go via the software workshop. However, the front panel lock does not prevent use of the front panel buttons in a program.
When you write your program to the Millenium, the write option window opens.
Then simply check the "**put a lock on the controller front panel**" box.

8.1 Unlocking the front panel

To unlock the front panel, rewrite the program to the Millenium without selecting the "**put a lock on the controller front panel**" option.

9 PASSWORD AND FRONT PANEL LOCK:

Both functions together protect access to the application program and the front panel lock prevents access to the Millenium.

10 MEMORY MODULE

The memory module 88 950 101 can hold a program. The Millenium can write to the module, but it can also read a program in the cartridge.

10.1 Saving a controller program to the module

Insert the memory module into the Millenium with the front panel unlocked. Saves are performed in stop mode.
Save procedure:
Go into the main menu by pressing the  key. Select **CARTRIDGE**. You are offered two solutions:

10.1.1 Save without front panel lock

In this case select **SAVE**.

10.1.2 Save with front panel lock

Select **PROT & SAVE**.

10.2 Transferring a module program to the Millenium

10.2.1 Sequence

Insert the memory module into the Millenium with the front panel unlocked. Saves are performed in stop mode.
Go into the main menu by pressing the  key. Next select **CARTRIDGE** then select **RESTORE**. The new program is thus saved in the cartridge.
Note: the memory module can be inserted or removed with the power on.

10.2.2 The front panel is locked

To load the program, insert the cartridge and then simply switch off the controller for a few seconds. When it is switched back on, the program in the cartridge will load automatically and will overwrite the program previously held in the Millenium without confirmation.

10.2.3 The Millenium program is protected by a password

If the program on the Millenium is protected by a password, you will need to know it in order to be able to load the program from the memory module.

10.2.4 The controller program is protected by a password and the front panel is locked

In this case, to load a program, the password for the program contained in the cartridge must be the same as that in the Millenium for the update to take place.

10.3 Comments on using the memory module

Writing or reading the cartridge should be done with a Millenium. You should not use the cartridge in run mode except in cases where the Millenium has an LCD display and the front panel is not locked (in this case only, the Eeprom is only written to each time the module is switched on).
The program contained in the module loads into the controller automatically except in cases where the Millenium has an LCD display and the front panel is not locked.

10.4 Example of using the memory module

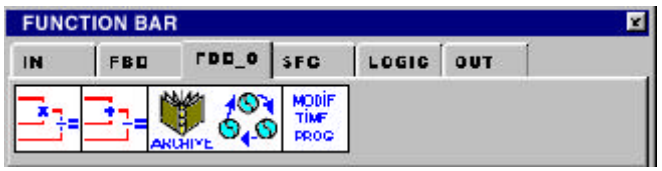
A manufacturer is using the Millenium controller in his machines. The products are at the end customer's premises. The program contained in the controllers is protected by a password, and the front panel has been locked to prevent customer intervention. This manufacturer makes an update to his program. In order to avoid sending a member of staff out to every customer, he sends out a memory module by post. The customer simply has to insert the cartridge in the controller, switch off the power for a few seconds, switch the unit on again and finally remove the cartridge. The program contained in the cartridge should be protected by the same password as the program it is replacing.

11 APPLICATION-SPECIFIC FUNCTIONS

The application-specific function is considered to be a special function block. When installing the workshop, you are offered the opportunity to load the application-specific functions contained in the workshop.

11.1 Application-specific function in the software workshop

The Application-specific functions are found in the function bar in the **FBD-C** tab.

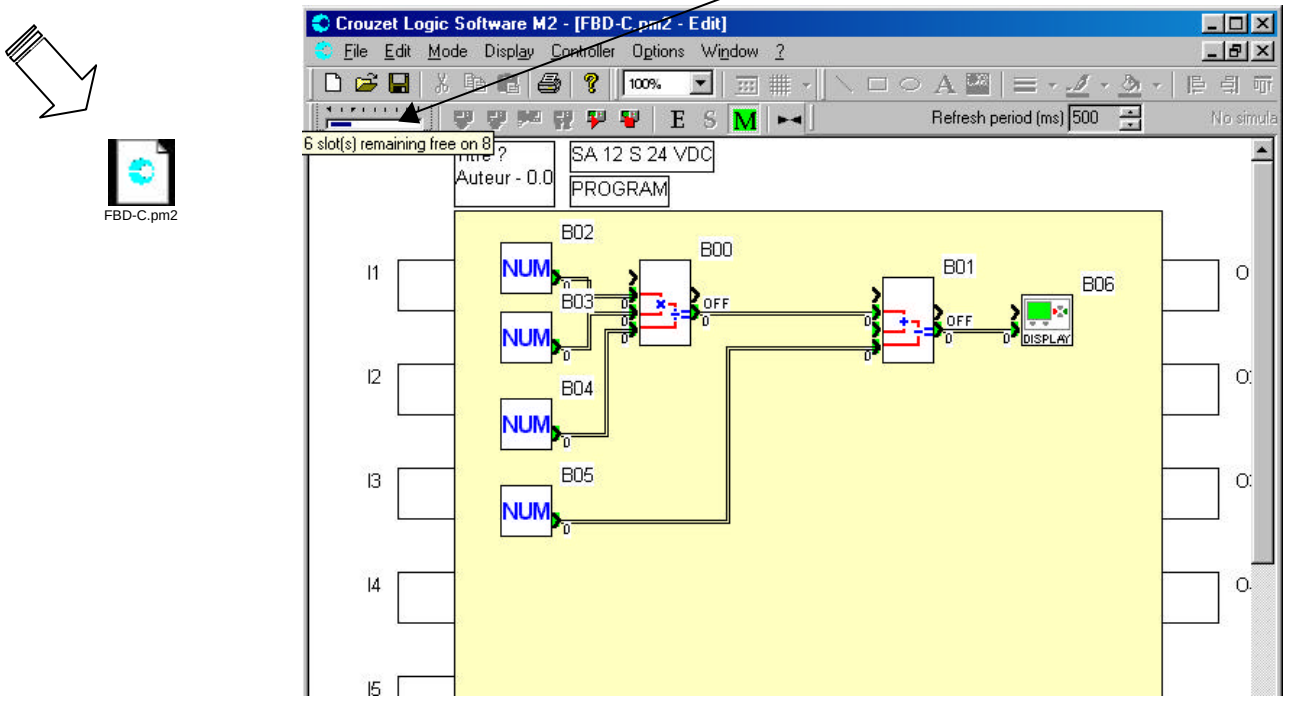


See description in the window for each function by clicking Help ?

You can put several application-specific functions in the wiring page. You can also place the same application-specific function in several times; the maximum number is limited to the total number of 128 blocks.

11.2 Application-specific function in the Millenium

The Millenium can only hold a limited number of application-specific function slots. When loading a program which contains 1 or more application-specific functions, you can find out the Millenium's availability by pointing the cursor here. Availability is expressed in slots (8 in total).

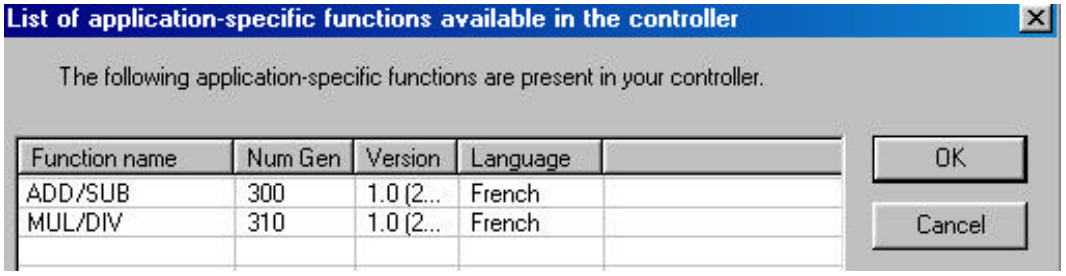


Note: *The number of application-specific function blocks used in the application is not linked to the number of slots available in the Millenium*.

11.2.1 Reading application-specific functions present in the Millenium.

The Millenium is connected to the workshop.

Click **Controller List of application-specific functions in the controller**



Note: The application-specific functions stay in the Millenium even if another program is loaded in the Millenium.

11.3 Made-to-order application-specific function

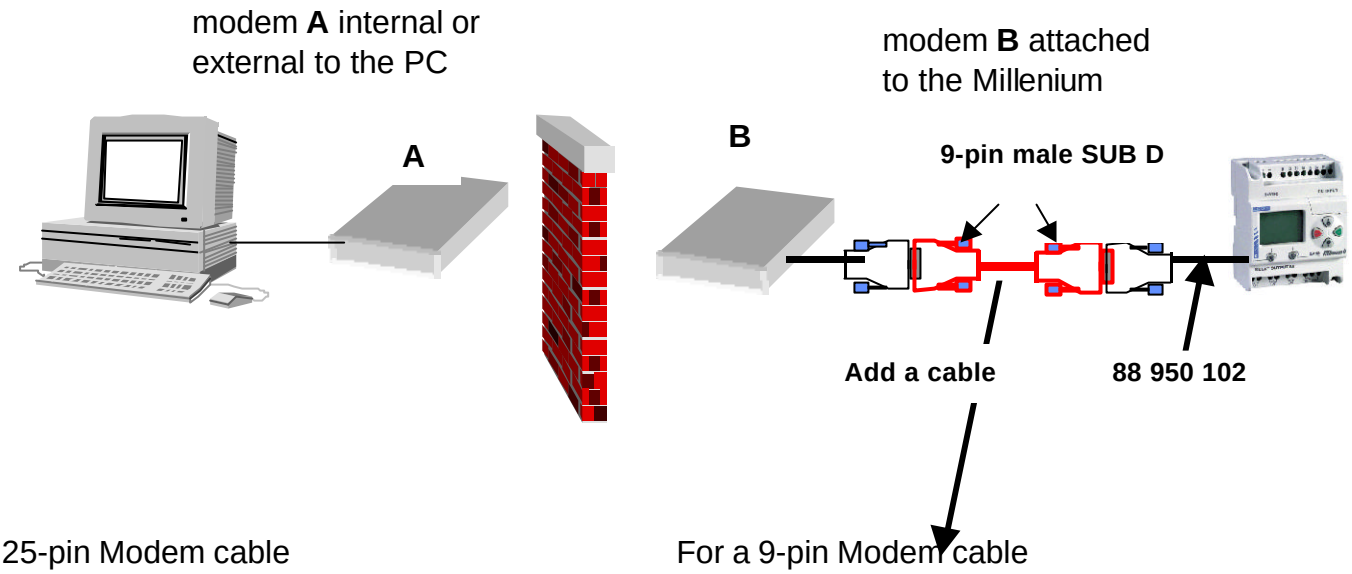
To resolve a specific application problem; please consult us for help in designing your application-specific function.

12 MODEM FUNCTION

12.1 Description/Wiring

This function makes the remote connection via the telephone network between the Millenium and the software workshop, making operation identical to direct connection between the Millenium and the software workshop.

Here is the required configuration:



Male

For a 25-pin Modem cable

(25-pin) MODEM		To the 88 950 102
(FG)	1	1
(TxD)	2	2 (RxD)
(RxD)	3	3 (TxD)
(SG)	7	5 (SG)
(DTR)	20	4 (DTR)
(DSR)	6	6 (DSR)
(RTS)	4	7 (RTS)
(CTS)	5	8 (CTS)
(RI)	22	9 (RI)

For a 9-pin Modem cable

(9-pin male)		(9-pin male)
	1	1
(RxD)	2	2 (RxD)
(TxD)	3	3 (TxD)
(SG)	5	5 (SG)
(DTR)	4	4 (DTR)
(DSR)	6	6 (DSR)
(RTS)	7	7 (RTS)
(CTS)	8	8 (CTS)
(RI)	9	9 (RI)

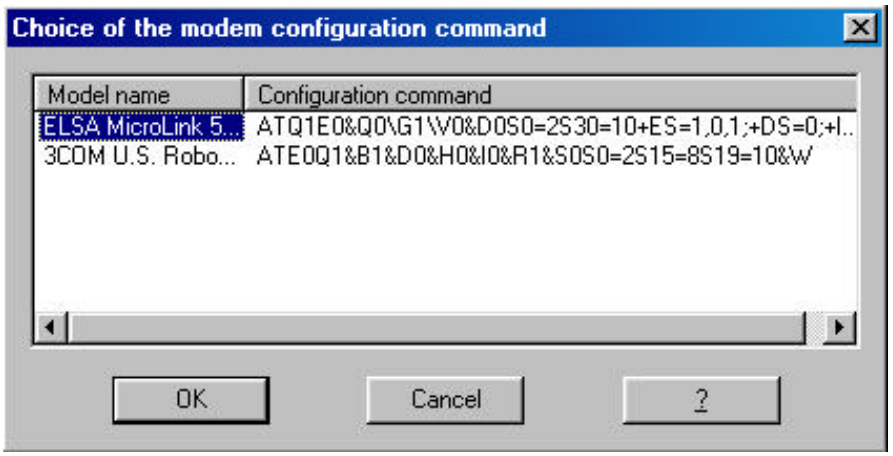
12.2 Setup

To set up the Modem function, proceed as follows:

- 1 Configuration of Modem **B**, for the Millenium.

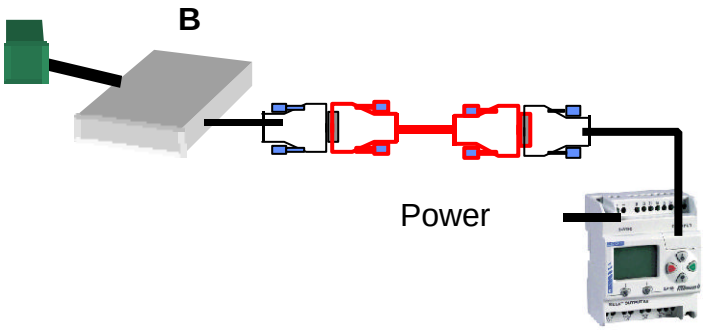
Connect the Millenium to the software workshop; Select **Controller – Connection - configure;** check that **PORT COM** is selected and, if not, select it.

Set the Millenium to **STOP** mode
Select: **Controller** then **Configure controller modem**
Click **Choose**
Select the line corresponding to MODEM **B** then OK



Click OK when the window appears and configure the controller.

- **2**. Connect the configured Millenium to Modem **B**



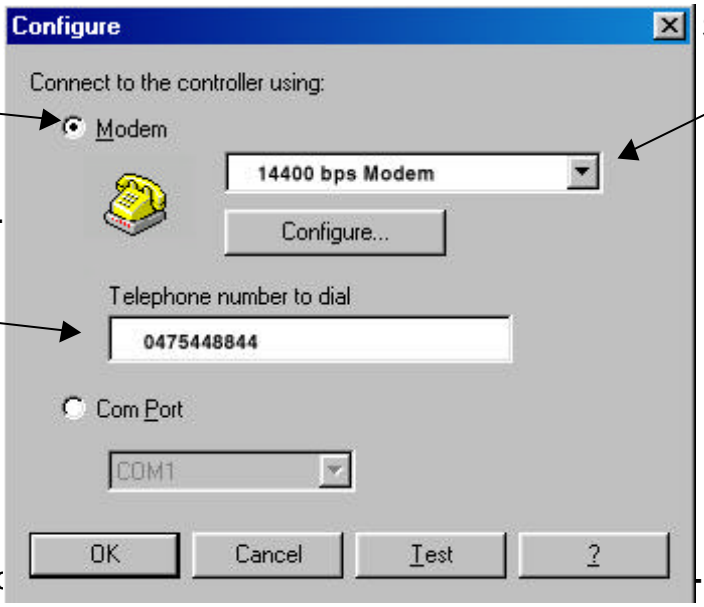
Connect Modem **B** to the telephone line; switch on Modem **B**, then the Millenium.

- **3** Connect Modem **A** to the PC if it is external and connect the telephone line to the Modem.

In order to be able to write or modify your application, the Modem should be selected in the software workshop: Open an application; then click: **Controller - connection - configure.**

Select Modem

Type the telephone No. corresponding to the Millenium Modem **B**.



Select the PC Modem

Then press OK
To establish the connec **- connection - connect** in succession.

Dialling	Connected to remote computer

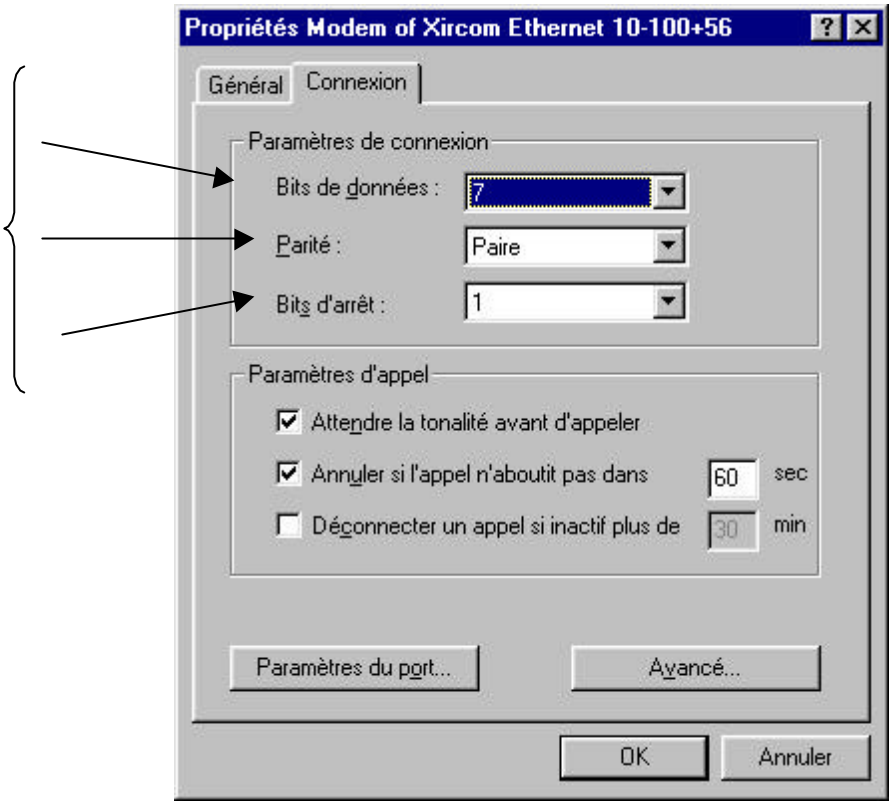
From this moment, you can perform functions such as writing, reading, monitoring, Stop, Run, Initialize

To end the communication, click **Controller - connection – disconnect.**

Note: When communication is established but you cannot communicate with the Millenium, check the parameter settings of Modem B on your PC (internal or external). To do this: In Windows, select **Start – Settings – Control panel** then double-click on **Modems.** Then select Properties and Connection to obtain this window.

BMP\Interface\Proprietes du modem.bmp

Next select the following parameters



Then OK and close.

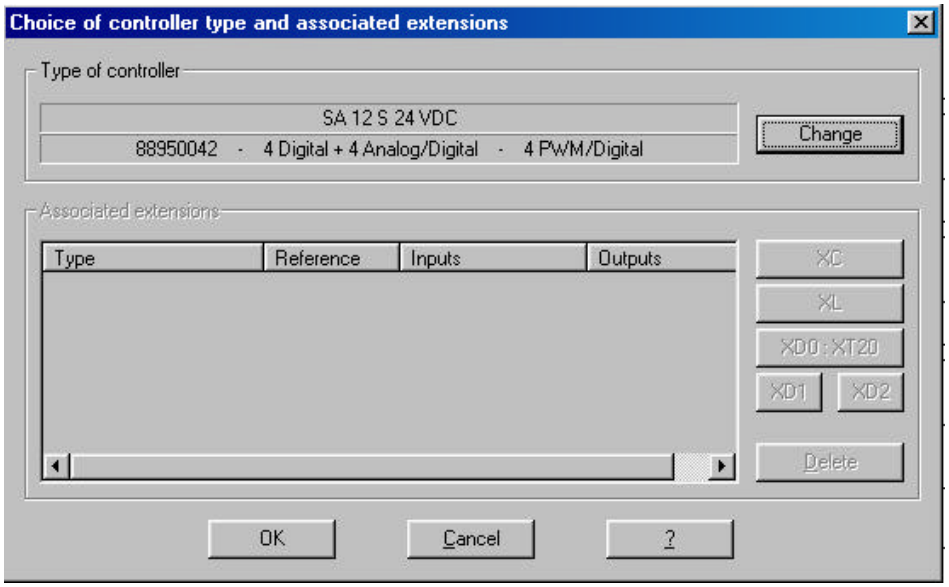
13 APPLICATION WITH EXTENSION

Extensions can only be used on the XT 20 models.

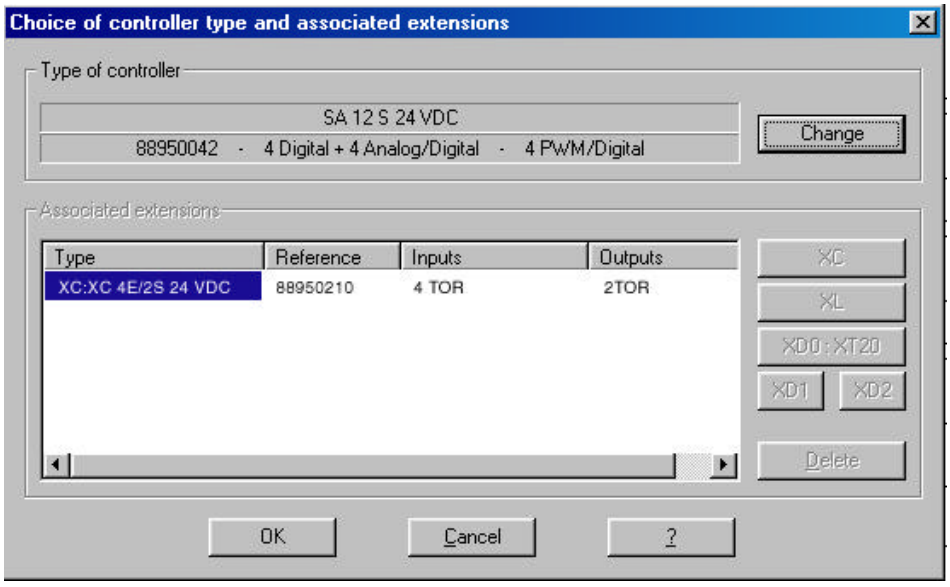
13.1 XT 20 + XC adjacent extension

The adjacent extension is connected to the Millenium.
You can thus connect a extension with 4 inputs/2 outputs or an AS-i exchange unit or Modbus exchange unit.

Select the type of Millenium XT 20.
Then click the corresponding XC extension to add it to the Millenium.



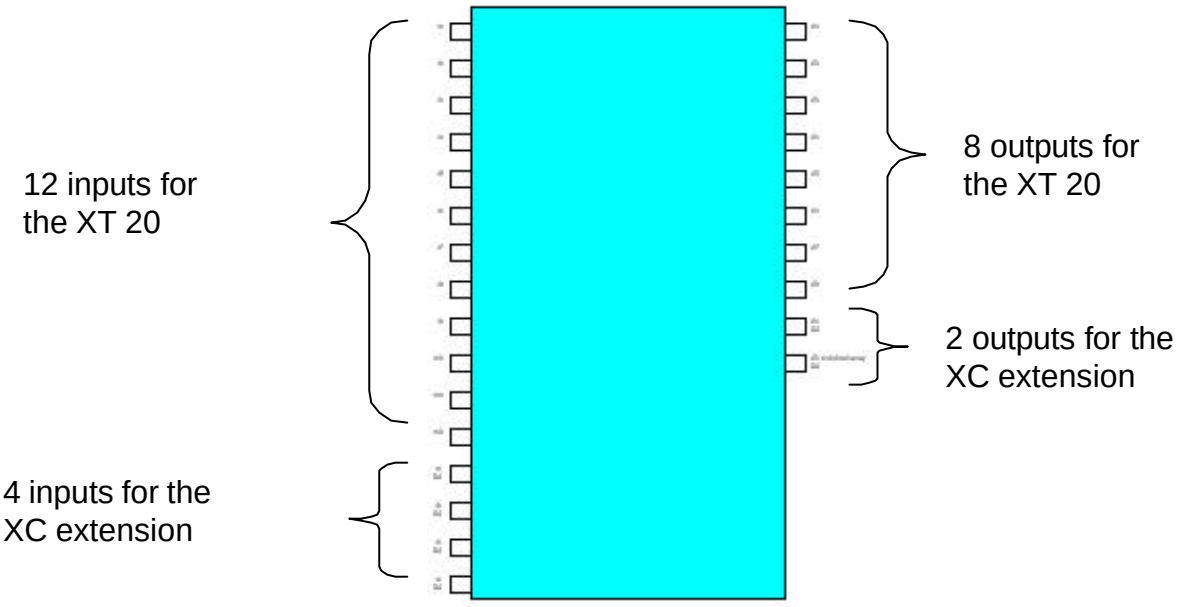
Then select the XC adjacent extension. The extension then appears.



The type of Millenium and the extension then appear in the wiring page.

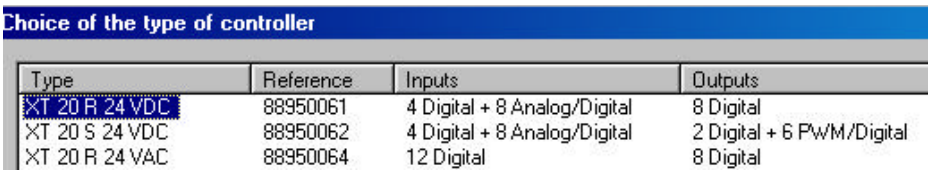
Title? Author 0-0	XT 20R 24	XC: XC 4E/2S 24
	PROGRAM	

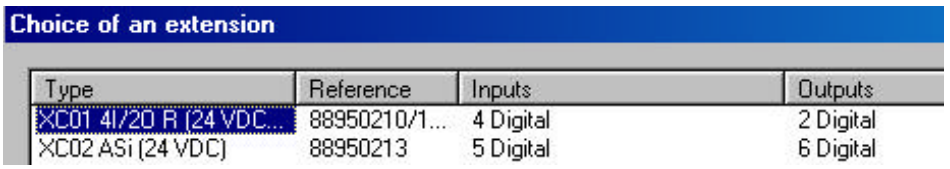
The inputs and outputs of the adjacent extension can then be seen

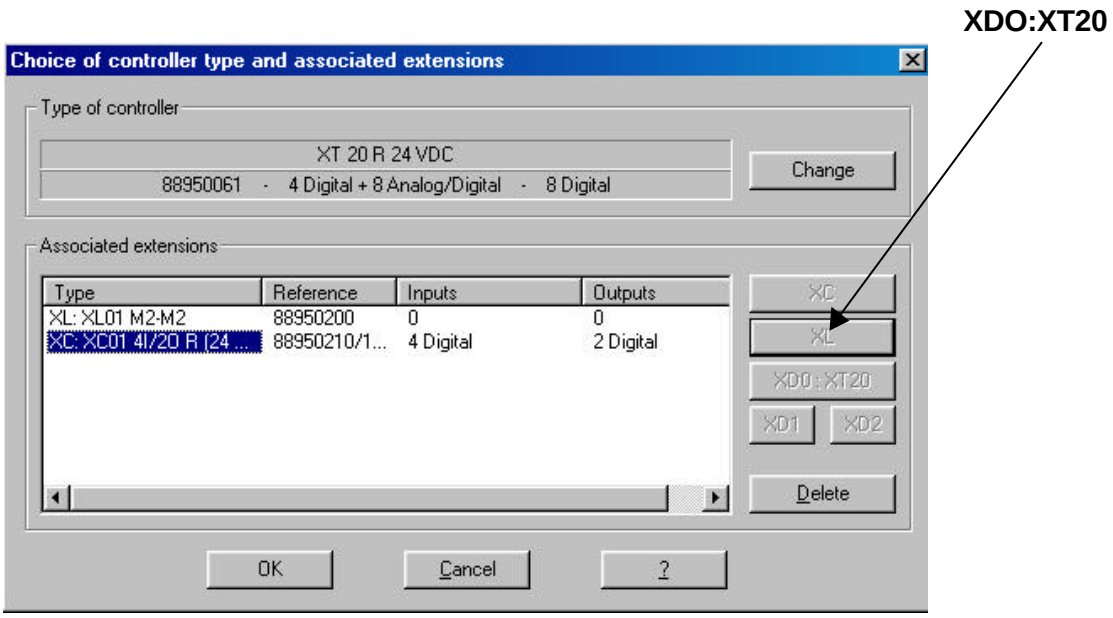


13.2 XT 20 + XT 20 + adjacent extension:

The local extension is connected to the Millenium XT 20.
1 Select the type of XT 20 controller **with extension** . then OK
2 Select the type of the **XC 4E/4S** adjacent option,
3 Then click **XL** to display the local extensions. OK
4 Select **XDO-XT20.** Then OK, OK







Your whole selected configuration then appears.

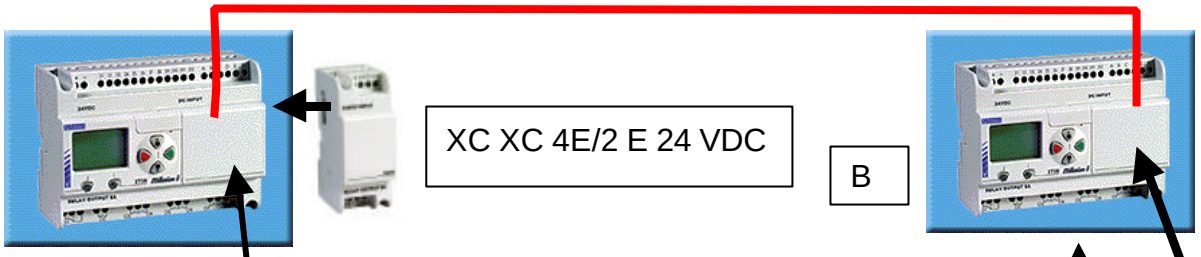
The XT 20 A configuration is then as follows.

Title Author- 0-0	XT 20R 24 VDC PROGRAM	XL. XL Remote XDO: XD XT20

XC XC 4E/2 E 24 VDC

Remote B Millenium

Wire link



A

XC XC 4E/2 E 24 VDC

B

XT 20R 24 VDC

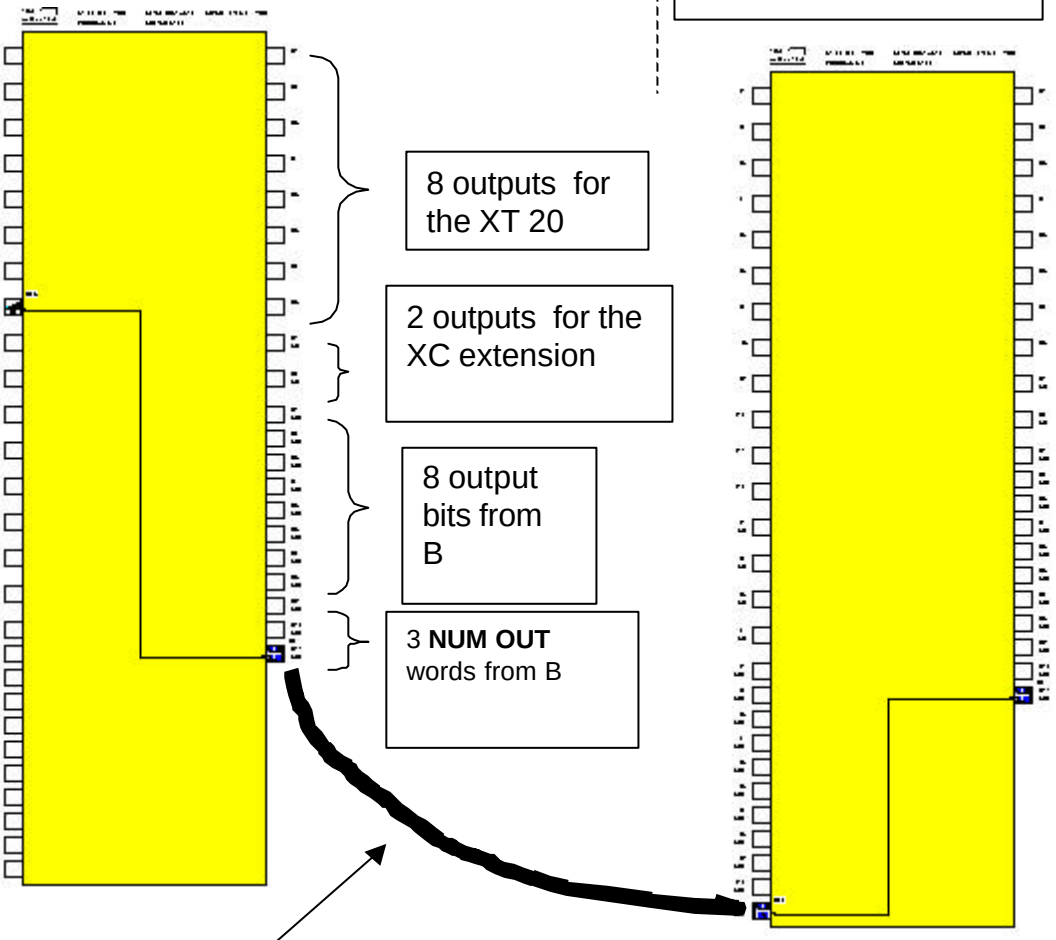
XL. XL Remote

XDO: XD XT20

XDO: XD XT20

XL. XL Remote

XC XC 4E/2 E 24 VDC



12 inputs for the XT 20

4 inputs for the XC extension

8 input bits from B

3 **NUM IN in** words from B

8 outputs for the XT 20

2 outputs for the XC extension

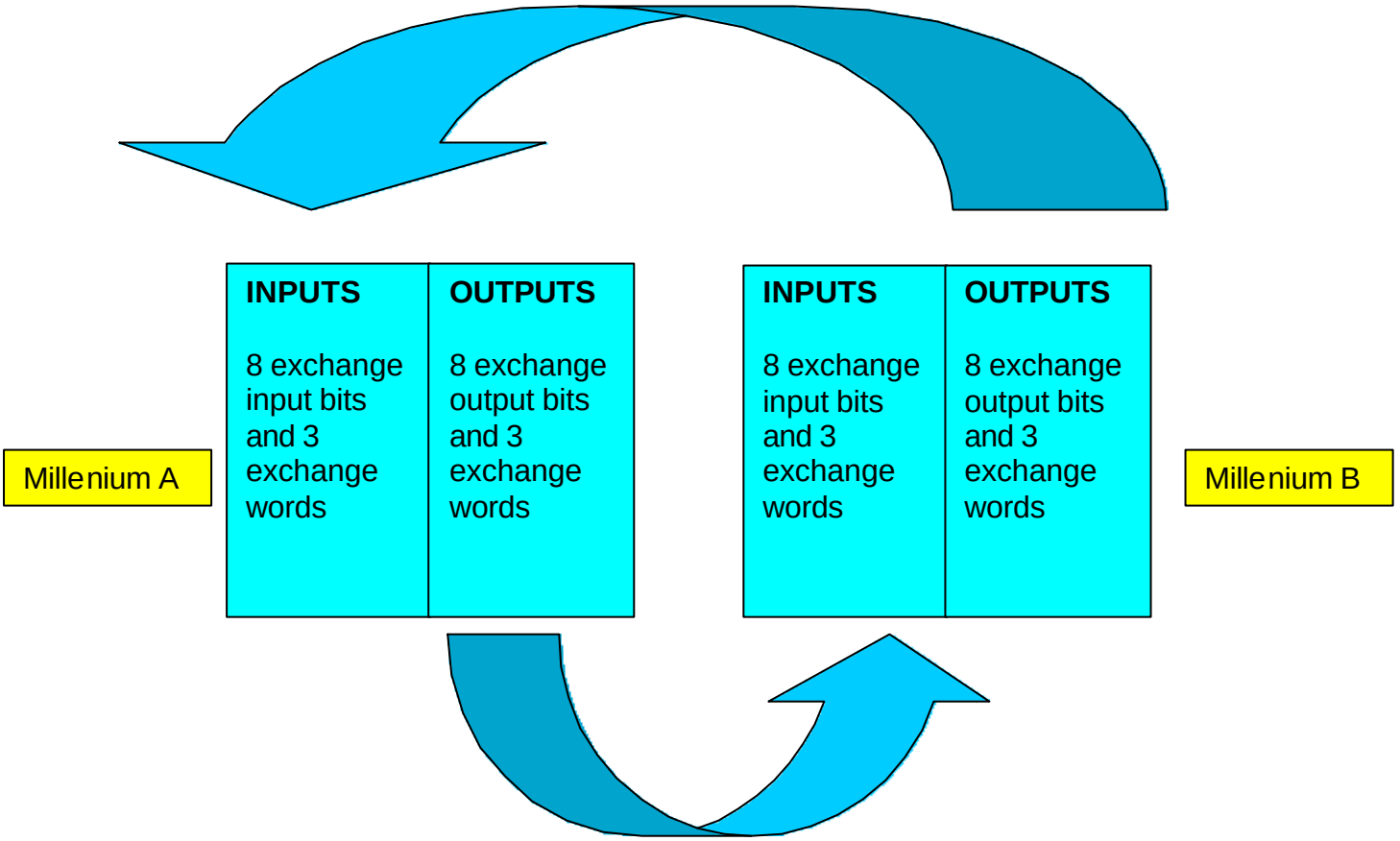
8 output bits from B

3 **NUM OUT** words from B

M2 – M2 permanent link

M2-M2

In addition to the inputs and outputs of each Millenium, you can therefore exchange 8 input bits, 8 output bits, 3 input words and three output words.

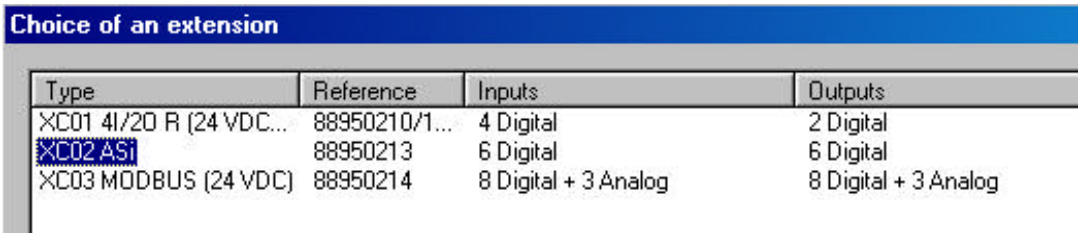


14 NETWORKS

14.1 AS_i slave extension

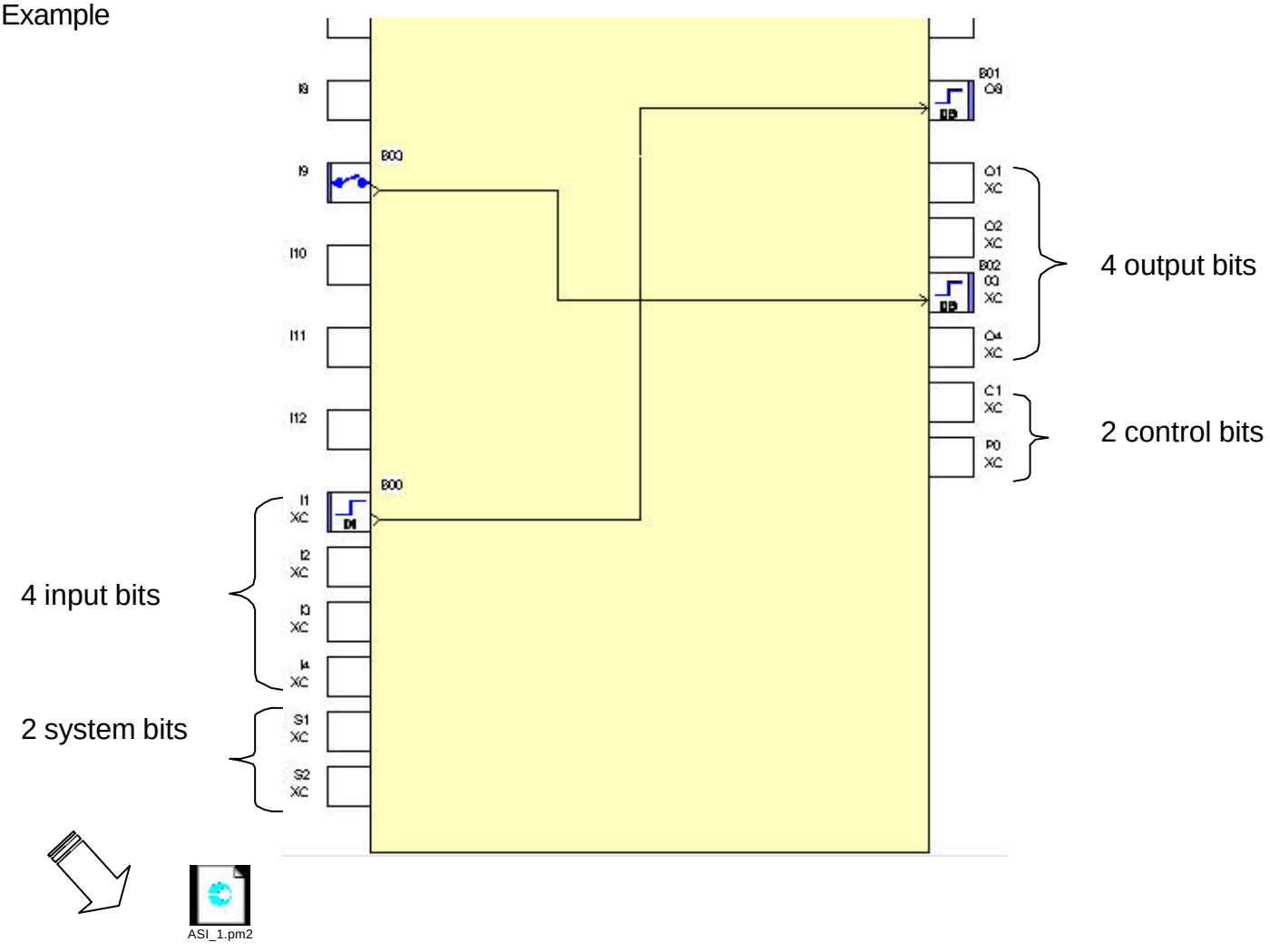
The AS-i extension connected to an XT 20 offers 4 input bits and 4 output bits. There are also 2 system bits and 2 control bits.

Select an XT 20, then declare the **XC** AS-i extension.



The AS-i slave number parameters are set by the master.
Seen from the AS-i master, the AS-i master reads the state of the output bits and writes the input bits.

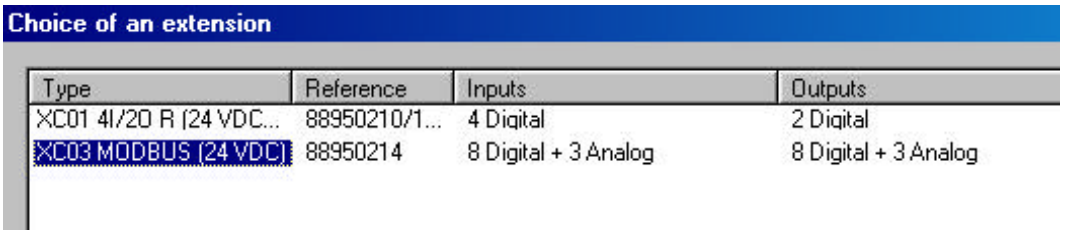
Example



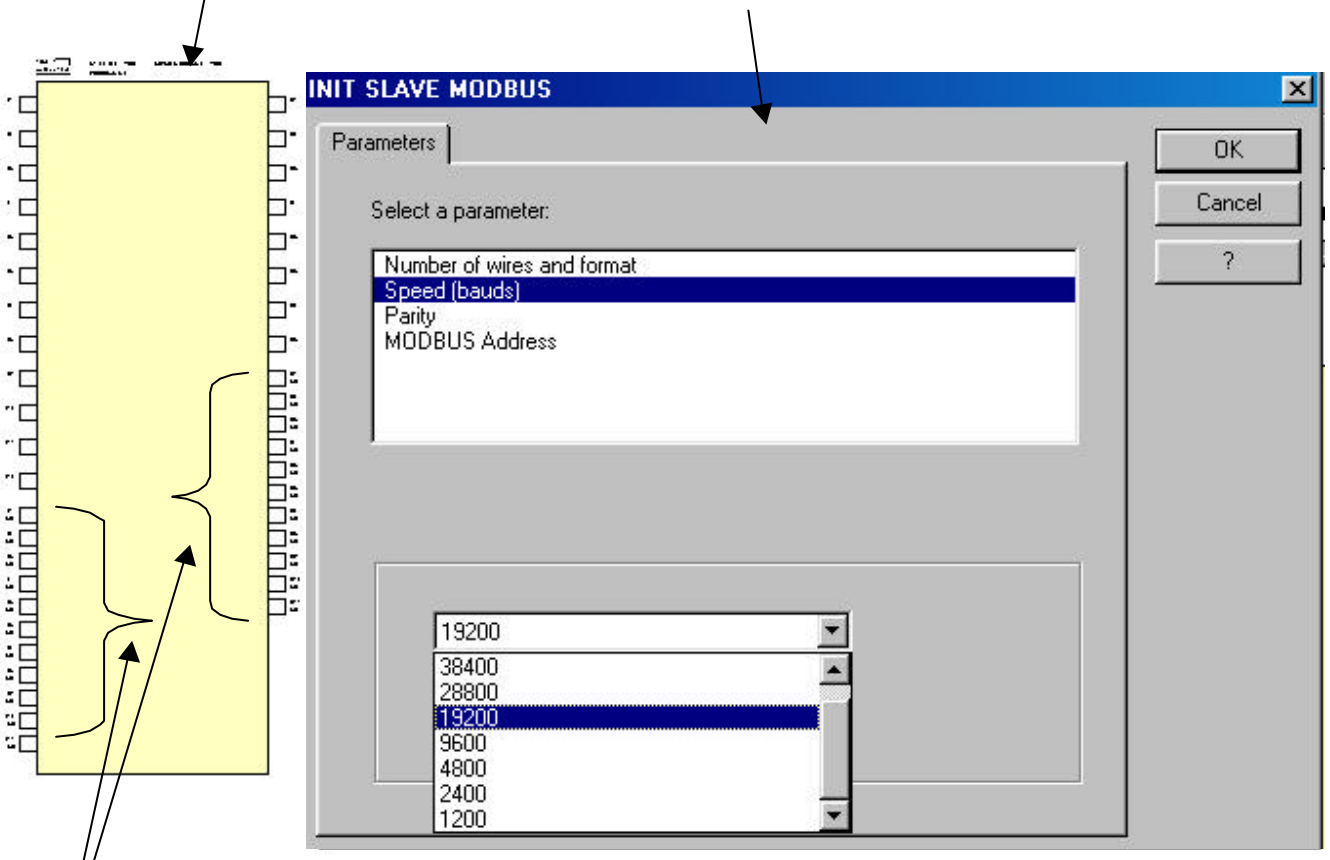
14.2 Modbus slave extension

The Modbus extension connected to an XT 20 offers 8 read bits and 3 read words and 8 output bits and 3 output words.

The extension Modbus parameters are set as follows:
Select an XT 20, then declare the **XC** Modbus extension.



Click here on the Modbus extension to obtain the parameter-setting window.



Then select each of the four parameters and define them.
The slave extension "speed" and "parity" parameters should be identical to those in the master, as should the network wiring used: 2 or 4-wire.

Modbus exchanges are performed on the 8 bits and 3 words of the inputs and outputs.