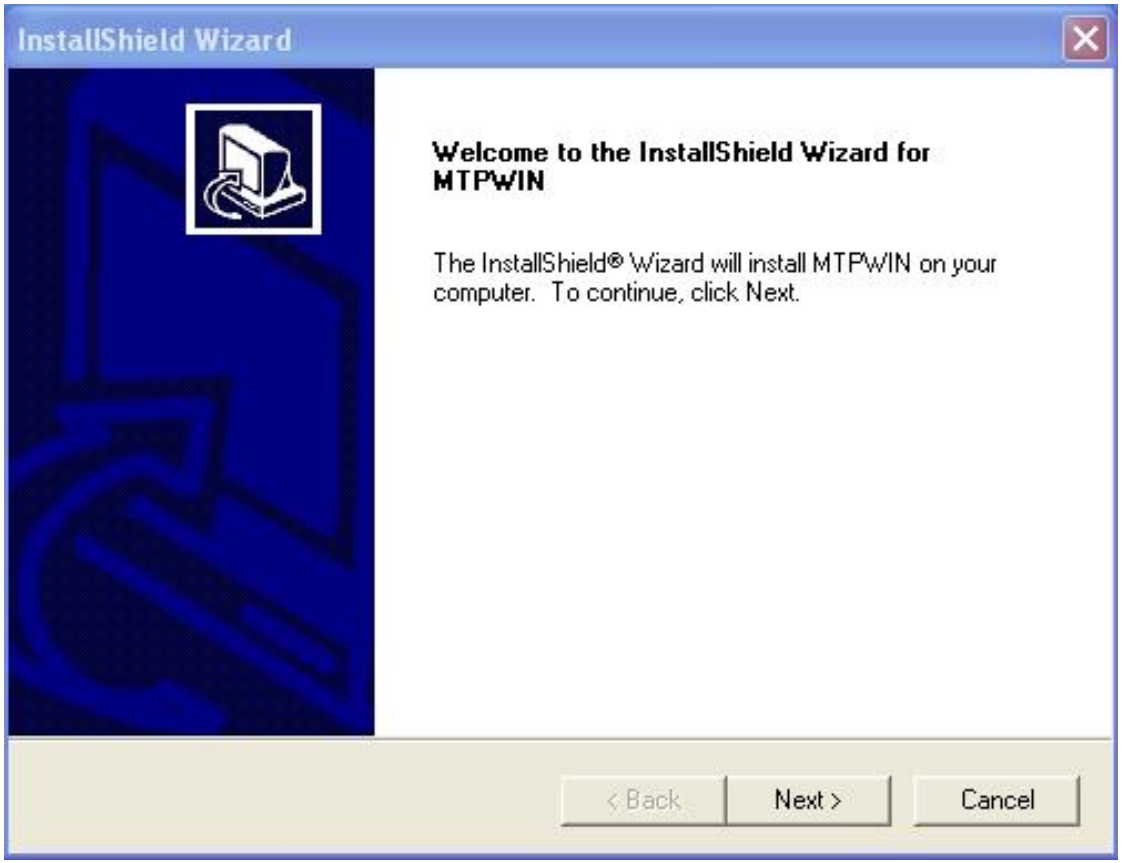
This powerpoint will show you the programming functions of MTPWIN, it will take you to open MTP05 and Millenium3 programs to discover the mode of its operation.

MTP05 screen & Millenium3

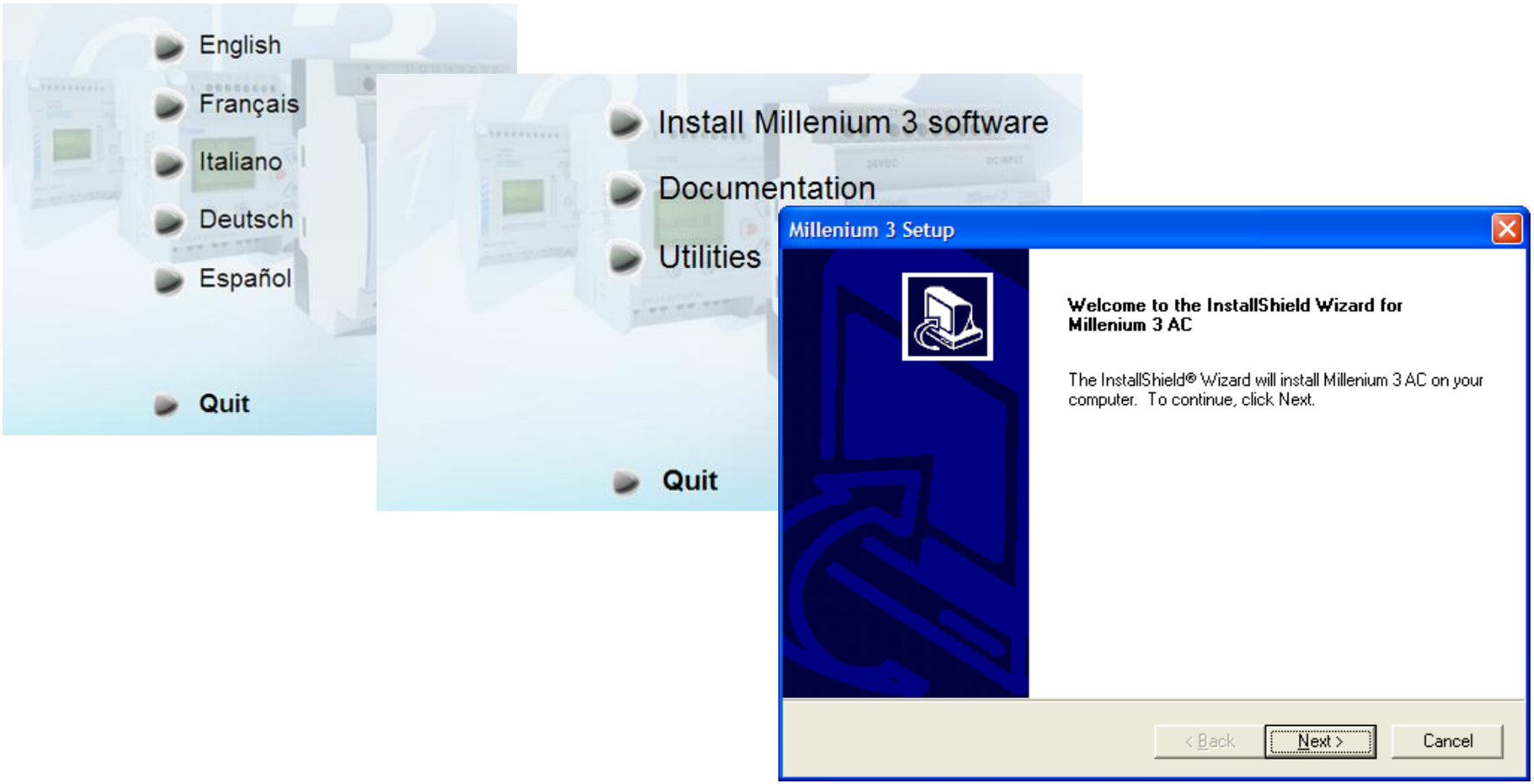
Contents

- Installing the MTPWIN software



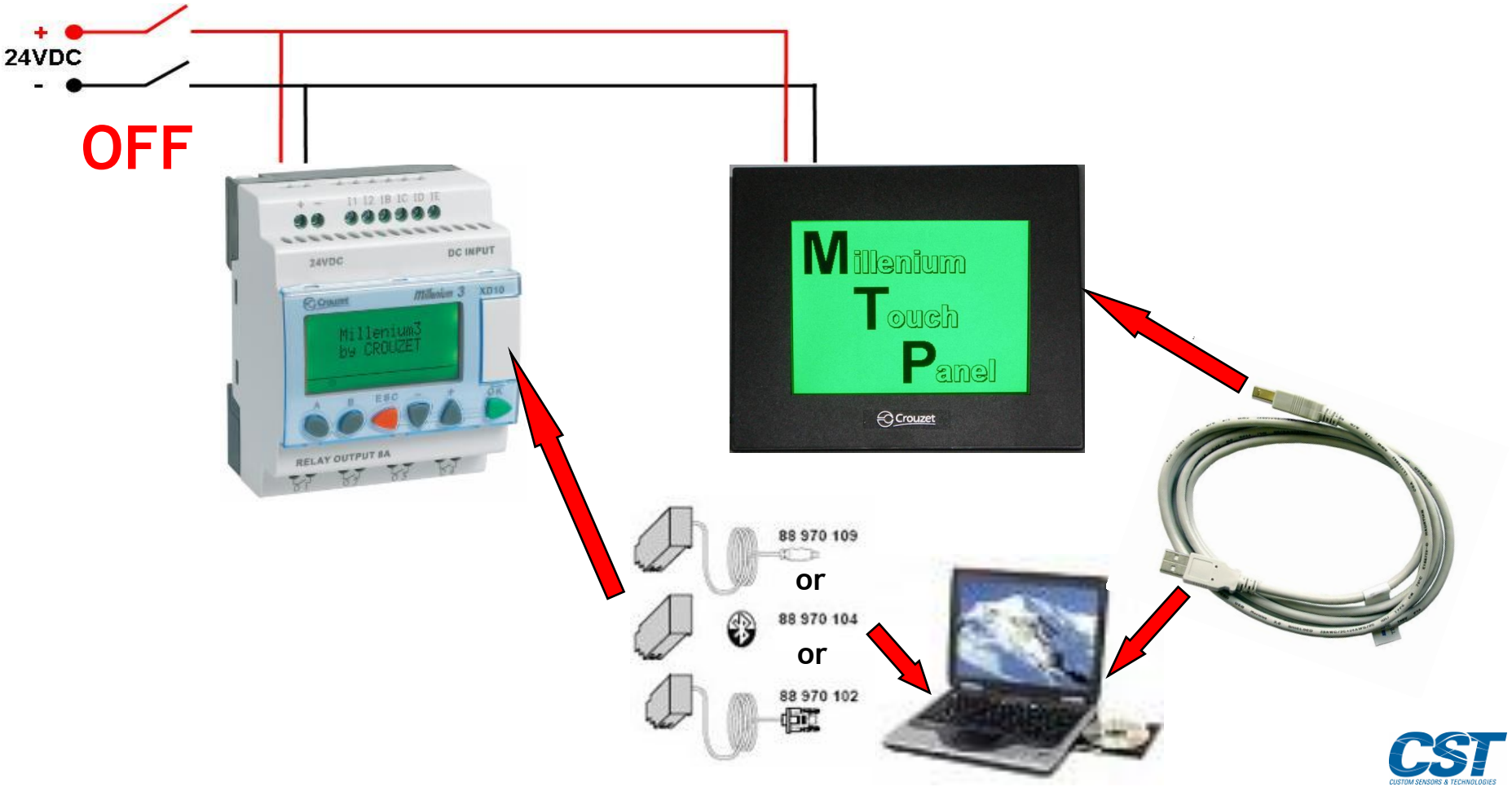
Restart your PC after installation

- Installing the software Millenium3

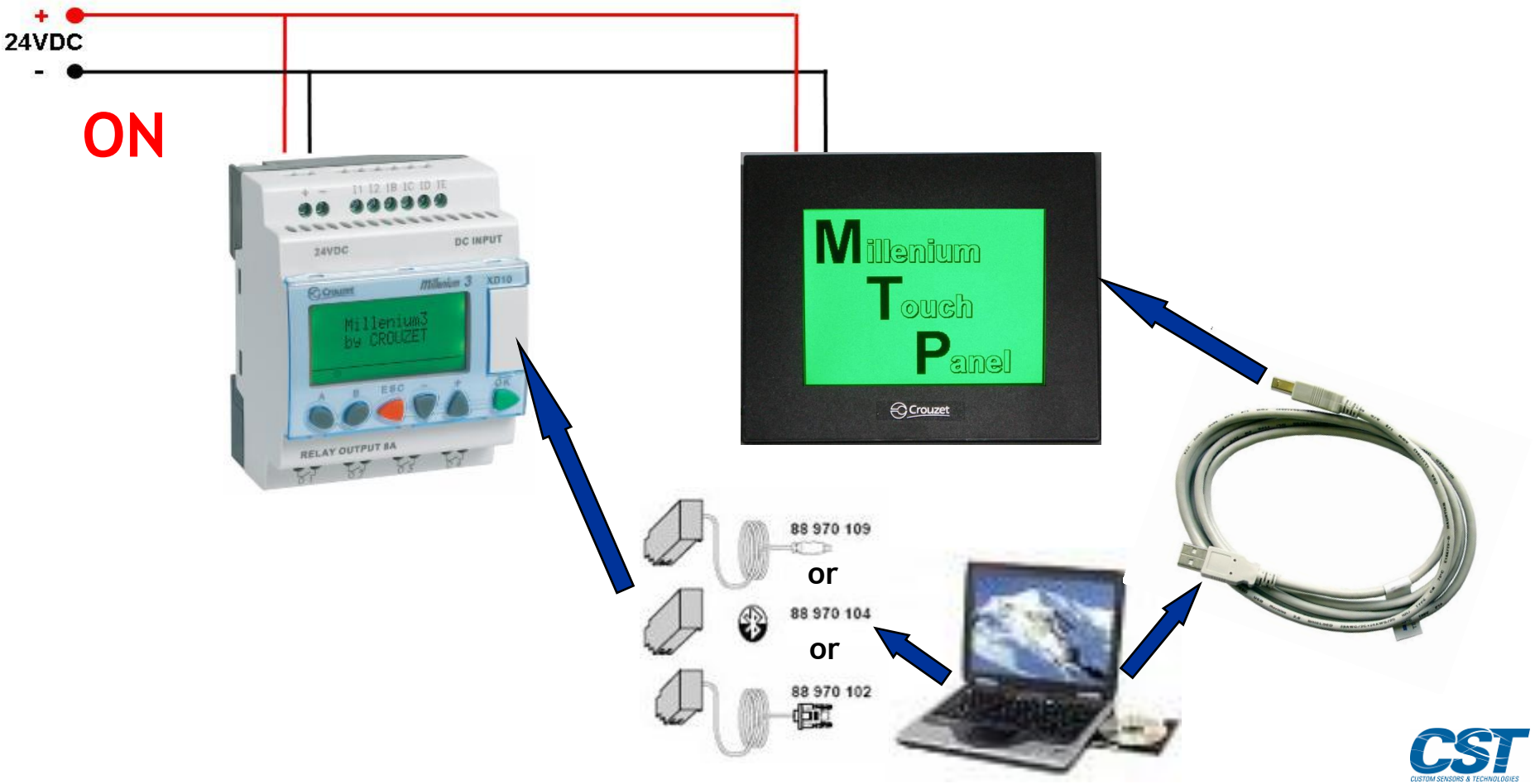


Wiring for program transfer

⚠ *The power must be disconnected whenever inserting or extracting the connector into/from Millenium3 or the USB cable into/from MTP05 !*



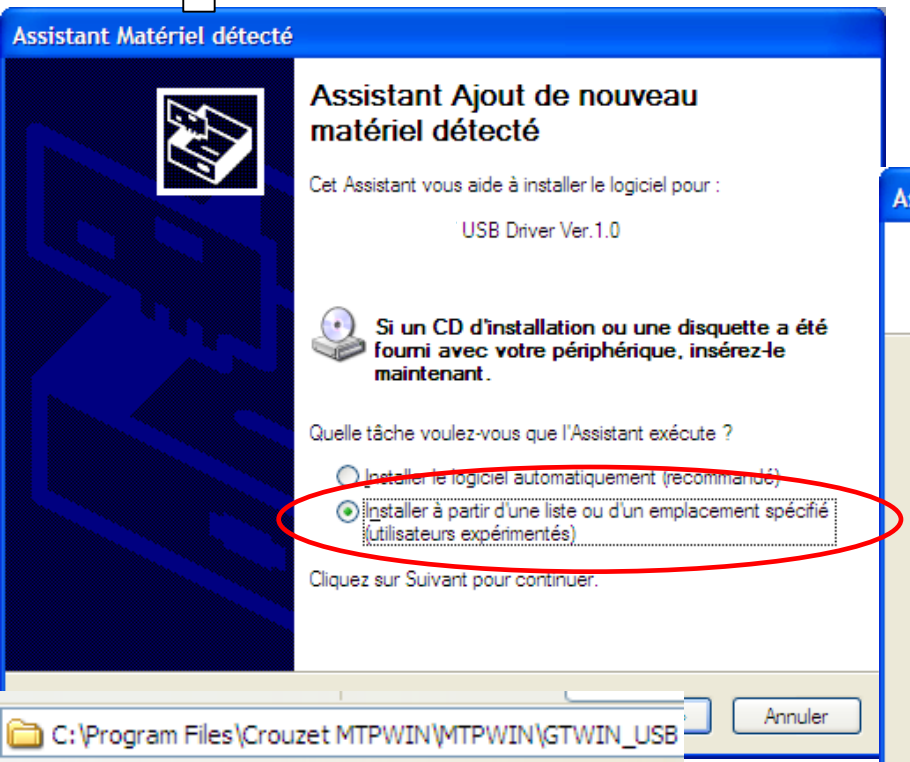
Program transfer

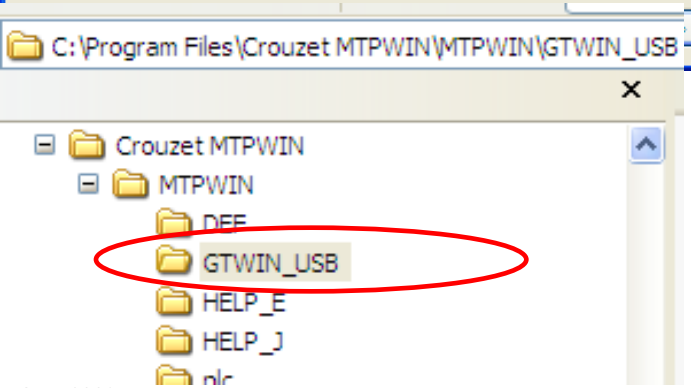


USB driver installation

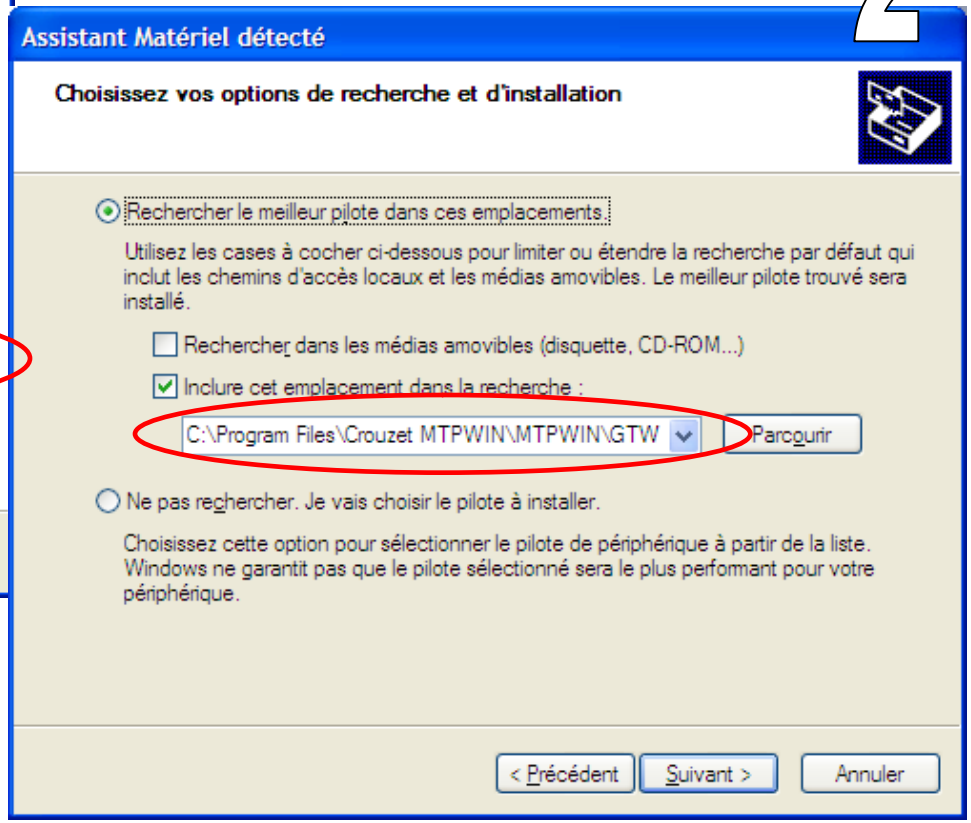
1

After connecting MTP05 to the USB port, this message will appear



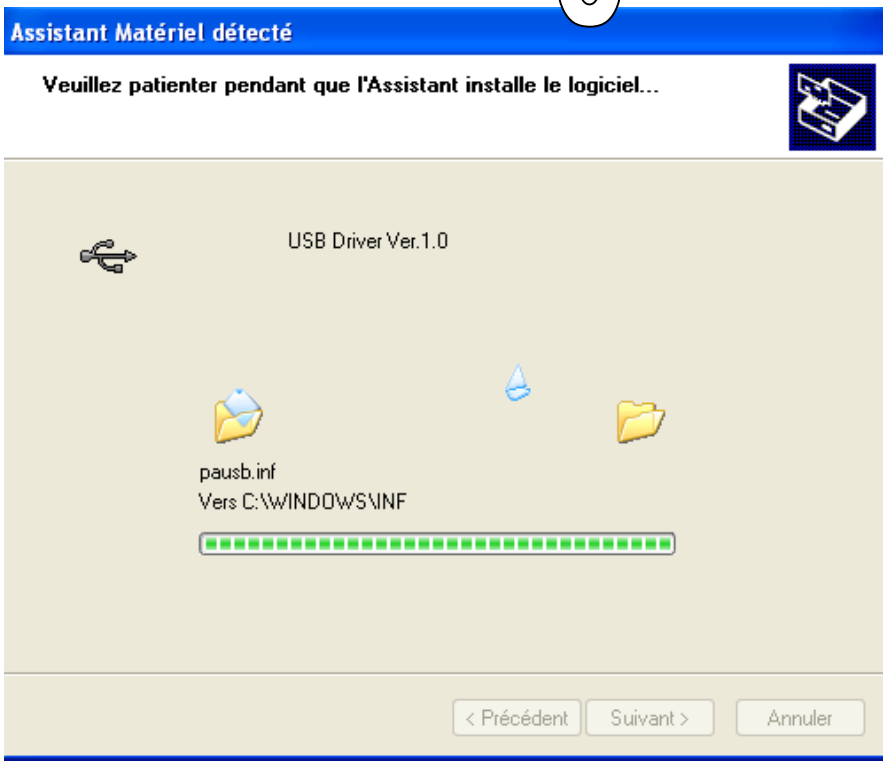


2

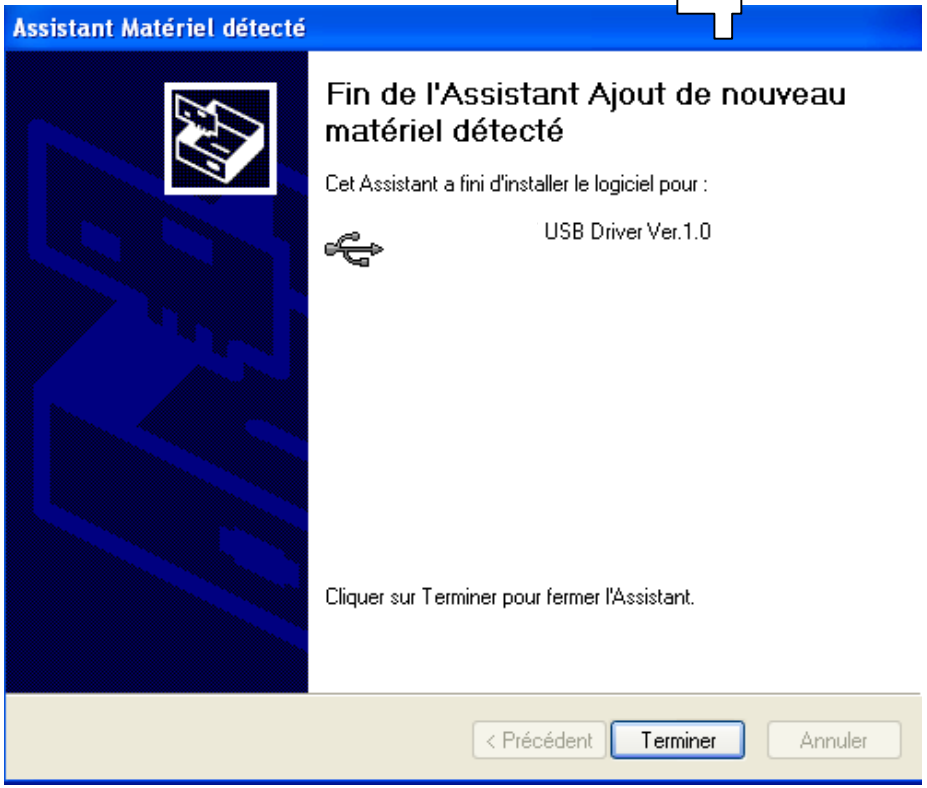


USB driver installation

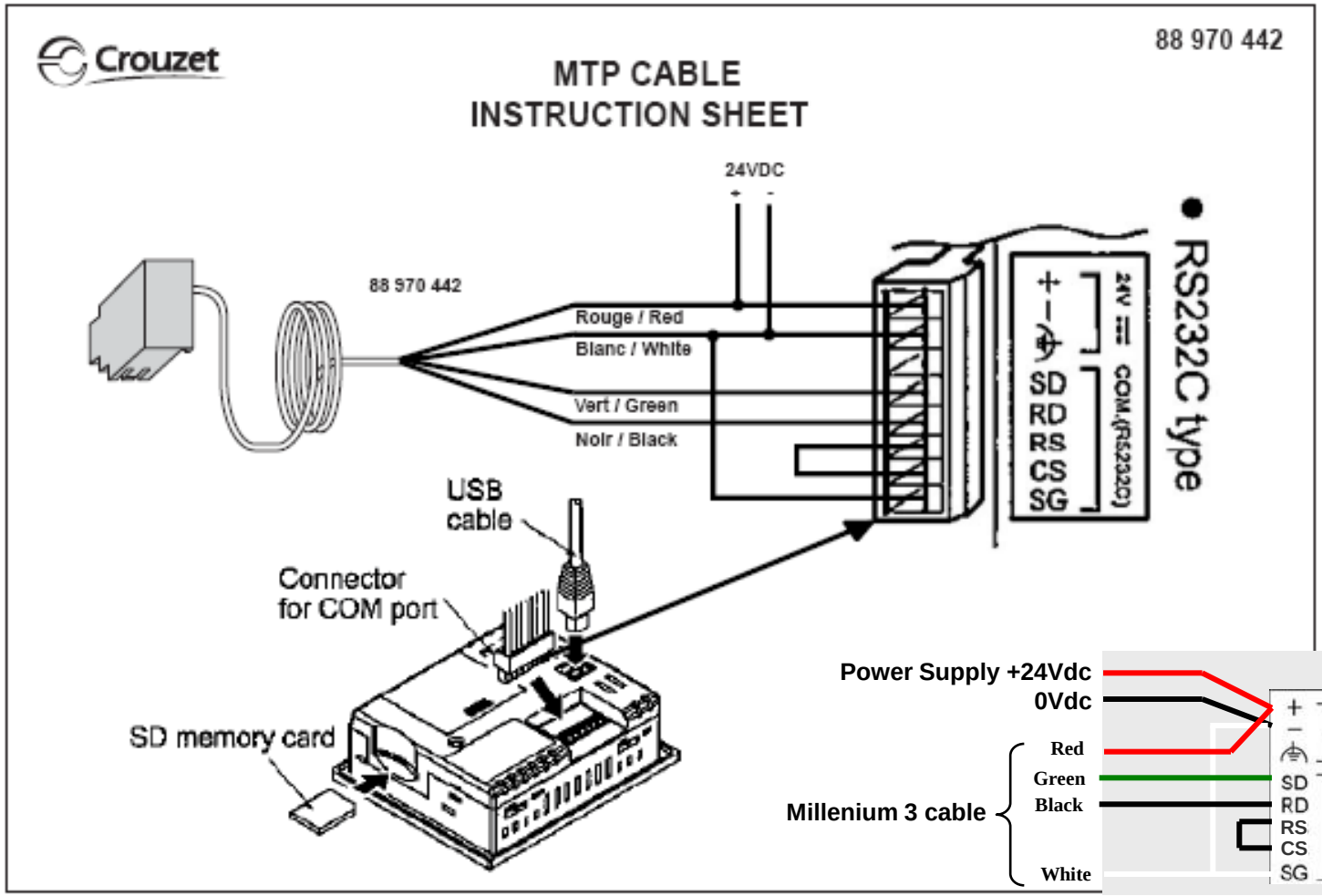
3



4

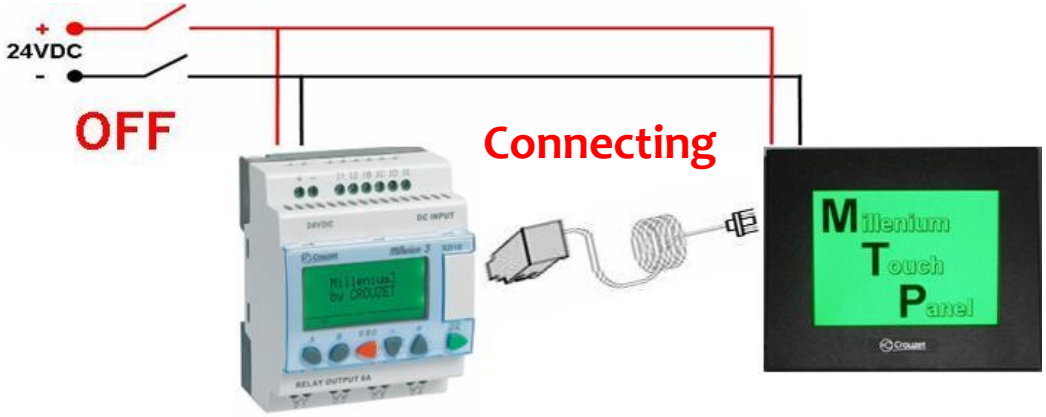


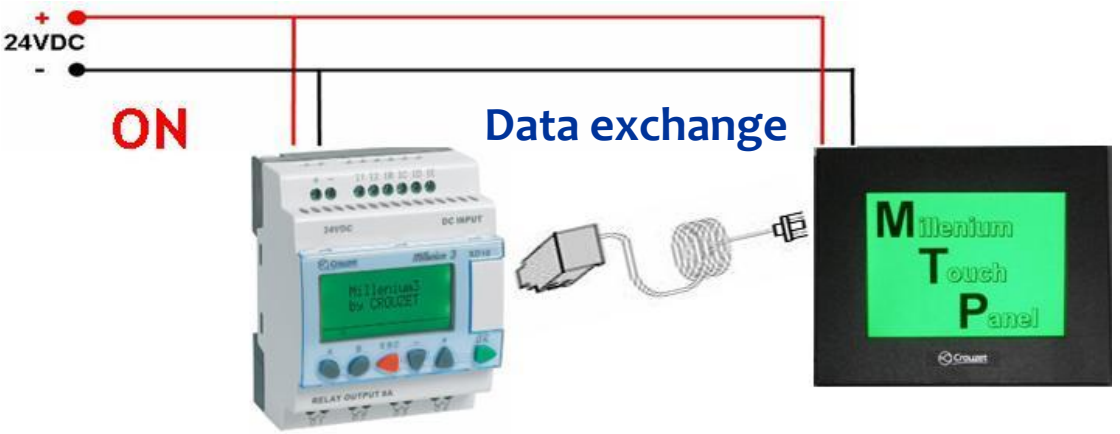
The data exchange cable Millenium3 ⇔ MTP05



Wiring for use / data exchange

The power <u>must be</u> disconnected whenever inserting or extracting the Millenium3 - MTP05 data exchange cable !





The various MTP05 functionalities

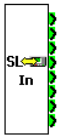
- Read/write Word - Bit
- Recipe management
- Alarms
- Piloting MTP05 by M3
- Reading the status
- Reading/writing the M3 clock
- Internal clock
- Changing the page (program)
- Line Graphs and Bargraphs
- Bitmaps and Scrolling messages
- Bitmaps
- Scrolling messages
- Conditions/comparator
- Password management

BASICS

- Addressing
  - » Example
  - » Address area
    - BSLIN
    - BSLOUT
  - Configurating the address zone to pilot MTP
    - » Internal address area (MTP)
    - » External address area (M3)
      - Details of the area used by M3

Definitions:

SLIn = *Serial Link In* → Function block that allows M3 to read 8 words by using the M3 programming port.



3 blocks with 8 words each can be used (addresses 1-8, 9-16, 17-24)

SLOut = *Serial Link Out* → Function block that allows M3 to write 8 words by using the M3 programmimg port.

3 blocks with 8 words each can be used (addresses 25-32, 33-40, 41-48)

M3 → Millenium3

MTP05 = *Millenium Touch Panel* → Screen of the M3

MTPWIN → Programming software of the MTP05

WSLIN → Word address in MTPWIN related to an SLIn function block

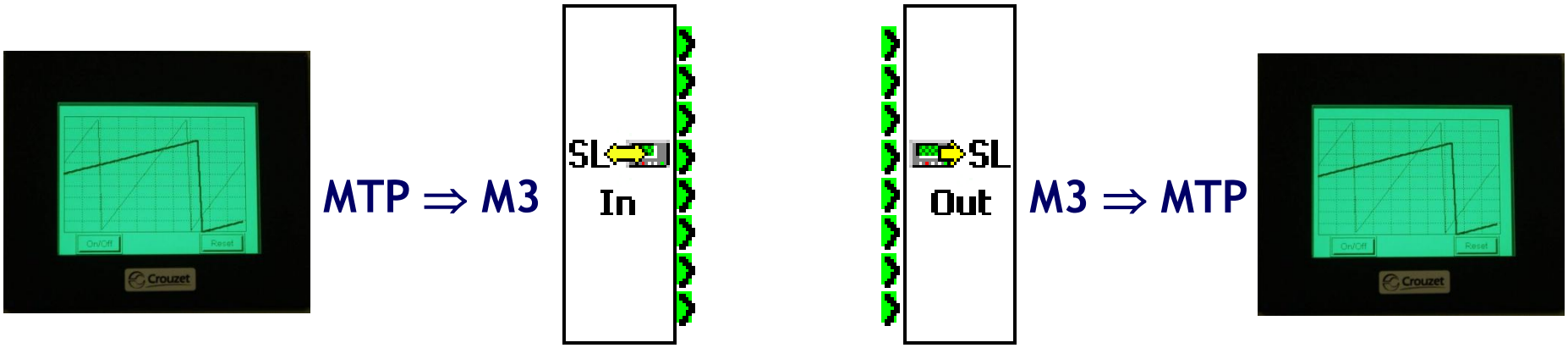
WSLOUT → Word address in MTPWIN related to an SLOut function block

BSLIN → Bit address in MTPWIN related to an SLIn function block

BSLOUT → Bit address in MTPWIN related to an SLOut function block

Addressing

Words and Bits are used for the data exchange between MTP05 and M3.



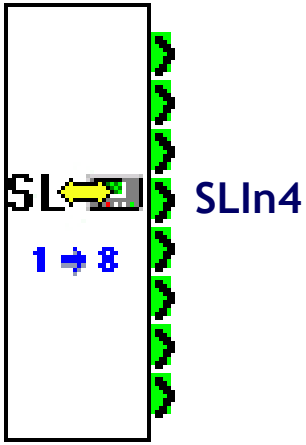
Word address area:

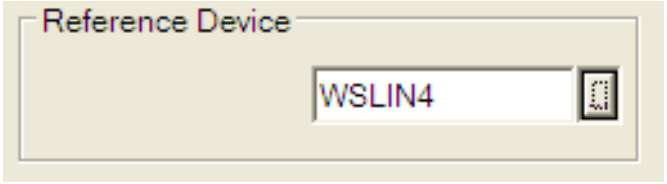
Millenium3: SLIn 1 - 24 ⇒ MTPWIN: WSLIN 1 - 24

Millenium3: SLOut 25 - 48 ⇒ MTPWIN : WSLOUT 25 - 48

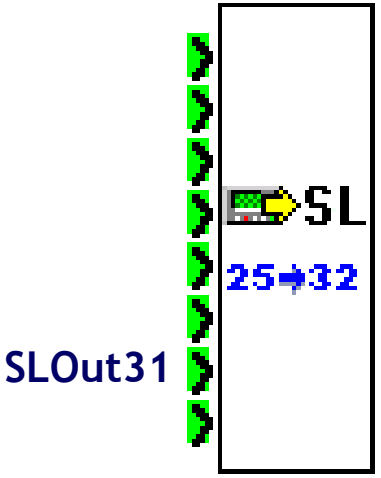
Word addressing example

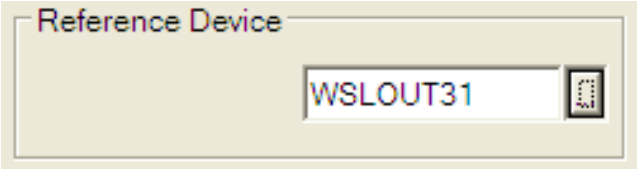
M3: SLIn4 ⇒ MTPWIN: WSLIN4



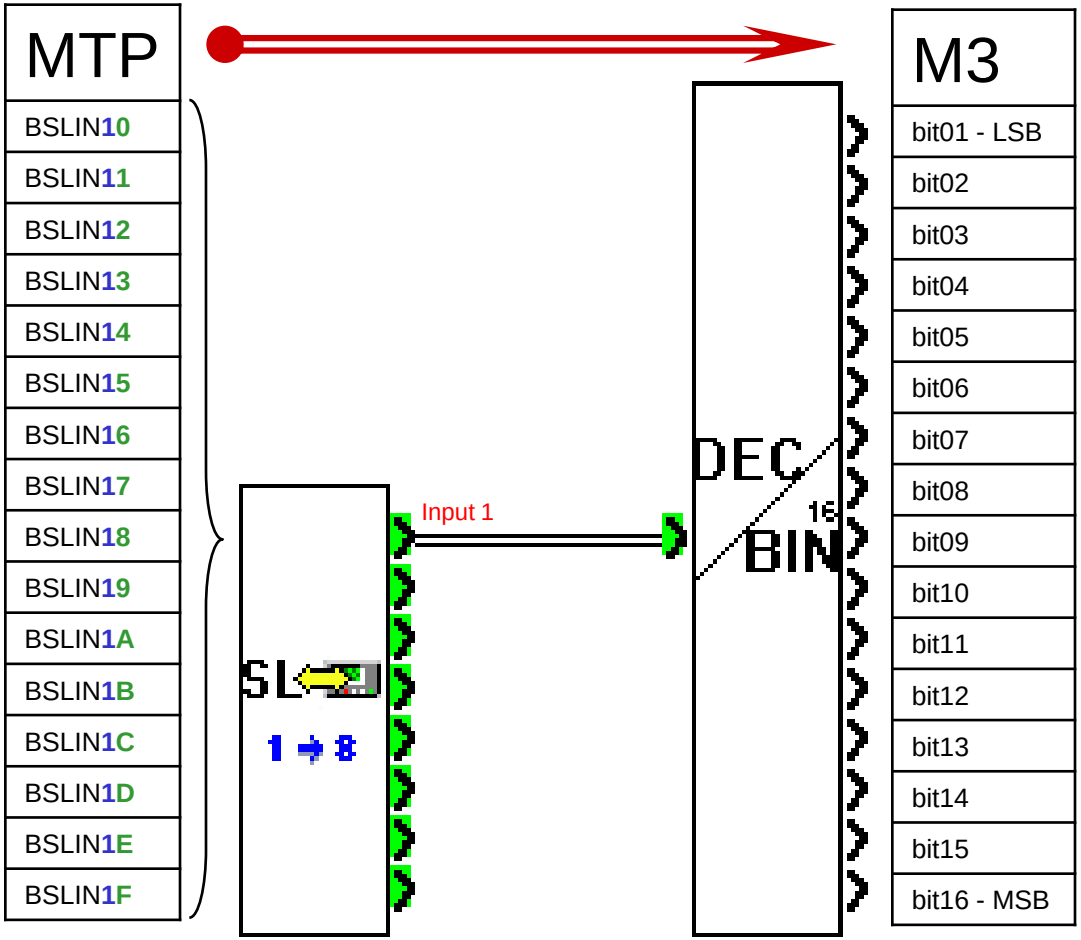


M3: SLOut31 ⇒ MTPWIN: WSLOUT31

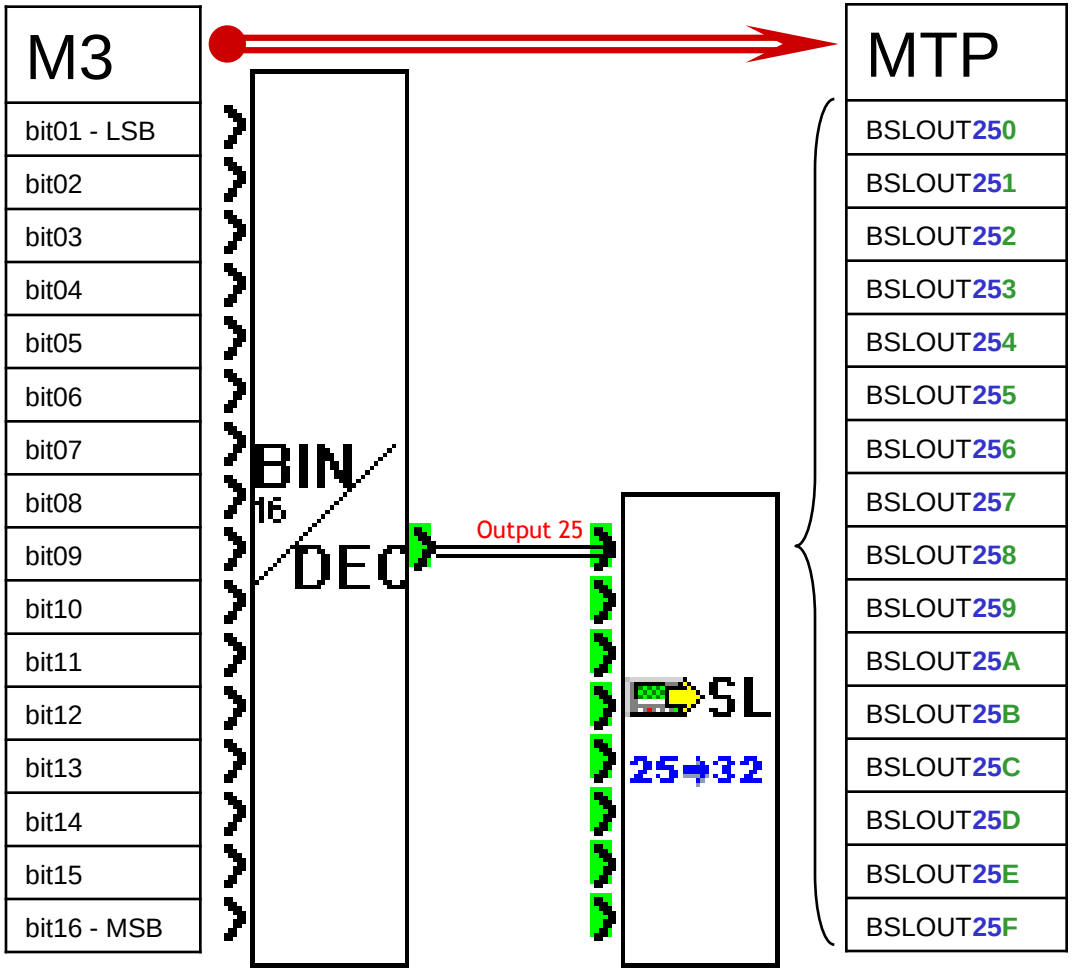




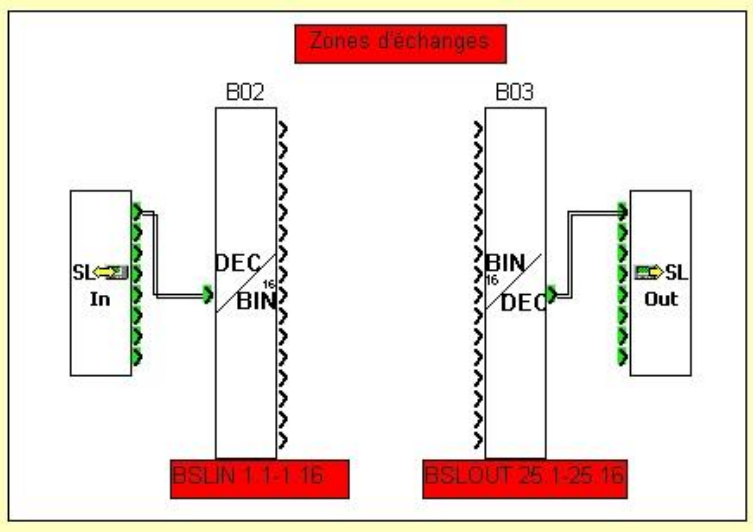
Addressing a bit - BSLIN



Addressing a bit - BSLOUT



Addressing bits in M3 is done with these function blocks:



How to address a bit in MTPWIN:

The bits (BLSOUT or BSLIN) are described like this: **N word + N°bit**

Example: To work with bit 15 on SLOut12, it will be noted as BSLOUT**12E**.

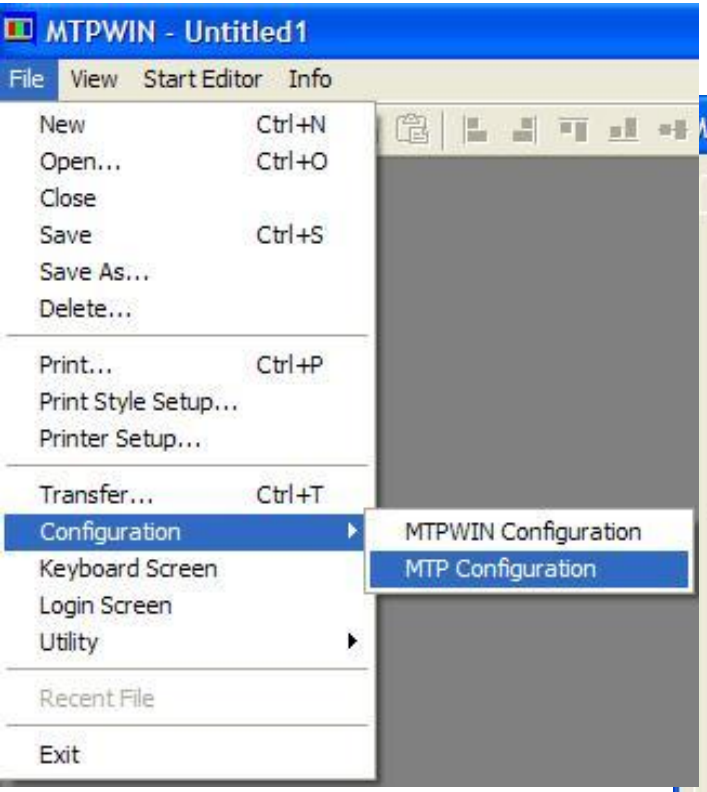
The address area ranges from 1 to 48 and is defined as follows:

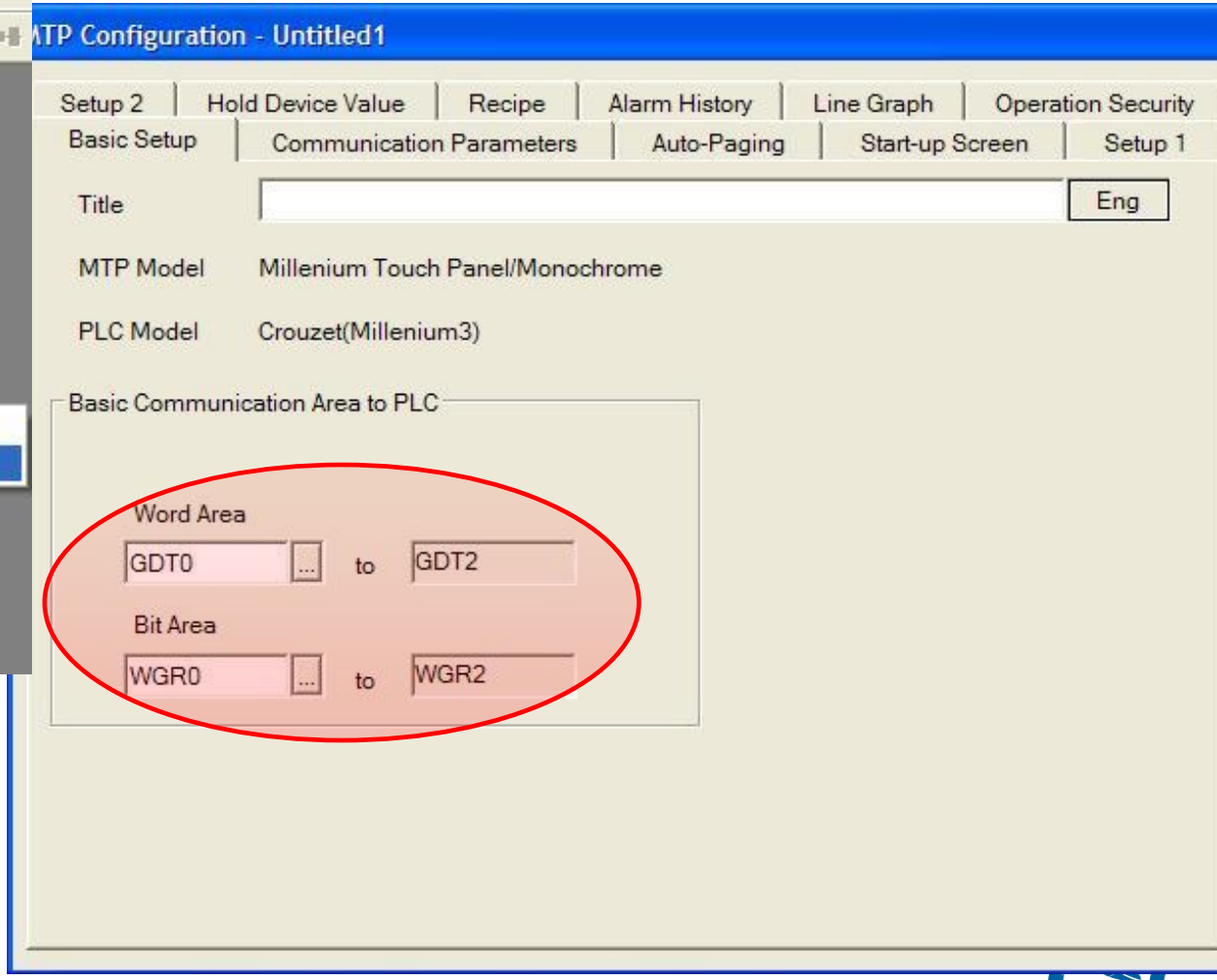
Bit SLIn 1.1 - 24.16 of M3 ⇒ BSLIN **10** to **24F** in the MTPWIN

Bit SLOut 25.1 – 48.16 of M3 ⇒ BSLOUT **250** to **48F** in the MTPWIN

Basic communication Area to PLC (M3):

Internal addresses reserved to pilot the MTP05





Internal pilot area (MTP05):

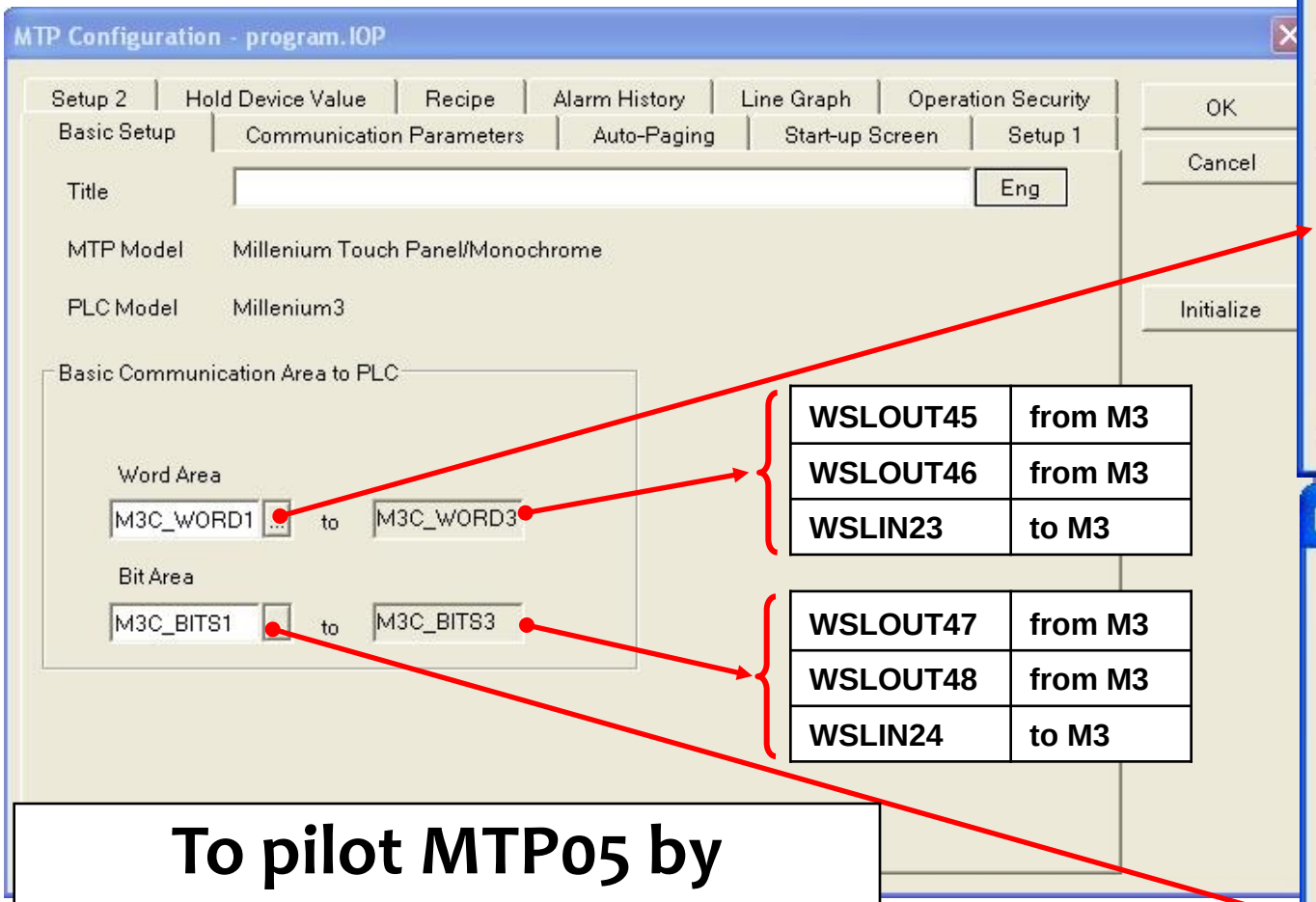
N ex: GDT0	Change screen (hexadécimal)
N+1 ex: GDT1	Not used
N+2 ex:GDT2	Number of the screen actually in use (hexadécimal)

Position	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
n +BIT ex: WGR0F = 1 (buzzer on)	Buzzer	Force view	Backlight on/off	Blinking backlight	Backlight color											
N+1 ex: WGR1	Not used															
N+2 ex:WGR2	Not used															

One can use keys in the screen to pilot the MTP05

Backlight colors (default = green)		
Bit	B	A
Off	0	0
Green	0	1
Red	1	0
Orange	1	1

The M3 data zone reserved by default (not adjustable):



WSLOUT45	from M3
WSLOUT46	from M3
WSLIN23	to M3

WSLOUT47	from M3
WSLOUT48	from M3
WSLIN24	to M3

To pilot MTP05 by Millenium3

The M3 data zone reserved by default:

WSLOUT45	from M3	→ Change the MTP05 page
WSLOUT46	from M3	→ Use prohibited
WSLIN23	to M3	→ Use prohibited

WSLOUT47	from M3	→ Pilot the MTP05 screen
WSLOUT48	from M3	→ Copy of WSLOUT47
WSLIN24	to M3	→ Use prohibited

Position (WSLOUT47)	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
n +BIT ex: 47+F (buzzer)	Buzzer	Force view	Backlight On/Off	Flashing backlight	Backlight color											

Bit	B	A
Off	0	0
Green	0	1
Red	1	0
Orange	1	1

Back to Page 66

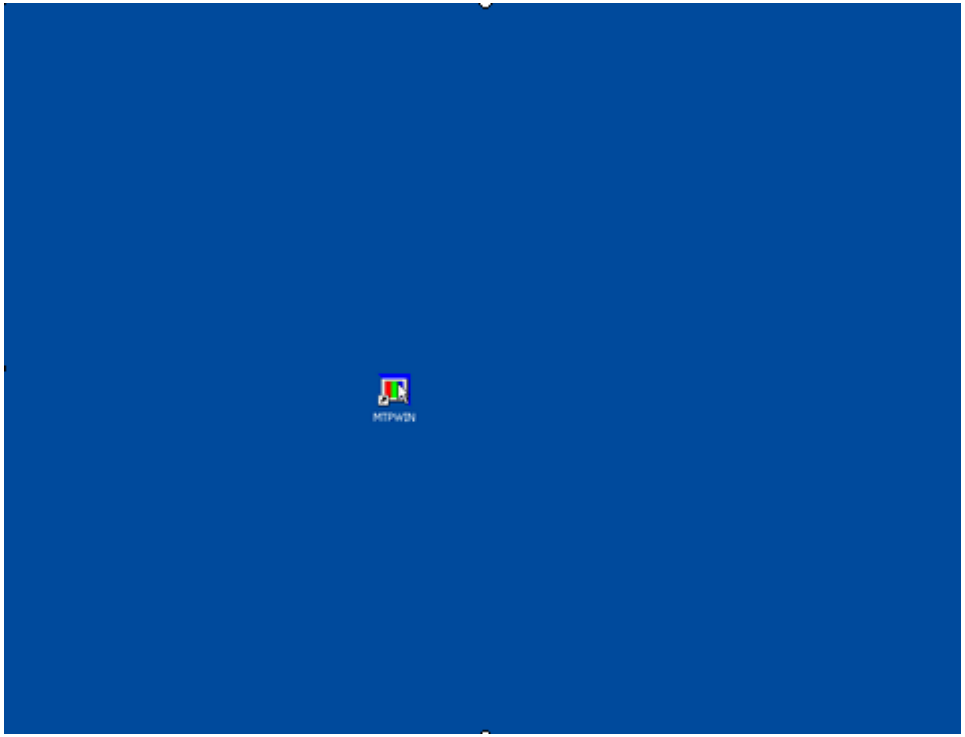
MTP05 presentation

- **PRESENTATION**

  - Screen management
  - First start with MTPWIN
  - Creating a new program
  - The important menus
  - Transfer parameters

Launching MTPWIN the 1st time

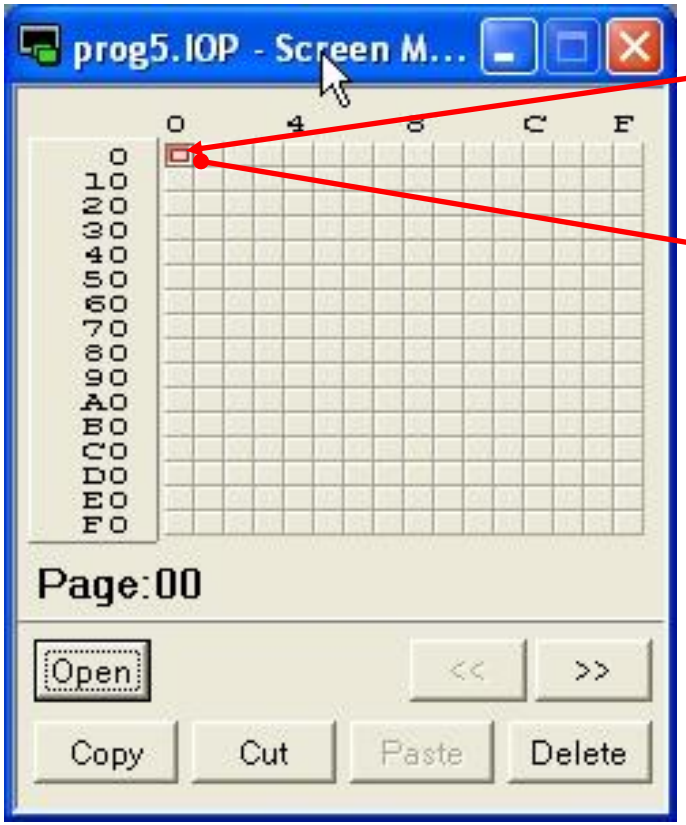
(creating a new program).



Click on the image to show the video.

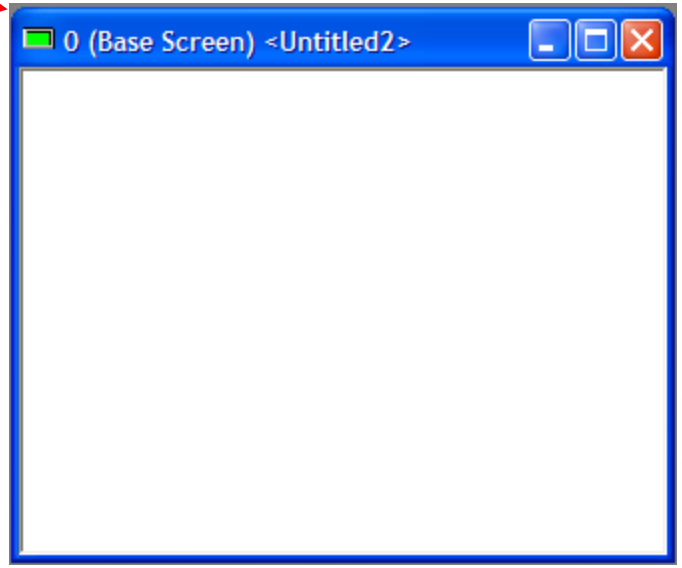
Screen management

1

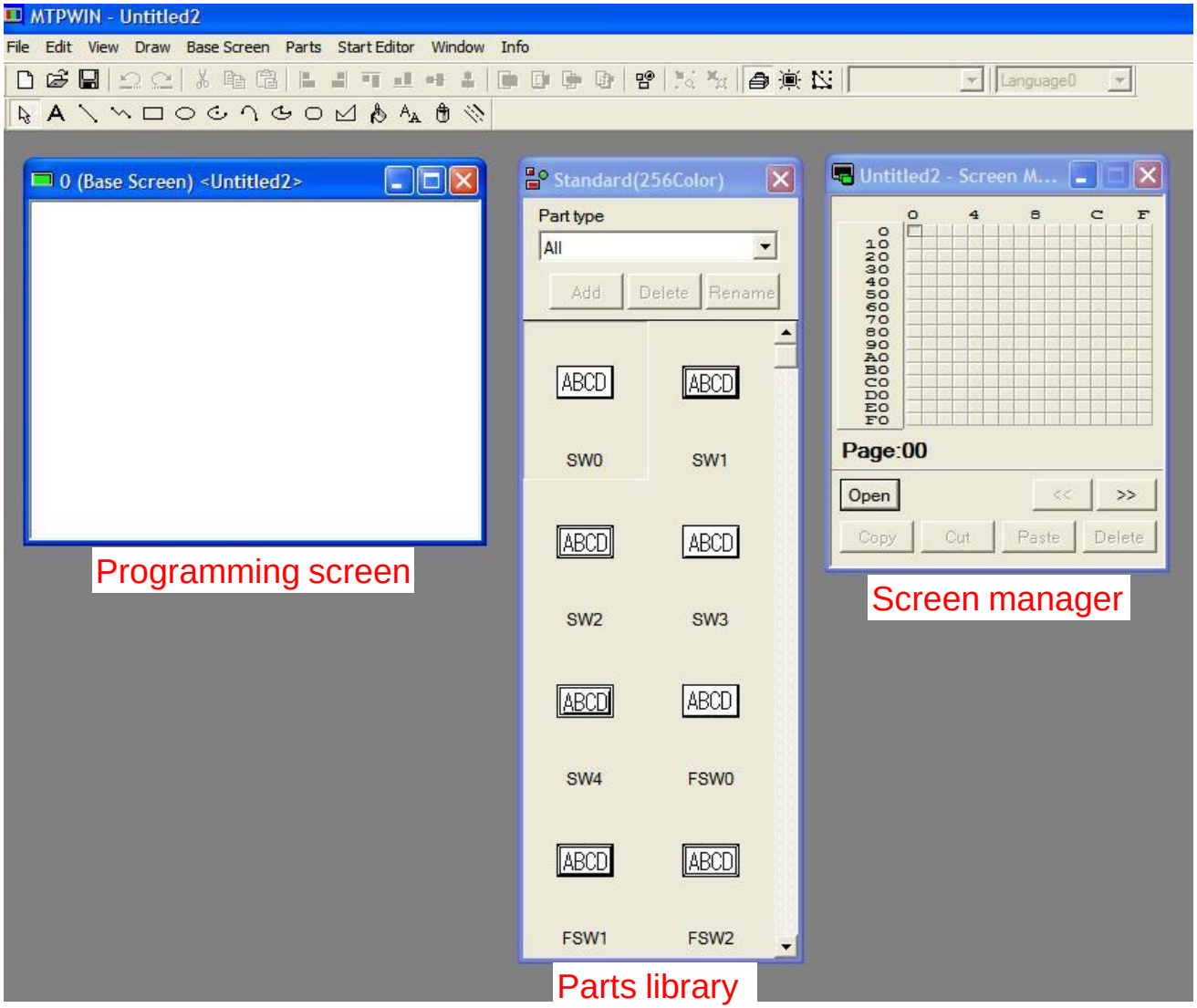


The screen management is done by double-clicking here

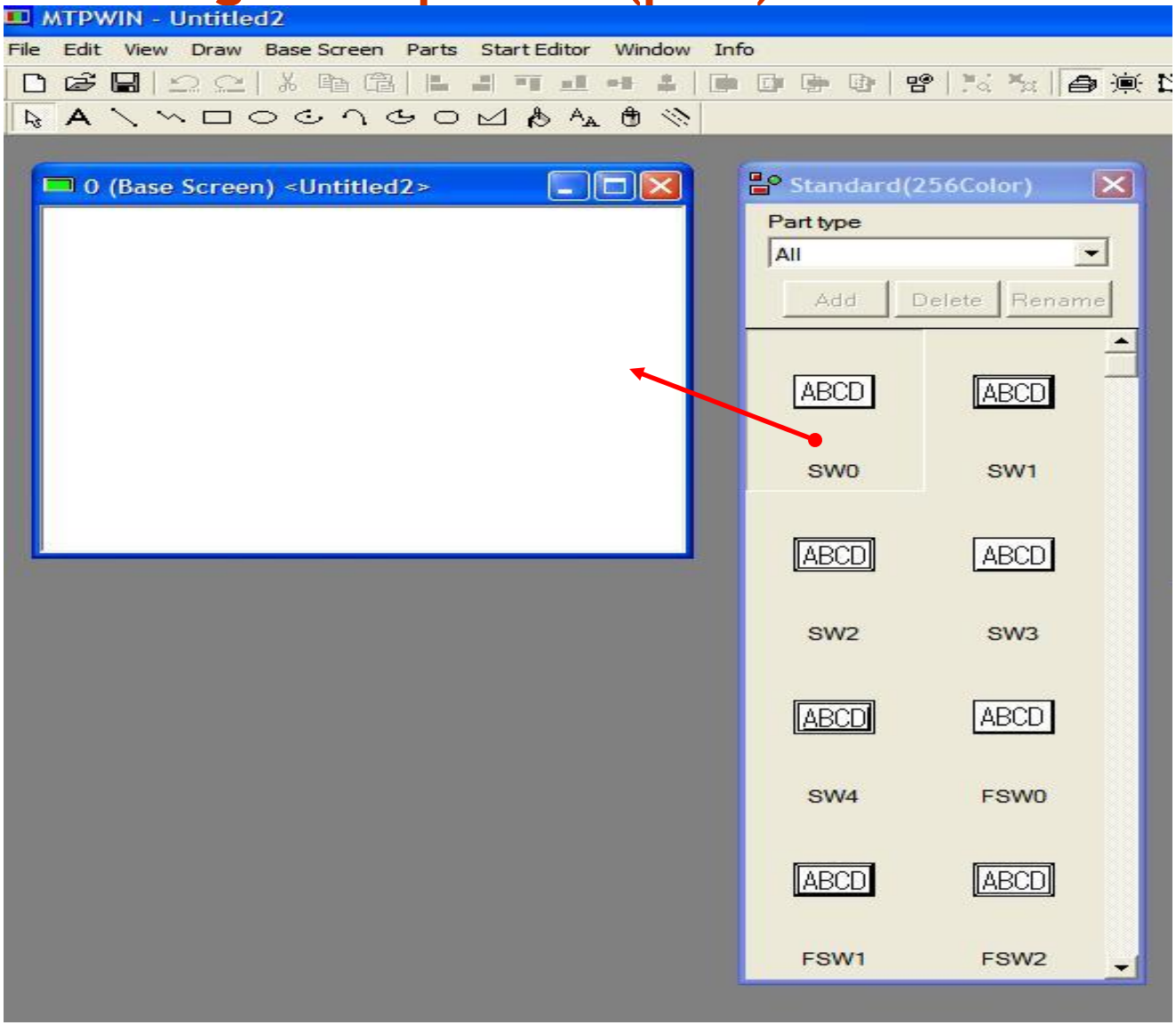
2



After opening a new program



Placing a component (part) on the screen



To place a part on the screen, click on the part with the left mouse key, hold the key, drag the part to the screen and release the key where you want to place it. (Drag and drop) Like with the Millenium3 software.

The main menus 1

MTPWIN - Untitled2

File | Edit | View | Draw | Base Screen | Parts | Start Editor | Window | Info

- New
- Open...
- Close
- Save
- Save As...
- Delete
- Print...
- Print Style Setup...
- Printer Setup...
- Transfer
- Configuration
- Keyboard Screen
- Login Screen
- Utility

View | Draw | Base Screen | Parts | St

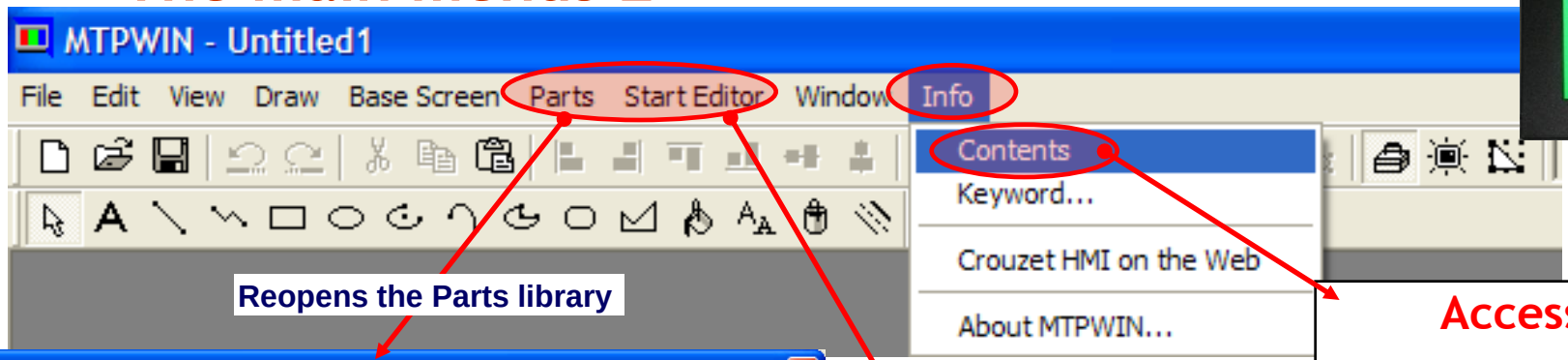
- Redraw
- Grid Alt+G
- ✔ Toolbar
- ✔ Status bar
- ✔ Graphic bar
- Screen Manager Display
- Zoom
- Zoom Box
- ✔ Parts No.
- ✔ Parts Attribute
- Status
- Language No.
- Total Memory Usage
- MTP Usage Device...

0 (Base Screen) <Untitled1>

SW0
BSLIN8C
ABCD

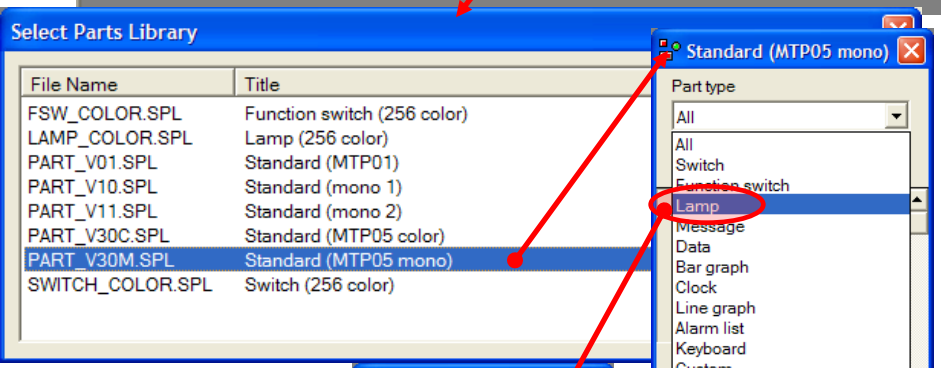
This shows the address of a part

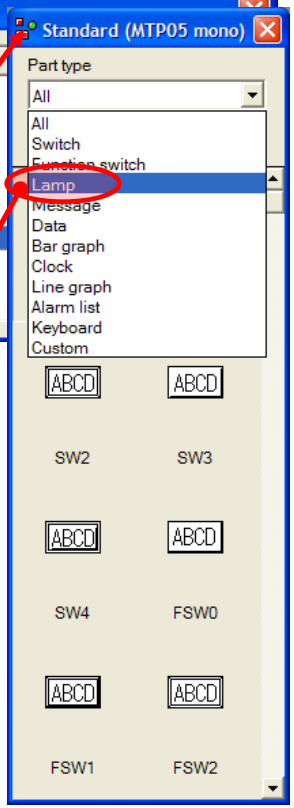
The main menus 2

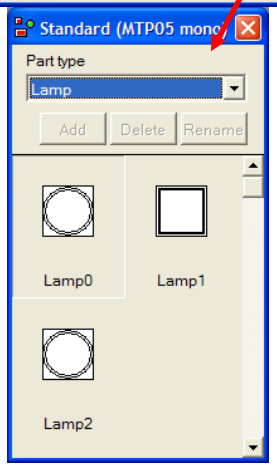


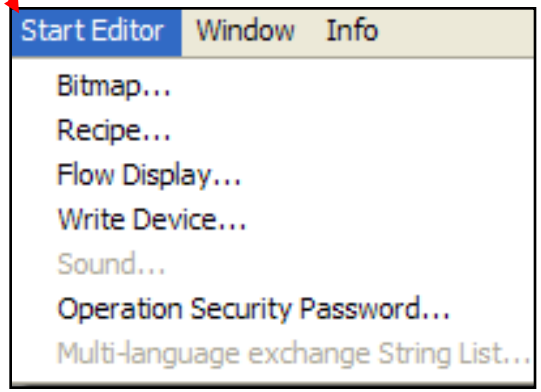
Reopens the Parts library

Access to the Help file !

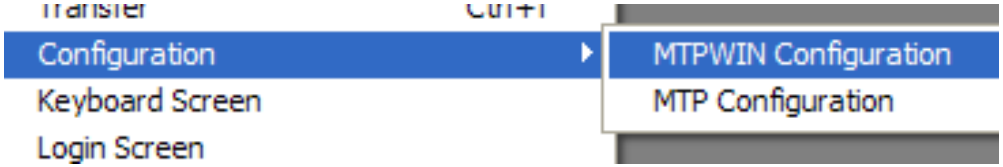


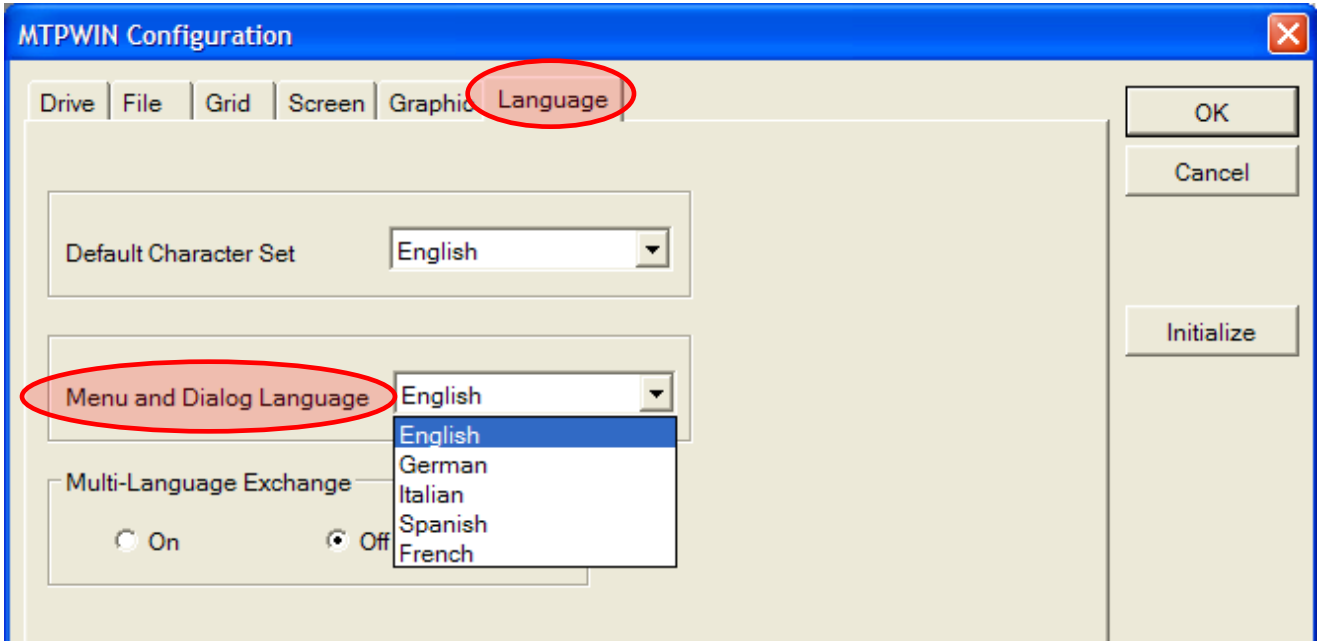




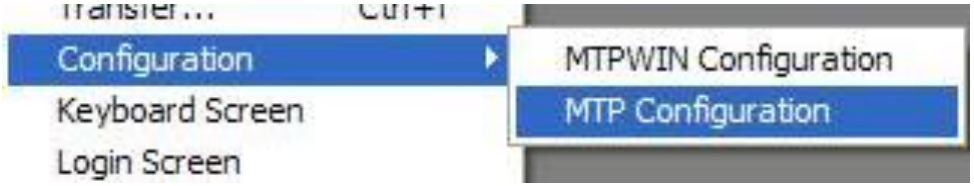


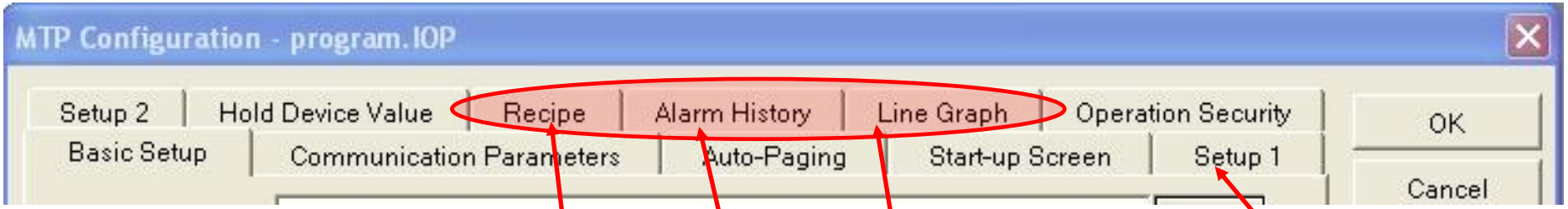
MTPWIN configuration menu





MTP configuration menu





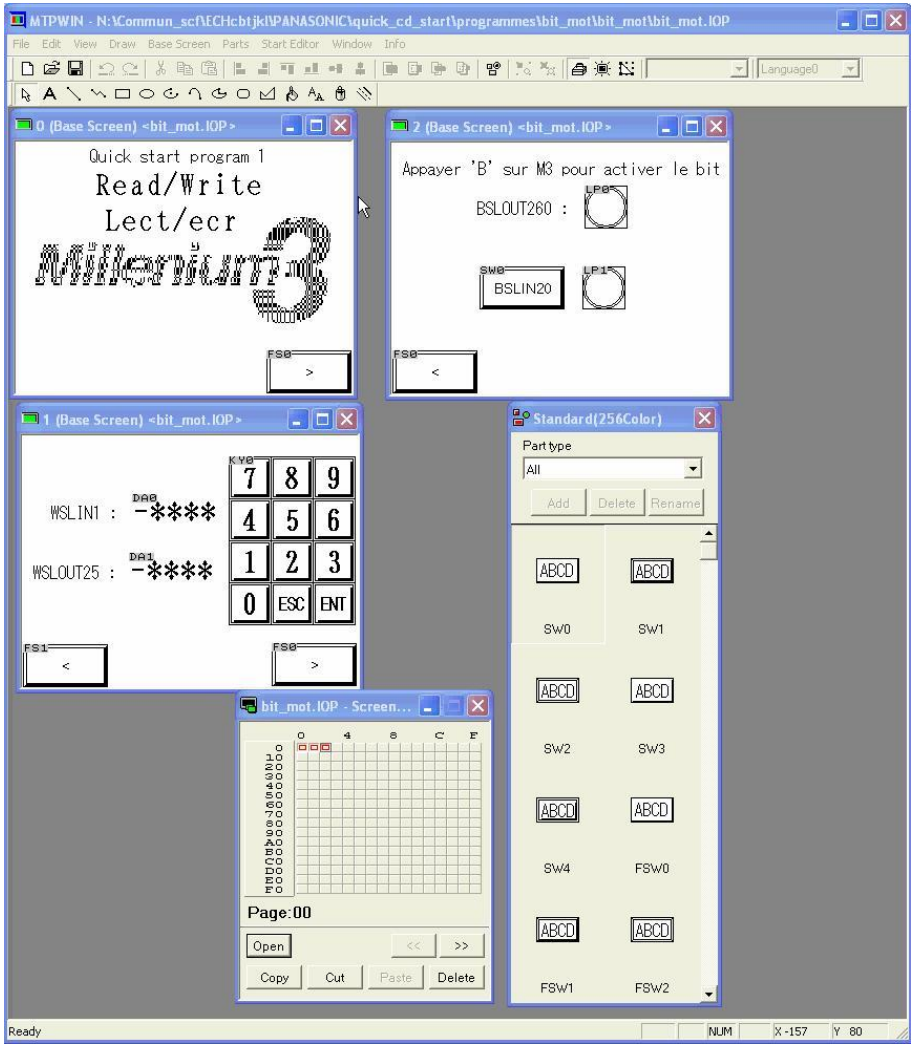
Recipies

Alarms

Line Graphs

- Clock (MTP or M3)
- Backlight brightness setting
- Beep (ON or OFF)

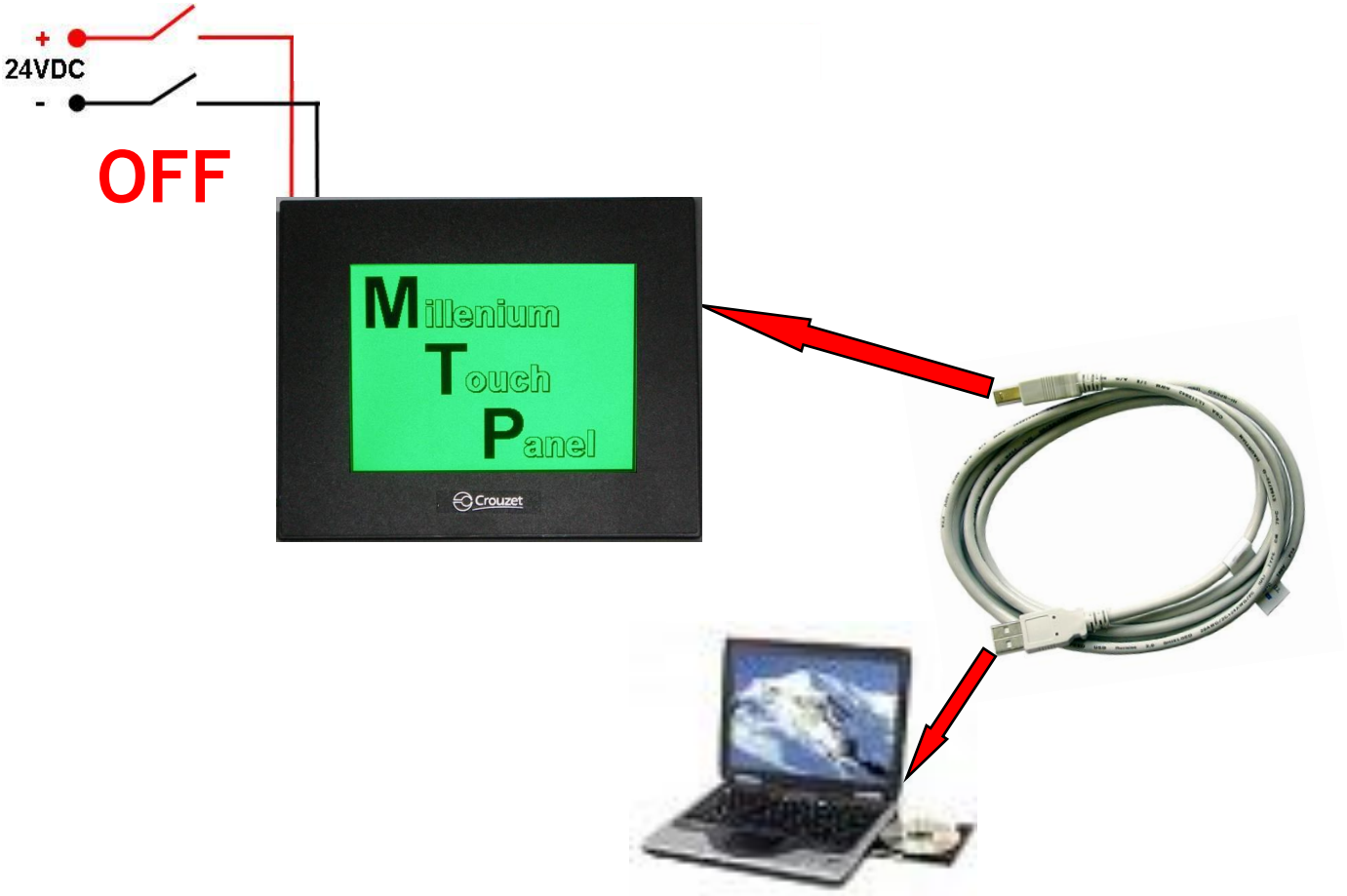
Transfer parameters and program transfer



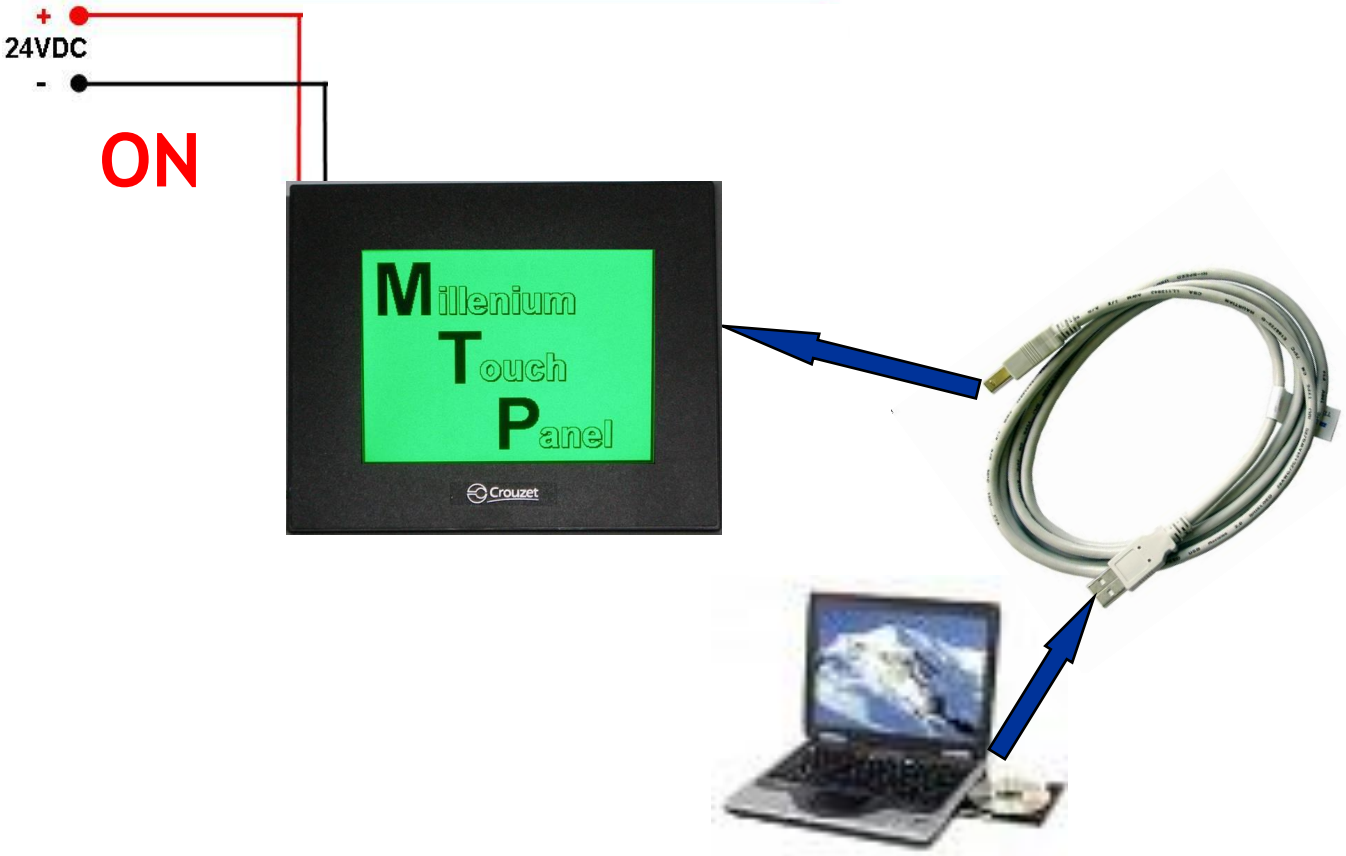
Tick here to see the video

Wiring for program transfer PC ⇒ MTP05

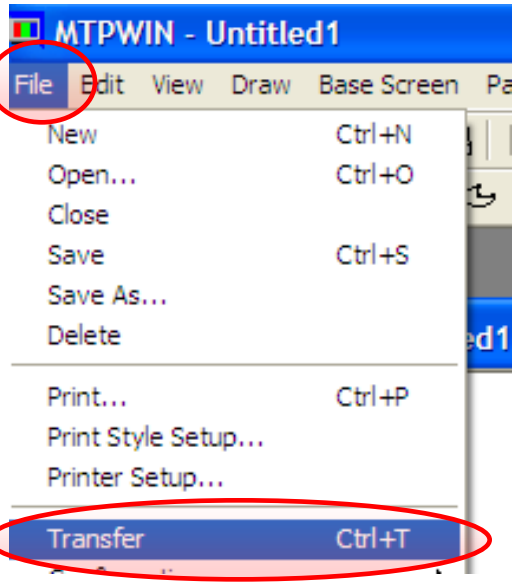
The power <u>must be</u> disconnected whenever inserting or extracting the USB cable into/from MTP05 !



Program transfer PC ⇒ MTP05

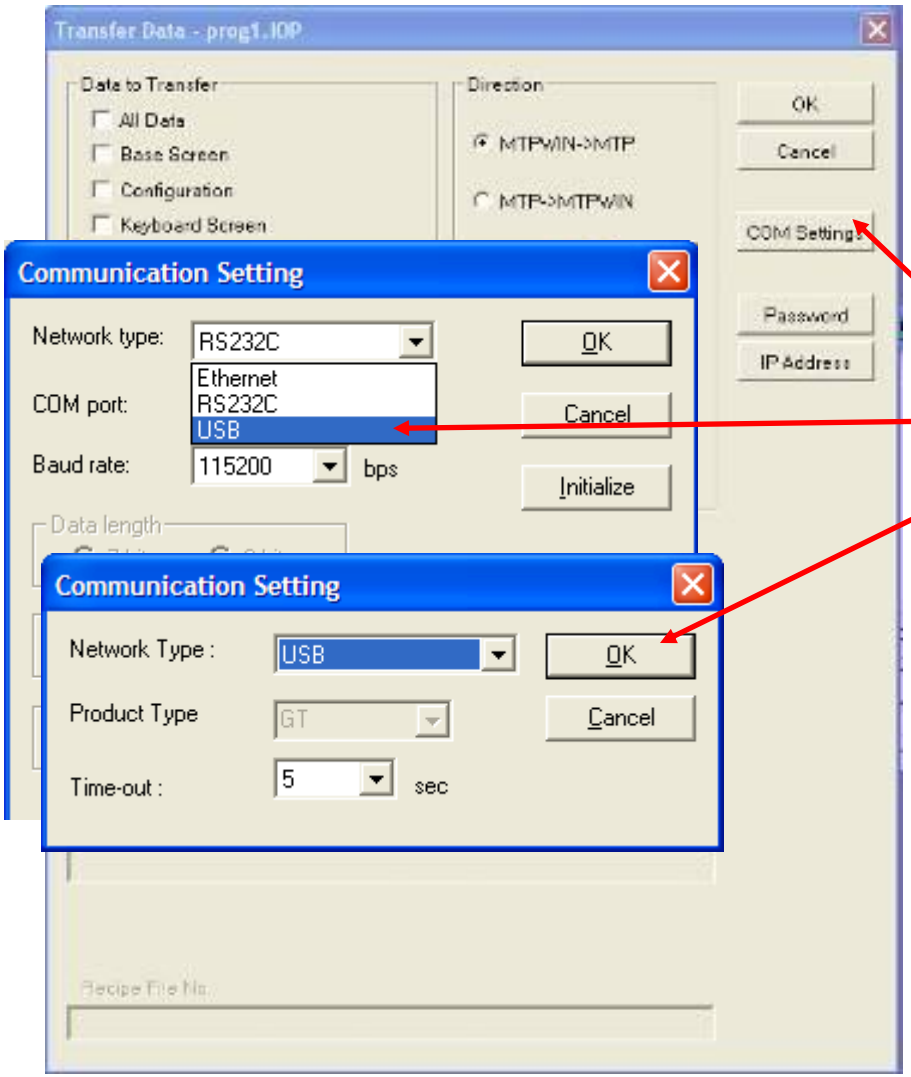


Connection configuration



1

File ⇒ Transfer



2

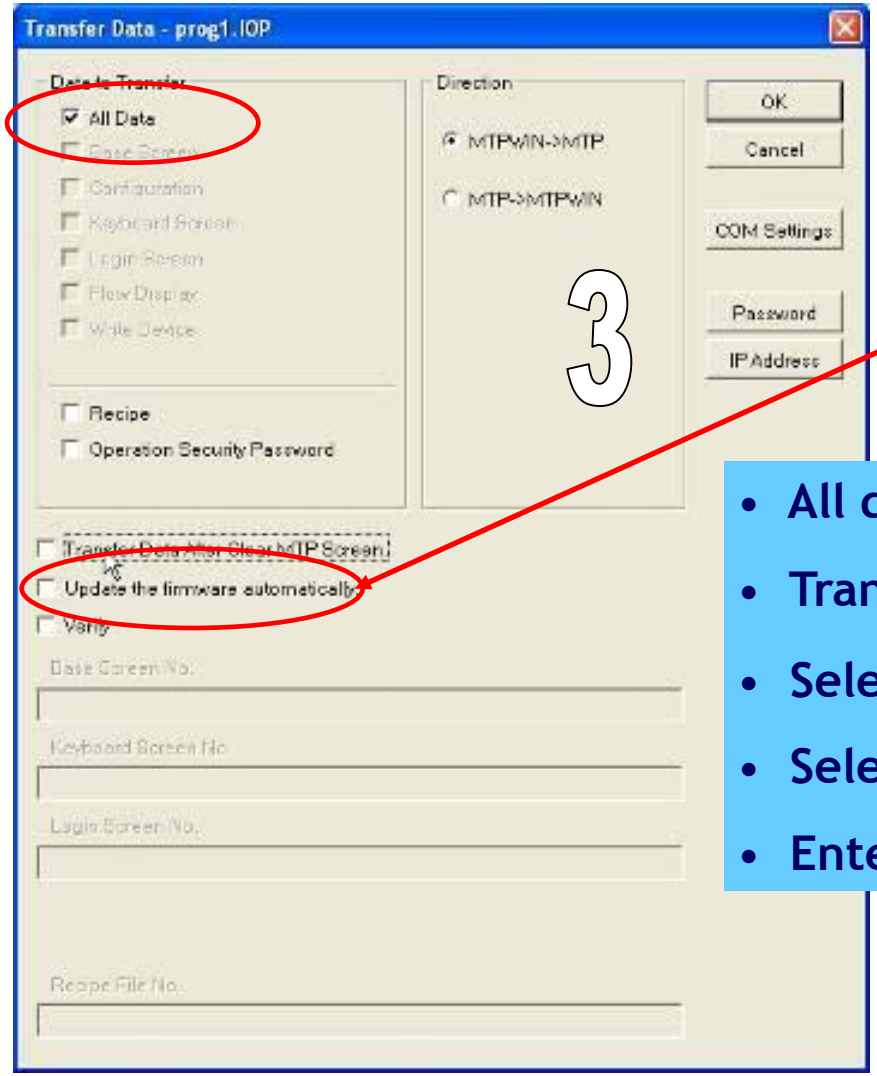
COM configuration

Tick here

Select USB

Tick OK

Data transfer PC ⇒ MTP05



Updates Firmware.

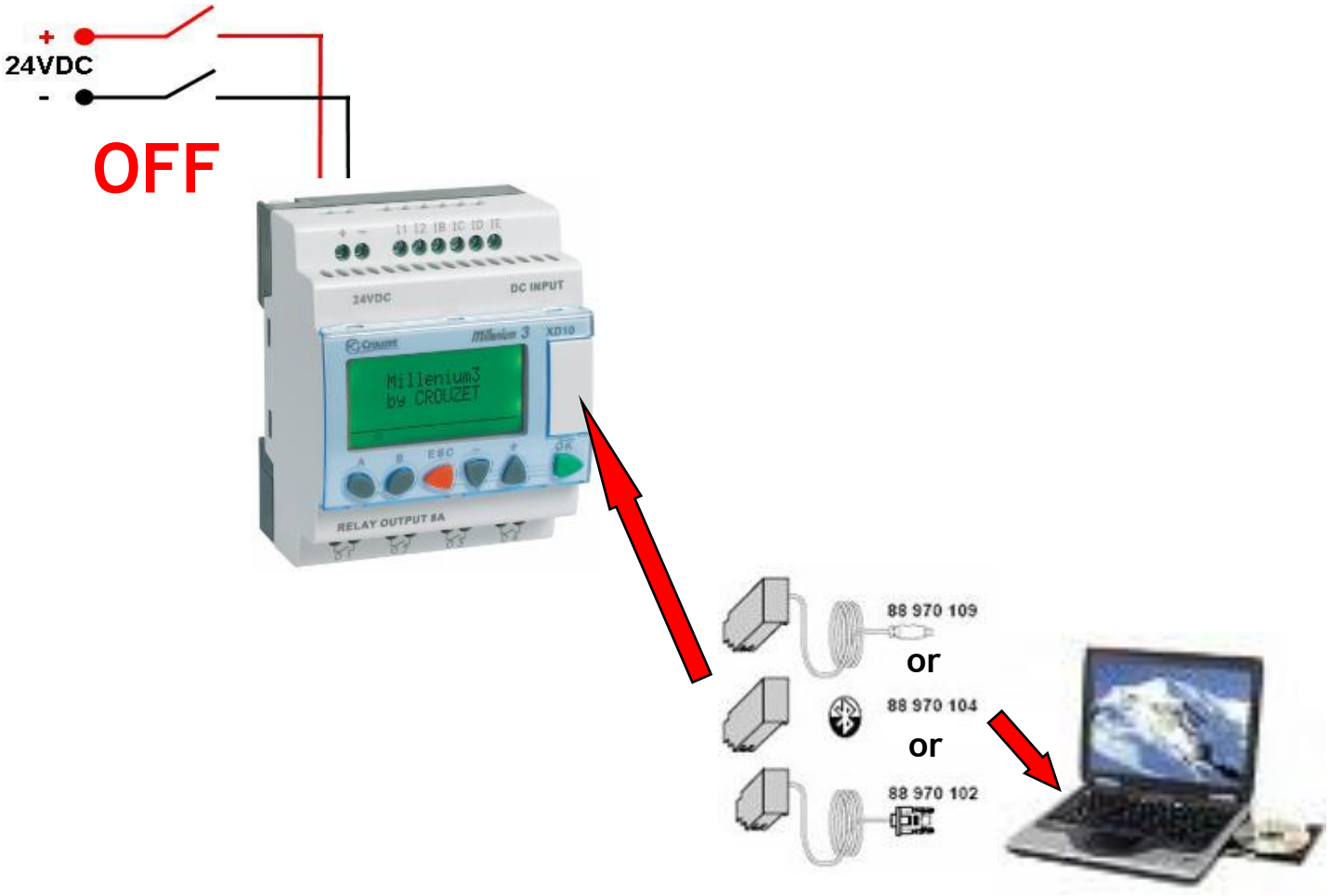
Important to mark on first data transfer.

- All data
- Transfer data after clear screen (optional)
- Select Recipe if necessary
- Select Password if necessary
- Enter Recipe File N°(s) if necessary

Wiring for program transfer PC ⇒ M3

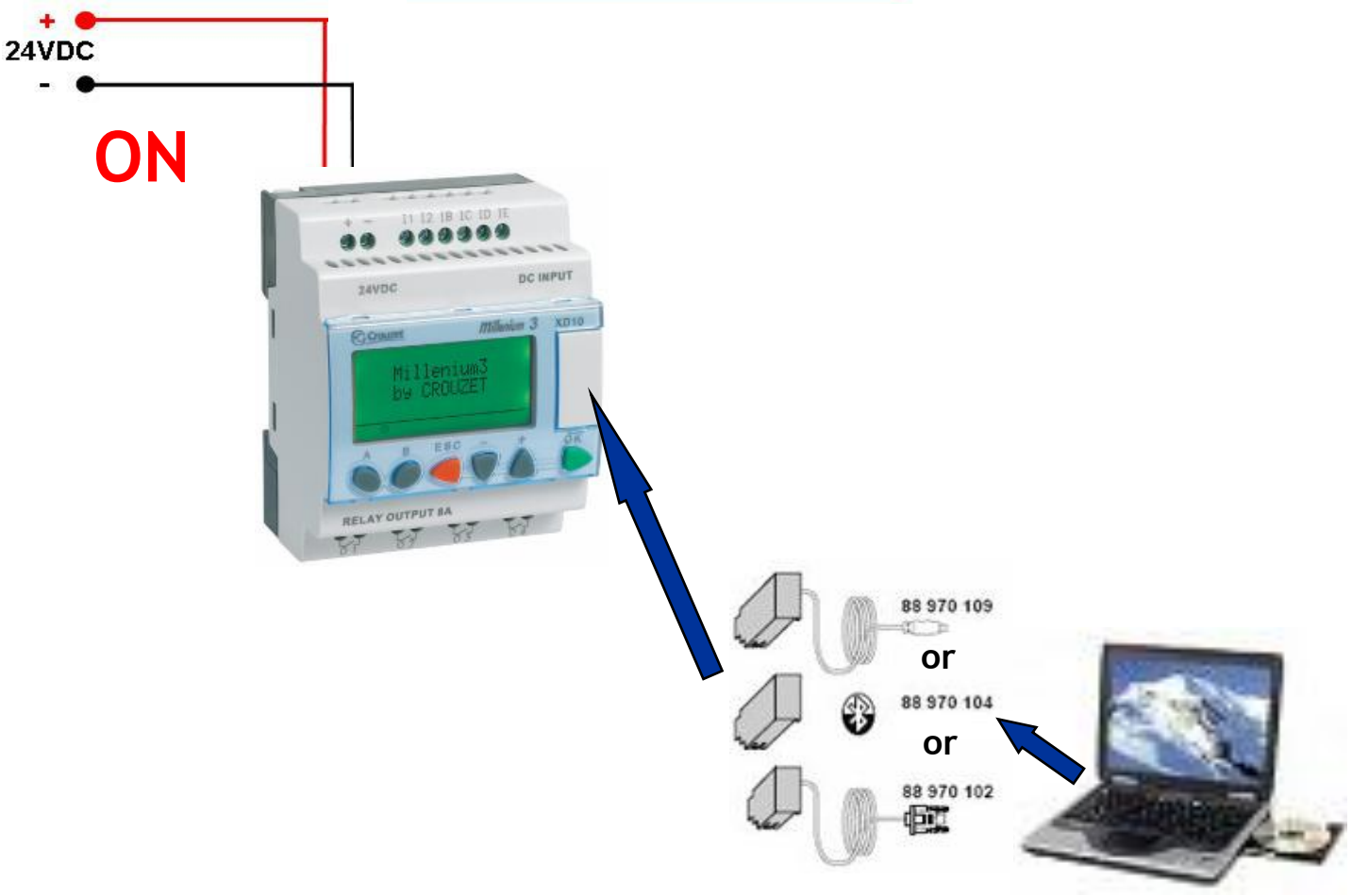
Millenium 3

The power must be disconnected whenever inserting or extracting the M3 programming cable!



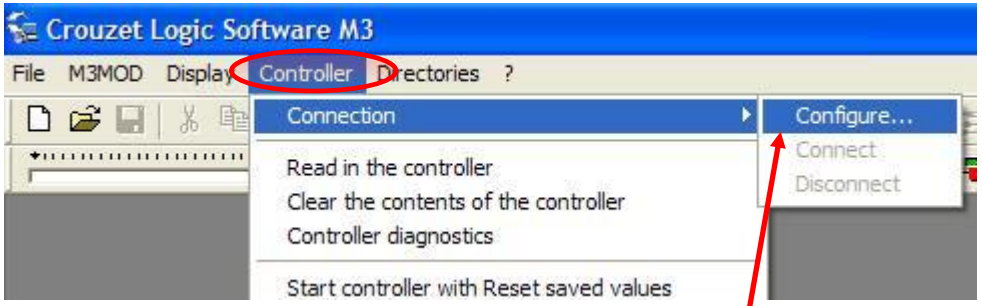
Millenium3

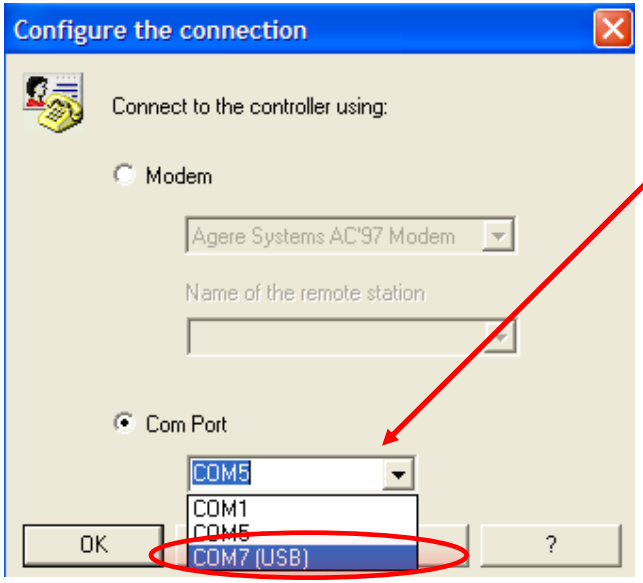
Program transfer PC ⇒ M3



Connection configuration

Millenium 3

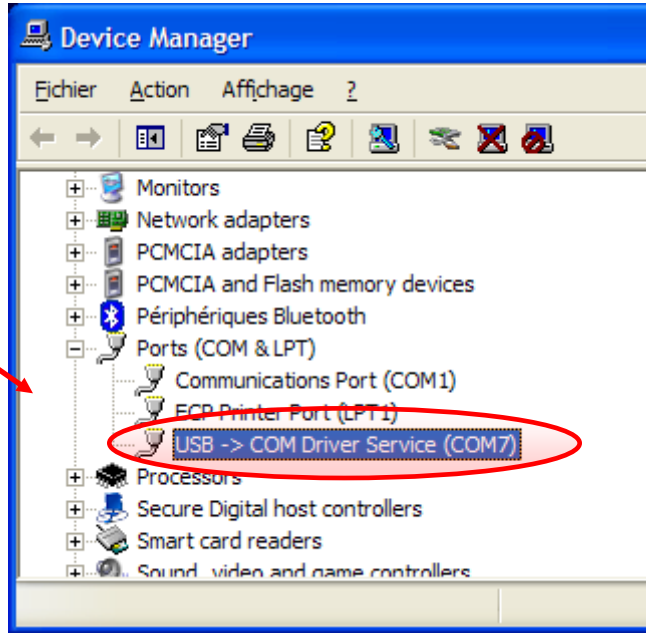




Tick here

Enter the COM-port according to the information in the Device Manager

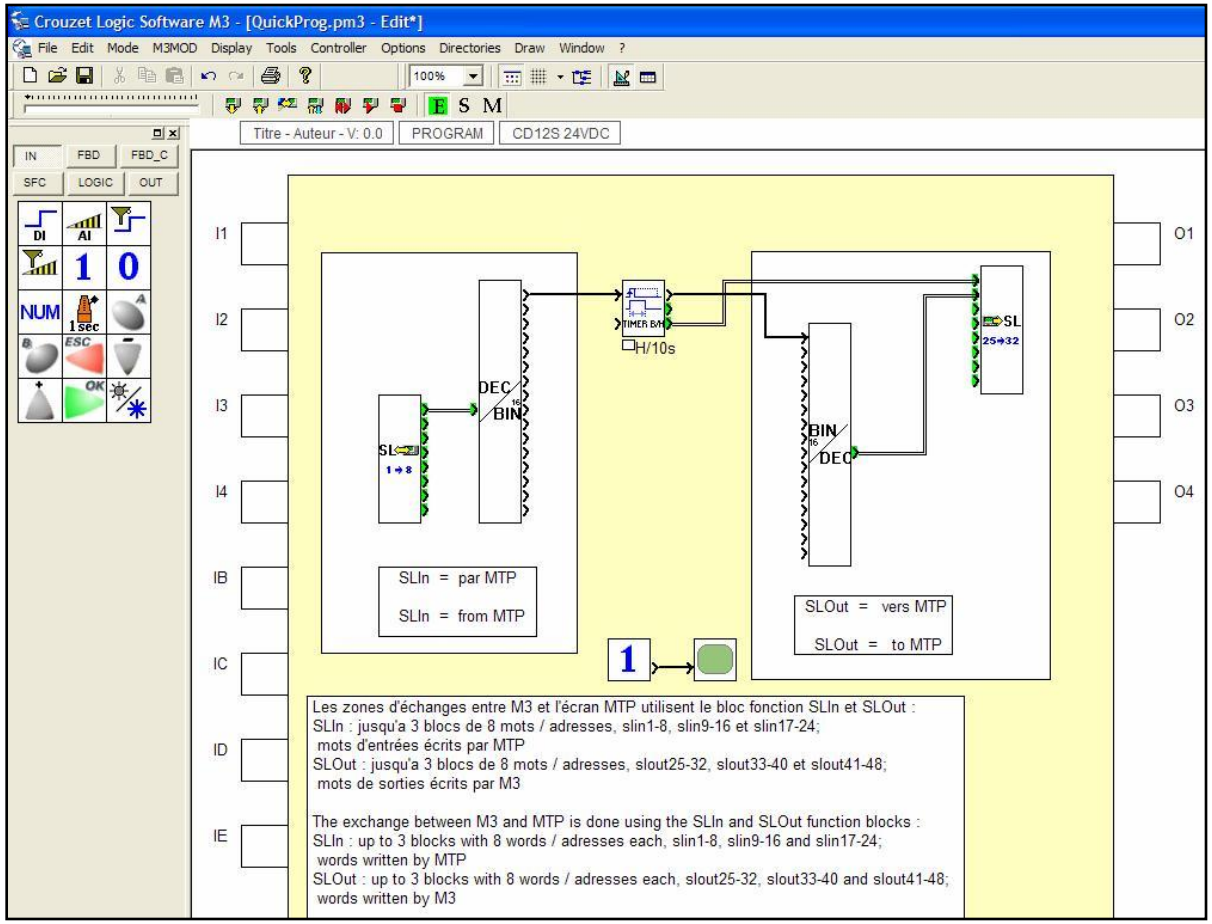
Tick OK



Transferring the program PC ⇒ M3

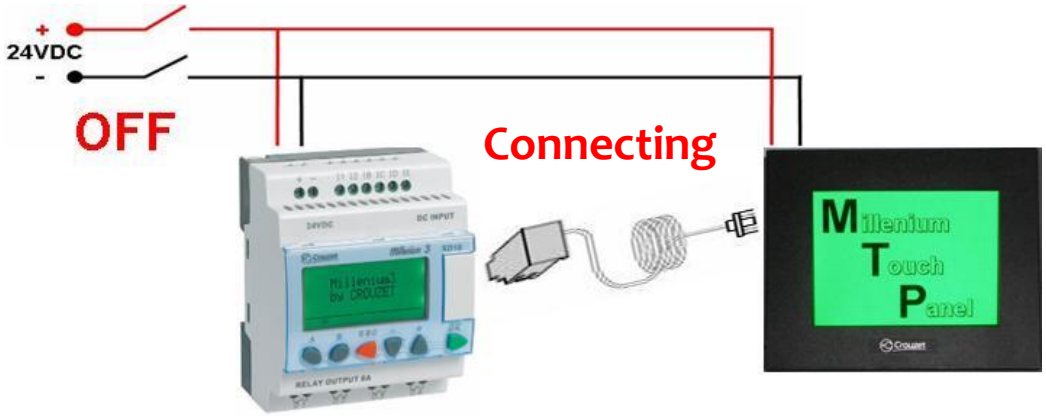
Millenium 3

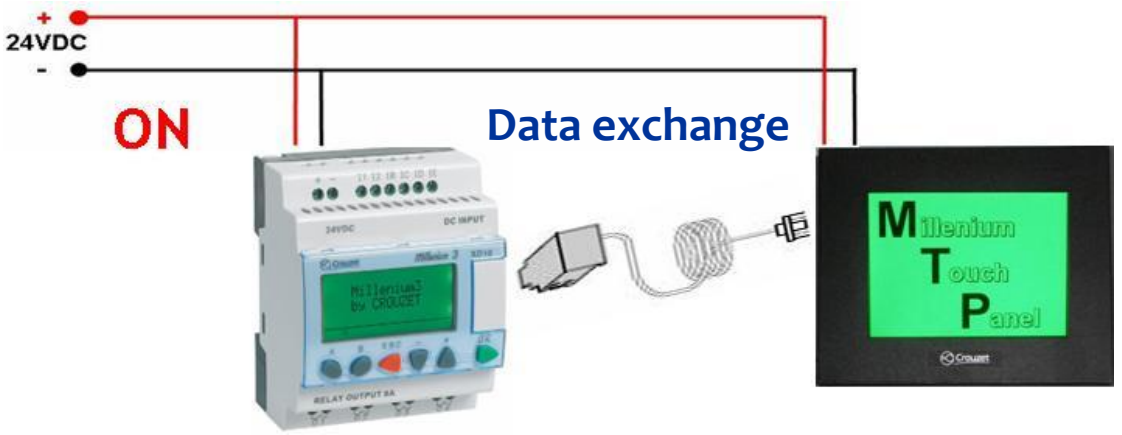
Tick here to start the video.



Wiring for use / data exchange Reminder

The power <u>must be</u> disconnected whenever inserting or extracting the Millenium3 - MTP05 data exchange cable !





- **Commissioning an M3 – MTP05 program example**

Description of the program:

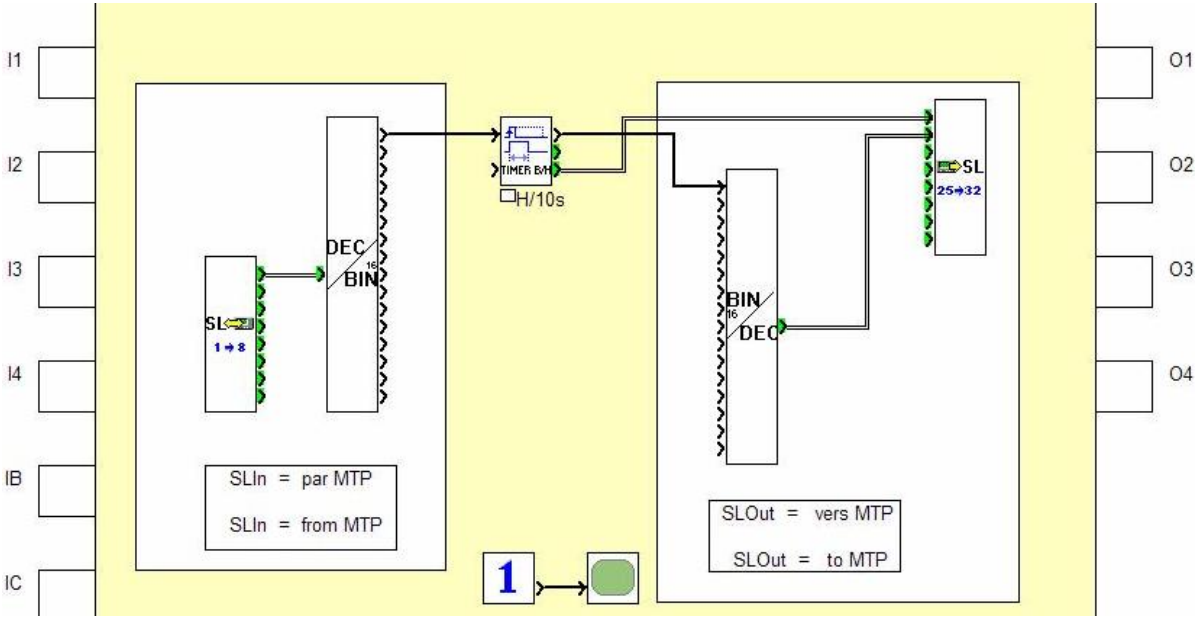
Read/write word and bit between M3 and MTP05.

- Read a word by MTP05
- Read a bit by MTP05
- Write a bit to M3

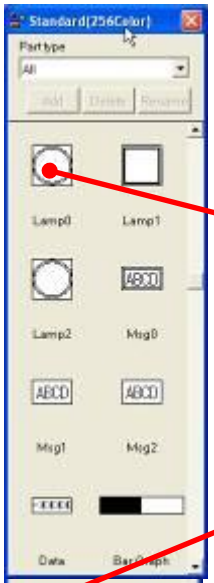
Links:

QuickProg.pm3

QuickProg.IOP

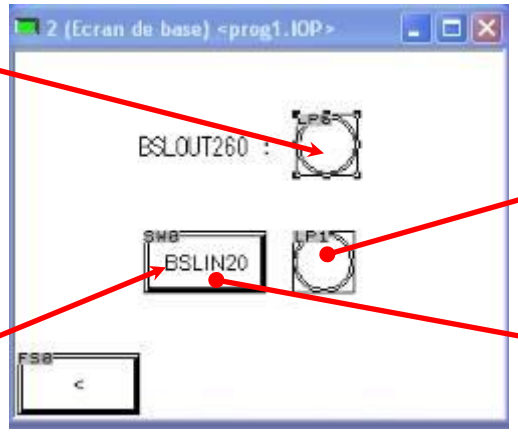


- **Read / write bit**

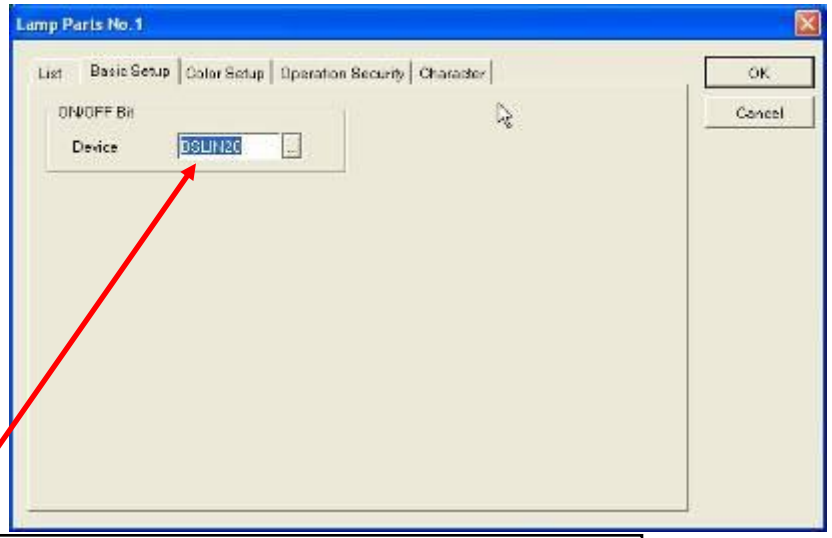


1

1

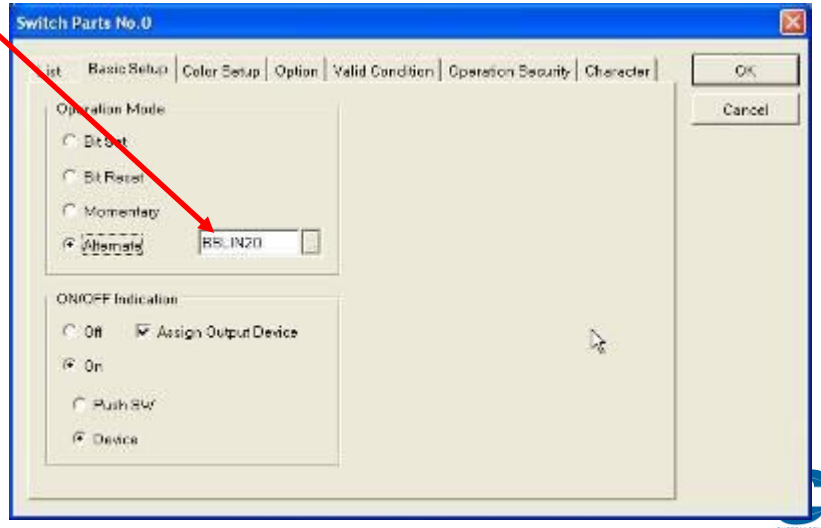


2



Double click on the parts to open the parameter windows

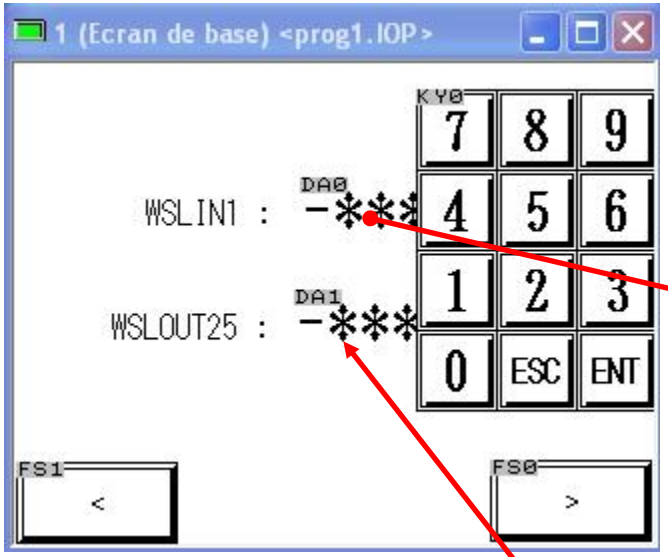
2

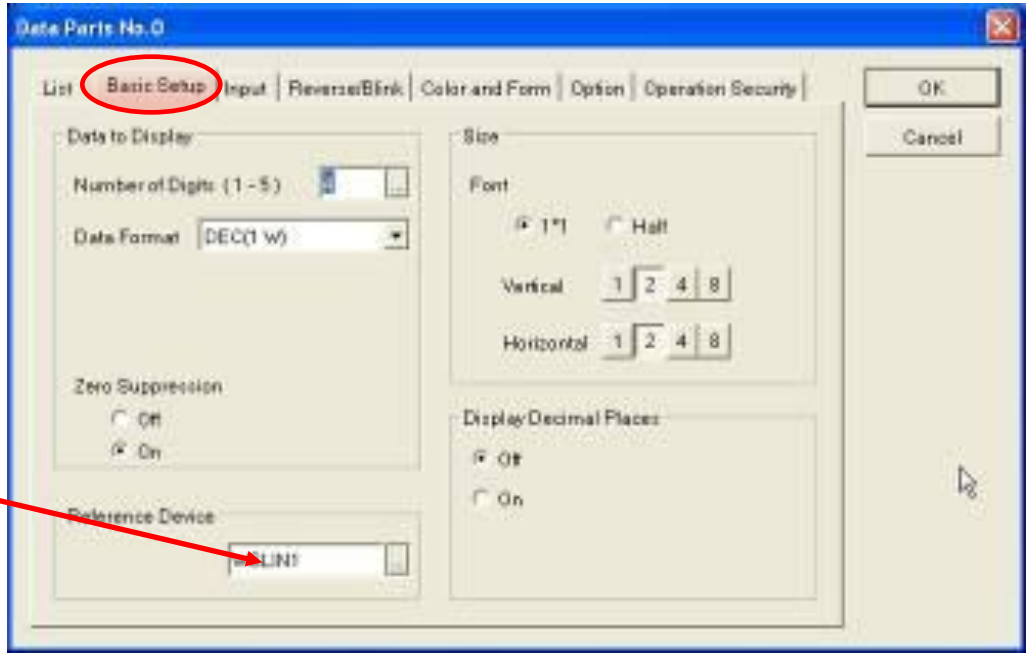


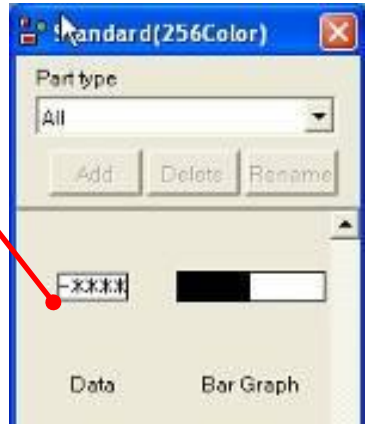
Drag and drop:

- Lamp
- Switch

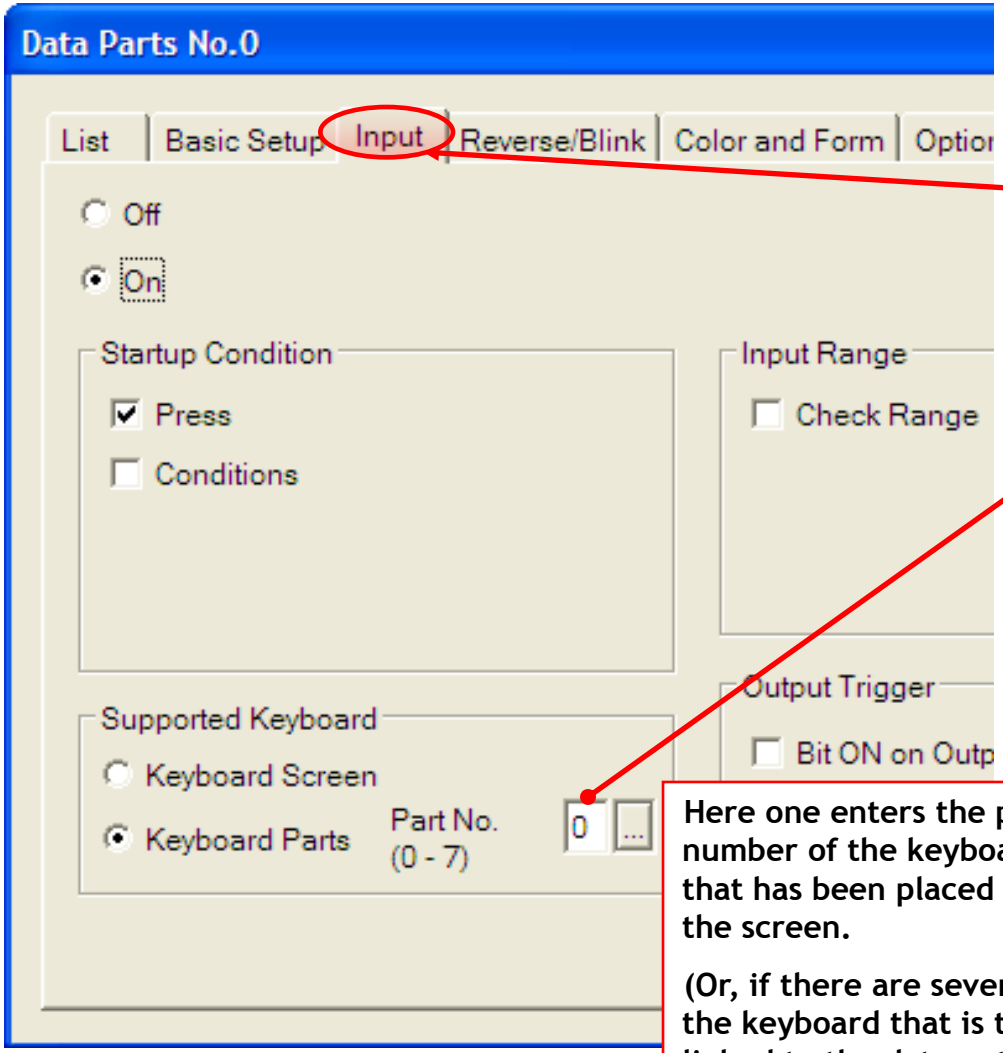
- **Read / write word**

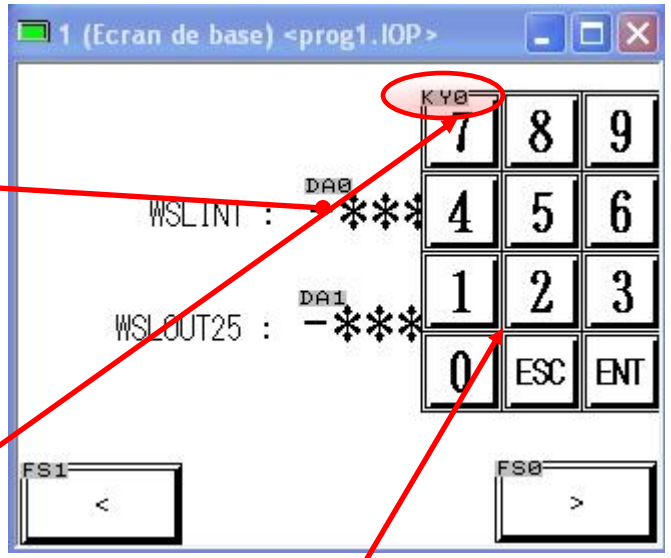


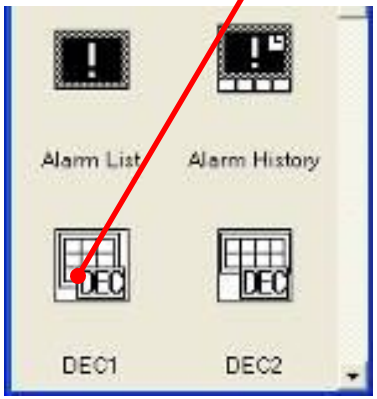




- **Read / write word**







Here one enters the part number of the keyboard that has been placed on the screen.

(Or, if there are several, the keyboard that is to be linked to the data entry.)

- **Recipe management** 
  - Control area
  - Read/write word
  - Read/write bit

Back to page 32

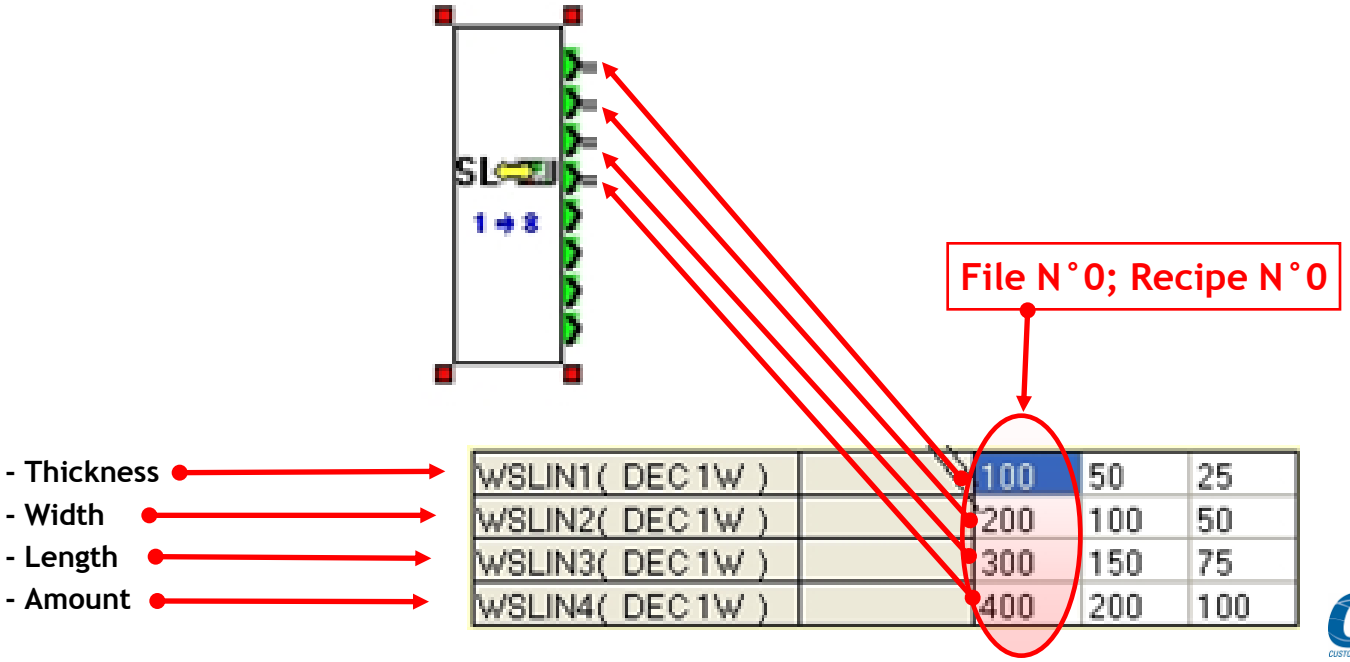
A recipe is a group of parameters that belong together.

Description of a recipe: A machine produces parts with different dimensions in different amounts. The parameters and amounts for each part, called recipies, are sent to Millenium3 by the MTP05 when a new production batch is started.

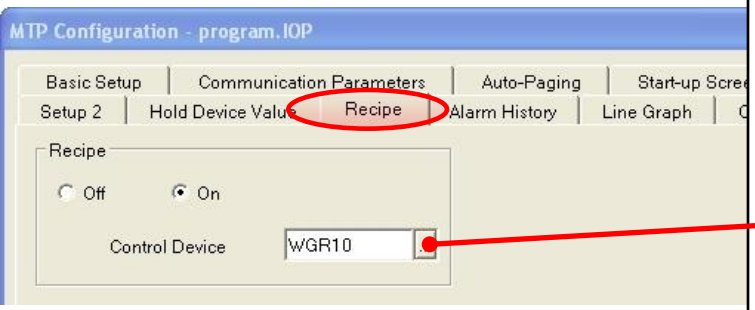
An example: - Thickness

- Width
- Length
- Number of pieces

All parameters should be sent simultaneously to Millenium3. By using MTP05 one can imagine to have several recipies (parameter groups). One can create an Excel table which can be imported by the MTPWIN software, allowing to transfer these recipies (parameter groups) to the MTP05 screen and from there to Millenium3.



The M3 pilot area, adjustable:

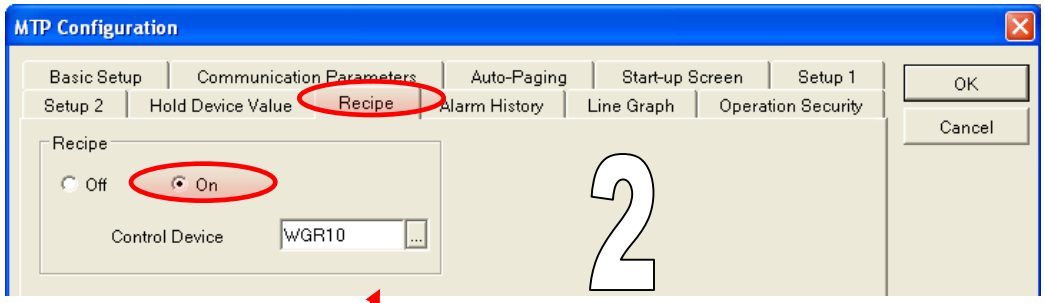


Recipe management																
WORD/BIT	F	E	D	C	B	A	9	8	7	6	5	4	3	2	1	0
n														Delete recipes on MTP05		Write from MTP05 to M3
n+1	**File n**															
n+2	**Recipe n**															
n+3	**Error code N :** 0: No errors 1: The file number was not indicated 2: The recipe number was not indicated 3: Insuffisant memory															

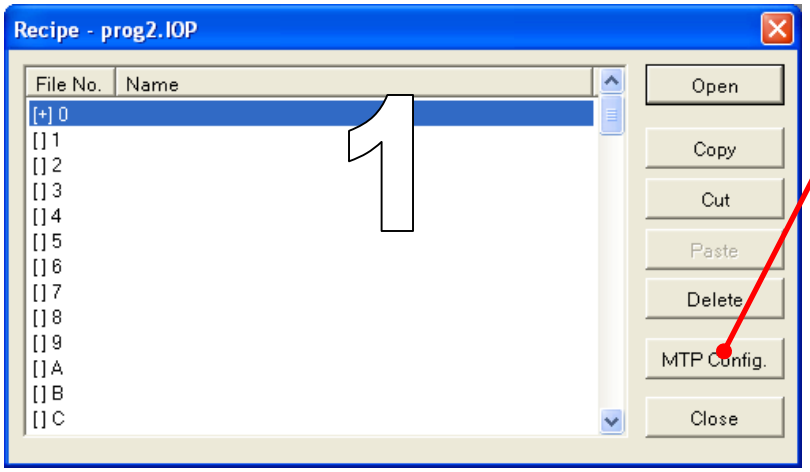
Recipe control register (example)	
Example on	WGR10
File N	WGR11
Recipe N	WGR12
Error code	WGR13
Write to M3	GR100

• Creating recipies 1

Menu: Start editor ⇒ Recipe

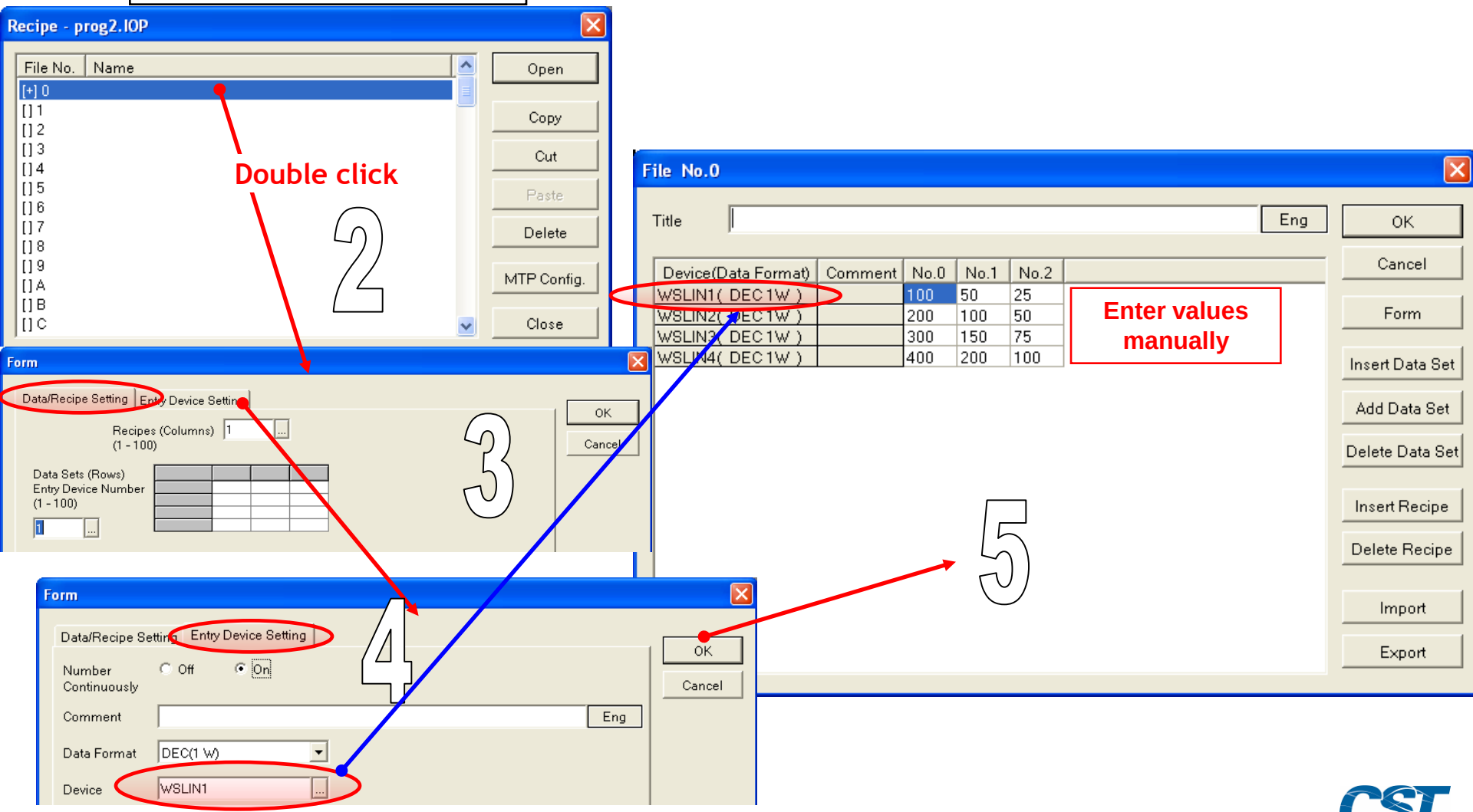


Double click



• Creating recipies 2

Menu: Start editor ⇒ Recipe

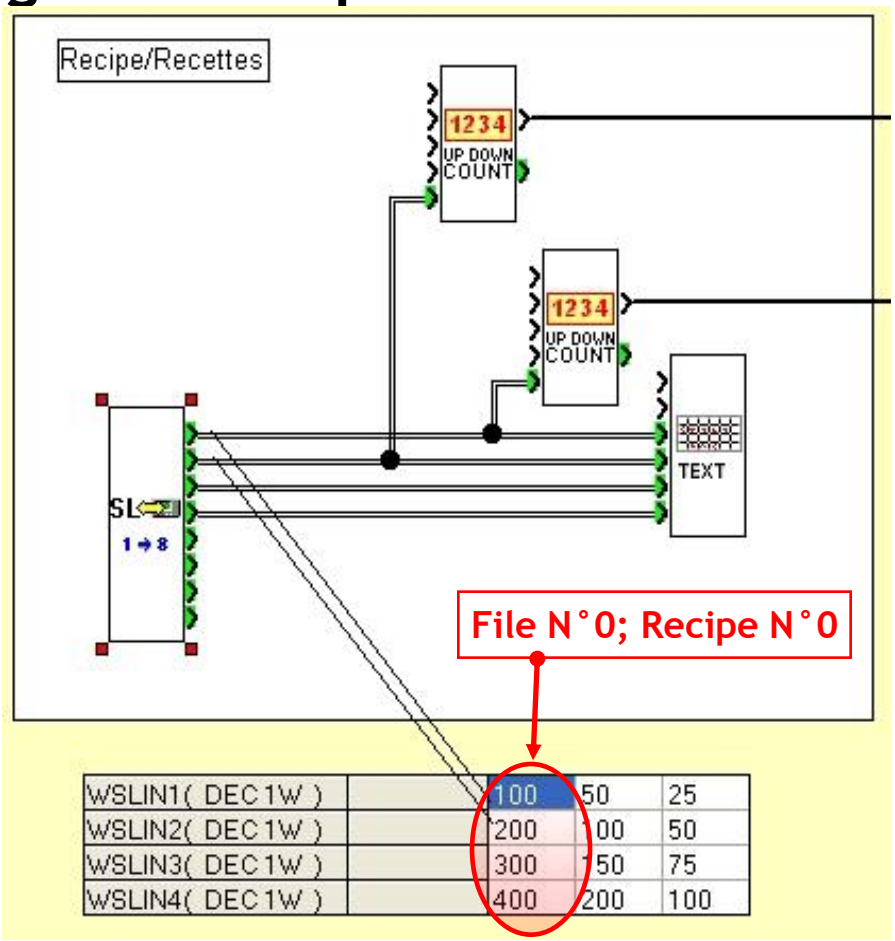


- **Recipe management**
  - **Commissioning an M3 program example**

Program description:

Recipe management

Preselect values for counters sent by MTP05.



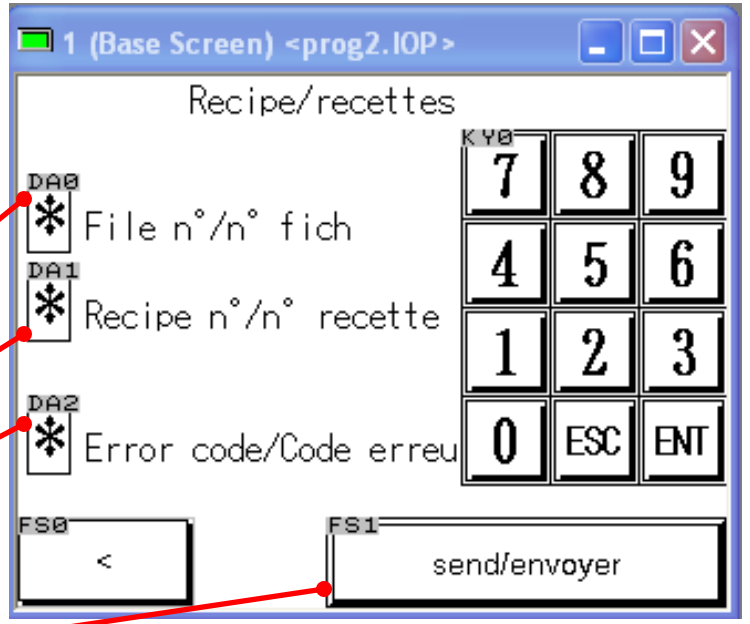
Links:

REC.pm3

recettes.IOP

- # Recipe management
  - ## Commissioning an M3 program example

Recipe control register (example)	
Example on	WGR10
File N	WGR11
Recipe N	WGR12
Error code	WGR13
Write to M3	GR100



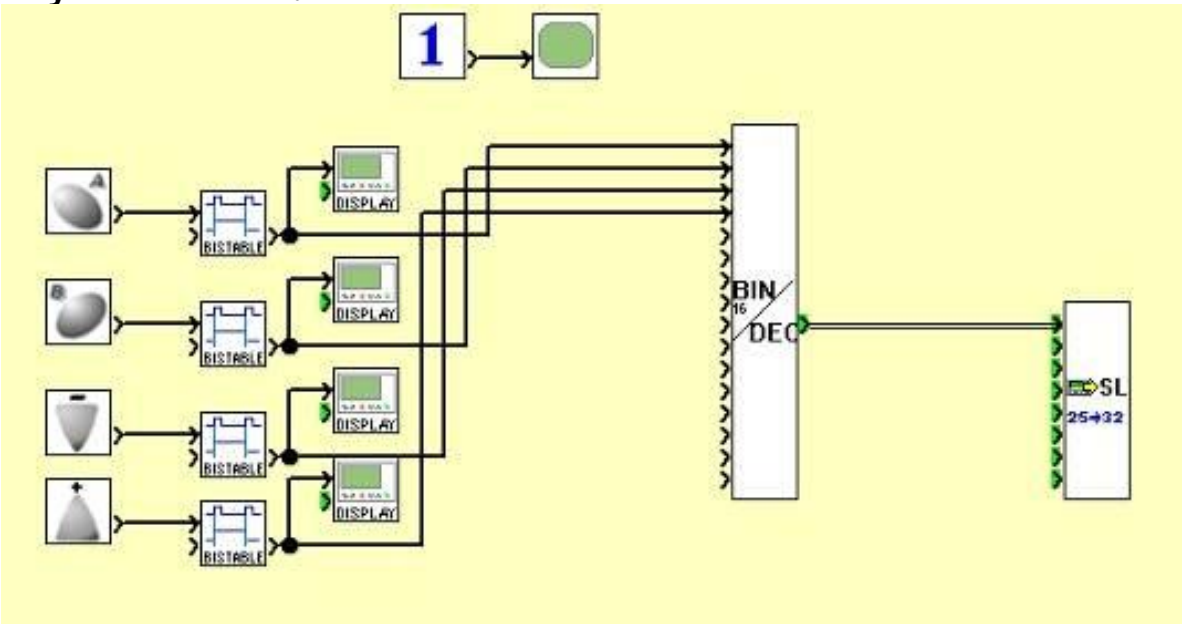
- Alarms 
  - Program example
  - Settings
  - Configuration

- **Alarm management**

Program description:

Manage M3 alarms.

- Activate alarms with the keys of the M3.
- Alarm history
- Alarm supervision



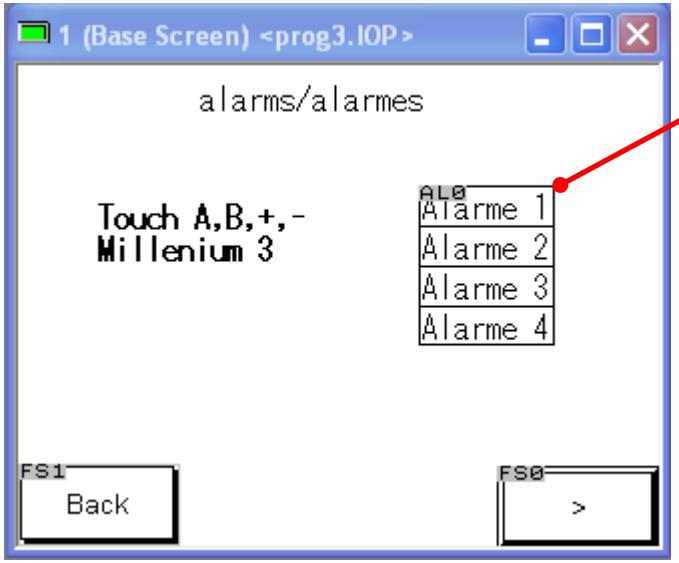
Links:

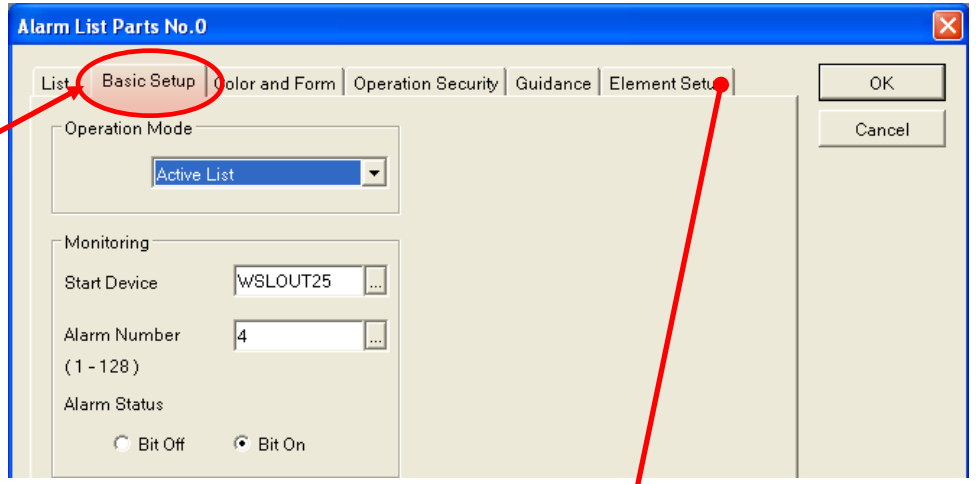
ALARM.pm3

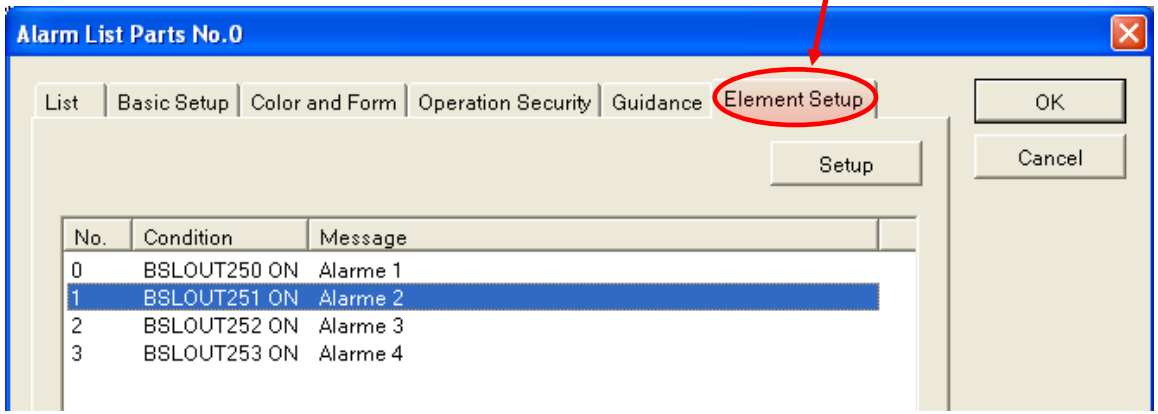
allarm.IOP

Back to page 32

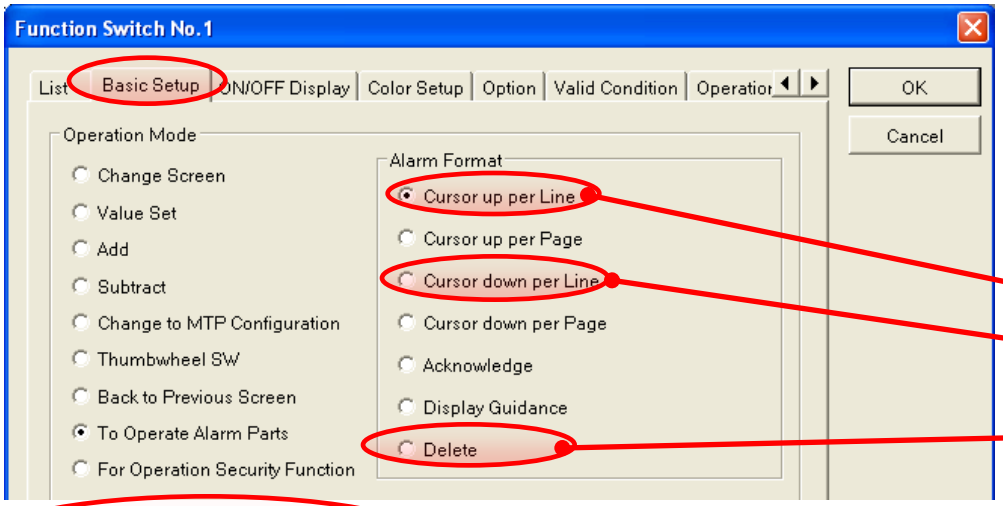
- # Alarm management 1

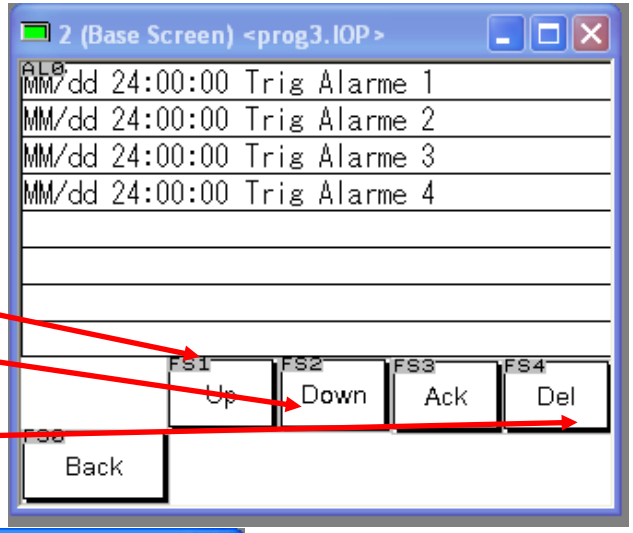


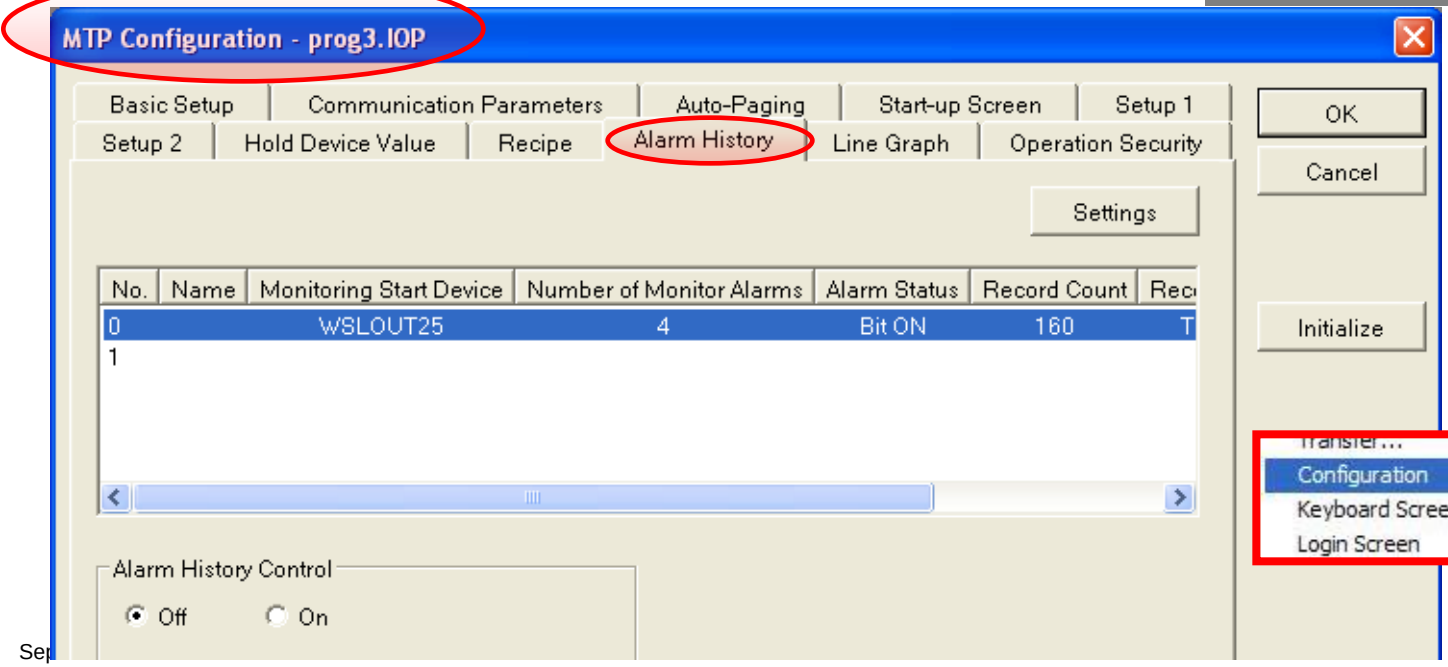


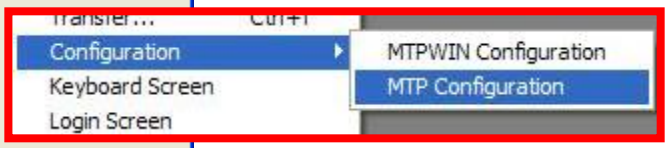


• Alarm management 2

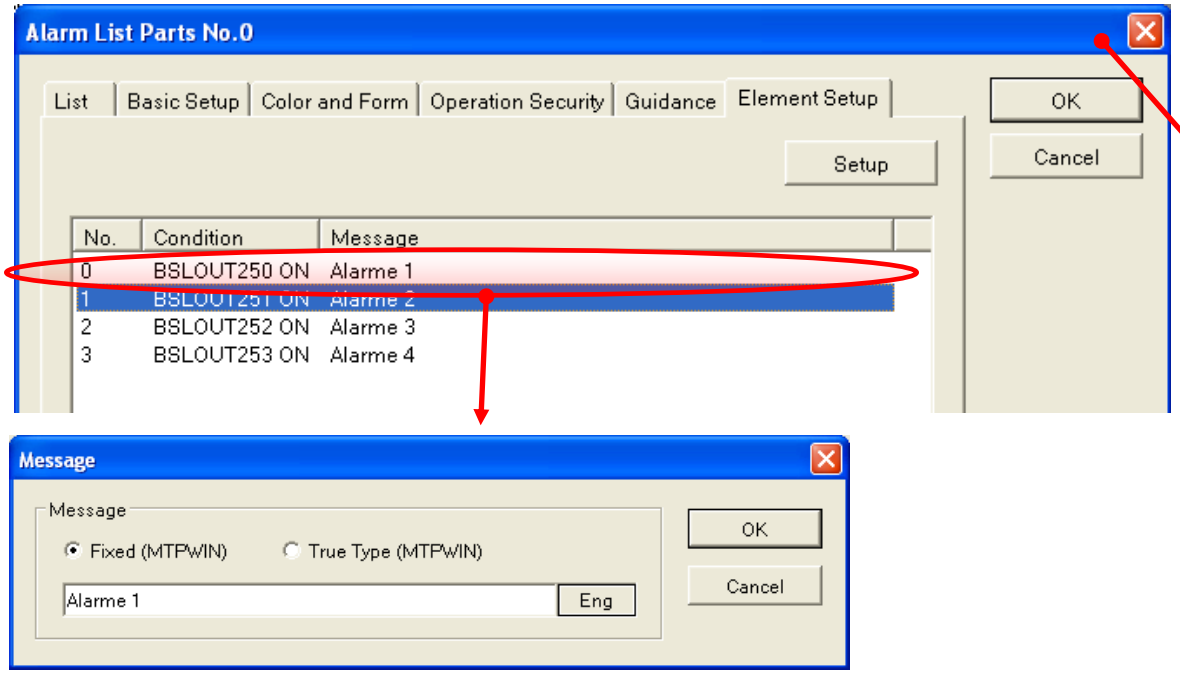


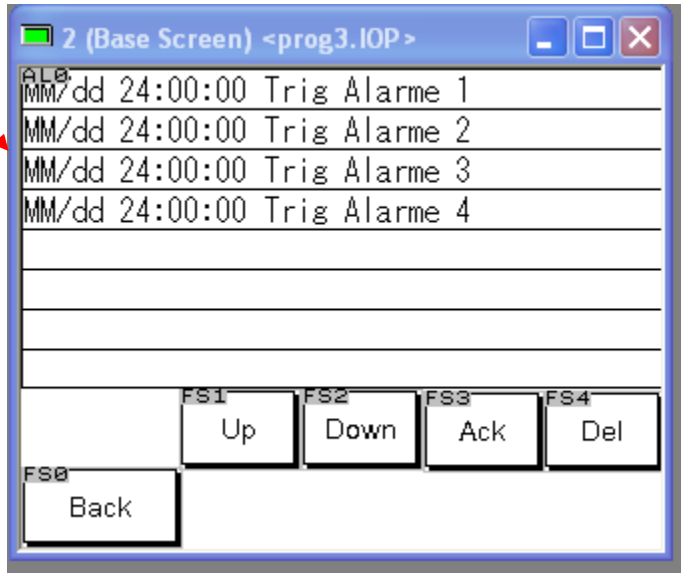




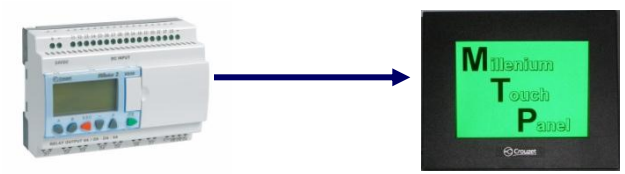


- # Alarm management 3

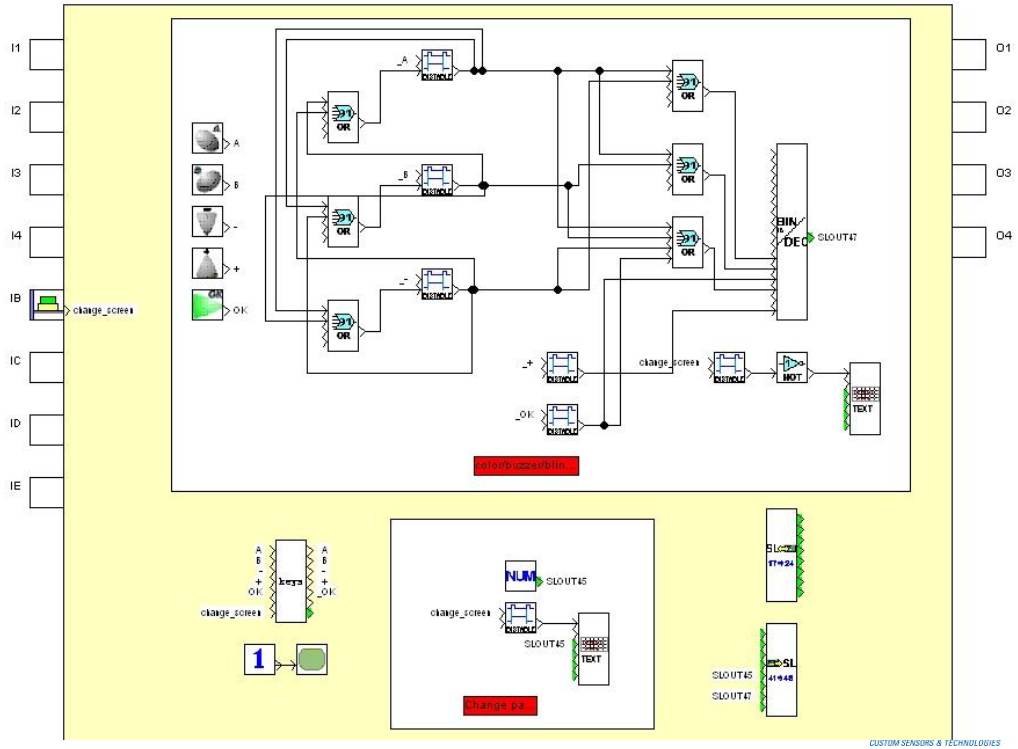




- **Pilot MTP05 by M3**
  - Example
  - Configuration « Basic Communication Area »



- **Communication buffer, Status M3, Clock M3**
- Program description:
- **Manage pages by M3.**
- **Buzzer activation with M3 keys.**
- **Manage MTP05 backlight colors with M3 keys.**
- **Activate flashing backlight with M3 keys.**
- **Read M3 status by MTP05.**
- **Read/write M3 clock**



Links:

REG.pm3

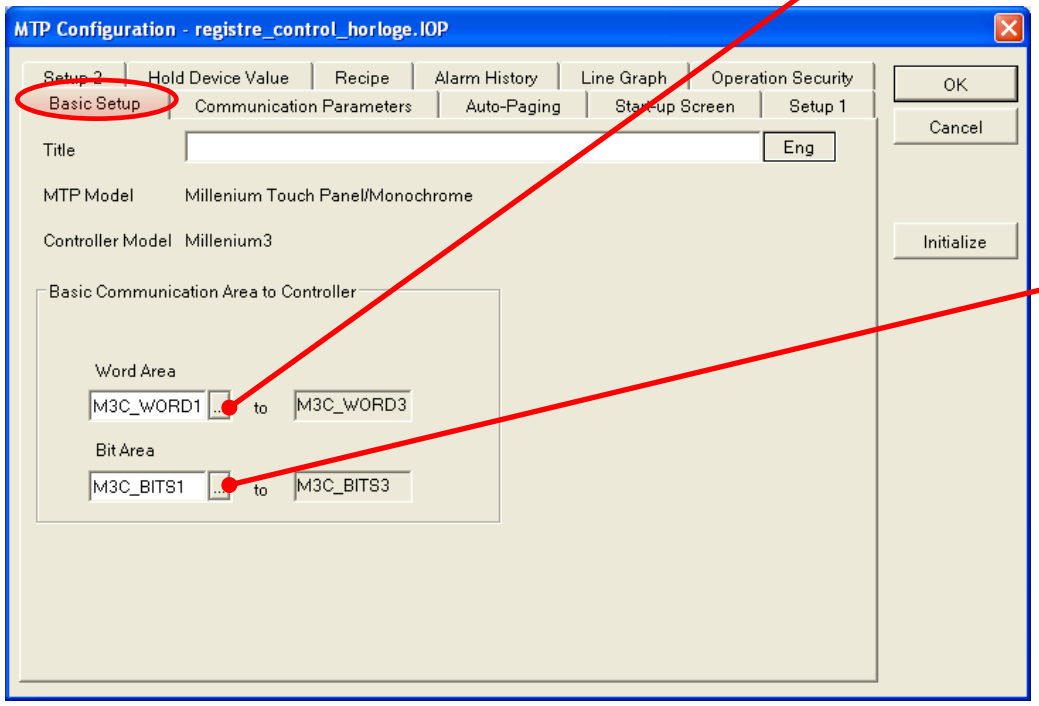
Registre_de_controlle.IOP

• Page management using M3.

Buzzer activation using the M3 keys.

Managing the backlight color of MTP05 using the M3 keys.

Activate the flashing backlight using the M3 keys.



- Read/write M3 parameters 
  - Read status
  - Read/write M3 clock
  - Clock
  - Change screen (see M3 and MTPWIN programs)

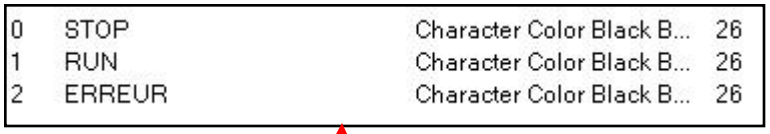
Links:

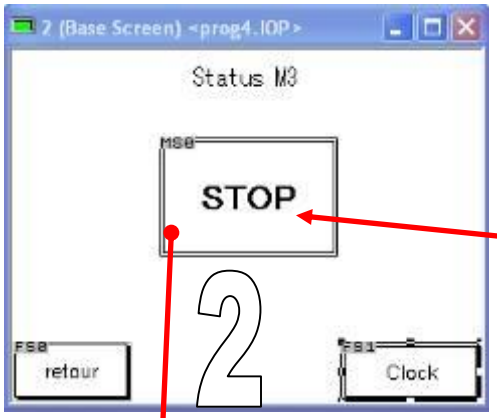
REG.pm3 

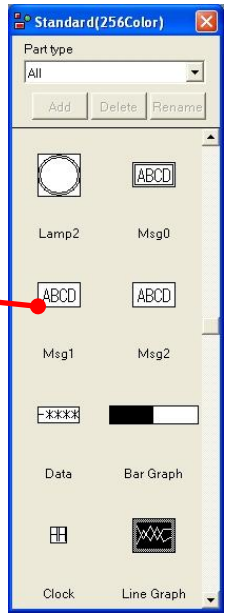
Registre_de_controlle.IOP 

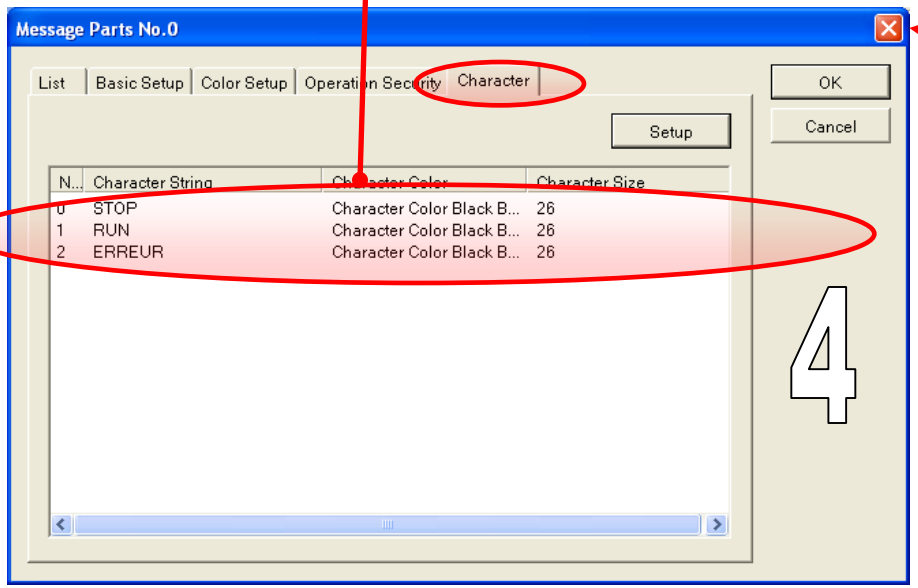
• Read M3 status

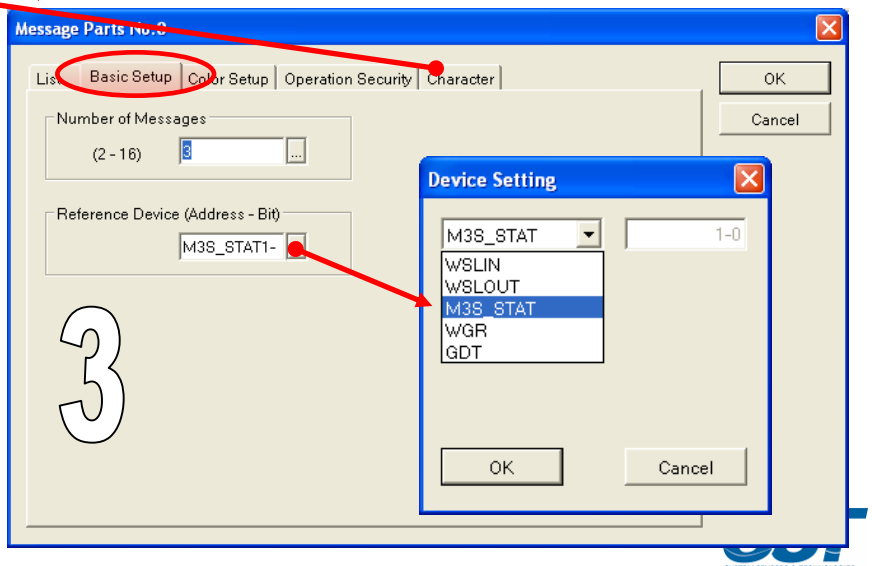
Reading the status is used to see if M3 is running, has stopped or shows an error.





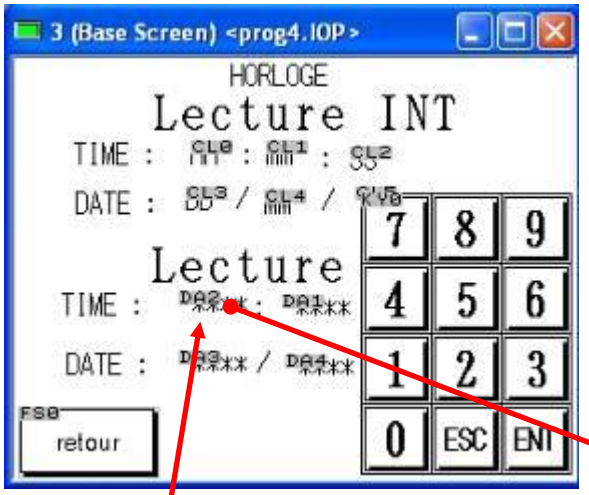






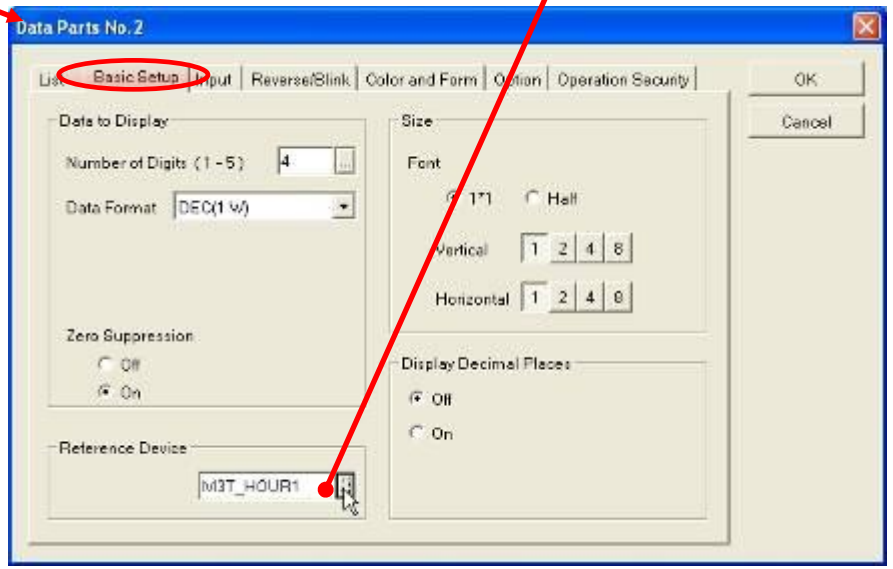
• Read/write M3 clock

The example shows how to read the clock of Millenium3



2

1

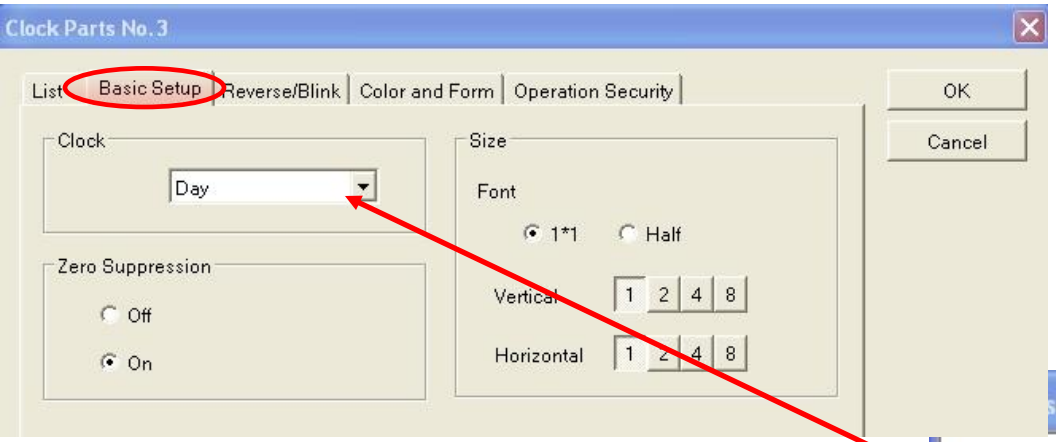


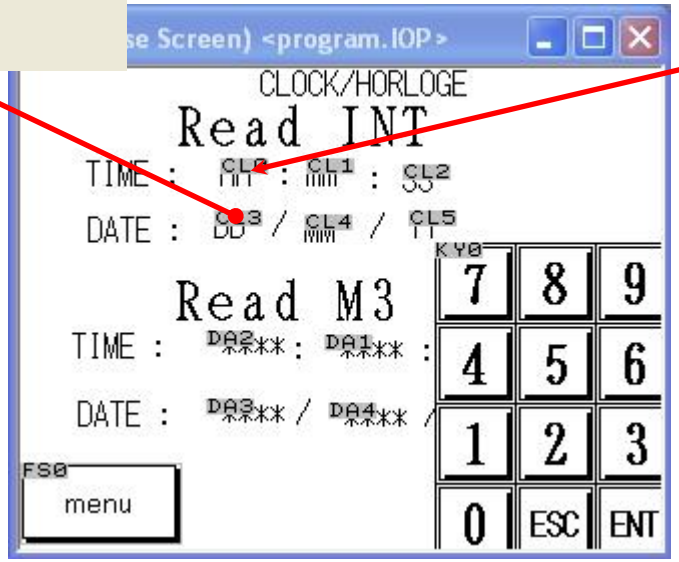
3

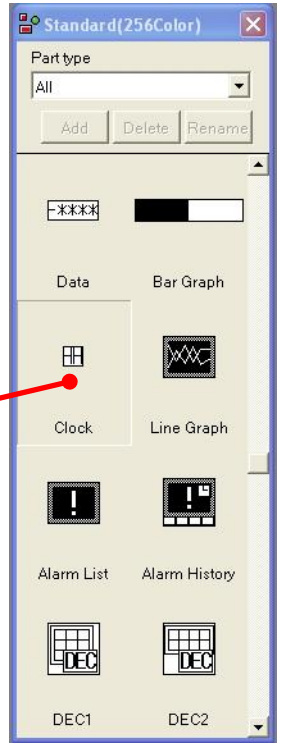
4

• Internal MTP05 clock

The example shows how to read the internal MTP05 clock







- **REMINDERS**

Changing a page

To control the MTP05 with the keys, in- or outputs of M3 one has to use SLOut function blocks.

Parameters in the M3 program:

Buzzer activation, changing the backlight color or flashing is done on word SLOut47, bits 11,12,13,14 and 16.

To realise switching a screen page use word SLOut45.
The block SLIn17-24 must be present in the M3 program.

Link to parameters: page 22

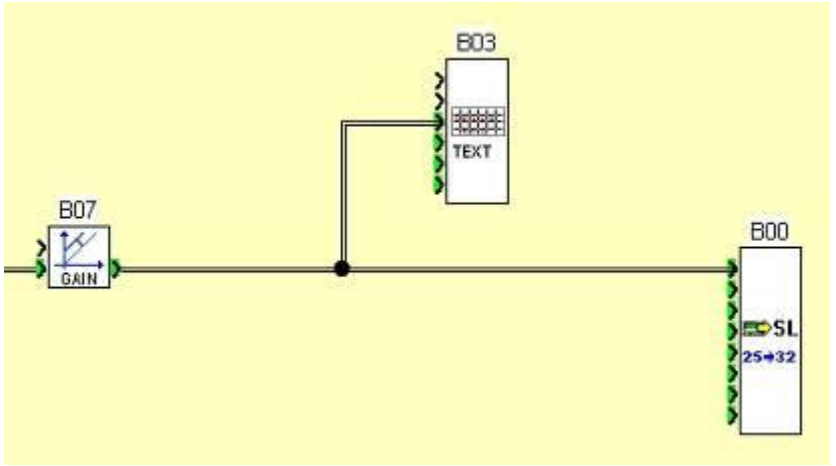
- Line Graph 
  - Program example
  - Configuration
  - Bargraph

- **Line Graph**

- Program description:

- Create a line graph using values from M3.
- Show a bargraph.

- Change the line graph by turning a potentiometer. (WSLOUT25).



Links:

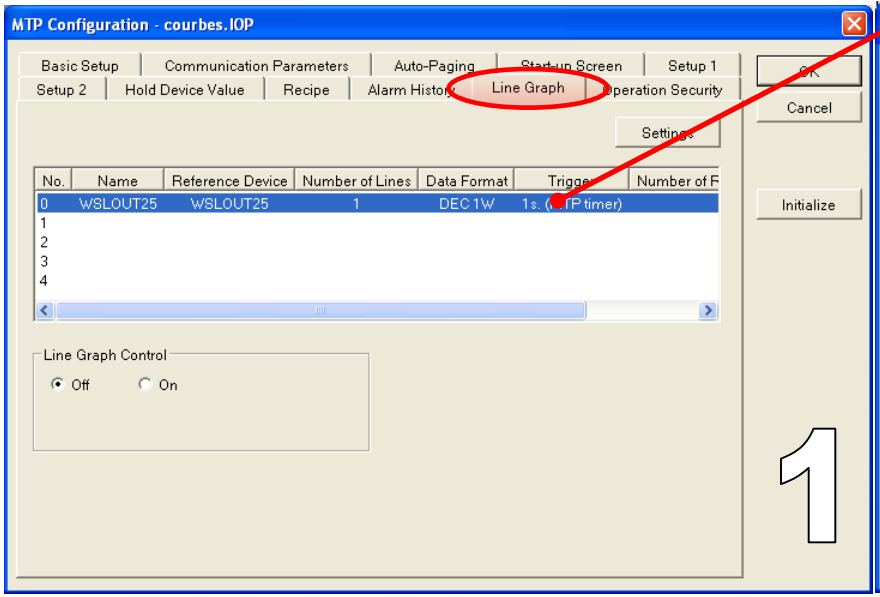
Line_graph.pm3

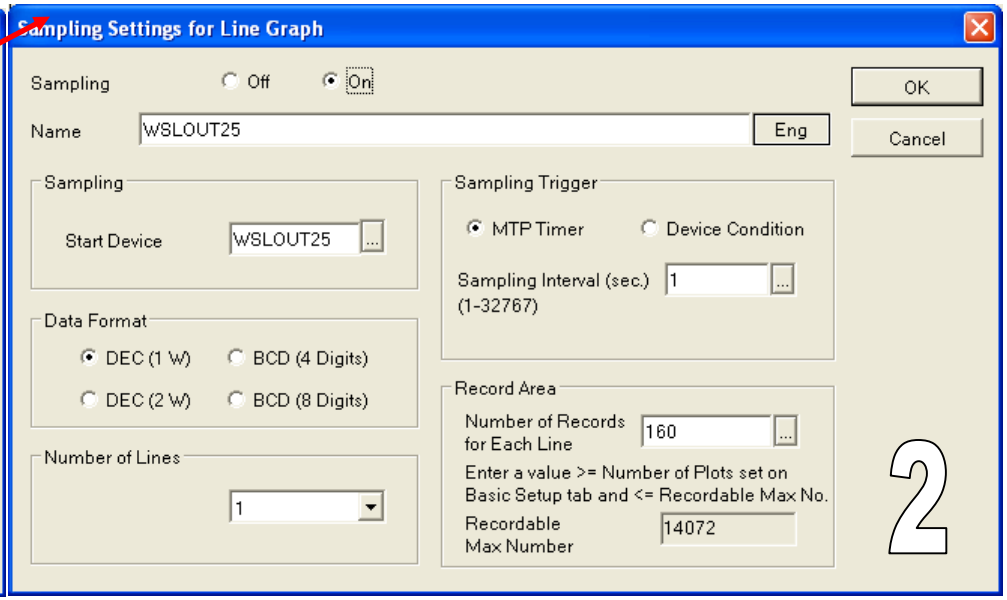
courbes.IOP

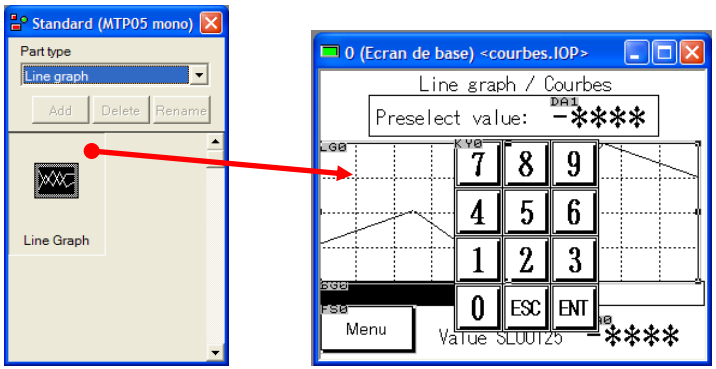
Back to page 32

• Line Graph 1

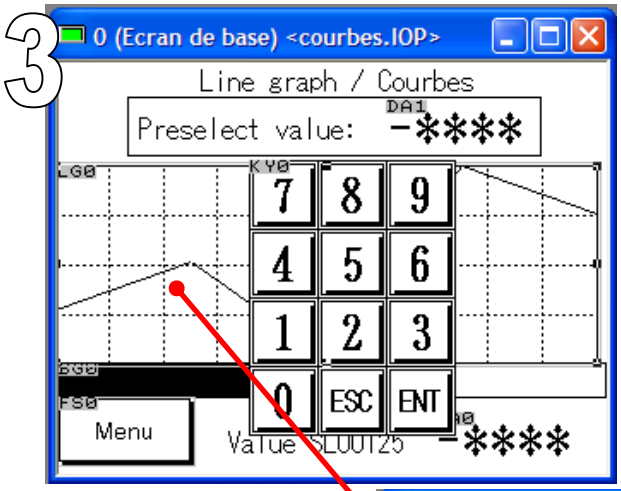
Go to: File ⇒ MTP Configuration ⇒ Line Graph

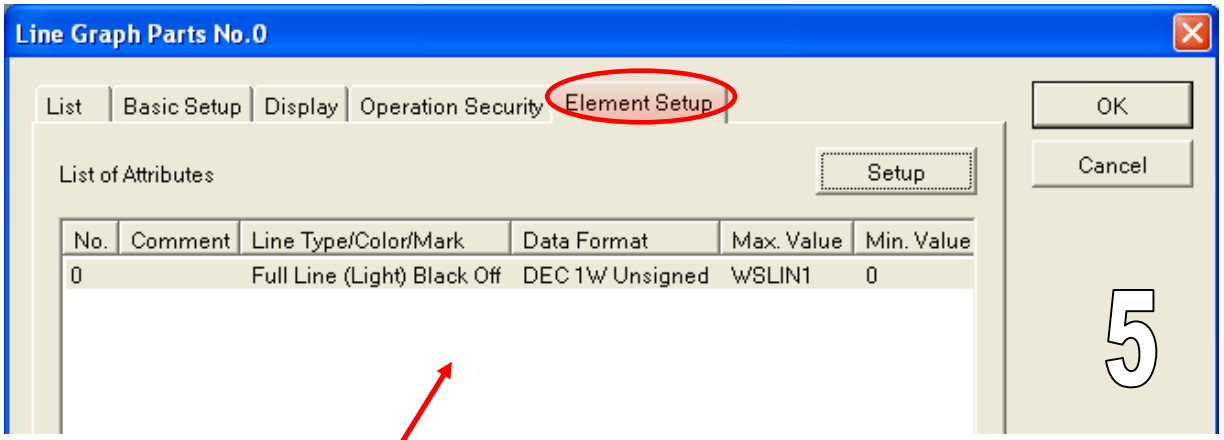


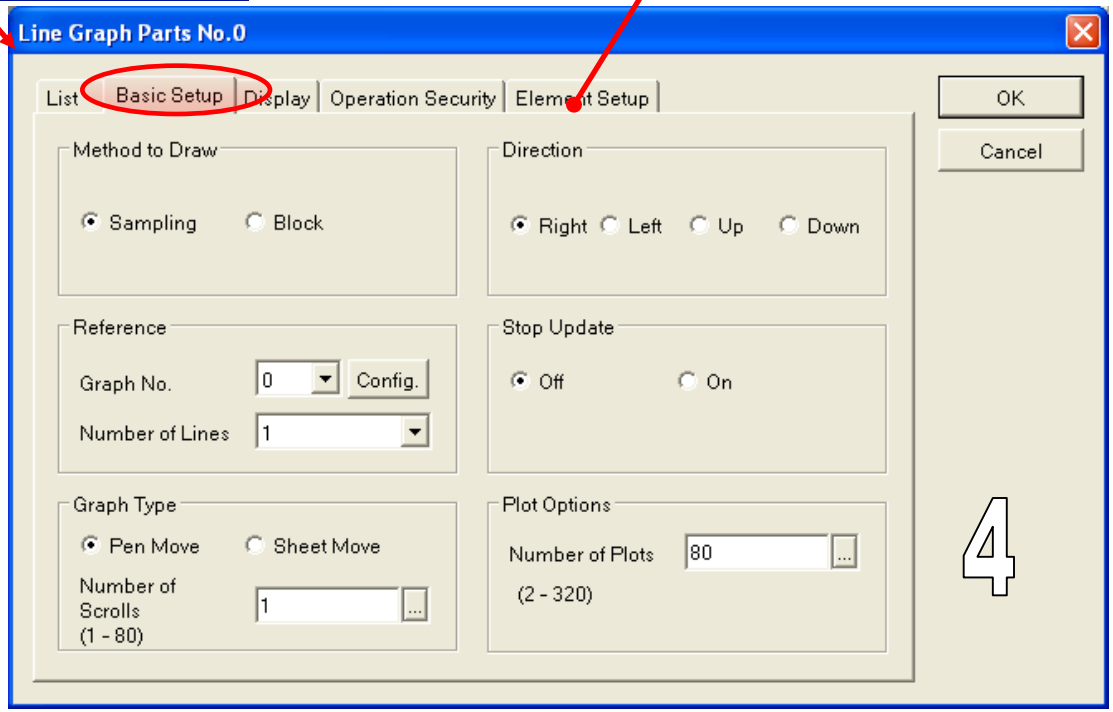




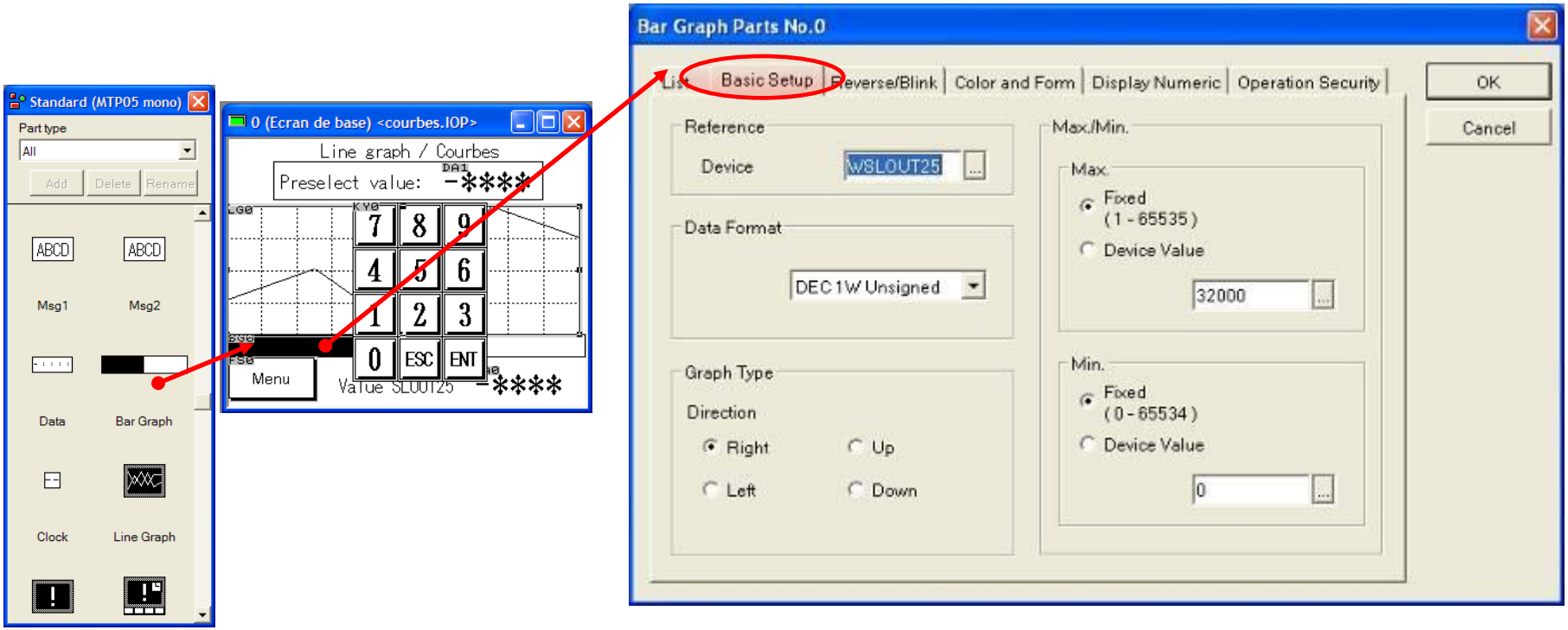
• Line Graph 2


3
0 (Ecran de base) <courbes.IOP>
Line graph / Courbes
Preselect value:
7 8 9
4 5 6
1 2 3
0 ESC ENT
Menu
Value SLUUT25


Line Graph Parts No.0
List
Basic Setup
Display
Operation Security
Element Setup
OK
Cancel
List of Attributes
Setup
No.
Comment
Line Type/Color/Mark
Data Format
Max. Value
Min. Value
0
Full Line (Light) Black Off
DEC 1W Unsigned
WSLIN1
0
5


Line Graph Parts No.0
List
Basic Setup
Display
Operation Security
Element Setup
OK
Cancel
Method to Draw
Sampling
Block
Direction
Right
Left
Up
Down
Reference
Graph No.
0
Config.
Number of Lines
1
Stop Update
Off
On
Graph Type
Pen Move
Sheet Move
Number of Scrolls (1 - 80)
1
Plot Options
Number of Plots
80
(2 - 320)
4

• Bargraph


Standard (MTP05 mono)
Part type
All
Add
Delete
Rename
ABCD
Msg1
ABCD
Msg2
Data
Bar Graph
Clock
Line Graph
0 (Ecran de base) <courbes.IOP>
Line graph / Courbes
Preselect value:
7 8 9
4 5 6
1 2 3
0 ESC ENT
Menu
Value SLOUT25
Bar Graph Parts No.0
List
Basic Setup
Reverse/Blink
Color and Form
Display Numeric
Operation Security
OK
Cancel
Reference
Device
WSLOUT25
Data Format
DEC 1W Unsigned
Graph Type
Direction
Right
Up
Left
Down
Max./Min.
Max.
Fixed
(1 - 65535)
Device Value
32000
Min.
Fixed
(0 - 65534)
Device Value
0

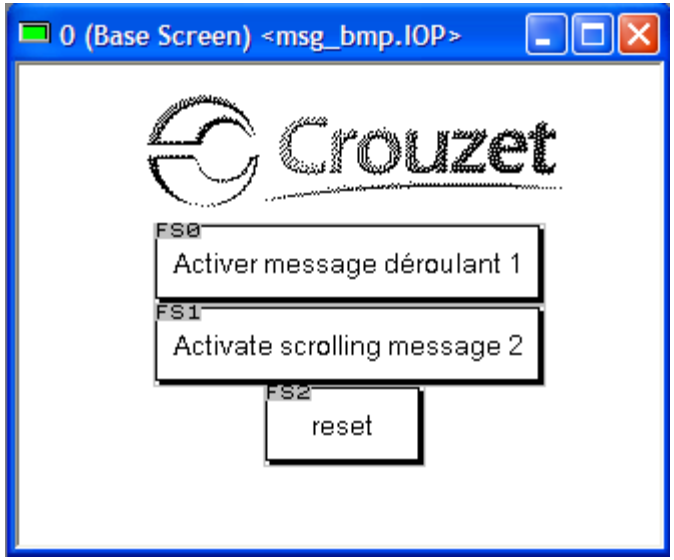
- Other functions 
  - Example program
    - Bitmaps
    - Scrolling messages
  - Comparator
  - Password management
  - Data backup

- **Bitmap and scrolling messages**

- Description of program:

- Insert a bitmap image
- Show scrolling messages

The scrolling messages are shown on all screens and are therefore not configurable per screen.

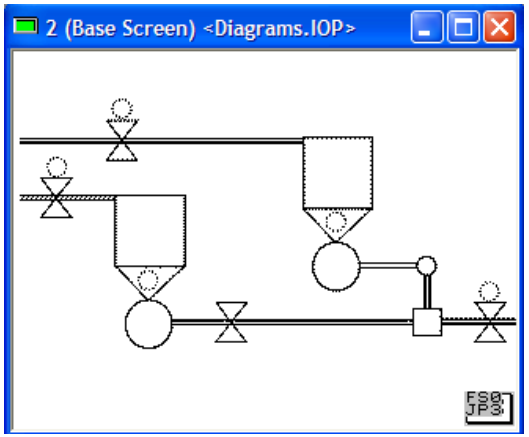


Links:

msg_bmp.IOP

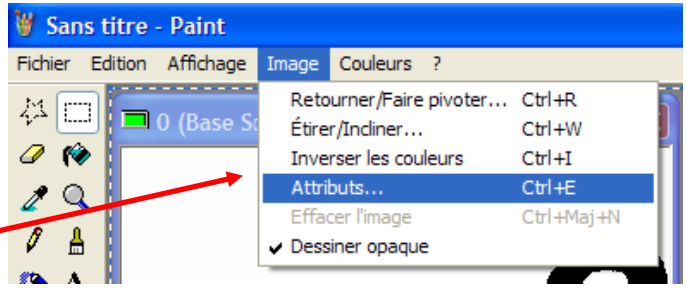
• Bitmap 1

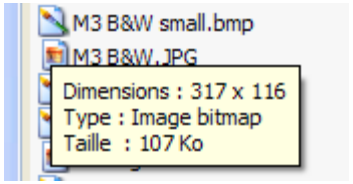
max. size 320x240 pixel



How to create a Bitmap:

1. Draw the schematics of ones application using powerpoint, etc., (or directly in the MTPWIN software) or copy any picture / diagram into PowerPoint, redimension it, tick right, 'save as image', .bmp.
2. To verify the size, copy to Paint, tick 'Image', 'Attributes', or move the mouse over the saved image to activate the pop-up.
3. Copy and paste it into an empty MTP05 screen, or enter it into the MTPWIN Bitmap Library.



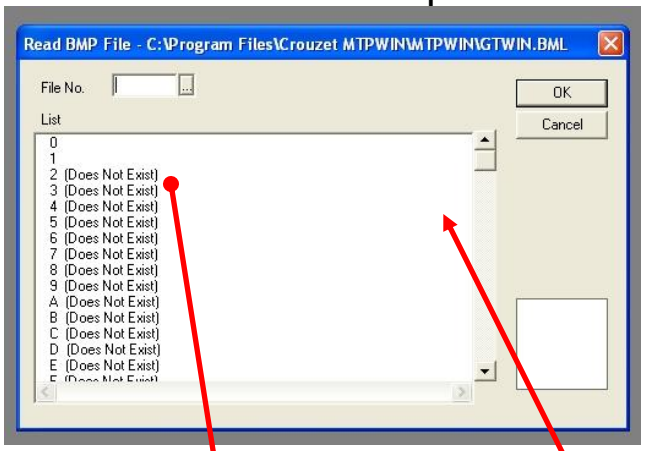


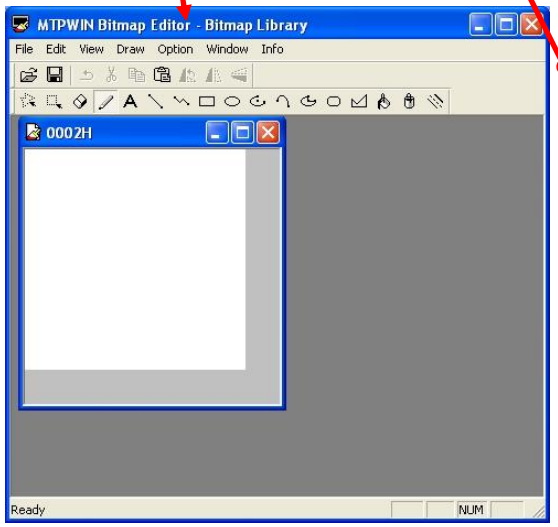
Black and white diagrams and pictures produce the best results.

• Bitmap 2

max. size 320x240 pixel

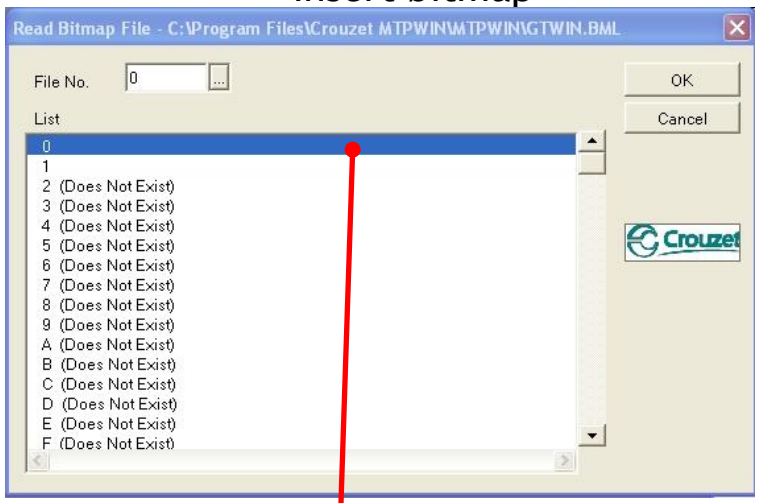
Create bitmap

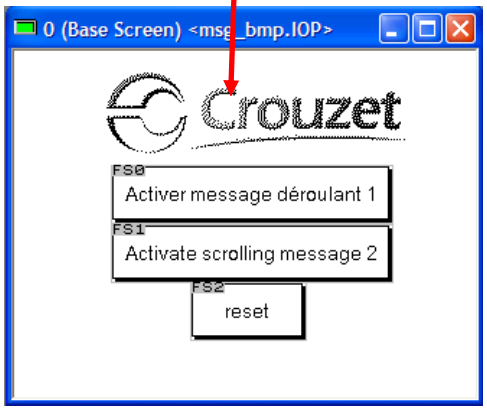




Create your own library of images, and you can use them in any program you make.

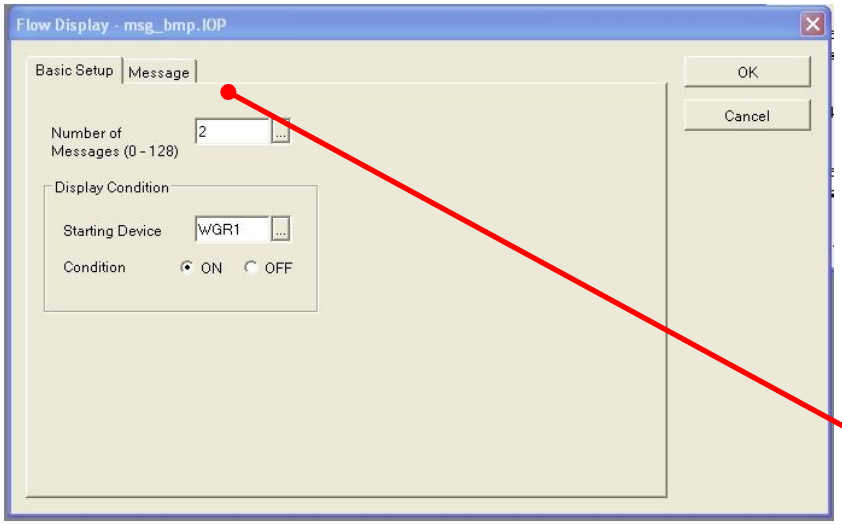
Insert bitmap





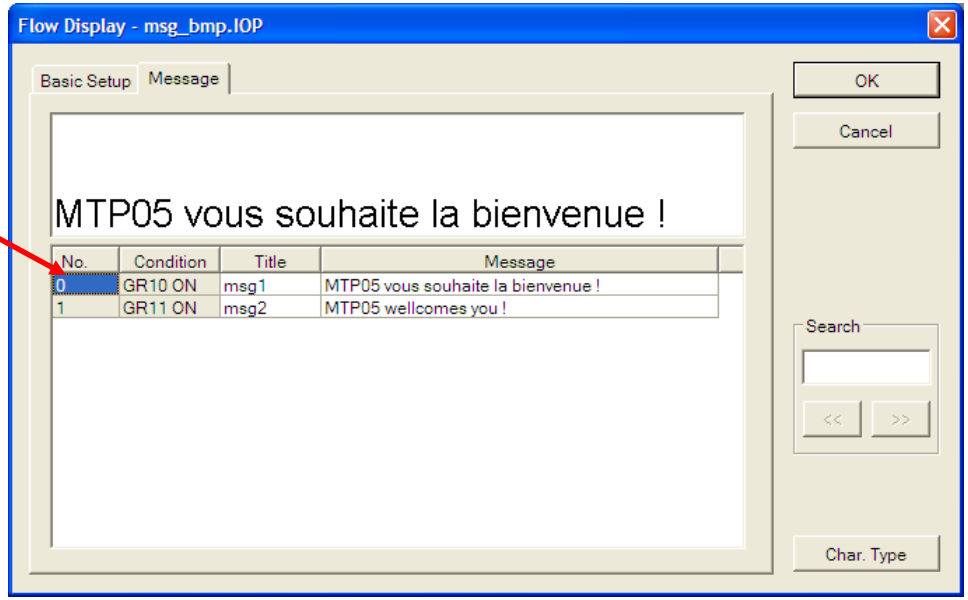
Bitmap Video

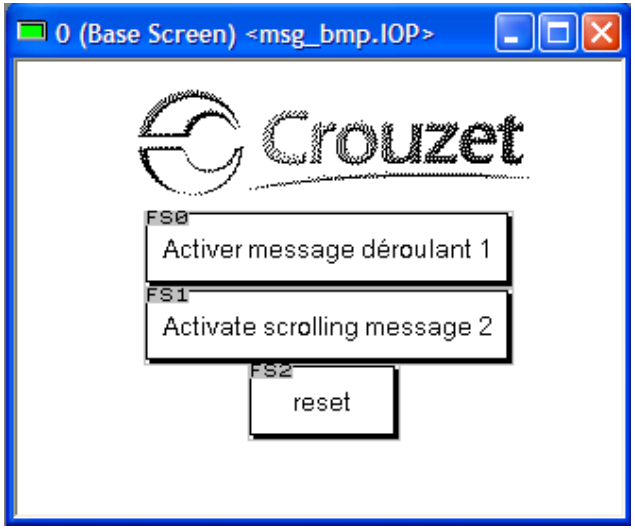
• Scrolling messages



Go to: Start Editor ⇒ Flow Display

Message Video



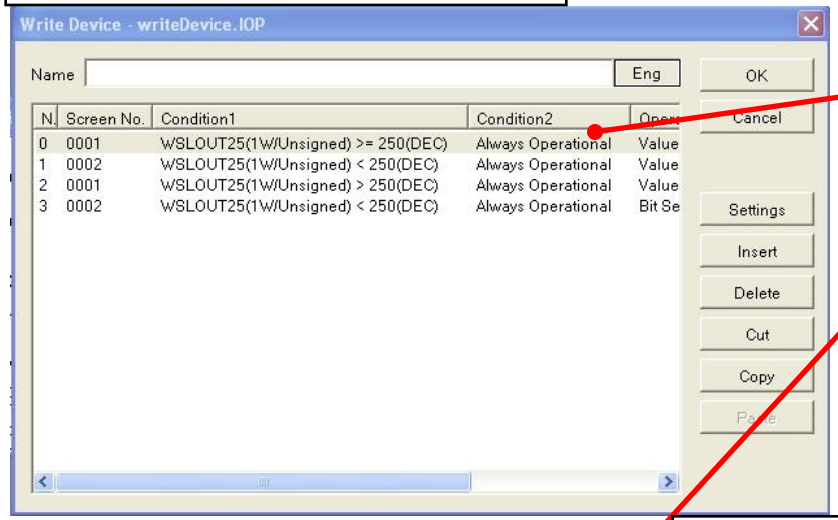


Links:

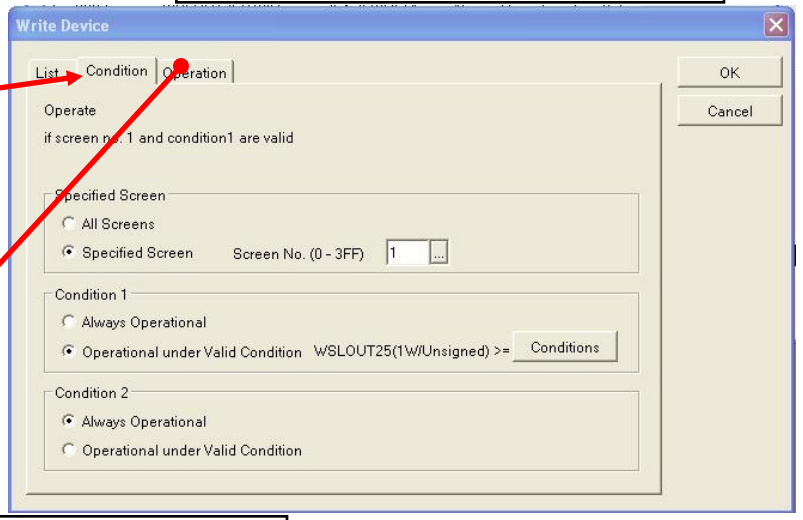
msg_bmp.IOP

• Comparator

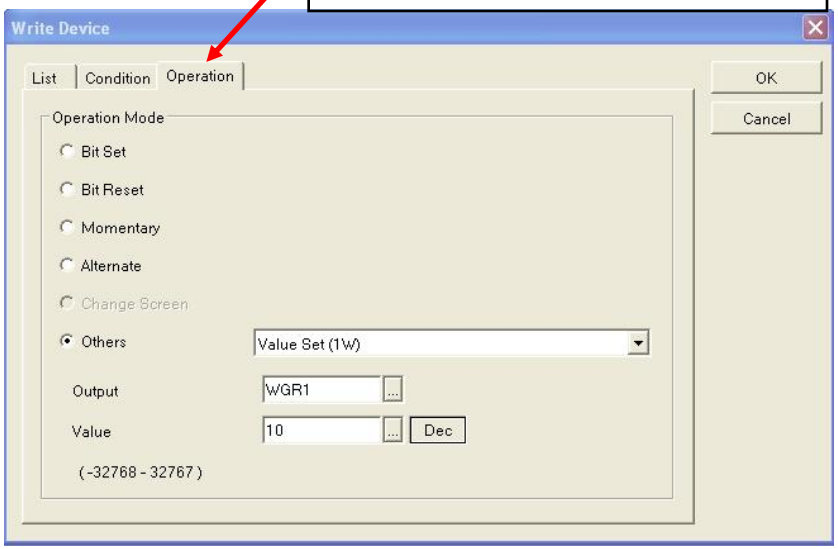
Go to: Start Editor ⇒ Write Device



Click on « Condition »



Click on « Operation »



The « Write Device » will compare a value and, according to the result, carry out an operation on a word or bit.
One can apply the comparator to a specific screen or to all screens of a program.

Write Device Video

Links:

write_device.pm3

writeDevice.IOP

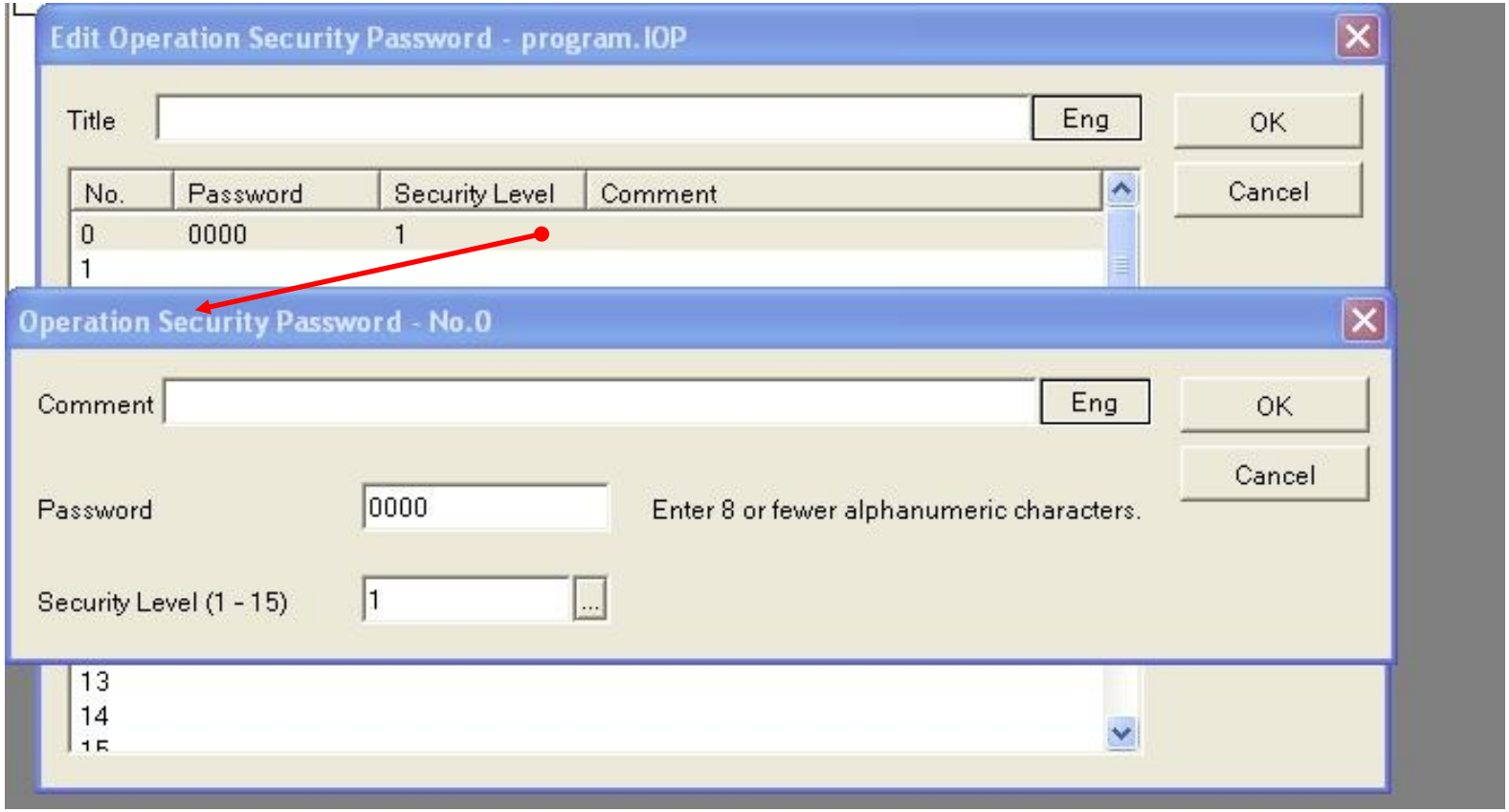
• Password management

Example:
To access level 4
1⇒2 ⇒3 ⇒ 4

Password Video

The passwords can be used to secure certain parts or pages. One can set up several security levels.

One has to pass through all previous levels in order to access the security level defined for a part/page.



Start Editor ⇒ Operation Security Password

• Data backup MTP05

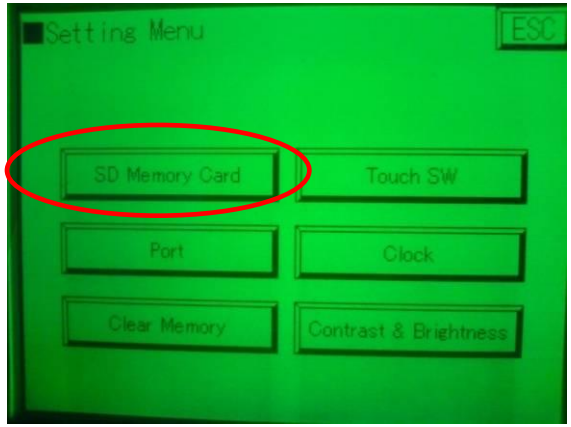
An SD card in FAT32 format inserted into the MTP05 can be used as data backup for the program and recipies.

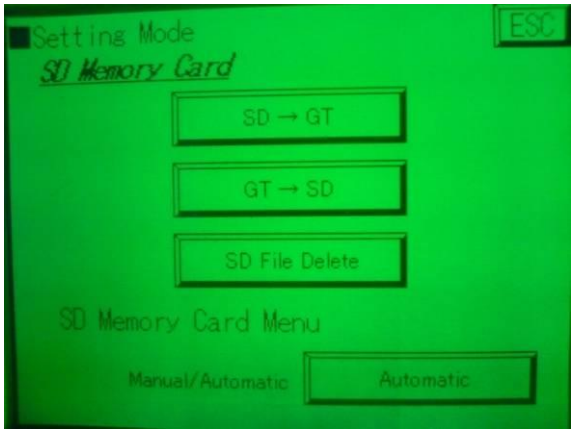
Slot for SD memory card in FAT32 format

• Data backup MTP05

The data backup (parameters, program and recipies) are saved in total, as one single file.

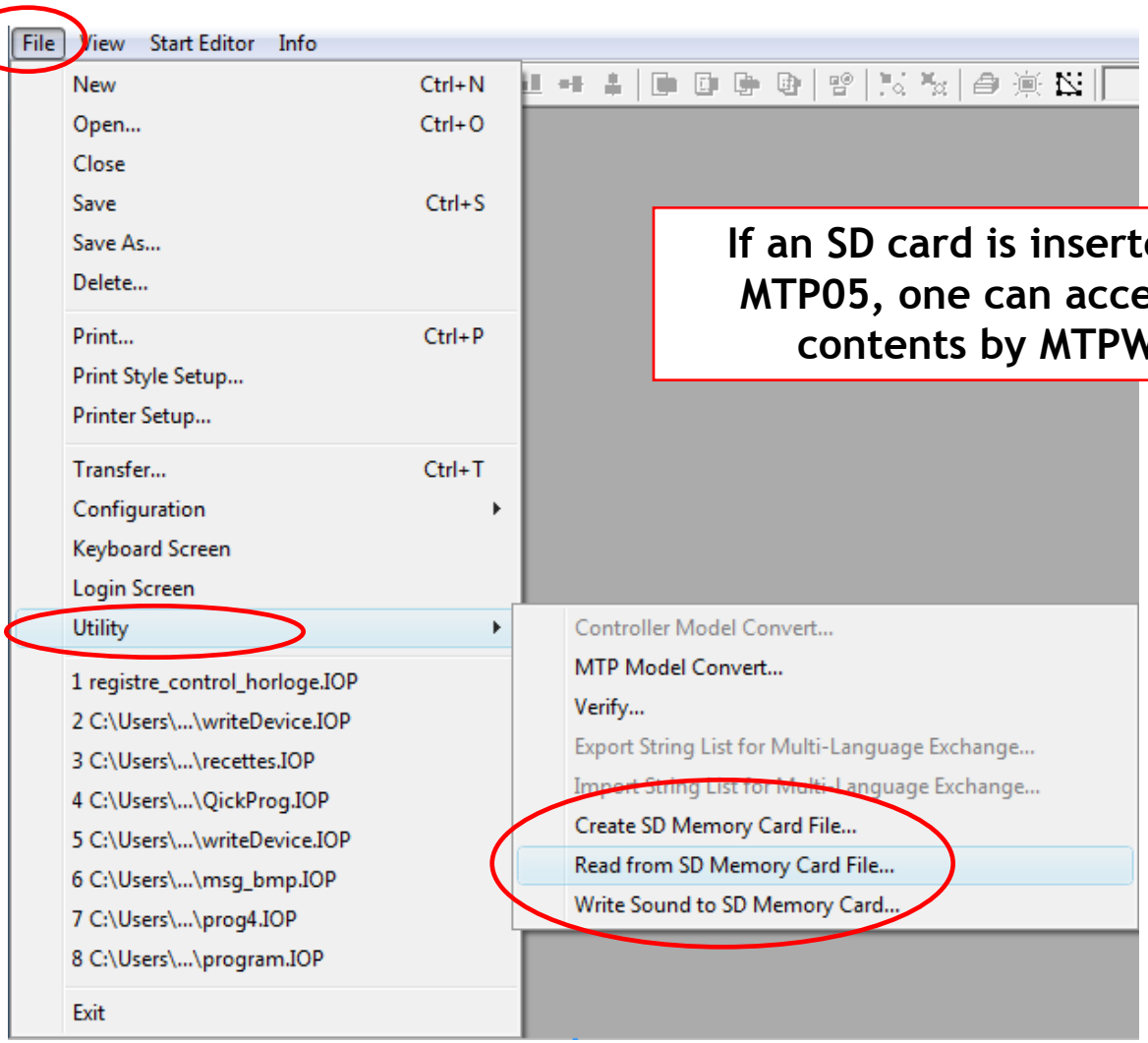
Press at least 2 sec. on the top left (1), then tipp the right top (2) and low (3), to access the Setting Menu.





Insert the SD card, then go to the MTP05 « Settings Menu » ⇒ « SD Memory Card ».

Here you can choose to write data to (SD ⇒ MTP) or read from (MTP ⇒ SD) MTP05.



If an SD card is inserted into MTP05, one can access the contents by MTPWIN.

• Links to M3/MTPWIN programs:

M3 Programs:

- Read/write bit / word
- Read/write bit / word Quick
- Recipe
- Alarms
- Pilot M3
- Line graph
- Conditions

MTPWIN Programs:

- Write/read bit / word
- Write/read bit / word Quick
- Recipe
- Alarms
- Pilot MTP with M3
- Line graph
- Passwords
- Conditions
- Bitmap & Scroll messages

• Glossary

- Bit ⇒ logic status (1 or 0)
- Word ⇒ a 16 bit value
- WGR ⇒ internal MTP05 register (Word)
- GDT ⇒ internal MTP05 register (Word)
- GR ⇒ internal MTP05 register (Bit)
- WSLOUT ⇒ word/address on block SLOut M3
- WSLIN ⇒ word/address on block SLIn M3
- BSLOUT ⇒ bit of a word on block SLOut M3
- BSLIN ⇒ bit of a word on block SLIn M3
- M3 ⇒ Millenium3
- MTP05 ⇒ Millenium Touch Panel (screen of the M3)