USER MANUAL
WinSIC
SOFTWARE

TABLE OF CONTENTS

I - GENERAL DESCRIPTION 6

1) SAFETY ASPECTS 6

2) DESCRIPTION OF CONTROLLER 6

3) DESCRIPTION OF EQUIPMENT 6

*1. **Mechanical specifications** 6*

*2. **Electrical specifications** 7*

4) SYSTEM START-UP 7

5) PRESENTATION OF THE SOFTWARE 8

6) SOFTWARE INSTALLATION 9

II - EXAMPLES OF CREATION AND REALISATION OF A MARKING OPERATION 10

1) HOW TO CREATE A MARKING FILE 10

2) HOW TO LOAD AND MARK A FILE 12

III - MARKING PARAMETERS 13

1) MARKING PARAMETERS SETTING SCREEN : 13

2) SELECTION OF THE CHARACTER FONT "F" 17

*1. **Character resolution :** 17*

3) GENERAL PARAMETERS : 18

*1. **Movement speed :** 18*

*2. **Zero style :** 18*

*3. **Diameter axis D :** 18*

*4. **Displacement X and Y :** 18*

*5. **Database:** 19*

4) USE OF VARIABLES 19

*1. **Time variables** 20*

*2. **Alphanumeric variables** 20*

*3. **Incremented variables** 21*

*4. **Variable set-up** 22*

5) INSERTION OF A LOGO OR OF A SPECIAL CHARACTER 22

*1. **Insertion of a logo** 22*

6) HOW TO INSERT A PAUSE DURING MARKING 23

7) 2-D DATA MATRIX ENCODING ("ECC200") : 23

8) RECTANGULAR FORMATS 24

*1. **Insertion of a variable into a data matrix encoding** 24*

9) PREVIEW 26

10) MARKING SYSTEM CONFIGURATION 27

1. Choice of the serial port and tests ... *27*
2. Clock set-up ... *27*
3. Passwords ... *27*
4. Machine type selection ... *28*
5. Origin shift ... *28*
6. "Logo editor" button ... *28*

11) MARKING PARAMETERS PRINTING ... 28

IV - BATCH MARKING ... 29

1) GENERAL REMARK ... 29

2) SWITCHING TO "BATCH MARKING" MODE ... 29

3) ADD A BATCH ... 30

1) DELETE A BATCH ... 31

V - LOGO EDITOR ... 32

1) GENERAL REMARKS ... 32

2) SOFTWARE DESCRIPTION ... 32

3) LIST OF OPTIONS ... 33
1. Load : ... *33*
2. Save : ... *33*
3. Optimize : ... *33*
4. Move : ... *34*
5. Delete : ... *34*
6. Exit : ... *34*

4) DISPLAY A BACK-SCREEN IMAGE ... 34

VI - THE D-AXIS OPTION ... 36

VII - THE TAG FEEDER OPTION ... 36

VIII - DATABASE ... 37

1) INTRODUCTION ... 37

2) PRINCIPLES OF FUNCTIONNING ... 37

3) PARAMETER ADJUSTMENT OF THE CONNECTION TO A DATABASE ... 38
1. Reminder of the database ... *38*
2. Choose a file to use ... *39*
3. Selection of a table ... *40*
4. Definition of the order of the records ... *41*
5. Options of the link ... *42*

4) STATEMENT OF THE DATBASE FIELDS IN THE MARKING FILE ... 43

5) USING THE DATABASE NAVIGATOR ... 45
1. Navigation ... *45*
2. Update of the marking ... *46*

6) USING A DATABASE FOR A MARKING IN SERIES ... 47

7) POSSIBLE EVOLUTIONS 48

IX - USING ALPHANUMERIC INCREMENTS 49

1) USING ALPHANUMERIC INCREMENTS 49

2) MODIFICATION OF THE USEFUL CHARACTERS LIST 49

X - CREATION AND USE OF GLOBAL VARIABLES 50

1) CREATION AND MODIFICATION OF A GLOBAL VALUE 50

XI - OPTION: AUTOSENSING Z AXIS (ZA MACHINES) 52

1) INTRODUCTION 52

2) PARAMETERS 52

1. *The field Pos Z. 53*
2. *The Auto field. 53*
3. *The field D-Z. 53*
4. *The field 1st Dot. 53*

I - GENERAL DESCRIPTION

1) *Safety aspects*

This machine is a class 1 device. The power supply switch must be grounded or include a protection wire.

To avoid electric shocks and overloads, apply the appropriate voltage to the product.

Do not operate this equipment with opened cover. Disconnect power supply cable to perform the adjustment operations described in this manual.

Do not work in explosive atmosphere.

All modifications contrary to construction specifications of the manufacturer release manufacturer's responsibility towards the user, in particular with regard to the electric / electronic components.

Adjustments and repairs other than those quoted in this manual are to be made exclusively by a SIC Marking technician.

2) *Description of controller*

The controller board delivers power and control signals necessary for :
- the control of three independent step-motor driven axes,
- the control of a solenoid,
- the interface of three photosensors,
- the interface of three output relays,
- a user voltage of 24 VDC / 0.5 A.

The controller board functions with grounded power supply.

3) *Description of equipment*

1. Mechanical specifications

Cabinet specifications are as follows :

- width *410 mm*,
- depth 300 mm,
- height 110 mm,
- weight 5.360 kilos.

2. Electrical specifications

- Power supply : ..... 85 to *260* VAC.
- Power frequency : ..... 50 to 60 Hz.
- Inrush start-up current for *260* VAC : ..... 15 A.
- Overall average efficiency : ..... 80 %.
- Maximum power : ..... 300 W.
- Available power : ..... 250 W.
- Primary/Secondary insulation voltage : ..... 3750 VAC.
- Input/ground insulation voltage : ..... 1500 VAC (i<8 mA).

4) System start-up

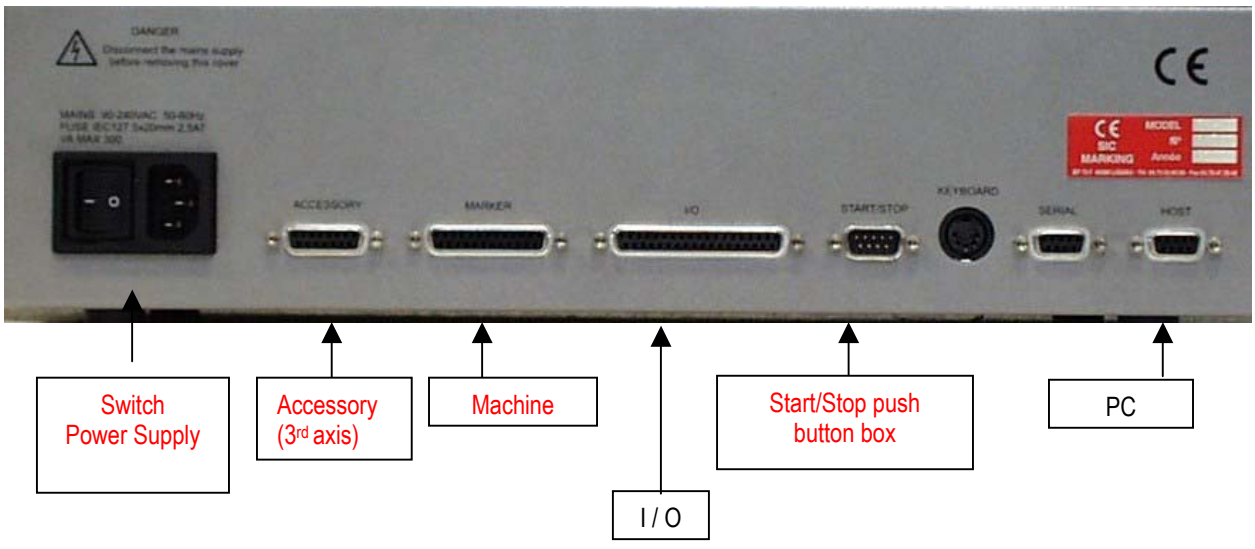
The standard system is made of the following elements :

- Marking machine,
- Electronic control unit (controller),
- Keyboard,
- Start/Stop control handbox,
- Power supply cable,
- PC.

POWER CONNECTION

WARNING

ALTHOUGH IT IS PROTECTED AND MEETS THE STANDARDS REQUIREMENTS, THIS ELECTRONIC EQUIPMENT MAY BE SENSITIVE TO EXTERNAL DISTURBANCES. THEREFORE, IT MUST BE CONNECTED TO AN INSTALLATION WHICH COMPLIES WITH STANDARDS AND IT MUST BE PROTECTED FROM POSSIBLE RADIATIONS.



- **Place the controller in a safe environment suitable for electronic and data processing equipment.**

- **Connect the marking head via the SUBD25 connector on the rear panel of the controller below the "MARKER" sign. Correctly fasten the screws which fix SUBD25 points connector.**

- **Connect the keyboard to the KEYBOARD connector.**

- **Connect the controller power supply wire to an electric line supplying voltage ranging between 90 and 240 volts single-phase and tolerating a minimum power of 300 VA. (220 V, 16 A for example).**

- **Connect the controller and the PC, using the HOST cable. The cable is linked to the SubD9 connector on the controller side next to the "HOST" mark, while it is linked to the serial port of the PC on the other side.**

- Switch the controller on via the switch located at the back of the controller.

- The screen must switch on and the "SIC" opening screen must show up. After a few moments the software starts up and the screen "Attente communication" appears.

Note : As the control unit is protected from power line disturbances, when the system is switched on (or off), it takes a few moments for the screen to light on (or to switch off).

5) Presentation of the software

The software allows setting parameters for the various markings to be carried out and their printing.

In order to do so, a large number of choices are available :
- manual or batch operating mode,
- possibility of straight, angular or radial marking,
- several fonts, with the option to compress the characters.

The manual operating mode is very simple : load file, prepare variables, mark.
The batch operating mode enables to mark in sequence with several marking files (see chapter IV).

In order to become quickly used to the software, the simplest way is to carry out the example described in chapter II, then to look at each function in detail in the following chapters.

Note :

Whatever place you are in the software :
- pressing the "Escape" key cancels the current operation you are in and brings you back to the pervious screen.

- The bottom line on the screen shows additional information about the option that you are currently using. For example, when setting the marking parameters, this line shows the limit values of the value to be entered.

6) Software installation

Required configuration :

- PC equipped with a Pentium processor (Pentium 166 or higher recommended)
- Microsoft Windows 95/98/Me or Windows NT4/2000 operating system
- 32 Mb of RAM
- about 40 Mb disk space available.

Installation procedure under Windows 95/98/Me, Windows 2000 (all versions) :

1) If the Windows default parameters have not been modified, the installation procedure should start automatically after you insert the CD-ROM. If this is not the case, you have to execute the "Setup.exe" program by double clicking on the CD-ROM. During the installation procedure, we recommend that you keep the default directory ("C:\Program Files\WinSIC") in order to make a possible maintenance easier. Depending on the Windows version, it might be necessary to restart the computer.

2) Once the software is installed, a "WinSIC" and a "Logo Editor" shortcut should appear in the menu "Start – Programs – WinSIC".

Installation procedure under Windows NT 4 :

The installation procedure is the same as above ; the only difference is that the pack 3 (or higher) for Windows NT 4 must be installed. If this is not the case, you will find the service pack 6 on the CD-ROM.

Program update for the Controller:

To update the controller, you should:

- make the controller on “boot” : Press simultaneously the keys <ALT><DEL> on the keyboard of the controller : the message BOOT S_E6 should appear.

- start the programme CHARGE.BAT which is in the folder CONTROLEUR in the installation directory of winsic

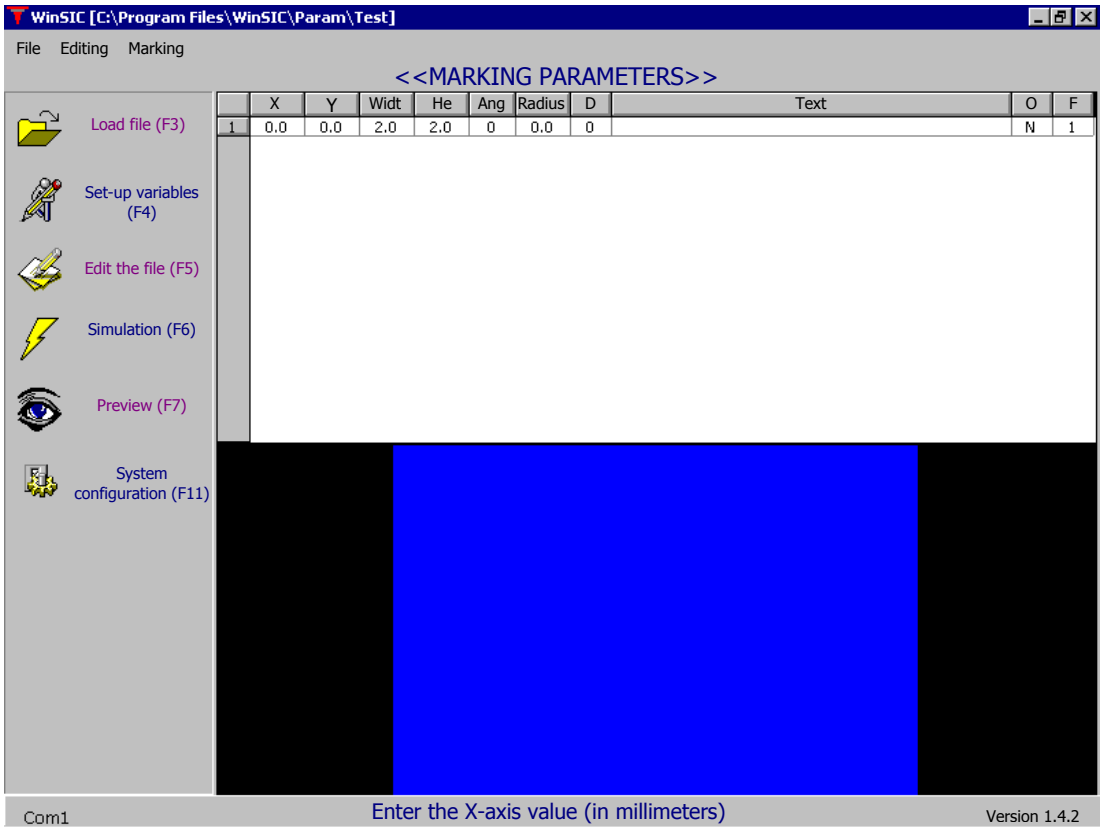
broadly : C:\Program Files\winsic\controleur

II - EXAMPLES OF CREATION AND REALISATION OF A MARKING OPERATION

The objective of the following examples is to introduce you, through a simple procedure, to the philosophy of the marking software. You will create a simple parameter file and mark.

1) How to create a marking file

When you launch the software, the main screen appears with the list of options :



Then, click on "Edit the file" or press the F5 key to switch into the Parameter Editing Mode. The Editing screen appears and the cursor moves into the parameter table.

Enter the following parameters :

X	Y	Widt	He	Ang	Radius	D	Text	0	F
10.0	10.0	5.0	4.0	0	0.0	3	SIC Marking	N	1
0.0	40.0	3.0	4.0	159	20.0	3	ABCDEFGHIJKLMNOP	N	2

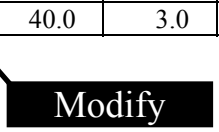
(for a better understanding of the parameters details, please consult chapter *III - Marking parameters*)

If the "Preview" box is checked (bottom left), you will see a preview in the lower part of the screen. It will be updated each time you validate a parameter and enables to control the planned marking (the printable area appears on the screen as a grid with the marking). If there are too many parameters, we recommend that you deactivate this function, which might considerably slow down the entry.

Once all parameters have been entered, click on "Preview" or press the F7 key in order to launch the full screen *preview*.

As you will see on the screen, the marking is not correct as part of it is located outside the marking window. In order to correct this, press any key : you come back to the parameter setting screen and you can modify the second line as follows :

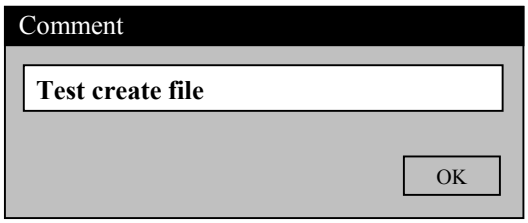
X	Y	Widt	He	Ang	Radius	D	Text	O	F
10.0	10.0	5.0	4.0	0	0.0	3	SIC Marking	N	1
35.0	40.0	3.0	4.0	159	20.0	3	ABCDEFGHIJKLMNOP	N	2



Now all the marking has correct parameters and is located within the printable area.

You can save the parameters. In order to do so, click on "Save" or press F4. A standard Windows dialog box like "Save as" appears, where you can select where to save the file and under which name. In our example, we will create a file called "Test" in the directory "C:\Program Files\WinSIC\Param".

After you validate ("Save" button), a new dialog box appears :

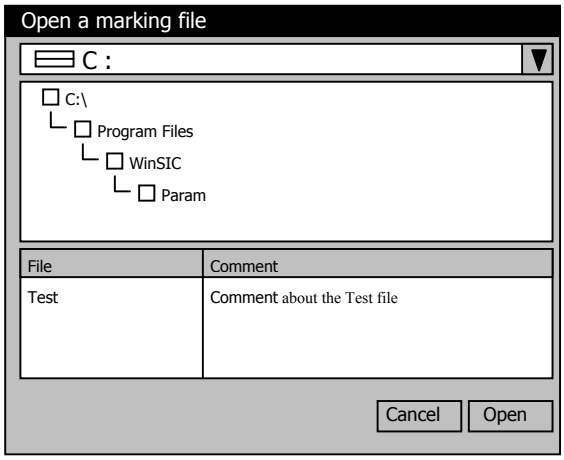


This box enables you to enter a comment about the "TEST" file ; if you use several positioning tools, it can be useful to note the reference of the correct tool. Then, when you load a new file, the comment appears in a column located next to the file list. In our example, enter "*Test create file"*, and validate by clicking "OK" or by pressing "Enter".

Then click on "Return to marking mode" or press F12 ; you are now in the marking menu and if you press the "Start" button, the marking will be launched.

2) ***How to load and mark a file***

In the Marking Menu, click on "Load file" or press F3 ; the list of all the files already created appears :

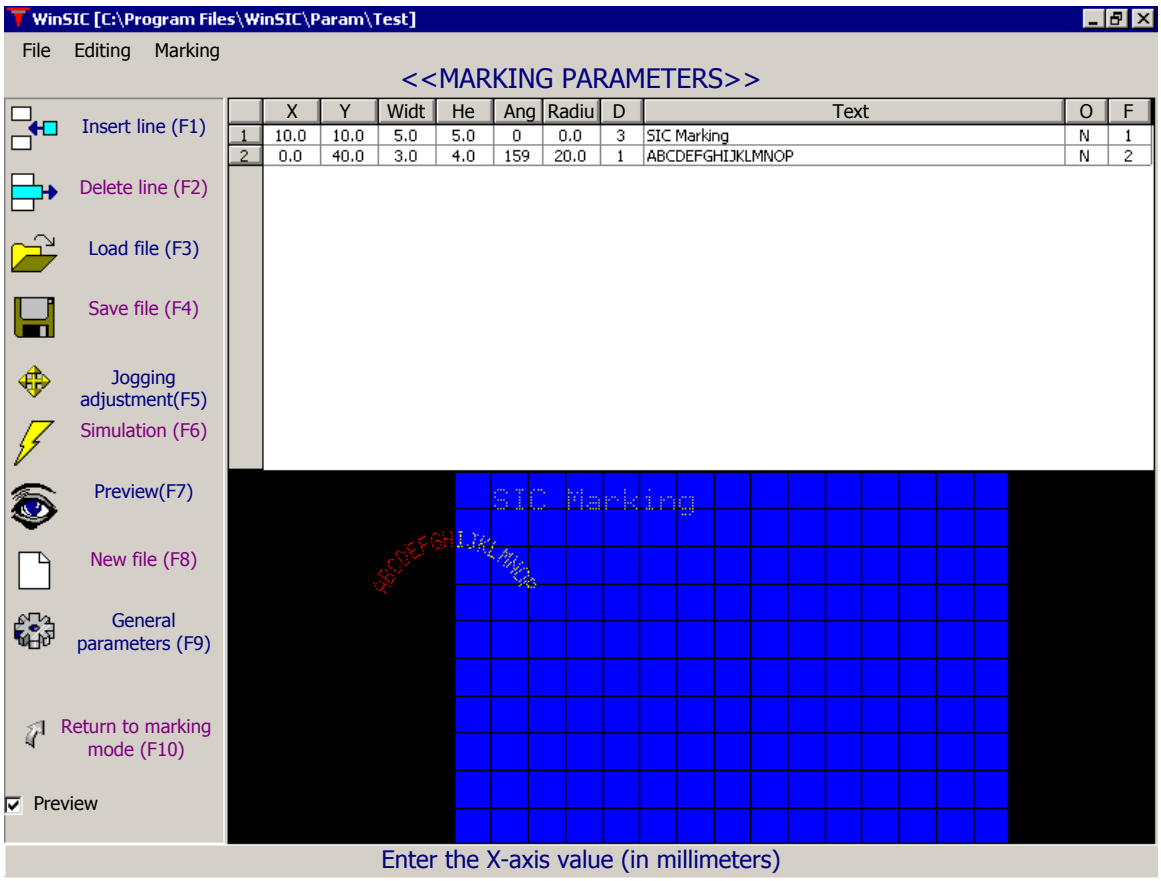


In order to load the file, click on "Open" or press "Enter".

Then, when you want to launch the marking, press on the "Start" button located on the control handbox.

III - MARKING PARAMETERS

1) *Marking parameters setting screen :*



The parameters:

X, Y : coordinates of the marking starting point on the X and Y-axes.

Widt, He : width and height of characters.

Ang: marking angle (if Ang=0 marking is straight; if Ang>0, marking will be slanted).

Radius: radius of the base circle in the case of a radial marking (allows selecting a linear marking if Radius = 0 or a radial marking if Radius > 0)

D : marking depth (0 = no impact, 9 = max. impact).

Text : text to be marked (or special parameter: clock, incrementation, variable,…).

O : selects the marking orientation (normal or opposite).

F : selects the character fonts to use (Simple, Double, or variable pitch between points)...

Jogging adjustment :

If you click on "Jogging adjustment" or if you press F5, you switch into manual positioning. In this mode, the stylus is positioned on the origin of the current line (highlighted on a yellow background) and pressing the arrow keys of the keyboard enables to move the stylus while updating the coordinates of the grid. The movement step can be modified and can take 3 different values : 0.1 mm, 1 mm or 10 mm. In order to change it, press on the "+" and "-" keys of the keyboard or click on the corresponding icons.

By choosing "Simulation" or by pressing F6, you will launch a blank marking of the current line.

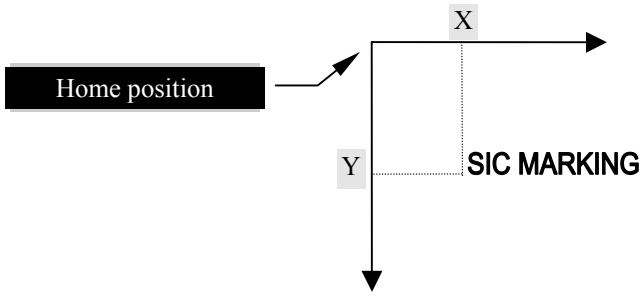
Once jogging adjustment is finished, come back to the value entry by pressing once more on F5 or by clicking on "End of jogging adjustment".

NORMAL DIRECTION

Using X, Y, Radius and Angle parameters, several types of marking can be selected:

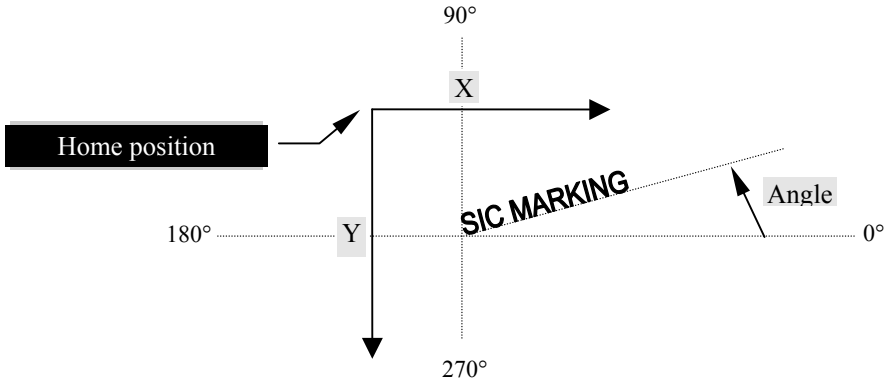
Straight marking : (Radius=0 and Angle=0)

X and Y: marking start coordinates on the X and Y axes.



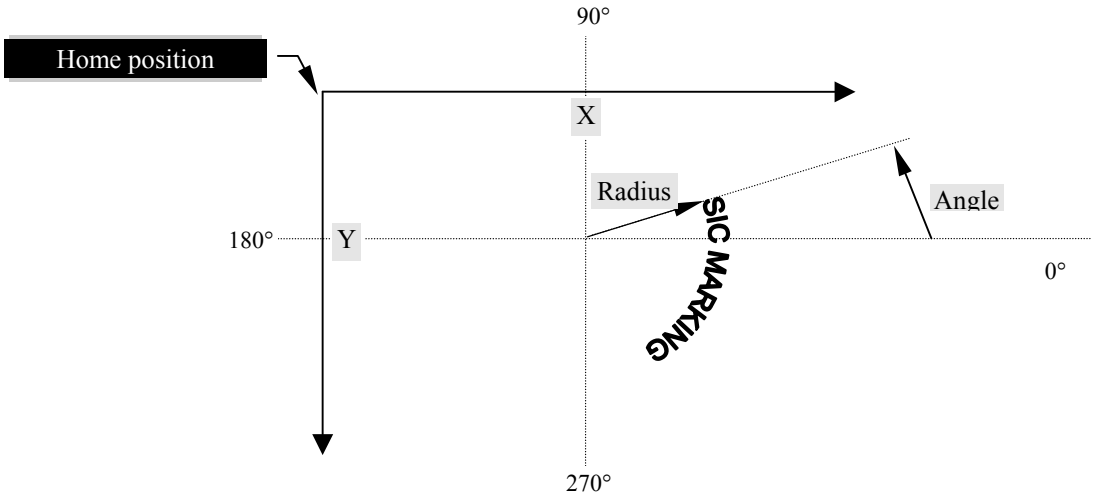
Angular marking : Radius=0 and Angle>0

X and Y : marking start coordinates on the X and Y axes.
Angle : text angle.



Radial marking : Radius>0 and Angle>0

X and Y : coordinates of the carrying circle center.
Angle : text start angle.
Radius : radius of the internal marking circle.

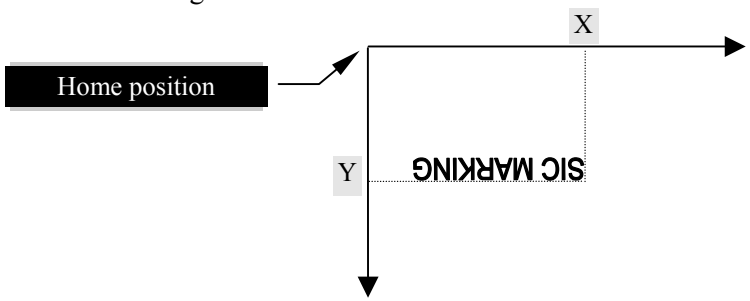


OPPOSITE DIRECTION

Using X, Y, Radius and Angle parameters, several types of marking can be selected :

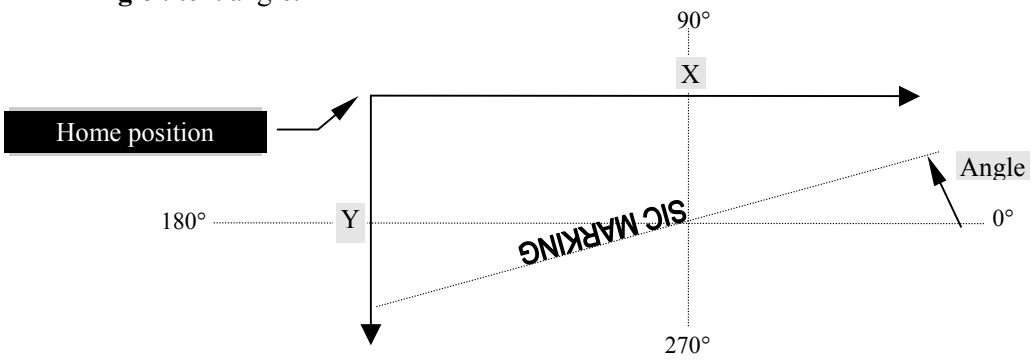
Straight marking : (Radius =0 and Angle=0)

X and Y: marking start coordinates on the X and Y axes.



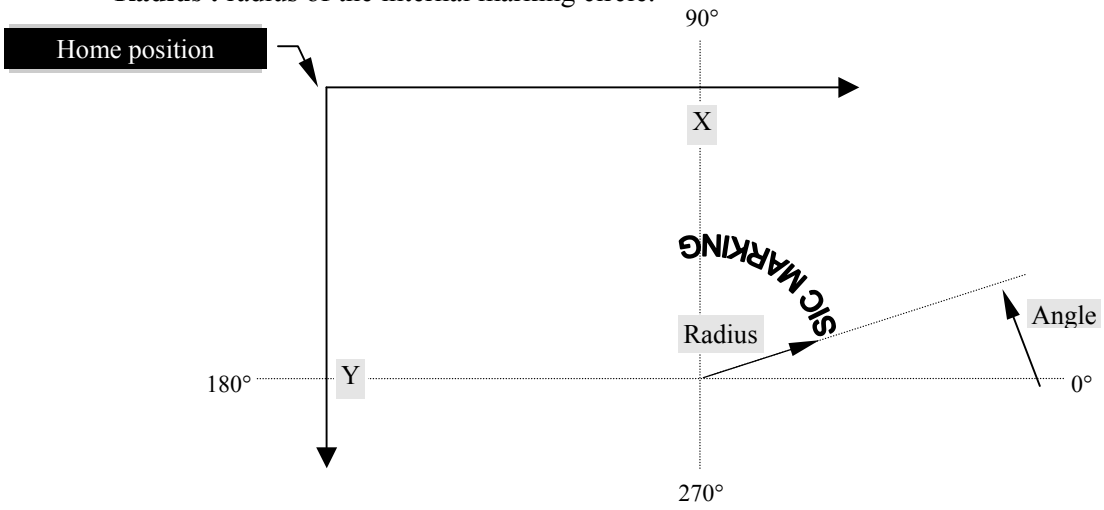
Angular marking : Radius=0 and Angle>0

X and Y : marking start coordinates on the X and Y.
Angle : text angle.



Radial marking : Radius>0 and Angle>0

X and Y : coordinates of the carrying circle center.
Angle : text start angle.
Radius : radius of the internal marking circle.



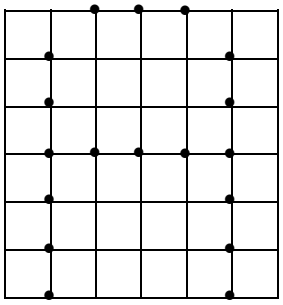
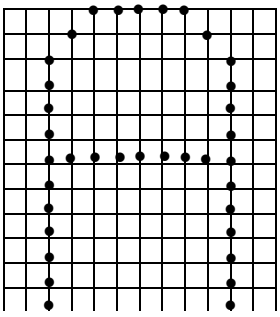
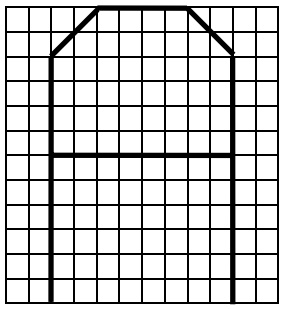
2) *Selection of the character font "F"*

This parameter allows defining the character resolution as well as normal or italic marking.

1. Character resolution :

3 marking modes are available : *simple* matrix, *double* matrix and marking *with variable pitch*.

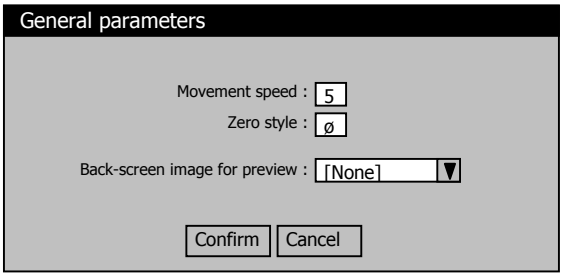
Value	Meaning
1	*simple* matrix
2	*double* matrix
3	*variable pitch,*, with 0.05 mm spacing
4	*variable pitch,*, with 0.10 mm spacing
5	*variable pitch,*, with 0.15 mm spacing
6	*variable pitch,*, with 0.2 mm spacing
7	*variable pitch,*, with 0.25 mm spacing
8	*variable pitch,*, with 0.3 mm spacing
9	*variable pitch,*, with 0.35 mm spacing

‘SIMPLE’ matrix	‘DOUBLE’ matrix	Variable pitch
		

3) General parameters :

By clicking on "General Parameters" or by pressing F11 from the Parameter setting screen, you switch to the selection mode of the general marking parameters :

The following screen appears :



1. Movement speed :

The movement speed varies from 0 (slow) to 9 (fast). The setting of the movement speed enables to set a compromise between the *marking quality* and the *cycle time*.
Besides, when marking small characters, a lower movement speed is recommended.

2. Zero style :

The zero character can either be slashed (“ø”) or not (“0”).

3. Diameter axis D :

Only for the machines equipped with an axis D.

4. Displacement X and Y :

Permits to reset the home position.

Back-screen image for preview :

This area enables to choose which back-screen image will be associated with the marking file. Most of the time, back-screen images will contain scanned or drawn tags. The drop down list contains the names of the files with the extension ".ini" located under the sub-directory "Back screens" of the WinSIC directory. These files are scripts describing what images will be shown, where they will have to be placed and what will be their real size.

In order to modify a file with the extension ".ini", you just need to click on it in the Windows Explorer. Their structure is as follows :

Fichier [1..n] = Name of the bitmap file (".bmp") preceded by its directory.

LargeurPlaque [1..n] = Actual width of the tag in mm.
HauteurPlaque [1..n] = Actual height of the tag in mm.
OrigineX [1..n] = Tag shift towards the right with reference to the upper left corner, in mm.
OrigineY [1..n] = Tag shift going down with reference to the upper left corner, in mm
CouleurTexte = Color in which the data will appear on the preview ; you may choose between Blanc (white), Noir (black), Bleu (blue), Jaune (yellow), Vert (green), Rouge (red), Violet (purple), Orange (orange) or Gris (gray). This line is optional and enables to change the color (default color is yellow) in order not to confuse it with the color of the tags shown.

Example :

We want to create a back-screen called "BackscreenTest", containing the images of two tags. The first tag, called "Tag1.bmp" is located in the directory " c:\Program Files\WinSIC\Tags" ; it is 100 mm wide and 50 mm high and will be placed at the origin of the marking (upper left). The second tag, called "Tag2.bmp" and located in the same directory is 80 mm wide, 40 mm high and is located just under the first tag. They are white, so we will choose to show the text to marked in black (Noir), to make it clear.

The corresponding script will have to be created using a text editor (like "Note Pad" under Windows) before being saved under "C:\Program Files\WinSIC\Basckscreens\BasckscreenTest.ini". Its content will be as follows :

```
Fichier1 = C:\Program Files\WinSIC\Tags\Tag1.bmp
LargeurPlaque1 = 100                    (LargeurPlaque1: width of the tag 1)
HauteurPlaque1 = 50                     (HauteurPlaque1: height of the tag 1)
OrigineX1 = 0
OrigineY1 = 0
Fichier2 = C:\Program Files\WinSIC\Tags\Tag2.bmp
LargeurPlaque2 = 80
HauteurPlaque2 = 40
OrigineX2 = 0
OrigineY2 = 50
CouleurTexte = Noir                     (CouleurTexte1: color of the text)
```

5. Database:

Please refer to the annex.

4) Use of variables

When the marking requires regular name changes, instead of re-editing the entire parameter setting each time (and running the risk of making errors), we recommend that you use variables.

These functions enable to modify the text without necessarily having access to the entire parameter setting (positions, marking depth, radius, angle …), thus suppressing the risk of making errors.

There are 3 types of variables : *time variables*, *alphanumeric variables* and *incremented variables*.

They have to be entered directly into the text entry column.

Note : when using passwords, still allow the user to modify part of the marking without giving him access to the printing parameter setting.

1. Time variables

These variables change automatically, according to the time.

Variables	Description
#YYYY	Year with 4 digits (e.g.: 1997)
#YY	Year with 2 digits (e.g.: 97)
#Y	Year with 1 digit (e.g.: 7)
#MM	Month with 2 digits (01 to 12)
#WW	Week number (01 to 53)
#DDD	Day number of the year (000 to 366)
#DD	Day number of the month (00 to 31)
#D	Day number of the week (1 to 7)
#hh	Hours (00 to 23)
#mm	Minutes (00 to 59)
#ss	Seconds (00 to 59)

For example, to mark the date followed by the time enter the following text: “#DD/#MM/#YY #hh:#mm”.

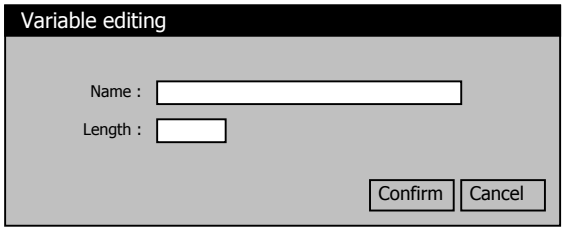
It will automatically be replaced by “05/03/98 16:25”.

By pressing "Alt" + "H" when the cursor is in the text entry column, a help window for the creation of time variables will appear.

CAUTION : For these variables to be correct, the internal clock of the marking system must be accurate. In order to do so, activate the function *system configuration*. You will then have access to the *system clock* setting.

2. Alphanumeric variables

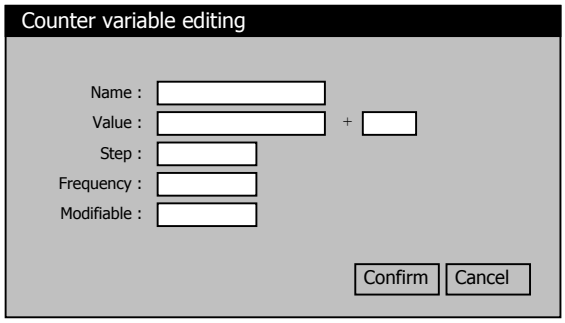
When the cursor is located in the text entry column, press "Alt" + "V" and the following screen appears :



You have to enter the name of the variable, in order to identify it during the *set-up variables* phase as well as the maximum number of characters allowed to be entered for this variable.

3. Incremented variables

When the cursor is located in the text entry column, press "Alt" + "I" and the following screen appears :



The first parameter corresponds to the *name* of the variable. This allows you to identify this variable during the *set-up variables* phase.

Then comes the *starting value*.

Then comes the *shift* value.

Explanation : Let us suppose that in order to save cycle time, you want to mark several parts in one single marking cycle. In order to control multiple incrementation, you have to create an incremented variable that you will multiply, depending on the number of parts to be marked in one cycle. The shift will enable to manually control the evolution within a same marking process (see example).

The parameters *Step* and *Frequency* make it possible to define the evolution of the variable : the *Frequency* parameter allows determining how many markings will be done until the *Step* is added.

The *Modifiable* parameter makes it possible to authorize or not the edition of the starting value through the function *set-up variables*.

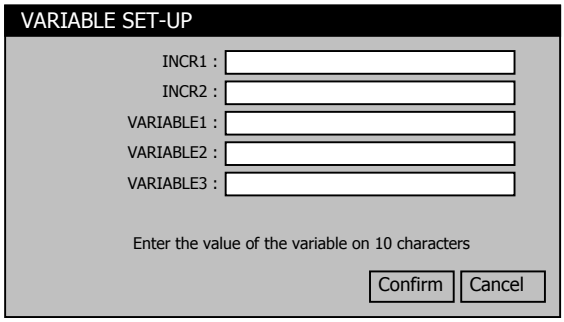
Caution : If you want to increment a number from 0 to 999, the starting value has to be "000" as the number of digits used on the starting value will be respected over the entire use of the variable.

Examples:

- to change a serial number from 0 to 99, incremented with each marking, enter : value="00", shift="0", step="1", frequency="1",...
- to change a serial number from 999 to 0, decremented for each marking, enter : : value="999", shift="0", step="-1", frequency="1",...
- Example of the use of the Shift parameter : if you want to mark 2 parts in a single cycle by marking a serial number on 3 digits, you have to create 2 variables, both called "TEST". Then, you have to enter the following parameters : value='000', step='2', frequency='1'. For the shift value, enter "0" for the 1st variable and "1" for the 2nd : by the 1st marking, the marking will be "000" and "001", by the 2nd marking it will be "002" and "003", etc... Note : in this case, the *step* parameter corresponds to the number of parts to mark in one cycle.

4. Variable set-up

This option enables to enter and to modify the value of the variables. Once you select this option, if variables have previously been created, the following screen appears :



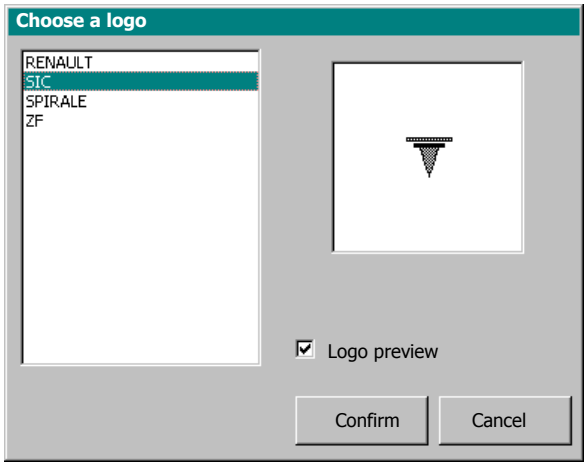
Now you can enter the values of the different variables and initialize the incrementations.

Note : Alphanumeric variables appear in black while incremented variables appear in purple.

5) Insertion of a logo or of a special character

1. Insertion of a logo

To insert a logo, when you are in the text entry column, press simultaneously "Alt" + "L". The list of logos appears, with the preview option :



You can select the logo that you want to print (to create a logo, please refer to the chapter "Logo Editor").

6) *How to insert a pause during marking*

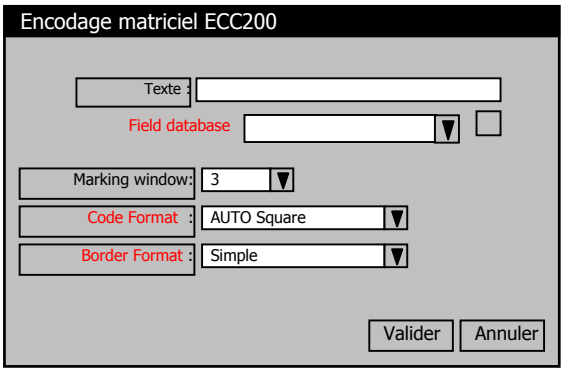
Once the cursor is in the text entry column, press "Alt" + "P" to insert a pause at the selected coordinates during the marking cycle. This option can be useful for example if you have to move a part during the marking process.

Once a pause has been made, the operator has to press again on the "Start" (On) button to continue the marking.

7) *2-D Data Matrix encoding ("ECC200") :*

To create an area for data matrix encoding, press "Alt+E" in the "Text" column or right click on the mouse and choose " ECC200".

The following screen appears :



TEXT : Enter in this field the text that will be encoded (it may contain fix variables or incremented variables … see following paragraph).

FIELD DATABASE

This field allows you to add the content of a database field to the code ECC200.
The button **[+]** enable you to validate the field and to insert the syntax **#B(*FieldName*)**.
FieldName represents the field name of the database.
As the marking begins the syntax **#B(*FieldName*)** will be replaced by the datas of the running database (cf. VIII Database).

MARKING SPEED : Defines the movement speed of the axes during the marking of the Data Matrix code.
The marking speed of a clear text, that does not necessarily need to have a perfect marking quality, can be different from the speed of the encoding marking : a text that is not meant to be read by a vision system can be marked at high speed, while the data matrix encoding, that is meant to be read (by a camera or another system), will have to be marked without any deformations in order to increase the vision performances.

CODE FORMAT : Enables to define the format of the code to be made. You can mark square or rectangular codes. The list of the possible formats is as follows :

Square formats		8) Rectangular formats	
10x10	(3 bytes)	***8x18***	(5 bytes)
12x12	(5 bytes)	***8x26***	(8 bytes)
14x14	(8 bytes)	***8x32***	(10 bytes)
16x16	(12 bytes)	***12x26***	(16 bytes)
18x18	(18 bytes)	***12x36***	(22 bytes)
20x20	(22 bytes)	***16x36***	(32 bytes)
22x22	(30 bytes)	***16x48***	(49 bytes)
24x24	(36 bytes)		
26x26	(44 bytes)		

Please note : during encoding, 2 consecutive digits take 1 byte whereas any other character is encoded onto 1 byte. For example the text "ABCD" takes 4 bytes, "1234" takes 2 bytes, "ABCD12" 5 bytes, "A1B2" 4 bytes, "A1B2C3" 5 bytes etc.

The parameters "***AUTO SQUARE"*** and ***"AUTO RECTANGULAR"*** allow defining the dimensions of the code automatically depending on the quantity of information to be encoded. Otherwise you can force the use of a specific code by selecting its dimensions. Caution : if you force the use of a code that is too small compared with the quantity of information to be encoded, the text will be truncated at the maximum size that can be contained in the code.

BORDER FORMAT : This parameter enables to modify the line of the code references. For example, you may choose to double the number of dots in the reference "L" to make it appear more clearly, depending on the material to be marked.

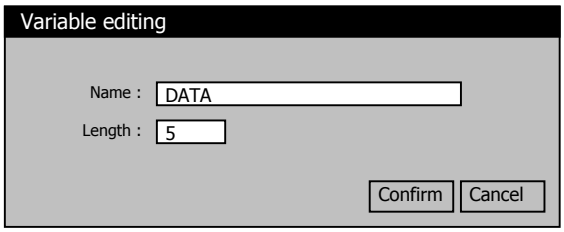
1. Insertion of a variable into a data matrix encoding

In the "Text" field, you can enter any type of character or any time variable (like #DD/#MM/#YYYY, to mark the date automatically) and refer to any variable or any incrementation.

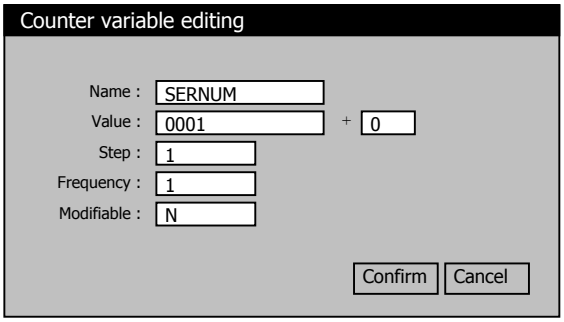
Example :

Creation of the variable "DATA" and of the incrementation "SERNUM", with the encoding of these information.

a) Create the variable "DATA"*, containing 5 characters :*



b) Create the incremented variable "SERNUM" *starting at 0001 :*



c) Create the encoded variable :

In the ***"TEXT"*** field of the entry window of the parameter code, enter the following text :

*« **#V(DATA) #I(SERNUM)** »*

Before encoding, the text will automatically be replaced by the content of the variables.

You can easily add the time or a fix text :

*« **#hh:#mm #V(DATA) ABCDEF #I(SERNUM)** »*

« #hh » and « *#mm »* represent the hours and minutes and "ABCDEF" represents a fix text.

Note : **If you want to encode a variable or an incrementation but if you do not want it to be clearly marked, select "O" as the marking depth : it will not be taken into account in the marking but will only be used for encoding.**

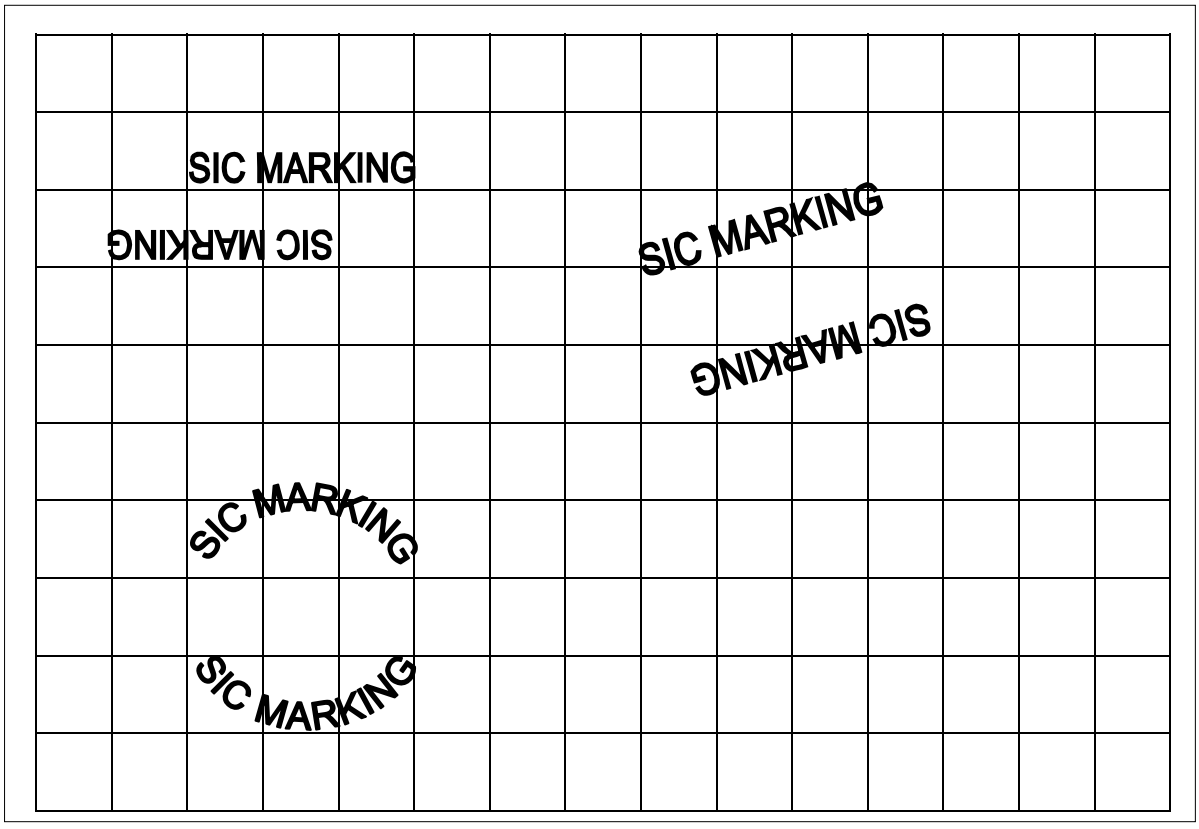
9) Preview

The preview enables to have a first idea on the screen of the marking that will be made.

With the following parameters,

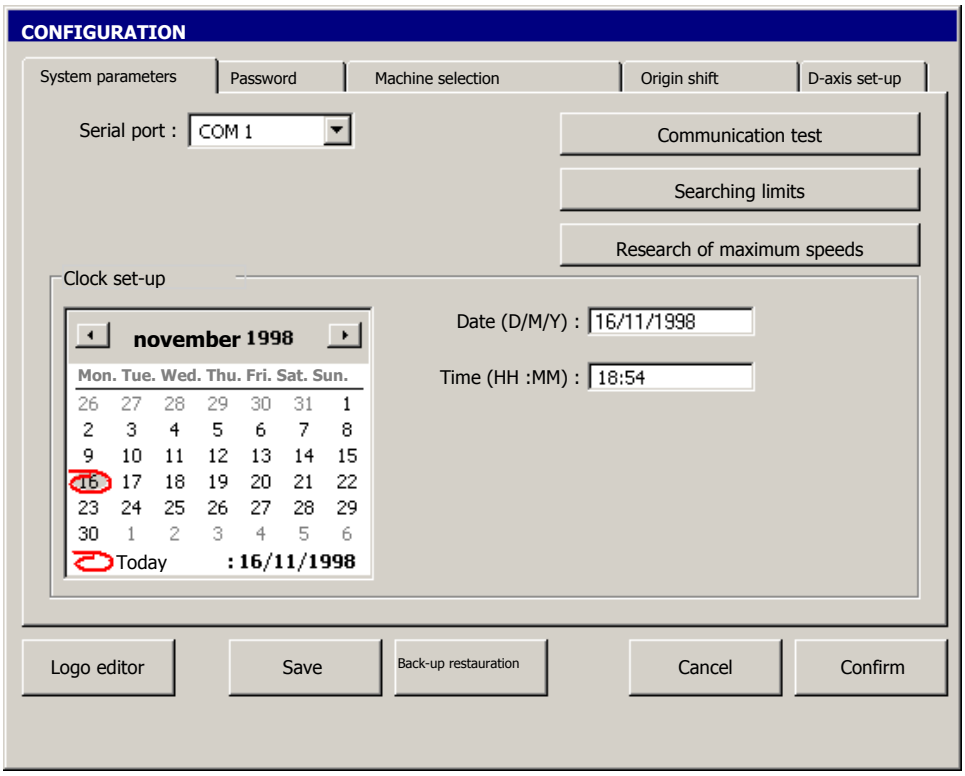
X	Y	Widt	He	Ang	Radius	D	Text	O	F
20,0	20,0	4,0	4,0	0	0,0	3	SIC MARKING	N	3
40,0	30,0	4,0	4,0	0	0,0	3	SIC MARKING	I	3
80,0	30,0	4,0	4,0	30	0,0	3	SIC MARKING	N	3
110,0	30,0	4,0	4,0	30	0,0	3	SIC MARKING	I	3
40,0	60,0	4,0	4,0	159	15,0	3	SIC MARKING	N	3
40,0	60,0	4,0	4,0	201	15,0	3	SIC MARKING	I	3

the following screen appears :



The grid represents the marking window (150x100 mm on a C150 type machine) and each square represents a 10 mm x 10 mm surface.

10) Marking system configuration



1. Choice of the serial port and tests

After selecting the serial port on which your cable is connected, the button "Communication test" enables you to test its presence by returning to the origin.

The button "Searching limits" informs you about the real maximum size of your marking window in mm. The command "Research of maximum speeds" makes a test to indicate at which speed (in steps/min) your marking system becomes imprecise.

2. Clock set-up

This option enables to change the time and date of the internal clock of the marking system. For example, you can easily change from winter time to summer time.

3. Passwords

When you click on "Password", two entry zones appear "Operator password" and "Supervisor password".

In order to block the access to parameter setting functions, you can define two passwords. The *operator* password authorizes the access to the marking parameters, while you are in manual marking mode, and the *supervisor* password gives access to the configuration menu of the system.

4. Machine type selection

This option contains the list of all the machines that the system can control and you can thus select the type of machine you want to use.

5. Origin shift

You can do an origin shift : this shift will be added to any movement on the axes so that after changing an origin sensor, it will be easy to set the origin back by referring to the coordinates before the change.

6. "Logo editor" button

When you click on this button, you launch the logo editing program execution (chapter IV).

Save and restore the parameters

In order to save your WinSIC configuration as well as your marking files and your logos, insert a floppy disk in the A drive and click on "Save". All files present under the sub-directories "Config", "Param" and "Logos" of the main directory WinSIC will be copied.

To restore these files in case of a disk crash or if you want to install them on another PC, click on "Back-up restoration".

11) Marking parameters printing

The sub-menu "Print file" of the "File" menu enables to print all parameters of the current marking :

- The general parameters : movement speed, zero style
- The system configuration parameters : serial port number, origin shift, machine type …
- The characteristics of each marking line.

IV - BATCH MARKING

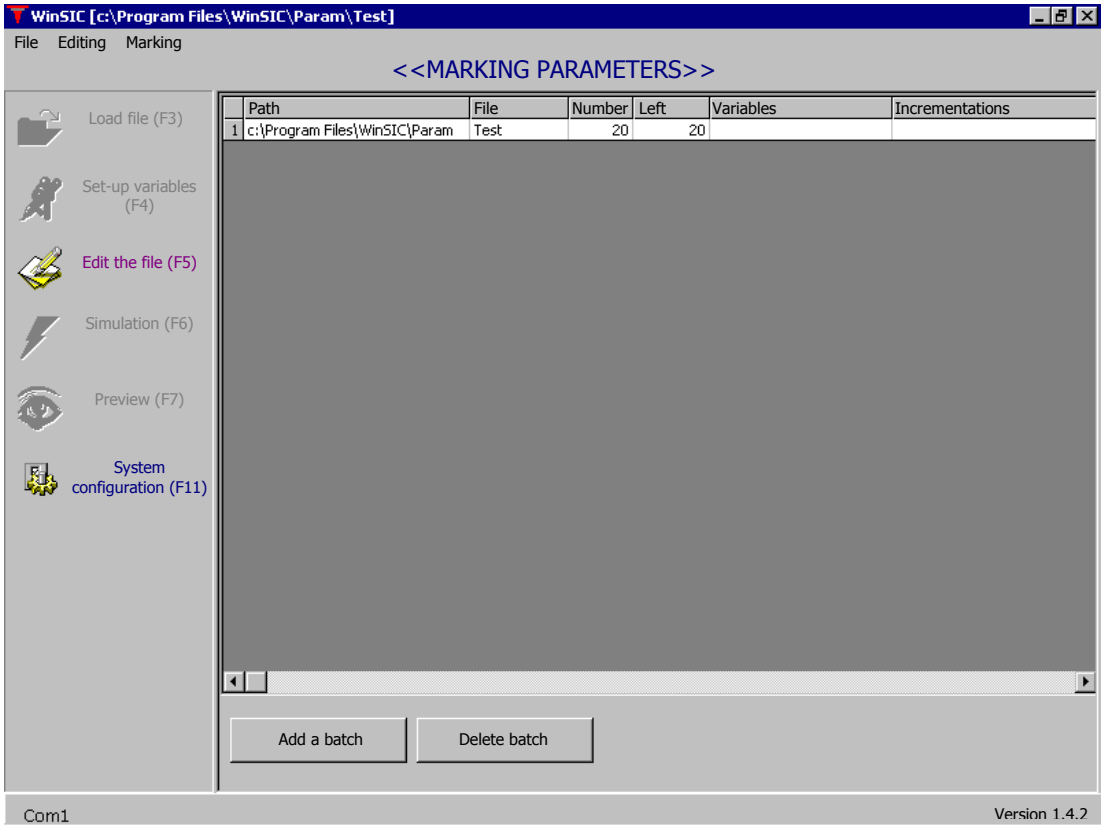
1) *General remark*

It is sometimes useful to define a list of files to be marked. Let us imagine that a shop has to mark 20 tags of one type, 10 tags of another type etc…

WinSIC enables to define such a sequence thanks to its "batch marking" mode.

2) *Switching to "batch marking" mode*

When you want to switch from "Manual mode" to "Batch marking" mode, click on the sub-menu "Batch marking" of the Marking Menu. The sub-menu is then checked and several options used in the manual mode become inactive. The main window is as follows :



The option "Edit the file" remains active to enable the creation and the modification of marking files. However you have to be careful not to change files which belong to the batch to be marked ; the data would not be coherent any more, especially if variables or incrementations are used.

The option "System configuration" also remains valid but the test related areas and the areas related to the communication with the controller will not be accessible, in order not to interrupt a sequence controlled by a robot or by a tag feeder (see « Tag feeder option" option at the end of this manual).

The central table contains the list of batches characterized by 7 attributes, represented in the columns :

1) The number of the batch

2) ***Path*** : the directory where the file is saved.

3) ***File*** : file of the batch. These are the same marking files as in manual mode (see chapter III – "Marking parameters").

4) ***Number*** : indicates how many times the file needs to be marked.

5) ***Left*** : indicates the number of remaining markings for the batch. This value is decremented by each correct marking. Once the last marking has been made, the line disappears and is replaced by the next one.

6) ***Variables*** : lists the variables and the values set for the batch.

7) ***Incrementations*** : lists the incrementations and their values.

To come back to the manual marking mode, unclick the sub-menu "Batch Marking" in the Marking Menu.

3) Add a batch

By clicking on the button "Add a batch" you have the possibility to insert a new batch.

WinSIC first invites you to chose the file which will be used in this batch by opening a navigation box under Window, just as the box described in the sub-chapter II-2 *How to load and mark a file*.

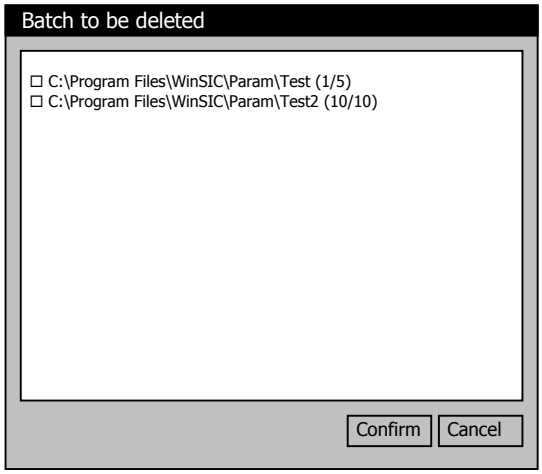
Then if the selected file contains variables and incrementations, you have to give them values. To do so, the dialog boxes described under the sub-chapter III-4 *Use of variables* will appear and the operator will fill them out.

In the following dialog box, indicate how many times the marking will be made.

Finally, if the list contains more than one batch, WinSIC suggests that the operator indicates where the new batch will be inserted. By default, it will come on the next line of the list.

1) Delete a batch

One or several batches may be deleted by clicking on the button "Delete batches". The following dialog box appears :



Each line of the list represents a batch with the path to its marking file and in brackets the number of remaining parts to be marked.

To delete one or several batches, click the box at the beginning of each line and click on "Confirm". A dialog box asks for confirmation and you can click on "Yes" if you are sure that the batch can be deleted.

V - LOGO EDITOR

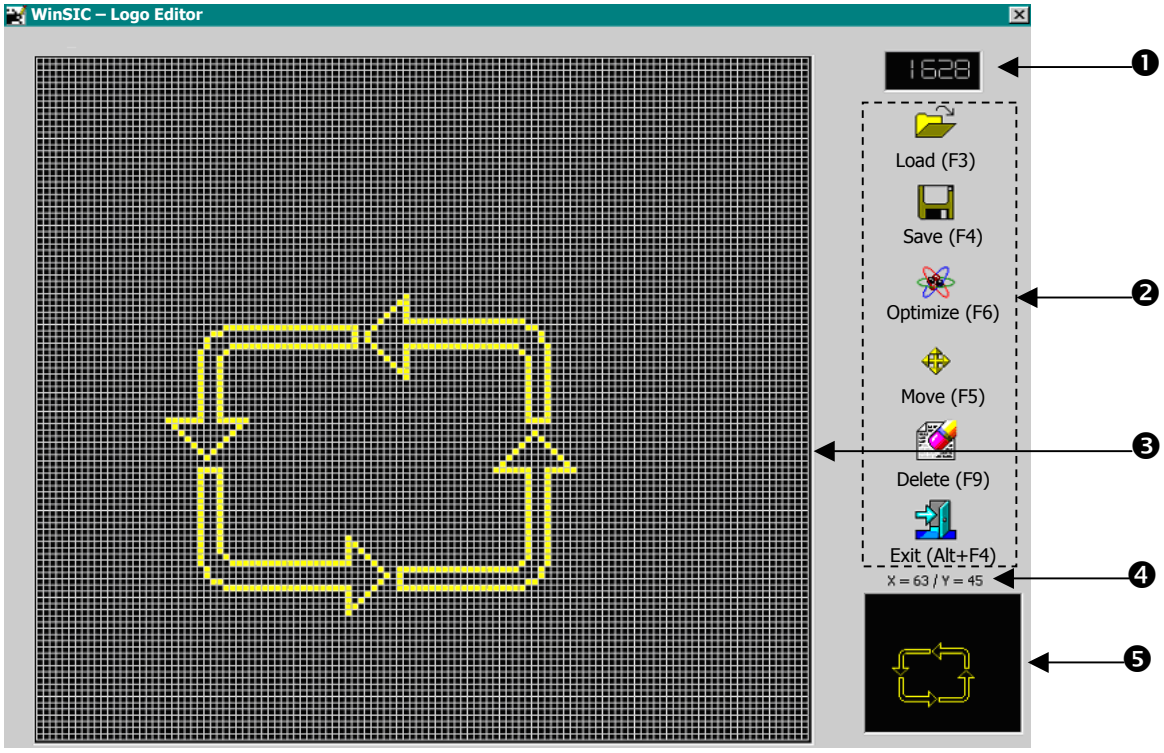
1) *General remarks*

In its standard version, the marking system is delivered with the Logo Editor, in order to create the logos which will be printed on the part to be marked, at the same time as the text.

The Logo Editor can be executed in 2 different ways :
- In Windows, click on the "Start" icon, go to "Program – WinSIC" and click on Logo Editor.
- In the WinSIC marking software, call the function "System configuration" and click on the button "Logo Editor".

2) *Software description*

After executing the application and loading a file, the following screen appears :



❶ Number of available dots.

❷ Options.

❸ Drawing area for the logo.

❹ Coordinates of the current dot (updated when the mouse is moved or when you press on the arrow keys of the keyboard).

❺ Logo preview area (the logo drawn in the left grid appears her in small size, which shows it in a more visible outline).

In order to draw a logo, you have 2000 dots which you can place where you want in the grid of 120 by 110 dots (area ❸). The number of dots available is displayed on the right on top of the screen (❶).

To position a dot in the grid (area ❸), press the left mouse button, and to withdraw one, press the right mouse button. The coordinates of the dot will appear in the area ❹.

A certain number of options are available at any time. To launch an option, position the mouse cursor on the desired option and press one of the buttons, or use the shortcut key (used in brackets).

3) List of options

1. Load :

When you click on this option, the list of existing logos appears on the screen, and you can select the file which you wish to load. The file then loads, you return to the starting screen, and the logo is displayed in the areas ❸ and ❺.

2. Save :

This option enables to save the logo currently on the screen. When you click on this option, a frame is displayed in which you can enter the name of the file to save.

3. Optimize :

When you created a new logo, the various dots were recorded in the order in which you entered them. If you launch the marking of this logo, the vibrating stylus will carry out the impacts in this order, wasting a lot of time for each printing because of the numerous back and forth movements that this will involve.

To optimize the movements of the stylus, you can redefine the order of the impacts.

How to proceed :

Using the mouse, click on the dots of the logo in the order you want them to appear. When you select a dot, it is recorded using the left button, and it is displayed in pink. Each dot that is confirmed will be recorded after the last selected dot. To cancel a dot accidentally confirmed, place the cursor on the dot and press the right mouse button, which will record it at the very end of the pile.

The **'Test'** option enables to control the order in which the dots will be carried out. In order to do so, the logo is redrawn slowly on the screen, and you can thus visualize the order of appearance of the dots. To stop the test before it ends, press on "Esc".

When the organization of the dots is correct, click on the 'O.K.' option, and you will return to the starting screen. Then you simply need to save your work.

4. Move :

Allows shifting the current logo in the editing grid by a certain number of points to the bottom, the top, the right-hand side, or the left-hand side. In this dialog box, the command "Return to home position" enables to move the entire logo as close as to the home position (bottom left).

5. Delete :

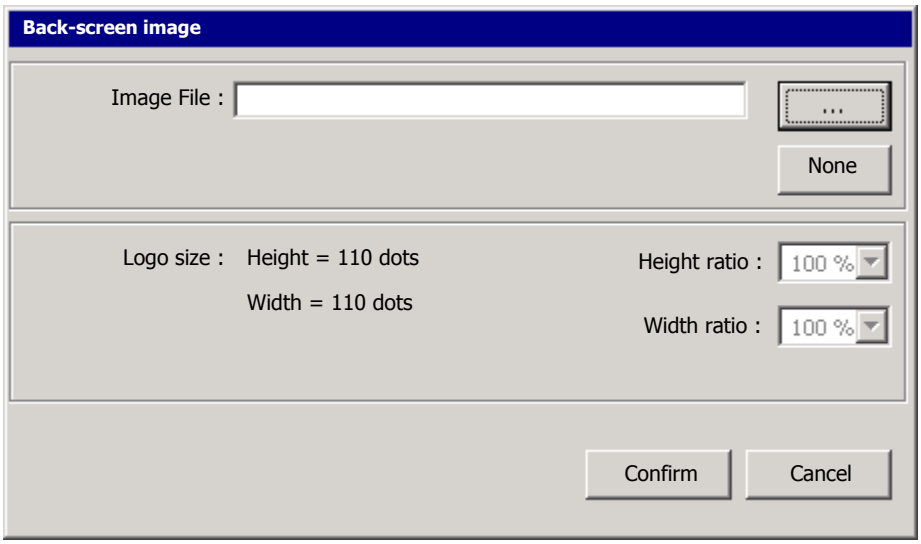
Allows erasing (on the screen) the logo being currently edited.

6. Exit :

This option enables to leave the logo editing software and to return to the operating system or to the marking software.

4) Display a back-screen image

You can use a back-screen image to help you draw your logos : call the menu "Display" – "Back-screen image" and the following screen appears :



To choose a back-screen image, click on the button "…" ; a standard Window file opening box appears. Once you have chosen the name of the file, it appears in the area "Image File".

If you do not want any image, click on "None".

"Height ratio" and "Width ratio" define the number of image pixels displayed at one dot of the logo. If this ratio is 100% in both dimensions, each dot of the logo will be displayed with one pixel. If this ratio is 50% in both dimensions, each dot of the logo will be displayed with 4 pixels.

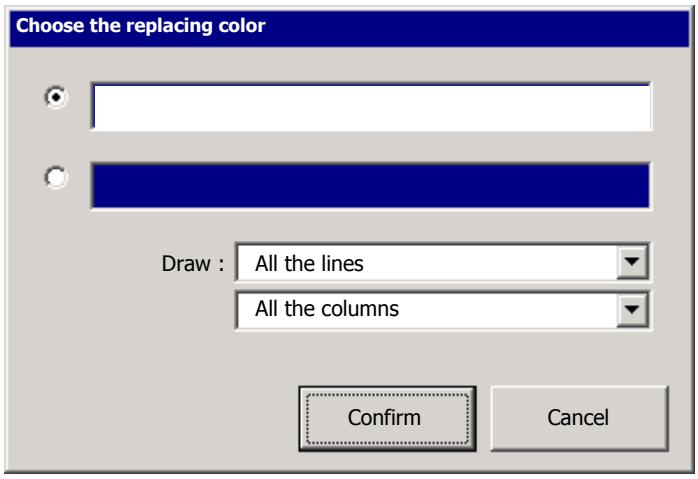
Click on "Confirm" once you have chosen your image and set the ratios.

Automatically draw a logo from a back-screen image

It is possible to automatically draw a logo from a back-screen image if this image meets the following requirements :

- The height and width ratios are both 100% (in other words one dot of the logo corresponds to one pixel of the image). The image has to have a maximum size of 120 dots by 110 dots.
- The image can only contain 2 different colors.

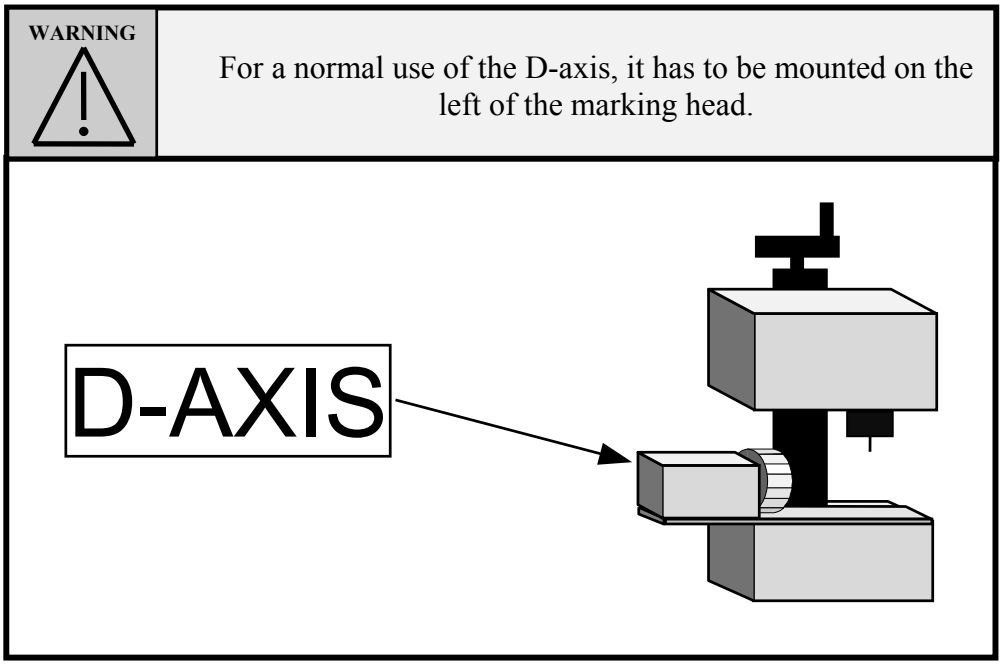
If both conditions apply, an "Editing" menu – "Draw the picture" becomes accessible. It shows the following dialog box :



You have to choose a replacing color that will be used to automatically draw the logo. If you want to reduce the number of dots of your logo, you can choose to draw only one line out of 2 or only one column out of 3 for example.

VI - THE D-AXIS OPTION

The D-axis is an accessory of the marking machine which enables to mark on cylindrical parts. It is a little chuck which rotates the parts to be marked.



If you want the system to take this option into consideration, go to the system configuration menu, then click on "D-axis set-up". Enter "Y" in the field "Active".

Once the D-axis has been selected, you have to enter in the "Y-shift" area the distance between the origin of the Y-axis and the axis of rotation of the chuck.

Then in the general marking parameters, you will have to enter another parameter : the diameter of the part to be marked.

VII - THE TAG FEEDER OPTION

WinSIC can also control a tag feeder. The parameter setting is conducted exactly as described in chapter III – *Marking parameters.*

The tag batches can be created as a standard batch (see chapter IV – *Batch marking*) but a new button "Activate the feeder" appears at the bottom of the window under the table of batches.
By clicking on this button, the operator launches the automatic feeding of the tags.

The button then becomes "Deactivate the feeder", once the feeder is working. If the operator wants to stop it, he only needs to click on this button.

VIII - DATABASE

1) *Introduction*

Every company has lots of information in its database concerning its production. The aim of latest evolutions of WinSIC is to automate the access to this information during the process of tracing. And this is for three reasons:

- To avoid wasting time to key in twice the same information
- Reduce the risk of error caused by the double input
- Rationalise all the data for marking

WinSIC tries to satisfy these expectancies by embedding a reading system of database for its marking. This database could be in the same computer or on the intranet of the company.

2) *Principles of functionning*

The connection between WinSIC and the database can be done by 3 steps :

- Declaration of a connection between a marking file and a database
- Choose and insert the fields in the marking file
- Navigation between the files saved in the database and update the marking to be executed

3) Parameter adjustment of the connection to a database

1. Reminder of the database

The term of database cover many technologies (relational model or object, files or access by a middleware network,…).

The software WinSIC is limited when using the relational database by accessing directly to the files. However this kind of database is the most popular one for the small structures because it regroups the format like Microsoft Access or Excel.

An evolution of using the middleware " ODBC" can be considered in order to read all the data from the most complex system(refer to the chapiter " possible evolutions")

There are different logic organization of the database that WinSIC could deal with:

- A database is presented in the form of a file. It can be an Access file with extension ".mdb" or an excel file with the extension ".xls"

- The database file includes one or several tables, which has a list of lines, records, subdivisions on column, and the fields. In Excel, the tables are presented in the form of pages that we can select by their tab, the records by the lines in the table and the fields by the columns.

The advantages of a relational database are :

- Be able to organise rigorously its data by avoiding the redundancies and by imposing the automatic constrains of integrity (the most known is referential integrity).

- To optimize the speed of sorting and of search by a system of indexation.

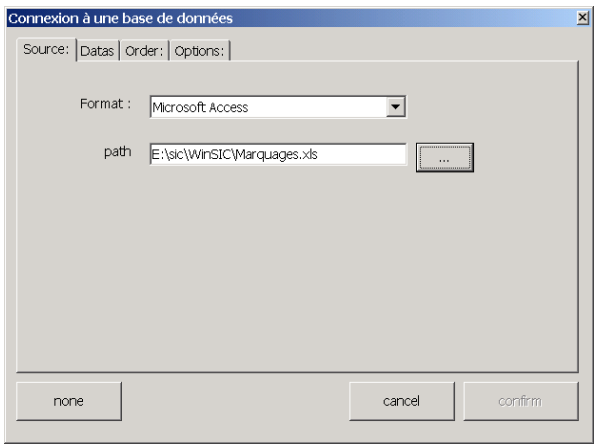
- To obtain the prepared information by the help of a query language like SQL

2. Choose a file to use

In WinSIC, every marking file can be linked to 0 or 1 database file. To create this link, WinSIC should be on " Edit" mode (by pressing on F5 if marking is standby), then click on the icon "general parameter" (F11)

In the general parameter window, there is a zone called « database ». This zone could be empty if you don't want to link the marking to a database or it could contain a string of character of type " FileName"/TableName".

Near the zone " Database" there is a un button of configuration, on which is marked "…". When you click on it, the window below will appear:



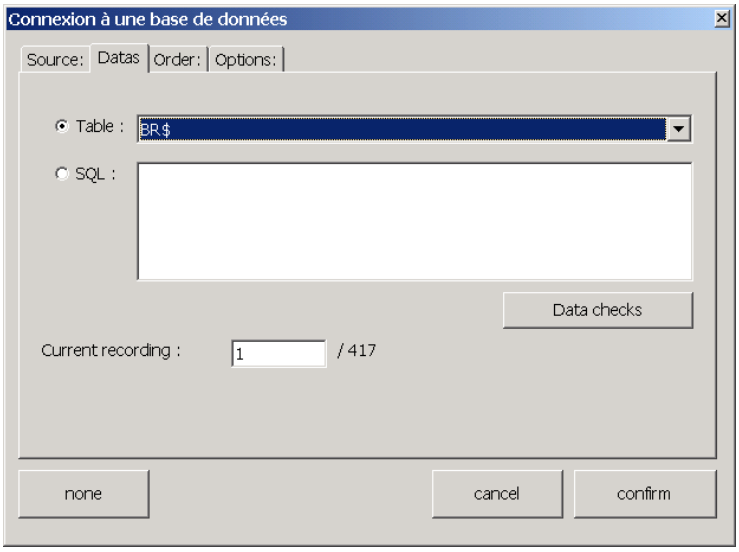
You can choose the database format among the selections provided in the zone "format"; actually there are two possible choices: Microsoft Access and Excel 97.

After choosing the format, define the path of your file with the help of the button "…" that can be found in the zone "path". A standard dialogue box of Windows "Open a file" appears, the extension of files is filtered by the format selected (mdb for Access, xls for Excel). Select your file as you have done for the any Windows files; all the hard disk, floppy disk, CD-Rom even the neighbourhood network is accessible.

Once you have taken your choice, click on "Open" and the text zone "Path" will show the new location of the database file.

3. Selection of a table

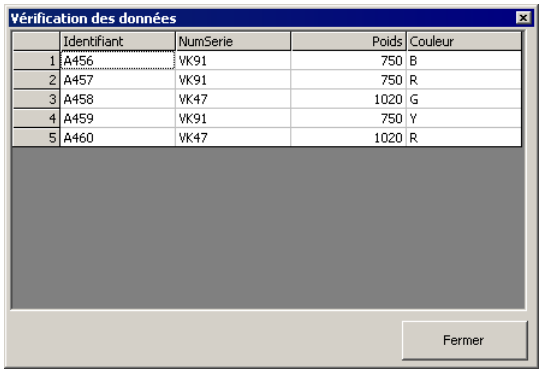
Once the file is chosen, select the tab “datas”. The following screen appears:



In most cases, you should select one table among all existing ones in the scrolled list “Tables”. At the same time, it’s also possible to filter its data, to realise the sorting and the grouping or to join several tables from a mutual field by writing a query SQL (SQL is the language the most used for extracting and manipulating the data; there are many books for this subject)

To input a query SQL, validate the button SQL and key in the text in the zone on its right.

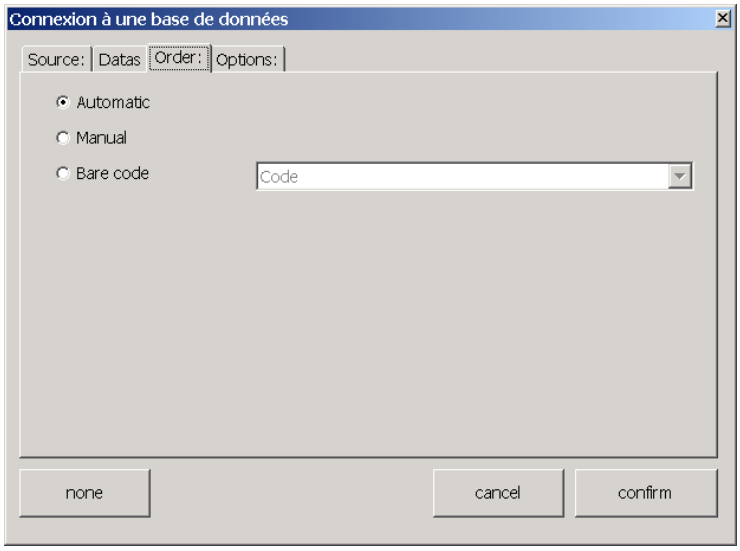
When you have selected your table or input an order SQL, click on “data verification” for visualise all the records correspondent to your selection. In our example, the program shows the table below:



Under the tab you can find the current record number and the total number of records (5 for our example). You can change the number of the current record so that WinSIC position itself on this recording after all parameters are setted up.

4. Definition of the order of the records

By clicking on the tab “Order” the software shows the following screen. It’s where you can define in which way the different records will be showed.



The options available are the following :

- “Manual”: the record for marking will be always defined by the user. Once the marking is realised, the current record stays identical and the user should select another one manually for the next marking.

- “Automatic”: once the marking is finished, the current record will go to the next. Three sub-options become available:

  - “ Loop” : to activate if you want to go back automatically to the first record after having marked the last one. If this option is not activated, the current record will not move and will stay in the last.
  - “Message if record not found”: it will inform you if for example the table that you use has been modified without using WinSIC and the current record number doesn’t exist any more.
  - “Message if the end of sequence”: It will alert you if the last record is marked.

- « Barcode »: the current record number will come out automatically after reading a barcode by searching the value scanned in the field selected on the right. The sub-option “Message if record not found” shows a message if none of the record has the searched value.

5. Options of the link

The last tab which regroups different options concerning the navigation among the data.

- "The operator can see the navigation window of the database" : allow the user to visualise the records values when waiting for the marking

- "The operator can also change the current record" : enable the user to define the record in progress. This option can by example be disabled when the order is of type " barcode" to prevent marking whichever records.

- « The navigator come back to the current record at the end of marking » : if the operator visualise another record when this one is waiting for the marking, the navigator shows automatically the current record when this one is done.

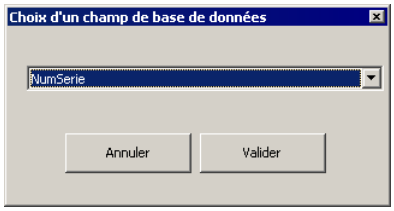
Once the link is established between your marking file and your database, click on "OK" to apply your parameterization. If you want to disable a link of database, click on "none".

4) Statement of the datbase fields in the marking file

Now that your link is set, you should define which information will be the part of your marking, and in which form.

The statement of a database field in a marking file is similar to the statement of a variable. They have some differences:

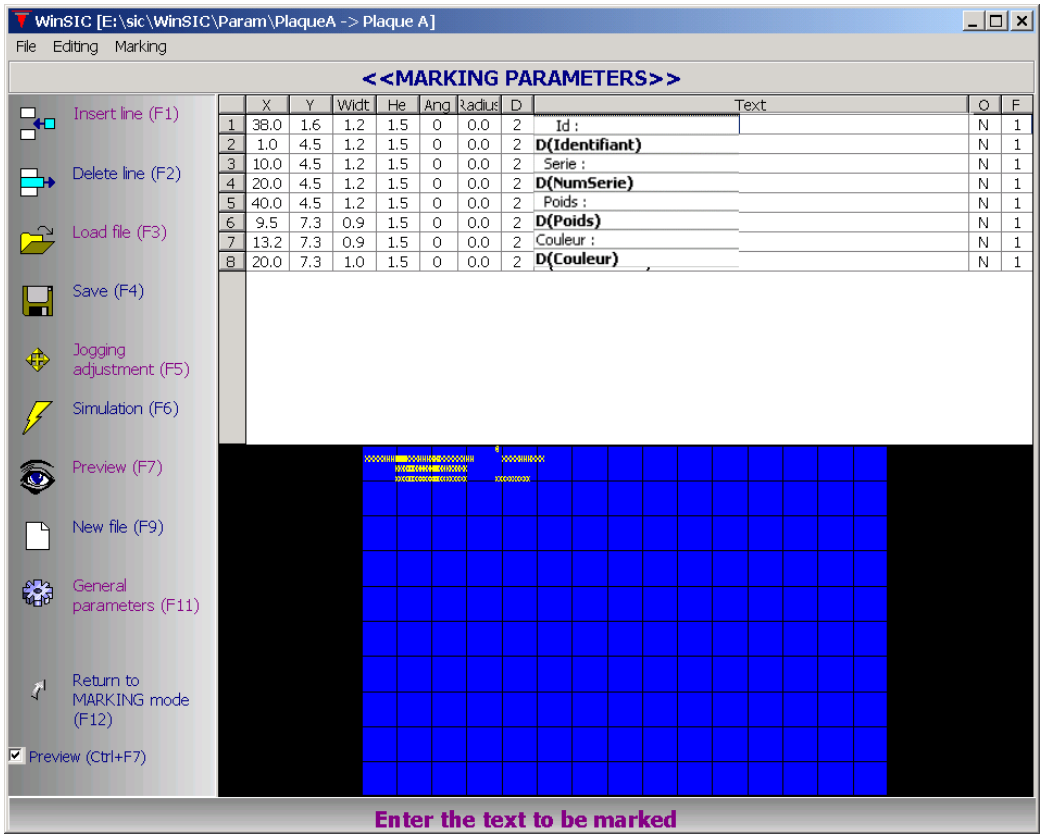
- To declare a database field, press simultaneously on the keys « Alt » and « D » (as « Data »…) in the column "Text" of your marking table. A dialogue box containing the list of all the records declared in your link will be shown:



- Select the field that you want to use for the coordinate chosen, then validate. The graphical preview will show the value found in the database, and will show you the marking as it will be done actually.

- Another way to declare a database field in the marking is to do a right click in the text zone of the table, to select "database field" in the menu, and to select the field you want to in the pop-up menu.

So now WinSIC is ready to mark the information coming from your database. For example, the screen below shows a marking composed by 4 text zones and 4 database field. Save your file and then go back to standby of the marking (F12).

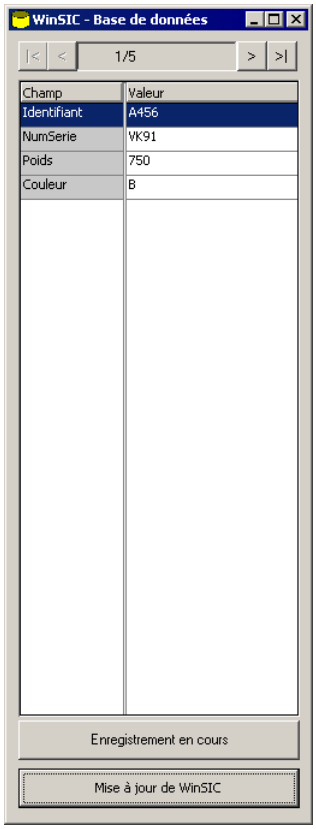


	X	Y	Widt	He	Ang	Radius	D	Text	O	F
1	38.0	1.6	1.2	1.5	0	0.0	2	Id :	N	1
2	1.0	4.5	1.2	1.5	0	0.0	2	D(Identifiant)	N	1
3	10.0	4.5	1.2	1.5	0	0.0	2	Serie :	N	1
4	20.0	4.5	1.2	1.5	0	0.0	2	D(NumSerie)	N	1
5	40.0	4.5	1.2	1.5	0	0.0	2	Poids :	N	1
6	9.5	7.3	0.9	1.5	0	0.0	2	D(Poids)	N	1
7	13.2	7.3	0.9	1.5	0	0.0	2	Couleur :	N	1
8	20.0	7.3	1.0	1.5	0	0.0	2	D(Couleur)	N	1

5) *Using the database navigator*

1. Navigation

On mode of manual marking, a new icon named “show the database” appears as soon as the current marking file is linked to a database.
When you click on it, the following window appears under WinSIC:



This window is called « database navigator » ; it allows you to display the present records in the base and to select the one that will be marked.

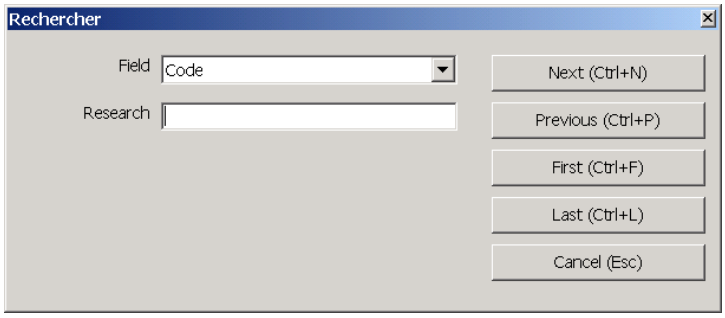
The zone on the top displays the current record number and the total number of records. The buttons on the two sides enable navigating between different records :

- “<”: displays the previous record
- “>”: displays the following record
- “|<”: displays the first record
- “>|”: displays the last record

The central table enumerate the list of fields and the values which are attributed to them for the record selected.

The navigation window can be resized and iconized in the task bar of Windows.

Another way to navigate among the database records is to do a search. For this, please press the buttons “Ctrl” and “F”(as “Find”…) to make the following window appear:



Select the field on which you want to do the search among the list « fields », the searched text in the zone “find”, then use the buttons “next”, “ previous”, “first” and “ last” for the searching order.

If the searched value is not found, the database navigator will go automatically to the correspondent record.

The button named « record in progress » will make the navigator go to the record which is in waiting of the marking. This enables to come back easily to the data in progress after having viewed all the records.

At last, the database navigator can be masked by clicking twice on the icon “display the database”, or redisplay in the same way.

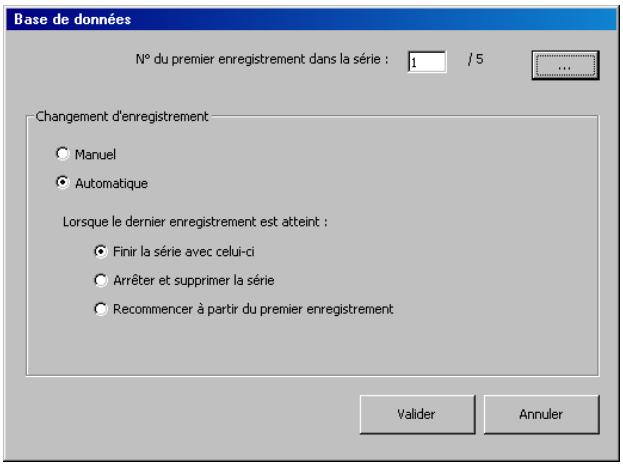
2. Update of the marking

The update of the record for marking can be done by pressing the button « update of WinSic » of the database navigator. We can see that after this operation, the graphical preview of the marking in WinSIC is updated automatically.

6) *Using a database for a marking in series*

CREATION OF A SERIES WITH LINK TO ANOTHER DATABASE

When you add a marking file with link to another database in the list on mode « batch marking » (refer to chap. IV of the user's manual WinSIC), a parameterization screen of the link will be displayed on the screen :



The first zone to fill is concerning the first record to mark for this series. The total number of records is displayed near the button "…" which is for the use of finding an record with the database navigator (which enable the operator to do a search for finding the right record).

Then you should define if the current record goes automatically to the next at the end of the marking. If you wish that the record number doesn't change and that you modify it manually before every marking, click on "Manual". If you wish that the record number goes to the next, click on "Automatic".

On automatic mode, three sub-options appear, so that you can define the program performance if the number of piece to mark for the series is more than the present record number in the database. They will be regrouped under the title "when the last record is realised".

If you choose "Finish the series with this one", the very last one of the series will be marked with the last record of the database.

If you select "Stop and delete the series", the series will be finished when the last record is marked.

If you activate « restart from the very first record », the current record index will go to 1st after having marked the last record.

MODIFICATION OF RECORD IN PROGRESS IN A SERIES

To modify a series, you should double-click on the line correspondent in the table on « batch marking mode" or on "Mode Feeder".

If the file concerned contains a link with a database, a field named "record of the database in progress" appears. It's used to indicate the record number which will appears in the next marking. If you want to view the values in the records or do a search, click the button "…" to make the database navigator appears.

7) Possible evolutions

- Open to other database formats:
  - text file
  - Link ODBC

- At the moment of parameterization of the link, it will display a table in which you can select the fields that will be seen in the navigator

- Propose to delete the record after marking

- Database functions in “batch marking mode”
- Creation of a graphical assistant to manage the SQL query (similar to the one that we can find in Access) see if there exist a software component ready for use in the market

IX - USING ALPHANUMERIC INCREMENTS

1) Using alphanumeric increments

The setup of the alphanumeric increments in WinSIC is similar to the numeric increments (refer to "User's Manual of WinSIC software"), there is some difference:

- Instead of typing « Alt + I » in the text column of the parameterization table, the user should type "Alt + S".
- In the zone « Value » of the dialogue box "alphanumeric increments", all the useful characters can be keyed in.
- The incrementation step can't be negative.

2) Modification of the useful characters list

The list of useful characters in the alphanumeric increments can be modified by using the menu "marking" - "alphanumeric increments". A dialogue box appears, containing a text zone in which display the character list. The order of the characters is very important

For instance, you can enter the value "0123456789ABCDEF" for hexadecimal counting. For binary incrementation, enter "01" and then validate.

X - CREATION AND USE OF GLOBAL VARIABLES

The global variables and incrementations are used when it is necessary to use datas shared by different marking files.

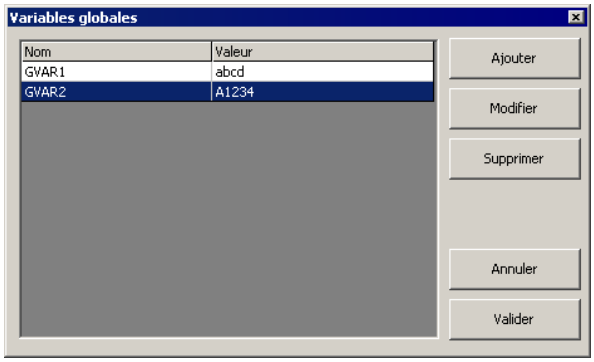
The variables are made of a sequence of alphanumeric characters. The incrementations are numbers of maximum 12 digits. The incrementations are defined also by a step value being negative or positive. This step value will increase or decrease the incrementation value after each end of marking cycle.

For instance, even if a serial number has to be marked for different types of parts, the supervisor will create a global automatic incrementation and insert it in the different marking files. Each time a part will be marked, the serial number will be incremented and ready to use on a different marking file.

1) Creation and modification of a global value

The creation and modification of global values is generated through the icons “global variables” and “global incrementations” of the “marking” menu of WinSIC.

By clicking on the icon “Global Variables” , The following window appears:



The button “Add” enables to add a global variable, by specifying its name and its value.
The button “Modify” enables to change the value without changing the name definition.
The button “Remove” removes the specified variable from the list.

Once some operations are done concerning this variables (creation, removal or modification), you need to validate. If you choose to cancel, none of this operations will be taken into account.

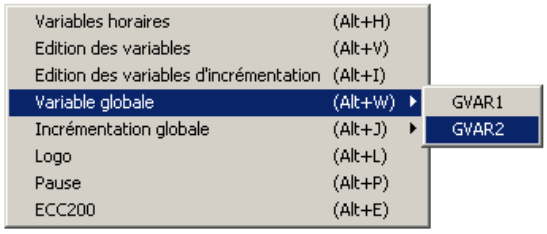
The menu “global incrementations” will display a similar window, apart from the data “step”. This “step” value will indicate the evolution of the global incrementation after each marking cycle. Its value can be either positive or negative.

Use of a global value in a marking file.

Once the global values are created at the program level, you simply need to insert them in a marking file. This operation is similar to standard variable insertion.

To insert the global value, place yourself in the text column in editing mode.
Then press simultaneously on "Alt" +"W" on the keyboard. Select the global variable from the choice that is displayed and validate.
For a global incrementation, press simultaneously on "Alt" +"J" on the keyboard and proceed the same way.

Another way to access to the same function is to click on the right button of your mouse while you have selected the text field. You then need to choose, depending on the global incrementations or values available. Here is an exemple of the window appearing:



Caution : Do not remove a global value used in different marking files. After removal, if the global value is not found by the program, its value will be empty, so you might perform a marking where part of the information is missing.

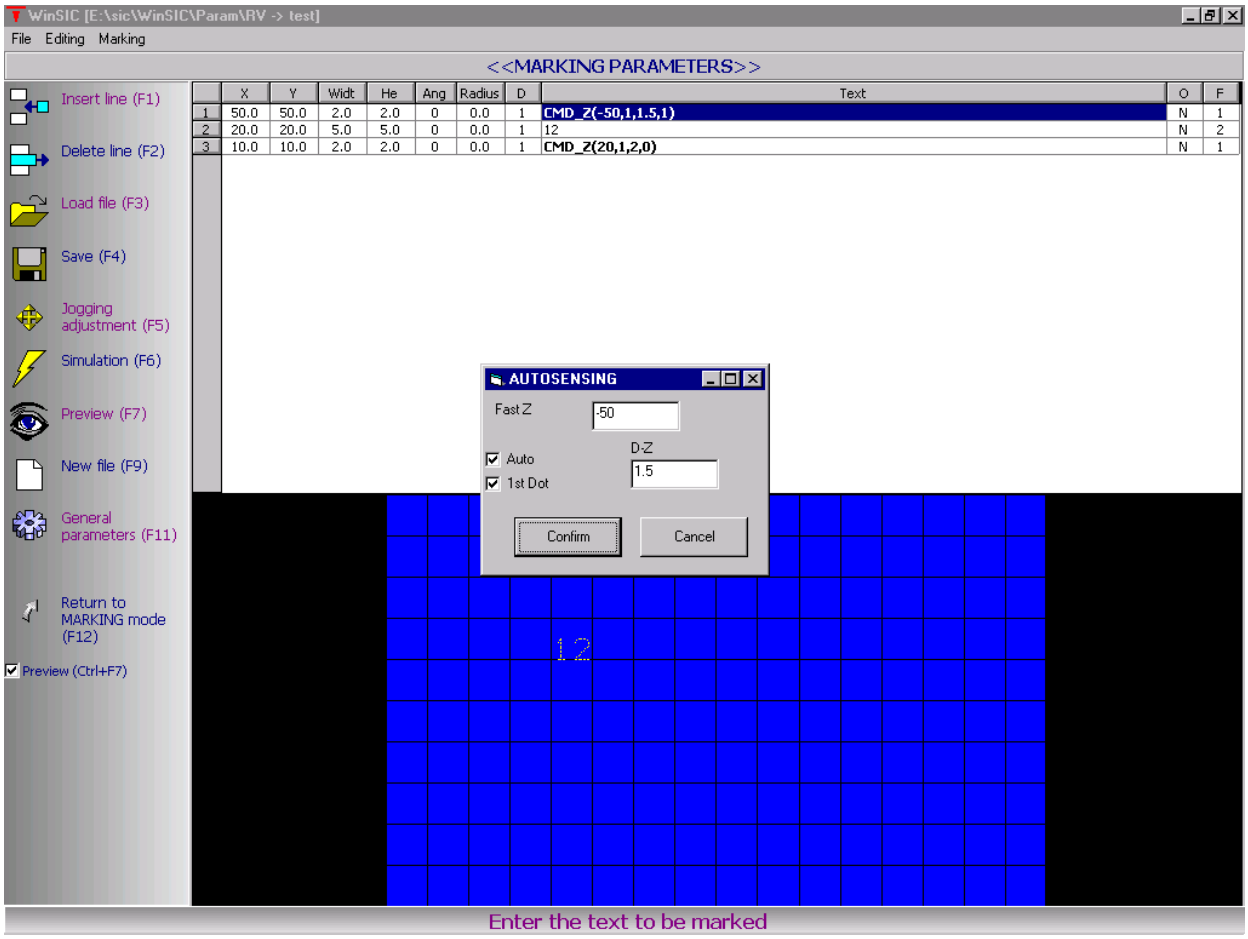
XI - OPTION: AUTOSENSING Z AXIS (ZA MACHINES)

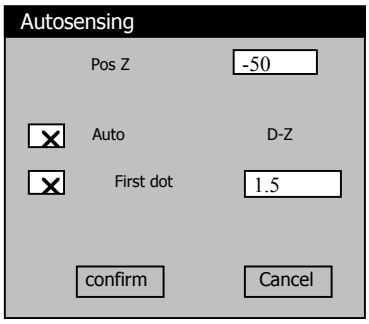
1) *Introduction*

The autosensing (or Auto Touch off) is a system that enables to control a vertical column digital Z axis with automatic positioning, depending on the part's geometry. The column will go down until the stylus touches the part.

2) *Parameters*

In editing mode, from the text field, press Alt-A, the following display appears:





1. The field Pos Z.

Fast Z enables a positioning relatively to the current position of the Z axis..
With a negative value, the stylus will go down.
With a positive value, the stylus will go up.

2. The Auto field.

If the field *Auto* is selected, the autosensing mode is on. The stylus will go down until it touches the part and will go back upwards of the DZ value.

3. The field D-Z.

D-Z value enables to adjust the part/stylus distance after touching the part.

4. The field 1st Dot.

If the field *1st point* is selected, the part sensing will be executed in the X,Y coordinates of the current line, in the place where the first dot should be marked.