User manual

Innovative tools to compliment the Creative

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Thank you for purchasing the HandyScan software.

We hope that this software will meet your needs, that it will enable you to save time by releasing you from the tiresome tasks. For that, it is significant to fully understand its principles of its use. Please attentively read this handbook and contact your supplier for all further information. This handbook refers to HandyScan version 1.0. If you have suggestions or remarks concerning the HandyScan software, we will be happy to receive them via our web site www.picasoft.com .

1 Presentation

You have 1 CD containing the installer of several softwares.

Insert CD in the reader of your PC. This one contains:

- the installer of the various software
- the installer of the files of examples
- the installer of documentation.

Click on the icons of your choice.

? **Configuration required for HandyScan *:***

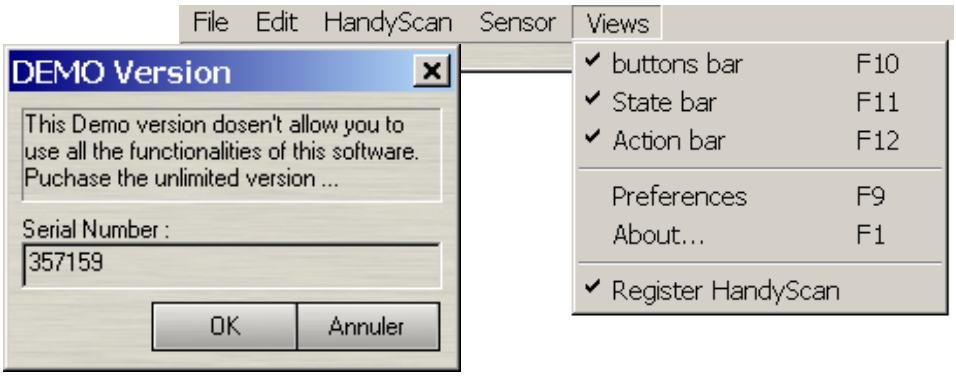
	Minimum	**Advised**
Procesor	PIII 1GHz	PIV 1.8 GHz
Memory	512Mb	1Gb
Graphic card	GeForce	GeForce 2
Operating system	Windows 98se / Millenium / 2000 / XP DirectX 7 minimum	
Sensor	Immersion, Faro, Romer, …	
Communication	Serial port or USB	

HandyScan is complient with dual processor configurations.

1.1 The protection

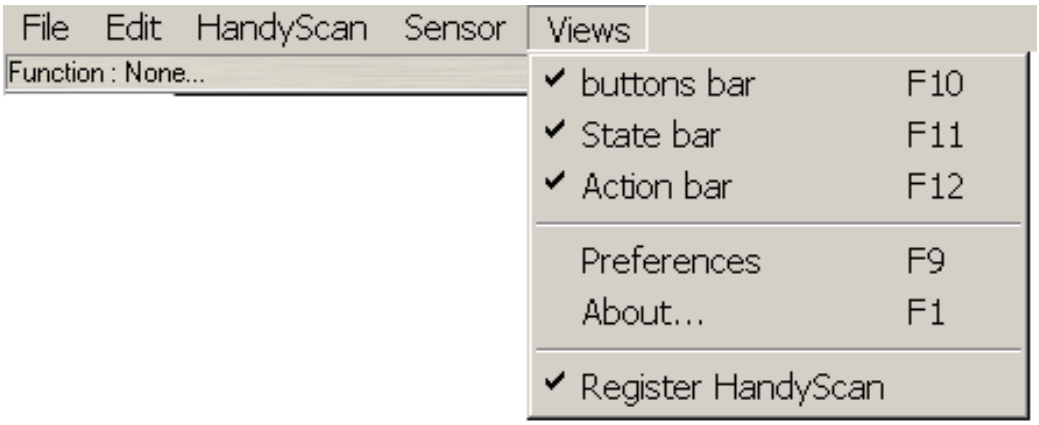
HandyScan is protected with a serial number. Without this number, it functions in demo mode and it is not possible to save files in STL or DXF format. In order to activate the software, you must connect the dongle provided with HandyScan and record your serial number in the software.

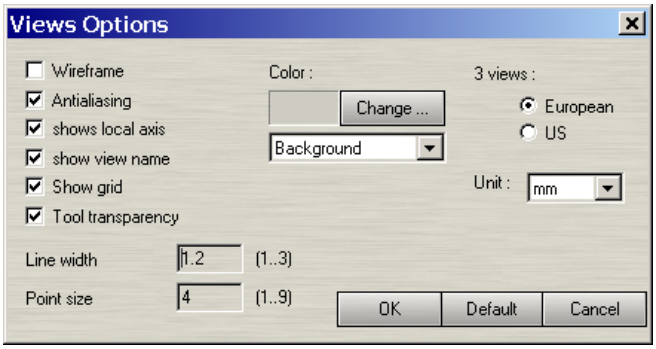
? **Select menu Windows/Serial Number**



1.2 The Configuration

? **Select menu Windows/Préférences**





In order to setup the software you need to specifiy:

The kind of view

The software units

1.3 The use of HandyScan

Fix the model to be digitalised in the operating range of the arm.

Perform the arm initialisation (no need if you don't use a rotary table)

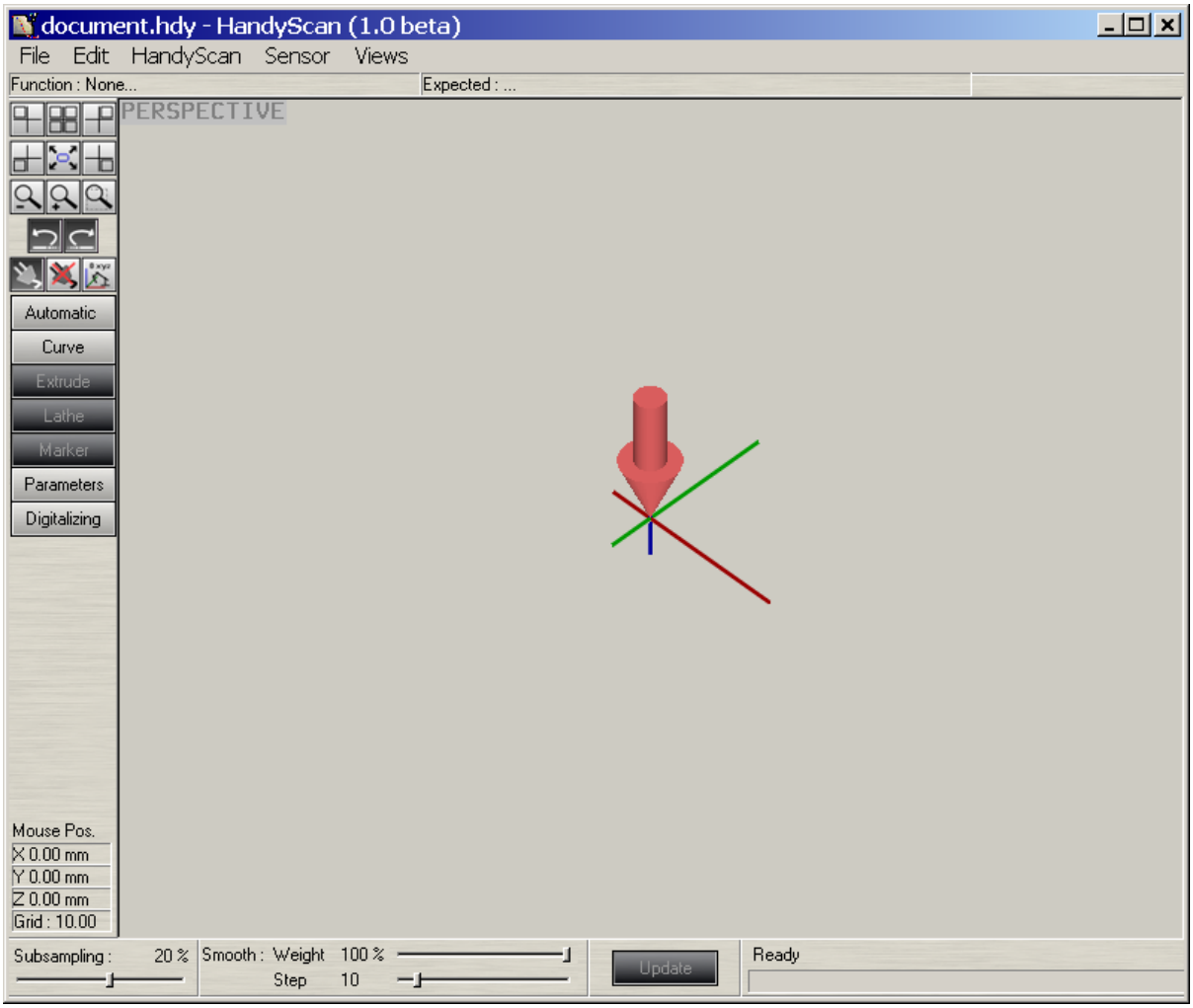
Define a virtual block around the model

Digitise

Export the mesh in file format STL or DXF

2 The interface

2.1 Introduction



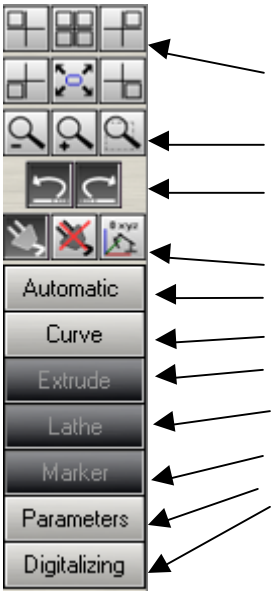
The software can be configured in French or in English at the time of the installation

It is possible to choose to work in mm or in inch

the interface of HandyScan is made up of:

- a display window (perspective and/or projections)
- a bar of menus,
- a bar of commands,
- a bar of icons,
- a bar of edition of the grids

The Icônes Bar



choice of the view

zoom

Undo redo

Management of the Sensor

Automatic mode

Creation of a curve

Creation of a block per extrusion of a curve

Creation of a block per revolution of a curve

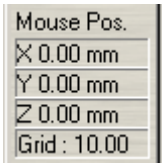
Place a marker

Parameters of digitising (Precision/tool...)

Activation of the digitising

Numerical information

(Bottom left of the software)



The numerical information which are displayed in this view is the mouse position or the sensor position. Grid size is shown in order to show the size of the model. Its information is shown in millimeters or in inches.

The Status bar

(At the botom of the screen)

The status bar is made of:

- Display accuracy
- Smooth parameters (Weight, step)
- An update buton in order to apply a modification
- A progress bar which shows the working progress

The action bar

(At the top of the scren)

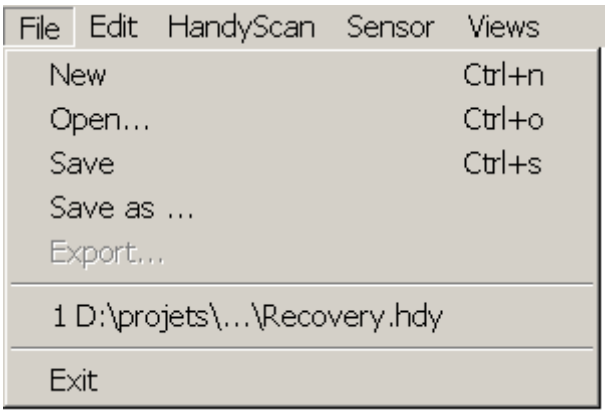
The action bar tells the user the active function and what is expected to be done.

2.2 Edit View

Right mouse button:	Rotate the 3D view
Shift + Right mouse button:	Move the view
Mouse center wheel :	Zoom + / Zoom –
Double click:	Maximise / reduce the size of the view

3 The Menus

3.1 The file menu



3.1.1 New

Clear the current document and create a new empty document.

All unsaved data will be lost.

This function can't be undone or recovered.

3.1.2 Open

Clear the current document and create a new one with the selected file-.

HandyScan files use the (.hdy) extension.

This function can't be undone or recovered.

3.1.3 Save

Save the document into a **.hdy** file (HandyScan file format) .

A dialog box request the name of the file if it is the first time it is saved.

3.1.4 Save as

Save the document into **.hdy** file (HandyScan file format)

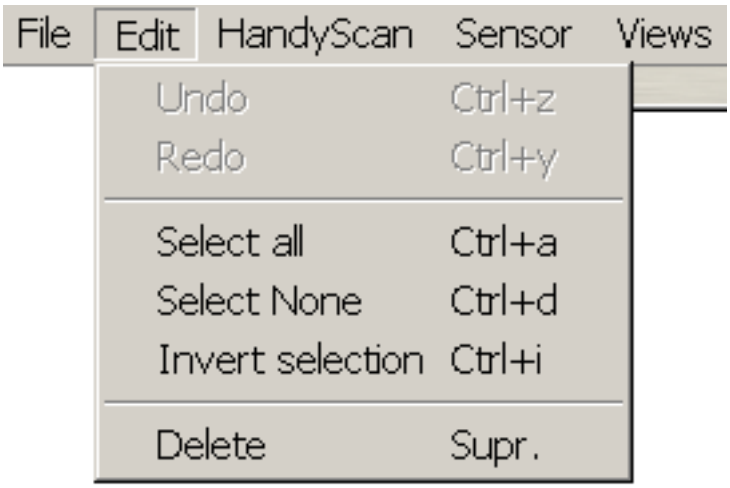
A dialog box always request the name of the file.

3.1.5 Export

Export the digitised mesh into DXF or STL file format.

This function is not avaliable in demo mode

3.2 The Edit Menu



3.2.1 Undo

Undo the modification applied to the document.

3.2.2 Redo

Recover the last undo.

3.2.3 Select all

Select all the items of the document.

3.2.4 Select None

No object will be selected

3.2.5 Invert selection

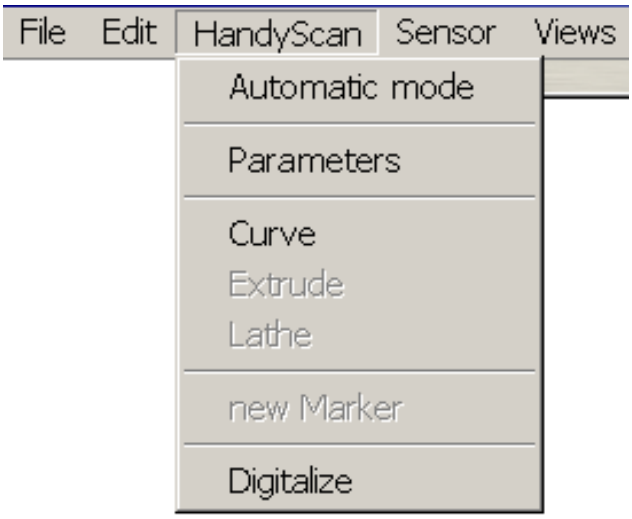
The selected items will be unselected

The other ones will be selected

3.2.6 Delete

Delete selected items

3.3 The HandyScan Menu



3.3.1 Automatic

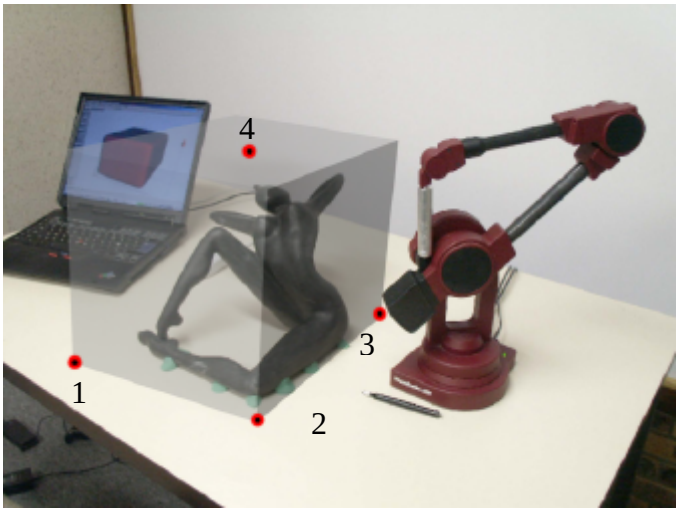
The Automatic mode allows you to increase the speed of preparation of the digitising process. **This must be done with the standard stylus of the arm.**

It is composed of 4 steps :

- Block creation
- Choice of accuracy
- Marker placement
- Tool configuration
- Digitising initialisation

1. Block creation :

In order to create the blocks you need to specifie the control points with the sensor.



point 1 : Xmin, Ymin, Zmin

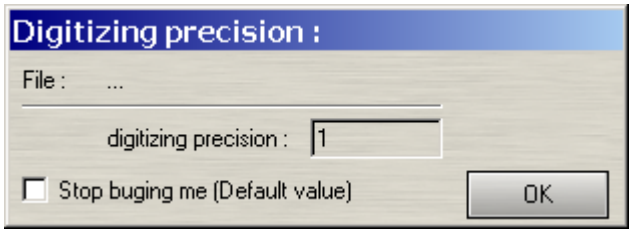
point 2 : Xmax, Ymin, Zmin

point 3 :Ymax, Zmin

point 4 : Zmax

2. Choose the digitising accuracy

You can specify a default parameter for use later,



this parameter is always available in the parameter dialog box.

3. Marker creation:

cf. § 3.3.6 HandyScan / Marker

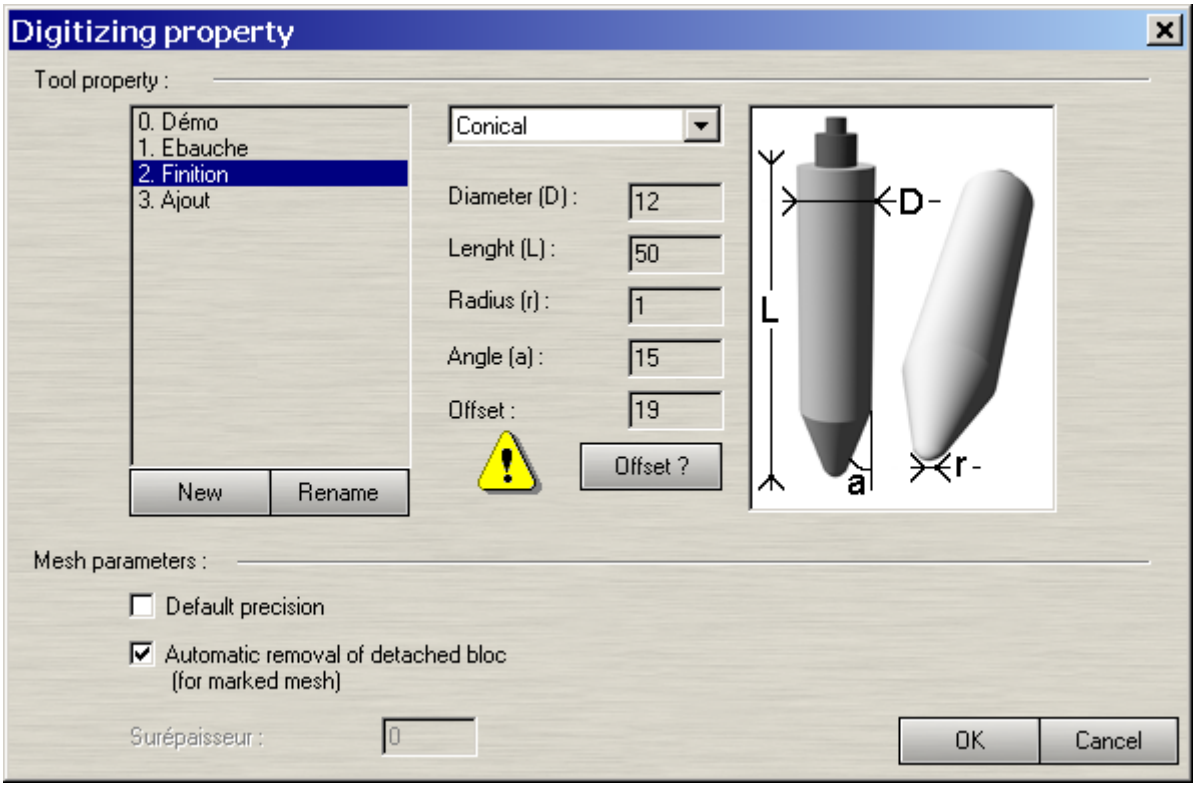
4. Tool configuration

cf. § 3.3.2 HandyScan / Parameters

5. HandyScan is ready to digitize

cf. § 3.3.7 HandyScan / Digitize

3.3.2 Parameters

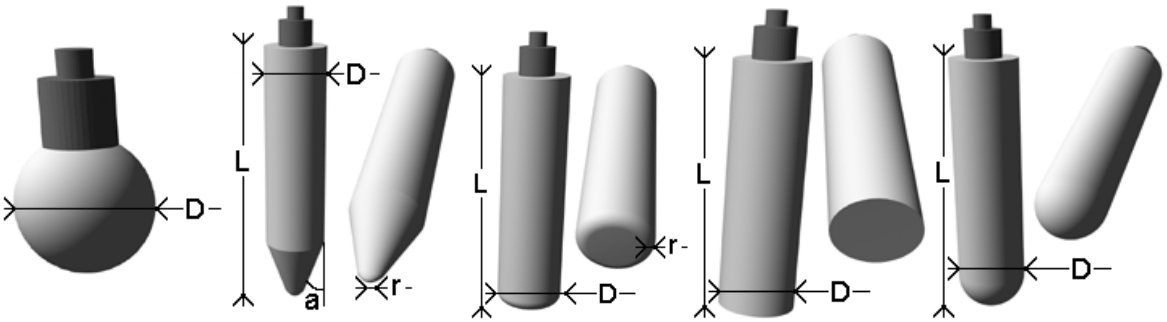


This dialog box allow you to :

- Manage the tools(***The demo tool can be use to test the software but it is not the best to make a good job***).

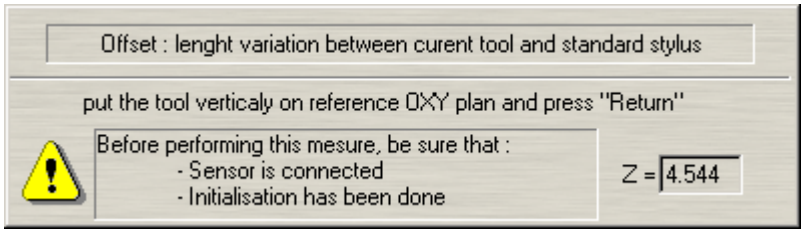
- Specify the digitising parameters (accuracy / automatic removal of detached block)

Standard stylus to perform tests.



The avaliable tools on HandyScan.

It is possible to measure and adjust the variation of length between the standard stylus and the used tool with the Offset button.



3.3.3 Curve

Curves are used only to create block that encloses the model.

With this helpfull function the digitising process is faster.

To create a curve you need to :

Click on curve button.

Create the point with the standard stylus of the sensor.

3.3.4 Extrude

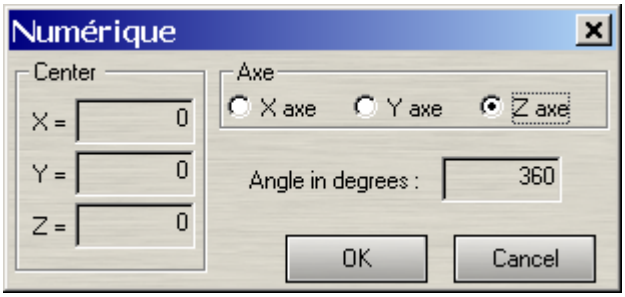
Select a curve and press Extrude Button.The folowing dialog box will appear :

The extrusion is performed following the specified vector into the dialog box.

After having pressed the Ok button the mesh will be computed.

3.3.5 Lathe

Select a curve and press Lathe Button.The folowing dialog box will appear :



You need know and to write :

The center

The axis for the operation,

The angle of rotation of the operation.

After having pressed the Ok button the mesh will be computed.

3.3.6 Create a Marker

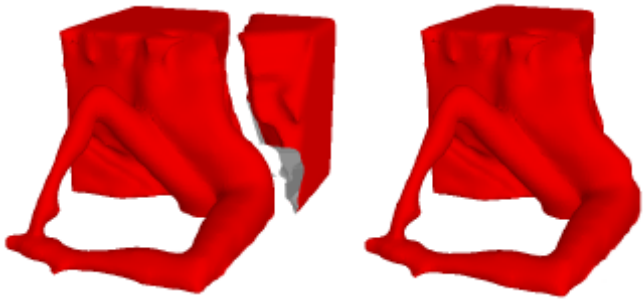
The marker allows you to activate the automatic removal of detached parts of the block during the digitising process.

The way it works is:

The user puts the standard stylus on the model to be digitisze and press one of the buttons of the arm.

A marker is created inside the block on the model (10mm into)

During the digitising process, isolated parts of block will be created and removed. The only ones to be kept will be the one that owns the marker.



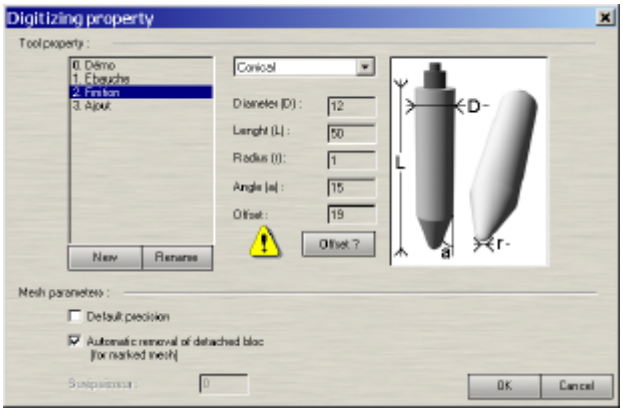
the isolated parts of block that don't own the marker will be deleted.

3.3.7 Digitising

It is commonly performed in several steps. Between each step we look at the result to understand what still needs to be done.

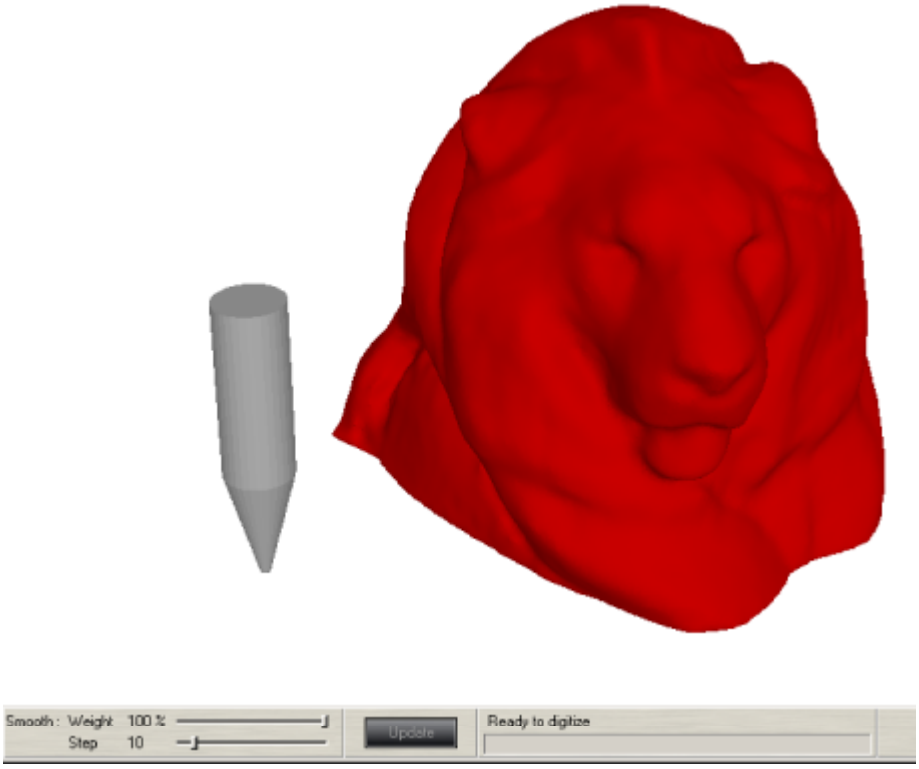
To digitise using a block you need to:

1. Press the Digitising button. If it is the first time the following dialog box will appear:



2. Select the block that will be use. Now digitizing process will be initialized.

When it is done the selected tool will be shown instead of standard 3D cursor and "Ready to digitise" will appear next to the progress bar.



3. Activate digitising process by clicking on the sensor button.

4. Sweep the tool over the model to virtually remove the material.

During this proces the progress bar continually move and “Digitising process” is displayed.

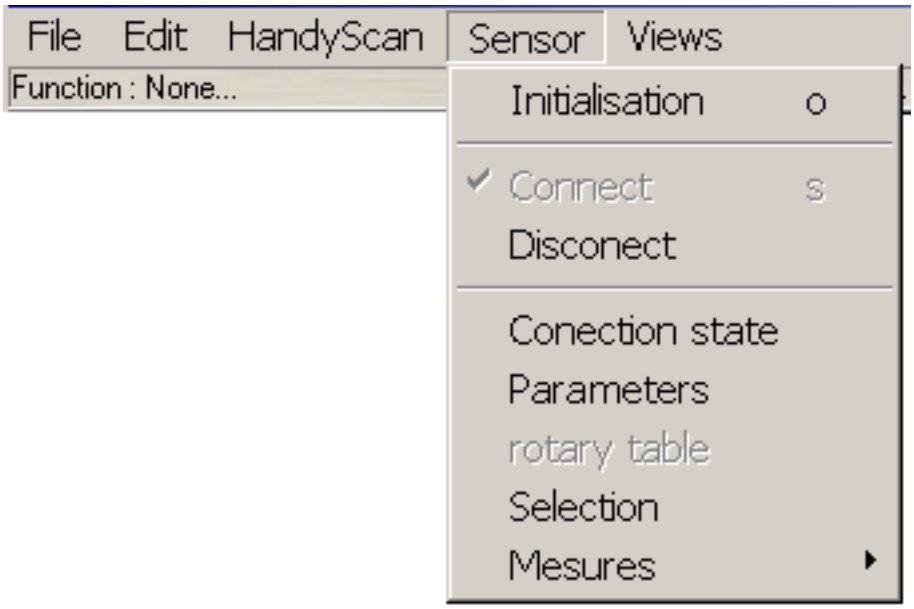
5. Press the sensor button at the end of the digitising process in order to refresh the mesh.

6. Wait for the end of the computation to complete:

- computing *Motion* (boolean operation on the motion path)
- *Update Mesh* (update mesh after computation)
- *Initialisationof the digitising process* (Update view)

7. You can now perfom a new digitising sequence.

3.4 The Sensor menu



3.4.1 Initialisation

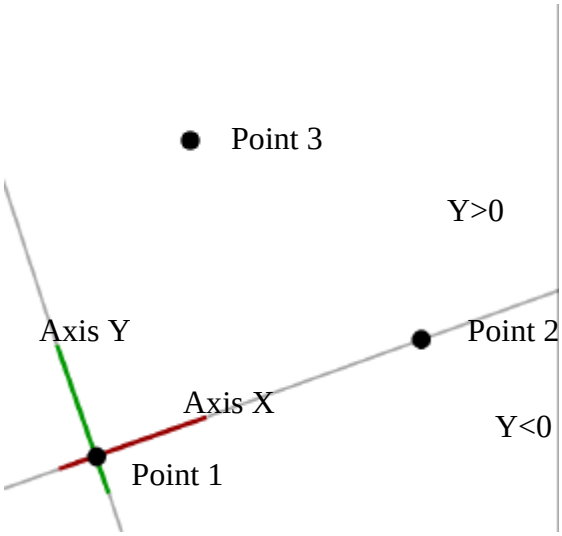
You need to define 3 points with the arm in order to adapt the arm to HandyScan's origin.

It needs to be performed with the strandard stylus.

Point 1 : origin

Point 2 : X axis

Point 3 : point 3 of ref plane O,x,y (y>0)



3.4.2 Connect

Connect the sensor

3.4.3 Disconnect

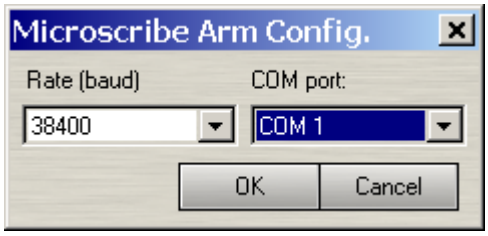
Disconnect the sensor

3.4.4 connection status

Give information about Sensor connection status

3.4.5 Configuration

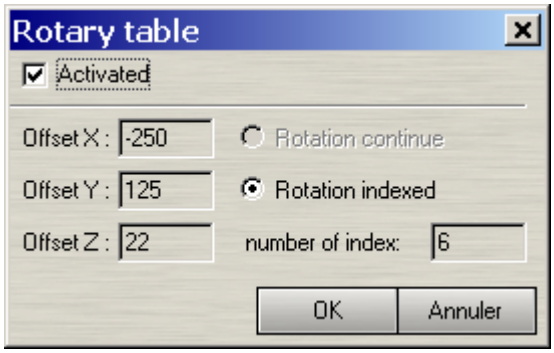
Select port and baudrate (Not needed for USB Sensor)



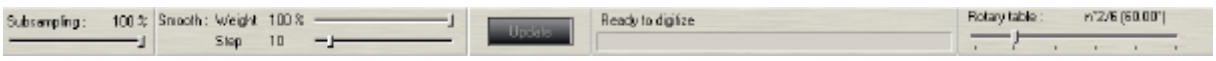
3.4.6 Rotary table (option)

You need to specify the center of the rotary table (Offset) according to the sensor origin.

You need to enter the number of index positions

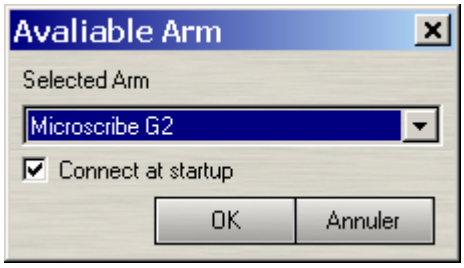


After the activation of the arm, a control will appear near the progress bar. It will allow to specify the index position to use.

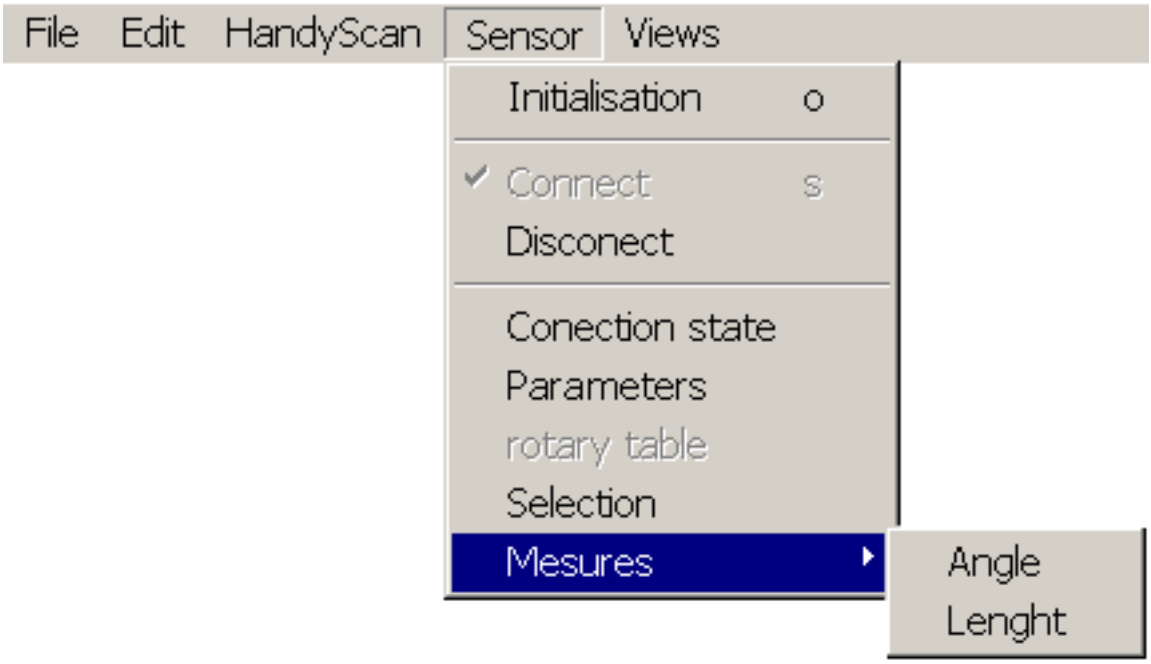


3.4.7 Selection

Select your sensor



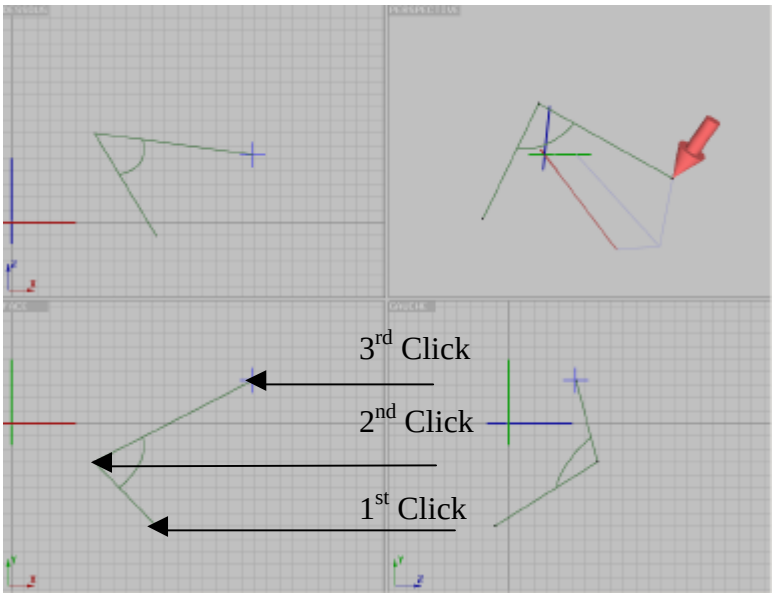
3.4.8 Measure



3.4.8.1 Angle Measure

Perform your measure by selecting 3 points with the sensor.

The value is displayed in the numerical information area.

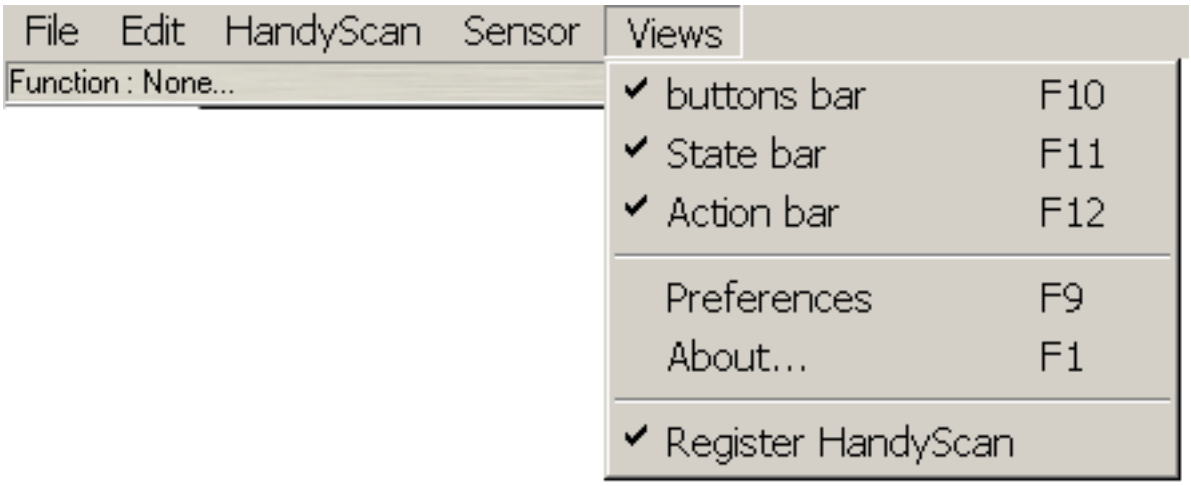


3.4.8.2 Length Measure

To perform your measure by selecting 3 points with the sensor.

The value is displayed in the numerical information area.

3.5 The window menu



3.5.1 Icon bar

Show or hide the icon bar.

3.5.2 Status bar

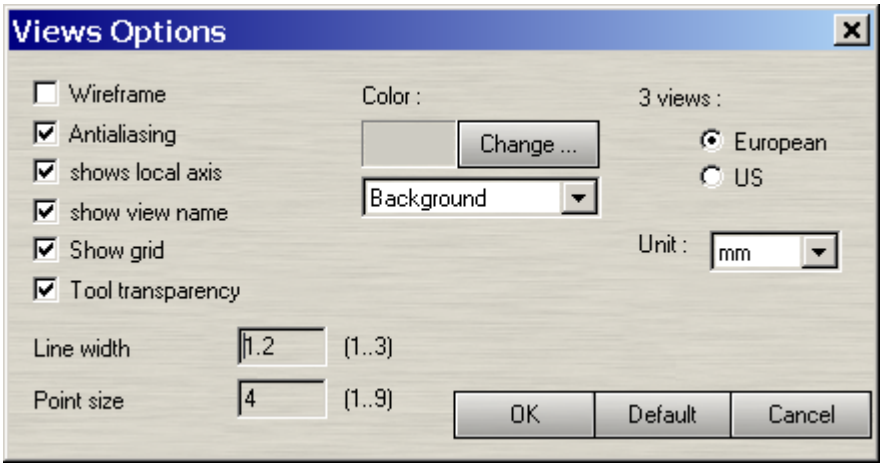
Show or hide the status bar.

3.5.3 Action Manager

Show or hide the action manager.

3.5.4 Preferences

This is a dialog box to set up the interface parameters.



3.5.5 About box…

Information about PicaSoft

3.5.6 Serial number

Entering your serial number will allow you to exit the demo mode.

4 Keybord Shortcut

<	Zoom -
>	Zoom +
Ctrl W	Zoom Box
A	Fit Window
1	front view
3	left view
5	4 view
7	top view
9	perspective view
F10	Show hide icon bar
F11	Shos hide status bar
F12	Show hide status bar
F9	Interface parameters
Ctrl A	Select all
Ctrl D	Deselect all
Ctrl I	Invert selection
Delete	Delete
S	Connect
O	Sensor initialisation
Shift C	Create curve
Ctrl O	Open
Ctrl S	Save
Escape	Escape current function
Enter	Finish current action
F1	About box
Ctrl Y	Undo
Ctrl Z	Redo

5 Index