TiltSoft Software

TiltSoft

MANUEL D'INSTRUCTION
INSTRUCTION MANUAL

TiltSoft.
SENSOREX digital inclinometers operating software.

Ref.: 895 000 199 B 10/03

Sensorex SA

FRANCE

Summary

I. INTRODUCTION....2

II. INSTALLATION....2

III. TILTSOFT....3

III.1 Generalities....3

III.2 Operation....3

III.3 Configuration window....4

III.4 Sensor window....6

III.5 Display functions....7

III.6 Acquisition functions....9

I. INTRODUCTION

Some SENSOREX inclinometers have a digital output. These sensors are able to transmit data over very long distances in optimal signal integrity conditions.

The present document indicates the way to use the **TiltSoft** software with the SENSOREX digital inclinometers.

II. INSTALLATION

This Windows application has its own installation program.

TiltSoft software is aimed to work on a PC with a 500MHz processor and 128 Mb of RAM. The PC will have to run a 32 bits Windows operating system (95, 98, ME, NT, 2000).

The installation is started by double-clicking the « tiltsoft-setup-xx.exe » application. The « xx » is replaced by the language abbreviation (for example : en = English).

III. TILTSOFT

III.1 Generalities

TiltSoft is a Windows software which can acquire data and configure digital inclinometers in a intuitive way. This software is to be used with SX41100 and SX41900 Sensorex inclinometers types.

III.2 Operation

1) File menu

Exits the application

2) System menu

Opens the configuration window.

3) Sensor menu

When a sensor is detected, the functions of this menu are for the inclinometer data exploitation.

4) Help Menu

Displays the software revision and the SENSOREX technical support address.

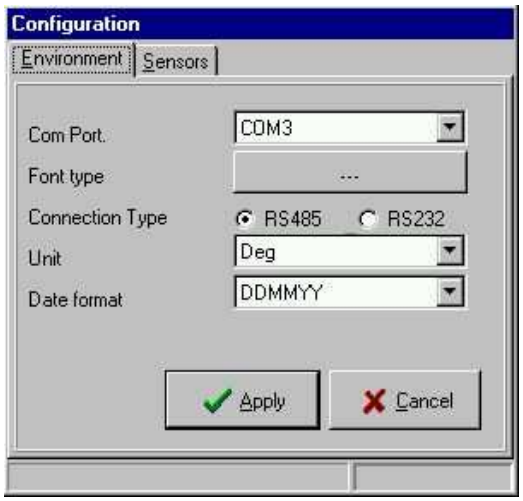

figure 1 : Configuration window.

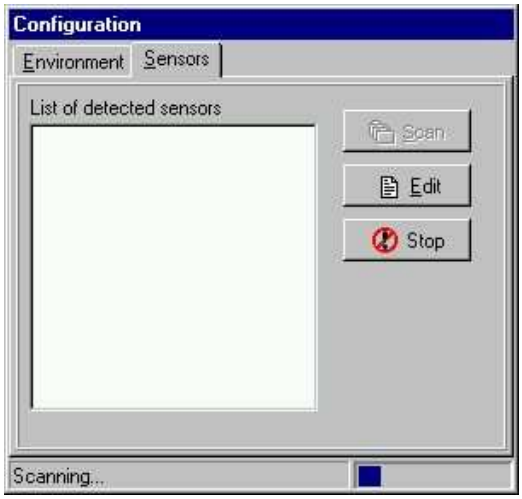

figure 2 : Sensors tab.

III.3 Configuration window

The configuration window is displayed by clicking the « System \ configuration » menu (see figure 1).

1) Environment tab

- Com port : PC's communication port selection. Choices from COM1 to COM8.
- Font : Opens menu for font type selection. This font will be used to display the inclinometer data in the the other parts of the program.
- Unit : unit used for the data formatting in the various software functions.
- Connection type : hardware communication protocol used by the sensor. If the sensor is in RS232 mode, the corresponding button has to be checked. And vice versa for RS485.
- Date Format : choice of the date format recorded in the acquisition file.

« Apply » button

This button is also activated when the [Alt] and [a] keys are pushed simultaneously. The « Apply » button closes the configuration window and save the environment options. So that when the application is restarted, the environment options remain the same.

« Cancel » button

This button is also activated when the [Alt] and [c] keys are pushed simultaneously. The « Cancel » button closes the configuration window without saving options.

2) Sensors tab

« Scan » Button

The port scan is launched by clicking on this button or by pressing simultaneously the [Alt] and [s] keys.

TiltSoft software ckecks if a inclinometer is connected to the selected serial port (COMX) with the selected hardware protocol (RSXXX).

When the RS485 protocol is chosen, the software tries to detect an inclinometer in all the addresses range (from 1 to 255).

When an inclinometer is detected, a line appears in the text zone at the left of the buttons.

« Edit » Button

This button opens the sensor's configuration window (see figure 3).

To click the « Edit » button, you must have selected a sensor in the list of detected sensors (see in figure 2).

« Stop» Button

The « Stop » button aborts the scan task.

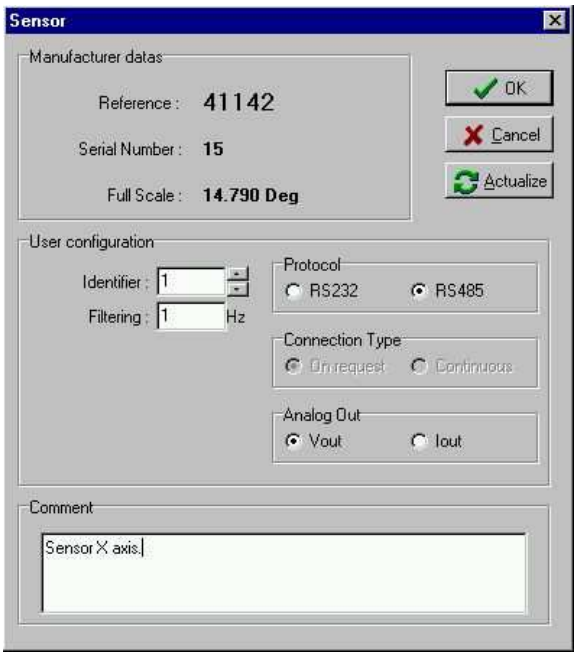

figure 3 : Sensor window.

III.4 Sensor window

See figure 3, page 5.

1) « OK » button

If a property is modified by the user, the new configuration is transferred by clicking this button.

2) « Actualize » button

This function reads all the inclinometers properties and updates the display. In the status bar a message indicates if the function succeeded or not.

3) Properties

Reference

The name of the inclinometer. Read only parameter.

Serial number

Read only parameter.

Full scale

Read only parameter.

Filtering

Read-write parameter.

SX41100 : the value is continuously adjustable from 0,01 to 10Hz.

SX41900 : the value is adjustable from 0,1 to 5Hz every 0,5Hz.

Identifier

It's the RS485 bus sensor's address. This parameter is not used in the RS232 case.

Analogue output

This parameter exists only for SX41100 type inclinometers.

With the SX41100 inclinometer, two analogue outputs (4/20mA or Voltage) are available. However, calibration is chosen for only one output type. Vout is for voltage calibrated output and Iout for current calibrated output.

Connection type

Continuous : the sensor sends data automatically in constant time intervals.

On demand : The sensor sends data on the master request (PC or automaton).

See the inclinometer's data-sheet for further informations.

Protocol

This parameter is useful in cases when the user wants to change the sensor hardware protocol from RS232 to RS485 or vice versa.

Caution : Changing of hardware protocol is only done with software. If a sensor is configured in RS485, there is no way to reconfigure in RS232 if the user doesn't have RS485 material.

III.5 Display functions

figure 4: Sensor menu.

A sub-menu appears in the Sensor menu after a inclinometer has been detected (see figure 4).

These windows are constituted of an horizon window and an area in the main window where the digital angle value is displayed (see figure 5).

1) Digital display

In this area can be displayed many measures. These values can come from one or several sensors (RS485 case).

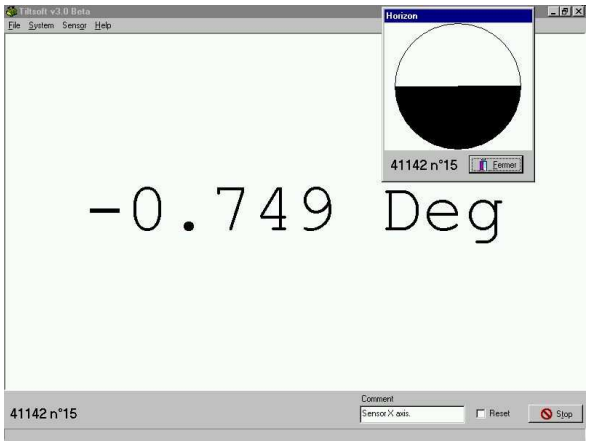

figure 5 : measures display.

In the bottom left part of the area are displayed the inclinometer's reference and serial number.

2) « Reset » button

This button is to get relative angle measurement on the digital display. The Horizon display is not affected by this button.

3) « Close » button

Closes the sensor digital display and its associated horizon display.

III.6 Acquisition functions

1) Acquisition parameters

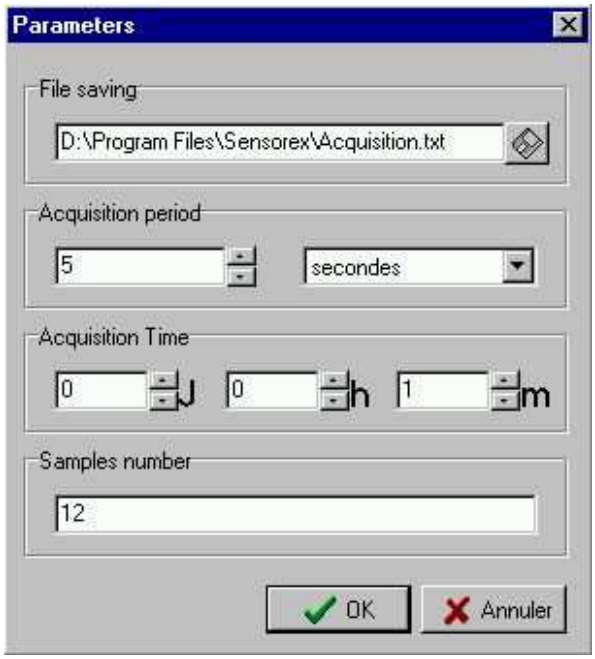

figure 6 : Acquisition configuration.

When the acquisition function is called (see figure 4), an acquisition configuration window appears (see figure 6). A few numeric fields are to be adjusted to the user convenience :

- The name and the position of the acquisition file. This file holds all the data obtained. The file path can be typed in or selected with the right button .
- Acquisition period. The acquisition period unit is to be selected (seconds, minutes, hours and days) and the value of acquisition period.
- Acquisition time.

The « samples number » field is automatically updated. It represents the total number of samples during all the acquisition time.

The file is filled during the acquisition. The action on « Stop » button in the acquisition display area stops the measure and closes the file.

The use of the file is easy to import into a spreadsheet software and eases the data exploitation (see figure 7).

```
Fichier d`acquisitions de données généré avec
Tiltsoft V2.0.
Unité utilisée : Deg
Inclinometre          41100 - 1
2/4/2003 17:12:48     -10.24
2/4/2003 17:12:49     -10.23
2/4/2003 17:12:50     -10.24
[...]
2/4/2003 17:14:11     -49.83
2/4/2003 17:14:12     -48.02
2/4/2003 17:14:13     -46.59
2/4/2003 17:14:14     -44.93
2/4/2003 17:14:15     -42.65
```

figure 7 : Extract of an acquisition file.

2) Acquisition window

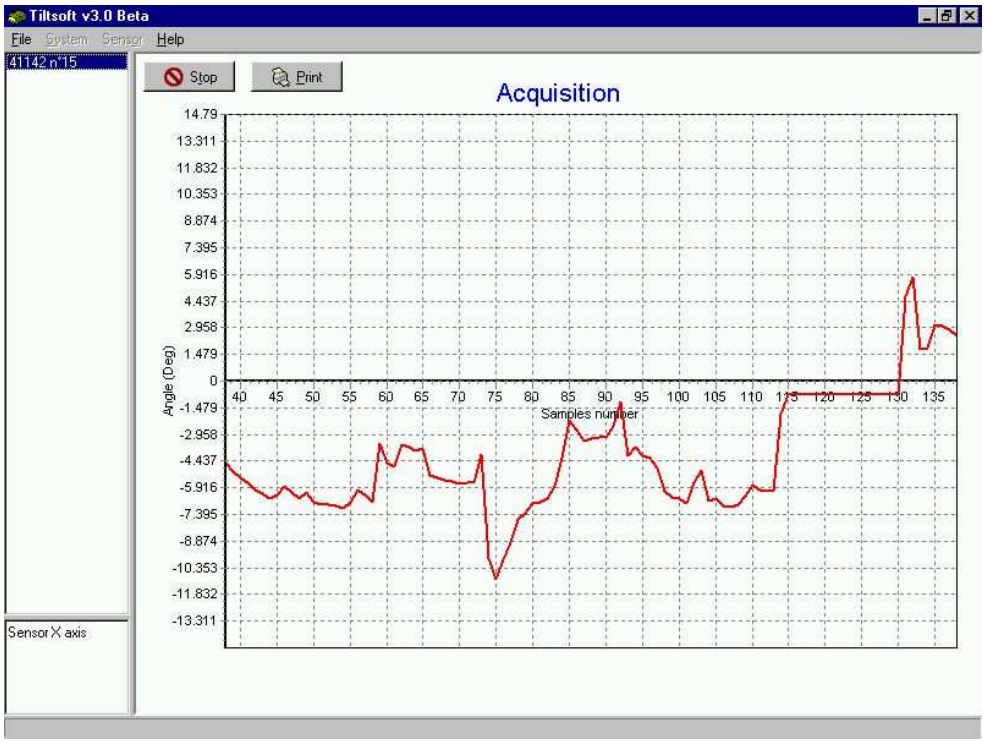

figure 8: Acquisition window

« Stop » button

stops the current acquisition.

« Print » button

Prints the curves.

3) Zoom functions

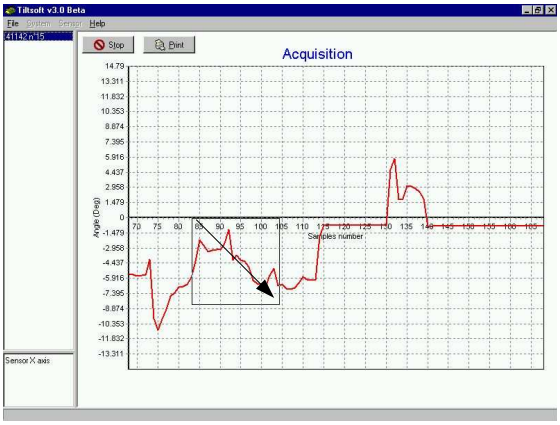

figure 9: Zoom

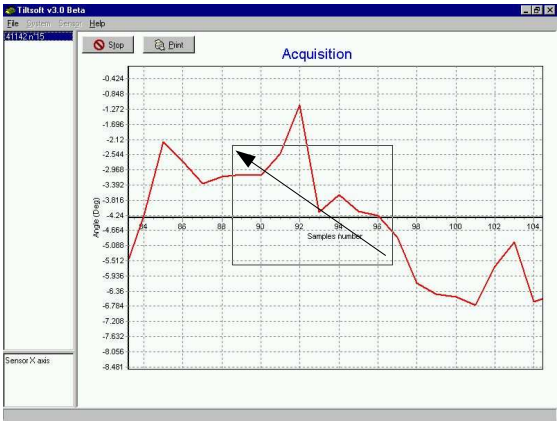

figure 10: Back to standard scale

To enlarge a part of the graph, just left click on the mouse, and drag it as shown in figure 9.

To cancel this zoom, drag your mouse back as shown in figure 10.