# User manual for software for
wood thermal treatment according to ISPM 15

1. <u>Description</u>

1.1. Wood thermal treatment

This application is used for the verification process of thermic treatment of wood (sterilization). The application runs on PCs with Windows XP or later. The application collects data from measuring devices MKS-08 or MKS-16 through the RS485 communication line. The collected data on temperatures in chambers are entered into the database. After completing the process of collecting data, on request, the application generates a report in the form of a diagram.

Block scheme of connecting the system to thermic treatment (as represented by the ability to 16 chambers):
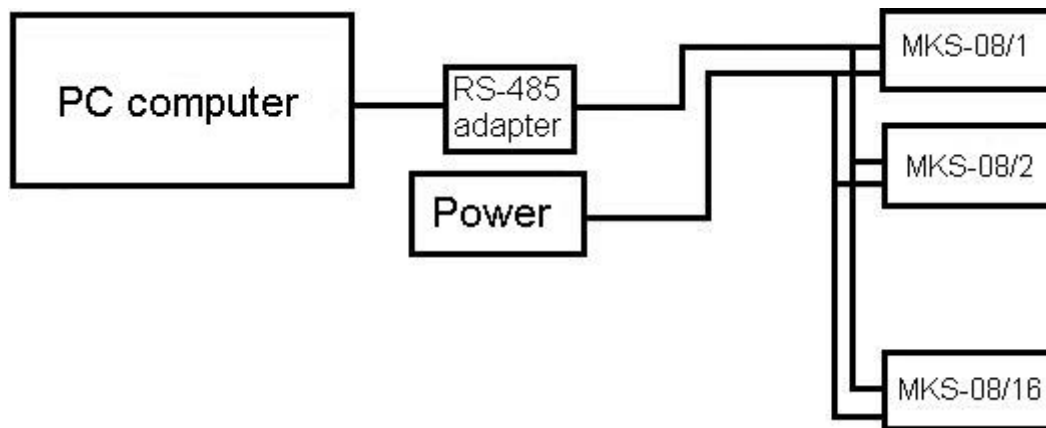
Data is stored in a MS Access database. Database is protected from unauthorized use, but in order to achieve full control of access to the computer and data, it's necessary to configure access rights at the operating system level.

2. <u>Requirements</u>

PC should have a COM (serial) port or USB port. Depending on the port that is used, order appropriate adapter for communication.

PC should have installed the operating system (Windows).

It is recommended (and optional) that PC has color printer for graphic displaying of temperatures of certain treatments.

It is recommended (and optional) that PC has an uninterrupted power supply (UPS).

Administrator of the PC should provide backup (archiving, making safe copy) of database which will be stored in PC for restoring data in the cases of system breakdown or database corruption.

3. Instalation

3.1. Instalation from CD

After inserting CD in driver on your PC, Autorun should start and open this page in your default web browser. Click on link below to start installation.

Installation program is at Install\Install WTTreatment.exe

Starting installation starts procedure that should be followed and finish.

3.2. Instalation from Internet

Installation program can also be downloaded from this internet link Download. After downloading, startup installation do install updated version of NIGOS Manager.

3.3. Drivers for USB-RS485 adapter

If you are using a USB adapter for communication, and Windows can not find it, on the disc is the installation of the drivers.
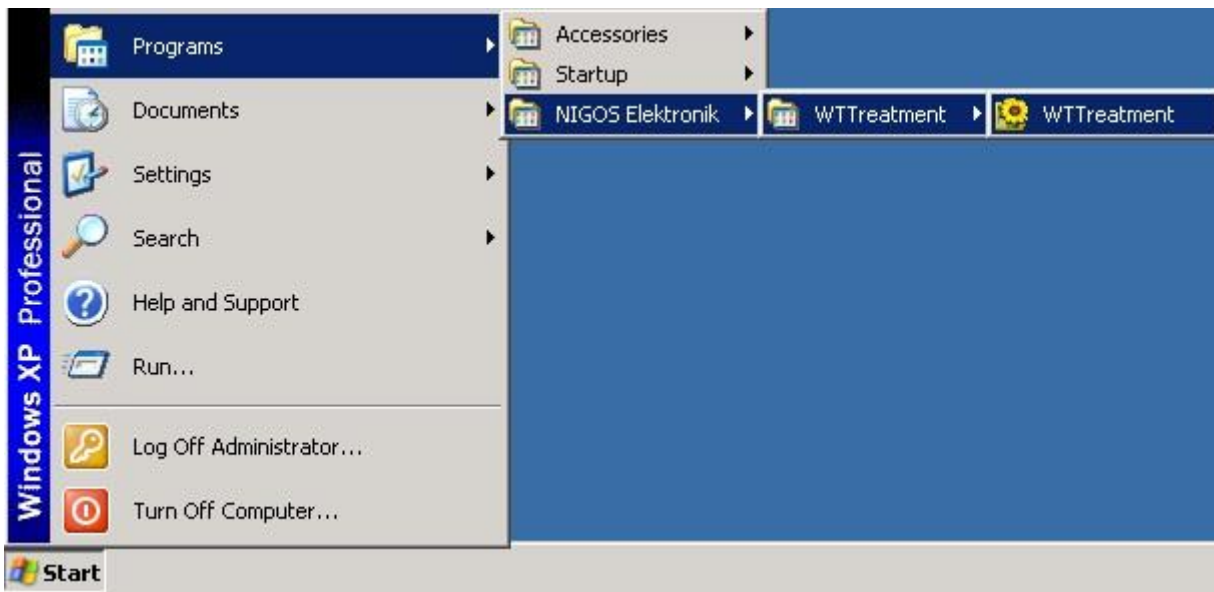
After connecting USB adapter, Windows asks for drivers, it is necessary to specify the path to the CD folder USB driver.

Drivers are downloaded from http://www.ftdichip.com/Drivers/D2XX.htm

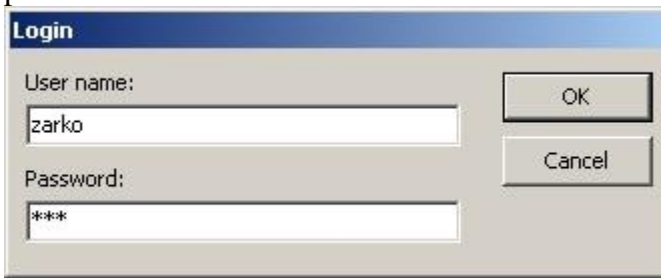Original instructions for installing drivers

4. Starting software

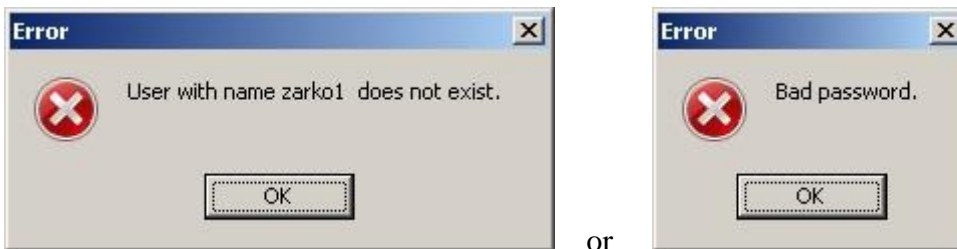After the installation, the shortcut of application is created in Start menu:

Click on WTTreatment icon starts program.

If there are defined users, after starting application, login dialog box pops-up for entering username and password.

If a wrong user name or password is entered, the application notifies user of the error and asks for re-entry.

 or

After 3 unsuccessful attempts the application shuts down and all have to start from scratch.

5. Basic menu

On main window is the menu display and several quickstart buttons.
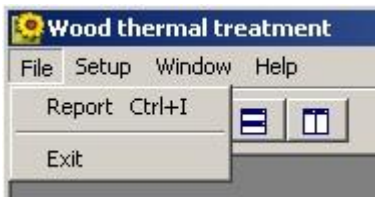

In File menu are open reports and program exit.

In Config menu are program preferences.

In Windows menu are settings for windows.

In Help menu are help descriptions and info about program.

6. File

There is Report and Exit item.

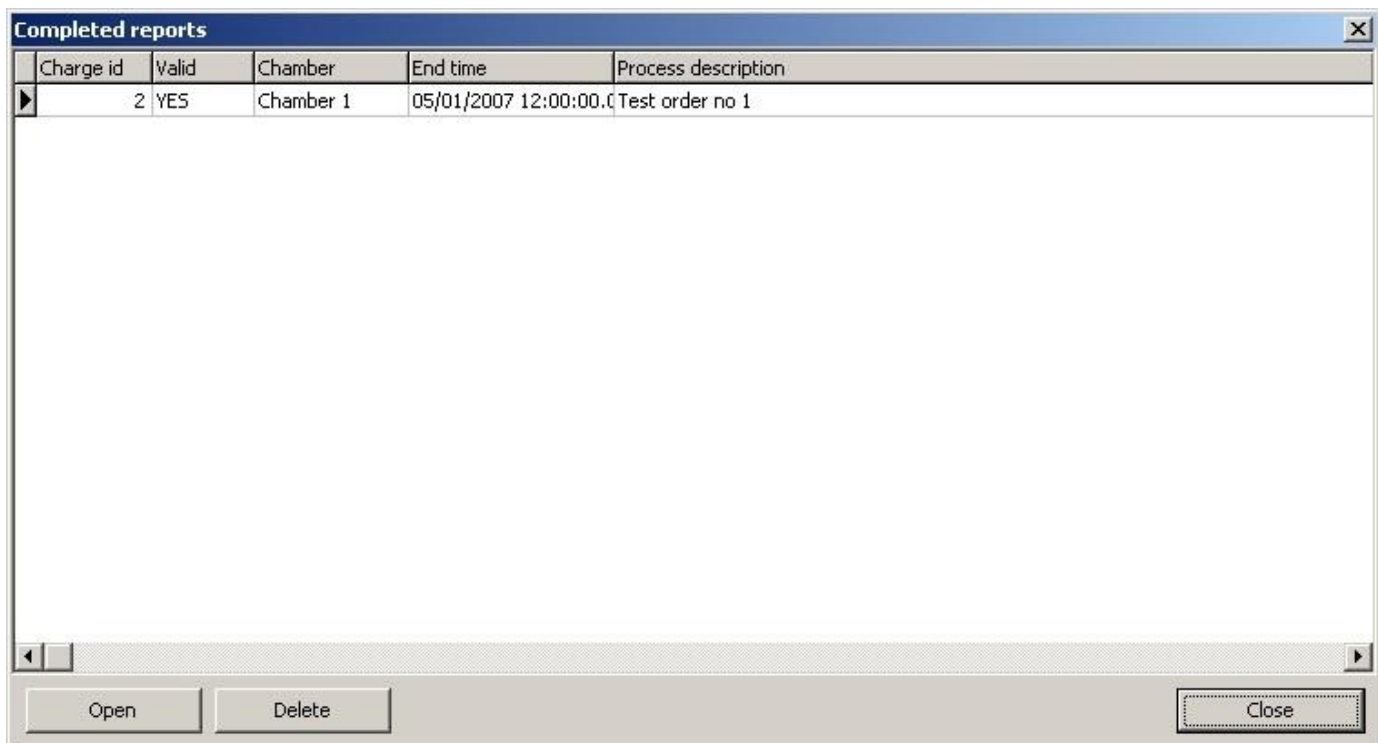Report - view reports of sterilization

Exit - exit the program

6.1. Report

To generate report, user can choose Reports from File menu of program or by pressing keys Ctrl + I. After that new windows will be open list of all available reports, sorted by closing time.

Columns presented in Table are:
· Process ID (unique number automatic added at process start),
· Validation check (YES or NO means if sterilization requirement are fulfilled or not),
· Chamber (name of chamber in which process is happening),
· Process ending time ,
· Info about materials.

Choose Open to select process (selection is made by clicking on chosen row in table, and indication of selected row is black arrow in one of rows on the left side of table). After that, new dialog will be open with options for report generation.

In this dialog, user can define time span of report (time span often should be short cause better resolution of diagram for period user is interested in).

After that, user can define the temperature span that would be presented on diagram, and finally names and colors which would represent individual temperatures in generated diagram.

Option "Treatment period only" only show time span of process when conditions are satisfied (sometimes this option is not available).

After selecting the desired parameters, user can print Graphic or Spreadsheet reports.

6.2. Graphic report

Heat treatment report: 070105_2
Graphical view of measure

Treatment No.:	070105_2	Chamber:	Chamber 1
Registration number:	0000001	Location:	Niš
Company name:	NIGOS Elektronik	Registration number:	000001
Address:	B.N.Serjože 12, 18000 Niš, Srbija	Comment:	Test order no 1
		Quantity:	20 m3
		Time range:	2007.01.05 08:00 - 2007.01.05 12:00
		Calibration:	
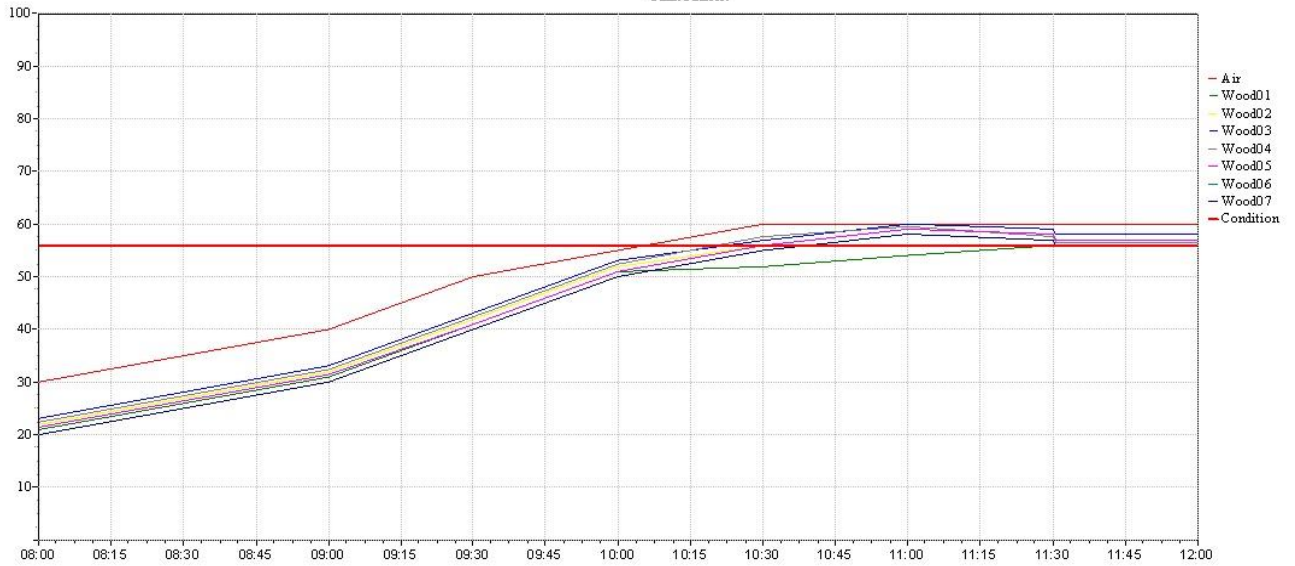
For NIGOS Elektronik:

NIGOS Elektronik
Printed: 01/02/2012

Sign of supervisor:

6.3. Spreadsheet report

Heat treatment report: 070105_2
Values of sensors

Treatment No.:	070105_2	
Registration number :	0000001	
Company name:	NIGOS Elektronik	
Address :	B.N.Serjože 12, 18000 Niš, Srbija	
Chamber :	Chamber 1	
Location:	Niš	
Registration number :	000001	
Comment:	Test order no 1	
Quantity:	20 m3	
Time range:	2007.01.05 08:00 - 2007.01.05 12:00	
Calibration:		

For NIGOS Elektronik :　　　　　　　　　　　　　　　　　　　Sign of supervisor :

TIME	Condition	Air	Wood01	Wood02	Wood03	Wood04	Wood05	Wood06	Wood07
2007.01.05 08:00	56	30.0	21.0	22.0	23.0	22.5	21.5	20.0	20.0
2007.01.05 09:00	56	40.0	31.0	32.0	33.0	32.5	31.5	30.0	30.0
2007.01.05 09:30	56	50.0	41.0	42.0	43.0	42.5	41.0	40.0	40.0
2007.01.05 10:00	56	55.0	51.0	52.0	53.0	52.5	51.0	50.0	50.0
2007.01.05 10:30	56	60.0	52.0	56.0	57.0	57.5	56.0	55.0	55.0
2007.01.05 11:00	56	60.0	54.0	59.0	60.0	59.5	59.0	58.0	58.0
2007.01.05 11:30	56	60.0	56.0	58.0	59.0	57.5	58.0	57.0	57.0
2007.01.05 11:30	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:31	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:31	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:32	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:32	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:33	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:33	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:34	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:34	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:35	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:35	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:36	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:36	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:37	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:37	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:38	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:38	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:39	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:39	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:40	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:40	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:41	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:41	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:42	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:42	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:43	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:43	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:44	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:44	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:45	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:45	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:46	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:46	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:47	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:47	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:48	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:48	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:49	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0
2007.01.05 11:49	56	60.0	56.0	57.0	58.0	56.5	57.0	56.0	56.0

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At the top of the window are <u>Print preview</u> buttons.

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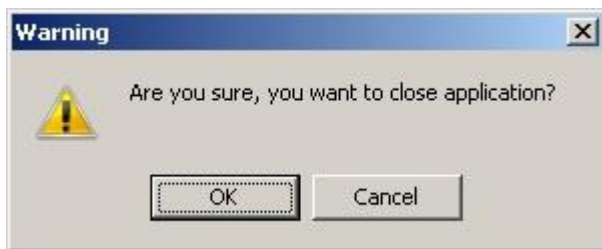
6.4. Preview

In the preview window, there is toolbar that used to see all pages reports, set printer and print the report. Also, the reports can be recorded in a file and user can later open them and print.

6.5. Exit

On leaving program, user need to confirm leaving.

7. **Configuration**

The Setup menu contains the items for setting various options of.

Communication - communications parameters setup

Company - basic data on sterilization company setup

Chambers - basic data on sterilization chambers setup

Users - program access rights setup

Language - language choose

7.1. Communication parameters

In this windows user setup communication parameters.
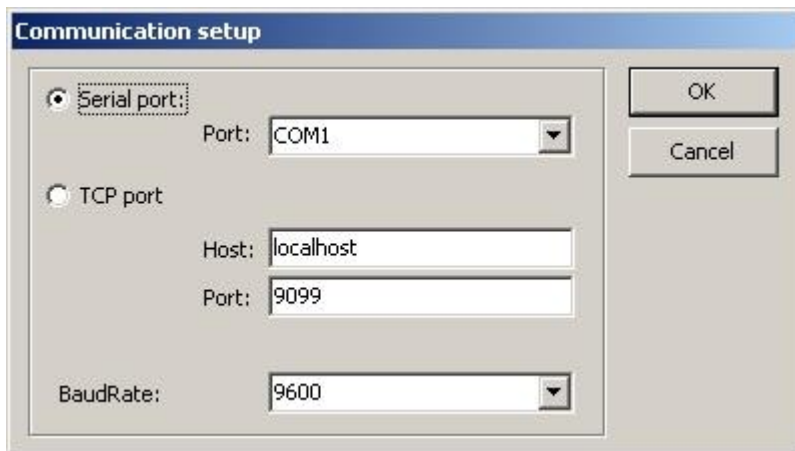
If only single NIGOS's device is connected to the selected serial port, user have to select serial port and select the COM port.

If there are more NIGOS's devices connected on the same serial port, then communication takes place via the communication server. In this case user should choose option to set the TCP port and IP address and port to which the communication server is started on.

Communication speed should be set in every option.

7.2. Company

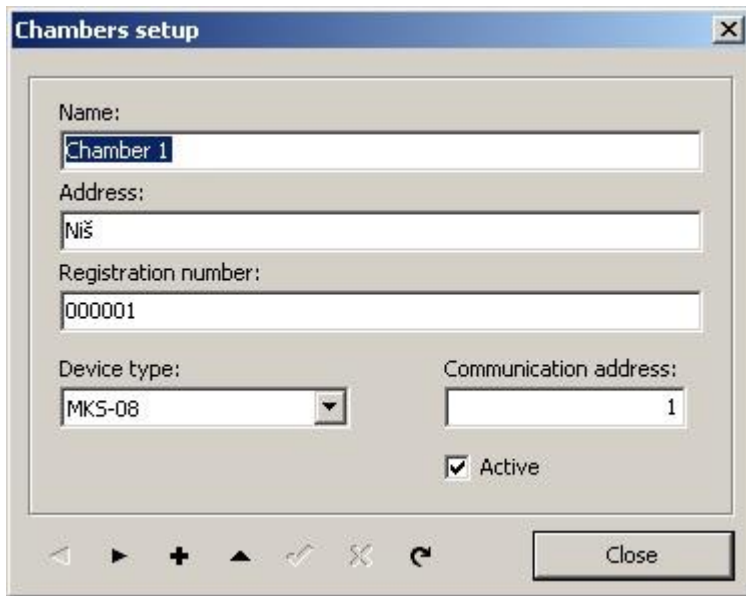Setting up basic information about the company
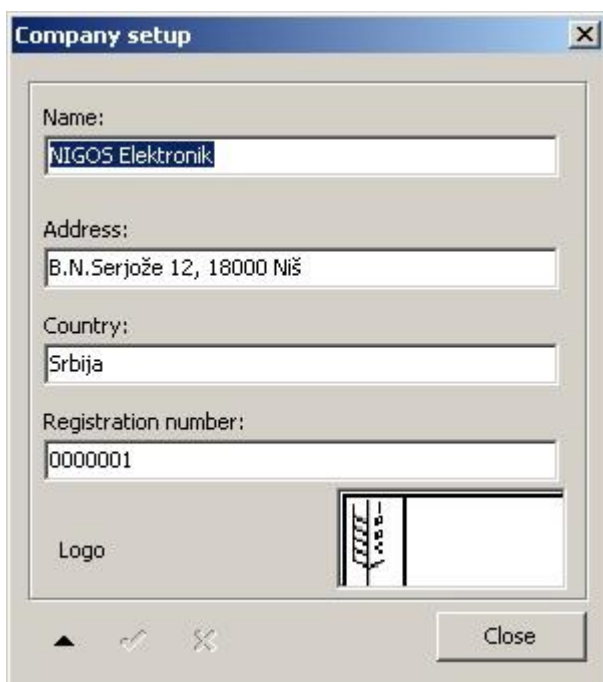
In this window should be set up basic information about the company that performed wood thermal treatment. These are the name, address, country and registration number which is obtained from the relevant Ministry.

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If you change any description, you must press the button [✓] before closing the window. If you don't want to changes description, press [✗] .

In the Logo window can load pictures to be displayed at the top report as a company logo. Double-click to the field thumbnails, opens a window for select a file on disk.

7.3. Chambers

In this window user should enter info about installed sterilization chambers.

Name can be a symbolic name of chamber in order to distinguish if there are any more. Address is the actual address or description of the physical location of the chamber. Registration number is as the one described in the company, if there is only one chamber, or registration numbers of every chamber and each has its own registration number.

In Device type, choose the type of measure boxes that read temperatures. In Communication address enter the address of measure box.

NOTE: If you have more measure boxes on the same communication line, two measuring boxes can not have the same communication address.

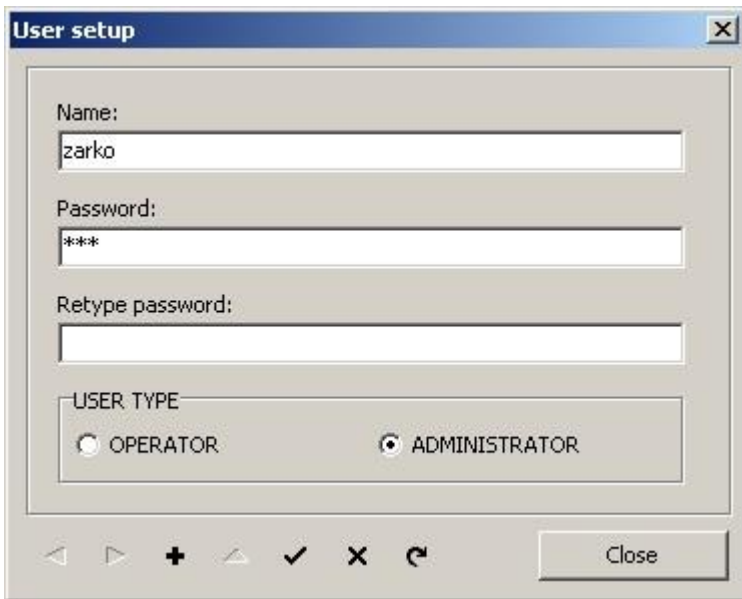By button [◁ ▶] user choose chamber which he want to change data..

By button [+] new chamber can be added..

By buttons [▲] and [✗] user update or cancel changes in database..

By button [↻] preview of database is updated.

7.4. Users

Here user can add users who can work with this program and their rights or change user information or add new users.

Buttons at bottom of window are for moving through user list, adding users and entry into database.

A user who has administrator rights can change the configuration program, but normal user can not change the configuration program. It means Setup menu is banned for users.
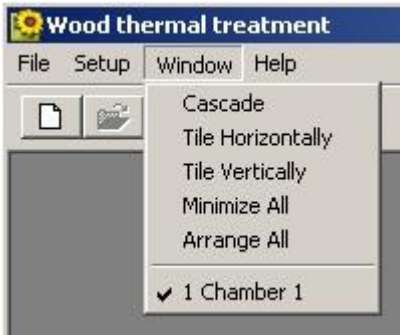
7.5. Language

Depending on how the strings defined in the description, by this option user can choose which descriptions would be occur.

8. <u>Windows</u>

These items customize windows displaying in main window if there are more.

Item name describes the way of windows sorting.

9. <u>Help</u>

The menu contains two menu items, Contents and About.
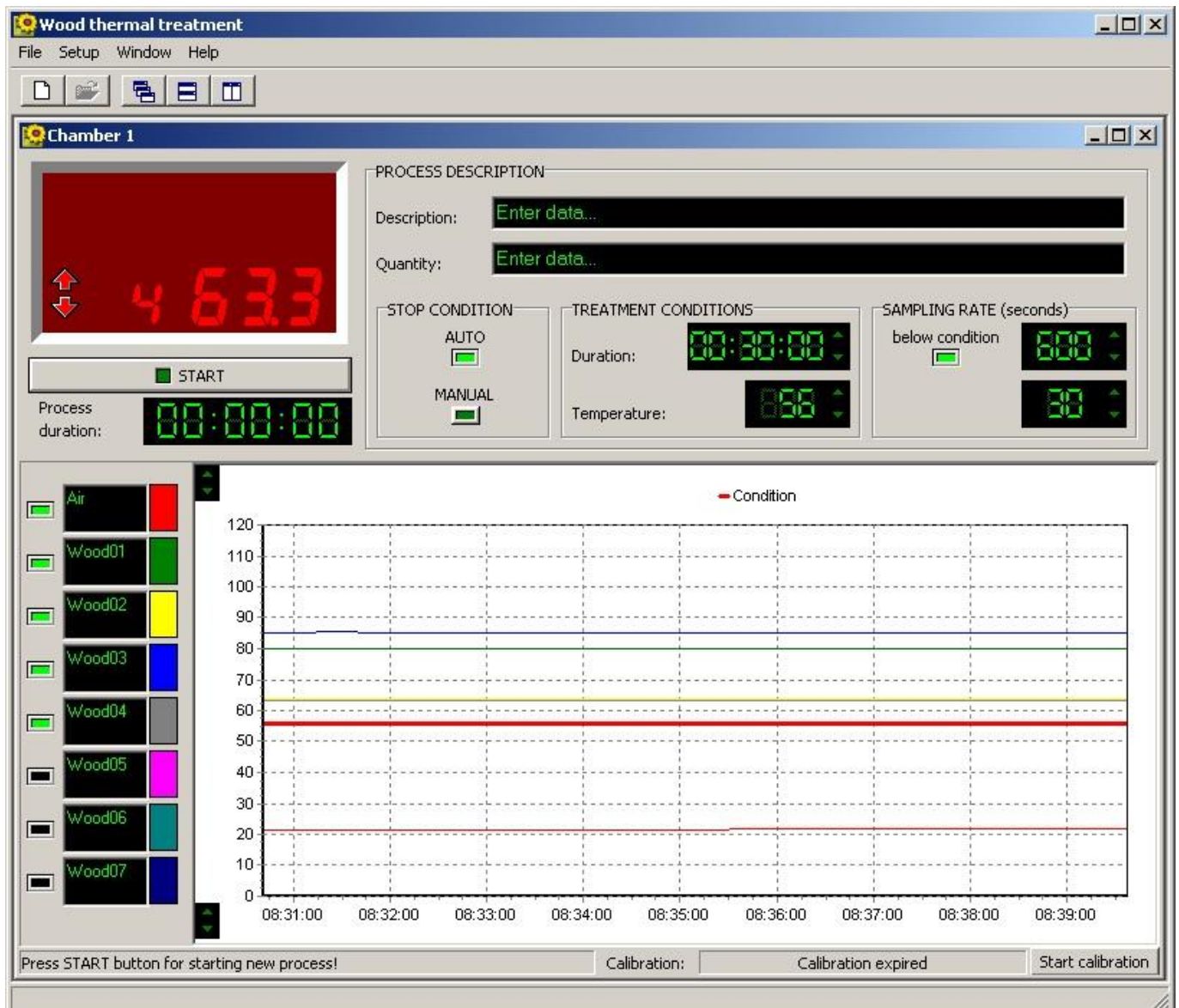

Option Content opens this help file.

Option About.. open informations about programu and author..

10.Show chambers

Initially after installation, window Show Chamber launches the view of one chamber. Changing labels in Show Chamber window, title changes by the option Chamber Settings. More chambers can be added also.

All controls in window support short message system for easier se of application. Just briefly hover mouse pointer over any control and tooltip will pop-up with suggestion, next to arrow or/and in statusbar at the bottom of window.

In upper left corner of the window is an indicator that symbolizes measure devices and it shows measured temperature as same as are on measure devices. By that there are printed message on communication status and possible errors that occur in communications

In the case of system configuration with only MKS measure devices, there are shown only channel and measured temperature on that channel (red digits). If the case of configuration with NIGOS machines then there are additional black figures in upper left corner: temperature measured on the machine; and gray figures in upper right corner: desired device temperature.

Also, right click on the indicator gets a context menu which includes items to display and define the status of the device and to define the status of measurement places, or probes..
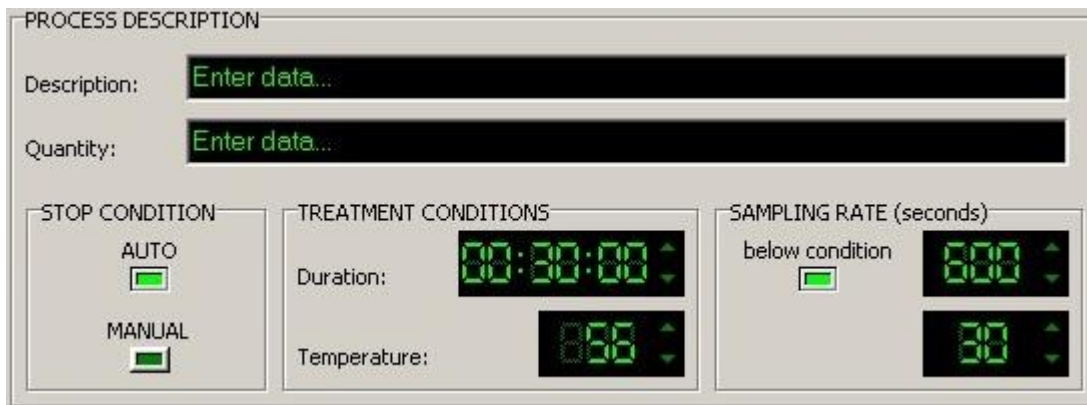

Item OFFLINE(ONLINE) in the menu indicates current communication status with device. If after a certain number trials device does not respond to the application, status automatically switches to OFFLINE (device is disabled or faulty, communication line is interrupted, or similar). In this case, after removing the cause of interruption, using this menu item user may try to back ONLINE state.Item Active channels indicates that the probe is currently active and enabled; and enables user to activated or deactivated some probes. This should take care that all active probe must satisfy the criterion of minimum temperature of sterilization, and in this way should disable faulty probe or probes that are not able to meet criteria for any reason. Current regulations on thermic treatment of wood define at least 5 active probes - one probe for ambient temperature and 4 for temperatures inside wood. If during the process of activating or disable a probe, measuring time starts from the beginning.

Button START is below indicators and it's for starting and stopping process (during process, name of button changes to STOP), and even below is control which gives information about the elapsed time from process starting or application starting, if execution of application was interrupted in the meantimes.

In upper right corner is a group of controls that are used to define process. There are two controls for text input, for entering into the database data about amounts and type of the treated materials. It is allowed to enter a maximum of 50 characters and their contents are not strictly formatted, so each user can define the principle format that among his documentations.

Following from left to right, there are: control to define the end of data collecting process, control for defining requirements for automatic ending of processes and controls to define frequency of updating database with collected data.

After process starting, contents of these fields can not be changed.

Application even in the cases of manual or automatic termination of process, analyzes conditions needed for verification of sterilization by a given criteria and when the conditions are met, prints message End of Process.

In the bottom of window is the control which draws temperature diagram of the active probes. The left side is the diagram legend, user can there defines description of the probe, also is the appropriate probe visible

or not and with which colour will be presented.

It always draws a red line that represents the condition of sterilization (56°C) and if process use NIGOS measure devices it always draws black line and gray line for current and desired temperature. Right-click on the diagram brings you option to delete or print diagram.

11.   Calibration

In some countries there is a requirement to perform 'calibration' or verification measurements. This operation ensure users that all probes are on the same temperature, near the operating temperature (50 ° - 60 ° C). This can be provide by use of specialized calibrator or reference tools. For example, probe is placed in center of a hot water tank together with the reference thermometer probe. It is necessary to mix water with them and after about ten minutes the temperature of probes are stabilized.

The application allows user to control this process. By pressing Start button, user opens calibration panel where he can adjust the temperature indicated by the reference thermometer. Button is in the lower right corner of the Chamber window, on statusbar.

Statusbar displays the Chamber window and date of last calibration and the final minimum temperature of sterilisation.

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Then in application user should set the value of the temperature indicated by the reference thermometer and push button calibration.

Based on the measured temperature of the probe, application determines a new minimum temperature of treatment. The new minimum temperature of treatment is changed for difference of maximum temperature of MKS device and the reference thermometer and the temperature is rounded to the first higher integer value.

There are following limitations, all active probes must be connected and their display must be in the range ± 5°C showing the reference thermometer.

If user, after calibration, add one more probe and activate threatment, this calibration will no longer be valid.