

Data Logger Temperature

TERMIO25

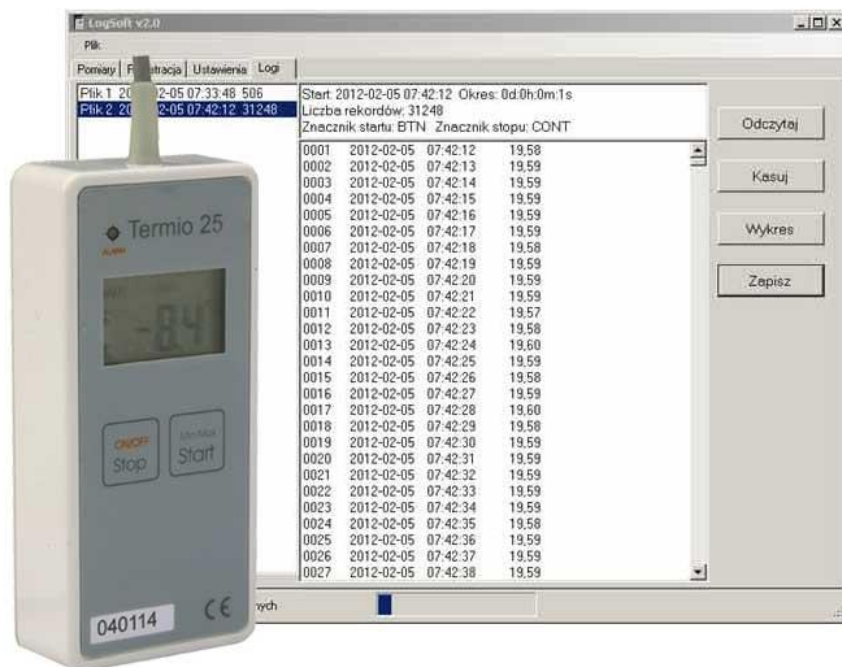


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Device's destination

Functions:

- temperature register
- temperature measurement in °C
- screen resolution 0,1 °C
- resolution of the registered measurements 0,01°C
- accuracy of the measurement better than 0,1 °C
- registering signalization
- displaying information about values exceeding permissible temperature levels by arrows on screen and red flashing led
- switching on directly by the computer with a little delay or by device's START/STOP button
- access to minimum and maximum measured value in the device's memory
- low battery signalizing

Data Logger Temperature TERMIO 25 is a device to measure and register temperature. TERMIO 25 is available in two versions:

- with external probe mounted on the wire (from -50 to 300 °C)
- with internal sensor (from -30 to 70 °C)

TERMIO 25 equipped with external probe of any length or shape can measure temperatures from -50°C to 300°C. The probe allows measuring in loose materials, liquids, air, etc.

Logger with internal sensor can measure temperatures from -30 to 70 °C.

Data Logger Temperature TERMIO 25 can be connected to the computer by USB reader. With LogSoft programme you can:

- set parameters of logger such as:
 - time of switching on
 - measurement's frequency
 - alert thresholds
 - read and print registered data in table
 - display results in graph on computer screen or printed on paper
 - save registration results on hard drive in .txt or .pdf format
 - make soft update of TERMIO 25
- Data Logger Temperature TERMIO 25 has a bootloader function so the user can change device's software.

Data Logger can be programmed to switch the registration on/off by pushing a button on front panel or to switch it on/off with delay - at any chosen time.

Registering device is small-sized so it can be placed everywhere. It can be easily connected by adapter to USB port.

Technical Data

Temperature measuring range	-50°C to 300°C with external probe
Temperature measuring range	-30°C to 70°C with sensor
Resolution	in the whole measurement range 0,1 °C
Accuracy of measurement	-/+0,1°C or better in the whole measurement range
Display	LCD
Saving frequency	from 1 second
Memory	32703 measurements (extended to 65406 on request)
Battery life span	Ca. 1000 000 registrations
Feed	1/2xAA 3,6V battery
Interface	USB
Casing size	45x100x19 mm
Casing protection degree	IP65
Weight	85g

Device's description

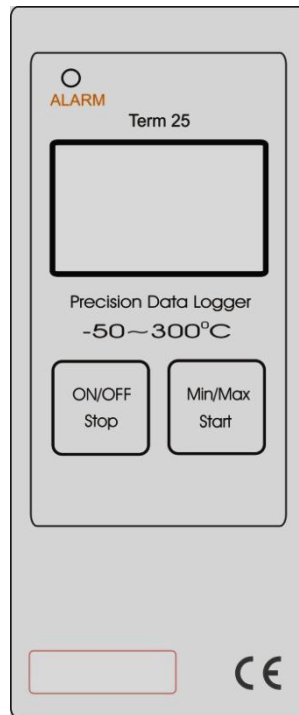
TERMIO 25 is closed in a special casing made of ABS material which protects logger from mechanical damage. The device is designed very carefully and creates a nonleaking union between elements so it is resistant to dust, dirt and water.

The logger is equipped in a small display which shows such information as:

- current status (LOG – registration or WAIT – not registering),
- current temperature
- registered minimum and maximum values
- exceeding the set limit values shown by arrows
- when the battery is low, it is signalled by battery's shape



There are two buttons on device's panel to switch the registration off (stop) or to switch it on (start) to the device's memory. At the bottom of the casing there is a connecting to adapter.

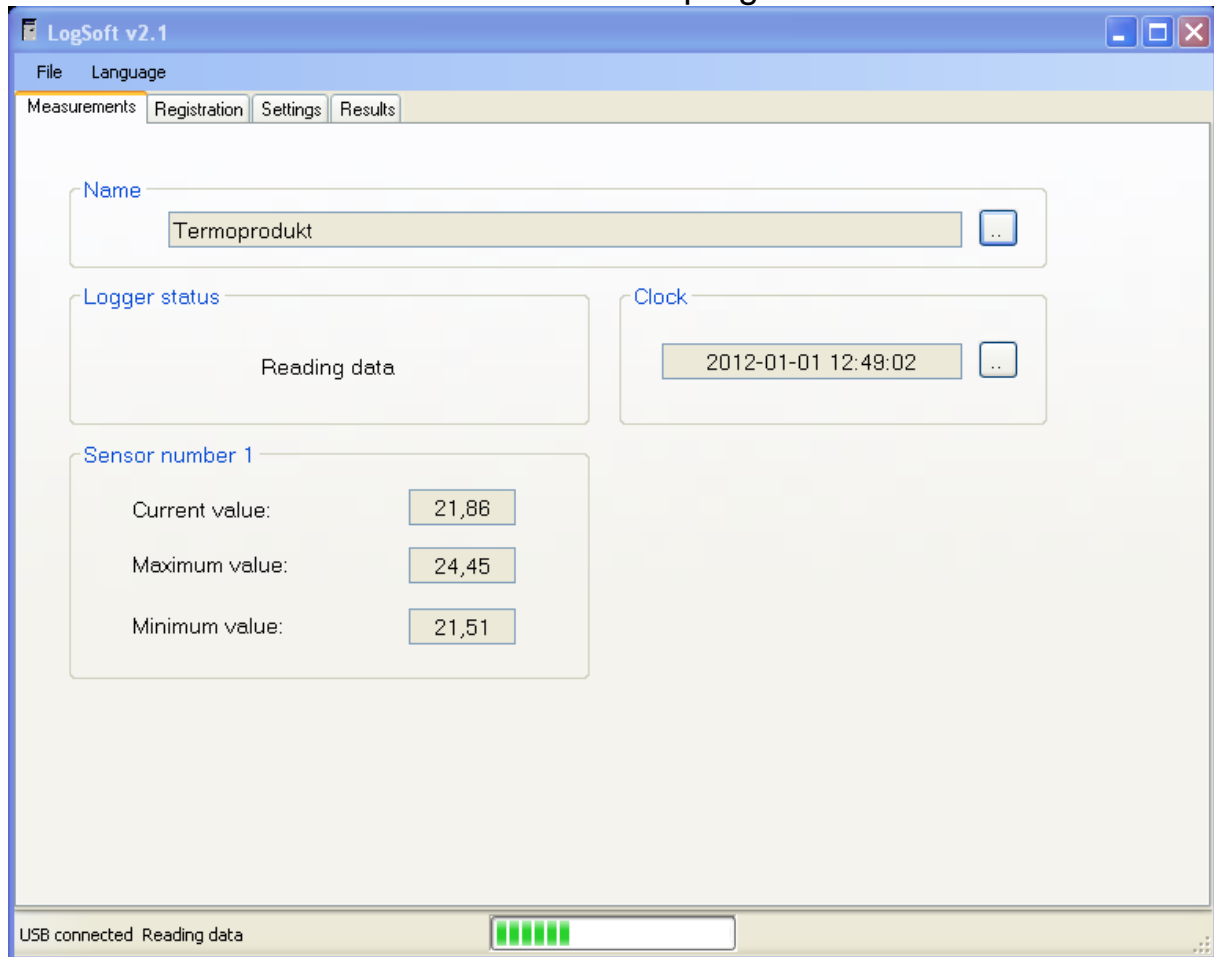


Logger's installation and switching on

To install the logger:

1. install application by choosing SETUP.EXE located in TERM25-INSTALL folder
2. connect reader's plug to the USB port
3. place TERMIO25 logger in the reader

Main window of the programme



After switching on the programme we can see the main window of the application. When the device is connected, the data are read automatically. Main window shows basic information about the logger.

The upper part of the windows is a menu where we can choose one of two functions:

File→

Logger update

- updating old software

Exit

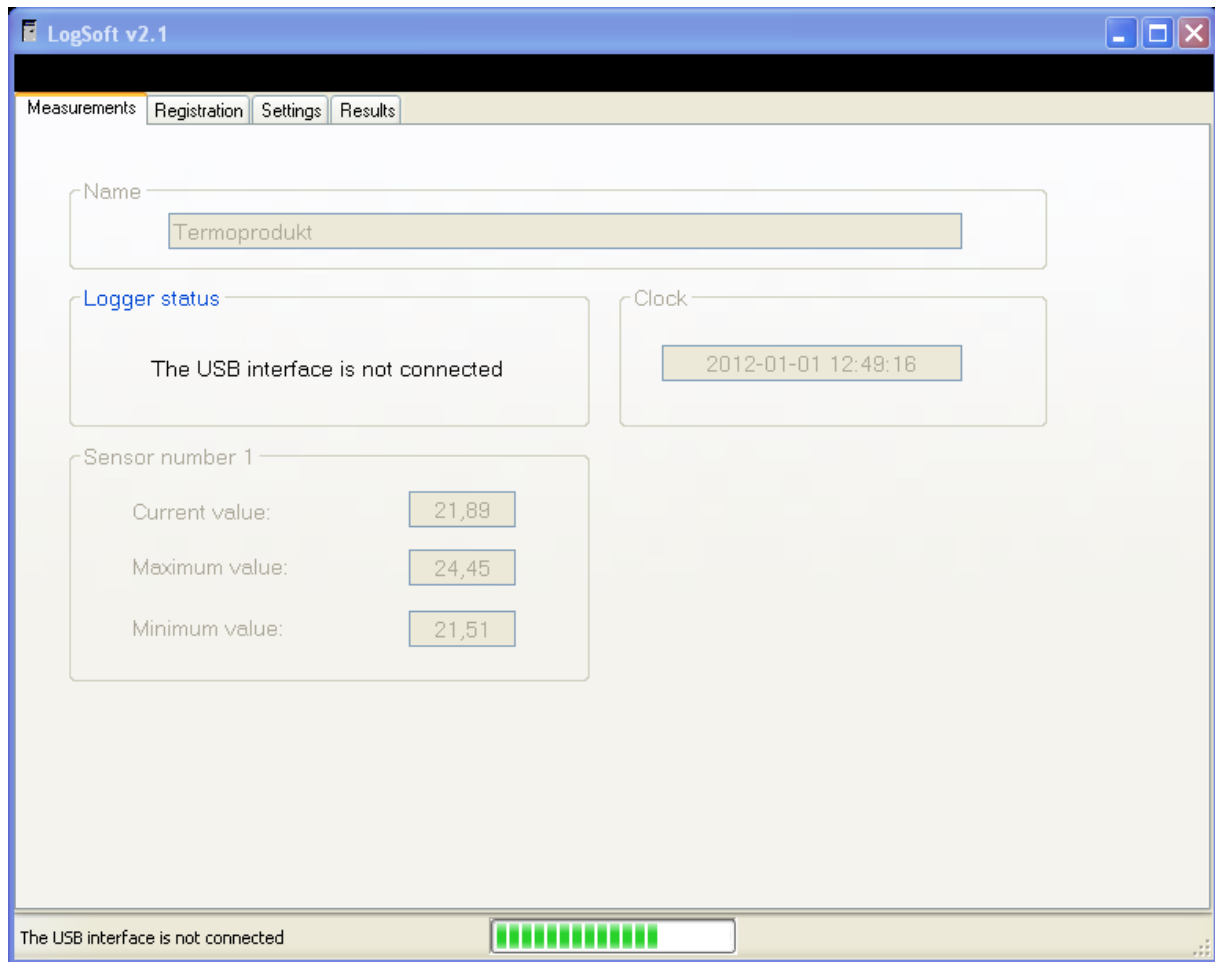
- ends working witch the programme

Main part of the window changes while we choose one of the bookmarks:

- | | |
|-----------------|---|
| 1. Measurements | - basic information about the device |
| 2. Registration | - parameters of switching on and registering data |
| 3. Settings | - parameters of exceeded set limit values |
| 4. Results | - reading and presentation of registered data |

The choice of bookmarks and running each function-buttons is done using the mouse.

Example of the window when the logger is waiting to run is shown below.



The bottom bar of the window contains information about the connection. The middle part of the bottom part presents graphically the current state of communication with logger. We can observe if programme communicates with the device, because reading of basic information about the device continues throughout the duration of the programme. When the device isn't connected to the computer, the bar stays still.

Measurements

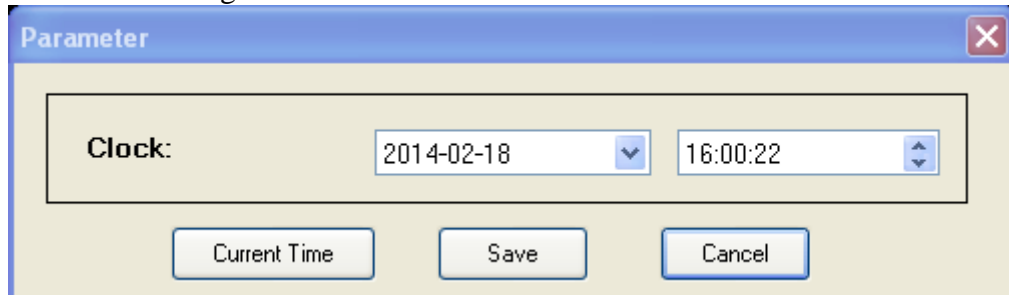
When we start working with the programme the first "Measurements" bookmark is active and contains basic information about the logger. Information is divided to several sections formed in frames. They contain such information as:

- name of the logger – each logger can be named - it's a easier way to identify devices - for example: Freezer 1, Car, etc.
- logger status (about connection to the computer, current registration or waiting for switching on)
- the clock (current time of the device)
- temperature (current temperature read from the device and defined permissible minimum and maximum temperature levels)

If the logger is on, in "Logger Status" section shows "Reading Data". If the logger is off, we can see " USB interface is not connected".

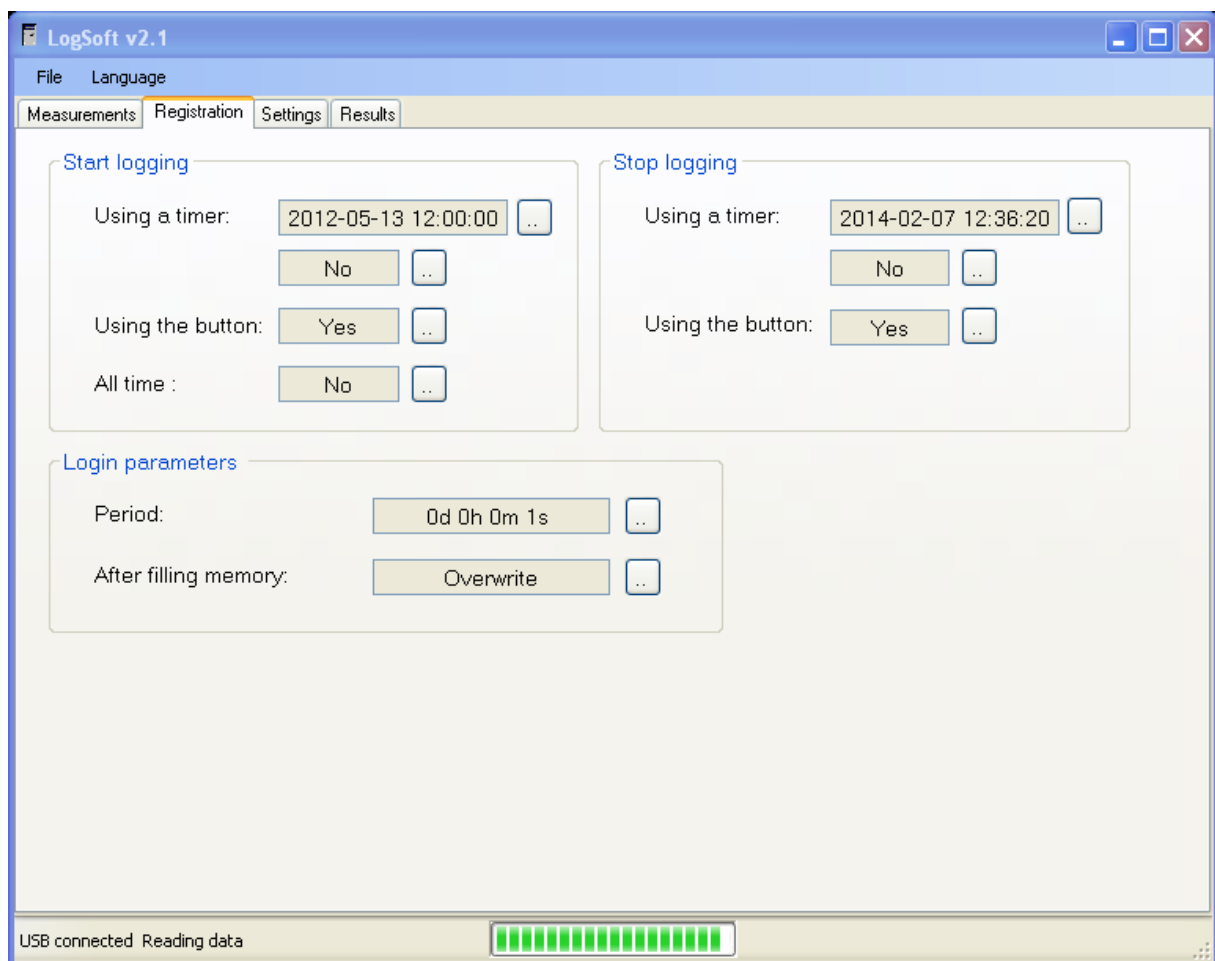
"The clock" section is equipped in "Current Time" button that allows entering current date and time to the device.

Window to change device's date and time:



The "Parameter" dialog box has a title bar with a close button. Inside, there is a "Clock:" label followed by two input fields. The first field shows the date "2014-02-18" with a dropdown arrow. The second field shows the time "16:00:22" with a spin button. Below these fields are three buttons: "Current Time", "Save", and "Cancel".

REGISTRATION



The "LogSoft v2.1" window has a menu bar with "File" and "Language". Below it are tabs for "Measurements", "Registration" (selected), "Settings", and "Results". The "Registration" tab contains three sections: "Start logging", "Stop logging", and "Login parameters".

Start logging

- Using a timer: 2012-05-13 12:00:00 [..]
- No [..]
- Using the button: Yes [..]
- All time : No [..]

Stop logging

- Using a timer: 2014-02-07 12:36:20 [..]
- No [..]
- Using the button: Yes [..]

Login parameters

- Period: 0d 0h 0m 1s [..]
- After filling memory: Overwrite [..]

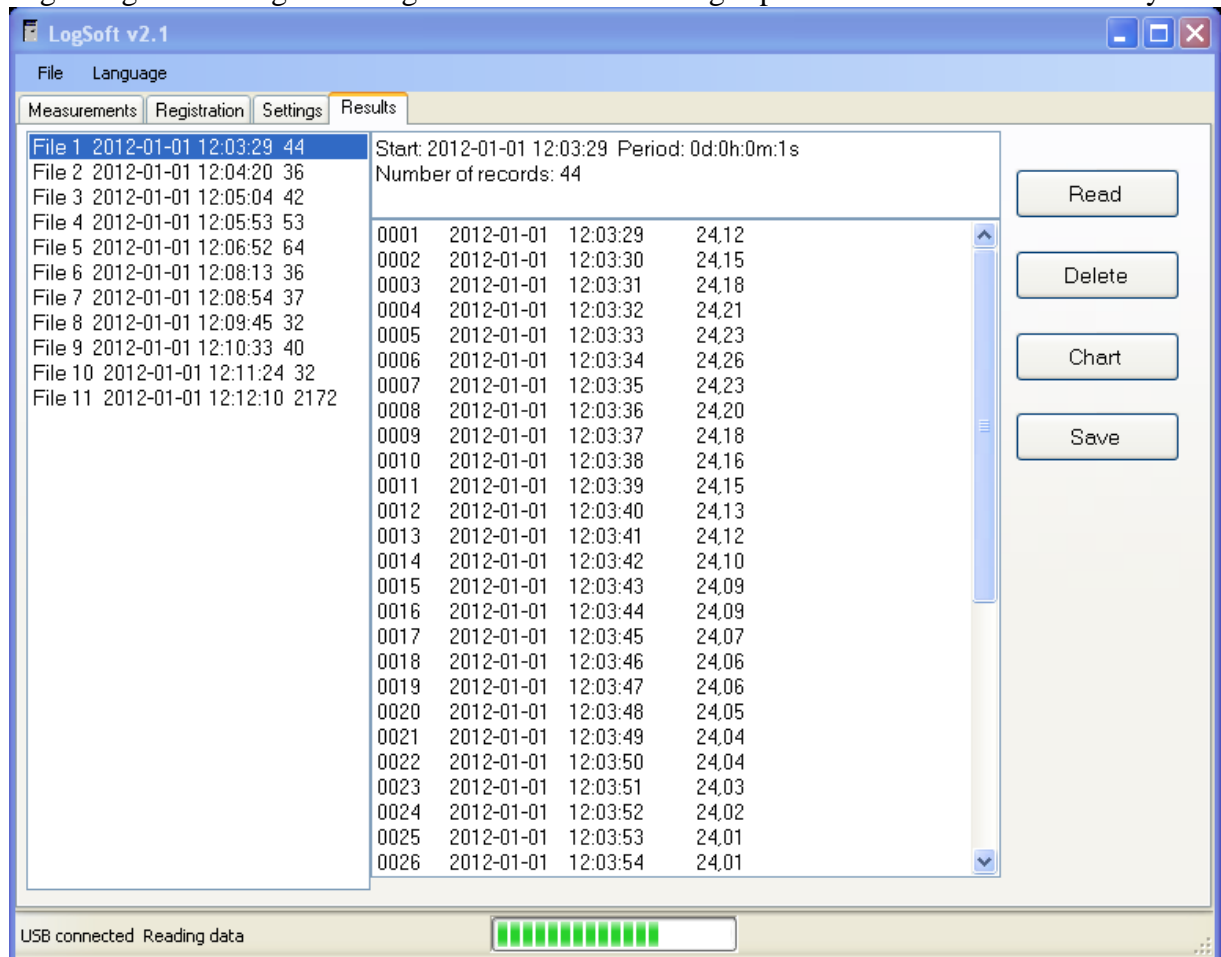
At the bottom, a status bar shows "USB connected Reading data" next to a green progress bar.

"Registration" bookmark allows programming parameters of device's working such as:

- the way of switching the registration on
- logger's task after filling memory
- frequency of the registration (period)

Warning: to make any changes in device's settings we have to turn off the registration.

Beginning and ending of registration can be set in several ways. Remember that each beginning and ending of the registration causes creating separated file to device's memory.



We can see that in "Results" bookmark there are 11 files. Each file is marked with creation date and information about number of records.

"Registration" bookmark is divided into a several sections formed in frames. The registration can be started:

„using a timer” by choosing the date and clicking "Yes"

„using the button” by clicking „Yes”(the button on keyboard has to be pushed for 3 seconds)

„all time” by clicking „Yes”

Ending of the registration can be made "using a timer" or "using the button".

Both beginning and ending of the registration can be set due to our needs.

The logger can start its working "using the button", but we can end its working on two ways: "using the button" and "using a timer".

When the registration is set to "all time" mode by clicking "Yes", it cannot be switched off. Each try of turning off, for example "using a timer" or "using the button" causes creation of a new file and continuing registration.

It is possible to start and stop registering using the keyboard.

To do this, we have to make appropriate configuration in LogSoft.

If we mark starting registration "using the button" by clicking "Yes" and ending "using the button" by clicking "Yes", then to begin registration we have to push "start" button on logger's keyboard (the button has to be pushed for 3 seconds).

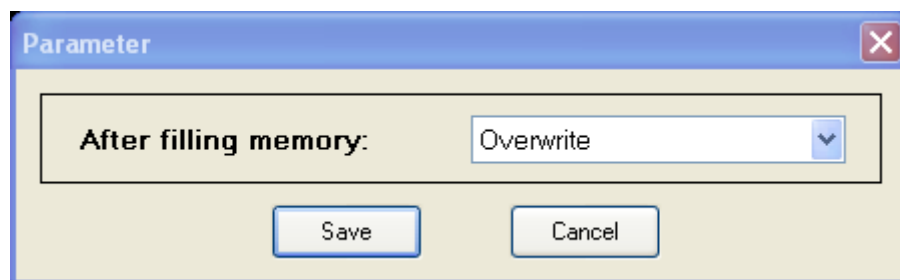
Pushing "stop" button causes ending of the registration. On display we can see "WAIT" instead of "LOG".

Inscription "WAIT" informs us that the registration has been ended.



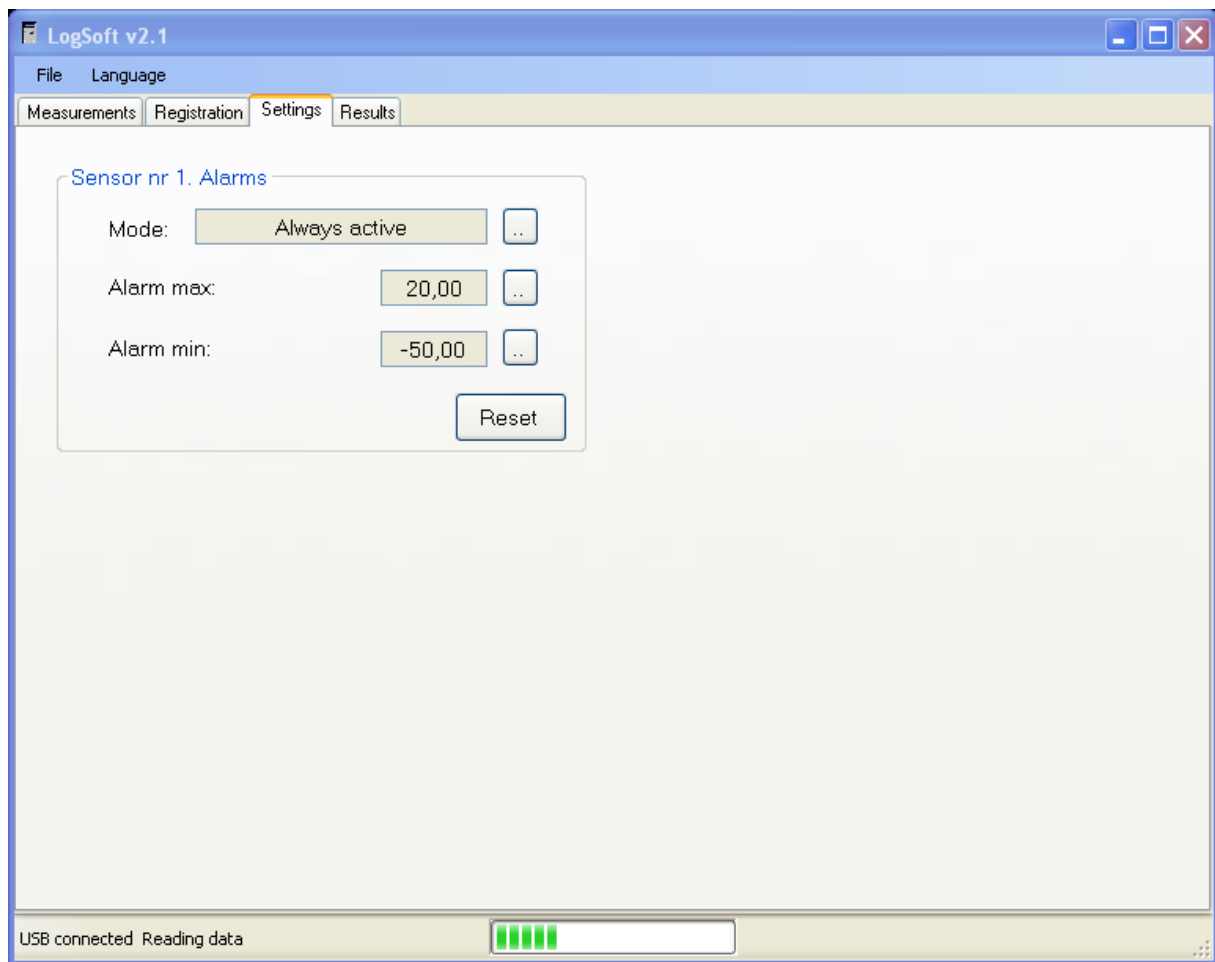
The screenshot shows a dialog box titled "Login parameters". It contains two rows of settings. The first row is labeled "Period:" and has a text box containing "0d 0h 0m 1s" followed by a small button with two dots. The second row is labeled "After filling memory:" and has a text box containing "Overwrite" followed by a small button with two dots.

Period of the registration can be specified in days, hours, minutes or seconds. The use of device's memory depends on set frequency. For example, when we set the frequency to 1 minute (with a standard 32703 memory), we can save results of measurements for over 22 days. However, if the entire device's memory is filled, then it is important to set "after filling memory" parameter. We can choose "Overwrite" option to start new measurements and delete the earlier ones. If we pick "Stop Logging" option, the registration will be stopped.

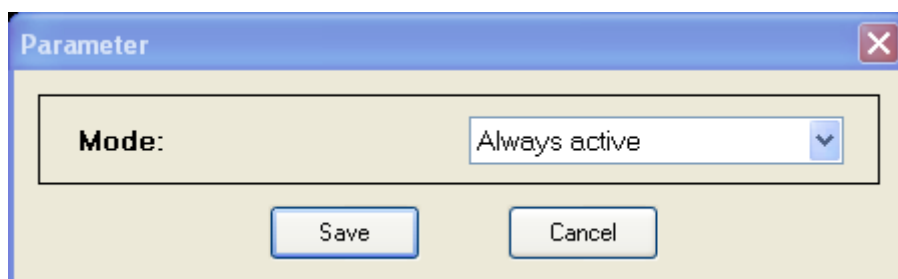


The screenshot shows a dialog box titled "Parameter". It has a close button (X) in the top right corner. Inside, there is a label "After filling memory:" followed by a dropdown menu currently showing "Overwrite". At the bottom, there are two buttons: "Save" and "Cancel".

SETTINGS

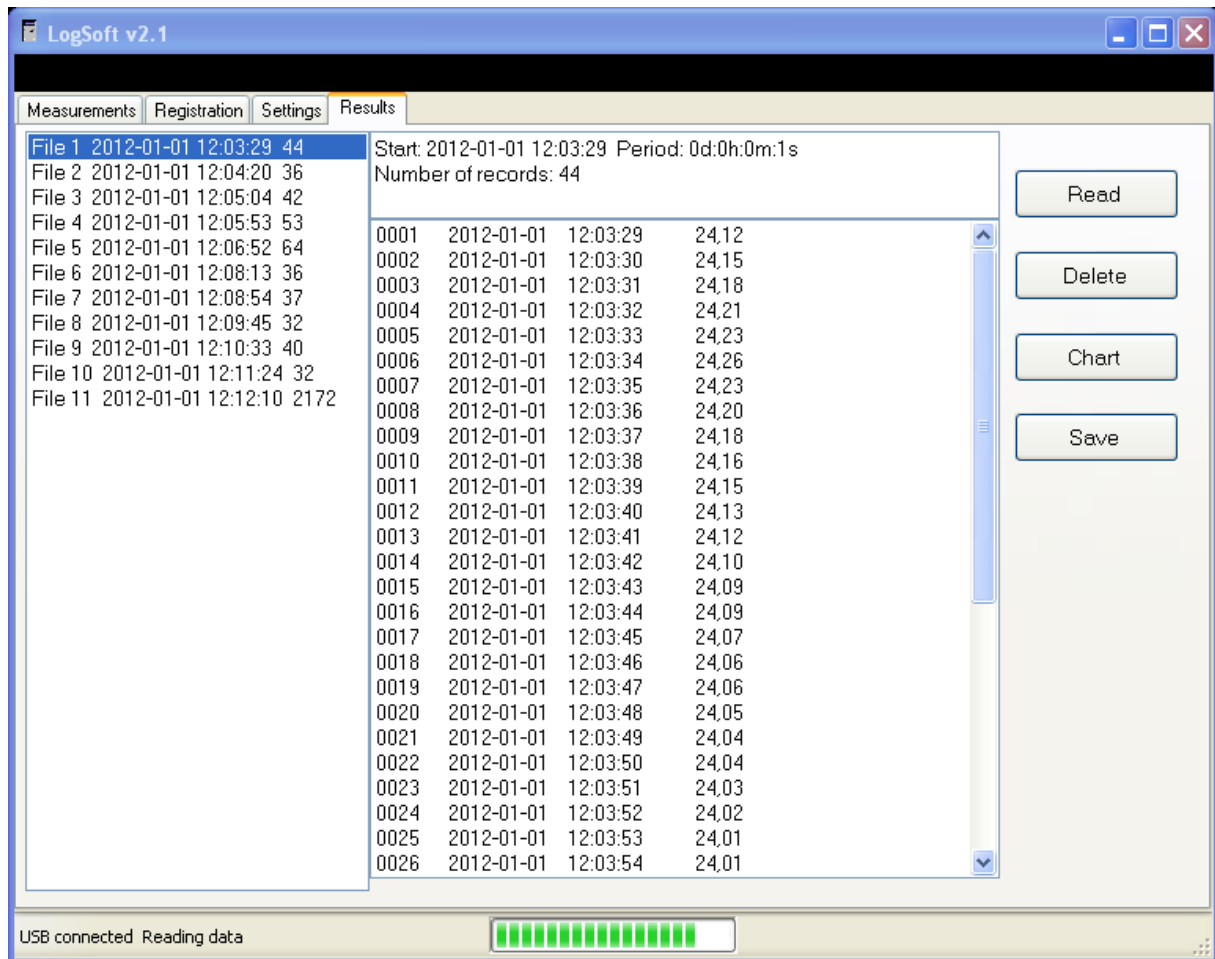


"Settings" bookmark allows us to set permissible temperature levels. Arrows on display and red flashing led signalize warning in case the temperature is over/under set permissible values.



Alarms can be "inactive", "Always active" or "Active while logging". Remember that red flashing led signaling exceeded permissible values shortens battery's life.

Results



When we pick and click "Read", the Logsoft reads all the results saved in logger's memory. Depending on the number of measurements, the reading may take from a few seconds to tens of seconds. Reading time of 32000 saved measurements takes ca. 40 seconds. Read data are chronologically presented in the table. Using the slider on the right side of the table, we can see more results.

As we can see upper, in "Results" bookmark were made eleven files: FILE1, FILE2. Remember that each beginning and ending of the registration causes creating separated file to device's memory.

The button "Delete" deletes all saved files from device's memory. We cannot delete only a few chosen files.

"Save" button allows saving the results of registrations on hard drive in PDF or TXT format. Then we can use saved data in other programs such as Excel.

Save to file

File name

Termoprodukt 16 2012-01-01 12.03.29.txt

☒ Name ☒ Serial number ☒ Date start logging ☐ pdf ☒ txt

Header

☒ Name ☒ Serial number ☒ Dates of logging ☒ Period ☒ File creation date

☒

Footer

☒

Cancel Save

Sample content of saved in TXT format file:

0001	2013-09-02	11:59:14	20,67
0002	2013-09-02	11:59:15	20,66
0003	2013-09-02	11:59:16	20,67
0004	2013-09-02	11:59:17	20,67
0005	2013-09-02	11:59:18	20,68
0006	2013-09-02	11:59:19	20,67
0007	2013-09-02	11:59:20	20,67
0008	2013-09-02	11:59:21	20,67
0009	2013-09-02	11:59:22	20,66
0010	2013-09-02	11:59:23	20,67
0011	2013-09-02	11:59:24	20,67
0012	2013-09-02	11:59:25	20,67
0013	2013-09-02	11:59:26	20,67
0014	2013-09-02	11:59:27	20,67

The following columns are: ordinal, date, time, temperature.

Saved data in PDF format:

TERMOPRODUKT 16 2012-02-05 7.50.36.pdf - Adobe Reader

File Edit View Window Help

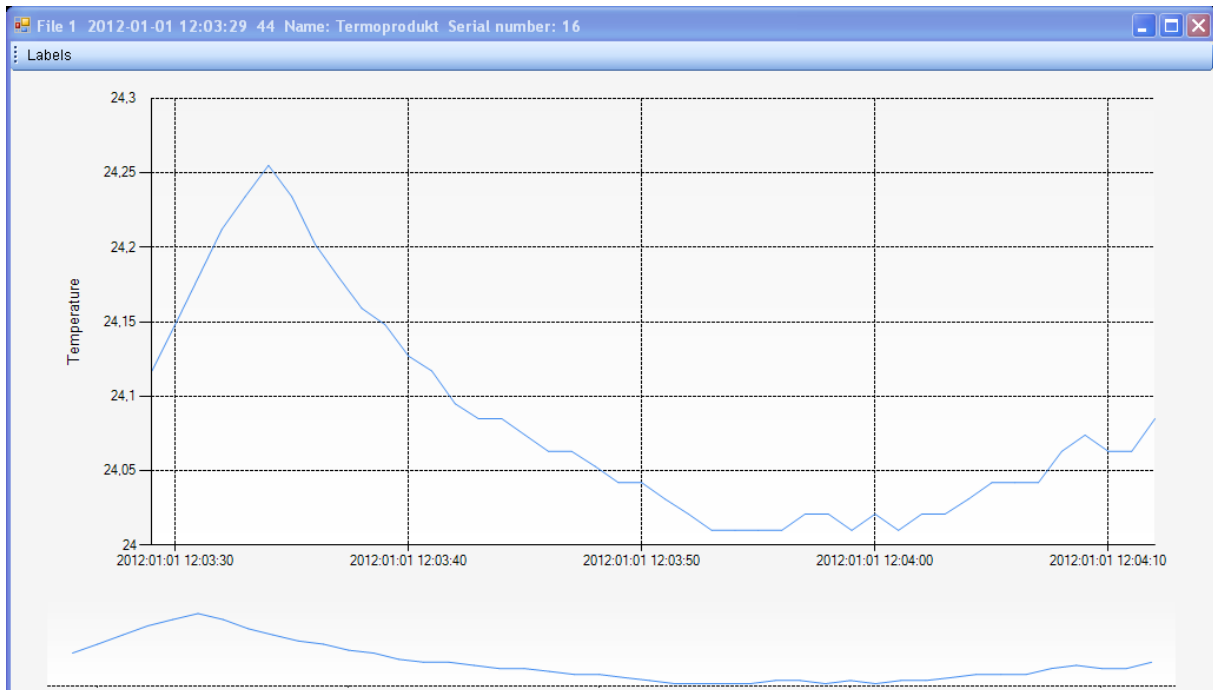
1 / 517 55,5% Tools Sign Comment

Name: TERMOPRODUKT
Serial number: 16
Start: 2012-02-05 07:50:36 Stop: 2012-02-05 16:35:37
Period: 0d:0h:0m:1s
Save date: 2014-01-28 16:28:16

Lp.	Date	Temperature
1	2012-02-05 07:50:36	19,57
2	2012-02-05 07:50:37	19,57
3	2012-02-05 07:50:38	19,57
4	2012-02-05 07:50:39	19,57
5	2012-02-05 07:50:40	19,58
6	2012-02-05 07:50:41	19,59
7	2012-02-05 07:50:42	19,57
8	2012-02-05 07:50:43	19,58
9	2012-02-05 07:50:44	19,56
10	2012-02-05 07:50:45	19,57
11	2012-02-05 07:50:46	19,57
12	2012-02-05 07:50:47	19,58
13	2012-02-05 07:50:48	19,57
14	2012-02-05 07:50:49	19,58
15	2012-02-05 07:50:50	19,58
16	2012-02-05 07:50:51	19,58
17	2012-02-05 07:50:52	19,58
18	2012-02-05 07:50:53	19,58
19	2012-02-05 07:50:54	19,59
20	2012-02-05 07:50:55	19,58
21	2012-02-05 07:50:56	19,58
22	2012-02-05 07:50:57	19,58
23	2012-02-05 07:50:58	19,58
24	2012-02-05 07:50:59	19,58
25	2012-02-05 07:51:00	19,57
26	2012-02-05 07:51:01	19,57
27	2012-02-05 07:51:02	19,58
28	2012-02-05 07:51:03	19,56
29	2012-02-05 07:51:04	19,57
30	2012-02-05 07:51:05	19,58
31	2012-02-05 07:51:06	19,57
32	2012-02-05 07:51:07	19,58
33	2012-02-05 07:51:08	19,57
34	2012-02-05 07:51:09	19,56
35	2012-02-05 07:51:10	19,57
36	2012-02-05 07:51:11	19,58
37	2012-02-05 07:51:12	19,57
38	2012-02-05 07:51:13	19,58
39	2012-02-05 07:51:14	19,56
40	2012-02-05 07:51:15	19,57
41	2012-02-05 07:51:16	19,57
42	2012-02-05 07:51:17	19,57
43	2012-02-05 07:51:18	19,57
44	2012-02-05 07:51:19	19,57
45	2012-02-05 07:51:20	19,57
46	2012-02-05 07:51:21	19,58
47	2012-02-05 07:51:22	19,58
48	2012-02-05 07:51:23	19,58
49	2012-02-05 07:51:24	19,57
50	2012-02-05 07:51:25	19,59
51	2012-02-05 07:51:26	19,58
52	2012-02-05 07:51:27	19,57
53	2012-02-05 07:51:28	19,57
54	2012-02-05 07:51:29	19,57
55	2012-02-05 07:51:30	19,58
56	2012-02-05 07:51:31	19,57
57	2012-02-05 07:51:32	19,57
58	2012-02-05 07:51:33	19,57
59	2012-02-05 07:51:34	19,59
60	2012-02-05 07:51:35	19,58
61	2012-02-05 07:51:36	19,59

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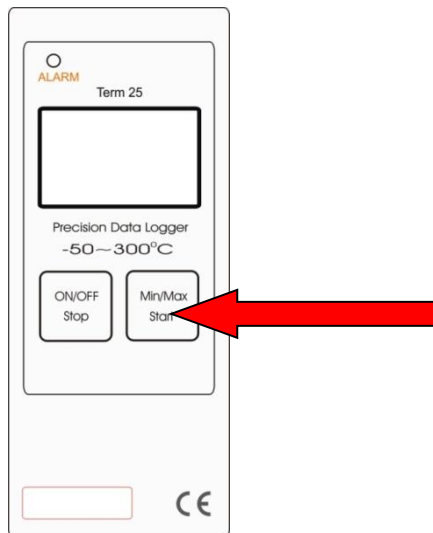
Saved data presented in graph:



How to switch the registration on?

To switch the registration on:

1. Insert the logger to adapter.
2. Turn on the computer and run LogSoft programme.
3. Check the current internal logger's time and if it's wrong, set it correctly.
4. In "Measurements" bookmark enter logger's name.
5. In "Registration" bookmark set start mode, registering period, logger's task after filling memory. When you want to set measurements using a timer, pick the date and time of start.
6. In "Settings" bookmark choose permissible values of temperatures (Sensor nr 1 Alarms).
7. Close the programme, disconnect the logger from adapter and place it in monitored position.
8. Logger starts working due to chosen settings. It can start registering directly from computer or with a delay. If the registration is to start using the button, we have to push "Start" button on the device's keyboard (marked red arrow below). If the registration is set to "all time" mode, logger will start working immediately. You can switch it off changing the settings "all time" by clicking "No".



Press here and hold at least 3 seconds - until You see "LOG" on display.

After starting the registration the upper part of display shows "LOG" which means that the registration begins. To stop logging, hold "Stop" button ca. 3 seconds, then the display shows "WAIT".

Logger's work

The first measurement is saved to device's memory when the measurement starts. Each new measurement is made with a set earlier period. You can observe on display if the device works ("LOG") or waits ("WAIT"). You can also display one value on screen. Pushing "min/max start" button, You can change displayed value.

Those values are:

- current temperature value
- registered minimum temperature value
- registered maximum temperature value

When You finish working with Data Logger TERMIO 25, You can switch the device on by "ON/OFF" button.

Remember that to switch the logger off, You have to stop the registration. It means that you should see "WAIT" on display.