INSTRUCTION MANUAL

LabDesk

Computer program

Manufacturer:

POL-EKO-APARATURA

Version 1.10

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1. MAIN DESCRIPTION

LabDesk application is the integral part of SMART PRO series devices manufactured by POL-EKO-APARATURA. Application has the following functionalities:

- Simultaneous connection with several SMART PRO devices
- Remote operating devices
- Remote monitoring of devices status
- downloading statistics of the launched program from devices
- import of data / events registered in devices
- saving and reading files in plkx 1) format
- generating charts
- generating reports

1) plkx file is a file format saved by the LabDesk application or saved to a memory stick (pendrive) when downloading data/events on the device. These files may contain registration data (date/time, temperature, humidity) or event data (date/time, event name, type of event, code). It is not possible to open these files in another application.

2. HARDWARE REQUIREMENTS

Below is the specification of the computer on which the LabDesk program can be installed:

- Windows 8, 10 operating system,
- min 300 MB free space on the hard disc,
- minimum screen resolution: HDTV 720p 1280×720 32-bit,
- LAN network card,
- NET Framework 4.6.1 installed (you can download it on www.microsoft.com),
- Microsoft SQL Server Compact 3.5 SP2 ENU installed,
- Microsoft SQL Server Compact 4.0 installed.

3. PROGRAM INSTALLATION

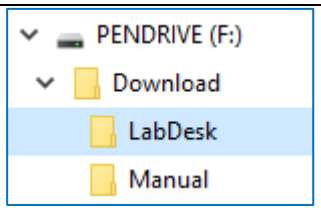
The installation program can be downloaded on a pendrive from a device in the SMART version

- Insert a USB flash drive into the slot
- in main menu go to **info** and press the icon .

A folder 'Download' will be saved on the USB flash drive in which you can find the following folders:

- LabDesk –includes an istallation program and the instruction manual of LabDesk application
- Manual – contains a manual of the device

From the Download\LabDesk folder run the file setup.exe.



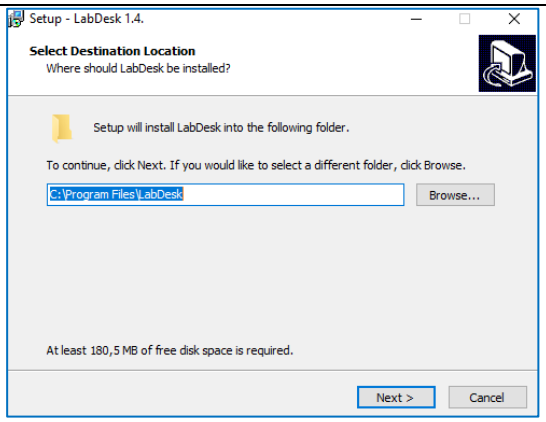
For the correct operation of LabDesk application, it is necessary to install additional applications.

SQL Server CE 4.0 and

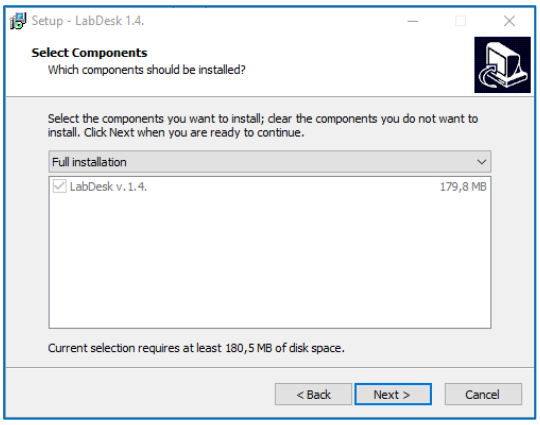
SQL Server CE 3.5.

They will be automatically installed during the installation of LabDesk application.

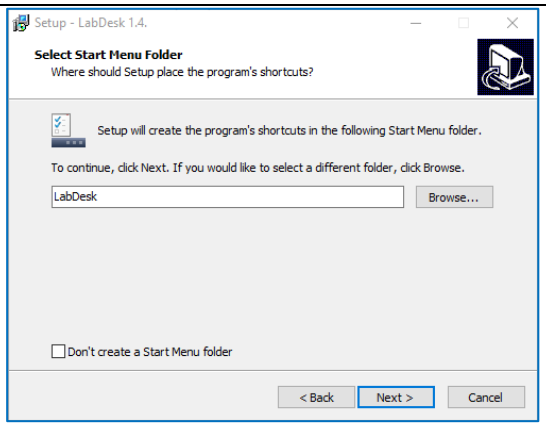
Choose the target location of the program using **Browse** buton or confirm the deault one by pressing **Next**.
If the target folder does not exsist, the program will ask if you want to create it. Press the button: **Yes**.



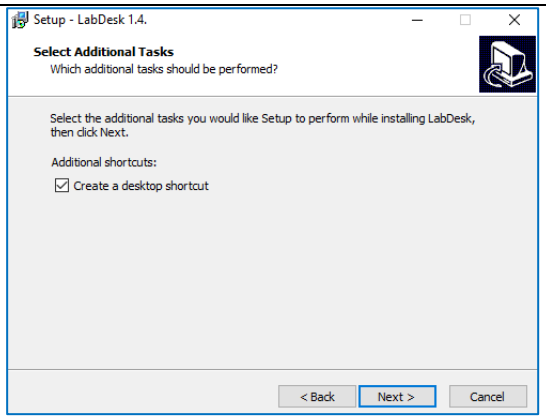
In this window confirm the installaion by pressing **Next**.



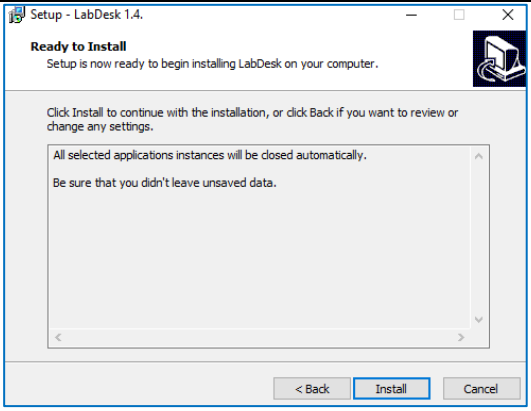
Choose Menu Start folder, in which to create shortcuts to the LabDesk application. You can skip creating shortcuts in the Start Menu by selecting the "Do not create a Start Menu folder" option at the bottom of the installation window. After finding the folder or accepting the default folder, click **Next**



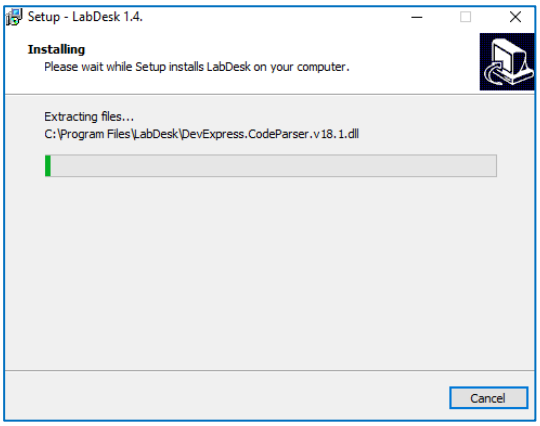
You can create an additional icon on your desktop by selecting (recommended) "Create a desktop shortcut". Click Next to continue



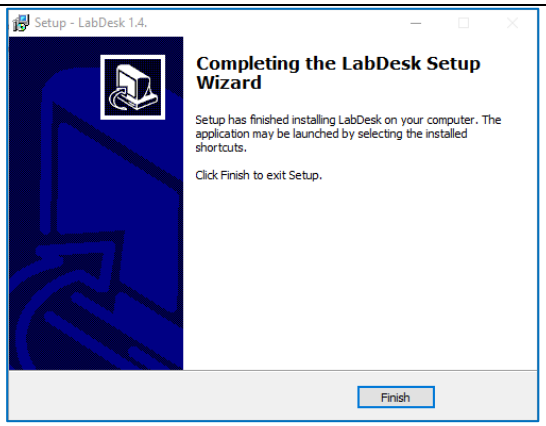
Confirm the start of installation in this window by pressing **Install**.



The installation progres is shown graphically.



If the installation proces ran correctly, a summary window will be displayed. Press **Finish**.



3.1 Ports used

The port used to communicate the LabDesk application with the SMART/SMART PRO device: **56000**, **56506**

4. FIRST START-UP

4.1 Application boot

- If **Create a desktop shortcut** was chosen during the installation process, the following shortcut will display on the desktop:

  click on it to start the installed program.

- If the option "Do not create a folder in the Start Menu" was not selected, the programs can be started by clicking Start→Programs→LabDesk.
- The program can also be started by clicking on the icons shown above and located in the installation folder. Default: "C: \ Program Files \ LabDesk.

4.2 Logging in

Working with the application is possible only by the logged-in user. To do this, click on the "Login" button.

Then, enter the name of user and password in the login window (*Figure 1*). During the first start-up you should enter:

login: admin

password: admin

Figure 1 – Logging in

It is recommended to change the password as soon as possible. It should contain uppercase and lowercase, symbols and numbers.

Information about changing the password is on *page 32*.

5. OPERATING THE APPLICATION

5.1 Main Menu

After the user has successfully logged in, the main application menu will be displayed (*Figure 2*). The items available in it depend on the rights of the logged in user

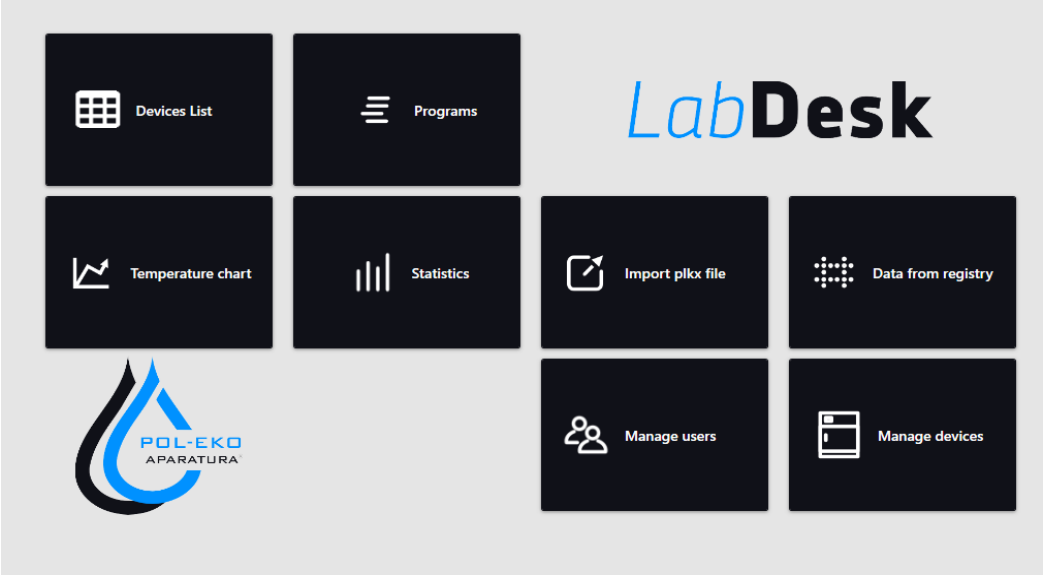


Figure 2 – Main menu

All links to the program's function panels are available in the main menu. The same links are available in the sidebar (*Figure 3*).

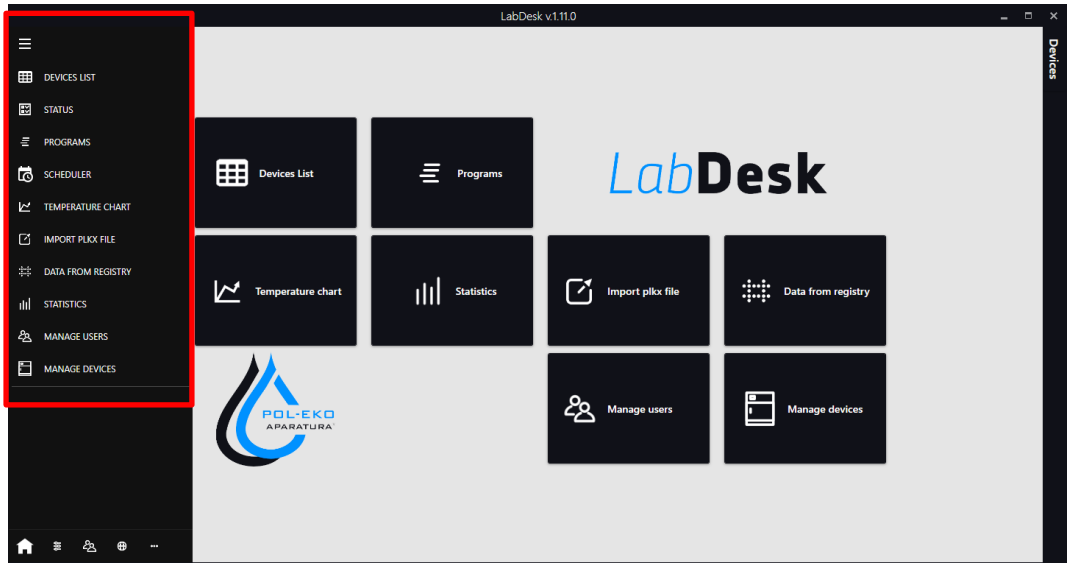


Figure 3 – Extended sidebar

The sidebar (*Figure 3*) enables quickly moving between panels. It is always available in every panel. In this section, the abbreviations contained in it will be described.

Extended sidebar	Statistics
List of devices	Manage users
Status	Manage devices
Programs	Main menu
Temperature chart	Settings
Import of PLKX file	Logged in user
Data from registry	Manufacturer's website

5.2 List of devices

This panel displays devices available to the logged-in user. A preview is available in the form of: - tabular or – tile . Change the view in the upper right corner of the screen.

5.2.1. List

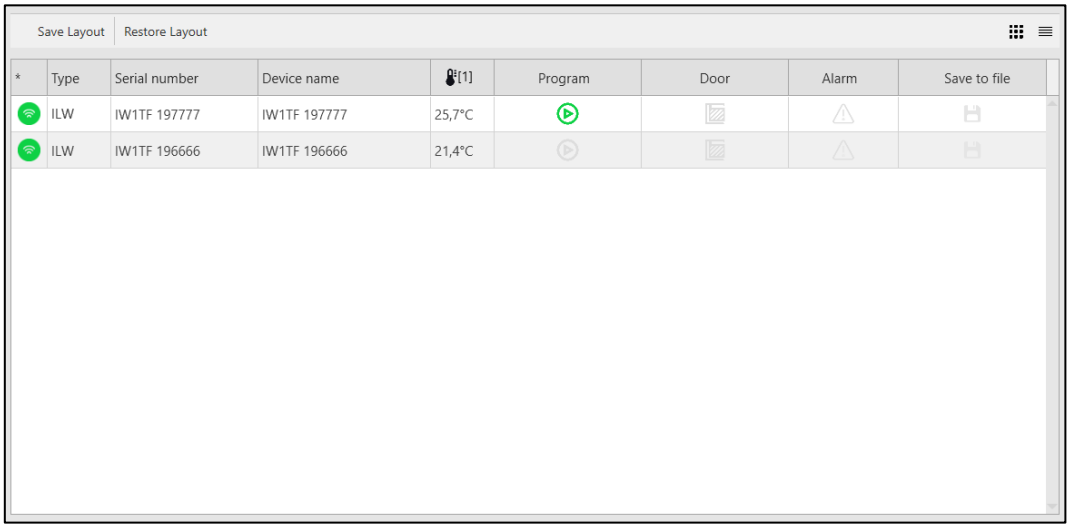


Figure 4 – List of devices

Available functions:

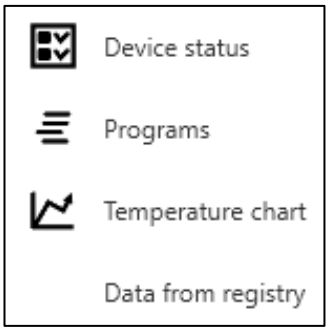
Save the diagram – saves the current column layout.

Restore layout – restores default column layout.

Save to file – clicking the icon starts recording on a regular basis to a file.

Concise header menu - available by right-clicking on the table header. Enables to quickly move to a chosen panel.

Concise device menu - available after right-clicking on the device's row. It allows you to move quickly to the selected panel.



5.2.2. Icons

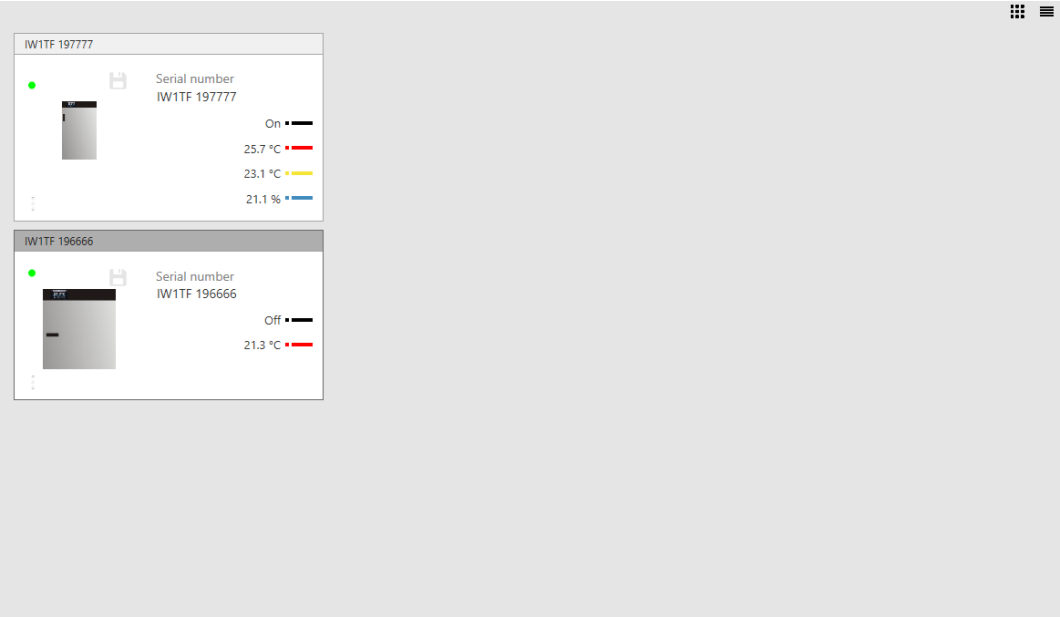


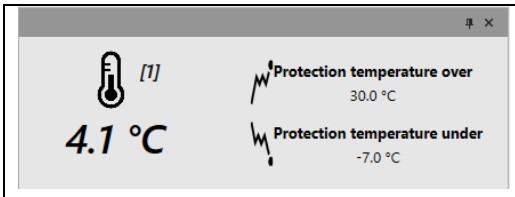
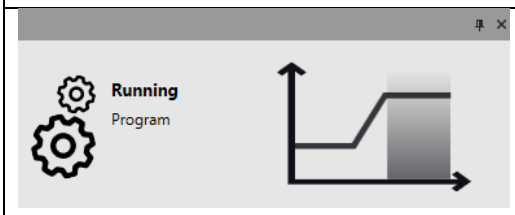
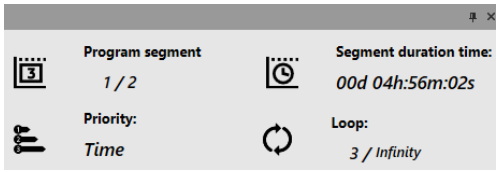
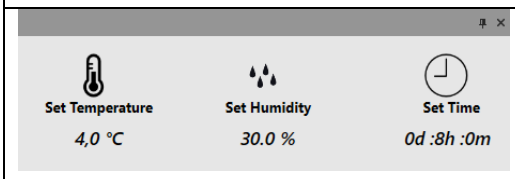
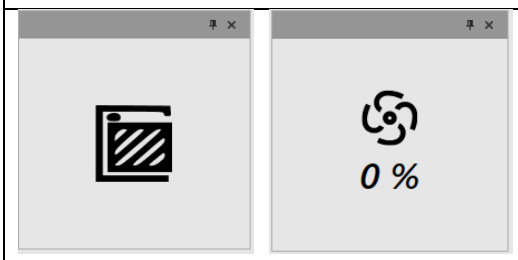
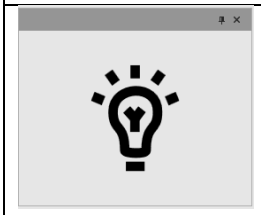
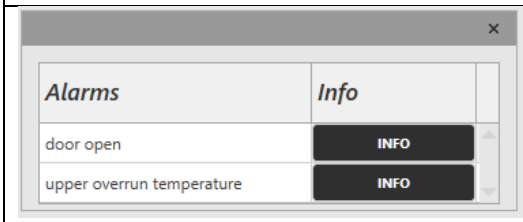
Figure 5 - Icons

Available functions:

Save to file – by clicking the icon starts recording on a current basis to a file.

5.3 Status

The "status" panel is used to monitor the currently running program and the status of the device. It consists of independent windows that can be moved and closed. To save the layout of windows, save it by clicking on **Save diagram**. The Restore Layout button restores the default layout of the windows.

	Current temperature, Over and under temperature protection
	Program status: works or is turned off Program stage: heating, cooling or maintaining the temperature.
	The program segment currently being executed, the selected priority, the duration of the segment, the number of the loop being executed.
	Given temperature, humidity and time. Current humidity.
	Door status: open or closed. Fan performance.
	Indicates that the internal lightning is on.
	List of active alarms. button **„INFORMATION"** – displays a preview of all instances of the selected alarm

5.4 Programs

Available only for SMART PRO devices.

In this panel (*Figure 6*) you can browse programs, add a new one or edit an existing program. The top menu is available:

D. START – planning the program launch according to set date and time.

START – starts the chosen program.

STOP – stops the program.

CREATE PROGRAM – launches the new program creator.

EDIT PROGRAMU –edits the chosen program.

PROGRAM OFFLINE – enables to create a program without connecting to the device (more information *page 19*).

DELETE PROGRAM – deletes the selected program.

5.4.1. Preview of the program list

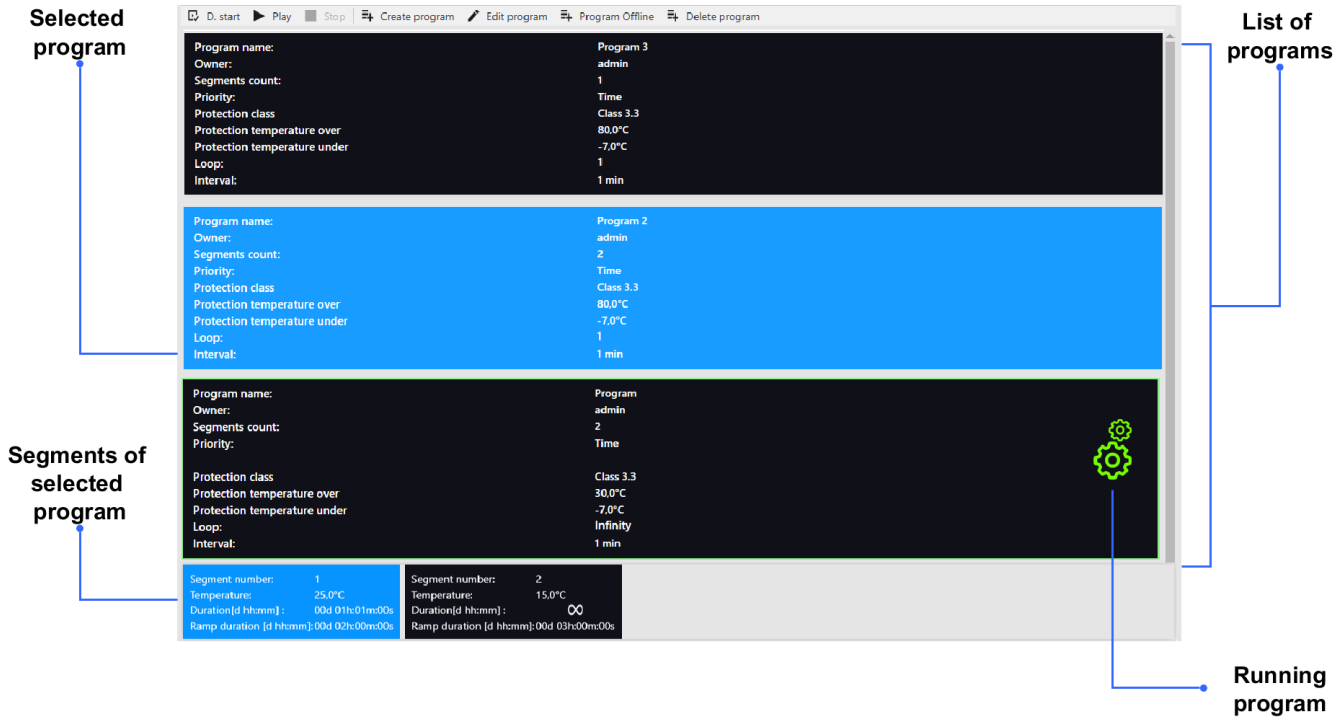


Figure 6 – Program list

5.4.2. Creating / edition of program

	A detailed description of the parameters set in the program can be found in the manual of SMART PRO devices.

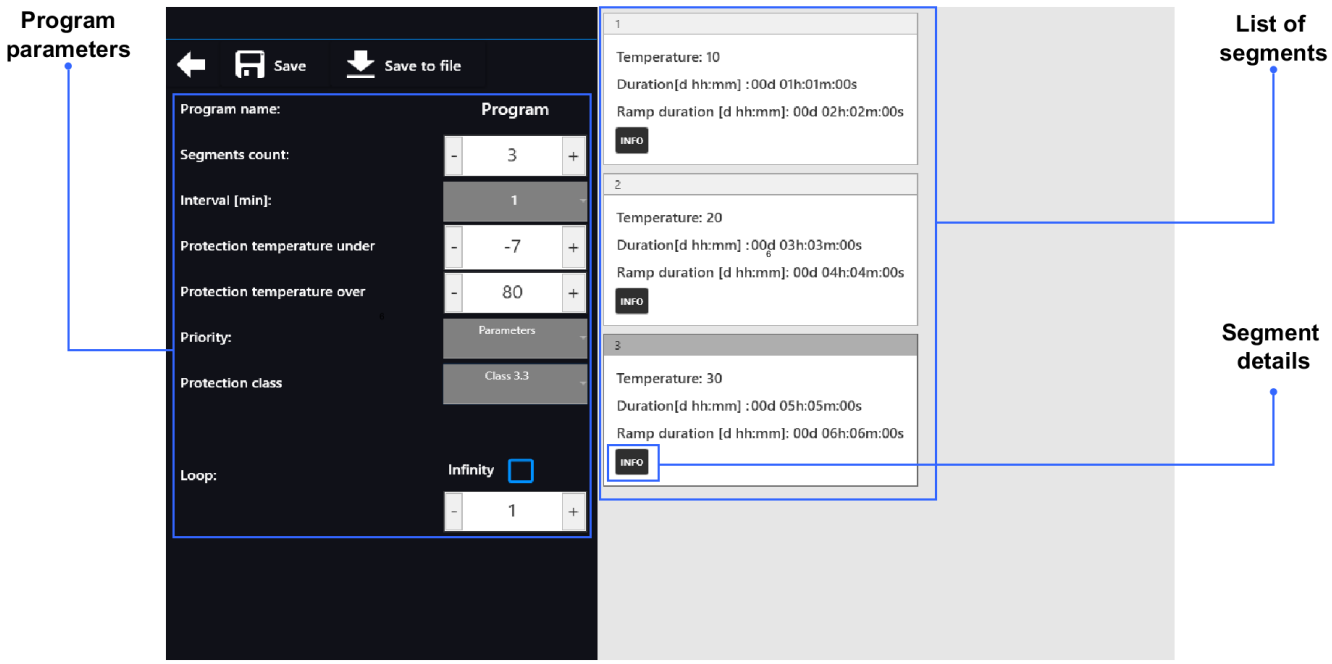


Figure 7 - Adding / edition of program

Click „**add a program**" or „**program edition**", and program creator will be displayed.

In the left part of window in the program Parametres you can set:

- **The name of program**.
- **Amount of segments**.
- **Interval [min]** – frequency of data saving to data register.
- **Lower temperature protection**.
- **Upper temperature protection**.
- **Priority** – time or parameres prioroty more information.
- **Protection mode** – the security class of the program.
- **Loop** – the number of program repetitions, more information.

Once all the above program parameters have been set, go to the List of segments in the right part of the window where you can edit individual segments.

By clicking INFO you can display / edit the detailed information about the segment. (*Figure 8*):

- **temperature**– target temperature which the device is to achieve in this segment (cannot be lower than the temperature of protection (under temperature) +2°C and higher than the temperature of the over-temperature -2°C),
- **duration of the segment –** time of maintaining the set temperature ([d hh:mm]) in days, hours and minutes, in the last segment you can choose continuous work,
- **ramp time** – time of maintaining the given temperature ([d hh:mm]) marked in days, hours and minutes.

The following parameters are available on selected models or as options available on request:

- **humidity –** maintaining the given humidity in percent,
- **fan –** fan efficiency in percent,
- **light –** setting the light in FOT / FIT devices,
- **ventilation pipe –** the level of ventilation pipe opening,
- **ramp fan –** efficiency of fan during maintaining the given temperature,
- **ramp pipe –** the degree of ventilation pipe opening during maintaining the given temperature**.**

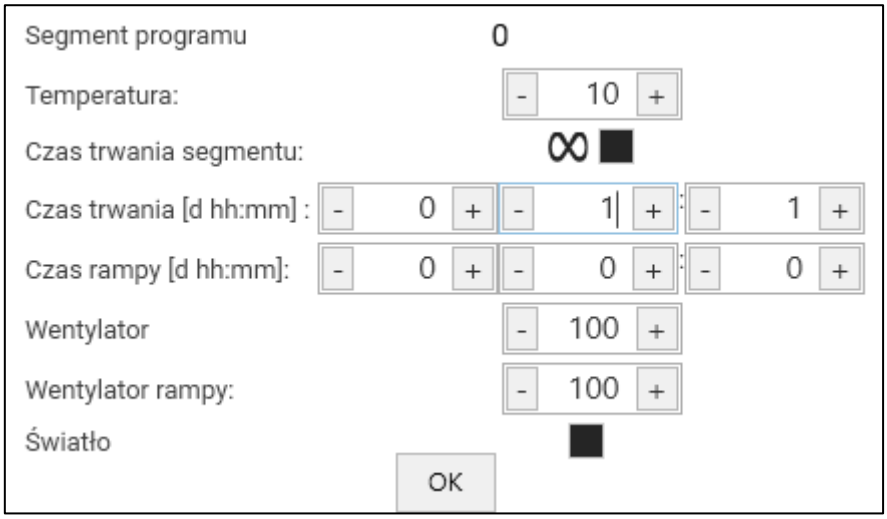


Figure 8 – Segment edition

Save - record of introduced changes in the program, available after passing through all segments.

5.4.3. Creating an offline program

The offline program gives opportunity to create a program without the necessity of connecting the device to the network or computer. You need a file with a configuration of the device for which the program is created. It can be created by following steps below:

1) Insert the USB flashdrive to selected device.
2) Log in.
3) Enter the „Info” panel.
4) In the window asking if you want to save the device ID to the data carrier, confirm by pressing ☑.
5) Remove the USB flashdrive and connect it to the computer with the LabDesk application installed.
6) Enter the „Programs” panel and click „Offline Program” .
7) In the file opening window select USB flashdrive and browse to the file saved on device. The file has a type, model and serial number in its name.
8) Create a program in the creator.
9) Click „Save to file” – program will be saved in the location specified in „Settings” in the section „Storage of device records” .
10) You can create several programs.
11) Transfer the saved file to the USB flashdrive.
12) Remove the USB flashdrive and insert to the device.
13) In the device enter „Main Menu” and the to programs panel.
14) Click the icon and then .
15) Select the saved program from the list.
16) The program will appear on the list.

The saved file with the program is only visible in this device based on which the configuration was created.

5.5 Schedules

Available only for SMART PRO devices.

Enables to create a list of programs which have to be implemented in the specific time intervals. There is san opportunity to create several independent schedules.

„Schedules" window (*Figure 9*) contains a list of all created schedules of and already logged in user. The calendar in the central part of the window contains programs set in the schedules on the particular days of the week.

Above the calendar we see the name of schedule (Week).

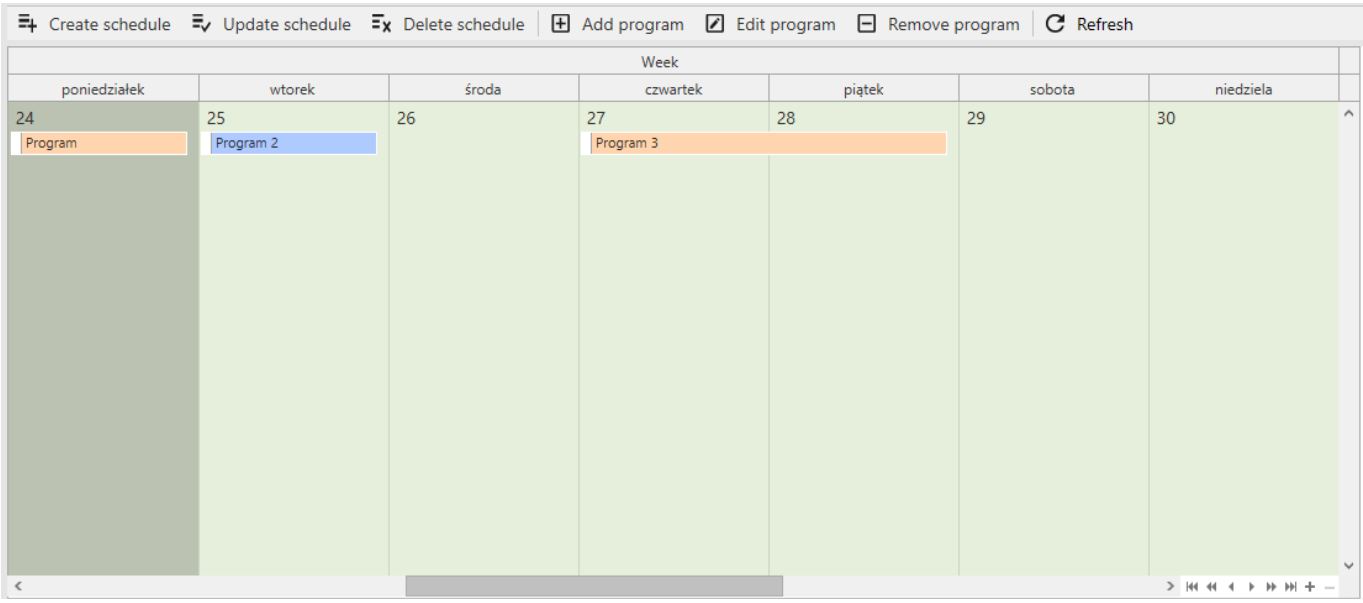


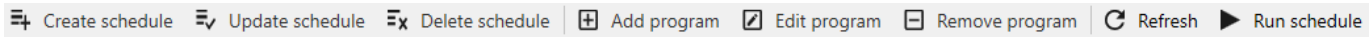
Figure 9 - "Schedules" window

	Before you start creating a schedule you should create programs which you want to find in it.

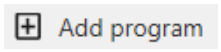
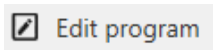
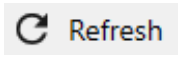
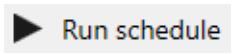
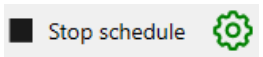
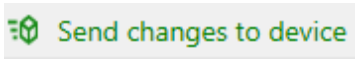
5.5.1. Top panel window schedule

Includes the name of schedule.

Panel which enables to add/edit/delete the programs in schedules and add/delete the schedules.



Options:

	Creation of schedule.
	Edition of schedule (eg. changing the name).
	Delete of schedule.
	Adding the program to schedule
	Editon of status in schedule.
	Delete the program from schedule.
	Enables to refresh the schedule window
	Starts the chosen schedule
	Stops the schedule
	Sending changes to the device (the option appears after making changes).

	After making changes click „send the changes to the device” in the schedule window.

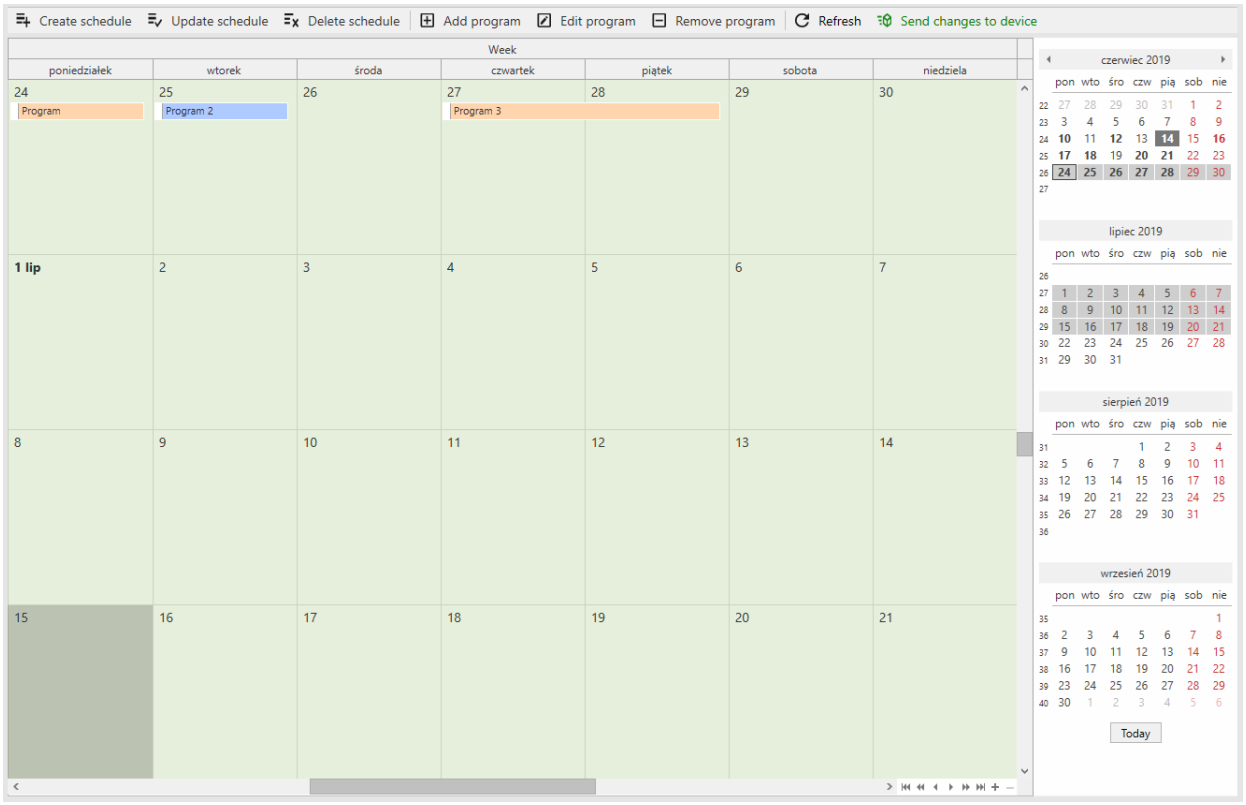


Figure 10 – The full window view of the schedules

The right bottom corner of schedule window contains navigation panel between the schedules.

The arrows are used to move between schedules in the calendar, while the + and - buttons are used to zoom out and zoom the calendar view.

The right side of the windows schedules shows a calendar in which we can set a specific date.

Use the "today" button below the calendar to set the current date.

5.5.2. Adding a program to the schedule

To add a program to the schedule click the „add a program" icon in the top part of schedule window, then the adding program window will be displayed. (*Figure 11*).

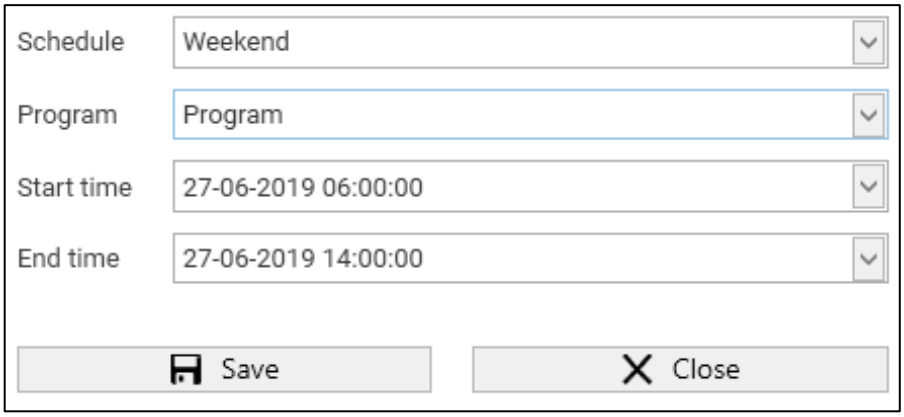


Figure 11 – Adding program window

Schedule - The name of the currently selected schedule.

Program - Contains the program which we want to assign to the schedule selected above.

Start time - Date and time of starting the program.

End time - Date and time of ending the program.

In order to change the program or schedule click the icon then the list of previously created schedules or programs will appear and they can be selected from the list.

Start and end times can be entered manually from the keyboard or click on the expand button, then a calendar will appear in which we can select the date we are interested in by clicking. (*Figure 12*).

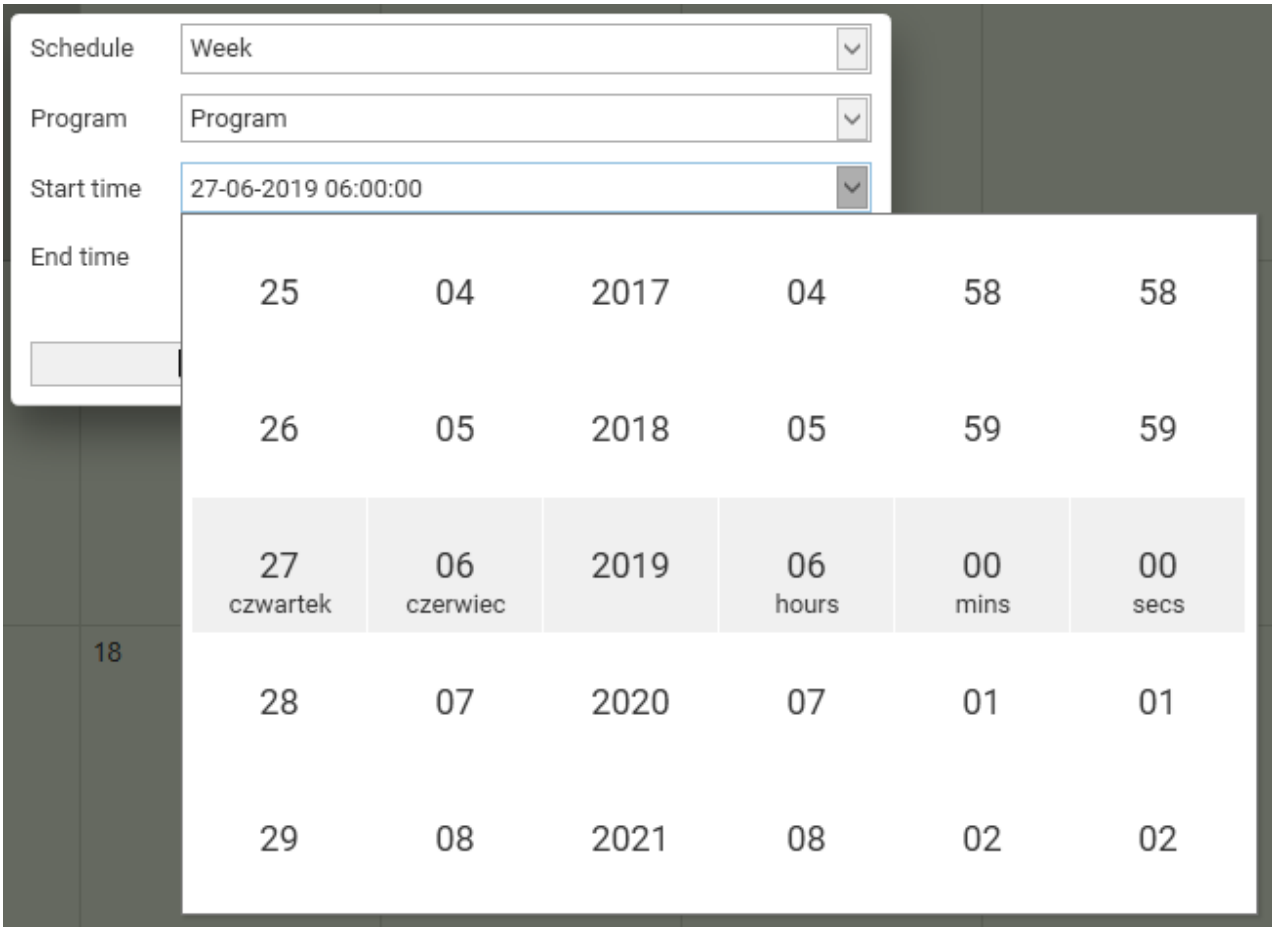


Figure 12 – Selecting the date, adding a program.

5.6 Temperature graph

In this panel you have a preview of the temperature and humidity that prevailed in the device at a given time in the form of a graph. In this panel, a graph is drawn from the data currently downloaded from the device. Drawing the graph starts when connected to the device and continues even if the graph panel is not displayed. Presented series of data depend on the type and equipment of the device with which we are connected. The data from the chart are download from the device once a minute.

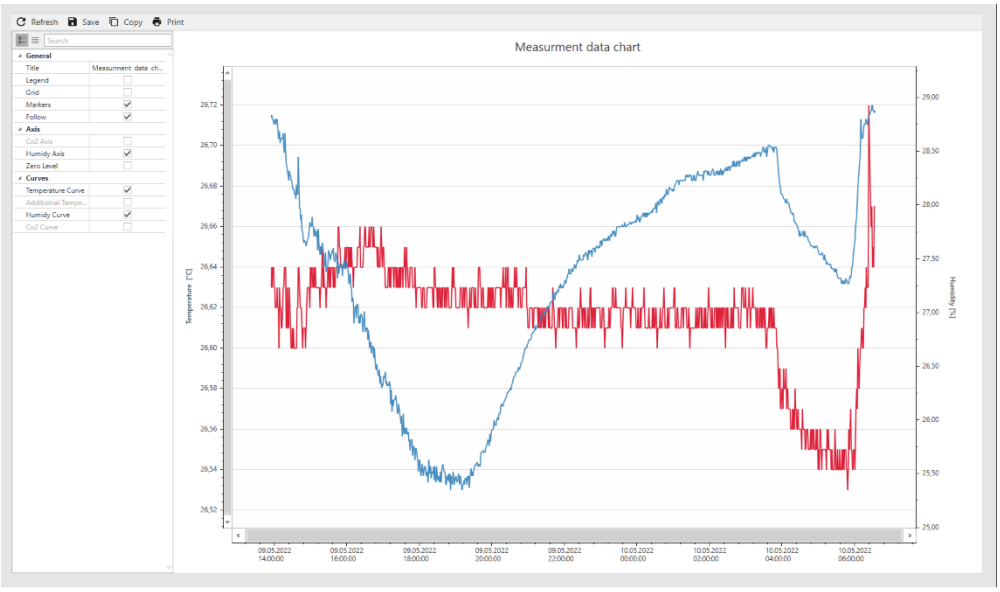
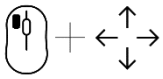


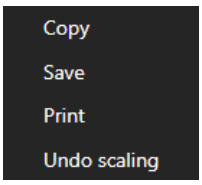
Figure 13 – Temperature graph

5.6.1. Mouse function in the chart:

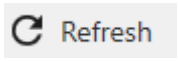
- scroll wheel – zoom in/out

 - left mouse button + move – move chart

- right mouse button – context menu



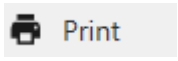
5.6.2. Upper menu:



- show all available data in a chart

- save current view to file

- copy current view to clipboard



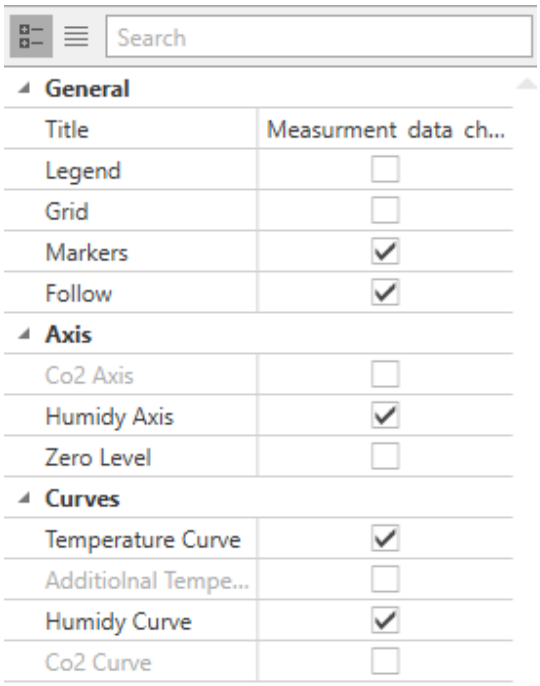
- print current view

5.6.3. Menu on the left:

Customizing the chart view.

- options divided into categories

- all options are visible



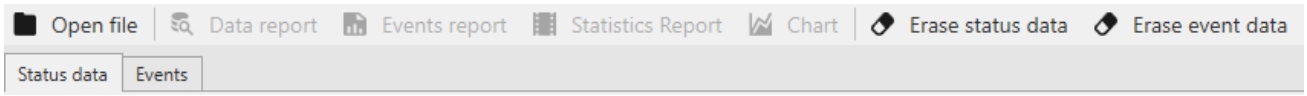
Options „**Additional Temperature**”, „**Humidity**”, „**CO2**” are available depending on the equipment of the device.

5.7 Import of PLKX file

Panel (*Figure 14*) enables the opening of *.plkx file which contains registered in the device:

- data: date and time, temperature of the main sensor, optionally the temperature of the additional sensor, relative humidity,
- events: date and time, event description, event priority, service code.

The following main menu is available:



Open file – opens a file with plkx extension.

Data report – opens a window with data report.

Events report – opens a widnow with events report.

Statistics report – opens a window with a report summarizing each segment of the program. It contains information about registration time, the number of samples, the registered minimum and maximum value and the avarage temperature value.

Chart – opens a window with a chart – available only for data.

Erase status data – closes a file with data.

Erase event data – closes a file with events.

Status data and Events – buttons that enable to switch between open files with data and events.

Saving the PLKX file on the device:

1) connect a USB flashdrive directly to the device.
2) enter the main menu and then to „**data register**" panel where you can download the registered data or to „**event register**" panel where you can download register data on the device.
3) Press the icon choose *.plkx type and confirm.
4) Connect the USB flashdrive to the computer and in LabDesk application click „**open file**" in the top left corner.

C:\Users\Documents\LabDesk\I5 198888 TOP_Registaryprograms.plkx

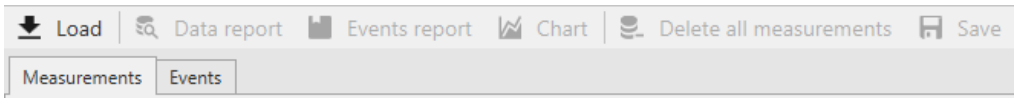
Date	Temperature	Program phase
2019-03-20 09:47:05	28,8°C	set temp.
2019-03-20 09:46:05	28,8°C	set temp.
2019-03-20 09:45:05	28,8°C	set temp.
2019-03-20 09:44:05	28,8°C	set temp.
2019-03-20 09:43:05	28,8°C	set temp.
2019-03-20 09:42:05	28,8°C	set temp.
2019-03-20 09:41:05	28,8°C	set temp.
2019-03-20 09:40:05	28,8°C	set temp.
2019-03-20 09:39:05	28,8°C	set temp.
2019-03-20 09:38:05	28,8°C	set temp.
2019-03-20 09:37:05	28,8°C	set temp.
2019-03-20 09:36:05	28,8°C	set temp.
2019-03-20 09:35:05	28,8°C	set temp.
2019-03-20 09:34:05	28,8°C	set temp.
2019-03-20 09:33:05	28,8°C	set temp.
2019-03-20 09:32:05	28,8°C	set temp.
2019-03-20 09:31:05	28,8°C	set temp.
2019-03-20 09:30:05	28,8°C	set temp.
2019-03-20 09:29:05	28,8°C	set temp.

Figure 14 – Import of PLKX file

5.8 Register data

Panel (*Figure 15*) enables to download registered data and events from the device.

The following menu is available:



Load – downloads registered data and events from the device.

Data report – opens a window with data report.

Events report – opens a window with events report.

Chart – opens a window with a graph – available only for data.

Delete all measurements – deletes all the measurements on the device.

Delete data register – deletes all the events on the device.

Save – saves the downloaded date in the location specified in the settings.

To download data/events in the right panel with the list of devices, select the device and click Connect. Then click **"LOAD",** the recorded data and events will be downloaded.

Clicking one of the DELETE options erases the data on the device irretrievably. Therefore, it is recommended to download and save data and events before this.

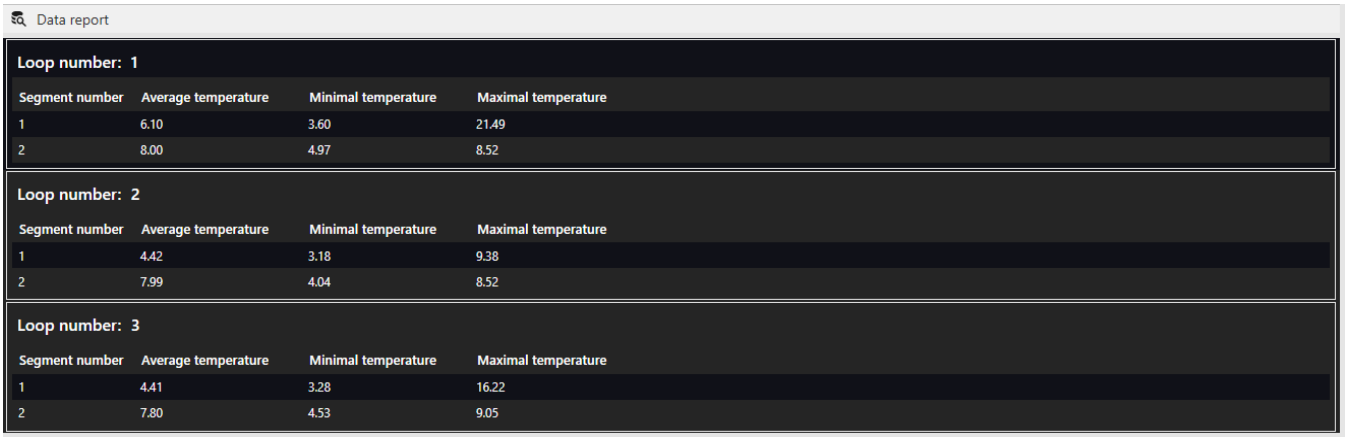
Measurements | Events

Date	Temperature	Program phase	Additional
2019-06-14 14:59:24	7,5°C	set temp.	29,9°C
2019-06-14 14:58:24	8,3°C	set temp.	30,0°C
2019-06-14 14:57:24	8,4°C	set temp.	29,7°C
2019-06-14 14:56:24	8,0°C	set temp.	27,8°C
2019-06-14 14:55:24	7,6°C	set temp.	29,2°C
2019-06-14 14:54:24	8,2°C	set temp.	29,5°C
2019-06-14 14:53:24	8,4°C	set temp.	28,8°C
2019-06-14 14:52:24	8,0°C	set temp.	27,0°C
2019-06-14 14:51:24	7,6°C	set temp.	28,6°C
2019-06-14 14:50:24	8,1°C	set temp.	30,2°C
2019-06-14 14:49:24	9,1°C	set temp.	30,2°C
2019-06-14 14:48:24	8,5°C	set temp.	29,8°C
2019-06-14 14:47:24	8,1°C	set temp.	28,2°C
2019-06-14 14:46:24	7,6°C	set temp.	28,4°C
2019-06-14 14:45:24	7,8°C	set temp.	30,8°C
2019-06-14 14:44:24	8,5°C	set temp.	30,0°C
2019-06-14 14:43:24	8,3°C	set temp.	29,1°C
2019-06-14 14:42:24	7,8°C	set temp.	27,7°C
2019-06-14 14:41:24	7,5°C	set temp.	29,8°C
2019-06-14 14:40:24	8,3°C	set temp.	30,1°C

Figure 15 – Downloaded data

5.9 Statistics

In this panel (*Figure 16*) statistics are downloaded from the device and displayed, on the currently running program or program that has ended. Statistics are calculated separately for each segment and separately for each cycle. Data logging starts for calculation after 30 seconds from reaching the set temperature in the segment. The next data is registered every 1 minute. Statistical data is retrieved from the device.


Data report

Loop number: 1

Segment number	Average temperature	Minimal temperature	Maximal temperature
1	6.10	3.60	21.49
2	8.00	4.97	8.52

Loop number: 2

Segment number	Average temperature	Minimal temperature	Maximal temperature
1	4.42	3.18	9.38
2	7.99	4.04	8.52

Loop number: 3

Segment number	Average temperature	Minimal temperature	Maximal temperature
1	4.41	3.28	16.22
2	7.80	4.53	9.05

Figure 16 – Statistics

5.10 Manage the users

Panel (*Figure 17*) is used to manage users of LabDesk application and allows to connect them with users available in devices

The top menu is available:

Add user – adds a new LabDesk user.

Edit user – allows to change data.

Delete user – deletes LabDesk user.

Assign devices – allows you to assign the LabDesk application to the user of the connected device.

Delete device connection – allows you to delete the user's connection to the device.

After entering the panel, users have a panel divided into two windows and a taskbar at the top. The upper window contains information about the created users and the bottom window contains information about the devices assigned to them.

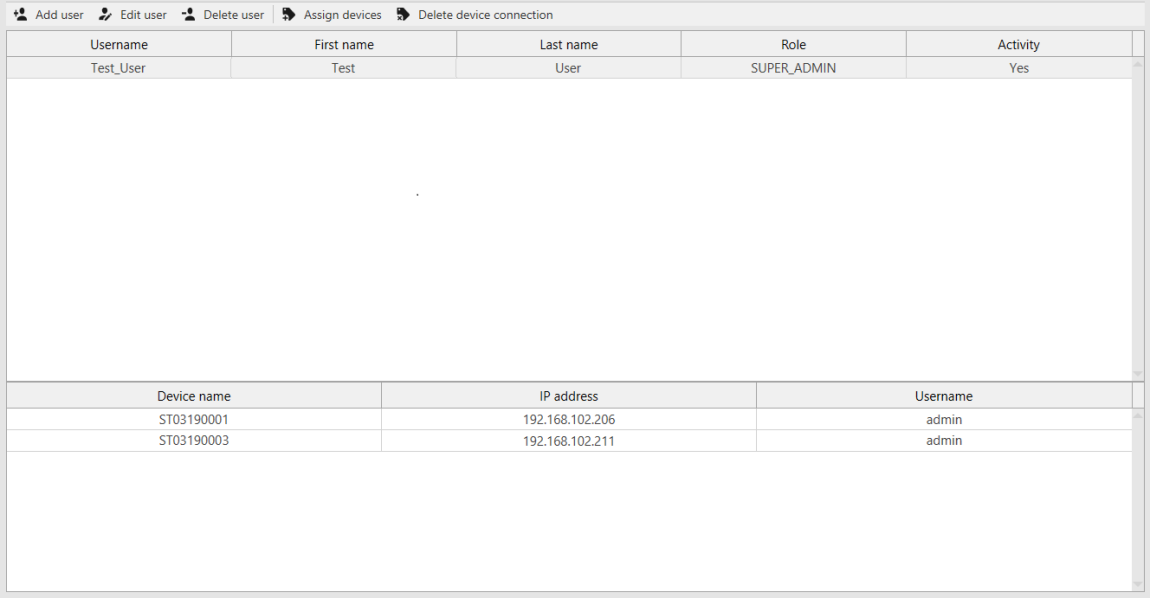


Figure 17 – Manage the users

5.10.1. User creation / edition

Click **Add a user** lub **Edit a user**, a creator will display *(Figure 18*) where in the following windows you can enter the name and user data, select the role and enter the password. All fields must be filled out.

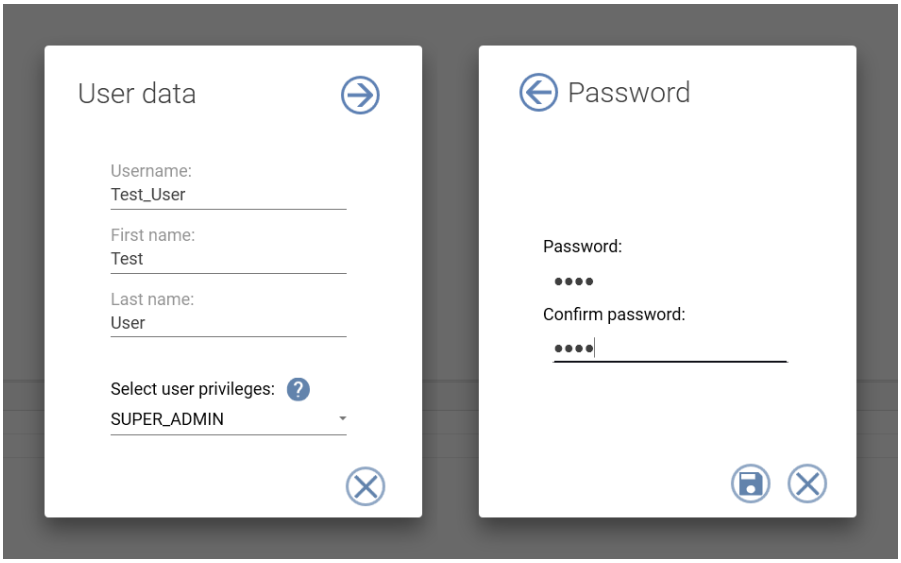


Figure 18 – User edition

5.10.2. Assigning devices

In order for the user to be able to connect to a given device, it must be associated with the user on the device. To do this, go to the **"manage users"** panel and then click **"Assign devices".** A wizard will be launched where in the subsequent windows select the device and the user with whom you want to link it.

Figure 19 – Connecting to a device

5.11 Manage devices

Panel (*Figure 20*) enables managing the devices available in the application. The panel is divided in two parts: the upper part displays added devices, the lower one enables searching and adding new devices. (*page* ***Błąd! Nie zdefiniowano zakładki.***).

The following top menu is available:

Refresh – refreshes the list of available devices,

Add device – adds a new device to the LabDesk application (the device must be running and connected to the network),

Edit device – enables to change the address or description of the device,

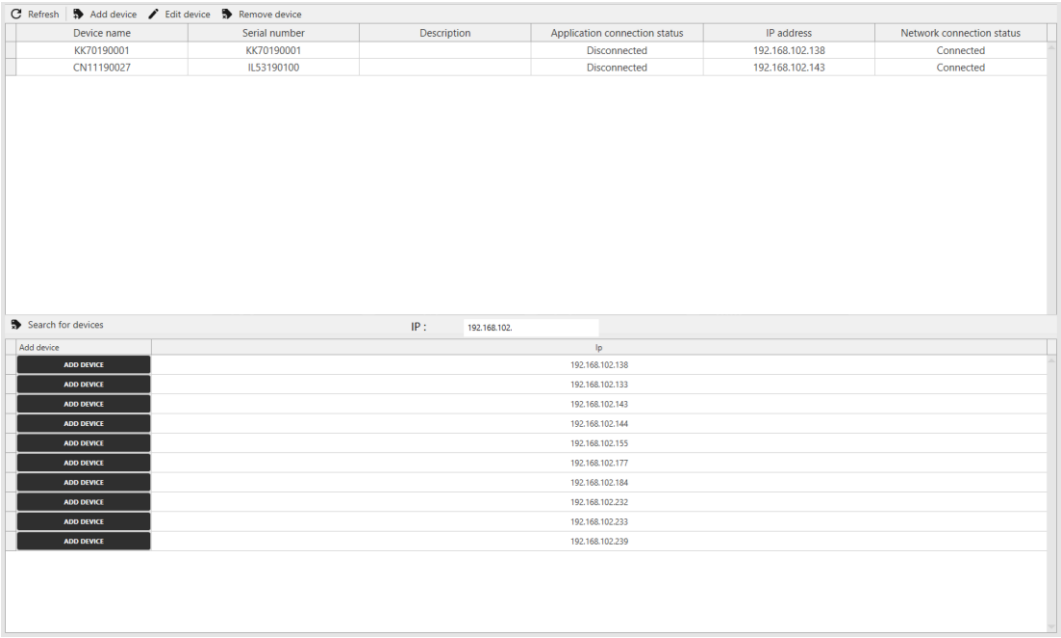


Figure 20 – Managing devices

Remove device – removes the device from the list.

Device name – the name given in the device (Main menu -> Panel),

Description – the description of the device provided in the LabDesk application during adding or edition of the device,

Application connection status – „Connected” means that the LabDesk application is currently connected to the device,

IP address – IP address of the device,

Network connection status – „Connected” means that the device is running and conncted to the network.

5.11.1. Searching for devices

At the bottom of: „Manage devices” enter the subnetwork address which you are going to search and click „search device”

5.11.2. Adding a device

1) Click „**add a device**” on the toolbar or in the list of found devices.
2) Enter IP address and description (optionally) in the new window *Figure 21.*
3) Click **„confirm”** to add the device to the list.
4) After adding, a wizard will be displayed that facilitates linking the logged user with the user on the device *Figure 22*.

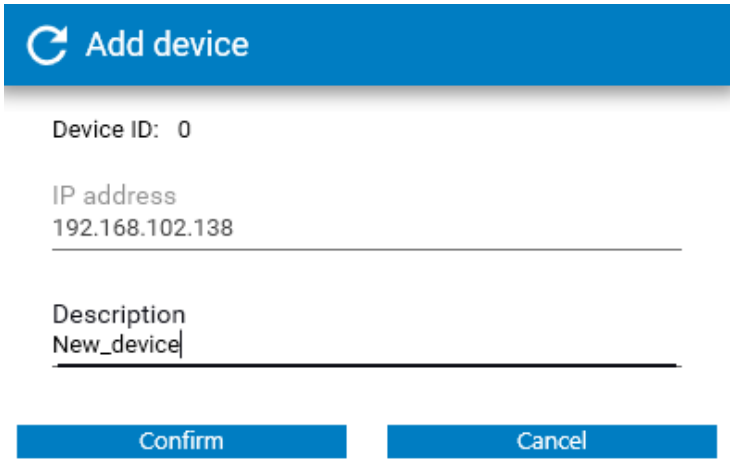


Figure 21 – Adding a device

Figure 22 – Assigning a user

5.11.3. Connecting to a device

When you're done assigning the device to the user, go to the connection with the previously assigned device. To do this, click on "**Devices"** on the right side of the menu (you can do this from each panel). During the first call you will be asked to enter the login and password from the device.

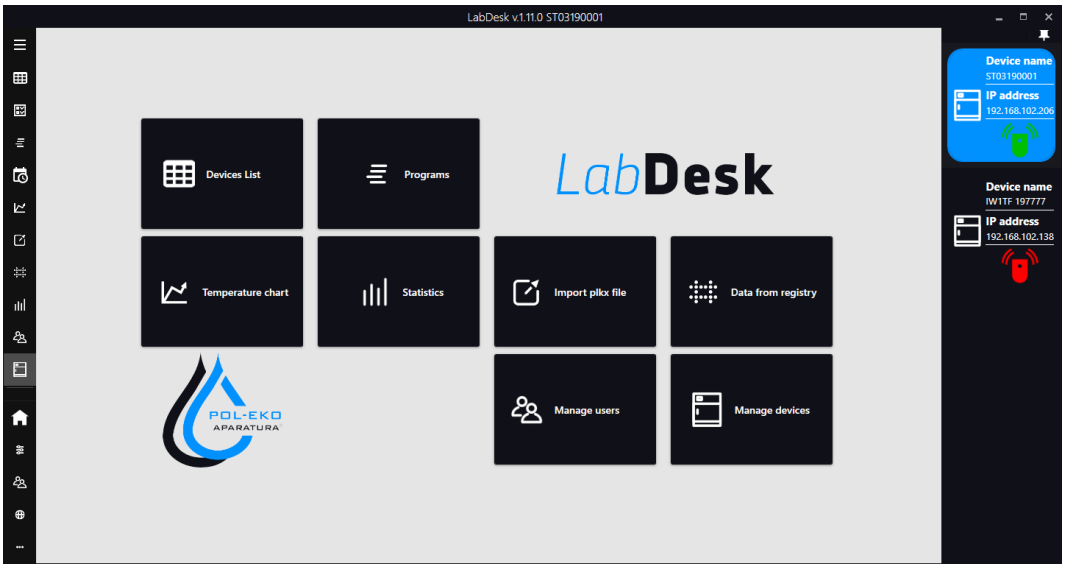


Figure 23 – Connecting to a device

This tab can be permanently attached to the program using this icon .

To connect with a selected device click this icon . When the program connects with a device, the icon will change into green .

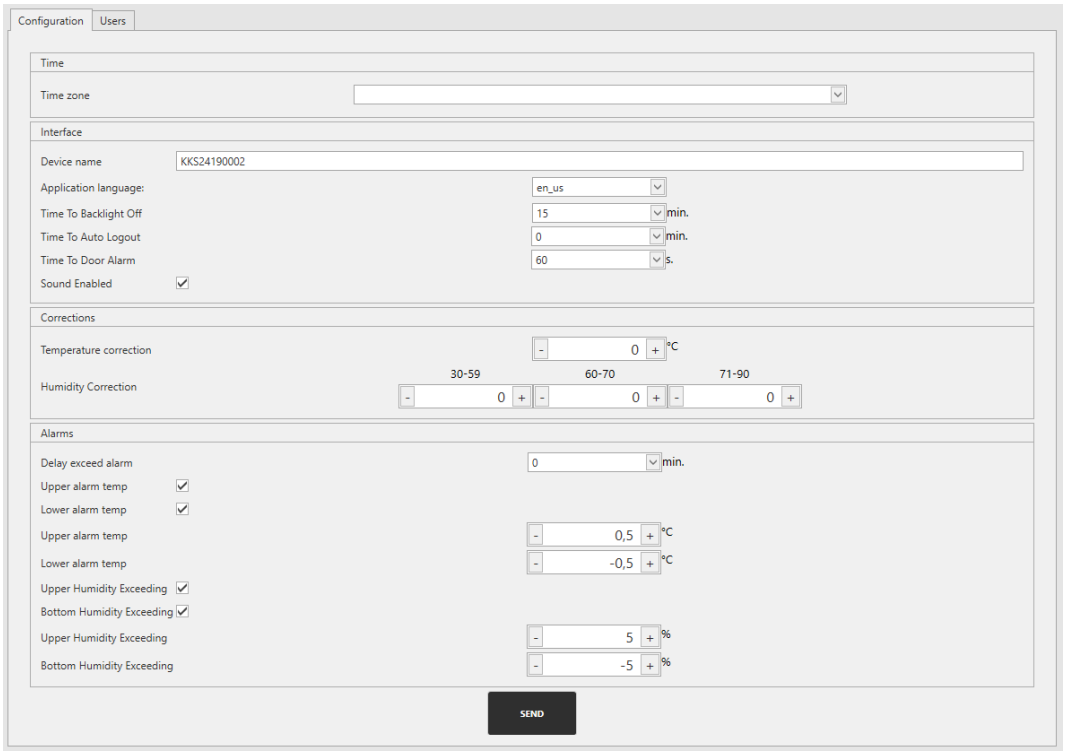
5.12 Device settings

Available only for SMART PRO devices.

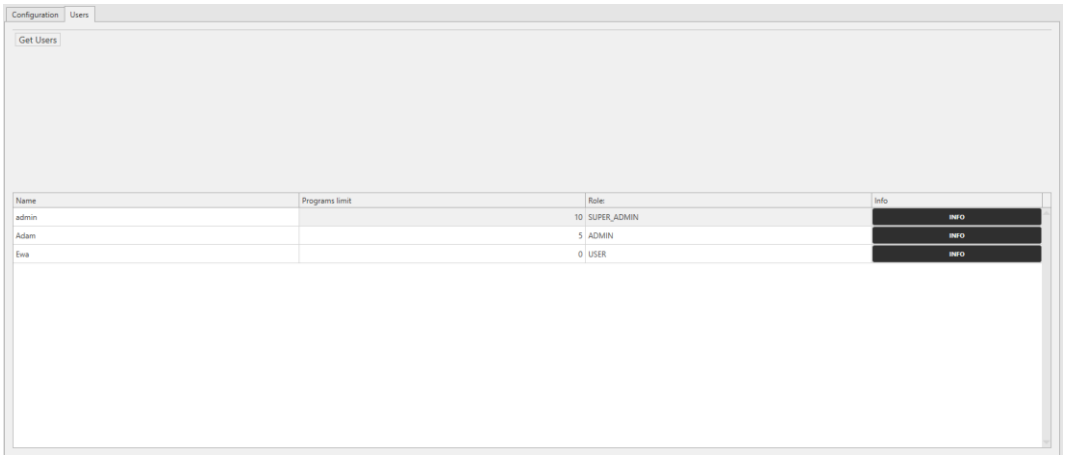
This window allows:

- setup the unit – Configuration tab,
- edit a user's account in device – User tab.

All device's settings are identical to the settings described in detail in the SMART PRO instruction manual.



Rysunek 25 – device settings



Rysunek 24 – edit a user's account in device

5.13 Settings and information

The settings and information bar can be found in the lower left corner in the main menu.

displays main menu.

displays application settings panel.

displays infomation about the logged user (name, surname, assigned role).

redirects to manufacturer's website.

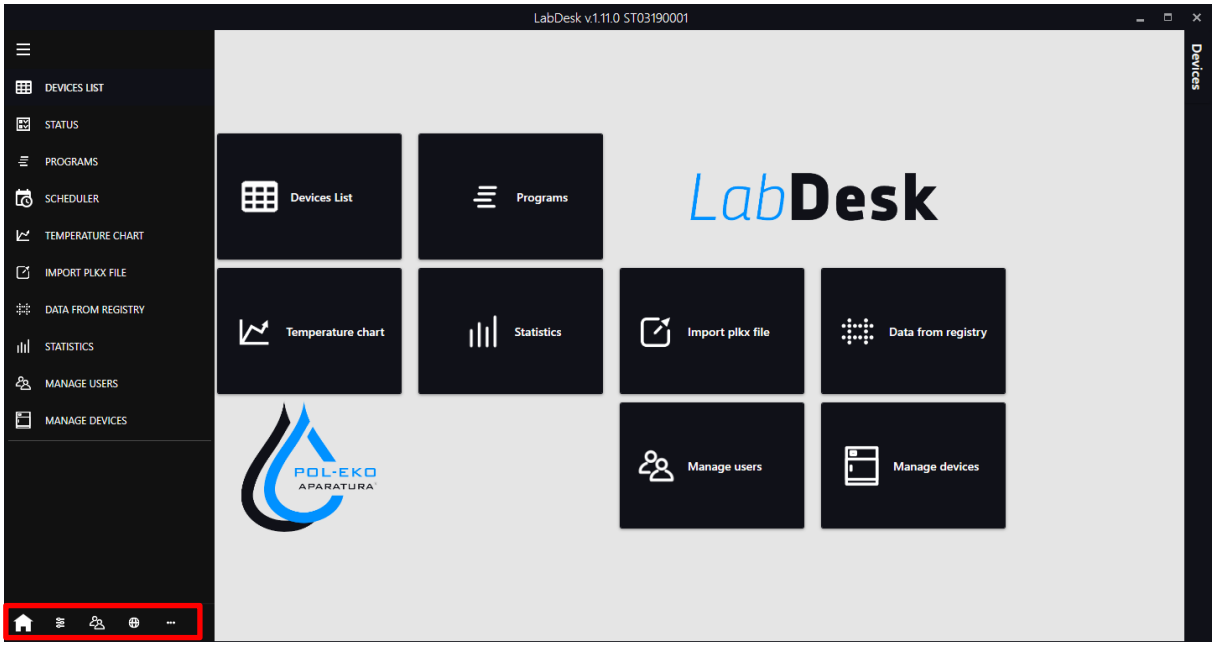


Figure 26 - Menu

5.13.1. Settings

Allows you to change LabDesk settings. Here you can set the following things:

- Program language,
- Enable or disable deletion of data after disconnection with the device,
- Start window – the default window displayed after running the application,
- Database –database file, default location after installation: C:\LabDeskDataBase,
- The frequency of device temperature refresh,
- Device record storing – a folder in whcih data registered on a regular basis or downloaded from the device will be saved.

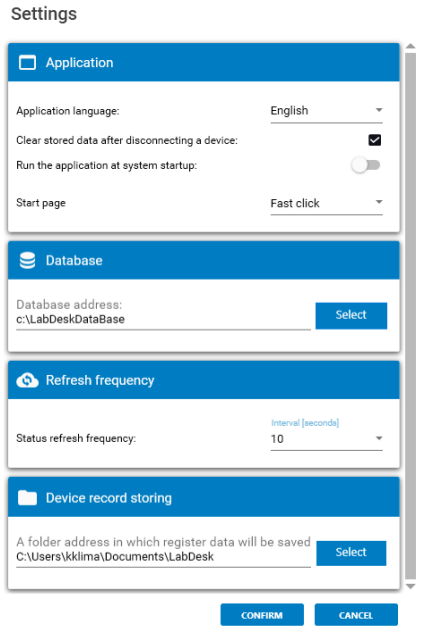


Figure 27 – Settings

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