

User Manual

Labcycler Pro



SENSOQUEST

SensoQuest GmbH · www.sensoquest.de

Hannah-Vogt-Straße 1 · 37085 Göttingen · Germany

Tel. Sales +49 176 66646603 · Fax: +49 551 389195-24

Tel. Service: +49 551 389195-23

E-Mail: info@sensoquest.de

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1 General

1.1 Introduction

Thank you for choosing the Labcyclers Pro thermocycler. Please follow the safety instructions and the regulations in the user manual.

The Labcycler Pro is a thermalcycler used for thermal reactions in a controlled manner in sample carriers of size 0.5 ml, 0.2 ml, 96 well microtiter plates and 384 well microtiter plates.

1.2 Scope of Delivery

- Labcycler Pro & sealing pad
- Power cable
- User manual

1.3 Contact

SensoQuest GmbH
Hannah-Vogt-Str. 1
37085 Göttingen
Germany

www.sensoquest.de

1.4 Technical Data

Display	7" diagonal, 1280 x 800 pixel, color deep 16.7 M. IPS technology, capacitive multi-touch
Heated lid	Electric motor, Programmable pressure: 0 to 120 N, Heatable up to 110 °C
Keypad	Virtual keypad
Languages	English, German, Spanish
Storage capacity	1 GB, more than 10.000 programs
Programming	Tabular and graphical History memory for reconstruction
Temperature	Minus 5.0 °C to 99.9 °C
Homogeneity	± 0.25 °C at 55 °C, ± 0.4 °C at 95 °C

Gradient	Nearly linear, $\pm 40\text{ }^{\circ}\text{C}$ from left to right, Basic without Gradient
Ramp rate	$0.001\text{ }^{\circ}\text{C/s} - 4.2\text{ }^{\circ}\text{C/s}$
De(In)crements	Time: $\pm 99.99\text{ s}$, temperature: $\pm 9.99\text{ }^{\circ}\text{C}$
Instant Incubation	Yes, e.g. at $0.0\text{ }^{\circ}\text{C}$, $26\text{ }^{\circ}\text{C}$, $37\text{ }^{\circ}\text{C}$, etc.
Password protection	Configurable rights for up to 64 users, Read & Execute, Write & Delete, Administrator (Soon available via update)
Copy functions	With Labcycler Basic, Labcycler Gradient, Labcycler Pro Basic & Labcycler Pro Gradient Labcycler 48
Connectors	2 x USB 2.0, LAN RJ45 100 MB, RS232 DSub 9
Line voltage	90 V to 265 V without switching, 50 to 60 Hz
Power consumption	Maximum 350 W, standby 25 W
Noise	Idle 38 dBA, typical 44 dBA, maximum 48 dBA
Dimension	Length 44 cm, width 25 cm, height 20 cm
Weight	11.2 kg

1.5 Warranty

Providing the Labcycler Pro has been used correctly, if within a period of five years from the date of purchase of SensoQuest or an authorized SensoQuest specialist supplier, this product is deemed faulty, it will be repaired or replaced according to judgement by SensoQuest. The warranty is not valid in the following cases in which the customer is responsible to pay for the repair costs even if the faults occur within the warranty period.

- Any fault which is caused by improper operation.
- Any fault which is caused by unprofessional repair, improper use or incorrect cleaning.
- Any fault which is caused by poor transport, dropping or improper storage after buying the product.
- Any fault, which is caused by fire, earthquake, flooding, lightning other natural disaster, environmental pollution or overvoltage on the power supply.

The responsibility of SensoQuest is restricted to repair or displacement of the Labcycler Pro. Any liability for indirect or consequential damages of any kind incurred by the customer or suffered as a result of a defect in the product is excluded. This also applies to damages due to lost business profits, interruption of business activities and loss of business information resulting from the use or inability to use the Labcycler Pro.

1.6 Order Information

Product	Order number
Labcycler Pro Gradient (without block)	015-101
Labcycler Pro Basic (without block, without gradient function)	015-103
Thermoblock 384, Silver	012-101
Thermoblock 48, Silver	012-102
Thermoblock 96, Silver	012-103
Triple Block, Aluminium	012-104
In situ Block, Aluminium	012-107
Thermoblock 96 alu, Aluminium	012-108
Passive Lid for a single subblock (1x21 wells) of the Triple Blocks	012-201
Sealing pad for Thermoblock 96 & 384	012-701

2 Initial Use

2.1 Safety Instructions



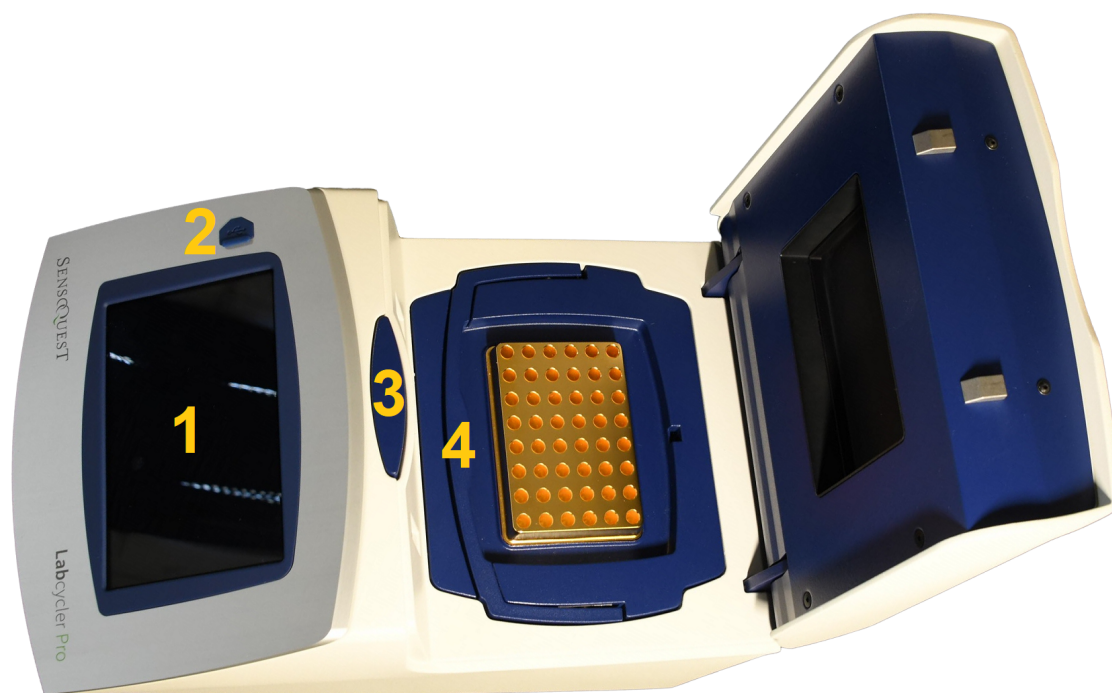
- The Labcycler Pro may only be used for the intended purpose as detailed in the instruction manual and only after you have familiarized yourself with its operation.
- Wear safety gloves against heat if you work with the Labcycler Pro. Especially the active and passive lids can store heat.
- Only use the Labcycler Pro in closed rooms with normal air humidity. No liquids may penetrate into the interior of the device.
- Do not insert any objects into the device through the cooling slots, as these could come into contact with electrically charged parts or block moving parts.
- Never touch hot parts of the Labcycler Pro, especially the heating surface at the lid or the blocks.
- Use thermal safety gloves when handling the passive heating lids of the Triple Block. Do not touch the moving metal insert or the screws on the long side as there is a risk of burns. Only touch the short sides of the black plastic body.
- Do not touch moving parts like the active lid or the fans.
- The Labcycler Pro contains parts that may be under high electrical voltage. Attention! High-voltage capacitors may still be charged with high voltage long after the power cord is unplugged. Only trained specialists are allowed to open the device.
- Before cleaning, always disconnect the power plug and wait 30 minutes for the device to cool down.
- Defective devices must be returned to the manufacturer or a service center authorized by SensoQuest GmbH for repair.
- Chemically, radioactive or biologic contaminated devices must not be sent to the manufacturer and will not be accepted by the manufacturer. Any resulting costs are to be borne by the sender!

2.2 Set up

- If the Labcycler Pro is moved from a cold place to a warmer room, it must not be used for 3 hours to enable any condensing humidity to evaporate.

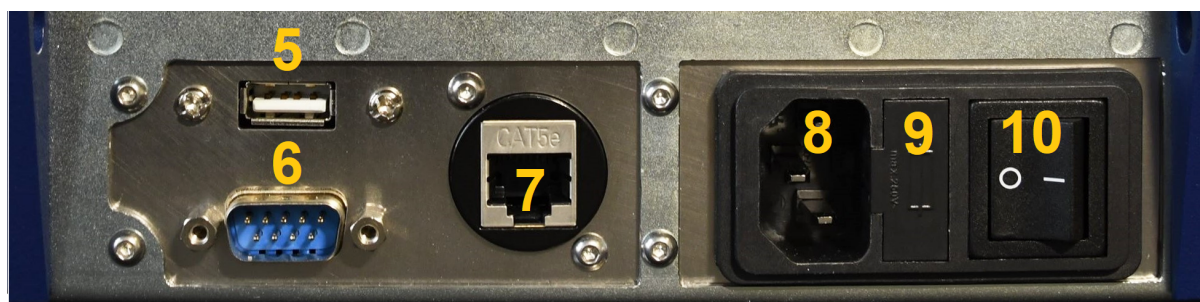
- The Labcycler Pro should be placed upon a hard flat surface e.g. a table.
- There must be at least 10 cm of space behind the device.
- There must be no tablecloths, paper or foil underneath the device.
- There must be enough space at the top of the device to open the lid.

2.3 Operating Elements



Front and Top

- 1 TFT Display with capacitive touch panel
- 2 USB connector No. 1
- 3 Lid unlocking key
- 4 Block change handle



Back

- 5 USB connector No. 2
- 6 RS232 connector

7 Network socket

8 Power socket

9 Primary fuses

10 Main switch

2.4 Power Supply

Only use a Schuko plug socket for the power connection.

The line voltage for the Labcycler Pro must be between 90 V and 265 V with a line frequency between 50 Hz and 60 Hz.

2.5 Initial Start up

1. Use the power cable to connect the power socket on the back of the device ([see operating elements Labcycler Pro \(8\)](#)) to the mains power supply.
2. Switch on the device using the main switch (10) on the back of the device. Position 0 = off; Position I = on.
3. After switching on, the Labcycler Pro shows the power-on screen on the display while it performs self-tests. Once the tests are complete, the main window with the six tiles appears.
4. The software can be easily operated by **briefly** tapping and swiping with a finger on the display. However, if you prefer to use a touch pen, it must be suitable for capacitive touch displays.

2.6 Block Change

To remove the block:

1. **The Labcycler Pro must always be switched off when changing blocks!**
If a program is still running, wait for it to finish or cancel the program run.
Switch off the device ([see operating elements \(10\)](#)).
2. Open the lid completely with the lid unlocking key (3).
3. Grasp the middle of the handle bar (4) of the block, turn it upwards and lift the block vertically.
 - Do not put anything at the top of the block.
 - Do not drop anything into the lifting hole.
 - Do not grip into the ventilators.

To insert the block:

1. Switch off the device ([see operating elements \(10\)](#)).
2. Lift the block by the handle bar (4) and hold it over the place for the block in the Labcycler Pro. The lower rest position for the handle shall face the front of the device. The block was constructed in a way that an incorrect insertion is not possible.
3. Insert the block vertically into the lifting hole.
4. If the connectors contact their counterpart carefully turn the handle down. Do not use force when inserting.
5. You can now switch on the Labcycler Pro and use it. The device first carries out a self-test. The Labcycler Pro automatically detects the type of the block.

2.7 Reaction Tubes and Compatibility

The Thermoblocks 48, 96, and 384 are compatible with the most standard test tubes and microtiterplates. The tubes used simultaneously must be identical. This is especially important when using the sub-blocks of the Triple Block.

Flat cap tubes should be used because the contact to the heated lid is much better. All blocks should be loaded symmetrically. It is advisable to put empty tubes in the corners of the blocks or, in the case of the Triple Block, in the sub-blocks.

Attached is a list of some selected reaction tubes whose compatibility with the 48-, 96- and 384-well block has been checked.

2.7.1 Compatibility 48 well block, 0.5 single tubes

Thermo Fischer - Scientific	AB-0350
Bio-Budget - Technologies	my-Budget PCR-Tubes 0,5 ml, cat. no. 20-3-110-50-0
Greiner bio-one	Cat. no. 682201

2.7.2 Compatibility 96 well block, 0.2 single tubes

Thermo Fischer - Scientific	AB-0620
Bio-Budget - Technologies	my-Budget PCR-Tubes 0,2 ml, cat. no. 34-120-1000
Greiner bio-one	Cat. no. 683201
Kisker Biotech	G-001 (serial)

2.7.3 Compatibility 96 well block, stripes

Thermo Fischer - Scientific	AB-0266, AB-0624, AB-0648, AB-0866, AB-1183
Bio-Budget - Technologies	my-Budget 8er-Strips, cat. no. 34-250-0310
Greiner bio-one	Cat. no. 673210
Kisker Biotech	G-002 (serial)

2.7.4 Compatibility 96 well block, plates

Thermo Fischer - Scientific	AB-0600, AB-0700, AB-0731, AB-0800, AB-900, AB-990, AB-1100, AB-1300, AB-1400, AB-1500, AB-1900, AB-2800
Bio-Budget - Technologies	my-Budget "96 well" PCR-plates, cat. no. 30-SP-9600, my-Budget "96 well" PCR-plates, (Skirted), 30-SP-0037, my-Budget "96 well" PCR-plates, (Semi-Skirted), 30-SP-0127, my-Budget "96 well" PCR-plates, (Low Profile), 30-SP-0029
Greiner bio-one	Cat. no. 652201
Kisker Biotech	G-060s (serial)
Sorenson	Semi-Skirt 96 PCR plate , Skirted 96 PCR plate, 96-well ultra plate

2.7.5 Compatibility 384 well block, plates

Thermo Fischer - Scientific	AB-1384, TF-0384, plate seals 0558
Bio-Budget - Technologies	FrameStart® 384 well PCR-plates
Kisker Biotech	G-034
Sorenson	384-well PCR plate NX

2.8 Cleaning

Cleaning the touch screen

- Switch off the Labcycler Pro before cleaning.
- The display must not be exposed to wetness because liquid could penetrate the electronics. Never use sprays directly on the display. Spray cleaning agents onto a soft cloth and use this to clean the display.
- If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol
- Ethyl alcohol

Other solvents may damage the surface. Especially, do NOT use the following:

- water
- ketone
- aromatic solvents

Cleaning the device and the block

- Switch off the Labcycler Pro and unplug the power cord.
- If the device has been in use before cleaning, leave it with the lid open for at least 30 minutes until all parts have cooled down.
- No liquid may enter the device because liquid could penetrate the electronics.
- Clean with a moistened soft cloth. Use soft cleaning agents, water or 70% ethanol. Don't use aggressive or abrasive substances.
- Occasionally, remove dust from the ventilation grille with a vacuum cleaner.
- The block should be removed from the device for cleaning. The block can be cleaned with a soft, slightly moist cloth. Avoid allowing liquids to enter the device through the connection of the external sensor. The wells can be cleaned out using cotton buds by gently rotating them. Make sure that no cotton wool is left in the holes.
- Do not clean the passive heating lids of the Triple Block with plastic-damaging agents such as acetone, only use mild cleaning agents.

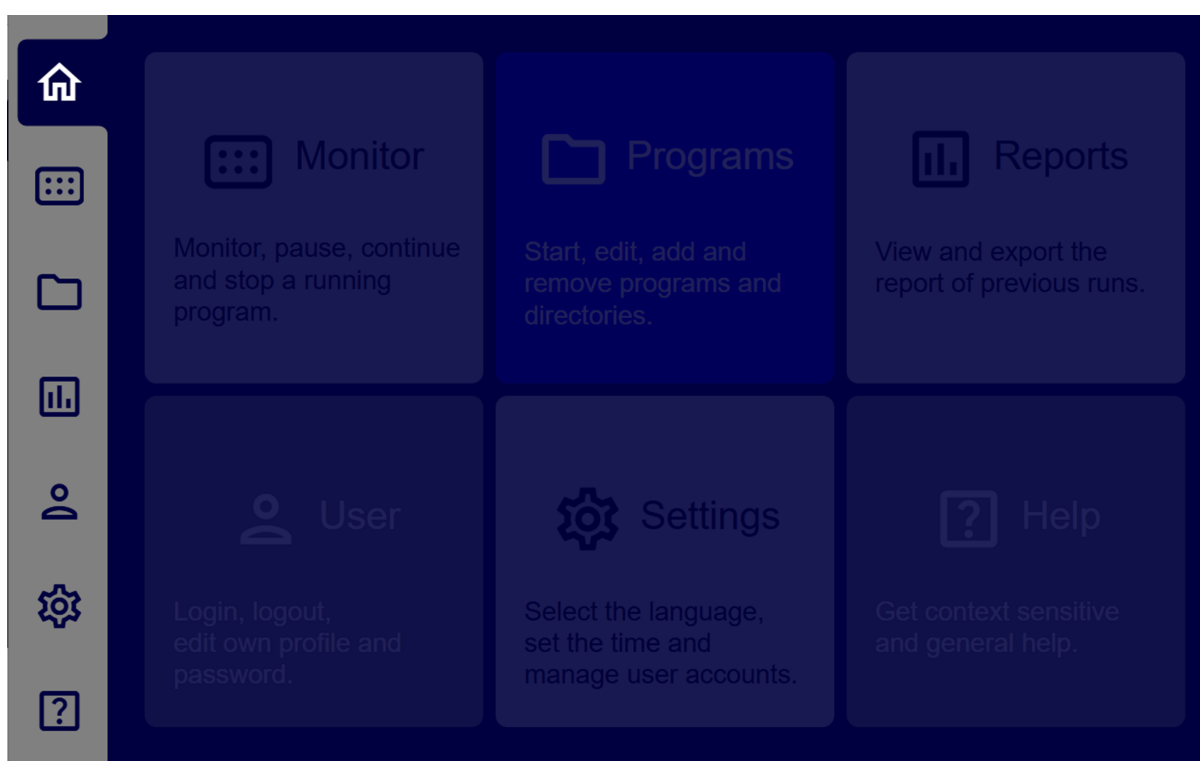
3 Navigation

3.1 General

The Labcycler Pro is equipped with a touchscreen. The user interface is operated by touching the screen with your finger, the controls are designed to be large enough. Control elements are activated by a **short tap**, a longer touch does not produce the desired reaction. In some places the visible area can be moved by swiping across the display.

After switching on, the Labcycler Pro starts with the home screen. This provides an overview of the most important functions.

3.2 Control Bar



The control bar with the symbols for the topic areas is usually visible on the left side of the screen. Tap on a symbol to go to the respective topic area. In this way, you can also switch directly from deeper levels of a topic area to another topic. You can see which topic you are currently in by looking at the dark blue background color of the symbol. If you click on the house symbol, you will be taken to the home screen where you will find descriptions of the various symbols.

3.3 Standard Controls

3.3.1 Buttons

Buttons usually have a light gray background color. Some keys have a different color to be highlighted.

3.3.2 Back button



There is usually an orange button in the top left corner with a left arrow. This button takes you up one level within a topic area and from the top level to the home screen.

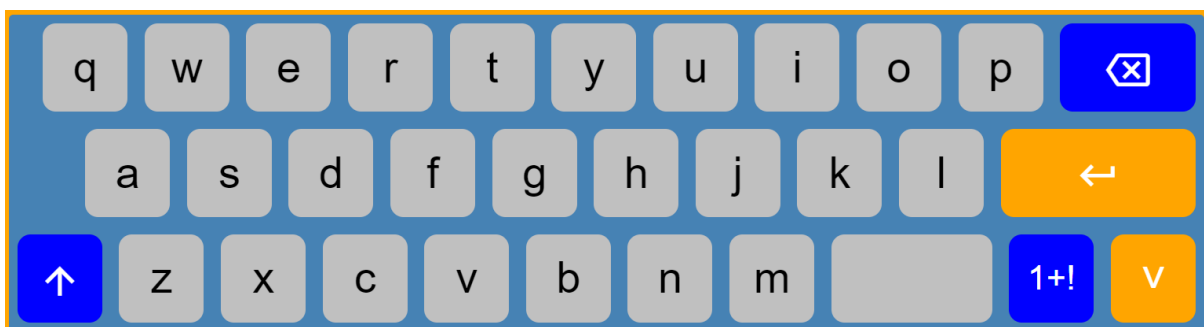
3.3.3 Input fields

There are various controls that you can use to make settings. Selection fields are usually light gray, numeric and alphanumeric input fields are white. **All changes you make are saved immediately**, so manual saving is not necessary.

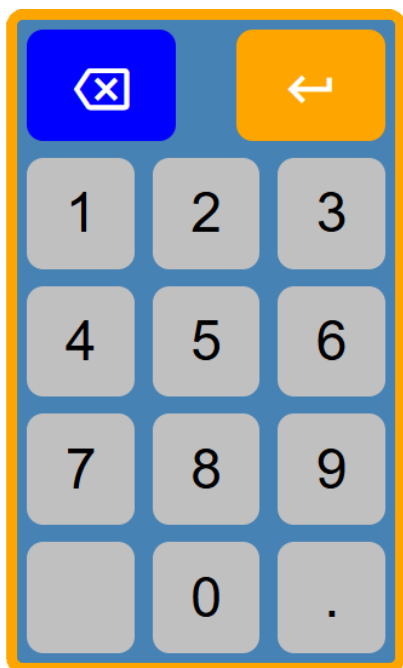


When editing program content, you have the option of undoing and restoring changes with the press of a button by tapping the forward or back arrow.

If you select a numeric or alphanumeric input field, a keyboard will open with the required characters. Previous entries are not simply overwritten, but must be deleted character by character using the blue key on the keyboard if necessary. Any entry can be accepted by tapping the orange enter key, which is labeled with an arrow. It is also possible to touch another place outside the keyboard area instead.



In the alpha keyboard, you can use the up arrow key to switch between upper and lower case letters. Numbers and special characters are shown with **!#1**, while **Abc** switches back to letters.



When you tap a numeric input field, a numeric keypad appears. If entries with decimal places are allowed, the keypad contains a key with a decimal point. If it is a time entry, you will find a colon key instead, which you can use to separate hours, minutes and seconds.

3.3.4 Scrolling

Longer lists or graphics that extend beyond the visible area can be moved so that a different section becomes visible. Within the visible part, swipe your finger horizontally or vertically across the screen, depending on the case, to see a different section.

3.4 How to use Help

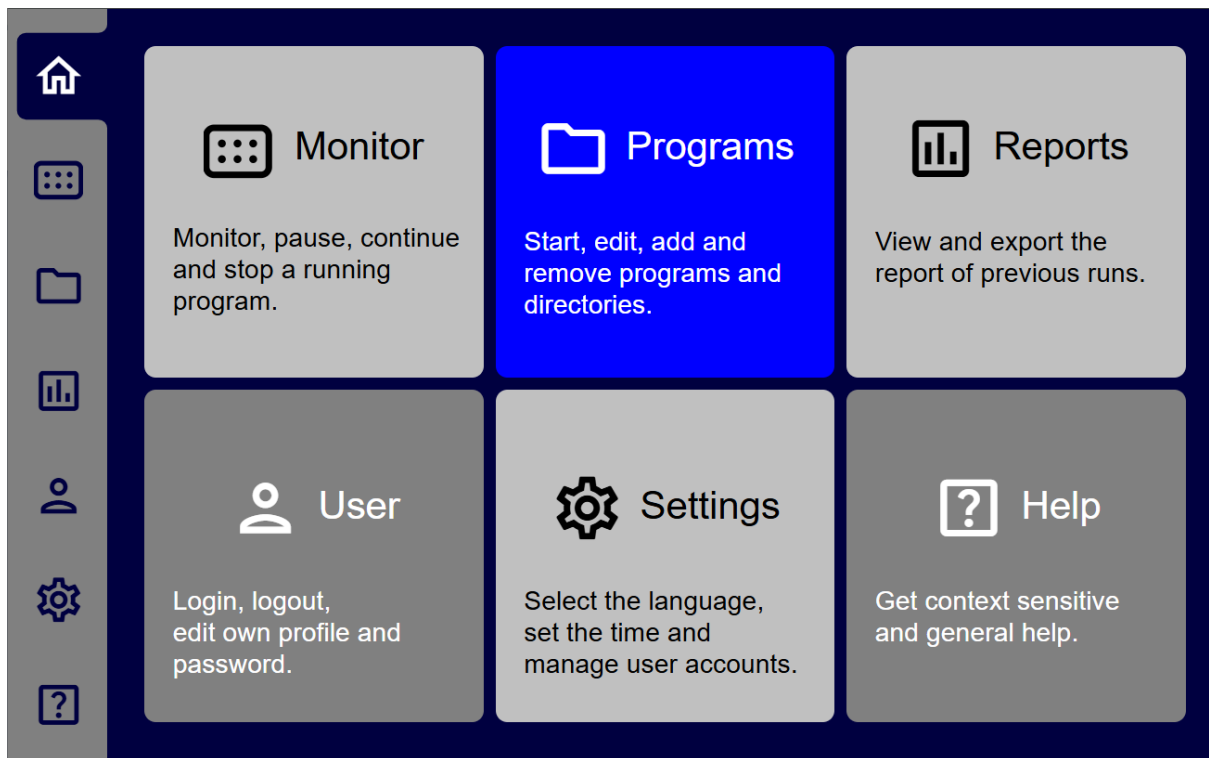


You can access the help pages at any time using the question mark button in the control bar on the left. The table of contents is displayed first. Tap on a topic to go to the corresponding chapter. Use the orange back button to return to the table of contents.

Longer chapters that are divided into several sub-chapters begin with their own table of contents. You can use this to quickly switch to the desired sub-topic. You can also reach the sub-topics by scrolling horizontally.

For longer chapters, “Back to top” is displayed at the end. Tap on it if you want to go back to the beginning of the topic.

3.5 Home Screen



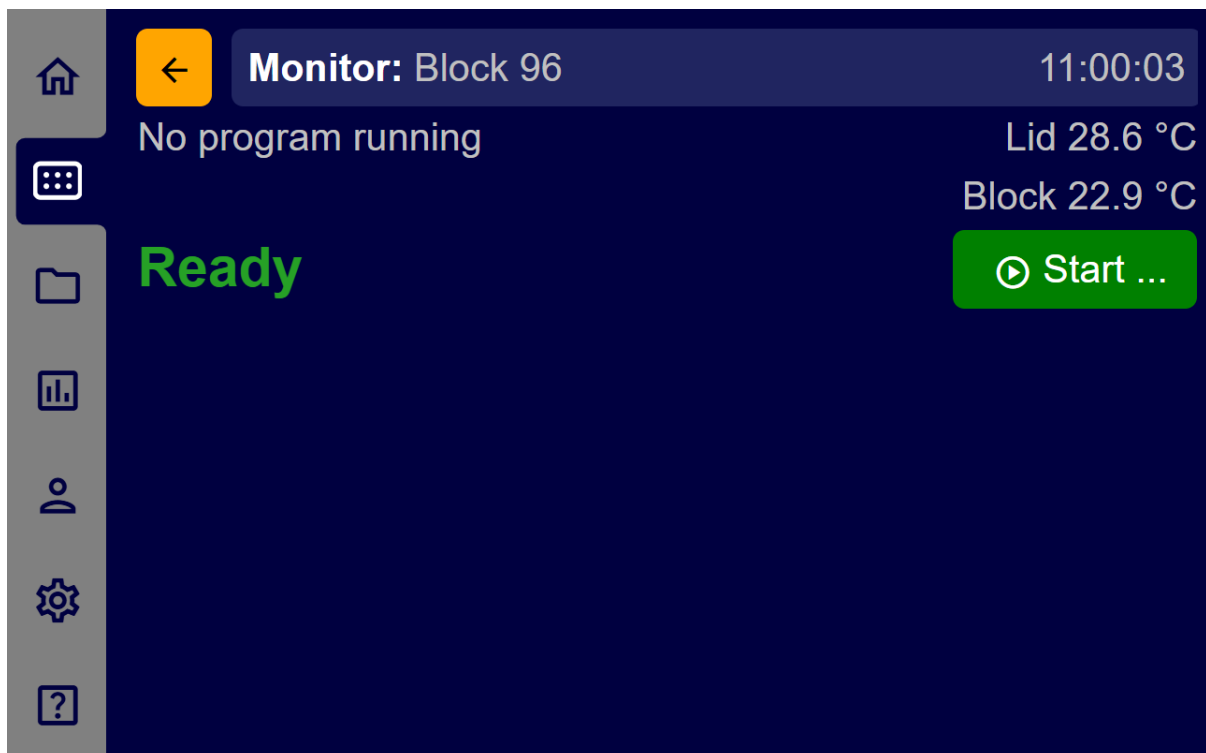
The home screen provides an overview of all topics. To switch to one of the areas, you can either touch one of the large tiles or press the corresponding symbol in the control bar on the left. You can use the back button to return to the home screen from all areas. Alternatively, you can touch the house symbol in the control bar to get to the overview.

4 Monitor

4.1 Overview

The monitor is not only used for monitoring but also for controlling block activities. The monitor can be accessed by touching the block symbol in the control bar on the left or from the home screen. Programs can be started and stopped, paused and continued manually from the monitor. It is also possible to jump to the next program step.

4.2 Single Block View



When using a single block, the monitor automatically displays the single block view. In the case of a Triple Block, the single block view can also be selected for each of the three sub-blocks in order to see all the details and obtain all the block control options.

When the block is inactive, the following elements are displayed:

- Title bar with block type and time
- Temperature of heated lid
- Block temperature
- Block state
- Start button

Monitor: Block 96 15:50:54

Prog / ... / Group 2 / Person 2A / Program 1 Lid 96.0 °C

Holding 0m 20s Block 54.0 °C

Remaining 56m 19s

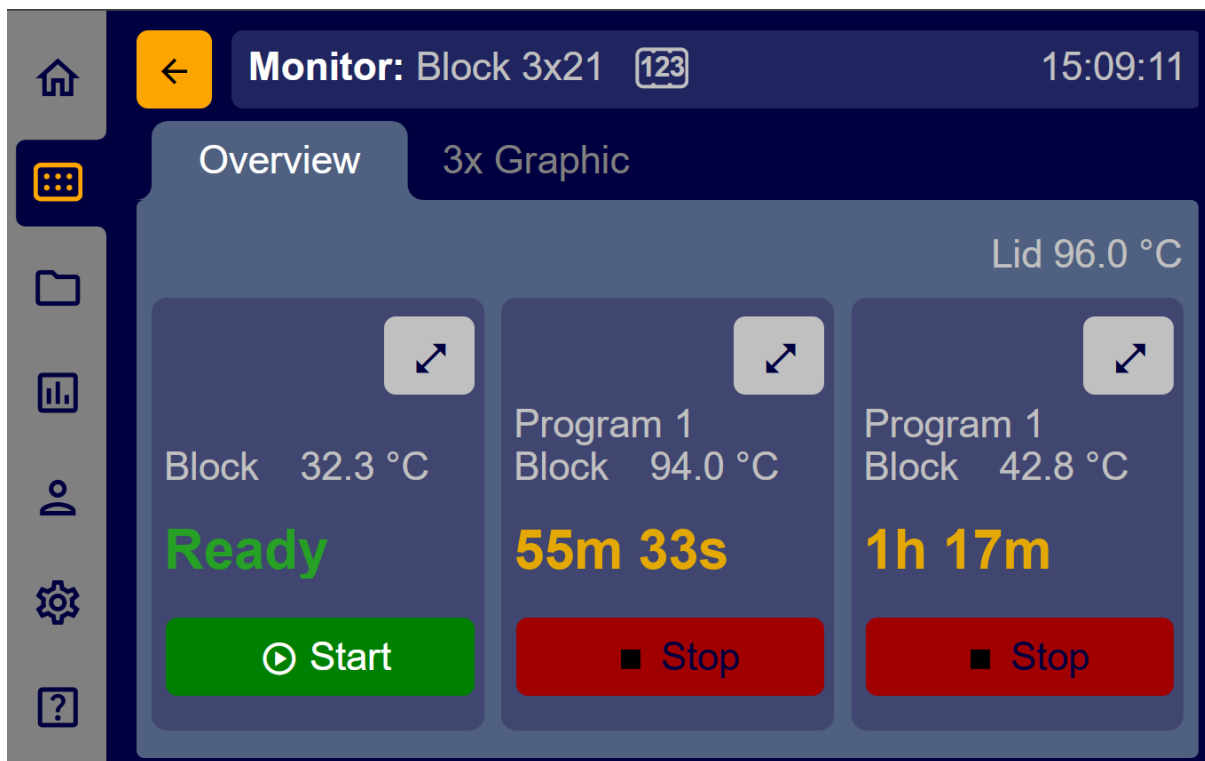
Step No	Temp [°C]	Time [hh:mm:ss]	Loop Jump	Passes total	Passes done	Grad [+/- °C]
1	96.0	5:00		1	1	
2	96.0	20		30	5	
3	54.0	30		30	4	
4	72.0	30	2	30	4	
5	72.0	10:00		1	0	
6	4.0	10		1	0	

When the block is running, the following data is also output:

- Name of running program
- Remaining time
- List of steps with current cyclers counts
- Temperature graphic (max. 4 hours)
- Buttons: Stop, Pause / Continue, Skip

When the program is running, the block symbol in the control bar is highlighted in color orange.

4.3 Triple Block Overview



When using a Triple Block, the block monitor initially shows the Triple Block overview with the most important information about all three sub-blocks.

The following data is displayed:

- Title bar with block type, icon for Triple Block and time
- Temperature of heated lid
- For each sub-block:
 - If sub-block is active, the name of the running program
 - Sub-block temperature
 - Sub-block state
 - Zoom button for single block view
 - Button Start / Stop
 - Temperature graphic (max. 4 hours)

Starting and stopping is possible within the Triple Block overview. For further functions, switch to the single block view.

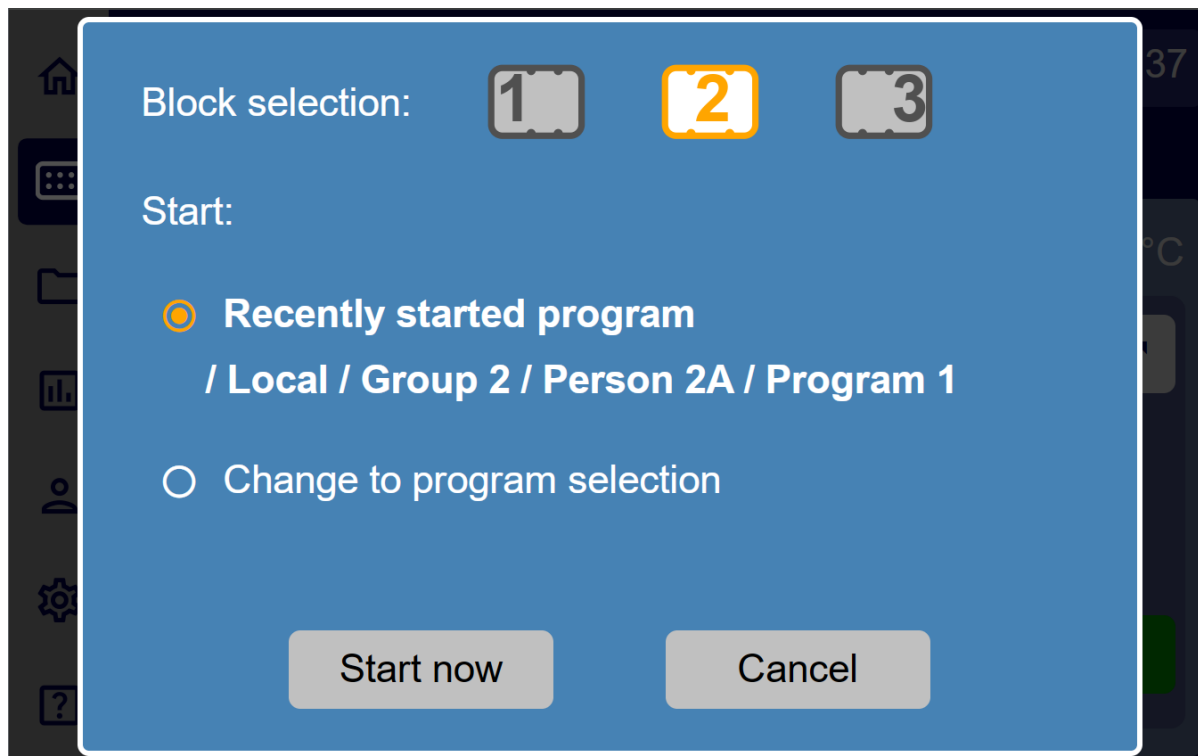
4.4 Single Block View for Triple Block



From the Triple Block overview, use the zoom button for the respective sub-block to switch to the single block view. Here you can see more details and, while the program is running, you can pause and stop it, as well as skip to the next program step. Use the back button to return from the single block view to the Triple Block overview.

4.5 Start Program from Monitor

If the green start button is visible on the monitor, you can start a program on this block. First, place your samples on the block and close the lid. After touching the start button, a dialog with options opens.



In case of a Triple Block, touch one of the three sub-block symbols to select the appropriate one. Regardless of the block type, you must specify which program should be started. If a program has been started previously, it will be suggested and can be activated again immediately.

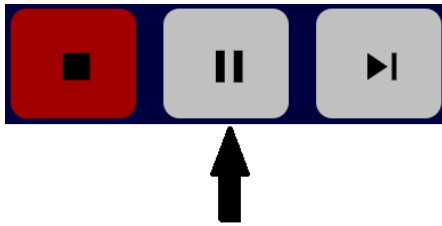
Alternatively, you can choose a different program. If you choose this option, you will automatically be taken to the “Programs and directories” area, where you can create a new program or select an existing program. Then tap the start button displayed there, check the information in the next dialog and then confirm with the **Start now** button to start the program run. You will automatically be returned to the monitor, where you can check the program run. For more information on program selection, see [Programs and directories](#)

Please note: Do not run a program when the block is empty. The heating lid would press on the block surface. For a single block, do not open the lid when a program is running and the heating lid is lowered, except during a program pause.

4.6 Pause and Continue a Program

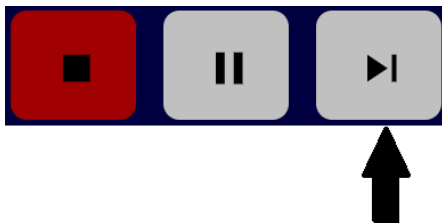
A program can contain programmed pauses or can be paused manually at any time. The block or, in the case of a Triple Block, the sub-block then remains at the current

temperature until the program is continued or stopped manually.



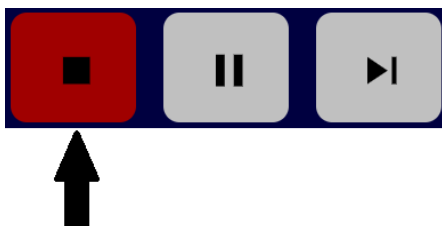
If you are using a Triple Block and are in the Triple Block overview, use the zoom button to switch to the single block view. When a program is running, the three control buttons Stop, Pause/Continue and Skip to the next step are displayed next to each other. Use the middle button to manually pause or continue the program.

4.7 Skip to next Program Step



You can manually stop a running program step by jumping to the next step. If you are using a Triple Block and are in the Triple Block overview, use the zoom button to switch to the single block view. When a program is running, the three control buttons Stop, Pause/Continue and Skip to the next step are displayed next to each other. Use the right button to execute the jump.

4.8 Stop Program



A program can be terminated manually at any time. If you are in the single block view, three control buttons are displayed next to each other when the program is running. Use the left red button to stop and confirm the subsequent security prompt. If a Triple Block is used and you are in the Triple Block overview, you can press the red stop button belonging to the respective sub-block.

5 Programs and Directories

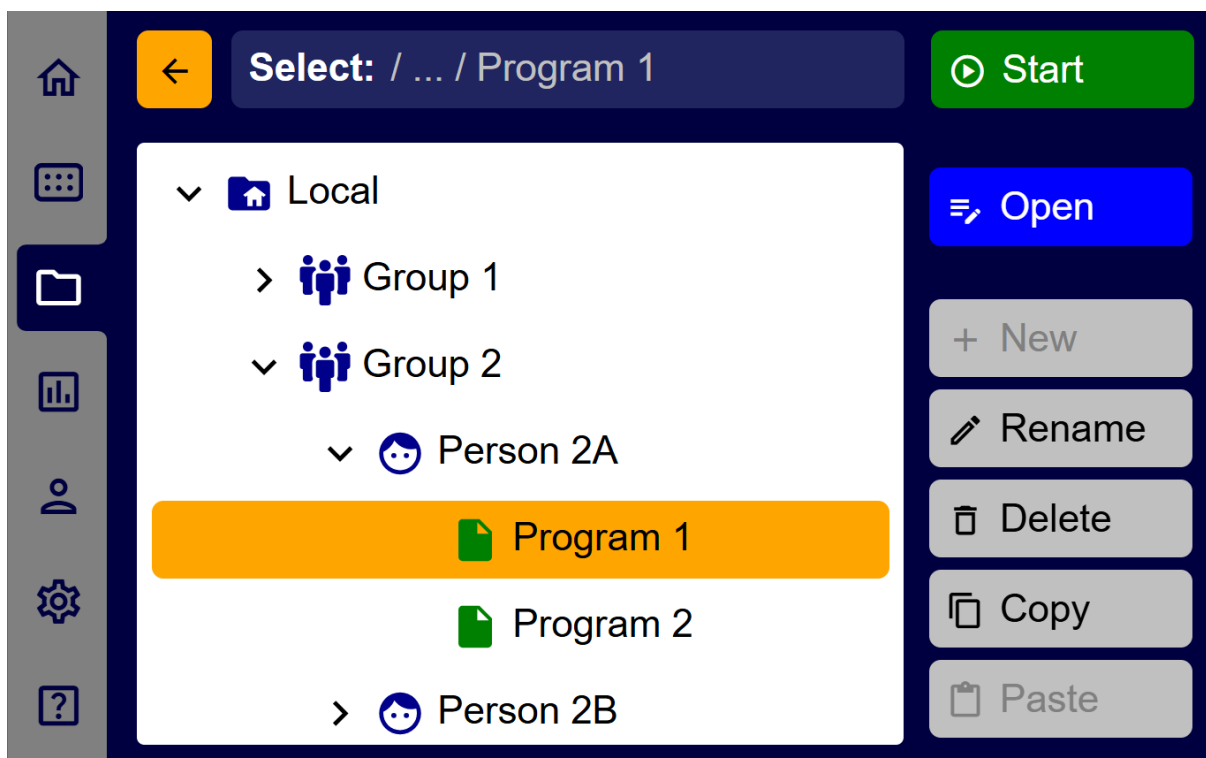
5.1 Overview

Select the “Programs and Directories” area either via the home screen or by touching the folder symbol in the main bar on the left.

The program memory can be structured using directories to keep an overview and to have the option of assigning individual directories to specific people or entire work groups. You can create, edit, copy and delete directories and programs here. Copying is possible within the Labcycler memory, but also to and from a USB stick.

You can also select and start a program here.

5.2 Directory Structure, Groups, Persons



5.2.1 Home Directory

The home directory can be recognized by a folder symbol with a house on it. It is the only one that is created automatically and cannot be deleted. The home directory is the root directory for the local program memory.

5.2.2 Subdirectories

Virtually any number of subdirectories can be created under the home directory. These are marked with a dark blue symbol. Subdirectories can also be nested in several levels. For better readability, the nesting depth should not be too large.

When creating a new subdirectory, you can choose between **directory** , **group** and **person** . The only difference is the type of symbol, it has no effect on the function. The different symbols give you better options for structuring your program memory.

You can navigate in the directory tree by using the arrow keys next to the directory symbols to open and close the directories. The visible section can be moved by swiping up and down within the directory tree. The currently selected file is displayed in the title bar.

5.2.3 External Memory

You can connect a USB-A memory stick to the front of the Labcycler Pro. The advantages are:

- Creating backups
- Personalizing program memory
- Transferring files to other Labcycler Pro

When you connect a USB memory stick, the external storage will appear as another directory with a USB stick icon. You can use this directory like any other directory.

If your memory stick is not recognized by the Labcycler Pro, you should format the USB storage with FAT32 using a PC. The procedure depends on the operating system of the PC you are using.

Before removing the USB stick from the Labcycler Pro, wait until all saves have been completed. It is not necessary to “eject” the device.

5.3 Create new Program or Directory

5.3.1 New Directory

Start in the “Programs and Directories” area. Mark the directory under which a new directory is to be added and tap the **+ New** button. If no directory has been created before, mark the home directory. The **+ New** button is not available when a program is selected (green symbol).

You can now choose which type of file you want to create, **Directory** , **Group** or **Person** (see above). Now enter a name using the keyboard that appears and confirm with the enter key or simply tap on a free space.

5.3.2 New Program

Start in the “Programs and Directories” area. Mark the directory under which a new program is to be added and tap the “+ New” button. If no directory has been created before, mark the home directory. The **+ New** button is not available when a program is selected (green symbol).

In the file type selection, select **Program** . Now enter a name using the keyboard that appears and confirm with the enter key or simply tap on a free space.

5.4 View / Edit Program

5.4.1 Open and View Program

Start in the “Programs and Directories” area. Highlight a program and tap the **Open** button to view or edit the program. The program header data can be found in the tab **Header**, steps are located in the **List** tab page or alternatively in graphical representation in tab **Graphic**. Switch between the pages using the corresponding tabs.

5.4.2 Edit Program

After opening, the program is initially in **read-only mode**. If you attempt to change the displayed program, a prompt appears asking if you really want to make changes. This protects you from accidentally changing a program.

If you confirm the prompt, the following applies: **Every entry and change is saved automatically immediately, but can be undone** (see below). Manual saving is not necessary. Incomplete or faulty programs are also saved, so you have the option of interrupting programming at any point and continuing later. Incorrect entries are marked in red. Programs with errors cannot be started.

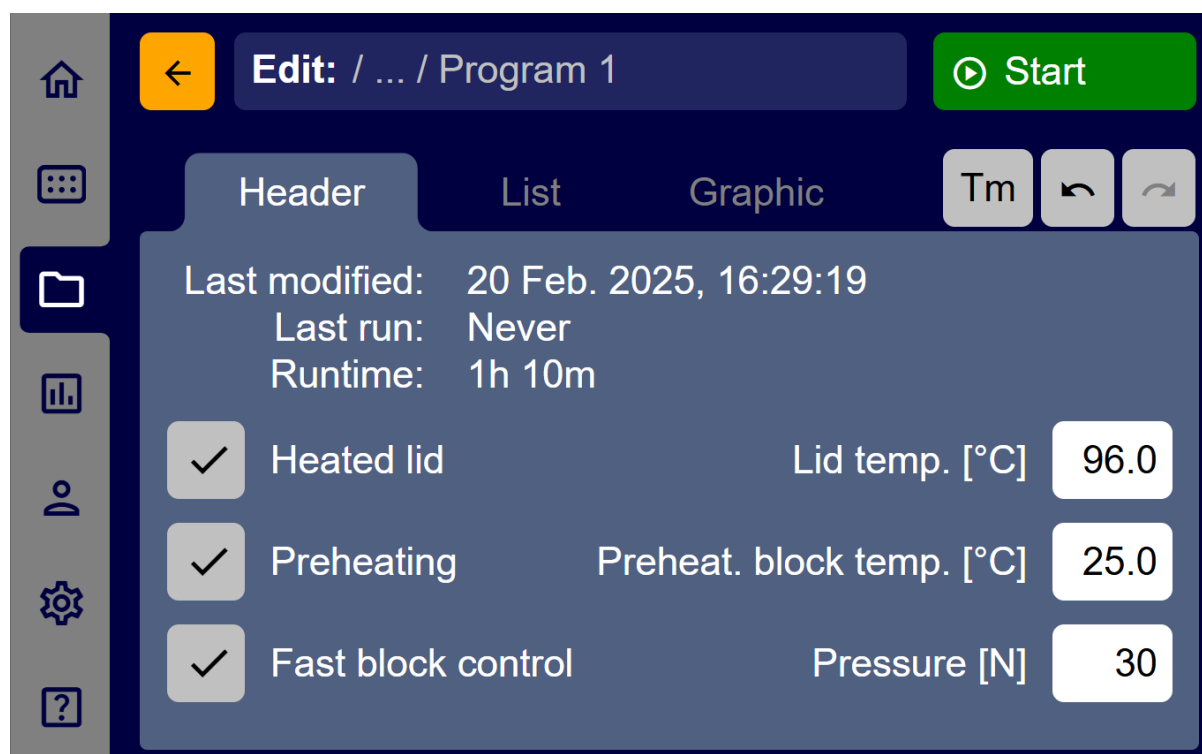


To undo a change, use the back arrow key. The point that was reset to the previous value is marked for a short time. You can repeat this process several times to revise further changes. You can use the forward arrow key to undo the reset.

To edit a numeric field, a numeric keypad opens automatically. Existing entries are not overwritten, but must be removed with the blue delete key if necessary. To accept the entry, use the enter key or tap in another area. The special features of entering the holding times are described under “Steps”.

The program name can be changed in the file selection view. To do this, exit the editing view using the back button.

5.4.3 Header



5.4.3.1 Status Data

In the upper part you can see the time of the last run, the last start and the calculated duration of the entire program run.

5.4.3.2 Heated Lid Data

With the **Heated lid** option, the heated lid is lowered onto the samples in the block at the start of the program and heated to the temperature entered under **Lid temp.**. If the **Preheat** option is activated, the block is kept at the **Block temp. preheat** temperature until the heated lid has reached its temperature. When using a single block, the **Pressure** parameter can be used to specify the pressure of the lid on the samples. This value is not used with the Triple Block.

The lid can only be heated and not cooled. If the target temperature is below the current heated lid temperature, the target temperature cannot be actively reached. In a program step with a very low programmed block temperature and a high heating lid target temperature, this lid heating is suspended during the program step. Typically this applies to a pause at the end of a program run.

Minimum and maximum inputs:

- Heating lid temperature: 0.0 - 110.0 °C
- Block temperature during preheating: -5.0 - 99.9 °C
- Pressure: 0 N, 30 - 120 N

5.4.3.3 Fast Block Control

If **Fast block control** is activated, the temperature control works in a speed-optimized manner. Fast control is recommended if compatibility with very early Labcycler versions is not required.

5.4.4 Steps

5.4.4.1 General operation

Program steps can be displayed and edited both in a list view and graphically. You can switch between the two forms at will. All step parameters can be edited with both alternatives.

A program can only run if each step contains a temperature and time value.

5.4.4.2 List View

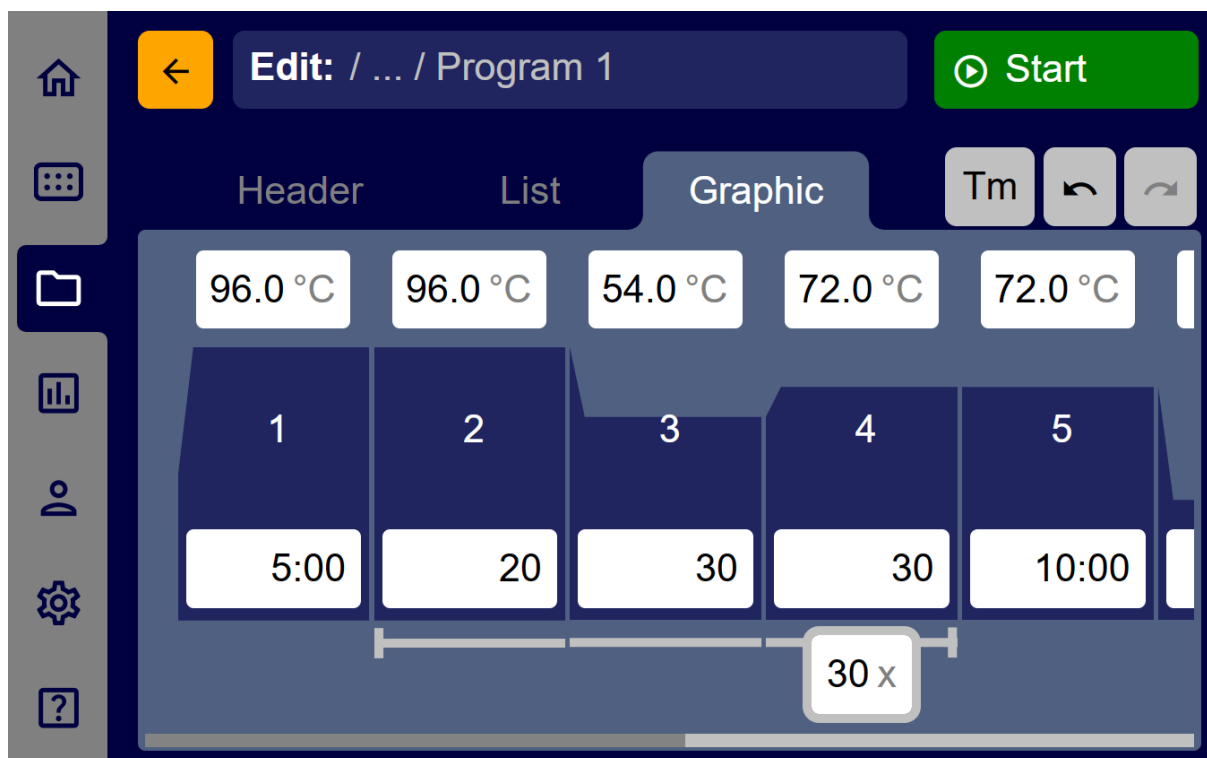
Step No	Temp [°C]	Time [hh:mm:ss]	Loop Jump	Cycles	Grad [+/-°C]	Ramp [°C/s]	Δ Temp [°C/Pass]	Δ Time [s/Pass]
1	96.0	5:00						
2	96.0	20						
3	54.0	30						
4	72.0	30	2	30				
5	72.0	10:00						

Switch to the **Steps** tab page to see and edit the list of all program steps. To add steps, tap the **+** button at the end of the program. To insert a step between two other steps, touch the button with the step number of the step below the insertion point and select **Insert**. To delete, tap the relevant number button and select **Delete**.

Loops are marked in the list view by a green bracket next to the relevant step numbers and a pale blue background color.

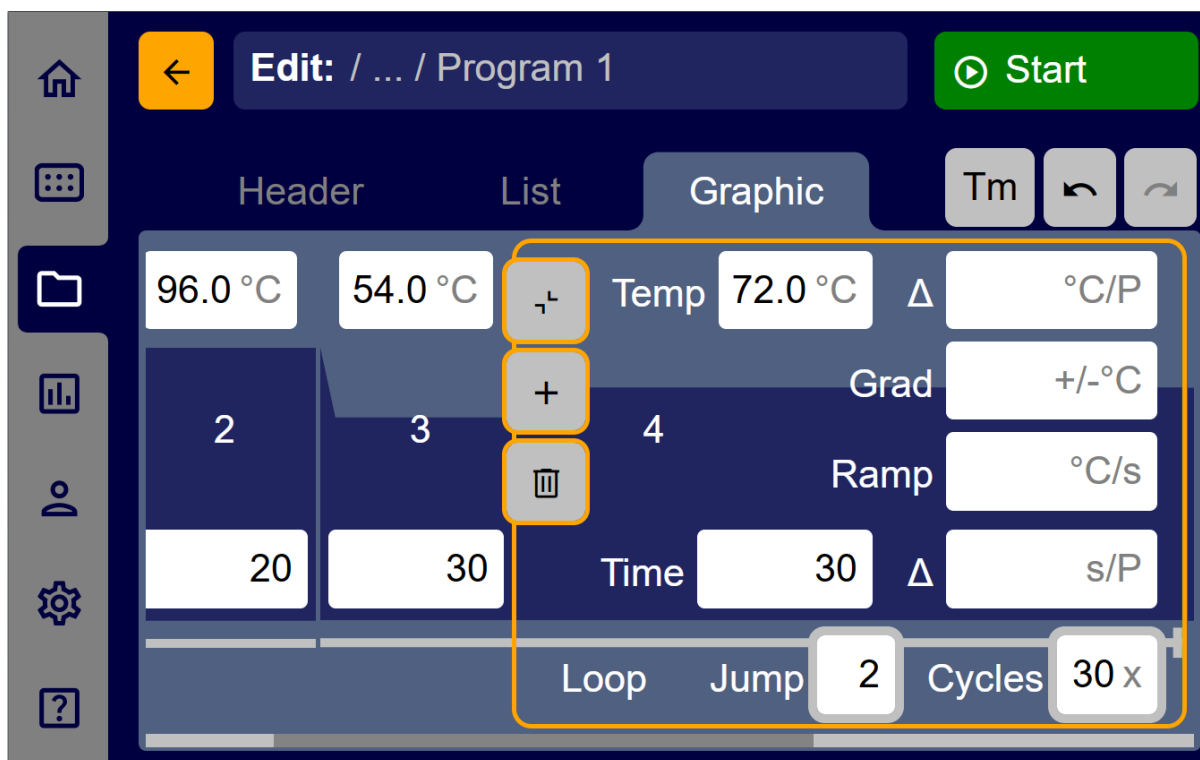
For longer programs, the visible section can be moved within the list by swiping up or down.

5.4.4.3 Graphical Programming



To view the graphical presentation of the step list, go to the **Graphic** tab. Steps are shown here from left to right as numbered bars, the height of which depends on the step temperature. Enter the temperature above the bar and the time at the bottom. You can add a step using the **+** button to the right of the last step.

To enter additional parameters for a step, touch a point between the temperature and time fields. The step is selected and temporarily widens to a detailed view.



Within the detailed view you have the following input options:

- Temperature + temperature increment
- Gradient
- Ramp
- Time + time increment
- Loop: jump target + number of cycles

There are three grey function buttons on the left edge of the detail view. The top button is used to close the detail view, but you can also tap one of the step bars instead. The **+** button in the detail view inserts another step to the left of the selected step. To delete the selected step, use the button with the trash basket symbol.

A ***** after the step number indicates step parameters that are only visible in the detailed view. If the number is red, the step is faulty.

Loops that have been entered correctly are shown below the step bars with a bracket and the number of cycles. Up to two nested loops are displayed. Creating or deleting a loop is only possible in the detailed view. The number of loops can also be changed in the step overview. General information on loops [see below](#).

For longer programs, the visible section can be moved by swiping the graphic sideways.

5.4.4.4 Temp

Temperature of the block. Range: -5.0 - 99.9 °C.

5.4.4.5 Time

Holding time of the block temperature. Depending on the duration, the time is output in the format hours:minutes:seconds, minutes:seconds or just seconds. The input is possible in various formats. For short times, it is recommended to only enter the number of seconds; entries above 59 are automatically converted into minutes:seconds and, if necessary, hours:minutes:seconds. For longer times, the input in the format minutes:seconds or hours:minutes:seconds is recommended.

For pauses, use the ∞ sign on the displayed keyboard. The block temperature is then kept at the same temperature until you manually continue or stop the program.

5.4.4.6 Loop

To program a loop, go to the last step of the cycle. For **Jump**, enter the number of the step to which you want to jump back. Forward jumps are not allowed, but a jump to yourself is. Two loops can also be nested by one loop enclosing another. Jumping into or out of a loop is not allowed.

The number of runs through the loop must be entered under **Cycles**. The first run is also included. The maximum value is 99.

5.4.4.7 Grad

With a gradient step, a temperature gradient is created on the block from left to right from column to column. A positive gradient indicates temperatures increasing from left to right, negative indicates the opposite. The number for **Grad** refers to the difference between the first or last column and the center. Example: If a block temperature is entered as 55 °C and a gradient of +- 3 °C, the temperature will run from 52 to 58 °C across the block. The maximum value is 20 °C +- from the mean temperature.

It is recommended to enter the block temperature first and then the gradient. Once a suitable value has been entered, a graph will appear showing all the expected column temperatures for a block type. To see the column temperatures for a different block type, tap the button with the block type name.

5.4.4.8 Ramp

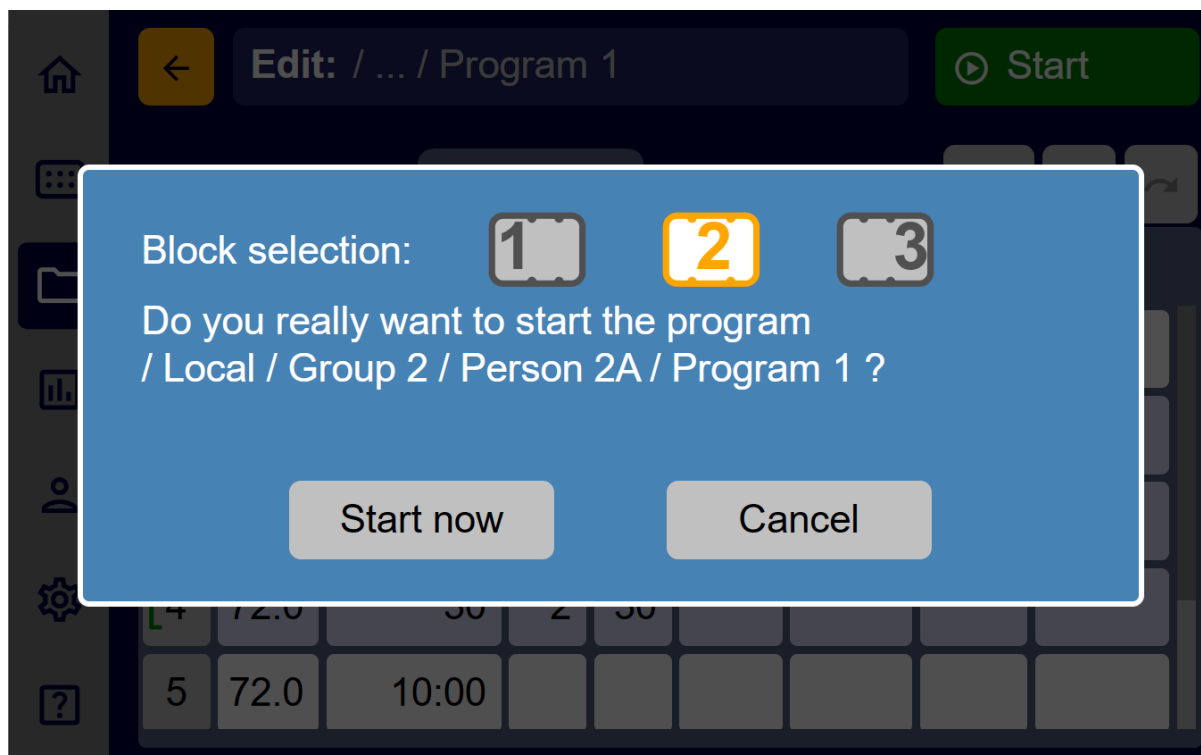
An entry for the ramp value sets the rate of change of the temperature between two steps. If no value has been recorded, the temperatures are approached with maximum steepness. Allowed input: 0.001 - 5.000 °C/s.

5.4.5 T_m Melting Temperature Calculation

Tap the T_m button to calculate the melting temperature of oligonucleotides. Various formulas are available on the left-hand side. First select the formula, then enter the number of nucleotides, the number of G+C nucleotides and the cation concentration in the top right. The result is displayed in the green field.

5.5 Start Program from “Programs and Directories”

Make sure the block or, in the case of a Triple Block, a sub-block is ready. Place your samples and close the lid. Highlight the desired file in the local or USB program storage and tap the green start button. You can also open the program first to view or edit it and then tap the green start button within this view. In both cases, a dialog window opens.



If you are using a Triple Block, select one of the three sub-blocks here. In any case, confirm with **Start now**. You will then automatically switch to the monitor, where you can check the program run, pause and continue or stop it.

If you want to start the same program again, you can simply do this directly from the monitor, which you can access at any time via the control bar on the left. See [Monitor](#)

Please note: Do not run a program when the block is empty. The heating lid would press on the block surface. For a single block, do not open the lid when a program is running and the heated lid is lowered, except during a program pause.

5.6 Rename

Programs and directories can be renamed. In the “Programs and Directories” area, select the relevant file and then tap the **Rename** key. A program name may not appear twice within a directory.

5.7 Delete

To delete a program or directory, select the corresponding file in the “Programs and Directories” area, tap on **Delete** and confirm the security prompt. If you delete a directory that is not empty, its contents will also be deleted.

5.8 Copy and Paste

To copy a program or directory, select the relevant file in the “Programs and Directories” area and tap the **Copy** button. Then select the target directory and tap the **Paste** button. The source and target directories can be the same. Since identical names are not permitted in the same directory, an extension is automatically appended to the name of the copied file. You can rename the file using the **Rename** button.

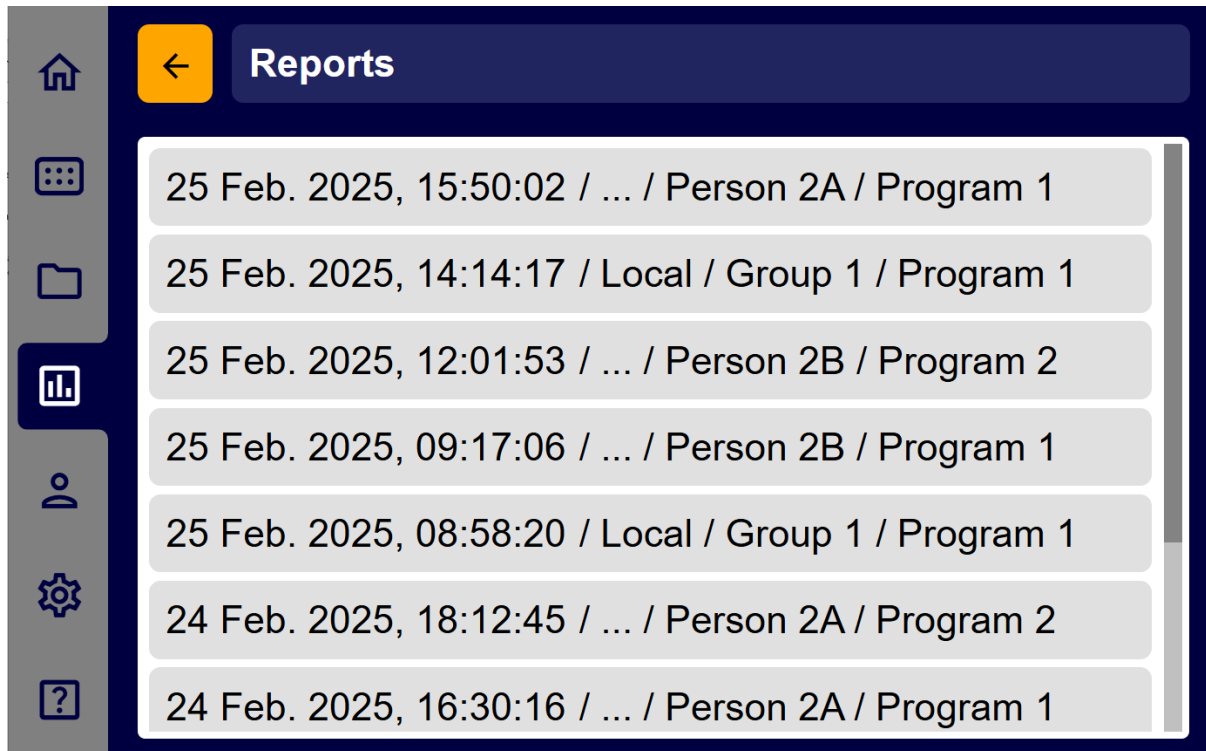
5.9 Export / Import

You can save programs and directories to a USB-A memory stick. See [External Memory](#)

6 Reports

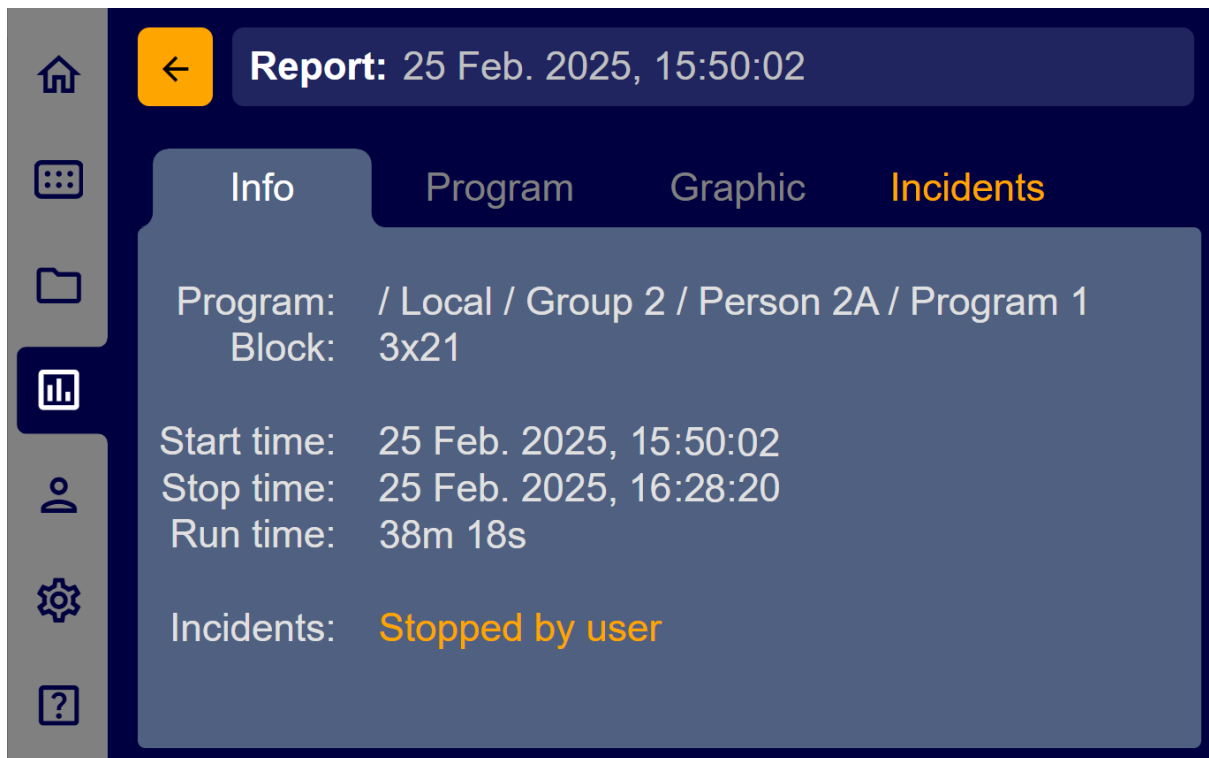
6.1 Overview

In the “Reports” area you can get data about completed program runs. You can access the Reports area by tapping the bar graph symbol in the control bar on the left or from the home screen.



The list of reports starts with the last started program run, below that are the older reports. You can change the visible section by swiping up and down. Each list entry contains the start time of the program, program name and path. Path names that are too long are displayed in abbreviated form.

6.2 View Report



Tap on a report to see the details. On the **Info** tab you can see the start and stop time, runtime, the block type and brief information about unexpected incidents such as manual stop or auto restart after a power failure.

All details of the program used are displayed on the **Program** tab. If the program consists of more than six steps, subsequent steps can be made visible by swiping up.

The **Graphic** tab page shows the temperature curve graphically for a maximum period of 4 hours. Tap on the **Graphic** tab to access the tab page. You can change the visible section by swiping left or right.

If an auto restart occurred during program execution, further information is displayed in the **Incidents** tab.

6.3 Delete all Reports

To delete all reports saved in Labcycler Pro, switch to the “Options” area, select the **Device** tab and touch the **Delete all reports** button. Then confirm the security prompt.

7 Users

The user management is currently not available.

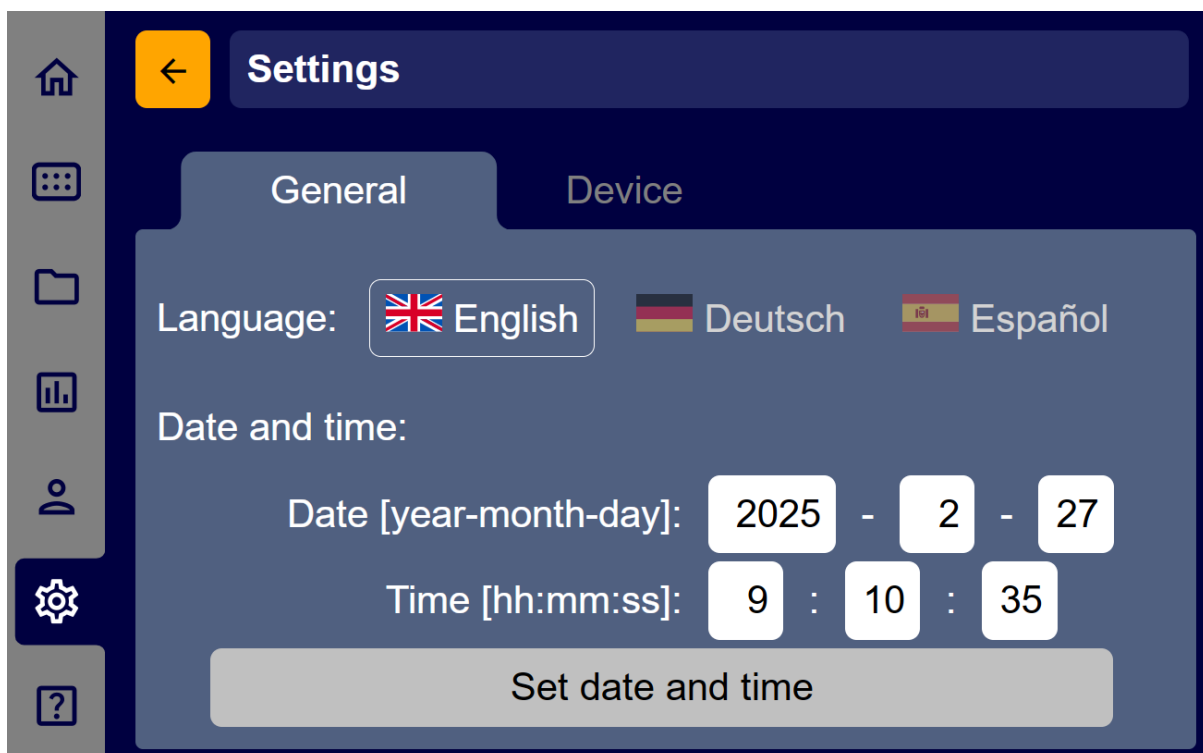
8 Settings

8.1 Overview

The “Settings” area offers the following functions:

- Setting the language
- Setting the date and time
- Displaying device information
- Possibility to update
- Deleting all reports

You can access the area by tapping the gear symbol in the main bar on the left.



8.2 General Settings

On the **General** tab you can set the language, date and time.

8.2.1 Language

Tap the corresponding country flag to switch to English, German or Spanish.

8.2.2 Date and Time

To change the date or time, tap the corresponding fields under **Date and time** . If necessary, delete unwanted digits using the delete key on the numeric keypad and enter the correct ones, then accept the value using the enter key or tap somewhere else

outside the numeric keypad. **Important: The new entries are not saved until you tap the **Set date and time** key.**

8.3 Device Information and Updates

The **Device** tab displays device and software information. It also offers the option to update the firmware or delete all protocols.

8.3.1 Serial Numbers and Versions

The information for identifying hardware and software is required in cases of service calls.

8.3.2 Updates

Updates are available on the website www.sensoquest.de under **Downloads** . If the version shown under “Firmware” is no longer current, download the update file for the Labcycler Pro. Click on the file to view the contents. Open “Readme.txt” and follow the instructions contained therein.

8.3.3 Delete all Reports

To delete all reports saved in Labcycler Pro, switch to the “Options” area, select the **Device** tab and touch the **Delete all reports** button. Then confirm the security prompt.