

# Instruction Manual

## SMART PRO



Drying Oven (**SL**)

SLW 15, 32, 53, 75, 115, 180, 240, 400, 750, 1000  
SLN 15, 32, 53, 75, 115, 180, 240

Incubator (**CL**)

CLW 15, 32, 53, 115, 180, 240, 400, 750, 1000  
CLN 15, 32, 53, 115, 180, 240

Cooled Incubator (**IL**)

ILW 53, 115, 240, 400, 750

Peltier Incubator (**ILP**)

ILP 53, 115, 240

Climatic Chamber (**KK, KKS**)

KK 115, 240, 350, 400, 500, 700, 750, 1200, 1450  
KKS 115, 240, 400, 750

Thermostatic Cabinet (**ST**)

ST 1, ST 2, ST 3, ST 4, ST 5, ST 6, ST 500, ST 700,  
ST 1200, ST 1450, ST 1/1, ST 1/1/1, ST 2/2, ST 2/3,  
ST 2/4, ST 3/3

Laboratory Refrigerators (**CHL**)

CHL 1; CHL 2; CHL 3; CHL 4; CHL 5; CHL 6; CHL 500;  
CHL 700; CHL 1200; CHL 1450; CHL 1/1; CHL 1/1/1;  
CHL 2/2; CHL 2/3; CHL 2/4; CHL 3/3

**Attention!**  
**Before using the equipment, please read carefully  
this instruction manual!**



Manufacturer:  
**POL-EKO-APARATURA**  
Version 1.16



**Contents**

**1. IMPORTANT INFORMATION FOR THE USER .....7**

**2. PACKAGE CONTENTS .....9**

**3. BEFORE THE FIRST USE ..... 11**

3.1. *Installation place* ..... 11

3.2. *Installation of container (in KK version)* ..... 18

3.3. *HEPA filter* ..... 18

3.4. *To install internal glass door* ..... 19

3.5. *Condensation in the chamber* ..... 19

3.6. *Placement of samples* .....20

3.7. *Closing the chamber door*.....20

**4. DESCRIPTION OF THE UNIT .....21**

4.1. *Appearance of the devices ILP*.....21

4.2. *Appearance of the devices SL/CL* .....23

4.3. *Appearance of the device KK,IL* .....25

4.4. *Appearance of the device ST/CHL* .....27


**5. DEVICE OPERATION .....29**

5.1. *Internal memory*.....29

5.2. *First boot*.....29

5.3. *Using the keypad*.....30

5.4. *User logging in* .....31

5.5.  *Main Screen* .....32

5.5.1. *Upper menu expandable* .....33

5.5.2. *Alarm bar* .....35

5.5.3. *Alarms panel* .....35

5.5.4. *Information panel* .....36

*Internal light*..... 37









5.5.5. *Status - description* .....37









5.5.6. *Status – protection and alarms* .....39

5.5.7. *Quick Note* .....39

5.5.8. *Mute function* .....40





5.6. *Quick Program*.....41

5.7.		<i>Programs</i> .....	43
5.7.1.		Program creation / edition.....	44
5.7.2.		Segments edition .....	46
		FIT / FOT light .....	48
5.7.3.		Summary of segments .....	49
5.7.4.		Loop .....	50
5.7.5.		Priority .....	50
5.7.6.		Protection class.....	51
5.7.7.		Defrosting program .....	52
5.8.		<i>Starting the program</i> .....	53
		The first way .....	53
		The second way .....	54
5.9.		<i>Quick change of parameters</i> .....	56
5.9.1.		Quick change the set temperature.....	56
5.9.2.		Quick change the set time .....	57
5.9.3.		Quick change of other parameters .....	58
5.10.		<i>Schedule</i> .....	59
5.10.1.		Schedule creation / edition .....	60
5.11.		<i>Starting the schedule</i> .....	63
		The first way .....	63
		The second way .....	64
5.12.		<i>Statistics</i> .....	65
5.13.		<i>Data record</i> .....	66
5.13.1.		Graph .....	68
5.14.		<i>Event log</i> .....	70
		Possible events: .....	71
5.15.		<i>Info</i> .....	73
5.16.		<i>Users</i> .....	75
5.16.1.		User creating / edition.....	76
5.17.		<i>Types of accounts and their limits</i> .....	77
5.18.		<i>Interface</i> .....	80

5.19.		Time.....	81
5.20.		Alarms .....	83
5.21.		Network .....	84
		LAN settings .....	84
		WiFi settings (Figure 61) .....	85
5.22.		Mail reports.....	86
5.23.		Defrosting .....	89
5.23.1.		Defrosting for ZLW devices .....	90
5.24.		Temperature .....	91
5.25.		Corrections .....	92
5.26.		Light .....	93
5.27.		Archives .....	94
5.28.		Printer EPSON (option) .....	95
5.29.		Modbus RTU interface RS 422/485 (option) .....	96
<b>6.</b>		<b>MODBUS TCP interface.....</b>	<b>97</b>
<b>7.</b>		<b>COMPONENTS OF THE DEVICE.....</b>	<b>98</b>
7.1.		Internal glass door .....	98
7.2.		Door lock.....	98
7.3.		Access port .....	98
7.4.		Open door alarm.....	99
7.5.		Internal LED light .....	99
7.6.		USB port .....	100
<b>8.</b>		<b>TEMPERATURE PROTECTION.....</b>	<b>101</b>
<b>9.</b>		<b>OPERATION OF THE COOLING SYSTEM (only ILP devices).....</b>	<b>101</b>
<b>10.</b>		<b>CLEANING AND MAINTENANCE OF THE DEVICE.....</b>	<b>102</b>
10.1.		Exterior cleaning .....	102
10.2.		Interior cleaning .....	104

<b>11. ADVICE ON HOW TO SAFELY STORE THE DEVICE.....</b>	<b>104</b>
<b>12. TROUBLESHOOTING .....</b>	<b>104</b>
12.1. Possible defects.....	105
12.2. Circuit breaker .....	106
12.3. Declared runtime of humidifier components UCAN.....	106
<b>13. WARRANTY .....</b>	<b>107</b>
<b>14. RATING PLATE.....</b>	<b>107</b>
<b>15. TECHNICAL DATA .....</b>	<b>108</b>
15.1. ILP.....	108
15.2. SL, CL, IL.....	109
15.3. KK, KKS.....	111
15.4. ST, CHL .....	114
<b>16. MAINTENANCE AND INSPECTION REGISTER.....</b>	<b>117</b>
Maintenance for ILW, CHL, ST, KKS or KK.....	117
16.1. Inspection.....	117

## 1. IMPORTANT INFORMATION FOR THE USER

	<p>All warnings included in this instruction manual, especially these which appear next to the warning or informative symbols, should be obeyed at all times to ensure the safety of the user and to maintain the proper operation of the unit!</p> <p>The manufacturer does not take any responsibility for any damage which results from disobeying the instruction manual and misuse!</p>
	<p>For SL: When the device is working on 200°C or higher temperature, the housing and door can be hot.</p>
	<p><b>For units equipped with UV lamps:</b> take necessary safety precautions. Do not expose your hands, skin and eyes to UV radiation as it may cause eyes diseases (conjunctivitis) or skin diseases (red spots or cancer). It is recommended not to open the unit while the UV lamps are on. The user should be equipped with protective gloves and glasses.</p>
	<p>This symbol indicates helpful tips.</p>

To guarantee your security and the longevity of the unit, please comply with the following rules:

<p>1.</p>	<p>The unit cannot be installed:</p> <ul style="list-style-type: none"> <li>• outside,</li> <li>• in damp places or places which can be easily flooded,</li> <li>• near flammable or volatile substances,</li> <li>• near acids or in corrosive environments.</li> </ul>
<p>2.</p>	<p>It is forbidden to:</p> <ul style="list-style-type: none"> <li>• store inflammable or volatile substances inside the unit,</li> <li>• touch live parts of the unit,</li> <li>• operate the unit with wet hands,</li> <li>• put water vessels on the unit,</li> <li>• climb or put any objects on the unit,</li> <li>• overload the shelves (the maximum load is described in technical data).</li> </ul>
<p>3.</p>	<p>You should:</p> <ul style="list-style-type: none"> <li>• place samples in such a way to provide proper air circulation in the chamber,</li> <li>• open the door for the shortest period of time to reduce temperature fluctuations,</li> <li>• defrost the chamber if you open the door or store humid samples,</li> <li>• if possible, do not store warm samples,</li> <li>• secure samples from being blown out by the chamber fan e.g. powdery samples,</li> <li>• always check that the doors are closed,</li> <li>• use only earthed mains to avoid electric shocks,</li> <li>• unplug the power cable holding the protective cover and not the cable itself,</li> <li>• disconnect the unit from the mains before undertaking any repairs or maintenance works,</li> <li>• protect the power cable and the plug from any damage,</li> </ul>

- disconnect the power plug before moving the unit,
- disconnect the power plug if the device will not be used for a long period of time,
- disconnect the unit if it has any visual faults.



## 2. PACKAGE CONTENTS

Scope of delivery for ILP cooled incubators in SMART PRO version.

Unit Type	ILP SMART PRO		
	53	115	240
Shelves [pcs.]	2	2	3
Slides [pcs.]	4	4	6
Power cord [ pcs ]	1	1	1
Rubber cap for access port [pcs.]	1	1	1
Key for lock [pcs.]	2	2	2
Ethernet cable [pcs.]	1	1	1
Calibration certificate [pcs.]	1	1	1

Scope of delivery for CL laboratory incubator and SL drying oven in SMART PRO version.

Unit Type	SL SMART PRO/CL SMART PRO								
	15	32	53	180	112	240	400	750	1000
Shelves [pcs.]	1	1	2	3	2	3	3	5	6
Slides [pcs.]	2	2	4	6	4	6	6	10	12
Power cord [ pcs ]	1	1	1	1	1	1	1	1	1
Rubber cap for access port [pcs.]	1	1	1	1	1	1	1	1	1
Key for lock [pcs.]	2	2	2	2	2	2	2	2	2
Ethernet cable [pcs.]	1	1	1	1	1	1	1	1	1
Wrench (13mm) for wheels adjustment (where applicable) [pcs.]	x	x	x	x	x	x	x	1	1
Calibration certificate [pcs.]	1	1	1	1	1	1	1	1	1

Scope of delivery for ST cooled incubator and CHL refrigerators in SMART PRO version

Unit Type	ST SMART PRO/CHL SMART PRO									
	1	2	3	4	5	6	500	700	1200	1450
Shelves [pcs.]	2	2	2	3	3	3	3	3	6	6
Slides [pcs.]	4	4	4	6	6	6	6	6	12	12
Shelves 'bottom', 'small' [pcs.]	x	1	1	1	1	1	x	x	x	x
Slides 'short' [ pcs.]	x	2	2	2	2	2	x	x	x	x
Power cord [pcs.]	1	1	1	1	1	1	1	1	1	1
Rubber cap for access port [pcs.]	2	2	2	2	2	2	2	2	2	2
Key lock [ pcs.]	2	2	2	2	2	2	2	2	2	2
Ethernet cable [pcs.]	1	1	1	1	1	1	1	1	1	1
Wrench (13mm) for wheels adjustment (where applicable) [pcs.]	x	x	x	x	x	x	x	x	1	1
Calibration certificate [pcs.]	1	1	1	1	1	1	1	1	1	1

**Scope of delivery for ILW cooled incubators in SMART PRO version.**

Unit Type	ILW SMART PRO (FIT, FOT)				
	53	115	240	400	750
Shelves [pcs.]	2	2	3	3	5
Slides [pcs.]	4	4	6	6	10
Power cord [ pcs ]	1	1	1	1	1
Rubber cap for access port [pcs.]	1	1	1	1	1
Key for lock [pcs.]	2	2	2	2	2
Ethernet cable [pcs.]	1	1	1	1	1
Wrench (13mm) for wheels adjustment (where applicable) [pcs.]	x	x	x	x	1
Calibration certificate [pcs.]	1	1	1	1	1

**Scope of delivery for KK climatic chambers.**

Unit Type	KK (FIT)								
	115	240	350	400	500	700	750	1200	1450
Shelves [pcs.]	2	3	3	3	3	3	5	2x3	2x3
Slides [pcs.]	4	6	6	6	6	6	10	12	12
Power cord [ pcs ]	1	1	1	1	1	1	1	1	1
Rubber cap for access port [pcs.]	2	2	2	2	2	2	2	2	2
Key for lock [pcs.]	2	2	2	2	2	2	2	2	2
Ethernet cable [pcs.]	1	1	1	1	1	1	1	1	1
Wrench (13mm) for wheels adjustment (where applicable) [pcs.]	x	1	1	1	1	1	1	1	1
Container for deionized water [pcs.]	1	1	1	1	1	1	1	2	2
Shelves under container [pcs.]	1	1	1	1	1	1	1	2	2
Container (cuvette) for waste water	1	1	1	1	1	1	1	1	1
Drain hose [pcs.]	1	1	1	1	1	1	1	1	1
Inlet hose [pcs.]	1	1	1	1	1	1	1	1	1
Calibration certificate [pcs.]	1	1	1	1	1	1	1	1	1

**Scope of delivery for KKS climatic chambers.**

Unit Type	KKS			
	115	240	400	750
Shelves [pcs.]	2	3	3	5
Slides [pcs.]	4	6	6	10
Rubber cap for access port [pcs.]	2	2	2	2
Key for lock [pcs.]	2	2	2	2
Ethernet cable [pcs.]	1	1	1	1
Drainhose [pcs.]	1	1	1	1
Calibration certificate [pcs.]	1	1	1	1
Deionizer (reverse osmosis system)	1	1	1	1

### **3. BEFORE THE FIRST USE**

By default, the unit is sent in a cardboard box. It is necessary to transport it in the upright position and prevent it from any unintended movements.

The surface components of the unit are made of stainless steel, therefore slight discoloration may occur. It is a result of the technologies used in the production of metal sheet in accordance with the requirements of EN 10088-2 standard and it is not a defect of the unit.



Once you receive the unit, please check its the technical condition and all accessories. Any claims regarding latent defects should be reported to the manufacturer, while any damage during transport or incomplete accessories need to be passed to the entities who are responsible for the transport and unloading.



Only for KK, KKS, ILW, ST, CHL: While carrying the unit, please do not tilt it to one side more than 45° from the upright position, as there is a high probability of the damaging the compressor. If it is necessary to tilt it to one side more than 45°, then after placing it, please wait at least 2 hours before connecting the unit to the mains.

#### **3.1. Installation place**

The unit should be placed at a minimum distance of 100mm from the wall of the room. The height of the room must be higher than the height of the unit by min 300mm.

In drying ovens (SL) and in incubators (CL) on the back of the unit, there is an air-flap located, through which the hot air is extracted. The manufacturer recommends using a non-flammable insulation screen on the wall or increasing the distance from the wall. Failure to do so may result in permanent damage to the wall and in extreme cases, to a fire.

The place of location of the unit should meet the following conditions:

- Ambient temperature between +10°C...+26°C \*
- Ambient relative humidity of 60% \*
- Low dust environment
- Appropriately ventilated according to its size
- Placed on a hard and stable surface
- Placed at least 100 mm away from the wall
- Height of the room must be at least 300 mm greater than the height of the unit
- Keep away from direct sunlight
- Kept away from any heat sources \*
- Not designed to be built-in e.g. within a wall cavity
- The place of installation of the unit should contain a mains socket 230V/50Hz or 400V/50Hz (SLW/SRWP 400/750/1450 and all models KKS).
- For KKS 3/4" connection of water inlet
- For KK, KKS draining water to the sewage system.

\*) If it is not possible to locate the unit in a place that fully complies with the above requirements, make sure that the following points are obeyed:

- if the room temperature is higher than recommended, monitor the temperature in the chamber using an additional independent temperature sensor.
- if the room temperature is lower than recommended, under no circumstances should you turn the cooling system on, as this may damage the compressor; At room temperatures between 0° to 10°C it is only possible to heat up the chambers (only for: CHL, ST, IL, KK).
- in highly humid environments, control the frosting of evaporator and walls more often than recommended. If necessary, perform the defrosting operation (only for: CHL, ST, IL, KK).

The waste water is discharged by gravity. The drain hose cannot be higher at any point than the drain outlet, otherwise, this may cause leakage from the bottom of chamber and may damage the humidifier.

If you don't comply with the recommendations of place of installation, you may lose your warranty rights.

If you don't comply with the above recommendations, it may deteriorate the following technical parameters:

- temperature stability
- temperature homogeneity
- power consumption
- frosting of evaporator

Non-compliance with the above recommendations may result in damage to the unit or impair technical parameters.

The unit has been equipped with levelling feet. Please use them to level the unit after it has been placed in its final location.

The electric installation should meet the following conditions:




Connect device to a socket with ground. The power specifications are listed in the technical data section and on the rating plate of the unit.


The electric installation should be secured by a 16 A antisurge fuse. It is recommended that the installation is equipped with a residual current circuit breaker.

**The plumbing should meet the following conditions (for KK and KK FIT):**

- required water pressure: 0,1 – 6 bar,
- required demineralized water,
- water temperature between 5 - 40°C,
- no organic pollution,
- the plumbing can be open (drain) or closed.

	<p><b>The KK unit is equipped with an ultrasonic humidifier. Using the demineralized water reduces the risk of emerging unwanted salts and extends the life of the humidifier.</b></p> <p><b>It is recommended that you use water according to PN-EN ISO 3696:1999 norm (minimum level 2 purity type):</b></p> <ul style="list-style-type: none"><li>• <b>conductivity at 25°C: not more than 1 µS/cm</b></li></ul> <p><b>It is allowed to use water of purity level 3 to PN-EN ISO 3696:1999, but a white sediment may be formed on the chamber walls as a result.</b></p>
---	---

The device is equipped with a demineralized water tank. Water in the tank is necessary for proper functioning in the absence of connection to the installation. The installation of the tank is described in the chapter 'Installation of container (in KK and KK FIT version)'. Before first use, check that the water inlet valve is open.

	<p><b>KK and KK FIT:</b> Before using demineralized water tank, the water fill cap should be unscrewed to prevent from under pressure in the tank.</p>
---	--

**Water and sewage system for KKS** units with steam humidifier (steam generator) should meet following conditions:

- Water pressure in installation– 0,1-6 bar,
- The humidifier is supplied with demineralized water,
- Water temperature between +5 - 40°C,
- Lack of organic pollutants,
- The plumbing can be open (drain) or closed.

KKS devices are equipped with a pump.

Pump specifications:

- Max. vertical pumping- 4,5[m],
- Max. pumping distance- 50[m] (slope min.1%),
- Max. flow rate - 342[l/h],
- Tank volume 2,1l.

#### **Reverse osmosis system (concerns KKS units)**

The reverse osmosis system is the best and most effective method of water purification. The reverse osmosis combined with the sediment and active filter system gives water free from organic and non-organic pollutants up to 99%.

Parameters that must be met for water to be returned to the reverse osmosis system:

- pressure: 3-6 bar,
- workingtemperature+2÷ +45°C,
- pH of water 2-11,
- maximum salinity of water 2000ppm (mg/l),
- maximum water hardness 400ppm,

- maximum alkalinity 8mval/l,
- maximum iron and manganese content 0,05ppm.

Consumables of reverseosmosis system

<b>Component</b>	<b>Operating time(months)</b>	<b>Symbol</b>
Mechanical insert I	6	FCPS20
Carbon cartridge	6	FCCBL
Mechanical insert II	6	FCPS5
Linear cardridge	12	AIMRO
Tank	48	AIMRO
Osmotic membrane	48	TFC-75 GPD Aquafilter

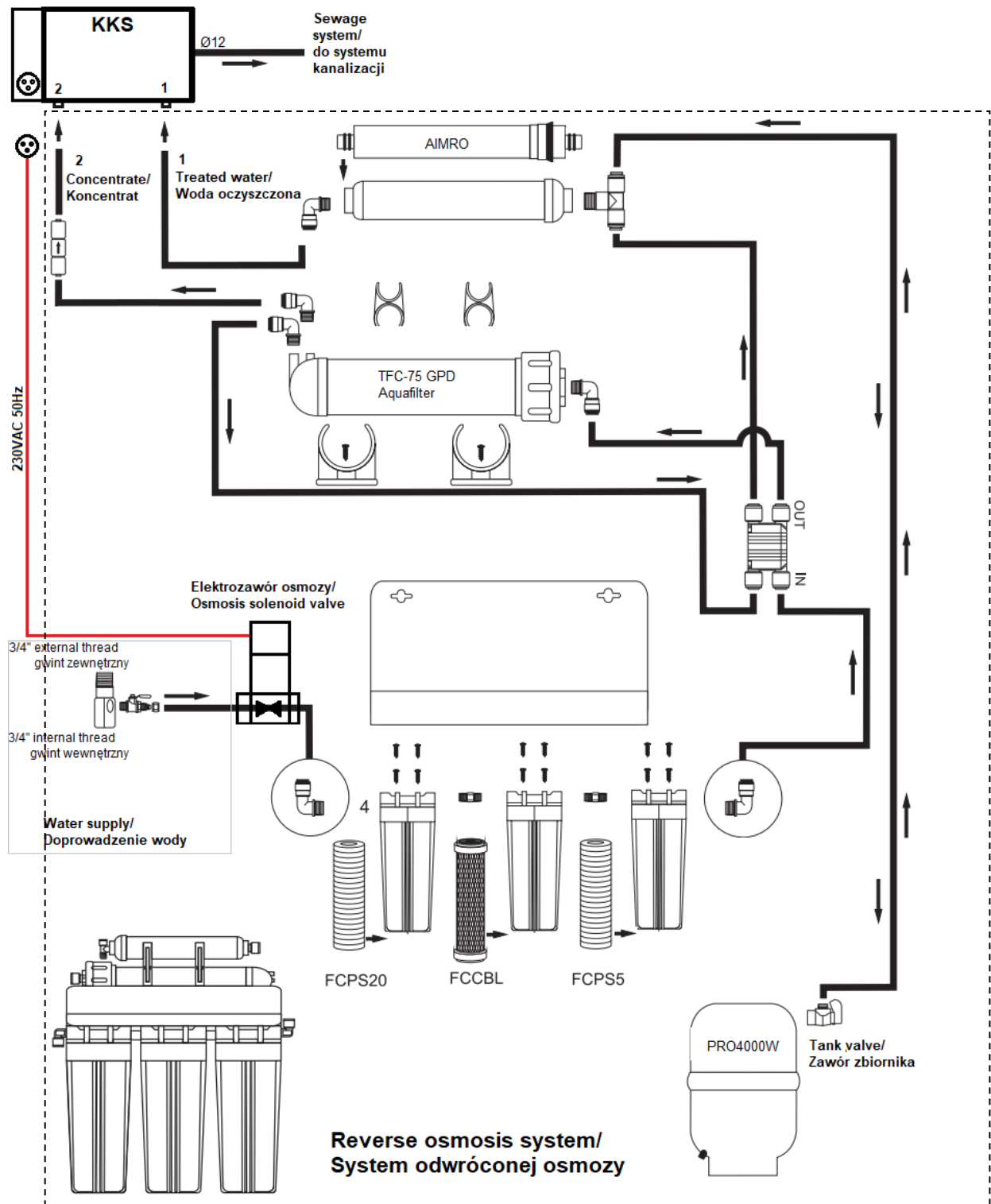
Frequency of replacement of consumable elements depends on number of factorsbut above all on water quality.

For water with significant contamination, the operating life of all consumables should be shortened. Operating materials are not subject to warranty replacement.

The equipment of the reverse osmosis system consists of:

- hose Ø6 2m long, 3pcs.
- hose Ø12 0,3m long, 1 pc.
- osmosis solenoid power cord 1pc.
- water supply connector: 3/4" external thread x 1/4" internal thread (with ball valve on the hose 6mm) x 3/4" internal thread, 1pc.

**Reverse osmosis system installation scheme (only for KKS):**



Switch on of reverse osmosis system and KKS unit:

1. Connect the power supply to the solenoid valve 230VAC to the socket on the KKS unit
2. Switch on the KKS power plug to the power socket and push the main switch
3. Connect hose Ø12 to drain out of the KKS chamber and into the sewage system
4. Connect hoses Ø6 as indicated on the reverse osmosis system and on the KKS unit (1 to 1, 2 to 2),
5. Connect hose Ø6 to the water ball valve and the osmosis solenoid valve
6. Unscrew the tank valve

7. Unscrew the water ball valve for water supply



During rinsing of the steam humidifier, the temperature of the water used can temporarily reach the temperature 80°C.



Cyclically, every 24 hours there is a partial drain of water from the humidifier, accompanied by bubbling and murmuring.



**At least 2 times a year, full rinsing of the humidifier should be carried out. Reminder of this duty is displayed in the display window. During the full rinsing of the humidifier there is a temporary drop in humidity in the chamber and an increase in the noise level of the unit. The manufacturer recommends performing this task beyond of carrying of tests. Failure to fully rinse the humidifier will void the warranty.**



**In case of:**

- power outages
- switching off the device using the main switch,
- disconnection of the device from a power source,
- longer pause

**The ball valve must be turned off to cut off supply water from the water mains. Failure to do so may result in the product and rooms being flooded.**

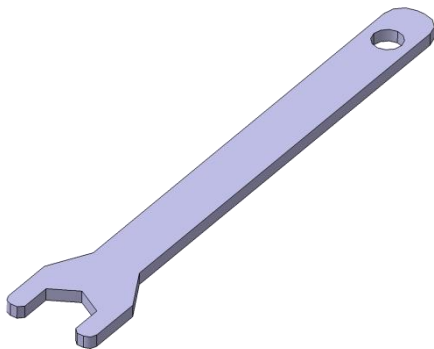


## **Castors**



After placing the unit, please secure it by blocking the wheels (if they are provided along with it).

The unit can be equipped with leveling castors. After the unit has been placed in its destination, lock the castors and level the unit using the red screw located inside the castor's casing. You can adjust the level using fingers or a flat wrench size 13.



Wheels with capability of leveling are only for positioning the device at the destination place. They cannot be used to transport the device!

If the unit, table or base is fitted with lockable castors, the wheels must be locked when the device is placed in proper position.



### 3.2. *Installation of container (in KK version)*

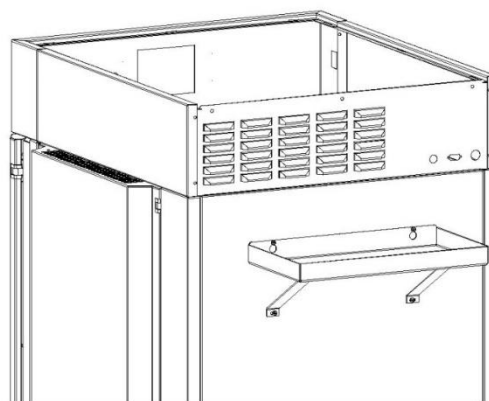
**ATTENTION: doesn't concern KKS units.**

The unit is equipped with a distilled water vessel. This is necessary for the unit's proper operation in case of no connection to the water supply system.

Install the shelf of the container on the back of the chamber. For installation is required Philips screwdriver PZ2.

To mount the base:

- Use 2 provided screws. Screw them in such a way that there is 3mm space between the wall and the top of the screw.
- Install the base and screw the top screws to the end and the 2 remaining screws in the lower part.



### 3.3. *HEPA filter*

The HEPA filter is an optional accessory for the CL/SL range. This option is factory preinstalled. The filter has H13 class to PN-EN1822-1:2009 norm. It should be located at the rear of the unit. The filter itself is delivered separately. You should place it in the cover so the black gasket is outside, then screw the cover to the rear wall of the unit. Please ensure that the distance between the filter and wall is not less than 100mm.



### 3.4. To install internal glass door

Internal glass door are available as an option in CHL and ST units and not available in ZL and SL units. In IL, CL, KK and KKS units internal glass door are standard equipment. The internal glass door comes as an option. To open or close the door use the plastic latch so the door will not fall out of the hinges. If the unit is working at high temperatures, do not touch the inner chamber or the glass door to avoid burning your skin. Use protective gloves to protect yourself.



The manufacturer does not recommend to install and disassemble of internal glass doors. Incorrect assembly or dismantling may damage the glass and cause injury to the user.

### 3.5. Condensation in the chamber

Water may gather on the bottom of the chamber, as a result of condensation from water vapor if set temperature is considerably lower than the ambient temperature.

The amount of water depends on the following factors:

- Differences between ambient and set temperatures
- Frequency of door openings
- Temperature of samples



If water gathers, use a dry cloth to wipe the bottom of the chamber.

Do not use any cardboard boxes, sponges and other hygroscopic materials for storing the samples since they may increase the relative humidity in the chamber.



Too high relative humidity in the chamber may frost the refrigerant and lower the performance of the cooling system. It may lead to higher energy consumption.



(For KK devices) Draining off of water is done by water outflow in accordance with gravitation. For this reason there might be little water left on the bottom of the chamber.



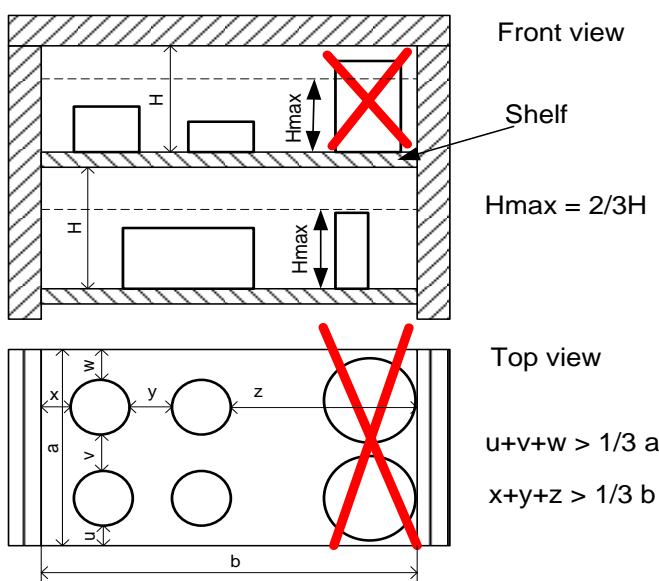
The ILP devices has been equipped with a drain for condensation water which may come from the modules of Peltier radiators. The condensation water is collected in a condensate collection tray, which is reachable from the backside of the device.

### 3.6. Placement of samples

To provide proper air circulation and stable conditions within the chamber, it is necessary to adhere to the following rules:

- the max height of the samples should not exceed  $2/3$  of the shelf space
- the samples should be placed so that the space between the containers does not exceed  $1/3$  of the width and height of the shelf
- samples should be placed with equal spacing between each other and the chamber walls

The picture below is an example of the placement of samples in the chamber.



Following the above rules will provide optimal parameters of temperature stability and uniformity.

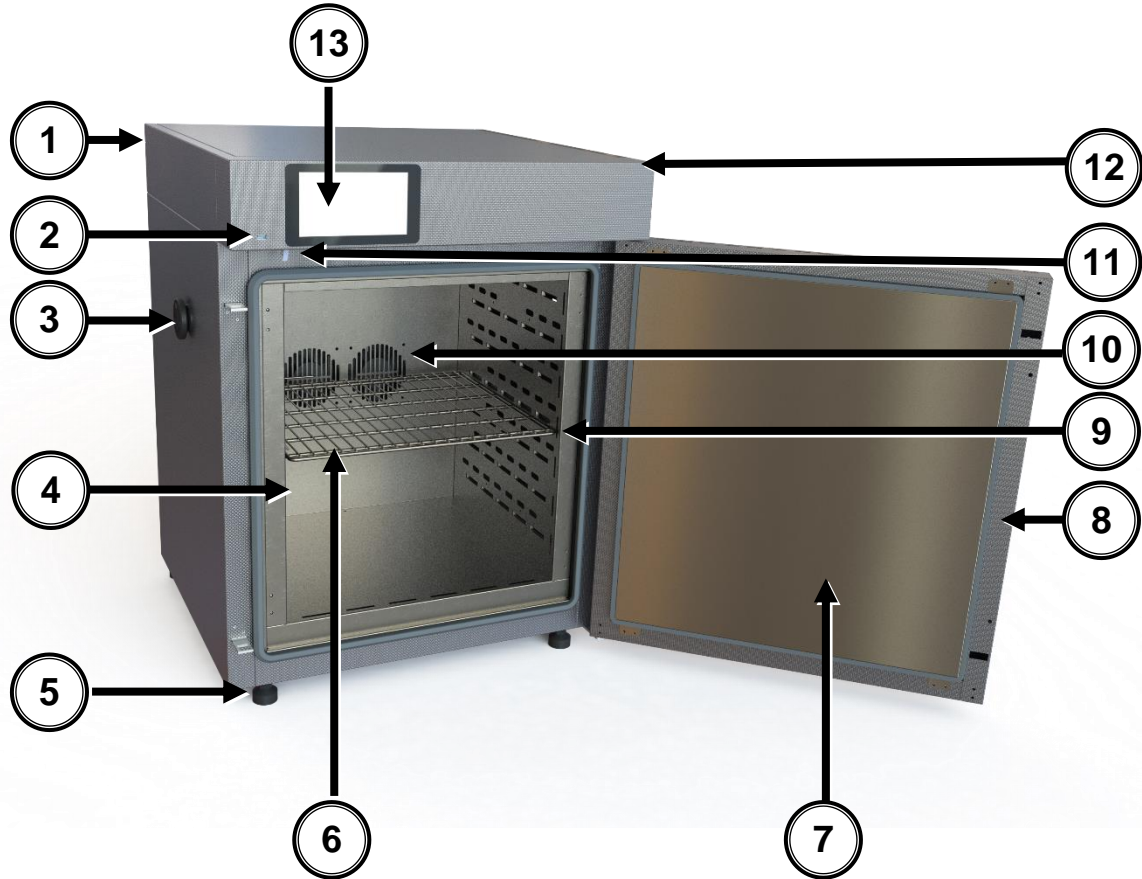
### 3.7. Closing the chamber door

The ILP incubators have been equipped with a 2-point lock. To close the door, turn the handle to the vertical position, push the door gently then turn the handle to the horizontal position. If the door has not been closed properly, an alarm will sound. Closing the door correctly reduces energy consumption and ensures consistent temperature stability and uniformity.

## 4. DESCRIPTION OF THE UNIT

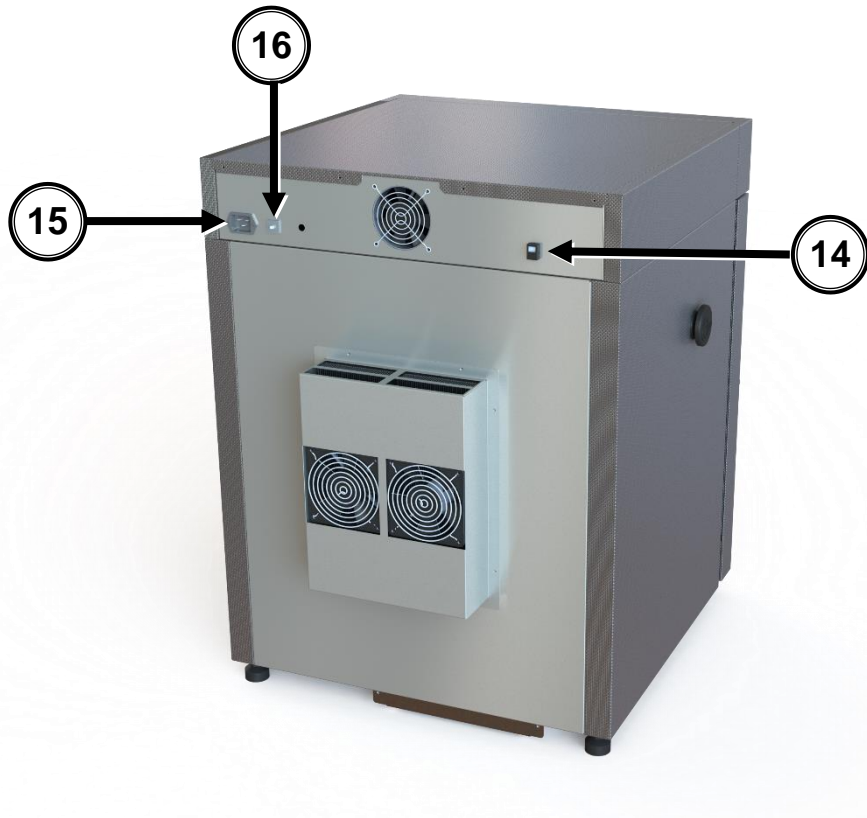
SMART PRO models were equipped with PID microprocessor temperature controller and full color touch screen (7 inch, resolution 800x480).

### 4.1. Appearance of the devices ILP



#### Front view

- 1) Nameplate
- 2) USB port
- 3) Access port (30 mm)
- 4) Internal glass door
- 5) Height adjustable feet
- 6) Shelf
- 7) Door
- 8) Key lock
- 9) Slide
- 10) Chamber fans
- 11) Open door sensor
- 12) Main power switch
- 13) Electronic controller with touch panel

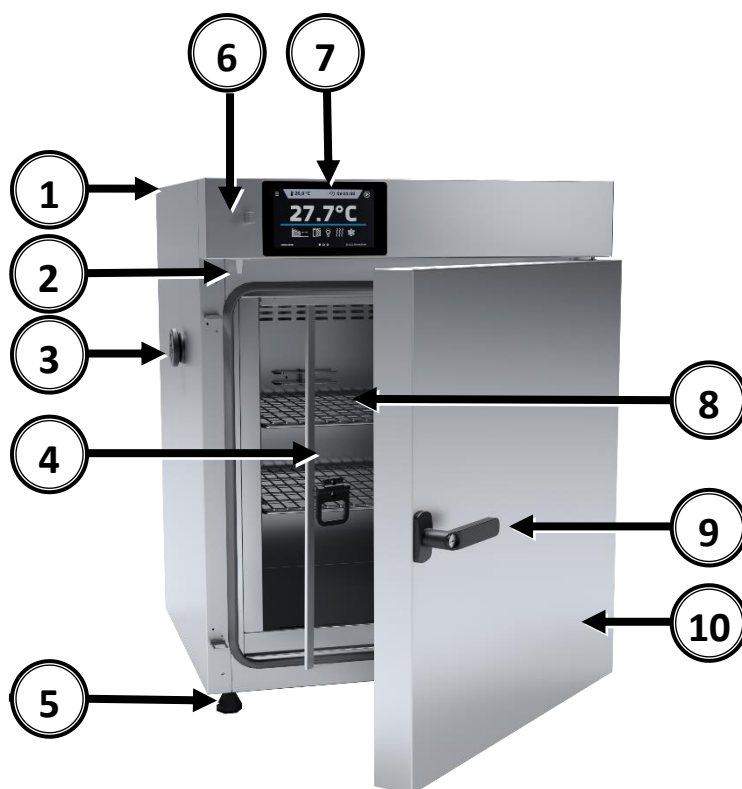


Rear view

- 14) Interface LAN
- 15) Main power socket
- 16) Fuse

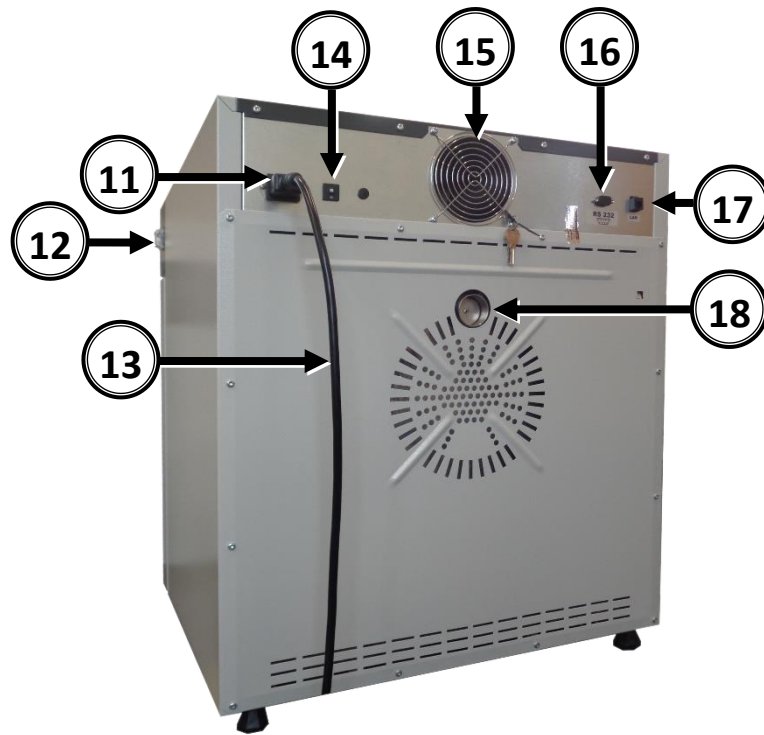
## 4.2. Appearance of the devices SL/CL

Below is a photo of a CL53 device with a capacity of 56l with a description of essential components of the device.



### Front view

- 1) Rating plate
- 2) Door sensor
- 3) Access port Ø30mm for external sensor
- 4) Internal glass door
- 5) Adjustable feet
- 6) USB port
- 7) Touch screen
- 8) Shelf
- 9) Handle with lock
- 10) External solid door



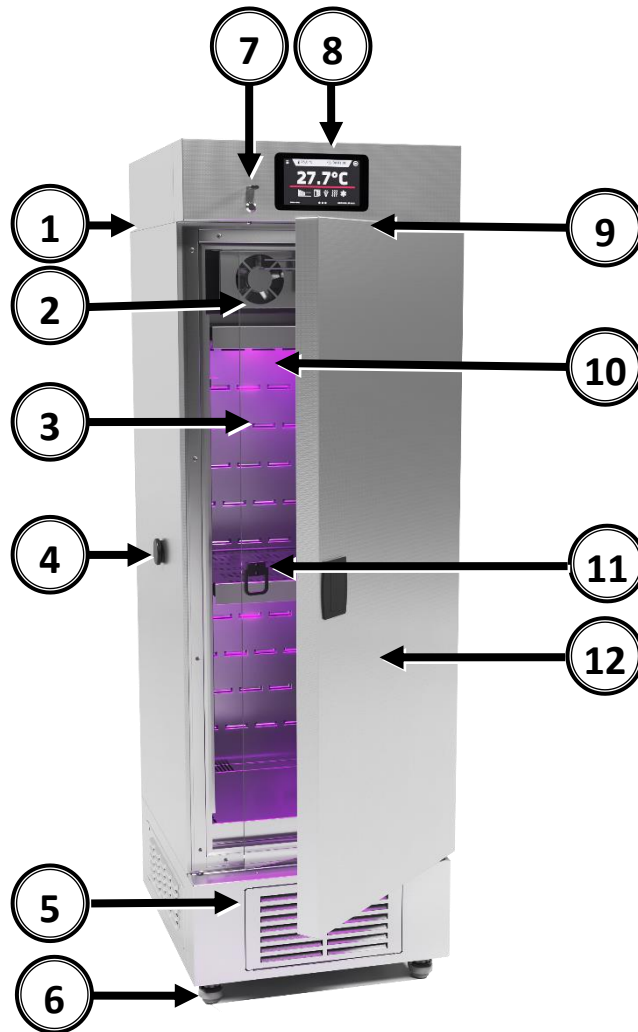
Rear view

- 11) Power socket C20
- 12) Main switch
- 13) Power cord
- 14) Fuse
- 15) Electronics cooling fan
- 16) RS232 socket
- 17) LAN socket
- 18) Air-flap



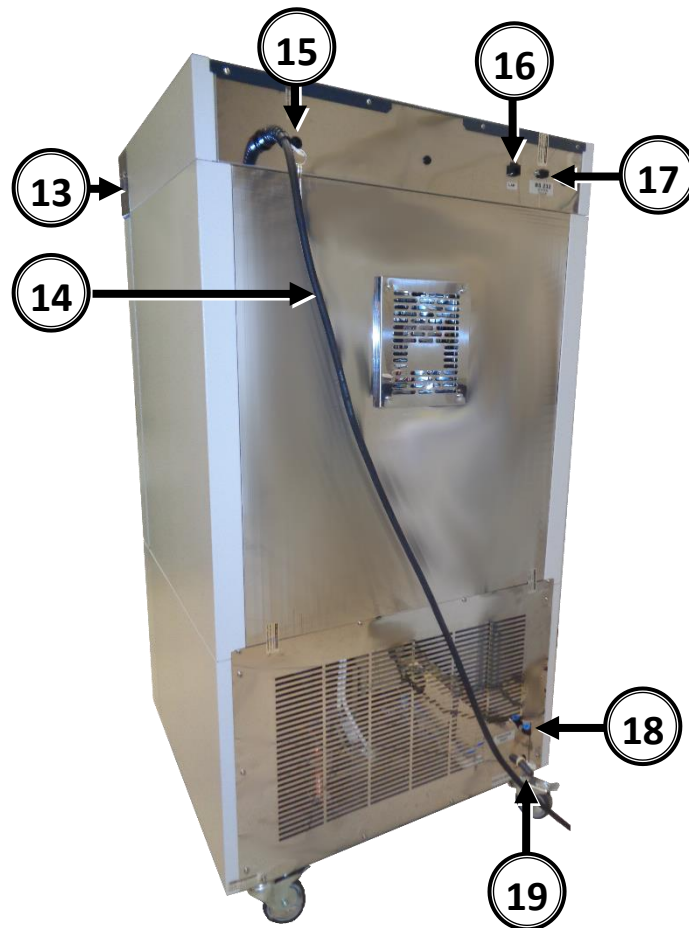
### 4.3. Appearance of the device KK,IL

Below is a photo of KK115 - capacity 115l with a description of the essential components of the device.



#### Front view

- 1) Rating plate
- 2) Chamber fan
- 3) Internal glass door
- 4) Access port  $\varnothing 30\text{mm}$  for external sensor
- 5) Condenser cover
- 6) Wheels with break
- 7) USB port
- 8) Touch screen
- 9) Door sensor
- 10) Illumination FIT (option)
- 11) Shelf
- 12) External door



Rear view

- 13) Main switch
- 14) Power cord
- 15) Fuse
- 16) LAN socket
- 17) RS232 socket
- 18) Water inlet (for KK)
- 19) Water outlet(for KK)

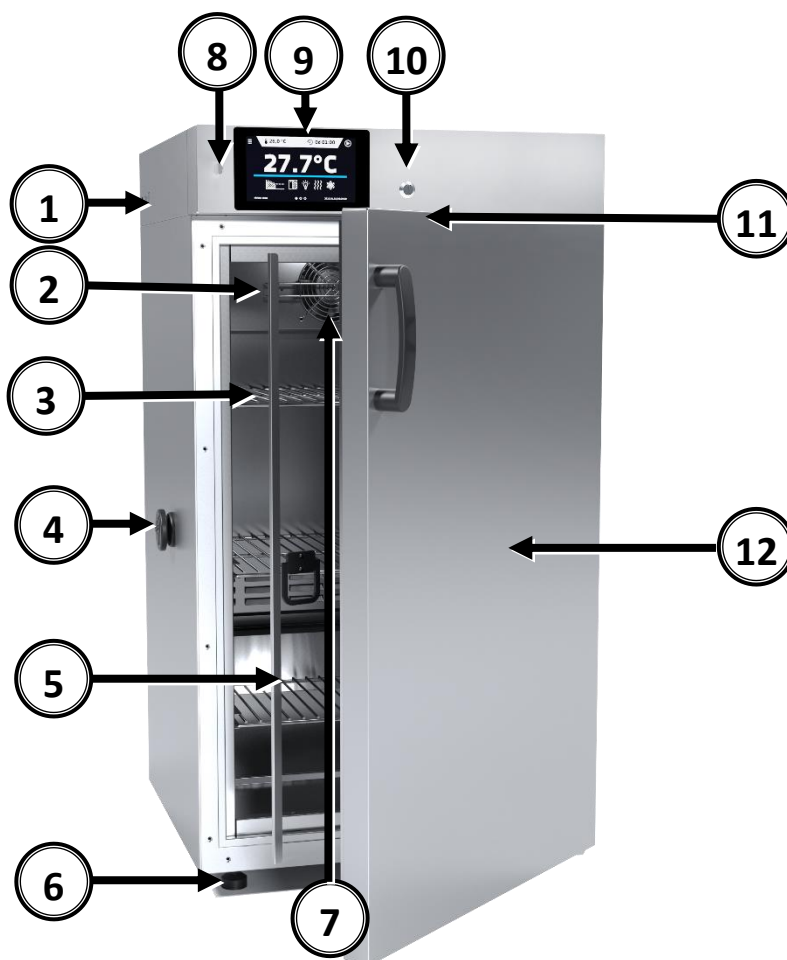
A water tank should also be installed

(see chapter: 4.2 Installation of container - (in KK and KK FIT version)

In KKS unit, on the back there is a cover of water tanks, drain is located in the middle.

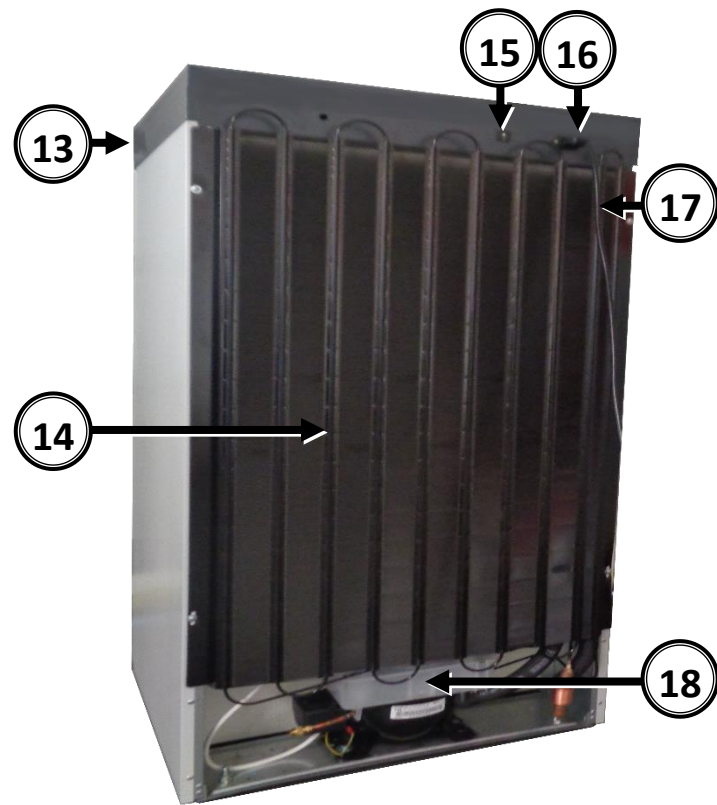
#### 4.4. Appearance of the device ST/CHL

Below is a photo of ST 3 – capacity 200l unit with a description of the essential components.



##### Front view

- 1) Rating plate
- 2) Temperature sensor
- 3) Shelf
- 4) Access port Ø30mm for external sensor
- 5) Internal glass door
- 6) Adjustable feet
- 7) Fan chamber
- 8) USB port
- 9) Touch screen
- 10) Key lock
- 11) Door sensor
- 12) External door



Rear view

- 13) Main switch
- 14) Condenser
- 15) Fuse
- 16) Power socket C14
- 17) Power cord
- 18) Cooling system

## 5. DEVICE OPERATION



This symbol means that a given field / window can be moved in the direction shown in the picture

### 5.1. Internal memory

During using the unit, it may be necessary to write or read the data from the external memory – a USB flash-drive. The USB flashdrive should be formatted the FAT 32 file system. The unit should be placed in USB slot located on the front the device, near to the display. Wait a few seconds, the corret reading is indicated by the message „USB flashdrive connected” at the bottom of the screen.

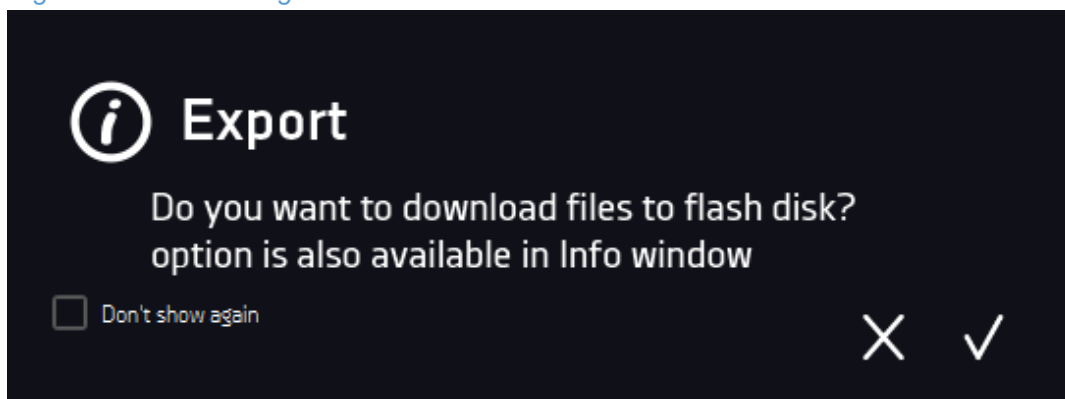


USB slot is used to connect a flash memory – a pendrive. Connecting other devices (external hard drives) or any other is not authorized by the manufacturer and may damage the USB slot.

### 5.2. First boot

During the first boot, the screen ([Figure 1](#)) will display proposing to save the "Download" folder (among others with instruction manual) on the USB flashdrive. Insert the USB flashdrive and wait a second to detect the hardware, then press . By pressing  you quit downloading the folder, the window will appear again during the next start. You can tick „Don't show again” so that the window will not be displayed when you start. You can always download the "Download" folder in the information panel. More information, » [page 73](#)  
During the first boot you should set date/time and time zone » [page 81](#).

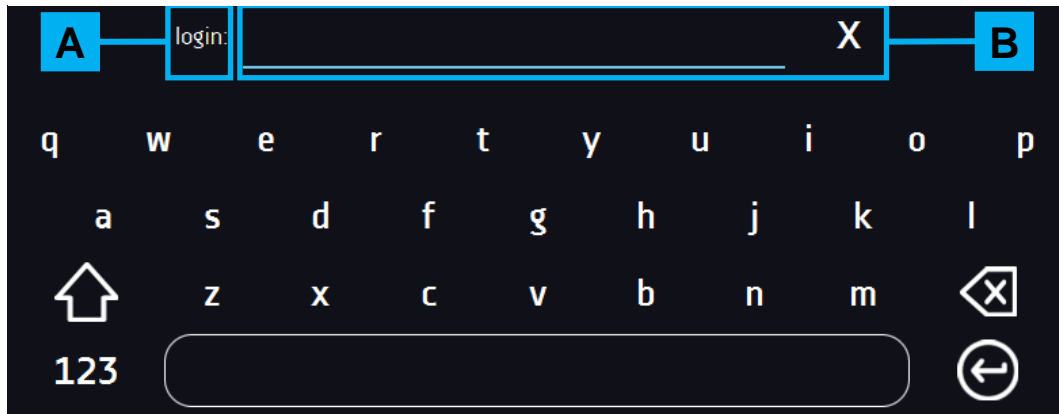
*Figure 1 – Downloading files*






### 5.3. Using the keypad

When operating the device, it is sometimes necessary to enter alphanumeric characters (eg. when logging in to the system, entering the User's name, etc.). In such cases, the keypad appears on the display screen. In those cases the keypad will appear (*Figure 2*). In addition to the standard letters, there are symbols corresponding to the computer keyboard.

Figure 2 - Alphanumeric keypad




- A** Edition of field name
- B** Edition field
- X** Deleting the entire text
-  Change to block letters (the size of letters is important when entering login and password)
- 123** Change to numbers or special characters
- ABC** Change to letters
-  Deleting the entered character
-  Confirmation of the entered text/closing the keypad



Sometimes input characters can be displayed as asterisks ("\*\*"). This happens when input information is secret (e.g. when typing passwords).

## 5.4. User logging in

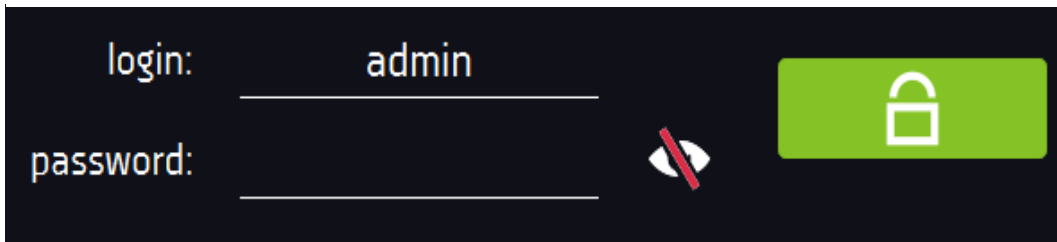
Only the logged-in user can control the device. If no user is logged-in, press  in the main screen. The login window will appear (*Figure 3 - Login panel*).

Factory default login parameters:


login: admin,

leave the password field empty.


*Figure 3 - Login panel*



It is advised to set the Administrator password during the first run and make a note in a safe place in order to avoid interference of unauthorized people.

	<p>It is necessary to write down and remember the admin password because it is not possible to reset it!</p> <p>If the password has been lost, it is necessary to contact service.</p> <p>Resetting the password is not a warranty repair!</p>
---	--

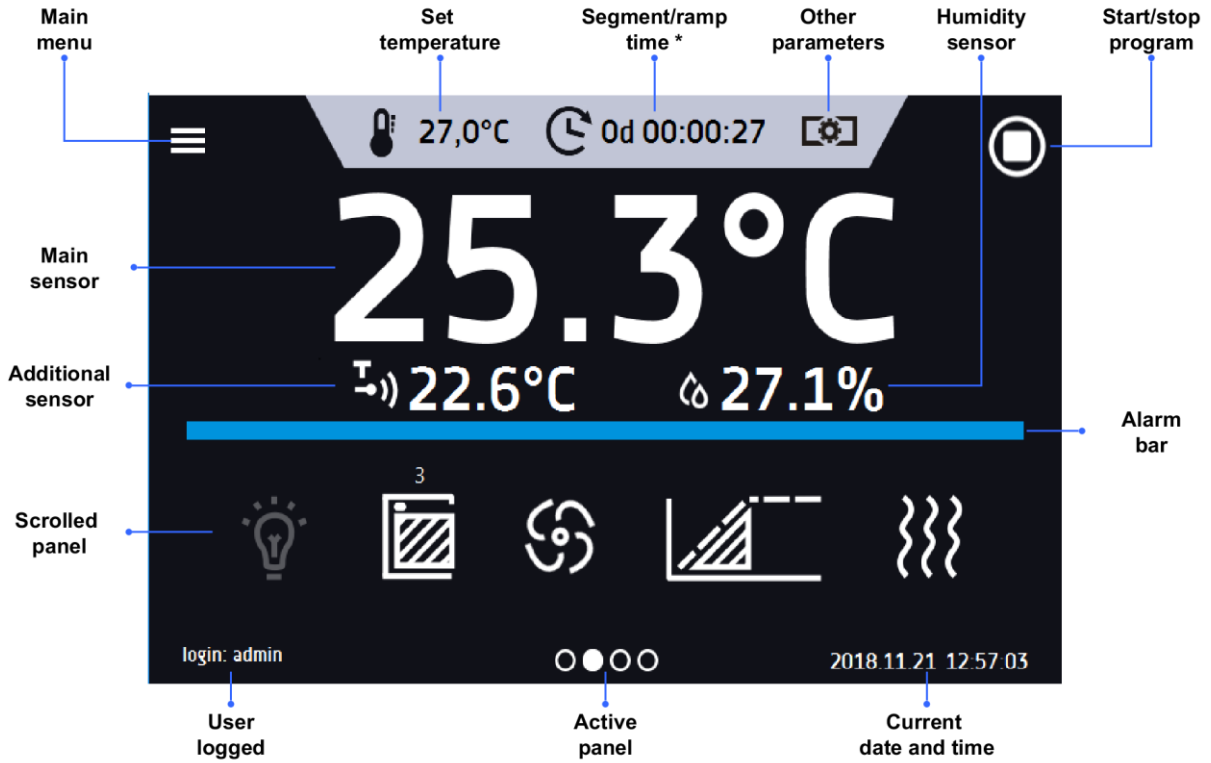
Information about the types of user accounts. » [page 77](#)

**Logging out:** press  in Main Menu (*Figure 52* or *Figure 53*)

## 5.5. Main Screen

After switching on the device, the Main Screen (*Figure 4*) appears. It contains the information about the device status. To access to most functionalities the user should log in.

Figure 4 - Main Screen



\* - elapsed / remaining time » [page 57](#)



### 5.5.1. Upper menu expandable

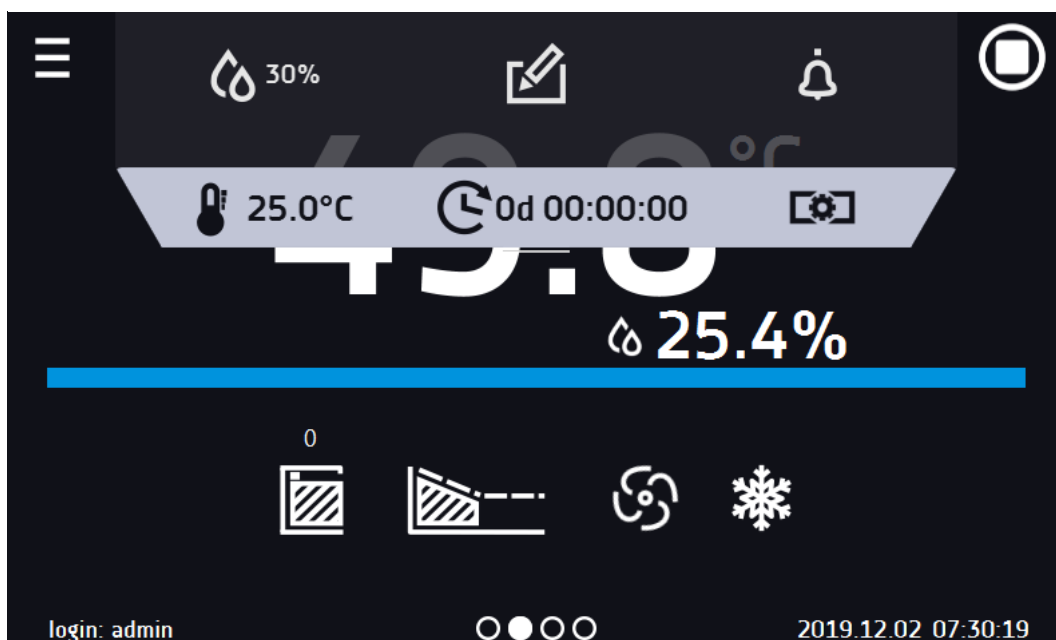
After swiping your finger down (*Figure 5*) you will see options (*Figure 6*) that you can quickly change by dragging and changing the icons (*Figure 7*). Among the options available in the bar we will find:

- Quick Note (more information » [page 39](#)),
- mute function (more information » [page 40](#)),
- Quick Change (more information » [page 56](#)):
  - segment time elapsed or remained
  - set temperature,
  - set humidity (only for KK and KKS),
  - others parameters (fan, flap) available in selected models.

*Figure 5 – expanding the menu bar*

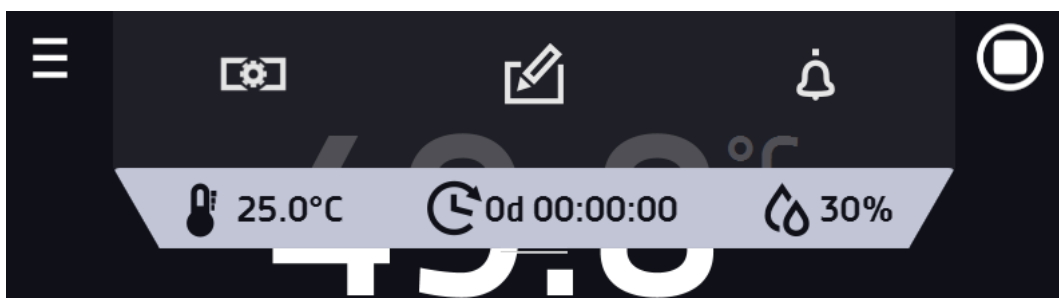


*Figure 6 – expand the menu bar*




Positions available on the top bar can be personalized. Just drag the selected button to a new place.

Figure 7 – change positions



### 5.5.2. Alarm bar

The colour of the bar indicates the status of the device:

 – blue – the device is working properly

 – red – alarm

### 5.5.3. Alarms panel

In this place appears the list of alarms. With active alarm, the control bar is red. The alarm event is displayed in the list, with the status alarm active.

When an alarm event stops, the alarm remains in the list as inactive.

- “**delete**” button – confirms and removes the alarm from the list (only inactive alarms can be deleted),
- “**confirm**” button – confirms the class 2.0 alarm,
- “**details**” button – displays a preview of all instances of selected alarm (*Figure 9*).

Figure 8 – Alarms panel

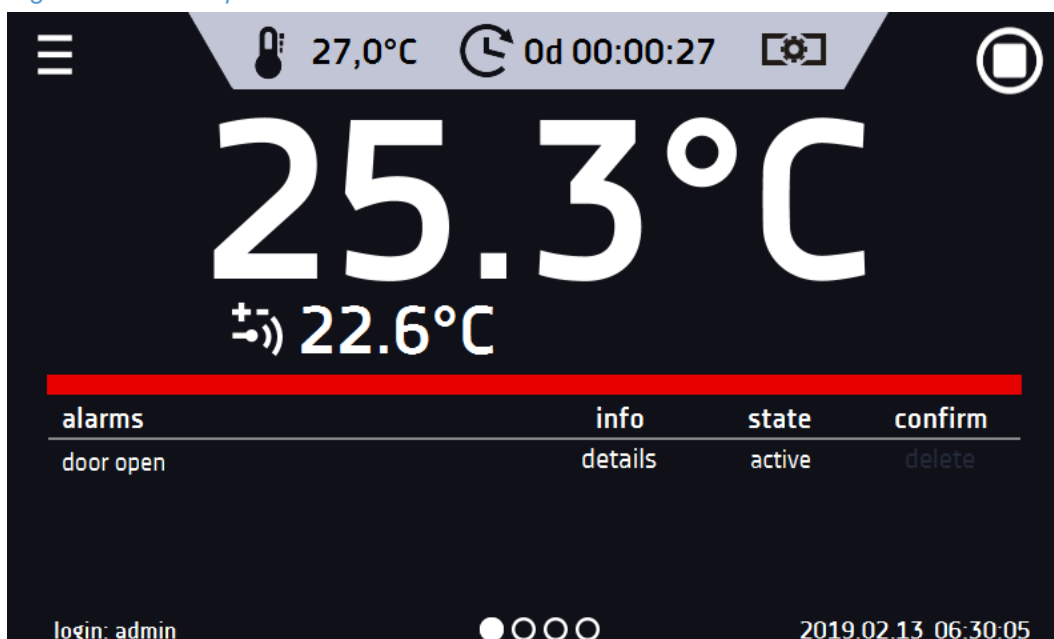
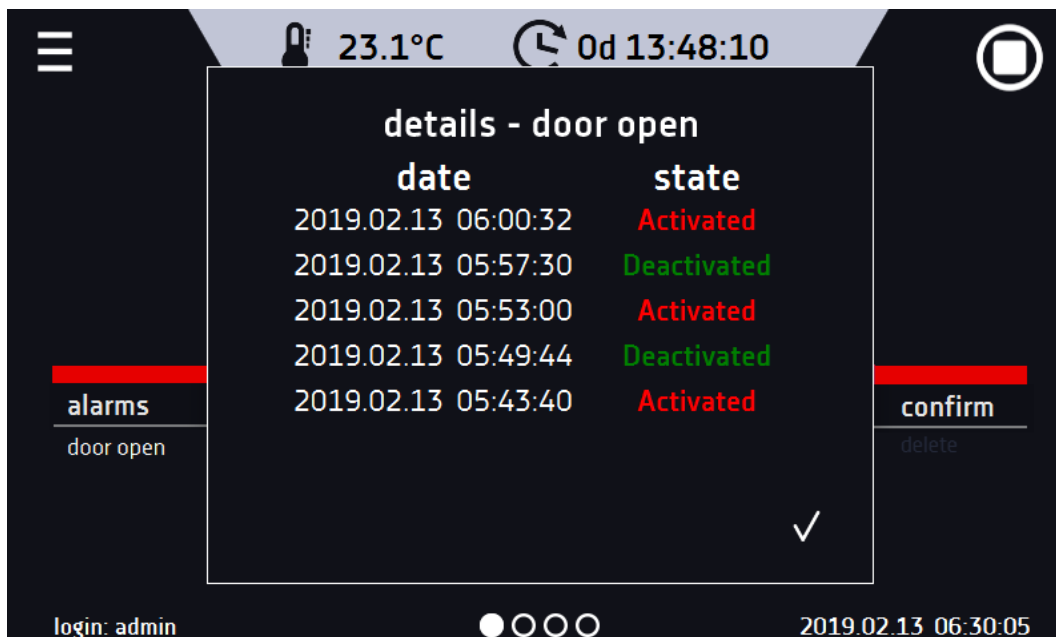



Figure 9 – Alarm details



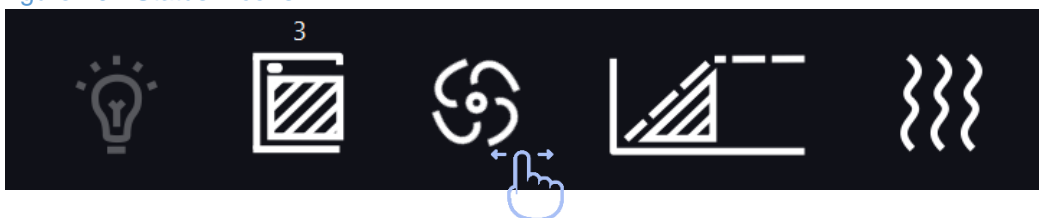
If there are more alarms, a button  appears on the right side of the list that allows you to expand on the entire screen.


#### 5.5.4. Information panel

You can view four different windows. Switching between them is done by swiping your finger left or right.

Information about which window is active indicates .

Figure 10 - Status - icons



Internal light is switched on It is automatically switched on when the door is opened and switched off after closing. By pressing the icon  on the status panel you can manually switch on/off the light. In FOT versions symbolizes the active photoperiod lighting controlled from the program.



Light icon FIT – symbolizes the active phytotron lighting, controlled from the program.



Closed door, open door. The number above the icon presents open door counter, press the icon to cancel the counter. The counter is also cancelled during turning on the device



Icon for the fan. Rotating icon shows that the fan is running. Icon does not move at status program off or when the fan is defect\*



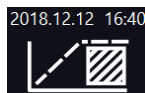
Ramp status: Chamber is currently cooling down or heating up to reach set temperature



Set temperature is reached



Active schedule or start delay. The program will start at the given date/time



Active schedule – the program will be executed up to the given date/time



Icon is visible only when the chamber lowering the temperature. Only in CHL, ST, ILW, ILP series devices




Icon is visible only when the chamber increases the temperature



Icon is visible only when the defrosting function is on or defrosting program is running

\* Signalling of a faulty fan by stopping the icon on the display works only in ILP series devices.

## Internal light


It is automatically switched on when the door is opened and switched off after closing. By pressing the icon  on the status panel you can manually switch on/off the light.

### 5.5.5. Status - description

The status of the device is indicated by description

Figure 11 - Status - description

program name	program	status	set temperature
program user	a	time set	12d 00:00:00
priority	parameters	time elapsed	0d 00:00:25
current segment	1/2	time remaining	11d 23:59:35
current loop	1/4		



program name	The name of program
program user	The name of user to whom the program belongs
priority	In regard of time or parameters, more information can be found on » <a href="#">page 50</a>
current segment	Currently performing segment / total number of segments in the program
current loop	Currently performing cycle/ total number of cycles to perform » <a href="#">page 50</a>
status	Status of the program: ramp, set temperature, program off
time set	Set time of performing segment
time elapsed	Elapsed time after reaching the segment
time remaining	Remaining time until the end of the segment

### 5.5.6. Status – protection and alarms

In the left part there is information about the class and the upper and lower set values. It is associated with a running or completed program. The protection parameters can be set in the program parameters » [page 44](#). Information about protection classes » [page 51](#).



In the right part there is information about the set alarms. Alarms set » [page 83](#). Separately for overrunning up and down. The value 0 means the alarm is turned off.

Figure 12 - Status – protection and alarms



### 5.5.7. Quick Note

While operating the device, user can save notes in its memory. eg. notes containing an entry eg. about inserting a new cartridge, about changes in input etc.

To enter the note you must be logged-in. Press the icon  in the main window on the upper menu, and then press „Write message” in a new window ([Figure 13](#)). Use the keypad to enter the note and confirm it by pressing . The entered notes cannot be changed.


The entered notes can be seen in the event log, they are symbolized by an icon . More information » [page 70](#).

Figure 13 – User message



### 5.5.8. Mute function

Temporary switching off of sound alarms e. g. to avoid an open door alarm when the load is scheduled to be loaded into the chamber. Mute is available for 5, 10 and 15 minutes.


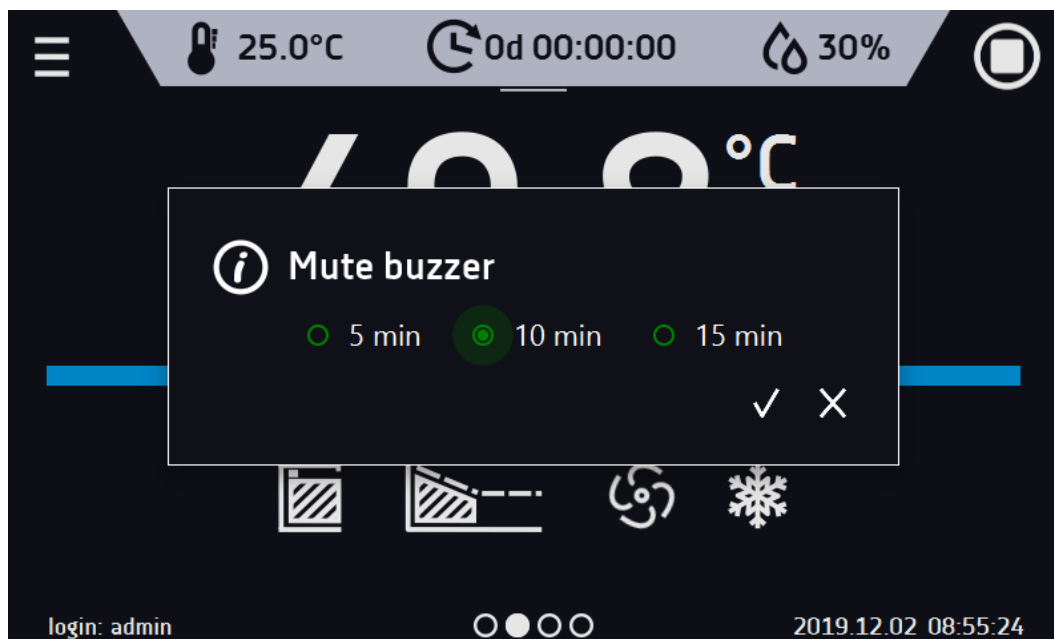

Press the icon  in the main window on the upper menu, in the new window select the time (*Figure 14*).

Figure 14 – mute function





## 5.6. Quick Program

Quick Program allows you to quickly start the program from the home screen position without having to enter and create a menu (Figure 15). After switching on the device and logging, a symbol  will be available on the main screen, which will enable you to switch on the program after setting the temperature (optional humidity, fan, flap depending on your model of device). The program is started in continuous. The Quick Change option is available during the program. During program performing it is possible to change parameters (temperature, humidity, flap, fan). Just press the appropriate button on the top beam. The next time you start SMART, the previous settings are remembered.

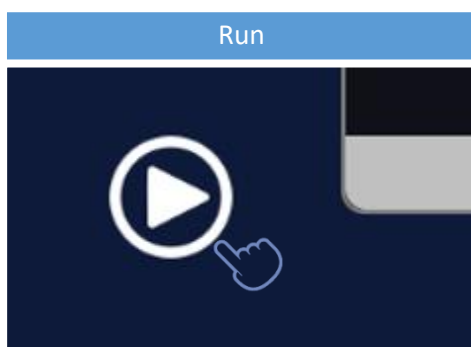
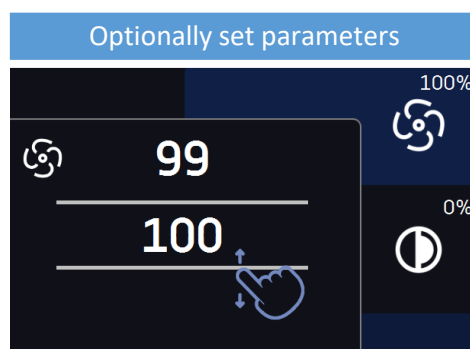
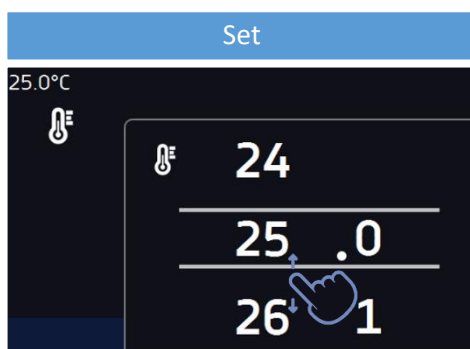
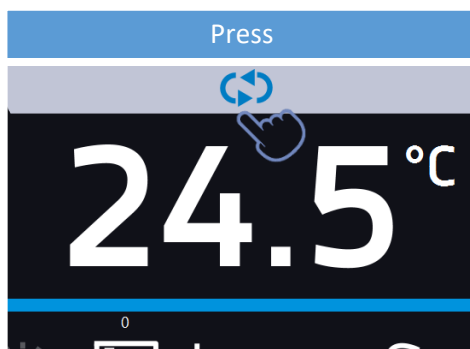
### Temperature protection:

The highest available protection class is set. The protection values depend on the set temperature:

set temperature  $\leq 15^{\circ}\text{C}$ : under temperature protection = set temperature  $- 2^{\circ}\text{C}$ , over temperature protection =  $30^{\circ}\text{C}$

set temperature  $> 15^{\circ}\text{C}$ : under temperature protection = set temperature  $- 5^{\circ}\text{C}$  (max  $20^{\circ}\text{C}$ ), over temperature protection set temperature  $+ 5^{\circ}\text{C}$  (min.  $30^{\circ}\text{C}$ )

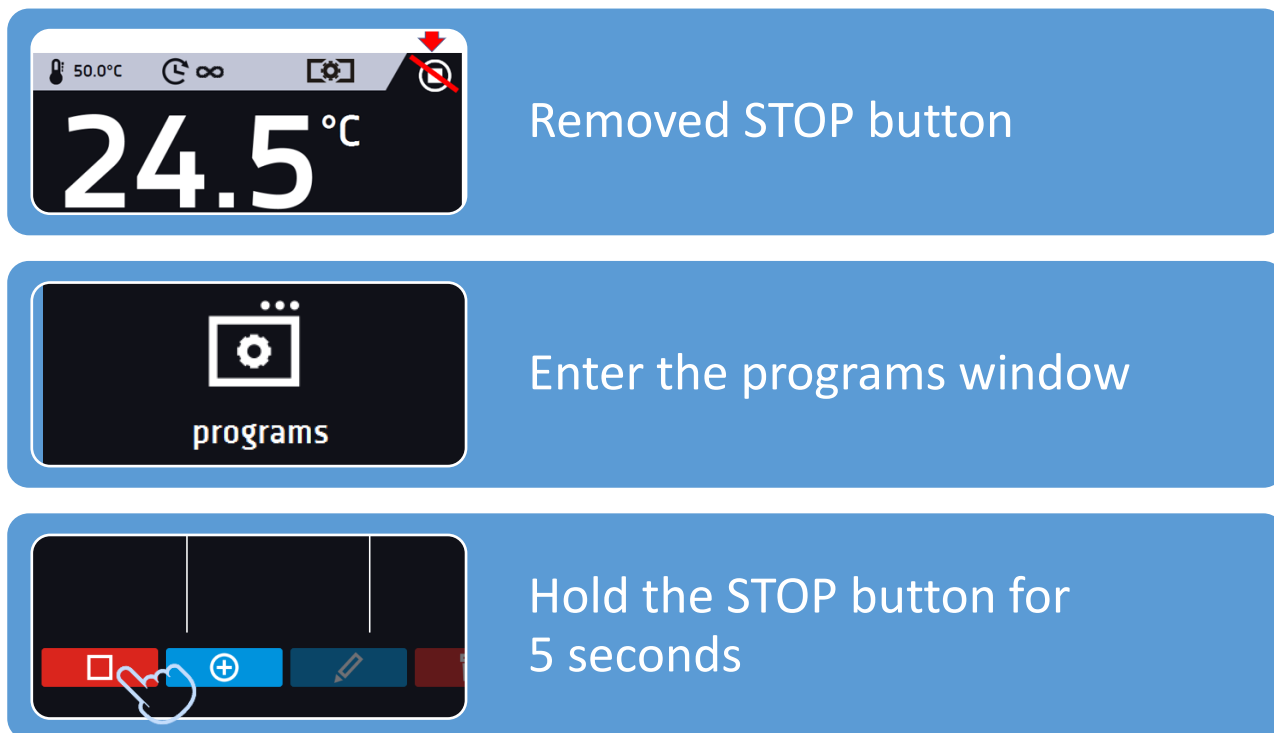
Figure 15 – Quick Program - running



The SMART program has several features that guarantee its uninterrupted performance

- the program is always set to infinity;
- If the display fails, the program continues;
- After the power supply is resumed (after its loss), the program continues;
- To prevent the program from stopping accidentally, the STOP button was removed from the main window (stopping the program was intentionally made difficult. It is necessary to enter the device menu, then the programs window and hold the STOP button for 5 seconds *Figure 16*).








*Figure 16 – Stop Quick Program*



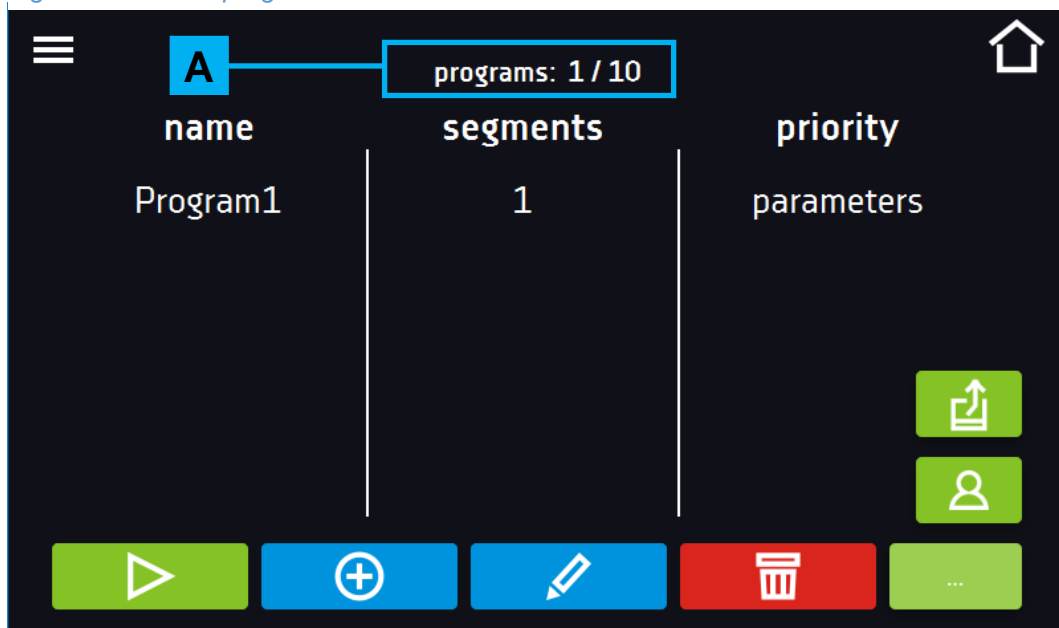
## 5.7. Programs

In this panel (*Figure 17*) you can run the selected program, add a new one, edit the program, delete it, make it available to another user and download it from the USB flash drive. The number of programs you can create depends on the super\_admin user-defined limit.

Menu push buttons:



-  Run the selected program
-  Stop the program
-  Add a new program
-  Edit the selected program
-  Delete the selected program
-  Download the program from the USB flash drive
-  Make the program available to another user

*Figure 17 - List of programs*



Information about the number of created programs and the programs to be created is presented at the top **A**

### 5.7.1. Program creation / edition

Press the button  or , and a panel with program parameters will appear (*Figure 18, Figure 19*).

You can set the panel:

- **Name** – after pressing, the keypad will appear and you will be able to enter the name of the program
- **Segments number** – the number of segments
- **Interval** – frequency of saving to data logging
- **Protection class** – more information » [page 51](#)
- **Protection temperature** – temperature range for the protection class
- **Priority** – the priority of time or parameters, more information » [page 50](#)
- **Loop** – the number of program repetitions, more information » [page 50](#).

*Figure 18 - Program parameters*

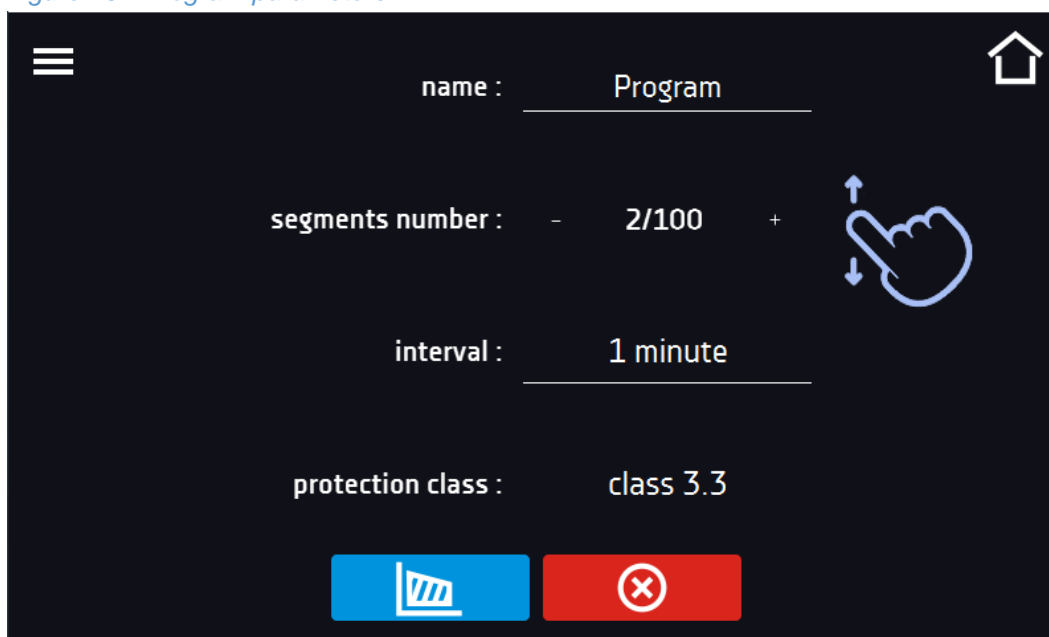
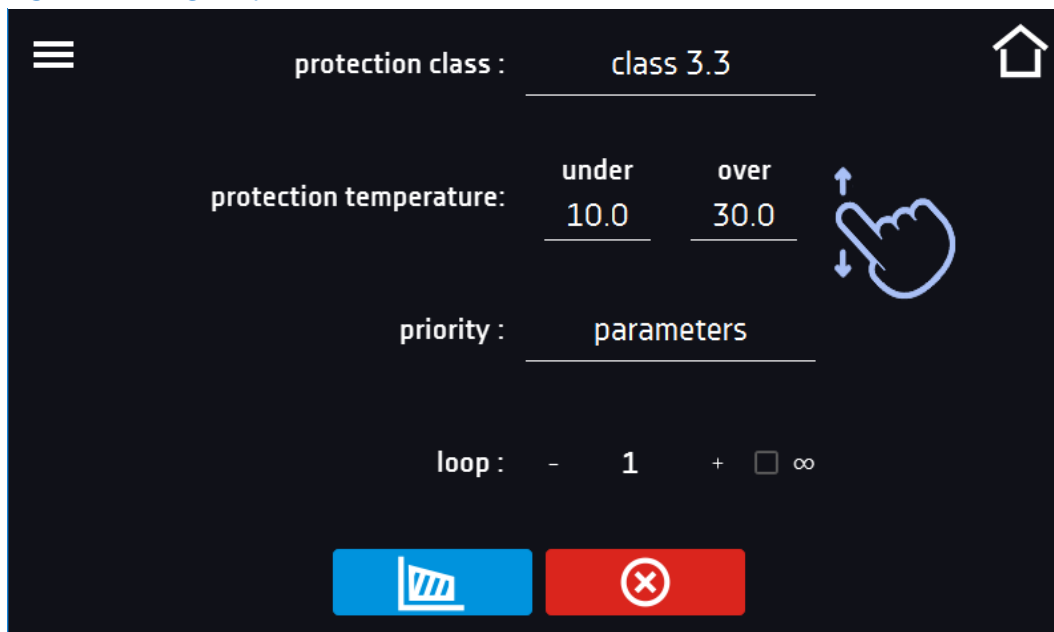


Figure 19 - Program parameters



Cancels adding or editing of the program




Switching to the edition of program segments



With more parameters you can scroll the panel up and down

### 5.7.2. Segments edition

Press the button , and the first program segment will appear (*Figure 20, Figure 21*). You can set 1-100 segments.

In this window you can set:

- **temperature** – target temperature which the device is to achieve in this segment, (can't be lower than under temperature protection +2°C and higher than over temperature protection -2°C).
- **time** – the time of maintaining the set temperature ([d hh:mm]) (days, hours and minutes) it is possible to select continuous work in the last segment. ∞
- **ramp time** – the time of reaching the set temperature ([d hh:mm]) (days, hours, minutes)

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

- **humidity** – maintaining of the set humidity in percent,
- **fan** – fan efficiency in percent,
- **flap** – the level of air-flap opening
- **ramp fan** – fan efficiency during reaching the set temperature
- **ramp flap** – the level of air-flap opening during reaching the set temperature
- **light** – settings FIT or FOT light in this segment. More information see » [page 48](#)

The active value is highlighted in blue.

The item highlighted in red means that the value is out of range and you should enter another one, eg the temperature is above / below the operating range of the device or the protection temperature.



It is strongly recommended that you leave the fan speed at 100% as set by default. If you decrease the fan speed, the chamber may frost, temperature/humidity stability and uniformity will be affected and condensation may occur as a result.

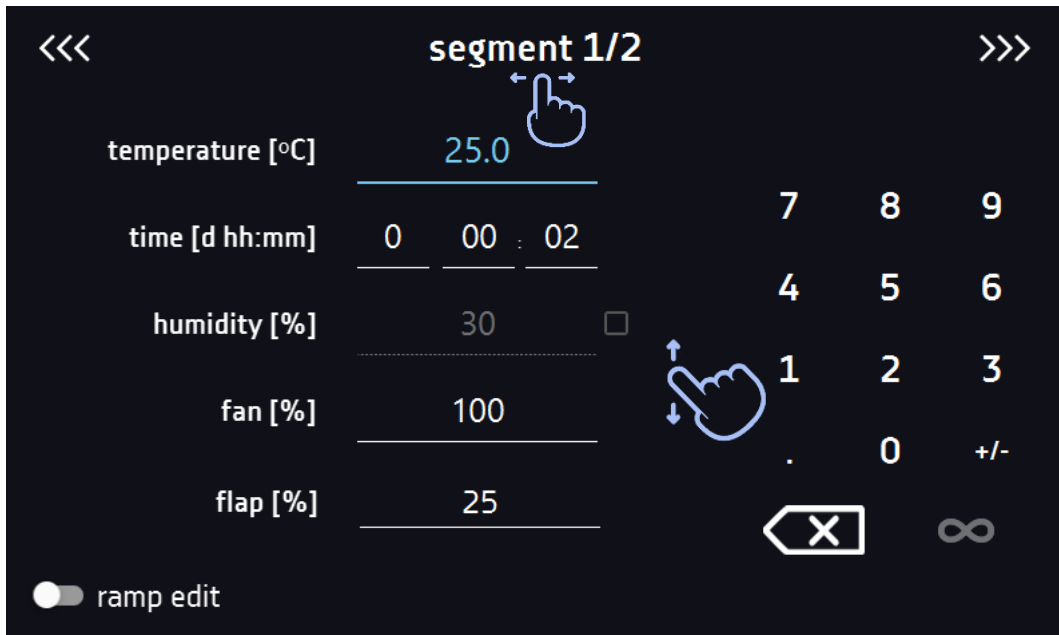


It is used to achieve temperature. Setting a short period of time for gaining given temperature won't speed up the process, it's going to be achieved in the shortest possible time depending on the given temperature, environmental conditions and prospect of cooling or heating system in the device.



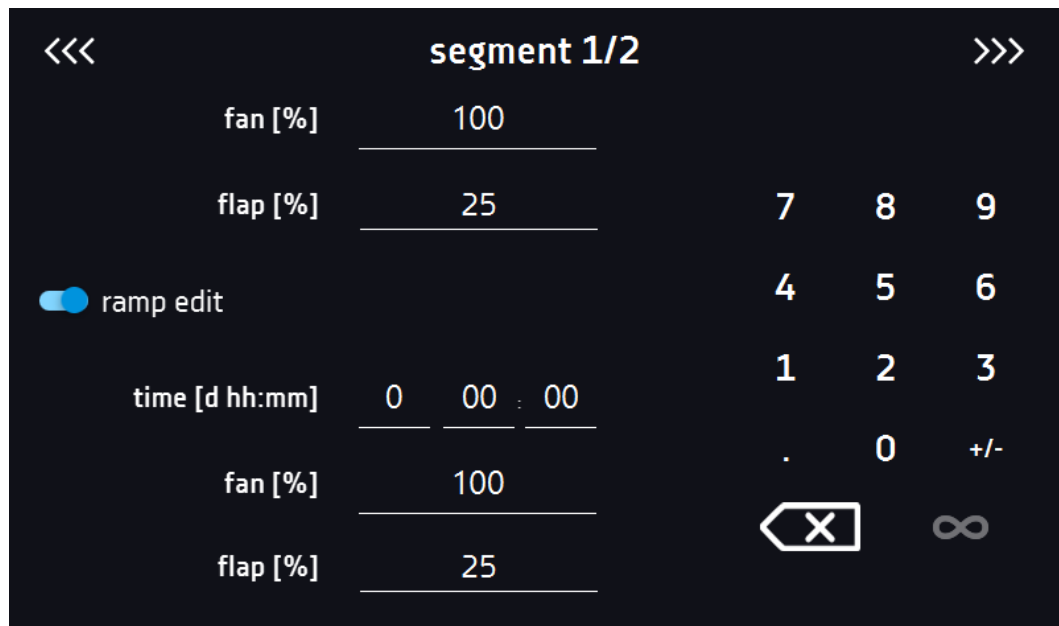
With more parameters you can scroll the panel up and down.

Figure 20 - Program segment edition



The ramp parameters are set to the values recommended by the manufacturer. If it is necessary to set individual parameters, activate the edit ramp field and set your own values (Figure 21).

Figure 21- Program ramp segment edition



The navigation between: segments, program parameters and summary is done by swiping up the segment with the finger or touch the icon <<< >>>.

## FIT / FOT light

The photoperiodic (FOT – available in STD units) and phytotron (FIT) functions allow you to perform day and night simulations. FIT version compared to the FOT version also allows smooth adjustment of light intensity.

### Devices with one lighting zone:

- FOT – select the check box to switch on the light in the segment
- FIT – set the percentage of light in the segment

### Devices with many independently controlled lightning zones:

- FOT/FIT – click the light bulb icon to set the light for each zone in a separate window, check the box to turn on the light in the segment (*Figure 22*).

*Figure 22 – light settings*



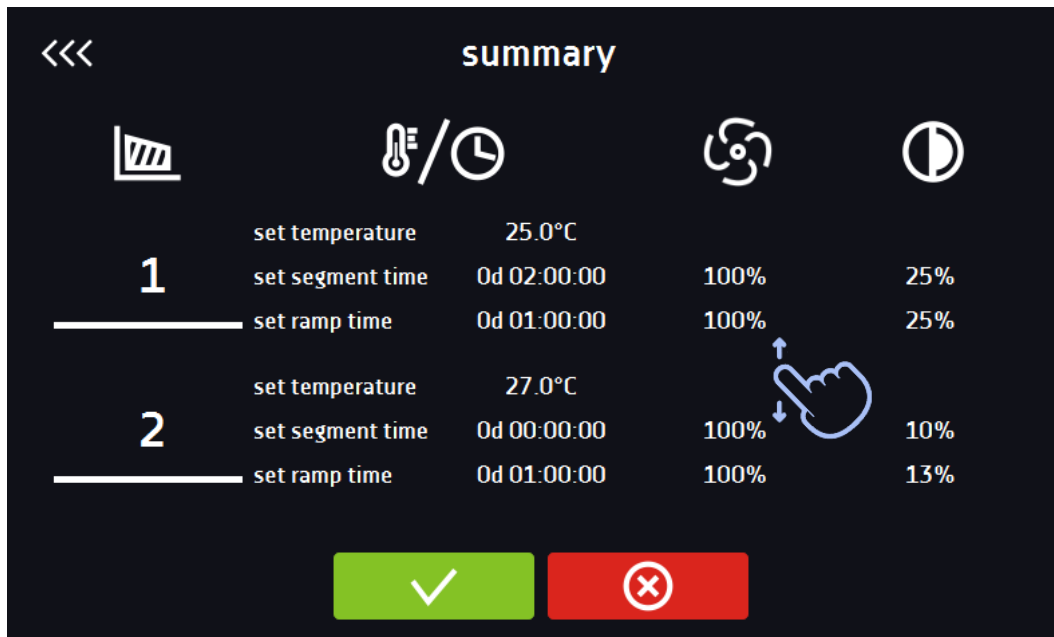


### 5.7.3. Summary of segments

In the summary in the figure all segments (*Figure 23*) are visible along with the entered settings:

- segment number,
- Temperature, duration time, target time of reaching temperature of a given segment
- Fan efficiency, (available on selected models)
- The percentage of air-flop opening (available on selected models).

Figure 23 - The summary of the program



Confirms and saves the program



Cancels the entered changes to segments and goes into program parameters.

»Page 44



With more parameters you can scroll the panel up and down

### 5.7.4. Loop

The option is available if the number of segments is equal to 2 or more.

When the program finishes the last segment, the device starts the program again from the first segment.

The selected number determines the amount of the program repetitions. If the time of the last segment is set to infinity, it will be treated as infinite in the last cycle. In the remaining cycles it will be treated as 0.

### 5.7.5. Priority

Can be set in terms of:

#### **Parameters:**

The program without a ramp – the device starts the countdown of the segment time when the set temperature is reached.

The program with a ramp – first, the device counts down the time of the ramp and then proceeds to the segment countdown when the set temperature is reached. Regardless of whether the time of ramp elapsed.



It may happen that the device couldn't reach the set temperature within the set time because the reaching time was too short. In such situation the reaching time will be exceeded and the segment's time countdown will start when the set temperature is reached.

#### **Time:**

The program without a ramp – the device starts counting down the segment time when the program is started. Regardless of whether the temperature has been reached.

The program with a ramp – the device first counts down the ramp time and after its expiry it proceeds to the countdown of the segment time. Regardless of whether the temperature has been reached.



It may happen that the time of reaching was too short and the device failed to reach the set temperature within the set time. Then the countdown of the segment time will start before reaching the set temperature. Thus, the actual time of device stay in the set temperature will be shortened.

### 5.7.6. Protection class

The device is equipped with cartridge protection – temperature protection, which is realized on the basis of the temperature value measured by an independent temperature sensor, the so-called security sensor.

The main aim of the cartridge protection is to protect against uncontrolled rise or fall in temperature. At the moment of activation, the relay disconnects the heating / cooling power supply.

There are five classes of cartridge protection:

**Class 1** – there is no under and over temperature protection

**Class 2** – over temperature protection – when the temperature drops below the set protection value, the power does not turn on automatically - the user must do it by pressing „confirm” on the alarm panel. (*Figure 24*)

*Figure 24 - Confirmation of protection alarm class 2.0*

alarms	state	confirm
over protected temperature	active	confirm

**Class 3.1** – over temperature protection – when the temperature drops below the set protection value, the power turns on automatically.


**Class 3.2** – under temperature protection – after rising the temperature above the set protection value, the power turns on automatically.

**Class 3.3** – over and under temperature protection – combination of classes 3.1 and 3.2


The temperature set in the segment can not be higher than the upper protection temperature less 2 ° C, e.g. the upper protection temperature: 50 °C the maximum temperature set in the segment that can be given is 48.


More information see » [page 101](#).


### 5.7.7. Defrosting program

Some of the units that come with a cooling system feature a special defrosting program (*Figure 25*). It appears on the list of programs available in the main screen after pressing the button .

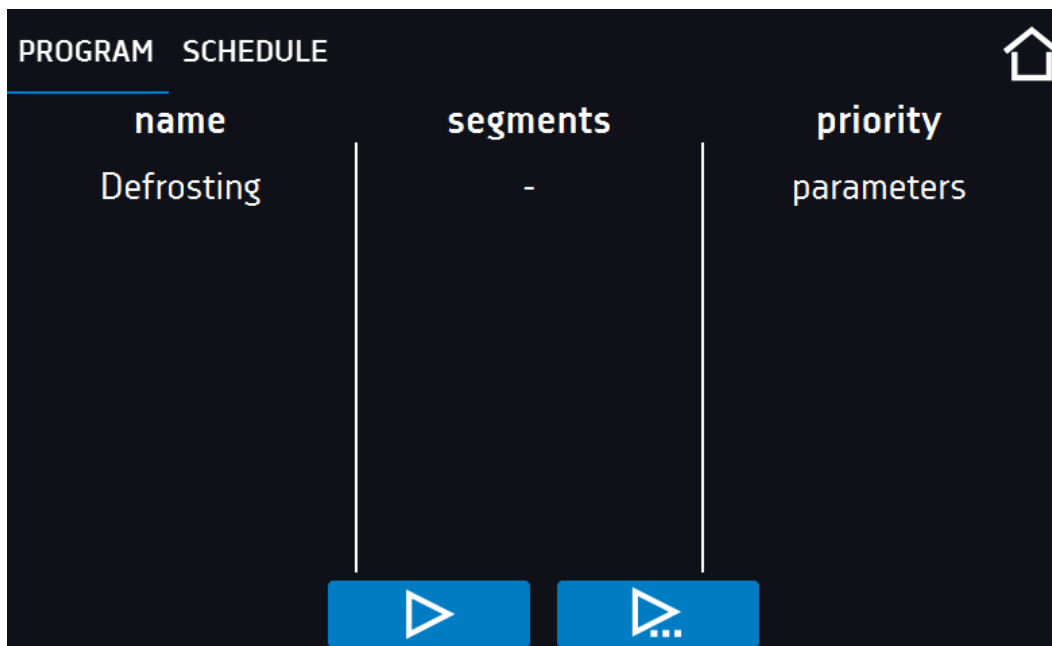
Defrosting consists in temporarily turning on the heaters, whose aim is to defrost the coating of ice or frost on the chamber walls during normal use. Then the chamber is heated to about 30 ° C and maintained for 30 minutes.

If the defrosting function is active, you will see the following icon  on the main screen.

Defrosting can be cancelled by pressing the button .

	After defrosting has finished, you need to wipe out the chamber. This will reduce the risk of quick frosting of the chamber.
---	--

*Figure 25 – Defrosting program*



## 5.8. Starting the program

You can start the program in two ways:

### The first way



- Press the icon  „programs” in main menu (*Figure 26*).
- Then select the program you want to activate and press „Start” button.  (*Figure 27*).

Figure 26 – Main menu

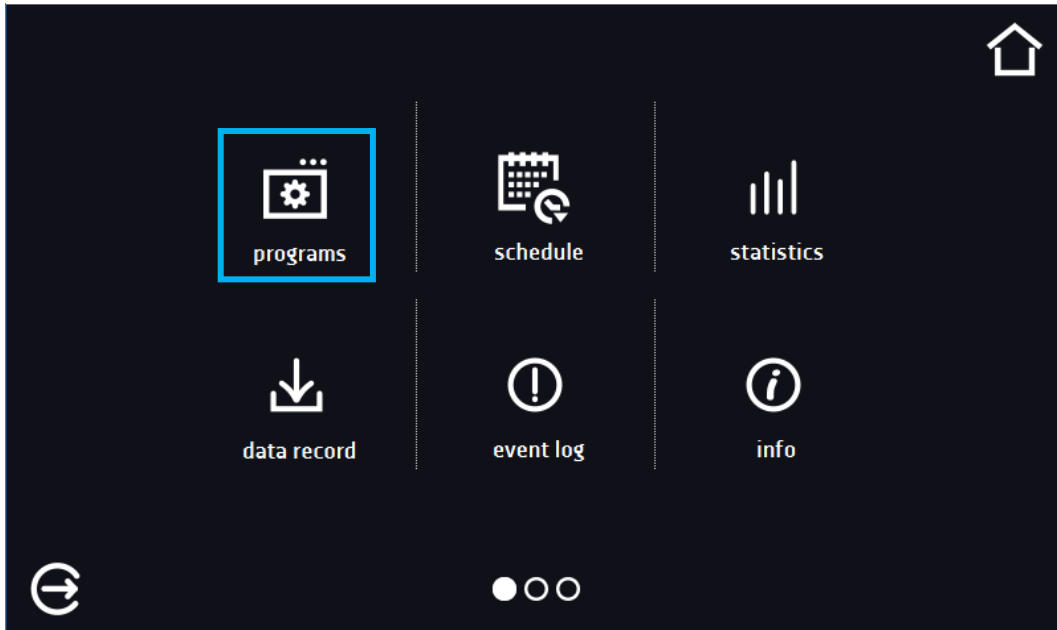
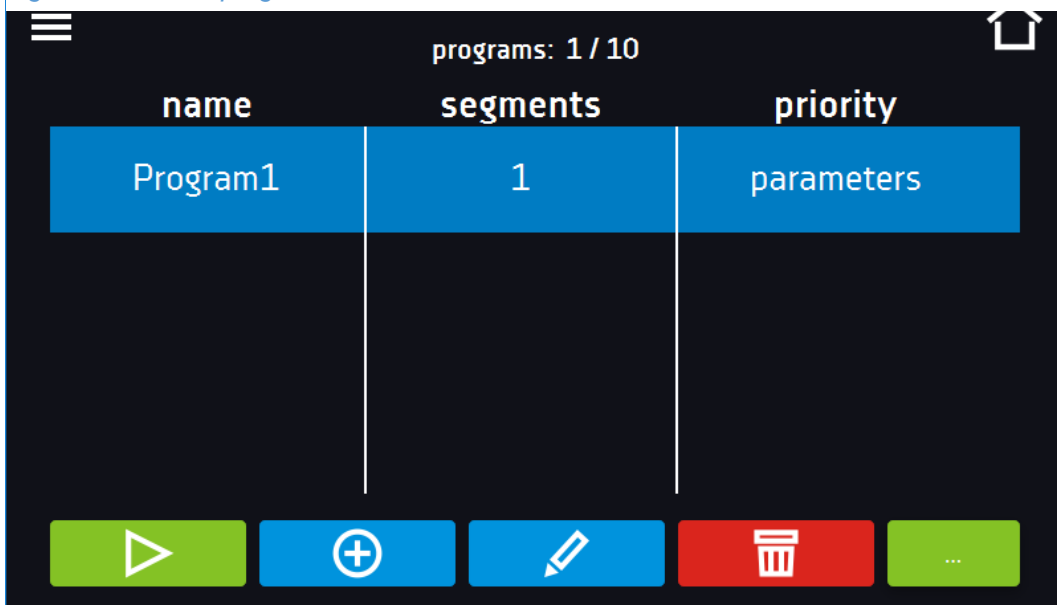



Figure 27 - List of programs



## The second way

- In the main panel (*Figure 28*) press the icon in the upper right corner .
- Press „PROGRAM”,
- By pressing the icon you will go to the program selection window (*Figure 29*).
- Select the program you want to activate, you have got two additional options:



Immediate start of the program



Scheduled program start according to the set date and time

*Figure 28 - Main screen*

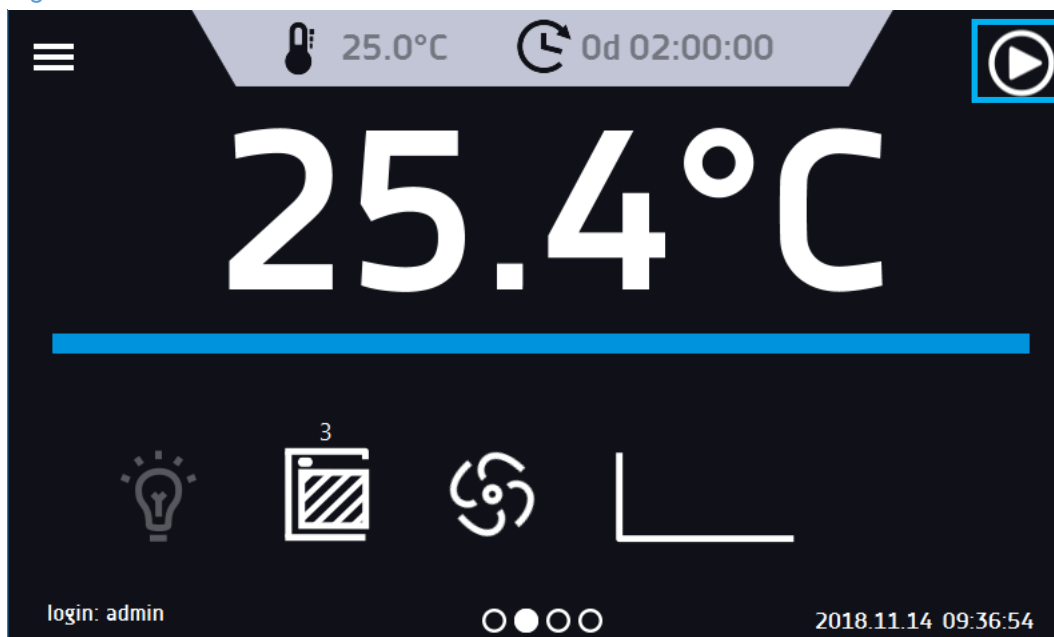
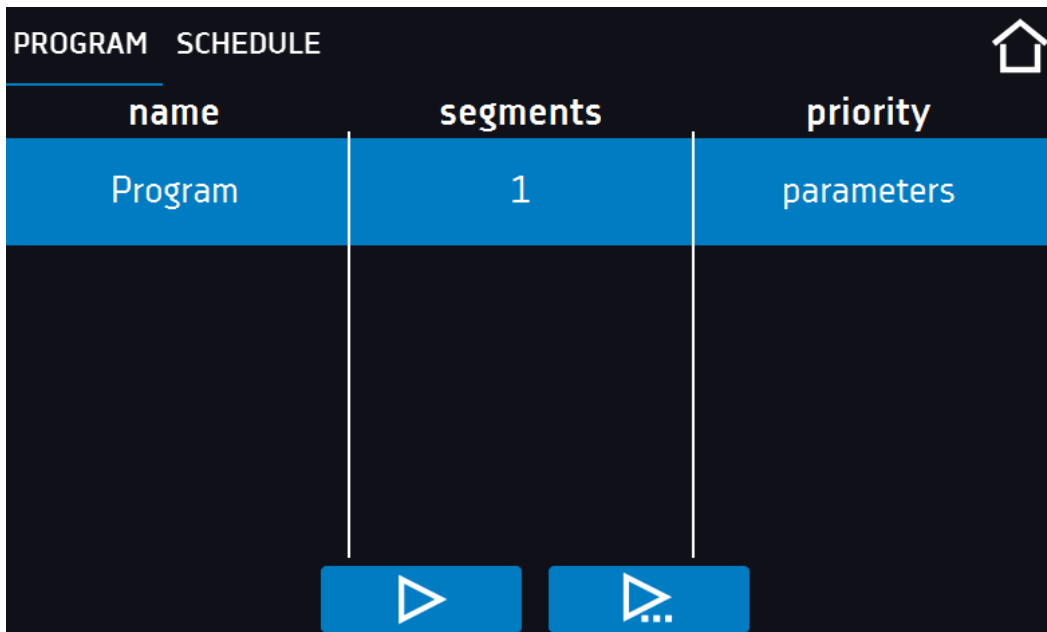





Figure 29 - Starting the program




 It's possible to start a backdated scheduled program but only for programs with time priority and scheduled max. 7 days back. It is possible for time priority programs.  
 Program segments which last for a total period from the current date to the current date will be skipped.


## 5.9. Quick change of parameters

	<p>You can not make a quick change (time / temperature) in a running program belonging to another user.</p> <p>Information about the program owner can be found on the bottom panel (<a href="#">Figure 11</a>).</p>
---	--

	<p>If the ramp time is set for the program then the quick change of parameters would occur during achieving given temperature.</p> <p>When the ramp time is not set in the program, then the changes would occur after achieving given temperature.</p>
---	---

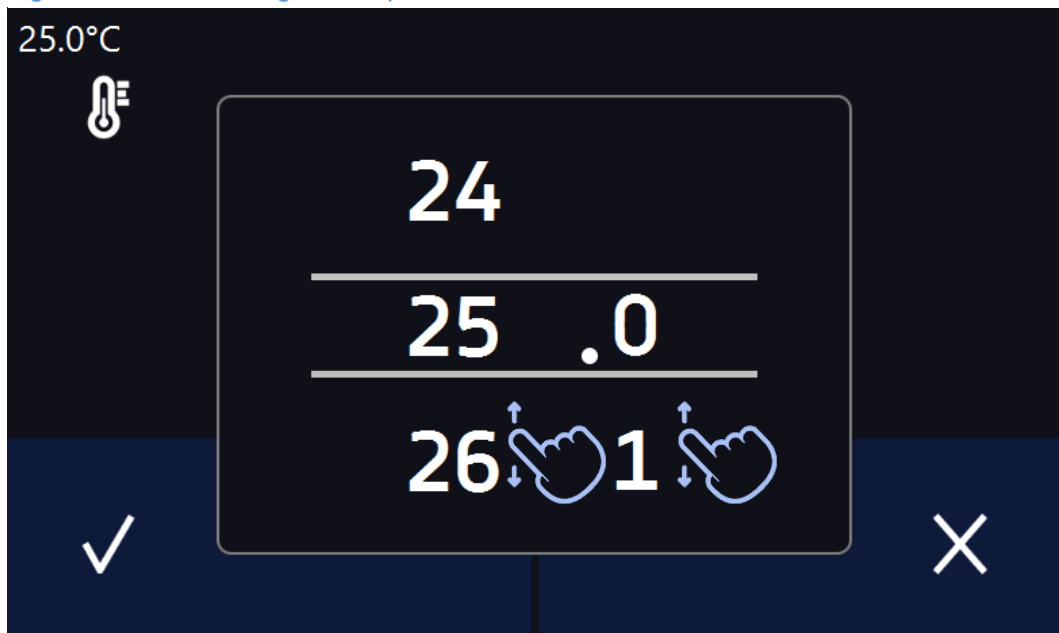
### 5.9.1. Quick change the set temperature

In order to quickly change the value of the set temperature of the program, press the icon  in main screen ([Figure 4](#)).

The value of the temperature should be selected by strolling the list up or down ([Figure 30](#)). Confirm the change by pressing .




Temperature cannot be lower than protection temperature (under temperature) +2°C and higher than protection temperature (over temperature) -2°C.

*Figure 30 - Quick change of temperature*





### 5.9.2. Quick change the set time

In order to quickly change the duration time of the program, press the icon  in main screen (*Figure 4*). Select the number of days, hours and minutes by strolling the list up or down (*Figure 31*). Confirm the change by pressing . To set the continuous work press .


To change the way of displaying the time, press:



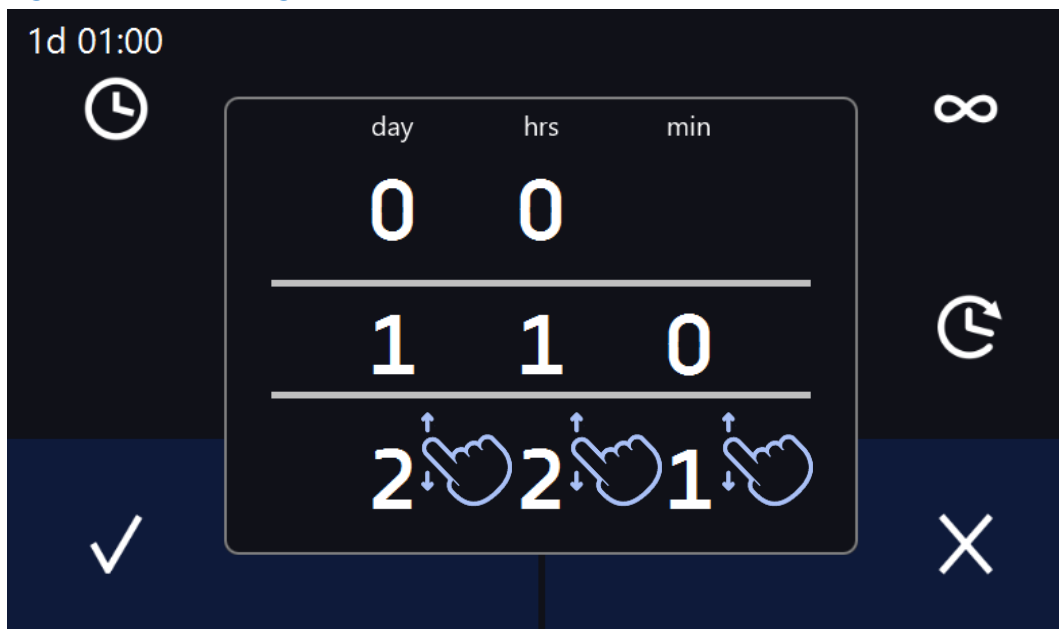
- to display the elapsed time





- to display the remaining time

To change only the way of displaying, you do not have to confirm it by .

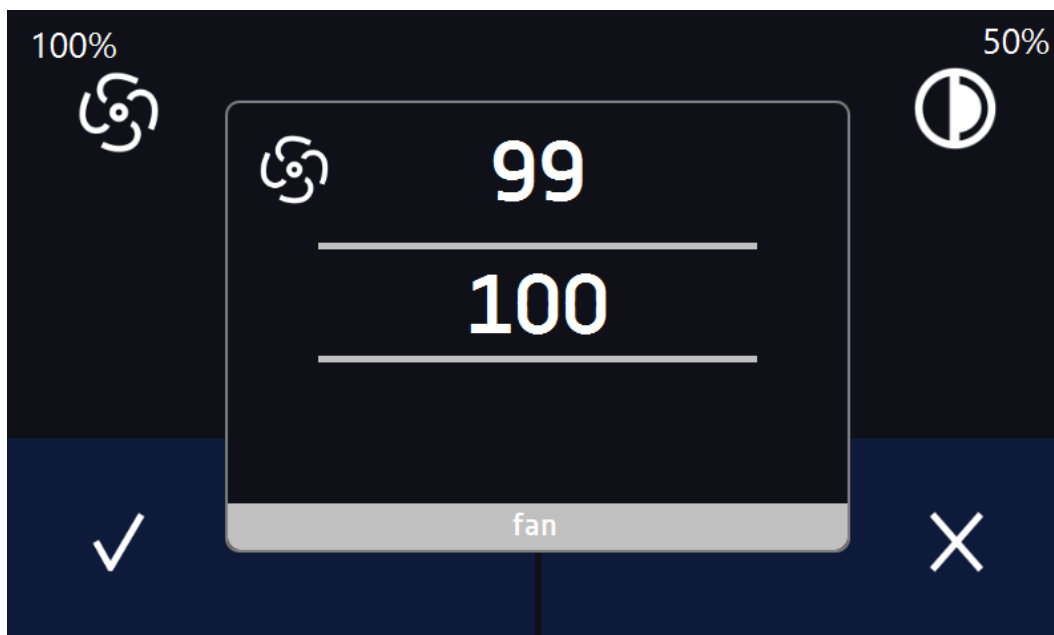
*Figure 31 - Quick change of time*



### 5.9.3. Quick change of other parameters

In order to quickly change of other parameters of the program, press the icon  in main screen (*Figure 4*).  
Select the parameter you want to change and make changes by strolling the list up or down (*Figure 32*).  
Confirm the change by pressing .


*Figure 32 - Quick change of other parameters*



## 5.10. Schedule

It allows to create a list of programs to be realized in the specific time periods. There is a possibility to create several independent programs.

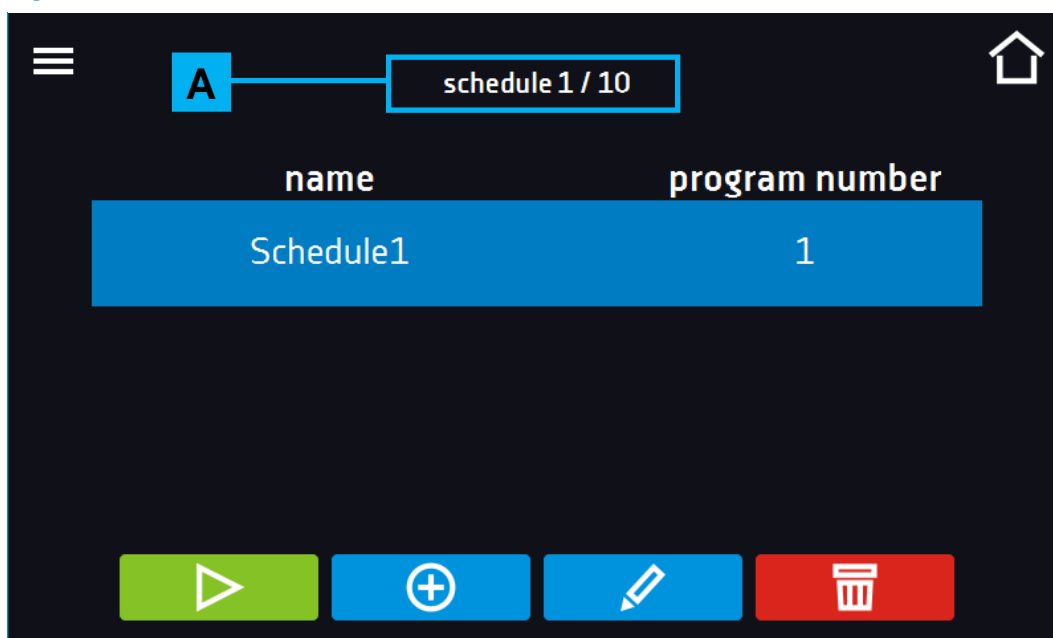
The Schedule window (*Figure 33*) contains the list of all created schedules by the logged-in User.








Before you start creating the Schedule, you must create programs that you want to find in it.



At the top **A** there is information about the number of created schedules/ schedules to be created.

*Figure 33 - The list of schedules*



-  Start the schedule
-  Stop the schedule
-  Add the schedule
-  Edit the schedule
-  Delete the schedule

### 5.10.1. Schedule creation / edition

Press the button  or  , and the panel with schedule parameters will appear (Figure 34)


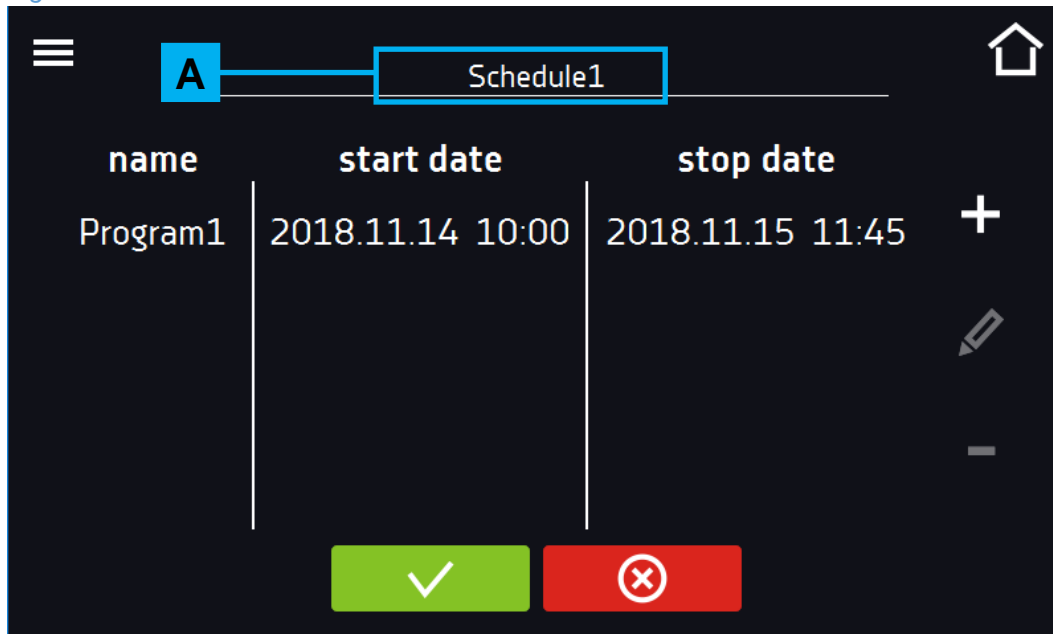







In the text field at the top  of the screen, enter the name of schedule. The schedule can consist of up to 10 programs.

Figure 34 - Edition of schedule

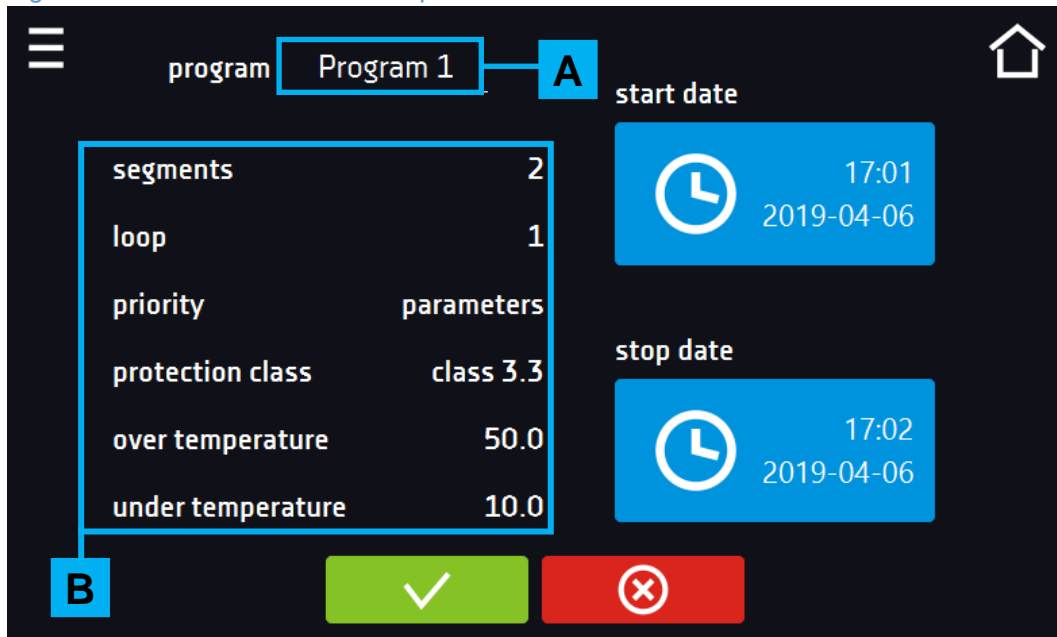


-  Adds a new program to the schedule (program needs to be created earlier)
-  Edit - make changes in the selected item
-  Deletes from list (queue) currently selected item
-  Save the schedule
-  Cancels the entered changes

By clicking  or  the controller will display a window which allows to select the program as well as date and time of its start and finish (*Figure 35*).

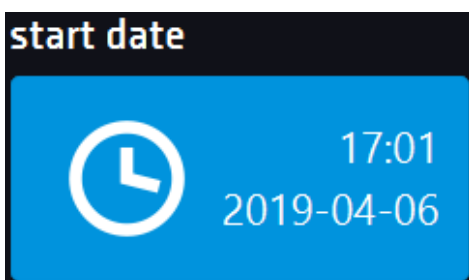
Select the program from the strolling list – press the field next to the inscription „Program” **A**. Below the information about the selected program will display **B** along with the number of segments, cycles, priority, temperature protection. It is only an a overview of the parameters and there is no possibility of changing them in this window.

*Figure 35 - Details of the schedule position*

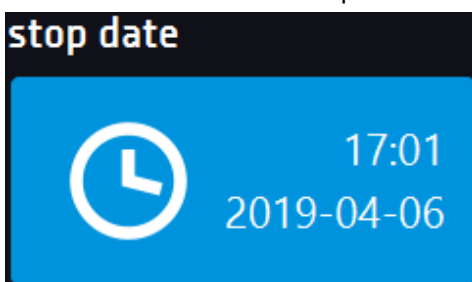


When configuring position of the schedule, set:

- date and time of start



- date and time of completion





You can assign more than one program to the schedule.  
You can create up to 10 programs.

When creating the schedule you should take into consideration the following restrictions:

- time of start position in the queue cannot be earlier than the current date and time,
- time of start position in the queue cannot be earlier than time of finishing of previous position in the queue,
- time of finishing position in the queue cannot later than next position in the queue time of start,
- time of finishing position in the queue cannot coincide with the start time of next position but may be a break between them,
- if the program is not totally completed (because of a too short time schedule) it will be interrupted.



When selecting intervals should be considered whether they are long enough that the selected program can be executed. The duration of the program may be affected by: environmental conditions, workload, program carried out directly before it.

### 5.11. Starting the schedule

Schedule can be launched in two ways:

#### The first way



- Press the icon  „schedule” in main menu (Figure 36).
- Then select the schedule you want to activate and press „Start” button.  (Figure 37).

Figure 36 – Main menu

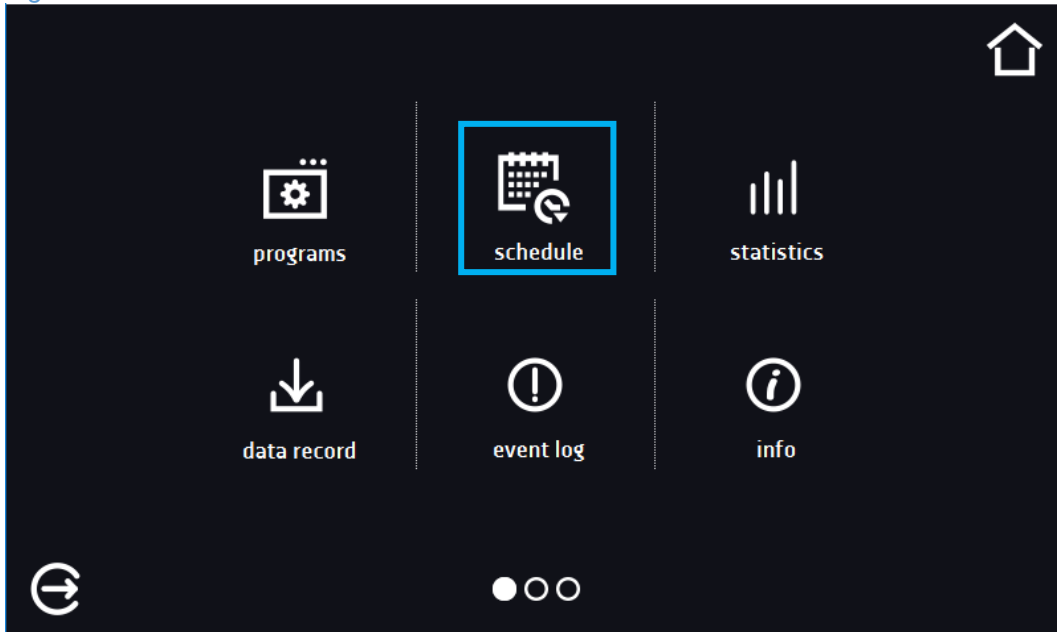
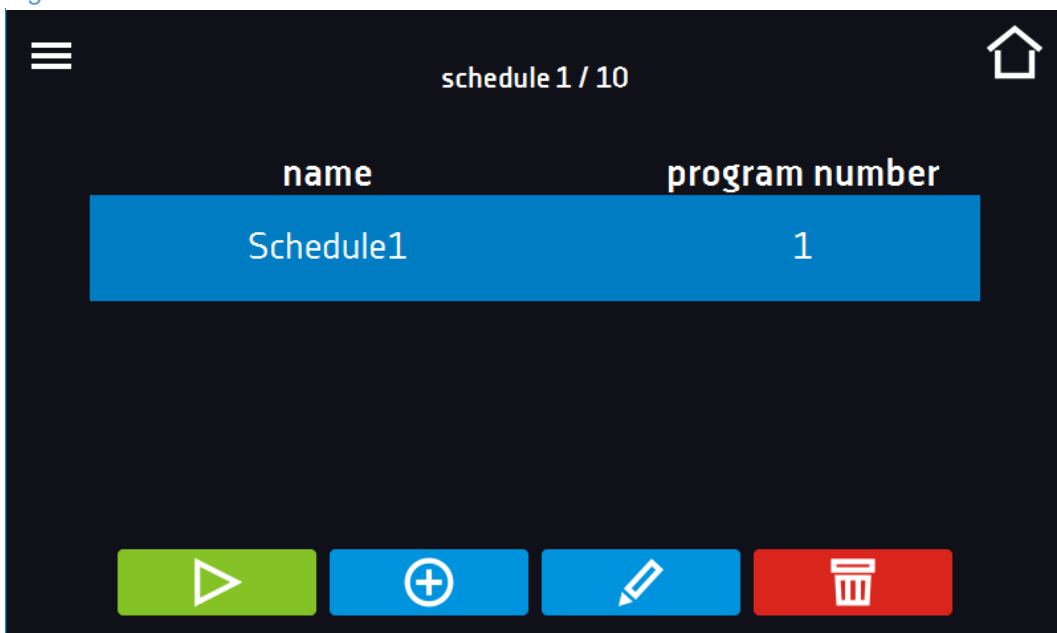




Figure 37 – List of schedules



## The second way

- In the main panel press the icon in the upper right corner.  (Figure 38).
- Press „ SCHEDULE”.
- By pressing the icon you will go to the schedule selection window (Figure 39).
- Select the schedule you want to activate, and press button .

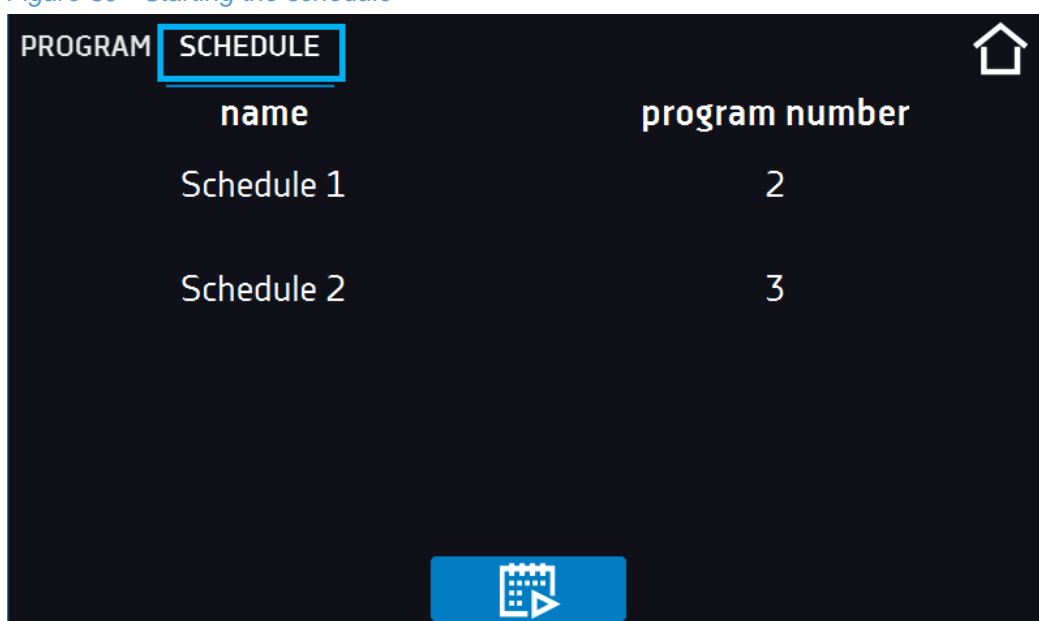


Remember that you can not start the schedule in which all item relate to the past time.

Figure 38 – Main screen



Figure 39 - Starting the schedule






## 5.12. Statistics

This panel displays statistics about 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.

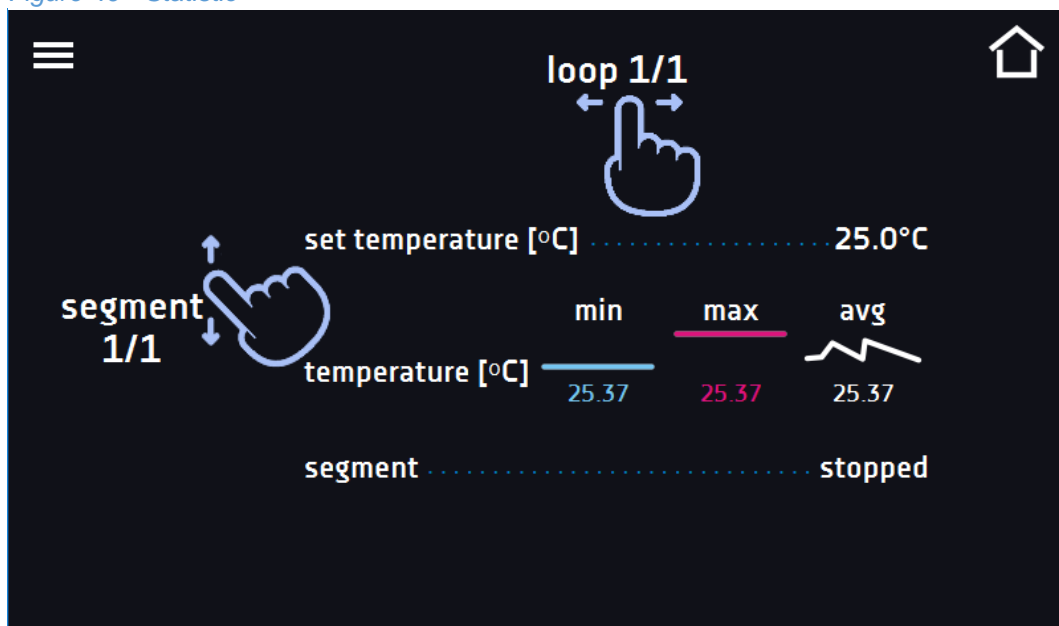
The following information is available:

- **Set temperature** [°C] – set temperature in the segment
- **Minimum temperature** [°C] – the lowest recorded temperature
- **Maximum temperature** [°C] – the highest recorded temperature
- **Average temperature** [°C] – average temperature
- **Segment** – status of the segment
  - In progress – currently performed segment (data is constantly updated)
  - finished – the segment is made,
  - interrupted – the segment was interrupted by the User before the set time expired
- **Segment 1/2** –the number of the currently overviewing segment / number of the currently performed or completed segment. Navigating between the segments is done by swiping up your finger up or down.
- **Cycle 1/1** – the number of currently overviewing cycle / the number of currently performer or completed segment. Navigating between the segments is done by swiping up your finger up or down.



You can not overview the segment / cycle data that has not yet started.

Figure 40 - Statistic



### 5.13. Data record

Register window (*Figure 42*) contains the following information:


- Time of sample registration [date],
- Temperature value from the main sensor in the chamber [temp.],
- relative humidity in the chamber (available in selected devices) [hum.],
- temperature value from the additional sensor (option) [add].

Each User has 10 000 samples to use, stored for a maximum of 12 months. If all the memory cells are full, the oldest ones are overwritten.

Data is displayed in the chronological order from the oldest to the latest record. It is possible to segregate data according to the selected column. To do so, click the column heading.

The samples are only registered when the program is running. The frequency of registration depends on the program parameters settings, see » *page 44* .



The time of opening the Data Register depends on the number of saved samples. The larger number of stored cells increases the opening time of the window. Then, a progress window will appear (*Figure 41*), indicating what date range has been displayed. By clicking on  you can stop loading and overview only some part of the data. By pressing the progress bar, you can minimize it (it will appear at the top of the screen) and overview the previously loaded data.

*Figure 41 - Progress bar*

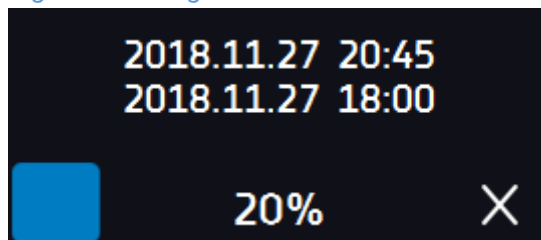


Figure 42 - Data Register

date	temp.	status
2018.11.22 08:38	30.15	ramp
2018.11.22 08:36	29.89	set temp.
2018.11.22 08:34	29.01	ramp
2018.11.22 08:32	28.75	ramp
2018.11.22 07:08	29.36	ramp
2018.11.22 07:00	28.95	ramp
2018.11.22 06:58	28.49	ramp
2018.11.22 06:56	28.53	ramp
2018.11.22 06:54	28.52	ramp



Data recording onto the USB flash drive. .csv files are available - semicolon separated by opening eg. with a spreadsheet, .plx - opening with the LabDesk application

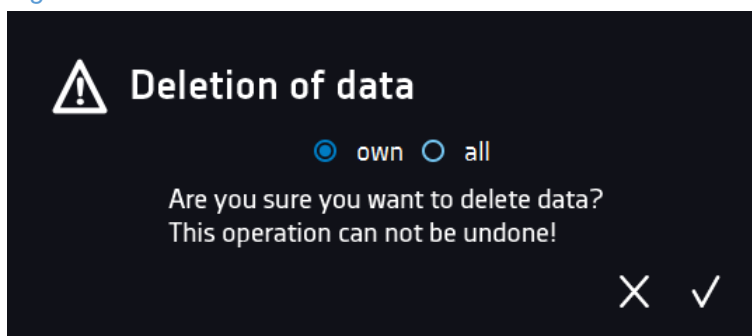


Diagram display see » [page 68](#)



Deleting data. Users with Super Admin rights can delete all data also those registered by other users ([Figure 43](#))

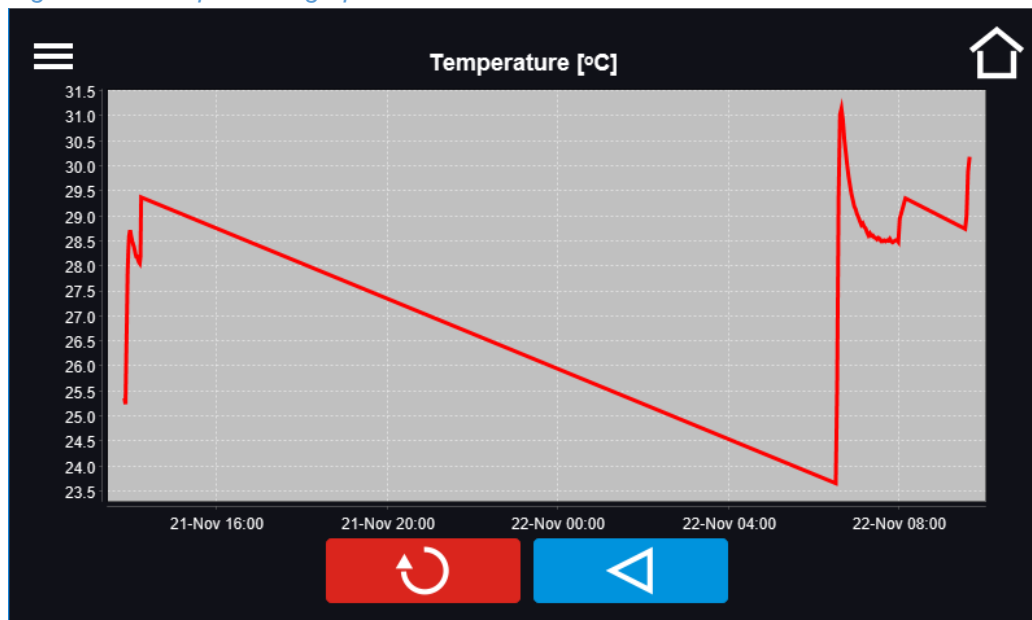
Figure 43 – Deletion of data



### 5.13.1. Graph

It is possible to generate a graph (Figure 44) from the available samples in the data register. If the unit is equipped with the additional sensors, first 2 x press the selected graph.

Figure 44 - Temperature graph



Displays the entire graph / back to the list of graphs



Back to Data Register

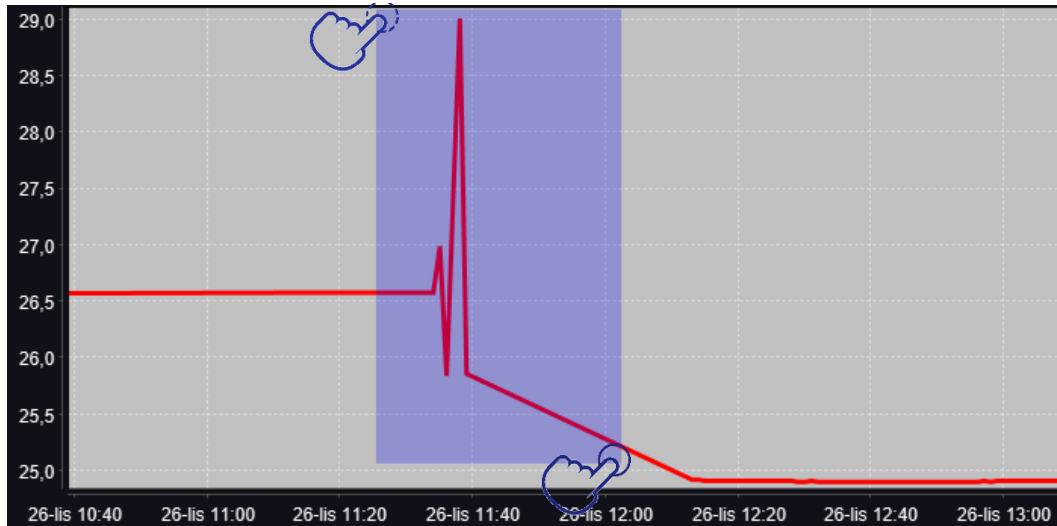


The time of opening the graph depends on the number of saved samples. The larger number of stored cells increases the opening time of the window.

It is possible to enlarge a fragment of the graph. Press anywhere and swipe both right and down at the same time (*Figure 45*).

By swiping to the left you can back to the normal size of the graph.

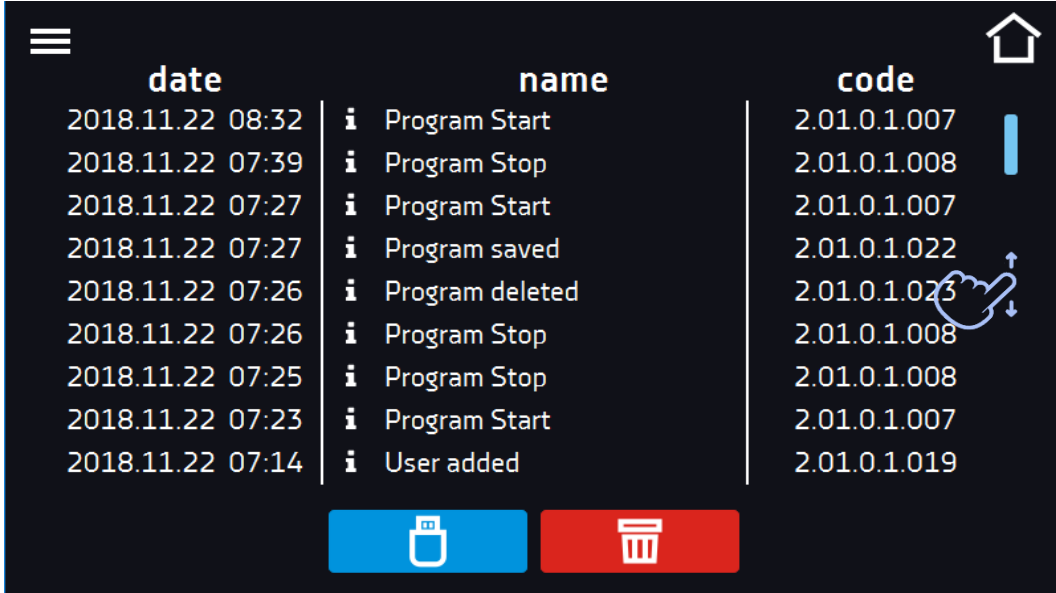
*Figure 45 - Enlarging the graph*



## 5.14. Event log

The window displays information about registered events, alarms and errors. Data is only available for Super Admin users. The other users can see only their own typed text messages.

Figure 46 - Data register



date	name	code
2018.11.22 08:32	<i>i</i> Program Start	2.01.0.1.007
2018.11.22 07:39	<i>i</i> Program Stop	2.01.0.1.008
2018.11.22 07:27	<i>i</i> Program Start	2.01.0.1.007
2018.11.22 07:27	<i>i</i> Program saved	2.01.0.1.022
2018.11.22 07:26	<i>i</i> Program deleted	2.01.0.1.023
2018.11.22 07:26	<i>i</i> Program Stop	2.01.0.1.008
2018.11.22 07:25	<i>i</i> Program Stop	2.01.0.1.008
2018.11.22 07:23	<i>i</i> Program Start	2.01.0.1.007
2018.11.22 07:14	<i>i</i> User added	2.01.0.1.019



Saving the data onto USB flash drive. .csv files are available - semicolon separated by opening eg with a spreadsheet, .plx - opening with the LabDesk application



Deleting data



Information event



Note entered by the User



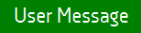
Alarm event



Error



Quick Note

To see the details of the note press . In the displayed window (*Figure 47*) you can see the content of the note, the user name who entered it and the name of program during which it was sent.