

Drying ovens, incubators, cooled incubators

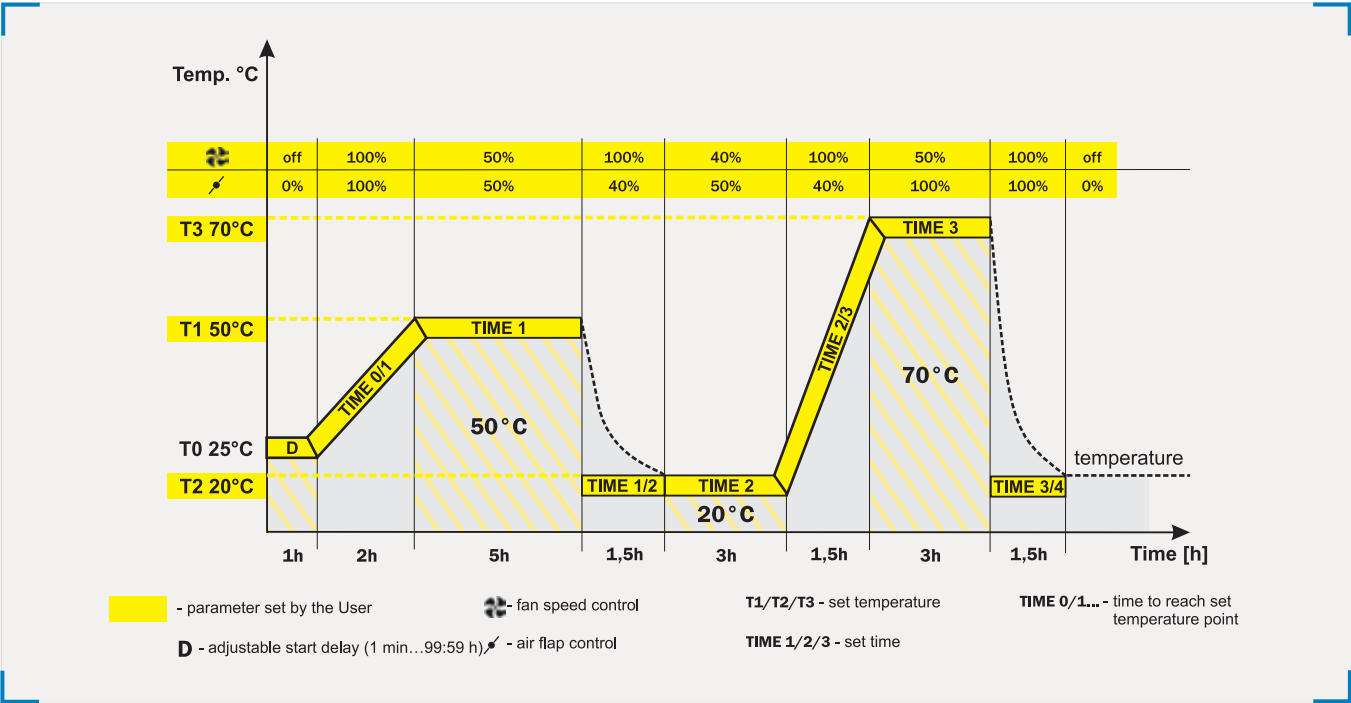
STD version

All the units in the STD version are equipped with a PID microprocessor controller with an LCD graphic display and illuminated touch buttons.

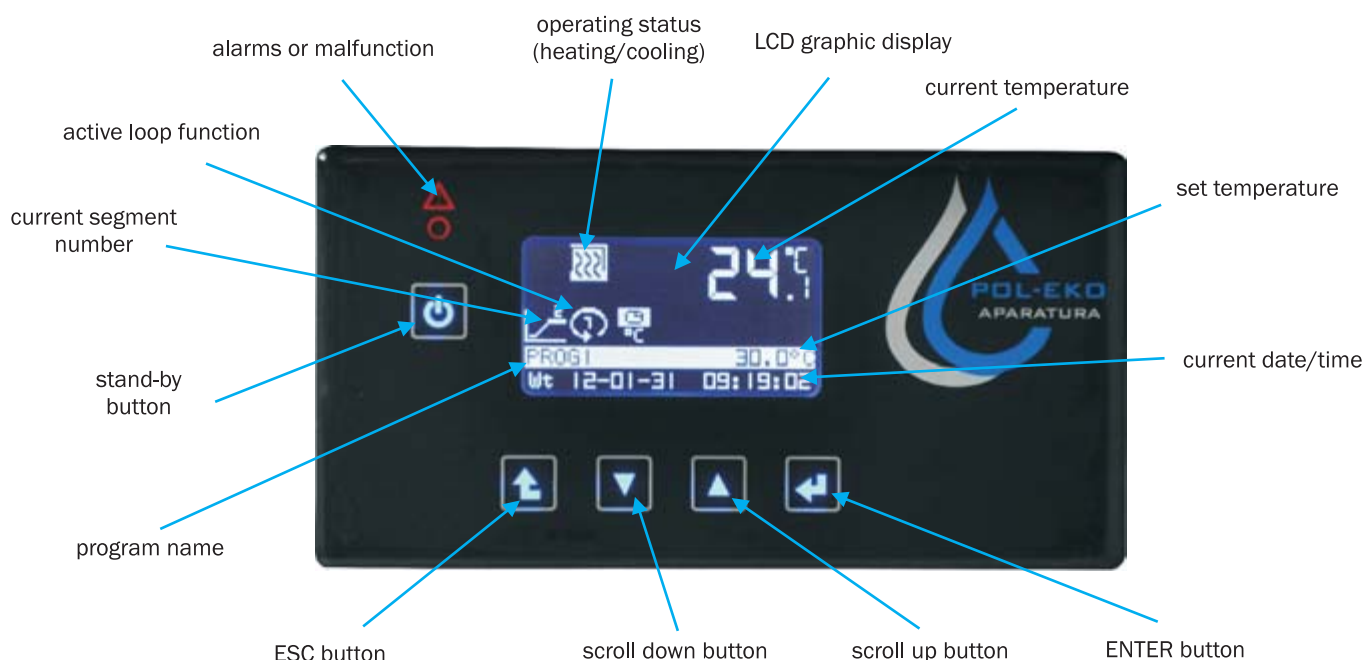
Controller advantages

- six-segment temperature-time profile
- 3 user programs memory
- loop function up to 99 times or endless
- adjustable start delay feature (from 1 min to 99:59 h)
- adjustable hold at set point time for temperature and lighting (for IL/FOT) from 1 min to 31 days / 1 min to 999 h, or continuous operating
- adjustable ramps
- overview of set and current parameters while operating
- recording of min, average and max temperature value for each segment
- possibility of temperature calibration by the user
- audible and visual temperature alarm
- operating with temperature priority
- temperature sensor fail alarm
- power failure control system (program continued after restoring power)
- digital timer
- real time clock
- auto-diagnostic function
- internal memory to store up to 2046 data records
- automatic fan shut-down after completing the program
- automatic air-flap control (CL/SL)
- natural (SL/CL) or forced (SL/CL/IL) air convection with fan speed control

Detailed description of parameters on page 56.

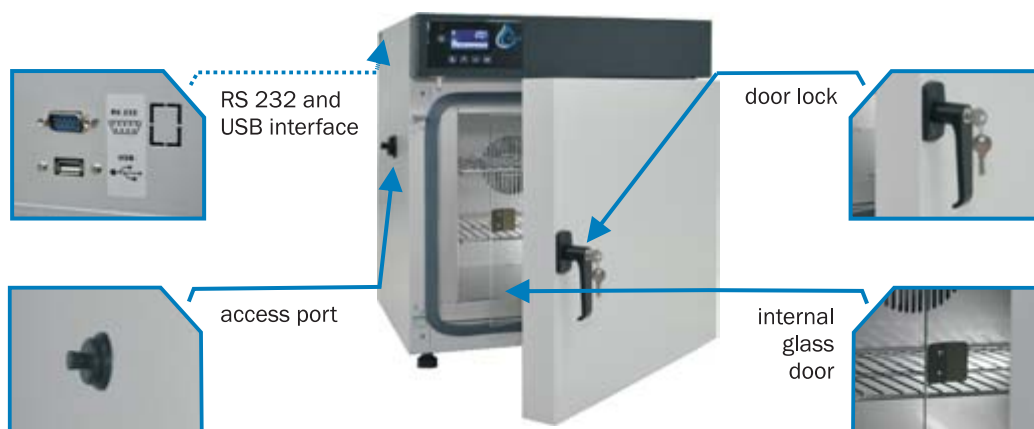


Control Panel



Standard features

- solid door
- internal glass door for CL and IL
- temperature range: SL (+5°C above ambient temp. ... 300°C), CL (+5°C above ambient temp. ... +100°C), IL (0°C up to 70°C / optionally -10°C up to 70°C)
- RS232 and USB interface allow to download relevant program data with the free EasyLab Basic software available on the website or the EasyLab Professional software (see page 68); cables to be ordered separately (RSK or USBK option)
- wire stainless steel shelves
- quality control protocol
- English instruction manual
- available menu languages: Czech, English, Estonian, French, German, Italian, Polish, Portuguese, Russian, Spanish
- temperature protection class 2.0 to DIN 12880
- door lock
- open door alarm
- access port: Ø30 mm for models 53-1000 or Ø9 mm for models 15-32
- wheels in standard for models 750-1000



TOP+ version

All the units in the TOP+ version are equipped with a PID microprocessor controller with a large (5,7") full colour touch screen, intuitive menu and user friendly software. They can be connected to Ethernet network for remote control from any computer, being one of the greatest advantages.

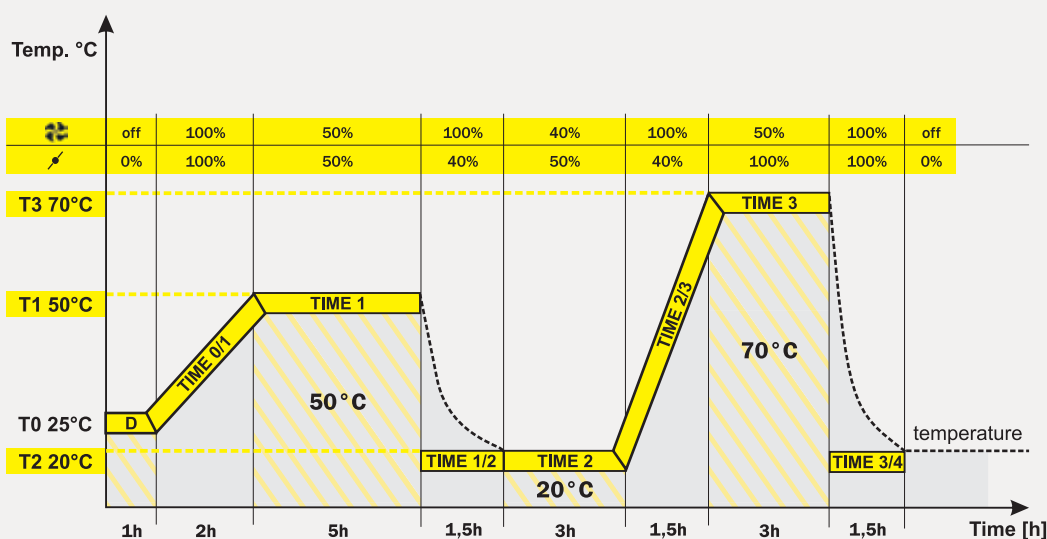
Controller advantages

- Administrator function to manage User accounts
- access control via login
- 7 days programming
- multi-segment temperature-time profile (up to 100)
- loop function up to 99 times or endless
- adjustable start delay feature (from 1 min to 99:59 h)
- adjustable hold at set point time for temperature and lighting (for IL/FOT) from 1 min to 31 days / 1 min to 999h, or continuous operating
- adjustable ramps
- overview of set and current parameters while operating
- recording of min, average and max temperature value for each segment
- possibility of temperature calibration by the User
- audible and visual temperature alarm
- operating in temperature or time priority mode
- defrosting function (for IL)
- temperature sensor fail alarm
- power failure control system (program continued after restoring power)
- digital timer
- real time clock
- auto-diagnostic function
- automatic fan shut-down after completing the program
- automatic air-flap control (CL/SL)

Detailed description of parameters on page 56.

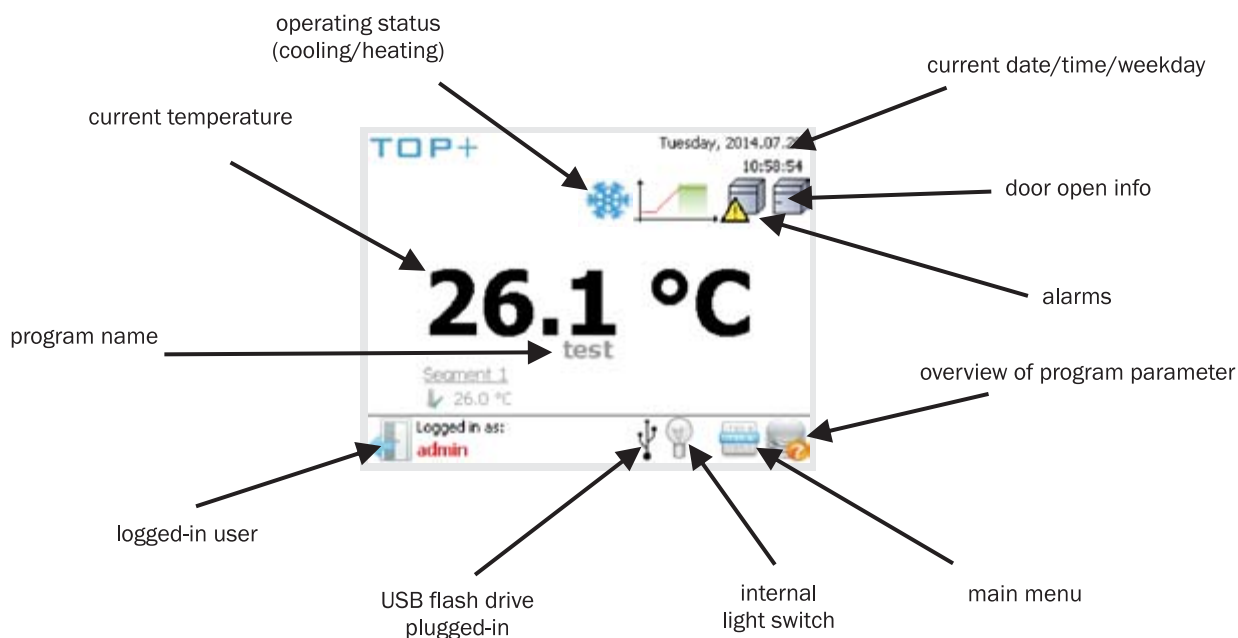
GLP supporting functions:

- password protected settings
- 20 user programs memory
- internal memory to store up to 4100 data records for each User, possibility to overview the values on the display or a PC computer in tabular or graphic form
- USB port to allow direct data recording or transfer onto a flash drive
- events registry
- TOP+ control software (see page 69)



 - parameter set by the User
 - fan speed control
 T1/T2/T3 - set temperature
 TIME 0/1... - time to reach set temperature point
 D - adjustable start delay (1 min...99:59 h)
 - air flap control
 TIME 1/2/3 - time

Control panel



Standard features

- solid door
- internal glass door for CL and IL
- temperature range: SL (+5°C above ambient temp. ... 300°C), CL (+5°C above ambient temp. ...+100°C), IL (0°C up to 100°C / optionally -10°C up to 100°C)
- RS232 interface, USB port to allow direct recording and data transfer onto a flash drive; data can also be downloaded with the free TOP+ Control software (see page 69) or the EasyLab Professional software (see page 68); cables to be ordered separately (RSK or USBK option)
- Ethernet port for remote control, Ethernet cable
- TOP+ Control software
- wire stainless steel shelves
- quality control protocol
- English instruction manual
- available menu languages: English, Estonian, French, German, Hungarian, Italian, Latvian, Polish, Portuguese, Romanian, Russian, Spanish
- temperature protection class 3.3 (IL), class 3.1 (CL/SL) to DIN 12880
- door lock
- open door alarm
- access port: Ø30 mm



Drying ovens

Application

- thermal resistance analysis of building materials
- electronic and electro-technical components
- tests of properties of products subjected to high temperatures
- drying of wires of papermaking machines
- drying of laboratory glass
- general aging and curing
- preheating
- digestion of proteins
- plant tissues drying
- drug metabolism
- paper drying

Drying ovens are designed to provide high temperatures of up to 300 °C.









+5 °C above ambient temperature... +300 °C



Calibration



All thermostatic equipment manufactured by POL-EKO-APARATURA can be provided with Calibration Certificate issued by accredited Measurement Laboratory. Detailed information on accreditation of POL-EKO Laboratorium Pomiarowe is available on website: www.polekolab.pl.

Model		SL 15	SL 32	SL 53	SL 115	SL 240	SL 400	SL 750	SL 1000
									
Parameter		natural (SLN) / forced (SLW)					forced (SLW)		
air convection									
chamber capacity ¹ [l]		15	32	56	112	245	424	749	1005
door type		solid		solid / door with viewing window (option)					
temperature range		+5 °C above ambient temperature ...+300 °C							
controller		microprocessor with external LCD graphic display							
interior		acid-proof stainless steel to DIN 1.4301							
housing	-	powder coated sheet							
	INOX/G	stainless steel steel linen finish							
overall dims ² [mm]	width	515	595	595	655	815	1015	1260	1260
	height	550	630	700	845	1130	1375	1590	2000
	depth	440	495	600	700	760	760	865	865
internal dims [mm]	width	320	400	395	460	600	800	1040	1040
	height	240	320	395	540	800	1040	1200	1610
	depth	180	240	360	450	510	510	600	600
max shelf workload [kg]	-	10	10	10	10	10	10	-	-
	PW ³ version	-	-	50	50	100	100	100	100
max unit workload [kg]	-	20	30	40	60	90	120	140	-
	W ⁴ version	-	-	80	120	300	300	300	300
nominal power [W]		600	1100	1600	2400	3000	3900	5400	5400
weight [kg]		27	35	50	65	126	174	260	330
temperature resolution [°C]		every 0,1							
temperature fluctuation ⁵ at +105 °C [°C]	SLN	±0,2	±0,2	±0,2	±0,2	±0,2	-	-	-
	SLW	±0,1	±0,1	±0,1	±0,1	±0,2	±0,2	±0,3	±0,4
temperature variation ⁶ at +105 °C [°C]	SLN	±2,5	±2,5	±0,2	±2,0	±2,5	-	-	-
	SLW	±2,0	±2,0	±1,2	±1,4	±2,0	±2,0	±2,3	±3,0
over temperature protection		class 2.0 to DIN 12880 / class 3.1 (option) / 3.1 in TOP+							
voltage*		230V 50Hz*					400 3/N**		
shelves		1	1	2	2	3	3	5	6
warranty		24 months							
manufacturer		POL-EKO-APARATURA							

* - 230V 60Hz, 115V 60Hz also available

** - 3P 400V 60Hz, 3P 230V 60Hz also available

1 - working capacity of chamber can be smaller

2 - depth doesn't include 50 mm of power cable

3 - reinforced shelf

4 - reinforced version

5 - fluctuation measured in centre of the chamber

6 - in space

Options and accessories (icon description see page 55)



■ STD

■ TOP+

Options and accessories	SL		Order number
	STD	TOP+	
internal glass door ¹			*/C
external glass door ^{1,8}			*/A
door with viewing window ^{4,7}	•	•	*/A
internal socket ^{1,5}			GNZ
internal lighting ^{4,5}	•	•	OWW/OWW LED
wire shelf ^{1,3}			*/P
stainless steel wire shelf ^{1,9}	•	•	*/P INOX
perforated shelf ¹	•	•	*/PP
reinforced shelf	•	•	*/PW
extended temperature range to +70 °C ¹			ST/70
reinforced version	•	•	*/W
low temperature version ^{1,10}			*/T
photoperiodic system - FOT ¹			*/FOT
phytotron system - FIT ¹¹			*/FIT
automatic defrosting function			*PLUS
over temperature protection system to DIN 12880 ¹	3.1	S (3.1)	*/**
stainless steel cuvettes	•	•	KUW GN */*
aluminum drawer with powder coated slides			*/SWP ALU
stainless steel drawer with powder coated slides			*/SWP INOX
stainless steel drawer with stainless steel slides			*/SWPN INOX
humidity measurement ⁵			PHR
door openings counter ¹	•	•	LOD
fan speed control	S	S	ST/CHL WENT
additional Pt 100 temperature sensor	•	•	PT100
HEPA - fresh air filter	•	•	HEPA
RS 422 interface (instead of RS 232) ¹	•	•	RS422
RS 485 interface (instead of RS 232) ¹	•	•	RS485
wheels	•	•	QLK*
table with wheels ²	•	•	*/S, */INOX
RS 232 cable ¹	•	•	RSK
RS 422 cable ¹	•	•	RSK/422
RS 485 cable ¹	•	•	RSK/485
USB cable ¹	•		USBK
EasyLab Professional software	•	•	EasyLab Profess.
dot printer ¹	•	•	EPSON
thermal printer ¹	•	•	KAFKA
chamber calibration ¹	•	•	BRT/L
IQ, OQ, PQ qualification ¹	•	•	IQ/OQ/PQ
container for deionized water			KK/Z
container for waste water			KK/K
water level sensor			KK/CP
FIT panels independent control ¹¹			FIT/R3
magnetic door lock ¹²			*/ZKM
chart recorder ¹²			*/RK

* - model (e.g. ST1, IL 53)

** - over temperature protection system (e.g. 3.1)

1 - for double chamber units, the option available for both chambers separately

2 - unavailable for 400, 500, 700, 750, 1200, 1000 and 350/350 models, ST/CHL 4 and 5

3 - only for BASIC models

4 - in case of SL range, maximum temperature is reduced to +250°C

option unavailable for CL/SL 15/32

5 - in case of CL/IL in TOP+ version, maximum temperature is reduced to +70°C

6 - models BASIC, COMFORT and PREMIUM

7 - for KK 115, 240, 400, 750

8 - for KK 500, 700, 1200, 1450

9 - for ZLN 85

10 - for CHL 500, 700, 1200, 1450, 350/350

11 - thermostatic cabinets ST 500, 700, 1200, 1450

12 - for ST/CHL 500, 700, 1200, 1450

s - standard equipment

• - available option