

## Application

- plant and fungus growing
- microorganisms and insects breeding

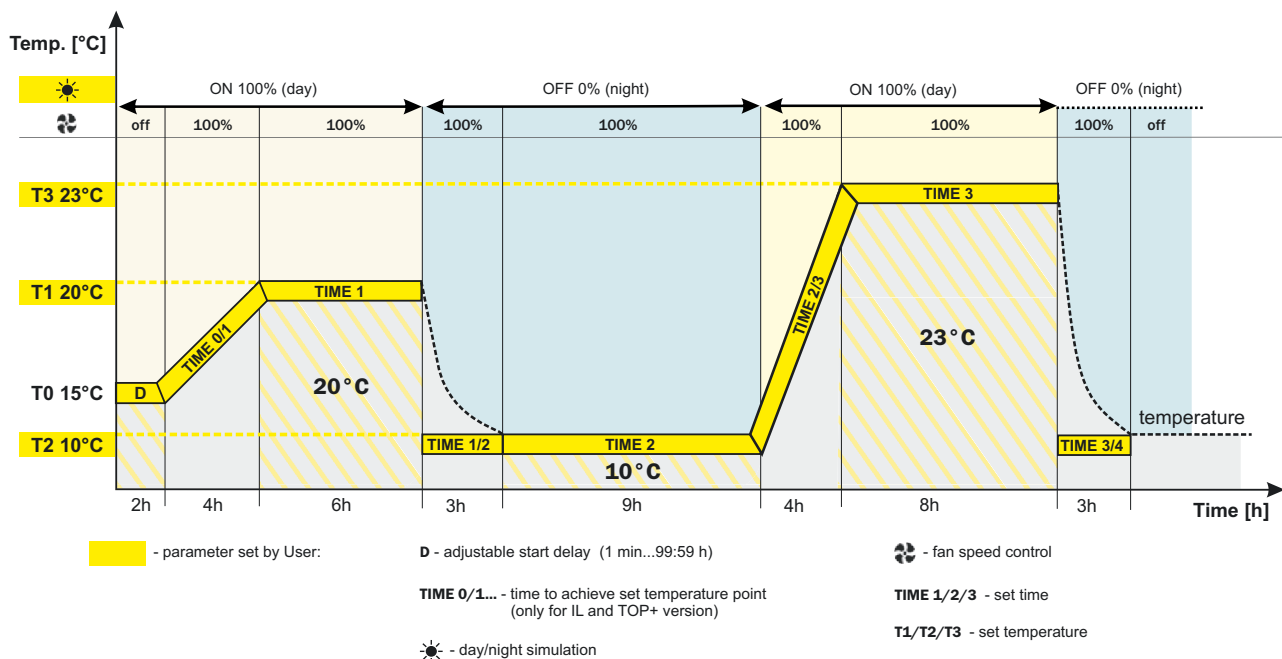
Photoperiodic system is an additional option available for thermostatic cabinets (ST) and cooled incubators (IL). Some applications require day and night simulation. Photoperiodic system consists of illumination system placed in the door, on the side walls or in the ceiling of the unit (depending on model). For each segment of temperature-time profile the user sets either light ON or OFF. Standard light is daylight. Other colours on request.



## Advantages

- day and night simulation software able to control illumination and temperature
- temperature range for "night" simulation: -10 ... +60 °C for IL range and +3 ... +60 °C for ST range (depending on the selected temperature option)
- temperature range for "day" simulation: +5 ... +50 °C for IL range and +10 ... +50 °C for ST range
- selection of light colour, intensity and place of installation of the lamps (door, wall or shelves) - depending on model
- aluminum or stainless steel interior (depending on model)
- "photoperiodic system" option does not feature illumination intensity
- temperature program priority in STD version
- temperature or time program priority in TOP+ version

## Program possibilities



All POL-EKO-APARATURA products can be supplied with a calibration certificate issued by an accredited Measurement Laboratory. Further information is available on our website: [www.polekolab.com](http://www.polekolab.com).

## Photoperiodic system (\* /FOT option) for single and double chamber thermostatic cabinets (ST)\*\*

Option	ST/FOT2	ST/FOT4	ST/FOT6	ST/FOT8	ST/FOT10	ST/FOT15
available for models	ST 1+ ST 1/1+	ST 2+ ST 2/2+ ST 350/350	ST 2+; ST 3+ ST 2/2+ ST 3/3+ ST 350/350	ST 5+	ST 500 ST 700	ST 1200
temperature range with photoperiod ON [°C]	+10 ... +50					
numbers of lamps on walls	2	4	6	8	10	15 (3 columns with 5 pieces)
adjustable illumination intensity	no	no	no	no	no	no

\*\* for ST models with \* /FOT option, inner dims can be narrower by 4 cm on each side, "FOT" option is factory preinstalled. There is no possibility to order it separately.

## Photoperiodic system (\* /FOT option) for cooled incubators (IL)\*\*

Option	IL/FOT2S	IL/FOT3S	IL/FOT5D	IL/FOT6D	ST/FOT8D	ST/FOT10D
available for models	ILW 53	ILW 115	ILW 53	ILW 115 ILW 240	ILW 240 ILW 400 ILW 750	ILW 750
temperature range with photoperiod ON [°C]	+5 ... +50 °C					
numbers of lamps in door	-	-	5	6	8	10
numbers of lamps in ceiling	2	3	-	-	-	-
adjustable illumination intensity	no	no	no	no	no	no

\*\* "FOT" option is factory preinstalled. There is no possibility to order it separately.



Phytotron system (\* /FIT option) features illumination intensity in the day/night simulation. Lighting elements are located in over-shelf panels, side walls or door (depending on the selected model). Option available for thermostatic cabinets (ST 500-1450 in the TOP+ version and INOX interior), cooled incubators (ILW 115-750 in TOP+ version) and climatic chambers.

## Phytotron system (\* /FIT option) for thermostatic cabinets (ST in TOP+ version with INOX interior) and climatic chambers (KK)\*\*

Option***	ST/KK 350/500/700/FIT DS	ST/KK 500/700/FIT P	ST/KK 500/700/FIT S	ST/KK 1200/FIT P
temperature range with photoperiod ON [°C]	+10 ... +50 °C	+10 ... +50 °C	+10 ... +50 °C	+10 ... +50 °C
numbers of shelves with over-shelf lighting std/max	-	1/3	1/3	1/3
lamps in door	yes	no	no	no
lamps in walls	yes	no	yes	no
adjustable illumination intensity	yes	yes	yes	yes

\*\*\* FIT DS - lamps in door and walls; FIT S - lamps in walls; FIT P - over-shelf panels

## Phytotron system (\* /FIT option) for cooled incubators (IL in TOP+ version) and climatic chambers (KK)\*\*

Option	IL/KK 115/FIT P	IL/KK 240/FIT P	IL/KK 400/FIT P	IL/KK 750/FIT P
temperature range with photoperiod ON [°C]	+10 ... +50 °C	+10 ... +50 °C	+10 ... +50 °C	+10 ... +50 °C
numbers of shelves with over-shelf lighting std/max	1/1	1/3	1/3	1/3
adjustable illumination intensity	yes	yes	yes	yes

\*\* "FOT" and "FIT" options are factory preinstalled. There is no possibility to order them separately.

Features		
interior	plastic (ZLN 75, 145, 180)	1.
	aluminum	2.
	stainless steel (ST/CHL INOX; ZLN 85+; ZLN-T)	3.
housing	powder coated sheet	4.
	stainless steel (ST/CHL INOX; ZLN 85+, ZLN-T INOX)	5.
air convection	natural	6.
	forced	7.
fan speed control	0...100% (CL/SL 15...240, SR 53...240)	8.
	10...100% (CL/SL/SR 400-1000)	9.
automatic fan shut down after completing the program		10.
automatic air-flap control (adjustable)		11.
system	heating	12.
	cooling	13.
defrosting function		14.
automatic defrosting function		15.
external display	graphic LCD	16.
	5.7" LCD touch screen	17.
microprocessor temperature (humidity in KK; light with FIT and FOT options) controller		18.
temperature-time profile (humidity in KK; light with FIT and FOT options)	1 segment	19.
	6 segment	20.
	multi-segment (max 10 000)	21.
program priority	temperature	22.
	time (ST and IL in STD with FOT/FIT option)	23.
cycle run of the program		24.
user programs memory	1	25.
	3	26.
	20	27.
start delay	1 min...99:59 h	28.
	date/time	29.
adjustable heating up time	1 min...99:59 h	30.
adjustable hold at set point (temperature; humidity in KK; light with FIT and FOT options)	1 min...99:59 h	31.
	1 min...999:59 h	32.
	1 min...31 days	33.
overview of set parameters during operating time		34.
recording min, average and max temperature (and humidity in KK) value for each segment (unavailable for ZLN 75, 145, 180)		35.
over/under temperature and humidity sound alarm (and humidity in KK)		36.
over/under temperature protection class according to DIN 12880		37.
temperature sensor fail alarm (and humidity sensor fail alarm in KK)		38.
power failure control system		39.
real time clock		40.
sound alarm		41.
test results memory		42.
access port for external sensor (diameter: 30 mm) (option for ZLN 75, 145, 180)		43.
door lock (option for ZLN 75, 145, 180)		44.
open door alarm		45.
interface / port	RS 232	46.
	USB	47.
Ethernet connection and remote control via Internet		48.
self-check function (auto control)		49.
Administrator function		50.
access control via login		51.
e-mail info		52.
manufacturer's test certificate (for: <b>ZL</b> at -10 °C; <b>CHL</b> at +4 °C; <b>KK</b> at +25 °C and 60% rH; <b>ST, CL, IL</b> at +37 °C; <b>SL</b> at +105 °C; <b>SR</b> at +170 °C)		53.
24 months warranty		54.
CE mark		55.
manufacturer's certificate PN-EN ISO 9001		56.

	ST		CHL		ZL	CL		IL		SL		SR STD	KK TOP+
	P*	TOP+	P*	TOP+		STD	TOP+	STD	TOP+	STD	TOP+		
1.					•								
2.	•	•	•	•									
3.	•	•	•	•	•	•	•	•	•	•	•	•	•
4.	•	•	•	•	•	•	•	•	•	•	•	•	•
5.	•	•	•	•	•	•	•	•	•	•	•	•	•
6.					•	•	•			•	•	•	
7.	•	•	•	•		•	•	•	•	•	•	•	•
8.						•	•			•	•	•	
9.	o	•	o	•		•	•	•	•	•	•	•	•
10.	•	•	•	•		•	•	•	•	•	•	•	•
11.						•	•			•	•	•	
12.	•	•				•	•	•	•	•	•	•	•
13.	•	•	•	•	•			•	•				•
14.	•	•	•	•									
15.	o	o	o	o				o	o				•
16.	•		•		•	•		•		•		•	
17.		•		•			•		•		•		•
18.	•	•	•	•	•	•	•	•	•	•	•	•	•
19.			•		•								
20.	•					•		•		•		•	
21.		•		•			•		•		•		•
22.	•	•	•	•	•	•	•	•	•	•	•	•	•
23.	•	•		•			•	•	•		•		•
24.	•	•		•		•	•	•	•	•	•	•	•
25.			•		•								
26.	•					•		•		•			
27.		•		•			•		•		•		•
28.	•	•	•	•	•	•	•	•	•	•	•	•	•
29.		•		•		•	•	•	•	•	•	•	•
30.		•		•		•	•	•	•	•	•	•	•
31.	•	•	•	•	•	•	•	•	•	•	•	•	•
32.		•		•		•	•	•	•	•	•	•	•
33.	•		•										
34.	•	•	•	•	•	•	•	•	•	•	•	•	•
35.	•	•	•	•	•	•	•	•	•	•	•	•	•
36.	•	•	•	•	•	•	•	•	•	•	•	•	•
37.	1.0	3.3	1.0	3.2		2.0	3.1	2.0	3.3	2.0	3.1	2.0	3.3
38.	•	•	•	•	•	•	•	•	•	•	•	•	•
39.	•	•	•	•	•	•	•	•	•	•	•	•	•
40.	•	•	•	•	•	•	•	•	•	•	•	•	•
41.	•	•	•	•	•	•	•	•	•	•	•	•	•
42.	•	•	•	•	•	•	•	•	•	•	•	•	•
43.	•	•	•	•	•	•	•	•	•	•	•	•	•
44.	•	•	•	•	•	o	o	o	o	o	o	o	o
45.	•	•	•	•	•	•	•	•	•	•	•	•	•
46.	•	•	•	•	•	•	•	•	•	•	•	•	•
47.	•	•	•	•	•	•	•	•	•	•	•	•	•
48.		•		•			•		•		•		•
49.	•	•	•	•	•	•	•	•	•	•	•	•	•
50.		•		•			•		•		•		•
51.		•		•			•		•		•		•
52.		•		•			•		•		•		•
53.	•	•	•	•	•	•	•	•	•	•	•	•	•
54.	•	•	•	•	•	•	•	•	•	•	•	•	•
55.	•	•	•	•	•	•	•	•	•	•	•	•	•
56.	•	•	•	•	•	•	•	•	•	•	•	•	•

• - standard equipment  
o - option  
\* - basic version of thermostatic cabinets and laboratory refrigerators

Options and accessories	ST		CHL		ZL	CL		IL		SL		SR	KK	Order no.
	P <sup>6</sup>	TOP+	P <sup>6</sup>	TOP+		STD	TOP+	STD	TOP+	STD	TOP+			
internal glass door <sup>1,5</sup>	•	•	•	•		•	•	•	•				<b>s</b>	*/C
external glass door <sup>1,8</sup>	•	•	•	•									•	*/A
door with viewing window <sup>4,7</sup>						•	•	•	•	•	•	•	•	*/A
internal socket <sup>1,5</sup>	•	•	•	•		•	•	•	•					GNZ
interior lighting <sup>1,4,5</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	OWW
door lock <sup>1,12</sup>	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	•	•	•	•	•	•	•	•	ZKL
wire shelf <sup>1</sup>	•	•	•	•										*/P
stainless steel wire shelf <sup>1,9</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	*/P INOX
perforated shelf <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	*/PP
glass shelf <sup>3</sup>					•									*/PS
reinforced shelf	•	•	•	•	•	•	•	•	•	•	•	•	•	*/PW
extended temperature range to +70 °C <sup>1</sup>	•													ST/70
reinforced version <sup>12</sup>					•	•	•	•	•	•	•	•		*/W
low temperature version <sup>1,10</sup>			•					•	•					*/T
photoperiodic system - FOT <sup>1</sup>	•							•	•					*/FOT
phytotron system - FIT <sup>11</sup>		•						•					•	*/FIT
automatic defrosting function	•	•	•	•				•	•				<b>s</b>	*PLUS
over temperature protection system according to DIN 12880 <sup>1</sup>	3.3	<b>s</b> (3.3)	3.2	<b>s</b> (3.2)		3.1	<b>s</b> (3.1)	3.3	<b>s</b> (3.3)	3.1	<b>s</b> (3.1)	3.1	<b>s</b> (3.3)	*/**
stainless steel cuvettes	•	•	•	•	•	•	•	•	•	•	•	•	•	KUW GN */*
stainless steel drawers	•	•	•	•	•	•	•	•	•	•	•	•	•	*/SW
humidity measurement <sup>5</sup>		•		•		•	•	•	•					PHR
door openings counter <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	LOD
fan speed control	•	<b>s</b>	•	<b>s</b>		<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	<b>s</b>	ST/CHL WENT
additional Pt 100 temperature sensor		•		•		•	•	•	•	•	•	•	•	PT100
HEPA - fresh air filter						•	•			•	•	•		HEPA
RS 422 interface (instead of RS 232) <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	RS422
RS 485 interface (instead of RS 232) <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	RS485
wheels	•	•	•	•	•	•	•	•	•	•	•	•	•	QLK*
table with wheels <sup>2</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	*/S, */INOX
RS 232 cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK
RS 422 cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK/422
RS 485 cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK/485
USB cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	USBK
EasyLab-T PLUS software	•	•	•	•	•	•	•	•	•	•	•	•	•	EasyLab-T PLUS
dot printer	•	•	•	•	•	•	•	•	•	•	•	•	•	EPSON
"Kafka" thermal printer	•	•	•	•	•	•	•	•	•	•	•	•	•	KAFKA
calibration at 9 points <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	BRT/9/L
chamber calibration at 5 points on 1 shelf <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	BRT/5/L
IQ, OQ, PQ qualification <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	IQ/OQ/PQ
SMS Info <sup>1,12</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	SMS INFO
container for deionised water													•	KK/Z
container for waste water													•	KK/K
water level sensor													•	KK/CP
FIT panels independent control <sup>11</sup>		•							•				•	FIT/R3

\* - model (e.g. ST 1+, IL 53, ZL 75)  
 \*\* - 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 ZL 75, 145, 180  
 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 - basic version of thermostatic and laboratory refrigerators  
 7 - for KK 115, 240, 400, 750  
 8 - for KK 500, 700, 1200  
 9 - for ZLN 85+  
 10 - for CHL 500, 700, 1200, 1450, 350/350  
 11 - thermostatic cabinets ST 500, 700, 1200, 1450  
 12 - except ZL 75, 145, 180  
**s** - standard equipment  
 • - available option