

## Cooled incubators (ST)

### Application

- BOD determination
- microbiological research
- plant growing and microorganisms breeding at specified temperature
- storage of liquids and samples for physicochemical analysis



**Cooled incubators (ST)** can provide a stable temperature between  $+3...+70^{\circ}\text{C}$  regardless of ambient conditions.

### Calibration



All thermostatic equipment manufactured by POL-EKO-APARATURA can be provided with Calibration Certificate issued by accredited Measurement Laboratory. Detailed information on accreditation is available on website: [www.pol-eko.eu](http://www.pol-eko.eu).

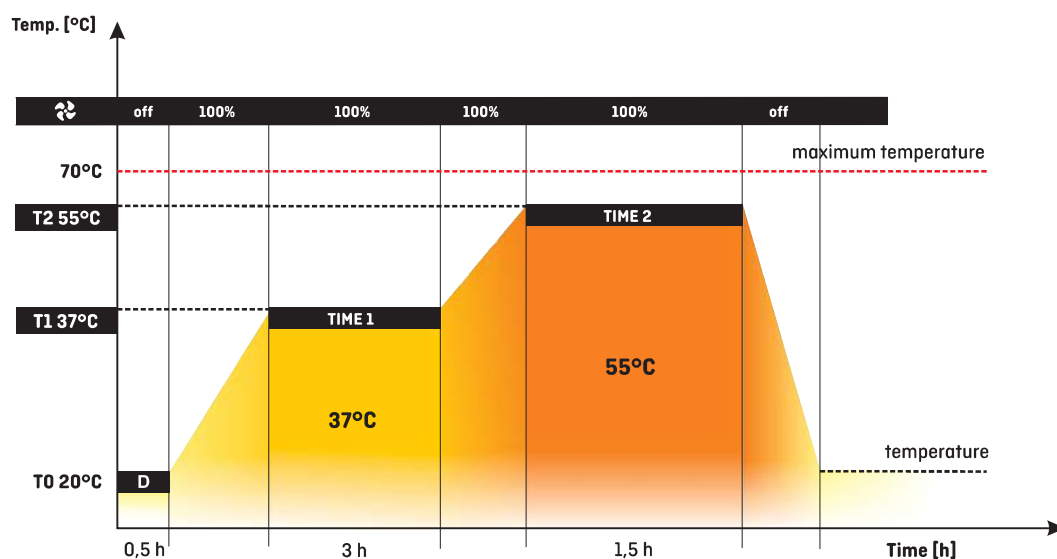


The **BASIC, COMFORT, PREMIUM** models are equipped with a PID microprocessor controller with an LCD graphic display and illuminated touch buttons.

### Controller advantages

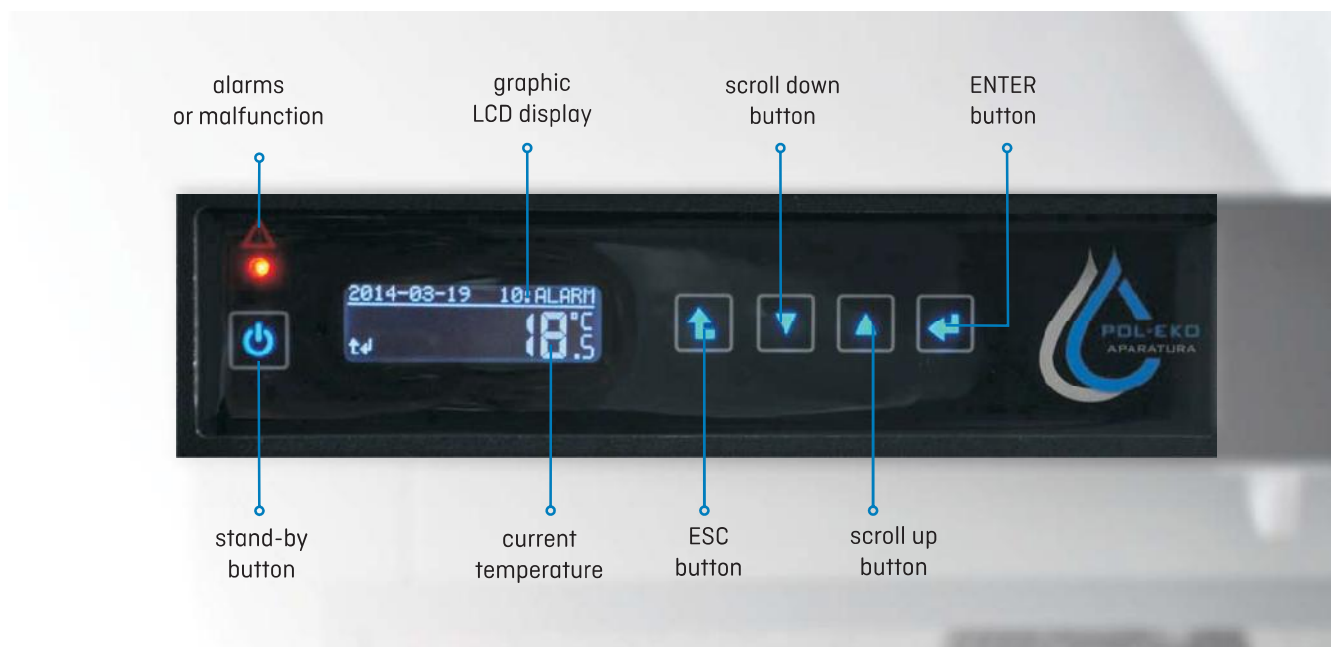
- six segment temperature-time profile
- loop function up to 99 times or endless
- 3 user programs memory
- adjustable start delay feature (from 1 min to 99:59 h)
- adjustable hold at set point time for temperature and lighting (for ST/FOT) from 1 min to 31 days / 1 min to 99:59 h or continuous operating
- recording of min, average and max temperature value for each segment
- overview of set and current parameters while operating
- audible and visual temperature alarm
- operating with temperature priority mode
- defrosting function
- 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
- forced air convection with optional fan speed control 50-100%
- automatic fan shut-down after completing the program

Detailed description of parameters on page 80.



  - parameter set by the user  
 D - adjustable start delay (1 min...99:59 h)  
 - fan speed control (option)  
 T1/T2 - segment temperature  
 TIME 1/2/3 - segment time

## Control panel



## Standard features

- temperature range +3...+40°C
- quality control protocol (at +37°C)
- English instruction manual
- available menu languages: Czech, English, Estonian, German, Italian, Latvian, Polish, Portuguese, Russian, Spanish
- temperature protection 1.0 class for BASIC and COMFORT models and 2.0 for PREMIUM models to DIN 12880
- open door alarm
- wheels in standard for models ST 1200 and 1450

RS 232 and USB ports for data transfer

internal LED light

access port: Ø30 mm

door lock

wire shelves for BASIC and stainless steel wire shelves for COMFORT and PREMIUM models

solid door



### PREMIUM TOP+ version

All the units in TOP+ version are equipped with 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.

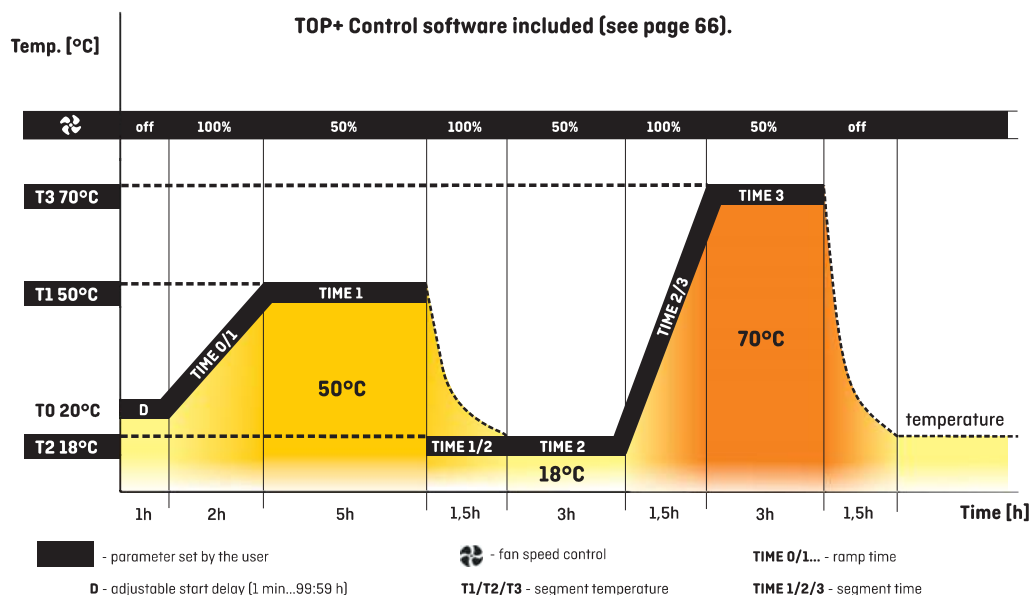
### Controller advantages

- 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 or date/time)
- access control via login
- 7-days programming
- adjustable hold at set point time for temperature and lighting (for ST/FIT) from 1 min to 999:59 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
- Administrator function to manage user accounts
- possibility of temperature calibration by the user
- audible and visual temperature alarm
- operating in temperature or time priority mode
- defrosting function
- temperature sensor fail alarm
- power failure control system (program continued after restoring power)
- digital timer
- real-time clock
- auto-diagnostic function
- forced air convection with fan speed control (50-100%)
- automatic fan shut-down after completing the program

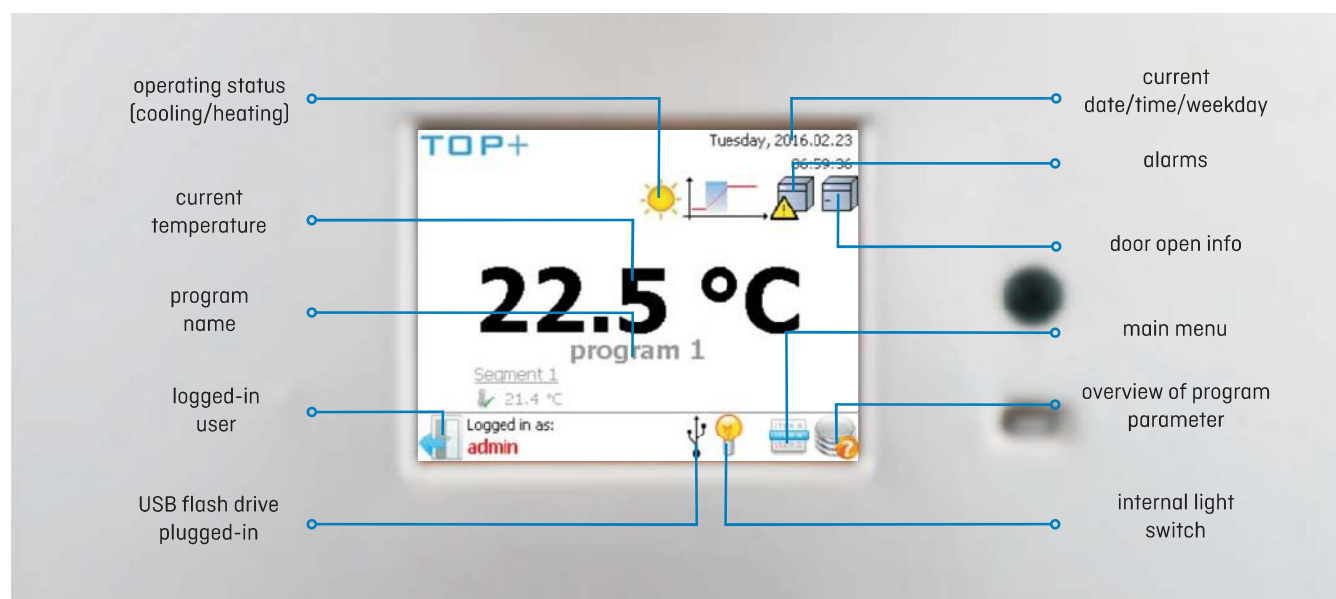
Detailed description of parameters on page 80.

### 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 a tabular or graphic form
- USB port to allow direct data recording or transfer to a USB mass storage device
- events registry



## Control panel



## Standard features

- temperature range +3...+70°C
- Ethernet cable
- TOP+ Control software
- quality control protocol (at +37°C)
- English instruction manual
- available menu languages: Czech, English, Estonian, French, German, Hungarian, Italian, Latvian, Polish, Portuguese, Romanian, Russian, Spanish
- temperature protection 3.3 class to DIN 12880
- open door alarm
- wheels in standard for models ST 1200 and 1450

door lock

USB port to allow direct recording and data transfer to a USB mass storage device

RS 232 port for data transfer

LAN port for remote control

internal LED light

access port: Ø30 mm

wire stainless steel shelves

solid door



## ST

all the above technical data refer to standard units (without optional accessories)

\* also available: 230V 60Hz, 115V 60Hz

1 - additional internal glass door

2 - ST 1-6 in TOP+ version are 60 mm higher, depth doesn't include 50 mm of power cable

3 - dims of units with double door can be smaller

4 - on uniformly loaded surface.

5 - reinforced shelf

6 - reinforced version

7 - for units in BASIC version with solid door, without optional equipment

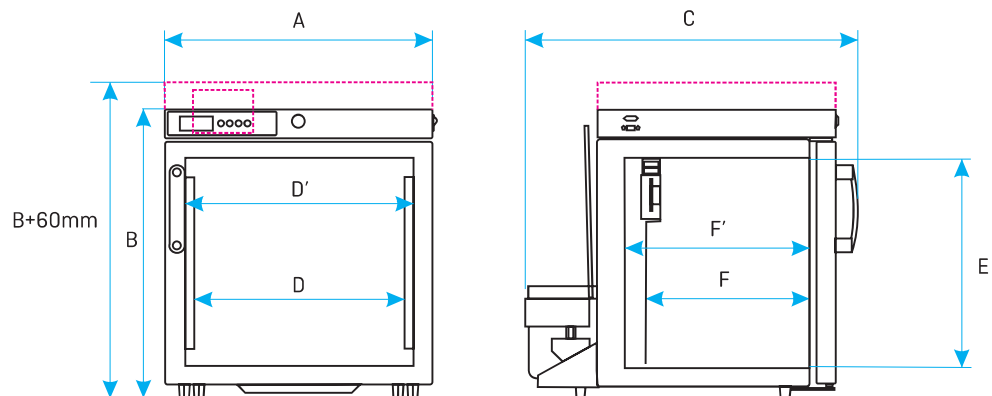
8 - two columns with 3 shelves each



7 - for units in BASIC version with solid door, without optional equipment

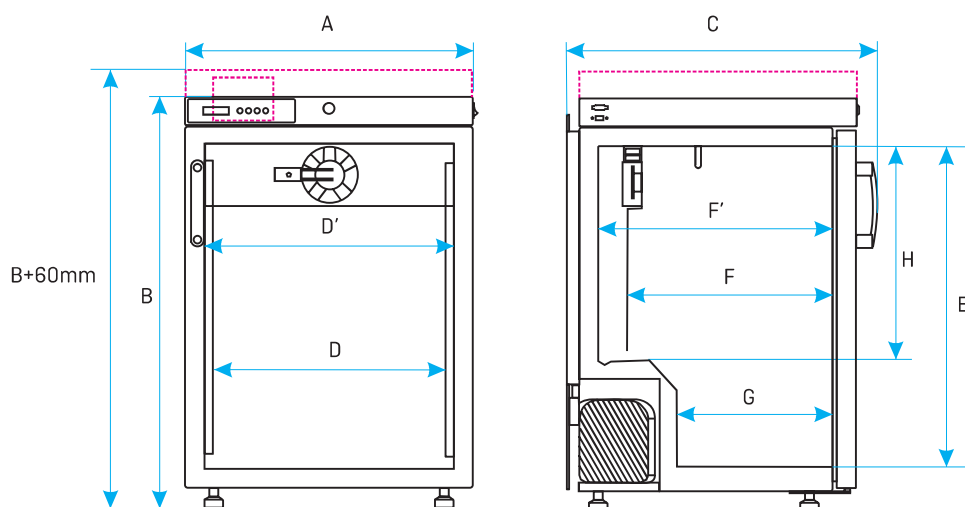
15

ST 1



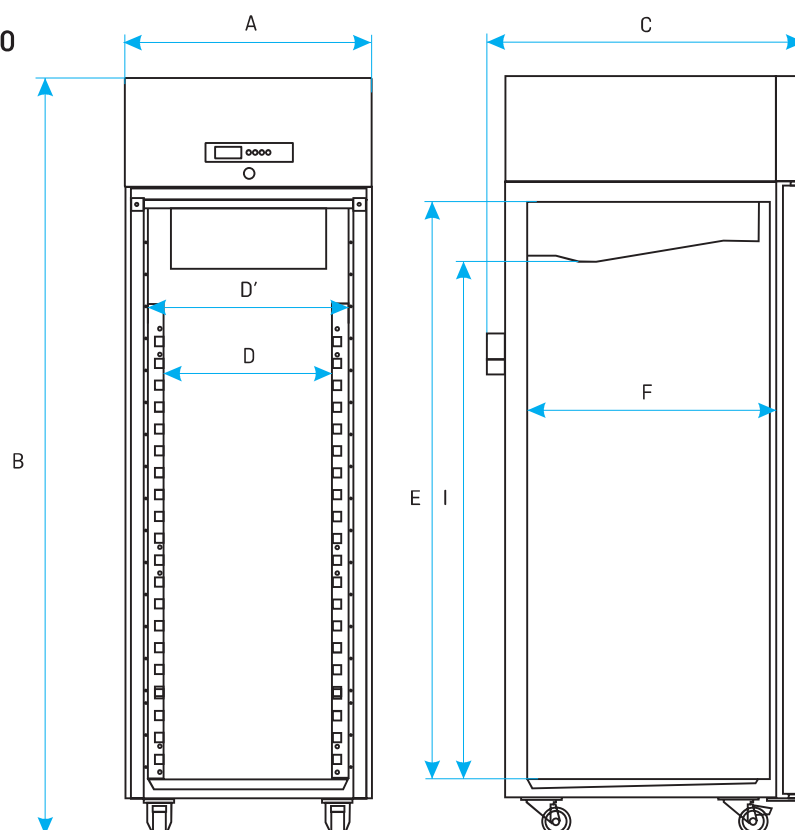
- TOP+ version

ST 2/3/4/5/6



- TOP+ version

ST 500/700/1200/1450





# Cooled incubators (ST) with photoperiodic system

## Cooled incubators (ST) with photoperiodic system

The photoperiodic (FOT) and phytotron (FIT) systems allow day and night simulation.

The FOT option allows the lights to be turned on or off, while the FIT option features additional intensity control.

The BASIC, COMFORT and PREMIUM versions of cooled incubators (ST) can be equipped with the FOT option, while the PREMIUM TOP+ version (ST 500, 700, 1200, 1450) with the FIT system.

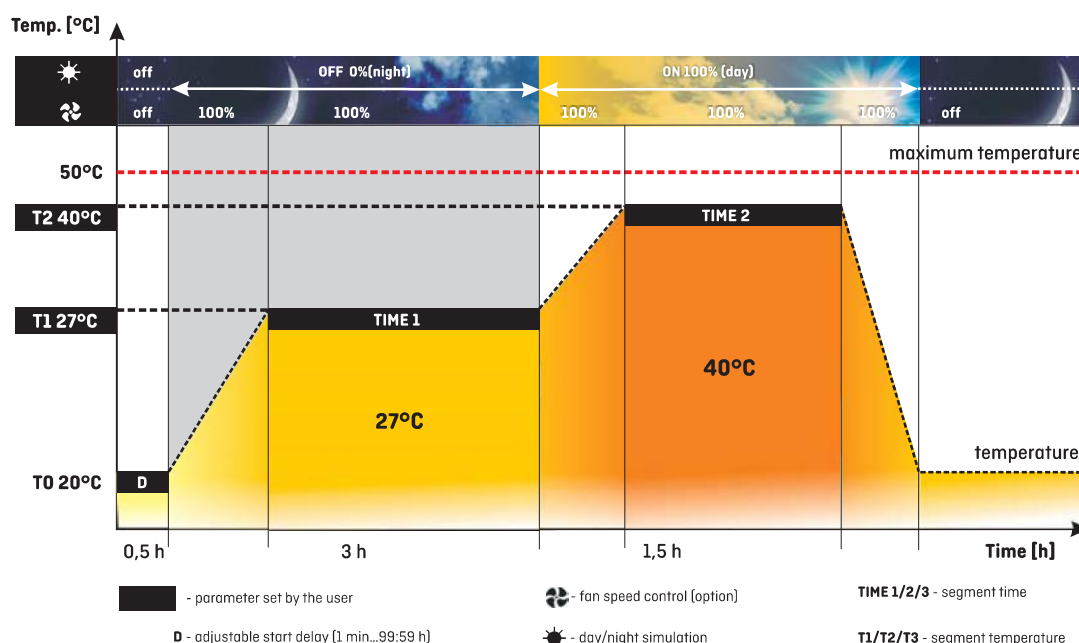
## Program possibilities with FOT option

- day and night simulation software to control light (on/off), time and temperature separately for each segment
- temperature range for "night" simulation: +3 ... +50°C
- temperature range for "day" simulation: +10 ... +50°C
- lamps installed on side walls
- fluorescent lamp 840 type (daylight) as standard
- operating with time priority (see page 80)
- automatic defrosting function included

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

Option	ST/FOT2	ST/FOT4	ST/FOT6	ST/FOT8	ST/FOT10	ST/FOT15
available for models	ST 1 ST 1/1 ST 1/1/1	ST 2 ST 2/2	ST 2; ST 3 ST 2/2 ST 3/3	ST 4 ST 5 ST 6	ST 500 ST 700	ST 1200 ST 1450
temperature range with photoperiod ON [°C]	+10 ... +50					
number of lamps on walls	2 (in ceiling)	4	6	8	10	15 (3 columns with 5 pieces)
adjustable illumination intensity	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.



## Cooled incubators (ST) with phytotron system

The PREMIUM TOP+ version of cooled incubators (ST 500, 700, 1200, 1450) can be equipped with the FIT system.

### Program possibilities with FIT option

- day and night simulation software to control light intensity [%], time temperature and fan speed separately for each segment
- temperature range for „night” simulation: +3...+60°C
- temperature range for „day” simulation: +10... +50°C
- lamps installed in over-shelf panel (FIT P), side walls (FIT S), door (FIT D), door and side walls (FIT DS)
- fluorescent lamp 840 type (daylight) used as standard
- temperature or time priority program (see page 80)
- automatic defrosting function included

### Phytotron system (\* /FIT option) for cooled incubators (ST) (PREMIUM TOP+)

Option**	ST/500/700/FIT DS	ST/500/700/FIT P	ST/500/700/FIT S	ST/1200/FIT P	ST/1450/FIT P
temperature range with phytotron ON [°C]	+10 ... +50°C				
number of over-shelf panels with illumination std/max	-	1/3	-	1/3	1/3
lamps in door	yes	no	no	no	no
lamps in walls	yes	no	yes	no	no
adjustable illumination intensity	yes				

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

