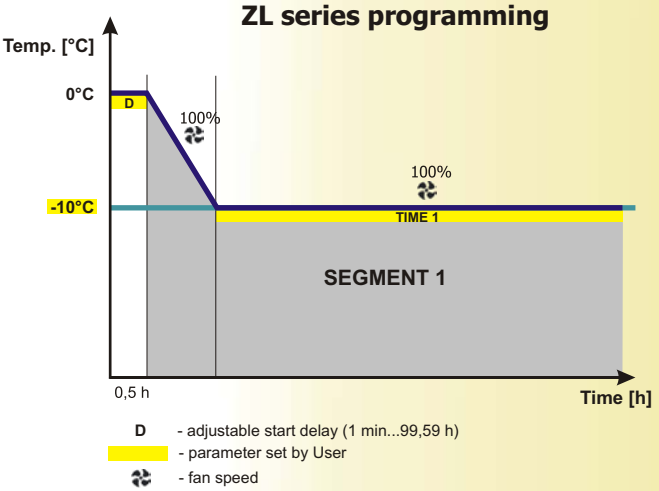
Freezers

FEATURES

- interior made of: plastic or stainless steel (**INOX type**)
- powder coated sheet or stainless steel (**INOX type**) housing
- thermal insulation: polyurethane foam
- solid door
- natural air circulation
- temperature range: -35...0°C (some models)
- external display of the time and temperature
- microprocessor time and tempreature controller
- temperator sensor failure alarm
- power failure control system (see page 6)
- RS 232 interface (see below)

ZL series programming



RS 232 INTERFACE

All of the devices that we manufacture are equipped with RS 232 interface. It gives you a possibility to connect them to the PC and view (as well as save) data from the temperature measurement. To be able to save the data it's necessary to purchase interface cable (RSK) and EasyLab-T software (see optional equipment page 22).

PROGRAMMING POSSIBILITY

- single segment temperature-time profile
- adjustable start delay (1 min...99,59 h)
- adjustable working time for choosen temperature 1 min... 99,59 h or continuous operation
- monitoring of parameters during program run overtemperature accoustic alarm
- real time clock
- timer (see page 22)

ZLN 125

Parameter \ Model		ZLN 75	ZLN 145	ZLN 180	ZLN 125	ZLN 200	ZLN 300
air circulation		natural					
chamber volume [l]		85	160	196	127	200	299
door		solid					
temperature range [°C]		-25...0			-35...0		
controller		microprocessor with external display					
interior		plastic			stainless steel		
housing		powder coated sheets			stainless steel coated sheets		
exterior dimensions [mm]	width	560	600	600	550	650	650
	height	850	1250	1455	1140	1305	1685
	depth	610	650	650	680	680	680
interior dimensions [mm]	width	410	450	450	400	500	500
	height	630	970	1160	600	770	1150
	depth	390	420	420	530	520	520
nominal power [W]		120	96	100	450	900	900
weight [kg]		34	48	55	90	120	185
temperature regulation [°C]		every 1,0					
temp.* fluctuation [°C]**	in -20°C	±0,3	±0,5	±0,8	±0,5	±0,9	±1,0
temp. variation [°C]**	in -20°C	±0,9	±1,2	±1,3	±1,2	±1,4	±1,8
power supply 50 Hz [V]		230					
shelves number		2/2	4/4	5/5	2/3	2/4	3/6
warranty		24 months					
producer		POL-EKO-APARATURA					

* working space of the chamber is always smaller
** variation measured in vertical axis of the chamber
*** fluctuation measured in geometrical centre of the chamber

Features		ZL
version	single-chamber	●
	double-chamber	
interior	plastic	●
	aluminium	
	stainless steel	●
housing	power coated sheet	●
	powder coated stainless steel	●
	stainless steel - INOX type	
door	solid	●
	solid with viewing window	
	glass	
	double	
air circulation	natural	●
	forced	
fan speed regulation	0...100%	
	10...100%	
fan Auto-Off		
air flap control	manually	
	automatically	
system	heating	
	cooling	●
defrosting		
display	LED	●
	graphic LCD	
microprocessor time and temperature controller		●
temperature-time profile	single segment	●
	six segments	
	nine segments	
program cycles		
user's programs memory	three	
	twenty	
adjustable start delay	1 min...99,59 h	●
adjustable heating and cooling time	1 min...99,59 h	
adjustable working time for current temperature or continuos operation	1 min...99,59 h	●
	1 min...999 h	
monitoring of parameters during program run		●
average, minimum and maximum temperature value recording for each segment		
overtemperature accoustic alarm		●
temperature sensor failure alarm		●
power failure control system		●
real time clock		●
timer		●
PC and printer interface	RS 232	●
	RS 485 MODBUS	
Ethernet and Internet connection		
measurement results memory		
SELFCHECK function - self test after turning on		
administrator function		
login access control		
password memory protection		
temperature variation certificate (at three points in vertical axis)	in -10°C	●
	in +5°C	
	in +37°C	
	in +170°C	
24 months warranty		●
CE mark		●
producer's certificates PN-EN ISO 9001, PN-N 18001		●

Laboratory Freezers

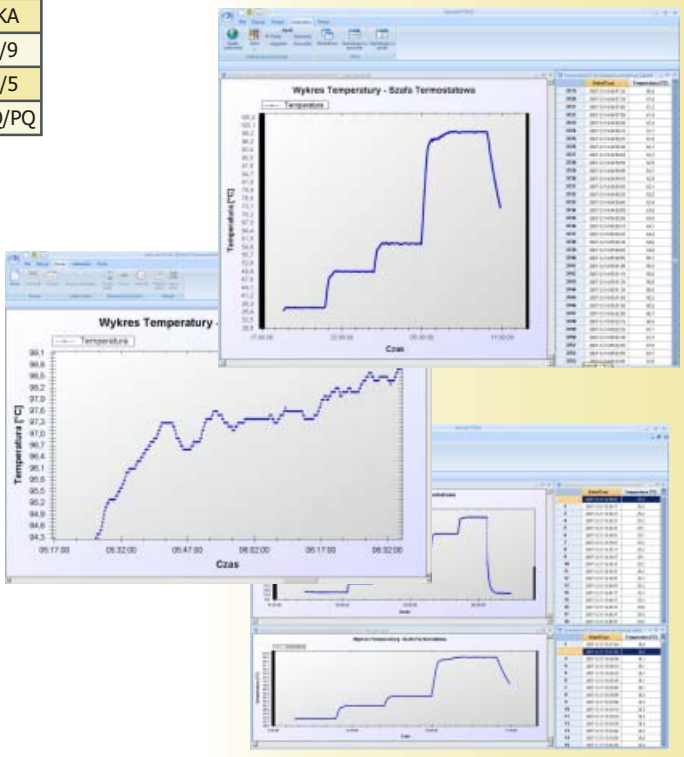
Options and accesories	ZL	Order number
internal glass door		*/C
glass door		*/A
door with viewing window		*/A
internal socket		GNZ
internal lighting		OWW
door lock (only for B and C models)	●	ZKL
wire shelf		*/P
perforated shelf		*/PP
full plate shelf	●	*/P
reinforced shelf		*/PW
stainless steel cuvet		KUW
stainless steel drawer		*/SW
access port		OCZ
humidity measurement		PHR
open door alarm	●	SOD
open door counter	●	LOD
over -undertemperature protection (DIN 12880)	3.2	*/**
additional Pt 100 temperature sensor (A class)		*/Pt100
fresh-air filter (HEPA)		*/HEPA
RS 422 interface (instead of RS 232)	●	*/RS422
RS 485 interface (instead of RS 232)	●	*/RS485
wheels	●	QLK/*
table with wheels	●	*/S
cable for RS 232	●	RSK
cable for RS 422	●	RSK/422
cable for RS 485	●	RSK/485
EasyLab-T software	●	EasyLab-T
EasyLab software	●	EasyLab
dot-matrix printer	●	TM-U210D
KAFKA thermal printer	●	KAFKA
temp. variation certificate (9 points in chamber)	●	BRT/9
temp. variation certificate (5 points on shelf)	●	BRT/5
qualification procedures (IQ, OQ, PQ)	●	IQ/OQ/PQ

* - model (e.g. ZL 75)
** - temperature protection type (e.g. 3.2)

door lock

wheels

table with wheels



EasyLab-T PLUS software

connection cable for PC

Calibration and measuring laboratory

UNION FOR ENTERPRISING PEOPLE
COMPETITIVENESS PROGRAMME

EUROPEAN UNION
Project co-financed by the EUROPEAN UNION
from the European RegionalDevelopment Fund

FEATURES

- complex control of laboratory equipment
- introduced Quality Management System according to PN-EN ISO 9001 and PN-EN ISO/IEC 17025 regulations
- possibility of control performing directly in a Customer's laboratory
- after each control a calibration certificate or control certificate is made out with all the uncertainty given in the document

Working to according ISO 9001 and PN-EN ISO/IEC 17025

Temperature variation testing

Our laboratory performs temperature variation (homogeneity) testing in all the thermostatic devices available on the market (thermostatic cabinets, heating ovens, drying ovens, incubators also with cooling systems) in a temperature range from -70°C to +300°C. Testing is performed with ten channel high precision and accuracy thermometer (total uncertainty of the method: ±0,04°C), which is calibrated at accredited calibration laboratory. Testing can be made in an empty or filled device, both in our and in Customer's laboratory.
It is performed according to DIN 1288 regulation and EUROMET document: "Calibration of Climatic Chambers" (edition 01/2006). The number of measuring points and their positioning may be also specified by a Customer (maximum 27 points inside the chamber).

Qualifications Procedures

Apart from temperature variation testing, our laboratory performs also qualification procedures (IQ, OQ, PQ) for all types of thermostatic devices. IQ, OQ and PQ qualification procedures are required mostly in pharmaceutical industry (also in veterinary pharmacy), as well in cosmetics, cleaners and detergents industry, biotechnological applications, blood donation canters and many, many others.

Installation Qualification (IQ) ensures that an instrument or a device is received as designed and specified. It proves and documents the installation in the selected user environment.

Operational Qualification (OQ) demonstrates that an instrument or a device will function according to its operational specification (in all the specified limits) in the selected environment.

Performance Qualification (PQ) demonstrates that an instrument or a device consistently performs according to a specification appropriate for its routine use.

A "Qualification Protocol" is made out in the end of the qualification process.

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