Klipspringer

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ICN16/35 PLUS Incubators

USER MANUAL

UM Ovens and Incubators EN rev.2 29.06.2022

01473 461800 sales@klipspringer.com www.klipspringer.com

Forced air and natural convection incubators, multifunctional with microprocessor temperature controller.

Model	Description	Temperature range
ICN-16 Plus	Natural convection incubator 16L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-35 Plus	Natural convection incubator 35L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-55 Plus	Natural convection incubator 55L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-120 Plus	Natural convection incubator 120L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-200 Plus	Natural convection incubator 200L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICF-55 Plus	Air forced incubator 55L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)
ICF-120 Plus	Air forced incubator 120L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)
ICF-200 Plus	Air forced incubator 200L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)
ICF-400 Plus	Air forced incubator 400L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)

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1. SAFETY INFORMATION

• Definitions of warning words and symbols

This manual contains extremely important safety information. To avoid personal injury, damage to the instrument, malfunctions or incorrect results, it is essential that you comply with the information inside this manual. Read this manual carefully and in its entirety and be sure to familiarise with the equipment before starting to work with it. This manual must be kept near to the instrument, so that your operator can easily consult it, if necessary. Safety provisions are indicated with warning terms or symbols.

• Reporting terms:

DANGER/WARNING/ATTENTION	a medium-risk hazardous situation, which could lead to serious injury or death, if not avoided.
ADVICE	important information about the product.
NOTE	useful information about the product.

Warning symbols:

DANGER
This symbol indicates an imminently hazardous situation, that, if it isn't avoided, could result in death or serious (irreversible) injury.

WARNING
This symbol indicates a potentially hazardous situation, which, if not avoided, could result in death or serious (irreversible) injury.

ATTENTION
This symbol indicates a potentially hazardous situation, which, if not avoided, could result in medium or minor injuries (reversible).

ADVICE
This symbol draws attention to possible damage to the instrument or instrumental parts.

NOTE
This symbol highlights further information and tips.

• Pictograms

Throughout this manual there are various symbols identifying dangers, prohibitions and obligations as illustrated overleaf.

• Danger symbols

	Danger of electric shock
	Danger of explosion
	Fire hazard
	Danger of poisoning
	Danger of overheating surfaces

	Danger of damage to health caused by toxic substances
	Danger of injury from tipping objects
	Risk of injury from lifting heavy objects
	Danger of environmental damage
	Danger of corrosion

• Prohibition signs

	Do not wet with water

• Symbols of obligation

	Disconnect the instrument from the power supply by pulling the plug
	Eye protection must be used

2. GENERAL SAFETY INSTRUCTIONS

If the incubator is not installed, commissioned, cleaned, adjusted or set up correctly, there is a risk of malfunction that could cause physical injury to persons and material damage to the instrument and samples. Therefore, the incubator must only be installed, commissioned, cleaned, adjusted and set up by qualified personnel.

DANGER	
	**Danger of electric shock and Danger of death** ⊘ Do not get the instrument wet during installation, commissioning or maintenance. ⊘ Do not connect the instrument to the power supply if the rear panel is dented or damaged. › Before opening the rear panel, remove the plug from the power supply. › If the power cord or rear panel of the instrument is damaged, discontinue use immediately, remove the plug from the power supply and contact your dealer for repairs. › All work on electrical components of the instrument must be carried out by qualified personnel only.
	**Danger of explosion** › Install the instrument only where there is no risk of explosion. Do not keep air/solvent mixtures or explosive dusts in the vicinity. ⊘ Never introduce materials into the instrument that are explosive or flammable at the selected operating temperature. ⊘ Never introduce materials containing flammable or explosive solvents into the instrument. ⊘ Never introduce materials into the instrument which by sublimation or pyrolysis give rise to the formation of flammable materials at the selected operating temperature.
	**Danger of poisoning and Danger of death** Never introduce materials into the instrument if the disintegration of these materials could result in the formation of poisonous gases at the selected operating temperatures.

WARNING	
	**Fire hazard** ⊘ Incubators must not be used if the class 2 safety thermostat is not checked. › If the safety thermostat test fails, immediately stop using the refrigerated incubator, remove the plug from the power supply and contact your dealer for the necessary repairs. › Always place the instrument on a working surface that is resistant up to a temperature of 100 °C. ⊘ Do not insert anything underneath the instrument (paper, plastic film, etc.). › Always connect the instrument only to a power supply with a fuse of at least 10A. Follow the recommendations of your local power supply company.
ATTENTION	
	**Danger of burns** › The air intake cover on the back of the instrument becomes hot and must not be touched during operation of the incubator.
	**Risk of injury and breakage** › Always place the instrument only on surfaces that can support its weight.
	**Overturning hazard and risk of injury** ⊘ Never stack more than 2 incubators on top of each other. › Always fix 2 stacked incubators with the fixing plates provided.
	**Risk of injury, Risk of slipping or overturning and risk of damage to the instrument** › The instrument must be lifted by 2 people. › The instrument must be transported in its original packaging only. › The instrument must always be lifted from below with mechanical tools (e.g. forklift truck) together with the supporting pallet. ⊘ The instrument must not be lifted directly from below with mechanical tools without supporting pallets (e.g. forklift truck). ⊘ The instrument must not be lifted or dragged by pulling the door.

3. CE MARKING DATA

Klipspringer instruments are manufactured in compliance with Directive 2006/42/EC and the relevant Community Directives applicable at the time of placing on the market (fac-simile below).

SUZHOU BEING MEDICAL DEVICE.CO.,LTD	**DECLARATION OF CONFORMITY UE** In accordance with Annex II A - Directive 2006/42/CE Annex IV - EMC Directive and Annex VI - Directive 2011/65/UE (RoHS)	CE

No. ISETC.002420200624

Manufacturer's Name : SUZHOU BEING MEDICAL DEVICE CO., LTD

Manufacturer's Address : NO. 108 GONGXIANG RD QIANDENG TOWN, KUNSHAN CHINA

Tel: +86-21-56633709

Email: JILL.SHEN@BLUEPARD.COM

Object of Declaration: : FORCED AIR INCUBATORS

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product names:

Product description	FORCED AIR INCUBATORS
Model:	BI-120FL, BI-120F, BI-200FL, BI-200F, BI-400FL, BI-400F
Serial Number:	from s/n xxxxxxxxx to xxxxxxxxxxx
Product options:	This declaration covers all options of the above products

- ***The object of the declaration describe above complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:***

EMC directive: 2014/30/UE	*Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility.*
RoHS Directive 2011/65/EU	*Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.*
LVD Directive: 2014/35/UE	*Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the on the market of electrical equipment designed for use within certain voltage limits Text with EEA relevance.*
Machinery Directive : 2006/42/EC	*DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)*

- ***and conforms with the following standards:***

EN 61010-1:2010+A1:2019

EN 61326-1:2013

EN 61000-3-2:2014

EN 61000-3-3:2013

EN 60204:2018

EN ISO 12100:2010

NAME AND ADDRESS OF THE PERSON AUTHORISED TO COMPILE THE TECHNICAL FILE

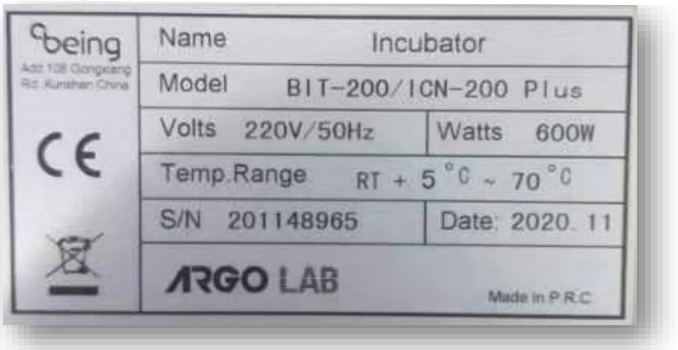
Giorgio Bormac S.r.l. - Via della Meccanica, 25 41012 Carpi (MO) - ITALY

Signed for and on behalf of ***name, surname***

Place gg/mm/aaaa

SHANGHAI SIGNATURE_____

Fac-simile of the CE marking plate:



4. CONTENT OF PACKAGE

This instrument is delivered complete with the following parts:

1. n. 2 stainless steel wire shelves
2. n. 4 brackets for shelves
3. Power supply cable
4. Fuses
5. User manual

5. TRANSPORTATION

• Instructions for safe transportation

ATTENTION

Risk of injury, of slipping or overturning and risk of damage to the instrument

- The instrument must be lifted by 2 people.
- The instrument must be transported in its original packaging only.
- The instrument must always be lifted from below with mechanical tools (e.g., forklift truck) together with the supporting pallet.
- ⊘ The instrument must not be lifted directly from below with mechanical tools without supporting pallets (e.g. forklift truck).
- ⊘ The instrument must not be lifted or dragged by pulling the door.

• Transportation of an already used incubator

- Switch off the Klipspringer incubator by pressing the main switch.
- Remove the power plug from the socket.
- Remove the shelves.
- Clean the Klipspringer incubator and its shelves (see chapter 13 on page 18).
- Dry the inside of the Klipspringer incubator and the shelves.
- Wrap the shelves with bubble wrap.
- Pack the shelves in their original packaging and place them in the Klipspringer incubator.
- Pack the Klipspringer incubator in its original packaging.
- Take care that the Klipspringer incubator does not get wet during transport.
- During transport, maintain the permitted room temperature (from -10 °C to 60 °C).

6. CONSERVATION

- Store the Klipspringer incubator only in closed, dry rooms.
- The permitted storage temperature is -10 °C to 60 °C. The maximum permitted storage humidity is 85% RH without condensation.

7. FIRST INSTALLATION

• Getting started

The incubator should be installed in following conditions:

- Dry, clean, stable worktable with a flat horizontal surface and heat resistant.
- At least 30 cm free around the instrument.
- Room temperature between 5 °C and 40 °C and relative humidity maximum of 85%.
- Power supply socket with earth connection.
- Power supply of 220/240 V - 50 Hz.

ADVICE

Risk of overheating - Damage to the instrument

⊘ DO NOT install the instrument in not ventilated area.

Ensure that there is enough ventilation to disperse heat.

ATTENTION

Danger of overturning of the upper instrument – Damages to the instrument

› When stacking two instruments, place rubber pads under the four feet of the upper instrument.

DANGER

Risk of explosion and death

⊘ DO NOT operate the device in potentially explosive areas.

⊘ DO NOT use explosive dust or air-soluble mixtures in the environment.

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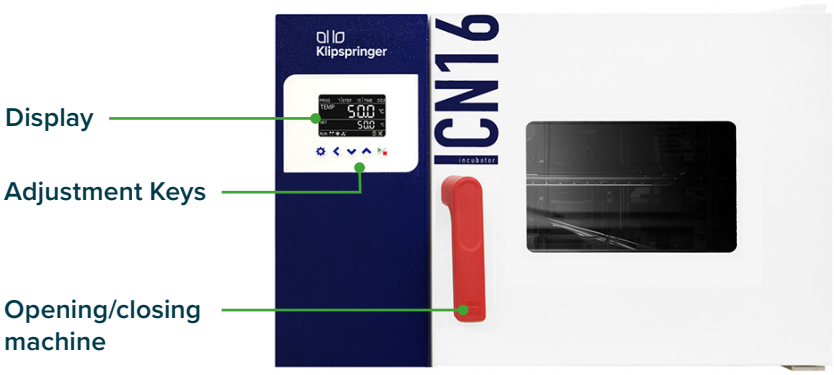
8. INSTRUMENT PARTS

• Incubator



• Display and commands

COMMAND	DESCRIPTION
	The SET/PROG button allows you to set the working parameters and to enter/exit from the programs. In combination with the SHIFT key, it allows you to access to menus with password (see paragraph 10).
	The SHIFT button allows you to quickly change the digit (decimal, units, tens, etc.) of the value of the parameter you are editing. In combination with the SET/PROG key allows you to access to menus with password (see paragraph 10).
	Adjustment buttons allow you to increase or decrease the value of the operating parameter being edited.
	The START / STOP button allows you to start / stop an operating cycle or a program.
	The ON/OFF button allows you to turn on or off the instrument.

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9. Technical specifications

Natural convection incubators	ICN-16 Plus	ICN-35 Plus	ICN-55 Plus	ICN-120 Plus	ICN-200 Plus
Volume	16 L	35 L	55 L	120 L	200 L
Max temperature/Resolution	+70/0.1°C	+70/0.1°C	+70/0.1°C	+70/0.1°C	+70/0.1°C
Homogeneity at 37°C	± 0.4 °C	± 0.4 °C	± 0.5 °C	± 0.5 °C	± 0.5 °C
Temperature variation at 37°C	± 0.3°C	± 0.3°C	± 0.3°C	± 0.3°C	± 0.3°C
Heating time at 37°C	18 min.	22 min.	25 min	30 min.	35 min
Timer	99:59 hh:min e ∞	99:59 hh:min e ∞	99:59 hh:min e ∞	99:59 hh:min e ∞	99:59 hh:min e ∞
Safety class	2	2	2	2	2
Power supply/power	230 V / 85 W	230 V / 125 W	230 V / 250 W	230 V / 350 W	230 V / 600 W
Internal dimensions (L*A*P)	270x230x255mm	360x300x320mm	400x360x385mm	520x460x500mm	610x600x575mm
Shelves number (standard/max) 2	2/3	2/5	2/5	3/7	3/9
Distance between shelves	25 mm	30 mm	50 mm	50 mm	50 mm
Max loading of shelves	5 Kg	7.5 Kg	10 Kg	10 Kg	10 Kg
External dimensions (L*A*P)	530x370x400mm	620x440x460mm	660x500x545mm	780x610x645mm	875x755x710mm
Weight	23 Kg	33 Kg	42 Kg	61 Kg	77 Kg

Forced air incubators	ICF-55 Plus	ICF-120 Plus	ICF-200 Plus	ICF-400 Plus
Volume	57 L	120 L	200 L	400 L
Max temperature/Resolution	+80/0.1°C	+80/0.1°C	+80/0.1°C	+80/0.1°C
Homogeneity at 37°C	± 0.3 °C	± 0.4 °C	± 0.4 °C	± 0.5 °C
Temperature variation at 37°C	± 0.1°C	± 0.1°C	± 0.2°C	± 0.3°C
Heating time at 37°C	30 min.	40 min.	45 min	50 min.
Timer	99:59 hh:min e ∞	99:59 hh:min e ∞	99:59 hh:min e ∞	99:59 hh:min e ∞
Safety class	3.1	3.1	3.1	3.1
Power supply/power	230 V / 350 W	230 V / 600 W	230 V / 700 W	230 V / 1500 W
Internal dimensions (L*A*P)	400x415x350mm	520x530x435mm	645x650x495mm	1000x800x500mm
Shelves number (standard/max) 2	2/5	3/7	3/9	3/10
Distance between shelves	50 mm	50 mm	50 mm	50 mm
Max loading of shelves	20 Kg	20 Kg	20 Kg	20 Kg
External dimensions (L*A*P)	690x650x620mm	810x750x690mm	945x870x755mm	1285x1060x750mm
Weight	56 Kg	74 Kg	103 Kg	160 Kg

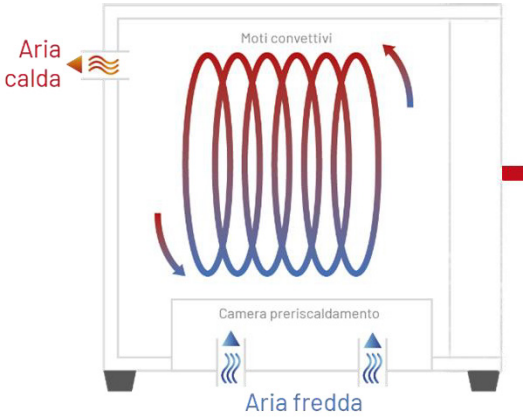
10. OPERATING MODE

• Natural convection incubators

The instruments of the ICN and TCN series have natural convection. This means that, in the internal chamber of the instrument, heat is propagated through the natural convective motions created by the thermal exchange between cold and hot air. Klipspringer natural convection instruments feature special manual valves aimed at the correct recirculation of the air inside the chambers of the incubators.

NOTE: *Klipspringer instruments are supplied with the valves open, it is recommended not to close these valves to avoid affecting the performance of the instrument.*

NOTE: *the presence of lower valves is dependent on the model.*



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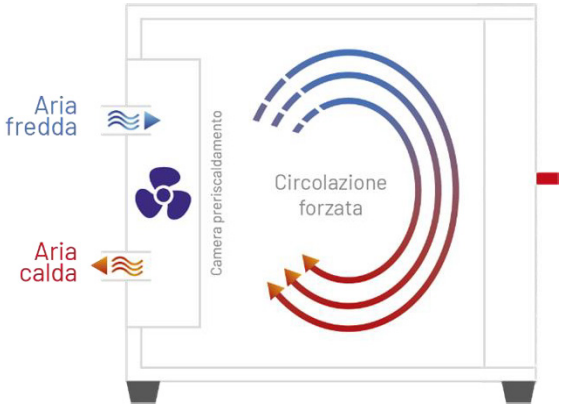
• Forced ventilation incubators

The instruments of the ICF series have forced ventilation.
This means that, in the internal chamber of the instrument, the heat is homogeneously distributed through the special fan.



11. OPERATION

• Switching on the instrument

Connect the power cable to a grounded socket. Switch on the instrument using the **ON/OFF** button. The button and the display will light up. When the display shows the initialisation sequence, the instrument is ready for use.

NOTE: *when the instrument is switched on, it emits an intermittent acoustic signal; the visual alarm icon and the word "**end**" will appear on the display, indicating a heating cycle had been completed before switching off. The acoustic signal can be muted by pressing any key, and the icon will appear on the display.*

• Programming

Each Klipspringer incubator can manage up to 7 programmes, each consisting of 10 working steps in which the temperature, timer and ventilation speed (where applicable) can be set. In addition to these programs, there is "**PROG 0**", which can be used to set a simple operating cycle with a single working step, consisting of the following parameters: temperature, timer and ventilation speed (where applicable).

• Program recall

When the instrument is switched on and in standby (heating cycle off), press the **SET/PROG** key once.
The word "**PROG**" and the program number will start to flash simultaneously.
Use the keys to call up the desired program. To confirm your selection press **SET/PROG** button .
The selected program will be ready to start.

• Modify program

To change a program, it is necessary to hold down the **SET/PROG** key for a few seconds: the word "**PROG**" and the program number will flash simultaneously, then only the program number will flash. At this point, it is possible to choose the program number to be modified using the keys. Confirm your choice by pressing the **SET/PROG** key .
Subsequently, the instrument will enter the edit mode of the program you want to modify and the temperature value of the first **STEP** will flash together with the word "**PROG**", indicating you are in the programming phase.

STEP 1:
Use the and **SHIFT** keys to set the temperature value of the first working **STEP**.
Press the **SET/PROG** button to confirm the temperature value and to switch to the timer value (STEP 1).
Use the keys and **SHIFT** button to set the desired time value for the first **STEP** and confirm the value by pressing the **SET/PROG** button . If the instrument has forced ventilation, the next parameter will be the fan speed, which can be set using the buttons (H=High, M=Medium, L=Low), otherwise go to STEP 2.

STEP 2:
Use the and **SHIFT** keys to set the temperature value of the second working STEP.
Press the **SET/PROG** button to confirm the temperature value and to switch to the timer value (STEP 2).
Use the keys and **SHIFT** button to set the desired time value for STEP 2 and confirm the value by pressing the **SET/PROG** button .
If the instrument has forced ventilation, the next parameter will be the fan speed, which can be set using the buttons (H=High, M=Medium, L=Low), otherwise go to STEP 3.

REPEAT THE PREVIOUS INSTRUCTIONS FOR EACH STEP YOU WANT TO PROGRAM.

NOTE: *if you do not want to use all the 10 STEPS of the program you are storing, it is necessary to force the instrument to finish the program itself. To do this, simply set the time to "00:00" in the step following the last one you wish to use.*
EXAMPLE: *If the last working step to be used is the fifth, set the timer in the sixth step to "00:00", this will force the instrument to stop at the end of the fifth step.*

• Modify Prog 0

To modify "**PROG 0**", select the above-mentioned program in the selection phase and, hold down the **SET/PROG** button for a few seconds, the word **PROG** and the number 0 will flash simultaneously, then only the number 0.
Press the **SET/PROG** button again to enter the edit mode. This will allow you to set the desired temperature, timer and fan speed (where applicable).

NOTE: *if you set the timer to 00:00 in "**PROG 0**", the Klipspringer incubator will work at the set temperature until the operator stops the heating cycle by pressing the **START/STOP** key .*

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• Start/stop of a program

Once the program(s) has/have been set, in order to recall one of them and hold down the **START/STOP** button (4-5 seconds) to start the selected program.

The word "**end**" at the top right of the display will disappear and the word **RUN** will appear in the bottom left.
The display will simultaneously show the program number, step in progress, timer, set temperature, temperature measured inside the chamber, and the ventilation speed (if present).

At any time, it is possible to stop the cycle manually by holding down the **START/STOP** button (4-5 seconds). At the end of the set program or after the manual stop, the instrument will emit an intermittent acoustic signal while the visual alarm icon and the word "**end**" appear on the display. Press any key to silence the audible signal and the icon will appear.

NOTE: *The audible signal will not end until it is silenced by the operator, but the heating cycle will have ended, so the samples inside the instrument will remain exposed to the temperature inside the chamber.*

12. ACCESS TO SUBMENU WITH PASSWORD

By pressing the **SET/PROG** and **SHIFT** keys simultaneously for a few seconds, it is possible to access some password-protected functions and parameters. To access these sub-menus and avoid entering the operating parameters by mistake, it is advisable to first press the **SHIFT** key and then, while holding it down, also press the **SET/PROG** key for a few seconds. Once this operation has been carried out, the word "**Lk**" (lock) will appear in the top right-hand corner of the display in place of the word TIME, next to the digits "**0000**" (password).

Below, you will find the passwords and the access sequences to the various parameters/functions.

PASSWORD	FUNCTION/PARAMETER	DESCRIPTION
0000	Pn	Number of program to which apply the Delay e Cycle functions
	Cy	Number of repetitions of a selected program
	dy	Delay start function
0003	tm	Limit temperature for sample protection
	Po	Restart mode after absence of power energy
	AL	Temperature limit for over-temperature alarm
	Pb	Offset temperature on single point
	PK	Offset temperature on entire range
	PA	Offset temperature on room temperature sensor

• Number of programs to which you can apply the Delay and Cycle functions

In Klipspringer incubators, it is necessary to define which program (from 1 to 7) to apply the start delay (Delay) and repeat (Cycle) functions to. To do this, enter the first sub-menu via password (0000), then change the Pn (program number) parameter using the keys and confirm the chosen program by pressing the **SET/PROG** key.

• Repetition of a selected program

The instrument allows the selected program to be repeated from 1 to several times. After choosing which program to apply the above-mentioned functions to through the parameter Pn, it is possible to set the value of Cy (cycle)= 1, 2, 3,.... through the keys and SHIFT button and confirm it by pressing the **SET/PROG** key .

NOTE: *it is also possible to set the continuous repetition of a program by putting it in a continuous loop. Simply, set the parameter Cy=0.*

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• Delay starts function

After selecting the program to which this function is to be applied through the parameter Pn, it is possible to set a delay (in hours and minutes) at the start of the operating cycle. Set the desired start delay value (hh:mm) by pressing the keys . You can move quickly between the figures using the **SHIFT** key .

Confirm the value by pressing **SET/PROG** again, the display will return to the standby screen. If you hold down the **START/STOP** key (4-5 seconds), the instrument will start the program, but will not start heating immediately: the word "**end**" in the top right-hand corner of the display and the delay time will flash alternately, marking the wait from the set delay time to the actual start time. Once the set delay time has elapsed, the instrument will start the program and the regular timer will appear on the display.

13. INTRODUCTION OF SAMPLES INTO INCUBATOR

DANGER

Explosion hazard and risk of death

- Never introduce materials into the instrument that are explosive or flammable at the selected operating temperature.
- Never introduce into the instruments materials containing flammable or explosive solvents.
- Never introduce into the instrument materials that by sublimation or pyrolysis create flammable materials at the selected operating temperature.

Poisoning and death hazard

- Never introduce materials into the instrument that could create poisonous gases.
- Never introduce materials into the instrument that can react with moisture and produce explosive gases.

• Sample loading

To achieve optimal air circulation inside the Klipspringer incubator chamber, it is recommended to leave empty spaces between the samples (see Figure 7). For proper convection of the samples, it is recommended not to put them in contact with the walls of the Klipspringer stove/incubator chamber.

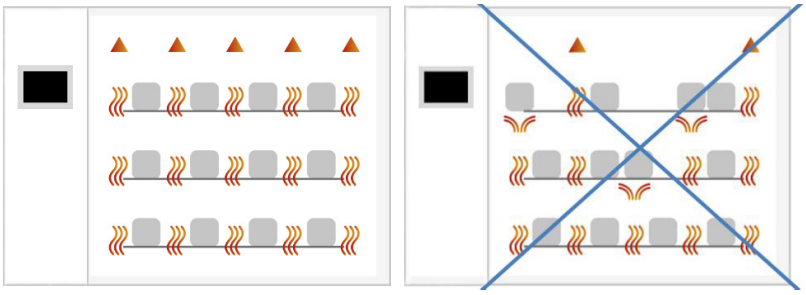

Figure 7

• Temperature limit for sample protection

The instrument foresees the possibility of limiting the maximum working temperature to protect the samples from an incorrect temperature setting of the heating cycle.

Follow the instructions in paragraph 12 and use the keys to set the password 0003. You can move quickly between the digits using the **SHIFT** key . Confirm the value by pressing the **SET/PROG** button again.

The display in the top right-hand corner shows the parameter "**tm**" (max. temperature) and the maximum value for that type of instrument.

Set the maximum temperature value that you do not want the instrument to exceed during operation by pressing the keys . You can move quickly between the digits using the **SHIFT** key .
Confirm the value by pressing the **SET/PROG** button again.

NOTE: *to determine the correct "tm" value, the natural and inevitable initial temperature peak that the Klipspringer incubator will have during thermostatting must be considered.*
Application example: *If the temperature set for the heating cycle is 100 °C and a limit temperature (tm) of 70 °C is set, the instrument will attempt to reach the temperature indicated during parameter setting (100 °C), even if it is higher than the limit temperature set in this submenu (tm). When 70°C is reached the instrument will set off alarm with an intermittent acoustic signal that can be silenced by pressing any key. The heating element will no longer be powered until the temperature falls below the limit temperature ("tm").*

NOTE: *the instrument will always attempt to reach the temperature set for the heating cycle. As long as it is higher than the limit temperature, the device will set off an over-temperature alarm as explained in the previous paragraph.*

• Restart mode after absence of power energy

The mode in which the instrument starts working again after a power failure (Po) can be set:

VALUE Po	DESCRIPTION
0	When the power supply returns, the instrument does not automatically resume the heating cycle but must be restarted manually.
1	When the power supply returns, the instrument automatically resumes operation from the beginning of the interrupted heating cycle.
2	When the power supply returns, the instrument automatically resumes operation from the precise point in the heating cycle at which it was interrupted.

Follow the instructions in paragraph 12 and use the keys to set the password 0003. You can move quickly between the digits using the **SHIFT** key . Confirm the value by pressing the **SET/PROG** button again.
The parameter "**tm**" (max. temperature) appears in the top right-hand corner of the display, move on to the next parameter "**Po**" (Power) by pressing the **SET/PROG** button again. Set the desired value (0, 1, 2) by pressing the keys .
Confirm the value by pressing the **SET/PROG** button again.

• Temperature limit for over-temperature alarm

It is possible for the user to set the temperature value beyond the point at which the instrument goes into overtemperature alarm.

NOTE: *although it can be modified by the operator, this value is already set at the factory and is specifically calibrated to the type of instrument in question, natural/forced incubator. It is therefore advisable not to modify this value unless strictly necessary, as temperature fluctuations above or below the set value, especially in natural convection models, are completely normal and therefore reducing the AL value excessively would risk causing the instrument to set off alarms frequently and unnecessarily.*

Follow the instructions in paragraph 12 and use the keys to set the password 0003. You can move quickly between the digits using the **SHIFT** key . Confirm the value by pressing the **SET/PROG** button again . The parameter "**tm**" (max temperature) will appear on the display in the top right-hand corner, press the **SET/PROG** key to move on to the next parameters. When you reach the **AL** (alarm) parameter, set the minimum temperature value above the point at which you want the instrument to go set off an overtemperature alarm by pressing the keys . You can move quickly between the digits using the **SHIFT** key . Confirm the value by pressing the **SET/PROG** button again.

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14. TEMPERATURE OFFSET ON A SINGLE POINT, ON AN ENTIRE RANGE, ON A ROOM TEMPERATURE SENSOR

The instrument allows the user to set the offset values, i.e., the calibration values, on a temperature point, on the entire temperature range and on the room temperature range.

NOTE: *although they can be modified by the operator, these values are already set by the factory and perfectly calibrated with certified measuring instruments and Accredited references. It is therefore advisable not to modify these values unless strictly necessary, for example, if a certified digital thermometer reveals inconsistencies between the temperature readings of the instrument and those taken by the thermometer itself.*

Follow the instructions in paragraph 12 and use the keys  to set the password 0003.

You can move quickly between the digits using the SHIFT key  .

Confirm the value by pressing the **SET/PROG** button again  .

The parameter “tm” (max. temperature) will appear on the display in the top right-hand corner, press the **SET/PROG** button  to move on to the next parameters until the desired ones are reached.

PARAMETER	DESCRIPTION
Pb	By modifying this parameter, it is possible to correct the reading of the PT100 temperature sensor inside the instrument to a single temperature point. The correction will therefore be referable to only one specific point.
PK	By modifying this parameter, it is possible to correct the reading of the PT100 temperature sensor inside the instrument over the entire temperature range, i.e., it is possible to vary the inclination of the reading range of the sensor itself.
PA	By modifying this parameter, it is possible to correct the reading of the PT100 room temperature sensor installed on the instrument (refrigerated versions only) to a single temperature point. The correction will therefore be referable to only one specific point.

NOTE: *For a quick correction on the temperature reading on Klipspringer PLUS incubators, it is recommended to change the PB offset.*

To correct the Pb offset, follow these instructions:

1. Calculate the temperature difference
   Temperature measured with thermometer - Temperature read on the instrument: Incubator = Temperature Difference (take into account the sign during the calculation)

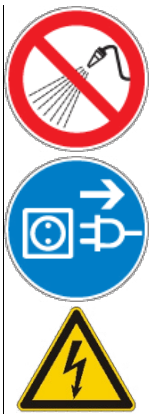
2. Add algebraically the value of the calculated difference to the factory Pb offset (take into account the sign during the calculation)

3. Correction made
   E.g.: Detected Temperature = 103°C
   Indicated Temperature from incubator = 105°C
   Factory Pb offset = - 5.5
   Temperature Difference = Detected Temp. - Indicated Temp. = 103 - 105 = - 2°C
   Corrected Offset = Offset + Difference = - 5.5 +(-2) = - 7.5

15. CLEANING AND MAINTENANCE

A correct maintenance and cleaning of the instrument will help to ensure it remains in good condition.
The internal chamber of the instrument is made of STAINLESS STEEL, so it can be cleaned with any detergent provided, that is not aggressive and/or corrosive.

DANGER



Risk of electric shock and death

⊘ DO NOT spray water or cleaning agents onto the interior and exterior surfaces.

⊘ Switch off the main switch and pull out the mains plug before cleaning.

› Dry the instrument completely before switching it on again.

It is recommended that internal and external surfaces are cleaned with a normal all-purpose cleaner sprayed onto a soft dampened cloth, so that it is not used in concentrated form. Before proceeding with cleaning or decontamination, the user must ensure that the method used does not damage the instrument.

ATTENTION

Danger of corrosion – Damage to the instrument

⊘ DO NOT use cleaning agents containing acids or halides.

⊘ DO NOT use neutral cleaning agents on other surfaces
(E.g. on galvanised parts of the hinges or the rear wall of the housing).

Eye contact – Eye damage caused by chemical burns

⊘ DO NOT discharge into the sewage system.

› Wear safety goggles.

IMPORTANT:
If the instrument is to be sent for service, it should be properly cleaned and possibly decontaminated from pathogens. It is also advisable to return the instrument in its original packaging to the service and, if this is not possible, to pack it adequately for transport. Any damage caused by incorrect shipment will not be covered by warranty.

16. WARRANTY

Under normal use this instrument is guaranteed for a period of 24 months from the date of purchase.

The warranty is only valid if the product purchased remains in its original state (without any modification). It does not apply to any product or parts thereof that have been damaged due to incorrect installation, improper connection, misuse, accident or abnormal operating conditions. No liability is accepted for damages caused by improper use, lack of maintenance and unauthorised modifications.

17. DISPOSAL OF ELECTRONIC EQUIPMENT

This equipment is subject to regulations for electronic devices.
It should be disposed of in accordance with local regulations.