Klipspringer

Compliance with confidence

ICN16/35 SUPER Incubators

USER MANUAL

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 Super	Natural convection incubator 16L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-35 Super	Natural convection incubator 35L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-55 Super	Natural convection incubator 55L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-120 Super	Natural convection incubator 120L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICN-200 Super	Natural convection incubator 200L (maximum volume)	Room temperature from + 5 °C to + 70 °C
ICF-55 Super	Air forced incubator 55L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)
ICF-120 Super	Air forced incubator 120L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)
ICF-200 Super	Air forced incubator 200L (maximum volume)	Room temperature from + 5 °C to + 80 °C (sterilisation special program at 130°C)
ICF-400 Super	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 yourself 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, which, if not avoided, could result in death or serious (irreversible) injury.

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

ATTENTION
This symbol indicates a potential 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

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2. GENERAL SAFETY INSTRUCTIONS

If the incubator is not installed, operated, 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, operated, cleaned, adjusted and set up by qualified personnel.

DANGER	
	**Risk of electric shock and 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 cable or rear panel of the instrument are damaged, discontinue use immediately, remove the plug from the power supply and contact your dealer for the necessary 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, create 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.

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WARNING	
	**Fire hazard** ⊘ Incubators must not be used if the class 2 safety thermostat is not checked/has failed. › If the safety thermostat test fails, immediately stop using the 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

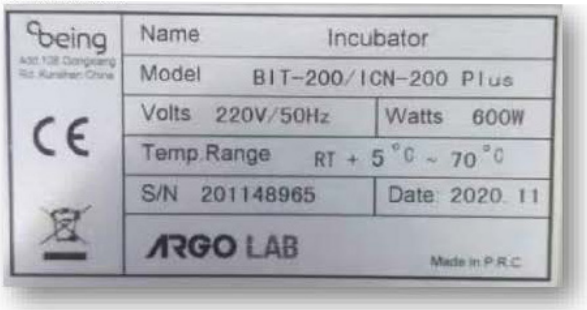
EN ISO 12100:2010

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
6. USB-Key

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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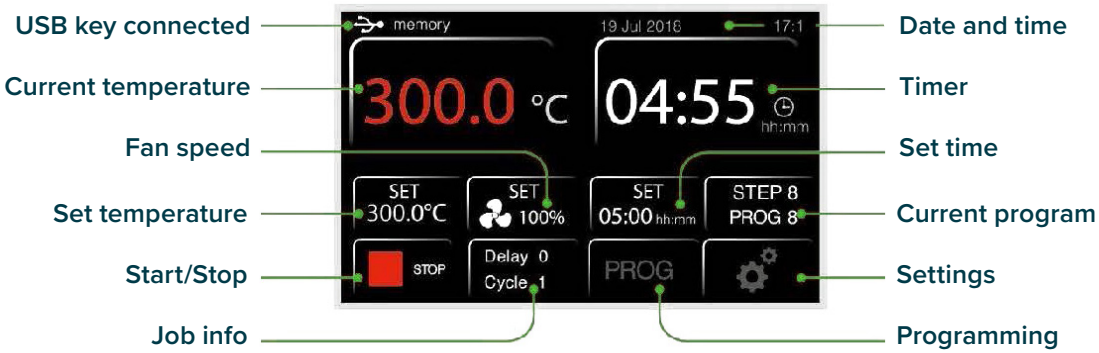
8. INSTRUMENT PARTS

• Incubator

• Display and commands



The touch screen display is capacitive, so you can use it with your finger, latex gloves, pens with rubber pads, or generic pens and pencils.

NOTE: *It is recommended not to use generic pens or pencils, in order to avoid marking the display glass. On the display different colours have been used for the icons and symbols to make them easy to use and understand.*

COMMAND	DESCRIPTION
White	Editable value or parameter
Grey	Non-editable value or parameter
Green	**START** button, **OK** or **ENTER** button to confirm
Red	**STOP** button, indication of current temperature (> 20,0°C)
Orange	**ESC** button, operating parameters of the program steps (PROG 1...8)
Yellow	"**Alarm**" icon
Blue	Indication of current temperature (≤ 20,0°C)

9. Technical specifications

Natural convection incubators	ICN-16 Super	ICN-35 Super	ICN-55 Super	ICN-120 Super	ICN-200 Super
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 Super	ICF-120 Super	ICF-200 Super	ICF-400 Super
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	2/7	3/9	2/10
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

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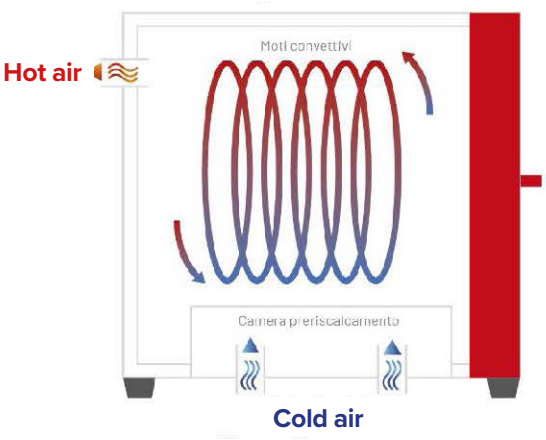
10. OPERATING MODE

• 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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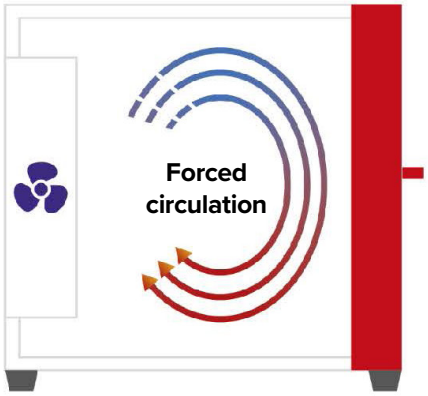
• Forced air incubators

The instruments of the ICF series have forced ventilation. This means that, in the internal chamber of the instrument, the heat is distributed homogeneously through the designated 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 light up. The display shows the sign “Super” in the first screen and the installed software version.

• Basic Mode (PROG 0) or with Programs (PROG 1...8)

The instrument can work in 2 modes:

- Basic (PROG 0) – single step operation program.
- Programs (PROG 1...8) – 8 recordable programs, each of which consists of 8 steps.

In both versions, it is always possible to set the temperature, the timer and the fan speed (where present) for each single work step.

Depending on the program you are in, the display will show one of the following main screens:

PROG 0

Figure 7 - Main Screen PROG 0

PROG 1...8

Figure 8 - Main Screen PROG 1...8

• Program recall and choice

To choose the program you want to use, press the key highlighted in Figure 7 or 8. It is in the same position, as mentioned, what changes is only the content depending on the program you are using. One of the 2 screens (Figure 9 or 10) will then appear.

Figure 9

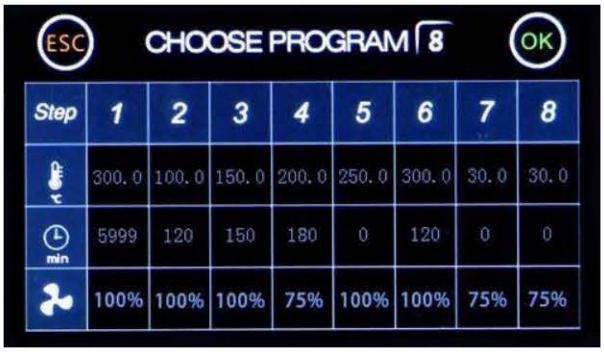


Figure 10

As mentioned, the **PROG** has a single step, hence the indication "**FIX MODE–NO PROGRAM AVAILABLE**" (Figure 7), while programs from one to eight have eight steps each (Figure 8).

NOTE: *in the screen of Figure 10, the operating parameters of the various steps of the selected program are visible in read-only mode (grey colour), but not editable. To be able to modify them, it is necessary to follow the instructions in the paragraph "**Modifying operating parameters PROG 1...8**".*
Using the key highlighted in yellow, it possible to access the numeric keypad in Figure 11 and select the desired program.

Figure 11

Press **ENTER** to confirm the entered value. The display will return to the previous screen where it is necessary to press **OK** to validate and then return to the main screen.

NOTE: *it is possible to return to the previous screen without saving any changes by pressing **ESC**.*

• Programming

Modification of PROG 0 operating parameters:
From the main screen of **PROG 0** mode (Figure 12), press the highlighted keys to modify respectively from left to right, the temperature, the fan speed (if present) and the timer. The screens in Figure 13, Figure 14, Figure 15 will therefore appear.

Figure 12

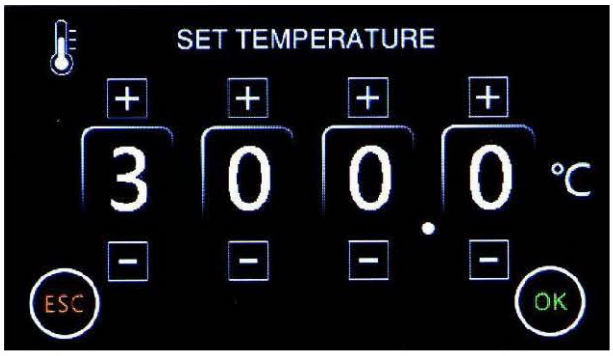


Figure 13

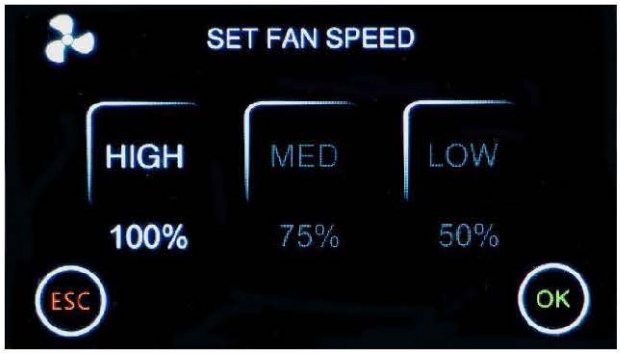


Figure 14

Figure 15

To increase or decrease the temperature and time values, use the + and – keys, while for the fan (if present), it is possible to choose directly between three speeds: High (100%), Medium (75%) and Low (50%).
In all screens, it is necessary to confirm the value set with the **OK** button.

NOTE: *it is possible to return to the previous screen without saving changes by pressing ESC.*

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Modification of operating parameters PROG 1...8:
From the main screen (Figure 16), press the PROG key to access the menu in Figure 17.

Figure 16

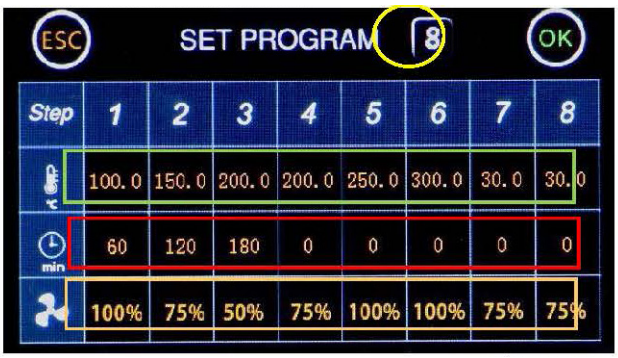


Figure 17

In the screen of Figure 17, select the program to be modified by pressing the key highlighted in yellow and setting the corresponding digit using the numeric keypad. Confirm with the **ENTER** button.

For each single program step (from 1 to 8), it is possible to set the temperature (degrees centigrade), the timer (minutes) and the speed of the fan (if present), by clicking respectively on the keys highlighted in green, red and pink on the same screen.

The respective numeric keypads will appear for the temperature and the timer, marked by the thermometer icon (Figure 18) and the clock (Figure 19), indicating the program and the step being edited. Once desired value has been set, confirm with **ENTER** or return to the previous screen without saving the changes by pressing **ESC**.

Figure 18

Figure 19

To change the fan speed (if present), on the other hand, simply click on the corresponding button (pink in Figure 17) and the value will change in sequence between 100% = High, 75% = Medium and 50% = Low.
REPEAT THE PREVIOUS INSTRUCTIONS FOR EACH STEP YOU WANT TO PROGRAM

NOTE: *If you do not want to use all the STEPS of the program you are storing, you must force the instrument to terminate the program itself. To do this, simply set a time equal to zero in the step following the last one you want to use.*

EXAMPLE of Figure 17: *If the last work step to be used is the third, simply set the timer equal to 0 in the fourth step, thus requiring the instrument to stop after the third step.*

• Start/stop of a program

To start or stop a program, press respectively the **START** (Figure 20) or **STOP** (Figure 21) button.
The keys are the same in both main screens (PROG 0 or PROG 1...8).

Figure 20

Figure 21

The instrument therefore begins the set work cycle which can consist of one or more steps.
REPEAT THE PREVIOUS INSTRUCTIONS FOR EACH STEP YOU WANT TO PROGRAM.

NOTE: *the timer countdown starts only when the set temperature is reached. For accuracy when T real= T set ± 0.3°C.*

Looking at Figure 20, for example, the countdown of 99 hours and 59 minutes will start when the instrument reaches 300 ± 0.3°C. At any time, it is possible to check the work step and the number of the program in which you are (in green Figure 22 and Figure 23), as well as the possible delay (Delay) that has been set and the number of repetitions of the performed program (Cycle), highlighted in blue and in Figure 22 and 23.

Figure 22

Figure 23

NOTE: *it is possible to consult the various parameters set in the steps of the program in use by clicking on the green button of Figure 22 and Figure 23, but be careful to only press **ESC** when returning to the main screen. If you press the **OK** key, the instrument will interpret the action as confirming the choice of a new program and will forcefully terminate the work cycle in progress.*
*When the program ends or is stopped manually, the word "**End**" will appear on the main screen (Figure 24) together with an intermittent acoustic signal, which can be silenced by pressing the word "**End**".*

Figure 24

12. USER SETTING MENU

By pressing the gears icon in the main display (Figure 25) and then the **USER** button (Figure 26), you can access the user settings menu screens (Figure 27 and Figure 28).

Figure 25

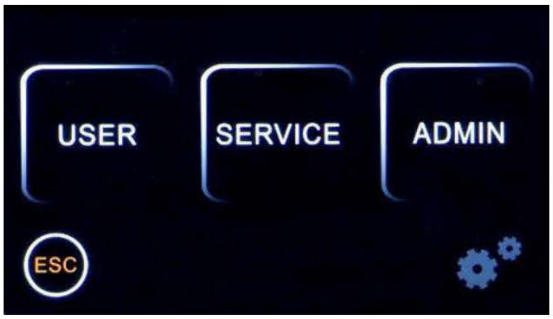


Figure 26

Figure 27

Figure 28

• Date and time setting

By clicking on any button of date or time, you access the **TIME** menu (Figure 29).

Figure 29

Set the date and time using the numeric keypad, bearing in mind that the format is as follows:
20yy-mm-dd hh:mm:ss

NOTE: *It is necessary to set all parameters (date and time) each time.*

• Data recording frequency

Click on the button highlighted in Figure 30 to modify the time frequency with which the instrument records the data of work cycle.

Figure 30

Using the numeric keypad, set a time (in minutes) from 1 to 255. Press **ENTER** to confirm or **ESC** to return to the previous screen without saving.

NOTE: *the memory can hold up to 2000 records. Once this limit has been reached, the instrument will begin to overwrite the memory itself with new data, thus erasing the previous ones starting from the oldest. The recording frequency therefore also defines the recording capacity in terms of duration (e.g. frequency = 60 minutes x 2000 data x 60 minutes = 2000 hours = 83 days).*

NOTE: *if a USB key is connected to the instrument, the recordings also take place directly on it as well as in the instrument's memory. The memory limit of 2000 data remains, but the key itself will act as secondary memory and therefore, it is possible to carry out a continuous recording well over 2000 data.*

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 obtain optimal air circulation inside the chamber of Klipspringer incubators, it is recommended to leave empty spaces between the samples (see Figure 31).
For correct convection of the samples, it is recommended not to put them in contact with the walls of the Klipspringer incubator.

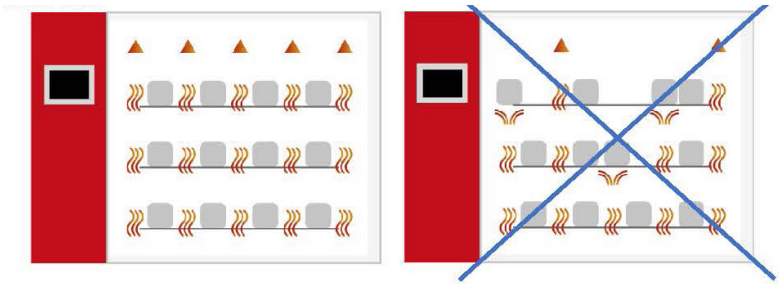


Figure 31

• Temperature limit for sample protection

The instrument expects to be able to limit the maximum working temperature (Tm) for the protection of samples from an incorrect setting of the temperature of the heating cycle. The "**Tm**" parameter (max temperature) and the maximum value foreseen by that type of instrument appear on the display at the top left of Figure 28. Set the maximum temperature value that you do not want the instrument to exceed during operation by pressing on the box and using the numeric keypad. Press **ENTER** to confirm or **ESC** to return to the previous screen without saving.

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 try to reach the temperature set during the parameter setting (100°C), even if it is higher than the limit set in this sub-menu (Tm). When 70°C is reached, the instrument, will set off an alarm, emitting an intermittent acoustic signal (which can be silenced by pressing the Alarm button) and the heating element will no longer be powered until the temperature drops below the limit temperature (Tm).*

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.*

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

• 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.

Set the desired value by pressing on the corresponding box (figure 28) and using the numeric keypad. Press **ENTER** to confirm or **ESC** to return to the previous screen without saving.

• Temperature limit for over-temperature alarm

It is possible for the user to set the temperature value beyond which the instrument goes into overtemperature alarm (**Al**).

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 go into alarm frequently and unnecessarily. For any changes, click on the corresponding box (Figure 28) and use the numeric keypad. Press **ENTER** to confirm or **ESC** to return to the previous screen without saving.*

• Temperature safety device

Each Klipspringer incubator instrument has an electronic overtemperature limiter (Protection class 2 according to the technical standard DIN 12880).

Klipspringer ICF series forced ventilation incubators have an additional adjustable protection (electromechanical type).

The electromechanical safety device (Class 3.1 according to the technical standard DIN 12880) is installed inside the left side panel of the instrument.

• Temperature offset on single point, on entire range, on room temperature sensor

The instrument provides the possibility for the user to set the offset values, i.e. calibration, on a temperature single point (**Pb**), on entire range (**Pk**) and on room temperature one (**Pa**).

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

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.

To make any changes, click on the corresponding boxes (Figure 25) and use the numeric keypad. Press ENTER to confirm or ESC to return the previous screen without saving.

• Delayed start function

The instrument accounts for the possibility of setting a delay at the start of the operating cycle (Delay) from 1 to 9999 minutes. Set the desired value by pressing on the corresponding box (Figure 25) and using the numeric keypad. Press **ENTER** to confirm or **ESC** to return to the previous screen without saving. Once the delay has been set, press the **START** key and the instrument will start the program, but won't immediately start heating. After the set delay time has elapsed, the instrument will start to heat and the set timer will appear on the display.

• Repeat of the selected program

The instrument allows you to repeat the selected program from 1 to 99 times, function Cycle.

NOTE: *it is possible to set the continuous repetition of a program and put it in a continuous "loop" by setting the parameter Cycle= 0. Set the desired value by pressing the corresponding box (Figure 25) and using the numeric keypad. Press **ENTER** to confirm or **ESC** to return to the previous screen without saving.*

14. DOWNLOAD DATA AND USB-KEY

The instrument is equipped as standard with a USB port for connecting a pen drive (Figure 32). If you connect a USB pen drive when the instrument is switched on (either with the work cycle active or inactive), a fully automatic download (without having to press anything) of all the data that the machine has in memory will take place.

NOTE: *when the data download takes place, the internal memory is completely emptied and the data transferred to the USB pen drive. This means the internal memory will be formatted and all the data will be deleted.*

NOTE: *in case a USB stick is left connected to the instrument, the recordings are made directly on it as well as in the instrument memory. The memory limit of 2000 data remains, but the stick itself will act as a secondary memory and it is therefore possible to make a continuous recording well beyond 2000 data. The format of the files that are downloaded is .txt. The data is therefore completely "open", modifiable and transferable to normal computer applications, and can be processed independently by the operator, without the need for any dedicated software. The files are organised in folders divided by year (Y) and month (M) (Figure 33) and in turn within the various folders are ordered in days (D01, D02...). If more than one work cycle is executed on the same day, they will be named with the same date plus the progressive cycle number. In the example of (Figure 34) on day 3, four work cycles (D03-0, D03-1, D03-2, D03-3) were run.*

Figure 32

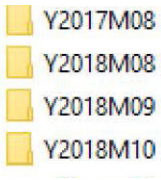


Figure 33

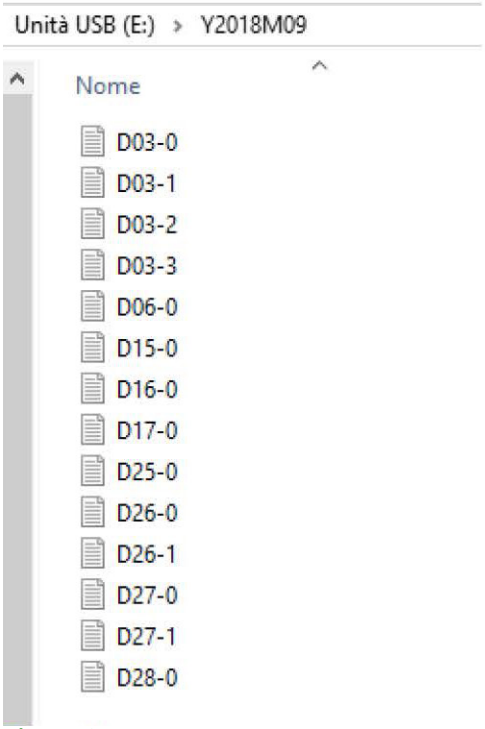


Figure 34

Figure 35

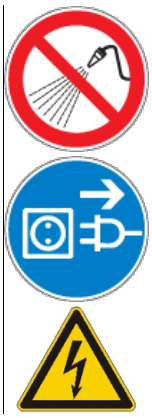
NUM	DATE	TIME	REALTEMP	SET TEMP
1	2018-10-09	08:44	100.9	0.0
2	2018-10-09	08:45	88.2	0.0
3	2018-10-09	08:46	84.8	0.0
4	2018-10-09	08:47	74.9	0.0
5	2018-10-09	08:48	63.8	0.0
6	2018-10-09	08:49	55.6	0.0
7	2018-10-09	08:50	48.0	0.0
8	2018-10-09	08:51	42.5	0.0
9	2018-10-09	08:52	39.5	0.0
10	2018-10-09	08:53	39.2	40.0
11	2018-10-09	08:54	38.3	40.0
12	2018-10-09	08:55	39.7	40.0
13	2018-10-09	08:56	40.7	40.0
14	2018-10-09	08:57	41.0	40.0
15	2018-10-09	08:58	41.0	40.0
16	2018-10-09	08:59	40.7	40.0
17	2018-10-09	09:00	40.7	40.0
18	2018-10-09	09:01	40.7	40.0
19	2018-10-09	09:02	40.6	40.0
20	2018-10-09	09:03	40.3	40.0

As mentioned, the .txt files are completely open and contain the main working data of the machine: registration number (**NUM**), date (**DATE**), time (**TIME**), detected temperature (**REAL TEMP**) and set temperature (**SET TEMP**), see Figure 35. They are already organised in tabular form and can be transferred to other computer applications in the form of text or a table of values.

15. CLEANING AND MAINTENANCE

Correct maintenance and cleaning of the instrument will 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.

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