

## FORTUNA

900, 1200, 1200 ICSI, 1500, 1800, 1800 Dual, 1800 ICSI, and 1800 MP



## USERS MANUAL



**Please familiarize yourself with the safety instructions before using the device.**

## Warning, Cautions and important Notes

Throughout this manual, blocks of text may be accompanied with a pictogram. These blocks are WARNINGS, CAUTIONS, and IMPORTANT NOTES and they are used as follows:

### Symbols used in this Manual:

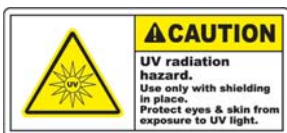


#### NOTE

Used to direct attention to a special item



#### WARNING



#### DANGER

UV Light Radiation hazard. Use only with shielding in Place. Protect eyes & skin from exposure to UV Light



#### FURTHER INFORMATION

Further information is provided in others sections or manuals

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## 1. Introduction

You are now in possession of a high quality microprocessor-controlled FORTUNA IVF Clean Air workstation and it is designed to provide:

- Protection of the processed product against particle /microbiological contamination
- Heating control of the heated work area for sample handling
- Gassing and Humidification control (Optional)
- Heating control of the light opening for morphology study under microscopy (Optional)

This user manual covers the following models:

- FORTUNA IVF Clean Air 900
- FORTUNA IVF Clean Air 1200
- FORTUNA IVF Clean Air 1500
- FORTUNA IVF Clean Air 1800
- FORTUNA IVF Clean Air 1800 Dual
- FORTUNA IVF Clean Air 1800 MP
- FORTUNA IVF Clean Air 1800 ICSI
- FORTUNA IVF Clean Air 1200 ICSI

The FORTUNA IVF Clean Air cabinet has a built-in microprocessor controller featuring:

- LCD display indicating fan and alarm status.
- Air velocity sensors
- Clock (7 days) and hour-counter.
- Pre-setting of automatic start-up and UV timer.
- Alarm for any deviation from safety conditions.

Furthermore, the FORTUNA IVF Clean Air workstation has the following characteristics:





- An ergonomic 10 °correct sloping front for maximum operator comfort.
- Fixed front window, leaving a work opening of 55 cm.
- Side windows in safety glass for perfect light conditions and view to the surroundings.
- Negative pressure plenum for highest operator and product safety.
- Adjustable FAN speeds.
- Work chamber with tabletop in stainless steel (AISI 304).
- The internal light is installed between the air distributor and the main filter. This secures that the light is glare-free and the airflow is turbulence free.

## 2. SAFETY INSTRUCTIONS



**To avoid unintended or improper operation of the cabinet, please carefully read this manual.**

### 2.1. Pre-operational Notes:

- The work chamber is to be carefully cleaned and/or disinfected. Use only Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub> Solutions) or products suitable to be used in an IVF lab. NEVER use ammonia or chlorinated cleaners. It is recommended to use special lint-free wipes.
  - In Order to ensure that the working area is clean and sterile the workstation fan must be run at normal speed for at least 30 minutes prior to working inside the Workstation.
  - Objects and instruments must be carefully cleaned and/or disinfected before bringing them into the work chamber.
  - Necessary instruments for use during work must be placed within reach to avoid unnecessary movement inside the Workstation.
  - For reliable operation it is important that the air-flow conditions are as unobstructed as much as possible. Therefore, never overload the work chamber.
  - Put on necessary personal clothing for reducing particle emission from operator (i.e. gloves, masks and general clean room clothing). Special attention should be given to hands and lower parts of the arms, as these are the parts of the operator most likely to emit particles near the product.
  - All work in the Workstation must be performed with tranquil movements. Rapid arm movements in the chamber may cause slipstreams, which will draw contaminated air into the work chamber.
  - Transport of possibly contaminated material may create airflows which can contaminate the product.
- 
-  The safety cabinet must not be used for working with materials which can cause allergic, any harm to the health of the operator or the personnel. Attention is drawn to the risk assessment requirements of the Control of Substances Hazardous to Health (COSHH) Regulations 1999. (UK)
  -  The cabinet is not suitable for HIGH-RISK biological agents. HIGH RISK biological agents include all etiologic agents designated Class 4 by CDC, and oncogenic viruses classed high risk by NCI. (USA)
  -  Never operate the FORTUNA cabinets if the fan compartment cover is removed. If this cover is removed, the cabinet will give no protection of the operator or the environment and the fan will run with openly rotating blades.
  -  The workstation will not provide any protection for operator or environment against harmful gases or vapors.

### 3. INSTALLATION

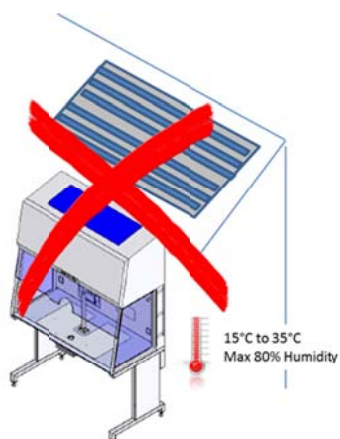


The installation section is included in the "INSTALLATION MANUAL".

### 4. DEVICE PLACEMENT

The device should be placed on a level secure surface, away from heaters, coolers and air-conditioning outlets.

The device may only be operated at temperatures ranging between 15 °C and 35°C, with a maximum 80% relative humidity, and at normal air pressure.



Do not place under an HAVC air outlet

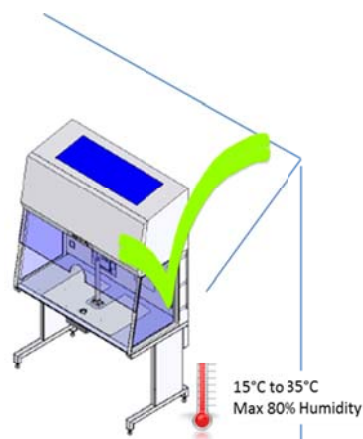


Figure A

### 5. AIR FLOW WORKING PRINCIPLE

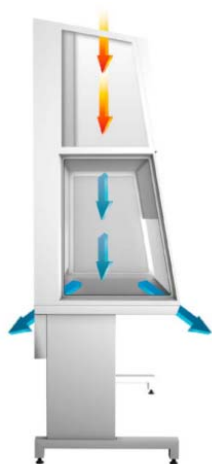


Figure B


placement  
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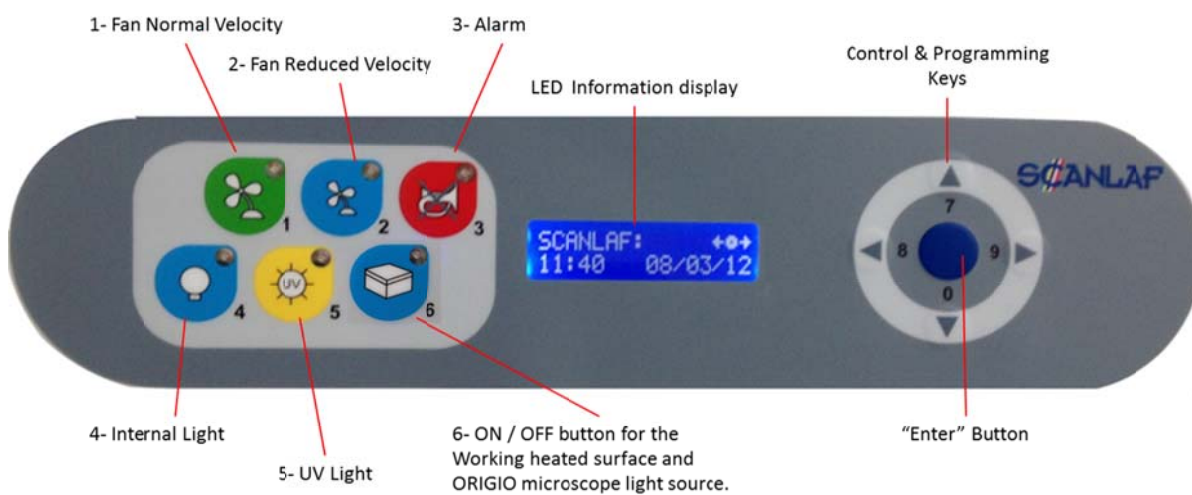
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## 6. CONTROL PANEL

In normal use, the LED display in regular mode shows the time and the day and the “Control and programming keys ” to navigate through the menu program. All key buttons and functions of the control panel are listed below.



Note: The numbers 0 to 9 are for programming purposes

Figure C

## 7. GENERAL OPERATING PROCEDURES

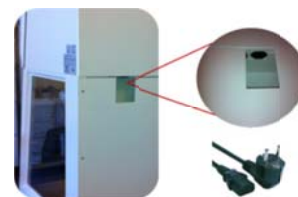
### 7.1. Connecting the power cord

Connect the power cord to the mains power inlet. The power inlet is located at the back of the workstation as indicated in the figure below.

Connect the power cord to the wall power outlet. The power outlet must be grounded.



Further information is provided in the “Installation Manual”



As soon as the device is connected an audible alarm will be activated, an LED light will turn on, and a message with “POWER UP ERROR” will be activated on the control panel as indicated in the below picture.




Press the “Blue” round circle to switch OFF the alarm and to return to a safe mode.






## 7.2. Switching the Fans ON / OFF at Normal Speed



Press the “1- Fan Velocity” button to turn the fans ON. When activated a small green LED “” light on top of the button will switch on



Press the “1- Fan Velocity Button” to turn the fans OFF. When activated the small LED “” light on top of the button will be OFF




For prevention of any unauthorized switching ON or OFF of the fan, the buttons for normal and reduced velocity must be activated for at least 15 sec.




**DO NOT WORK IN THE WORK SPACE AREA WHEN THE FANS ARE SWITCHED OFF**

## 7.3. Switching the Fans ON / OFF at Reduced Speed



Press the “2- Fan Reduced Velocity” button to turn the fans ON. When activated a small blue LED “” light on top of the button will switch on



Press the “2- Fan Reduced Velocity” button to turn the fans OFF. The small LED “” light on top of the button will be OFF.

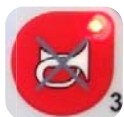



**DO NOT WORK IN THE WORK SPACE AREA WHEN THE FANS ARE SWITCHED OFF**



When turning ON the reduced speed velocity, the internal light will turn OFF to alert the user. The internal light needs to be switched on again.

## 7.4. Alarm



When an alarm is activated an audible acoustic signal is activated. On the control panel a small red LED “” light is activated on the Alarm button. Press the Alarm Button to mute the acoustic alarm signal.

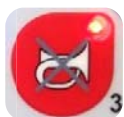


**MUTING THE ACCOUSTIC SIGNAL OFF WILL NOT SOLVE THE ERROR PROBLEM**



The Error causing the alarm to be activated is displayed on the LED information display.


ALARM:  
POWER UP ERROR




When the error has been fixed, the audible alarm and the small red LED are switched OFF.

## 7.5. Internal Light



To switch ON the illumination light of the work chamber, press the “4-Internal Light” button. When activated, a small blue LED “” light on top of the button will switch on



To switch OFF the illumination light of the work chamber, press the “4-Internal Light” button again. The small LED “” light on top of the button will be OFF.




To adjust the light intensity refer to section 8.3

## 7.6. UV Light




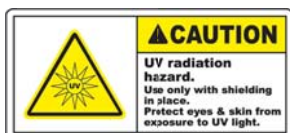
The UV light and the UV light timer are optional features



To switch OFF the illumination light of the work chamber, press the “4-Internal Light” button again. The small LED “” light on top of the button will be OFF.



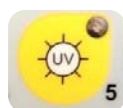
To switch ON the UV light for decontaminating the work chamber, press the “5- UV Light” button. When activated a small yellow LED “” light on top of the button will switch on.



For increased safety against unintended UV radiation which will harm eyes and skin, use the timer to start the UV decontamination when no personnel is present in the room where the workstation is located. Use the front shield cover (Optional) to contain the radiation.



To Program the UV Light Timer refer to section 8.4



To switch OFF the UV Light, press the “5- UV Light” button and the yellow LED light will switch OFF.’


## 7.7. Working Heated Surface and ORIGIO Light Source




This button activates simultaneously the working heated surface and the ORIGIO light source.

This feature is not available on the Following models FORTUNA Clean Air 1200 ICSI or the FORTUNA Clean AIR 1800 ICSI.



To switch ON the ORIGIO Light Source and the working heated surface (s), press the button. When activated a small blue LED “” light on top of the button will switch on.



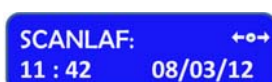
To switch OFF the ORIGIO Light Source and the working heated surface (s), press the button again. The small LED “” light on top of the button will be switched OFF.



To Operate the Working Heated Area, refer to section 9

## 8. CONTROL & PROGRAMMING

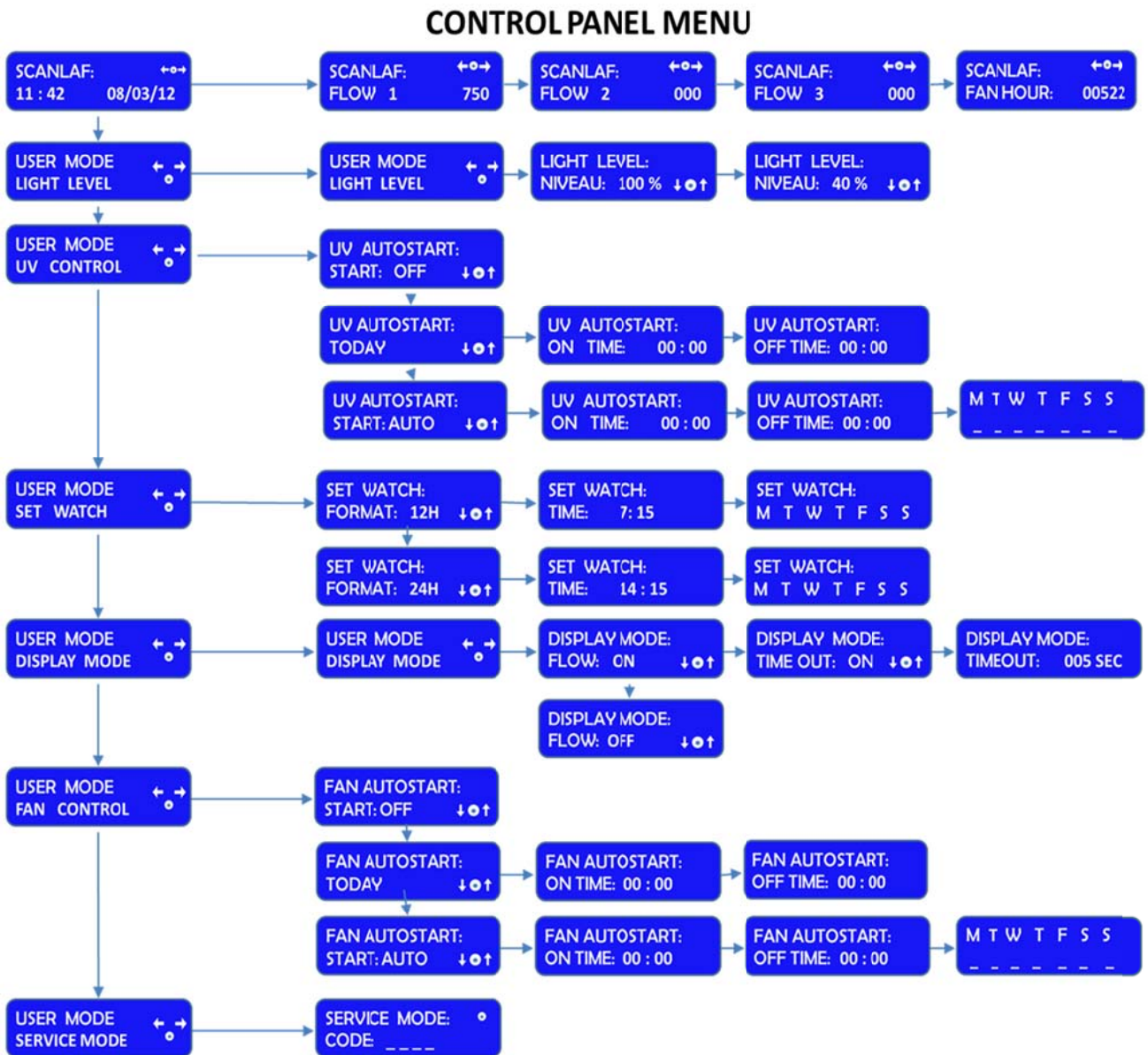
This section covers how to access the different menus and how to control and to program some the features offered with your Fortuna. The Control & Programming menu of this section consists respectively of:



### STANDARD DISPLAY

- 1- LIGHT LEVEL
- 2- UV CONTROL (ONLY IF THE UV LIGHT IS BUILT IN)
- 3- SET WATCH
- 4- DISPLAY MODE
- 5- FAN CONTROL
- 6- SERVICE MODE

## 8.1. Overview of the Control Panel Menu

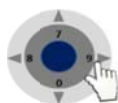


## 8.2. General air flow information & Counter

This section covers how to access to the running hours of the Fan's counter.



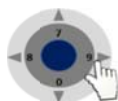
### From STANDARD DISPLAY



Press on the RIGHT or LEFT arrow button to navigate towards the FLOW Information



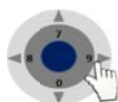
SCANLAF with "FLOW 1" will be displayed together with a value. This value is for internal service information.



Press on the RIGHT or LEFT arrow button to navigate towards the FLOW Information



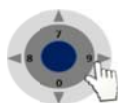
SCANLAF with "FLOW 2" will be displayed together with a value. This value is for internal service information.



Press on the RIGHT or LEFT arrow button to navigate towards the FLOW Information



SCANLAF with "FLOW 3" will be displayed together with a value. This value is for internal service information.



Press on the RIGHT or LEFT arrow button to navigate towards the FLOW Information



SCANLAF with "FAN HOUR" will be displayed together with a value. This value is number of hours the fan has been running.



To learn how to enable or disable these functions, refer to section 8.6




## 8.3. Adjusting the level intensity of the internal light

This section covers how to adjust the light intensity of the internal light of the workstation.




### From STANDARD DISPLAY

Press on the “ENTER”  button to enter the Menu

The USER MODE with the “LIGHT LEVEL” will be displayed together with a representation of the “Control & Programming Keys” . The first line with the arrows symbol “◀ ▶” enables to go back to the previous menu or to move to another function. The symbol “○” represents the “ENTER” Button.

Press on the “ENTER”  button to validate

The LIGHT LEVEL and “NIVEAU: 100 % will be displayed together with a representation of the Control & Programming Keys .


Press on the DOWN arrow. The level of intensity will go down. Repeat pressing on the down arrow until you reach the level of intensity desired

**By maintaining a constant pressure on the arrow, the light intensity will decrease more rapidly.**

In the example shown, the light intensity has been decreased to 40%.

Press on the UP arrow. The level of intensity will go up. Repeat pressing on the up arrow until you reach the level of intensity desired.

**By maintaining a constant pressure on the arrow, the light intensity will increase more rapidly.**

Press on the “ENTER”  button to validate and to return to the MENU or wait a few seconds and the display will return by itself to the STANDARD DISPLAY

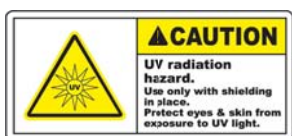


## 8.4. Programming and Controlling the UV light timer

This section covers how to program the UV light timer.



**Note:** For this feature to work correctly, the date and time needs to be setup as described in section 8.5



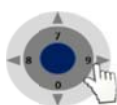
For increased safety against unintended UV radiation which will harm eyes and skin, use the timer to start the UV decontamination when no personnel is present in the room where the workstation is located. Use the front shield cover (Optional) to contain the radiation.



From STANDARD DISPLAY



Press on the “ENTER” button to enter the Menu



Press on the RIGHT arrow button to enter the next Menu



The USER MODE with the “UV CONTROL” will be displayed together with a representation of the “Control & Programming Keys”. The first line with the arrows symbol “←→” enables to go back to the previous menu or to move to another function. The symbol “o” represents the “ENTER” Button.



Press on the “ENTER” button to validate



The UV AUTOSTART with START: OFF will be displayed and together with a representation of the Control & Programming Keys.




Press Down or UP to change the settings. Two options can be selected:



The UV AUTOSTART with TODAY will be displayed and together with a representation of the Control & Programming Keys. This indicates that the auto start function of the UV light can be

UV AUTOSTART:  
START: AUTO ↓○↑

programmed for the current day at a specific time.

The UV AUTOSTART and "START: AUTO" will be displayed together with a representation of the Control & Programming Keys . This indicates that the auto start function of the UV light can be programmed any given day and time.

## 8.4.1. Option Selected "TODAY"



Press on the "ENTER"  button to enter the Menu

UV AUTOSTART:  
ON TIME: 00 : 00

The UV AUTOSTART and "ON TIME: 00:00" will be displayed. This is the Time at which the UV Light should start.



Press on the "ENTER"  button to enter

UV AUTOSTART:  
ON TIME:  0 : 00

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the UV Light will switch ON automatically.



Press on the "ENTER"  button to enter

UV AUTOSTART:  
OFF TIME: 00 : 00

The UV AUTOSTART and "OFF TIME: 00:00" will be displayed. This is the Time at which the UV Light will switch off.



Press on the "ENTER"  button to enter

UV AUTOSTART:  
OFF TIME:  0 : 00

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the Fans will turn OFF automatically.



Press on the "ENTER"  button to confirm

## 8.4.2. Option Selected "AUTO"



UV AUTOSTART:  
ON TIME: 00 : 00

**Note:** For this feature to work correctly, the date and time needs to be setup as described in section 8.5

Press on the "ENTER"  button to enter the Menu

The UV AUTOSTART and "ON TIME: 00:00" will be displayed. This is the Time at which the UV Light should start.



UV AUTOSTART:  
ON TIME:  0 : 00

Press on the "ENTER"  button to enter

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the UV Light will switch ON automatically.



UV AUTOSTART:  
OFF TIME: 00 : 00

Press on the "ENTER"  button to enter

The UV AUTOSTART and "OFF TIME: 00:00" will be displayed. This is the Time at which the UV Light will switch off.



UV AUTOSTART:  
OFF TIME:  0 : 00

Press on the "ENTER"  button to enter

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the UV Light will switch OFF automatically.



M T W T F S S  
- - - - -

Press on the "ENTER"  button to enter

The Week display will appear " M T W T F S S".



Press on the “ENTER”  button to enter



The Monday option will be blinking.



Press on the UP arrow to select Monday or press the Right and left arrows to navigate forth and back between the days,



In this example The Monday option will be marked with an “X” to indicate that the UV Light will be ON, on Monday at the desired time and will be switched OFF at the desired time programmed earlier in this section.



Press on the “ENTER”  button to confirm

## 8.5. Programming Clock and date

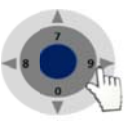
This section covers how to set the clock and the date.



**From STANDARD DISPLAY**



Press on the “ENTER”  button to enter the Menu



Press on the RIGHT or LEFT arrow button to reach the menu displaying “SET WATCH”



The USER MODE menu with SET WATCH will be displayed together with a representation of the “Control & Programming Keys” . The first line with the arrows symbol “◀ ▶” enables to go back to the previous menu or to move to another function. The symbol “○” represents the “ENTER” Button.



SET WATCH:  
FORMAT: 12H ↓○↑

SET WATCH:  
FORMAT: 24H ↓○↑

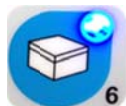


SET WATCH:  
TIME: 14 : 15

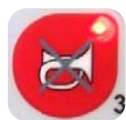
SET WATCH:  
TIME: ■4 : 15




SET WATCH:  
TIME: 1 ■ : 15



SET WATCH:  
TIME: 16 : ■ 5



Press on the “ENTER”  button to enter the Menu

The SET WATCH menu with FORMAT: 12H or 24H will be displayed together with a representation of the “Control & Programming Keys” . The first line with the arrows symbol “← →” enables to go back to the previous menu or to move to another function. The symbol “○” represents the “ENTER” Button.

Press on the DOWN or UP arrows to change the settings from 12H to 24H and vice versa.

Press on the “ENTER”  button to enter the Menu

The SET WATCH menu with TIME will be displayed.

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel.

**Example: Setting up the watch at 16:39**

Press on the button that has the number **1** and it will be registered on the display.

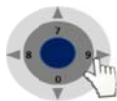
The second digit of the hour will be blinking.

Press on the button that has the number **6** and it will be registered on the display.

The first digit of the minutes will be blinking.

Press on the button that has the number **3** and it will be registered on the display.

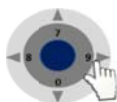
SET WATCH:  
TIME: 16:3■



SET WATCH:  
TIME: 16:39



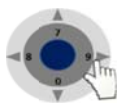
SET WATCH:  
M T W T F S S



SET WATCH:  
M ■ W T F S S



SET WATCH:  
DATE: 13 / 03 / 12



SET WATCH:  
DATE: ■ 3 / 03 / 12



SET WATCH:  
DATE: 1 ■ / 03 / 12

The second digit of the minutes will be blinking.

Press on the button that has the number 9 and it will be registered on the display.

Your time is now set.

Press on the "ENTER"  button to enter

The SET WACH menu with the day's first letter "M T W T F S S" will be displayed.

Press on the RIGHT or LEFT arrow button to navigate to the correct day.

The selected day will be blinking.

Press on the "ENTER"  button to enter

The SET WACH menu with DATE will be displayed. The Date has the format of DD / MM / YY

Press on the RIGHT arrow button to navigate to the day, month or year section.

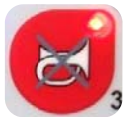
**Example: Setting up the date at 13 / 03 / 12**

The first digit of the day number will be blinking.

Press on the button that has the number 1 and it will be registered on the display.

The second digit of the day number will be blinking.

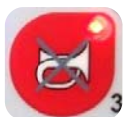




SET WATCH:  
DATE: 13 / ■ 3 / 12



SET WATCH:  
DATE: 13 / 0 ■ / 12



SET WATCH:  
DATE: 13 / 03 / ■ 2



SET WATCH:  
DATE: 13 / 03 / 1 ■



Press on the button that has the number **3** and it will be registered on the display.

The third digit of the month number will be blinking.

Press on the ARROW that has the number **0** and it will be registered on the display.

The fourth digit of the month number will be blinking.

Press on the button that has the number **3** and it will be registered on the display.

The fifth digit of the year number will be blinking.

Press on the button that has the number **1** and it will be registered on the display.

The fourth digit of the day number will be blinking.

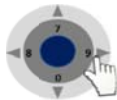
Press on the button that has the number **2** and it will be registered on the display.

Press on the "ENTER"  button to enter and validate



## 8.6. Programming the Air Flow to auto start (Weekly or Daily)

This section covers how to enable and to program the airflow to auto start on a specific date and time, and how to disable that feature.




### From STANDARD DISPLAY

Press on the “ENTER”  button to enter the Menu


Press on the RIGHT or LEFT arrow button to reach the menu displaying “FAN CONTROL”



The USER MODE menu with FAN CONTROL will be displayed together with a representation of the “Control & Programming Keys” . The first line with the arrows symbol “◀ ▶” enables to go back to the previous menu or to move to another function. The symbol “○” represents the “ENTER” Button.


Press on the “ENTER”  button to enter the Menu




The FAN AUTOSTART and “START: OFF” will be displayed together with a representation of the Control & Programming Keys . This indicates that the auto start function is disabled.

Press Down or UP to change the settings. Two options can be selected:



The FAN AUTOSTART and “TODAY” will be displayed together with a representation of the Control & Programming Keys . This indicates that the auto start function can be programmed for the current day at a specific time.



The FAN AUTOSTART and “START: AUTO” will be displayed together with a representation of the Control & Programming Keys . This indicates that the auto start function can be programmed any given day and time.

## 8.6.1. Option Selected "TODAY"



FAN AUTOSTART:  
ON TIME: 00 : 00

Press on the "ENTER"  button to enter the Menu

The FAN AUTOSTART and "ON TIME: 00:00" will be displayed. This is the Time at which the Fans should start.



FAN AUTOSTART:  
ON TIME:  0 : 00

Press on the "ENTER"  button to enter

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the Fans will turn ON automatically.



FAN AUTOSTART:  
OFF TIME: 00 : 00

Press on the "ENTER"  button to enter

The FAN AUTOSTART and "OFF TIME: 00:00" will be displayed. This is the Time at which the fans will turn off.



FAN AUTOSTART:  
OFF TIME:  0 : 00

Press on the "ENTER"  button to enter

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the Fans will turn OFF automatically.



Press on the "ENTER"  button to confirm

## 8.6.2. Option Selected "AUTO"




FAN AUTOSTART:  
ON TIME: 00 : 00

**Note:** For this feature to work correctly, the date and time needs to be setup as described in section 8.5

Press on the "ENTER"  button to enter the Menu

The FAN AUTOSTART and "ON TIME: HH:MM" will be displayed. This is the Time at which the Fans should start.



FAN AUTOSTART:  
ON TIME:  0 : 00

Press on the "ENTER"  button to enter

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the Fans will turn ON automatically.



FAN AUTOSTART:  
OFF TIME: 00 : 00

Press on the "ENTER"  button to enter

The FAN AUTOSTART and "OFF TIME: 00:00" will be displayed. This is the Time at which the fans will turn off.



FAN AUTOSTART:  
OFF TIME:  0 : 00

Press on the "ENTER"  button to enter

The first digit of the hour will be blinking. To enter the hour press the appropriate number found on the control panel. Continue this operation for the hours and the minutes. This will indicate the Time when the Fans will turn OFF automatically.



M T W T F S S

Press on the "ENTER"  button to enter

The Week display will appear "M T W T F S S".



Press on the “ENTER”  button to enter



The Monday option will be blinking.



Press on the UP arrow to select Monday, or press the Right and left arrows to navigate forth and back between the days



In this example The Monday option will be marked with an “X” to indicate that the Fans will be turned ON, on Monday at the desired time and will be switched OFF at the desired time programmed earlier in this section.



Press on the “ENTER”  button to confirm

## 8.7. Display Mode Functions

This section covers how to enable and disable the Flow and Fan information presented in the section 8.1.



From STANDARD DISPLAY




Press on the “ENTER”  button to enter the Menu



Press on the RIGHT or LEFT arrow button to reach the menu displaying “DISPLAY MODE”



The USER MODE menu with DISPLAY MODE will be displayed together with a representation of the “Control & Programming Keys” . The first line with the arrows symbol “◀ ▶” enables to go back to the previous menu or to move to another function. The symbol “o” represents the “ENTER” Button.



Press on the “ENTER” button to enter the Menu



The DISPLAY MODE and “FLOW: ON” will be displayed together with a representation of the Control & Programming Keys.



Press on the UP/Down arrow to select the OFF/On mode. This feature will disable the view of the information below as described in section 8.1.



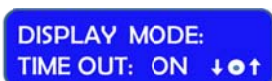
Press Enter to validate. The display will return to:



Press on the “ENTER” button to enter the Menu



Press on the DOWN or UP arrow to reach the following display



The DISPLAY MODE and “TIME OUT” will be displayed together with a representation of the Control & Programming Keys.



Press on the “ENTER” button to enter the Menu to turn this function ON or OFF. Turning this function OFF will disable the following display and return to:





Press on the “ENTER”  button to enter the Menu



Press on the DOWN or UP arrow to reach the following display

**DISPLAY MODE:**  
**TIMEOUT : 005 SEC**

The DISPLAY MODE and “TIME OUT: 005 SEC” will be displayed. This feature indicates that any information or changes will remain displayed for 5 seconds before returning to the Standard Display.

**SCANLAF:** ←0→  
**11 : 42 08/03/12**

The display time is of a minimum of 5 seconds and therefore can only be increased. To increase the duration of the displayed information:



Press on the UP arrow to increase the laps of time wished, as for example 12 seconds. This will enable the information to be displayed for 12 seconds before returning to the Standard Display

**DISPLAY MODE:**  
**TIMEOUT : 012 SEC**

## 9. HEATED SURFACE



Refer to the section 7.7. Working Heated Surface and ORIGIO Light Source

The heated surface is only applicable on the following FORTUNA IVF Models:

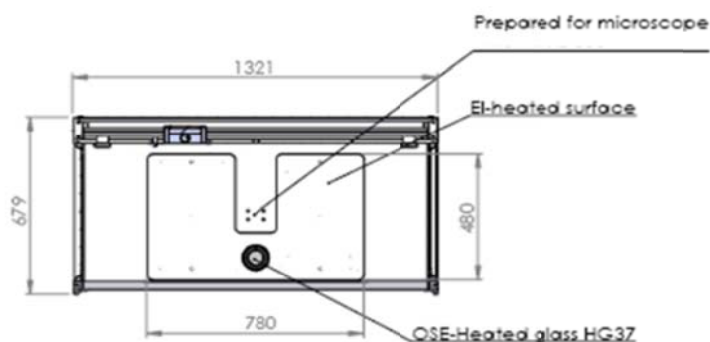
- |                     |                    |
|---------------------|--------------------|
| ▪ FORTUNA 900 IVF   | ▪ FORTUNA 1200 IVF |
| ▪ FORTUNA 1500 IVF  | ▪ FORTUNA 1800 IVF |
| ▪ FORTUNA 1800 Dual | ▪ FORTUNA 1800 MP  |

There are two types of heated surfaces:

- Electrical heating
- Liquid heating with a water circulator pump (Please refer to the user manual of the water circulator pump, not included in this manual)

### 9.1. Operational Characteristics

The heated surfaces, defined with a “U” Shape pattern on the surface of the workstation will be heated to 37°C, and are controlled by an accurate sensor and a control processor.



Example of a warmed surface

Placing of large hot or cold masses on the heated elements will affect the regulation process and should be avoided during normal operation.

Placing a hand will also draw heat from the surface, therefore please avoid placing fingers or a hand on the surface during warming up or during the calibration of the controller.

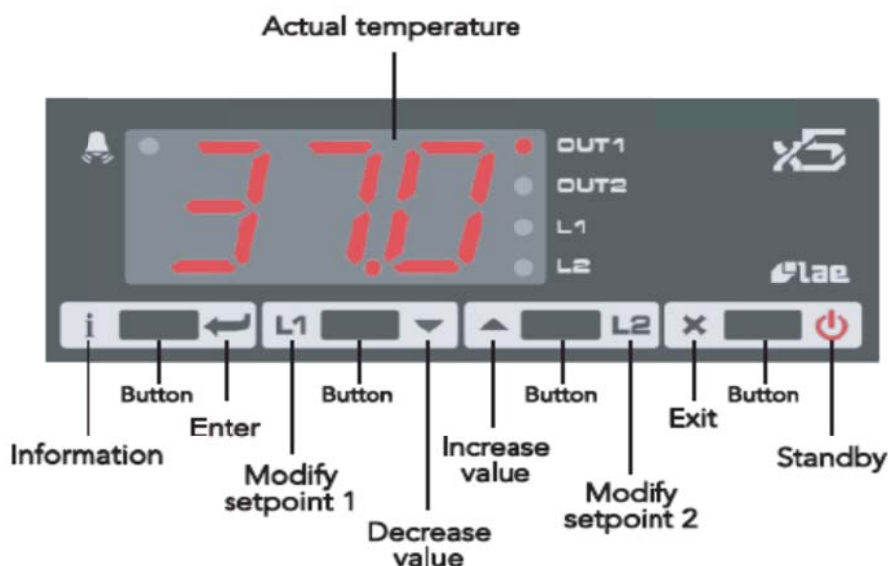
Turn on the heating system at least 60 minutes before starting the work. If possible place all needed equipment on the surface during the warming up period to warm these appropriately. Always wait for the temperature to stabilize completely before starting work.



*Caution there is a heat loss from the edges.*



## 9.2. Temperature Controller



The display shows the temperature readout from the chosen channel (only channel 1 is used on this application). In case of an alarm situation a red light will start flashing in the top left-hand corner of the display. On the right-hand side of the display it is indicated which parameter is shown in the display. Below is listed all possible values and messages that can be shown in the display:

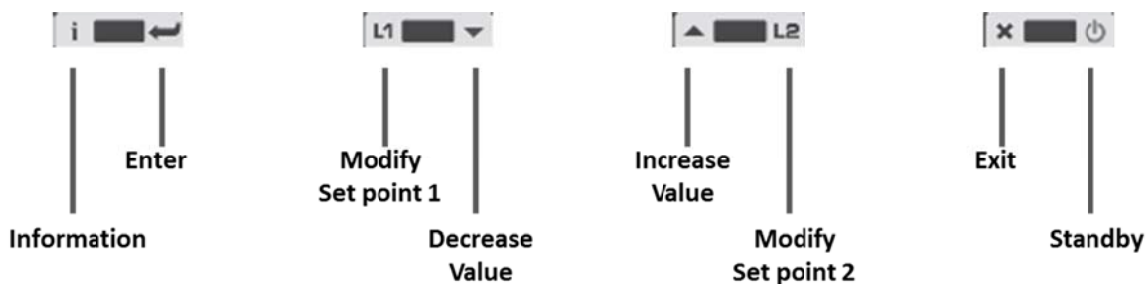
DISPLAY	DESCRIPTION
OFF	Controller is in standby
OR	Probe T1 out of range or failure
HI	Room high temperature alarm
LO	Room low temperature alarm
TUN	Controller is in auto tuning
E1	In tuning: Timeout 1 error
E2	In tuning : Timeout 2 error
E3	Out of range error

LED	DESCRIPTION
OUT1	Channel 1 output
OUT2	Channel 2 output
L1	Channel 1 set point modification
L2	Channel 2 set point modification
	Alarm

## INFORMATION

THI	Maximum temperature recorded
TLO	Minimum temperature recorded
LOC	Keypad state lock

Below the display the four buttons for operating the temperature controller is placed:



Each button has two functions - one in each side of the button. Simply press the appropriate symbol to use the buttons.

The heated surface is designed to provide and maintain a constant 37 °C over the heated part of the working surface to within  $\pm 0.2$  °C at a maximum ambient temperature of 35 °C. The controller is operating in PID (Proportional-Integral-Derivative) mode to get the most accurate and stable temperature possible. When running in PID mode the parameters 1PB, 1IT, 1DT, 1AR, 1CT are used.

### 9.3. The Parameters 1PB, 1IT, 1DT, 1AR, 1CT

#### 9.3.1. Proportional bandwidth 1PB

Temperature control takes place by changing the ON time of the output: the closer the temperature to the set point, the less time of activation. A small proportional band increases the speed of response of the system to temperature variations, but tends to make it less stable. A pure proportional control stabilizes the temperature within the proportional band but does not cancel the deviate

on from set point.

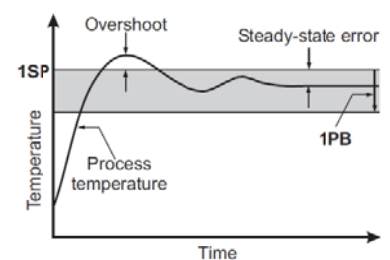


Figure 01

The value of this parameter must be verified by an “auto tuning” - (See 9.5. Controller auto tuning in PID mode)

### 9.3.2. Integral action time (1IT)

The steady-state error is cancelled by inserting an integral action. The integral action time, determines the speed with which the steady-state temperature is achieved, but a high speed (1IT low) may be the cause of overshoot and instability in the response.

The value of this parameter must be verified by an “auto tuning” - (See 9.5. Controller auto tuning in PID mode)

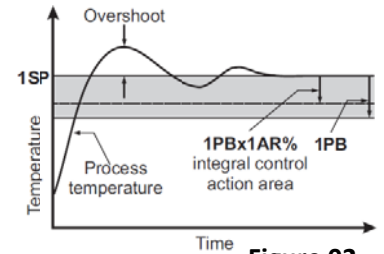


Figure 02

### 9.3.3. Derivative action time (1DT)

Response overshoot may be reduced by inserting a derivative Action. A high derivative action (1DT high) makes the system very sensitive to small temperature variations and causes instability.

The value of this parameter must be verified by an “auto tuning” - (See 9.5. Controller auto tuning in PID mode)

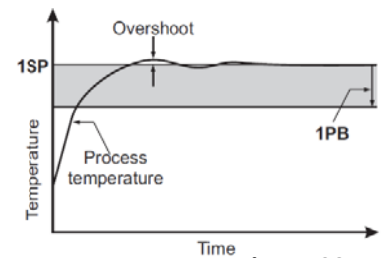


Figure 03

### 9.3.4. Reset of integral action time referred to 1PB (1AR)

Decreasing the parameter 1AR reduces the integral control action zone, and consequently the overshoot. (See figure 02).

The value of this parameter must be verified by an “auto tuning” - (See 9.5. Controller auto tuning in PID mode)

### 9.3.5. Cycle time (1CT)

It is the period in which the output ON time changes. The quicker the system is to be controlled reacts to temperature variations, the smaller the cycle time must be, in order to obtain higher temperature stability and less sensitivity to load variations.

## 9.4. User Setup

The units are delivered ready for use from the factory. Should it be necessary to access the parameters in the temperature controller, the process is detailed here below.

### 9.4.1. Accessing the parameters

### 9.4.2. Accessing the information menu

Action	Button
Press and release "i"	i
To select the data to be displayed press arrow UP or DOWN	▼ ▲
To display the value press "i"	i
To exit from the menu, press X	X






**Note:** When the button is not pressed within 10 seconds the menu will exit


### 9.4.3. Resetting the THI and TLO recordings

Action	Button
To select the data to be reset press arrow UP or DOWN	▼ ▲
To display the value press "i"	i
To reset, press and hold "i" while using X	i X

## 9.4.4. Channel 1 set point



Action	Button
Press and release L1	L1
The LED L1 flashes, the display shows 1SP for 1 second and then the set point associated value	
To select the desired value press arrow UP or DOWN	
(adjustments is within the minimum SPL and maximum SPH Limit)	
To store the desired value press enter or wait for 10 seconds	
To reset, press and hold "I" while using X	

## 9.4.5. Standby

Action	Button
Press for 3 seconds	
This allows the controller to be put on a standby or output control to be resumed (with SB = YES only)	

## 9.4.6. Keypad lock

The keypad lock avoids undesired, potentially dangerous operations, which might be attempted when the controller is operating in a public place.

Action	Button
Press and release "I" to enter the INFO menu	
To select LOC to be displayed press arrow UP or DOWN	
Set parameter LOC = YES to inhibit all functions of the buttons.	



**Note:** To resume normal operation of keypad, adjust setting so that LOC=NO.

## 9.5. Controller auto tuning in PID mode







**Note:** This operation should only be performed by a trained technician during service or recalibration.

### 9.5.1. Before starting

In the setup mode (see configuration parameters): set 1CM=PID; make sure that 1CH matches the desired operation mode (1CH=REF for refrigerating control, 1CH=HEA for heating control); then adjust set point 1SP at the desired value.

## 9.5.2. Start auto tuning


During normal operation, follow these steps:

Action	Button
Press "i" and arrow DOWN for 3 seconds	
1CT flashes on the display	
To select the cycle time press "i" and arrow UP or DOWN	
The cycle time is set in order to define the dynamic of the process to be controlled	
To exit from the auto tuning function press X	
To start auto tuning press or wait for 30 seconds	

## 9.5.3. During auto tuning

During the entire auto tuning phase, the display alternates TUN with the actual temperature measured. In case of power failure, when power is resumed, after the initial auto test phase, the controller resumes the auto tuning function.

To abort the auto tuning without modifying the previous control parameters:

Action	Button
Press X for 3 seconds	
After the auto tuning has taken place successfully, the controller updates the control parameters and starts to control	



## 9.5.4. Errors in the auto tuning

If the auto tuning function failed, the display shows an error code:






Error Code	Description
E1 – timeout1 error	The controller could not bring the temperature within the proportional band. Increase 1SP in case of heating control, vice versa, decrease 1SP in case of refrigerating control and re-start the process.
E2- timeout2 error	The auto tuning has not ended within the maximum time allowed (1000 cycle times). Re-start the auto tuning process and set a longer time 1CT.
E3 – temp. out of range	Check that the error was not caused by a probe malfunction, then decrease 1SP in case of heating control, vice versa, decrease 1SP in case of refrigerating control and re-start the process.
To eliminate the error indication and return to the normal mode, press button X	



## 9.6. Accessing the factory set operating parameters

Before the temperature controller can be used, a number of parameters must be set and the displayed temperature calibrated. This is done at the factory before delivery. It is not advisable to change any of the parameters mentioned in this paragraph.

Start the process by turning on the temperature controller and wait until the heated area on the work surface has reached the set temperature – factory setting is 37 °C – and the temperature reading has stabilized. To enter the parameter configuration menu follow the procedure below:

Action	Button
Press X and "i" for 5 seconds	
To select the parameter to be modified press and arrow UP or DOWN	
To display existing parameter value press "i"	
Press and hold "i" while using arrow UP and DOWN to set the desired value	
When "i" is released, the newly programmed value is stored and the next parameter is displayed	
To exit from the setup, press X or wait for 30 seconds	



In the table below are listed all the parameters that are not the temperature controller manufacturers default values. These parameters has been changed or set at the factory before delivery: The following parameters must be set before operation can commence in a correct manner:

Parameter	Value	Remarks
<b>SCL</b>	1	
<b>SPL</b>	0	
<b>SPH</b>	50	
<b>1SP</b>	37	
<b>ACM</b>	PID	
<b>1CH</b>	HEA	
<b>1PB</b>	3,0	To be verified by an "auto tuning"
<b>1IT</b>	209	To be verified by an "auto tuning"
<b>1DT</b>	44	To be verified by an "auto tuning"
<b>1AR</b>	50	To be verified by an "auto tuning"
<b>1CT</b>	1	
<b>1PFF</b>	OFF	
<b>OAU</b>	NON	
<b>ATM</b>	NON	
<b>SB</b>	YES	
<b>OS1</b>	<b>XX</b>	
<b>TLD</b>	0,5	
<b>SIM</b>	0,5	
<b>ADR</b>	1	

## 9.7. Determining the offset

**OS1:** This is the offset between the displayed temperature and the actual temperature on the work surface. The value is calculated as the difference between the measured and the displayed temperature  $OS1 = TM - TD (= 35.7 - 37.0 = -1.3)$ . After entering the calculated offset make a test measurement of the accuracy of the calibration. The difference between the displayed and measured should be within  $\pm 0.1$  °C.

To determine the value of TD the following procedure should be followed:

The heated zones on the work surface of the warmed areas are one, two or three rectangular areas corresponding to the number of heated mats on the particular unit. As only one offset value can be entered in controller, the average temperature measured centrally on each of the heated mat areas is used for the calculation of the offset.

The temperature is measured in the appropriate measuring positions using type k (or equal) thermocouples and a suitable thermometer with 0.1 °C accuracy. The thermometer including the thermocouple(s) must be calibrated, as the set point temperature calibration is an absolute temperature calibration.

To ensure good thermal contact between the thermocouple and the work surface, the exposed end of the thermocouple must be fixed to the work surface using aluminum tape or suitable weight.

Calculate the average measured temperature and from this value the value of OS1. Enter this value in the controller.

## 9.8. Temperature variation

To determine the temperature variation over the heated surface use the method and equipment described above. On each mat ten evenly spread positions is measured and the difference between the highest and the lowest value measured gives the variation. Make sure, that all measurement positions are within the area covered by the heated mats.

## 9.9. Operating the heated areas

### 9.9.1. Normal Operation

Once the controller is setup correctly it will maintain the work surface temperature at 37 °C and will not require any further interaction.

### 9.9.2. Checking the temperature

The actual temperature of the surface is displayed on the display (OUT1) and will also show the set point temperature L1.

## 10.TROUBLE SHOOTING

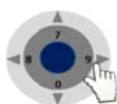
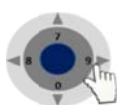
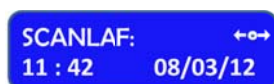
You have an alarm on the Flow 1 as indicated below:



This indicates that a calibration of the inflow and down flow is needed. Please follow the instructions below.

### 10.1. Flow 1 alarm

Before starting make sure that the window is lowered to its normal working height. Make sure that all accessories, devices regularly used in the workstation are in place and not taken out. Then follow the instructions



#### From STANDARD DISPLAY

Press on the RIGHT or LEFT arrow button to navigate towards the Information menu until you reach the SERVICE MODE

Press on the “ENTER”  button to enter the service functions

Enter the code 1234 using the numbers found on the control panel and press enter.

Press on the RIGHT or LEFT arrow button to navigate towards the Information menu until you reach the FLOW SENSORS MENU

Press on the “ENTER”  button

FLOW SENSOR 1:  
TYPE: ANALOG ↓○↑



FLOW SENSOR 1 with as a standard type ANALOG will be displayed. If not SWITCH will be displayed (This does not concern the FORTUNA workstations). FLOW SENSOR 1 is the down flow.

Press on the “ENTER”  button

NEW CALIBRATION  
NO ↓○↑



NEW CALIBRATION will be displayed.

Press on the “ENTER”  button

FLOW ALARM 1:  
HIGH: 0285 ↓○↑



FLOW ALARM 1 with HIGH and a set of values will be displayed (e.g. 0285)

**Press on the arrow down until the alarms starts.** By pushing the arrow the numbers will decrease by units

**By maintaining a constant pressure on the arrow, the numbers will decrease by decimals**



**Press on the arrow up one unit at a time and wait for 2 to 3 seconds to see if the alarm stops.**

**Repeat the operation until the alarm stops.**



**When the alarm has stopped, read the value displayed: e.g. 0225. Add 50 to the number:  $0225 + 50 = 0275$ . Press on the arrow up until you reach this number.**



Press on the “ENTER”  button

FLOW ALARM 1:  
LOW: 0175 ↓○↑



FLOW ALARM 1 with LOW and a set of values will be displayed (e.g. 0175)

**Press on the arrow up until the alarms starts.** By pushing the arrow the numbers will decrease by units



FLOW ALARM 1:  
ALARM: NORMAL ↓⬆⬇↑



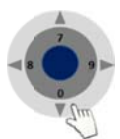
FLOW SENSOR 2:  
TYPE: ANALOG ↓⬆⬇↑



NEW CALIBRATION  
NO ↓⬆⬇↑



FLOW ALARM 2:  
HIGH: 0305 ↓⬆⬇↑



By maintaining a constant pressure on the arrow, the numbers will decrease by decimals

Press on the arrow down one unit at a time and wait for 2 to 3 seconds to see if the alarm stops.

Repeat the operation until the alarm stops.

When the alarm has stopped, read the value displayed: e.g. 0125. Add 50 to the number:  $0125 + 50 = 0175$ . Press on the arrow down until you reach this number.

Press on the "ENTER"  button

FLOW ALARM 1 with ALARM NORMAL will be displayed.

Press on the "ENTER"  button

FLOW SENSOR 2 with as a standard type ANALOG will be displayed. If not SWITCH will be displayed (This does not concern the MARS workstations). FLOW SENSOR 2 is the Inflow/ exhaust.

Press on the "ENTER"  button

NEW CALIBRATION will be displayed.

Press on the "ENTER"  button

FLOW ALARM 2 with HIGH and a set of values will be displayed (e.g. 0305)

Press on the arrow down until the alarms starts. By pushing the arrow the numbers will decrease by units



FLOW ALARM 2:  
LOW: 0205 ↓ ● ↑



FLOW ALARM 2:  
ALARM: NORMAL ↓ ● ↑

By maintaining a constant pressure on the arrow, the numbers will decrease by decimals

Press on the arrow up one unit at a time and wait for 2 to 3 seconds to see if the alarm stops.

Repeat the operation until the alarm stops.

When the alarm has stopped, read the value displayed: e.g. 0225. Add 50 to the number:  $0225 + 50 = 0275$ . Press on the arrow up until you reach this number.

Press on the "ENTER"  button

FLOW ALARM 1 with LOW and a set of values will be displayed (e.g. 0205)

Press on the arrow up until the alarms starts. By pushing the arrow the numbers will decrease by units

By maintaining a constant pressure on the arrow, the numbers will decrease by decimals

Press on the arrow down one unit at a time and wait for 2 to 3 seconds to see if the alarm stops.

Repeat the operation until the alarm stops.

When the alarm has stopped, read the value displayed: e.g. 0125. Add 50 to the number:  $0125 + 50 = 0175$ . Press on the arrow down until you reach this number.

Press on the "ENTER"  button

FLOW ALARM 1 with ALARM NORMAL will be displayed.





FLOW SESNSOR 3 :  
TYPE: NONE    ↓ ● ↑



SERVICE  
LOGOUT    ← ● →



Press on the “ENTER”  button

FLOW SENSOR3 with TYPE NONE will be displayed.

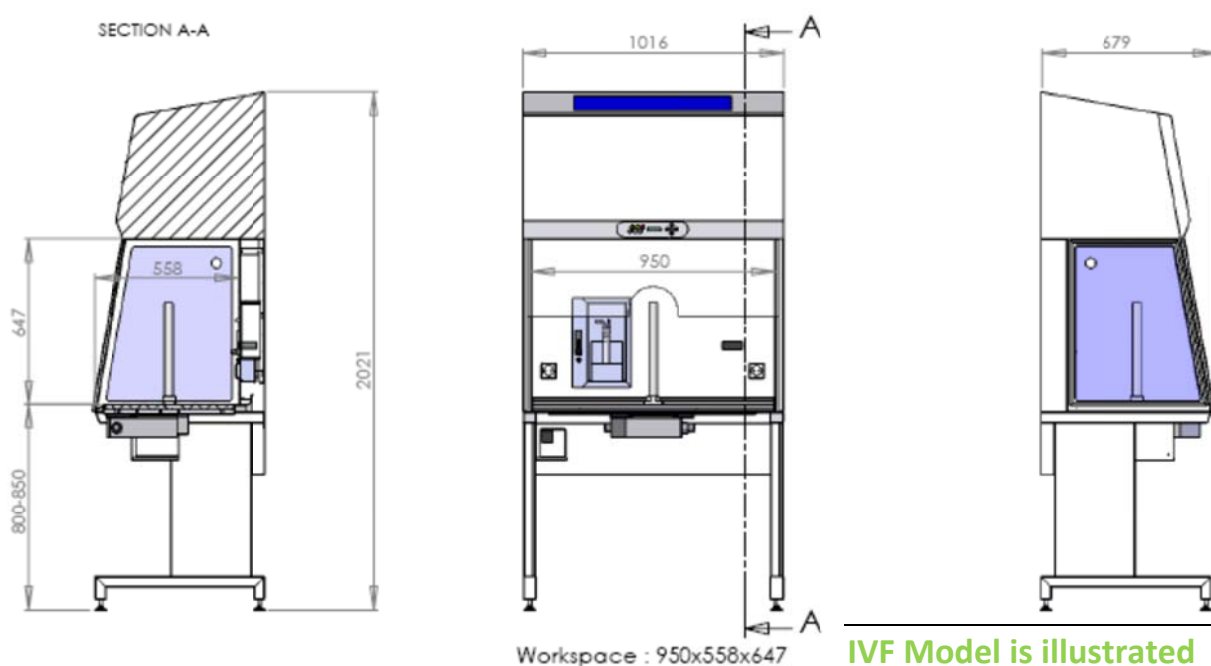
Press on the “ENTER”  button and navigate in the menu until you reach SERVICE LOGOUT

Press on the “ENTER”  to LOGOUT and reaching the Standard Display.

## 11. TECHNICAL SPECIFICATIONS

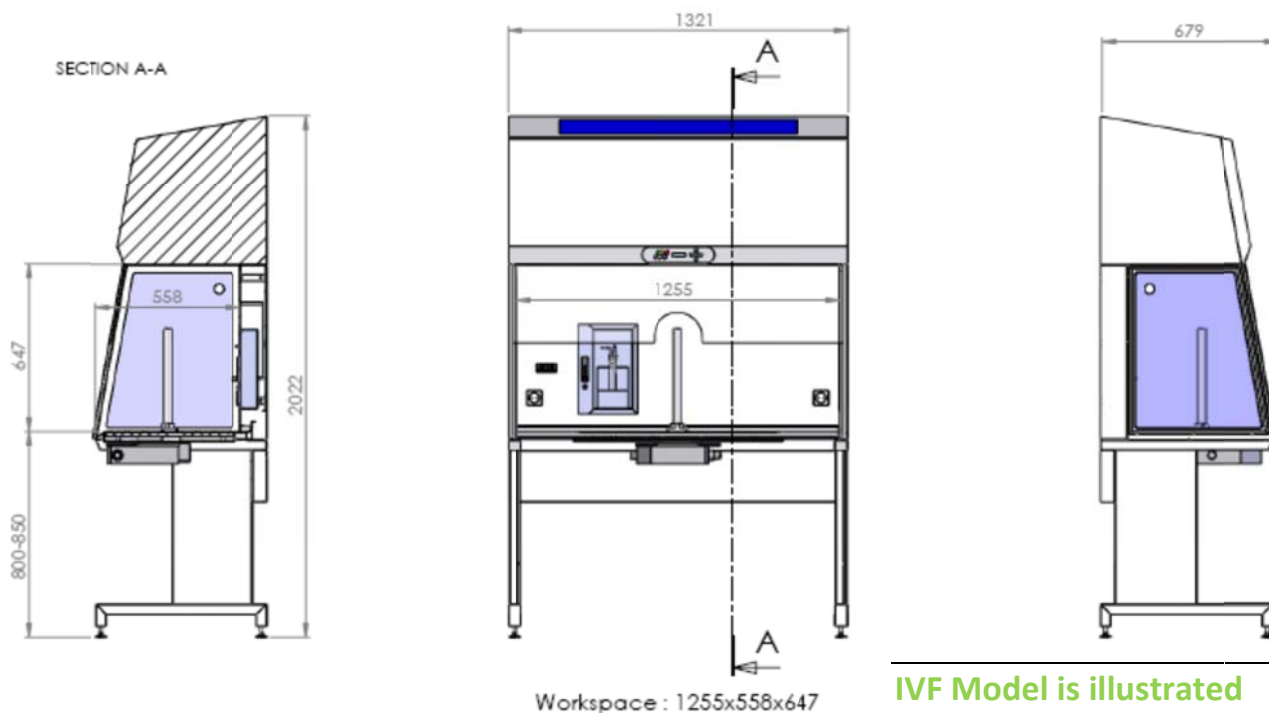
This manual covers the following FORTUNA Models:

### 11.1. FORTUNA 900 IVF or LAF



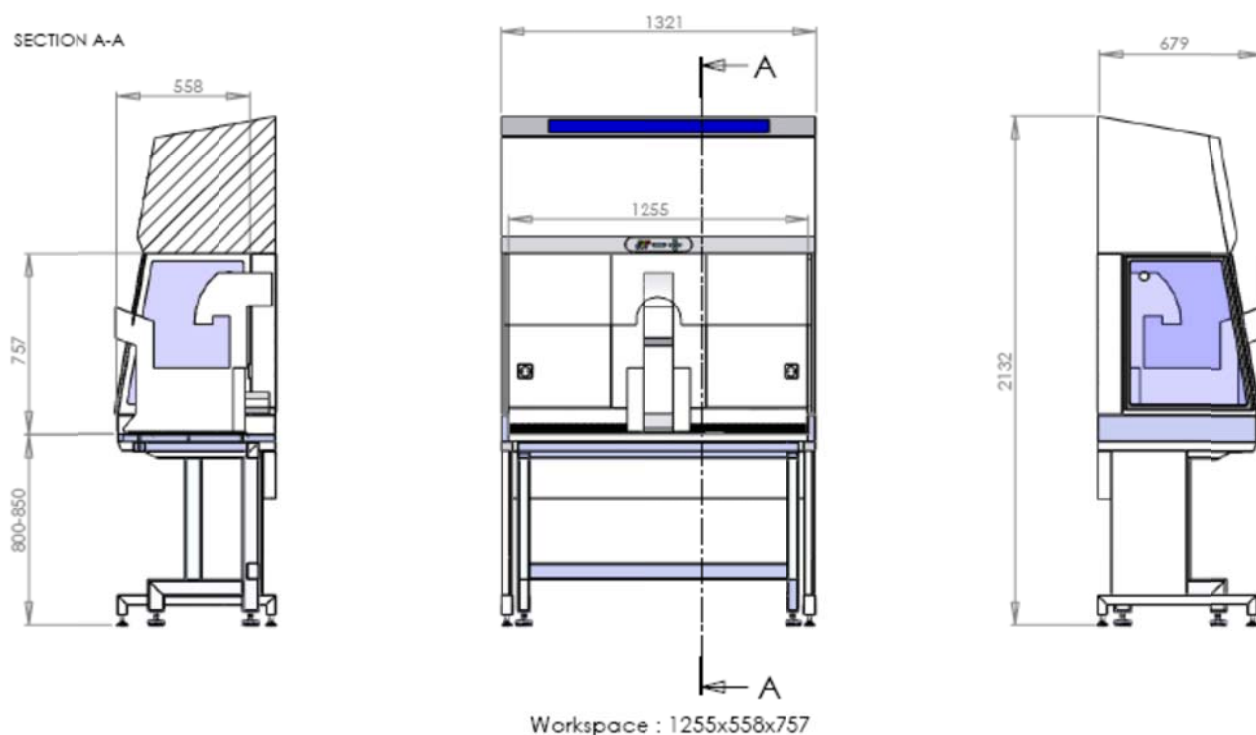
FORTUNA 900 IVF	
Dimensions (W x D x H)	1016 X 679 x 2021 mm
Workspace (W x D x H)	950 x 558 x 647 mm
Table plate standard height	80 – 85 cm
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<46 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	125 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	1516x916x1559 mm
Shipping volume	2,17 m <sup>3</sup>
Net weight / Gross Weight	225 Kg / 315 Kg

## 11.2. FORTUNA 1200 IVF or LAF



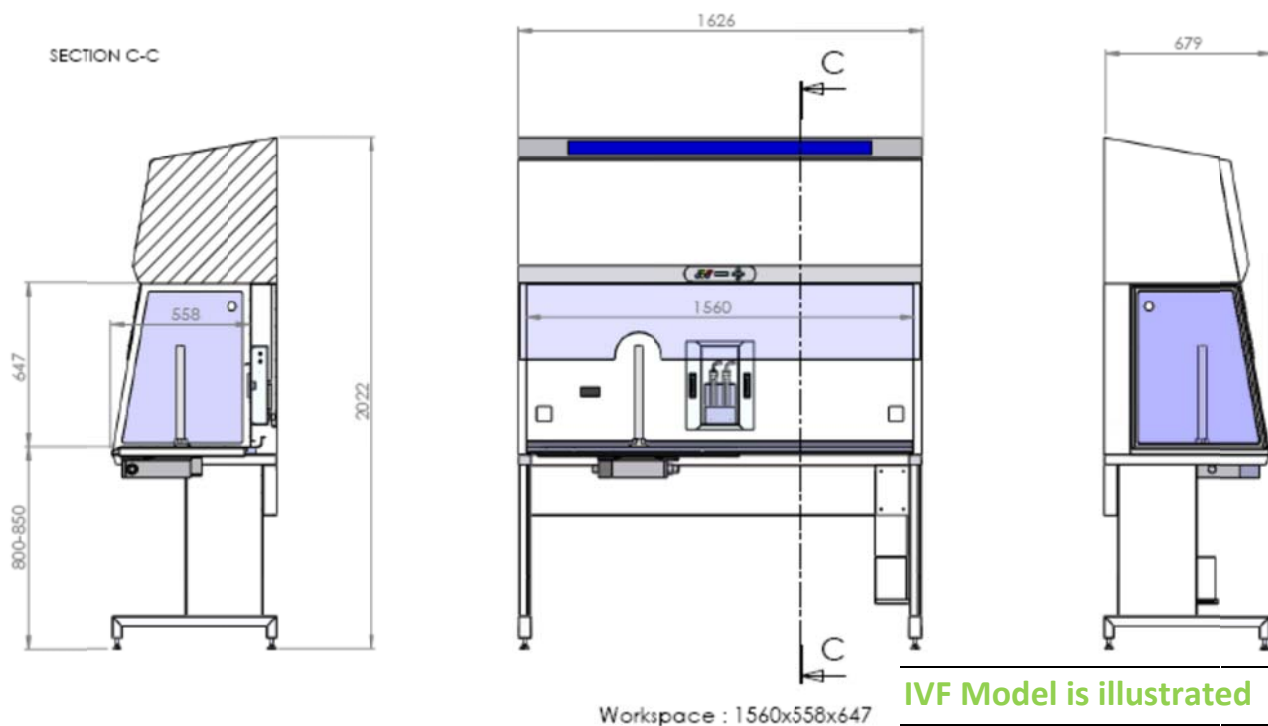
FORTUNA 1200 IVF or LAF	
Dimensions (W x D x H)	1321 X 679 x 2022 mm
Workspace (W x D x H)	1255 x 558 x 647 mm
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<46 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	150 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	1516x916x1559 mm
Shipping volume	2,17 m <sup>3</sup>
Net weight / Gross Weight	250 Kg / 330 Kg

## 11.3. FORTUNA 1200 ICSI



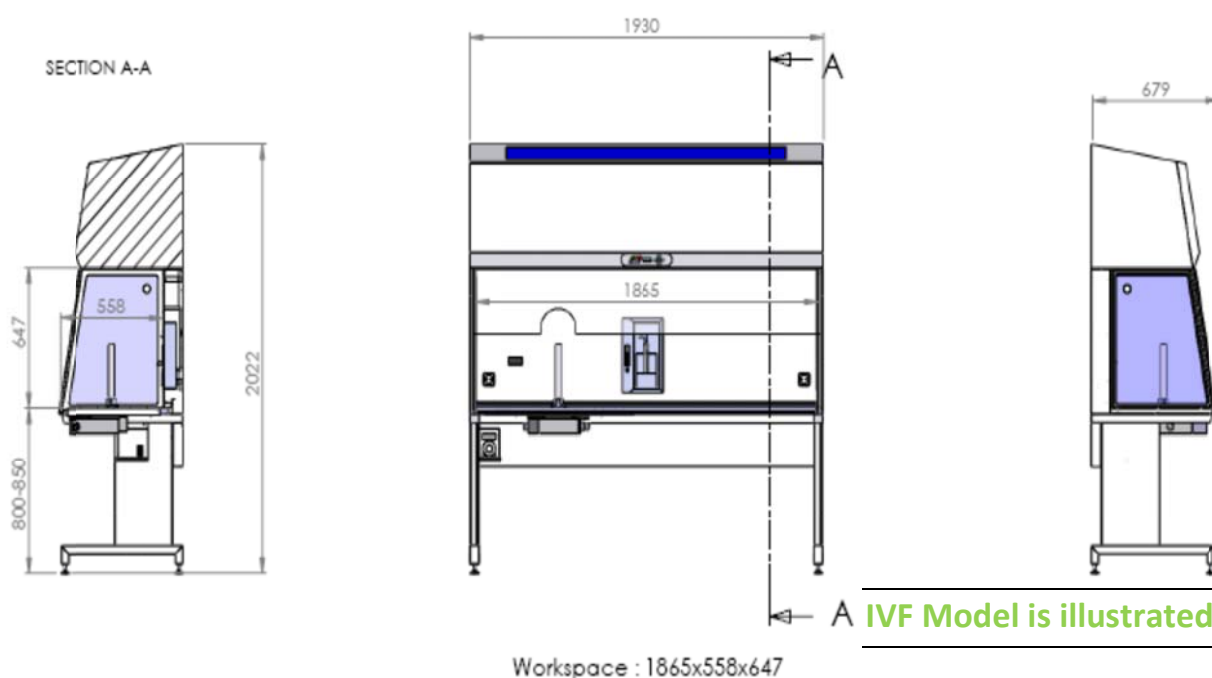
FORTUNA 1200 ICSI	
Dimensions (W x D x H)	1321 X 679 x 2132 mm
Workspace (W x D x H)	1255 x 558 x 757 mm
Table plate standard height	80 – 85 cm
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<46 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	150 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	1516x916x1559 mm
Shipping volume	2,17 m <sup>3</sup>
Net weight / Gross Weight	250 Kg / 330 Kg

## 11.4. FORTUNA 1500 IVF or LAF



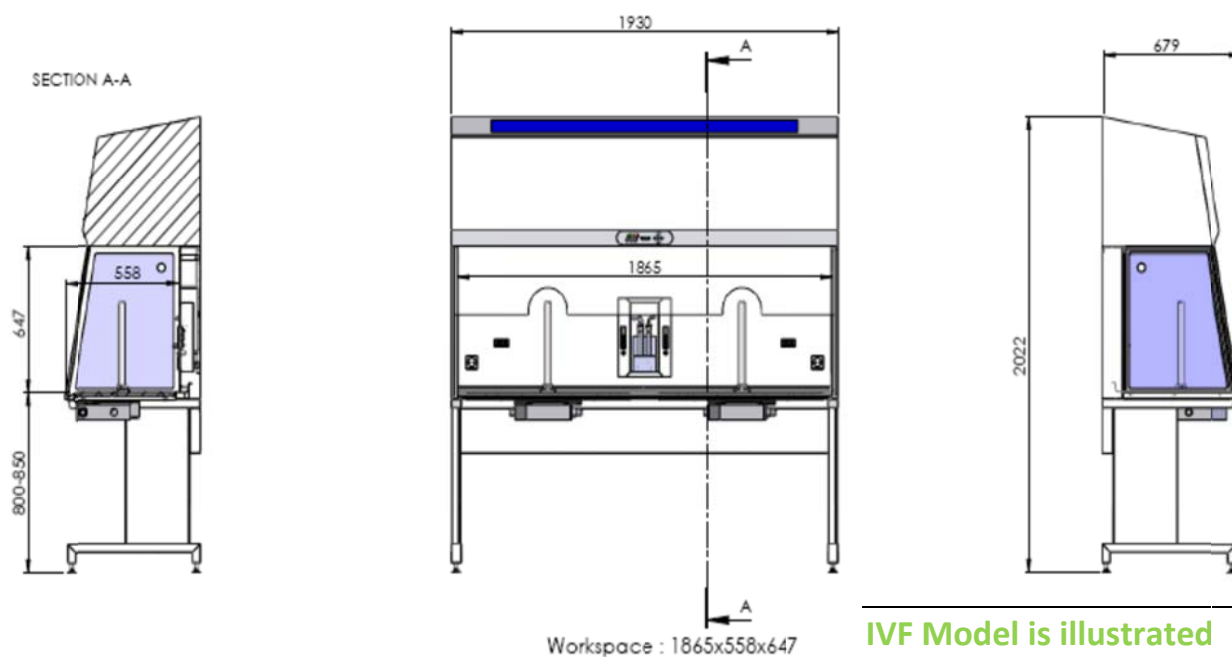
FORTUNA 1500 IVF or LAF	
Dimensions (W x D x H)	1626 X 679 x 2022 mm
Workspace (W x D x H)	1560 x 558 x 647 mm
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<48 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	175 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	2166x916x1559 mm
Shipping volume	3,1 m <sup>3</sup>
Net weight / Gross Weight	275 Kg / 370 Kg

## 11.5. FORTUNA 1800 IVF or LAF



FORTUNA 1800 IVF or LAF	
Dimensions (W x D x H)	1930 X 679 x 2022 mm
Workspace (W x D x H)	1865 x 558 x 647 mm
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<48 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	200 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	2166x916x1559 mm
Shipping volume	3,1 m <sup>3</sup>
Net weight / Gross Weight	300 Kg / 400 Kg

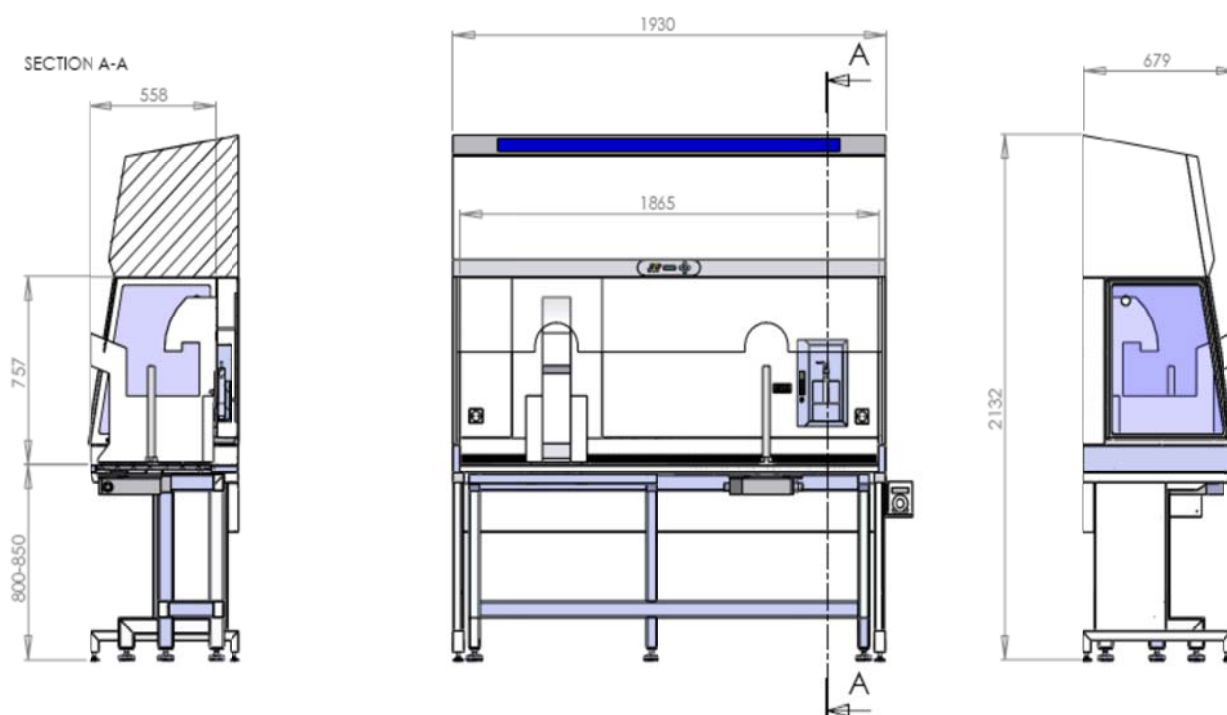
## 11.6. FORTUNA 1800 Dual



FORTUNA 1800 IVF or LAF	
Dimensions (W x D x H)	1930 X 679 x 2022 mm
Workspace (W x D x H)	1865 x 558 x 647 mm
Table plate standard height	80 – 85 cm (option 75-80 cm or 90 -95 cm or electrically adjusted)
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<48 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	200 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	2166x916x1559 mm
Shipping volume	3,1 m <sup>3</sup>
Net weight / Gross Weight	300 Kg / 400 Kg



## 11.7. FORTUNA 1800MP / ICSI



Workspace : 1865x558x757

**MP Model is illustrated**

FORTUNA 1800 MP / ICSI	
Dimensions (W x D x H)	1930 X 679 x 2132mm
Workspace (W x D x H)	1865 x 558 x 757 mm
Table plate standard height	80 – 85 cm
Air velocity, vertical flow	0,15 m/s (adjustable 0.01 -0.70 m/s)
Air Velocity, deviation	+/- 10%
Noise Level, ISO 6081	<48 dB(A)
Light intensity variable	0 – 2000 Lux
HEPA Filters, EN 1822	Efficiency is 99.999% against 0.3 µm particle H-14 size
Power consumption	200 W
Fuses	10 A
Voltage / Frequency	220-240V / 50-60 Hz or 110 -120V / 50 -60 Hz
Window material ( side/Front)	Hardened / laminated safety glass
Cabinet material / Work surface	Polyester coated steel /AISI 304 stainless steel
External dimensions packed (D x W x H)	2166x916x1559 mm
Shipping volume	3,1 m <sup>3</sup>
Net weight / Gross Weight	300 Kg / 400 Kg

## 12. SPARE PARTS

Article No	DESCRIPTION
9.000.040.001	UV-light tube for FORTUNA 900-1800
9.000.040.011	Light tube for FORTUNA 900
9.000.040.012	Light tube for FORTUNA 1200
9.000.040.013	Light tube for FORTUNA 1500
9.000.040.014	Light tube for FORTUNA 1800
9.000.050.001	Main HEPA filter for FORTUNA 900
9.000.050.002	Main HEPA filter for FORTUNA 1200
9.000.050.003	Main HEPA filter FORTUNA 1500
9.000.050.004	Main HEPA filter FORTUNA 1800
9.000.050.005	Main circuit board
9.000.050.006	Flow sensor
9.000.050.007	Light ballast for FORTUNA 900 1200
9.000.050.008	Light ballast for FORTUNA 1500 1800
9.000.050.012	Display board
9.000.050.010	UV-light ballast

## 13. OPERATING THE MICROSCOPE LIGHT SOURCE

Depending on the customer order and on the configuration selected, below is the operating manual of the light sources provided by ORIGIO.



Refer to the section 7.7 Working Heated Surface and ORIGIO Light

## 13.1. ORIGIO Halogen Light Source Model TLB 4000

### Diagram

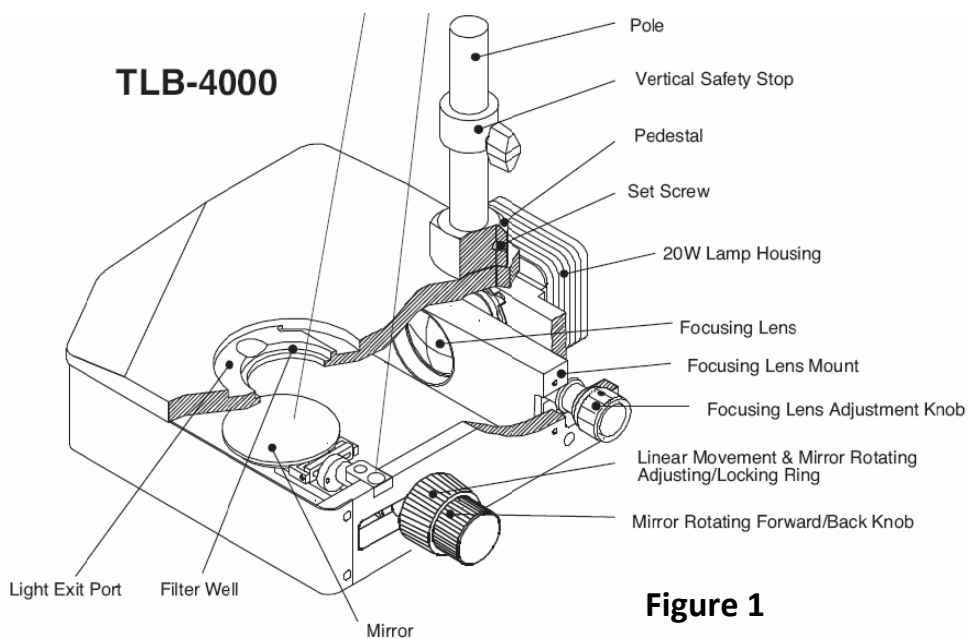


Figure 1

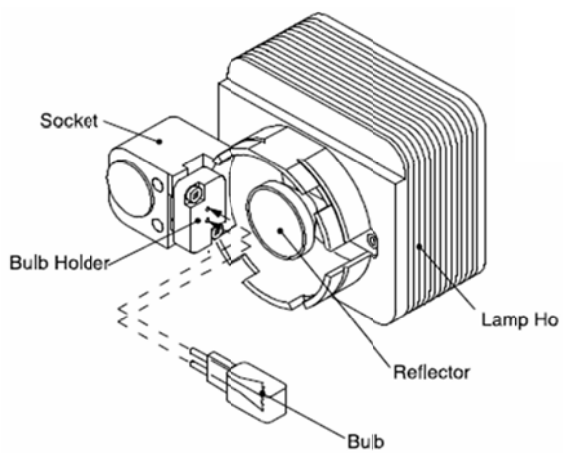


Figure 2

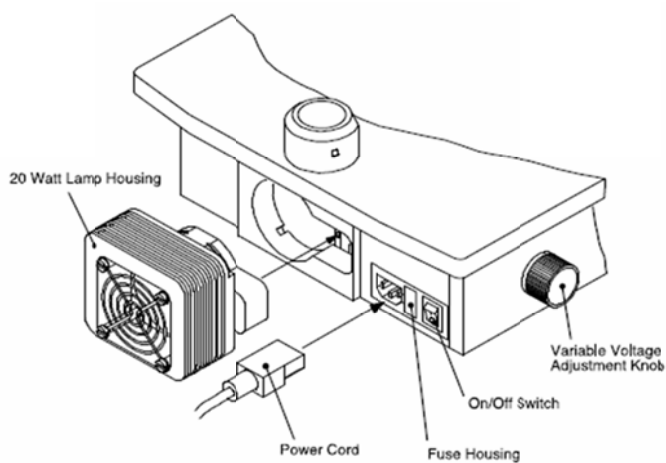


Figure 3

## 13.1.1. Operating the light source

### On/off switch:

The power switch is located on the rear of the base. Turn the power switch on.

### Variable voltage adjustment:

Light intensity is adjusted by the knob on the left side of the base. (Figure. 3)

### Condensing lens focusing knob:

This knob is located on the right side of the base in the back. By sliding the knob back and forth you can focus the light onto the mirror. The knob can be locked in position by rotating it right (to the back).

### Mirror linear movement adjusting ring:

This is the inner knob on the mirror controls assembly. The function of this knob is to adjust the amount of friction in the linear front to back movement of the mirror and tilting of the mirror. Clockwise tightening of the knob increases the friction in the assembly. This will also lock down the rotational movement.



To lock down mirror, **GENTLY** turn knob



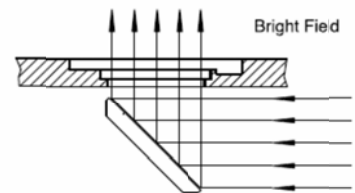
**DO NOT OVERTIGHTEN.**

### Mirror front to back rotation knob:

This is the outer knob on the mirror controls assembly. The function of this knob is for tilting the mirror front to back. Its travels are limited to prevent the mirror from hitting the top or bottom of the base. The travel range is 0° - 55°.

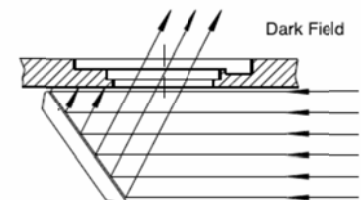
### Brightfield operation:

To achieve a brightfield illumination, the mirror should be moved to its rear most position, (away from user), and the light directed through the glass stage plate.



### Single direction darkfield:

To achieve one directional darkfield the mirror can be moved to its forward most position (towards the user), the light will be directed back through the glass stage plate.



## 13.1.2. Replacing the light bulb

To replace a defective light bulb, the following is required:



**Important:** Switch off the Light source from the back of the light source as indicated in (Figure. 3).

**DO NOT TOUCH THE NEW HALLOGEN LIGHT BULB WITH YOUR HANDS**

At the back of the light source, pull out the lamp housing as indicated in Figure 3.

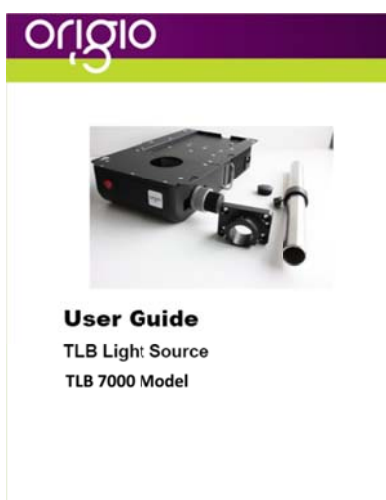
Remove the defective bulb as indicated in Figure 2 and replace it with a new one.

Replace the housing back by pushing it into its location located at the back of the lamp source.

Switch on the Light source with the ON/ OFF switch.

## 13.2. ORIGIO LED Light Source Model TLB 7000

Please refer to the User Manual provided with the light source.



## 14. OPERATING THE STEROMICROSCOPE HEATED GLASS STAGE – HG37 Model

Depending on the customer order and on the configuration selected, the work surface can be fitted with a heated glass stage. To Operate ORIGIO's HG37 Heated Glass, please refer to the user manual provided with the device.



## 15. OPERATING THE LCD MONITOR

Depending on the customer order and on the configuration selected, please refer to the User manual provided with the monitor.





## 16. WARRANTY AND LIABILITY

### **Limited Warranty:**

ORIGIO Equipment warrants to the purchasers of all devices and products solely manufactured by ORIGIO EQUIPMENT, the product was prepared and tested in accordance with good manufacturing practices and guidelines and are in compliance to the CE norms issued by the competent authority.

In the event of product failure under normal use, due to defects in material or workmanship, within a period of twenty four months (24) months from the date of invoice of the Product and from the point of origin, the product will be repaired, or at ORIGIO EQUIPMENT option, replaced, at no charge. ORIGIO EQUIPMENT assumes that the Purchaser is experienced in the use of this device and is able to judge from his/her own expertise the suitability or otherwise of the product for the intended use. This limited warranty does not apply to products subjected to abnormal use or conditions, improper storage, damaged by accident, misuse or abuse, improper line voltage, products whose serial number has been altered, to products not shipped in accordance with the recommendations of ORIGIO EQUIPMENT , and/or to products altered or serviced by anyone other than ORIGIO EQUIPMENT authorized distributors. Distributor is responsible for the labor and travel costs during this period.

This limited warranty is exclusive and in lieu of all other warranties whether written, oral, expressed or implied. In particular, ORIGIO EQUIPMENT does not warrant that the product is suitable for the needs of the purchaser and there are no warranties given as to merchantability or fitness for a particular purpose other than the one specified in ORIGIO EQUIPMENT literature that accompanies every specific product.

ORIGIO EQUIPMENT reserves the right to change or discontinue this product without prior notice.

### **Liability:**

Because ORIGIO EQUIPMENT has no control or influence over the conditions under which this device is used, over its method of use or administration, or on handling of the product after it leaves its possession ORIGIO EQUIPMENT takes no responsibility for the results, use and/or performance of the product. ORIGIO EQUIPMENT expects that use of the product will be confined to trained and expert users.

In no event shall ORIGIO EQUIPMENT be liable for any direct or indirect damages including incidental, consequential or special damages, arising out of or in connection with the use or performance of the product.

If ORIGIO EQUIPMENT provides you with technical documentation, this does not authorize you to perform repairs, adjustments or alterations on the device or accessories.

No representative of ORIGIO EQUIPMENT and no vendor of the product is authorized to change any of the foregoing terms and conditions, and the purchaser accepts the product subject to all terms and conditions herein, subject always to any contrary provisions which are necessarily implied by stature or law notwithstanding the within terms and conditions.

### **Replacement:**

As mentioned in the Limited Warranty, The decision whether to provide any remedy or whether to refund any portion of the purchase price shall be at the discretion of ORIGIO EQUIPMENT.

Before returning a product for any reason, please contact your nearest ORIGIO EQUIPMENT distributor for assistance and instructions.