K-SYSTEMS®

L234 IVF CellTouch Class II Workstation

Instruction Manual

CE

a CooperSurgical Fertility Company

CooperSurgical

CONTENT

CONTENT CONT.

1. GENERAL INFORMATION & SERVICE

1.1 Intended Use

Intended Use

The intended use of the L234 IVF CellTouch is to establish a single workplace with a laminar flow hood for manipulations of embryos and blastocysts.

Significant performance characteristics

The K-SYSTEMS® L234 IVF CellTouch is a device for maintaining temperature and clean air conditions for gametes and/or embryos. The workstation is designed as a biological safety cabinet to protect both the embryos and the operator.

1.2 Operating Principles

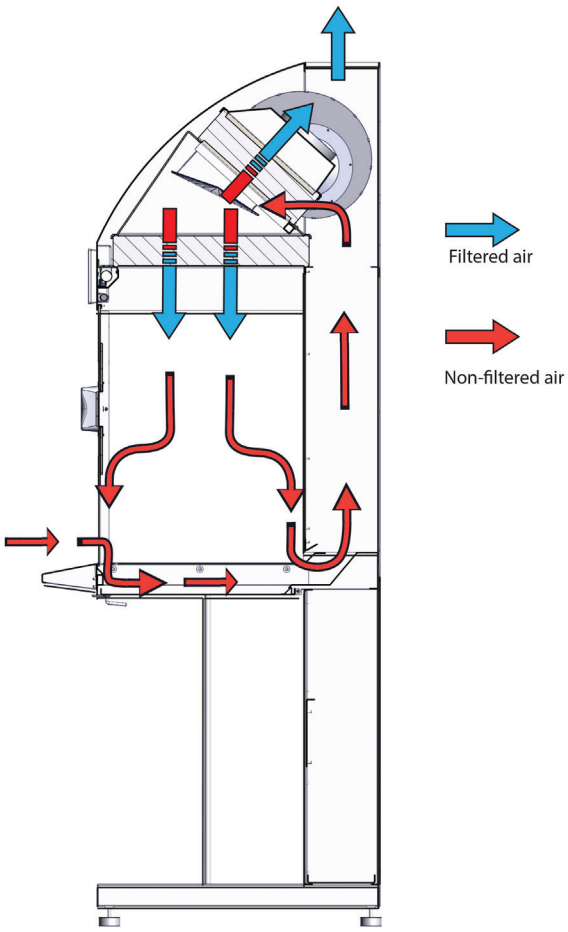
The idea is to achieve the best possible environment for gametes and embryos during the various procedures. A single aseptic workplace created by the controllable laminar flow (with two HEPA filters) and a recirculation of air flow through HEPA filters (app. 70% recirculation – app. 30% exhaust).

The average air speed inside the work area is approximately 0.30 m/s and the velocity is measured via an anemometer placed inside the work area. Any deviation from safe conditions will be indicated visually and acoustically. The HEPA filters are H14 grade filters having an efficiency of 99.995% regarding particles size < 0.3µm.

Incorporating a heated area together with the option of having humidified premixed gas helps in keeping correct pH-levels, required in various ART techniques.

The gas used for these workstations is a suitable premixed gas.

The workstations are prepared for the mounting of a stereo microscope, on the right hand side or on the left hand side. The workstation will be operated from a touchscreen, and is available with an integrated monitor as an option.



1.3 Copyright

Users of K-SYSTEMS products should not hesitate to contact us if there are any unclear points or ambiguities in this manual.

1.4 Customer Service Contact Information

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2. GENERAL INFORMATION & SERVICE

2.1 Pre-Operational Notes

- The unit is connected, the gas is attached and the unit is turned on - after 30 minutes the unit will be at a constant working temperature and air flow. An antiseptic work environment has been reached.
- Put on required personal protective gear, e.g. hand, face, or body protection.
- Place samples only within the defined work area of the workplate.
- Do not place unnecessary items in the sample chamber.
- Use only disinfected and cleaned accessories for the work process.
- Do not cause air turbulence, by quick hand, arm or body movement in the sample chamber or in front of the work opening.
- Do not place accessories into the sample chamber that cause air turbulence or emit excessive heat.
- Do not block air circulation at the ventilation slots of the workplate.
- Clean and disinfect sample chamber surfaces at regular intervals.

2.2 Requirements of the Operator/Intended User Profile

The L234 IVF CellTouch shall be used by skilled personnel trained in use of biological safety cabinet IVF workstations (Class II LAF benches).

The user profile is trained health professional, who as a qualified person perform the functions of fertilizing the human egg.

2.3 Operating Environment

The L234 IVF CellTouch is intended to be used at room temperature (20-30°C), in a clean room at medical clinics and hospital laboratories under steady conditions.

2.4 Applicability of the Instructions

- Keep the instructions close to the device, this way you ensure having easy access to the safety instructions and important information.
- Please note that the contents of this manual are subject to change without further notice.
- If you encounter problems that are not mentioned in this manual in detail, please contact your local Customer Service Representative for more information.

2.5 Warranty

CooperSurgical, Inc. warrants the operational safety and correct system operation of the whole unit under the condition that:

- The device is operated as described in the manuals
- The device has not been modified
- All service intervals are kept according to the manuals
- Only original spare parts and accessories that have been approved by CooperSurgical, Inc. are used

3. INTRODUCTION

3.1 Safety Symbols on the Unit

Warning: This equipment must be protectively earthed

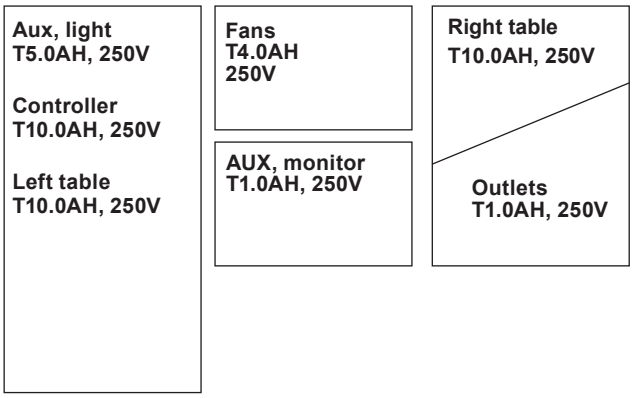
Consult instructions for use

ESD warning

Biohazard

Specific warning or precaution

Fuse Labels



Product Model Label

L234 IVF CellTouch

3.2 General Safety

WARNING

- Use only suitable premix gas. Use of other gasses could result in serious injury, depending on the gas connected.

CAUTION

- Make sure that the device is correctly earthed using grounding-type plug.
- Never place other heat generating equipment under the tabletop.
- Never attempt to block any of the air flow holes on the tabletop and on top of the unit.
- Make sure that all devices emitting electromagnetic radiation are kept at a reasonable distance from the L234 IVF Workstation to avoid any potential electromagnetic or other interferences.
- Make sure there are separate power circuits that are intended for use with medical equipment only.
- Never try to move the unit without consulting CooperSurgical or a person authorized by CooperSurgical.
- Read and understand the manual completely before use.
- Do not use the workstation if the outer packaging is damaged.
- Never use and handle this unit in other ways than specified in this manual, your safety may be at risk and the unit may be damaged.
- Do not perform repairs, disassembles, assembly operations, extensions, re-adjustments or modifications on this unit. This must be carried out only by CooperSurgical or by persons authorized by CooperSurgical.
- Do not work in the workspace area when the fans are switched off.
- Never use the device without the front windows correctly attached.
- Always wear full protective equipment and clothing (i.e. gloves, masks and general clean room clothing).

- Always have the hatch closed when using the unit.
- Never use the workstation without original K-SYSTEMS HEPA filters.
- Do not expose filters to liquids. Change filters that have been exposed to liquids.
- Never try to lift or move the unit alone.
- Always wear protective shoes while moving the unit.
- Protect the power cord.
- Always use a grounding-type plug. If the plug does not fit into your outlet, consult an electrician for replacement of the outlet.
- Unplug the unit during lightning storms or when unused for a long period of time.
- Reduce the risk of fire or electric shock. This equipment should not be exposed to rain or moisture and large objects filled with liquids (>500ml).

NOTICE

- **Do not** change the calibration value yourself. This should be done only by an authorized CooperSurgical service technician, as described in the service manual.
- **Do not** use the workstation at room temperatures exceeding 30 °C. The relative humidity must not exceed 75% (non-condensing).

4. SETUP

4.1 Environment

Temperature	20 – 30 °C
Humidity	Less than 75% (non-condensing)
Placement	On a flat, hard and stable surface. Unit must be kept away from heating and cooling devices.
Clearance	Allow at least 2 cm clearance from the rear, 30 cm from the top and 20 cm from left and right for proper ventilation.
Environment	**Indoor use only**. Avoid high temperature, moisture, water and dust. This unit must not be exposed to dripping or splashing. This unit is designed for use at altitudes under 2000 m.

4.2 Electromagnetic and Other Interferences

All electronic devices, especially electronic equipment containing radio senders and/or receivers, such as mobile phones, computers, and antennas, give off electromagnetic emissions. This is radiation that is a byproduct of electrical or magnetic activity. The emissions from such devices can interfere with other devices, causing potential problems.

Equipment can be affected by electromagnetic interferences from other devices in two major ways: one is direct effect through proximity with other devices, and the other is electrical interference from power lines. Therefore, it is strongly recommended to:

- Make sure all devices emitting electromagnetic radiation are kept a reasonable distance from the L234 Workstation to avoid any potential electromagnetic or other interference;
- Have separate power circuits that are intended for use for medical equipment only.

4.3 Safety Level

The L234 Workstation has two safety levels:

Standard:

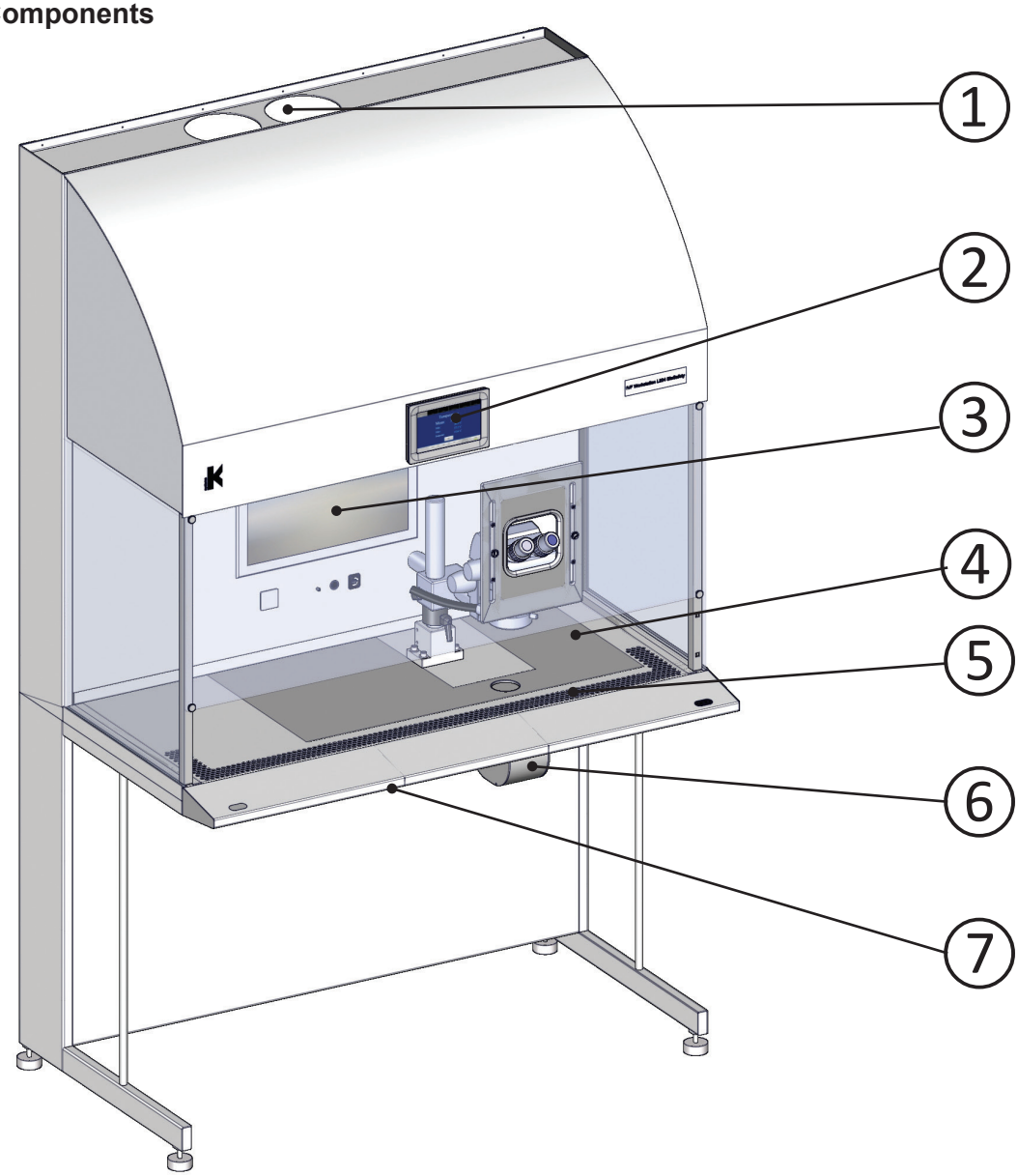
- It is possible to operate all features in the workstation individually.

High (High Safety Level is optional and only available in selected countries):

- The fan will always be at Full speed when turned on.
- Settings/features can only be operated when the fan is turned on.
- Lights and microsope lights cannot be operated unless the fan is turn on.
- In the time menu the fan timer changes so that it can only be set to: ON/OFF.
- All preprogramed Fan settings in Timer menu will be changed to full speed.
- Two flow-sensors are placed in the L234, one to monitor the downflow in work area and one to monitor the exhaust flow. Flow alarm will sound if any of the sensors detect flow disturbance.

5. FEATURES

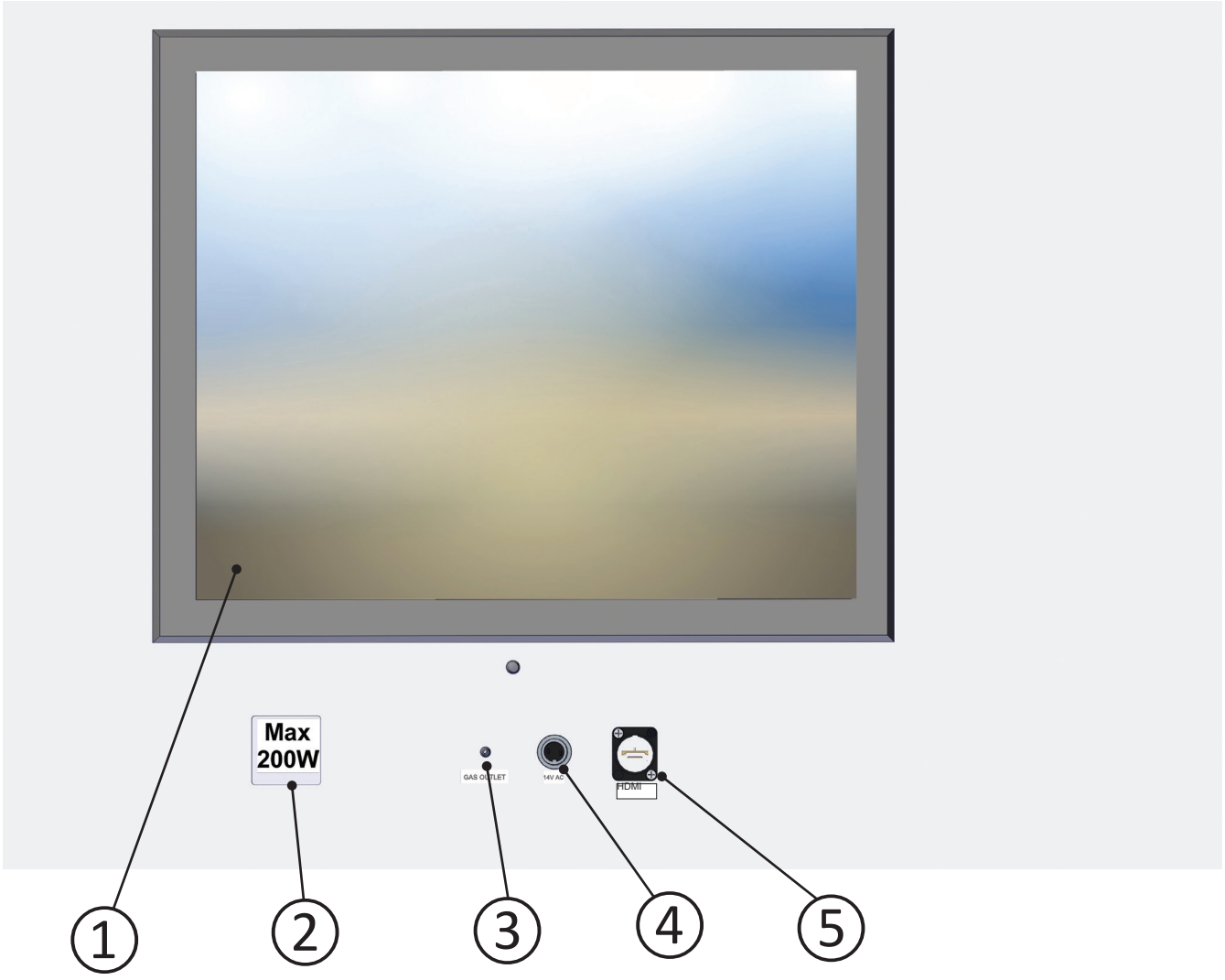
5.1 Main Components



COMPONENT	
1	Airflow outlet
2	Touch screen /Android unit
3	Monitor (optional)
4	Heat zones
5	Airflow inlet
6	Microscope light
7	Hatch

5.2 Inside the Unit

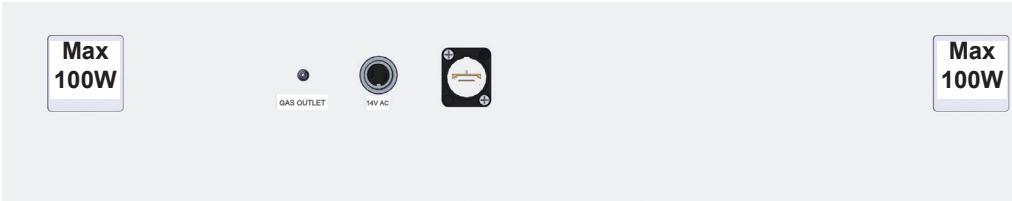
External computing devices connected to the Ethernet and HDMI connector of IVF workstation must only be Limited Power Source and SELV circuit according to the standards IEC/UL 60950-1.



COMPONENT	
1	Monitor (optional)
2	Power outlet 230 VAC / 115 VAC
3	Gas hose connector
4	Power outlet for video camera
5	HDMI connector for monitor

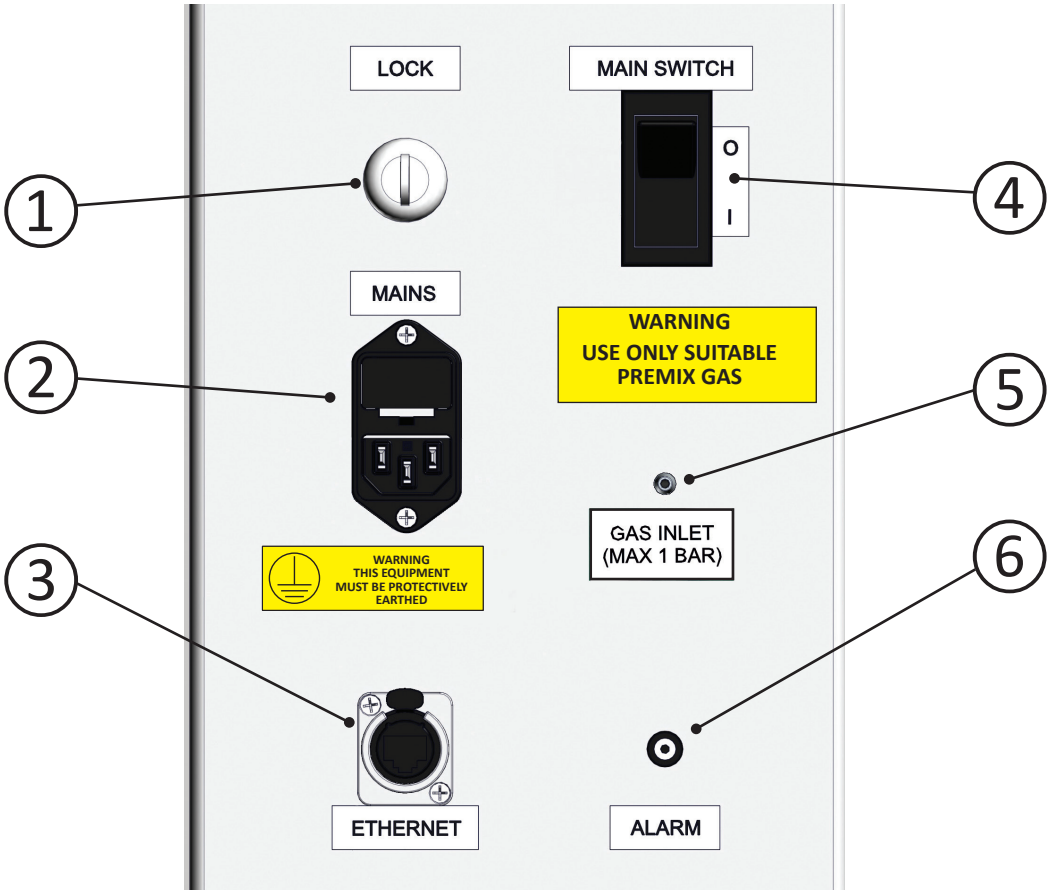
The unit may have an optional extra power outlet.

Max load is 100W per power outlet.



5.3 Connections Panel

External computing devices connected to the Ethernet and HDMI connector of workstation must only be Limited Power Source and SELV circuit according to the standards IEC/UL 60950-1.



COMPONENT	
1	Lock
2	Mains connection with fuse
3	Network connection
4	Main switch ON/OFF
5	Gas system connector
6	Alarm output (normally closed)

5.4 Airflow and Filter

The airflow keeps particles away from the operator. The air is filtrated through the HEPA filters to ensure it is clean when leaving and circulating through the unit (See **Section 1: General Information and Service**).

5.5 Touch Screen

With the exception of the microscope light, all functions and adjustments are accessed via the touch screen.

5.6 Microscope Light

The microscope light is adjustable (See **Section 9.3: Light Source (LS112/LS114 LED**).

5.7 AluHeat Technology

The units are equipped with adjustable heat zones. The heat zones are marked on the tabletop (See **Section 8: Temperature Set Point**).

5.8 Tray Hatch

The hatch allows access to the tray (See **Section 12: Maintenance**).

5.9 Lock

The unit has a lock with a set of keys. It is only possible to switch the unit on/off when it is unlocked and the key is in place (See **Section 7.4: Unit Lock**).

5.10 Network Connection

RJ45 network connector for optional data logger (See **Section 7.3: Data Logger PC Version Set-up**).

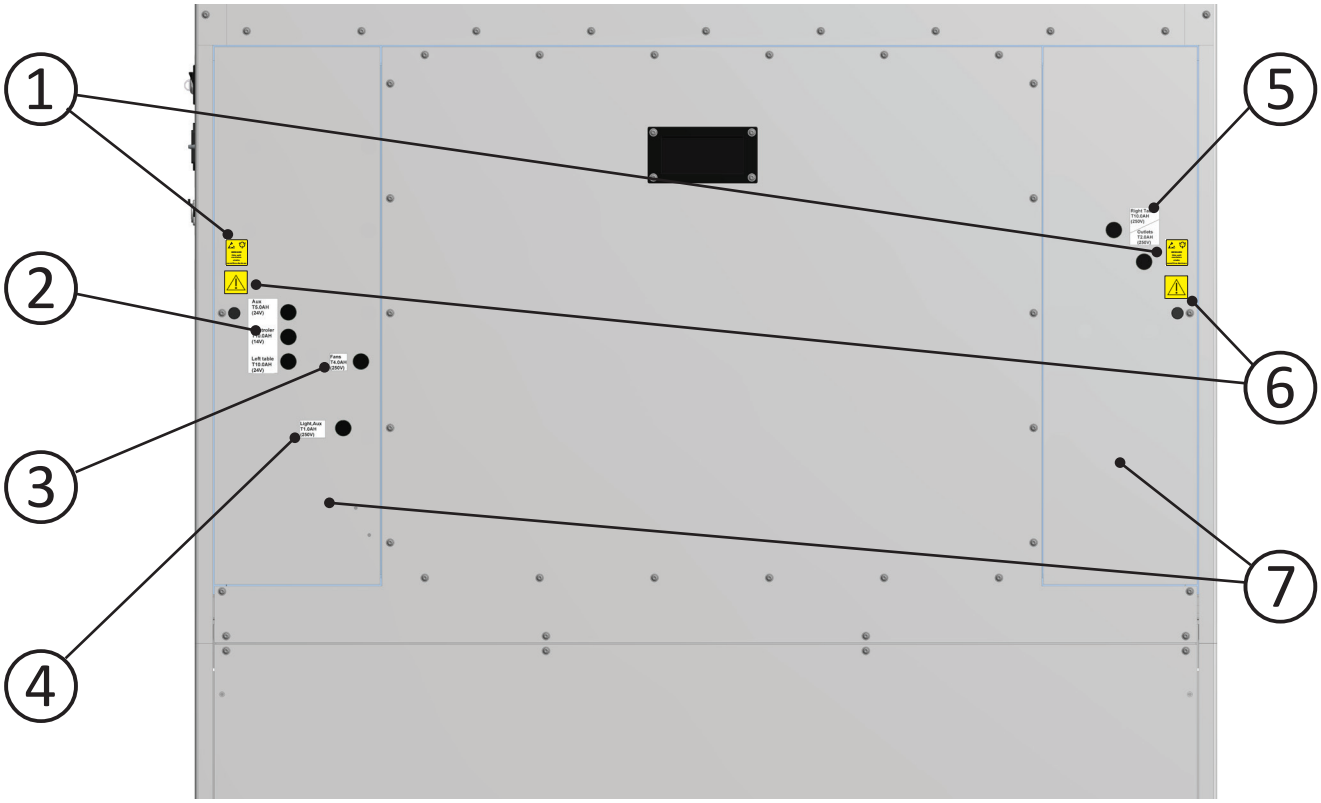
5.11 Gas System Connector

Gas hose connector for optional premix gas system GH01. (See the **Gas Equipment User Manual**).

5.12 Alarm Output

Output for external alarm system (e.g. sms alarm system). For more information, contact an authorized **Customer Service Representative**.

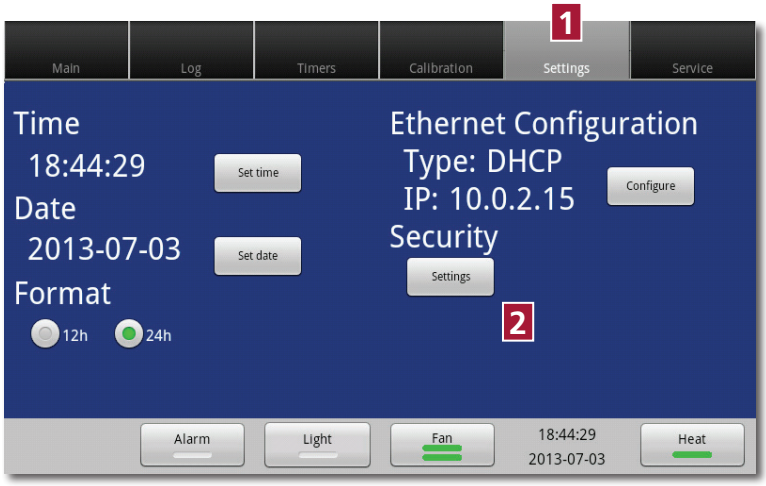
5.13 Backside of Unit



FEATURE	
1	ESD label
2	Left table, controller and auxiliary fuses
3	Fan fuse
4	Right table and outlets fuses
5	Light and AUX fuses
6	Warning labels (Shock hazard)
7	Technique hatches

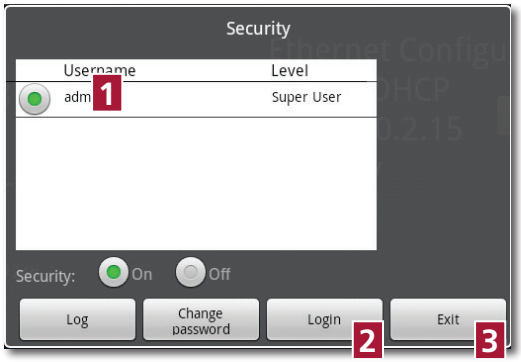
6. USER SETUP

6.1 Login



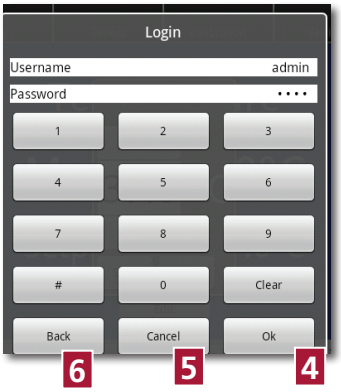
6.1.1 Press the **Settings** tab 1.

6.1.2 Press Settings 2 under Security.



6.1.3 The user “admin” (Factory setting) is the only active user upon delivery of the workstation. The admin’s password is 1234. The user “admin” cannot be deleted. However, the password is editable and should be changed.
(See **Change Password: Section 6.2**)

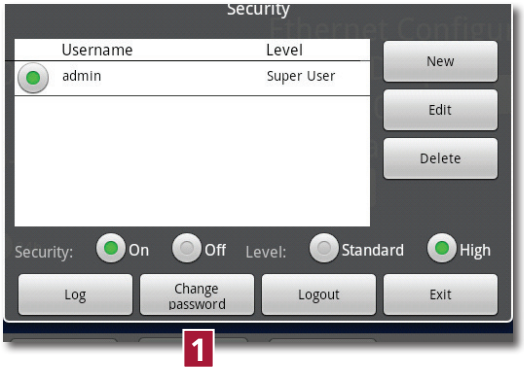
Press the “admin” user name 1 and press **Login** 2, or press **Exit** 3 to return to the previous menu.



6.1.4 Enter the password. The default password is 1234.

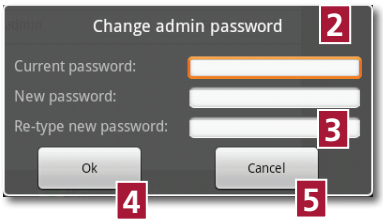
Press **OK** 4 to proceed, **Cancel** 5 to abort or **Back** 6 to return to the previous menu.

6.2 Change Password

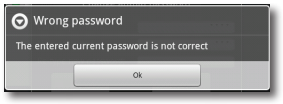


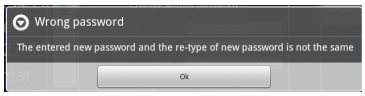
6.2.1 Press **Change password** 1.

6.2.2 Enter the current **password** 2. Enter the new password twice 3.
The password must be between 4 and 10 digits long.
Press **OK** 4 or **Cancel** 5 to abort.

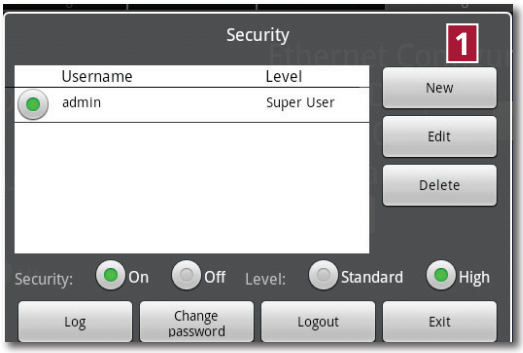


If you don't enter the same password twice,
this warning appears.





6.3 Create New User

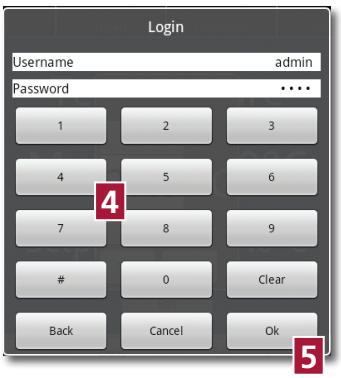


6.3.1 In the main window, Press **New** 1.

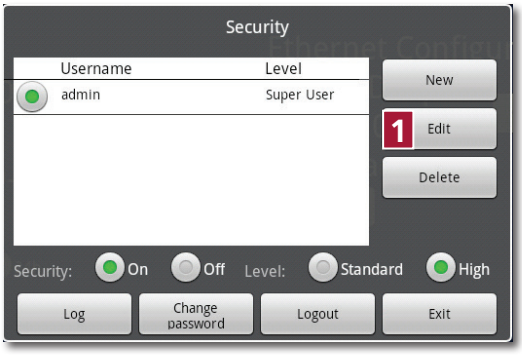
6.3.2 Select **Advanced** or **Super user** level 2.

6.3.3 When you press the buttons for the user's name 3,
a keyboard pops up.

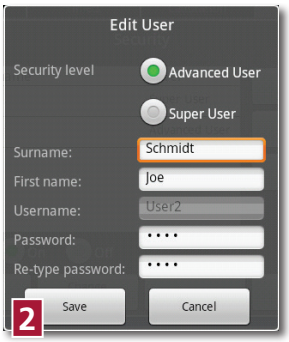
Enter **Surname**, **First name** and **User name**. Press **Next**.



6.3.4 When pressing the buttons for the password 4, the numeric keyboard pops up. Enter a password between 4 and 10 digits. Press **OK** 5.

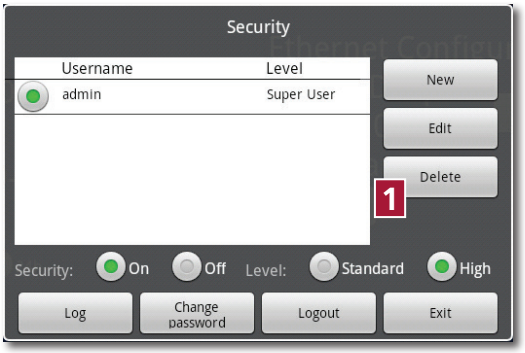


6.3.5 Select a user in the main window, and press **Edit** 1.



6.3.6 The security level, names and password can be edited here. Press **Save** 2 when done.

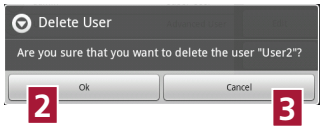
6.4 Delete User



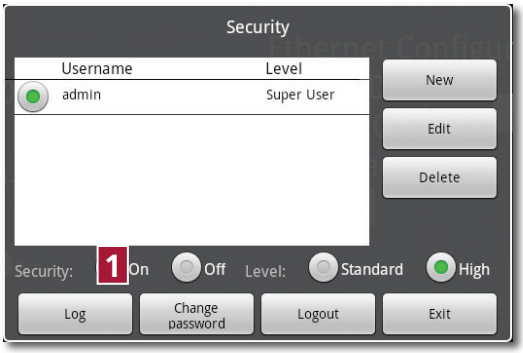
6.4.1 Select a user in the main window, and press **Delete** 1.

6.4.2 Press **OK** 2 to delete the user or **Cancel** 3 to return to the previous menu.

It is not possible to delete the “admin” user.

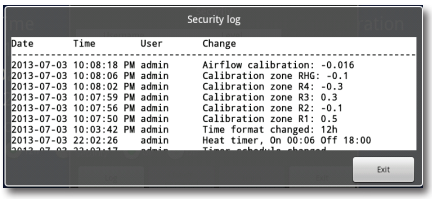


6.5 Log



6.5.1 In the main window press **Log** 1.

The log shows the last 100 changes including their date, time and user. You can slide the screen up and down.



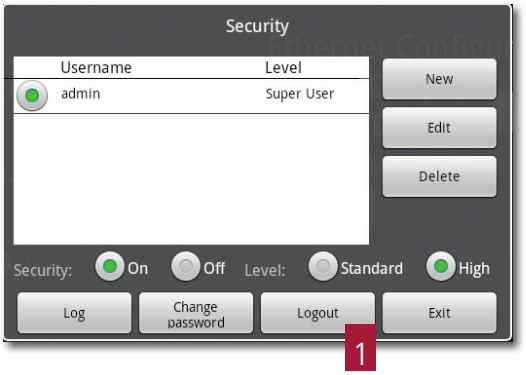
6.6 Logging Out

6.6.1 In the main window press **Logout** 1.

Super users will be automatically logged out after 5 minutes without activity.

6.7 Lost Password

If all super user passwords become lost, please contact your local K-SYSTEM distributor to acquire a special login that is calculated from the unit’s serial number.



6.8 Access Levels

To prevent unauthorized changes to setup parameters, the unit provides different access levels.

The unit supports 3 access levels: User, Advanced user and Super user. The access levels are described below:

USER (NO LOGIN REQUIRED)	ADVANCED USER (LOGIN REQUIRED)	SUPER USER (LOGIN REQUIRED)
• Switch heat and light ON/OFF • Switch fan ON/OFF/reduced • Move between the different tabs • See the alarm log • See the security log and users	Same as **User** and • Change setpoint • Change timers • Change settings • Change own password	Same as **Advanced user** and • Safety Level* • Calibration • Create new users • Edit users • Delete users

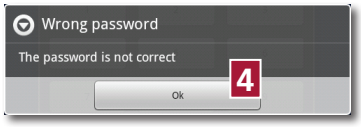
**Only in Safety Setting High*

6.8.1 When changing a parameter that requires authorization, the login window will pop up on the touch screen. If you leave the topic that requires login, you will automatically be logged out.

The popup only shows users possessing a valid access level. Press your user name 1 and press **OK** 2.

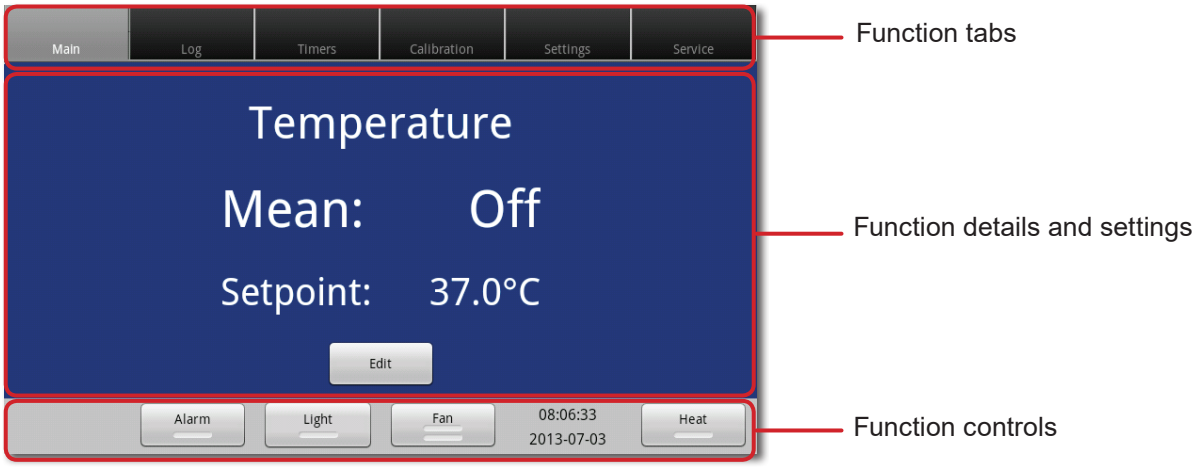
6.8.2 Enter your password and press **OK** 3.

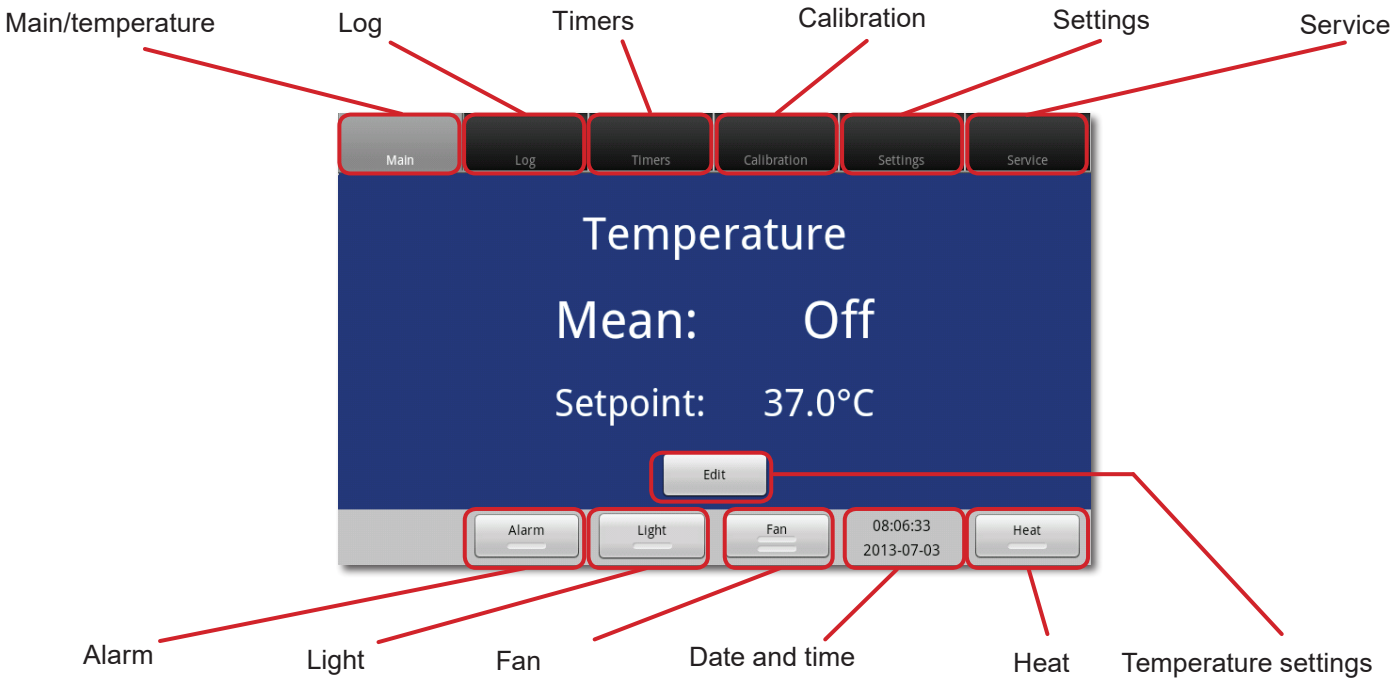
6.8.3 If you enter a wrong password, a message will be displayed. Press **OK** 4 and try again.



7. FUNCTIONS AND SETTINGS

You can control all the unit's functions and settings (except the microscope light) by touching the areas on the touch screen.





HEAT	ALARM	LIGHT	FAN
Heat Left **Off**	Alarm **Not set**	Light **Off**	Fan **Off**
Heat Left **Warming up**	Alarm **Set**	Light **On**	Fan **Half speed**
Heat Left **On**			Fan **Full speed**

7.1 Set Time and Date

You can control all the unit's functions and settings (except the microscope light) by touching the areas on the touch screen.

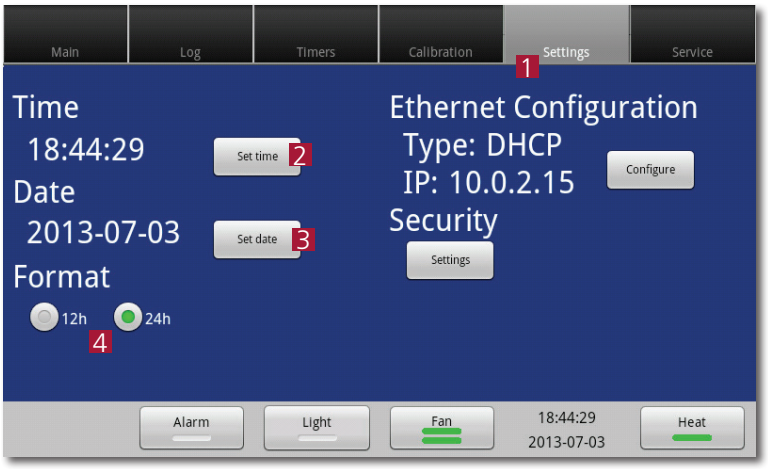
NOTE: Several of these settings require login. (See Section 6: **USER SETUP**).

7.1.1. Press the **Settings** tab 1.

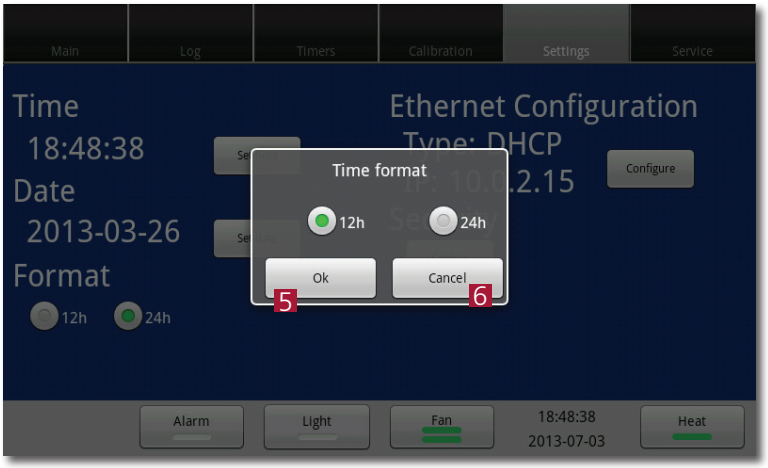
7.1.2 To adjust the time press **Set time** 2.

To adjust the date press **Set date** 3.

7.1.3 Select 12h or 24h time settings under **Format** 4.

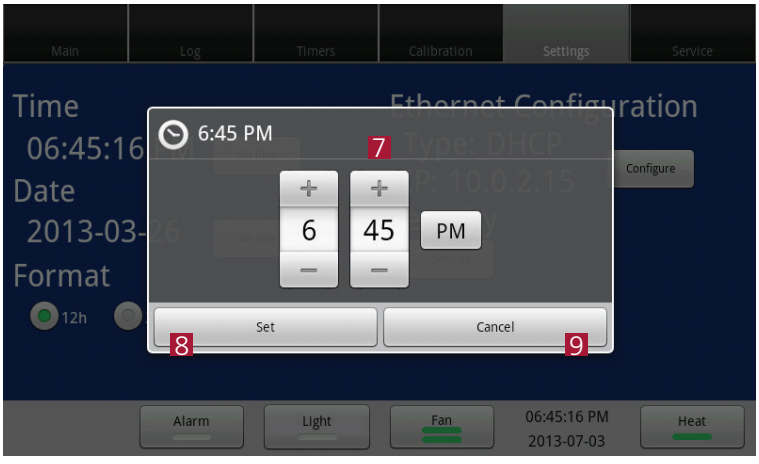


7.1.4 Select either 12h or 24h time settings, and press **OK** 5 to save the setting or **Cancel** 6 to return to the previous screen.



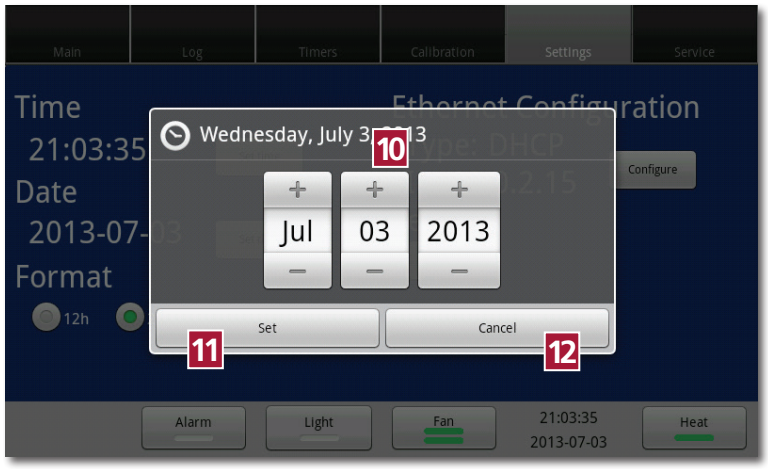
7.1.5 Press the **+** or **-** buttons 7 to adjust the time.

7.1.6 Press **Set** 8 to save the setting or **Cancel** 9 to return to the previous screen.



7.1.8 Press the **+** or **-** buttons 10 to adjust the date.

Press **Set** 11 to save the setting or **Cancel** 12 to return to previous screen.

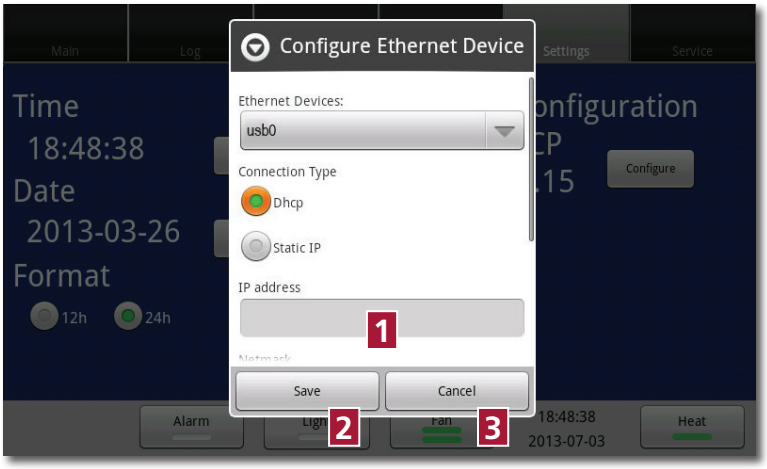


7.2 Ethernet Configuration

7.2.1 Select u**sb0, Dhcp** or static **IP**.

7.2.2 If you choose static ip, enter the static **IP** adress 1.

7.2.3 Press **Save** 2 to save the setting or **Cancel** 3 to return to the previous screen.



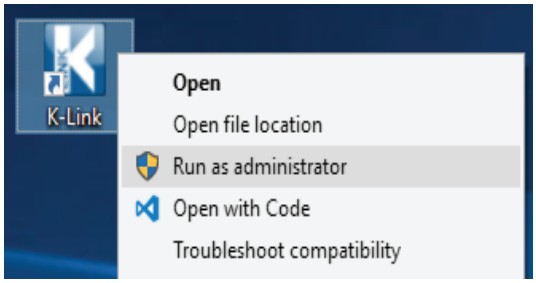
7.3 K-Link

K-Link software can be used to communicate with a L234 over a TCP/IP network to retrieve, display and save a log of measurements, warnings, and daily averages into a spreadsheet. K-Link can also be configured to send email notifications when alarms are triggered.

7.3.1 Starting K-Link

To launch the K-Link software, double click on the K-Link icon on the desktop or in the start menu.
NOTE: In order modify settings in K-Link such as adding a new device to the Device Connection list, or modifying email configuration settings, K-Link must be launched with elevated administrative privileges.

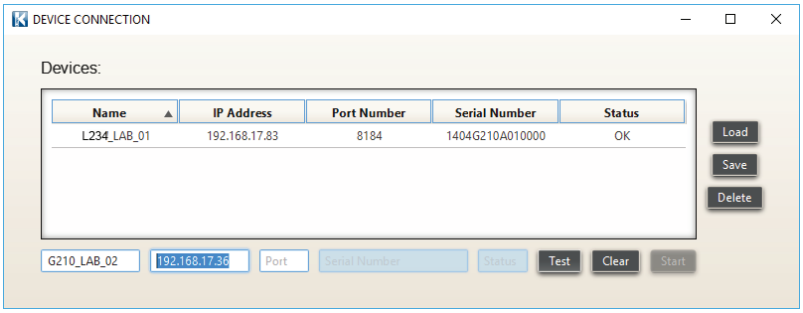
To launch K-Link with elevated administrative privileges, right-click on the K-Link icon, then click “Run as administrator”. You may be prompted to enter alternative credentials. Consult your IT Department for further details.



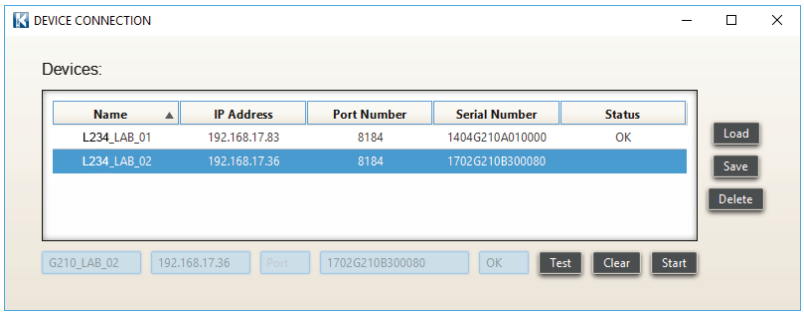
The K-Link loading screen is displayed for a few seconds while the software loads.

7.3.2 Device Connection

The device connection screen displays a list of previously saved devices to load. A new device can be added to this list by entering its IP address, then after performing a successful connection test, pressing “Save”.



After loading a device, and performing a successful connectivity test, indicated by status “OK”, logging can be started by pressing “Start”.



WARNING: Ensure that the system time of the computer running the K-Link software and the system time of the L234 have both been set to the correct time before proceeding.

NOTE: To ensure a stable connection between K-Link and the L234, it is recommended that the L234 be configured with a static IP address. Consult your IT department for IP configuration settings specific to your network.

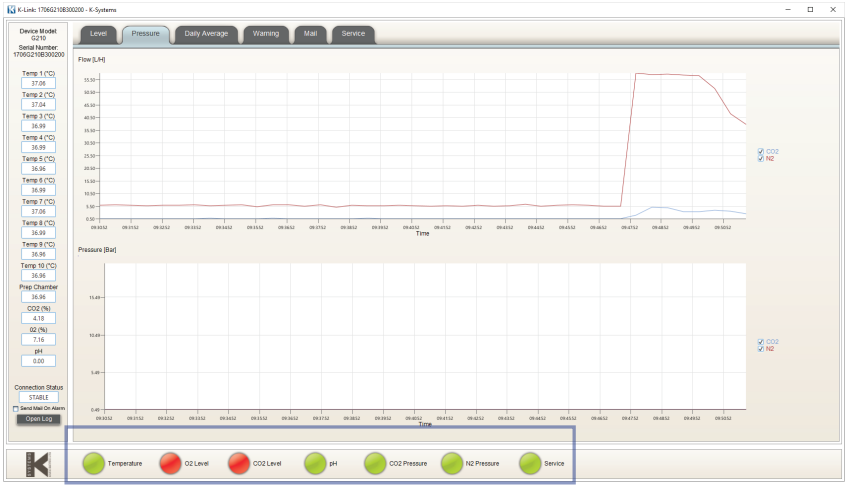
NOTE: After pressing “Start”, the device connection window will disappear, and the main window will appear. However, it can take up to 1 minute before any graph can be seen.

7.3.3 Measurement Section

The measurement section displays the measurements retrieved from the device every 30 seconds, the connection status of the device, a setting to enable or disable email notifications if an alarm is triggered, and an “Open Log” button to explore the folder containing the file where the logs are being saved.

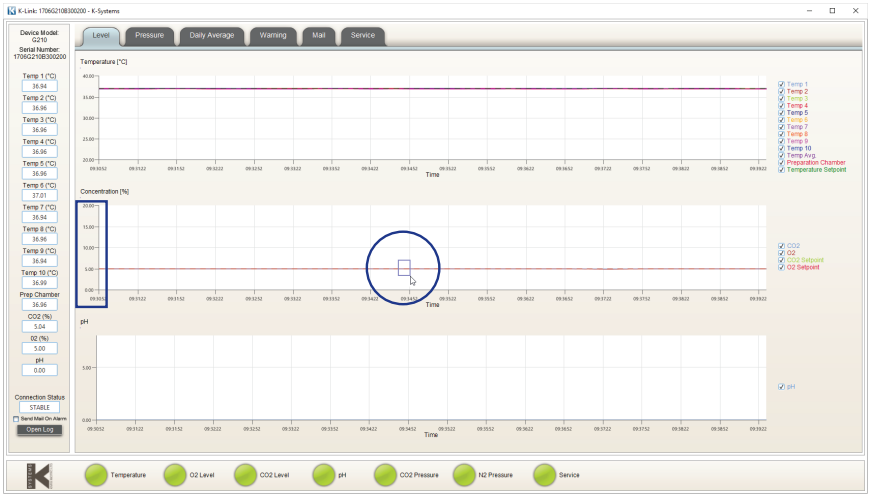
7.3.4 Alarm Display Section

The alarm section displays the status of the alarms. When an alarm is activated on the device, the associated alarm in K-Link will change colour to red. When the alarm is no longer activated on the device, the associated alarm in K-Link will change colour back to green. K-Link refreshes the alarms every 5 seconds.



7.3.5 Graph Section

The graphs displayed will automatically scale to fit the measurements however the Y-Axis can be adjusted by holding down the left mouse button and “dragging” a box around an area of interest then releasing the button. A single left-click anywhere on the graph will reset to the original scale.



7.3.6 Level Tab

The Level tab displays a graph of the gas concentration levels over time.

7.3.7 Pressure Tab

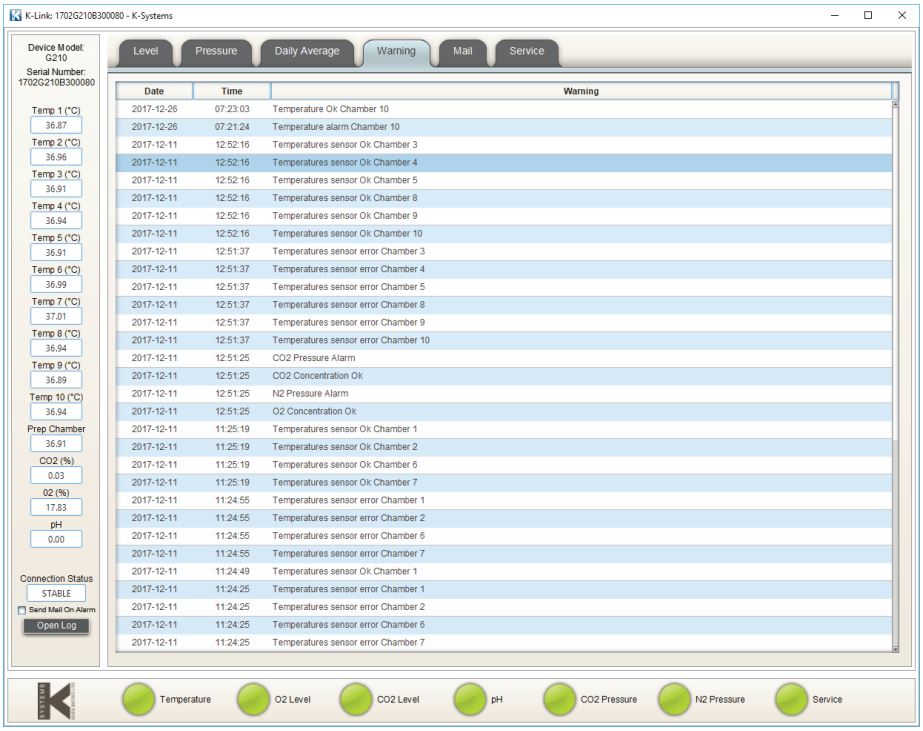
The Pressure tab displays a graph of the device measurements over time.

7.3.8 Daily Average Tab

The Daily Average tab displays daily averages for the individual measurements collected from the device every 24 hours.

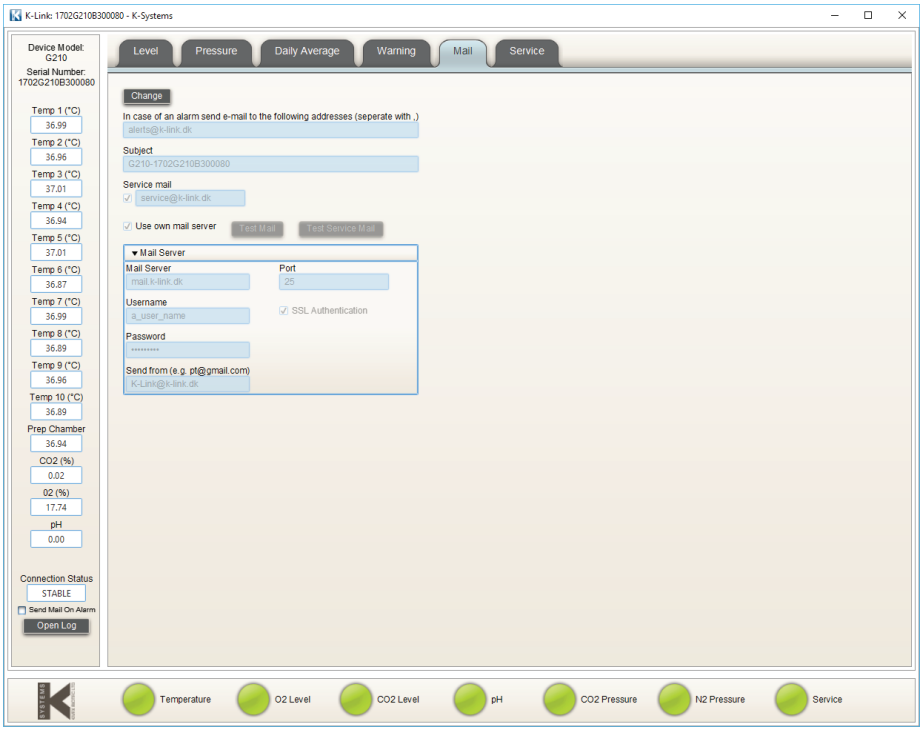
7.3.9 Warning Tab

The Warning tab displays information about the last 50 individual alarms.



7.3.10 Mail Tab

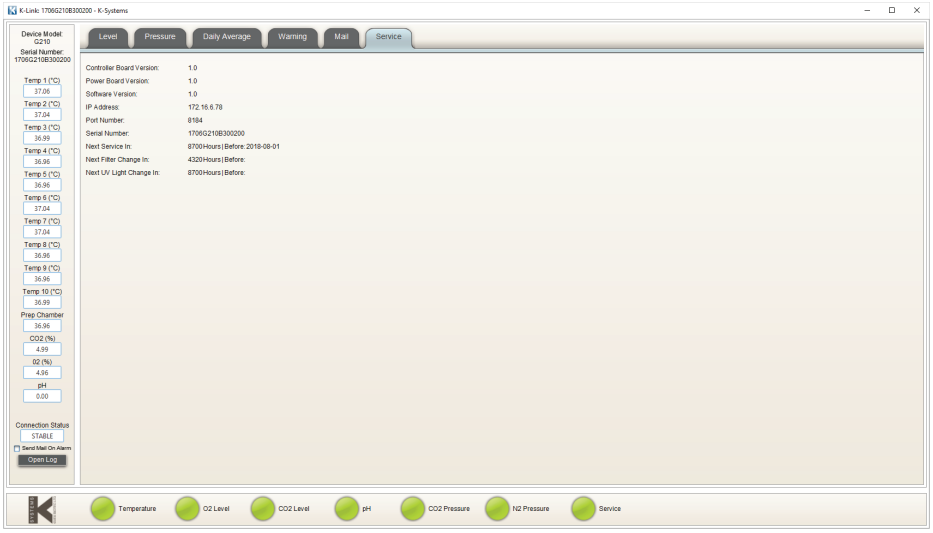
The Mail tab allows users to configure K-Link to email notifications about alarms and service information.



NOTE: It is recommended to configure K-Link to use your own mail server. Consult your IT Department for your mail server information.

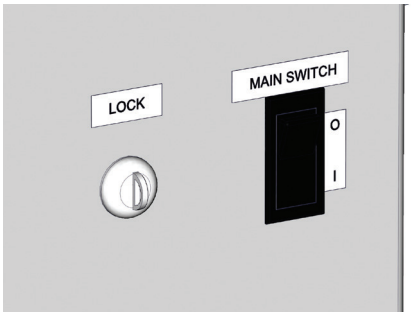
7.3.11 Service Tab

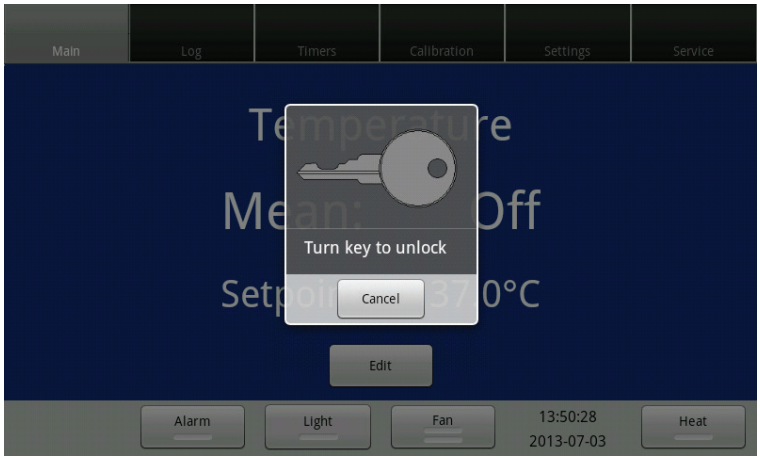
The service tab presents software versioning information, device connectivity and serial number information. It also shows counters to indicate when a general service check, a filter change or a UV light change should be conducted. When the counters time out, the service alarm light is triggered and will remain active until all counters are reset. K-Link refreshes information displayed in the service tab every 10 minutes.



7.4 Unit Lock

7.4.1 The unit cannot be switched on while it is locked. It is only possible to switch the unit on when it is unlocked and the key is in place. Turn the key on the units' side to unlock.

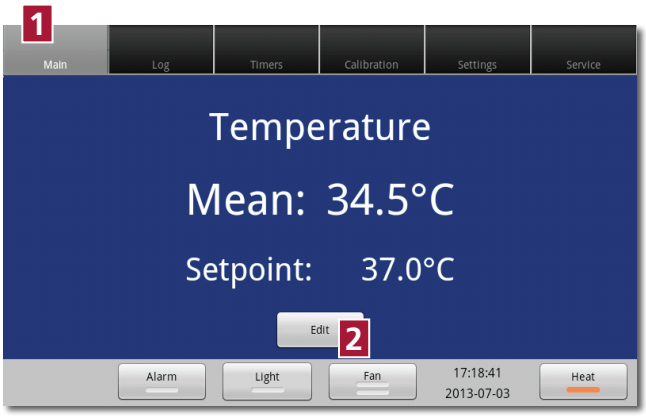




8. TEMPERATURE SETPOINT

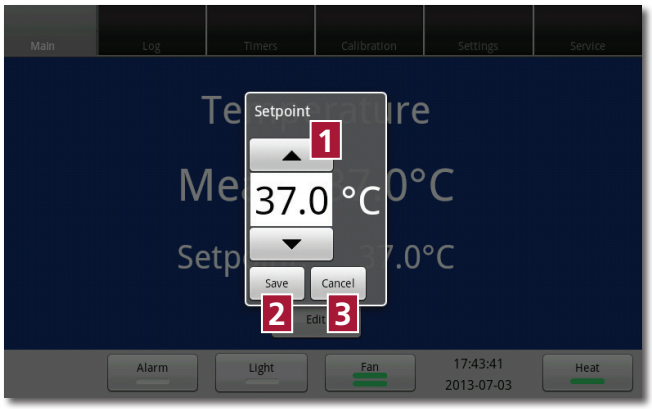
8.1 Adjust Temperature

NOTE: Several of these settings require login.
(See Section 6: **User SETUP**).



8.1.1 The temperature is displayed on the **Main** tab 1.

8.1.2 To adjust the temperature set point press **Edit** 2.



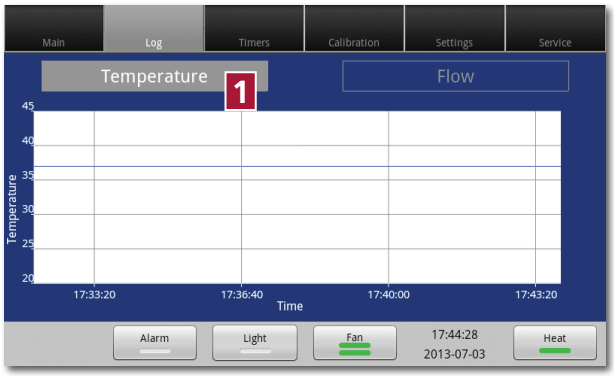
8.1.3 Press the arrow buttons 1 to adjust the temperature from 25 - 42 °C.

8.1.4 When you keep your finger on the button, the temperature will change in steps of 0.1 °C at a time within a range of 2 °C.

8.1.5 After that, the temperature will change in steps of 1 °C at a time.

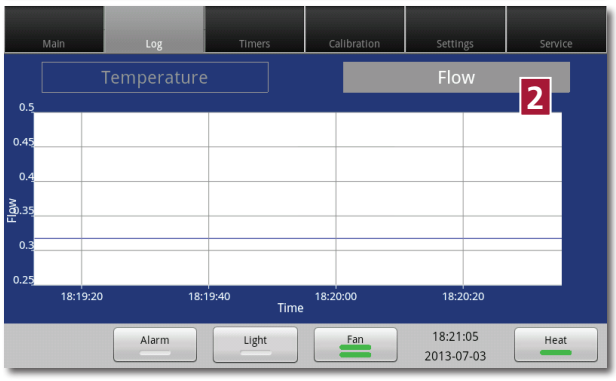
8.1.6 Press **Save** 2 to save the setting or **Cancel** 3 to return to the previous screen.

8.2 Logs



8.2.1 The temperature log is displayed on the **Log** tab 1.

The log interval is 30 seconds and the graph shows the last 3 hours.



8.2.2 The flow log is displayed on the **Log** tab 2.

The log interval is 30 seconds and the graph shows the last 3 hours.

8.3 Timers Schedule

8.3.1 The timers schedule lets users give the timers different settings on different days during the week.

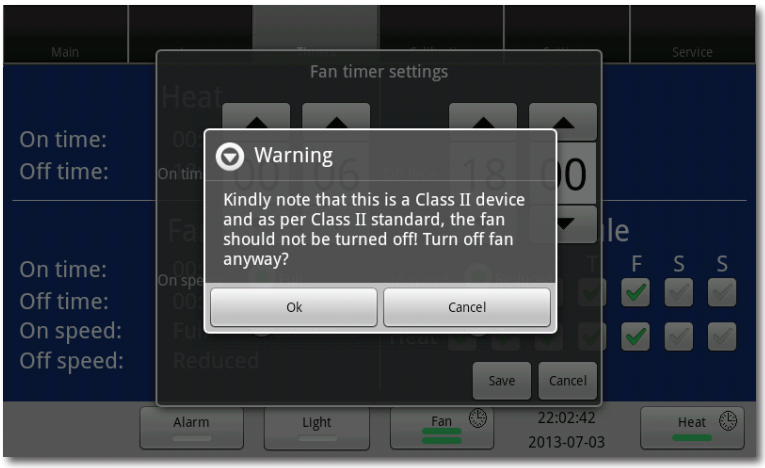
Press the **Edit** buttons 1 to set up a weekly schedule for the fan timer and the heat timer.

8.3.2 Press the day buttons for the fan and / or the heat. Press **OK** 2 to save the setting or **Cancel** 3 to return to the previous screen.

In this example the fan and heat timer is set weekdays.

8.3.3 When one or more timers are set, a clock icon 4 is displayed on the relevant button.

If you set a timer that turns the fan completely off, this warning appears.



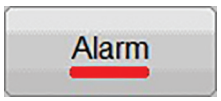
When option High is selected in security settings, only High speed for the Fan is an option.

8.4 Alarm

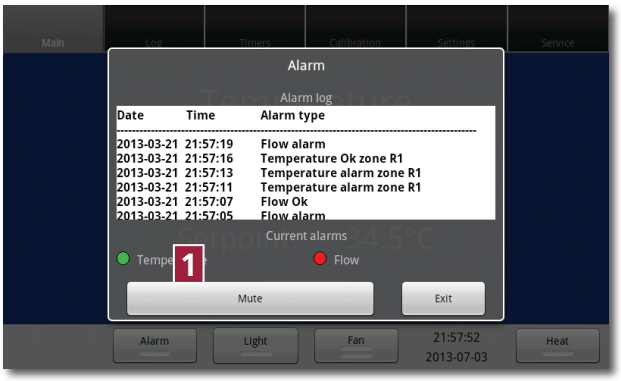
8.4.1 The alarm will be activated:

- If the heat zone's temperature is too high or too low
- If the airflow is too low
- When the HEPA filter must be checked
- When there is a hardware error

A flashing red light on the alarm button indicates that an alarm has been activated.
An audio alarm will be heard. Press the alarm button to open the alarm message box.



8.4.2 The alarm box shows information about the current alarm.
Press **Mute** 1 to turn off the audio alarm's sound.



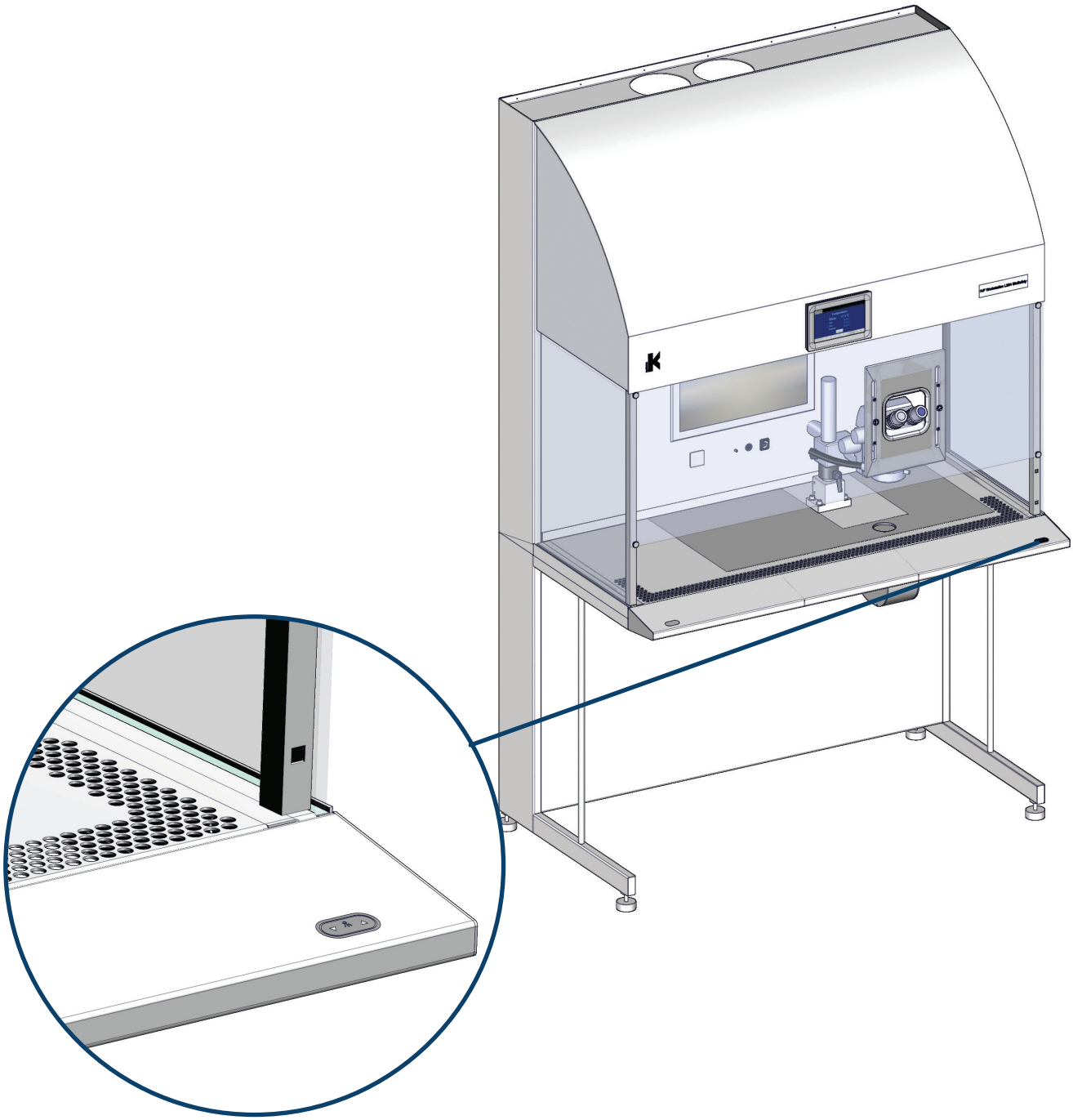
In case of a hardware error a message and an error code will be shown.

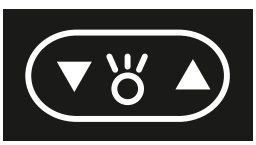
NOTE: The unit is equipped with an external alarm connector, which can be connected to a monitoring device. The connector can be connected to either a voltage source or a current source.

NOTE: For more information about alarms, see **Section 13: Troubleshooting.**

For more information about the external alarm connector, see **Section 15: Technical Data**.

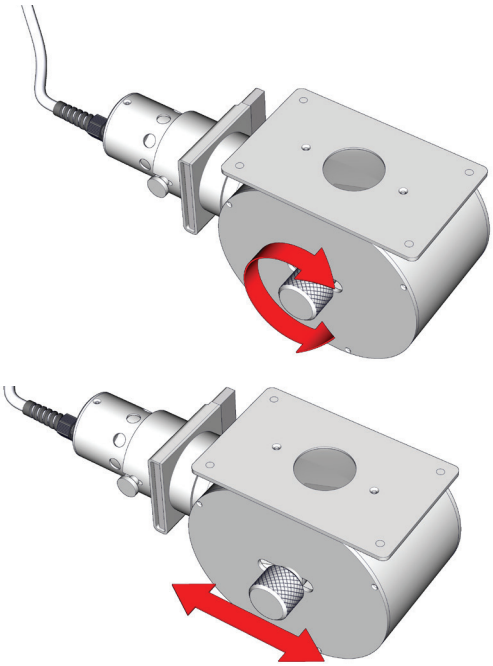
9. MICROSCOPE LIGHT

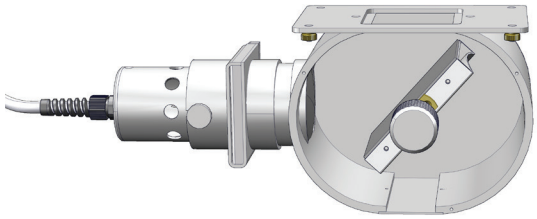


MICROSCOPE LIGHT		
	Turn on	▼ or ▲
	Increase light	▲
	Decrease light	▼
	Switch off	▼ and ▲

9.1 Microscope Light Unit

The microscope light units are equipped with an adjustable dual-sided mirror with a plane side and a concave side. The plane mirror is often used for high magnifications, and the concave mirror is used for lower magnifications. Turn the mirror knob 180° to switch between the two mirrors. Position the mirror almost vertical to use **dark field illumination.**

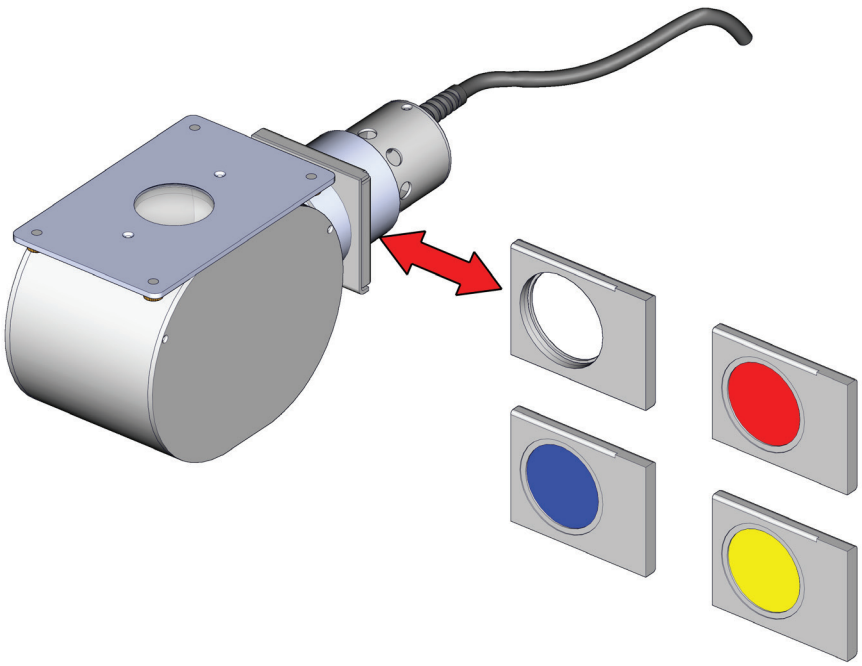




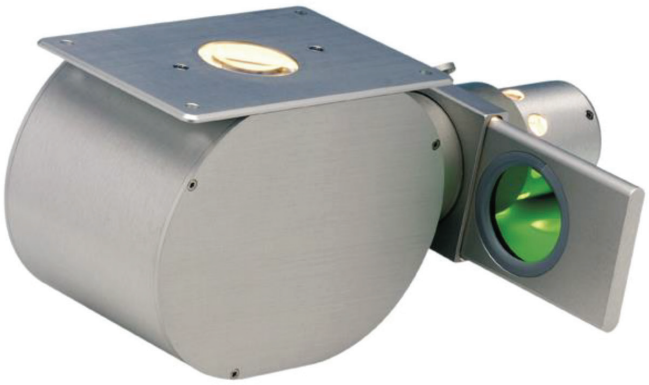
The mirror knob can be turned and moved horizontally to adjust the light.

9.2 Filters

The filter holder can be equipped with colored filters for creating different light effects.



9.3 Light Source (LS112/LS114 LED)



9.3.1 Unpacking and Inspection

Check that all accessories are included. Check the Light Source for external surface damage.

9.3.2 General Description

The LS112/LS114 Light Source with LED LIGHT is designed for inspection of gametes and embryos.
The design of the mirror makes it posible to position the light, which enhances different morphological characters of the cells. Additionally, the Light Source has virtual dark field illlumination and slots for green, red or blue filters.

LS112 and LS114 are desgined to be installed in K-SYSTEMS Workstations.

ORDER CODE	DESCRIPTION
41093	LS112 LED Light Source for 100, 400, and 600 series
53794	LS114 LED Light Source for 200 series

9.3.3 Installation

1. Position the Light Source under the workstation tabletop with the lamp house pointing toward the rear of the workstation.

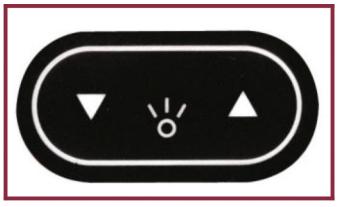
2. Fasten the Light Source under the workstation table plate as shown, using the finger nuts provided. Be sure that the light soil is in level and the nuts are fastened.

3. Connect the 2-pin Light Source power cord to the socket.

9.3.4 Operating Instructions

When installed in the K-SYSTEMS Workstation, the Light Source will be connected to the workstation's keyboard

1. 'On' Function
   Turn on the light source by pressing the "arrow up" key ▲.The light will now illuminate.
2. To Increase the Light Intensity
   Hold the UP key until preferred light intensity is reached.



3. To Decrease the Light Intensity
   Hold the DOWN key until preferred light intensity is reached.
4. "OFF" Function
   The microscope light is switched OFF by simultaneously pressing both the UP and DOWN key.

5. Adjusting the Mirror

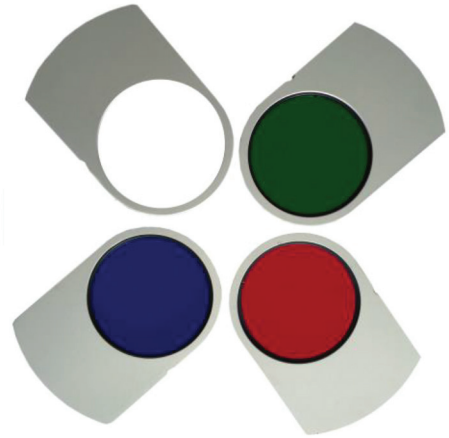
The knob for adjusting the miror is placed on the left hand side of the Light Source. The rotating mirror has two different sides. One side is a plane mirror, while the other is concave.

The plane mirror is used when a high magnification is needed and the concave mirror is used for when lower magnification is needed. Virtual dark field is obtained by postioning the mirror almost vertically.

The mirror can be rotated 360 degrees in a rotational pattern and moved 45 mm horizontally, which enables positioning for an optimal lighting of the object.

The LS112/LS114 can be supplied with filters for specific light conditions

1. No filter inserted (included)
2. Green filter
3. Red filter
4. Blue filter



9.3.5 Maintenance

1. Cleaning
Clean all surfaces with a 70% alchohol solution on a clean cloth or lint-free paper towel.

2. Replacement of LED Lamp House
Any replacement of the housing for the LED light must be performed by qualified service personnel.

9.3.6 Accessories

FILTERS	DESCRIPTION
41103	Green FIlter
41104	Red FIlter
41105	Blue Filter

9.3.7 Troubleshooting

PROBLEM	SOLUTION
No Light	Not conected to the power supply—check connection
	The light can be OFF. Press and hold UP key (▲) for 5 seconds
	The LED is broken, contact your authorized service provider.
	The bulb has to be replaced.

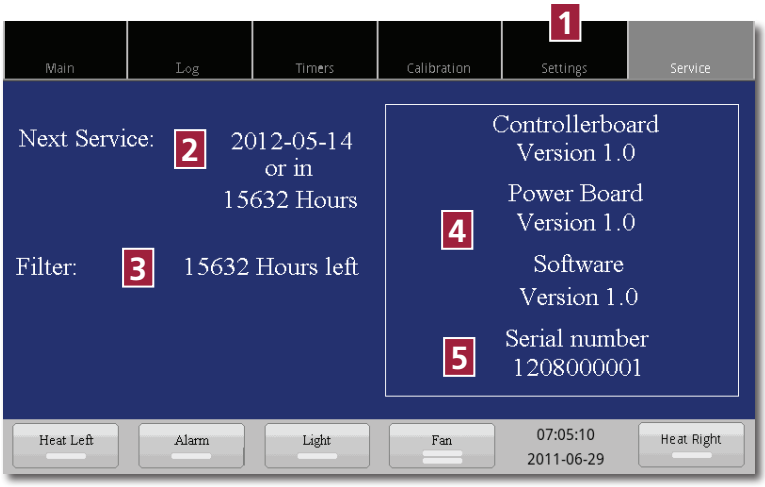
9.3.8 Technical Data

LIGHT SOURCE	
Weight	1.8 kg
Width	96 mm
LED	
Lumen	800 lm
Material	Aluminium

9.3.9 Spare Parts LS112/LS114 LED Light Source

ORDER CODE	DESCRIPTION
41094	LS112 Lamp Holder
53795	LS114 Lamp Holder
51039	Connector 2-pin socket male
51040	Cable for LS112/LS114
52238	Glass mat for LS112/LS114
51041	Glad Spiral Top
52159	Brass Nut

10. SERVICE INFORMATION



10.1 The Service tab 1 provides service information.

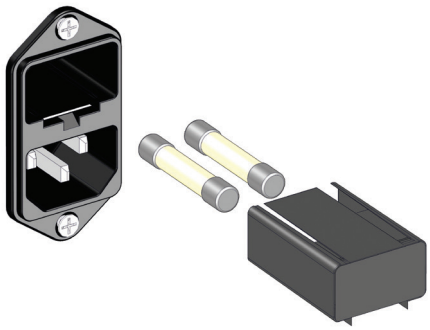
2 Hours to next service.

3 Hours to next filter change.

4 Version information.

5 Serial number.

10.2 Fuses



10.2.1 To gain access to the main fuse, pry open the fuse compartment lid with a screwdriver.

10.2.2 To gain access to the fuses on the units backside, unscrew the fuse top holder.

11. OPERATION

11.1 Clean the unit

The work chamber must be carefully cleaned and/or disinfected. Use only 70% ethanol or similar. NEVER use ammonia or chlorinated cleaners. It is recommended to use special lint-free wipes. Remember to clean the gas hose connector sitting inside and outside of the unit.

⚠ **DANGER:** Ethanol is highly flammable. Keep it away from open flames. Unplug all electrical equipment. Use only in well-ventilated room.

- **Personal protection**
  During cleaning the operator must wear full protective gear.

- **Clean the tools**
  Objects and tools must be carefully cleaned and/or disinfected before bringing them into the unit.

- **Switch the heat on if needed**
  Allow the unit to reach the set point temperature. The temperature is shown on the touch screen display.

- **Start the fan**
  The fan must run at normal speed for at least 30 minutes prior to working inside the unit.

- **Avoid movement**
  Tools and objects must be placed within reach to avoid unnecessary movement inside the unit.

- **Do not overfill the working area**
  It is important to keep the air flow as undisturbed as possible. Therefore, never overload the work chamber - insert only tools and objects necessary for the actual work.

- **Wear protective clothing**
  Wear protective clothing to reduce particle emissions from the operator (i.e. gloves, masks and general clean room clothing). Special attention should be given to hands and the lower parts of the arms.

- **Use premix gas**
  Use only suitable premix gas. Always use appropriate in-line filters for input gas to the unit. Make sure that the gas supply pressure is kept at a stable level, typically at 0.5-0.7 bar.

⚠ **CAUTION**

- Always have the hatch closed when in operation.
- Never use the device without the front windows correctly attached.
- Always cover the air velocity sensor head before initiating any cleaning procedure on the working area.
- Never cover the air velocity sensor head when using the unit.

11.2 General Workflow Overview

1. Insert the key and unlock the unit

2. Turn the unit on

3. Turn on gas supply

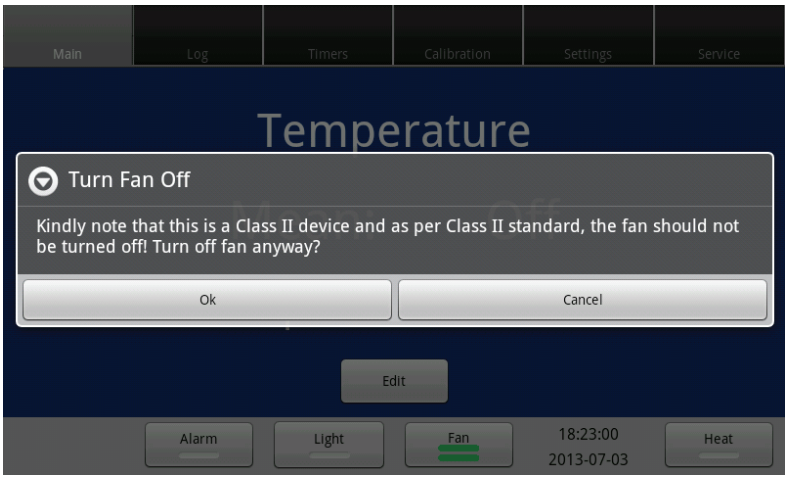
4. Wait 30 minutes until the temperature and the air flow are constant

CAUTION

Do not use the workstation if the alarm system has issued a failure message and the cause for the failure has not been addressed.

11.3 Fans

The fans of this unit are designed to run at all time. If you stop the fans, this warning appears.



11.4 Monitor

11.4.1 Description

The monitor is a high grade Liquid Crystal Display (LCD) dual-input flat panel monitor. It features a 19” Thin Film Transistor (TFT) with anti-glare treatment. A super wide 170° viewing angle and 1600 X 1200 resolution.

The monitor has 3 inputs allowing it to be connected to most types of computers, cameras or video units. One is digital (VGA) and the two others are analog inputs (composite and S-VHS).

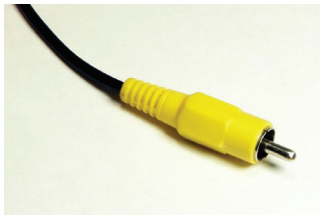
Composite (yellow) cable and a VGA cable (blue or black) will be connected to the monitor when the workstation is shipped. The monitor will be set up for auto switching between the signals. This means that the monitor will recognize the input type itself and adjust the picture to it. When there is no signal the monitor will remain black.

NOTE: Only connect one type of signal to the monitor at a time or use the switch function on the keyboard.

See the following for a description for other types of connectors and suggested alternative connection possibilities.

11.4.2 Connectors and Cables

a. Composite Video Connector
This is for a camera or video recorder.



b. Composite to S-VHS Adapter
A converter piece is supplied that will allow S-VHS input on the composite cable.

c. S-VHS Video and Audio Connector
(Not connected as standard from the factory)

11.4.3 DE–15 Male VGA Connector

This cable is for a computer to use the monitor as a screen.

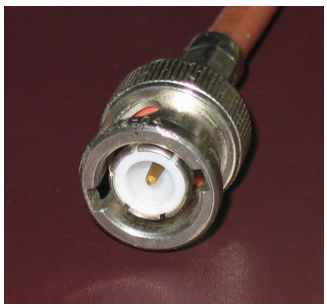
11.4.4 Connecting the Monitor to a Computer

Connect the monitor to a computer by attaching the VGA cable (blue or black) to the output connector of the computer. If the computer only features a DVI output, a VGA to DVI adapter must be used (not supplied with the workstation).

11.4.5 Connecting to a Camera

CCD cameras come equipped with varied types of connectors. The most common are Composite or S-VHS. The yellow cable is connected to the camera by using the composite to S-VHS adapter supplied with the workstation.

1. BNC Connectors
Some cameras also use a BNC connector



2. BNC to Composite

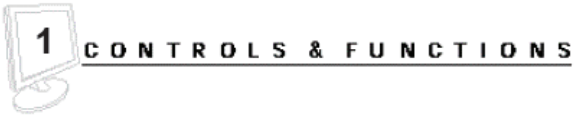
Converts the BNC connector on the camera to a female composite that will fit the installed cable on the workstation (This converter is not suppllied with the workstation).

11.4.6 Service

To access the monitor inputs, the back panel of the workstation must be taken off. This should be done only by qualified and trained persons.

11.4.7 Monitor Controls and Functions

The monitor features a jog wheel on the lower right hand side. When this is pressed and held for a second, a menu will appear on the monitor. The menu is described in detail in the following pages.



PreVu™ On-Screen Display

The LCD monitor features an PreVu™ On Screen Display (OSD) menu with easily identifiable icons designed to make adjusting your monitor display settings a more user friendly process. When highlighted, the icon illustrates the control function and brief instruction to assist the user in identifying which control needs adjustment.

The OSD menu is activated by pressing the Control Dial inward and you can select and adjust the function of your choice by rotating and clicking the Control Dial. The main menu displays a list of submenu icons and the current video input mode. Rotate the dial to move the highlights to the control you would like to adjust, then press the Control Dial inward to select that control or to activate that function. Depending on the control you selected, a submenu of the control with a status bar will appear. The status bar indicates in which direction, from the factory preset, your adjustments are being made. Rotate the Control Dial to adjust the control.

When you have finished making the adjustments, the setting is saved automatically by exiting the control function. If you do not touch the control dial for 20 seconds, the OSD is automatically exited saving your current settings.

Auto Setup

Selecting and executing this control makes automatic adjustments to the horizontal and vertical size, horizontal and vertical positions, frequency and phase for a quick and easy setup of the display. There will be a few seconds of delay while the Auto Setup function is in process.

2 CONTROLS & FUNCTIONS

Picture

Selecting this control allows you to select brightness, contrast, black level, sharpness, position, clock/phase.

Brightness

Selecting this control allows you to make adjustments to the luminosity level of the display screen in the scale of 0 to 100.

Rotating the Control Dial up/down to adjust the Brightness any time while the OSD is off.

Contrast

Selecting this control allows you to make adjustments to the contrast level of the display screen in the scale of 0 to 100.

Black Level

Selecting this control allows you to make adjustments to the black level of the display screen in the scale of 0 to 100.

Sharpness

Selecting this control allows you to make adjustments to the sharpness of the display screen in the scale.

Position

Selecting this control, then rotate contral dial to select the Horizontal or Vertical position control on the screen.

3 CONTROLS & FUNCTIONS

H-Position

Select this control and then use the Control Dial to center the image horizontally on the screen.

V-Position

Select this control and then use the Control Dial to center the image vertically on the screen.

Clock/Phase

Select this control and then use the Control Dial to select clock or phase.

Clock

Selecting this control allows you to adjust the frequency, sampling rate of horizontal pixels, to equal the video source's value, thus minimizing the screen artifacts of shimmering vertical lines.

Phase

Selecting this control allows you to adjust the screen image appear crisp and focused. Normally, the Auto Tune is sufficient to complete this task in the automatic way without user intervention, the Phase control allows you to adjust it manually in more precise manner.

4 CONTROLS & FUNCTIONS

Color Temp
Select this control, then use the Control Dial to select preset color temperature of Cool, Neutral, Warm or User for customized red, green and blue levels.

Cool : Selecting this control then use control dial to select cool.
Cool Ideal for general use. CAD/CAM.

Neutral : Selecting this control then use control daial to select neutral.
Neutral Ideal for desktop publishing.

Warm : Selecting this control then use control dial to select warm.
Warm Ideal for photo retouching.

USER : Adjust the Red (R Gain), G (G Gain) and B (B Gain) individually to match personal preference.

5 CONTROLS & FUNCTIONS

Management
Selecting this control, then use Control Dial to select Scaling, OSD Display, Language, Source or Recall.

OSD Display
Selecting this submenu allows you to adjust various settings of the OSD to make the display adjustment process an easier task.

H.Position (OSD Horizontal Position)
Selecting this control allows you to move the OSD menu horizontally on the screen.

V.Position (OSD Vertical Position)
Selecting this control allows you to move the OSD menu vertically on the screen.

6 CONTROLS & FUNCTIONS

Language

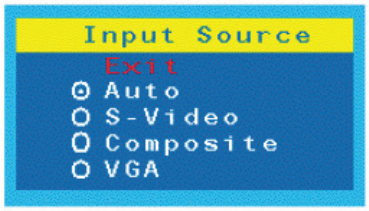
Selecting this control, then rotate the Control Dial to select the language you want. Press the Control Dial to excute when selected.

Recall

Selecting this control restores all of the OSD control adjustments to the factory default settings.

Input Source

Selecting this control allows you to manually select S-Video Composite VGA or to automatically detect input sources all.



Volume

Selecting this control to Volume a scaling.

Exit

Selecting this exits the OSD.

12. MAINTENANCE

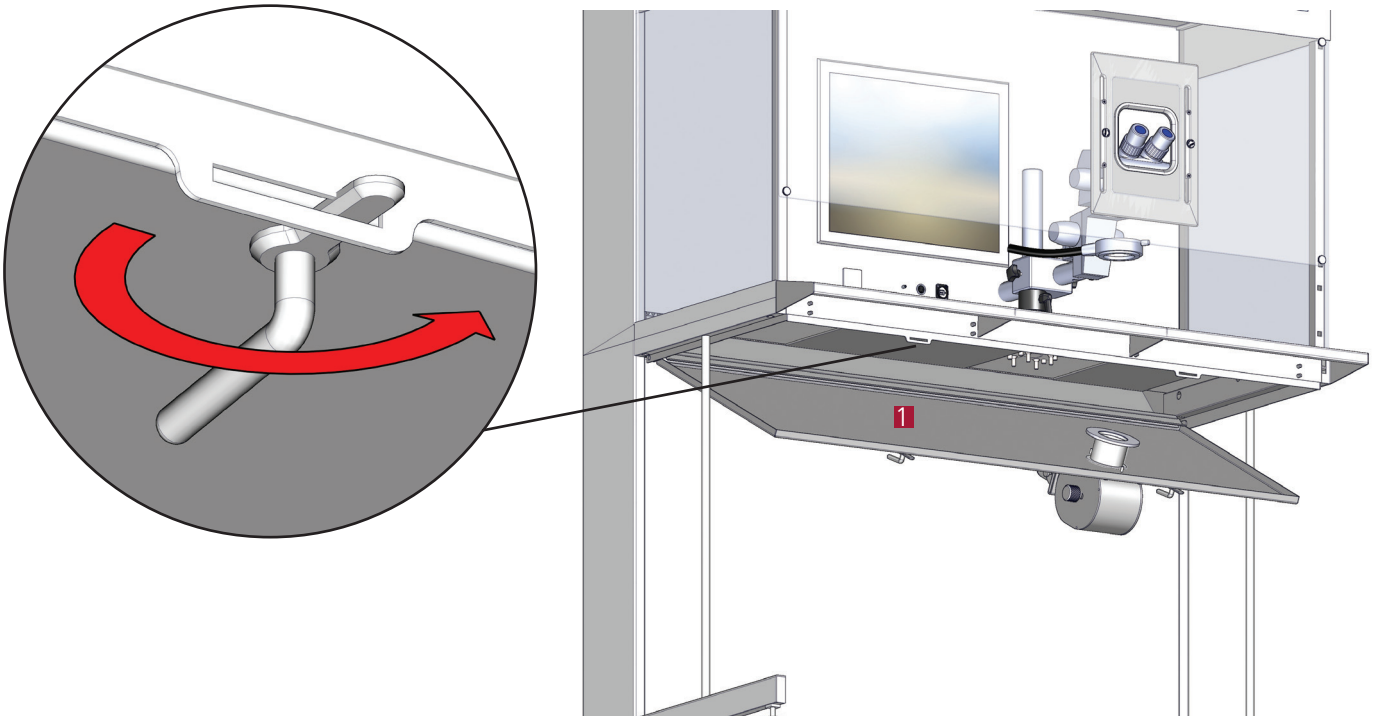
12.1 Daily Maintenance

DANGER
Ethanol is highly flammable. Keep away from open flames. Unplug all electrical equipment. Use only in a well-ventilated room.

- Clean all surfaces using 70% ethanol or similar on a clean cloth or lint free paper towel.
- Do not use water.

12.2 Weekly Maintenance

- Wipe the exterior with a mild house-hold detergent.
- Anti-static spray can be used for cleaning the front window.
- Clean the tray. Open the hatch 1 for access.

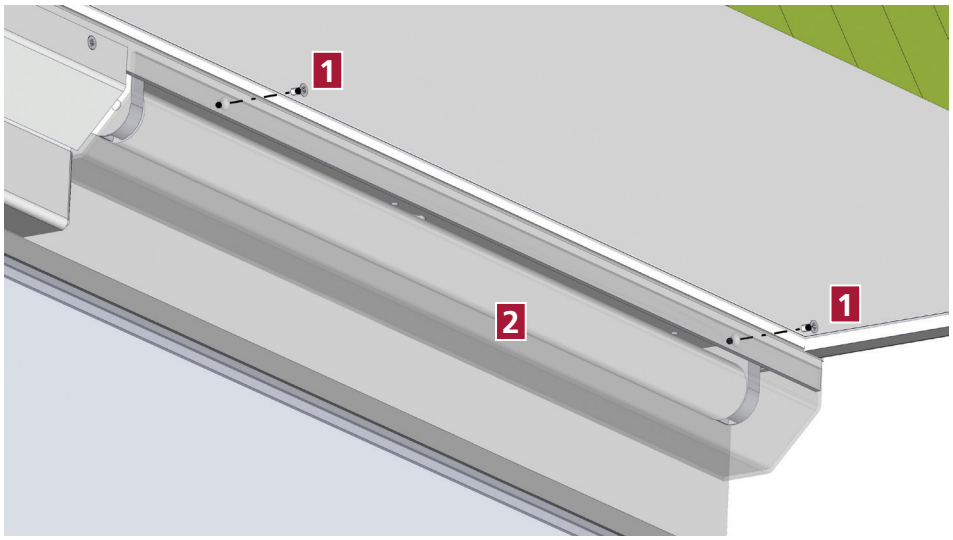


12.3 Annual Maintenance

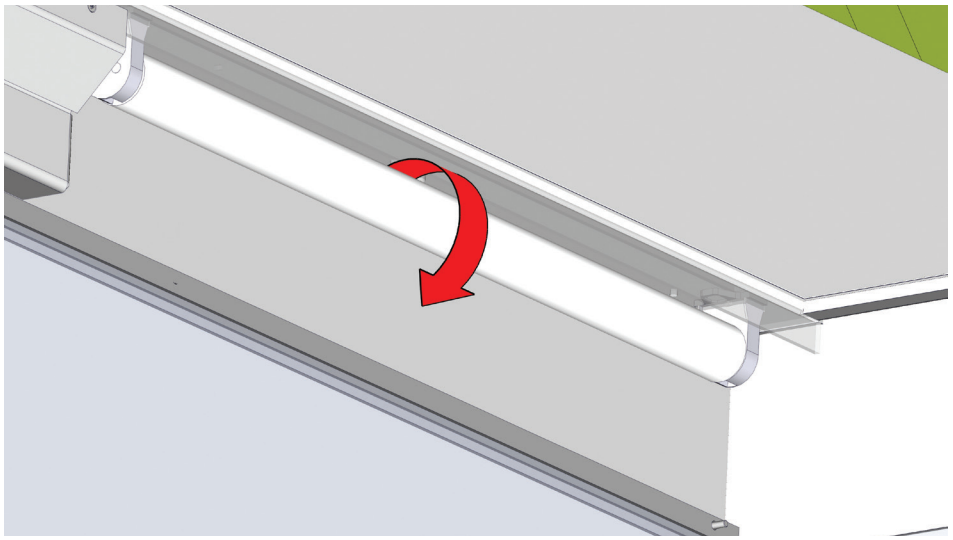
The HEPA filter and airflow should be tested after 17,000 hours of operation or once per year. (whatever comes first). Testing should be only carried out by trained and qualified personnel. (i.e. a CooperSurgical authorized service technician) using specialized testing equipment.

12.4 Replacing Interior Light

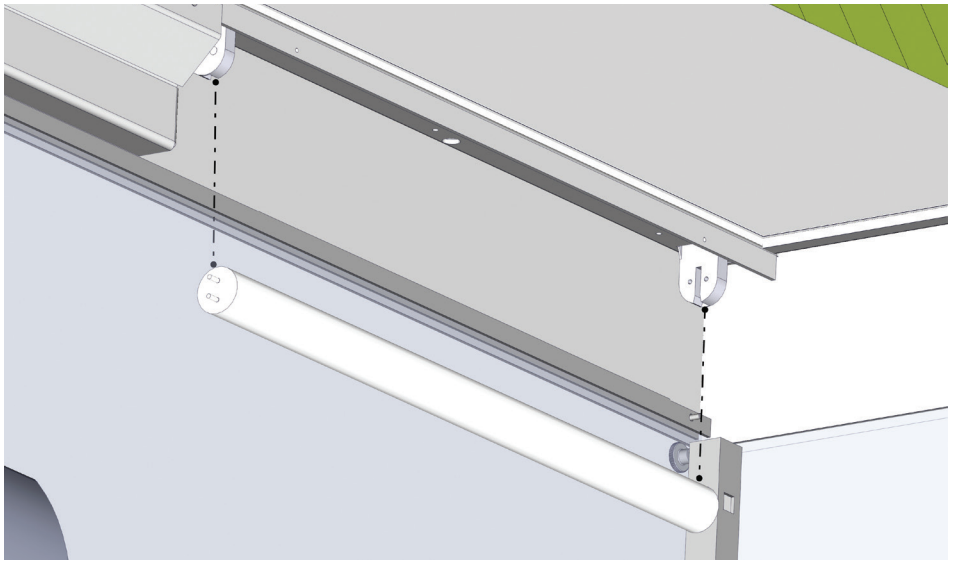
12.4.1 Remove the screws 1 holding the lamp cover 2.



12.4.2 Turn the fluorescent tube 90°.



12.4.3 Pull the tube gently down. Replacement is the reverse of removal.



13. TROUBLESHOOTING

ALARMS			
Symptom	**Cause**	**Action**	**See Section**
Alarm	The airflow is to low	Check HEPA filter and replace if necessary Check that both fans are running	Maintenance
	Airflow is blocked	Remove objects and tools from workspace	Contact your service representative for details
	The temperature is more than 0.5 °C off	Calibrate the temperature	Calibration
	Hardware error	Contact your service representative for details	Contact your service representative for details

HEATING SYSTEM			
Symptom	**Cause**	**Action**	**See Section**
No heat	The heat is turned off	Turn on the heat	Touch screen menu
Alarm	The temperature is more than 0.5 °C off	Check fuse for the heating system Check temperature setpoint	Maintenance
Low heat	Set point is to low	Raise the set point	See Temperature setpoint
No heat	Blown fuse	Check fuse for heating system	Maintenance

LAMINAR FLOW			
Symptom	**Cause**	**Action**	**See Section**
Alarm	Too low or high airflow	Check HEPA filter and replace if necessary Defective airflow sensor	Maintenance
One or more fans not running	Blown fuse	Replace fuse	Maintenance

MICROSCOPE LIGHT			
Symptom	**Cause**	**Action**	**See Section**
No light	Light is turned off	Turn on the light	Microscope light units
	Defective light bulb	Replace bulb	Maintenance
	Blown fuse	Replace fuse	Maintenance
	Defective electrical connections	Contact your service representative for details	Contact your service representative for details

MONITOR			
Symptom	**Cause**	**Action**	**See Section**
No image	Monitor is turned off	Turn on the monitor	Monitor
	Brightness is too low	Adjust the brightness	Contact your service representative for details
	Blown fuse	Replace fuse	Contact your service representative for details
	Defective electrical connections	Check video connector	Contact your service representative for details
	Wrong input selected	Select signal input	Contact your service representative for details

TOUCH SCREEN			
Symptom	**Cause**	**Action**	**See Section**
No image	Blown fuse	Replace fuse	Service
No touch screen response	SW stopped	Restart unit	Contact your service representative for details
Hardware error	Contact your service representative for details	Contact your service representative for details	Contact your service representative for details

14. DISPOSAL AND RECYCLING

Information on the recycling and handling of L234 IVF CellTouch as per the WEEE Directive (Waste Electrical and Electronic Equipment).

CAUTION

Contamination Hazard
Since this device might have been used for processing and treating infectious substances, it might be contaminated. Prior to disposal, the whole device (including light source) must be disinfected.

14.1 Environmental Protection for Disposal of the Product

After cleaning and disinfection, the unit contains reusable materials. All components (with the exception of the HEPA filter) can be discarded after having been cleaned and disinfected.

Please note that the HEPA filters must be discarded in accordance with the applicable national regulations for special solid waste.

When disposing of the product, we recommend that it be disassembled and broken down into different waste groups for recycling or combustion.

The following table provides information on the recycling and handling of the product in accordance with the WEEE Directive:

14.2 Recyclable components

COMPONENT	MATERIAL
Table plate	Stainless steel
Exterior housing	Steel
Interior housing	Aluminum and steel
Device back panel	Aluminum
Printed circuit board	Enclosed electronic components mounted on a PCB board
Front window(s)	Polycarbonate
Light source	Aluminum

COMPONENT	METHOD OF DISPOSAL OR RECYCLING
Aluminum	Aluminum is a superb material from the point of view of recycling; it requires only 5% of the energy used to produce primary aluminum and it retains its properties after re-melting. The quality of the metal is so high that it can be used again and again, even in the case of anodized products as the anodized layer is a natural part of the aluminum.
Steel	Steel can be recycled by being re-melted and included as a secondary material in the production of new steel.
Printed circuit board	Printed circuit boards as well as cables are removed and recycled through special handling
Polycarbonate	Use plastic sorting and recycling systems where they are locally available, otherwise incinerating plastic has the added benefit of generating energy, which can be used for, for example, combined heat and power production.

15. TECHNICAL DATA

WORKSTATION UNIT SPECIFICATIONS	
	L234
Overall dimensions, (W x D x H)	1246 x 735 x 2020 mm - (49 x 29 x 80”)
Weight	250 kg
Table plate	1225 x 490 mm - (48 x 19”)
Height from floor to table top	835 mm - 860 mm
Height from table plate to filter	700 mm
Warmed surface	Optional. Left or right side
AluHeat Technology	Electrical controlled heating system with edge enhancement
Temperature range	Ambient to 42 °C / 108 °F
User interface	Touch screen
User interface functions	Digital temperature readout, datalogger, temperature setpoint, calibration, warning for next service
Connections	Main switch, mains, gas, Ethernet, alarm
Laminar flow	Vertical
Heating rate	1 °C ± 0.5 °C / minute
Alarms	Visual alarm for out of range temperature and air velocity.
Exhaust Filter (HEPA)	H14, 75PA, 99.995% T.EN 1822, 610 x 305 x 117 mm
Main HEPA Filter	Classification H-14 with resistance of 130 Pa and an efficiency of MPPS of 99.995%. Grid on the inlet. Distribution cloth on the outlet. Dimensions: 1214x464x69 mm.
Sound Level	57 ± 2 dB(A) (In conformity with EN 12469)
IP class	IP30
Interior light	T8 15 W cool white
Air flow	In conformity with EN 12469 (0.25 to 0.5 m/sec)
Overvoltage category	Transient overvoltage II
Pollution degree rating for electrical equipment	2

POWER SPECIFICATIONS 220 – 240 VAC	
	L234
Max consumption	850 VA
Voltage	1/N/PE AC, 220 - 240 VAC Class 1 Type B
Frequency	50/60 Hz
Current	3.7 A
MAINS supply voltage fluctuations	Up to +/-10 % of the nominal voltage

POWER SPECIFICATIONS 110 – 120 VAC	
	L234
Max consumption	850 VA
Voltage	1/N/PE AC, 110 - 120 VAC Class 1 Type B
Frequency	50/60 Hz
Current	7.4 A

FUSES 230V (UL LISTED)	
Mains connection	T6.3AH/250 V
Aux, light	T5.0AH/250 V
Controller	T10.0AH/250 V
Left table	T10.0AH/250 V
Fans	T4.0AH/250 V
Aux, Monitor	T1.0AH/250 V
Right table	T10.0AH/250 V
Outlets	T1.0AH/250 V

FUSES 115V (UL LISTED)	
Mains connection	T10.0AH/250 V
Aux, light	T5.0AH/250 V
Controller	T10.0AH/250 V
Left table	T10.0AH/250 V
Fans	T4.0AH/250 V
Aux, Monitor	T1.0AH/250 V
Right table	T10.0AH/250 V
Outlets	T2.0AH/250 V

MATERIALS	
Front and side windows	Polycarbonate/Glass
Workstation body	Mild Steel Plate EN 10130, DC01 (FePO1) / Aluminum AW-1050
Corrosion protection	60 µm polyester coating pretreated to corrosion class 1
Stand	Mild Steel Tube EN 10219-1 Stainless Steel Tube ST1203, ISO 127/DIN 2462
AluHeat Technology	Aluminum heat zone with copper element
Tabletop	Stainless steel - AISI 304

AMBIENT CONDITIONS	
Working temperature and humidity	20 – 30 °C. Less than 75% RH (non-condensing)
Storage temperature and humidity	5 – 55 °C. Less than 95% RH (non-condensing)
Transport temperature and humidity	5 – 55 °C. Less than 95% RH (non-condensing)

SPARE PARTS	
Windows	52199, 1 x Front window with cut out for microscope (for 4-foot model / 120 cm)
Light sources	59063, 2 x Fluorescent light tube T8 (for 4-foot models)
Cables	52758 Main cable - Schuko type 52773 Main cable - US type 53886 Main cable - UK type 52775 Special main cable, different than Type B (US), Type C (Schuko compatible), Type G (UK)

16 EXPLANATION OF SYMBOLS

Reorder number

Serial number

Consult instructions for use

Protective Earth

Do not use if package is damaged or opened

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Fuse

Date of Manufacture

Manufacturer

In order to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally – do not dispose of waste electrical or electronic equipment (WEEE) as unsorted municipal waste. Contact local WEEE disposal sites.

R_XOnly **Caution:** U.S. Federal law restricts this device to sale by or on the order of a physician.

17. WARRANTY INFORMATION AND LIMITS ON LIABILITY

CooperSurgical warrants that the workstation will be free from defects in materials and workmanship for one year from the date of initial purchase.

If CooperSurgical determines that a workstation fails to conform to that warranty during the one-year warranty period, CooperSurgical will, as the sole remedy for that failure to conform, repair or replace that workstation, at CooperSurgical's discretion, free of charge.

To return a workstation to CooperSurgical, a customer must comply with CooperSurgical's Returned Goods Policy described in this manual. A customer will not have any remedy if a workstation does not conform to the warranty for that workstation unless that workstation is returned to CooperSurgical in accordance with that Returned Goods Policy.

CooperSurgical will ship returned products that it repaired or replaced under warranty to the customer who returned those products, at CooperSurgical's expense F.O.B. the customer's facility. Under all other circumstances, CooperSurgical will ship returned products to the customer who returned those products at the customer's expense F.O.B. CooperSurgical's facility.

CooperSurgical's warranties do not cover damage caused by misuse, improper care, improper use of chemicals or cleaning methods, loss, theft, servicing by non-authorized personnel or negligent or intentional conduct on the part of the owner or user of the workstation, nor do they cover normal wear and tear or general maintenance. Any modifications or changes to a workstation will void that workstation's warranty. CooperSurgical's warranties do not apply to any single- or limited-use, disposable or consumable components or items.

CooperSurgical is not responsible for, and the owner and operator of the workstation shall defend, indemnify and hold harmless CooperSurgical from and against, all claims, damages, and other losses resulting from the improper servicing, maintenance, repair use or operation of the workstation or the owner or operator's negligence or willful misconduct.

THE ABOVE WARRANTIES ARE IN LIEU OF, AND COOPERSURGICAL HEREBY DISCLAIMS, ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WRITTEN OR ORAL, WITH RESPECT TO COOPERSURGICAL'S PRODUCTS, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO TERMS, CONDITIONS, UNDERSTANDINGS OR AGREEMENTS THAT PURPORT TO MODIFY THE ABOVE WARRANTIES OR THAT MAKE ANY ADDITIONAL WARRANTIES FOR ANY COOPERSURGICAL PRODUCT SHALL HAVE ANY LEGAL EFFECT UNLESS MADE IN WRITING AND SIGNED BY AN AUTHORIZED COOPERSURGICAL CORPORATE OFFICER.

COOPERSURGICAL SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR LOST PROFITS, DAMAGES FROM LOSS OF USE OR LOST DATA, OR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES UNDER ITS WARRANTIES OR OTHERWISE FOR ANY CLAIM RELATED TO COOPERSURGICAL'S PRODUCTS, EVEN IF COOPERSURGICAL HAS BEEN ADVISED, KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES. COOPERSURGICAL'S LIABILITY WITH RESPECT TO A PRODUCT COVERED BY A WARRANTY OR OTHERWISE SHALL BE LIMITED IN ALL CIRCUMSTANCES TO THE PURCHASE PRICE OF THAT PRODUCT.

Returned Goods Policy

1. Goods will be accepted for return for the following reasons:

- If shipment was made without the customer's authorization or order
- If incorrect items were shipped
- If defective items were shipped
- If defective goods are covered by the standard warranty

17. WARRANTY INFORMATION AND LIMITS ON LIABILITY CONTINUED

2. **To return goods, you must contact a Customer Service Representative by telephone (+45 46 79 02 02) for a Returned Merchandise Authorization (RMA) number. Items will not be accepted without an RMA number.**

   Please have the following information:

- Reason you wish to return the goods
- Quantity, description, part number, serial number of the goods
- Date of receipt of order
- Customer's purchase order and the CooperSurgical invoice number

All used goods must be cleaned and sterilized prior to shipment.

3. **Shipment must be sent prepaid by the customer. Freight collect shipments will not be accepted, and goods will be returned to sender.**

4. **If Customer intends to return equipment ordered in error, the following restocking charges and terms will apply:**

- 25 percent within 60 days from date of shipment
- Goods must be returned unused, in the original carton, and in marketable condition
- Refurbishing and replacement charges will be added to the restocking charges for damaged or missing items
- No return after 60 days
- No refund on sterile, single-use disposable products
-

Send all international returns to:

CooperSurgical European
Distribution Center B.V.
Celsiusweg 35
5928 PR Venlo
The Netherlands

Send all US returns to:

CooperSurgical
95 Corporate Drive
Trumbull, CT 06611
United States

SYSTEMS

a CooperSurgical Fertility Company

Assembled in Lithuania

CooperSurgical, Inc.
95 Corporate Drive
Trumbull, CT 06611 USA
Phone: (800) 243-2974
Fax (800) 262-0105
www.coopersurgical.com

International
Phone: +1 (203) 601-9818
Fax +1 (203) 601-4747

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