

DESAMPLER



Off-line Breath Analysis standardization

User Manual

DESAMPLER is a PROTOTYPE, this document is a DRAFT



FOSSILIONTECH

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The DESAMPLER unit delivered is a prototype, and it is NOT CE marked. This operation manual is a DRAFT that has not been reviewed by a certification authority. The user is advised to use DESAMPLER with care. Fossil Ion Technology makes no claim regarding the accuracy of this Draft.

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Preface

Related Documentation

The DESAMPLER works in tandem with SUPER SESI. Please read the corresponding instruction manual of SUPER SESI.

Notices and symbols used in this manual

Please make sure that you understand the special notices, symbols, and caution labels in this guide. Some safety and notices used in this user manual include the following:



CAUTION NOTE highlights hazards to humans, property, or the environment. Each CAUTION warning is accompanied with the corresponding CAUTION symbol.

IMPORTANT NOTE highlights information to prevent invalid test results, damage to software or loss of data.

INTERESTING NOTE highlights information of general interest

TIPS & TRICKS highlights key information that can be useful to complete of a task or to improve the quality of the results.

Contacting us

If you need further assistance, please contact us.

Address: *Fossil Ion Technology S.L.: Av. Adeca 2, CEEI – Oficina 3.1, 02006, Albacete, Spain.*

You can also contact us via email: info@fossiliontech.com, or through the contact form in our Technology web page: <http://www.fossiliontech.com/contact-us/>

General safety precautions and important notes



CAUTION Do not perform any servicing that is not contained in this manual. In order to avoid injury or damage to the instrument, **do not perform any servicing that is not specified in this manual unless you are qualified to do so.**



CAUTION The safety of this equipment could be compromised if it is not used in the manner specified in this manual.



CAUTION DESAMPLER is a prototype, and the ageing of materials and components has not been tested. The recommended working temperature is 40°C to prevent water condensation. Higher temperatures can be used for short periods of time. If higher temperatures are used for long periods of time, some electronic components could be degraded.



CAUTION DO NOT inflate the collection bag inside the DESAMPLER, as this could damage the press. Always inflate the bags outside of the instrument.



CAUTION The tube used to monitor CO₂ with EXHALION can be connected to DESAMPLER. This tube is designed to be easily replaced, but it is not designed to be continuously connected and disconnected. If the tube is often manipulated, it could be damaged. In order to extend the lifespan of this tube, we recommend planning the tests to minimize manipulation.

IMPORTANT NOTE DESAMPLER does not incorporate circuit breakers or residual current breakers. It only incorporates protection overcurrent fuses (1A). The user must ensure that the electrical power installation for DESAMPLER provides the required electrical protections, in accordance with local legislation.

Important note. To transport DESAMPLER, a small portable and adjustable table or trolley is recommended. The minimum surface needed for the trolley is 35 x 45 cm, and it must support 10 kg.

DESAMPLER, general description

Principle of operation

DESAMPLER is an off-line analysis solution that allows to empty gas previously collected in a bag into Super SESI in a controlled and repeatable way.

- Breath is collected in a low-out-gassing inert material bag with minimal chemical interaction, where signal dependence on absorption desorption processes is minimized.
- The bag is rapidly stored in the DESAMPLER, where it is kept at a constant temperature, and the DESAMPLER is brought to the lab.
- The DESAMPLER is coupled with SUPER SESI: it introduces the sample as if the subjects were directly exhaling in the SUPER SESI, so that data collected off-line is compatible with data collected on-line.



Figure 1. DESAMPLER frontal view

Intended use

DESAMPLER is designed to be coupled with SUPER SESI and to be used by trained personnel in a laboratory environment. The purpose of DESAMPLER is to enable offline analysis of VOCs at trace concentration. It is not intended for use with concentration of substances that could be harmful or corrosive.



CAUTION The safety of this equipment could be compromised if it is not used in the manner specified in this manual.

Technical specifications

Power:	220-240 V, 50-60 Hz, 250VA
Dimensions (external):	416 x 340 x 280 mm
Storage space:	300 x 157 x 220 mm
Weight:	10Kg
Max. temperature of storage space:	50°C

Installation requirements

DESAMPLER requires an electric power receptacle 230 V ac, $\pm 10\%$, frequency of 50/60 Hz, single phase. A small portable and high adjustable table is recommended to place the DESAMPLER and couple it with SUPER SESI, and to transport it.

IMPORTANT NOTE DESAMPLER does not incorporate circuit breakers or residual current breakers. It only incorporates protection overcurrent fuses (1A). The user must ensure that the electrical power installation for DESAMPLER provides the required electrical protections, in accordance with local legislation.

Components description

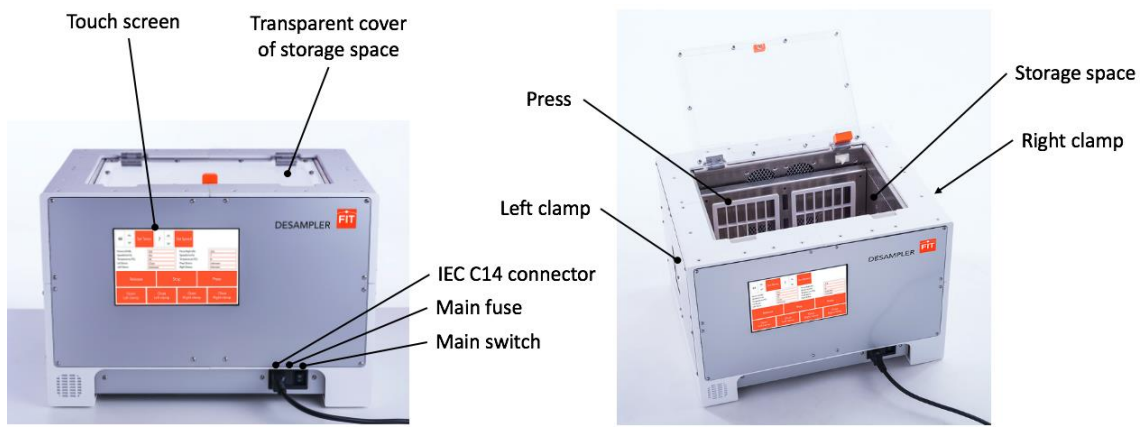


Figure 2. DESAMPLER, components description

Touch screen control

The control screen is divided in three sections: (1) Temperature and Press Speed controls, (2) Readings and status display. This section displays the readings and settings of the controlled magnitudes (temperature and pressing speed), the readings of the forces applied by the press, the lid status, and the status of the clamps, and the press, and (3) Commands. In this section you will find the buttons to operate the presses and clamps.

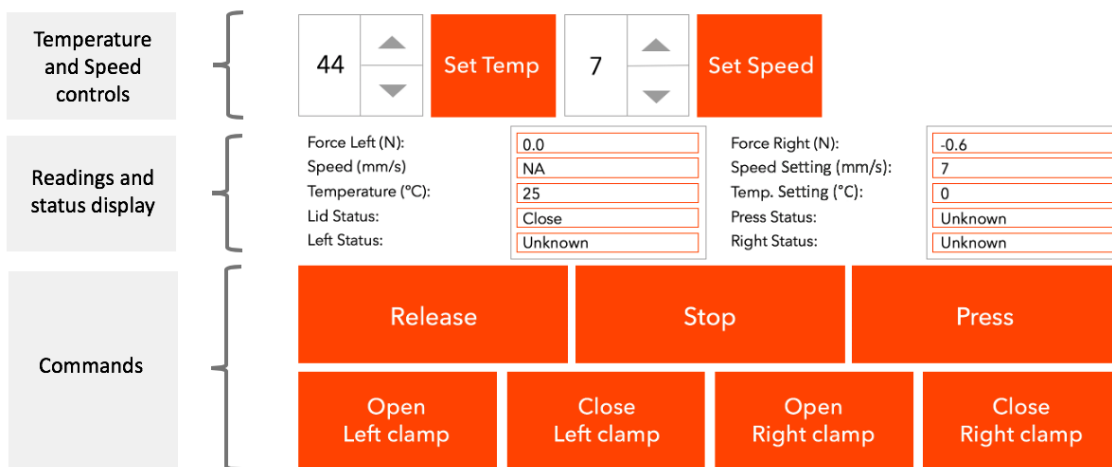


Figure 3. Touch screen control description

Operating

Switching on and off

Plug the power cable and turn on the Main Switch at the front side. To switch off, just turn off the main switch at the frontal panel of DESAMPLER.



Figure 3. DESAMPLER, main switch

Adjusting temperatures

Use the up-down arrows at the Temperature controller and then press the “Set Temp” button. The set point of the temperature will be displayed at the left column, and the read temperature at the right column. The temperature setting and the actual temperature can be checked in the Reading and Status Display.

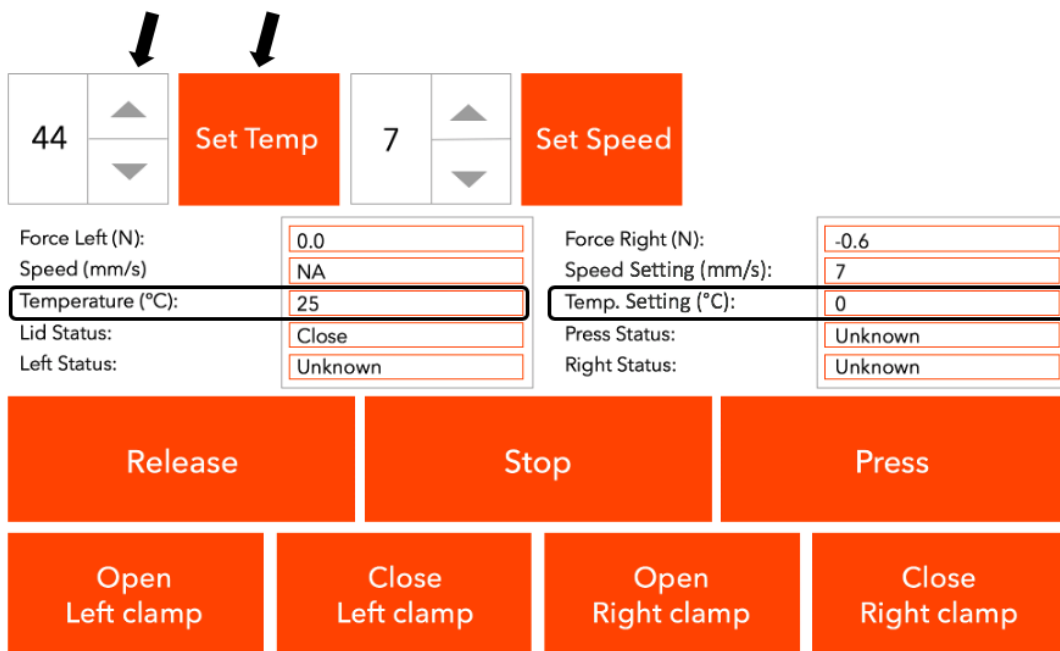


Figure 4. Temperature control and reading



CAUTION DESAMPLER is a prototype, and the ageing of materials and components has not been tested. The recommended working temperature is 40°C to prevent water condensation. Higher temperatures can be used for short periods of time. If higher temperatures are used for long periods of time, some electronic components could be degraded.

Introducing the sampling bag

When the bag is filled with exhaled breath, open the transparent lid and introduce the bag in the store space. For this, the press must be sufficiently open to manipulate the bag and the fittings with your hand. Having the press fully open for this is recommended. Use gloves to prevent contaminating the DESAMPLER. Make sure that the clamps (right and left) are open, place each aluminum bag fitting in each clamp, and close one clamp at a time.

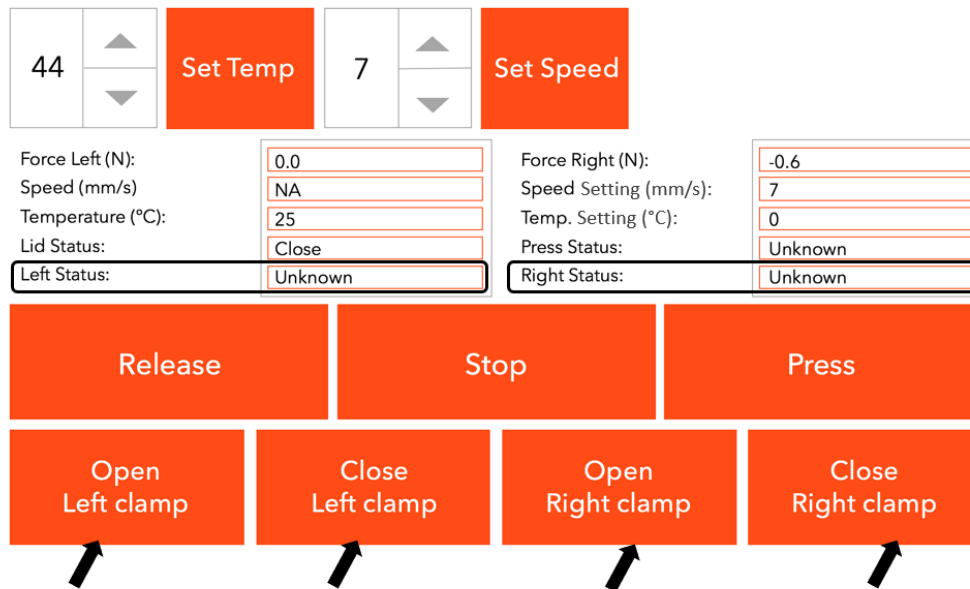


Figure 5. DESAMPLER, Clamp control and status

To control the clamps, use the buttons Open Left Clamp, Close Left Clamp, Open Right Clamp, Close Right Clamp, at the Touchscreen Control. The status of the clamps can be checked in the Reading and Status Display.



CAUTION Make sure that the aluminum bag fitting is correctly placed and do not interfere with the internal edge of the clamp. Closing a clamp when the fitting is not properly positioned could damage the clamp



CAUTION DO NOT inflate the collection bag inside the DESAMPLER, as this could damage the press. Always inflate the bags outside of the instrument.

Once the bag and the fitting are properly secured, close the lid and reinitiate the temperature.

Important note. When the lid is opened, the press and the heater are disengaged. The press is reengaged automatically by pressing Release or Press. To reengage the temperature, the Set Temp button must be pressed after closing the lid.

Coupling DESAMPLER to SUPER SESI

To couple DESAMPLER to SUPER SESI, the sample line inlet of SUPER SESI must be aligned with the PEEK adapter piece of the bag closing system placed inside DESAMPLER. To align DESAMPLER and SUPER SESI, place DESAMPLER on a small height-adjustable wheeled table and adjust its height. Once aligned, move the table or DESAMPLER to introduce the protection of

the sample line into the PEEK adapter piece. Once connected, lock the wheels.

Important note. To transport DESAMPLER, a small portable and adjustable table or trolley is recommended. The minimum surface needed for the trolley is 35 x 45 cm, and it must support 10 kg.

To move the DESAMPLER; use the handles at the front and back of the unit.

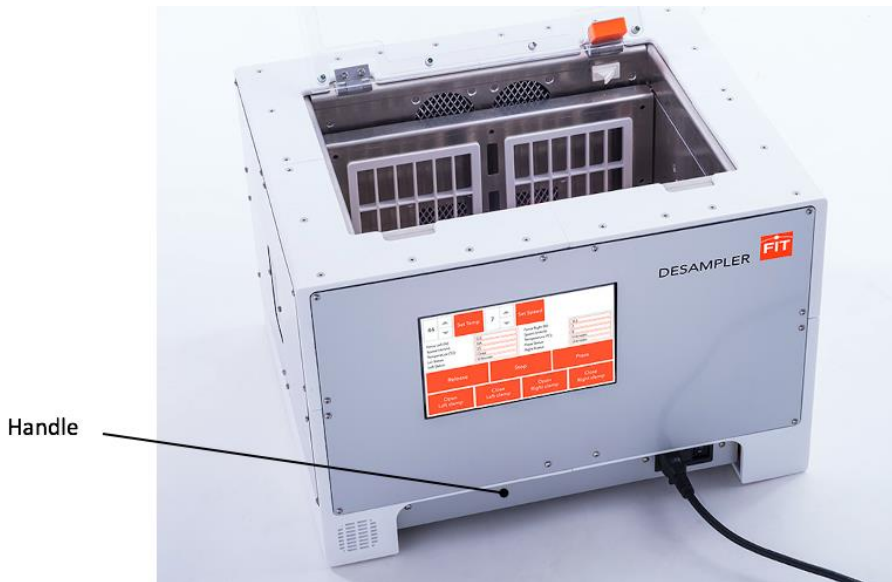


Figure 6. DESAMPLER handles

Adjusting press speed

Use the up-down arrows at the Speed controller and then press the “Set Speed” button. The set point of the press speed will be displayed at the left column, and the read speed at the right column of the Reading and Status Display. The speed setting can only be adjusted when the press is stopped.

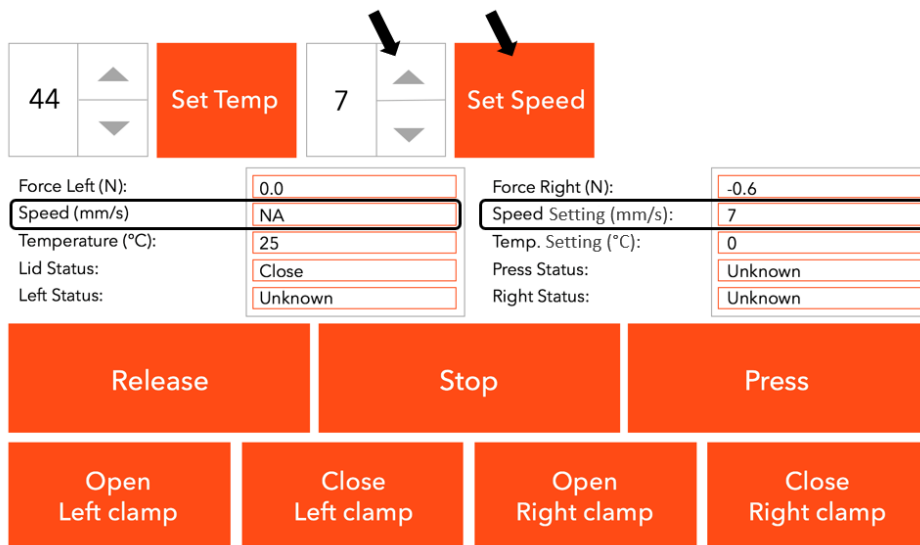


Figure 7. Press Speed control and readings

De-sampling

Before de-sampling the content of the bag, make sure that your bag is correctly placed at the clamps, the clamps are closed, and the DESAMPLER is correctly attached to the SUPER SESI, and the lid is closed, and the white-red valve at the PEEK adapter piece is open. To introduce the content of the bag in the SUPER SESI, press the “PRESS” button. This will the presses at the specified speed.

The DESAMPLER provides a measure of the force at both sides of the press. The pressing force can be used as an indication of the internal pressure of the bag. The maximum force is 25 N at each side of the press (5Kg approx. in total).

Important note: To prevent mechanical damages the pressing force is limited. If the press reached the max allowed force, it will automatically stop. To resume, just press Press or Release. If the DESAMPLER keeps stopping, check that it is not stuck.

Important note. The force depends on the bag, how tight it is assembled, and the press speed. Adjust the Speed setting to reach a Force values (Force Right and Force Left) between 10-15 N, which produce a pressure like a regular online exhalation into SUPER SESI.

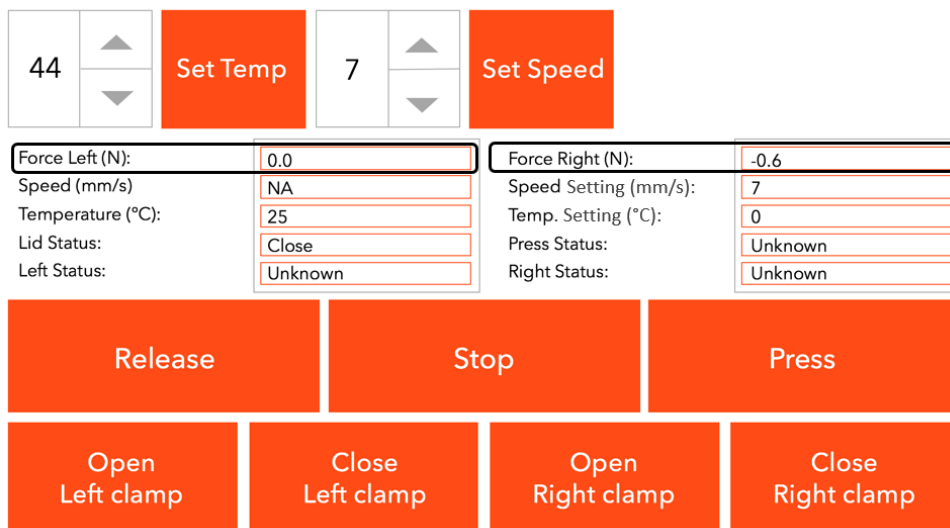


Figure 7. Press Force readings

To stop of introducing sample into the SUPER SESI, just press the “STOP” button. To fully depressurize the bag, press the Release button.

Removing the sampling bag

First make sure that the press is stopped by pressing the “STOP” button. To remove the bag, the press must be sufficiently open to manipulate the bag and the fittings with your hand. Having the press fully open for this is recommended.

To open the press, press the “RELEASE” button and wait for it to open. To reduce the time, you can open the press at max speed.

Once the press is open, open the clamps by pressing the buttons “Open Right Clamp” and “Open

Left Clamp”, and the bag will be ready to be remove. Finally, open the lid and remove the bag.



CAUTION Do not open the clamps before the press is fully open. Moving the press with unsecured clams could damage the clamps and the press.

Aligning the press

Sometimes the press can get misaligned because the force is not evenly distributed. If the press is too misaligned, it can get stuck. To align it, press the “Release” button. The press will realign when it arrives at the end of the path.

Important note. To prevent misalignments, make sure that the length of the bag fits the DESAMPLER, no transversal folds are formed, and the load is evenly distributed.

Cleaning

If the storage space needs to be cleaned, it can be done with a cloth dampened with water.



CAUTION Do not use methanol, are other solvents different from water, as this could damage internal materials and adhesives. Do not spill liquids inside the storage space, as this could damage electrical components can be damaged.

Resetting overheating protection relays

DESAMPLER is protected against overheating with resettable thermal relays. If the overheating relay is activated, it will shut the corresponding heater down until it is reset by the user. In order to reset it, turn of the main switch, wait until the system cools down, and restart the power. If the problem persists, contact FIT for technical assistance.

Replacing the fuses

In order to change a fuse, first make sure that the power cord is not connected. Open the fuse holder and replace the fuses. The fuse type is ‘Quick Acting F LBC Fuse, 1A, 5x20 mm’.

Troubleshooting

DESAMPLER is a prototype, and we do not have a history record of problems and solutions. If you encounter any problem, please be understanding and contact us. We will work with you to find the problem and to fix it if possible.

DESAMPLER is provided with two years warranty. Please contact us via email or telephone if you need further assistance. In order to allow us to give you a better service, please specify the type of problem and we will get back to you as soon as possible.

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Fossil Ion Technology S.L.
www.fossiliontech.com
Av. Adecá 2, CEEI, oficinas 2.1 – 3.2,
02006, Albacete, Spain.
email: info@fossiliontech.com

