

## Quickstart Installation Guide for Lonestar and At-Line Sampling Module



## Contents

NOTICES.....	2	TOOLS REQUIRED.....	4
OVERVIEW .....	4	INSTALLATION.....	5
SOURCES OF FURTHER INFORMATION .....	4		

## Notices

### 1.1 Contacting Owlstone

Visit the Owlstone website ([www.owlstonenanotech.com](http://www.owlstonenanotech.com)) for up to date contact details and service support:

For general inquires please email [info@owlstonenanotech.com](mailto:info@owlstonenanotech.com)

UK Office:

127 Cambridge Science Park

Milton Road

Cambridge

CB4 0GD

Tel: +44(0)1223 428200

Fax: +44(0)1223 428201

US Office:

400 Rella Boulevard

Suite 160

Suffern

NY 10901

Tel: +1 845 533 4225

Fax: +1 845 533 4232

### 1.2 Harmful substances



The LONESTAR and AT-LINE SAMPLING MODULE system can be used with a wide range of samples, some of which could be toxic or harmful. On heating these materials, flammable or toxic gases may be released.

The LONESTAR and AT-LINE SAMPLING MODULE system is not a fully sealed unit, therefore for this reason **it is essential that the user conduct a risk assessment** for the substances to be used in the LONESTAR and AT-LINE SAMPLING MODULE and establish safety protocols to cope with the release of such materials under the normal operation of the unit.

These protocols must include suitable installation (e.g. in a fume cupboard, provision of extraction, etc.) and operational procedures to protect the operator.



Materials with a fire point in excess of 183 °C **must not** be used in the AT-LINE SAMPLING MODULE.

Check chemical compatibility: Materials in the flow path include PTFE, stainless steel, aluminium, silicon, graphite, circuit board and Viton®. Ensure test atmospheres are neither corrosive nor reactive with materials in the flow path. If in doubt please contact an OWLSTONE representative using the contact details provided.

### 1.3 Installation and Location



The LONESTAR and AT-LINE SAMPLING MODULE system together, unpackaged, weighs ~20 kg; please take care in handling to avoid injury.

Before using the system, ensure that all power cables are intact with no damaged insulation or frays.

- Ensure that the LONESTAR instrument and AT-LINE SAMPLING MODULE are placed on a solid, level surface, which is able to support their weight
- Only use the OWLSTONE supplied power supply
- Ensure cabling is routed behind the system, at bench level, posing no risk of tripping. Ensure all cables are detached from the LONESTAR instrument before attempting to move the unit
- The LONESTAR instrument gets warm during operation. Handle with care and ensure there is adequate ventilation around the system
- Do not place in space that is poorly ventilated or confined. Allow at least 50cm clearance from walls and free flow of air around the system
- Do not place near flammable materials

## Overview

This document is a quick guide to help with installation of the Lonestar portable gas analyzer and the At-Line Sampling Module attachment to it.

This document is only a supplement to the Lonestar User Manual and the At-Line Sampling Module. These documents must both be read before starting to set up the instrument.

## Sources of Further Information

More information is available in the following documents:

- The Lonestar System User Manual
- The At-Line Sampling Module Manual
- Lonestar Information: Troubleshooting Contamination of Lonestar Systems
- Installing and Using the Purge Automation Script

The above documents and more are available on the Owlstone customer support website:

<http://owlstone.zendesk.com/home>

For help with any further questions or problems, please contact Owlstone directly on our support address:

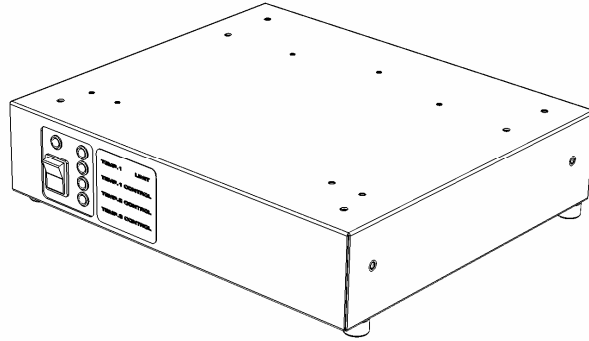
[support@owlstone.zendesk.com](mailto:support@owlstone.zendesk.com)

## Tools required

- 7/16" spanner
- 9/16" spanner
- 3 mm Allen key

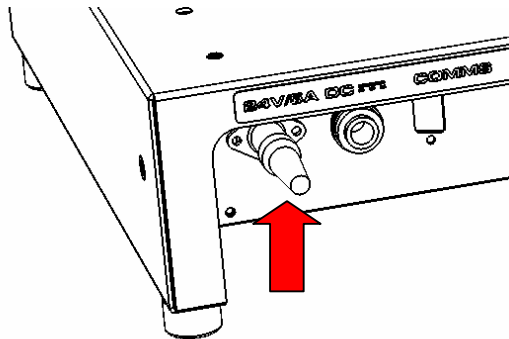
## Installation

1. Place the heater control box in the desired position. Be sure that it is placed on a solid, level surface, which is able to support its weight, and has at least 50 cm clearance around it. You will need to be able to access the back of the heater control box during the installation.



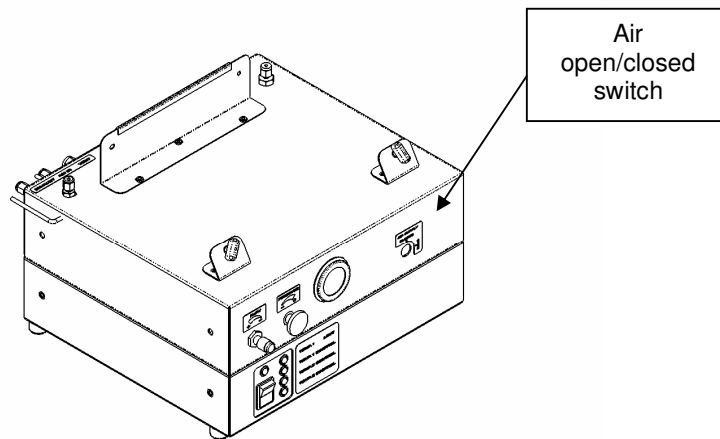
**Figure 1: Heater control box**

2. Connect the power supply to the socket labelled '24V/5A DC', at the back of the heater control box.



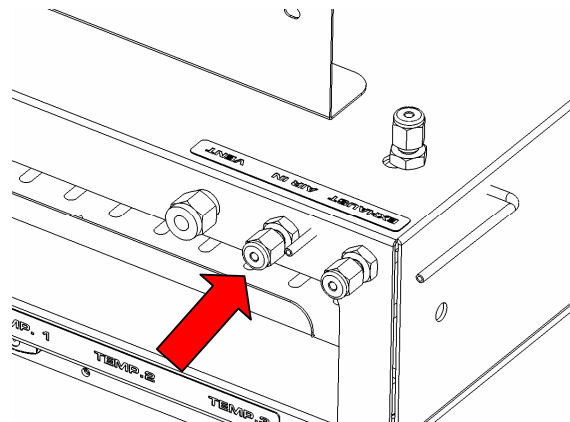
**Figure 2: Back of heater control box, showing power supply connection**

3. Position the pneumatics box on top of the heater controller box.



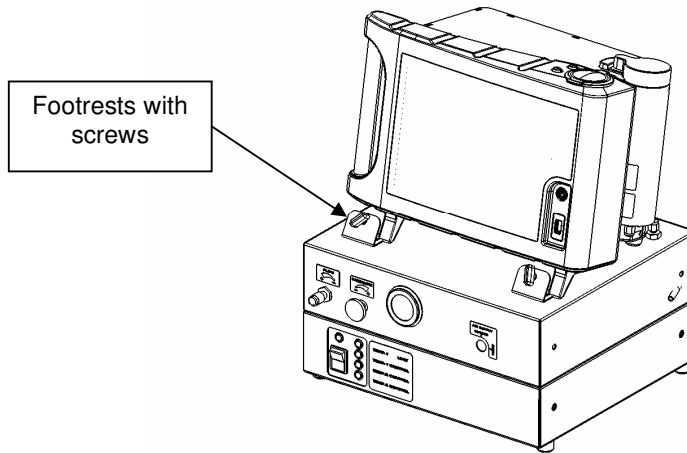
**Figure 3: Pneumatics box on top of heater control box**

4. Ensure that the air supply intended for the Lonestar system is clean (<0.1 ppm methane) and dry (dew point <-45 °C). Ensure that the pressure at the outlet is not greater than 40 psi. Make sure that the switch on the front of the pneumatics box is set to the CLOSED position.
5. Connect the dry air supply to the back of the pneumatics box using 1/8" Swagelok fittings. Tighten with a spanner.



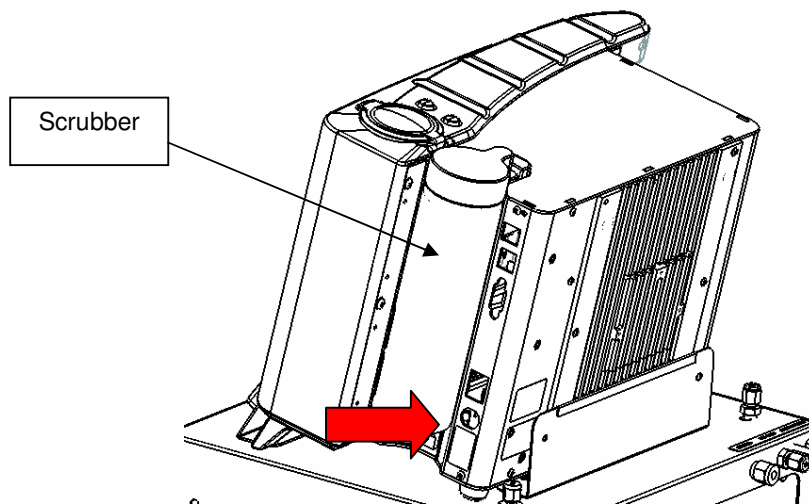
**Figure 4: Dry air input to pneumatics box**

6. Position the Lonestar on top of the pneumatics box and heater controller box. Make sure it sits evenly with the feet and back edge of the instrument resting on the pneumatics box.
7. Adjust the screws on the footrests to gently hold the Lonestar in position.



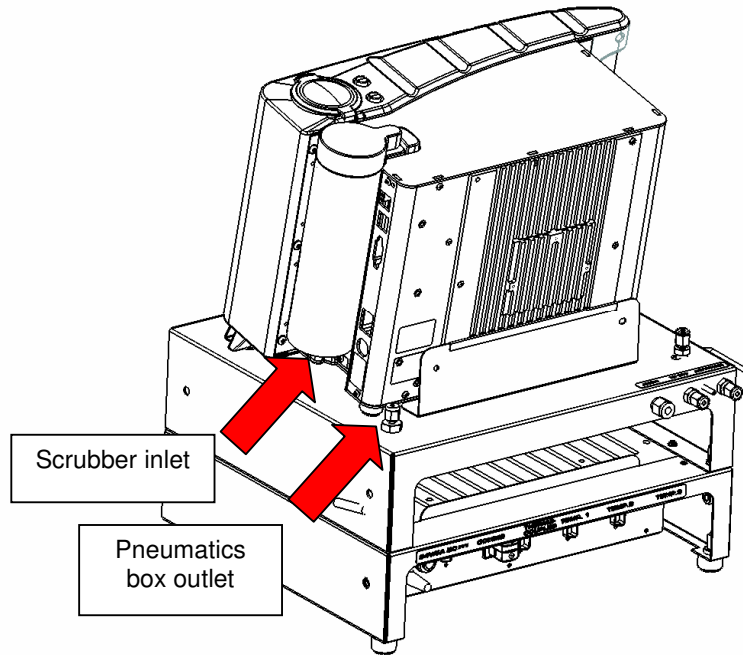
**Figure 5: Lonestar in position**

8. Connect the Lonestar power supply to the socket on the side of the Lonestar, behind the scrubber. The socket and plug each have a red mark on them and these should be lined up before connecting them.



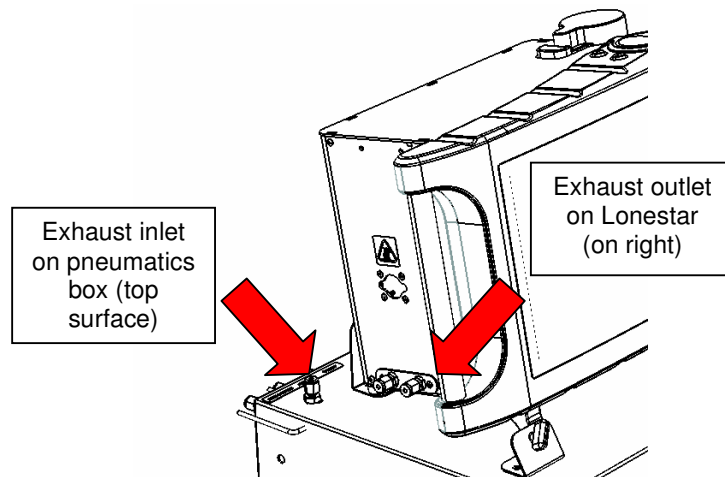
**Figure 6: Side of Lonestar, showing power socket**

9. Connect the Lonestar scrubber inlet to the outlet of the pneumatics box, using a short length of 1/8" PTFE tubing and 1/8" Swagelok fittings. Tighten both connections with a spanner.



**Figure 7: Rear of Lonestar, showing scrubber inlet and pneumatics box outlet**

10. Connect the exhaust outlet on the Lonestar to the exhaust inlet on the pneumatics box. As before, use a short length of 1/8" PTFE tubing and 1/8" Swagelok fittings. Tighten both connections with a spanner.



**Figure 8: Left-hand side of Lonestar, showing Lonestar exhaust and connection to pneumatics box**

11. Next, connect the sampling module to the Lonestar by screwing the 1/4" nut on the sampling module to the 1/4" fitting on the Lonestar. Tighten it with a spanner from above.



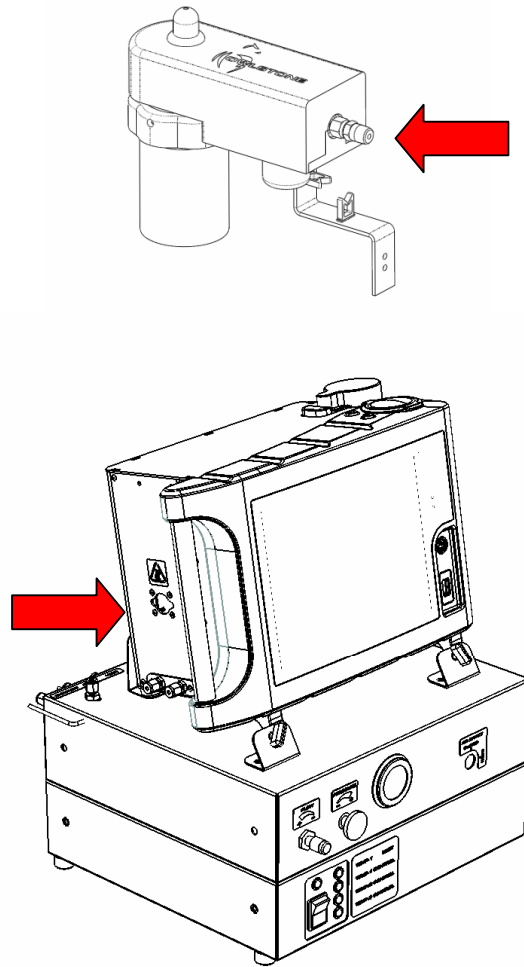


Figure 9: Connecting the sampling module to the Lonestar

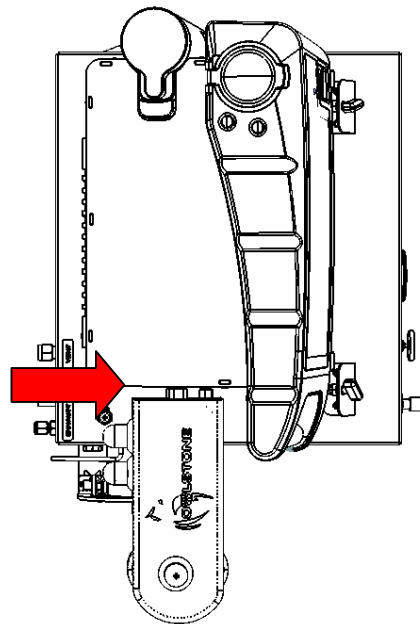
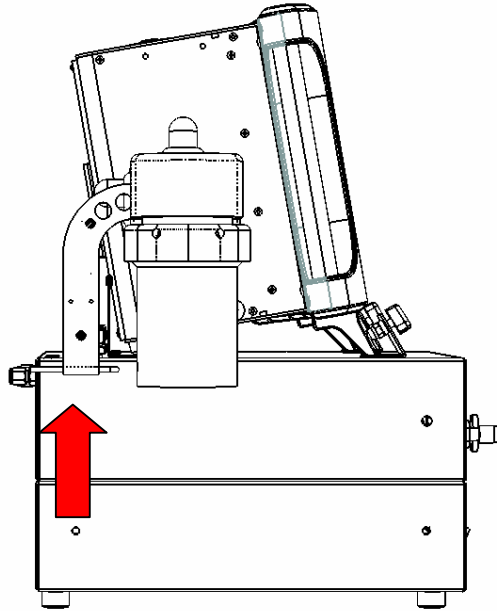


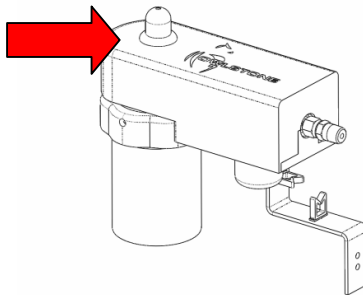
Figure 10: The nut connecting the sampling module to the Lonestar

12. Screw the supporting strut to the side of the pneumatics box using the screw provided.

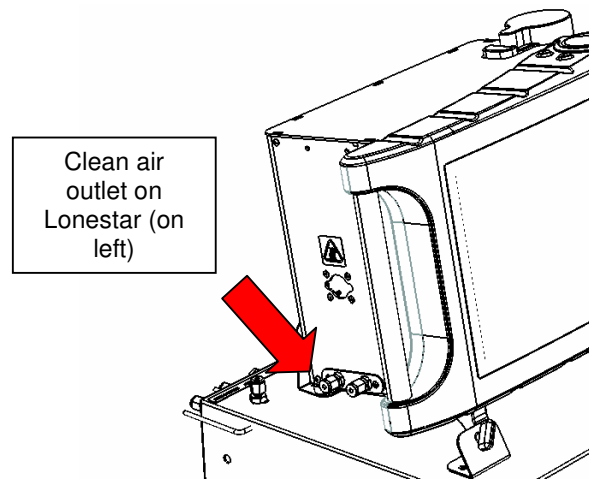


**Figure 11: Attaching the support strut to the pneumatics box**

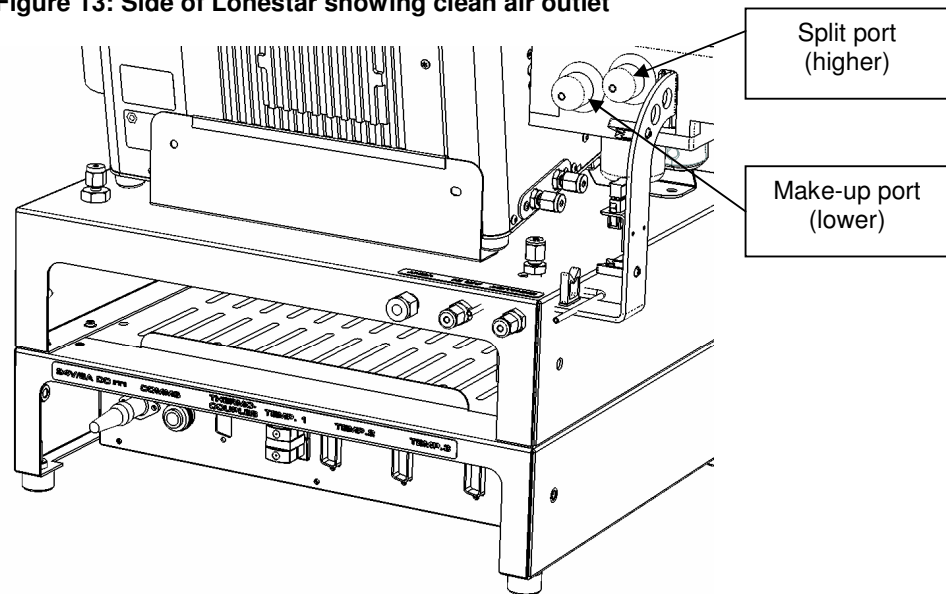
13. Connect the clean air outlet on the Lonestar to the sample inlet on the sampling module with a length of 1/8" PTFE tubing and 1/8" Swagelok fittings.
14. If your sampling module has been shipped with application-specific tubing and fittings for the split and make-up ports, ensure these are connected according to the instructions given by Owlstone's technical staff. Otherwise, make sure the split and make-up ports are capped off and covered by the black insulating caps.
15. Tighten all fittings with a spanner.



**Figure 12: Sampling module inlet port (shown with insulating cap in place)**



**Figure 13: Side of Lonestar showing clean air outlet**



**Figure 14: Rear of Lonestar and sampling module, showing split and make-up ports (shown with insulating caps in place)**

16. The sampling module has three heater plugs attached to it, labelled T1, T2 and T3. These should be plugged in to the correct sockets at the back of the heater control box.
17. The communication cable should also be plugged in to the labelled socket at the back of the heater control box. Plug the other end into one of the USB ports on the Lonestar. (There are two at the side of the Lonestar behind the scrubber, and one at the front.)

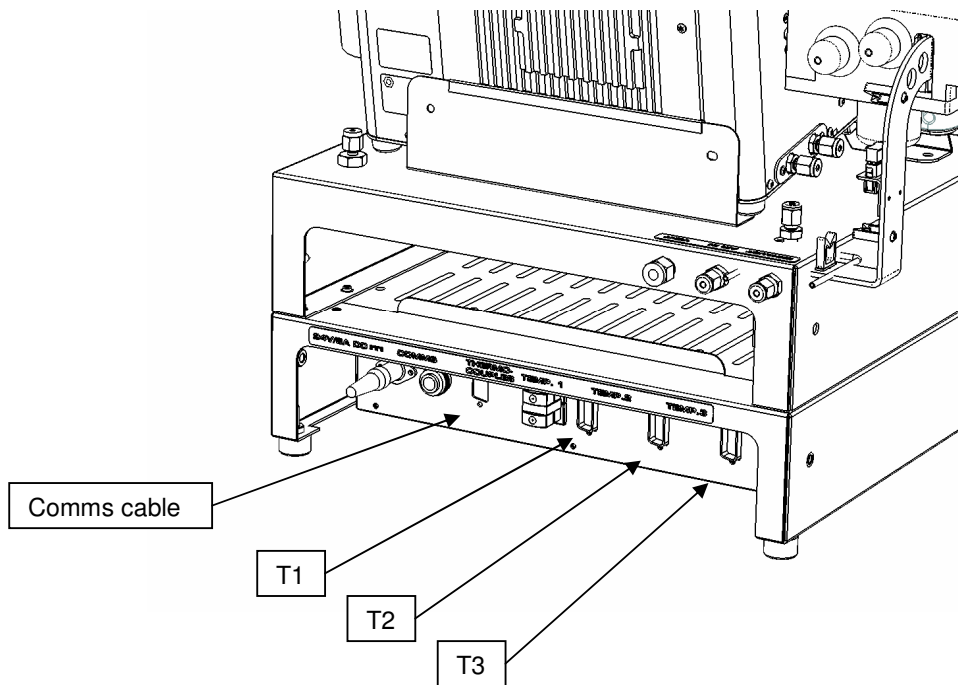


Figure 15: Rear of heater control box, showing comms and heater sockets

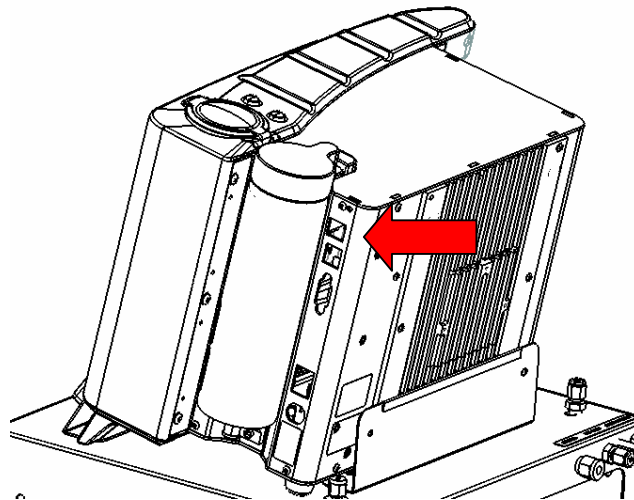
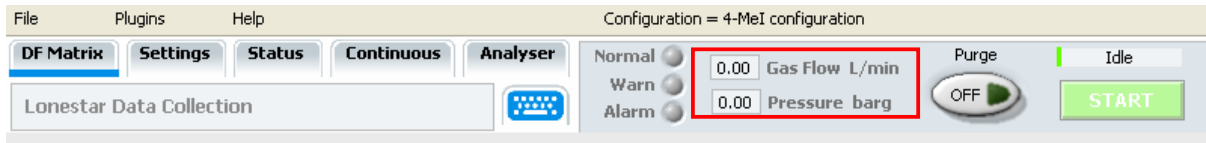


Figure 16: Side of Lonestar, showing USB ports

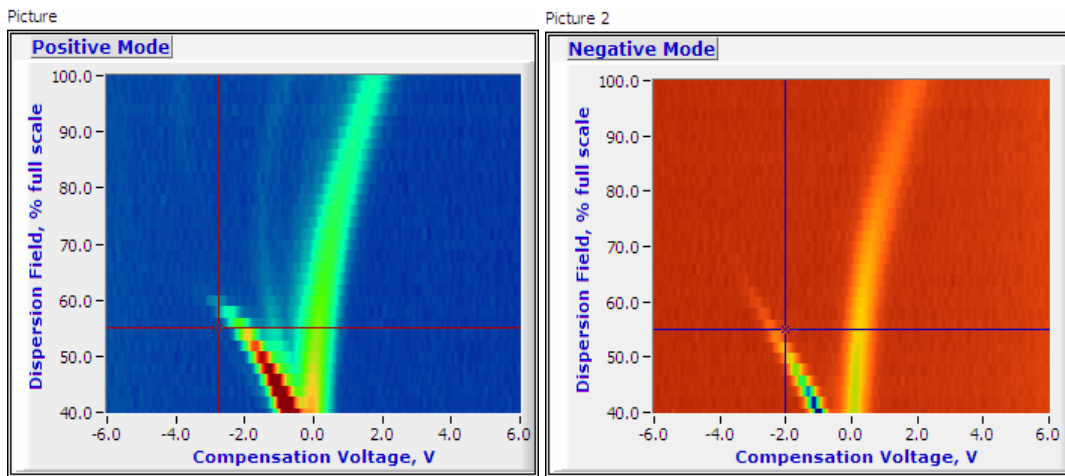
18. Switch on the Lonestar using the switch next to the power socket. Then press the large button on the front of the Lonestar to start it up. The Lonestar software should start running automatically.
19. Turn the heater control box ON using the switch on its front. The four green LEDs should light up.
20. Open the program '3-PID Configurator', as described in the At-Line Sampling Module Manual. Check that the three heaters on the sampling module are set to the correct temperatures and heating up correctly.
21. Check that the pressure shown on the pneumatics box gauge is between 0.1 and 0.15 MPa and turn the switch on the front to the OPEN position.

22. Adjust the dials on the front of the pneumatics box until the pressure and flow shown at the top of the Lonestar software are the correct values for your application.
23. If Owlstone’s technical staff have not advised you of application-specific values for the pressure and flow, set them to 1.0 bar<sub>g</sub> and 2.0 l/min.

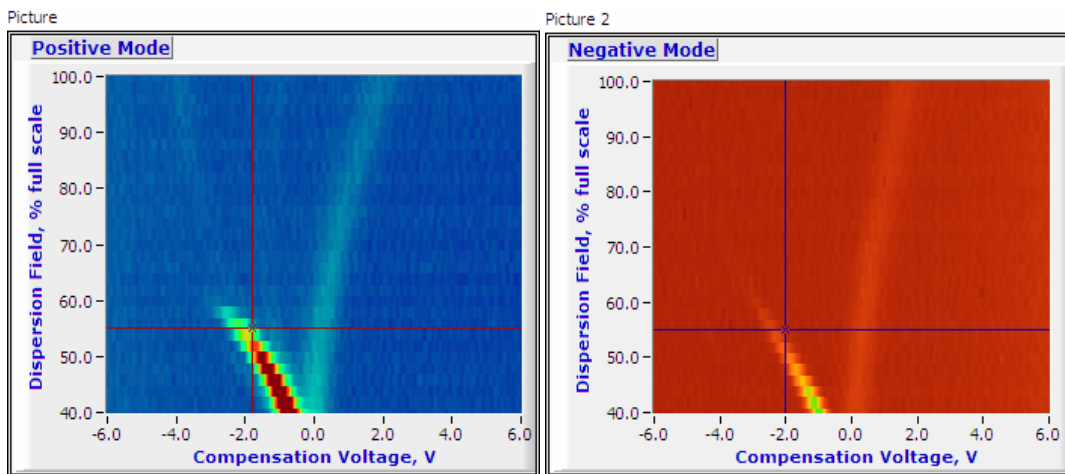


**Figure 17: Lonestar software dashboard, with gas pressure and flow display highlighted**

24. When installed for the first time after shipping, the Lonestar must be cleaned down overnight before use. To do this, take the following steps.
25. Select the ‘DF Matrix’ tab in the Lonestar software and press the green START button to begin taking data. When prompted for a file name, enter the date and “Initial cleandown”.
26. Follow the instructions in the document ‘Installing and Using the Purge Automation Script’. Turn on the script. This will ensure that all sections of the Lonestar’s internal flow path are cleaned down.



**Figure 18: Example DF matrices showing characteristic contamination from shipping**



**Figure 19: Example DF matrices after cleaning down**

27. Once clean, the Lonestar and At-Line Sampling Module are ready to use.