90-0550 Installation of a Lonestar® 3.0 with ATLAS 2.x™ Sampling Module

Issue/Version	Date	Author	Details
AAA	03/11/15	Céline Lainé	New document
AAB	18/02/16	Céline Lainé	Update
AAC	22/3/16	Andrew Pauza	Typos, corrected revision box, suitcase-> Pelicase, supply -> lead (power) in some places.

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Notices

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Notice of Proper Use of Owlstone® Instruments

The supplied system is in compliance with international regulations. If this system is used in a manner not specified by Owlstone Ltd, the protection provided by the system could be impaired

Warning Labels

This symbol is used to highlight a section explaining particularly important safety considerations

This warning label indicates danger of electrical shock hazard

This warning label indicates parts of the product that will become hot during use. Please take care.

Introduction

This document details the different steps to install the hardware of a Lonestar® with ATLAS™ sampling module and Split Flow Box.

For further details on how to use the software, please consult the documentation on the Owlstone® website.

Gloves should be worn to avoid contaminating the Lonestar® system sample flowpath.

Set up and Components

Please ensure that you are familiar with the hardware naming before starting the installation of the Lonestar® used with an ATLAS™ sampling system.

Figure 1 shows the final setup of the Lonestar® when used with an ATLAS™ sampling system.

Figure 2 details the ATLAS™ Sampling Module Assembly.

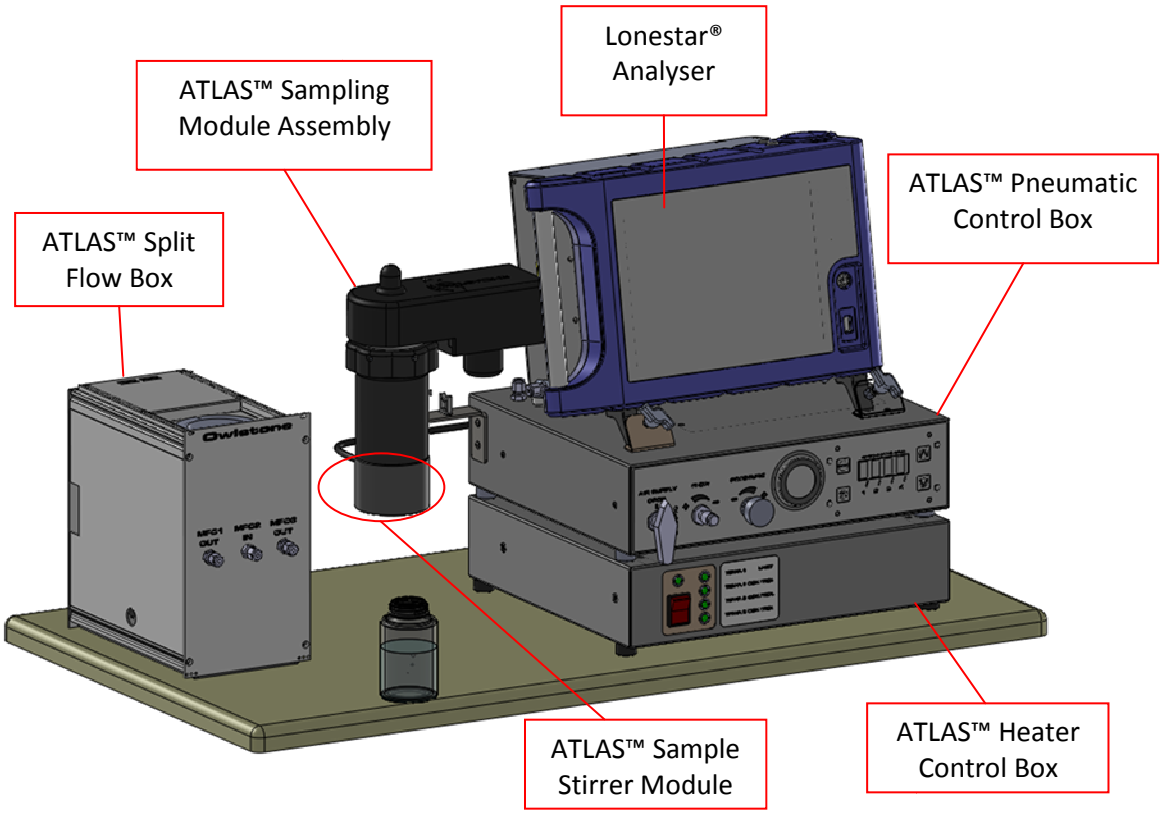


Figure 1 Lonestar® and ATLAS™ components

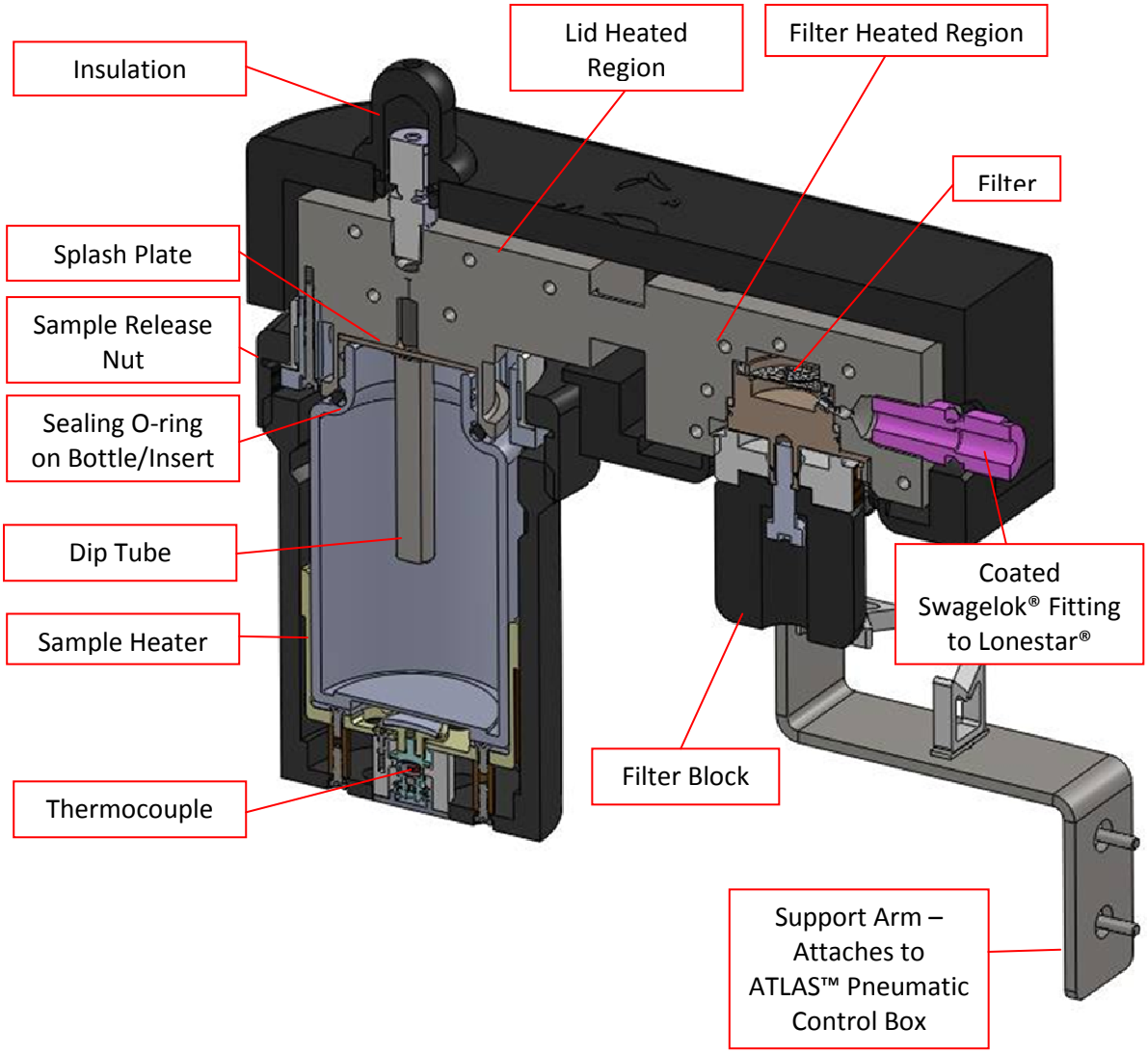


Figure 2 Diagram of components of the ATLAS™ Sampling Module Assembly

Installation Recommendations

- Please ensure that the Lonestar® system is placed on a solid, level surface, able to support its weight.
- Only use the Owlstone® power supplies provided with the Lonestar® system.
- All power supplied should be seated where they will not come into contact with moisture and are unlikely to have liquids spilt on them.
- Ensure cabling is routed behind the system, at bench level, posing no risk of tripping. Ensure all cables are detached from the Lonestar® system before attempting to move it.
- The Lonestar® system gets warm during operation, please handle with care and ensure there is adequate ventilation around the system.
- Leave ventilation holes unblocked.
- Place the Lonestar® system in a well ventilated space. Allow at least 50 cm clearance from walls and ensure free flow of air around the system.
- The Lonestar® exhausts the sample gases, which may pose a health risk. Risk Assessments must be performed based upon the analytes and sample matrix being analysed, either ducting the exhaust gas into a fume hood or mounting the Lonestar® system in a fume hood.
- Keep the Lonestar® system away from flammable materials.
- The Lonestar® used with an ATLAS™ sampling system requires four power outlets.
- The Lonestar® system requires clean, dry, compressed air unless a pump is being used to draw sample gas through it. The requirements for the clean, dry, compressed air is <-45 °C dew point, hydrocarbons <0.1 ppm as methane and a supply pressure of 40 PSI (2.8 bar).

Installation Unpacking

The delivery of the Lonestar® used with the ATLAS™ sampling system consists with three packages detailed in this section.

Gloves should be worn to avoid contaminating the Lonestar® system sample flowpath.

Lonestar® package

The Lonestar® is delivered in a shock absorbing Pelicase (Figure 3).

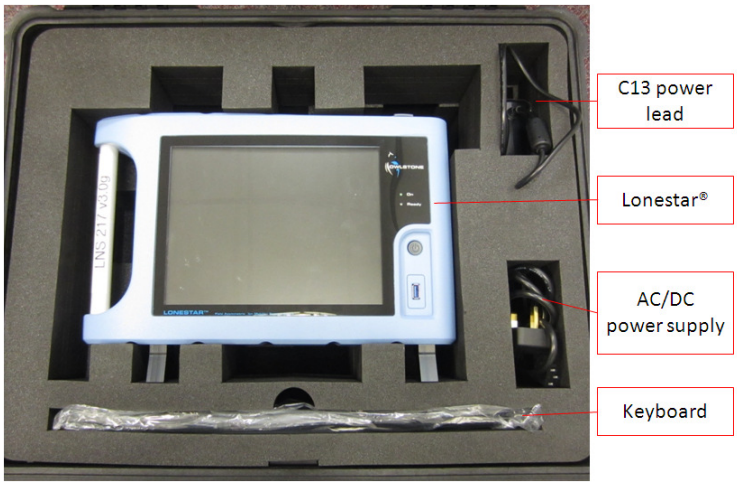


Figure 3 Lonestar® suitcase content

Please note that it is recommended to keep the Pelicase to return the Lonestar® to Owlstone® for annual maintenance.

The suitcase contains:

- The Lonestar® - with Swagelok® fittings capped off to avoid dust contamination during transportation (shown in Figure 3).
- The Lonestar® power supply separated in two parts: C13 power lead and AC/DC power supply (shown in Figure 3).
- An external keyboard (shown in Figure 3).
- The Lonestar® Safety Notices (90-0284) (not shown in Figure 3).
- A decontamination certificate (90-0027) (not shown in Figure 3) to attach to the Lonestar® if it needs to be returned to Owlstone® for e.g. annual maintenance. This certificate must be completed with the list of chemicals and sample matrices analysed by the Lonestar® system for decontamination within Owlstone's laboratory before maintenance.
- MSDS for the Lonestar® scrubber hydrocarbon (90-0081, not shown in Figure 3).
- MSDS for a Ni^{63} radioactive source (90-0080, not shown in Figure 3).
- A Radiation Source, Wipe Test Certificate (90-0010) giving details about the Ni^{63} radioactive source
- Three o-rings, (50.52 x 1.78mm, Viton, 75 shore, Black) as spares for the main hydrocarbon scrubber o-ring.

ATLAS™ Split Flow Box package

The ATLAS™ Split Flow Box package contains:

- The ATLAS™ Split Flow Box with Swagelok® fittings capped off to avoid dust contamination during transportation (Figure 4).

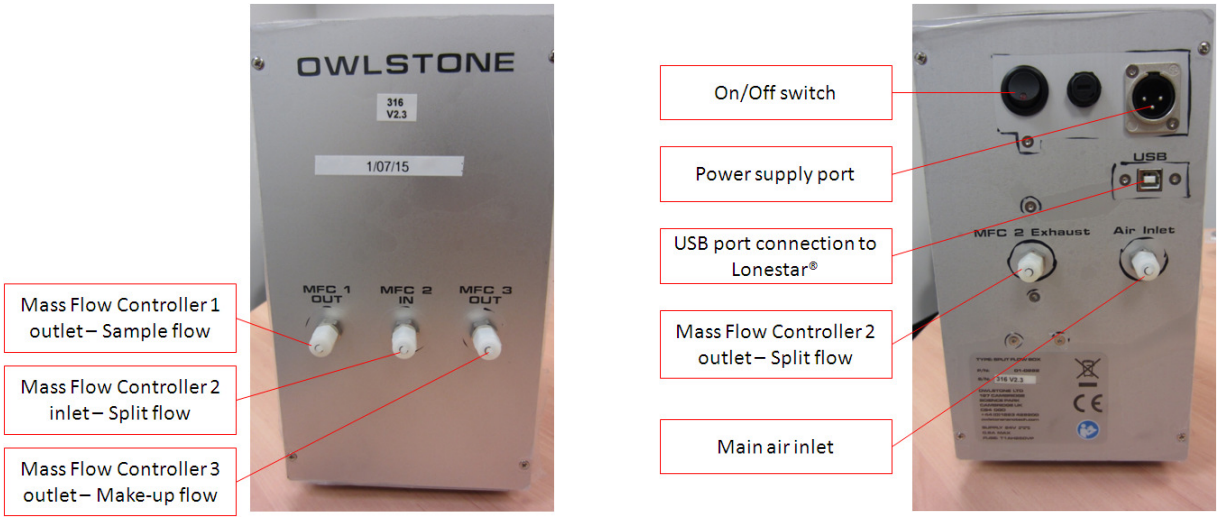


Figure 4 ATLAS™ Split Flow Box front view (left) and back view (right)

- The ATLAS™ Split Flow Box power supply separated in two parts: C13 power lead and AC/DC adapter.
- A decontamination certificate (90-0027) to attach to the Split Flow Box if it needs to be returned to Owlstone®. This certificate must be completed with the list of chemicals and sample matrices analysed by the Lonestar® system for decontamination within Owlstone's laboratory.
- The USB-B to USB-A beige cable (14-0384) to connect the ATLAS™ Split Flow Box and the Lonestar®.
- The pipe assemblies (01-0511) used to connect the ATLAS™ Split Flow Box to the ATLAS™ Sampling Module.
- A USB Hub, 4 ports (50-1024).

ATLAS™ Sampling Module Assembly and Heater and Pneumatic Control Boxes standard package

If the standard items are shipped, then the Sampling Module and Control boxes package contains:

- The ATLAS™ Sampling Module Assembly (Figure 5) with Swagelok® fittings capped off to avoid dust contamination during transportation.

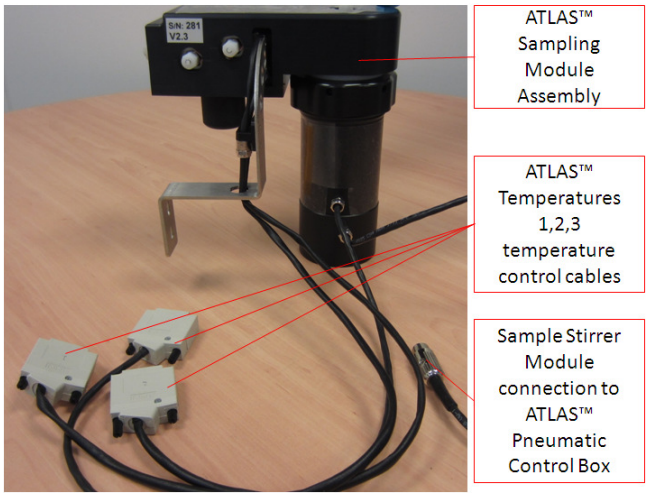


Figure 5 ATLAS™ Sampling Module Assembly back view

- The ATLAS™ Safety Notices (90-0283).

- A decontamination certificate (90-0027) to attach to the ATLAS™ Sampling Module Assembly and/or to the ATLAS™ Pneumatic Control Box if it needs to be returned to Owlstone®. This certificate must be completed with the list of chemicals and sample matrices analysed by the Lonestar® system for decontamination within Owlstone's laboratory.

- The ATLAS™ Installation Kit (01-0217).

- The ATLAS™ Heater Control Box (Figure 6).

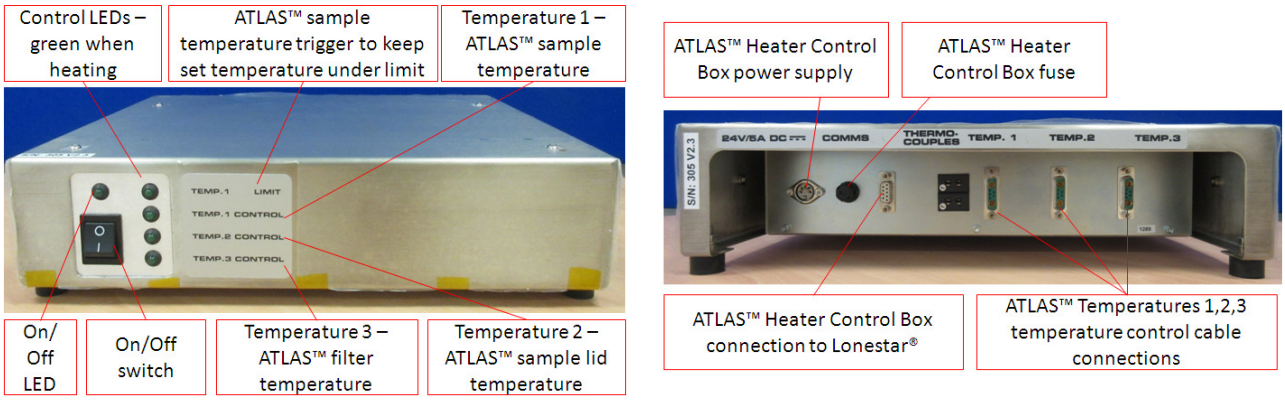


Figure 6 ATLAS™ Heater Control Box front view (left) and back view (right)

- The ATLAS™ Pneumatic Control Box (Figure 7) with Swagelok® fittings capped off to avoid dust contamination during transportation.

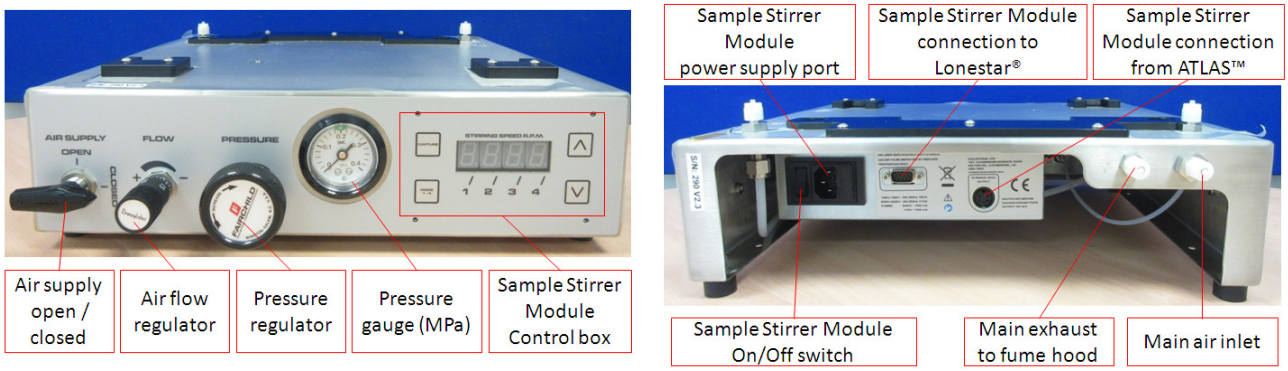
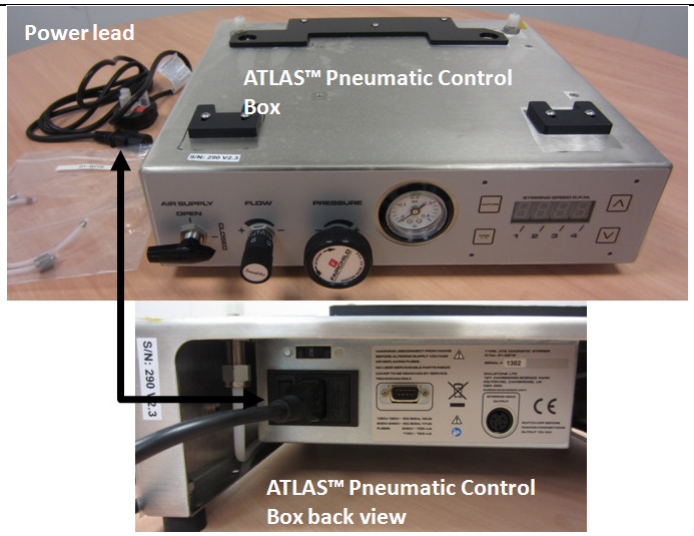
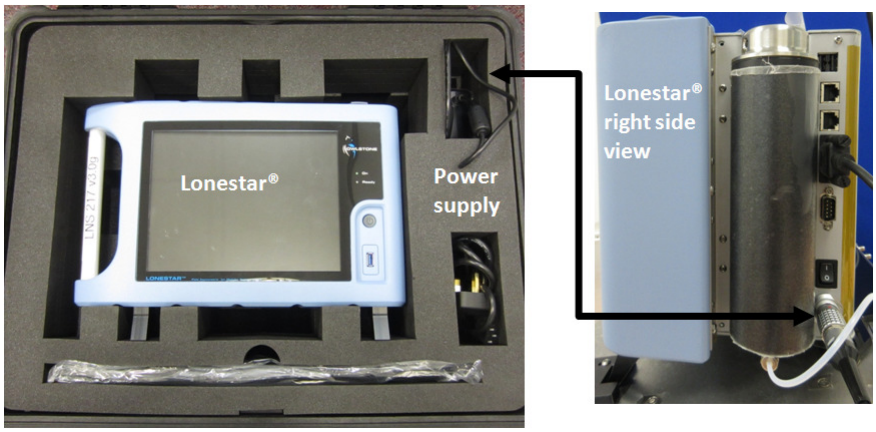


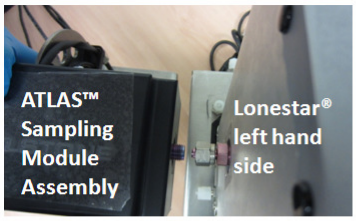
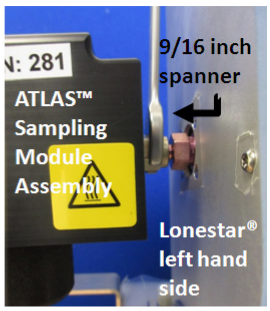
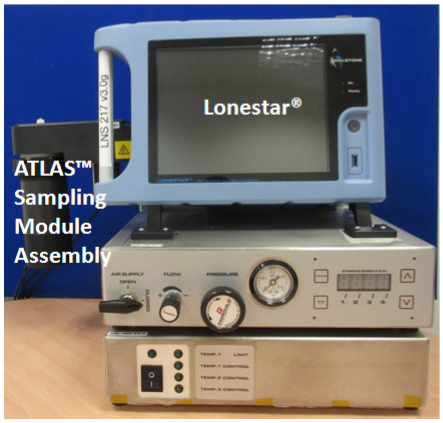
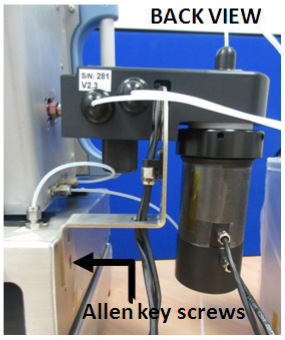
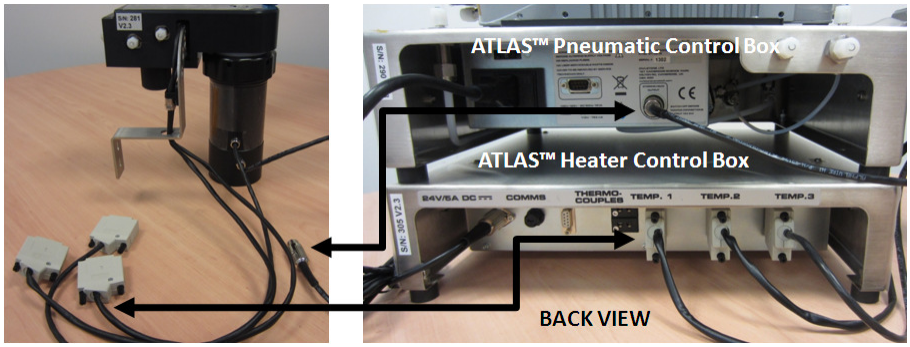
Figure 7 ATLAS™ Pneumatic Control Box front view (left) and back view (right)

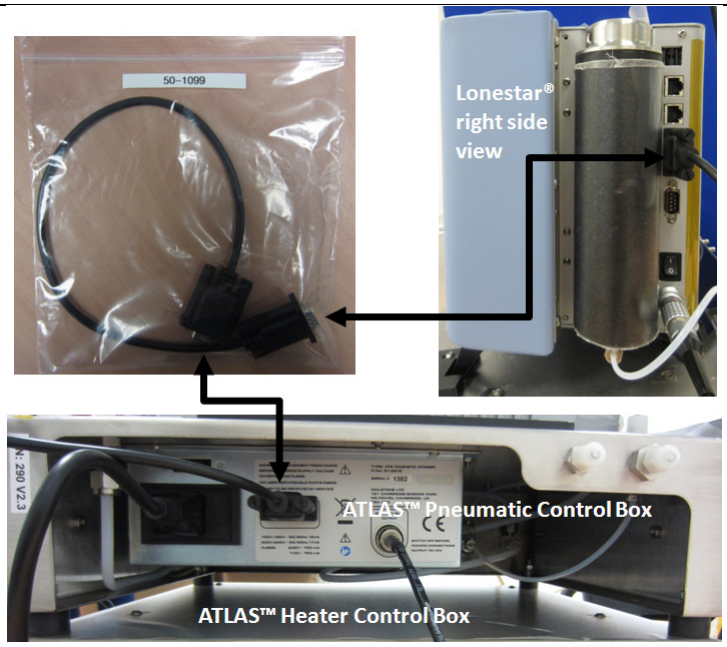
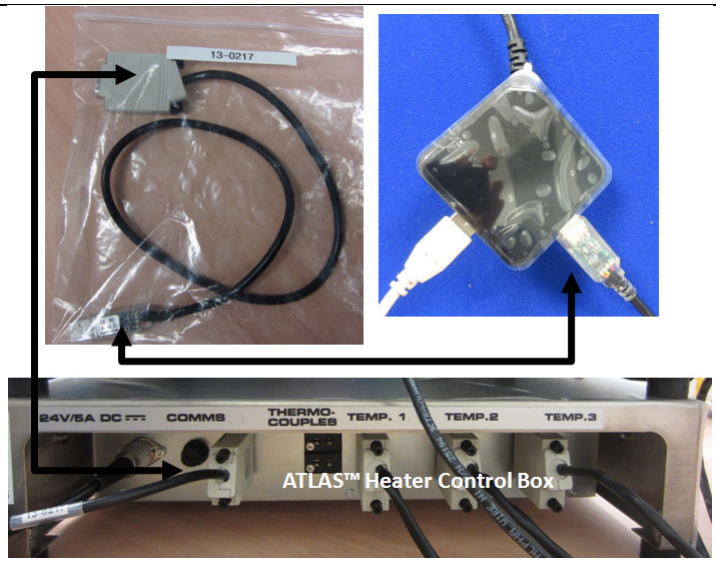
- A box of 120 mL VWR® sample bottles (50-0506) to use with Viton® o-rings (50-0879).
- A box of 10 mL vials with aluminium insert (02-1134).
- Two coated dip tubes of different lengths (02-1282 and 02-1334).
- Sample module dip tube knob (02-1497).
- Fisherbrand® stir bars of two lengths (50-1075 and 50-0752).

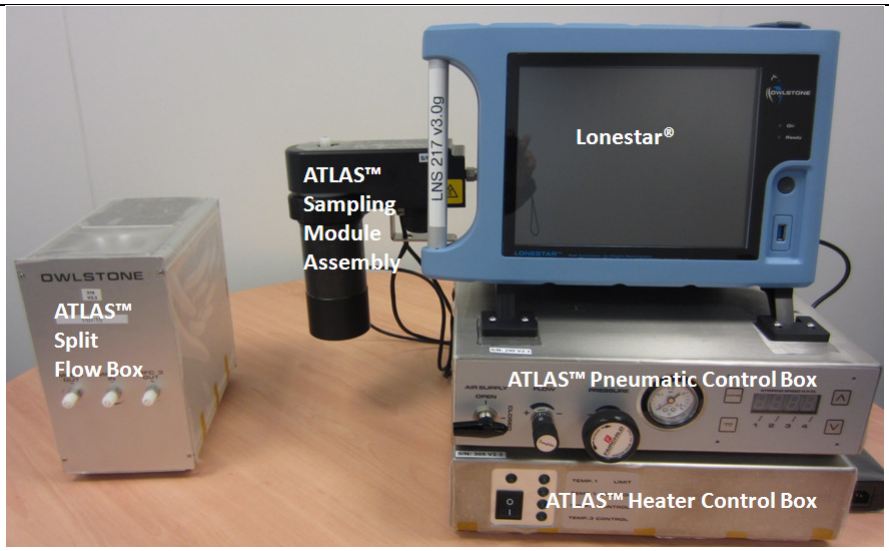
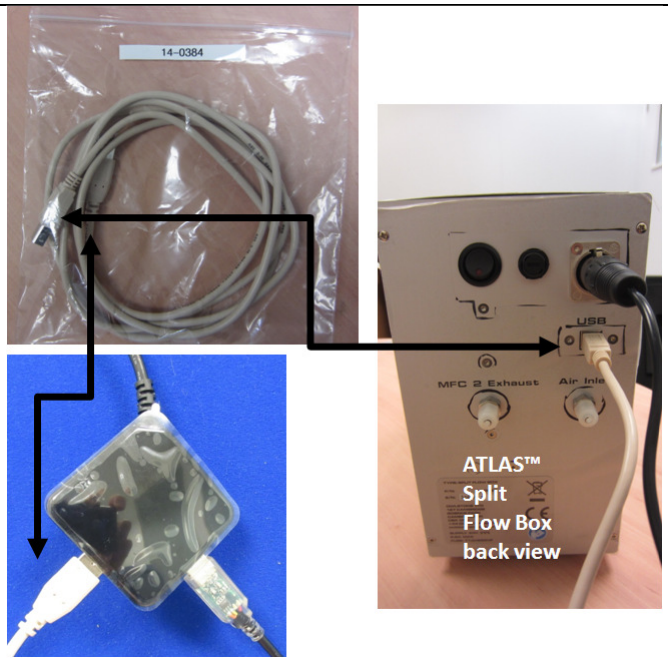
Installation Instructions

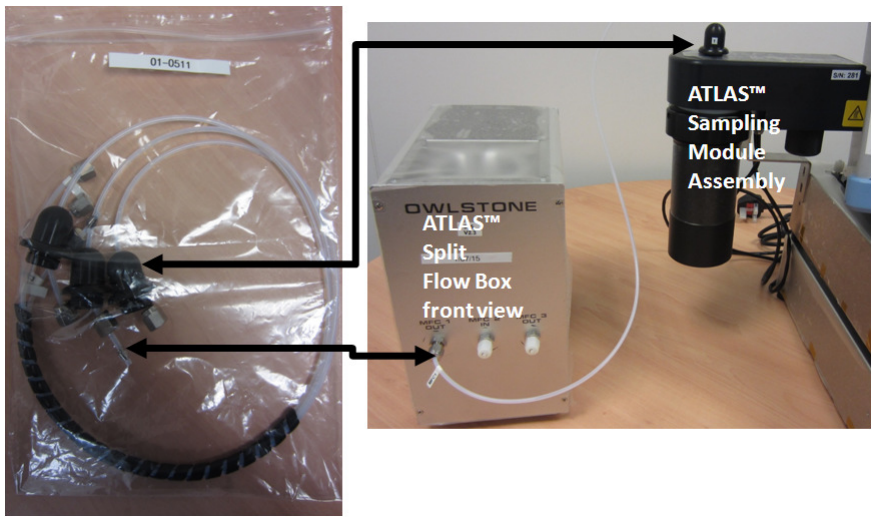
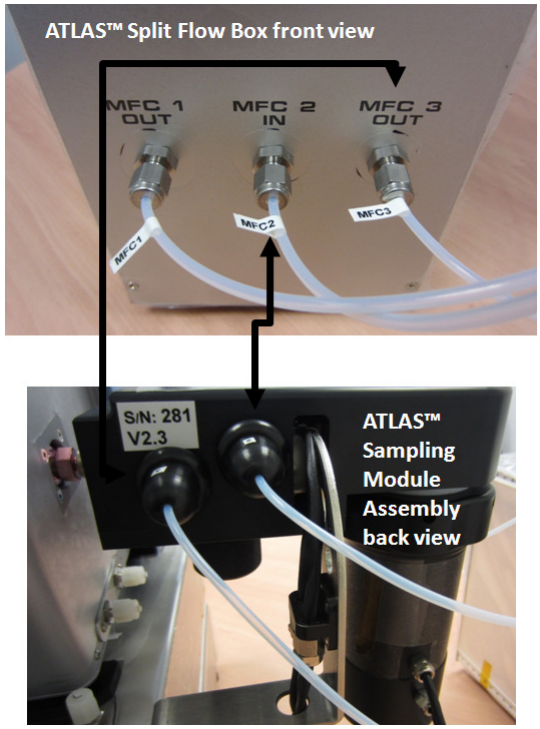
Step #	Installation instructions	Installation pictures
1	Place the ATLAS™ Heater Control Box on the appropriate bench near a fume hood.	
2	Connect both parts of the power supply together (C13 power lead and AC/DC adapter). Use one power outlet to plug the power lead in. Plug the AC/DC adapter end of the power supply in the 24V/5A DC port located at the back of the ATLAS™ Heater Control Box.	 
3	Place the ATLAS™ Pneumatic Box on top of the ATLAS™ Heater Control Box	

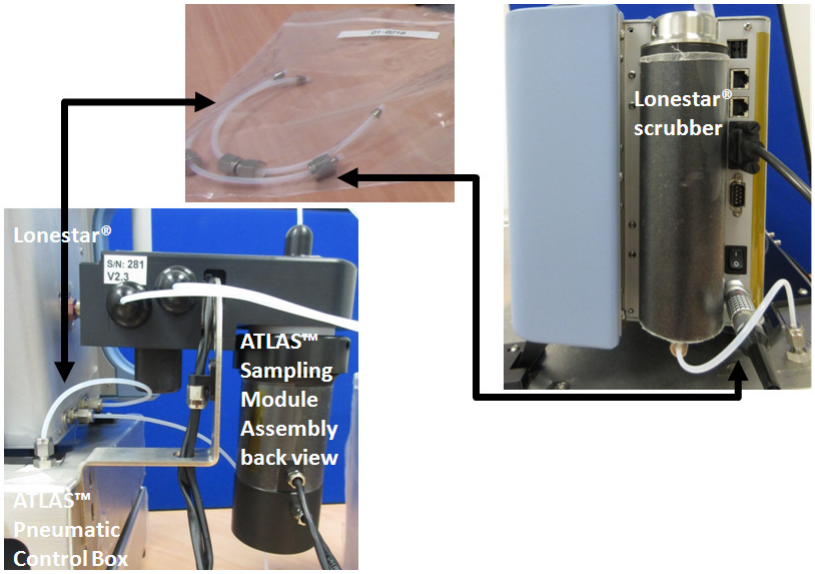
4	Use one power outlet to plug the power lead in. Plug the other end of the power lead into the back of the ATLAS™ Pneumatic Control Box.	
5	Slide the front feet forward then place the Lonestar® on top of the ATLAS™ Pneumatic Box using the black plastic supports to hold the Lonestar® feet in place. Push the front feet back until they push against the legs and then tighten the 4 screws.	
6	Connect together both parts (C13 power lead and AC/DC adapter) of the Lonestar® power supply located on the right hand side of the suitcase. Use one power outlet to plug the power lead in. Plug the AC/DC adapter end of the power supply in the right hand side of the Lonestar®.	

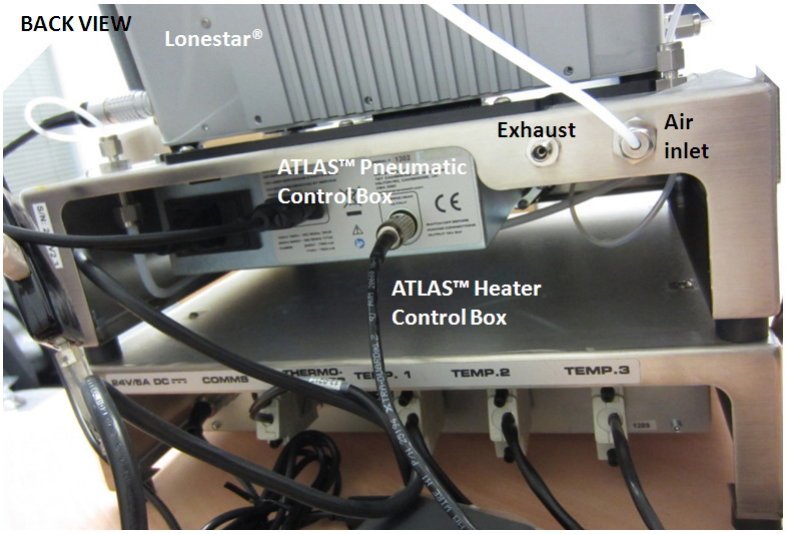
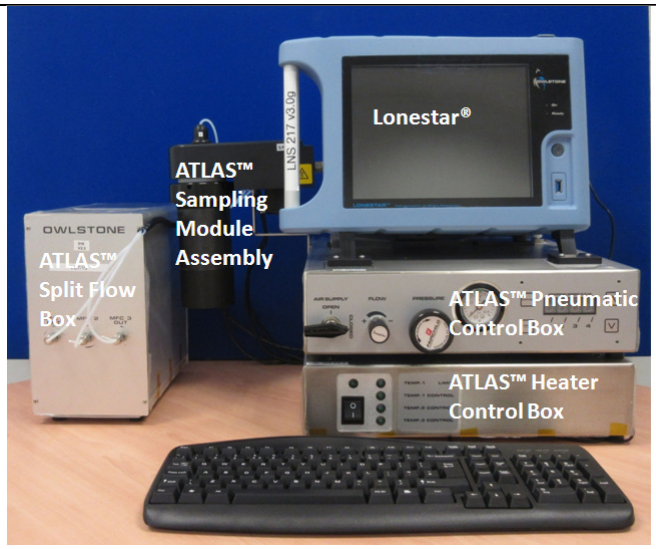
7	Attach the ATLAS™ Sampling Module Assembly to the left hand side of the Lonestar®. This can be done using the supplied 9/16 inch spanner. For further support, attach the ATLAS™ Sampling Module Assembly support arm to the ATLAS™ Pneumatic Control Box. This can be done with the supplied screws and allen key.	TOP VIEW  FRONT VIEW   BACK VIEW 
8	Once the ATLAS™ Sampling Module Assembly is attached to the Lonestar®, plug the temperature control cables in the back of the ATLAS™ Heater Control Box matching the temperature 1, 2 and 3 labels. The stirrer is plugged in the back of the ATLAS™ Pneumatic Control Box.	

9	Plug the stirrer communication cable (50-1099) in the right hand side of the Lonestar® and in the back of the ATLAS™ Pneumatic Control Box.	
10	Plug the black USB hub (50-1024) in the USB port located on the right hand side of the Lonestar®.	
11	Plug the heater communication cable (13-0217) in the COMMS port at the back of the ATLAS™ Heater Control box and in the USB hub.	

12	Place the ATLAS™ Split Flow Box close to the ATLAS™ Sampling Module Assembly and near a fume hood.	
13	Use a C13 power lead to plug the power supply in. Plug the connector from the power supply in the back of the ATLAS™ Split Flow Box.	
14	Plug the beige ATLAS™ Split Flow Box USB A to USB B cable (14-0384) in the USB port at the back of the ATLAS™ Split Flow Box and in the USB hub.	

15	Screw the 7/16 inch Swagelok® stainless steel nut of the PTFE tubing (01-0511) labeled MFC1 up to the MFC1 outlet at the front of the ATLAS™ Split Flow Box. The other end of the PTFE tubing is another 7/16 inch stainless steel nut covered by a black insulation labeled "1". Screw this Swagelok® stainless steel nut up to the sample flow located at the top of the ATLAS™ Sampling Module Assembly.	 ***Please tighten Swagelok® fittings in two steps:*** 1. ***Hand tighten, then*** 2. ***Tighten with the spanner only a further 1/16 to 1/8 turn.*** ***Overtighthened Swagelok® fittings tend to cut off PTFE pipes.***
16	Screw the 7/16 inch Swagelok® stainless steel nut of the PTFE tubing (01-0511) labeled MFC2 up to the MFC2 inlet at the front of the ATLAS™ Split Flow Box. Screw the Swagelok® stainless steel nut covered by the black insulation labeled "2" up to the split flow at the back of the ATLAS™ Sampling Module Assembly. Screw the 7/16 inch Swagelok® stainless steel nut labeled MFC3 up to the MFC3 outlet at the front of the ATLAS™ Split Flow Box. Screw the Swagelok® stainless	

	steel nut covered by the black insulation labeled "3" up to the makeup flow at the back of the ATLAS™ Sampling Module Assembly.	
17	Air delivered by air cylinder or air compressor / zero air generator feeds the Split Flow Box from the air inlet located at the back. For safety reason, the MFC2 exhaust located at the back of the ATLAS™ Split Flow Box should be connected to a fume hood for extraction.	
18	Screw a 7/16 inch Swagelok® stainless steel nut of the PTFE tubing (01-0218) up to the base of the scrubber and the other end up to the ATLAS™ Pneumatic Control Box. Screw a 7/16 inch Swagelok® stainless steel nut of the PTFE tubing (01-0218) up to the Lonestar® exhaust and the other end up to the ATLAS™ Pneumatic Control Box.	

19	Air delivered by air cylinder or air compressor/zero air generator feeds the Lonestar® system from the main air inlet located at the back of the ATLAS Pneumatic Control Box. For safety reason, the main Lonestar® system exhaust located at the back of the ATLAS Pneumatic Control Box should be connected to a fume hood for extraction.	
20	To complete the installation, place the external keyboard in front of the ATLAS™ Heater Control Box and connect it to the USB port available on the USB hub.	
21	Once the installation is complete, please follow the instructions detailed in the following documents: **90-0576 - Initial operation of a Lonestar 3.0 with ATLAS 2.x**: to turn on the system. **90-0579 - Operational and Cleanliness verification of a Lonestar 3.0 with ATLAS 2.x**: to generate a cleanliness check before analysis.	

Appendix 1 – Common Lonestar Spare Parts

Please note, these part numbers are those used by Owlstone® in Cambridge for ordering. It is possible that International suppliers use different part numbers for each Country. Please contact your local distributor for the relevant part numbers.

Title	Supplier	Part Number
120mL Traceclean sample bottles	VWR US	89094-050
120mL Traceclean sample bottles	Owlstone	50-0506
10mL headspace vials – crimp cap style	Fisher	VGA-100-070K
10mL Metal Vial Holder	Owlstone	02-1134
22mL scintillation vials	Fisher	VGA-870-010P
22mL Metal Vial Holder	Owlstone	02-1135
Membrane filter, 1µm, unlaminated, PTFE, 25mm diameter	Owlstone	50-0622
O-rings for bottles, 34 x 4mm, Viton, 60 shore	Owlstone	50-0879
Sample Module Dip Tube 53mm (Standard)	Owlstone	02-0793
Sample Module Dip Tube 24mm (Medium)	Owlstone	02-1282
Sample Module Dip Tube 19mm (Short)	Owlstone	02-1334
Sample Module Assembly Splash Plate	Owlstone	02-0805
Belleville washer (coated)	Owlstone	51-0344
Sample Module Dip Tube Knob	Owlstone	02-1497

About Owlstone®

Owlstone® develops and commercializes innovative new technologies to address the critical need for compact, dependable and cost-effective chemical and biological detection solutions for a wide range of markets.

Owlstone® was formed through the recognition of the opportunities created by the application of micro- and nano- technology to develop improved sensing solutions.

Owlstone® is focused on the innovation of detection technologies to address unmet needs, developing solutions that are flexible enough to target a range of markets with the potential for growth by enabling new application opportunities.

From homeland security to home safety, Owlstone® is working with leading manufacturers and integrators across a range of markets to develop products incorporating our microchip chemical sensing solution.

Owlstone® is headquartered in the United States and has laboratory facilities in the United Kingdom. Owlstone® Ltd was founded in 2003 with a seed investment of two million dollars from Advance Nanotech, Inc., a New York based company specializing in the investment in and commercialization of nanotechnologies.