Installation manual

Kori-xr
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1. Preface

This manual provides detailed instructions on the use of the Kori-xr. It details the software/hardware interface and procedure for the installation of this instrument.

1.1 Notices

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Markes International.

Please note that the material contained in this document is subject to being changed, without notice, in future editions. Markes International shall not be liable for errors or for incidental or consequential damages in connection with the supply, use or performance of this document or of any information contained herein, unless a separate agreement between Markes International and the user should take precedence.

1.2 Warranty

Kori-xr is designed for laboratory use only. It is not intended for use in domestic establishments or establishments directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. Where equipment is used in a field placement environment, care must be taken to ensure that the instrument is not exposed to detrimental conditions, i.e. rain, wind, or sun. Exposure may diminish the performance, cause damage to the instrument and/or cause the equipment to become unsafe to the user.

If the equipment is not used in a way specified by Markes International, the safety protection provided by the equipment may be reduced. Furthermore, system failures arising from such use may not be covered in standard warranty and/or service contract agreements.

1.3 Regulatory compliance

The instrument is designed and manufactured under a quality system registered to ISO 9001.

The instrument complies with the essential requirements of the following applicable European Directives, and carries the CE mark accordingly:

- Low voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU

The instrument conforms to the following product safety standards:

- IEC 61010-1/EN 61010-1
- Canada: CSA C22.2 No.61010-1
- USA: ANSI/UL 61010-1.

The instrument conforms to the following regulation on electromagnetic compatibility (EMC):

- IEC 61326-1/EN 61326-1.
1.4 Important safety warnings

There are several important safety notices to keep in mind when installing and using this instrument.

1.4.1 Labels/symbols

Throughout this manual symbols will appear where carrying out an operation may involve hazards. Symbols and warnings also appear on the instrument, and these should be adhered to at all times. Markes International can accept no liability for failure to do so.

- **BURN HAZARD**
  A hot surface may result in a burn injury.

- **INSTRUMENT/PART DAMAGE**
  Damage to the instrument or module may occur. This damage may not be covered under the standard warranties.

- **LIFTING HAZARD**
  Injury may occur if proper lifting procedures are not followed.

- **WARNING**
  General warning symbol to alert the user that personal injury or instrument damage may occur if the instrument is improperly used or if instructions are not followed correctly.

- **DISPOSAL**
  This label indicates the instrument must not be disposed in regular waste but in accordance with the WEEE scheme.

1.4.2 Mains voltages

- Ensure at all times that the plug (electrical isolator) can be easily and quickly accessed during equipment use.

- The instrument must be suitably earthed via the power cord.

  **NOTE**: Voltages within the instrument will be a maximum of 24 V. Although there is decreased risk of serious injury, these internal voltages should still be treated as dangerous. Contact with any live parts may cause personal injury and/or instrument damage.
1.4.3 High temperatures

Several parts of the Kori-xr can be operated at high temperatures. Contact with these zones whilst the system is in operation can cause serious burn injury. These zones are:

- Heated valve.

See Section 3 for the location of these zones. Both these zones are labelled with ‘Burn hazard’ labels similar to that shown above.

ALWAYS operate the instrument with the covers in place to avoid accidental contact with these zones.

Due to the high temperatures involved in the flow path, other zones of the instrument will be at higher temperatures during operation. These may not on visual inspection be obvious to the user. These zones are:

- The insulation of the Kori Transfer lines
- Top and side covers (especially directly above the heated valve).

See Section 3 for the location of these zones.

1.4.4 Cleaning and decontamination

Please consult Markes International or your local agent for information on decontamination or the use of cleaning agents.

NOTE: Incorrect cleaning/decontamination could result in damage to the instrument.
1.5 Environment operating conditions

The instrument should be protected from conditions that could cause exposure to frost, dew, percolating water, rain, excessive direct sunlight, etc.

Performance can be affected by sources of heat and cold from heating, air conditioning systems, or drafts.

It is advisable to operate the system in a clean laboratory environment, with minimal atmospheric concentrations of organic vapours.

1.5.1 Temperature

Recommended operating ambient temperature range is 15 to 30°C.

1.5.2 Humidity

Recommended operating humidity range is 5 to 95% non-condensing.

1.5.3 Altitude

This product should not be operated above 2000m (~6500ft).

NOTE: For storage or shipping the allowable temperature range is -40 to 70 °C and the allowable humidity range is 5-95% non-condensing. After instrument exposure to extremes of temperature or humidity, allow 2 hours for return to the recommended ranges before switching on.

1.6 Technical Specifications

1.6.1 Physical properties

Height: 46 cm (18.1”)
Width: 16 cm (6.3”)
Depth: 54 cm (21.3”)
Weight: 16 kg (35 lbs)

1.6.2 Electrical properties

Maximum Power: 650 W
Line voltage: 100-240 V (automatically selected)
Frequency: 50/60 Hz
Input inrush current (A): <40 A (cold start)

1.7 Technical support contact details

In the first instance please contact your distributor. If they are unable to resolve your query, please contact Markes International (details below).

Website: www.markes.com
E-Mail: support@markes.com
Telephone: +44 (0)1443 230935 (UK office)
+49 (0)6102 8825569 (German Office)
+1 866 483 5684 (US office (toll-free))
2. Kori-xr Pre-installation Check List

2.1 Recommended computer specification for Kori-xr control

The minimum PC specifications are:

- **CPU**: 1 GHz 64-bit dual core or better
- **RAM**: 4 GB
- **Free Disk Space**: 2 GB
- **Graphics card**: DirectX 9 or later
- **Operating system**: Windows 7, 8.1 or 10, English
- **Minimum resolution**: 1024 x 768
- **Other requirements**: Windows compatible keyboard and mouse, one free USB port per instrument.

2.2 Services

2.2.1 Power

Kori-xr is automatically compatible with all conventional mains power supplies ranging from 100 to 240 V and 50 or 60 Hz. It is not necessary to manually select or switch voltages. The maximum power consumption of Kori-xr is 650 W.

2.2.2 Pressure controlled supply of dry air or nitrogen (purge gas)

Kori-xr requires a pressure-regulated supply of dry air or nitrogen (dewpoint lower than -50°C) at between 50 and 60 psi both to actuate the main valve and to purge the cold trap box.

It is recommended that a secondary pressure regulator be used to control the supply of dry gas to Kori-xr in addition to that controlling the general laboratory line pressure. Any conventional pressure regulator should suffice for this and suitable pneumatic control may already be available on your GC. Alternatively, Markes International can supply a pneumatic control accessory (U-GAS01) for both air and carrier gas. It is recommended that the purge gas is shared with the UNITY-xr or UNITY 2 via a plug-in Y-fitting connected to the UNITY-xr or UNITY 2.

It is recommended that the pressure in the laboratory purge gas line be at least 10 psi higher than that supplied to Kori-xr.

2.2.3 Pressure controlled carrier gas supply

Kori-xr requires a regulated supply of carrier gas at a pressure to suit the analytical column / system selected. 5.0 grade (i.e. 99.999%) or higher purity helium / nitrogen is recommended.

Previously approved and correctly rated external gas regulator should be used with this unit. Maximum inlet pressure must not exceed 60 psi.

The pressure in the laboratory carrier gas line should be at least 10 psi higher than that supplied to Kori-xr.
3. **Instrument Familiarisation**

The Kori-xr selectively removes water from the sample gas stream with virtually no loss of polar or non-polar species. It is ideal for GC-MS analysis of complex air samples.

The Kori-xr works in two steps:

- **Sampling phase**: the sample gas stream passes from the Air-Server-xr or CIA-Advantage through the Kori-xr prior to collection on the focussing (cold) trap. The Kori-xr trap is held at a sub-zero temperature causing vapour-phase water in the air sample to be deposited as ice in the Kori-xr trap. This process doesn’t impact on the collection of VOCs onto the focussing (cold) trap.

- **Purging phase**: when sampling is completed, the Kori-xr trap is heated with a flow of carrier gas through it, in order to purge any ice that has deposited during the sampling phase. This purge starts after sampling and finishes once the focussing (cold) trap has desorbed and cooled down.

The major component parts are displayed below (covers removed for clarity)

![Diagram of Kori-xr components](image)
4. Installing Kori-xr

4.1 Unpacking Kori-xr

Remove the instrument from its packaging. It is strongly recommended that the instrument packaging is retained for future use if ever the system is to be shipped using conventional carriers. Shipping the instrument in non-standard packaging may irreversibly damage the equipment and invalidate the warranty. It is recommended that 2 people unpack the instrument to minimise the lifting hazard.

Check the packing list included with the instrument to confirm the condition and completeness of ship kit and report any problems i.e. missing or damaged parts.

4.2 Positioning Kori-xr

The position of the Kori-xr relative to other instrumentation is dependent on the system configuration

4.2.1 UNITY-xr (UNITY2)/CIA-Advantage/Kori-xr (Desorb side)

In this configuration the Kori-xr is positioned BETWEEN the CIA Advantage and the UNITY-xr or UNITY 2.

The above configuration also applies if an ULTRA-xr is present alongside a UNITY 2. The ULTRA-xr must be removed from the UNITY 2 tube oven prior to installation of the Kori-xr and vice versa. Separate software configurations should be used for each of the two situations.
4.2.2  **UNITY-xr (UNITY2)/CIA-Advantage/Kori-xr (Split side)**

In this configuration the Kori-xr is positioned **BETWEEN** the CIA Advantage and the UNITY-xr (not UNITY 2.) but the Kori Transfer line enters the UNITY-xr on the split side to allow the UNITY-xr tube oven free for single tube 2-3 stage tube desorptions.

4.2.3  **ULTRA-xr-UNITY-xr/Kori-xr/CIA-Advantage**

In this configuration the Kori-xr is positioned **BETWEEN** the CIA Advantage and the UNITY-xr.
4.2.4  UNITY Air Server-xr/Kori-xr

In this configuration the Kori-xr is positioned to the RIGHT of the UNITY AirServer-xr.

4.2.5  UNITY 2 Air Server/Kori-xr

In this configuration the Kori-xr is positioned to the LEFT of the UNITY 2 Air-Server.
4.3 Connections to Kori-xr

4.3.1 Purge gas connection

Connect the purge gas line on the rear of Kori-xr to the plug-in Y-fitting on the inlet on the rear of the UNITY-xr (UNITY 2) via 4mm o.d. nylon tubing (Z-0055). The other port on the Y-fitting should be connected to the back of the U-GAS01 regulator. Purge gas should be set to approximately 50 psi.

4.3.2 Carrier gas connection

Please refer to the relevant installation manuals for the UNITY-xr (QUI-1117) and UNITY 2 (QUI-1056) for the correct gas connections with and without electronic carrier control (ECC).

Once determined, the carrier gas supply to the Kori-xr should be connected in-line to the carrier gas supply to the UNITY-xr (UNITY 2) using the brass 1/8” T-piece and copper tubing supplied in the Kori-xr shipping kit as shown below.
4.3.3 Cable connections

Connect the power cable (SERZ-0024).

Connect the Kori-xr to the PC with the serial cable (SERZ-0189). If there are no available serial ports on the PC, use the USB-Serial cable adapter (U-USBSR) provided.

4.4 Installing the heated transfer lines

Kori-xr is supplied with two heated transfer lines. The choice of transfer line used will depend on the configuration of the thermal desorption system. If the configuration of the system demands that the sample outlet from Kori-xr enters the desorb side of UNITY-xr (UNITY 2) then transfer line (SERASX-5004) is used. If the configuration of the system demands that the sample outlet from Kori-xr enters the split side of UNITY-xr (UNITY 2) then transfer line (SERASX-5031) is used.

4.4.1 Installing the heated Transfer Line between Kori-xr and UNITY-xr or UNITY 2– CIA-Advantage, no ULTRA-xr configuration (SERASX-5004)

Ensure that Kori-xr is switched off and cool.

Remove the front top cover by pulling it up vertically.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the heated valve shield</td>
<td>Remove the heated valve shield by removing the two screws shown and then pulling it forwards and upwards.</td>
</tr>
<tr>
<td>Remove the rear cover</td>
<td>Remove the rear cover by sliding it backwards.</td>
</tr>
<tr>
<td>Connect the shorter length of 1/16&quot; tubing of SERASX-5004</td>
<td>Connect the shorter length of 1/16&quot; tubing of SERASX-5004 to the sample outlet on top of Kori-xr</td>
</tr>
<tr>
<td><strong>Operation</strong></td>
<td><strong>Image</strong></td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Connect the four way Molex connector of SERASX-5004 to the terminal labelled ‘CIA I/F’ on top of Kori-xr</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>Connect the longer piece of 1/16” tubing of SERASX-5004 to the length of 1/16” Stainless Steel tubing supplied in the Kori-xr shipping kit (Z-0175) using a 1/16” union</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>Remove top rear cover of CIA Advantage.</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>Connect the other end of the 1/16” Stainless Steel tubing to the outlet tubing of the CIA-Advantage valve oven using a second1/16” union. Route the tubing through the slot in the CIA-Advantage cover and replace.</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>
Modify the UNITY-xr or UNITY 2 tube oven cover by unscrewing the black knob, removing the 2" metal extension piece then reattaching the black knob.

Carefully position the interface tube of **SERASX-5004** horizontally into the tube oven / cradle on UNITY-xr or UNITY 2 with the narrow part of the interface tube nearest the rear of the instrument

Gently but firmly lower the tube oven cover on UNITY-xr taking care not to damage the insulation on the interface line.

The oven cover must be lowered completely to ensure a good seal.

<table>
<thead>
<tr>
<th>4.4.2 Installing the heated Transfer Line between Kori-xr and UNITY-xr – CIA-Advantage and ULTRA-xr configuration (<strong>SERASX-5031</strong>)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the Kori-xr covers as described in Section 4.4.1</td>
</tr>
</tbody>
</table>

**SERASX-5031**

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Markes International Ltd
Tel: +44 (0)1443 230935  Fax: +44 (0)1443 231531  E: enquiries@markes.com

www.markes.com
<table>
<thead>
<tr>
<th>Connect the shorter length of 1/16” tubing of SERASX-5031 to the sample outlet on top of Kori-xr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect the four way Molex connector of SERASX-5031 to the terminal labelled ‘CIA I/F’ on top of Kori-xr</td>
</tr>
<tr>
<td>Connect the longer piece of 1/16” tubing of SERASX-5031 to the length of 1/16” Stainless Steel tubing supplied in the Kori-xr shipping kit (Z-0175) using a 1/16” union</td>
</tr>
<tr>
<td>Connect the other end of the 1/16” Stainless Steel tubing to the outlet tubing of the CIA-Advantage valve oven using a second 1/16” union as described in section 4.4.1</td>
</tr>
</tbody>
</table>
To enable the Kori-xr heated transfer line to be installed in UNITY-xr, it is first necessary to remove the split tube cradle by removing the two screws indicated.

The split tube slider assembly must now be pushed back to allow the split tube and transfer line increased room of installation. Loosen the two screws indicated, and pull the split tube slider assembly back a sufficient distance on the slots to allow installation.

Insert the split tube and Kori-xr transfer line (SERASX-5031) into the split side of the UNITY-xr heated valve as shown and fully lower the split tube cover to ensure a leak tight seal.

Tighten the split tube slider screws into their new position once the split tube and transfer line are securely installed.
The length of 1/16” stainless steel tubing at this end of the transfer line should be connected to the bulkhead union on UNITY-xr as shown.

4.4.3 Installing the heated Transfer Line between Kori-xr and UNITY Air Server-xr (SERASX-5031)

Remove the Kori-xr covers as described in Section 4.4.1

Connect the shorter length of 1/16” tubing of SERASX-5031 to the sample outlet on top of Kori-xr
<table>
<thead>
<tr>
<th>Connect the four way Molex connector of SERASX-5031 to the terminal labelled ‘CIA I/F’ on top of Kori-xr</th>
</tr>
</thead>
<tbody>
<tr>
<td>The longer piece of 1/16” tubing of SERASX-5031 is unused and should remain unconnected and be routed away from other components on Kori-xr</td>
</tr>
<tr>
<td>To enable the Kori-xr heated transfer line to be installed in UNITY-xr, it is first necessary to remove the split tube support by remove the two screws indicated</td>
</tr>
</tbody>
</table>
The split tube slider assembly must now be pushed back to allow the split tube and transfer line increased room of installation. Loosen the two screws indicated, and pull the split tube slider assembly back a sufficient distance on the slots to allow installation.

Insert the split tube and Kori-xr transfer line (**SERASX-5031**) into the split side of the UNITY-xr heated valve as shown and fully lower the split tube cover to ensure a leak tight seal.

Tighten the split tube slider screws in its new position once the split tube and transfer line are securely installed.
The length of 1/16” stainless steel tubing at this end of the transfer line is unused and should remain unconnected and be routed away from other components on Kori-xr.
### 4.4.4 Installing the heated Transfer Line between Kori-xr and UNITY 2 Air Server (SERASX-5004)

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4.1</td>
<td>Remove the Kori-xr covers as described in Section 4.4.1.</td>
</tr>
</tbody>
</table>

- Connect the shorter length of 1/16” tubing of SERASX-5004 to the sample outlet on top of Kori-xr.

- Connect the four way Molex connector of SERASX-5004 to the terminal labelled ‘CIA I/F’ on top of Kori-xr.

- Connect the longer piece of 1/16” tubing of SERASX-5004 to the length of 1/16” Stainless Steel tubing supplied in the Kori-xr shipping kit (Z-0175) using a 1/16” union.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect the other end of the 1/16” Stainless Steel tubing to the purge in connection on the top of the Air Server.</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Modify the UNITY 2 tube oven cover by unscrewing the black knob, removing the 2” metal extension piece then reattaching the black knob.</td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td>Carefully position the interface tube of <strong>SERASX-5004</strong> horizontally into the tube oven / cradle on UNITY 2 with the narrow part of the interface tube nearest the rear of the instrument. Gently but firmly lower the tube oven cover on UNITY-xr taking care not to damage the insulation on the interface line. The oven cover must be lowered completely to ensure a good seal.</td>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
### 4.5 Installing the split tube in Kori-xr

<table>
<thead>
<tr>
<th>Replace the back cover and heated valve shield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carefully position the split tube (<strong>SERUTD-5065</strong>) horizontally into the split cradle</td>
</tr>
<tr>
<td>Gently but firmly lower the split cradle cover on Kori-xr.</td>
</tr>
<tr>
<td>The oven cover must be lowered completely to ensure a good seal.</td>
</tr>
</tbody>
</table>

### 4.6 Installing the cold trap in Kori-xr

<table>
<thead>
<tr>
<th>Kori-xr uses a specific 4mm tube trap (<strong>U-T1KORI</strong>). This part is not used in any other Markes TD products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holding onto the trap as close as possible to the trap box, gently push the trap into the trap box.</td>
</tr>
<tr>
<td><strong>DO NOT APPLY EXCESSIVE FORCE TO THE QUARTZ TRAP.</strong></td>
</tr>
<tr>
<td>If in doubt practice with the trap alignment tool supplied in the shipping kit.</td>
</tr>
<tr>
<td><strong>NEVER SWITCH</strong> Kori-xr <strong>ON WITH THE TRAP ALIGNMENT TOOL INSTALLED.</strong></td>
</tr>
<tr>
<td>Push the trap in until it passes the o-ring.</td>
</tr>
</tbody>
</table>
## 4.7 Installing the Kori-xr sample line (SERWAD-7001)

### 4.7.1 Installing the Sample Line between Kori-xr and CIA-Advantage

<table>
<thead>
<tr>
<th>Ensure that Kori-xr is switched off and cool.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SERWAD-7001</strong></td>
</tr>
</tbody>
</table>

Connect the length of 1/16” tubing to the sample outlet of the CIA-Advantage valve oven and connect the 4-way molex power cable to the interconnector power terminal inside the CIA-Advantage to enable the sampling line to heat to Kori-xr flow path temperature.

Locate the connector block of **SERWAD-7001** on the brass runner located on top of Kori-xr and gently push the block towards the installed trap.
Align horizontally the pneumatics block against the trap using the adjustment screw highlighted.

Push the connector block onto the trap gently so that the trap is sealed inside the o-ring of the pneumatics block.

Secure the connector block using the black thumbscrew

Replace the front cover

4.7.2 Installing the Sample Line between Kori-xr and the UNITY Air Server-xr (UNITY 2 Air Server)

Ensure that Kori-xr is switched off and cool.

SERWAD-7001
### Air Server-xr
Connect the length of 1/16” tubing to the sample outlet of the Air Server-xr. The 4-way molex power cable remains disconnected the sampling line is unable to heat on an Air Server.

![Air Server-xr](image)

### Air Server Series 2
Connect the length of 1/16” tubing to the sample outlet of the Air Server. The 4-way molex power cable remains disconnected the sampling line is unable to heat on an Air Server.

![Air Server Series 2](image)

### Locate the connector block of SERWAD-7001 on the brass runner located on top of Kori-xr and gently push the block towards the installed trap.

![Connector Block](image)
Align horizontally the pneumatics block against the trap using the adjustment screw highlighted.

Push the connector block onto the trap gently so that the trap is sealed inside the o-ring of the pneumatics block.

Secure the connector block using the black thumbscrew

Replace the front cover
5. Configuring Kori-xr in Markes Instrument Control (MIC) software

**NOTE:** This installation manual assumes that the latest version of software, MIC 2.0.1 is installed.

Locate the Markes Instrument Control (MIC) software supplied on a USB stick in the shipping kit. Insert the USB stick into the appropriate compartment of the PC and follow the instructions on the screen. Once the software has been loaded onto your PC you can access the program from Start > Programs or install an appropriate shortcut.

During the software download, the display language, English or Chinese can be set.

![Display language selection](image)

5.1 Configuring the software

The USB driver should then be installed from the software CD by locating the appropriate driver executable files (.exe) and running.

With the all instruments switched off, start the software either by double clicking the MIC icon placed on the desktop or from Start > Programs. The following Connecting window will appear.

![Connecting window](image)

Click Configure to open the **configuration** page.

Initially select the UNITY version from the available instruments section, as appropriate, and then click the right arrow to move the selection into the current configuration section. The list of available options will then update.
Select the Air Server or CIA-Advantage configuration present and then click the right arrow to move the selection into the current configuration section.

At this point the Kori-xr can be selected and moved into the current configuration section.
The correct ports will depend on the PC setup and can be checked by opening up the device manager window on the PC. Make sure that the Kori-xr communications cable is initially disconnected from the PC, When it is then plugged in the Kori-xr com port will appear, make note of its com port and then ensure the correct ones are selected in the instrument configuration page as shown.
After making any necessary changes in the **Configuration** Tab click ‘OK’ and the following message appears, click ‘OK’ to close the software.

![Markes Instrument Control](image)

On reopening, the software will be correctly configured.

### 5.2 Detecting the Kori-xr

Ensure that the gas supplies to the system - especially the dry air or nitrogen purge gas used for Kori-xr valve actuation and purging the cold trap box - are on.

Having checked the above, alongside all other instruments, switch Kori-xr on using the switch located on the back panel of Kori-xr.

If communications between the PC and Kori-xr are established successfully the instrument status will change to Idle.

If for some reason, a configured instrument is not detected, the configuration page will automatically reopen. Ensure that the correct PC Com port is selected, click ‘OK’ twice and allow the software to close for configuration.
Left click on the idle icon to display the instrument status. Check that all the Kori zones are heating to the required setpoint.
6. Installation qualification

6.1 Leak Testing and Purge Flow Determination

**Note:** These following instructions show the Unity-xr/CIA-Advantage/Kori-xr configuration but apply to all configurations equally

6.1.1 Sampling configuration

- Click the ‘Pressurise 1/2’ button to pressurise the flow path with carrier gas.

- Click ‘Leak Test’ and observe the Unity and CIA vent gauges. A leak is defined if the pressure does not drop by more than 7.5% in 45 seconds. Monitor the split gauge pressure, if this remains stable then the system including the Kori-xr is leak tight in the sampling flow path.

- If a leak is found, use a helium leak detector to determine the source of the leak dependent on which gauge pressure dropped.

6.1.2 Purge configuration

It is now necessary to check that the Kori-xr split tube has been installed correctly and simultaneously set the Kori-xr purge flow.

- Once sampling leak testing has been completed, in Direct Control return the instruments to standby

- Press ‘Check Kori Purge Flow’
- The Kori-xr flow path should be configured as shown below

- Using a helium leak detector, check for leaks on the O-rings at each end of the Kori-xr split tube to ensure the split tube has been installed correctly.

- Using an external flowmeter, set the Kori-xr purge flow to 50ml/min by adjusting the purge vent needle valve on the front of the Kori-xr as shown below.
6.2 Conditioning the Kori-xr trap
The Kori-xr trap does not require pre-conditioning

6.3 System checkout
No system checkout other than monitoring of heated zone set points and leak testing is required