Translation of the original operating instructions

# SL4000

Sniffer line

INFICON GmbH

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# Table of Contents

# 1 About this Manual

Product names may occur in the document, which are added for identification purposes only and belong to the respective owner of the rights.

### Scope

This guide applies for:

| Product | Catalog number |
|---|---|
| **Sniffer line** | |
| SL4000, 3 m length | 527-001 |
| SL4000, 5 m length | 527-002 |
| SL4000, 10 m length | 527-003 |
| SL4000, 15 m length | 527-004 |
| **Sniffer line with Background Canceling** | |
| SL4000 BC, 3 m length | 526-001 |
| SL4000 BC, 5 m length | 526-002 |
| SL4000 BC, 10 m length | 526-003 |
| SL4000 BC, 15 m length | 526-004 |

## 1.1 Other associated documents

| Name | Document number |
|---|---|
| Ecotec 4000 operating instructions | kina59 |

## 1.2 Explanation of warnings

⚠ **DANGER**

**Imminent hazard resulting in death or serious injuries**

⚠ **WARNING**

**Hazardous situation resulting in potential death or serious injuries**

⚠ **CAUTION**

**Hazardous situation resulting in minor injuries**

**NOTICE**

**Hazardous situation resulting in damage to property or the environment**

## 1.3 Target group

This instruction manual is intended for the user of the sniffer line SL4000, technically qualified personnel and instructed personnel.

# 2 Safety

## 2.1 Intended use

The device is a sniffer line for leak detection. You use the sniffer line to search the outside of the test objects for escaping gas.

An SL4000 sniffer line can for example be used with the Ecotec 4000 leak detector.

Also observe the further information on the use of sniffer lines in the operating instructions for your leak detector, chapter "Intended use".

**Incorrect usage** 	Avoid the following unintended uses:

- Use outside the technical specifications, see "Technical Data"
- Use of accessories or spare parts, which are not listed in this manual
- Use with non-INFICON leak detectors
- Use of damaged sniffer lines
- Using the device in potentially explosive atmospheres

## 2.2 Duties of the Operator

- Read, observe, and follow the information in this instruction manual and in the work instructions provided by the owner. This concerns in particular the safety and warning instructions.
- Always observe the complete operating instructions for all work.
- If you have any questions about operation or maintenance that are not answered in this instructions for use, contact INFICON service.

## 2.3 Owner Requirements

The following notes are for companies or any person who is responsible for the safety and effective use of the sniffer line by the user, employees or third parties.

### Safety-conscious operation

- Operate the sniffer line only if it is in good operating condition and does not show any damage.
- Only operate the sniffer line as intended, in a safety and risk conscious manner, and in accordance with this instructions for use.
- Adhere to the following regulations and observe their compliance:
  - Intended use
  - General applicable safety and accident prevention regulations
  - International, national and local standards and guidelines
  - Additional device-related provisions and regulations
- Keep this instruction manual available on site.

### Personnel qualifications

- Only allow instructed personnel to work with the sniffer line. The instructed personnel must have received training regarding the sniffer line.

- Make sure that authorized personnel have read and understood the instruction manual and all other applicable documents.

# 3 Scope of Delivery, Transport, Storage

**Scope of delivery**

| Item | Quantity |
|---|---|
| SL4000 sniffer line in ordered version | 1 |
| Sniffer tip, 125 mm length, rigid | 1 |
| Hand strap | 1 |
| Filter ejector | 1 |
| Filter holder | 1 |
| Filter normal | 2 |
| Filter XL | 1 |
| Nozzle 0.8 mm | 1 |
| Digital operating instructions, to download as PDF from www.inficon.com | 1 |

**Transport**

> **NOTICE**
>
> **Damage due to transport in unsuitable packaging**
>
> Transport in unsuitable packaging material can damage the device. Parts inside the device can be damaged during transportation without transport restraint.
>
> ▶ Keep the original packaging.
>
> ▶ Transport the device only in the original packaging.

**Storage**

Always store the device in compliance with the technical data, see "Technical Data [▶ 11]".

# 4 Description

## 4.1 Function

To find leaks, pass the tip of the sniffer line over places where gas may be leaking.

The sniffer lines are available in different lengths and with different sniffer tips, see "Accessories and spare parts [▶ 23]".

The sniffer line contains two capillaries with different diameters for minimum and maximum gas flow, see also "Technical Data [▶ 11]". The sniffer line can be used with different gas flow modes depending on the connected leak detector.

The sniffer lines of the "SL4000 BC" series also support the mode "Background Canceling". In Background Canceling mode, the measurement with an elevated background of the tracer gas becomes more accurate by permanently switching between the gas inlet at the sniffer tip and a more distant lateral opening. In this mode, the tracer gas already present in the environment is taken into account when determining the leak rate.

## 4.2 Structure of the sniffer line

⚠ **WARNING**

**Risk of eye damage**

LEDs on the sniffer probe generate a bundled light that can damage your eyes.

▶ Do not look into the LEDs from a short distance or for longer periods of time.

⚠ **CAUTION**

**Risk of electric shock from sucking in liquids**

Sucking up conductive liquids can lead to an electrical voltage at the sniffer probe.

▶ Do not suck up liquids with the device.

▶ Install a water protection tip if necessary.

The sniffer line is made of a line, a sniffer probe, and a sniffer tip.

The sniffer probe is equipped with LEDs for work in poorly lit places.

The sniffer probe has a status display that shows the current status of the leak detection.

Two push buttons are located on the sniffer probe. For more information on the functions of these buttons, refer to the operating instructions of the connected leak detector.
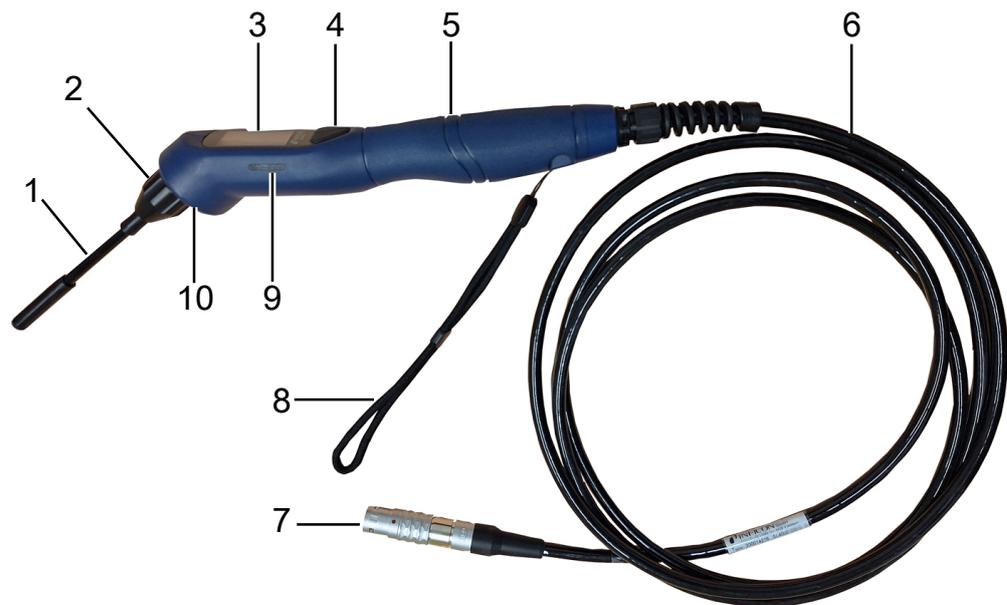
| | | | |
|---|---|---|---|
| 1 | Sniffer tip | 6 | Multifunction cable |
| 2 | Union nut | 7 | Connector |
| 3 | Display | 8 | Hand strap |
| 4 | Push buttons | 9 | Status display |
| 5 | Sniffer probe | 10 | LED |

### Display of the sniffer probe

During measuring, the leak rate is also shown on the display of the sniffer probe. If a function can be activated via a push button, the corresponding function is shown at the bottom of the display.
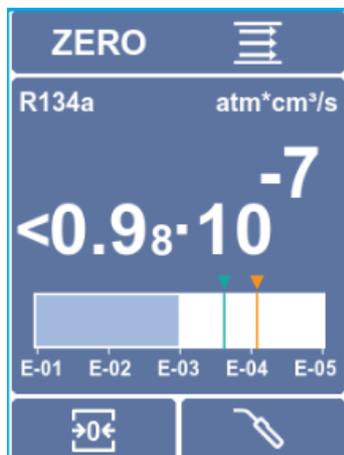


*Fig. 1:* Exemplary display of the leak rate during the measurement with an Ecotec 4000

## 4.3 Technical Data

### Mechanical data

| SL4000 | |
|---|---|
| Min. gas flow | 124 sccm |
| Max. gas flow | 3000 sccm |
| Measured at 1 atm (1013 mbar) at sea level. Flow rate varies with altitude and atmospheric pressure. | For the exact gas flow rate in the respective gas flow mode, refer to the operating instructions for the connected device. |
| Connection on the device | Via separate socket on the device |
| Number of buttons | 2 |
| Min. bending radius of the hose | 15 cm |

### Electrical data

| SL4000 | |
|---|---|
| Operating voltage | 24V |
| Mains frequency | DC voltage |
| Power consumption | 20 VA |

### Ambient conditions

| SL4000 and optional accessories | |
|---|---|
| Max. altitude above sea level | 2000 m |
| Max. relative humidity up to 31°C | 80% |
| Max. relative humidity from 31 °C to 40 °C | Decreasing on linear basis from 80% to 50% |
| Max. relative humidity above 40°C | 50% |
| Max. storage temperature | -20 °C to +60 °C |
| Permissible ambient temperature (during operation) | 10 °C to 45 °C |
| Pollution degree | 2 |

# 5 Installation

## 5.1 Connecting the sniffer line

⚠️ **CAUTION**

**Risk of injury by tripping**

▶ Lay the multifunction cable of the sniffer line in such a way that you do not trip over it or fall.

*1* Align the red mark on the sniffer line connector with the red mark on the leak detector socket.

*2* Insert the plug of the sniffer line into the socket of the leak detector until it clicks into place. Make sure that the red dot on the plug is aligned with the red dot on the socket.



*3* To disconnect the sniffer line if necessary, carefully pull on the sniffer line plug. Make sure to grip the knurled ring of the plug with one hand.



## 5.2 Changing the sniffer tip on the sniffer probe

In its delivered state, a rigid sniffer tip with a length of 125 mm is mounted on the sniffer line. You can change the sniffer tip of the sniffer line. For a list of the available sniffer tips, see "Accessories and spare parts [▶ 23]".

The sniffer tip is fixed to the sniffer probe with an union nut. The sniffer line has different union nuts for flexible or rigid sniffer tips.



| a | Union nut for flexible sniffer tips |
|---|---|
| b | Union nut for rigid sniffer tips |

✓ The connected leak detector is switched off.

*1* To remove the sniffer tip from the sniffer probe, unscrew the union nut from the sniffer probe and remove the sniffer tip.

*2* To install a new sniffer tip onto the sniffer probe, remove the filter holder from the sniffer probe for easier installation.



*3* Place the filter holder onto the new sniffer tip. Make sure that the orientation of the sniffer tip matches the orientation of the recess in the filter holder.



*4* Place the sniffer tip with the filter holder onto the sniffer probe.

5   Place the union nut over the sniffer tip onto the sniffer probe and tighten the union nut by hand. Make sure that you use the correct union nut for flexible or rigid sniffer tips.



6   To avoid incorrect measurements or long response times, visually check that the union nut is flush with the stop on the sniffer probe.



7   Calibrate the leak detector.

## 5.3 Installing and removing optional accessories

### 5.3.1 Installing and removing sniffer tip attachments

Attachments can be installed and removed from the sniffer tip. For a list of the available attachments, see "Accessories and spare parts [▶ 23]".

1   Push the attachment onto the end of the sniffer tip to the stop.



2   To avoid incorrect measurements or long response times, check that the attachment is seated all the way to the stop.

3   Calibrate the leak detector.

4   To remove the attachment if necessary, take it off the sniffer tip.

## 5.3.2 Installing and removing attachments I•Tip SENS and I•Tip RUGGED

**Installation**

1  Push the attachment plug-in connector onto the end of the sniffer tip to the stop.

2  To avoid incorrect measurements or long response times, check that the attachment is seated all the way to the stop.

3  Push the I•Tip SENS or I•Tip RUGGED attachment fully into the attachment plug-in connector.



**Disassembly**

1  If there is a securing on the attachment, remove the securing from the attachment.



2  Pull the blue locking ring towards the I•Tip SENS or I•Tip RUGGED attachment and remove it from the attachment plug-in connector.



3  Remove the attachment plug-in connector from the sniffer tip.

# 5.4 Updating the software

You can update the sniffer line software via a connected leak detector.

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**NOTICE**

**Loss of data due to disconnection**

▶  Do not switch off the leak detector and do not remove the USB flash drive while the software is being updated.

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✓  👤 **Supervisor** rights

✓  The sniffer line is connected to the leak detector.

1  Copy the sniffer line update file to the main directory of a FAT32-formatted USB flash drive.

    *2*    Connect the USB flash drive to the USB port on the leak detector.

    *3*   🔧 > Update > Update Sniffer Line

        ⇨ The active software version of the sniffer line is displayed at the top of the window.
If there are one or more software versions on the USB flash drive, the latest version found will be displayed in the line below. If this is the same as the version already installed the background is green, otherwise it is red.

    *4*    In order to load the new software version, press on the button "Update".

⇨ After completion there is an automatic restart of the system.

# 6 Maintenance

## 6.1 Replacing the filters of the sniffer line

> ⚠️ **CAUTION**
>
> **Danger due to harmful substances**
>
> Contaminated filter holders or filters in the sniffer probe can pose a health risk through skin contact.
>
> ▶ Wear protective clothing or protective gloves when handling substances that are harmful to health.
>
> ▶ During disposal, observe the environmental and safety regulations of your country.

The sniffer probe contains a filter holder. The filter holder and the individual filters can be replaced if necessary, see "Accessories and spare parts [▶ 23]".
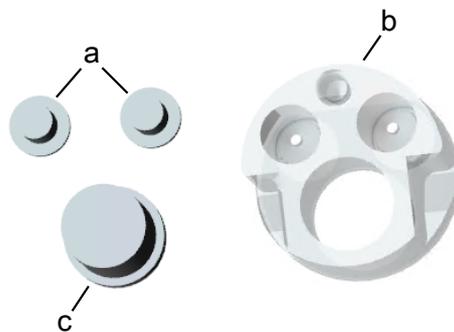


| a | Filter normal | c | Filter XL |
|---|---------------|---|-----------|
| b | Filter holder |   |           |

✓ The connected leak detector is switched off.
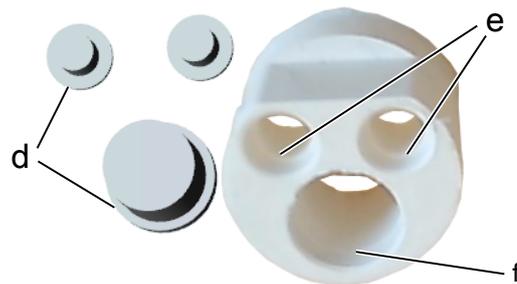
　1　Unscrew the union nut from the sniffer probe and remove the sniffer tip.

　2　Remove the filter holder from the sniffer probe.



　3　Remove the filters from the filter holder using the filter ejector. Alternatively, use a new filter holder.

4    Insert the new filters with the ribs into the recesses of the filter holder. Make sure you fill all filter containers.



| d | Rip | f | Filter XL |
|---|---|---|---|
| e | Recess filter normal | | |

5    Place the filter holder onto the sniffer tip. Make sure that the orientation of the sniffer tip matches the orientation of the recess in the filter holder.



6    Place the sniffer tip with the filter holder onto the sniffer probe.



7    Place the union nut over the sniffer tip onto the sniffer probe and tighten the union nut by hand.



8    To avoid incorrect measurements or long response times, visually check that the union nut is flush with the stop on the sniffer probe.

*9*    Calibrate the leak detector.

## 6.2  Replacing the nozzle of the sniffer tip

A nozzle is installed at the front end of the sniffer tip. The nozzle can be replaced if it is worn or blocked, see also "Accessories and spare parts [▶ 23]".

*1*    To remove the nozzle, unscrew the nozzle from the sniffer tip.



*2*    To install a new nozzle, screw the nozzle onto the sniffer tip.

## 6.3  Replacing wear parts of I•Tip SENS and I•Tip RUGGED

The I•Tip SENS and I•Tip RUGGED attachments include wear parts that should be replaced when they show clear signs of wear or contamination. Every fifth time the wear parts are replaced, the base body of the respective attachment should also be replaced.

### I•Tip SENS

*1*    To remove the brushes from the base body, slide the brush holders outwards and pull them off.



*2*    Slide the new brushes onto the base body until the brushes click into place.

### I•Tip RUGGED

**1**  Open the flap of the base body.





**2**  Replace the rubber lip.

**3**  Close the flap of the base body so that the loops of the flap lie over the pins of the base body.

# 7 Decommissioning

## 7.1 Disposing of the device

The owner can dispose of the device or it can be sent to INFICON.

The device consists of materials that can be recycled. This option should be exercised to prevent waste and also to protect the environment.

▶ During disposal, observe the environmental and safety regulations of your country.

| | |
|---|---|
|  | Device cannot be disposed of as normal domestic waste. |

## 7.2 Returning the device for maintenance, repair or disposal



### ⚠ WARNING

**Danger due to harmful substances**

Contaminated devices could endanger health. The contamination declaration serves to protect all persons who come into contact with the device. Devices sent in without a return number and completed contamination declaration will be returned to the sender by the manufacturer.

▶ Fill in the declaration of contamination completely.

*1* Contact the manufacturer and send in a completed declaration of contamination before return shipment.

  ⇨ You will then receive a return number and the shipping address.

*2* Use the original packaging when returning.

*3* Before shipping the instrument, attach a copy of the completed contamination declaration to the outside of the package.

## Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.
This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

**❶ Description of product**
Type _____
Article Number _____
Serial Number _____

**❷ Reason for return**
_____
_____
_____

**❸ Operating fluid(s) used** (Must be drained before shipping.)
_____
_____

**❹ Process related contamination of product:**

| | | |
|---|---|---|
| toxic | no ❏ 1) | yes ❏ |
| caustic | no ❏ 1) | yes ❏ |
| biological hazard | no ❏ | yes ❏ 2) |
| explosive | no ❏ | yes ❏ 2) |
| radioactive | no ❏ | yes ❏ 2) |
| other harmful substances | no ❏ 1) | yes ❏ |

The product is free of any substances which are damaging to health                  yes ❏

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits

2) Products thus contaminated will not be accepted without written evidence of decontamination!

**❺ Harmful substances, gases and/or by-products**

Please list all substances, gases, and by-products which the product may have come into contact with:

| Trade/product name | Chemical name (or symbol) | Precautions associated with substance | Action if human contact |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

**❻ Legally binding declaration:**

I/we hereby declare that the information on this form is complete and accurate and that I/we will assume any further costs that may arise. The contaminated product will be dispatched in accordance with the applicable regulations.

Organization/company _____
Address _____     Post code, place _____
Phone _____         Fax _____
Email _____
Name _____

Date and legally binding signature          Company stamp

_____

Copies:
Original for addressee - 1 copy for accompanying documents - 1 copy for file of sender

# 8 Accessories and spare parts

| Sniffer line SL4000 | Catalog number |
|---|---|
| **Sniffer tips** | |
| FT125, 125 mm length, flexible | 528-001 |
| FT250, 250 mm length, flexible | 528-002 |
| FT390, 390 mm length, flexible | 528-003 |
| FT600, 600 mm length, flexible | 528-004 |
| ST125, 125 mm length, rigid | 528-005 |
| ST250, 250 mm length, rigid | 528-006 |
| ST390, 390 mm length, rigid | 528-007 |
| **Attachments for sniffer tips** | |
| Attachment plug connection | 531-033 |
| Attachment water protection tip | 531-035 |
| I•Tip SENS<br>20 base bodies / 200 replacement brushes | 531-040 |
| I•Tip SENS<br>5 base bodies / 50 replacement brushes | 531-041 |
| I•Tip RUGGED<br>24 base bodies / 120 replacement rubber lips | 531-042 |
| **Spare parts for sniffer line** | |
| Union nut, flexible | 200014648 |
| Union nut, rigid | 200014649 |
| Hand strap | 200014651 |
| Connection plate SL4000 | 200014971 |
| **Spare parts for filter holder** | |
| Filter ejector | 200014650 |
| Filter holder (25 units) | 200014652 |
| Filter normal (25 units) | 200014653 |
| Filter XL (10 units) | 200014654 |
| **Spare part for all sniffer tips** | |
| Nozzle 0.8 mm SL4000 (5 units) | 200015067 |

# 9 Appendix

## 9.1 CE Declaration of Conformity

**EU Declaration of Conformity**

We – INFICON GmbH - herewith declare that the products defined below meet the basic requirements regarding safety and health and relevant provisions of the relevant EU Directives by design, type and the versions which are brought into circulation by us. This declaration of conformity is issued under the sole responsibility of INFICON GmbH.

In case of any products changes made, this declaration will be void.

The products meet the requirements of the following Directives:

**Directive 2006/42/EG (Machinery)**

**Directive 2014/30/EU (EMV)**

**Directive 2011/65/EU (RoHS)**

Designation of the product:

**Sniffer line
(interchangeable equipment)**

Models:       **SL4000**

              **SL4000 BC**

Catalogue number:

**527–001, 527–002, 527–003, 527–004**

**526–001, 526–002, 526–003, 526–004**

Applied harmonized standards:

**EN ISO 12100 :2010**

**EN IEC 61010-1:2020**

**EN 61326-1:2013
        Klasse A nach EN 55011**

**EN IEC 63000:2018**

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## 9.2  RoHS

产品中有害物质的名称及含有的信息表

**Table of Hazardous Substance Names and Content Information in Products**

| | SL4000: 有害物质<br><br>SL4000: Hazardous Substances | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 部件名称<br><br>Part Name | 铅<br>Lead<br>(Pb) | 汞<br>Mercury<br>(Hg) | 镉<br>Cadmium<br>(Cd) | 六价铬<br>Hexavalent<br>Chromium<br>(Cr(VI)) | 多溴联苯<br>Poly-<br>brominated<br>biphenyls<br>(PBBs) | 多溴联苯<br>醚<br>Poly-<br>brominated<br>diphenyl<br>ethers<br>(PBDEs) | 领苯二甲<br>酸二正丁<br>酯<br>Dibutyl<br>phthalate<br>(DBP) | 领苯二甲酸<br>二异丁酯<br>Diisobutyl<br>phthalate<br>(DIBP) | 领苯二甲<br>酸丁苄酯<br>Benzyl<br>butyl<br>phthalate<br>(BBP) | 领苯二甲酸<br>二（2-乙基<br>）已酯<br>Bis (2-<br>ethylhexyl)<br>phthalate<br>(DEHP) |
| 组装的印<br>刷电路板<br><br>Assembled<br>printed<br>circuit<br>board | X | O | O | O | O | O | O | O | O | O |

注 1：O: 表示该有害物质在该部件所有均质材料中的含量均不超出电器电子产品有害物质限制使用国家标准要求。

　　　X: 表示该有害物质至少在该部件的某一均质材料中的含量超出电器电子产品有害物质限制使用国家标准要求。

注 2：以上未列出的部件，表明其有害物质含量均不超出电器电子产品有害物质限制使用国家标准要求。


Note 1: O: Indicates that said hazardous substances contained in all the homogeneous materials for this part is below the limit requirement of the national standard for the restriction of hazardous substances in electrical and electronic products.

　　　X: Indicates that said hazardous substances contained in at least one homogeneous material used for this part is above the limit requirement of the national standard for the restriction of hazardous substances in electrical and electronic products.

Note 2: Parts not listed above indicate that their hazardous substances are below the limit requirement of the national standard.