941 Eluent Production Module

Manual

Ω Metrohm

941 Eluent Production Module

Manual

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1 Introduction

1.1 Device description

The **941 Eluent Production Module** allows you to produce eluent for your IC system from a concentrate and ultrapure water as needed and in a software-controlled manner.

Thanks to the built-in Level Control, the instrument is capable of monitoring the liquid levels in up to 4 liquid containers, if they are equipped with level sensors.

A level sensor for the eluent bottle is indispensable for the automated production of eluent and is contained in the scope of delivery of the 941 Eluent Production Module. However, we recommend using level sensors to also monitor the bottle with the concentrate and the ultrapure water container. Additional level sensors are available as optional accessories in various versions.

The 941 Eluent Production Module is operated with the **MagIC Net** software. If the 941 Eluent Production Module is connected to a 940 Professional IC Vario instrument, MagIC Net automatically detects the 941 Eluent Production Module and checks its functional capability. It controls and monitors the entire IC system including all connected devices; it evaluates the measured data and manages it in a database.

1.1.1 Intended use

The 941 Eluent Production Module is an instrument for the automated production of eluent for ion chromatography systems. It can monitor the levels of various liquid containers and, where necessary, perform appropriate actions controlled by the software.

The present instrument is suitable for processing chemicals. Usage of the 941 Eluent Production Module therefore requires the user to have basic knowledge and experience in handling toxic and caustic substances. Knowledge regarding the application of fire prevention measures prescribed for laboratories is also mandatory.

1.2 About the documentation

> **CAUTION**
>
> Read through this documentation carefully before putting the device into operation. The documentation contains information and warnings which the user must follow in order to ensure safe operation of the device.

1.2.1 Symbols and conventions

The following symbols and formatting may appear in this documentation:

*(5-**12**)*	**Cross-reference to figure legend** The first number refers to the figure number, the second to the instrument part in the figure.
1	**Instruction step** Carry out these steps in the sequence shown.
Method	**Dialog text**, **parameter** in the software
File ▶ New	Menu or menu item
[Next]	**Button** or **key**
⚠	**WARNING** This symbol draws attention to a possible life-threatening hazard or risk of injury.
⚡	**WARNING** This symbol draws attention to a possible hazard due to electrical current.
♨	**WARNING** This symbol draws attention to a possible hazard due to heat or hot instrument parts.
☣	**WARNING** This symbol draws attention to a possible biological hazard.
❗	**CAUTION** This symbol draws attention to possible damage to instruments or instrument parts.

> **NOTE**
>
> This symbol highlights additional information and tips.

1.3 Safety instructions

1.3.1 General notes on safety

> **WARNING**
>
> Operate this instrument only according to the information contained in this documentation.

This instrument left the factory in a flawless state in terms of technical safety. To maintain this state and ensure non-hazardous operation of the instrument, the following instructions must be observed carefully.

1.3.2 Electrical safety

The electrical safety when working with the instrument is ensured as part of the international standard IEC 61010.

> **WARNING**
>
> Only personnel qualified by Metrohm are authorized to carry out service work on electronic components.

> **WARNING**
>
> Never open the housing of the instrument. The instrument could be damaged by this. There is also a risk of serious injury if live components are touched.
>
> There are no parts inside the housing which can be serviced or replaced by the user.

Supply voltage

> **WARNING**
>
> An incorrect supply voltage can damage the instrument.
>
> Only operate this instrument with a supply voltage specified for it (see rear panel of the instrument).

Protection against electrostatic charges

> **WARNING**
>
> Electronic components are sensitive to electrostatic charges and can be destroyed by discharges.
>
> Do not fail to pull the power cord out of the power socket before you set up or disconnect electrical plug connections at the rear of the instrument.

1.3.3 Tubing and capillary connections

> **CAUTION**
>
> Leaks in tubing and capillary connections are a safety risk. Tighten all connections well by hand. Avoid applying excessive force to tubing connections. Damaged tubing ends lead to leakage. Appropriate tools can be used to loosen connections.
>
> Check the connections regularly for leakage. If the instrument is used mainly in unattended operation, then weekly inspections are mandatory.

1.3.4 Flammable solvents and chemicals

> **WARNING**
>
> All relevant safety measures are to be observed when working with flammable solvents and chemicals.
>
> - Set up the instrument in a well-ventilated location (e.g. fume cupboard).
> - Keep all sources of flame far from the workplace.
> - Clean up spilled liquids and solids immediately.
> - Follow the safety instructions of the chemical manufacturer.

1.3.5 Recycling and disposal
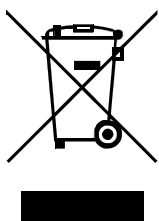
Properly dispose of chemicals and of the product to reduce negative effects on the environment and public health. Local authorities, waste disposal companies or dealers provide more detailed information on disposal. Observe the WEEE EU directive (WEEE = Waste Electrical and Electronic Equipment) for the proper disposal of waste electronic equipment within the European Union.

2 Overview of the device

2.1 Front
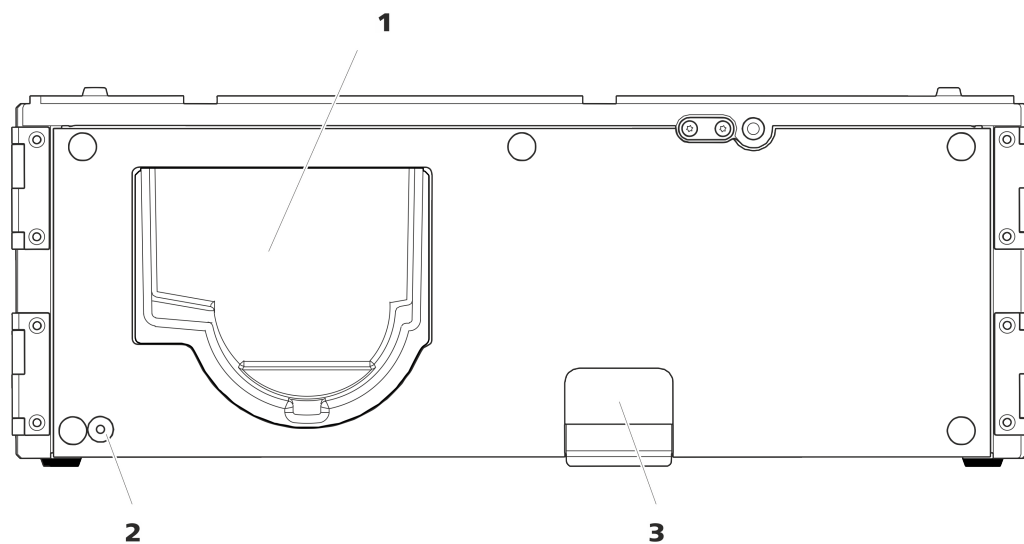
Figure 1   Front

1	**Dosino holder** Receptacle for a Dosino.		**2**	**LED** Standby indicator.
3	**Cable duct** Conduit to the rear of the instrument. For feeding through tubing and the Dosino cable.			

2.2   Rear
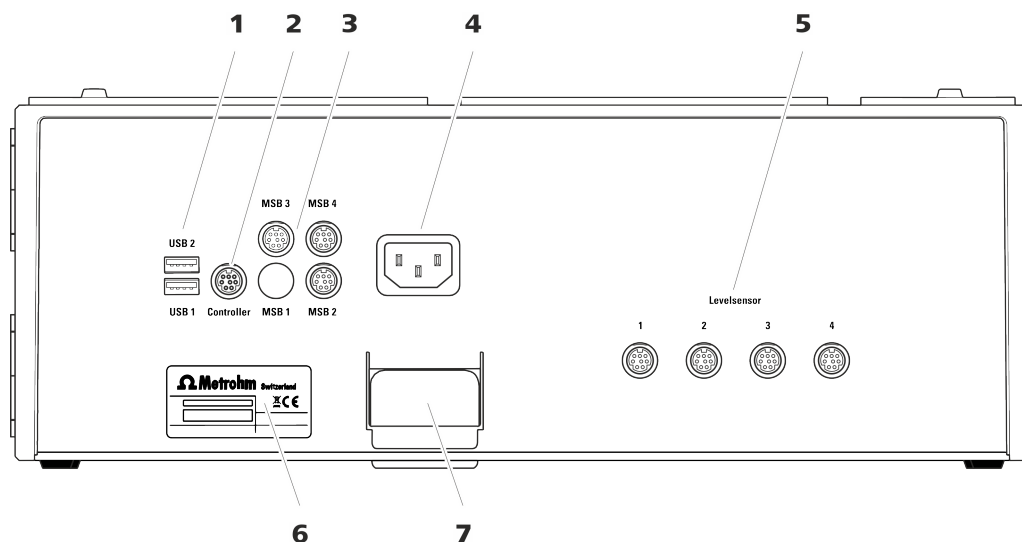
Figure 2   Rear

1	**USB sockets**	**2**	**Controller socket**
	2 sockets for plugging in USB cables for connecting devices with USB connector. Labeled *USB 1* and *USB 2*.		Socket for plugging in the USB cable (6.2151.000) for connecting the ion chromatograph.
3	**MSB sockets**	**4**	**Power socket**
	3 sockets for plugging in MSB cables for connecting devices with MSB connector. Labeled *MSB 2*, *MSB 3* and *MSB 4*.		For connecting the power cord.
5	**Level sensor sockets**	**6**	**Type label**
	4 sockets for connecting level sensor cables (6.2151.060).		
7	**Cable duct**		
	Conduit to the front of the instrument. For feeding through tubing and the Dosino cable.		

3 System overview

The following figure shows an ion chromatography system with a Sample Processor (left), the ion chromatograph (middle) and the 941 Eluent Production Module (right).
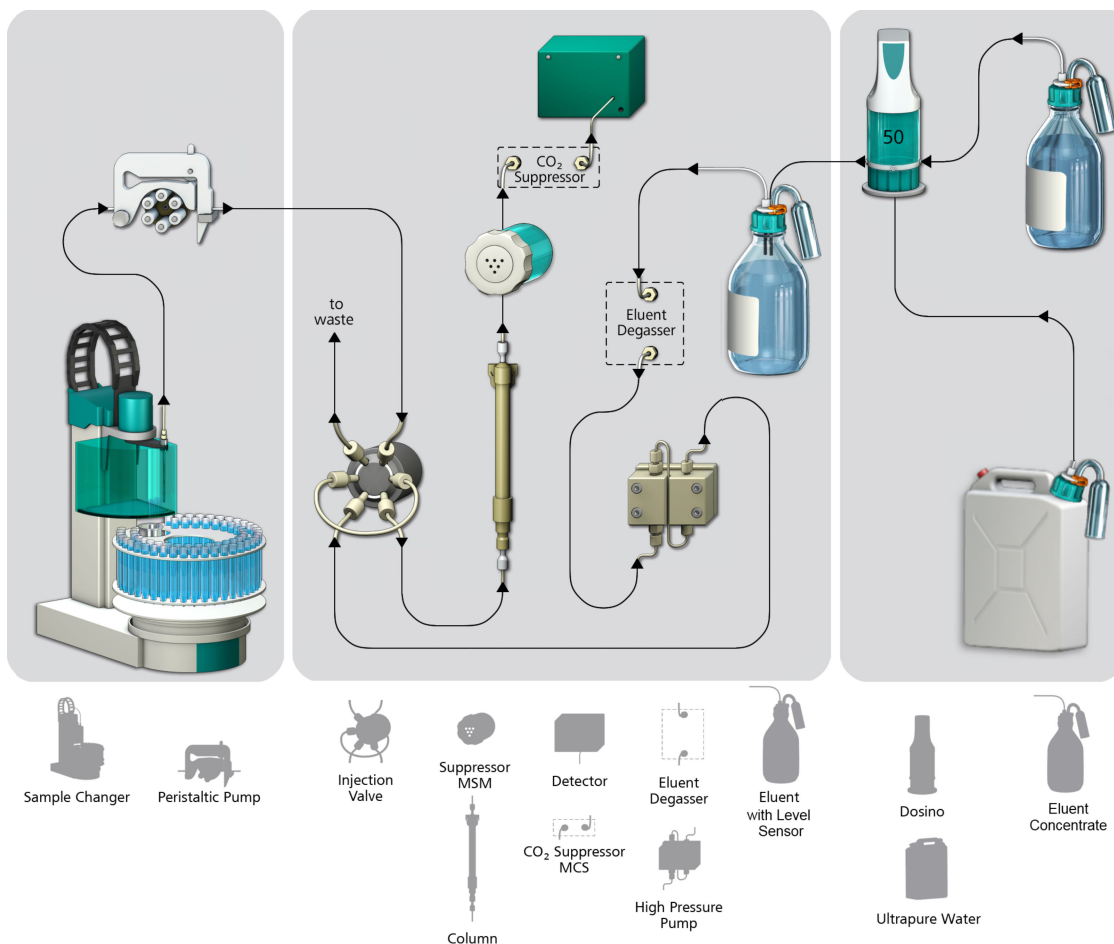
The 941 Eluent Production Module consists of a housing with a built-in Level Control. A Dosino with a 50 mL dosing unit, the canister for ultrapure water, the bottle for the eluent concentrate, the level sensor for the eluent bottle and all small parts required for a standard setup are included in the accessories supplied.

In a standard setup, only the eluent bottle is equipped with a level sensor. The ultrapure water canister and the bottle with the concentrate are not monitored.

If you intend to let your ion chromatography system run unsupervised for extended periods of time, we recommend also monitoring the concentrate bottle and the ultrapure water canister with a level sensor.

Level sensors come with measuring sensors in different lengths:

- Sensors with short measuring sensors warn when the liquid container is full (FULL sensor).
- Sensors with long measuring sensors warn when the liquid container is empty (EMPTY sensor). Sensors with measuring sensors of different lengths are available for 1 L bottles, 2 L bottles and for 10 L canisters.

4 Installation

4.1 Setting up the device

4.1.1 Packaging

The instrument is supplied in protective packaging together with the separately packed accessories. Keep this packaging, as only this ensures safe transportation of the instrument.

4.1.2 Checks

Immediately after receipt, check whether the shipment has arrived complete and without damage by comparing it with the delivery note.

4.1.3 Setup location

The 941 Eluent Production Module can be placed directly onto the 940 Professional IC Vario. To accomplish this, the bottle holder of the ion chromatograph has to be removed and placed onto the 941 Eluent Production Module *(see chapter 4.2.2.2, page 12)*.

The 941 Eluent Production Module can also be placed directly under the 940 Professional IC Vario. To accomplish this, the base tray of the ion chromatograph has to be removed and installed again under the 941 Eluent Production Module *(see chapter 4.2.2.1, page 10)*.

As an alternative, the 941 Eluent Production Module can be set up together with other instruments with the same footprint in a separate stack next to the ion chromatograph. We recommend that a bottle holder (6.2061.100) and a base tray (6.2061.110) be mounted for each stack of instruments.

4.2 Base tray and bottle holder

4.2.1 Basic information on base tray and bottle holder

The base tray (6.2061.110) and bottle holder (6.2061.100) protect IC instruments from dust, dirt and leaking fluids. The supply bottles for eluent and auxiliary solutions can be positioned neatly on the bottle holder.

In a complex IC system, several different instruments may be used, such as an analyzer, an extension module and a detector. These instruments can be set up in one or more stacks. We recommend that a base tray and bottle holder be mounted for each stack of IC instruments.

The bottle holder and base tray must be removed or set up if one of the following instruments is to be mounted on or under a 940 Professional IC Vario:

- One or more 942 Extension Module Vario
- Or another instrument with the same-sized footprint

4.2.2 Mounting base tray and bottle holder (optional)

The base tray and bottle holder come fully assembled on a new ion chromatograph. To install an Extension Module on the ion chromatograph, remove the bottle holder and put it back on top of the topmost instrument. To install an Extension Module under the ion chromatograph, remove the base tray and set it under the lowest instrument.

4.2.2.1 Removing/mounting the base tray

Remove the base tray to install another instrument under the IC instrument.

CAUTION

Do not pinch capillaries or leak sensor cables

Capillaries are fed through the guide ducts between the base tray and the instrument. Pinches in the leak sensor cable or the capillaries may lead to malfunctions.

- Unplug the leak sensor cable before you remove the base tray.
- Remove all the capillaries from the capillary ducts before you remove the base tray.

Removing the base tray

Prerequisites

- The instrument is switched off.
- The bottle holder is cleared.
- All of the cable connections on the rear have been disconnected.
- The capillaries are removed from the guide ducts between the instrument and the base tray.
- There are no loose parts in the instrument.

Accessories

- 3 mm hex key (6.2621.100)
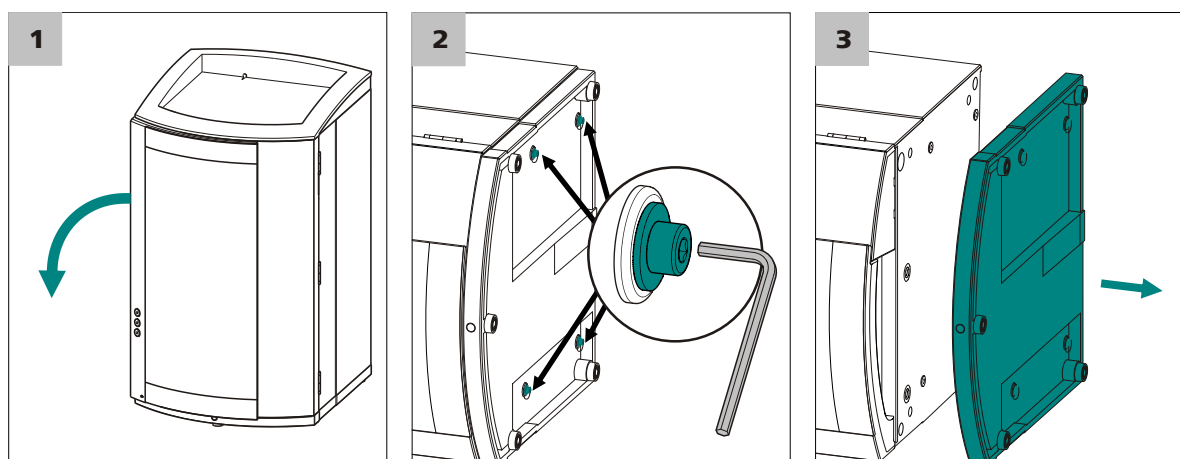
Figure 3   Removing the base tray

1 Tilt the instrument sideways and lay it down flat.

2 Loosen the 4 cylinder screws with the 3 mm hex key. Remove the cylinder screws and their washers.

3 Remove the base tray.

Always mount the base tray under the lowermost instrument of the stack.

Mounting the base tray

Prerequisites

- The instrument is switched off.
- The bottle holder is cleared.
- All of the cable connections on the rear have been disconnected.
- There are no loose parts in the instrument.
- The instrument is lying on its side, and the bottom surface is visible.

Accessories

- 3 mm hex key (6.2621.100)
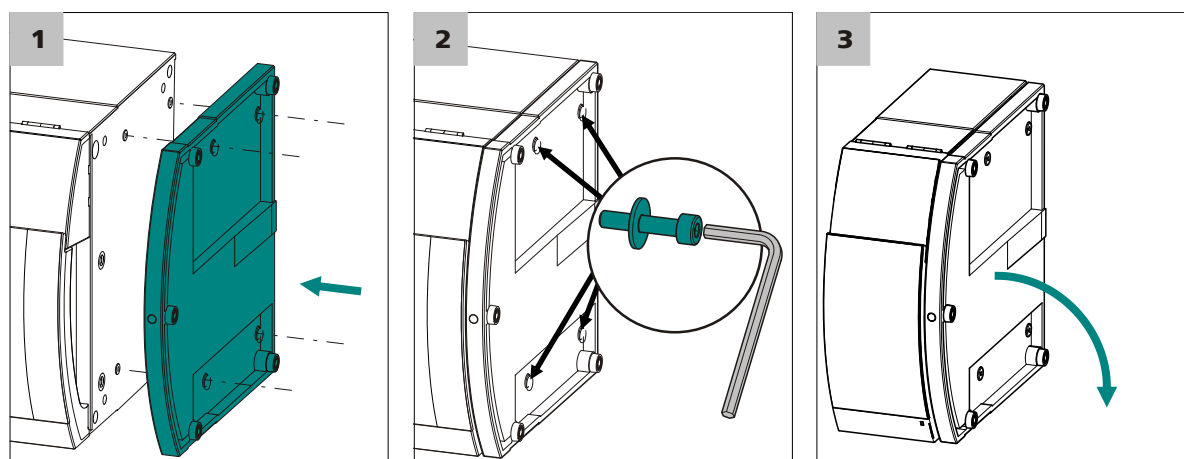
Figure 4   Mounting the base tray

1 Mount the base tray in such a way that the openings in the base tray match exactly the screw threads in the bottom of the instrument.

2 Slide the washers onto the cylinder screws. Insert the cylinder screws with the washers and tighten them with the 3 mm hex key.

3 Set the instrument back up on the base tray.

Stack other instruments in the required order. Mount the bottle holder (6.2061.100) onto the topmost instrument on the stack *(see "Mounting the bottle holder", page 13)*.

4.2.2.2   Removing/mounting the bottle holder

Remove the bottle holder if you want to install another instrument onto the IC instrument.

Removing the bottle holder

Prerequisites

- The instrument is switched off.
- The bottle holder is cleared.
- Drainage tubing is disconnected from the drainage tubing connection of the bottle holder.
- The capillaries are removed from the guide ducts between the instrument and the bottle holder.

Accessories

- 3 mm hex key (6.2621.100)
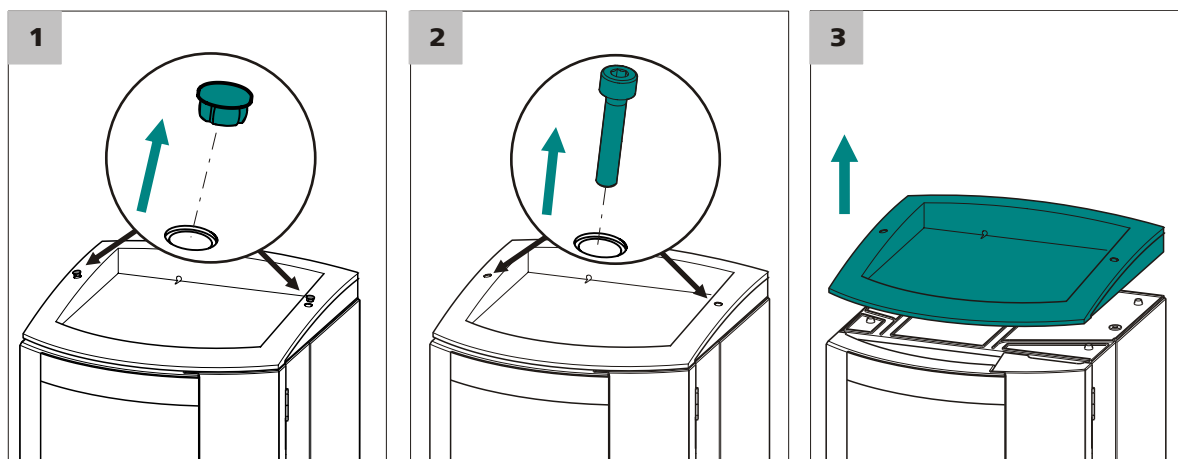
Figure 5   Removing the bottle holder

1 Remove the 2 covering stoppers.

2 Loosen the 2 cylinder screws with the 3 mm hex key and remove them.

3 Remove the bottle holder.

Stack other instruments in the required order. Mount the bottle holder (6.2061.100) onto the topmost instrument on the stack.

Mounting the bottle holder

Prerequisite

- The instrument is switched off.

Accessories

- 3 mm hex key (6.2621.100)
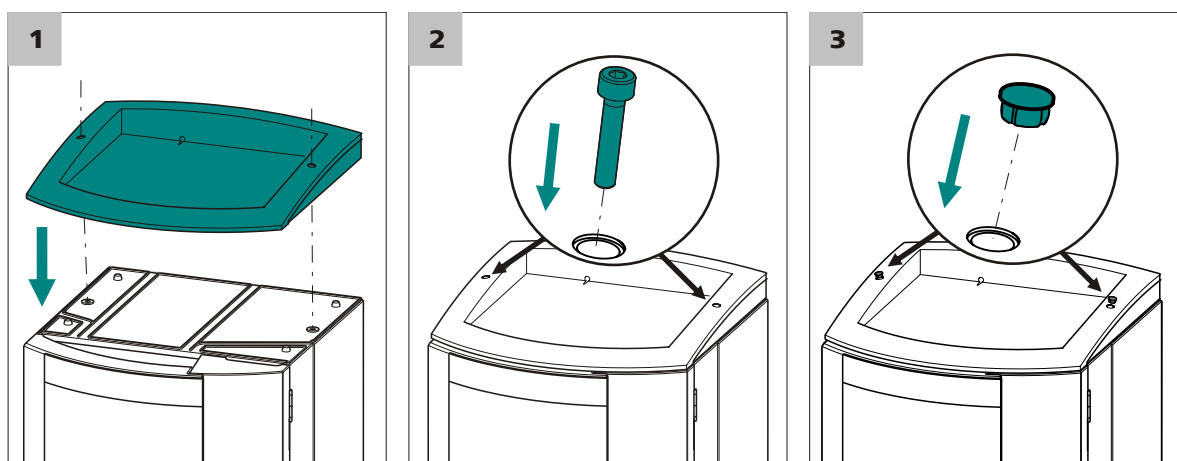
Figure 6   Mounting the bottle holder

1 Mount the bottle holder onto the topmost instrument in such a way that the openings in the bottle holder exactly match the screw threads on the top surface of the instrument.

2 Insert the 2 cylinder screws and tighten them with the 3 mm hex key.

3 Insert both covering stoppers.

After attaching the bottle holder, restore all connections that were loosened at the beginning of the process.

Restoring the loosened connections

1 Plug in all necessary USB cables.

2 Plug in all necessary MSB cables.

3 Plug in the power cord.

4 Mount the drainage tubing again *(see manual of the IC instrument)*.

A longer section of silicone tubing (6.1816.020) may have to be cut to size and mounted *(see also the manual for the IC instrument)*.

5 If one of the instruments in the stack is equipped with a leak sensor connection socket, connect the leak sensor *(see manual of the IC instrument)*.

6 Restore any capillary connections that may have been removed.

4.3   Connecting the eluent bottle

For the automated eluent production, the eluent bottle must be equipped with a bottle cap for a level sensor and a sensor of the type "FULL".

Inserting the measuring sensor

Accessories

For this step you need:

- A bottle cap for level sensor (6.1626.000)
- FULL sensor (6.2769.000) for anion eluents or EMPTY sensor (6.2769.1X0) for cation eluents
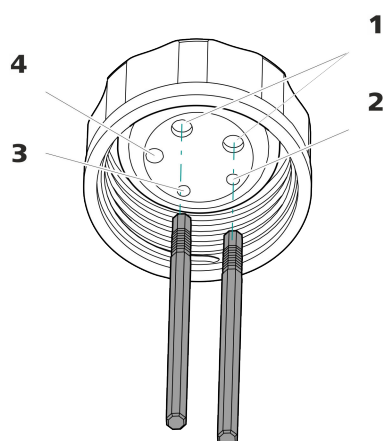
Figure 7   Bottle cap for level sensor - Inserting the measuring sensor

1	**Measuring sensor opening** For two measuring sensors (inside) and the level sensor cable (outside).	**2**	**M6 opening** For the FEP tubing connection to the Dosino.
3	**Adsorber opening**	**4**	**M8 opening** For the capillary connection to the ion chromatograph.

1 Remove the stoppers from the bottle cap.

2 Place the bottle cap on a surface with the opening facing up.

3 Insert the two measuring sensors from the inside into the two openings for measuring sensors.

Assembling the bottle cap

Accessories

For this step you need:

- Eluent bottle (6.1608.070) from the accessories set of the ion chromatograph.

- Bottle cap for level sensor (6.1626.000) with inserted measuring sensors *(see "Inserting the measuring sensor", page 15)*.
- FEP aspiration tubing (6.1819.100)
- FEP tubing (6.1805.530)
- Level sensor cable (6.2151.060)
- Adsorber tube (6.1619.000)
- Spiral band (6.1815.010)

Figure 8   Installing the eluent bottle cap with level sensor

1 | **Connecting the FEP tubing**

Fasten the tubing connection to the Dosino to the M6 opening.

- Insert the FEP aspiration tubing into the M6 opening.
- Screw the FEP tubing into the M6 opening.

2 | **Connecting the eluent aspiration tubing**

Fasten the capillary connection to the ion chromatograph to the M8 opening.

- Start by pushing the M8 tubing nipple over the end of the aspiration tubing, followed by the O-ring.
- Temporarily secure the eluent aspiration tubing in the M8 opening.

- Attach the tubing weighting and the aspiration filter to the end of the eluent aspiration tubing, see the manual of the ion chromatograph.

3 **Connecting the level sensor cable**

Connect the two plugs of the level sensor cable to the two sockets.

4 **Mounting the adsorber**

Fill the adsorber tube with adsorber material and cotton and insert it into the last remaining opening.

5 **Bundling the level sensor cables and tubings**

> **ℹ** **NOTE**
>
> The fine connection cables of the level sensor cable break off easily if the bottle cap is rotated too much.
>
> The level sensor cable is damaged as a result and needs to be replaced.
>
> To prevent the connection cables from breaking off, we recommend bundling the level sensor cable together with the tubings and capillaries that are connected to the bottle cap.

Tie the level sensor cable, the FEP tubing and the eluent aspiration tubing together using a spiral band. Tie a piece of spiral band with a length of approx. 10 cm around the cable and the tubings as close as possible to the bottle cap.

6 **Attaching the bottle cap**

Screw the bottle cap to the eluent bottle and install the eluent bottle on the bottle holder of the ion chromatograph.

4.4   Connecting the concentrate bottle

The bottle with the concentrate can be equipped with a bottle cap without level sensor, e.g. with the bottle cap (6.1602.160).

Accessories

For this step you need the following accessories:

- Bottle (6.1608.070) filled with concentrate
- Bottle cap (6.1602.160)
- FEP aspiration tubing (6.1819.100)
- FEP tubing (6.1805.530)
- Adsorber tube (6.1609.000)
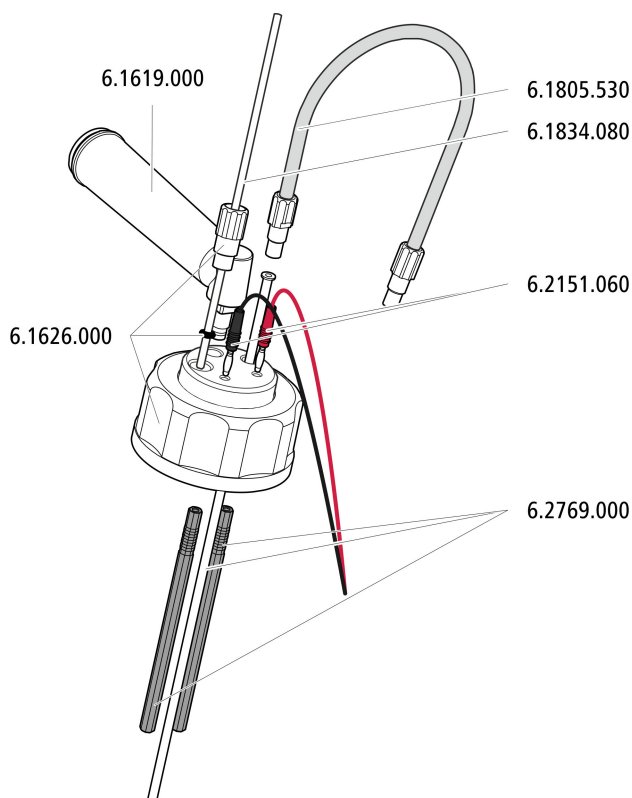- SGJ clip for SGJ 14/15 (6.2023.020)

Figure 9   Installing the concentrate bottle cap without level sensor

1 Connecting the FEP tubing

Fasten the tubing connection to the Dosino to the M6 opening.

- Insert the FEP aspiration tubing into the M6 opening.
- Screw the FEP tubing into the M6 opening.

2 Sealing the M8 opening

Screw the M8 threaded stopper into the M8 opening.

3 Mounting the adsorber

Fill the adsorber tube with adsorber material and cotton (for anion eluents) or only with cotton (for cation eluents) and insert it into the large opening. Secure in place with an SGJ clip.

Recommendation   If you intend to let your ion chromatography system run unsupervised for extended periods of time, we recommend also monitoring the level of the concentrate bottle with a level sensor.

For this purpose, you need to order the following optional accessories:

- Bottle cap for level sensor (6.1626.000) incl. adsorber tube (6.1619.000)
- EMPTY sensor (6.2769.110 for 2 L bottle or 6.2769.100 for 1 L bottle or 6.2769.120 for 10 L canister)
- Level sensor cable (6.2151.060)
- FEP tubing (6.1805.530), is contained in the accessories of the 941 Eluent Production Module.
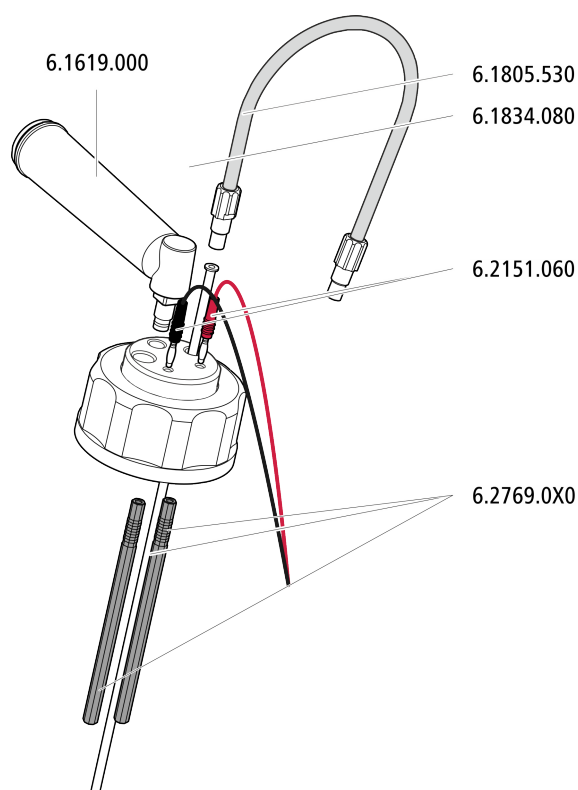
Figure 10   Installing the concentrate bottle cap with level sensor

1 Inserting the measuring sensor

Insert the two measuring sensors from the inside into the two openings for measuring sensors.

2 Connecting the FEP tubing

Fasten the tubing connection to the Dosino to the M6 opening.

- Insert the FEP aspiration tubing (6.1819.100) into the M6 opening.
- Screw the FEP tubing into the M6 opening.

3 **Sealing the M8 opening**

Screw the M8 threaded stopper into the M8 opening.

4 **Connecting the level sensor cable**

Connect the two plugs of the level sensor cable to the two sockets.

5 **Mounting the adsorber**

Fill the adsorber tube with cotton and insert it into the last remaining opening.

6 **Bundling the level sensor cables and tubings**

> **ⓘ NOTE**
>
> The fine connection cables of the level sensor cable break off easily if the bottle cap is rotated too much.
>
> The level sensor cable is damaged as a result and needs to be replaced.
>
> To prevent the connection cables from breaking off, we recommend bundling the level sensor cable together with the tubings and capillaries that are connected to the bottle cap.

Tie the level sensor cable and the FEP tubing together using a spiral band. Tie a piece of spiral band with a length of approx. 10 cm around the cable and the tubings as close as possible to the bottle cap.

7 **Attaching the bottle cap**

Screw the bottle cap onto the concentrate bottle.

4.5 Connecting the ultrapure water container

The ultrapure water can be aspirated either from a 10 L canister or an ELGA PURELAB water purification system.

The 10 L canister is included in the scope of delivery and is used for the standard installation.

4.5.1 Connecting the ultrapure water canister

Assembling the bottle cap without level sensor

The canister with the ultrapure water can be equipped with a bottle cap without level sensor, e.g. with the bottle cap (6.1602.160).

Accessories For this step you need the following accessories:

- Canister, 10 L (6.1621.000)
- Bottle cap (6.1602.160)
- FEP aspiration tubing (6.1819.100)
- FEP tubing (6.1805.530)
- Adsorber tube (6.1609.000 + 6.1624.000)
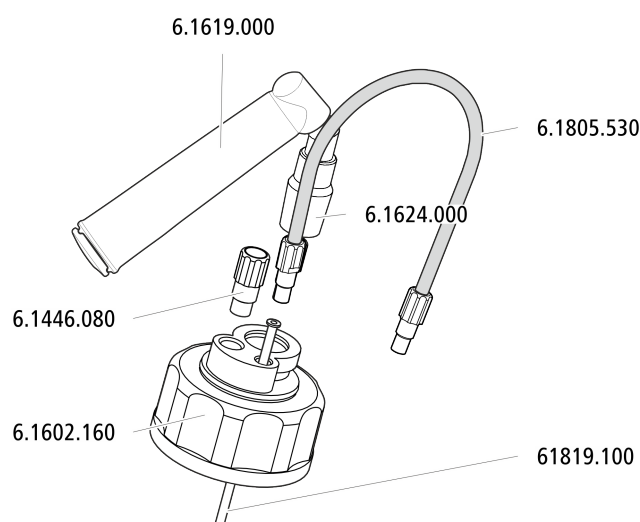
Figure 11   Installing the ultrapure water canister cap without level sensor

1 Connecting the FEP tubing

Fasten the tubing connection to the Dosino to the M6 opening.

- Insert the FEP aspiration tubing into the M6 opening.
- Screw the FEP tubing into the M6 opening.

2 **Sealing the M8 opening**

Screw the M8 threaded stopper into the M8 opening.

3 **Mounting the adsorber**

Fill the adsorber tube with soda lime and cotton and insert it into the large opening. Secure in place with an SGJ clip.

Option: Assembling the bottle cap with level sensor

If you intend to let your ion chromatography system run unsupervised for extended periods of time, we recommend also monitoring the ultrapure water canister with a level sensor.

Accessories For this step you need the following optional accessories:

- A bottle cap for level sensor (6.1626.000)
- EMPTY sensor for 10 L canister (6.2769.120)
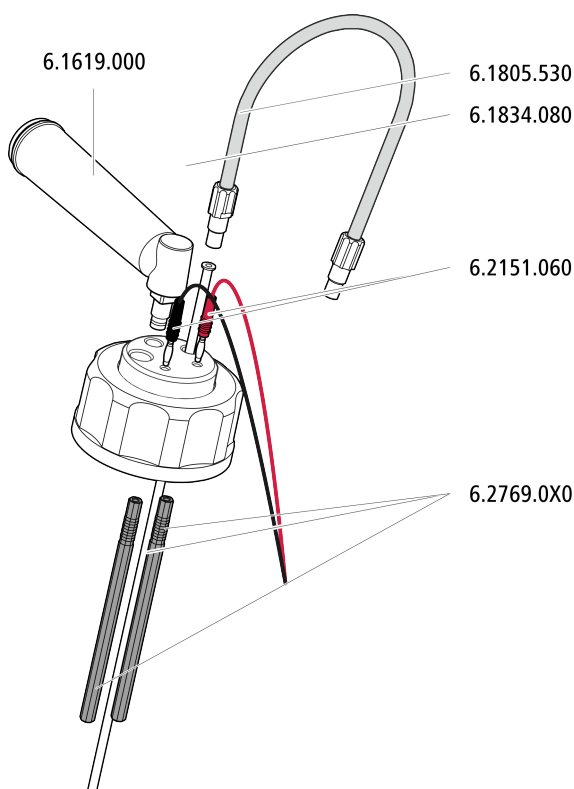
Figure 12   Installing the ultrapure water canister cap with level sensor

1 **Inserting the measuring sensor**

Insert the two measuring sensors from the inside into the two openings for measuring sensors.

2 Connecting the FEP tubing

Fasten the tubing connection to the Dosino to the M6 opening.

- Insert the FEP aspiration tubing (6.1819.110) into the M6 opening.
- Screw the FEP tubing into the M6 opening.

3 Sealing the M8 opening

Seal the M8 opening with a stopper.

4 Connecting the level sensor cable

Connect the two plugs of the level sensor cable to the two sockets.

5 Mounting the adsorber

Fill the adsorber tube with soda lime and cotton and insert it with the adapter into the last remaining opening.

6 Bundling the level sensor cables and tubings

> **i**   **NOTE**
>
> The fine connection cables of the level sensor cable break off easily if the bottle cap is rotated too much.
>
> The level sensor cable is damaged as a result and needs to be replaced.
>
> To prevent the connection cables from breaking off, we recommend bundling the level sensor cable together with the tubings and capillaries that are connected to the bottle cap.

Tie the level sensor cable and the FEP tubing together using a spiral band. Tie a piece of spiral band with a length of approx. 10 cm around the cable and the tubings as close as possible to the bottle cap.

7 Attaching the bottle cap

Screw the bottle cap onto the canister.

4.5.2 Connecting an ELGA PURELAB flex

The 941 Eluent Production Module can also be connected directly to an ELGA PURELAB flex water purification system, as an alternative to the ultrapure water canister.

The ELGA PURELAB flex is not included in the scope of delivery and has to be ordered separately.

An ultrapure water insert specifically for Metrohm applications is included in the ELGA PURELAB flex. This insert ensures that ultrapure water is aspirated at all times and has two connectors, each for one piece of FEP tubing.

This ultrapure water insert must be put in place during installation.

Accessories For this step you need the following accessories:

- ELGA PURELAB flex, incl. ultrapure water insert
- FEP tubing (6.1805.530)
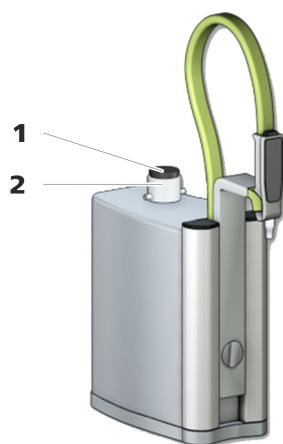
Figure 13   Installing an ELGA PURELAB flex

1	Composite aeration filter	2	Ultrapure water insert

Installing an ELGA PURELAB flex

Install the ELGA PURELAB flex as described in the manufacturer's documentation.

Carry out the following steps before installing the composite aeration filter.

1 Installing the ultrapure water insert

Screw the ultrapure water insert supplied in the opening in which the composite aeration filter is to be installed according to the manufacturer's documentation.

2 Inserting the composite aeration filter

Screw the composite aeration filter onto the ultrapure water insert.

3 Connecting the FEP tubing

Screw the FEP tubing onto one of the connectors of the ultrapure water insert.

4.6 Installing the Dosino

Attaching the Dosino to the Dosing Unit

Accessories

For this step you need the following accessories:

- 800 Dosino (2.800.0010)
- Dosing Unit 50 mL (6.3032.250)

The manual for the 800 Dosino describes how to attach the 800 Dosino correctly to a dosing unit.

> ⓘ **CAUTION**
> _____
>
> Please read through the correct procedure in the manual for the 800 Dosino before you attach the Dosino to the dosing unit.

Installing FEP tubings

Accessories

For this step you need the following accessories:

- 800 Dosino (2.800.0010) with dosing unit 50 mL (6.3032.250) attached
- The three FEP tubings connected to the bottles,
  one additional FEP tubing (6.1805.530)
- Adapter Dosino port 4 (6.1808.280)
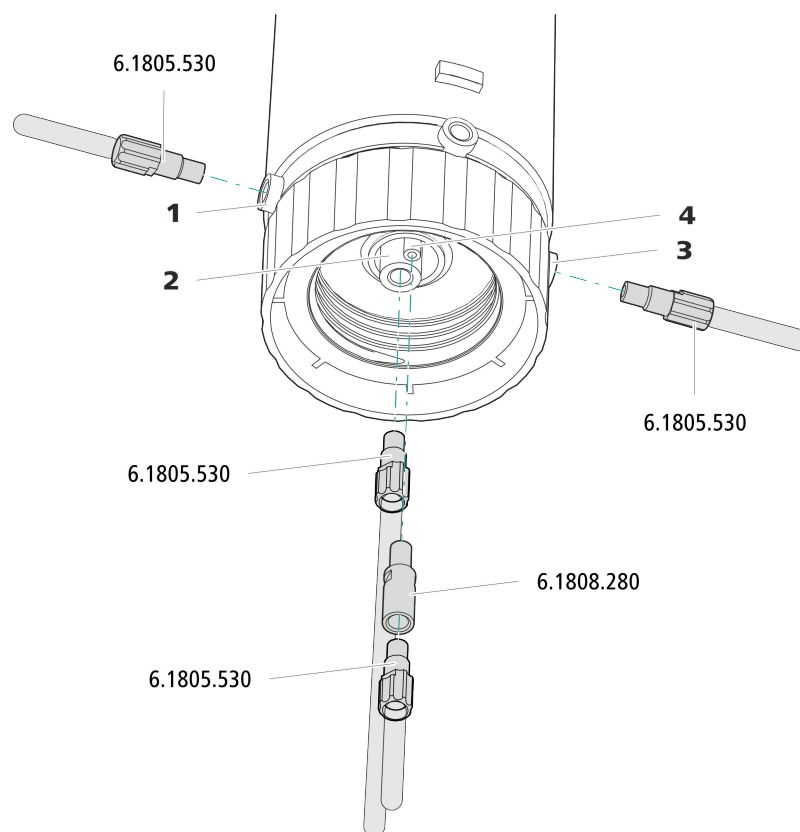
Figure 14   Connecting the Dosino

1	**Port 1**	**2**	**Port 2**
	For connecting the concentrate bottle.		For connecting the ultrapure water supply.
3	**Port 3**	**4**	**Port 4**
	For connecting the eluent bottle.		For connecting the waste container.

1 Connecting the concentrate bottle

- Push the FEP tubing attached to the concentrate bottle through the cable conduit from the rear to the front of the 941 Eluent Production Module.
- Screw the FEP tubing onto Port 1 of the Dosino.

2 Connecting the ultrapure water

- Push the FEP tubing connected to the ultrapure water canister or the ELGA PURELAB flex through the cable conduit from the rear to the front of the 941 Eluent Production Module.
- Screw the FEP tubing onto port 2 of the Dosino.

3 **Connecting the eluent bottle**

- Push the FEP tubing attached to the eluent bottle through the cable conduit from the rear to the front of the 941 Eluent Production Module.
- Screw the FEP tubing onto port 3 of the Dosino.

4 **Connecting the waste container**

- Attach the adapter to port 4 of the Dosino and screw the fourth FEP tubing onto the adapter.
- Guide the other end of the FEP tubing from the front through the cable conduit to the rear of the 941 Eluent Production Module and attach to the waste container.

Inserting the Dosino into the instrument
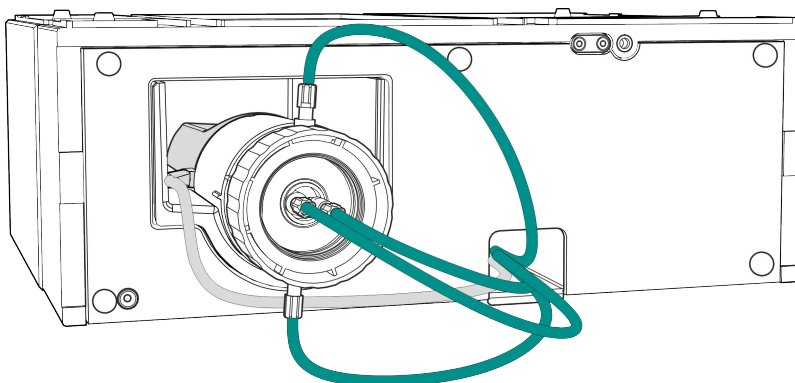
1 Insert the Dosino sideways into the Dosino holder.

The cable has to rest on the left side in the recess designated for this purpose.

2 Guide the Dosino cable through the cable conduit to the rear of the instrument.

3 Plug the Dosino cable into one of the MSB sockets.

4.7 Connecting the instrument

4.7.1 Connecting the instrument to the ion chromatograph

> **ℹ NOTE**
>
> The 940 Professional IC Vario must be switched off when connecting the 941 Eluent Production Module!

Accessories

For this step, you need the following accessories:

- Controller cable (6.2151.000)

1 Insert the Mini DIN plug of the controller cable into the connection socket on the rear of the instrument labeled *Controller*.

2 Insert the USB A plug of the controller cable into a USB socket of the ion chromatograph.

4.7.2 Connecting the instrument to the power grid

> **⚠ WARNING**
>
> **Electric shock from electrical potential**
>
> Risk of injury by touching live components or through moisture on live parts.
>
> - Never open the housing of the instrument while the power cord is still connected.
> - Protect live parts (e.g. power supply unit, power cord, connection sockets) against moisture.
> - Unplug the power plug immediately if you suspect that moisture has gotten inside the instrument.
> - Only personnel who have been issued Metrohm qualifications may perform service and repair work on electrical and electronic parts.

Connecting the power cord

Accessories

Power cord with the following specifications:

- Length: max. 2 m
- Number of cores: 3, with protective conductor
- Instrument plug: IEC 60320 type C13
- Conductor cross-section 3x min. 0.75 mm^2 / 18 AWG

- Power plug:
  - according to customer requirement (6.2122.XX0)
  - min. 10 A

ⓘ **NOTE**

Do not use a not permitted power cord!

---

1 **Plugging in the power cord**

- Plug the power cord into the instrument's power socket.
- Connect the power cord to the power grid.

5 Operation

The instrument is operated via MagIC Net software only. Additional infor-
mation on operating MagIC Net can be found in the document
"MagIC Net Tutorial" or in the software's online help.

6 Operation and maintenance

6.1 Care

> ⚠️ **WARNING**
>
> Untrained personnel may not open the device's housing.

The device requires appropriate care. Excess contamination of the device may result in malfunctions and a reduction in the service life of the sturdy mechanical and electronic components.

> 🛈 **CAUTION**
>
> Even though design measures ensure that this will largely be prevented, the device should be switched off without delay in the event that aggressive media have found their way into the interior of the instrument. This is the only way to prevent extreme damage to the device electronics. In such cases, Metrohm Service must be informed.

Spilled chemicals and solvents should be removed immediately. In particular, the plug connections should be protected from contamination.

6.2 Servicing the door

> 🛈 **CAUTION**
>
> The door is made of PMMA (poly(methyl methacrylate)). It must never be cleaned with abrasive media or solvents.

> 🛈 **CAUTION**
>
> Never hold the instrument by the door when lifting it. Only hold the instrument by the housing.

6.3 Dosino

Information regarding operation and maintenance of the Dosino can be found in the manual for the 800 Dosino.

	NOTE
i	Please read the chapter "Operation and maintenance" in the manual for the 800 Dosino and follow the instructions described in it.

6.4 Dosing unit

Information regarding operation and maintenance of the dosing unit can be found in the manual for the 807 Dosing Unit.

	NOTE
i	Please read the chapter "Operation and maintenance" in the manual for the 807 Dosing Unit and follow the instructions described in it.

7 Troubleshooting

7.1 Dosino

Information regarding troubleshooting for the Dosino can be found in the manual for the 800 Dosino.

> **ℹ️ NOTE**
>
> Read the "Troubleshooting" chapter in the manual for the 800 Dosino and follow the instructions described in it.

7.2 Dosing unit

Information regarding troubleshooting for the dosing unit can be found in the manual for the 807 Dosing Unit.

> **ℹ️ NOTE**
>
> Read the "Troubleshooting" chapter in the manual for the 807 Dosing Unit and follow the instructions described in it.

8 Technical specifications

8.1 Reference conditions

The technical specifications listed in this chapter refer to the following reference conditions:

Ambient temperature	+25 °C (±3 °C)
Relative humidity	≦ 60%
Device status	> 30 minutes in operation
Adjusting interval	annual

8.2 Ambient conditions

Automatic interior temperature monitoring	
Nominal function range	+5 to +45 °C at max. 80% relative humidity, non-condensing
Storage	+5 to +45 °C at max. 80% relative humidity, non-condensing
Altitude / Pressure range	max. 3,000 m.a.s.l. sea level / min. 700 mbar
Overvoltage category	II
Pollution degree	2

8.3 Level sensor

Measuring inputs

Switching threshold	1 µS
Measurement frequency	Approx. 1.7 kHz

8.4 Housing

Dimensions

Width	365 mm
Height	131 mm
Depth	380 mm

Base tray, housing and bottle holder material	Polyurethane hard foam (PUR) with flame retardation for fire class UL 94 V-0, CFC-free, coated
IP degree of protection	IP 20

8.5 Weight

2.941.0010	7.51 kg

8.6 Dosino

You can find the technical specifications for the Dosino in the manual for the 800 Dosino.

8.7   Dosing unit

You can find the technical specifications for the dosing unit in the manual for the 807 Dosing Unit.

8.8   Energy supply

Nominal voltage range	100–240 V (± 10%)
Nominal frequency range	50–60 Hz (± 3%)
Power consumption	45 W maximum

8.9   Interfaces

Controller	
Inlet	1 8-pin Mini DIN socket for a connecting cable to a computer or an ion chromatograph for controlling the instrument.
USB	
Number	2 type A USB sockets for connecting Metrohm instruments or USB peripheral devices of other manufacturers.
MSB	
Number	3 Mini DIN sockets (8-pin) for connecting Dosinos (MSB 1 is used internally).
Level sensor	
Measuring input	4 Mini DIN sockets (8-pin) for connecting level sensor cables.

9 Accessories

Up-to-date information on the scope of delivery and optional accessories for your product can be found on the Internet. You can download this information using the article number as follows:

Downloading the accessories list

1 Enter *https://www.metrohm.com/* into your Internet browser.

2 Enter the article number (e.g. **2.941.0010**) into the search field.

The search result is displayed.

3 Click on the product.

Detailed information regarding the product is shown on various tabs.

4 On the **Included parts** tab, click on **Download the PDF**.

The PDF file with the accessories data is created.

> **NOTE**
>
> Once you have received your new product, we recommend downloading the accessories list from the Internet, printing it out and keeping it together with the manual for reference purposes.

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