EA01433C/07/EN/02.22-00
71578935
2022-07-15

Installation Instructions
Components of cooling module set

Replacement for Liquistation CSFxx sampler

Endress+Hauser
People for Process Automation

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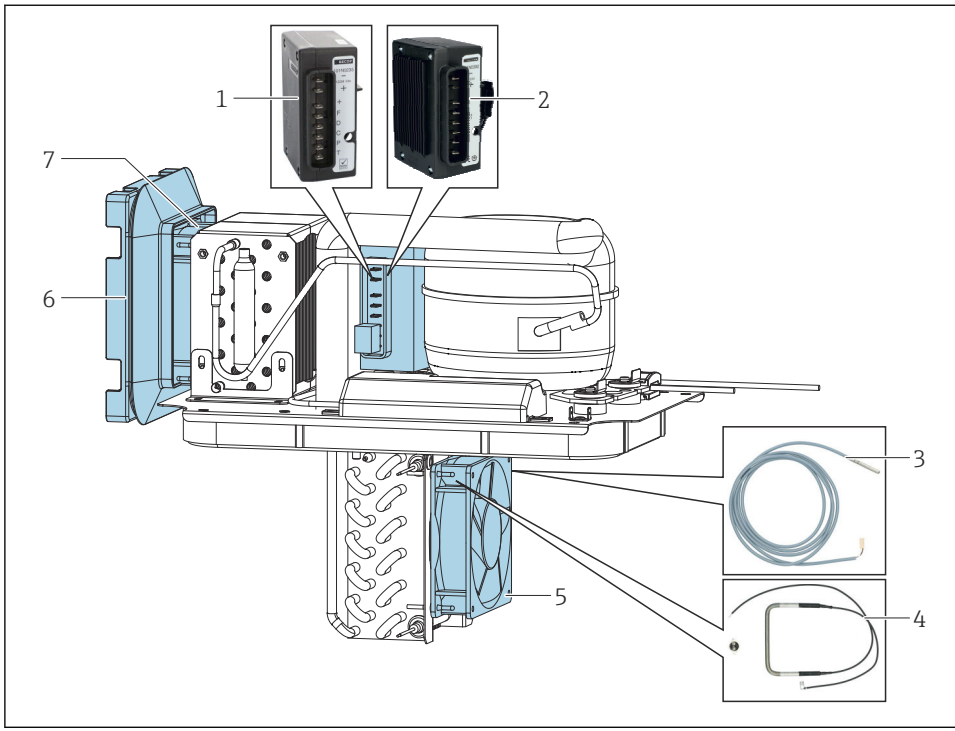
1 Overview of CSFxx



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1 *Dismantled cooling module, without plastic tray*

1 *E-box compressor V1.0*
2 *E-box compressor V2.0*
3 *Temperature sensor*
4 *Heater 24V/50W incl. thermostat*
5 *Vaporizer fan*
6 *Condenser fan*
7 *Bellows*

2 Intended use

- The parts of the kits must only be used as retrofit parts or replacement parts for automatic samplers CSFxx. Any other use is not permitted!
- Only use original parts from Endress+Hauser.
- In the W@M Device Viewer, check if the spare part is suitable for the existing device.

3 Authorized installation personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Installation Instructions and must follow the instructions they contain.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

Repairs not described in the Operating Instructions provided must only be carried out directly at the manufacturer's site or by the service organization.

4 Safety instructions

⚠ WARNING

Danger! Electric voltage!

- ▶ The replacement of assemblies connected to the power supply may only be performed by specially trained electrotechnical staff.
- ▶ All work must be carried out according to applicable safety standards.
- ▶ Built-in protective measures must be restored.

⚠ WARNING

Danger from connected mains voltage!

- ▶ Stop all active sampling programs.
- ▶ Disconnect the sampler from the mains voltage.
- ▶ Make sure the sampler is properly disconnected from the mains voltage when performing replacement work.

⚠ CAUTION

Contact with the medium poses a health hazard!

- ▶ Wear protective gloves, protective goggles and protective clothing, particularly when working with reagents, chemicals or process solutions.
- ▶ In case of contact with eyes or skin, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.

⚠ CAUTION

Risk to health due to the removal of sensors from the process!

- ▶ Pay attention to the process pressure, the process temperature and the toxic aggressiveness of the medium.

⚠ CAUTION

Damage due to incorrect transportation and installation!

- ▶ Always transport and install the cooling module in a vertical position. It must never be tilted!
- ▶ Place the cooling module on a stable surface.
- ▶ If the cooling module has been inadvertently tilted, it must be stored vertically for a sufficient period of time before it is put back into service!

Impact on the process

Before decommissioning an active device, the potential impact on the overall process must be taken into account! This particularly applies if using the switching contacts, the analog signal outputs or the communication interface of the associated measuring device to control process variables. Discuss service work with the operator!

5 Scope of delivery

5.1 Set 71115333 CSF48 cooling module: E-box compressor V1.0

The kit contains the following parts → 2, 6:

1 x E-box compressor V1.0

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2 *Kit 71115333 CSF48 cooling module: E-box compressor V1.0*

CAUTION

Damage due to lack of compatibility!

- The kit may only be installed in a sampler with cooling module version 1.0. This E-box is not compatible with cooling modules version 2.0.

5.2 Kit 71560538 CSFxx E-box cooling module V2.0

The kit contains the following parts → 3, 6:

1 x E-box cooling module V2.0

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3 *Kit 71115333 CSFxx E-box cooling module V2.0*

⚠ CAUTION

Damage due to lack of compatibility!

- The kit may only be installed in a sampler with cooling module version 2.0. This E-box is not compatible with cooling modules version 1.0.

5.3 Kit 71115278 CSFxx cooling module: fan

The kit contains the following parts → 4, 7:

1 x Ventilator

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4 *Kit 71115333 CSFxx cooling module: fan*

The kit can be used to replace the fan on the condenser (top) or the fan on the vaporizer (bottom).

5.4 Kit 71139091 CSFxx cooling module: bellows

The kit contains the following parts → 5, 7:

1 x Bellows

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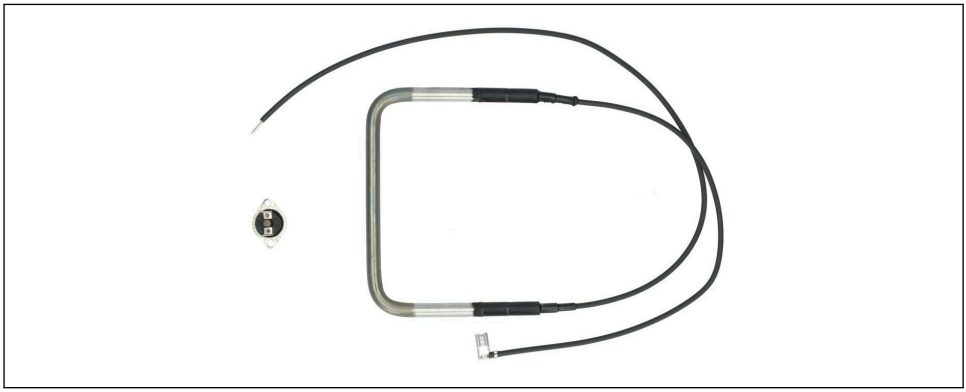
5 *Kit 71139091 CSFxx cooling module: bellows*

5.5 Kit 71115330 CSFxx cooling module: heating element and thermostat

The kit contains the following parts → 6, 8:

1 x Heating element 24V/50W

1 x Thermostat



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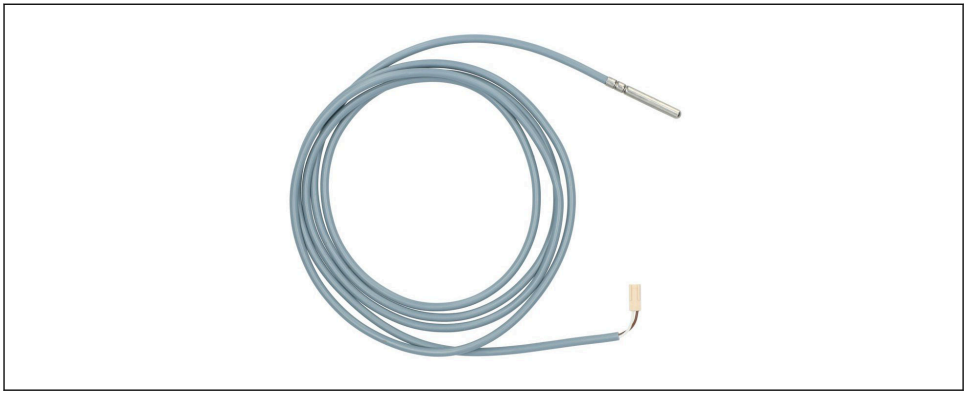
6 *Kit 71115330 CSFxx cooling module: heating element and thermostat*

5.6 Kit 71115339 CSFxx cooling module: temperature sensor

The kit contains the following parts → 7, 8:

1 x Temperature sensor



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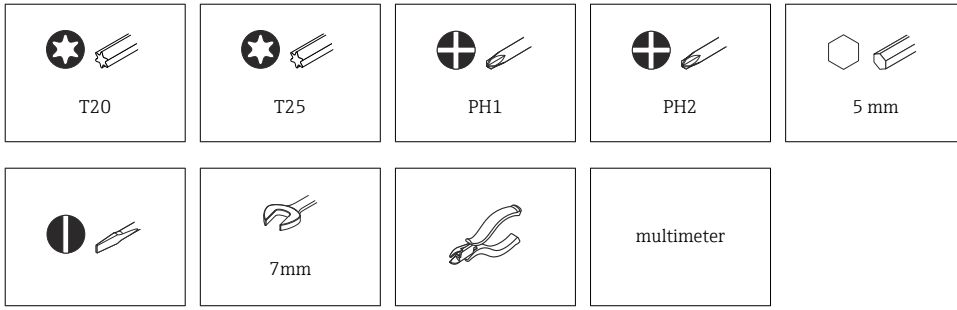
7 *Kit 71115339 CSFxx cooling module: temperature sensor PT1000*

6 Additional documentation

Detailed information on the device can be found in the Operating Instructions for the sampler and in the other documentation, available via:

- www.endress.com/device-viewer
- Smartphone/tablet: Endress+Hauser Operations app

7 Tool list



8 Replacement of spare parts

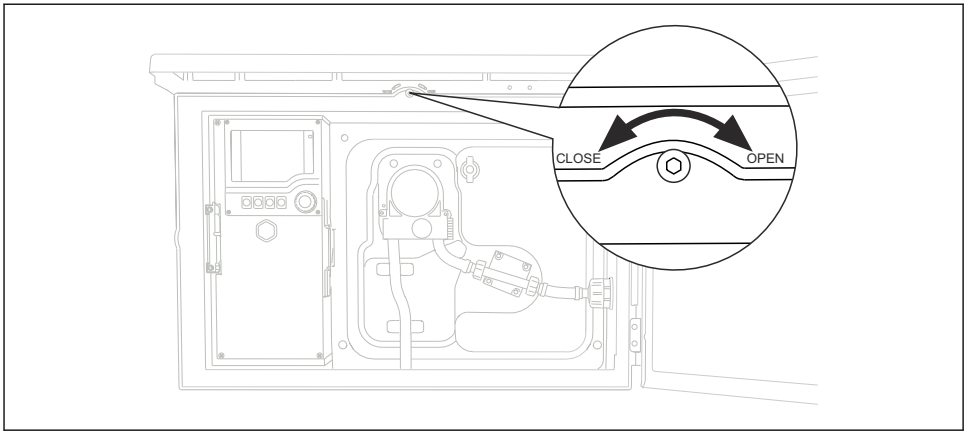
8.1 Preparatory steps

▶ Pay attention to the installation instructions provided in the Operating Instructions of the sampler used.

8.1.1 Removing cooling module from sampler

Removing the rear panel of the dosing compartment and the power supply cover

1. Open the door of the dosing compartment.
2. Stop all active sampling programs.
3. Disconnect the sampler from the mains voltage and make sure it cannot be switched back on.
4. Loosen the screw above the dosing compartment using an Allen key in order to release the rear panel of the dosing compartment.



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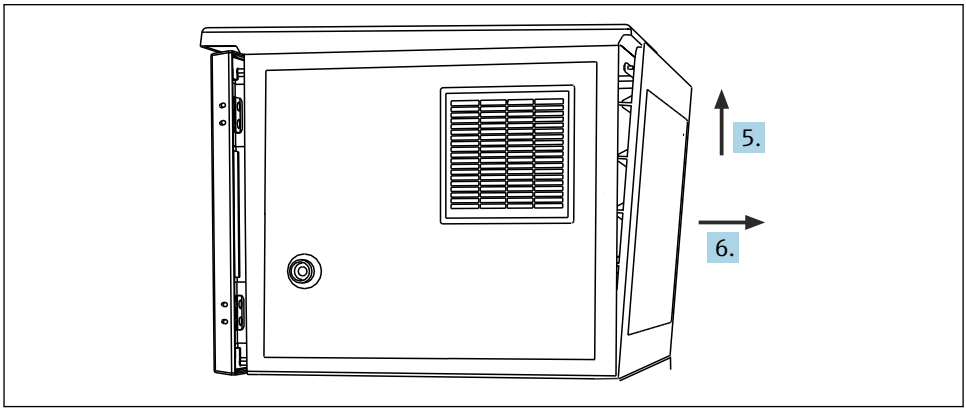
5. Lift up the rear panel.



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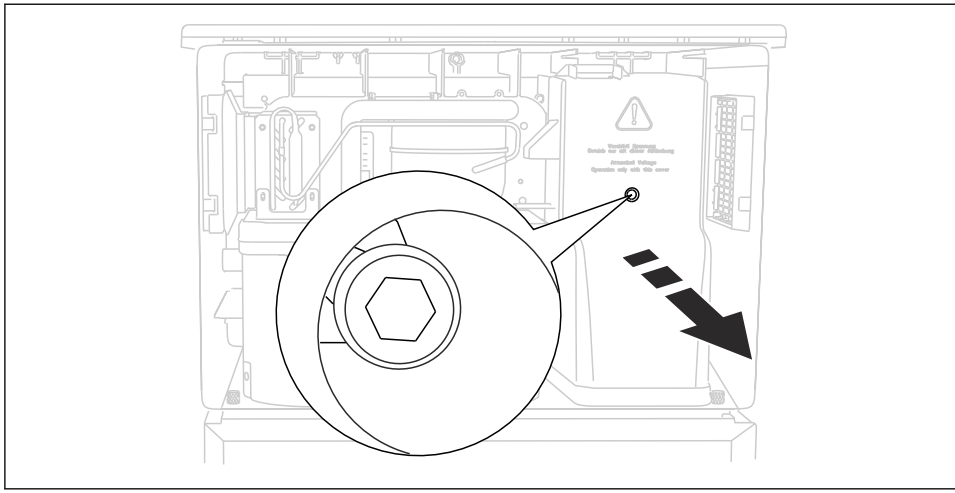
6. Now remove the rear panel towards the back and put it in a safe place.
7. Loosen the screw of the power supply cover using an Allen key and remove the power supply cover.



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Removing the cooling module

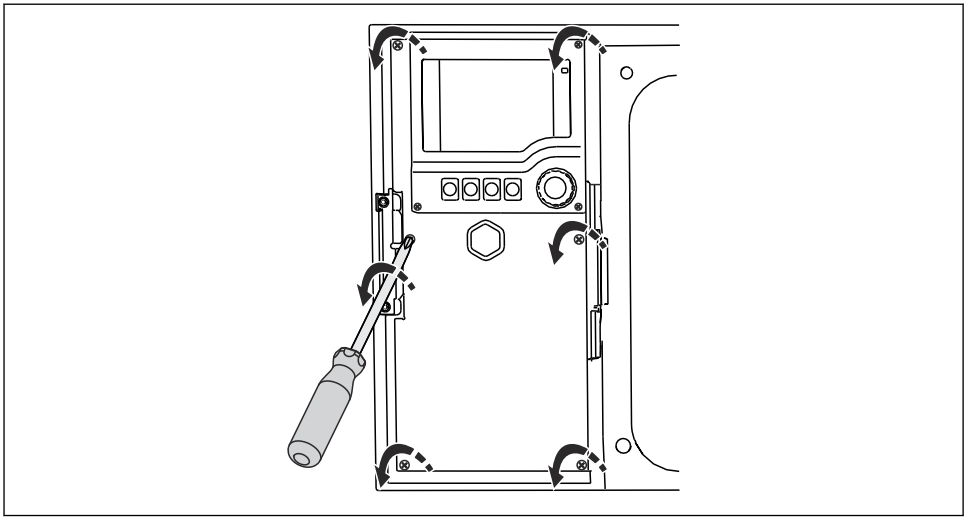
1. **⚠ WARNING**

   Danger from connected mains voltage!

   ▶ Ensure that the mains voltage is switched off.

   Using a multimeter, take an AC measurement at the L and N connections of the 90-230V AC power supply.

2. Loosen the screws (x 6) on the controller housing using a Phillips screwdriver and open the housing cover to the right.



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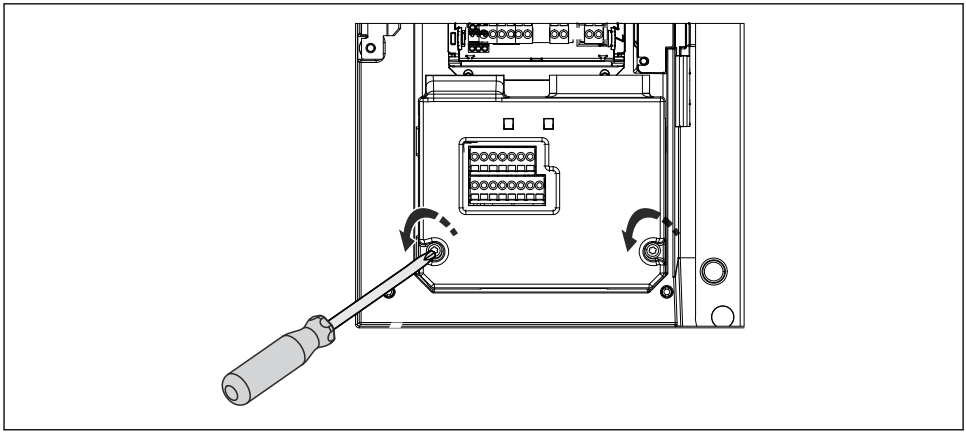
3. Loosen the screws of the cover on control module FMSY1 with a Torx screwdriver and remove the cover from the control module.



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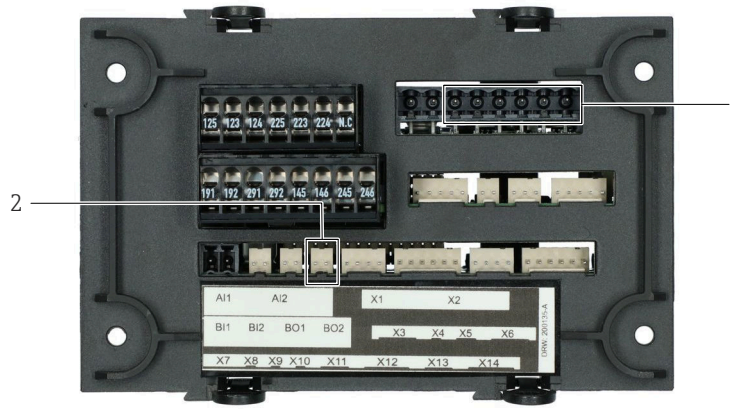
4. Disconnect the cables with plug-in terminal X2 (6-pin) (1) and plug-in terminal X10 (2-pin) (2) from control module FMSY1.



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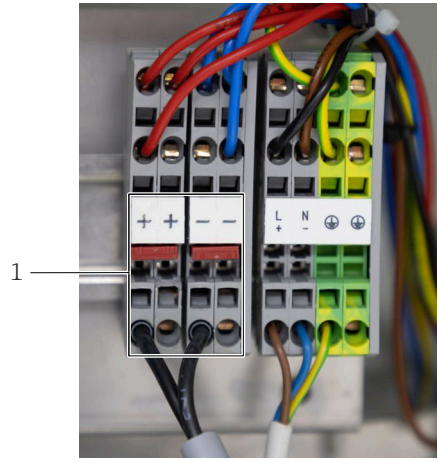
5. Route the cables on the left side of the control module to the rear.
6. Mark **+** and **-** on the DC power supply cables (cooling module) (1) from the electrical distributor on the rear of the sampler.



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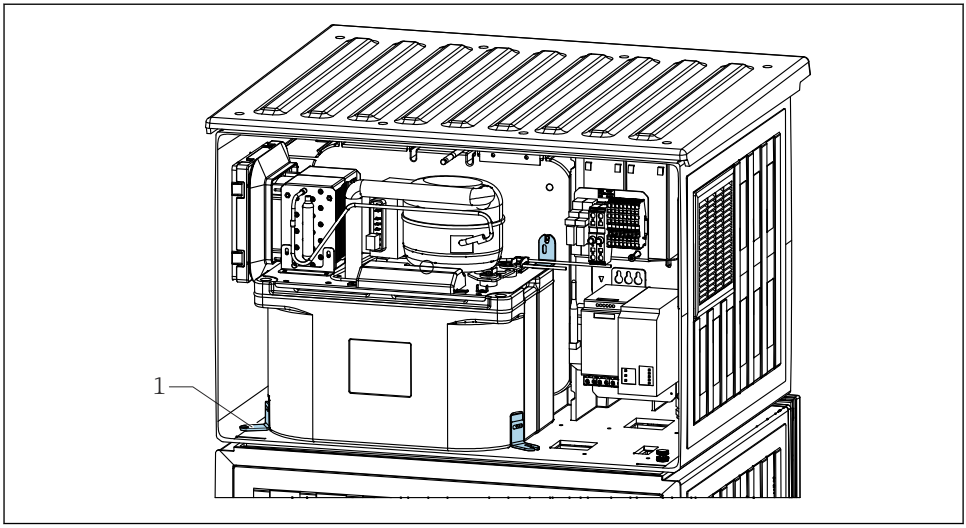
7. Disconnect the DC power supply cables with a flat-blade screwdriver.
8. Loosen the screws on the stainless steel brackets of the cooling modules with a Torx screwdriver. Only the screws to the sampler need to be loosened, since the stainless steel brackets remain on the cooling module!



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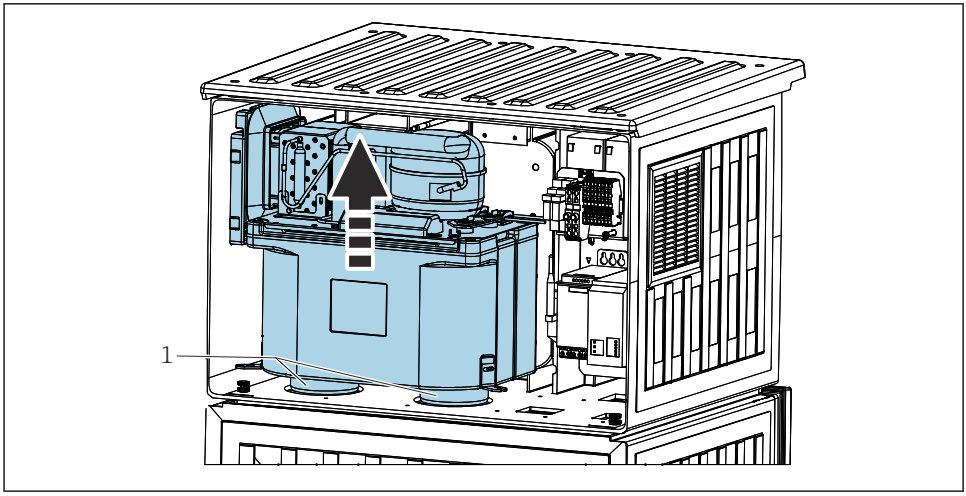
9. Lift the entire cooling module upwards until the air outlet pipes (1) of the cooling module are pulled completely out of the passages to the lower sample chamber.



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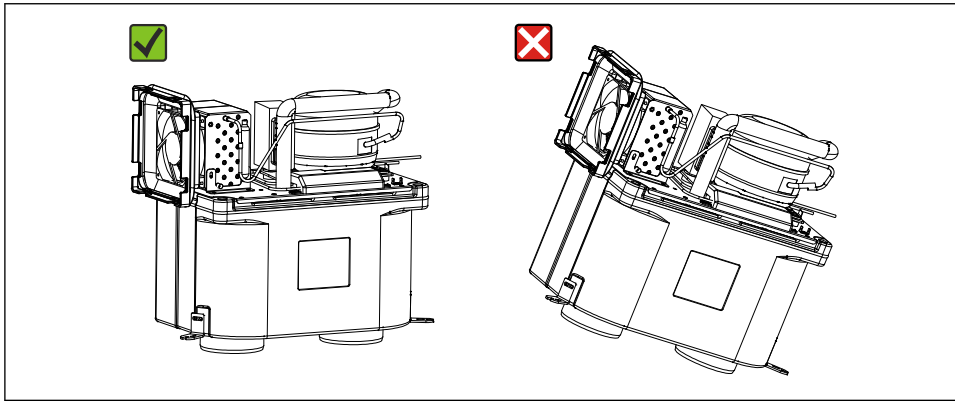
10. **⚠ CAUTION**

Damage due to incorrect transportation and installation!

- Always transport and install the cooling module in a vertical position. It must never be tilted!
- Place the cooling module on a stable surface.
- If the cooling module has been inadvertently tilted, it must be stored vertically for a sufficient period of time before it is put back into service!

Remove the complete cooling module from the sampler.



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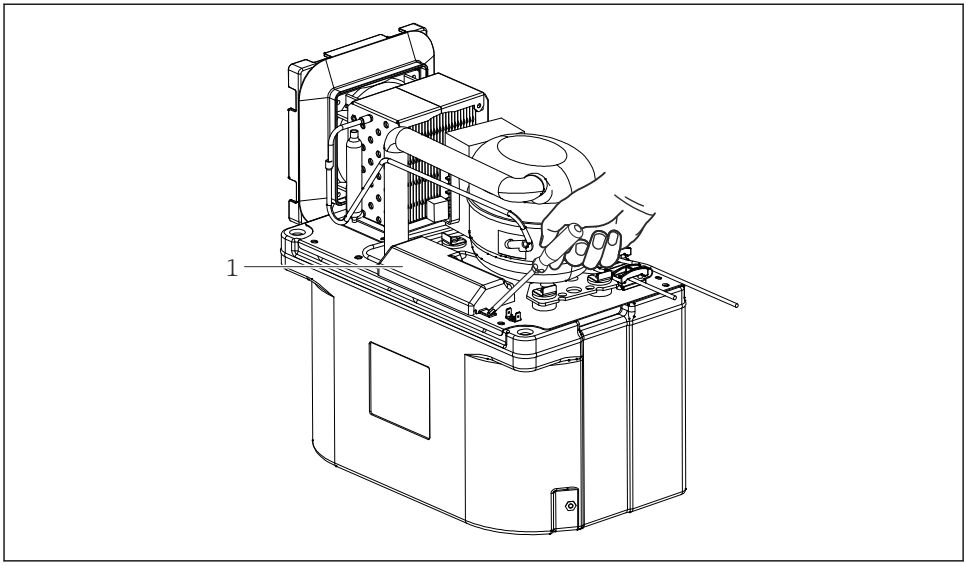
After the spare part has been replaced, the cooling module must be reinstalled according to the steps described in Section 8.8.3.

8.1.2 Disassembling the plastic tray

The steps described below are necessary for the replacement of the following spare parts:

- Fan on vaporizer (bottom) → 23
- Temperature sensor → 24
- Heating element and thermostat → 26

1. Loosen the screws (x 2) on the cover (1) of the terminal strip with a Torx screwdriver and remove the cover.



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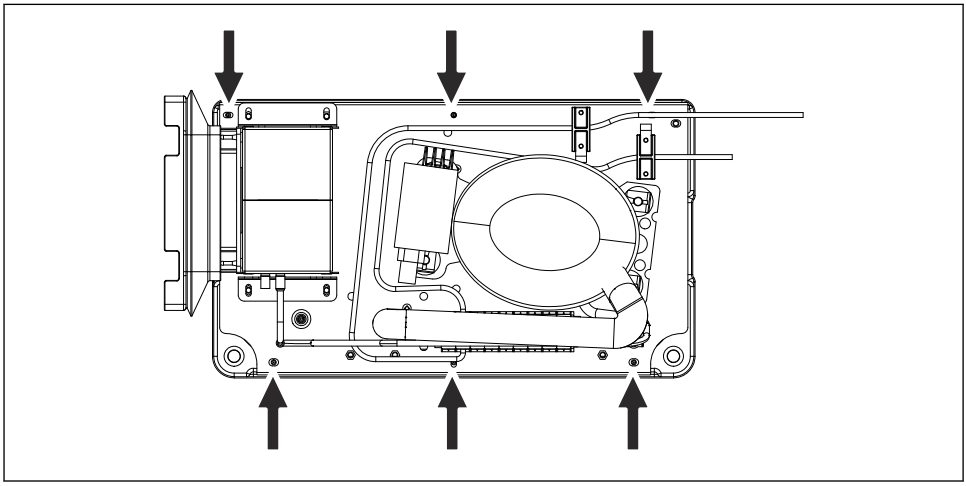
2. Loosen the screws (x 6) on the top of the cooling module with a Phillips screwdriver.



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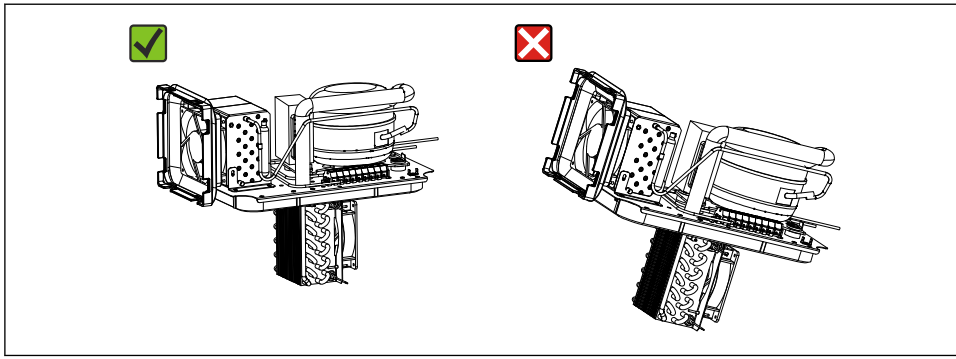
3. Loosen the screw on the stainless steel bracket (to the right on the rear) with a Phillips screwdriver.
4. Lift the entire cooling module out of the plastic tray and place it vertically, without tilting, on a holding device.



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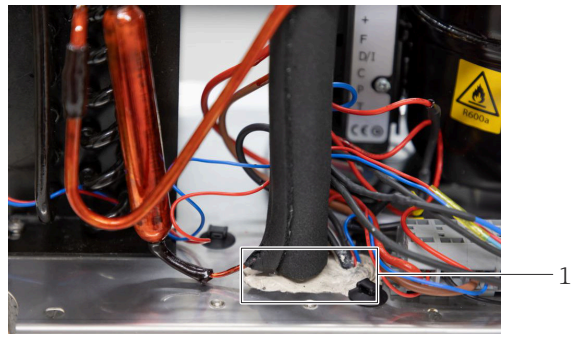
8.1.3 Detaching the fan on the vaporizer

The steps described below are necessary for the replacement of the following spare parts:

- Fan on vaporizer (bottom) → 23
- Temperature sensor → 24
- Heating element and thermostat → 26

1. Remove the cooling module from the sampler → 9.
2. Disassemble the plastic tray → 15.
3. Use a wire cutter to cut the cable ties on the fan cables.
4. Remove the permanently elastic putty (1) from the cables in the cable duct.



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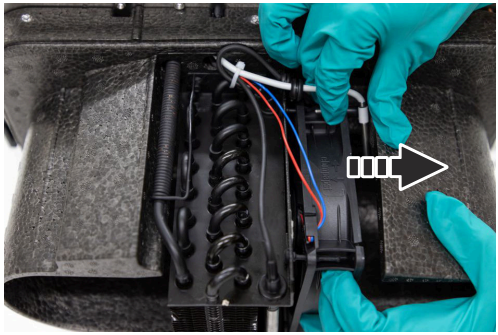
5. Detach the fan from the 4 rubber studs.



A0050125

If the cables are too tightly positioned and the fan cannot be moved, disconnect the fan cables at the terminal strip.

8.2 Replacing the E-box compressor

The following description applies to kit CSF48 cooling module: E-box compressor V1.0 (71115333) and to kit CSFxx E-box cooling module V2.0 (71560538)! The graphics show an E-box V2.0.

1. Remove the cooling module from the sampler → 9.
2. Mark **-**, **+**, **C**, **P** and **T** on the individual E-box cables.

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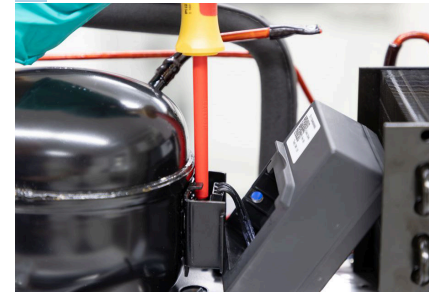
3. Disconnect the E-box cables.
4. Loosen the screw on the E-box with a Phillips screwdriver.
5. Carefully remove the E-box from the holder on the compressor.

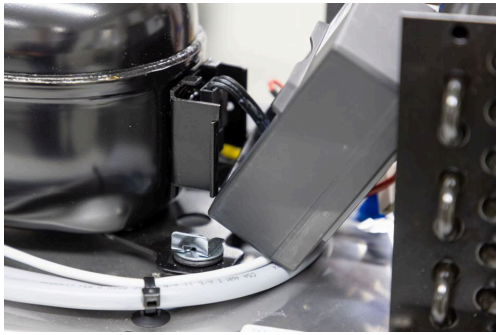
5.

6.



A0050115

6. Lever the 3-pin connector out of the holder on the compressor using a screwdriver, and remove the E-box from the compressor.
7. Insert the new E-box and plug the 3-pin connector into the holder on the compressor.



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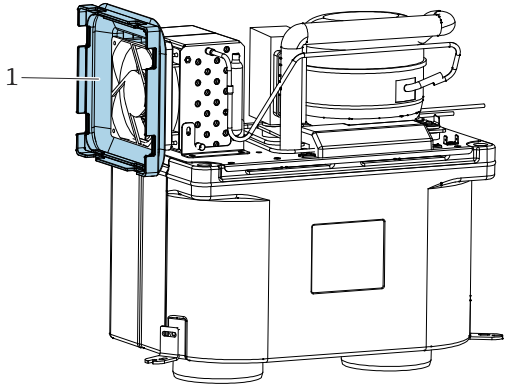
8. Slide the E-box first from the front and then from the rear into the holder on the compressor.
9. Secure the E-box with the screw.
10. Plug the cable into the new E-box. Pay attention to the markings (**-**, **+**, **C**, **P** and **T**) → 19.
11. Reinstall the cooling module in the sampler → 29.

8.3 Replacing the bellows

1. Remove the cooling module from the sampler → 9.
2. Detach the bellows (1) from the fan on the condenser.



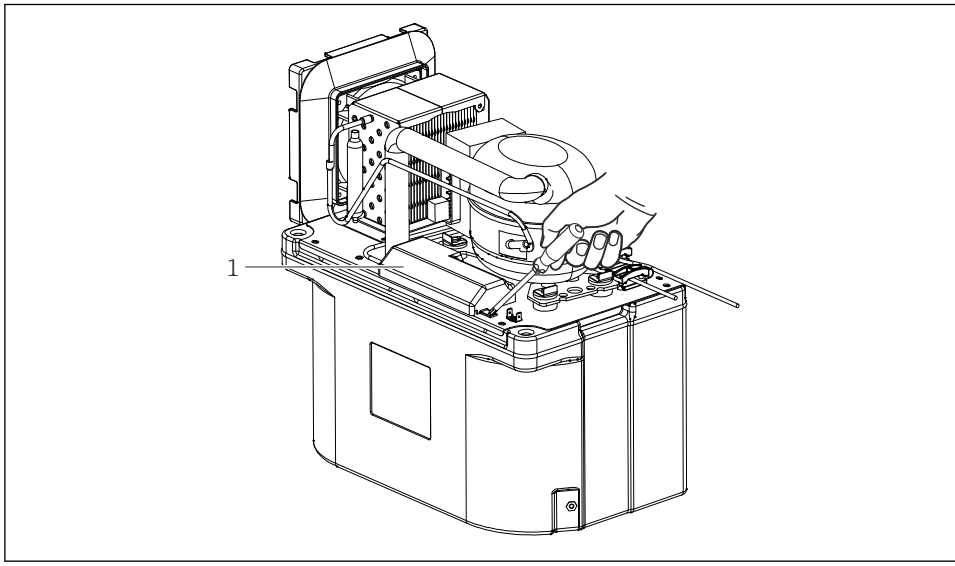
A0050094

3. Attach the new bellows to the fan on the condenser.

4. Reinstall the cooling module in the sampler → 29.

8.4 Replacing the fan on the condenser

1. Remove the cooling module from the sampler → 9.
2. Loosen the screws on the cover of the terminal strip with a Torx screwdriver and remove the cover.



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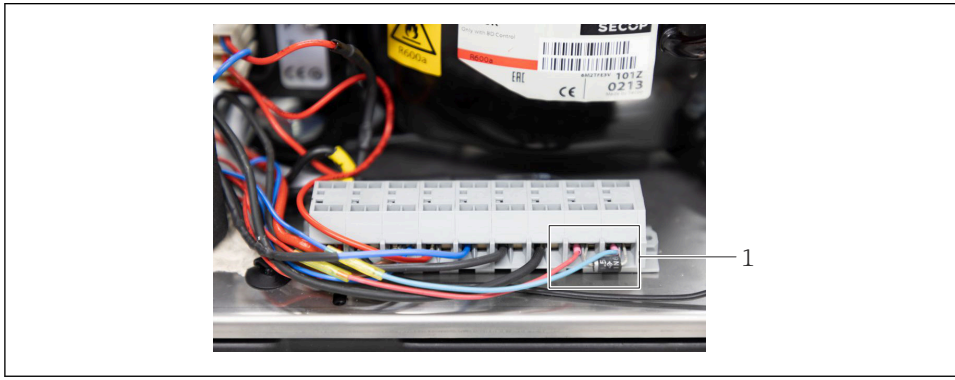
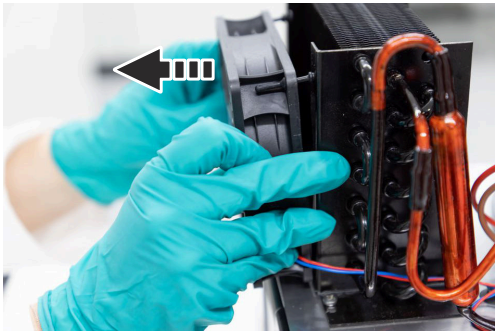
3. Disconnect the DC power supply cables (condenser fan) (1) from the terminal strip.



A0050119

4. Use a wire cutter to cut the cable ties on the fan cables.
5. Detach the fan from the 4 rubber studs and remove the fan.



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6. Carefully place the new fan on the rubber studs (without tools!). Position the fan so that the cables go away to the right.

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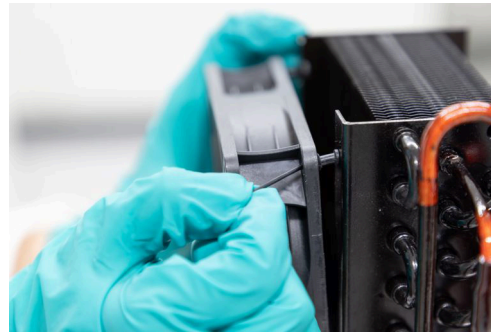
7. Carefully press the fan against the condenser module and carefully pull the four rubber studs with your thumb and forefinger until they snap into place. The fan should now be securely positioned on the condenser module .

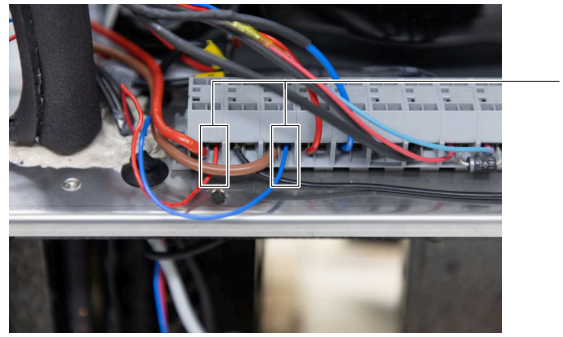


A0050123

8. Connect the DC power supply cables (condenser fan) to the terminal strip → 21.
9. Fit the cover of the terminal strip and use a Torx screwdriver to screw in the screws → 21.
10. Reinstall the cooling module in the sampler → 29.

8.5 Replacing the fan on the vaporizer

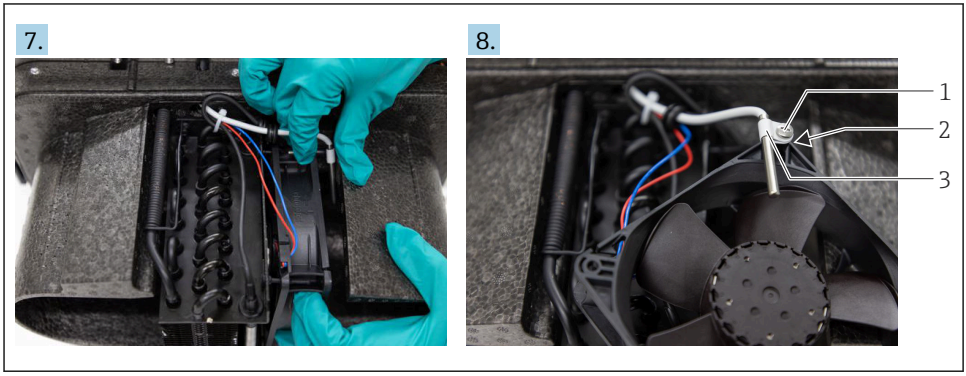
1. Remove the cooling module from the sampler → 9.
2. Disassemble the plastic tray of the cooling module → 15.
3. Detach the fan on the vaporizer → 17.
4. Disconnect the DC power supply cables (vaporizer fan) (1) from the terminal strip.



A0050130

5. Use a wire cutter to cut the cable ties on the fan cables.
6. Pull the cable downwards through the cable entry.

7. Carefully pull out the fan.
8. Disassemble the sensor holder, including the temperature sensor. To do this, lock the nut (2) on the sensor holder (3) with a hexagonal wrench and unscrew the screw (1) with a Phillips screwdriver. Keep and store the nut, screw, lock washer and sensor holder.

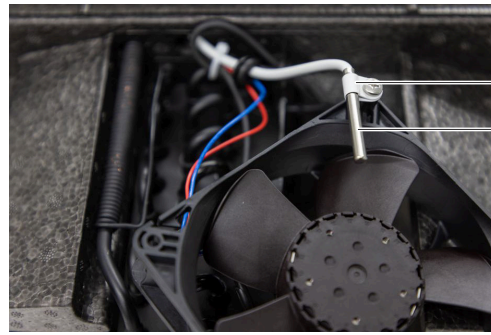


A0050144

9. Carefully put aside the temperature sensor.
10. Remove the used fan.
11. Carefully place the new fan on the rubber studs (without tools!).
12. Carefully press the fan against the vaporizer module and carefully pull the four rubber studs with your thumb and forefinger until they snap into place. The fan should now be securely positioned on the vaporizer module.
13. Guide the cable for the new fan through the cable entry.
14. Connect the cable to the terminal strip → 🖹 23.
15. Attach the terminal strip cover and secure with screws .
16. Mount the plastic tray of the cooling module → 🖹 29.
17. Install the cooling module in the sampler → 🖹 29.

8.6 Replacing the temperature sensor

1. Remove the cooling module from the sampler → 🖹 9.
2. Disassemble the plastic tray of the cooling module → 🖹 15.
3. Detach the fan on the vaporizer → 🖹 17.
4. Loosen the clamp of the sensor holder (1). To do so, lock the nut on the sensor holder with a wrench and use a Phillips screwdriver to loosen the screw by two turns.



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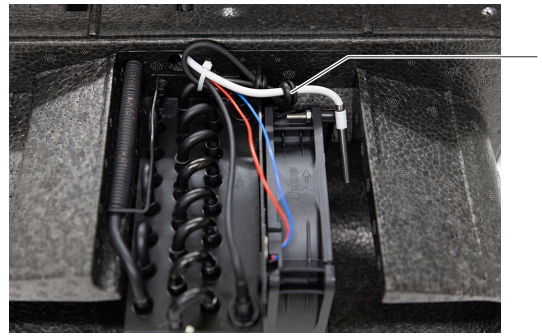
5. Pull the temperature sensor out of the sensor holder.
6. Pull the cable protection ring (1) out of the recess, pull it off the temperature sensor and keep it safe.



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7. Pull the used temperature sensor up through the cable entry and remove it.
8. Guide the new temperature sensor from above through the cable gland to the bottom of the cooling module.
9. Slide the cable protection ring over the temperature sensor onto the cable and insert it into the recess.
10. Insert the temperature sensor into the sensor holder.
11. Tighten the clamp of the sensor holder. To do so, lock the nut on the sensor holder with a wrench and tighten the screw with a Phillips screwdriver.
12. Secure the fan on the vaporizer → 29.
13. Mount the plastic tray of the cooling module → 29.

14. Install the cooling module in the sampler → 29.

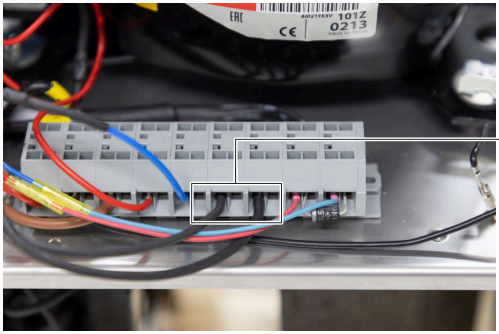
8.7 Replacing the heating element and the thermostat

Removing the heating element

1. Remove the cooling module from the sampler → 9.
2. Disassemble the plastic tray of the cooling module → 15.
3. Detach the fan on the vaporizer → 17.

During replacement, the temperature sensor remains on the fan.

4. Disconnect the cables of the heater and thermostat (1) from the terminal strip.



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5. Guide the cables downwards through the cable entry.
6. Remove the cable lugs (2) from the thermostat.
7. Remove the cable protection rings (1) from the recess and pull them off the cable.

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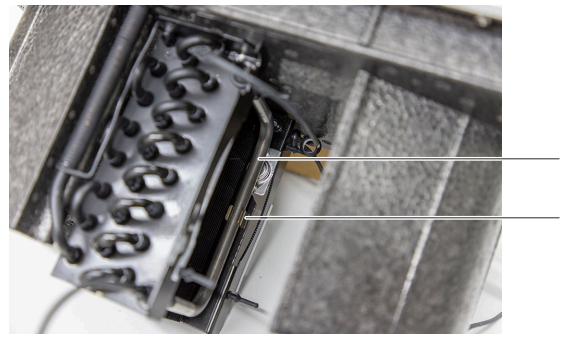
8. **CAUTION**

Risk of property damage due to vaporizer fins!

- When removing the heater, do not touch the vaporizer fins.

Carefully detach the heater (1) from the clip (2).



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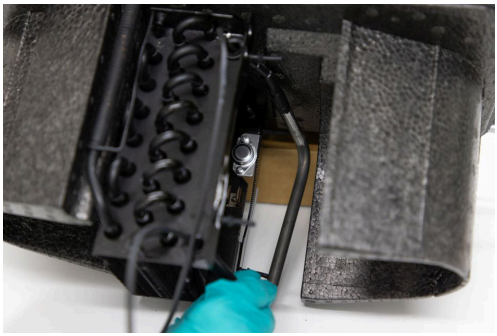
9. Remove the heater while pulling the cables out of the cable entries in the vaporizer housing.



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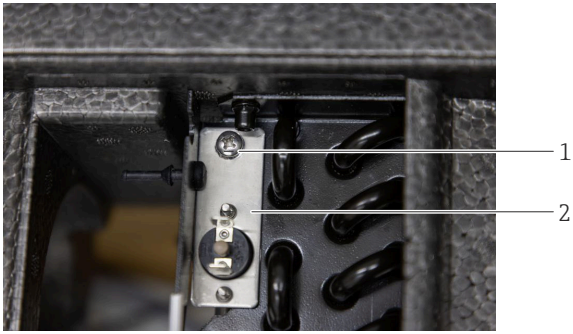
Removing the thermostat

1. Loosen the screw (1) of the thermostat holder (2) and remove the thermostat holder including the thermostat.



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2. Loosen the screws (x 2) of the thermostat and remove the thermostat (1) from the thermostat holder (2).

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Installing a new thermostat and heater

1. Fasten the new thermostat to the thermostat holder with screws (x 2) → 🖹 28.
2. Fasten the thermostat with the thermostat holder to the vaporizer housing with a screw → 🖹 28.
3. Guide the cable for the new heater upwards through the cable entry in the vaporizer housing and carefully insert the heater into the clip → 🖹 27. If necessary, grease the rubber on the cable entry of the new heater beforehand.
4. Place the cable protection rings over the cables and insert them into the recesses → 🖹 27.
5. Plug the cable lugs into the thermostat and guide the cable ends upwards through the cable entry → 🖹 27.
6. Connect the cable to the terminal strip → 🖹 26.
7. Secure the fan on the vaporizer → 🖹 29.
8. Mount the plastic tray of the cooling module → 🖹 29.
9. Install the cooling module in the sampler → 🖹 29.

8.8 Follow-up work

8.8.1 Fixing the fan to the vaporizer

1. Carefully press the fan against the vaporizer module and carefully pull the four rubber studs with your thumb and forefinger until they snap into place. The fan should now be securely positioned on the vaporizer module → 🖹 18.
2. Slide the cable protection rings into the recesses provided for this purpose.
3. Fix the cables with cable ties.
4. Apply permanently elastic putty to the cable entry.
5. Where applicable, reconnect the fan cable to the terminal strip .

8.8.2 Mounting the plastic tray

1. Lift the cooling module up vertically into the plastic tray without tilting it.
2. Fasten the stainless steel bracket with a screw.
3. Screw in the screws (x 6) on the top of the cooling module using a Phillips screwdriver → 🖹 16.
4. Attach the terminal strip cover and secure with screws → 🖹 21.

8.8.3 Installing the cooling module in the sampler

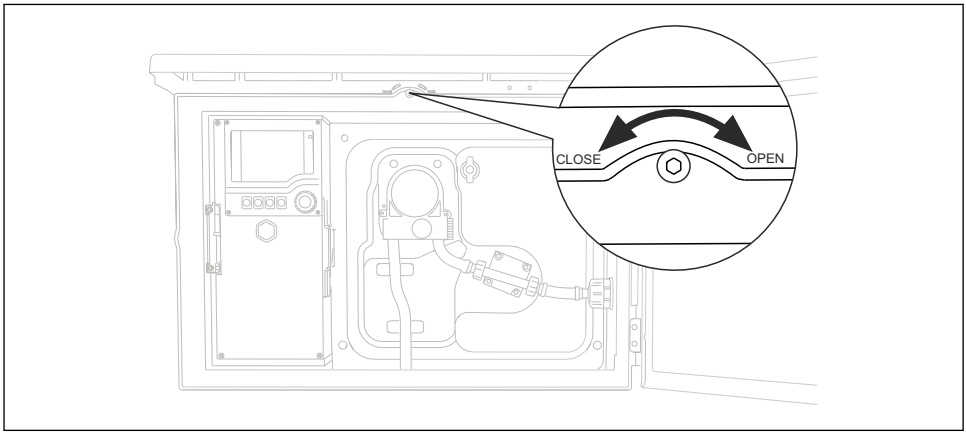
Inserting the cooling module

1. Insert the cooling module into the sampler in such a way that the Endress+Hauser nameplate can be read from the outside. Make sure that the air outlet pipes and the seals on the air outlet pipes are seated exactly in the passages to the lower sample chamber.

2. Fix the cooling module with the screws. The short screw is inserted at the upper stainless steel bracket in the rear panel of the sampler.
3. Connect the DC power supply cable (cooling module) (1) to the electrical distributor on the rear of the sampler → 13.
4. Route the cable on the left side towards the front to the control module.
5. Connect the cables with plug-in terminal X2 (6-pin) (1) and plug-in terminal X10 (2-pin) (2) to control module FMSY1 → 13.
6. Fit the cover of the control module and secure with the screws.
7. Close the housing cover on the controller housing and secure with screws (x 6).
8. Fit the power supply cover and use an Allen key to screw in the screw on the cover.

Inserting the rear panel of the dosing compartment

1. Slide the rear panel into the holder from below and then guide the metal tabs into the slot provided for this purpose.
2. Tighten the screw above the dosing compartment with an Allen key to secure the rear panel of the dosing compartment.



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3. Reconnect the sampler to the mains voltage.
4. Perform a function test with the sampler.
5. Restart the sampling program.
6. Close the door of the dosing compartment.

9 Disposal

- Observe the local regulations.

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