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Installation Instructions
Liquiline System CA8x analyzer

Cooling module

Endress+Hauser
People for Process Automation

Table of contents

1 Overview

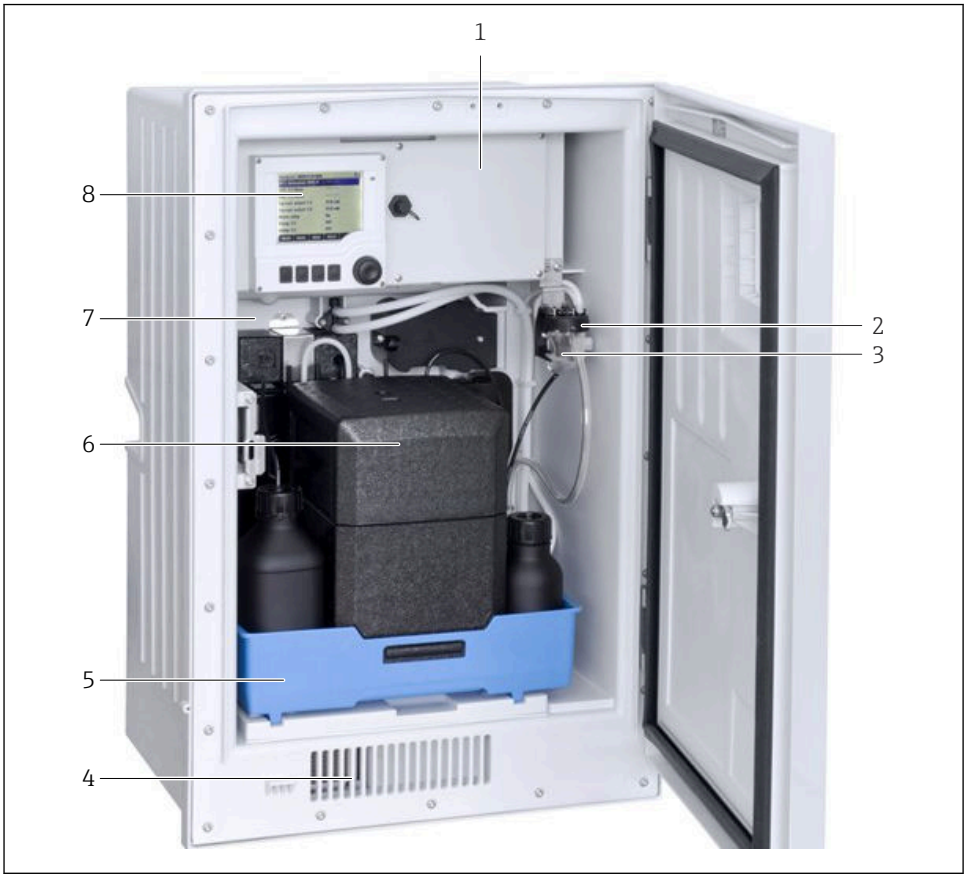
1.1 Spare parts kits

These installation instructions apply to the following spare parts kits:

Order code	Designation	Page
71218483	CA8x Cooling module complete	→ 11
71239297	CA8x Temperature sensor cooling module	→ 11
71218481	CA8x Fan small 40 x 40 mm	→ 12
71218482	CA8x Peltier fan big 60 x 60 mm	→ 12

1.2 CA8x overview

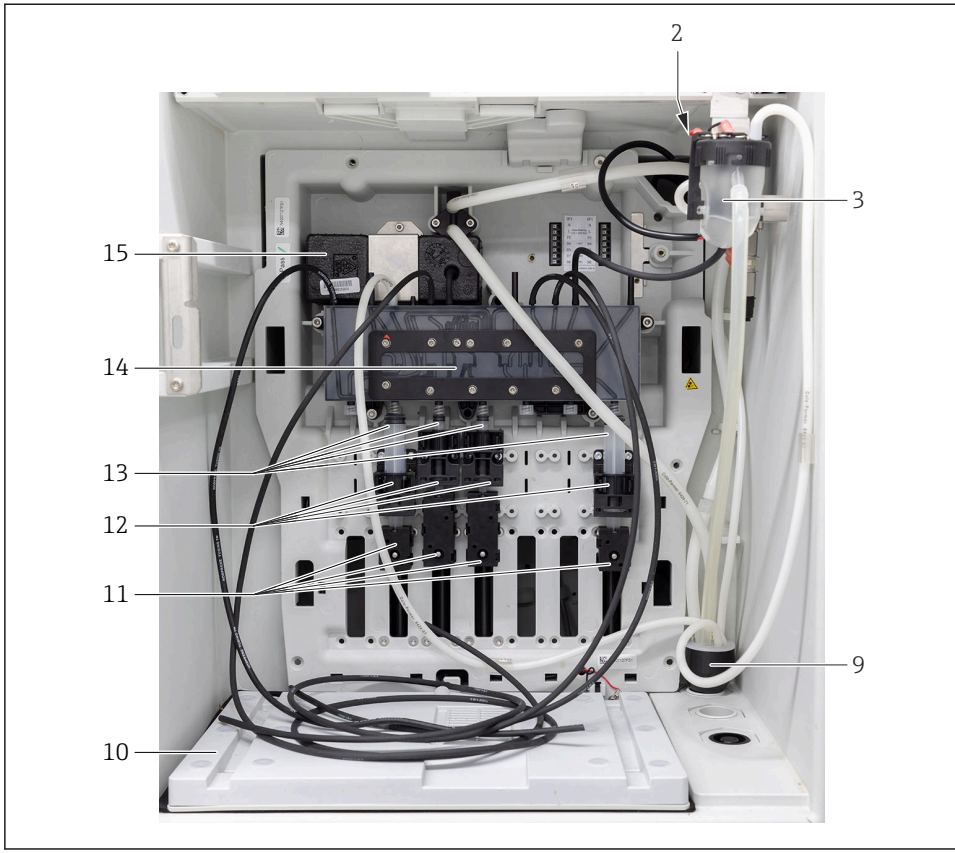
The graphics below provide an overview of the CA8x using the CA80AM as an example. The cooling option is mandatory for the CA80HA and optional for CA80AM/NO/PH/TP:



1 Overview of CA8x components

1 *Electronics compartment cover*
2 *Solenoid valve (only for 2x sample collector)*
3 *Sample collector (depending on version ordered)*
4 *Ventilation/cooling*
5 *Bottle tray*
6 *Insulation (optional, only for cooling)*
7 *Process module (carrier plate with Liquid Manager, photometer and control module)*
8 *Measuring and control unit (controller)*

The figure below shows the carrier plate from the front.



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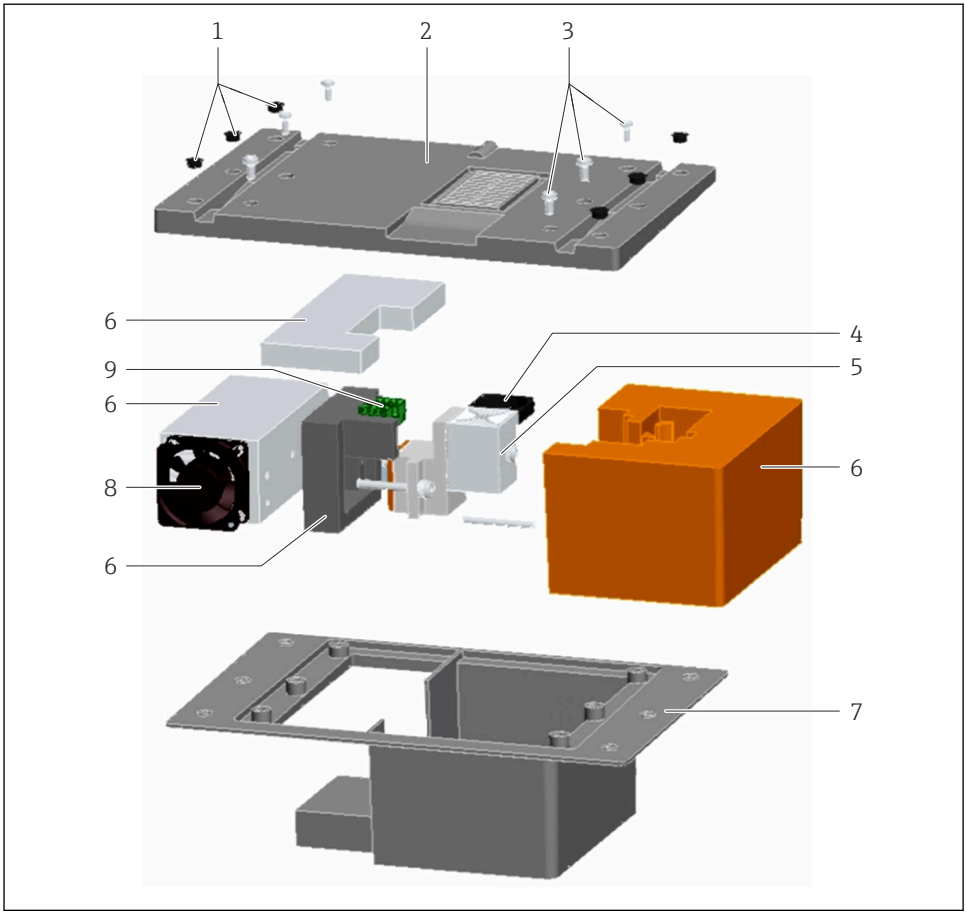
2 *Carrier plate CA8x*

9 Drain pipe
10 Cooling module cover
11 Linear drives
12 Dispenser holders
13 Dosing dispensers
14 Liquid Manager
15 Photometer

The graphic below shows a schematic overview of the cooling module.



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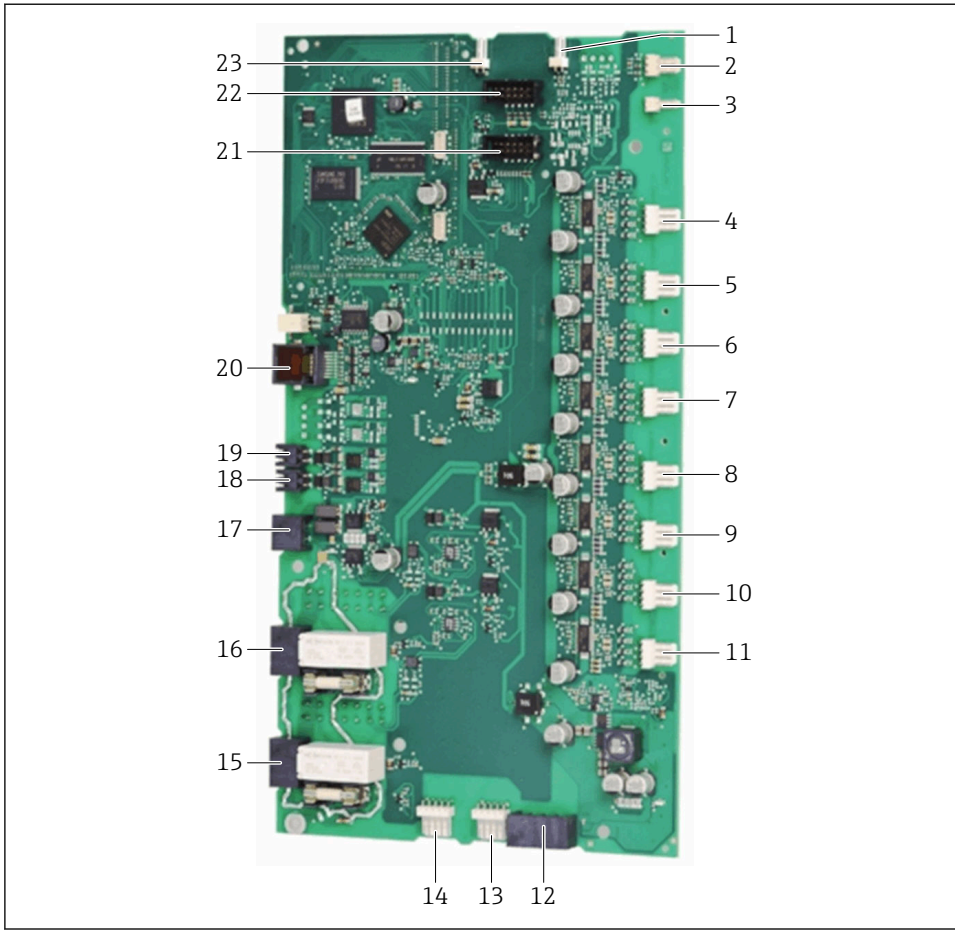
3 Overview of cooling module

1 Dummy plug for screw sealing
2 Cooling module cover
3 Cover screws
4 Fan 40 x 40 mm (cooling)
5 Peltier element
6 Foam molded parts
7 Cooling module bottom tray
8 Fan 60 x 60 mm (air inlet)
9 Electr. connectors (for 40 x 40 mm fan, 60 x 60 mm fan and Peltier element)

The graphic below shows the connections for the FXAB1 control module.

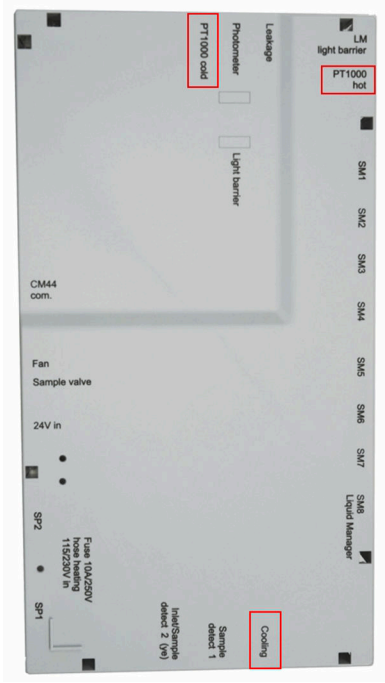


4 *FXAB1 control module connections*

1 Leak detector
2 LM light barrier
3 Pt1000 cooling module, "hot"
4-11 Stepping motors 1 to 8
12 Peltier element
13 Sample 1 level
14 Sample 2 level
15 PVB 1/hose heater
16 PVB 2/hose heater
17 24 V power supply input
18 Sample collector valve
19 Housing fan
20 Communication with the CM44 operating unit

21 Light barrier for linear drives
22 Photometer
23 Pt1000 cooling module, "cold"

The graphic below shows the cover of the FXAB1 control module.



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5 Control module cover

2 Intended use

- The parts of the kits must only be used as spare parts for CA8x analyzers. Any other use is not permitted!
- Only use original parts from Endress+Hauser.
- In the Device Viewer, check if the spare part is suitable for the device in question.

3 Personnel authorized to carry out conversion

- 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 perform the stated tasks.
- The electrical connection may only be established by an electrical technician.
- The technical personnel must have read and understood these Installation Instructions and must follow the instructions they contain.
- Measuring point faults may be repaired only by authorized and specially trained personnel.
- In the case of Ex-certified devices, the technical staff must also be trained in explosion protection.

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 requirements

⚠ WARNING

Risk of death due to electric shock!

- ▶ Perform work on the device with the utmost caution, especially when the device remains fully or partially powered on during maintenance tasks.
- ▶ Follow the instructions in the relevant sections of this manual as the procedure for electrical safety depends on the service kits used. The device does not have a power switch for the power supply.
- ▶ All work must be carried out according to applicable safety standards.
- ▶ Follow the instructions in the Operating Instructions for the analyzer.

⚠ CAUTION

Risk to health due to contact with the process medium!

- ▶ Wear protective gloves, protective goggles and protective clothing, particularly when working with reagents, chemicals or process medium.

⚠ CAUTION

Risk to health due to contact with chemicals!

- ▶ When handling chemicals, note the warnings on the safety data sheets. Wear acid-proof protective gloves, a protective coat, and safety goggles!
- ▶ Note the nationally applicable workplace safety regulations for the work area when handling toxic or corrosive chemicals. If necessary, consult a physician and show the safety data sheet or the information on the chemical container.

⚠ CAUTION

Electronic assemblies are sensitive to electrostatic discharges (ESD)!

- Before removing an assembly from the antistatic packaging, it must be discharged, e.g. at a protective ground. Continuous grounding, e.g. with an ESD wristband, is recommended.

Potential impact on the process

Before decommissioning an active device, the potential impact on the overall process must be taken into account! This applies in particular when using the switching contacts, the analog signal outputs or the communication interface of the associated measuring instrument to control process variables. Coordinate service tasks with the operator!

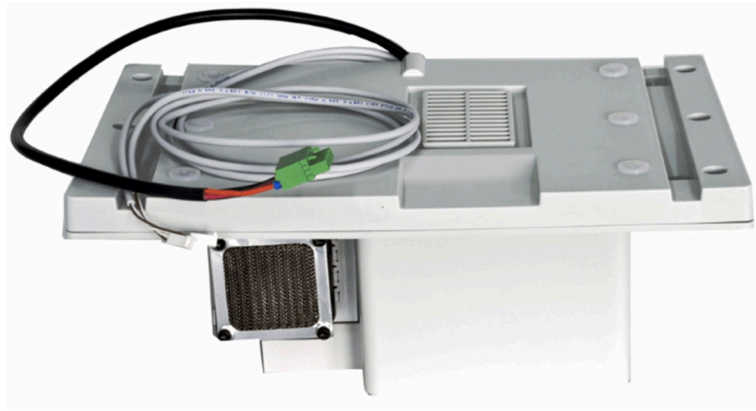
Contact Endress+Hauser Service if you have questions: www.addresses.endress.com

5 Scope of delivery

5.1 71218483 Kit CA8x Cooling module complete

The kit contains the following parts → 🖼 6, 🖹 11:

1 x	Complete cooling module	1 x	Kit instructions



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🖼 6 *CA8x cooling module complete*

5.2 71239297 Kit CA8x Temperature sensor cooling module

The kit contains the following parts → 🖼 7, 🖹 11:

1 x	Cooling module temperature sensor	1 x	Kit instructions

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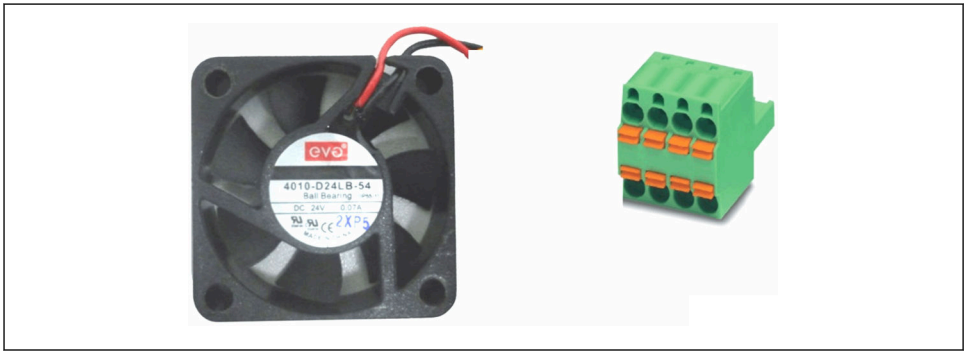
🖼 7 *CA8x Temperature sensor cooling module*

5.3 71218481 Kit CA8x fan small 40 x 40 mm

The kit contains the following parts → 8, 12:

1 x	Small fan 40 x 40 mm, 24 VDC	1 x	Kit instructions
1 x	Socket connector 2 x 4 180° pitch 5.08		



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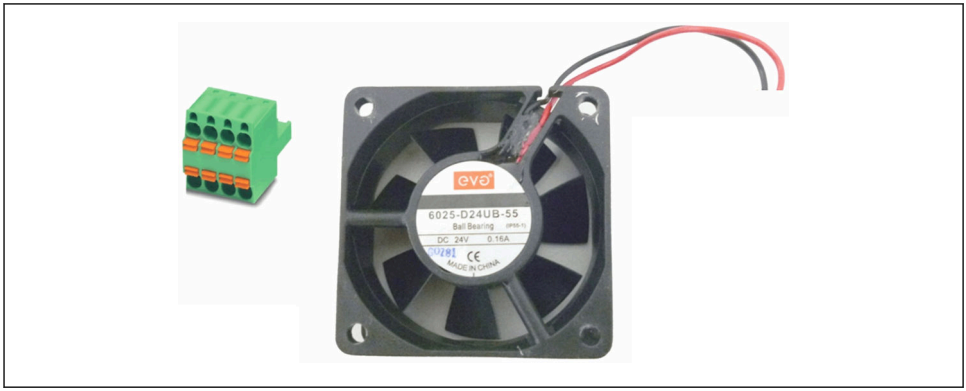
8 *CA8x fan small 40 x 40 mm*

5.4 71218482 Kit CA8x Peltier fan big 60 x 60 mm

The kit contains the following parts → 9, 12:

1 x	large fan 60 x 60 mm, 24 VDC	1 x	Kit instructions
1 x	Socket connector 2 x 4 180° pitch 5.08		



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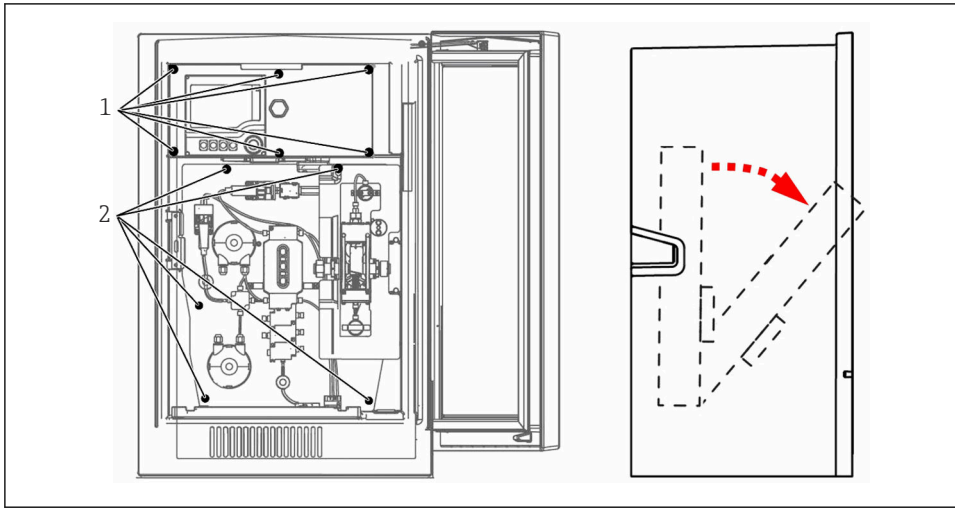
9 *CA8x Peltier fan big 60 x 60 mm*

6 Replacing the components

6.1 Access for service work

The graphic below shows opening the connection compartment cover and folding the carrier plate forward.

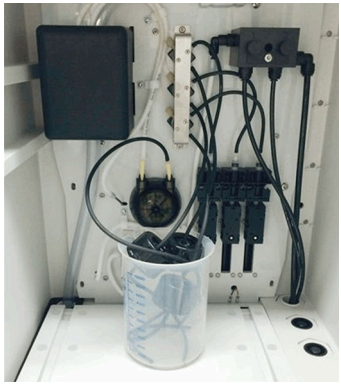


10 *Access for service work on the rear of the carrier plates*

1 Screws for connection compartment cover
2 Screws for securing the carrier plates

6.2 Preparation

1. Select **Mode → Manual mode** and confirm by pressing the navigator button.
2. Wait until the analyzer has finished the measurement and **Manual** is displayed as the **Current mode**.
3. Stop the sample feed.
4. Remove the covers of the reagent bottles and the hoses and place them in a plastic vessel.



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11 Beaker for covers with hoses

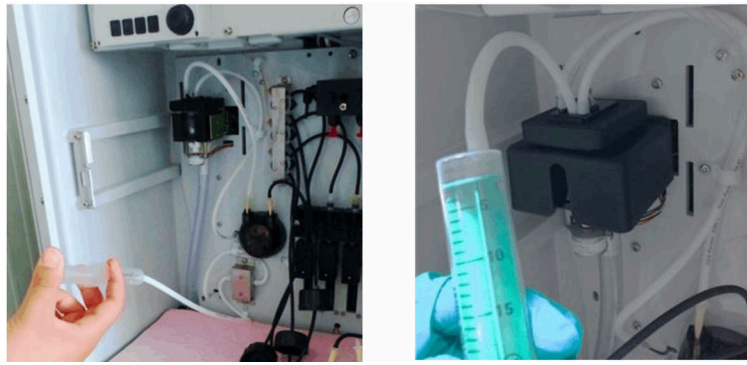
5. Remove the bottle tray together with the bottles from the analyzer.
6. Place the hoses in an empty beaker and select **Menu → Operation → Maintenance → Decommissioning → Empty hoses**.

The software evaluates this as the bottles being removed. Therefore, they need to be reinserted at a later time.

7. Place the hoses in a beaker with distilled or treated water and select **Menu → Operation → Maintenance → Decommissioning → Rinse with water**. Wait until flushing is finished.
8. Place the hoses back in an empty beaker and select **Menu → Operation → Maintenance → Decommissioning → Empty hoses**.

All the hoses are now flushed, clean and filled with air. It is now possible to work on the analyzer without risk.

9. The analyzer cannot drain the SPx sample hose and the photometer cuvette independently. If required for draining, remove the hose from the flowmeter and drain it with a dispenser.



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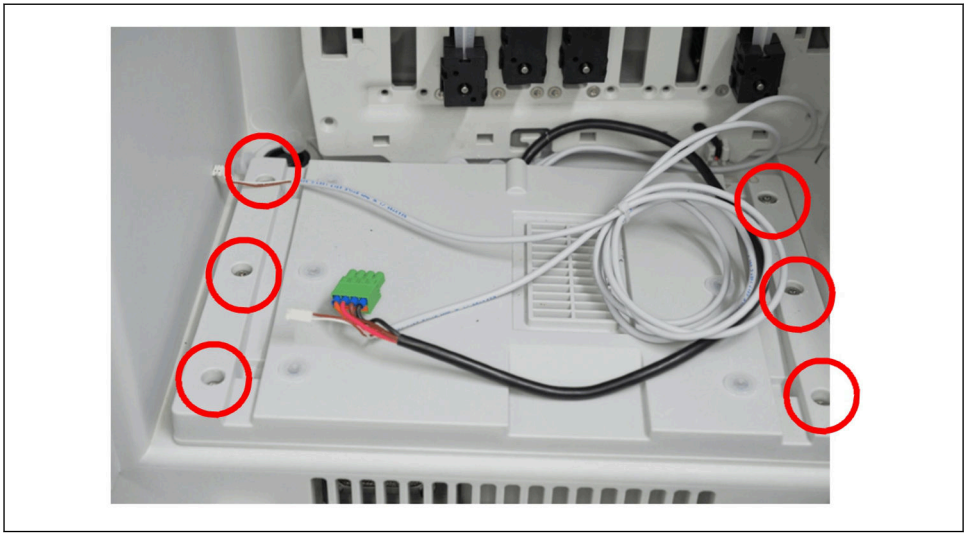
12 Draining the SPx sample hose and photometer

10. **Disconnect the analyzer from the power supply and secure the circuit breaker against unintentional recommissioning.**

6.3 Replacing the cooling module

1. Carry out preparatory work as per section 6.2 → 13.
2. Remove the bottle tray.
3. Open the screws of the mounting frame and fold out the mounting frame to ensure that the cable run and FXAB1 control module are accessible.
4. Disconnect the “Cooling”, “Pt1000 hot” and “Pt1000 cold” connectors from the FXAB1 control module (designations → 4, 7 and → 5, 8).
5. Remove the 6 outer dummy plugs from the cooling module → 13, 16.
6. Open the 6 outer screws on the cooling module and remove the cooling module → 13, 16.



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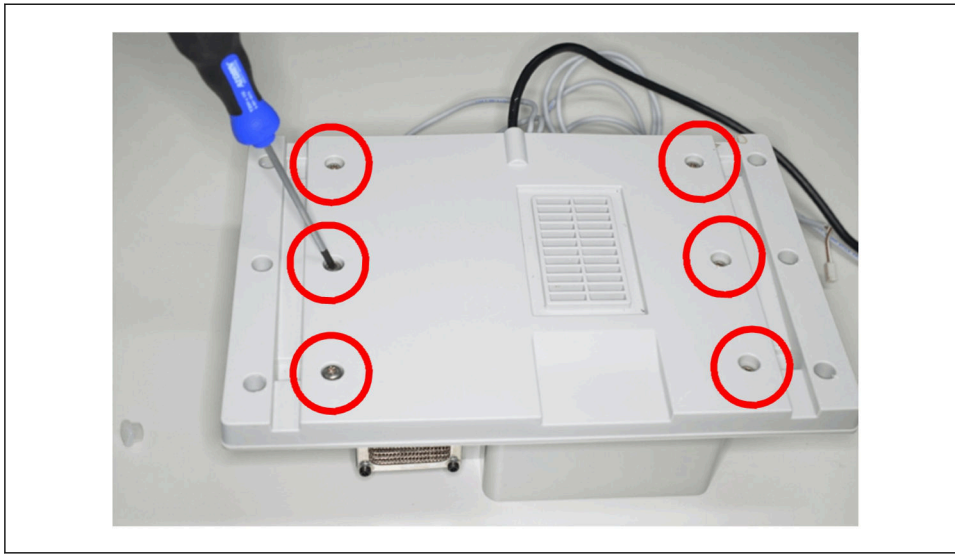
13 Removing the cooling module

7. Insert and secure the new cooling module.
8. Fit the dummy plugs back on.
9. Restore the "Cooling", "Pt1000 hot" and "Pt1000 cold" connections.
10. Fold back the mounting frame and secure it in place.
11. Insert the bottle tray including all the bottles and connect the hoses.
12. Put the analyzer back into operation → 21.

6.4 Replacing the temperature sensors

1. Remove the cooling module as per section 6.3.
2. Remove the 6 inner dummy plugs from the cooling module → 14, 17.
3. Open the six inner screws of the cooling module and remove the cover of the cooling module → 14, 17.



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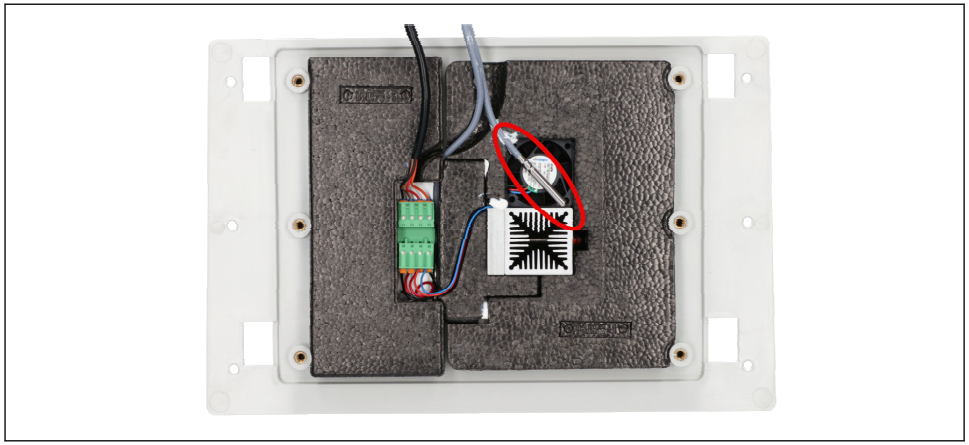
14 *Removing the cooling module cover*

6.4.1 Replacing the "Cooling" temperature sensor

Position of the "Cooling" ("Pt1000 cold") temperature sensor → 15, 18.

1. Remove the defective sensor and insert a new sensor. Make sure that the sensor is in contact with the dissipator.
2. Seal the sensor with silicone paste (not included in scope of delivery), → 15, 18.
3. Reassemble the cooling module.
4. Reassemble the device as per section 6.3 "Replacing the cooling module" → 15.
5. Put the analyzer back into operation → 21.



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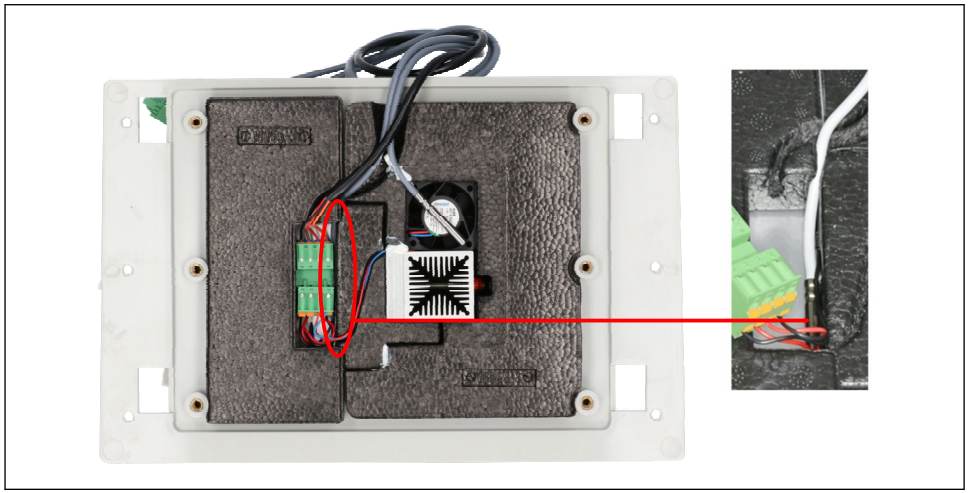
15 Cooling module, cooling temperature sensor ("cold")

6.4.2 Replacing the "Air intake" temperature sensor

Position of the "Air intake" ("Pt1000 hot") temperature sensor → 16, 18.

1. Remove the defective sensor and insert a new sensor.
2. Reassemble the cooling module.
3. Reassemble the device as per section 6.3 "Replacing the cooling module" → 15.
4. Put the analyzer back into operation → 21.



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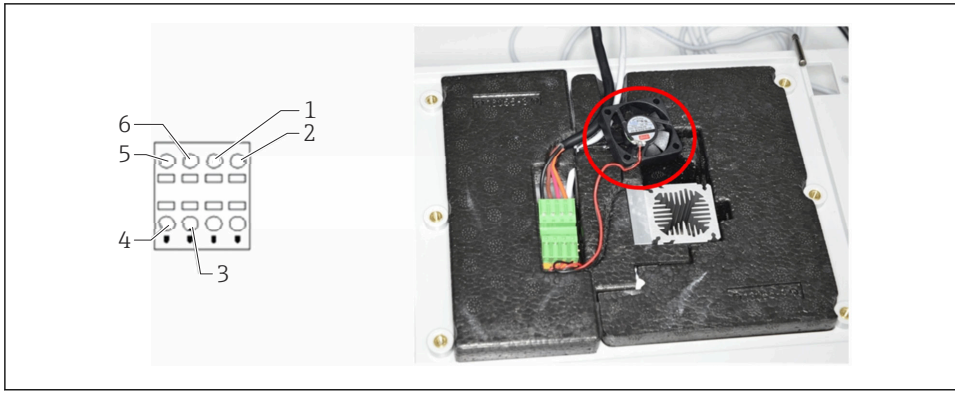
16 Cooling module, air intake temperature sensor ("hot")

6.5 Replacing the 40 x 40 mm fan

1. Remove the cooling module as per section 6.3.
2. Remove the 6 inner dummy plugs from the cooling module → 14, 17.
3. Open the six inner screws of the cooling module and remove the cover of the cooling module → 14, 17.
4. Note the orientation of the fan → 17, 19.
5. Disconnect the fan cable and replace the fan. Pay attention to the polarity → 17, 19.
6. If necessary, replace the connector with the new connector supplied.
7. Reassemble the cooling module.
8. Reassemble the device as per section 6.3 "Replacing the cooling module" → 15.
9. Put the analyzer back into operation → 21.



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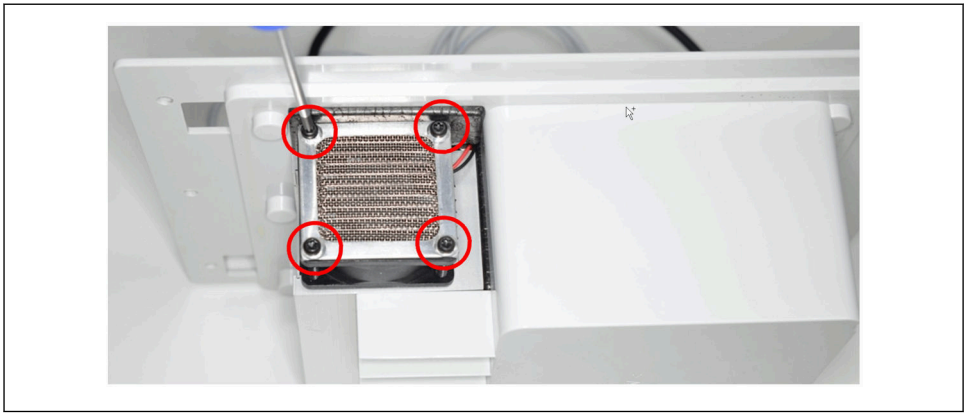
17 *Cooling module, small fan (40 x 40 cm)*

1 Peltier, red
2 Peltier, black
3 40 mm fan, red
4 40 mm fan, black
5 60 mm fan, black
6 60 mm fan, red

6.6 Replacing the 60 x 60 mm fan

1. Remove the cooling module as per section 6.3.
2. Remove the 6 inner dummy plugs from the cooling module → 14, 17.
3. Open the six inner screws of the cooling module and remove the cover of the cooling module → 14, 17.
4. Note the orientation of the fan → 18, 20.



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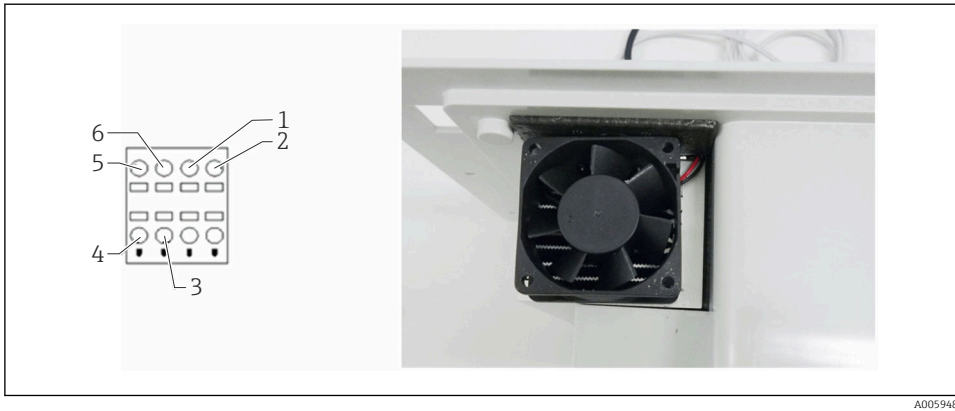
18 Cooling module, filter for fan, large

5. Release the 4 fixing screws on the fan → 18, 20.
6. Remove the filter grid.
7. Disconnect the fan cable and replace the fan. Pay attention to the polarity → 19, 21.
8. If necessary, replace the connector with the new connector supplied.
9. Reassemble the cooling module.
10. Reassemble the device as per section 6.3 "Replacing the cooling module" → 15.
11. Put the analyzer back into operation → 21.



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19 *Cooling module, large fan (60 x 60 cm)*

1 *Peltier, red*
2 *Peltier, black*
3 *40 mm fan, red*
4 *40 mm fan, black*
5 *60 mm fan, black*
6 *60 mm fan, red*

6.7 Recommissioning

1. Insert the bottle tray with reagents, standard and cleaner.
2. Switch the power supply to the analyzer back on.
3. Connect hoses to the reagent containers and fill as described below:
4. Select **Menu → Operation → Maintenance → Bottle replacement → Bottle insertion → Bottle selection**.
5. Highlight all the bottles and confirm by pressing the **OK** softkey.
6. Select the **Bottles inserted confirmation** entry.
7. Activate the sample feed.
8. Select **Mode → Continue automatic mode** to start the normal measuring operation.
9. It is recommended to perform one single-point calibration at the end of the service work. To do so, select **Menu → Calibration → Analyzer → Determine calibration factor**.
10. Check all the new components for leaks.

7 Additional documentation

Detailed information on the devices can be found in the Operating Instructions for the analyzer and in the other documentation, available at:

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

8 Disposal

If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

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