

For the competent person

Installation and maintenance instructions



auroFLOW plus

VPM D

Expansion module

EXP (en)

Publisher/manufacture

Vaillant GmbH

Berghauser Str. 40 ■ D-42859 Remscheid
Tel. +49 21 91 18-0 ■ Fax +49 21 91 18-2810
info@vaillant.de ■ www.vaillant.de



Contents

Contents

Contents			8.4	Test menu.....	23
			8.5	Configuration	23
1	Safety	3	8.6	Documenting start-up	24
1.1	Action-related warnings	3	9	Handing over to the operator	24
1.2	Intended use	3	10	Troubleshooting	25
1.3	General safety information	3	10.1	Querying the fault memory	25
1.4	Requirements for lines.....	5	10.2	Overview of the fault codes	25
1.5	Regulations (directives, laws, standards).....	5	10.3	Detecting and rectifying faults	25
2	Notes on the documentation	6	11	Inspection and maintenance	25
2.1	Observing other applicable documents	6	11.1	Inspection and maintenance check-list.....	25
2.2	Storing documents.....	6	11.2	Observing inspection and maintenance intervals	25
2.3	Validity of the instructions	6	11.3	Procuring spare parts	25
3	System	6	11.4	Preparing inspection and maintenance work.....	26
3.1	System characteristics.....	6	11.5	Checking and replacing solar fluid.....	26
3.2	Combination with system controller	6	11.6	Completing inspection and maintenance work	27
3.3	Combination with cylinder.....	6	12	Decommissioning.....	27
3.4	System conditions.....	6	12.1	Temporarily decommissioning the product.....	27
4	Product description.....	6	12.2	Permanently decommissioning the product.....	27
4.1	Design of the auroFLOW plus solar charger (basic module only).....	7	13	Recycling and disposal.....	27
4.2	Design of the auroFLOW plus solar charger (basic module and expansion module).....	8	13.1	Disposing of the product	27
4.3	Information on the identification plate	9	13.2	Disposing of solar fluid.....	27
4.4	Product description	9	13.3	Disposing of wear parts	27
4.5	Serial number	9	13.4	Disposing of defective components	27
4.6	CE label	9	14	Customer service.....	27
5	Installation.....	9	Appendix		
5.1	Storage conditions	9	A	Overview of the installer level menu structure	28
5.2	Unpacking the product.....	9	B	Connection diagram	31
5.3	Scope of delivery for the basic module.....	9	C	Detecting and rectifying faults	31
5.4	Scope of delivery for the expansion module.....	9	D	Technical data.....	32
5.5	Transporting the product	9	Index		
5.6	Product dimensions and connection dimensions.....	10	34		
5.7	Installation clearance.....	10			
5.8	Clearance from combustible components	10			
5.9	Mains connection cable	10			
5.10	Noise.....	10			
5.11	The rules for laying the pipelines for the solar circuit must be followed	11			
5.12	Installing the basic module	11			
6	Installation.....	12			
6.1	Carrying out the hydraulics installation	12			
6.2	Carrying out the electrical installation.....	13			
6.3	Completing installation.....	15			
6.4	Installing the expansion module	15			
6.5	Installing the second solar pump	16			
6.6	Wall-mounting the expansion module	18			
7	Operation.....	18			
7.1	Operating concept of the solar charger	18			
8	Start-up	18			
8.1	Filling and purging the system.....	19			
8.2	Running through the installation assistant.....	20			
8.3	Carrying out pressure compensation.....	22			



1 Safety

1.1 Action-related warnings

Classification of action-related warnings

The action-related warnings are classified in accordance with the severity of the possible danger using the following warning signs and signal words:

Warning symbols and signal words



Danger!

Imminent danger to life or risk of severe personal injury



Danger!

Risk of death from electric shock



Warning.

Risk of minor personal injury



Caution.

Risk of material or environmental damage

1.2 Intended use

There is a risk of injury or death to the user or others, or of damage to the product and other property in the event of improper use or use for which it is not intended.

The product is designed for use in solar systems. The Vaillant solar system is used for solar heating support or hot water generation. The product must only be operated in the solar circuit with Vaillant ready-mixed solar fluid. The product has been specially developed for the Vaillant solar collectors **auroTHERM** (VFK 135 VD and VFK 140 VD). The components in the solar circuit have been developed for use with Vaillant solar fluid.

Intended use includes the following:

- observance of accompanying operating, installation and servicing instructions for the product and any other system components
- compliance with all inspection and maintenance conditions listed in the instructions.

Any other use that is not specified in these instructions, or use beyond that specified in this document shall be considered improper

use. Any direct commercial or industrial use is also deemed to be improper.

Caution.

Improper use of any kind is prohibited.

1.3 General safety information

1.3.1 Risk caused by inadequate qualifications

The following work must only be carried out by competent persons who are sufficiently qualified to do so:

- Set-up
- Disassembly
- Installation
- Start-up
- Maintenance
- Repair
- Decommissioning
- ▶ Observe all instructions that are included with the product.
- ▶ Proceed in accordance with the current state of technology.
- ▶ Observe all applicable directives, standards, laws and other regulations.

1.3.2 Risk of death due to lack of safety devices

The schematic drawings included in this document do not show all safety devices required for correct installation.

- ▶ Install the necessary safety devices in the system.
- ▶ Observe the applicable national and international laws, standards and guidelines.

1.3.3 Risk of death from electric shock

There is a risk of death from electric shock if you touch live components.

Before commencing work on the product:

- ▶ Disconnect the product from the power supply by switching off all power supplies (electrical partition with a contact opening of at least 3 mm, e.g. fuse or line protection switch).
- ▶ Secure against being switched back on again.
- ▶ Wait for at least 3 minutes until the capacitors have discharged.



1 Safety



- ▶ Check that there is no voltage.

1.3.4 Risk of death due to over-voltage

During a storm, components such as solar lines and heating water pipes may carry a charge from a lightning strike. Touching the components may result in serious personal injury.

- ▶ Earth the solar circuit to provide equipotential bonding and overvoltage protection.
- ▶ Secure earthing pipe clamps to the solar lines.
- ▶ Connect the earthing pipe clamps to a busbar using 16 mm² copper cable.

1.3.5 Risk of burns from components through which solar fluid flows and heating water pipes

In solar mode, components through which solar fluid flows, such as collectors and solar lines, as well as the heating water pipes, reach extremely high temperatures. Touching these components may result in serious personal injury.

Hot vapour may be emitted from the expansion relief valve.

- ▶ Only touch these components if you have first checked the temperature.
- ▶ To prevent injuries caused by hot parts, carry out work, such as the installation and replacement of collectors or collector parts, when the weather is cloudy and overcast.
- ▶ Alternatively, if the weather is sunny, carry out this work at the beginning or end of the day or with the collector covered.

1.3.6 Danger due to error functions

Ensure that the solar system and heating installation are in a technically perfect condition.

- ▶ Ensure that no safety or monitoring devices have been removed, bridged or disabled.
- ▶ Immediately rectify any faults and damage that may affect safety.
- ▶ At lengths of over 10 m, 230 V supply lines must be laid separately from sensor or bus lines.

1.3.7 Risk of material damage caused by using an unsuitable tool

- ▶ Use the correct tool to tighten or loosen screw connections.

1.3.8 Damage to the environment as a result of leaking solar fluid

Leaking solar fluid may enter the groundwater and potentially contaminate drinking water.

- ▶ Ensure that any solar fluid that is emitted during installation and maintenance or repair work is captured.
- ▶ Dispose of the solar fluid in an environmentally friendly manner in accordance with national regulations.

1.3.9 Product damage due to an unsuitable installation site

The product can be damaged if it is installed in an unsuitable room.

- ▶ Only install the product in a dry room that is free of dust and corrosive or highly flammable gases.
- ▶ In particular, when installing directly below an uninsulated roof, care must be taken to ensure that the air supply to the product is guaranteed and that heat cannot build up at the installation site.
 - In summer, the temperature at the installation site must not be considerably higher than the outside temperature.

1.3.10 Risk of material damage caused by frost

- ▶ Do not install the product in rooms prone to frost.

1.3.11 Material damage due to additives in the heating water

Unsuitable frost or corrosion protection agents may damage seals and other components of the heating circuit, and may therefore also cause water leaks.

- ▶ Only add approved frost and corrosion protection agents to the heating water.





1.3.12 Product fault as a result of incorrect system pressure

To avoid operating the system with too little water and thus prevent resulting damage, note the following:

- ▶ Check the system pressure of the heating installation at regular intervals.
- ▶ The system pressure instructions must be observed.

1.3.13 Structural damage due to escaping water

Escaping water can cause damage to the building.

- ▶ Switch off the product.
- ▶ Close the service valves on the cylinder primary pipework and the cylinder return.
- ▶ Fix the leaks in the heating installation.
- ▶ Fill the heating installation with suitable heating water.
- ▶ Purge the cylinder charging circuit.
- ▶ Switch on the product.

1.3.14 Damage to building as a result of leaking solar fluid

Leaking solar fluid may cause damage to the building structure.

- ▶ Disconnect the solar charger from the power mains.
- ▶ Fix the leaks in the solar system.
- ▶ Fill the solar system with solar fluid.
- ▶ Switch on the power supply to the solar charger.

1.4 Requirements for lines

- ▶ Use standard commercial lines for the wiring.

Minimum cross-section

Supply line 230 V	$\geq 1.5 \text{ mm}^2$
Sensor line (extra-low voltage)	$\geq 0.75 \text{ mm}^2$
Bus line (extra-low voltage)	$\geq 0.75 \text{ mm}^2$

Maximum line length

Sensor lines	$\leq 50 \text{ m}$
Bus lines	$\leq 300 \text{ m}$

Sensor and bus lines must not run parallel to 230 V lines over a length of more than 10 m.

- ▶ The supply lines must be laid separately.
- ▶ Secure all supply lines in the casing using the enclosed cable brackets.
- ▶ Do not use the free terminals of the products as supports for other wiring.
- ▶ Install the system components in dry rooms.

1.5 Regulations (directives, laws, standards)

- ▶ Observe the national regulations, standards, guidelines and laws.



2 Notes on the documentation

2 Notes on the documentation

2.1 Observing other applicable documents

- ▶ You must observe all the operating and installation instructions included with the system components.

2.2 Storing documents

- ▶ Pass these instructions and all other applicable documents on to the system operator.

2.3 Validity of the instructions

These instructions apply only to:

Product types and article numbers

VPM 15 D basic module	0020133195
Expansion module	0020133196
VPM 15 D basic module, country-specific	0010013154
VPM 30 D basic module with expansion module, country-specific	0010013164

3 System

3.1 System characteristics

The solar system is described in the operating instructions.

3.2 Combination with system controller

The product can be combined with the **auroMATIC VRS 620/3** system controller or the controller for the **geoTHERM** heat pumps.

If you combine the product with the **auroMATIC VRS 620/3** system controller, we recommend that you install a **VPM ..2 W** drinking water station.

3.3 Combination with cylinder

The solar charger can be combined with the following cylinders:

- **alIstor**
- **auroSTOR**

The cylinder charging circuit must be fitted on-site with a safety device and expansion vessel. If an **auroSTOR** is installed, a safety device and expansion vessel are also required between the **auroSTOR** and solar charger.

Two diverter valves can be installed in the solar system.

1. The UV4, which is connected to the **auroMATIC VRS 620/3**:
First priority: **alIstor**
Second priority: Swimming pool or other cylinder
2. The UV5, which is connected to the solar charger:
Switches between heating circuit and hot water circuit for improved stratified charging

3.4 System conditions

The following conditions must be met by the solar system to ensure correct operation:

- The solar charger must be installed below the collector field
- The height difference between the bottom edge of the solar charging system and the top edge of the collector field must not exceed 6 m (VPM 15 D) or 9 m (VPM 30 D).
- The solar lines must be installed with a downward gradient
- The maximum number of collectors must not be exceeded
- The pipe diameters and lengths of the solar lines must be observed

More precise information and hydraulic schemes can be found in the planning information.

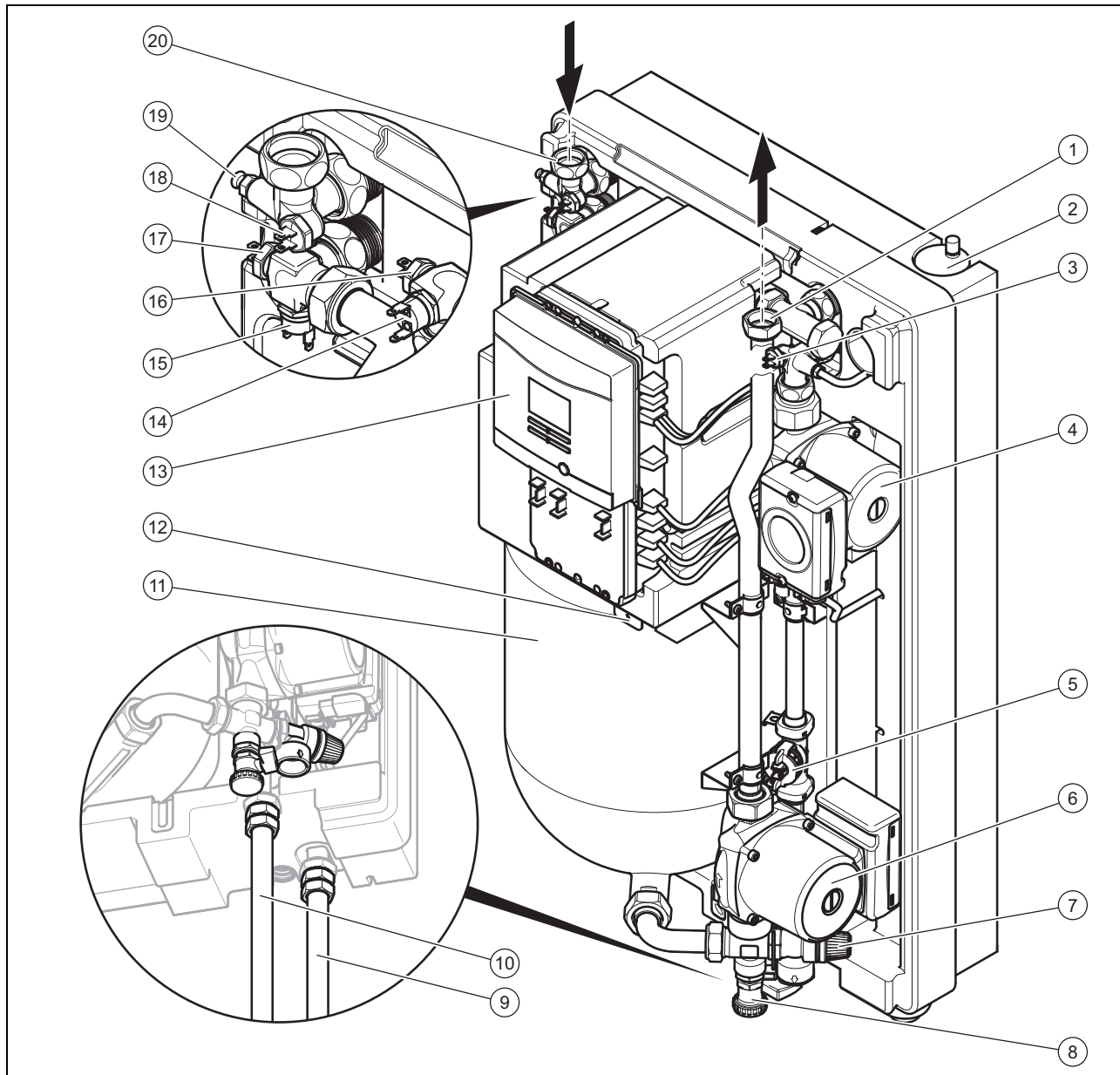
4 Product description

The product transmits thermal solar energy to a cylinder.

The following main components are integrated in the product:

- Solar fluid storage tank
- Solar pump for the solar circuit
- Cylinder charging pump for the cylinder charging circuit
- Solar control for operating the pumps and recording of the energy yield
- Heat exchanger between the solar and cylinder charging circuit

4.1 Design of the auroFLOW plus solar charger (basic module only)



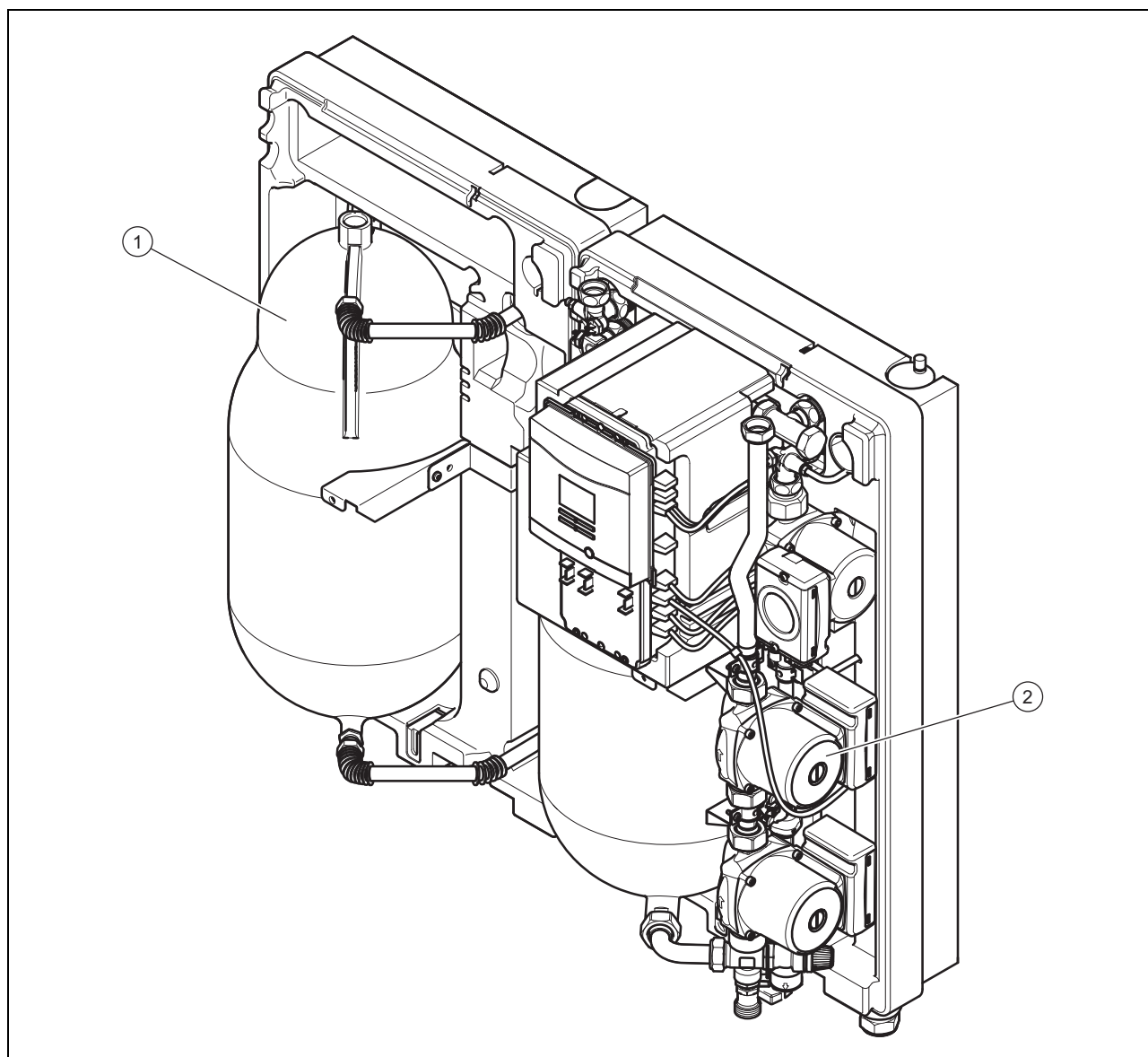
- | | | | |
|----|--|----|--|
| 1 | Solar return – 3/4" sleeve (flat-sealing) | 11 | Solar fluid storage tank |
| 2 | Cylinder charging circuit automatic air vent | 12 | Retainer for front casing screw |
| 3 | Cylinder return temperature sensor | 13 | Solar controller |
| 4 | Cylinder charging pump | 14 | Solar circuit safety temperature monitor |
| 5 | Cylinder charging circuit flow sensor | 15 | Cylinder charging circuit safety temperature monitor |
| 6 | Solar pump | 16 | Solar return temperature sensor |
| 7 | Solar system expansion relief valve | 17 | Cylinder primary pipework temperature sensor |
| 8 | Solar circuit fill and drain connection | 18 | Solar supply pipe temperature sensor |
| 9 | Cylinder primary pipework | 19 | Solar circuit purging valve |
| 10 | Cylinder return | 20 | Solar flow – 3/4" sleeve (flat-sealing) |

4 Product description

4.2 Design of the auroFLOW plus solar charger (basic module and expansion module)

**Note**

The functional elements of the basic module are described on the previous page.



1

2. Solar fluid storage tank

2

2. Solar pump

4.3 Information on the identification plate

The identification plate is mounted on the underside of the product in the factory. The identification plate contains the following information:

Information on the identification plate	Meaning
VPM D	For identification
$P_{\max}$	Maximum solar output
m	Weight
$V_s \text{ prim}$	Solar circuit volume
$V_s \text{ sec}$	Cylinder charging circuit volume
$T_{\max \text{ prim}}$	Solar circuit maximum temperature
$T_{\max \text{ sec}}$	Cylinder charging circuit maximum temperature
$P_{\max \text{ prim}}$	Solar circuit maximum operating pressure
$P_{\max \text{ sec}}$	Cylinder charging circuit maximum operating pressure

4.4 Product description

Abbreviation	Explanation
auroFLOW plus	For identification
VPM D	Solar charger
VPM 15 D	Solar system with basic module of the VPM D solar charger. Suitable for up to 6 collectors (corresponds to approx. 15 m ² collector surface)
VPM 30 D	Solar system with basic module and expansion module of the VPM D solar charger. Suitable for up to 12 collectors (corresponds to approx. 30 m ² collector surface)

4.5 Serial number

The article number of the product is taken from the serial number. The seventh to sixteenth numbers constitute the article number.

The serial number can be found on the identification plate. The serial number may also be shown on the product's display (→ Operating instructions).

4.6 CE label



The CE label shows that the products comply with the basic requirements of the applicable directives as stated on the identification plate.

The declaration of conformity can be viewed at the manufacturer's site.

5 Installation

5.1 Storage conditions

- Store the product in a dry and dust-free room.

5.2 Unpacking the product

1. Remove the strapping.
2. Open the lid of the cardboard packaging.
3. Take out the protective cardboard packaging, the enclosure and the printed documents.
4. Pull the carton up and off.
5. Remove the product from the cardboard base.
 - Do not lift the product by its front casing.
6. Remove the protective film from all parts of the product.

5.3 Scope of delivery for the basic module

Quantity	Description
1	Wall-mounting base
1	Basic module of the solar charging system
1	Cylinder temperature sensor
1	Enclosure containing printed documents
1	Bag with small parts for wall-mounting (bolts and rawl plugs)

- Check that the scope of delivery is complete.

5.4 Scope of delivery for the expansion module

Quantity	Description
1	Wall-mounting base
1	Expansion module of the solar charging system
1	2. Solar pump
1	Pipe set for second solar pump
2	Connection pipes
1	Bag with small parts for wall-mounting (bolts and rawl plugs)

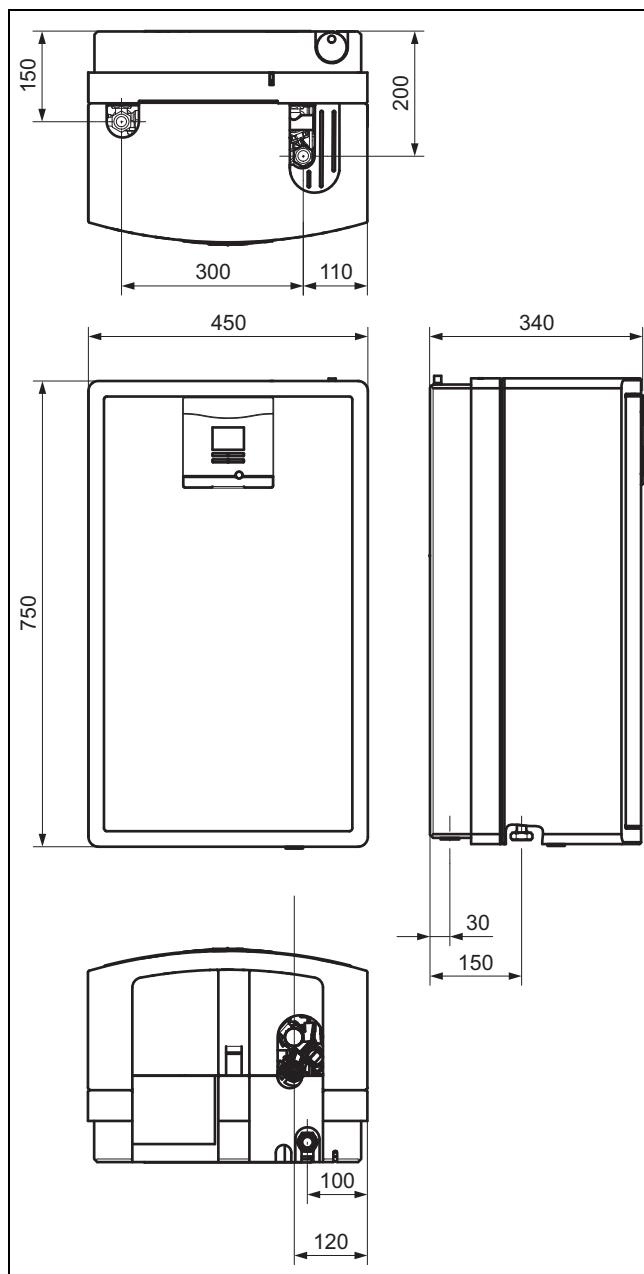
- Check that the scope of delivery is complete.

5.5 Transporting the product

- Do not lift the product by its front casing.

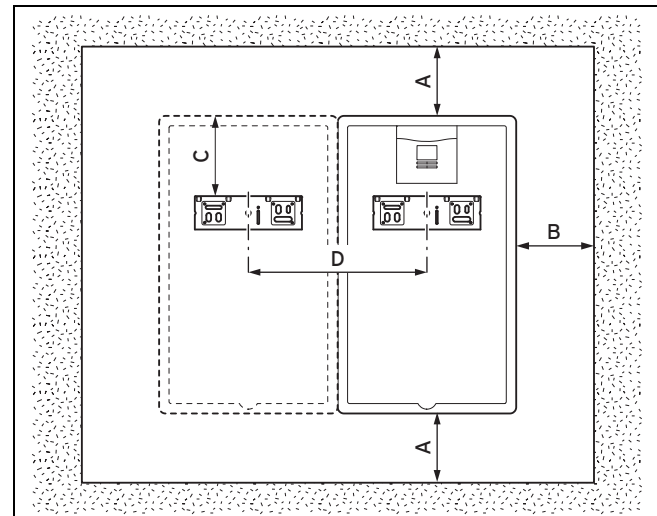
5 Installation

5.6 Product dimensions and connection dimensions



The basic and expansion module of the solar charger must be hanging directly next to each other. The expansion module must always be mounted to the left of the basic module. There must be no difference in height.

5.7 Installation clearance



A	150 mm (better: 350 mm)	C	200 mm
B	200 mm	D	450 mm

- ▶ When using the accessories, observe the minimum clearances/installation clearances.



Note

There must be a clearance of at least 150 mm above and below the product. To facilitate maintenance, we recommend a clearance of 350 mm.

5.8 Clearance from combustible components

It is not necessary to maintain a clearance between the product and components made of combustible materials that go beyond the minimum clearances.

5.9 Mains connection cable

The product is fitted in the factory with a mains connection cable that has to be connected up permanently on-site.

If the mains connection cable is routed from the bottom right of the product, it has a length of 1.15 m.

If the mains connection cable is routed from the top right of the product, it has a length of 1.45 m.

5.10 Noise

Noise occurs during operation. The volume depends on the design of the solar circuit. Although the noises are relatively quiet (< 51 dBA), they can be perceived to be disruptive.

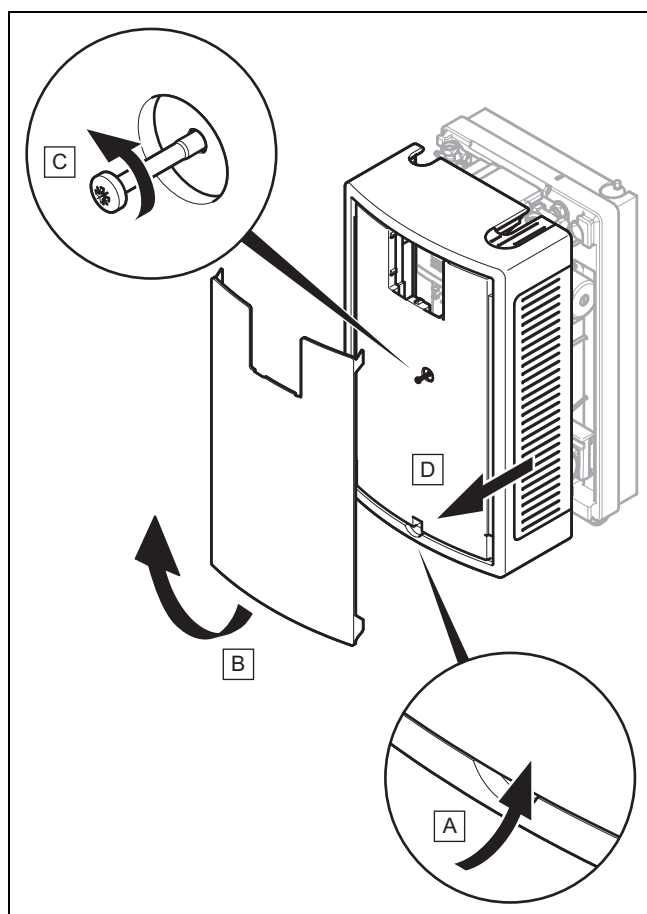
- ▶ Install the product in a sound-proof room (e.g. plant room or boiler room).

5.11 The rules for laying the pipelines for the solar circuit must be followed

- ▶ To prevent energy loss, all pipelines of the solar and cylinder charging circuit must be fitted with heat insulation.
- ▶ To prevent heat losses, install the solar charger as near to the collector field as possible; the minimum clearance that must be observed is 1 m.
- ▶ Install the solar charger in a frost-proof room.
- ▶ To enable the collectors to drain, install the solar charger lower than the collectors. The height difference between the highest point of the system (top edge of the collector field) and the lowest point of the system (bottom edge of the solar charging system) must not exceed 6 m (VPM 15 D) or 9 m (VPM 30 D) as, otherwise, the pump output will be insufficient.
- ▶ Lay the connection lines between the collector field and the solar charging system so that the downward gradient is no less than 4% (4 cm/m) at any given point. This ensures that there is a sufficient solar fluid return.
- ▶ Do not lay more connection lines than allowed. Please refer to the planning information.

5.12 Installing the basic module

5.12.1 Removing the front casing



1. Take hold of the recessed handle at the bottom edge of the white panel.
2. Pull the lower edge of the panel forwards and remove the panel by pulling it upwards.
3. Undo the bolt.
4. Pull the front casing forwards and off.

5.12.2 Wall-mounting the basic module of the solar charging system



Danger!

Risk of accidents as a result of insufficient load-bearing capacity of fixing elements.

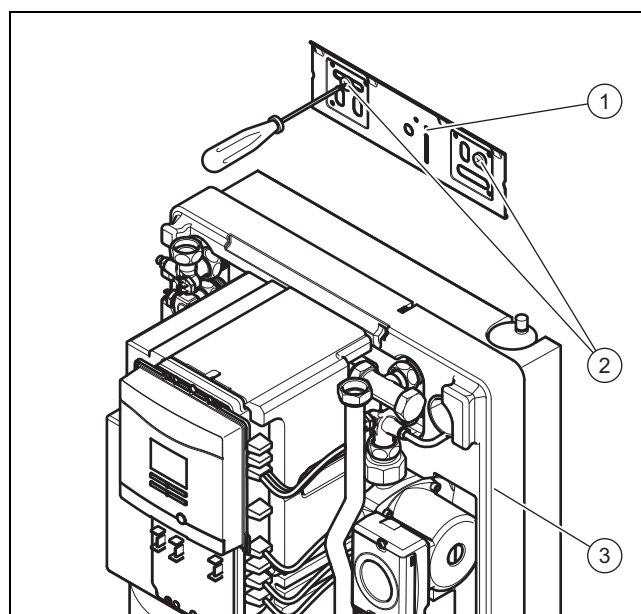
If the fixing elements or wall do not have sufficient load-bearing capacity, the product may come loose and fall down. Solar fluid or heating water can be emitted from damaged lines.

- ▶ When installing the product, ensure that the fixing elements and the wall have sufficient load-bearing capacity.
- ▶ Check the quality of the wall.
- ▶ Make sure that the product is positioned flush against the installation surface.



Note

If the expansion module is also being installed, first mount the basic module, after it has been suitably modified (see "Installing the expansion module").



1. Use the installation template.
2. Mark the drill holes for the wall bracket on the wall.
3. Drill 2 holes with a diameter of 10 mm for the wall bracket in the wall.
4. Fit the hanging bracket (1) to the wall using the rawl plugs and screws provided (2).
5. Mount the product (3) from above onto the wall bracket using the hanging bracket.

6 Installation

6 Installation

6.1 Carrying out the hydraulics installation



Caution.

Risk of damage caused by contaminated lines.

Foreign bodies such as welding/soldering remnants, sealing residue or dirt in the pipelines may cause damage to the product.

- ▶ Rinse out the pipelines of the solar circuit and the cylinder charging circuit thoroughly before installation.
- ▶ If the installation/start-up are not completed immediately, make sure that there is no water remaining in the solar circuit after it has been rinsed out.



Caution.

Risk of damage caused by leaks.

Mechanical tension on supply lines may cause leaks and damage to the product.

- ▶ Avoid mechanical tension on supply lines.



Caution.

Risk of material damage due to heat transfer during soldering.

- ▶ Only solder connection pieces if the connection pieces are not yet screwed to the service valves.

- ▶ The work described in this section must only be carried out by a competent person.



Note

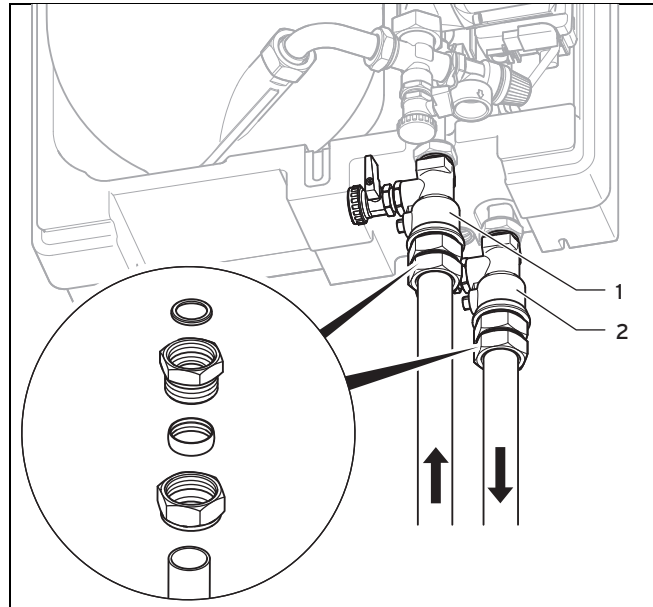
Seals made of rubber-like materials may be subject to plastic deformation, which can lead to pressure losses. We recommend using seals made of a paste-like fibre material.

6.1.1 Connecting the cylinder charging circuit



Note

We recommend that the solar charging system be connected to the cylinder charging circuit using service valves. The service valves are not included in the scope of delivery.



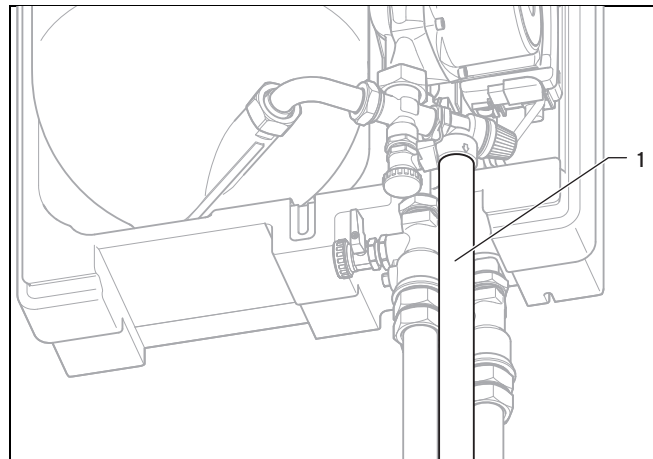
1. Install service valves (1) and (2) (not included in the scope of delivery) as shown, as required.
2. Install the flow and return.

6.1.2 Connecting the discharge line to the safety group



Note

An empty Vaillant solar fluid container can be used as a collecting container.



Warning.

Risk of personal injury and material damage caused by incorrect installation!

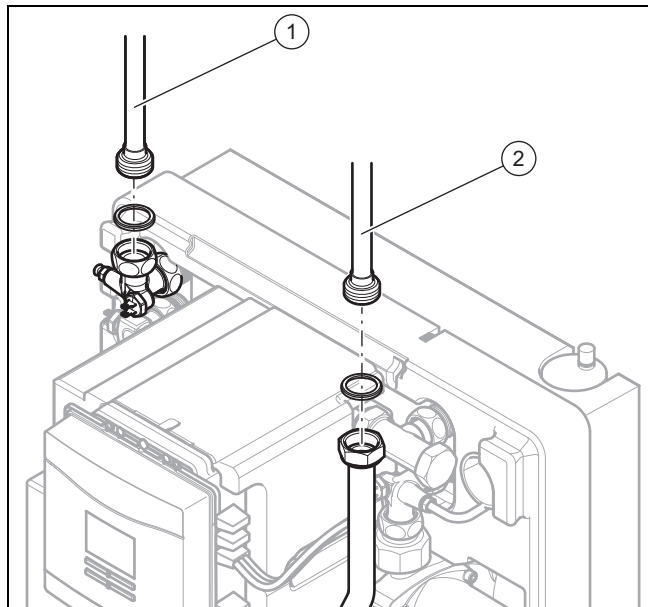
Solar fluid emitted from the discharge line on the safety group may cause serious scalding.

- ▶ Install the discharge line on the safety group in such a way that no-one is at risk.
- ▶ Route a temperature-resistant discharge line with a downward gradient to a collecting container suitable for solar fluid.
- ▶ Set up the collecting container in such a way that it cannot tip over.

- Make sure that the collecting container is visible.

- Install the discharge line (1) as shown.

6.1.3 Connecting the solar circuit



- Install the flow (1) and return (2) as shown.

6.2 Carrying out the electrical installation



Danger!

Risk of death from electric shock!

A continuous voltage is always present on the mains connection terminals L and N.

- Disconnect the product from the power mains by de-energising the product using a partition with a contact opening of at least 3 mm (e.g. fuses or power switches).



Danger!

Risk of death from electric shock as a result of an improper electrical connection!

An improper electrical connection may negatively affect the operational safety of the product and result in material damage or personal injury.

- The electrical installation must be carried out by a suitably qualified competent person who is responsible for complying with the existing standards and directives.



Caution.

Risk of damage to the electrical lines as a result of high temperatures.

The electrical lines may be damaged by the high temperatures from the solar fluid that flows through the copper pipes.

- Make sure that the electrical lines are not positioned directly next to the pipes through which the solar fluid flows.

- For the electrical installation of the product, observe the technical connection requirements for connecting to the low-voltage network of the power supply network operator.

6.2.1 Connecting the shift-load switching valve

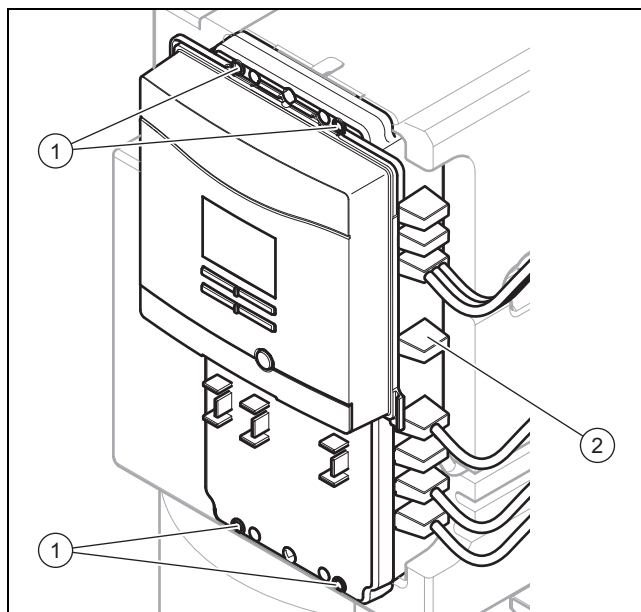


Note

If a UV5 shift-load switching valve is included in the hydraulic scheme, we recommend that you use a 3-way valve from the Vaillant range of accessories and connect this using the connection cable that is also available as an accessory.

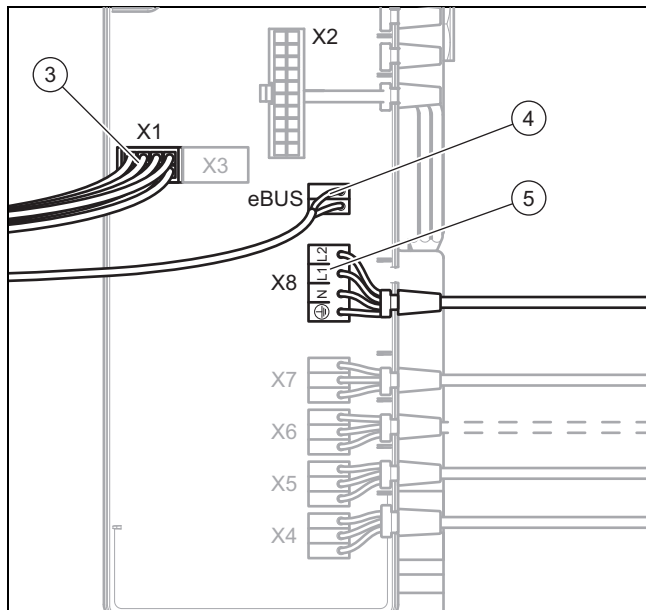
Preliminary work

- Remove the front casing. (→ Page 11)



1. Route the supply lines of the shift-load switching valve through the cable duct on the back of the product.
2. Undo the four bolts (1).
3. Open the controller casing.
4. Remove the dummy plugs (2).

6 Installation



5. Route the connection cable of the shift-load switching valve through the opening in the controller casing using the cable support sleeve.



Note

For simpler handling, you can completely remove the display by removing the plugs from the X1 (3) and eBUS (4) bushes. Suitable measures must be taken to prevent electrostatic discharging (ESD).

6. Insert the connection cable plug of the shift-load switching valve into the X8 bush (5) in the solar control.
7. If necessary, insert the display plug into the X1 bush (3).
8. If necessary, insert the eBUS plug into the eBUS bush (4).
9. Close the controller casing.
10. Tighten the bolts (1).
11. Secure the connection cable. Make sure that the connection cable is not routed directly next to the pipes through which the solar fluid flows.

6.2.2 Routing the mains connection line



Caution.

Risk of damage caused by an incorrect connected voltage.

At mains voltages greater than 253 V and less than 190 V, the functions may be impaired.

- ▶ Make sure that the rated voltage of the mains is 230 V.



Note

If pulsed residual currents as a result of short-term mains over-voltages and uneven phase loading occur during start-up procedures, we recommend pulse current sensitive RCDs (type A) or universal RCDs (type B) with short-time delay (VSK).

- ▶ Connect the product using a fixed connection and a partition with a contact opening of at least 3 mm (e.g. fuses or power switches), see Mains connection cable (→ Page 10).

6.2.3 Connecting the collector temperature sensor, cylinder temperature sensor and system controller

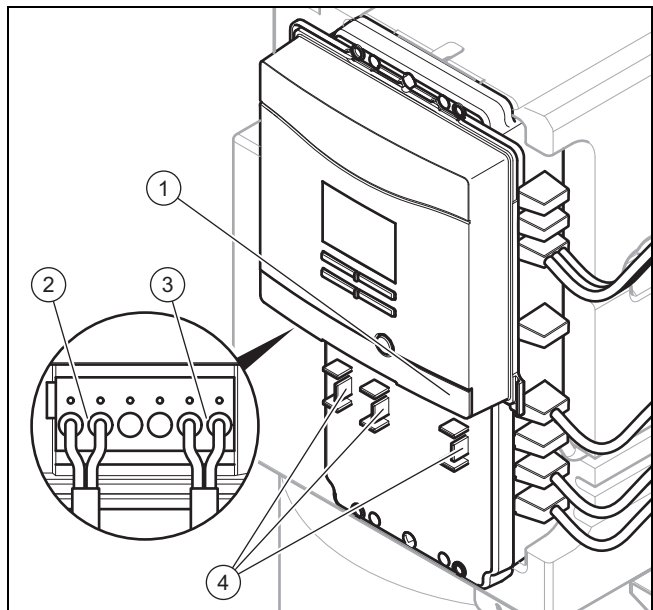


Note

Only carry out points 6 and 7 if an external system controller is required.

Preliminary work

1. Remove the front casing. (→ Page 11)
2. Open the narrow flap on the bottom of the solar control.
3. Install the collector temperature sensor in the last collector through which the fluid flows or, in the case of partial shading, in an unshaded collector.
4. Install the cylinder temperature sensor in the lowest sensor sleeve of the cylinder.



1. Route the supply lines of the collector temperature sensor and the cylinder temperature sensor, as well as the eBUS line of the system controller, if required, through the cable duct on the back of the product.
2. Route the supply line of the collector temperature sensor through one of the strain reliefs (4).
3. Connect the supply line of the collector temperature sensor to the terminals (2).
4. Route the supply line of the cylinder temperature sensor through one of the strain reliefs (4).
5. Connect the supply line of the cylinder temperature sensor to the terminals (3).
6. Route the eBUS line of the system controller through one of the strain reliefs (4).
7. Connect the eBUS line of the system controller to the terminals (1).

6.3 Completing installation

6.3.1 Checking the electrical installation

- ▶ Following installation, check the electrical installation to ensure that all connections are fitted properly and are sufficiently insulated.

6.3.2 Installing the front casing

1. Fit the front casing from the front up to the stop.
2. Make sure that no cables are pinched or in contact with hot components and that the solar control is locked in place in the opening.
3. Secure the front casing with the bolt.
4. Fit the panel.

6.4 Installing the expansion module

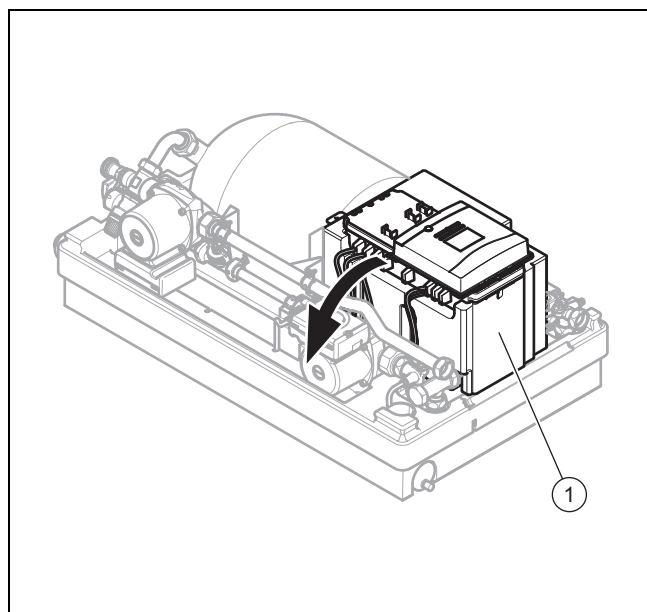
To install the expansion module, the storage tank of the basic module must be connected with the storage tank of the expansion module, and the second solar pump must be installed. To connect the two storage tanks, the controller bracket and the storage tank of the basic module must first be removed.

- ▶ When you need to work on the basic module and the expansion module, this work can be made easier if the modules are on the floor.
- ▶ Carry out the work steps in this section one after the other and in the exact sequence that is described here.

6.4.1 Removing the controller bracket

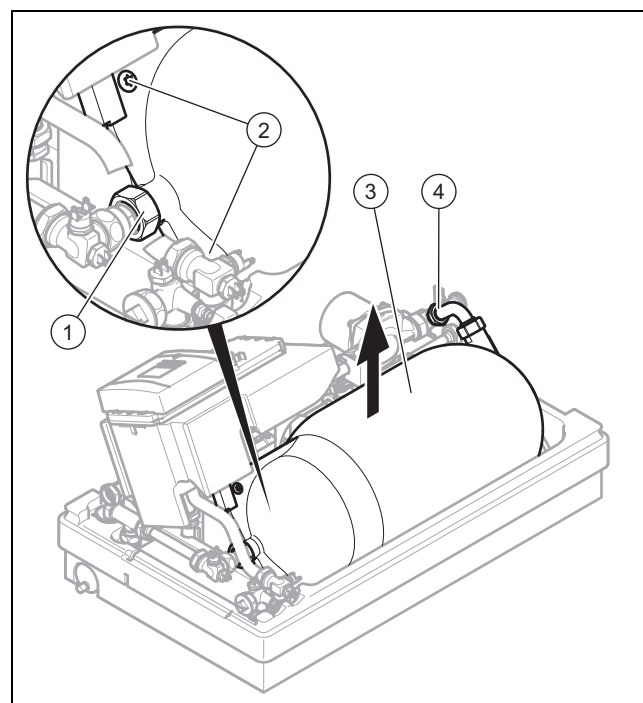
Preliminary work

- ▶ Remove the front casing. (→ Page 11)



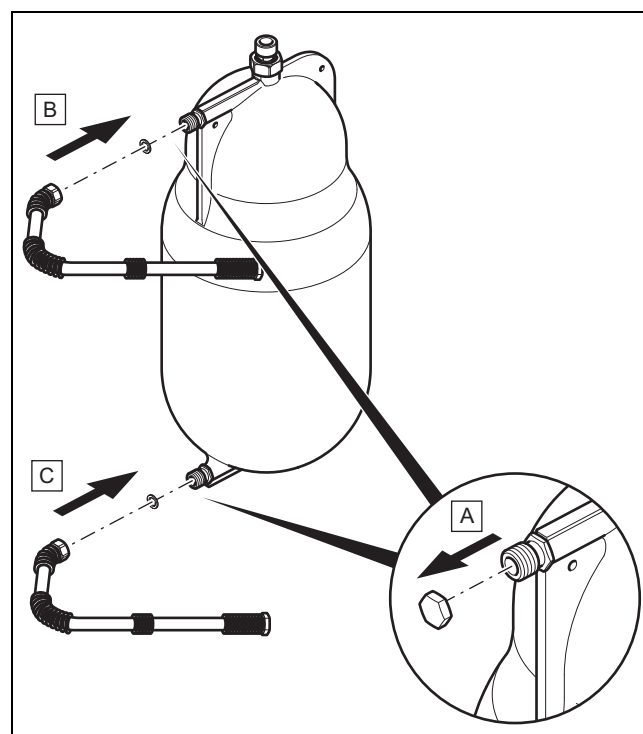
1. Pull the controller bracket (1) forwards.
2. Tilt the controller bracket to the side.

6.4.2 Removing the storage tank



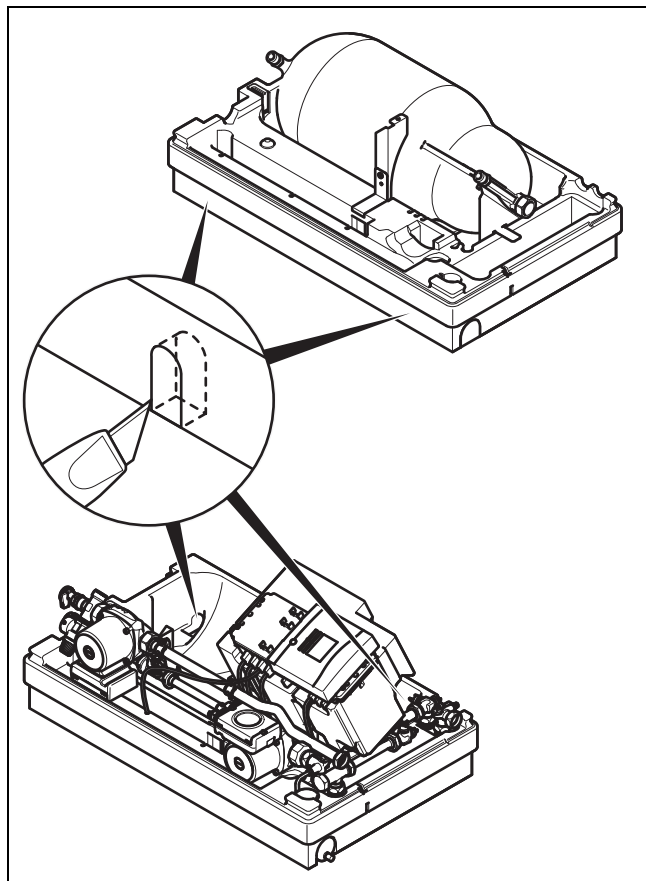
1. Undo the two cap nuts (1, 4).
2. Undo the two bolts (2).
3. Remove the storage tank (3).

6.4.3 Installing the connection pipes on the storage tank of the basic module

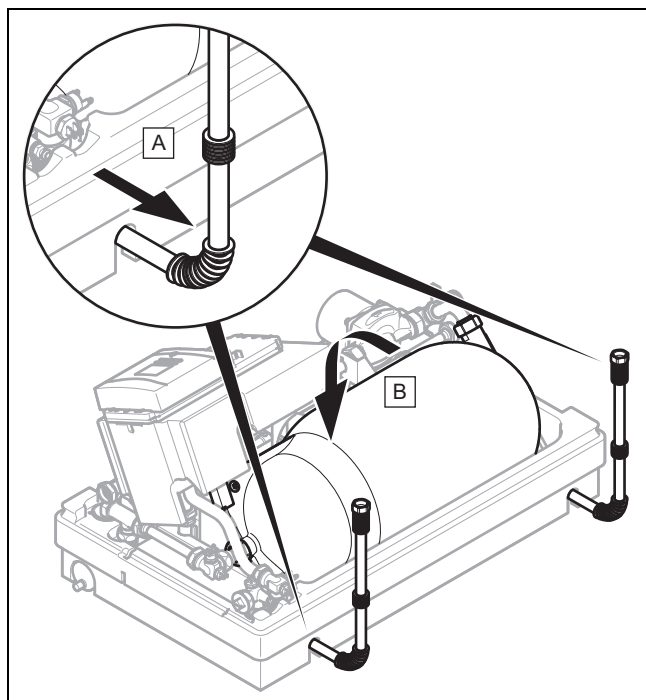


1. Remove the sealing caps of the adaptor.
2. Install the connection pipes with flat seals on the adaptors in the storage tank of the basic module.
3. Remove the front casing of the expansion module (see front casing (→ Page 11)).

6 Installation

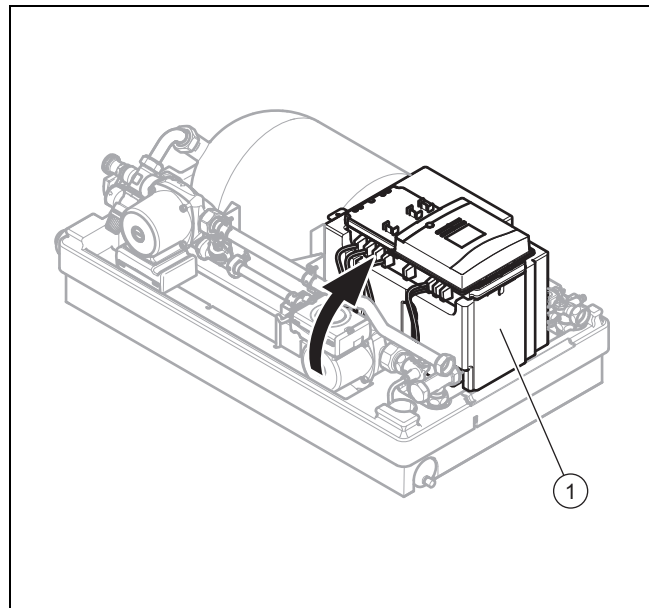


4. Cut two openings for the connection pipes at the points provided in the side section of the basic module casing.
5. Cut two openings for the connection pipes at the points provided in the side section of the expansion module casing.



6. Use the two fixing screws and the two cap nuts to install the storage tank in the basic module. Route the connection pipes through the openings in the side panel of the casing.

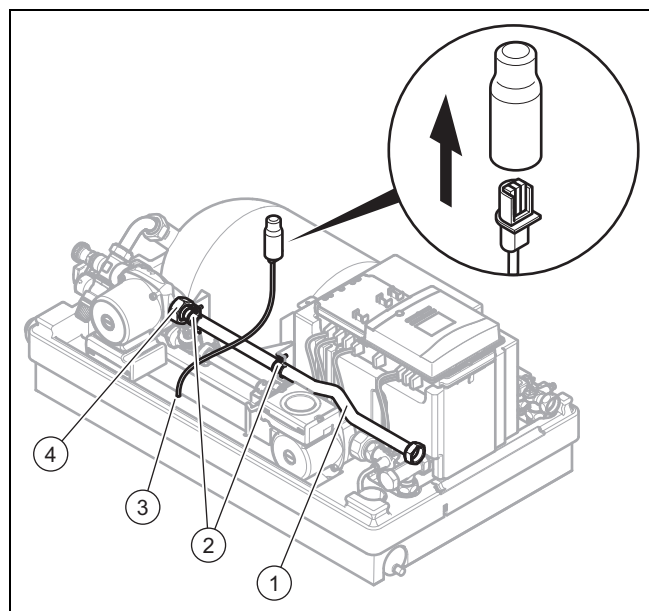
6.4.4 Fitting the controller bracket



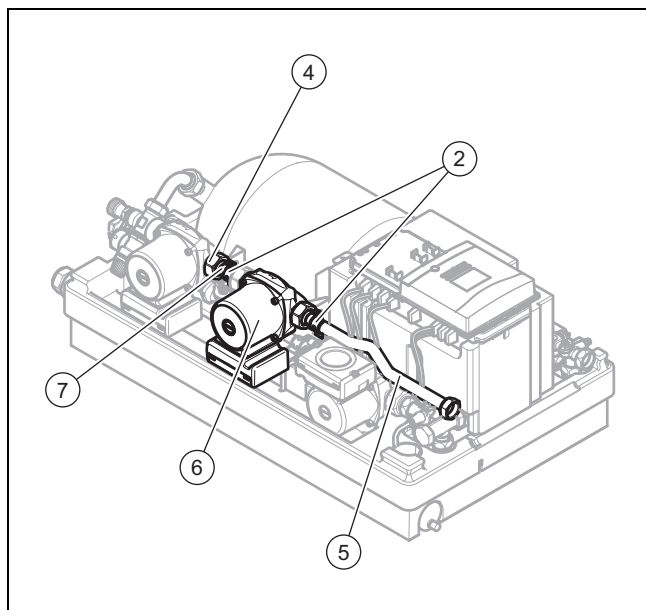
- Slide the controller bracket (1) over the pipes until it clicks into place.

6.5 Installing the second solar pump

6.5.1 Connecting the hydraulic lines of the second solar pump



1. Find the control cable of the second solar pump in the cable harness (3).
2. Route the control cable through the opening in the casing of the basic module so that you can easily reach it at a later point.
3. Remove the protective cap from the control cable.
4. Undo the cap nut (4).
5. Undo the screws on the fastening clamps (2).
6. Remove the pipe (1).



7. Connect the second solar pump (6) and the pipe set (5, 7) using flat seals.
 - The arrow on the pump casing must point in the direction of the long pipe (5).
8. Tighten the cap nut (4).
9. Secure the pump with the fastening clamps (2).

6.5.2 Connecting the electrical cables of the second solar pump



Danger!

Risk of death from electric shock!

A continuous voltage is always present on the mains connection terminals L and N.

- Disconnect the product from the power mains by de-energising the product using a partitionb with a contact opening of at least 3 mm (e.g. fuses or power switches).

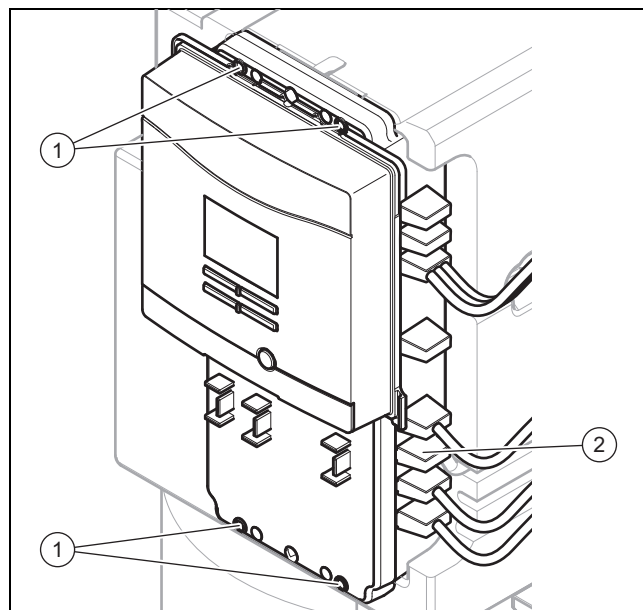


Caution.

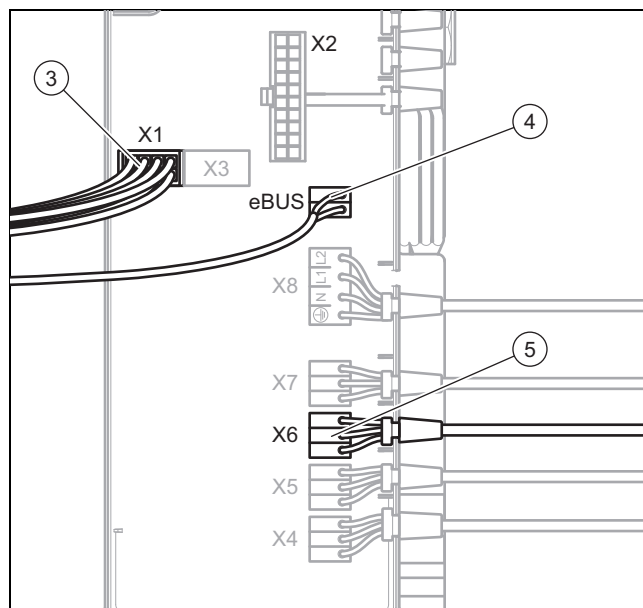
Risk of damage to the electrical lines as a result of high temperatures.

The electrical lines may be damaged by the high temperatures from the solar fluid that flows through the copper pipes.

- Make sure that the electrical lines are not positioned directly next to the pipes through which the solar fluid flows.



1. Undo the four bolts (1).
2. Open the controller casing.
3. Remove the dummy plugs (2).



4. Route the power cable (scope of delivery) of the second solar pump through the opening in the controller casing using the cable support sleeve.



Note

For simpler handling, you can completely remove the display by removing the plugs from the X1 (3) and eBUS (4) bushes. Suitable measures must be taken to prevent electrostatic discharging (ESD).

5. Insert the power cable plug into the blue bush X6 (5) in the solar control.
6. If necessary, insert the display plug into the X1 bush (3).
7. If necessary, insert the eBUS plug into the eBUS bush (4).
8. Close the controller casing.

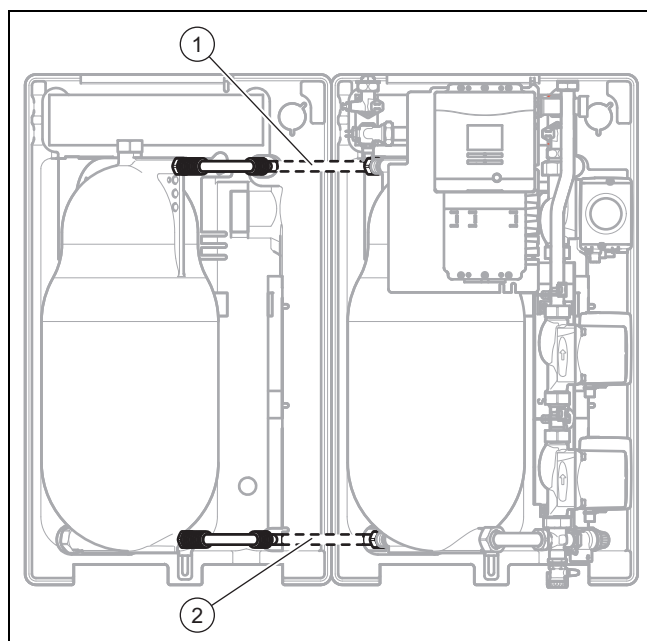
7 Operation

9. Tighten the bolts (1).
10. Attach the power cable to the pipe using the clip supplied. Make sure, however, that the power cable is not positioned flush to the pipe.
11. Plug the power cable (that you pulled out before installing the second solar pump) into the free bush on the connection box of the second solar pump.
12. Secure the control cable.

6.6 Wall-mounting the expansion module

Preliminary work

- Wall-mount the basic module. (→ Page 11)



1. Wall-mount the expansion module. Route the connection pipes (1, 2) from the basic module through the openings in the side panel of the expansion module.
2. Install the connection pipes with flat seals on the adaptors in the storage tank of the expansion module.

7 Operation

7.1 Operating concept of the solar charger

The solar charger is equipped with a digital information and analysis system (DIA system). If additional settings are required, which have not been configured using the installation assistant (see Start-up (→ Page 18)), additional parameters can be viewed and modified using the DIA system.

The operating concept and operation of the solar charger are described in the → **operating instructions** of the **auroFLOW plus** solar system. The read-off and setting options at the operator level are also described in the → **operating instructions**.

An overview of the menu structure at the installer level is included in the appendix (→ Page 28).

7.1.1 Calling up the installer level



Caution.

Risk of damage caused by incorrect handling.

Incorrect settings at installer level may cause damage to the solar plant.

- You must only access the installer level if you are an approved competent person.



Note

The installer level is password-protected to prevent unauthorised access, as incorrect parameter settings at this level can cause functional faults and damage to the solar plant.

1. Press  and  simultaneously.
 - ◀ The following menu appears in the display.
2. Scroll using the  or  button, until the menu point **Installer level** appears.
3. Press  to select the menu point.
 - ◀ In the display, the text **Enter code** appears along with the value **00**.
4. Use  or  to set the value 17 (code).
5. Press  to confirm the code that has been entered.
 - ◀ The installer level appears with a selection of menu points.



Note

Path details at the start of an instruction specify how this function can be accessed, e.g. **Menu** → **Installer level** → **Test menu** → **Check programmes**.



Note

If you exit the installer level and then access it again within 15 minutes, you do not have to enter the code again.

8 Start-up

To start up the product, you must fill the cylinder charging circuit and the solar circuit, check the system for leaks, complete the installation assistant and, if necessary, make any settings to other system components (e.g. on the system controller).

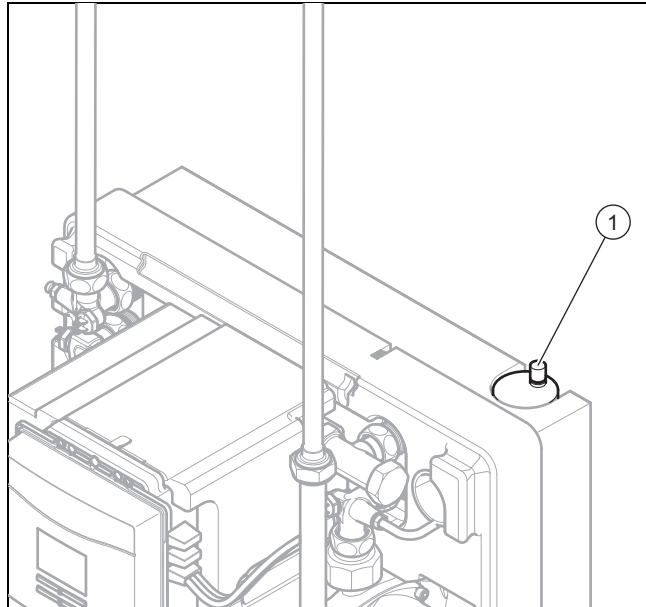
8.1 Filling and purging the system

1. Disconnect the product by removing the power supply to it using a partition with a contact opening of at least 3 mm (e.g. fuses or power switches).
2. Remove the front casing. (→ Page 11)

8.1.1 Opening the isolator devices

- Open all available isolator devices in the cylinder charging circuit (on-site).

8.1.2 Filling and purging the cylinder charging circuit



1. Protect live components against escaping water.
2. Check whether the automatic air vent (1) is open.
3. Loosen the cap on the automatic air vent by one or two rotations as required.



Note

The cap of the automatic air vent must remain loosened by one or two rotations during operation of the system in the first two months. Two months after filling the cylinder charging circuit, you can tighten the cap on the automatic air vent.

4. Open all available isolator devices in the cylinder charging circuit (on-site).
5. Check the pressure in the cylinder charging circuit using the pressure gauge that is available on-site, and add extra water as required.
6. Check the cylinder charging circuit for leak-tightness.

Conditions: The cylinder is an **auroSTOR**

- Fill the cylinder charging circuit with suitable heating water.
- Flush out the cylinder thoroughly so that the air can escape from the pipe coil.
- Check the pressure in the cylinder charging circuit.

- While doing this, pay attention to the pressure of the expansion vessel that was installed on-site.

8.1.3 Filling the storage tank



Danger!

Possible risk to health from escaping solar fluid.

During filling, solar fluid may be emitted from the purging valve.

- Take precautionary measures to protect yourself from escaping solar fluid.



Caution.

Risk of damage due to unsuitable solar fluid.

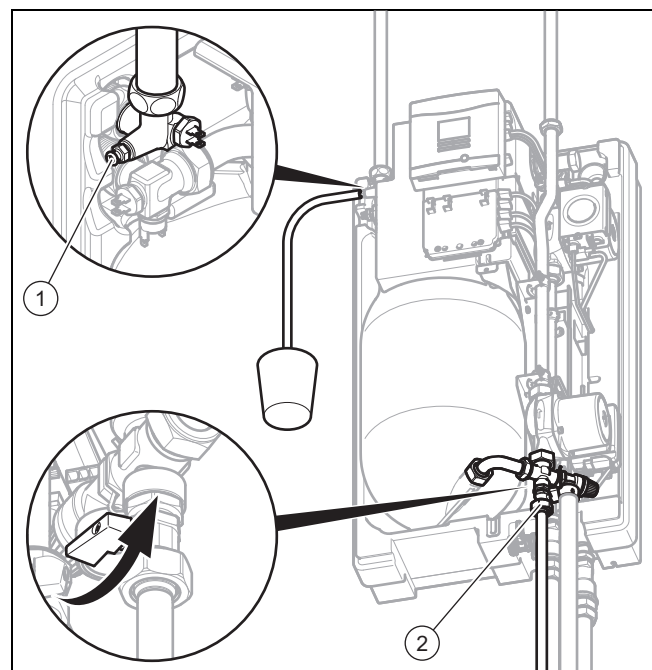
The use of unsuitable solar fluid may cause malfunctions and damage to the solar system.

- Use only Vaillant solar fluid.



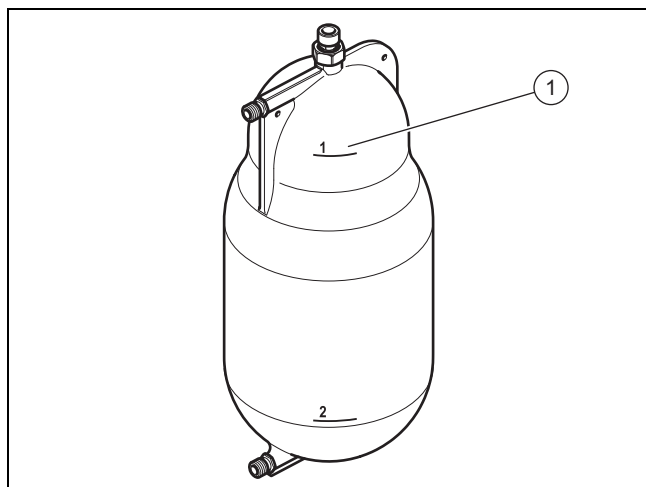
Note

To enable simple filling of solar fluid, we recommend the mobile filling device.



1. Connect a hose that runs down to the floor from the purging valve (1).
2. Open the purging valve (1).
3. Connect a filling pump to the filling connection (2).
4. Make sure that the filling hose is free from kinks and swan-necks.
5. Open the filling cock.

8 Start-up



6. Fill the storage vessel with Vaillant solar fluid to mark 1 (1).
 - Capture any solar fluid that is emitted from the purging valve. Place the emitted solar fluid back into the filling pump tank.

Solar fluid filling quantity

VPM 15 D basic module	VPM 30 D (basic module with expansion module)
20 l	40 l



Note

For the VPM 30 D: If the storage tank of the basic module is almost full, wait until the solar fluid is evenly distributed between both storage tanks before adding more solar fluid. Wait for the solar fluid level to settle several times, if necessary, until you have added all the solar fluid.

7. Close the filling cock.
8. Close the purging valve.

8.2 Running through the installation assistant

When the power supply to the product is switched on for the first time, the installation assistant is activated. It provides easy access to the most important check programmes and configuration settings for installing the product. The installation assistant is displayed whenever the product is switched on until it has been successfully completed.

The start of the installation assistant must be confirmed. Following confirmation, the product blocks all heat requirements. This status remains until the installation assistant is completed or cancelled.

If you do not confirm the launch of the installation assistant, it is closed 15 minutes after you switch on the unit and the basic display then appears. The next time the product is started, the installation assistant starts again.

- Switch on the power supply to the product.

8.2.1 Setting the language



Note

If a system controller has been connected, the language can only be set on the system controller.

1. Set the desired language using or .
2. Press to confirm the set language.
3. Press again, to confirm the language a second time and to prevent it being changed unintentionally.

8.2.2 Setting the type of use



Note

You can only set the type of use if a system controller is connected.

1. Select the type of use with or .
 - **Cascade: No:** 1 basic module + 1 expansion module, if required
 - **Cascade: Yes:** Several basic modules



Note

If you have selected **Cascade: Yes**, you must then enter the number of the solar charging system (1 to 4). One of the solar charging systems must be given the number 1, while the others can be any number between 2 and 4.

2. Confirm this change by pressing .

8.2.3 Setting the system size



Note

The system size comprises the number of connected collectors. The solar control selects the filling time in accordance with the system size.

1. Select the number of connected collectors with or .
2. Confirm this change by pressing .

8.2.4 Purging the cylinder charging circuit



Danger!

Risk of scalding from hot components.

Components can become hot as soon as the purging programme is started.

- Do not touch components without first checking their temperature.



Note

The purge programme automatically starts at this point in the installation assistant. "Test active" is shown on the display. The cylinder charging pump is activated for five minutes at various output levels.

1. To skip this stage, press .
2. Wait for five minutes until the purging programme has ended.
 - ◁ "Test OK" is shown in the display.
3. Press .

4. Press .

8.2.5 Filling the solar circuit

Each time the solar system starts up again, the solar pump must run at increased power for a while until the solar line to the collector field and the collector field is filled with solar fluid and the solar fluid flows back to the solar charger (filling phase).

After the specified filling time, depending on the size of the system, the solar control reduces the rotational speed of the solar pump to a lower level suitable for ongoing operation.

The length of the filling phase (filling time) depends on the number of connected collectors. The default setting is for a filling time of 60 seconds plus an additional 20 seconds per collector.

The filling time is also dependent, however, on line cross-sections, the number of elbows and the vertical height between the highest and lowest point of the solar system. The filling time must therefore be adjusted as required. The filling time can be set between 10 seconds and 10 minutes.

- ▶ Start the filling phase with .
- ▶ While the solar pump is running, check to see whether the solar fluid is flowing back into the storage tank.

When the solar pump is idle again, "Test OK" is shown on the display.

- ▶ If you cannot see fluid flowing back into the storage tank, press .
- ▶ Set a longer filling time.
- ▶ Wait until all the solar fluid has flowed back into the storage tank.
- ▶ Press .
- ▶ Start the filling phase.
- ▶ Repeat the filling loop until you can see fluid flowing back into the storage tank.



Note

For the VPM 30 D: It may be that the solar fluid level is not adjusted quickly enough between the two storage tanks and that the solar pumps suck in air. In the installer level, you can adjust the filling power (→ Page 24) and set a compensation time (→ Page 24).



Danger!

Risk of personal injury due to incorrect pressure compensation.

Solar fluid or hot vapour escaping from the purging valve may cause serious scalding.

- ▶ The following instruction must be followed when carrying out the pressure compensation.
 - ◀ Some solar fluid may be emitted under pressure from the hose.
 - ◀ After this, air can be heard being drawn into the solar system.
- ▶ If you open the purging valve while the solar pump is running, you must do so carefully.

Conditions: The solar pump will continue to run.

- ▶ Once air has stopped being drawn in after a few seconds, close the purging valve.
- ▶ Open the filling connection and drain the solar fluid until the fluid level reaches the '2' mark.
- ▶ Seal the filling connection.
- ▶ Disconnect the filling pump.

8.2.6 Setting the date



Note

If a system controller has been connected, the date can be set on the system controller.

1. Set the desired year using  or .
2. Confirm the set year with .
3. Set the desired month using  or .
4. Confirm the set month with .
5. Set the desired day using  or .
6. Confirm the set day with .

8.2.7 Setting the time



Note

If a system controller has been connected, the time can only be set on the system controller.

1. Set the desired hour using  or .
2. Confirm the set hour by pressing .
3. Set the desired minute using  or .
4. Confirm the set minute by pressing .

8.2.8 Setting summer time



Note

If a system controller has been connected, summer time can only be set on the system controller.

1. Set the desired operating mode using  or .
 - **On:** The time is permanently displayed as summer time (daylight saving time).
 - **Off:** The time is permanently displayed as winter time.
2. Confirm this change by pressing .

8.2.9 Setting contact data

1. Press , ,  and  to set your telephone number.
2. Confirm this change by pressing .

8.2.10 Completing the installation assistant

- ▶ To complete the installation assistant, press .



Note

Once the installation assistant has been completed and confirmed, it will not start up automatically next time the unit is switched on.

8 Start-up



Note

All the settings that have been made can be viewed and changed subsequently under the menu point **Configuration**.

8.3 Carrying out pressure compensation



Caution.

Risk of damage as a result of incorrect or incomplete pressure compensation.

Failure to purge the system or purging at a time other than the one specified, may cause damage to the solar system. Vaillant accepts no liability for the correct operation of the solar system in this instance.

- Make sure that the pressure compensation is carried out as described here, in particular at the time specified.

The air that is in the collectors is heated up during installation of the complete solar plant. The density of the air in the collectors is reduced.

When the solar system is started for the first time, the hot air leaves the collectors and flows into the much cooler storage tank of the solar charger, where it cools down. This leads to negative pressure in the system.

As negative pressure in the solar system can lead to pump noises and has a negative impact on the power and working life of the solar pumps, pressure compensation must be carried out at initial start-up.



Note

Once pressure compensation has been performed, it is not necessary to repeat the process, as long as the solar system is not opened.

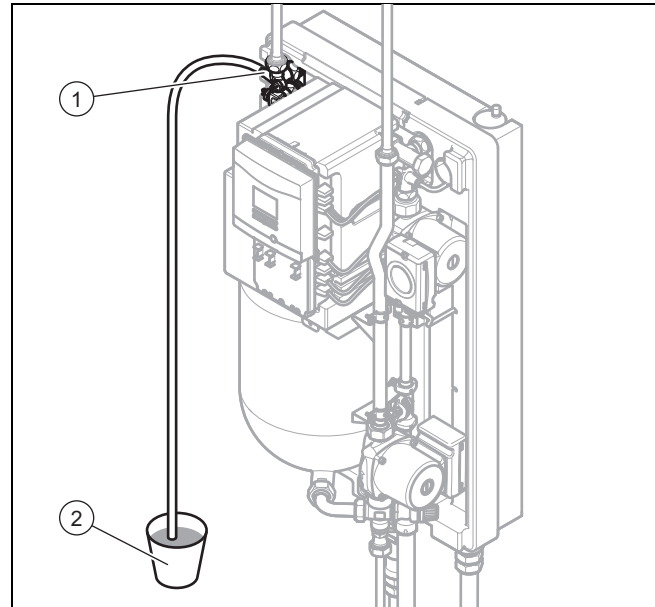


Danger!

Risk of personal injury due to incorrect pressure compensation.

Solar fluid or hot vapour escaping from the purging valve may cause serious scalding.

- The following instruction must be followed when carrying out the pressure compensation.



- Carry out the pressure compensation immediately after completing the installation assistant and, if required, repeat the procedure once again on that same evening if the solar plant has cooled down.
- Connect a hose that runs down to the floor from the purging valve (1).
- Place the end of the hose in a collecting container suitable for storing solar fluid (2). Hold the hose in the collecting container in such a way that air can flow into it.
- To ensure that you are sufficiently protected against escaping hot vapour and solar fluid, do not immerse the end of the hose in the solar fluid.
- Start the **Test solar circuit filling** check programme.
 - **Menu → Installer level → Test menu → Check programmes → Test solar circuit filling**

At initial start-up of the system, air may collect in/in front of the solar pumps. To force out the air, it may be necessary to stop and restart the solar pumps several times. When the solar pumps are running, noise and vibrations may occur, however these are harmless.

- During the filling mode (solar pump running), wait for 2 minutes.
- With the solar pump still running, carefully open the purging valve.
 - ◁ Some solar fluid may be emitted under pressure from the hose.
 - ◁ After this, air can be heard being drawn into the solar system.
- Once air has stopped being drawn in after a few seconds, close the purging valve.
- Stop the check programme **Test solar circuit filling**.
- Remove the hose from the purging valve.

8.4 Test menu

As well as the installation assistants, you can also call up the test menu for start-up, maintenance and troubleshooting.

Menu → Installer level → Test menu

This contains **Statistics**, **Check programmes** and the **Sensor/actuator test**.

8.4.1 Statistics

Menu → Installer level → Test menu → Statistics

This displays the operating hours for:

- Solar pump
- Solar pump 2
- Cylinder pump

8.4.2 Check programmes

Menu → Installer level → Test menu → Check programmes

The following check programmes are available:

- Test solar circuit filling
- Start purging programme

8.4.3 Sensor/ actuator test

Menu → Installer level → Test menu → Sensor/actuator test

The current values of the following sensors can be read off here:

- T1 temperature sensor
- T2 temperature sensor
- T3 temperature sensor
- T4 temperature sensor
- T5 collector sensor
- T6 cylinder sensor
- Cylinder circuit flow rate
- Temperature limiter
- Solar circuit flow rate

The selection button can be used to activate the following actuators. You can then use the plus and minus buttons to change the output/power of the pumps, the flow direction of the shift-load switching valve or the stratification in the cylinder.

- Solar pump
- Solar pump 2
- Cylinder pump
- UV5 shift-load switching valve

In addition, you can view the approximate **Solar circuit flow rate**. The value is calculated from the pump output and rotational speed.

8.5 Configuration

You can use the menu **Configuration** to subsequently change the settings that have been made using the installation assistant.

- Language
- Contact details
- Date
- Time
- Summer/winter time
- Cascade
- Number of collectors

In addition, the following information can be set or read:

- Filling time correction
- Mode
- Heating flow set target temperature
- Hot water set target temperature
- Shift-load switching valve switch temperature
- Maximum cylinder temperature
- On temp. diff.
- eBUS control
- Filling power
- Compensation time
- Software version

8.5.1 Filling time correction

Menu → Installer level → Configuration → Filling time corr.

If the filling time is not sufficient for the solar circuit, the filling time can be extended by up to ten minutes.

8.5.2 Mode



Note

If a system controller is connected, this menu point does not appear.

Menu → Installer level → Configuration → Operating mode

The operating mode can be set to **Auto**, **High Flow** and **Low Flow**.

- **Auto:** The solar control attempts to maintain the spread between the solar supply pipe and the solar return so that the process water zone in the cylinder is charged at 65 °C. If this is not possible due to low solar radiation, the heating zone in the cylinder is charged at 40 °C. If this is not possible either, a spread of 10 K is attempted.
- **High Flow:** The solar control attempts to maintain the spread between the solar supply pipe and the solar return at approx. 10 K. As a rule, this corresponds to 40 l/h per m² collector surface
- **Low Flow:** The solar control attempts to maintain the spread between the solar supply pipe and solar return so that the cylinder is charged at the maximum set cylinder temperature. As a rule, this corresponds to 15 l/h per m² collector surface

9 Handing over to the operator

8.5.3 Heating flow set target temperature



Note

If a system controller is connected, this menu point does not appear.

Menu → Installer level → Configuration → Heating temperature

The set target temperature for the heating flow is factory-set to 40 °C. Values between 20 °C and 90 °C can be set.

8.5.4 Hot water set target temperature



Note

If a system controller is connected, this menu point does not appear.

Menu → Installer level → Configuration → Water temperature

The set target temperature for hot water is factory-set to 65 °C. Values between 20 °C and 90 °C can be set.

8.5.5 Maximum cylinder temperature

Menu → Installer level → Configuration → Max. cylinder temp.

The maximum cylinder temperature is set in the factory at 95 °C. Values between 60 °C and 95 °C can be set.

8.5.6 On temp. diff.

Menu → Installer level → Configuration → Switch-on diff.

This is where the temperature difference that is required between the cylinder temperature sensor (T6 or SP2 with a system controller connected) and the collector temperature sensor is set, to ensure that the solar pump is started.

8.5.7 eBUS control

Menu → Installer level → Configuration → eBUS control

This shows whether the solar control recognises the system controller.

8.5.8 Filling power

Menu → Installer level → Configuration → Filling power

For the VPM 30 D: The solar fluid level may not be adjusted quickly enough between the storage tanks and the solar pumps may suck in air. To prevent this, the two solar pumps are started up separately. During the first stage, only the lower solar pump is running. You can use the **Filling power** setting to adjust the power of the lower solar pump for the first filling stage. Set the filling power so that the solar fluid level in the storage tank of the basic module does not fall below the pump axis of the lower solar pump.

8.5.9 Compensation time

Menu → Installer level → Configuration → Compensation time

For the VPM 30 D: The solar fluid level may not be adjusted quickly enough between the storage tanks and the solar pumps may suck in air. To prevent this, the two solar pumps

are started up separately. During the first stage, only the lower solar pump is running. You can use the **Compensation time** setting to adjust the length of the first stage. Set the compensation time so that the solar fluid level is approximately 5 cm in both storage tanks before the second solar pump is activated.

8.5.10 Software version

Menu → Installer level → Configuration → Software Version

This shows the current software version that is installed on the solar control. The software versions of the display (AI) and the main PCB (SMU) are shown alternately.

8.6 Documenting start-up

► The following settings and values should be documented in the hand-over check-list for the operator:

- System parameters
- System flushing and filling
- Installation tests
- Controller settings

9 Handing over to the operator

1. Inform the operator of the solar system about the handling and function of the product.
2. Explain the general safety information to the operator.
3. Draw special attention to the safety instructions which the operator must follow.
4. Explain to the operator the function and location of safety devices on the system.
5. Explain the importance of regular maintenance by a competent heating specialist company to the operator. To ensure that maintenance work is carried out on a regular basis, we recommend signing up to a maintenance contract.
6. Hand the product over to the operator.
7. Explain the basic operation of the product to the operator.
8. Provide the operator with all relevant instructions and product documentation for safe-keeping.
9. Go through the operating instructions with the operator.
10. Answer any questions they may have.
11. Make the operator aware of the need to keep the instructions near the product, but not in or on the product.
12. Explain to the operator how they should monitor the water level/filling pressure of the system and how they should add heating water.
13. Explain to the operator which measures are required to top up and purge the heating installation if required.
14. Explain to the operator how to correctly set the temperatures, the controllers and the thermostatic radiator valves (economically).
15. Inform the operator of the pump conditions.
16. Explain the guarantee conditions to the operator.

10 Troubleshooting

10.1 Querying the fault memory

Menu → Installer level Fault list

The product has a fault memory. You can use this to query the last ten faults that occurred in chronological order.

- ▶ To switch between faults, press the plus or minus button.
- ▶ To delete the entire fault memory, press the right-hand selection button ("Delete").

10.2 Overview of the fault codes



Note

Only a competent person can eliminate the cause of the faults described below and delete the fault memory.

Fault code	Fault text
20	Shut-down of temperature limiter
1272	Electronics fault in cylinder charge pump
1273	Electronics fault in solar pump
1274	Electronics fault in solar pump 2
1275	Cylinder charge pump blocked
1276	Solar pump blocked
1277	Solar pump 2 blocked
1278	T5 collector sensor fault
1279	T6 cylinder temperature sensor fault
1281	T1 temperature sensor fault
1282	T2 temperature sensor fault
1283	T3 temperature sensor fault
1284	T4 temperature sensor fault
1355	Volume flow sensor cylinder circuit fault

10.3 Detecting and rectifying faults

You can find an overview of the faults, possible causes and remedies in the appendix.

Detecting and rectifying faults (→ Page 31)

11 Inspection and maintenance

11.1 Inspection and maintenance check-list

The following table shows the inspection and maintenance work that must be carried out at specific intervals.

Inspection and maintenance work	Interval
Solar circuit	
Check solar fluid	Annually
Check solar pump function	Annually
Check fluid level in solar circuit, top up as required	Annually
Collectors	
Visual inspection of the collectors, collector fastenings and connections	Annually

Inspection and maintenance work	Interval
Check that the brackets and collector components are clean and fitted properly	Annually
Check the pipe insulations for damage	Annually
Solar controller	
Check the pump function	Annually
Check the sensor temperature display	Annually
Check the solar yield for plausibility	Annually
Check the filling loop	Annually
Cylinder	
Check the cylinder charge pump function	Annually
Check the connections for leaks	Annually
Check the pipe insulations for damage	Annually

11.2 Observing inspection and maintenance intervals



Danger!

Risk of damage and personal injury as a result of neglected and improper inspection and maintenance.

Inspection and maintenance must only be performed by a competent person.

- ▶ Carry out the inspection and maintenance work described on a regular basis and to a professional standard.

Regular inspection/maintenance and exclusive use of original spare parts are absolutely essential to ensure fault-free operation and a long working life for the product.

We recommend taking out an inspection or maintenance agreement.

11.3 Procuring spare parts

The original components of the product were also certified by the manufacturer as part of the declaration of conformity. If you use other, non-certified or unauthorised parts during maintenance or repair work, this may void the conformity of the product and it will therefore no longer comply with the applicable standards.

We strongly recommend that you use original spare parts from the manufacturer as this guarantees fault-free and safe operation of the product. To receive information about the available original spare parts, contact the contact address provided on the reverse of these instructions.

- ▶ If you require spare parts for maintenance or repair work, use only the spare parts that are permitted for the product.

11 Inspection and maintenance

11.4 Preparing inspection and maintenance work



Danger! **Risk of death from electric shock!**

A continuous voltage is always present on the mains connection terminals L and N.

- ▶ Disconnect the product from the power mains by de-energising the product using a partitionb with a contact opening of at least 3 mm (e.g. fuses or power switches).

- ▶ Remove the front casing. (→ Page 11)

11.5 Checking and replacing solar fluid



Caution. **Risk of damage due to old solar fluid.**

As a result of ageing, solar fluid may lose its frost- and corrosion-protection properties.

- ▶ Check the solar fluid annually.
- ▶ Replace the solar fluid if necessary.



Caution. **Risk of damage due to unsuitable solar fluid.**

The use of unsuitable solar fluid may cause malfunctions and damage to the solar system.

- ▶ Use only Vaillant solar fluid.

1. If an inspection shows that the solar fluid has lost its frost- and corrosion-protection properties, replace the solar fluid.
2. If you drain the solar fluid, some of the fluid will remain in the collectors and pipes. To prevent yourself from overfilling the system, mark the filling level on the storage tank before you drain it, and fill it up with the solar fluid only until it reaches the mark.
3. To completely drain the solar circuit, blow through it with compressed air. Then completely fill the solar circuit.

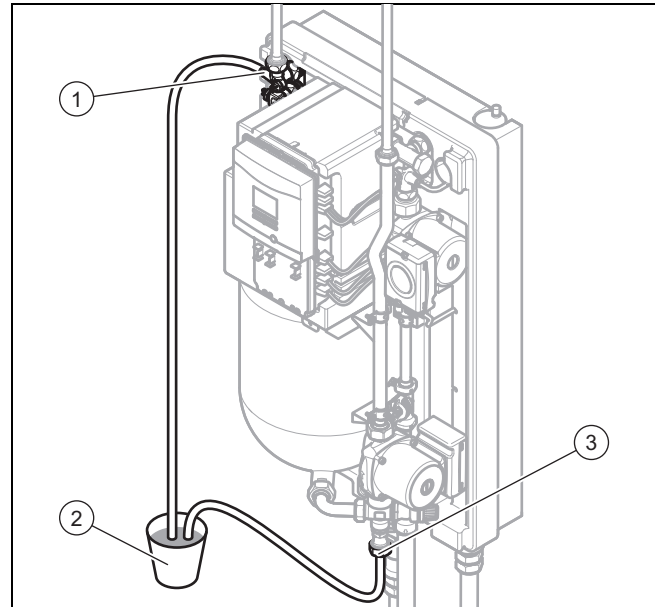
11.5.1 Check solar fluid

- ▶ Check the solar fluid using an antifreeze tester or a refractometer.

11.5.2 Draining the solar fluid

Preliminary work

- ▶ Switch off the solar system by interrupting the power supply.



1. Connect a hose that runs down to the floor from the purging valve (1).
2. Place the end of the hose in a collecting container that is suitable for storing solar fluid (2) and which has sufficient capacity (20 l or 40 l capacity). Hold the hose in the collecting container in such a way that air can flow into it.
3. To ensure that you are sufficiently protected against escaping hot vapour and solar fluid, do not immerse the end of the hose in the solar fluid.
4. Open the purging valve.
 - ◀ Beware of hot solar fluid or vapour being emitted.
5. Connect a hose that runs down to the floor to the fill and drain connection (3).
6. Place the end of the hose in the collecting container (2) as well.
7. Make sure that the hose on the purging valve is not hanging in the solar fluid and that air can be sucked up into it.
8. Open the valve on the fill and drain connection.
9. Completely drain the solar fluid.
10. Close the valve on the fill and drain connection.
11. Remove the hose from the fill and drain connection.

11.5.3 Adding solar fluid

- ▶ Add as much new Vaillant solar fluid as you have removed (Filling the storage tank (→ Page 19)).

11.5.4 Carrying out pressure compensation

- ▶ Carry out pressure compensation immediately after you add new solar fluid (Carrying out pressure compensation (→ Page 22)).

11.5.5 Additional tests/tasks

We recommend that the solar plant be serviced at the same time as the complete heating installation.

- ▶ Check the collectors and collector fastenings for dirt and to ensure that they are securely fitted.
- ▶ Check that the displayed values are plausible for the solar yield.

11.6 Completing inspection and maintenance work

Once you have completed all maintenance work:

- ▶ Check to ensure that the electrical wiring is connected properly.
- ▶ Open the service valves in the cylinder charging circuit flow and return.
- ▶ Fill the cylinder charging circuit again as required with water to a pressure of between 100 kPa and 200 kPa (1.0 and 2.0 bar).
- ▶ Switch the voltage supply of the solar charger on again.
- ▶ Check that the solar charger is leak-tight with regard to solar fluid and heating water.
- ▶ Fill and purge the cylinder charging circuit again as required.
- ▶ Install the front casing. (→ Page 15)
- ▶ Carry out a test operation run.

12 Decommissioning

12.1 Temporarily decommissioning the product

12.1.1 Switching off the solar charging system

- ▶ Disconnect the product by de-energising it using a partition with a contact opening of at least 3 mm (e.g. fuses or power switches).

12.1.2 Ensuring that frost protection is provided

1. Only disconnect the solar charger from the power mains if the heating installation is protected against frost by some other means.
2. Completely drain the heating water from the solar charging system and from the flow and return lines to the cylinder.

12.1.3 Closing isolator devices



Caution.

Risk of damage as a result of heat expansion of the heating water.

As the solar charger is not fitted with an expansion vessel or expansion relief valve for the cylinder charging circuit, heat expansion of the heating water may cause damage.

- ▶ Drain the heating water from the solar charger before closing the isolator devices.

- ▶ Close all available isolator devices in the cylinder charging circuit (on-site).

12.2 Permanently decommissioning the product

12.2.1 Switching off the solar charging system

- ▶ Disconnect the product by de-energising it using a partition with a contact opening of at least 3 mm (e.g. fuses or power switches).

12.2.2 Completely draining the solar and heating installation

1. Completely drain the heating water from the solar charging system and from the flow and return lines to the cylinder.
2. Drain the solar fluid from the storage tank. Capture the solar fluid in a suitable container.
3. Ensure that the solar fluid is disposed of correctly (Disposing of solar fluid (→ Page 27)).

12.2.3 Disposing of the solar charger

- ▶ Ensure that the solar charger is disposed of correctly (Disposing of the product (→ Page 27)).

13 Recycling and disposal

Disposing of the packaging

- ▶ Dispose of the packaging correctly.
- ▶ Observe all relevant regulations.

13.1 Disposing of the product

The product is primarily made up of recyclable materials.

Do not dispose of the product or any accessories in the household waste.

- ▶ Ensure that the product and any accessories are disposed of properly.
- ▶ Observe valid national regulations.

13.2 Disposing of solar fluid

- ▶ Ensure that the solar fluid is disposed of at an appropriate waste site or waste incineration plant, for example, in compliance with local regulations.
- ▶ Contact the local municipal sanitation department or the mobile environmental service for quantities under 100 l.

13.3 Disposing of wear parts

- ▶ Ensure that wear parts are disposed of properly.
- ▶ Observe the applicable national regulations.

13.4 Disposing of defective components

- ▶ Ensure that defective components are disposed of properly.
- ▶ Observe the applicable national regulations.

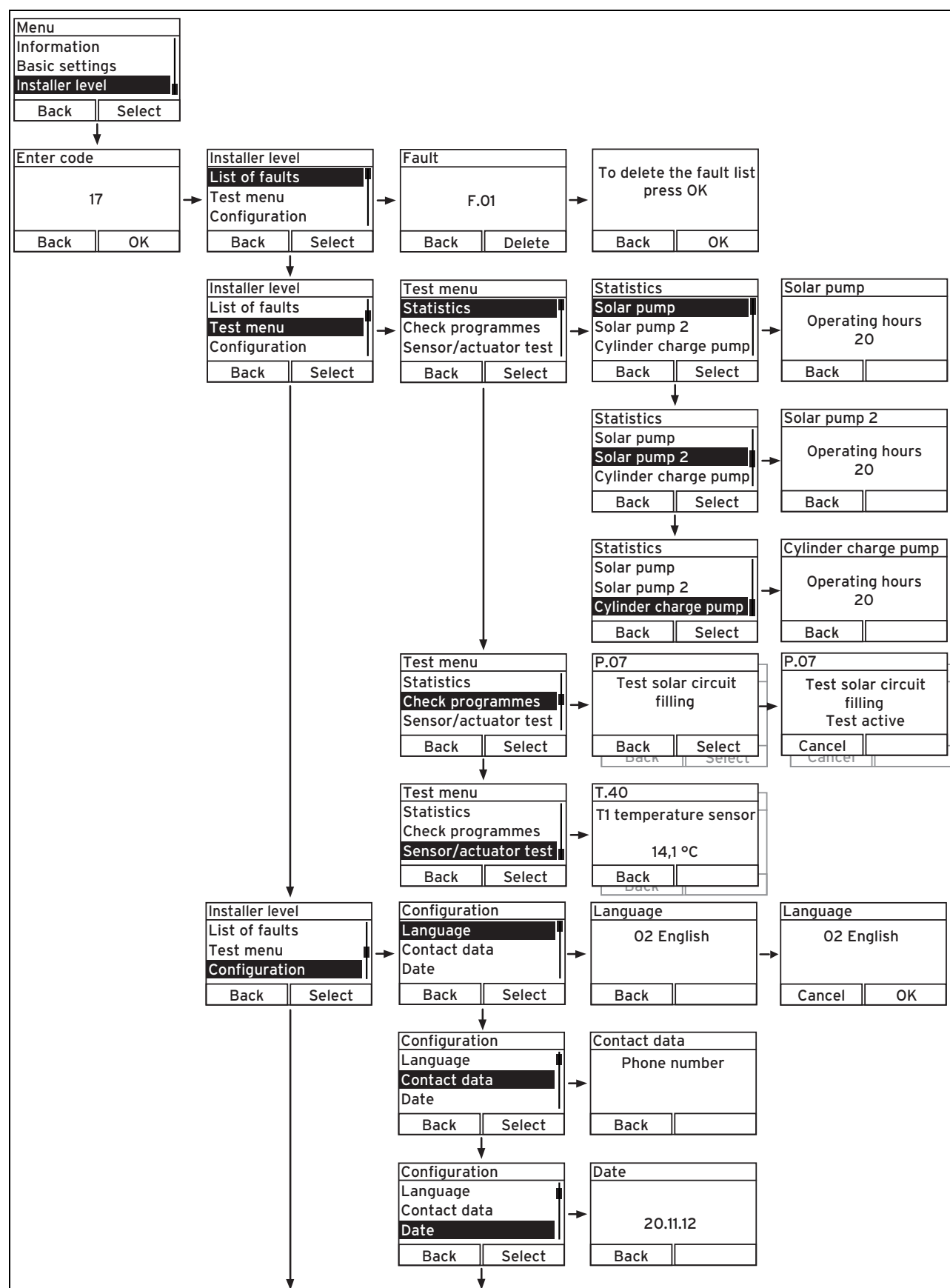
14 Customer service

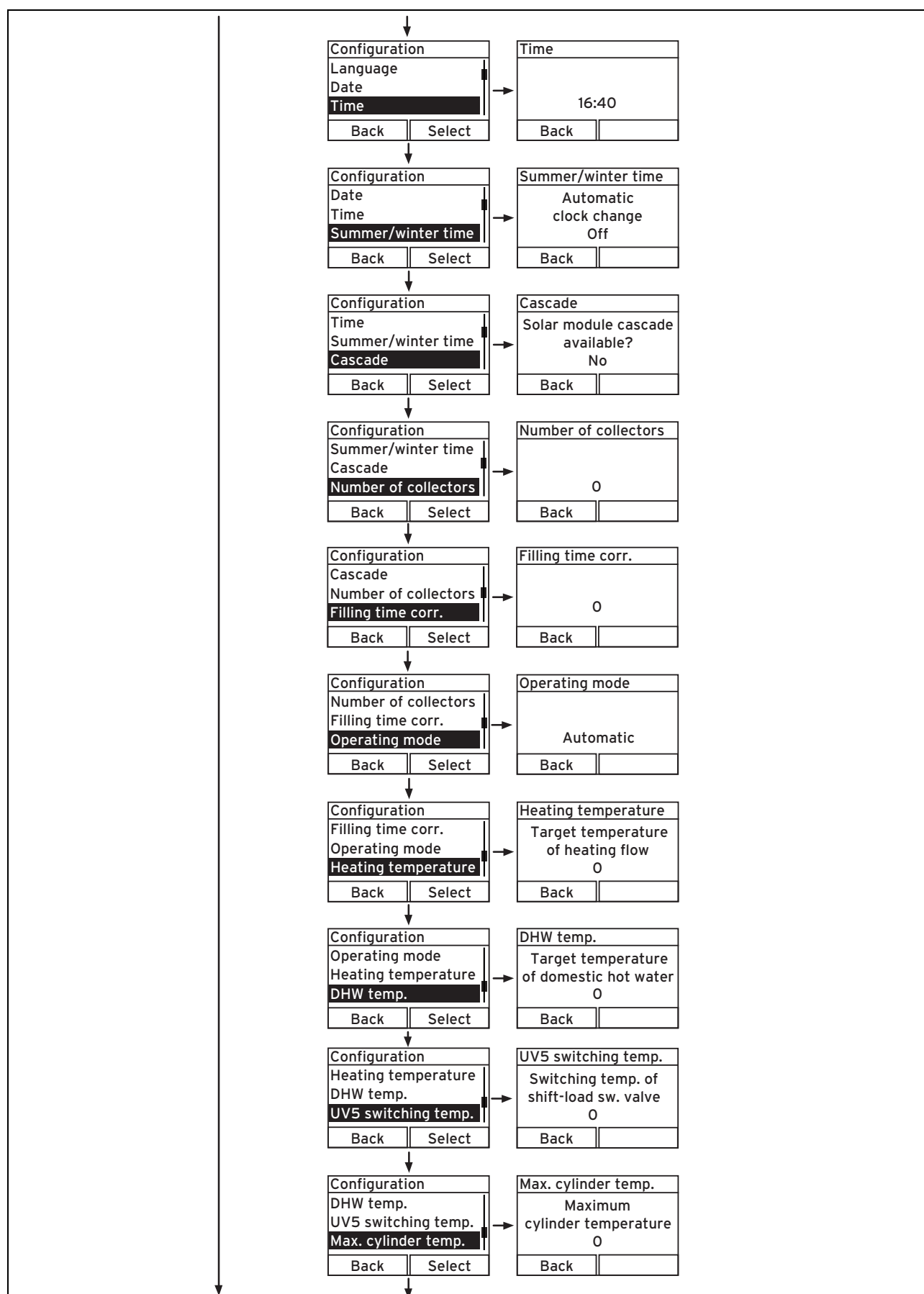
For contact details for our customer service department, you can write to the address that is provided on the back page, or you can visit www.vaillant.com.

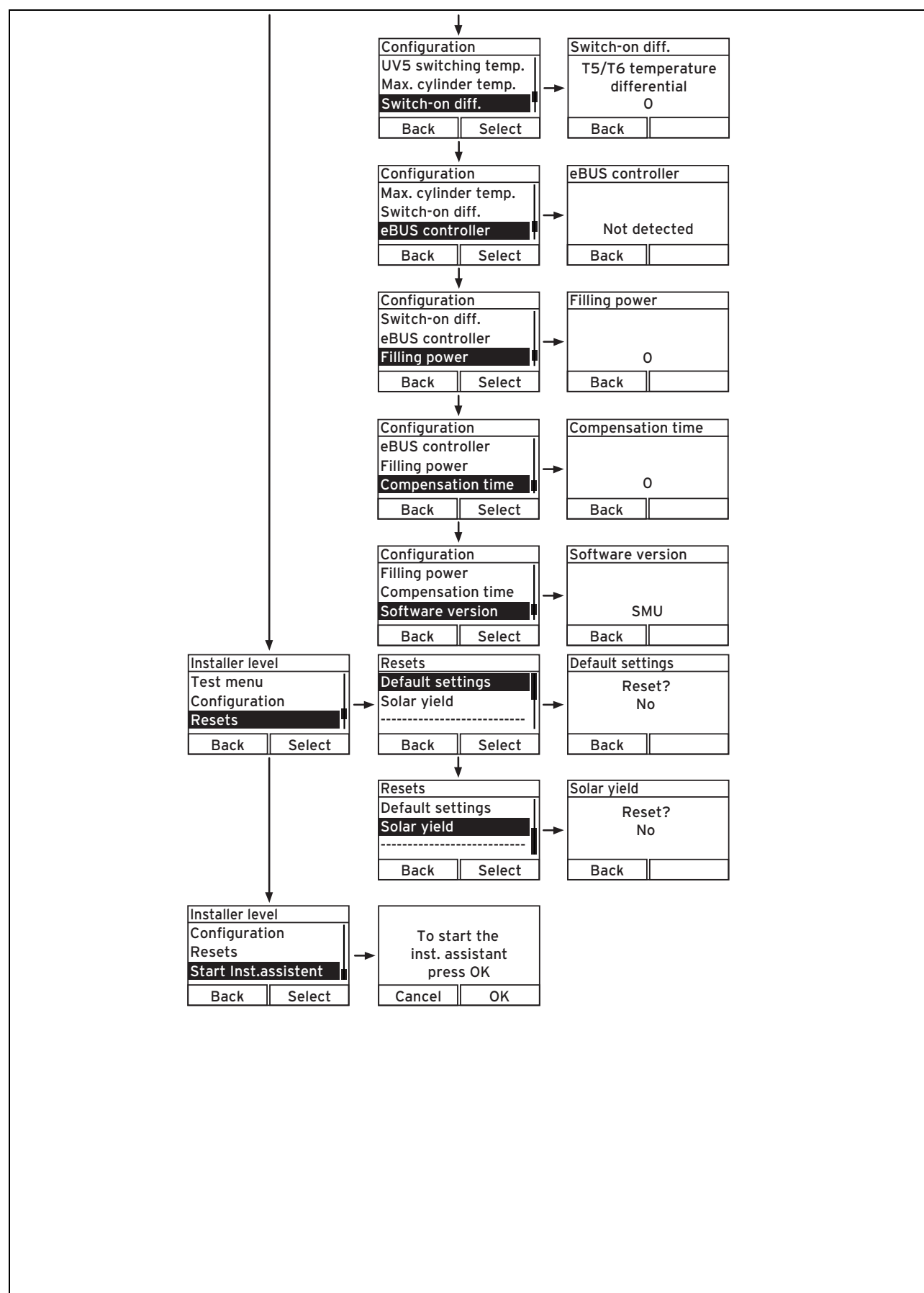
Appendix

Appendix

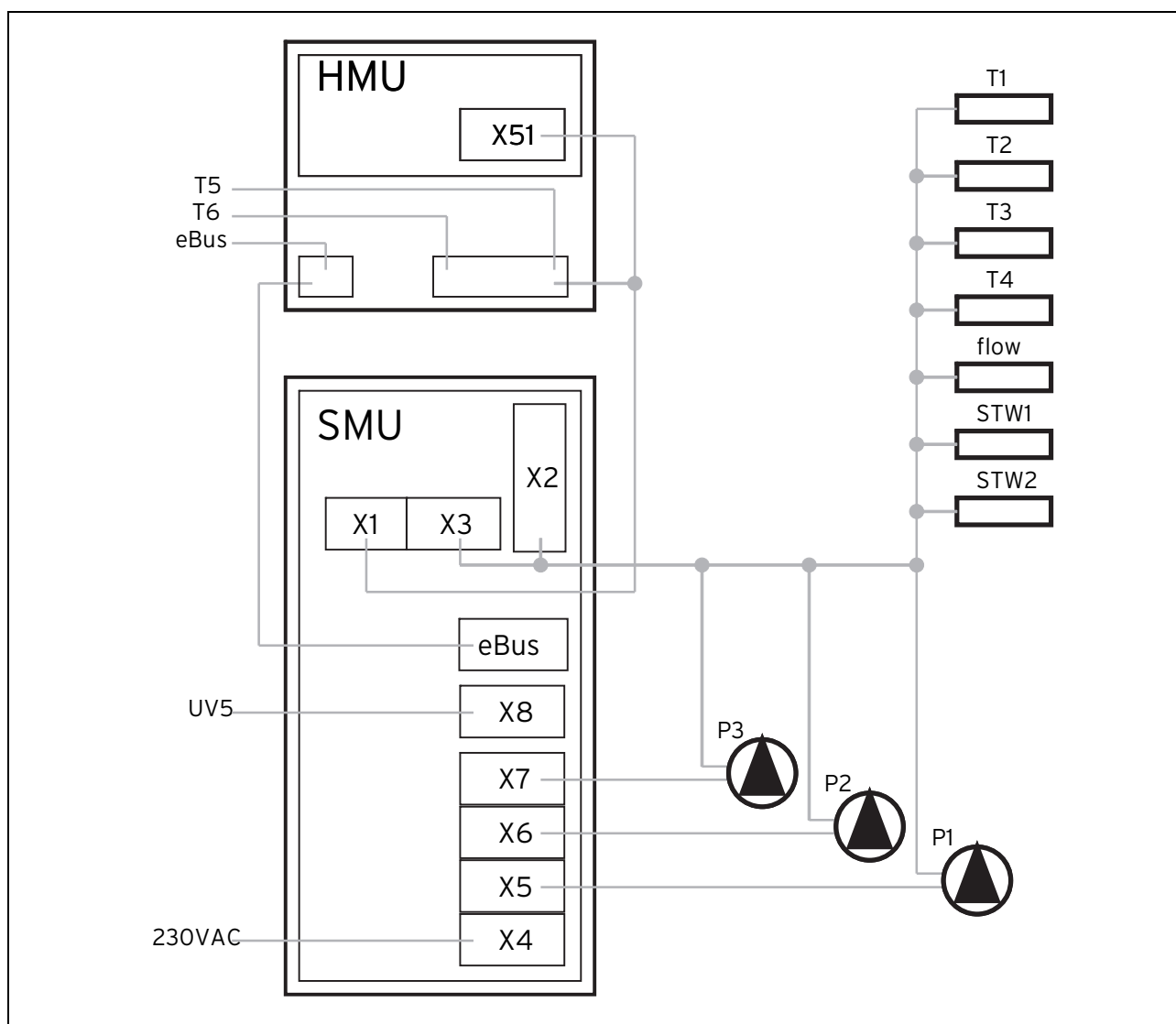
A Overview of the installer level menu structure







B Connection diagram



C Detecting and rectifying faults

Fault	Possible cause	Explanation/remedy
The pumps start up at irregular intervals, including at night	Blockage prevention function	No fault
Collectors are warmer than the cylinder, but the solar plant does not start	Cylinder is charged or a forced pause of 10 minutes is activated after the pump stops	No fault Increase maximum cylinder temperature if required
Storage tank remains empty if the solar pump is idle	Collector field cannot drain Draining of the collector field can last up to 15 min	Check the solar circuit for siphons
Cylinder charging pump is running, however the solar pump is not running	Overrun function (solar charging stopped shortly before)	No fault
Cylinder charging pump running at low outside temperatures	Frost protection function	No fault
Collector temperature very high and solar system starts filling	Hot starts are possible as a result of Drain-back technology	No fault
Solar pump sucks air in	Fluid level too low	Top up the solar fluid until it reaches the '2' mark when in circulation
Solar pump sucking in air, as the flow of fluid from the second storage tank is delayed	Minimal pressure loss in the solar circuit in combination with excessive pressure loss in the connection pipes between the basic and expansion module	Check the connection pipes for blockages/kinks, reduce the pump output of the first solar pump in the solar control and increase the delay before the second solar pump is activated

Appendix

Fault	Possible cause	Explanation/remedy
Filling is completed, however fluid is not flowing back from the collectors	Excessive loss of pressure in the solar circuit	Check the solar circuit for blockages/kinks, check the collector field for blockages, increase the filling time on the solar control
Solar pump is running, however cylinder charging pump is not running	Temperature of the solar fluid is too low	No fault
	Cylinder charging pump is not functioning reliably	Check the plug/power cable/signal cable of the cylinder charging pump
	Solar filling is active	Checking the pump symbol in the display  flashes: Filling  permanently on: Cylinder charging
Solar yield unusually high	High heat losses	Insulate the system The solar yield is always higher than the primary energy that is saved
System or product are making noises	Gurgling noise is normal	No fault
	Air in the solar pump	Purge the solar pump
	Air in the cylinder charging pump.	Purge the cylinder charging pump, check the pressure in the cylinder charging circuit, add water if necessary, and flush the cylinder charging circuit
Displayed temperature is incorrect	Poor connection of the temperature sensor	Check the seating and position of the temperature sensor
Discolouration of storage tank	Yellowing of the storage tank is normal, very strong/rapid discolouration is an indication of high temperatures in the solar circuit	Check the solar circuit function Check the cylinder charging circuit function
The solar fluid level falls over time	Solar circuit leaking	Find and seal any leaks
	Pressure too high and expansion relief valve discharges	Check the expansion relief valve function Check that the solar collectors are able to drain
Solar fluid remains in the collector field or in the pipeline, and does not all flow back to the storage tank		This is not a problem provided that the system is returning a solar yield
Solar pump running, solar fluid is not being pumped	Stop valve closed	Open the stop valve
	Pressure losses too high	Check the solar circuit function Check the cylinder charging circuit function
Some setting parameters cannot be changed (time, date, operating mode, UV5 switching temperature, etc.)	Product was/is connected to auromATIC VRS 620	Remove auromATIC VRS 620 and restart the product (press reset button)
Hot water and/or heating circuit are charged irregularly (e.g. heating mode in the summer)	No VPM W drinking water station available	Permanently disconnect eBus, restart the product. Install drinking water station

D Technical data

	VPM 15 D basic module	VPM 30 D (basic module with expansion module)
Plate heat exchanger output	16 kW	16 kW
Solar pump output	≤ 65 W	≤ 130 W
Cylinder charging pump output	≤ 65 W	≤ 65 W
Storage tank volume	20 l	40 l
Product dimensions, height	750 mm	750 mm
Product dimensions, width	450 mm	900 mm

	VPM 15 D basic module	VPM 30 D (basic module with expansion module)
Product dimensions, depth	340 mm	340 mm
Collector surface area	≤ 15 m ²	≤ 30 m ²
Number of collectors	≤ 6	≤ 12

Index

A

Adding solar fluid	19
Article number	6

C

CE label	9
Checking the solar fluid	26
Clearance	10
Competent person	3
Conditions, system	6
Connecting cylinders	12
Connecting the collector temperature sensor	14
Connecting the cylinder charging circuit	12
Connecting the cylinder temperature sensor	14
Connecting the discharge line	12
Connecting the hydraulic lines of the solar pump	16
Connecting the shift-load switching valve	13
Connecting the solar circuit	13
Connecting the solar pump to the electricity supply	17
Connecting the system controller	14

D

Decommissioning, solar charging system	27
Disposal, defective components	27
Disposal, packaging	27
Disposal, solar charging system	27
Disposal, solar fluid	27
Disposal, wear parts	27
Disposing of the packaging	27
Disposing of the solar charging system	27
Disposing of the solar fluid	27
Documents	6
Draining the solar fluid	26

E

Electricity	3
-------------------	---

F

Filling the cylinder charging circuit	19
Filling the storage tank	19
Frost	4

H

Handing over the solar charging system	24
Hand-over, operator	24

I

Installation assistant	20
Installer level	18
Installing the front casing	15
Instructions, validity	6
Intended use	3

L

Leaking heating installation	5
Leaking system	5
Lines, maximum length	5
Lines, minimum cross-section	5
Lines, requirements	5

O

Operating mode	23
----------------------	----

P

Pressure compensation	22
Purging the cylinder charging circuit	19

Q

Qualification	3
---------------------	---

R

Regulations	5
Removing the controller bracket	15
Removing the front casing	11
Removing the storage tank	15
Replacing the solar fluid	26
Routing the mains connection line	14

S

Safety device	3
Schematic drawing	3
Solar system, leaking	5
Spare parts	25
System, conditions	6
System, leaking	5

T

Tool	4
------------	---

U

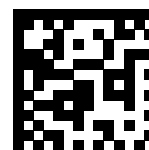
Unpacking the solar charging system	9
---	---

V

Voltage	3
---------------	---

W

Wall-mounting the basic module	11
Wall-mounting the expansion module	18
Wall-mounting the solar charging system	11



0020160575_04

0020160575_04 ■ 31.01.2017

Supplier

Vaillant Group International GmbH

Berghauser Strasse 40 ■ 42859 Remscheid

Tel. +49 21 91 18-0

www.vaillant.info

© These instructions, or parts thereof, are protected by copyright and may be reproduced or distributed only with the manufacturer's written consent.

We reserve the right to make technical changes.