GRUNDFOS **INSTRUCTIONS**

COMFORT 10-16

Installation and operating instructions

GRUNDFOS

COMFORT 10-16

English (US)
Installation and operating instructions 4

Appendix A. 29

English (US) Installation and operating instructions

Original installation and operating instructions

Table of contents

1. General information . . . 5
1.1 Hazard statements . . . 5
1.2 Notes . . . 6
1.3 Pumped liquids . . . 7

2. Receiving the product. . . . 7
2.1 Inspecting the product . . . 7

3. Mechanical installation . . . 8
3.1 Applications . . . 8
3.2 Location . . . 8
3.3 Preparing the product for installation . . . 9
3.4 Mounting the product . . . 10
3.5 Installing the temperature sensor (COMFORT TA) . . . 11
3.6 Changing the pump head position . . . 12

4. Startup . . . 13

5. Control functions . . . 14
5.1 COMFORT TA . . . 14
5.2 COMFORT TDT. . . . 16
5.3 COMFORT T . . . 19

6. Setting the product . . . 20

7. Servicing and dismantling the product . . . 21

8. Fault finding . . . 23
8.1 General faults and errors . . . 23
8.2 COMFORT TA . . . 24
8.3 COMFORT TDT. . . . 26

9. Technical data . . . 27

10. Disposing of the product . . . 28

11. Document quality feedback 28

1. General information

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

Read this document before you install the product. Installation and operation must comply with local regulations and accepted codes of good practice.

1.1 Hazard statements

The symbols and hazard statements below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

The hazard statements are structured in the following way:

SIGNAL WORD

Description of the hazard

Consequence of ignoring the warning

- Action to avoid the hazard.

1.2 Notes

The symbols and notes below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

FM Observe these instructions for explosion-proof products.

A blue or gray circle with a white graphical symbol indicates that an action must be taken.

A red or gray circle with a diagonal bar, possibly with a black graphical symbol, indicates that an action must not be taken or must be stopped.

If these instructions are not observed, it may result in malfunction or damage to the equipment.

Tips and advice that make the work easier.

1.3 Pumped liquids

The product is suitable for domestic hot water with unrestricted water hardness.

The kinematic viscosity of water is 1 mm^2/s (1 cSt) at 68 °F (20 °C). If the pump is used for a liquid with a higher viscosity, the hydraulic performance of the pump will be reduced.

Example: 50 % glycol at 68 °F (20 °C) means a viscosity of approximately 10 mm^2/s (10 cSt), reducing pump performance by approximately 15 %.

When selecting a pump, the viscosity of the pumped liquid must be taken into account.

2. Receiving the product

2.1 Inspecting the product

CAUTION

Crushing of feet

Minor or moderate personal injury

- Wear safety shoes when handling the product.

- Make sure that the delivered product corresponds to the order.
- Make sure that the supply voltage and frequency correspond to the values stated on the product nameplate.

3. Mechanical installation

WARNING

Electric shock

Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

WARNING

Electric shock

Death or serious personal injury

- All electrical connections must be carried out by a qualified electrician in accordance with local regulations.

WARNING

Pressurized system

Death or serious personal injury

- Before installation of the pump, drain the system or close the isolating valves on both sides of the pump. The pumped liquid may be scalding hot and under high pressure.

3.1 Applications

COMFORT pumps are designed for use in domestic hot-water systems.

The pumps are suitable for open and closed systems.

3.2 Location

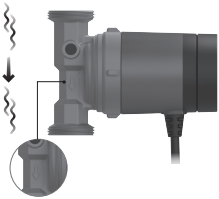
The pump is designed for indoor use in a non-aggressive and non-explosive atmosphere.

3.3 Preparing the product for installation

The product has integrated power cable, check valves and isolating valves.

Before installing the product, observe the following:

- Flush the system of debris before installation.
- Refer to the arrows on the pump housing indicating the direction of the liquid flow through the pump.



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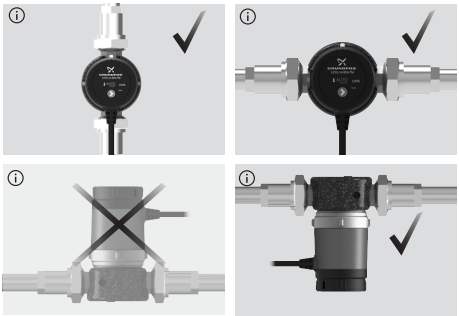
- See below for correct installation positions.



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Installation positions

3.4 Mounting the product

WARNING

Pressurized system

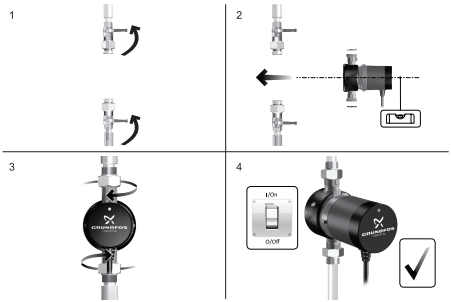
Death or serious personal injury

- Tighten the union nuts before opening the isolating valves. The pumped liquid may be scalding hot and under high pressure.

The arrows on the pump housing indicate the flow direction through the pump.

1. Close the isolating valves and make sure that the system is not pressurized during the installation of the pump.
2. Mount the pump with gaskets in the pipes.
3. Tighten the fittings.
4. Connect the plug to the socket, and switch on the pump.
   Note that the pump is double insulated and does not require ground connection.

Do not switch on the pump until the system has been filled with liquid and vented.



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3.5 Installing the temperature sensor (COMFORT TA)

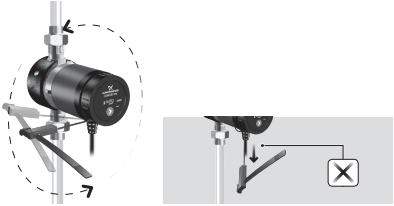
The attached external temperature sensor must be installed in the system in order to use the AUTOADAPT and temperature control mode.

Do as follows:

1. Turn the faceplate counterclockwise on the pump to release the sensor cable.

2. Gently unfold the sensor cable to the desired length. Do not pull the cable downwards.

   The maximum cable length is 8 ft (2.5 m).



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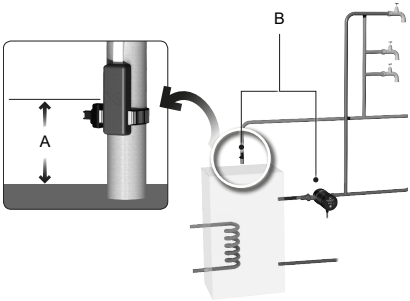
3. Install the temperature sensor on the pipes on the hot-water outlet side (supply pipe).

   The sensor must be installed 8 to 20 inches (20 to 50 cm) (A) from the heat source and can be installed maximum 8 ft (2.5 m) (B) from the pump.



TM075639

3.6 Changing the pump head position

WARNING

Electric shock

Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

WARNING

Hot surface

Death or serious personal injury

- At high liquid temperatures, the product may become so hot that only the operating panel must be touched to avoid burns. Close the isolating valves on all sides of the product and then drain it. Wear protective gloves.

To change the orientation of the pump head, do as follows:

1. Use a wrench to loosen the union.

TM075635

2. Carefully turn the pump head to the desired position and tighten the union (max. 20 Nm). Open the isolating valves.

TM075636

4. Startup

WARNING

Hot surface

Death or serious personal injury

- At high liquid temperatures, the product may become so hot that only the operating panel must be touched to avoid burns.

WARNING

Electric shock

Death or serious personal injury

- Clean only the product with a dry cloth.

5. Control functions

5.1 COMFORT TA

TM086417

Operating panel

Pos.	Description
1	AUTOADAPT mode. The LED is permanently green when the pump operates in this control mode. It flashes green when the pump waits for the next predicted operating period or water to cool down.
2	Continuous 24/7 mode. The LED is permanently green when the pump operates.
3	Warning LED. The LED is permanently yellow when the external or internal temperature sensor is defect and the pump is in AUTOADAPT or temperature mode.

Pos.	Description
4	**Arrow** button for changing control mode.
5	QR code. Scan the QR code for access to additional product information and documentation.
6	Temperature mode. The LED is permanently green when the pump operates. It flashes green when the pump is waiting for water to cool down.

AUTOADAPT control mode

The pump learns usage patterns throughout the day and ensures hot water is available only when needed via an external sensor on the supply pipe. During the first two to three weeks after installation, the pump frequently starts based on temperature control to ensure immediate comfort until usage pattern has been learned. The pump will despite usage patterns still provide instant comfort when it detects demand for hot water.

After 24 hours of inactivity, the pump automatically enters vacation mode and resumes operation when it detects demand for hot water.

Once a week, the pump runs a 15 minute disinfection cycle. The water heater must enable that function once a week.

Temperature control mode

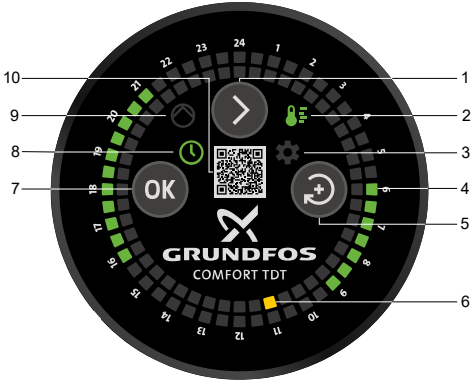
Comfort is ensured via an external and internal sensor for more accurate water temperature measurement. The pump can automatically adjust on/off temperatures based on the maximum temperature measured in the system. For example, if the maximum water temperature is measured at 113 °F (45 °C), the pump switches off at temperatures above 106 °F (41 °C) and switches back on when the water cools down to below 100 °F (38 °C).

After 24 hours of inactivity, the pump automatically enters vacation mode and resumes operation when it detects demand for hot water.

Continuous 24/7 control mode

The pump operates continuously 24 hours per day.

5.2 COMFORT TDT



TM086419

Operating panel

Pos.	Description
1	**Arrow** button for changing control mode.
2	Temperature mode. The LED is permanently green when temperature mode is enabled.
3	Setting mode. It lights up when the actual time and operating time can be set.

Pos.	Description
4	Operating time LEDs. These LEDs indicate the pump's operating periods. One LED equals an interval of 30 minutes. When setting the operating time, the applicable LEDs flash green.
5	**Change** button for changing the actual time and operating times when in setting mode.
6	Actual time. One LED equals an interval of 30 minutes. The LED is permanently on when set. It flashes yellow when not set.
7	**OK** button for confirming, changing or deleting settings.
8	Timer mode. When lit, the LED indicates that the timer mode is activated.
9	Pump operation LED. It indicates that the pump is operating.
10	QR code. Scan the QR code for access to additional product information and documentation.

Timer control mode

The pump operates continuously based on set operating times.

In case of a power failure, the time pauses with no power reserve. However, the selected operating times and actual time are retained. When power is restored, the pump resumes its last set operating state. If the power outage exceeds 15 minutes, the actual time may need to be reset.

Timer and temperature control mode

The pump operates based on set operating times and temperature mode. Temperature mode is therefore only enabled during the set operating times.

Comfort is ensured via an internal sensor for more accurate water temperature measurement. The pump can automatically adjust on/off temperatures based on the maximum temperature measured in the system. For example, if the

maximum water temperature is measured at 113 °F (45 °C), the pump switches off at temperatures above 106 °F (41 °C) and switches back on when the water cools down to below 100 °F (38 °C).

The maximum temperature of the system is measured every 12 hours, enabling dynamic adjustment of the on/off temperature.

5.3 COMFORT T

TM086418

Operating panel

Pos.	Description
1	Temperature mode. The LED is permanently green when temperature mode is enabled.
2	QR code Scan the QR code for access to additional product information and documentation.

Temperature control mode

Comfort is ensured via an internal sensor for more accurate water temperature measurement. This control mode enables the pump to automatically adjust on/off temperatures based on the maximum temperature measured in the

system. For example, if the maximum water temperature is measured at 113 °F (45 °C), the pump switches off at temperatures above 106 °F (41 °C) and switches back on when the water cools down to below 100 °F (38 °C).

The maximum temperature of the system is measured every 12 hours, enabling dynamic adjustment of the on/off temperature.

6. Setting the product

For information on how to set the product and more, scan the below QR code applicable for your variant.

	COMFORT TA
	COMFORT TDT
	COMFORT T

7. Servicing and dismantling the product

WARNING

Electric shock

Death or serious personal injury

- A damaged product must be repaired or replaced by Grundfos or a service workshop authorized by Grundfos.

WARNING

Electric shock

Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

WARNING

Electric shock

Death or serious personal injury

- All electrical connections must be carried out by a qualified electrician in accordance with local regulations.

WARNING

Electric shock

Death or serious personal injury

- Excessive use of water when cleaning the product may cause the product to short circuit.

WARNING

Pressurized system

Death or serious personal injury

- Drain the system or close the isolating valve on either side of the pump before you do any work on the product. The pumped liquid may be scalding hot and under high pressure. Wear protective gloves and glasses.

WARNING

Hot surface

Death or serious personal injury

- At high liquid temperatures, the product may become so hot that only the operating panel must be touched to avoid burns. Close the isolating valves on all sides of the product and wait for the product to cool down before working on it.

WARNING

Hot liquid

Death or serious personal injury

- The pumped liquid may be scalding hot and under high pressure. Close the isolating valves on all sides of the product and then drain it.

CAUTION

Crushing of feet

Minor or moderate personal injury

- Wear safety shoes when handling the product.

8. Fault finding

8.1 General faults and errors

8.1.1 The pump is not running

The pump has stopped operating and no LEDs are lit.

Cause	Remedy
The power supply has been interrupted.	• Restore the electrical connection.
The rotor is blocked by deposits or foreign bodies.	• Clean the parts that are in direct contact with water.
A rotor bearing is either worn or faulty.	• Replace the motor.
There is air in the recirculation system.	• Vent the circulation pipe.
The motor is faulty.	• Replace the motor.

8.1.2 Constant supply of hot water but the pump is not running

Cause	Remedy
The non-return valve is constantly open (gravity circulation).	• Fit a non-return valve downstream of the pump.

8.1.3 The pump is repeatedly starting and stopping

Cause	Remedy
There is air in the pump, and dry-running protection is active.	• Vent the circulation pipe.

8.1.4 Noisy pump

Cause	Remedy
There is air in the pump housing, and dry-running protection is active.	• Vent the circulation pipe.
The rotor bearing is worn or faulty.	• Replace the motor.

Cause	Remedy
The non-return valve in the system is faulty.	• Replace the non-return valve.
The motor is faulty.	• Replace the motor.

8.2 COMFORT TA

8.2.1 The pump is not running, and the LEDs are flashing

Cause	Remedy
There may be several reasons for this: The pump is waiting for water to cool down in order to start again. The pump is in vacation mode (no water usage detected). There is no predicted hot water demand.	• Check the current control mode. • Wait until next pump start or run hot water through a tap.

8.2.2 The warning LED is permanently yellow while in AUTOADAPT mode

Cause	Remedy
The external sensor cable has been interrupted or the sensor is defect.	• The pump automatically switches to temperature mode and continues operation using the internal sensor.
The internal sensor is defect.	• The pump automatically switches to continuous 24/7 mode and continues operation.

8.2.3 The warning LED is permanently yellow while in temperature mode

Cause	Remedy
The external sensor cable has been interrupted or the sensor is defect.	• The pump automatically switches to temperature mode and continues operation using the internal sensor.
The internal sensor is defect.	• The pump automatically switches to continuous 24/7 mode and continues operation.

8.2.4 The pump is not learning usage patterns, insufficient hot water is supplied

Cause	Remedy
The external sensor is not installed on the hot water supply pipe.	• Install the external sensor on the hot-water supply pipe and not on, for example, fittings or tee joints.
The external sensor is installed on insulation.	• Ensure that the external sensor is installed directly on the hot-water supply pipe.
The external sensor is installed at an incorrect distance from the water heater.	• Ensure that the sensor is installed at the correct distance.
There is no hydraulic balancing in the branches of the pipe system.	• Perform hydraulic balancing and fit regulating valves.
The temperature of the water is too low (< 120 °F (48 °C)).	• Set the temperature of the water heater to at least 120 °F (48 °C).
The pump is installed too close to the water heater.	• Ensure the pump is installed at the correct distance of the water heater (min. 20 inches (50 cm)).

8.3 COMFORT TDT

8.3.1 The pump is not running, and the LED for pump operation is inactive

Cause	Remedy
Timer mode does not start the pump.	• Check that the control mode has been set correctly. • Wait for next operating time period for next pump start. • Change operating time settings.
Temperature mode does not start the pump.	• Wait for the water temperature to cool down.

8.3.2 The actual time LED is flashing yellow

Cause	Remedy
The power supply has been interrupted.	• Set the actual time again, if necessary, and press confirm.

9. Technical data

Liquid temperature	35-176 °F (2-80 °C)
Ambient temperature	32-104 °F (0-40 °C)[1)]
Relative humidity	Max 95 %
Max. system pressure (PN 10)	145 psi (1.0 MPa / 10 bar)
Min. inlet pressure	0.75 psi (0.05 bar)
Max. head	3.4 ft (1 m)[2)]
Max. flow rate	2.2 gpm (0.5 m^3/h)[2)]
Min. power consumption	5 W
Sound pressure level	< 22 dB(A)
Max. power consumption	7 W
Pump housing	EcoBrass
Lead content	< 0.2 %
Port-to-port length	4 3/8" (110 mm)
Connection type	1 1/4" NPSM
Enclosure class	2
Appliance class	Double insulated
Overvoltage category (OVC)	II
Pollution degree	2

1) The ambient temperature must always be lower than the liquid temperature to minimize condensation in the stator housing, and not exceed 104 °F (40 °C).

2) The stated performance is including use of check valve.

10. Disposing of the product

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop. See also end-of-life information at www.grundfos.com/product-recycling.
3. Consider recycling scrap metal to reduce waste and to help to limit new mining.

11. Document quality feedback

To provide feedback about this document, scan the QR-code using your phone's camera or a QR code app.

FEEDBACK93114288

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Appendix A

A.1. Limited consumer warranty

This Limited Warranty is provided for Consumer Products sold in the United States only and applies to Consumer Transactions as defined in and applicable under the Magnusson-Moss Warranty Act and any other applicable Federal and/or State laws. In case of non-Consumer Products, please refer to Grundfos' warranty terms defined in clause 10 of Grundfos US Terms and Conditions of Sale of Product and Services available at *https://www.grundfos.com/legal/grundfos-customer-terms/usa-grundfos-general-terms-for-sales-of-products-and-services*

This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

New products manufactured by Grundfos are warranted to the original purchaser only and are to be free from defects in design, material and workmanship under normal use and service for no greater than a period of thirty (30) months from the date of manufacture which is set forth on the product's nameplate and on the product's packaging or the minimum period required by the applicable State law. For New Jersey, the applicable period is one year from the date of purchase.

The warranty period for replacement products, parts and components expires thirty (30) months from the original date of manufacture of the product originally purchased, unless a longer period is required under the applicable State law. For New Jersey, the warranty period for replacement products, parts and components expires one year from the original date of purchase of the product, not the date of replacement.

Products sold by Grundfos that are manufactured by others are not covered by this warranty.

Note that when purchasing a Grundfos product online, it is important to check the date of manufacture and the duration of the warranty with the seller as the product might no longer be covered under this Limited Warranty.

When a product is subject to this Limited Warranty a purchaser should contact the seller from which it purchased the product to make a claim.

If the seller of a product is no longer in business, the purchaser should contact a Grundfos Authorized Service Partner, which can be found at *www.grundfos.com/us* under > Support > Contact Service.

As part of making a claim, a purchaser shall return a defective product at the purchaser's cost, to the extent allowed by applicable law, along with proof of purchase and an explanation of the defect, date the defect occurred and circumstances surrounding the defect. For New Jersey there is no prohibition on returning a defective product at a purchaser's cost. If Grundfos is required by applicable State law to pay for the cost of shipment under applicable State law, then a purchaser should contact a Grundfos Authorized Service Partner to arrange for shipment. A purchaser also needs to promptly respond to Grundfos as to any inquiries regarding a warranty claim.

Grundfos' liability under this Limited Warranty to purchaser is limited to the repair or replacement of a product (at Grundfos' decision) that is the sole and exclusive remedy for purchaser to the extent permissible by applicable law. For New Jersey this limitation is permissible.

This warranty does not cover the following: ordinary wear and tear; use of a product for applications for which it is not intended; use of a product in an unsuitable environment; modifications, alterations or repair undertaken by anyone not acting with Grundfos' written authorization; failure to follow Grundfos' instructions, operations manuals, any other guidelines or good industry practice; use of faulty or inadequate ancillary equipment in combination with a product; application of spare or replacement parts not provided or authorized by Grundfos; accidental or intentional damage or misuse of a product.

The time period for making a claim under the implied warranty of merchantability and implied warranty of fitness are limited to the same time period as provided by this warranty to the extent permissible by applicable law. For residents of New Jersey, this limitation is permissible, but note that some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Grundfos shall not be liable for any incidental and consequential damages in connection with a product to the extent permissible by applicable law. For residents of New Jersey, this limitation is permissible, but note that some states do not allow limitations of incidental or consequential damages, so the above limitation may not apply to you.

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