

# UP(S) 15 circulators

With power cable and optional digital timer

Installation and operating instructions



# English (US) Installation and operating instructions

## Original installation and operating instructions

These installation and operating instructions describe Grundfos UP(S) 15 pumps with optional digital timer.

Sections 1-5 give the information necessary to be able to unpack, install and start up the product in a safe way.

Sections 6-12 give important information about the product, as well as information on service, fault finding and disposal of the product.

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



Successful operation depends on careful attention to the procedures described in this manual. Keep this manual for future use.

## 1. Limited warranty

Products manufactured by Grundfos Pumps Corporation (Grundfos) are warranted to the original user only to be free of defects in material and workmanship for a period of 24 months from date of installation, but not more than 30 months from date of manufacture. Grundfos' liability under this warranty shall be limited to repairing or replacing at Grundfos' option, without charge, F.O.B. Grundfos' factory or authorized service station, any product of Grundfos manufacture. Grundfos will not be liable for any costs of removal, installation, transportation, or any other charges that may arise in connection with a warranty claim.

Products which are sold, but not manufactured by Grundfos, are subject to the warranty provided by the manufacturer of said products and not by Grundfos' warranty.

Grundfos will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with Grundfos' printed installation and operating instructions and accepted codes of good practice. The warranty does not cover normal wear and tear.

To obtain service under this warranty, the defective product must be returned to the distributor or dealer of Grundfos' products from which it was purchased together with proof of purchase and installation date, failure date and supporting installation data. Unless otherwise provided, the distributor or dealer will contact Grundfos or an authorized service station for instructions. Any defective product to be returned to Grundfos or a service station must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Material Authorization must be included if so instructed.

Grundfos will not be liable for any incidental or consequential damages, losses, or expenses arising from installation, use, or any other causes. There are no express or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages and some jurisdictions do not allow

limitations on how long implied warranties may last. Therefore the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

Products which are repaired or replaced by Grundfos or authorized service center under the provisions of these limited warranty terms will continue to be covered by Grundfos warranty only through the remainder of the original warranty period set forth by the original purchase date.

## 2. General information

### 2.1 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 hazard

Consequence of ignoring the warning.  
- Action to avoid the hazard.

## 2.2 Notes

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

### 2.3 Target group



The use of this product requires experience with and knowledge of the product. Persons with reduced physical, sensory, or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety. Children must not use or play with this product.

## 3. Receiving the product

### 3.1 Inspecting the product

Check that the product received is in accordance with the order.

Ensure that the voltage and frequency of the product match the voltage and frequency of the installation site. See section [7.1 Nameplate](#) for information on the nameplate.

Examine the product to make sure no damage has occurred during shipment. Ensure the pump is not dropped or mishandled. Dropping the pump will damage it.

### 3.2 Scope of delivery

The box contains the following items:

- one Grundfos UP 15 circulator with power cable
- two gaskets
- one digital timer (optional)
- installation and operating instructions.

## 4. Installing the product

### WARNING

#### Electric shock

- Death or serious personal injury
- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be accidentally switched on.

### WARNING

#### Electric shock

- Death or serious personal injury
- For indoor use only.
  - This pump has not been investigated for use in swimming pool or marine areas.

### WARNING

#### Electric shock

- Death or serious personal injury
- Do not switch on the power supply until the product has been properly installed.

### WARNING

#### Electric shock

- Death or serious personal injury
- Ensure the pump's grounding conductor is connected only to a properly grounded grounding type receptacle.
  - For safe operation of this pump, it must be grounded in accordance with national, state, and local governing codes and regulations.

Before installation, review the installation procedures in this document to insure proper and safe installation. Failure to follow procedures described in this document could affect your warranty and cause property damage.

The operating voltage and other electrical data are marked on the motor label. Make sure that the motor is suitable for the electrical supply.

## 4.1 Mechanical installation

### 4.1.1 Pipe connections



When connecting pipes, be sure to follow the pipe manufacturer's recommendations and all code requirements for pipe material.



Do not use Teflon<sup>®</sup> tape or pipe joint compound, that is pipe dope, on the valve threads.

### 4.2 Pump mounting

Arrows on the side or bottom of the pump housing indicate the direction of flow through the pump.

Grundfos circulators can be installed in both vertical and horizontal lines. Install the pump with the motor shaft positioned horizontally. See fig. 1.



Do not install the pump with the motor shaft vertical or where the motor shaft falls below the horizontal plane.

We recommend installing isolating valves on either side of the pump. If possible, do not install elbows, branch tees and similar fittings directly before or after the pump. Provide support to the pump or adjacent pipe to reduce thermal and mechanical stress on the pump.



Fig. 1 Acceptable pump mounting positions

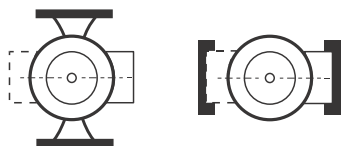
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#### 4.2.1 Installation requirements

1. Thoroughly clean and flush the system before installing the pump.
2. Do not install the pump at the lowest point of the system where dirt and sediment collect. If there are suspended particles in the water, we recommend installing a strainer and/or a filter. Be sure to clean these regularly.
3. Install a vent at the high point(s) of the system to remove air trapped in the system.
4. Ensure that water does not enter the terminal box during the installation process.
5. Open system: Install the pump in the supply line; the inlet side of the pump should be flooded with water. Ensure that the static head requirement from section 9.1.2 *Inlet pressure* is fulfilled.  
Closed system: Install a safety relief valve to protect against temperature and pressure build-up.

#### 4.2.2 Positioning the terminal box

Position the terminal box to one side of the pump or the other, with the conduit entry pointing down. See fig. 2.



**Fig. 2** Recommended terminal box orientation

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#### 4.2.3 Changing the terminal box position

If you must change the terminal box position, we recommend to do so before installing the pump.

If you change the terminal box position after the pump is installed, switch off the power supply and ensure that the power cable is unplugged. Close the isolating valves before removing the hex socket head screws on the pump.

1. While supporting the stator (motor), use a 4 mm or 5 mm wrench to remove the four (4) hex socket head screws from the pump housing and stator.
2. Carefully separate the stator from the pump housing and rotate it to the correct terminal box orientation and refit it.
3. Replace the hex socket head screws and tighten diagonally and evenly (7 ft.-lb. torque).
4. Check that the motor shaft turns freely. To do so, first remove the large screw in the middle of the nameplate, then insert a small flat blade screwdriver into the end of the shaft, and turn it gently. See fig. 2.

If the shaft does not turn easily, repeat the disassembly/reassembly process.



UPS 15-42 does not require manual turning of shaft.

### 4.3 Electrical installation

#### 4.3.1 Electrical requirements

The operating voltage and other electrical data are marked on the nameplate. Make sure that the motor is suitable for the electrical supply on which it will be used.

#### 4.3.2 Electrical connection

##### Without the optional timer

Insert the 115 V plug of the power cable from the pump into a properly grounded 115 V electrical outlet.

##### With the optional timer

If you use the optional timer, plug the timer into a 115 V electrical outlet. Plug the power cable of the pump into the timer outlet. Be sure to route the power cable, so that it does not touch the exhaust vent pipe of a gas- or oil-fired water heater.

## 5. Starting up the product

### 5.1 Setting the optional timer

#### DANGER

##### Electric shock

Death or serious personal injury

- Do not plug this timer into an extension cord.
- Always plug the 3-prong plug directly into a properly grounded outlet. Never attempt to defeat this safety feature.
- Do not use the timer to control devices that could have dangerous consequences due to inaccurate timing, such as sun lamps, sauna, heaters, and crock pots.
- Follow all local electrical codes during use.



There are no user serviceable parts inside.



Before initial use, plug the timer into an AC outlet for at least 30 minutes to charge the internal battery. If the display is not visible, press [RESET] to restart the timer and erase all settings and events. You may unplug the timer from the AC outlet for easier setting.

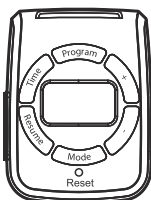


Fig. 3 Timer

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#### 5.1.1 Setting the time, date, DST (Daylight Savings Time), and region



When setting the timer, if you pause for more than 30 seconds, the timer will automatically return to normal time of day display.

1. Press [TIME]. A flashing 4-digit year appears.
2. Press [+] or [-] to set the current year and then press [TIME].
3. Press [+] or [-] to set the month ("01"=Jan, "12"=Dec) and then press [TIME].
4. Press [+] or [-] to set the day of the month.
5. Press [TIME] to set "DST" (Daylight Saving Time) function.
6. Press [+] or [-] to select "AUTO" (AUTO DST adjust enabled) or "OFF" (DST disabled).  
NOTE: DST enables the timer to automatically move ahead 1 hour on the second Sunday in March at 02:00 AM and then automatically adjust back 1 hour on the first Sunday in November at 02:00 AM.
7. Press [TIME]. The hour digit flashes.
8. Press [+] or [-] to set the current hour, then press [TIME]. The minute digit flashes.
9. Press [+] or [-] to set the minute, then press [TIME].
10. Press [+] or [-] to set your current zone. The map below will determine what zone the timer is being used in. Once the zone is selected, the timer will automatically set the sunrise and sunset time.



1. North
2. Central
3. South



Fig. 4 Zone selections

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Fig. 5 Zones map

11. Press [TIME] to access the "AM" sunrise time screen.
12. Press [+] or [-] to adjust ( $\pm 2$  hours) the sunrise operating time to match your local sunrise time. NOTE: Press [RESUME] to return to the original sunrise time.
13. Press [TIME] to access the "PM" sunset time screen.
14. Press [+] or [-] to adjust ( $\pm 2$  hours) the sunset operating time to match your local sunset time. NOTE: Press [RESUME] to return to the original sunset time.
15. Press [TIME] to return to the time (main) screen.



### 5.1.2 Setting/reviewing/changing the ON/OFF events

1. Press [PROGRAM] to access the ON/OFF event screens.
2. To set your timer the first time, go to step 4. You will be setting ON event # 1.
3. To review existing ON/OFF settings, repeatedly press [PROGRAM] to see up to seven ON/OFF event pairs. Dashes mean the displayed event is not set. To delete an unwanted event press [RESUME]. To change an event, go to step 4. To exit the event setting mode, press [MODE] once or press [PROGRAM] repeatedly until the event number disappears or wait 30 seconds for the timer to automatically return to the main screen.
4. If dashes are displayed, press [TIME] to change the dashes to an event with flashing day(s). Note that the events are numbered "1" through "7", "ON" or "OFF".

5. Press [+] or [-] to select the (flashing) day(s) on which the displayed event must run:
  - One day only:  
Select "MO" or "TU" or "WE" ... or "SU", etc.
  - Every day:  
Select "MO TU WE TH FR SA SU"
  - Weekdays only:  
Select "MO TU WE TH FR"
  - Weekend only:  
Select "SA SU"
6. Press [TIME] to make the hour digits flash. To set this event to occur at a specific time of day, skip to step 9. To set this event to happen at sunrise or sunset, proceed to step 7.
7. Press [+] or [-] to scroll to one of the 2 screens with moon and sun icons flashing and "AM" or "PM" flashing. The "AM" plus icons screen means this event will happen at sunrise. The "PM" plus icons means this event will happen at sunset.
8. Press [PROGRAM] to accept the sunrise/sunset setting and advance to the next event screen. To add more events, go back to step 4. If all desired events have been set, go to step 14.
9. Press [+] or [-] to scroll to the desired start hour for the event.
10. Press [TIME] to make the minute digits flash.
11. Press [+] or [-] to scroll to the desired start minute for the event.
12. Press [PROGRAM] to advance to the next event screen.
13. Repeat steps 4 through 13 until all desired ON/OFF events have been set.
14. Repeat step 3 to check all your settings and exit the event setting mode.

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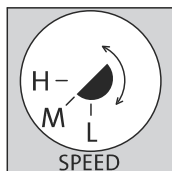
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### 5.1.3 Setting the timer operating mode

- Press [MODE] to scroll to the desired operating mode. See below for a description of each mode.
  - "ON": Manual ON mode is selected. The device will stay ON.
  - "AUTO ON": Automatic mode is selected and the device is ON. The device will stay ON until the next OFF event.
  - "RDM ON": Random mode is selected, and the device is ON. The device will stay ON until the next OFF event.  
NOTE: When "RDM" (random mode) is selected, the device will operate  $\pm$  30 minutes from the scheduled ON/OFF event settings to provide a lived-in look.
  - "OFF": Manual OFF mode is selected. The device will stay OFF.
  - "AUTO OFF": Automatic mode is selected, and the device is OFF. The device will stay OFF until the next ON event.
  - "RDM OFF": Random mode is selected, and the device is OFF. The device will stay OFF until the next ON event.
- Plug the pump into the timer.
- Plug the timer into the electrical outlet.

### 5.2 Changing pump speed

- Disconnect the power cable from power supply.
- Gently rotate the speed selector to the desired speed. See fig. 3.



- Changing pump speed

## 6. Product introduction

### 6.1 Intended use

This Grundfos UP(S) 15 pump is designed for domestic hot water recirculation.

Grundfos UP(S) Series 15 pumps are designed for indoor use only.

Grundfos UP(S)15 series pumps with stainless steel or bronze volutes can be used in both open and closed systems.

### 6.2 Pumped liquids/media

#### WARNING

##### Electric shock

Death or serious personal injury

- For indoor use only.
- This pump has not been investigated for use in swimming pool or marine areas.



#### WARNING

##### Fire or explosion hazard

Death or serious personal injury

- The pump must not be used for the transfer of flammable liquids such as diesel oil, gasoline, and similar liquids.



This Grundfos pump is intended for pumping clean, thin, non-aggressive and non-explosive liquids, not containing solid particles, fibers or mineral oils.

If required, a 50 % by volume solution of propylene glycol and water can be used; however, a psi decrease in pump performance may occur due to an increase in the viscosity of the solution. Contact manufacturer for information regarding suitability of the pump for pumping other liquids.

UP(S) Series 15 pumps are designed to circulate water from 36 to 230 °F (2 to 110 °C)\* up to a maximum pressure of 145 psi (10 bar).

##### \* Exceptions:

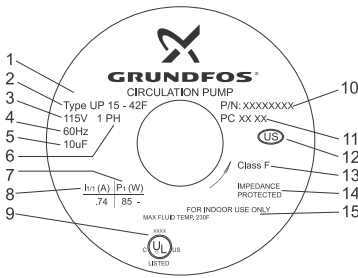
- Grundfos UPS 15-35, from 36 to 165 °F (2 to 73 °C).
- Grundfos UP(S) 15 pump with timer, maximum water temperature 150 °F (65 °C).

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## 7. Identification

### 7.1 Nameplate



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Fig. 1 Nameplate

Pos.	Description
1	Circulator
2	Pump type
3	Voltage
4	Frequency
5	Capacitor
6	Single-phase
7	Power
8	Current
9	Approval
10	Product number
11	Production code (year, week)
12	Country of origin
13	Insulation class
14	Impedance-protected
15	Maximum liquid temperature

### 7.2 Approvals



## 8. Servicing the product

### 8.1 Maintaining the product

Grundfos UP (S) 15 pumps are maintenance free. No service is required.

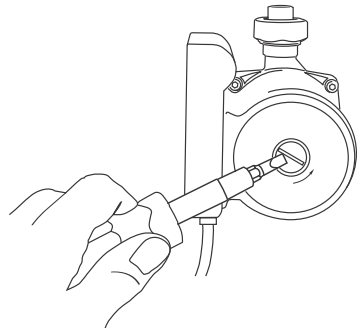
### 9. Fault finding the product

When the pump is first started, the shaft may rotate slowly until water has fully penetrated the bearings.

If the pump does not run, the shaft can be rotated manually. To accomplish this:

1. Switch off the power supply.
2. Close the isolating valves on either side of the pump.
3. Remove the large screw in the middle of the nameplate.
4. Insert a small flat-blade screwdriver into the end of the shaft, and gently turn it until the shaft moves freely. See fig. 2.
5. Replace and tighten the large screw.

Open the isolating valves and wait 2 to 3 minutes for the system pressure to equalize before starting the pump.



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Fig. 2 Rotating the shaft by hand

## 9.1 Operating conditions

### 9.1.1 Liquid temperature

#### For UP(S) Series 15 pumps with power cable only

The maximum allowable water temperature is determined by the ambient or surrounding air temperature as shown in this table:

Temperature [°F (°C)]					
<b>Ambient air</b>	95 (35)	130 (54)	140 (60)	160 (71)	175 (79)
<b>Water (max.)</b>	230 (110)	220 (104)	210 (98)	190 (87)	175 (79)

Although the pump is designed to operate at a maximum water temperature of 230 °F (110 °C), we recommend that you keep the operating temperature as low as possible (i.e. below 140 °F (60 °C) to avoid precipitation of calcium.

See exceptions in section [6.2 Pumped liquids/media](#).

### 9.1.2 Inlet pressure

The pressure required at the inlet of the pump is a function of the temperature of the water as shown in this table:

		[°F (°C)]		
<b>Water temperature</b>		<b>190 (87)</b>	<b>165 (73)</b>	<b>140 (60)</b>
<b>Required inlet pressure</b>	<b>[ft (m)]</b>	5.0 (1.5)	4.5 (1.4)	3.0 (0.9)
	<b>[psi (bar)]</b>	2.2 (0.15)	1.9 (0.13)	1.3 (0.09)

In a pressurized system, the required inlet pressure is the minimum allowable system pressure.

In an open system, the required inlet pressure is the minimum distance at which the pump must be located below the lowest possible water level of the water source (tank, etc.).

## 10. Disposing of the product

This product or parts of it must be disposed of in an environmentally sound way:

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](http://www.grundfos.com/product-recycling).

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