

# LiqTec, 115 VAC

Installation and operating instructions



Installation and operating instructions  
Other languages

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**GRUNDFOS** 

# English (US) Installation and operating instructions

## Original installation and operating instructions

These installation and operating instructions describe Grundfos LiqTec.

Sections 1-3 give the information necessary to be able to unpack, install the product in a safe way.

Sections 4-8 give important information about the product, as well as information on service, calibration 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.

## 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 which 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.

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 limit actions 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.

## 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 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.



Observe these instructions for explosion-proof products.



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



A red or grey 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.

## 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.

## SIGNAL WORD



#### Description of hazard

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

## 2. Receiving the product

On receipt of the product, do the following:

- Check that the product is as ordered.  
If the product is not as ordered, contact the supplier.
- Check that no visible parts have been damaged.  
If any visible parts have been damaged, contact the transport company.

3. Installing the product

WARNING

Electric shock

Death or serious personal injury

- Before starting any work on the product, make sure that the power supply has been switched off and that it cannot be accidentally switched on.
- Always use suitable insulated cables.
- The insulation between the cabinet and the product must have a suitable insulation resistance or the cabinet must be connected to protective earth.
- Ensure separation between power cables and sensor cables.



Before installation, check the following:

- LiqTec must be suitable for the supply voltage and frequency on the installation site.
- LiqTec has no damages from transportation.

The installation must be carried out by authorised persons in accordance with local regulations.

All safety regulations must be observed on the installation site.

3.1 Location

LiqTec is designed for indoor installation, but it can also be installed outdoor. The product must always be mounted in a suitable cabinet.

3.2 Enclosure class

In order to reduce the external pollution level to maximum 2, LiqTec must be installed in a protecting environment with minimum NEMA 1 enclosure according to IEC 60529. The cabinet must be of a flame-retardant material.

3.3 Mechanical installation

LiqTec can be fitted to a DIN rail. It must be built into a control cabinet.

See illustrations on page 7.

The LiqTec sensor has a 1/2 inch thread for mounting it into the pump. The sensor must be mounted in an appropriate place where detection of dry run is required to protect for example a shaft seal.

3.4 Electrical connections

For an example of electrical connection, see page 8.

3.4.1 Inputs and outputs

Alarm/Run relay output:  
Potential-free changeover contact.  
Maximum contact load:  
250 V, 1 A, AC, inductive load.

The PTC and sensor input has an 11 V DC level.

The reset input has a 5 V DC level.

4. Product introduction

4.1 Product description

LiqTec protects the pump against dry-running and against too high liquid temperature  $266^{\circ}\text{F} \pm 9^{\circ}\text{F}$  ( $130^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ).

It can monitor the motor temperature if the PTC sensor in the motor has been connected.

It has a fail-safe design. If the sensor, sensor cable, electronic unit or power supply fails, the pump stops immediately.

4.2 Intended use

WARNING

Product failure

Death or serious personal injury

- The function of the LiqTec unit is impaired if the unit is not installed as described, and if peripheral components other than those described in these Installation and operating instructions are connected to the LiqTec unit.

LiqTec is used to handle internal and external signals from pumps, sensors and controls. The LiqTec sensor has potential free alarm- and operating relays to stop the pump in case it detects a situation that requires it to stop.

4.3 Identification

4.3.1 Nameplate

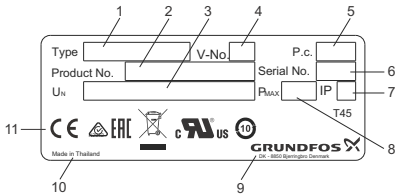


Fig. 1 Nameplate

Pos.	Description
1	Type designation
2	Product number
3	Permissible supply voltage, frequency and maximum power consumption
4	Version number
5	Production code (year, week)
6	Serial number
7	Ingress protection
8	Power consumption
9	Manufacturer
10	Production site
11	Approvals and markings

## 5. Control functions



### WARNING

#### Flammable material

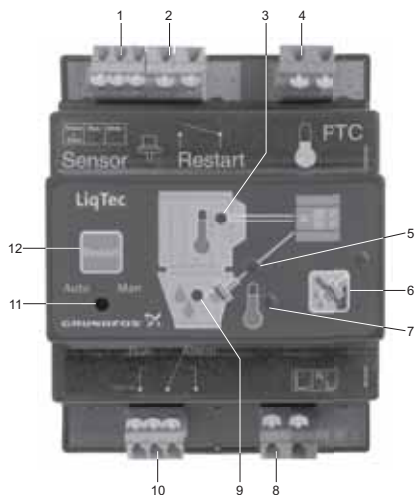
- Death or serious personal injury
- Use flame-retardant enclosure.

### WARNING



#### Electric shock

- Death or serious personal injury
- Always install the product in a suitable cabinet.



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- 1. Connection for dry-running sensor**  
Service number of dry-running sensor: 96556427.
- 2. Connection for external restarting**
- 3. Motor PTC**  
Green light indicates OK or short-circuited terminals.  
Red light indicates too high motor temperature.  
The alarm relay is activated.
- 4. Connection for PTC sensor**  
A PTC sensor according to DIN 44082 can be connected to this terminal.  
If the PTC sensor is not used, the terminals must be short-circuited.
- 5. Sensor indicator light**  
Red light indicates a defective sensor or cable.  
The alarm relay is activated.
- 6. Deactivation of the dry-running monitoring function**  
Press the button to deactivate the dry-running monitoring function. Red flashing light. The PTC monitoring function is still active.  
Press the Restart button to reactivate the dry-running monitoring function.

- 7. High liquid temperature indicator light**  
Red light indicates too high liquid temperature  $266\text{ }^{\circ}\text{F} \pm 9\text{ }^{\circ}\text{F}$  ( $130\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ ).  
The alarm relay is activated.
- 8. Supply voltage**
- 9. Dry-running indicator light**  
Green light indicates OK (liquid in pump).  
Red light indicates dry running (no liquid in pump).  
The alarm relay is activated.
- 10. Alarm/Run relay output**
- 11. Auto/Man**  
Changeover between automatic and manual restarting.  
The default setting is **Man**.  
Changeover is carried out by means of a small screwdriver.  
When **Auto** has been selected, the alarm indication will automatically be reset 10 to 20 seconds after liquid detection.
- 12. Restart**  
Press the button to restart the pump. The button has no influence on the PTC monitoring.

5.1 Calibration of sensor and LiqTec

Step	Action	Result
1	Check if the sensor is correctly connected to LiqTec, see page 8.	
2	Before fitting the sensor in the pump, submerge the sensor into stagnant water. Any kind of container with water can be used. It is important that the water is stagnant as the calibration will be misleading if the sensor is cooled by flowing water.	
3	Keep the buttons, pos. 6 and 12, pressed for approximately 20 seconds.	All red indicator lights, except pos. 7, start flashing.
4	When the green indicator lights, pos. 3 and 9, are permanently on, stop pressing the buttons, pos. 6 and 12.	The calibration is completed.

6. Servicing the product

The product cannot be repaired. It must be replaced with a new one. Contact Grundfos.

7. Technical data

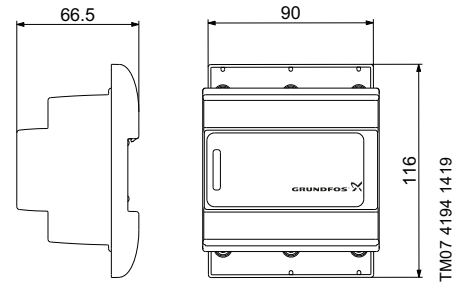


Fig. 2 Dimensions for LiqTec

Supply voltage

115 VAC, 50/60 Hz.

Information related to IEC 61010-1

- Software class A.
- Pollution degree 2.
- Type 1.

LiqTec has been cURus approved according to UL 508.

LiqTec

Maximum ambient temperature: +131 °F (+55 °C).

Power consumption: 12 VA.

Enclosure class: NEMA 1.

Sensor

- Maximum pressure: 580 psi (40 bar).
- Maximum liquid temperature: +266 °F (+130 °C).
- Maximum cable length: 20 metres.
- Standard cable: 5 metres.
- Extension cable: 15 metres.
- Product number: 96443676.

Alarm/Run relay output

- Potential-free changeover contact.
- Maximum contact load: 250 V, 1 A, AC (inductive load).

Terminals

All terminals are suitable for conductors of 0.5 to 2.5 mm<sup>2</sup> or AWG 20-13.

Cables

All cables must be rated minimum 70 °C.

Supply fuse

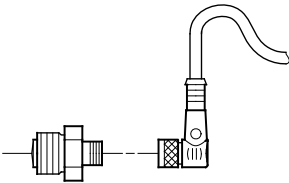
Maximum 8 A.

8. Disposing of the product

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

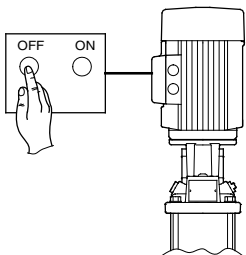
1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

See also end-of-life information at [www.grundfos.com/product-recycling](http://www.grundfos.com/product-recycling).



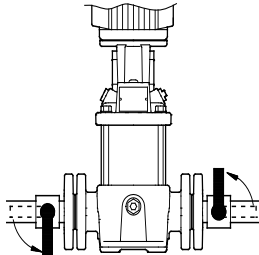
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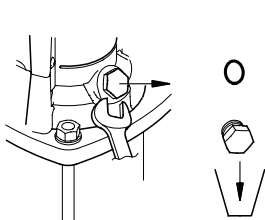
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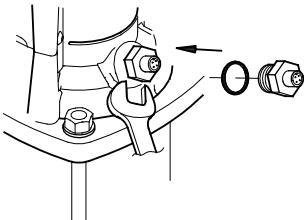
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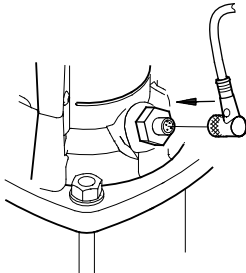
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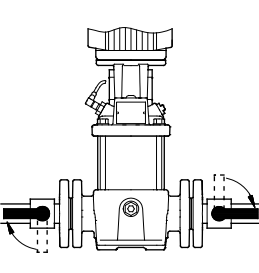
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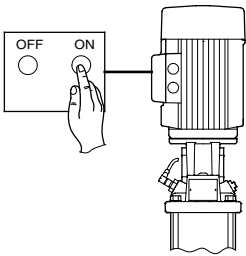
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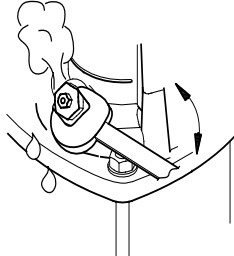
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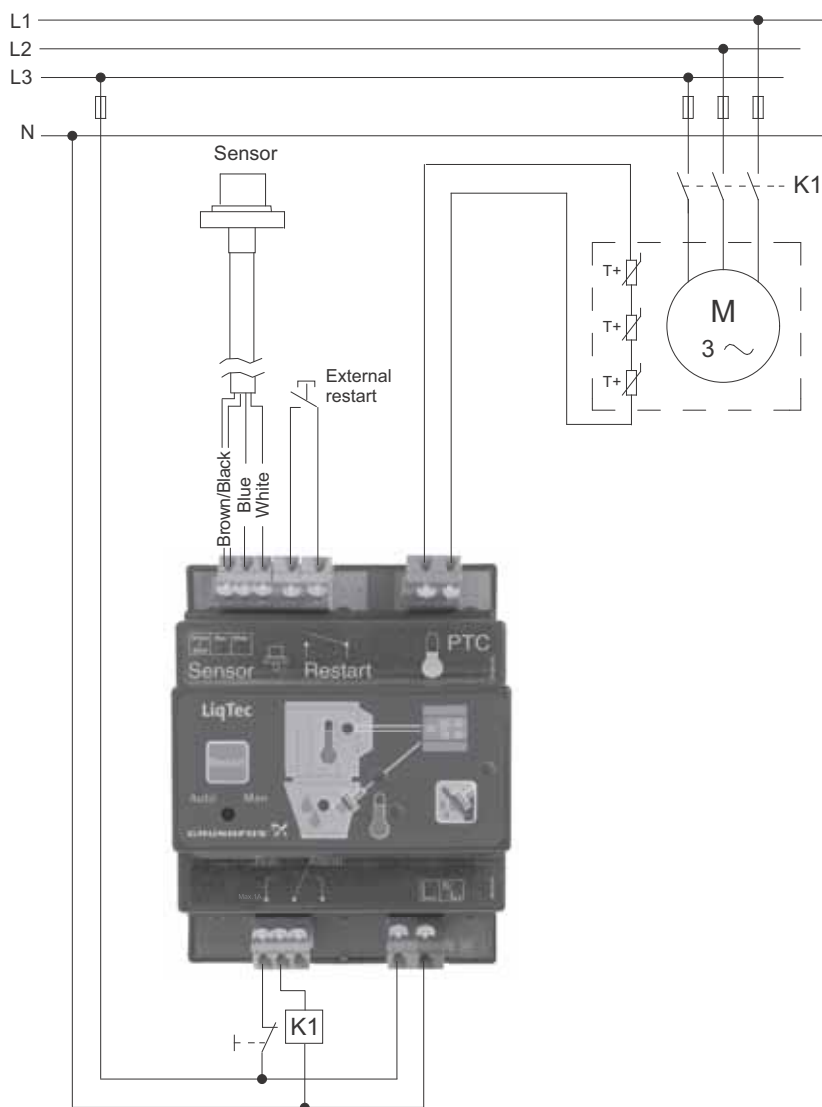


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**GRUNDFOS Kansas City**

9300 Loiret Blvd.  
Lenexa, Kansas 66219  
Phone: (913) 227-3400  
Fax: (913) 227-3500

[www.grundfos.us](http://www.grundfos.us)

**GRUNDFOS Canada**

2941 Brighton Road  
Oakville, Ontario L6H 6C9 Canada  
Phone: +1-905 829 9533  
Telefax: +1-905 829 9512

[www.grundfos.ca](http://www.grundfos.ca)

**GRUNDFOS México**

Boulevard TLC No. 15  
Parque Industrial Stiva Aeropuerto  
C.P. 66600 Apodaca, N.L. México  
Phone: 011-52-81-8144 4000  
Fax: 011-52-81-8144 4010

[www.grundfos.mx](http://www.grundfos.mx)

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