

Wilo DrainAlarm/DrainAlarm FIRST



en Installation and operating instructions



DrainAlarm/DrainAlarm FIRST
<https://qr.wilo.com/1155>

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1 General

1.1 About these instructions

These instructions form part of the product. Compliance with the instructions is essential for correct handling and use:

- Read the instructions carefully before all activities.
- Keep the instructions in an accessible place at all times.
- Observe all product specifications.
- Observe the markings on the product.

The language of the original operating instructions is German. All other languages of these instructions are translations of the original operating instructions.

1.2 Copyright

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1.3 Subject to change

Wilo shall reserve the right to change the listed data without notice and shall not be liable for technical inaccuracies and/or omissions. The illustrations used may differ from the original and are intended as an exemplary representation of the product.

1.4 Exclusion from warranty and liability

Wilo shall specifically not assume any warranty or liability in the following cases:

- Inadequate configuration due to inadequate or incorrect instructions by the operator or the client
- Non-compliance with these instructions
- Improper use
- Incorrect storage or transport
- Incorrect installation or dismantling
- Insufficient maintenance
- Unauthorised repairs
- Inadequate construction site
- Chemical, electrical or electrochemical influences
- Wear

2 Safety

This chapter contains basic information for the individual phases of the life cycle. Failure to observe this information carries the following risks:

- Risk of personal injury from electrical, electromagnetic or mechanical influences
- Environmental damage from discharge of hazardous substances
- Damage to property
- Failure of important functions

Failure to observe the information contained herein will result in the loss of claims for damages.

The instructions and safety instructions in the other chapters must also be observed!

2.1 Identification of safety instructions

These installation and operating instructions set out safety instructions for preventing personal injury and damage to property, which are displayed in different ways:

- Safety instructions relating to personal injury start with a signal word and are **preceded by a corresponding symbol**.



DANGER

Type and source of the danger!

Consequences of the danger and instructions for avoidance.

- Safety instructions relating to property damage start with a signal word and are displayed **without** a symbol.

CAUTION

Type and source of the danger!

Consequences or information.

Signal words

- **Danger!**
Failure to observe safety instructions will result in serious injury or death!
- **Warning!**
Failure to follow instructions can lead to (serious) injury!
- **Caution!**
Failure to follow instructions can lead to property damage and possible total loss.
- **Notice!**
Useful information on handling the product

Markups

- ✓ Prerequisite
- 1. Work step/list
 - ⇒ Notice/instructions
 - ▶ Result

Symbols

These instructions use the following symbols:



Danger of electric voltage



Danger – explosive atmosphere



Useful information

2.2 Personnel qualifications

- Personnel have been instructed on locally applicable regulations governing accident prevention.
- Personnel have read and understood the installation and operating instructions.
- Electrical work: qualified electrician
Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Installation/dismantling work: qualified electrician
Knowledge regarding tools and fixation material for various structures
- Operation/control: Operating personnel, instructed in the functioning of the complete system

2.3 Electrical work

- Electrical work must be carried out by a qualified electrician.
- Before commencing work, disconnect the product from the mains supply and disconnect the battery.
- Secure the product against unauthorised restarting.
- Observe applicable local regulations when connecting to the mains power supply.
- Comply with the requirements of the local energy supply company.
- Earth the product.
- Observe technical information.
- Replace defective connection cables immediately.

2.4 Monitoring devices

Secure the 2-pole circuit breaker in accordance with the local regulations:

- Max. rated current: 10 A
- Switching characteristic: B

2.5 Installing/dismantling

- Observe the laws and regulations on workplace safety and accident prevention in force at the site.
- Suitable fixation material must be used for the existing bearing surface.
- The product is not watertight. Select an appropriate installation site!
- Do not deform the housing during installation. Seals could leak and affect the stated IP protection class.
- The product may **not** be installed in potentially explosive areas.

2.6 During operation

- The product is not watertight. Comply with the protection class.
- Ambient temperature: -20 to $+50$ °C
- Relative humidity: 40 to 50 %.
- Maximum humidity: 90 %, non-condensing.
- Do not open the switchgear.
- The transformer heats up to **70 °C**.
- The operator must immediately notify the person in charge of every fault or irregularity.
- In case of damage to the product or connection cable, switch off the product immediately.

2.7 Maintenance tasks

- Do not use any aggressive cleaners or scouring agents or fluids.
- The product is not watertight. Do not submerge the product in fluids.
- Only perform the maintenance work described in these installation and operating instructions.
- Use only original parts of the manufacturer for repairs. The use of any non-original parts releases the manufacturer from any liability.

2.8 Operator responsibilities

- Provide installation and operating instructions in a language which the personnel can understand.
- Make sure that the personnel has had the corresponding training for the specified work.
- Safety and information signs mounted on the device must always be legible.
- Train the personnel on how the system operates.
- Eliminate risk from electrical current.
- To ensure safe working practice, define personnel responsibilities.

Children and persons younger than 16 years or with reduced physical, sensory or mental capacities or limited experience are prohibited from handling the product! A technician must supervise persons younger than 18 years!

3 Application/use

3.1 Intended use

- Monitoring a fill level in a tank.
Optical and acoustic alarm signal if the monitored fill level is too low or high.

Intended use also includes observance of these instructions. Any other use is regarded as improper.

3.2 Improper use

- Level-dependent control of pumps
- Direct connection and operation of pumps
- Installation within hazardous areas
- Overflow of the switchgear

4 Product description

4.1 Structure

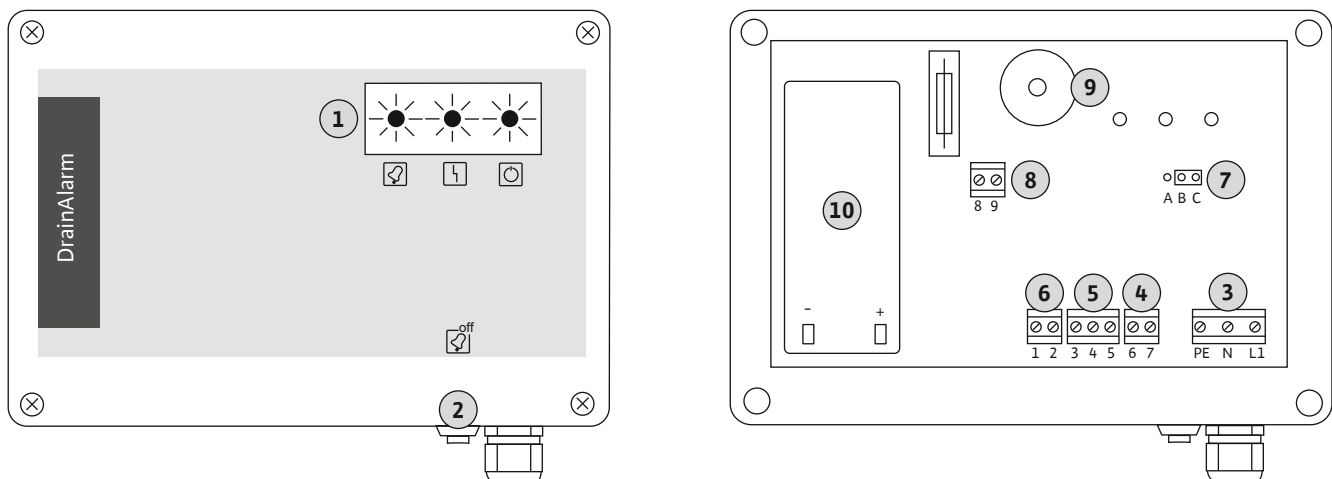


Fig. 1: Operating elements and set-up

Operating elements

1	LEDs
2	Buttons for alarm acknowledgement

Components

3	Terminals for mains connection
4	Terminals for level measurement and alarm signals
5	Terminals for external alarm signals, potential-free connection
6	Terminals for external alarm signals, connection not potential-free (only DrainAlarm)
7	Jumper for defining operation of the alarm input
8	Terminals for external alarm acknowledgement (remote control)
9	Buzzer
10	Battery 12 V/1.2 AH, lead gel (only DrainAlarm)

4.2 Information about “DrainAlarm GSM” switchgear

The “DrainAlarm GSM” switchgear is no longer available. These installation and operating instructions do not therefore contain any information about this switchgear.

For information about the “DrainAlarm GSM” switchgear, please refer to the relevant installation and operating instructions with article number 2527912.

4.3 Technical data

Date of manufacture*	See rating plate
Mains connection	1~230 V, 50/60 Hz
Mains frequency	50/60 Hz
Ambient/operating temperature	-20 to 50 °C
Storage temperature	-20 to 50 °C
Max. relative humidity	90 %, non-condensing
Protection class	IP54
Electrical safety	Pollution degree II
Housing material	Polycarbonate
Max. load of alarm output, not potential-free	12 V=, 350 mA
Max. switching capacity of alarm output, potential-free	250 V~/V=, 4 A

*The date of manufacture is stated in accordance with ISO 8601: JJJJWww

- JJJJ = year
- W = abbreviation for week
- ww = calendar week

4.4 Inputs and outputs

	DrainAlarm FIRST	DrainAlarm
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Inputs

Alarm input for level measurement with float switch	1	1
External buttons for alarm acknowledgement	1	1

Outputs

Alarm output, not potential-free	-	1
Alarm output, potential-free	1	1

4.5 Functions

	DrainAlarm FIRST	DrainAlarm
Buzzer	•	•
Rechargeable battery	–	•
Monitoring of mains voltage	–	•

Key

• = available, – = not available

4.6 Installation in potentially explosive atmospheres

The switchgear does not have its own explosion protection class. **Do not** install the switchgear in potentially explosive areas!

4.7 Scope of delivery

DrainAlarm FIRST

- Switchgear with attached connection cable with CEE7/7 plug
- 2x threaded cable glands M16x1.5
- Installation and operating instructions

DrainAlarm

- Switchgear with attached connection cable with CEE7/7 plug
- Battery – installed, not connected
- 2x threaded cable glands M16x1.5
- Installation and operating instructions

5 Transportation and storage

5.1 Delivery

- After delivery, check product and packaging for defects (damage, completeness).
- Defects must be noted on the freight documentation.
- Defects must be notified to the transport company or the manufacturer on the day of receipt of shipment. Claims cannot be asserted if the notification of defects takes place at a later date.


5.2 Storage

- Clean switchgear.
- Pack the switchgear in dustproof and watertight packaging.
- Maximum storage conditions: –20 to 60 °C, max. relative humidity: 90 %, non-condensing.
- Recommended storage conditions: 10 to 25 °C, relative humidity: 40 to 50 %.
- Avoid the formation of condensation at all times.
- Seal all threaded cable glands.
- Protect attached cables against kinking, damage and ingress of moisture.
- Protect from direct sunlight and heat. Extremely high temperatures can damage the electronic components.
- If there is moisture (water ingress or formation of condensation) in the switchgear, ask customer service to check it to ensure that it is functioning correctly.
- **DrainAlarm switchgear:** Disconnect battery!
 - Remove the blade connector at the plus contact (+) of the battery.
 - Insulate the plus contact (+) on the battery with the grommet provided!

5.3 Transport

CAUTION! Wet packaging may tear. If unprotected, the product may fall on the ground and be irreparably damaged. Carefully lift wet packaging and replace it immediately!

- Clean switchgear.
- Seal the threaded cable glands.
- Pack in impact-resistant, dustproof and watertight packaging.
- Maximum storage conditions: –20 to 60 °C, max. relative humidity: 90 %, non-condensing.
- Protect attached cables against kinking, damage and ingress of moisture.
- **DrainAlarm switchgear:** Disconnect battery!
 - Remove the blade connector at the plus contact (+) of the battery.
 - Insulate the plus contact (+) on the battery with the grommet provided!

- 6 Installation**
- Check the switchgear for damage caused during transport. Do **not** install defective switchgears!
 - Observe the local guidelines for the design and operation of electronic controls.
- 6.1 Personnel qualifications**
- Electrical work: qualified electrician
Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
 - Installation/dismantling work: qualified electrician
Knowledge regarding tools and fixation material for various structures
- 6.2 Installation types**
- Wall fixation
- 6.3 Operator responsibilities**
- The installation location is clean, dry and free of vibration.
 - The installation location is overflow-proof.
 - The switchgear is not exposed to direct sunlight.
 - Installation location outside of potentially explosive atmospheres.
- 6.4 Installation**
- 

DANGER
Risk of explosion if the switchgear is installed in potentially explosive areas!
The switchgear does not have its own explosion protection class!
• Always install the switchgear outside hazardous areas.
- Float switches and external alarm signals (horn, flash light) should be provided by the customer.
 - Ensure that the following ambient conditions are adhered to:
 - Ambient/operating temperature: -20 to 50 °C
 - Relative humidity: 40 to 50 %
 - Max. relative humidity: 90 %, non-condensing
- 6.4.1 Basic advice on fixing the switchgear in place**
- Various structures can be used for installation (concrete wall, mounting rail, etc.). For this reason, the fixation material for the relevant construction must be provided by the customer and the following information must be observed:
- To prevent cracks in the masonry and chipping of the construction material, ensure sufficient clearance to the edge of the structure.
 - The depth of the borehole depends on the length of the screws. Drill the borehole approx. 5 mm deeper than the screw length.
 - Drilling dust impairs retention force. Always blow the borehole clean or vacuum it out.
 - Do not damage the housing during installation.
- 6.4.2 Installation of switchgear**
- Attach the switchgear to the wall with four screws and wall plugs:
- Max. screw diameter: 4 mm
 - Max. screw head diameter: 7 mm
 - ✓ The switchgear is disconnected from the mains supply and is voltage-free (**battery unplugged**).
 - ✓ There is a socket available within a radius of 1 m around the switchgear.
1. Mark the boreholes at the installation site. Refer to the dimensional specifications on the housing bottom.
 2. Drill and clean the mounting holes in accordance with the specifications of the fixation material.
 3. Loosen the screws at the cover and remove the cover.
 4. Attach the lower part to the wall with the fixation material.
Check the lower part for deformations! Realign deformed housing (e.g. by placing alignment plates below it) to ensure the housing cover closes securely. **NOTICE! If the cover does not close correctly, the protection class is compromised!**
 5. Put the cover back on and secure it.
 - ▶ Switchgear installed. Next steps: Connect the power supply and signal transmitter.
- 6.4.3 Fill level monitoring**
- Connect a float switch to monitor the fill level. The switch contact of the float switch can act as an NO contact or an NC contact. An alarm signal works with a closed contact according to the factory setting. An alarm signal can also work with an open contact.

Install the float switch according to the installation plan of the unit. Observe the following points:

- The float switch can move freely in the operating space (pump chamber, tank).
- Check contact type (NO contact or NC contact).
- Check “top” and “bottom” switching point.

6.5 Electrical connection



DANGER

Risk of fatal injury due to electrical current!

Improper conduct when carrying out electrical work can lead to death due to electric shock!

- Before all electrical work, disconnect the product from the mains and secure it against being switched on again without authorisation.
- Disconnect the battery and insulate the plus contact.
- Electrical work must be carried out by a qualified electrician!
- Observe local regulations!



DANGER

Risk of explosion due to incorrect connection!

If the connected float switch is installed within a hazardous area (ex-zone), there is a risk of explosion if the connection is faulty!

- Connect the float switch using an Ex cut-off relay!
- Connection must be carried out by a qualified electrician.



NOTICE

Finally, connect the mains connection and battery!

Once the mains connection is established or the battery is connected, the switchgear is in operation.

- First connect all inputs and outputs (float switch, alarm signal, etc.).
- Then connect the battery (only DrainAlarm)
- Establish the mains connection as a final step.

- The mains connection current and voltage must be as stated on the rating plate.
- Earth the switchgear – mains connection with correctly installed protective earth conductor.
- Fuse on mains side: max. 10 A.
- Use a circuit breaker with switching characteristic “B”.
- Provide a residual-current device (RCD) in accordance with the local guidelines.
- Route connection cable in accordance with the local guidelines.
- Be careful not to damage the connection cables (e.g. pulling or squeezing/crushing) when installing them.
- Seal unused threaded cable glands.

6.5.1 Alarm input connection

CAUTION

Property damage due to external voltage!

An external voltage which is applied destroys the component.

- Do not apply external voltage (connect potential-free).

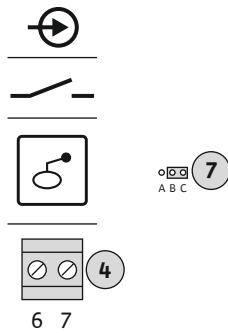


Fig. 2: Connection terminals

6.5.2 Alarm output connection (not potential-free, only DrainAlarm)

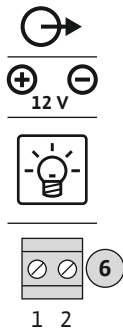


Fig. 3: Connection terminals

6.5.3 Alarm output connection (potential-free)

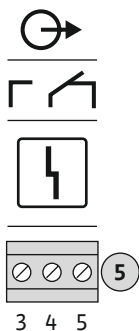


Fig. 4: Connection terminals

Connect a float switch for level monitoring at the alarm input. It is not possible to connect a level sensor or an electrode!

- Terminals: 6 and 7
- Contact type: Normally open contact
- Alarm signal: You can configure the operation of the alarm input via the jumper (see section "Structure [▶ 6]"):
 - Jumper on **B/C**: Alarm with **closed** contact (factory setting)
 - Jumper on **A/B**: Alarm with **open** contact

Insert the connection cable laid on-site through the threaded cable glands and secure. Connect the wires to the terminal strip according to the connection diagram.

CAUTION

Property damage due to external voltage!

An external voltage which is applied destroys the component.

- Do not apply external voltage (connect potential-free).

A DC voltage is applied to the alarm output when an alarm is triggered. This can be used to operate other alarm signals (horn, flashlight, etc.).

- Terminals: 1 (+) and 2 (-)
- Max. load: 12 V=, 350 mA

The battery provides the power supply for the alarm output. The maximum operating time of the alarm output is approx. 60 minutes, depending on the connected load. The power supply unit provides the power supply for the alarm output if the battery is drained. The battery meanwhile is charging at the same time.

Insert the connection cable laid on-site through the threaded cable glands and secure. Connect the wires to the terminal strip according to the connection diagram.



DANGER

Risk of fatal injury due to electrical current!

The external electrical power supply is also present at the terminals when the switchgear is switched off!

- Disconnect the external power supply before any work.

The alarm signal can be sent to external alarm signals or controls via a potential-free changeover contact.

- Terminals: 3/4 – NO contact (NO)
- Terminals: 4/5 – NC contact (NC)
- Max. switching capacity: 250 V AC/DC, 4 A

6.5.4 Connection of external buttons for alarm acknowledgement

CAUTION

Property damage due to external voltage!

An external voltage which is applied destroys the component.

- Do not apply external voltage (connect potential-free).




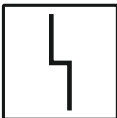

The switchgear is equipped with a button for the alarm acknowledgement. You can use this button to acknowledge all alarm signals. You can also use an external button to acknowledge alarms.

- Terminals: 8 and 9 (see section “Structure [▶ 6]”)
- Contact type: NO contact


Fig. 5: Connection terminals

7 Operation

7.1 LEDs

Display	LED	Colour	Description
Mains connection		Green	<p>LED lights up:</p> <ul style="list-style-type: none"> • Switchgear switched on • Fill level in normal range • Only DrainAlarm – battery is charging NOTICE! Charging time is approx. 100 hours for fully drained batteries. <p>LED off:</p> <ul style="list-style-type: none"> • Switchgear switched off • Mains voltage interrupted
Alarm input		Red	<p>LED lights up:</p> <ul style="list-style-type: none"> • Fill level outside normal range <p>LED off:</p> <ul style="list-style-type: none"> • Fill level in normal range
Alarm signal		Yellow	<p>LED lights up:</p> <ul style="list-style-type: none"> • Buzzer on • Alarm outputs activated <p>LED off:</p> <ul style="list-style-type: none"> • Alarm acknowledged • Buzzer off • Alarm outputs deactivated

7.2 Buttons

Function	Buttons	Description
Alarm acknowledgement		<p>By pressing the button, you acknowledge an active alarm:</p> <ul style="list-style-type: none"> • Switch off the buzzer • Deactivate alarm inputs

7.3 How it works

DrainAlarm FIRST – mains-dependent alarm signal

A fill level is recorded via a float switch at the alarm input. If the fill level is reached, an acoustic alarm signal is triggered via the integrated buzzer. Further signalling can also take place via the two alarm outputs:

- Alarm output, not potential-free: Normally open contact
To connect an alarm horn or light directly.
- Alarm output, potential-free: Changeover contact
To connect external alarm signals or existing controls.

Alarms can be acknowledged directly via the buttons on the switchgear. Alternatively, you can also use an external button to acknowledge alarms.

DrainAlarm – mains-independent alarm signal


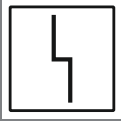

A fill level is recorded via a float switch at the alarm input. If the fill level is reached, an acoustic alarm signal is triggered via the integrated buzzer. Further signalling can also take place via the two alarm outputs:

- Alarm output, not potential-free: Normally open contact
To connect an alarm horn or light directly.
The alarm output is operated via the battery. If the mains connection fails, the alarm signal is maintained for approx. 60 minutes.
- Alarm output, potential-free: Changeover contact
To connect external alarm signals or existing controls.

Alarms can be acknowledged directly via the buttons on the switchgear. Alternatively, you can also use an external button to acknowledge alarms.

Furthermore, the mains connection is monitored. If the mains connection fails, this is signalled visually (LEDs) and an acoustic alarm signal is triggered via the integrated buzzer.

7.4 Display of the various operating statuses


Operating statuses	LEDs		
			
Normal operation	on	off	off
Alarm input active	on	on	on
Mains voltage interrupted	off	on	on
Alarm input active, alarm signal acknowledged	on	on	off

8 Commissioning

8.1 Operator responsibilities

- Provide installation and operating instructions at the switchgear or at a place specially reserved for it.
- Make the installation and operating instructions available in a language the personnel can understand.
- Make sure that the installation and operating instructions have been read and understood by all personnel.
- The installation site of the switchgear is flood-proof.
- The switchgear is properly fused and earthed.
- The signal transmitter must be installed and set in accordance with the system documentation.

8.2 Commissioning in explosive atmospheres



DANGER
Risk of explosion if the switchgear is installed in potentially explosive areas!
 The switchgear does not have its own explosion protection class!
 • Always install the switchgear outside hazardous areas.

8.3 Connection of signal transmitters within potentially explosive atmospheres



DANGER

Risk of explosion due to incorrect connection!

If the connected float switch is installed within a hazardous area (ex-zone), there is a risk of explosion if the connection is faulty!

- Connect the float switch using an Ex cut-off relay!
- Connection must be carried out by a qualified electrician.

8.4 Activating the device

In order to activate the switchgear, connect the battery and establish the mains connection.

Connect the battery (only DrainAlarm)

- ✓ Installation carried out correctly.
 - ✓ Alarm signal connected.
 - ✓ Float switch installed and connected.
 - ✓ Switching point set correctly.
1. Remove the housing cover.
 2. Remove the grommet from the plus contact (+) of the battery.
 3. Connect the blade connector to the plus contact (+) of the battery.
 4. Reattach the housing cover.
 - ⇒ Rechargeable battery installed.

Establish mains connection to the attached plug

The switchgear comes with a connection cable and an attached CEE7/7 plug as standard.

- ✓ Battery connected (only DrainAlarm).
 - ✓ Housing cover installed, switchgear closed.
 - ✓ Type “E” or “F” socket available.
1. Insert plug into socket.
 - ⇒ Switchgear starts. All LEDs light up for 2 s.
 2. LEDs show the current operating status.
 - ▶ Switchgear connected.

Establish the mains connection as a fixed connection

Alternatively, you can also disconnect the factory-installed connection cable and connect the switchgear to a sub-distribution.

- ✓ Battery connected (only DrainAlarm).
 - ✓ Mains isolator (e.g. main switch) available on-site.
 - ✓ Mains isolator switched off.
 - ✓ 3-wire connection cable available on-site.
1. Remove the housing cover.
 2. Disconnect pre-installed connection cable (see section “Structure [▶ 6]”).
 3. Connect the 3-wire connection cable to the terminal (L, N, PE).
 4. Reattach the housing cover.
 5. Switch on mains isolator.
 - ⇒ Switchgear starts. All LEDs light up for 2 s.
 6. LEDs show the current operating status.
 - ▶ Switchgear connected.



Fig. 6: Terminals for mains connection

8.5 During operation

Make sure the following points are observed during operation:

- Keep the switchgear closed and secure it against unauthorised opening.
- Switchgear attached in a flood-proof manner (protection class IP54).
- Not exposed to direct sunlight.
- Ambient temperature: -20 to 50 °C.

NOTICE! The transformer in the switchgear can heat up to 70 °C during operation. The housing also heats up as a result.

9 Removal



DANGER

Risk of fatal injury due to electrical current!

Improper conduct when carrying out electrical work can lead to death due to electric shock!

- Before all electrical work, disconnect the product from the mains and secure it against being switched on again without authorisation.
- Disconnect the battery and insulate the plus contact.
- Electrical work must be carried out by a qualified electrician!
- Observe local regulations!

1. Disconnect the switchgear from the mains supply – remove the mains plug.
2. Remove the cover.
3. Remove the blade connector from the plus contact (+) of the battery.
4. Connect the grommet to the plus contact (+) of the battery.
5. Disconnect all connection cables and pull them out of the threaded cable glands.
6. Seal the threaded cable glands.
7. Loosen the fastening screws and remove the switchgear.
8. Put the cover back on and secure it.
 - ▶ Switchgear removed.

10 Maintenance

- Clean the switchgear with a damp cotton cloth on a regular basis.
- Do not use aggressive or abrasive cleaners!

11 Disposal

11.1 Rechargeable battery

Do not dispose of rechargeable batteries in domestic waste and remove them before product disposal. End consumers are legally obliged to return all used rechargeable batteries. For this purpose, you can return used rechargeable batteries free of charge at municipal collection points or specialist retailers.



NOTICE

Disposal in domestic waste is prohibited!

Affected rechargeable batteries are marked with this symbol. The identifier for the heavy metal they contain is displayed beneath the graphic:

- **Hg** (mercury)
- **Pb** (lead)
- **Cd** (cadmium)

11.2 Information on the collection of used electrical and electronic products

Proper disposal and appropriate recycling of this product prevents damage to the environment and danger to your personal health.



NOTICE

Disposal in domestic waste is prohibited!

In the European Union this symbol may be included on the product, the packaging or the accompanying documentation. It means that the electrical and electronic products in question must not be disposed of along with domestic waste.

To ensure proper handling, recycling and disposal of the used products in question, please note the following points:

- Hand over these products at designated, certified collection points only.
- Observe the locally applicable regulations!

Please consult your local municipality, the nearest waste disposal site, or the dealer who sold the product to you for information on proper disposal. See www.wilo-recycling.com for more information about recycling.







wilo



Local contact at
www.wilo.com/contact

Pioneering for You

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