CU 241

Dual pump unit

Installation and operating instructions

CU 241 dual pump unit
Installation and operating instructions
Other languages
http://net.grundfos.com/qr/i/99506145

GRUNDFOS

CU 241

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English (GB) Installation and operating instructions

Original installation and operating instructions

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1. General information

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.

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.

2. Installing the product

2.1 Location

Install the product in a location that meets the following requirements:

- Place the product in a flood-safe place.
- Make sure that the ambient temperature is within the limits.
- Install the product as close as possible to the connected pumps, sensors, and accessories.
- The product must be protected from direct sunlight.
- The product must be easily accessible.
- We recommend that you install the product in a protective shed or enclosure to avoid direct sunlight and rain.
- Indoor installation: The product must be installed in a well-ventilated room to ensure cooling of its components.

2.2 Mechanical installation

2.2.1 Mounting the control unit

1. Fasten the control unit with the four screws (1), M4 x 12, supplied with the unit. Torque value: 0.5 Nm.
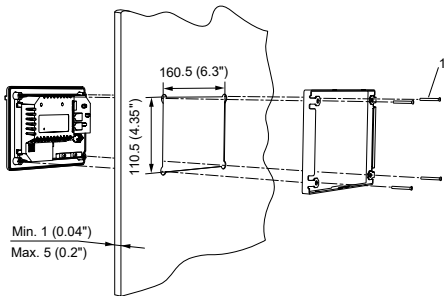
Mounting the control unit

Related information

2.2.2 Installing a communication interface module

You can fit a communication interface module (CIM) in the control unit to enable communication with external systems. The module is optional and is not delivered with the product. See the installation and operating instruction for the module regarding electrical connections.

❗ Use an antistatic service kit when handling electronic components. This prevents static electricity from damaging the components.

1. Remove the screw in the back cover of the CU product.
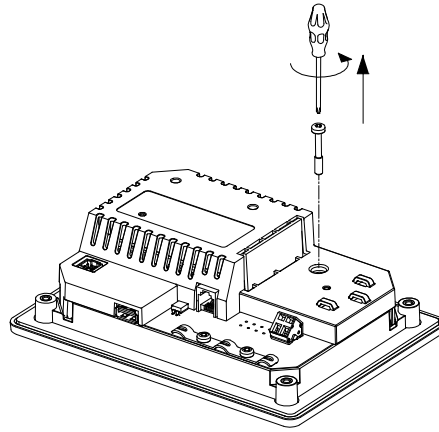
2. Remove the back cover.
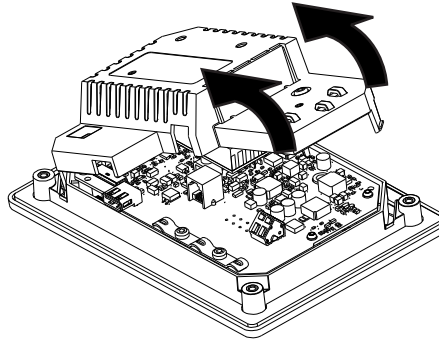
3. Break off the tap.
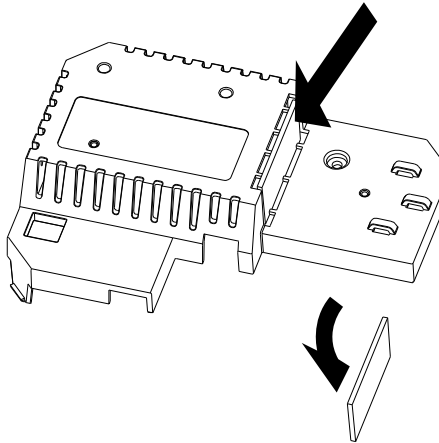
4. Fit the CIM module.
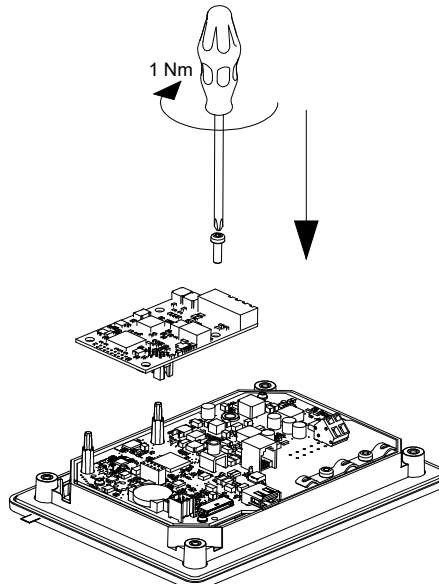
5. If supplied, place the labels on the back cover.
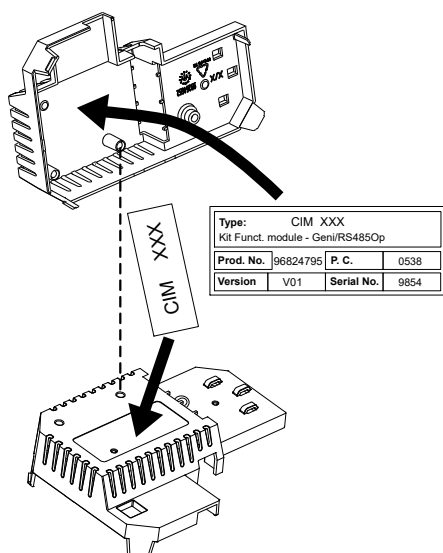
6. Refit the back cover to the CU product and secure it with the mounting screw. Secure cables using the cable tie holders.
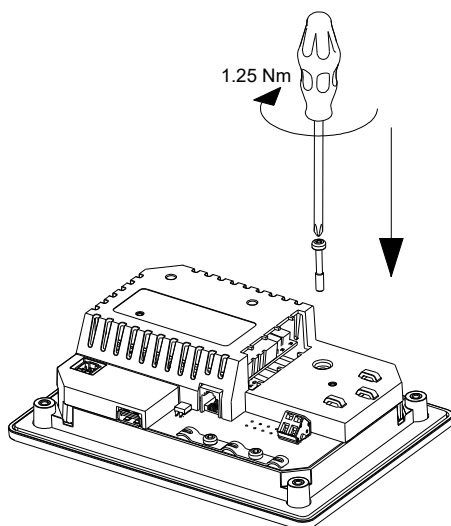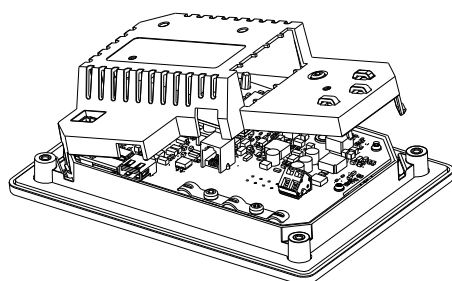
2.3 Electrical connection

2.3.1 Connecting the power supply

! Changes or modifications not expressly approved by Grundfos may void the user's authority to operate the equipment.

1. Check that the supply voltage corresponds with the needed 24 VDC, and ensure that the polarity is connected correctly according to the label on the product itself.

2. Tighten the terminal screws to 0.5 Nm.
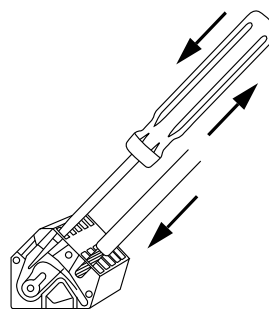
Connecting a wire to a terminal with spring clamps

3. Starting up the product

3.1 Connecting to Grundfos GO Remote

Before connecting the product to Grundfos GO Remote, the Grundfos GO Remote app must be downloaded to your smartphone or tablet. The app is free of charge and available for iOS and Android devices.

1. Open Grundfos GO Remote on your device. Make sure that Bluetooth is enabled.

   Your device must be within reach of the product to establish Bluetooth connection.

2. Press the Bluetooth **CONNECT** button on Grundfos GO Remote.

3. Press the connect button on the operating panel. The blue LED above the connect button is flashing until your device is connected. Once the connection is established, the LED will be permanently on.

   Grundfos GO Remote is now loading the data for the product.

Related information

3.4 How to enable Bluetooth on the operating panel

3.5 How to disable Bluetooth on the operating panel

3.2 Startup wizard on Grundfos GO Remote

The product is designed for Bluetooth communication with Grundfos GO Remote.

Once you have connected your product to Grundfos GO Remote, a startup wizard appears. Follow the instructions to make your settings.

Grundfos GO Remote enables you to set functions and gives you access to status overviews, technical product information and current operating parameters.

Related information

8.2 Replacing the control unit

3.3 Startup wizard on the operating panel

The first time the control unit is switched on, a startup wizard will guide you through the basic settings. You can select the sensor type and sensor levels. For some products, you can also set the nominal pump current and number of phases.

If you have an analog sensor, select **S-1** and set the height of the different levels, from dry running to high level.

If you have a digital sensor, select **S-2** and enable or disable the dry-running level, the start level for pump 2, if available and the high level.

To change settings, use the **Up** and **Down** buttons on the operating panel.

Use the **OK** button to confirm each setting and navigate to the next setting.
For filling applications, you must use Grundfos GO Remote. Units can only be changed with Grundfos GO Remote.

Designation	Description
S-1	Analog sensor
S-2	Digital sensor

3.4 How to enable Bluetooth on the operating panel

If the Bluetooth signal on the operating panel has been disabled for some reason, you are not able to connect with Grundfos GO Remote. You must enable Bluetooth first.

1. Press and hold the connect button on the operating panel for 15 seconds. Wait for the blue LED to light up.

2. Press the Bluetooth **CONNECT** button on Grundfos GO Remote.

3. Press the connect button on the operating panel. The blue LED above the connect button is flashing blue until your device is connected.
   Grundfos GO Remote is now loading the data for the product.

3.5 How to disable Bluetooth on the operating panel

In some installation areas, it is not allowed to have a Bluetooth signal enabled during operation. After installation, the Bluetooth signal must be disabled manually.

1. Press and hold the connect button on the operating panel for 15 seconds. Wait for the blue LED to switch off.
   Grundfos GO Remote is no longer connected to the product.

3.6 Testing the product

When you have made all the electrical installations and completed the startup wizard, you can test the system.

For emptying applications:

- Fill the pit with water and check that the pump starts automatically at the defined level.

- Test the dry-running function by starting the pump manually and wait while the pit with the pump is emptied. Check that the control unit indicates an alarm and stops the pump when the defined level is reached.

- Test the high-level function by stopping the pump manually and continue to fill the pit with water. Check that the control unit indicates an alarm when the defined level is reached. Set the pump to **Auto** and observe that the pump starts and stops when the stop level has been reached.

For filling applications:

- Start by draining the tank to be filled. When the tank is empty and the start level is reached, the pump must start. When the tank is full and the stop level is reached, the pump must stop.

- Test the high-level function by stopping the pump manually and continue to fill the tank without the pump with water. Check that the control unit indicates an alarm when the defined level is reached.

- Test the dry-running function by starting the pump manually and wait while the tank with the pump is emptied. Check that the control unit indicates an alarm and stops the pump when the defined level is reached. If the pump is placed in a well, this test may not be possible since the pump cannot empty the well. Alternatively, pull the dry-run level switch up to simulate a dry-run situation. The same can be done with a pressure level sensor.

4. Product introduction

4.1 Product description

The level-control unit switches the pump on and off according to the liquid level measured by float switches or a pressure sensor. When the start level is reached, the pump starts, and when the liquid level has been lowered to the stop level, the pump is stopped by the control unit. An alarm is indicated in case of for example high-water level in the tank or sensor failure.

Basic settings are configured via the operating panel and advanced settings are configured with Grundfos GO Remote. Furthermore, you can read important operating parameters with Grundfos GO Remote.

4.2 Intended use

The product is designed to control one pump or two pumps.

The product can be configured for two purposes: emptying a wastewater pit or filling a pit or tank. The product can be used for network pumping stations, main pumping stations, commercial buildings and municipal systems.

The control unit is only intended for use in control panels.

The product must not be exposed to aggressive solvents or oil-containing liquids.

4.3 Features

The control unit features among others the following functions:

- support of up to two pumps
- manual and automatic control of the pump
- Bluetooth pairing with Grundfos GO Remote
- operating indication, such as power on and pump running
- alarm and warning indication, such as power phase missing and high-water level
- motor and phase failure protection
- setting of stop delays matching the actual operating conditions
- automatic alternation of pumps.

4.4 Application types

You can choose between two application types:

- **Emptying**
- **Fill**.

You can set the application type with Grundfos GO Remote.

Emptying
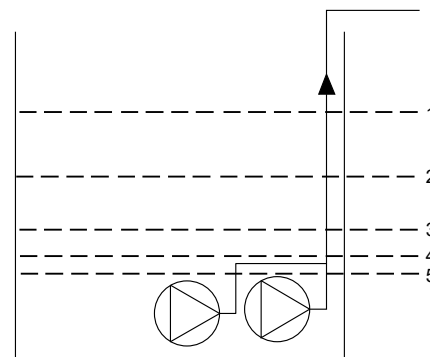
TM0713341

Pos.	Description
1	**High level**
2	**Start level P2**: start level for pump 2
3	**Start level P1**: start level for pump 1
4	**Stop level**
5	**Dry-running level**

The pump starts to empty the tank or well when **Start level P1** is reached.

A second pump starts when the liquid level reaches **Start level P2**.

The pump stops when the liquid level is lowered to **Stop level**.

If the inflow of liquid exceeds the capacity of the installed pump, the level in the tank or well starts to rise. Eventually, the **High level** sensor registers a high liquid level in the tank or well. If set, the signal from the **High level** sensor can be used to activate an output relay which can then be used to give a visual or acoustic alarm or send a signal to a SCADA system.

If the pump is running and the liquid level in the tank or well falls below the dry-running level, the dry-running protection stops the pump to ensure that it is not damaged mechanically.

Fill
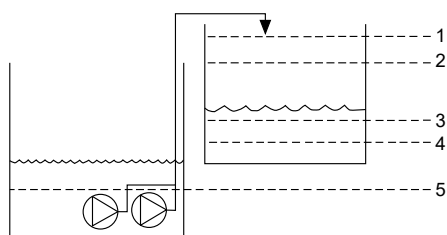
Pos.	Description
1	**High level**
2	**Stop level**
3	**Start level P1**: start level for pump 1
4	**Start level P2**: start level for pump 2
5	**Dry-running level**

In the filling application, the pump is installed in a tank or well from where it pumps the liquid. The liquid is pumped into a second tank where the level sensors are installed.

The pump starts to fill the second tank when **Start level P1** is reached.

A second pump starts when the liquid level reaches **Start level P2**.

The pump stops when the liquid level reaches **Stop level**.

If the pump for some reason does not stop at **Stop level** and the liquid level keeps rising, the **High level** sensor eventually registers this. If set, the signal from the **High level** sensor can be used to activate a relay output which can then be used to give a visual or acoustic alarm or send a signal to a SCADA system via a communication interface.

If the pump is running and the liquid level in the tank falls below the dry-running level, the dry-running protection stops the pump to ensure that it is not damaged.

Related information

7.1.2 Automatic operation

4.5 Terminals
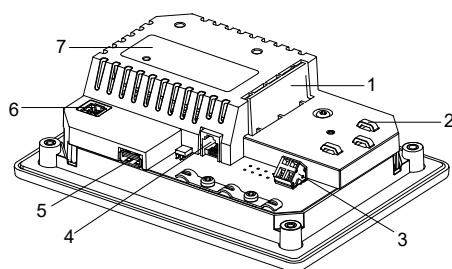
Pos.	Description
1	Terminal for a CIM module, optional
2	Cable tie holders
3	Terminal for the power supply
4	GENIbus, for internal use between modules
5	USB port
6	Service connection
7	Nameplate

4.6 Identification

4.6.1 Nameplate
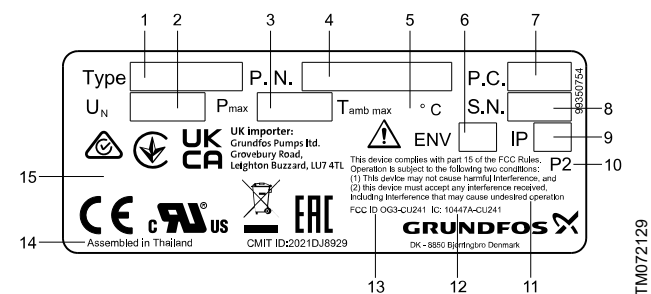
Pos.	Description
1	Product name
2	Supply voltage
3	Max. power consumption
4	Material number and version number
5	Max. ambient temperature
6	Enclosure type according to NEMA
7	Production code (year and week)
8	Serial number
9	Enclosure class according to IEC
10	Factory code
11	FCC text
12	IC
13	FCC ID
14	Production site
15	Markings and approvals

4.6.2 Type key for CU 241

Example	CU 241	1
Pos.	1	2

Pos.	Description
1	Type • CU 241
2	Number of pumps supported

4.7 Supported communication interface modules and protocols

The following Grundfos communication interface modules can be added to the product.

Communication interface module	Protocol
CIM 050	GENIbus
CIM 150	PROFIBUS DP
CIM 200	Modbus RTU
CIM 260	3G/4G
CIM 270*	GRM
CIM 280*	Grundfos Utility Connect
CIM 300	BACnet
CIM 500	Modbus TCP
	PROFINET IO
	GRM IP

*   Not supported.

5. Control functions

5.1 Operating panel
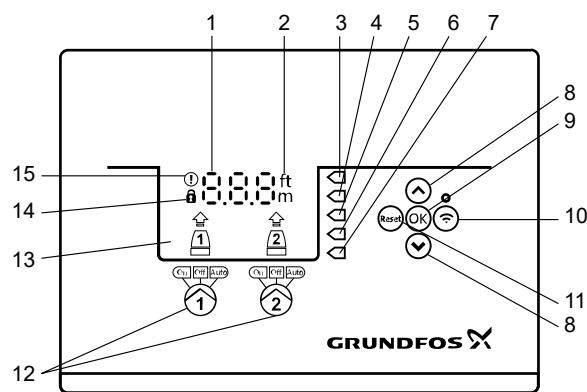
TM070082

Pos.	Symbol	Description
1	8.8.8	Display
2	ft m	Units
3	▱	High level
4	▱	Start level, pump 2
5	▱	Start level, pump 1
6	▱	Stop level, pump 1 and 2
7	▱	Dry-running level
8	⌃ ⌄	**Up/Down** buttons: • Press these buttons to navigate between submenus or change the value settings.
9	**OK**	**OK** button: • Press this button to save changed values.
10	📶	Connect button: • Press this button to connect the control unit to Grundfos GO Remote via Bluetooth.
11	**Reset**	**Reset** button: • Press this button during startup to reset settings and start over or to reset an alarm or warning.
12	On Off Auto	Operating mode for the pump: • On: The pump has been switched on manually. • Off: The pump has been switched off manually. • Auto: The pump is running automatically based on settings.
13	Display	The display shows the pump status.
14	🔒	Lock symbol: If the symbol is lit, the control unit is locked from making changes.
15	(!)	Alarm and warning symbol: Red: Alarm Yellow: Warning

The control unit enables manual setting and monitoring of the system.

6. Setting the product

> Make sure that all settings are entered according to the pump and system requirements to avoid malfunction.

6.1 Setting the application type with Grundfos GO Remote

1. Go to **Settings** > **Level control** > **Application type**.
2. Select the type.
   • **Empty**
   • **Fill**

6.2 Setting the sensor type

6.2.1 Setting the sensor type with Grundfos GO Remote

1. Go to **Settings** > **Level control** > **Sensor type**.
2. Select the type.
   • **Analog sensors**
   • **Digital sensors**

6.2.2 Setting the sensor type with the operating panel

1. Press and hold **OK** until **S-1** or **S-2** starts flashing.
2. Select the sensor type using the **Up** and **Down** buttons.
   • **S-1**: **Analog sensors**
   • **S-2**: **Digital sensors**.
3. Press **OK** to confirm the setting.
4. Continuously press **OK** to confirm all other settings and to exit the setup.

6.3 Setting the start level

6.3.1 Setting the start level with Grundfos GO Remote

The settings apply to analog sensors. For digital sensors, the setting is automatically activated.

1. Go to **Settings** > **Level control** > **Start level P1**.
2. Set the start level for pump 1.
3. Go to **Settings** > **Level control** > **Start level P2**.
4. Set the start level for pump 2.

6.3.2 Setting the start level with the operating panel

The settings apply to analog sensors. For digital sensors, the setting is automatically activated.

1. Press and hold **OK** until the display and dry running start flashing.
2. Continuously press **OK** until the indicator light for the start level for pump 1 starts flashing.
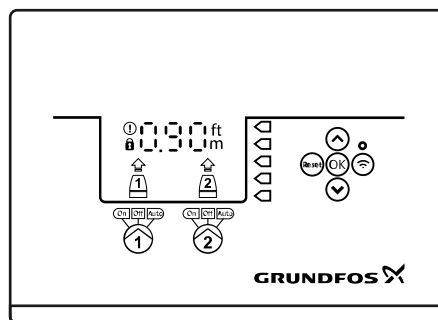
TM071336

3. Set the start level for pump 1 by using the **Up** and **Down** buttons.

4. Press **OK**.
The indicator light for the start level for pump 2 starts flashing.

TM071337

5. Set the start level for pump 2 by using the **Up** and **Down** buttons.

6. Continuously press **OK** until the display stops flashing.
The settings have now been stored.

6.4 Setting the stop level

6.4.1 Setting the stop level with Grundfos GO Remote

The settings apply to analog sensors. For digital sensors, the setting is automatically activated.

The stop level is the same for pump 1 and pump 2.

1. Go to **Settings** > **Level control** > **Stop level**

2. Set the stop level.

> If you are using the same level for start and stop, re-member to set a stop delay. This will prevent the pump from starting and stopping too frequently.

6.4.2 Setting the stop level with the operating panel
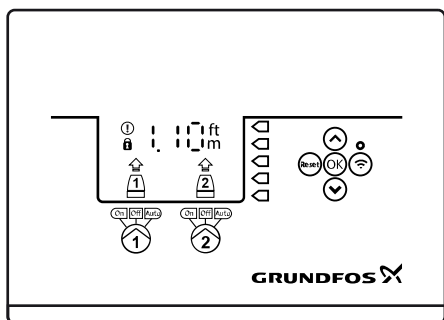
The settings apply to analog sensors. For digital sensors, the setting is automatically activated.

The stop level is the same for pump 1 and pump 2.

1. Press and hold **OK** until the display starts flashing.

2. Press **OK** once.
The current stop level is indicated on the display.

3. Set the stop level using the **Up** and **Down** buttons.

4. Continuously press **OK** to confirm all other settings and to exit the setup.

> If you are using the same level for the start and stop level, remember to set a stop delay. This will prevent the pump from starting and stopping too frequently.

6.5 Setting the high level

6.5.1 Setting the high level with Grundfos GO Remote

For analog sensors:

1. Go to **Settings** > **Level control** > **High level**.

2. Set the high level.

For digital sensors:

1. Go to > **Settings** > **IO modules**

2. Select which terminal to configure.

6.5.2 Setting the high level with the operating panel

The settings apply to analog sensors

1. Press and hold **OK** until the display starts flashing.

2. Press **OK** four times. The current high level is indicated on the display.

3. Set the high level using the **Up** and **Down** button.

For digital sensors, enable or disable the setting.

1. Press **OK** once to complete the setting.

6.6 After-run delay, high level

If the water level reaches the high level switch, due to either a defective analog or digital level switch, the pump is only controlled by the high level switch. To avoid too many starts and stops, an after-run delay can be set which allows the pump to partly empty the pit. The after-run delay should be set so that the pump stops at the normal stop level to avoid dry running.

> In case of an error, the product reports error 165 (**Signal fault**) or error 205 (**Level switch inconsistency**) on the display or in Grundfos GO Remote.

6.6.1 Setting the after-run delay, high level

1. Go to **Settings** > **Level control** > **After-run delay, high level**.

2. Select **Enable** or **Disable**.

3. Set a delay time.

6.7 Stop delay

The stop delay is the time from when the stop level is reached until the pump stops. The stop delay prevents the pump from starting and stopping too frequently and reduces water hammer in long pipes.

6.7.1 Setting the stop delay with Grundfos GO Remote

1. Select **Settings** > **Level control** > **Stop delay** > **State**

2. Select **Stop delay time**.

3. Set the **Stop delay time**.

6.8 Power-on delay

With this function it is possible to delay the startup of the pump after the power supply has been switched on. The purpose is to avoid disturbing the main power network which could happen if several pumps start up immediately when the power supply is switched on.

6.8.1 Setting the power-on delay with Grundfos GO Remote

1. Go to **Settings** > **Power-on delay**.

2. Set the function to **Enabled**.

3. Set the time delay.

6.9 Dry-running protection

If the pump is running and the liquid level in the tank or pit becomes lower than the dry-running level, the dry-running protection will stop the pump to ensure that it is not damaged.

Dry-running protection is dependent on a feedback signal from a level sensor installed in the tank or pit.

6.9.1 Setting the dry-running level with Grundfos GO Remote

1. Go to **Settings** > **Level control** > **Dry-running level**.

2. Set the dry-running level.

> The dry-running level must be set to a value which en-sures that the pump is not damaged due to dry-run-ning. The specific level depends on the installed pump type. See the installation and operating instructions for the product.

6.9.2 Setting the dry-running level with the operating panel

1. Press and hold **OK** until the display starts flashing.

2. Set the dry-running level using the **Up** or **Down** button.

3. Continuously press **OK** to confirm all other settings and to exit the setup.

6.10 Multipump settings

The control unit enables start and stop of the two pumps alternately. The pump with the lowest number of running hours is always started first. The function ensures that the running hours of the pumps are the same.

It is possible to set a time delay before the next pump is started.

6.10.1 Setting the multipump settings with Grundfos GO Remote

1. Go to **Settings** > **Multi pump settings**.

2. Set **Inter pump delay**.

   This is the starting delay between the pumps ensuring that they do not start at the same time.

3. Set **Max number of running pumps**.

   This is the maximum number of pumps that are allowed to run at the same time.

6.11 Using the same level switch for the start and stop level

1. Set one digital input to **Start pump 1** or **Stop**. All other digital inputs must be disabled.

2. Set a stop delay.

   This will prevent the pump from starting and stopping too frequently.

6.12 Antiseizing

The **Anti-seizing** function prevents a pump from choking or seizing up as a result of deposits buildup. **Anti-seizing** is used in pits that have had no inlet flow for a long period. The **Anti-seizing** function ensures that the pump starts as often as set in **Anti-seizing** > > **Interval**. The pump will operate for the number of seconds indicated by the user.

6.12.1 Setting the "Anti-seizing" function with Grundfos GO Remote

1. Go to **Settings** > **Anti-seizing**.

2. Set the function to **Enabled**.

3. Set the time interval.

4. Set the operating time.

6.13 Signal-detection time

The signal-detection time is the minimum time a level has to be active before the control unit initiates an action, such as starting or stopping a pump.

6.13.1 Setting the signal-detection time with Grundfos GO Remote

1. Go to **Settings** > **Level control** > **Signal detection time**.

2. Set the signal-detection time.

6.14 Setting the maximum number of restarts with Grundfos GO Remote

If the pump is seized up as a result of deposits buildup, it will be stopped automatically due to overheating, provided that the motor protection has been set. When the motor has cooled down, the control unit will unsuccessfully try to restart the pump and this scenario will be repeated.

In order to prevent this, it is possible to set a maximum number of restart attempts within a set interval.

1. Go to **Settings** > **Max number of restarts**.

2. Enable the function.

3. Set the interval within which the allowed number of restarts are to be counted.

4. Set the maximum number of pump restarts which are allowed during the set interval.

Related information

6.16.4 Setting the motor protection with Grundfos GO Remote

9.3 Code 4 (Too many motor restarts)

6.15 Setting the service interval with Grundfos GO Remote

You can set a time in Grundfos GO Remote in order to get a reminder that the pump needs service when the time comes.

1. Go to **Settings** > **Service** > **State**

2. Select **Enable** and press **OK**.

3. Select the pump.

4. Enter the number of hours until next service and press **OK**.

6.16 Motor protection

6.16.1 Overheat protection

The control unit offers thermal protection for the connected motors. Two types of thermal-protection sensor can be connected to the control unit: a PTC sensor (analog) and a thermal switch (digital).

Under normal running conditions, the sensor will act as a short circuit, but when its temperature limit is reached, it will open and tell the control unit that the temperature is too high, and the pump is stopped. When the temperature has dropped to the sensor-trigger level, the pump will return to normal running conditions. It will not be possible to start the pump manually as long as the temperature is too high.

Related information

9.10 Code 69 (Winding temperature too high)

6.16.2 Overload protection

The pump is protected by a motor-protection relay. The nominal current draw must be set manually on the motor-protection relay. See the specific documentation for the relay on how to set the trigger level. If the current exceeds the trigger level, the relay will switch off the pump and the controller will give an alarm. The alarm has to be manually reset directly on the motor protection relay.

Related information

9.8 Code 48 (Motor is overloaded)

6.16.3 Moisture protection

When a moisture sensor is installed in series with the temperature sensor, the control unit needs to know how to determine whether there is a high temperature or moisture in the pump. If the temperature is too high, normally the temperature sensor will go back to its normal stage when the temperature has dropped to its trigger level. If there is moisture in the pump, then the moisture sensor will keep the series connection open until the pump is opened and serviced.

To determine which sensor has been active, a **cool down time** must be entered. This is the time that will normally pass until the temperature has dropped enough for the temperature sensor to return to its normal stage. If the **cool down time** is exceeded, the control unit will assume that there is moisture in the pump, and it will send a moisture alarm.

Related information

6.16.4 Setting the motor protection with Grundfos GO Remote

6.16.4 Setting the motor protection with Grundfos GO Remote

You can set the current, temperature and moisture protection via a setup wizard.

1. Go to **Settings** > **Motor protection pump 1** or **Motor protection pump 2**.

2. Follow the on-screen wizard to set the following:
   - **Nominal pump current**
   - **Trip IEC class**
   - **Trip class P delay**
   - **Overheat protection**.

Related information

6.14 Setting the maximum number of restarts with Grundfos GO Remote

6.16.3 Moisture protection

6.17 Alarm reset

6.17.1 Resetting alarms and warnings manually with Grundfos GO Remote

1. Go to **Alarms and warnings**.

2. Press **Reset alarm**.

   All current alarms and warnings have been reset. However, if the fault causing the alarm or warning has not been removed, the alarm or warning will appear again.

3. If you want to delete all alarms and warnings from the history log, press **Show log** > **Reset alarm and warning logs**.

6.17.2 Setting the automatic alarm reset with Grundfos GO Remote

1. Go to **Settings** > **Automatic alarm reset**.

2. Select one of the following:

No automatic reset	The control unit does not reset any alarm or warning. You must do it manually.
All except pump critical	The control unit resets alarms and warnings unless the related fault can damage the pump.
All alarms	The control unit resets alarms and warnings, regardless of the fault.

6.17.3 Resetting alarms and warnings on the operating panel

You can manually reset alarms and warnings on the operating panel. However, if the fault causing the alarm or warning has not been removed, the alarm or warning will appear again.

1. Press **Reset** on the operating panel to reset the alarm or warning.

6.18 Setting the buzzer with Grundfos GO Remote

The internal buzzer is used to give an acoustic sound if there is a warning or an alarm.

1. Go to **Settings** > **Buzzer settings**.

2. Select when the buzzer is to be activated:
   - **All alarms**
   - **All alarms and warnings**.

6.19 Setting units for Grundfos GO Remote

Changing units as described here will only change the units shown in Grundfos GO Remote. It will not affect the units shown on the operating panel of products connected to Grundfos GO Remote.

1. Press the **Menu** button in the upper left corner of Grundfos GO Remote.
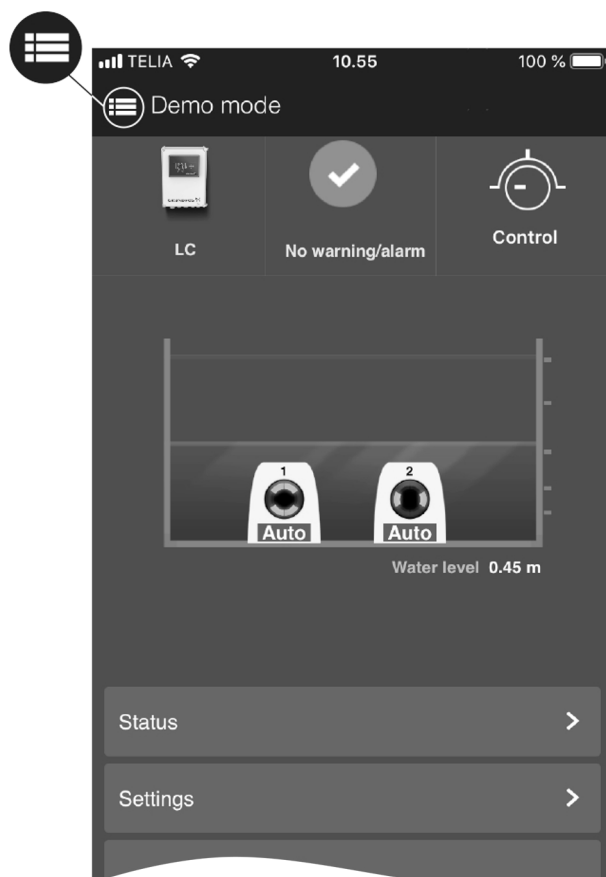
2. Go to **General** > **Settings** > **Products** > **Units**.

3. Select **US** or **Grundfos default units**.

6.20 Setting units for the operating panel with Grundfos GO Remote

Changing units as described below changes the units shown in the operating panel of the product connected to Grundfos GO Remote. It does not affect the units shown in Grundfos GO Remote.

1. Go to **Settings** > **Display units**.

2. Select the units to be used on the operating panel.
   - **SI Units**
   - **US Units**.

6.21 GENIbus

GENIbus, the Grundfos Electronics Network Intercommunications bus, is a fieldbus developed by Grundfos to meet the need for data transfer in all typical Grundfos motor or pump applications. Grundfos devices with GENIbus can be wired together in networks and integrated in automation systems. Each device on the network must have a unique GENIbus address. GENIbus is based on the RS485 hardware standard and typically operates at a baud rate of 9600 bits/s.

6.21.1 Setting the GENIbus address with Grundfos GO Remote

If CU 241 is used in a GENIbus network, a CIM 050 must be installed to add a GENIbus connection.

1. Go to **Settings** > **GENI bus address**.

2. Set the GENIbus address.
   The GENIbus address is a unique identifier for the product on the network.

6.22 Security

6.22.1 Locking the operating panel

The operating panel can only be locked with Grundfos GO Remote.

1. Go to **Settings** > **Security** > **Lock Display**.

2. Enable the setting and press **Done**.

3. Select if you want to restrict access to **Settings only** or **Settings and operation**.

4. Press **Done**.

The lock symbol on the operating panel is now lit.

6.22.2 Unlocking the operating panel

The operating panel can only be unlocked with Grundfos GO Remote.

1. Go to **Settings** > **Security** > **Lock Display**.

2. Disable the setting and press **Done**.

The lock symbol on the operating panel is switched off.

6.22.3 Locking Grundfos GO Remote

1. Go to **Settings** > **Security** > **Lock GO Remote**.

2. Enable the setting and press **Done**.

3. Enter a four digit PIN code and press **CONFIRM**.

A lock symbol indicates which menus are locked. To view or change settings, you must enter the PIN code.

6.22.4 Unlocking Grundfos GO Remote

1. Go to **Settings** > **Security**.

2. Enter the four digit PIN code.

3. Select **Lock GO Remote**.

4. Disable the setting and press **Done**.

All menus in Grundfos GO Remote are unlocked.

6.23 Starting the startup wizard with the operating panel

- Press and hold the **OK** button for 5 seconds until **S-1** or **S-2** starts flashing.

Related information

3.3 Startup wizard on the operating panel

7. Operating the product

7.1 Manual operation

7.1.1 Starting and stopping the pump manually with Grundfos GO Remote

1. Go to **Settings** > **Control, pump 1** or **Control, pump 2**.

2. Start the pump by selecting **On** and pressing **OK**.

3. Stop the pump by selecting **Off** and pressing **OK**.

Related information

7.1.4 Choosing what the pump must do after manual start

7.1.2 Automatic operation

In automatic operating mode, the control unit starts and stops the pump based on the signals it receives from the connected level sensors and the corresponding level settings within the control unit.

Related information

4.4 Application types

7.1.3 Starting and stopping the pump manually with the operating panel

1. To start a pump manually, press and hold the **Pump** button until the pump starts.
   The **On** indicator light is lit when the pump is operating in manual mode.

2. Stop the pump by pressing the **Pump** button.
   The **Off** indicator light is lit when the pump is stopped.

Related information

7.1.4 Choosing what the pump must do after manual start

7.1.4 Choosing what the pump must do after manual start

The following can be configured:

- **Automatic return**

Here you select if the pump must automatically return to a defined operating mode when the manual start ends.

- **Return to**
  Here you select whether the pump must return to automatic operating mode or stop when the manual start ends and **Automatic return** has been enabled.

- **Forced start time**
  Here you set the time period in which the pump must run in manual operating mode.

1. Go to **Settings** > **Manual start**.

2. Select **Automatic return** and choose one of the following options:
   - **Disabled**
   - **Enabled**.

3. Go one step back in the menu and select **Return to**.

4. Choose one of the following options:
   - **Auto**
   - **Off**.

5. Go one step back in the menu and select **Forced start time**.

6. Set the time period in which the pump must run in manual operating mode.

Related information

7.1.1 Starting and stopping the pump manually with Grundfos GO Remote

7.1.3 Starting and stopping the pump manually with the operating panel

8. Servicing the product

WARNING
Electric shock
Death or serious personal injury
- Switch off the incoming power supply before you start any work on the product or connected pumps.
- Make sure that the power supply cannot be switched on accidentally.

8.1 Updating the product software

New features and functions can be made available during the product's life cycle.

1. Contact Grundfos to get your product software updated.

8.2 Replacing the control unit

WARNING
Electric shock
Death or serious personal injury
- Switch off the power supply before making any electrical connections.
- Make sure that the power supply cannot be switched on accidentally.

Remember to save the controller's settings in Grundfos GO Remote under **Settings**. The settings can then be transferred to the new control unit when installed.

1. Switch off the power supply to the product and other components with external supply.

2. Write down the terminal connection of each wire to ensure correct re-connection.

3. Disconnect all wires.

4. Remove the control unit from the panel or cabinet.

5. Fit the new unit.

6. Connect all wires.

7. Configure the new control unit using Grundfos GO Remote.

Related information

8.3 Replacing the CIM module

⚡ **WARNING**
Electric shock
Death or serious personal injury
- Switch off the power supply before making any electrical connections.
- Make sure that the power supply cannot be switched on accidentally.

1. Switch off the power supply to the product and other components with external supply.

2. Write down the terminal connection of each wire to ensure correct re-connection.

3. Disconnect all wires connected to the CIM module.

4. Remove the screws that holds the module.

5. Remove the module from the control unit.

6. Fit the new module.

7. Connect all wires.

8.4 Replacing the battery

⚠️ **CAUTION**
Fire and chemical leakage
Minor or moderate personal injury
- Risk of explosion if the battery is replaced by an incorrect type.

To replace the battery, do the following:

1. Remove the back cover.

2. Gently grab around the battery without touching it too much.

3. Pull the battery up.

4. Insert a new battery of the correct type.

Related information

9. Fault finding the product

⚡ **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.

Fault finding and fault correction must be carried out by qualified persons.

9.1 Overview of alarm and warning codes

Code number	Description
Code 2	The power phase is missing.
Code 4	Too many motor restarts.
Code 9	The power-phase sequence is wrong.
Code 12	Service is needed.
Code 22	Moisture in pump motor.
Code 25	Wrong configuration.
Code 48	The motor is overloaded.
Code 57	Missing water in the application.

Code number	Description
Code 69	The winding temperature is too high.
Code 84	The memory-storage media is faulty.
Code 117	The door is opened.
Code 157	Real-time clock monitoring.
Code 159	Communication error, CIM xxx.
Code 165	Signal fault.
Code 181	Signal fault, PTC input.
Code 191	High water level.
Code 205	Level-switch inconsistency.
Code 225	Communication error, pump module.
Code 226	Communication error, IO module.
Code 229	Water on the floor.

9.2 Code 2 (Power phase missing)

- Alarm code 2 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Power phase missing** is displayed in Grundfos GO Remote.

Cause	Remedy
The product is configured for 2 or 3 phases but only 1 phase is connected.	• Make sure that the **Mains Power connection** setting is correct according to the number of phases connected (1, 2 or 3 phases).
One of the power supply phases is not connected.	• Connect the phase.
The fuse is blown somewhere on the incoming power line.	• Replace the fuse.

9.3 Code 4 (Too many motor restarts)

- Alarm code 4 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Too many motor restarts** is displayed in Grundfos GO Remote.

Cause	Remedy
The pump has been blocked or partly blocked causing overload in the motor.	• Remove the blockage from the pump.

Related information

9.4 Code 9 (Power phase sequence wrong)

- Alarm code 9 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Power phase sequence wrong** is displayed in Grundfos GO Remote.

Cause	Remedy
The power supply phase is set incorrectly.	• Interchange two phases.

9.5 Code 12 (Service needed)

- Warning code 12 is shown on the display if you press the **Up** or **Down** button.
- The warning symbol on the display turns yellow and the pump's operating mode is unchanged.
- Warning code **Service needed** is displayed in Grundfos GO Remote.

Cause	Remedy
The pump requires service based on time to next service countdown.	• Contact Grundfos or an authorised service workshop. • In order for the product to determine the service time, you must have enabled the service countdown with Grundfos GO Remote: **Settings** > **Service**

9.6 Code 22 (Moisture in motor of pump)

• Alarm code 22 is shown on the display.
• The alarm symbol on the display turns red and the pump stops.
• Alarm code **Moisture in motor of pump** is displayed in Grundfos GO Remote.

Cause	Remedy
Moisture is detected in the motor of the pump.	• Service is needed on the pump. Contact Grundfos.

9.7 Code 25 (Wrong configuration)

• Alarm code 25 is shown on the display.
• The alarm symbol on the display turns red and the pump stops.
• Alarm code **Wrong configuration** is displayed in Grundfos GO Remote.

Cause	Remedy
The level control is not configured correctly.	• Check and adjust the level control configuration with Grundfos GO Remote.
The IO terminal is not configured correctly.	• Select which IO terminal to change in Grundfos GO Remote and adjust the configuration.

9.8 Code 48 (Motor is overloaded)

• Alarm code 48 is shown on the display.
• The alarm symbol on the display turns red and the pump stops.
• Alarm code **Motor is overloaded** is displayed in Grundfos GO Remote.

Cause	Remedy
The pump is clogged. The blockage causes the motor current to rise, which could damage the pump.	• Remove the blockage. • Check the pit conditions to ensure blockage is not possible again.

Related information

6.16.2 Overload protection

9.9 Code 57 (Missing water in the application)

• Alarm code 57 is shown on the display.
• The alarm symbol on the display turns red and the pump stops.
• Alarm code **Dry run** is displayed in Grundfos GO Remote.

Cause	Remedy
Low water level in the pit and the pump stops due to the dry-running function.	• Check and configure the sensor stop level.

9.10 Code 69 (Winding temperature too high)

• Alarm code 69 is shown on the display.
• The alarm symbol on the display turns red and the pump stops.
• Alarm code **Winding temperature too high** is displayed in Grundfos GO Remote.

Cause	Remedy
The pump is clogged, causing the pump to use more current and thereby overheat.	• Remove the blockage.

Cause	Remedy
The pump has run for too long.	• Allow the pump to cool down. • Adjust the distance between start and stop levels.
PTC input wiring and/or sensors are incorrect.	• Make sure that the two PTC wires from the pump are connected correctly to the terminals on the product. • Make sure that the third PTC wire is left unconnected if present. • Make sure that the PTC wires are undamaged. • Make sure that the PTC sensors within the pumps are undamaged. • Perform a test by disconnecting the PTC wires from the pump and shorting PTC1 terminal A and B and also PTC2 terminal A and B, and verify that the error is cleared. • Replace the product due to the damaged PTC circuit. Contact Grundfos.

Related information

6.16.1 Overheat protection

9.11 Code 84 (Memory storage media faulty)

• Warning code 84 is shown on the display if you press the **Up** or **Down** button.
• The warning symbol on the display turns yellow and the pump's operating mode is unchanged.
• Warning code **Memory storage media faulty** is displayed in Grundfos GO Remote.

Cause	Remedy
An error in the internal memory has been detected.	• Replace the control unit. • Contact Grundfos or an authorised service workshop.

9.12 Code 117 (Door opened)

• Warning code 117 is shown on the display if you press the **Up** or **Down** button.
• The warning symbol on the display turns yellow and the operating mode of the pump is unchanged.
• Warning code **Door opened** is displayed in Grundfos GO Remote.

Cause	Remedy
The door to the control-unit room has been opened.	• Check the room with the control unit.

9.13 Code 157 (Real-time clock monitoring)

• Warning code 157 is shown on the display if you press the **Up** or **Down** button.
• The warning symbol on the display turns yellow, and the pump's operating mode is unchanged.
• Warning code **Real-time clock out of order** is displayed in Grundfos GO Remote.

Cause	Remedy
The battery for the real time clock is missing or worn out so the product is unable to maintain time and date.	• Replace the battery with a new one.

9.14 Code 159 (Communication error CIMxxx)

- Warning code 159 is shown on the display if you press the **Up** or **Down** button.
- The warning symbol on the display turns yellow and the pump's operating mode is unchanged.
- Warning code **Communication error CIMxxx** is displayed in Grundfos GO Remote.
- The CIM module is unable to communicate with the product.

Cause	Remedy
The CIM module is installed incorrectly.	• Ensure that the module, including cables, is fitted correctly.
The CIM module is defective.	• Contact Grundfos.

9.15 Code 165 (Signal fault)

- Alarm code 165 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Signal fault** is displayed in Grundfos GO Remote.

Cause	Remedy
The signal from the sensor is out of the configured range.	• Go to **Settings** > **Level control** in Grundfos GO Remote and ensure that the configured range corresponds to the physical application type. • Change the sensor, if needed.

9.16 Code 181 (Signal fault, PTC input)

- Alarm code 181 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Signal fault, PTC input** is displayed in Grundfos GO Remote.

Cause	Remedy
There is a signal fault in the PTC input.	• Make sure that the two PTC wires from the pump are connected correctly to the terminals on the product. • Make sure that the third PTC wire is left unconnected, if present. • Make sure that the PTC wires are undamaged. • Make sure that the PTC sensors within the pumps are undamaged. • Perform a test by disconnecting the PTC wires from the pump and shorting PTC1 terminal A and B and also PTC2 terminal A and B, and verify that the error is cleared. • Replace the product due to damaged PTC circuit. Contact Grundfos.

9.17 Code 191 (High water level)

- Alarm code 191 is shown on the display.
- The alarm symbol on the display turns red, but the pump's operating mode is unchanged.
- Alarm code **High water level** is displayed in Grundfos GO Remote.

Cause	Remedy
The defined start level did not start the pump.	• Check and configure the sensor start level.
The pump is not big enough to remove the water.	• Contact Grundfos or an authorised service workshop.
The level sensor is defective and not reacting on level changes.	• Check the functionality of the level sensor.

9.18 Code 205 (Level switch inconsistency)

- Alarm code 205 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Level switch inconsistency** is displayed in Grundfos GO Remote.

Cause	Remedy
A float switch could be defective or stuck.	• Check the functionality of each float switch.

9.19 Code 225 (Communication error pump module)

- Alarm code 225 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Communication fault, pump module** is displayed in Grundfos GO Remote.
- The product is unable to communicate with the IO module.

Cause	Remedy
The connection to GENIbus is missing.	• Check the GENIbus connection cable between CU 24X and IO 242.
The pump module is defective.	• Contact Grundfos.

9.20 Code 226 (Communication error IO module)

- Alarm code 226 is shown on the display.
- The alarm symbol on the display turns red and the pump stops.
- Alarm code **Communication fault, I/O module** is displayed in Grundfos GO Remote.
- The product is unable to communicate with the IO module.

Cause	Remedy
The connection to GENIbus is missing.	• Check the GENIbus connection cable between CU 24X and IO 241.
The IO module is defective.	• Contact Grundfos.

9.21 Code 229 (Water on floor)

- Warning code 229 is shown on the display if you press the **Up** or **Down** button.
- The warning symbol on the display turns yellow and the pump's operating mode is unchanged.
- Warning code **Water on floor** is displayed in Grundfos GO Remote.

Cause	Remedy
The sensor detects water on the floor.	• Check for water leakage.

10. Technical data

10.1 Electrical data

Supply voltage
24 VDC, - 10 %/+ 10 %.
Power supply is required to be class 2.
Check that the supply voltage corresponds to the values stated on the nameplate.

Maximum power dissipation

Object	Maximum power dissipation
99347488	3.4 W*

* Excluding power to USB and CIM modules.

Maximum input power

Object	Maximum input power
99347488	10 W

GENIbus terminal

- 7 to + 12 VDC.

Nominal current condition: 4 mADC.

Short-circuit current condition: 328 mA.

10.2 Mechanical data

Power supply terminals

24 V power supply.

IEC stranded or solid 0.75 to 1.5 mm^2.

UL stranded or solid AWG 20 to 16.

Mount only copper wires in the terminals.

10.3 Temperature

Operating temperature

Minimum	-30 °C (-22 °F)
Maximum	+65 °C (+149 °F)

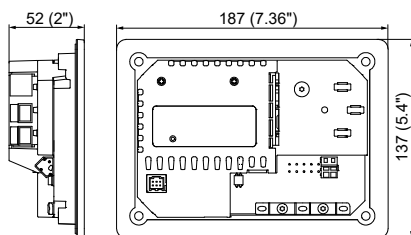## 10.4 Environmental data

Enclosure class

IP54, 3R for CU 24X built into a panel of similar or higher enclosure class.

Battery

Size BR2032.

Related information

8.4 Replacing the battery

10.5 Dimensions

11. 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.

3. Dispose of the waste battery through the national collective schemes. If in doubt, contact your local Grundfos company.

The crossed-out wheelie bin symbol on a product means that it must be disposed of separately from household waste. When a product marked with this symbol reaches its end of life, take it to a collection point designated by the local waste disposal authorities. The separate collection and recycling of such products will help protect the environment and human health.

See also end-of-life information at *www.grundfos.com/product-recycling*.

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