CU 202

Installation and operating instructions

CU 202
Installation and operating instructions
(all available languages)
http://net.grundfos.com/qr/i/92852547

GRUNDFOS

CU 202

English (GB)

Original installation and operating instructions

Table of contents

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. Product introduction

2.1 Product description

The control unit starts and stops according to the water level measured by the float switch or a level sensor in the filling application.

When the water is consumed and the water lowers to the start level, the control unit starts the pump.

When the water level raises and reaches the stop level, the control unit stops the pump.

TM083746

CU 202

The control unit comprises the following parts:

- HMI board
- front cover
- back cover
- cable glands

2.2 Intended use

CU 202 is intended for controlling submerged SQFlex pumps using powerline communication. The input signals are received from various sensors.

CU 202 is intended for renewable power systems.

2.3 Features

The control unit features among others the following functions:

- manual and automatic control of the pump
- Bluetooth pairing with Grundfos GO
- operating indication, such as power on and pump running
- alarm and warning indication.

2.4 Mains borne signalling

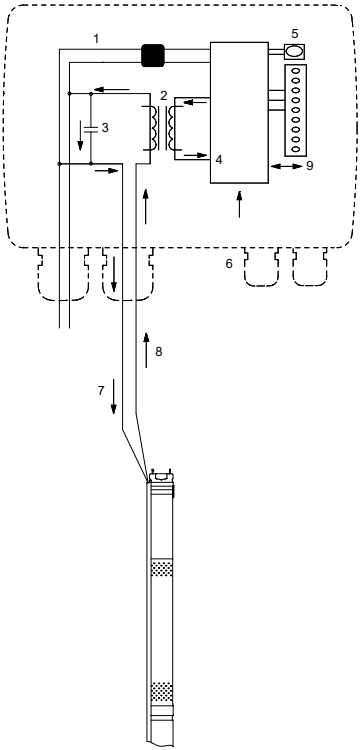
The communication between the control unit and the pump is effected via the power cable.

This communication principle is called mains borne signalling, or power line communication. Using this principle means that no additional cables to the pump are required.

The communication of data is effected by means of a high-frequency signal transmitted to the power cable and led into the electronics unit by means of signal coils incorporated in the motor and the control unit respectively.

In situations where multiple control unit pump power cables are run parallel in wiring trays or conduit and less than 25-30 cm (10-12 inch) apart, the possibility for undesired communication between units exists. When this occurs, intermittent or continuous **No contact** is typically seen. Other unexpected errors may also be seen.

The figure below shows the principle of mains borne signalling between the control unit and the pump.



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Principle of mains borne signalling (power line communication)

Pos.	Description
1	Supply to the electronics
2	Signal coils
3	Capacitor
4	Electronics for the control of the communication
5	On/off button
6	Sensor signal
7	Power supply
8	Communication signals
9	Grundfos GO

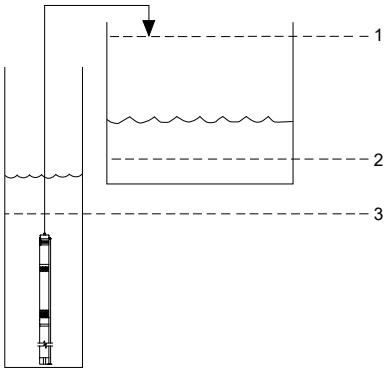
2.5 Application types

You can choose between two application types:

- **Filling**
- **Emptying**.

You can set the application type with Grundfos GO.

Filling



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Pos.	Description
1	**Stop level**
2	**Start level**
3	**Dry-running level**

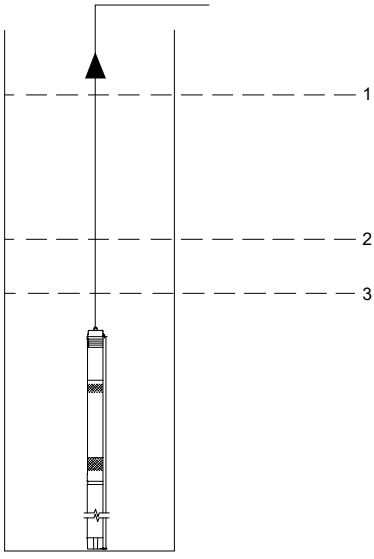
In the filling application, the pump is installed in a tank or well from where it pumps the liquid. The liquid is pumped into a second tank where the float switch is installed.

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

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

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.

Emptying



Pos.	Description
1	**Start level**
2	**Stop level**
3	**Dry-running level**

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

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

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.

3. Receiving the product

3.1 Inspecting the product

Before installing the product, perform the following:

1. Check that the visible parts are not damaged.

CAUTION
Minor or moderate personal injury
- Do not install damaged product.

2. If parts are damaged or missing, contact the local Grundfos sales company immediately.

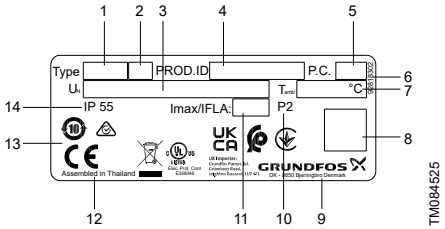
3.2 Scope of delivery

The box contains the following items:

- Control unit
- Quick guide
- Additional, variant independent accessories

3.3 Identification

3.3.1 Nameplate



Nameplate

Pos.	Description
1	Product name
2	Version number
3	Supply voltage
4	Product number and Serial number
5	Production code (year and week)
6	Nameplate number
7	Minimum to maximum ambient temperature
8	2D data matrix code
9	Company address
10	Factory code

Pos.	Description
11	Max. current
12	Production site
13	Approvals and markings
14	Enclosure class

TO BE UPDATED - placeholder for label with FCC, Bluetooth, Wi-Fi information

Pos.	Description
1	
2	
3	
4	
5	

4. Installation requirements

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be switched on unintentionally.
- Disconnect the switch between the PV panels and the controller.
- Use the recommended fuse size.
- Check that the supply voltage corresponds to the values stated on the nameplate.
- The user or the installer is responsible for correct earthing and protection according to local regulations.

CAUTION
Radiation
Minor or moderate personal injury

- Locate the product at a minimum distance of 20 cm (0.66 feet) from any body parts. Human tissue may be heated by RF energy.

Related information

13.1 Electrical data

4.1 Security

4.1.1 RF safety

Installers and end users must be provided with these installation and operating instructions and operating conditions for satisfying RF exposure compliance.

4.1.2 Radio frequency radiation exposure information (for Canada and US only)

CAUTION
Radiation
Minor or moderate personal injury

- This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment.This equipment must be installed and operated with a minimum distance of 20 cm (0.66 ft) between the radiator and your body.

This device complies with Part 15 of the FCC Rules and with Licence exempt RSSs of Innovation, Science & Economic Development Canada.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications made to this equipment not expressly approved by Grundfos may void the FCC authorization to operate this equipment.

4.1.3 EMC statements for USA

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

4.1.4 Bluetooth and Wi-Fi information

Bluetooth information

Frequency of operation	2400 - 2483.5 MHz (ISM band)
Modulation type	GFSK
Data rate	1 Mbps
Transmit power	5 dBm EIRP with internal antenna

Wi-Fi information

Frequency of operation	2400 - 2483.5 MHz (ISM band)	
Modulation type	DSSS	OFDM
Data rate	1 Mbps	72 Mbps
Transmit power	16.05 dBm EIRP with internal antenna	14.15 dBm EIRP with internal antenna

4.2 Location

You can place the control unit both indoors and outdoors.

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

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

WARNING

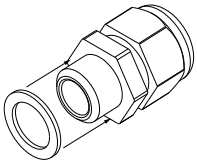
Death or serious personal injury

- At altitudes above 2000 m (6561 ft), the clearance requirements cannot be met. Use overvoltage protection equipment when you install the product.

5. Mechanical installation

5.1 Mounting the rubber seals

1. Mount the supplied rubber seals on the cable glands.



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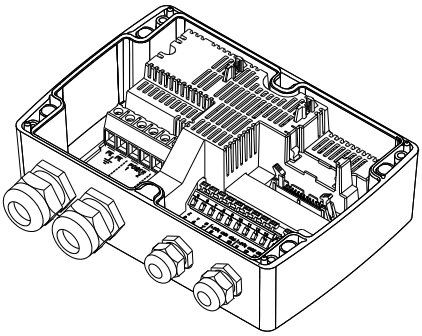
2. Mount the cable glands on the control unit.



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3. Tighten the cable glands to the correct torque. See the table below.

Do not tighten the cable glands too much since this may damage the rubber seals.

Cable gland type	Torque [Nm (ft-lb)]
2 × PG21	2.5 (1.84)
2 × PG11	

Related information

13.4 Dimensions

5.2 Removing the front cover

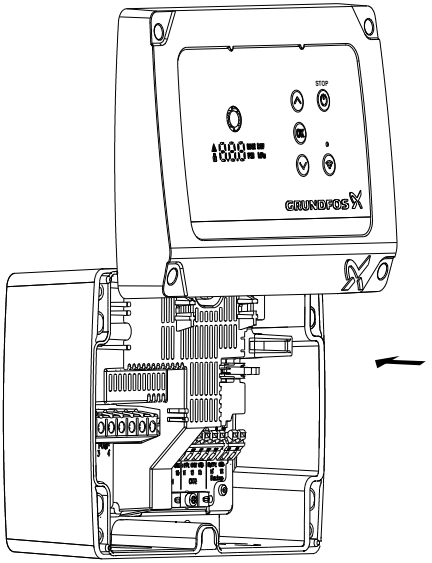
The front cover must be removed to make any connections.

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

Place the front cover above the control unit, if possible. This way, you do not need to remove the flat cable between the front cover and the control unit.

1. Loosen the screws.
2. Carefully separate the front cover from the back cover.

   Be careful not to damage the cable connecting the front cover and the back cover.
3. Place the front cover above the back cover on the support brackets.
4. To ensure that the front cover does not tilt, insert the two bottom screws into the open holes at the top of the back cover.



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When you mount the front cover again, tighten the screws to 1.25 Nm (0.92 ft-lb).

Related information

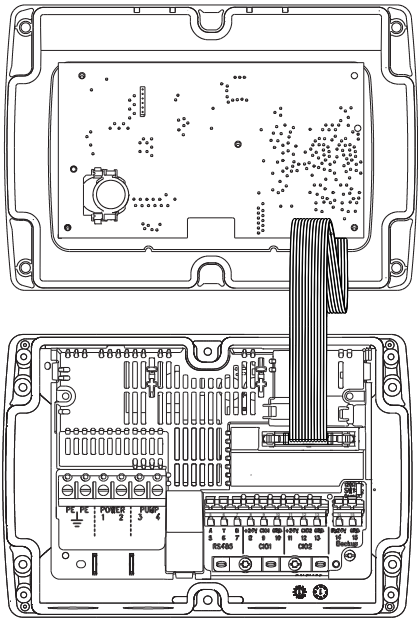
5.3 Disconnecting the front cover
5.4 Installing the control unit
6.4 Connecting a level sensor

5.3 Disconnecting the front cover

If you need to remove the front cover completely, you must remove the flat cable between the front cover and the back cover.

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

1. Loosen the screws.
2. Carefully separate the front cover from the back cover.
3. Flip the locks to the side and pull out the flatcable that is connected to the circuit-board in the front cover.



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Related information

5.2 Removing the front cover

5.4 Installing the control unit

5.4 Installing the control unit

The control unit is designed for wall mounting. The cable glands must face downwards.

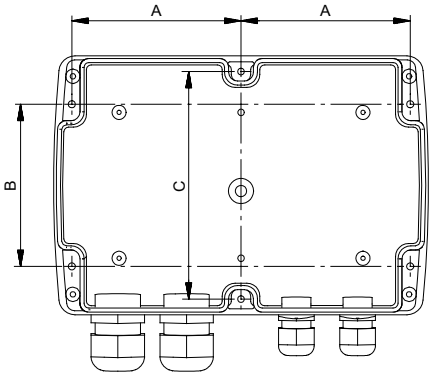
The box has six mounting holes (∅4).

Install the control unit horizontally on a flat surface to allow any condensed water inside the product to escape.

The control unit is supplied with special inserts for the PG cable entries. The special inserts are suitable for flat cables and single-core cables.

In addition, cable ties can be used to remove strain from the terminals.

1. Loosen the screws and remove the front cover.
   Be careful not to damage the cable connecting the front cover and the back cover.
2. Drill holes in the surface.



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Dimensions

Pos.	Description
A	104.5 mm (4.11 in)
B	100 mm (3.94 in)
C	140.5 mm (5.53 in)

3. Insert wall plugs, if applicable.
4. Fit the four screws in the mounting holes and cross-tighten the screws, 1.25 Nm (0.92 ft-lb).

The mounting screws must have a minimum length of 32 mm (Ø 8.2 mm) (1.26 inch (Ø 0.32 inch)). If the wall is more than 3 mm (0.12 inch) uneven, insert rubber blocks between the surface and the control unit to even the surface. The box of the control unit must not be bent.

Related information

5.2 Removing the front cover

5.3 Disconnecting the front cover

6. Electrical connection

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be switched on unintentionally.
- Disconnect the switch between the PV panels and the controller.

DANGER
Electric shock - VAC
Death or serious personal injury

- In case of an insulation fault, the fault current may be a DC or pulsating DC. Observe national legislation about requirements for and selection of Residual Current Device (RCD) when installing the product.

6.1 Cable requirements

WARNING
Electric shock
Death or serious personal injury

- The wires from the pump phases must be rated at 90 °C (194 °F).

For the US market only, use flexible metal conduits (FMC).

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

Cable cross-sections

Type of cable	Stranded with ferrule		Solid	
Cross-section	[mm²]	[AWG]	[mm²]	[AWG]
Terminal blocks for the power and the pump supply	0.25 - 10	20-6	0.5 - 16	20-6

Related information

6.3 Connecting the pump supply and power supply

6.2 Protection of controller and supply cables

The controller and power cables must be protected against short-circuits and overloads. The protection must be accomplished using components such as:

- fuse of melt type gL and gG
- fuse type gD
- circuit breaker of type C.

See the rated current for this specific product on the product nameplate.

6.3 Connecting the pump supply and power supply

DANGER
Electric shock - VAC
Death or serious personal injury

- In case of an insulation fault, the fault current may be a DC or pulsating DC. Observe national legislation about requirements for and selection of Residual Current Device (RCD) when installing the product.

DANGER
Electric shock - VAC, VDC
Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be switched on unintentionally.
- Remember to indicate where the main switch is located by placing a label or similar marking on the control unit.
- Make sure that the input voltage does not exceed 300 VDC or 240 VAC.
- Electrical connections must be carried out according to the wiring diagrams.

Do not add additional components other than those illustrated on the wiring diagram. Do not use unused pin holes for other connections.

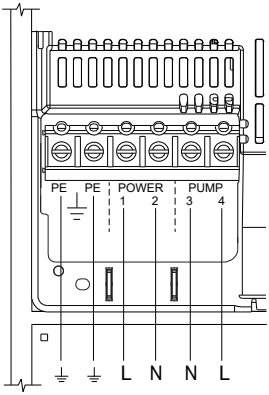
All cable glands and plugs must be mounted after the installation is completed.

If the gaskets are not pre-mounted on the cable glands, mount them on the cable glands before the control unit is mounted on the wall.

1. Check that the supply voltage and frequency correspond to the values stated on the nameplate.
2. Cut the power supply and pump cables as short as possible.

3. Before switching the power on, check all voltages with a multimeter and make sure that the input voltage does not exceed 300 VDC or 240 VAC.
4. Connect the power cables and pump cables according to the relevant electrical diagram.

All cable glands must be mounted and plugged, even if they are not in use, to ensure the correct IP protection level.



TM083650

Single-phase connections for the pump

POWER, terminals 1, 2 and PE

a. Connect terminals 1 and 2 to the phase and neutral conductors of the mains supply. Each terminal can be connected to any of the two conductors.
b. Connect the PE terminal to the green and yellow earth conductor. Each PE terminal must be connected to an earth conductor of its own.

The conductors of the mains supply must not be connected to terminals 3 and 4 (PUMP).

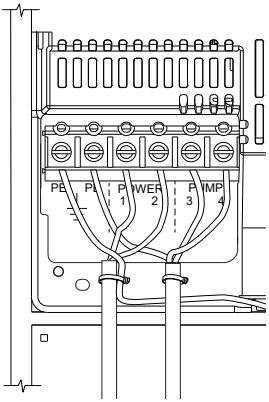
PUMP, terminals 3, 4 and PE

a. Connect terminals 3 and 4 to the phase and neutral conductor of the pump. Each terminal can be connected to any of the two conductors.
b. Connect the PE terminal to the green and yellow earth conductor. Each PE terminal must be connected to an earth conductor of its own.

5. Tighten the terminal screws to the correct torque. See the table below.

Terminal block	Torque [Nm (ft-lb)]
Pump supply	1.2 - 1.5 (0.88 - 1.1)
Power supply	1.2 - 1.5 (0.88 - 1.1)

6. Tie the wires with cable ties.



TM085155

Related information

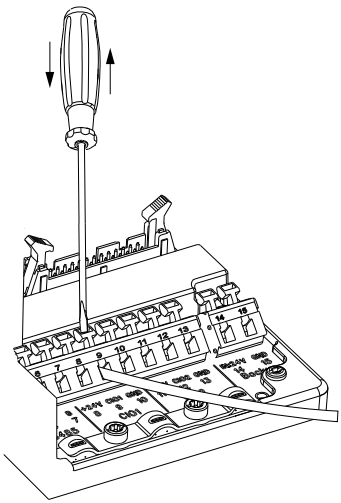
6.1 Cable requirements
6.6 Terminal blocks
13.1 Electrical data

6.4 Connecting a level sensor

You can either connect a digital level switch, such as a float switch, or an analog level sensor.

1. Loosen the screws and remove the front cover.
   Be careful not to damage the cable between the front cover and the back cover.
2. Lead the wires through one of the cable glands.

3. Push the arm down to open the spring clamp terminal and then insert the wire.



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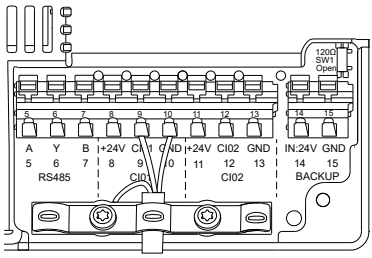
Connecting a wire to a terminal with spring clamps

4. Depending on the type of wire, take one of the following actions:
   - For a shielded wire, lead it through the cable clamp.



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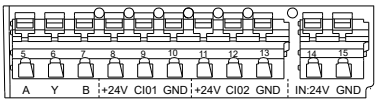
   - For a not shielded wire, attach it directly to the terminals, the earth wire can be connected to the metal earth bracket.



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Terminal	Description	Default setup
5	RS-485 interface A for GENIbus/Modbus	
6	GND, Y for GENIbus/ Modbus	
7	RS-485 interface B for GENIbus/Modbus	
8	Supply voltage, +24 V	
9	Configurable input/ output 1	Float switch (start/ stop), normally open
10	GND	
11	Supply voltage, +24 V	
12	Configurable input/ output 2	Pulse flow
13	GND	
14	Backup, supply voltage, +24 V	
15	Backup, GND	

5. Connect the float switch or sensor cables according to the relevant electrical diagram.

Related information

5.2 Removing the front cover

6.7 Sensor input

6.5 RS-485 input and output

RS-485, terminals 5, 6 and 7

The RS-485 input, terminals A, Y (GND) and B, is for external bus communication.

The communication is effected according to the Grundfos bus protocol, GENIbus, and is two-way communication.

The RS-485 input can be changed to Modbus protocol via Grundfos GO for third party connection.

The RS-485 input is a low-voltage circuit. Therefore, you must separate all connections to terminals A, Y (GND) and B from network circuits by means of double or reinforced insulation.

A screened, twisted-pair cable is required. The maximum cable length is 1200 m.

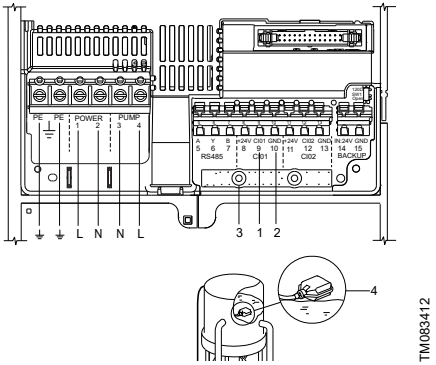
6.6 Terminal blocks

The control unit has three terminal blocks:

- Screw terminals 1 to 4.
- Spring terminals 5 to 13.
- Spring terminals 14 to 15.

The control unit is also equipped with two screw terminals for the protective-earth conductors (PE).

The on/off button on the control unit must not be used as a safety switch when installing and servicing the pump.



Electrical connection

Pos.	Description
1	Float switch. Common, brown conductor, terminal 9.
2	Float switch. Normally open, blue conductor, terminal 10.
3	Float switch. PE, Earth bracket.
4	Float switch.

Related information

6.3 Connecting the pump supply and power supply

13.1 Electrical data

6.7 Sensor input

Pressure sensor

DANGER
Electric shock
Death or serious personal injury

- The total load of terminals 8 and 11, +24 VDC, must not exceed 300 mA.

CIO1, terminals 8, 9 and 10

Terminals 8, 9 and 10 (CIO1) are set up as input for the float switch by default. The terminal can also be configured as an analog level sensor input.

CIO2, terminals, 11, 12 and 13

Terminals 11, 12 and 13 (CIO2) are set up as pulse flow input by default. The terminal can also be used for analog and digital sensors or as configurable analog or digital outputs.

Backup, terminals 14 and 15

For monitoring purposes, you can connect a 24 V backup for the CU 202. This backup is not able to power the pump.

Related information

6.4 Connecting a level sensor

7. Starting up the product

7.1 Connecting to Grundfos GO

Before connecting the product to Grundfos GO, the Grundfos GO 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 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.

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 is now loading the data for the product.

Related information

7.3 How to enable Bluetooth on the operating panel

7.4 How to disable Bluetooth on the operating panel

7.2 Startup wizard on Grundfos GO

The product is designed for Bluetooth communication with Grundfos GO.

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

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

7.3 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. 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.

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 is now loading the data for the product.

Related information

7.1 Connecting to Grundfos GO

7.4 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 is no longer connected to the product.

Related information

7.1 Connecting to Grundfos GO

7.5 Configuring the IO terminals using Grundfos GO

The control unit is equipped with configurable input and output terminals. Using Grundfos GO, you can configure the terminals for different functions, depending on the device connected to the terminals.

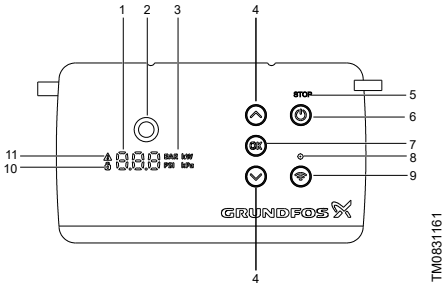
1. Go to **Settings** > **Configurable Input/Output** > **CU 202 IO Terminals**.

2. Select the terminal you wish to configure and follow on-screen instructions.

You can find the names of the terminals inside the control unit.

8. Control functions

8.1 Operating panel



Pos.	Symbol	Description
1	8.8.8	Display
2		Grundfos Eye: The Grundfos Eye shows the status of the pump.
3	**BAR kW** **PSI kPa**	Units
4		**Up**/**Down** buttons: • Press these buttons to navigate between submenus or change the value settings.
5	**STOP**	**STOP** LED: If the text is lit, the pump is stopped.
6		**Stop** button • Press this button to stop the pump.
7	**OK**	**OK** button: • Press this button to save changed values.
8		Connect symbol: If the symbol is lit, the control unit is connected to Grundfos GO.
9		Connect button: • Press this button to connect the control unit to Grundfos GO via Bluetooth.
10		Lock symbol: If the symbol is lit, the control unit is locked from making changes.
11		Alarm and warning symbol: Red: Alarm Yellow: Warning

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

Related information

8.2 Grundfos Eye

8.2 Grundfos Eye

Grundfos Eye indicator light	Indication	Description
	Two opposite green lights are running in the pumping direction.	**Power on** The pump is running.
	One yellow light is permanently on.	**Warning** The pump has been stopped manually.
	Two opposite horizontal red lights are flashing simultaneously.	**Alarm** The pump has stopped.
	One red light is running in the pumping direction.	**Alarm** The pump is running.
	One yellow light is running in the pumping direction.	**Warning** The pump is running.

Related information

8.1 Operating panel

9. Setting the product

9.1 Setting by means of Grundfos GO

TO BE UPDATED

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

10. Service

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 unintentionally.

10.1 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.

10.2 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.

DANGER
Intoxication or risk of chemical burn
Death or serious personal injury

- The battery can cause severe or fatal injuries in 2 hours or less if it is swallowed or placed inside any part of the body. In such an event, seek medical attention immediately.

- The replacement or servicing of batteries must be carried out by a qualified person.
- The battery contained within this product, whether new or used, is hazardous and is to be kept away from children.

The battery in this product is used for the internal real time clock and it is a standard BR2032 coin-cell battery.

Replace the battery as follows:

1. Remove the front cover.
2. Gently grab around the battery.
3. Push the battery upwards.
4. Take out the battery.
5. Insert a new battery of the correct type.

Related information

13.3 Environmental data

11. Fault finding

WARNING
Electric shock
Death or serious personal injury

- Switch off the power supply before starting any work on the product. Make sure that the power supply cannot be switched on unintentionally.

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

11.1 Alarm and warning codes

11.1.1 Code 3 (External fault)

Cause	Remedy
An external alarm is activated through the digital input.	• Check the device connected to the external digital input.

11.1.2 Code 10 (Communication fault, pump)

Cause	Remedy
Fault in communication to the sensor module.	• Check the cables.

11.1.3 Code 25 (Setup conflict)

Cause	Remedy
The IO terminal is not configured correctly.	• Check and adjust the configuration of the selected IO terminal with Grundfos GO.
The level control is not configured correctly.	• Check and adjust the level control configuration with Grundfos GO.
The start or the stop level settings are invalid or missing.	• Check and adjust the start or the stop level settings with Grundfos GO.
The analog level sensor is not configured.	• Check and configure the analog level sensor with Grundfos GO.
The level switch setting is duplicated.	• Check and adjust the level switch setting with Grundfos GO.
The control mode is not compatible with the application.	• Check and adjust the control mode with Grundfos GO.

11.1.4 Code 32 (Overvoltage)

Cause	Remedy
The supply voltage has been or is too high.	• Reduce the voltage to the specified level.

11.1.5 Code 40 (Undervoltage)

Cause	Remedy
The supply voltage has been or is too low.	• Increase the voltage to the specified level.

11.1.6 Code 46 (External warning from DI)

Cause	Remedy
An external warning is activated via the digital input.	• Check the device connected to the external digital input.

11.1.7 Code 48 (Overload)

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.

11.1.8 Code 51 (Blocked motor/pump)

Cause	Remedy
The pump is blocked. The pump cannot rotate due to a blockage.	• Dismantle the pump by removing the pump head, and remove any blockage or impurities preventing the pump from rotating. • Check the water quality to eliminate the risk of lime precipitation. Before dismantling the pump, drain the system or close the isolating valves on either side of the pump. The pumped liquid may be scalding hot and under high pressure.

11.1.9 Code 57 (Dry running)

Cause	Remedy
Level measurements detect low water level in the pit and the pump stops due to the dry-running function. Low pump inlet pressure measurement detect low water level in the pit and the pump stops due to the dry-running function. A digital dry run signal detects low water level in the pit and the pump stops due to the dry-running function.	• Check and configure the sensor stop level.

11.1.10 Code 57 (Dry running)

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.

11.1.11 Code 59 (No flow)

Cause	Remedy
Alarm for no flow is exceeded.	• Check the pump, valves or pipes for blockage.

11.1.12 Code 60 (Low input power)

Cause	Remedy
Input power is too low.	•

11.1.13 Code 67 (Temperature too high, internal frequency converter module (t_m))

Cause	Remedy
Temperature is too high in the frequency converter module.	•

11.1.14 Code 73 (Hardware shutdown (HSD))

Cause	Remedy
The control unit is defective.	• Replace the control unit.

11.1.15 Code 117 (Door opened)

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

11.1.16 Code 133 (Limit 1 exceeded)

Cause	Remedy
The configured parameter for limit 1 has exceeded its limit set by the user.	• Check the input. • Change the configuration by adjusting the limits set in Grundfos GO.

11.1.17 Code 133 (Limit 2 exceeded)

Cause	Remedy
The configured parameter for limit 2 has exceeded its limit set by the user.	• Check the input. • Change the configuration by adjusting the limits set in Grundfos GO.

11.1.18 Code 157 (Real Time Clock battery fault)

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.

11.1.19 Code 165 (Signal outside range, analog input 1)

Cause	Remedy
The electrical signal for Analog input 1 present in the product is outside its range.	• In Grundfos GO, ensure that the configured range corresponds to the physical application type. • Check the sensor signal. • Replace the sensor if needed.

11.1.20 Code 191 (High water level)

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.

11.1.21 Code 200 (Application alarm)

Cause	Remedy
The pump out function exceeded the set pumping time.	•
Pressure build up failed within the set time.	•

11.1.22 Code 205 (Level float switch sequence inconsistency)

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

11.1.23 Code 210 (Overpressure)

Cause	Remedy
Overpressure in the pump.	• Check the inlet line and open the isolating valve if necessary. • Reduce the suction lift. • Increase the inlet line diameter.

11.1.24 Code 211 (Underpressure)

Cause	Remedy
The pressure is low in the pump	• Check the discharge hose for blockage. • Check the flow direction of the valves (arrow) and correct them if necessary. • Reduce the backpressure. Enlarge the diameter of the outlet line.

11.1.25 Code 226 (Communication fault, I/O module)

Cause	Remedy
The IO module is defective.	• Contact Grundfos.

11.1.26 Code 229 (Water on floor)

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

11.1.27 Code 248 (Fault, battery/UPS)

Cause	Remedy
Battery/UPS fault in the system.	• Check the backup battery. • Replace the backup battery if necessary.

12. Decommissioning

CAUTION
Cyber security hazard
Minor or moderate personal injury
- Delete all information before decommissioning.

13. Technical data

13.1 Electrical data

Supply voltage

30-300 VDC / 90-240 VAC -10 %/+6 %, PE

The wires must be rated at minimum 60 °C (140 °F), minimum 20 AWG.

Use copper, copper-clad aluminum, or aluminum conductors in the terminals.

Frequency

50/60 Hz

Input for backup power supply

24 VDC ± 10 %

Power consumption

TBD

Rated current

Maximum 13 A

Ratings

Overvoltage, category III

Mains fuses

Maximum 16 A

Related information

4. Installation requirements

6.3 Connecting the pump supply and power supply

6.6 Terminal blocks

13.2 Temperature

Ambient temperature

Min. ambient temperature	-20 °C (-4 °F)
Max. ambient temperature	+50 °C (+122 °F)

Storage temperature

Min. storage temperature	-30 °C (-22 °F)
Max. storage temperature	+60 °C (+140 °F)

13.3 Environmental data

Enclosure class

IP55.

Materials

The box is made of black PPO.

Relative humidity

5-95 %.

Pollution degree

Category 2.

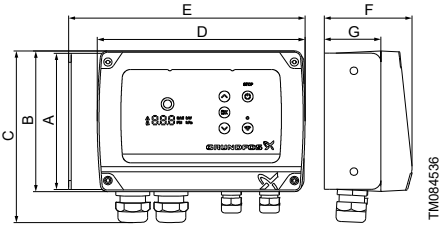
Battery

Size BR2032.

Related information

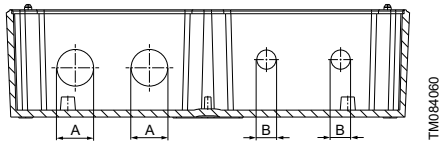
10.2 Replacing the battery

13.4 Dimensions



Dimensions of the control unit

Pos.	Description
A	154.5 mm (6.08 in)
B	159.7 mm (6.28 in)
C	195 mm (7.67 in)
D	231.2 mm (9.1 in)
E	263.2 mm (10.36 in)
F	98.2 mm (3.86 in)
G	63 mm (2.48 in)



Diameter of the cable gland holes

Pos.	Description
A	∅ 28.3 mm (1.11 in)
B	∅ 18.6 mm (0.73 in)

Related information

5.1 Mounting the rubber seals

13.5 Weights

1.6 kg (3.527 lb)

14. 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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