

# DCM 711

Pareo DCM 711 Control Module/Pareo™



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# About this manual

This manual describes the installation, operation, and maintenance of DCM 711.

## Other manuals

- Installation, Operation, and Maintenance manual for the pump: For information about the safe and recommended procedure of installing, operating, and maintaining the pump
  - The pump manual includes an instruction of how to install or replace the DCM 711 pump module.
- DST 001 service tool: Installation, Operation, and Maintenance manual
  - For information on how to use the service tool with the pump.



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# 1 Introduction and Safety

## 1.1 Introduction

### Purpose of the manual

The purpose of this manual is to provide necessary information for installation, operation, and maintenance of the unit.

### Read and keep the manual

Save this manual for future reference, and keep it readily available at the location of the unit.



#### CAUTION:

Read this manual carefully before installing and using the product. Improper use of the product can cause personal injury and damage to property, and may void the warranty.

The equipment, and its functioning, may be impaired if used in a manner not specified by the manufacturer.

### Intended use



#### WARNING:

Operating, installing, or maintaining the unit in any way that is not covered in this manual could cause death, serious personal injury, or damage to the equipment and the surroundings. This includes any modification to the equipment or use of parts not provided by Xylem. If there is a question regarding the intended use of the equipment, please contact a Xylem representative before proceeding.

## 1.2 Safety terminology and symbols

### About safety messages

It is extremely important that you read, understand, and follow the safety messages and regulations carefully before handling the product. They are published to help prevent these hazards:

- Personal accidents and health problems
- Damage to the product and its surroundings
- Product malfunction

### Hazard levels

| Hazard level                                                                                        | Indication                                                                            |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  <b>DANGER:</b>  | A hazardous situation which, if not avoided, will result in death or serious injury   |
|  <b>WARNING:</b> | A hazardous situation which, if not avoided, could result in death or serious injury  |
|  <b>CAUTION:</b> | A hazardous situation which, if not avoided, could result in minor or moderate injury |



| Hazard level   | Indication                                                                                                   |
|----------------|--------------------------------------------------------------------------------------------------------------|
| <b>NOTICE:</b> | Notices are used when there is a risk of equipment damage or decreased performance, but not personal injury. |

### Special symbols

Some hazard categories have specific symbols, as shown in the following table.

| Electrical hazard                                                                                           | Magnetic fields hazard                                                                             |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  <b>Electrical Hazard:</b> |  <b>CAUTION:</b> |

## 1.3 User safety

### Introduction

All government regulations, local health and safety directives must be observed.

#### Prevent danger due to electricity

All danger due to electricity must be avoided. Electrical connections must always be carried out in compliance with the following:

- The standard connections shown in the product documentation that is delivered together with the product
- All international, national, state, and local regulations. (For details, consult the regulations of your local electricity supplier.)

For more information about requirements, see sections dealing specifically with electrical connections.

#### 1.3.1 Power lock-out



##### **DANGER: Electrical Hazard**

Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized. This applies to the control circuit as well.



#### 1.3.2 Qualification of personnel



##### **WARNING: Electrical Hazard**

Risk of electrical shock or burn. A certified electrician must supervise all electrical work. Comply with all local codes and regulations.

All work on the product must be carried out by certified electricians or Xylem authorized mechanics.

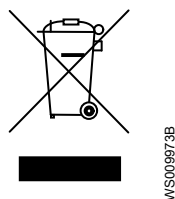
Xylem disclaims all responsibility for work done by untrained, unauthorized personnel.

## 1.4 End-of-life product disposal

Handle and dispose of all waste in compliance with local laws and regulations.

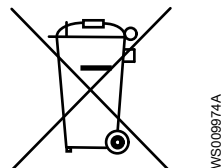
**EU and UK only: Correct disposal of this product — waste electrical and electronic equipment**

- EU: Directive 2012/19/EU on waste electrical and electronic equipment (WEEE)
- UK: SI 2013 No. 3113



This marking on the product, accessories, or literature shows that the product should not be disposed of with other waste at the end of its working life.

**EU and UK only: Correct disposal of batteries in this product**



This marking on the battery, manual, or packaging shows that the batteries in this product should not be disposed of with other waste at the end of its working life. Where marked, the chemical symbols Hg, Cd, or Pb indicate that the battery contains mercury, cadmium, or lead above the reference levels in 2006/66/EC or UK SI 2008 No. 2164. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

## 1.5 Spare parts



**CAUTION:**

Only use the manufacturer's original spare parts to replace any worn or faulty components. The use of unsuitable spare parts may cause malfunctions, damage, and injuries as well as void the warranty.

## 1.6 Warranty

For information about warranty, see the sales contract.

## 1.7 Support

Xylem only supports products that have been tested and approved. Xylem does not support unapproved equipment.

# 2 Product Description

## 2.1 Product design

DCM 711 is a controller for a single-pump installation. The controller is part of the Pareo system.

The controller is available as a control module or as a control box.

| Product        | Description                                                                                                                                                                                                                                    |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control module | <ul style="list-style-type: none"> <li>Installed in an electrical enclosure, all the electrical parts are installed separately</li> <li>Used with pumps of a high voltage and current, or in locally designed electrical enclosures</li> </ul> |
| Control box    | <ul style="list-style-type: none"> <li>Includes the control module and all the electrical parts</li> <li>Used with pumps of a voltage below 690 V, and a current below 38 A</li> </ul>                                                         |

For more information, see [Parts](#) on page 9.

### Optional parts

These parts extend the functionality of DCM 711:

- WLAN unit
- Float switch
- DST 001 service tool

### 2.1.1 Intended use

The product is intended to be used in the Pareo system, to act as controller for a single pump which moves wastewater, sludge, raw and clean water. Always follow the limits that are given in the technical literature for the Pareo system and DCM 711. If there is a question regarding the intended use of the equipment, please contact a local sales and service representative before proceeding.

### Manual reset

The Pareo box can be remotely controlled. Manual reset must be the default mode for all slurry pumps. Automatic reset cannot be used with slurry pumps.

### Mixer

The Pareo system must not be used with slurry pumps that are equipped with mixers.

### Site-specific evaluation

A site-specific evaluation must be done to examine risks of injury when working in or near the pump inlet. Mitigations may be needed, for example a separate emergency stop in close proximity to the pump.

## 2.2 System Description

### 2.2.1 Overview

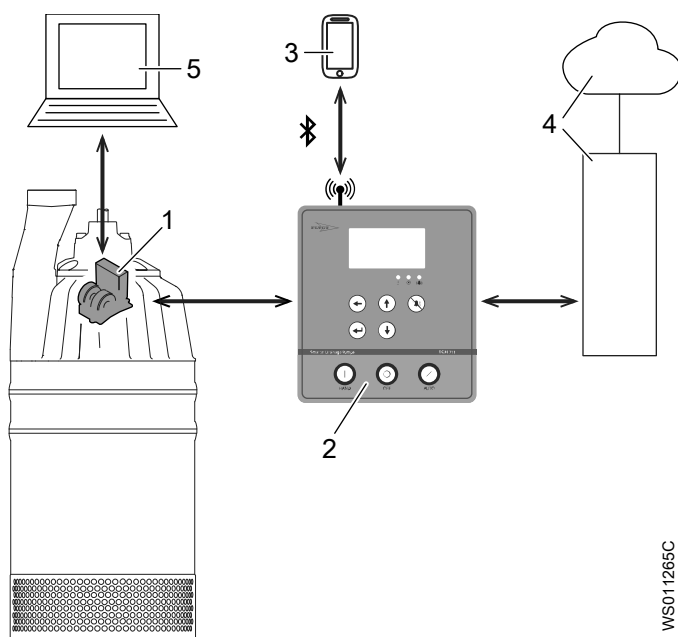
The Pareo system consists of a pump and DCM 711.

The system is set up in one of two modes:

- Pareo mode
- Standard mode

For more information, see [Comparison](#) on page 12.

## 2.2.2 System parts



| Number | Part                            | Description                                                                                                                                                                                                                                                                                                                                                                    |
|--------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Pump module                     | Pareo mode <ul style="list-style-type: none"> <li>• Is installed in the pump</li> <li>• Connects to the pump sensors</li> <li>• Communicates with the controller</li> <li>• Stores running data and data plate information</li> </ul>                                                                                                                                          |
| 2      | Controller                      | DCM 711 <ul style="list-style-type: none"> <li>• Has automatic and manual control modes</li> <li>• Has an integrated HMI and a status lamp</li> </ul>                                                                                                                                                                                                                          |
| 3      | Mobile software application     | The controller connects to the Pareo software application on a smartphone.<br>Connects through Bluetooth                                                                                                                                                                                                                                                                       |
| 4      | Cloud services<br>SCADA systems | The controller communicates with cloud services and SCADA systems through Modbus. <ul style="list-style-type: none"> <li>• Modbus TCP <ul style="list-style-type: none"> <li>– Communication through the Ethernet port or through WLAN</li> </ul> </li> <li>• Modbus RTU <ul style="list-style-type: none"> <li>– Communication through the RS-485 port</li> </ul> </li> </ul> |
| 5      | PC application                  | The DST 001 service tool gives access to settings and log files.                                                                                                                                                                                                                                                                                                               |

## 2.2.3 User interface

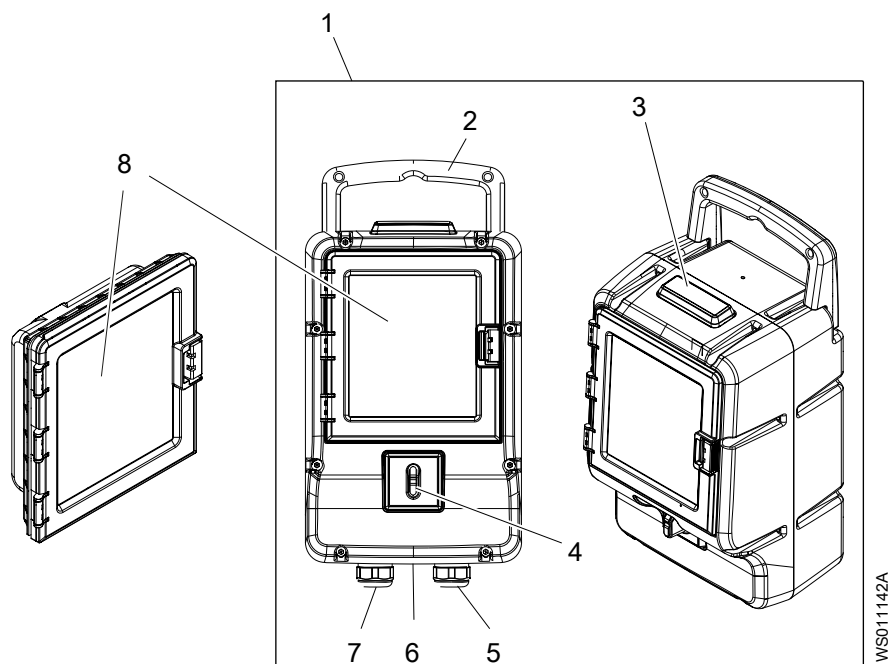
- The integrated user interface lets the user do the following:
  - Control the pump through Hand-Off-Auto controls.
  - Read information that is related to the controller and the pump.
  - Change the settings.
  - Select the control mode.

- Export logs.
- Update software.
- The mobile software application gives similar possibilities as the integrated user interface.
- Information about the status of the system also appears on the status lamp.

## 2.3 Approvals

|                |                                                           |                                                                                                         |                                                                                                                                        |
|----------------|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| European Union | Radio Equipment Directive                                 | This product is in compliance with Directive 2014/53/EU.                                                | See <a href="#">EU: Radio Equipment Directive</a> on page 50.                                                                          |
| USA            | FCC: Federal Communications Commission                    | This product complies with part 15 of the FCC rules.                                                    | Operation is subject to conditions. See <a href="#">USA: Federal Communications Commission (FCC)</a> on page 50.                       |
| Canada         | ISED: Innovation, Science and Economic Development Canada | This product contains licence-exempt transmitter(s)/receiver(s) that comply with licence-exempt RSS(s). | Operation is subject to conditions. See <a href="#">Canada: Innovation, Science and Economic Development Canada (ISED)</a> on page 50. |
| Brazil         | Anatel: National Telecommunications Agency                | This product contains a homologated board.                                                              | See <a href="#">Brazil: National Telecommunications Agency (Anatel)</a> on page 50 for board model and Anatel homologation number.     |
| Mexico (NAR)   | DT IFT-008-2015<br>NOM-208-SCFI-2016                      | This approval is for control module with Bluetooth only.                                                | Operation is subject to conditions. See <a href="#">Mexico: Radio Approvals</a> on page 50.                                            |

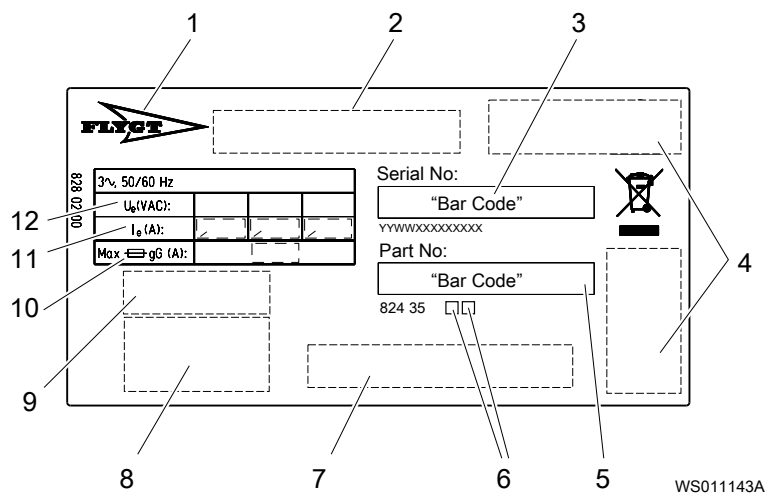
## 2.4 Parts



1. Control box
2. Handle
3. Status lamp
4. On/off switch
5. Cable entry, pump
6. Cable entry, extra
7. Cable entry, power supply
8. Control module

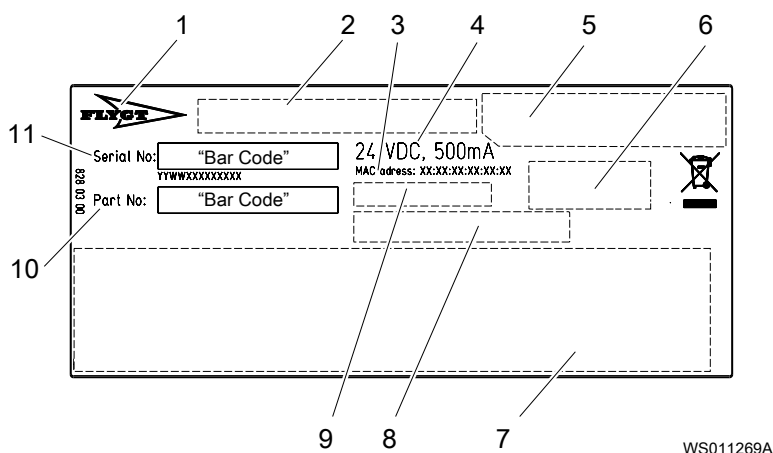
## 2.5 Data plate

### Control box



1. Brand
2. Product
3. Serial number
4. Approvals
5. Part number
6. Variant number
7. Country of origin, manufacturer
8. WLAN ID
9. Bluetooth ID
10. Max short-circuit protection rating
11. Rated current
12. Rated voltage

### Control module



1. Brand
2. Product
3. MAC address
4. Rating
5. Approvals
6. Bluetooth ID
7. Terminals
8. Country of origin, manufacturer
9. WLAN ID
10. Part number
11. Serial number

# 3 Function Description

## 3.1 Configuration

### Initial configuration

| Item           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control box    | The control box is preconfigured for pumps with a specific voltage and current.                                                                                                                                                                                                                                                                                                                                                                                                     |
| Control module | <p>The control module must be configured to match the voltage and current of the pump. The control module can be configured with a configuration file or manually.</p> <ul style="list-style-type: none"> <li>For more information about configuration with a configuration file, see <a href="#">Configuration with a configuration file</a> on page 30.</li> <li>For more information about manual configuration, see <a href="#">Manual configuration</a> on page 30.</li> </ul> |

### Factory reset

When the controller is connected to a new pump, then a factory reset must be made. The controller must be configured to match the voltage and current of the pump.

### Setup Wizard

The Setup Wizard starts automatically at the initial startup, or after a factory reset. It is available from the user interface and includes all the parameters that are needed for the setup of a complete system. For more information, see [Run the Setup Wizard](#) on page 24.

### Settings menu

In the **Settings** menu of the user interface, it is possible to set all the configurable parameters. For more information, see [Settings](#) on page 38.

### System configuration

It is possible to save the configuration of a unit in the system. The configuration is saved as a backup file on a USB drive. The backup file is used to restore installed units in the system, or to configure new units. For more information, see [Maintenance](#) on page 27.

## 3.2 System setup modes

### 3.2.1 Pareo mode

The controller communicates with the pump module that is installed in the junction box of the pump.

| Normal operation          | Communication loss                                                                                                                                                                                                                                                                                                                   |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication established | <p>If the controller repeatedly loses the communication to the pump module, then the <b>Pump communication failure</b> alarm appears. The status lamp turns yellow and the pump continues to operate without any input from the controller.</p> <p>Some of the functionality is lost, see <a href="#">Comparison</a> on page 12.</p> |

### 3.2.2 Standard mode

The controller monitors sensors in the pump. There is no pump module installed in the junction box.

| Signals from the pump                                                                   | No signal from the pump               |
|-----------------------------------------------------------------------------------------|---------------------------------------|
| Thermal contacts and leakage sensors connect to the controller through the motor cable. | Internal thermal contact in the pump. |

### 3.2.3 Comparison

| Item                                                                                                   | Pareo mode       |                    | Standard mode         |                         |
|--------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------------|-------------------------|
|                                                                                                        | Normal operation | Communication loss | Signals from the pump | No signal from the pump |
| Status lamp                                                                                            | Green            | Yellow             | Green                 | Green                   |
| Chain link symbol<br> | Constant         | Flashes            | Flashes               | Flashes                 |
| Overload protection                                                                                    | X                | X                  | X                     | X                       |
| Snore detection                                                                                        | X                | X                  | X                     | X                       |
| Rotation direction control                                                                             | X                | -                  | -                     | -                       |
| Leakage sensor                                                                                         | X                | -                  | X                     | -                       |
| Float switch, pump                                                                                     | X                | -                  | -                     | -                       |
| Float switch, controller                                                                               | X                | X                  | X                     | X                       |
| Pt100 thermal sensor                                                                                   | X                | -                  | -                     | -                       |
| Thermal contact                                                                                        | X                | X                  | X                     | -                       |
| Data plate information                                                                                 | X                | -                  | -                     | -                       |
| Phase imbalance, pump current                                                                          | X                | -                  | -                     | -                       |
| Phase imbalance, voltage                                                                               | X                | X                  | X                     | X                       |
| Overvoltage                                                                                            | X                | X                  | X                     | X                       |
| Undervoltage                                                                                           | X                | X                  | X                     | X                       |
| Undercurrent                                                                                           | X                | X                  | X                     | X                       |

## 3.3 Start and stop

- The controller starts in the same control mode as when it was turned off.
- The pump is turned off when the off mode is selected.  
The main switch must not be used to turn off the pump.
- When the pump stops, there is a pause time before the pump starts again. For more information, see [Pause time](#) on page 14.

## 3.4 Control modes

The controller has three control modes:



- Hand
- Off
- Automatic

### 3.4.1 Hand mode

The pump operates manually under the following conditions:

- Signals from any installed float switches are ignored.
- Detected snoring is ignored.
- Minimum pause time is still applied.
- Class A alarms stop the pump.

### 3.4.2 Off mode

The pump does not operate.

If there is an active Class A alarm, then the alarm must be acknowledged and inactive before it is possible to leave the off mode.

### 3.4.3 Automatic mode

The pump operates automatically based on the selected start condition and stop condition.

- Class A alarms stop the pump.
- In the automatic mode, there are four modes:

| Start condition    | Stop condition | Description                                                                                                                                                                                                                                                                                                                                                                             | Application                                                 |
|--------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| <b>Timer</b>       | <b>Snore</b>   | Start <ul style="list-style-type: none"> <li>• The pump starts after a calculated pause time.</li> </ul> Stop <ul style="list-style-type: none"> <li>• The pump stops when it snores.</li> </ul>                                                                                                                                                                                        | Recommended mode as it does not rely on float switches      |
| <b>Float</b>       | <b>Snore</b>   | Start <ul style="list-style-type: none"> <li>• The pump starts when the float switch is active.</li> </ul> Stop <ul style="list-style-type: none"> <li>• The pump stops when it snores.</li> </ul>                                                                                                                                                                                      | A mode for installations where a float switch is reliable   |
| <b>Float</b>       | <b>Float</b>   | Start <ul style="list-style-type: none"> <li>• The pump starts when the float switch is active.</li> </ul> Stop <ul style="list-style-type: none"> <li>• The pump stops when the float switch is inactive.</li> </ul>                                                                                                                                                                   | The simplest mode in constrained installations              |
| <b>Timer/Float</b> | <b>Snore</b>   | Start <ul style="list-style-type: none"> <li>• Timer               <p>The pump starts after a calculated pause time.</p> </li> <li>• Float               <p>If the float switch is active before the calculated pause time is reached, then the pump starts.</p> </li> </ul> Stop <ul style="list-style-type: none"> <li>• The pump stops when the float switch is inactive.</li> </ul> | The float switch is used as a backup for unexpected inflows |

## 3.5 Pause time

The pause time is the time that the pump is on standby in the hand mode or in the automatic mode. The pump does not operate during the pause time.

The minimum and maximum pause time always have priority over other start and stop signals.

### 3.5.1 Maximum pause time

The maximum pause time is the maximum time that the pump is on standby.

- The value of the **Maximum pause time** parameter is configurable.

### 3.5.2 Minimum pause time

The minimum pause time is the minimum time that the pump is on standby.

- The value of the **Minimum pause time** parameter is configurable but has a fixed minimum. It is not possible to configure the parameter to zero.
- The minimum pause time prevents the pump from an immediate start after a stop.

### 3.5.3 Calculated pause time

When the controller is in the automatic mode, it uses an algorithm to calculate the pause time.

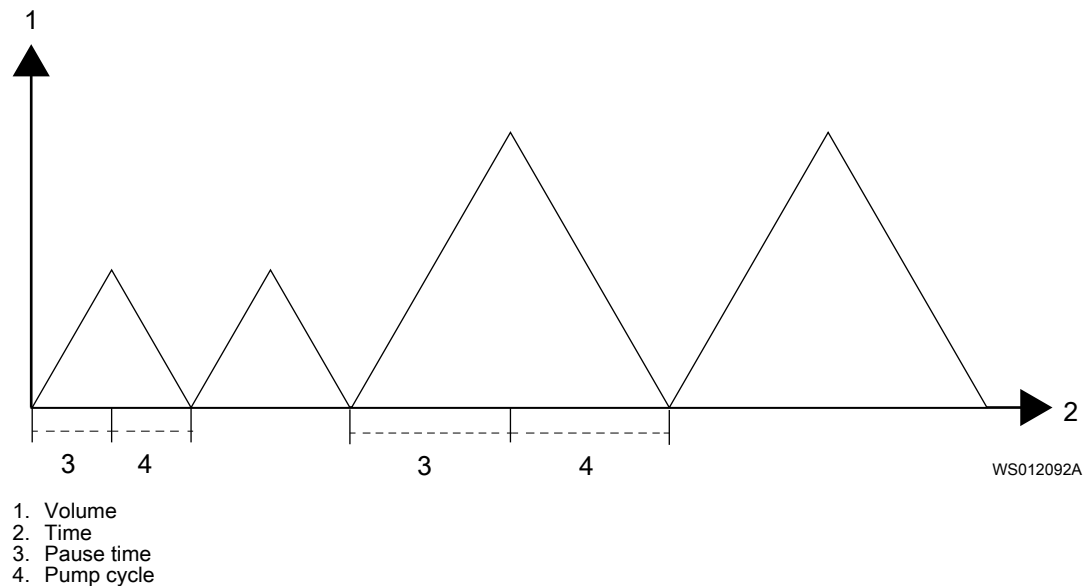
When the pump stops, the controller calculates the inflow with input from the following parameters:

- The run time of the previous pump cycle
- The pause time before the previous pump cycle

The calculated pause time is limited by the **Minimum pause time** and the **Maximum pause time** parameters.

### 3.5.4 Level settings

The value of the **Level settings** parameter is used to calculate the pause time. The parameter does not define the water level in the well. When a higher parameter value is used, the pause time increases and more water accumulates.



## 3.6 Alarms

For more information about the LED behavior of the alarms, see [User Interface](#) on page 33.

### Priority level

| Priority level | Description                                                                                                                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Class A</b> | <ul style="list-style-type: none"> <li>This alarm has the highest priority.</li> <li>A Class A alarm stops the pump. It is not possible to start the pump until the alarm is inactive.</li> <li>The alarm appears as a red indication on all the user interfaces.</li> </ul> |
| <b>Class B</b> | <ul style="list-style-type: none"> <li>A Class B alarm does not stop the pump. It is possible to start the pump when the alarm is active.</li> <li>The alarm appears as a yellow indication on all the user interfaces.</li> </ul>                                           |

### Alarm events

| Event                 | Description                                      |
|-----------------------|--------------------------------------------------|
| <b>Present</b>        | The alarm condition is present.                  |
| <b>Triggered @</b>    | The date and time that the alarm is triggered    |
| <b>Acknowledged @</b> | The date and time that the alarm is acknowledged |

### 3.6.1 Alarm information

| Alarm                                    | Possible cause                                                                                                        | Remedy                                                      | Priority level | Reset     |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------|-----------|
| <b>Data plate mismatch, pump current</b> | The current from the electronic data plate of the pump does not match the configured current range of the controller. | Check that the control box is configured to match the pump. | Class A        | Manual    |
| <b>Data plate mismatch, voltage</b>      | The voltage from the electronic data plate of the pump does not match the configured voltage range of the controller. | Check that the control box is configured to match the pump. | Class A        | Manual    |
| <b>Motor overtemperature</b>             | The thermal sensors detect that the temperature is higher than the permitted limit.                                   | Check the pump temperature.                                 | Class A        | Manual    |
| <b>Overload, pump current</b>            | The pump current is higher than the permitted limit. The current overload protection trips.                           | Check the power supply.                                     | Class A        | Manual    |
| <b>Overvoltage</b>                       | The voltage is higher than the permitted limit.                                                                       | Check the power supply.                                     | Class A        | Automatic |

| Alarm                         | Possible cause                                                                      | Remedy                                                                                                                                                 | Priority level | Reset                                                                                   |
|-------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------|
| Phase imbalance, pump current | There is a current imbalance in the phase leads of the pump.                        | Check the wiring and the connections to the terminals.                                                                                                 | Class A        | Automatic                                                                               |
| Phase imbalance, voltage      | There is a voltage imbalance in the connections to the controller.                  | –                                                                                                                                                      | Class A        | Manual                                                                                  |
| Pump communication failure    | There is no communication between the controller and the pump.                      | Check the wiring and the connections to the terminals.                                                                                                 | Class B        | Automatic                                                                               |
| Pump leakage                  | There is a leakage in the pump.                                                     | Examine and repair the leakage.                                                                                                                        | Class A        | Automatic                                                                               |
| Pump short circuit            | There is a short circuit in the signals from the FLS sensor.                        | –                                                                                                                                                      | Class A        | Automatic                                                                               |
| Pump thermal alarm            | The thermal sensors detect that the temperature is higher than the permitted limit. | Check the pump temperature.                                                                                                                            | Class A        | Automatic                                                                               |
| Pump thermal warning          | The thermal sensors detect that the temperature is high.                            | Check the pump temperature.                                                                                                                            | Class B        | Automatic                                                                               |
| Service alarm                 | The pump is due for service.                                                        | –                                                                                                                                                      | Class B        | Manual<br>For more information, see <a href="#">Reset the service alarm</a> on page 25. |
| Startup failure               | The controller cannot start correctly.                                              | Upgrade the software of the controller.                                                                                                                | Class A        | Manual                                                                                  |
| Undercurrent                  | The pump does not receive sufficient voltage.                                       | <ul style="list-style-type: none"> <li>• Check the incoming power supply.</li> <li>• Check the wiring and the connections to the terminals.</li> </ul> | Class A        | Automatic                                                                               |
| Undervoltage                  | The pump does not receive sufficient voltage.                                       | <ul style="list-style-type: none"> <li>• Check the incoming power supply.</li> <li>• Check the wiring and the connections to the terminals.</li> </ul> | Class A        | Automatic                                                                               |

# 4 Installation

## 4.1 Precautions

Before starting work, make sure that the safety instructions have been read and understood.



### **DANGER: Electrical Hazard**

Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized. This applies to the control circuit as well.



### **DANGER: Electrical Hazard**

All electrical equipment must be grounded (earthed). Test the ground (earth) lead to verify that it is connected correctly and that the path to ground is continuous.



### **WARNING: Electrical Hazard**

Risk of electrical shock or burn. A certified electrician must supervise all electrical work. Comply with all local codes and regulations.



### **WARNING: Electrical Hazard**

There is a risk of electrical shock or explosion if the electrical connections are not correctly carried out, or if there is fault or damage on the product. Visually inspect equipment for damaged cables, cracked casings or other signs of damage. Make sure that electrical connections have been correctly made.



### **CAUTION: Electrical Hazard**

Prevent cables from becoming sharply bent or damaged.

## 4.2 Requirements

### 4.2.1 Facility

#### **Exposure to water or physical damage**

It is recommended to install the controller such that exposure to water or risk of external physical damage is decreased.

#### **Explosive zones**

#### **NOTICE:**

Do not use this unit in environments that may contain flammable/explosive or chemically aggressive gases or powders.

### 4.2.2 Electromagnetic compatibility

Make sure that the equipment or system in which the product is incorporated complies with the electromagnetic compatibility (EMC) legislation of that country.

- The unit complies with and is approved according to EMC Directive 2014/30/EU. In the European Union, equipment in which the unit is incorporated must also comply with the same directive.
- The unit is approved as industrial equipment connected to a power network that is supplied by a dedicated high or medium voltage transformer. The unit is not intended to be used in low-voltage public networks which supply domestic premises.
- The unit complies with the emission and immunity requirements of EN 61000-6-4 and EN 61000-6-2

For more information, contact the sales and service representative.

### 4.2.3 Electrical installation

These requirements apply:

- The cables must follow the local rules and regulations.
- The power supply to the controller must be designed such that it is possible to isolate the controller completely from the power.
- All fuses and circuit breakers must have the correct rating, and follow the local rules and regulations. For more information, see [Variants](#) on page 44.
- A short-circuit protection must be installed at the power supply to avoid electric shock and fire. The installation must follow the local rules and regulations.
- An authorized local sales and service representative must replace the glass fuse in the control box. For more information, see [Glass fuse properties](#) on page 45.

### 4.2.4 Cables

These requirements apply:

- The cables must be in good condition, not have any sharp bends, and not be pinched.
- The sheathing must not be damaged and must not have indentations or be embossed at the cable entry.
- The minimum bending radius must not be below the accepted value.
- All cable entries must be sealed to maintain the IP rating of the unit.
- The cables must have the applicable temperature rating.
- The minimum temperature rating of the power supply cable must be 70°C (158°F).

### 4.2.5 Current transformer



---

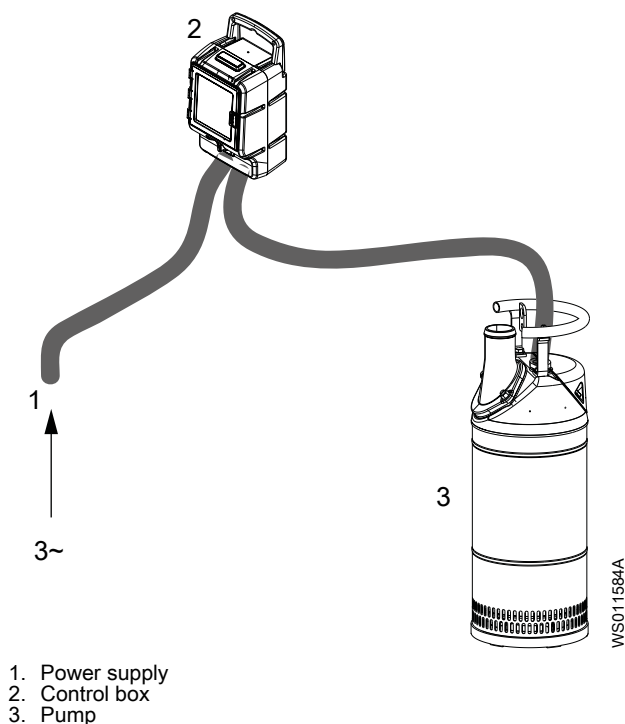
**WARNING: Electrical Hazard**

There is a risk of electric shock or burn. Always disconnect the main power supply before the current transformers are installed, removed, or repaired.

---

- An input voltage connected to the current transformer must be within SELV limits.
- The current transformer must be suitable for the application.
- The current transformers must not be installed in the following conditions:
  - If they cover more than 75 percent of cross-sectional area of the wiring space in the equipment
  - If they block the ventilation opening
  - If they are installed in an area of the breaker arc venting
- The current transformers are not applicable for Class 2 wiring methods.
- The current transformers are not intended for connection to Class 2 equipment.
- The current transformer and conductors must be installed in such a way that the conductors do not touch live terminals or bus.
- For North America and other applicable markets
  - A current transformer connected to the pump module must be UL listed.

## 4.3 Control box



### 4.3.1 Mechanical installation

The control box is prepared to be installed on a wall.

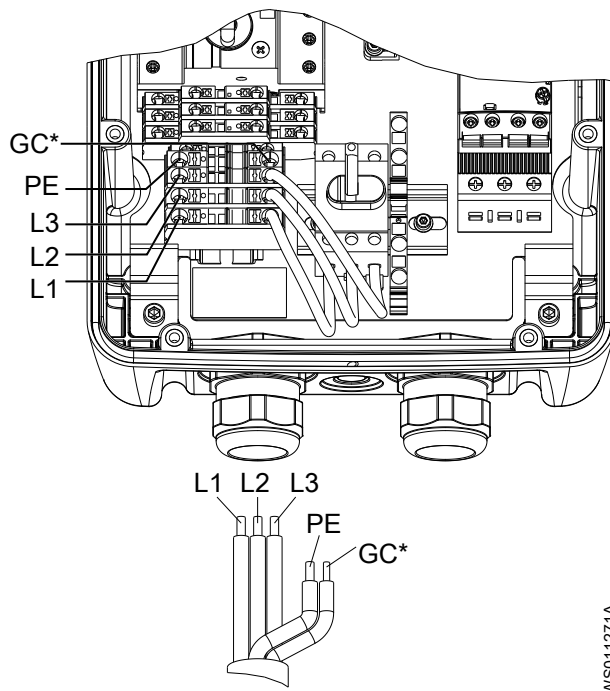
Select one of the following actions:

| Condition                               | Action                                                                                                                                                              |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Installation with the pre-drilled holes | <p>1. Drill four 6.5 mm (0.25 in) holes in the wall for the screws.<br/>The image shows the drilling pattern.</p> <p>2. Install the control box with M6 screws.</p> |
| Installation with the handle            | Use the handle to hang the control box on the wall.                                                                                                                 |

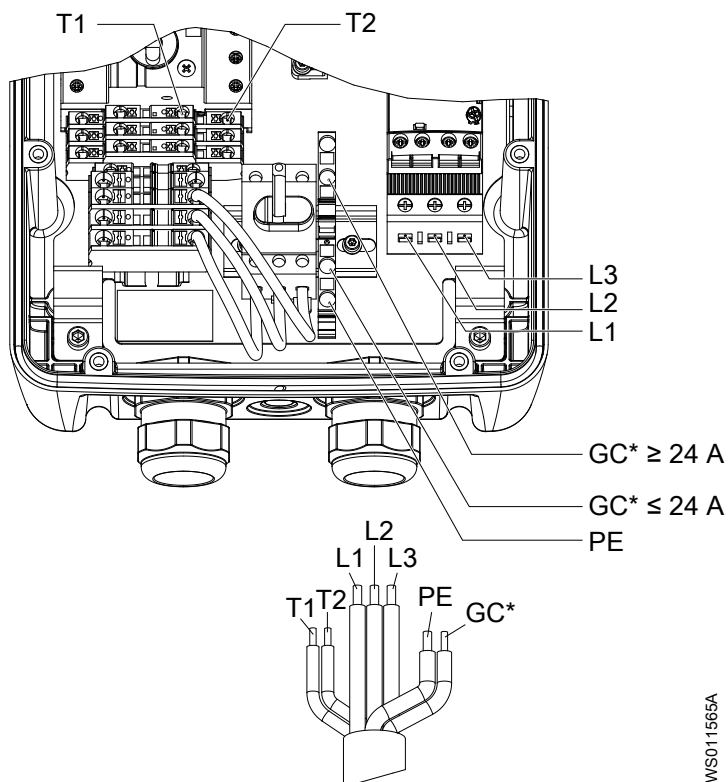
### 4.3.2 Electrical installation

- Check that the rating of the control box corresponds to the rating of the pump.  
For more information, see [Variants](#) on page 44.
- Check the power supply for current, voltage, and frequency.  
For more information, see [Variants](#) on page 44.

3. Open the control box.
4. Install the power cable and the pump cable through the cable entries.  
For more information, see [Parts](#) on page 9.
5. Connect the power supply leads to the power terminals.  
For more information, see [Terminals](#) on page 46.



6. Connect the leads of the pump motor cable to the pump terminals.  
For more information, see [Terminals](#) on page 46.



7. Check that all seals are correctly installed.

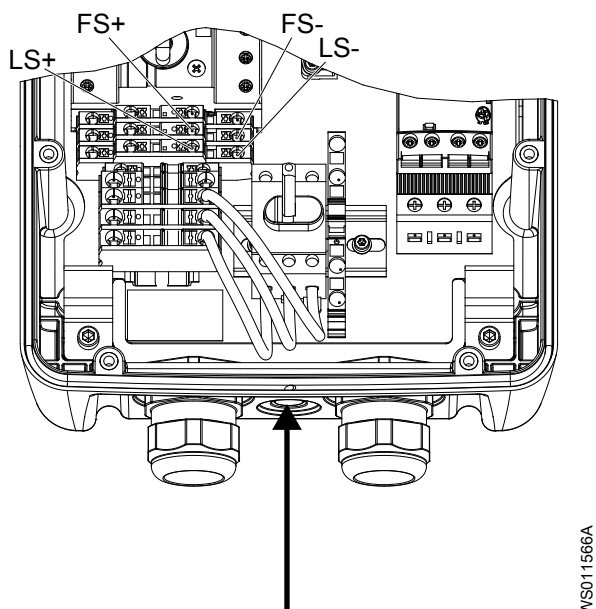


8. Check that the cables are not pinched.
9. Close the control box.

### 4.3.3 Optional parts

#### 4.3.3.1 Install the float switch

- The extra cable entry of the control box must be open before starting the installation.
  - For more information about the parts, see [Parts](#) on page 9.
  - Make sure to maintain the IP rating of the control box.
1. Open the control box.
  2. Install a cable gland in the extra cable entry.  
Make sure to maintain the IP rating of the control box.
  3. Install the cable through the cable gland.



4. Connect the float switch leads to the FS terminals.  
For more information about the terminals, see [Terminals](#) on page 46.

## 4.4 Pareo DCM 711 control module

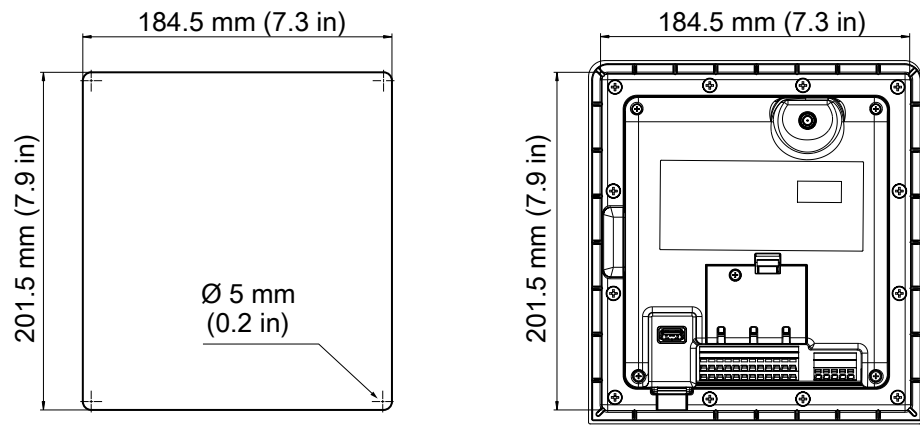
### 4.4.1 Installation requirements

- For North America and other applicable markets
  - The modules must be installed in an industrial control cabinet.
- IEC requirements
  - The modules must be installed in a safety enclosure with minimum IP44 rating.

### 4.4.2 Mechanical installation

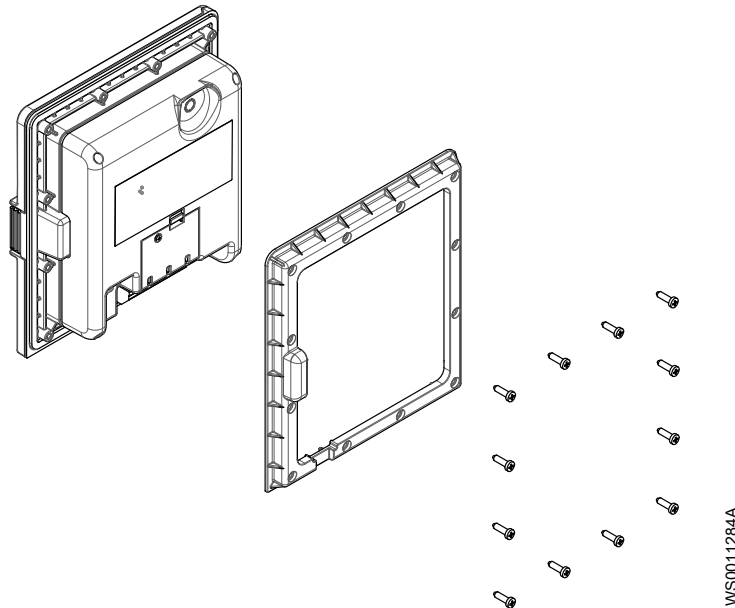
The control module is installed on the cabinet door.

1. Drill four 5 mm (0.2 in) holes.  
The image shows the drilling pattern.



WS011268A

2. Make the opening.
3. Remove the back cover of the control module.
4. Push the back of the control module into the opening.
5. Tighten the back cover on the back of the control module with 12 screws.  
Use 4.6x16 mm (0.18x0.63 in) threaded screws for plastics.



### 4.4.3 Electrical Installation

#### 4.4.3.1 Prerequisites

The electrical installation of the control module requires extra standard components:

- Two contactors
- Overload protection
- Main circuit breaker
- Voltage transformer
- Power supply, 24 VDC

The standard components are not delivered with the control module.

### 4.4.3.2 Cables

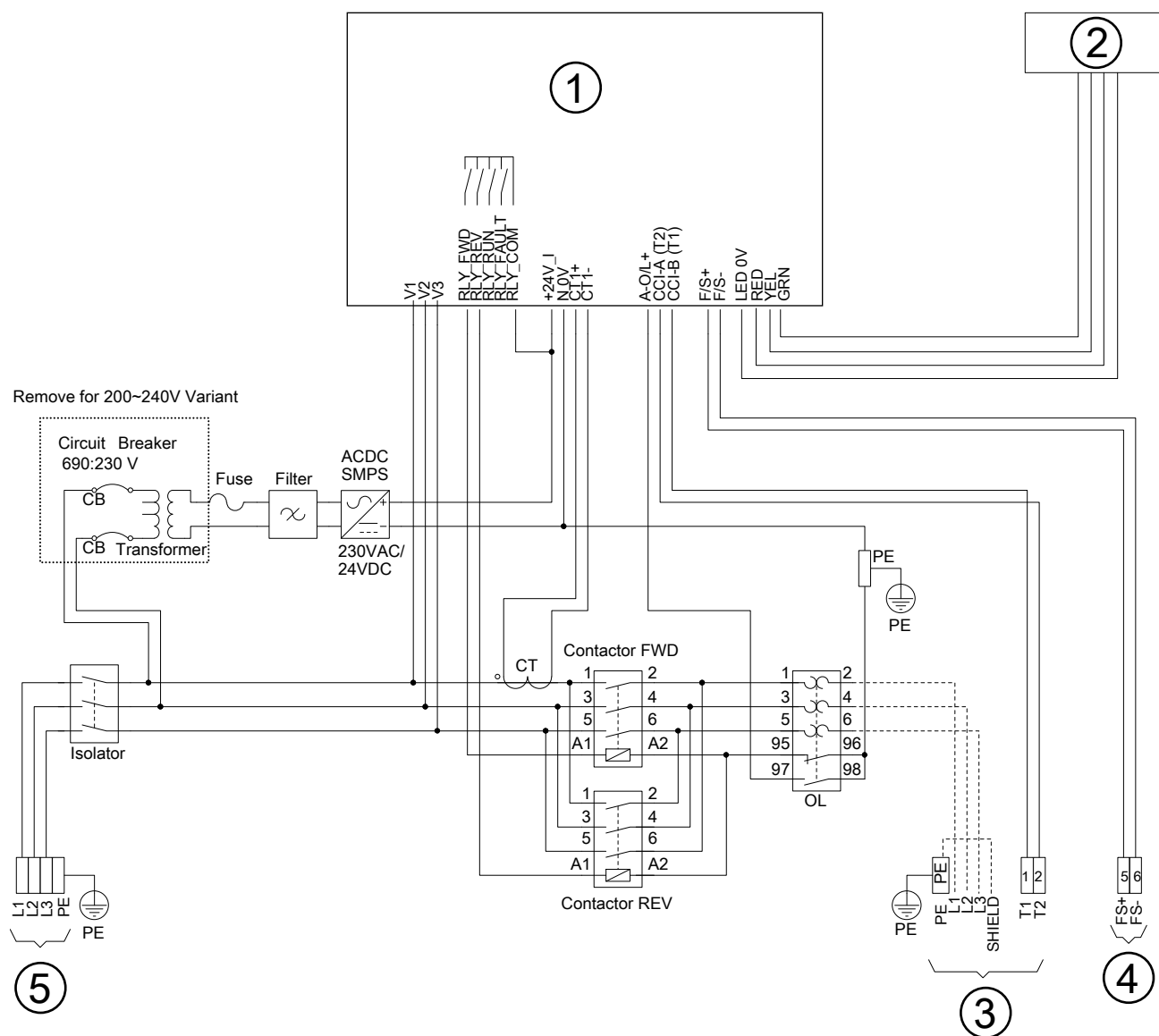
#### NOTICE:

The cables that are connected to the control module must meet the following requirements:

- 0.75 mm<sup>2</sup> (AWG 18)
- Minimum temperature rating: +105°C (+221°F)
- Conductors must be copper.

### 4.4.3.3 Connection chart

For more information, see [Terminals](#) on page 48.



WS011305A

1. Control module
2. Status lamp
3. Pump
4. Float switch
5. Power supply

# 5 System Setup and Operation

## 5.1 Commissioning

1. Turn on the controller.
2. Select one of the following actions:

| Condition                                          | Action                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First start of a control box                       | Run the Setup Wizard.<br>The unit starts with the selected values.                                                                                                                                                                                                                       |
| First start of a control module                    | <ol style="list-style-type: none"> <li>1. Run the Setup Wizard.<br/>The unit starts with the selected values.</li> <li>2. Configure the control module and the pump module.<br/>For more information, see <a href="#">Configuration with a configuration file</a> on page 30.</li> </ol> |
| Restart of a controller with the default settings. | <ol style="list-style-type: none"> <li>1. Go to <b>Settings &gt; Back up/restore &gt; Controller &gt; Factory reset</b>.</li> <li>2. Confirm to continue with the reset.</li> <li>3. Run the Setup Wizard.</li> </ol> The unit restarts with the selected values.                        |

For more information, see [User Interface](#) on page 33 and [Run the Setup Wizard](#) on page 24.

## 5.2 Run the Setup Wizard

Run the wizard.

| Menu                     | Action                                                                                                                                                                                                                                  |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Language</b>          | Select the language.                                                                                                                                                                                                                    |
| <b>Pump sensor setup</b> | Select the setup of the pump sensors.<br>This option only appears if the controller is not able to detect the pump module.                                                                                                              |
| <b>Nominal voltage</b>   | Type the nominal voltage of the pump.<br>This option only appears if the controller is not able to detect the pump module.                                                                                                              |
| <b>Nominal current</b>   | Type the nominal current of the pump.<br>This option only appears if the controller is not able to detect the pump module.                                                                                                              |
| <b>System units</b>      | Select metric or imperial system.                                                                                                                                                                                                       |
| <b>Select the date</b>   | Select the date.                                                                                                                                                                                                                        |
| <b>Select the time</b>   | Select the time.                                                                                                                                                                                                                        |
| <b>Pump name</b>         | Type a pump name or select an existing pump.                                                                                                                                                                                            |
| <b>Site name</b>         | Type a site name or select an existing site.                                                                                                                                                                                            |
| <b>Pump control mode</b> | Select the pump control mode.                                                                                                                                                                                                           |
| <b>Start condition</b>   | Select the start condition of the automatic control mode.                                                                                                                                                                               |
| <b>Stop condition</b>    | Select the stop condition of the automatic control mode.                                                                                                                                                                                |
| <b>Snore setup</b>       | <ul style="list-style-type: none"> <li>– Skip the snore setup to use the default reference power.</li> <li>– Select <b>Run pump in hand mode to detect power</b> to find the reference power or to enter the value manually.</li> </ul> |

For a list of all the values, see [Setup Wizard](#) on page 42.

## 5.3 Common procedures

### 5.3.1 Set the date and time

1. Go to **Settings > Global > Date and time > Change date/time**.
2. Change to the correct date and time.

### 5.3.2 Change the communication settings

1. Go to **Settings > Communication settings**.
2. Change the applicable parameters.

### 5.3.3 Acknowledge an alarm

The alarm LED and the status lamp turn red or yellow when there is an active alarm. The user interface also shows the active alarm, and the alarm class and type.

Press the **Acknowledge alarms** button.

All active alarms are acknowledged.

For more information, see [LED indicators and buttons](#) on page 33 and [Alarms](#) on page 15.

### 5.3.4 Reset the service alarm

The **Service alarm** alarm must be reset manually.

1. Go to **Settings > Alarm > Service alarm > Enabled > Disabled**.
2. Confirm.  
The alarm is disabled.
3. Go to **Settings > Alarm > Service alarm > Interval**.
4. Set the interval.
5. Confirm.
6. Go to **Settings > Alarm > Service alarm > Enabled > Enabled**.
7. Confirm.

The alarm is enabled.

### 5.3.5 Change the alarm settings

1. Go to **Settings > Alarm**.
2. Select the alarm.
3. Select the parameter.
4. Configure the parameter.

For more information, see [Alarm](#) on page 39.

### 5.3.6 Change the start condition and stop condition

1. Check that the controller is in the **AUTO MODE**.
2. Go to **Settings > Pump control > Start condition** to change the start condition of the control mode.
3. Go to **Settings > Pump control > Stop condition** to change the stop condition of the control mode.

### 5.3.7 Adjust the pause time

1. Go to **Settings > Pump control > Minimum pause time** to change the minimum pause time.
2. Go to **Settings > Pump control > Maximum pause time** to change the maximum pause time.

### 5.3.8 Set the reference power

The controller uses the reference power of the pump to detect snoring. If the reference power is not known, then the parameter is configured in the **Settings** menu.

Set the reference power.

| Condition                           | Action                                                                                                                                                                                                                                                                                                   |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use of the default reference power. | <ol style="list-style-type: none"><li>1. Go to <b>Settings &gt; Pump control &gt; Reference power &gt; Reset reference power.</b></li><li>2. Confirm.</li></ol>                                                                                                                                          |
| Calibration of the reference power. | <ol style="list-style-type: none"><li>1. Check that there is water in the well.</li><li>2. Press the <b>HAND</b> button.</li><li>3. Go to <b>Settings &gt; Pump control &gt; Reference power &gt; Calibrate the reference power.</b></li><li>4. Confirm the initialization of the calibration.</li></ol> |
| Manual set of the reference power.  | <ol style="list-style-type: none"><li>1. Go to <b>Settings &gt; Pump control &gt; Reference power &gt; Reference power.</b></li><li>2. Type the value.</li></ol>                                                                                                                                         |

# 6 Maintenance

## 6.1 Precautions

Before starting work, make sure that the safety instructions have been read and understood.



### **DANGER: Electrical Hazard**

Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized. This applies to the control circuit as well.



### **DANGER: Electrical Hazard**

All electrical equipment must be grounded (earthed). Test the ground (earth) lead to verify that it is connected correctly and that the path to ground is continuous.



### **WARNING: Electrical Hazard**

Risk of electrical shock or burn. A certified electrician must supervise all electrical work. Comply with all local codes and regulations.



### **WARNING: Electrical Hazard**

There is a risk of electrical shock or explosion if the electrical connections are not correctly carried out, or if there is fault or damage on the product. Visually inspect equipment for damaged cables, cracked casings or other signs of damage. Make sure that electrical connections have been correctly made.



### **CAUTION: Electrical Hazard**

Prevent cables from becoming sharply bent or damaged.

Thermal hazard



### **CAUTION: Thermal Hazard**

The surfaces or parts of the unit may become hot during operation. Allow surfaces to cool before starting work, or wear heat-protective clothing.

## 6.2 Requirements

### 6.2.1 Electrical installation

These requirements apply:

- The cables must follow the local rules and regulations.
- The power supply to the controller must be designed such that it is possible to isolate the controller completely from the power.
- All fuses and circuit breakers must have the correct rating, and follow the local rules and regulations. For more information, see [Variants](#) on page 44.

- A short-circuit protection must be installed at the power supply to avoid electric shock and fire. The installation must follow the local rules and regulations.
- An authorized local sales and service representative must replace the glass fuse in the control box. For more information, see [Glass fuse properties](#) on page 45.

### 6.2.2 Cables

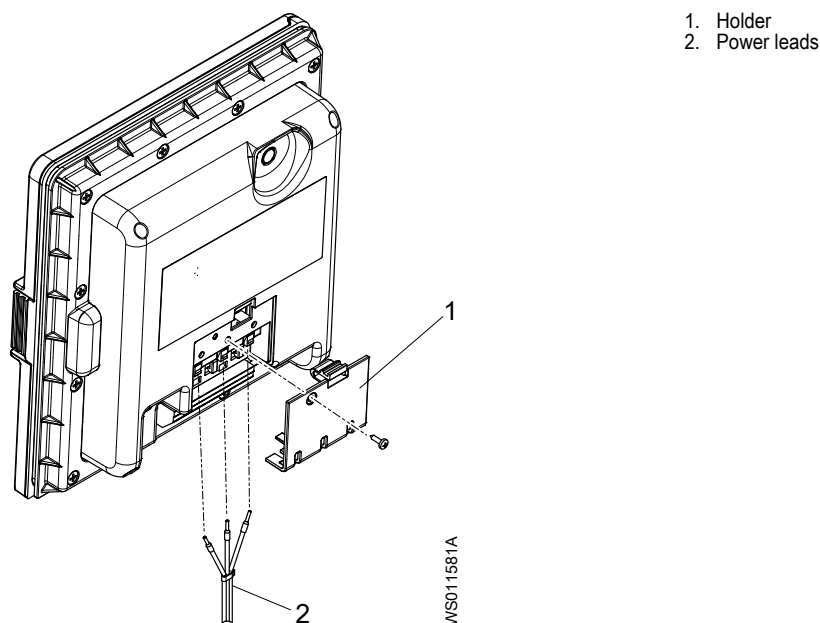
These requirements apply:

- The cables must be in good condition, not have any sharp bends, and not be pinched.
- The sheathing must not be damaged and must not have indentations or be embossed at the cable entry.
- The minimum bending radius must not be below the accepted value.
- All cable entries must be sealed to maintain the IP rating of the unit.
- The cables must have the applicable temperature rating.
- The minimum temperature rating of the power supply cable must be 70°C (158°F).

## 6.3 Install the WLAN unit

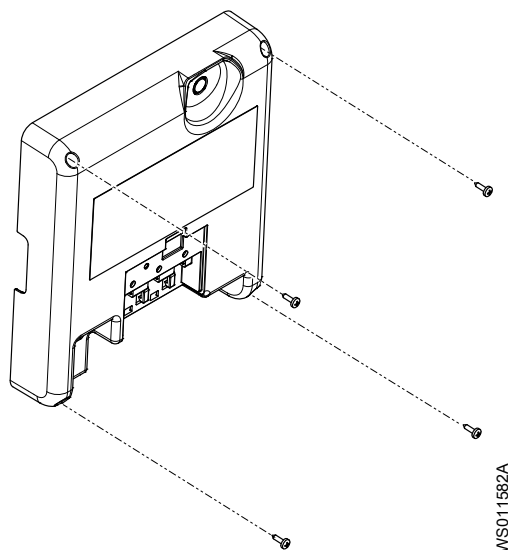
The WLAN unit is installed in the control module.

1. Remove the WLAN unit.
  - a) Remove the holder.
  - b) Disconnect the power leads from the control module.

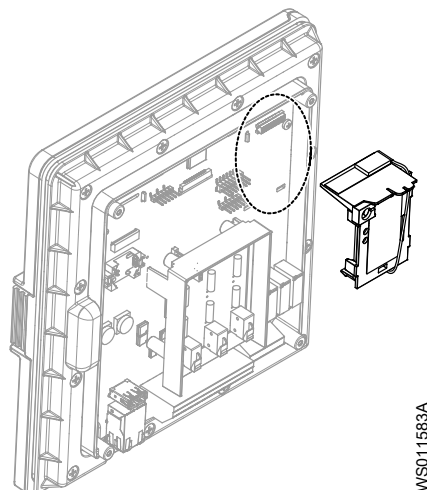


- c) Remove the back cover of the control module.





d) Remove the WLAN unit.



2. Install the WLAN unit.

- a) Install the WLAN unit onto the printed circuit board.
- b) Install the back cover of the control module and tighten the screws.
- c) Connect the power leads.
- d) Install the holder.

## 6.4 Back up the application settings

1. Turn off the power to the control module.
2. Insert the USB drive in the control module.
3. If the control module is installed in a control box, then close the control box.  
The control box must be closed when the power is on.
4. Turn on the power to the control module.
5. Go to **Settings > Back up/restore > Controller > Back up to USB**.
6. Confirm.
7. Turn off the power.
8. Remove the USB drive.

## 6.5 Configuration

The configuration settings for the control module and the pump module are restored from the control module.

### 6.5.1 Configuration with a configuration file

Contact the local sales and service representative to get the configuration file.

1. Save the configuration file to a USB drive.
2. Turn off the power to the control module.
3. Insert the USB drive in the control module.
4. If the control module is installed in a control box, then close the control box.  
The control box must be closed when the power is on.
5. Turn on the power to the control module.
6. Go to **Settings > Advanced > Back up/restore**.

| Option                                                     | Description                                                                                                                         |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Restore the configuration settings for the control module. | <ol style="list-style-type: none"> <li>1. Go to <b>Controller data plate &gt; Restore from USB</b>.</li> <li>2. Confirm.</li> </ol> |
| Restore the configuration settings for the pump module.    | <ol style="list-style-type: none"> <li>1. Go to <b>Pump data plate &gt; Restore from USB</b>.</li> <li>2. Confirm.</li> </ol>       |

7. Turn off the power.
8. Remove the USB drive.

### 6.5.2 Manual configuration

The values for the parameters must be set according to the configuration of the control module or the control box. The system can malfunction if the values are incorrect.

The system must be in Off mode during the configuration.

1. Go to **Settings > Advanced > Configuration > Controller data plate**
2. Enter the values for the following:
  - **Rated voltage, minimum**
  - **Rated voltage, maximum**
  - **Rated current, minimum**
  - **Rated current, maximum**
  - **Current transformer ratio**
  - **Controller float switch**

## 6.6 Software update

The software for the control module and the pump module is updated through the control module. Contact the local sales and service representative to get the installation files.

1. Save the installation files to a USB drive.
2. Turn off the power to the control module.
3. Insert the USB drive in the control module.
4. If the control module is installed in a control box, then close the control box.  
The control box must be closed when the power is on.
5. Select one of the following actions:

| Condition                       | Action                                                                                                                                                                   |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software update: control module | <ol style="list-style-type: none"> <li>1. Turn on the power to the control module.<br/>The control module starts and the software is automatically installed.</li> </ol> |

---

| Condition                       | Action                                                                                                                                                                                                                            |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software update:<br>pump module | <ol style="list-style-type: none"><li>1. Turn on the power to the control module.</li><li>2. Go to <b>Information &gt; Controller information &gt; About &gt; Pump software upgrade</b>.</li><li>3. Confirm the update.</li></ol> |

6. Turn off the power.
7. Remove the USB drive.

## 6.7 Cleaning

Make sure that the unit is clean from dust and dirt. Use a wet cloth and soapy water for cleaning.

# 7 Troubleshooting

## 7.1 Precautions

Before starting work, make sure that the safety instructions have been read and understood.



**DANGER: Electrical Hazard**

Troubleshooting a live control panel exposes personnel to hazardous voltages. Electrical troubleshooting must be done by a qualified electrician.



**DANGER: Electrical Hazard**

Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized. This applies to the control circuit as well.



## 7.2 The unit does not work

| Cause                                        | Remedy                                                                                                                                                                                                                                                     |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The power LED does not light up.             | <ul style="list-style-type: none"><li>• Check that the unit receives voltage.</li><li>• Restart the unit.</li></ul>                                                                                                                                        |
| The unit does not communicate with the pump. | <ul style="list-style-type: none"><li>• Check that the pump receives voltage.</li><li>• Check that the pump cable is not damaged.</li><li>• Check that the unit settings and configuration are correct.</li><li>• Restart the pump and the unit.</li></ul> |

If the problem persists, then contact a sales or authorized service representative.  
Always state the product number and the serial number of the product.

# 8 User Interface

## 8.1 LED indicators and buttons

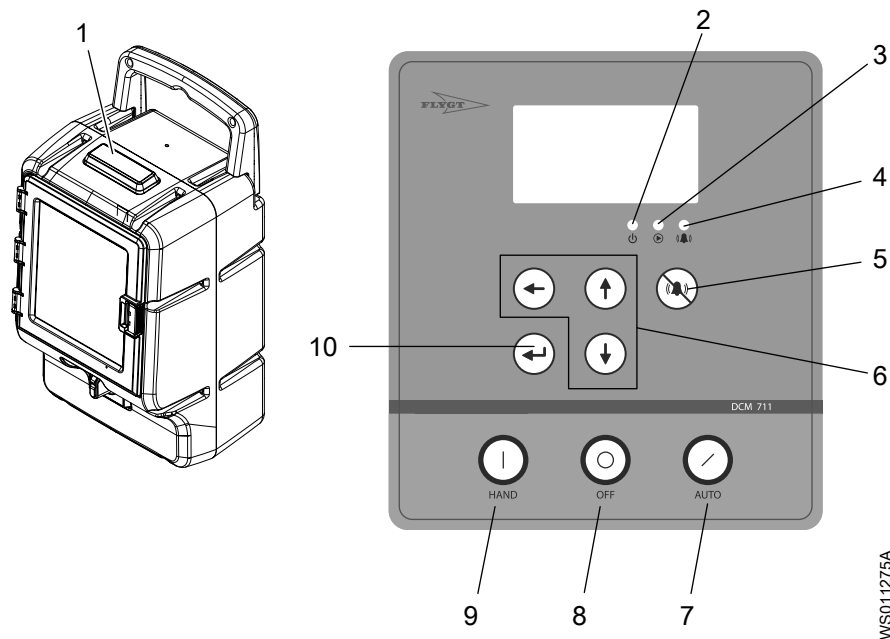


Table 1: LED indicators

| Position number | Description | Color          | Indication                                                                                                                                                                                          |
|-----------------|-------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1               | Pump status | Green          | Automatic mode <ul style="list-style-type: none"> <li>The pump operates.</li> <li>The pump is on standby.</li> </ul> Hand mode <ul style="list-style-type: none"> <li>The pump operates.</li> </ul> |
|                 |             | Yellow         | <ul style="list-style-type: none"> <li>There is a class B alarm. <ul style="list-style-type: none"> <li>The pump operates.</li> </ul> </li> <li>The pump is in the off mode.</li> </ul>             |
|                 |             | Red            | There is a class A alarm. <ul style="list-style-type: none"> <li>The pump does not operate.</li> </ul>                                                                                              |
| 2               | Power       | Constant white | The power is on and the pump communication is set up.                                                                                                                                               |
|                 |             | Flashing white | There is no communication to the pump.                                                                                                                                                              |
|                 |             | –              | The power is off.                                                                                                                                                                                   |

| Position number | Description | Color          | Indication                                                                  |
|-----------------|-------------|----------------|-----------------------------------------------------------------------------|
| 3               | Pump status | Constant green | Automatic mode<br>• The pump operates.<br>Hand mode<br>• The pump operates. |
|                 |             | Flashing green | The pump is on standby.                                                     |
|                 |             | –              | The pump does not operate.                                                  |
| 4               | Alarm       | Red            | There is a class A alarm.                                                   |
|                 |             | Yellow         | There is a class B alarm.                                                   |
|                 |             | –              | There is no alarm.                                                          |

Table 2: Buttons

| Position number | Function                        |
|-----------------|---------------------------------|
| 5               | Acknowledgement of an alarm     |
| 6               | Navigation in the menus         |
| 7               | Selection of the automatic mode |
| 8               | Selection of the off mode       |
| 9               | Selection of the hand mode      |
| 10              | Confirmation                    |

## 8.2 Alarms

### Active alarms

The **Active alarms** menu lists all the active alarms. When an alarm is selected, the following information shows:

- Status
- Date and time
- Priority level

### Alarm history

The **Alarm history** menu lists the alarm history. When an alarm is selected, more information shows:

- Event
- Date and time
- Priority level

## 8.3 Information

### 8.3.1 Pump information

#### Running data

| Part                                       | Description                                  |
|--------------------------------------------|----------------------------------------------|
| Total starts                               | The total number of pump starts              |
| Total run time                             | The total run time of the pump               |
| Current                                    | The input current of the motor               |
| Voltage                                    | The input voltage of the motor               |
| Power                                      | The input power of the motor                 |
| Temperature<br>Applicable for Pt100 sensor | The temperature measured by the Pt100 sensor |

## Data plate

For more information, see the Installation, Operation, and Maintenance manual of the pump.

| Part                     | Description                                      |
|--------------------------|--------------------------------------------------|
| Product code             | The product code of the pump                     |
| Product number           | The product number of the pump                   |
| Serial number            | The serial number of the pump                    |
| Curve number             | The curve number of the pump                     |
| Number of phases         | The number of phases of the pump                 |
| Current type             | The current type of the pump                     |
| Frequency                | The frequency of the pump                        |
| Delivery connection      | The motor connection at delivery                 |
| Rated star voltage       | The rated star voltage of the pump               |
| Rated delta voltage      | The rated delta voltage of the pump              |
| Rated star current       | The rated star current of the pump               |
| Rated delta current      | The rated delta current of the pump              |
| Rated shaft power        | The rated shaft power of the pump                |
| Rated input power        | The rated input power of the pump                |
| Power factor, cos phi    | The power factor of the pump                     |
| Rated speed              | The rated speed of the pump                      |
| Max submergence          | The maximum submergence level of the pump        |
| Direction of rotation    | The direction of the impeller rotation           |
| Product weight           | The weight of the pump                           |
| Max ambient temperature  | The maximum permitted temperature of the ambient |
| Impeller type            | The impeller type of the pump                    |
| Duty class               | The duty class of the pump                       |
| Duty factor              | The duty factor of the pump                      |
| IP rating                | The IP rating of the pump                        |
| Thermal protection       | The thermal protection of the pump               |
| Thermal class            | The thermal class of the pump                    |
| Locked rotor code        | The locked rotor code of the pump                |
| Part number, pump module | The part number of the pump module               |

## Pump I/O

| Part                                                                                                                                            | Description                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Status                                                                                                                                          | The status of the pump                                                                             |
| Current <ul style="list-style-type: none"> <li>• L1 current</li> <li>• L2 current</li> <li>• L3 current</li> <li>• L1-L2 phase angle</li> </ul> | The actual current values                                                                          |
| Pt100 temperature                                                                                                                               | The temperature that the Pt100 sensor measures                                                     |
| Float                                                                                                                                           | The state of the switch <ul style="list-style-type: none"> <li>• Open</li> <li>• Closed</li> </ul> |

| Part                   | Description                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------|
| Pump thermal/FLS       | The state of the FLS <ul style="list-style-type: none"> <li>• Open</li> <li>• Closed</li> </ul> |
| Controller temperature | The temperature in the pump module                                                              |

## Export

| Part                | Description                                        |
|---------------------|----------------------------------------------------|
| Back up logs to USB | The option to back up the log files to a USB drive |

## 8.3.2 Controller information

### Communication

#### WLAN

| Part       | Description                                                                                        |
|------------|----------------------------------------------------------------------------------------------------|
| Status     | The status of the function <ul style="list-style-type: none"> <li>• On</li> <li>• Off</li> </ul>   |
| Connected  | The status of the connection <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul> |
| RSSI       | The RSSI value                                                                                     |
| Modbus TCP | Information about the Modbus TCP parameters                                                        |

#### Bluetooth

| Part      | Description                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------|
| Status    | The status of the function <ul style="list-style-type: none"> <li>• On</li> <li>• Off</li> </ul>   |
| Connected | The status of the connection <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul> |
| RSSI      | The RSSI value                                                                                     |

#### Ethernet

| Part       | Description                                 |
|------------|---------------------------------------------|
| Modbus TCP | Information about the Modbus TCP parameters |

#### Pump communication

| Part          | Description                                    |
|---------------|------------------------------------------------|
| Modbus master | Information about the Modbus master parameters |

#### RS-485

| Part       | Description                                 |
|------------|---------------------------------------------|
| Modbus RTU | Information about the Modbus RTU parameters |



## Controller I/O

| Part                                                                                                                                                                                 | Description                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Voltage RMS</b> <ul style="list-style-type: none"> <li>• L1 voltage</li> <li>• L2 voltage</li> <li>• L3 voltage</li> <li>• L1-L2 phase angle</li> </ul>                           | The measured <b>Voltage RMS</b> values                                                                                                                                                                   |
| <b>Power and current</b> <ul style="list-style-type: none"> <li>• L1 current</li> <li>• L1 power</li> <li>• L1 power factor</li> </ul>                                               | The measured power and current values                                                                                                                                                                    |
| <b>Controller relays</b> <ul style="list-style-type: none"> <li>• Forward</li> <li>• Reverse</li> <li>• Running</li> <li>• Alarm</li> </ul>                                          | The status of the relay <ul style="list-style-type: none"> <li>• On</li> <li>• Off</li> </ul>                                                                                                            |
| <b>Controller float switch</b>                                                                                                                                                       | The state of the switch <ul style="list-style-type: none"> <li>• Open</li> <li>• Closed</li> </ul>                                                                                                       |
| <b>Controller overload switch</b>                                                                                                                                                    | The state of the switch <ul style="list-style-type: none"> <li>• Open</li> <li>• Closed</li> </ul>                                                                                                       |
| <b>4-20 mA input 1</b>                                                                                                                                                               | –                                                                                                                                                                                                        |
| <b>4-20 mA input 2</b>                                                                                                                                                               | –                                                                                                                                                                                                        |
| <b>Status lamp</b>                                                                                                                                                                   | The color of the status lamp <ul style="list-style-type: none"> <li>• Green</li> <li>• Yellow</li> <li>• Red</li> </ul> For more information, see <a href="#">LED indicators and buttons</a> on page 33. |
| <b>System information</b> <ul style="list-style-type: none"> <li>• System voltage</li> <li>• RTC battery voltage</li> <li>• System temperature</li> <li>• USB overcurrent</li> </ul> | Information about the system <ul style="list-style-type: none"> <li>• <b>System temperature</b><br/>The temperature of the control module</li> </ul>                                                     |

## About

| Part                         | Description                                          |
|------------------------------|------------------------------------------------------|
| <b>Model</b>                 | The model number of the controller                   |
| <b>Part number</b>           | The part number of the controller                    |
| <b>Serial number</b>         | The serial number of the controller                  |
| <b>SW version</b>            | The software version of the controller               |
| <b>Bootloader version</b>    | The bootloader version of the controller             |
| <b>Pump SW version</b>       | The software version of the pump module              |
| <b>Pump software upgrade</b> | The option to update the software of the pump module |
| <b>Restart unit</b>          | The option to restart the controller                 |

**Export**

| Part                | Description                                        |
|---------------------|----------------------------------------------------|
| Back up logs to USB | The option to back up the log files to a USB drive |

**8.4 Settings**

| Part                   | Description                                                                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Language               | A selection of all the available languages<br>For more information, see <a href="#">Language</a> on page 38.                                              |
| Pump control           | The settings for the control of the pump<br>For more information, see <a href="#">Pump control</a> on page 39.                                            |
| Alarm                  | The settings for the alarm<br>For more information, see <a href="#">Alarm</a> on page 39.                                                                 |
| Communication settings | The settings for the communication between the controller and the network<br>For more information, see <a href="#">Communication settings</a> on page 40. |
| Global                 | The settings for the date and time, and the units<br>For more information, see <a href="#">Global</a> on page 41.                                         |
| Back up/restore        | The selection of the system configuration and factory reset of the controller<br>For more information, see <a href="#">Back up/restore</a> on page 41.    |
| Advanced               | The selection of the advanced configuration of the controller or the pump module<br>For more information, see <a href="#">Advanced</a> on page 41.        |

**8.4.1 Language**

| Language setting | Language           |
|------------------|--------------------|
| English          | English<br>Default |
| Hrvatski         | Croatian           |
| Dansk            | Danish             |
| Nederlands       | Dutch              |
| Suomi            | Finnish            |
| Français         | French             |
| Deutsch          | German             |
| Magyar           | Hungarian          |
| Italiano         | Italian            |
| Norsk            | Norwegian          |
| Polski           | Polish             |
| Português        | Portuguese         |
| Español          | Spanish            |
| Svenska          | Swedish            |

## 8.4.2 Pump control

| Part                 | Default value                                     | Values                                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                          |
|----------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Pump name            | –                                                 | Four or more characters                                                                                                | The option to change the name of the pump                                                                                                                                                                                                                                                                                                                                                                          |                                                                                          |
| Site name            | –                                                 | Four or more characters                                                                                                | The option to change the name of the site                                                                                                                                                                                                                                                                                                                                                                          |                                                                                          |
| Start condition      | Timer                                             | <ul style="list-style-type: none"> <li>• <b>Timer</b></li> <li>• <b>Float</b></li> <li>• <b>Timer/Float</b></li> </ul> | The selection of the start condition of the automatic control mode                                                                                                                                                                                                                                                                                                                                                 |                                                                                          |
| Stop condition       | Snore                                             | <ul style="list-style-type: none"> <li>• <b>Snore</b></li> <li>• <b>Float</b></li> </ul>                               | The selection of the stop condition of the automatic control mode<br>Only the stop conditions that are applicable for the configured start condition are shown.                                                                                                                                                                                                                                                    |                                                                                          |
| Snoring sensitivity  | 0.86                                              | 0–1                                                                                                                    | Low value                                                                                                                                                                                                                                                                                                                                                                                                          | High value                                                                               |
|                      |                                                   |                                                                                                                        | The snoring sensitivity is low.<br>Snoring is detected at high air volumes in the fluid.                                                                                                                                                                                                                                                                                                                           | The snoring sensitivity is high.<br>Snoring is detected at low air volumes in the fluid. |
| Level settings       | 1                                                 | 1–10                                                                                                                   | The value of the <b>Level settings</b> parameter is used to calculate the pause time. The parameter does not define the water level in the well.                                                                                                                                                                                                                                                                   |                                                                                          |
| Minimum pause time   | 25 s                                              | 1–999 s                                                                                                                | The minimum time that the pump is on standby                                                                                                                                                                                                                                                                                                                                                                       |                                                                                          |
| Maximum pause time   | 90 s                                              | 1–999 s                                                                                                                | The maximum time that the pump is on standby                                                                                                                                                                                                                                                                                                                                                                       |                                                                                          |
| Reference power      | According to the information from the pump module | –                                                                                                                      | The value of the reference power<br>The controller uses the reference power of the pump to detect snoring.<br>There are three options to set the reference power: <ul style="list-style-type: none"> <li>• <b>Reference power</b></li> <li>• <b>Calibrate the reference power</b></li> <li>• <b>Reset reference power</b></li> </ul> For more information, see <a href="#">Set the reference power</a> on page 26. |                                                                                          |
| Correct the rotation | –                                                 | –                                                                                                                      | The option to switch the pump rotation<br>Used when the pump has been miswired.<br>The option can only be used in standard mode.                                                                                                                                                                                                                                                                                   |                                                                                          |

## 8.4.3 Alarm

| Alarm         | Default value | Values                                                                                        | Description                                                                                                                                        |
|---------------|---------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Service alarm | Enabled       | <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Enabled</b></li> </ul> | <ul style="list-style-type: none"> <li>• <b>Disabled</b><br/>The alarm is disabled.</li> <li>• <b>Enabled</b><br/>The alarm is enabled.</li> </ul> |

| Alarm                 | Default value | Values                                           | Description                                                                                                                                                             |
|-----------------------|---------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | 500 h         | <b>Interval</b><br>• 1–10000 h                   | The delay from the time that the alarm is triggered, until the alarm is active again.                                                                                   |
| Motor overtemperature | Enabled       | <b>Reset required</b><br>• Disabled<br>• Enabled | <ul style="list-style-type: none"> <li>• <b>Disabled</b><br/>The alarm resets automatically.</li> <li>• <b>Enabled</b><br/>The alarm must be reset manually.</li> </ul> |

#### 8.4.4 Communication settings

##### WLAN

| Part                          | Default value | Values                                                                                   | Description                                  |
|-------------------------------|---------------|------------------------------------------------------------------------------------------|----------------------------------------------|
| Enabled                       | Disabled      | <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled</li> </ul>          | The option to enable or disable WLAN         |
| SSID                          | -             | More than 4 characters                                                                   | The name of the network                      |
| Password                      | -             | More than 4 characters                                                                   | The password of the selected WLAN network    |
| Local IP address              | 192.168.1.50  | 0.0.0.0-255.255.255.255                                                                  | The settings for communication by Ethernet   |
| Subnet mask                   | 255.255.255.0 | 0.0.0.0-255.255.255.255                                                                  |                                              |
| Default gateway               | 192.168.1.1   | 0.0.0.0-255.255.255.255                                                                  |                                              |
| Regulatory domain             | FCC           | <ul style="list-style-type: none"> <li>• FCC</li> <li>• ETSI</li> <li>• TELEC</li> </ul> | The option to select the regulatory domain   |
| Modbus TCP<br>• Slave address | 1             | 1–247                                                                                    | The settings for communication by Modbus TCP |

##### Bluetooth

| Part    | Default value | Values                                                                | Description                                 |
|---------|---------------|-----------------------------------------------------------------------|---------------------------------------------|
| Enabled | On            | <ul style="list-style-type: none"> <li>• On</li> <li>• Off</li> </ul> | The option to turn on or turn off Bluetooth |

##### Ethernet

| Part                          | Default value | Values                  | Description                                  |
|-------------------------------|---------------|-------------------------|----------------------------------------------|
| Local IP address              | 192.168.1.20  | 0.0.0.0-255.255.255.255 | The settings for communication by Ethernet   |
| Subnet mask                   | 255.255.255.0 | 0.0.0.0-255.255.255.255 |                                              |
| Default gateway               | 192.168.1.1   | 0.0.0.0-255.255.255.255 |                                              |
| Modbus TCP<br>• Slave address | 1             | 1–247                   | The settings for communication by Modbus TCP |

##### RS-485

##### Modbus RTU

| Part                | Default value | Values                                                                                                                                                               | Description                |
|---------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Slave address       | 1             | 1–247                                                                                                                                                                | The communication settings |
| Baud                | 19200         | <ul style="list-style-type: none"><li>• 1200</li><li>• 2400</li><li>• 4800</li><li>• 9600</li><li>• 19200</li><li>• 38400</li><li>• 57600</li><li>• 115200</li></ul> |                            |
| Parity              | None          | <ul style="list-style-type: none"><li>• None</li><li>• Even</li><li>• Odd</li></ul>                                                                                  |                            |
| Number of data bits | 8             | <ul style="list-style-type: none"><li>• 7</li><li>• 8</li></ul>                                                                                                      |                            |
| Stop bits           | 1             | <ul style="list-style-type: none"><li>• 1</li><li>• 2</li></ul>                                                                                                      |                            |
| Inter char time-out | 20 ms         | 0–1000 ms                                                                                                                                                            |                            |
| On time             | 0 ms          | 0–1000 ms                                                                                                                                                            |                            |
| Off time            | 0 ms          | 0–1000 ms                                                                                                                                                            |                            |

#### 8.4.5 Global

| Part                                                                                                                | Default value                                                                                                                                                                                                       | Values                                                                                                                                                                                                                       | Description                               |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <b>Date and time</b> <ul style="list-style-type: none"> <li>• Change date/time</li> </ul>                           | <ul style="list-style-type: none"> <li>• Local time in the country of the manufacturer</li> <li>• Date, today</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>• 00:00:00–23:59:00</li> <li>• 2000-01-01 – 2099-12-31</li> </ul>                                                                                                                     | The settings for the date and time        |
| <b>LCD setting</b> <ul style="list-style-type: none"> <li>• Contrast level</li> <li>• Backlight time-out</li> </ul> | <ul style="list-style-type: none"> <li>• Contrast level <ul style="list-style-type: none"> <li>– 50</li> </ul> </li> <li>• Backlight time-out <ul style="list-style-type: none"> <li>– 300 s</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Contrast level <ul style="list-style-type: none"> <li>– 35–55</li> </ul> </li> <li>• Backlight time-out <ul style="list-style-type: none"> <li>– 10–65 535 s</li> </ul> </li> </ul> | The settings for the LCD screen           |
| <b>Units settings</b> <ul style="list-style-type: none"> <li>• System units</li> </ul>                              | Metric                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Metric</li> <li>• Imperial</li> </ul>                                                                                                                                               | The settings for the units of measurement |

#### 8.4.6 Back up/restore

##### Controller

The selection of the system configuration and factory reset of the controller.

| Part             | Description                                                               |
|------------------|---------------------------------------------------------------------------|
| Back up to USB   | The option to export the system configuration to an external USB drive    |
| Restore from USB | The option to restore the system configuration from an external USB drive |
| Factory reset    | The option to reset the controller to the default settings                |

#### 8.4.7 Advanced

The selection of the advanced configuration of the controller or the pump module.

**Back up/restore**

| Part                                               | Description                                                                               |
|----------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Controller data plate</b><br>• Restore from USB | The option to restore the controller ratings from an external USB drive                   |
| <b>Pump data plate</b><br>• Restore from USB       | The option to restore the configuration of the pump data plate from an external USB drive |

**Configuration**

| Part                         | Description                                     |
|------------------------------|-------------------------------------------------|
| <b>Controller data plate</b> | The option to configure the controller manually |
| <b>Pump data plate</b>       | The option to configure the pump manually       |

## 8.5 Setup Wizard

| Part                                                                                                         | Default value                                 | Values                                                                                                                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Language</b>                                                                                              | English                                       | For more information, see <a href="#">Language</a> on page 38                                                                            | The available languages                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Pump sensor setup</b><br>The option only appears if the controller is not able to detect the pump module. | None                                          | <ul style="list-style-type: none"> <li>• Pump I/O</li> <li>• FLS and thermal switch</li> <li>• Thermal switch</li> <li>• None</li> </ul> | <div>Pareo mode</div> <ul style="list-style-type: none"> <li>• Pump I/O</li> </ul> <div>The option to set up the controller so it is used with a pump module</div> <div>Standard mode</div> <div>The selection of the pump sensors that connect to the controller</div> <ul style="list-style-type: none"> <li>• FLS and thermal switch</li> <li>• Thermal switch</li> <li>• None</li> </ul> <div>No pump sensors connect to the controller.</div> |
| <b>Nominal voltage</b>                                                                                       | 0 V                                           | 0–9999 V                                                                                                                                 | The nominal voltage of the pump<br>The option only appears if the controller is not able to detect the pump module.                                                                                                                                                                                                                                                                                                                                |
| <b>Nominal current</b>                                                                                       | 0 A                                           | 0–9999 A                                                                                                                                 | The nominal current of the pump<br>The option only appears if the controller is not able to detect the pump module.                                                                                                                                                                                                                                                                                                                                |
| <b>System units</b>                                                                                          | Metric                                        | <ul style="list-style-type: none"> <li>• Metric</li> <li>• Imperial</li> </ul>                                                           | The settings for the units of measurement                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Select the date</b>                                                                                       | Local time in the country of the manufacturer | 00:00:00–23:59:00                                                                                                                        | The settings for the date                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Select the time</b>                                                                                       | Date, today                                   | 2000-01-01 – 2099-12-31                                                                                                                  | The settings for the time                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Pump name</b>                                                                                             | –                                             | Four or more characters                                                                                                                  | The name of the pump                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Site name</b>                                                                                             | –                                             | Four or more characters                                                                                                                  | The name of the site                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Pump control mode</b>                                                                                     | AUTO                                          | <ul style="list-style-type: none"> <li>• AUTO</li> <li>• HAND</li> <li>• Off</li> </ul>                                                  | The pump control mode                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Part            | Default value                                     | Values                                                                                            | Description                                                                                                                                                                                                                                                                                   |
|-----------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Start condition | Timer                                             | <ul style="list-style-type: none"> <li>• Timer</li> <li>• Float</li> <li>• Timer/Float</li> </ul> | The selection of the start condition of the automatic control mode                                                                                                                                                                                                                            |
| Stop condition  | Snore                                             | <ul style="list-style-type: none"> <li>• Snore</li> <li>• Float</li> </ul>                        | The selection of the stop condition of the automatic control mode                                                                                                                                                                                                                             |
| Snore setup     | According to the information from the pump module | –                                                                                                 | <p>The option to set the reference power.</p> <p><b>Run pump in hand mode to detect power</b></p> <ul style="list-style-type: none"> <li>• <b>Skip</b><br/>The option to use the default reference power</li> <li>• <b>Hand</b><br/>The option to set the reference power manually</li> </ul> |

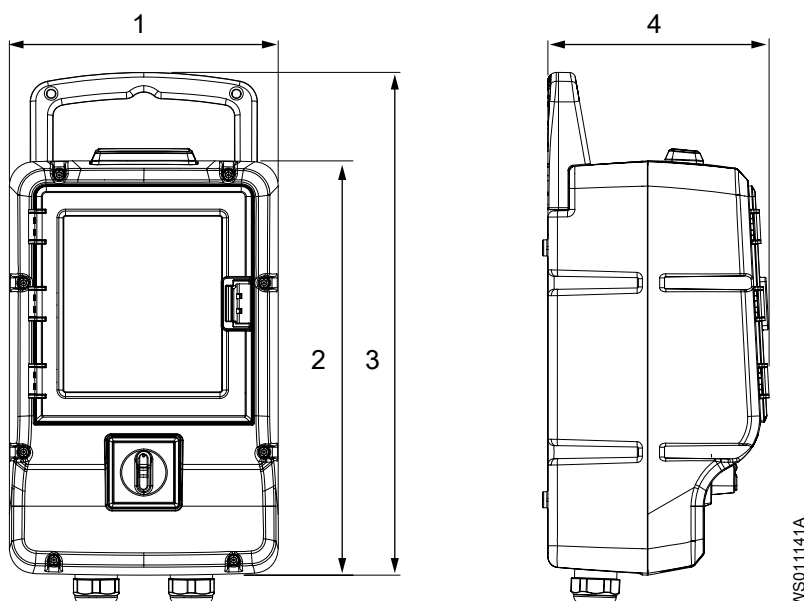
# 9 Technical Reference

## 9.1 Control box

### 9.1.1 Variants

| Part number |                | Voltage rating, V | Current range, A | Max short-circuit protection rating, A | Size  | Contactor          | Overload     |               |
|-------------|----------------|-------------------|------------------|----------------------------------------|-------|--------------------|--------------|---------------|
| Bluetooth   | Bluetooth WLAN |                   |                  |                                        |       |                    |              |               |
| 8243500     | 8243510        | 380–690           | 0.8–2.7          | 10                                     | Small | ABB AF16Z-30-01-21 | ABB EF19-2.7 |               |
| 8243502     | 8243512        | 380–690           | 1.9–6.3          | 16                                     |       |                    | ABB EF19-6.3 |               |
| 8243503     | 8243513        | 200–240           |                  |                                        |       |                    |              |               |
| 8243504     | 8243514        | 380–440           | 5.7–16           | 25                                     |       |                    |              | ABB EF19-18.9 |
|             |                | 500               | 5.7–15           |                                        |       |                    |              |               |
|             |                | 690               | 5.7–10.5         |                                        |       |                    |              |               |
| 8243505     | 8243515        | 200–240           | 5.7–16           |                                        |       | 40                 |              |               |
| 8243506     | 8243516        | 380–690           | 9–24             |                                        |       |                    |              |               |
| 8243507     | 8243517        | 200–240           |                  |                                        |       |                    |              |               |
| 8243508     | 8243518        | 380–690           | 20–38            | 50                                     | Large | ABB AF65-30-00-11  | ABB EF65-56  |               |
| 8243509     | 8243519        | 200–240           |                  |                                        |       |                    |              |               |

### 9.1.2 Dimensions



| Size  | Dimensions                                                                               |
|-------|------------------------------------------------------------------------------------------|
| Small | 1. 254 mm (10.0 in)<br>2. 390 mm (15.3 in)<br>3. 476 mm (18.7 in)<br>4. 209 mm (8.22 in) |



| Size  | Dimensions                                                                                 |
|-------|--------------------------------------------------------------------------------------------|
| Large | 1. 279.5 mm (11.0 in)<br>2. 440 mm (17.3 in)<br>3. 523 mm (20.6 in)<br>4. 209 mm (8.22 in) |

### 9.1.3 Environmental requirements

| Parameter             | Value                         |
|-----------------------|-------------------------------|
| Operating temperature | -20°C to 40°C (-4°F to 104°F) |
| Maximum altitude      | Maximum 2000 m (6562 ft)      |
| Overvoltage category  | Category III                  |
| Pollution degree      | 2                             |
| Installation location | Outdoors                      |

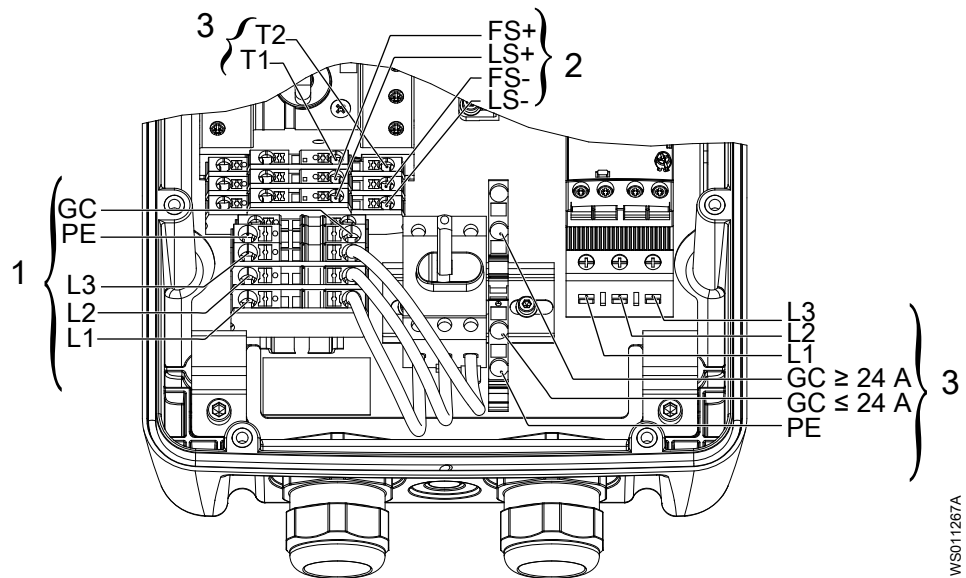
### 9.1.4 Electrical data

| Parameter                                 | Value                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage                            | IEC <ul style="list-style-type: none"> <li>• 3~</li> <li>• 200–240 VAC, 380–690 VAC</li> <li>• Tolerance: <math>\pm 10\%</math></li> </ul> UL, CSA <ul style="list-style-type: none"> <li>• 3~</li> <li>• 200–240 VAC, 380–600 VAC</li> <li>• Tolerance: <math>\pm 10\%</math></li> </ul> |
| Current range                             | For more information, see <a href="#">Variants</a> on page 44.                                                                                                                                                                                                                            |
| Frequency                                 | 50/60 Hz, $\pm 10\%$                                                                                                                                                                                                                                                                      |
| Bluetooth frequency band                  | 2.4 GHz – 2.5 GHz                                                                                                                                                                                                                                                                         |
| Maximum radio frequency power transmitted | +8.3 dBm                                                                                                                                                                                                                                                                                  |

### 9.1.5 Glass fuse properties

| Dimensions, diameter x length | Rating           | Type         |
|-------------------------------|------------------|--------------|
| 5 x 20 mm (0.2 x 0.8 in)      | T315 mA, 250 VAC | Slow-blow, T |

9.1.6 Terminals



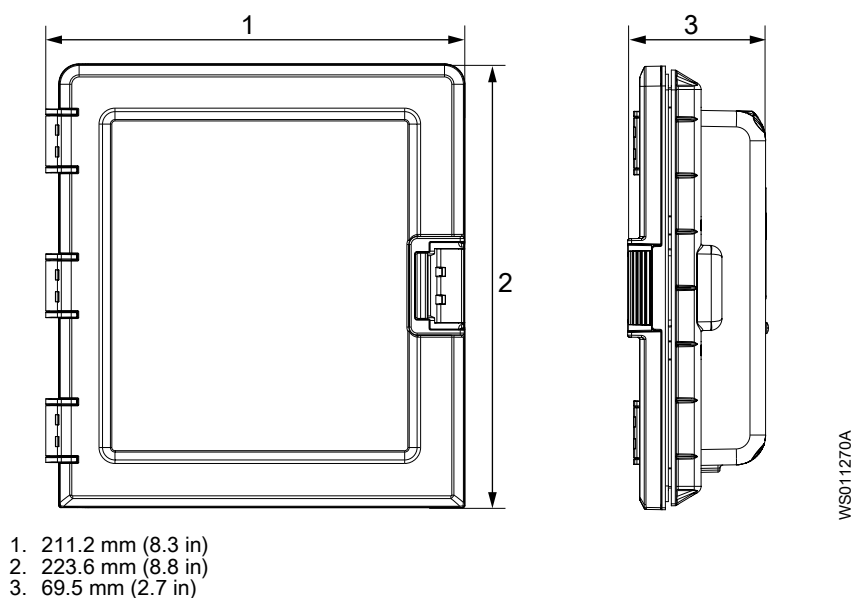
| Section | Terminal  | Description                                    |             |
|---------|-----------|------------------------------------------------|-------------|
| 1       | L1        | Main lead                                      | Power cable |
|         | L2        | Main lead                                      |             |
|         | L3        | Main lead                                      |             |
|         | PE        | Ground (earth)                                 |             |
|         | GC        | Ground check<br>For AWG cables                 |             |
| 2       | FS +      | Float switch                                   |             |
|         | FS –      |                                                |             |
|         | LS +      | Level sensor                                   |             |
|         | LS –      |                                                |             |
| 3       | T1        | Control lead                                   | Pump cable  |
|         | T2        | Control lead                                   |             |
|         | L1        | Main lead                                      |             |
|         | L2        | Main lead                                      |             |
|         | L3        | Main lead                                      |             |
|         | GC ≥ 24 A | Ground check<br>For AWG cables<br>Pumps ≥ 24 A |             |
|         | GC ≤ 24 A | Ground check<br>For AWG cables<br>Pumps ≤ 24 A |             |
|         | PE        | Ground (earth)                                 |             |

## 9.2 Pareo DCM 711 control module

### 9.2.1 Variants

| Part number |                   | Voltage rating, V |
|-------------|-------------------|-------------------|
| Bluetooth   | Bluetooth<br>WLAN |                   |
| 8261400     | 8261401           | 200–1000          |

### 9.2.2 Dimensions



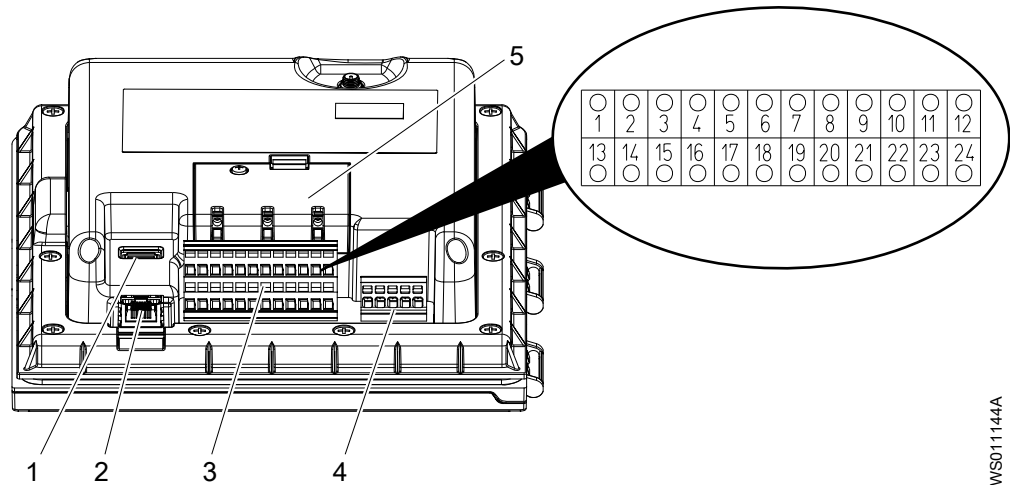
### 9.2.3 Environmental requirements

| Parameter             | Value                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------|
| Operating temperature | -20°C to 40°C (-4°F to 104°F)                                                          |
| Maximum altitude      | Maximum 2000 m (6562 ft)                                                               |
| Voltage measurements  | 1000 VAC                                                                               |
| Overvoltage category  | Category III                                                                           |
| Pollution degree      | 2                                                                                      |
| Humidity              | 95%<br>Relative humidity, non-condensing                                               |
| Installation location | Indoors.<br>Outdoor use is possible if the product is installed in a suitable cabinet. |

### 9.2.4 Electrical data

| Parameter      | Value                                         |
|----------------|-----------------------------------------------|
| Supply voltage | 3~<br>200–1000 VAC<br>Tolerance: -10% to +10% |
| Current range  | Up to 250 A                                   |
| Frequency      | 50/60 Hz                                      |

9.2.5 Terminals



| Section | Terminal   |    | Description                                                                                                  |                                                            |
|---------|------------|----|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 1       | USB        |    | USB Host, type A connector<br>5 V<br>500 mA                                                                  |                                                            |
| 2       | Ethernet   |    | RJ45<br>10/100T                                                                                              |                                                            |
| 3       | +24 V      | 1  | Power, DC                                                                                                    |                                                            |
|         | 0 V        | 2  | 500 mA, 24 VDC, SELV<br>For more information, see <a href="#">UL</a> on page 50.<br>Tolerance: -10% to + 10% |                                                            |
|         | CT RED     | 3  | Analog input, AC                                                                                             |                                                            |
|         | CT BLACK   | 4  | 1 A<br>Current differential                                                                                  |                                                            |
|         | 4–20mA +   | 5  | Analog input                                                                                                 |                                                            |
|         | 4–20mA 1   | 6  | 4–20 mA                                                                                                      |                                                            |
|         | 4–20mA 2   | 7  | 24 VDC, SELV                                                                                                 |                                                            |
|         | 4–20mA –   | 8  | Source 100 mA<br>Input 30 mA                                                                                 |                                                            |
|         | OL +       | 9  | Digital input, overload<br>24 VDC<br>5 mA                                                                    |                                                            |
|         | CCI-A(T2)  | 10 | Pump communication                                                                                           |                                                            |
|         | CCI-B(T1)  | 11 | 12 V                                                                                                         |                                                            |
|         | CCI-Shield | 12 | 100 mA                                                                                                       |                                                            |
|         | FS+        | 13 | Digital input, float switch                                                                                  |                                                            |
|         | FS –       | 14 | 24 VDC                                                                                                       |                                                            |
|         | FS Shield  | 15 | 5 mA                                                                                                         |                                                            |
|         | LED 0V     | 16 | –                                                                                                            | LED output<br>24 VDC<br>50 mA<br>Maximum 0.1 A<br>in total |
|         | RED        | 17 | Red                                                                                                          |                                                            |
|         | YEL        | 18 | Yellow                                                                                                       |                                                            |
|         | GRN        | 19 | Green                                                                                                        |                                                            |

| Section | Terminal        |    | Description                   |                                                                                                                 |
|---------|-----------------|----|-------------------------------|-----------------------------------------------------------------------------------------------------------------|
|         | +24V Cellular   | 20 | RS-485 Modbus slave           | 120 R termination<br>24 V<br>250 mA                                                                             |
|         | RS485 A         | 21 |                               |                                                                                                                 |
|         | Shield cellular | 22 |                               |                                                                                                                 |
|         | RS485 B         | 23 |                               |                                                                                                                 |
|         | 0V cellular     | 24 |                               |                                                                                                                 |
| 4       | RL Y_COM        | 25 | Common for all relays         | 30 VDC / 5A,<br>(SELV) resistive<br>250 VAC / 1A,<br>OV II resistive/<br>general use<br>PD 2<br>Pilot duty C300 |
|         | RL Y_FWD        | 26 | Output for forward contactor  |                                                                                                                 |
|         | RL Y_REV        | 27 | Output for reverse contactor  |                                                                                                                 |
|         | RL Y_RUN        | 28 | Output (N/O) for run signal   |                                                                                                                 |
|         | RL Y_FAULT      | 29 | Output (N/O) for fault signal |                                                                                                                 |
| 5       | V1              | 30 | Analog differential, V1–V2    | 1000 VAC                                                                                                        |
|         | V2              | 31 | Analog differential, V2–V3    |                                                                                                                 |
|         | V3              | 32 | Analog differential, V3–V1    |                                                                                                                 |

## 9.3 Standards and approvals: further information

This section gives additional information to the approvals information in section [Approvals](#) on page 9.

### 9.3.1 IP rating

IPXY  
1 2 3

1. Ingress Protection Code (IP)
2. Degree of protection against foreign objects
3. Degree of protection against water

#### Control box

IP65

#### Control module

- Front side: IP65, not evaluated by UL
- Back side: IP20

#### Degree of protection, IP65

| Code | Description                                       |
|------|---------------------------------------------------|
| 6    | The enclosure is dust-tight.                      |
| 5    | The enclosure is protected against jets of water. |

#### Degree of protection, IP20

| Code | Description                                                                                                                                                                                                                   |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2    | The enclosure is protected against: <ul style="list-style-type: none"> <li>• Fingers or objects that are less than 80 mm (3.15 in) in length</li> <li>• Objects that are larger than 12.5 mm (0.49 in) in diameter</li> </ul> |
| 0    | The enclosure is not protected against water.                                                                                                                                                                                 |

### 9.3.2 UL

The supply of the unit is considered to be separated from hazardous voltages according to UL 61010-1, 3rd ed cl. 6.4 and 6.5 (Reinforced insulation) and is treated as below the limits of UL 61010-1, 6.3.1 and 6.3.2.

The device is intended to be supplied from an isolated Limited Energy Source UL 61010-1, 3<sup>rd</sup> ed cl. 9.4 or Limited Power Source per UL 61010-1 or Class 2 per NEC.

### 9.3.3 EU: Radio Equipment Directive

Hereby, Xylem Water Solutions Global Services AB declares that DCM 711 is in compliance with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address: <http://tpi.xyleminc.com>.

### 9.3.4 USA: Federal Communications Commission (FCC)

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

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

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.

To comply with RF exposure compliance requirements, the antenna must be installed to provide a separation distance of at least 20 cm from all persons.

### 9.3.5 Canada: Innovation, Science and Economic Development Canada (ISED)

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm from all persons.

### 9.3.6 Brazil: National Telecommunications Agency (Anatel)

This product contains the board GainSpan model GS2101MIE, Anatel homologation number 00527-18-02618.

This product contains the board Silicon Labs model BGM111, Anatel homologation number 06028-21-03402.

### 9.3.7 Mexico: Radio Approvals

The Radio Approvals is for control module with Bluetooth module only.

Operation is subject to the following two conditions:

- This equipment or device may not cause harmful interference.
- This equipment or device must accept any interference, including interference that may cause undesired operation.

This product is not recommended for use at a distance of less than 20 cm from the human body.

# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

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The original instruction is in English. All non-English instructions are translations of the original instruction.

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