

CONTROLLING YOUR PUMPS HAS NEVER BEEN EASIER

LEVEL CONTROL FOR
EMPTYING AND
FILLING APPLICATIONS



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GRUNDFOS 



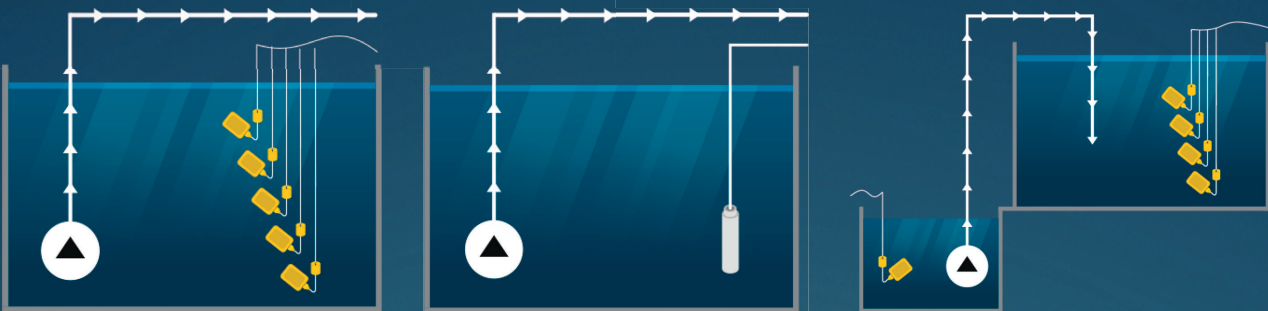
EASY TO SET-UP, CONFIGURE AND CONNECT FOR SMART LEVEL CONTROL OF YOUR WASTEWATER, BUILDING OR TANK APPLICATION

Designed for installations with one or two pumps, the Grundfos LC level controller is ideal for emptying and filling related to small wastewater transport, commercial buildings and tank-filling applications.

The controller is equipped with predefined settings to fit these applications for an easier and quicker start-up in the specific application. The controller can support up to five control levels for both analogue level transmitter or float switch operation.

Start and stop signals are used for normal operation, and the optional dry-run signal will protect the pumps from dry running. The controller can run in two modes: EMPTYING or FILLING. For emptying applications, if the tank or pit is completely filled, the controller will run all pumps to empty. For filling applications, the opposite applies; if the tank is full, the pumps will not run.

Grundfos LC level controllers are available in two variants:
LC 231 – a compact solution complete with certified motor protection
LC 241 – a cabinet solution offering modularity and customisation



UNIQUELY CONFIGURABLE INPUT/OUTPUT TERMINALS AND HIGHLY INTUITIVE USER INTERFACE



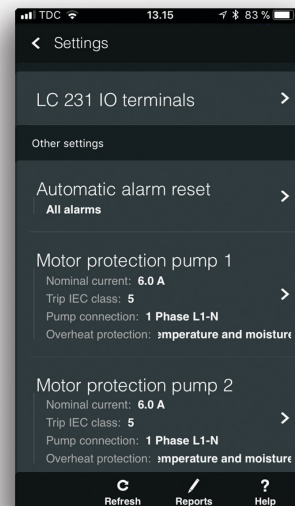
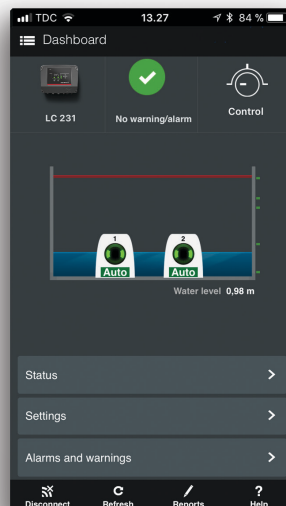
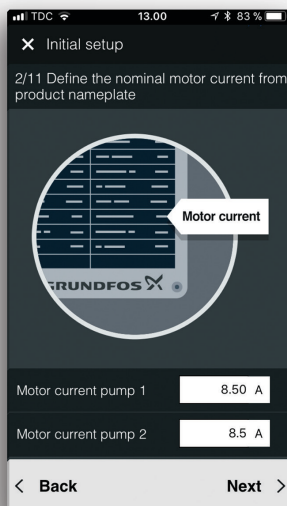
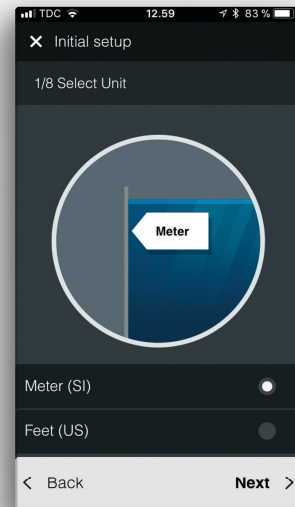
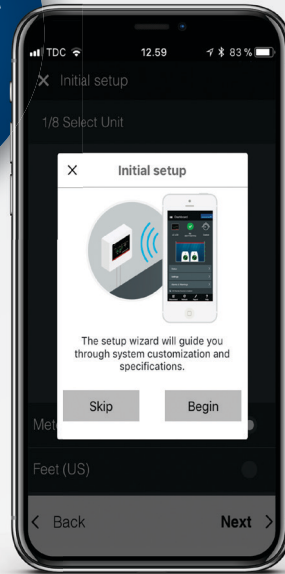
The controller is equipped with Grundfos configurable input/output terminals, giving full flexibility for all applications. Daily control, supervision and commissioning is straightforward with the intuitive and easy-to-use user interface. This saves you valuable time when getting started, and in your daily interaction with pumps and the controller.

The controller integrates seamlessly into the Grundfos range of communication modules, ensuring an easy fit into any supervisory system such as SCADA.

SCAN HERE
TO DOWNLOAD YOUR
FREE VERSION OF
GRUNDFOS GO REMOTE



WORK SMARTER ON THE GO



Grundfos GO is our comprehensive platform for mobile pump control. The controllers are supported by Grundfos GO directly via Bluetooth Smart technology, ensuring easy and seamless integration between the controller and the app.

All detailed pump settings can be easily configured, monitored and commissioned via Grundfos GO. In advance this makes it possible to connect with your pumping station from the service car. You are guided step-by-step by the start-up wizard, ensuring your new pumping station is immediately up and running.

The simple and intuitive dashboard shows status for your installation. Here you can monitor the pit and pumps at-a-glance, with shortcuts to alarms and warnings, manual pump control, and detailed status of your pumps.

You can also generate a complete report with settings and status of the installation here-and-now.

Optional features such as anti-seizing or power-on delay can be adjusted. Furthermore, the Grundfos GO app can also be used to store (backup) the complete set of settings from your pumping station or to copy the settings again and again for future installations, to minimise workload.

SEE HOW YOU BENEFIT WITH LC LEVEL CONTROL IN YOUR INSTALLATION

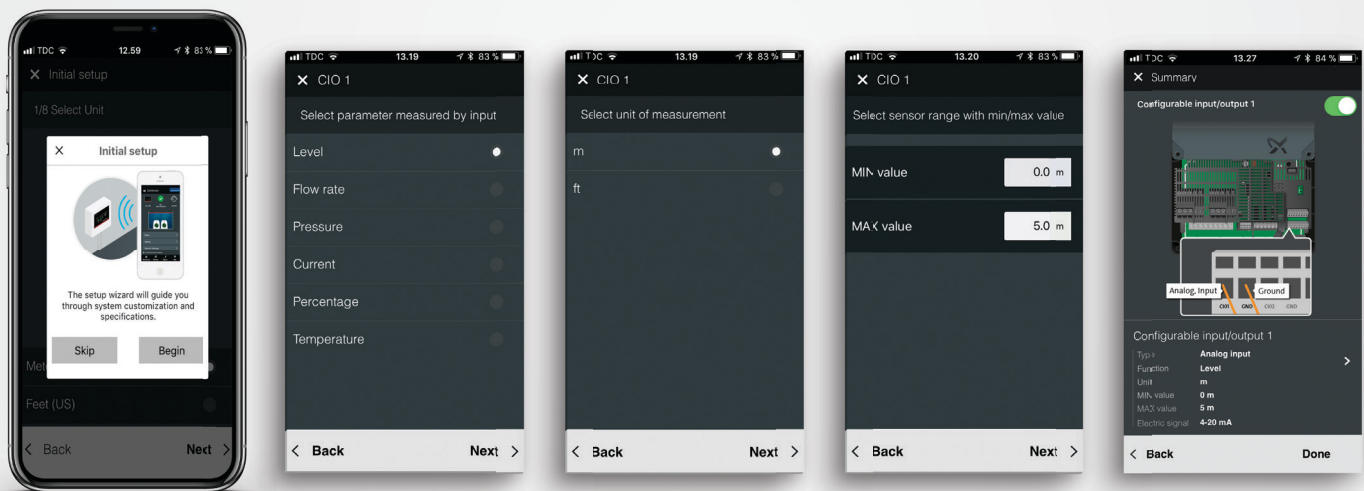
The Grundfos LC 231 and LC 241 level controllers offer a comprehensive range of features for complete pumping station monitoring and control. Several of these raise the bar for what you can expect from a pumping station controller:

Intuitive user interface

The controller has a simple intuitive user interface that can be used for daily status monitoring such as pit level, pump status, and manual control of the pumps. In simple applications, the user interface provides a fast installation and commissioning wizard. In the event of an alarm, the alarm code will be shown on in the interface.

Configurable inputs and outputs (CIO)

The controller has a number of free inputs and outputs for extra sensors, for example outlet pressure from the pit. The Grundfos CIO ports (Configurable Input/Output) can be configured to fit almost any type of signal on the same physical terminals. CIO ports can be used as digital input/output, analogue input and Pt 100/1000 inputs for flexible use in the actual application. The two relay outputs can be configured using Grundfos GO to show a variety of status information on a supervisory system or PLC.



Pump and system protection

The controller warns you with an alarm in the event of current overload, pump overheating, dry running, high water level, incorrect phase sequences or missing phase, sensor inconsistency or failure, intrusion detected, water on floor, too many restarts and moisture in pump.

Easy SCADA integration

The controller uses open protocols for connection to any SCADA system. These allow you to remote access your pumping stations or filling stations. You can control the pumps, change settings and access information such as alarms and operations data.

Built-in motor protection and current measurement

The compact all-in-one LC 231 controller solution offers certified built-in motor protection and current measurement. The LC 241 cabinet solution uses a DIN rail mounted electronic motor protection, and current measurement can be added as an option.

Anti-seizing

The controller has an anti-seizing function to prevent the pumps from choking or seizing due to limestone build-up or other deposits. Anti-seizing is used in pits that have had no inlet flow for a long period. The anti-seizing function ensures the pumps will start according to a defined interval and run for a few seconds.

Maximum number of restarts

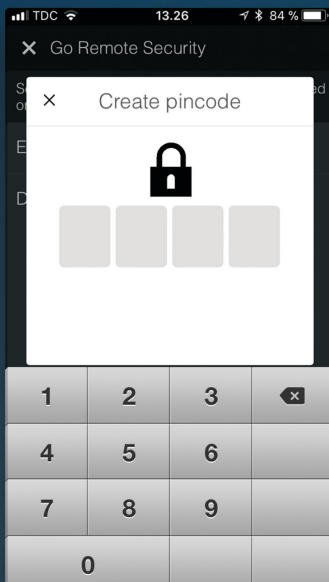
The controller has a 'max number of restart' function to prevent pumps from cyclic restarting in case of blocking or other damage. This will protect the pumps and save energy. This function is very helpful in applications where the load is distributed unevenly during the year.

Maintenance indication of number of hours used

The controller has a built-in service indicator function that helps keep track of when service is needed. Just enter the desired time interval and the controller will generate a warning when the pump has been running for the specified period of time.

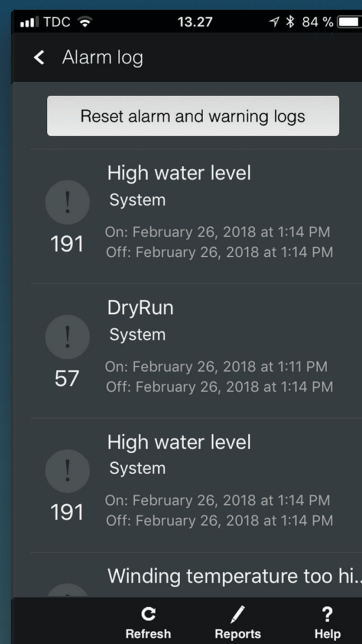
Pin code protected

Security is top of our mind. To safeguard your installation, we have implemented various ways to lock/protect the controller from unauthorised use. The display can be locked on two levels, and even access to the settings menu in Grundfos GO can be protected with a PIN code.



Alarm and warning log

The controller maintains a detailed alarm and warning log with the last 20 alerts. The alarm log can be accessed remotely via SCADA or Grundfos iSOLUTIONS CLOUD. You can also use Grundfos GO to inspect the logs in localised, translated text for easy troubleshooting and remedial measures at the pumping station.



Historical functional data log

The controller provides historical data to help ensure an effective operation of the pumping station. You can trend the pumps based on motor current or the number of starts/stops to determine whether maintenance is required. The following data is available:

- o Pump system: Total on-time, runtime and energy consumption
- o Each pump: Operating hours, latest runtime, operating hours last 24 hours, number of starts avg. per hour, number of starts last 24 hours and energy consumption



CONFIGURATION OVERVIEW

Grundfos LC level controllers are available in two variants.



LC 231

A compact solution complete with certified motor protection



LC 241

A cabinet solution offering modularity and customisation

One- and two-pump operation	•	•
1 phase 110- 240 VAC (50/60 Hz)	•	•
Start and run capacitors for 1 phase systems		•
3 phase 380-460 VAC (50/60 Hz)	•	•
Direct on-line start method up to 12 A	•	•
Direct on-line start method up to 26 A		•
Star delta start method up to 59 A		•
Soft starter start method up to 72 A		•
Motor protection	Built-in	Electronic Overload Relay
Overheat protection	•	•
Application IO 4xDI, 1xAI/DI		•
Additional IO		As option
Application IO 2xDI, 2xDI/DO, 2xCIO	•	
Supports Grundfos Communication Interface Module (CIM)*	•	•
Plastic cabinet	•	•
Metal cabinet		•
IP 54/NEMA 3R	•	•
Current measurement	Built-in	As option
Built-in buzzer	•	•
Grundfos GO support via Bluetooth Smart	•	•
Customisation with additional options		•
Update to new features via USB	•	•

*supported modules:
 CIM 150 Profibus
 CIM 200 Modbus RTU
 CIM 260 3G/4G
 CIM 300 BACnet
 CIM 500 Modbus TCP / ProfiNet
 *GIC/GRM is currently not supported

ACCESSORIES FOR LEVEL CONTROL



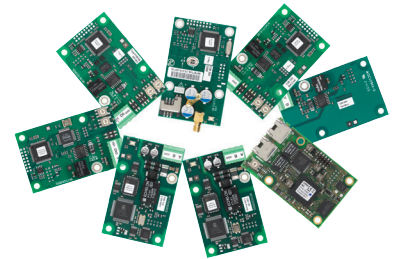
Float switches and analogue level transmitters

Add float switches or analogue pressures sensors, or a combination of the two, matched to your needs for alarms and warnings and daily control of your level control application.



Analogue level transmitter

Grundfos offers a wide range of analogue level transmitters for reliable and precise monitoring and control in your wastewater pit or water tank.



Connectivity

The Grundfos fieldbus concept is the ideal solution for control of pump systems using Grundfos LC level controllers and are easy to install, commission and use. The Communication Interface module (CIM) enables wired and wireless connectivity through a range of industry-standard communication protocols, and full integration with SCADA systems and other cloud services.



External main switch

Add an external main switch to your system, available in three different sizes (25 A, 40 A, 80 A).



Options

The LC 241 level controllers can be ordered with the following options build-in from factory:

- Fault light indication
- ON/OFF/AUTO switch
- Electrode relay
- Battery backup
- Main switch
- Circuit breaker
- Residual Current Device (RCD).

GRUNDFOS iSOLUTIONS

Grundfos iSOLUTIONS is a holistic systems approach by which intelligent technology adapts with precision to deliver optimal performance, total energy efficiency, and ultimate reliability. Grundfos iSOLUTIONS offers state-of-the-art control and monitoring solutions for the full optimisation of pumping systems and offer smart solutions for existing and new systems to maximise system capacity while minimising maintenance requirement.

Grundfos supplies market-leading high efficiency pumps and equipment to meet the demands of water networks and to enhance system control and reliability in the harsh working environment of wastewater applications.