

# GRUNDFOS iSOLUTIONS FOR WASTEWATER



MAXIMISED  
RELIABILITY



EASY  
OPERATION



IMPROVED  
Torex

## GRUNDFOS iSOLUTIONS



PUMP



CLOUD



SERVICES

Keep operational reliability high and prolong system lifetime in the wastewater network



be  
think  
innovate

GRUNDFOS 

# INCREASE OPERATIONAL RELIABILITY IN YOUR NETWORK

## Maximise system capacity and minimise maintenance requirements

Increasing urbanisation and environmental awareness makes the efficient and reliable collection and transport of wastewater increasingly important. To meet this need, Grundfos supplies wastewater pumps and equipment with market-leading efficiency, flexibility and intelligent control and monitoring solutions that enable full optimisation of pumping systems.

We offer highly reliable and service friendly smart solutions for existing and new systems to maximise system capacity while minimising maintenance requirements and reducing required working hours for the service technician.

Depending on product selection, we offer a range of smarter solutions:

- Ensure continuous energy optimisation using flow estimation and algorithms without a flow meter
- Keep operational reliability high and prolong system lifetime with automatically adjusted pump speed, intelligent anti-clogging scheduling and continuous control of pumping efficiency
- Manage and adapt a scalable system that grows as requirements in the pit, system and network change
- Reduce costs with optimised pumps, lower energy consumption, high reliability and fewer service calls

## Easy for system integrators to work with

At the heart of iSOLUTIONS are our wastewater controllers and drives. Our controllers work with motor protection or variable frequency drives to provide a wide range of operational benefits such as reduced maintenance, optimized operation and seamless connectivity. Performance of the system adapts according to demands, limiting downtime.

You know the performance of each pump, each pit and the entire network, and the system is scalable, as requirements in the pit, system and network change.

Grundfos communication interfaces ensure connectivity from

the pump pit to the cloud. Wireless or wired connectivity is through a range of industry-standard communication protocols, making full integration with SCADA systems and other cloud services easy. We offer a full documentation package to support System Integrators accomplish this.

Grundfos also offers a secure cloud-based management system offering highly intuitive subscription-based system management, with no initial costs and additional hardware costs. Remote monitoring, analysis, control, and much more is available from Grundfos Remote Management, which is accessed easily from any device.



# Move towards a predictive workflow and increase operational reliability

Grundfos iSOLUTIONS provides you with up to date and accurate information on pump installation performance and facilitates early detection of potential problems and opportunities for optimisation and improvement. Let us help you combine our monitoring solutions with service agreements for the reliable and efficient operation of your pump systems.

- Reduce maintenance costs by moving to a predictive workflow
- With access to key data, you can plan ahead for service and maintenance
- Go from routine service checks to planned and effective maintenance only when required
- Timely warnings enable preventive service before alarms occur, reducing costly breakdowns and callouts.



**MAXIMISED  
RELIABILITY**



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TOTEX**

## GRUNDFOS iSOLUTIONS



# GET REAL VALUE FROM YOUR DATA

Integrating system intelligence with iSOLUTIONS in your wastewater network gives you all the information you need to plan service and maintenance. Using Grundfos Remote Management, alarms and warnings are sent according to a weekly schedule, and relevant personnel can access reports and trend data from any web browser.

- Give the controller time to resolve the issue by delaying alarms
- Define the alarm threshold or alarm event and group alarms for a combined status from the pit
- Easily understood clear-text messages of issues and warnings in one of 25 languages – no alarm codes
- Easily manage and customise alarms and who should receive them
- Simple and easy status via SMS for service personnel on standby

## Making it easier to work with your pumps and pits

In addition to a range of basic features, the dedicated wastewater controller offers a number of advanced features that ensure autonomous operation in the system, reduce downtime and maintenance requirements, reduce for example H<sub>2</sub>S build up and odour problems, and prolong the service life of all pressurised equipment.

- Substantially reduced blocking risk:
  - The pump reverses automatically the next time the pump starts
  - Or the pump flushes the pressure pipe at pump start or based on a schedule

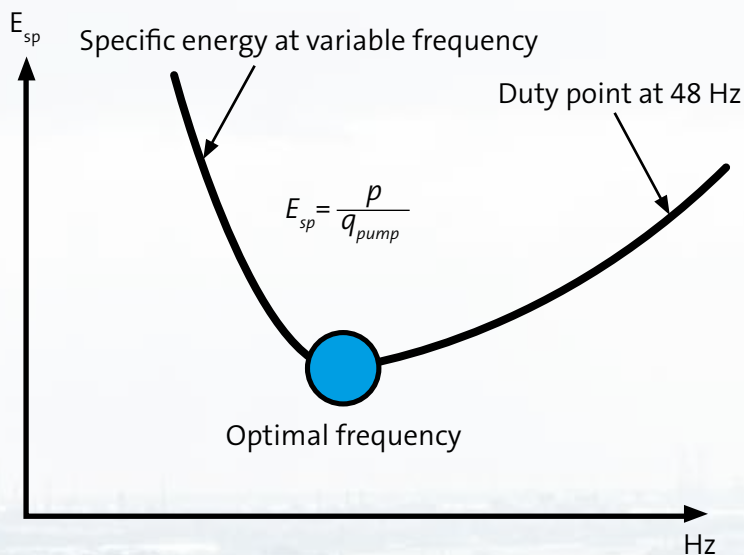
- Reduced sedimentation:
  - Operate a mixer in the pit or flush the discharge pipes, based on a time schedule
  - Start level variation automatically stops debris settling in the pipes, pit and pump
- And many more performance-enhancing features:
  - Overflow registration with timestamp in your pumping stations and interlocking between stations, protecting against flooding
  - Daily emptying to reduce odours



# Keep your energy bills low by continuously optimising your energy consumption

The flow and volume estimation built into Dedicated Controls enables continuous energy optimisation using flow estimation and algorithms without a flow meter. With a patented control algorithm for flow estimation, no flow meter is required. This can save up to 40 % of energy consumption.

This makes flow management cost-effective for utilities, and can cover most wastewater pits in the network. Even with the requirement of a pressure sensor for advanced pump flow calculation, investment is just 10 % of what it otherwise would be for a new project requiring a flow meter.



*For energy optimisation, one of the important parameters to look at is the specific energy [Wh/m<sup>3</sup>]. Lowering speed in the system reduces dynamic friction in the pipes, and energy optimization can do this by ensuring the pump runs at the lowest possible speed without risk of sedimentation or blocking in the pump, pipes or pit.*

## Easy to set-up, configure and connect for smart level control of your wastewater, building or tank application

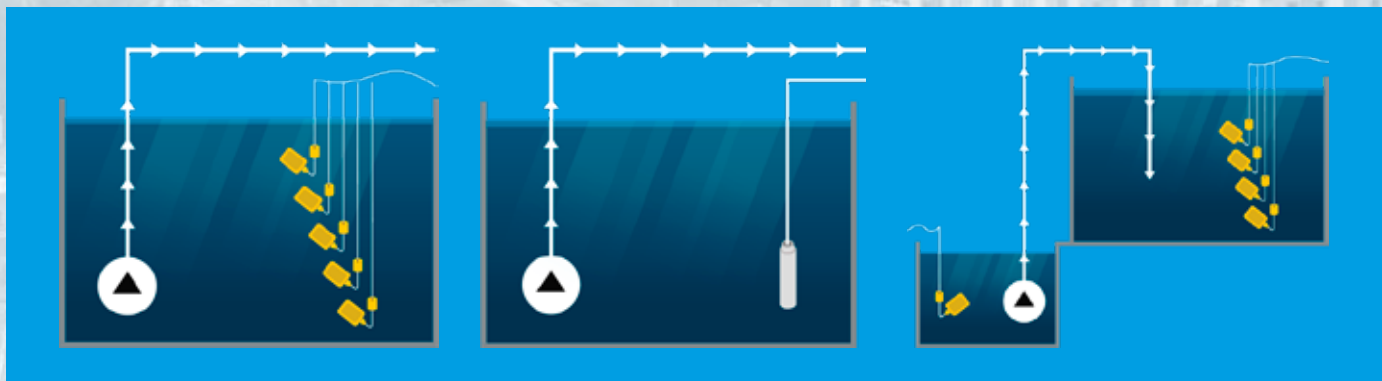
Designed for installations with one or two pumps, the Grundfos level controller is ideal for emptying and filling related to small wastewater networks, commercial buildings and tank-filling applications.

Grundfos LC level controllers are available in two variants:  
**LC 231** – a compact solution complete with certified motor protection. Up to 12Amps. Including embedded smart phone integration.



**LC 241** – a cabinet solution offering modularity and customisation. Up to 72A and with embedded smart phone integration

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



# THIS IS HOW WE BUILD AN INTELLIGENT WASTEWATER NETWORK

The controls and components shown here match all Grundfos equipment, such as pumps and pumping stations, for complete wastewater networks and treatment solutions.

Find out more at [www.grundfos.com/water-utility](http://www.grundfos.com/water-utility).



## DEDICATED CONTROLS FOR WASTEWATER

This is our advanced wastewater controller and lets you control up to six wastewater pumps with optional grouping with key operational data and logging of alarms and warnings. Dedicated Controls offers a large range of basic and advanced features, including an anti-blocking function, where the pump reverses automatically at the next pump start, and automatic energy optimisation when connected to a variable speed drive.



## LC231/241 LEVEL CONTROLLER

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



## GRUNDFOS REMOTE MANAGEMENT

Our secure cloud-based solution for data management integrates easily and quickly with Grundfos controllers for the monitoring of all pumps and sensors. This lets you distribute alarms according to the built-in weekly schedule and carry out maintenance according to actual operating data, meaning no unnecessary service calls. You get effective system monitoring and data storage in a low-cost subscription; there is no initial cost and no additional hardware and software costs.



## ONE MOTOR PROTECTION UNIT FOR TOTAL SYSTEM RELIABILITY

The MP 204 motor protection unit offers reliable, easy to set up and easy to use motor protection for all Grundfos pumps and applications, for motors ranging from 3 to 999 amps and voltages from 100 to 480 VAC. Your pump motors are protected against undervoltage, overvoltage and other variations in power supply and overheating.



## VARIABLE SPEED DRIVES FOR YOUR PUMPS

Grundfos CUE is a complete range of external frequency converters designed for speed control of a wide range of Grundfos pumps for wastewater applications. A special start-up guide will lead you through the set-up, and variable speed control enables energy optimisation and anti-blocking functionality.



## GRUNDFOS COMMUNICATION INTERFACES

The Grundfos fieldbus concept is the ideal solution for complete control of pumps and pump systems and offer easy installation, commissioning and use. The Communication Interface Module (CIM) and the Communication Interface Unit (CIU) enable wired and wireless connectivity through a range of industry-standard communication protocols and full integration with SCADA systems and other cloud services.



#### **FLOAT SWITCHES AND OTHER SENSORS**

Add float switches, analogue pressure sensors or ultrasonic sensors and other external sensors as required for your installation, matched to your needs for alarms and warnings, all integrated into Dedicated Controls and remote management.



## **Intelligence integrated into pressurised networks**

#### **WASTEWATER PUMPS WITH AUTOADAPT**

In 2010, Grundfos was first with an intelligent wastewater pump that removed external sensors from the pit. Wastewater pumps with Autoadapt minimise risk from debris and solids content in wastewater by adapting automatically to system configuration and continuously changing conditions. This also reduces the number of call-outs and routine service checks.

Self-maintaining and fully automated, pumps with Autoadapt offer full flexibility and are available with a wide range of motors.

- SEG AUTOADAPT grinder pumps, which are ideal for pressurised pumping stations with no external sensors or control to worry about
- SE/SL, which offers high total efficiency and reliability for wastewater pumping in the network.



#### **GRUNDFOS GO**

Ideal for mobile pump control for pressurised pumping stations, Grundfos GO saves time for reporting and data collection. Grundfos GO is the most comprehensive platform for mobile pump control and pump selection including sizing, replacement and documentation.

## Grundfos intelligent wastewater solutions

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 wastewater pumps and equipment to meet the demands of the wastewater network and to enhance system control and reliability in the harsh working environment of the wastewater treatment plant.