

WASTEWATER NETWORKS:

# INCREASE OPERATIONAL RELIABILITY IN YOUR NETWORK



MAXIMISED RELIABILITY



EASY OPERATION



IMPROVED TOTEX

## GRUNDFOS iSOLUTIONS



PUMP

CLOUD

SERVICES

The worlds best pump solutions for waste water networks

Intelligent connectivity with Grundfos iSOLUTIONS



be  
think  
innovate

GRUNDFOS 

# SMART SOLUTIONS FOR WASTEWATER

## AUTOADAPT

### - the responsive and auto-adapting wastewater pump

Increase reliability and save time in your installation and operation by using Grundfos wastewater pumps with AUTOADAPT in an intelligent, autonomous wastewater network.

- No external sensors or control, and no external sensors in the pit minimises risk
- Adapts automatically to system configuration and continuously changing operating conditions
- Fully automated and effectively self-maintaining
- Easy commissioning and access to operational data from Grundfos GO on a smart handheld device
- Requires only connection to a simple fuse panel, reducing space in the cabinet above ground

The SEG AUTOADAPT range of robust grinder pumps is ideal for pumping domestic wastewater, and the SL AUTOADAPT is perfect for local or network pumping stations.



AUTOADAPT - Everything integrated in the pump

Traditional solution with pumps, level system and controller as separate parts

## Maximise reliability and minimise maintenance requirements

For local networks, a Grundfos SE or SL wastewater pump together with a variable frequency drive and wastewater controller can be configured and scaled precisely to match wastewater pumping requirements.

Flexible intelligent system configuration offers a smarter way to:

- Keep operational reliability high and prolong system lifetime with automatically adjusted pump speed and a continuous overview 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
- Ensure continuous energy optimisation using flow estimation and algorithms without a flow meter

Where pressurised sewage collection makes good sense, Grundfos supplies self-evaluating wastewater pumps with built-in intelligence, and wastewater pumps and equipment for local networks with market-leading efficiency, intelligent control and monitoring solutions.

Grundfos iSOLUTIONS offers highly reliable, flexible and service friendly smart solutions for pressurised systems and local networks that maximise system capacity while minimising maintenance requirements and reducing required working hours for the service technician.

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

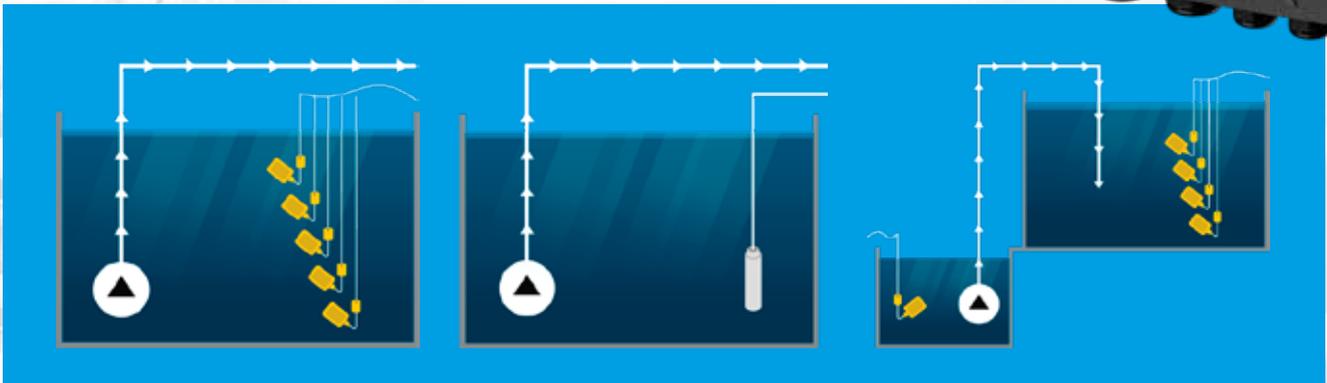
Designed for installations with one or two pumps, the Grundfos level controller is ideal for emptying and filling related to small wastewater network, commercial buildings and tank-filling applications.

Grundfos LC level controllers are available in two variants:

**LC 231** – a compact solution complete with certified motor protection

**LC 241** – a cabinet solution offering modularity and customisation

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.



## Easy for system integrators to work with

At the heart of Grundfos iSOLUTIONS is our integrated intelligent controller in AUTOADAPT pumps, and our wastewater controllers Grundfos Level Control and Dedicated Controls for small and larger wastewater pumps that works with motor protection or variable frequency drives to provide a wide range of operational benefits. Performance of the system adapts according to varying demands.

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 no additional hardware costs. Remote monitoring, analysis, control, and much more is available from Grundfos cloud solutions, which are accessed easily from any device.

### GRUNDFOS iSOLUTIONS



# WE WERE THE FIRST TO BUILD INTELLIGENCE INTO A WASTEWATER PUMP

In 2010, we were the very first to market with intelligence built into a wastewater pump. Grundfos AUTOADAPT revolutionised pump pit management and today, Grundfos stands alone as the pump manufacturer best able to balance useful automated pump features and component modularity with a sustainable price point for the end user.

AUTOADAPT eliminates the need for extra cables, flow switches or other sensors in the pit – everything is built into the pump, a patented Grundfos solution that eliminates complexity and the risk of failures.

Without the need for external sensors, AUTOADAPT is easier to install, commission, and operate. Due to the integrated sensors, AUTOADAPT pumps can also operate in narrow pits.

## No external control necessary

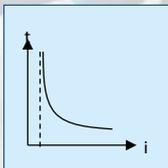
During commissioning, AUTOADAPT pumps will automatically detect the presence of other pumps in the pit and adjust their operation accordingly. Up to four AUTOADAPT pumps can work together in an alternation routine. In case of excessive inflow, the AUTOADAPT pumps will automatically operate in parallel, ensuring optimum performance at all times.



### Pressure transmitter

Built-in pressure transmitter encapsulated in a unique robust stainless steel housing. The patented calibration principle ensures precise start and stop levels independent of atmospheric conditions.

**Thermal protection**  
The motor is equipped with thermal switches and electronic motor protection.

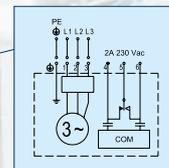


**Dry-run sensor**  
Built in to prevent dry running and serves as an indicator for stop level.



### Intelligent operation

AUTOADAPT pumps will automatically adapt to the dynamic operating conditions of the pump system, as well as the number of pumps in the system.



### Alarm relay

An alarm relay is built in as standard.



### Data communication

Using powerline communication, no additional cable is required to the communication interface box, which gives you access to a large number of settings, statistics, and error log inside the pump.

# Flexible system design with AUTOADAPT and communication



You get access to a large number of settings, statistics and error logs inside the AUTOADAPT pump from the communication interface box, and you can easily manage your AUTOADAPT pumps from a smart handheld device using Grundfos GO.

- All relevant operational information and events are logged inside the pump electronics
- Intelligent powerline communication means you can add a Grundfos communication interface box without an additional cable into the pit
- Start delay and anti-seize functionality as standard, and you can activate other functions, for example after run to get rid of the floating layer in the pit

## Configure intelligent connectivity into your network



You get up-to-date and accurate information on the pump installation and performance, and this facilitates early detection of potential problems and opportunities for optimisation and improvement.

- 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

# BUILDING **INTELLIGENCE** AND **FLEXIBILITY** INTO PRESSURISED SYSTEMS AND LOCAL NETWORKS

## For pressurised systems...

### **SEG AUTOADAPT – grinder pumps for pressurised pumping stations**

- Designed for pumping untreated wastewater in a pressurised network
- Perfect for domestic wastewater from small communities
- Patented grinder system for Standard and Heavy applications and offering quick dismantling for easy service



### **SL AUTOADAPT – high performance and durable wastewater pumps**

- Designed for the transport of domestic, municipal and industrial wastewater
- Perfect for local or network pumping stations
- Unique S-TUBE® impeller with impressive non-clogging capabilities (SL1)
- SuperVortex impeller for liquids with a high concentration of solids and fibres (SLV)



### **DP AUTOADAPT – drainage pumps fitted with a suction strainer**

- Designed for the transport of drain water and groundwater without solids and fibres
- Perfect for use as a portable utility pump
- Semi-open multi-vane impeller with easy adjustment of impeller clearance



### **EF AUTOADAPT – free-standing effluent pumps**

- Designed for the transport of drainage, surface water and industrial wastewater with small impurities or fibres
- Perfect for private dwellings, farms and light industry
- Open single-vane impeller with excellent solids-handling capabilities



### **Grundfos GO – communication for pressurised pumping stations**

Grundfos GO is the mobile tool box for professional users on the go. It is the most comprehensive platform for mobile pump control and pump selection including sizing, replacement and documentation. It offers intuitive, handheld assistance and access to Grundfos online tools, and it saves valuable time for reporting and data collection.

Grundfos GO is designed to save time and effort for the user. The app can be downloaded to any device with an iOS or Android operating system.

Downloading the Grundfos GO app opens up a world of time-saving tools, services and documentation. Grundfos GO is always online, and this means it is updated on the go and ready for you to use wherever and whenever you need it.



The pumps, controls and components shown here build intelligence and flexibility into pressurised systems and local networks.

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

## ...and for local networks



### 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 cloud solutions

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.



### SE/SL up to 11 kW – for highly configurable and smarter wastewater networks

- Reduce energy costs and increase reliability with the high total efficiency
- Add Dedicated Controls and an external frequency drive for a fully flexible, intelligent pumping system
- Impressive non-clogging capabilities from large free passage through the unique S-TUBE® impeller
- Reduce maintenance and service needs with very high hydraulic efficiency and low wear

## 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.