



# Dedicated waste water drive



Emotron FlowDrive



**emotron**

DEDICATED DRIVE

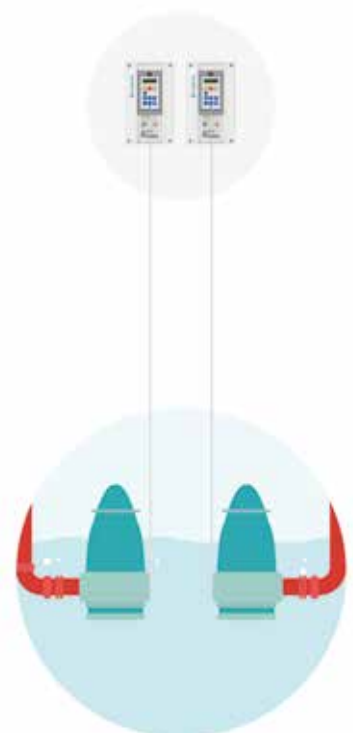
 A CG Product

# Energy saving upto 30%

## The heart of Emotron FlowDrive is automatic reservoir level control

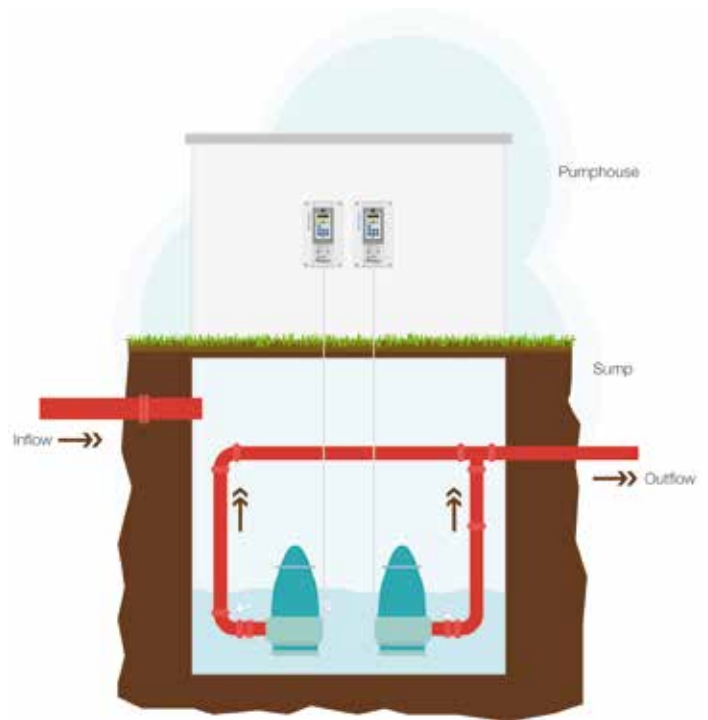
Emotron FlowDrive is designed for use in the most common pumping scenarios (1-2 pumps of any brand) in the wastewater management industry. The heart of FlowDrive is automatic reservoir level control – which optimises energy use, minimises the need for maintenance and enables real time process monitoring.

User-friendly and reliable, Emotron FlowDrive offers the optimal price/performance ratio, backed by rapid deliveries from the factory in Sweden and local 24/7 service. Initially available in IP54 and IP20, within the 0.75-160 kW range, the new drive concept is fully tested and proven. Thanks to its coated boards in robust IP54-certified casings, you can rest assured it will withstand the challenges of demanding industrial settings.



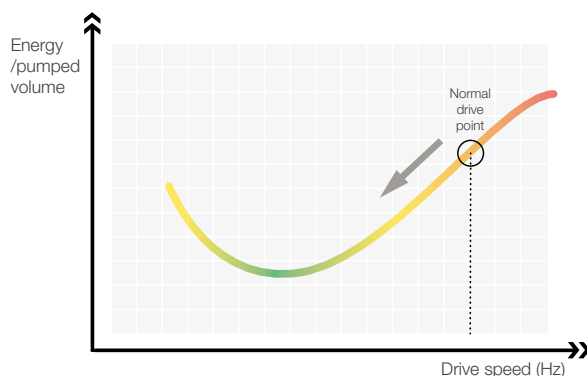
# The numerous benefits of Emotron FlowDrive

- Designed from Emotron's long history of wellproven products for water and waste water industry
- Energy savings, thanks to automatic optimal pump speed control
- Compatibility with all kinds of pumps typically used in this application
- Built-in functions that minimise maintenance needs
- Absence of a PLC/pump controller reduces cost and effort involved in programming
- Having one less component reduces complexity and increases reliability
- Less starts and stops of the pumps thanks to longer run times caused by lower average frequency
- Full connectivity to suit different user scenarios (remote telemetry/local control panel)
- Complete solution packaged that is simple to install and use
- Access to system data/parameters for continuous performance monitoring
- Existing Emotron equipment can be upgraded to Emotron FlowDrive



## Self-learning system

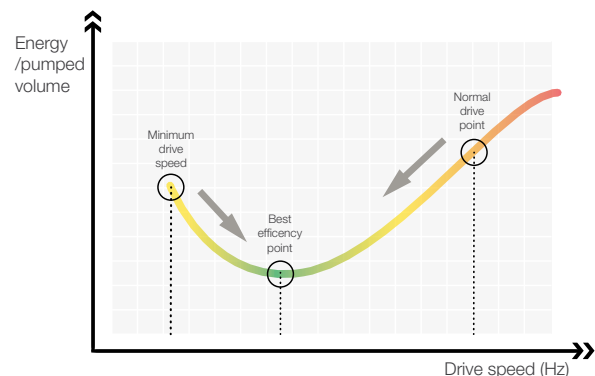
During commissioning, the user configures all motor data and levels. The self-learning program then takes over, taking the measurements and calculating process data to enable optimal control. Features include load monitoring, best efficiency point and flow estimation.



*Emotron FlowDrive automatically finds optimal operating speed which leads to lower energy consumption.*

## Best efficiency point (BEP) algorithm

Initially, the drive operates in learn mode in order to establish the most efficient operating parameters for the BEP algorithm. By running the pump over a range of frequencies and measuring the volumes pumped, it defines the most energy-efficient pumping frequency, and calibrates the related functions accordingly. Thereafter, the reservoir level control operates according to these defined values.



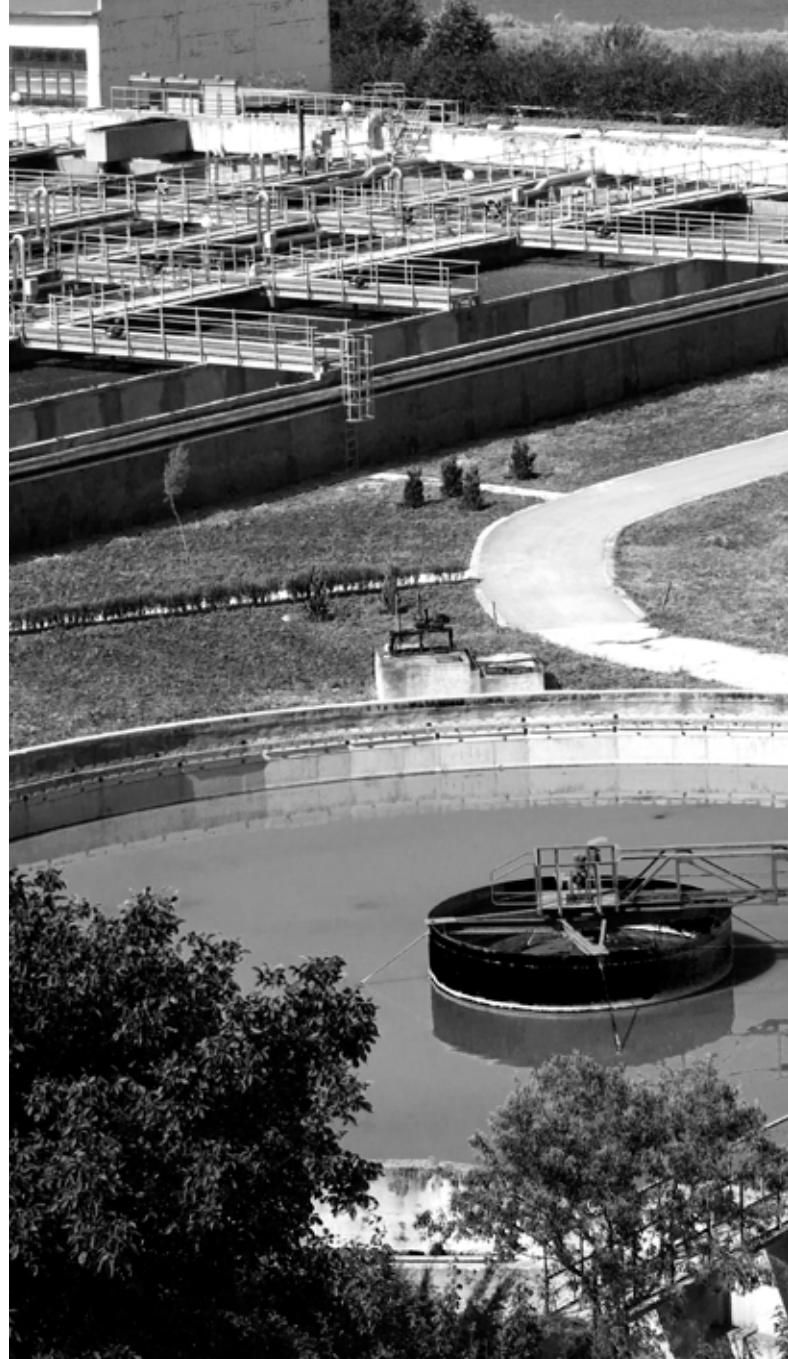
*An automatic function finds the most efficient speed to pump water which leads to energy savings since the pumps runs at optimal speed.*

## No flow sensor required

Once the initial commissioning program has been run, the FlowDrive can estimate in and outflow without the need for a costly external flow sensor. If more accurate flow measurements are required for other reasons, the FlowDrive does, however, support the use of an external sensor.

## Random start level

To prevent residues accumulating at a single level, this feature generates a random start level. The residues spread are thus over a broader surface and major buildups prevented.



## Cleaning functions

Several cleaning functions are built-in to reduce maintenance requirements.

### Pump cleaning

Pump cleaning automates pump flow reversal. It ramps the pump down and reverses it at a set frequency and for a set time before ramping it back up to the speed required for reservoir level control. In most cases, this will suffice to clear a pump that is obstructed by foreign matter. Pump cleaning can be initiated manually or automatically e.g. with the load monitor that detects obstructions.

*Note that not all pumps can run in reverse mode. Always check the specifications with your pump manufacturer.*





### Pump sump cleaning

Pump sump cleaning runs the pump below the normal stop level until empty sump is detected. It is initiated from the control panel/fieldbus.

*Note that there is a slight risk of the pump becoming overheated and/or air being sucked into the pump/pipes in these circumstances. Always check the details with your pump manufacturer.*

### Pipe cleaning

Pipe cleaning may be needed to remove loose sediment that is not flushed away during normal operation. The built-in program allows the pump sump to fill up then runs both pumps at full speed until the sump is empty. This generates the highest possible flow for the longest duration, and thereby maximises the cleaning effect.



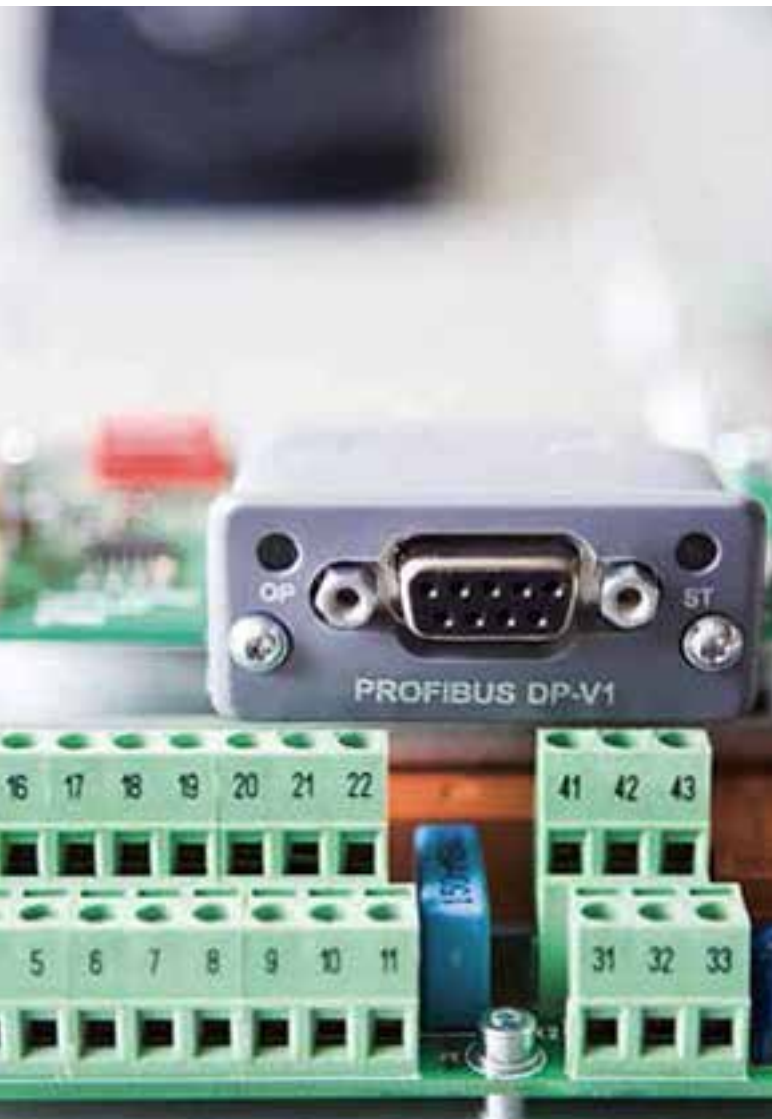
# Installation and use

Emotron FlowDrive is designed for easy installation and is compatible with most telemetry systems. Eliminating the need for a PLC, fewer cables are needed, which means the installation is simple and cost-effective.

During commissioning, the user interface prompts the customer to input the relevant operating parameters. Once up and running, performance data (for each pump, wherever separate data is of value) is continuously available.

It includes:

- Current sump/tank level (metres)
- Run hours (cumulative and daily)
- Number of starts (cumulative and daily)
- Energy consumption (cumulative, with savings compared with running at full speed)
- Current waste water inflow
- Current pumping outflow
- Maintenance personnel on site alarm



## Configuration options

- Serial communication via RS232 or RS485 with Modbus RTU
- Industrial Ethernet communication (Modbus/TCP, Profinet, Ethernet-IP and EtherCAT)
- Fieldbus communication (Profibus DP, DeviceNet)
- Extended digital I/O boards
- PTC/PT100 Motor protection board (PTC + max 3 PT100)
- External control panel
- Extended EMC protection (1st environment Category C2)
- Safe stop without a contactor, i.e. Safe Torque Off (STO), for meeting the requirements of machine safety standards EN 13849-1 and EN 62061
- Motor filters (output choke, sinus filter, common mode filter)
- Active front end, AFE, for low harmonics

# A wide and complete range to suit your needs

## TECHNICAL DATA

Emotron FlowDrive – IP54/20/21 drives are available in the following range:

Rated power 0.75-160 kW @ 400 VAC

Supply voltages 230-690 VAC, 3-phase

Rated current 2.5-295 A

Standards CE, EAC (cULus pending)

Coated boards and EMC filter Category C3 included as standard.

For further information, please see the Emotron FlowDrive technical catalogue.

IP54



IP20



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