

Energy Efficient

Water Pumping Systems

with **OPTIDRIVE™ eco**

Applications



**Ensure pressurised,
uninterrupted water flow**

and save on energy consumption
at your booster stations




Significant and immediate energy savings are available in all pumping applications

With energy costs continually increasing, it is more important than ever to keep track of energy usage and to implement efficiency solutions in areas with high power consumption.

In some industrial operations, pumping consumes between 25 to 50% of electricity.

More than 85% of this energy is wasted by oversized pumps and lack of control or non-efficient control.



Pumping systems account for nearly **20%** of the world's electrical energy demand.

OPTIDRIVE™ eco

Variable Frequency Drive

200–600V
Single & 3 phase
input

0.75 – 250 kW
1 – 350 HP

Pump control technology that **pays for itself**



Reduce energy consumption and downtime

Increase performance and reliability of your booster system

Compact IP20, IP55 & IP66/NEMA 4X enclosures to optimise installation

Optidrive Eco can:

- ✓ significantly reduce energy consumption
- ✓ reduce total system cost
- ✓ simplify systems by eliminating complex control panels
- ✓ improve process control & system reliability
- ✓ provide consistent, matched & pressurised water flow on demand
- ✓ take care of your pumps
- ✓ take care of your system thanks to built-in protections:
 - Dry run protection
 - Pump prime
 - Burst pipe detection
 - Load monitoring
 - Blockage detection
 - Pump alternation

Optidrive Eco variable frequency drives (VFDs) offer a solution for a wide range of pumping applications with comprehensive pump and motor protection settings. Optidrive Eco is an ideal solution for standalone multi-pump booster systems which can be easily adapted to different requirements. With built-in Optiflow™ controller and low harmonic design, it is a natural choice for multi-storey buildings.

Optidrive Eco with built-in Optiflow™ controller – standalone, energy efficient and self-redundant multiple pump cascade controllers – provides an ideal solution for water pressure boosters systems widely used in all pumping applications.

Designed to be easy to use, with user friendly interface and simple to commission, Optidrive Eco exists in three different enclosure types: cabinet mounted IP20, wall-mounted IP55 or IP66/NEMA 4X outdoor rated to suit your requirements. You can simply choose the version most suitable for the application and within minutes start controlling your booster set providing water pressure matching with demand, immediately reducing energy usage and costs. In the meantime, Optidrive Eco will start paying for itself.

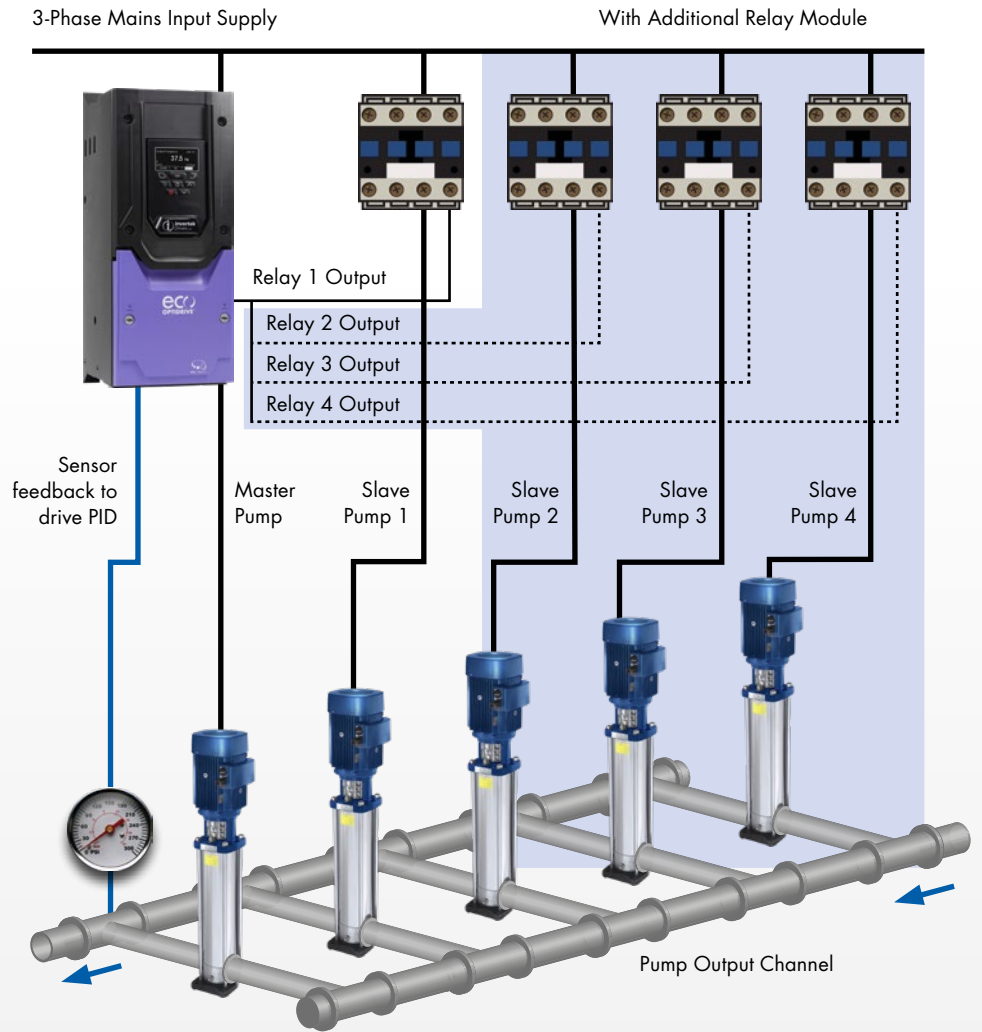
Pump Pressure Control with DOL Pump Assist Single Drive Booster

Cost effective and simple solution for standard boosters capable of managing multiple pumps using one drive.

Optidrive Eco provides automatic operating time monitoring and balancing for assist pumps to share duty cycle. Run time clocks for all fixed speed assist pumps are maintained and visible within Optidrive Eco for integration into the pump system maintenance schedules.

Key Benefits:

- ✓ Cost effective way to reduce energy consumption
- ✓ Maintains system pressure with varying demand
- ✓ Reduces water hammer effects
- ✓ Pump stage and de-stage functions
- ✓ Easy to use and maintain



Optistick Smart

The Optistick Smart facilitates real-time communication using Bluetooth technology between Optidrives and a PC running OptiTools Studio PC software or a smartphone with the OptiTools Mobile app.

- Allows rapid parameter copying between multiple drives
- Onboard Bluetooth interface for PC and smartphone connection
- Onboard NFC (Near Field Communication) for rapid data transfer



How much energy could you save?

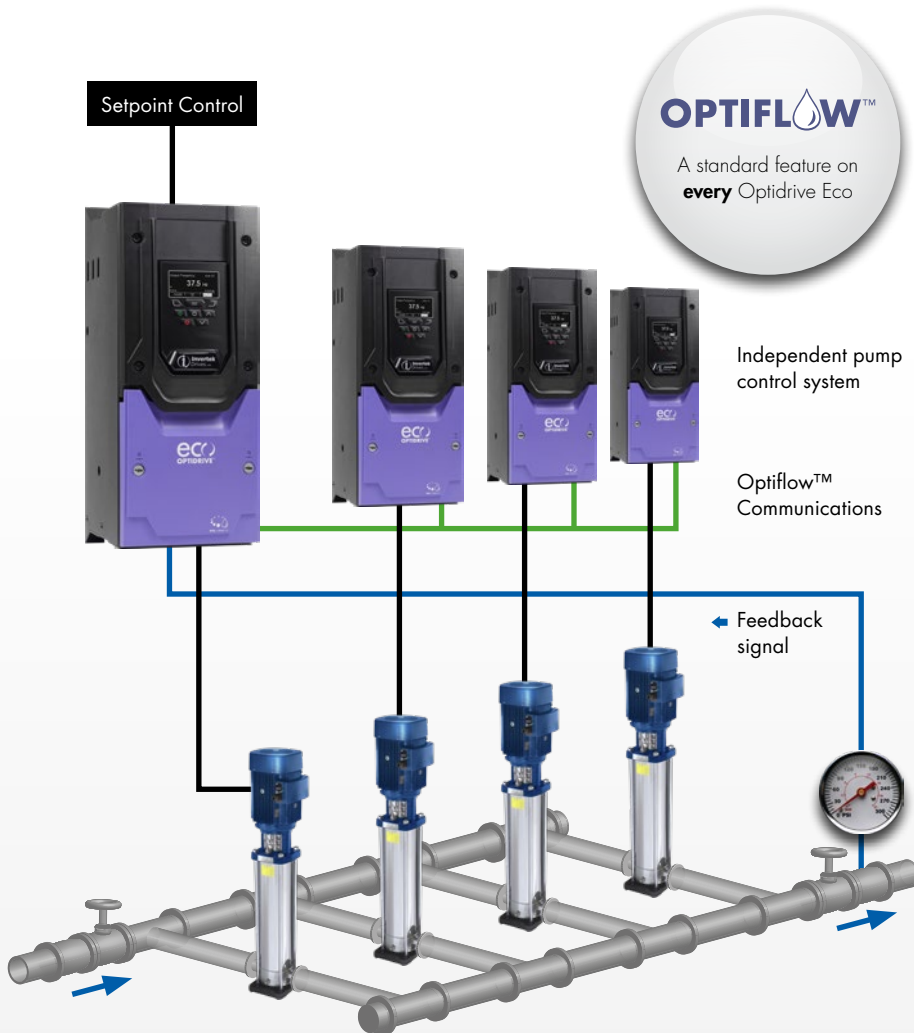
Estimate potential energy savings, CO₂ emissions and financial savings for your application with the Invertek Drives Energy Savings Calculator app.

www.invertekdrives.com/calculator



Standalone Flexible Pump Station Control

Multiple Drive Booster



Fully automatic, self-redundant, energy efficient control for boosters with the highest level of overall system protection.

Key Benefits:

- ✓ Flexible and extremely powerful standalone booster pump system control
- ✓ The most energy effective control solution on the market for boosters
- ✓ Advanced, individual diagnostics for each pump
- ✓ Automatic system reconfiguration in case of pump failure
- ✓ Easier pump maintenance without disruption to pressure regulation
- ✓ Maintains constant pressure in the system with all pumps ramping up to speed on start-up
- ✓ Eliminates water hammer effects
- ✓ Programmable pump stage and de-stage functions
- ✓ Standby/sleep functions for optimum efficiency
- ✓ Easy to use and to maintain

Embedded control technology for multiple pump systems that operate all drives at variable speed for maximum energy efficiency. The pump controller automatically balances pump operating times, reconfigures the system in case of pump failure (including master drive) and indicates maintenance intervals for each pump individually. System operation is maintained even if drives are individually powered-off (for example, if a pump needs to be isolated for maintenance) and are automatically re-introduced into the system, when powered on – including master drive.

Installation can't be easier – you only need to connect the power supply and motor cables to the drives and connect all drives together via RJ45 connectors to provide communication between them.

If the built-in functionality is not enough for your requirements, you can use the internal PLC controller to create your own fully customised solution.

OPTIDRIVE™ eco

A compact and robust range of drives dedicated to pump control



Multi-Language Text Display

Installed as standard on all models

Intuitive Keypad

With HAND/AUTO function



Integrated Cable Management

IP55 enclosures



Optistick Smart

Rapid commissioning tool

Internal EMC Filter

Fire Mode



Sensorless Vector Control for All Motor Types

PM
AC Permanent Magnet Motors

BLDC
Brushless DC Motors

SynRM
Synchronous Reluctance Motors

IM
IE2 & IE3 Induction Motors

LSPM
Line Start PM Motors

Precise and reliable control for IE2, IE3, IE4 & IE5 motors

Maintain constant pressure in the system regardless of the AC motor type

Optidrive Eco Variable Frequency Drives provide efficient, reliable and quiet control of motors for pumping applications. Designed to provide maximum operating efficiency whilst minimising environmental impact, Optidrive Eco offers unrivalled performance and flexibility, whilst meeting the key standards and requirements of demanding applications.

Networking

Modbus RTU

BACnet MS/TP

BACnet MS/TP and Modbus RTU are built-in as standard for simple and convenient connection with external controllers.

Optional plugin modules provide a range of other fieldbus interfaces.



Key Benefits

- ✓ **Unrivalled simplicity of installation, connection and commissioning**
Installing and commissioning the drive never was so easy.
- ✓ **Powerful Optiflow™ controller as standard**
Flexible and complex standalone control system designed for multi-pump applications.
- ✓ **Function dedicated for pumps:**
Standby Mode, Fire Mode, Burst pipe detection, Dry run detection, blockage detection, load monitoring function.
- ✓ **Built-in lockable mains disconnect (only IP66 models)**
You can simply turn it on or off (even on load) and lock it against unauthorised use.
- ✓ **Protected circuit boards and coated heatsink**
Designed to withstand tough ambient conditions.
- ✓ **Bluetooth connectivity**
Simply use your smartphone or PC to wirelessly commission or check your drive*.
- ✓ **Trip log with trigger on event function**
Easy maintenance.

*Optional Bluetooth interface required

Pump Control Features

Blockage Detect/Clear

Optidrive Eco can detect potential pump blockages in real-time and trigger a programmed cleaning cycle to automatically clear them, preventing downtime.

Pump Clean/Stir Cycle

Triggered by a settable period of inactivity, a configurable cleaning cycle can be run to clear sediment, ensuring the pump is ready to run when needed.

Dry Run Protection

Optidrive Eco can evaluate a pump's speed/power and shut it off or warn when the pump starts to run dry, protecting it from heat/friction damage.

Motor Preheat Function

Optidrive Eco features a motor preheat function to help ensure moisture is not permitted to collect on the motor in periods of inactivity and prior to motor start-up. In addition, the motor preheat function can be used to keep condensation from developing on the motor as the motor cools down immediately following a stop. The feature is fully configurable, meaning the pump can be always available the instant it is required.

Enclosure Options

IP20

0.75 – 250 kW

Cabinet mounted version for classic systems.



IP55

7.5 – 250 kW

For indoor wall mounted systems, saving on cabinet and cable costs.



IP66 Outdoor

0.75 – 30 kW

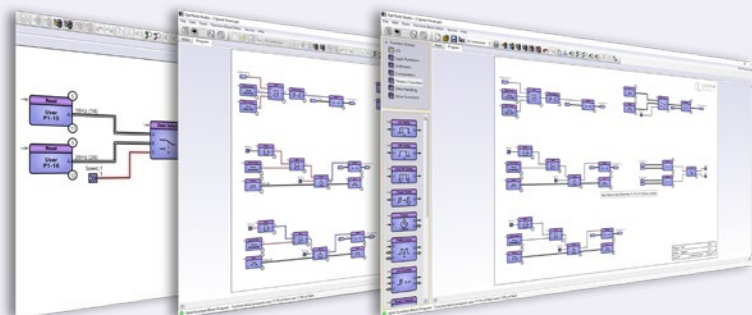
Polycarbonate enclosures for direct machine mounting and outdoor installation. Designed to withstand degradation by ultraviolet (UV) light, greases, oils and acids. Also robust enough not to be brittle at -20 °C.

- ✓ Dust-tight
- ✓ Washdown ready



Built-in FBD simple PLC – cross borders, break limits, be ready for new possibilities!

- ✓ Adjust functionality of your drives to your system requirements by creating your own program
- ✓ Save money by using drives instead of an external controller
- ✓ Modbus Master – communicate, read data and control your external devices via Modbus RTU directly from the drive
- ✓ Save time by testing your system off-line using a built-in PC simulator



Proven Worldwide in Water Pumping Applications

Reducing water and energy usage through the control of an irrigation system at an 18-hole golf course

Golf Club Lignano, Italy



Securing a constant and reliable water supply with energy and cost savings

Rambam Hospital, Middle East



36% energy savings created on a high-powered water pump and reduced downtime

ENACAL, Nicaragua

30% energy savings at a major shopping centre

Jakarta, Indonesia



Constant and reliable water supply to 10-storey apartment blocks controlling 4kW pumps

Asian Games, Indonesia



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