

Seamless Pump Station Retrofit

Increase energy savings and system
reliability with Clean Power VFD

smartd.tech

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Objectives

The Saint-Sauveur city wanted to improve energy efficiency, pump reliability, and overall control by replacing the contactor with a Variable Frequency Drive (VFD) in an existing pump station. Their objective was to modernize the system, reducing energy, operational, and maintenance costs while enhancing performance.

The target: **25% energy savings** from a 84 kWh/week baseline.



Challenges

Limited panel and physical space in the pump station.

Motor and bearing protection to maximize equipment lifespan.

Seamless connection to existing monitoring and control systems.

Support for 600 V 3-phase input and output.

Solution at a glance

Simple contactor replacement with easy 4-wire in, 4-wire out setup

Seamless integration with existing monitoring and control systems via embedded Modbus interface

Increased energy efficiency through flexible control according to water demand

Enhanced pump reliability and extended lifespan with pure sine wave input

Reduced operational and maintenance costs with less equipment to maintain

<5%

Harmonic distortion
Protects grid equipment

15 dBA
quieter

Less noise
A more peaceful station

35%

Lower energy use
Beat the 25% goal

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Success Story

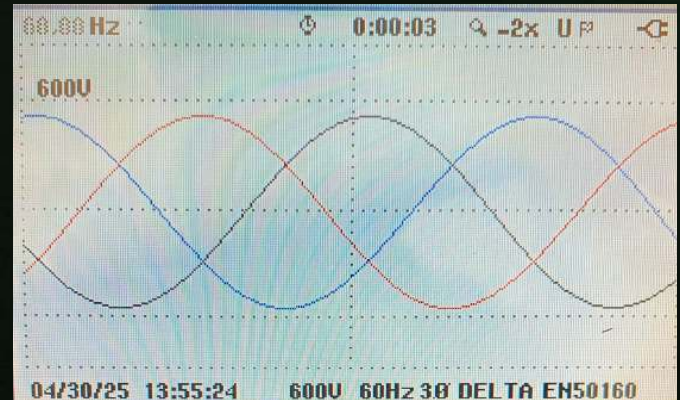
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6-pulse VFD — PWM voltage output



SmartD — sinusoidal voltage output

The Solution

A straightforward drop-in: the electrician disconnected the cables, removed the contactor, and reconnected the same cables to the Clean Power VFD.

Remote control and monitoring were set up through the built-in Modbus TCP and mobile app, linking the drive to the existing PLC and control system.

When capacity grew, a conventional 6-pulse VFD was added on site — and the operator immediately heard the difference: PWM output stresses the windings and structure, risking overheating and premature wear.

The Clean Power VFD's SiC-based design delivers three true sine-wave outputs with filtering built in — **no extra components** to protect the motor, insulation, and bearings.

Results

Energy consumption cut 35% — beating the 25% target.

Improved reliability with pure sine-wave output and smooth start/stop.

Seamless integration with existing controls via built-in Modbus TCP.

Drop-in 4-wire retrofit installed in under an hour.

Less equipment to maintain — no external filters.

Feedback

"The Clean Power VFD exceeded our expectations. The quick installation and integration into our existing systems made the transition effortless.

It's not just quieter — it's less stress, higher efficiency, and fewer long-term risks."

Simon Mercure,
Municipal Engineer, City of Saint-Sauveur



6-pulse VFD PWM

Clean Power VFD