

# Portable Hydraulic Power Unit Control Using the SEL-2411 PAC

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## INTRODUCTION

Portable HPUs (hydraulic power units) are subject to excessive vibration and extreme temperatures that will leave commercial-grade control components susceptible to failure. HPUs will have tank-level sensors, flow meters, pressure sensors, and a variety of discrete sensors that need monitoring.

This application note covers the features of the SEL-2411 Programmable Automation Controller (PAC) and the benefits of using this device for controlling a portable HPU.

## SEL SOLUTION

### Rugged Hardware

With an operating temperature range of  $-40^{\circ}$  to  $+85^{\circ}\text{C}$ , optional conformal coating on all circuit boards, and a worldwide, ten-year warranty, the SEL-2411 PAC is designed to work in the harshest of environments. Additionally, the SEL-2411 PAC meets the Class 1, Division 2 Hazardous Location Approval rating.

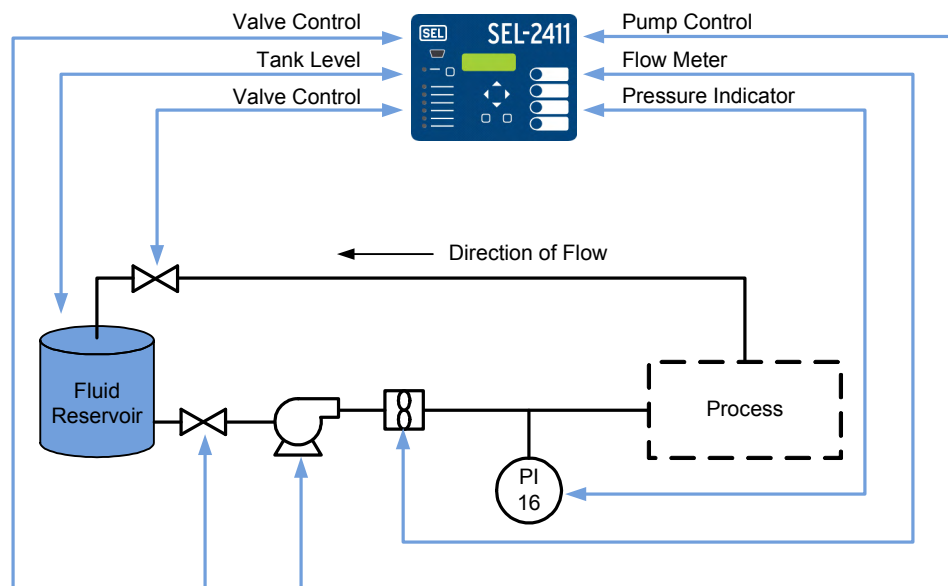


Figure 1 Control Architecture Utilizing the SEL-2411 PAC for HPU Control

## Built-In Digital and Analog I/O

The SEL-2411 PAC has built-in analog outputs to control VFD (variable frequency drive) pumps and throttling valves and built-in analog inputs to monitor flow meters, tank levels, and pressure sensors. The SEL-2411 PAC also has discrete I/O used for position, indication, and on/off control and monitoring.

## Built-In HMI

The SEL-2411 PAC has a built-in programmable HMI (human-machine interface) for easy status feedback, settings adjustment, and machine control. Program the HMI display and LED (light-emitting diode) indicator lights to notify an operator of a machine fault or required routine maintenance. Program the pushbuttons to read, acknowledge, and clear notification messages.

## Robust Communications

The SEL-2411 PAC uses utility industry standard communications protocols, including DNP3, IEC 61850, and Modbus<sup>®</sup>. The user can implement these protocols over a variety of mediums, including fiber optic (single or dual 100BASE-FX and fiber-optic serial port multimode ST<sup>®</sup> connectors), Ethernet (single or dual 10/100BASE-T), and serial (EIA-232 and EIA-485).

