



# *Automated Blending or Mixing Functions Using the SEL-2411 PAC and SEL-2440 DPAC*

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## **INTRODUCTION**

In order to optimize production efficiency, it is necessary to automate mixing, blending, and ingredient delivery systems. These automated systems require process control, feedback, monitoring, and data logging.

This application note discusses the features of the SEL-2411 Programmable Automation Controller (PAC) and SEL-2440 Discrete Programmable Automation Controller (DPAC) and the benefits of using this hardware for ingredient dispensing, blending, and mixing applications.

## **SEL SOLUTIONS**

With an operating temperature range of  $-40^{\circ}$  to  $+85^{\circ}\text{C}$ , optional conformal coating on all circuit boards, and a ten-year warranty, the SEL-2411 PAC and SEL-2440 DPAC work well in the harshest of environments. Additionally, the SEL-2411 PAC meets the Class 1, Division 2 Hazardous Location Approval rating.

### **High-Resolution Configurable Analog I/O**

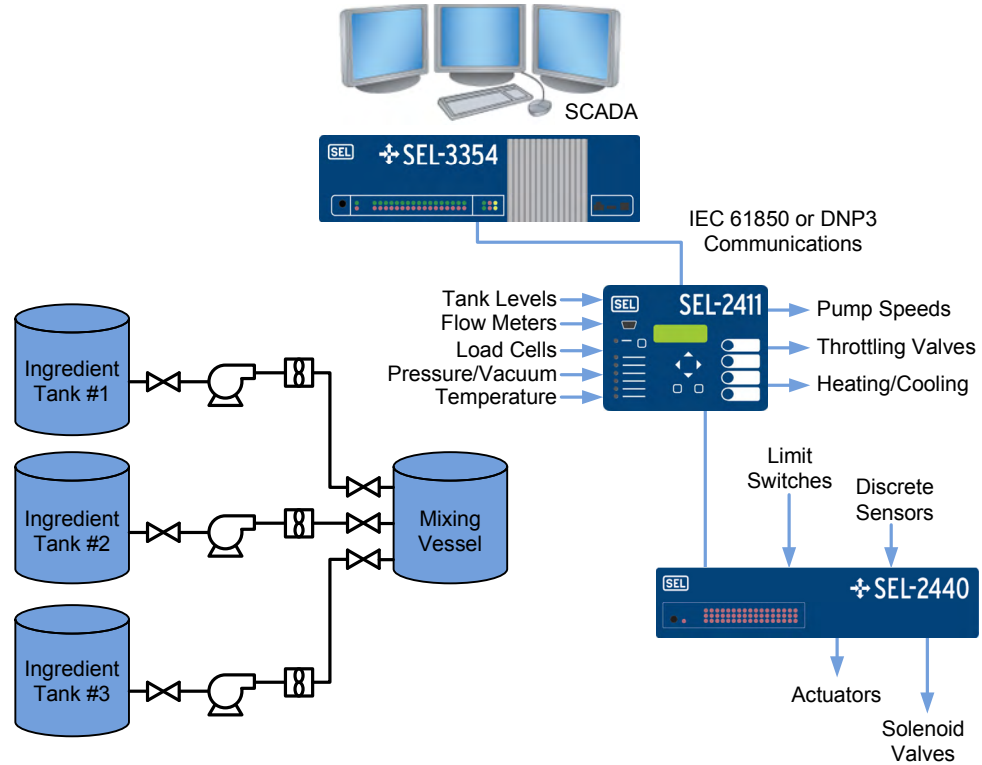
The SEL-2411 PAC has optional voltage or current analog I/O cards. Use the analog outputs to control variable frequency drive (VFD) pumps, vessel heaters and/or coolers, and throttling valves. Use the analog inputs to monitor flow meters, tank levels, and load cells.

### **Built-In HMI**

The SEL-2411 PAC has a built-in programmable HMI (human-machine interface) for easy status, adjustment, and recipe control. Four pushbuttons, six navigation buttons, and two-line displays provide valuable machine status, adjustment, and control.

### **Easy Remote I/O**

The SEL-2440 PAC has up to 48 digital I/O for various sensors, switches, control valves, and other on/off devices. The included ACSELERATOR Architect<sup>®</sup> SEL-5032 Software makes mapping, naming, and programming the remote I/O easy.



**Figure 1 Control Architecture Utilizing the SEL-2411 PAC and SEL-2440 DPAC for Ingredient Dispensing, Blending, and Mixing Control and the SEL-3354 Embedded Automation Computing Platform as the SCADA Host**

## Intuitive Programming

The included ACCELERATOR QuickSet<sup>®</sup> SEL-5030 Software simplifies device configuration and programming for the SEL-2411 PAC. Controller programming no longer requires expensive software, extensive training, and the multiple technical support calls typically experienced with programmable logic controller (PLC) programming. With built-in logic, math, timer, and counter functions, the SEL-2411 PAC can be programmed to handle any control application.

## Data Logging Functionality

The SEL-2411 PAC tracks and records up to 1,024 binary events, 100 analog values, and 32 counter values with the DNP3 event buffer. Easily export the data to your supervisory control and data acquisition (SCADA) host or workstation PC for logging, analysis, and graphing.