Abstract

This paper reviews the consequences of a Safety System specification change made at the end of a project and how implementation of the change was ultimately accomplished.

Programmable Electronic Systems (PES) based safety systems offer different Input/Output (I/O) modules based on the functions of the devices connected to the system. There are modules for Analog Inputs, Analog Outputs, Digital Inputs, Digital outputs, Relay Outputs, Pulse Inputs, etc. The different modules also have options for use. One available option for Digital Output modules includes ‘line monitoring.’ Line monitoring is used in cases where the digital outputs remains “off” for long periods of time and are then energized in an emergency or trip situation. The ‘line monitoring’ feature includes electronics that will momentarily energize the output, transparent to the connected device, long enough for the safety system to detect that there is still a closed loop, i.e. there is not a broken wire. In the case of Digital Inputs ‘line monitoring’ is accomplished by connecting digital inputs to an analog input module. This requires the addition of two resistors, one connected in parallel with the digital input, and one connected in series with the digital input/resistor branch. With this resistor series it is possible to continuously monitor the digital input circuit and detect a fault or break in the input circuit.

This paper will review how a safety system specification change related to ‘line monitoring’ impacted the completion of the Instrument Control and Safety System (ICSS), discuss the process that took place in reviewing that specification change and review the ultimate decision in implementing that change.