Newsletter Volume 5

FAIL-SAFE PUMPING

We both know it isn't really possible to make a mechanical system absolutely fail-safe, but with a little ingenuity you can improve your odds of staying in operation. When any of LMI's 9 Series metering pumps (A9, AA9, B9 or C9) is used with a Digi-Pulse Flow Monitor, the first pump online can be used to automatically trigger a second 9 Series pump, should the first pump actually stop delivering chemical. This would normally happen when there is a loss of prime or the application has run out of chemical.

The Digi-Pulse Flow Monitor is used to verify that chemical flow is occurring when a pump strokes, by providing a return signal pulse for every stroke attempted. If there is no return pulse, the "lost" strokes can be counted by PUMP 1, and it can be programmed to produce a relay output to PUMP 2 after a selected number of "misses". The relay output enables the on/off power to PUMP 2, which is then controlled by its knob settings. To do this, the 8-pin connector of PUMP 1 (pins 2 and 6) is cabled to the 4-pin connector of PUMP 2 (pins 3 and 4) with a 32355 cable assembly. When actuated, PUMP 2 would operate in place of PUMP 1. PUMP 2 would then remain in operation until the system is reset by the operator.

There are several other control possibilities. With additional 8-pin to 4-pin cable assemblies and Digi-Pulses, more than two pumps could be put into the fail-safe lineup. Practically, however, it would make more sense to hook a second 8-pin extension cable (P/N 31396-10, for example) to a visual, audible or computer alarm.

If you choose to use a 4 to 20 mA DC proportional control signal for your PUMP 1, it is still possible to set up a fail-safe operation. The impedance of an LMI "9" Series pump is only 22 ohms. Since many systems are designed to handle a 500 ohm impedance load, you should have no trouble employing PUMP 2 once it is turned on by PUMP 1, to pick up as an exact proportional feed replacement for PUMP 1. We can build a special wiring harness, part number 32355-1, that passes the Digi-Pulse relay "on" signal to PUMP 2, as well as the 4 to 20 mA control signal (this can also be done with an external pulse signal, using wiring harness 32355-2). If your chemical load requirement varies during the year, instead of using PUMP 2 in a fail-safe mode, you could push the "Start/Stop" buttons on both pumps at the same time, so that the pumps operate independently, and then program their mA responses to increase your chemical flow. An example of this would be an increased flow load in the summer that calls for more water treatment.