



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.

Another control possibility worth considering depends upon whether or not you are using a 4 to 20 mADC proportional control signal for your PUMP 1. If you are, then that signal can quite possibly be split and sent simultaneously to both PUMP 1 and PUMP 2. 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 having PUMP 2, once it is triggered on by PUMP 1, pick up as an exact proportional feed replacement for PUMP 1. Since this option begins to complicate the physical set-up of your operation, please feel free to give us a call – we'd be happy to help.



Fail-Safe Pumping System With Digi-Pulse Flow Monitors

SOME RANDOM THOUGHTS

1. You'll help insure continuous fail-safe system operation if you use a plumbing manifold system with separate suction lines and chemical containers.
2. If your chemical is subject to gasification (typically sodium hypochlorite or hydrogen peroxide), some mechanism to release the built-up gas would be useful (ask us about LMI's new bleed and Auto Prime valves).
3. If you plan to use a proportional signal to control your pumps, you can clean up your wiring by using a splitter box. Please contact us if you'd like our advice or would like us to build one for you. Thanks for your interest.