Uson

Application Note:

4-Channel Concurrent Tester

The Problem

The number of parts tested per hour (throughput) is a major challenge facing production and test engineers. Multiple parts are often connected to a common test port using a manifold in the attempt to increase testing throughput.

The manifold approach has two serious drawbacks. First, the manifold and the parts themselves create a large volume. The increased volume reduces sensitivity causing longer test times, which is precisely what multiple testing was trying to solve.

Second, because the parts are connected to one common air source, the tester has no way to know which parts failed. A failure in any part demands a second test. This re-testing takes even more time.

The Solution

The Uson Sprint iQ-4PC is a four-channel pressure decay tester with four independent sensors and test circuits contained in one compact machine. Four parts are independently tested at the same time without a manifold.

Each part tested has it's own bar graph and status window on the tester's large liquid crystal display. The operator knows exactly which parts failed. No re-testing. Because the four test circuits are independent, the volume remains small and the test is much faster than a manifold-type test.

Using the model iQ-4PC is similar to running four testers at the same time. But it's better because Sprint iQ costs so much less than four machines.

How Sprint Works

The Sprint iQ's check valve tester works like this (Figure 1):

- Product [P] is attached to the four test ports either manually or by automated machinery.
- The test is initiated by pressing Sprint iQ's start button or by remote input.
- Sprint iQ pressurizes the four parts with the fill valve [V1] then traps air in each separate test circuit between the product and the valve.
- Trapped air pressure in each of the four test circuits is measured by an individual pressure sensor [S].
- If any of the four parts fail, Sprint iQ's fail light for that test port turns on and a signal is sent to the I/O port. Sprint's liquid crystal display shows exactly which parts pass and which parts fail. (Figure 2 next page)

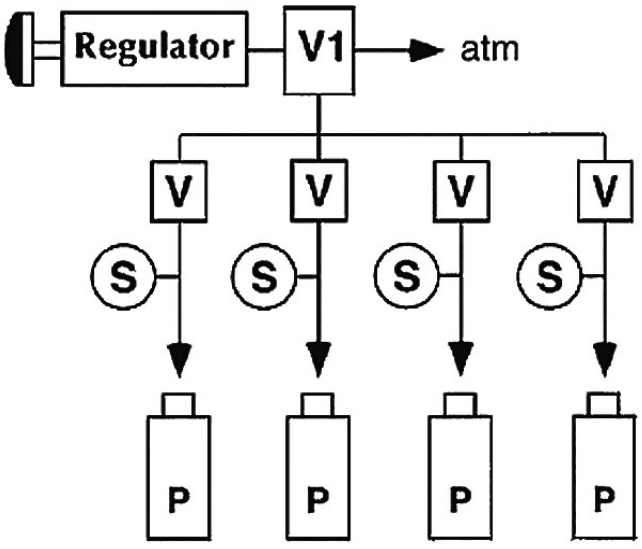

Figure 1
Simplified Pneumatic Diagram

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Display

The iQ-4PC display shows all four channels at the same time. Each channel (test port) has it's own bar graph and status indicator.

The large color display is easy to read under varying lighting conditions.

Showing the status during each test, the display indicates fill, stabilization, test and dump during the respective cycle period.

In an automated operation, the pass/fail information is also sent to the I/O port on the back of the Sprint iQ.

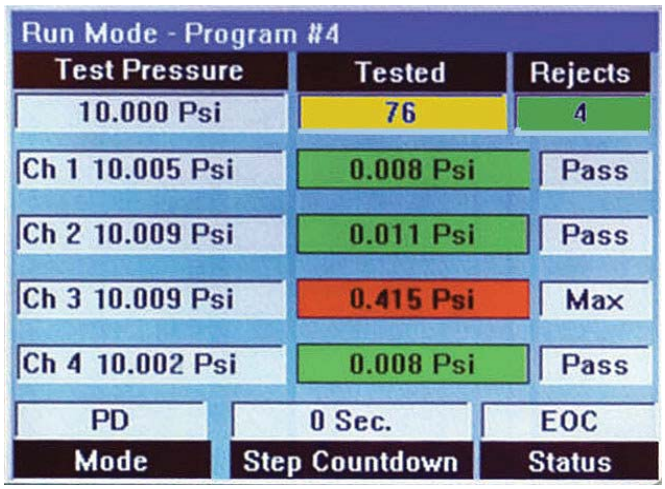

Figure 2
Sprint iQ-4PC Display

Applications

This multi-channel tester is an extremely flexible machine with the ability leak test a broad range of products. From small to large, rigid to flexible, the iQ-4PC is perfectly suited to the challenge of accurate testing that is both fast and affordable. The iQ-4PC is used to test either multiple products or products that have multiple parts.

Other Sprint Models

Although you can use the four-channel machine to test fewer channels, if you don't need all four channels, Sprint iQ models are available also in two and three channels.

Flow

A Sprint iQ 4-Channel Sequential tester can test four parts using mass flow in series. One mass flow transducer tests four parts one after the other for leakage, blockage, or for correct flow rate.

Features

- Extremely fast
- Tests large or small volume parts
- Can use as a 1-, 2-, or 3-channel tester
- Perfect for bench or automation
- Small footprint (8.5 x 14 Inches)
- Resolution to 1/1000 PSIG at 60 PSIG full scale
- Accurate and Rugged
- Easy to program and calibrate
- Off-the-Shelf delivery
- Many available options!

for good measure

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