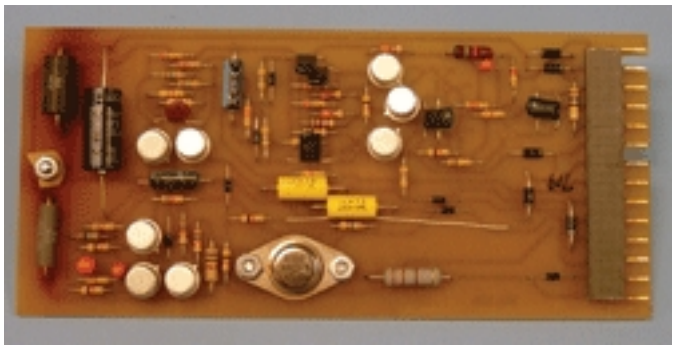
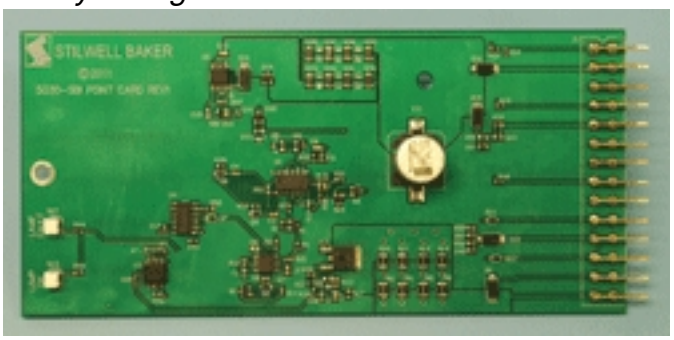
Written by MT Staff
Thursday, 15 September 2011 12:16

‘Out with the old and in with the new’ is one of the keys to keeping clean water flowing to 25 million Californians.



The original annunciator cards were designed and supplied in the 1960s by a now-defunct company. Technology has certainly changed in the decades since.



According to SBI, the new annunciator cards are fully documented, supportable and reliable. Unlike the old cards, they feature short-circuit and over-current

protection, which means even under a short in the system, the alarm circuit won't be damaged.

It's the type of problem no operation can afford when mission-critical equipment is involved: The California Department of Water Resources (CDWR) was experiencing a high failure rate in the alarm system used in pump stations that store and distribute water to over 25 million Californians. By modernizing the circuitry and components of the annunciator output cards and delivering a compatible finished product, Washington-based custom electronics design and manufacturing firm Stilwell Baker, Inc. (SBI), has helped CDWR significantly prolong the useful life of its all-important alarm equipment.

The system that monitors the California pumps was originally designed in the 1960s. The annunciator output cards were last manufactured—*but not improved*—more than 10 years ago by a now-defunct company. That meant there was no support when the aging electronic components in these cards overheated and caused system failures. Documentation, if any, was minimal. According to John King, electrical planner for CDWR, "Not many companies were willing to take this project. They wouldn't take on the challenge."

Stepping up to the plate

After investigating the problem, SBI recommended redesigning the cards with low-power, up-to-date circuitry and components to eliminate the failure mechanisms in the original design. Prototypes worked well in the lab, yet the initial field trials revealed technical issues in some of the pump stations. That issue was addressed through system-level modeling simulation and testing, followed by onsite testing and circuit modifications.

"With limited documentation available, going onsite was critical," noted Darrel Baker, SBI's president and CEO. "The alarm systems were built in different years with different parts, so onsite measurements were key to proving the solution."

The end result was a fully documented, supportable and reliable design that eliminated the high-temperature components, reduced overall power dissipation by 24% and decreased hot-spot temperatures by 140 F (60 C). The new design also increased fault tolerance in the output drive stage and now includes short-circuit and over-current protection—*so even under a direct short in the system, the alarm circuit would not be damaged.*

SBI also precisely replicated the original 1960s electrical connector system. The new cards connect directly into the existing alarm system with 100% compatibility of existing systems in the field.

Since Stilwell Baker supports and provides replacement parts, CDWR can rest assured that the alarm system will remain operational for many years to come. **MT**

Stilwell Baker, Inc.
Vancouver, WA

For more info, enter 31 at www.MT-freeinfo.com