Datakey.
The power of memory. Secured.

Sorting Out Firmware Updates

WECO

Woodside Electronics Corporation (WECO) manufactures electronic fruit and vegetable sorters used by food processors to improve worker productivity. WECO sorters are used with a variety of foods, including: tomatoes, walnuts, blueberries, cranberries and wine grapes. The company's brands include TomatoTek, WalnutTek and BerryTek.

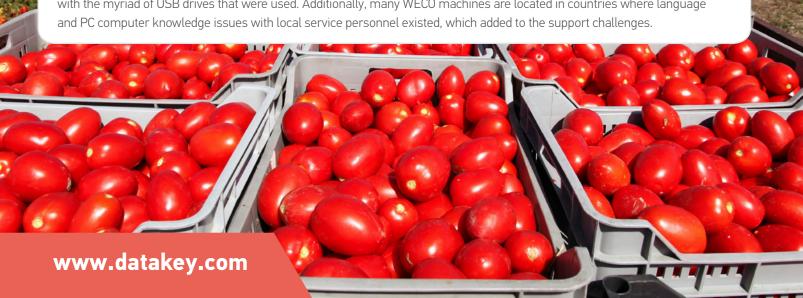**Applications:**
Firmware Updates
System Cloning
Data Logging

Market:
Agriculture

Challenge

Thousands of WECO machines are deployed throughout the world, many of which are leased. Software upgrades for each harvest season are included with each lease, which means updates occur frequently. Since most machines are not connected to the Internet, the updates must be done manually.

Each WECO sorter features a touch-screen operator interface that is controlled by an embedded microcontroller. The microcontroller also provides timing and communication/control for WECO's proprietary camera systems. WECO needed to be able to store statistical sort data on a portable memory device and then transfer that data to a PC. They also wanted to use the same portable memory device to transfer firmware files from a PC to the sorter to update its display and camera programming.

Previously, in order to update a sorter's firmware, WECO technicians had used a combination of USB thumb drives and laptops to upload the new firmware. These manual updates often took a significant amount of time and led to problems as a result of improper data entry. The laptops were also not ideal for the rugged environments in which WECO's products operate. In one year, WECO totaled 15 laptops that were lost and/or damaged while updating sorters. WECO also faced support issues with the myriad of USB drives that were used. Additionally, many WECO machines are located in countries where language and PC computer knowledge issues with local service personnel existed, which added to the support challenges.

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Solution

WECO turned to ATEK Access Technologies for its Datakey Serial Memory tokens and IP-rated panel-mount receptacles. The Serial Memory line utilizes industry-standard serial EEPROM and serial (NOR) Flash, simplifying integration. The rugged, portable memory system provides WECO with an easier and more efficient way to administer firmware updates.

"We decided to use removable storage to easily administer firmware updates in the field," said Don Cadwell, Director of Engineering for WECO. "We looked at using USB flash drives and CompactFlash cards, but the environmental conditions proved challenging and the support was horrible. Some locations face near freezing conditions, while others in the central valley of California deal with dust, dirt and temperatures topping 100 degrees. The Datakey solution was the only product available that we felt could survive the challenging environments in which our equipment is located."

WECO selected the Datakey SR4310IM panel-mount receptacle. It provides an IP67 seal and is rated for 50,000 insertion/removal cycles.

Additionally, Cadwell likes that the Datakey memory tokens are fully integrated into the WECO operator interface. This makes it easier to use in countries with language barriers and service personnel with varying levels of computer knowledge.

"The service technician simply plugs in the Datakey memory token which contains the firmware update and presses a button on the touch screen," Cadwell said. "The rest is automatic."

WECO customers also use the memory tokens for storing software settings. Since a lot of WECO's machines are leased, customers aren't guaranteed to get the same machine back each year for the harvest.

"No matter which machine they receive, they can use the Datakey memory token to restore their settings," said Cadwell. "This is especially useful for our customers with several machines because they can use the same memory token on multiple machines."

New customers can also benefit from this ability to "clone" the settings from one machine to another. Some customers have as many as 20 parallel processing lines utilizing WECO sorting systems. Once the first line is set up, the memory token enables them to quickly and easily transfer those settings to multiple machines without the possibility of data entry mistakes.

The Datakey memory token also provides a low-cost way to reliably store days of crop yield data gathered by harvester-mounted sorters. WECO customers who use a cellular or radio data link use the memory token for backup storage when the link is not operational. They can store more than 80 hours of harvest data to the rugged memory tokens.

Impressive Yields

WECO has realized both labor savings and improved customer service since implementing the Datakey memory tokens.

"The ability to store machine configuration data on the Datakey memory token provides our production personnel a simple way to initialize new machines without having to manually enter configuration and settings data," said Cadwell. "This not only saves time, but also removes the possibility of mistakes being made during data entry."

WECO has also benefited from the robustness of the Datakey portable memory solution.

"We've been using the memory tokens for four harvesting seasons, and I haven't heard of a single socket or memory token failure in the field," said Cadwell.