



# Mobile System Withstands Initiation By Fire

featuring microFlash® 4t thermal portable printer  
asset tracking in field service ■ ■ ■

For those “in the know,” it is easy to see when sugar cane harvest season begins – simply look for the smoke. Before harvesting the cane, workers must burn it, turning the fields and everything in them into a hot, dirty, dusty, ash-covered landscape. For four months, every day, around the clock, the workers toil, hand-cutting the cane so it can be transferred to the factory for weighing and processing.

It is difficult to imagine technology having a place in this world and yet it does. In ash-covered fields, workers rely on the Datamax-O'Neil microFlash® 4t and Symbol® SPT 1700/1800 terminals to accurately record just how much cane they cut. Their wages depend on it.

## Problem ■ ■ ■

Developed by Electronics Shop S.A. (ES), this solution is in use at five sugar cane growers in three countries: Guatemala, Nicaragua and the Dominican Republic. For 26 years, ES and their Sistemas Electronicos de Control (SEC) department have creatively met the needs of their customers, providing hardware, software and technical support throughout Latin America.

“Many challenges had to be met for this to work,” said Electronics Shop Alejandro Amézquita and Mynor Nájera, co-managers of the project. “First, tons of acres are planted and all must be harvested within four months. Workers must cut enough cane to fill a truck’s ‘wagon.’ The truck then makes its way to the factory and the load is weighed and tested while the driver waits. Finally, the worker heads back to the field and the cycle begins again, hour after hour, day after day. It’s pretty intense.”

The faster the driver returns, the more cane can be hauled and the more the workers can earn. The challenge with the

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old system was that the foreman, or “el caporal,” hand-recorded all worker information on separate sheets of paper. The sheets were then turned in at the weigh station and manually entered into a computer system. The process was time-consuming, the data was fraught with errors and the inevitable mistakes made through manual entry.

Compañía Agrícola Industrial Santa Ana, a large sugar cane grower in Guatemala explained: “We used so much paper,” said Martin Juarez, Assistant General Manager, “It took a long time to get all the information into the system, and there were many errors.” ES implemented its sugar cane solution for Juarez’s company in November 2000.

“We knew we needed a solution that reliably captured information right in the field and one that could quickly transfer data into the system at the factory. Most importantly, it had to be rugged,” said Amézquita.

Juarez emphatically agreed: “With the severe environmental challenges – the rain, the dust – we had to have a printer that could survive. Since there is no electricity in the fields, we also needed a printer that offered the highest battery capacity.”

ES immediately found the hand-held terminal it needed, a Symbol® SPT 1700/1800, but they struggled to find a printer that could hold up in the harsh environment. “The first printer we tried was useless in two weeks,” said Nájera, “With all the ashes and the dust, every unit we tested just shut down.”

## Solution ■ ■ ■

To their good fortune, the next printer tested was the



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right by our customers.

Datamax-O'Neil 4t thermal printer. "The Datamax-O'Neil 4t has been a workhorse for us since the day we started using it four years ago," said Amézquita, "It's tough...very tough. Ash and dust doesn't bother it. It doesn't break. We had a truck run over one and all we had to do was change the case."

During the around-the-clock harvest, two shifts of workers handle the cutting; el caporal has the Symbol® SPT 1700/1800 strapped to his belt and the printer over his shoulder. On average, each installation uses 23 hand-held/printer combinations.

At the beginning of each shift, el caporal uses the hand-held to record his name, the worker location, the license plate of the picking machine, the truck number and how many wagons are attached. He then records the name of each worker.



Once the wagons are loaded and the truck is ready to return to the factory, el caporal enters the quantity cut, then initiates the printing of a receipt on the Datamax-O'Neil 4t. The receipt carries a single PDF417 two-dimensional (2D) bar code that contains all data related to the load, the names of the workers who produced it, el caporal and the driver. The driver takes the receipt and heads off with his cargo.

At the factory weighing station, where the driver used to hand over a stack of handwritten sheets to be keyed, he now delivers a single bar-coded receipt. Using a Symbol® P304 scanner connected to a PC, workers scan the bar code to enter important information, shortening the process to seconds and ensuring accuracy.

## Results ■ ■ ■

"The workers are saving hours at the weighing station and the information is accurate. They know for sure they are getting paid for exactly what they cut," said Nájera.

In the case of Compañía Agrícola Industrial Santa Ana, the improvement was astounding. "Processing information at the weigh station once took up to 30 minutes. Now it takes just two. Errors have substantially decreased," said Juarez. This time savings also translates into a reduction in force. 14 picking groups were each reduced by three workers; a

total of 42 less people. Now each group needs only four people to complete the same amount of work. "That is a huge help to our business," said Juarez.

Back at the sugar cane fields, the application is a great example of technology meshing with tradition as the little Datamax-O'Neil 4t produces receipt after receipt emblazoned with a crisp, clean, mysterious-looking symbol on it; 400 receipts in eight hours in the fields of Compañía Agrícola Industrial Santa Ana.

It's an achievement not lost on Amézquita or his customers. "Equipment is quite an investment. The customers need to know it will keep working. The Datamax-O'Neil 4t printer is incredibly rugged. Our workers drop it and it will keep on working," said Amézquita.

In fact, Electronics Shop uses the same printer for a very different but no less demanding application: meter reading. There the reliable Datamax-O'Neil 4t churns out an average of 600 10-inch-long receipts daily.

Amazingly, no special customization was done to the printer to dust or ash-proof it. "Some users put it in a leather case to protect it, some don't. It lasts either way," said Amézquita, "Maintenance is done once per month in the field, where a technician simply blows the dirt and ash out of the machine. It takes about 20 minutes. That's it. That's all we do."

"The Datamax-O'Neil 4t is a very strong machine. Most importantly, it can work for 24 hours reliably. We just swap out the battery every 12 hours when the shift changes," added Juarez. It's no doubt that these hard-working men never imagined that technology would enter their lives in such a critical way. Just like most of us could never imagine how that pairing provides us the sweet spoonfuls we put in our coffee every day.

***A 90 percent processing time reduction and a substantial decrease in errors allowed sugar cane grower Compañía Agrícola Industrial Santa Ana to reduce the number of workers in each cutting group from seven to four, a total of 42 less people. "That is a huge help to our business."***

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