

Water purifying technology saves lives around the world

Highlights:

- New Life International (NLI) is a non-profit that provides food, clothes, and medical supplies to those in need
- NLI has developed a water purification system that provides clean water, and modified that system to produce medical-grade hypochlorous antiseptics. Both of these technologies can save lives around the world
- To automate these processes and make them available to more people in need, NLI relies on automation technology from Phoenix Contact

> "We began to purchase Phoenix Contact PLCnext Technology components, as wediscovered for ourselves how to make the impossible possible."
>
> Duvon McGuire, New Life International

Customer profile:
New Life International

"Water is life. We in the United States tend to take it for granted because it's so ample, so plentiful, so readily available, and affordable. It's not that way in the rest of the world," said Steven Uhde, training director and field operations director for New Life International (NLI), a non-profit organization based in Louisville, Kentucky.

NLI offers humanitarian relief by providing food, clothes, and medical supplies to those in need. One of the organization's most remarkable accomplishments has been developing a water purification system that has now reached more than 85 countries.



Figure 1:
New Life International offers humanitarian relief by providing food, clothes, and medical supplies to those in need.

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Figure 2:
NLI's water purification system makes water safer for people in developing countries around the world. The purifier can treat up to 55 gallons per minute and produces water that is free from harmful bacteria.

Duvon McGuire, president and founder of NLI, explained, "There's water availability, and that's very important. There's water cleanliness – does it look clean? But then, ultimately, at the highest level, is the water safe? Is it free from chemical contaminants, and is it free from biological contaminants? Until recently, we've just focused on the biological contaminants, but now, some things have come into play that we have some insights into how to go to that next level of actually removing dissolved solids from water that cannot possibly be filtered out."

Challenge:
Providing life-saving antiseptics to more people

In 2019, shortly before COVID-19 hit, Duvon received a request from a wound care specialist in Zimbabwe asking if NLI could modify its water purification systems to produce medical-grade hypochlorous antiseptics. Duvon described this as a "defining moment, not just in our lives, but the lives of dozens in a short length of time."

He said, "The positive results began pouring in with medical personnel's responses being described as 'blown away' as chronic infections were reversed."

NLI wanted a way to scale the availability of the game-changing solution, so it could be available to more people around the world.

Duvon had a background in automation. Although he had left he industry about 25 years ago, he understood the value of automating this process. He said, "You automate for the three Ds: things that are dirty, things that are dangerous, and those things that are dull. So, you automate the things that fall into those three categories. In this particular case, it's not dirty, and it's not dangerous. But sitting around waiting for tens of thousands of gallons to be disinfected for a village can be pretty dull. However, it is very critical, so that is the automation that we then spun off and started as the control system for the hypochlorous."

Solution:
Scaling with automation

"The world of automation and process control had dramatically advanced, yet there still remains a patchwork of technological silos," said Duvon. "Something called Industry 4.0 caught my attention with promises of machine learning, cloud computing, and a communications protocol I had never heard before – PROFINET. We began to purchase Phoenix Contact PLCnext Technology components, as we discovered for ourselves how to make the impossible possible."

The new automation system included numerous Phoenix Contact products, including several different PLCs, Smart Elements I/O, safety I/O, data connectors, power supplies, and more. Phoenix Contact products gave NLI the programming flexibility, networking, and IIoT capabilities they were looking for. On top of that, many of the components are covered by Phoenix Contact's Limited Lifetime Warranty, giving NLI confidence that Phoenix Contact stands behind its products.

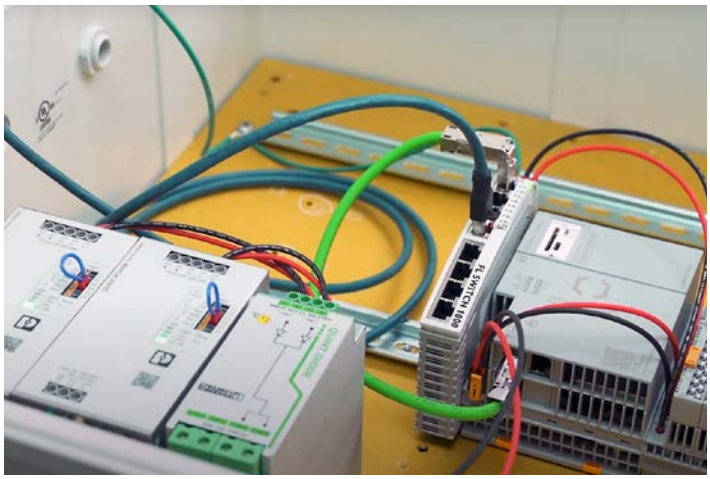


Figure 3:
Control box with PLCnext and power supplies): NLI relies on automation components from Phoenix Contact to bring its life-saving technologies to more people around the world.

Results:
Getting more to give more

"With great process control and communications technologies, we get to give more quality at an affordable price. After all, we don't give more so we can get more; we get more so we can give more," Duvon concluded.

Watch a video about the application.