APPLICATION NOTE

AUTOMATED BLENDER TEST CART

DEWETRON HARDWARE ENABLES MODERN, FLEXIBLE TEST CART FOR AUTOMATED TESTING OF KITCHEN APPLIANCES



DEWETRON

ABSTRACT

A manufacturer of kitchen blenders contacted our integrator partner DMC to build two new test carts for end-of-line as well as R&D testing. The customer already had legacy test carts in place, but the existing software lacked essential features, the hardware was difficult to maintain, and the overall setup wasn't designed for future expansion. The new system needed to execute automated test sequences for power analysis and temperature measurements while also supporting digital outputs to trigger external lab equipment.

Our integrator partner DMC delivered a modern, maintainable, and scalable test cart by combining their expertise in data acquisition with the flexibility and performance of our DEWETRON test and measurement hardware and LabVIEW development.

SOLUTION

For this project, DMC developed a robust and versatile testing system based on DEWETRON's TRIONet3 platform in combination with XR modules. This configuration enables seamless performance analysis and temperature measurement while providing an expandable basis for integrating additional DEWETRON modules in the future. This results in a fully equipped and synchronized data acquisition system, where all data are directly available within DMC's LabVIEW application for custom, lightweight test sequencing.



Fig. 1: DEWETRON's TRIONet3 and XR-modules

The resulting test cart matches the approximate height of a kitchen counter and features an easily accessible E-Stop. The blender under test can be placed either on top of the cart or beside it, while the system itself is controlled entirely from a laptop. The design supports several blender models and allows switching between 2- and 4-pole motors as well as variable amperage ranges up to 20 A, with provisions for a future 50 A version. Mounted on casters, the cart can be moved across the lab, and the configuration supports multiple channel setups, data limits, and display options.

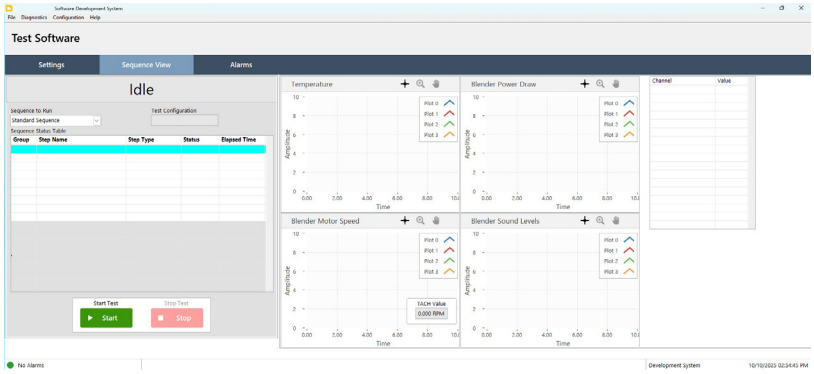


Fig. 2: View of the Test Software with Sequence Monitoring, Data Plots, and a Live Data Table View ©DMC

As a long-standing NI partner, DMC also developed a custom LabVIEW application tailored to the customer's workflows. The system measures current, voltage, speed, and temperature synchronously, displaying all parameters on a clear and intuitive user interface. Progress indicators and real-time data visualization guide the operator through each automated sequence. A dedicated alarm tab provides immediate feedback on issues such as application errors, E-Stops, or out-of-range values DMC's Alarm Handling toolkit. An additional configuration tab allows users to define channel types, units, and scaling based on the blender model being tested.



Fig. 3: Completed Test Carts with a Blender on Top ©DMC

CUSTOMER BENEFITS

The new test carts address the customer's previous challenges while ensuring a future-proof system architecture. Key advantages include:

- Improved maintainability – The redesigned wiring layout, serviceable rack structure, and schematics mounted inside the cabinet doors make calibration and maintenance significantly easier.
- Enhanced ease of use – The updated software is modern, intuitive, and streamlined for test execution. Clear configurations, reusable settings, and a clean UI allow operators to adopt the new system quickly.
- Long-term expandability – The hardware and software architecture are prepared for future features. Unused outputs and predefined software hooks allow the customer to extend the system without replacing the entire cart.

CONCLUSION

The combination of DEWETRON hardware and DMC's system integration expertise resulted in a powerful and flexible test cart tailored to the needs of a leading consumer goods manufacturer. The customer quickly adapted to the new system and is already planning future enhancements thanks to the cart's expandable architecture. This project highlights how customizable, synchronized, and modular DEWETRON solutions can be seamlessly integrated into bespoke test systems across a wide range of applications.

AUTHOR

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Rafael Goldgruber holds a Master's degree in Physics from the University of Graz, specializing in astrophysics and data analysis. Before joining DEWETRON, Rafael worked on various scienceresearch projects in Austria and Spain, gaining valuable experience in the field. Since 2022, he has been part of DEWETRON, where he serves as an Application Engineer. In this role, Rafael contributes his expertise to the development of advanced measurement systems, leveraging his background in physics and data analysis to support the company's projects and initiatives.

ABOUT DMC

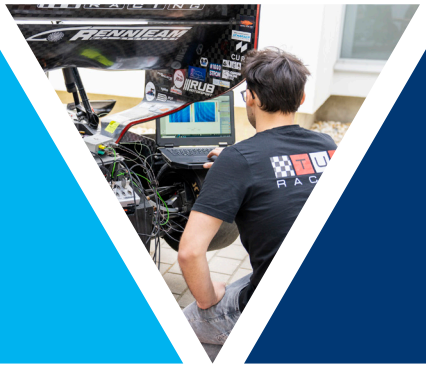
DMC develops test and measurement solutions for clients in need of automated test equipment to execute performance and quality tests on products and systems. Implemented at various stages of a product's lifecycle, including research and development, product design, and final manufacturing end-of-line testing, automated testing systems utilize custom-developed, integrated hardware & software platforms to ensure that required functionality and reliability are reached or exceeded. Their team of experts are based in various cities in the US.

For more insights into the automated blender test cart see:
https://www.dmcinfo.com/our-work/turnkey-automated-blender-test-cart/









ABOUT DEWETRON

DEWETRON is a manufacturer of precision test and measurement systems and part of the globally operating Anritsu Group. Our reliable measurement data help customers worldwide make processes more predictable, efficient, and safer.

Our strength lies in customized measurement solutions: ready to use right away while remaining flexible to adapt to dynamic testing requirements in the energy, automotive, transportation, and aerospace industries.

More than 35 years of experience and innovation have made DEWETRON a trusted partner in the global test and measurement market.

More than 25,000 DEWETRON measurement systems and over 400,000 measurement channels are in continuous use at leading companies worldwide.

DEWETRON's quality is certified according to ISO 9001 and ISO 14001.
The high integrity of the measurement data is guaranteed by our own accredited calibration lab according to ISO 17025.

THE MEASURABLE DIFFERENCE.

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