

## ELINTRIX & UEI • Working Together to Find Solutions

### OVERVIEW

Elintrix is a small engineering firm that specializes in transforming sensor data into actionable insights through advanced signal processing, machine learning, and digital communications. Recently, the firm joined a multidisciplinary team of structural and mechanical engineers to monitor the electrical and mechanical behavior of a large gear train at a government-owned, waterway lock facility. Through continuous, long-term monitoring, the team was tasked with identifying anomalous behavior for site personnel, deriving an electromechanical transfer function to minimize the need for costly networks of sensors, and designing a real-time digital twin of the machinery. This approach provides a path toward greater operational efficiency and asset longevity. UEI hardware offers the perfect combination of durability, flexibility, and quality that this project requires.



Photo credit: USACE Mississippi Valley Division

### THE IMMEDIATE CHALLENGES

- 1 A rugged, extensible, compact data acquisition unit (DAU) capable of being permanently wall mounted in waterproof enclosure, to continuously digitize signals arising from sensors such as current transformers, accelerometers, strain gages, thermocouples, and inclinometers.
- 2 The ability to collect time-synchronized data streams to enable the development of the digital twin model.
- 3 A flexible programming API that provides seamless integration into custom applications while facilitating intuitive adjustment of data acquisition parameters to maximize data integrity.
- 4 Excellent customer support to enable a limited staff, operating with a constrained budget, to meet an aggressive development/installation timeline.

### PATHWAYS TO SUCCESS

- Elintrix utilized UEI's 6-slot Cube I/O (DNA-PPC8-1G) DAU system to rapidly and reliably monitor and collect the necessary electrical and mechanical data, and for use in the design of a new digital twin model.



UEI's DNA-PPC8-1G I/O SYSTEM

- ☑ UEI offered a vast array of analog I/O to make this application a success, including [IEPE/ICP vibration](#), [12-channel isolated thermocouple](#), [high-speed simultaneous sampling](#), [high-speed strain gage](#), and much more.
- ☑ UEI's hardware combined with their software capabilities, easy programming, and reliable engineering support allowed Elintrix to find the perfect long-term solution for monitoring the waterway lock and for the digital twin model.

# END RESULT

**"UEI'S OUTSTANDING ENGINEERING SUPPORT AND VERSATILE HARDWARE AND SOFTWARE PRODUCTS WAS A MAJOR FACTOR IN MAKING THIS AMBITIOUS RESEARCH PROJECT A SUCCESS."**

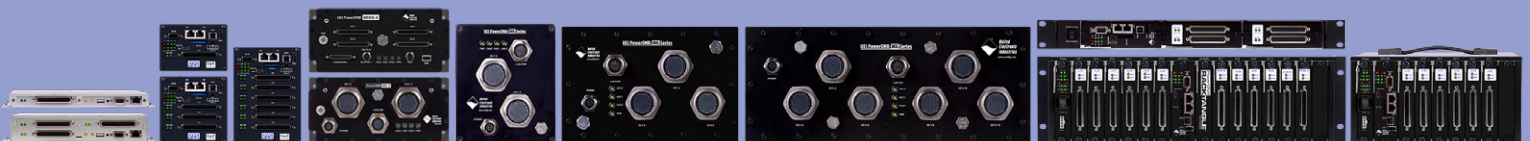
**- DREW BARNETT, ELINTRIX CTO**

## GREAT PARTNERSHIP. OUTSTANDING SOLUTIONS.

- [WIN]** Elintrix installed and activated the heavy machine monitoring project in a government owned lock facility on time and under budget, despite limited personnel and tight timeline.
- [WIN]** UEI's knowledgeable and professional application support engineers helped verify that deployed sensors were compatible with I/O devices.
- [WIN]** UEI's hardware ecosystem and programming platform makes it straight forward to extend condition monitoring efforts to new sensing modalities. Plus, the benefit of [UEI's availability guarantee](#) and [extended hardware warranties](#) offered peace of mind for application longevity.



**ASK US HOW UEI CAN DO THE SAME FOR YOUR COMPANY!**



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