

## Total Vibration Quantification with Single Delphin Technology Solution

### Delphin Expert Vibro for Measurement and Analysis

If you need to know how your products react to vibrations or operate a shaker test stand you'll need a vibration measurement system to acquire and evaluate the data. While many vibration test systems require multiple devices each with their own software, Delphin Technology offers the Expert Vibro Data Acquisition and Control System as an all-in-one vibration data acquisition and control solution.

Vibration test stands are used for engines, transmissions and compressors for diagnostics and quality assurance. Vibration concerns can be present in exotic applications for jet engine turbine testing to everyday items like washing machine design validation so it is very important across many industries.



#### Vibration test stands

Many vibration tests are conducted during the development phase of the product life cycle. Operators fix test samples to shakers where they are subjected to simulated working conditions. These vibrations need to be continuously measured both for the shaker table and the test sample. Users derive important product quality data by comparing the shaker vibration patterns to the result vibration in the test sample. This evaluation requires an intelligent data acquisition system with high speed sampling and powerful analysis software.

The Delphin vibration measurement is highly accurate because it captures vibration frequencies, phase changes and amplitudes before analysis is performed and the data is portrayed as a Fast Fourier Transform (FFT) spectral analysis diagram. The Expert Vibro can even control the shaker through analog or digital outputs by triggering shut-

off procedures, delivering email notifications, or performing other tasks if an alarm event occurs outside of the set points assigned by the user. Meanwhile configuration and measurement data are shown on the touchscreen display for added convenience.

### **High-Speed Measurement**

The Delphin Expert Vibro solution represents a leap in technology because it provides users with high speed data acquisition, intelligent signal processing, analysis functions, local data storage and versatile communication options in a single device. With continuous sampling even the smallest of irregularities is recorded to the internal 32 GB data storage capability, making it especially reliable and secure.

Using the latest dual-core FPGA processor technology for extensive computations and analysis, the compact Expert Vibro supports high sampling rates of up to 50kHz per channel while the 24-Bit A/D converter ensures high-precision measurement. All channels have galvanic isolation to prevent transverse distortions and users switch the analog inputs between voltage, IEPE or shaft vibration measurement via the ProfiSignal software.

### **Practical example**

As part of its research and development, a manufacturer of cooling and refrigeration equipment is using an Expert Vibro system for shaker test stand measurements. Users acquire data from multiple synchronous acceleration signals and evaluate them using the ProfiSignal software. ProfiSignal is a complete software system for data acquisition, analysis, visualization and automation. The software is user-friendly and combines professional functionality with easy operation.

After data is measured and recorded the optional ProfiSignal Vibro module provides online and offline portrayal, evaluation of measured data using the AMDT module FFT, cascade, time signal and orbit diagrams.

### **PLC and PC Interfaces**

Expert Vibro data loggers can be connected to PCs via LAN or USB or various serial standards and Modbus TCP/IP can be used for communications. For large applications multiple Expert devices can be synchronized to process vibration data from many channels.

Optional integrated Wi-Fi, GSM, UMTS or LTE modules are available to extend the communication options if needed.

## **The Data Logging Experts**

In this application note we outlined the basics of how to use an Expert Vibro system to perform all the necessary aspects of vibration monitoring and analysis. CAS Data Loggers is the North American master distributor for Delphin Technology and offers these products along with technical support. We have extensive experience with Delphin products and can help you find the ideal system for your vibration test stand application. Give us a call today at (800) 956-4437 to speak with one of our knowledgeable Applications Specialists.