



CUTTING EDGE ADWIN DATA ACQUISITION & CONTROL SYSTEMS ADWIN PROVIDES NANOSECOND TIMING IN TEST STANDS



ADwin Real-Time Data Acquisition and

<u>Control systems</u> are used by customers around the world for solutions which require deterministic control, signal processing and evaluation and synchronized data acquisition. The ADwin design allows for high-speed process execution for highly accurate measurements and execution with precision in the hundreds of nanoseconds.

ADwin Data Acquisition and Control systems have their own CPU controlling execution of all time-critical tasks in real-time. A key feature of

these advanced systems is how tightly-coupled the CPU is to the analog and digital inputs and outputs which allow extremely low-latency operation. Together with options like programmable co-processors on the I/O modules and fieldbus interfaces, ADwin is an ideal solution for factory floor/production test stands and complex manufacturing operations.

ADwin systems offer highly reliable operations due to rugged construction and rigorous burn-in testing. ADwin is found in many different test applications including X-by-Wire systems virtually every component of today's automobiles, leading-edge particle physics experiments, semiconductors and electric motors.





ENGINE TEST STANDS-DATA ACQUISITION WITH ROTATIONAL SYNCHRONIZATION

With true real-time capabilities, ADwin can control triggered data acquisition of high speed rotating systems and parts. For instance, testing pressure and torque or engines across the range of rotation – with precision of fractions of degrees.

The ADwin high-performance real-time systems are capable of parallel, individually-controlled processes while running independently of a PC's operating system. In this way they provide deterministic operation with response times as low as 300 nanoseconds.

VIBRATION TEST STANDS-SPECTRAL AND TIME-BASED ANALYSIS

For vibration test stand applications in the automotive and aerospace industry, ADwin acts as a single solution where otherwise users would require multiple pieces of equipment such as digital signal generators and closed-loop controllers. ADwin generates stimulus wave-forms, controls force and position feedback, and evaluates response amplitude and phase, in single- and multi-axis vibration test stands. ADwin can record many test parameters including Vibration, Force, Frequency, Pressure, Shock, Temperature, and more.

INNOVATIVE PRODUCTION SYSTEMS-CONTROL OF CRITICAL PROCESSES

For critical aerospace component that must withstand high temperatures, protect against wear and maintain stiffness and shape, Electron-Beam Physical Vapor Deposition systems apply coatings with micrometer thickness tolerances. ADwin systems execute precise control allows time-critical operation and exact positioning to ensure satisfactory results where tolerances are extremely tight.





ELECTRON BEAM MICROSCOPY-A COMPLETE, ALL-IN-ONE SOLUTION

<u>Electron-Beam Microscopy</u> applications require precise control of the measuring head, typically using servo and stepping motors. ADwin systems are used across the spectrum of these sophisticated devices including scanning tunneling, electron beam, laser and force microscopes. The ability to eliminate overshoot and execute open and closed-loop control at hundreds of kHz speeds, and perform data acquisition tasks in a single system give ADwin a unique value proposition to the industry.

PRODUCTION TEST STANDS-WHERE RELIABILITY AND PERFORMANCE MATTER MOST

In today's 24/7 manufacturing world, production lines must operate almost continuously and with high quality. Together with data collection required for traceability and end of line test results, ADwin excels. With top-level support, free driver updates and long product life-cycles unmatched in the industry, ADwin can satisfy the control and data acquisition needs in a single solution yielding costs savings and lowering total cost of ownership.

EDUCATION, RESEARCH AND DEVELOPMENT-SIMULATION AND OPERATION

ADwin is used in Research Laboratories and Institutes world-wide where cutting edge experimentation is contributing to advances in physics and the sciences. Many Magneto-Optical Trap research groups rely on the performance and flexibility of ADwin systems to make the most of their time running their experiments. With direct connection to MATlab and Simulink, researchers can move from the theoretical stage to running an experiment without delay. Modifications to ADwin code are compiled in tens of seconds not hours, allowing users to perform more variations of experiments and increase productivity.







FUNCTIONS:

- Intelligent Data Acquisition
- Digital PID Feedback Control
- Signal Generators: Sinus, Ramp, Noise, Sweep, Pulse, Step
- Dynamic characteristics evaluation
- Hardware-in-the-Loop
- Digital Filtering
- Complex Trigger Conditions
- Min/Max, Average, RMS
- Statistics, Correlations
- Integrals, Derivatives
- FFT, Amplitude and Phase Response

The user-friendly ADwin software environment can be used under Windows (95/98/ ME/NT/2000/XP/Windows 7/10) and LINUX or as a reliable stand-alone data acquisition system. With drivers available for most popular languages, PC based visualization, data acquisition and operator control is made easy. Additionally, the ADbasic language allows users to program mathematical operations and functions which are executed immediately after each sampling step, even at sampling rates as high as 2 MHz Every sampled value or event can be evaluated in the same step so users can immediately perform a control function or online analysis, and more than one processor can be used in the system for the most demanding applications requiring the highest possible throughput.

For more information on <u>ADwin Real-Time DAQ & Control Systems</u> or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or <u>www.DataLoggerInc.com</u>.

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