

CONTINUOUS TIME DOMAIN RECORDING

Gap-free time history recording in a single system offers a range of benefits – from cutting costs to reducing the risk of operational errors

Vibration tests (sine, broadband random, shock, and so on) for mechanical environmental testing on a shaker require a large number of analog input channels, especially when testing satellites and their subcomponents. Sometimes hundreds of control, watchdog (notching/limit), and measurement channels are necessary to acquire analog signals such as acceleration, velocity, distance, force and strain.

For these critical tests, time domain data has to be recorded continuously during vibration control; for example, to monitor the function of the specimen or to record the vibrations on the control, watchdog and measurement channels, using accelerometers. Continuously recorded measurement data contains all information on a vibration test and on the load that the specimen has been subjected to.

One method that is still widely used in aerospace labs is the time data recording of a vibration test to a second, independent acquisition system in parallel with the usual frequency data recording. This results in additional hardware and maintenance costs, as well as more complex system operation and synchronization.

However, thanks to advanced, powerful measurement and control hardware technology, today manufacturers are able to perform both control processes and continuous time data recording in parallel, in a single system.

m+p international, a leading supplier of vibration testing systems, offers gap-free time history recording with its m+p VibControl shaker controllers. The real-time throughput data capture function allows the system to record all selected channels continuously in the time domain on the embedded data server ('throughput to disc'), irrespective of the channel count and the frequency range utilized. This means that the test engineer can



always access all of the original data for analysis purposes.

m+p international's throughput function enables the user to easily post-process the recorded time data after the test run. In addition, recording can be started and stopped independently of the vibration control process.

Vibration control and gap-free time history recording in a single system offers a range of benefits. These include reduced costs, as there is no need for a separate data acquisition system, charge amplifier, additional sensors or cabling, nor are there

1 // Time history recording in parallel to multichannel vibration control using m+p VibControl (Photo: Airbus Defence and Space)

additional follow-up costs caused by maintenance and calibration. Setup time is reduced and there are fewer errors, as tests only have to be defined once. Furthermore, there are fewer errors during operation, since vibration control and continuous data recording are running in one system, using the same user interface. \\\

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