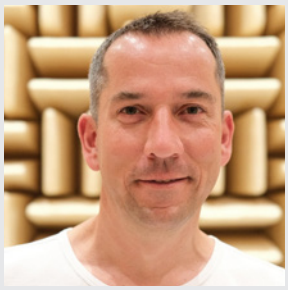
Metrology at its best: **SPEKTRA CS Q-LEAP™**



Christian Hof, Dr. ès. sc.
Head of acoustics and vibration labs
Eidgenössisches Institut für Metrologie METAS

«I used the SPEKTRA CS18 Primary calibration system extensively and often during my time at the NMI. Our objective as a NMI is not just to use a „black box" system, but to validate in significant detail the functions implemented and to quantify all effects that can influence a calibration result. This resulted in a very fruitful collaboration with SPEKTRA.

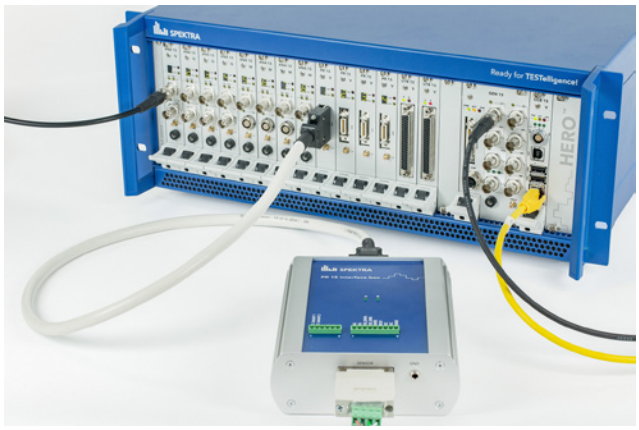
The HERO™ controller in SPEKTRA's new calibration system CS Q-LEAP™ was specially designed for the calibration of dynamic quantities, resulting in technical specifications for resolution and sampling rates that have been significantly improved. Another valuable improvement is the provision of additional, synchronously-sampled measurement channels, facilitating the measurement of lateral acceleration and other measurements during calibration. In addition, all digital sensors are now integrated in the overall concept in addition to the well-known analog sensors and reference standards. In this way, the existing analog history can be optimally linked with the digital future in a system environment.

Above all, however, the system is based on a completely new software architecture, which ensures the transparency and traceability of the measurements. In the months that I was allowed to work with this new system, I was able to convince myself that this system meets the highest requirements of a NMI and will meet current and future needs.

This 'quantum leap' in concept is also reflected as a quantum leap in user benefits. The CS Q-LEAP™ system should therefore have good prospects of helping to shape the standard in this area of metrology for the future.»

«SPEKTRA calibration systems stand for a holistic implementation of the calibration process. The new HERO™ controller and the associated CS Q-LEAP™ calibration software are designed in such a way that both analog and digital test objects can be calibrated with a uniform and intuitive user guide, despite their variety of interfaces and protocols.

The requirements of National Metrology Institutes and research were taken into account in that the software provides open data interfaces through which proprietary algorithms for signal processing can be integrated. These can be used, for example, for the metrological verification of SPEKTRA algorithms or for research purposes. Digital interfaces for the integration of renowned laser vibrometers also predestine the CS Q-LEAP™ for use as a primary calibration system for a large number of dynamic measurement variables, e.g. vibration, shock, pressure or force.



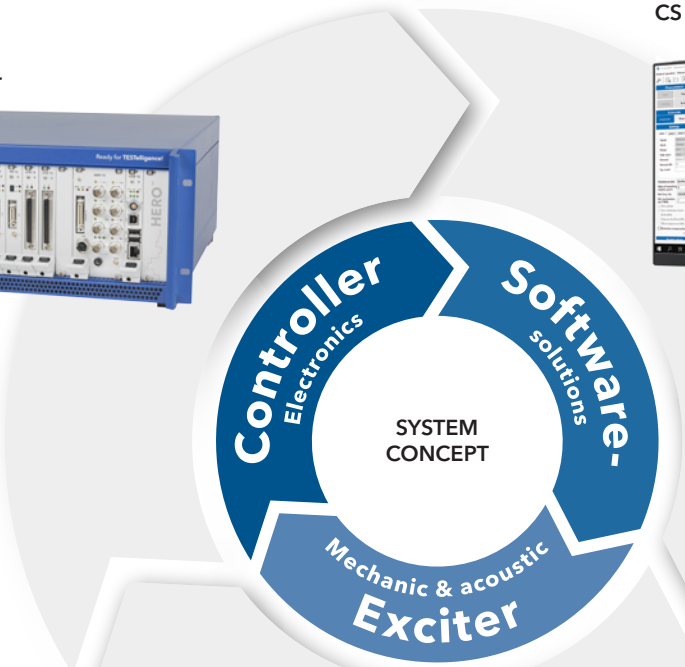
The system is expanded by the eCAL™ software suite, which allows the calibration system to be effectively integrated into company processes and laboratory environments. For example, eCal™ supports various exchange formats for calibration data, such as the pioneering Digital Calibration Certificate (DCC).

Our approach offers effective calibration and metrological precision in a flexible, reliable and open way for the digital future.»

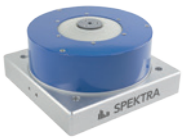
Michael Mende, Dipl.-Phys.
Product manager CS
at SPEKTRA

HERO™ Controller

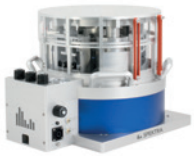
CS Q-LEAP™ Software



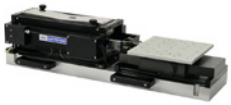
Vibration



SE-2x



SE-13



APS-129

Acoustic

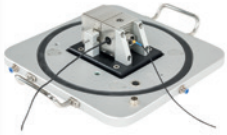
SQ-4.x

SQ-101

Rotation rate

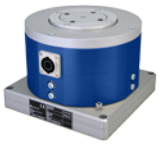
DRE-01

Dyn. pressure



DPE-03

DPE-02



DPE-01

Shock

SE-201

SE-221