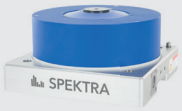
CS Q-LEAP™ P-SINE with SE-29

primary calibration system with high frequency vibration exciter

	HERO™ vibration controller incl. signal conditioners
	CS Q-LEAP™ software • sine calibration • sine sweep • vibration measurement • vibration generation • more on demand
	SE-29 high-frequency vibration exciter
	Power amplifier PA 500 DM
	all-digital laser vibrometer incl. vibration isolation and positioning device for the laser head

Typical DUT

- PE transducers
- IEPE transducers
- VC transducers
- PR transducers
- digital transducer with SPI, I2C, DTI, and many other interfaces
- vibration meters
- laser vibrometers
- vibration calibrators

Standards

- ISO 16063 -11: Primary vibration calibration by laser interferometry
- ISO 16063 - 21: Calibration of vibration transducers by comparison to a reference transducer
- ISO 16063 - 41: Calibration of laser vibrometers
- ISO 17025: General requirements for the competence of testing and calibration laboratories

Key features

- frequency range 5 Hz...20 kHz (50 kHz)
- traceable to PTB (German National Metrology Laboratory)
- calibration of vibration sensors, measurement systems and calibrators
- integrated sensor database
- integrated software for the generation of calibration certificates (print, PDF,…)
  easy data exchange with applications like ERP systems or measuring equipment databases

Frequency range	5 Hz…20 kHz (…50 kHz without traceability)
Acceleration, max.	450 m/s² (45.9 g_n) peak
Displacement, max.	10 mm (0.39 inch)
Payload, max.	vertical: 2 kg (4.4 lbs) horizontal: 1 kg (2.2 lbs)
Laser vibrometer	Class 2 helium-neon laser with 632.81 nm wavelength; digital interface between laser and vibration controller

Frequency range		**Max. recommended payload**	**Expanded measurement uncertainty** [2]	
from	**to**		**magnitude** [3] **/ phase** [1]	**display deviation (ref. laser vibromter)**
5 Hz	< 20 Hz	200 g (0.44 lbs)	0.5 % / 0.5°	0.2 %
20 Hz	1 000 Hz		0.3 % / 0.5°	
> 1 000 Hz	5 000 Hz		0.5 % / 0.5°	
> 5 000 Hz	10 000 Hz	50 g (0.1 lbs)	1.0 % / 1.0°	0.3 %
> 10 000 Hz	15 000 Hz		2.0 % / 2.0°	0.4 %
> 15 000 Hz	20 000 Hz		2.5 % / 3.0°	0.5 %
Reference frequencies: 80 Hz, 100 Hz, 160 Hz		200 g (0.44 lbs)	0.3 % / 0.5°	0.2 %

Recommended excitation amplitudes (peak values)	
Minimum	0.1 m/s²
Maximum (high payload) [4] (displacement, velocity, acceleration)	**4 mm** in the range **5 Hz…12 Hz** **0.3 mm/s** in the range **12 Hz…53 Hz** **100 m/s²** in the range **53 Hz…40 kHz**
Maximum (low payload) [5] (displacement, velocity, acceleration)	**4 mm** in the range **5 Hz…12 Hz** **0.3 mm/s**in the range **12 Hz…106 Hz** **200 m/s²** in the range **106 Hz…20 kHz**

1) Requires software option for phase response measurements
2) Determined according to GUM (JCGM 100 „Evaluation of measurement data – Guide to the expression of uncertainty in measurement“) with k = 2 (coverage factor) for the best possible device under test (DUT). Other devices that are not assumed as ideal must be evaluated with individual contributions.
3) Valid for electrical sensor signals ≥ (1 mV or 1 pC)
4) Maximum vibration amplitude for maximum payload (DUT)
5) Maximum vibration amplitude without any payload (DUT)