CS Q-LEAP™ P-SINE with APS 129

primary calibration system with air bearing vibration exciter

	HERO™ vibration controller incl. signal conditioners
	CS Q-LEAP™ software primary calibration • sine calibration • sine sweep • vibration measurement • vibration generation • more on demand
	APS 129 vibration exciter incl. power amplifier and center position controller for horizontal excitation
	all-digital laser vibrometer incl. vibration isolation and positioning device for the laser head

The pictures show example devices. The delivered devices may differ.

Typical DUTs

- heavy seismic sensors (seismometers)
- geophones for structure/building vibration measurement
- accelerometers and vibration velocity sensors for the very low frequency range

Standards

- ISO 16063-11: primary calibration of vibration transducers by laser interferometry
- ISO 16063 - 21: calibration of vibration transducers by comparison to a reference transducer
- ISO 17025: general requirements for the competence of testing and calibration laboratories
- DIN 45669: sensors for measurement of vibration immission

Key features

- frequency range 0.1 Hz … 160 Hz
- traceable to PTB (German National Metrology Laboratory)
- calibration of vibration sensors, seismic sensors and geophones
- 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

Technical data

Frequency range	0.1 Hz…160 Hz
Stroke [1], **max.**	150 mm (6 in)
Velocity [2], **max.**	1000 mm/s (40 in/s)
Acceleration [2] [3], **max.**	21 m/s² (2.1 g_n) peak
Operation	horizontal
Moving element weight	8.6 kg (19 lbs)
Payload, max.	23 kg (50 lbs)
Table size	250 mm × 250 mm (10 in × 10 in)

1) Recommended operation range peak-peak; mechanical stop at 100 mm (3.9 in)
2) Peak sine
3) Interval mode of operation

Frequency range		**Max. recommended payload**	**Expanded measurement uncertainty** [1] **amount** [2] **/ phase** [3]
from	**to**		
0.1 Hz	0.2 Hz	23 kg (50 lbs)	1.5 % / 2.0°
> 0.2 Hz	0.4 Hz		1.0 % / 1.0°
> 0.4 Hz	2 Hz		0.7 % / 0.7°
> 2 Hz	10 Hz		0.5 % / 0.7°
> 10 Hz	63 Hz	20 kg (44 lbs)	
> 63 Hz	160 Hz		1.0 % / 1.0°
Reference frequencies: 1, 4, 8 Hz		23 kg (50 lbs)	0.7 % / 1.0°

Recommended excitation amplitudes (peak values)	
Minimum	0.1 Hz…160 Hz: **0.01 m/s²**
Maximum (high payload) [4] (displacement, velocity, acceleration)	**50 mm** in the range of **0.1 Hz…1.25 Hz** **3 m/s²** in the range of **1.25 Hz…25 Hz** **3 m/s²…4 m/s²** in the range of **25 Hz…160 Hz**
Maximum (low payload) [5] (displacement, velocity, acceleration)	**50 mm** in the range of **0.1 Hz…1.25 Hz** **0.4 m/s** in the range of **1.25 Hz…6 Hz** **15 m/s²** in the range of **6 Hz…25 Hz** **15 m/s²…2 m/s²** in the range of **25 Hz…160 Hz**

1) Only in combination with optional extra PHASE
2) Determined according to GUM (ISO Guide to the expression of uncertainty in measurement) with k = 2 (coverage factor). The measurement uncertainty is specified for the best possible device under test (DUT): „Nanometrics Trillium Compact" (plus its mounting adapter) in two configurations: first the DUT and secondly the DUT with additional dummy mass. Best uncertainty values only valid for symmetric centered mounting of the DUT and the mass with a center of gravity <80 mm at 35 kg above exciter table. Any other type of DUT can be calibrated. But they must meet the maximum payload limits given by the data sheet of the vibration exciter. Measurement uncertainties need to be determined individually, especially for frequencies above 20 Hz.
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)

Latest update: 12/2023 | All data are subject to change without notice