

CS18 MF

Calibration System Medium-Frequency



Application

- Secondary calibration according to **ISO 16063-21** (comparison method) of charge type, IEPE, voltage, capacitive and piezo-resistive sensors for acceleration, velocity and displacement, with Sine excitation with high accuracy
- Secondary calibration of **reference standards**
- **Resonant frequency search** up to 20 kHz
- Calibration of **vibration meters**
- Calibration of **vibration calibrators**

Range of Use

- **Certified calibration laboratories**
- Departments for the **supervision of measuring instruments** (automotive, aviation, space, military)
- **Quality assurance** in sensor production

Features

- **Traceable** to Physikalisch Technische Bundesanstalt (**PTB**) Braunschweig by the accredited SPEKTRA Calibration Laboratory D-K-15183-01-00 (**DAkKS Calibration Certificate**)
- **Calibration of sensors** with / without amplifiers, measurement instruments with indication of their own by applying of determinate acceleration signals
- **Calibration of calibrators** by exact measurement of vibration quantities
- **Frequency range 3 Hz ... 10 kHz**
- **Sensor mass up to 500 gram**
- **Repeatability** under identical conditions up to 5 kHz < 0.2 %, otherwise less than 0.5 %
- **Upgradeable** to a combined Sine calibration system, e.g. type CS18 VLF / MF
- **Continuous frequency sweep** for consistency check of vibration sensors
- **Including single-ended reference standard** for the calibration of vibration calibrators

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Components

- Vibration control system **SRS-35**, SPEKTRA
- Software CS18 MF with operation modes: sensor calibration, measurement, supply, sweep
- Power amplifier **PA 14-180**, SPEKTRA
- Vibration exciter **SE-10**
- Internal reference standard accelerometer **BN-09**
- **Single-ended reference standard** for the calibration of calibrators
- Standard-PC

Specification

CS18 MF with vibration exciter SE-10

in the frequency range 3 Hz ... 10 kHz for sensors with mass to max. 500 gram (DUT)

for environmental conditions: temperature 23°C / 73 °F ($\pm 2^\circ\text{C}$) and relative humidity 30 % ... 75 %

Frequency Range		Sensor Mass DUT Up to	Expanded Measurement Uncertainty ²⁾ Amount ³⁾ / Phase ¹⁾	Working Range (peak value)		
From	To			Minimum	Maximum ⁴⁾ (Displacement, Velocity, Acceleration)	Maximum ⁵⁾ (Displacement, Velocity, Acceleration)
3 Hz	< 5 Hz	500 gram	2.0 % / 2.0°	1.0 m/s ²	3 Hz .. 12.5 Hz: 5 mm	3 Hz .. 12.5 Hz: 5 mm
5 Hz	< 10 Hz		1.5 % / 1.5°		12.5 Hz .. 48 Hz: 0.4 m/s	12.5 Hz .. 200 Hz: 0.4 m/s
10 Hz	< 20 Hz		1.0 % / 0.7°		48 Hz .. 1 kHz: 120 m/s²	200 Hz .. 10 kHz: 500 m/s²
20 Hz	1,000 Hz		0.7 % / 0.7°		1 kHz .. 5 kHz: 190 m/s²	
> 1,000 Hz	5,000 Hz	250 gram	1.5 % / 1.5°			
> 5,000 Hz	10,000 Hz	50 gram	2.5 % / 2.0°			
Reference-Frequency 80 Hz, 100 Hz, 160 Hz		500 gram	0.5 % / 0.7°			5 kHz .. 10 kHz:

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)

³⁾ Valid for electrical sensor signals \geq (1 mV or 1 pC)

⁴⁾ Maximum acceleration for maximum payload (DUT)

⁵⁾ Maximum acceleration without any payload

Options for calibration systems: see leaflet CS18-extras



Optional:
SE-10 with trunnion for angular operation

All data are subject to change without notice

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