

# CS18 MF

## Calibration System Medium-Frequency



### Application

- Secondary calibration according to **ISO 16063-21** (comparison method) of charge type, ICP<sup>®</sup>, voltage, capacitive and piezo-resistive sensors for acceleration, velocity and displacement, with Sine excitation with high accuracy
- Secondary calibration of **reference standard accelerometer**

### 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 SPEKTRA Calibration Laboratory DAkkS-D-K-15183-01-00 (**DKD 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 LF / MF
- **Continuous frequency sweep** for consistency check of vibration sensors

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### Components

- Vibration control system **SRS-35**, SPEKTRA
- Power amplifier **PA 14-180**, SPEKTRA
- Vibration exciter **SE-10**
- Internal reference standard accelerometer **BN-09**
- Standard-PC

### Specification

for environmental conditions: temperature 23°C / 73 °F (± 2°C) and relative humidity 30 % ... 75 %

### CS18 MF with internal reference standard accelerometer BN-09

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

Frequency Range		Sensor Mass DUT Up to	Expanded Measurement Uncertainty <sup>2)</sup> Amplitude <sup>3)</sup> / Phase <sup>1)</sup>	min.	PEAK Acceleration in g <sub>n</sub>	
From	To				max. <sup>4)</sup>	max. <sup>5)</sup>
3 Hz	< 5 Hz	500 gram	3,0 % / 2,0°	0,1	0.17 ... 0.49	0.17 ... 0.49
5 Hz	< 10 Hz		2,0 % / 1,5°		0.49 ... 1.97	0.49 ... 1.97
10 Hz	< 20 Hz		1,0 % / 1,0°		1.97 ... 7.9	1.97 ... 7.9
20 Hz	1.000 Hz		0,75 % / 1,0°		7.9 ... 11.2	7.9 ... 45
> 1.000 Hz	5.000 Hz	50 gram	1,5 % / 1,5°	1	35	45
> 5.000 Hz	10.000 Hz		2,5 % / 2,0°			
reference frequency 80 Hz (100 Hz)		500 gram	0,5 % / 0,5°	1	5.0	

<sup>1)</sup> Only in combination with optional extra PHASE

<sup>2)</sup> Determined according to GUM (ISO Guide to the expression of uncertainty in measurement) with k = 2 (coverage factor)

<sup>3)</sup> Valid for electrical sensor signals ≥ (1 mV or 1 pC)

<sup>4)</sup> Maximum acceleration for maximum payload (DUT)

<sup>5)</sup> Maximum acceleration without any payload

**Options for calibration systems:** see leaflet CS18-extras