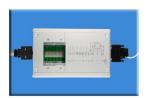
CS18 LMS

Calibration System Low-Medium-Shock











Applications

- Secondary calibration of shock-sensors as well as complete measuring instruments in form of a measuring chain, with very high precision and efficiency, according to ISO 16063-22 (calibration by the comparison method)
- Secondary calibration of accelerometer standards
- Testing of small parts (e.g. MEMS)

Range of Use

- Certified calibration laboratories
- Departments of measuring instrument verification in research and industry, particular in automotive crash test laboratories
- Quality assurance in sensor manufacturing

Features

- Traceable to Physikalisch-Technische Bundesanstalt (PTB) Braunschweig by the SPEKTRA Calibration-Laboratory D-K-15183-01-00 (DAkkS Calibration Certificate)
- Pneumatic shock exciter with integrated reference standard; Air Bearing for Anvil
- Broad amplitude range from 5 g_n ... 10,000 g_n
- Type of excitation: shock half sine
- Pulse duration up to 5 ms
- Sensor (DUT) mass up to 50 gram (can be higher for testing applications)
- Excitation axis: vertical
- · Good repeatability of shock
- Realization of all automatic calibrations according to own test regime (up to 1 shock/s)
- Calibration of sensors with / without signal conditioner
- **Direct connection of piezo-resistive sensors** by means of integrated **PR signal conditioner**
- Determination of aptitude for calibration (bridge resistance, offset, drift) of PR sensors in conjunction with software PR measurement
- **Upgradeable** to a combined calibration systems, e.g. type CS18 LF / LMS
- Automated regulation of amplitudes up to **600** g_n is possible

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Components

- Control system SRS-35 by SPEKTRA with integrated PR signal conditioner
- Shock exciter SE-201 PN-LMS by SPEKTRA with Control box
- Reference standard transducer BN-02
- Standard PC

Performance specification of CS18 LMS with reference standard BN-02

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

Shock Acceleration		5 g _n 10,000 g _n
Pulse Width		0.1 ms 5 ms
Sensor Mass (DUT)		max. 50 gram
Expanded Uncertainty 1)	5 g _n 20 g _n	< 2,0 %
	> 20 g _n 200 g _n	< 1,5 %
	> 200 g _n 4,000 g _n	< 1.8 %
	> 4,000 g _n 10,000 g _n	< 3,0 %

¹⁾ Determined according to GUM (ISO Guide to the expression of uncertainty in measurement, 1995) with k = 2 (coverage factor)

Specification of integrated PR module

Module for supplying power to piezo-resistive sensors or for supplying DC power to sensors (e.g. VC types)

Components of the integrated PR module

- Plug-in module to CS18 electronic unit SRS-35
- · External connecting box for individual sensor adaptation
- Software for determining the electrical aptitude for calibration of PR sensors (measurement of bridge resistance, offset and offset drift, offset compensation, shunt calibration, insulations test)

Options for the PR module

- Individual external connection boxes
- TEDS for PR sensors

Technical Data PR module

Bridge Power Supply	4-lead or 6-lead configuration selectable, power will be measured and controlled	
Voltage Range	-10 V 0 V +10 V	
Current	maximum 100 mA	
Bridge Completion	resistors for completing single-arm and two-arm partial bridges can be integrated in a connecting box (dimensioning according to specific sensor)	
Shunt Resistors	2 units can be integrated in a connecting box, resistance values can be stored in an EEPROM	
Amplifier	0 42 dB	
Gain Steps (DC)	factors to be set by software: 1, 2, 4, 8, 16, 32, 64, 128	
Offset	offset measurement and offset compensation can be performed	

Options for calibration systems: see leaflet CS18-extras

All data are subject to change without notice