

CS18 Gyro

Calibration System for Dynamic Rotation Rate



DRE-01
HF vibration exciter with
integrated reference
standard

Application

- Secondary calibration of rotation rate sensors (comparison calibration) with sinusoidal excitation with high accuracy

Range of Use

- **Accredited calibration laboratories**
- **Measuring equipment monitoring** in research and industry in the areas of automotive, aerospace, military research...
- **Quality assurance** in sensor manufacturing
- **National metrological laboratories**

- **Tracing to Physikalisch Technische Bundesanstalt in Brunswick (PTB)** via the accredited SPEKTRA calibration laboratory D-K -15183-01-00 (**DAkkS calibration certificate**)
- **Calibration** of rotation rate sensors with/ without power amplifier, measuring chains (sensor with signal conditioner) and vibration measuring instruments through the provision of defined rates of rotation
- **Frequency range 1 Hz ... 5 kHz**
- **Payload up to 28 kg mm²**
- **Reproducibility** of the calibration under identical conditions < 0.3 %
- Air-cooled **vibration exciter** with **internal reference standard**
- **Integrated position encoder** in the exciter and zero position controller APS 0109 for automatic zero position control
- **Maximum rate of rotation 5300 °/s**
- **Expandable** to a combined calibration system, e.g. CS18 Gyro (VLF)

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Components

- Vibration control system **SRS-35**, SPEKTRA
- Software CS18 with the operating mode Sensor Calibration
- Power amplifier **PA 14-500**
- Zero position control system **APS 0109**
- High-frequency vibration exciter **DRE-01** with integrated position encoder
- Internal reference standard
- Standard-PC

Performance parameters

CS18 Gyro with vibration exciter DRE-01

In a frequency range of 1 Hz ... 5 kHz for sensors with a weight of up to 28 kg mm² (DUT) ¹⁾ for the following ambient conditions: temperature 23 °C (±2 °C) and relative humidity 30 % to 75 %

Frequency range		Weight of DUT	Expanded measurement uncertainty ²⁾ Magnitude ³⁾ / Phase ⁴⁾	Excitation amplitude (Peak value)	
von	bis			Minimum	Maximum ⁵⁾ (Angle, rate of rotation, angular acceleration)
1 Hz	5 kHz	28 kg mm ²	1,5 % / 1,5°	1,0 °/s	Rotation angle: 30°, Angular velocity: 5300°/s Angular acceleration: 2.5E ⁶ °/s ²

¹⁾ Data for CS18 HF – other vibration exciters available on request

²⁾ Determined in accordance with GUM (ISO Guide to the Expression of Uncertainty in Measurement, 1995) with k = 2 (coverage factor) for an ideal test object (additional allowances will need to be estimated for other, non-ideal test objects)

³⁾ Data applicable to electric sensor signals ≥ (1 mV or 1 pC)

⁴⁾ Data only valid in conjunction with the PHASE option

⁵⁾ Maximum excitation without test object

Expanded technical data for the vibration exciter – see Data Sheet DRE-01

Options for calibration systems: Refer to the brochure CS18 Accessories