SQ-4.2

Electro-Acoustic Coupler

Application

- Pressure chamber **secondary calibration** of microphones according to **IEC 61094-5**
- Pressure chamber **secondary calibration** of dosimeters according to **IEC 61252**
- Pressure chamber **secondary calibration** of sound level meters and sound level measuring chains according to **IEC 61672**

Range of Use

- **Certified calibration laboratories**
- Departments of **measuring instrument verification** in research and industry, for example test laboratories in the automotive field or in the aviation and space industry
- **Quality assurance** in manufacturing of microphones, sound level meters and dosimeters

Features

- True **pressure chamber calibration** with an acoustic coupler
- **Calibration** of measuring microphones (capacitor and electrets microphones in the sizes ½" and with adapter ¼“)
- **Calibration** of dosimeters with a diameter of ½"
- **Supply** of a sound pressure level for the calibration of sound level meters and measuring chains
- **Frequency range**
  31.5 Hz…16 kHz
- **Sound pressure level**
  64 dB…124 dB
- Including holder fixture
- Including High-End Power Amplifier

Advantages

- Wide **frequency range 31.5 Hz…16 kHz**
- Low **distortion**, even at low frequencies
- High sound pressure level up to 124 dB
- Symmetric very small pressure chamber

- **On request**: there is solution for 1“ microphones available: the SQ-4.1 electro-acoustic coupler of SPEKTRA.

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Electro-Acoustic Coupler

System components
- SQ 4.2 active electro-acoustic coupler
- High-End Power amplifier S.M.S.L sAp-8, including power plug and plug adapter
- Holder fixture
- Microphone adapter $^1/_2$“ to $^1/_4$
- LS adapter
- System cable

Optional reference standards (recommended):
- ½" condenser microphone cartridge type **LS2P** or **WS2P** with amplifier
- LS-Adapter (open grid for WS2P Microphone)

Optional calibration adapter:
- Calibration adapter for surface microphones
- Calibration adapter for ear simulators

Sound field:	**Pressure chamber**	
Frequency range:	31.5 Hz…16 kHz	
Maximum electrical power of the sound source:	0.5 W	
Distortion factor at 94 dB (31,5 Hz … 1 kHz):	< 3 % (THD)	
Stability at 94 dB:	< 0.2 dB	
Diameter of Microphones	1/2“ and with adapter 1/4“	
Maximum sound pressure level: *(* only temporary peak value, depending on frequency range)*	31.5 Hz…< 63 Hz 63 Hz…< 250 Hz 250 Hz…1.6 kHz > 1.6 kHz…6.3 kHz > 6.3 kHz…16 kHz	104 dB* 114 dB* 124 dB* 104 dB* 74 dB*

Typical measurement uncertainty of a microphone calibration with LS2P:
- For environmental conditions: temperature 23 °C (± 2 °C) and relative humidity 30 %...75 %
- Measurement uncertainties determined with SPEKTRA calibration system CS18 SPL

Calibration Method		**Comparison calibration**	
Sound pressure level		94 dB [2] up to 6.3 kHz	
Typical expanded Uncertainty Frequency Range [1]	**Measuring Microphones** with Diameter ½" **Sound Level Meters** and Sound Level Measuring Chains	31.5 Hz...5 kHz	0.20 dB
		> 5 kHz...10 kHz	0.25 dB
		> 10 kHz...16 kHz	0.50 dB

[1] Determined according to GUM (ISO Guide to the expression of uncertainty in measurement, 1995) with k = 2 (coverage factor)
[2] 94 dB sound pressure level is preferred. Stated values of expanded uncertainty apply to this level.

All data are subject to change without notice

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