

# SQ-4.1

## Electro-Acoustic Coupler



figure similar

### Application

- Pressure chamber **secondary calibration** of microphones according to **IEC 61094-5**
- 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

### Advantages

- Wide **frequency range 31.5 Hz...8 kHz**
- Low **distortion**, even at low frequencies
- Symmetric very small pressure chamber

### Features

- True **pressure chamber calibration** with an acoustic coupler
- **Calibration** of measuring microphones (1" capacitor and electrets microphones)
- **Supply** of a sound pressure level for the calibration of sound level meters and measuring chains
- **Frequency range** 31.5 Hz...8 kHz
- Including Microphone holder fixture
- Including High-End Power Amplifier
- **On request:** there is a solution for 1/2" microphones available: the SQ-4.2 electro-acoustic coupler of SPEKTRA.

# SQ-4.1

## Electro-Acoustic Coupler



### System components

- SQ 4.1 active electro-acoustic coupler
- High-End Power amplifier S.M.S.L sAp-8, including power plug and plug adapter
- Microphone holder fixture
- System cable

### Optional reference standards (recommended):

- 1" condenser microphone cartridge type **LS1P** or **WS1P** with amplifier

Sound field:	Pressure chamber	
Frequency range:	31.5 Hz...8 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"	
Maximum sound pressure level:	31.5 Hz...2.5 kHz	94 dB*
	> 2.5 kHz...3.15 kHz	84 dB*
	> 3.15 kHz...6.3 kHz	74 dB*
	> 6.3 kHz...8 kHz	64 dB*
<i>(* only temporary peak value, depending on frequency range)</i>		

### Typical measurement uncertainty of a microphone calibration with LS1P:

- For environmental conditions: temperature 23 °C ( $\pm 2$  °C) and relative humidity 30 %...75 %
- Measurement uncertainties determined with SPEKTRA calibration system CS18 SPL

Calibration Method		Comparison calibration	
Sound pressure level		94 dB <sup>2)</sup> up to 2.5 kHz	
Typical expanded Uncertainty Frequency Range <sup>1)</sup>	<b>Measuring Microphones</b> with Diameter 1" <b>Sound Level Meters</b> and <b>Sound Level Measuring Chains</b>	31.5 Hz...5 kHz	0.2 dB
		> 5 kHz...8 kHz	0.5 dB

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

<sup>2)</sup> 94 dB sound pressure level is preferred. Stated values of expanded uncertainty apply to this level.