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TSD108B AND SS17LA PHYSIOLOGICAL SOUNDS TRANSDUCER (CONTACT MICROPHONE)

TSD108B and SS17LA (right to left)

The TSD108B and SS17LA are contact acoustical transducers. The sensing element is a piezo-electric ceramic disk that's bonded to the interior of a plastic circular housing. The housing acts to focus intercepted surface pressure waves onto the piezo-electric ceramic disk to enhance both sensitivity and signal to noise ratio.

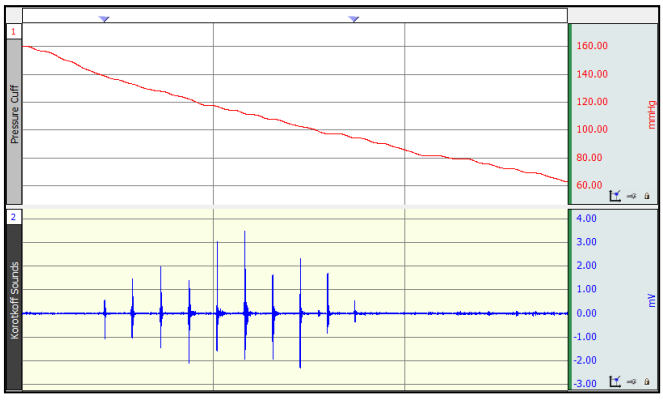
The TSD108B interfaces with the DA100C general-purpose transducer amplifier to measure a wide array of physiological sounds and pressure waves. Suggested filter settings: 10HzLP OFF, LP 300Hz, HP 0.05Hz. The microphone is susceptible to power line interference so the output should be run through a comb band stop filter. This can be set up as a calculation channel or performed through a transformation after the data are acquired.

To listen to physiological sounds as they are recorded, open MP160 > Set Up Data Acquisition and choose Sound Feedback.

The SS17LA connect to a single input channel of the BSL System MP3X unit or MP45 to measure a wide array of physiological sounds and pressure waves. To listen to physiological sounds, as they are recorded, connect an audio amplifier or pair of headphones to the MP3X output.

The TSD108B and SS17LA can perform the following:

- Measure heart sounds or Korotkoff sounds. When the SS17LA signal is recording sounds from the Brachial artery, simultaneously with SS19LB blood pressure cuff signal, the Korotkoff sounds vividly mark the systolic and diastolic blood pressure.
- Record the sounds associated with rubbing or grinding. (e.g., Bruxism).
- Measure glottal activity and specifically record the production of both voiced and unvoiced sounds. To measure vocal cord behavior, the SS17LA is placed adjacent to the larynx.



Cuff blood pressure vs. Korotkoff sounds

- Record the specific acoustical signature associated with the contraction of muscle fibers (place adjacent to striated muscle).

SS17LA SPECIFICATIONS

Output Range:	2 µV–200 mV
Noise:	2 µV rms (1–1250 Hz)
Bandwidth:	1–1250 Hz
Operating Temperature:	-40 to +85 °C
Dimensions:	26 mm diameter x 10 mm high
Interface:	CH input on MP3X or MP45
Cable Length:	3 meters

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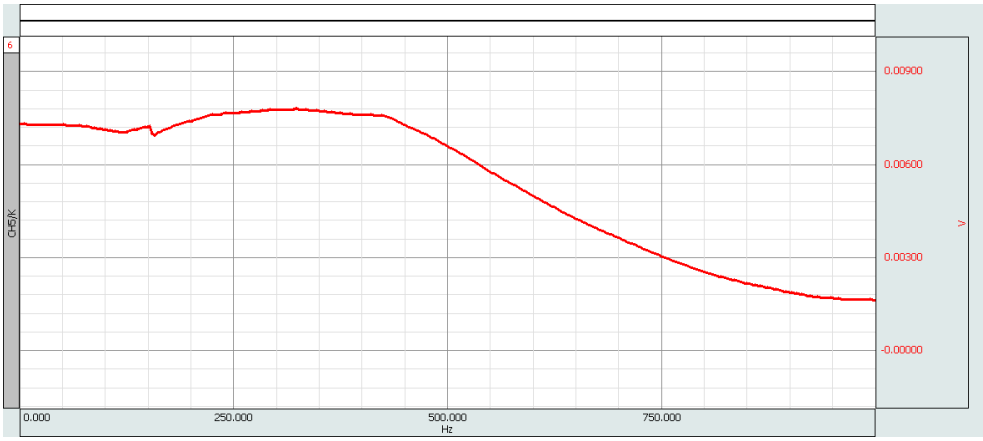
TSD108B SPECIFICATIONS

Maximum Amplitude:	~8 mV
Signal to Noise Ratio:	89 dB
Noise Voltage:	5 µV rms (DC-5 kHz with 50/60Hz notch)
Bandwidth:	0-566 Hz (see graph below)
Peak Frequency:	323 Hz
Transducer Dimensions:	3.5 x 3.5 x 1.5 cm
Interface:	Three (3) 2 mm pin plugs (V+, V–, GND) to DA100C
Operating Temperature:	0 – 50 °C
Cable Length:	3 meters
Material:	Plastic & Metal



Average of the linear FFT plots (5 trials) for filter response

DA100C settings (NC = No Connection)

DA100C panel switch	**Switch state**
Gain switch	200
10HzLP	OFF
LP	5 kHz
HP	DC
DA100C port	**Port connection**
Shield	NC
Vin+ port	To Vin+ cable of TSD108B
GND port	To GND cable of TSD108B
Vin- port	To Vin- cable of TSD108B
Shield	NC
VREF1	NC
VREF2	NC

NOTE: The TSD108A was discontinued in September 2023. The earlier-model TSD108 and SS17L contact microphones were discontinued in May of 2020.