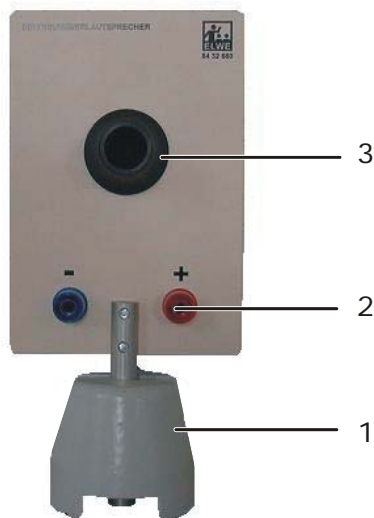


Druckkammerlautsprecher U8432680

Bedienungsanleitung

04/09 SP



- 1 Tonnenfuß (nicht im Lieferumfang enthalten)
- 2 4-mm-Sicherheitsbuchse
- 3 Lautsprecher-Ausgang

1. Beschreibung

Der Druckkammerlautsprecher ist eine nahezu punktförmige Schallquelle, die für akustische Experimente besser geeignet ist als übliche, großflächige Lautsprecher. Zur Anregung einer Kundt'schen Röhre kann die Austrittsöffnung des Lautsprechers direkt an die Röhre angesetzt werden, bei den Chladni'schen Klangfiguren kann der Druckkammerlautsprecher unter die Klangplatte gelegt werden.

Das dynamische Erregungssystem des Lautsprechers hat eine thermische Überstromsicherung.

2. Technische Daten

| | |
|-------------------|-----------------|
| Frequenzbereich: | 300 Hz...10 kHz |
| Belastbarkeit: | 8 W |
| Impedanz: | 8 Ohm |
| Stieldurchmesser: | 10 mm |
| Masse: | ca. 470 g |

3. Versuchsbeispiele

3.1 Kundt'sche Röhre

Empfohlenes Zubehör:

| | |
|--------------------------------|---------------|
| 1 Leistungs-Funktionsgenerator | U8533510 oder |
| 1 Sinusgenerator | U8533550 |
| 1 Transformator | U8475430 |
| 1 Tonnenfuß | U8611210 |
| 1 Kundt'sche Röhre | U8432845 |

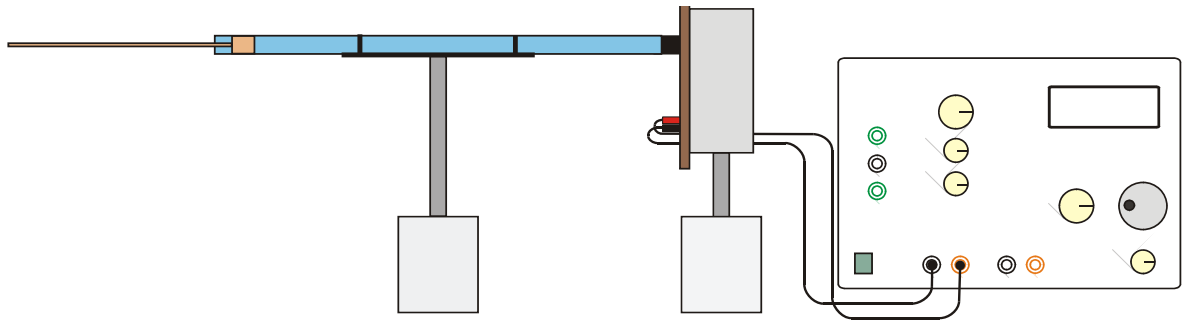


Fig. 1 Experimenteller Aufbau Kundt'sche Röhre

3.2 Chladni'sche Klangfiguren

Empfohlenes Zubehör:

| | |
|---------------------------------------|----------|
| 1 Sinusgenerator | U8533550 |
| 1 Transformator | U8475430 |
| 1 Tonnenfuß | U8611210 |
| 1 Chladni-Platte, quadratisch oder | U56006 |
| 1 Chladni-Platte, rund | U56005 |

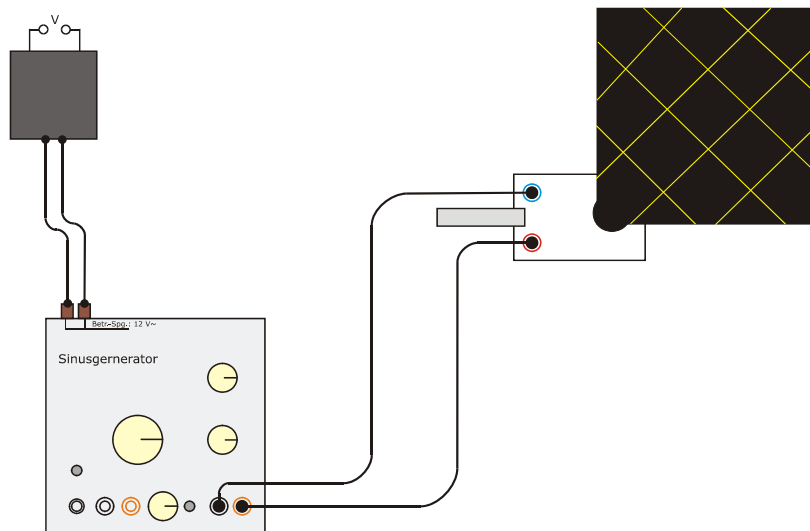
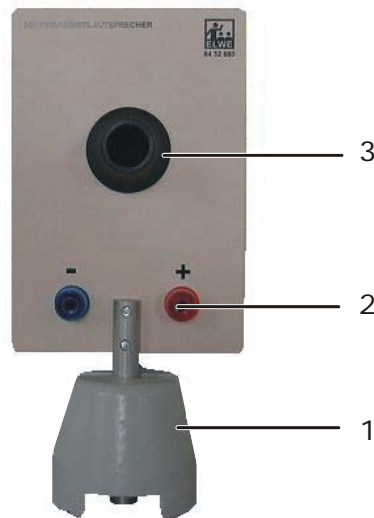


Fig. 2 Experimenteller Aufbau Kundt'sche Röhre

Horn speaker U8432680

Instruction sheet

04/09 SP



- 1 Stand base (not included)
- 2 4-mm safety socket
- 3 Speaker outlet

1. Description

This horn loudspeaker can be used to approximate a point source of sound and is better suited for acoustic experiments than large conventional box loudspeakers. For excitation of a Kundt tube, the outlet of the speaker can be directly placed at the end of the tube. For the Chladni patterns, it can be positioned under the Chladni plate.

The dynamic excitation system of the speaker has thermal excess current protection.

2. Technical data

| | |
|------------------|------------------|
| Frequency range: | 300 Hz... 10 kHz |
| Power rating: | 8 W |
| Impedance: | 8 Ω |
| Stem diameter: | 10 mm |
| Weight: | 470 g approx. |

3. Sample experiments

3.1 Kundt's tube

Recommended accessories:

| | |
|----------------------------|-------------|
| 1 Power function generator | U8533510 or |
| 1 Sine wave generator | U8533550 |
| 1 Transformer | U8475430 |
| 1 Stand base | U8611210 |
| 1 Kundt's tube | U8432845 |

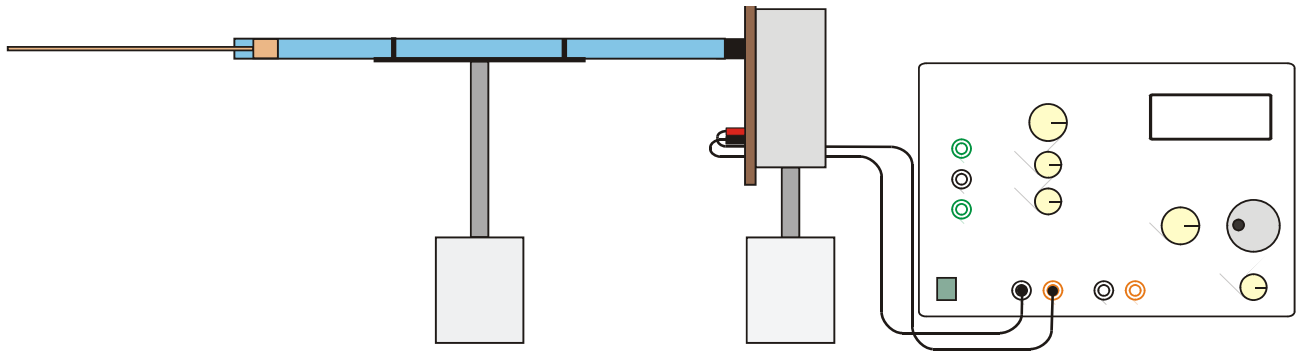


Fig. 1 Experiment set-up for Kundt's tube

3.2 Chladni patterns

Recommended accessories:

| | |
|---------------------------|----------|
| 1 Sine wave generator | U8533550 |
| 1 Transformer | U8475430 |
| 1 Stand base | U8611210 |
| 1 Chladni plate, square | U56006 |
| or | |
| 1 Chladni plate, circular | U56005 |

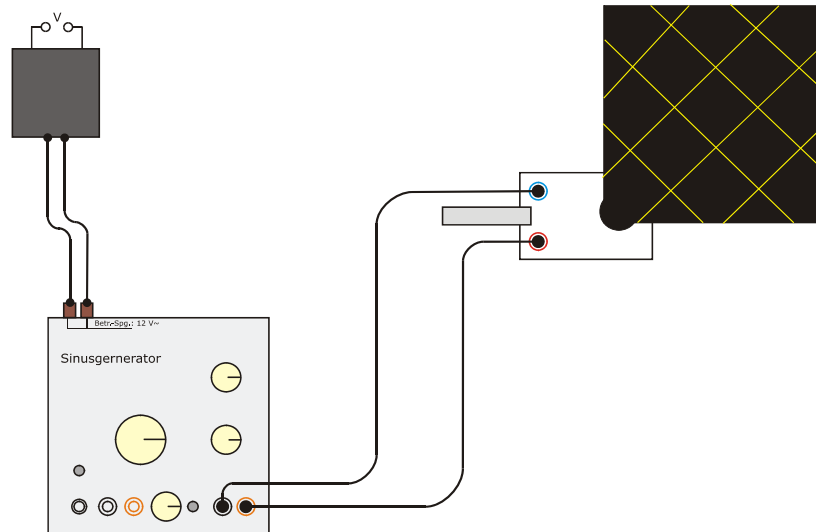
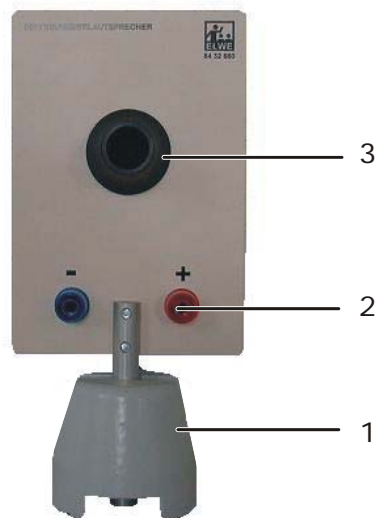


Fig. 2 Experiment set-up for Chladni plate

Haut-parleur à chambre de compression U8432680

Instructions d'utilisation

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- 1 Pied en tonneau (non fourni)
- 2 Douille de sécurité de 4 mm
- 3 Sortie de haut-parleur

1. Description

Le haut-parleur à chambre de compression est une source acoustique pratiquement ponctuelle qui convient mieux aux expériences acoustiques que les grands haut-parleurs conventionnels. Pour exciter un tube de Kundt, l'orifice de sortie du haut-parleur peut être placé directement sur le tube. Avec les figures sonores de Chladni, le haut-parleur peut être positionné sous la plaque sonore. Le système dynamique d'excitation du haut-parleur possède une protection thermique contre les surintensités de courant.

2. Caractéristiques techniques

| | |
|-----------------------|-----------------|
| Gamme de fréquences : | 300 Hz...10 kHz |
| Capacité de charge : | 8 W |
| Impédance : | 8 Ohm |
| Diamètre de manche : | 10 mm |
| Masse: | env. 470 g |

3. Exemples d'expériences

3.1 Tube de Kundt

Accessoires recommandés :

| | |
|--|-------------|
| 1 générateur de fonctions de puissance | U8533510 ou |
| 1 générateur d'ondes sinusoïdales | U8533550 |
| 1 transformateur | U8475430 |
| 1 pied en tonneau | U8611210 |
| 1 tube de Kundt | U8432845 |

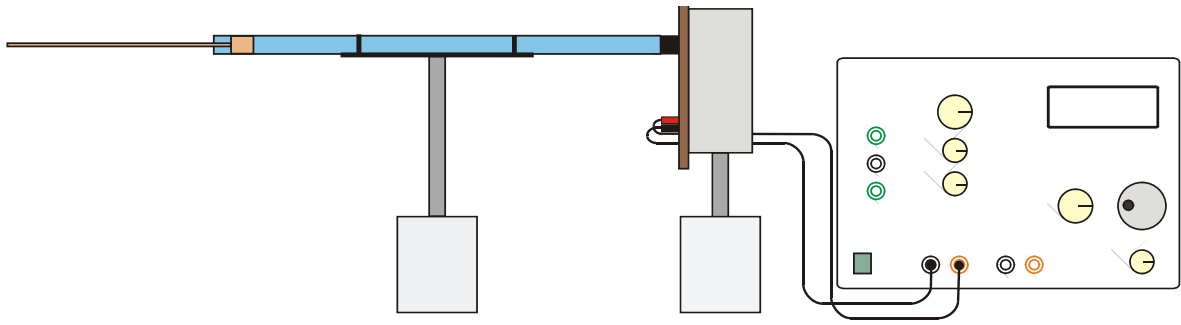


Fig. 1 Montage expérimental du tube de Kundt

3.2 Figures sonores de Chladni

Accessoires recommandés :

| | |
|--------------------------------------|----------|
| 1 générateur d'ondes sinusoïdales | U8533550 |
| 1 transformateur | U8475430 |
| 1 pied en tonneau | u8611210 |
| 1 Plaque de Chladni, carrée | U56006 |
| ou | |
| 1 Plaque de Chladni, circulaire | U56005 |

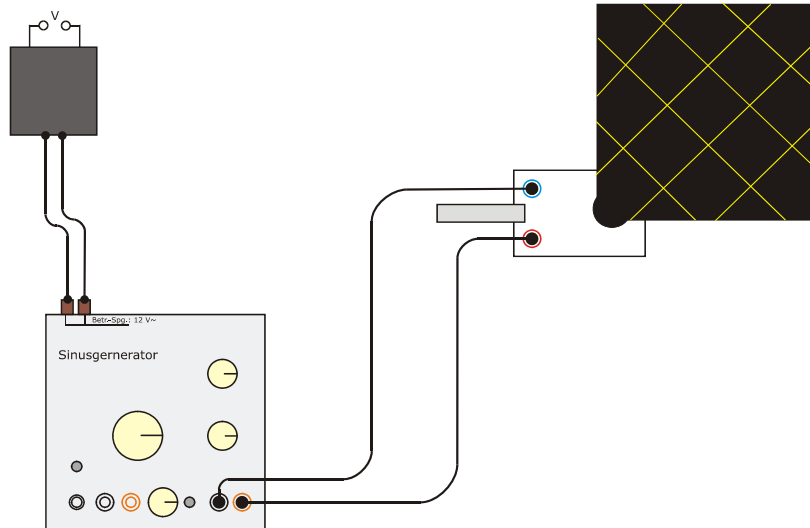
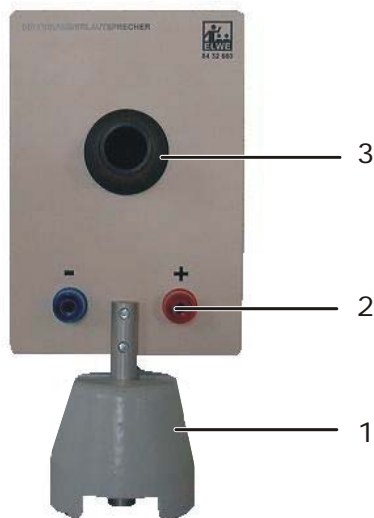


Fig. 2 Montage expérimental du tube de Kundt

Altoparlante per camera di pressione U8432680

Istruzioni per l'uso

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- 1 Piede a barilotto (non fornito in dotazione)
- 2 Jack di sicurezza da 4 mm
- 3 Uscita altoparlante

1. Descrizione

L'altoparlante per camera di pressione è una sorgente sonora quasi puntiforme molto più adatta degli altoparlanti comuni di grandi dimensioni per gli esperimenti acustici. Per l'eccitazione di un tubo di Kundt l'apertura di uscita dell'altoparlante può essere applicata direttamente al tubo, per le figure sonore di Chladni l'altoparlante per camera di pressione può essere posizionato sotto la piastra sonora.

Il sistema di eccitazione dinamico dell'altoparlante ha una protezione termica da sovracorrenti.

2. Dati tecnici

| | |
|---------------------|-----------------|
| Range di frequenza: | 300 Hz...10 kHz |
| Capacità di carico: | 8 W |
| Impedenza: | 8 Ω |
| Diametro asta: | 10 mm |
| Peso: | ca. 470 g |

3. Esempi di esperimenti

3.1 Tubo di Kundt

Accessori consigliati:

| | |
|-------------------------------------|------------|
| 1 generatore di funzione di potenza | U8533510 o |
| 1 generatore sinusoidale | U8533550 |
| 1 trasformatore | U8475430 |
| 1 piede a barilotto | U8611210 |
| 1 tubo di Kundt | U8432845 |

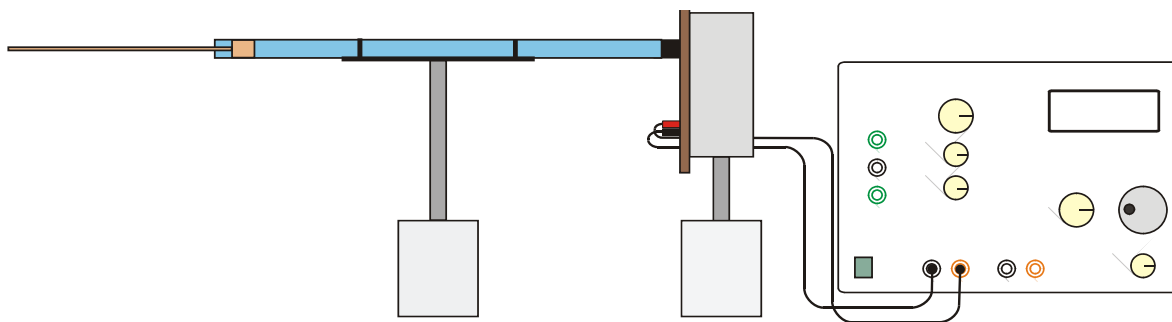


Fig. 1 Struttura sperimentale tubo di Kundt

3.2 Figure sonore di Chladni

Accessori consigliati:

| | |
|--------------------------------|----------|
| 1 generatore sinusoidale | U8533550 |
| 1 trasformatore | U8475430 |
| 1 piede a barilotto | U8611210 |
| 1 Piastra di Chladni, quadrata | U56006 |
| 0 | |
| 1 Piastra di Chladni, rotonda | U56005 |

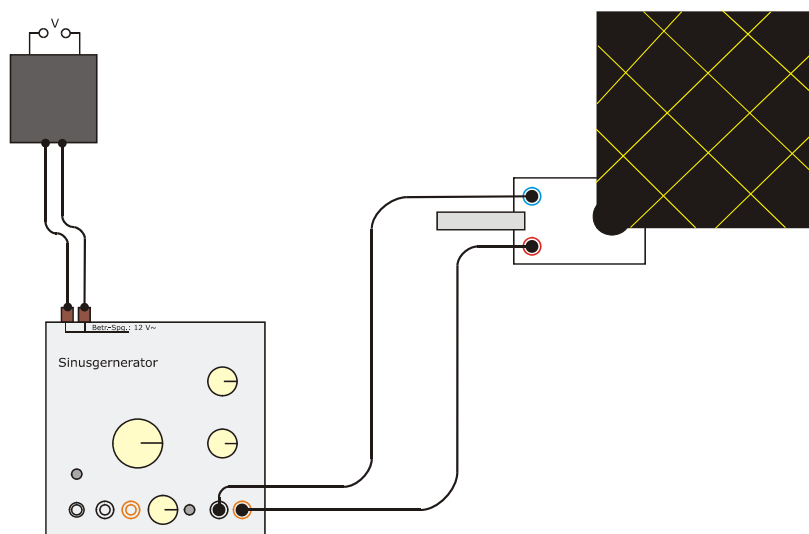
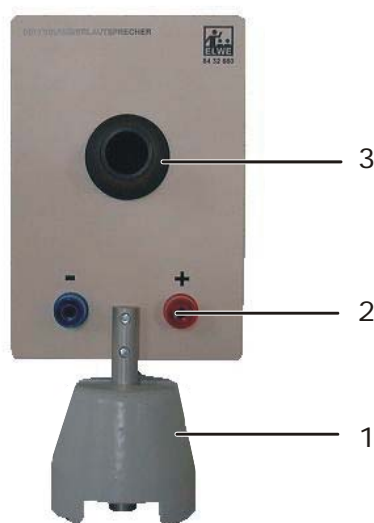


Fig. 2 Struttura sperimentale tubo di Kundt

Altavoz de cámara de presión U8432680

Instrucciones de Uso

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- 1 Pie cónico (no se encuentra en el volumen de entrega)
- 2 Casquillo de seguridad de 4 mm
- 3 Salida del altavoz

1. Descripción

El altavoz de cámara de presión se puede considerar como una fuente puntual de sonido, siendo así más apropiada para experimentos de acústica que un altavoz de superficie amplia. Para excitar un tubo de Kundt se puede colocar el altavoz directamente enfrente del tubo, para la figuras Chladni directamente debajo de la placa sonora, orientado con la salida hacia arriba.

El sistema de excitación dinámico está dotado de un dispositivo de protección térmico contra sobrecorriente.

2. Datos técnicos

| | |
|----------------------|------------------|
| Gama de frecuencias: | 300 Hz... 10 kHz |
| Capacidad de carga: | 8 W |
| Impedancia: | 8 Ohm |
| Diámetro del mango: | 10 mm |
| Masa: | aprox. 470 g |

3. Experimentos ejemplares

3.1 Tubo de Kundt

Accesorios recomendados:

| | |
|--------------------------------------|------------|
| 1 Generador de funciones de potencia | U8533510 ó |
| 1 Generador senoidal | U8533550 |
| 1 Transformador | U8475430 |
| 1 Pie cónico | U8611210 |
| 1 Tubo de Kundt | U8432845 |

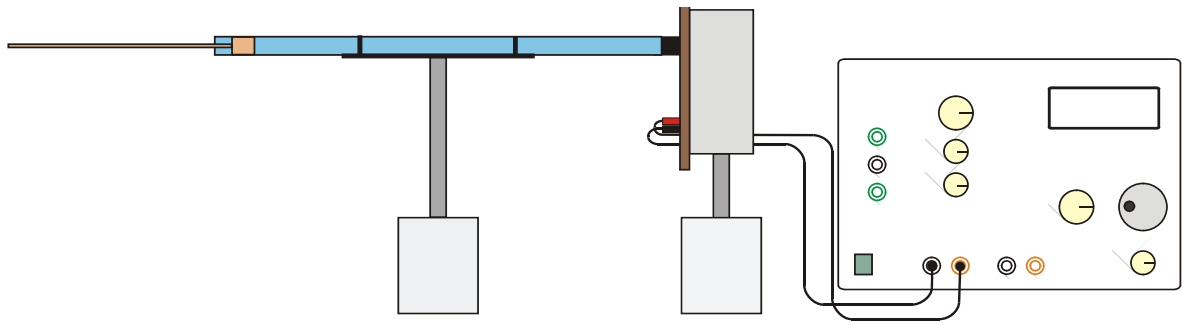


Fig. 1 Montaje experimental para el tubo de Kundt

3.2 Figuras sonora de Chladni

Accesorios recomendados:

| | |
|------------------------------|----------|
| 1 Generador senoidal | U8533550 |
| 1 Transformador | U8475430 |
| 1 Pié cónico | U8611210 |
| 1 Placa de Chladni, cuadrada | U56006 |
| ó | |
| 1 Placa de Chladni, redonda | U56005 |

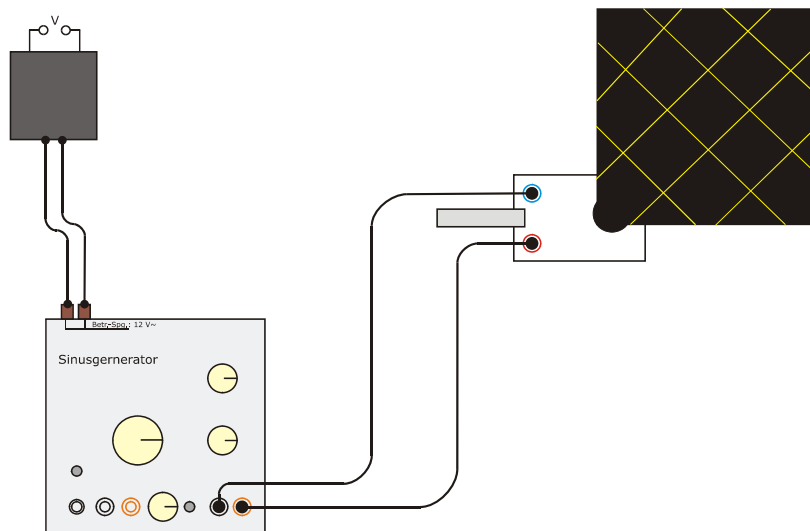
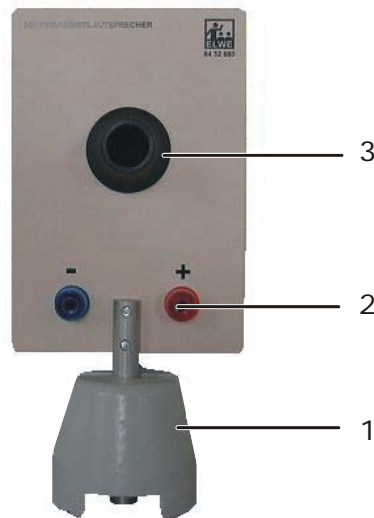


Fig. 2 Montaje experimental para las figuras Chladni

Alto-falante de câmara pressurizada U8432680

Instruções para o uso

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- 1 Pé de barril (não incluído no fornecimento)
- 2 Plugue de segurança de 4-mm
- 3 Saída do alto-falante

1. Descrição

O alto-falante de câmara pressurizada é uma fonte de som praticamente pontual, que é mais adequada para experimentos acústicos do que os alto-falantes usuais de grande superfície. Para a excitação de um tubo de Kundt, a abertura de saída do alto-falante poderá ser posicionada diretamente no tubo, no caso de figuras sonoras de Chladni, o alto-falante de câmara pressurizada pode ser colocado debaixo da placa de som.

O sistema dinâmico de excitação do alto-falante possui uma proteção térmica se corrente de excesso.

2. Dados técnicos

| | |
|----------------------|-----------------|
| Faixa de frequência: | 300 Hz...10 kHz |
| Capacidade de carga: | 8 W |
| Impedância: | 8 Ohm |
| Diâmetro da haste: | 10 mm |
| Peso: | aprox. 470 g |

3. Exemplo de ensaio

3.1 Tubo de Kundt

Acessórios recomendados:

| | |
|-----------------------|-------------|
| 1 Gerador de potência | U8533510 ou |
| 1 Gerador sinusoidal | U8533550 |
| 1 Transformador | U8475430 |
| 1 Pé de barril | U8611210 |
| 1 Tubo de Kundt | U8432845 |

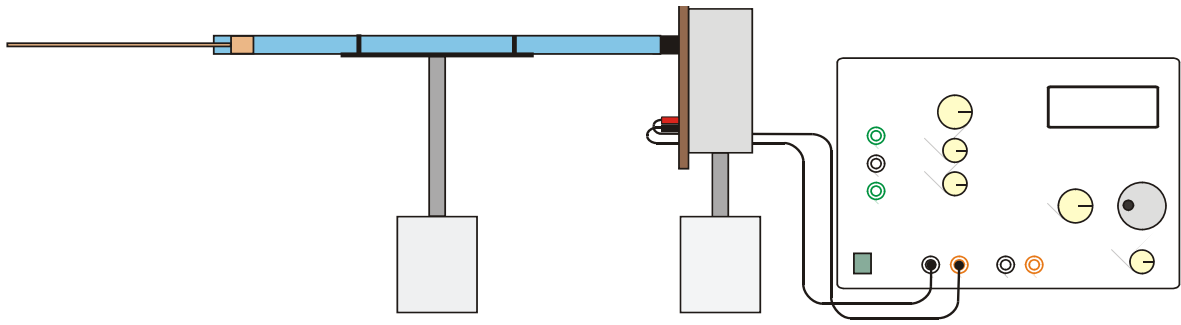


Fig. 1 Montagem experimental do tubo de Kundt

3.2 Figuras sonoras de Chladni

Acessórios recomendados:

| | |
|------------------------------|---------|
| 1 Gerador sinusoidal | 8533550 |
| 1 Transformador | 8475430 |
| 1 Pé de barril | 8611210 |
| 1 Placa de Chladni, quadrada | U56006 |
| ou | |
| 1 Placa de Chladni, redonda | U56005 |

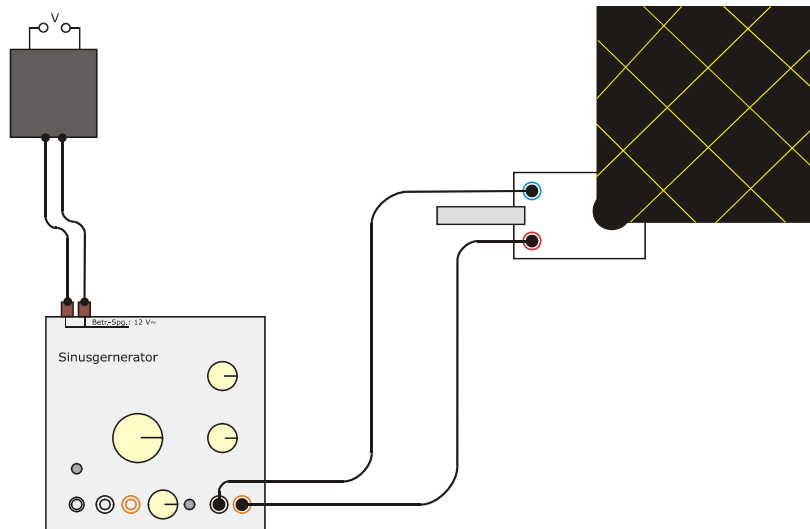


Fig. 2 Montagem experimental do tubo de Kundt