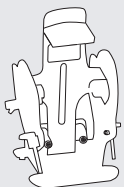
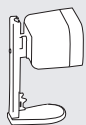


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**Sound Source
Accessory**

6



**Mic Stand
Accessory**

8



Connect System

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System Maintenance

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**Specifications and
Compliance**

12

The AEC210 headphone measurement system has been assembled with care to provide the best solution for stable, repeatable testing of dual-channel headphones or headsets.

High-quality 1/4" TEDS-enabled, prepolarized ICP[®] microphones provide consistent and precise audio feedback. Use the optional base plate accessory with the AEC210 to position additional sound sources and reference microphones.

This system meets the physical dimensions and angle requirements of ISO-4869-3.



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For warranty information, refer to the section “Terms and Conditions of Sale” on our website at www.LarsonDavis.com/TermsConditions.aspx.

Recycling

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 PCB Piezotronics, Inc.
Attn: Recycling Coordinator
1681 West 820 North
Provo, Utah, USA 84601-1341

Contact

www.LarsonDavis.com

Toll-free (in the US): 888-258-3222
Phone: 716-926-8243
USA fax: 716-926-8215
E-mail: sales@larsondavis.com

Worldwide Corporate Headquarters
Larson Davis - a PCB Piezotronics division
3425 Walden Avenue
Depew, NY 14043-2495 USA

Headphone Test Fixture AEC210

Mounting to Base Plate

Mounting to Other pg 4

Adjusting for Test pg 5

The AEC210 is a headphone test fixture with adjustable supports for a repeatable testing environment. The test fixture can be mounted to the optional base plate (sold separately) or to any platform (see page 4). This section shows how to mount the test fixture and adjust the headphone supports. Use the headphone test fixture in conjunction with the optional sound source and the optional mic stand to create a variety of headphone testing configurations.

Tools Required

2.5 mm hex wrench (included)

Parts Included

4 AEC210 mounting screws (m4 x 6 mm) **A**

4 vibration damping feet with m4 threads **B**

1. If not using the optional base plate, see page 4.
2. Remove (4) vibration damping feet from the headphone test fixture using the 2.5 mm hex wrench. Reserve mounting screws.
3. Mount headphone test fixture to center of base plate with included mounting screws. Do not overtighten; turn until screws are snug.
4. Next, see page 5 to adjust headphone test fixture for headphone model being tested.

Fig. 1
Remove vibration damping feet

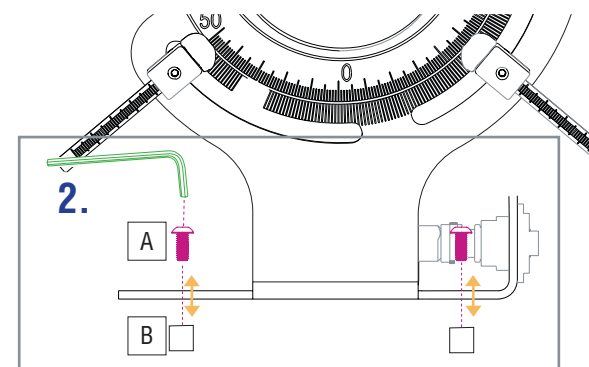
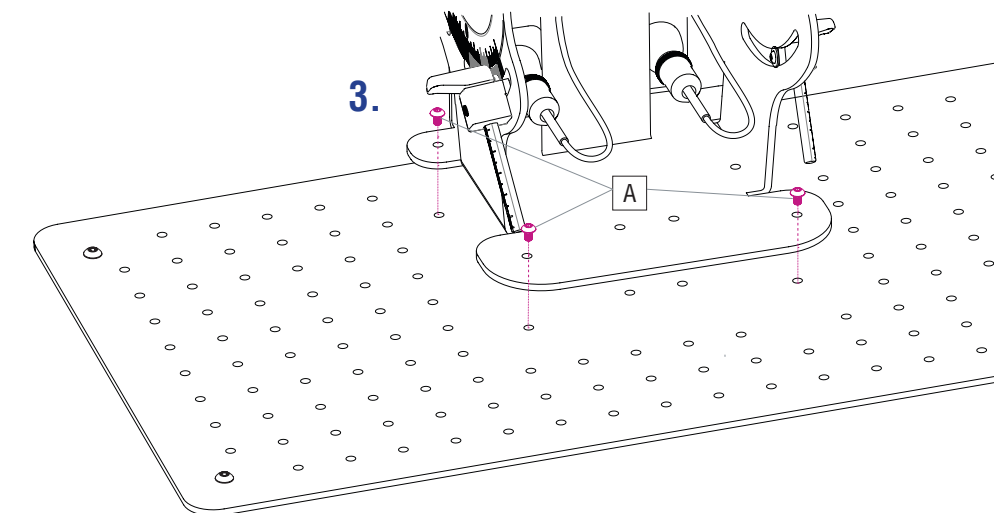


Fig. 2
Attach headphone test fixture to base plate



Headphone Test Fixture AEC210

Mounting to Base Plate

Mounting to Other

Adjusting for Test pg 5

Tools Required

- drill
- 2.5 mm hex wrench (included)

Parts Needed

- 4 mounting screws, size m4 (not included) T

If not using the optional base plate:

- The AEC210 can be mounted to any platform as shown in Fig. 3–4. Screw length is equal to the platform thickness (x) + 3 mm.

Note: Be sure to engage m4-size screw 2–3 mm into the bottom of the AEC210 vibration damping feet.

- Next, see page 5 to adjust headphone test fixture for headphone model being tested.

Fig. 3
Spacing of AEC210 mounting holes in any platform

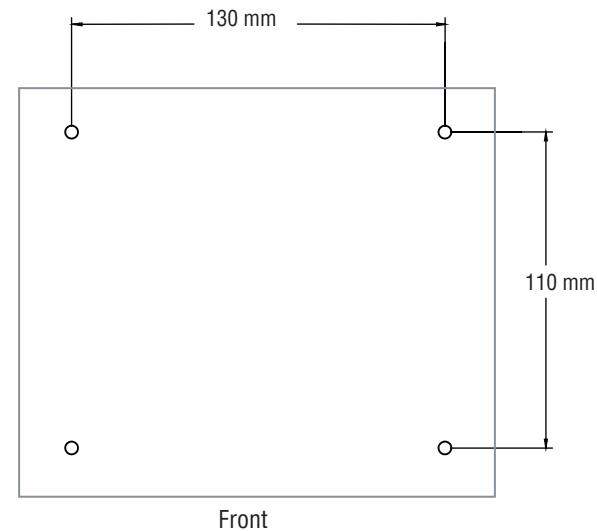
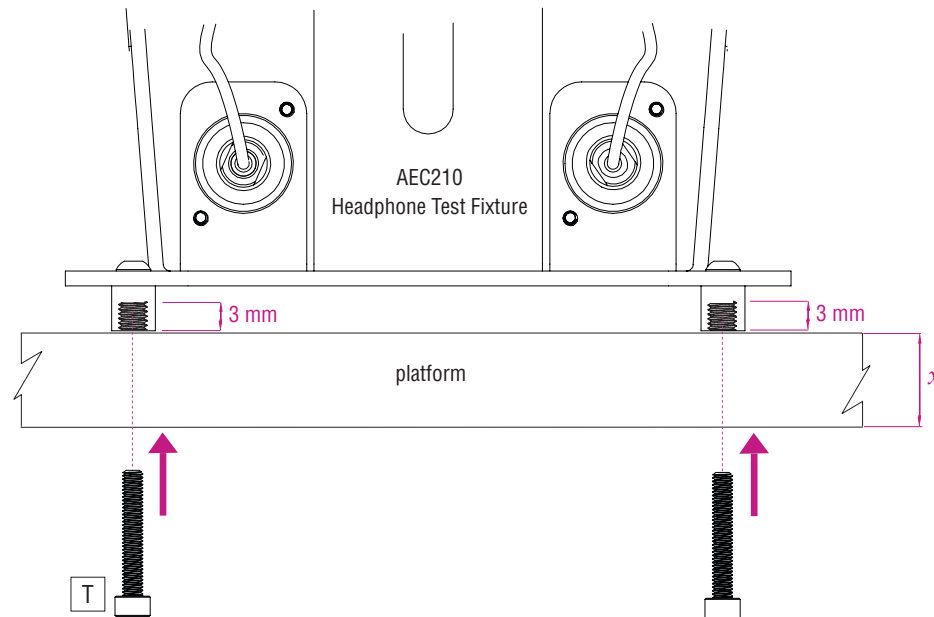


Fig. 4
(Front view) AEC210 and any platform



Headphone Test Fixture AEC210

Mounting to Base Plate

Mounting to Other pg 5

Adjusting for Test

Complete this section to adjust the AEC210 headphone test fixture for the headphone model under test.

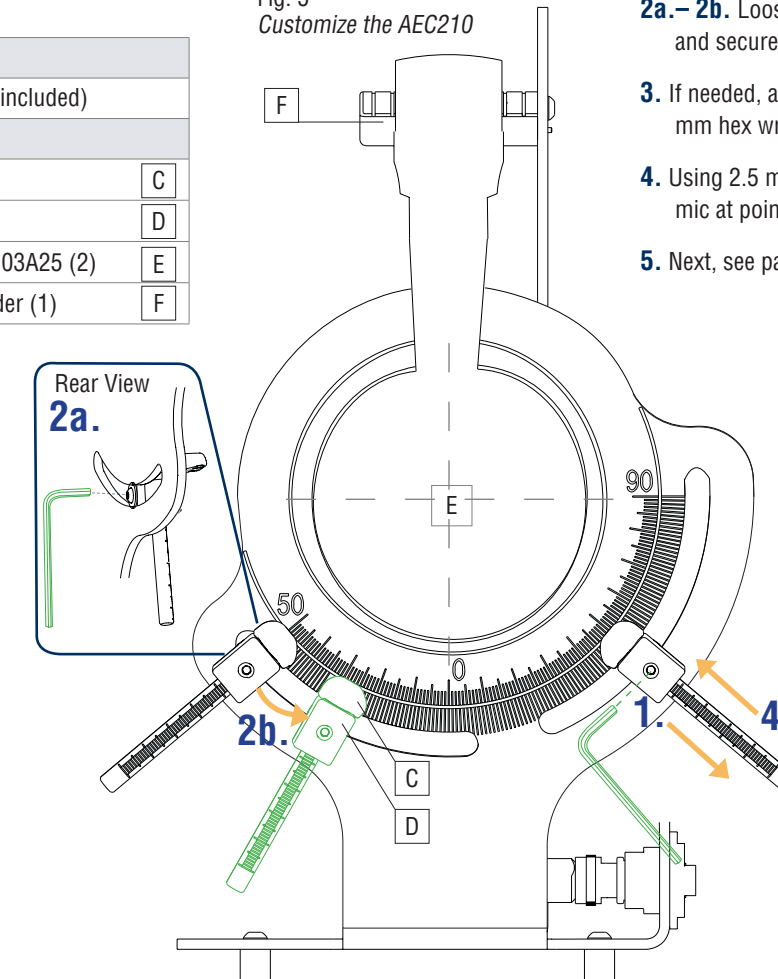
Tools Required

- 2.5 mm hex wrench (included)

Test Fixture Details

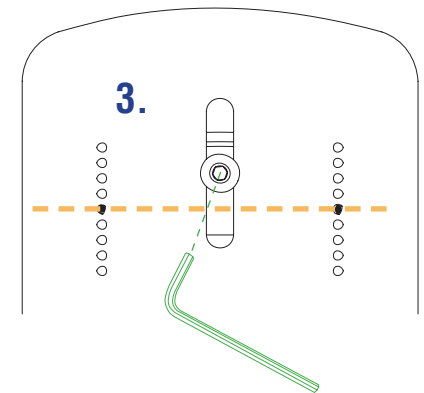
- | | |
|------------------------------|---|
| locator seat/rod (4) | C |
| locator block (4) | D |
| microphone, model 103A25 (2) | E |
| headphone strap holder (1) | F |

Fig. 5
Customize the AEC210



- Lower locator seats using 2.5 mm hex wrench and apply headphone model.
- 2a.– 2b. Loosen rear locator block screws using 2.5 mm hex wrench, then position and secure to support headphone.
- If needed, adjust headphone strap holder to support headphone model using 2.5 mm hex wrench.
- Using 2.5 mm hex wrench, lift and secure locator seats to center headphone over mic at point E.
- Next, see pages 10-11 to connect the system and calibrate system mics.

Fig. 6
(Rear view) Headphone strap holder (F) is adjustable in 3 mm increments. Shown: ISO 4869-3 Acoustics-Hearing Protectors standard position.



Sound Source/Stand AEC210-SPK Optional Accessory

Mounting

Adjusting pg 7

The optional sound source with stand provides a mounted speaker that can be used as a mouth simulator or for testing active noise control headsets. The adjustable stand provides a range of placement options for a variety of testing needs. This section shows how to mount the speaker to the optional base plate, or to any platform, and how to adjust the speaker height.

Tools Required

2.5 mm hex wrench (included)

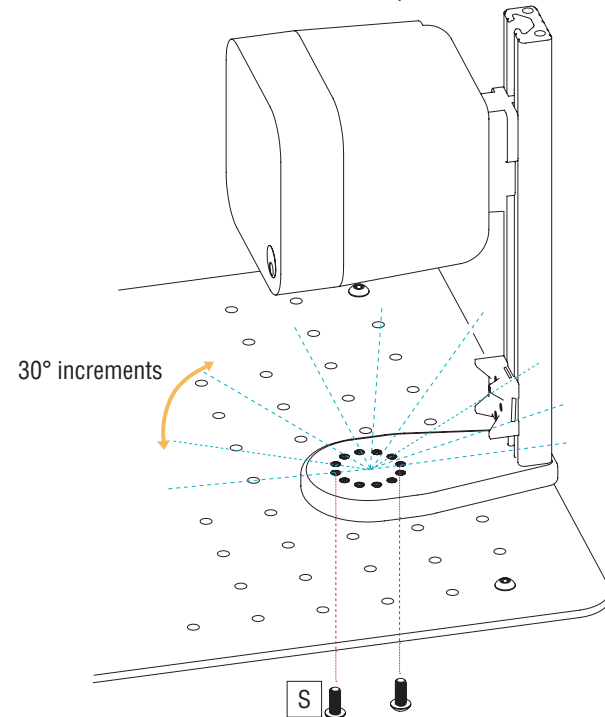
Parts Included

2 mounting screws (m4 x 10 mm) S

Option 1:

Mount to base plate at desired location and appropriate angle by using included mounting screws (S).

Fig. 7
Mount sound source stand to base plate

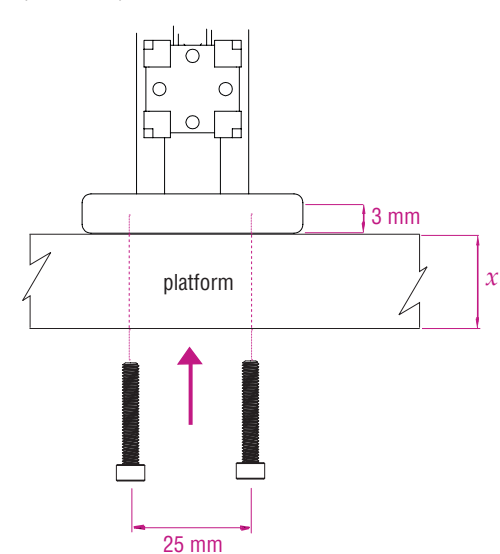


Option 2:

Mount to any platform as shown in Fig. 8. This option may require 2 additional m4 mounting screws of unknown length. Screw length is equal to the platform thickness (x) + 3 mm.

Note: Be sure to engage m4-size screw at least 3 mm into the bottom of the sound source base.

Fig. 8
(Side view) sound source stand and any platform



Sound Source/Stand AEC210-SPK Optional Accessory

Mounting pg 6

Adjusting

Tools Required

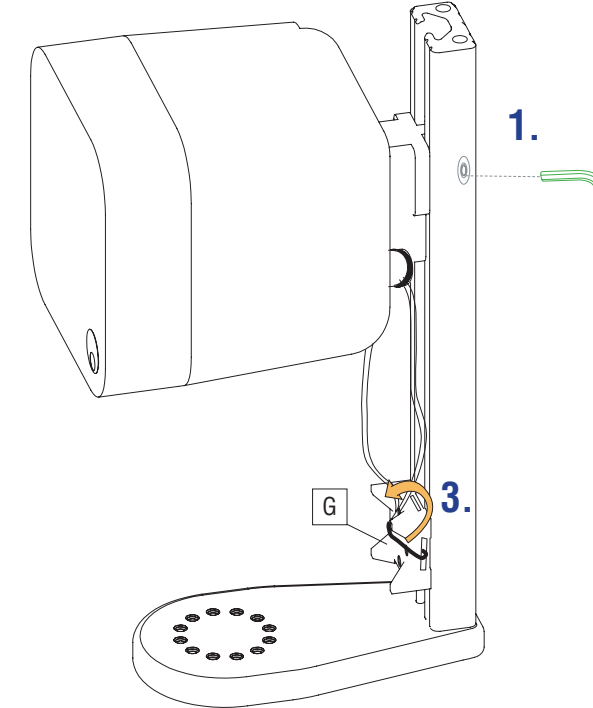
2.5 mm hex wrench (included)

Sound Source Stand Details

2 mounting screws (m4 x 10 mm) S

cable tie mount and cable tie G

Fig. 9
Adjust height of sound source stand



1. Adjust height of speaker using 2.5 mm hex wrench.
2. Connect speaker wire.
3. Twist cable tie mount (G) counter-clockwise to set height, and then contain speaker wires to cable tie mount using included cable tie.
4. See Fig. 11 for optional application.
5. Next, see pages 10-11 to connect the system and calibrate system mics.

2. Fig. 10
Connect speaker wire

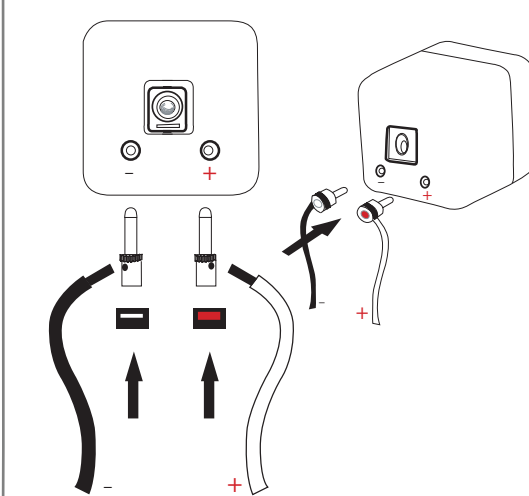
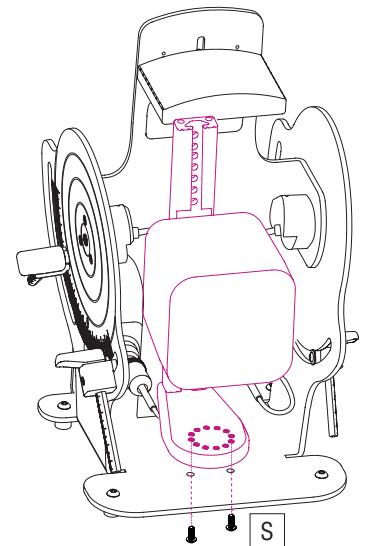


Fig. 11
Example: sound source as mouth simulator



Mic Stand AEC210-1/2MS or AEC210-1/4MS (Optional Accessory)

Mounting

Adjusting pg 8

The optional microphone stand allows for precise mounting of a reference mic in the test system. The microphone is sold separately. The fully-adjustable stand allows you to place the microphone in the ideal test location for sound level verification from an incorporated sound source. This section shows how to mount the microphone stand to the optional base plate, or to any platform, and how to adjust it.

Tools Required

2.5 mm hex wrench (included)

Parts Included

2 mounting screws (m4 x 10 mm) S

1/2" or 1/4" mic holder J

Mic holder block H

microphone sold separately

Recommended Microphones

1/4" Mic Stand, AEC210-1/4MS

378C01 1/4" Precision microphone

130A25 1/4" Array microphone

1/2" Mic Stand, AEC210-1/2MS

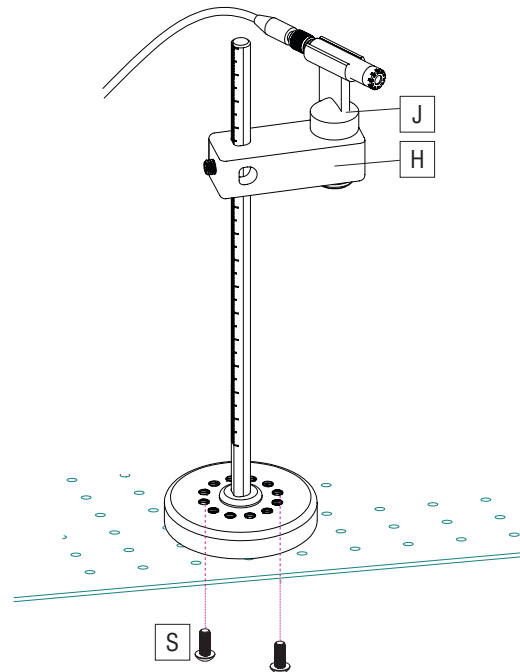
378B02 1/2" Precision microphone

130A24 1/2" Array microphone

Option 1:

Mount mic stand to base plate with included mounting screws (S) as shown in Fig. 12.

Fig. 12
Mic stand and base plate

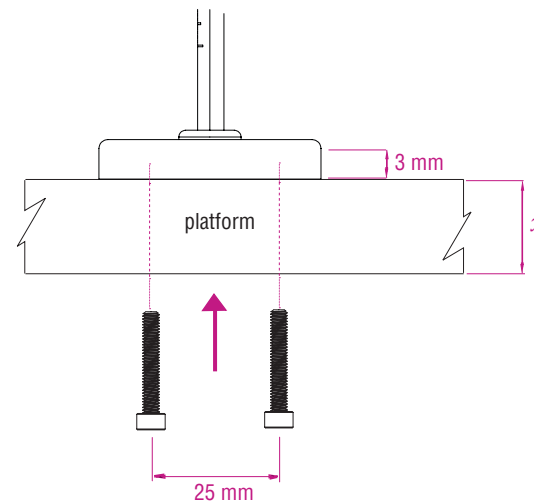


Option 2:

Mount mic stand to any platform as shown in Fig. 13. This option may require 2 additional m4 mounting screws of unknown length. Screw length is equal to the platform thickness (x) + 3 mm.

Note: Be sure to engage m4-size screw at least 3 mm into the bottom of the mic stand base.

Fig. 13
(Side view) mic stand and any platform



Mic Stand AEC210-1/2MS or AEM210-1/4MS (Optional Accessory)

Mounting pg 7

Adjusting

Tools Required

2.5 mm hex wrench (included)

#2 Phillips-head screwdriver

Mic Stand Details

mic holder block H

1/2" or 1/4" mic holder J

mic holder screw K

1. To adjust height of mic holder block, use 2.5 mm hex wrench to loosen set screw.
2. To adjust orientation of mic holder block: remove, rotate, and reapply mic holder block to stand.
3. To adjust mic holder direction, use #2 Phillips-head screwdriver to loosen mic holder screw (K).
4. Insert mic (not included) into mic holder.
5. Next, see pages 10-11 to connect the system and calibrate system mics.

Fig. 14
Mic holder block in optional horizontal position

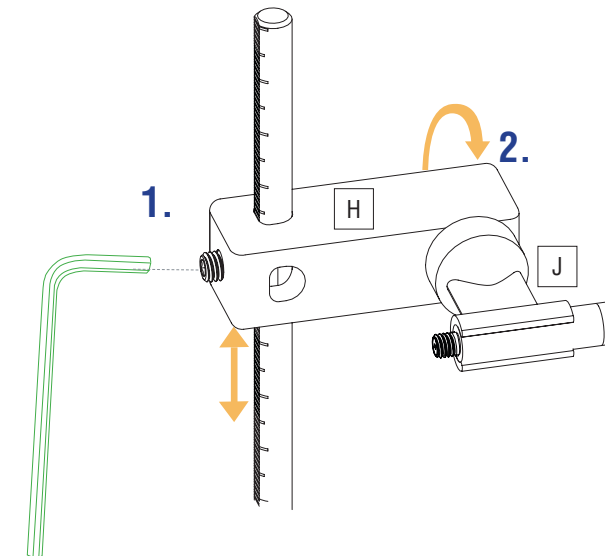
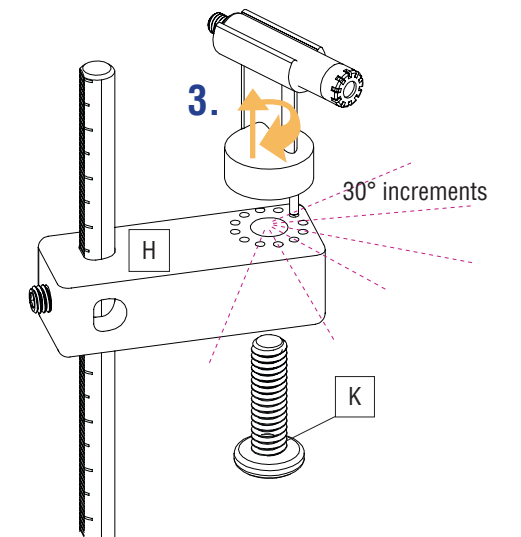


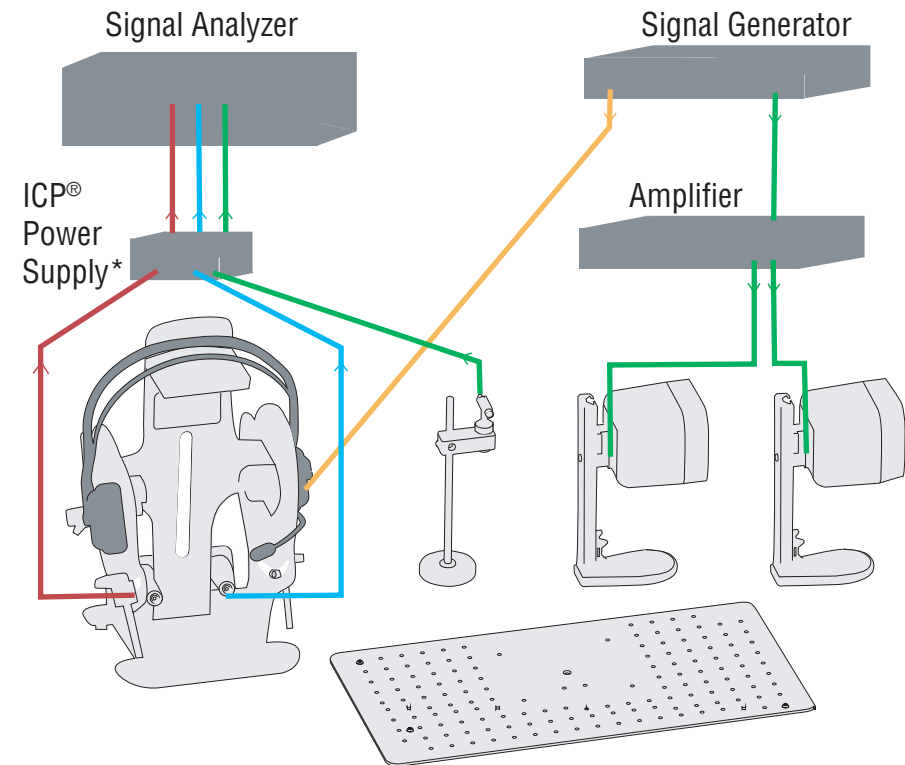
Fig. 15
Adjusting the direction of the mic holder



Connecting the System

This section shows how to connect the AEC210 headphone test fixture and optional accessories for proper function.

Fig. 16
System connections diagram



*ICP is an example of a constant current power source and is a registered trademark of PCB Piezotronics, Inc.

Cable Considerations for Contant Current Power

For microphone cables longer than 36 meters (120 feet), the ICP® current should be at least 4mA.

For more information, go to www.pcb.com and enter “driving long cables” into the search bar.

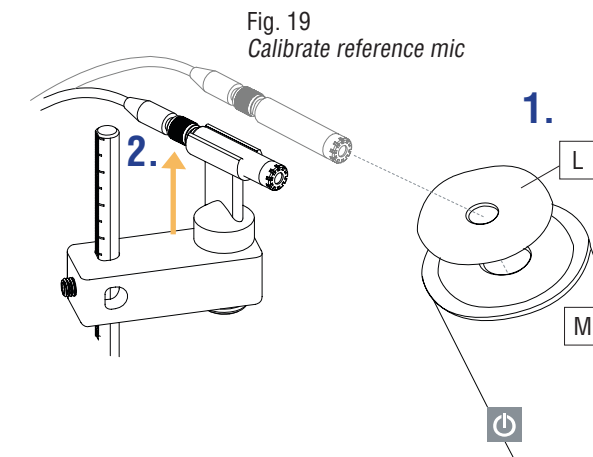
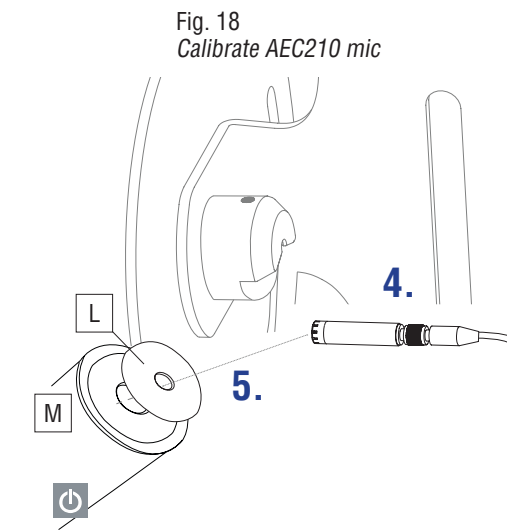
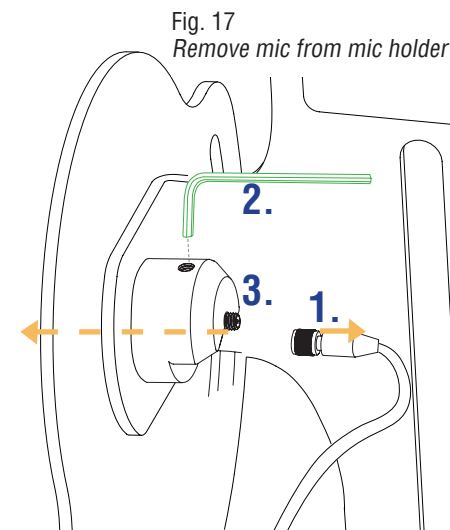
System Maintenance

Calibrating

AEC210 Components pg 11

While there are several methods of calibrating, we recommend that you use an acoustic calibrator as shown below. Optionally, if you're using a TEDs-enabled analyzer, connect it to the AEC210 to automatically read the microphone sensitivity.

	Tools Required	
Using a Calibrator to Calibrate the AEC210	2.5 mm hex wrench (included)	
	1/4" calibrator adapter (ADP021) or 1/2" calibrator adapter (ADP019)	L
	CAL250 acoustic calibrator	M
	1. Disconnect the cable from microphone.	
	2. Using 2.5 mm hex wrench, loosen mic holder set screw.	
	3. To remove mic from mic holder, push microphone body toward outside of headphone rest plate, then remove from the outside.	
4. Reconnect cable to microphone.		
5. Apply the calibrator adapter ADP021(L) to the CAL250 (M) and press power on the calibrator. Note: You must use the CAL250.		
6. Consult the user manual for your analyzer to complete acoustic calibration.		
Using a Calibrator to Calibrate Reference Mic		
1. Apply the appropriate size calibrator adapter (L) to the calibrator (M), and press power on the calibrator.		
2. Lift to remove the mic from mic holder, then insert the mic into the calibrator.		
3. Consult the user manual for your analyzer to complete acoustic calibration.		



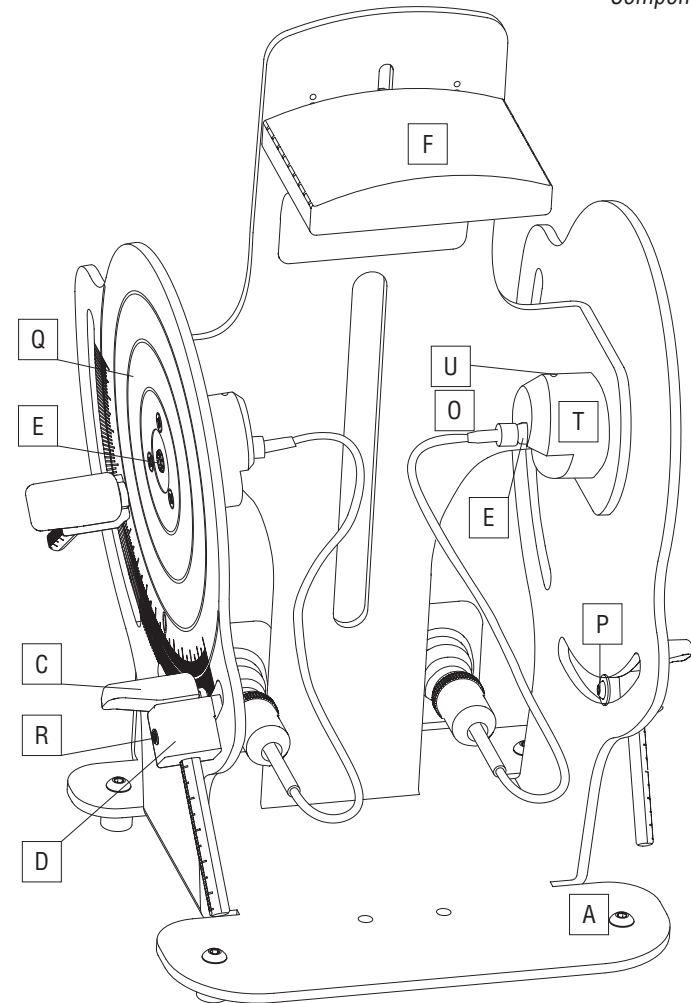
System Maintenance

Calibrating pg 10

AEC210 Components

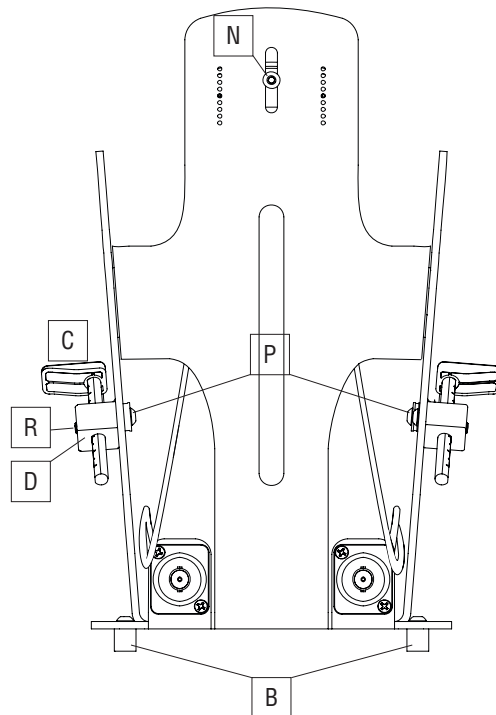
Front View

Components with part # are available from www.LarsonDavis.com.



A	AEC210 mounting screw (4, m4 x 6 mm)
B	Vibration damping feet (4, m4 threads)
C	Locator seat/rod (4) #AEC210-LCTR
D	Locator block (4)
E	Microphone (2) #130A25
F	Headphone strap holder
G	Cable tie mount and cable tie (see pg. 7)
H	Mic holder block (see page 8-9)
J	Mic holder 1/2" or 1/4" (see pg. 8-9)
K	Mic holder set screw (see also pg. 9)
L	1/2" calibrator adapter #ADP019 OR
	1/4" calibrator adapter #ADP021 (see pg. 10)
M	Acoustic calibrator #CAL250 (see pg. 10)
N	Headphone strap holder screw (m4 x 10 mm)
O	Microphone cable (2) #CBL239
P	Locator block rear screw (2, m4 x 10 mm)
Q	Headphone rest plate
R	Locator seat set screw (4, m5 x 8 mm)
S	Accessory mounting screw (2, m4 x 10 mm) (See pg. 6, 8)
T	AEC210 Mic holder
U	AEC210 Mic holder set screw

Rear View



Specifications

AEC210 Test Fixture Specifications		
Mechanical	US	SI
Dimensions (h x w x d)	12.2 x 8.1 x 7.1 in	31.1 x 20.6 x 18 cm
Weight	3 lbs	1.4 kg
Width Between Ears	9.65 in	145 mm
Headphone Strap Holder-Height/ Height Adjustment	5.08 in ± .47 in	129 mm ± 12 mm
Diameter of Ear Plate	5.31 in	135 mm
Measurement Repeatability (typical)*	<1 dB Standard Deviation	
Electrical Connectors	BNC	
Operating Temperature	14 °F to 122 °F	-10 °C to 50 °C
Operating Humidity	0% to 90% RH, non-condensing	
Standards	CE, RoHS	
Included Microphones (Model 130A25)		
Sensitivity	45 mV/Pa	
Frequency Response (±2B)	20 to 10000 Hz	
Frequency Response (±3B)	10 to 16000 Hz	
Frequency Response (±4B)	10 to 20000 Hz	
Dyanmic Range (3% Distortion Limit)	122 dB re 20µPa Typical	
Excitation Voltage	18 to 30 VDC	
Constant Current Excitation	2 to 20 mA	
Output Bias	5.5 to 14 VDC	
TEDS Compliant	Yes	

*Includes removal and replacement of headphones under test

Optional Accessories

	US	SI
AEC210-SPK Speaker/Stand Specifications		
Speaker Sensitivity (SPL)	86 dB (2.83 Vrms input)	
Frequency Response	150 Hz to 20 kHz	
Power Handling	10 Watts @ 25% Duty Cycle	
Input Impedance	8 Ohms	
Adjustable Height Range	5.04 in.	128 mm
Dimensions-Speaker (h x w x d)	3.1 x 3.1 x 3.3 in	78 x 78 x 85 mm
Microphone Holder/Stand Specifications		
	AEC210-1/2MS	AEC210-1/4MS
Supported Microphone Diameter	1/2 in (12.7 mm)	1/4 in (6.35 mm)
Adjustable Height Range	5.9 in (150 mm)	
Dimensions-Mic Stand (h x w x d)		
AEC210-BASE Base Plate Specifications		
Mounting hole spacing	25 mm	
Dimensions (h x w x d)	19.5 x 10.5 x 5/8 in.	496 x 267 x 16 mm



EU Declaration of Conformity PS102
In Accordance with ISO/IEC 17050

Manufacturer: PCB Piezotronics, Inc. 3425 Walden Avenue Depew, New York 14043 USA	Authorized European Representative: PCB Piezotronics Europe GmbH Porschestraße 20-30 41836 Hückelhoven, Germany
--	--

Certifies that type of equipment: Artificial Ear Coupler Systems

Whose Product Models Include: AEC(M)XXX, AEC(M)XXX.Y, ACE(M)XXX-Y, ACE-Z-Z, ACE(M)XXX-*

Note: (M) – indicates an private labeled version
 “XXX” – is a place holder for up to 3 numbers
 “Y” or “-Y” – is a place holder for a letter or number indicating optional configurations
 “Z-Z” – is a place holder for up to four alpha numeric characters
 “*” – indicates a decriptive suffix

This declaration is applicable to all Artificial Ear Couplers and associated accessories of the above series which have the CE mark on their data sheets and where those data sheets refer to this Declaration of Conformity. The data sheets for all model numbers referenced above which include the CE mark on such data sheets and refer to this Declaration of Conformity are hereby incorporated by reference into this Declaration.

Conform to the following EU Directive(s) when installed per product documentation:	2014/30/EU 2011/65/EU	EMC Directive RoHS Directive
--	--------------------------	---------------------------------

Standards to which Conformity is Declared:

Harmonized Standards	EN 61326-1:2013 EN 61326-2-3:2013 EN 61010-1:2010 EN 50581:2012	Electrical equipment for measurement, control and laboratory use – EMC requirements Electrical equipment for measurement, control and laboratory use - EMC Safety Standard Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
Emissions Test Standards	EN 55011:2009+ A1:2010	Industrial, scientific and medical (ISM) radio frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of Measurement Class B, group 1
Immunity Test Standards	EN 61000-6-1:2007 EN 61000-6-2:2005/ AC:2005	Electromagnetic Compatibility (EMC) - Generic standards — Immunity for residential, commercial and light-industrial environments Electromagnetic compatibility (EMC) - Part 6-2: Generic standards — Immunity for industrial environments
Other Standards Applied (non-OJEU) Immunity Test Standards	EN 61000-4-2:2001 EN 61000-4-3:2006 EN 61000-4-4:2004 EN 61000-4-5:2005 EN 61000-4-6:2006 EN 61000-4-8:2001	Electrostatic discharge (ESD) Radiated, radio-frequency, electromagnetic field immunity Electrical fast transient (EFT) / Burst immunity Surge immunity Immunity to RF conducted line disturbances Power frequency magnetic field immunity

- ISO 9001 Certified PCB Piezotronics, Inc. Phone: 716-684-0001 FAX: 716-684-0987



PCB工业监视和测量设备 - 中国RoHS2公布表
PCB Industrial Monitoring and Measuring Equipment - China RoHS 2 Disclosure Table

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
住房	○	○	○	○	○	○
PCB板	X	○	○	○	○	○
电气连接器	○	○	○	○	○	○
压电晶体	X	○	○	○	○	○
环氧	○	○	○	○	○	○
铁氟龙	○	○	○	○	○	○
电子	○	○	○	○	○	○
厚膜基板	○	○	X	○	○	○
电线	○	○	○	○	○	○
电缆	X	○	○	○	○	○
塑料	○	○	○	○	○	○
焊接	X	○	○	○	○	○
铜合金/黄铜	X	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

铅是欧洲RoHS指令2011/65/ EU附件三和附件四目前由于允许的豁免。



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