

SOLUTIONS PROVIDED

- **LO-NOISE SYSTEM** for easy to interpret emission measurements.
- **BUILT-IN SOUND SOURCES** eliminate the need for separate phones.
- **SWITCHABLE AMPLIFIER** for 0, 20 or 40 dB additional gain.
- **ARIEL DSP-16+ & CUB^eDIS™ SOFTWARE COMPATIBLE.**
- **EASY TO REPLACE EARTIPS** in six different sizes to fit all earcanals.
- **BATTERY OPERATION** eliminates ground loop problems.

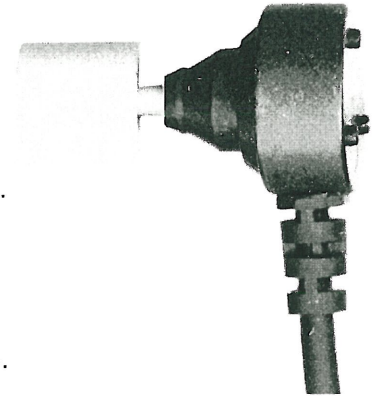


FIG. 1 ER-10C PROBE

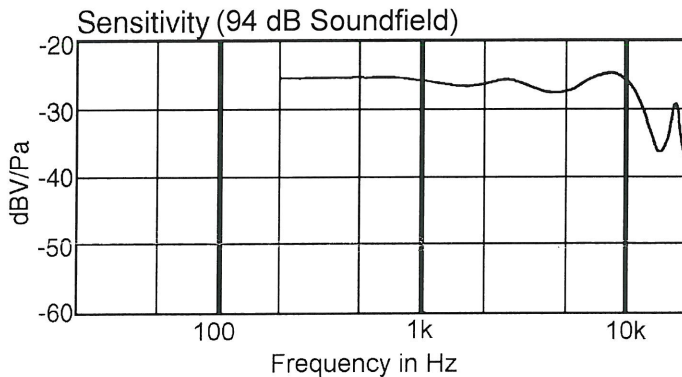


FIG. 2 MICROPHONE FREQUENCY RESPONSE (NOMINAL) RESPONSE

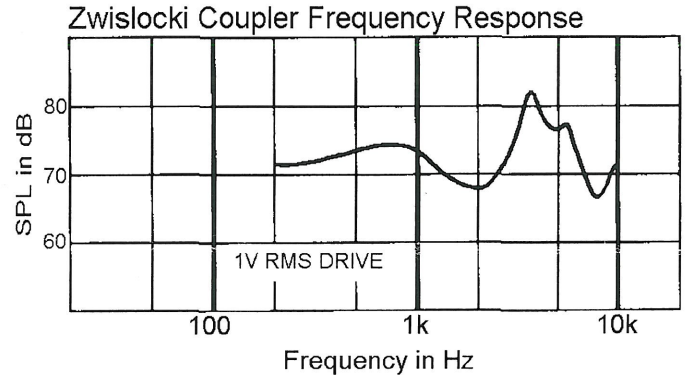


FIG. 3 SOUND SOURCE FREQUENCY RESPONSE (NOMINAL)

SPECIFICATIONS

MICROPHONE

SENSITIVITY: 50mV/Pascal (-46 dB re 1V/uBar)
0 dB SPL = 0 dBuV
LIMITS: +/- 1 dB at 1kHz
+/- 4 dB between 200 and 8000 Hz.
OUTPUT IMPEDANCE: 100 Ohms
UNDISTORTED OUTPUT: 120 dB SPL (1 Volt) minimum
5mA minimum
NOISE LEVEL: 1kHz spot noise typically below -17 dB SPL
(1 Hz bandwidth)

SOUND SOURCE (2 CHANNELS)

1kHz SENSITIVITY: 72 dB SPL for 1.0 Volt RMS
MAXIMUM SAFE CONTINUOUS VOLTAGE: 10 Volts RMS
IMPEDANCE: 50K Ohms nominal
ACOUSTIC POLARITY: +Electrical = +Acoustic

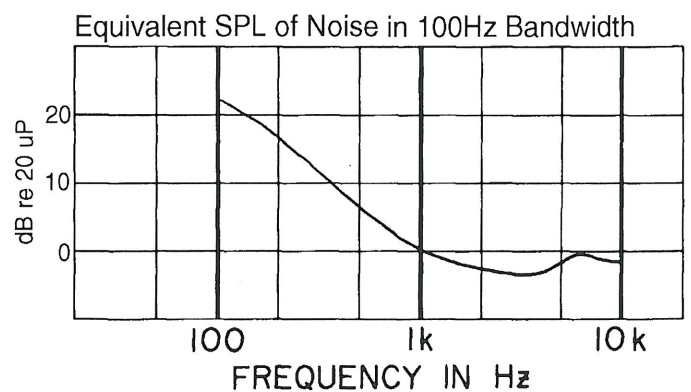


FIG. 4 MICROPHONE NOISE FLOOR

Rev. 06/2001



SYSTEM

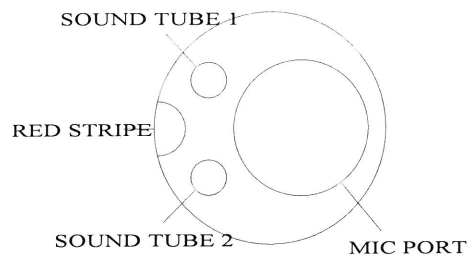
PROBE CORD: 6 foot long shielded

DATA SUPPLIED: Frequency response and noise floor of microphone, and instructions

SYSTEM INCLUDES: ER-10C Probe, Driver-Preamp, carrying case, samples of eartips, data, velcro headband and shirtclip.

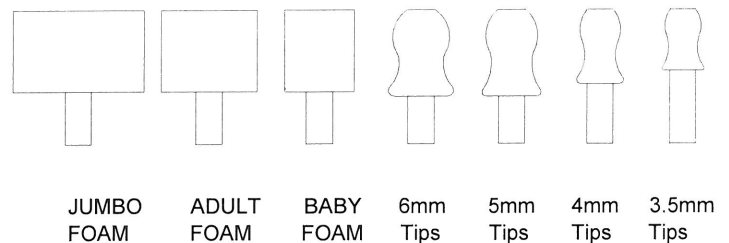
The ER-10C DPOAE Probe has been designed as a replacement for the ER-10B LO-NOISE microphone used to measure distortion product otoacoustic emissions. This probe combines the frequency response and noise floor characteristics of the ER-10B microphone and adds built-in sound sources to provide for a convenient stimulus source. The ER-10C has six eartip sizes to accommodate most size earcanals, from infants to adults. These eartips are disposable and are quite easy to replace, making the setup time to test much shorter than previous methods.

The ER-10C Probe is supplied with a driver-preamp that serves as the driver for the sound sources and as the preamp for the microphone. It has a built-in +40 dB switchable amplifier to supply additional low-noise gain. The ER-10C DPOAE Probe Driver-Preamp is powered by (2) 9V alkaline batteries which will provide approximately 35 hours of operation. Power-on and battery condition is indicated on a front panel L.E.D. The probe has a diode network to protect the probe from damage due to electrostatic discharge.



O.D. = 3.3mm
MIC PORT = 1.9mm
SOUND TUBES = 0.5mm

FIG. 5 EARTIP TUBE CROSS-SECTION



ACTUAL SIZE

FIG. 6 EARTIP SIZES

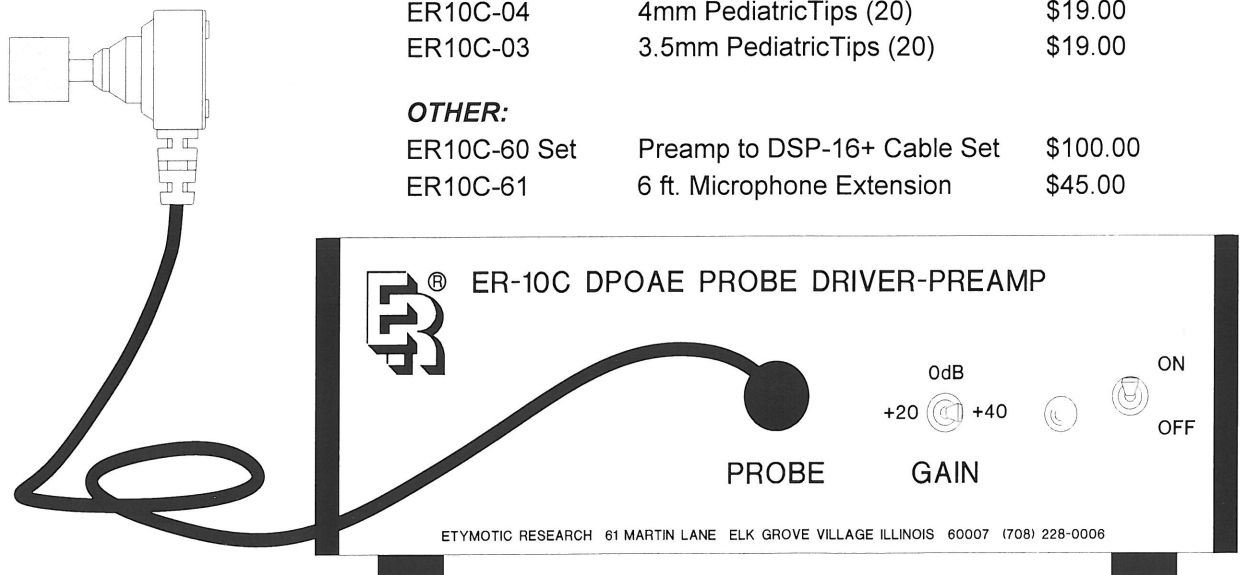
ACCESSORIES

EARTIPS: (as shown in fig. 6)

ER10C-14A	Adult Foam Eartips (25)	\$19.00
ER10C-14B	Baby Foam Eartips (25)	\$19.00
ER10C-14C	Jumbo Foam Eartips (18)	\$19.00
ER10C-06	6mm PediatricTips (20)	\$19.00
ER10C-05	5mm PediatricTips (20)	\$19.00
ER10C-04	4mm PediatricTips (20)	\$19.00
ER10C-03	3.5mm PediatricTips (20)	\$19.00

OTHER:

ER10C-60 Set	Preamp to DSP-16+ Cable Set	\$100.00
ER10C-61	6 ft. Microphone Extension	\$45.00



INSTRUCTIONS

The ER-10C Probe will provide accurate measurements and ease of use if the probe is used correctly. Read the following instructions before using this device.

CAUTIONS

1. **Do not** expose this probe to fluids or moisture.
2. **Do not** attempt to clean the tube assembly on the front of the probe.
3. **Do not** use or store the probe in areas of high moisture, high temperatures, or excessive dust.
4. **Do not** reuse the eartips. The probe tips are for single-patient use only. The tips cannot be cleaned or sterilized. Reusing the tips will void the warranty.
5. **Do not** attempt to open the back of the probe. There are no user serviceable parts inside.
6. **Do not** subject the probe to shock or vibration.
7. **Do** use only the probe tips provided with this unit or sold by Etymotic Research.
8. **Do** use the probe only as directed in these instructions.

PARTS LIST

- | | |
|-----------------------------------|--------------------------------|
| 1. (1) ER-10C Probe | 6. (1) System Case |
| 2. (1) ER-10C Probe Driver-Preamp | 7. (1) Data Sheet |
| 3. (1) Frequency Response Sheet | 8. (1) Instruction Sheet |
| 4. (1) Velcro Shirtclip | 9. (1) Velcro Headband |
| 5. (2) 9V Batteries | 10. (6) Sample bags of eartips |

OPERATION

SETUP

1. Insert the 9V batteries into the connectors on the back of the Driver-Preamp.
2. Attach the input / output cables on the Driver-Preamp as shown in fig. 1.
3. Connect the 7-pin plug on the ER-10C Probe cable into the jack marked PROBE on the Driver-Preamp.

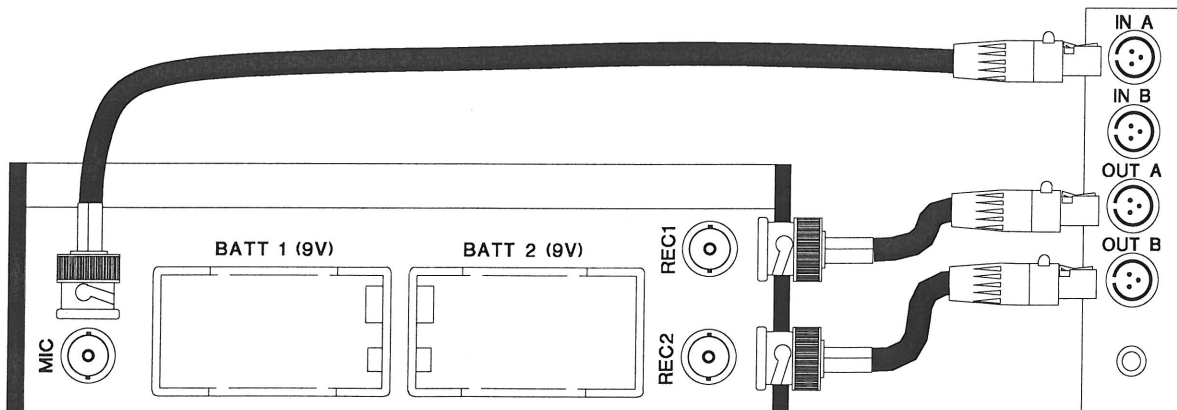


Figure 1. Connections from DSP-16 to Driver-Preamp

USE

1. Turn on the Driver-Preamp. The red LED should glow. When the batteries are low the LED will dim or not light at all, indicating the need to replace the 9V batteries. Alkaline 9V batteries will last about 35 hours, the LED will begin to dim after about 30 hours.
2. Attach an eartip on the front of the probe as shown in Fig. 2. The red line on the eartip tubing should be lined up with the red dot on the probe. The eartip should then be firmly pushed onto the tubes until the eartip tube is in the recessed area on the probe. When using the foam eartips the foam should be rolled between the fingers into the smallest diameter possible before attaching it to the probe.
3. The eartip must be selected to fit the earcanal snugly and provide a good seal. The probe must seal to the earcanal to provide adequate noise isolation.
4. The velcro tab on the probe cable is used with the shirtclip or the headband to hold the probe in place on the patient. When the probe is not in use it should be attached to the velcro on the top of the Driver-Preamp.

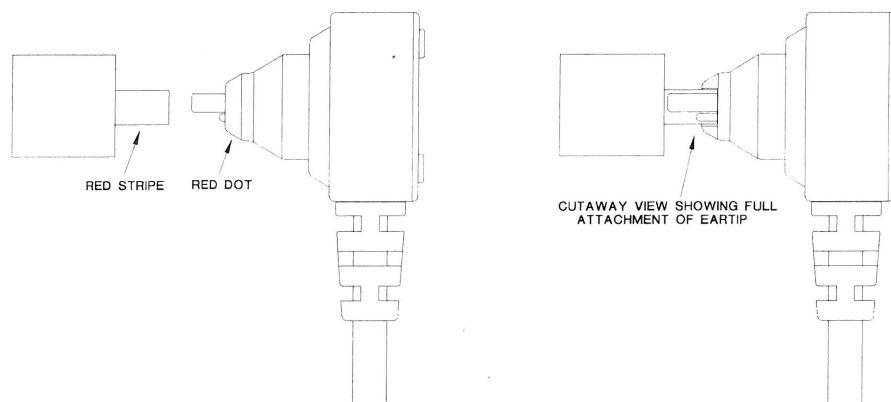


Figure 2. Proper Eartip Attachment

CARE

1. The ER-10C Probe case, cable and the Driver-Preamp may be cleaned with a mild solution and a soft cloth. Be sure to avoid touching the tubes extending from the front of the probe. Do not allow any solutions or debris to enter the tubes.
2. Do not reuse the eartips, cerumen may be pushed into the microphone and sound tubes on the front of the probe. If this happens you must return the probe to Etymotic Research.
3. Do not attempt to open the probe case or Driver-Preamp. All service must be performed by Etymotic Research.

TROUBLESHOOTING

1. If the light on the Driver-Preamp does not glow, check the connections on the 9V batteries. Try replacing the batteries.
2. If you get no response from the probe:
 - A. Check that the input/output cables are attached properly and in the proper order.
 - B. Replace the eartip. Be sure that it is attached to the probe as in Fig. 2.
 - C. Check the connection of the probe to the Driver-Preamp.
3. If you need technical assistance please call or fax Etymotic Research at:
Phone (847) 228-0006 Fax (847) 228-6836