

INSTALLATION MANUAL

AVANT[™]
AUDIOMETER



MedRx[®]

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Getting to Know your AVANT Audiometer

The AVANT Audiometer represents a new era of ultra compact diagnostic audiology for your office. Compact yet rugged, this PC-Based system is USB powered and performs all required ANSI and IEC audiometric tests. The following section of this manual will familiarize you with the physical features and accessories of the system.



Front View



Rear View

Transducers and Accessories



Insert Earphones



TDH-39 Earphones



HDA200

NOTE: The Avant Audiometer supports ER 3A Insert earphones, TDH earphones and HDA200 extended high frequency earphones. The standard configuration includes **either** ER3A **or** TDH earphones. HDA200 earphones must be ordered with the High Frequency Option upgrade.



Bone Conductor



Talkback Microphone



Patient Response Switch



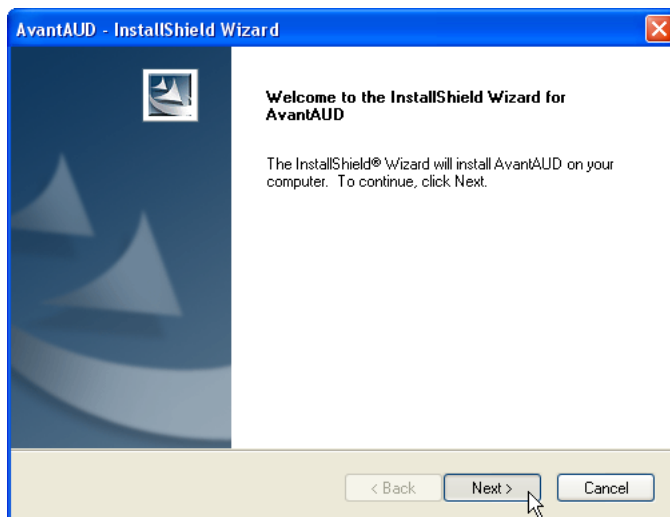
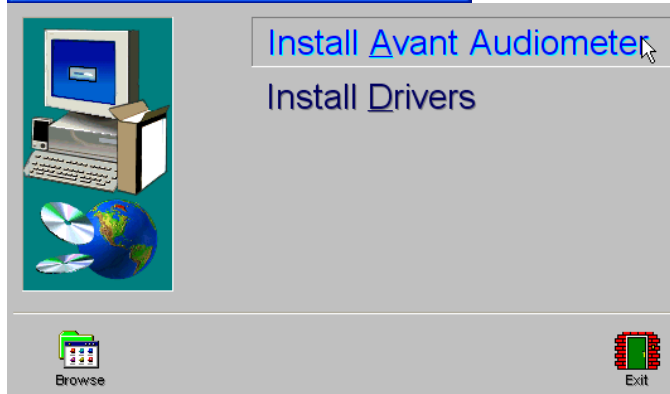
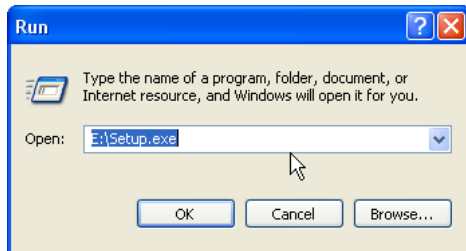
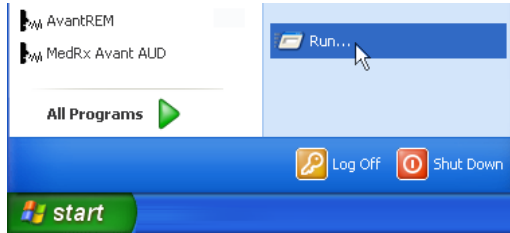
Operator Mic and Monitor



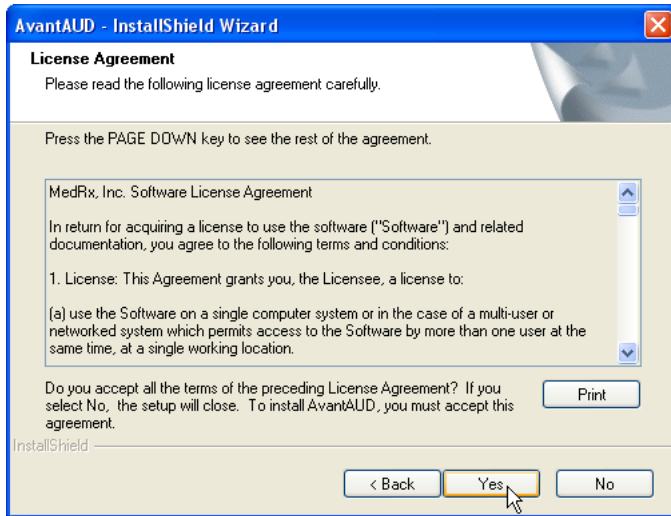
USB Cable

Software Installation

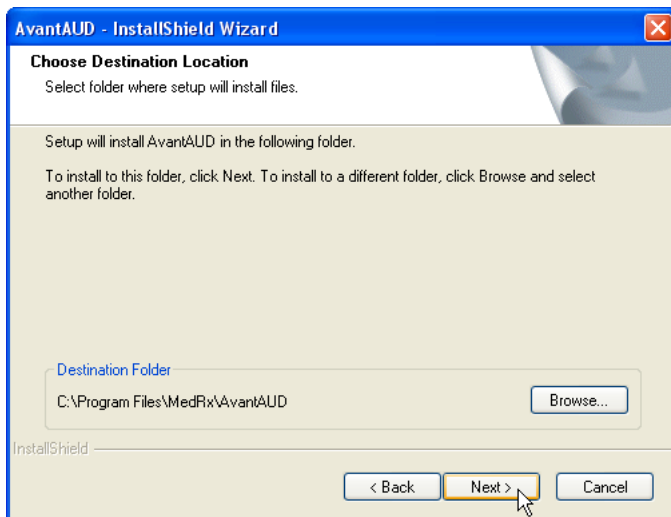
Do Not Plug in the AVANT™ Audiometer USB Cable yet!



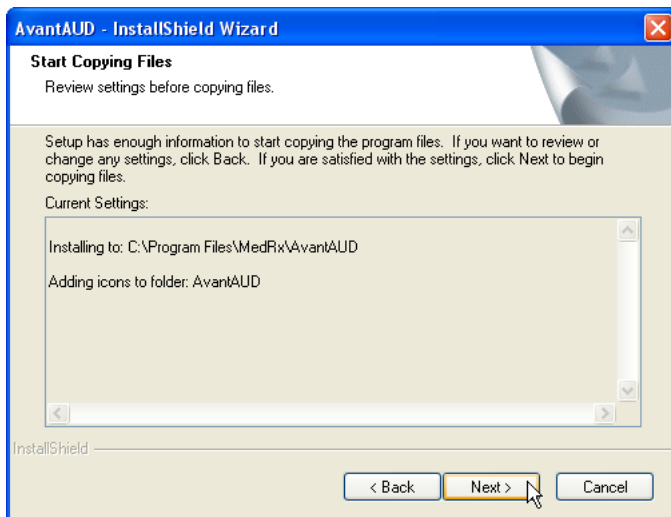
1. Insert the AVANT™ Audiometer CD-ROM into the CD drive. Wait until the **Setup program starts**.
 - If the Setup program does not automatically start, click:
 - Start
 - Run
 - Type d:/setup.exe in the window where 'd' is the drive letter assigned to the CD ROM drive on your computer.
2. On the Setup screen, choose **Install AVANT Audiometer**.
3. This is the Welcome screen.
 - To continue, Click **Next**.



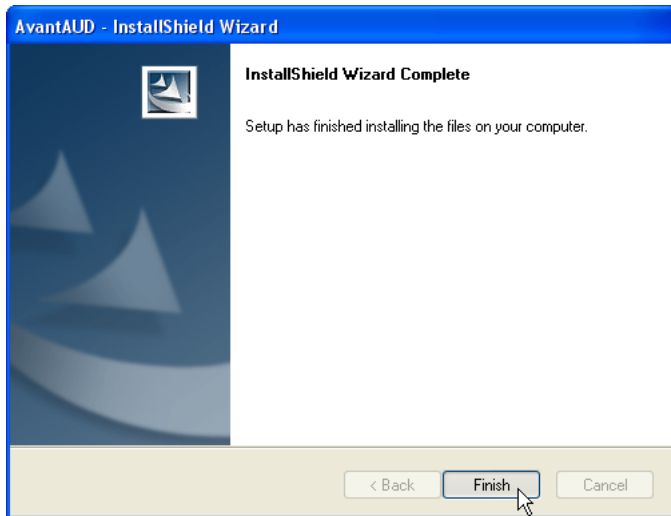
4. Read the Software License Agreement. This important document defines the acceptable usage of the Avant Audiometer.
 - After reading the Agreement, click **Yes**.



5. This screen indicates the location of the program files. The default location is recommended for most users. If necessary, this location can be changed.
 - To continue with the default settings, click **Next**.
 - To change the location of the files (advanced users or system administrators only) click **Browse**.



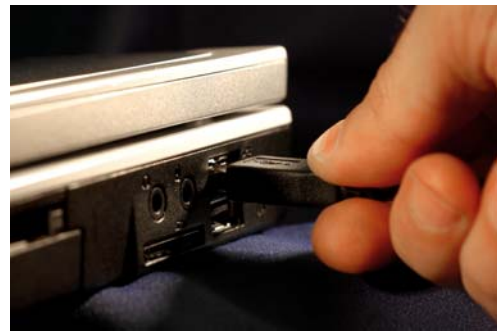
6. This screen summarizes the installation configuration.
 - To continue, click **Next**.
 - To make changes, click **Back**.



7. When the installation is complete, click **Finish**.

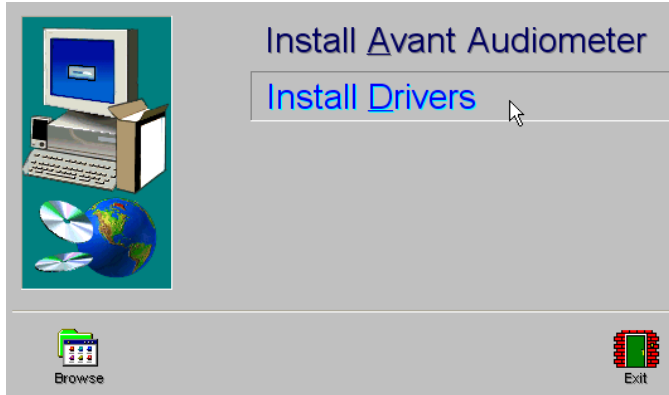
Driver Installation

Connect the USB cable from the AVANT™ Audiometer to your computer as shown below.

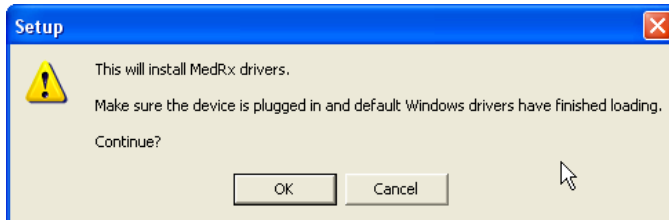


Wait for the system to copy and install default drivers. During this process, you will see the following prompts in your system tray (lower right corner of the screen).





1. After the Windows drivers have been installed, click **Install Drivers**.



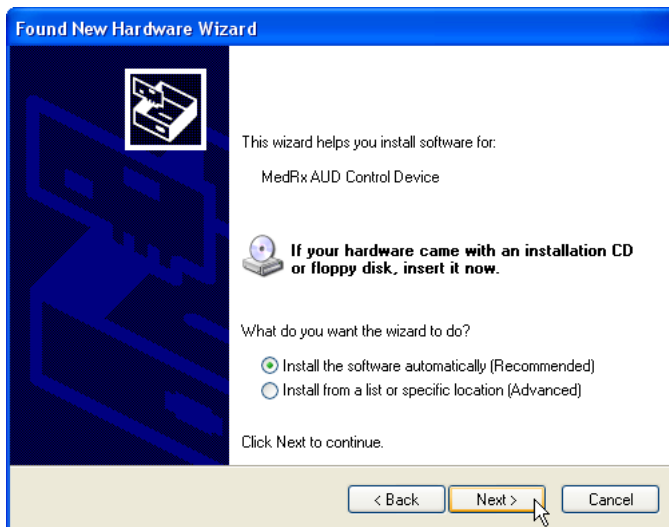
2. When this screen appears, click **OK**.



3. When the driver signature check screen appears, click **Continue Anyway**.



4. When this window appears,
 - Select “No, not at this time”.Click **Next**.



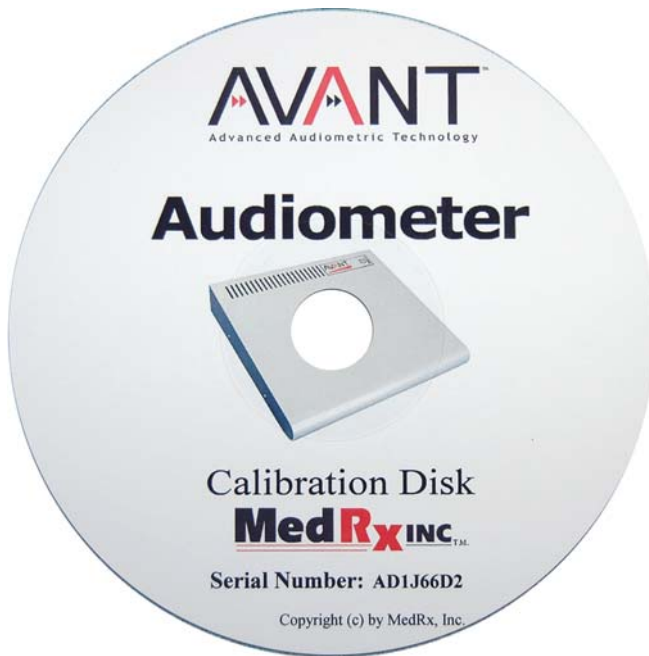
5. When this screen appears,
 - Select “Install the software automatically (recommended)”.
 - Click **Next**.



6. When the driver installation is complete, this screen will appear.
 - Click **Finish**.

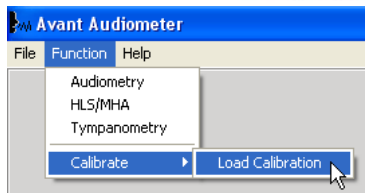
Exit the Setup screen when the driver installation is finished.

Loading the Calibration

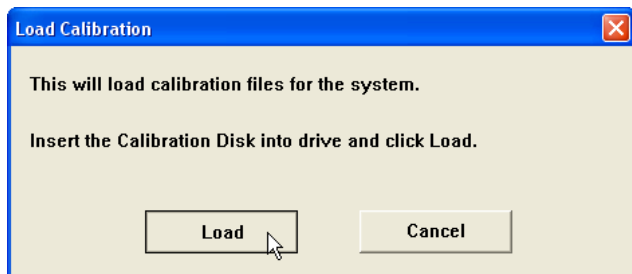


Before leaving MedRx, each Avant Audiometer is calibrated in compliance with the ANSI S3.6 standard. This calibration procedure results in a series of files that the software reads to keep the hardware in calibration. These files are supplied on a CD bearing the same serial number as your device.

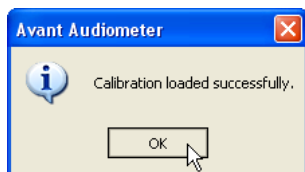
The final step before using your Avant to evaluate hearing is to load these device-specific calibration files onto the computer used to control the device.



1. With the Calibration CD in the drive, open the Avant software and click:
 - **Function**
 - **Calibrate**
 - **Load Calibration**



2. After a few seconds, the CD will "spin up" and this message will appear.
 - Click **Load**



3. When the files are finished being loaded, this message will appear.
 - Click **OK** to complete loading the calibration.

EMC Precautions

The Avant Audiometer needs special precautions regarding EMC and needs to be installed and put into service according to the following EMC information.

List of all cables and maximum lengths of cables from transducers and accessories:

Transducer / Accessories	Maximum Cable length
Power Cord	2,0 meters
USB Cable	2,0 meters
All Transducers	2,0 meters
Monitor Headset	2,0 meters
Patient Microphone	2,0 meters
Patient switch	2,0 meters


Warnings!

- The Avant Audiometer generates high frequency for its own use
- The Avant Audiometer is intended to create a medical system
- The use of accessories, transducers and cables other than those specified, with the exception of transducers and cables sold by the manufacturer of the Avant Audiometer as replacement parts for internal components, may result in increased emissions or decreased immunity of the Avant Audiometer.
- The Avant Audiometer should not be used adjacent to or stacked with other equipment and if adjacent or stacked use is necessary, the Avant Audiometer should be observed to verify normal operation in the configuration in which it will be used.
- The Avant Audiometer may be interfered with by other equipment, even if that other equipment complies with CISPR emission requirements.
- The Avant Audiometer does not have life supporting function
- Portable and mobile RF communications equipment can affect the Avant Audiometer.

Guidance and manufacturer's declaration – electromagnetic emissions		
The Avant Audiometer is intended for use in electromagnetic environment specific below. The customer or the user of the Avant Audiometer should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The Avant Audiometer uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Avant Audiometer is suitable for use in all establishments, including domestic establishments and those directly connected to the public low - voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class 1. Not applicable	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Passed	

Guidance and manufacturer's declaration – electromagnetic immunity			
The Avant Audiometer is intended for use in electromagnetic environment specific below. The customer or the user of the Avant Audiometer should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	+/- 6 kV contact +/- 8 kV air	+/- 6 kV contact +/- 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient / burst IEC 61000-4-4	+/- 2 kV for power supply lines +/- 1 kV for input / output lines	+/- 2 kV for power supply lines +/- 1 kV for input / output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	+/- 1 kV differential mode +/- 2 kV common mode	+/- 1 kV differential mode +/- 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5 % U _T (> 95 % dip in U _T) for ½ cycle 40 % U _T (60 % dip in U _T) for 5 cycles 70 % U _T (30 % dip in U _T) for 25 cycles < 5 % U _T (> 95 % dip in U _T) for 5 s	passed passed passed passed criteria B	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Avant Audiometer requires continued operation during power main interruptions, it is recommend that the Avant Audiometer be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) Magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U _T is the a.c. mains voltage prior to application of the test level			

Guidance and manufacturer's declaration – electromagnetic immunity			
The Avant Audiometer is intended for use in electromagnetic environment specific below. The customer or the user of the Avant Audiometer should assure that it is used in such an environment.			
Immunity test	IEC 60601- test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the Avant Audiometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance:
Conducted RF IEC 61000-4-6	3 V _{eff}	3 V _{eff}	$d = 1,17 \times \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	$d = 1,17 \times \sqrt{P}$ 80 to 800 MHz $d = 2,33 \times \sqrt{P}$ 800 MHz to 2,5 GHz

			<p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a, should be less than the compliance level in each frequency range ^b.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE 1 At 80 MHz and 800 MHz, the higher frequency ranges applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Avant Audiometer is used exceeds the applicable RF compliance level above, the Avant Audiometer should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Avant Audiometer.</p>			
<p>b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

Recommended separation distances between Portable and mobile RF communications equipment and the Avant Audiometer			
<p>The Avant Audiometer is intended to use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Avant Audiometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Avant Audiometer as recommended below, according to the maximum output power of the communications equipment.</p>			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter meters		
	150 kHz to 80 MHz $d = 1,17 \times \sqrt{P}$	80 MHz to 800 MHz $d = 1,17 \times \sqrt{P}$	800 MHz to 2,5 GHz $d = 2,33 \times \sqrt{P}$
0,01	0,12	0,12	0,233
0,1	0,37	0,37	0,74
1	1,17	1,17	2,33
10	3,7	3,7	7,40
100	11,7	11,7	23,3
<p>For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.</p> <p>NOTE 1 At 80 MHz and 800 MHz the separation distance for the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

Congratulations

Your Avant Audiometer system is now set up and ready to use to perform comprehensive hearing evaluations. Please consult the Avant Audiometer Training Manual and the Interactive Help within the software for instructions and procedures. The Training Manual is included in the Avant Audiometer packaging in both paper and PDF format.

Limited Warranty

MedRx, Inc warrants the AVANT™ Audiometer to be free from defects in material and workmanship for one year from the time of purchase. If this system fails to perform as specified during this period, the purchaser is responsible for calling MedRx at (888) 392-1234. The company's representative will advise the owner to either return specific components or the entire system to:

MedRx, Inc.

1200 Starkey Road #105 Largo, FL 33771

MedRx will repair or replace any defective parts, fully test the system and/or components and ship the system promptly back to the owner. There is no cost for this warranty service, provided the system is one year old or less and has not been misused, abused or damaged. Such damage includes, but is not limited to, dropping, exposure to excessive heat greater than 100°F and water/liquid damage.

Repair or replacement of the system as provided under this warranty is the sole and exclusive remedy of the purchaser. MedRx shall not be liable for any consequential or incidental damages, or for breach of any express or implied warranty. Except to the extent of applicable law, any implied warranty, merchantability or fitness of this product is limited to the duration of this warranty.

MedRx will, at its discretion, service and repair out of warranty components at the purchaser's request, charging for parts and labor as necessary.

The limited warranty is deemed void if software or hardware is installed on the AVANT™ Audiometer which is not pre-approved by MedRx, Inc. Approved software includes NOAH™ and HIMSA approved hearing aid manufacturer programming modules for fitting hearing aids.

MedRx, Inc is not responsible for problems resulting from installation of unapproved software or hardware. In the event of unapproved software or hardware installed on the system causing a conflict with the AVANT™ Audiometer functions, MedRx will service the problem for a fee to be determined at the time of service.

Consult your MedRx Technical support member for other alternatives for back up