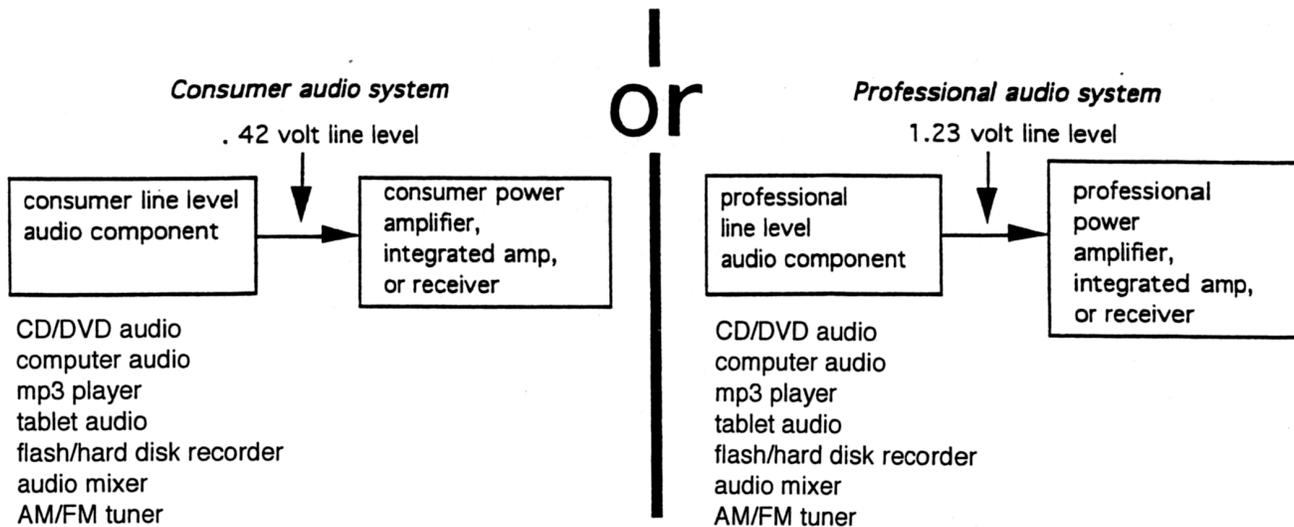


Compatibility problems between Professional audio systems and Consumer audio systems

First, it is a very wise practice for systems to be totally Consumer audio components or totally Professional audio components. Major compatibility problems exist!



Consumer audio components have lower line level input and output requirements (approximately .42 volts). These systems are economically designed for home use. Consumer audio systems make use of consumer audio cables and connectors (utilizing a two wire/two conductor system: one wire for the audio signal, the other wire (or shield) for grounding - mainly RCA type connectors and 1/4 inch phone connectors). One of the problems with consumer audio is that these systems are very susceptible to radio frequencies (CBs, cellular telephones, AM/FM, pagers, two-way radios, etc.) due to poor shielding within the components and the interconnecting wiring system utilized. You should use short cables (4 feet or shorter) when connecting consumer audio components to reduce the susceptibility of picking-up radio frequencies and other electro-magnetic interference.

Professional audio components have higher line level input and output requirements (1.23 volts). These systems are designed to solve the problems found within the consumer audio systems and are therefore much more expensive in cost. Professional audio systems are used for professional audio situations such as larger recording studios, television and movie studios, concert halls, etc. Professional audio systems make use of professional audio cables (utilizing a three wire/three conductor system: one wire for the audio signal, and second wire for an inverted audio signal [used for noise and RF interference cancellation purposes]; and the third wire (or shield) for grounding - mainly XLR connectors are used; some stereo 1/4 inch phone connectors are also used). Professional audio systems have a wider frequency response and dynamic range.

Professional audio systems can utilize very long cable lengths due to specially designed noise and RF cancellation circuitry.

It is important to realize that you should not try to mix Professional audio components with Consumer audio components because of the mismatch in line level expectations.

For instance, if you try to connect a Consumer cassette deck (line level output of .42 volts) into the line level input of a Professional power amplifier - first, you will have connector and wiring incompatibilities, and secondly, the volume output from the amplifier will be much quieter than what you would normally expect. This is because the Professional power amplifier is expecting to receive a line level audio signal of 1.23 volts but is only receiving .42 volts which is about 1/3 of what it expects. No damage will occur, however you would have to turn up the input volume of the power amplifier by 2/3's to hear your audio signal at the normal listening level. By turning up the input level so high, you will hear a great deal of system hiss (high frequency noise - like the static between radio stations) introduced into the audio signal which will be disturbing to the average listener.

If we reverse the situation of connecting a Professional CD player (line level output of 1.23 volts) to the line level input of a Consumer receiver - first you will have connector and wiring incompatibilities, and secondly, the 1.23 volt line level output of the Professional CD player will overdrive the input of the Consumer receiver which is expecting to receive .42 volts at its input. This will result in extreme distortion of the audio signal and will probably damage the Consumer receiver and speakers.

