

## adastra from sound services knowledge base

### 100v Line Attenuators

100v line volume attenuators MUST be wired correctly - the 'in' terminal is the hot from the amplifier (usually the brown cable) with the terminal adjacent marked with an arrow the return to the amplifier (usually the blue cable). The 'out' terminal is the 'hot' to the 100v line loudspeaker (usually the brown cable) with the terminal adjacent marked with an arrow the return to the loudspeaker (usually the blue cable). For most purposes you should ignore the + & - 24v connections (if fitted). Do not exceed the rated power of the attenuator.

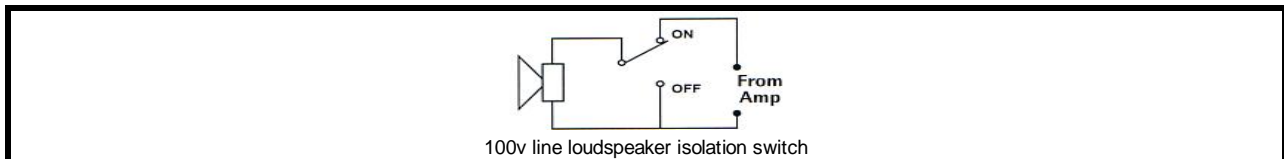
#### adastra 100v Line Information

The reason for using 100v line is to minimise power losses in the cable. For example if a 30 watt, 8 ohm speaker is connected to a 30w amplifier by 100m of 6a cable (which over the 100m would have a resistance of about 4 ohms) a third of the power will be lost in heating up the cable because the power consumption is proportional to the cable resistance.

However - if a 100v line system is used, the output of the 30w amplifier would be at 330 ohms, which renders the 4 ohm resistance of the cable to a negligible amount. The power used is still the same ( $P = V \times I$ ) but as the current is lower more of the power from the amplifier is successfully transferred to the speakers.

#### adastra 100v Line Speaker Isolation

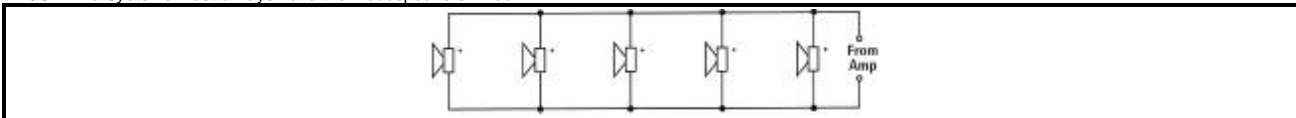
In order to ensure complete isolation of a loudspeaker with absolutely no audio breakthrough it is necessary to use the circuit shown below. The loudspeaker will not only be isolated from the amplifier output but will also be shorted to itself when in the 'off' condition thus excluding any possibility of breakthrough.



#### adastra General Installation Considerations

- DO NOT run microphone cables near mains, data, telephone or 100v line cables.
- DO NOT run 100V line cables near data, telephone or other low voltage cables.
- DO NOT exceed 90% of the amplifiers output power when using 100v line (speech only).
- DO NOT exceed 70% of the amplifiers output power when using 100v line (high level background music).
- DO NOT use re-entrant horn loudspeakers for background music unless the loudspeaker has been specifically designed for this purpose.
- AVOID Jointing the microphone cable, when this is unavoidable make sure a good screened connector is used, e.g. XLR.
- ALWAYS use a balanced or floating low impedance microphone terminating into a balanced input on long microphone cable runs.
- ENSURE that all loudspeakers are in-phase.
- ENSURE that there are no short circuits on the loudspeaker line before connection to the amplifier.

100V Line Systems must always have their loudspeakers wired in PARALLEL:



PLEASE NOTE: The total load presented to the amplifier must not exceed the rated output of the amplifier or damage can result.

### You must NEVER mix 100v line and low impedance speakers on the same system

Horn speakers are typically only used in noisy environments, outdoors or areas that are quite large in size. The main disadvantage with this type of speakers they cannot acceptably reproduce music.

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