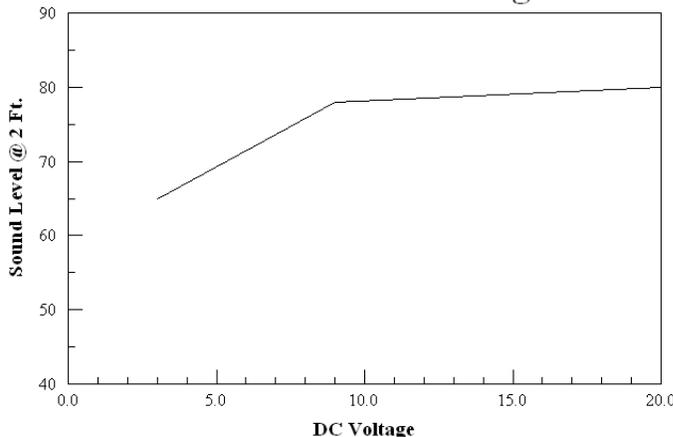


# Technical APPLICATION Guide

## Controlling Sound Level- Electronic Method

For piezoelectric type audible alarms, the larger the voltage signal applied to the piezoelectric transducer, the louder the sound level. This property can be used to electronically control the sound level of these devices.

### MSR320 Sound Level vs Voltage



For audible alarm model MSR320, the sound level will vary from 65 dB at 2 ft. at 3 Vdc up to 80 dB at 2 ft. at 20 Vdc. By varying the voltage from 3 to 20 Vdc, the sound level can be varied by 15 dB. A 10 dB drop in sound level will make the alarm sound half as loud.

There are several ways of electronically controlling the voltage including:

1. Using a manual or digital potentiometer.
2. Using a selector circuit and different values of resistors.
3. Using PWM voltage signals from microcontrollers.

In all cases, care must be taken to make sure that the circuitry and voltage signals used do not interfere with the internal circuitry of the audible alarm. This method of controlling the sound level will probably not work well in the following cases:

1. The sound level of electro-magnetic type alarms do not vary much over the voltage range of these devices, so most electro-magnetic type alarms are not suitable for this method.
2. When you only have a narrow operating voltage range to work with. For example, if you are using the MSR320 at 5Vdc, the sound level change from 5 Vdc to 3 Vdc is not very much.
3. When the voltage range of the audible alarm is narrow. For example, panel mount model SC307N only has a voltage range of 3 to 7 Vdc. Over this range, the sound level will vary by only 6 dB. This sound level change is significant, but may not be enough to make a difference in the application.