

2.1: Introduction

The speed of sound in air at room temperature is approximately 343 meters per second, or 1125 feet per second, and increases with increasing temperature. This velocity is roughly equivalent to approximately 1 foot every 0.9 milliseconds. Thus, for the dimensions of typical class and lab rooms, time delays are generally less than 50 milliseconds, and are therefore difficult to measure without specialized equipment. Digital oscilloscopes can easily resolve time differences several orders of magnitude less than one millisecond, and thus are a good candidate for this exercise. Care must be taken to make sure that no differential delay is caused by the recording circuitry.

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