

ABSTRACT

A geophone is an instrument that converts ground motion (vibration) into a voltage that can be stored in a recording station. Because the resulting signal is small and there are many obstructions, a large gain is required. Signal amplification for geophone formed portable. Where this research uses a function generator as a substitute for a geophone. At the input of the function generator with predetermined frequency settings and the smallest amplitude plus a voltage divider. The amplifier circuit is designed to perform 106 times gain in the two amplifier units used. In the first strengthening, the gain reached an average of 475,287 times the strengthening. And in the second strengthening, it reached an average of 2,343,825 times of strengthening. Until the total of the maximum of the two gains reached an average of 1,113,990.35 times the gain. In the circuit, a phase slider is also added which functions to shift the incoming signal to the circuit, used to equalize the starting point of the incoming signal or as a reference for the measuring point. The starting shift can be seen clearly at a frequency of 75 Hz. The phase shift is also displayed up to 1000 Hz which is more or less up to 120° . The circuit is designed using multisim and a simulation is performed as a reference for the designed hardware. It is hoped that the design of a portable amplifier can make it easier to collect measurement data in the future.

Keywords: Function Generator, geophone, seismic, amplifier, phase shift.