

## Accurate Position Electromagnetic Sensor Using Data Acquisition System

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**Abstract :** This paper presents a high position electromagnetic sensor system (HPSS) that is applicable for moving object detection. The authors have developed a high-performance position sensor prototype dedicated to students's laboratory. The challenge was to obtain a highly accurate and real-time sensor that is able to calculate position, length or displacement. An electromagnetic solution based on a two coil induction principal was adopted. The HPSS converts mechanical motion to electric energy with direct contact. The output signal can then be fed to an electronic circuit. The voltage output change from the sensor is captured by data acquisition system using LabVIEW software. The displacement of the moving object is determined. The measured data are transmitted to a PC in real-time via a DAQ (NI USB -6281). This paper also describes the data acquisition analysis and the conditioning card developed specially for sensor signal monitoring. The data is then recorded and viewed using a user interface written using National Instrument LabVIEW software. On-line displays of time and voltage of the sensor signal provide a user-friendly data acquisition interface. The sensor provides an uncomplicated, accurate, reliable, inexpensive transducer for highly sophisticated control systems.

**Keywords :** electromagnetic sensor, accurately, data acquisition, position measurement

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