

基于ARM的振动传感器幅频特性测试系统研究

作者：严家明, 黄永阳, 侯晓伟

单位：西北工业大学电子信息学院

基金项目：无人机数据链路的空时频自适应处理

摘要：

设计了以ARM微处理器为核心的中央控制处理单元，以完成振动传感器幅频特性测试的系统。利用ARM上集成的数字模拟转换电路（D/A）的输出通道1产生频率可调的等幅正弦信号，输出通道2对可变增益运放电路进行控制，使得振动传感器输出信号幅度在系统工作范围内，采用模拟数字转换电路（A/D）将振动传感器输出的信号整周期采样，对信号的采样序列，运用Goertzel算法检测信号的幅度。实验结果证实了该测试系统软、硬件设计的正确性和有效性。

关键词：ARM；振动传感器；幅频特性；Goertzel算法

An arm based amplitude-frequency characteristic test system for the vibration sensor

Author's Name:

Institution:

Abstract:

A central control process unit with ARM as its core is designed in order to implement the amplitude-frequency characteristic test system for the vibration sensor. Output channel 1 of the D/A of the ARM can generate a frequency-adjustable sine signal, while output channel 2 control the variable gain amplifier circuit. Thus the amplitude of the vibration sensor's output signal will be in the working range. Then full period sampling is done to the output signal, using A/D of the ARM. Finally Goertzel algorithm is used to detect the amplitude of signal. The accuracy and effectiveness of this system is verified by the experiment results.

Keywords: ARM; vibration sensor; amplitude-frequency characteristics; Goertzel algorithm

投稿时间：2011-06-30

[查看pdf文件](#)