



## 基于Model 1221的小型加速度测量系统

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## Design and realization of an acceleration measurement system by using Model 1221

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摘要

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**摘要** 采用微机械传感器Model1221,通过扩展外部存储器SD卡,设计并制作了由2块直径2.3cm的电路板构成、基于LPC2132微处理器的小型加速度测量系统,并结合该系统的RS232在PC机上设计了对测量数据读取、存储和去噪的分析处理软件。为了准确掌握系统静态和动态性能,分别开展了向心加速度静态标定和冲击加速度动态对比测试,结果表明该系统在测量范围((-50~50)g)和频响范围(0~2kHz)内性能较好,同时可进行长时间存储,具有一定的应用前景。

**关键词:** [爆炸力学](#) [向心加速度](#) [ARM微处理器](#) [加速度传感器](#)

**Abstract:** A small-size acceleration measurement system based on ARM system was designed by using acceleration chip Model 1221 and expanding the external memory. Combined with the communication port,the application software was developed to display,store and deal with the data measured. By measuring the centripetal acceleration of the rotating body at the uniform velocity,this system was calibrated. The blast acceleration produced by shaking table was surveyed,and then the data were compared. The results show that the size of this system is smaller,the intelligent extent is higher,the dynamic range is greater and the memory capacity is larger.

**Keywords:** [mechanics of explosion](#) [centripetal acceleration](#) [accelerator](#) [ARM microprocessor](#)

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