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数字闭环加速度计控制器设计与仿真(PDF)

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Title: Design and Simulation of Digital Closed-loop Accelerometer Controller

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摘要: 分析了用于石英挠性加速度计的数字闭环检测系统的控制算法,为满足数字闭环加速度检测电路的需要,设计了数字控制系统。与传统的模拟闭环检测系统相比较,采用全数字处理能够提高系统的检测精度。首先,提出了系统的数字闭环模型,然后对其中所用的纯积分控制器和改进的控制器进行了详细的分析,最后通过实验验证,得出控制算法可行有效且能够极大提高系统带宽的结论。

Abstract: The control methods for the digital closed-loop test system for quartz flex accelerometer was analyzed in this paper. Digital control system was designed for the digital closed-loop measure circuit. Compared with the traditional analog closed-loop test system, full-digital processing can improve test accuracy of the system. In this paper, the model of digital closed-loop system was advanced firstly, and then some detailed analyses about the integral controller were modified controller are unfurled. At last, the test result showed the control algorithm was available and the bandwidth of the system was advanced.

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