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一种用于高频疲劳试验机的程控系统

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A PROGRAM-CONTROLLED SYSTEM FOR THE HIGH FREQUENCY FATIGUE TESTING MACHINE

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摘要

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摘要 本文介绍了一种用于高频疲劳试验机的程控系统,阐述了系统的性能特点、工作原理、硬件结构和软件设计方法,同时对载荷的模糊控制进行了讨论。

关键词: 程控系统 动载 静载 模糊控制

Abstract: A program-controlled system used for the high frequency fatigue testing machine is introduced in this paper. The 8031 single chip microcomputer is taken as the kernel of control elements in the developed system, it will transform the static and dynamic load data inputted by users on keyboard into the load control signals of the fatigue testing machine with two 12-bit D / A converters and simultaneously sample the load signals from the prior amplifier through a multiplexer, a sample-and-hold and a 12-bit A / D converter, then make the automatic regulation of the dynamic and static loads based on the load errors and load error rates in accordance with the fuzzy principle so that the closed-loop controls to the dynamic and static loads are realized. The counting of the dynamic load cycles is made by INT1 interruption activated by the prior amplifier signal processed through regulation and differentiation circuits.

Keywords: program-controlled system dynamic load static load fuzzy control

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