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光电工程

CPLD在光谱色彩分析仪中的应用研究

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摘要 为使颜色测量仪器测试精度更高，且使用快捷方便，提出了一种基于复杂可编程逻辑器件（CPLD）的光谱色彩分析方法。利用CPLD及单片机对CCD进行驱动及信号处理，完成了系统的控制和颜色参数的计算，实现了设备的I/O控制。借助自适应控制原理，通过CPLD对CCD进行积分时间调整，
解决了单一积分时间下CCD动态范围太窄的问题。用CPLD控制A/D中断采样、数据存储及调用，
可使计算所用的CCD有效数据大大减少。

关键词 CCD驱动 CPLD 自适应控制 中断采样

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Research on CPLD application in color measuring spectrophotometer

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Abstract A method of spectral color analysis based on complex programmable logic device (CPLD) is proposed to improve the measurement accuracy of the colour measuring instruments and make the application rapid and convenient. The system control and color parameter calculation were accomplished, and the I/O control for the equipments was realized by utilizing CPLD and inset single chip to drive the CCD and to process the signal. By the aid of self adaptive control theory, the problem that the CCD dynamic range was too narrow under the condition of single integration time was solved with the integration time adjustment for CCD by CPLD. The CCD effective data needed by calculation were reduced significantly through A/D intermittence sampling, data storage and invoking controlled by CPLD.

Key words CCD drive CPLD self-adaptive control intermittence sampling

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