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基于LabVIEW的实时视觉铝合金脉冲MIG焊测控系统

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Development of real-time vision by LabVIEW monitoring control system in aluminum alloy pulse MIG welding

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- 摘要
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全文: PDF (2523 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 针对铝合金脉冲MIG焊过程测控的需要,利用LabVIEW虚拟仪器技术设计铝合金脉冲MIG焊过程多数据的同步实时采集及控制系统.考虑脉冲MIG的特点及开发的效率、控制速度等要求,采用"数据采集卡+PC机+实时控制器"的模式,通过选择LabVIEW做为测控系统的信号采集及处理平台,并在硬件平台设计的基础上,通过COM技术的引入,实现了复杂信号处理算法下的电流、电压与视频信号高速数据流的并行处理.实验表明:所建立的平台能正确稳定地实时采集并处理铝合金脉冲MIG焊过程中信息,程序界面友好且可扩展性强.

关键词： LabVIEW 脉冲MIG焊 实时视觉处理 COM技术

Abstract： A real-time synchronous acquisition and control system was designed using virtual instrument design software LabVIEWto meet the requirement of measurement and control for aluminum alloy pulse MIGwelding.Considering the characteristics of pulsed MIGwelding,development efficiency and control response time,adopted the mode of "data acquisition card+PC+real-time controller",realized the parallel processing of voltage,current and vison signals with complex signal processing algorithm based on bulit hardware platform and COMtechnology.The test shows that the built platform is able to acquire and process the information real-timely and effectively in aluminum alloy pulse MIGwelding,also has friendly program interface and good expansibility.

Key words：

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