霓虹灯控制系统的工作过程及其控制分析

摘 要

随着社会的不断发展,社会的不断繁荣，大中小城市都在进行粉饰工程。在当代的社会生活，马路边的广告牌和各种活动的背景墙，需要霓虹灯来粉饰。所以当我们晚上走在街上，路的两边都可以看到各种各样的霓虹灯广告，各种各样的颜色，非常好看和吸引人，它点亮了整个城市。针对实现霓虹灯控制系统的启动、计时、循环、复位[1]。本课题选用了 PLC 来进行系统功能的实现，因为 PLC 具有流通性能强、适应面广、抗干扰力强、编程容易直观且易于修改等优点。然后进行霓虹灯控制系统的设计，仿真达到预计的效果，实现了对霓虹灯控制的要求。

通过分析了霓虹灯控制系统的工作过程及其控制要求，根据输入输出点数，选取了 PLC 的型号，应用的 CPU 型号为 CPU226 和扩展模块 EM222 来增加输出点达到控制要求，实现此设计。采用 PLC 特有的编程软件 STEP 7-MicroVIN4.0SP9 来编写霓虹灯控制系统的霓虹灯梯形图。采用仿真软件 S7-200 来对上述梯形图控制程序来进行仿真、调试，仿真结果表明，设计该系统成功，符合所需的控制要求。

关键词：S7-200；霓虹灯；控制系统

Abstract

With the continuous development of society and the continuous prosperity of society, large, medium and small cities are carrying out whitewashing projects[.In contemporary social life, billboards along the road and background walls of various activities, neon lights are needed to whitewash. So when we walk in the street at night, all kinds of neon advertisements can be seen on both sides of the road, all kinds of colors, very good-looking and attractive, it lights up the whole city. for the implementation of neon control system start, timing, cycle, reset [1]. PLC is chosen to realize the function of the system, because the PLC has strong circulation performance, wide adaptability, strong anti-interference ability and programming capacity Easy to be intuitive and easy to modify. Then the design of neon control system is carried out, and the simulation achieves the expected effect and realizes the requirement of neon control.

Through analyzing the working process of neon control system and its control requirements, according to the number of input and output points, the PLC model is selected, and the applied CPU model is CPU226 and extended module EM222 to increase the output points to meet the control requirements, and to realize this design. The neon ladder diagram of neon control system is written by using PLC special programming software STEP 7-MicroVIN4.0SP9. simulation software S7-200 is used to simulate and debug the above ladder diagram control program. the simulation results show that the system is successfully designed and meets the required control requirements.

Key words: S7-200; neon; control system

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