

# 网络化半导体激光通信电流驱动自动控制

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**摘要:** 针对传统的半导体激光器控制系统在进行网络化时, 一直存在控制精度低、偏离度大的问题, 提出并设计了一种新的网络化半导体激光通信自动控制系统, 该系统的硬件部分主要由数据显示电路、微处理器模块、信号转换电路、电源转换电路、存储模块电路、驱动单元电路构成, 其中通过引入了半导体激光通信驱动单元电路, 提高网络化半导体激光通信自动控制系统的控制精度, 给出了软件部分设计步骤及源代码, 并进行实验对比分析. 实验结果表明, 采用改进设计的半导体激光通信自动控制系统, 控制系统的稳定性及偏离度, 均优于传统的控制系统, 具有一定的优势.

**关键词:** 网络化; 半导体激光; 通信; 自动控制系统; 设计

## Automatic Control of Current Drive in Semiconductor

### Laser Communication

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**Abstract:** According to the traditional semiconductor laser control system in the network, has low control precision, large deviation problem, proposed and designed an automatic control system for the new network of semiconductor laser communication, the hardware of the system includes data display circuit, microprocessor module, signal conversion circuit, power conversion circuit the memory module circuit and a driving circuit unit, through the introduction of the semiconductor laser drive circuit unit, improve the network of semiconductor laser communication control precision automatic control system, gives the design steps of software and source code, and compare the results. The experimental results show that the improved design of semiconductor laser communication automatic control system, control system stability and deviation, are better than the traditional control system, has certain advantages.

**Key words:** network; semiconductor laser; communication; automatic control system; design

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