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Abstract
This report introduces the development of an optical fiber alignment machine that has sub-micrometer precision. The structure of this machine includes machine vision, a power meter, a 5-degree-of-freedom (DOF) stage, and a PC. The machine vision is used to guide the 5 DOF stage to align optical fibers. The power meter is to fine-tune the alignment to ensure that the light power transmitted through aligned fibers reaches a preset level. The PC is the system controller, and a user-friendly man-machine interface is designed to monitor and control the alignment process. The resolution of machine components and operation procedure are reported in this article. Experiments are conducted to test the function of this machine. The results are satisfactory and some of them are presented in this report.
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