

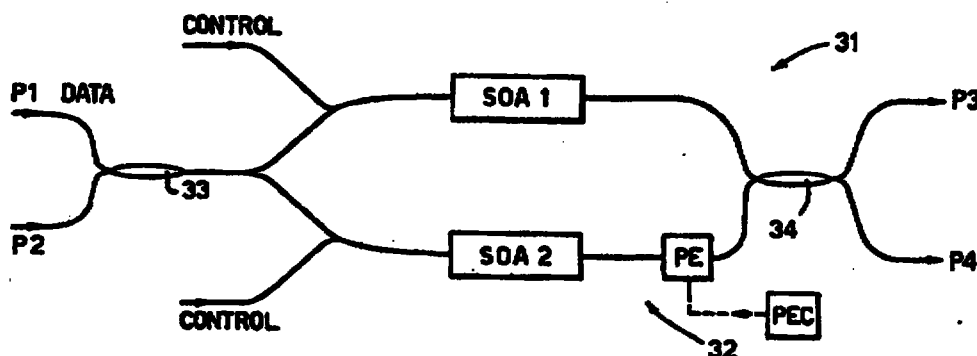
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(54) Title: OPTICAL SWITCH



(57) Abstract

An optical switch includes a semiconductor gain medium and inputs for an optical control signal applied to the semiconductor gain medium. The switch has a pair of arms (31, 32) arranged in a Mach-Zehnder configuration. A semiconductor gain medium (SOA1, SOA2) is connected in each arm. A fixed phase shifting element PE is also connected in one arm. Control signals are applied to each of the semiconductor gain media. There is a delay between the control signals selected so that a desired one of the optical pulses experiences a differential phase shift and so we switch to a different output of the multiplexer. In one example, the semiconductor gain media are provided by discrete semiconductor devices sandwiched between a pair of planar substrates on which waveguides forming the other components of the switch are formed. The switch may be used for demultiplexing OTDM signals.