

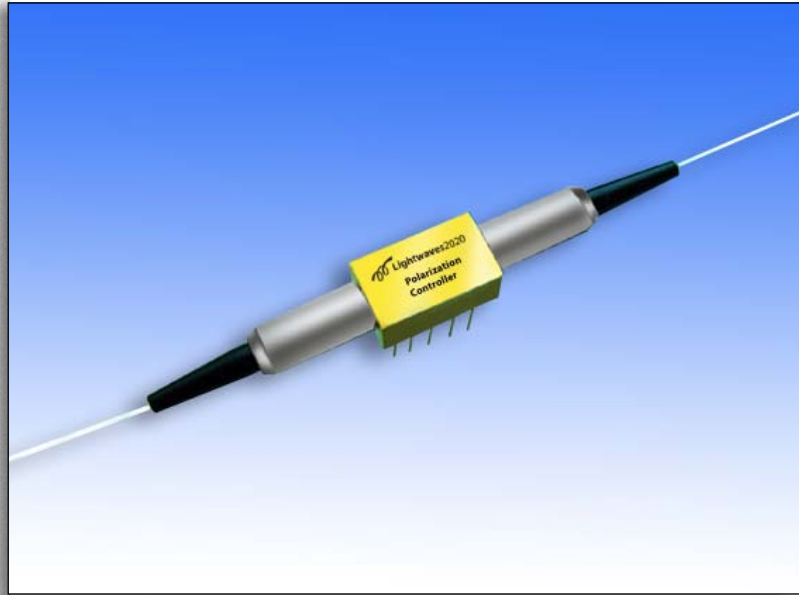
Liquid Crystal Based Polarization Controller

Features/Benefits

- No-moving parts
- Wide operating wavelength range
- High extinction ratio
- Low insertion loss
- Low PDL
- Low PMD
- Low power consumption

Applications

- PMD compensators
- Polarization generators
- Polarization multiplexers
- Polarization scramblers
- Polarization instrumentation



Lightwaves2020's polarization controller is based on liquid crystal technology. It consists of three or four liquid crystal retarders with their fast optical axes oriented at 0° or 45° , which have the same functionality as variable waveplates. Theoretically, only three liquid crystal retarders are needed to transform an arbitrary input state of polarization into any desired output polarization state. The fourth one is added for fast searching, if necessary. The control over the state of polarization is achieved by individually changing the voltages applied to each retarder, which controls the retardations. Sealed in a mini 10-pin DIN package with dimensions of 13.8 x 7.5 x 8.0mm, Lightwaves2020's polarization controller provides an easy-mounting solution for many applications. In addition, the device and the thermal sensor can be integrated in the same package for closed-loop control, which stabilizes the thermal performance.

Lightwaves2020's polarization controller has the benefits of no-moving parts, a high extinction ratio of more than 30 dB, a small driving voltage and low power consumption ($\leq 1\text{mW}$ per cell), wide wavelength range covering the C- & L- bands, high-speed of polarization alteration, low insertion loss, low PMD and low PDL. With optional drivers provided, the device can be driven by 0 ~ 5 VDC voltage.

Lightwaves2020's polarization controller can be used in PMD compensator, polarization scrambler, PDL instrumentation, polarization multiplexing, polarization generator, etc..

