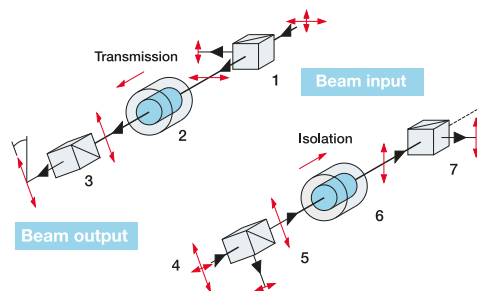


FARADAY ISOLATOR: WORKING PRINCIPLE



Faraday isolator scheme

Effects on the input beam

- 1 Polarizing beam splitter eliminates the s-polarized portion (typically 1%) of the laser (diode) radiation
- 2 Faraday crystal in a strong magnetic field rotates the input polarization plane 45°
- 3 Polarizing beam splitter exactly aligned with the output polarization plane, i.e. by 45° with respect to the input polarization

Effects on the back-reflected beam

- 4 Reflective or scattering surfaces cause polarized or -depolarized reflected signals
- 5 Polarizing beam splitter (3) eliminates the s-polarized portion of the reflected signal
- 6 Faraday rotator (2) rotates the polarization plane by a further 45° so that the polarization plane of the reflected signal is now rotated by 90° from the polarization plane of the input beam
- 7 Polarizing beam splitter (1) blocks the reflected signal

This is a printout of the page <https://sukhamburg.com/support/technotes/fiberoptics/multicube/48fi.html> from 6/17/2025

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