United Crystals Inc.
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How to adjust a NLO crystal device in laser systems

In general, there are two scenarios. Here are the symbols used in this article.

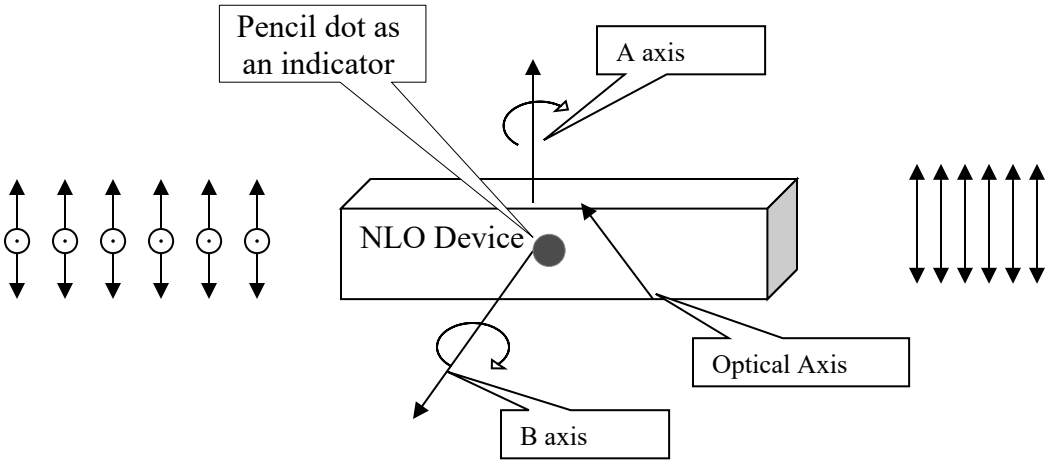
Denoted as circularly polarized light.

Denoted as linearly polarized light with the polarizing orientation parallel to the surface of the paper.

Denoted as linearly polarized light with the polarizing orientation vertical to the surface of the paper.

Scenario 1

The output laser light is circularly polarized; you only need to tilt the device along b axis.



Scenario 2

The input laser light is linearly polarized light (most of times, it will generate this kind of light if your systems consists of a Glen Prism or Brewster Polarizer.). There are two sub categories, Type I and Type II phase matching.

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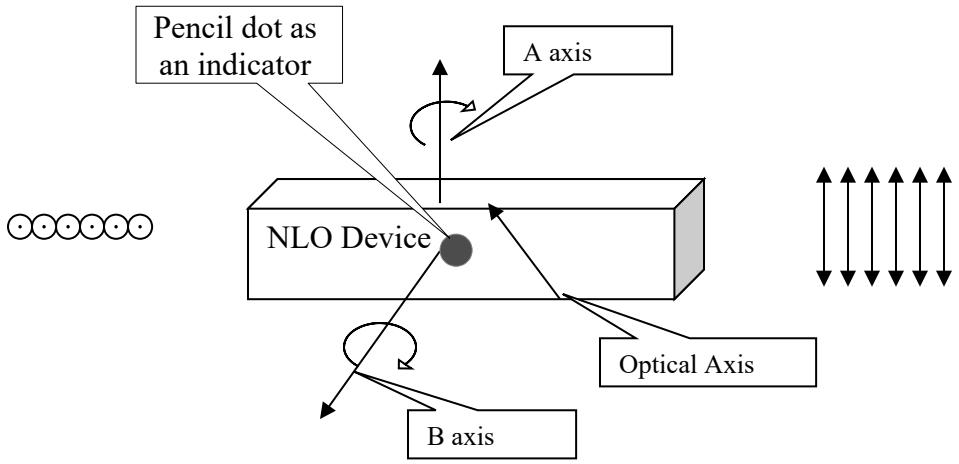
2.1 Type I phase matching (o + o → e) (Typically, BBO, Type I, SHG800nm device)

For this kind of phase matching, the adjustment is same as above.



2.2 Type II phase matching (e + o → e) (Typically, KTP, Type II, SHG of Q-switched YAG laser)

For this kind of phase matching, rotate the NLO device along c-axis, to form a 45-degree angle between the diagonal of the polished surface and the polarizing orientation of the input light, and then tilt the device along b axis.