

Frequently Asked Questions

OpticsBuilder™

Overview

What is OpticsBuilder?

OpticsBuilder is an application for CAD users who package optical systems. It's currently available for SOLIDWORKS and Creo Parametric.

OpticsBuilder enables CAD users to increase productivity and work more efficiently by providing the tools needed to build, analyze and share their work. CAD users can quickly start packaging optical designs by flawlessly converting OpticStudio files into CAD. By delivering analysis tools focused on how mechanical packaging impacts optical performance, CAD users find errors early, reduce back-and-forth with Optical Engineers, and avoid expensive prototyping. Additionally, CAD users can easily share ISO compliant optical drawings with manufacturing using an automated push button drawing export tool.

What problem does OpticsBuilder solve?

Turning optical designs into reality means a team of engineers need to coordinate their individual expertise around one common goal. Oftentimes the limiting factor is not the talent of the team, but the limitations of the tools.

CAD users can spend hours if not days converting complete optical designs into the CAD format that is required by their CAD platform. During optomechanical assembly, engineers are frequently not given the insights they need to analyze the impact their packaging methods may have on the performance of the optical system. Once the CAD user is finished packaging the optical design, they're often limited by the optical drawing process that requires manual work and is prone to error.

What are the key benefits of using OpticsBuilder?

With OpticsBuilder, users can:

- Work within a familiar CAD environment
- Utilize an intuitive user interface that does not require extensive optics knowledge
- Save hours, if not days, by automatically importing all optical geometry designed using OpticStudio
- Reduce back-and-forth with Optical Engineers and avoid creating costly physical prototypes with analysis features made to assess mechanical impact on optical performance
- Easily share optical drawings with manufacturing engineers in the format they need with automated push button drawings

Is OpticsBuilder a version of OpticStudio inside SOLIDWORKS or Creo?

No. OpticsBuilder is an independent product that is used for packaging mechanical components for optical systems.

Is OpticsBuilder part of OpticStudio?

No. While OpticsBuilder uses the same physics core as OpticStudio, OpticsBuilder is licensed separately as an application for CAD users who package optical systems. Users do not need OpticStudio on their computers to run OpticsBuilder.

Zemax

Functionality

How does OpticsBuilder streamline workflows?

There are four ways OpticsBuilder streamlines your workflow. It allows you to:

- Load an OpticStudio file
- Design using exact optical geometry
- Validate optical performance
- Generate ISO 10110 drawings

Is it possible to design lenses in OpticsBuilder?

No. OpticsBuilder does not include lens design capabilities.

Can I run ray traces in OpticsBuilder?

Yes. After OpticsBuilder loads an OpticStudio design file, you can run ray traces to compare the optical performance of the complete system with the original OpticStudio file. OpticsBuilder uses the same multi-threaded physics core used by OpticStudio to analyze and validate your complete product designs.

Does OpticsBuilder work with both sequential and non-sequential designs?

OpticsBuilder loads .ZBD files which can be generated by using the Prepare for OpticsBuilder tool in OpticStudio. Using this tool, you can prepare your sequential and non-sequential designs, along with all relative information needed to gain the most benefit from OpticsBuilder.

Does OpticsBuilder work with off-axis systems?

Yes. OpticsBuilder loads off-axis systems that are designed in OpticStudio.

Does OpticsBuilder work with reflective surfaces, scattering surfaces, or mirrors?

Yes. OpticsBuilder installs 11 standard material scatter profiles. You can also load your own scatter profile in an .isx or .bsdf file format. If your mechanical geometry does not have an assigned scatter profile, OpticsBuilder assumes it has a black anodized surface during a ray trace.

What validation tools are included in OpticsBuilder?

- Critical Rays—Validate that critical rays from the original optical system pass through the complete assembly
- Results window—Validate if the optical performance is impacted when light scatters from added mechanical components
- Instant ray filters—Create ray filters that point to mechanical components causing issues
- Tolerance information—View optical elemental and positional tolerancing information in the CAD graphics area

Can CAD users edit the optical design?

When creating the ZBD file in OpticStudio, Optical Engineers have the option to disable the *read only* function. Disabling the *read only* function allows CAD users to edit optical designs within their native CAD platform. Editing capabilities include moving optics in space, changing non-sequential optical properties and altering lens geometries.

Workflow

How does OpticsBuilder improve the workflow between optical engineers and mechanical engineers?

OpticsBuilder increases efficiency by:

- Saving time and increasing productivity by enabling fast and flawless conversion of lens design data into native CAD platform.
- Making it possible for optical and mechanical engineers to work in their preferred environments and to share data without file format conversions. For example, mechanical engineers can send .ZBD files of their complete optomechanical systems to optical engineers for final validation in OpticStudio.
- Empowering CAD users to detect errors early, reduce back-and-forth communication with Optical Engineers and avoid expensive physical prototyping by delivering analysis tools that show the impact on optical performance.
- Enabling mechanical engineers to update the optical design loaded in the OpticStudio file when there is a change in the optical system. This makes it easier to identify what updates need to be made in the mechanical design to account for the changes.
- Allowing CAD users to share ISO compliant optical drawings with a push of a button using an automatic design export tool.

Configuration and Compatibility

What are the system requirements to run OpticsBuilder?

Windows 7 (64 bit) or later is required to run all versions of OpticsBuilder.

For SOLIDWORKS: SOLIDWORKS 2018, 2019, 2020, and 2021
For Creo: Creo version 4, 5 and 6

Can OpticsBuilder open an OpticStudio file?

No. While OpticsBuilder leverages the OpticStudio design file, it requires the OpticStudio user to prepare their design file for OpticsBuilder using the "Prepare for OpticsBuilder" feature.

Does OpticsBuilder work with design files from earlier versions of OpticStudio?

Design files from all versions of OpticStudio, including Zemax 13 and earlier must be brought into OpticStudio 20.1 or later in order to use Prepare for OpticsBuilder. A .ZBD file is then created and may be loaded into OpticsBuilder.

Where do I get the allowable deltas for the optical performance?

You get the allowable delta from the engineer who created the optical design. OpticsBuilder automatically populates the allowable deltas based on what the optical engineer specified when using the Prepare for OpticsBuilder feature in OpticStudio.

Can files from other design programs besides OpticStudio files be loaded into OpticsBuilder?

No. OpticsBuilder only loads .ZBD files created in OpticStudio. However, OpticStudio can convert Synopsys® Code V® files into OpticStudio files, which you can then be converted into .ZBD files for OpticsBuilder.

Does OpticsBuilder work with any CAD platforms other than SOLIDWORKS and Creo?

While we are continuing to evaluate OpticsBuilder expansion to other CAD platforms, currently SOLIDWORKS and Creo are the only supported CAD platforms. If you're using a different platform that you'd like to see supported by OpticsBuilder, please email our Sales Team at sales@zemax.com.

Does OpticsBuilder support multi-configuration designs?

No, not at this time. When you load a multi-configuration .ZBD file into OpticsBuilder, you will have the option to choose which configuration to load. If you would like to see more advanced multi-configuration support incorporated, please email our Support Team.

Does OpticsBuilder include tolerancing tools?

No. OpticsBuilder displays optical tolerances that are defined in OpticStudio, but does not have tools to dimension mechanical components. If you would like to see more advanced tolerancing tools incorporated, please email our Support Team.

Can I create drawings of lenses in OpticsBuilder?

Yes. OpticsBuilder quickly generates ISO 10110 optical drawings by automatically filling optical data into manufacturing parameters pulled directly from OpticStudio. You can also use your custom drawing templates and point to the drawing information brought in with the file.

Do other team members using SOLIDWORKS or Creo need OpticsBuilder to open an assembly that was created in OpticsBuilder?

No. SOLIDWORKS and Creo users can open an assembly with all components if they don't have OpticsBuilder. However, the optical components will be loaded as mechanical components and the user will not be able to view ray trace information.

Licensing and pricing

How much does OpticsBuilder cost?

OpticsBuilder is offered as an annual single-user or network subscription license. Single-user licenses are \$5,000. Regional network licenses are \$10,000. Global network licenses are \$12,000. Prices are listed in USD per seat per year, billed annually.

What's included in the OpticsBuilder subscription?

The annual subscription includes product enhancements, feature updates, and support for one year. In addition, we offer a one-time free key replacement in the event of lost access to the license due to hardware failure, software malfunction, or a lost or stolen computer.

Does OpticsBuilder require a hardkey like OpticStudio?

No. OpticsBuilder uses a softkey license.

Is training available for OpticsBuilder?

Yes. Online training is available. No knowledge of OpticStudio or OpticsBuilder is required.

Webinars, product videos, customer stories, and eGuides are also available at Zemax.com/Learn.

Who do I contact if I have questions?

For questions, please email Sales@Zemax.com.