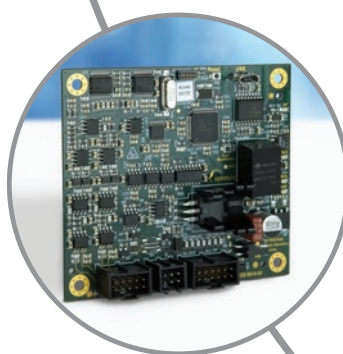


3D focus control



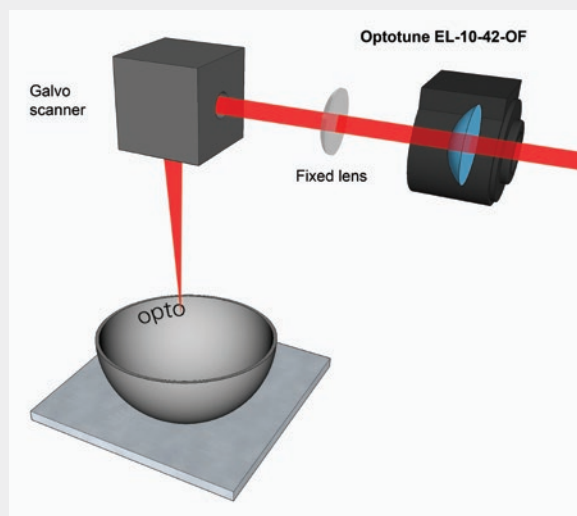
2.5D and 3D Laser applications

Optotune's premium focus tunable lens with integrated optical feedback, EL-10-42, is the ideal choice for laser systems up to 50W, where fast, reliable beam focusing within 3D volumes is a must: industrial laser processing, 3D printing, ophthalmology and more. It is a compact module that can be easily integrated within most standard scan heads and lasers in the visible and near-infrared.



2.5D and 3D Laser applications

Laser focus control in all 3 axis is a particular challenge in the laser industry since either speed, z-range or spot uniformity are compromised. Mechanical systems with motorized optics are typically employed, being bulky, slow and limited in lifetime. The configuration with the tunable liquid lens EL-10-42-OF, supported by either analog or digital controller (XY2-100 protocol), resolves all these disadvantages and offers simultaneously high speed (up to 6m/s), large scan field and z-range (up to 1000x1000mm), and constant spot size in the entire volume.



Advantages

- > Large z-range and large area marking (LAM)
- > Fast and precise z-axis control
- > Constant and small spot size
- > Compact and easy to integrate
- > Coaxial visual inspection

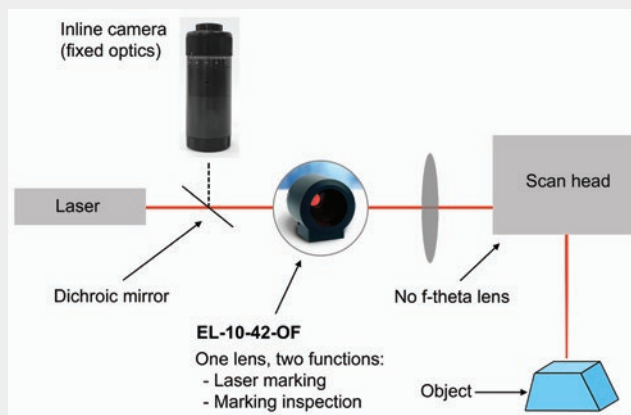
Applications

- > Industrial laser applications: marking, engraving, ablation
- > Micromachining
- > Additive manufacturing, 3D printing
- > Medical, ophthalmology (OCT)
- > Laser projection templating

| Key specifications | EL-10-42-OF |
|--|---|
| Clear aperture | 10 mm |
| Maximum laser power | 50 W |
| Focal power tuning range | -2 to + 2 dpt |
| Focal power repeatability | < 0.02 dpt |
| Wavelength range | NIR version: 950 – 1100 nm Visible version: 532 nm |
| Transmission | > 94 % |
| Response time with analog board | 12 ms |
| Response time with digital board (80 % step) | 8 ms |
| Lifecycles (10 – 90 % sinusoidal) | > 100'000'000 |
| Optical feedback | Yes |

Inline inspection

Inline inspection functionality allows for complete automation of the laser processing by adding visual quality control. Optotune's EL-16-40 based module can reliably measure the object distance using the depth from focus (DFF) contrast algorithm. Systems with laser power levels up to 50W can benefit from a configuration where the EL-10-42-OF lens is used simultaneously for laser processing and the inline inspection.



For more information, please contact sales@optotune.com