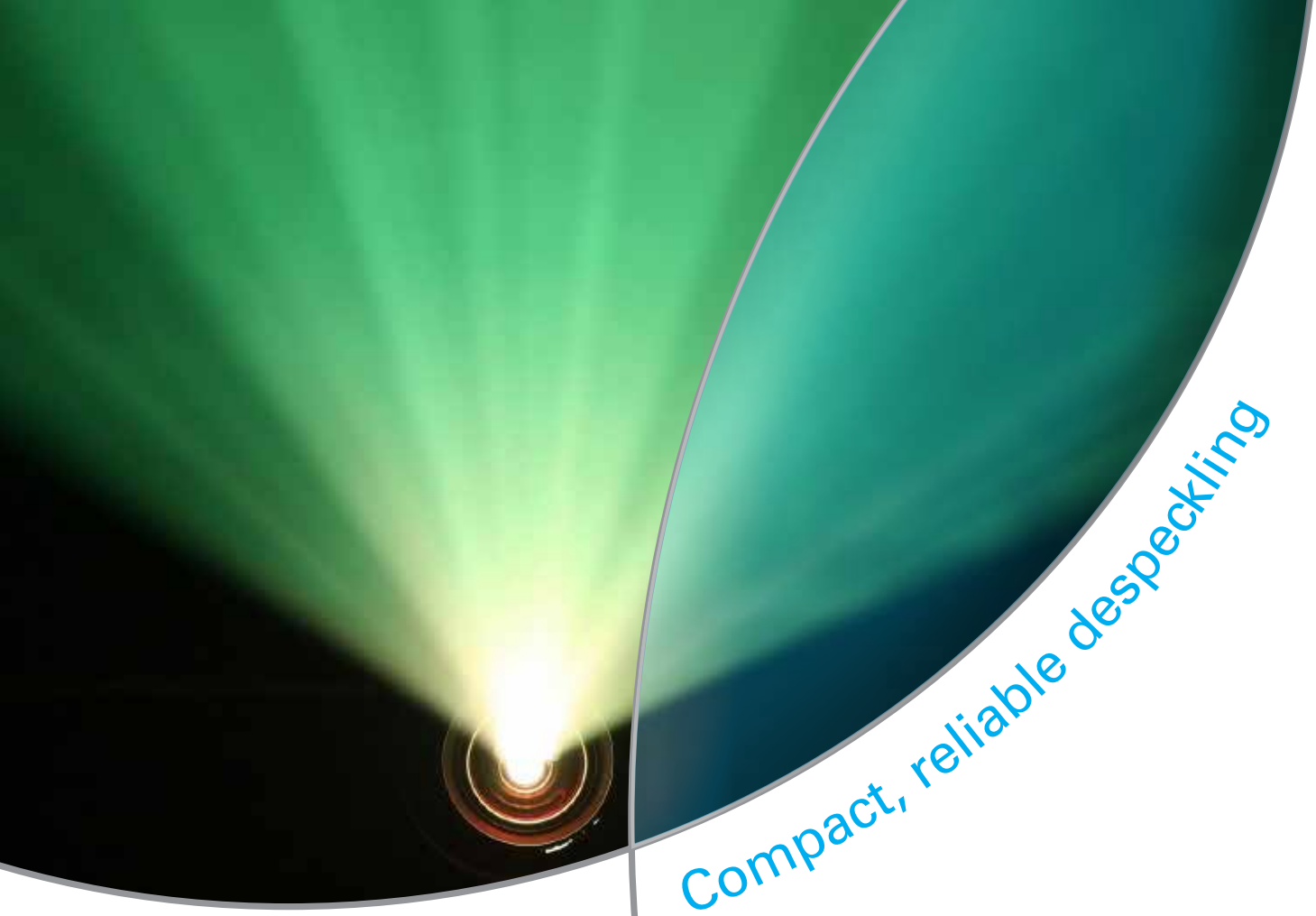
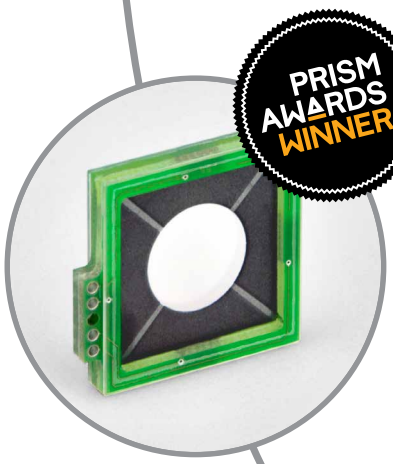
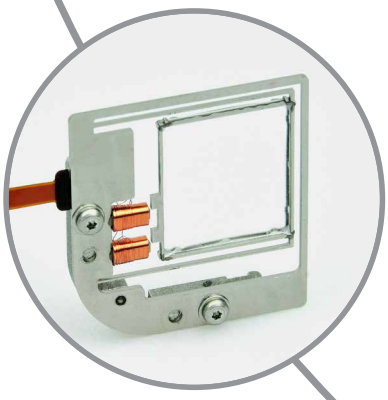


Compact, reliable despeckling



Laser speckle reducers

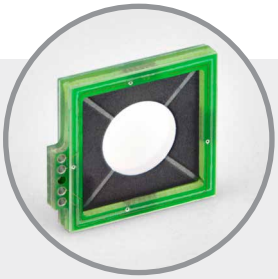
Optotune's transmissive laser speckle reducers offer the most compact and reliable way to remove speckle noise. An integrated actuator oscillates a diffusor in its plane, completely free of mechanics. Depending on the application either an electroactive polymer actuator in combination with a polymer diffusor or a reluctance force actuator in combination with a glass diffusor is preferred.



optotune

Optotune Switzerland AG | Bernstrasse 388 | CH-8953 Dietikon | Switzerland
Phone +41 58 856 3000 | www.optotune.com | info@optotune.com

Laser speckle reducers
LSR-5-17 LSR-10-22
LSR-4C



Compact, reliable despeckling

Laser speckle is one of the main obstacles to the widespread use of lasers in display applications, microscopy illumination, automotive HUD and metrology. Optotune's laser speckle reducer (LSR) is the ideal solution to overcome this issue.

Optotune's LSRs are nothing other than fast moving diffusers. However, the way they are actuated is unique and allows for highly integrated compact solutions.

Optotune offers two different actuator platforms, electroactive polymer (EAP) based or reluctance force based, each having its own key strengths. The EAP platform is very compact and power efficient and completely free of vibrations. The reluctance actuation technology on the other side is the preferred solution for harsh environment and allows the mounting of AR-coated glass diffusors for high laser power applications.

Ask us about custom solutions for your application and discuss your optical system with our experts.

Advantages

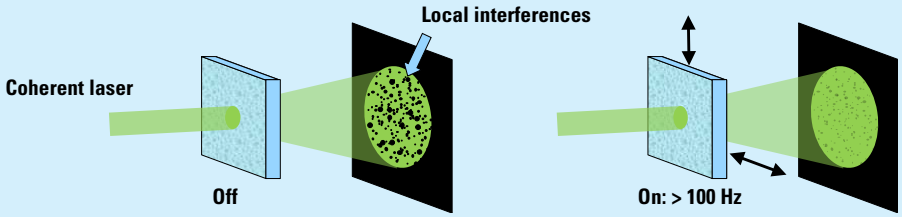
> Ultra compact
> No mechanics
> No noise
> No vibration
> Low power consumption

Applications

> Laser based projectors from cinema to pico
> Head-up displays
> Microscopy illumination
> Automotive headlights
> Metrology

Key specifications	*LSR-5-17/LSR-10-22*	*LSR-4C*
Clear aperture	5mm / 10mm (round)	18.5 mm x 18.5 mm
Actuator	Electro-active polymer (EAP)	Reluctance force
Oscillation type	2D (circular)	1D or 2x1D (linear)
Diffusor type	Optotune polymer diffusor	AR-coated glass diffusor,
Diffusion angle (FWHM)	6°/12°/17°/24°	8.5° (up to 20° on request)
Oscillation frequency	300 Hz / 180 Hz	120 +/- 10 Hz
Oscillation amplitude (peak to peak)	0.3mm / 0.4mm (typical)	0.8 mm (typical)
Weight	3 g	11 g
Vibrations	None	Low, depends on mechanical mount
Cover glasses	Required	None
Electronics	5 VDC (EAP is pulsed with 300V)	5 VDC (coils are pulsed with current)

Principle



Recommended layout for fiber coupling