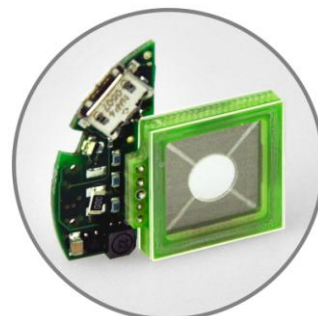


Miniaturized Laser Speckle Reducer OEM Series



Speckle noise from a laser-based system is reduced by dynamically diffusing the laser beam. For large volume (>100 units), Optotune provides a miniaturized OEM version of the LSR with minimal housing. The small size of the OEM version facilitates component integration at a sub-system (e.g. collimation optics) or system level (e.g. laser projection system). The following table outlines the specification of two OEM versions of Optotune's LSR. The diffusion angle can be adapted on demand.

Mechanical specifications

	LSR-5-17	LSR-10-22	
External dimension	17x17	22x22	mm
Clear aperture	5	10	mm
Thickness	3.8	3.8	mm
Weight (LSR only / including electronics)	1.5/2.5	2/3	g

Electrical specifications¹

Power supply (micro-USB interface)	5	5	VDC
Power consumption	310	310	mW

Optical specifications

Diffusion angle (FWHM)	1°/10°/20°	1°/10°/20°	
Transmission spectrum	see Figure 2	see Figure 2	
Optical damage threshold @ 1064nm	>10	>10	kW/cm ²
Oscillation frequency	300	180	Hz

Thermal specifications

Storage temperature	[-40,+100]	[-40,+100]	°C
Operating temperature	[-20,+65]	[-20,+65]	°C

Figure 1 (a-c) show the effect of the LSR-5-17 on a laser spot ($\lambda=650\text{nm}$, $P=5\text{mW}$).

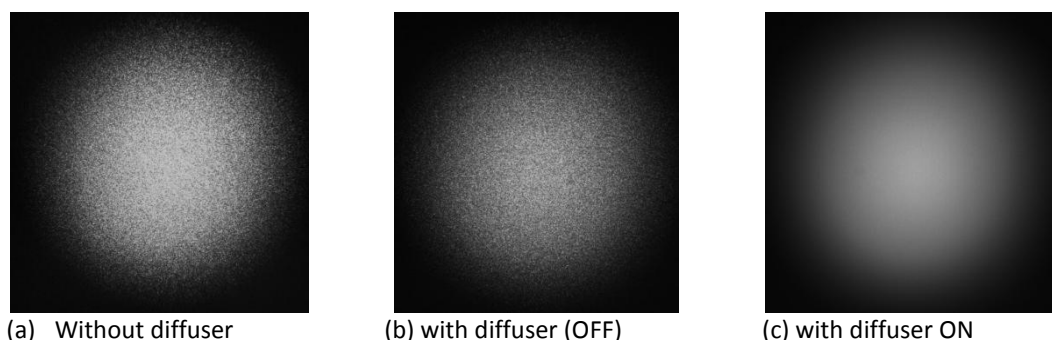


Figure 1: CCD images of a laser spot without and with LSR on.

¹ 100-230VAC to 5VDC micro-USB power supply available

Figure 2 shows the transmission spectrum of the LSR between 400 nm and 900 nm.

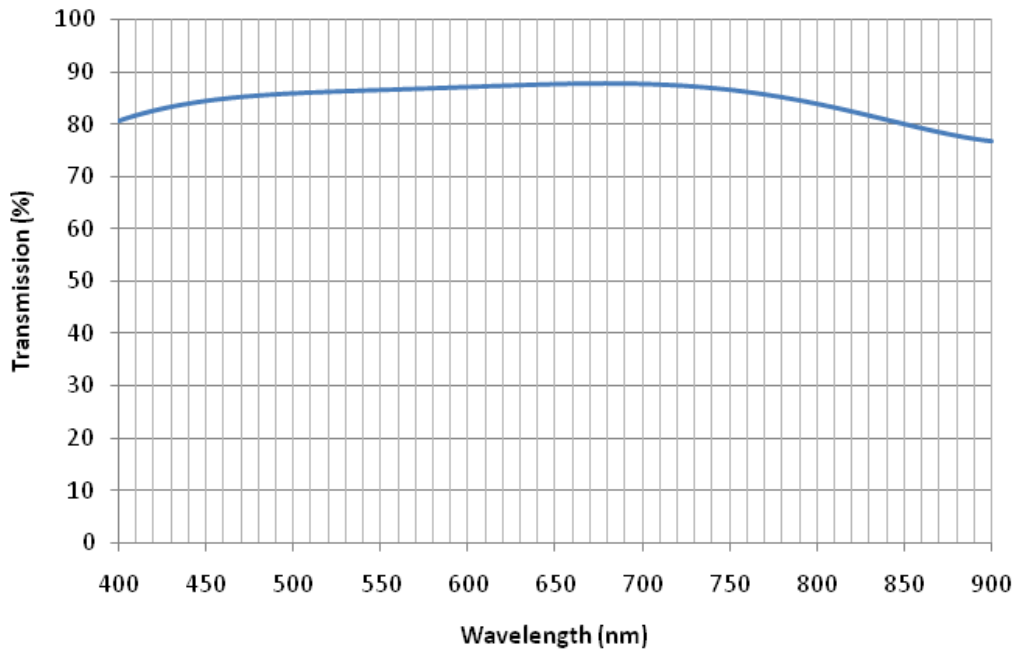


Figure 2: Transmission spectrum of the LSR-OEM series.

Figure 3 shows the dimensions of the LSR-5-17. The housing is a square of 17x17² with a connector area that can be fit to a high voltage connector.

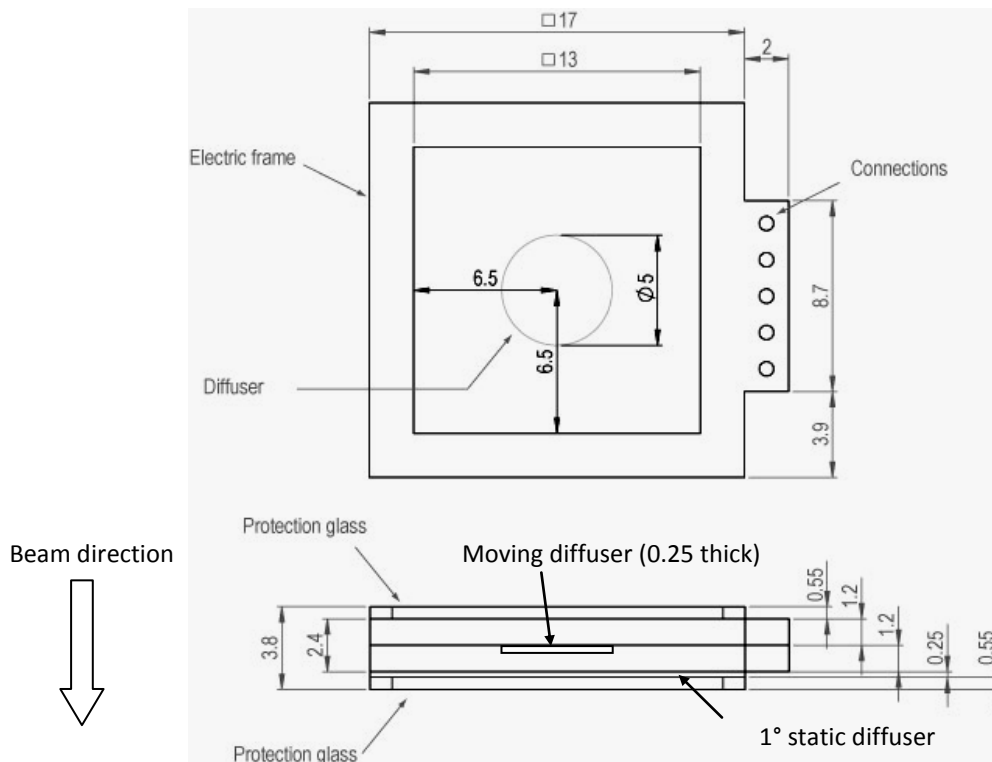


Figure 3: Mechanical drawing of the LSR-OEM (unit: mm)

² A larger version with a square size of 22mm is available as well (see below).

Mechanical drawing of LSR-5-17 including drive electronics

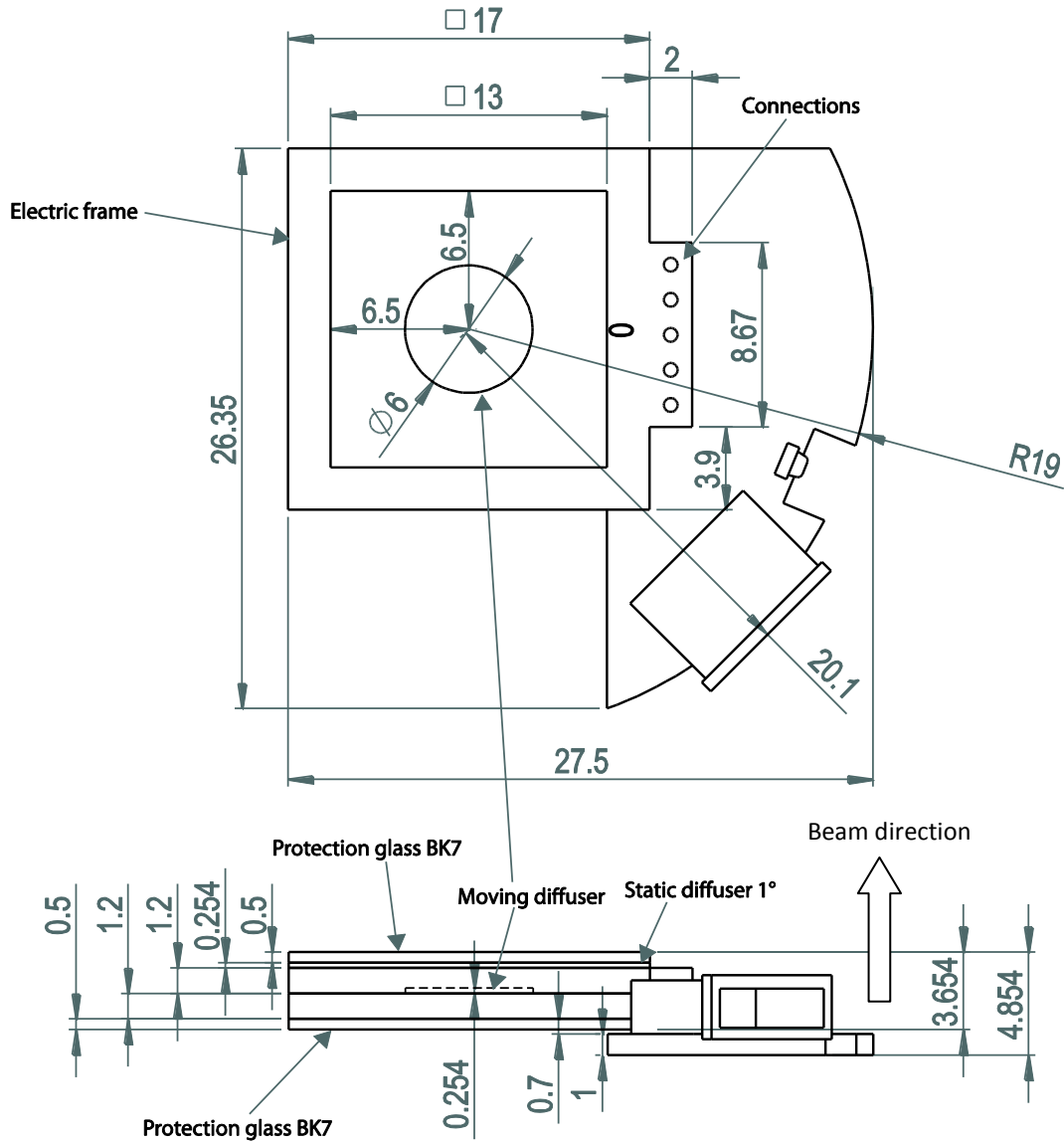


Figure 4: Mechanical drawing of the LSR-5-17-0-E (unit: mm)

Mechanical drawing of LSR-10-22 including drive electronics

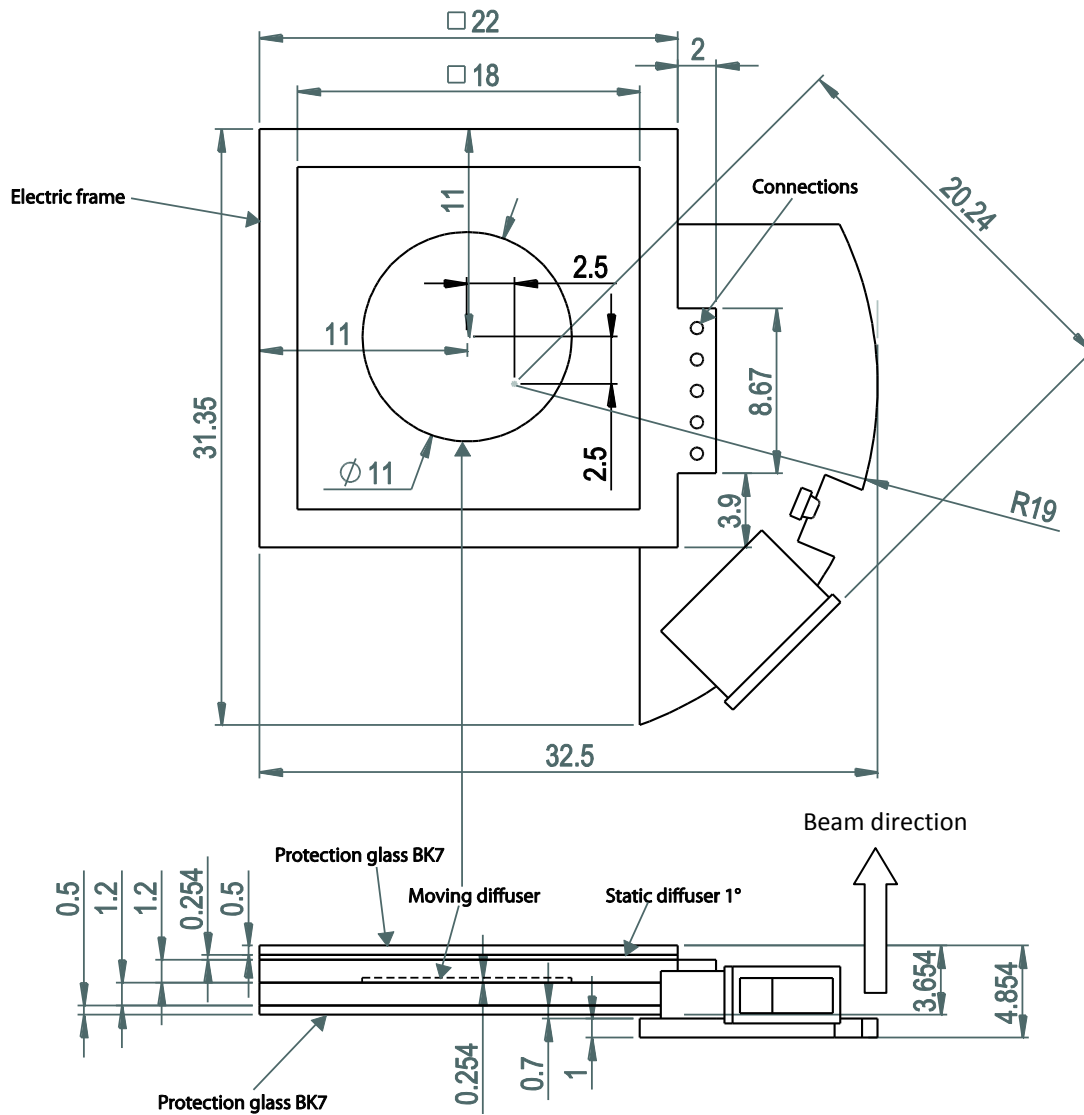


Figure 5: Mechanical drawing of the LSR-10-22-0-E (unit: mm)

Ordering information

The LSR-OEM can be delivered with two frame sizes and three different diffusing angles (circular). When ordering, please mention the desired size and diffusing angle as follows:

LSR-A-S- θ -E

A = clear aperture in mm (5 or 10)

S = frame size in mm (17 or 22)

θ = diffusing angle (1°, 10° and 20° available as standard)

E = including drive electronics (optional)

Examples: LSR-5-17-1-E refers to a speckle reducer with a clear aperture of 5mm, a frame size of 17mm, a diffusing angle of 1° and ships with the drive electronics attached.

LSR-10-22-20 refers to a speckle reducer with a clear aperture of 10mm, a frame size of 22mm, a diffusing angle of 20° and ships without any electronics.

Ordering information for custom housing, aperture, size and diffusing angle

Optotune can adapt the LSR-OEM design to your specific application. If you need any advice or have specific demands concerning optical, mechanical and electrical parameters, please contact sales@optotune.com