



# Laser-based White Light Source

Solid-state laser-based white light sources (LWLS) is a new type of light-emitting devices in which high-brightness white light is generated by a wide-spectrum luminophore emitted by blue laser diodes. The converted white light is incoherent and safe for human eyes. TYDEX started developing solid-state laser white light sources at the end of 2019.

promising component for engineering the latest safe driving systems, unmanned aerial vehicles, portable lighting devices, rangefinders and security systems elements.

The most optimal luminophore to be used in LWLS is cerium-doped monocrystalline yttrium aluminium garnet (YAG). The luminophore is soldered onto a copper conductor to achieve efficient heat rejection.

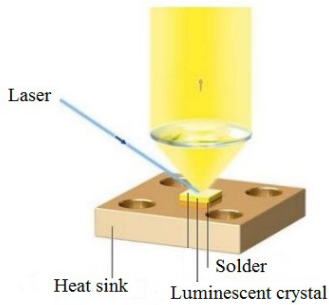


Fig.1. LWLS: principle of operation

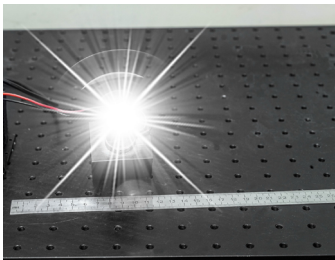


Fig.2. Luminophore radiates under pumping with a laser diode

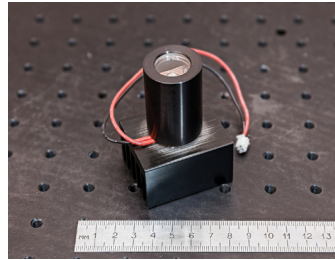


Fig.3. LWLS module

## LWLS module: technical characteristics

Waterproof enclosure, rating IP67

Radiation power	1.8–2.2 W	
Radiation wavelength range	450–700 nm	
Luminous flux	400–500 lm	
Beam divergence	60°	
Dimensions	diameter	30 mm
	height	45 mm
Operating current	2.5–3.0 A	
Operating voltage	3.6–4.8 V	
Operating temperature	0 ~ +65 °C	
Storage temperature	-40 ~ +85 °C	

Alternate module design (with radiation output power of 4.0 – 5.0 W and luminous flux of 800 – 1000 lm with double power consumption) is available on demand.

LWLS provides luminosity, efficiency and durability surpassing xenon lamps. LWLS are to be used for developing and custom manufacturing a new generation of searchlights, street lamps and other lighting devices.

Combined sources of white and infrared radiation in one package are