

# ROX™ Tx Series Eye-Safe, Micro-Miniature, Solid-State Laser Transmitters

## ROX™ Tx Series—High-Performance Laser Transmitters



### Features

- Eye-safe: Class-1M laser transmitters
- High Peak Power: 40 kW
- Narrow Pulse Width: 2 ns
- Pulse Rate: Up to 10 Hz average
- Long Lifetime: > 100 million shots MTTF
- Robust: Qualified to guns and other extreme environments

### Options

- 100- $\mu$ J, up to 10-Hz repetition-rate, ultra-miniature design
- 1-mJ, 1-Hz repetition-rate compact design

### Applications

- Medicine: LIBS, Cosmetic
- Scientific: Laser-Induced Spectroscopy, Raman
- Industrial: Marking, Trimming, Micromachining, Precision Drilling
- 3D Imaging and Ranging: Airborne LIDAR, Handheld Laser Ranging
- Survey: Architecture and Engineering LADAR, Surveillance

### Uncompromised quality, safety and performance

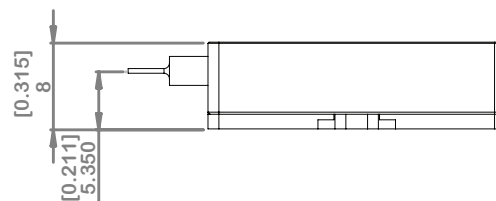
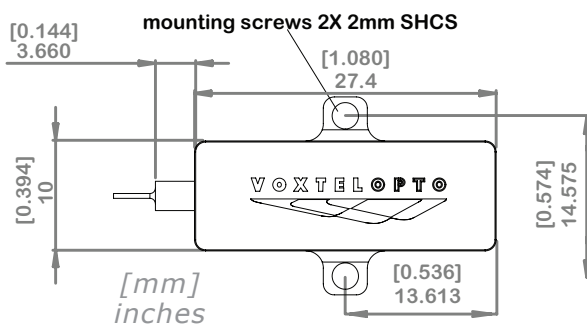
The ROX Tx series of high-peak-power laser rangefinder (LRF) transmitter (Tx) combines eye-safe operation with high peak power, short pulse duration, and diffraction-limited beam quality to deliver unmatched size, weight, power, cost (SWAP-C), range and accuracy.

- **Eye Safety:** Many of today's products use near-infrared lasers that—when used at the power levels needed by the application requirements—are not eye-safe, and a tradeoff is made between safety and performance. Voxtel's ROX Tx series of lasers operate at eye-safe wavelengths, in the 1535-nm to 1620-nm spectral range, without compromise to beam power or quality. This makes applications such as portable Raman spectroscopy, LIBS, dermatological processes, and laser marking applications safer for customers, expanding the market size.
- **All-Weather Performance:** Ranging effectively through rain, snow and other weather at a distance demands laser power that can only be delivered at eye-safe wavelengths. Several models of the ROX Tx series of lasers deliver more than 40 kW of peak power in a near-diffraction-limited 2-ns pulse, delivering—at longer, eye-safe wavelengths—the optical density that scatters less, allowing maximum performance in poor visibility conditions.
- **Size, Weight, Power and Cost:** Performing myriad precise measurements demands powerful light sources, often resulting in large, expensive products. Voxtel's proprietary laser design—in an ultra-miniature package—delivers a diffraction-limited beam with the highest power in its weight/price class. The compact cost-effective design—which eliminates the need for power-hungry thermoelectric coolers—allows for smaller sized, more affordable optical transmitter systems.
- **Reliability in Harsh Environments:** Unlike other eye-safe laser technologies, the compact, highly integrated ROX Tx designs are stable over temperature, robust to the environment, and gun-shock-hardened.

### Specifications:

### Model LAKI-0DBA

		Conditions
<b>Optical</b>		
Wavelength	1535 nm	
Pulse Energy	100 μJ	
Pulse Width	2 ns	FWHM
Peak Power	40 kW	
Pulse Repetition Frequency	Up to 10 Hz	
Pulse Build-up Time	3 ms	
Pulse Energy Stability	1%	60 pulses
Operating Temperature	-40°C to +60°C	
Beam Diameter	0.7 mm	
Beam Divergence	4.2 mrad	
Beam Quality ( $M^2$ )	1.2	times diffraction limit
<b>Electrical</b>		
Current	7.5 A	
Voltage	2 V	
Power Consumption	0.3 W	at 10 Hz
<b>Environmental</b>		
Storage Temperature	-45°C to +80°C	
Shock	1500 g, 0.5 ms	
Vibration	20 - 2000 Hz, 20 g	
Lifetime	> 100 million shots	mean time to failure (MTTF)
<b>Mechanical</b>		
Dimensions	27.4 mm x 10.0 mm x 8.0 mm	L x W x H
Weight	8 g	



#### CAUTION

Class I Invisible Laser  
Radiation Present

Avoid long-term viewing of laser.