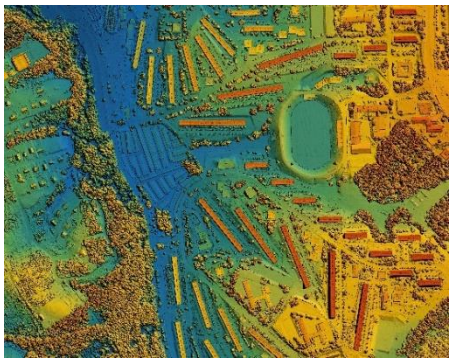
Eye-safe Laser transmitters for high energy LiDAR

EYE SAFE LASERS for LiDAR

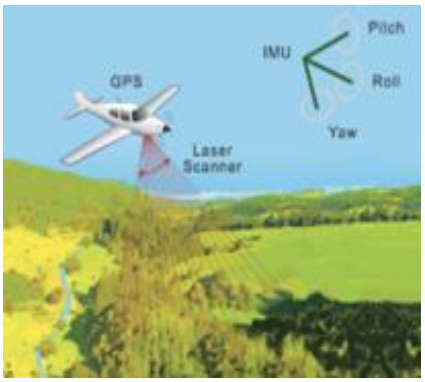


High-energy LiDAR systems need powerful lasers to measure distances by TOF technique. These systems are essential for applications like autonomous vehicles, topographical mapping, and environmental monitoring, where long-range accuracy is crucial.

High energy in eye-safe lasers for LiDAR is critical for optimizing performance (longer range, higher resolution, and better penetration), but it must be carefully managed to ensure compliance with safety standards that prevent harm to human eyes.

To ensure safety, especially for human eyes, high-energy LiDAR systems in the eye-safe regime are designed to operate within specific safety thresholds. This careful regulation allows high-energy LiDAR to provide precise, long-range measurements while maintaining safety for both users and bystanders.

Eye-safe lasers help strike that balance, enabling the technology to be both effective and safe for widespread use.



Bright Solutions is a leader in providing laser source to airborne lidars in the IR and in the visible range but also has expertise in solutions in the eye safe regime. Here a short summary of our past laser sources @1,5 um is reported.

CDL 1.56 10kHz 251001

Applications:
Machining of glass
and hard materials
Non-linear spectroscopy
LIDAR and Flash LIDAR
LIBS

FEATURES
1560 nm
Up to 200 uJ
Beam Quality M^2 < 2
Q-Switching @ 10 kHz
All Solid State Design
Air Cooled

Wedge XB 1572 1 KhZ SPEC WXB24605

Applications
LIDAR
Non-linear spectroscopy
LIBS

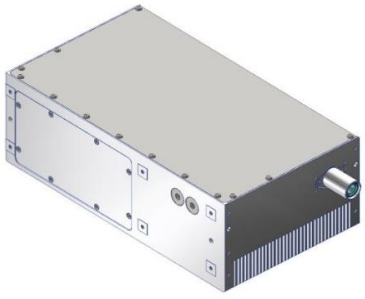
FEATURES
Up to 0.8 mJ
Short pulse duration
Q-Switching : up to 1 kHz
All Solid State Design
Air Cooled

C-Wedge-1572-4-1

FEATURES
Up to 4 mJ @ 1572nm
1 kHz rep. rate
< 5 ns pulsewidth
Integrated bex
MOPA architecture
Air-cooled / Single-unit design

AERO 1.5 50 Hz SPEC# 22101

Applications
Machining of glass and hard materials
Non-linear spectroscopy
LIDAR and Flash LIDAR
LIBS



FEATURES
1560 nm
Up to 20 mJ
Beam Quality M^2 < 2
Q-Switching @ 50 Hz
All Solid State Design
Air Cooled / Water cooled
Contact cooled