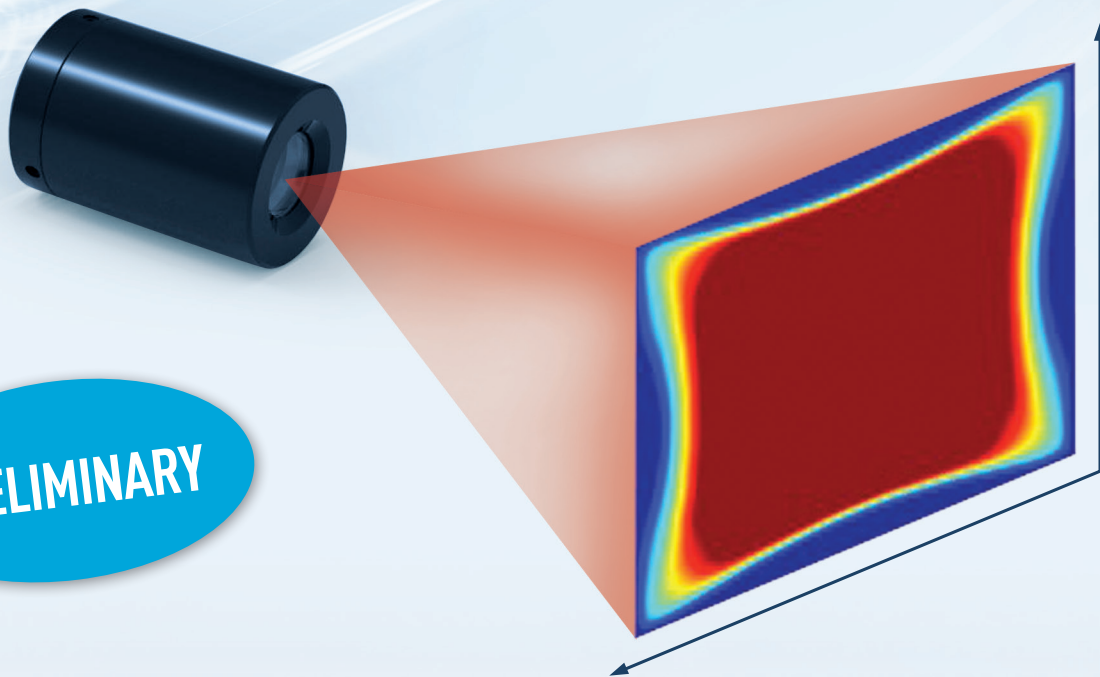


TIME OF FLIGHT ILLUMINATOR (TOFI)

Structured light illuminator for time of flight applications in a self-contained module including high speed circuitry for industrial depth sensing applications.



PRELIMINARY

FEATURES

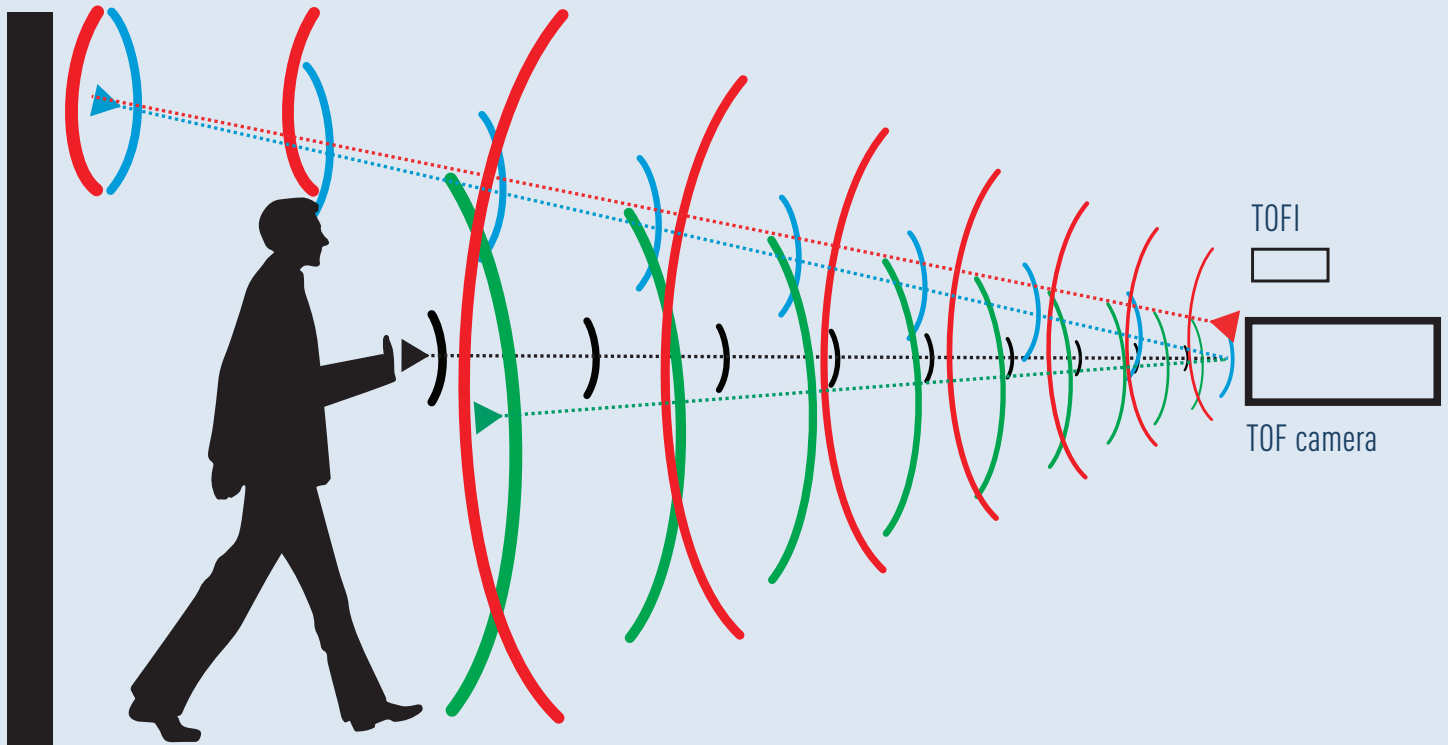
- 2 Watts at 685nm, 808nm, and 860nm
- Rise/Fall times of <1 nanosecond through external digital signal
- Possibility of second level protection for eye safe applications
- Uniform illumination area with customizable field of views
- Compact platform

APPLICATIONS

- Time of Flight Camera
- Industrial depth sensing
- Eye Safe gesture recognition
- Volume measurement
- High energy pulse delivery for long range applications

TIME OF FLIGHT

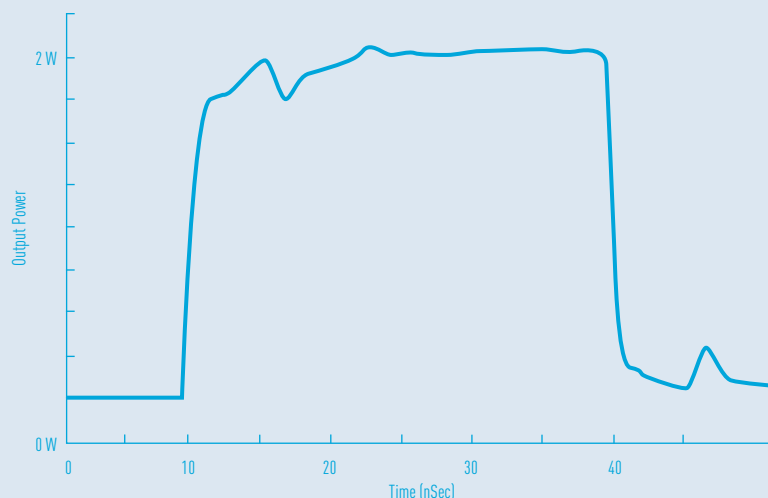
Time of flight applications are based upon the principle of time elapsed for waves of light to hit a target and return back to a sensor. Differences in light travel time defines depth in the scene, where the shorter the pulses, the more accurate the readings. Osela's TOFI is designed for nano second pulsing which allows for high resolution imaging as well as motion detection. The laser based uniform illumination is ideal for maintaining optical power density over long ranges.



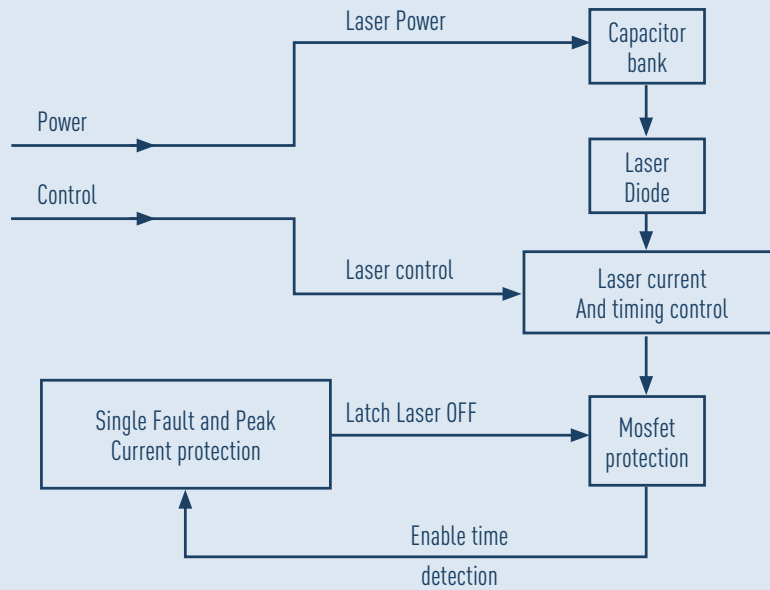
MODULATION AND CAMERA SYNCHRONIZATION

The TOFI is equipped with state of the art electronic circuitry to provide high current pulses by a simple low impedance high speed digital signal. This allows the TOFI to output 2 Watts of power with rise/fall times of less than 1 nanosecond. By calculating the difference in time from emission of light to reception on each pixel of the camera sensor, it is possible to determine the depth structure of the scene. Osela's TOFI capabilities for sub nanosecond pulsing is a key feature that will allow for excellent depth accuracy.

Example of Osela TOFI of output illumination pulse with rise and fall time <1nsec

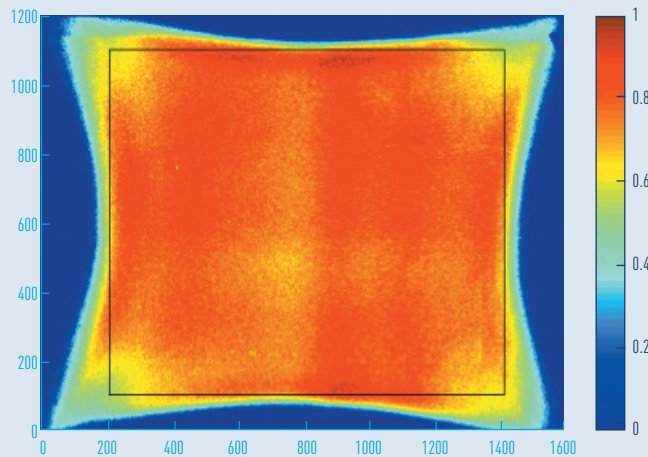


FUNCTIONAL BLOCK DIAGRAM OF THE TOFI



ILLUMINATION UNIFORMITY

Osel's TOFI illuminator has proprietary beam shaping technology. It allows for uniform laser illumination across large, customizable, field of views while maintaining near perfect optical power throughput efficiency. The even area illumination aids to effectively illuminate the region of interest while maintaining the required dynamic needed in resolving depth.



Osel's unique beam shaping technology providing high uniformity over entire field of view with no optical losses.

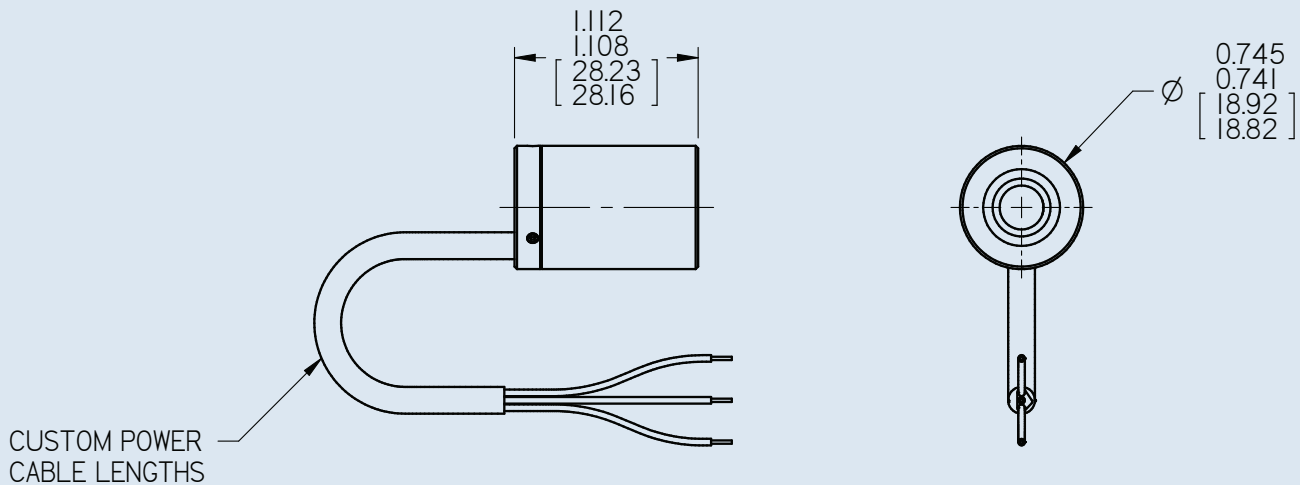
AVAILABLE MODELS

WAVELENGTH (NM)	WAVELENGTH TOLERANCE	WAVELENGTH DRIFT	MAXIMUM OUTPUT POWER	EXPECTED LIFE TIME
685nm	±10nm	≈0.2nm/decC	2W	>100,000h
808nm	±10nm	≈0.2nm/decC	2W (4W upon demand)	>100,000h
860nm	±10nm	≈0.2nm/decC	2W	>100,000h

SPECIFICATIONS

PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
Total output power	W		2W	Call	
Operating duty cycle	%	-	-	5%	Enable time
Operating voltage	V	4.9	5	5.1	DC
Operating peak current	A			4	
Operating Average current	A			0.2	With Duty cycle=5%
Contained power	%	75	80		In the region of interest
Intensity contrast	%		30	35	In the region of interest
Intensity coefficient of variation	%		8	12	In the region of interest
Diverging angle	Deg	20		90	Customer define
Aspect ratio		1		4	Customer define
Input signal impedance	K Ohm		10		
Output rise time	nsec		0.9	1	
Output fall time	nsec		0.9	1	
Output to delay	nsec		0.9	1	From input signal
Operating temperature	Deg C	0		45	
Storage temperature	Deg C	-10		85	

MECHANICAL DIMENSIONS



ORDERING CODE

TOFI	-	XXX	-	POWER	-	Electronic	-	ANGLE 1	-	ANGLE2
		WAVELENGTH		0.5		T		20		20
		685		1				30		30
		808		2				45		45
		860		CALL				60		60
								75		75
								90		90