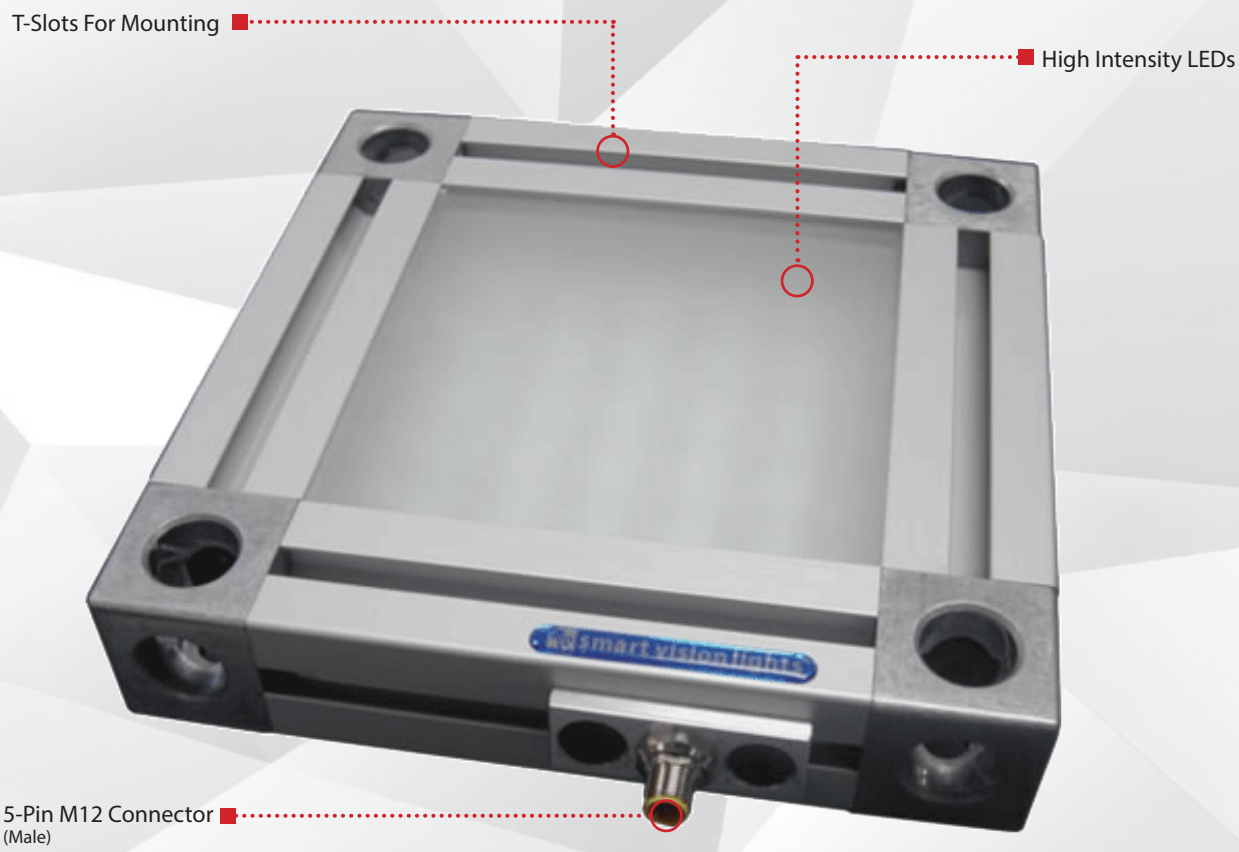
smart vision lights

ODAL *Area Light*

HIGH OUTPUT

OVERDRIVE™

PRODUCT DATA SHEET



OverDRIVE™

Warranty	Tested	Compliant	Rated	Connector
10 YEAR	IEC 62471	CE RoHS	IP 50	5-PIN M12

PRODUCT HIGHLIGHTS

- ✓ OverDrive™ — Up to five times brighter than a standard Area Light
- ✓ 5-pin M12 quick connect
- ✓ SafeStrobe™ technology ensures protected operation of LEDs
- ✓ PNP and NPN trigger signal input

PRODUCT INTRODUCTION

The ODAL Area Light is designed for OverDrive™ strobing and maximum light output. NPN or PNP trigger signal inputs can be used to control the pulse of the light. Intensity of the light can be controlled via 1–10VDC analog signal line. Proper heat dissipation is achieved using the side extrusion and backplate. The 45 mm extrusion makes mounting the light easy when using drop-in T-nuts. The ODAL Area Light has a built-in driver. No external driver is required.

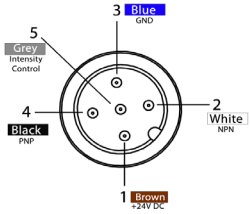
PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/–5%
Strobe Input	PNP: +4VDC to +24VDC to activate | NPN: GND (<1VDC) to activate
PNP Trigger	4 mA @ 4VDC | 10 mA @ 12VDC | 20 mA @ 24VDC
NPN Trigger	15 mA @ Ground (0VDC)
Analog Intensity	The output is adjustable from 10%–100% of brightness by a 1–10VDC analog signal line. Jumpering pin 5 to pin 1will provide maximum intensity.
Strobe/Pulse Time	Max. 4000 SPS (Strobes Per Second) | Max. Single Pulse = 125 ms (See SafeStrobe™ Technology for more information.)
Duty Cycle	Max. 10%
Connection	5-pin M12 connector
Ambient Temperature	-18º–40ºC (0º–104ºF)
IP Rating	IP50
Compliances	CE, RoHS, IEC 62471
Warranty	10 years. For complete warranty information, visit smartvisionlights.com/warranty.

Standard Light Sizes	Input Current	Input Power	Weight
150 mm x 150 mm	Peak 13 A during strobe	312 W	-
300 mm x 150 mm	Peak 18 A during strobe	432 W	~3.04 kg
300 mm x 300 mm*	Peak 12 A per connector during strobe	312 W per connector	–

*The ODAL 300 mm x 300 mm has two connectors and the input current and wattage values are listed per connector.

WIRING CONFIGURATION



Pin layout for light (Male Connector)

Pins	Function	Signal	Wire Color
1	Power In	+24VDC	BROWN
2	NPN	Sinking Signal	WHITE
3	GND	Ground	BLUE
4	PNP	Sourcing Signal	BLACK
5	Intensity Control	1–10VDC	GREY*

** Some cables use green/yellow for pin 5*

OPTIONAL

For maximum intensity, analog intensity may be connected to +VDC (24VDC) - Jumper pin 5 to pin 1

RESOURCE CORNER

Additional resources are available on our website, including CAD files, videos, and application examples.

PART NUMBER

ODAL – □□□x□□□ – □□□

SIZE:
150x150
300x150
300x300

COLOR:
WHI, 470, 505, 530, 625, 850 940

Part Number Examples:
ODAL-150x150-625 ODAL, 150x150, 625 Red Wavelength

The 5-pin M12 connector is located on the width side of the light.
Sizes listed are in millimeters.
Custom sizes available.
Additional wavelengths options available upon request.

LIGHT PATTERNS

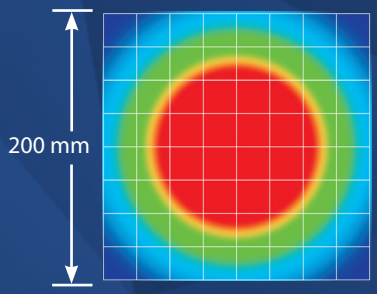
Smart Vision Lights recommends the ODAL be used at a working distance between 300 mm to 4000 mm.

LIGHTING PATTERN FOR THE ODAL

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	120 mm (~4.7") D
1000 mm (39.4")	240 mm (~9.4") D
2000 mm (78.8")	480 mm (~18.9") D

Typical Output Performance	Illumination (Lux)
Distance = 500 mm	7,600
Illumination measurement taken on White Lights - 5700K	

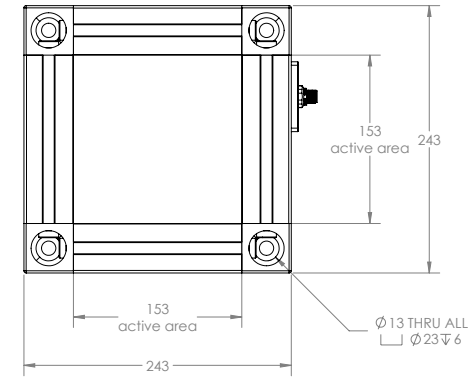
The ODAL Linear Light produces a uniform light pattern.
Working Distance = 500 mm Grid set to 25 mm x 25 mm

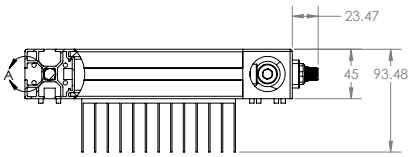


Narrow

PRODUCT DRAWING

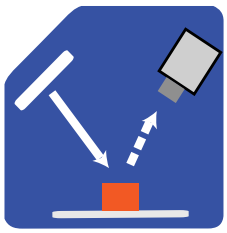
CAD files available on our website.
Dimensions are in mm.



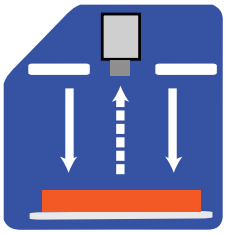


ILLUMINATION

ODAL Series of Lights works best for:



Bright Field



Direct Lighting

EYE SAFETY

According to IEC 62471:2006. Full documentation available upon request.

Notice

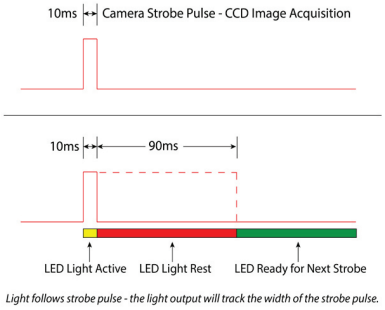
Exempt Group: No photobiological hazard to eyes or skin even for continuous, unrestricted use. Applicable for wavelengths: 625, 850, and 940.

Caution

Risk Group 1: Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to eyes. Safe for most applications except prolonged exposure. Applicable for wavelengths: 470, 505, 530, and WHI.

DUTY CYCLE

The Duty Cycle (D) is related to the Strobe Time (ST) and Rest Time (RT).



Light follows strobe pulse - the light output will track the width of the strobe pulse.

Calculating Rest Time

$$RT = \frac{ST}{D} - ST$$

RT = Rest Time
ST = Strobe Time
D = Duty Cycle

Example

$$90\ ms = \frac{10\ ms}{.1} - 10\ ms$$

Rest Time is 90 ms for 10 ms Strobe Time

Calculating Strobe Rate

$$SR = \frac{D}{ST}$$

SR = Strobe Rate (strobes per second)
ST = Strobe Time (seconds)
D = Duty Cycle

Example

$$1000 = \frac{0.1}{0.0001}$$

Strobe Rate is 1000 strobes per second

Calculating Duty Cycle

$$D = ST \times SR$$

SR = Strobe Rate (strobes per second)
ST = Strobe Time (seconds)
D = Duty Cycle

Example

$$0.1 = 0.0001 \times 1000$$

Duty Cycle is 10% (0.1)

Maximum Duty Cycle for OverDrive™ light is 10% (0.1)

Maximum Strobe Frequency is 1/ calculated duty cycle or 4,000 strobes per second, whichever is less.

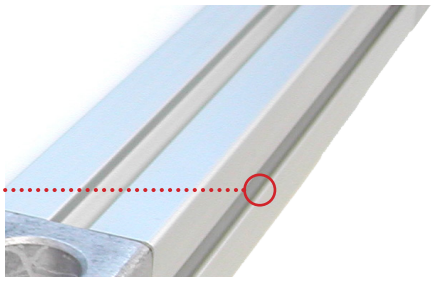
MOUNTING

Smart Vision Lights recommends using drop-in T-nuts for mounting a ODAL Area Light.

NOTE

Removing corner cubes of light may result in voiding of warranty.

Bosch size 10 T-nut channel



ACCESSORIES

Power Cables

Lengths	Part Number
5 m	5PM12-5
10 m	5PM12-10
15 m	5PM12-15

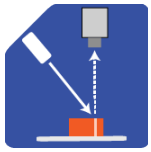
GLOSSARY

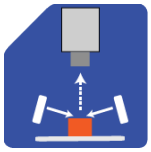
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

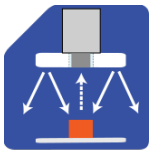
TERMINOLOGY

OverDrive™ Light includes an integrated high-current strobe driver for complete LED light control.
Continuous Operation Light stays on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-current strobe operation) modes into one easy-to-use light.
Built-In Driver The built-in driver allows full function without the need of an external driver.
Camera to Light Connecting the light directly to the camera, without the need for additional controllers or equipment.
Polarizers Filters that reduce reflections on specular surfaces.
Diffuser Used to widen the angle of light emission, reduce reflections, and increase uniformity.

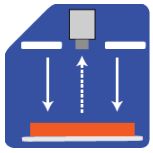
TYPES OF ILLUMINATIONS

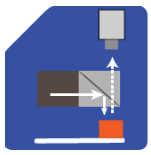

Projector

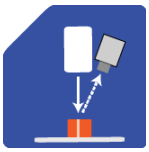

Dark Field

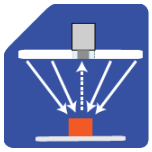

Radial

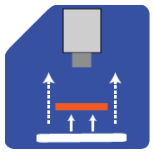
Bright Field


Direct


Axial

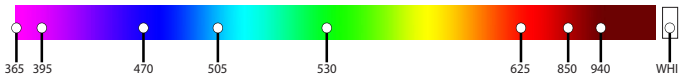

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelength options range from 365 nm to 1550 nm.
Additional wavelengths available for many light families.



*See Part Number section for **this light's** available standard wavelengths.*

SWIR SHORTWAVE INFRARED

Shortwave infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, 1550 nm, and 1650 nm.
*Check Part Number section to see if **this light** is available in SWIR wavelengths.*