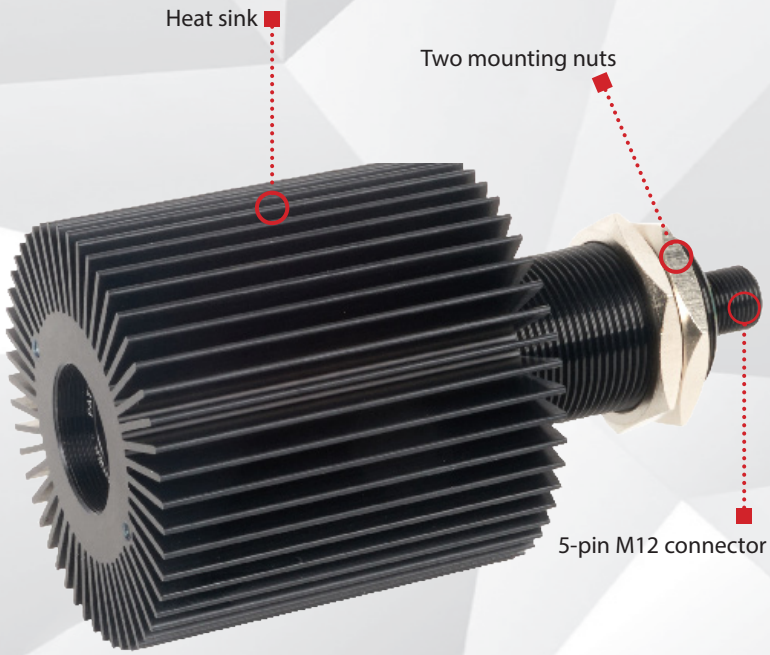
smart vision lights

ODSXP30 *Projector*

SPOTLIGHT

STRUCTURED LIGHT

PRODUCT DATA SHEET



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

PRODUCT HIGHLIGHTS

- ✓ Built-in driver, no external wiring to driver needed
- ✓ PNP and NPN strobe input
- ✓ Multiple interchangeable patterns available
- ✓ Standard c-mount lens options available

PRODUCT DESCRIPTION

ODSXP30

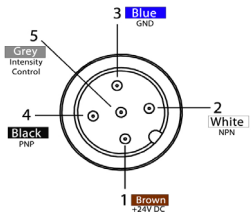
The ODSXP30 Series Projector Spot Light offers the most intense projected pattern offered from an LED. The 9mm^2 die size emits 9x the intensity as a standard high output LED. The housing is constructed of a finned aluminum heat sink and designed to dissipate as much heat as possible therefore allowing the LED to be run at a much higher current than the standard 1mm^2 die LED's. Multiple interchangeable pattern styles are available along with optional custom patterns. The ODSXP30 Series is able to project a thinner and more define pattern of light compared to laser projectors making the ODSXP30 a more accurate light.

PRODUCT SPECIFICATIONS

ODSXP30

Electrical Input	24VDC +/- 5%
Input Power	Peak 6 A during strobe
Input Current	Peak 114 W during strobe
Trigger Input	PNP > +4 VDC (24 VDC max.) to activate **or** NPN ≥ GND <1VDC to activate **(not both)**
PNP Trigger	2.8 mA @ 4VDC | 8.8 mA @ 12VDC | 17.6 mA @ 24VDC
NPN Trigger	14.4 mA @ Ground (0VDC)
Strobe Duration	Min. 30 us | Max. 125 ms
Red Indicator LED	LED Strobe Indicator ON = Light Active
Green Indicator LED	ON = Power
Analog Intensity	The output is adjustable from 10–100% of brightness by a 1–10VDC signal. (Jumpering pin 5 to pin 1 will provide maximum intensity)
Connection	5-pin M12 connector
Ambient Temperature	-18º–40º C (0º–104º F)
IP Rating	IP50
Weight	~413g
Compliances	CE, RoHS, IEC 62471

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	OverDrive™ Signal	1–10VDC	GREY *

* Some cables use green/yellow for 1-10V adjustment

For maximum intensity, it is possible to tie pin 5 to pin 1 at +24VDC.

For proper light function, apply either a PNP or NPN signal, not both.

Failure to supply light with correct input current will result in inconsistent lighting behavior.

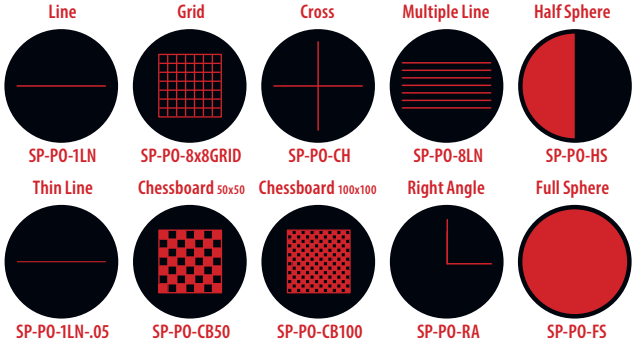
(see Product Specifications for requirements)

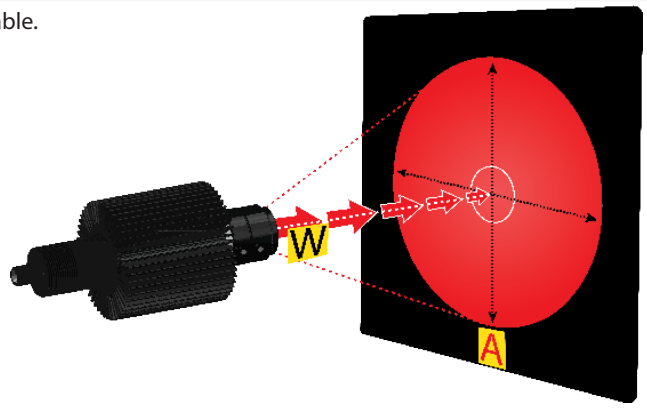
RESOURCE CORNER

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

LENSES AND PATTERNS

Standard patterns are available to be etched. Patterns are interchangeable.

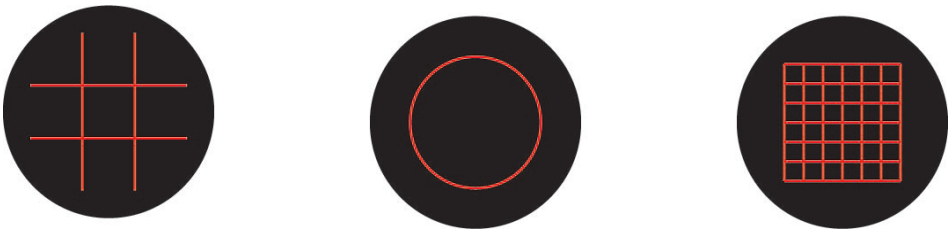




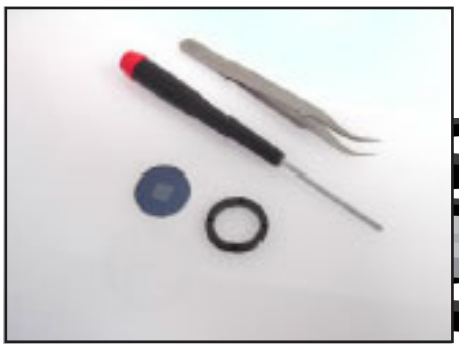
Lenses	
Part #	**Description**
CLENS0006	Tamron 1/1.8" Format 2MP 6mm Megapixel Lens
CLENS0008	Tamron 1/1.8" Format 2MP 8mm Megapixel Lens
CLENS00012	Tamron 1/1.8" Format 2MP 12mm Megapixel Lens
CLENS00016	Tamron 1/1.8" Format 2MP 16mm Megapixel Lens
CLENS00025	Tamron 1/1.8" 25 mm F/1.6 with Lock for Megapixel Cameras
CLENS00050	Tamron CCTV 50mm Lens

CUSTOM PATTERNS

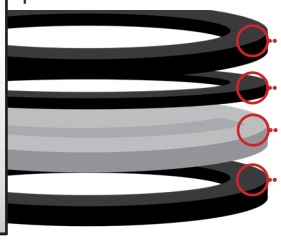
Custom patterns are available upon request.



PATTERN REPLACEMENT



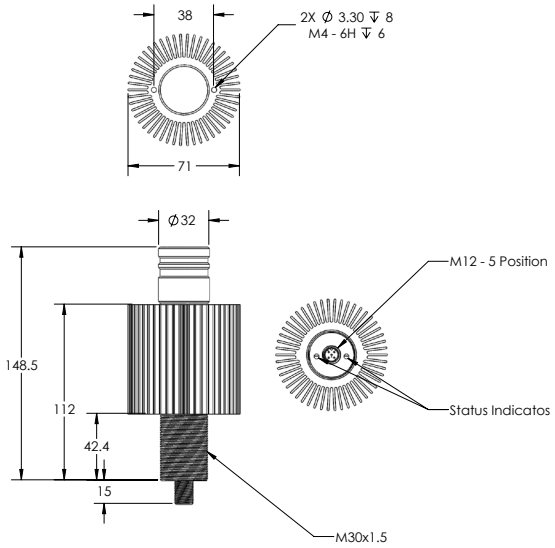
Screwdriver or tweezers are recommended to remove retaining ring, but **are not included**. Retaining Ring will turn clockwise to install and counter-clockwise to remove. There are two small holes and two slots in ring to install/remove. Install the shiny metal side of pattern towards the LED



- Retainer Ring on top holding pattern
- O-ring
- Pattern - Remove and replace shiny side toward LED
- Master Retainer Ring located in base of projector **DO NOT REMOVE!**

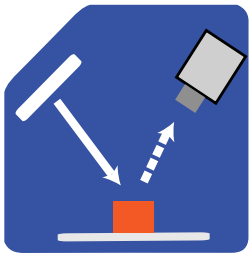
PRODUCT DRAWING

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

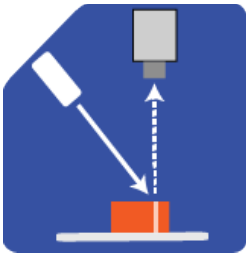


ILLUMINATION

ODSXP30 Series of Projector Spot Lights works best for:



Bright Field

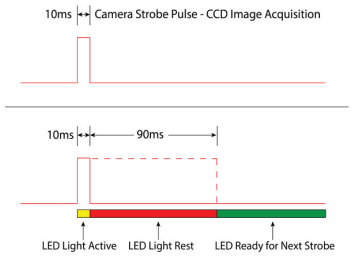


Projector

DUTY CYCLE

This section applies only if light is in OverDrive™ strobe mode.

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

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

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.

EYE SAFETY

SMART VISION LIGHTS IEC 62471 COMPLIANT

According to IEC 62471:2006. Full documentation upon request with purchase of product.

Notice

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

Caution

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

PART NUMBER

ODSXP30 – □□□

COLOR:

WHI 470 530 625

Additional wavelengths options available upon request.

Part Number Examples:

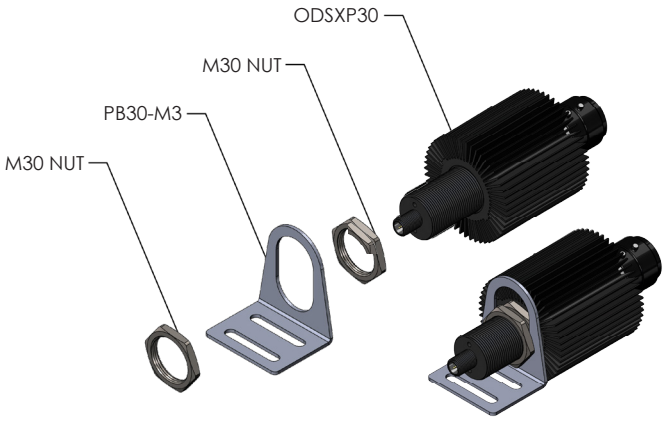
ODSXP30-625 ODSXP30, 625 nm Red Wavelength

MOUNTING

Two M30 nuts for mounting are included with the light.

Example of the ODSXP30 shown using the Slotted Right Angle mount (**Part Number: PB30-M3**).

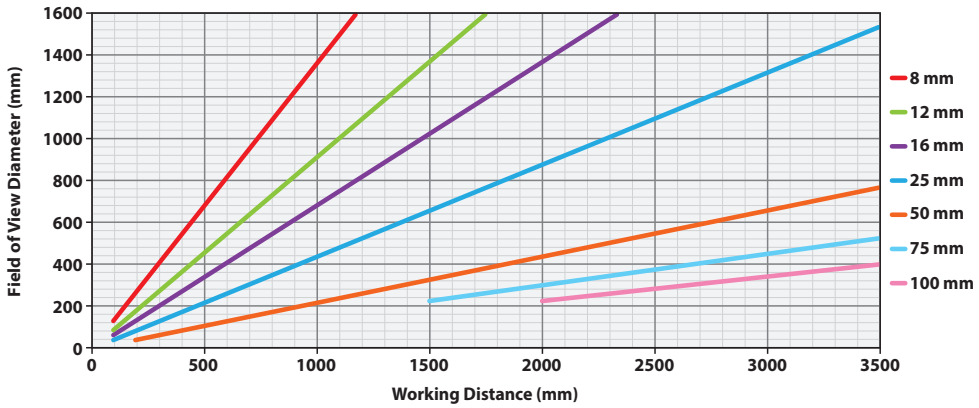
See accessories for additional mounting options.



STANDARD LENS CONFIGURATION

For lens options using a standard configuration use chart 1.

CHART 1: FOV-VS-WD
For Different FL Lenses



FOV = Field of View Diameter
FL = Focal Length
WD = Working Distance
PS = Pattern Size
M = Magnification

To estimate the Focal Length (FL) required for Working Distance (WD) and Field of View (FOV).

1. Use Chart 1 to estimate the Focal Length (FL) required for Working Distance (WD) and Field of View (FOV).
2. Use the equations below to determine the pattern size (PS), magnification, FOV, and FL relations

Magnification	**Focal Length**
M = FOV/PS	M = WD/FL

For estimation only. User should determine best spacer/lensing options for application.

If the required Working Distance (WD) and/or Field of View (FOV) cannot be achieved with the standard view configuration (Chart 1), use chart 2 or chart 3 to help determine the spacer and lens combination.

CHART 2: Working Distance Using Lens Spacers

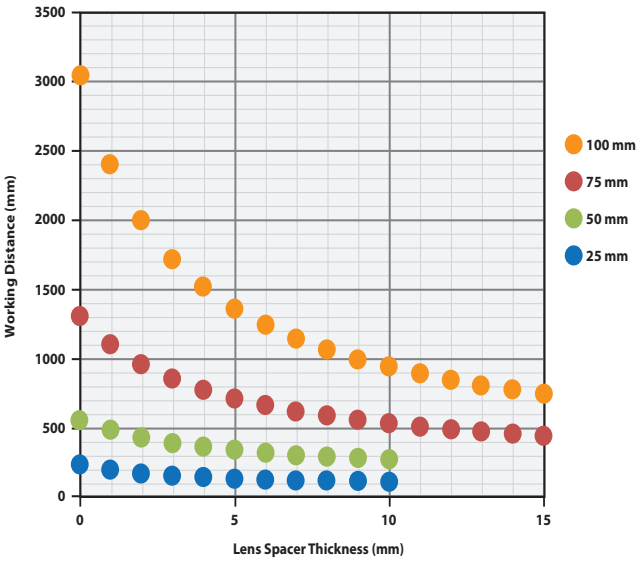
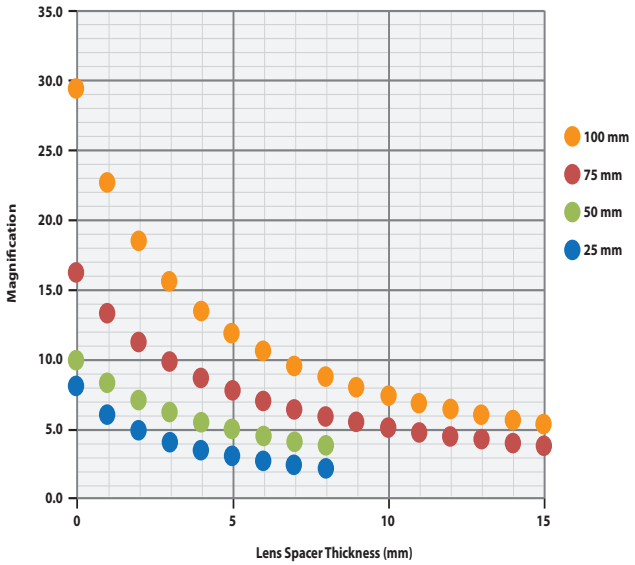


CHART 3: Projected Pattern Magnification Using Lens Spacers



For estimation only. User should determine best spacer/lensing options for application.

ACCESSORIES

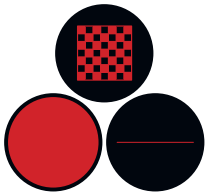
Power Cables

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

Lenses

Part Number
*see lenses and patterns section for options

Patterns



Part Number
*see lenses and patterns section for options

Lens Spacers

Lens Spacer Size	Part Number
0.5 mm	LENS SPACER-0.5
1.0 mm	LENS SPACER-1.0
2.0 mm	LENS SPACER-2.0
5.0 mm	LENS SPACER-5.0
10.0 mm	LENS SPACER-10.0
15.0 mm	LENS SPACER-15.0
20.0 mm	LENS SPACER-20.0
25.0 mm	LENS SPACER-25.0
30.0 mm	LENS SPACER-30.0
35.0 mm	LENS SPACER-35.0
40.0 mm	LENS SPACER-40.0
45.0 mm	LENS SPACER-45.0
50.0 mm	LENS SPACER-50.0

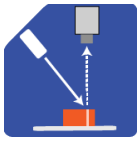
GLOSSARY

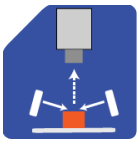
This glossary covers all Smart Vision Lights product families; some content in this section may not apply to this specific light.

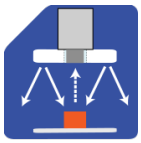
TERMINOLOGY

OverDrive™ Lights include an integrated high-pulse driver for complete LED light control.
Continuous Operation Lights stay on continuously.
Multi-Drive™ Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
Built-in Driver The built-in driver allows full function without the need of an external controller.
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.

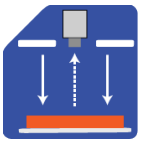
TYPES OF ILLUMINATIONS

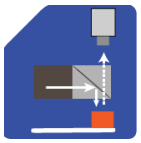

Projector

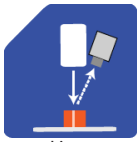

Dark Field

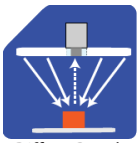

Radial

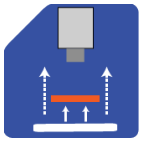
Bright Field


Direct


Axial

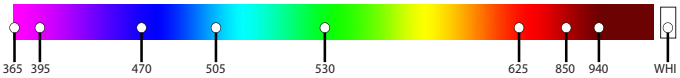

Line


Diffuse Panel


Backlight

COLOR/WAVELENGTHS LEGEND

Wavelengths 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.*

SHORTWAVE **INFRARED**

Shortwave Infrared LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.