smart vision lights

# SXP30 *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

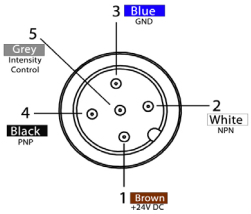
## PRODUCT DESCRIPTION

The SXP30 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 SXP30 Series is able to project a thinner and more define pattern of light compared to laser projectors making the SXP30 a more accurate light.

## PRODUCT SPECIFICATIONS

| | |
|---|---|
| Electrical Input | 24VDC +/- 5% |
| Input Current | Max. 600 mA |
| Input Power | Max. 6 W |
| Trigger Input | PNP > +4VDC or greater to activate \| NPN > GND (<1VDC) to activate |
| PNP Trigger | 2.8 mA @ 4VDC \| 8.8 mA @ 12VDC \| 17.6 mA @ 24VDC |
| NPN Trigger | 14.4 mA @ Ground (0VDC) |
| Continuous Mode | NPN can be tied to ground **OR** PNP can be tied to 24VDC (not both) |
| 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 |
| Warranty | 10 years; see smartvisionlights.com/warranty for more information. |

## 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 1-10V adjustment

**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)*

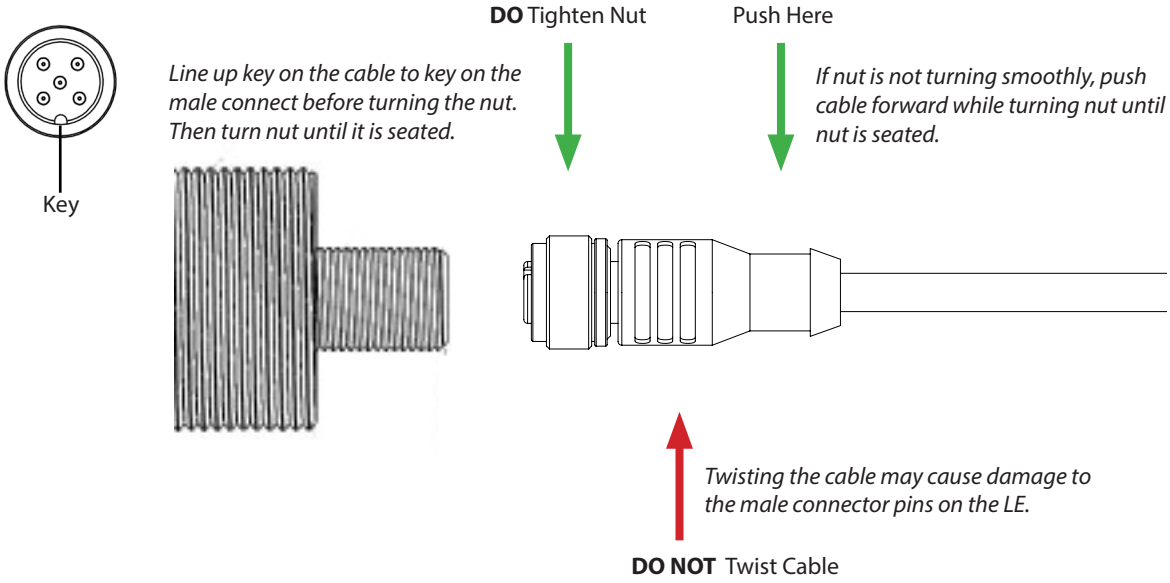
## RESOURCE CORNER

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

# CONNECTING A 5-PIN M12 CABLE

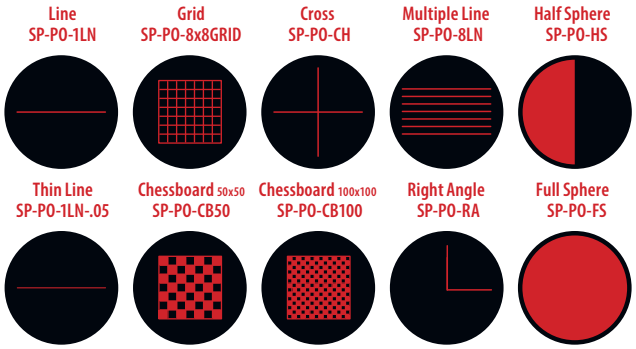
**WARNING:**

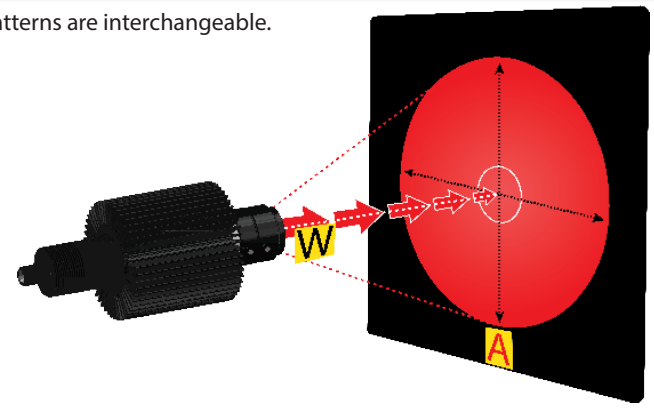
**When connecting a 5-pin M12 cable to the male connector on the SXP30, do not twist the cable. Tighten the nut only. Twisting the cable may result in damage to the pins.**



# LENSES AND PATTERNS

Standard patterns are available and custom patterns can be etched. Patterns are interchangeable.

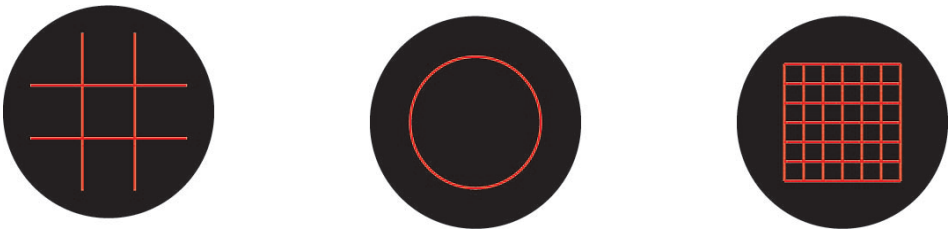


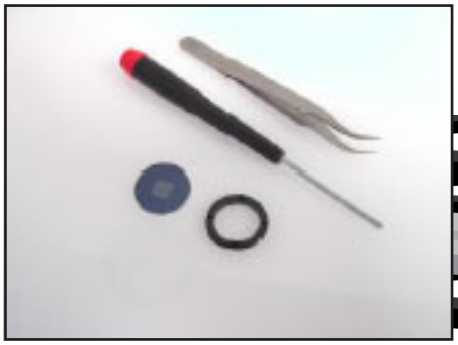

| Lenses | |
|---|---|
| **Part #** | **Description** |
| **CLENS0006** | Tamron 1/1.8" Format 2MP 6mm Megapixel Lens |
| **CLENS0008** | Tamron 1/1.8" Format 2MP 8mm Megapixel Lens |
| **CLENS00012** | Tamron 1/1.8" Format 2MP 12mm Megapixel Lens |
| **CLENS00016** | Tamron 1/1.8" Format 2MP 16mm Megapixel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

# CUSTOM PATTERNS

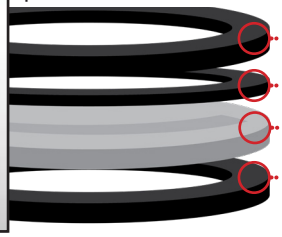
Custom patterns are available upon request.



# PATTERN REPLACEMENT



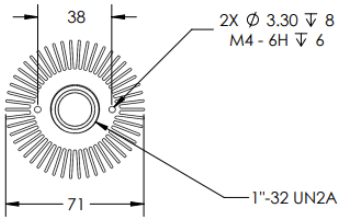
Screwdriver or tweezers are recommended to remove retaining ring, but **are not included**. Retaining Ring will turn clockwise to install and counter-clockwise to remove. There are two small holes and two slots in ring to install/remove. Install the shiny metal side of pattern towards the LED

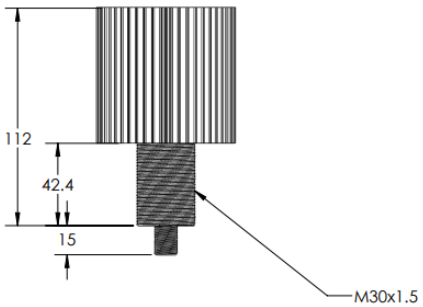


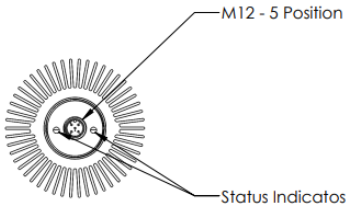
- Retainer Ring on top holding pattern
- O-ring
- Pattern - Remove and replace shiny side toward LED
- Master Retainer Ring located in base of projector **DO NOT REMOVE!**

## PRODUCT DRAWING

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

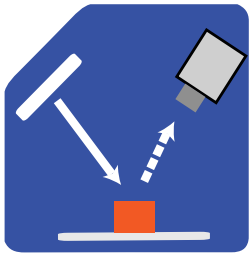


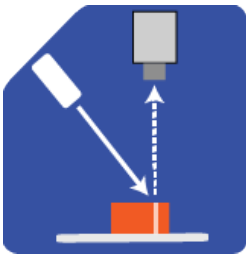




## ILLUMINATION

SXP30 Series of Projector Spot Lights works best for:



Bright Field



Projector

## EYE SAFETY

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 wavelength 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

**SXP30 – □□□**

**COLOR:**

WHI 470 530 625

**Part Number Examples:**

**SXP30-625** SXP30, 625 nm Red Wavelength

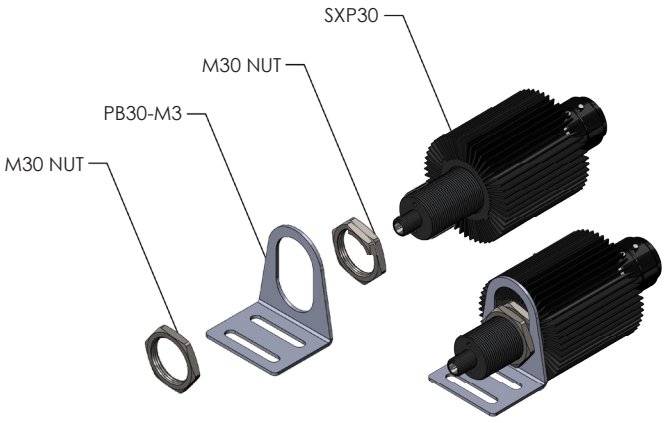
*Additional wavelengths options available upon request.*

## MOUNTING

Two M30 nuts for mounting are included with the light.

Example of the SXP30 shown using the Slotted Right Angle mount (**Part Number: PB30-M3**).

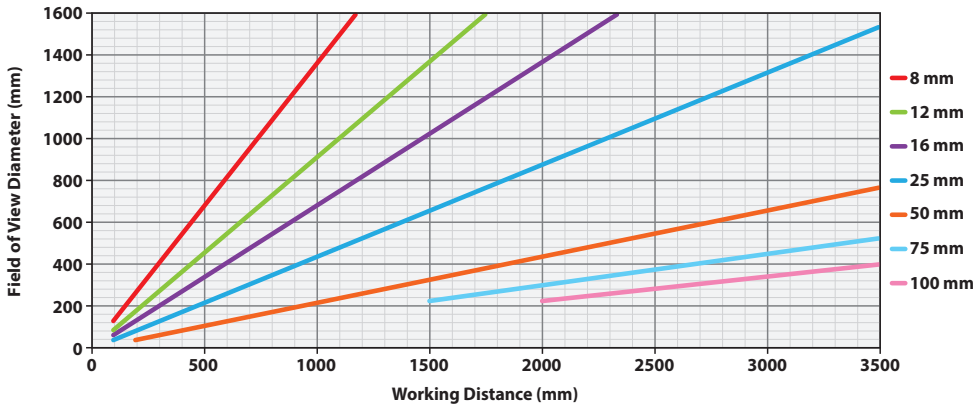
See accessories for additional mounting options.



# 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.**

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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**

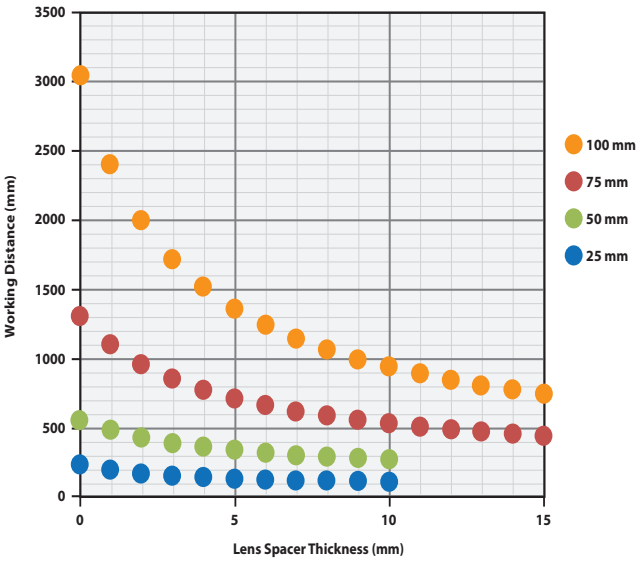
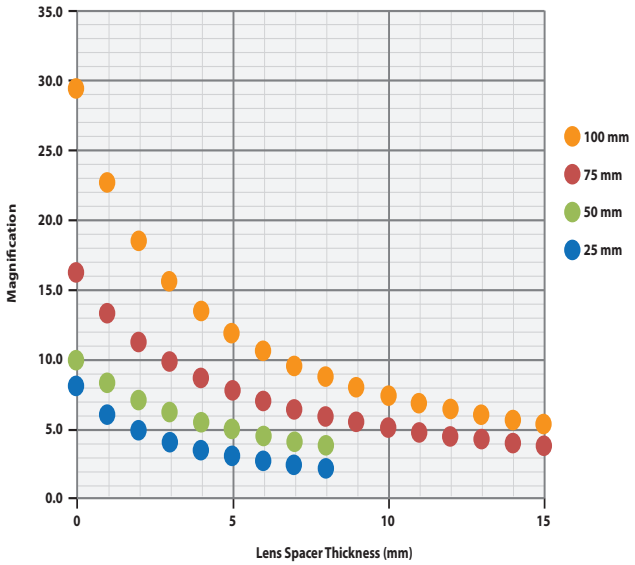



**CHART 3: Projected Pattern Magnification Using Lens Spacers**




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

# ACCESSORIES

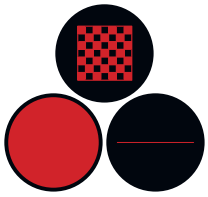
## Power Cables

| 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 |

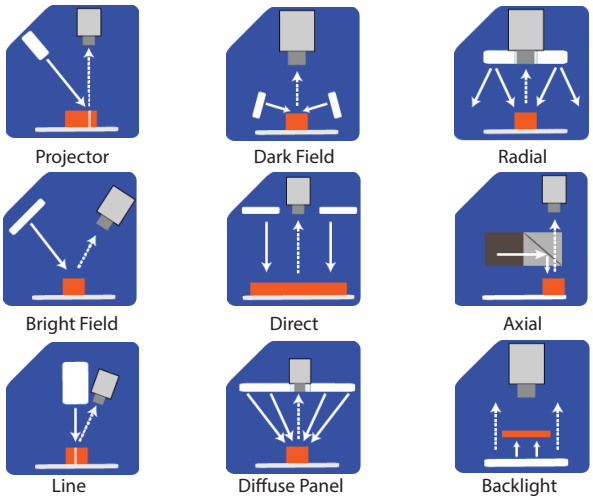
# GLOSSARY

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

## TERMINOLOGY

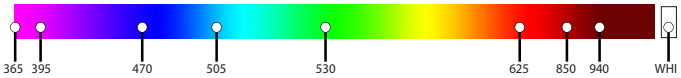
**OverDrive™** Lights include an integrated high-pulse driver for complete LED light control.
**Continuous Operation** Lights stay on continuously.
**Multi-Drive™** Combines continuous operation and OverDrive™ strobe (high-pulse operation) mode into one easy-to-use light.
**Built-in Driver** The built-in 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




## 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.*

SWIR SHORT WAVE **INFRARED**

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