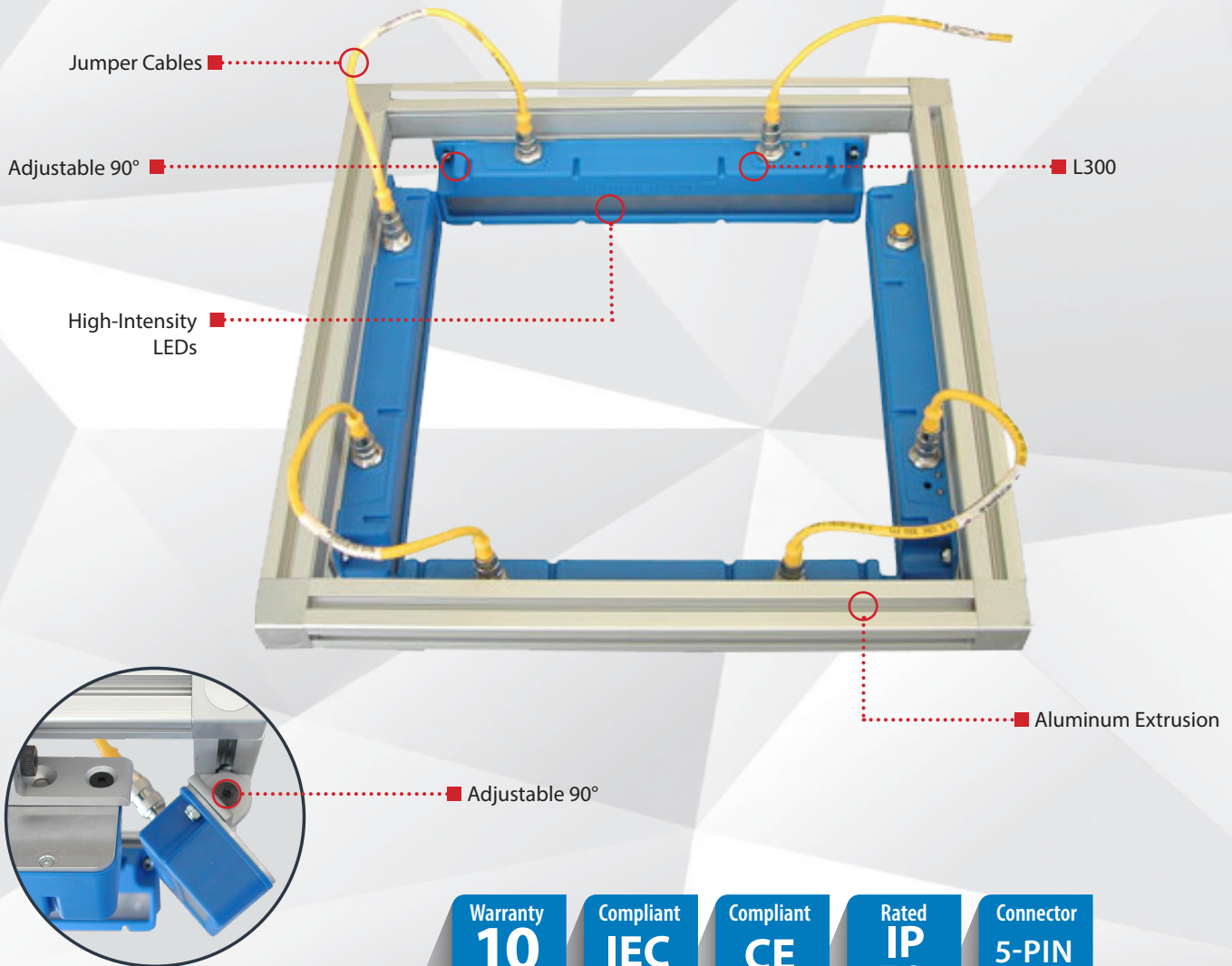


### P R O D U C T D A T A S H E E T



## PRODUCT HIGHLIGHTS

- ✓ Built-in driver, no external wiring needed
- ✓ PNP and NPN strobe input
- ✓ T-Slot for mounting and connecting together
- ✓ Adjustable lights on aluminum extrusion
- ✓ 300x300mm or 600x600mm Area

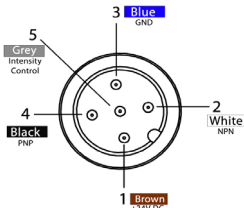
## PRODUCT DESCRIPTION

The Adjustable Dark Field Ring acts as a mount to daisy chain linear lights together in a square pattern. Users can attach up to 4 linear lights. Light features a 360° illumination field with two available sizes. In strobing application, all lights will pulse at the same time with either the NPN or PNP signal input. Each individual light has a manual intensity adjustment or automatically dim all four via the 1-10V analog intensity control.

## PRODUCT SPECIFICATIONS

Electrical Input	24VDC +/- 5%
Input Current	Max. 2A
Input Power	Max. 48 W
PNP Trigger	2.8 mA @ 4VDC   8.8 mA @ 12VDC   17.6 mA @ 24VDC
NPN Trigger	14.4 mA @ Ground (0VDC)
Trigger Input	PNP > +4 VDC (24 VDC max.) to activate <b>or</b> NPN ≥ GND <1VDC to activate ( <b>not both</b> )
Strobe Duration	Min. 30 μs   Max. ∞
Power Indicator	Turns green when powered up
Status Indicators	Strobe indicator will turn yellow when on
Intensity Limit	270° turn pot – Turn clockwise to increases intensity limit.
Analog Intensity	The output is adjustable from 10–100% of intensity limit by a 1–10VDC signal. Jumping pin 5 to pin 1 will provide maximum intensity
Connection	5-pin M12 connector
Operating Temperature	-10° to 40° C (14° to 104° F)   RH max 80% non-condensing humidity
Storage Temperature	-20° to 70° C (-4° to 158° F)   RH max 80% non-condensing humidity
IP Rating	IP50
Weight	~455g
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 Strobe	GND for active ON	WHITE
3	Ground	GND	BLUE
4	PNP Strobe	+24VDC for active on	BROWN
5	Intensity Control	1-10VDC	GREY

\* Some cables use green/yellow for pin 5

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

For continuous mode: PNP (pin 4) can be tied to +24VDC (pin 1) **or** NPN (pin 2) can be tied to Ground (pin 3).

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



## LIGHT PATTERNS

Smart Vision Lights recommends the DFL be used at a working distance between 300 mm to 1000 mm.

\*Note: measurements are based on one L300.

### LIGHTING PATTERN FOR THE DFL **with Narrow (Standard) Lenses**

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	150 mm (~5.9") H x 150 mm (~5.9") V

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	13,000
<i>Illumination measurement taken on White Lights - 6500K</i>	

### LIGHTING PATTERN FOR THE DFL **with Wide (W) Lenses**

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	275 mm (~10.8") H x 275 mm (~10.8") V

Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	8,000
<i>Illumination measurement taken on White Lights - 6500K</i>	

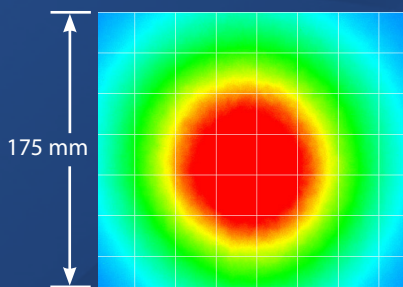
### LIGHTING PATTERN FOR THE DFL **with Line (L) Lenses**

Working Distance mm (inches)	Pattern (80% - 100% measured intensity) mm (inches)
500 mm (19.7")	290 mm (~12.2") H x 55 mm (~2.1") V

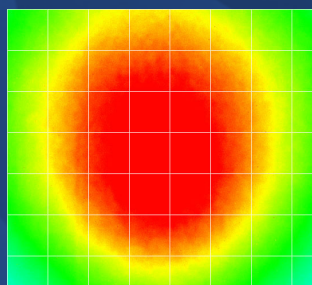
Typical Output Performance	Illuminance (Lux)
Distance = 500 mm	19,000
<i>Illumination measurement taken on White Lights - 6500K</i>	

## The DFL Linear Light produces a uniform light pattern.

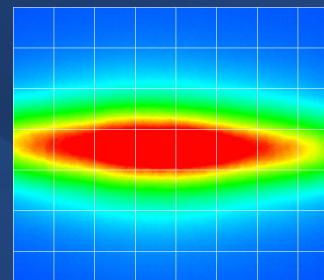
Working Distance = 500 mm Grid set to 25 mm x 25 mm



Narrow



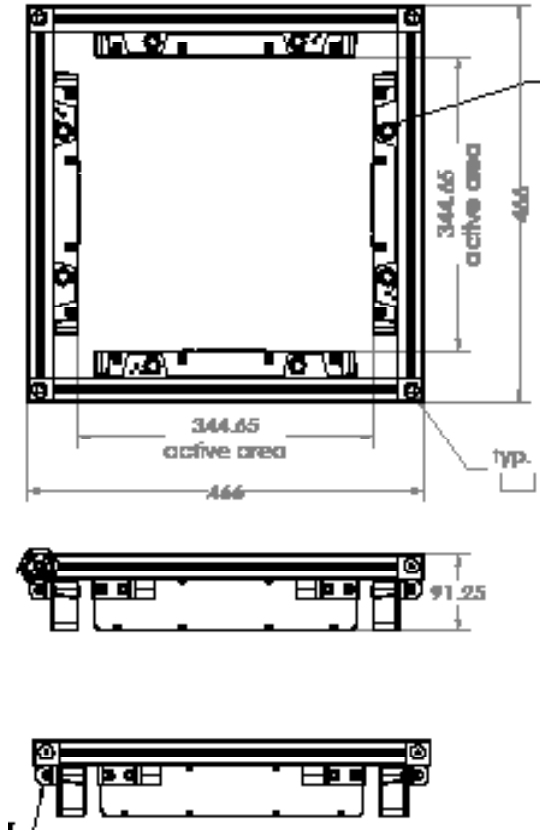
Wide



Line

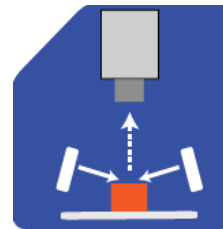
## PRODUCT DRAWING

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



## ILLUMINATION

DFL Series of Linear Lights works best for:



Dark Field

## EYE SAFETY

According to IEC-62471:2006. Full documentation available 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, 850, and 940.

### Caution

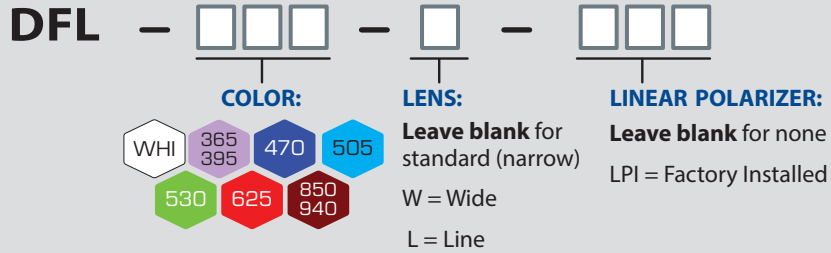
**Risk Group 1:** Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to eyes. Safe for most applications except prolonged exposure. Applicable for wavelengths: 470, 505, 530, and WHI.

### Caution

**Risk Group 2:** UV emitted from this product. Eye or skin irritation may result from exposure. Use appropriate shielding. Does not pose optical hazard if aversion responses limit exposure. Applicable for wavelengths: 365 and 395.



## PART NUMBER



### Part Number Examples:

- DFL-625** DFL, 625 nm Red Wavelength, Standard (Narrow) Lenses
- DFL-WHI-L** DFL, White, Line Lenses
- DFL-470-W-LPI** DFL, 470 nm Blue Wavelength, Wide Lenses, with Linear Polarizer installed

*\* Line lens optic not available for UV wavelengths  
Additional wavelengths and lens options available upon request*



## STANDARD LENS OPTICS

### NARROW

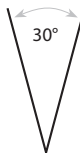
**Narrow lenses are standard.**

Narrow, 14° angle cone lenses are standard. Standard lenses project a narrow beam of illumination and are used for long working distances.



### WIDE

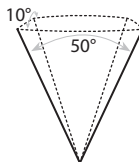
Wide, 30° angle cone lenses project a large area of illumination. They create a floodlight effect, can be used for short working distances.



### LINE

Line, with a 10° width and a 50° fan angle projects a thin, narrow beam of illumination.

*\* Additional lens options available upon request.*



### When to Use a Linear Polarizers?

Polarizing filters can reduce reflections on specular (Dielectric or non-metal) surfaces.

A Linear Polarizer has a typical transmission of 38% while blocking 62% of the light not in the polarization plane.

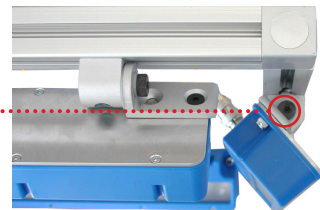
**WARNING:** Running a light in continuous operation while using a standard polarizer with certain wavelengths (ex. white, blue) may result in burning of the polarizer.



## ADD-ONS/ACCESSORIES/FEATURES

Lights adjustable 90 degrees - Full vertical to horizontal swing  
The DFL daisy chains up to four lights together using the 5 pin 5PM12-J1000

Adjustable 90°





## ACCESSORIES

### Jumper Cables (Daisy Chain)



Lengths	Part Number
300 mm	5PM12-J300
1000 mm	5PM12-J1000
2000 mm	5PM12-J2000

### 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™** 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.

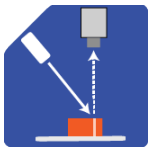
**Built-in Driver** The built-in driver allows full function without the need of an external controller.

**Camera to Light** Connecting the light directly to the camera, without the need for additional controllers or equipment.

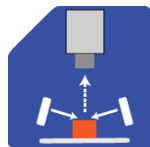
**Polarizers** Filters that reduce reflections on specular surfaces.

**Diffuser** Used to widen the angle of light emission, reduce reflections, and increase uniformity.

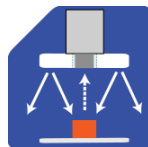
### TYPES OF ILLUMINATION



Projector



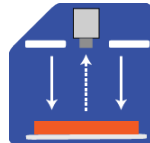
Dark Field



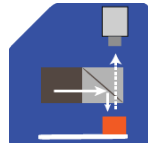
Radial



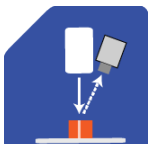
Bright Field



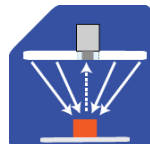
Direct



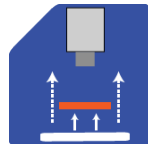
Axial



Line



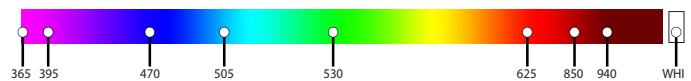
Diffuse Panel



Backlight

### COMMON 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 LEDs are available in 1050 nm, 1200 nm, 1300 nm, 1450 nm, and 1550 nm.\*

\*Check Part Number section to see if **this light** is available in SWIR wavelengths.