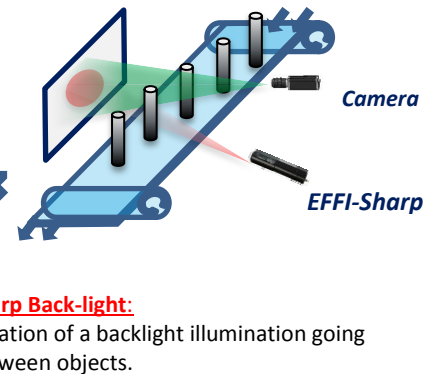
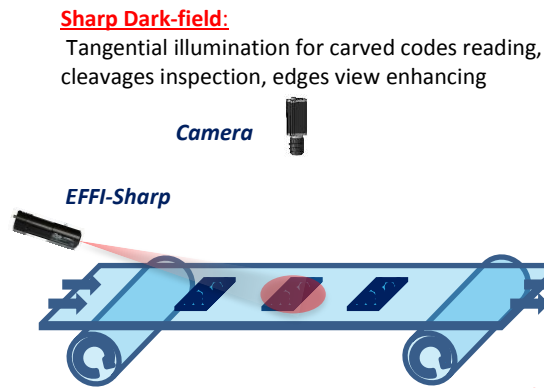
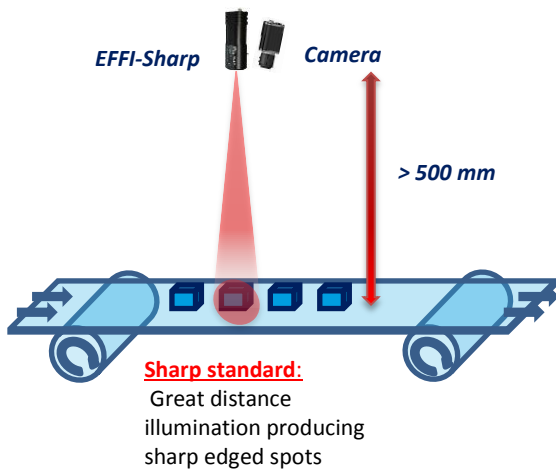


# LED Pattern projector EFFI-Sharp

- **Intense and homogeneous spot light**
- **Standard connections and fasteners**
- **Flexible:**
  - Adjustable **working distance** [50mm,2000mm]
  - Adjustable **illuminated area** [100mm<sup>2</sup>,1m<sup>2</sup>]
  - Full range of colors: **from UV to IR, white**
  - Various **projected patterns**
- **Long lifetime** and few maintenance



## APPLICATIONS:

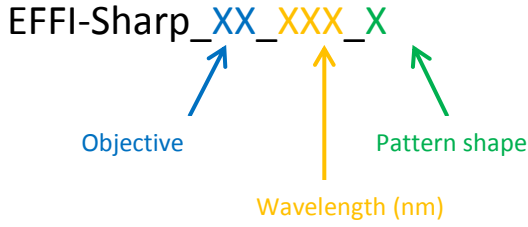


## OVERVIEW OF THE CHARACTERISTICS

<b>Electronics</b>	<i>Power supply</i>	24V DC or constant current
	<i>Illumination mode</i>	Continuous or strobe modes
	<i>Connectors</i>	M12 4 pins or M8 3 pins
	<i>Power consumption</i>	5W
<b>Optics</b>	<i>Wavelength</i>	Various wavelengths (from UV to IR, white)
	<i>Projection system</i>	Near Field, Middle Field, Far Field and any C-mount objective
	<i>Projected pattern</i>	Circular, square and custom patterns
<b>Mechanics</b>	<i>Maximum dimensions</i>	32mm x 160mm
	<i>Focusing adjustment</i>	A M3 screw on the objective
	<i>Fastener</i>	4 M4 holes on the side of the device
	<i>Material</i>	Device body : Aluminum alloy
<b>Environment</b>	<i>Working temperature</i>	0°C to 50°C
	<i>IP code</i>	IP54

# TECHNICAL CHARACTERISTICS

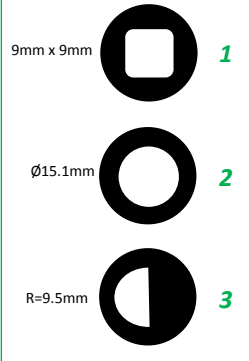
## How to create the EFFI-Sharp?



Near Field: **NF** for WD=[100;800]mm  
 Middle Field: **MF** for WD=[400;1600]mm  
 Far Field: **FF** for WD=[500;1800]mm  
 C-mount: **CM** to adjust any C-mount objective

### Available wavelengths:

- White: **000**
- Far UV: **365**
- Near UV: **405**
- Blue: **465**
- Green: **525**
- Red: **625**
- Infrared: **850**



Available options:

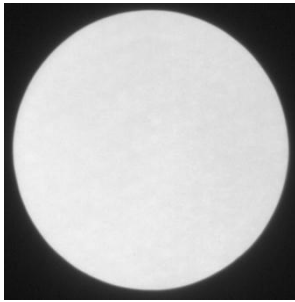
- Add a 'P' to integrate a polarizer
- Add a 'S' to strobe the device

**Example:** EFFI-Sharp\_NF\_000\_2\_P\_S

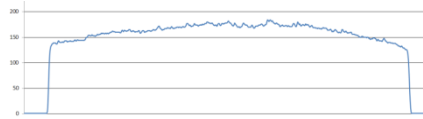
Other wavelengths and patterns are available upon request

## Optical characteristics

### Uniformity of the pattern



Horizontal profile

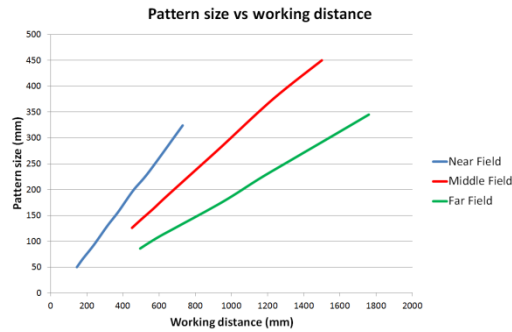


Vertical profile

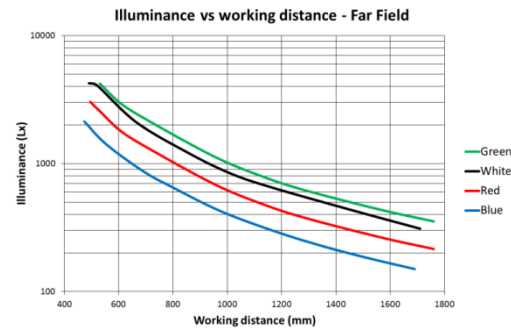
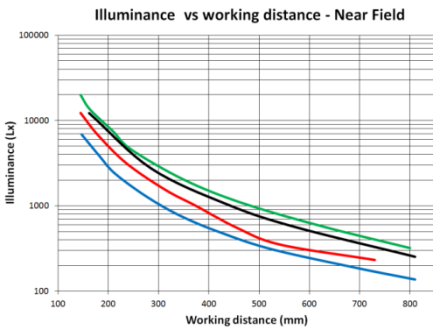


Uniformity larger than 80%

### Pattern size and illuminance with the working distance



NB : Measurements achieved with a rounded pattern (Ø15mm)

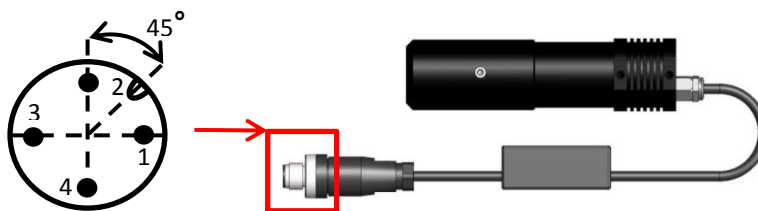


## Electrical characteristics

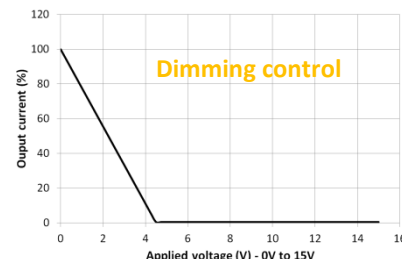
### Standard connection

The EFFI-Sharp is supplied using the EFFI-Supply Wire (bolted on the projector) and a 24V constant voltage.

Pin number	Cable color	Designation
1	Brown	+24V
2	White	n.a.
3	Blue	GND
4	Black	DIM – max 15V



**Make sure that you never exceed the maximum voltage.**  
**The device is supplied with a 24V (±5%) constant voltage source.**



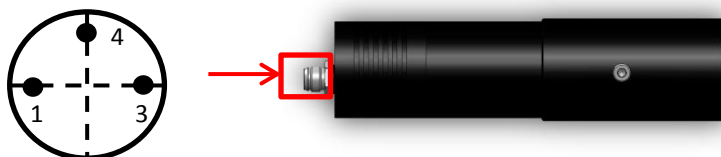
### Connection with a current source

A current source, with the correct settings and the correct wires, can be used to supply EFFI-Sharp in a pulsed mode: contact EFFILUX technical support for complete details.



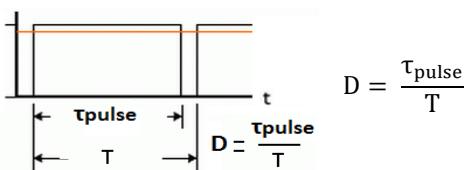
**Be aware that the current source option cannot be used with the EFFI-Supply Wire but needs a specific M8 connector.**

Pin number	Cable color	Designation
1	Brown	n.a.
3	Blue	+
4	Black	GND



The projector, supplied with a 700mA constant current is considered as the reference. The frequency of the cycle (ON & OFF) has been fixed to 10Hz.

The maximal duty cycle, D, dependent on the injected current, required to safely pulse the LED projector is defined by:



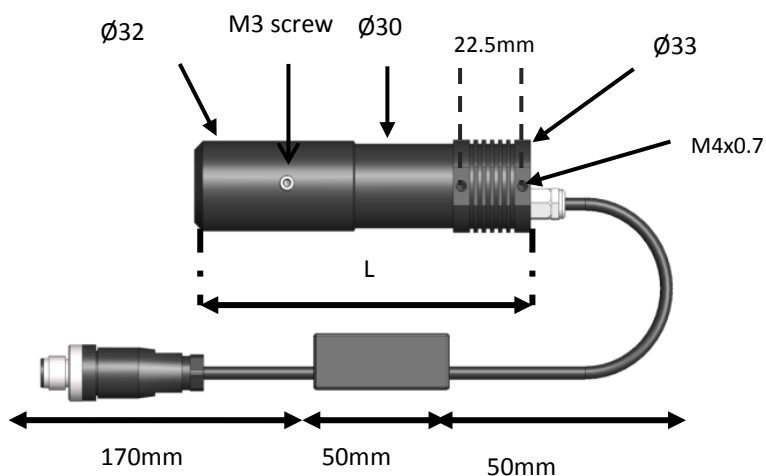
Be aware that the maximum duty cycle for a given current, given in the following table, cannot be exceeded.

Configuration	Current	Max pulse duration (μs)	D	G <sub>max</sub>	400nm	460nm	525nm	590nm	625nm	850nm	White
1	1.2A	50000	0.5								
2	1.5A	10000	0.1	Configuration 1	1,5	1,4	1,4	1,5	1,6	1,5	1,4
3	2A	1000	0.01	Configuration 2	2	1,8	1,7	2,1	2	1,8	1,7
4	2.5A	100	0.001	Configuration 3	2,6	2,2	2,1	2,7	2,6	2,4	2
5	3.5A	40	0.0004	Configuration 4	3,2	2,6	2,3	3,4	3,2	2,9	2,4
				Configuration 5	4	3,1	2,9	4	4,4	3,6	2,8

$$G_{max} = \frac{\text{luminous flux } (I_{max})}{\text{luminous flux } (I_{700mA})}$$

## Mechanical considerations

### Dimensions



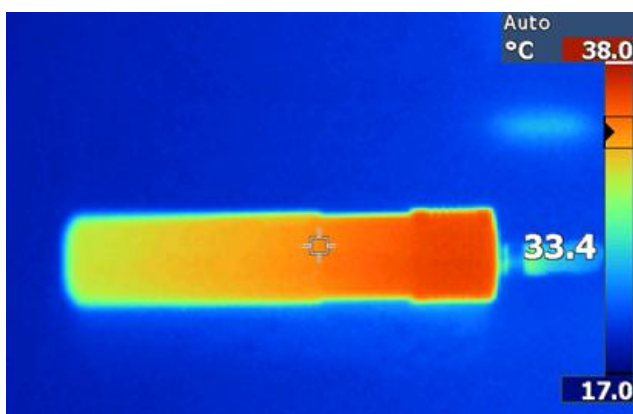
*NB: Our accessories can be used to simply your set up.*

	Near Field	Middle Field	Far Field
<b>Min L</b>	110mm	116 mm	132mm
<b>Max L</b>	120mm	132 mm	166mm

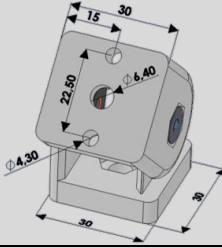

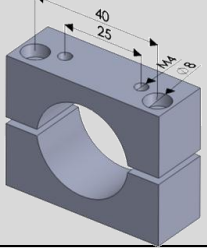

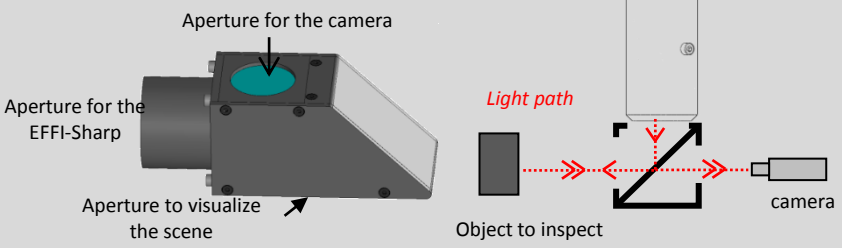
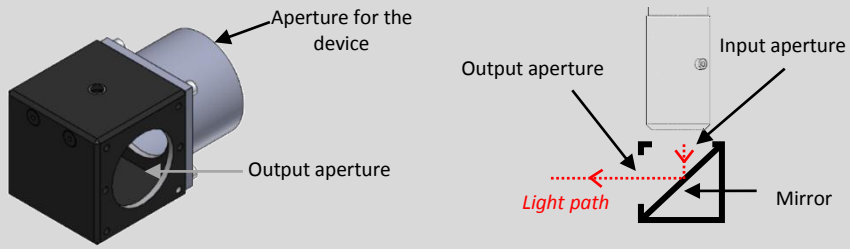
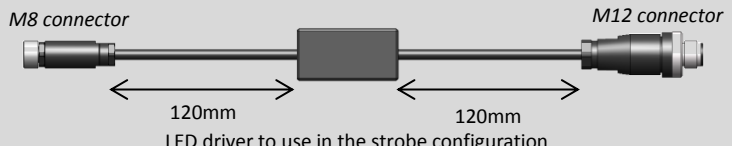
A sharp image is obtained by turning the device's ring in one or another direction until the image is in focus (first, loose carefully the M3 screw present on the objective tube).

### Thermal considerations

Thanks to its design, the heat is efficiently dissipated from the LED.



## ACCESSORIES

	EFFILUX reference	Description
Mechanics	EFFM_1_0009	 <p>Fastener used to simplify the projector integration (orientation) <i>Delivered with 2 M4x12 screws</i></p> 
	EFFM_1_0001	 <p>Fastener used to simplify the projector integration <i>Delivered with 2 M4x20 screws</i></p> 
Optics	EFFO-Polariser_0004	Polarizer integrated in the projector to polarize the output light
	EFFO_0007	<p>Coaxial accessory without ghost effect</p>  <p>Aperture for the camera Aperture for the EFFI-Sharp Aperture to visualize the scene Object to inspect camera Light path</p>
	EFFO_0006	<p>Provides a 90° angle between the light source and the illuminated area</p>  <p>Aperture for the device Output aperture Input aperture Mirror Light path</p>
Electronics	EFFC-Cable_M12_0002 Binder: 79 3430 13 04	M12 cable, 4 pins, 2000mm long
	EFFC-Cable_M12_0003 Binder: 79 3430 17 04	M12 cable, 4 pins, 5000mm long
	EFFC-Cable_M12_0004 Binder: 79 3430 30 04	M12 cable, 4 pins, 10000mm long
	EFFC-Cable_M12_0025 Phoenix : 1456938	M12 cable, 4 pins, High-Flex, 1500mm long
	EFFC-Cable_M12_0026 Phoenix : 1456941	M12 cable, 4 pins, High-Flex, 3000mm long
	EFFE-Comp_0006	 <p>M8 connector M12 connector 120mm 120mm LED driver to use in the strobe configuration</p>