Very intense and uniform LED pattern projector

Full range of colors: Red, Converted-Green (White), Blue

Long lifetime and minimal maintenance

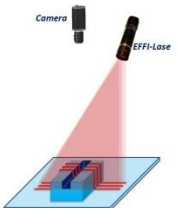
Compatible with most lenses (E-Mount)

Wide depth of field of Lines and Cloud of Dots version

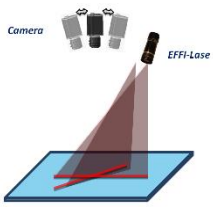
No speckle

Electronics	Connectors	Without connector
	Power supply	**12V DC – 30A**
	Illumination mode	Strobe mode and continuous mode (for test)
	Max power consumption	360W
Optics	Wavelengths available	Red, Converted-Green (White), Blue
	Projected pattern	Various designs for body scanning, 3D profiling and stereovision
Mechanics	Weight	350g (without the lens)
	Dimensions (projector)	59mm x 95.2mm (without the lens)
	Dimensions (driver)	105mm x 84mm x 38.5mm (L x W x H)
	Objective adjustment	"E-Mount" Sony adaptor on the projector
	Fastener	3x M4 bothe sides
	Material	Device body: Aluminum alloy / Delrin®
Environment	Working temperature	-10°C to 50°C
	IP code	IP50

Applications



Stereo Vision and 3D profiling



Alignment

Body scanning

EFFI-Lase (top right) vs. Laser (bottom left): No speckle = high precision and contrast

Part Number

Reference:
EFFI-LASE-V3-YYY-ZZZ-RD24

YYY: Wavelength (nm) / Color (*other wavelengths available upon request*)

• Blue 465	• Converted-Green (White) 520	• Red 625

ZZZ: Type of Mask

3D Profilometry (line length: 25mm)			**Stereovision** (diameter 25mm)		
L01-3	1 line: 100µm		C02-3	Cloud of dots density 50%: Pixel size (smallest dot) 22.5µm	
L02-3	1 line: 20µm		C10-3	Grid of dots density 50%: Pixel size (smallest dot) 20µm *(Special Bodyscanning)*	
L07-3	100 lines (19.5mm x 16.5mm) 67.5µm / pitch 100µm				
L08-3	22 lines (17.4mm x 16.5mm) 75µm / pitch 500µm				

Please note that we can also integrate custom masks upon request

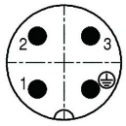
Option: No connector

Standard EFFI-Lase-V3 comes with RD24 connector
For flying leads instead, please remove -RD24 at the end of the part number.
Part number: **EFFI-LASE-V3-YYY-ZZZ**

Electronical considerations

Contact arrangement

The EFFI-LASE-V3 has an external driver on the cable. The driver has to be powered by a constant voltage of **12V**. Power consumption from 20W to 360W.

Standard Connector RD24		
Contact arrangement	Number	Designation
 *RD24 Male connector*	1	+12V
	2	PNP TRIGGER (trigger for rising edge) for strobe mode Light OFF if V_{PNP} < 3VDC / Light ON @100% if V_{PNP}>3V DC Max **12V DC** – Analog Voltage
	3	GND
	4	n.a.

Mode Selection

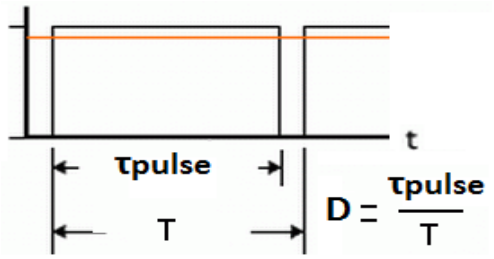
The interruptor on the external driver allows the customer to select the mode :

- Strobe Mode : istandard application
- Test mode : a continuous low power mode to easily adjust the overall application. To use the EFFI-LASE-V3 in continuous test mode, send continuous signal on the PNP trigger pin (number 2)

Strobe mode

The LED driver is set to pulse the LED automatically at 30Amps, with the maximum duty cycle of 5% and pulse duration <150ms.

If the pulse duration exceeds 150ms, the protection mode will be activated automatically. Light remains ON for 150ms and then OFF for 4s in order to keep the duty cycle below 5%.



If D=Duty Cycle (T_{ON}/(T_{ON} + T_{OFF}))>0.05 the light is Off for 4s

Please note : The controller delay (the delay between the Input and Output Signal of the controller) is between 40 and 70µs.

Electronical Flexibility

The electronic of the EFFI-LASE-V3 can be easily modified by programmation of the micocontroller inside the driver.

The electronic parameters of the standard strobe mode (T_{ON} = 150ms, T_{OFF} = 4s, I_{max} = 30A) can be adapted to your application.
For example, we can adapt the duty cycle value or the power of the LED for longer pulse.
The trigger mode can also be changed to a continuous mode with an adapted current.
Please contact Effilux for more information.

Temperature precaution

Warning: The EFFI-LASE-V3 is not protected against heat. Please use it appropriately to avoid damaging the product. The temperature of this product could increase and becomes hot. Please be cautious and handle with care.

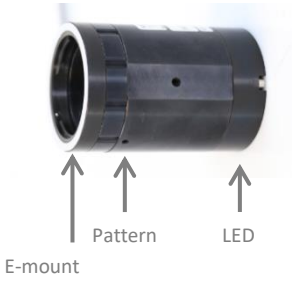
Optical considerations

Any E-Mount lens (accessory) can be mounted on the EFFI-Lase-V3.

Lenses are not sold together with the EFFI-LASE-V3, they have to be purchased seperately.

To guarantee the best quality of the projector, the pattern is directly mounted in the projector body. However, the pattern can be observed through the aperture of the projector.

Avoid any contact with the mask : the mask is sensitive and can easily be damaged.

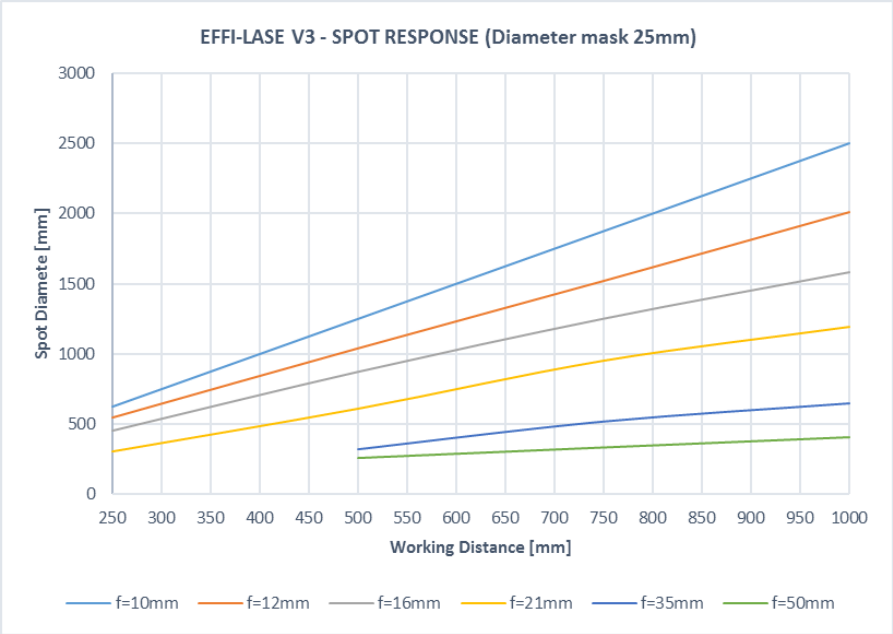


Lens selection

EFFILUX recommends using one of the following lenses with the EFFI-LASE-V3:

Lenses	Effilux References	**EFFO-SG-10-F2.8-ASP-C-HR-EM**	**EFFO-SG-12-F2.0-ASP-C-HR-EM**	**EFFO-SG-16-F2.0-ASP-C-HR-EM**	**EFFO-SG-21-F1.4-ASP-C-HR-EM**	**EFFO-SG-35-F1.2-ASP-C-HR-EM**	**EFFO-SG-50-F1.2-ASP-C-HR-EM**
		014601	*006694*	*014602*	*007828*	*009112*	*009113*
		10mm F2.8 ED AS NCS CS	*12mm F2.0 NCS CS*	*16mm F2.0 ED AS UMC CS*	*21mm F1.4 ED AS UMC CS*	*35mm F1.2 ED AS UMC CS*	*50mm F1.2 AS UMC CS*
Focal length (mm)		10	12	16	21	35	50
Aperture Range		F2.8~22	F2.0~22	F2.0~22	F1.4~22	F1.2~22	F1.2~22
Angle of View APS-C (°)		109.5	98.9	83.1	69.3	44.6	31.7
Mount		E-Mount (SONY)					
M filter size		-	M67 x 0.75	M77 x 0.75	M58 x 0.75	M62 x 0.75	M62 x 0.75
L x Ø (mm)		76.7 x 86	59.1 x 72.5	115.4 x 83	64.3 x 67.5	74.2 x 67.5	74.2 x 67.5
Weight (g)		580	245	615	275	420	375

Depending on the working distance (WD) and the E-mount lens selected, different spot sizes can be obtained:



Illuminations obtained using each lens on different working distances are:

Depending on the E-Mount lens selected, different minimum focus distances can be obtained.
These values were measured using a LaseV3 in color Blue color with a Standard Driver, in continuous mode at ***I = 30A.***

Lens			***Illumination at the center (mW/cm²)*** 25cm Mask diameter			
Reference	*Focal*	*Min focus distance*	*WD = 25cm*	*WD = 50cm*	*WD = 75cm*	*WD = 100cm*
EFFO-SG-10-F2.8-ASP-C-HR-EM	*f = 10mm*	*240mm*	-	-	-	-
EFFO-SG-12-F2.0-ASP-C-HR-EM	*f = 12mm*	*200mm*	9.2	1.8	1.1	0.9
EFFO-SG-16-F2.0-ASP-C-HR-EM	*f = 16mm*	*200mm*	8.4	2.8	1.5	1.2
EFFO-SG-21-F1.4-ASP-C-HR-EM	*f = 21mm*	*280mm*	NA	5.8	2.8	1.9
EFFO-SG-35-F1.2-ASP-C-HR-EM	*f = 35mm*	*380mm*	NA	19.9	7.5	5.1
EFFO-SG-50-F1.2-ASP-C-HR-EM	*f = 50mm*	*450mm*	NA	29.8	16.3	8.2

Adaptative extension rings are available: **1mm, 2mm, 3mm, 5mm, 7.5mm, 10mm, 12.5mm, 15mm**.

EFFILUX Structured LED Lighting Range

For a similar spot diameter (60cm), the illumination at maximum power of each projector is obtained:

Product	effiLase	effiLase-PWR	effiLaseV2 *MX2 Version*	effiLase V3
				
Objective	C-Mount 25mm	C-Mount 25mm	C-Mount 25mm	E-Mount 35mm
Max. Power	24V – 700mA	24V – 700mA	24V – 700mA	12V – 30A
Wavelength	465nm	465nm	465nm	460-465nm
Optical Power factor (for the same area illuminated)	1	X2	X6	X30

It means that for a similar spot diameter, the LASE-V3 is 5 times more powerful than the LASE-V2 (in MX2 version).

Mechanical considerations (Dimensions in mm)