DATASHEET

Efficient Led Lighting

effiLux

3D

Pattern projection

No speckle

Mask

UV to IR

IP5X

CE

effiLASE

Pattern light projector

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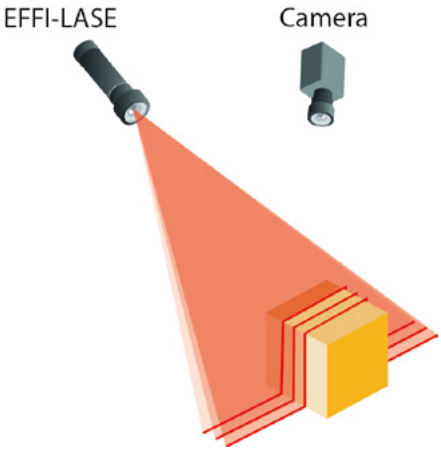
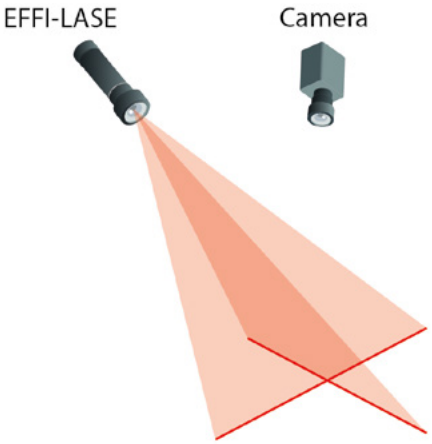
APPLICATIONS

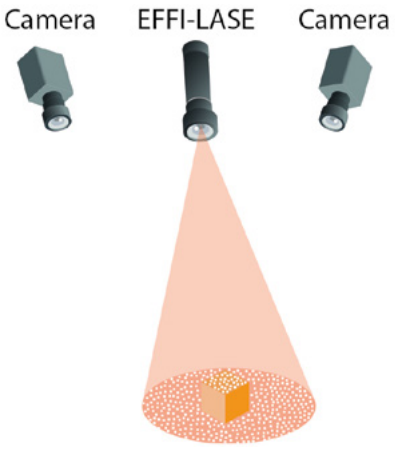
3D Profiling



Alignment application



Stereovision



PART NUMBERING

STANDARD VERSION

EFFI-LASE - VVV - CM - ZZZ - MMM

VVV	ZZZ	MMM
Ø: Standard (STD) **PWR:** Power version	**Wavelength [nm]** ● **365** (UV) ● **405** (UV) ● **465** (Blue) ● **525** (Green) ● **625** (Red) ● **850** (Infrared) ○ **000** (White 5500K)	**Mask/ Pattern** **3D Profilometry** (*line length: 13mm*) : L01/ L02/ L03/ L04/ L05/ L06/ L07/ L08/ L09/ L41 **Stereovision and Alignment** : G01/ G02/ G03/ G04/ G05/ C02/ C03/ A01/ A02/ A03 (see in the table below)

AVAILABLE VERSIONS & OPTIONS

POWER version

EFFI-LASE - PWR - CM - ZZZ - MMM

- Twice more power than the standard version with more LED
- An aircooling system is plugged on the back of the product for thermal monitoring

STR option

EFFI-LASE - VVV - CM - ZZZ - MMM - STR

- The direct current option gives a full control over the current sent in the LEDs. It allows strobing and more light power.
- Warning: There is no LED protection

Polarizer option

EFFI-LASE - VVV - CM - ZZZ - MMM - POL

- The optical accessory Polarizer eliminates glare caused by the lighting on parts to control.
- The camera can then analyze the part, without being disturbed by the glow effects.

Pure UV option

EFFI-LASE - VVV - CM - ZZZ - MMM - PUV

- The EFFI-LASE is also available with the Pure UV Technology (Contact Effilux for more information).

TECHNICAL SPECIFICATIONS

effiLASE

Illumination Mode	Continuous or strobe (STR or custom only)	
Wavelengths	365nm, 405nm, 465nm, 525nm, 625nm, 850nm (+/- 5nm) White (5500K ±500K) *(Other wavelength upon request)*	
Power Supply	24V DC	
Connector(s)	**M12 - 5 pins (LED driver)**	**M8 - 3 pins (STR option)**
Power Consumption	Standard Version: 5W	
	Power Version: 15W	
Analog Intensity Control (AIC)	The output optical power is adjustable from 20% to 100% by applying a signal from [5V-24V DC] Total voltage range [0V-24VDC] / Don't exceed 24V DC / Max. signal consumption: 4mA	
Weight	Standard version: 180g Power version: 580g	
Dimensions	Standard version: 32mm x 105mm (without the objective) Power version: 85mm x 125mm (without the objective)	
Material	Device body: Aluminum alloy	
Fastener	Standard Version: 4X M4 holes on the side of the device Power Version: 2 M4 holes and 1 M6 hole on the backside of the device	
IP rating	IP5X	
Operation environment	Temperature: 0°C to 50°C - Humidity: 20 to 85%RH (with no condensation) - Altitude: Up to 2000m	
Storage environment	Temperature: -20° to 60°C - Humidity: 20 to 85%RH (with no condensation)	
Informations	Overvoltage category I - Protective class III - Pollution degree 3	
Regulations & Marking	CE - UKCA	
Environmental Standards	RoHS Directives (2011/65/EU, 2015/863/EU and China RoHS) - REACH Regulation - WEEE Regulation	
Country of Origin	France	

OPTICAL SPECIFICATIONS

Mask and Pattern Projection

3D Profilometry (line length: 13mm)

L01: 1 line 50µm

L02: 1 line 20µm

L03: 1 line 10 µm

L04: 3 lines 50 µm separated by 500 µm

L05: 3 lines 50 µm separated by 200 µm

L06: 5 lines 50 µm separated by 750 µm

L07: 100 lines 45 µm separated by 112.5 µm

L08: 22 lines 50 µm separated by 350 µm

L09: 1 line 5 µm

L41: 1 line 75 µm + 40 lines 45 µm separated by 200 µm

Stereovision and Alignement

A01: Cross Line thickness: 50µm, Line length: 13mm

A02: 26 concentric circles Thick : 50µm, Step: 250µm, Central: Ø30µm

A03: Square Line thickness: 50µm, Line length: 10mm

C02: Cloud of dots density 50%, Effective mask: 12,8x9,6mm²

C03: Cloud of dots density 17%, Effective mask:12,8x9,6mm²

G01: Round Ø50 µm
Step: 100µm, Effective mask: 10x10mm²

G02: Round Ø50µm
Step: 100µm, Effective mask: 13x13mm²

G03: Grid 40x40, lines 50µm thick
Step: 255µm, Effective mask: 10x10mm²

G04: Grid 50x50, lines 50µm thick
Step: 255µm, Effective mask: 12,5x12,5mm²

G05: 100x100 Squares, 50x50µm² each
Step: 100µm, Effective mask: 10x10mm²

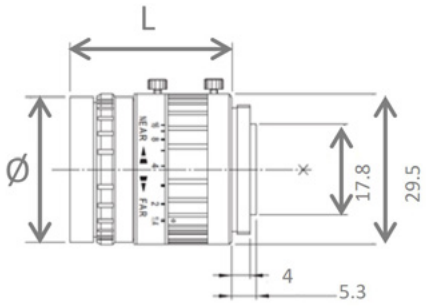
Objective selection

Any C-mount objective can be mounted on the EFFI-Lase.

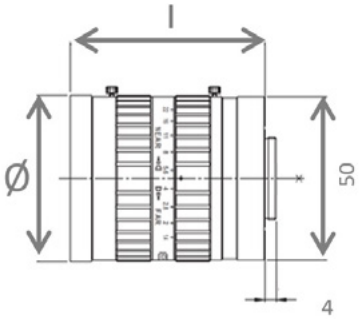
To guarantee the quality of the projector, the pattern is directly mounted in the projector body. However, the pattern can be observed through the aperture of the projector. Avoid any contact with the mask: this one is sensitive and can easily be damaged.

EFFILUX recommends using one of the following objectives with the EFFI-LASE (2/3" 1.5MP and 1" 1.5MP):

	OBJ-2-3-F9 HF9HA-1B	OBJ-2-3-F12.5 HF12.5HA-1B	OBJ-2-3-F16 HF16HA-1B	OBJ-2-3-F25 HF25HA-1B	OBJ-2-3-F35 HF35HA-1B	OBJ-2-3-F50 HF50HA-1B	OBJ-2-3-F75 HF75HA-1B
Focal length (mm)	9	12.5	16	25	35	50	75
Iris range	F1.4 – F16				F1.6 – F22	F2.3 – F22	F2.8 – F22
Angle of View (HxV)	45° 13′ x 42° 01′	38°47′ x 29°35′	30°45′ x 23° 18′	19° 58′ x 15° 02′	14° 20′ x 10° 46′	10° 03′ x 07° 33′	6° 43′ x 5° 02′
Filter thread	M27 x 0.5 mm	M25.5 x 0.5 mm					M30.5 x 0.5 mm
L x Ø	35 x 29.5 mm	29.5 x 29.5 mm	29.5 x 29.5 mm	29.5 x 29.5 mm	29.5 x 29.5 mm	29.5 x 29.5 mm	48 x 29.5 mm



	OBJ-1-F12.5 CF12.5HA-1	OBJ-1-F16 CF16HA-1	OBJ-1-F25 CF25HA-1	OBJ-1-F35 CF35HA-1	OBJ-1-F50 CF50HA-1	OBJ-1-F75 CF75HA-1
Focal length (mm)	12.5	16	25	35	50	75
Iris range	F1.4 – F22				F1.8 – F22	
Angle of View (HxV)	45° 13′ x 42° 01′	43° 36′ x 33° 24′	28° 43′ x 21° 44′	20° 43′ x 15° 37′	14° 35′ 10° 58′	9° 45′ x 7° 19′
Filter thread	M49 x 0.75 mm					
L x Ø	68.5 x 51 mm	70.5 x 51 mm	75.5 x 51 mm	48.5 x 51 mm	55.5 x 51 mm	76 x 51 mm



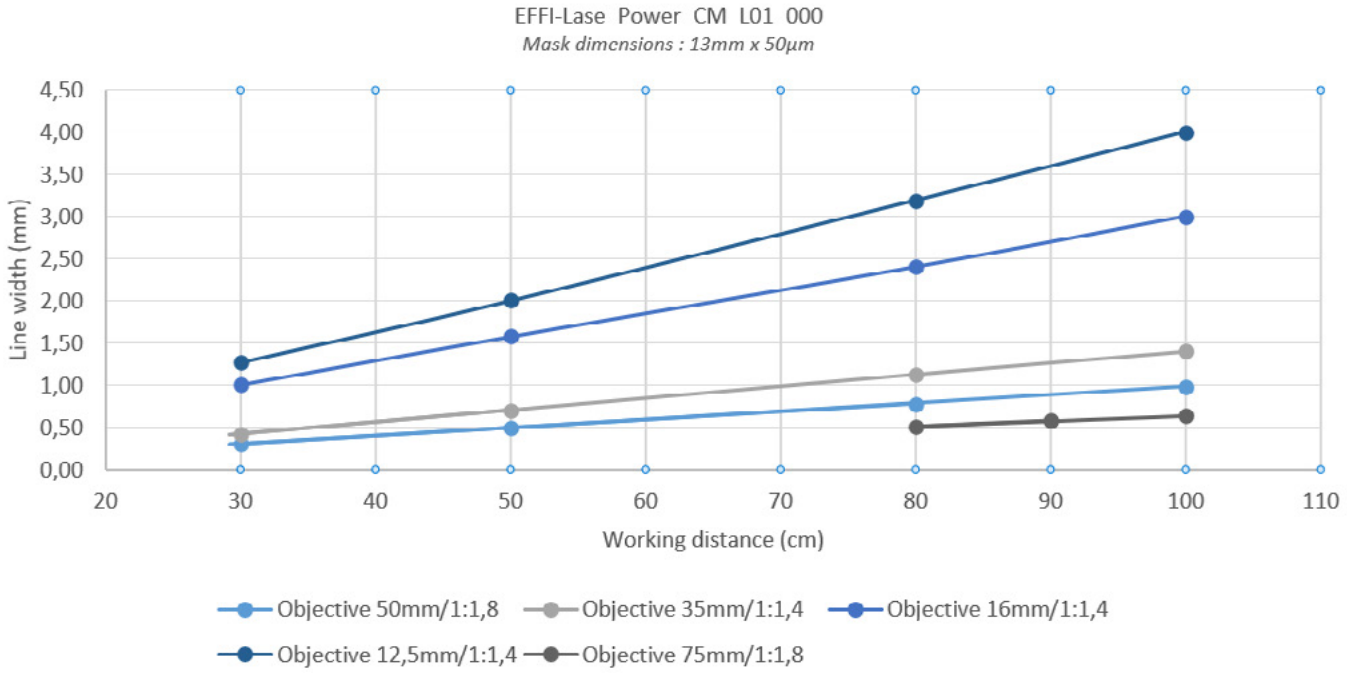
Optical power depending on version & wavelength

	Optical Power (mW) *Mask dimensions : 13mm x 50µm* **(L01)**	
Wavelength	*Standard Version*	*Power Version*
000	0.62	1.75
465	0.77	1.79
625	0.45	0.72

Pattern vs working distance

Objective	**Line width (mm)** *Mask dimensions: 13mm x 50µm (L01)*			
	WD = 30cm	WD = 50cm	WD = 80cm	WD = 100cm
f = 12.5 mm	1.27	2	3.19	4
f = 16 mm	1.01	1.58	2.40	3
f = 35 mm	0.42	0.71	1.13	1.40
f = 50 mm	0.30	0.49	0.78	0.98
f = 75 mm	n.a.	n.a	0.51	0.63

The relation between the line width and the working distance is linear. For a 50µm mask width. the following graphs are obtained:



Objective	**Pattern dimensions HxW (cm)** *Dimensions of a 12.8x9.6mm cloud of dots pattern (***C02***)*			
	WD = 30cm	WD = 50cm	WD = 80cm	WD = 100cm
f = 12.5 mm	32 x 23	51 x 37	82 x 59	102 x 73
f = 16 mm	25 x 19	41 x 31	66 x 49	82 x 61
f = 35 mm	11 x 8	18 x 14	29 x 22	36 x 27
f = 50 mm	n.a.	12 x 9	20 x 15	25 x 19
f = 75 mm	n.a.	n.a	13 x 10	19 x 12

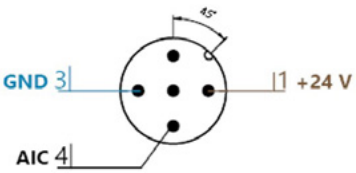
Power consumption & contact arrangement

The average power consumption is:

- For the standard version: 5W
- For the power version: 15W
- For the STR option, the power consumption depends on the intensity which flows in the LED.

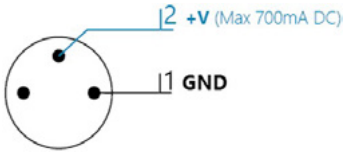
Depending on the chosen configuration (with or without LED driver), the light comes with different connectors.

With LED driver



Without LED driver = STR

Expert mode: LED are wired directly to the M8 without protection

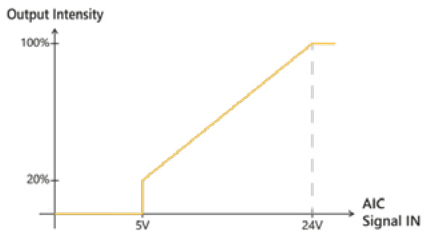
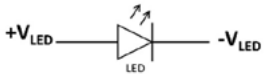
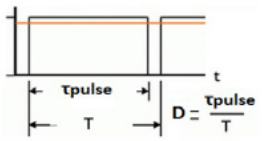


Max input intensity 700mA

Notes: The EFFI-LASE requires 24V DC input power.

Mode control

3 options are available:

Chosen option	With LED driver (Dimmable continuous)	Without LED driver = STR (Dimmable continuous)
Dimmable continuous		Standard version :  Power version :
Strobe	Not available	

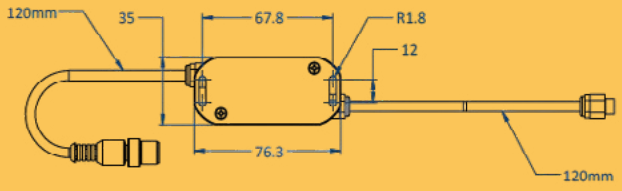
Current	Max pulse duration (µs)	Duty cycle
1.2A	50 000	0.5
1.5A	10 000	0.1
2A	1000	0.01
2.5A	100	0.001
3.5A	40	0.0004

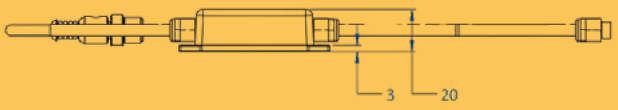
MECHANICAL CONSIDERATIONS (DIMENSIONS IN MM)

Overview

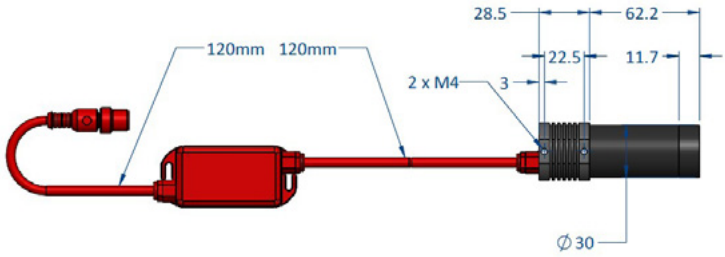
For the two existing versions of the EFFI-LASE (VVV = Ø / PWR), two configurations exist either M12 (with LED driver) or M8 (without LED driver).

In every sketch, the red part corresponds to the M12 configuration and should be replaced by a M8 connector for the corresponding configuration. Here are the dimensions of the red part.

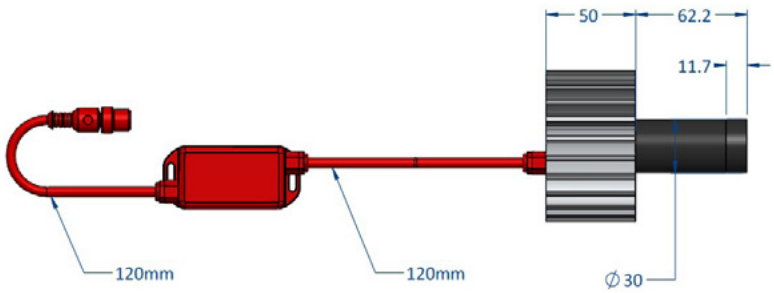


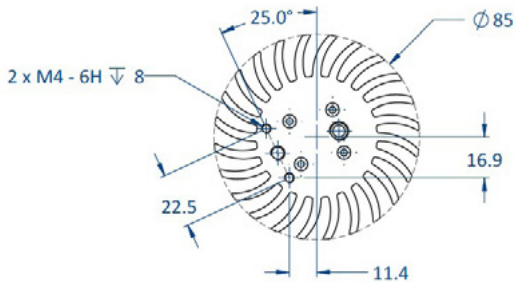


EFFI-LASE : Standard version (EFFI-LASE-CM-ZZZ-MMM)



EFFI-LASE-POWER : Power version (EFFI-LASE-PWR-CM-ZZZ-MMM)





Notes: At the back of the chilling zone, there are two M4 holes for mountings

ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-LASE.

Fasteners

Clamping: EFFM-1-0001
Pivot joint: EFFM-1-0009
Tripod adapter: EFFM-1-0027

Camera Filters

EFFO-FLR-...

Extension cables

M12
2meters: EFFC-CAB-M12-FM-5-DD-L2
5meters: EFFC-CAB-M12-FM-5-DD-L5
10meters: EFFC-CAB-M12-FM-5-DD-L10
M8
2meters: EFFC-CAB-M8-F-3-D-L2
5meters: EFFC-CAB-M8-F-3-D-L5
10meters: EFFC-CAB-M8-F-3-D-L10

Pulse controller

Pulse controller
EFFI-IPSC4
Cables
2 meters: EFFC-CAB-M8-SUBD-FM-3-DD-L2
5 meters: EFFC-CAB-M8-SUBD-FM-3-DD-L5
10 meters: EFFC-CAB-M8-SUBD-FM-3-DD-L10

CONTACT INFORMATION

Please refer to the specific documentation (datasheet, user manual and drawing) for complementary information. Contents of this document are based on information available as of January 2025 and may be changed without prior notice.

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