DATASHEET

Efficient Led Lighting

Very intense

No speckle

Full range of color

High depth of field

IP54

CE

effiLASE-CPT

Powerful and compact structured light projector

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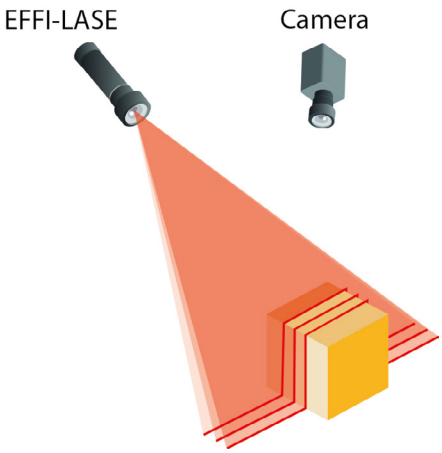
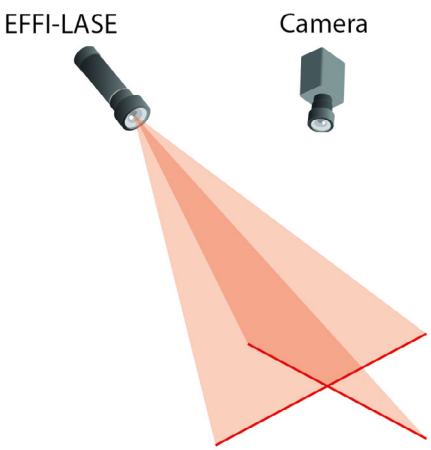
APPLICATIONS

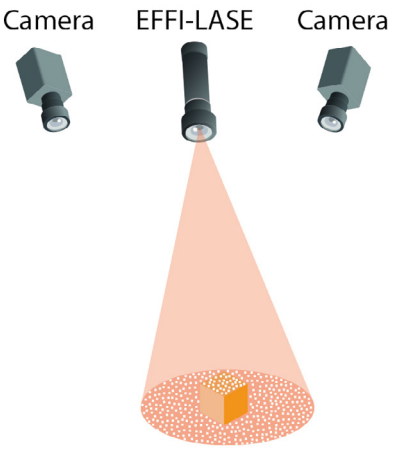
3D Profiling



Alignment application



Stereovision



RELATED PRODUCT

Refer to the datasheets of the products below for more details on those related products.

EFFI-LASE

Structured LED lighting

EFFI-LASE-V3

Ultra High Power Structured Lighting
LED Pattern Projector

PART NUMBERING

STANDARD VERSION

EFFI-LASE-CPT - VVV - ZZZ - M

LED pattern

LX1: Adapted for 3D profilometry

MX1: Adapted for stereovision and aligment

MX2: Adapted for stereovision and aligment

Wavelength [nm]

- **405** (UV)
- **465** (Blue)
- **525** (Green)
- **625** (Red)
- **850** (Infrared)
- **000** (White)

Type of mask

3D Profilometry: L01/ L02/ L03/L04...

Stereovision and Aligment: G01/ G02/ C03/ A02...

TECHNICAL SPECIFICATIONS

effiLASE-CPT	
Illumination Mode	Strobe mode only or low constant current (no cooling system)
Wavelengths	405nm, 465nm, 525nm, 625nm, 850nm, 000nm
Power Supply	24V DC
Connector(s)	M8 - 8 pins
Power Consumption	Depending on the current and LED version
Weight	200g
Dimensions	Height x length x width = 71 mm (without objective) x 42 mm x 42 mm
Material	Device body: Aluminum alloy
Fastener	5 x M5 on the back of the device / 3 x M5 on the side of the device
IP rating	IP54
Operation environment	Temperature: 0°C to 40°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

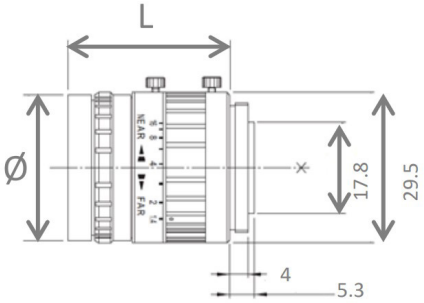
C-mount objective

Any C-mount objective can be mounted on the EFFI-LASE-CPT. The objective is not provided with the EFFI-LASE-CPT.

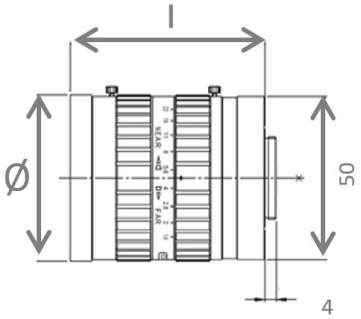
To guarantee the quality of the projector, the pattern is directly mounted in the projector body. However, the pattern can be observed through the aperture of the projector. Avoid any LASE contact with the mask: this one is sensitive and can easily be damaged.

Objective selection

	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)	52°06′ x 40°16′	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



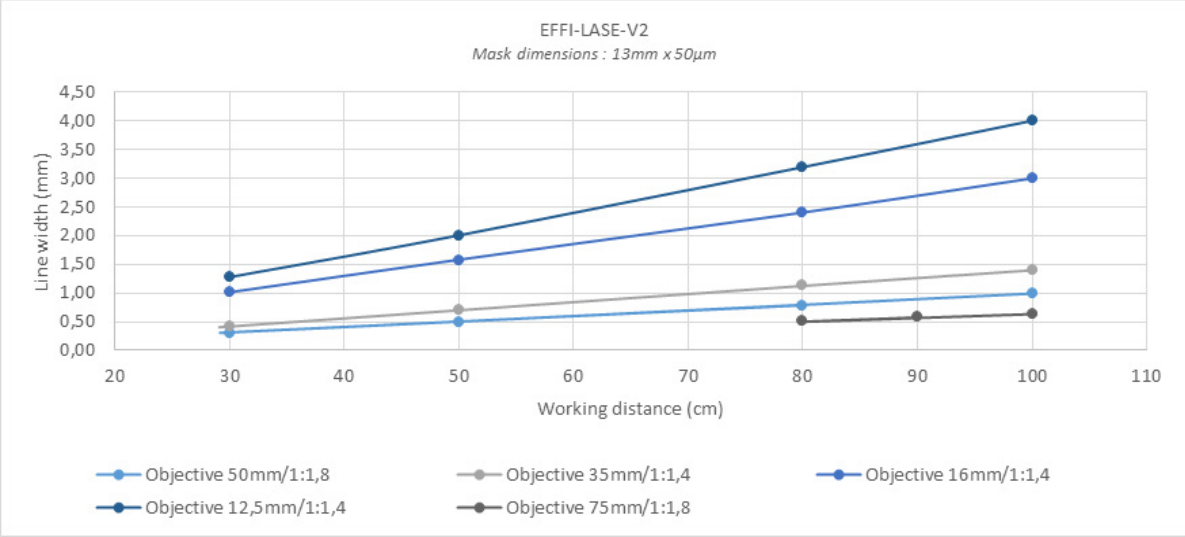
	OBJ-1-F12.5 CF12.5HA-1	OBJ-1-F16 CF16HA-1	OBJ-1-F25 CF25HA-1	OBJ-1-F35 CF35HA-1	OBJ-1-F50 CF50HA-1	OBJ-1-F75 CF75HA-1
Focal length (mm)	12.5	16	25	35	50	75
Iris range	F1.4 – F22				F1.8 – F22	
Angle of View (HxV)	45° 13′ x 42° 01′	43° 36′ x 33° 24′	28° 43′ x 21° 44′	20° 43′ x 15° 37′	14° 35′ 10° 58′	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



Depending on the working distance (WD) and the C-mount objective selected, different pattern sizes are obtained:

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

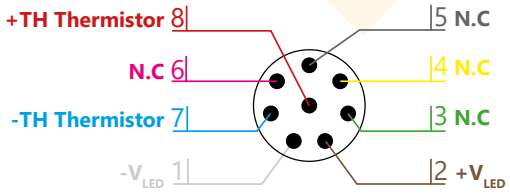


Objective	**Pattern dimensions HxW (cm)** Dimensions of a 12.8x9.6mm cloud of dots pattern (**C02**)			
	WD = 30cm	WD = 50cm	WD = 80cm	WD = 100cm
f = 12.5mm	32 x 23	51 x 37	82 x 59	102 x 73
f = 16mm	25 x 19	41 x 31	66 x 49	82 x 61
f = 35mm	11 x 8	18 x 14	29 x 22	36 x 27
f = 50mm	n.a	12 x 9	20 x 15	25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

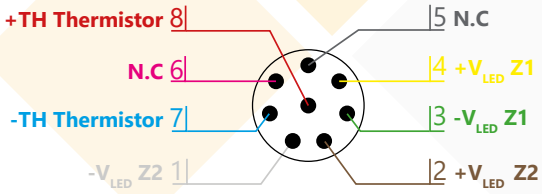
ELECTRONICAL CONSIDERATIONS

Wiring layout

M8 8pins - MX1 or LX1

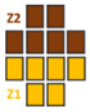
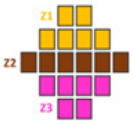


M8 8pins - MX2

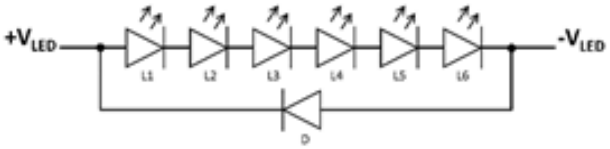


LED arrangement and diagram

LED arrangement

LX1	MX1	MX2	MX3
			

Electrical diagram for each channels



- Protective diode **D** TVS 400mW 24V: PTVS24VS1UR
- Thermistor NTC 10kΩ **TH1**: VISHAY NTCS0805E3103JMT

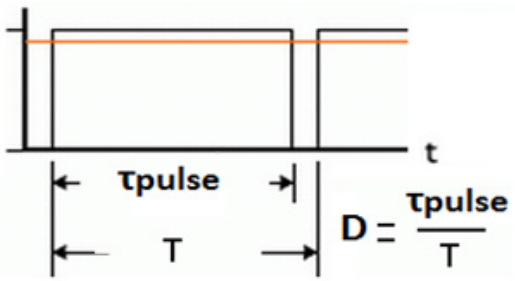
Strobe mode

EFFILUX proposes a LED controller (EFFI-IPSC4) which allows you to obtain by software interface the ON time and OFF time that you desire.

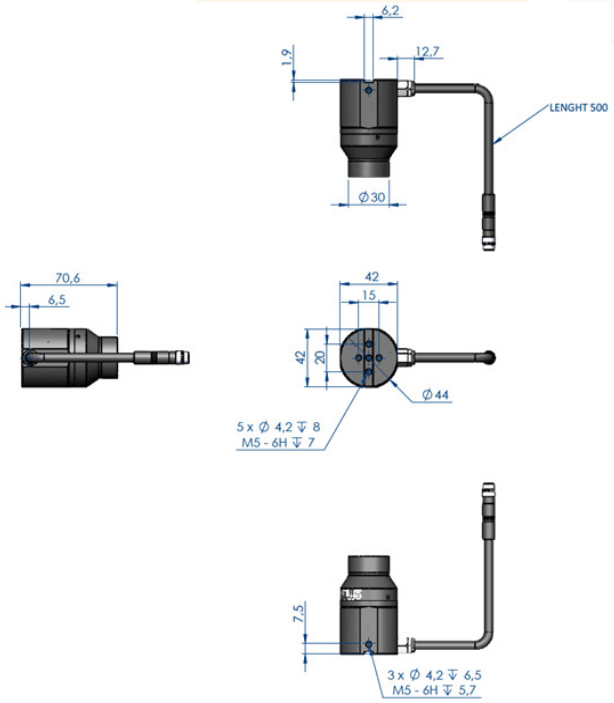
You can see below 5 possible configurations depending on the current that you provide to the EFFI-LASE-CPT.

Contact EFFILUX for more information.

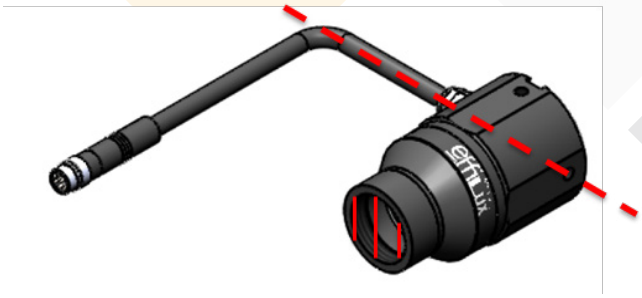
Configuration	Current	Max Pulse duration (µs) / T_{pulse}	D
1	1.2A	50000	0.5
2	1.5A	10000	0.1
3	2A	1000	0.01
4	2.5A	100	0.001
5	3.5A	40	0.0004



MECHANICAL CONSIDERATIONS (DIMENSIONS IN MM)



The lines of the LXX masks are oriented perpendicular to the connector axis as illustrated under.



ACCESSORIES

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

Fasteners

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

Extension cables

M8
2meters: EFFC-CAB-M8-F-8-D-L2
5meters: EFFC-CAB-M8-F-8-D-L5
10meters: EFFC-CAB-M8-F-8-D-L10

Pulse controller

Pulse controller
EFFI-IPSC4
Cables
2 meters: EFFC-CAB-M8-SUBD-FM-4-DD-L2
5 meters: EFFC-CAB-M8-SUBD-FM-4-DD-L5
10 meters: EFFC-CAB-M8-SUBD-FM-4-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 April 2025 and may be changed without prior notice.

Efficient Led Lighting

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