DATASHEET

Efficient Led Lighting

Flexibility

Up to 3 meters

High intensity lighting

Ajustable beam angle

Easy-to-use

Built-in driver

IP5X

AUTOSTROBE

CE

effiFLEX2

Multimode Flexible LED bar light

PART NUMBERING

Standard version

EFFI-FLEX2 - XXXX - ZZZ - WW - PP

Optical Length [mm]	Wavelength [nm]	Window	Lens position
60	**365*** (UV)	**TR** (Transparent)	**P0** (90°)
100	**405** (UV)	**SD** (Semi-diffuse)	**P1** (45°)
200	**465** (Blue)	**OP** (Opaline)	**P2** (25°)
300	**525** (Green)	**KIT** (All diffusers)	**P3** (10°)
... Every 100mm	**625** (Red)		
2900	**850** (Infrared)		
	000 (White)		

(*) The UV 365nm wavelength is a specific configuration. Refer to the corresponding annex.

Available versions & options

OTHER LED DENSITIES VERSIONS	
L2: Economical version	EFFI-FLEX2-**L2**-XXXX-ZZZ-WW-PP 1 LED every 40mm vs 1 LED every 20mm for standard *(See corresponding annex)*
X2: High uniformity version	EFFI-FLEX2-**X2**-XXXX-ZZZ-WW-PP 1 LED every 10mm vs 1 LED every 20mm for standard *(See corresponding annex)*
OPTICAL OPTIONS	
Kit with all diffusers	EFFI-FLEX2-XXXX-ZZZ-**KIT** The light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser. Only available for sizes ≤ 800mm.
Polarizer	EFFI-FLEX2-XXXX-ZZZ-WW-PP-**POL** *(See page 5)*
Linescan film	EFFI-FLEX2-XXXX-**ZZZ**-**TR-P3-LS** *(See page 5)*
Cylindrical lens	EFFI-FLEX2-XXXX-ZZZ-**TR-P1-LS-CYL** *(See page 5)*
ELECTRONICAL OPTIONS	
Customized software	EFFI-FLEX2-XXXX-ZZZ-WW-PP-**SWxxxxxx** Specific reference xxxxxx for each customized software.
NPN	EFFI-FLEX2-XXXX-ZZZ-WW-PP-**NPN** Light ON with a trigger signal between 0-2V (inverted to PNP)
CONNECTOR OPTIONS	
Connector position and orientation, Cables position	EFFI-FLEX2-XXXX-ZZZ-WW-PP-**SCXXX/BSC/SCG** *(See corresponding annex)*

TECHNICAL SPECIFICATIONS

effiFLEX2

Illumination Mode		Overdrive, Strobe or continuous		
Wavelengths		365nm, 405nm, 465nm, 525nm, 625nm, 850nm (+/- 5nm) White (5500K ±500K) *(Other wavelength upon request)*		
Power Supply		24V DC (+/-10%)		
Connector(s) *(See wiring layout page 6)*	Optical length	**60mm - 400mm**	**500mm - 1600mm**	**1700mm - 2900mm**
	Type	M12 (A-coded) - 5 pins	M12 Power (T-coded) - 4 pins	2x M12 Power (T-coded) - 4 pins
Power Consumption *(See details page 6)*	In continuous mode	Max. 10W per 100 mm of optical length		
	In Autostrobe mode (peak)	Max. 40W per 100mm of optical length		
Built-in driver version		Multimode (3 modes: AutoStrobe with overdrive intensity / Dimmable strobe / Dimmable continuous)		
Analog Intensity Control (AIC)		The output optical power is adjustable from 20% to 100% by applying a signal from [2V-10VDC] Total voltage range [2V-24VDC] / Don't exceed 24V DC / Max. signal consumption: 4mA		
Autostrobe		450% Overdrive current during 245 ms max then continuous at 100%		
		Max. duty cycle 30%		
		PNP trigger input: Light ON from 4.5V* to 24V / Don't exceed 24VDC / Max. signal consumption: 4mA *(Option NPN for size* ≥ 500mm*, on PIN4: Light ON from 0V to 2V / Don't exceed 24V DC / Max. signal consumption: 4mA)*		
Response time		Max. 10µs *(Rise time included)*		
Weight		Approx. 315g per 100mm of optical length		
Dimensions		51mm x 49mm x Length = Optical length + 35mm *(Please see the drawing on page 8)*		
Material		Device body: Aluminum alloy / Window: PMMA		
Fastener		T-slot on the back for M6 T-nuts 8mm slot (2x M6 T-nuts included)		
IP rating		IP5X (dust protected)		
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		

*__Note:__ The PNP threshold voltage of 4.5V may vary according to lengths and power consumption. *(Please refer to the related table value in the User Manual of EFFI-Flex2)*

OPTICAL SPECIFICATIONS

Many possible configurations in just one light

Diffusers

TR : Transparent

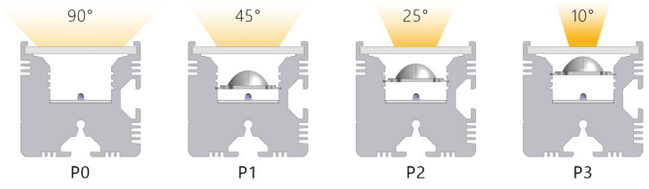
SD : Semi-diffuse

OP : Opaline

Depending on the uniformity needed for the application, the user can easily change the diffuser to satisfy the application requirements.

Lens position

The EFFI-Flex2 offers flexible lens positioning to control the beam angle. The user can adjust it by himself: the angle can be widened by moving the lens closer to the LEDs or narrowed by moving the lens further away from the LEDs.



How to change the optical configuration of your EFFI-Flex2?

The EFFI-Flex2 offers flexible lens positioning to control the beam angle and different type of diffusers to adapt the uniformity. The user can easily change the diffuser and the lens position in the field.

Unscrew the M4 screws and remove the cap (without connector)

Slide out the window and all lenses

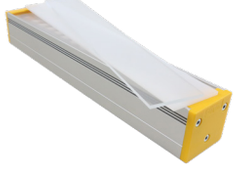
Place the lenses & window in desired configuration

Kit option

With the KIT option, the light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser.

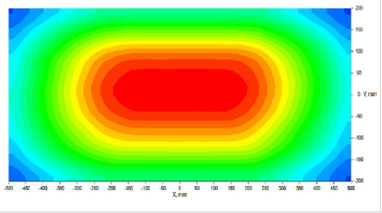
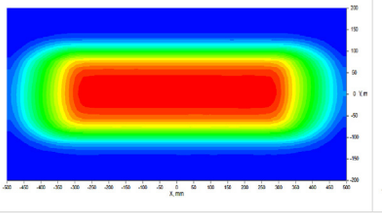
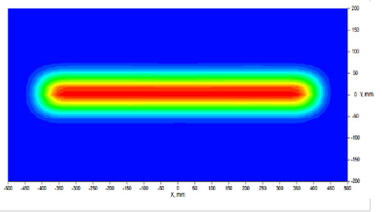
Only available for sizes ≤ 800mm.

The KIT replaces WW-PP in the part number. Example: EFFI-FLEX2-XXXX-ZZZ-**WW-PP** becomes EFFI-FLEX2-XXXX-ZZZ-**KIT**



Lens position impact

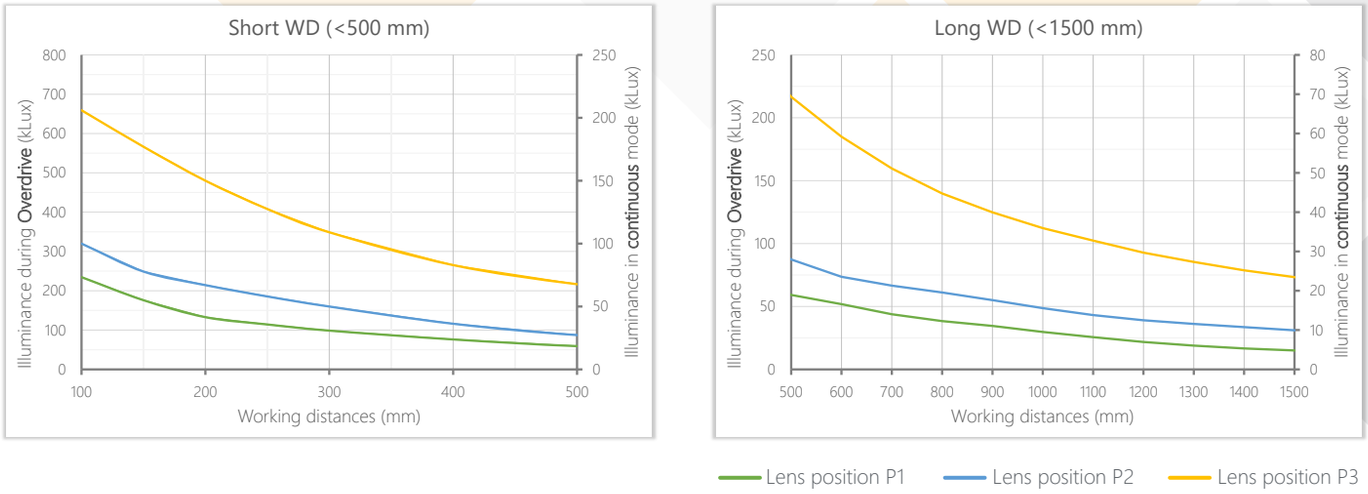
Irradiance map

Optical configuration	TR-P1	TR-P2	TR-P3
Working distance 500mm Area size: 400x1000mm² 0% 100%			

Note: The measurements have been made with a 800mm red light, transparent window: EFFI-FLEX2-800-000-TR-PP

Lens position impact (continued)

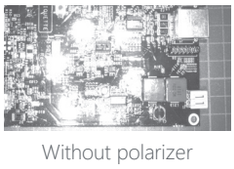
Illuminance vs Working distance (WD) - White LED

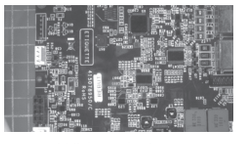


Note: The measurements have been made with a 800mm white light, transparent window: EFFI-FLEX2-800-000-TR-PP.
For the L2 version divide the illuminance by 2 (refer to the corresponding annex).

Polarizer

Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application.
The user can insert directly the polarizer inside the EFFI-Flex2, under the window.

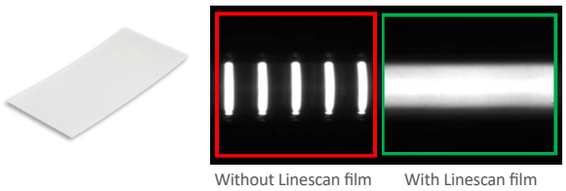

Without polarizer


With polarizer

Important note: The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.

Linescan configurations

Linescan film (TR-P3-LS)


Without Linescan film With Linescan film

With the lens in the upper position (P3) and the transparent window (TR), the linescan filter accessory transforms the EFFI-Flex2 into a uniform line light ideal for either brightfield or darkfield illumination.

Cylindrical lens (TR-P1-LS-CYL)

Used in combination with the internal lenses in the lowest position (P1), and the Linescan film (LS), the additional Cylindrical lens (CYL) allows to focus even more the light into a very bright line.

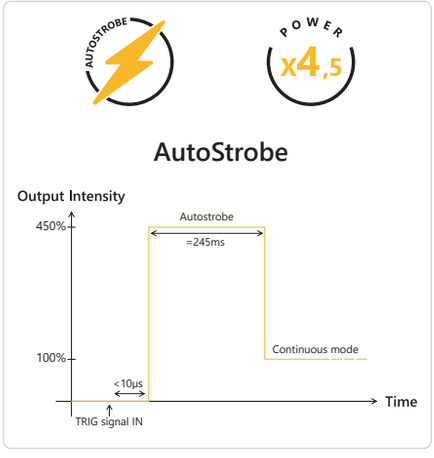
ELECTRONICAL SPECIFICATIONS

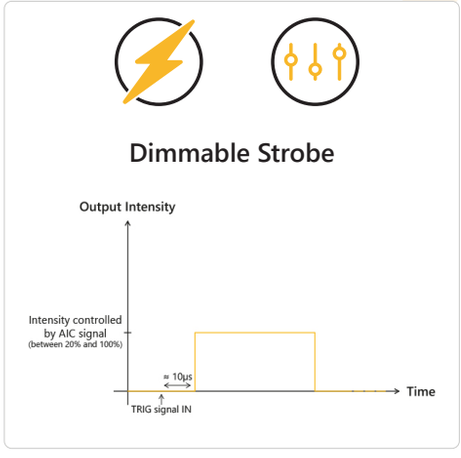
Overview

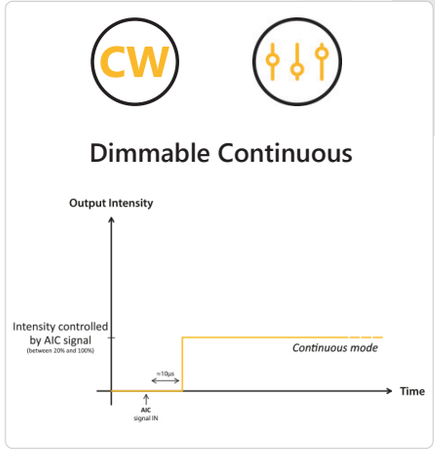
The EFFI-Flex2 has been designed to have several electronical modes available in the same product. Additionnally to that, our engineers have developed a strong AutoStrobe mode to boost the injected current up to 450% of the continuous mode current value.

Thus, EFFI-Flex2 can be used to have a:

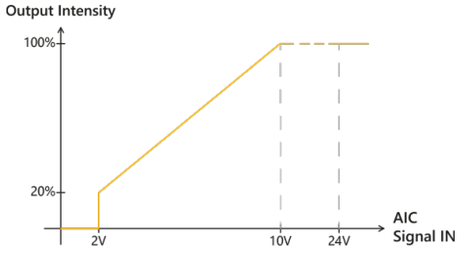
- **High power strobe (Autostrobe mode):** 450% current value with a max duty cycle of 30% and max pulse duration of 245ms.
- **Dimmable light (Strobe or Continuous mode):** Light intensity between 20% and 100% monitored with the AIC pin and strobe or continuous mode monitored with the trigger pin.







Analog Intensity Control (AIC)



- The output intensity can be adjusted from 20% to 100% by applying a signal from [2V-10V DC]. For maximum intensity in continuous mode, AIC pin can be tied to +24V.
- If V_{AIC} = [0V-1V DC] or if not connected, the EFFI-Flex2 is in AutoStrobe mode by default.

Power consumption & connector definition

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)															
Optical Length XXXX (mm)	60	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
In Continuous mode	<10W	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	<30W	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W
Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

M12 - 5 pins | M12P - 4 pins | 2x M12P - 4 pins

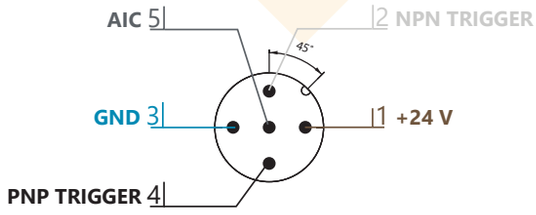
Note: These values are maximum values. The consumption may vary according to the wavelength and the software.

Wiring layout

Depending on the size, the light comes with different connectors *(refer to the table above)*.

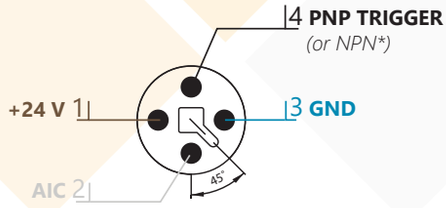
M12 (A-coded)- 5 pins

male connector



M12 Power (T-coded) - 4 pins

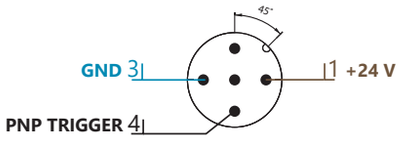
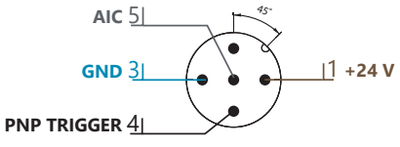
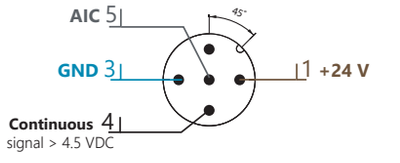
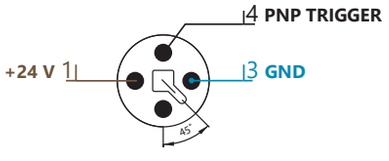
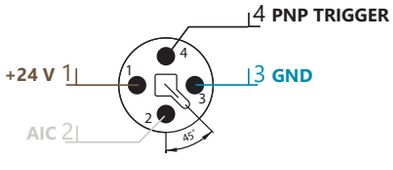
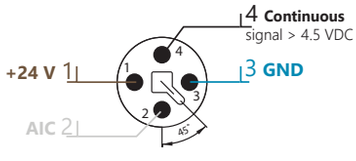
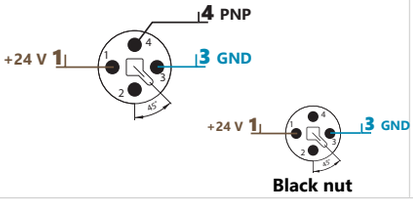
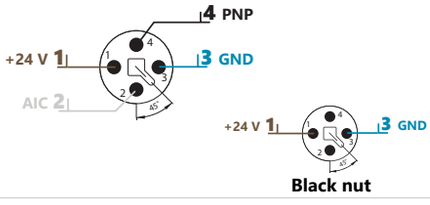
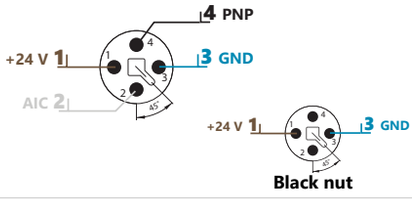
male connector



Notes:

- The EFFI-FLEX2 requires 24V DC input power.
- PNP trigger pin (or NPN) needs to be connected either to a trigger signal for AutoStrobe and Strobe mode or to a continuous signal for Continuous mode.
- AIC pin can stay unplugged for Autostrobe mode, or tied to +24V for continuous mode at maximum intensity.
- (*) For light requiring M12P connector, the NPN trigger is optionnal. With the NPN option, the PNP trigger input is replaced by the NPN trigger input.

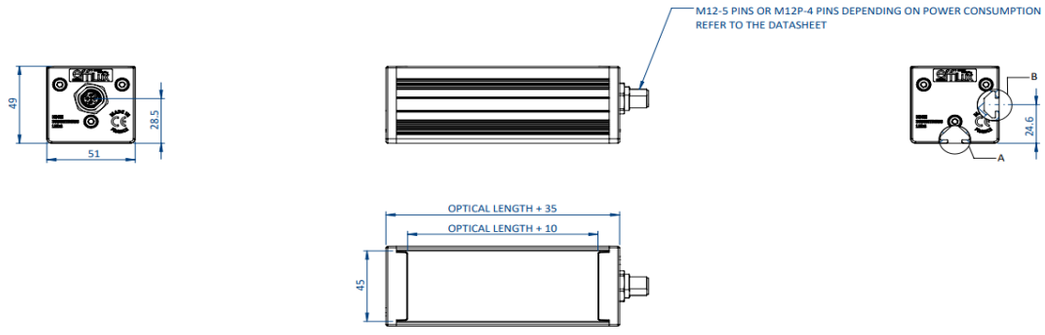
Layout example (PNP)

	AutoStrobe	Dimmable Strobe	Dimmable Continuous
M12			
M12P			
2x M12P			

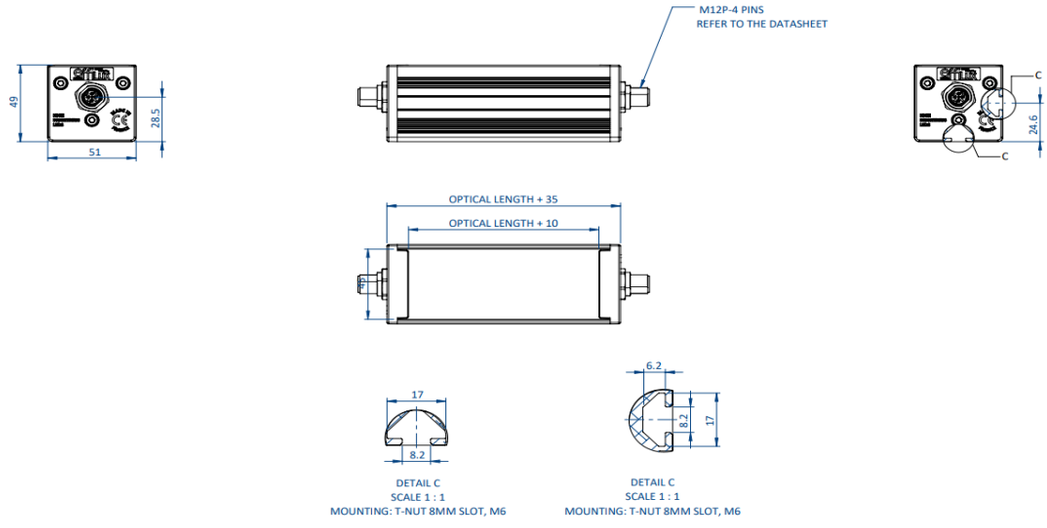
- When the 2x M12P configuration is required, a second M12P is added on the opposite cap with power inputs only.
- The second M12P has black nut to easily indentify it.
- **Warning:** Both GND must be connected together

MECHANICAL SPECIFICATIONS

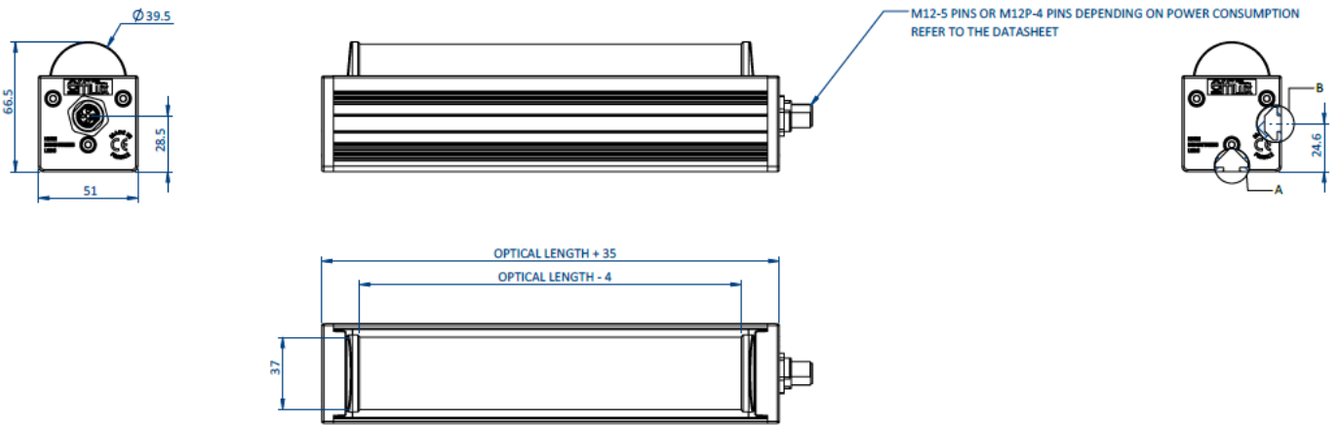
Dimensions of EFFI-Flex2 - M12 & M12P (in mm)



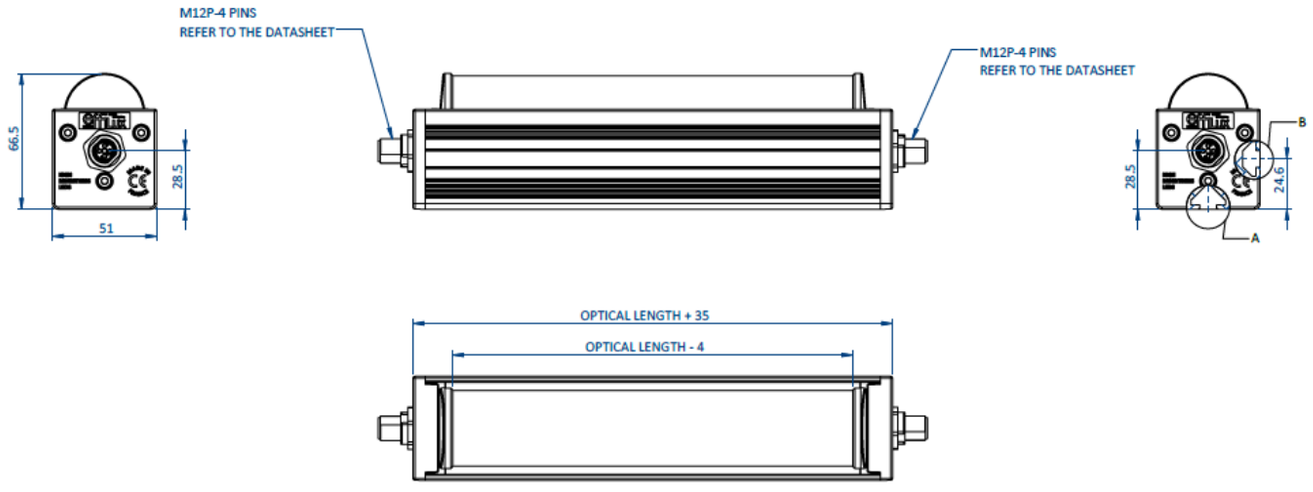
Dimensions of EFFI-Flex2 - 2M12P (in mm)



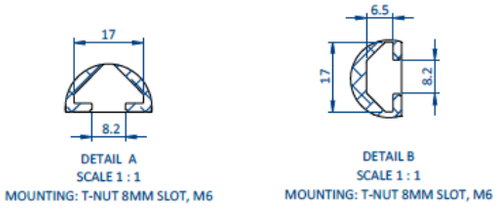
Dimensions of EFFI-Flex2-...CYL - M12 & M12P (in mm)



Dimensions of EFFI-Flex2-...CYL - 2M12P (in mm)



T-Nut system



ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-Flex2

Fasteners

T-Nut Kit: EFFV-BOLT-0011
Pivot joint Kit: EFFM-1-0002

Extension cables

2meters: EFFC-CAB-M12-FM-5-DD-L2
5meters: EFFC-CAB-M12-FM-5-DD-L5
10meters: EFFC-CAB-M12-FM-5-DD-L10

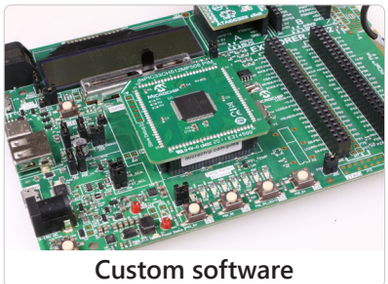
Camera Filters

EFFO-FLR-...

CUSTOMIZATION

Please ask your sales contact for a custom device.

IP version



Custom software

Other caps color

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 May-2024 and may be changed without prior notice.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effillux.fr

effiFLEX2 UV365

Multimode Flexible UV LED bar light

Part-numbering

EFFI-FLEX2 - XXXX - ZZZ - WW - PP

Optical Length [mm]	Wavelength [nm]	Window	Lens position
60	● **365** (UV)	**TR** (Transparent special UV)	**P0** (90°)
100			
... Every 100mm			
2900			

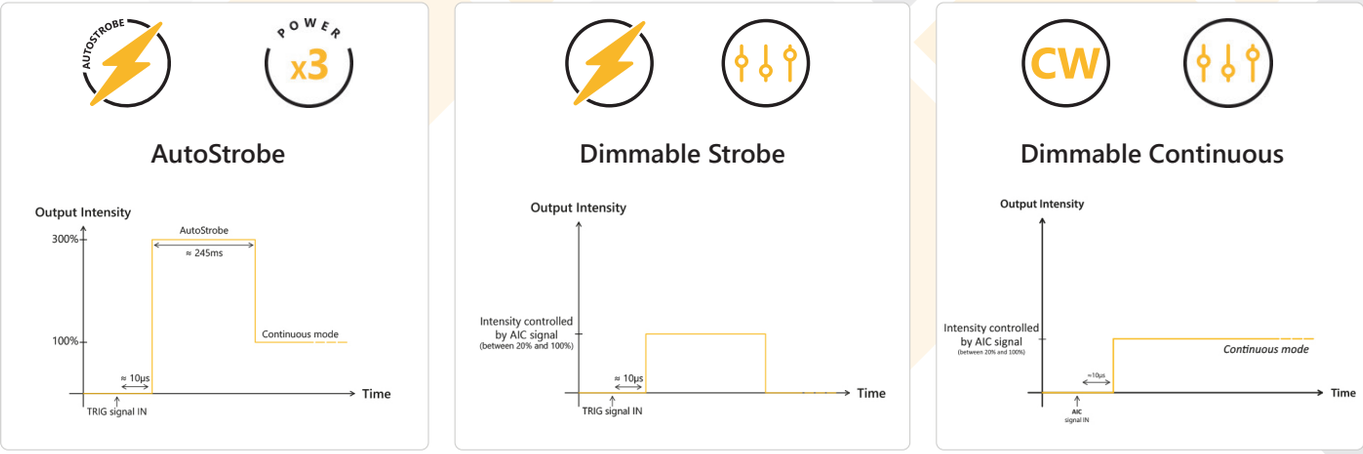
Notes:

- The EFFI-Flex2 UV365 comes with one possible configuration: transparent window and lens position at P0 (90°) (i.e. no lenses)
- The transparent window for EFFI-Flex2 UV365 is a special made transparent window for UV365. The standard transparent window of EFFI-Flex2 is not compatible with EFFI-Flex2 UV365.
- Linescan film and standard polarizer are not compatible with UV365.
- For maximum performances, please use a cable no longer than 5m. Otherwise, the overdrive performances may be impacted.

Available versions and options

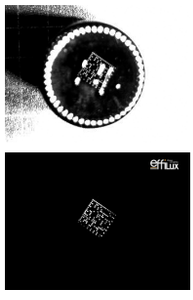
OPTICS	
Pure UV option	EFFI-FLEX2-XXXX-365-TR-P0-**PUV** *(See details next page)*
Cylindrical lens	EFFI-FLEX2-XXXX-365-**TR-P0-CYL** *(See details next page)*
L2 Economical version	EFFI-FLEX2-**L2-**XXXX-365-TR-P0 1 LED every 40mm vs 1 LED every 20mm for standard (See corresponding annex)

Electronical modes



Note: Compared to the standard version the autostrobe overdrive mode has been capped at 285% of the continuous level.

Pure UV option



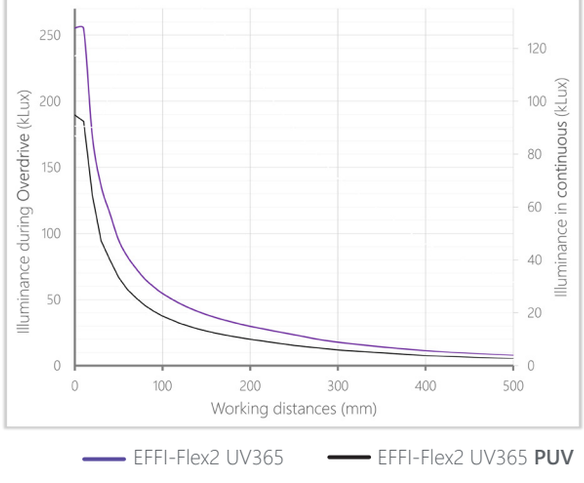
Used with the EFFI-Flex2 UV 365, the Pure UV technology is an innovative system that drastically improves the fluorescence effect while concurrently removing glare and improving contrast.

Note: The Pure UV light must be used along with a UV Cut filter on the camera.

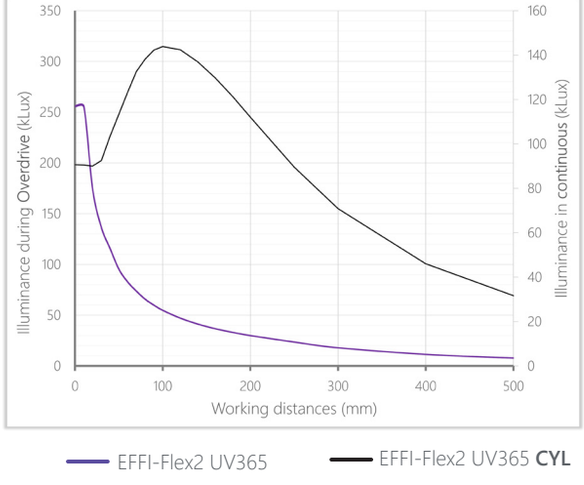
Cylindrical lens

The additional Cylindrical lens (CYL) allows to focus even more the light into a very bright line.

Illuminance vs Working distance (WD)



EFFI-Flex2 UV365 — EFFI-Flex2 UV365 **PUV**



EFFI-Flex2 UV365 — EFFI-Flex2 UV365 **CYL**

Note: The measurements have been made with a 300mm UV light, transparent window and lens position 0: EFFI-FLEX2-300-365-TR-P0.

ANNEX 2 - OTHER LED DENSITIES

The standard LED density for the EFFI-Flex2 is one LED every 20mm. For specific needs, we can also offer two other LED densities:

- L2 - Economical version: Twice fewer LEDs (every 40mm) - Twice less light power
- X2 - High light uniformity: Twice more LEDs (every 10mm). - Same light power

Those modifications change the power consumptions and the light uniformity. For these references refer to the datas below.

Power consumption & connector definition

L2 version

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)														
Optical Length XXXX (mm)	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
In Continuous mode	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W

M12 - 5 pins | M12P - 4 pins | 2x M12P - 4 pins

X2 version (Same as standard)

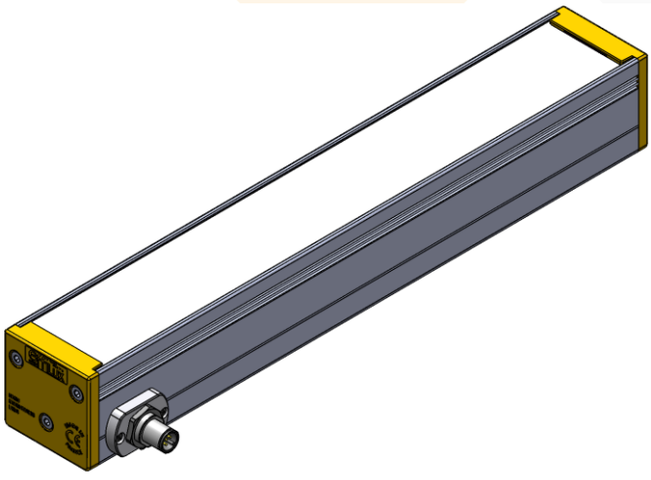
MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)															
Optical Length XXXX (mm)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	
In Continuous mode	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W	
In AutoStrobe mode (peak)	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W	
Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

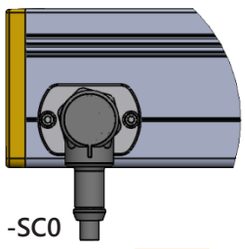
M12 - 5 pins | M12P - 4 pins | 2x M12P - 4 pins

Note: These values are maximum values. The consumption may vary according to the wavelength and the software.

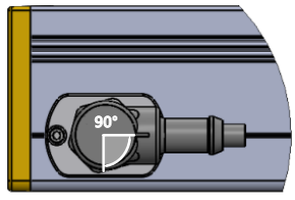
ANNEX 3 - CONNECTORS & CABLE OPTIONS

Side connector - M12 & M12P

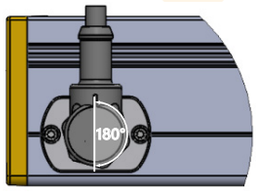




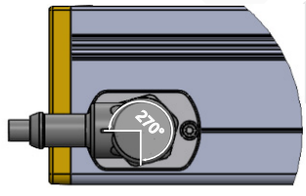
-SC0



-SC90



-SC180

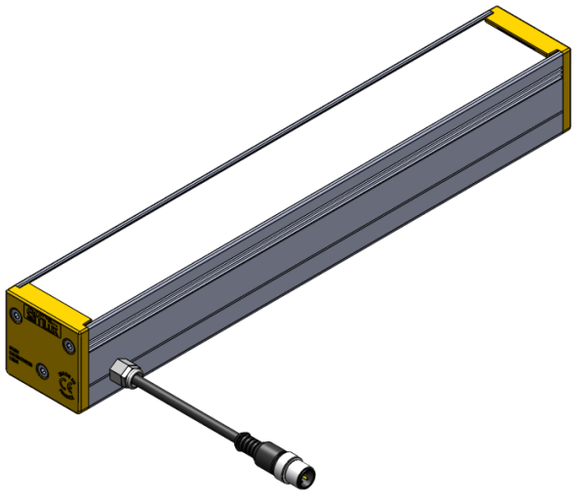


-SC270

EFFI-FLEX2-XXXX-ZZZ-WW-PP-SCXXX
EFFI-FLEX2-XXXX-ZZZ-WW-PP-SCXXX-1M12P

Connector on the side of the extrusion
XXX= Angle connector orientation (standard 0°: angled cable going to the back of the light)
M12 - 5 pins or M12P - 4 pins. Not available with 2M12P connectors.
Please check the connector according to the light size.

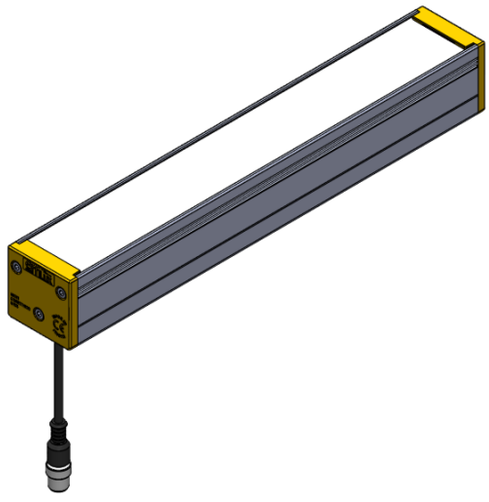
Side Cable Gland - M12



EFFI-FLEX2-XXXX-ZZZ-WW-PP-SCG

Cable gland on the side - Cable length: 500mm +/- 20mm
M12 - 5 pins. Not available with M12P connector.
Please check the connector according to the light size.

Back Side Cable - M12



EFFI-FLEX2-XXXX-ZZZ-WW-PP-BSC

Cable gland on the back side - Cable length: 500mm +/- 20mm
M12 - 5 pins. Not available with M12P connector.
Please check the connector according to the light size.

DATASHEET

Efficient Led Lighting

Built-in driver

Up to 3 meters

Customizable software

High-Uniformity

Easy-to-use

Water resistant

IP67

AUTOSTROBE

CE

effiFLEX2-IP67

Multimode LED bar light

PART NUMBERING

STANDARD VERSION

EFFI-FLEX2-IP67 - XXXX - ZZZ - WW - PP

Optical Length [mm]	Wavelength [nm]	Window	Lens position
60	**365*** (UV)	**TR** (Transparent)	**P0** (90°)
100	**405** (UV)	**SD** (Semi-diffuse)	**P1** (45°)
200	**465** (Blue)	**OP** (Opaline)	**P2** (25°)
300	**525** (Green)		**P3** (10°)
... Every 100mm	**625** (Red)		
2900	**850** (Infrared)		
	000 (White)		

(*) The UV 365nm wavelength is a specific configuration. Refer to the corresponding annex.

AVAILABLE VERSIONS & OPTIONS

OTHER VERSIONS - Compatible with each other	
Watercooling version	EFFI-FLEX2-IP67-**WTR**-XXXX-ZZZ-WW-PP Allow the use of a watercooling system for thermal regulation.
Other LED densities versions L2 - Economical X2 - High uniformity	EFFI-FLEX2-IP67-**L2**-XXXX-ZZZ-WW-PP 1 LED every 40mm vs 1 LED every 20mm for standard (See corresponding Annex)
	EFFI-FLEX2-IP67-**X2**-XXXX-ZZZ-WW-PP 1 LED every 10mm vs 1 LED every 20mm for standard (See corresponding Annex)
OPTICAL OPTIONS	
Polarizer accessory	EFFI-FLEX2-IP67-XXXX-ZZZ-WW-PP-**POL** *(See page 5)*
Linescan film	EFFI-FLEX2-IP67-XXXX-**ZZZ-TR-P3-LS** *(See page 5)*
ELECTRONICAL OPTIONS	
Continuous boost (ELS XXX)	EFFI-FLEX2-IP67-XXXX-ZZZ-WW-PP-**ELSxxx** (xxx = 500 / 700 / 1000) For experts who need a power boost in continuous mode. Only available in WTR version.
Customized software	EFFI-FLEX2-IP67-XXXX-ZZZ-WW-PP-**SWxxxxxx** Specific reference xxxxxx for each customized software.
CONNECTOR OPTIONS	
Connector position and orientation, Cables position	EFFI-FLEX2-IP67-XXXX-ZZZ-WW-PP-**SCXXX/SCG**

TECHNICAL SPECIFICATIONS

effiFLEX2-IP67

Illumination Mode		Overdrive, Strobe or continuous		
Wavelengths		365nm, 405nm, 465nm, 525nm, 625nm, 850nm (+/- 5nm) White (5500K ±500K) *(Other wavelength upon request)*		
Power Supply		24V DC (+/-10%)		
Connector(s) *(See wiring layout page 6)*	Optical length	**60mm - 400mm**	**500mm - 1500mm**	**1600mm - 2900mm**
	Type	M12 (A-coded) - 5 pins	M12 Power (T-coded) - 4 pins	2x M12 Power (T-coded) - 4 pins
Power Consumption *(See details page 6)*	In continuous mode	Max. 10W per 100 mm of optical length		
	In Autostrobe mode (peak)	Max. 40W per 100mm of optical length		
Built-in driver version		Multimode (3 modes: AutoStrobe with overdrive intensity / Dimmable strobe / Dimmable continuous)		
Analog Intensity Control (AIC)		The output optical power is adjustable from 20% to 100% by applying a signal from [2V-10VDC] Total voltage range [1.5V-24VDC] / Don't exceed 24V DC / Max. signal consumption: 4mA		
Autostrobe		450% Overdrive during 245 ms max then continuous at 100%		
		Max. duty cycle 30%		
		PNP trigger input: Light ON from 4.5V* to 24V / Don't exceed 24VDC / Max. signal consumption: 4mA *(Option NPN for size ≥ 500mm, on PIN4: Light ON from 0V to 1V / Don't exceed 24V DC / Max. signal consumption: 4mA)*		
Response time		Max. 10µs *(Rise time included)*		
Weight		Approx. 315g per 100mm of optical length		
Dimensions		54mm x 37.5mm x Length (= Optical length + 35mm) - *See the drawing on page 8*		
Material		Device body: Aluminum alloy / Window: PMMA		
Fastener		T-slot on the back for M4 T-nuts 6mm slot (2x M4 T-nuts included)		
IP rating		IP67		
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		

***Note:** The PNP threshold voltage of 4.5V may vary according to lengths and power consumption. *(Please refer to the related table value in the User Manual of EFFI-Flex2-IP67)*

OPTICAL SPECIFICATIONS

Three different windows to adjust light uniformity

Diffusers

TR : Transparent

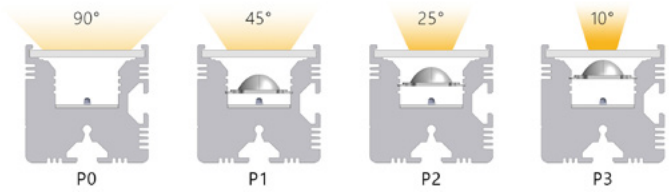
SD : Semi-diffuse

OP : Opaline

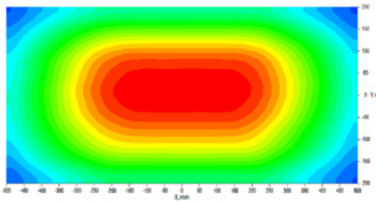
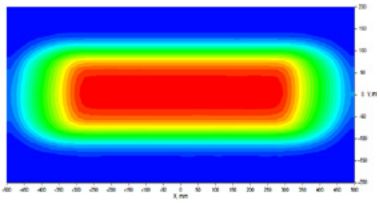
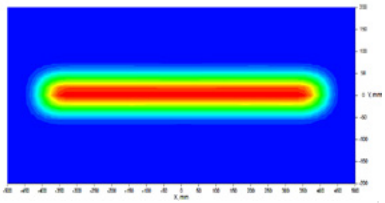
Choose the best configuration for your use-case : More diffusion (left to right) yields greater uniformity but reduces light power.

Four lens positions to adjust beam angle

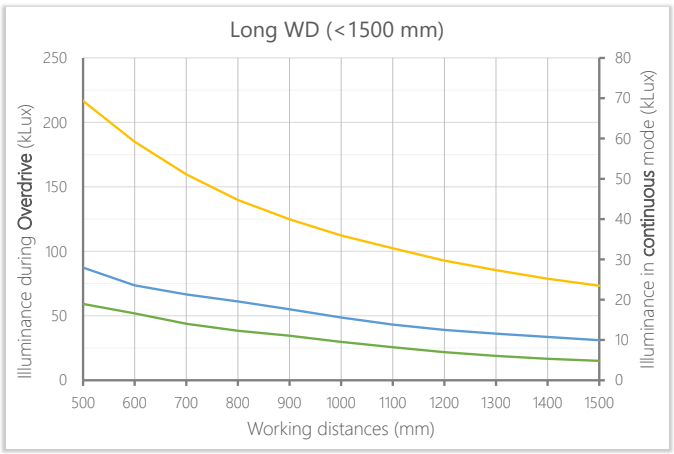
With the EFFI-Flex2-IP67, users can customize the light beam angle. The default position is P2, but alternate specifications are available upon ordering: placing the lenses closer to the window narrows the light angle.



Irradiance maps

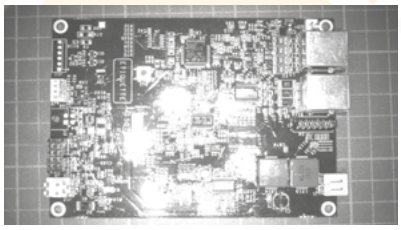
Optical configuration	TR-P1	TR-P2	TR-P3
Working distance 500mm Area size: 400x1000mm² 0% 100%			

Intensity vs Working distance (WD)

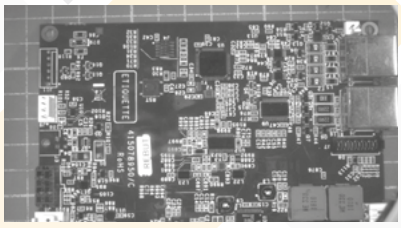


Lens position P1 Lens position P2 Lens position P3

Polarizer



Without polarizer



With polarizer

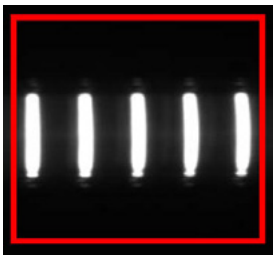
Using polarizers, on the Effilux light and on the camera, helps acquiring suitable images by eliminating glare issued from the workpiece .

The polarizer film is positioned just under the window on demand when ordering.

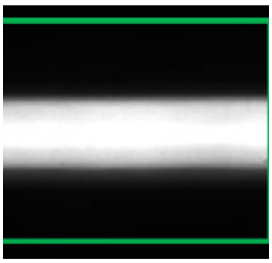
Important note: The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.

Linescan configurations

Linescan film (TR-P3-LS)



Without Linescan film



With Linescan film

With the lens in the upper position (P3) and the transparent window (TR), the linescan filter accessory transforms the EFFI-Flex2-IP67 into a uniform line light ideal for either brightfield or darkfield illumination.

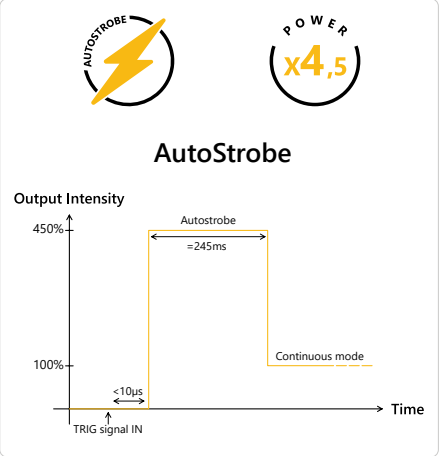
ELECTRONICAL SPECIFICATIONS

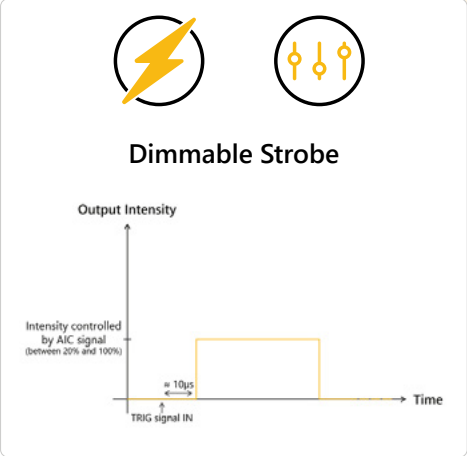
Overview

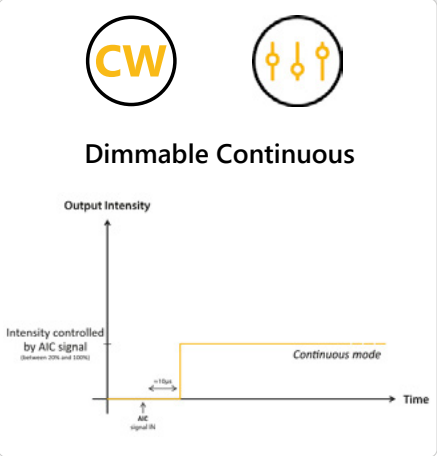
The EFFI-Flex2-IP67 has been designed to have several electronical modes available in the same product. Additionnally to that, engineers have developed a strong AutoStrobe mode to reach 450% light intensity.

Thus, EFFI-Flex2-IP67 can be used to have a:

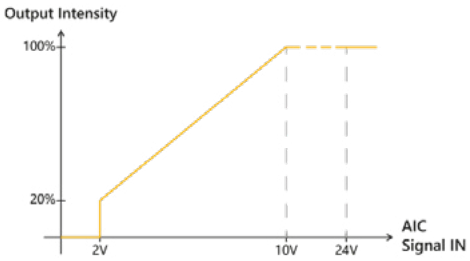
- **High power strobe - Autostrobe mode:** Light intensity at 450%. Max duty cycle of 30% and max pulse duration of 245ms.
- **DIM modes :** Light intensity between 20% and 100% monitored with the AIC pin and strobe or continuous mode monitored with the trigger pin.







Analog Intensity Control (AIC)



- The output intensity can be adjusted from 20% to 100% by applying a signal from [2V-10V DC].
- If V_{AIC} = [0V-1V DC] or if not connected, the EFFI-Flex2-IP67 is in AutoStrobe mode by default.

Power consumption & connector definition

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)															
Optical Length XXXX (mm)	60	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
In Continuous mode	<10W	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	<30W	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W
Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

Notes: These values are maximum values. The consumption may vary according to the wavelength and the software. For the wavelengths 405 nm, you need to account for an additional 30% power consumption and for the wavelength 365, see the corresponding annex.

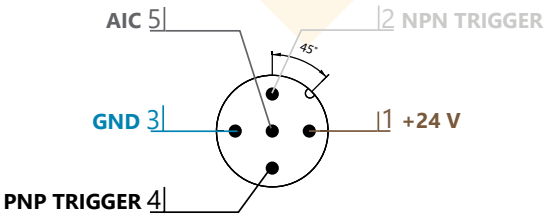
M12 - 5 pins	M12P - 4 pins	2x M12P - 4 pins

Wiring layout

Depending on the size, the light comes with different connectors (refer to the table above).

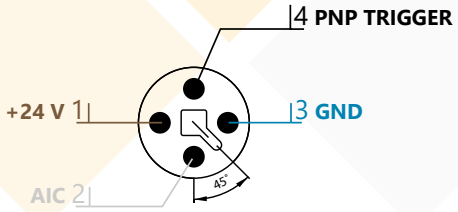
M12 (A-coded)- 5 pins

male connector



M12 Power (T-coded) - 4 pins

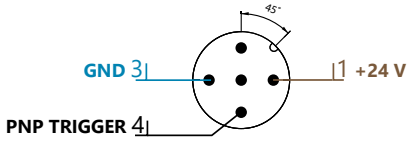
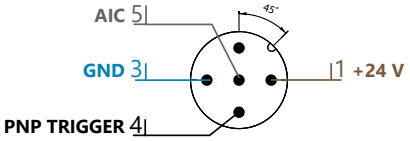
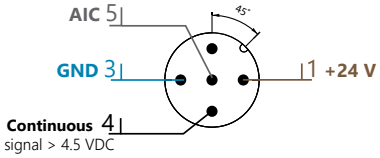
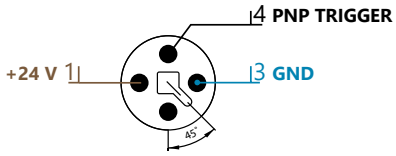
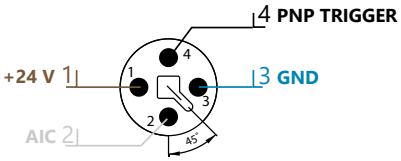
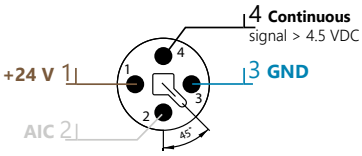
male connector



Notes:

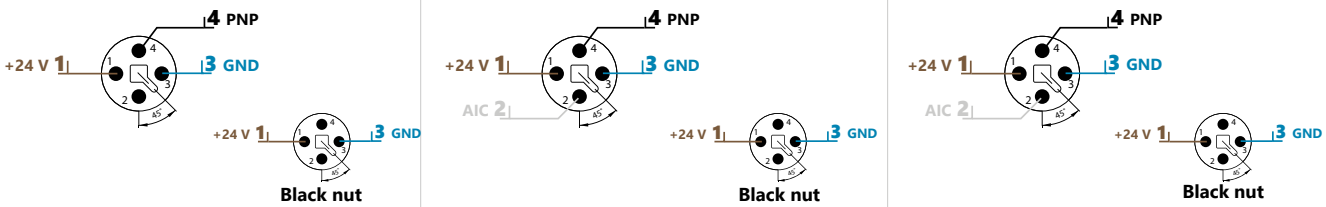
- The EFFI-FLEX2-IP67 requires 24V DC input power.
- PNP trigger pin (or NPN) needs to be connected either to a trigger signal for AutoStrobe and Strobe mode or to a continuous signal for Continuous mode.
- AIC pin can stay unplugged for Autostrobe mode, or tied to +24V for continuous mode at maximum intensity.
- (*) For light requiring M12P connector, the NPN trigger is optionnal. With the NPN option, the PNP trigger input is replaced by the NPN trigger input.

Layout example (PNP)

	AutoStrobe	Dimmable Strobe	Dimmable Continuous
M12			
M12P			

2x M12P

- When the 2x M12P configuration is required, a second M12P is added on the opposite cap with power inputs only.
- The second M12P has black nut to easily indentify it.
- **Warning:** Both GND must be connected together

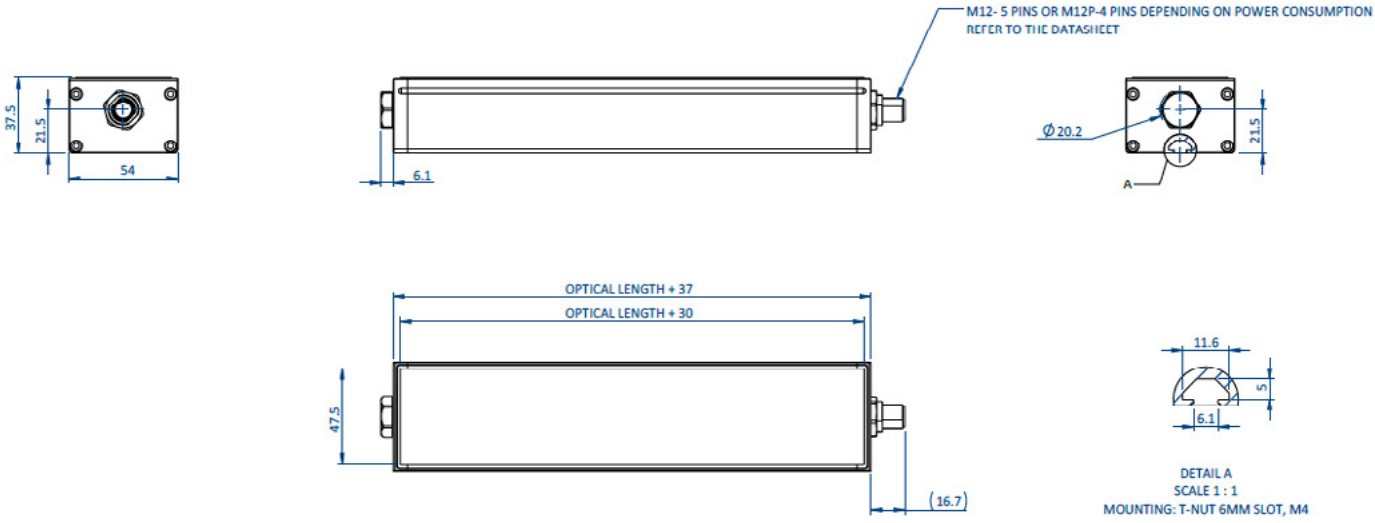


Continuous power boost (only with WTR version)

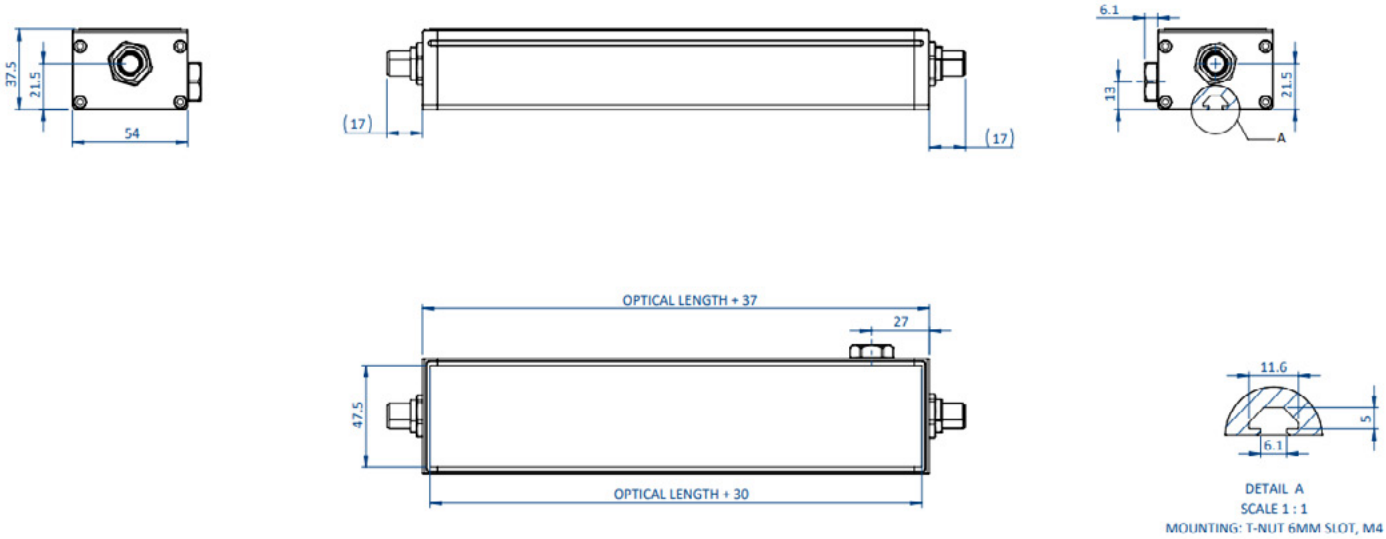
With the ELS500, ELS700 and ELS1000 options the EFFI-FLEX2-IP67 light power can be improved for continuous use.
These configurations only work with the WTR version as extra heat is produced.
As this is an expert configuration, get in touch with Effilux before implementing it.

MECHANICAL SPECIFICATIONS

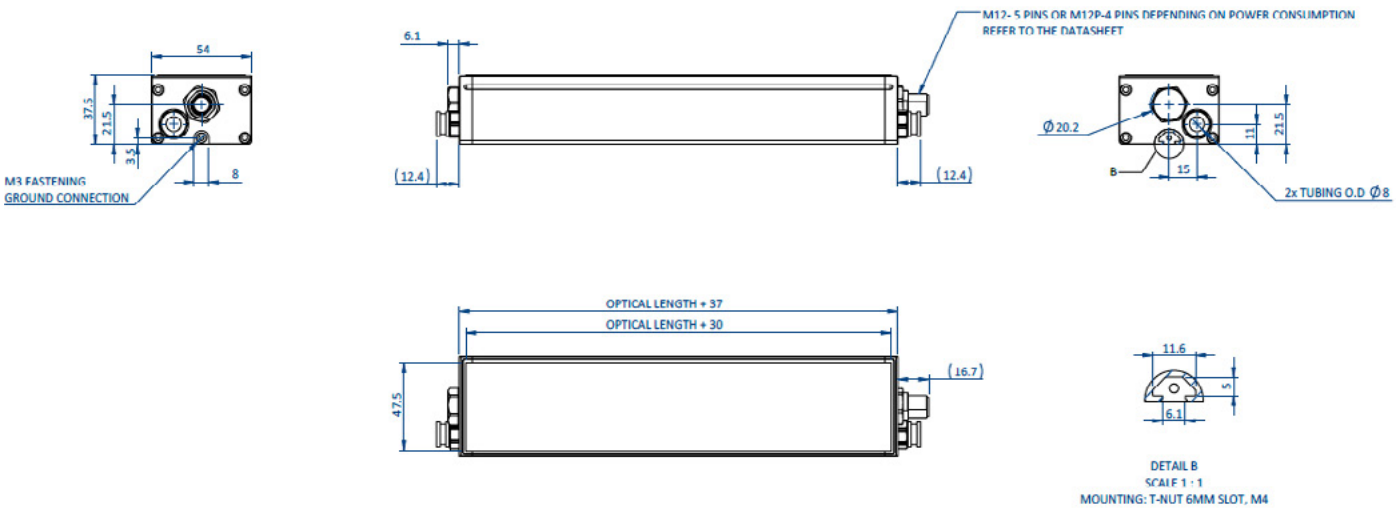
Dimensions of EFFI-FLEX2-IP67 - M12 & M12P (in mm)



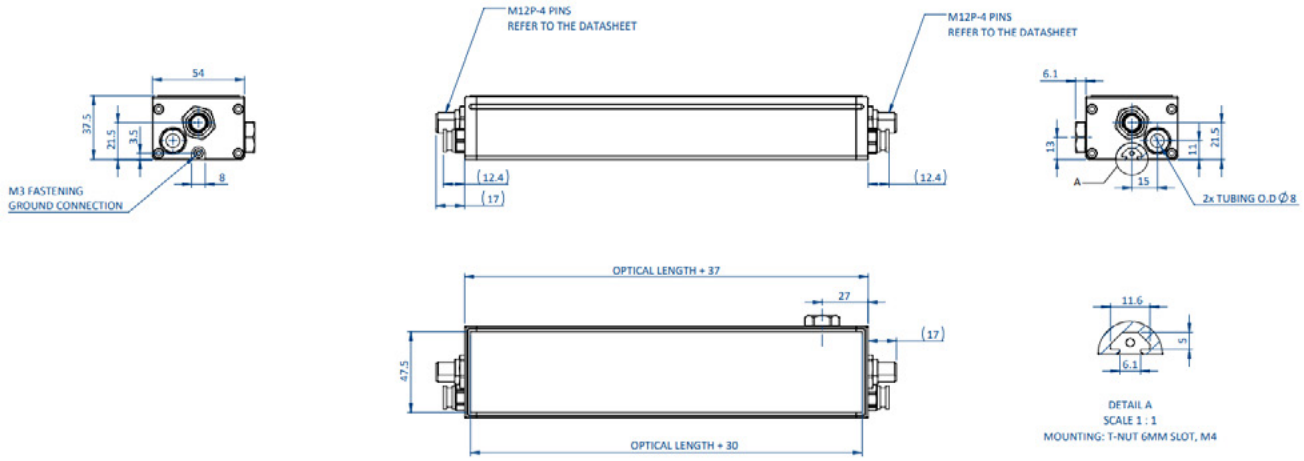
Dimensions of EFFI-FLEX2-IP67 - 2M12P (in mm)



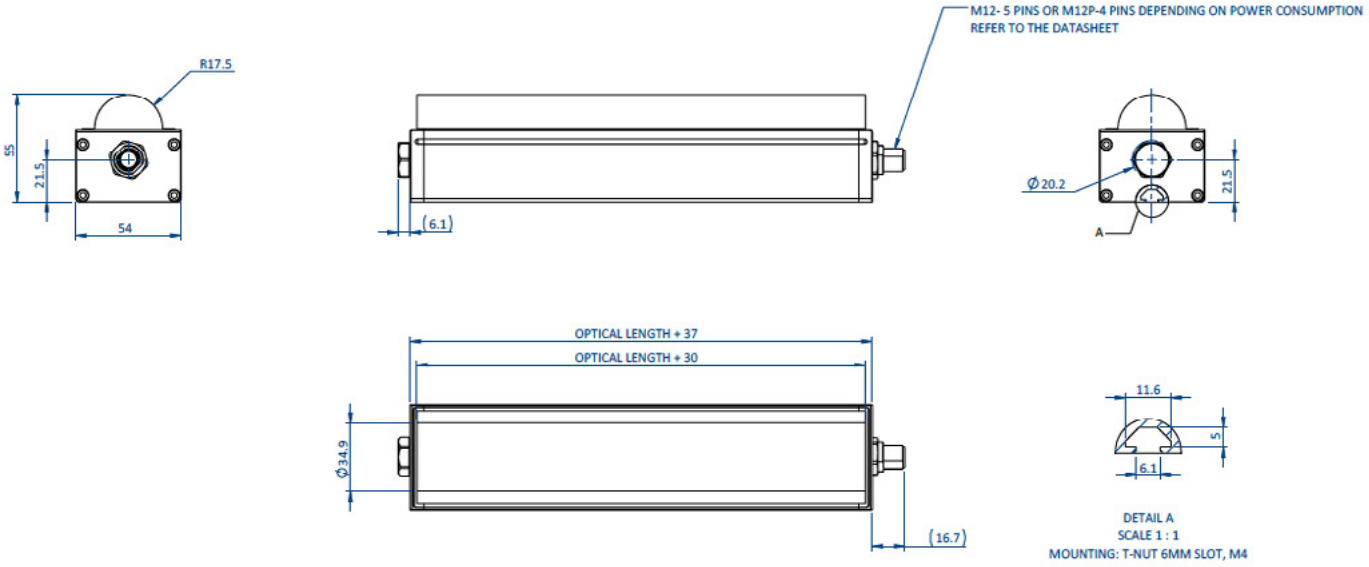
Dimensions of EFFI-FLEX2-IP67-WTR - M12 & M12P (in mm)



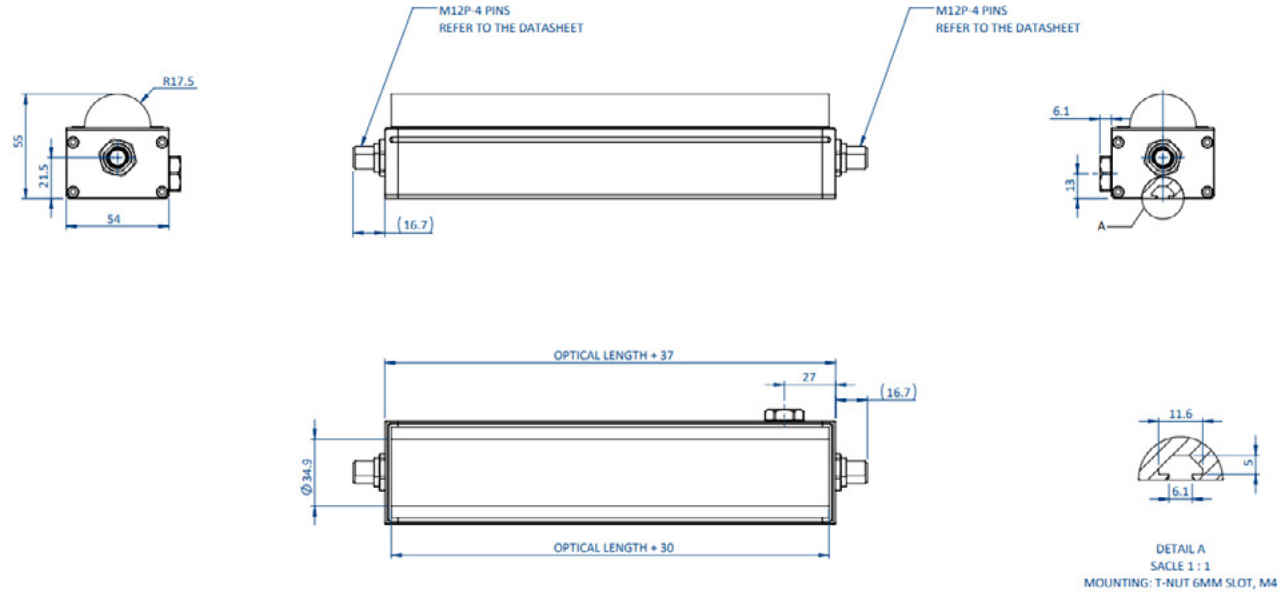
Dimensions of EFFI-FLEX2-IP67-WTR - 2M12P (in mm)



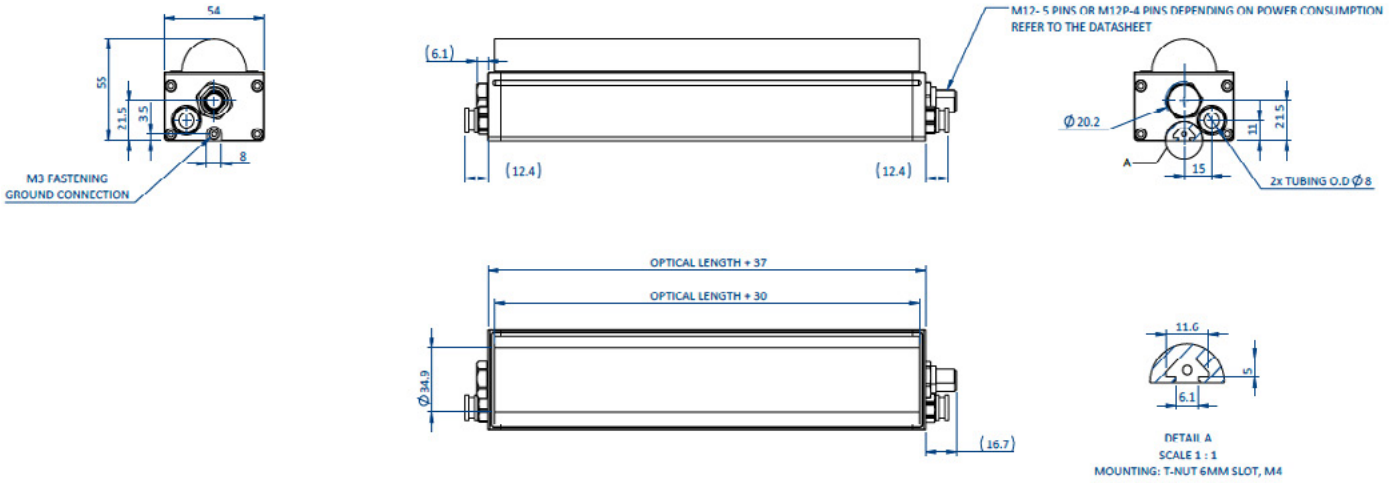
Dimensions of EFFI-FLEX2-IP67-...CYL - M12 & M12P (in mm)



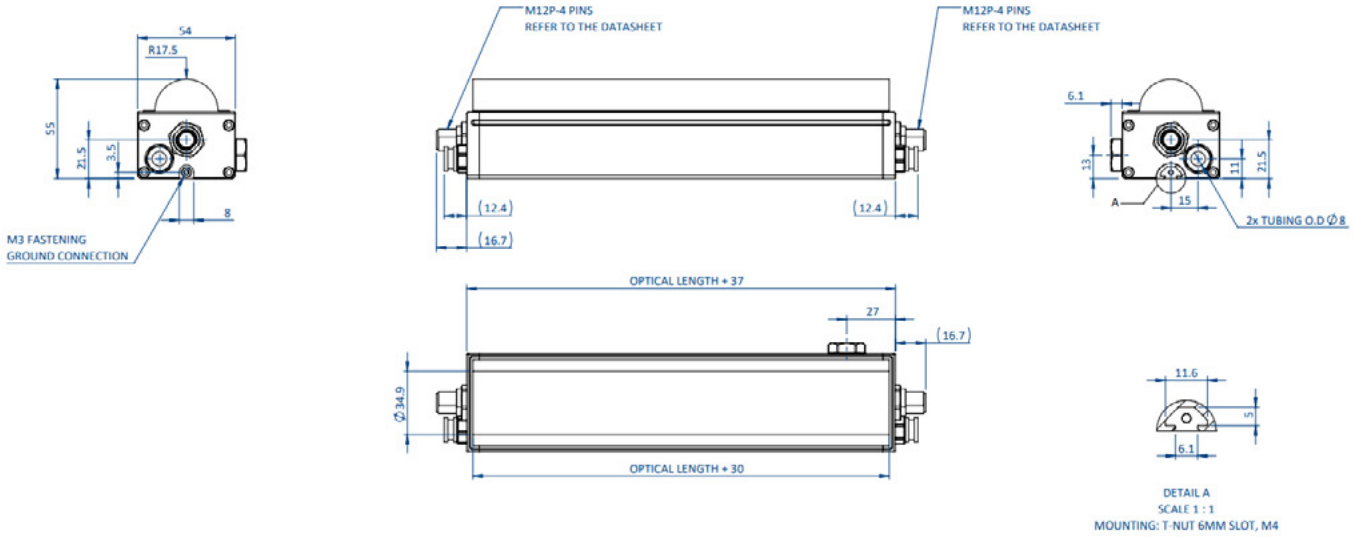
Dimensions of EFFI-FLEX2-IP67-...CYL - 2M12P (in mm)



Dimensions of EFFI-FLEX2-IP67-WTR-...CYL - M12 & M12P (in mm)



Dimensions of EFFI-FLEX2-IP67-WTR-...CYL - 2M12P (in mm)



ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-Flex2-IP67.

Fasteners

T-Nut Kit: EFFV-BOLT-0012
Pivot joint Kit: EFFM-1-0002

Extension cables

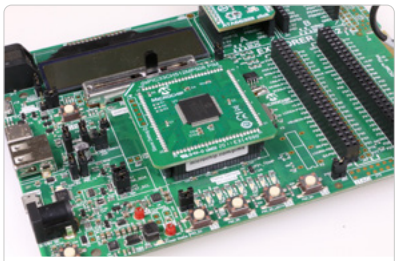
2meters: EFFC-CAB-M12-FM-5-DD-L2
5meters: EFFC-CAB-M12-FM-5-DD-L5
10meters: EFFC-CAB-M12-FM-5-DD-L10

Camera Filters

EFFO-FLR-...

OTHER CUSTOMIZATION

Please ask your sales contact for a custom device.



Custom software

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 October-2024 and may be changed without prior notice.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effillux.fr

effiFLEX2-IP67 UV365

Multimode Flexible UV LED bar light

Part-numbering

EFFI-FLEX2-IP67 - XXXX	- ZZZ	- WW	- PP
Optical Length [mm]	**Wavelength [nm]**	**Window**	**Lens position**
60 **100** ... All 100mm **2900**	● **365** (UV)	**TR** (Transparent special UV)	**P0** (90°)

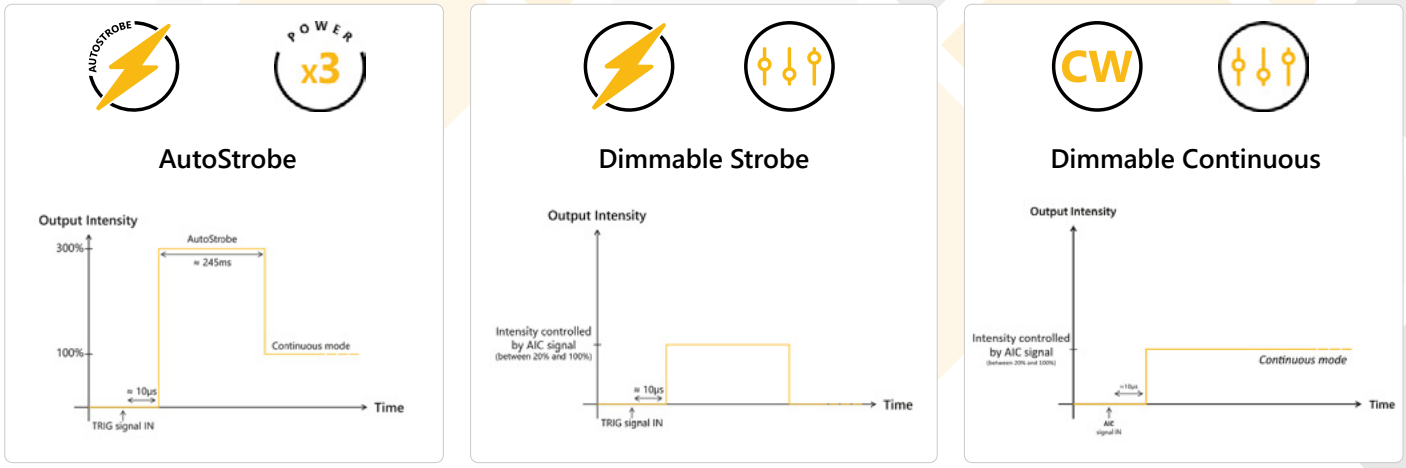
Notes:

- The EFFI-Flex2-IP67 UV365 comes with one possible configuration: transparent window and lens position at P0 (90°) (i.e. no lenses)
- The transparent window for this reference is a special made transparent window for UV365. The standard transparent window of EFFI-Flex2-IP67 is not compatible with this configuration.
- Linescan film and standard polarizer are not compatible with UV365.
- For maximum performances, please use a cable with no longer than 5m. Otherwise, the overdrive performances may be impacted.
- For energy consumption, expect 12% less compared to the standard version.

Available versions and options

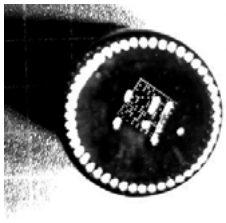
OPTICS	
Pure UV option	EFFI-FLEX2-IP67-XXXX-365-TR-P0-**PUV** *(See details next page)*
Cylindrical lens	EFFI-FLEX2-IP67-XXXX-365-**TR-P0-CYL** *(See details next page)*
L2: Economical version	EFFI-FLEX2-IP67-**L2-**XXXX-365-TR-P0 1 LED every 40mm vs 1 LED every 20mm for standard (See corresponding Annex)

Electronical modes



Note: Compared to the standard version the autostrobe overdrive mode has been capped at 300% of the continuous level.

Pure UV option



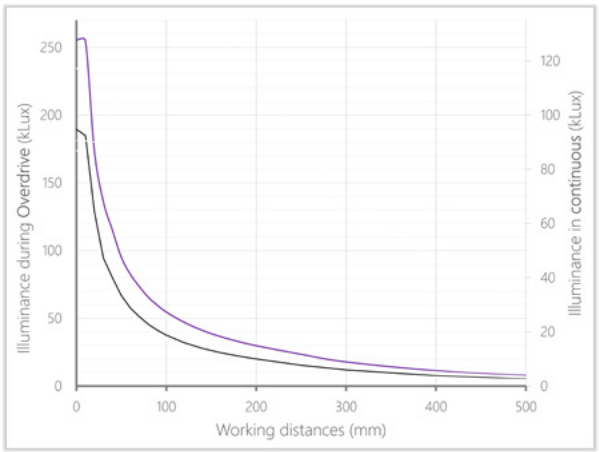
Used with the EFFI-Flex2-IP67 UV 365, the Pure UV technology is an innovative system that drastically improves the fluorescence effect while concurrently removing glare and improving contrast.

Note: The Pure UV light must be used along with a UV Cut filter on the camera.

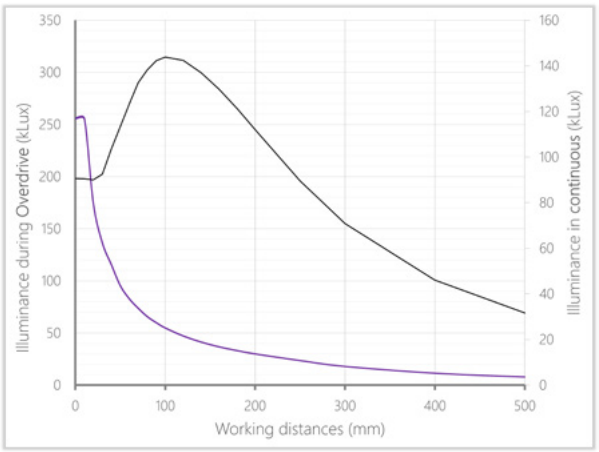
Cylindrical lens

The additional Cylindrical lens (CYL) allows to focus even more the light into a very bright line.

Illuminance vs Working distance (WD)



EFFI-Flex2-IP67 UV365 — EFFI-Flex2-IP67 UV365 **PUV**



EFFI-Flex2-IP67 UV365 — EFFI-Flex2-IP67 UV365 **CYL**

Note: The measurements have been made with a 300mm UV light, transparent window and lens position 0: EFFI-FLEX2-IP67-300-365-TR-P0.

ANNEX 2 - OTHER LED DENSITIES

The standard LED density for the EFFI-Flex2-IP67 is one LED every 20mm. However, we propose two other LED densities:

- L2 - Economical version : We put one LED every two slots (every 40mm).
- X2 - High light uniformity : We put one LED in between each standard LED (every 10mm).

Those modifications change the power consumptions and the light uniformity. For these references refer to the datas below.

Power consumption & connector definition

L2 version

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)														
Optical Length XXXX (mm)	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
In Continuous mode	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W

M12 - 5 pins	M12P - 4 pins	2x M12P - 4 pins

X2 version (Same as standard)

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)														
Optical Length XXXX (mm)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
In Continuous mode	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W

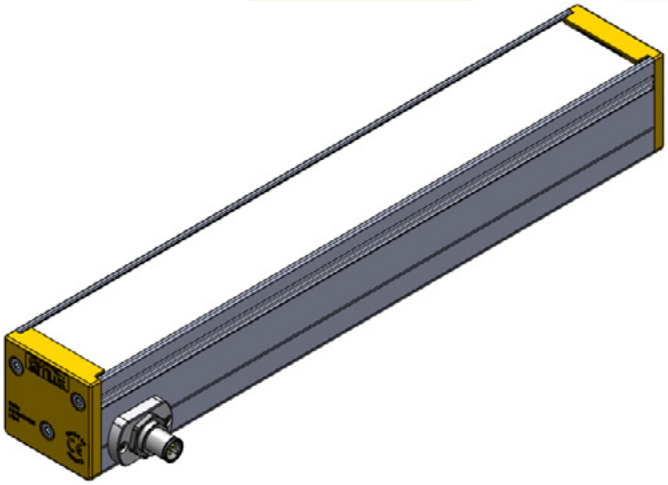
Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

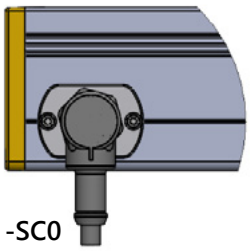
M12 - 5 pins	M12P - 4 pins	2x M12P - 4 pins

Note: These values are maximum values. The consumption may vary according to the wavelength and the software.

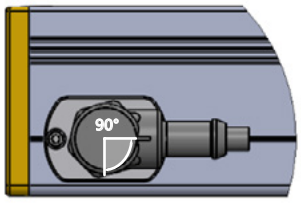
ANNEX 3 - CONNECTORS & CABLE OPTIONS

Side connector - M12 & M12P

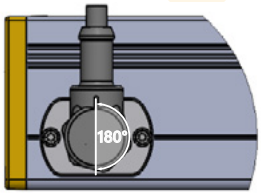




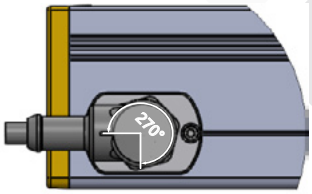
-SC0



-SC90



-SC180

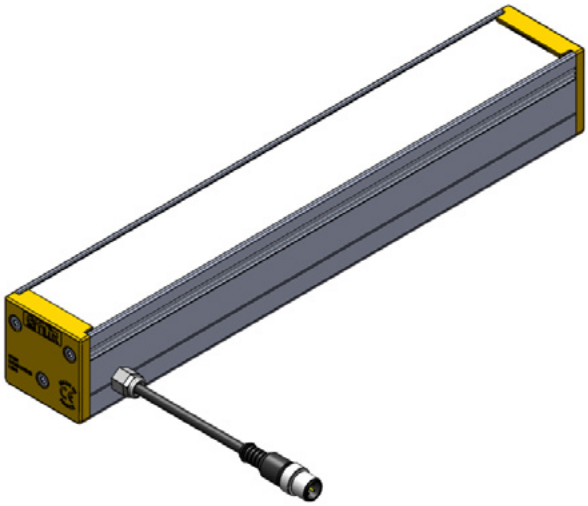


-SC270

EFFI-FLEX2-XXXX-ZZZ-WW-PP-SCXXX
EFFI-FLEX2-XXXX-ZZZ-WW-PP-SCXXX-1M12P

Connector on the side of the extrusion
XXX= Angle connector orientation (standard 0°: angled cable going to the back of the light)
M12 - 5 pins or M12P - 4 pins. Not available with 2M12P connectors.
Please check the connector according to the light size.

Side Cable Gland - M12



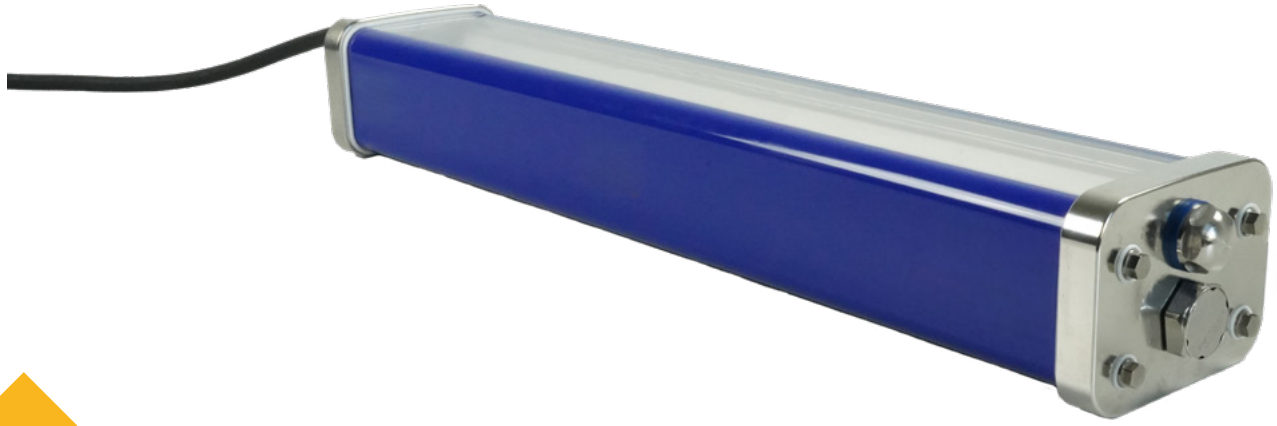
EFFI-FLEX2-XXXX-ZZZ-WW-PP-SCG

Cable gland on the side - Cable length: 500mm +/- 20mm
M12 - 5 pins. Not available with M12P connector.
Please check the connector according to the light size.

DATASHEET

Efficient Led Lighting

effiLux



High-pressure Washdown resistant

Up to 3 meters

Customizable software

Agri-food Compatibility

Ajustable emitting angles

Easy-to-use

Built-in driver

IP69K

AUTOSTROBE

CE

effiFLEX2-IP69K

Multimode Waterproof LED bar

PART NUMBERING

STANDARD VERSION

EFFI-FLEX2-IP69K - XXXX - ZZZ - WW - PP

Optical Length [mm]	Wavelength [nm]	Window	Lens position
60	**365*** (UV)	**TR** (Transparent)	**P0** (90°)
100	**405** (UV)	**SD** (Semi-diffuse)	**P1** (45°)
200	**465** (Blue)	**OP** (Opaline)	**P2** (25°)
300	**525** (Green)		**P3** (10°)
... Every 100mm	**625** (Red)		
2900	**850** (Infrared)		
	000 (White)		

(*) The UV 365nm wavelength is a specific configuration. Refer to the corresponding annex.

AVAILABLE VERSIONS & OPTIONS

OTHER VERSIONS - Compatible with each other	
Watercooling version	EFFI-FLEX2-IP69K-**WTR**-XXXX-ZZZ-WW-PP Allow the use of a watercooling system for thermal regulation.
Other LED densities versions L2 - Economical X2 - High uniformity	EFFI-FLEX2-IP69K-**L2**-XXXX-ZZZ-WW-PP 1 LED every 40mm vs 1 LED every 20mm for standard (See corresponding Annex)
	EFFI-FLEX2-IP69K-**X2**-XXXX-ZZZ-WW-PP 1 LED every 10mm vs 1 LED every 20mm for standard (See corresponding Annex)
OPTICAL OPTIONS	
Polarizer accessory	EFFI-FLEX2-IP69K-XXXX-ZZZ-WW-PP-**POL** *(See page 5)*
Linescan film	EFFI-FLEX2-IP69K-XXXX-**ZZZ-TR-P3-LS** *(See page 5)*
ELECTRONICAL OPTIONS	
Continuous boost (ELS XXX)	EFFI-FLEX2-IP69K-XXXX-ZZZ-WW-PP-**ELSxxx** (xxx = 500 / 700 / 1000) For experts who need a power boost in continuous mode. Only available in WTR version.
Customized software	EFFI-FLEX2-IP69K-XXXX-ZZZ-WW-PP-**SWxxxxxx** Specific reference xxxxxx for each customized software.

TECHNICAL SPECIFICATIONS

effiFLEX2-IP69K

Illumination Mode		Overdrive, Strobe or continuous	
Wavelengths		365nm, 405nm, 465nm, 525nm, 625nm, 850nm (+/- 5nm) White (5500K ±500K) *(Other wavelength upon request)*	
Power Supply		24V DC (+/-10%)	
Connector(s) *(See wiring layout page 6)*	Optical length	**60mm - 1600mm**	**1700mm - 2900mm**
	Type	FL - 4pins	2x FL - 4pins
Power Consumption *(See details page 6)*	In continuous mode	Max. 10W per 100 mm of optical length	
	In Autostrobe mode (peak)	Max. 25W per 100mm of optical length	
Built-in driver version		Multimode (3 modes: AutoStrobe with overdrive intensity / Dimmable strobe / Dimmable continuous)	
Analog Intensity Control (AIC)		The output optical power is adjustable from 20% to 100% by applying a signal from [2V-10VDC] Total voltage range [1.5V-24VDC] / Don't exceed 24V DC / Max. signal consumption: 4mA	
Autostrobe		450% Overdrive during 245 ms max.	
		Max. duty cycle 20%	
		PNP trigger input: Light ON from 4.5V* to 24V / Don't exceed 24VDC / Max. signal consumption: 4mA *(Option NPN for size ≥ 500mm, on PIN4: Light ON from 0V to 1V / Don't exceed 24V DC / Max. signal consumption: 4mA)*	
Response time		Max. 10µs *(Rise time included)*	
Weight		Approx. 550g + (250g per 100mm of optical length)	
Dimensions		69.5mm x 53mm x Length (= Optical length + 45mm +100mm if WTR) - *See the drawing on page 8*	
Material		Device body: PMMA	
Fastener		Mounting solution not included, contact Effilux	
IP rating		IP69K (washdown resistant)	
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	

*__Note:__ The PNP threshold voltage of 4.5V may vary according to lengths and power consumption. *(Please refer to the related table value in the User Manual of EFFI-Flex2-IP69K)*

OPTICAL SPECIFICATIONS

Three different windows to adjust light uniformity

Diffusers

TR : Transparent

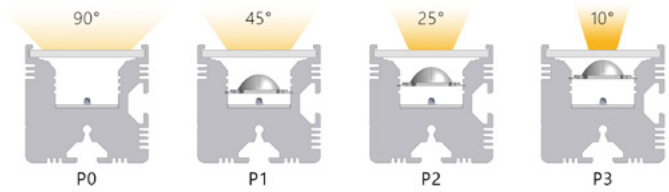
SD : Semi-diffuse

OP : Opaline

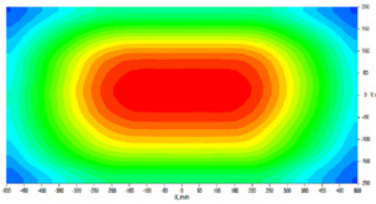
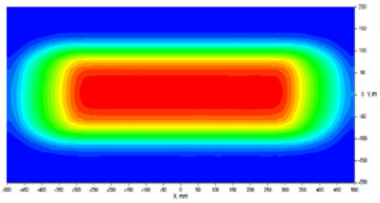
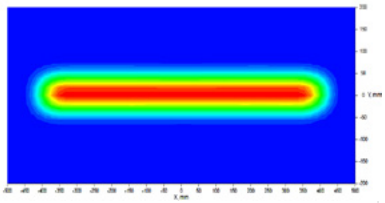
Choose the best configuration for your use-case : More diffusion (left to right) yields greater uniformity but reduces light power.

Four lens positions to adjust beam angle

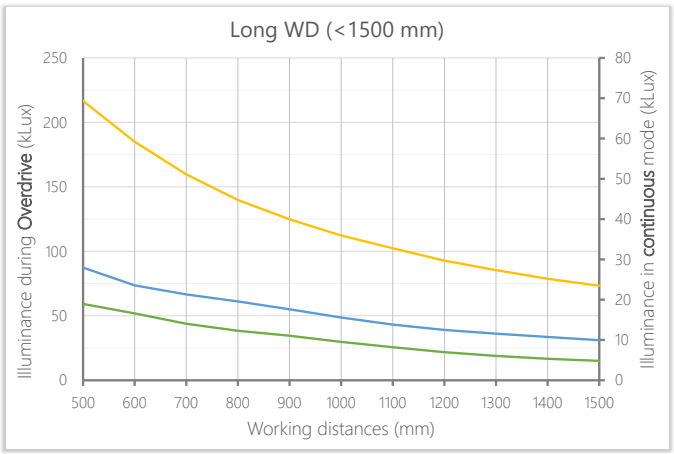
With the EFFI-Flex2-IP69K, users can customize the light beam angle. The default position is P2, but alternate specifications are available upon ordering: placing the lenses closer to the window narrows the light angle.



Irradiance maps

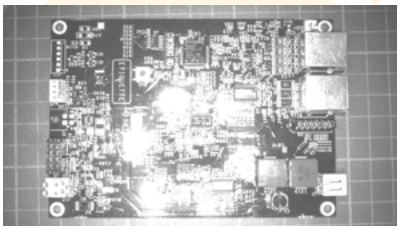
Optical configuration	TR-P1	TR-P2	TR-P3
Working distance 500mm Area size: 400x1000mm² 0% 100%			

Intensity vs Working distance (WD)

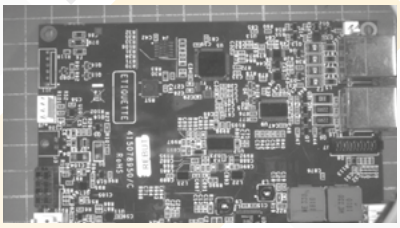


Lens position P1 Lens position P2 Lens position P3

Polarizer



Without polarizer



With polarizer

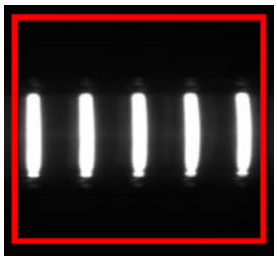
Using polarizers, on the Effilux light and on the camera, helps acquiring suitable images by eliminating glare issued from the workpiece .

The polarizer film is positioned just under the window on demand when ordering.

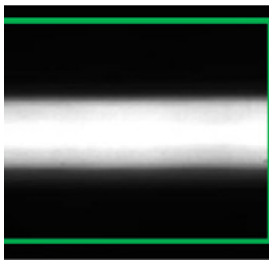
Important note: The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.

Linescan configurations

Linescan film (TR-P3-LS)



Without Linescan film



With Linescan film

With the lens in the upper position (P3) and the transparent window (TR), the linescan filter accessory transforms the EFFI-Flex2-IP69K into a uniform line light ideal for either brightfield or darkfield illumination.

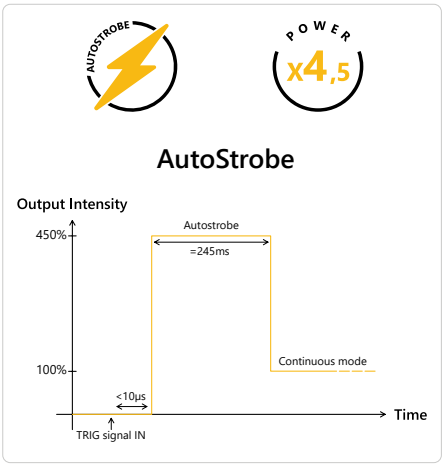
ELECTRONICAL SPECIFICATIONS

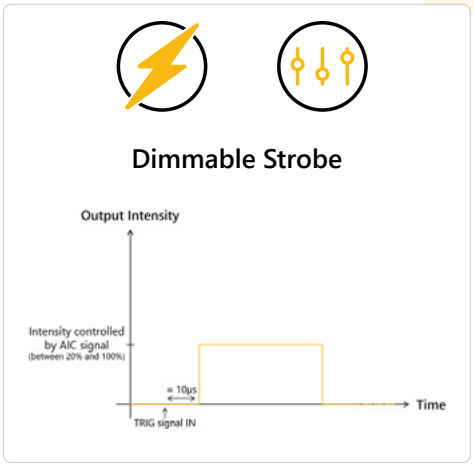
Overview

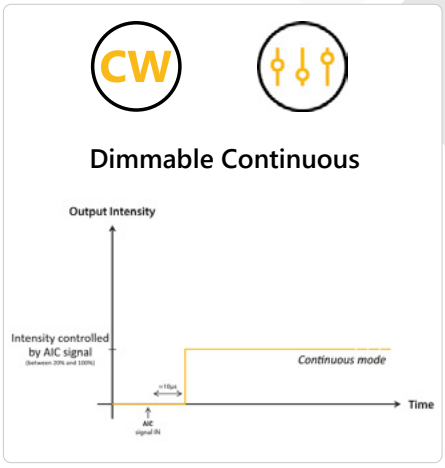
The EFFI-Flex2-IP69K has been designed to have several electronical modes available in the same product. Additionnally to that, engineers have developed a strong AutoStrobe mode to reach 450% light intensity.

Thus, EFFI-Flex2-IP69K can be used to have a:

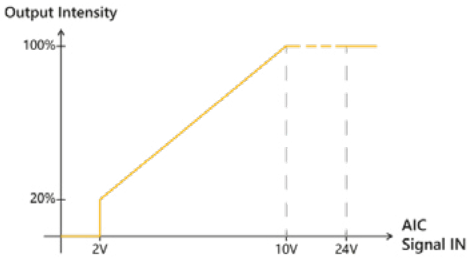
- **High power strobe - Autostrobe mode:** Light intensity at 450%. Max duty cycle of 20% and max pulse duration of 245ms.
- **DIM modes :** Light intensity between 20% and 100% monitored with the AIC pin and strobe or continuous mode monitored with the trigger pin.







Analog Intensity Control (AIC)



- The output intensity can be adjusted from 20% to 100% by applying a signal from [2V-10V DC].
- If V_{AIC} = [0V-1V DC] or if not connected, the EFFI-Flex2-IP69K is in AutoStrobe mode by default.

Power consumption & connector definition

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)															
Optical Length XXXX (mm)	60	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
In Continuous mode	<10W	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	<30W	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W
Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

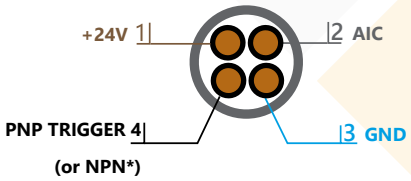
Notes: These values are maximum values. The consumption may vary according to the wavelength and the software. For the wavelengths 405 nm, you need to account for an additional 30% power consumption and for the wavelength 365, see the corresponding annex.

FL - 4 pins	2FL - 4 pins

Wiring layout

Depending on the size, the light comes with one or two flying leads cables (refer to the table above).

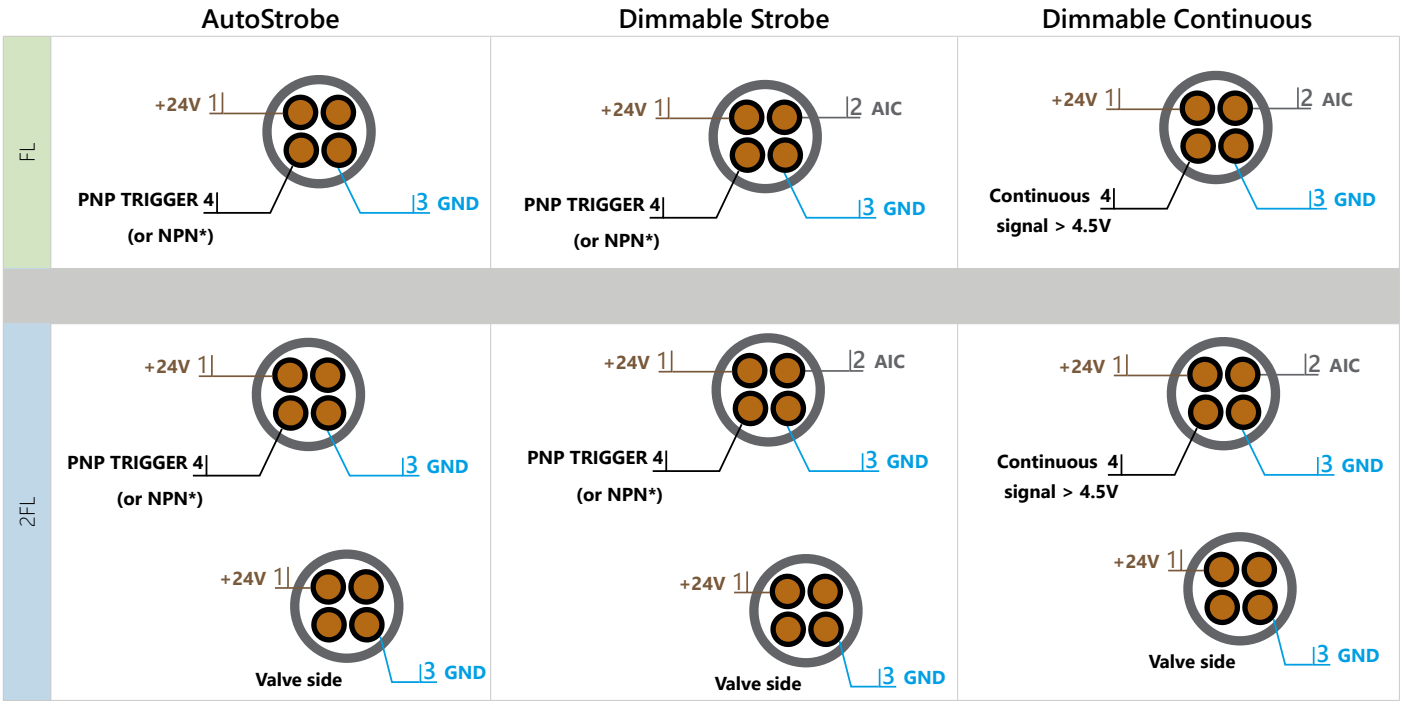
Flying leads FL (10m cable)



Notes:

- The EFFI-FLEX2-IP69K requires 24V DC input power.
- PNP trigger pin (or NPN) needs to be connected either to a trigger signal for AutoStrobe and Strobe mode or to a continuous signal for Continuous mode.
- AIC pin can stay unplugged for Autostrobe mode, or tied to +24V for continuous mode at maximum intensity.
- (*) The NPN configuration is an option for which the PNP trigger input is replaced by the NPN trigger input.
- For the 2FL configurations, is located on the valve side and should only have +24V and GND connected. Both cable GND must be tied together.

Layout example (PNP)

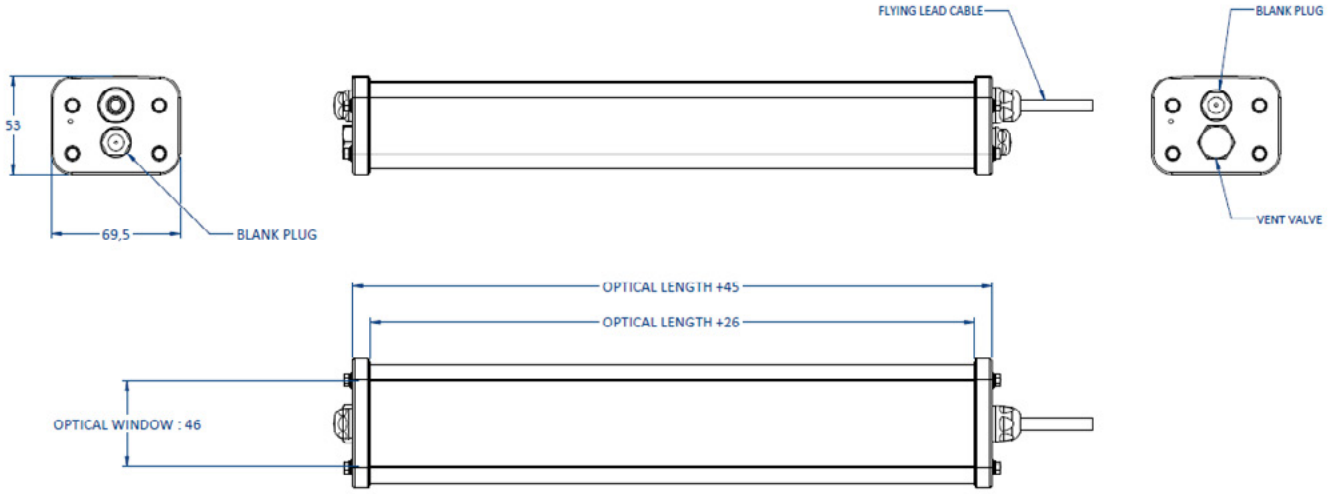


Continuous power boost (only with WTR version)

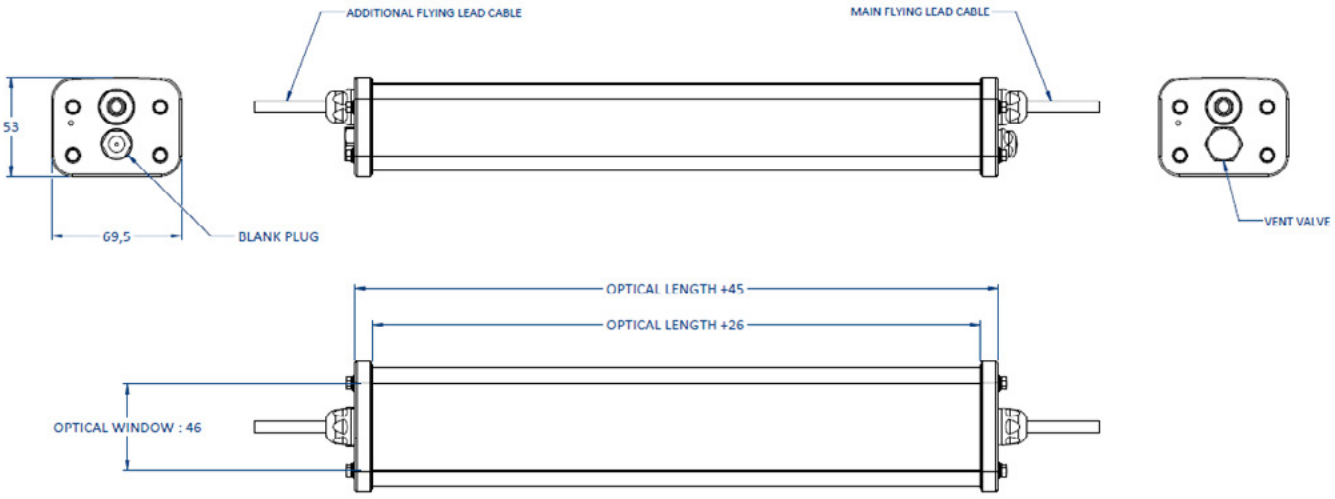
With the ELS500, ELS700 and ELS1000 options the EFFI-FLEX2-IP69K light power can be improved for continuous use.
These configurations only work with the WTR version as extra heat is produced.
As this is an expert configuration, get in touch with Effilux before implementing it.

MECHANICAL SPECIFICATIONS

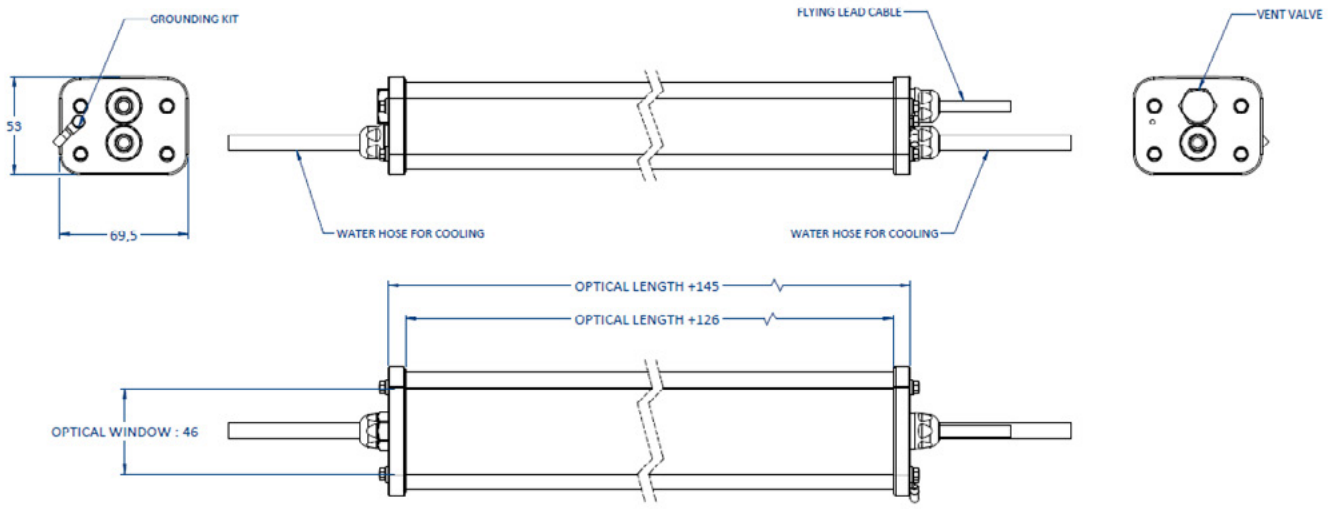
Dimensions of EFFI-Flex2-IP69K - FL (in mm)



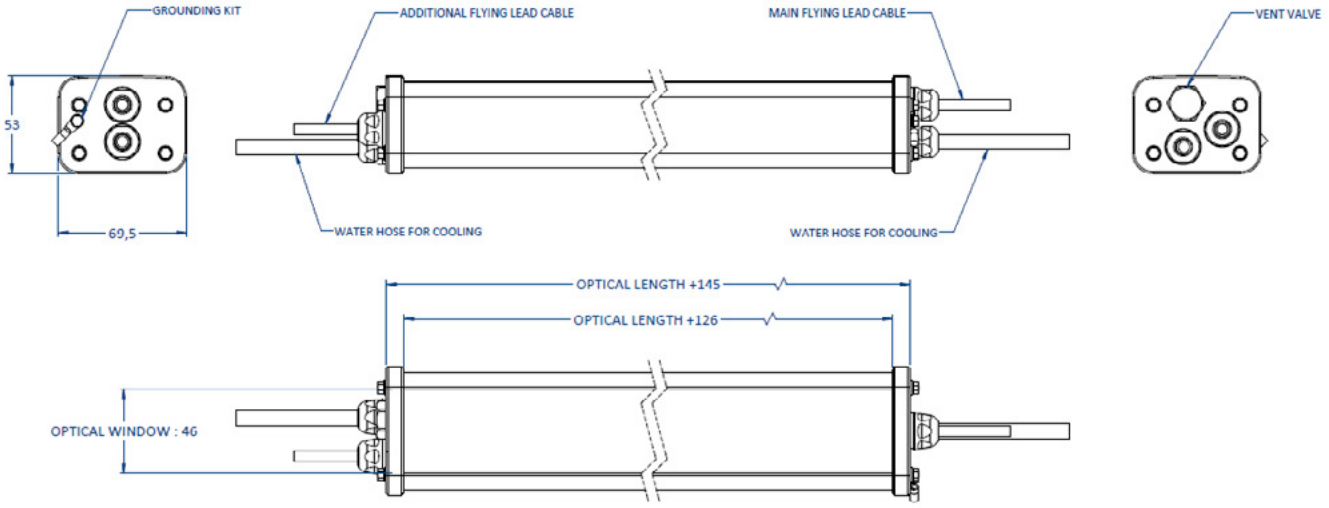
Dimensions of EFFI-Flex2-IP69K - 2FL (in mm)



Dimensions of EFFI-Flex2-IP69K-WTR - FL (in mm)



Dimensions of EFFI-Flex2-IP69K-WTR - 2FL (in mm)



ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-Flex2-IP69K.

Camera Filters

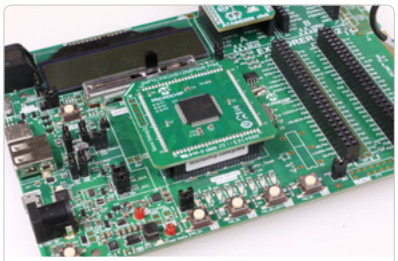
EFFO-FLR-...

Mountings

EFFM-1-FLEX2-IP69K

OTHER CUSTOMIZATION

Please ask your sales contact for a custom device.



Custom software

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 October-2024 and may be changed without prior notice.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effillux.fr

effiFLEX2-IP69K UV365

Multimode Waterproof UV LED bar light

Part-numbering

EFFI-FLEX2-IP69K - XXXX	- ZZZ	- WW	- PP
Optical Length [mm]	**Wavelength [nm]**	**Window**	**Lens position**
60 **100** ... All 100mm **2900**	● **365** (UV)	**TR**	**P0** (90°)

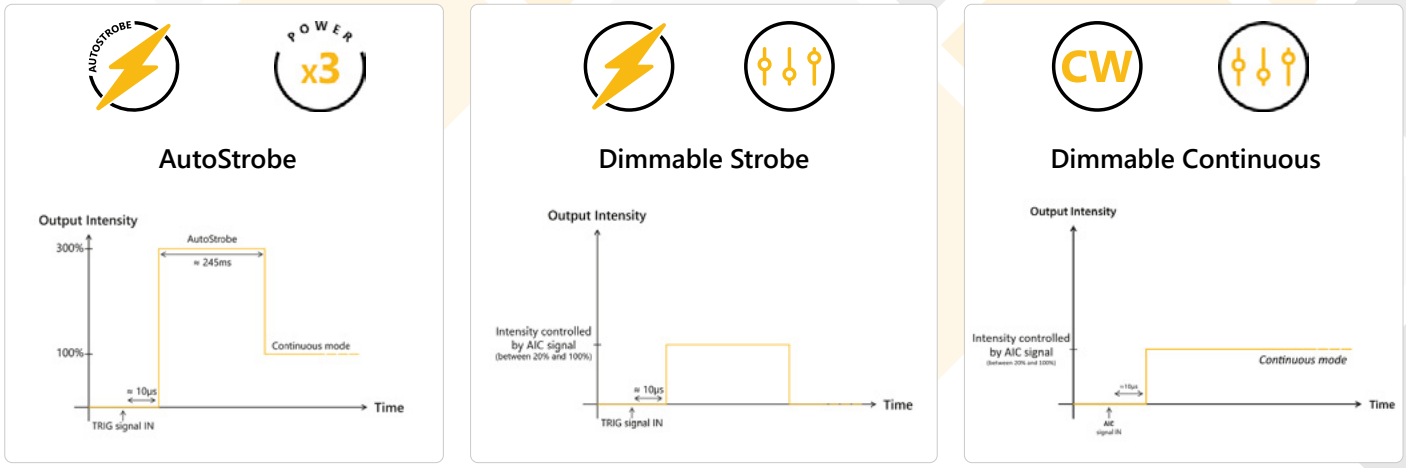
Notes:

- The EFFI-Flex2-IP69K UV365 comes with one possible configuration lens position at P0 (90°) (i.e. no lenses)
- The PMMA window is directly compatible with UV light.
- Linescan film and standard polarizer are not compatible with UV365.
- The flying lead for the UV configuration is limited at 5m to ensure equal overdrive performances as in standard configuration.
- For power consumption, expect 12% less compared to the standard version.

Available versions and options

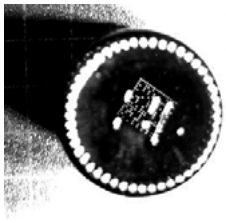
OPTICS	
Pure UV option	EFFI-FLEX2-IP69K-XXXX-365-TR-P0-**PUV** *(See details next page)*
L2: Economical version	EFFI-FLEX2-IP69K-**L2-**XXXX-365-TR-P0 1 LED every 40mm vs 1 LED every 20mm for standard (See corresponding Annex)

Electronical modes



Note: Compared to the standard version the autostrobe overdrive mode has been capped at 300% of the continuous level.

Pure UV option



Used with the EFFI-Flex2-IP69K UV 365, the Pure UV technology is an innovative system that drastically improves the fluorescence effect while concurrently removing glare and improving contrast.

Note: The Pure UV light must be used along with a UV Cut filter on the camera.

ANNEX 2 - OTHER LED DENSITIES

The standard LED density for the EFFI-Flex2-IP69k is one LED every 20mm. However, we propose two other LED densities:

- L2 - Economical version : We put one LED every two slots (every 40mm).
- X2 - High light uniformity : We put one LED in between each standard LED (every 10mm).

Those modifications change the power consumptions and the light uniformity. For these references refer to the datas below.

Power consumption & connector definition

L2 version

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)														
Optical Length XXXX (mm)	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
In Continuous mode	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W

FL - 4 pins

X2 version (Same as standard)

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)														
Optical Length XXXX (mm)	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
In Continuous mode	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W

Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

FL - 4 pins | 2FL - 4 pins

DATASHEET

Efficient Led Lighting

effiLux

Uniform

Flexibility

Very intense

Lot of options

AUTOSTROBE

IP5X

CE

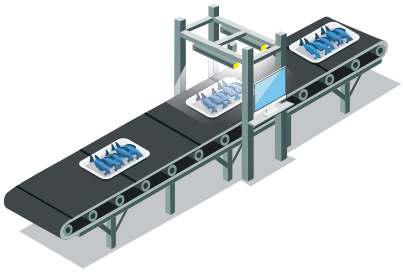
effiFLEX

Adjustable beam angle LED bar

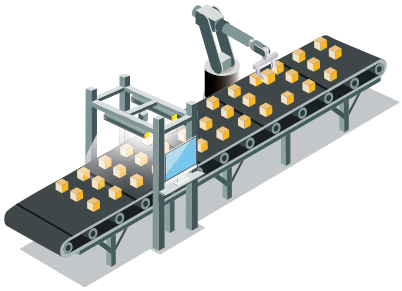
INTRODUCTION

Table of contents

Applications



Quality control



Pick and place

Related Product

See the product datasheets below for more information.

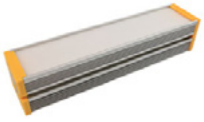
EFFI-FLEX-CPT

IP67 version

EFFI-FLEX-IP69K

IP69K version for
Food Industry & Washdown Environments

EFFI-FLEX-BL



Backlight version

EFFI-FLEX-HSI

Hyperspectral configuration

EFFI-FLEX-SWIR

SWIR configuration

PART NUMBERING

STANDARD VERSION

EFFI-FLEX - XXX - ZZZ - WW - PP

Number of LED	Wavelength	Windows	Lens position
1 (20 mm)	**365*** (UV)	**TR**: Transparent	**P0** (90°)
3 (60 mm)	**405** (UV)	**SD**: Semi-diffuse	**P1** (45°)
5 (100 mm)	**465** (Blue)	**OP**: Opaline	**P2** (25°)
10 (200 mm)	**525** (Green)		**P3** (10°)
... Every 5 LED (every 100mm)	**625** (Red)		
145 (2900mm)	**850** (Infrared)		
	000 (White 5500K)		

(*) The UV 365nm wavelength is a specific configuration. Refer to the optical specifications.

AVAILABLE VERSIONS & OPTIONS

VERSIONS	
ELS	EFFI-FLEX-XXX-ZZZ-WW-PP-**ELS-VVV-UUU** Specific configuration for continuous mode with AIC (Analog Intensity Control). The standard configuration is in Autostrobe mode. VVV corresponds to the intensity current sent per LED (350, 500, 700 or 1000 mA). UUU correspond to the voltage range used for intensity control (24, IN-24 or IN-5).
L2: Economical version	EFFI-FLEX-**L2**-XXXX-ZZZ-WW-PP 1 LED every 40mm vs 1 LED every 20mm for standard
OPTICAL OPTIONS	
RGB	EFFI-FLEX-XXX-**RGB**-WW-PP RGB: Red, Green, Blue LED alternated. See corresponding annex.
WUI	EFFI-FLEX-XXX-**WUI**-WW-PP WUI: White, UV, Infrared LED alternated. See corresponding annex.
Kit with all diffusers	EFFI-FLEX-XXX-ZZZ-**KIT** The light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser. Only available for sizes ≤ 40LED..
Polarizer	EFFI-FLEX-XXX-ZZZ-WW-PP-**POL2** Eliminate glare from the workpiece making it easier to acquire a suitable image for the application with no hot spot.
Linescan film	EFFI-FLEX-XXX-**ZZZ-TR-P3-LS** Transforms the EFFI-Flex light into a uniform line light ideal for either brightfield or darkfield illumination. Classic configuration with TR window and lens in position P3.
Cylindrical lens	EFFI-FLEX-XXX-ZZZ-**TR-P1-LS-CYL** Focus the light, into a very bright line. Classic configuration with linescan accessory and lens in position P1.
Pure UV (for fluorenscence applications)	EFFI-FLEX-XXX-**365-TR-P0-PUV** Innovative EFFILUX system that drastically improves the fluorescence effect while concurrently removing glare and improving contrast. Only for 365nm.

GENERAL SPECIFICATIONS

effiFLEX		
Illumination Mode	AutoStrobe or Continuous with AIC	
Wavelengths	Single wavelength (from UV to IR) / White / Multispectral	
Power Supply	24V DC	
Connector(s)	**M12 - 5 pins**	**M12 Power - 4 pins**
Power Consumption	Depends on the number of LEDs	
Weight	60g + 60g per LED	
Dimensions	51mm x 49mm x length depends on the number of LEDs	
Material	Device body: Aluminum alloy & ABS; Window: PMMA	
Fastener	One T-slot on the back for 8mm T-nut (M6 recommended), and one slot on the side for M6 hex nut	
IP rating	IP50	
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

Many possible configurations in just one light

Diffusers

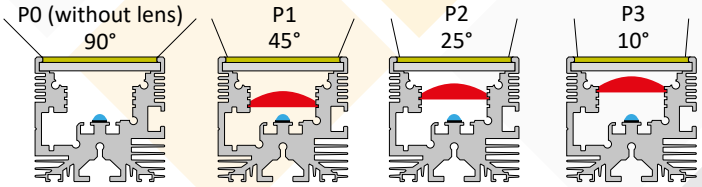
TR : Transparent

SD : Semi-diffuse

OP : Opaline

Depending on the uniformity needed for the application, the user can easily change the diffuser to satisfy the application requirements.

Lens position



The EFFI-Flex offers flexible lens positioning to control the beam angle. The user can adjust it by himself: the angle can be widened by moving the lens closer to the LEDs or narrowed by moving the lens further away from the LEDs.

UV365: Only Transparent and P0 (without lens) configuration is available.

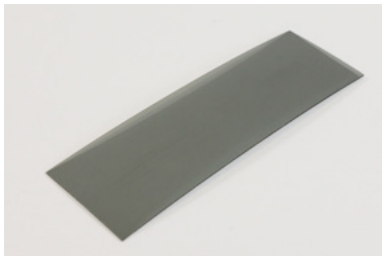
Kit option

With the KIT option, the light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser.

Only available for sizes ≤ 800mm.

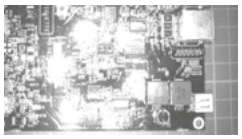
The KIT replaces WW-PP in the part number. Example: EFFI-FLEX-XXXX-ZZZ-**WW-PP** becomes EFFI-FLEX-XXXX-ZZZ-**KIT**

Polarizer

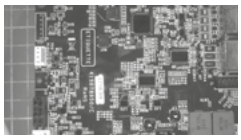


Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application.

The user can insert directly the polarizer inside the EFFI-Flex, under the window.



Without polarizer



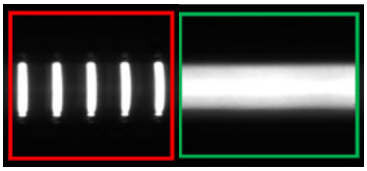
With polarizer

Important notes:

- The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.
- This option isn't available for UV365.

Linescan configurations

Linescan film (TR-P3-LS)



Without Linescan film With Linescan film

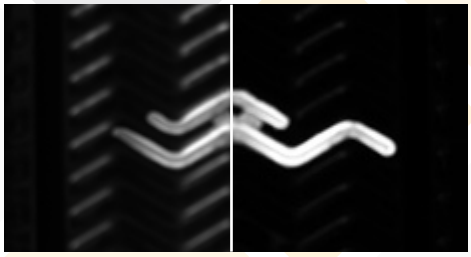
Notes: The linescan option isn't available for UV365.

Cylindrical lens (TR-P1-LS-CYL)

Used in combination with the internal lenses in the lowest position (P1), and the Linescan film (LS), the additional Cylindrical lens (CYL) allows to focus even more the light into a very bright line.

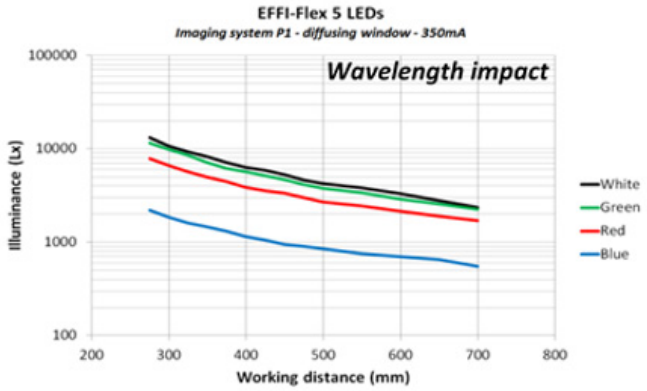
Pure UV

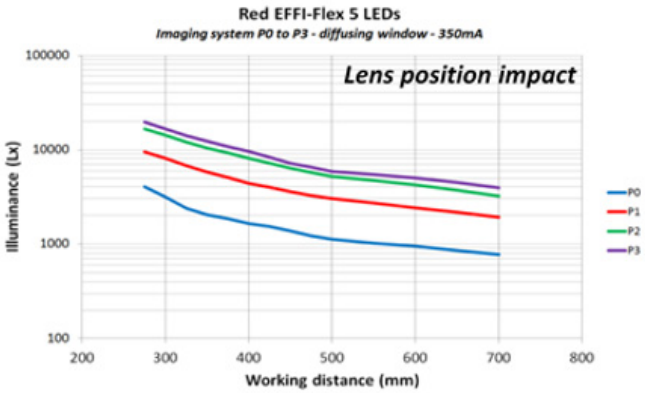
EFFILUX's PureUV technology, adapted to EFFI-Flex at 365nm, eliminates unwanted reflections and provides the best possible contrast for fluorescence applications



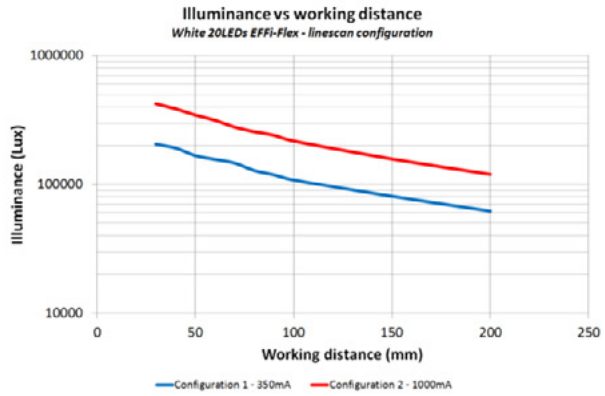
Illuminance vs working distance

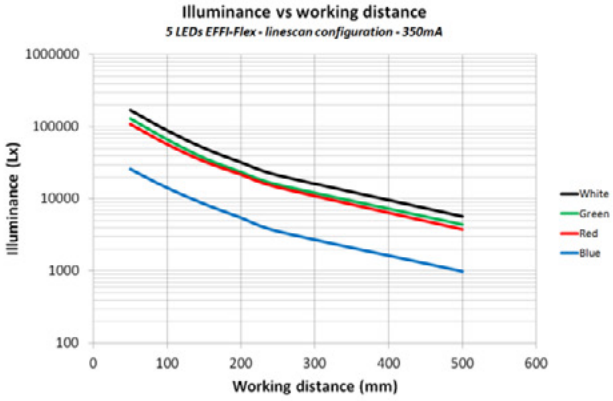
The following measurements are made with a white EFFI-FLEX, in continuous mode.
Using the Overdrive of the Autostrobe driver increases by 300% the values.





Linescan configuration





ELECTRONICAL SPECIFICATIONS

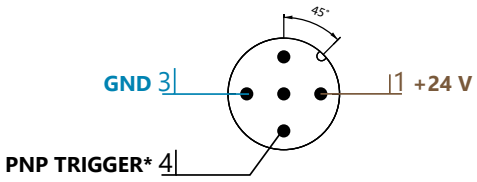
Overview

Two versions of the EFFI-FLEX exists:

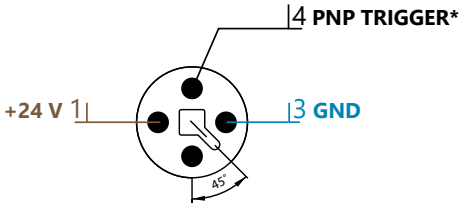
- **Autostrobe mode (default):** 300% current value with a max duty cycle of 30% and max pulse duration of approximately 1,5s.
- **Continuous mode (ELS):** Light intensity between 20% and 100% monitored with the AIC pin.

Contact Arrangement

M12 5pins - male connector



M12P 4pins - male connector



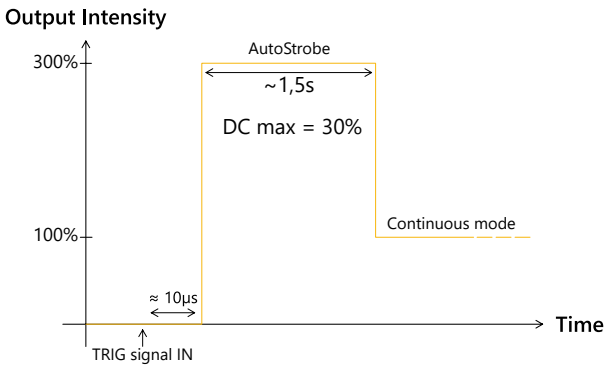
Notes:

- (*) AIC (Analog Intensity Control) for the ELS version.
- The EFFI-FLEX requires 24V DC input power. Light ON if VPNP > 4.5V DC (Max 24V DC).

Driver Versions

Standard version : Autostrobe driver

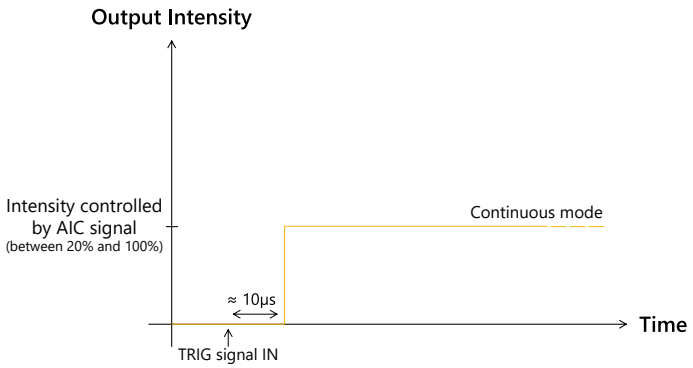
EFFI-FLEX-XXX-ZZZ-WW-PP



Dimmable version : ELS driver

(AIC instead of PNP)

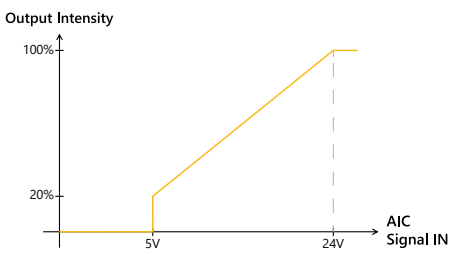
EFFI-FLEX-XXX-ZZZ-WW-PP-ELS-VVV-UUU



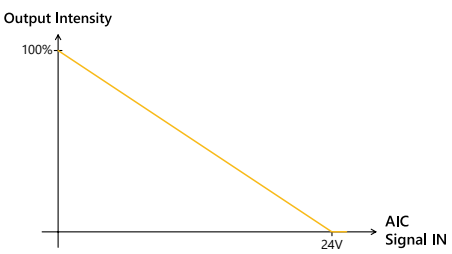
ELS Driver variants

AIC control range (UUU)

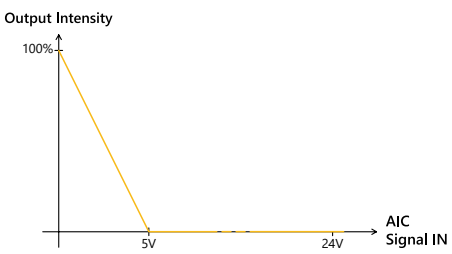
Standard 0-24V
ELS-VVV-24V



Inverse 0-24V
ELS-IN-VVV-24V



Inverse 5-0V
ELS-IN-VVV-5V



LED current (VVV) vs cooling system in ELS configuration

Part number: VVV	Output current (mA) [0-100%]	**EFFI-Flex** (Standard)		**EFFI-Flex-L2** (1LED/ 2 version)
350 (Standard)	0-350 mA			
500	0-500mA	Duty cycle <70% 	Duty cycle>70% 	
700	0-700mA	Duty cycle <50% 	Duty cycle >50% 	
1000	0-1000 mA	Duty cycle <30% 		Duty cycle >30% 

Note: For the water cooling version, EFFI-FLEX-CPT version is required. Please refer to the corresponding datasheet.

Power consumption

Number of LED	Max power consumption (W) (White-2m cable)					
	Standard version		ELS 350mA	ELS 500mA	ELS 700mA	ELS 1000mA
	P_{peak}	Pcw*				
1	5	2	5	5	5	5
3	15	5	5	10	10	15
5	20	8	10	10	15	20
10	40	15	15	20	30	40
15	60	20	20	30	40	60
20	80	30	30	40	55	80
25	95	35	35	50	70	95
30	115	45	45	60	80	115
35	135	50	50	70	95	135
40	155	55	55	80	110	155
45	175	60	60	90	120	175
50	190	65	70	95	135	190
55	210	70	75	105	150	210
60	230	75	80	115	160	230
65	250	85	90	125	175	250
70	270	90	95	135	190	270

*** :** With standard version: M12 connector can accept more eletrical power thanks to its strobe mode

M12 standard (A-coded) Male connector M12 power (T-coded) Male connector

Importante notes: For the wavelengths 365 nm and 405 nm, you need to account for an additional 25% power consumption.

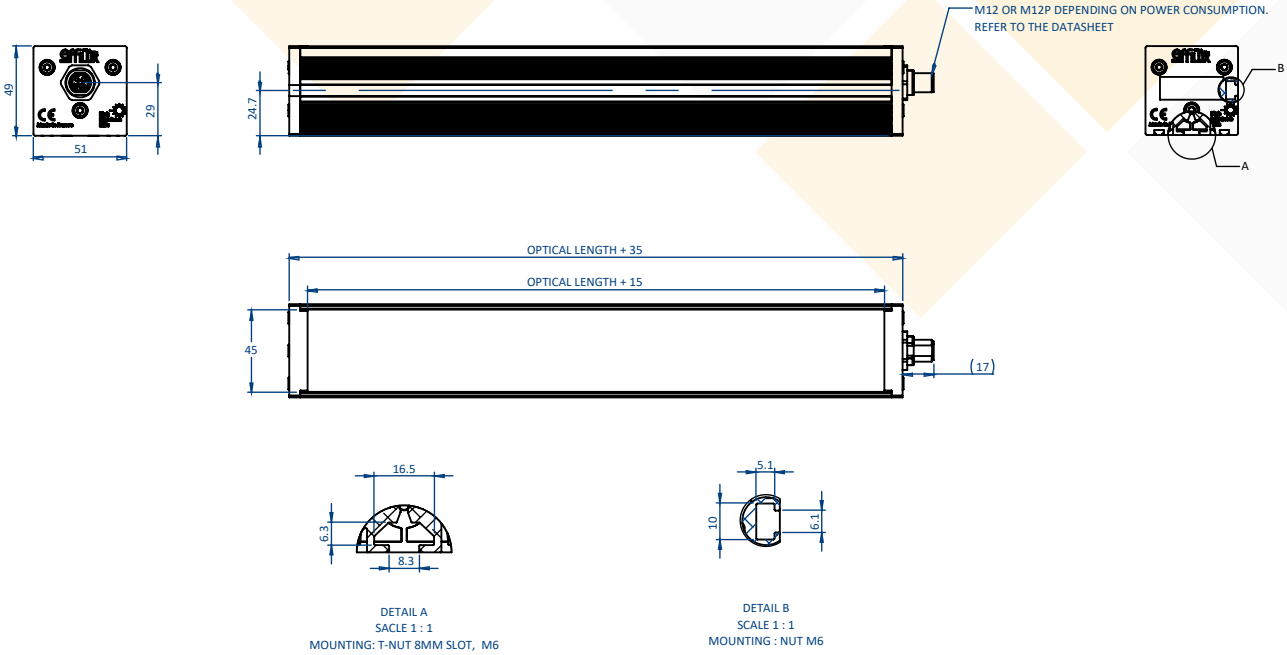
Signal consumptions

PNP Trigger Signal consumption (Standard AutoStrobe version)			
Amount of LED	Consumption @5V (mA)	Consumption @10V (mA)	Consumption @24V (mA)
1	0.05	0.1	1.5
3	0.05	0.1	0.25
5	0.05	0.1	0.25
10	0.1	0.2	0.45
15	0.05	0.1	0.25
20	0.1	0.2	0.45
30	0.1	0.2	0.45
40	0.15	0.3	0.7
50	0.2	0.4	0.9
75	0.25	0.45	1.1
100	0.35	0.65	1.55
125	0.41	0.82	2
150	0.45	0.9	2.2

AIC Signal consumption (ELS version)				
ELS Version (DIM)	**ELS-IN-VVV-24V VVV = 350, 500, 700 or 1000**	**ELS-IN-VVV-5V VVV = 350, 500, 700 or 1000**	**ELS-350-24V**	**ELS-VVV-24V VVV = 500, 700 or 1000**
DIM consumption (mA)	4.5mA @24V every 5 LEDs	3mA @24V every 5 LEDs	0.2mA @24V every 10 LEDs	2mA @24V every 5 LEDs

MECHANICAL SPECIFICATIONS (DIMENSIONS IN MM)

Considering that optical length = 20 x nb_of_LED, here under the mechanical consideration.



ACCESSORIES

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

Potentiometer

EFFI-DIMMER
EFFI-DIMMER2

Fasteners

T-Nut Kit: EFFV-BOLT-0011
Pivot joint Kit: EFFM-1-0002
Bracket: EFFM-1-0017/ 19/ 21

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
2meters: EFFC-CAB-M12-FM-5-CD-L2-LED
M12P
2meters: EFFC-CAB-M12P-FM-4-DD-L2
5meters: EFFC-CAB-M12P-FM-4-DD-L5
10meters: EFFC-CAB-M12P-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 March -2025 and may be changed without prior notice.

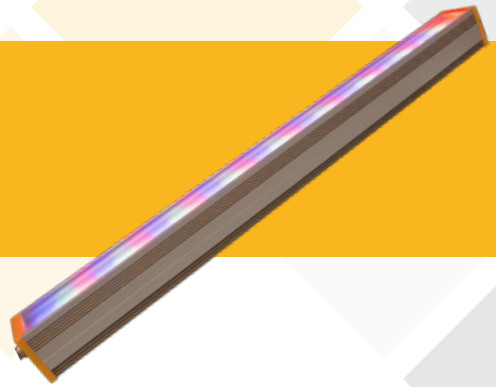
Efficient Led Lighting

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effilux.fr

effiFLEX RGB/WUI

Multimode, Flexible & Multispectral bar light



Part-numbering

EFFI-FLEX - XXX	- ZZZ	- WW	- PP
Number of LED	**Wavelength**	**Windows**	**Lens position**
6* (120 mm)	**RGB** (Red, Green Blue)	**TR**: Transparent	**P0**
9* (180 mm)	**WUI** (White, UV, IR)	**SD**: Semi-diffuse	**P1**
12 (240 mm)		**OP**: Opaline	**P2**
15 (300mm)			**P3**
... Every 3 LED (every 60mm)			
39 (780mm)			

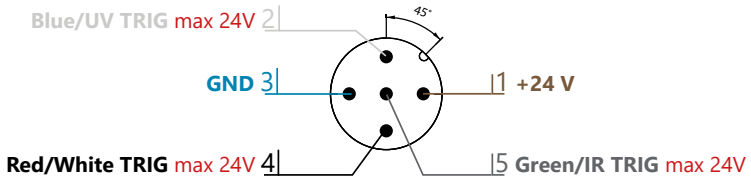
Note:

- (*) Only available in autostrobe vesion: Autostrobe starts at 6 LEDs and ELS versions at 12 LEDs.
- Other multispectral (multiple different wavelengths) configurations can be made as custom products.

COMPATIBLE VERSIONS	
ELS	EFFI-FLEX-XXX-ZZZ-WW-PP-**ELS-VVV-UUU** (no ELS-IN and only M12 configurations allowed)
COMPATIBLE OPTIONS	
Kit with all diffusers	EFFI-FLEX-XXX-ZZZ-**KIT**
Polarizer	EFFI-FLEX-XXX-ZZZ-WW-PP-**POL2**
Linescan film	EFFI-FLEX-XXX-**ZZZ-TR-P3-LS**
Cylindrical lens	EFFI-FLEX-XXX-ZZZ-**TR-P1-LS-CYL**

Wiring layout (M12 only)

M12 - 5pins



effiFLEX SWIR

Multimode, Flexible & Multispectral bar light

Part-numbering

EFFI-FLEX - XXX - ZZZZ - WW - PP

Number of LED	Wavelength	Windows	Lens position
1 (20 mm)	● **1050** (Infrared)	**TR**: Transparent	**P0**
3 (60 mm)	● **1200** (Infrared)	**SD**: Semi-diffuse	**P1**
5 (100 mm)	● **1300** (Infrared)	**OP**: Opaline	**P2**
10 (200 mm)	● **1450** (Infrared)		**P3**
... Every 5 LED (every 100mm)	● **1550** (Infrared)		
145 (2900mm)	● **1650** (Infrared)		

VERSIONS	
ELS	EFFI-FLEX-XXX-ZZZ-WW-PP-**ELS-VVV-UUU**
L2: Economical version	EFFI-FLEX-**L2**-XXXX-ZZZ-WW-PP
OPTICAL OPTIONS	
Kit with all diffusers	EFFI-FLEX-XXX-ZZZ-**KIT**
Linescan film	EFFI-FLEX-XXX-**ZZZ-TR-P3-LS**
Cylindrical lens	EFFI-FLEX-XXX-ZZZ-**TR-P1-LS-CYL**
Infrared polarizer	EFFI-FLEX-XXX-ZZZ-**POL-NIR2**

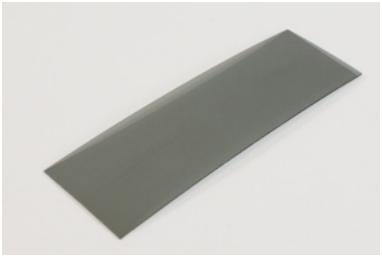
Power supply

Number of LED	Max Electrical power consumption	
	ELS 600mA	ELS 1000mA
1	5	5
3	5	5
5	10	10
10	10	15
15	15	20
20	20	30
25	25	35
30	30	40
35	35	50
40	35	55
45	40	60
50	45	65

Signal consumption

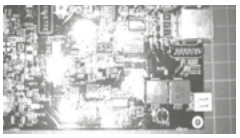
AIC Signal consumption	
ELS Version (DIM)	**ELS-VVV-UUU (VVV= 500, 700 or 1000)**
DIM consumption (mA)	2mA @24V every 5 LEDs

Polarizer infrared

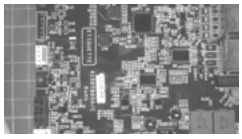


Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application.

The user can insert directly the polarizer inside the EFFI-Flex, under the window.



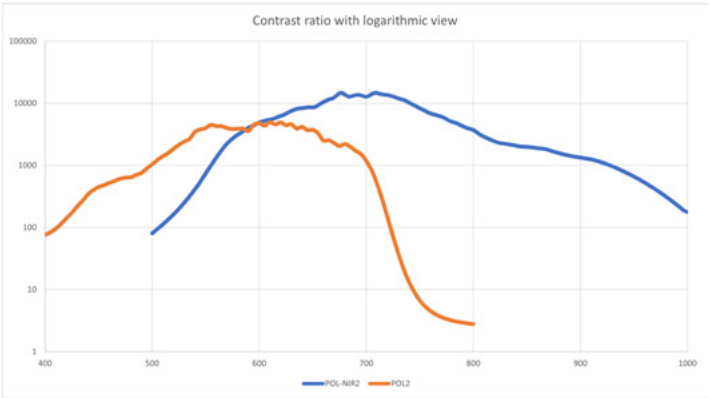
Without polarizer



With polarizer

Important notes:

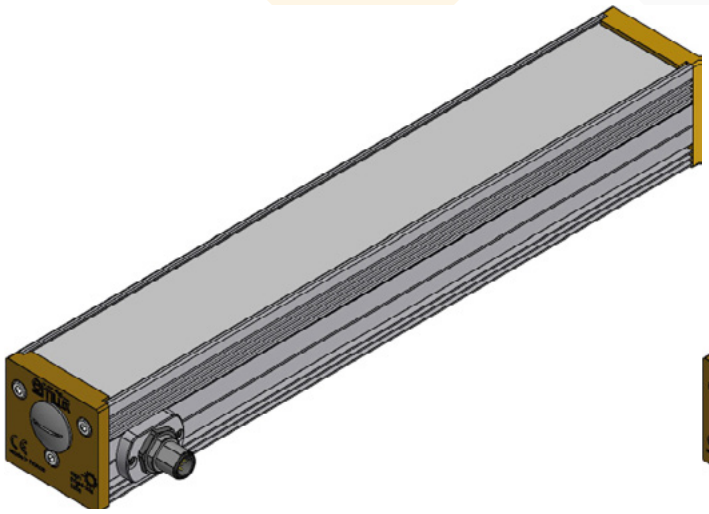
- The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.
- For the SWIR the polarizer reference is different.

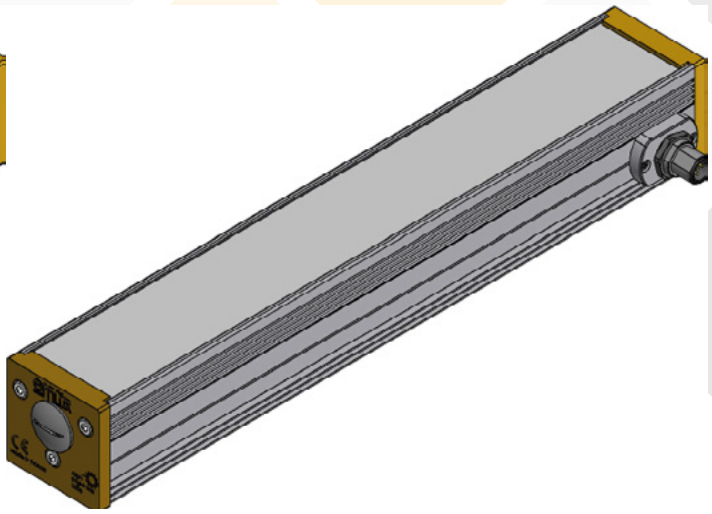


Note: The values of the contrast ratio have been measured with a crossed polarizer.

ANNEX 3 - CONNECTORS & CABLE OPTIONS

Side connector - M12 & M12P





Standard

EFFI-FLEX-XXXX-ZZZ-WW-PP-SCXXX
EFFI-FLEX-XXXX-ZZZ-WW-PP-SCXXX-1M12P

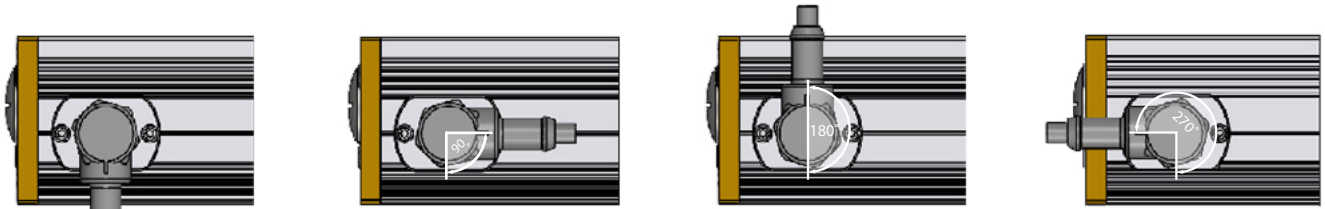
(M12 - 5 pins or M12P - 4 pins)
XXX: Angle connector orientation

Opposite

EFFI-FLEX-XXXX-ZZZ-WW-PP-SCXXX-O
EFFI-FLEX-XXXX-ZZZ-WW-PP-SCXXX-O-1M12P

(M12 - 5 pins or M12P - 4 pins)
-O: For the Opposite size
XXX: Angle connector orientation

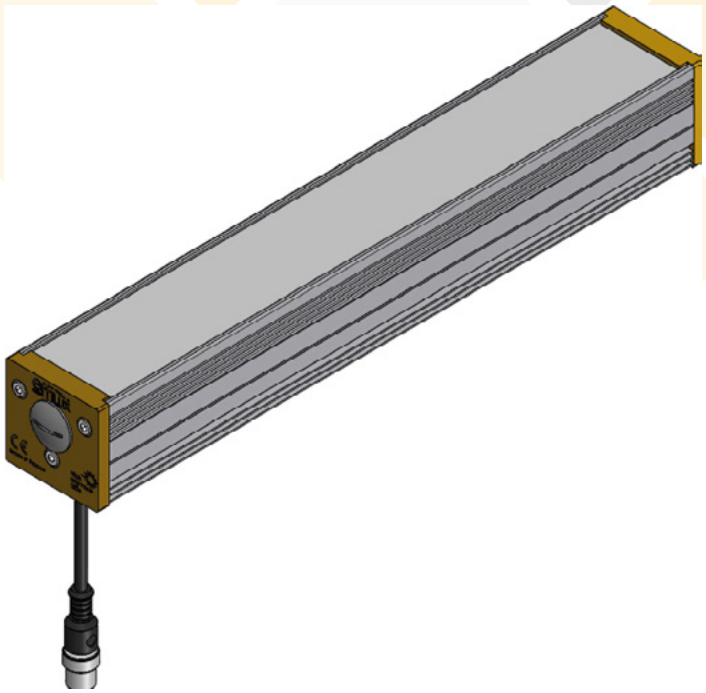
Angled Connector Orientation XXX - M12 & M12P



-SC0 -SC90 -SC180 -SC270

-SCXXX: [0 / 90 / 180 / 270]

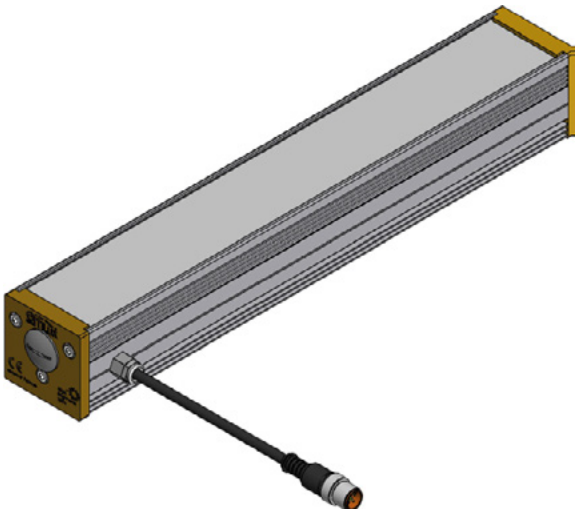
Back Side Cable Gland- M12

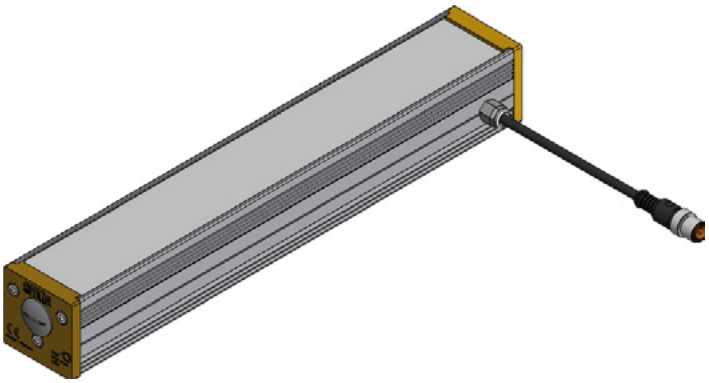


EFFI-FLEX-XXXX-ZZZ-WW-PP-BSCG

Cable gland on the back side - Cable length: 500mm +/- 20mm
M12 - 5 pins
Not available with M12P connector. Please check the connector according to the light size.

Side Cable Gland - M12





Standard

EFFI-FLEX-XXXX-ZZZ-WW-PP-SCG

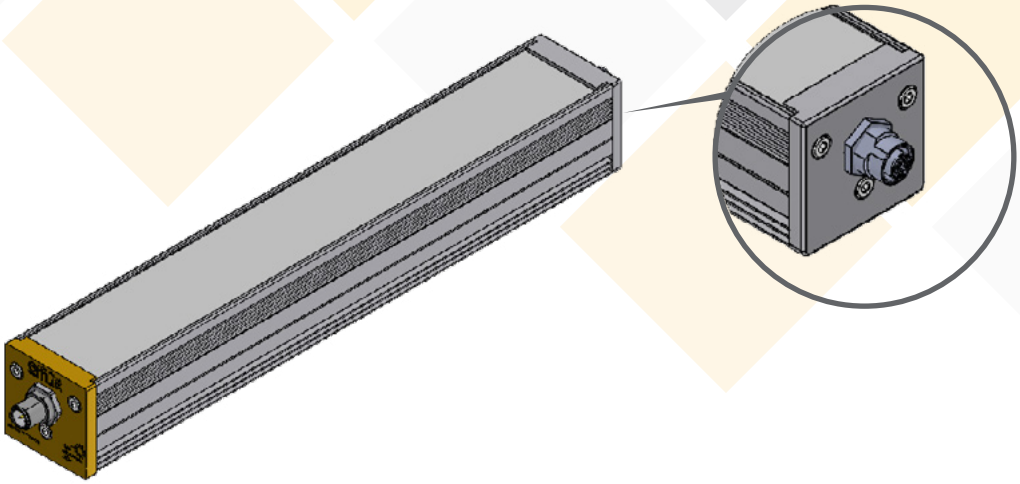
Cable gland on the side - Cable length: 500mm +/- 20mm
M12 - 5 pins

Opposite

EFFI-FLEX-XXXX-ZZZ-WW-PP-SCG-O

-O: For Opposite side
Cable gland on the side - Cable length: 500mm +/- 20mm
M12 - 5 pins

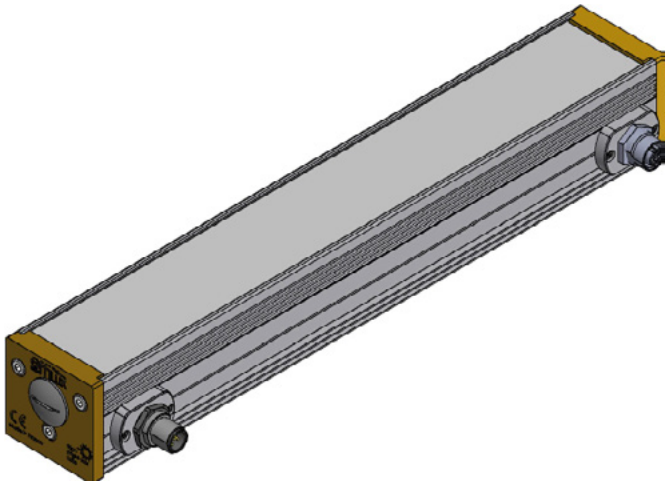
Chain on the Opposite Side - M12 & M12P



EFFI-FLEX-XXXX-ZZZ-WW-PP-CHO
EFFI-FLEX-XXXX-ZZZ-WW-PP-CHO-1M12P

One male connector on the standard side (M12 - 5 pins or M12P - 4 pins)
One female connector on the opposite side with Aluminum cap (M12 - 5 pins or M12P - 4 pins)

CHO with Side Connectors - M12 & M12P

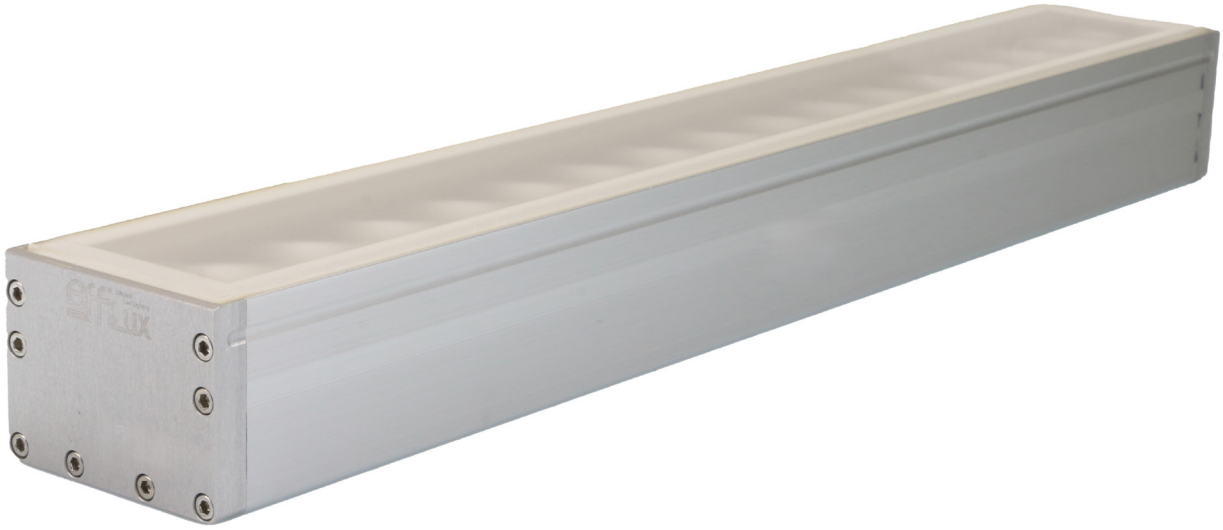


EFFI-FLEX-XXXX-ZZZ-WW-PP-CHO-SCXXX
EFFI-FLEX-XXXX-ZZZ-WW-PP-CHO-SCXXX-1M12P

One male connector on the standard side (M12 - 5 pins or M12P - 4 pins)
One female connector on the opposite side with Aluminum cap (M12 - 5 pins or M12P - 4 pins)

DATASHEET

Efficient Led Lighting



Easy to install

Full range of colors

Flexible

IP67

Intense and uniform

Robust

IP67

AUTOSTROBE

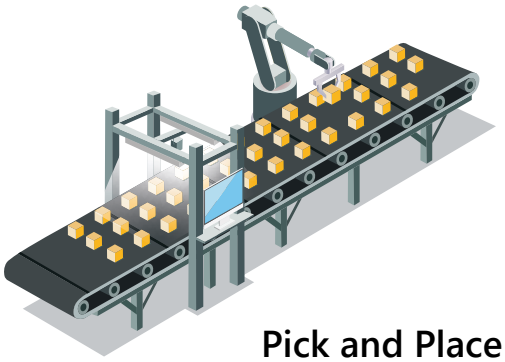
CE

effiFLEX-CPT

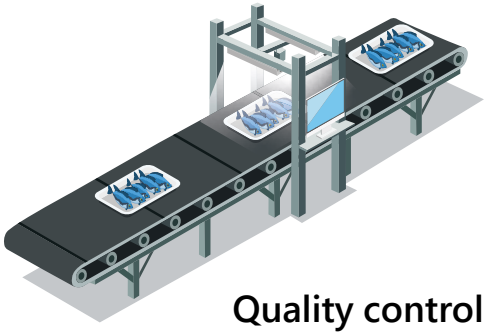
IP67 compact LED bar light

TABLE OF CONTENTS

APPLICATIONS



Pick and Place



Quality control

RELATED PRODUCT

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

EFFI-FLEX

Ajustable beam angle LED bar

EFFI-FLEX IP69K

IP69K version for
Food Industry & Washdown Environments

EFFI-FLEX2

Multimode flexible LED bar light

PART NUMBERING

Standard version

EFFI-FLEX-CPT - XXX - ZZZ - WW - PP

Number of LEDs	Wavelength (nm)	Windows	Position
1 (20 mm) **3** (60 mm) **5** (100 mm) **10** (200 mm) ... Every 5 LED (every 100mm) **145** (2900mm)	**365*** (UV) **405** (UV) **465** (Blue) **525** (Green) **625** (Red) **850** (Infrared) **000** (White)	**TR** (Transparent) **SD** (Semi-diffuse) **OP** (Opaline)	**P0** (90°) **P1** (45°) **P2** (25°) **P3** (10°)

(*) Only available in TR-P0

Available versions & options

VERSIONS	
Watercooling version	EFFI-FLEX-CPT-**WTR**-XXX-ZZZ-WW-PP Allow the use of a watercooling system for thermal regulation.
L2: Economical version	EFFI-FLEX-CPT-**L2**-XXX-ZZZ-WW-PP 1 LED every 40mm vs 1 LED every 20mm for standard
OPTICAL OPTIONS	
RGB	EFFI-FLEX-CPT-XXX-**RGB**-WW-PP RGB: Red, Green, Blue LED alternated. See corresponding annex.
WUI	EFFI-FLEX-CPT-XXX-**WUI**-WW-PP WUI: White, UV, Infrared LED alternated. See corresponding annex.
Pure UV (for fluorenscence applications)	EFFI-FLEX-CPT-XXX-**365-TR-P0-PUV** Innovative EFFILUX system that drastically improves the fluorescence effect while concurrently removing glare and improving contrast. Only for 365nm.
Polarizer	EFFI-FLEX-CPT-XXX-ZZZ-WW-PP-**POL2** Eliminate glare from the workpiece making it easier to acquire a suitable image for the application with no hot spot.
Linescan film	EFFI-FLEX-CPT-XXX-ZZZ-**TR-P3-LS** Transforms the EFFI-Flex light into a uniform line light ideal for either brightfield or darkfield illumination. Classic configuration with TR window and lens in position P3.
Cylindrical lens	EFFI-FLEX-CPT-XXX-ZZZ-**TR-P1-LS-CYL** Focus the light, into a very bright line. Classic configuration with linescan accessory and lens in position P1.

TECHNICAL SPECIFICATIONS

effiFLEX-CPT

Illumination Mode	AutoStrobe or Continuous	
Wavelengths	Single wavelength (from UV to IR) / White / Multispectral	
Power Supply	24V DC	
Connector(s)	**M12 - 5 pins**	**M12 Power - 4 pins**
Power Consumption	Depends on the amount of LEDs	
Weight	Depends on the amount of LEDs	
Dimensions	50mm x 37mm x length depends on the amount of LEDs	
Material	Device body: Aluminum alloy & ABS; Window: PMMA	
Fastener	1 rail for M4 T-nut on the back	
IP rating	IP67	
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	

MANY POSSIBLE CONFIGURATIONS IN JUST ONE LIGHT

Diffusers

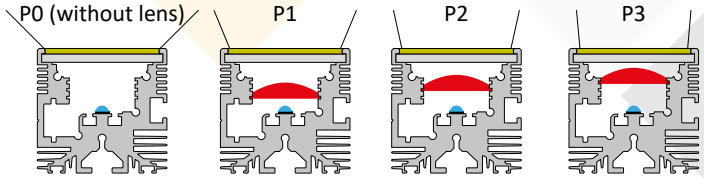
TR : Transparent SD : Semi-diffuse OP : Opaline

Choose the best configuration for your use-case : More diffusion (left to right) yields greater uniformity but reduces light power.

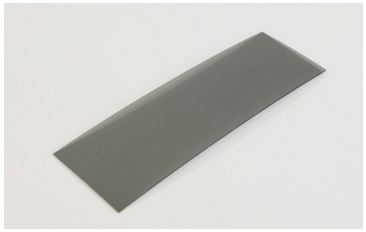
UV365: Only Transparent and P0 (without lens) configuration is available.

Lens position

With the EFFI-Flex-CPT, users can customize the light beam angle. The default position is P2, but alternate specifications are available upon ordering: placing the lenses closer to the window narrows the light angle.

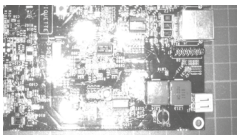


POLARIZER

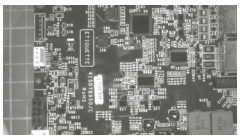


Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application.

The user can insert directly the polarizer inside the EFFI-FLEX-CPT, under the window.



Without polarizer



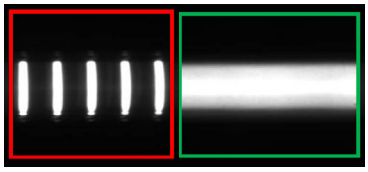
With polarizer

The polarizer film is positioned just under the window on demand when ordering.

Important notes: The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light. This option isn't available for UV365.

LINESCAN CONFIGURATIONS

Linescan film (TR-P3-LS)



Without Linescan film With Linescan film

With the lens in the upper position (P3) and the transparent window (TR), the linescan filter accessory transforms the EFFI-Flex-CPT into a uniform line light ideal for either brightfield or darkfield illumination.

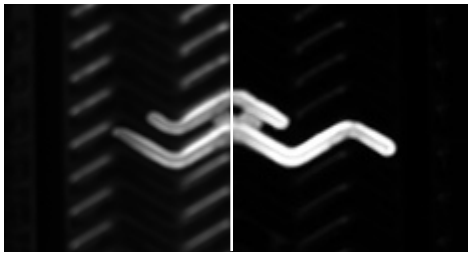
Notes: The linescan option isn't available for UV365.

Cylindrical lens (TR-P1-LS-CYL)

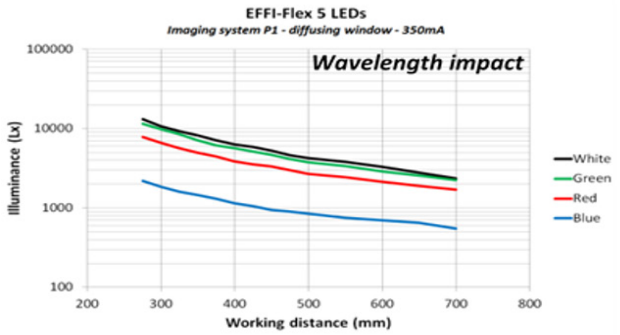
Used in combination with the internal lenses in the lowest position (P1), and the Linescan film (LS), the additional Cylindrical lens (CYL) allows to focus even more the light into a very bright line.

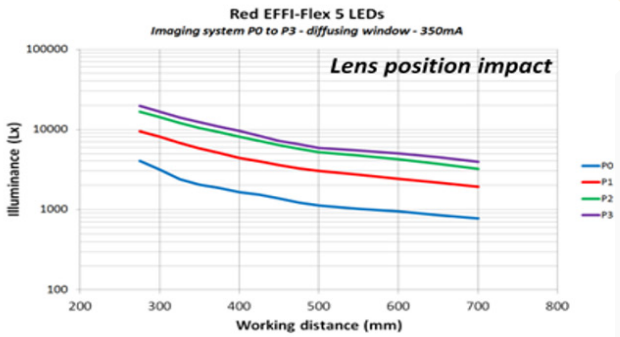
PURE UV

EFFILUX's PureUV technology, adapted to EFFI-Flex-CPT at 365nm, eliminates unwanted reflections and provides the best possible contrast for fluorescence applications

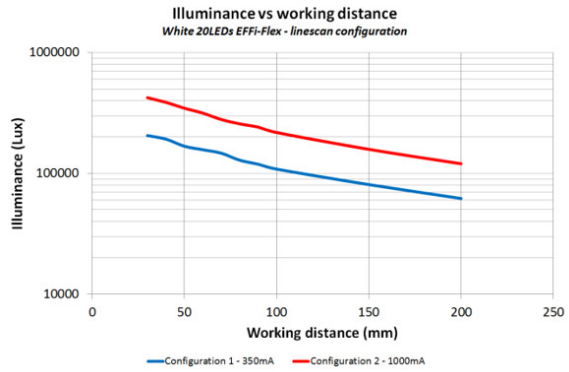


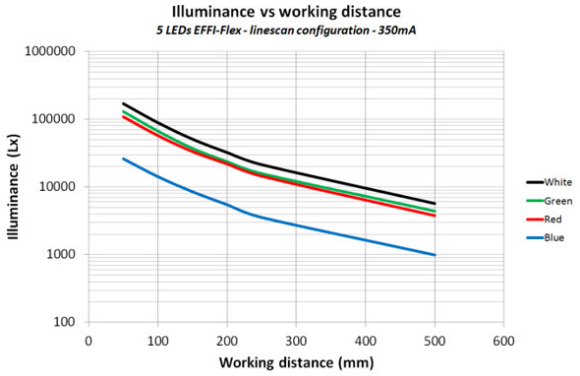
Illuminance vs the working distance





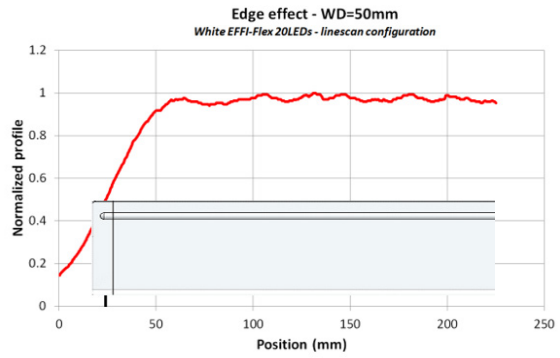
Linescan configuration

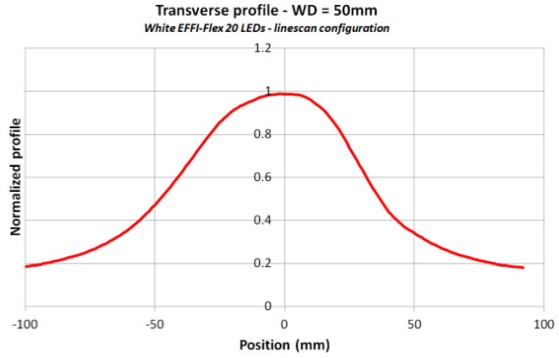




Note: Configuration 2 requires an additional thermal management system.

Profile

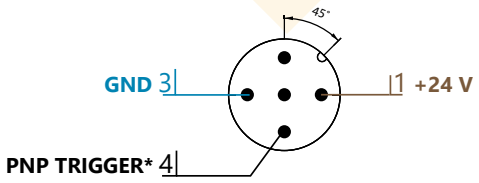




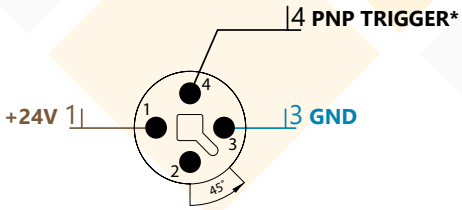
ELECTRONICAL SPECIFICATIONS

Wiring Layout

M12 5pins - male connector



M12P 4pins - male connector



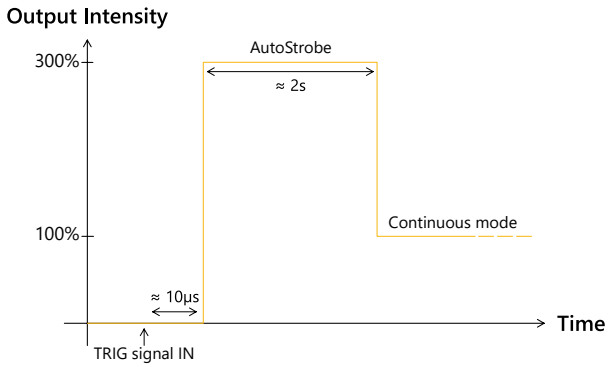
Notes:

- (*) AIC (Analog Intensity Control) for the ELS version.
- The EFFI-Flex-CPT requires 24V DC input power. Note the trigger pin needs to be connected either to the 24V DC signal for Continuous mode or to a PNP Trigger signal for Overdrive strobe mode.

Driver versions

Standard version : Autostrobe driver

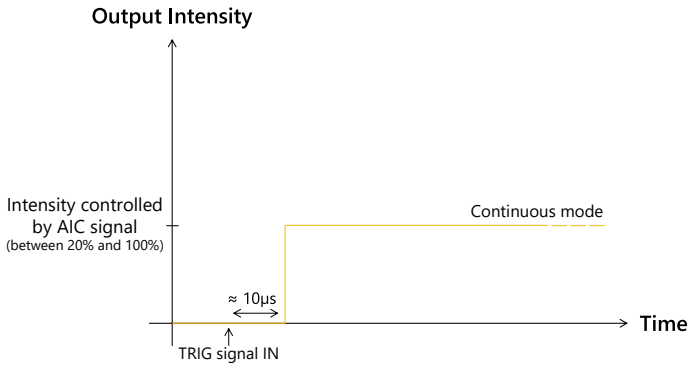
EFFI-FLEX-CPT-XXX-ZZZ-WW-PP



Dimmable version : ELS driver

(AIC instead of PNP)

EFFI-FLEX-CPT-XXX-ZZZ-WW-PP-ELS-VVV-UUU

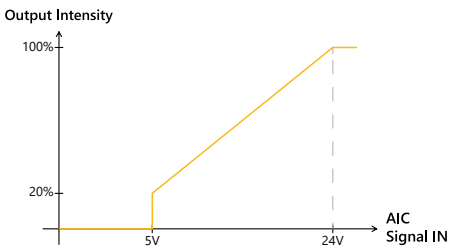


ELS Driver variants

AIC control range (UUU)

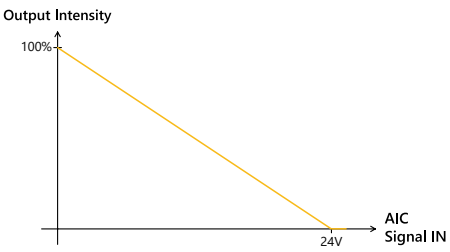
Standard 0-24V

ELS-VVV-24V



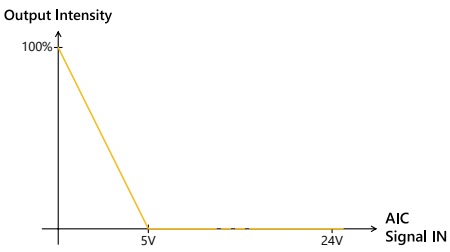
Inverse 0-24V

ELS-IN-VVV-24V



Inverse 5-0V

ELS-IN-VVV-5V



LED current (VVV) vs cooling system in ELS configuration

Part number: VVV	Output current (mA) [0-100%]	**EFFI-FLEX-CPT** (Standard)		**EFFI-FLEX-CPT-L2** (1LED/ 2 version)
350 (Standard)	0-350 mA			
500	0-500mA	Duty cycle <70% 	Duty cycle>70% 	
700	0-700mA	Duty cycle <50% 	Duty cycle >50% 	
1000	0-1000 mA	Duty cycle <30% 		Duty cycle >30% 

Note: For the water cooling version, EFFI-FLEX-CPT version is required. Please refer to the corresponding datasheet.

Power consumption

Number of LED	Max power consumption (W) (White-2m cable)					
	Standard version		ELS 350mA	ELS 500mA	ELS 700mA	ELS 1000mA
	P_{peak_2s}	Pcw*				
1	5	2	5	5	5	5
3	15	5	5	10	10	15
5	20	8	10	10	15	20
10	40	15	15	20	30	40
15	60	20	20	30	40	60
20	80	30	30	40	55	80
25	95	35	35	50	70	95
30	115	45	45	60	80	115
35	135	50	50	70	95	135
40	155	55	55	80	110	155
45	175	60	60	90	120	175
50	190	65	70	95	135	190
55	210	70	75	105	150	210
60	230	75	80	115	160	230
65	250	85	90	125	175	250
70	270	90	95	135	190	270

* : With standard version: M12 connector can accept more eletrical power thanks to its strobe mode

M12 standard (A-coded) Male connector M12 power (T-coded) Male connector

Importante notes: For the wavelengths 365 nm and 405 nm, you need to account for an additional 25% power consumption.

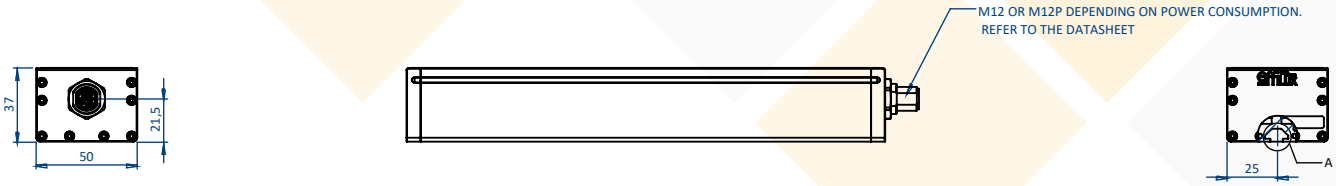
Signal consumptions

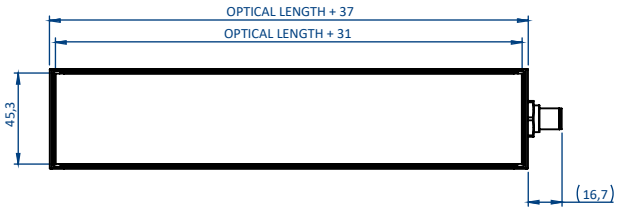
PNP Trigger Signal consumption (Standard AutoStrobe version)			
Amount of LED	Consumption @5V (mA)	Consumption @10V (mA)	Consumption @24V (mA)
1	0.05	0.1	1.5
3	0.05	0.1	0.25
5	0.05	0.1	0.25
10	0.1	0.2	0.45
15	0.05	0.1	0.25
20	0.1	0.2	0.45
30	0.1	0.2	0.45
40	0.15	0.3	0.7
50	0.2	0.4	0.9
75	0.25	0.45	1.1
100	0.35	0.65	1.55
125	0.41	0.82	2
150	0.45	0.9	2.2

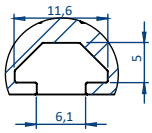
AIC Signal consumption (ELS version)				
ELS Version (DIM)	**ELS-IN-VVV-24V VVV = 350, 500, 700 or 1000**	**ELS-IN-VVV-5V VVV = 350, 500, 700 or 1000**	**ELS-350-24V**	**ELS-VVV-24V VVV = 500, 700 or 1000**
DIM consumption (mA)	4.5mA @24V every 5 LEDs	3mA @24V every 5 LEDs	0.2mA @24V every 10 LEDs	2mA @24V every 5 LEDs

MECHANICAL SPECIFICATIONS

EFFI-FLEX-CPT

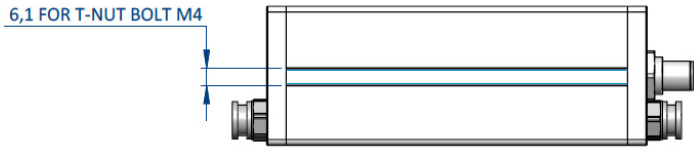


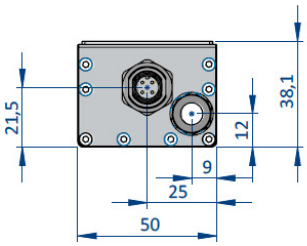


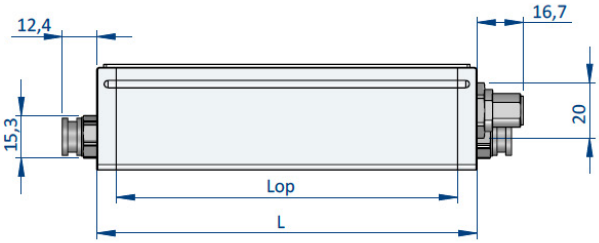


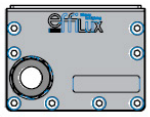
DETAIL A
SCALE 2 : 1
MOUNTING: T-NUT 6MM SLOT, M4

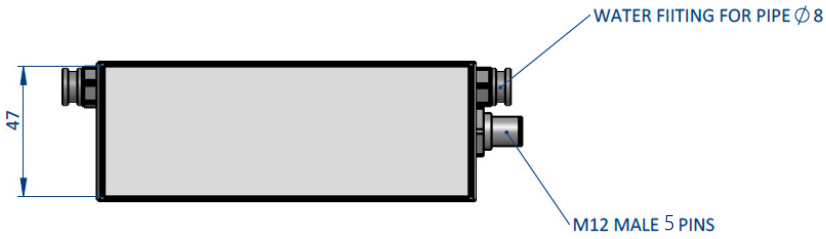
EFFI-FLEX-CPT-WTR











ACCESSORIES

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

Camera Filters

EFFO-FLR-...

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
M12P
2meters: EFFC-CAB-M12P-FM-4-DD-L2
5meters: EFFC-CAB-M12P-FM-4-DD-L5
10meters: EFFC-CAB-M12P-FM-4-DD-L10

Fasteners

Kit T-nut M4: EFFV-BOLT-0012

Pivot joint – not drilled: EFFM-1-0002

Potentiometer

EFFI-DIMMER

EFFI-DIMMER2

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 February 2025 and may be changed without prior notice.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effilux.fr

effiFLEX-CPT RGB/WUI

Multimode, Flexible & Multispectral bar light

Part-numbering

EFFI-FLEX-CPT - XXX - ZZZ - WW - PP

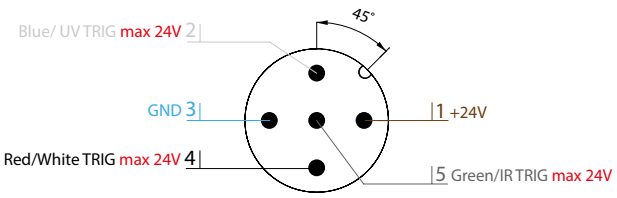
Number of LED	Wavelength	Windows	Lens position
6* (120 mm) **9*** (180 mm) **12** (240 mm) **15** (300mm) ... Every 3 LED (every 60mm) **39** (780mm)	**RGB** (Red, Green Blue) **WUI** (White, UV, IR)	**TR**: Transparent **SD**: Semi-diffuse **OP**: Opaline	**P0** **P1** **P2** **P3**

Note:

- (*) Only available in autostrobe vesion: Autostrobe starts at 6 LEDs and ELS versions at 12 LEDs.
- Other multispectral (multiple different wavelengths) configurations can be made as custom products.

COMPATIBLE VERSIONS	
ELS	EFFI-FLEX-CPT-XXX-ZZZ-WW-PP-**ELS-VVV-UUU** (no ELS-IN and only M12 configurations allowed)
COMPATIBLE OPTIONS	
Polarizer	EFFI-FLEX-CPT-XXX-ZZZ-WW-PP-**POL2**
Linescan film	EFFI-FLEX-CPT-XXX-**ZZZ-TR-P3-LS**
Cylindrical lens	EFFI-FLEX-CPT-XXX-ZZZ-**TR-P1-LS-CYL**

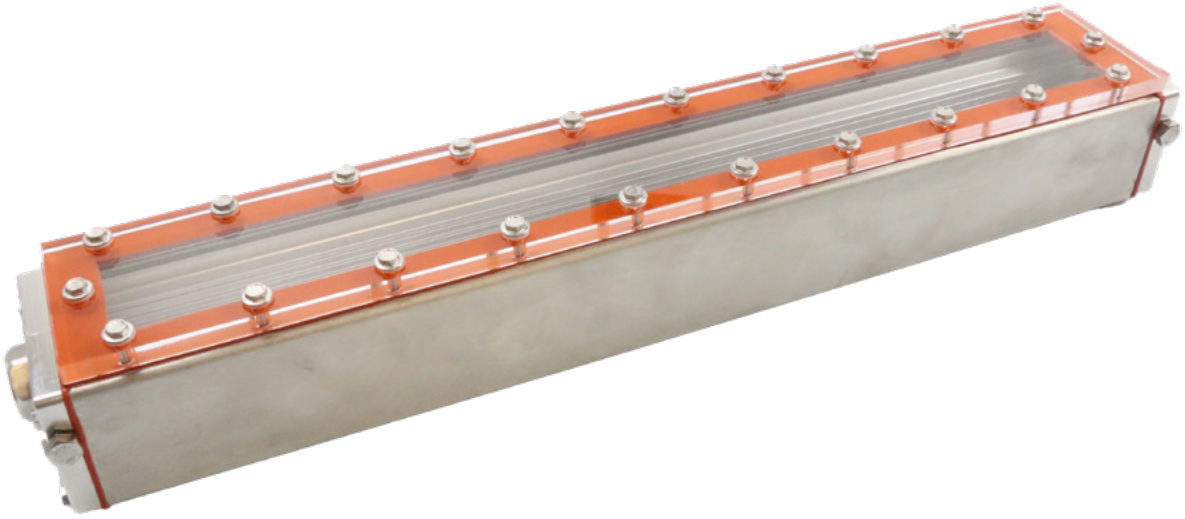
Wiring layout (M12 only)



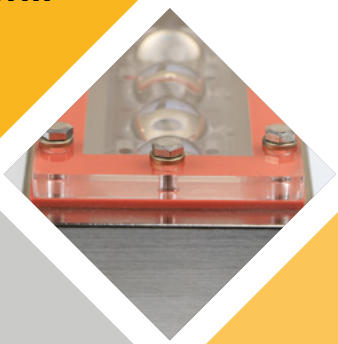
DATASHEET

Efficient Led Lighting

effiLux



Uniform



Flexibility

Very intense

IP69K

AUTOSTROBE

IP69K

CE

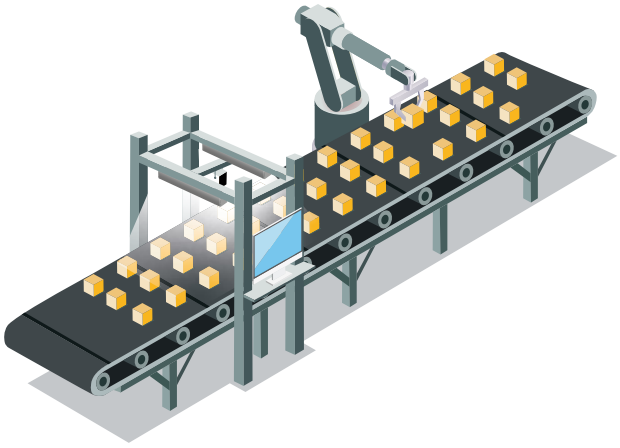
effiFLEX-IP69K

Waterproof agri-food LED bar resistant to washing chemicals

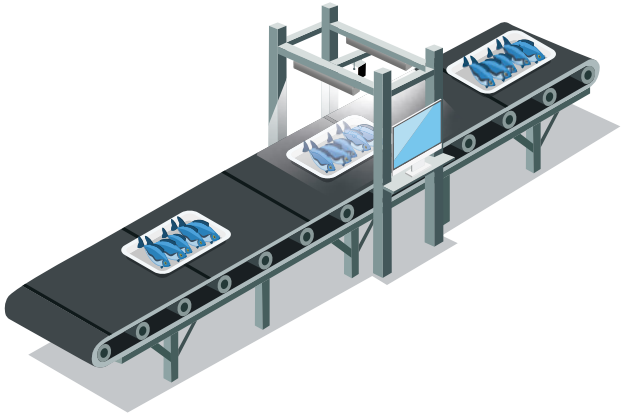
INTRODUCTION

Table of contents

Applications



Quality control



Pick and place

Related Product

See the product datasheets below for more information.

EFFI-FLEX

Adjustable beam angle LED bar

EFFI-FLEX-CPT

IP67 version

EFFI-FLEX2-IP69K

Multi-mode LED bar with high resistance and maximum waterproofing

PART NUMBERING

STANDARD VERSION

EFFI-FLEX-IP69K - XXX - ZZZ - WW - PP - CCC

Number of LED	Wavelength	Windows	Lens position	Connectors
1 (20 mm)	**365*** (UV)	**TR**: Transparent	**P0**	**FL2 (Standard):** XXX > 55 LEDs
3 (60 mm)	**405** (UV)	**SD**: Semi-diffuse	**P1**	**IN2 (FOOD):** XXX > 20 LEDs
5 (100 mm)	**465** (Blue)	**OP**: Opaline	**P2**	
10 (200 mm)	**525** (Green)		**P3**	
... Every 5 LED (every 100mm)	**625** (Red)			
145 (2900mm)	**850** (Infrared)			
	000 (White 5500K)			

(*) The UV 365nm wavelength is a specific configuration. Refer to the optical specifications.

AVAILABLE VERSIONS & OPTIONS

VERSIONS	
L2: Economical version	EFFI-FLEX-IP69K-**L2**-XXX-ZZZ-WW-PP-CCC 1 LED every 40mm vs 1 LED every 20mm for standard
ELS	EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP-**ELS-VVV-UUU**-CCC Specific configuration for continuous mode with AIC (Analog Intensity Control). The standard configuration is in Autostrobe mode. VVV corresponds to the intensity current sent per LED (350, 500, 700 or 1000 mA). UUU correspond to the voltage range used for intensity control (24, IN-24 or IN-5).
Food	EFFI-FLEX-IP69K-**FOOD**-XXX-ZZZ-WW-PP-CCC For food processing environment, the nickel-plated brass gland is replaced by stainless steel type and the standard cable by a certified food & beverage. The food option is not compatible with the venting option.
OPTICAL OPTIONS	
Polarizer	EFFI-FLEX-IP69K-XXX-ZZZ-TR-PP-**POL2**-CCC Eliminate glare from the workpiece making it easier to acquire a suitable image for the application with no hot spot. Must be used with a transparent window
Linescan film	EFFI-FLEX-IP69K-XXX-ZZZ-**TR-P3-LS**-CCC Transforms the EFFI-Flex light into a uniform line light ideal for either brightfield or dark-field illumination. Classic configuration with TR window and lens in position P3.
MECHANICAL OPTIONS	
Venting option	EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP-**V**-CCC Vent to equalize pressure and minimize condensation

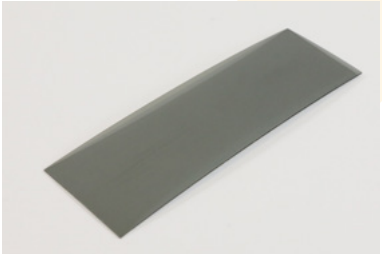
GENERAL SPECIFICATIONS

effiFLEX-IP69K

Illumination Mode	AutoStrobe or Continuous with AIC (Analog Intensity Control)	
Wavelengths	Single wavelength (from UV to IR) / White / Multispectral / Hyperspectral	
Power Supply	24V DC	
Connector(s)	**Cable with flying leads**	**Cable with M12 - 5pins**
Power Consumption	Depends on the number of LEDs	
Weight	Depends on the number of LEDs	
Dimensions	54mm x 51mm x length depends on the number of LEDs	
Material	Device body: Stainless Steel; Window: PMMA	
Fastener	8 x M5 holes	
IP rating	IP69K	
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	

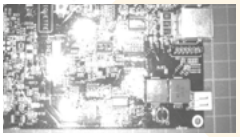
OPTICAL SPECIFICATIONS

Polarizer

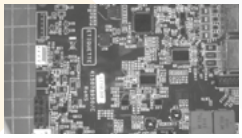


Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application.

The user can insert directly the polarizer inside the EFFI-Flex, under the window.



Without polarizer

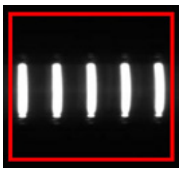


With polarizer

Important notes:

- The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.
- This option isn't available for UV365.

Linescan film (TR-P3-LS)

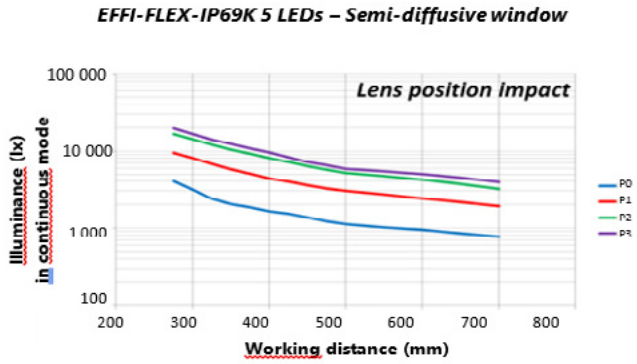


Without Linescan film

With Linescan film

Notes: The linescan option isn't available for UV365.

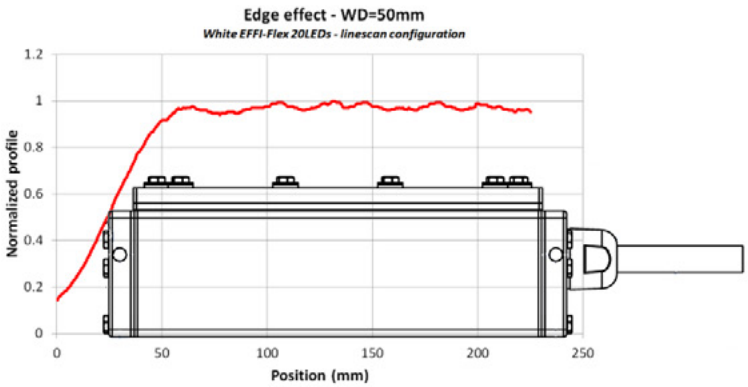
Illuminance vs working distance

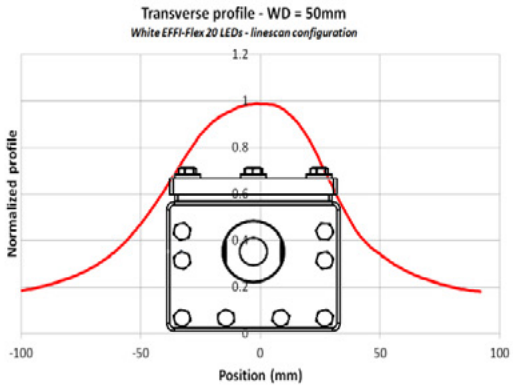


The following measurements are made with a white EFFI-FLEX-IP69K, in continuous mode.

Using the Overdrive mode of the AutoStrobe driver allows to increase by 300% these values.

Profile





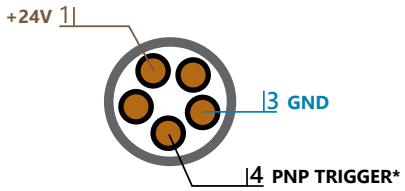
ELECTRONICAL SPECIFICATIONS

Wiring layout

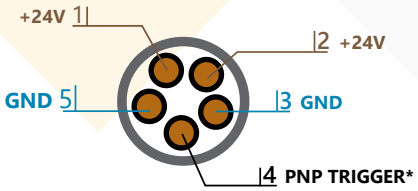
Depending on the product size and the chosen options, the light comes with different connectors. (See the Power Consumption section)

Standard IP69K version

Flying lead - 1 input

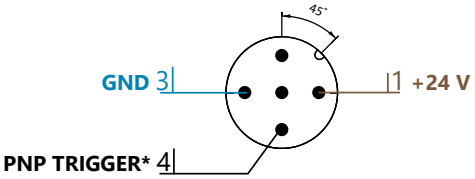


Flying lead - 2 inputs (FL2)

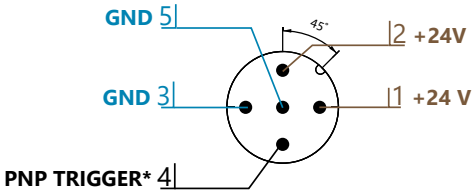


Food version

M12 5pins - 1 input



M12 5pins - 2 inputs (IN2)



Notes:

- (*) AIC (Analog Intensity Control) for the ELS version.
- The EFFI-FLEX-IP69K requires 24V DC input power.
- PNP trigger pin **needs to be connected** either to a trigger signal for AutoStrobe and Strobe or to a continuous signal for Continuous mode. Light is ON if VPNP > 4.5V DC.
- The standard cable included is resistant to detergent, hot water, bio-oil, harsh environment and can be used outdoor.
- For the FL2 and IN2 layouts, the power has been duplicated. Make sure **wire 2 and 5 are also connected to a power supply** or the cable may be damaged. **Both GND must be connected together.**

Power Consumption

Standard IP69K version

MAX POWER CONSUMPTION IN WATTS +/-5%) - White LED - 10m cable																		
Number of LEDs		5	10	20	25	30	40	50	55	60	70	80	90	100	110	115	120	130
Standard (Autostrobe)	P_{Peak_2s}	20	40	80	95	115	155	190	210	230	265	305	340	380	415			
	P_{cw}	8	15	30	35	50	55	65	70	75	90	100	115	125	140			
ELS	ELS-700	15	30	55	70	80	110	135	150	160	190	220	245	270	295	320	345	370
	ELS-500	10	20	40	50	60	80	95	105	115	135	155	175	195	215	235	255	275
	ELS-350	10	15	30	35	40	55	70	75	80	95	105	120	130	145	155	170	180

Flying lead - 1 input Flying lead - 2 input

Notes: For larger products with the ELS option, please contact us.

FOOD Version

MAX POWER CONSUMPTION IN WATTS +/-5%) - White LED - 10m cable																		
Number of LEDs		5	10	20	25	30	40	50	55	60	70	80	90	100	110	115	120	130
Standard (Autostrobe)	P_{Peak_2s}	20	40	80	95	115	155											
	P_{cw}	8	15	30	35	50	55											
ELS	ELS-700	15	30	55	70	80	110	135										
	ELS-500	10	20	40	50	60	80	95	105	115	135	155						
	ELS-350	10	15	30	35	40	55	70	75	80	95	105	120	130	145			

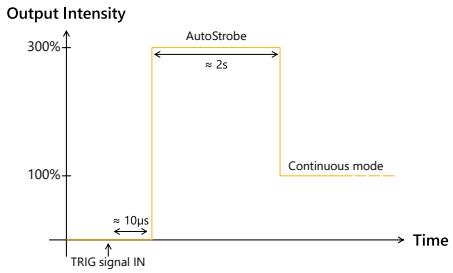
M12 5 pins - 1 input M12 5 pins - 2 inputs

Notes: These values are maximum values. The consumption may vary according to the wavelength and software. For the wavelengths 365 nm and 405 nm, you need to account for an additional 25% power consumption.

Driver Versions

Standard version : Autostrobe driver

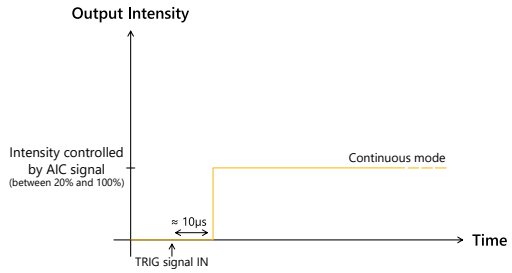
EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP(-V)



Dimmable version : ELS driver

(AIC instead of PNP)

EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP-ELS-VVV-UUU(-V)



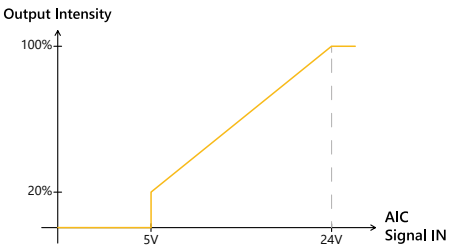
Notes: Respect a duty cycle lower than 30% in strobe mode.

ELS Driver variants

AIC control range (UUU)

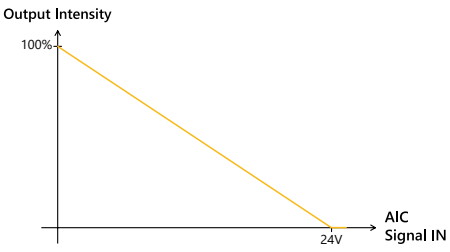
Standard 0-24V

ELS-VVV-24V



Inverse 0-24V

ELS-IN-VVV-24V



ELS is also available with 5V and 10V versions:

- ELS-350-5V: Output intensity rising between 0-5V / ELS-350-10V: Output intensity rising between 0-10V.
- ELS-IN-350-5V: Output intensity decreasing between 0-5V / ELS-IN-350-10V: Output intensity decreasing between 0-10V.

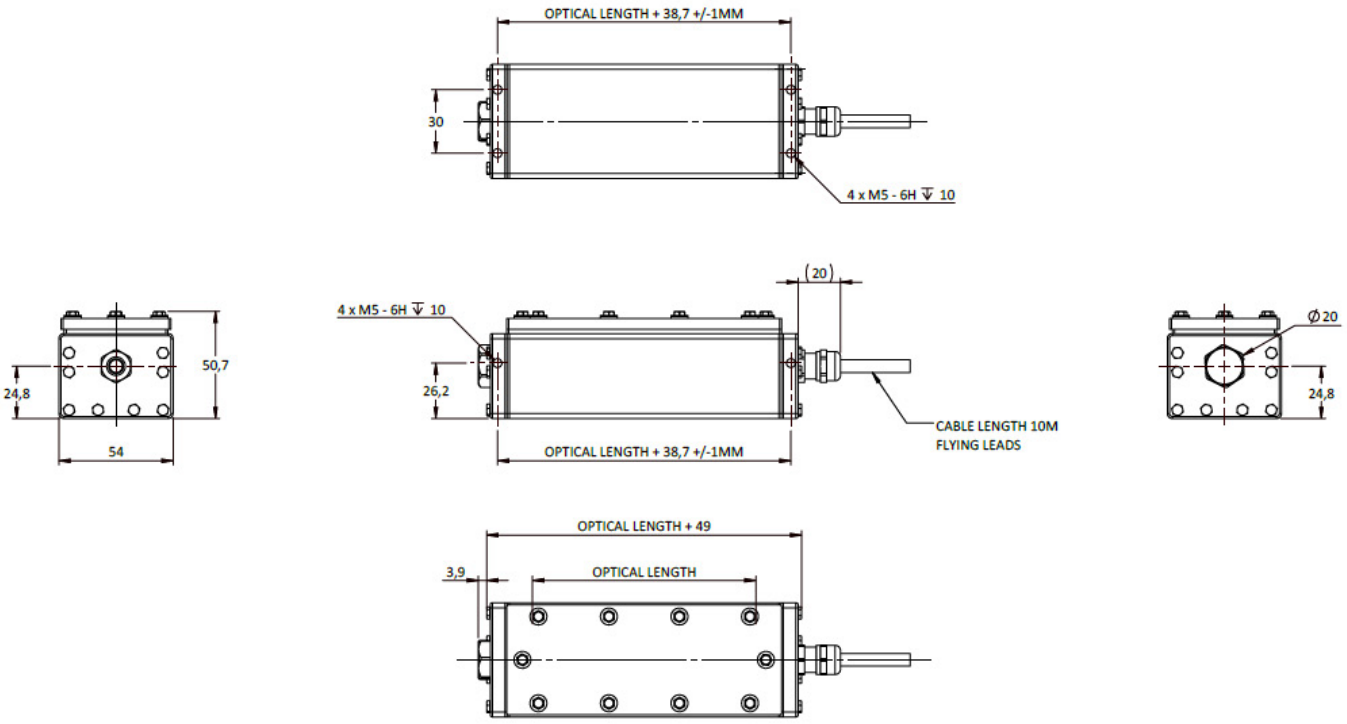
LED current & maximum duty cycle			
Part number: VVV	Output current (mA) [0-100%]	Max duty cycle EFFI-FLEX-IP69K	Max duty cycle EFFI-FLEX-IP69K-L2
350 (standard)	0-350 mA	100%	100%
500	0-500 mA	70%	
700	0-700 mA	50%	

Signal consumption

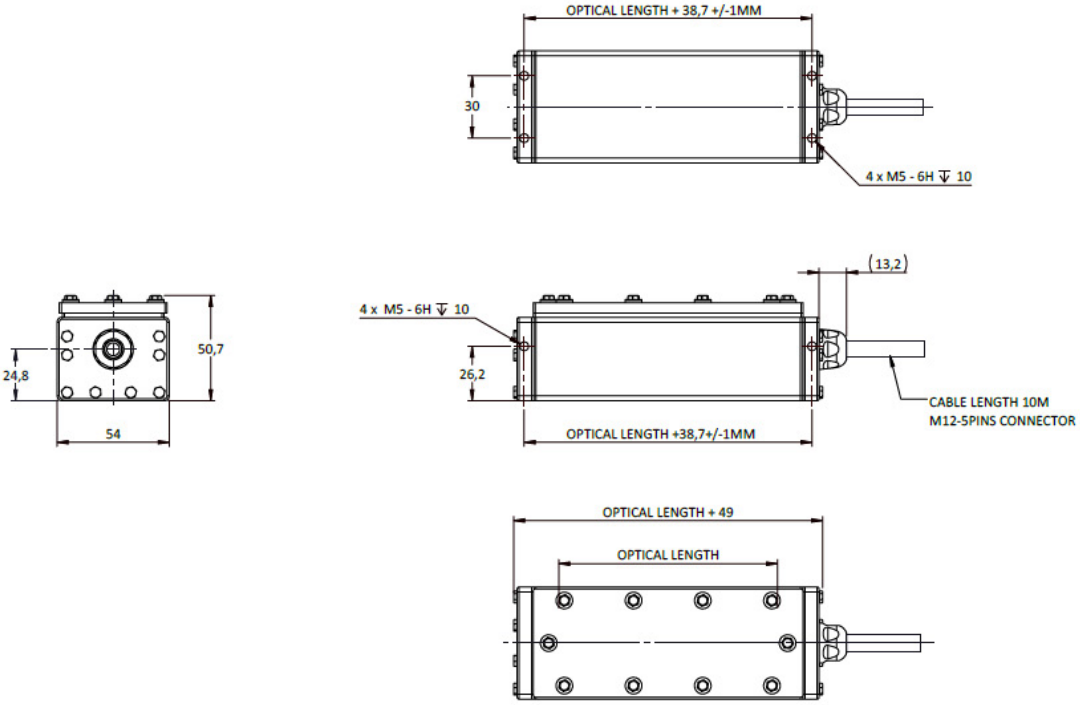
Signal consumption (mA)					
Amount of LED	PNP Trigger Signal (Standard AutoStrobe version)			AIC Signal 24V (ELS version)	
	5V	10V	24V	ELS-IN-350	ELS-350
5	0.05	0.1	0.25	1.5	0.2
20	0.1	0.2	0.45	6	0.8
50	0.2	0.4	0.9	15	2
100	0.35	0.65	1.55	30	4
150	0.45	0.9	2.2	45	6

MECHANICAL SPECIFICATIONS (DIMENSIONS IN MM)

EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP-V



EFFI-FLEX-IP69K-FOOD-XXX-ZZZ-WW-PP



ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-FLEX-IP69K.

Camera Filters

EFFO-FLR-...

Fasteners

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

Extension cables

2meters: EFFC-CAB-M12P-F-4-D-L2
5meters: EFFC-CAB-M12P-F-4-D-L5
10meters: EFFC-CAB-M12P-F-4-D-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.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effillux.fr

DATASHEET

Efficient Led Lighting
effiLux

Single Broadband VIS-NIR LED

Flexible light

Adjustable angle

Easy-to-mount

Uniform spectral emission

Suited for HSI machine vision

HSI

IP5X

CE

RoHS

UK CA

effiFLEX-HSI

Hyperspectral VIS-NIR LED bar light

PART NUMBER KEY

Standard version

EFFI-FLEX-HSI - XXXX - WW - PP

Optical Length (mm)	Window	Lens position
100	**TR** (Transparent)	**P0** (90°)
200	**SD** (Semi-diffuse)	**P1** (45°)
300	**OP** (Opaline)	**P2** (25°)
... All 100mm		**P3** (10°)
2900		

Available options: References

OPTICS	
Polarizer accessory	EFFI-FLEX-HSI-XXXX-**TR**-PP-**POL2** (Cf. page 5)
Linescan accessory	EFFI-FLEX-HSI-XXXX-**TR-P3-LS** (Cf. annexe line scan solutions page 14)
Cylindrical lens Version	EFFI-FLEX-HSI-XXXX-**TR-P1-LS-CYL** (Cf. annexe line scan solutions page 14)
Extended spectrum version (400-1000nm)	EFFI-FLEX-HSI-**X2**-XXXX-**910-970**-WW-PP-**ELS-UUU** (Cf. annexe page 12) **X2**: twice more LEDs. / **ELS**: AIC version only / **UUU**: adjustment range of the AIC (24V, 10V or 5V)
ELECTRONICS	
AIC Version (Analog Intensity Control)	EFFI-FLEX-HSI-XXXX-WW-PP-**ELS-VVV-UUU** **VVV**: Max LED current, standard at 350mA / **UUU**: adjustment range of the AIC (24V, 10V or 5V) **ELS-IN** Version: Inverse version (Intensity max @0V instead of 24V)
NPN trigger Version	EFFI-FLEX-HSI-XXXX-WW-PP-**NPN**
Kit with diffusers	EFFI-FLEX-HSI-XXXX-**KIT**
MECHANIC	
IP67 Version	Please refer to the **EFFI-Flex-CPT** documentation.
IP69K Version	Please refer to the **EFFI-Flex-IP69K** documentation.
Longer length	Up to 6 meters. Please contact Effilux.

TECHNICAL SPECIFICATIONS

effiFLEX-HSI	
Illumination Mode	Strobe or Continuous
Spectrum	400-900nm (standard version) / 400-1000 nm (extended spectrum version) *Custom spectrum available upon request. Please contact Effilux.*
Power Supply	24V DC +/- 10%
Power Consumption	Depends on the size (Cf. page 6)
Connector	M12 - 5pins or M12 Power (T-Coded) - 4pins (depending on the power consumption)
Driver version	AutoStrobe (Analog Intensity Control (AIC) available in option)
Response Time	Rising: 15µs / Falling: 10µs
Max duty cycle	30 % in AutoStrobe mode
Input signal	PNP trigger input: Light ON: from 5V to 24V / Max. signal consumption: 1mA
Weight	Weight (in kg) = 0,1 + 0,3 x Optical length (in mm)
Dimensions	51mm x 49mm x (Length = Optical length + 35mm) (Cf. page xx)
Material	Device body: Aluminium wallow / Window: PMMA
Fastener	One T-slot on the back for 8mm T-nut (M6 recommended), and one slot on the side for M6 hex nut
IP rating	IP5X (IP67 and IP69K versions available)
Working temperature	0°C to 50°C
Heating time	Spectral stability is reached after an hour of operation at ambient temperature (25°C)
Regulations	CE - RoHS - REACH - WEEE - IEC 62471 - China RoHS
Country of Origin	France

OPTICAL SPECIFICATONS - STANDARD VERSION

Many possible configurations in just one light

Diffusers

TR : Transparent

SD : Semi-diffuse

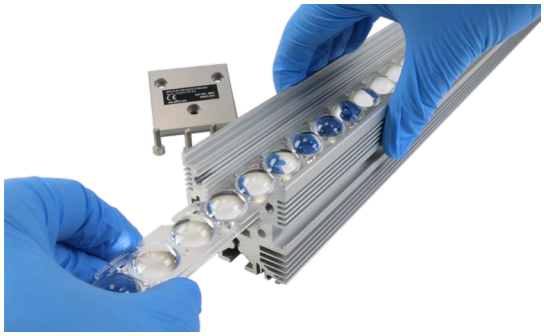
OP : Opaline

Change your configuration by hand.

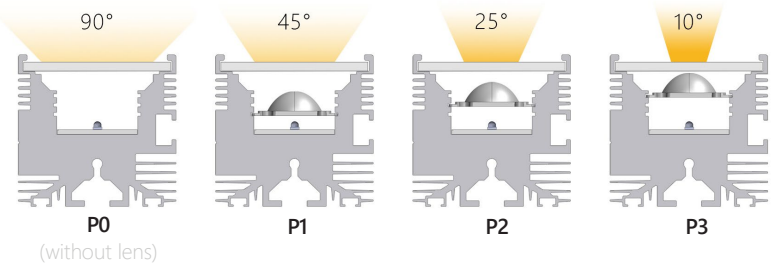
Depending on the uniformity needed for the application, the user can easily change the diffuser to one that fulfills the application requirements.

Lens position

The EFFI-Flex-HSI offers flexible lens positioning to control the beam angle. The user can adjust it by himself: the angle can be widened by moving the lens closer to the LEDs or narrowed by moving the lens further away from the LEDs.



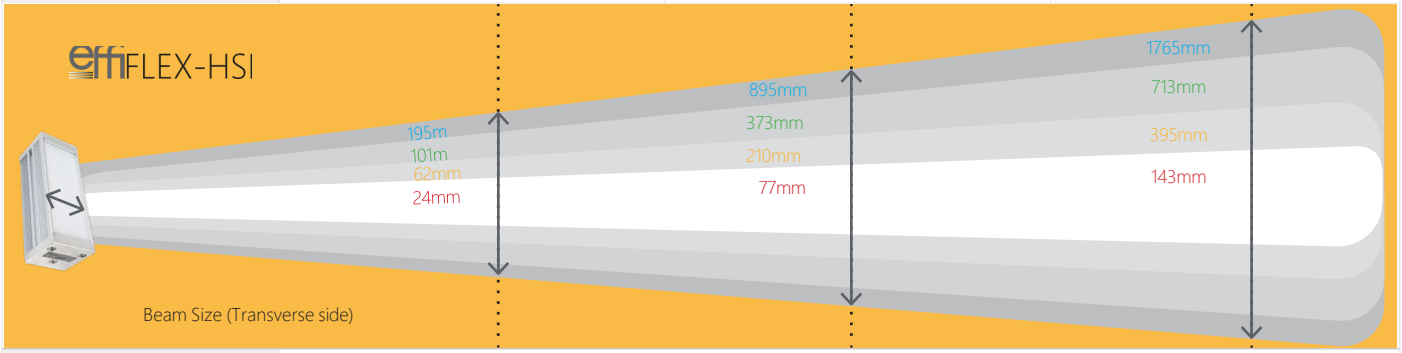
Change your configuration by hand.



Optical impact

Data for the EFFI-Flex-HSI with transparent window and different lens positions P0, P1, P2, P3.

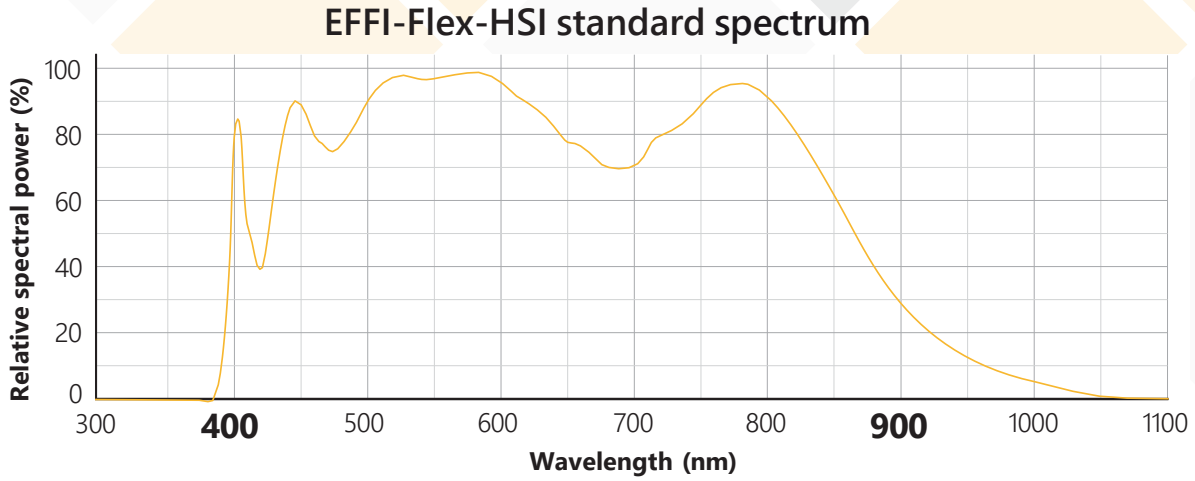
	At 100mm	At 500mm	At 1000mm
Irradiance	1.4mW/cm²	0.2mW/cm²	0.1mW/cm²
	2.7mW/cm²	0.5mW/cm²	0.2mW/cm²
	3.6mW/cm²	0.8mW/cm²	0.3mW/cm²
	5.7mW/cm²	1.4mW/cm²	0.6mW/cm²



Working distance	100mm	500mm	1000mm

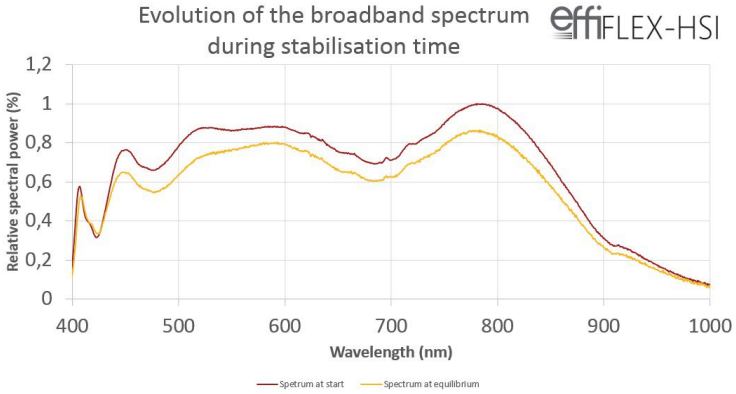
Optical power ratio for the different windows *(In lens position P2 and at working = distance 400mm)*		
Transparent window	**Semi-diffuse window**	**Opaline window**
100%	85%	15%

Spectrum



The EFFI-Flex-HSI requires time to stabilize his spectral emission. Please note that during this stabilization, the spectral power may decrease by maximum 15%.

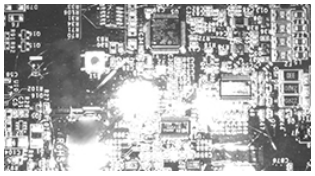
At ambient temperature 25°C, in continuous mode this stability is reached an hour after switching on the product.



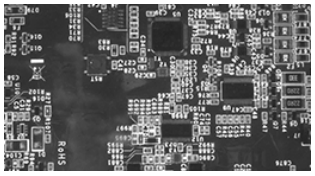
Option: Polarizer accessory

Using polarizers, on the Effilux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application.

The user can insert directly the polarizers inside the EFFI-Flex-HSI, under the window.



Without polarizer



With polarizer

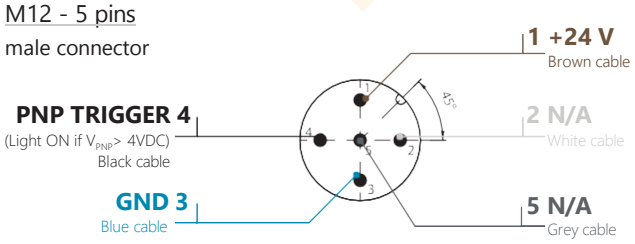
Important notes:

- With the EFFI-Flex-HSI, it is necessary to use a NIR polarizer and a VIS polarizer (common PN: EFFO-FLEX-HSI-POL2-XXX).
- The polarization is optimal with a transparent window, the use of diffuser can depolarize the light.

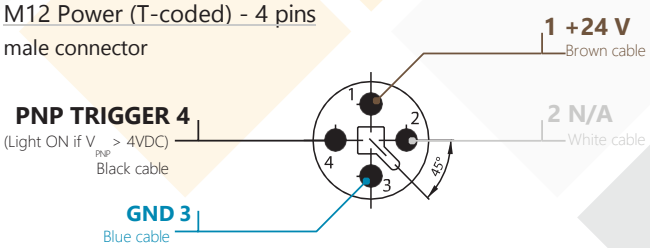
Wiring layout - Standard version

The EFFI-Flex-HSI requires 24V DC input power. Note the trigger pin needs to be connected either to the 24V DC signal for Continuous mode or to a PNP Trigger signal for AutoStrobe mode.

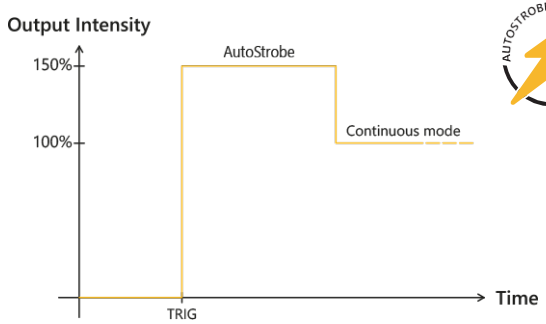
M12 - 5 pins
male connector



M12 Power (T-coded) - 4 pins
male connector



AutoStrobe feature



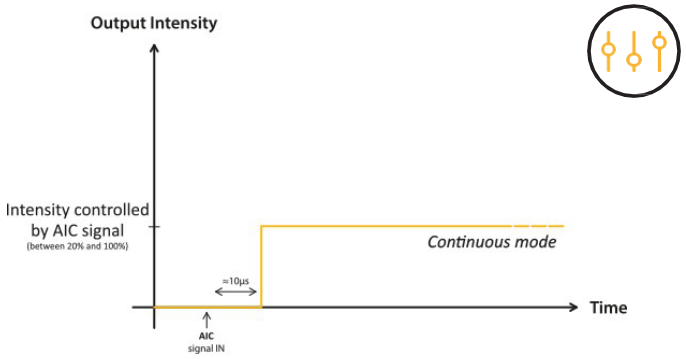
The integrated driver with AutoStrobe feature allows for 150% increased intensity while being strobed when compared to continuous mode. Strobing time lasts for 2 secondes.

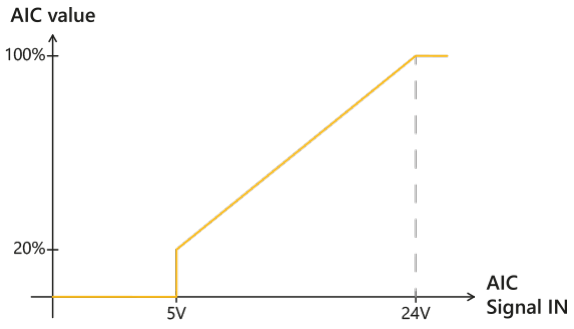
Respect a duty cycle of 30% in strobe mode.

Response time	
Rising time	15µs
Falling time	10µs

Option Driver ELS: AIC Version

The standard product (AutoStrobe) is not dimmable, EFFILUX offers an alternative electronic configuration suitable for continuous use and linear applications. This ELS driver version allows you to adjust the light intensity of the product according to the input signal: AIC Version (Analog Intensity Control).





The wiring layout of the AIC version is similar to the standard wiring layout. The signal input (PNP trigger in the standard version) has to be replaced by the Analog Intensity Control signal in order to adjust the light intensity.

Power consumption and Connector type

Depending on power consumption, the EFFI-Flex-HSI has a standard M12 connector or an M12 Power connector. The exact power consumption of the product is always indicates on the product's stickers.

MAX POWER CONSUMPTION (STANDARD VERSION)																	
Optical Length XXXX (mm)		20	60	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	...
Standard AutoStrobe Version	P_{peak}	5W	5W	15W	20W	25W	35W	45W	55W	65W	70W	80W	90W	100W	105W	115W	125W	...
	P_{cw}	2W	5W	8W	15W	20W	30W	35W	45W	50W	55W	60W	65W	70W	75W	85W	90W	...
ELS350 Version		5W	5W	10W	15W	20W	30W	35W	40W	50W	55W	60W	70W	75W	80W	90W	95W	...

M12	M12 Power
5 pins	4 pins

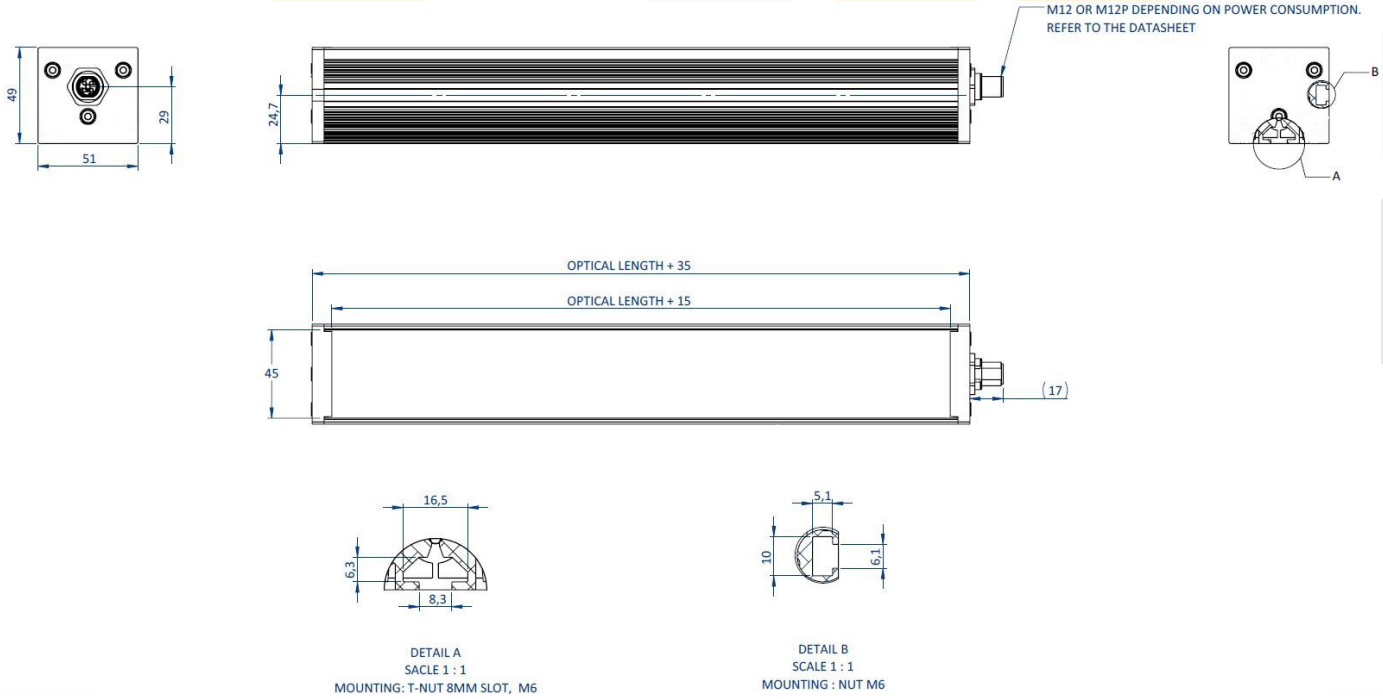
MAX POWER CONSUMPTION (STANDARD VERSION)																
Optical Length XXXX (mm)		1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
Standard AutoStrobe Version	P_{peak}	135W	140W	150W	160W	170W	175W	185W	195W	205W	210W	220W	230W	240W	245W	255W
	P_{cw}	95W	105W	110W	115W	120W	125W	135W	140W	145W	150W	160W	165W	170W	175W	180W
ELS350 Version		95W	105W	110W	115W	120W	125W	135W	140W	145W	150W	160W	165W	170W	175W	180W

P_{peak} is corresponding to the peak consumption during the autostrobe and P_{cw} is corresponding to the power consumption during the continuous mode, after the AutoStrobe.

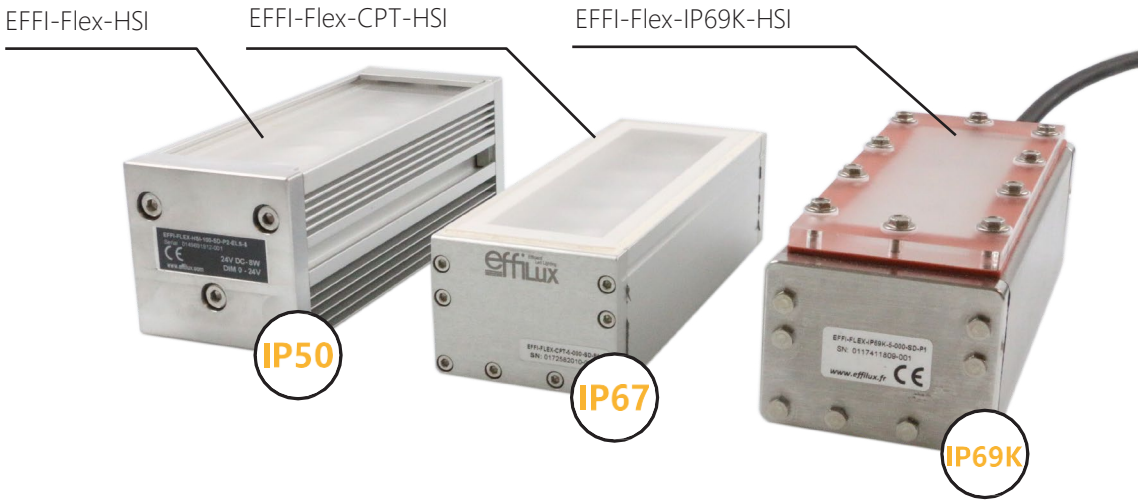
M12	M12 Power
5 pins	4 pins

MECHANICAL SPECIFICATIONS

General dimensions



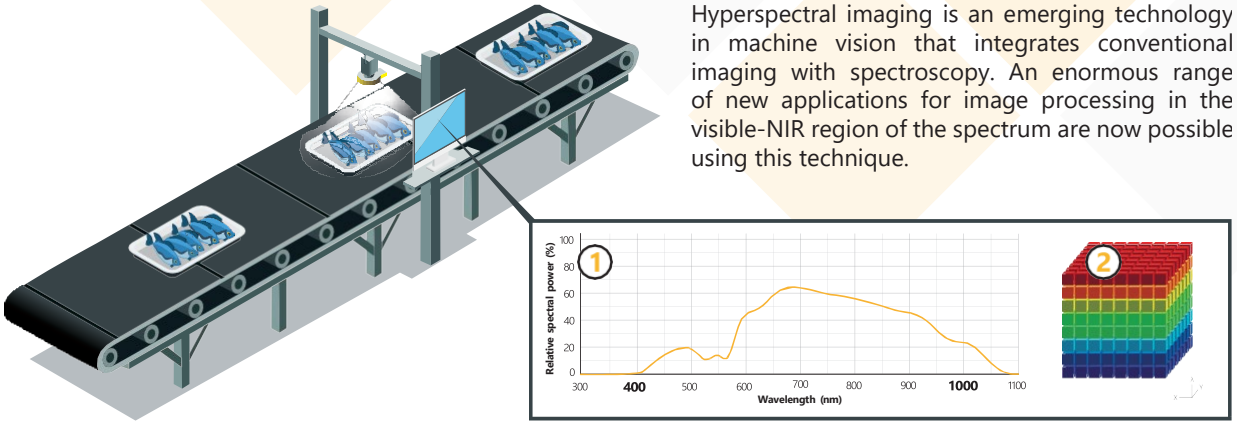
Mechanical versions of the EFFI-Flex-HSI



	IP rating	"Openable" product	Water cooling available	Anti-dust conception	Food version
EFFI-Flex-HSI	IP50	✓	✗	✗	✗
EFFI-Flex-CPT-HSI	IP67	✗	✓	✓	✗
EFFI-Flex-IP69K-HSI	IP69K	✗	✗	✓	✓

Please, refer to the dedicated documentation of the EFFI-Flex-CPT and the EFFI-Flex-IP69K.

Collect more data with hyperspectral imaging



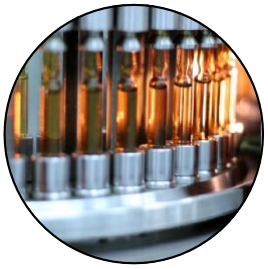
Hyperspectral imaging is an emerging technology in machine vision that integrates conventional imaging with spectroscopy. An enormous range of new applications for image processing in the visible-NIR region of the spectrum are now possible using this technique.

Here an example of an application using Effilux HSI lighting for optical control on fishes.

HSI lightings coupled with hyperspectral cameras allow to access both spectral and spatial information at the same time (2: hyperspectral data cube). In this case, spectral signature (1) can be access in a rapid and efficient way to ensure the good quality of products.

Hyperspectral illumination for a wide variety of domains

Some examples



Medical and pharmaceutical analysis

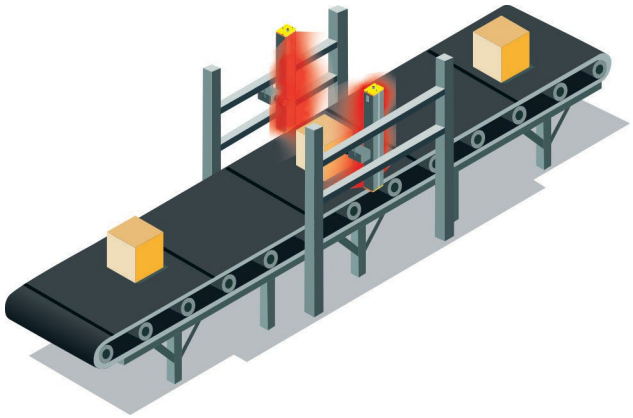
Waste sorting and recycling

Hyperspectral microscopy

Food sorting and quality analysis

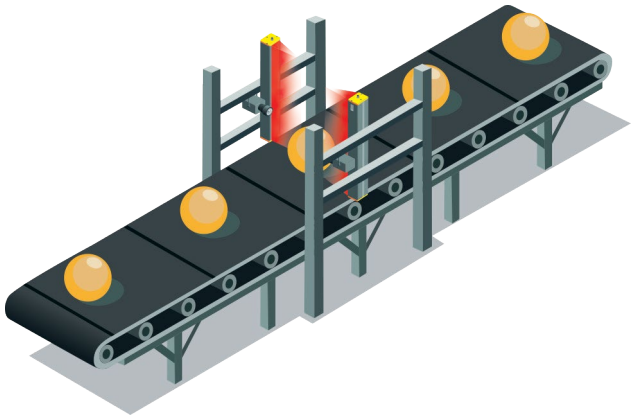
Defect inspections

Solutions for area scan and line scan cameras



The EFFI-FLEX-HSI provides homogenous hyperspectral lighting, with various spot sizes for area scan camera applications.

The flexibility of the EFFI-FLEX-HSI makes it ideally suited for many fields of industrial applications (machine vison for quality control, pick and place, ...).



The EFFI-FLEX-HSI offers two solutions to obtain homogenous hyperspectral linear lighting. Those solutions have been design to perfectly fit line scan cameras needs in terms of illumination.

Equiped with the line scan optionvs, the EFFI-FLEX-HSI delivers ideal lighting to obtain high-resolution images of moving materials.

ACCESSORIES

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

Diffusers

Transparent: EFFO-FLEX-TR-XXX*
Semi-diffuse: EFFO-FLEX-SD-XXX*
Opaline: EFFO-FLEX-OP-XXX*

Polarizer / Linescan

Polarizer: EFFO-FLEX-HSI-POL2
Linescan: EFFO-FLEX-LS-XXX*

Extension Cables

2meters: EFFC-CAB-M12-FM-5-DD-L2
5meters: EFFC-CAB-M12-FM-5-DD-L5
10meters: EFFC-CAB-M12-FM-5-DD-L10

Fasteners

T-Nut Kit: EFFV-BOLT-0011
Pivot joint Kit: EFFM-1-002

Power supplies

Power supply: EFFI-PWR- ...
Compact power supply: EFFI-SPWR-090W-24V-102-YY*

*XXX = number of LEDs (Optical length (mm) / 20)
YY = type of outlet: UK, CH, EU, US

CUSTOMIZATIONS

REGULATIONS

In accordance with machinery directive, the CE and UKCA marks indicate that the product complies with the relevent EU and UK legislation.
Please refer to the "General warnings & precautions for use" for detailed informations regarding standards and regulations.

CONTACT INFORMATION

Please refer to the specific documentation (datasheet, user manual, drawing and general warnings & precautions for use) for complementary information.
Contents of this document are base on information available as of June-2021 and may be changed without prior notice.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effilux.fr

ANNEX - EXTENDED SPECTRUM VERSION - X2 VIS-NIR

The flexibility of the EFFI-Flex with an extended spectrum

The **X2 VIS-NIR on demand version** of the EFFI-Flex-HSI integrates two additionnal **NIR LEDs** (910nm and 970nm) offering an **extended spectrum** from 400 to 1000nm.

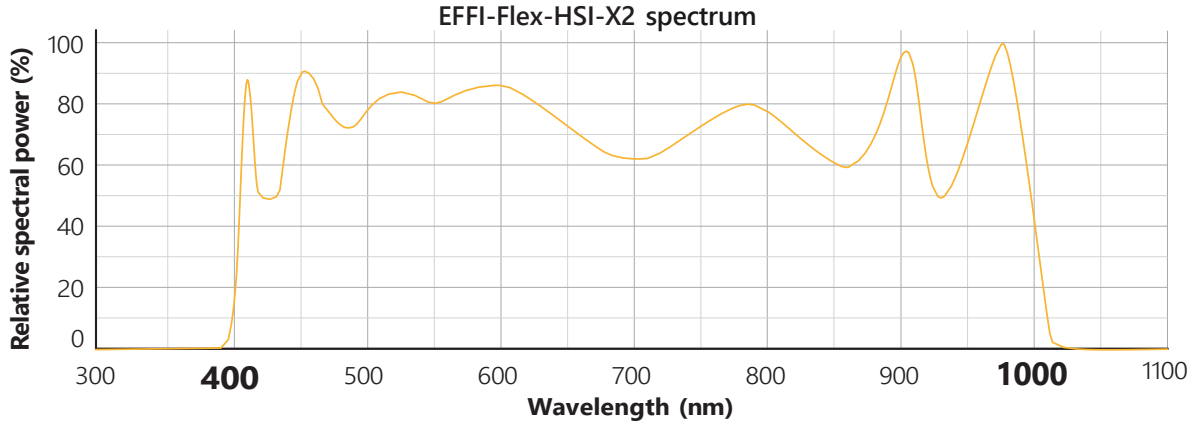
This version allows for independant control of each channel (Broadband White, 910nm and 970nm) in order to adapt the spectrum to your needs and to your camera sensitivity.

EFFI-FLEX-HSI	- X2	- XXXX	- 910-970	- WW	- PP	- ELS-UUU
		200		TR (Transparent)	P0 (90°)	ELS-**24V**
		300		SD (Semi-diffuse)	P1 (45°)	ELS-**10V**
		400		OP (Opaline)	P2 (25°)	ELS-**5V**
		... All 100mm			P3 (10°)	
		1000				

Standard version and extended spectrum version comparison

	Spectrum	Number of LEDs	AIC Version	AutoStrobe feature	Illuminance at XXm of working distance
EFFI-Flex-HSI	400-900 nm	5 LEDs per 100mm	✓	✓	XX meters
EFFI-Flex-HSI-X2 VIS-NIR	**Extended spectrum** 400-1000 nm	10 LEDs per 100mm	✓	✗	XX meters

Spectrum

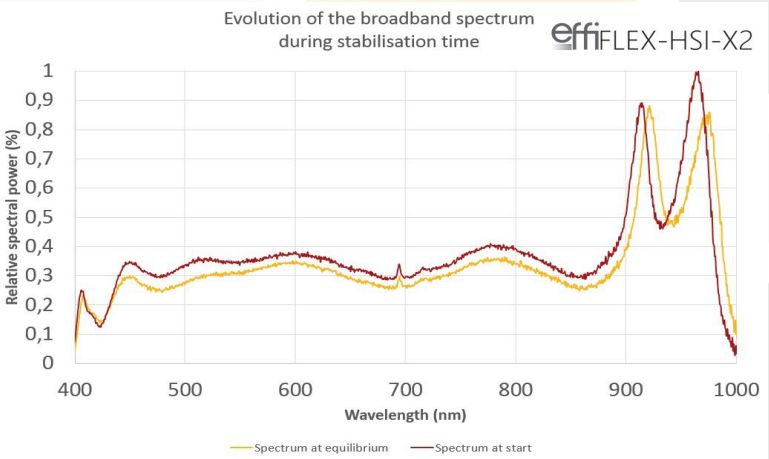


Note: This spectrum has been measured with adjusted NIR LEDs intensities in order to get a flat spectrum. If all channels are set to 100% intensity, the peaks at 910nm and 970nm are higher, helping to compensate for the camera's lack of sensitivity in the NIR range.

ANNEX - EXTENDED SPECTRUM VERSION - X2 VIS-NIR

The EFFI-Flex-HSI requires time to stabilize his spectral emission. Please note that during this stabilization, the spectral power may decrease by maximum 10%.

At ambiant temperature 25°C, this stability is reached 35 minutes after switching on the product.

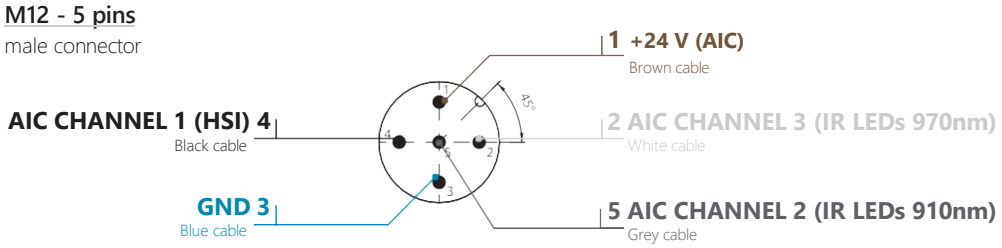


Electronical Specification - X2 VIS-NIR Version

Wiring Layout

The EFFI-Flex-HSI-X2 VIS-NIR requires 24V DC input power and is only compatible with the Analog Intensity Control version (AIC).

For specifications about the AIC version, please refer to the standard version (Cf. page 6).



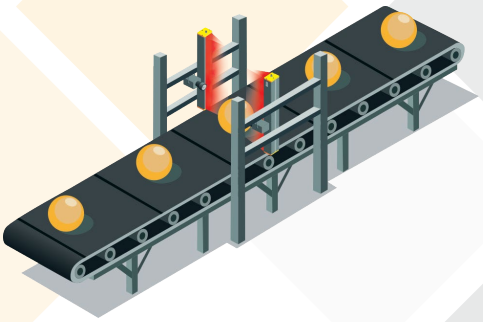
Power consumption and Connector type

The EFFI-Flex-HSI-X2 VIS-NIR has a standard M12 connector (5 pins). The exact power consumption of the product is always indicates on the product's stickers.

MAX POWER CONSUMPTION (X2 VERSION)									
Optical Length XXXX (mm)	200	300	400	500	600	700	800	900	For other optical length, please contact Effilux.
Channel 1 (HSI)	15W	25W	30W	35W	45W	50W	55W	60W	
Channel 2 (IR 910)	5W	5W	5W	5W	5W	5W	5W	5W	
Channel 3 (IR 970)	5W	5W	5W	5W	5W	5W	5W	5W	

M12
5 pins

Hyperspectral linear lighting



EFFILUX line scan options provide high uniformity linear lighting. Those options can be used in conjunction with line scan camera for short and long range line scan inspection applications.

Both standard and X2 version of the EFFI-Flex-HSI benfit from the two linescan options.

Option: Linescan accessory

With the lens in the upper position, the linescan accessory transforms the EFFI-Flex-HSI light into a uniform line light ideal for either brightfield or darkfield illumination.

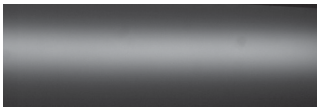
The linescan accessory can be insert inside the EFFI-Flex-HSI by the user just under the window.

Additionnaly to the linescan accessory, the cylindrical lens is a specific optical system that will focus the light into a very bright line.

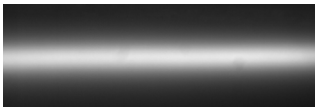
The cylindrical lens version of the EFFI-Flex-HSI is a specific product.

Optical impact

Without linescan or cylindrical lens



With linescan



With cylindrical lens

DATASHEET

Efficient Led Lighting

Compact LED bar

Adjustable emission angle

effiLSBR

Small LED Bar

INTRODUCTION

Table of contents

PART NUMBERING

STANDARD version

EFFI-LSBR - XXX - Y - Z

Optical length (mm)	Number of rows	Wavelength (nm)
025	2	B (470)
030	3	G (525)
050	6	R (630)
... Every 25mm		I (940)
500		W (000)
... Every 50mm		
1000		

GENERAL SPECIFICATIONS

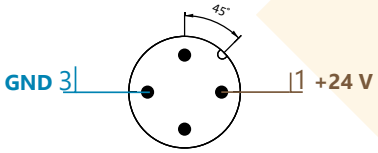
effiLSBR	
Illumination Mode	Continuous
Wavelengths	White, Red (630nm), Green (525nm), Blue (470nm), IR (940nm)
Input current	see the corresponding table (page 4/5)
Power Consumption	see the corresponding table (page 4/5)
Connector(s)	**M12 - 4 pins**
Weight	20g
Dimensions	see mechanicals specifications
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

ELECTRONICAL SPECIFICATIONS

Contact Arrangement

All the products of the EFFI range are supplied with a 24V DC constant voltage.

M12 4pins - male connector



Notes: Please use within 24V, otherwise it may cause temperature rise or could diminish the lifetime.

Power consumption & Input current

2 or 3 rows

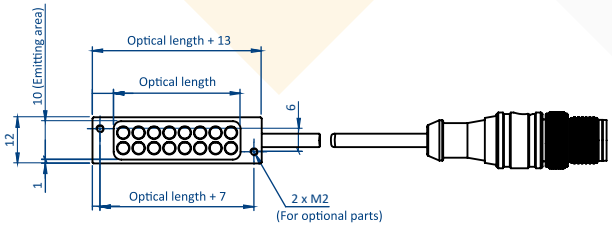
	Wavelength			
	Red (630nm), Green (525nm), Blue (470nm), IR (940nm)		White	
	Power consumption	Input current	Power consumption	Input current
EFFI-LSBR-030-2-Z	1.3W	50mA	2.1W	80mA
EFFI-LSBR-050-3-Z	1.6W	60mA	2.6W	100mA
EFFI-LSBR-100-3-Z	3.1W	120mA	5.2W	200mA
EFFI-LSBR-150-3-Z	4.6W	180mA	7.8W	300mA
EFFI-LSBR-200-3-Z	6.1W	240mA	11W	400mA
EFFI-LSBR-250-3-Z	7.6W	300mA	13W	500mA
EFFI-LSBR-300-3-Z	9.1W	360mA	16W	600mA
EFFI-LSBR-350-3-Z	11W	420mA	18W	700mA
EFFI-LSBR-400-3-Z	13W	480mA	21W	800mA
EFFI-LSBR-450-3-Z	14W	540mA	24W	900mA
EFFI-LSBR-500-3-Z	16W	600mA	26W	1000mA
EFFI-LSBR-550-3-Z	17W	660mA	28W	1100mA
EFFI-LSBR-600-3-Z	19W	720mA	31W	1200mA
EFFI-LSBR-650-3-Z	20W	780mA	33W	1300mA
EFFI-LSBR-700-3-Z	22W	840mA	36W	1400mA
EFFI-LSBR-750-3-Z	23W	900mA	38W	1500mA
EFFI-LSBR-800-3-Z	25W	960mA	41W	1600mA
EFFI-LSBR-850-3-Z	26W	1000mA	43W	1700mA
EFFI-LSBR-900-3-Z	28W	1100mA	46W	1800mA
EFFI-LSBR-950-3-Z	31W	1150mA	48W	1900mA
EFFI-LSBR-1000-3-Z	31W	1200mA	51W	2000mA

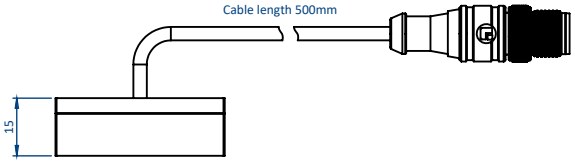
6 ROWS

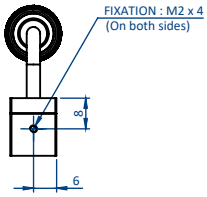
	Wavelength			
	Red (630nm), Green (525nm), Blue (470nm), IR (940nm)		White	
	Power consumption	Input current	Power consumption	Input current
EFFI-LSBR-025-6-Z	1.6W	60mA	2.1W	80mA
EFFI-LSBR-050-6-Z	3.1W	120mA	4.1W	160mA
EFFI-LSBR-075-6-Z	4.6W	180mA	6.1W	240mA
EFFI-LSBR-100-6-Z	6.1W	240mA	7.1W	320mA
EFFI-LSBR-125-6-Z	7.6W	300mA	11W	400mA
EFFI-LSBR-150-6-Z	9.1W	360mA	13W	480mA
EFFI-LSBR-175-6-Z	11W	420mA	15W	560mA
EFFI-LSBR-200-6-Z	13W	480mA	17W	640mA
EFFI-LSBR-225-6-Z	14W	540mA	19W	720mA
EFFI-LSBR-250-6-Z	16W	600mA	21W	800mA
EFFI-LSBR-275-6-Z	17W	660mA	23W	880mA
EFFI-LSBR-300-6-Z	19W	720mA	25W	960mA
EFFI-LSBR-325-6-Z	20W	780mA	27W	1040mA
EFFI-LSBR-350-6-Z	22W	840mA	29W	1120mA
EFFI-LSBR-375-6-Z	23W	900mA	31W	1200mA
EFFI-LSBR-400-6-Z	25W	960mA	33W	1300mA
EFFI-LSBR-425-6-Z	26W	1000mA	35W	1360mA
EFFI-LSBR-450-6-Z	28W	1080mA	37W	1440mA
EFFI-LSBR-475-6-Z	29W	1140mA	39W	1520mA
EFFI-LSBR-500-6-Z	31W	1200mA	41W	1600mA

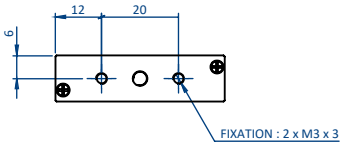
MECHANICAL SPECIFICATIONS (DIMENSIONS IN MM)

EFFI-LSBR-XXX-2-Z

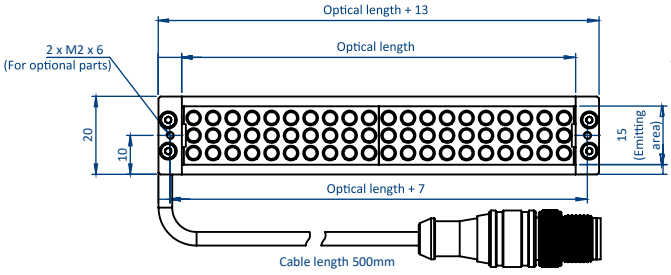


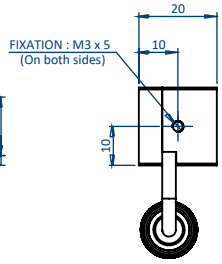


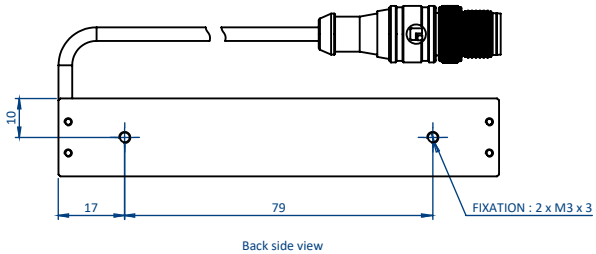




EFFI-LSBR-XXX-3-Z

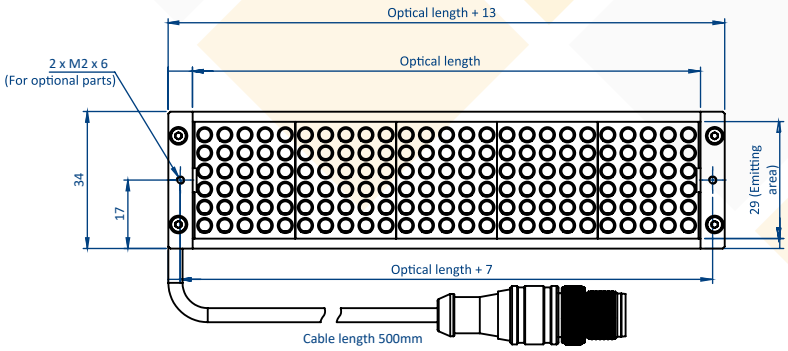


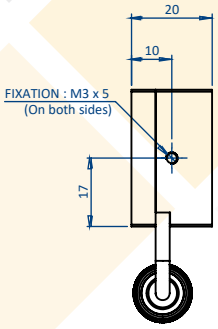


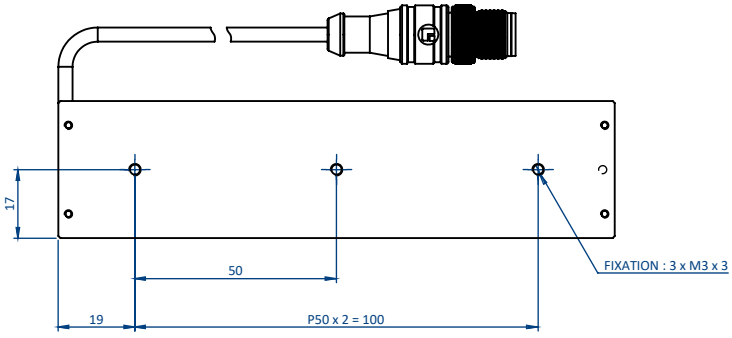


Back side view

EFFI-LSBR-XXX-6-Z







Back side view

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 August -2025 and may be changed without prior notice.

EFFILUX
1, Rue de Terre Neuve
Mini Parc du Verger - Bâtiment E
91940 Les Ulis - FRANCE

Tel: +33 9 72 38 17 80
Fax: +33 9 72 11 21 69
Mail: sales@effilux.fr