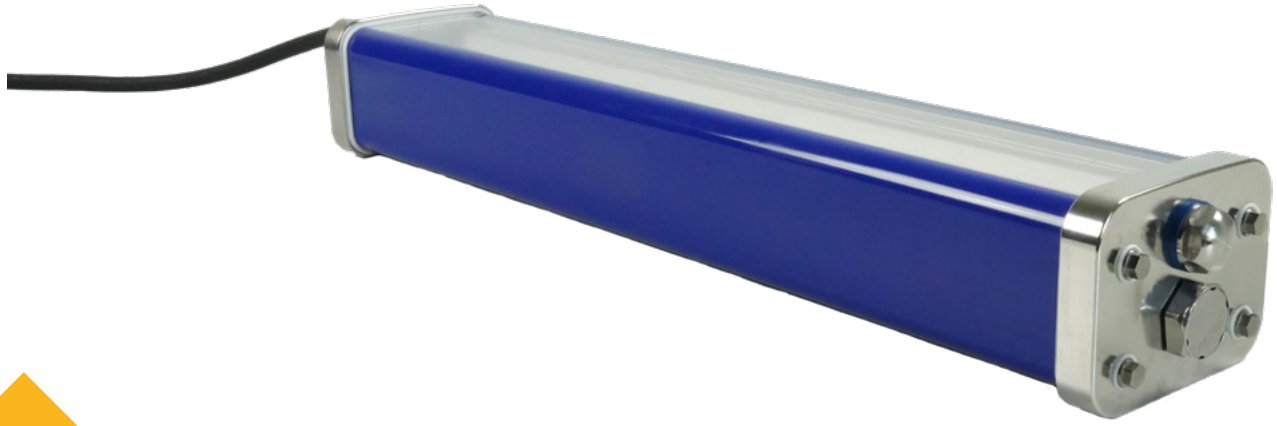
DATASHEET

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

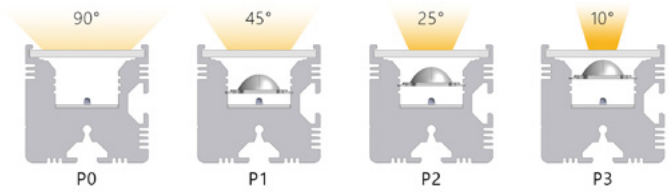
SD : Semi-diffuse

OP : Opaline

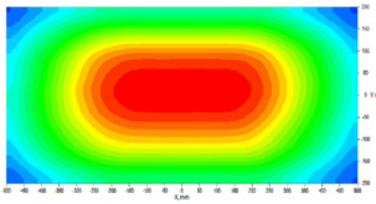
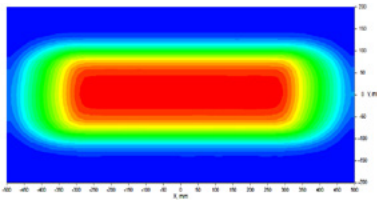
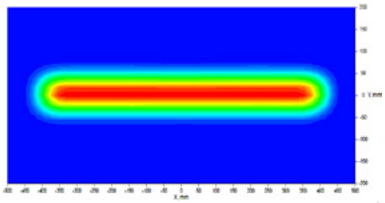
Choose the best configuration for your use-case : More diffusion (left to right) yields greater uniformity but reduces light power.

Four lens positions to adjust beam angle

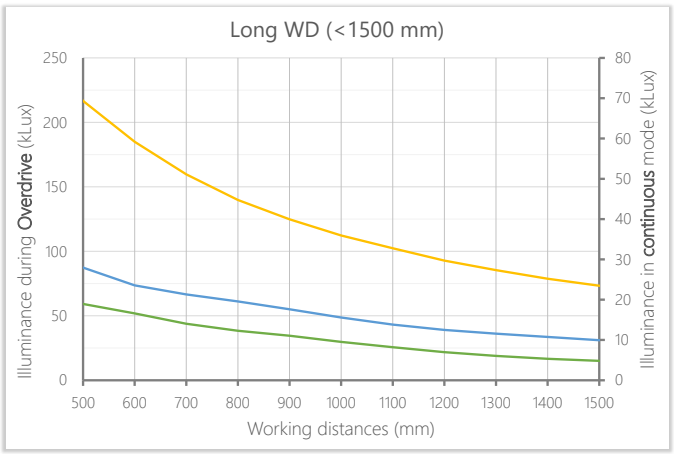
With the EFFI-Flex2-IP69K, users can customize the light beam angle. The default position is P2, but alternate specifications are available upon ordering: placing the lenses closer to the window narrows the light angle.



Irradiance maps

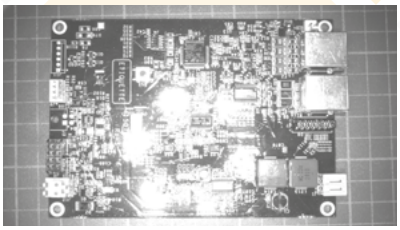
Optical configuration	TR-P1	TR-P2	TR-P3
Working distance 500mm Area size: 400x1000mm² 0% 100%			

Intensity vs Working distance (WD)

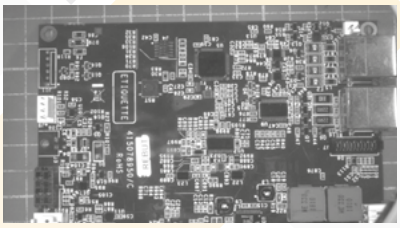


Lens position P1 Lens position P2 Lens position P3

Polarizer



Without polarizer



With polarizer

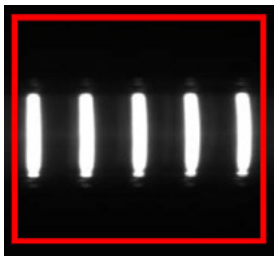
Using polarizers, on the Effilux light and on the camera, helps acquiring suitable images by eliminating glare issued from the workpiece .

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

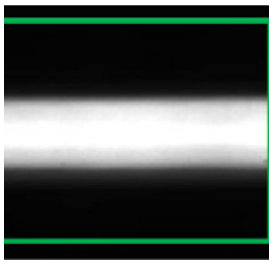
Important note: The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.

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.

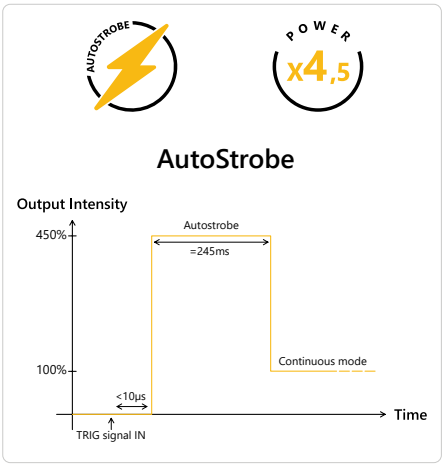
ELECTRONICAL SPECIFICATIONS

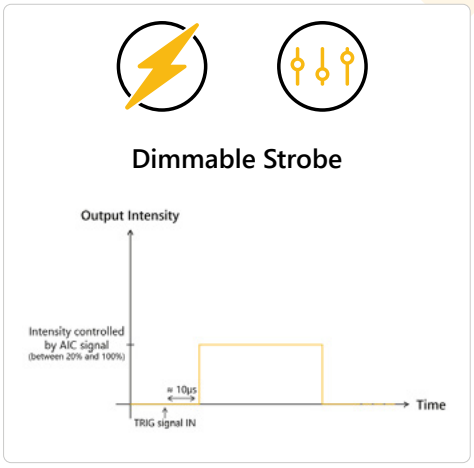
Overview

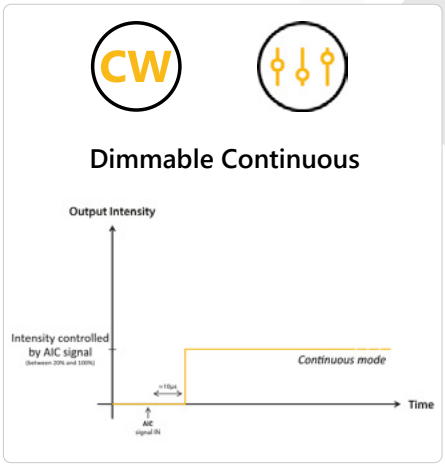
The EFFI-Flex2-IP69K has been designed to have several electronical modes available in the same product. Additionnally to that, engineers have developed a strong AutoStrobe mode to reach 450% light intensity.

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

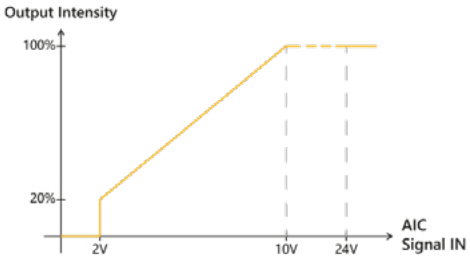
- **High power strobe - Autostrobe mode:** Light intensity at 450%. Max duty cycle of 20% and max pulse duration of 245ms.
- **DIM modes :** Light intensity between 20% and 100% monitored with the AIC pin and strobe or continuous mode monitored with the trigger pin.







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

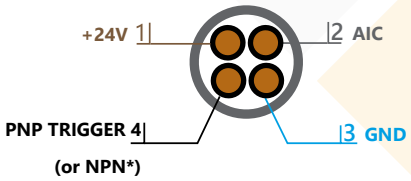
Notes: These values are maximum values. The consumption may vary according to the wavelength and the software. For the wavelengths 405 nm, you need to account for an additional 30% power consumption and for the wavelength 365, see the corresponding annex.

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).

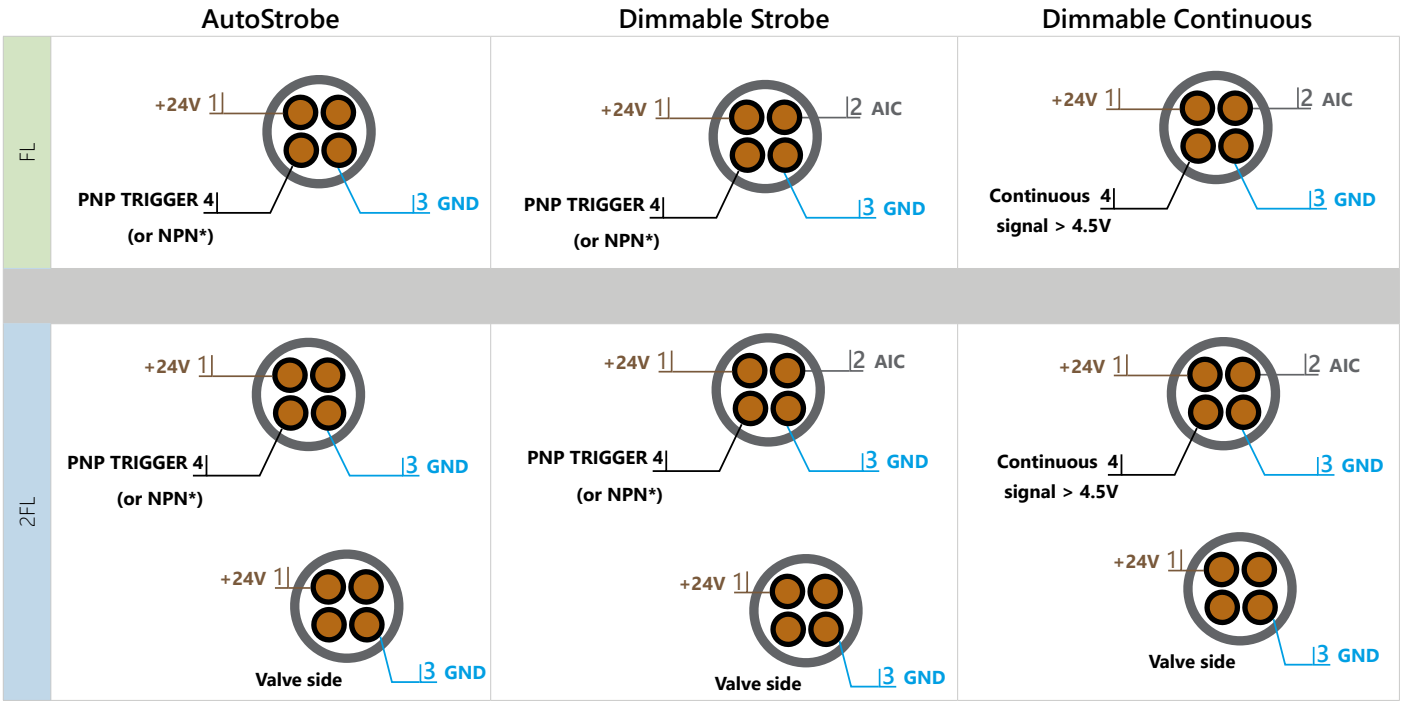
Flying leads FL (10m cable)



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)

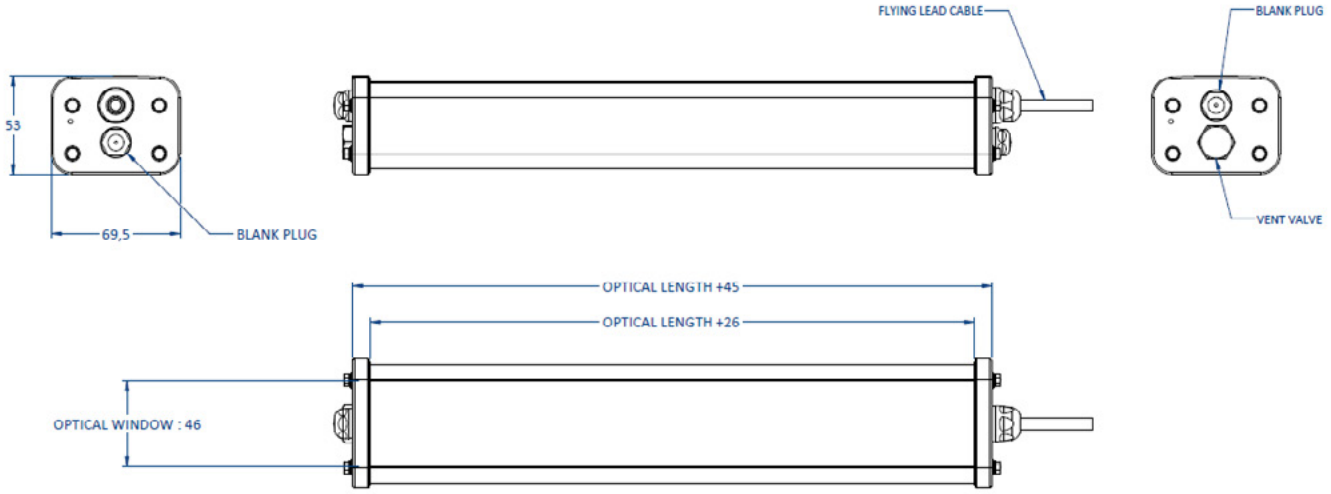


Continuous power boost (only with WTR version)

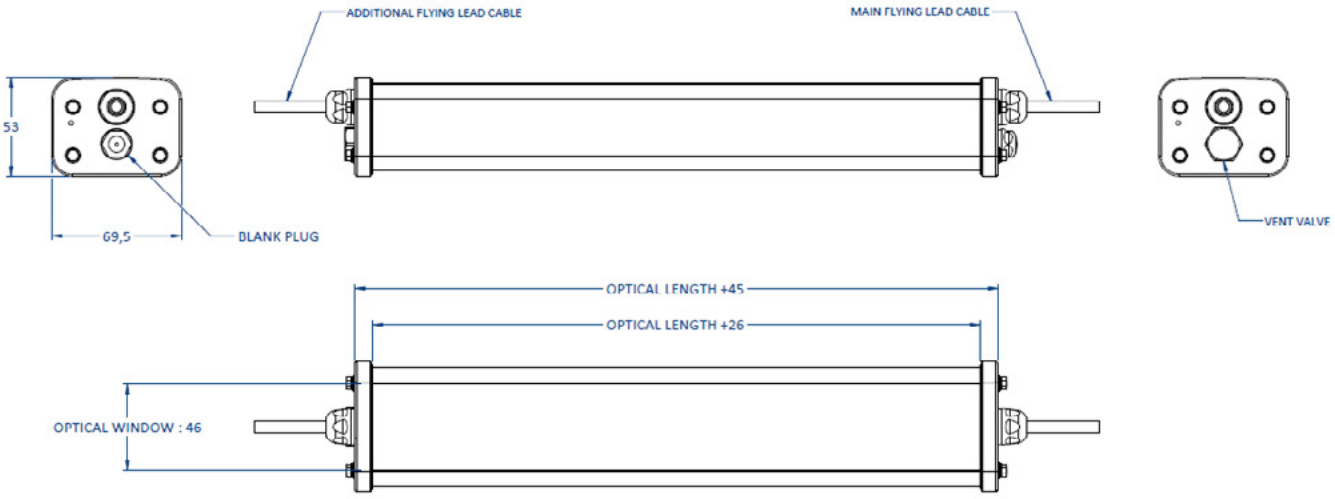
With the ELS500, ELS700 and ELS1000 options the EFFI-FLEX2-IP69K light power can be improved for continuous use.
These configurations only work with the WTR version as extra heat is produced.
As this is an expert configuration, get in touch with Effilux before implementing it.

MECHANICAL SPECIFICATIONS

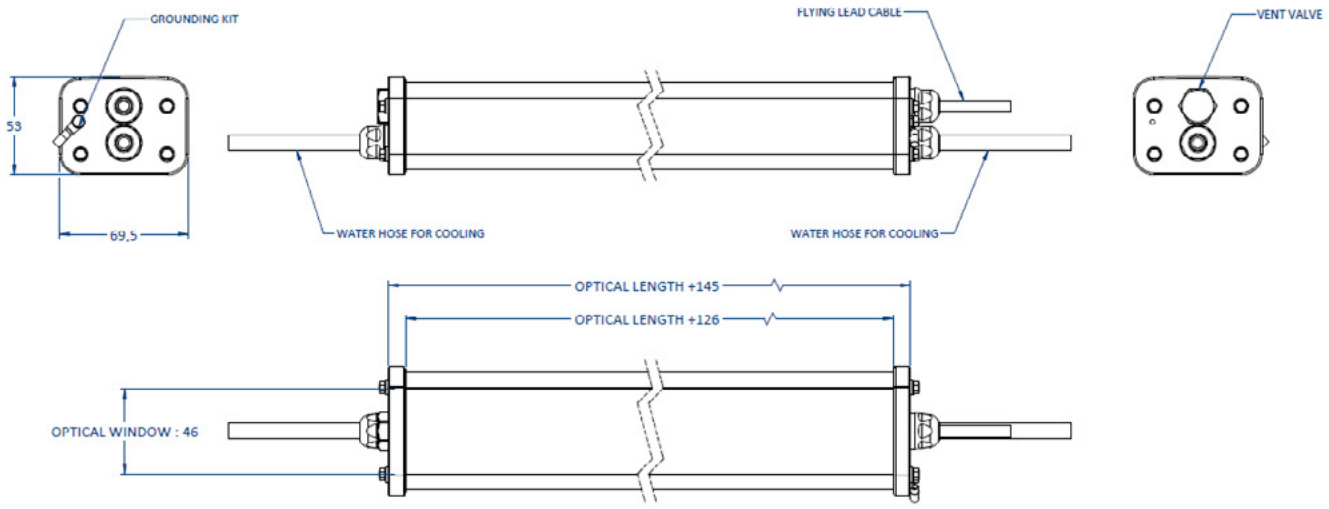
Dimensions of EFFI-Flex2-IP69K - FL (in mm)



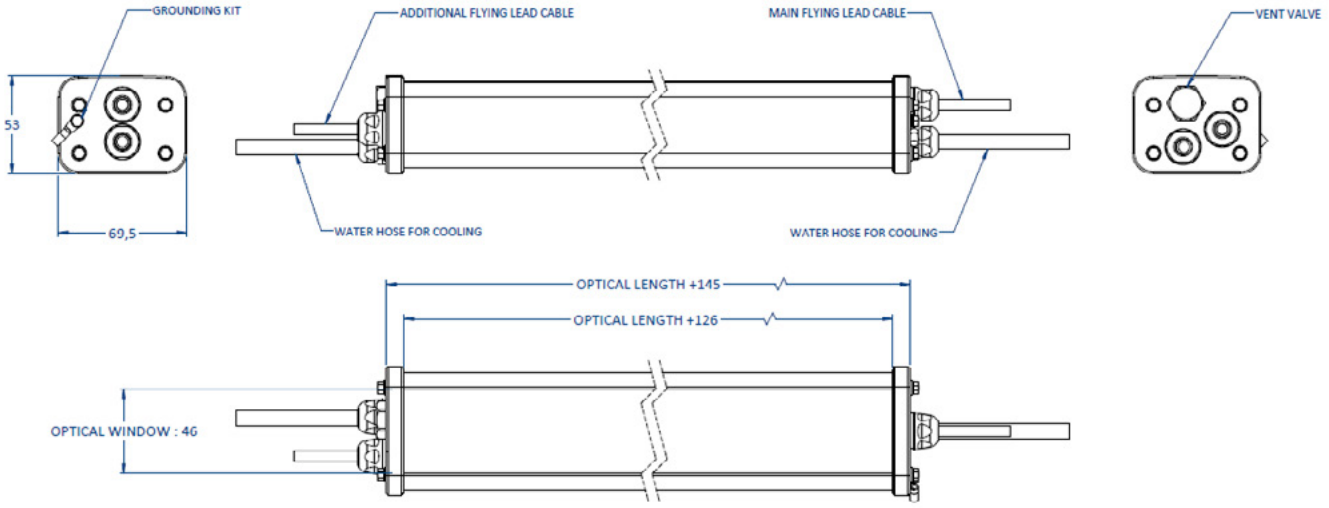
Dimensions of EFFI-Flex2-IP69K - 2FL (in mm)



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

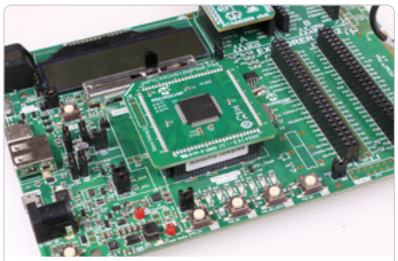
EFFO-FLR-...

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.

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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°)

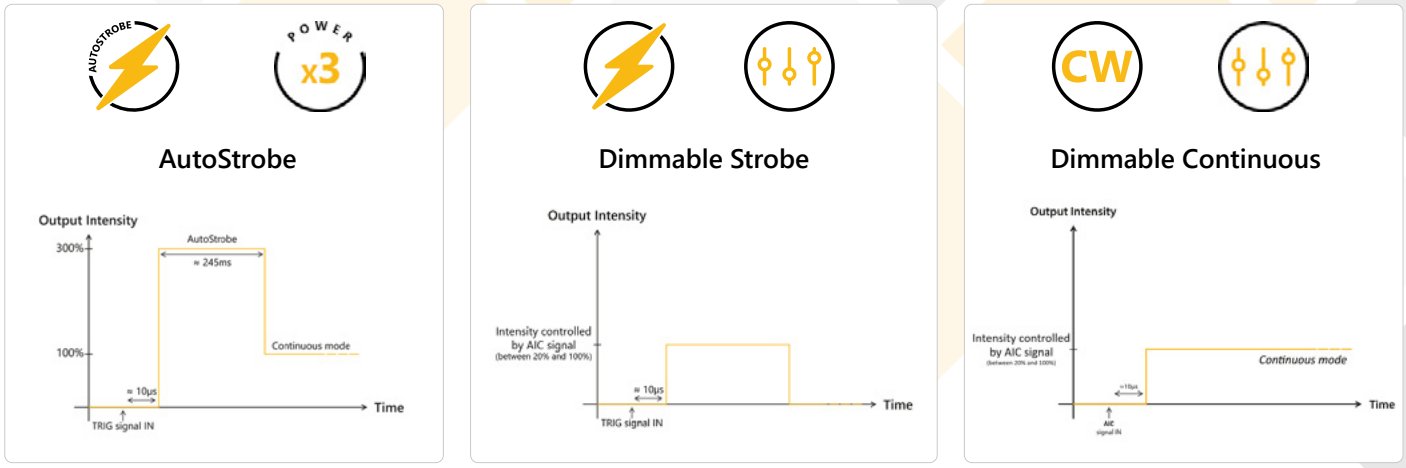
Notes:

- 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

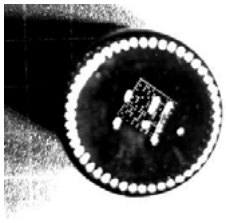
OPTICS	
Pure UV option	EFFI-FLEX2-IP69K-XXXX-365-TR-P0-**PUV** *(See details next page)*
L2: Economical version	EFFI-FLEX2-IP69K-**L2-**XXXX-365-TR-P0 1 LED every 40mm vs 1 LED every 20mm for standard (See corresponding Annex)

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