Strobe Version available

IP69K

Very intense and uniform illuminated area

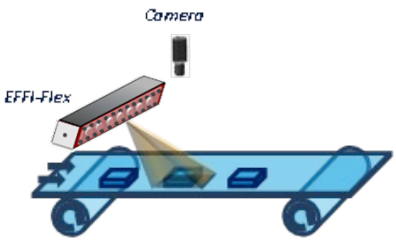
Full range of colors: from UV to IR, white, multi and hyperspectral

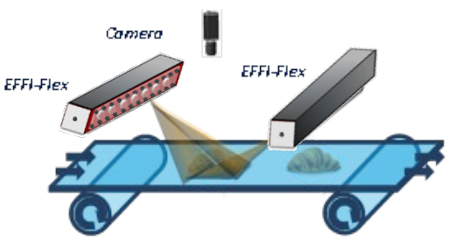
Long lifetime and minimal maintenance

Flexible: Different illumination angles (4 angles) & projection windows

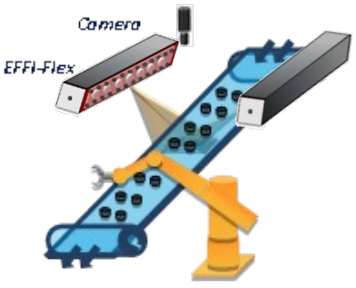
	Power supply	24V DC
	Illumination mode	Continuous or strobe mode
	Power consumption	Depends on the number of LEDs *(see page 3)*
	Electronic mode	AutoStrobe or Analog Intensity Control (ELS option)
	Cable	Flying leads for STANDARD version or M12 for FOOD version – 5 contacts
Optics	Wavelength	Single wavelength (from UV to IR) / White / Multispectral / Hyperspectral
Mechanics	Weight	Depends on the number of LEDs *(see page 6)*
	Width x height x length	54mm x 51mm x length – depends on the number of LEDs *(see page 2)*
	Fastener	8 x M5 holes
	Material	Device body: 316L Stainless Steel; Window: PMMA
Environment	Working temperature	0°C to +40°C
	IP rating	IP69K

Applications





Quality control



Pick and place

Part Number

STANDARD IP69K part-number: EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP-V

XXX: Number of LED

	XXX	1	3	5	10	15	+5 LED
Optical length	Standard version	20 mm	60 mm	100 mm	200 mm	300 mm	+100 mm
	1 LED / 2 positions version[1]	-	-	200 mm	400 mm	600 mm	+200 mm

[1] *For the 1 LED / 2 positions type, add -L2 (Length x 2) before the number of LEDs [EFFI-FLEX-IP69K-L2-XXX…]*

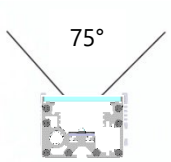
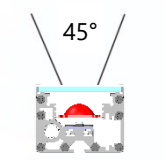
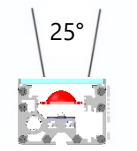
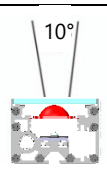
ZZZ: Color / Wavelength (nm)

● UV 365* *TR-P0 mandatory	● UV 405	● Blue 465	● Green 525	● Red 625	● IR 850	○ White 000 (T°= 5500K ± 500K)

WW: Windows (if not specified, default window is semi-diffusive)

TR : Transparent	SD : Semi-diffusive	OP : Opaline

PP: Lens position – Emitting angle (if not specified, default position is P2 = 25°)

P0 (Without lens)	P1	P2	P3
			

V: Venting

Ø: No vent	**-V**: Vent to equalize pressure and minimize condensation.

FOOD version

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.
Part number: EFFI-FLEX-IP69K-FOOD-XXX-ZZZ-WW-PP

Other specifications & options

Linescan Option for linear or darkfield lighting	Polarizer Option to eliminate glare
Usual window/position configuration associated: (…)-TR-P3-LS(-V) **Part number**: EFFI-FLEX-IP69K(-FOOD)-XXX-ZZZ-WW-PP-**LS**(-V)	**Must be used with a transparent window (TR):** (…) TR-PP-POL(-V) **Part number**: EFFI-FLEX-IP69K-(FOOD-)XXX-ZZZ-WW-PP-**POL**(-V)

ELS Options to dim the light

The ELS options set the electronical mode to continuous mode only and allows the light to be dimmed.
Part number: EFFI-FLEX-IP69K(-FOOD)-XXX-ZZZ-WW-PP-**ELS-VVV-UUU**(-V) where VVV = 350/500/700 and UUU=24V/10V/5V

Cables power duplication

For large products the power pins must be duplicated (refer to the wiring layout section).
Part number STANDARD version: EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP(-V)-**FL2** / **FOOD version**: EFFI-FLEX-IP69K-FOOD-XXX-ZZZ-WW-PP-**IN2**

Cable length options

Ø: 10 meters	-L2: 2 meters	-L5: 5 meters

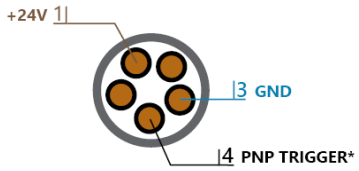
Electronical considerations

Wiring Layout

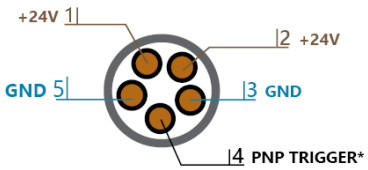
Depending on the product size and the chosen options, the light comes with different connections. (See the Power Consumption section)

STANDARD IP69K version

Flying lead - 1 input

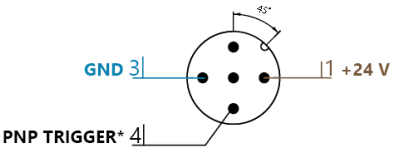


Flying lead - 2 inputs (FL2)

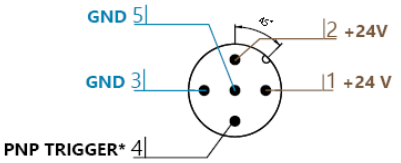


FOOD version

M12 5pins - 1 input



M12 5pins - 2 inputs (IN2)



(*) Or AIC (Analog Intensity Control) for the ELS version

Notes:

- 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 V_{PNP} > 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

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

Flying lead – 1 input | Flying lead – 2 inputs

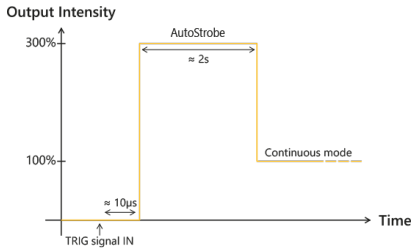
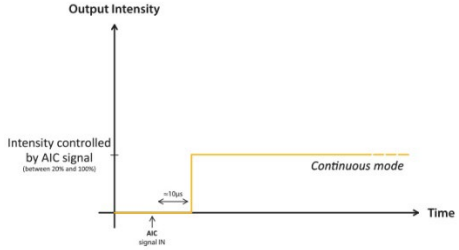
FOOD version

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			

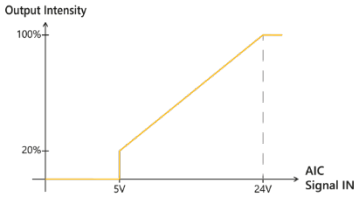
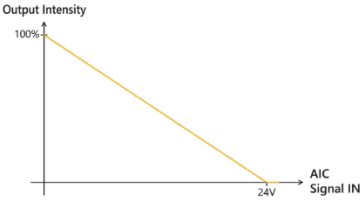
M12 5 pins – 1 input | M12 5pins – 2 inputs

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

Driver Versions

	STANDARD VERSION → AutoStrobe driver	**DIMMABLE VERSION → ELS driver** (AIC instead of PNP)
Part number	EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP(-V)	EFFI-FLEX-IP69K-XXX-ZZZ-WW-PP-ELS-VVV-UUU(-V)
Light output signal over time	 *Respect a duty cycle lower than 30% in strobe mode*	

ELS Driver variants

AIC control range		
Type of control	Standard 0-24V	Inversed 0-24V
Part number : UUU	ELS-VVV-24V	ELS-IN-VVV-24V
Light output intensity VS Analog signal input		
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

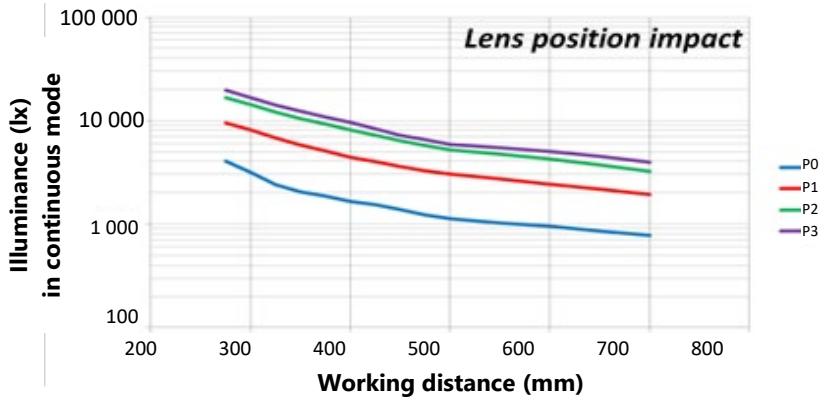
Signal consumption (mA)					
Amount of LED	**PNP Trigger Signal (Standard AutoStrobe version)**			**AIC Signal @24V (ELS version)**	
	@5V	**@10V**	**@24V**	**ELS-IN-350**	**ELS-350**
5	0.05	0.1	0.25	1.5	0.2
20	0.1	0.2	0.45	6	0.8
50	0.2	0.4	0.9	15	2
100	0.35	0.65	1.55	30	4
150	0.45	0.9	2.2	45	6

Optical considerations

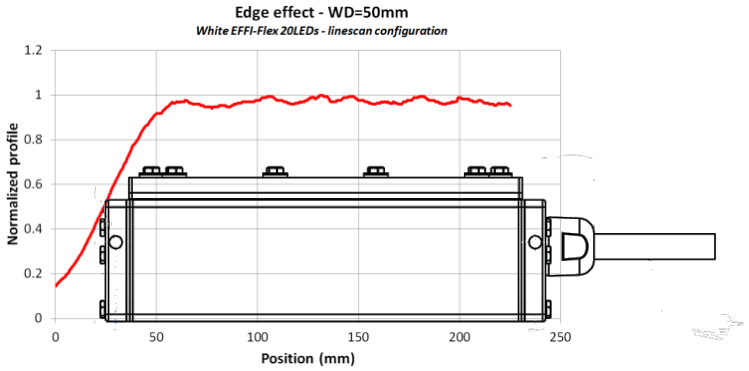
Illuminance vs Working Distance

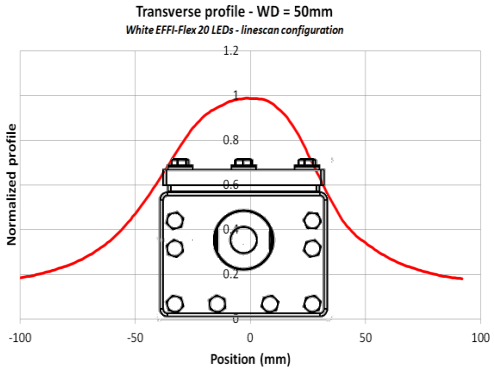
The following measurements are made with a white EFFI-FLEX-IP69K, in continuous mode.
Using the Overdrive mode of the AutoStrobe driver allows to **increase by 300%** these values.

EFFI-FLEX-IP69K 5 LEDs – Semi-diffusive window



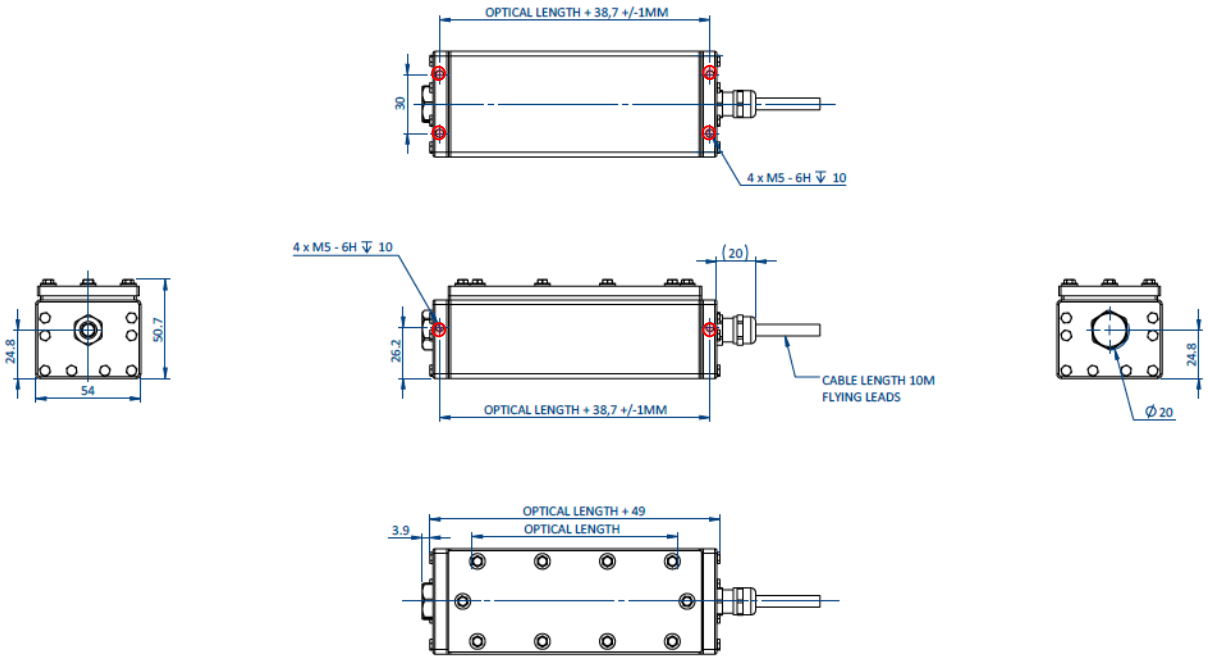
Profiles



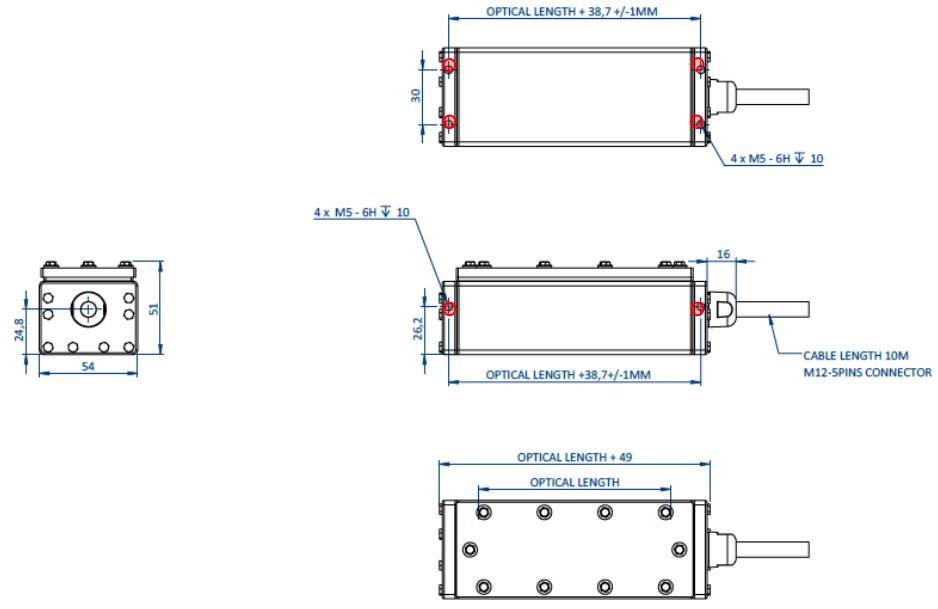


Mechanical considerations (Dimensions in mm)

EFFI-FLEX-IP69K-XXX-YYY-WW-PP-V (with vent option)



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



The product is provided waterproof. Do not screw/unscrew the screws on the housing.

Number of LEDs (XXX) – Standard Version	Optical length (mm)	Product length (mm)	Weight (kg)
5	100	148.5	0.8
10	200	248.5	1.2
15	300	348.5	1.5
20	400	448.5	1.9
25	500	548.5	2.3
…	XXX x 20	XXX x 20 + 48.5	≈ 0.078 x XXX + 0.5