Strobe Version available

IP69K

Very intense and uniform illuminated area

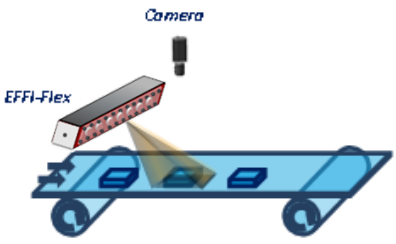
Full range of colors: from UV (405 nm) to IR (850 nm), white, multispectral

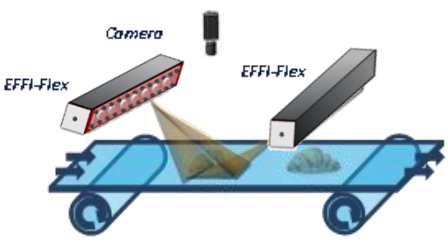
Long lifetime and minimal maintenance

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

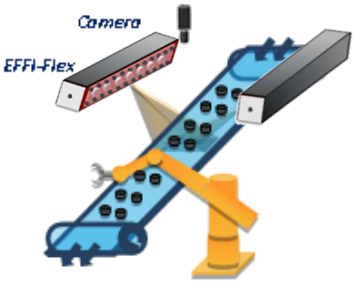
	Power supply	24V DC
	Illumination mode	Continuous or strobe mode
	Power consumption	Vary depends on the amount of LEDs
	Electronic mode	Standard Auto-strobe or Dimming control
	Cable	Bare cable (5 or 10 meters) - 5 contacts
Optics	Wavelength	Single (from UV to IR, white) wavelengths - Multispectral
Mechanics	Weight	Vary depends on the amount of LED
	Width x height x length	54,6mm x 51,3mm x length (depends on the amount of LEDs (23mm + 20mm/LED))
	Fastener	8 M5 holes
	Material	Device body: 316L Stainless Steel; Window: PMMA
Environment	Working temperature	0°C to 40°C
	IP code	IP69K

Applications





Quality control



Pick and place

Part Number

Reference:
EFFI-FLEX-IP69K-WW-XXX-YY-ZZ-AA

WW: Number of LED

WW	5	10	15	20	+5 LED
Standard version	143.5mm	243.5mm	343.5mm	443.5mm	+100mm
1 LED / 2 positions version*	243.5mm	443.5mm	643.5mm	843.5mm	+200mm

**If 1 LED / 2 version, add -L2 (Length X2) after the number of LED*

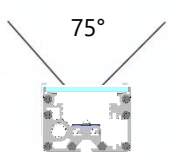
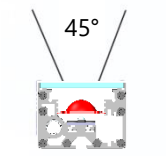
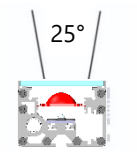
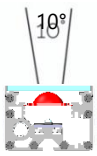
XXX: Color / Wavelength (nm)

● UV 405	● Blue 465	● Green 525	● Red 625	● IR 850	○ White 000 (T°= 5500K ± 500K)

YY: Windows *(if not specified, semi-diffusive window by default)*

TR : Transparent	SD : Semi-diffusive	OP : Opaline

ZZ: Position *(if not specified, position P2 by default)* / Emission angle according to the lens position

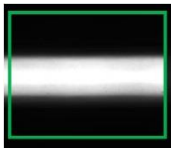
P0 (Without lens)	P1	P2	P3
			

AA: Cable length *(if not specified, 10 meters length by default. Other lengths available upon request)*

-L5: 5 meters	-L10: 10 meters

Option Linescan
(linear lighting or a darkfield lighting)


Without Linescan


With Linescan

For linescan, please add -**LS** in the part number.

Part number: EFFI-FLEX-IP69K-WW-XXX-YY-ZZ-AA-**LS**

Option Polarizer
(to eliminate glare caused by the lighting)


Without polarizer


With polarizer

For polarizer, please add -**POL** in the part number.

Part number: EFFI-FLEX-IP69K-WW-XXX-YY-ZZ-AA-**POL**

Option : Food processing

For food processing environment, the nickel-plated brass gland can be replaced with stainless steel type.
For stainless steel gland, please add -**FOOD** in the part number. (not available for UV 365nm version)
Part number : EFFI-FLEX-IP69K-FOOD-XXX-YYY-ZZZ

Electronical considerations

Contact arrangement

The EFFI-FLEX-IP69K is supplied with a 24V constant voltage. Please make sure that the flying leads output of the cable is in a sealed area. The TRIG (or AIC) contact needs to be connected.

ÖLFLEX® ROBUST 210 (Câble 5X1: ref LAPP 0021919) - Weather, bio oil, detergent and hot water resistant for use in food & beverage industry and composting plants

Core insulation made of modified PP / Outer sheath made of special TPE / Sheath colour: black.

Conductor N°	EFFI-FLEX-IP69K
1	+24V
2	n.c.
3	GND
4	**PNP TRIGGER(1) (trigger for rising edge) for Auto-strobe** Light ON if V_{PNP} > 5V DC Max 24V DC – Analog Voltage
5	n.c.

(1) Or AIC : Analog Intensity Control for Dimming Control if ELS version

Power supply

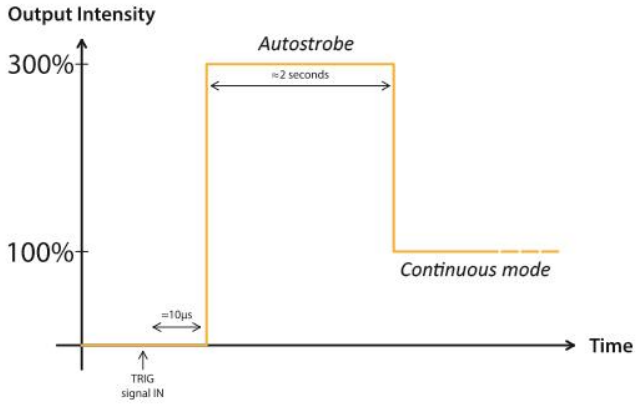
Please refer to below electrical power consumption table for the power of each product according to different dimensions. EFFI-BL-IP69K is supplied with a ÖLFLEX® ROBUST 210 cable. For specific configurations, please contact EFFILUX for more information.

Electrical power consumption of standard white EFFI-FLEX-IP69K			
Amount of LED (N)	Standard version		ELS 350mA
	P_{Peak_2s}	P_{CW}	
5	20	10	10
10	40	15	15
15	60	20	20
20	80	30	30
50	190	65	65
100	380	130	130
150	570	195	195

$P_{CW} = P_{ELS\ 350} \approx 1{,}3 \times N$

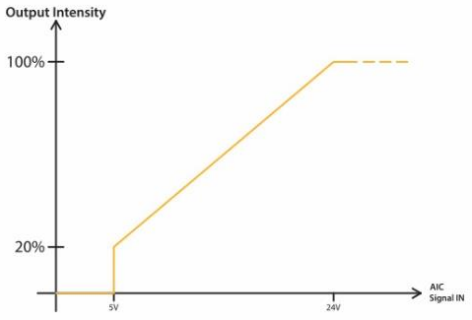
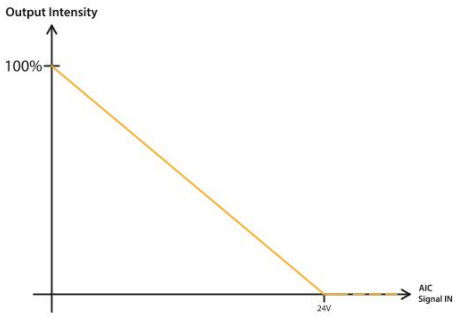
$P_{Peak\_2s} \approx 4 \times N$

Default Version : Auto-strobe



Keep duty cycle lower than 30%

ELS Version : Dimming control

Part Number	ELS-VVV-24V	ELS-IN-VVV-24V
	 *OFF : 0-5V & ON : 5V-24V* *Max signal consumption = 2mA every 5 LEDs @24V*	 *OFF : 0-5V & ON : 5V-24V* *Max consumption = 2mA every 5 LEDs @24V*

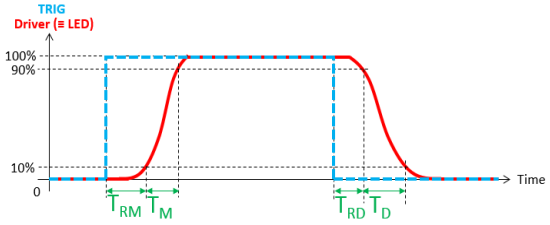
ELS is also available with 5V and 10V versions :

- *ELS-350-5V: Output intensity rising between 1.5 and 5V*
- *ELS-IN-350-5V: Output intensity decreasing between 0 and 5V*
- *ELS-350-10V: Output intensity rising between 5 and 10V*
- *ELS-IN-350-10V: Output intensity decreasing between 0 and 10V*

Electronical characteristics

Designation	**Time** (driver on the cable)
Rise time (T_M)[1]	11,5µs
Response rise time (T_{RM})[2]	6,5µs
Fall time (T_D)[3]	7µs
Response fall time (T_{RD})[4]	0,5µs

(1) From 10% to 90% of the peak value of driver signal
(2) From 90% to 10% of the peak value of driver signal
(3) From the beginning of the TRIG signal to 10% of the peak value of driver signal
(4) From the ending of the TRIG signal to 90% of the peak value of driver signal



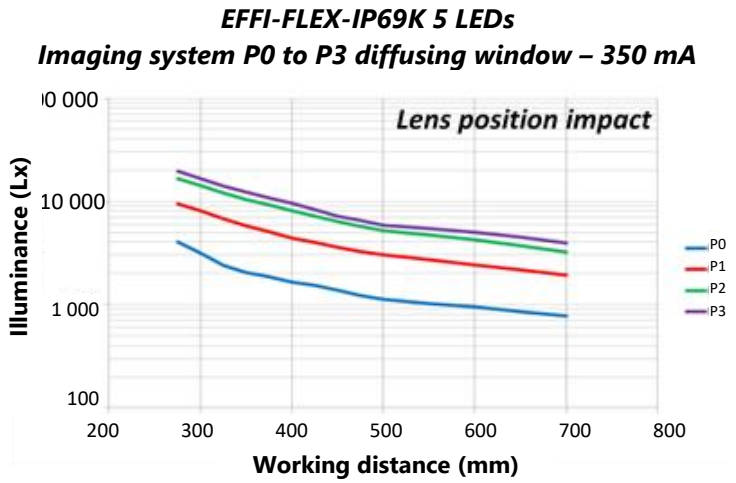
Signal consumption

Signal consumption (mA)					
Amount of LED	**TRIG (default version)**			**AIC (Analog Intensity Control)**	
	@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

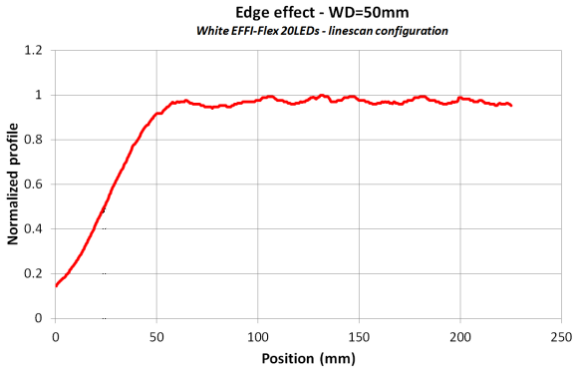
Optical considerations

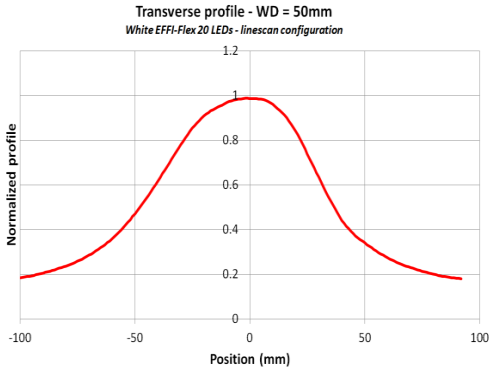
Illuminance vs Working Distance

The following measurements are made with white EFFI-FLEX-IP69K.



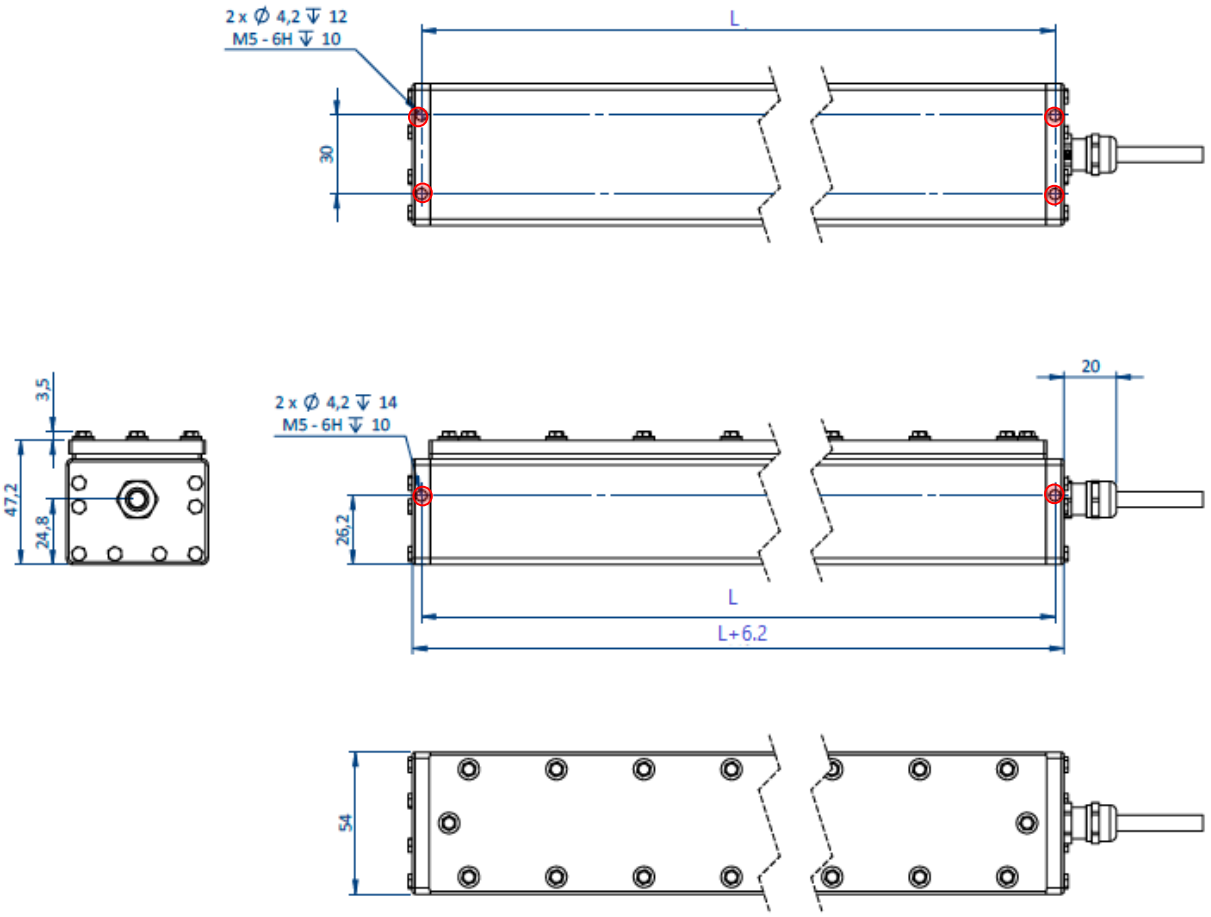
Profiles





The border of the EFFI-FLEX-IP69K is at 25 mm on the left graph.

Mechanical considerations (Dimensions in mm)



To avoid water retention, the gaps of stainless steel screws have to be filled in (**x8**)

Optical Length	L_{op} = [20 x N] if N LED
Optical Length (for L2 Version)	L_{op} = [40 x N] if N LED
Mechanical Length	L_{mecha} = L_{op} + 47mm