



Strobe Version  
available



**Very intense and uniform** illuminated area

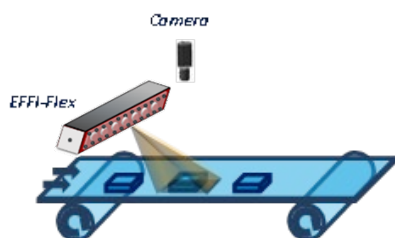
**Full range of colors:** from UV (405 nm) to IR (850 nm), white, multispectral

**Long lifetime** and minimal maintenance

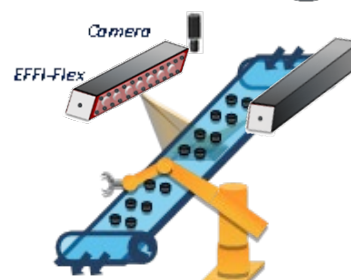
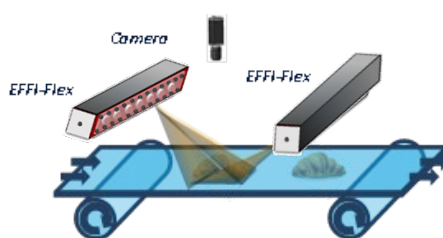
**Flexible:** Different illumination angles (4 angles) & projection windows

|                    |                         |                                                                            |
|--------------------|-------------------------|----------------------------------------------------------------------------|
|                    | 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                                    |
| <b>Optics</b>      | Cable                   | Bare cable (5 or 10 meters) - 5 contacts                                   |
|                    | Wavelength              | Single (from UV to IR, white) wavelengths - Multispectral                  |
| <b>Mechanics</b>   | 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                            |
| <b>Environment</b> | 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

| <b>WW</b>                           | 5       | 10      | 15      | 20      | +5 LED |
|-------------------------------------|---------|---------|---------|---------|--------|
| <b>Standard version</b>             | 143.5mm | 243.5mm | 343.5mm | 443.5mm | +100mm |
| <b>1 LED / 2 positions version*</b> | 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<br>(T°= 5500K ± 500K) |
|----------|------------|-------------|-----------|----------|-----------------------------------|

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

|                         |                            |                     |
|-------------------------|----------------------------|---------------------|
| <b>TR</b> : Transparent | <b>SD</b> : Semi-diffusive | <b>OP</b> : Opaline |
|-------------------------|----------------------------|---------------------|

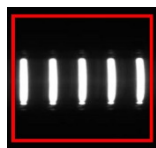
**ZZ**: Position (if not specified, position P2 by default) / Emission angle according to the lens position

| P0 (Without lens) | P1 | P2 | P3 |
|-------------------|----|----|----|
|                   |    |    |    |

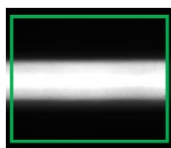
**AA**: Cable length (if not specified, 10 meters length by default. Other lengths available upon request )

|                       |                         |
|-----------------------|-------------------------|
| <b>-L5</b> : 5 meters | <b>-L10</b> : 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.

Part number : EFFI-BL-IP69K-**FOOD**-**XXX**-**YYY**-**ZZZ**

### Electronical considerations



#### Contact arrangement

The EFFI-FLEX-IP69K is supplied with a 24V constant voltage. 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            | <b>PNP TRIGGER<sup>(1)</sup> (trigger for rising edge) for Auto-strobe</b><br>Light ON if $V_{PNP} > 3V$ DC<br><b>Max 24V DC – Analog Voltage</b> |
| 5            | n.c.                                                                                                                                              |

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

#### Power supply

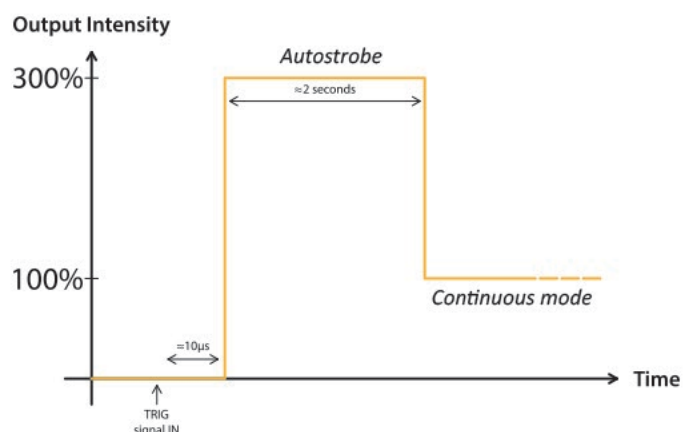
Please refer to below electrical power consumption table for the power of each product according to different dimensions. EFFI-BL-IP69K is supplied with a ÖLFLEX® ROBUST 210 cable. For specific configurations, please contact EFFILUX for more information.

| Electrical power consumption of standard white EFFI-FLEX-IP69K |                      |                 |           |
|----------------------------------------------------------------|----------------------|-----------------|-----------|
| Amount of LED (N)                                              | Standard version     |                 | ELS 350mA |
|                                                                | P <sub>Peak_2s</sub> | P <sub>CW</sub> |           |
| 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       |

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

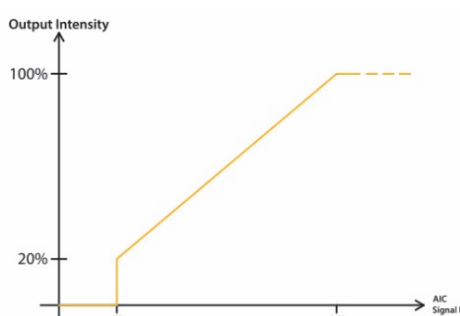
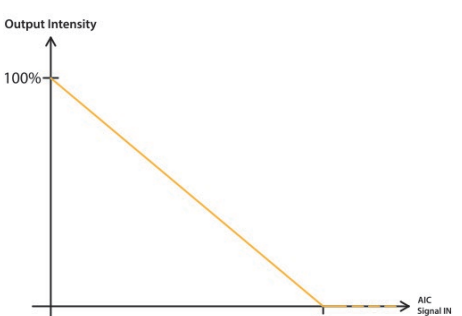
$$P_{Peak\_2s} \approx 4 \times N$$

#### Default Version : Auto-strobe



Keep duty cycle lower than 30%

### ELS Version : Dimming control

| Part Number | ELS-VVV-24V                                                                                                                                                                                                                                                | ELS-IN-VVV-24V                                                                                                                                                                                                                         |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |  <p>Output Intensity</p> <p>100%</p> <p>20%</p> <p>5V 24V</p> <p>AIC Signal IN</p> <p>OFF : 0-5V &amp; ON : 5V-24V<br/>Max signal consumption = 2mA every 5 LEDs @24V</p> |  <p>Output Intensity</p> <p>100%</p> <p>24V</p> <p>AIC Signal IN</p> <p>OFF : 0-5V &amp; ON : 5V-24V<br/>Max consumption = 2mA every 5 LEDs @24V</p> |

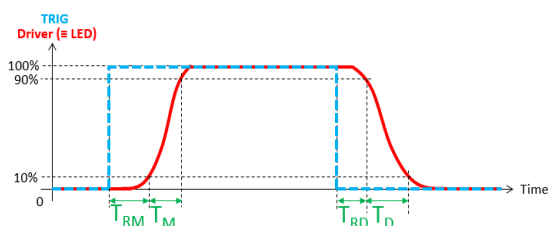
ELS is also available with 5V and 10V versions :

- 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 ( $T_M$ ) <sup>1</sup>             | 11,5µs                     |
| Response rise time ( $T_{RM}$ ) <sup>2</sup> | 6,5µs                      |
| Fall time ( $T_D$ ) <sup>3</sup>             | 7µs                        |
| Response fall time ( $T_{RD}$ ) <sup>4</sup> | 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

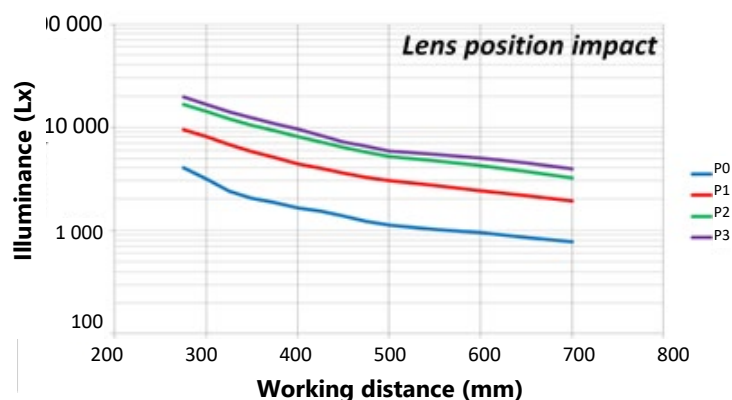


### Illuminance vs Working Distance

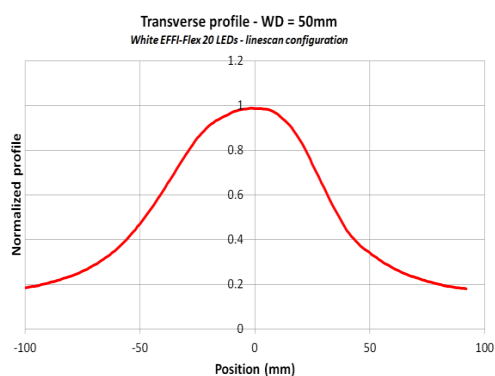
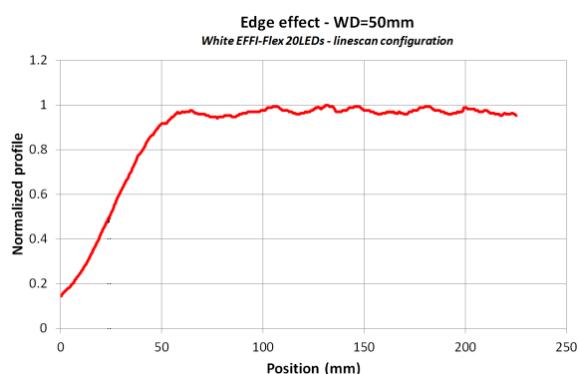
The following measurements are made with white EFFI-FLEX-IP69K.

#### EFFI-FLEX-IP69K 5 LEDs

Imaging system P0 to P3 diffusing window – 350 mA

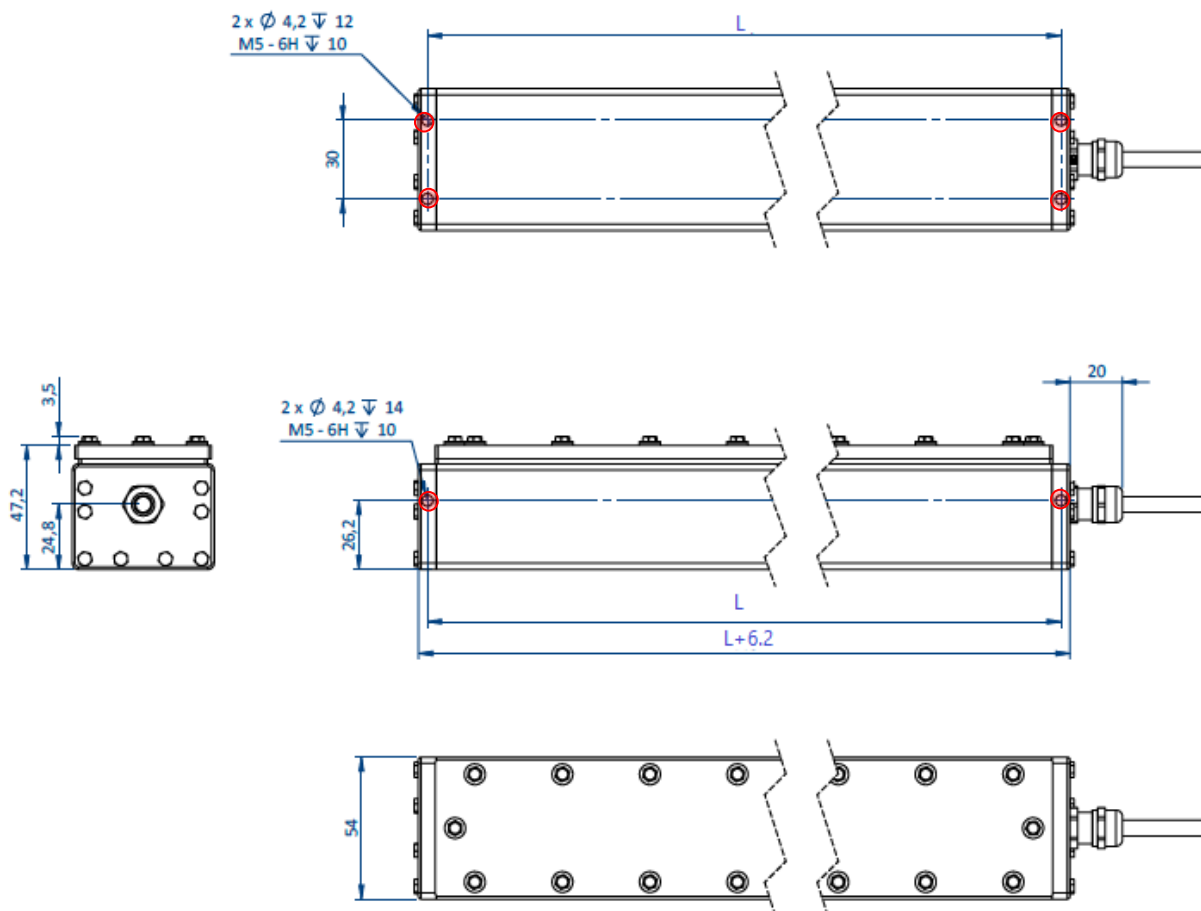


### Profiles



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                     | $L_{op} = [20 \times N]$ if N LED            |
| Mechanical Length                  | $L_{mecha} = L_{op} + 23\text{mm}$           |
| Optical Length (for L2 Version)    | $L_{op} = [40 \times (N-1)]$ if N LED + 20mm |
| Mechanical Length (for L2 Version) | $L_{mecha} = L_{op} + 23\text{mm}$           |