



Strobe version
available

Very intense and **uniform** illuminated area

Full range of colors: from UV to IR, white, tricolor

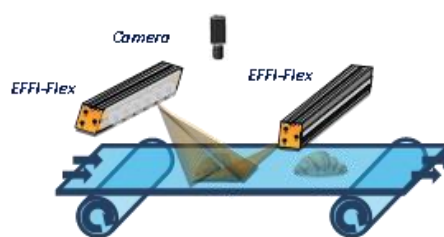
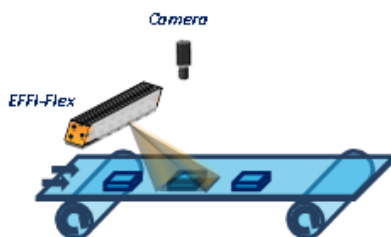
Long lifetime and few maintenance

Standard connections and fasteners

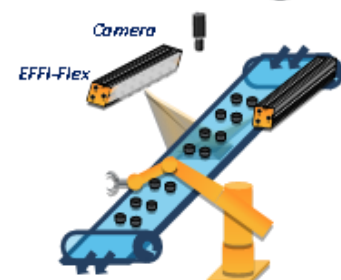
Flexible: Adjustable illumination angles (4 angles) & different projection windows

Electronics	Connectors	M12 – 4 Pins
	Power supply	24V DC
	Illumination mode	Continuous or strobe mode
	Power consumption	Depends on the amount of LEDs (page 6)
	Electronic mode	Auto-Strobe or continuous
Optics	Wavelength	Single (from UV to IR, white) wavelength or RGB
Mechanics	Weight	60g + 60g per LED
	Width x height x length	51mm x 49mm x length depends on the amount of LEDs
	Fastener	2 rails for M6 T-nut: one on the back and one on the side
	Material	Device body: Aluminum alloy & ABS; Window: PMMA (or glass window for 365nm)
Environment	Working temperature	0°C to 50°C
	IP code	IP40 (option IP67→Refer to EFFI-FLEX-CPT and IP69K→Refer to EFFI-FLEX-IP69K)

Applications



Quality control



Pick and place

Part Number



Reference:

EFFI-FLEX-**WW**-**XXX**-**YY**-**ZZ**
WW: Number of LED

WW	1	3	5	10	15	...
Standard version	55 mm	95 mm	135 mm	235 mm	335 mm	More than 4 m
1 LED / 2 positions version*	-	-	235 mm	435 mm	635 mm	More than 4 m

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

XXX: Color / Wavelength (nm)

RGB RGB* * Optional (! Specific connectors)	UV 365* *no lens & glass window	UV 405	Blue 465	Green 525	Red 625	IR 850	White 000 (T°= 5500 K ± 500 K)
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YY: Windows (if not specified, default semi-diffusive window)

TR : Transparent

SD : Semi-diffusive

OP : Opaline


+ Powerful

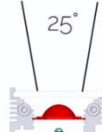
+ Homogeneous

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

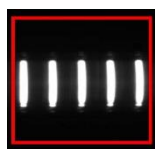
P0


Without lens

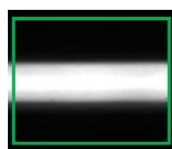
P1

P2

P3


Option Linescan (linear lighting or a darkfield lighting)



Without Linescan



With Linescan

If linescan, add **-LS** in the part number. Possibility to buy only the accessory.

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

Option Polarizer (to eliminate glare caused by the lighting)



Without polarizer



With polarizer

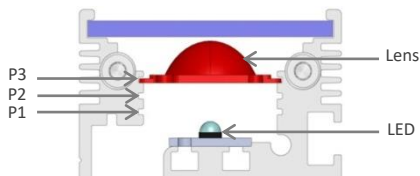
If polarizer, add **-POL** in the part number. Possibility to buy only the accessory. (Not available for Red LED)

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

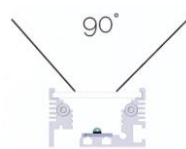
Optical considerations



How to change the lens positions of the EFFI-FLEX



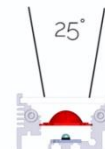
P0 (Without lens)



P1



P2



P3



1 Unscrew the M4 screws



2 Slide the window



3 Slide the block of LEDs

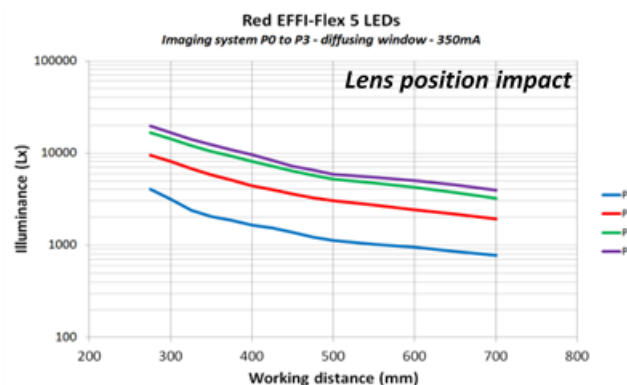
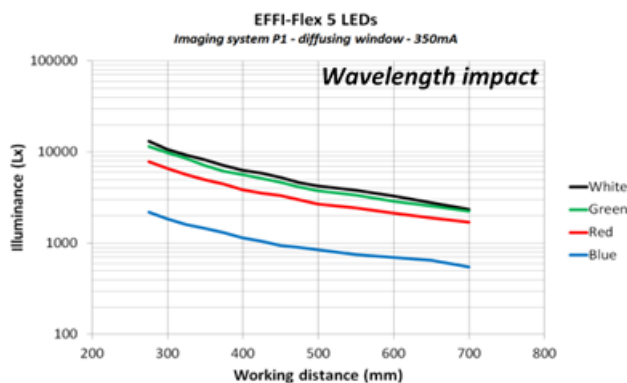
How to handle & to clean optical components?

To handle the optical components, wearing gloves is strongly recommended.

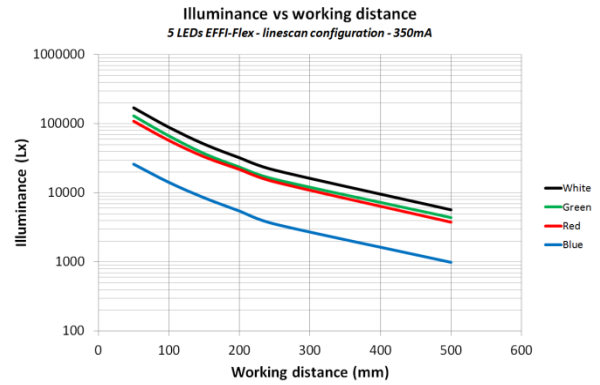
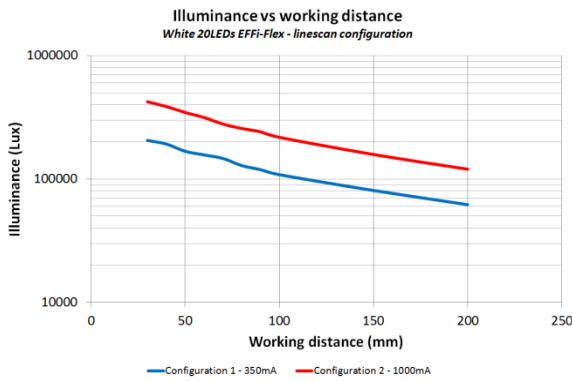
To clean the optical components:

- > Use compressed air duster if there is dust.
- > To remove marks on the lens or the window, just a drop or two wiped of alcohol-based lens cleaning fluid in a gentle circular motion with a cleaning tissue. Always apply the fluid to a tissue rather than the lens itself.

Illuminance vs the working distance

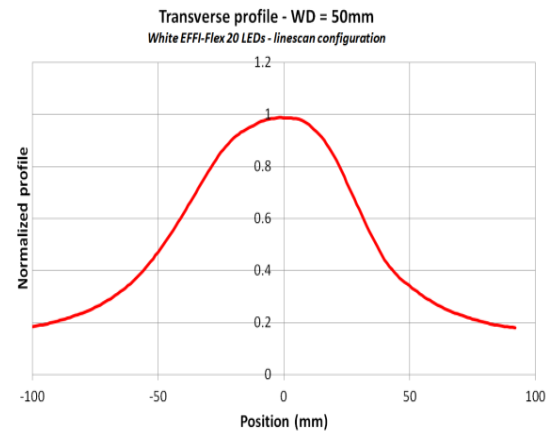
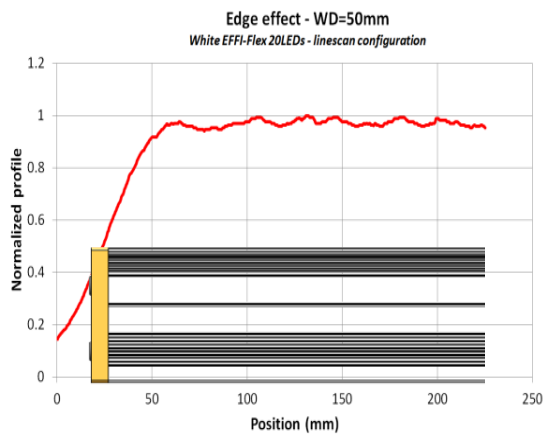
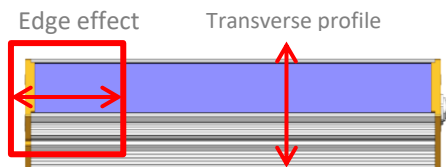


Linescan configuration



NB: Configuration 2 requires an additional thermal management system

Profile

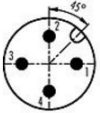
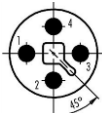


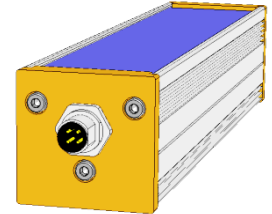
Electronical considerations



Contact arrangement

The EFFI-FLEX is supplied with a 24V constant voltage. The TRIG contact needs to be connected.

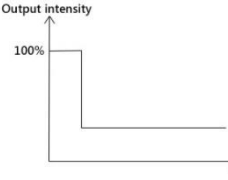
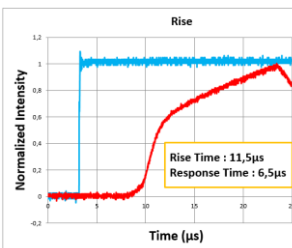
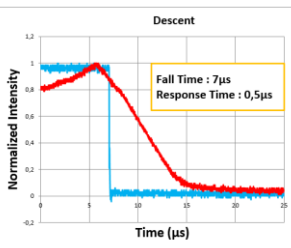
Contact arrangement ¹	Number	Color Contact	Designation
 M12 Male connector  M12 Power connector Connector depends on electrical power consumption	1	Brown	+24V
	2	White	n.a.
	3	Blue	GND
	4	Black	TRIG ² - max 24V Analog Voltage



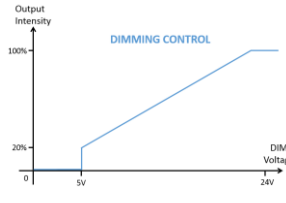
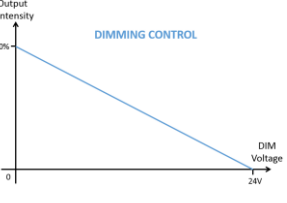
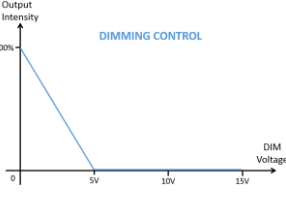
- (1) Contact arrangement is different for RGB Option
(2) Or DIM if ELS version is chosen

Dimming control

DEFAULT → Auto-Strobe (TRIG) : Standard electronic

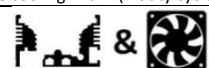
Part number	EFFI-FLEX-WW-XXX-YY-ZZ		
Signal	 After 2s at 1000mA, LEDs are supplied with 350mA. Respect a duty cycle lower than 30% in strobe mode	 Rise Time : 11,5µs Response Time : 6,5µs	 Fall Time : 7µs Response Time : 0,5µs

OPTION → ELS version (DIM): EFFI-FLEX-WW-XXX-YY-ZZ-ELS-VVV-24V

Part number	ELS-VVV-24V	ELS-IN-VVV-24V	ELS-IN-VVV-5V
Signal	 OFF : 0-5V & ON : 5V-24V	 ON : 0-22V & OFF : 22V-24V	 ON : 0-4.5V & OFF : 4.5V-15V

Cooling system for ELS version (contact EFFILUX for more information)

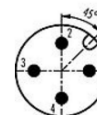
Part number: EFFI-FLEX-WW-XXX-YY-ZZ-ELS-VVV-24V

VVV	Output current (mA)[0-100%]	EFFI-Flex	EFFI-Flex 1 LED/2
350	0-350 mA	 Passive cooling	 Passive cooling
500	0-500 mA	 Passive cooling + fan ³ (if duty cycle > 75%)	
700	0-700 mA	 Passive cooling + fan ³ (if duty cycle > 50%)	
1000	0-1000 mA	From a duty cycle > 30%, contact us.	

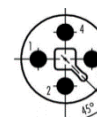
- (3) Fan is not included in the product / Duty Cycle : $DC = T_{ON} / (T_{ON} + T_{OFF})$

Power supply

Amount of LED	Max Electrical power consumption (W)					
	Standard version		ELS 350mA	ELS 500mA	ELS 700mA	ELS 1000mA
	P _{Peak_2s}	P _{CW} *				
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	40	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



M12 Male connector



M12 Power Male connector

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

Signal consumption

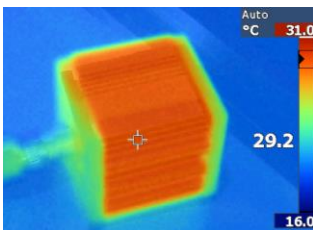
DIM consumption				
ELS version (DIM)	ELS-IN- VVV -24V VVV = 350, 500, 700 or 1000	ELS-IN- VVV -5V VVV = 350, 500, 700 or 1000	ELS- 350 -24V	ELS- VVV -24V VVV = 500, 700 or 1000
DIM consumption (mA)	4.5mA @24V every 5 LEDs	3mA @24V every 5 LEDs	0.2mA @24V every 10 LEDs	2mA @24V every 5 LEDs

TRIG consumption			
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

Mechanical considerations (Dimensions in mm)



Amount of LEDs	Designation	Mechanical Length L(mm)	Optical Length L op(mm)
		Standard: $L(\text{mm}) = [20 \times \text{nb_of_LED}] + 35$ L2: $L(\text{mm}) = [40 \times \text{nb_of_LED}] + 35$	Standard: $L_{\text{op}}(\text{mm}) = [20 \times \text{nb_of_LED}] + 15$ L2: $L_{\text{op}}(\text{mm}) = [40 \times \text{nb_of_LED}] + 15$
1	EFFI-FLEX-1-XXX-YY-ZZ	55	35
3	EFFI-FLEX-3-XXX-YY-ZZ	95	75
5	EFFI-FLEX-5-XXX-YY-ZZ	135	115
	EFFI-FLEX-L2-5-XXX-YY-ZZ	235	215
10	EFFI-FLEX-10-XXX-YY-ZZ	235	215
	EFFI-FLEX-L2-10-XXX-YY-ZZ	435	415
15	EFFI-FLEX-15-XXX-YY-ZZ	335	315
	EFFI-FLEX-L2-15-XXX-YY-ZZ	635	615
20	EFFI-FLEX-20-XXX-YY-ZZ	435	415
	EFFI-FLEX-L2-20-XXX-YY-ZZ	835	815
25	EFFI-FLEX-25-XXX-YY-ZZ	535	515
	EFFI-FLEX-L2-25-XXX-YY-ZZ	1035	1015
30	EFFI-FLEX-30-XXX-YY-ZZ	635	615
	EFFI-FLEX-L2-30-XXX-YY-ZZ	1235	1215
50	EFFI-FLEX50-XXX-YY-ZZ	1035	1015
	EFFI-FLEX-L2-50-XXX-YY-ZZ	2035	2015
70	EFFI-FLEX-70-XXX-YY-ZZ	1435	1415
	EFFI-FLEX-L2-70-XXX-YY-ZZ	2835	2815



Thanks to its design, the heat is efficiently dissipated from the LED.

