



Strobe version
available

Very intense and uniform illuminated area

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

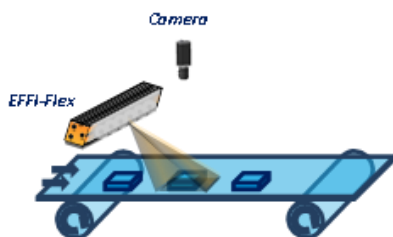
Long lifetime and few maintenance

Standard connections and fasteners

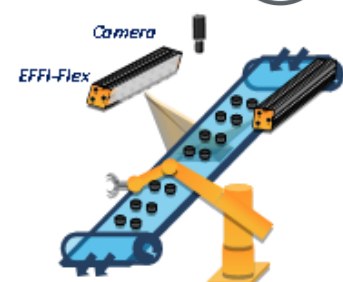
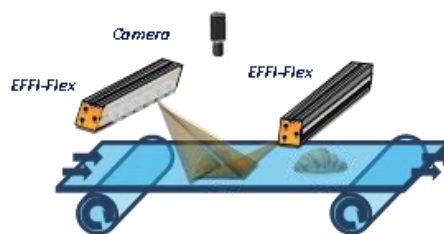
Flexible: Adjustable illumination angles (4 angles) & different projection windows

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	One T-slot on the back for 8mm T-nut (M6 recommended), and one slot on the side for M6 hex nut
	Material	Device body: Aluminum alloy & ABS; Window: PMMA (or glass window for 365nm)
Environment	Working temperature	0°C to 50°C
	IP code	IP50 (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 & special pmma 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
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ZZ: Position (if not specified, default position P2) / Emission angle according to the lens position

P0	P1	P2	P3
 Without lens			

Option Linescan (linear lighting or a darkfield lighting)



Without Linescan



With Linescan

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

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

Option Cylindrical lens (linear lighting)

If EFFI-Flex with cylindrical lens, add **-CYL** in the reference. Classic configuration with linescan accessory and lens in position P1.

Part number: EFFI-FLEX-**WW**-**XXX**-**TR**-**P1**-**LS**-**CYL**

Option Pure UV (for fluorescence applications)



Without PureUV



With Pure UV

The PureUV is an innovative EFFILUX technology which allows you to eliminate unwanted reflections. If PureUV, add **-PUV** in the reference. Only for 365nm EFFI-Flex.

Part number: EFFI-FLEX-**WW**-**365**-**YY**-**ZZ**-**PUV**

Optical considerations



How to change the lens positions of the EFFI-FLEX



1 Unscrew the M4 screws



2 Slide the window



3 Slide the block of LEDs

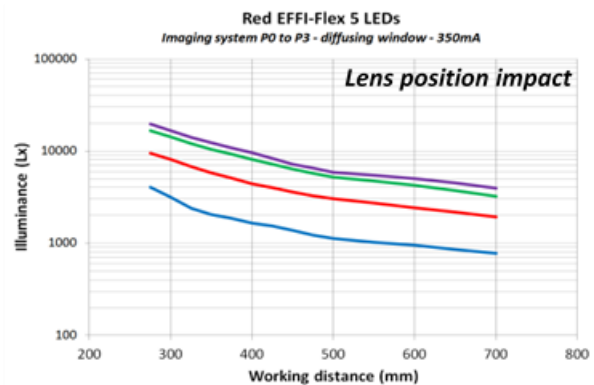
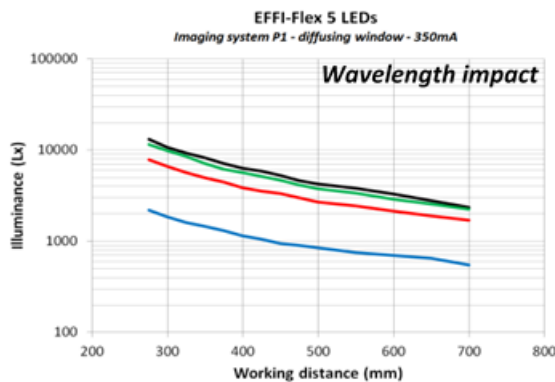
How to handle & to clean optical components?

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

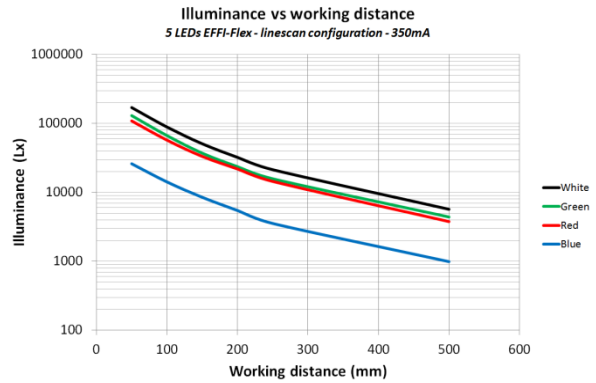
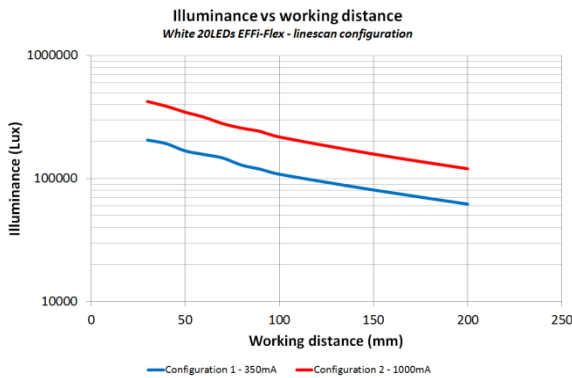
To clean the optical components:

- > Use compressed air duster if there is dust.
- > To remove marks on the lens or the window, just a drop or two wiped of non-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

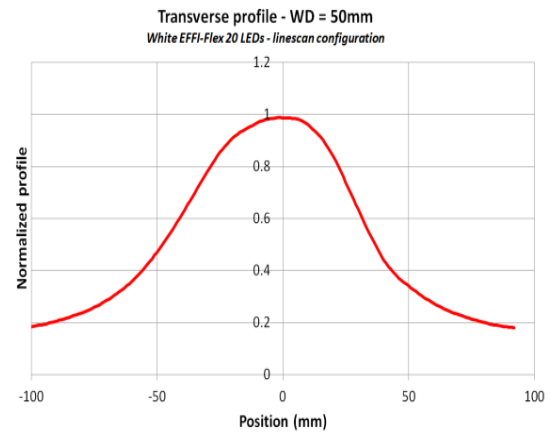
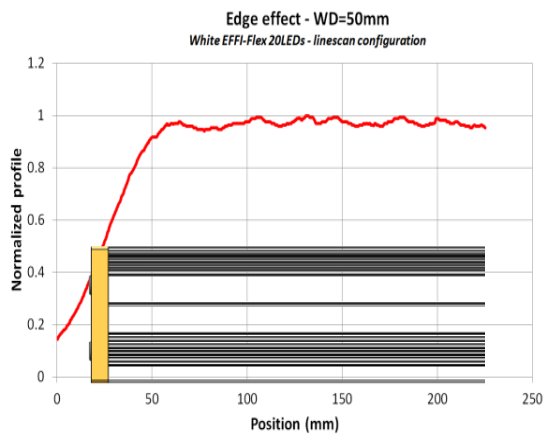
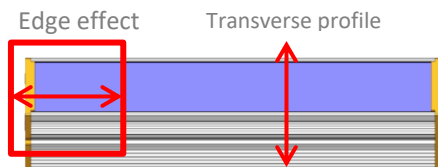


Linescan configuration



NB: Configuration 2 requires an additional thermal management system

Profile



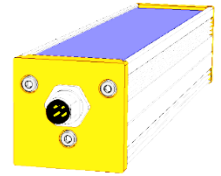
Electronical considerations



Contact arrangement

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

Contact arrangement ¹	Number	Color	Designation ⁽¹⁾
M12 Male M12 Power Male Connector depends on electrical power consumption	1	Brown	+24V
	2	White	n.a.
	3	Blue	GND
	4	Black	PNP TRIGGER ⁽²⁾ (trigger for rising edge) for Auto-strobe Light ON if $V_{PNP} > 3V$ DC – Max 24V DC – 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	Output intensity 100% Time (s) After 2s at 1000mA, LEDs are supplied with 350mA. Respect a duty cycle lower than 30% in strobe mode	Rise Normalized Intensity Time (μs) Rise Time : 11,5μs Response Time : 6,5μs Descent Normalized Intensity Time (μs) Fall Time : 7μs Response Time : 0,5μs DIM Driver	
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	Output intensity 100% 20% DIMMING CONTROL DIM Voltage OFF : 0-5V & ON : 5V-24V	Output intensity 100% DIMMING CONTROL DIM Voltage ON : 0-22V & OFF : 22V-24V	Output intensity 100% DIMMING CONTROL DIM Voltage ON : 0-4.5V & OFF : 4.5V-15V

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

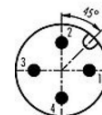
Part number: EFFI-FLEX-WW-XXX-YY-ZZ-ELS-VVV-24V

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.	

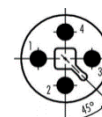
- (3) Fan is not included in the product / Duty Cycle : $DC = T_{ON} / (T_{ON} + T_{OFF})$

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

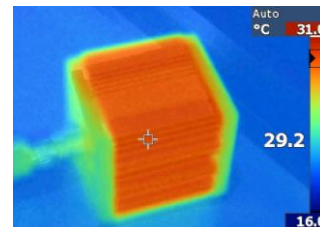
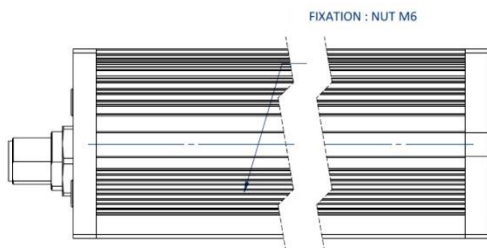
DIM consumption				
ELS version (DIM)	ELS-IN- VVV -24V VVV = 350, 500, 700 or 1000	ELS-IN- VVV -5V VVV = 350, 500, 700 or 1000	ELS- 350 -24V	ELS- VVV -24V VVV = 500, 700 or 1000
DIM consumption (mA)	4.5mA @24V every 5 LEDs	3mA @24V every 5 LEDs	0.2mA @24V every 10 LEDs	2mA @24V every 5 LEDs

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)	Length of the window (mm)	Optical Length L _{op} (mm)
		Standard: L = [20x nb_of_LED] + 35 L2: L = [40x nb_of_LED] + 35	Standard: LW = [20x nb_of_LED] + 15 L2: LW = [40x nb_of_LED] + 15	Standard: L _{op} = 20 x nb_of_LED L2: L _{op} = 40 x nb_of_LED
1	EFFI-FLEX-1-XXX-YY-ZZ	55	35	20
3	EFFI-FLEX-3-XXX-YY-ZZ	95	75	60
5	EFFI-FLEX-5-XXX-YY-ZZ	135	115	100
	EFFI-FLEX-L2-5-XXX-YY-ZZ	235	215	200
10	EFFI-FLEX-10-XXX-YY-ZZ	235	215	200
	EFFI-FLEX-L2-10-XXX-YY-ZZ	435	415	400
15	EFFI-FLEX-15-XXX-YY-ZZ	335	315	300
	EFFI-FLEX-L2-15-XXX-YY-ZZ	635	615	600
20	EFFI-FLEX-20-XXX-YY-ZZ	435	415	400
	EFFI-FLEX-L2-20-XXX-YY-ZZ	835	815	800
25	EFFI-FLEX-25-XXX-YY-ZZ	535	515	500
	EFFI-FLEX-L2-25-XXX-YY-ZZ	1035	1015	1000
30	EFFI-FLEX-30-XXX-YY-ZZ	635	615	600
	EFFI-FLEX-L2-30-XXX-YY-ZZ	1235	1215	1200
50	EFFI-FLEX50-XXX-YY-ZZ	1035	1015	1000
	EFFI-FLEX-L2-50-XXX-YY-ZZ	2035	2015	2000
70	EFFI-FLEX-70-XXX-YY-ZZ	1435	1415	1400
	EFFI-FLEX-L2-70-XXX-YY-ZZ	2835	2815	2800



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

