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Effilux EFFI-LINE3-V1.0.2022 Powerful LED Line Light User Manual

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Product Information

Effilux's LED light is designed for machine vision and industrial inspection purposes. The product comes with a label that indicates the reference, power consumption, and serial number of the product. The manufacturing date is included in the serial number, where YY corresponds to the year and MM corresponds to the month. The product's datasheets and drawings can be downloaded from the Effilux website. The product must be used only for its intended purpose, and any improper use will void the warranty.

General Warnings and Precautions of Use

The product must be handled with care to prevent damage. It must be maintained by switching off the product during any maintenance operations. To clean the lens or window, use alcohol-free lens cleaning fluid on a cleaning tissue. Do not apply the fluid directly to the lens. Wear gloves and use compressed air to clean optical components if there is dust. The product must be used in well-ventilated places with minimal dust, free from any liquid, chemical product, or steam, and away from corrosive or combustible gas. It must be stored in places that are not subject to sudden temperature changes and away from water taps, boilers, humidifiers,air conditioners, heaters, or stoves. Incorrect use of the product may result in fire, electric shock, or other serious damages. If an abnormal condition occurs, stop using the product immediately and turn off the power.

User Security

The user must ensure to follow all instructions and conditions while using the product. Do not disassemble or modify the product, look directly at the LED light without protection, or try to fix any damages on the product by yourself. Special protective glasses must be used with UV products (5V DC).

Product Usage Instructions

The product comes with flying leads FL1 and FL2*, which must be connected as indicated in the wire index table to prevent cable damage. Both GND must be connected together. The illumination mode can be continuous or strobe, and the signal must be applied on PNP.
A continuous signal must be applied with VPNP > 5V DC. A trigger signal must be applied, where the light is ON if VPNP > 5V DC and OFF if VPNP < 2.5V DC. By default, if AIC is not connected,the light is ON at 100%. To adjust the intensity from 10% to 100%, apply VAIC [1.5-10V] on AIC. For POWER version with (-WTR), the housing must be connected to the ground using the ground connection kit that comes with the product.

GENERAL PRODUCT INFORMATION

Thank you for purchasing an Effilux's product. To ensure proper use of the product, please read this User manual before use and keep it for your future reference. Any improper use voids the warranty. This product is an LED light used for machine vision and industrial inspection. Do not use the product for other applications, and be sure to follow the instructions below.
Datasheets and drawings in PDF and/or CAD can be downloaded from the Effilux website: **www.effilux.com**
The label(s) on the product always indicate(s) the reference, the power consumption and the serial number of the product. Be sure to check the content before using the product and handle the label(s) with care. The date of manufacturing is included in the serial number of the product: XXXXXXYYMM-ZZZ with YY corresponding to the year and MM to the month. If the label is missing or damaged and the content cannot be checked, please contact Effilux.

GENERAL WARNINGS AND PRECAUTIONS OF USE

Maintenance
The product must be switch off during any maintenance operation. To remove marks on the lens or on the window: Use alcohol-free lens cleaning fluid on a cleaning tissue. Few drops will suffice. Please clean gently. Always apply the fluid to a tissue rather than the lens itself. To clean optical components: Please wear gloves and use compressed air if there is dust.

Usage and storage environment

Operating environment	Temperature: 0 to 50°C – Humidity: 20 to 85RH% (without condensation) – Altitude: Up to 2000m
Storage environment	Temperature: -20 to 60°C – Humidity: 20 to 85RH% (without condensation)
Informations	Overvoltage category I – Protective class III – Pollution degree 3

Except if a specific IP rating is given for your product (refer to the «Dust and Water resistance (IP rating) » section), please install the product to locations with following conditions (Incorrect installation location may causes product failure) :

Well-ventilated places with minimal dust.	Places free from any liquid, chemical product or steam.
Places free from corrosive or combustible gas.	Places that are not subject to sudden temperature changes.
Places away from water taps, boilers, humidifiers, air conditioners, heaters or stoves.	

User security
Incorrect use of the product may result in fire, electric shock, or other serious damages. Please ensure to follow below conditions. If an abnormal condition occurs (fuming, heat, noises, etc.), stop using the product immediately and turn the power off.

Do not disassemble or modify the product.	Do not look directly at the LED light without protection.
Do not try to fix any damages on the product by yourself.	Make sure special protective glasses are used with UV products (<420nm).
Do not touch the product with wet hands.	Do not use homemade cables.
Wire and keep the flying leads cables in a dry area (regardless of the product's degree of protection).	Make sure the product does not show any moisture or liquid inside before switching it ON.
Make sure the power supply and the cable/connector are adapted to the product specifications.	The device must be powered by a 24V safety power supply in accordance to local Electrical Safety rules
Do not inverse electrical polarity – check your connections and the conventions.	The product packaging must be removed before use.

The cTÜVus certification is only applicable for the white (000) and red (625) devices, with a power consumption under 150W and, powered with a power supply that fulfills SELV and Limited Energy according IEC 61010-1 9.4) With a power consumption under 150W (depending on the size and the software version) and, powered with a power supply that fulfills SELV and Limited Energy according IEC 61010-1 9.4

PART NUMBER KEY

Standard version

	Optical Length [mm]	Wavelength [nm]	Optical options	Electronics Options
EFFI-LINE3 - XXX - ZZZ - ... - ...				
	200	● 465 (Blue)	POL (Polarizer)	SWxxxxxx (Customized software)
	300	● 625 (Red)		NPN (NPN trigger on Pin/Wire 4)
	... All 100mm	● 850 (Infrared)		FL1-LXX* (Flying leads - 1 input)
	2900	○ 000 (White)		FL2-LXX* (Flying leads - 2 inputs) *XX=Length in m [2 / 5 / 10]

Additional versions

POWER version with watercooling

EFFI-LINE3 - WTR - XXX - ZZZ - PWR

- The POWER version allows to multiply by 3 the optical power.
- Due to thermal considerations, it is necessary to provide watercooling (-WTR) by adding anti-drip connectors on each side.
- All the options and versions are compatible with POWER version.

BACKLIGHT version

EFFI-LINE3 - BL - XXX - ZZZ

- The BACKLIGHT version has an enhanced uniformity which is neccesary for most backlight applications.
- All the options and versions are compatible with BACKLIGHT version
- Optical specifications in Annex page 9 to 11.

IP67 version

EFFI-LINE3 - IP67 - XXX - ZZZ

- The IP67 does not affect the mechanical dimensions.
- All the options and versions are compatible with the IP67 version.
- Exemple: IP67 version combined with POWER and BACKLIGHT version -> EFFI-LINE3-BL-IP67-WTR-XXX-ZZZ-PWR.

AVAILABLE ACCESSORIES

EXTENSION CABLES	2 meters: EFFC-CAB-M12-FM-5-D-L2
	5 meters: EFFC-CAB-M12-FM-5-D-L5
	10 meters: EFFC-CAB-M12-FM-5-D-L10
FASTENERS	T-Nut Kit: EFFV-BOLT-0011
	Pivot joint Kit: EFFM-1-0002
CAMERA FILTERS	EFFO-FLR-…

ELECTRICAL INSTALLATION – STD CONNECTOR CONFIGURATION

Power Supply

Power Supply Voltage	24V DC +10%/-0
	M12 Power (T-Coded) – *(See wiring layout page 6)*
Connector(s)	4 pins at the end of a 500 mm cable length
	Flying leads 1 – 1 power input – *(See wiring layout page 6)*
(Depending on the power consump- tion – See page 6)	XX m long, section 2.5 mm²
	Flying leads 2 – 2 power inputs – *(See wiring layout page 6)*
	XX m long, section 2.5 mm² x2

Average Power Consumption Standard version	**IR 850 nm**	**Red 625 nm**	**Blue 465 nm**	**White 5500K**
(Cable not included in the calcu- lation)	Max. 8W per 100 mm	Max. 10W per 100 mm	Max. 12W per 100 mm	Max. 12W per 100 mm

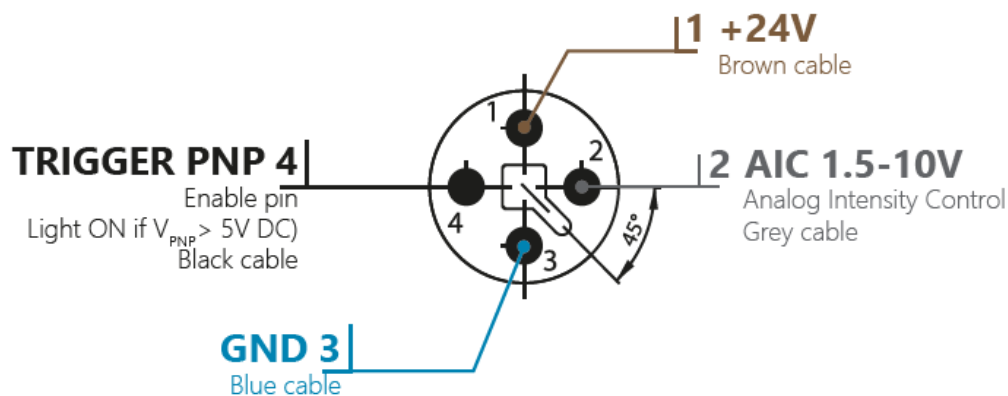|	
Analog Intensity Control (AIC)	The output optical power is adjustable from 10% to 100% by applying a signal from [1.5V-10VDC] Total voltage range [1.5V-24VDC] / Don't exceed 24V DC
	Max. signal consumption: 4mA
Trigger Input signal	PNP trigger input: Light ON: from 5V to 24V / Don't exceed 24V DC / Max. signal consumption: 4mA
	(Option NPN on PIN4: Light ON: from 0V to 1.5V / Don't exceed 24V DC / Max. signal consumption: 4mA)

The consumption values are maximum values, the exact power consumption of the product is always indicated on the product label.

How to connect the EFFI-LINE3 ?

The EFFI-LINE3 requires 24V DC input power. Depending on the size and the version, the light comes with different connectors and cables. (See the tables below)

M12 Power (T-coded) – 4 pins
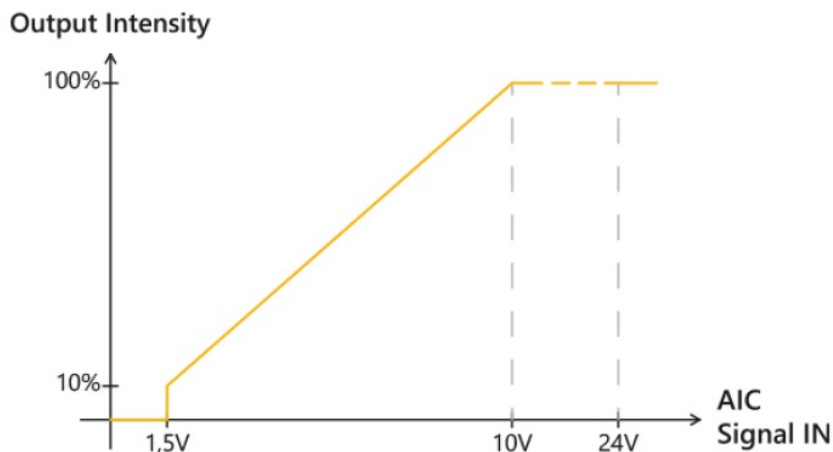male connector – 500 mm cable length

TRIGGER PNP 4
Enable pin
Light ON if V$_{PNP}$> 5V DC)
Black cable

1 +24V
Brown cable

2 AIC 1.5-10V
Analog Intensity Control
Grey cable

GND 3
Blue cable

45°

Flying leads FL1

Wire index	Designation
1	+24V
2	NC
3	GND
4	Trigger PNP (or NPN)
5	AIC
6	NC
7	NC

Flying leads FL2

Wire index	Designation
1	+24V
2	GND
3	GND
4	Trigger PNP (or NPN)
5	AIC
6	+24V
7	NC

WARNING with FL2: Wire 1,2,3 and 6 must be connected as indicated in the table aboveor the cable may be damaged. Both GND have to be connected together.

Output Intensity

Mode control

	Illumination mode	
	Continuous	**Strobe**
		A trigger signal must be applied
Signal to apply on **PNP**	A continuous signal must be applied with VPNP> 5V DC	▪ Light ON if VPNP> 5V DC ▪ Light OFF if VPNP< 2.5V DC
Signal to apply on **AIC**	By default, if AIC is not connected, the light is ON at 100% VAIC [1.5-10V] to adjust the intensity from 10% to 100% *(see the graph)*	

Note : For POWER version with (-WTR), the housing must be connected to the ground thanks to the ground connection kit that comes with the product.

MECHANICAL CONSIDERATION

IP rating	IP5X (dust protected) / IP67 version available
Dimensions	52mm x 86.3mm x Length = Optical length + 39mm
Fixing	One T-slot on the back for M6 T-nuts 8mm slot (2x M6 T-nuts included)

REGULATIONS COMPLIANCY

Regulations & Marking	CE – UKCA
Environmental Standards	RoHS Directives (2011/65/EU, 2015/863/EU and China RoHS) – REACH Regulation – WEEE Regulation
Country of Origin	France – Manufactured by Effilux

ENVIRONMENTAL REGULATIONS

EU RoHS Directive
The EU RoHS Directive is short for the «Restriction Of use of certain Hazardous Substances in electrical and electronic equipment». The EU RoHS Directive (2011/65/EU) restricts the use of specifics hazardous substances for the new electronic equipment marketed in the EU. The Directive (EU) 2015/863 amending 2011/65/EU was published in 2015 to restrict the use of specific hazardous substances, including six conventional substances, lead (<0.1%), mercury (<0.1%), cadmium (<0.01%), hexavalent chromium (<0.1%), polybrominated biphenyl (PBB) (0.1%) and polybrominated diphenyl ether (PBDE) (<0.1%), as well as four substances (phthalate compounds), bis(2-Ethylhexyl) phthalate (DEHP) (<0.1%), benzyl butyl phthalate (BBP) (<0.1%), dibutyl phthalate (DBP) (<0.1%),

diisobutyl phthalate (DIBP) (<0.1%). Our products do not contain the above certain hazardaous substances in excess of the maximum permitted concentration. However, this does not apply if the product falls under the exemption.

China RoHS

China RoHS Directive is formally known as «Management Methods for Restricting Hazardous Substances Used in Electric and Electronic Products», which was implemented on July 1rst, 2016 in China. Same as EU RoHS Directive (2011/65/EU), this regulation restricts the usage of same six substances. This regulation requires electronic information products which are manufactured or imported, and sold in China, to clearly disclose contents of the 6 restricted substances listed below.

Names and Contents of Hazardous Substances

Usage Deadline for Environmental Protection	Product name	Names and contents of hazardous substances					
		Lead and its compounds (Pb)	Mercury and its compounds (Hg)	Cadmium and its compounds (Cd)	Hexavalent chromium compounds (Cr(VI))	PBB	PBDE
(10)	LED Light, Control Unit, or Optional product	×	○	×	○	○	○

(This table is made in compliance with SJ/T11364 regulations.)
○ : Indicates that this toxic or hazardous substances contained in all the homogeneous materials for this part, according to GB/T26572 is within the limit requirement.
× : Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to GB/T26572, is over the limit requirement.
*Lead and cadmium are exempted in EU RoHS.

Usage deadline for environmental protection
The number used in this logo is based on "Management Methods for Restricting Hazardous Substances Used in Electric and Electronic Products" and related regulations. It shows the product usage duration in years for environmental protection. After finishing a product usage, the product needs to be re-used or discarded appropriately following local law and regulations, complying with safety and usage caution.

WARRANTY

EFFILUX products come with a warranty of 2 years (one year for radiant quantity), starting from EFFILUX shipping date. Any improper use voids the warranty.
Exceptions: UV products (<420nm): 1-year warranty / Chillers: 1-year warranty / Polarizers are excluded from warranty.
For more information, please refer to the warranty information available on Effilux's website.

CONTACT INFORMATION

Please refer to the specific documentation (datasheet, user manual and drawing) for complementary information. Contents of this document are based on information available as of March-2022 and may be changed without prior notice.

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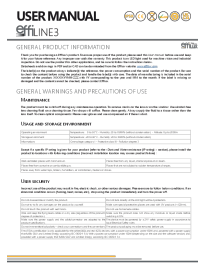Tel: +33 9 72 38 17 80
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Documents / Resources

Effilux EFFI-LINE3-V1.0.2022 Powerful LED Line Light [pdf] User Manual
EFFI-LINE3-V1.0.2022 Powerful LED Line Light, EFFI-LINE3-V1.0.2022, Powerful LED Line Light,
LED Line Light, Line Light, Light

References

- 📷 **High power LED Lighting for machine vision**

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