



**Flexibility**

**Up to  
3 meters**

**Customizable  
software**

**Ajustable  
beam angle**

**Easy-to-use**

**Built-in driver**



# effiFLEX2

## Multimode Flexible LED bar light

# PART NUMBERING

## PRODUCT BASE

EFFI-FLEX2	- XXXX	- ZZZ	- WW	- PP
	<b>Optical Length [mm]</b>	<b>Wavelength [nm]</b>	<b>Window</b>	<b>Lens position</b>
	60	● 405 (UV)	TR (Transparent)	P0 (90°)
	100	● 465 (Blue)	SD (Semi-diffuse)	P1 (45°)
	200	● 525 (Green)	OP (Opaline)	P2 (25°)
	300	● 625 (Red)		P3 (10°)
	... All 100mm	● 850 (Infrared)		
	2900	○ 000 (White)		

## AVAILABLE OPTIONS: REFERENCES

OPTICS	
Kit with all diffusers	EFFI-FLEX2-XXXX-ZZZ- <b>KIT</b> The light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser. Only available for sizes ≤ 800mm.
Polarizer accessory	EFFI-FLEX2-XXXX-ZZZ-WW-PP- <b>POL</b> (See page 5)
Linescan film	EFFI-FLEX2-XXXX-ZZZ- <b>TR-P3-LS</b> (See page 5)
Cylindrical lens	EFFI-FLEX2-XXXX-ZZZ- <b>TR-P1-LS-CYL</b> (See page 5)
ELECTRONICS	
Customized software	EFFI-FLEX2-XXXX-ZZZ-WW-PP- <b>SWxxxxxx</b> Specific reference xxxxxx for each customized software.
CONNECTORS	
Connector position and orientation, Cables position	EFFI-FLEX2-XXXX-ZZZ-WW-PP- <b>SCXXX/OSC/BSC/SCG</b>

# TECHNICAL SPECIFICATIONS

## effiFLEX2

<b>Illumination Mode</b>	Overdrive, Strobe or continuous			
<b>Wavelengths</b>	405nm, 465nm, 525nm, 625nm, 850nm (+/- 5nm) White (5500K ±500K) (Other wavelength upon request)			
<b>Power Supply</b>	24V DC (+/-10%)			
<b>Connector(s)</b> <i>(See wiring layout page 6)</i>	Optical length	<b>60mm - 400mm</b>	<b>500mm - 1500mm</b>	<b>1600mm - 2900mm</b>
	Type	M12 (A-coded) - 5 pins	M12 Power (T-coded) - 4 pins	2x M12 Power (T-coded) - 4 pins
<b>Power Consumption</b> <i>(See details page 6)</i>	In continuous mode	Max. 10W per 100 mm of optical length		
	In Autostrobe mode (peak)	Max. 40W per 100mm of optical length		
<b>Built-in driver version</b>	Multimode (3 modes: AutoStrobe with overdrive intensity / Adjustable strobe / Dimmable continuous)			
<b>Analog Intensity Control (AIC)</b>	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			
<b>Autostrobe</b>	450% Overdrive during 245 ms max then continuous at 100%			
	Max. duty cycle 30%			
	PNP trigger input: Light ON from 4.5V* to 24V / Don't exceed 24VDC / Max. signal consumption: 4mA (Option NPN for size ≥ 500mm, on PIN4: Light ON from 0V to 1V / Don't exceed 24V DC / Max. signal consumption: 4mA)			
<b>Response time</b>	Max. 10µs (Rise time included)			
<b>Weight</b>	Approx. 315g per 100mm of optical length			
<b>Dimensions</b>	51mm x 49mm x Length = Optical length + 35mm (Please see the drawing on page 8)			
<b>Material</b>	Device body: Aluminum alloy / Window: PMMA			
<b>Fastener</b>	T-slot on the back for M6 T-nuts 8mm slot (2x M6 T-nuts included)			
<b>IP rating</b>	IP5X (dust protected)			
<b>Operation environment</b>	Temperature: 0°C to 40°C - Humidity: 20 to 85%RH (with no condensation) - Altitude: Up to 2000m			
<b>Storage environment</b>	Temperature: -20° to 60°C - Humidity: 20 to 85%RH (with no condensation)			
<b>Informations</b>	Overvoltage category I - Protective class III - Pollution degree 3			
<b>Regulations &amp; Marking</b>	CE - UKCA			
<b>Environmental Standards</b>	RoHS Directives (2011/65/EU, 2015/863/EU and China RoHS) - REACH Regulation - WEEE Regulation			
<b>Country of Origin</b>	France			

\***Note:** The PNP threshold voltage of 4.5V may vary according to lengths and power consumption. (Please refer to the related table value in the User Manual of EFFI-Flex2)

# OPTICAL SPECIFICATIONS

## MANY POSSIBLE CONFIGURATIONS IN JUST ONE LIGHT

### Diffusers

TR : Transparent

SD : Semi-diffuse

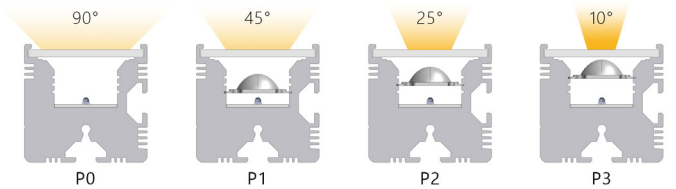
OP : Opaline



Depending on the uniformity needed for the application, the user can easily change the diffuser to satisfy the application requirements.

### Lens position

The EFFI-Flex2 offers flexible lens positioning to control the beam angle. The user can adjust it by himself: the angle can be widened by moving the lens closer to the LEDs or narrowed by moving the lens further away from the LEDs.



### How to change the optical configuration of your EFFI-Flex2?

The EFFI-Flex2 offers flexible lens positioning to control the beam angle and different type of diffusers to adapt the uniformity. The user can easily change the diffuser and the lens position in the field.



Unscrew the M4 screws and remove the cap (without connector)



Slide out the window and all lenses



Place the lenses & window in desired configuration

### KIT OPTION

With the KIT option, the light will be delivered as a package including TR, SD and OP windows, and assembled in the default configuration with the lens plate positioned at P2 and the SD diffuser.

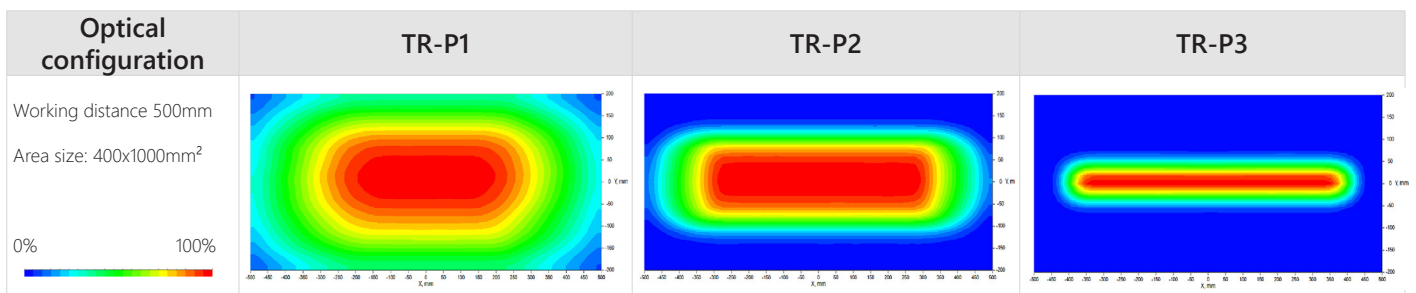
Only available for sizes  $\leq 800\text{mm}$ .

The KIT replaces WW-PP in the part number. Example: EFFI-FLEX2-XXXX-ZZZ-WW-PP becomes EFFI-FLEX2-XXXX-ZZZ-KIT



### LENS POSITION IMPACT

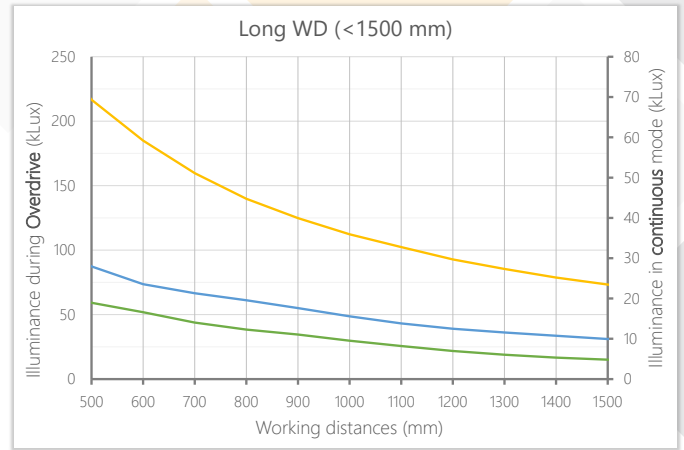
#### Irradiance map



**Note:** The measurements have been made with a 800mm red light, transparent window: EFFI-FLEX2-800-625-TR-PP

## LENS POSITION IMPACT (CONTINUED)

### Illuminance vs Working distance (WD) - White LED



— Lens position P1 — Lens position P2 — Lens position P3

**Note:** The measurements have been made with a 800mm white light, transparent window: EFFI-FLEX2-800-000-TR-PP.

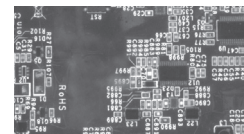
## POLARIZER



Using polarizers, on the Efflux light and on the camera, it is possible to eliminate glare from your workpiece making it easier to acquire a suitable image for the application. The user can insert directly the polarizer inside the EFFI-Flex2, under the window.



Without polarizer



With polarizer

**Important note:** The polarization is optimal with a TR window, the use of diffuser (SD or OP) can depolarize the light.

## LINESCAN CONFIGURATIONS

### Linescan film (TR-P3-LS)



With the lens in the upper position (P3) and the transparent window (TR), the linescan filter accessory transforms the EFFI-Flex2 into a uniform line light ideal for either brightfield or darkfield illumination.

### Cylindrical lens (TR-P1-LS-CYL)

Used in combination with the internal lenses in the lowest position (P1), and the Linescan film (LS), the additional Cylindrical lens (CYL) allows to focus even more the light into a very bright line.



# ELECTRONICAL SPECIFICATIONS

## 3 ELECTRONICAL MODES IN 1 PRODUCT

The EFFI-Flex2 allows the user to access different operating modes, depending on how the light is wired:

**AutoStrobe**

with 450% Overdrive intensity then 100% continuous, for maximum performances

**Adjustable Strobe**

with controlled intensity from 10% to 100%

**Dimmable Continuous**

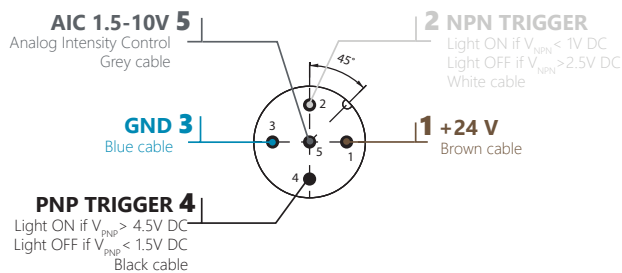
with controlled intensity from 10% to 100%

## GENERAL PINOUT

Depending on the size, the light comes with different connectors. (See the Power Consumption & Connector Definition table below)

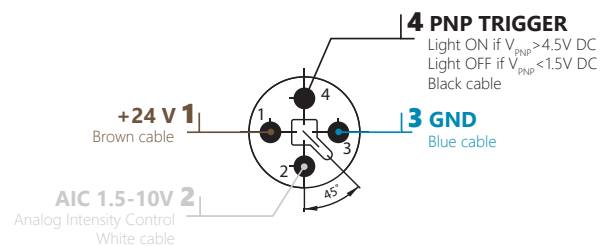
### M12 (A-coded)- 5 pins

male connector



### M12 Power (T-coded) - 4 pins

male connector



### Notes:

- The EFFI-FLEX2 requires 24V DC input power.
- PNP trigger pin (or NPN) needs to be connected either to a trigger signal for AutoStrobe and Strobe mode or to a continuous signal for Continuous mode. (See Multimode driver guide on the following page)
- For light requiring M12P connector, the NPN trigger is optional. If NPN option, the PNP trigger input is replaced by the NPN trigger input. (See Multimode driver guide with NPN in Annex page 10)

## POWER CONSUMPTION & CONNECTOR DEFINITION

MAX POWER CONSUMPTION (+/- 5%) (White LED - Standard software)															
Optical Length XXXX (mm)	60	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400
In Continuous mode	<10W	10W	15W	20W	25W	35W	40W	45W	50W	60W	65W	70W	75W	80W	90W
In AutoStrobe mode (peak)	<30W	30W	60W	95W	130W	170W	205W	240W	280W	315W	350W	390W	425W	460W	500W
Optical Length XXXX (mm)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900
In Continuous mode	95W	100W	105W	115W	120W	125W	130W	140W	145W	150W	155W	160W	170W	175W	180W
In AutoStrobe mode (peak)	535W	570W	610W	645W	685W	720W	755W	790W	830W	865W	905W	940W	975W	1010W	1050W

M12 - 5 pins

M12P - 4 pins

2x M12P - 4 pins

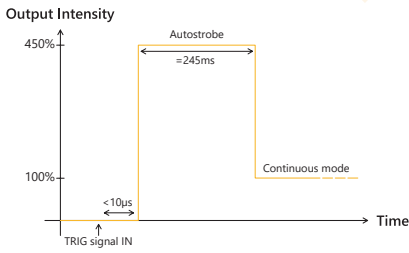
**Note:** These values are maximum values. The consumption may vary according to the wavelength and the software.

# MULTIMODE DRIVER GUIDE (PNP LOGICAL EXAMPLE)

To access the different operating modes, the EFFI-Flex2 must be wired according to the guide below. Please refer to the adequate connector line depending on the light size.

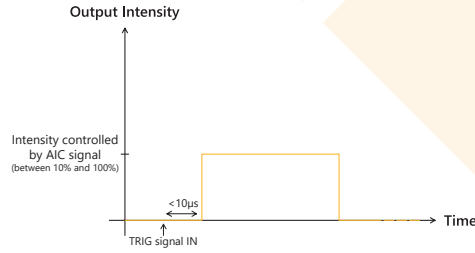
## AUTOSTROBE

(450% Overdrive - 100% Continuous)



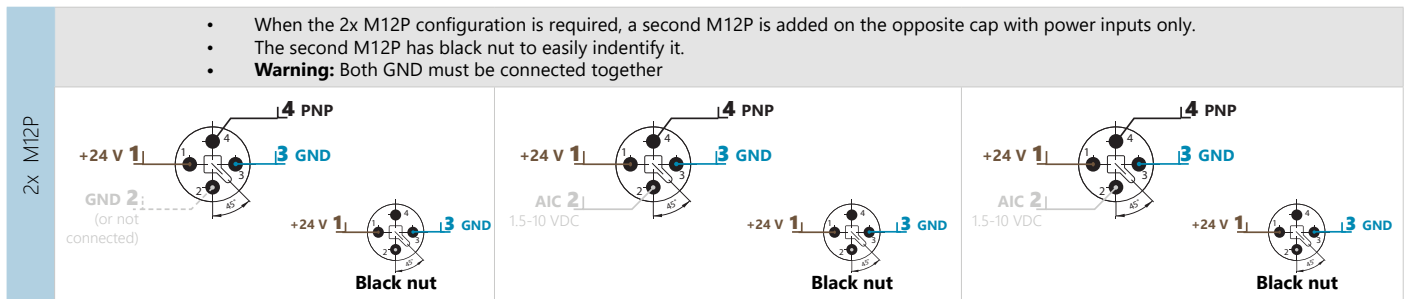
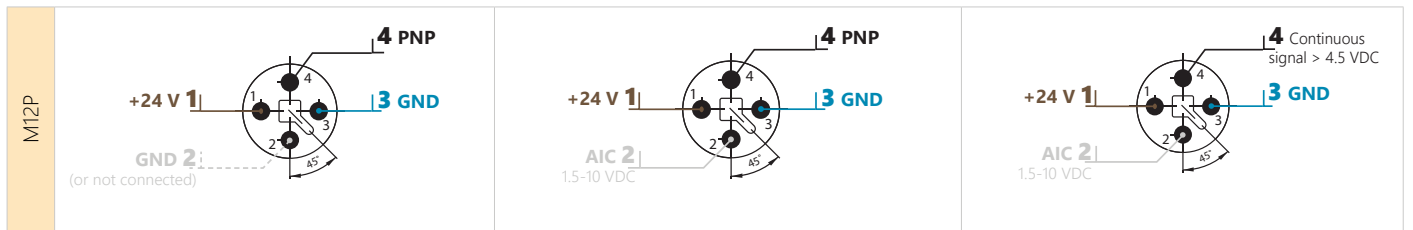
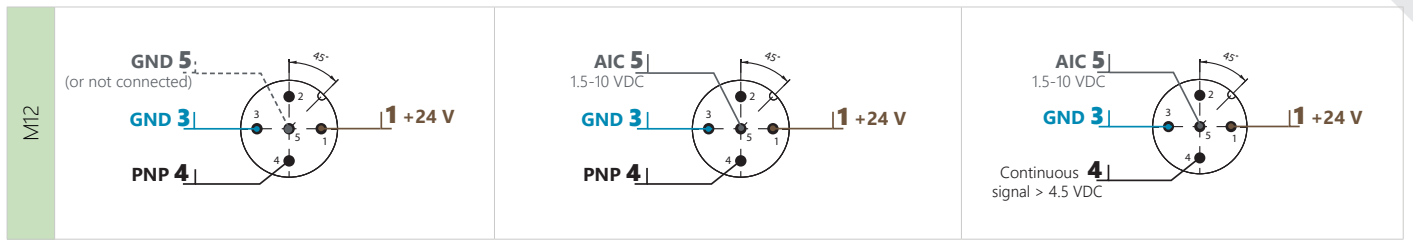
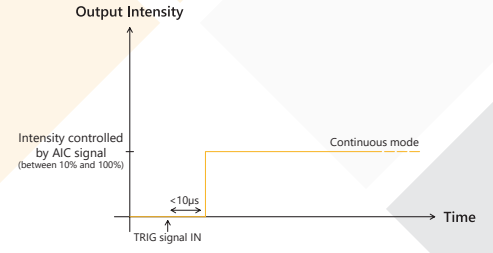
## ADJUSTABLE STROBE

(With Intensity control 10%-100%)

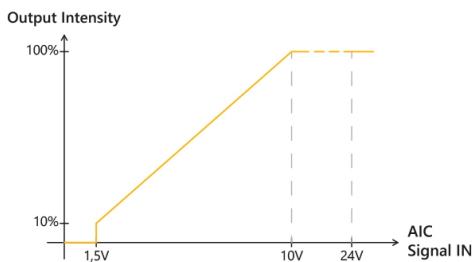


## DIMMABLE CONTINUOUS

(With Intensity control 10%-100%)



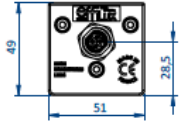
## ANALOG INTENSITY CONTROL (AIC)



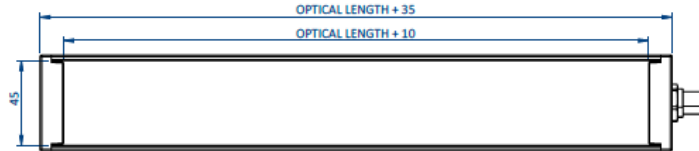
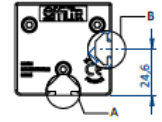
- The output intensity can be adjusted from 10% to 100% by applying a signal from [1.5V-10V DC].
- If  $V_{AIC} = [0V-1V DC]$  or if not connected, the EFFI-Flex2 is in AutoStrobe mode by default.

# MECHANICAL SPECIFICATIONS

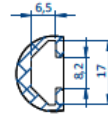
## DIMENSIONS OF EFFI-FLEX2 (in mm)



M12 OR M12P DEPENDING ON POWER CONSUMPTION  
REFER TO THE DATASHEET



DETAIL A  
SCALE 1 : 1  
MOUNTING: T-NUT 8MM SLOT, M6

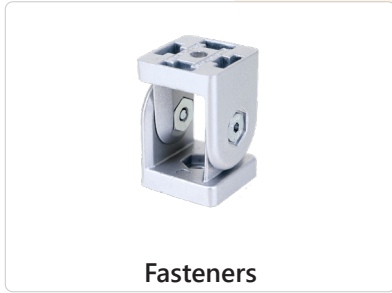


DETAIL B  
SCALE 1 : 1  
MOUNTING: T-NUT 8MM SLOT, M6



# ACCESSORIES

Please refer to the specific documentation for additional information on the accessories of the EFFI-Flex2



**Fasteners**

T-Nut Kit: EFFV-BOLT-0011  
Pivot joint Kit: EFFM-1-0002



**Extension cables**

2meters: EFFC-CAB-M12-FM-5-D-L2  
5meters: EFFC-CAB-M12-FM-5-D-L5  
10meters: EFFC-CAB-M12-FM-5-D-L10



**Camera Filters**

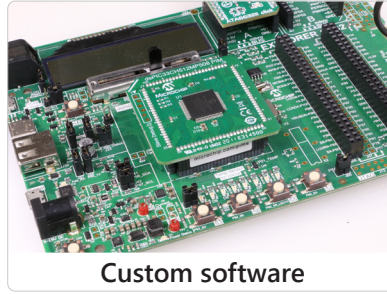
EFFO-FLR-...

# CUSTOMIZATION

Please ask your sales contact for a custom device.



**IP version**



**Custom software**



**Other cap colors**

# 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 December-2022 and may be changed without prior notice.



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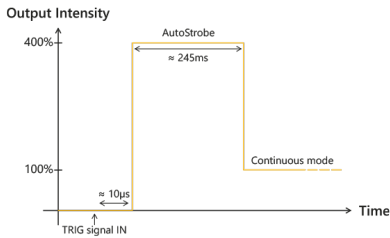
# ANNEX- ELECTRICAL SPECIFICATIONS - NPN LOGICAL

## MULTIMODE DRIVER GUIDE (NPN LOGICAL EXAMPLE)

To access the different operating modes, the EFFI-Flex2 must be wired according to the guide below. Please refer to the adequate connector line depending on the light size.

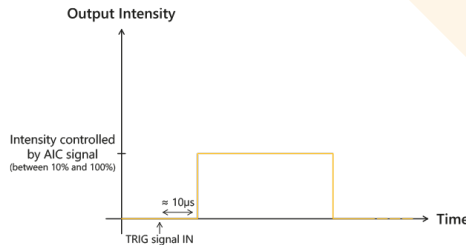
### AUTOSTROBE

(450% Overdrive - 100% Continuous)



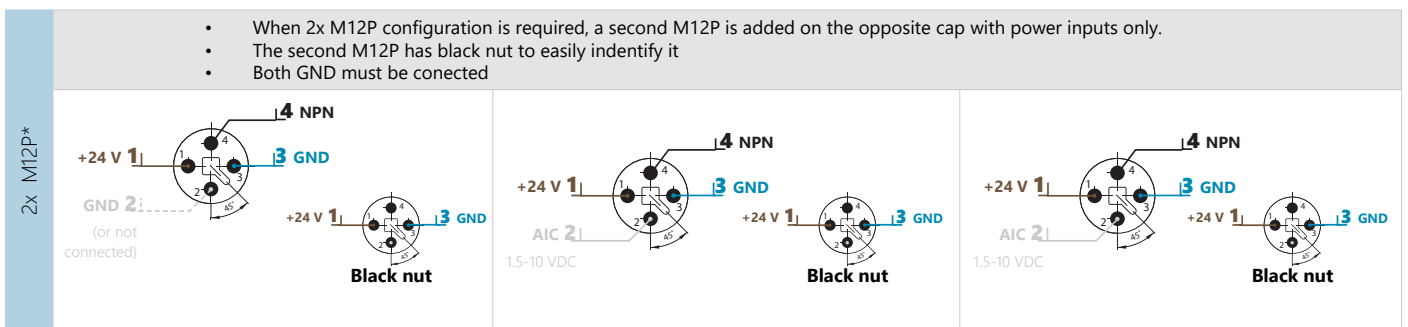
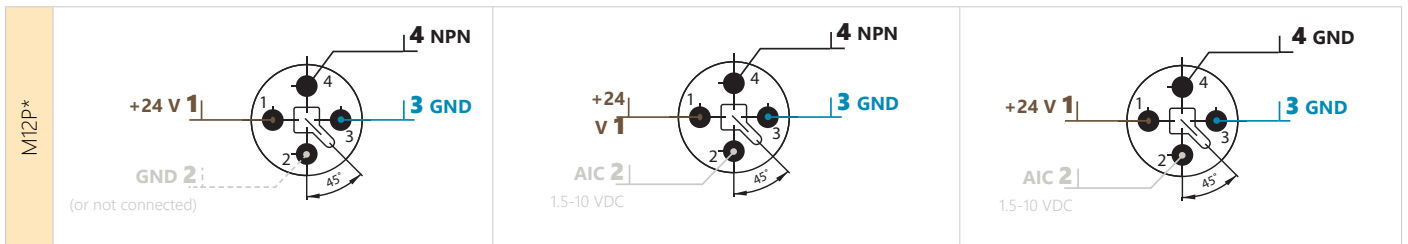
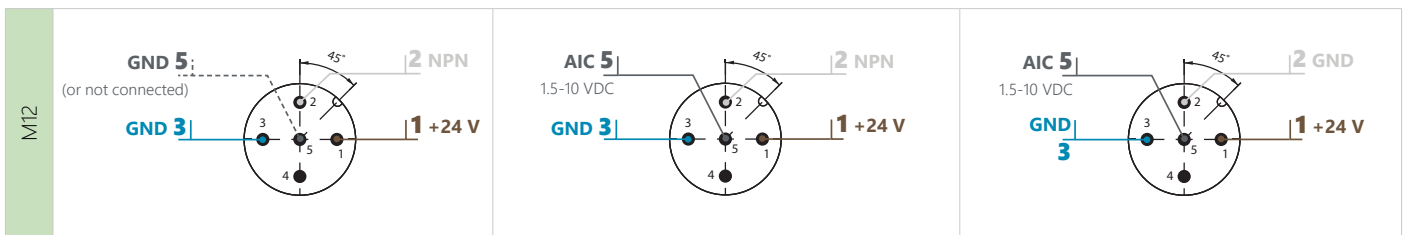
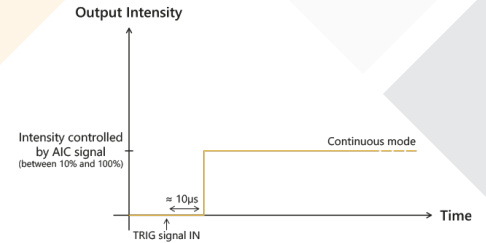
### ADJUSTABLE STROBE

(With Intensity control 10%-100%)



### DIMMABLE CONTINUOUS

(With Intensity control 10%-100%)



**\*Note:** For light requiring M12P connector, the NPN trigger is optional. If NPN option, the PNP trigger input is replaced by the NPN trigger input. (See Multimode driver guide with NPN in Annex page 10)